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READERS in search of a particular subject will find it useful to bear in mind that the references are in several cases distributed under two or more separate but nearly synonymous headings—such, for instance, as Brain and Cerebral; Heart and Cardiac; Liver and Hepatic; Renal and Kidney; Cancer and Carcinoma, Epithelioma, Malignant Disease, New Growth, Sarcoma, etc.; Child and Infant; Bronchocele, Goitre, and Thyroid; Diabetes, Glycosuria, and Sugar; Light, Roentgen, Radium, *X* Rays; Status Lymphaticus and Thymus; Eye, Ophthalmia, and Vision; Bicycle and Cycle; Motor and Automobile; Association, Institution, and Society, etc. Subjects dealt with under various main headings in the JOURNAL have been set out in alphabetical order under their respective headings—for example, "Correspondence," "Leading Articles," "The Week," "Reviews," etc. Original Articles are indicated by the letter (O).

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Printed and published by the British Medical Association, at their Office, Tavistock Square, in the Parish of St. Pancras, in the County of London.

THE
British Medical Journal.
THE JOURNAL OF THE BRITISH MEDICAL ASSOCIATION.

EPITOME

OF

Current Medical Literature.

JULY TO DECEMBER, 1929.

F. W. W. GRIFFIN, M.D.,
SUB-EDITOR.

London:
PRINTED AND PUBLISHED AT THE OFFICE OF THE BRITISH MEDICAL ASSOCIATION,
TAVISTOCK SQUARE, LONDON, W.C.1.

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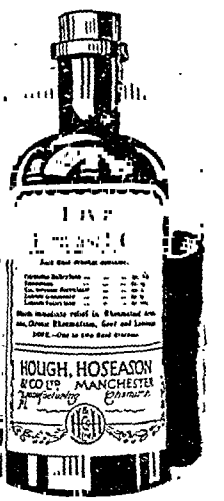

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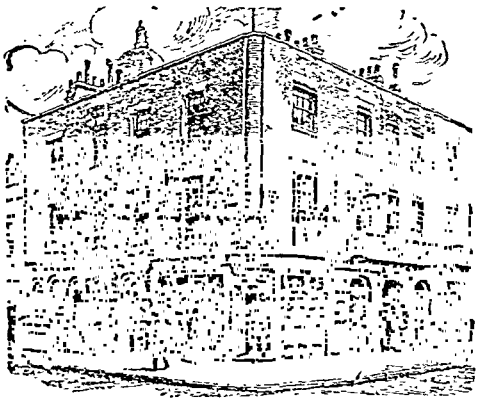

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EDITOR OF THE *British Medical Journal*.

Vol. 4. AUGUST, 1929. No. 22.

PUBLISHED BY THE BRITISH MEDICAL ASSOCIATION.

London: British Medical Association House, Tavistock Square, W.C.1.

Yearly Subscription (6 numbers), 25/-. Single Number, 4/6.

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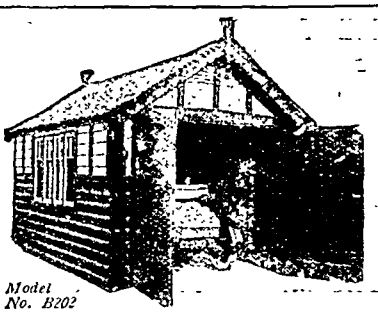

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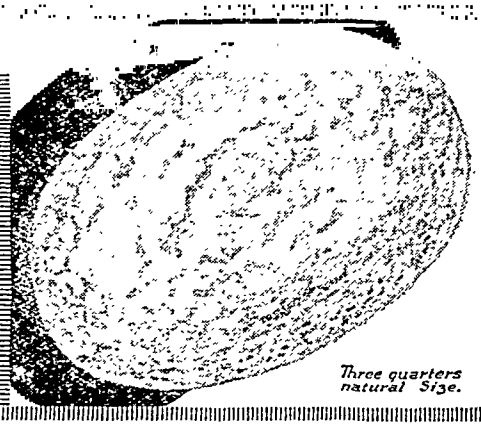

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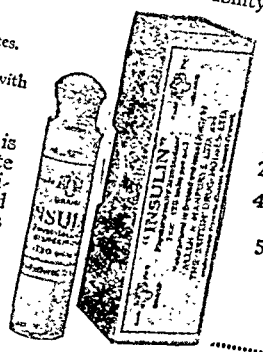

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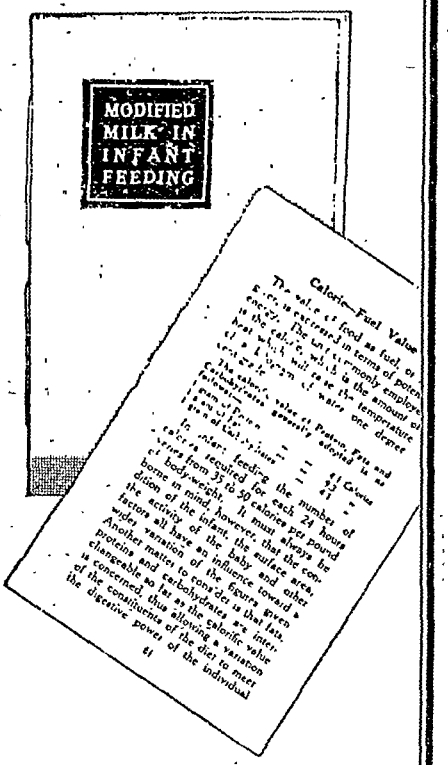

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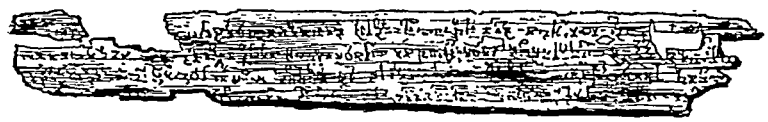

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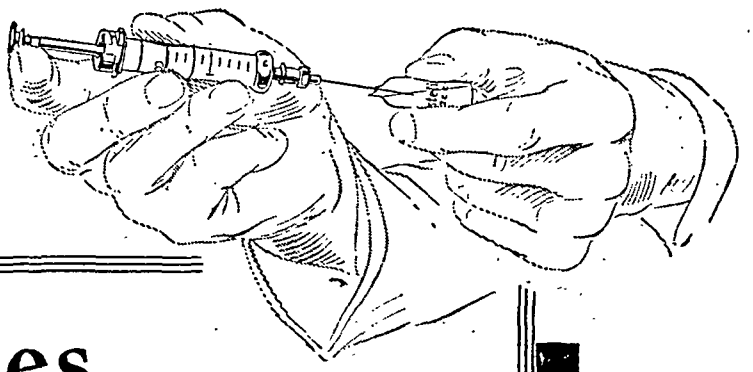

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THE
British Medical Journal.
THE JOURNAL OF THE BRITISH MEDICAL ASSOCIATION.

LONDON: SATURDAY, JULY 6TH, 1929.

Some Observations ON DISEASES OF THE MYOCARDIUM.*

BY
R. O. MOON, M.D., F.R.C.P.,
CONSULTING PHYSICIAN, ROYAL WATERLOO HOSPITAL; PHYSICIAN, HOSPITAL FOR DISEASES OF THE HEART.

THE lecture which I have the honour of delivering this afternoon was founded by Lady St. Cyres. It was her intention that the subject of the lecture should be definitely connected with the myocardium, so I have decided to give you some account of the way in which the muscle of the heart becomes diseased, what are the manifestations of the morbid condition, and what may be the outlook, together with some suggestions as to treatment.

SOME HISTORICAL CONSIDERATIONS.

It must always seem a strange thing that the ancients should have been under the impression that of all the organs of the body the heart alone could not be diseased; and indeed remarkably little was known about the heart and the circulation generally until the publication of Harvey's great discovery in 1628. Even after that very little was known or written about diseases of the heart for more than a century. Until the discovery of percussion and auscultation by Auenbrugger and Laennec respectively there was almost complete ignorance of valvular disease, but after that so much attention was focused upon the lesions of the different valves that the importance of the myocardium was somewhat neglected. With the advent of the modern cardiology, however, this has all been changed, and for the last thirty years attention has been closely directed to the study of the myocardium.

As far back as 1534, prior to the advent of Vesalius, Nicholas Massa of Venice had observed hypertrophy of the heart muscle, but it was not till more than a century later that Morgagni (1682–1777) called attention to chronic myocarditis, which he regarded in some respects as a degeneration of the heart muscle. Corvisart, in his well-known book[1] upon the heart, lays considerable stress upon the importance of the myocardium; it is, he said, the muscular substance of the heart which most essentially constitutes the central organ of the circulation. He described the gross changes in the size and shape of the various chambers —for example, dilatation and hypertrophy. He was of opinion that a change of form or length of the fibres of the myocardium was visible proof of its disordered action, but apparently he did not realize that, though the myocardium might be fatally weak, it yet might present to the naked eye no change in the general form, nor did he lay much stress upon inflammatory or degenerative conditions of the myocardium, though he seems to have been the first to make use of the term "carditis."

The pupil of Corvisart, the famous Laennec, who first introduced auscultation in 1819, spoke of the condition of the myocardium as "the key to cardiac pathology." Strangely enough Allan Burns (1809), who lived about the same time, considered disease of the myocardium to be less frequent than that of the valves. Later on, in 1834, the great Irish physician William Stokes insisted that the symptoms associated with evidence of valvular disease depended on the state of the myocardium and not on the valvular lesions themselves; in particular, he studied the softening of the myocardium in typhus fever, correlating it with physical signs. "It is," he said, "in the vital and anatomical condition of the muscular fibres that we find the key to cardiac pathology, for no matter what the affection may be, its symptoms mainly depend on the strength or the weakness, the irritability or the paralysis, the anatomic health or disease of the cardiac muscle." As he could hardly recognize diffuse myocarditis, which is now usually detected by microscopic methods, he conducted his studies mainly on fatty degeneration, of which he described two forms: (1) cases corresponding to what we now know as chronic arterio-sclerosis or chronic interstitial nephritis, but, excellent as were his clinical descriptions of these groups, the pathological basis of fatty degeneration which he attributed to them was erroneous; (2) heart-block, now known as "Stokes-Adams disease." Unlike Corvisart, Stokes realized that important changes may exist in the heart without corresponding physical signs. Fatty degeneration had indeed been first noticed by Corvisart and described by Laennec; in this country Richard Quain was the first to recognize it.

PATHOLOGY OF MYOCARDIAL DISEASE.

Modern cardiology has done much to bring order out of the chaos of cardiac arrhythmias, but now what we are most wanting knowledge about in any given case is the condition of the myocardium. Granted that it may not be difficult to decide in the case of a particular patient that there is some affection of the myocardium, though this is by no means always easy to make out, what we specially require to know is how much of the myocardium is affected and what part of it.

It so happens that in most of the organs of the body—for example, the liver, lung, or kidney—the exact amount or part of the organ which is devitalized and put out of action is not of much material importance; but in the case of the heart we want to know not merely that the myocardium is diseased, but what part of it is affected. Thus if the disease is confined to the auricles, the prognostic outlook is much more favourable than if we have reason to believe that the ventricles are also affected. Again, if the ventricles are affected, it is of greater importance if the lesion is situated near the apex or at the interventricular septum than if it is situated in other parts of the ventricular wall.

Now the muscle of the heart may be affected pathologically in two different ways: (*a*) by fatty changes; (*b*) by fibroid changes; and these are often combined together in varying proportions.

Fatty Infiltration.

When the changes take this form, the fat infiltrates the heart muscle, spreading along the main fibrous septa and even between individual muscle fibres, but there is no substitution of fatty material for muscular substance as occurs in fatty degeneration; it is rather a degeneration from the overlying layer of fat around the heart. It is more common in males and rare before middle age. It is invariably accompanied by a certain amount of fatty degeneration, but the converse is not always true. It is always greater on the right side of the heart and is usually associated with general obesity. In fatty infiltration more or less dilatation of the cardiac chambers is usually present,

* The St Cyres Lecture, delivered at the National Hospital for Diseases of the Heart, June 6th, 1929.

often accompanied by hypertrophy. The symptoms specially to be noted in fatty infiltration are cyanosis with dyspnœa on exertion, together with giddiness or faintness; there may also be some œdema about the ankles and along the tibiae at night.

Fatty Degeneration.

Here the heart substance is paler and softer than normal, and the heart muscle has a faded leaf colour. The musculi papillares will usually have a streaky appearance—the so-called "tabby-cat" striation—due to the interspersion of pale strands of fattily degenerated muscular substance among healthy fibres. Without the microscope it can hardly be recognized satisfactorily. Muscle lying closely beneath the endocardium tends to be more affected than that which is nearest to the pericardium. When advanced the fatty degeneration leads to a disintegration of the muscle fibres of the heart and their consequent replacement by fibrous tissue. Most commonly it is situated in the left ventricle and is rare in the auricles. In the left ventricle it is the papillary muscles, the adjacent muscle on the posterior walls, and the septum which most often show fatty degeneration. In cases of anaemia and aortic disease it is the left ventricle which is most affected, while in chronic pulmonary disease and in mitral disease it is mainly the right ventricle. Fatty infiltration and fatty degeneration differ in their site rather than in their essential nature. Fatty degeneration is most common in severe anaemias, chronic alcoholism, chronic renal disease, severe cases of typhoid fever, and in fatal phosphorus and arsenical poisoning. The primary change in these cases is atrophy of the muscle substance, invasion of the fibres by fatty matter being secondary.

There are no characteristic symptoms of fatty degeneration, with the possible exception of angina pectoris, which is often associated with fatty degeneration of the heart, though by no means always; more common symptoms, perhaps, are syncopal and apoplectic attacks due to defective pressure in the arterial system. Nor can it be said that there are any physical signs which are characteristic of fatty degeneration; it is rare to find much œdema, and probably it never occurs in a case of uncomplicated fatty degeneration. Until the disease is far advanced the diagnosis of fatty degeneration of the heart is far from easy; yet it is a condition which is frequently associated with sudden death, it may be during exertion or excitement or after a full meal. Rupture of the heart is one mode of termination, and may take place on very slight provocation. In the obese, cardiac failure is due to the relative smallness and weakness of the heart muscle—that is, the incapacity to meet the demands made upon it by the condition of general corpulence. In some fat but muscular individuals the heart is correspondingly large and muscular, while symptoms of cardiac insufficiency do not appear; as a rule, however, the heart becomes incapable of that driving power necessary to force the blood through the extensive system of capillaries which have been created for the supply of new adipose tissue. Sometimes fatty degeneration may signify simply an excess of physiological activity. In old hearts with coronary sclerosis even the bundle of His may be thoroughly fatty, and yet there may be no apparent diminution of conductivity; even well-marked fatty deposits may appear without giving rise to any clinical evidence of heart failure.

Fibroid Heart.

We now turn to the more important form of destructive disease of the heart muscle—namely, myofibrosis, or fibroid disease of the myocardium. Probably all individuals who after middle age have shown some cardiac symptoms have hearts in which fibroid changes in the myocardium would be found after careful microscopic examination. Like fatty degeneration, fibrosis of the heart muscle is the lesion most commonly associated with sudden death. Of course, the vast majority of patients with an impaired myocardium do not die during the early stages of the affection, so we do not have the opportunity of recognizing the nature of the changes which at the outset cause the impairment. By the time death has supervened the original changes have become greatly modified, either by becoming more pronounced or by the introduction of secondary alterations.

Pathologically, in fibrosis of the myocardium we find the connective tissue increased in amount and gradually replacing the muscle tissue. As a rule it is not distributed uniformly, but is scattered in little islets or bands throughout the myocardium. These fibroid patches are generally situated deeply, and do not always extend to the surface; they may be of any size or shape, and are most commonly found in the left ventricle, the parts specially affected being in the following order: (1) musculi papillares; (2) the apical third of the left ventricle; (3) the lower part of the septum ventriculorum; (4) the posterior wall of the left ventricle about the junction of the upper and middle third. Fibrosis rarely begins in the right ventricle, but may invade it by extension from the left. Foci of fibroid degeneration, when not very extensive, may not seriously interfere with the functional integrity of the heart, but in some instances they lead to a localized dilatation.

In the hearts of children fibrous tissue is scanty; not till about the age of 30 is connective tissue apparent, and it reaches no considerable development until the decade 40-50. This gradual increase of connective tissue may be a strengthening rather than a weakening of the chamber of the heart; it may, in fact, be a regenerative or auxiliary fibrosis in which a substantial part of the fibrous tissue is laid down in support of the muscular tissue. More usually, however, there is a substitutive fibrosis in which the genuine muscular fibres are supplanted by fibrous tissue. In the same heart both kinds of fibrosis, the substitutive and what might be called the protective, are sometimes mingled in varying degrees. It may be noted that connective tissue is a less resistant tissue and its elastic limit narrower, so that when once it is outstretched it cannot recover, but it is tougher. When the circulation is slowly interfered with by sclerosis of the coronary arteries, atrophy of the muscle fibres takes place without destruction of the connective tissue, and the shrunken and atrophied fibres are gradually replaced by fibrous tissue. It is the condition of the coronary circulation which, of necessity, dominates the nutrition of the heart.

Coronary Obstruction.

The most usual pathological cause of fibrosis is obstruction of the coronary arteries, which impairs the nutrition of the heart muscle. The sudden and complete closure of a main branch may lead to instant death; short of this it produces an infarct, though the lesion may be smaller than the area which is anatomically supplied. It is still possible for the cardiac muscle to be nourished through the foramina Thebesii, which are present in all the chambers of the heart, though they are more numerous on the right side; generally they are thought to be venous in function, and proceed from the muscular substance of the heart. Even though gross infarcts of the myocardium may occur, healing may still ultimately take place. If the obstruction of the coronary arteries is gradual the onset of symptoms is necessarily insidious and the course of the disease is essentially chronic. In consequence of the alteration and slow obliteration of the coronary vessels two forms of sclerosis of the myocardium appear: (1) *Hard sclerosis*, which is characterized essentially by fibroid tissue poor in cellular elements, containing at most a few leucocytes in the lymphatic spaces. (2) *Soft sclerosis*, which is distinguished from the former by its great vascularity. This sclerotic condition is the consequence of the alteration and slow obliteration of the vessels—that is, an arteritis obliterans in the fine arteries of the myocardium followed by ischaemia of the corresponding areas.

Coronary occlusion, however, need not always imply myocardial decay; even considerable hypertrophy of the heart may coexist with coronaries obliterated by atheroma. The myocardium, too, may remain quite normal even in a condition in which the coronary arteries are calcified. We must assume in such cases that the vessels of Thebesius have been able to carry enough blood from the interior of the ventricles into the myocardium to prevent any very serious loss of its nutrition. On the other hand, there may be a very severe and extreme change of the whole heart muscle, chiefly of the left ventricle, in which the part is

converted into a dense, hard, fibrous structure, diffuse, knotty, and nodular, without any noticeable dilatation or disease of the coronary arteries. The coronary arteries are so often affected because of (1) their high origin in the aorta, where blood pressure is at its maximum, (2) their structure, which is mainly muscular, (3) their numerous and acute curves and their continued activity in supplying blood to tissues constantly in action, and (4) their relationship to the constantly contracting heart, which exposes them to jerks and contusions.

OTHER CAUSES OF MYOCARDIAL DISEASE.

Though coronary sclerosis is an important cause of myocardial degeneration it is by no means the only one. Thus, valvular lesions may bring about degenerative changes of the myocardium by perverting cardiac metabolism and giving increased work to the heart. The disturbance of the nutrition of the heart results from lack of healthy blood on the one hand and defective removal of waste products on the other. Thus, aortic stenosis lessens the amount of blood sent into the coronary arteries, while mitral stenosis, through the stasis which it induces in the right heart, interferes with an adequate flow from the coronary veins. Regurgitant lesions on the left side of the heart also cause myocardial degeneration; they exert their effect upon the heart walls largely through the increased strain upon them. In heart strain there is a disproportion between the demands made upon the heart and its supply of nutrition. When hypertrophy exists the heart requires more nutrition than normal, and if dilatation at the same time prevents it from getting this supply then there is sure to be myocardial degeneration.

Apart from these more intrinsic causes of myocardial disease there are also various extrinsic ones. These include (*a*) excessive physical toil and hardship; (*b*) luxus consumption, combined with too little exercise and too much alcohol and tobacco; (*c*) raised blood pressure from the production of toxins within the alimentary canal and their absorption into the circulating medium; these toxins may also exert a directly injurious effect upon the myocardium; (*d*) exhausting diseases—for example, cancer, chronic dysentery, chronic suppurating diseases, and pernicious anaemia; (*e*) chronic infection arising in connexion with such diseases as cholecystitis and appendicitis; (*f*) poisoning by phosphorus and arsenic; (*g*) most of the diseases which give rise to acute myocarditis; and (*h*) syphilis.

Syphilis, quite apart from its effect on the coronary arteries, is a most important cause of myocardial disease. It may affect the heart either by forming gummata, which vary in size and number, and which may break down and give rise to aneurysm of the heart or undergo cicatrization; or by causing the replacement of cardiac muscular tissue by a round-celled fibroid tissue which, whether it occurs as nodules only or as a more widespread change, interferes with the heart's contraction, though it cannot be said to give rise to any distinctive symptoms. After death it is not possible to tell whether the changes in the myocardium are or are not syphilitic, except in those cases where there are actual gummata.

Myocardial disease is rarely if ever universal, and the local distribution of the fibroid or fatty changes is dependent upon local and, most commonly, on vascular causes. It so happens, however, that the visceral vessels may be most seriously affected without any evidence of change in the arteries, which are accessible to examination. It is our ignorance of the condition of the coronary arteries in any given case which makes it almost impossible to estimate this, the most important factor, at its true value.

DIAGNOSIS.

The recognition of myocardial disease is by no means easy, but amid much diversity of detail there is always the same background—namely, cardiac incompetence; it is, in fact, doubtful whether there can be any cardiac incompetence without some myocardial disease. From the clinical standpoint there are two main groups of myocardial disease.

1. *Latent Myocardial Disease.*

In this group the symptoms referable to the heart are latent, or so disguised as to escape recognition, and the existence of heart disease is not realized till sudden death has occurred. To these latent cases belong the sudden and unexpected deaths which not infrequently occur among middle-aged or elderly and apparently robust men. They are sometimes reported as apoplexy, but they are really instances of cardiac paralysis or sudden heart failure. This latency is due to the insidiousness of the changes going on in the heart muscle and to the position in which these changes occur—for the seat of the disease may lie in the septum, which has been called the "vital centre." It is in these cases that a bulging of the heart wall may occur, producing what is known as "aneurysm of the heart." Examination by a competent physician would probably reveal signs of general cardiac hypertrophy, together with some raised tension of the pulse. The myocardium may, for a time, respond to the heavy demands made upon it by an ever-increasing thickness of its walls; not, however, by a true hypertrophy of its muscular elements, but by a false hypertrophy due to the growth of connective tissue.

2. *Cases with Cardiac Insufficiency.*

In this group the symptoms of cardiac inadequacy are more or less conspicuous—namely: limitation of the field of cardiac response as shown by breathlessness on moderate exertion; palpitation; dizziness, which may be slight and transient or may amount to an annoying vertigo; epigastric fullness or pain, which the patient attributes to indigestion; and slight oedema about the ankles.

General myocardial weakness may be diagnosed when, in middle life, sometimes later on, manifestations occur of a chronic, gradually increasing cardiac weakness, a feeble pulse, sometimes very rapid, sometimes very slow, a tendency to syncope, and an extreme feeling of general weakness with increasing languor and apathy. The question naturally arises, Can myocardial degeneration be suspected before any symptoms have shown themselves?

In arriving at an answer the following points may be helpful.

1. The presence of distinctly sclerotic arteries, not only the radials but other accessible vessels.
2. The existence of an abnormally high blood pressure.
3. Increased area of deep cardiac dullness, especially towards the left, with often a triangular outline.
4. An aortic second sound, which is accentuated, and has a peculiar ringing and metallic quality.
5. At the apex a first sound, which may be high pitched and valvular, and apparently less intense than the second sound in the same area.
6. A distinct, usually harsh, systolic murmur in the aortic area, and occasionally after exercise a soft systolic murmur accompanying the first sound at the apex.
7. Urine increased at night, and giving evidence of nephritic changes.
8. An abnormal pulse rate; but the varying rate depends on so many factors that it is not easy to recognize which factor is the cause in any given case.
9. Abnormal rhythms, as in auricular fibrillation, auricular flutter, and pulsus alternans. Not infrequently extra-systoles are due to some damage to the conducting mechanism of the heart.
10. Lastly, an electro-cardiogram may be helpful. As a rule, electro-cardiographic tracings are mainly useful in cases of arrhythmia; when the rhythm is normal, apart from showing the preponderance of the right or left ventricle, they do not give much definite information. An inverted T wave in the first or second lead is a clear indication of myocardial degeneration; unfortunately, however, a normal T wave in these leads does not give any guarantee that the myocardium is sound. Some observers attach significance to the size of the ordinary T wave; in my opinion not much reliance can be placed on this sign in the diagnosis of the condition of the myocardium.

Diagnosis of the Severity of the Lesion.

Chronic myocardial disease is hardly ever observed alone; it is nearly always associated with different manifestations of arterio-sclerosis, and above all with renal sclerosis. A complexity of symptoms thus arises, in the midst of which it is difficult to distinguish which actually belong to chronic myocardial disease; indeed, this condition in the greater number of cases may be regarded as one of the manifestations of a general arterio-sclerosis.

So far no definite means have been discovered for estimating the strength or the weakness of the myocardium. The tests for measuring the contractile force of the heart are mostly fallacious. Physiology and pathology have shown

that the acceleration of the pulse rate after effort has no relation to the contractile force of the heart or the quality of the cardiac affection. True, indeed, some useful information may be derived by making observations on the pulse, respiration, and blood pressure just before and just after exercise, noting the time each takes to return to normal; these methods, however, give only a very general idea of the efficiency of the heart muscle. At present we have no definite mechanical device for testing the strength of the myocardium.

With regard to the functional capacity of the heart muscle, it is the degree of exhaustion of contractility which determines the nature of the subjective phenomena —for example, breathlessness, anginal symptoms, and cardiac asthma. When, however, the tonicity of the heart muscle becomes exhausted some dilatation of the heart ensues and we have the symptoms which result from this dilatation—namely, dropsy, oedema of the lungs, and so forth. When conductivity is damaged we then have either some degree of heart-block or auricular fibrillation; it is the position and character of the invasion of the myocardium which determine whether it will end in heart-block or auricular fibrillation. Even then when there is no doubt about the existence of myocardial degeneration it is still extremely difficult to make a certain prognosis.

PROGNOSIS.

The duration of life may vary from a few months to many years. In spite of the immense amount of work which has been done upon the heart we do not seem to have come much nearer to a knowledge of the strength of the cardiac muscle in any given case. The seriousness of the condition does not depend upon the total amount of muscle tissue which is converted into fibrous tissue, but rather upon the part of the heart which is affected.

In any given case could we be reasonably sure that the disease was confined to the auricles we could give a much more favourable prognosis. Probably this is why the condition of auricular fibrillation has such a varying outlook; it is essentially a lesion of the auricles, but, unfortunately, we have no means of being certain that the lesion is confined to them and has not extended to the ventricles, and it is this uncertainty which makes it necessary to give such a doubtful prognosis. I have had under my care for fourteen years a woman aged 61 with auricular fibrillation, and she does not seem very much worse now than when she first came under my care; I think one may feel fairly sure in this case that the ventricles have been but little affected. Often the history of the affection is a more useful guide to the prognosis than are the conditions present at the moment. The younger the patient the better as a rule is the prognosis, as there is less likelihood of serious degenerative changes having set in; after middle age such changes are usually present and compensatory hypertrophy is seldom re-established after it has once badly given way. The collection of numerous clinical details, both signs and symptoms, is comparatively useless in affording a prognosis unless we can form some adequate picture of the cardiac muscle at its work. For instance, is the income and output of the heart just balanced or is there a substantial reserve? If there is a reserve, is it disappearing, and how fast is it disappearing? We are too much in the habit of taking one lesion of the heart—it may be aortic regurgitation, or mitral stenosis, or auricular fibrillation—and basing on it our diagnosis, instead of considering each of these separate structural lesions as a part of the cardiac apparatus which is out of action, and estimating how much of the remainder is intact and healthy and able to carry on the necessary requirements of the circulation.

Heredity and the family history often give a valuable guide to the prognosis of myocardial disease. There are some families whose members seem to have a myocardium which begins to fail soon after middle age, without any definite antecedent disease. The outlook will usually be better when the myocardial impairment appears to be due to some rheumatic antecedent, because in these cases the lesion is more likely to remain stationary; when it is due to arterio-sclerosis the prognosis is definitely worse, because here the lesion is likely to be progressive. Intermediate between these two causes is syphilis; here, too, the lesion is apt to be progressive and to infect a large part of the myocardium. On the other hand, if the diagnosis is made early and active antisyphilitic treatment begun, the prognosis may be much better than that of the arterio-sclerotic cases.

Dilatation of the heart has been considered as evidence of myocardial impairment; it is not so necessarily, for dilatation is merely evidence of the exhaustion of the tonicity of the heart muscle, and is no exact measure of the quality of the myocardium. We have no measure of cardiac insufficiency; the pulse is generally accelerated in conditions of myocardial disease, but this is not an absolute guide. On the other hand, great slowing of the pulse, indicative of Stokes-Adams disease and pulsus alternans, is definite evidence of myocardial degeneration and of grave prognostic significance; so also are syncopal attacks. The presence of angina pectoris is of bad prognosis, since in the majority of cases there is more or less interference with the coronary circulation, and thus the possibility of sudden death. Also, when the myocardial degeneration is associated with chronic nephritis the outlook is very bad; above all, the development in these cases of a cantering rhythm, implying that the ventricular wall is subjected to a strain to which it must inevitably yield, indicates that death is not far off. On the other hand, a myocardium, though greatly weakened, may continue to perform its functions fairly well, provided no extra burden is put upon it. Any illness, especially acute infections, such as influenza, may prove to be the last straw.

When the changes in the heart muscle are fatty rather than fibroid the prognosis is very serious; the more corpulent the individual the worse is the outlook, since it is hardly likely that the obesity can be materially reduced without damaging the nutrition of the heart muscle. What makes prognosis so difficult is that the heart may be performing its work with but slight evidence of anything wrong, while all the time a process of degeneration is going on which is slowly undermining its resistance.

Finally, we might quote the saying of Huchard with regard to cases of myocardial disease: "Their evolution is latent, their beginning insidious, their course paroxysmal, their progress interrupted, their visceral complications various, and their explosions of cardiac insufficiency are sudden."

TREATMENT.

The first thing to consider is the state of the heart as a whole rather than the individual lesion which has presented itself. These patients require guidance rather than definite treatment. At the outset not only physical, but mental exertion must be reduced. We have to ask ourselves how much of the heart muscle is intact; whether there are causes at work which are likely to have a constantly weakening effect upon the myocardium; or whether the lesion is practically confined to the mitral or aortic valves or auricles and likely to be stationary. The problem before us is how to prevent any further impairment of the cardiac reserve and how to make the best of the sound heart muscle which is left. Obviously we cannot in the least modify the condition of the muscle fibres of the heart when their disease is far advanced, nor can we do much to arrest the progress of the deterioration when it has reached a stage at which it is recognizable through symptoms or physical signs. In the treatment of myocardial degeneration we have to consider climate, diet, and exercise.

Climate.

It is most important to find a climate which is mild and equable, sheltered from winds and rain, and having as much sunshine as possible; on the whole, the sea coast, except of the Mediterranean, is best avoided. The patients should not go to high altitudes, especially if they have high blood pressure. The effect of a rarefied atmosphere is to increase the rate and diminish the volume of the pulse, and to increase the depth and frequency of the respirations. But very few patients have a free choice in the matter of climate, so we have to make the best of their immediate neighbourhood. We should, then, look out for a gravel or sandy soil at a moderate elevation, where the rainfall is

below and the sunshine above the average and the water not hard, conditions best realized in England in Kent, Surrey, and Sussex. The house should face towards the south, and there should be protection from the north and east; obviously it should not be situated on the top of a hill, and the immediately surrounding country should not be too hilly.

Diet.

If the patient has exercised moderation in eating and drinking there is *no reason to alter* his habits because some myocardial weakness has been discovered. But most patients have not been moderate, and for them there should be definite dietetic restrictions. In patients past middle age, with some degree of arterio-sclerosis and a somewhat high blood pressure, we should naturally reduce the intake of meat and enjoin abstention from meat soups and rich gravies; with advancing years a more or less vegetarian diet is better for most people, though we have to beware of flatulence and the trouble incident thereto, such as abdominal distension and palpitation. It is important that the food should be eaten slowly and thoroughly masticated. Drinking large quantities of fluid increases the labour of the heart, and should be stopped; fluids should be taken at the end of meals. Tea and coffee are permissible, but in cases of raised blood pressure their use must be sparing; they tend to excite the myocardium, and whatever puts unnecessary work upon it helps to produce its ultimate enfeeblement.

It is well to disabuse the patient's mind of the idea that alcohol will increase or sustain his strength, but if he has been in the habit of taking it in moderation there is no reason why he should not be allowed to continue to do so. In so far as it helps him to digest his food it is beneficial, but it is better taken in the form of light wine than as beer or spirits. With some people the habit of smoking has become so deeply rooted that life without it seems almost unbearable; here again we should certainly not be too rigid, for anything which promotes the attainment of mental and moral calm is most important. It is important always to inquire into the strength of the tobacco; strong tobaccos, as in Havana cigars, must be banned, for they often accelerate the heart, and sometimes seem to augment the blood pressure. It is, however, essential not to fuss the patient unduly by a too meticulous restriction of diet; it was wisely said by Montaigne, "C'est ennuyeux de conserver la vie par un régime trop sévère."

Exercise.

It is well known that the strength of the skeletal muscles is increased by exercise; no doubt the heart muscle is not strictly analogous, for the mere fact of its continued beat involves some exercise; still, if the whole body is quiescent it is hardly possible to maintain the tone of the cardiac muscle, and a certain amount of exercise, provided it is kept within strict limits and there is no dyspnoea or oedema, is therefore essential for myocardial health.

Gentle walking exercise is beneficial in the early stages of myocardial incompetence, but patients must begin their walk at a slow pace and increase their speed only as they find exercise and breathing grow easier. In particular, they should be warned against walking when there is a strong or cold wind, and forbidden to carry heavy parcels. The plan of moderate hill-climbing, as originated by Oertel, is often helpful in cases where the myocardium retains a fair measure of integrity. The principle underlying this line of treatment consists in the ascent of gentle inclines at a speed that does not cause dyspnoea or palpitation. Only when such activity can be surmounted with ease is a steeper grade to be allowed. Golf in very strict moderation may be allowed.

Whatever outdoor exercise is permitted certain restrictions should be imposed. (1) Patients must not take exercise immediately after eating; in most cases they should remain quiet for at least an hour. (2) Walking, or indeed any other exercise, should not be indulged in to the point of fatigue. (3) In cases showing some indications of incompetence rest in the recumbent posture must be insisted on at the close of exercise. Some cases are certainly helped by "resistant exercises" and Nauheim baths, or by breathing exercises and light gymnastics. These medical gymnastics are specially helpful for patients who are obese or have abdominal fat in excess, and whose heart muscle is consequently flabby and lacking in tone; but it is essential that the myocardium should be fairly sound. Such exercises are intended to ease the work of the heart; whenever they cause palpitation or actual dyspnoea we know that the strength of the myocardium is being taxed, and not lightened of its labours. They should be performed with the assistance of some person who is trained to this work and will know how to avoid carrying the various movements to the point of causing embarrassment to the respiration and circulation. These exercises may be practised even when the patient is confined to bed, but they should stop short of producing any cardiac distress as manifested by increased frequency of the pulse. Almost any form of muscular exercise may be beneficial which promotes easier breathing and a more active circulation without producing great fatigue. Clothing should be warm, but tight clothing is specially to be avoided by women with high tension, since whatever occasions pressure upon the abdomen tends to raise blood pressure by acting on the splanchnics.

When the stage of incompetence is reached there are no measures for the treatment of myocardial insufficiency different from those applicable to the broken compensation of valvular disease.

REFERENCE.

1 *Essai sur les maladies et lésions organiques du cœur et des gros vaisseaux.*

HYDATID DISEASE AS A CLINICAL PROBLEM:

SOME NEW ZEALAND EXPERIENCES.

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As is well known, *Taenia echinococcus*, the cestode parasite responsible for hydatid disease, completes its life cycle in two stages, which are passed in animals of separate species. As a rule the taenia stage is passed in the dog (definitive host), and the cystic or hydatid stage is very frequently passed in the sheep (intermediate host), but since the cystic stage may also occur in man, and since shepherds require dogs for the management of their flocks, "hydatid disease" in man is of fairly frequent occurrence in pastoral countries such as New Zealand, the personnel of the sheep stations becoming infested through their dogs.

Nevertheless, even in pastoral countries hydatid disease frequently presents a clinical problem of great difficulty. In a review of 90 cases in Dunedin Hospital it was found that an incorrect diagnosis had been made in 45.[1] Fairley, in a paper advocating the complement fixation test, reported in 1922 that of the cases admitted to Melbourne Hospital in ten years only 40.7 per cent. were diagnosed correctly before operation.[2] The likelihood of the disease is constantly impressed upon students; in any routine lecture upon haemoptysis, for instance, the common causes will be given as "phthisis, mitral stenosis, chronic bronchitis, and—in this country—hydatid of the lung"; and whereas in England the injunction is given: "In cases showing symptoms or physical signs of obscure origin—think of syphilis," in New Zealand the injunction is rather "Think of hydatid." Nevertheless, people frequently fail to think of it. This paper gives some account of the reasons for the obscurity of the condition, and also of some of the forms in which hydatid disease has been found to occur.

One reason for the difficulty in diagnosis is that the disease, formidable as it is, is not really very common. Sir Louis Barnett, a very close student of the subject, estimated twenty years ago that the incidence in New Zealand was about 100 new cases a year; he now estimates it as approaching 150, which is at much the same rate, allowing for the increase in population.[3] The number, therefore, that comes under the observation of any single medical man is not great; the 90 cases in Dunedin Hospital, of about 300 beds, represent the admissions for

twelve years—only 7 or 8 per annum, distributed among a staff of some eight physicians and surgeons. The number admitted to the large Melbourne Hospital, with 430 beds, was 182 in ten years.

It is very important that the disease should be recognized when it is present, and that any accessible cyst should be operated upon and removed as soon as possible, for reasons which the following figures will indicate. The total mortality for all cases treated in New Zealand is about 16 per cent., and the mortality is far higher among cases in which there is suppuration in the cyst, an accident to which all cysts are liable. In the 90 cases at Dunedin Hospital 19 suppurating cases were operated upon, with 52.7 per cent. deaths; 7 cases were not operated upon, and all died—doubtless they were too ill for operation; 63 non-suppurating cases were operated upon, with 6.3 per cent. of deaths; one case is not accounted for. It is desirable, therefore, to anticipate the onset of suppuration by removal of the cyst. Quite apart from the importance to life of early operation, the diagnosis of hydatid cyst is one which no surgeon is anxious to make to his surprise on the operating table. The reason for this is that any leakage of hydatid fluid into the tissues is likely to be followed by metastatic infection; consequently no operation is undertaken when the condition is suspected without careful preparation to avoid this accident, and materials are always provided for appropriate treatment, which may be impracticable if the cyst is found unexpectedly.

As noted above, only some 40 to 50 per cent. of the cases quoted were diagnosed correctly before operation, but it should be stated that these figures are taken from records completed some years ago, and they refer to diagnosis by symptoms and physical signs only; they have largely stimulated research into laboratory methods of investigation. Of late years the Casoni skin test, the complement fixation test, and improved skiagraphy have greatly facilitated diagnosis in cases where hydatid disease is suspected, and the routine employment of the complement fixation test in hospitals has much to recommend it in any sheep-raising country. It is stated that with the aid of laboratory tests correct diagnosis has been raised from 40 to 80 per cent. These tests are briefly referred to in later paragraphs.

A consideration of the biology of the disease explains the lack of specific symptoms and the variety of physical signs which are liable to occur in it.

The life-history of *Taenia echinococcus* is well known, and need only be briefly described. The adult worm is a parasite of the dog, and the cystic stage is passed as a rule in herbivora, chiefly sheep and cattle, and occasionally in man. The development in man is thought to be identical with that in the sheep and other intermediate hosts. Actually, cattle are rather more commonly infested than sheep, but the disease is probably spread by sheep, because dogs are frequently fed with sheep's offal, but rarely with cattle offal. Roughly speaking, in a country where hydatid disease exists among sheep all sheep-dogs stand the risk of becoming infested and are consequently dangerous to man. On the other hand, with regard to town dogs, some extended observations carried out by Otago University students in a public health study supported the view commonly held that town dogs, provided they do not frequent slaughter-houses, do not become infested with *Taenia echinococcus*.[4]

As will be shown immediately, the chief sites of infestation in sheep and man are in the liver and the lungs, both parts of the sheep with which dogs are commonly fed, and which they eat with avidity. It is probable that if the liver and lights of all carcasses were destroyed, and never given to dogs, hydatid disease would be abolished, but a small practical acquaintance with the conduct of a sheep station is enough to show that any advice of this kind is at present a counsel of perfection.

The dogs appear to suffer no disability as a result of ordinary infestation, though in laboratory animals, overfed with hydatid material, enteritis, ulceration, and death may occur. Sheep farmers do not recognize any symptoms among their animals from the worms, although there is some reaction on the part of the dogs' tissues, and their blood serum gives a positive result to complement fixation tests with hydatid antigen. From dogs experimentally fed with hydatid material there is some difficulty in recovering viable ova, but the complement fixation test with their blood serum soon becomes positive. The absence of symptoms in infected dogs is of interest, since humans with non-suppurating hydatid cysts suffer from no symptoms other than those due to pressure, with the exception of occasional skin lesions.

To return to the life-history of *Taenia echinococcus*. The adult worm infests the small intestine of the dog; it is very small, about 5 mm. in length, and it lies parallel to the villi of the dog's gut, to which it is very similar in shape and size. It consists of four segments; the head has a double row of hooks and four suckers, and finds attachment between the villi near their bases. The terminal segment, which contains the ova and which ultimately ruptures, is visible when mature on the surface of an infected duodenum if removed from the dog's body and laid open, but immature worms, which are much more numerous, are only to be found by careful search; many are deeply embedded in the crypts of Lieberkühn, where they probably escape the action of vermifuge drugs.

The ova are passed in the dog's faeces, and in stock animals infestation occurs from contamination of pasture. Not very much is known of the period of viability of the ova or of the conditions of temperature and humidity which are most favourable to them. Dévé of Rouen, however, has shown that they resist prolonged desiccation and also soaking in water.

Sir Louis Barnett is of opinion that human beings almost always become infested as the result of handling dogs, ova being thus picked up from dogs' coats, and conveyed to human mouths, rather than through the contamination of plates from which dogs have fed. It is also likely that infestation most commonly occurs in childhood, for indeed working shepherds do not very often handle dogs. Infestation through contaminated vegetables is probably of rare occurrence. It may be of interest to note that there are about as many sheep in Great Britain as in New Zealand, but in the latter country the proportion of sheep to population is 18 to 1, the highest in the world, and there is one dog to every eleven persons. The low actual incidence of hydatid disease among the population is perhaps worthy of remark.

The ovum when passed by the dog consists of a hard striated capsule containing a "hexacanth embryo." Whether swallowed by man or herbivorous animal, it hatches out under favourable conditions in the stomach or duodenum, bursting open like a hen's egg. The embryo escapes and "claws a passage" through the mucous membrane into one of the radicles of the portal vein, by which it passes to the liver of the host. In most cases when infestation occurs the embryo is lodged in some part of the liver, where the great majority of hydatid cysts are found. If it passes the liver and reaches the right heart it is likely to be arrested in the lung, the next most frequent site. It is rare for embryos to pass through the lungs and reach the general circulation, but if they do they may be found anywhere, as will be seen when the human cases are considered. There is no particular site of election in cases infested through the general circulation.

The embryo, when it reaches the liver, or any other site, may be destroyed by the tisues, which form "antibodies" to it, as is indicated by the serum reactions of infested patients. If it survives and reaches maturity it develops into the fluid-containing cyst. This is formed of two layers, ectocyst and endocyst, and it is surrounded by a fibrous pericyst, the adventitia, formed by the tissues of the host. The endocyst, or germinal layer, produces numerous "brood capsules," which ultimately become small vesicles which float inside the cyst, attached to its wall by a fine pedicle. Within the brood capsule the scolices develop, and are finally attached each by a small pedicle to the inner surface of the brood capsule, and so float inside it. The scolex is a minute oval body just visible to the naked eye; it contains invaginated the row of hocklets and the suckers which form the head of the fully developed worm. If the cyst is ingested by a dog the scolices evaginate and become attached to the small intestine of that definitive host, and develop into the complete worms of four segments.

The hydatid cyst often contains "daughter cysts." Dew[6] suggests that if during the life of the intermediate host the endocyst or germinal layer of the cyst is injured or its vitality otherwise threatened, "daughter cysts" are formed within the mother cyst, inside which the development of brood capsules and scolices proceeds. The only limit to the size of a cyst appears to be the capacity of the host to contain it. Barnett has reported a "colossal hydatid cyst"[5] of the abdomen from which he evacuated and measured eleven gallons of hydatid material besides what overflowed into dressings and was lost. This quantity must have occupied about one and three-quarters cubic feet, and weighed about eight stone.

If a cyst is ruptured within the body accessory cysts are likely to develop wherever the fluid penetrates and carries living scolices; consequently if a hydatid of the liver is ruptured, metastasis throughout the peritoneal cavity is not infrequent; this is called "secondary echinococcosis." This may occur as a surgical disaster if a cyst is unexpectedly disclosed at operation. If the cyst happens to be dead it is sterile, and no metastasis occurs; that, however, is a fortunate accident.

"Hydatid disease" in man depends on the presence of one or more of these cysts in some part of the body, generally the liver, from which the peritoneum is often secondarily invaded. The next most frequent site is the lung, and either a primary cyst may occur there or the pleura or lung may be invaded through the diaphragm by a cyst in the liver. If the embryo passes the lung and reaches the left heart it may be arrested in any part of the body. In the 90 cases of the Dunedin series 103 sites of infestation were noted (doubtless some of the cases were readmissions with recurrences; these have not been separated). The various sites were as follows:

Liver	56	72
Peritoneum	16	
Lung	16	
Brain	4	
Kidney	4	
Subcutaneous tissues	3	
Mediastinum	2	
Spleen	1	
Bone	1	

Dévé of Rouen (quoted by Dew[6]) gives the following distribution among 2,727 cysts.

Liver	76.6
Lung	9.4
Muscles and cellular tissues	5.2
Kidney	2.3
Spleen	2.1
Bones	0.9
Orbit	0.2
Brain	0.6
Miscellaneous	2.2

The Dunedin cases are therefore fairly typical, and it will be understood that when a hydatid cyst occurs in some important organ, such as brain or kidney, the doctor in charge will not be likely to have seen many similar cases. Unusual sites are more often discovered in children than adults, since in them a relatively small cyst exercises greater pressure. As in the dog so in the man, although specific antibodies are developed, and can be demonstrated, there are no recognizable toxaemic symptoms, unless suppuration occurs, when they are due to the superimposed infection, and unless the cysts cause mechanical interference, there is nothing about a patient who harbours them by which their presence is to be suspected.

Clinically few signs are to be depended upon in the diagnosis of hydatid disease. Cysts of the liver generally produce deformities of the upper surface, and there may be surprisingly little downward displacement of the lower edge. There are no symptoms unless there is some disturbance of function in an organ from pressure or irritation, so that the patient comes complaining of symptoms suggesting cholecystitis, pleurisy, hydronephrosis, or peritonitis, and there is little to call hydatid disease to mind. "Hydatid thrill," when present, is unmistakable, but it is very rare. Barnett[7] has described it very carefully; he has only found it seven times in the examination of over 300 cases; in one of these he was good enough to demonstrate it to me. He distinguishes it from the fluid thrill occasionally obtained in any thin-walled cyst close to the abdominal parietes. He calls the true thrill an "exquisite spring-like vibration, which is quite distinctly prolonged beyond the moment of percussion, and which is associated with a remarkable drum-like resonance heard on auscultatory percussion." He has found it only under the following conditions. "(1) The mother cyst has been close under the parietes. (2) Its walls have shown signs of degeneration leading to a slackening of the high normal tension that exists within the usual hydatid cyst. (3) Some large daughter cysts have been present, not closely packed, but having room to vibrate in contact with the wall of the parent cyst."

As mentioned above, laboratory tests have been introduced and improved of late years, but they are by no means infallible; those generally used are the white blood count, for excess of eosinophil leucocytes, the complement fixation test, the Casoni skin test, skiagraphy, and the macroscopic or microscopic detection of hydatid material evacuated from the body by any means and out of any site.

Eosinophilia may be present, but is by no means constant. Barnett's "colossal" case only showed 4 per cent. of eosinophil leucocytes, and Hercus[8] states from the department of bacteriology of Otago University that only about 35 per cent. of cases show an eosinophilia of more than 5 per cent. Eosinophilia when present is suggestive, and has led to the correction of other diagnoses in many instances, but it only occurs in one case in three; eosinophilia in sputum has before this led to the diagnosis of hydatid of the lung.[4]

The complement fixation test was first applied to hydatid disease by Ghedini in Italy in 1907, and has since been extensively used in many parts of the world. In Australia its application was worked out by N. H. Fairley,[2] and in New Zealand, independently, by Hercus.[8] Like most tests of the kind it is conclusive when positive, but a negative result does not exclude the possibility of hydatid disease. It is an immune reaction, and depends on the stimulation of the tissues by the presence of hydatid material. But, as has been mentioned, the tissues of the host form a fibrous capsule round the cyst which may effectually prevent the escape of its contents into the tissues, in which case the complement fixation test is likely to be negative. It has also been mentioned that daughter cysts occur if the endocyst is injured, which promotes leakage; consequently in cases of cysts containing daughter cysts this test is generally positive, whereas in unilocular cysts it is often negative. It happens that cysts of the liver often contain daughter cysts, whereas cysts of the lung are often single. In cases of dead cysts the reaction is negative.

The Casoni skin test is done in the same way as the skin tests for sensitization to pollens and foodstuffs and the like, but it produces both a "superficial" and a "deep" reaction, of which the latter, the more important, is delayed for some hours. The Casoni test is more persistent than the complement fixation test, because, once sensitized, the tissues retain their power to react to the direct stimulus of the antigen for very long periods, whereas if the cyst dies the serum soon ceases to contain antibodies demonstrable by the complement fixation test. The skin test, of course, is made in search of an "anaphylactic reaction"; it may be negative in unilocular unleaking cysts, and the reaction may be abolished if the tissues are flooded with excess of hydatid material, as in the case of rupture of a cyst. It will be understood that, with a patient's tissues sensitized, the rupture of a cyst, or even its exploratory puncture, may induce anaphylactic shock of any degree of severity, and death has undoubtedly been caused by it. Symptoms occur in the systems usually affected by anaphylaxis: cutaneous, gastro-intestinal, respiratory, cardio-vascular, and nervous (Dew). In the majority of cases of leakage, however, they are not very severe, and may easily be missed. As Freeman[9] has stated of toxic idiopathies in general, the reactions vary "from a shock producing coma to a scarcely perceptible malaise."

Skiagraphy.—My colleague Dr. C. C. Anderson has recently discussed the radiological diagnosis of hydatid infection,[10] with emphasis on the following points. Such diagnosis is easy in sites where there is sufficient contrast in permeability to *x* rays between the cyst and surrounding tissues, as in bone and lung. The typical shadow thrown

by a cyst is ovoid, but it is liable to distortion; it is normally a uniform shadow due only to the fluid, so that if the fluid becomes inspissated in a dead cyst the shadow cast is indefinite, but the adventitia around a dead cyst may be calcified, with a typical shadow. Suppuration may greatly obscure the picture. In the liver the chief indication of a cyst is irregularity in the upper border of the organ; in the lung the ovoid shadow is generally unmistakable; diagnosis of a cyst within the peritoneal cavity is difficult.

Clinical examination, blood counts, serum and skin reactions, and *x*-ray examinations are all seen to be fallible, but the diagnosis of the disease can be rendered absolutely certain by the demonstration of hydatid material derived from the patient, when this can be obtained. One hooklet or one fragment of laminated ectocyst is pathognomonic, and their discovery in material evacuated by a patient is of the same diagnostic value as is the demonstration of tubercle bacilli in the sputum from a case of suspected phthisis.

Hydatid cysts may be passed from most of the orifices of the body; not infrequently a "thing like a grape skin" is coughed up from the lung. Hydatid material, possibly bile-stained, is sometimes passed per rectum, and cysts have been passed per urethram and from the uterus. Scolices or hooklets may be recovered from sputum, urine, discharge from sinuses, or from fluid obtained by exploratory puncture. The fluid obtained by puncture of a healthy cyst, without suppuration, is water-clear, like cerebrospinal fluid. If it contains broken-down material it resembles dirty water, not serous fluid. Sometimes a quantity of clear saltish fluid is coughed up if a cyst ruptures in the lung. It is very undesirable to puncture a hydatid cyst, and it should never be done if the condition is suspected and a diagnosis can be arrived at by any other means. The risks are those of anaphylactic shock and secondary echinococcosis.

The following cases of hydatid disease are among those seen by myself, either in consultation or in hospital practice, during some nine years in New Zealand, the total number of which is, *ex hypothesi*, not large, and they indicate what difficult problems may be presented by the condition.

CASE I.—*Hydatid of Liver: Symptoms of Pleurisy.*

A woman, aged 34, three weeks before admission suffered from pain of sudden onset, described as passing across the stomach; it was diagnosed and treated as being of alimentary origin, without benefit. It lasted several days and then suddenly ceased, but was followed by severe pain in the right chest, and difficulty in coughing and breathing, fever, and rapid pulse and respirations. She was then admitted to hospital. The diagnosis of pneumonia was made, with fluid at the right base, but very little was obtained on puncture; later on, a needle was passed through the chest wall and diaphragm and watery fluid containing hooklets was obtained. The cyst was opened and about two quarts of fluid and daughter cysts evacuated. There was a very long convalescence, and the patient was deeply jaundiced for a long time.

In this case hydatid was suspected, because the patient had been operated on twenty years before for a cyst of the liver. The hydatid complement fixation was positive, but there was no eosinophilia. Without the assistance of the history there would have been little here to suggest the presence of a hydatid; the skiagram only showed a "large indefinite shadow" in the right thorax. This was a cyst of the liver, without demonstrable increase in its size, which produced pleural and pulmonary symptoms. Complement fixation was positive, blood count negative, skiagraph negative; Casoni test omitted on account of degree of illness.

CASE II.—*Hydatid of Liver: Jaundice and Signs Suggesting Cirrhosis.*

A boy, aged 13, was sent to me by Dr. H. F. Bernau, C.B.E., Napier, N.Z., with the provisional diagnosis of Hanot's cirrhosis of the liver, and raising the question of splenectomy. The boy had been deeply jaundiced for nearly a year, which had not much affected his health; that, however, was at no time very good. Recently he had complained of severe abdominal pain, localized vaguely as "across the abdomen"; there was an enormous smooth liver and a large spleen; the condition conformed to that of Hanot's cirrhosis as described in the textbooks, a very rare condition in this country. The blood count showed nothing remarkable, eosinophils 4 per cent.; the serum gave a direct van den Bergh reaction, but gave negative hydatid and Wassermann complement fixation reactions. It was decided to drain the gall-bladder. At operation the liver was found very big and hard and the gall-bladder was distended; the spleen was not so large as had been expected. The diagnosis appeared to be confirmed, when on the under surface of the liver a hydatid cyst was found, the size of a large apple. The operation was well borne, but in a few days there was profuse bleeding from the wound, from every possible mucous surface, and even from the nails, and the patient died despite numerous transfusions.

Neither the hydatid serum reaction nor the blood count was of any value in this case, the Casoni test was not then in vogue, and a skiagram would have shown nothing; the condition found at operation was a complete surprise to all persons concerned.

CASE III.—*Hydatid of Liver: Respiratory Symptoms.*

A man, aged 40, sent to me by Dr. D. G. Radcliffe of Balclutha, N.Z., was taken ill six weeks earlier with acute pain in the right side of the chest. At the time of onset no physical signs of disease were present in the chest; later on, however, signs suggesting pleurisy with a small effusion at the right base were found, but the patient declined both paracentesis and *x*-ray examination. The same condition was present for several weeks; the temperature was generally raised, sometimes reaching 102° F., with cough and pain in the side; there was loss of more than a stone in weight, and it was stated that there had been slight haemoptysis. Possible alternative diagnoses were phthisis, pleurisy, mediastinal tumour, or central pneumonia. On my examination there were marked wasting, bad colour, and a continual ineffectual cough. The heart was rapid, the chest thin, and the scalene muscles at work; there was an impaired note throughout the right lung, and feeble air entry, all very vague. A skiagram showed a large calcified hydatid cyst in the upper part of the liver; being calcified, it was dead. It was opened and drained by Mr. Gordon Bell, and was not found to be suppurating.

An unsuspected case, the diagnosis was made accidentally by the *x* rays; further laboratory observations were not required.

CASE IV.—*Hydatid of Liver: Pruritus.*

A married woman, aged 69, was sent to me on account of intractable and widespread pruritus of six months' duration, with gradual onset. It was worse at night and prevented sleep. There was no rash, and the condition seemed to be of the character of ordinary senile pruritus. On routine examination the patient was found to be much wasted, with a greatly distended abdomen and an enlarged and irregular liver. I sent the patient back to her doctor with some suggestions for symptomatic treatment of the pruritus, and raising the question of a neoplasm of the liver. This recalled the fact that two daughters had suffered from hydatid disease; the abdomen was explored, and a hydatid cyst evacuated from the liver, after which the pruritus ceased.

Here the family history, which is included in ordinary clinical examination, suggested the diagnosis; laboratory examinations were not made.

CASE V.—*Hydatid of the Lung: Symptoms of Pleurisy.*

A woman, aged 20, was admitted to Dunedin Hospital under my colleague Dr. Frank Fitchett; she said that she had a sense of "splashing" in the chest; there was a history of pleurisy six months previously. There were signs of fluid in the right chest up to the third rib anteriorly, but the posterior aspect was resonant, and air entered throughout. It was suggested that there was pleural effusion in front, but that the posterior part of the pleural cavity was obliterated by adhesions from the previous inflammation. A skiagram showed an oval shadow in the right chest reaching as high as the fourth rib, the upper border of which was very sharply defined, the lower border merging with the opacity of the liver. A needle was inserted and 30 ounces of colourless fluid, like water, were removed; after this a new skiagram showed a cyst wall, presumably the pericyst, with an inner wall partly separated from it, above the horizontal line of the remaining fluid. A large unilocular cyst of the lung was found at operation. The Casoni test, before operation, was negative.

As mentioned above, cysts of the lung are often unilocular, and, as such, unlikely to leak and induce immune or anaphylactic reactions. There was no eosinophilia. The laboratory tests were thus misleading, otherwise the chest would not have been aspirated; no harm resulted. The *x*-ray and blood tests were at variance; the diagnosis was clinched by the demonstration of hydatid material.

CASE VI.—*Hydatid of Brain.*

A youth, aged 16, was admitted to Dunedin Hospital under Mr. J. Renfrew White for consideration of orthopaedic treatment for hemiplegia. The patient had become completely blind and hemiplegic, apparently from intracranial tumour, at the age of 6 years. His skull had been opened by Barnett in hopes of saving his sight, and a hydatid cyst the size of an orange had been found and evacuated, but too late for any improvement in vision.

The diagnosis was unsuspected and made on the operating table. There is no record of tests.

CASE VII.—*Hydatid of Lung: Symptoms of Phthisis.*

A man, aged 34, was operated on for hydatid of the lung with haemoptysis in 1910. He joined the army in the war and went on active service. In 1916 he suffered from haemoptysis, and was invalided, under suspicion of tuberculosis. He suffers from recurrent bronchitis, and is frequently an in-patient of Dunedin Hospital, but tubercle bacilli have never been found in his sputum. He gives an intense Casoni reaction.

A case clinically resembling phthisis, but hydatid had been previously demonstrated, and the skin test was positive.

CASE VIII.—*Tuberculosis of Lung.*

A man, aged 32, was sent into Dunedin Hospital with haemoptysis and the provisional diagnosis of phthisis. Some consolidation was found at the base of the left lung, and the skiagram showed a "rounded shadow suggesting hydatid cyst." Dr. Hercus had then just completed his technique for the hydatid complement fixation test, which was negative in this case; there was no eosinophilia, and he insisted that no hydatid was present; the chest was explored and only thickened pleura and scar tissue were found, but negative results to the laboratory tests do not now carry as much conviction.

The converse of Case v; the *x*-ray suggestion was incorrect, the laboratory findings gave accurate information. It is thus seen that the diagnosis between hydatid of the lung and pulmonary tuberculosis may be a matter of difficulty; both are among the causes of haemoptysis. Also, hydatid of the peritoneum may be confused with tuberculous peritonitis. Barnett's colossal hydatid was diagnosed as the latter, and a child of 10 in the hospital with the diagnosis of tuberculous peritonitis was found to have an eosinophilia of 38 per cent., and proved to be suffering from hydatid disease.

I am not aware of any recorded association between hydatid disease and haemorrhage, except from the lung, but I have had experience as follows: Case ii died of haemorrhage after operation; it is true that he was deeply jaundiced, and that such cases are notoriously grave operative risks on account of bleeding; Case i, a case of hydatid of the liver, jaundiced after operation, showed no special inclination to bleed; the case may, however, be grouped with the following.

Three cases have been recently admitted to the women's medical ward with severe gastric haemorrhage; all had previously been operated on for hydatid disease. Dr. Radcliffe has informed me of a case of metrorrhagia in a young woman who was found to be suffering from hydatid of the liver; after its removal the uterine haemorrhage ceased. Certainly all cases of hydatid disease do not bleed severely, but several cases are quoted which have been found to do so; such bleeding may, possibly, be a manifestation of anaphylaxis. The fact is merely noted in this place.

Briefly to analyse these seven cases of hydatid disease. None of them had symptoms or physical signs which in themselves pointed at all strongly towards this disorder; it is extremely improbable that the diagnosis would have been even suspected except in a pastoral country. In two (Nos. i and vii) the patients' history gave the clue, hydatid material having been previously demonstrated; in one (No. iv) the family history was suggestive. These three admitted of diagnosis on ordinary clinical grounds, and in one of them this was supported by the complement fixation test and clinched by demonstrating hydatid material, and in another the Casoni test was positive. In two (Nos. ii and vi) the diagnosis was made on the operating table; in one of these the laboratory was misleading, and in the other (treated fifteen years ago) there is no record of investigation. In two (Nos. iii and v) the skiagrams gave correct information, though in No. v the complement fixation and skin tests were misleading and hydatid material had to be withdrawn to clinch the diagnosis. Excluding Case vi, which occurred before the era of specific tests, five of these cases were diagnosed before any major operation was undertaken; only one in five operations was actually discovered on the table. This is an approach to modern claims in accuracy of diagnosis.

It is evident that the diagnosis of a very serious disease, to which the inhabitants of a sheep-raising country are peculiarly liable, may present great difficulties, but that if the risk is constantly kept in mind, a study of family and personal history, physical examination, skiagraphy, blood and skin reactions, and pathological investigations will generally discover the presence of hydatid, though any single investigation may be misleading. The treatment is evidently surgical, and it is important that cysts, if present, should be removed.

I have to thank both Sir Louis Barnett and my colleague Professor Hercus for kindly criticizing this paper. Several amendments and additions which it now contains were made at their suggestion. I have also to thank Dr. Roland Fulton for kindly allowing me to use his analysis of the Dunedin cases.

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THE TREATMENT OF PERNICIOUS ANAEMIA BY LIVER.*

BY

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THE liver treatment of pernicious anaemia was introduced by Minot and Murphy in America, and their first series of cases was published about three years ago. Dr. Spencer of Newcastle had some patients on this line of treatment early in 1927. One of the first, if not actually the first, in this neighbourhood was my patient W. H. P., at the beginning of July, 1927, and I had several others who started upon it about the same period. Since then I have had about forty cases under my care on this mode of treatment, and one can now draw some general conclusions as to its value, particularly its value as compared with methods of treatment previously employed.

It may be said in general that with the exception of four patients who were very ill when first seen, and who died within a few days, and the same number whom it has been impossible to trace or who failed to persevere with the treatment, all are alive and reasonably well to-day—the majority very well and following their regular work. One has died from intercurrent disease.

But at most the period of treatment has been little more than a year and a half, and a good deal less than this in many, and I find, on going through my records, almost as satisfactory results in a good many cases from our older methods of treatment. For a fair estimate of its value, therefore, it must be compared with some of the results in these older cases. Take the following cases, for example.

CASE I.

Miss G., a patient of Dr. Vipont Brown, was first seen in October, 1911; she had then been ill for about a year. Red corpuscles 2,340,000 per c.mm., haemoglobin 56 per cent., colour index 1.22. The appearance of the blood films was in every way typical. Under treatment she made a satisfactory recovery, but relapsed in the following summer, and was an in-patient under my care in the Ancoats Hospital from July, 1912, until early in 1913. In the early part of this period she proved intolerant to arsenic, but later took it well and made a good recovery. From this date she remained under the care of her own doctor. I saw her and examined her blood from time to time, but she remained free from relapse, and was able to follow her employment. About Christmas, 1925, she had an attack of influenza, and this brought on a typical relapse. She was readmitted to the Manchester Royal Infirmary early in 1926, and under treatment again made a rapid improvement. Her blood showed: on February 13th, 1926, red blood corpuscles 1,500,000 per c.mm., haemoglobin 33 per cent., colour index 1.1; on March 6th, red cells 2,100,000 per c.mm., haemoglobin 51 per cent., colour index 1.2; on March 28th, red cells 2,950,000 per c.mm., haemoglobin 62 per cent., colour index 1.05.

Unfortunately after her discharge I lost touch with her. She got into low water, she was now an elderly woman turned 60 years of age, and I learn that she died later on in that year. But she ran a course of sixteen years, during most of which time she was free from serious relapse and able to follow her employment.

* Read in opening a discussion at a meeting of the Manchester Medical Society, April 3rd, 1929.

CASE II.

A. C. was a patient in the Manchester Royal Infirmary as far back as 1899. Blood examination on June 11th, 1899, showed: red blood cells 1,210,000, haemoglobin 30 per cent., colour index 1.2; and on July 15th, 1899, red cells 3,560,000, haemoglobin 70 per cent., colour index 0.98. In all respects, both clinically and haematologically, he was a typical case. This improvement was maintained, and in November, 1901, more than two years after I had first seen him, I had him under my care at the Ancoats Hospital. A blood count in November, 1901, showed: red cells 4,180,000, haemoglobin 80 per cent.

I saw him at intervals till the summer of 1906, a period of seven years in all, or eight years from the beginning of his illness. He then had developed phthisis, and died from this without any return of his pernicious anaemia.

CASE III.

As rather a contrast to these two cases, here is the record of Miss M. She was first an in-patient at the Manchester Royal Infirmary in 1913, and had then been ill for about a year. Unlike the previous cases, she had no long period free from relapse; she had frequent relapses, and was readmitted to hospital, mostly under my care, eleven times between May, 1914, and September, 1924. On each of these occasions she made a satisfactory recovery, but only during one period—from August, 1917, to July, 1919—was she able to remain out of hospital for nearly two years. Out-patient treatment was carried out during the intervals. Finally, in 1924, associated with the relapse there were pronounced mental symptoms, which necessitated her being transferred to a Poor Law hospital, where she died.

CASE IV.

J. B., a patient of Dr. Bisset of Heywood. There was some suspicion when I first saw him that this patient had carcinoma of the stomach, but the examination of a blood film, on October 31st, 1917, was diagnostic of pernicious anaemia. He improved under treatment, but was a very difficult patient, and when he felt better he ceased attendance on his doctor. Consequently after his initial improvement he relapsed and in April, 1918, a blood count showed 2,220,000 red cells per c.mm. With the resumption of active treatment he made a rapid improvement, and by July, 1918, his red cells had risen to 4,600,000 per c.mm. Once more he neglected treatment, and by November, 1918, the red blood cells had again fallen to 1,970,000. From this date his response to treatment was less satisfactory; he made a partial recovery, which was followed by a speedy relapse, and in May, 1919, he dragged himself with difficulty to my consulting rooms and I concluded that that was the last time I should see him. His red blood cells were then down to 1,570,000 per c.mm. However, this was by no means the end. He took things to heart and stuck close to his treatment, and in October, 1919, when I fully expected to hear that he was dead, he appeared in bounding health with red cells 4,050,000 per c.mm. From this date he never looked back; he presented himself for examination in July, 1920, and his corpuscles were then up to 4,820,000. He had no further relapse; he remained perfectly well, although following out little if any treatment, and died from pneumonia in 1925, eight years after the disease first manifested itself.

It must be confessed, of course, that not all the cases under my care in these earlier days made such satisfactory recoveries or ran this long course. The reason in many cases, however, is not far to seek. Treatment on these older lines, which included full doses of arsenic, a variety of intestinal antiseptics, intramuscular salvarsan, and vaccine, requires great care. The dosage must be carefully adapted to the patient's condition. The dose of arsenic which is required during the active stages of the disease closely approximates to the toxic dose. During stages of recovery active treatment must be judiciously diminished or intermitted; the patient must be under constant supervision and, if practicable, periodic blood examination should be made in readiness to return to more active treatment on the first sign of relapse.

As a result inquiries have shown that cases that have been under careful medical treatment in hospital with surprisingly complete temporary recovery may, on leaving hospital, very commonly relapse, and may speedily die unless readmitted promptly, because it was impossible to get this careful and difficult treatment continued satisfactorily after leaving hospital; and the same must be said of only too many cases seen in private on single occasions, when an initial recovery has been only too liable to be followed by relapse and a fatal ending. But fortunately I can recall many exceptions where I have found practitioners who have collaborated enthusiastically, or where I have had the opportunity of seeing the patient from time to time and giving continued advice as to treatment. All the following cases are of interest from this point of view, and more especially so that they all show the transition from "pre-liver" to "post-liver" *period of treatment.*

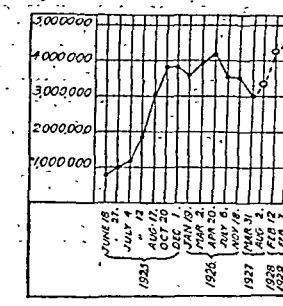
CASE V.

Mrs. C. (the late Dr. Derham Reid of Bolton and his successor, Dr. Brown). Blood examination showed:

	Red Cells per c.mm.	Haemoglobin per cent.
June 18, 1925	735,000	22
,, 27, ,,	915,000	—
July 4, ,,	1,275,000	38
,, 12, ,,	1,905,000	48
Aug. 17, ,,	3,142,000	72
Oct. 20 ,,	3,740,000	92
Dec. 1, ,,	3,740,000	86
Jan. 19, 1926	3,610,000	90
Mar. 2, ,,	3,880,000	103
Apr. 30, ,,	4,210,000	94
July 6, ,,	3,620,000	86
Nov. 18, ,,	3,680,000	87
Mar. 31, 1927	2,990,000	75
Aug. 2, ,,	3,390,000	80
Liver added.		
Feb. 12, 1928	4,290,000	95
Feb. 7, 1929	4,500,000	93

The patient had been ill for over a year before coming under treatment in a rather desperate state, with red corpuscles down to 735,000 per c.mm. She continued under treatment without relapse, though with a slight setback in March, 1927. She is perfectly well now and shows no signs of the disease.

The diagram below shows more graphically the progress of this case over nearly four years. The broken lines represent the course after start of the liver treatment.



CASE VI.

Mrs. R., a patient of Dr. Church Mann of Radcliffe. She was seen first on March 6th, 1926, but she had been ill then, with several ups and downs, for about two years. Her course under treatment is shown by the following figures:

	Red Cells per c.mm.	Haemoglobin per cent.
Mar. 6, 1926	1,530,000	35
Apr. 19, ,,	3,000,000	82
June 25, ,,	3,740,000	94
Oct. 12, ,,	3,760,000	88
Jan. 6, 1927	3,650,000	90
Apr. 27, ,,	3,580,000	90
Sept. 28, ,,	3,430,000	90
Liver treatment commenced.		
Apr. 1, 1928	4,350,000	95

and she is still, up to date, keeping quite well.

CASE VII.

Mrs. M. (a patient of Dr. Berry of Pendlebury). She was first seen on September 2nd, 1926, as an out-patient at the Manchester Royal Infirmary, and was an in-patient from September 7th to November 6th of that year. Following is a record of her blood:

	Red Cells per c.mm.	Haemoglobin per cent.
Sept. 13, 1926	650,000	14
Oct. 7, ,,	2,340,000	45
Oct. 20, ,,	2,800,000	68

She improved very rapidly under treatment, from an extremely low figure, but after leaving hospital she gradually went back.

Dec. 27, 1926	3,900,000	75
Apr. 1, 1927	2,960,000	70
July 22, ,,	2,160,000	52

Active treatment was then resumed with the addition of liver, and she was again an in-patient from August 16th to September 17th, 1927.

Aug. 17, 1927	2,250,000	56
Sept. 17, ,,	3,530,000	76
Nov. 25, ,,	4,488,000	91

But now, with the addition of the liver, she did not relapse on leaving hospital. On July 13th, 1928, the red cells numbered 4,576,000 per c.mm., and the haemoglobin was 90 per cent. She continued well until a few weeks ago, when she was taken ill

with some subacute abdominal trouble—probably tuberculous peritonitis—and died, without, however, any sign of a return of her anaemic condition.

It is of interest to note that the improvement after the addition of liver was little, if any, more rapid than on her previous admission without it, but that the red corpuscles rose to a higher figure, and that no tendency to relapse remained so long as she continued the treatment.

CASE VIII.

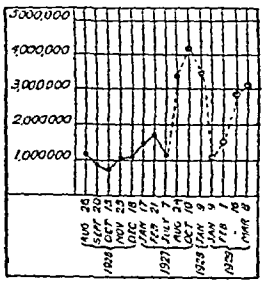
Mr. W. H. P. (a patient of Dr. Sidley of Eccles). I saw him first in August, 1926, but he had been recognized as suffering from pernicious anaemia since early in 1924, and had been ill for some little time before that date. The record of his blood shows:

	Red Cells per c.mm.	Haemoglobin per cent.	Colour Index.
Aug. 29, 1926	1,200,000	—	—
Sept. 23, ,, ...	948,000	20	1.05
Oct. 15, ,, ...	850,000	25	1.47
Nov. 25, ,, ...	1,090,000	32	1.6
Dec. 18, ,, ...	1,120,000	30	1.5
Jan. 17, 1927	1,410,000	35	1.5

It is noticeable how slow and imperfect was the response to treatment in this case, so that when he left hospital after four months' treatment, although he was a good deal better, the red corpuscles had not reached one and a half million per c.mm. As an out-patient on February 21st, 1927, the red blood cells numbered 1,624,000 per c.mm., haemoglobin 36 per cent.; on July 7th the red cells numbered 1,160,000. In the course of these months there had been a gradual falling back in spite of careful treatment. So he was readmitted and was restarted on active treatment, including now minced liver.

	Red Cells per c.mm.	Haemoglobin per cent.
Aug. 24, 1927	3,340,000	—
Oct. 10, ,, ...	4,264,000	—
Jan. 9, 1928	3,544,000	—
Jan. 9, 1929	1,764,000	20
Feb. 1, ,, ...	1,810,000	38
,, 16, ,, ...	2,730,000	58
Mar. 15, ,, ...	3,054,000	70

Here it is of interest to note that, in contrast to the slow improvement in 1926, the addition of the liver to his other lines of treatment brought about a much more rapid and complete amendment, and this was equally evident early this year when in consequence of some neglect of treatment he had a serious relapse at the end of 1928. This is all the more distinctly brought out by the following graph.



Here, then, we have this patient after some six years back at work and feeling quite well.

I will briefly refer to two other cases that have responded satisfactorily to treatment, part of the time without the addition of liver, part with.

CASE IX.

S. G. (Dr. Burrows Brown of Failsworth). Seen first on January 18th, 1924. A blood examination on that date showed: red blood cells 1,530,000 per c.mm., haemoglobin 38 per cent., colour index 1.24. Seen again in January, 1925; no count made, but doing well. January, 1928: Continued well, but recent partial relapse; red cells numbered 2,770,000 per c.mm.; liver added to treatment. In March, 1929, the patient was doing well; no sign whatever of anaemia; working, after a course of five to six years.

CASE X.

W. S. F. (Dr. Myers of Radcliffe). Seen first on November 26th, 1926. He had then been ill through the greater part of that year. His red corpuscles were down to 1,440,000 per c.mm. On March 30th, 1927, they numbered 4,220,000 per c.mm., haemoglobin 90 per cent.; on December 17th, 1927, 3,930,000 per c.mm., haemoglobin 86 per cent. From this date onward liver was added to the treatment, and he has continued perfectly well up to date.

It may be noted in these, as in other cases that have been published, that when under other methods of treatment the number of red corpuscles tends to stand at between 3,000,000 and 4,000,000 per c.mm., the addition of liver commonly brings the number to over 4,000,000. In some cases, however, this difference is not particularly striking; in others the rise with the addition of the liver may be still more remarkable. Thus, in one patient the red corpuscles rose from 2,770,000 to 6,000,000 between November 14th, 1927, and March 12th, 1928.

In every case I have given the liver in addition to the already described methods of treatment. This may be unscientific, but in such a grave disease I do not think we are justified in abandoning any line of treatment that has been well tried and has proved successful. When, however, recovery from the active phase of the disease has taken place it may be maintained, as a rule, with the liver alone, with little, if any, further aid from our other lines of treatment.

Summary.

From my study of these cases there are certain general conclusions at which I have arrived.

1. On our older lines of treatment, if efficiently carried out, *many, if not most*, cases of pernicious anaemia may be given many years of useful life; but there are practical difficulties in getting the treatment effectively applied, which consequently result in a large proportion of failures.

2. The introduction of the liver treatment has undoubtedly greatly increased our power of dealing with the disease; the improvement is more rapid and the advance in the number of red corpuscles is higher.

3. Continued treatment by liver will maintain the improvement, and it will do this more easily and with less meticulous attention to details than will our older methods alone. Consequently, though not necessarily more successful—as I have already demonstrated—it is undoubtedly more simple to carry out, and so there is much less risk of failure.

4. At the same time, whilst relieving the symptoms it does not appear to strike at the root of the disease, so as to produce a complete and lasting cure. So far as we can say at present, treatment must be continued, and, if given up, or insufficiently followed out, relapse will occur.

5. Though 6 or 8 ounces of minced liver ("potted liver") in the day is usually advocated, I have found in general that when combined with the older methods of treatment 4 ounces or even 3 ounces may be quite effective. This is of importance in the case of those who dislike the liver and take it only with reluctance.

6. When the red corpuscles have been raised to 4,000,000 or over a smaller amount of liver—3 or 4 ounces every other day, or even as little as 1/2 lb. in the week—will maintain the improvement, at any rate, if combined with some continued or occasional courses of treatment, in moderate degree, of the older methods of treatment.

7. It is important not to push the dose of liver too high or to keep on with the use of full doses too continuously. There is some reason to suppose that over-use may risk the production of gout or chronic nephritis. As in all other methods of treatment, its use must be guided by the consideration of the condition of the blood.

8. In those who have insuperable difficulty in taking the fresh liver, liver extracts, either solid or liquid, may be used. They appear to be equally effective with the fresh, but are very expensive.

9. Although it has been supposed that the liver treatment leaves the nervous symptoms untouched, I am not sure that this is the case. In three cases in which these symptoms were prominent and in which arsenic had appeared, whilst curing the anaemia, to aggravate the nervous symptoms, slow improvement has occurred with the use of liver and dilute hydrochloric acid. In many cases the slighter nervous symptoms, the numbness and tingling about the fingers and toes, have been materially improved.

10. Lastly, accurate diagnosis of the disease is of greater importance than ever it was.

PERNICIOUS ANAEMIA.

PRELIMINARY NOTE ON THE AFTER-RESULTS OF TREATMENT WITH LIVER.

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WE have been investigating the after-results of all cases of pernicious anaemia admitted to the Manchester Royal Infirmary during and since 1925, and are publishing our preliminary observations in the hope that they will be of interest to other workers investigating this disease.

The cases fall naturally into two sections: (*a*) Those that received the usual treatment of arsenic and hydrochloric acid before the introduction of the Murphy-Minot diet. (*b*) Those that received the liver treatment, often in addition to the drugs mentioned. The total number of cases studied has been 80, of which 47 belong to the first group and 33 to the second. Briefly our observations are as follows.

1. Of the 33 patients who left the hospital on the liver diet about 50 per cent. are very well and 15 per cent. in good health except for the symptoms of subacute combined degeneration of the cord, at an average interval of twelve months from their discharge. Only two (6 per cent.) are dead; one did not take the diet after discharge, the other took it regularly until he died (aged 66) fifteen months later.

2. Of the 47 patients who were not prescribed the liver diet 50 per cent. are dead, at an average interval of ten months from discharge. The remainder, almost without exception, are now on the diet. Their progress is being watched.

3. The patients who have done best are those who have taken the liver raw or half-raw. Those who have eaten it well cooked have not done so well.

4. A history of tingling and numbness of the fingers and toes, presumably the earliest symptoms of involvement of the cord, was given by 44 per cent. of all our patients. Of those that are still alive and on liver treatment 52 per cent. have no such symptoms now; 11 per cent. are better, and the remainder (almost all of whom had alterations from the normal reflexes) are no better or are definitely worse. This suggests that liver treatment has no effect on the symptoms of subacute combined degeneration of the cord, once the reflexes show that there is organic disease in the central nervous system. The symptoms gradually become worse, although the patient's bodily health is much better.

5. Relapses do occur even when the patients are taking liver regularly, but they are not nearly so common (only six cases noted in our series) as they were before liver treatment was tried. Five of these cases were taking the liver well cooked, the sixth was taking it raw, but the relapse followed an attack of influenza.

6. Of the 47 cases of pernicious anaemia sent out without liver, only 2 had ever worked regularly before the advent of the liver diet; whilst of the 33 cases sent out on the diet 14 are back on full work and 5 are doing part-time work—a total of 57 per cent. at work.

7. During their periods as in-patients (an average of forty-five days in each case) the following alterations in the constituents of the blood were noted:

	Erythrocytes.	Leucocytes.	Haemoglobin.
Patients not on liver ...	+46%	− 8%	+49%
Patients on liver ...	+91%	+41%	+77%

Of the patients who have done well, almost all have retained some degree of anisocytosis and poikilocytosis; all have abundant platelets, and in all the staining of the erythrocytes is normal.

8. Diarrhoea and gastric disturbances appear to have been cured by the liver treatment, only one case of recurrent diarrhoea having been noted in a patient who is otherwise quite well. There are no indications that treatment by hydrochloric acid has any appreciable influence—most patients discontinuing its use after discharge. Inadequate liver diet, however, frequently causes a return of gastric discomfort.

9. Reinvestigation of the condition of the stomach by fractional test meals shows the following results:

(*a*) Achlorhydria persists in nearly every case. Only two exceptions have been noted, and these will be discussed in a later paper.

(*b*) The total acidities of all samples withdrawn are greatly diminished, being equivalent to 1.5 to 10.9 c.cm. (average 4 c.cm.) of N/10 alkali per 100 c.cm. gastric contents.

(*c*) Total and mineral chlorides, whilst showing parallel titres, give widely varying values in different cases.

(*d*) Peptic activity is very considerably diminished or negligible.

(*e*) The fasting contents in over 80 per cent. of the cases are less than 38 c.cm., the remainder falling between 50 and 80 c.cm.

(*f*) In practically all cases mucus is present in very marked amount in the fasting contents and frequently in the earlier samples of the test meals.

(*g*) Lactic acid is invariably absent.

(*h*) The stomach empties on an average in one to one and a quarter hours.

10. Several sequelae of the diet have been described in the literature. Our observations on them are as follows:

(*a*) Persisting eosinophilia (5 to 14.75 per cent.) occurs in patients taking the liver diet.

(*b*) Albuminuria has never been found.

(*c*) One case of venous (femoral) thrombosis has been observed.

We have to thank the physicians of the Manchester Royal Infirmary for permission to use their cases in the course of this investigation.

BRUCELLA ABORTUS INFECTION IN MAN.

REPORT OF A CASE.

BY

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IT has now been definitely proved that infection from the organism known as the *Brucella abortus* Bang, the cause of contagious abortion in cattle, may occur in human beings. Cases have occurred in America, Rhodesia, Italy, and Germany, with identification of the organism. It is probable that this infection in man is not rare, and if the possibility be borne in mind its incidence may perhaps be found to be not uncommon. In this country many likely cases have been recorded, but in which absolute proof through identification of the organism was absent.

Theodore Thompson[1] has recently published a report of a case of this infection in this country; he also presented a review of the literature concerning *B. abortus* infection in man and animals, and noted the similarity between *B. abortus* and *M. melitensis* and their associated diseases. Thompson[1] stated that this was the seventh authentic instance of the infection to occur in this country. Manson-Bahr,[2] Bamforth,[3] and Wordley[4] have also reported cases of undulant fever in which the blood agglutinated *B. abortus* or *M. melitensis* in high dilutions, but failed to demonstrate the actual organism. H. Harrison and G. S.

Wilson,[5] in an examination of 998 serums sent for Wassermann testing, and negative to this reaction, found when the serum was tested against *B. abortus* that 5.5 per cent. agglutinated this organism; the average titre was 1 in 64. The proportion of females to males proving positive was nearly two to one. A titre of 1 in 40 was not uncommonly met with, and is probably of no significance in the diagnosis of abortus fever. Forty-two serums sent in for Widal testing, and proving negative to members of the typhoid-paratyphoid group, have been examined for agglutinins to *B. abortus*; 26.2 per cent. agglutinated this organism to a titre of 1 in 10 or higher. The average titre was 1 in 336. The proportion of females to males proving positive was nearly two to one.

Harrison and Wilson[5] advanced the tentative conclusion that *B. abortus* is probably capable of infecting human beings in this country; and it is suggested that blood cultures and agglutinin tests should be made on all cases of undiagnosed pyrexia and of indefinite, occasionally febrile, maladies. A reference was made in their paper to an important contribution by M. Kristensen[6] of Copenhagen. He examined 1,177 Widal serums and found that 89 of them agglutinated *B. abortus* to 1 in 100 or higher. Blood cultures were made from 20 of these patients, and in 13 of them an organism indistinguishable from *B. abortus* was isolated. Of the 89 patients 68 were males and 21 females; no patient was under 13 years of age. Clinically the picture was that of undulant fever, with sometimes severe sweating, localized pains, bronchitis, diarrhœa, or enlarged spleen. Infection occurred apparently from contact with aborting cows or from drinking raw milk or cream.

R. A. Kern[7] of Philadelphia has made an admirable contribution on the clinical aspects of *abortus* infection, and concluded that it was widely prevalent in America. He stated that surveys have shown that up to 90 per cent. of herds are infected in some regions, and that practically no region is free. Infectious abortion has long been a serious economic problem in the dairy industry of America. To the question, In view of such extensive bovine infection, why so few human cases?—fewer than 40 are on record in his country—Kern replies that many cases have been overlooked because, owing to the variability of the disease, there is no characteristic clinical picture. He quotes Bassett-Smith[8] to the effect that Malta fever, because of its variety of forms, is seldom recognized in its early stages in the countries in which it is known to be endemic; most of the patients are treated for something else at first. Kern remarked that if this is true of Malta fever in its normal habitat, how much more likely will the bovine type of the disease be overlooked. He believes that there is as yet a very low index of clinical suspicion of the presence of the disease on the part of general practitioners, and as a result many cases are, in all likelihood, going undiagnosed. These comments are particularly valuable as only 7 cases have been reported in this country. Kern concludes that a clinical consciousness of the disease will lead to the routine testing for *Brucella* agglutinins in all undiagnosed fevers.

CASE REPORT.

Male, aged 44 years, director of music, robust, active, and fond of outdoor pursuits. He was of careful habits, except for a partiality to raw milk and cream. He had never lived abroad, and had not been out of this country for several years. On July 13th, 1923, he motored to Scotland from Wales, and spent a fortnight's holiday touring in the Highlands. Raw milk and cream were consumed at several places on the way, at farms in the country, and dairies in the cities, and also daily throughout his stay in Scotland. He was very tired at the end of the journey, but soon recovered, and enjoyed his holiday. On July 27th and 28th he felt much fatigued after a round of golf, and this was particularly noticeable as it came at the end of a good holiday. He was again tired after the return journey, and was not in his usual good health throughout September. During this month, and for some time before his holiday, he had been subject to eructations and flatulent discomfort. At home he usually consumed daily about a pint of a so-called certified milk, and occasionally small amounts of cream.

The acute stage of the illness commenced on October 2nd, through an abrupt onset resembling that of influenza, with general pains, headache, and fever, but without evidence of catarrh. The temperature was taken daily for a week, but not recorded, though it was raised throughout, and medical advice was not sought until later. Sweats of moderate severity followed the fever fairly regularly in the evenings, with an occasional feeling of chill just before the rise of temperature. He improved, and returned to his work for four days when his temperature was normal, but a feeling of malaise remained. A further fourteen days' holiday was spent at Bournemouth. The temperature was daily subnormal throughout this period, and some general improvement resulted. He returned home on October 7th, and was again fatigued; the temperature on the evening of this day rose to 100° F., and the acute stage of his illness lasting six weeks followed. The record of the fever was not commenced until November 4th, but during the previous week the temperature was regularly a little over 100° F. in the evenings and almost normal in the morning.

The Pyrexia.—The course of the temperature was that of an almost regular intermittent fever (see chart), most often 101°

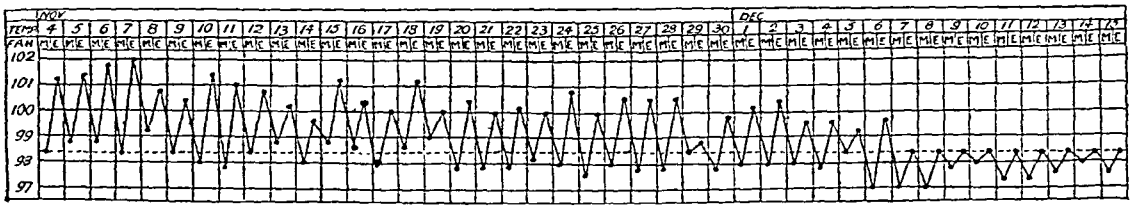

CHART TO SHOW THE COURSE OF FIVE WEEKS' INTERMITTENT FEVER.

for the first three weeks, and slightly lower afterwards. The reading was frequently normal or subnormal in the morning, rising as a rule at 5 p.m., and highest at 7.30 p.m., and often fell to 100° or 99° a few hours later. The highest temperature recorded was 102° at 5 p.m. on November 7th, but this reading was not repeated, and was probably influenced by the extraction of a few teeth. The fever was thus continuous over a period of six weeks without any afebrile intervals, except for one day towards the end of the fifth week of the acute stage. An afebrile period of over fourteen days' duration occurred soon after the onset, as has already been described. Profuse sweats, often drenching, which had a peculiar and disagreeable odour, occurred almost daily. Shivering attacks were not infrequent, and, more especially in the early stages, with a few rigors. Headache of some severity was complained of only at the beginning of the illness, being only slight afterwards. Pain was not a feature, and was absent except at the onset; slight joint pains were felt only in an early stage, before he was confined to bed. Constipation had been present for some time previously, and throughout the febrile stage, but was easily controlled.

Physical examination was almost negative. The tongue was thickly coated during the whole course of the fever. Much conservative work had been done in the mouth, and the gums appeared to be generally unhealthy. The abdomen was a little distended, but free from tenderness, and the liver and spleen were not palpable. No glands were felt. There was no rash. The heart and lungs were normal, except that the heart sounds lacked tone. The pulse rate on an average was 120 per minute during the course of the disease, and was very easily accelerated afterwards in the convalescence, and noticed by the patient. The blood pressure on November 6th was 130 mm. systolic and 80 mm. diastolic. Respiration was elevated with the rise of temperature, but was otherwise normal, and no bronchial catarrh was present at any time. The urine was normal, except for a transient slight glycosuria about the middle of the acute period. A diagnosis of oral sepsis was first made, and radical dental treatment was carried out on November 7th and in the week which followed. A streptococcal infection was considered likely as a susceptibility was assumed, owing to the occurrence in 1925 of an ulcer on the lateral surface of the tongue, which remained indolent for three months before healing took place. The Wassermann reaction at that time was negative.

The course of the temperature was unaffected by the dental treatment. The gums remained inflamed, spongy, with slight suppuration, until on December 1st a small, foul-smelling bit

of necrosed bone extruded, and healing of the mouth afterwards gradually followed. The temperature dropped to normal within a week of the separation of the necrosed bone, and no further attacks of fever have arisen up to the time of the report. The patient lost 14 lb. in weight in the course of the illness. Convalescence was slow, and five months later he had not fully regained his usual health, and had only recovered 2 lb. in weight. The tongue remained slightly furred, and he complained of precordial discomfort and aching in the region of the left shoulder. The heart's action was still impaired.

Clinical Pathology.—Examination of the blood on November 23rd showed no qualitative change in the red cells or malarial parasites. The blood count was as follows:

Red blood cells	4,500,000 per c.mm.
Haemoglobin	80 per cent.
Colour index	0.7
White blood cells	7,000 per c.mm.
Polymorphonuclears	50 per cent.
Lymphocytes	48 per cent.
Eosinophils	1 per cent.
Basophils	1 per cent.

Agglutination Tests.—On November 23rd the patient's serum was negative to the typhoid-paratyphoid group, but positive to the *Brucella abortus* in a dilution of 1 in 250. A week later the positive agglutination reaction to this organism had risen to 1 in 800, and this titre was maintained on each of the two following weeks. On March 20th, 1929, after three months' convalescence, the agglutination reaction to the *Brucella abortus* was completely positive in a dilution of 1 in 1,000. The tests were repeated on May 28th, when the agglutination reaction was found to be still positive, but the titre had now dropped to 1 in 200. The blood count was almost unchanged, except that the leucocytes had risen to 9,600 per c.mm., polymorphonuclears 50 per cent., lymphocytes 44 per cent. The leucopenia had thus disappeared, but the relative lymphocytosis remained.

Blood culture and urine culture were negative on December 13th, 1928. The Wassermann reaction was negative.

DIAGNOSIS.

The diagnostic problem, as Kern[7] remarks, is eminently one for the laboratory. The only solution lies in the routine use of the appropriate tests in all undiagnosed fevers. Hardy[9] has suggested that, until physicians generally are cognizant of the disease, all serums sent to State and municipal laboratories for Widal's test should be tested for the *Brucella* as well.

Blood culture and serum agglutination tests are essential. Urine culture may also be of value. The blood count in a case of *Brucella abortus* infection is that of a leucopenia with a relative lymphocytosis. There is no characteristic clinical picture. Fever is the only universal symptom, but there is no distinctive curve which may be continuous or undulatory with intervening afebrile periods. The continuous fevers may be sustained or remittent to an extent simulating that of septic infection or malaria. Some patients become progressively ill and soon seek advice; others are little disturbed by the infection, and may not take to bed at once, and then only for a brief period of the duration of the disease, or they may be wholly ambulatory. Kern[7] submits an important clinical observation: "One gets the impression rather generally that the patients are subjectively not so ill as their appearance and fever may seem to warrant." The patient whose case is now reported did not believe himself to be ill enough to warrant the services of a nurse.

DIFFERENTIAL DIAGNOSIS.

Brucella infection in symptomatology closely simulates that of other diseases, but, if borne in mind, suitable tests will usually be decisive. Septicaemia from hidden foci of infection must in particular be considered; also the typhoid-paratyphoid group, *B. coli* infection, tuberculosis, subacute bacterial endocarditis, leukaemias, pernicious anaemia, Hodgkin's disease, and malignant disease. A careful review of the previous health and habits, mode of onset, course of the disease, routine physical examination, and a close analysis of laboratory tests will rarely fail to lead to a definite diagnosis.

The case of Scott and Saphir[10] is of great interest because of the association with an infective endocarditis engrafted on an old mitral lesion. Blood culture yielded the *Brucella abortus*, and the serum agglutination reaction was positive in 1 to 1,000 dilution. At no time were streptococci found in the blood. The heart's blood yielded the *abortus* organism but no streptococci. The morbid anatomy was typical of infective endocarditis. No other source of infection was found. There was no actual proof that the *abortus* organism was responsible for the acute endocarditis, and the case was reported as "one of acute and chronic endocarditis associated with *Brucella melitensis* (*abortus*) bacteriaemia." It remains to be shown whether this organism will ultimately find a place in the bacteriology of infective endocarditis.

TREATMENT.

This is mostly symptomatic. Mercurochrome has been tried and appears to have been curative in a few cases. The drug is given intravenously in doses of 10 to 20 c.cm. of a 1 per cent. solution, and can be repeated once or twice if necessary after an interval of several days.

PROPHYLAXIS.

Infection of human beings by the *Brucella abortus* organism mainly arises through the drinking of raw milk. The remedy appears to be obvious, but probably incapable of universal adoption. The supply of milk is only second in importance to the water supply, and should be solely under the control of the municipal authorities, and not left to the caprices of private enterprise. Various methods of herd prophylaxis and treatment of infected animals have been proposed. Birch[11] recommends the detection and segregation of all infected cattle. Karsten[12] in Germany (quoted by Kern[7]) makes several valuable recommendations, and amongst others: (1) Blood agglutination tests in all animals in the herd, including the bull once a year. Reacting animals are to be killed or segregated. (2) In freshly infected herds in which less than 10 per cent. of the animals are involved, the disease is eradicable by killing the infected individuals, repeated disinfection of stables, and routine testing of the remaining cattle. He feels that these more radical measures are preferable to the therapeutic vaccination when the incidence of infection in a herd is low.

In Rhodesia infectious abortion in cattle has been made a notifiable disease. Infected herds are quarantined until six months after the last abortion or until satisfactory vaccination has been carried out; stables are disinfected, and reacting bulls are killed. Vaccine treatment of segregated infected animals seems to meet with fair success.

SUMMARY.

The case here reported is almost certain to be one of infection by the *Brucella abortus*; it is the eighth to be reported in this country, and the first from Wales. Actual isolation of the organism (for example, from the blood) would of course be necessary for absolute proof, but the clinical details are closely like those of published reports in cases where the organism was actually identified. The duration was at least nine weeks; it is impossible to be exact owing to the uncertain time of onset, as was also shown in a majority of the published cases.

The case was one of prolonged pyrexia of unknown origin until the blood was submitted to the agglutination test against the *Brucella abortus* organism, when the cause of the infection was discovered. The serological test was positive in high dilution. No local source for the infection could be traced.

We are much indebted to Dr. W. Parry Morgan, bacteriologist to the Cardiff and County Public Health Laboratory, for the pathological investigation.

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SYMPHYSIS OF THE SPLEEN WITH THE LIVER: SPONTANEOUS RUPTURE OF THE RIGHT VENTRICLE AND SYPHILITIC AORTITIS.

BY

F. PARKES WEBER, M.D., F.R.C.P.

I ONCE examined a boy with considerable splenomegaly of uncertain nature in whom abdominal palpation suggested that the spleen might be closely adherent to the left lobe of the liver. In that case, which cannot be discussed here, one physician recommended splenectomy (there had been an attack of haematemesis and melaena), and indeed the possibility of real symphysis of the spleen with the liver was hardly entertained as possible. Such a condition of real symphysis, whether congenital or acquired, must be one of extreme rarity, and I never met with a certain example until recently at the post-mortem examination on a man, whose case was likewise noteworthy for other reasons.

The patient was a powerfully built man, aged 50, who for some years past had been ailing with oedema of the feet and dyspnoea on exertion. In the hospital the heart was much enlarged and there were typical signs of aortic reflux. The urine contained a trace of albumin and some hyaline and granular tube-casts. The brachial blood pressure (April 22nd, 1929) was 150 mm. Hg (systolic) and 40 mm. Hg (diastolic). There was some serous effusion in the right pleura. A blood count showed slight anaemia (3,760,000 erythrocytes and 11,100 white cells in the cubic millimetre of blood). He had never had rheumatic fever. On May 18th his temperature was 100.4° F., and there was evidently, as there had been of late, a feeling of thoracic pain or discomfort of some kind. About 8 a.m. he asked for drink, said he felt better after drinking, but became suddenly cyanosed and died in two minutes.

The necropsy (carried out by the house-physician, Dr. Scholtz, on the same day in my presence) showed right-sided serous pleural effusion and slight ascites. The pericardium contained about 100 c.cm. of blood and serum, and through a minute slit-like rupture, about one centimetre in length, in the anterior wall of the right ventricle (close to and parallel to the anterior interventricular groove, five centimetres from the apex), blood could be forced out in a fine jet on squeezing the heart. There was great hypertrophy of the left ventricle, and the enormous heart weighed 800 grams. The aortic cusps themselves were only slightly sclerosed, but the first part of the aorta was a little dilated and much thickened and sclerosed. Microscopically the aortic wall showed patchy small round-cell infiltration, chiefly of the middle and adventitial coats, certainly a result of syphilitic aortitis. Dr. J. G. Greenfield, who kindly looked at a section with me, pointed out that nearly all the infiltrating cells were characteristic plasma cells. The rupture had taken place between the columnae carneae at a spot where the muscle was only two millimetres in thickness. On microscopical examination of that region many of the muscular fibres were obviously atrophic.

The kidneys were rather large and together weighed 550 grams. Though the capsules stripped readily, the cortex of one of them had a slightly granular surface.

The spleen (about twice the size of the normal) was so adherent to the left lobe of the liver that at first sight it appeared to constitute an abnormal additional hepatic lobe. The area of the fibrous adhesion (symphysis) was larger than the palm of a large hand. The two organs together weighed 2,100 grams, and showed chronic congestion. Microscopical examination of the thin layer of fibrous tissue uniting the two organs showed little evidence of inflammation. Nevertheless, there were some perihepatitic and other chronic peritonitic adhesions present, and perhaps one cannot be absolutely certain that the symphysis of the spleen to the liver was congenital.

The specimens are now in the museum of the Royal College of Surgeons, London, and I am much indebted to Mr. T. W. P. Lawrence for assistance in examining them.

Mr. D. M. Greig, conservator of the museum of the Royal College of Surgeons at Edinburgh, has kindly drawn my attention to a report by De la Torre (*Presse médicale*, Paris, 1926, xxxiv, p. 669) on the case of a woman, aged 24 years, in whom a "tongue" of hepatic tissue about 70 mm. in breadth was connected with the uterus. The "tumour" was recognized by palpation, but operation was refused. A few months later she married, and, when eight months pregnant, the arch of hepatic tissue between the liver and uterus caused intestinal obstruction and the condition was discovered at operation. Mr. Greig observes that if an abnormally shaped liver can become adherent to the uterus there is no reason why a liver in the left hypochondrium should not become adherent to the spleen. Mr. Greig in this connexion mentions that Abernethy (*Philosophical Transactions*, London, 1793, lxxxiii, p. 59) reported the case of a female child, aged 10 months, in whom the liver extended equally into the right and left hypochondria. In that case, Mr. Greig adds, the extension of the liver to the left may perhaps have been etiologically connected with the fact that the child's spleen consisted of seven separate portions, to each of which a branch of the splenic artery passed.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

HEADACHES OF PERIPHERAL ORIGIN.

OUR increasing knowledge of the numerous close connexions which exist between the periphery and centrally placed organs has helped us in recent years to understand the causes of this type of headache. It will suffice merely to mention the great clinical importance of Head's zones. I wish, however, to draw attention here to the connexion which exists between some infiltrations of the nape of the neck and headaches which may have persisted for years (sometimes dating from childhood) and from which the patient is rarely free for a day or a week at a time.

These infiltrations may sometimes be recognized by inspection, if the nape and other parts of the neck are carefully examined. (It is very important that the head should be held symmetrically for this purpose, as even a slight deviation may easily simulate pathological differences between the two sides.) By careful inspection very slight differences between the right and the left side may be observed, corresponding to differences in consistency which may be palpable. The three middle fingers are passed gently from above downwards, first on one side and then on the other, avoiding deep pressure to begin with. By this means it is possible to detect small differences in the consistency of the tissues on the two sides. In order to estimate with greater accuracy how deep these differences lie the pressure is gradually increased, care being taken to avoid too much force, as this would interfere with the sense of touch. Palpation is thus gradually extended to deeper parts.

When the whole neck has thus been palpated it is common to find here and there a smaller or larger infiltrated area of which the patient may be quite unaware, and which, curiously enough, does not always appear to be tender on pressure. These infiltrations are always diffuse; they are not circumscribed as "points" or "nodules"; they may be as large as the palm of a child's hand, and as regards depth may lie in the skin or subcutaneous tissue or extend through the muscles down to the bone.

The headaches, of which the patients may have complained for years, are not generally uniform in type. The patients suffer from attacks almost daily or at intervals of a few days; it is characteristic of this type of headache that it occurs in the morning on waking. The degree of pain also varies considerably: it is sometimes merely very unpleasant and at another time it may be very severe. It is noteworthy that only a proportion of the patients complain of a definite association of the headache with bad weather.

I consider the connexion between the above-mentioned infiltrations and rheumatism to be as follows. By careful examination it is generally possible to demonstrate a more or less intensive focal infection in the tonsils, teeth, pharynx, nose, or accessory sinuses. From these foci dead

avirulent bacteria or bacterial toxins pass into the blood stream and reach the various fascias, aponeuroses, and ligaments of the posterior part of the neck, which seem to have a remarkable special affinity for these toxins. Here they act as chemical stimuli, and thus induce inflammation with consequent infiltrations. I would emphasize that this condition frequently affects persons who are not primarily visiting the spa for treatment, but rather as *escort visitors who occasionally consult us for their* headaches. In other words, headaches in "apparently non-rheumatic persons" may originate in infiltrations in the nape of the neck; this condition occurs very frequently, and merits attention.

When the condition has once been carefully localized troublesome symptoms which have been present for years can be relieved in a short time (generally in two or three weeks), and complete absorption of the infiltrations can be effected. The treatment we adopt consists in local applications of mud in the form of packs at 40° to 45° C. (32° to 36° R., or 104° to 113° F.) for half an hour to an hour daily; in addition, we use careful massage of the infiltrated part and surrounding area, in which the help of some form of vibration apparatus which is not too strong may be useful. In our experience there are not many problems in medicine which can be solved so satisfactorily and with comparatively so little trouble.

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Reports of Societies.

ROTATION OF THE FOETUS.

AT a meeting of the Edinburgh Obstetrical Society, held on June 12th, with the president, Dr. HAIG FERGUSON, in the chair, Dr. J. CHASSAR MOIR read a paper on the mechanics of internal rotation of the foetus.

Dr. Chassar Moir said that the subject of the rotation of the foetus had in the past brought forward so many varying and conflicting theories regarding its exact mechanism that it seemed desirable to open up the subject afresh. A theory to be valid must explain the movements of rotation which take place in normal and abnormal presentations. The rotation of the shoulders in a cephalic presentation, the rotation of the pelvis in a breach presentation, the rotation of the after-coming head, the rotation which occurred in the experiments of Dubois and of Edgar—all these facts had to be accounted for. The theory must also explain why on rare occasions the normal mechanism breaks down. The necessity for rotation was then illustrated by means of models, which allowed a "foetus" to escape when the occiput was anterior, but which became impacted on attempting to repeat the movement with the occiput in the posterior position. The structure of the birth canal was then considered, and reasons given for ignoring the slight differences in measurements of different cross-sections. The canal was a hollow passage of even contour and calibre, and was sharply bent at its lower end. The shape of the foetal head and trunk was discussed in detail, and a demonstration given by photographs, of direct tracings of the head, and also of tracings and photographs of frozen sections made by the speaker. From these investigations it was possible to draw the following conclusions: (1) Moulding profoundly alters the shape of the foetal head. (2) The flexed and moulded foetal head must be regarded as a bluntly pointed cylindrical structure very nearly symmetrical about its long axis. The apparent asymmetry of the face and mandible was due to the fact that the cylinder was obliquely cut off at its base. (3) In the flexed and moulded foetal head the occiput and sinciput ceased to be recognizable as projections. (4) At the level of the "girdle of contact" the foetal head was circular on cross-section and the presenting part beyond this was a symmetrically shaped dome. The apex of this dome, which impinged on the pelvic floor, was a point which coincided with the central axis of the head. (5) From frozen sections it was shown that the point about which bending occurs in the neck is very nearly equidistant from the front and back of the neck.

Dr. Chassar Moir, in a criticism of the theories of the mechanics of rotation, said it was obvious that the foetus must be studied in the shape and form which it assumes when rotation occurs. The head was an appendage of the trunk, and the two must be considered as a whole. Yet almost all theories were based on the study of a dried and *unmoulded head which had been severed from the trunk.* Sellheim's theory was discussed, and it was shown that some of the many criticisms with which it had been faced were invalid. There was contained in this theory an unassailable truth. The theories of Paramore and of Young were criticized. Dr. Young's model was described. The speaker believed that the rotation which it demonstrated played some part in parturition, but was not the essential cause of rotation of the foetus. Berry Hart's theory failed because the part which first touched the pelvic floor was the domed-shaped presenting part. This point was in the direct line of the long axis of the head. Lateral pressure on it could only cause tilting of the head. It could not cause rotation, because rotation required an eccentric pressure. Four facts were necessary to explain rotation: (1) The foetus was driven through a canal by a force acting from above. (2) This canal was sharply curved at its lower end. (3) The flexed and moulded foetal head was a cylinder which was attached to the trunk, which formed a second cylinder. (4) These cylinders could be bent on each other with unequal ease in different directions. By picturing the forces which arise when such a body is forced through such a canal, it could be seen that rotation must inevitably occur until the part of the body which was least easily bent coincided with the concavity of the lumen of the canal. The head, because of its flexed attitude, and because of the structure of the neck, could only with difficulty be further flexed. On the other hand, it could be readily extended. Lateral flexion required an intermediate *degree of force.* Figures obtained by actual measurement confirmed the statements. Descriptions and demonstrations were then given of a model designed to illustrate these mechanical facts. By altering the strength of various elastic bands the effects of the different forces could be studied. This model showed both short and long internal rotation of the occiput. Certain additional factors contributed to the rotation. The head when at rest was angled on the trunk. This aided rotation. A second model was demonstrated in which this angle was reproduced. This model also showed the apparent asymmetry due to the face and mandible of the child. The artificial vertebral column was more elaborate than in the first model. The point at which the vertebral column joined the head was accurately determined by the information gained from the frozen section of a foetus. This model demonstrated both short and long internal rotation with even greater ease than the first model. A mathematical explanation of the forces causing the rotation was then given. This theory was shown to apply equally readily to the rotation which occurred in a face presentation. Here, again, the head was a cylinder, and this time it could be bent most easily in the direction of flexion and least easily in the direction of extension. Forward rotation of the chin therefore took place. The theory also explained the rotation of the after-coming head. Rotation of the shoulders in a cephalic presentation, and of the pelvis in a breech presentation, could be accounted for by the unequal flexibility of the trunk in two directions. Short rotation could therefore occur. Long rotation required three unequal *flexibilities.* The occasional persistent occipito-posterior, and persistent mento-posterior cases were accounted for by the lack of complete flexion in the one case, and of complete extension in the other. The head could then be almost as easily flexed as extended. The essential factor was therefore missing, and rotation consequently failed.

In conclusion, Dr. Chassar Moir said that the cause of rotation could be broadly stated thus. Part of the driving force exerted on the foetus in causing it to pass through a curved canal was absorbed by that body, and converted into certain unequal lateral forces. These pressures, reacting from the walls of the canal, brought into play tangential forces which caused rotation of the foetus.

Reviews.

BLOOD GROUPS.

Few fields of biological research have experienced so great a rush for claims as "isoagglutination." Apart from the work of early prospectors, Landois (1875), and Shattock, Landsteiner, and others at the beginning of this century, the subject was entirely untouched. To-day Professor L. LATTES presents his *L'individualité du sang*,[1] a third edition of his well-known book, with a bibliography, which he hints is really incomplete, extending to 54 pages. The first edition of this work was written in Italian and published in 1923, the second appeared in 1925 and was in German; the present volume, written in French, reproduces the excellence of the previous editions, and the author seems to have brought it as well up to date as the rapid growth of an immature subject will permit.

The unfortunate confusion created by the numbering of the Jansky and Moss groups, which are given in several tables in parallel columns, is largely removed by adopting the V. Dungern Hirszfeld formula—O$a\beta$, Aβ, Ba, ABo (capital letters signifying agglutinogens, Greek letters agglutinins, O and o being absence of agglutinogens and agglutinins respectively)—which is independent of group numbers and at the same time gives a graphic representation of the group constituents. The author deals at length with the inheritance of blood groups on Mendelian principles, and introduces a table, collected from many different workers, of 4,856 families and 10,945 children, which demonstrates how nearly correct is the rule of inheritance—exceptions occurring only in thirty families (0.6 per cent.) and 100 children (0.9 per cent). He suggests that with improved technique this divergence might be even further reduced. The inheritance of blood groups is a most perfect example of the value of the law of inheritance as applied to man, and, apart from any biological interest, has fully justified its use in the determination of paternity. There is a most interesting chapter on the geographical and racial distribution of blood groups, a subject which is now attracting a great deal of widespread research, though so far with only provisional conclusions; it is a study which may well contribute to the solution of some of the deeper problems connected with the origin of man.

After a short account of the practice of transfusion there follows a discussion on the varieties of methods employed, and an attempt is made to explain some of the undesirable reactions and fatal results which occur unexpectedly after transfusion, and the precautions to be taken to prevent these occurrences. Group estimations should always be made, not only the interactions of receiver and donor which sometimes may give erroneous results if the serum of one or the other is feeble, but by typing both receiver and donor. The section on medico-legal aspects of blood groups discusses the determination of paternity, a subject which has received much practical study, especially in Germany, and also the detection of superfecundation and the diagnosis of blood stains. The last chapter is reserved for description of methods, and includes among others some good photomicrographs illustrating Thomsen's ingenious device for the determination of blood groups by using a standard mixture of blood cells A four-fifths and B one-fifth, so that with serum O$a\beta$ all the red cells will be agglutinated, with serum Aβ only one-fifth of the cells will be agglutinated, with serum Ba four-fifths, and with ABo none of the red cells will be agglutinated.

This is a most interesting and useful book. A translation into English would be welcomed by all English-speaking students and research workers.

THE ART OF PERCUSSION.

There are few things harder to learn in medicine than the art of percussion; indeed, an authority on pulmonary diseases once said that it had taken him fifteen years' continuous practice to master the technique with any degree of accuracy. This technique can only be learnt by examining the patient, but undoubtedly valuable hints can be picked up from the literature on the subject. We have just read with much interest a book by Dr. J. B. McDOUGALL on *Percussion of the Chest*,[2] a book which has been written with the object of pointing out the inestimable value of percussion correctly performed, as an aid to the diagnosis of diseases affecting the chest. The author states that the commonest error is to percuss too hard, thereby losing much valuable information of any morbid condition that may be present. His advice is to percuss gently, and he describes very clearly his technique and the methods by which he has learnt it. He gives a long account of the acoustic side of percussion, illustrating his points in terms of music, and describes the variations of the percussion note met with in pulmonary disease. His methods enable him to differentiate, by percussion alone, a serous pleural effusion from an empyema, even in the absence of oedema of the chest wall. The book is almost entirely concerned with the lungs—the percussion note of the heart being dealt with in a comparatively few lines. This is a pity, for the apex of the heart is really the most important surface marking of the chest, and its position plays a great part in the study of diseases of the lungs. The book, which is essentially one for those engaged in the teaching of medicine, is elegantly bound, but lacks an index. Its novel features are some rather heavy drawings and a bibliography, alphabetical in principle but not in detail.

MODERN PREVENTIVE MEDICINE.

In his book on the *Evolution of Preventive Medicine*, published in 1927 and reviewed in these columns at the time (December 10th, 1927, p. 1094), Sir ARTHUR NEWSHOLME traced the progress of the preventive idea from antiquity down to the dawn of the new era which revealed the role of the micro-organism in infection and opened the way to a system of prophylaxis based on sure knowledge of the causes of disease. There he rested temporarily from his labours, stating that the growth of scientific medicine since Pasteur had been enormous enough to demand a special volume which might follow. The special volume which has now happily appeared under the title *The Story of Modern Preventive Medicine*[3] forms a distinguished sequel to the earlier work. Though it includes a span of some seventy years only, by contrast with the centuries covered by its predecessor, it surveys an amount of patient research crowned by successful and salutary achievement which is unexampled in the history of medicine and perhaps of any science. The work of many observers in various countries on infectious diseases, together with the practical application of their numerous discoveries, has been brought within the compass of a book of moderate size in that lucid and informative manner which we have learned to expect from the writer.

After a note on Pasteur's early work, in the course of which he disproved the possibility of the spontaneous generation of life, reference is made to what is rightly called the first and greatest triumph of the application of the germ theory through the introduction by Lister of the antiseptic methods which are the foundation of modern surgery. Under the prevention of rabies a description is given of the saving of Joseph Meister by Pasteur, and it is shown how the present-day immunity of Britain is due to Mr. Walter Long's muzzling order, followed by overseas quarantine. The cure and prevention of diphtheria by current methods includes an account of the community immunization by means of the toxoid-antitoxin mixture. The results claimed in America are noted, but an attitude of caution is recommended. The view is expressed that it is too early as yet to give complete statistical proof of the communal protection afforded. The section on enteric fever recalls a number of historic outbreaks, the details of which it is pleasant to peruse in this convenient form. The various channels of infection are considered and the carrier problem is touched on. The louse-borne diseases, hookworm disease, plague, filariasis, and Texas fever are

[1] *L'individualité du sang.* Par Leone Lattes. Préface du Professeur E. Jeanbrau. Paris: Masson et Cie. 1929. (Med. 8vo, pp. xi + 314; 66 figures. 50 fr.)

[2] *Percussion of the Chest.* By J. B. McDougall, M.D.Glasg., F.R.C.P.Ed., F.R.F.P.S.Glasg. London: H. K. Lewis and Co., Ltd. 1929. (Cr. 8vo, pp. viii + 143; 10 figures. 6s net.)

[3] *The Story of Modern Preventive Medicine.* By Sir Arthur Newsholme, K.C.B., M.D., F.R.C.P. London: Bailliere, Tindall and Cox. 1929. (Cr. 8vo, pp. xii + 295, 9 figures. 18s net.)

reviewed in turn, and under malaria Sir Ronald Ross's factors are quoted by which the continuance of the disease in localities is determined. A postscript to the chapter on yellow fever records the fact that Noguchi's leptospira has ceased to be regarded as the causative parasite. A hopeful feeling is entertained of the prospect of the ultimate suppression of tuberculosis. With reduction of the opportunity of infection and increase in the capacity of resistance each successive crop of tuberculosis cases should be scantier than the one before.

Other topics in the book are ventilation, smoke, sunlight, occupation, housing, and the prevention of goitre, rickets, scurvy, beri-beri, and alcoholism. On these and kindred subjects the author's high position and long experience of the administrative field entitle him to speak with authority. His views will be read with interest and appreciation by all who are concerned with hygiene or the general welfare of the people.

DISEASES OF CHINA.

A SECOND edition of *The Diseases of China*[4] by Dr. JAMES L. MAXWELL has appeared. The first was published in 1911, the authors being Drs. W. H. Jefferys and J. L. Maxwell, but, the former having retired, Dr. Maxwell has undertaken the revision single-handed, and has had to rewrite the book almost completely. Since no one man can write authoritatively on both medicine and surgery, Dr. Maxwell has drawn freely on the medical literature sent to him as editor of *The China Medical Journal*, and has received material from all over China. This work aims at being of value chiefly to doctors in isolated situations, and it doubtless will be so, especially to the more recent comers who find themselves confronted with strange cases they never encountered before. The first chapter is an interesting summary of the conditions of practice in China as regards the methods of native "quacks," but the part dealing with modern scientific practice is written in too general a sense, and will give little help to those who turn to it for information about the professional and research facilities which are now available. The same remark applies to the chapter on "nosogeography," which only skims the subject, no doubt from lack of material, as there has never been any systematic attempt to study the geographical distribution of disease in China. Practitioners will look in vain for many points embodying the latest work on plague: all the forms of it are dealt with in ten pages, as against twenty-four for leprosy, which has no manifestations peculiar to China. Chinese diet is not mentioned, though it is worthy of consideration in the cause and treatment of various native disorders. Nevertheless, the volume contains much valuable information for the lonely doctor, who will find a good deal to stimulate thought in the right direction if he follows up the quoted work of Far Eastern pioneers. For there yet remain diseases in China not known elsewhere, and markedly so in the realm of parasitology, where there are etiological factors that call for research and further knowledge than is made available. While Dr. Maxwell's work is praiseworthy we think that in a future edition he might consider the advisability of entrusting some chapters to men, Chinese and others, who have specialized on various lines and whose published researches have shown they can be regarded as authorities. It contains no mention of public health work in China, or of the manner in which it has been found most expedient to administer it in dealing with local outbreaks of plague and cholera and with diseases like tuberculosis and trachoma that scourge the country.

The book is published in Shanghai and should have a wide sale in China. It is well illustrated, some of the photographs being startling in the way they show the length to which human afflictions can go. Though lacking in some respects it is important in showing that China is too large a place for safe generalization about its diseases: false conceptions have already arisen for want of a proper understanding. We yet await, for example, more detailed data about the incidence of malignant diseases and the information to be gathered from them.

[4] *The Diseases of China.* By James L Maxwell, M.D., B.S.Lond., Major, late R.A.M.C. Second edition. Shanghai: China Medical Association. 1929. (Roy. 8vo, pp. ix + 530; 176 figures. Price in Great Britain, post paid, 20s.)

"RACIAL HYGIENE."

To be of value a book should have something new, either of matter or manner; but, unfortunately, with one exception, Professor THURMAN B. RICE'S *Racial Hygiene*[5] has neither. The exception is the account of an investigation he himself made into the fertility of the socially inadequate. He ascertained (through a public dispensary) the size of family of 1,117 women who were so destitute, mainly through illness or defect, that they could only obtain medical students to attend them in childbirth. The details are remarkably interesting, especially in showing how early some of these women begin to add to the population.. The average size of family of those aged 35 was 6.2; of those at 40, 7.2; and at 41, 10.7. The last figure is probably too high to be representative, but the figure of 7.7 for all mothers over 35 years is almost exactly that tentatively arrived at by Mr. E. J. Lidbetter from his researches (unpublished) into the pedigrees and fertility of London paupers. By way of comparison Professor Rice obtained similar statistics from a maternity home used by a cultivated class. These mothers only achieved 2.2 children a head at and over the age of 35.

In other ways the book is very like all the other introductions to eugenics, though showing, perhaps, a little more common sense in sociology and a little more confusion between eugenics and hygiene. Like them, it quite fails to pass the crucial test of rendering the complexities of biology easy to understand; in fact, Professor Rice has obviously not mastered them himself. He shows a lack of comprehension of natural selection, and there are even gross errors in his descriptions of various vital processes. For example, on page 46 he implies that bi-parental inheritance *reduces* variation, and on page 48 et seq. he betrays an apparent complete ignorance of the X and Y chromosomes and their function in sex determination. Again, in chapter vii he confuses sex-limited with sex-linked characters, speaks of the female as the weaker sex, and attributes the high sex ratio at birth to the excessive mortality of *female* embryos. In fact, very many more males than females are conceived, while their pre-natal mortality is at least 60 per cent. higher.

Though a little happier when dealing with the sociology of the subject, Professor Rice perpetuates two common errors—first, that genius is linked with insanity, and secondly that France has a stationary population. Like most tyros, he considers "recessive" less harmful than "dominant" defects, and even recommends out-breeding as a cure—which would scatter the seeds of racial weakness throughout the normal population. In short, inaccuracy and superficiality are not redeemed by a Sunday school idealism, and they render the book most unsafe for the laymen for whom it is intended.

A FRENCH SURVEY OF PRACTICAL MEDICINE.

THEY order certain matters better in France, but it is not mere insular prejudice which compels us to say that the production of a medical annual is not one of them. The Annual Review of Practical Medicine,[6] compiled under the direction of Dr. CAMILLE LIAN, with a preface by Professor SERGENT, and now in its eighth year, contains material similar in all respects to that in the *Medical Annual* of this country, but falls far short of it in bulk, binding, and quality. There is, on the other hand—as, for example, in the plea that phthisical diabetics should no longer be left to their melancholy fate, but resolutely "set about" with insulin and artificial pneumothorax—an air of optimism in the whole book not equally conspicuous in the *Medical Annual*. It presents, moreover, in very handy form synopses of work recorded in the less well-known provincial French medical journals, in this respect differing wholly from the *Medical Annual*, and having a national rather than an international character.

On reading the summary-reviews we gain the impression that considerable advances have occurred in medical treatment. We note the wide possibilities of liver therapy in

[5] *Racial Hygiene.* By Thurman B. Rice, A.M., M.D. New York: The Macmillan Company; London: Macmillan and Co., Ltd. 1929. (Demy 8vo, pp. xiv + 376; 57 figures 18s. net.)

[6] *L'Année Médicale Pratique.* Publiée sous la direction de Dr. Camille Lian. Préface de M. le Professeur Emile Sergent. 8me année. Paris: R. Lépine. 1929. (4¼ × 7, pp. xx + 621.)

conditions of avitaminosis and dropsical states of all sorts. Surgery appears to have a place in the treatment of syringomyelia. The technique of oleothorax is given fully and the method is praised faintly. Induced malaria has been tried with interesting results in dementia praecox. Encephalitis and post-encephalitic states can be usefully combated with a course of intravenous acriflavine. The treatment of asthma is fully considered under the headings of local anaesthesia, ablation of the plexuses corresponding to the stellate ganglion, ephedrine, radiotherapy, and venesection. Very precise instructions are given as to the indications and technique of radiotherapy in angina pectoris. The outstanding article of the whole book is on the clinical uses of quinidine; in this the reviewers go so far as to say that all sufferers from auricular fibrillation should be subjected to quinidine therapy at the earliest possible time; provided embolic phenomena, cardiac decompensation, or bradycardia are not already present. They urge that a new chapter in cardiac prognosis could be written if quinidine were more widely used. The outbreak of dengue in Athens in 1928 is described very thoroughly by a Greek physician, whose article will be useful to future writers of medical textbooks. Abortive, hyperpyretic, relapsing, hypotensive, haemorrhagic, nervous and gastro-intestinal forms of dengue are recognized, and the complications include paralyses, cardiac failure, uraemia, gastro-enteritis, pleuropneumonia, and furunculosis.

Apart from the topics we have mentioned, this year-book contains several hundred summaries of French medical progress in all the branches of science, and for this fact alone we think it should accompany the *Medical Annual* into every library in this country.

NOTES ON BOOKS.

THE third or May number of the first volume of the new series of the *Annals of Medical History*[7] contains seven original articles on very various subjects, and, as usual, is generously illustrated. In the first article, on "Bath Olivers—doctor and biscuit," Dr. E. B. Krumbhaar describes the activities of William Oliver (1695–1764), not to be confused with another Bath doctor of the same name (1659–1716), who also wrote a book on the Bath waters. The portrait of the inventor of the biscuit forms the frontispiece of this instalment. Dr. Casey Wood writes on Lord Byron's physician, Julius Millingen, fortified by knowledge obtained from Edwin van Millingen, the son of his subject, and includes an account of Lord Byron's necropsy. Dr. W. G. Aitchison Robertson gives an account of "The Castle of Helth" and its author, Sir Thomas Elyot, whose portrait decorates the cover. Of Albrecht von Graefe, who died in 1870 at the early age of 42, Dr. F. H. Adler writes that in many of its departments ophthalmology has not advanced since his time, and that this shows how great the man was. The longest article, occupying about a third of the number, is on the history of Haitian medicine, by Lieut.-Colonel Robert P. Parsons of the United States Naval Medical Corps, who points out that what was a hotbed of disease has within ten years been transformed into a relatively healthy land, which compares favourably in sanitation with any place in the tropics; this is largely due to the directing genius of Admiral E. R. Stitt, surgeon-general of the United States Navy. Dr. F. S. Hammett writes on the anatomical knowledge of the ancient Hindus, and Dr. E. W. Gudger on some early and late illustrations of comparative osteology.

Dr. GUY BOUSFIELD's little work on *The Schick Test and Diphtheria and Scarlet Fever Immunisation*[8] contains a full and clear explanation of active immunization against diphtheria and scarlet fever, with details as to technique. Allied subjects are discussed, such as the occurrence of diphtheria among apparently immune persons, the immunization of schools and control of epidemics, the institution of a clinic for wholesale immunization, and an account of the accidents, some of which were fatal, attending diphtheria prophylactic measures with advice as to their prevention. The chapter on scarlet fever contains a description of the Dick test and the method of active immunization against the disease. A list of twenty references is appended, all but one being to English or American articles.

[7] *Annals of Medical History.* New Series, Vol. I, No. 3, May, 1929. Edited by Francis R. Packard, M.D. New York: P. B Hoeber, Inc.; London: Baillière, Tindall and Cox. 1929. (Imp 8vo, pp. 253–362; illustrated. Subscription in Great Britain £2 5s. per volume of six numbers.)

[8] *A Practical Guide to the Schick Test and Diphtheria and Scarlet Fever Immunisation.* By Guy Bousfield, M.B., B.S. London: J. and A. Churchill. 1929. (Post 8vo, pp. 71; 4 plates. 5s. net.)

In his volume on *The Heart*, in the eleventh edition of *Quain's Elements of Anatomy*,[9] Professor WALMSLEY gives a thorough-going account of the comparative anatomy, development, and structure of that organ, with a number of satisfactory illustrations. Abundant references to the literature of the subject are given, and many interesting details of the history of the anatomical study of the heart are to be found in the text. Professor Walmsley has a clear style, and is to be congratulated on the success with which he has described the anatomy of the heart. This book should be in the hands of all anatomists and senior students of anatomy.

The clinician has offered to him in the work on the cardiogram in the left lateral position,[10] by PACHON and FABRE, another instrumental method for studying cardio-vascular disease. The authors contend that the capacity of the heart for work can be deduced from comparisons of the apical cardiac impulses in a given posture, as recorded graphically, with supposedly normal impulses. It being, however, admitted that curves obtained from points but slightly removed from the apex are quite unlike apical curves, the validity of the method is in all cases at least conditioned by the possibilty of localizing the apex beat, even if the basic principle of a quantitative relationship between impulse and cardiac output is accepted.

The thirty-seventh edition of *The Annual Charities Register and Digest*[11] is a work indispensable to those engaged in charitable and good deeds, and anxious to do the best that can be done with their money. Its object is to set out the many ways in which distress may be relieved by recourse to hospitals, homes, special institutions, and so forth, and gives full details of what may be done in these directions. The contents of this *Register* are classified under such headings as relief in affliction, relief in sickness, relief in permanent or temporary distress, reformatory relief, and the like; there is an appendix, too, with a deal of useful information about benevolent institutions, friendly societies, trade societies, and many other such matters. The book ends with a very full index, and may be most warmly recommended to all charitable workers who are not already well acquainted with it—if, indeed, any such exist.

[9] *Quain's Elements of Anatomy.* Vol. IV, Part III: *The Heart.* By Thomas Walmsley, M.D. Eleventh edition. London: Longmans, Green and Co. 1929. (Roy. 8vo, pp. vii + 152; 84 figures. 16s. net.)

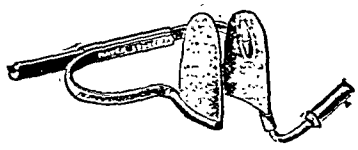
[10] *Le Cardiogramme de Décubitus Latéral Gauche en Clinique.* Par V. Pachon et Roger Fabre. Paris: G. Doin et Cie. 1929. (6¼ × 9½, pp. 87; 36 figures. 20 fr.)

[11] *The Annual Charities Register and Digest.* Thirty-seventh edition. London: Longmans, Green and Co. and the Charity Organization Society. 1929. (Demy 8vo, pp. 557. 8s. 6d. net.)

PREPARATIONS AND APPLIANCES.

AN ILLUMINATED NASAL SPECULUM.

MR. JOHN E. G. MCGIBBON, M.B., B.S., D.L.O. (Liverpool), writes: The accompanying illustration shows a simple electrically illuminated nasal speculum. The light-carrier is of the Jackson type, set at an angle through the blade of the speculum,



and can be removed for cleansing. The instrument is useful for bedside examination when it is difficult to obtain a satisfactory light. The same principle could be applied to the Thudichum type of speculum. The instrument here described has been made for me by Messrs. Mayer and Phelps.

A LABOUR-SAVING DEVICE FOR URINE EXAMINATION.

Dr. G. RAMSEY PHILLIPS (London) writes: Disliking the task of filling test-tubes direct from a pot and having to wash up a greater number of pieces than necessary, I have had a battery hydrometer adapted for urine. This instrument, illustrated

herewith, will pick up a specimen from any kind of vessel, show the specific gravity, and fill a test-tube without spill or mess. The usual cleansing of pipette, urinometer, and trial jar is reduced to the one simple operation of drawing in clean water and squirting it out again. The device may be obtained from Messrs. A. Charles King, Ltd., 34, Devonshire Street, W.1.

British Medical Journal.

SATURDAY, JULY 6TH, 1929.

PROGNOSIS IN MYOCARDIAL DISEASE.

THE St. Cyres Lecture on diseases of the myocardium, delivered by Dr. R. O. Moon and published in our present issue, deals with as difficult a subject as may be found in cardiology, perhaps in the whole of medicine. We are accustomed to hear that knowledge of prognosis in cardiac disease has advanced considerably in late years, but Dr. Moon shows that the essential facts were not unknown to writers of the early nineteenth century. The introduction of percussion and auscultation of the chest, of all manner of new diagnostic instruments, each credited by its devotees with unprecedented powers, may be blamed for creating obscurity where there was once clarity. It must be admitted, however, that the older writers, such as Corvisart and Stokes, though perhaps possessed of the key to cardiac pathology, understood so little of the morbid anatomy of the myocardium and the functions of the circulation that they lacked the lock in which to fit it. The expectation that microscopic examination would elucidate the nature of the changes in a diseased heart has not altogether been fulfilled. Cardiac pathologists feel, indeed, that such examination has misled those who, finding the hypertrophied myocardium histologically normal, have ascribed the enlargement entirely to physiological compensation for valvular defect. Similarly, the histological characteristics of the diseased myocardium described so fully by Dr. Moon are found only in a small proportion of cases; in most diseased hearts the changes found on microscopic examination are small and inconstant.

The cadaver having failed, then, to yield its secret, one turns to the living subject, and asks how the state of the myocardium is to be judged. The question would appear to be simple and likely to yield a simple answer, even when due weight is given to the complexity of the circulatory mechanism and our present incomplete analysis of it. Looked at from one point of view, the function of the circulation is to control the metabolism of cells in proximity to the smallest blood vessels, and at first sight it would seem that a more or less pronounced failure to respond to the increased demand when the metabolic rate of these cells is augmented might be taken as an indication of myocardial damage. Nothing, apparently, could be simpler than to note the patient's response to exercise; increase in the respiration rate would show that deficiency in the circulatory function is being made good by one of those allied mechanisms whose importance and multiplicity are now being realized; similarly, an increased pulse rate would suggest—perhaps with less certainty, in view of the variable excitability of the vagal and allied centres—that a raised mean arterial pressure has been called to the aid of the peripheral circulation. Unfortunately, however, these responses alone do not sufficiently indicate the capacity of the myocardium for work, the state of the other organs, the tone of the patient's muscles, and his physiological responses, all being variable factors.

A prognosis in heart disease, as in other diseases, may be based on the study of properly accumulated statistical data. If large numbers of cases correctly classified are followed over a period of years, then the expectation of life and activity of any new patients should admit of approximate estimation. Statistics on these lines are being prepared; the problem lies in the allocation of the given case to its proper class. A study of etiology is important, because the prognosis of myocardial disease is to some extent determined by its cause. Equally important is it to know how seriously the muscle is damaged, the present tendency being to lay special emphasis on one tangible sign, and to base an estimate on its prominence. Thus some clinicians look to the size of the heart, some (especially in America) to the form of the T wave in the electro-cardiogram, others to the results of an exercise tolerance test.

During the past century the number and loudness of intracardial murmurs, and the nature of the heart sounds, served as a guide to the patient's future, on the gratuitous assumption that the heart must yield its secret to a well-manipulated stethoscope. Clinicians who had devoted many years of patient study to classifying heart sounds tended to base prognosis on the material yielded by this method of investigation and to teach their pupils to do the same. It would be going too far to affirm that the stethoscope should not be used at all in examining the heart; it is, however, correct to say that the information the stethoscope affords is small compared with that derived from more general considerations—in short, that all auscultatory signs should be interpreted with scepticism. If heart murmurs are to guide us at all it is in grouping our cases for statistical purposes. The classical apical and basal diastolic murmurs afford, according to available statistical data, good evidence of valvular disease, and point, therefore, to the existence of corresponding myocardial damage. The diagnosis of valvular lesions from apical and basal systolic murmurs is subject, however, to two fallacies: first, basal systolic murmurs are often absent in cases of mitral stenosis with sclerosed cusps, notwithstanding the considerable regurgitation which is bound to take place with each ventricular contraction; secondly, as Grant showed a few years ago, patients whose only cardiac abnormality is the apical systolic murmur do not tend to develop disease of the circulation sooner than normal subjects. The systolic murmur is neither direct nor indirect evidence of myocarditis, and unless we know there is myocardial damage we must hesitate to make other than an optimistic prognosis. A like scepticism should be applied to the evidence given by the cardiac rhythm, which at one time was picked out and studied as a unique criterion of myocardial efficiency. Interest in arrhythmias absorbed the attention of cardiologists for many years, and inspired the epoch-making work of Sir Thomas Lewis on conduction of the heart muscle; but though a great deal is now known about cardiac irregularities and their differentiation by simple clinical methods, faith in their prognostic significance has waned.

The evidence afforded by the size of the heart, especially if correlated with the results of the exercise tolerance test, is often valuable both in diagnosis and prognosis. It is important, however, to realize that in some obscure but common forms of myocarditis found in advanced life, the weight of the heart may be normal, and the clinician must then seek other signs for his guidance. An analysis of Dr. Moon's ten points shows that the less equivocal of these signs are not to be elicited merely from an examination of the chest; we have to do violence to man's analysis-loving intellect, and, considering as

best we can the body as a whole, ask, Does it work or does it not? We cannot but agree with Dr. Moon's statement that "even when there is no doubt about the existence of myocardial degeneration it is still extremely difficult to make a certain prognosis." Even the statistical method may avail little; experience has shown too many cases of myocardial disease which, though apparently similar, have followed entirely different courses.

HYDATID DISEASE.

HYDATID infestation presents many problems of interest to the surgeon and pathologist alike. The parasite may exist but does not develop outside the body of a host, and the biphasic life-cycle occurs partly in the intestine of the dog and partly in the parenchymatous tissues of an intermediate host, usually one of the herbivora. Man may also act as an intermediate host, but in this case the cycle is broken. The act of infestation of man is, in the nature of the case, definitive. As a witty French writer has said, the human hydatid is "sans avenir, sans espoir." Many of the phenomena of hydatid development found especially in man may be related to the interruption in the normal cycle of evolution. The formation of daughter and granddaughter cysts, so common in human hydatid as distinguished from that of the herbivora, for instance, may be an attempt to perpetuate the active elements of the parasite, pent up in a longer-lived intermediate host.

We publish this week at page 5 a paper by Professor Carmalt-Jones, recounting his observations on hydatid disease in New Zealand during the last ten years. In New Zealand, although the close association of man with sheep and dogs makes infection possible, the incidence of hydatid disease is not high. It is estimated that about 150 new cases occur each year, probably about 1 in 10,000 of the total population. In Great Britain the disease is rare, and cases of hydatids are curiosities. In New Zealand, judging from Professor Carmalt-Jones's experience, it is the element of surprise that dominates the picture, and this in spite of the teaching that in hydatid-infested countries the practitioner should think always of hydatid.

The mode of infection is by the alimentary tract and portal vein, so that the liver shows the highest incidence. The lung is the next commonest seat when the embryo is caught in the lung capillaries after passing through the right side of the heart. The embryo may, however, negotiate the lesser circulation and left heart, and become lodged in any organ or tissue of the body. In its site of lodgement it becomes surrounded by a fibrous capsule formed from the tissues of the host. No specific symptoms of hydatid disease occur, for the hydatid is in effect a foreign body; and when situated in an indifferent tissue, apart from accidents, it may show a remarkable degree of latency, extending often over years. But it is a foreign body capable of growth, so that symptoms due to pressure usually occur sooner or later. Often the vitality of the hydatid becomes exhausted, the cyst contents dry up, and are partly absorbed; the fibrous capsule may then have lime salts deposited in it, and the parasite be discovered as a stony mass only at a post-mortem examination. Accidents may happen both to host and to parasite. Of the former the most important is the erosion of a blood vessel, usually a vein, during growth of the cyst, followed by severe haemorrhage. Small leakages from the cyst may produce a state of sensitization in the host, so that rupture may be followed by severe symptoms of anaphylactic shock. Dévé of Rouen has recorded an instance of a child dying eight hours after a successful operation for hydatid, in which no explanation could be found other than shock produced by spilling hydatid fluid at operation on a patient previously sensitized. Accidents to the parasite itself are usually suppuration or rupture, both following trauma of greater or less degree. A suppurating hydatid cyst produces symptoms of abscess in the organ in which it is situated and the course is similar. Rupture may occur into a serous cavity, bronchus, blood vessel, or gland duct such as the ureter. A diagnosis may be made from hydatid cysts passed per urethram, and a doubtful pulmonary case may be cleared up by the patient coughing up the cyst. Rupture of the cyst has a special practical interest, for in some circumstances a form of development takes place differing from the cycle of dog to intermediate host and back. Tiny daughter cysts, and even the scolices or buds formed in the brood-capsules of the cysts, are capable of growing when implanted in a new tissue. In this way secondary infection of the peritoneal, pleural, or pericardial cavity may take place through rupture; and of the incisional wound and adjacent tissues by spilling of hydatid material at operation when imperfect technique is used. Further, rupture into a blood vessel or into the heart may lead not only to embolism of hydatid material, but a secondary echinococcosis from development of embryonic hydatid material at the site of embolus.

The symptoms of hydatid disease are thus protean and may resemble those produced by any other foreign body in the tissue affected. Nevertheless, in the symbiosis of host and parasite there are interactions between the two. The hydatid obtains nourishment by absorption from the host's tissue fluids and may also attract infecting germs which produce suppuration. The host responds to the presence of the hydatid by elaborating substances which can be demonstrated by appropriate biochemical procedures. In common with other helminths, the *Taenia echinococcus* evokes an eosinophilia. This has been shown to occur in the blood and around the site of the growing hydatid cyst in experimentally infected animals. Gross eosinophilia is a recognized phenomenon during the early stages of infection with *Bilharzia* and *Fasciola*, and it is likely that a similar pronounced eosinophilia in the circulating blood occurs during the invasion period of hydatid infection; but so far as we know no case has been recorded at this stage, probably because the invasion is insidious. As long ago as 1906 Welsh and Barling, using the absolute count of eosinophil leucocytes rather than the percentage, found that 50 per cent. of cases of hydatid before operation had 500 to 2,500 eosinophil leucocytes per cubic millimetre. In Professor Carmalt-Jones's paper the less satisfactory method of recording the percentage is given, and he states that only 35 per cent. of cases in a series observed had an eosinophilia of more than 5 per cent. It is advisable to estimate the absolute eosinophil count, which is normally little over 200 per cubic millimetre. We think it necessary to emphasize this point, since an eosinophilia may be a valuable aid to diagnosis in this country, where laboratories have not the specific antigen to carry out the tests by complement fixation and precipitins. These latter tests, however, in routine use, have won a high regard for their accuracy in determining the presence of hydatid in doubtful cases, and a positive result is diagnostic. A sensitization of the host usually occurs, so that intradermal injection of sterile hydatid

fluid produces an erythema and induration at the site of injection in a large percentage of patients with hydatid disease. Since the sterile antigen can be put up in glass phials and kept for many months with full potency, the use of the Casoni intradermal skin test is likely to be of much value where hydatid only rarely comes into consideration. Professor Carmalt-Jones has been struck by the association of hydatid disease and haemorrhage, and suggests that the bleeding may be in some cases a manifestation of sensitization. This is worthy of note, and should be followed up by those who have an opportunity of observing a series of cases.

As the hydatid is not only a foreign body, but is also by its growth and possible complications fraught with danger to the host, removal by surgery is the best treatment. The mode of attack will, of course, vary with the site of the cyst, and in defining this radiography is often invaluable. The special surgical indications are to prevent infection of the wound and surrounding tissues by embryonic hydatid material, and to control haemorrhage from the fibrous capsule which surrounds the cyst and which is part of the host's body. The former indication is met by the injection of formalin in sufficient amount to bring about a 1 per cent. solution in the contents of the cyst before it is incised. This kills the embryonic scolices and sterilizes the contents. In addition, the wound and its surroundings should be efficiently packed off to prevent spilling of hydatid material during evacuation. The fibrous capsule must be handled gently. It may under certain conditions be filled with normal saline solution, closed by suture and allowed to drop back from the wound, but it is safer to close it and fix it under the wound so that drainage may be instituted later if the indication should arise. In the presence of complications, drainage may be required; but convalescence is thereby delayed and care is needed to prevent secondary infection. In some cases a portion of the fibrous adventitia may be taken away, and in calcified cysts the whole capsule has been removed successfully at times. It is recommended that a cubic centimetre of adrenaline solution should be injected into the patient ten minutes before operation, if there is any reason to fear anaphylactic shock.

In the countries in which it is endemic, cases of hydatid disease have many features of interest and surprise. They are, however, a cause of much anxiety in those who are called on to deal with them. As the public becomes more instructed in the mode of infection and in the methods of prevention, it is to be expected that human hydatid infestation will disappear.

TOXOID AND TOXIN-ANTITOXIN IN DIPHTHERIA IMMUNIZATION.

IN methods of vaccination or immunization against disease the main requirements are that the materials used shall not cause danger to life, that they shall produce sufficient immunity, and that they shall not cause severe reactions. All the ordinary preparations such as the typhoid vaccines, plague vaccine, and the prophylactics used to immunize against diphtheria and scarlet fever meet the first requirement; when properly made and tested, they do not endanger the life of a person vaccinated. An interesting article by G. F. and G. H. Dick[1] raises the relative importance of the other two requirements. These two workers set out to compare the immunizing activity of toxoid (Ramon's "anatoxine") and the 0.1 L+ toxin-antitoxin mixture used in U.S.A., by giving to each member of a group of 100 individuals five doses of the mixture, and, to each of a second group of 100, three doses of toxoid. Six to twelve weeks later, 82 of the former group and 94 of the latter were negative to the Schick test. The groups probably did not consist of exactly comparable individuals, and the difference between 82 per cent. and 94 per cent. is not highly significant; the results, therefore, do not show much superiority of the toxoid, though, in view of the fact that each cubic centimetre of toxoid contains much more—perhaps thirty times as much—of the original filtrate from the broth culture of the diphtheria bacillus, it would not have surprised immunologists had they done so. Toxoid, of course, is no new product. Löwenstein in 1914[2] described work he had carried out five or ten years earlier on the formalinization of tetanus toxin. Glenny and Sudmersen in 1921[3] showed that diphtheria toxoid—that is, toxin formalinized until it was non-toxic to guinea-pigs—could produce high immunity, and Glenny and Hopkins referred (1923)[4] to the immunization of horses with toxoid some fifteen years earlier. In 1923 Ramon[5] reported that he proposed to test whether toxoid could cause the production of antitoxin, and in 1924[6] he reported results showing high immunity, and minted the word "anatoxine" for "toxoid." The obvious suggestion that toxoid would be the best immunizing agent for human beings occurred to immunologists[7] in 1923; in the same year Schroder and Park[8] had already used a "deteriorated toxin (toxoid)"—and in 1924 a formalinized toxoid—for the immunization of human beings. In 1924 O'Brien[9] reported the immunization of human beings with toxoid prepared with formalin. Ramon and his French colleagues immunized human beings with toxoid in 1924[6] and, largely owing to Ramon's vigorous and able advocacy, it is now employed exclusively in France and the greater part of Europe and in Canada. The Dicks refer to the impression in America that toxoid is apt to cause severe reactions, particularly in adolescents and adults. Park[10] has used toxoid on a fairly extensive scale from 1924 onwards, but we note that in a large amount of forceful propaganda in the present campaign in New York, aimed at the eradication of diphtheria within the next decade, the use of toxin-antitoxin mixture is urged and toxoid is scarcely mentioned. It may be that Park gives first place to the mixture because of the tendency of toxoid to cause reactions. Toxoid has apparently been tried cautiously by a few workers in England since 1924. Severe reactions are recorded by Nash[11] in adults, though none occurred in a small group of children. It may be that reactions of this kind have disappointed the earlier hopes and prevented the adoption of toxoid in Britain. Though the full tables are not given in the article by the Drs. Dick, they point out that 9 patients in a group of 144 suffered severe reactions, generally with local pain, temperatures of 102° F. to 104° F., malaise, etc. In 4 of the 9 the course of three injections was not completed, presumably owing to the severity of the previous reactions. We think that the average British physician accustomed to the toxoid-antitoxin mixture would be perturbed if a similar percentage of his nurses had to go off duty during immunization. A preparation of toxoid has been on the market in England for some time without apparently winning over those medical men who have confidence in the toxoid-antitoxin mixture commonly used. It almost appears that medical

[1] Dick, G. F. and G. H.: *Journ. Amer. Med. Assoc.*, June 8th, 1929.

[2] Löwenstein, E. (1914): *Zeit. f. Exper. Path. und Therap.*, 15.
[3] Glenny, A. T., and Sudmersen, H. J. (1921): *Journ. of Hyg.*, 20, 176.
[4] Glenny, A. T., and Hopkins, Barbara E. (1923): *Brit. Journ. Exper. Path.*, 4, 283.
[5] Ramon, G. (1923): *Compt. rend. de la Soc. Biol.*, 89, 2.
[6] Ramon, G. (1924): *Ann. de l'Inst. Pasteur*, 38, 1.
[7] Glenny, A. T., and Hopkins, Barbara E. (1923): *Brit. Journ. Exper. Path.*, 4, 284.
[8] Schroder, M. C., and Park, W. H. (1923): *Journ. Amer. Med. Assoc.*, 81, 1432.
[9] O'Brien, R. A. (1924): *Journ. Roy. San. Inst.*, 45, 84.
[10] Park, W. H., Banzhaf, E. J., Zingher, A., and Schroder, M. C. (1924): *Amer. Journ. Public Health*, 14, 1047.
[11] Nash, E. H. T. (1924): Ann. Rep. Med. Off. of Health, Heston and Isleworth, p. 25.

officers of health and the physicians in charge of isolation hospitals, who carry out routine immunization of their staff—with the resulting abolition of diphtheria—have found that it is possible by the use of the less potent toxoid-antitoxin to obtain satisfactory immunity in a reasonable time without the risk of severe reactions. Most immunologists would agree that toxoid or concentrated toxoid possesses high immunizing power and would be used exclusively if it could be freed entirely from the constituents apt to cause troublesome reactions. It may be that eventually the use of toxoid or concentrated toxoid will become the universal method of immunization of children, while toxoid-antitoxin floccules or toxoid-antitoxin mixture will be kept for adults. Progress marches slowly in England, for medical investigators have a full—the eager research worker may be inclined to say "overfull"—sense of responsibility, and try the new thing with the greatest caution.

TEACHING SURGERY BY THE SOUND-FILM.

THOSE attending the summer meeting of the Section of Urology of the Royal Society of Medicine, on June 27th, witnessed what may well prove to be an important new departure in the instruction of students in urological and other operations. Three cinematographic films were projected illustrating respectively the procedure of suprapubic prostatectomy, litholapaxy, and internal urethrotomy, in all of which the operating surgeon was Sir John Thomson-Walker. The film illustrating urethrotomy was accompanied by a synchronized gramophone record in which the operating surgeon explained in a conversational way, as though he were commenting to a group of students, the use and handling of the instruments. This is almost, as Mr. Swift Joly remarked from the chair, the first attempt to show these operations by cinematographic means directly; sketches have been made before, and very ingeniously contrived so as to give a sequence to the film picture, but in this most recent innovation the cinematographic operator has been in attendance from the administration of the anaesthetic right through to the removal of the patient from the theatre. The film illustrating the prostatectomy began with the patient's case sheets, showing the history and the results of the examination, then proceeded to record the preparation of the patient, the passing of the catheter, and subsequently the making of the incision, the enucleation of the prostate, the exposure of the bladder base and prostatic bed, all bringing out with excellent clearness and on a large scale every movement of the surgeon's hands or instruments; then there followed the toilet of the internal meatus, the placing in position of the drainage tube, the repair of the abdominal wall, and the dressing of the wound, finishing with the removal of the patient on the inclined plane trolley. A demonstration was also given of the removed prostate, which was sectioned before the camera. The second operation to be shown on the screen was Bigelow's procedure of litholapaxy. Here one saw the washing of the bladder with boric acid and the introduction of the lithotrite; by an ingenious diagrammatic interpolation, rather after the manner of the quick change of the entertainment screen, it was shown how the stone was grasped and crushed in the jaws of the lithotrite, and the fragments evacuated by suction. In the third film, showing internal urethrotomy, performed for stricture of the urethra when the case was unsuitable for dilatation or when dilatation had failed, the operating surgeon, as already stated, became the narrator, and it was certainly an advantage to listen to his voice explaining the manipulations as they took place rather than to depend upon a title film at intervals. In reply to some congratulatory comments from those present, Sir John Thomson-Walker said that his attention was drawn to this method by his colleague Mr. Cecil Wakeley, whose enthusiasm had swept him (Sir John) past his first doubts and hesitations. Accustomed as he was when operating to rely only on one group of workers, he found himself in this instance compelled to consider two groups, and, when the sound record was added, three. The first group was the staff of the urological department of King's College Hospital, who were helpful as ever, and withstood the glare and heat of the "Hollywood conditions" with their usual composure. The second group consisted of those engaged on the motion picture record—namely, the medical department of Kodak Limited, of whose technical efficiency he could not speak too highly. The outcome of this combined work made it possible to see the operation on the film much more comfortably and to better purpose than in the theatre itself. When it was decided to make a sound-record a third group of assistants came forward, in the shape of members of the staff of "His Master's Voice" Gramophone Company, and they, too, had done their work exceedingly well. Sir John Thomson-Walker added that the procedures shown were those in general use, with possibly a few personal variations. The purpose of the film, which was quite experimental, was merely to indicate the value of the moving picture, perhaps accompanied by sound production, in medical education. It seemed to him to offer advantages in teaching in the schools. It was impossible to show every student every sort of case and every sort of operation, but the student could quite well assimilate half a dozen film operations in an afternoon. Other advantages, not mentioned on this occasion by Sir John Thomson-Walker, are the possibility of repeating the projection indefinitely until every detail becomes fixed in the mind, and also the possibility of stopping the film for closer examination at any point.

BRAIN AND MIND.

THE sciences of neurology and of psychology are admittedly still too wide apart, and every attempt made to correlate their findings—and this need not entail denial of the unique province of either—is to be welcomed. In *The Matrix of the Mind*,[1] Professors Frederic Wood Jones and Stanley Porteus have endeavoured to bridge the gap. The first forty or so chapters, which deal mainly with the developmental story of the brain, are contributed by Professor Wood Jones, and the remaining chapters, on the evolution of human behaviour, are the work of his colleague. Professor Wood Jones has a captivating style, and it is refreshing to read his account of cerebral development throughout the animal series. He has a flair for memorable phrases, and the headings of his chapters bear witness to his originality of expression. "Intuition and Panache," "Mistakes in Brain Building," "The Corpus Striatum and its Private Path," "What the Cortex cannot do," will afford some indication of his method of approach. Moreover, the raciness of his style sacrifices nothing to scientific accuracy: rather are the salient features of his account brought into greater relief and impressed upon the memory. He begins by discussing the idea of division of labour, and demonstrates the beautiful gradations which occur in the work of specialization. He describes the beginning of specialization in the common hydra. "When specialization is complete the single cell of dual function becomes the dual cells of single function. The one cell retains sensation and remains upon the surface, the other retains mobility and is buried beneath the surface." This is the starting point of Professor Wood Jones's description of what he terms the "external" and the "internal" nervous system. He discusses also the ancient kinship between the central nervous system and the skin,

[1] *The Matrix of the Mind*. By Frederic Wood Jones, F.R.S., and Stanley D. Porteus. London: E. Arnold and Co. 1929. (21s. net.)

which may justify the saying that beauty is only skin deep, but only when the matter is regarded rightly, for "it is as deep as the central nervous system." This discussion of the relationship of appearance and behaviour is original and arresting. There is an interesting account of the influence of one set of cells on another in the course of development, termed by the author "cytoclesis"; and his description of the mistakes in brain building in the invertebrates is singularly graphic. "To become a blood-sucker is to become a failure. Phylogenetic senility comes with the specialization of blood sucking. Phylogenetic death is sure to follow. Here, then, is an end to the progress in brain building among the invertebrates. Faced with the awful problem of the alternatives of intellectual advance accompanied by the certainty of starvation, and intellectual stagnation accompanied by the ability of enjoying a good square meal, they must perforce elect the latter if they are to live. The invertebrates made a fatal mistake when they started to build their brains around the oesophagus. Their attempt to develop big brains was a failure, it resulted in inevitable starvation. Another start must be made." This other start was the vertebrate's start, and Professor Wood Jones's narrative of it, which occupies his remaining pages, leaves nothing to be desired. Professor Porteus carries the story to the psychological realm in strict continuity with the preceding chapters, but necessarily, the difficulties being such, this part of the book is less satisfactory. The problems of consciousness and memory are well treated, though with perhaps something less than fairness to the concepts of psycho-analysis. Much of the difficulty inherent in the task that Professor Porteus has set himself is terminological, and when coming across such phrases as "a kind of consciousness not typically human" and "flashes of awareness" one feels the need for some such terminology as has been adumbrated recently by von Monakow.

THROMBO-ANGIITIS OBLITERANS.

THE morbid anatomy of thrombo-angiitis obliterans was first described accurately in 1879, though from examination of one case only, by von Winiwarter, who incriminated excessive smoking as a causal factor. Special attention was directed to it in New York by L. Buerger, who insisted on its racial incidence, and in London by Parkes Weber. A recent Mayo Clinic monograph[1] gives a complete account of the disease, based on observation of over 300 cases and a thorough review of the literature. The cases were observed at the Mayo Clinic from 1922 to 1927 inclusive, and each year the number recognized increased so that finally this disease accounted for 0.25 of all male admissions. Rather more than half the patients were Hebrews, but the incidence in Gentiles is increasing. The authors of this monograph regard abuse of tobacco as possibly a contributory factor, but not as primarily responsible; they consider that, though proof is still lacking, there is much evidence pointing to an infective origin. The average duration of thrombo-angiitis obliterans is five years. It begins with intermittent claudication due to anoxaemia; then follow postural changes, redness or pallor on dependency or elevation, and then pain, quite distinct from that of claudication, when the patient is at rest; lastly trophic lesions—ulceration and gangrene—supervene. But the clinical picture varies, and different types of the disease are described with an analysis of the symptoms. In two cases only was there reason to suspect coronary thrombosis, and it is remarkable that fatal pulmonary embolism never occurred, thus contrasting with post-operative phlebitis. With earlier diagnosis and treatment the prognosis is regarded in a more optimistic light than formerly. Special methods of investigating the disease employed by the authors include estimation of the rate of heat elimination, of the surface temperature, and of the vasomotor condition in the extremities. Treatment naturally depends on the stage of the condition. Prophylactic and other medical measures, such as radiant heat and non-specific protein shock therapy, are described; and the indications and results of surgical procedures, including sympathetic neurectomy, are passed in review. The authors note that all kinds of treatment were less effective in Hebrews than in Gentiles.

[1] *Thrombo-angiitis Obliterans: Clinical, Physiologic, and Pathologic Studies.* By George E. Brown, Edgar V. Allen, and Howard R. Mahorner. Philadelphia and London: W. B. Saunders Company. (14s. net.)

FUMES FROM ARTIFICIAL SILK WORKS.

IN our issue of June 1st (p. 1008) we referred to the risks to the workers from carbon bisulphide and hydrogen sulphide in the artificial silk industry by the viscose process. What was there said receives confirmation in a report of the chief inspector of alkali, etc., works.[1] As the title indicates, Dr. Lewis Bailey is concerned much more with complaints made from the outside than from the inside of the factory, and, as he shows, these complaints are serious. While absolving the industry from causing injury to the health of the community, he says the air from these works "is capable of being distinctly unpleasant" and of interfering with "the amenities of everyday life." The report is sadly unconvincing. Beyond calling for neutralization of free acids in dealing with the works effluents, little action seems to have been taken. Phrases such as "in the hope that," "has not been lost sight of," "more work is still needed," "certain other constituents," "to some extent," "it is possible that they could be," "should be effected," occur in nearly every paragraph, showing how far from solution the authorities are. We can pride ourselves, though, on the fact that "the works in England compare favourably with those in Germany."

[1] Report on an Investigation Regarding the Emission of Fumes from Artificial Silk Works. H.M. Stationery Office. 1929. Pp. 7. Price 3d.

ROYAL MEDICO-PSYCHOLOGICAL ASSOCIATION.

THE eighty-eighth annual meeting of the Royal Medico-Psychological Association is to be held, under the presidency of Dr. Nathan Raw, on July 10th, 11th, and 12th, on the first day at the Westminster City Hall, where a civic welcome will be given by the Mayor of Westminster, and on the succeeding days at the British Medical Association House, Tavistock Square. In addition to the presidential address and several independent papers a discussion is to take place on the last day of the meeting on the report of the Mental Deficiency Committee (the joint committee of the Board of Education and the Board of Control), including, "if available," Part III of the report, on the mentally defective adult. Dr. A. F. Tredgold will open this discussion. Another paper, to be followed by discussion, is on the modern approach to the problem of the admission of mental patients to in-patient treatment, by Dr. J. R. Lord. During the meeting it is proposed to elect as honorary members of the Association Professor Pavlov of Leningrad, Sir Charles Sherrington of Oxford, and Professor Eugenio Tanzi of Florence.

THE late Lord Revelstoke, in addition to his gift of £100,000 to King Edward's Hospital Fund for London, of which he was treasurer, has left £50,000 to Guy's Hospital, and £25,000 to St. Mary's Hospital Medical School.

THE annual report of the British Science Guild announces that the Norman Lockyer Lecture for 1929 will be given on November 19th, in the Goldsmiths' Hall, by Sir Walter Fletcher, M.D., F.R.S., whose subject will be "Certain aspects of medical research and their applications."

THE CANCER CAMPAIGN IN YORKSHIRE.

RESEARCH AT LEEDS UNIVERSITY.

LORD MOYNIHAN, chairman of the Yorkshire Council of the British Empire Cancer Campaign, in introducing the report for 1928–29, stresses the need for research on the powers and properties of radium in order that this agent might be used to the best advantage.

"It is now certain," he writes, "that in radium we have a weapon of the greatest value in our attack upon cancer. But it is a two-edged weapon, and though immense good has resulted, and will increasingly result, harm can be done, and has been done, by its improper use. It is, therefore, essential that until both the healing and the harmful properties of radium are much better understood than they are now, the greatest care in its use, and the most accurate control and supervision of all cases, is required. The widespread use of radium by inexperienced persons is therefore to be most strongly deprecated. It would be a great advantage if for some time many of the more serious cases to be treated could be housed under one roof, under the care of men trained, and training themselves, in the knowledge of radium and all its physical and therapeutic powers. If some generous donor could be found to create, and perhaps endow, a Yorkshire radium institute to which sufferers from cancer could be admitted from all parts of the country, for both in-patient and out-patient treatment, he would be a true benefactor to mankind."

Experimental Hyperplasia.

The report presented by the director, Professor R. D. Passey, on the work of the department of experimental pathology and cancer research, University of Leeds, which is conducted under the auspices of the Yorkshire Council of the Campaign, records further progress in the investigation by Dr. J. S. Young on the part played by physico-chemical factors in the genesis of proliferation in the alveolar epithelium of the rabbit's lung. Proceeding from the observation mentioned in the previous report, that such proliferation can be produced by the intrapleural injection of an emulsion of olive oil and bile salts, it has been shown that bile salts are equally effective when exhibited in emulsion in a non-saponifiable medium, thus dispelling any doubt that the proliferation was induced by the direct action of the bile salts on the parent cells. The chemical and physical complexity of this reagent, however, made it desirable to conduct investigations, using simpler reagents, in order to discover whether cellular hyperplasia was caused by the chemical nature of the cells or their physical properties. The experiments, in general terms, resolved themselves into an attempt to analyse the effects of altering the environment of the endothelium covering the visceral pleura and of the epithelium lining the marginal alveoli by the intrapleural injection of simpler substances, and observations made on eleven salts have afforded evidence in favour of the view that physical factors play an important part in promoting hyperplasia in the alveolar epithelium of the rabbit's lung. That the chemical nature of the electrolytes also plays some part is suggested by the fact that their biological behaviour tends to harmonize with the classification of their cations in the periodic table; in other words, that the biological properties of a metal may, just as its chemical reactions, be governed in some degree by its atomic weight. It has been shown, furthermore, that groups of electrolytes, possessing monovalent, bivalent, and trivalent cations respectively, produce increasing manifestations of cellular proliferation as the valency of the cation increases, a confirmation of Loeb's valency rule with reference to the effect exercised by neutral salts upon certain physical properties of proteins—namely, osmotic pressure and viscosity of protein solutions and the degree of swelling of gels—when the hydrogen-ion concentration lies on the alkaline side of the iso-electric points of the proteins concerned.

Following these investigations preliminary observations have been made which promise to bear on the principles of tissue susceptibility and tissue immunity. The intrapleural injection of 5 c.cm. of a three-quarter normal solution of strontium chloride produces epithelial proliferation which attains a maximum on the third or fourth day, and during the next four days undergoes involution. This involution, it has been shown, pursues its customary course regardless of subsequent injections at intervals of forty-eight hours; beyond a period of six or seven days from the date of the first injection the appearances of the lung have been practically normal, and have remained normal even when the injection has been seven times repeated. It would seem, therefore, that the proliferating cells arising from the first injection become refractory to subsequent injections of the same solution.

Professor Passey records the completion of the experiments with sudan III, referred to in last year's report; it was then observed that the injection of sudan III into the rabbit produced a graded series of lesions in the liver, conforming more or less strictly to acute yellow atrophy, cirrhosis, and multiple nodular hyperplasia in the human subject. There are now reported twelve examples of multilobular cirrhosis and multiple nodular hyperplasia of the liver, but no case of primary liver cell cancer. As a rule, the epithelial proliferation of the lung following the intrapleural injection of sudan III and bile salts has regressed within three to six months, thus pointing a striking contrast in the effects produced by the fat-soluble sudan III and bile salts on the one hand, and by the solutions of electrolytes on the other. The two reagents, a lipoid-alterant and a colloid-alterant, which might be expected to exercise selective effects upon the cell-lipoids and the cell-proteins respectively, can initiate epithelial hyperplasia with equal facility; but the reaction produced by the lipoid-alterant is sustained for a period of months in the presence of an excess of the reagent, whereas one injection of the colloid-alterant inhibits the action of a second injection given forty-eight hours later. These results may provide a basis for the study of the conditions which favour the maintenance of aberrant epithelial hyperplasia in the mammal, a problem which, in some respects at least, is distinct from that concerning the initiation of the hyperplasia.

Dr. G. H. Shaw, working in the department, has shown that another surface-active organic compound—namely, saponin, in a dilution of 1 in 2,000 in physiological saline—can produce hyperplasia conforming to that produced by bile salts, and has conducted experiments designed to submit Loeb's valency rule to a more critical biological test. On theoretical grounds it seemed that if proteins of the living cell membrane could be made electro-positive by the exhibition of suitable "buffer" solutions, then the anion of a neutral salt might be enabled to exercise its specific depressing effects on the physical properties of the proteins, culminating, perhaps, in cellular proliferation. Dr. Shaw's preliminary experiments have shown that, while cells can survive relatively wide variations in the hydrogen-ion concentration of their environment, their susceptibility to neutral solutions—sodium chloride, for example—is profoundly altered; thus a relatively weak solution of common salt, which exhibited in distilled water produces no gross reaction, becomes highly effective in the production of hyperplasia when it is added to an acid "buffer" solution, which is of itself ineffective. Work is now in progress designed to elucidate the nature of this interesting phenomenon.

Inhibition of Tumour Induction.

Dr. I. Berenblum,[1] in investigating the relation between the vascular response brought about by carcinogenic agents and the resulting tumour formation, attempted to modify the blood supply of an area subjected to repeated tarring by the application of two agents known to effect marked local hyperaemia—namely, carbon dioxide snow and mustard gas. Contrary to expectations, he found that in certain conditions repeated mild freezing with carbon dioxide snow is capable of inducing malignant tumours. To the laboratory worker this result is interesting as an example of cancer induction by a physical agency; to the clinician it is important on account of the frequent use of this agent in therapeutics. The fact that there is no record of cancer following the therapeutic use of carbon dioxide snow is understandable when it is realized that to induce cancer not only must treatment be carried out with very carefully balanced doses over a period representing a third of the lifetime of a mouse, but that even under these exacting conditions only three malignant tumours were obtained in seventy animals subjected to the experiment. No case of cancer arising from the frequent application of mustard gas was observed, an indication that irritation by itself will not necessarily result in cancer. Combining the application of tar

[1] Tumour-Formation Following Freezing with Carbon Dioxide Snow. *British Journal of Experimental Pathology*, 1928, vol. x, p. 179.

with carbon dioxide snow in one series of experiments and with mustard gas in another produced unexpected results. In the former series no augmentation of the cancer-producing properties of the tar was obtained; indeed, in the area where the applications of carbon dioxide snow and tar overlapped no tumours developed at all. In the latter series it was found that the presence of mustard gas, far from enhancing the carcinogenic action of the tar, was accompanied by an almost complete inhibition of tumour formation. This effect is not due to any neutralizing action, as the same result is obtainable if the mustard gas is applied separately in the intervals between tarring. Moreover, if a series of mice which have been subjected to tarring up to a point when the first warts are due to appear are then treated with the same tar to which mustard gas in acetone has been added, the subsequent appearance of tumours is almost completely inhibited, although the tarring be continued. It would seem that the processes which almost inevitably terminate in cancer can be interrupted at any stage, provided a tumour has not already appeared. Once this has occurred the same means seem powerless to check its progress.

Melanosis.

Experimental work and study of naturally occurring animal and human melanomata have shown that in these tumours certain of the most heavily pigmented cells are not malignant, but phagocytic, in nature. This finding is of considerable clinical importance, as the presence of pigment-bearing phagocytes in the lymphatic glands draining the site of a melanotic tumour may, without such knowledge, lead to the diagnosis of secondary deposits and an adverse prognosis in keeping. When the readiness with which pigment is taken up by phagocytic cells is more widely understood light may be thrown on the much-debated question of the nature of the cells from which melanotic tumours originate.

Cancer of the Lung.

Attempts to induce malignant disease of the respiratory tract in mice by exposing the animals for a short time daily to a high concentration of tobacco smoke over a period of some sixteen months have failed completely. Deaths from carbon monoxide poisoning were frequent, but otherwise the mice showed no ill effects attributable to the smoke; in fact, they appeared exceptionally healthy. At necropsy the lungs showed no characteristic lesions. It is pointed out in the report that from this failure to produce lung cancer it must not necessarily be concluded that tobacco smoke plays no part in the production of these tumours in man; the choice of experimental animal, the dose, the period of exposure, and many other factors may have been at fault.

THE NATIONAL CAMPAIGN AGAINST RHEUMATISM.

A FURTHER stage in the national campaign against rheumatism was reached at a meeting held at the House of the Royal Society of Medicine on June 26th, with Sir THOMAS HORDER, Bt., M.D., in the chair.

It will be recalled that in November last, at a conference of those interested (*British Medical Journal*, November 17th, 1928, p. 908), an executive committee was appointed to draw up a constitution for a body which it was decided should be called "The National Association for Combating Rheumatism." The proposed constitution and policy as framed by that committee was read to the recent meeting by Dr. MATTHEW B. RAY, who has acted as honorary secretary. It has been decided that the council which is to have the general direction and management of the campaign shall consist of persons elected at a meeting of supporters, also of those holding honorary office or membership of the committees, together with co-opted members—namely, persons whose membership would, in the opinion of the council, advance the interests of the campaign, and persons also who are nominated from time to time by any institution or body invited to do so by the council. The first chairman, vice-chairman, and honorary secretaries will be appointed by the council at its first meeting. It is proposed to have a medical committee and an industrial committee, the latter to include representatives of the Ministry of Health, municipalities, and industrial organizations.

In a statement of policy the objects of the campaign were summarized under five headings. The first was education of medical and public opinion, of patients and their friends, and of employers of labour. The second was the support and co-ordination of research into the causes of these diseases. The third, the increase of facilities for the treatment of rheumatic disease. This would be brought about by the formation of an arthritis unit or special hospital department, working in close co-operation with the medical school, fulfilling also the purposes of research, clinical investigation, and preliminary treatment; the development of existing facilities at general hospitals; the formation of centres for physical treatment in liaison with research laboratories; spa treatment; and the co-ordination of arrangements for following up discharged patients. The fourth heading was the establishment of uniform standards of classification and record, and the fifth the collection, translation, and distribution of information relating to the rheumatic diseases.

There was a need for educating medical opinion as to early diagnosis and the necessity for prompt and continuous treatment. Not only should prevention be in the forefront; there should exist an organized mechanism for following up cases, and advising or securing efficient home treatment, and giving suggestions as to suitability of occupation. Employers of labour, it was felt, ought to be invited to co-operate in this work.

Research concerning these diseases must include co-operation between laboratory worker and clinician, and between the latter and the biochemist, the radiologist, and the social worker, while climatic and other factors must also be studied. Centres should be formed for this special treatment, and these should be in working liaison with the laboratories. Uniform recording of results of treatment should also be aimed at; it would greatly aid statistical compilation and enable the results of particular treatments to be properly assessed.

Sir CLAUDE HILL (Governor of the Isle of Man), in moving the adoption by the association of the proposed constitution, mentioned that he was a member of the Council of the British Red Cross Society, whose activities included those of dealing with rheumatic diseases, though the field intended to be covered by this new body was much wider and more thorough. He was greatly impressed by the narration of the constitution and policy set out at this meeting. He hoped industrial interests would rally efficiently to the aid of this campaign. He thought the organizing secretary of the new body would be a man who could travel a good deal, so that he could familiarize the leaders of industry in various localities with the needs of the work. Dr. MALCOLM CAMPBELL (Droitwich) seconded the motion, and emphasized the amount of active co-operation which women's societies could give. The resolution was carried without dissent.

The CHAIRMAN intimated that the Prime Minister had accepted the invitation to be a member of the council of the association.

Dr. E. I. SPRIGGS said that in discussing this campaign with other people and trying to enlist their aid he had found it helpful to insist that this was not a charitable appeal. Though rheumatism affected certain classes more than others, it occurred throughout all grades and in all parts of the country. Also it should be clearly understood that it was not wished that this organization should replace or absorb any other body; its aim would rather be to act in accord with them in the prevention and treatment of rheumatism, and it was "bad business" to have that carried out in different places separately.

Dr. FORTESCUE FOX also emphasized the importance of the organization keeping in touch with all who were interested in this work; and this applied not only to our own country, but also to those active in the same direction in other countries. It was of the first importance that knowledge on the subject derived from various sources and in different countries should be pooled, with the one great object in view.

Dr. VAN BREEMAN (Amsterdam) spoke as the secretary of the International Society on Rheumatism, and drew attention to the projected international conference on the subject, to be held at Budapest in October next. The points for study included the relation of chronic to acute rheumatism, the medico-scientific, hygienic, and statistical aspects, and the significance of serological and blood examinations in rheumatic diseases.

The names of 74 supporters of the movement were read out, and the council will be formed from those accepting the invitation to serve.

EPSOM COLLEGE.

ANNUAL GENERAL MEETING.

THE annual general meeting of Epsom College was held at the office, 49, Bedford Square, W.C., on June 28th, under the presidency of Dr. RAYMOND CRAWFURD, chairman of the council.

The scrutineers reported that the following candidates were successful at the election of pensioners and foundation scholars.

	Votes.
Pensioners:	
*Mylan, Dr. James G.	6,723
*Johnstone, Dr. George W.	5,936
*Ogilvy-Ramsay, Mrs. Isabella	5,673
‡Alford, Mrs. Mary A.	5,417
†Benson, Dr. Alfred	4,897
‡Harris, Dr. Arthur G. R.	4,584
Foundation Scholars:	
Porter, John D.	21,027
Hogg, Robert D.	13,926

* Ordinary pensions. † Highett pensioner.
‡ Burney Yeo pensioners.

The annual report referred to a gratifying increase in the amount received from annual subscriptions and to the generous support given by the Medical Insurance Agency, the Charities Committee of the British Medical Association, and numerous Panel Committees. The report called attention to the deficit of about £2,000 in the War Memorial Fund, which was instituted by the Old Epsomian Club in order that the nave of the College chapel might be rebuilt in harmony with the new chancel. With regard to the new sanatorium fund, the council, while acknowledging many welcome donations, including £200 from St. Bartholomew's Hospital Medical College, regret that the total sum is not increasing more quickly, and urge that further donations should be procured. It was estimated that the building and equipment would cost £30,000. One advantage which would accrue by the erection of the new sanatorium would be that the old building could be adapted for the admission of about forty more boarders from among the applicants who had to be declined each year. The benefactions received by the College included £500 from the Medical Insurance Agency, to form a nucleus of a fund to establish in perpetuity the Dawson Williams Presentation Scholarship of £150 a year, in memory of Sir Dawson Williams, Editor of the *British Medical Journal* 1893 to 1928. The sum of £1,000 had also been received from Mr. Stanley Baldwin out of the sum placed at his disposal by Lord Beaverbrook in gratitude for his escape in a motor accident. The sum had been earmarked for the furtherance of scientific education at the College. A bequest of £997 had also been received under the will of the late Dr. Alfred Mason, a former scholar of the school. The health of the school during the year had been exceptionally good.

Dr. Raymond Crawfurd, in moving the adoption of the annual report, stated that if two sums of £5,000 were forthcoming the work of the new sanatorium could be put in hand at once. He called attention to the fact that during the year the council had brought into force a much improved scale of salaries and emoluments for the assistant masters, which had been greatly appreciated. The College had to deplore the loss by death of Lord Rosebery, president, Dr. de Havilland Hall, vice-president, and for some time vice-chairman of the council, and Mr. A. Mackay, a member of the council.

England and Wales.

Address by Lord Dawson at the London Hospital.

THE annual distribution of prizes at the London Hospital took place on June 28th. Following the report of the dean (Professor William Wright), which laid emphasis on honours gained by "London" men during the year, Lord Dawson of Penn handed the prizes to the recipients, and addressed the distinguished gathering. After paying a tribute to the late Lord Rosebery, who some years ago delivered a noteworthy speech at the hospital on a similar occasion, Lord Dawson went on to say: "Surpassing me as my predecessors have done in most of their qualities, I have one unique advantage over them all, and that is that I am one of yourselves. I have trodden the same paths, made the same mistakes, carried through the same adventures, and offered the same excuses. I have also known what it is, in my student days, to be relatively prosperous one week and hard up the next. What a glorious time it was! Humanism and humour, and with it all an abounding vitality. The function of youth is to be young in fact, and it is equally the function of age to be young in spirit." Referring to a remark in the dean's report regarding the honours which had come to Lord Dawson himself and to other "London" men, Lord Dawson said that any man who received such distinction must feel a new sense of gratitude to his old school. Any distinction of the kind was to be prized because primarily it brought honour to the profession and offered a wider opportunity for usefulness. It delighted him to think that two members of the team of workers in connexion with the King's illness—and although the workers showed variety in their thinking, which was what a team was for, they were one in feeling and devotion—were "London" men. This gave him the opportunity of acknowledging the debt to the nurses. The four nurses in attendance on the King represented as it happened the four parts of the kingdom, but two of them belonged to the London Hospital. They had extended its reputation, which rested in an uncommon degree upon the character of its nurses. In congratulating the prizewinners of the day, Lord Dawson remarked that those who had not received prizes must not be discouraged. It had to be remembered that students did not all mature at the same time; their gifts did not come to fruition by the same stages. The profession which they were entering called for a multiplicity of qualities. Great as was the importance of academic knowledge and training, there were other attributes which were required of the successful man, including judgement, the faculty for decision, courage in taking risks, and the discipline which could disregard the calls of selfishness and sloth. The work of the medical man was such as levied toll upon brain and heart at the same time. Lord Dawson went on to remind the students that whatever discoveries might be made they would always be thrown back upon clinical experience. Disease was not a standardized product. Man preserved his individuality in disease as well as in health, otherwise it would be an uncommonly dull world to live in. With regard to the future of the medical practitioner, he struck a hopeful note. The people who croaked were always those who mistook change for decadence. The teaching of medicine in Britain to-day was very well done, though the world was not always given the opportunity of seeing how well done it was. Research in this country was rich in brains and increasingly rich in opportunity. All schools and universities were fully alive to the importance of the extension of knowledge and the co-ordination of effort. But it was to the field of general practice that most attention must be paid. The general practitioner was the backbone of medicine. It would be a sorry day for this or any other country when general practitioners were weakened in their influence or their work. The general practitioner was a protection against the stunt specialist. It was to the interest of the community to identify the health of the people with the practitioner, and to give him a career. At the same time he urged the necessity of more institutional provision. He reminded the gathering of the changes in administration which would result from the operation of the Local Government Act, and advised the students and newly qualified practitioners before him to take a bold share in the shaping of the health policy of the country. The success of that policy would depend very largely upon

the vigour and intellectual ability which the younger medical men now coming to the fore brought to bear upon it.

The Child Guidance Council's Clinic.

The Child Guidance Council announces that the work of the clinic at Tudor Lodge, Canonbury Place, Islington, will start about the middle of this month, and that patients will be accepted from that date. The clinic, a preliminary account of which appeared in our issue of May 11th (p. 877), owes its origin to generous financial help from the Commonwealth Fund established by Mrs. Stephen V. Harkness in 1918 "for the welfare of man." In the United States a number of demonstration clinics set up by the Fund have, after varying periods, usually three years, been taken over by local authorities. The Child Guidance Council, though officially not connected with any public authority, is fully alive to the importance of associating its work with that of the education authorities, and believes that, to ensure proper training of the staff of child guidance clinics, the movement must be linked with the university education and social science departments. In choosing the premises for the clinic the council favoured a site within easy access of schools, child welfare centres, nursery schools, and a juvenile court. The clinic now established has not only these advantages, but is housed in an attractive building having a pleasant garden, and is near the chief university and medical schools. The staff consists of a director, a psychiatrist, and an assistant psychiatrist; a chief and assistant psychologist, both intimately acquainted with the work and the problems of the schools; specially trained social workers known as mental health workers; and a number of clerical assistants. The Commonwealth Fund has enabled some of this personnel to make observational visits to the United States, and several of the social workers have had a year's special training in New York. The clinic, having received the general approval of the Board of Education, will co-operate closely with the school medical service of the London County Council, and the staff are assured of the help of the officials, teachers, and care committees associated with the administration of educational work. In addition, the clinic will receive children under school age from child welfare centres, children from institutions, homes, organizations, and dispensaries, and, directly or through the probation officer service, from the juvenile courts. As far as practicable, it will be ready to deal, in co-operation with the National Institute of Industrial Psychology, with cases referred for vocational guidance. The clinic will endeavour to do much of its work by means of staff conferences, where the results of the various investigations made by the psychiatrists, the psychologists, and the social workers may be effectively correlated, and a line of treatment prescribed based on all the ascertainable factors in the life of the individual. It hopes that these conferences may be attended by others than the clinic staff who have immediate knowledge of the child—such, for example, as the teacher, the care committee worker, and the probation officer. Those desirous of taking up the social side of child guidance can avail themselves of the special one-year post-graduate course in mental health to be started in the autumn at the London School of Economics; and the council, through the generosity of the Commonwealth Fund, is able to offer six scholarships of £150 each, tenable by students taking this course. Particulars may be had from the Secretary of the Child Guidance Council, 24, Buckingham Palace Road, S.W.1.

Instruction in Radium Therapy.

A post-graduate course on radium treatment and technique will be held at St. Bartholomew's Hospital and College from September 30th to October 3rd inclusive. The course, for which the fee is five guineas, will be introductory in character and the classes limited to about thirty men, preference being given to those who are likely to work with radium. Lectures and demonstrations will be given on the following subjects: the physical properties of radium and radon (Professor Hopwood); types of appliance used in radium therapy and in the preparation of radon emanation; carcinoma of the rectum (Sir Charles Gordon-Watson); perineal and abdominal insertion of radium; treatment of carcinoma of the tongue and mouth (Professor G. E. Gask); uses of radium in gynaecology (Dr. Malcolm Donaldson); biological aspects of radium (Dr. R. G. Canti); new growths of the larynx and air passages (Mr. W. D. Harmer); carcinoma of the breast (Mr. Geoffrey Keynes); surface application of radium (Dr. N. S. Finzi); and the use of radium in combination with deep x rays (Dr. W. M. Levitt). The course will further include demonstrations of cases in the out-patient department; operations conducted by Sir Charles Gordon-Watson, Professor Gask, Dr. J. D. Barris, Dr. Donaldson, Mr. F. A. Rose, Mr. Bedford Russell, and Mr. Keynes; and a demonstration by Dr. Canti of a film showing the growth of malignant cells. In our issue dated June 29th (p. 1188) we announced a similar course which will be held at the Westminster Hospital Medical School from July 29th to August 3rd.

Social Centre for London Flat-dwellers.

An interesting social experiment has been started in connexion with one of the large estates owned by the Metropolitan Housing Corporation in the poorer districts of London—namely, the Albany estate at Camberwell. In the midst of eighteen blocks of working-class flats which the estate comprises, a social centre has been opened, in premises which were formerly a suite of offices. The centre comprises a library for adults and children, a boys' workroom, well equipped with benches and tools, a girls' club room, a nursery, where mothers can leave their children in safe and happy keeping, a kitchen, for cookery lessons and demonstrations to women, and a model flat furnished on hygienic and economical lines, with a view to showing what is possible even in a tenement. Various services are to be conducted from the centre for the benefit of the tenants, including an arrangement for an assured pure milk supply to every flat. A course of lectures by medical men and women and others on health and hygiene has also been arranged. But the chief thing is the installation of a resident matron, a woman with a training in nursing and a long experience in social welfare, who is to be available for consultation by the tenants. It is emphasized that this is not a charitable enterprise, but a business proposition, made possible by co-operation between landlord and tenant, and paid for by the tenants in their weekly rental. Each of the blocks of flats included in the service of the centre elects a representative on the administrative committee. The centre was opened on June 27th by Mrs. Claude M. Leigh, wife of the director of the Metropolitan Housing Corporation, and named, after her mother, the Augusta Johnson Centre. The occasion, which appeared to be a very popular and festive one among the inhabitants of this rather depressing district of South-East London, was attended by the mayors of Camberwell and Southwark, and by several members of the medical profession.

Ireland.

Irish Medical Association.

THE adjourned annual meeting of the Irish Medical Association was held on June 19th in the Royal College of Surgeons, Dublin. Mr. P. E. Hayden, F.R.C.S.I., was elected president, and in the course of his presidential address referred to the outstanding activities of the association during the past year, and the many ways it helped members. He also called the attention of members to the advantages of the insurance bureau. A warm vote of thanks was accorded to the outgoing president, Dr. H. T. Warnock. Votes of sympathy were passed with the relatives of Sir William Thompson, M.D., and Dr. J. J. Kinsella, Edenderry.

Dr. Canti's Film in Dublin.

At a very largely attended meeting of the Leinster Branch of the British Medical Association, held at University College, Dublin, on the evening of June 14th, with Professor M. R. J. Hayes in the chair, Dr. R. G. Canti of St. Bartholomew's Hospital gave a lecture, with cinematographic demonstrations, on living tissue cells

cultivated *in vitro*, including the action of radium on them. The chairman, in calling upon Dr. Canti to deliver his lecture and show his film, said the Leinster Branch felt highly honoured at having Dr. Canti with them that evening, inasmuch as it was the first time that the film was being shown in Ireland; Dublin was, therefore, the first centre visited by him. Continuing, he said that when he first saw this wonderful film in Stockholm he looked forward to an opportunity of seeing it a second time, and hoped to induce Dr. Canti to bring his film to Dublin. Now his wish had been fulfilled, and he anticipated admiring the film more now than he did then. Dr. Canti, before showing the three films, outlined the technique employed by him for the growth of tissues *in vitro*, and threw on the screen some slides showing the apparatus, with its ingenious arrangements by which the films were taken, and which made possible a study of various influences affecting cell proliferation and tissue growth impossible by any of the older methods of growth study. He explained that this method of cellular cinematography made it possible for one to obtain a permanent record of a series of rapidly succeeding events, which could be studied afterwards at leisure, either as individual pictures or in sequence, and that also the pictures could be speeded up, so that a sequence of events which might extend over a prolonged period of time could be hurried through its different stages in quick succession. The pictures he would show were speeded up, some 240, some 480, and others 960 times, this was done principally for convenience, since many of the observations were carried over periods of twenty-four hours. The first reel was of normal chick periosteum and Jensen's rat sarcoma, showing dividing cells under high magnification and movements of chromosomes, together with reformation of nucleus, degeneration, and phagocytosis. The second reel showed the action of beta and gamma rays of radium on these cells. The third reel, dark ground illumination and high magnification, showed the internal structures of the cell and their movements. After the demonstration Dr. D. J. Coffey, president of University College, in proposing a vote of thanks to the lecturer, said that he admired the film for its deep interest and great possibilities, and hoped that they would have an opportunity of seeing similar films of medical interest. Dr. Gillman Moorhead, regius professor of medicine, Trinity College, seconded the vote, which was unanimously accorded to the lecturer. Professor Hayes subsequently entertained Dr. Canti, with the members of the profession, at supper in the Shelbourne Hotel.

Provisions of the Milk and Dairies Bill.

The Milk and Dairies Bill, shortly to be introduced in the Dail, aims at the production of clean milk by enforcing strict supervision of the cow, the dairy, and the methods of milk distribution. To these ends a wider interpretation is given to the terms "milk" and "dairy," and the registration of all dairymen, as well as their premises, is made mandatory. The local authority can refuse registration or remove a name from the register. Since the publication of the report of the Interdepartmental Committee appointed to advise on the measures necessary to secure the cleanliness of the milk supply many public bodies and committees of management of hospitals, sanatoriums, and maternity and child welfare organizations have tried to raise the standard of cleanliness by making the purity of the milk, as shown by bacterial content, the basis of contracts. The regulations under the new law will not only deal with the lighting, ventilation, cleansing, drainage, and water supply of the dairy, but will secure a more thorough supervision and examination of dairy cows, personal cleanliness of milkers and distributors, the cooling of milk, and its conveyance and distribution in sterilized vessels and utensils; the grading of milk and the use of special designations will be authorized, and there will be drastic penalties against purveyors of dirty milk. Effect has already been given to certain administrative measures recommended by the committee. The Public Health (Infectious Disease) Regulations of 1929, which replace the regulations of 1919, provide for the examination of suspected carriers of enteric fever, diphtheria, and dysentery infection employed in connexion with the production or handling of milk, and for the prohibition of their employment in any trade concerned with the preparation or handling of food or drink intended for human consumption. The bill now to be introduced enables a medical officer of health to stop the sale of milk if there is any evidence that it is the vehicle of infection. The safeguards relied on in the bill for the protection of the public against infection with the bovine tubercle bacillus are: (1) inspection and examination; (2) the tuberculin test; and (3) bacteriological examination. It is provided that the milk of cows suffering from any of the following conditions should not be sold for human consumption: tuberculosis of the udder or uterus, acute or chronic mastitis, actinomycosis of the udder, anthrax, foot-and-mouth disease, or any other condition of the cow, udder, or teats likely to convey disease. Furthermore, provision is made for stopping supplies of milk from any outside district to which infection has been traced. The higher grade milk proposed under the bill must be produced from cows which have passed the tuberculin test and a clinical examination; the entire herd must be submitted to the test and to the veterinary examination at intervals of six months, and every animal must have passed the test before its admission to the herd. Power is given to sanitary authorities to establish milk depots for the sale of milk specially prepared for consumption by children under 2 years of age. Other provisions of the bill deal with the control of condensed, dried, and separated milk, with buttermilk, and the vexed question of fixed standards in connexion with the Sale of Food and Drugs Act. In commenting on the new bill, Dr. Edward F. Stephenson, chief medical adviser to the Department of Local Government and Public Health, says that to attain its object the appointment of a medical officer of health to every county is vital. Success can only be achieved by steady, firm, and uniform administration exercised by whole-time trained sanatarians. The value of these officers is now well recognized and the need for their appointment is being pressed.

Meeting of the British Pharmaceutical Society.

The annual meeting of the British Pharmaceutical Society was recently held in the Mansion House, Dublin. There were close on six hundred delegates present. The City Commissioners welcomed the members on behalf of the citizens of Dublin. The President of the Irish Free State, and General Mulcahy, Minister for Local Government and Public Health, were present at a reception given to the members of the Pharmaceutical Society. The Governor-General of the Irish Free State attended the banquet. The Chairman of the British Pharmaceutical Society, Mr. R. R. Bennett, B.Sc., delivered an important address on the changing foundations of materia medica, of which an account was given in this column last week at page 1177.

Scotland.

Treatment of Mental Disorder.

IN his last annual report Dr. W. D. Chambers, physician-superintendent of James Murray's Royal Asylum, Perth, comments on the increase during recent years in the number of patients admitted to this well-known mental institution, now in its 103rd year. In 1925 the number on the registers was 137, in 1927 it was 173, and in the year under review, 192. This rapid growth was for a time embarrassing. Mental cases, Dr. Chambers observes, are commonly urgent, and the hospital would fail in its service to the public if it became unable to receive acute cases as they arose. Fortunately, it was never necessary to refuse admission to any acute patient, but it became apparent that the accommodation was now being taxed nearly to its limit, and that more accommodation, especially of the hospital type for acute and recent cases, must be provided, unless the scope of the institution was to be curtailed. With a turnover of 50 per cent. of the population each year larger provision for acute cases became imperative. Further extensions to the main building being impracticable, even if desirable, the decision has now been made to build a detached and self-contained

reception hospital for 40 beds. An excellent site has been chosen, and it is hoped soon to make a start with building operations. The new block will be completely equipped with facilities for treatment, including a surgery and dental room, a laboratory, an electrical treatment room with *x*-ray apparatus, ultra-violet lamps and other appliances, means for hydrotherapy, and clinical treatment rooms. In this connexion it is interesting to note elsewhere in Dr. Chambers's report that a very considerable amount of therapeutic work is now being done at the Royal Asylum. Septic foci, particularly in the mouth and the urinary system, have been investigated and treated, and a number of urinary antiseptics were exhaustively tried last year on a variety of cases. Where intestinal stasis was recognized or suspected attempts were made to deal with it. A long series of cases were treated by means of protein shock therapy, and another series by ovarian extracts and preparations, either singly or in combination. On the whole the results could not be regarded as more than encouraging, and in some cases they were definitely disappointing. Full use was made of the ultra-violet lamp, but here again the results were confused and uncertain. Occupation therapy in the arts and crafts department was on the whole very successful, and a large proportion of cases have attended for instruction, much of the work being of the highest standard and satisfactory both to teacher and to taught.

Annexe to Glasgow Victoria Infirmary.

What was described as a new development in the work of voluntary hospitals was inaugurated on June 27th, when the auxiliary hospital of the Victoria Infirmary, Glasgow, at Philipshill, near Busby, Lanarkshire, was formally opened by Mr. W. Gilchrist Macbeth of Dunira, Crieff, who was a generous donor towards the scheme. Beautifully situated in the heart of rural scenery and lying 500 feet above sea-level, the grounds of the extension cover 33 acres. The wards are built on the pavilion system with verandahs and sun rooms, and the two pavilions which have been completed each provide accommodation for 50 beds. There will eventually be eight pavilions, in addition to the administrative block, operating theatre, etc. The new hospital is designed for patients who have passed the acute stage of illness and may thus be removed from the central infirmary to make room for urgent cases awaiting admission. The total cost of the scheme is estimated to be £120,000. Dr. Walter Elliot, M.P., the former Under-Secretary of State for Scotland, gave an address at the opening ceremony, and dealt with the provision made in the Local Government Act for safeguarding the voluntary hospitals under the system of unified health service control.

Royal Blind Asylum, Edinburgh.

The directors of the Royal Blind Asylum and School, Craigmillar Park, Edinburgh, have issued their report for the year ended March 31st. The outstanding feature of the year has been the opening of the Thomas Burns Home for Blind Women at West Craigmillar. In the technical department there are now 78 blind persons undergoing training at Gillespie Crescent, and 27 at West Craigmillar. Within the next four years over 40 will complete their training, and the directors will be faced with the problem of finding employment for these industrial trainees. The ordinary subscriptions for the year have amounted to £8,157, which is a record in the history of the institution. The work can only be carried on, however, by considerable drafts on the legacies received. The Scottish National Institution for Blinded Sailors and Soldiers has also had a successful year. The principal activities of this institution are the employment and care of the 120 men who have been trained; 35 of them are employed in the workshop at Newington House, Edinburgh, and 20 in the workshop at No. 2, Queen's Crescent, Glasgow.

Tuberculosis in Fife.

In a recent report by Dr. Pratt Yule, medical officer of health for the county of Fife, it is stated that the death rate from tuberculosis in the county in 1928 was 0.70 per 1,000 of the population, which is less than half that obtaining just before the war. Of the factors responsible for this satisfactory state of affairs, doubtless the most important is the steady campaign that has been waged against the disease since 1912. The Fife scheme differs from that usually accepted as necessary for the control of tuberculosis in that dispensaries have not been established, the patient being visited, examined, and supervised in his home. The incidence and mortality rates compare favourably with those of other Scottish counties of like industrial characteristics.

Correspondence.

THE UNKNOWN FACTOR IN VACCINATION.

SIR,—It goes without saying that decreased resort by the public to anti-small-pox vaccination, with resultant loss of lives and finance, must eventuate following recent repeated reports in the lay press of deaths incident to its practice. The Ministry of Health has issued a report[1] on this subject, showing that an earnest effort to identify the "unknown factor" of evil has been pursued by impartial and exceptionally skilled inquirers. Notwithstanding analyses of all available evidence and a series of well-considered experiments, the *causa causans* still evades recognition. All that has emerged is the framing of certain hypotheses. Obviously this stage should not be regarded as justifying the abandonment of further inquiries or an assumption of the fatalistic attitude of conceiving the "unknown factor" to be not only an undesirable but an inevitable accompaniment of anti-small-pox vaccination. Further investigation is essential in the interest of human life. We would therefore invite special attention to the following extract from the minority report signed by Professor McIntosh:

"... before vaccinia virus can definitely be put out of account as a possible etiological agent, more data will have to be obtained concerning the frequency of these cases and the neurotropic effects of vaccinia about which, at present, there is some difference of opinion."

Pending further investigation, we hold from the evidence given in the body of the report that the vaccinia virus has not been put "definitely" out of account; and we therefore advocate that the present strain of vaccine used in this country (which has largely passed through rabbits to calves) be scrapped and, in its place, either a stock of vaccine be obtained from a country where rabbits have not been utilized, or a new stock of variola vaccine be cultivated without the rodent accessory. This procedure would afford, so far as records of the period anterior to use of rabbits in vaccine cultivation permit of judgement, a method of exclusion both safe and quick.—We are, etc.,

MYER COPLANS,
W. G. KING,
W. J. R. SIMPSON.

Ross Institute and Hospital for Tropical Diseases, Putney Heath, S.W.15, June 28th.

VACCINATION AND ENCEPHALITIS.

SIR,—Reports of recent inquests, leading articles in the newspapers, and your article on post-vaccinal encephalitis (June 29th, p. 1174) will inevitably do much to shake the faith of the general public in vaccination. I have read a number of the reports and articles on this subject, and I suggest that the assumptions made therein are premature to a dangerous degree. I fail to find in the writings any sound scientific argument whatever to substantiate the name "post-vaccinal encephalitis."

One of our elementary rules in the conduct of scientific investigation is not to connect cause with effect except by experimental proof confirmed by clinical observation, and yet here we have committees connecting a particularly unknown type of encephalitis to vaccination and startling the public by a statement to which *their* only possible interpretation is that vaccination *produces* (I use the word advisedly), either directly or indirectly, this dread disease in one out of every 16,900 cases, and that half of those

[1] Report of the Committee on Vaccination. Ministry of Health. Cmd. 3148. 1928.

affected die; a truly ghastly suggestion when each parent thinks that his or her child may be the unfortunate one in 33,000!

During the past eighteen months I have seen two cases of chicken-pox, one of measles, and one of influenza, in all of which the onset occurred within fourteen days of vaccination, and presumably there are thousands of such cases. Is it, then, any less likely that a more serious but more obscure disease may not equally well be liable to begin shortly after vaccination?

Take now the case of this obscure encephalitis in children. We find it occurring in a mere handful of cases after vaccination. Because it is not, we think, one of the well-known types of encephalitis, and because *the cases brought to general notice* are post-vaccinal, we at once dig about trying to *connect* it with vaccination. Surely the better thing to do is to try and find out how many cases of sin[illegible] apart altogether from the factor of [illegible] that there are probably hundreds of such cases, and that, if they were discovered and as extensive pathological studies made of them as have been made of the post-vaccinal cases, quite probably the incidence of the condition, apart from vaccination, would be the same age for age as during the few weeks following vaccination. It may be argued that we have no positive information that the disease exists apart from vaccination; but, what is much more important, we certainly have no negative information that such a condition does not exist. I can, in fact, myself recall two cases seen during the past two years which compared closely with the descriptions of these post-vaccinal cases, and both of which recovered.

The solution to the problem of how best to deal with these obscure conditions in order to gain information about them is exceptionally difficult, and is not my object in writing this letter; but that such do exist in large numbers is, I think, a certainty, the recoveries passing unnoticed and the fatal cases being named according to the known disease which they most closely resemble.

If this scare of post-vaccinal disease does something to stir medical interest in the more obscure types of disease and bring forward suggestions as to how inquiry can be conducted in such cases, it will considerably mitigate the damage already done to the scientifically sound procedure of vaccination.—I am, etc.,

Halifax, July 1st. R. M. PEARCE.

DISPLACEMENT OF THE INTERNAL EPICONDYLE.

SIR,—In his interesting note under the heading "A Comparatively Rare Displacement of the Internal Epicondyle," published in your issue of June 22nd (p. 1113), Mr. Stanley Brentnall states that I make "the manipulative reduction responsible for the displacement of the epicondyle."

Mr. Brentnall has misunderstood me. The brief reference I made to this subject in the course of an address, to which Mr. Brentnall refers in his note, contains the following words: "During reduction by the doctor, by some chance, the separated internal epicondyle was caught between the humerus and ulna." The displacement of the epicondyle is surely the result of the force which produced the dislocation. The catching of the epicondyle between the bones is presumably a matter of chance, since it does not invariably occur. I think we may take it that in the vast majority of cases dislocations of the elbow are produced by force applied in the direction of hyperextension or of abduction, or of a combination of these. In any case the inner side of the joint suffers damage: either the internal lateral ligament is ruptured or the epicondyle avulsed. In the latter case the separated epicondyle remains attached to the ulna, and is forced by atmospheric pressure into the sigmoid notch. When reduction is effected the epicondyle may slip out of the way or may remain in the notch, where it is caught or held by the humerus.

When a pure abduction strain occurs and the damage stops short of complete dislocation as, I think quite rightly, suggested by Mr. Brentnall in his cases, the conditions would seem to be precisely the same: the catching of the displaced epicondyle is a matter of chance. Mr. Brentnall regrets that the direction of the dislocation was not noted in the very brief reference I made to four cases. Since then I have had a further five, making nine in all. One of these was of the type described by Mr. Brentnall: in this there was a definite history that no dislocation had occurred. As to the other eight, in three the dislocation was said to be backwards and outwards, in three backwards, while in two the direction was unknown.

In two cases the ulnar nerve was partially paralysed, but recovered completely after operation. In both cases, operated upon two and two and a half months respectively after the original injury, it was deemed advisable to displace the nerve to the front of the epicondyle.—I am, etc.,

London, W., July 1st. H. A. T. FAIRBANK.

PRURITUS ANI.

SIR,—In connexion with Dr. Ernest Ward's letter in the *Journal* of June 29th (p. 1183) I should like to be permitted to call attention to a type of pruritus ani which in my experience is quite common—that is, pruritus ani of mycotic origin.

This type of pruritus ani was described by me several years ago in the *Journal* (December 1st, 1923) in a paper entitled "Medical mycology," and I gave a full account of it in the *Practitioner* (December, 1926), and in the German Lectures on "Fungi and fungous diseases" delivered before the University of Illinois in 1926, which were published in book form by the American Medical Association last year.

The condition is due to the presence of fungi of the genus Epidermophyton and Trichophyton, the same fungi which produce tinea cruris and pruritus interdigitalis pedum: often *Epidermophyton cruris* Cast. (1905) *Ep. inguinalis* Sabour. 1907) and *Epidermophyton rubrum* Cast. 1909. Yeast-like fungi of the type Cryptococcus, Monilia, Saccharomyces, Schizosaccharomyces are also often present, but their role in the production of the pruritus is somewhat doubtful.

Clinically there may be very few objective symptoms. The patient complains of severe pruritus, not, as a rule, continuously, but at intervals. The pruritus is often worse at night, but the attacks of unbearable itching may come at any time. Inspection of the anoperianal region in some cases may reveal nothing at all except perhaps signs of scratching, but in most cases, on careful examination, minute red, slightly raised, infiltrated patches may be seen in the perianal region, occasionally arranged into two curved lines, or a dry or moist dermatitis may be present around the anus. In some old-standing cases the skin is thickened and lichenified. When the secondary bacterial infection becomes abundant, especially if many coli and proteus germs are present, the fungus may disappear completely or become extremely scarce.

With regard to treatment, tar-salicylic acid ointments or a benzoic acid-salicylic salve (Whitfield's ointment) answer fairly well. In obstinate cases x-ray treatment is advisable; it is often successful, though, unfortunately, not always.—I am, etc.,

London W.1, July 2nd. ALDO CASTELLANI.

SPA TREATMENT.

SIR,—A name may have unlooked-for effects, especially when it becomes a more or less exclusive label for a society or group of medical men. I agree with Dr. Collis Hallowes (June 29th, p. 1181) that in this case at all events "contentious definitions" are detrimental to progress. For practical purposes it is better, if possible, to find a name that will unite in one group all who study different parts of the same subject.

What are the different parts of spa treatment: (1) the internal use of waters; (2) their external use in a variety of forms, with, of course, *accessory* treatments, such as are everywhere employed. As regards (1) I am prepared to admit that the distinction between "ordinary" water and "medicinal" water, like the distinction between vegetables as food and as drugs, although of very great practical importance, is not fundamental.

We have in England no satisfying name for the internal use of waters—the crenotherapy of the Latin races.

Hydrotherapy has been suggested, but since this word was appropriated seventy or eighty years ago for the external use of water in bath establishments it has lost its wider meaning and could no longer be applied to the spa. Words that have decayed or taken on special meanings are generally misleading.

Medical hydrology is the science of hydrological or "spa" treatment. It has two branches, which are, in plain English, *water treatment* and *bath treatment*. The spas provide both. Torquay, Matlock, the new clinics, cannot supply waters, but they can or will supply baths. It is greatly to be desired that these two procedures, which every year sees more firmly established, should, wherever they are practised in our country, take their true alignment under simple general labels not too misleading or contentious.

As regards the "rheumatic diseases," the stimulation of the skin by baths is, in my opinion, an essential part of preventive and curative treatments. How essential time will show, when this stimulation is given, measured, and recorded with the same accuracy as in the use of drugs. The spa, the marine resort, and the clinic must, naturally, as I stated in your columns last August,[1] develop along special lines. All of them have, however, an important service to render in the treatment of industrial rheumatism. To make the scientific use of baths available for insured persons throughout the country will require the co-operation and good will of all medical men who have knowledge and experience in their use. I am sure that Dr. Hallowes, like myself, although we are neither of us now spa practitioners, would like to do his bit.—I am, etc.,

London, July 1st. R. FORTESCUE FOX.

SIR,—As I was associated for many years with the late Professor Albert Robin in his teaching, in which clinical hydrology had an important place, may I add my remarks to those of your other correspondents regarding the interesting and stimulating lecture by Dr. Wilfrid Edgecombe, printed in your issue of June 1st (p. 981)?

The opinion expressed by Dr. Edgecombe can be applied only to the spas possessing indifferent—that is, not potent—mineral waters; spas which are not very interesting from a clinical point of view. Spas with real active mineral waters must be considered as very powerful therapeutic agents, having special indications, and counter-indications, studied by various clinicians, and I refer, amongst others, to the work of Sir Herman Weber in this country, and to that of Professor Robin in France.

To take the example given by Dr. Edgecombe, one cannot send indifferently a patient to Vittel or Aix, because these two stations have each one of them their relative specific action, and patients who are suitable for Vittel, if sent to Aix, will, I think, derive no benefit at all, or may find their condition much worse after their "cure." There is much scope for a specialist internist in the careful study of the indications and counter-indications of the various spas.

I cannot, I think, subscribe to the opinion that "physicians at spas must act as general physicians, making use generally of physical methods, in addition to ordinary therapeutical treatment, rather than purely as spa physicians." I think that spa physicians must stick to the application of their special mineral water treatment. Neither the specialist nor the general practitioner will send patients to the spa simply to have their treatment undertaken by another physician; but both will send them, as they would send other cases to a surgeon or radiologist, for a special treatment, which has its place in the general medical treatment of which they have the exclusive direction. The spa physician is a collaborator of the internist in the same manner as the surgeon or the radiologist may be.

Although I run the risk of being considered as "more Royalist than the King," I think that many British spas are very powerful specific therapeutical agents, and I think that Dr. Edgecombe renders a great service to clinical therapeutics by stimulating with his paper the study of these spas.—I am, etc.,

London, W.1, July 1st. A. P. CAWADIAS.

[1] *British Medical Journal*, 1928, vol. ii, p. 322.

THE DEFINITION OF RHEUMATOID ARTHRITIS.

SIR,—There is much to be said for the proposal made by Dr. Matthew Ray in his letter on this subject (June 15th, p. 1098)—namely, that the term should be limited to the condition in question associated with joint changes, which affects women of the reproductive age. As Dr. A. H. Douthwaite points out, however, in the following number, and as indeed Dr. Ray concedes himself, it is not entirely limited to women. Out of thirty-five cases seen recently five were men.

In view, too, of the confusion in which the nomenclature of chronic arthritis finds itself, some hesitation may well be felt in departing thus early from the classification adopted by the Ministry of Health (Report on Chronic Arthritis, 1928).

Whether Dr. Ray's proposal be adopted or not, he has in making it drawn attention once more, and in a very significant way, to the fact that there is much more in chronic arthritis than the joint changes; there is a whole patient with a background, and there are present signs of a general disturbance.

The sex incidence of rheumatoid arthritis of the atrophic type is most striking, but an even more accurate generalization may be made—namely, that the people who suffer from it are always of the slender body type, the "carnivorous" type of Goldthwait. Why is this so? And why is the female sex so very much more liable than the male? The key to the etiology of the condition may well be found in studying clinical features like these, in large groups of cases.—I am, etc.,

London, June 25th. A. R. NELIGAN.

ELIMINATION OF VENEREAL DISEASE.

SIR,—Technical journals abound with interesting references to the cancer problem. I know of nothing more attractive than an onlooker's view of the attempts which are being made to reach a solution, especially as I am a member of the Cancer Research Committee of the University of Melbourne, and have done my best to help.

The test of the value of all research must in the last resort be the service rendered to mankind. All the statistical investigation indicates the probability, amounting almost to certainty, that the damage done by venereal diseases is greater than that produced by cancer and tubercle. Yet the venereal diseases are for the most part remediable, if sufficient trouble be taken. They are certainly preventable, and they could, by common national action, be removed from the globe. Such a victory, as someone pointed out, would be greater than that of Charles Martel; yet I find eminent biologists and distinguished medical practitioners referring to the necessary practical action as something rather beneath consideration. Enthusiasm for the extirpation of the venereal diseases is certainly not easily produced.

I admit that such a task is not nearly as interesting as the solution of the cancer problem, but is that quite the right way to view the matter? Are we playing a kind of intellectual golf with a possibility or probability of valuable results, or are we in honour bound to render a necessary and certain service to mankind? I see no reason why both procedures should not take place concurrently, but the neglect of the simple problem is not creditable to science. Are we still in the toils of a modified mediaeval mode of thought or are we prepared to face the issue, to shoulder the burden and, unpleasant as the task may be, clean up civilization so far as venereal disease is concerned? Many people seem to forget that we are primarily animals, but in our social adjustments it does not do to forget the fact. A military medical officer who has to deal with thousands of vigorous men, particularly in Eastern countries, is under no illusion respecting the complexity and difficulty of the task, although he realizes its immense importance and also its practicability.

After all, the unit of society is the family, and nothing hits the family more heavily than the neglect to control venereal disease. The solution, however, is a matter for science and not for politics.—I am, etc.,

Melbourne, May 14th. JAMES W. BARRETT.

MEDICAL ATTENDANCE ON PATIENTS IN PRIVATE WARDS.

SIR,—In reference to Dr. R. H. Dix's letter in the *British Medical Journal* of June 29th (p. 1181) with regard to medical attendance on private patients in private wards of hospitals, I should like to go a little further than he does. The restriction that he mentions is not essential.

In the case of the Hampstead General Hospital the *resident* medical staff have no duties in connexion with the private wards. A local practitioner who sends a case into one of these wards retains the case under his own care, and undertakes full responsibility for the treatment as if the patient were in a nursing home. Further, with regard to the honorary medical staff, it is open to the practitioner "to call into consultation any surgeon, physician, or specialist whom he desires, whether on the staff of the Hampstead General Hospital or not. . . . The sole proviso with regard to surgical operations is that they shall only be performed by members of the staff of some recognized general or special hospital in London."

I quote the above passages from a letter recently sent out by the hospital to local practitioners to explain the exact position. The British Medical Association should certainly do nothing to restrict the *full* freedom of choice of consultant, especially where, as in Hampstead, this freedom already exists.—I am, etc.,

London, N.W.3, June 28th. HENRY SHARMAN, M.D.

THE RELATION BETWEEN MUNICIPAL AND VOLUNTARY HOSPITALS.

SIR,—I think it is important that we, as medical men, should realize the difference between even the largest Poor Law hospital and the voluntary hospitals. The Poor Law hospital may be quite up to date in equipment and be staffed by highly efficient resident medical officers, but the system of treatment is quite different from that of a voluntary hospital. At a voluntary hospital every patient (with the exception of casualty cases) is under the care of a member of the visiting staff, and in our great cities this means under the care of a specialist, who, of course, receives the assistance of resident medical officers. In the Poor Law hospitals the patients are under the care of a chief resident medical officer and his staff. There may be consultants attached to the hospital, but the patients are not admitted under them, and they are only called in by the resident medical officer if he thinks it advisable to obtain their services.

If the transferred Poor Law hospitals are to be brought up to the standard of the voluntary hospitals, the relationship of the patients to a staff of specialists must be the same as in the voluntary hospitals. What would this necessitate? If the city councils appoint specialists to the staffs of the transferred hospitals they will either have to pay them a salary adequate for a whole-time service—and this would be an enormous expense to the ratepayers—or the members of the staff must be able to support themselves by private practice. But in any city having already a large number of specialists on the staffs of the voluntary hospitals, the latter course would be impracticable; they would find competition too great. On the other hand, the specialists already on the staffs of the voluntary hospitals could not also hold similar positions in the transferred hospitals; they would have no time for this additional work.

The 600 beds at the large Poor Law hospital with which I was connected, as a member of the management committee, were always in demand, and they will continue to be so when the hospital is transferred to the city council. All the cases, at the present time, admitted to a Poor Law hospital must be admitted to some hospital. It therefore seems to me that the more serious and acute cases, and those which present special difficulty in diagnosis or treatment, should be admitted to the voluntary hospitals under the care of the specialists; and what we may, from a medical point of view, call the less important cases, and those which would occupy a bed too long in one of the voluntary hospitals, should continue to be admitted to the transferred hospitals. The transferred hospitals should, in fact, continue to have the same relationship to the voluntary hospitals as they have at present. In this way no change in the staffing of the transferred hospitals would be necessary, though every possible form of co-operation between them and the voluntary hospitals will be desirable. I would suggest that a joint committee, representing the local authority and the voluntary hospitals, should be set up to arrange for the suitable allotment of patients between the municipal and voluntary hospitals, and to consider any other matters in which co-operation seems desirable.

It is a mistake to suppose that because the Poor Law hospitals are to be transferred to city and county councils the scope of their work should necessarily be altered. They will be free from the stigma of the Poor Law, which, though really unreasonable, discredits them in the eyes of the poor. But the need for hospitals where the class of cases now admitted into Poor Law hospitals can still be received will be just as great as at present. I would suggest that all cases requiring major operations should be admitted, or transferred from the municipal hospital, to the voluntary hospitals for treatment by the surgical specialists, though to deal with major emergency operations the municipal hospitals should appoint surgeons, if they are not already appointed, on their consulting staffs.—I am, etc.,

Bristol, June 23rd. CHARLES A. MORTON.

STELLWAG'S SIGN.

SIR,—What is Stellwag's sign? Tempted by Osler's advice ("Let the old men read new books; you read the journals and the old books") to listen to Stellwag himself as he describes the sign which bears his name, I find myself for my sins unable to consult his original paper in this country. However, Professor Max Neuburger of the University of Vienna has very kindly abstracted for me the main points from Stellwag's article, "Über gewisse Innervationsstörungen bei der Basedow'schen Krankheit," which appeared in the *Zeitschrift der k. k. Gesellschaft der Ärzte in Wien*, 25 Jhg., 1869, 25–54. The following is a translation of the abstract:

"Stellwag explains the widening of the palpebral fissure, *not mechanically, but due to weakening of the nervous reflexes.*

"Such explanation gains in value if one considers the second eye-sign, the infrequent and incomplete blinking. This again is due solely to a diminution and temporary cessation of a reflex, undoubtedly evoked in the sphincter muscle of the eyelids by the retina and the sensory nerves of the eyeball surface."

There are those who will be reminded in this eponymic quest of the familiar tale of the wife of Jeroboam. It would interest them to know who first in the medical literature linked Stellwag's name with the above two phenomena.—I am, etc.,

London, W., June 27th. WALTER R. BETT.

THYROID AND MANGANESE TREATMENT.

SIR,—Dr. Herbert W. Nott reported in the *British Medical Journal* some results of his in an article entitled "The thyroid and manganese treatment in various diseases" (March 7th, 1925, p. 443). Further reports followed in the *Journal* of December 26th, 1925 (p. 1209), and July 17th, 1926 (p. 109). I am anxious to hear what has happened since then. I should like to know what further light has accumulated on Dr. Nott's results, and what the general verdict is up to date.—I am, etc.,

ARCH. LANGWILL, M.D., F.R.C.S.Ed.

Kensington, W., June 27th.

THE THANK-OFFERING FUND.

SIR,—When it was first announced from Buckingham Palace that there would be a National Thanksgiving Day for the King's Recovery, now fixed for Sunday, July 7th, it was suggested that thank-offerings from the congregations might be appropriately devoted to hospitals. It is probable that in London some congregations would like their offerings to go to King Edward's Hospital Fund for London for the benefit of the hospitals of London generally, while others might wish to give them to some particular hospital.

Contributions of both kinds may be sent to the Thank-offering Fund organized by King Edward's Hospital Fund for London at 103, Kingsway, W.C.2. Those earmarked for particular hospitals will be passed on to those hospitals. Those not earmarked will be passed to the King's Fund. The total of the two taken together will then represent the whole of the Thanksgiving Day offerings. It has accordingly been decided that from now onwards the opportunity of earmarking, which was previously extended to those interested in hospitals outside London, is also extended to those specially interested in particular London hospitals. Those who have been waiting till the approach of Thanksgiving Day, but wish to make their contributions through channels other than the church collections on that day, may send direct to the Thank-offering Fund.—I am, etc.,

DONOUGHMORE,
Treasurer.

London, W.C.2, June 27th.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

The King's Speech.

ON July 2nd the Lord Chancellor, Lord Sankey, read the King's Speech in the House of Lords. Both Houses subsequently discussed it on the Addresses, and the debate in the House of Commons will be continued next week. The Speech does not mention public health, but cognate subjects are raised in the following passages: "Bills will be laid before you for amending and consolidating the existing factory legislation, and for giving effect to the obligations entered into in Washington in 1919. My Ministers propose to introduce legislation to promote an extensive policy of slum clearance and to make further provision for housing in urban and rural areas. My Ministers have decided that the time has come to investigate the whole field of legislation relating to the sale and supply of intoxicating liquor, and on their recommendation I propose to appoint at an early date Commissioners for this purpose."

An examination is promised by the Speech into the working of the electoral law. Ministerialists understand that the subjects to be considered during this inquiry will include the abolition of the university franchise and university constituencies.

Dr. Drummond Shiels, secretary of the Parliamentary Medical Committee in the last Parliament, who is now a member of the Government, has called a meeting of medical Peers and M.P.'s for July 9th at the House of Commons to discuss the setting up again of a medical committee and the choice of its officers.

Medico-Legal.

ALLEGED ILLEGAL OPERATION: ACQUITTAL.

REX *v.* H. WINDSOR BELL.

AT the Central Criminal Court, on July 2nd, before Mr. Justice Swift, Dr. Hugh Windsor Bell of Oakley Street, Chelsea, was charged on an indictment of manslaughter arising out of an alleged illegal operation on Kathleen Alexandra Kelly. The proceedings at the first trial, before Mr. Justice McCardie, when the jury disagreed, were reported at some length in the *Journal* of June 8th (p. 1061). At the second trial the jury recorded a verdict of "Not guilty" without leaving the box, and the defendant was accordingly discharged.

Universities and Colleges.

UNIVERSITY OF OXFORD.

AT a congregation held on June 27th the following medical degrees were conferred:

D.M.—W. Dalrymple-Champneys.
B.M.—A. J. M. Melly, Florence H. Johnson.

UNIVERSITY OF BIRMINGHAM.

AT a congregation held on June 29th the following medical degrees were conferred:

M.D.—C. G. Payton, W. D. Beck.
M.B. . . . . .

K. S. Thom, Doris I. Wall.

* With first-class honours. † With second-class honours.

The following scholarships and prizes have been awarded: *Queen's Scholarships*: (second year), P. J. Stoy; (third year), H. N. Gregg; (fourth year), W. E. Wimberger; (final year), W. C. Smallwood. *Ingleby Scholarship*: (final year), W. C. Smallwood. *Arthur Foxwell Memorial Medal*: (final year), W. C. Smallwood. *Sampson Gamgee Memorial Medal for Surgery*: (final year), C. St. Johnston. *Russell Memorial Prize*: E. G. Abdel-Malek. *Peter Thompson Prize in Anatomy*: (second year), P. J. Stoy. *Foyle Prize*: P. J. Stoy.

The following appointments are announced: Chair of Pharmacology and Therapeutics, Dr. K. Douglas Wilkinson; Lecturer in General Surgery for Dental Students, Mr. C. A. Raison, F.R.C.S.

UNIVERSITY OF LEEDS.

AT the congregation of the University of Leeds on July 1st the degree of Doctor of Science (*honoris causa*) was conferred upon Dr. T. Wardrop Griffith, Professor of Medicine in the University from 1910 to 1925.

The degree of M.D. was conferred upon G. R. Baxter.

UNIVERSITY OF GLASGOW.

A GRADUATION ceremony was held on June 28th. The following degrees were conferred:

M.D.—*J. S. Young, *M.C.*, M. Cohen, J. C. H. Mackenzie.

* With honours.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.

THE trustees announce the award of the Dr. Jessie Macgregor Prize in medical science for the triennial period 1929-31 to Miss Helen M. Russell, M.D., F.R.C.P.Ed., for her record of work on malaria in the Vasiliki Valley, Macedonia, during 1925. The prize was founded in the year 1908 as a memorial to the late Dr. Jessie Maclaren Macgregor of Edinburgh, and is of the value of £75.

ROYAL SOCIETY OF MEDICINE.

ANNUAL MEETING OF FELLOWS.

THE annual general meeting of Fellows of the Royal Society of Medicine took place at the Society's House on July 2nd, under the presidency of Lord DAWSON OF PENN.

The officers of the Society elected for the year 1929-30 were as follows:

President: The Right Hon. Lord Dawson of Penn.
Honorary Treasurers: Dr. A. M. H. Gray and Mr. Girling Ball.
Honorary Secretaries: Mr. E. K. Martin, Dr. G. Riddoch.
Honorary Librarians: Dr. W. Bulloch, F.R.S., Mr. H. W. Carson.
Honorary Editors: Dr. Hugh Thursfield, Mr. Swift Joly.

Other members of Council: Dr. Elizabeth Bolton, Dr. J. S. Collier, Dr. T. W. Eden, Mr. C. H. Fagge, Dr. J. Fawcett, Mr. Sampson Handley, Sir Stanley Hewett, Mr. R. E. Kelly, Mr. Hugh Lett, Mr. V. Warren Low, Dr. A. E. Russell, Sir StClair Thomson, Sir John Thomson-Walker, Dr. H. Letheby Tidy, and Sir William Willcox.

The HONORARY SECRETARY (Dr. Letheby Tidy), submitting the report of the council, said that there were 4,300 Fellows—the highest number reached since the formation of the Society; in 1920 the number was 3,600. Regret was recorded at the death of Sir C. S. Tomes, Professor F. Widal (Paris), and Professor von Pirquet (Vienna), Honorary Fellows of the Society. Professor J. S. Haldane and Professor Ludwig Aschoff were nominated by the council as Honorary Fellows. Mr. Fagge, Dr. Tidy, and Dr. Eden are relinquishing their respective posts as treasurer, secretary, and editor.

On the initiative of Mr. Geoffrey Edwards, the secretary of the Society, the library has been equipped with a photostat. This was demonstrated after the meeting. It takes an exact reproduction, either the same size, reduced, or enlarged, of any page or article of a medical publication for dispatch to the provinces or abroad on the application of a member, without in any way depleting (as when a publication is lent) the issuing library, and thus enabling the library to fulfil its prime purpose—that of reference to those actually using the library on the premises. Within forty-five minutes such a demand was ready for post.

Members of the Society resident in Sydney had made application, with other medical men there, to be allowed to form a Section of the Society in the Commonwealth of Australia. This will be carefully considered by the council; it is the first application of the kind.

Reference was also made in the report to the National Radium Fund, and to the letter which was issued to the nation appealing for money for this purpose. Speaking on this subject at a later stage in the proceedings, the President said that the Fund would be incorporated under Royal Charter, which would secure a considerable measure of independent administration. He hoped that before next session the Fund would exist in fact and in form.

The reports and accounts were unanimously accepted. All the retiring honorary officers were cordially thanked by resolution, and high tribute was paid to Mr. Edwards, the secretary, and his staff for their loyal and ungrudging service during the period under review.

Medical News.

HER MAJESTY THE QUEEN addressed the following message of goodwill to the National Baby Week Council on the occasion of the thirteenth National Baby Week, which, as already noted in our columns (May 18th, p. 925) began on July 1st: "As Patron of the National Baby Week Council I desire, on this its thirteenth anniversary, to convey to one and all connected with the council my very great appreciation of the valuable work and support that is being both carried out and given on behalf of the motherhood and child life of the nation. It is with great interest that I learn of the decision of the council to select three aspects of maternity and child welfare for special study and propaganda during the coming year, and I hope that the council's efforts will meet with all success."

THE annual meeting of the Poor Law Medical Officers' Association will be held in the Holborn Restaurant on Thursday next, July 11th, at 6.30 p.m. The President, Sir Arthur Newsholme, K.C.B., M.D., will give an address on "Some Continental methods of medical relief." The meeting will be followed by an informal dinner (morning dress). Any Poor Law medical officer will be welcome to the meeting and dinner, particulars of which may be obtained from Mr. F. Greenwood, Bank Chambers, Stoke Newington, N.

SIR THOMAS LEWIS will give the third Victor Horsley Memorial Lecture at University Hospital Medical School, Gower Street, W.C., on Tuesday, July 16th, at 5 p.m. The subject of the lecture is "Observations relating to the mechanism of Raynaud's disease." Admission is free on presentation of visiting card.

THE next meeting of the Society for the Study of Inebriety will be held at 11, Chandos Street, Cavendish Square, W., on Tuesday, July 9th, at 4 p.m., when Mr. W. McAdam Eccles, M.S., F.R.C.S., will deliver his presidential address on some gaps in the study of inebriety. After the address a discussion on the toxic effects of methylated spirits and impure forms of alcohol will be opened by Sir William Willcox.

A CLINICAL meeting will be held at the East London Hospital for Children, Shadwell, E., on Wednesday, July 10th, when Mr. K. J. Acton-Davis will give an address on the surgical treatment of rickets, with illustrative cases. Tea at 4 p.m., meeting at 4.15 p.m. All medical practitioners are cordially invited.

THE fifth annual meeting of the National Institute for the Deaf will be held at Caxton Hall, Westminster, on Thursday, July 11th, at 3.30 p.m., with the president, Lord Charnwood, in the chair. The main resolution will be proposed by Mr. Somerville Hastings, F.R.C.S., M.P., in the following terms: "That having regard to the grave social and industrial hardships caused by deafness in the lives of large numbers of adolescent and adult persons who were born deaf or have become so, and to the fact that no official inquiry into the results (in the terms of improved social and industrial well-being) of large public expenditures in their education has ever been held, this meeting is strongly of opinion that the time has arrived when a complete investigation into the conditions and needs of these deaf and dumb and deafened persons should be made. And, further, that this meeting urgently calls upon the Government to make such an investigation by means of a Departmental Committee, or otherwise, at an early date."

THE Fellowship of Medicine and Post-Graduate Medical Association announces that Mr. Laming Evans will give a demonstration from 1.30 to 4 p.m., on July 8th, at the Royal National Orthopaedic Hospital, and Major Corbett will give a venereal disease demonstration, at 3 p.m., on July 9th, at the London Lock Hospital (Dean Street branch). Both demonstrations are free. There will be an afternoon course at the Hospital for Diseases of the Skin, Blackfriars Road, S.E.1, from July 8th to 19th; fee £1 1s. From July 22nd to 26th a course on gastro-enterology will be given at the Prince of Wales's General Hospital in conjunction with the North Middlesex Hospital; fee £3 3s. From July 29th to August 24th a course in urology (afternoons and evenings) will be held at the All Saints' Hospital; fee £2 12s. 6d. From August 12th to 24th the Queen's Hospital for Children honorary staff will undertake a half-day special course; fee £3 3s. An intensive course will be given at the Queen Mary's Hospital, Stratford, E.15, in medicine, surgery, and the specialties from August 26th to September 7th; fee £3 3s. In addition to the special courses the Fellowship of Medicine provides a "general course," which consists of the clinical practice of the associated hospitals. Tickets from one week to one year (fees £2 2s. to £21) are issued which entitle the holder to attend at the times stated in the programme provided. The course is continuous and may be begun on any day of any week. Copies of syllabuses of the special courses for 1929 and detailed information concerning the general course may be had from the Secretary, Fellowship of Medicine, 1, Wimpole Street, W.1.

THE Glasgow Post-Graduate Medical Association has arranged a general medical and surgical course from August 19th to September 13th. The fee is £10 10s. for the full course, or £6 6s. for the first or second fortnight. Syllabuses and further information may be obtained from the Secretary, Post-Graduate Medical Association, The University, Glasgow.

THEIR Royal Highnesses the Duke and Duchess of York will visit the Papworth Village Settlement on the afternoon of July 23rd, and later the West Cambridgeshire Flower Show, to be held in the grounds of Papworth Hall.

WE are glad to be able to correct the statement made last week that Sir Ronald Ross was in a very weak state of health on June 21st, when he received gold medals from two societies. Apart from the persisting paralysis, Sir Ronald Ross is very well now, but he makes it a rule not to speak in public. He was obliged to leave the meeting of the West London Medico-Chirurgical Society in order to receive the Manson gold medal from the Royal Society of Tropical Medicine.

THE Patents Committee, under the chairmanship of the Right Hon. Sir Charles Sargant, has begun its investigations, and persons and associations who wish to submit suggestions or to give evidence before the committee are invited to communicate with the secretary, Mr. R. W. Luce, Industrial Property Department, Board of Trade, 25, Southampton Buildings, W.C.2.

WE have published in recent issues lists of medical practitioners serving as members of local authorities or their subsidiary bodies in Great Britain. Notifications have since been received that Sir Harry Waters, honorary pathologist to the Stroud General Hospital, is a member of the Stroud Board of Guardians and a councillor on the Stroud Urban District Council; that Mr. H. D. Levick, F.R.C.S., and Mrs. Minnie Levick, M.D., are members of the county borough of Middlesbrough; and that Dr. A. S. Robinson is a member of the North Riding County Council and the Redcar Borough Council.

THE Medical Commissioners of the National Association for the Prevention of Tuberculosis are at present touring Perthshire, Essex, and Herefordshire, carrying out a series of popular lectures and other meetings.

THE centenary of the birth of the famous physiologist Eduard Friedrich Wilhelm Pflüger, the founder of *Pflüger's Archiv*, who died in 1910, was celebrated on June 7th at Bonn, where he was professor for fifty years.

FOR the use of practitioners of actinotherapy the British Hanovia Quartz Lamp Co., Ltd. (Slough), has devised, in a form suitable for filing, cards on which can be recorded the details of treatment for each patient. The price of these cards is 6s. per hundred, post free.

THE Board of Education has issued a revised edition of its list of certified special schools, recognized institutions for the training of blind and other defective students, and nursery schools in England and Wales. The pamphlet may be obtained from H.M. Stationery Office, price 9d. net.

THE eighth international congress of dermatology and syphilology will be held next year in Copenhagen from August 5th to 9th. The subjects announced for discussion are the etiology and pathogenesis of eczema; syphilis: immunity, reinfection, superinfection; and tuberculosis of the skin and its treatment. Those intending to communicate papers are requested to announce their subjects not later than April 1st, 1930, to the secretary-general, Dr. Svend Lomholt, Raadbuspladsen 45, Copenhagen, from whom full particulars of the congress may be obtained.

ACUTE and chronic alcoholism, exclusive of deaths due to poisoning by wood alcohol and denatured alcohol, have caused 175 deaths among the policy holders of the Metropolitan Life Insurance Company of New York during the first quarter of this year, as compared with 144 deaths in the corresponding period of 1928.

THE following appointments have recently been made in foreign faculties of medicine: Dr. Marcel Labbé, professor of general pathology and therapeutics at Paris, has succeeded the late Professor Widal in the chair of clinical medicine; Dr. M. Wertheimer of Berlin has succeeded Professor Schumann in the chair of psychology at Frankfurt; Dr. Hermann Siemens of Münich has been appointed professor of dermatology at Leyden; and Professor Steurer has succeeded Professor Körner as director of the oto-rhino-laryngological clinic at Rostock.

AN institute of physical education connected with the faculty of medicine has been established at the University of Nancy.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to ***The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.***

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The ***TELEPHONE NUMBERS*** of the British Medical Association and the *British Medical Journal* are *MUSEUM 9861, 9862, 9863,* and *9864* (internal exchange, four lines).

The ***TELEGRAPHIC ADDRESSES*** are:
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QUERIES AND ANSWERS.

RETROBULBAR NEURITIS?

"NESCIO" (Kilmarnock) writes: A male patient, aged 41, complained of dimness of vision six months ago. An eye specialist diagnosed a retrobulbar neuritis, without cause being found. Treatment, chiefly with potassium iodide and nux vomica for four months, made no difference. The patient was then seen by a neurologist and was under observation in hospital for seven weeks. No abnormality was found in the nervous system or elsewhere. The visual trouble was diagnosed as hysterical. There has been neither improvement nor deterioration in sight. The patient is a healthy, strong, hard-working joiner. Can anyone suggest a diagnosis and treatment of his condition?

PAINFUL HEEL.

DR. J. G. BLACKMAN (Portsmouth), with reference to the query by "Giza" (May 11th, p. 890), writes: I have always regarded this symptom as due to gout, and treatment directed against this condition has, in my experience, usually resulted in its cure, or at least relief.

STIES.

DR. SYDNEY TIBBLES (London, W.) writes: In reply to Dr. J. E. Harford's inquiry (June 29th, p. 1189), may I suggest the administration of yeast, of which there are several tablet forms on the market. This, combined with hot boracic fomentations at night, frequent daily bathings with boracic lotion, and, should matter form, immediate incision of the sty, should effect a cure. It is most important to eliminate any source of congestion of the lid margins which may be caused by a small error of refraction or muscular trouble. Personally, I have found the above line of treatment successful where autogenous vaccines and radiation to the lid margins have failed, but I can offer no explanation as to how this rather old-fashioned remedy acts.

UMBILICAL DISCHARGE.

"B. B. L." writes: In reply to "W. D.'s" inquiry (June 15th, p. 1104), I have been consulted several times by patients about this condition, most of the patients presenting themselves during a spell of intensely hot weather. In all of them the umbilicus had the appearance of a narrow funnel, lined by normal skin, leading obliquely downwards into the abdominal wall. In one case a probe could be passed downwards for about 2 in. The only explanation seems to be that the umbilical cord had become invaginated, and the cut end had formed some attachment in the depths of the abdominal wall. The serous discharge is of a seborrhoeic nature, resulting from the natural skin secretions and bath water, which cannot be reached by a towel (so narrow and deep is the opening). Relief can be obtained by daily cleansing and the use of talcum powder. The patient in which the passage was measured had a laparotomy done for another complaint six months ago, with a long incision curving round the side of the umbilicus. The surgeon reported no abnormality, and as the umbilicus still requires attention one regrets that it was not excised at that time.

INCOME TAX.

Purchase of Practice: Audited Accounts.

"A. C. K." bought a practice as from October 1st, 1928; the inspector of taxes has requested him to arrange for his "account" for his first year in the practice to be prepared by a qualified accountant, and in the meantime to make a "provisional return" of his income.

*** Taking the second request first, a provisional return can, no doubt, be made by entering in the declaration an estimate for the first year based to some extent on "A. C. K.'s" predecessor's earnings. That course may be convenient, as enabling "A. C. K." to make a payment on account of his income tax liability, but, in our view, no compulsion rests on him to make such a return, and he would be legally justified in waiting until after September 30th, 1929, before making his return or paying tax. On the point of employing a qualified accountant to prepare his account, many practitioners find it desirable to do so, in order that their own time may be economized and that no admissible deductions may be overlooked, and presumably the income tax authorities are prepared to put greater faith in the accuracy of accounts prepared by an independent and skilled person. But the inspector of taxes has no right to make that stipulation, and if "A. C. K." prefers, and is competent, to prepare the account himself we suggest that he should do so, and in sending it in should offer to exhibit the bank pass-books, etc., from which it was prepared.

LETTERS, NOTES, ETC.

THE UROLOGICAL SOUND-FILM.

A Disclaimer.

SIR JOHN THOMSON-WALKER writes: At the last meeting of the Urological Section of the Royal Society of Medicine on June 27th I gave, by invitation, a demonstration of motion and sound pictures of operations, and notice of the forthcoming demonstration was published in your issue of the previous week. There has since appeared in the public press a florid account of this demonstration, with personal references to myself, and a statement that I am supposed to have made at an interview. I am writing to assure my professional colleagues that I have had no communication with the press by word or in writing, and that no interview of any sort has taken place. I am taking steps to have this acknowledged by the journal in question.

*** An account of the demonstration appears at page 23 of the present issue. We willingly publish this disclaimer, though no one who knows Sir John Thomson-Walker will need his assurance.

CONGENITAL ABSENCE OF THE BILE DUCT.

DR. S. WAND (Birmingham) writes: The following case is, I think, worthy of mention. A woman, aged 35, has been married twice. By her first husband she had three children, all of whom are alive and well. By her second husband she has also had three children during the last four years. The first was stillborn. The second was a breech case, the child being born alive, but profound jaundice developed on the second day and it died on that day. The third confinement was normal and rapid, the baby being a fine, large, and healthy-looking child. On the second day jaundice developed and the child died on the same day. I made a post-mortem examination and found congenital absence of the bile duct, the duct being nothing more than a fibrous cord. The mother's Wassermann reaction is negative. To me the interesting points are: (1) the familial history; (2) the fact that these cases have occurred only during the second marriage.

DETECTION OF MILK ADULTERATION.

THE freezing point of milk samples has been used since 1893 in Holland as a means of determining whether added water is present, and Mr. A. van Raalte, D.Sc., of Amsterdam, contributes an interesting note on the value of this method to the May issue of the *Analyst*. He states that it is generally agreed, as the result of very prolonged investigation, that normal mixed milk has a freezing point between −0.54° and −0.57° C. Milk with a freezing point nearer to zero than −0.53° C. is taken as indicating adulteration with water. Dr. van Raalte adds that in Amsterdam each year about 30,000 samples of milk are analysed—that is, about one sample for every thirty inhabitants; in 1927 only 2 per cent. of such samples were found to be adulterated with water. The freezing point test is now coming into use in the United States and in Germany, and figures found in both these countries are said to be in absolute conformity with those in Holland. Dr. van Raalte suggests that this method therefore deserves international acceptance.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 45, 46, 47, 48, 49, 52, 53, 54, and 55 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 50 and 51.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page *15*.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

1. Undulant Fever.

M. JANBON and J. DUPONNOIS (*Arch. Soc. des. Sci. Méd.*, January, 1929, p. 153) report a case of undulant fever of a particularly prolonged and refractory nature, in which cure was obtained by the administration of trypaflavine (gonacrine). The onset was slow, with a typical undulating temperature, profuse foul-smelling sweats, and emaciation. The arthralgias, characteristic of the disease, did not develop till two to four months later. At the end of five and a half months the patient entered hospital complaining of extreme weakness and pains in the lumbar region and legs, especially the right, which were aggravated by pressure, even of the bedclothes. Erichsen's test elicited pain over the left sacro-iliac articulation. There was slight motor deficiency in the right leg; the right patellar reflex was diminished, but the other reflexes were normal. Radiography revealed a marked separation of the left sacro-iliac articulation, ankylosis of the left condyloid articulations along nearly the whole of the dorso-lumbar column, effacement of the intervertebral spaces, and erosion of the fourth lumbar body. The agglutination test was positive in 1 in 200, though *B. melitensis* was not isolated from the blood till about the ninth month. Treatment with the specific vaccine, and infra-red irradiations, caused only slight improvement. Intravenous injections of trypaflavine were then tried (the tenth month of the disease), the commencing dose being 10 cg., which was progressively increased by 10 cg. a dose to 50 cg.; these were given at gradually increasing intervals of one, two, and three days. The usual reactions, such as headache and icterus, followed each injection, but subsided the next day. Manifest improvement commenced after the third injection, and resulted in cure. A year after the onset of the disease there is only very slight pain on pressure over the left lumbar muscles, and elevation of the left iliac crest due to a compensatory scoliosis. *X*-ray pictures also showed improvement in the osteo-articular lesions. M. AUBERT and LISBONNE (ibid., p. 161) also report three cases of undulant fever treated with trypaflavine. This was followed by cure in two cases, but not in the third, owing to incorrect and insufficient treatment.

2. A. V. HARDY (*Journ. Amer. Med. Assoc.*, March 19th, 1929, p. 853), as the result of an investigation of 125 cases of undulant fever that occurred in Iowa between October, 1927, and December, 1928, came to the following conclusions. Most of the patients lived on farms or in country towns; the occupational groups chiefly involved were farmers or packing-house workers. There were no recognized cases among children under 5 years of age, and only a few cases in older children, while the bulk of the cases occurred in men aged from 20 to 45. There was a striking variability in the symptoms and course. Weakness was a constant symptom, and was frequently associated with fever, pain, or rigors. The fever was generally intermittent or remittent, and undulations were not often observed. Physical signs were rarely apparent, the most frequent being an enlarged spleen. There was usually a slight leucopenia and a decrease in the neutrophils. The diagnosis was confirmed by agglutination tests, almost always repeated, and when possible by blood cultures.

3. Nervous Sequels of Serum Injections.

F. KENNEDY (*Amer. Journ. Med. Sci.*, April, 1929, p. 555) records six cases in which nervous sequels developed after the administration of various serums. Four days after prophylactic injection of scarlatinal antitoxin general urticaria developed in a boy aged 12, with a temperature of 104° and symptoms of meningitis. On the third day of serum sickness he became aphasic and had partial right hemiplegia. Two days later he showed bilateral swelling of both discs. The cerebro-spinal fluid escaped under great pressure, but only 14 lymphocytes per c.mm. were present. The symptoms subsided in the next few days, and complete recovery ensued four and a half weeks from the onset of his serum sickness. The second patient, a lad aged 18, three weeks after prophylactic inoculation against scarlet fever had a high temperature, urticaria, and severe pains and swelling in all the large joints. Subsidence of the swelling of the shoulders was followed by atrophy of both deltoids and some wasting of the supra- and infra-scapular muscles on each side. Gradual recovery resulted in the course of a year. Cases 3, 4, and 5 occurred in males aged 12, 15, and 21, one of whom developed deltoid paralysis and the other two serratus magnus paralysis after prophylactic injection of antitetanic serum. The sixth patient was a man, aged 34, in whom, on the day following the third injection of antityphoid vaccine, polyneuritis developed and lasted for eight weeks. Kennedy thinks that toxicity of the serum, or urticarial oedema of the perineural tissue, or a combination of both, was responsible for the symptoms in the first five cases, while the polyneuritis in the sixth case was mainly toxic in origin. He suggests the intravenous injection of sodium carbonate as a preventive method.

4. Encephalomyelitis after Varicella.

G. W. RAKE (*Guy's Hospital Reports*, January, 1929, p. 58), who records an illustrative case, states that a review of the literature shows that cases of encephalitis and myelitis following varicella are sufficiently frequent to exclude the possibility of mere coincidence. Most of the recorded cases have occurred in children up to 8 years of age. This may partly be due to the fact that varicella itself is a disease of childhood, but it seems that if, as in Rake's case, more than one of a family contract the disease, it is the younger member who suffers from the nerve lesion. The incubation period for the nervous complications ranges from five days to about two and a half weeks. The symptoms vary considerably. In many cases the motor tracts are affected and there is upset of sphincter control. In others the anterior horn cells are affected. Sensory changes, such as anaesthesia or hyperaesthesia, have been described. Meningeal symptoms have occurred in some instances. Cerebral symptoms range from hemiplegia to the generalized tremors or nerve palsies. The cerebro-spinal fluid may be normal or show an increase of cells or protein, or both. The prognosis is good. No case has come to necropsy, and in most instances complete recovery ensued. Rake's case was that of a boy, aged 2½ years, who on the third day of varicella became irritable, vomited, and for the next few days was delirious and comatose. He had convergent squint, spasticity of the whole of the left side, increased tendon reflexes, a positive Babinski's sign, and absent abdominal reflexes on that side. A gradual recovery followed.

Surgery.

5. Intracranial Complications of Purulent Otitis Media.

W. C. WARREN, jun. (*Arch. of Surg.*, April, 1929, p. 1552) states that one out of every four cases of chronic infection and one out of every nine cases of acute infection of the middle ear present an intracranial complication, the mortality in each case being high. The symptoms are usually headache, vomiting, vertigo, fever, and disturbed pulse, temperature, and respiration ratio. The slower pulse rate is probably due to toxic irritation of the vagus centre. The three most common types of intracranial complications are lateral sinus thrombosis, abscess of the brain, and meningitis. In cases of lateral sinus thrombosis, chronic mastoiditis and cholesteatomas are the most common causative factors, and the complication occurs most frequently in children with disease of the middle ear complicating an acute exanthem that has caused severe depletion. The typical symptoms are the euphoria and sharp oscillations of temperature, and in 25 per cent. of cases there is a positive bacteriaemia. Leucocytosis with a fairly high polymorphonuclear count is usually present. Treatment, which should be surgical, gives a good prognosis if the tongue is moist and not very coated, and if the temperature comes down by lysis after operation. Abscess of the brain is most commonly caused by purulent otitis media, and the streptococcus is the most usual organism. The majority of abscesses occur near the diseased area of bone forming the pathway of intracranial infection. Headache is the most usual early symptom, with subnormal temperature and slow pulse and respiration: intermittent vomiting is a characteristic sign, with optic neuritis and a coated tongue. Treatment must be surgical to evacuate pus and establish drainage, but the prognosis is poor, with a mortality rate of 40 per cent. Post-operative dangers are meningitis, hernia of the brain, and the spreading of infection. Meningitis is the third type of intracranial complication in purulent otitis media, and the diagnosis of this condition is not difficult. The characteristic symptoms are extreme restlessness, severe headache, picking at the bedclothes, high temperature, with rigidity of the muscles at the back of the

neck, and later photophobia. Lumbar puncture may show cloudy spinal fluid with pus and bacteria, and decrease or absence of sugar. Treatment should be surgical in cases of meningitis which are otitic in origin; it should ensure the removal of all diseased parts contiguous to the meninges, and free exposure of the adjacent dura. For cases of diffuse purulent leptomeningitis the prognosis is bad, as no satisfactory treatment has been found, and death nearly always ensues. Latterly, continuous drainage of the spinal cord by the removal of a lamina and insertion of a drain has been advocated.

6. Simultaneous Occurrence of Fibroma of the Tongue and Larynx.

G. MARTUSCELLI and M. LUONGO (*Arch. Ital. di Otol.*, April, 1929, p. 259) report a case of fibroma of the tongue associated with a similar tumour of the larynx. The patient, who was of good constitution and had an uneventful history, complained of persistent aphonia, which had gradually appeared and been present for about a year. A tumour was found on the left border of the tongue, near the first molar; it was about the size of a large pea, and had a slender pedicle about 3 to 4 mm. long. From its general character and the absence of pain a fibroma was diagnosed; the differential diagnosis from a similar tumour associated with psittacosis is given. This could not be considered to have any relation to the aphonia, but laryngoscopic examination revealed the presence of a small tumour at the anterior attachment of the vocal cords, which was somewhat elongated, about the size of a grape seed, and seemed rather transparent. A cystic fibroma of the larynx was diagnosed. When the laryngeal tumour was excised, a second one, similar in size to the first, was discovered and also removed. Histological examination confirmed the diagnosis. After a review of the literature on the subject, the authors draw attention to the fact that pure fibroma of the tongue is rare; its association with a second fibroma in the larynx or cheek is even more unusual. They consider that the fact of three similar tumours occurring in the same patient raises the question of infectivity, which has already been proved in the case of papilloma.

7. Diagnosis and Treatment of Gaucher's Disease.

R. MÜHSAM (*Med. Klinik*, April 12th, 1929, p. 585) summarizes the characters of this disease as a constitutional affection of the lymphatic and haemopoietic apparatus, with deposits in certain cells of the spleen, liver, lymph glands, and bone marrow of a specific substance (the Gaucher substance) belonging to the cerebrosides, and occurring in characteristic rosette-shaped crystals. Beyond complaining of weakness the patient has no clinical signs until the spleen and liver become enlarged, or there is a tendency to haemorrhages, pains in the bones, bending of the bones, and even spontaneous fractures; pain in the gums which bleed; and sometimes osteomyelitis. The blood picture is not striking; there is a variable anaemia, often some leucopenia, and a diminished number of platelets. The skin assumes a brown subicteric tint. The disease occurs in families, but of the nature of its transmission nothing is known. The diagnosis can be established by examination of the bone marrow from a puncture of the tibia, or of the spleen after removal. All therapeutic measures seem to be useless, but splenectomy relieves the condition and may prolong life for some years.

Therapeutics.

8. Metallic Salt Therapy.

L. E. WALBUM (*Nord. Med. Tidsskrift*, April 13th, 1929, p. 231) reviews the principles of the system of treatment associated with his name. He maintains that it has nothing to do with Ehrlich's chemotherapy, and should not be compared with non-specific therapy such as protein shock. It is, indeed, strictly specific, and it aims at stimulating the body's own defences by means of small quantities of metallic salts. Ten years ago the author began to experiment with the injection of various metallic salts to see if they promoted antitoxin production. He found that, in addition to antibody production, this procedure favoured numerous other processes enabling the body to combat germs and their toxins. The action of the bacteriolytic substances and the phagocytic activities of the leucocytes were multiplied. Experimental animals treated with lethal doses of tetanus, diphtheria, staphylococcal, and dysenteric toxins were cured by a single injection, and in certain cases the internal secretions of the body were stimulated. The first experiments were carried out on mice infected with "ratin" bacilli; forty different metals were tested, and thirty-eight of them were found to be practically inert, but caesium and iridium completely cured the infected animals. Later, rabbits were given intravenous injections of highly virulent tubercle bacilli which invariably caused death of the untreated rabbits in one to four months. Out of forty-two different metals investigated cadmium and manganese were found in almost every case to effect a complete cure. When the small optimal dose was exceeded, however, antibody production was reduced till, after the overdosage had reached a certain limit, it fell below the original base line. Such overdosage might still be far below that which would actually cause metallic poisoning. A comparison of the stimulation curves of agglutinins and amboceptors on the one hand, and of bacterial growth on the other, showed that the latter required a considerably higher concentration of metallic salts than did the former. If the dosage is increased still further, to such a degree that the growth of bacteria is inhibited, the experimental animal usually dies of metallic poisoning. In searching for the optimal dose, Walbum adds, it is better to keep below it than to exceed it, under-dosage never being harmful, whereas overdosage is dangerous. After referring to the application of his system to the treatment of pulmonary tuberculosis, and the experiences in this field of N. Lunde in Norway, the author describes the experiments he is at present conducting at the Serum Institute in Copenhagen with rabbits infected with *Staphylococcus pyogenes aureus* by the intravenous route. Of the twenty-one metals tested, tin and zirconium have hitherto been found to cure the infected animals. During the past four or five years the institute has also been investigating the application of Walbum's system to the problem of cancer.

9. Autohaemotherapy in Nephritis.

G. KOLISCHER (*Journ. Amer. Med. Assoc.*, March 23rd, 1929, p. 968) remarks that, though protein shock treatment is undoubtedly useful in the case of elderly men suffering from urinary retention and nephritis, the employment of milk injections always produces a pronounced general reaction; this is undesirable in view of the fact that in such conditions the heart is always involved to some extent, and any additional strain is inadvisable. The casein derivatives of milk used for the same purpose do not produce the same reaction, but their therapeutic effect is variable. The author, therefore, commends autohaemotherapy as the ideal procedure. With the usual antiseptic precautions, 5 c.cm. of blood in the case of infants, or 10 c.cm. in adolescents and adults, is withdrawn from a superficial vein and immediately reinjected into the gluteus muscle. This treatment is usually given twice a day on two consecutive days, after which a week is allowed for estimation of the results; if continuance of such injections is indicated they are given once a day on every other day. The author records details of five cases selected for autohaemotherapy owing to failure of the routine treatment; in each instance a signal success was obtained. The first patient was a lad, aged 18, who had subacute appendicitis and unilateral glomerulonephritis; the renal condition was entirely cleared up by three gluteal injections. The other cases reported were: nephritis in pregnancy, acute nephritis following tonsillitis in a boy aged 6, and two cases of nephritis with prostatic involvement in patients aged over 60. The author adds that if for any reason autohaemotherapy is not deemed advisable in an infant reduced doses of casein emulsion may be injected hypodermically; it is advisable to await the complete subsidence of a reaction before repetition of the injection. Kolischer suggests that autohaemotherapy should be given an extensive trial in nephritis.

10. Treatment of Disseminated Sclerosis.

J. VITEK (*Bruxelles-Méd.*, May 12th, 1929, p. 805) mentions a considerable number of the remedies, both medical and surgical, that have been used in the treatment of circumscribed sclerosis. With the majority of these he has obtained no favourable results, but he has found *x*-ray irradiation combined with chemotherapy to be more beneficial. The method pursued is first to administer *x* rays, followed by injections, on alternate days, of a colloid silver preparation known as dispargen and mercury cyanide. The silver preparation is injected intravenously, the commencing dose being 3 c.cm.; subsequent doses are progressively increased to 15 or 20 c.cm. until a total of 180 to 200 c.cm. has been administered. The dose of mercury cyanide is 5 to 10 mg. At the same time Fowler's solution in progressive doses is given orally; the initial dose is 5 minims three times a day, and this is increased by 2 minims each time until a total of 90 minims has been given, when it is then similarly decreased. Vitek does not recommend sodium cacodylate or novarsenobenzol. Massage of the lower limbs, passive movements, gymnastics, and tepid baths are adjuvant measures which he finds useful. The massage, baths, and medical treatment should be continued at home, with an occasional one-week's course of colloidal silver (in pills of 0.03 gram), but a second period of institutional

treatment may be useful after some time. Occasionally, especially in very young subjects, the disease may be a manifestation of latent congenital syphilis, and in these cases striking results are obtained by mercury cyanide. Vitek acknowledges that the undoubted benefits obtained by this method may be due merely to spontaneous remissions, but hopes that these remissions occur earlier as the result of the treatment. He adds that women must be warned about the serious consequences of pregnancy as regards the progress of the disease.

Radiology.

11. Ionization Treatment of Chronic Rhinitis.

COLLOT (*La Vie Méd.*, April 10th, 1929, p. 365) points out that many diseases, such as gastritis, appendicitis, and bronchitis, are caused by the ingestion or inspiration of discharges from purulent nasal or buccal conditions, and that the commonest of these causes is chronic rhinitis. The turbinates play a double role in warming the inspired air and in cleansing this air from dust and micro-organisms. In rhinitis these functions are abolished, as the erectile tissue becomes relaxed and paralysed, venous stasis and oedema is established, and the secretion is altered and stopped. Treatment should aim at diminishing the congestion of the mucosa and restoring its tonicity, but as the usual measures tend to destroy rather than repair this membrane they are irrational and abortive. For over eight years Collot has employed a modification of Frieli's zinc ionization method with success. This consists in the application of high-frequency currents, salicylate ionization, and vibratory massage. The high-frequency currents are applied by a MacIntyre electrode of such a form that it can be applied to all points of the mucosa; they have a vaso-constricting and sterilizing action. The duration of each application should be five to ten minutes for each nostril. Ionization is effected by means of strands of absorbent wool impregnated with an isotonic solution of sodium salicylate. These must cover the whole surfaces of the fossae; they are connected with the negative pole of a continuous current battery. An intensity of 2 to 3 ma. should be maintained for twenty to thirty minutes. The vibratory massage, which should be of a short duration of less than a minute, is made by means of absorbent wool, soaked in oil, carried in a holder or forceps. The vibration can be produced manually or an apparatus may be used. The number of treatments varies according to the case, but an average of twenty is usually necessary. These should be given daily at the commencement of treatment, but at longer intervals later; the different applications are made on alternate days, the electrical treatment and massage being employed one day, and the other procedures on the next day.

12. Radium Treatment of Carcinoma of the Buccal Cavity.

G. E. PFAHLER (*Radiol. Rev.*, March, 1929, p. 93) bases his radium technique on the principles laid down by Régaud—namely, (1) that radiation should be prolonged so as to destroy all the cells in the process of division, and (2) that as radiation becomes more penetrating the diffuse necrosing effects diminish and disappear, and there only remain selective effects on cancer cells in the process of division. Inside the mouth the radium is screened by 2 mm. of platinum whenever practicable (the equivalent of about 4 mm. of lead); 1,000 to 3,000 mg. hours are employed, over a period of three to four weeks, at as much distance as the local conditions will permit. Externally, the author uses packs of wax or felt, or both, covered with plaques of 5 mg. or 10 mg. needles screened with 3 mm. of brass. The pack, with from 100 mg. to 300 mg., is applied at 4 cm. distance, generally from each side, and always on both sides in tongue cases. Four twenty-four-hour applications within a month are advocated, equivalent to 20,000 to 30,000 mg. hours. There should be associated treatment for dental caries, pyorrhoea, anaemia, syphilis, or anorexia, when present, and careful attention to the hygiene of the mouth. The advantages claimed are that the treatment is painless at the time of application, though there may be soreness and swelling later; no anaesthetic or hospitalization is necessary, and there is no mutilation or constitutional involvement. Disadvantages mentioned are the necessity for a considerable quantity of radium, the daily supervision of an experienced radiologist, and the constant co-operation of the patient, whose occupation is interfered with for at least a month. Of 56 patients with advanced intra-oral cancer and glandular metastasis treated in private during the last three years the author finds that 36 are still living; 23 of these are clinically cured, while 13 are still under treatment, most of whom the author hopes to cure.

13. Radiotherapy of Cerebral Tumours.

A. BÉCLÈRE (*Journ. de Radiol. et d'Électrol.*, April, 1929, p. 209) observes that adenomata of the anterior lobe of the hypophysis, which comprise about 20 per cent. of all cerebral tumours, respond well to radiotherapy. Moderate doses, well spaced out, give better results than intensive and rapid treatment. Decompressive trephining of the pituitary fossa, by the trans-sphenoidal route, is indicated only when this procedure fails. Of other cerebral tumours some of the gliomas are the most radio-sensitive—those, for example, which are essentially cellular in structure, such as the medulla blastomas and the spongioblastomas. Radiotherapy diminishes hypertension and relieves grave cerebral signs both by destruction of the tumour cells and, through inhibition of the choroid plexus, by checking the secretion of cerebro-spinal fluid. Radiotherapy may therefore be indicated for relief of symptoms even when there is no possibility of a cure by its means. X rays have been found preferable to the gamma rays of radium. The best results have been obtained with very penetrant rays, well filtered, projected from a distance, and directed through several ports of entry over large surfaces. After a primary irradiation of a dose of 500 R units it is recommended that at succeeding sessions, at an interval of not less than forty-eight hours, a dose of 1,000 R units should not be exceeded. Caution is particularly necessary in cases of hypertension where a cerebral decompression has not been done. One danger in the treatment is oedematous hyperaemia, which will depend on the dose given, and especially on the amount of hypertension already present.

14. Multiple Epilation by Diathermy.

K. MEZEI (*Dermat. Woch.*, May 18th, 1929, p. 720) states that epilation by diathermy has hitherto been conducted with only one needle in a needle-holder so that only a single hair could be removed at once. He has now invented a method which obviates the necessity of a needle-holder, and the pain inflicted is very much less than before. The method also enables a larger quantity of hair to be removed. The larger the area to be epilated the greater the number of needles to be applied. The needles are introduced into the hair follicles, the current is turned on and allowed to flow until coagulation is complete, when the hairs are removed by forceps. In spite of the strength of the current the patient does not feel any more pain than on removal of a single hair. The same apparatus can be used for epilation with electrolysis.

Obstetrics and Gynaecology.

15. Pituitary Secretion and Genital Function.

B. ZONDEK (*Zentralbl. f. Gynak.*, April 6th, 1929, p. 834) gives a further account of the preparation and biological properties of the hormone of the anterior lobe of the pituitary, and describes its trial clinically. To this hormone he now gives the less cumbrous name "prolan." With Aschheim he has shown that it stimulates ovarian activity; when injected into immature, as distinguished from castrated, mice or rats it brings about an oestrus. Prolan, unlike folliculin, is destroyed by heat, acids, and alkalis; it is dialysable and soluble in water, insoluble in ether, and precipitated by alcohol or acetone. It has now been prepared in concentrated solution containing five mouse units, corresponding to thirty rat units, per cubic centimetre. In rabbits, Zondek now reports, the action of prolan is specially striking; in infantile rabbits, given about 1,500 rat units in ten days, the uterine cornua are so much enlarged as to suggest pregnancy, and the ovaries are enlarged sixfold, containing large haemorrhagic luteinized follicles. In old mice in which oestrus has long been absent prolan administration restores rut and brings about great ovarian hyperplasia. Mature mice, paradoxically, can be rendered temporarily sterile by prolonged prolan administration, the ovaries being filled with lutein cells, and follicles being almost completely absent. Prolan prepared from the hypophysis of male animals is said to have the same biological action as that made from females, and male animals respond to prolan injections in a manner analogous with females—castrated bucks being unaffected, but infantile ones showing enlargement of all the genitalia, most notably of the seminal vesicles. The effect of prolan has been secured in rats by oral administration; not, however, in mice, which require on injection much larger doses than rats in proportion to the body weight. Women injected with prolan a few days before laparotomy have been found to show hyperaemia of the vagina, uterus, and Fallopian tubes; the intramuscular injection of prolan increases the rectal and vaginal temperature from half to one degree Centigrade above that of the axilla. In three instances after injecting

prolan into women for fourteen days small cysts were found in the ovaries. In endeavouring to restore menstruation by prolan treatment in cases of amenorrhoea (the primary site of stimulation being the ovaries), Zondek states that it is important to distinguish cases of amenorrhoea due to hyperaction from those due to hypoaction of folliculin; this can be done by injecting mice with the urine. In hyper-hormonal cases, which are unsuitable for prolan treatment, greater amounts than one mouse unit of folliculin per 6 c.cm. are present. Hyper-hormonal cases of amenorrhoea, it should be remembered, frequently become spontaneously rectified. Zondek reports the trial of prolan treatment in eight cases of amenorrhoea, primary or secondary. In five patients one or two menstruations followed between seventeen and thirty days after the commencement of treatment; bleeding within a day or two of treatment is not indicative of stimulation of ovarian function, and must be attributed to the vascular congestion in the genitalia which follows prolan administration. In one patient the treatment was ineffective, and in two cases, eight days after a week's prolan treatment, curetting showed hypertrophy and cyst development in the endometrium.

16. Glycosuria in Pregnancy.

E. C. P. WILLIAMS and L. WILLS (*Quart. Journ. Med.*, April, 1929, p. 493) review the alterations occurring in blood sugar curves during pregnancy, as shown by a study of cases at the same stage of pregnancy, and by watching individual cases from the early months to the puerperium. Sugar determinations were made over a period of two and a half hours, and the urine was tested for sugar and acetone at the end of the first and second hours. The patients were tested in the morning four hours after taking a cup of tea and a piece of bread-and-butter, and after a dose of 100 grams of glucose in 200 c.cm. of water with the juice of a lemon. These were compared with the normal curve, range, and average for fifty healthy non-pregnant women. The curves were considered in sections, namely: (1) from the first month to the end of the fifth; (2) from the sixth month to full term; and (3) after confinement. From the examination of forty-three non-glycosuric cases and twenty-one cases of symptomless glycosuria, it was concluded that in all periods of pregnancy and the puerperium the blood sugar curves of normal non-glycosuric patients fall well within the range of curves obtained from normal non-pregnant women, with a tendency to drop as pregnancy progresses, rising in the early puerperium and returning to normal in a few weeks. Probably in all normal pregnant women the renal threshold appears to be lowered. On an ordinary diet the incidence of symptomless glycosuria has been shown to be 5.4 per cent. of all pregnant women, based upon an investigation in 640 unselected cases, and the incidence of renal leaks in normal non-glycosuric pregnant women after 100 grams of glucose is 60 per cent.; it was noted that in no case with a sugar leakage in the early months was there cessation of the leaking as pregnancy progressed. Raised curves were found in the majority of the glycosuric cases and persisted after pregnancy, but in spite of this the authors do not consider that any treatment is required other than the correct spacing of the carbohydrate in the diet, by which means the level of the blood sugar is kept within limits. With proper dieting such simple glycosurias of pregnancy are regarded as of slight significance, since the cases have normal pregnancies and normal children result.

17. Management of the Normal Puerperium.

ACCORDING to H. J. DREW SMYTHE (*Bristol Med.-Chir. Journ.*, Spring, 1929, p. 59) the puerperium ceased to be a normal physiological process when the human race assumed the upright posture, thereby incurring the risk of such uterine displacements as prolapse. He thinks that the ill health often attributed to some one particular confinement is not infrequently the result of imperfect treatment after birth of the child, and he recommends that the utmost care should be employed by the medical attendant at this period. He discusses perineal repairs and commends the use of the abdominal binder. The patient is not kept on her back, but the Fowler position is adopted, so that the lochia may drain away. Attention is paid to the functioning of the bladder and the breasts; in discussing diet he questions the value of stout, which, he thinks, favours the production of adipose tissue rather than an increase of milk. Abdominal muscular exercises are recommended from the fifth day after delivery, together with rest for an hour or two twice a day in the prone position to obviate any tendency to retroversion. After the seventh day the Fowler position is discontinued at night, and from the tenth to the fourteenth day the patient is allowed to sit up out of bed, the binder now being discarded altogether. Before this, however, it is essential to be certain that the uterus can no longer be felt on abdominal palpation, and that the lochia are clear and normal. Abdominal exercises are still continued, even when the patient has begun to sit up. The author gives the caution that the involution process takes from six to eight weeks to complete, and the patient should not lift any heavy weight, especially in a stooping position, for at least two months after confinement.

Pathology.

18. Acute Bartonellosis in Non-splenectomized Mice.

A. LWOFF and A. PROVOST (*C. R. Soc. de Biologie*, May 13th, 1929, p. 8) describe the production of acute infection with *Bartonella muris* in normal mice. During the course of an experimental infection of a mouse with *Schizotrypanum cruzi* numerous bartonella appeared in the blood. The inoculation of a drop of blood from this animal into a normal mouse by the intraperitoneal route succeeded in setting up a bartonella infection, and by passage through a series of mice it proved possible to separate this organism from the trypanosomes, which multiplied less rapidly. At the first passage bartonella was found in the blood from the fourth to the eleventh or from the eighth to the fifteenth day, depending on the mice; but at the second and subsequent passages it was found from the second to the eighth day. The course of infection was as follows. Forty-eight hours after inoculation occasional organisms were found; after three days there was about one red cell in every fifty invaded; after four days one in every six red cells; and after six days every red cell was affected, there being an average of twenty organisms per cell. A few free organisms were found in the plasma. On the seventh day the organisms had greatly diminished in numbers, and showed granular degenerating forms. On the eighth day no more organisms were to be found. It is clear, therefore, that non-splenectomized mice may suffer an acute experimental bartonella infection, lasting for about a week, and terminating by cure. Such mice are henceforth immune, for at any rate some weeks, and their blood is non-infective to fresh animals. The author succeeded in transmitting infection from mice to rats; some of these animals developed an acute infection and died; others were only slightly affected; while others proved resistant. Cultures of bartonella were obtained from the mouse on N.N.N. agar and on Noguchi's medium. The author recognizes three species only: *Bart. bacilliformis*, the cause of Oroya fever in man; *Bart. muris*, the cause of infectious anaemia in rats and mice; and *Bart. canis*, the cause of infectious anaemia in the dog.

19. A Solution Isotonic with Serum.

I. CHRISTENSEN and E. J. WARBURG (*Acta Med. Scand.*, March 30th, 1929, p. 286) have prepared an aqueous solution which contains 11.3 grams of sodium oxalate, 0.315 gram of primary potassium phosphate, and 1.365 grams of secondary sodium phosphate in each litre of water, and is isotonic with serum. The concentration of the cations in this solution is 0.187. By means of it the relative osmotic pressures of the cations in the serum can be determined; the mean error of the method is 0.86 per cent. In a series of 23 normal persons, 15 men and 8 women, determinations were made of the volumes of the same amount of corpuscles in serum and in the isotonic solution; the maximum deviations from the mean value of the relative cation concentration were 3 per cent. and 2.4 per cent. It was found that the erythrocytes shrink when suspended in relatively large volumes of a non-buffered 1.3 per cent. solution of sodium oxalate, if not previously protected against loss of carbon dioxide, and similarly shrink 10 per cent. in a 3 per cent. solution of sodium citrate. No diurnal variation on the cation concentration of the serum could be demonstrated in two experiments, nor was there any variation after a sweating bath. The solution is said to be suitable for determining the erythrocyte volume-index of cutaneous blood by means of van Allen's haemotocrit.

20. Cholesterinaemia in Gastric Disorders.

T. RICOZZI (*Il Morgagni*, March 31st, 1929, p. 657) records eighteen cases of gastric trouble other than gastric ulcer in which estimations of total, free, and combined acidity were obtained according to Topfer's method, and at the same time samples of blood were taken for estimating the cholesterinaemia by Grigaut's method. The author finds that the cholesterinaemia values in the various cases are not constant, and have no relation to the hydrochloric acid percentages in the gastric contents. The hypercholesterinaemia met with in some cases appeared to be attributable to other organic conditions, such as age and arterio-sclerosis.

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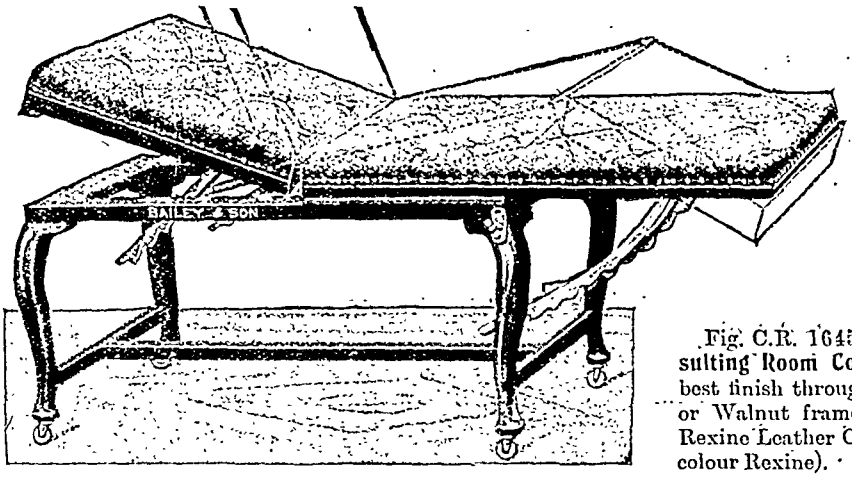

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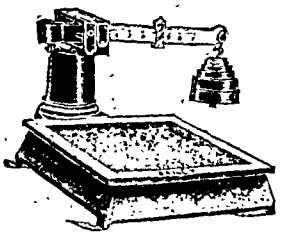

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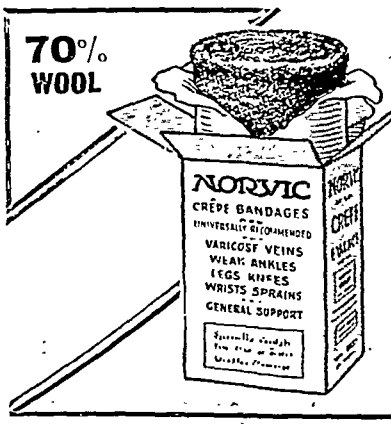

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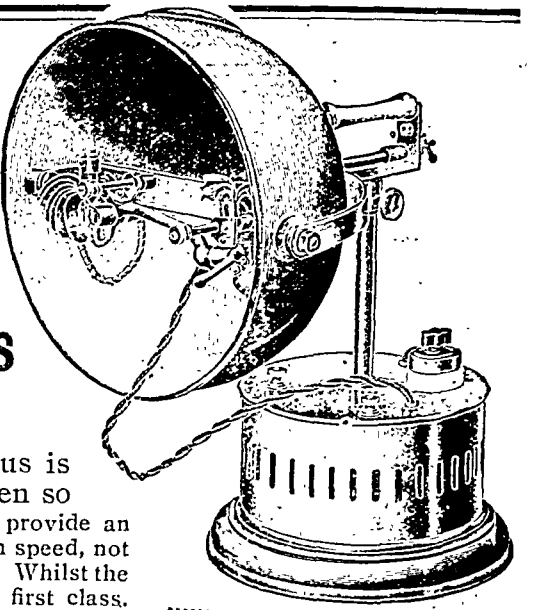

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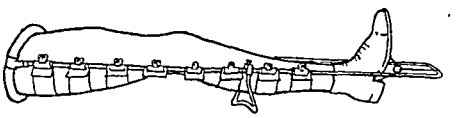

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The patients are carefully graded, and accommodation provides for the separate treatment of early recoverable and convalescent patients.

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A prospectus and full particulars can be obtained from the Medical Superintendent.

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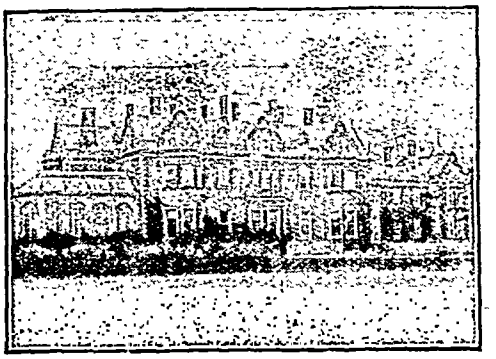

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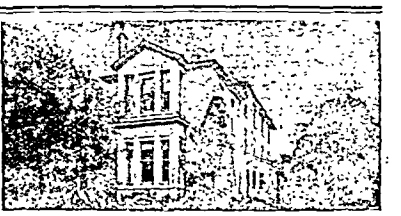

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This registered Hospital for MENTAL DISEASES, with its seaside branch Glan-y-Don, Colwyn Bay, is for the treatment and care of PRIVATE PATIENTS of the UPPER and MIDDLE CLASSES. Voluntary Boarders received. For terms, etc., apply to the Medical Superintendent, J. A. C. ROY, M.B., who may also be seen in Manchester by appointment.
Telephone: 481 GATLEY.

PLYMPTON HOUSE,

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This old-established Licensed House offers every advantage that experience can suggest for the care and treatment of mental cases. For terms, etc., apply to the Resident Physicians: Dr. ALFRED TURNER, Dr. J. C. NIXON.
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FOR MENTAL AND NERVOUS CASES.

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FOR MENTAL DISORDERS,
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FOR THE UPPER AND MIDDLE CLASSES ONLY.

President: THE MOST HON THE MARQUESS OF EXETER, C.M.G., A.D.C.

Medical Superintendent: DANIEL F. RAMBAUT, M.A., M.D.

This registered Hospital is situated in 120 acres of park and pleasure grounds. Voluntary Boarders, persons suffering from incipient nervous and mental disorders, as well as certified patients of both sexes, are received for treatment. Careful clinical, biochemical, bacteriological, and pathological examinations. Private rooms with special nurses, male or female, in the Hospital or in one of the numerous villas in the grounds of the various branches can be provided.

WANTAGE HOUSE.

This is a Reception Hospital in detached grounds, with a separate entrance, to which patients and voluntary boarders can be admitted. It is equipped with all the apparatus for the most modern treatment of Mental and Nervous Disorders. It contains special departments for hydrotherapy by various methods, including Turkish and Russian baths, the prolonged immersion bath, Vichy Douche, Scotch Douche, Electrical baths, Plombières treatment, etc. There is an Operating Theatre, a Dental Surgery, an X-ray Room, an Ultra-violet Apparatus, and a Department for Diathermy and High Frequency treatment It also contains Laboratories for biochemical, bacteriological, and pathological research.

MOULTON PARK.

Two miles from the Main Hospital there are several branch establishments and villas situated in a park and farm of 650 acres. Milk, meat, fruit, an[illegible] to the Hospital from the farm, gardens, and orchards of Moulton [illegible] is a feature of this branch, and patients are given every facility [illegible] in farming, gardening, and fruit-growing.

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The Seaside house of St. Andrew's Hospital is beautifully situated in a Park of 330 acres, at Llanfairfechan, amidst the finest scenery in North Wales. On the North-West side of the Estate a mile of sea coast forms the boundary. Voluntary Boarders or Patients may visit this branch for a short seaside change or for longer periods. The Hospital has its own private bathing house on the seashore. There is trout-fishing in the park.

At all the branches of the Hospital there are cricket grounds, football and hockey grounds, lawn tennis courts (grass and hard courts), croquet grounds, golf courses, and bowling greens. Ladies and gentlemen have their own gardens, and facilities are provided for handicrafts, such as carpentry, etc.

For terms and further particulars apply to the Medical Superintendent (Telephone: No 56 Northampton), who can be seen in London by appointment.

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NEWTON-LE-WILLOWS, LANCASHIRE.

'Phone: 11 Ashton-in-Makerfield.

For the reception and treatment of PRIVATE PATIENTS of both sexes of the UPPER AND MIDDLE CLASSES either voluntarily or under Certificate. Patients are classified in separate buildings according to their mental condition.

Situated in park and grounds of 400 acres. Self-supported by its own farm and gardens, in which patients are encouraged to occupy themselves. Every facility for indoor and outdoor recreation. For terms, prospectus, etc., apply MEDICAL SUPERINTENDENT.

COURT HALL, KENTON, EXETER,
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For the care and treatment of Ladies suffering from Mental Diseases. Limited to eight patients. Telephone: Starcross 19.

CLIFFDEN, TEIGNMOUTH, in connection with Court Hall, for early and convalescent cases. Cliffden is a large well-appointed house, with lovely views of the South Devon Coast. It is beautifully situated in grounds of 19 acres. The gardens are very attractive, and there is a private road to the beach.

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Telephone: *Teignmouth* 289.

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BELVOIR NURSING HOME, ASTON-ON-TRENT, DERBY.

Private Nursing Home for Neurasthenia and allied Functional Nervous Disorders, for general Convalescent Cases, and those requiring Electrical Treatment.

The Home, a Georgian mansion, 14 miles from Nottingham and 6 miles from Derby, is for both sexes In addition to the methods of general medicine, Psycho-Therapeutic treatment is used extensively in suitable cases. Certifiable cases are not received. Electrical Treatment, Radiant Heat, X-ray, Ultra-violet Light, and Massage is available in the Nursing Home. Billiards, tennis, etc Fees from 5 to 12 guineas per week. For further particulars apply to—
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Dr Douglas-Morris can be seen by appointment in London.

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This Institution is exclusively for the reception of a limited number of Private Patients of both sexes of the Upper and Middle Classes at moderate rates of payment. It is beautifully situated in its own grounds on an eminence a short distance from Nottingham, and from its singularly healthy position and comfortable arrangements affords every facility for the relief and cure of those mentally afflicted. Voluntary Boarders received without Certificates.

For terms, etc., apply to the Medical Superintendent.

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A Private Mental Hospital for the Treatment and Care of Mental and Nervous Disorders.

Now removed to:

CHISWICK HOUSE,
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A modern country house, 12 miles from Marble Arch, in beautiful secluded grounds.

Fees are from 10 guineas a week.

Voluntary Patients received for treatment.

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(3¼ miles from L.M.S. Station.)

This DIETETIC ESTABLISHMENT is equipped for the complete investigation and treatment of patients on rational lines. Own X-ray and Laboratory. Biochemical investigation is made a special feature.

Resident Biochemist, Masseurs and Masseuses, Hydro- and Electro-therapeutics, Fasting on Scientific Principles. The staff are specially qualified to deal with the errors of Metabolism, and provision is made for the treatment of *Tropical Diseases*.

Further particulars from the Secretary, Preston Deanery Hall, Northampton.
Tel.: Hardingstone 6.

BARNWOOD HOUSE,
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A REGISTERED HOSPITAL for the CARE and TREATMENT of LADIES and GENTLEMEN suffering from NERVOUS and MENTAL DISORDERS. Within two miles of the G.W. Railway and L. M & S. Railway Stations at Gloucester, the Hospital is easily accessible by rail from London and all parts of the United Kingdom. It is beautifully situated at the foot of the Cotswold Hills, and stands in its own grounds of over 280 acres. Voluntary boarders of both sexes are also received for treatment.

Special accommodation for Lady Voluntary Boarders is also provided at the MANOR HOUSE, which has its own private grounds and is entirely separate from the main Hospital.

For particulars as to terms, etc., apply to—
ARTHUR TOWNSEND, M.D., Resident Supt.
Telephone: No. 7 Barnwood.

The Devon Mental Hospital,
Exminster, near Exeter.

The Committee of the above Hospital have accommodation for the reception of PRIVATE PATIENTS of both sexes, in special wards, which are healthily situated, with extensive views of the Exe Valley and surrounding scenery. The Hospital is fully equipped with Operating Theatre and X-ray departments, and has facilities for Ultra-violet Light treatment and modern Hydrotherapy.

Charges: £3 3s. per week, including all necessaries except clothing. Reductions can be made by arrangement. Apply to the Med. Supt. Tel.: Deepway, Exeter. 'Phone: 3580 Exeter.

STRETTON HOUSE,
Church Stretton, Shropshire.

A PRIVATE HOME for the treatment of Gentlemen suffering from Mental or Nervous allied disorders of Habit. All types of cases are received Voluntary Boarders. e *Medical Directory*, p. 2158.—Apply to Medical Superintendent. Telephone: 10 P.O., Church Stretton.

THE GRANGE,
near ROTHERHAM.

A HOUSE Licensed for the reception of a limited number of ladies suffering from Nervous and Mental disorders. Both certified and voluntary patients received. This is a large country house with beautiful grounds and park, 5 miles from Sheffield. Station, Grange Lane, G.C. Railway, Sheffield. Telephone: No. 40030 Ecclesfield. Resident Physician: GILBERT E. MOULD, L.R.C.P., M.R.C.S.

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The first Private Hospital in the United Kingdom to be fully provided with a whole-time specially qualified Staff of Doctors, Analytical Chemists, Bacteriologists, Radiologists, Nurses, Dietists, Masseurs, and Masseuses, and a full equipment of Laboratories, X-rays, Electrocardiograph, Artificial Sunlight, and Medical Baths.

The Hospital is equipped for the diagnosis and treatment of any form of ill-health, except Mental and Infectious Diseases. The fees are inclusive.

The climate is mild and the neighbourhood beautiful. Apply: The Secretary,
Telegrams: Castle, Ruthin. Telephone: 65, Ruthin. Ruthin Castle, North Wales.

PECKHAM HOUSE, 112, Peckham Road, London, S.E.15.

Telegrams: "Alleviated, London." Telephone: Rodney 4741—4742.

The above House, which was established in 1826, is an Institution for the care and treatment of persons suffering from mental diseases and nervous disorders. Both certified patients and voluntary boarders are received. Separate houses for treatment and accommodation of special cases adjoin the Institution. There is a seaside branch, Kearsney Court, near Dover, to which patients may be sent for treatment or on holiday. Motor and carriage exercise is provided as required. Patients can avail themselves of a course of physical drill. Tennis courts. Entertainments, dances, and indoor amusements held throughout the year.

Illustrated prospectus and further particulars can be obtained from the Medical Superintendent.

THE OLD MANOR SALISBURY

A Private Hospital for the Care and Treatment of those of both sexes suffering from MENTAL DISORDERS.

Extensive grounds. Detached Villas. Chapel. Garden and dairy produce from own farm. Terms very moderate.

CONVALESCENT HOME at BOURNEMOUTH standing in 9 acres of ornamental grounds, with tennis courts, etc., which Patients or Boarders may visit by arrangement, for long or short periods.

Illustrated Brochure on application to the Medical Superintendent, The Old Manor, Salisbury. Telephone 51.

BETHLEM ROYAL HOSPITAL, LAMBETH ROAD, S.E.1.

(For the reception and treatment of cases of nervous and mental disease.) Tel.: Reliance 2182.

President: Colonel and Alderman Sir CHARLES CHEERS WAKEFIELD, Bart., C.B.E.
Treasurer: Sir LIONEL FAUDEL-PHILLIPS, Bart.
PHYSICIAN SUPERINTENDENT: J. G. PORTER PHILLIPS, M.D., F.R.C.P. Assisted by Physicians, a Pathologist, and a staff of Visiting Consultants.

Patients of the EDUCATED CLASSES, IN A PRESUMABLY CURABLE CONDITION, are eligible for admission. With a view to the early treatment of eligible cases VOLUNTARY OR UNCERTIFIED patients are admitted. PATIENTS WHO CAN CONTRIBUTE THREE GUINEAS WEEKLY TOWARDS THE COST OF MAINTENANCE VACANCIES ARISE. Treatment is carried out on the most modern principles. In connection with this Hospital Home on the Surrey hills at Witley.
For further particulars apply to the PHYSICIAN

CAMBERWELL HOUSE, 33, Peckham Road, London, S.E.5.

Telegrams: "Psycholia, London." Telephone: Rodney 4731—4732.

FOR THE TREATMENT OF MENTAL DISORDERS.

Completely detached Villas for mild cases, with private suites if desired. Voluntary Patients received. Twenty acres of grounds. Hard and Grass Tennis Courts, Croquet, Squash Racquets, and all indoor Amusements, including Wireless and other Concerts. Occupational Therapy. Daily services in the Chapel.

Senior Physician: Dr. HUBERT J. NORMAN; assisted by three Medical Officers, also resident. An illustrated Prospectus, giving full particulars and terms, may be obtained upon application to the Secretary.

HOVE VILLA, BRIGHTON. — A CONVALESCENT BRANCH OF THE ABOVE.

NORTHUMBERLAND HOUSE,

GREEN LANES, FINSBURY PARK, N.4.

Telegrams: "SUBSIDIARY, LONDON." *Telephone*: NORTH 0888.

A PRIVATE HOME for the treatment of patients of both sexes suffering from Mental Illnesses.
Conveniently situated four miles from Charing Cross. Easy of access from all parts.
Six acres of ground, highly situated, facing Finsbury Park.
Voluntary Boarders received without certificates. Private suites. Convalescent Home, Kearsney Court, Dover.
For further particulars, apply to the MEDICAL SUPERINTENDENT.

NORTHWOODS, Winterbourne, Bristol.

Telephone and Telegrams: Winterbourne 18.

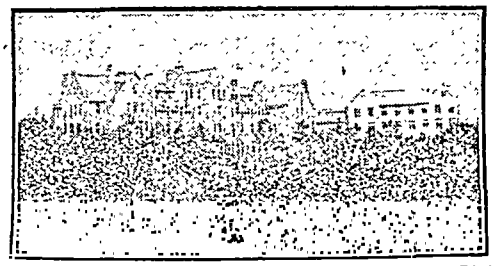
This beautiful mansion in fifty acres of secluded grounds was built specially for the TREATMENT OF MENTAL ILLNESS. Voluntary boarders and certified patients of both sexes. Thorough clinical, bacteriological, and pathological examinations. Separate bedrooms. Private suites. Indoor and outdoor amusements. Wireless and other concerts. Occupational therapy. Physical drill. Garden and dairy produce from farm on the estate. Reasonable terms.
For further particulars and prospectus, apply to the *Resident Physician*.

BAILBROOK HOUSE, BATH.

A PRIVATE HOME for the care and treatment of persons with mental and nervous disorders.
Voluntary Boarders received in the Villas. Large Mansion on outskirts of Bath, with 20 acres of grounds (see *Medical Directory*, page 2134).
For terms apply to SAMUEL J. GILFILLAN, O.B.E., M.B., C.M.Edin., Resident Physician. Telephone No.: Bathcaston 8189.

TOR-NA-DEE SANATORIUM

MURTLE DEESIDE ABERDEENSHIRE.



Medical Director: David Lawson, M.D., F.R.S.E.

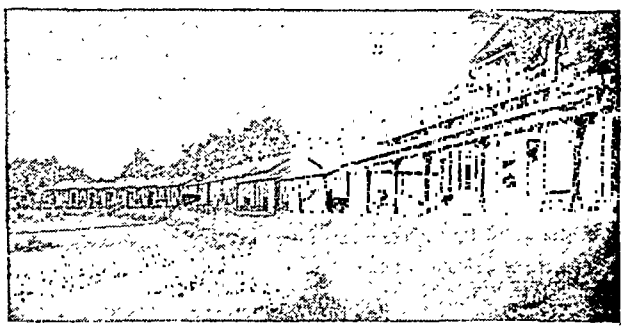
FULLY EQUIPPED WITH EVERY MODERN APPLIANCE FOR THE DIAGNOSIS AND TREATMENT OF ALL FORMS OF TUBERCULOSIS & ALLIED DISEASES.

Physician Superintendent - J. M. JOHNSTON, M.B., D.P.H., etc.

Full particulars and Prospectus on application to the Secretary.

Inclusive Terms: SEVEN GUINEAS A WEEK.

THE COTSWOLD SANATORIUM



Specially built in 1893 on the Cotswold Hills, seven miles from Cheltenham, for the treatment of Pulmonary and all other forms of Tuberculosis on Nordrach lines. Aspect S.S.W., sheltered from North and East, elevation 800 feet. Pure bracing air. Special Treatment by artificial Pneumothorax (X-ray controlled), Tuberculins, and Ultra-Violet Rays is available, when necessary, without extra charge. X-ray plant. Electric light. Radiators, hot and cold basins, and Wireless in all rooms.

Full day and night Nursing Staff:

Resident Physicians: ARTHUR H. HOFFMAN, M.D., and G. A. HOFFMAN, M.B.

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Telephone: 41 WITCOMBE. *Telegrams*: "HOFFMAN, BIRDLIP."

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Established 1900 for the treatment of Tuberculosis. Miles of carefully graduated walks through pine-clad hills, with sea and mountain views. Modern treatment, including SANOCRYSIN, ARTIFICIAL PNEUMOTHORAX, etc. X-ray plant, electric light, central heating, wireless. Full day and night nursing staff. On L.M.S. Main Line to Holyhead, 4¼ hours from London. Resident Physicians: Dennison Pickering, M.D.(Cantab.), F. W. Godbey, M.D., D.P.H.; Matron: Miss N. Rennardson, S.R.N.

For particulars apply to the Secretary, Pendyffryn Hall, Penmaenmawr, N. Wales. ('Phone, 20.)

KINGUSSIE, N.B.

THE GRAMPIAN SANATORIUM.

Situated in the upper Speyside district of Inverness-shire. One of the highest inhabited districts in Britain—"The Switzerland of the British Isles." Bracing and dry mountain climate. Well-sheltered Sanatorium specially built for the Open-air Treatment of Tuberculosis. Opened in 1901. Elevation 860 ft. above sea-level. Electric light throughout buildings and in rest shelters. Central heating. Fully equipped X-ray Plant. All forms of treatment available, including Artificial Pneumothorax, and Ultra-Violet Rays for surgical cases of Tuberculosis.

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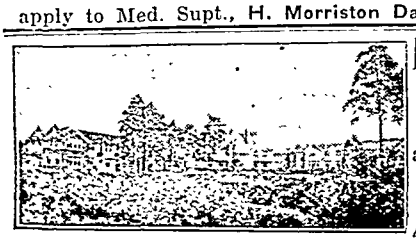
VALE OF CLWYD SANATORIUM.

This Sanatorium is established for the treatment of TUBERCULOSIS of the LUNGS and the PLEURAL CAVITIES. It is situated in the midst of a large area of park-land at a height of 450 feet above sea-level, on the south-west slopes of mountains rising to over 1,800 feet, which protect it from north and east winds and provide many miles of graduated walks with magnificent views. Average rainfall 29.57 per annum. Full day and night nursing staffs. X-ray plant. Every facility for Artificial Pneumothorax, and for operations on the chest. Electric lighting. Central heating. Home farm. Clean milk from T.T. Herd. For particulars apply to Med. Supt., H. Morriston Davies, M.D., M.Ch.Cantab., F.R.C.S., Llanbedr Hall, Ruthin, N. Wales.



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Unsurpassed situation, 600 ft. above sea-level, high sunshine record, own farm. Resident Medical Officer. Male cases only.

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Special preferential arrangements for a few private cases at 4 guineas.

Artificial Pneumothorax, etc.

BADEN-BADEN in the Black Forest, SOUTH GERMANY

Radio-active saline thermal Springs 155° Fahrenheit. Daily output 176,000 gallons.

INDICATIONS: Gout, rheumatic ailments, neuralgia, catarrhs of the respiratory organs.

PALATIAL BATHING ESTABLISHMENTS. HOTELS FITTED WITH PRIVATE THERMAL BATHS. INHALATORIUM. PUMPROOM.

NEW INTRODUCTION: Combined treatment for stiff and inactive joints.

GRAPE CURE IN THE AUTUMN. MOUNTAIN RAILWAY ON THE MERKUR (2,100 feet). REST CURES AND OPEN-AIR TREATMENT.

CONCERTS, THEATRES, DANCES. ALL KINDS OF OUTDOOR SPORT.

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All varieties of electro- and physico-therapeutics. Dieting and cooking under medical supervision. Two resident physicians. For information apply—The Manager, Schoeneck-Beckenried, Switzerland.

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Unrivalled situation in an extensive Park of over 6 acres. AIR, SUN, and REST CURES. SPECIAL DIETS. Connected with the Hydropathic Establishment by a funiculaire. TENNIS, GOLF, and all other SPORTS.

Season—MAY to OCTOBER. Branch House of HOTEL BELLEVUE, CANNES.

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AS a HEALTH and PLEASURE RESORT it is famed for its remarkably pure and bracing air, its fine shops and residences, its open spaces, parks, high-class amusements and entertainments, and last, but not least, its ideal situation as the centre of some of England's most glorious countryside.

As a SPA it claims supremacy over all the Spas of the world by virtue of having no fewer than 88 different mineral waters, and a most elaborate and completely equipped Bathing Establishment, with a Staff of upwards of 200 Medically Trained and Medically Certificated male and female Nurses. It is really a compendium of the World's Spas.

Cases treated with benefit comprise:

(1) Gout and other metabolic disorders (glycosuria, obesity).
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(9) Hyperpiesis.
(10) Sequelæ of tropical diseases, especially anæmia.

Pullman and Fast Restaurant Car Trains daily from King's Cross Station, London. Members of the Medical Profession are asked to write for particulars of Complimentary Facilities to F. J. C. BROOME, *General Manager*, 38, The Royal Baths, Harrogate.

THE BRITISH SANATORIUM, MONTANA sur/Sierre, SWITZERLAND.

Opened on January 1st, 1929, for the treatment of PULMONARY TUBERCULOSIS: English Nursing Staff. Inclusive terms from 7 guineas a week. *Medical Superintendent:*

Hilary Roche,

M.D. (Melb.), M.R.C.P. (Lond.), Tuberculous Diseases Diploma (Wales); Formerly H.P., Brompton Hospital, Medical Supt., Palace Sanatorium, Montana.

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A High Class BOARDING SCHOOL is conducted here by the Ursulines of the Roman Union.

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Pupils are prepared for the Cambridge Local and Royal Academy of Music Examinations.

On leaving school pupils may be transferred to houses of the Order in France, Italy, Austria, and other countries.

Terms on application to the Reverend Mother Prioress.

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KINGWELL HALL, Timsbury, near BATH. Grounds of 240 acres, between Bath and Wells; 600 ft. above sea; the air bracing, very beneficial to delicate boys. Games (cricket, football, hockey, tennis, golf) and physical training. A fine open-air swimming bath. Particular attention given to health, food, and rest. Four Public School Scholarships in last two years. Prospectus on application. — Headmaster: SYDNEY L. ALLAN, M.A.(Oxon.).

LIVERPOOL SCHOOL OF TROPICAL MEDICINE.

(UNIVERSITY OF LIVERPOOL)

COURSES OF INSTRUCTION (lasting about three months) for the Diploma in Tropical Medicine commence on October 1st and January 7th, and for the Diploma in Tropical Hygiene on January 12th and April 26th. (Candidates for the D.T.H. must possess the D.T.M of this University.)

For particulars apply to the Hon. Dean, Liverpool School of Tropical Medicine, Pembroke Place, Liverpool.

ST. BARTHOLOMEW'S HOSPITAL MEDICAL COLLEGE.

POST-GRADUATE COURSE ON RADIUM THERAPY.

An introductory Course of Instruction on Radium Therapy and Technique for Post-Graduates will be given at St Bartholomew's Hospital from September 30th to October 3rd, 1929, inclusive.

For syllabus and details apply to THE DEAN, St. Bartholomew's Hospital, London, E.C.1.

A REALLY GOOD SCHOOL FOR GIRLS. REASONABLE INCLUSIVE FEES.

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Sound Education. Upper and Lower Schools. Preparation, when desired, for all University Entrance Examinations. Particulars from Sec. *Special Terms to Medical Men.*

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The Practice of the Hospital is limited to Medical Practitioners. Particulars from T. H. O. BENIANS, F.R.C.S., Dean.

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Prep. Classes and Museum Demons. for next Fellowship Exam. will commence shortly. Correspondence course for Jany. and later exams. should begin now. Parties., Mr. H. C. ORRIN, F.R.C.S., at Surgeons' Hall, Edinburgh.

DIPLOMA IN PUBLIC HEALTH

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE.

(University of London.)

The course of study, covering a period of twelve calender months, will commence on September 30th, 1929, and is so designed that students wishing to do so can proceed to the new academic Diploma instituted by the University of London.

The inclusive fee of 50 guineas will cover the cost, not only of the ordinary lectures and demonstrations, but also of the necessary practical work in public health departments and instruction in infectious diseases, etc.

Enquiries should be addressed to the Secretary, London School of Hygiene and Tropical Medicine, Malet Street, London, W.C.1.

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Telephone: REGENT 1457. BROAD STREET, HOLBORN, W.C. 2. (Near British Museum Station.)

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Out-patients are seen daily at 1 o'clock. Operations are performed at 3 p.m.

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Diploma in Psychological Medicine.
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Qualified Medical Women are admitted to The Mothers' Hospital of the Salvation Army, Lower Clapton Road, E.5, for practical fortnightly Courses in Midwifery. These include delivery of normal cases, attendances at all abnormal cases, operations, ward rounds of visiting staff, V.D. clinics, and ante-natal clinics. For further particulars, fees, etc., apply to the Secretary.

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(University of London.)

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A Course of Instruction for the above Examination will start in July.

Fee:—

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(If both subjects are taken, Fee **£21**)

Further particulars may be obtained on application to the School Secretary, Middlesex Hospital, Mortimer St., W.1

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TAUNTON.

A PUBLIC SCHOOL FOR BOYS.

Boys are regularly prepared for the First M.B. Examination, University Scholarships in Chemistry, Biology, etc.

Special facilities are offered for the teaching of Chemistry, Physics, Botany, and Zoology.

New Science Buildings, containing seven laboratories, two lecture rooms, science library, store rooms, etc., opened in September, 1925. Prospectus from Head Master

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MEDICAL STUDENTS admitted to Hospital practice, with operative Midwifery, and Obstetrical complications.

PUPILS TRAINED as Midwives and Monthly Nurses in accordance with C.M.B. regulations.

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Special Classes for Pre-Medical and Dental Exams., Matric., and Prelims.
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CLASSES, with Museum and Anatomical Demonstrations, for next Exam. will commence shortly. Particulars from CHAS. WHITTAKER, F.R.C.S., Surgeons' Hall, Edinburgh.

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CONTENTS:—The method and the cost of entering the Medical Profession. *Particulars of all Medical Examinations*, Postal Courses, and Oral Classes. Suggestions for the higher Medical Examinations. Suggestions for the higher Surgical Examinations. Suggestions for the Special Diploma Examinations. Refresher Course. Openings for Women. Hints for writing theses.

Medical Prospectus gratis along with list of Tutors, etc., on application to the Principal, Mr. E. S. WEYMOUTH, M.A., 17, Red Lion Sq., London, W.C.1. (Telephone: HOLBORN 6313.)

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DIPLOMA IN MEDICAL RADIOLOGY AND ELECTROLOGY (D.M.R. & E.).

The Course of study for the Diploma, which is open only to duly qualified medical men and women, begins on October 1st, 1929, and occupies nine months. The examinations consist of three parts:

1. Physics, with examinations in January and April.
2. Radiology and Electrology, with examinations in April and July.
3. The presentation of a thesis or exercise which is entirely the candidate's own work, and is intended to show that he has had practical experience of the subjects.

The first three months may be spent either in Cambridge, where the Physics is done in the Cavendish Laboratory and the Radiology and Electrology in a specially equipped Department of Radiology, or in London, where the Physics is done in the Laboratories of the Middlesex Hospital and King's College and the Radiology and Electrology is taught at the British Institute of Radiology. These Courses run concurrently in Cambridge and London.

The second three months must be spent in London, where courses of lectures are given at the British Institute of Radiology, and are combined with clinical instruction in the large teaching hospitals.

The third three months may be spent in recognized hospitals in London or elsewhere, the student acting as clinical assistant or in similar capacity.

Further information as to the Courses may be obtained from:

G. STEAD, M.A., Secretary for the Diploma, and Lecturer in Physics as applied to *Medical Radiology, Cavendish Laboratory*, Cambridge.

A. E. BARCLAY, O.B.E., M.A., M.D., Lecturer in Radiology, Department of Radiology, Medical School, Cambridge.

The Director of the British Institute of *Radiology*, 32, Welbeck St., *London*, W.1.

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WALTER MYERS TRAVELLING STUDENTSHIP.

(For Research in any branch of Pathology approved by the Selection Committee.)

The Walter Myers Travelling Studentship is of the value of £300 for one year, and is tenable at a University or Hospital not in Great Britain or Ireland, approved of by the Selection Committee.

The Studentship is available for year 1929-30.

Candidates, who must be under 30 years of age, may be of either sex, and must be Graduates of the University of Birmingham or of some other University in Great Britain or Ireland. In the case of Graduates of other Universities, candidates must have been students of the Birmingham Medical School for three years immediately preceding their application for the Studentship.

The holder of the Studentship will be required to devote his or her whole time to research.

Further information may be obtained from the Dean of the Medical Faculty, University, Edmund Street, Birmingham. Applications must be lodged with the Dean not later than September 2nd, 1929.

C. G. BURTON, Secretary.

ST. MARY'S HOSPITAL MEDICAL SCHOOL, W.2.

(University of London.)

The WINTER SESSION will begin on TUESDAY, OCTOBER 1st, 1929.

The Medical School provides courses in Preliminary, Intermediate, and Final Subjects, and Students can join at once after matriculation.

SITUATION.—Between a large population providing clinical material and one of the best residential districts, thus enabling students to live in close proximity to their work.

CLINICAL UNITS IN MEDICINE AND SURGERY.—Certain members of the medical and surgical staff devote their whole time to teaching and research.

Nearly 1,000 beds available for teaching, additional clinical material being provided by affiliation to an Infirmary and other Institutions.

ENTRANCE AND RESEARCH SCHOLARSHIPS to the value of £1,400 are awarded annually.

APPOINTMENTS, varying in value up to £750 per annum, open to students after qualification.

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Refraction and the Ordering of GLASSES taught by Practising Ophthalmic Surgeon in London. £8 8s. for 10 lessons.—Address, No. 123, B.M.A. House, Tavistock Square, W.C.1.

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(University of London.)

Bacteriology and Immunology.

One year's Course of Study for the Diploma in Bacteriology, beginning in October.

Epidemiology and Vital Statistics.

Special Courses of not less than three months.

Tropical Medicine and Hygiene.

Two Courses yearly, each of 20 weeks, commencing on September 30th, 1929, and February 3rd, 1930.

Diploma in Public Health.

A Course of Study, covering a period of twelve calendar months, beginning in October, 1929.

Enquiries for syllabuses, etc., should be addressed to the Secretary, Endsleigh Gardens, London, W.C.1.

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SKILLED COACHING, GUIDANCE, and ADVICE.

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The Welsh National School of MEDICINE.

The Board of Medicine invite applications for the following posts:

(a) JUNIOR ASSISTANT in the MEDICAL UNIT. The appointment is a probationary one for a period not exceeding three years beginning in October next, and the salary is £500 per annum.

(b) JUNIOR ASSISTANT in the SURGICAL UNIT. The appointment is a probationary one for a period *not exceeding two years beginning* as soon as possible, and the salary is £350 per annum.

(c) ASSISTANT LECTURER in PATHOLOGY at a salary of £500 per annum. The appointment will be made as from October next.

The person appointed in each case will be required to devote his whole time to the duties of the office.

Further particulars may be obtained from the undersigned, by whom applications, accompanied by not more than four testimonials, must be received on or before July 15th.

Sixty typewritten copies of applications and testimonials are required.

University College, Cardiff. D. J. A. BROWN, Secretary.

June 24th, 1929.

£350 Surgical Scholarship.

The Association of Surgeons of Great Britain and Ireland invite applications for a SURGICAL SCHOLARSHIP of the value of £350, to be held for one year. The object of the Scholarship is to enable the holder to pursue a definite line of research or to study Surgery in specified clinics, either at home or abroad. Candidates in their applications are required *to state the line of research or study that they* intend to pursue, and also to give a résumé of their past careers.

No testimonials should be sent, but each candidate is required to provide letters of recommendation, to be forwarded under separate cover, from two sponsors.

The election will be made in November, and applications must be forwarded to the Secretary of the Association by September 30th.

The Association of Surgeons, 17, Wimpole St., London, W.1. E. C. HUGHES, Hon. Secretary.

Glasgow Post-Graduate Medical ASSOCIATION.

The following arrangements have been made for Post-Graduate Teaching in Glasgow during the summer of 1929:

(a) A GENERAL MEDICAL AND SURGICAL COURSE from August 19th to September 13th. Fee £10 10s., or £6 6s. for first or second fortnight.

(b) CLINICAL ASSISTANTSHIPS in General and Special Hospitals.

Syllabuses and any other information may be had on application to the Secretary, Post-Graduate Medical Association, The University, Glasgow.

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BEHNKE METHOD. Estab. 1882. Cases, non-resident, treated at 39, Earl's Court Square, S.W.5, and, in residence, in the Summer holidays, at Miss BEHNKE'S house on the Chilterns.

STAMMERING, CLEFT PALATE SPEECH, LISPING, &c. at *Miss* BEHNKE, 39, Earl's Court Sq., S.W.5.

West African Medical Staff.

Vacancies exist at present for PATHOLOGISTS in NIGERIA.

The selected officers will be appointed to the West African Medical Staff on three years' probation, and if confirmed at the end of that period will be placed on the permanent and pensionable establishment.

Salary £800 a year, rising by annual increments of £40 to £960 a year, together with a seniority allowance (payable only in West *Africa*) of £72 a year, and staff pay at the rate of £150 a year, half of which is payable during leave. After three years' service at £960 a year officers may, if recommended, on passing an approved course of study, be placed on the scale £1,000 a year, rising by annual increments of £50 to £1,150 a year, together with seniority allowance at the rate of £100 a year and staff pay as before.

Free quarters are provided or an allowance is given in lieu.

Free first-class passages are provided on first appointment, and when proceeding on or returning *from leave*.

A tour of service in West Africa lasts from 12 to 18 months at the discretion of the Colonial Government, followed by leave in this country at the rate of one week for each completed month of residential service. Leave begins on the date of arrival in England.

Further particulars and forms of application may be obtained on application in writing to the Private Secretary (Appointments), Colonial Office, 2, Richmond Terrace, Whitehall, S.W.1.

Goculdas Tejpal Hospital, BOMBAY.

APPOINTMENT OF HONORARY SURGEON.

Applications are invited for the above appointment. Goculdas Tejpal Hospital (266 beds) is associated with the Grant Medical College, Bombay, for clinical teaching of undergraduates. The appointment carries an honorarium of Rs.150 per mensem, and will be for a period of five years, subject to termination by three months' notice on either side

Applications, in duplicate, marked "Honorary Surgeon," stating age, qualifications, and experience, together with copies of three recent testimonials, must be sent so as to reach the undersigned not later than the first week in August.

F. N. MOOS, M.D.Lond.,
Superintendent, G. T. Hospital, Bombay.

City and County of Newcastle-UPON-TYNE.

CITY HOSPITAL FOR INFECTIOUS DISEASES.

RESIDENT MEDICAL ASSISTANT (Male).

Wanted immediately, a Resident Medical Assistant (male) who holds a registrable qualification in Medicine and Surgery (and preferably also in Public Health), and possesses a practical knowledge of *Bacteriology*.

Salary £350 per annum, with board, lodging, etc.

Applications, stating age, qualifications, and previous experience, to be forwarded with copies of not more than three recent testimonials to the Medical Officer of Health, Town Hall, Newcastle-upon-Tyne.

June 25th, 1929.

The Royal Borough of KENSINGTON.

TEMPORARY TUBERCULOSIS OFFICER.

The Council of the Royal Borough of Kensington are prepared to accept applications for the appointment of a male Medical Officer, with experience of tuberculosis work, to act as Holiday Locum at the Kensington Tuberculosis Dispensary, 119, Ladbroke Grove, W.11, for one month as from September 1st. Sessions: Six morning, four afternoon, and one evening per week. Honorarium 35 guineas.

Applications must be delivered to the Medical Officer of Health, Town Hall, Kensington, W.8, not later than July 6th.

Town Hall, Kensington, W.8. HORACE RAPSON, Town Clerk.

June 25th, 1929.

ROYAL ARMY MEDICAL CORPS.

TWENTY-FIVE COMMISSIONS in the ROYAL ARMY MEDICAL CORPS will be offered in July, 1929. Applications should reach the War Office not later than July 20th.

Candidates will be selected for Commissions without competitive examination, and will be required to present themselves in London for interview and medical examination towards the end of July. They must be under 28 years of age on August 1st, 1929, and registered under the Medical Acts.

Officers of the R.A.M.C. are liable to serve in any part of the world where British Troops are quartered.

Ample opportunities exist in the Army for clinical professional work, both Medical and Surgical, as well as for the study and practice of Hygiene, Pathology, and all the special branches.

The cost of Post-Graduate study, which is compulsory, is met from Army Funds.

Pay and Allowances.—Pay from £500 to £2,000 a year according to rank and length of service.

Gratuities on Retirement.—After 7 years' service £1,000.
„ 15 „ „ £2,800.
„ 18 „ „ £3,500.

Current rates of retired pay range from £372 per annum normally earned by a Major after 20 years' service to £940 per annum, the maximum for which a Major-General is eligible. The rates of pay and retired pay are subject to periodical variation consequent on fluctuation in the cost of living.

Outfit Grant.—An officer on joining receives £50 as outfit allowance.

Marriage Allowance.—Officers of 30 years of age and over who are married are entitled to draw special rates of allowances.

A Voluntary Widows' and Orphans' Fund exists for officers of the Corps.

All particulars may be obtained by application, in writing or personally, to the Under Secretary of State, The War Office (A.M.D.1), Whitehall, London, S.W.1.

INDIAN MEDICAL SERVICE

Recruitment of European Officers.

Applications are invited from medical men for permanent commissions in H.M.'s Indian Medical Service. The terms offered include a gratuity of £1,000 on retirement after six years' service, or £2,500 after 12 years' service, together with free return passages, for those who no longer desire to remain in the Service In other respects the terms will be as detailed below.

Candidates must be British subjects under 32 years of age at the time of application, and must be registered under the Medical Acts in force in Great Britain and Northern Ireland.

CAREERS.

The Indian Medical Service offers wide opportunities of medical experience, including clinical, preventive, specialist, and research work. At the beginning of his career an officer is employed on the military side, which has medical charge of the Indian Army. Promotion is on a time scale up to the rank of Lieutenant-Colonel, and by selection to the ranks of Colonel and Major-General. An officer may apply after two years' Indian service for transfer to the civil side, from which appointments are made to Civil Surgeoncies, which are established at the principal civil centres to provide for the medical needs of civil officials and for general medical administrative purposes; to specialist (for example, public health and bacteriological) services; to research posts; and to professorships at the Medical Schools.

PAY.

The monthly rates of pay for European officers in the Service who have a "non-Asiatic" domicile are as follows:

Rank.	Service in Rank.	Basic Pay.	Overseas Pay.	Year of Total Service.
1	2	3	4	5
		Rs.	Rs.	
			150	1st
Lieut.		500	150	2nd
			150	3rd
Capt.			150	4th
	(i) During first 3 years' service as Captain	650	£15	5th
			£15	6th
	(ii) With more than 3 and less than 6 yrs.' service as Captain	750	£25	7th
			£25	8th
			£25	9th
	(iii) With more than 6 years' service as Captain	850	£25	10th
			£30	11th
				12th
Major	(i) During first 3 years' service as Major	950		
	(ii) With more than 3 and less than 6 years' service as Major	1100		
	(iii) With more than 6 years' service as Major	1250		
Lieut.-Col.	(i) Until completion of 21 years' total service	1300	£30	13th and over
	(ii) During 24th and 25th years' service	1600		
	(iii) After completion of 25 years' total service	1700		
	(iv) When selected for increased pay	1850		

EXTRAS.—In addition to the above rates various allowances are admissible for a large number of special appointments on both the military and the civil side which may be held by members of the Indian Medical Service. Special high rates of pay are also attached to the numerous administrative appointments open to officers in both branches of the Service.

WAR SERVICE CONCESSIONS.

Any service rendered by an officer during the war as a medical or combatant officer, or in a position usually filled by an officer, may be counted as service for increments of pay, promotion, retirement and retired pay, but not for gratuity.

One half of any service in the ranks during the war may be counted as service for retirement and retired pay only.

OUTFIT ALLOWANCE.

Officers on appointment will receive an outfit allowance of £50.

PRIVATE PRACTICE.

With the exception of Administrative Officers, military or civil, and officers holding certain special appointments, officers are not debarred from taking private practice, so long as it does not interfere with their proper duties.

PENSIONS.

The rates of pension are as follows:

	Per annum.
	£
After 17 years' service for pension	400
,, 18 ,, ,, ,, ...	430
,, 19 ,, ,, ,, ...	460
,, 20 ,, ,, ,, ...	500
,, 21 ,, ,, ,, ...	540
,, 22 ,, ,, ,, ...	580
,, 23 ,, ,, ,, ...	620
,, 24 ,, ,, ,, ...	660
,, 25 ,, ,, ,, ...	700
,, 26 ,, ,, ,, ...	750
,, 27 ,, ,, ,, ...	800

These rates are subject to alteration on account of a rise or fall in the cost of living as compared with the year 1919 to an extent not exceeding 20 per cent. in all, the revision being undertaken triennially. With effect from July 1st, 1927, a reduction of 4½ per cent. has been made on this account from the amounts shown.

There are additional pensions ranging from £65 to £350 per annum for officers who have held administrative appointments.

PASSAGES.

An officer on appointment is provided with a free passage to India. The wives and families of officers who are married prior to the date of the officers' embarkation on first appointment will also be provided with free passage to India, subject to the payment of messing charges.

Officers and their families are also eligible for passage concessions under which they are granted a certain number of return passages home at Government expense during their service.

INSTRUCTION PRIOR TO EMBARKATION.

Officers are required to undergo courses of instruction at the Royal Army Medical College and at Aldershot, lasting approximately six months, prior to their embarkation for India on first appointment.

Full details regarding these appointments and forms of application may be obtained from the Under-Secretary of State for India, Military Department, India Office, London, S.W.1. Applications should be submitted as soon as possible. The Selection Committee will meet early in July to make nominations, and the selected candidates will be required to attend a course of instruction commencing on the 6th August, 1929.

County Council of Middlesex.

TUBERCULOSIS MEDICAL OFFICER.

The County Council invite applications for the post of Tuberculosis Medical Officer. Salary £750 per annum, rising by annual increments of £50 to £1,000 (no bonus), together with out-of-pocket travelling expenses.

Candidates must be registered medical practitioners of not less than 25 years of age, who have held resident appointment in a General Hospital for at least six months, and have had special practical experience in the diagnosis and treatment of tuberculosis in sanatoria or otherwise.

The officer appointed will be required to devote his whole time to his official duties, to work under the administrative control of the County Medical Officer of Health, to reside in such district as may be required, to pass such medical examination as the County Council may direct, and to contribute to the County Council's superannuation fund.

The duties will include the charge of tuberculosis dispensaries, the general arrangement for the treatment of tuberculous patients otherwise than in sanatoria, and such other duties of a similar nature as the Council may direct.

The appointment will commence on October 1st, will be during the pleasure of the Council, and subject to one month's notice on either side.

Applications, setting out (1) age, (2) qualifications, (3) experience, and (4) past appointments, together with copies of three recent testimonials, must be received by the undersigned not later than July 13th. No special application forms are provided. Canvassing will disqualify.

ERNEST S. W. HART.,
Clerk of the County Council.
Middlesex Guildhall, Westminster, S.W.1.
June 24th, 1929.

Rhondda Urban District Council.

ASSISTANT MEDICAL OFFICER.

The above Council invite applications from [illegible] titioners to act as [illegible] AL OFFICER OF [illegible] HOOL MEDICAL supervision, and [illegible] edical Officer of Health, at a salary of £600 per annum, together with travelling expenses necessarily incurred in the performance of the duties.

Candidates must have had not less than three years' professional experience subsequent to registration, and the possession of a Diploma in Public Health is desirable.

The duties will pertain to both public health and school medical services, but experience in the work of school clinics, including the examination and certification of defective children, orthopaedic work, and the prescription of glasses for errors of refraction, will be considered to be of special importance.

The appointment will be subject to two calendar months' notice on either side, and to the approval of the Board of Education The officer appointed will be required to reside within the Rhondda Urban District, and will not be allowed to engage in private practice.

Canvassing by or on behalf of candidates will be considered to be a disqualification.

Applications are to be made on forms obtainable from the Medical Officer of Health, Tydfil House, Llewellyn Street, Pentre, Rhondda, by whom they must be received, endorsed "Assistant Medical Officer," and accompanied by copies of three recent testimonials, not later than the first post on Wednesday, July 17th.

The Council Offices, D. J. JONES,
Pentre, Rhondda. Clerk of the Council.
June 29th, 1929.

County Borough of West Ham.

PLAISTOW FEVER HOSPITAL.

SECOND ASSISTANT MEDICAL OFFICER (male) required. Appointment will be for one year. Salary £300 per annum, with board, residence, and laundry. Preference will be given to candidates who have held a resident appointment in a General Hospital. Good facilities for post-graduate study, such as the D.P.H.

Applications, with copies of three recent testimonials, to be sent to the Medical Supt., Plaistow Fever Hospital, London, E.13.

St. John's Hospital, Lewisham,

S.E.13.

Applications are invited for TWO MALE RESIDENT HOUSE APPOINTMENTS, for a period of 3 months commencing on August 1st. Salary for each, £100 per annum. Successful applicants must apply for a further term of duty in the next senior appointment for 3 months beginning November 1st. Applications, with copies of testimonials, should reach the Secretary not later than Wednesday, July 10th.

Birmingham Union.

SELLY OAK HOSPITAL.

CASUALTY OFFICER (MALE).

Applications are invited from fully qualified medical practitioners for the appointment of Casualty Officer (male) at the Selly Oak Hospital, Birmingham.

The present Hospital accommodation is 550 beds, divided into General Medical, General Surgical, Gynaecological, Obstetrical, Children, and Infectious sections. There is a completely equipped Pathological Laboratory, also X-ray, Electro-Therapeutic, Massage, and Sunlight Departments. Over 2,500 operations are performed annually.

The appointment will be for a period of six months in the first instance, but may be extended at the end of that time.

The person appointed will be required to assist at operations, administer anaesthetics, and undertake casualty work, and such other duties as may be assigned to him by the Medical Superintendent, and, should occasion arise, to assist at any of the other Institutions under the control of the Guardians.

The salary attached to the appointment is at the rate of £200 per annum, together with full residential emoluments (rations, apartments, laundry, and attendance).

A deduction of 2 per cent. will be made from the salary and value of emoluments under the provisions of the Poor Law Officers Superannuation Act, 1896, and for this purpose the emoluments are valued at £200 per annum.

Further particulars of the appointment may be obtained from the Medical Superintendent, Mr. R. P. S. KELMAN, M.B., F.R.C.S. (Eng. & Edin.), at the Selly Oak Hospital.

Applications, stating age, experience, and qualifications, accompanied by copies of recent testimonials, must be forwarded so as to reach me not later than Friday, July 12th.

Union Offices, C. P. BEECH,
Edmund Street, Clerk to the Guardians.
Birmingham.
June 21st, 1929.

The Urban District of Weston-super-Mare.

APPOINTMENT OF MEDICAL OFFICER OF HEALTH.

The Council invite applications for the position of Medical Officer of Health and Medical Superintendent of the Isolation Hospital.

For the present the appointment will be a part-time one, but it is hoped that further Public Health work will become available in the near future.

The gentleman appointed will be precluded from engaging in general practice, but will be given opportunity for doing other remunerative work

Applicants must be registered Medical Practitioners, holding a qualification in Public Health or State Medicine. Previous experience in school medical work is desirable.

The appointment will be subject to the provisions of the Public Health (Officers) Act, 1921, and the Sanitary Officers Order, 1926, and the duties will be those prescribed by the Order, and such other duties as are or may be imposed by the Council Any other work or duty proposed to be undertaken to be subject to the approval of the Council.

Commencing salary £600 per annum, payable monthly.

Office accommodation and staff are provided by the Council.

The office is an established post under the Local Government and Other Officers Superannuation Act, 1922.

Personal canvassing of members of the Council, either directly or indirectly, will be a disqualification, but 24 copies of the application and testimonials may be sent to me for the use of the Council.

Applications, on forms to be obtained from the undersigned, endorsed "Medical Officer of Health," and accompanied by copies of three testimonials of recent date, must be forwarded to me before July 15th next.

SYDNEY C. SMITH,
Town Hall, Clerk to the Council.
Weston-super Mare.
June 20th, 1929.

Princess Louise Kensington

HOSPITAL FOR CHILDREN,
North Kensington.
(42 Beds pending completion.)

The Board of Management invite applications for the post of HON. RADIOLOGIST. Candidates must be registered medical practitioners, and it is desirable that they should hold the D.M.R.E.Camb

At least one attendance weekly will be necessary. Further details should be obtained from the Secretary, Princess Louise Kensington Hospital for Children, St. Quintin Avenue, W.10, and formal applications should be sent in not later than first post on Thursday, July 25th.

Devon County Council.

APPOINTMENT OF COUNTY MEDICAL OFFICER OF HEALTH.

The County Council invite applications from duly qualified medical men holding a Diploma of Public Health, of not more than 45 years of age, for this appointment.

The salary will commence at the rate of £1,200 a year, with four annual increments of £50 to a maximum of £1,400.

The officer appointed will be required to devote the whole of his time to his official duties, to provide his own motor car and use the same when necessary in the discharge of his duties, for which he will be allowed expenses in accordance with Grade A of the Council's scale. He will also be allowed the usual subsistence allowance and for necessary journeys by rail.

The appointment has been designated an established post under the Local Government and Other Officers Superannuation Act, 1922.

Applications on the prescribed form, to which are attached a general statement of the conditions of appointment and the duties, can be obtained from me, and must be returned, accompanied by copies of not more than three recent testimonials, so as to reach me not later than the first post on July 16th next.

Personal canvassing by or in favour of a candidate will disqualify, but a candidate may, if he wishes, send me 40 copies of his application for the use of the Committee.

The officer appointed will be required to take up his duties on December 1st next.

The Castle, BRIAN S. MILLER,
Exeter. Clerk.
June 24th, 1929.

City and County of Kingston upon Hull.

HULL MATERNITY HOME AND INFANTS' HOSPITAL.

RESIDENT MEDICAL OFFICER (WOMAN).

The Corporation of Hull invites applications from unmarried or widowed Registered Medical Practitioners, under the age of 40 years, for the appointment of Resident Medical Officer (Woman) at the Maternity Home and Infants' Hospital, Hedon Road, Hull. Candidates must be of at least three years' standing in their profession.

Salary £450 per annum, together with board, washing, and residence at the Maternity Home. The appointment is subject to the provisions of the Local Government and Other Officers Superannuation Act, 1922.

Applicants must have had post-graduate experience in obstetrics, paediatrics, and the treatment of venereal disease in women.

The successful candidate will be required to devote the whole of her time to the duties of the appointment, which will also include attendance, when required, at Ante-Natal, Post-Natal, and other clinics.

Particulars of the duties and forms of application may be obtained from the undersigned.

Completed applications (in an envelope endorsed "Resident Medical Officer, Maternity Home"), together with copies of three recent testimonials, must be received not later than Thursday, July 18th.

W. ALLEN DALBY,
Health Department, Medical Officer of Health
Guildhall, Hull.
July 1st, 1929.

Romford Isolation Hospital.

The Romford Joint Hospital Board invite applications from registered medical practitioners (male) for the appointment of MEDICAL SUPERINTENDENT of the Hospital at Rush Green, Romford, which is to be enlarged to 150 beds.

The salary is £750 per annum, and in addition a temporary allowance of £250 per annum in lieu of board-residence will be made pending the provision of residential quarters.

Candidates must have held a resident post in a recognized Fever Hospital, and be experienced in the modern treatment of all the infectious diseases now treated in Isolation Hospitals.

Applications, stating nationality, age, and previous experience, together with copies of three recent testimonials, to be sent not later than July 20th next to the Clerk to the Board, who will furnish further particulars on request.

By Order of the Board
T. W. A. GREENHALGH, Clerk.
16A, South Street, Romford.
July 2nd, 1929.

City of London Mental Hospital,

near DARTFORD, KENT.

LOCUM TENENS (MEDICAL OFFICER) required for a period of approximately seven weeks, commencing from July 28th. Salary, seven guineas per week. Board, lodging, etc., provided.—Apply to the Medical Superintendent.

APPOINTMENTS—Important Notice.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

(a) British Islands.

Town or District.	Town or District.	Town or District.
CONTRACT PRACTICE.	**CONTRACT PRACTICE** *(Contd.)*.	**PUBLIC HEALTH** *(continued)*.
EBBW VALE, MON. *(Workmen's Medical Society.)*	NEATH AND DISTRICT. *(Medical Aid Association.)*	GLASGOW EDUCATION AUTHORITY. *(Male Assistant Medical Officer.)*
GILFACH GOCH, GLAMORGAN. *(Workmen's Medical Scheme.)*	OAKDALE, MON. *(Medical Officer for Medical Aid Association.)*	SOUTH SHIELDS COUNTY BOROUGH. *(Assistant Medical Officer.)*
LLWYNYPIA, CLYDACH VALE PENYGRAIG, GLAMORGAN. *(Workmen's Medical Scheme.)*	OGMORE VALLEY, GLAMORGAN. *(Wyndham Colliery Medical Aid Society.)* *(Workmen's Medical Scheme.)*	YORKSHIRE NORTH RIDING COUNTY COUNCIL EDUCATION COMMITTEE. *(Assistant School Medical Officer.)*
MARDY, GLAMORGAN. *(Workmen's Medical Scheme.)*	**PUBLIC HEALTH.**	YORKSHIRE WEST RIDING COUNTY COUNCIL. *(School Medical Inspector.)*
	CORNWALL EDUCATION COMMITTEE. *(Assistant School Medical Officer—Female.)*	

(b) Colonial Medical Service.—

WINDWARD ISLANDS MEDICAL SERVICE. (Grenada with Carriacou, St. Vincent and St. Lucia.)

(c) Overseas.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.
NEW SOUTH WALES. *(All Friendly Society Appointments.)*	Dr. R. H. TODD (Hon. Sec., New South Wales Branch), B.M.A. Building, 30-34, Elizabeth St., Sydney, N.S.W.	VICTORIA. *(All Institute or Medical Dispensaries.)*	Dr. FRANK DAVIES (Hon. Sec., Victorian Branch), British Medical Association, Medical Society Hall, East Melbourne, Victoria.	WESTERN AUSTRALIA. *(Contract and Lodge Practice.)*	Hon. Sec., Western Australian Branch, British Medical Association, No. 6, Bank of N.S.W. Chambers, St. George's Terr., Perth, Western Australia.
QUEENSLAND. *(Brisbane Associated Friendly Societies Institute.)*	Dr. E. S. MEYERS (Hon. Sec., Queensland Branch), British Medical Association, Adelaide St., Brisbane.	WELLINGTON, NEW ZEALAND. *(Contract Practice Appointments.)*	Dr. G. F. V. ANSON (Hon. Sec., New Zealand Branch), British Medical Association, P.O. Box 156, Wellington, New Zealand.		

Address: B.M.A. House, Tavistock Square, W.C.1.
July 3rd, 1929.

By Order of the Council of the British Medical Association.
ALFRED COX, Medical Secretary.

Royal Devon & Exeter Hospital,
EXETER. (225 Beds.)

ASSISTANT HOUSE SURGEON (Male).

Applications are invited for the post of Assistant House Surgeon at this Hospital, now vacant. The appointment is for six months, but candidates are eligible for re-election.

The duties include assisting in the Ear, Nose, Throat, Radiological, and Casualty Departments, and the giving of anaesthetics.

Salary at the rate of £100 per annum, with board, apartments, and washing.

Applications, giving particulars as to age and qualifications, together with copies of three recent testimonials, *should be sent to the undersigned* as soon as possible.

By Order of the Committee,
S. S. COLE,
July 2nd, 1929. Secretary and Manager.

Edinburgh Hospital for Women
AND CHILDREN, WHITEHOUSE LOAN, EDINBURGH.

Applications are invited from qualified women for the following posts at this Hospital:

1. SENIOR HOUSE SURGEON.
2. JUNIOR HOUSE SURGEON.

Residence, board, and laundry provided.

Appointments are for six months from October 1st.

Applications, with copies of testimonials, should be sent to the Convener of the Medical Committee, at the Hospital, on or before Friday, July 19th.

Lowestoft and North Suffolk
HOSPITAL.

HOUSE SURGEON (male) preferably with knowledge of X-ray. Salary £120 p.a., with board, residence, and laundry.

Applications, with copies of three recent testimonials, to the Honorary Medical Supt.

Kesteven Mental Hospital,
SLEAFORD, LINCOLNSHIRE.

APPOINTMENT OF MEDICAL SUPERINTENDENT.

A Medical Superintendent is required for the above Mental Hospital at a commencing salary of £700 per annum, with furnished house, coals, light, and washing (the emoluments for superannuation purposes to be valued at £200 per annum). Duties to commence on September 1st next.

The successful candidate will be expected to act as Medical Adviser under the Mental Deficiency Acts, for which an additional salary of £52 *per annum will be paid.*

Applications, endorsed "Medical Superintendent," stating age, qualifications, and experience accompanied by two recent testimonials, to be sent to me on or before the 15th day of July, 1929.

County Offices, A. D. PIPER,
Sleaford, *Clerk to the Mental Hospital*
June 24th, 1929. Visiting Committee.

Woolwich and District War
MEMORIAL HOSPITAL, Shooters Hill, London, S.E.18.
GENERAL HOSPITAL (112 Beds).

HOUSE PHYSICIAN; also HOUSE SURGEON.

The Appointments Committee invite applications for appointment as (a) House Physician and (b) House Surgeon. An honorarium of £125 per annum will be paid in respect of each *appointment, which will be for a period of six* months as from August 15th.

Applications, accompanied by copies of not more than three recent testimonials, are invited from suitably qualified candidates, and should be addressed to the undersigned to reach him not later than 10 a.m. on Monday, July 15th.

EDWIN RADFORD, J.P.
Secretary-Superintendent.

Ancoats Hospital, Manchester.

RESIDENT MEDICAL OFFICER required to commence duty on August 1st next. Salary £150 per annum, with board, residence, etc. Previous experience in a similar position preferred. Applications, stating age, qualifications, previous experience (including appointments held), together with copies of three recent testimonials, to be forwarded to the undersigned on or before July 10th next.

FORTHCOMING VACANCIES.

HOUSE PHYSICIAN. Six months' appointment from September 1st.

HOUSE SURGEON (Orthopædic). Six months' appointment from September 1st.

By Order of the Board,
HERBERT J. DAFFORNE,
Gen. Supt. & Secretary.

Jewish Maternity Hospital.
Jewish Maternity Home (Incorporated), Underwood Street, E.1.

RESIDENT MEDICAL OFFICER required to commence duties on August 17th. Board, residence, and laundry provided. Salary £50 per annum. The appointment is for six months.

Applicants may be either male or female.

Applications, with copies of three testimonials, to be sent to the Secretary not later than July 12th.

Ancoats Hospital, Manchester.

ASSISTANT *PATHOLOGIST (part-time).* Salary £200 per annum. Male or female. Appointment for twelve months. Applications, stating age, experience, and appointments held, together with copies of three recent testimonials, to be forwarded not later than July 9th to the undersigned.

HERBERT J. DAFFORNE,
General Supt. and Secretary.

British Medical Journal,
BRITISH MEDICAL ASSOCIATION HOUSE,
TAVISTOCK SQ., LONDON, W.C.1.
T/A: ARTICULATE, WESTCENT, LONDON.
Tel.: MUSEUM 9861 (4 lines).

SMALL ADVERTISEMENT RATES.

Up to Six Lines (32 Words) 9s.
Each Additional Line, 1s. 6d.
(Address included.)

Sixpence should be added if replies to a box number are to be posted.

All advertisements must be received not later than first post Tuesday previous to date of publication.

ASSISTANCIES.

Wanted immediately, Indoor and Outdoor ASSISTANTS (male), with and without view. Also LOCUM TENENS. Good salaries offered. State full particulars.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester

Wanted immediately, indoor male ASSISTANT for private and panel Practice, Yorkshire. Salary £250, or according to experience.—Address, No. 4128, B.M.A. House, Tavistock Square, W.C.1.

Wanted immediately, Assistant PHYSICIAN (male, unmarried) for Private Sanatorium. Salary £250, with board and residence. Please state qualifications, experience, and age.—Address, No. 4137, B.M.A. House, Tavistock Square, W.C.1.

Wanted immediately. — ASSISTANT, Indoor (male) for country Practice. Salary £250 to £300 according to experience.—Address, No. 4180, B.M.A. House, Tavistock Square, W.C.1.

Wanted immediately, in good-class Country Practice, ASSISTANT, with ultimate view to Partnership, but at present part-time help only required. Very light post, suitable to reading man. Photo if possible.—Address, No. 4122, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistant, outdoor, for quiet country Practice in North Yorkshire. Work light. Some experience and ex H.S. preferred. Only one used to the country need apply. Photo and references.—Address, No. 4117, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—Assistant, male (indoor), unmarried, for panel and private Practice in North of England. Salary £275. Send particulars, testimonials, and photograph.—Address, No. 4125, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistant, male, for North London Practice, to act as junior assistant. Send references and full particulars. — Address, No. 4126, B.M.A. House, Tavistock Square, W.C.1.

Wanted, Assistant, single, male, for London. Usual bond.—Address, with full particulars, to No. 4104, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Indoor Assistant, Scotch or English (male). Private and panel practice, London area. Newly qualified man not objected to.—Address, No. 4135, B.M.A. House, Tavistock Square, W.C.1.

Wanted.-Indoor Assistant, male, young, single, English or Scotch, Protestant. Salary £300, with experience. View to suitable man. Keen and energetic. Country town. —Address, No. 4118, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Indoor Assistant, male, for panel and private Practice. Abstainer preferred. Motorist. Good salary to a reliable man. State age, qualifications, and full particulars. Usual bond. — Address, No. 4132, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Lady Assistant for Industrial Practice. Must be experienced. State full particulars.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Wanted. — Lady Assistant, country Practice, Cotswolds. Desiderata: Tact, insight, facility of management, with exp. and up-to-dateness. Spare time and oppor. for tennis and socialities. Photo (snap) and age req. No. 4131, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — Married Assistant, outdoor (house available), with definite view to Partnership. Mixed Practice, near Newcastle-on-Tyne. Must have experience in G.P. Salary £400. Abstainer pref. Photo, testimonials. —No. 4181, B.M.A. House, Tavistock Sq., W.C.1.

Wanted, male outdoor Assistant for panel and private Practice in Monmouthshire. Salary £350 and rooms. State age, experience, etc.—Address, No. 4133, B.M.A. House, Tavistock Square, W.C.1.

Wanted, Assistantship for Sept. in or near London by Woman (31), 6 yrs. experience country, G.P., with well-established Woman Doctor, to gain experience in woman's practice. Own car.—Address, No. 3902, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—Outdoor Assistant, preferably with Dental Degree, for Practice near Manchester. Salary £450 p.a. State full particulars.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Assistant wanted shortly for *mixed Practice in open London suburb.* Age under 30. Protestant. Scottish or English. Ex H.S. pref. Would have to occupy un-furn. house; rent free. Would suit young married man or single man with relative. Salary £250 to begin. —No. 4110, B.M.A. House, Tavistock Square, W.C.1

Assistant wanted immedi-

House, Tavistock Square, W.C.1.

Assistant. — Junior wanted at once in a large Practice in University City. Indoor. Salary about £300, offering certain advantages either to a newly qualified man or to one of some experience.—Address, No. 4185, B.M.A. House, Tavistock Square, W.C.1.

Assistantship with view desired by M.B., Ch.B.(Glasg.). Male, aet. 25. Two years' experience G.P. Good refs.—Address, No. 4123, B.M.A. House, Tavistock Square W.C.

M.B., B.Ch., D.P.H., seeks ASSISTANTSHIP. Aged 28. 2½ years' experience G.P., panel, private, dispensing, etc.—Address, No. 4187, B.M.A. House, Tavistock Square, W.C.1.

Part-time Assistant wanted (outdoor). Suitable to man reading for higher degree and wishing to gain meanwhile practical experience. Photo if possible.—Address No. 4121, B.M.A. House Tavistock Square, W.C.1.

Young Practitioner, age 28, single, experience in G.P., panel, Poor Law work, motorist and strict abstainer, ASSISTANTSHIP, either whole or part-time, in or near London; would run practice.—Address, No. 4107, B.M.A. House, Tavistock Square, W.C.1.

MEDICAL POSTS, DISPENSERS, etc.

Wanted, Part-time Work in London from August by M.B., B.Ch. (woman). Practising 7 yrs., ex H.S., R.M.O., general practice, Children's Hospitals, ear, nose, and throat, gynaecology. Post-graduate work in Paris 6 months. Free all week except Monday afternoon and Thursdays.—Address, No. 4105, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—Part-time Work in London by Indian M.R.C.S., L.R.C.P. Free 5—9.30 p.m. daily.—Address No. 4111, B.M.A. House, Tavistock Square, W.C.1

Dispensers supplied to Doctors at short notice, without fee. Qualified and exper. in pmy. and panel prac. Perm. and part-time Bookkeeper-Dispensers, Secretary-Dispensers, Nurse-Dispensers, and Chauffeuse-Dispensers.—Write, wire, or 'phone Central 3679, THE RELIANCE BUREAU FOR DISPENSERS, 87, Holborn Viaduct House, 12, Holb. Viad. E.C.1.

Doctors requiring qualified Dispensers, Nurse Dispensers, Secretary Dispensers or Chauffeuse Dispensers, are invited to write, wire, or 'phone Gerrard 2699, THE DISPENSERS' BUREAU, 145, Shaftesbury Avenue, London, W.C.2.

A Lady Dispenser-Bookkeeper supplied immediately on request, qualified and with practical experience in private practice and dispensary work, also trained in Bacteriological Laboratories of the LONDON COLLEGE OF PHARMACY FOR LADIES. Preparation for Examinations.—Write, wire, or 'phone (Park 0969), Secretary, 7, Westbourne Park Road, W.2.

M.R.C.S.(Eng.), L.R.C.P., L.S.A.(Lond.), age 47, seeks DAILY WORK with Doctor in London. Good experience in private and panel practice. Could conduct morning and evening surgery.—Address, No. 4119, B.M.A. House, Tavistock Square, W.C.1.

M.R.C.P., M.B., B.S.(Lond.), Barts. man, ample Clinical and Hospital experience, including 8 years' coaching in medicine in London, requires a BILLET.—Address, No 4183, B.M.A. House, Tavistock Square, W.C.1.

Home with every comfort, beautiful surroundings, offered retired Medical Bachelor return for occasional relief Practitioner in easy country district. Temporary or permanent. Also suit man reading. An assistant is not sought for.—Address, No. 4102, B.M.A. House, Tavistock Square, W.C.1.

Pathologist.—Young American M.D. staying in England for an extended length of time offers his SERVICES to some hospital in or about London. Excellently trained in all branches of pathology, with exceptional references. Asks no honorarium if board be given. — Address, No. 4109, B.M.A. House, Tavistock Square, W.C.1.

Required, Tutor in Dental SUBJECTS.—Apply, MEDICAL CORRESPONDENCE COLLEGE, 19, Welbeck Street, W.1.

The Services of a Medical Man, EXPERIENCED in the MANUFACTURE of THERAPEUTIC SERA and ALLIED PRODUCTS, are required to control the production of, and undertake research into, these products, at Evans' Biological Institute, Runcorn, Cheshire. Every facility is available for the carrying out of such work *in congeni* up-to-date Applicati accompani monials, should be addressed to the Chairman of Directors, EVANS SONS LESCHER & WEBB, Ltd., 56, Hanover Street, Liverpool.

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LOCUMS.

HOLIDAY LOCUMS.

THE MEDICAL AGENCY has pleasure in announcing that lists are now being prepared for Locum engagements for the forthcoming Holiday Season. Principals requiring a REL advised to make early W. H. GRANT, The House, Adelphi, W.C. 1 Riverside 1254 (night calls).

Wanted.—Locums till July 16th, by M.R.C.S., L.R.C.P. Active, reliable, experienced. Well received. Excellent references. Also ASSISTANTSHIP in London from August or September on. Free now. —No. 4124, B.M.A. House, Tavistock Sq., W.C.1.

Wanted, August or September, Seaside or Country LOCUM TENENCY. Hospitality for wife and boy, and 3 gns. weekly. Well recommended.—Address, No. 4136, B.M.A. House, Tavistock Square W.C.1.

Wanted, Hospitality Locum for month of August. Own car. Country. Nice house, large garden. Work light.—Address, No. 4106, B.M.A. House, Tavistock Sq., W.C.1.

A Medical Man, 65 years, just retired from general practice, would take HOLIDAY LOCUMS with his wife, light work, from now to the middle of August.—Address, No. 4101, B.M.A. House, Tavistock Square, W.C.1.

Locum required on Hospitality terms, and/or small remuneration, for four weeks from the end of July. Westminster. No midwifery. Work very light. Ample opportunity for Hospital attendance.—Essential particulars to No. 4129, B.M.A. House, Tavistock Square, W.C.1.

A country Doctor is desirous of LETTING his HOUSE for August in return for very light duties as LOCUM. The house is situated on the borders of Somerset and Devon, a thousand feet above sea level, and is in the midst of most delightful scenery. The house contains five bedrooms, tennis court, and large garden and paddock.—Address, No. 4186 B.M.A. House, Tavistock Square, W.C.1.

Locum wanted August 1st—18th. Work light. South Cornish coast. Own car preferred. State essential particulars.—Address, No. 4116, B.M.A. House, Tavistock Square, W.C.1.

Locum required for country partnership Practice, South Midlands. Last week July—first week August. Light work. Own car essential. Particulars.—Address, No. 4115, B.M.A. House, Tavistock Square, W.C.1.

Locum Tenens, disengaged July 4th. Experienced, reliable, and with unquestionable references. Usual terms. Interview arranged.—Address, "MEDICO," 74, Park Avenue, Whitley Bay, Northumberland.

FOR LOCUM TENENS APPLY TO Mr. PERCIVAL TURNER, Ltd. The oldest and only Agent who for 40 years has supplied substitutes at short notice without fee to principals. 4, ADAM ST., Strand, London, W.C.2. Teleg.: "Epsomian, Lond." 'Phone: Gerrard 0399

PARTNERSHIPS.

Wanted.—Partnership or PRACTICE on easy terms, or ASSISTANCY or ot' ed gentleman. See 'Medical Posts" (B.M 4134, B.M.A. Hous

Wanted.—Well-qualified PARTNER, young (Scotsman preferred), in growing industrial area, 15 miles from London. Great scope for increase. Must be interested in surgery. Share £1,000 to £2,000 offered.—No. 4112, B.M.A. House, Tavistock Sq., W.C.1

Lancs Town.—Half Share in excellent PRACTICE Aver. cash receipts £3,250. Panel 3,750. Good house—3 bedrooms, 2 reception rooms, garage and garden. Rent £35 p.a. Premium 1½ years' purchase.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

North Wales Doctor requires PARTNER for half-share of old-established Practice. Large panel and dispensing. Important appointments held.—Full particulars from H. R. DAVIS, 1, Hunter Street, Chester.

Partner wanted.—Share worth about £700 p.a. of a large middle-class Practice, panel over 2,000. House—5-roomed, garden, electricity, garage—to rent or sell. In large Yorkshire city. Premium 2 yrs.' purchase. Great scope for energetic man. Photograph and testimonials.—Address, No. 4108, B.M.A. House, Tavistock Square, W.C.1.

Partner wanted about 30, well-qualified and experienced in general practice. Share for disposal 1/3 of £1,530 p.a. Two years' purchase. Rapidly increasing district, Essex. No agents.—Address, No. 3502, B.M.A. House, Tavistock Square, W.C.1.

Partnership, 1/3 to 1/2 share, offered in Surrey, within 10 miles of London, to a Doctor (preferably Scotch). Cash receipts average £2,500, panel of 1,300. Visits from 3/6 to 15/6. Beautiful district, population of 64,000. Incoming Partner must have plenty of capital. Preliminary assistantship. University degrees essential.—Address, No. 3528, B.M.A. House, Tavistock Square, W.C.1.

PRACTICES.

Wanted.—Practice in London, with good panel. Income £1,700 £3,500. Can wait up to twelve months if necessary. Ample capital. No agents.—Address, No. 3862, B.M.A. House, Tavistock Square, W.C.1

Wanted.—Practice. Panel 2,00. Income must be £1,800 or over North of England preferred. No agents.—Address No. 4120, B.M.A. House, Tavistock Square, W.C.1

Wanted.—We have innumerable applicants for sound investments in all districts, incomes from £600 to £4,000, with and without panel. Correspondence invited from prospective Vendors. — THE MEDICAL AGENCY (W. H. Grant), Watergate House, 15, York Buildings, Adelphi, W.C.2.

Wanted. — Large non-panel PRACTICE in Winchester, Cheltenham, or similar town, producing not less than £2,000 per annum. House with 6 bedrooms and garden desired, preferably to rent. Advertiser has necessary capital and is free to negotiate.—No. 3415, B.M.A. House, Tavistock Sq., W.C.1.

Wanted by M.D.Cantab., F.R.C.S.Eng., Public School, better-class PRACTICE or PARTNERSHIP, within 100 miles London, or good-class suburb. Ample capital.—Address, No. 1505, B.M.A. House, Tavistock Square, W.C.1.

Bradford. — For immediate disposal. Mixed PRACTICE, in Vendor's hands 30 years. Panel and appointment £518. Average receipts £1,350 p.a. Premium £2,000. Detached modern house, garage, etc., for sale, or let for period.—Address, No. 4114, B.M.A. House, Tavistock Square, W.C.1

Cheshire Town, nr. Manchester.—Cash receipts £500. Scope. Panel 700. Good house in excellent position, 6 bedrooms, 3 reception rooms, garage. Premium—Practice, house, drugs, surgery fittings, etc.—£1,400; part on mortgage.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

For Disposal.—A good Practice is not always to be had directly, but Mr. PERCIVAL TURNER can generally offer applicants something suitable. Nearly all the best Practices are sold by him without being advertised. Inform. free on applic.—4, Adam St., W.C.2.

For Sale.—Old-established NURSING HOME. Ideal position. Modern Theatre. Otis Lift. Average receipts for the past five years exceed £5,000 per annum.—Apply, 92, King's Road, Brighton.

Inland Spa.—Old-established middle and better class. No panel or appointments. Midwifery—about 20 yearly—£4 4s. upwards. Good house, garden, garage. Price, Practice, house, and introduction. £4,000.—No. 4184, B.M.A. House, Tavistock Square, W.C.1.

London Suburb.—Practice yielding £900. Visits 3/6, 5/-; cons. 3/6, 5/-. Panel 125, but good scope. House, with garage, main road, best position, £1,100. Premium £1,100.—Address, No. 2905, B.M.A. House, Tavistock Square, W.C.1.

Lancs.—Old-established, in pretty country district. Very nice house, garden, garage. Receipts £500. Excellent scope. Panel 300. Appointments £150. Price, house £2,000; Practice 1½ years' purchase, part deferred.—MANCHESTER MEDICAL & SCHOLASTIC ASSOCIATION, 6, Brown Street.

Lake District.—Old-estab. PRACTICE. Cash receipts 1928, £1,388. Panel 700. Excellent detached house to rent at £60 p.a., containing 3 enter. and 9 bedrooms; art sit

Lancs Town.—Good-class PRACTICE. Average cash receipts about £4,000. Panel 2,600. Two adjoining Houses to be Let or Sold. Good schools and sports. Premium Prac. 1½ years' purchase, or less for cash payment.—No. 4127, B.M.A. House, Tavistock Sq., W.C.1.

Manchester. — Good-class PRACTICE. Pleasant residential suburb. Cash receipts 1928, £2,179 16s. Excellent house to rent, containing 8 bedrooms, 4 entertaining rooms. Garage and garden. Good introduction. Premium 1½ years' purchase.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Manchester.—Old-estab. Practice Av. cash receipts £2,525. Panel 1,021. Prominent house, 6 bedrooms, garden, and garage. Premium 1½ years' purchase. A preliminary partnership might be arranged.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

North Wales Coast.—Good-class PRACTICE. Cash receipts 1928, £1,749. Panel 713. Excellent modern house to rent, 4 bedrooms. Garden; also well-fitted surgery and garage. Good scope. Premium 1½ years' purchase.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Nr. Chester.—Practice. Cash receipts 1928, £600. Panel 440. Scope. Nice modern house to rent., 2 enter., 3 bedrooms. Garden and garage. Premium £650 cash (to include surgery furniture and drugs).—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

N. Wales.—Old-established. Lovely district. Nice house, garden, lawn, garage. Rent £70. Receipts about £1,100. Appointments £200. Panel 800. Price £1,000, part defe.red.—MANCHESTER MED. & SCHOLASTIC ASSOCIATION, 6, Brown Street.

Potteries.—Old-estab. PRACTICE. Aver. cash receipts £1,300. Panel 1,650. Good house—4 bedrooms, 2 reception rooms, garage, etc. Rent £63 p.a. Vendor *retiring. Premium £1,750*; part by arrangement.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

To Purchasers. — Do not buy without expert assistance. With 40 yrs.' experience Mr. PERCIVAL TURNER can advise in all cases. Terms free on application to 4, Adam St., Strand, W.C.2. Telephone: Gerrard 0399. Telegrams: "Epsomian, London."

Very good House to rent, and small NUCLEUS, about £200, on Cardigan Bay. Suitable semi-retired or invalid. Best golf, tennis, bowls and good (gas, water, patient. At very moderate rent; some fixtures to be taken. Vendor leaving October (recent bereavement) and open to offer.—Address, No. 4182, B.M.A. House, Tavistock Square, W.C.1.

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kitchen, and bathroom, the remainder being let to a professional man at a figure which leaves the premises Rent Free for the next 5 years. Premium required for 18 years' lease.—Full particulars from BEDFORD & Co., 10, Wigmore Street, W.1.

Consulting Room, Wimpole Street, W.1. Large beautiful ground floor room, furnished. Four half days a week, with plate 120 gns. per annum.—BM/BOL4, London, W.C.2

Consulting Rooms to Let.—Harley Street and district. Whole or part-time. Lists sent on application.—ELWOOD & Co., 10, Henrietta Street, Cavendish Square W.1. Mayfair 5659.

House (corner, new) to Let. Valuable position on main road. New estate, rapidly growing and prosperous suburb. Ideal for Doctor. £120 p.a., lease or agreement.—Particulars, 65, Albert Road, Ilford, Essex.

Leeds.—Good Freehold House, adjoining new estate and large Corporation Housing Scheme. Main road, industrial area. Garden, garage. Reasonable price.—Address, No. 4103, B.M.A. House, Tavistock Square, W.C.1.

Modern Freehold Residence for Sale, eight miles from Birmingham, close to station. Splendid position in rapidly growing neighbourhood. Two reception, 3 bed., bath, 2 garages and nice garden. Would suit Doctor. No medical practitioner within four miles. Price £1,750 for quick sale.—Apply, 17, New Street, Birmingham.

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Shoreham-by-Sea.—Corner HOUSE, situate in a residential part of this rapidly developing and favourite town. 3 minutes *railway station. Suitable for a Doctor or Dentist.* 4 bedrooms, tiled bathroom, etc., 2 reception rooms, garage, large well-kept gardens; facing south. In good repair.—App'y to Messrs. JENNER & DELL, 22, Regency Square, Brighton, and 54, Church Road, Hove.

Suit Professional Man.—Home, etc. TOOTING COMMON. Fine Corner RESIDENCE. Eleven rooms. Good offices. Heated conservatory. Garage, etc. Garden Freehold £1,850.—Apply, CROFTS, Tooting Broadway.

To Let.—Good first-floor Consulting ROOM adjoining Cavendish Square, including use of waiting room and attendance. Constant hot water. £160 per annum.—Add., No. 3712, B.M.A. House, Tavistock Sq., W.C.1.

APPOINTMENTS.—Contd.

The Sheffield Royal Hospital.
(340 Beds.)

There will be a vacancy on the Resident Staff on August 1st for an OPHTHALMIC HOUSE SURGEON (male). The appointment will be for a period of six months, and the selected candidate will be eligible for re-appointment or appointment to another office on the resident staff. Salary £80 per annum, with board, residence, and laundry. Applications, with copies of testimonials, should be sent as soon as possible to

W. H. BOOTH,
Superintendent and Secretary.

July 2nd, 1929.

Preston and County of Lancaster
QUEEN VICTORIA ROYAL INFIRMARY.

The Board of Management invites applications from unmarried gentlemen, doubly qualified [illegible] the post of HOUSE [illegible] Medical, Maternity, Six months' appointment.

Salary £150 per annum, with board, residence, and laundry.

Applications, stating age, qualifications, and experience, together with copies of recent testimonials, to be forwarded to the undersigned at once.

Royal Infirmary, JOHN GIBSON,
Preston. *Superintendent and Secretary.*
July 2nd, 1929.

Burton-on-Trent General INFIRMARY.

HOUSE SURGEON.

The Committee require the services of a duly qualified Second Resident House Surgeon (male). Salary £150, with board and furnished quarters. Duties to commence August 1st.

Applications, stating age and experience, and accompanied by copies of testimonials, to be sent to the undersigned.

The Infirmary, E. W. THORNLEY,
Burton-on-Trent. Secretary.

Elsie Inglis Memorial Maternity HOSPITAL, ABBEY HILL, EDINBURGH.

Applications are invited from qualified women for the post of HOUSE SURGEON at this Hospital.

Two appointments will be made, for periods of nine months, from October 1st and January 1st respectively.

Residence, board, and laundry provided.

Applications, with copies of testimonials, should be sent to the Convener of the Medical Committee, at the Hospital, on or before Friday, July 19th

The Staffordshire General INFIRMARY, STAFFORD.

Applications are invited for the post of HOUSE SURGEON (male). Salary at the rate of £200 per annum, with board, lodgings, etc. Candidates must be fully qualified and registered. The appointment to be held for at least six months. Applications, stating age, accompanied by copies of three recent testimonials, should reach the undersigned not later than Thursday, July 11th.

Stafford, A. E. COLLINS,
July 2nd, 1929. Secretary.

East Suffolk and Ipswich HOSPITAL, IPSWICH.
(260 Beds. 7 Residents.)

Wanted at once, A HOUSE SURGEON (male, British). Salary at the rate of £120 per annum —*six months' contract*—with board, residence, and laundry.

Applications, stating age, qualifications, and experience, and accompanied by copies of three recent testimonials, to be sent to the undersigned.

The Hospital, ARTHUR GRIFFITHS,
Ipswich. Secretary.
July 6th, 1929.

Ilford Emergency Hospital, ESSEX. (70 Beds.)

Wanted, SENIOR and JUNIOR HOUSE *SURGEONS (male, unmarried).* Medical and Surgi[illegible] £110 and £100 per [illegible] apartments, board [illegible] stating age, qualifications, and experience, with copies of testimonials, should be sent to the Secretary immediately.

The Buchanan Hospital, ST. LEONARDS-ON-SEA.

HOUSE SURGEON (male) as LOCUM TENENS required at once to take over duties on July 16th Salary £250 per year.

Applications to be made to the Secretary. Also, at end of September, two vacancies for HOUSE SURGEONS (male). Apply, with testimonials, to the Secretary.

The Children's Hospital, Sheffield
(East End Branch Out-patient Department.)

Wanted, JUNIOR HOUSE SURGEON (female), qualified and registered. Salary £100 per annum. *Duties to commence at once.*

Applications and copies of testimonials to be addressed to the undersigned as early as possible.

GEO. M. GILL, Secretary.
Western Bank, Sheffield.

Cardiff Royal Infirmary.
(Associated with Welsh National School of Medicine.)

Applications are invited for the undermentioned posts:

THREE HOUSE SURGEONS.
THREE HOUSE PHYSICIANS.
ONE HOUSE SURGEON—GYNAECOLOGICAL.

Salary at the rate of £50 per annum, with board and lodging. Appointments are for six months as from August 20th, with the exception of one House Surgeon, who will be required to commence duties on July 20th for a period of seven months.

Forms of application can be obtained from the undersigned, and should be returned, with copies of three recent testimonials, on or before July 29th. Applications for the seven months' appointment must be returned on or before July 15th.

R. H. ENOCH,
Acting Medical Superintendent.
July 2nd, 1929.

The Royal Waterloo Hospital for CHILDREN AND WOMEN,
Waterloo Road, S.E.1.

Applications are invited from qualified male practitioners for the following post, vacant on August 1st: A CASUALTY OFFICER, to work in the Out-Patient Department on week-days, at £150 per annum, lunch and tea provided. *Applications, with copies of testimonials, should* be forwarded by Tuesday morning, July 16th, to the Secretary at the Hospital, from whom further particulars can be obtained.

St. Mary's Hospital for Women AND CHILDREN, Plaistow, E.13.

Applications are invited for the post of CLINICAL ASSISTANT in the Medical Out-*patient Department, with access to the Wards.* The appointment is for six months. Attendance Monday afternoons at 2 o'clock. Tea provided. Applications, with copies of three recent testimonials, to be sent to the undersigned as soon as possible.

A. ERNEST WILKES,
Secretary.

Shropshire Orthopaedic Hospital AND AGNES HUNT SURGICAL HOME, OSWESTRY.

HOUSE SURGEON (male) required. Appointment for one year. Salary £200 per annum, with board, residence, laundry, and four weeks' holiday.

Applications, stating age, with copies of three recent testimonials, should be received by the Secretary-Superintendent, Shropshire Orthopaedic Hospital, Oswestry, not later than first post on Saturday, July 20th.

Royal Hampshire County HOSPITAL, WINCHESTER.

RESIDENT HOUSE SURGEON (male) required as soon as possible. Must be of British nationality. *Salary £150 per annum, board, lodging,* and attendance provided. Candidates must be duly qualified and registered.

Applications, stating age, and enclosing copies of recent testimonials, should be sent to the undersigned as soon as possible.

HERBERT MASLEN, Secretary.

London Jewish Hospital, Stepney Green, E.1.

The Council of Management invites applications for the post of HONORARY MEDICAL OFFICER in charge of the Actino-Therapeutic Department, who will be required to attend the Department at least twice a week.

Candidates desiring to make application must send twenty copies of their application, with *copies of three recent testimonials, to the* Secretary at the Hospital on or before Friday, July 26th.

Rotherham Hospital.

Wanted, SENIOR HOUSE SURGEON (male), qualified. *A knowledge of Eye work is desirable.* Salary £200, with board, lodgings, and washing.

Applications, with copies of recent testimonials, to be sent to the Secretary, G. W. ROBERTS, 8, Moorgate Street, Rotherham.

Macclesfield General Infirmary.
(100 Beds.)

Wanted, RESIDENT HOUSE SURGEON. Salary £180 per annum, with board and residence. Candidates must be fully qualified and registered.

Applications, with copies of testimonials, to be sent to the undersigned.

A. E. HANRAHAN, Secretary.

Nottinghamshire County Council.
EDUCATION COMMITTEE.

APPOINTMENT OF ASSISTANT SCHOOL MEDICAL OFFICER (Male).

Applications are invited from duly qualified and registered Medical Practitioners for the post of Assistant School Medical Officer. Candidates must possess a Diploma in Public Health, and have had at least three years' experience since qualification. A knowledge of refractions and mental deficiency will be deemed additional qualifications.

The officer appointed will be required to devote his whole time to the duties of his office. He will be a member of the staff of the County Medical Officer, will work under his control and direction, and will be required to reside in a part of the county to be approved, and to carry out such duties as may be prescribed. The salary will be at the rate of £600 per annum, with travelling allowances in accordance with the County Council's scale. The engagement will be terminable by three months' notice on either side, and the successful candidate will be required to pass a medical examination.

Forms of application may be obtained from the undersigned, and should be returned, accompanied by copies of not more than three recent testimonials, to the County Medical Officer, Shire Hall, Nottingham, on or before July 20th.

Shire Hall, Nottingham. July 2nd, 1929.
K. TWEEDALE MEABY, Clerk of the County Council.

City of Birmingham.

APPOINTMENT OF MEDICAL SUPERINTENDENT.

Applications are invited for the post of Medical Superintendent at the Mental Deficiency Institution shortly to be opened at Coleshill Hall, about 10 miles from Birmingham.

Candidates must be fully qualified registered medical practitioners, and have had experience in institutions for mental defectives.

Commencing salary £700 p.a. and emoluments (including house, fuel, lighting, and laundry) valued at £200 for superannuation purposes. The appointment will be subject to three months' notice on either side, and the selected candidate will be required to join the Asylums and Certified Institutions (Officers *Pensions) Act, 1918.*

Applications, stating age, medical qualifications, and experience, accompanied by copies of not more than three recent testimonials, endorsed "Medical Supt., Coleshill Hall," should be addressed to the undersigned not later than *August* 22nd.

Canvassing will be deemed a disqualification.

Council House, Birmingham. F. H. C. WILTSHIRE, Town Clerk.

Borough of Colne.

MEDICAL OFFICER OF HEALTH.

The Council invites applications for the appointment of Medical Officer of Health, School Medical Officer, and Maternity and Child Welfare Medical Officer for the Borough.

The salary of the appointment will be £800 per annum, and a motor car is provided for the use of the Health Department.

Candidates must be duly qualified medical practitioners, and possess a recognized Diploma in Public Health and the requisite qualifications required by the Sanitary Officers Order, 1926, and the Regulations of the Ministry of Health, to whose approval the appointment will be subject.

Canvassing will disqualify a candidate.

Applications, accompanied by not more than three references or recent testimonials, must be sent to the undersigned, endorsed "Medical Officer of Health," not later than Monday, August 5th.

Town Hall, Colne. July 1st, 1929.
L. A. VENABLES, Town Clerk.

The Devon Mental Hospital,
EXMINSTER, near EXETER.
(1,400 Beds.)

Required, JUNIOR ASSISTANT MEDICAL OFFICER (male.)

Candidates must be registered Medical Practitioners, and unmarried. Preference will be given to candidates who either have or are anxious to obtain a Diploma in Psychological Medicine. The Hospital is fully equipped with Operating Theatre, X-Ray Installation, Bacteriological Laboratory, etc. Salary £300 per annum, rising by £25 per annum to £350, with board, apartments, laundry, and attendance.

The appointment is subject to the provisions of the Asylums Officers Superannuation Act, 1909. Form of application to be obtained from the Clerk to the Devon Mental Hospital, Exminster, which must be completed and returned on or before July 29th.

Bristol Royal Infirmary.

Applications are invited for the following resident appointments for the six months commencing September 1st.

2 HOUSE PHYSICIANS.
4 HOUSE SURGEONS.
1 HOUSE PHYSICIAN to the Cancer Research Department.
1 HOUSE SURGEON to the Ear, Nose, and Throat Department.
1 HOUSE SURGEON to the Gynaecological and Ophthalmic Departments.
1 OBSTETRIC HOUSE PHYSICIAN.
1 CASUALTY HOUSE SURGEON.
1 ASSISTANT HOUSE SURGEON and H.S. to the Dermatological Department.

Salary at the rate of £60 per annum, with board, apartments, and laundry, except in the case of the Casualty House Surgeon, when the salary will be at the rate of £80 per annum, with board, apartments, and laundry.

1 DENTAL HOUSE SURGEON.

If resident, salary at the rate of £80 per annum, but if non-resident, salary at the rate of £116 per annum, with board.

Candidates, who must be duly qualified, to send in their applications, stating age, together with copies of not more than three testimonials, to the undersigned on or before Saturday, July 20th.

ELLIS C. SMITH, F.C.I.S.,
Secretary and House Governor.

Bristol Royal Infirmary.

Applications are invited for the post of SENIOR RESIDENT MEDICAL OFFICER. The appointment to date as from September 1st next. Salary at the rate of £200 per annum, together with board, apartments, and laundry. Candidates, who must be qualified, to send in their applications, stating age, together with copies of not more than three testimonials, to the undersigned on or before Saturday, July 20th.

ELLIS C. SMITH, F.C.I.S.,
Secretary and House Governor.

The Royal Infirmary, Sheffield.
(500 Beds.)

OPEN APPOINTMENTS.

The Weekly Board of Management invite applications for the four undermentioned posts:
ASSISTANT CASUALTY OFFICER,
HOUSE SURGEON,
OPHTHALMIC HOUSE SURGEON, and
ASSISTANT OPHTHALMIC HOUSE SURGEON.

The appointments will be tenable for six months from July 1st. The salary attached to each appointment is £80 per annum, with board and residence. Applications, with copies of testimonials, to be sent to the undersigned immediately.

JNO. W. BARNES, F.C.I.S.,
General Superintendent and Secretary.
Board Room, June 19th, 1929.

The Royal Infirmary, Sheffield.

OPEN ELECTION.

A vacancy having arisen in the post of *SURGICAL REGISTRAR to the Royal Infirmary*, Sheffield, the Weekly Board invite applications *therefor.*

Candidates must be Fellows of one of the Colleges, and the successful candidate will not be allowed to engage in general practice. The post is tenable for one year, and the holder will be eligible for re-election. The salary is £200 per annum.

Applications, stating age and qualifications, together with copies of testimonials, to be sent to the undersigned not later than July 12th next.

JNO. W. BARNES, F.C.I.S.,
General Superintendent and Secretary.
Board Room, June 19th, 1929.

Chester Royal Infirmary.
(211 Beds.)

Wanted, HOUSE SURGEON (male) to the Ear, Nose, and Throat Department and Casualty Officer, to commence duties on August 1st. Salary £120 per annum, with board, lodging, and washing. Candidates must be doubly qualified and registered. Applications, stating age, and accompanied by copies of testimonials, to be sent to the undersigned not later than July 18th.

July 2nd, 1929. J. ROWSE MITCHELL, Secretary.

Durham County Hospital.

The post of JUNIOR HOUSE SURGEON will be vacant on August 1st. The appointment will be for six months. Candidates must be male, and *duly qualified and registered.*

75 beds. Salary £120 per annum, with board and lodging. Applications, with copies only of testimonials, to be sent not later than July 15th to

WM. R. WILSON, Secretary.
79, Saddler Street, Durham.

Tunbridge Wells and Counties
GENERAL HOSPITAL.

Wanted, HOUSE SURGEON (male). Candidates must be unmarried, and duly qualified in Medicine and Surgery. (Two Residents.) Vacant July 27th, 1929. May be required to lecture to the Nursing Staff.

In-patients number over 1,400 yearly. Out-patients 6,000, with 50,000 attendances.

Salary £160 per annum, with board, residence, etc., in the Hospital.

This Hospital is approved by the University of London for the purposes of the M.D. and M.S. examinations.

Applications, stating qualifications, with certificate of registration and copies of testimonials, should be sent to the undersigned on or before July 8th.

J. J. WEBB, Secretary.

Seamen's Hospital Society,

The Committee of Management invite applications for the appointment of ASSISTANT [illegible] DREADNOUGHT [illegible] will be appointed for [illegible] eligible for re-election.

Candidates must be fully qualified medical practitioners. In view of the future rearrangement and extension of this Department, the elected officer will be required to attend not less than two half-days a week.

There is an honorarium of fifty guineas attached to the post.

Applications, with copies of three recent testimonials, to be sent in on or before July 16th to the undersigned, from whom further particulars can be obtained.

Greenwich, June 24th, 1929. R. E. V. BAX, Secretary.

Seamen's Hospital Society,
Greenwich, S.E.

RESIDENT MEDICAL OFFICER required at QUEEN ALEXANDRA MEMORIAL HOSPITAL, MARSEILLES, for six months from August 1st. Salary £150 per annum, with board, residence, and laundry. Candidates must be male and know French. Applications, with copies of three recent testimonials, to be sent in by July 23rd to the undersigned, from whom further particulars can be obtained.

Greenwich. July 1st, 1929. *R. E. V. BAX,* Secretary.

The Gloucestershire Royal
INFIRMARY AND EYE INSTITUTION,
GLOUCESTER. (145 Beds.)

Applications are invited for the post of SECOND HOUSE SURGEON (male). Salary £100 per annum, with board, residence, and laundry. (Four Resident Medical Officers).

The appointment is for six months, which may be extended for similar periods by re-election from time to time.

Applications, stating age, qualifications, and nationality, with copies of not less than three recent testimonials, must be received by the undersigned not later than Wednesday, July 10th. The elected candidate will be required to enter upon his duties at once.

July 2nd, 1929. F. J. SYMONS, Secretary.

The Prince of Wales's General
HOSPITAL, Tottenham, N.15.

Applications are invited for the post of HONORARY ASSISTANT PHYSICIAN.

Candidates must be Graduates in Medicine of a British University, and Fellows or Members of one of the Royal Colleges of Physicians.

Applications, stating age, qualifications, and accompanied by copies of three recent testimonials, must be sent in by the first post on Monday, July 22nd next.

July 2nd, 1929. FREDK. W. DREWETT, Director.

Swansea Hospital.
(316 Beds)

HOUSE SURGEON wanted, gentleman, single. Salary £150, with board, residence, and laundry. Duties to commence August 1st.

Applications, stating age, nationality, qualifications, and experience, with copies of three recent testimonials, to be forwarded to the undersigned.

O. C. HOWELLS, Secretary.

The Willesden General Hospital
(Incorporated), N.W.10.

The Executive Committee invites applications for appointment of REFRACTION ASSISTANT to the Hospital. Honorarium at the rate of 50 gns. per annum. Detailed applications, with copies of testimonials, to be received by the undersigned not later than Monday, July 8th.

R. J. HEARNE, Secretary.

CAVENDISH NURSES (Male and Female)

Head Office: 54, BEAUMONT ST., LONDON, W.1 (late 43, New Cavendish St., London, W.1.)

A very convenient form of telephone message pad sent free on application to the Secretary.

Branches: *MANCHESTER*: 176, *Oxford Road.* *GLASGOW*: 28, *Windsor Terrace.* *DUBLIN*: 23, *Upper Baggot Street.*

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Tactear, London. Surgical, Glasgow. London, 1277 Welbeck. Glasgow, 477 Douglas.
Tactear, Manchester. Tactear, Dublin. Manchester, 3152 Ardwick. Dublin, 531 Ballsbridge.

Superior trained Nurses for Medical, Surgical, Mental, Dipsomania, Travelling and all cases. Nurses reside on the premises, and are always ready for urgent calls Day and Night. Skilled Masseuses, Masseurs, and good Valet attendants supplied.

Terms from £3 3s. *Apply to the Secretary or Lady Supt.*

Nottingham General Hospital.
(377 Beds.)

A HOUSE SURGEON (male) is required for the Ear, Nose, and Throat Department (40 beds). The appointment is for six months, with salary at the rate of £150 a year, with board, residence, and laundry.

Candidates are desired to send applications giving age, experience, and qualifications, together with copies of testimonials, to the undersigned not later than Wednesday, July 17th.

The appointment will be made on July 24th, and the successful candidate will be expected to commence duty on Saturday, July 27th.

P. M. MACCOLL,
House Governor and Secretary.

Nottingham General Hospital.
(377 Beds.)

A HOUSE SURGEON (male) is required at the above Institution. The appointment is for six months, with salary at the rate of £150 a year, with board, residence, and laundry.

Candidates are desired to send applications giving age, experience, and qualifications, together with copies of testimonials, to the undersigned not later than Wednesday, July 17th.

The appointment will be made on July 24th, and the successful candidate will be expected to commence duty on Saturday, August 10th.

P. M. MACCOLL,
House Governor and Secretary.

Royal Victoria and West Hants
HOSPITAL, BOURNEMOUTH.
(Boscombe Branch—170 Beds.)

A HOUSE SURGEON (male, British nationality) required to commence duty about the end of July. Salary £120 per annum, with board, lodging, and washing. The appointment is tenable for six months, and candidates must be registered according to the provisions of the Medical Act.

Applications, stating place of birth, with copies of three testimonials, to be sent immediately to the undersigned. Women and married men are ineligible.

GORDON M. SAUL, Secretary.

June 21st, 1929.

City of London Hospital for
DISEASES OF THE HEART AND LUNGS, Victoria Park, E.2.
(Bus, Tram, and Rail, Cambridge Heath, L. & N.E. Railway.)

The Committee invite applications for the post of ASSISTANT LARYNGOLOGIST.

Candidates must be Fellows of the Royal College of Surgeons of England. An honorarium is attached to the post. Applications, accompanied by copies of testimonials, should reach the Secretary at the Hospital not later than Monday, July 15th.

GEORGE WATTS, Secretary.

Napsbury Mental Hospital,
NAPSBURY, ST. ALBANS, HERTS.

COUNTY COUNCIL OF MIDDLESEX.

MALE *JUNIOR ASSISTANT MEDICAL* OFFICER required. Salary £485 per annum, rising by £10 per annum to £525. Deductions for board, lodging, washing, and attendance, £120 per annum. *Appointment is subject to* the Asylum Officers Superannuation Act, 1909. Applications, with copies of testimonials, to the Medical Superintendent.

St. Mary's Hospitals, Manchester.

Two HOUSE SURGEONS for the Whitworth Street West Hospital (Maternity), and two for the Whitworth Park Hospital (one Children's Department and one Gynæcological Department), each for a period of six months from August 1st next. Salaries at the rate of £50 per annum, with board and residence. Application, with copies of three testimonials, to be sent to the undersigned on or before July 10th.

R. RATCLIFFE, Secretary.

London Homœopathic Hospital,
(Incorporated by Royal Charter)
Great Ormond Street and Queen Square, Bloomsbury, W.C.1.
(172 Beds.)

The Board of Management are prepared to receive applications for the following appointment:

ASSISTANT SURGEON TO THE HOSPITAL.

The successful candidate must be, or become within a limited period, a Fellow of one of the *Royal Colleges of Surgeons, and be,* or become, a Member of the British Homœopathic Society.

Any candidates canvassing the Members of the Board, Medical Council, or Medical Committee *are thereby disqualified.*

Candidates will be required to attend a meeting of the Medical Committee.

Applications, stating age, with 35 copies of application and 35 copies of *each testimonial,* should be sent immediately, addressed to the Secretary of the Hospital, of whom further particulars may be obtained.

EDWARD A. ATTWOOD,
June, 1929. Secretary.

London Homœopathic Hospital,
(Incorporated by Royal Charter)
Great Ormond Street and Queen Square, Bloomsbury, W.C.1.
(172 Beds.)

The Board of Management are prepared to receive applications for the following appointment:

SURGEON IN CHARGE OF THE MECHANO-THERAPY AND ORTHOPÆDIC DEPT.

The successful candidate must be, or become within a limited period, a Fellow of one of the Royal Colleges of Surgeons, and be, or become, a Member of the British Homœopathic Society.

Any candidates canvassing the Members of the Board, Medical Council, or Medical Committee are thereby disqualified.

Candidates may be required to attend a *meeting of the Medical Committee.*

Applications, stating age, with 35 copies of application and 35 copies of each testimonial, should be sent addressed to the Secretary, of whom *further particulars may be obtained.*

EDWARD A. ATTWOOD,
June, 1929. Secretary.

London Homœopathic Hospital,
(Incorporated by Royal Charter)
Great Ormond Street and Queen Square, Bloomsbury, W.C.1.
(172 Beds.)

The Board of Management are prepared to receive applications for the post of ANÆSTHETIST.

To attend on Tuesday afternoon and Thursday morning. Honorarium £50 per annum. The appointment is *made for one year,* then subject to re-election.

Candidates must possess a registrable qualification, and produce evidence of recent training in *the administration of anæsthetics.*

Candidates will be required to attend a meeting of the Medical Committee.

Applications, stating age, with 35 copies of *application and 35 copies of each testimonial,* should be addressed to the Secretary of the Hospital, of whom further particulars may be obtained.

EDWARD A. ATTWOOD,
June, 1929. Secretary.

Royal Sussex County Hospital,
BRIGHTON.
(225 Beds.)

HOUSE SURGEON (male) required about the middle of August, with charge of beds, part casualties, and anæsthetics.

Salary £150 per annum, with board, residence, and laundry.

Candidates must hold Medical and Surgical qualifications of the British Empire, and be duly registered under the Medical Acts.

They must be unmarried, and when elected under 30 years of age. Applications, with copies of testimonials, should be sent immediately to the undersigned.

L. L. W. LANCASTER-GAYE,
Secretary-Superintendent.

West London Hospital,
Hammersmith Road, W.6. (225 Beds.)

Required, one AURAL AND OPHTHALMIC HOUSE SURGEON AND RESIDENT ASSISTANT CASUALTY OFFICER (male). This appointment is tenable for a period of not less than five months from August 1st next, subject to one *month's notice on either side.* Salary at the rate of £100 per annum, with board, lodging, and laundry allowance. Candidates must be registered under the Medical Act.

Applications (which must be made on printed forms obtained from me) must reach me not later than first post on July 19th. Candidates must call upon such members of the Medical *Staff as directed,* and attend a meeting of the Medical Council at 4 p.m. on Friday, July 26th, and the House Committee meeting at 4.45 p.m. the same day, when the appointment will be made.

H. A. MADGE, Secretary.

West Herts Hospital,
HEMEL HEMPSTEAD.
(110 Beds. 24 miles from Euston.)

Applications are invited for the appointment of a SENIOR RESIDENT MEDICAL OFFICER, to commence duties on August 1st next. Salary £150, with rooms, board, and laundry.

Also a JUNIOR RESIDENT MEDICAL OFFICER, to commence duties on or about August 1st next. Salary £100, etc.

Preference will be given to male candidates.

Particulars to be obtained of, and applications, stating essential particulars, and enclosing copies of recent testimonials, to be sent at once to

ROBT. L. BUTTERFIELD,
Clerk to the Hospital.

West Herts Hospital,
HEMEL HEMPSTEAD.
(110 Beds. 24 miles from Euston.)

Applications are invited for the appointment of a JUNIOR RESIDENT MEDICAL OFFICER, to commence duties on or about August 1st next. Salary £100, with rooms, board, and laundry.

Preference will be given to male candidates.

Particulars to be obtained of, and applications, stating essential particulars, and enclosing copies of recent testimonials, to be sent at once to

ROBT. L. BUTTERFIELD,
Clerk to the Hospital.

West End Hospital for Nervous
DISEASES.
(In-Patient Dept., Gloucester Gate, Regent's Park, N.W.1.)

The Committee of Management invites applications from British male candidates for the vacancy of JUNIOR HOUSE PHYSICIAN, *to start duty August 1st. Salary £100, with* board, residence, and laundry. Appointment in first instance for six months. Applications, with copies of three testimonials, must be received by the undersigned not later than July 22nd.

J. P. WETENHALL, Secretary.
73, Welbeck Street, W.1.

Westminster General Dispen-
SARY, 9, Gerrard Street, W.1.

There is a vacancy for a RESIDENT MEDICAL OFFICER (male and unmarried) at the above [illegible] £150 with rooms, coal, [illegible] board. [illegible] monials, should be [illegible], who will give full particulars.

Selected candidates will be required to attend the Committee on Thursday, July 25th, at 11.30 a.m.

(Miss) D. DAWKINS.

Birmingham and Midland
HOMŒOPATHIC HOSPITAL AND DISPENSARY, EASY ROW, BIRMINGHAM.

A vacancy occurs for the post of HOUSE SURGEON at the above Hospital on August 1st. Salary £150, with boa[illegible] residence and laundry.

Applications, statin[illegible] accompanied by three[illegible] be sent to the Secretar[illegible]

Devonshire Hospital, Buxton,
DERBYSHIRE. (500 Beds.)
(A Special Hospital for Rheumatism and Allied Diseases.)

ASSISTANT HOUSE PHYSICIAN.

The Committee invite applications for this post. To commence duties August 1st. The successful candidate will be engaged for a period of not less than six months. The appointment is not open to ladies. Salary commencing £150 per annum, rising to £175 after three months' service, with furnished apartments, board (excepting stimulants), and laundry. Applications, with copies of three recent testimonials, endorsed "Assistant House Physician," to be sent in at once. The Medical Staff consists of eight Honorary Physicians, an Honorary Surgeon, a Bacteriologist, a Radiologist, a Biochemist, and two Resident House Physicians. The Hospital contains a Pathological Laboratory, and X-ray Department. This appointment offers special facilities for anyone preparing a thesis or wishing to do research work.

Canvassing will disqualify.

By Order,
TOM B. HARRISON,
General Superintendent and Secretary.

North Staffordshire Royal
INFIRMARY, STOKE-ON-TRENT.
(350 Beds.)

The General Committee invite applications for the post of HOUSE SURGEON for Ophthalmic and Aural Departments. Salary £150 per annum, with board, residence, and laundry. The appointment will be for six months, renewable.

Applications to be sent to the undersigned immediately, together with two or three copies of recent testimonials. Preference will be given to candidates having had previous Hospital experience in Ophthalmic and Aural Departments. There are six residents—two medical, four surgical.

North Staffs Royal Infirmary, Stoke-on-Trent. W. STEVENSON, Secretary and House Governor.

North Staffordshire Royal
INFIRMARY, STOKE-ON-TRENT.
(350 Beds.)

The General Committee invite applications for the post of HOUSE SURGEON. Salary £150 per annum, with board, residence, and laundry. The appointment will be for a period of twelve months. Applications to be sent to the undersigned immediately, together with copies of two or three recent testimonials. Preference will be given to candidates having had previous Hospital experience. There are six residents—two medical, four surgical.

North Staffs Royal Infirmary, Stoke-on-Trent. W. STEVENSON, Secretary and House Governor.

Hereford County and City
MENTAL HOSPITAL.

Wanted, a SECOND ASSISTANT MEDICAL OFFICER (male, unmarried), not exceeding 40 years of age, doubly qualified, and registered under the Medical Act. Salary £350 per annum, with board, furnished apartments, laundry, etc.

The appointment is subject to the provisions of the Asylums Officers Superannuation Act, 1909.

Applications, with copies of not more than three recent testimonials, to be sent to the Medical Superintendent, County and City Mental Hospital, Burghill, Hereford.

Hospital for Consumption and
DISEASES OF THE CHEST,
Brompton, S.W.3.

The Committee of Management invite applications for the post of HOUSE PHYSICIAN (for which there are three vacancies). The duties include work in the Out-patient Department as well as in the Wards.

Applications, with copies of testimonials, must reach the undersigned not later than Saturday July 13th.

The appointment is for six months, commencing on August 1st, with an honorarium of £50.

FREDERICK WOOD, Secretary.
Brompton, June, 1929.

General Hospital, Gt. Yarmouth.
(72 Beds.)

Applications are invited for the post of JUNIOR HOUSE SURGEON. Salary £100 per annum, with board, residence, and laundry. Candidates (male and unmarried) must be fully qualified and registered.

Applications, stating age, nationality, and qualifications, together with copies of three recent testimonials, to be sent immediately to the undersigned.

T. H. G. GARTLAND, Secretary.

BRITISH MEDICAL BUREAU
NORTHERN BRANCH.
(THE S. C. & M. ASSN., LTD.).
LATE THE
MANCHESTER MEDICAL AGENCY.

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MALE OR FEMALE.

TRAINED NURSES FOR MENTAL, MEDICAL, SURGICAL, AND FEVER CASES.

Nurses reside on the premises and are available for urgent calls Day or Night.

THE NURSES' ASSOCIATION
(In conjunction with the MALE NURSES' ASSOCIATION),
29, York St., Baker St., London, W.1.
Mrs. MILLICENT HICKS, *Supt.*
W. J. HICKS, *Secretary.*

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The oldest Agency in Manchester.
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ST. LUKE'S HOSPITAL.
FOR MENTAL DISORDERS.
Private Nursing Staff Department.
Trained Nurses for Mental and Nervous Cases can be had immediately.
Apply to Lady Superintendent, 19, Nottingham Place, London, W.1. Telephone: Mayfair 5420.
Northern Branch.—Apply, Lady Superintendent, 57, Clarendon Rd., Leeds. 'Phone: Leeds 26165

Liverpool Open-air Hospital for
CHILDREN, LEASOWE.
(260 Beds.)

SURGICAL TUBERCULOSIS AND ORTHOPAEDICS.

Vacant, the post of JUNIOR RESIDENT MEDICAL OFFICER. Salary £200, with residence, board, and laundry. Tenable for six months as Junior and a further six months as *Senior Resident*.

Applications, with copies of testimonials, to be sent to the Senior Medical Officer not later than Saturday, July 6th.

National Hospital,
Queen Square, W.C.1.

REGISTRAR.

Applications are invited for the post of Registrar. The salary is £200 a year. Applications, with recent testimonials, should reach the undersigned, from whom any further particulars may be obtained, on or before Friday, July 12th.

GODFREY H. HAMILTON, Secretary.

THE CLOSEST AND LEADING MEDICAL AGENT

PERCIVAL TURNER, LTD.
(Established 50 years.)
4 & 5, ADAM ST., STRAND, W.C.2.
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Terms post free on application.

Norfolk Town.—Death Vacancy. About £1,300 p.a. Panel and appts. over £1,00 p.a. House and cottage £1,000.—No. 8502.

Hants.—£800 p.a. Panel about 900. Appts. £250 p.a. Good house, 6 bed., etc. Usual fees.—No. 8501.

N. Devon.—About £750 p.a. Panel 330. Appts. £30. Usual fees. Good house and garden, 5 bed., etc.—No. 8499.

Death Vacancy.—Essex Coast. About £650 p.a. Fees 5/- to 10/6. Panel 120, discouraged. Ample scope. House, 5 bed., garden, garage. Rent or sell.—No. 8496.

N.E. Coast.—Nearly £1,200 p.a. and chance of sev. appts. Fees 3/6 to 5/-. Panel 600. Compact PRACTICE. Good house, garden and garage, etc.—No. 8498.

Southampton. — Over £1500. Panel and appts. £858. Good house, 6 bed., etc., for sale. Good schools.—No. 8495.

Home County.—Over £700 p.a. Small residential town within 25 miles, South. Panel 462. Good fees. Large well-built house and garden.—No. 8494.

Cornwall. — Share £1,000 p.a. General mixed Practice. Panel nearly 2,400. House, 5 bed., etc., low rent.—No. 8495.

Berkshire. — About £700 p.a. General mixed Country PRACTICE. Panel about £287 p.a. Few mids. fees 2/6—7/6. Excellent house and garden.—No. 8490.

Cambridgeshire. — Nearly £600 p.a. Appts. and panel over £250 p.a. Visits 3/6 up. House, 7 bed., etc., good garden, to rent.—No. 8487.

London, S.E.—About £800 p.a. Visits 2/6. Panel over 700. Small house, rent £50 p.a.—No. 8486.

Lancs.—1/3 or 1/2 share of over £2,400 after prelim. assistancy. Panel £500. Mixed class. Good house, with 4 bed., 2 attics, etc.—No. 8454.

Bucks.—About £2,800 p.a. 1/2 share. Appts. £200 p.a. Panel over 1,900. Visits 3/6—10/6. Mids. 2—5 gns. House, 4 bed., to rent. Prem. 1½ yrs.—No. 8483.

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(FOUNDED 1880.)

12, Stratford Place, Oxford Street, W.1.

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5 SOUTH COAST.—Seaside Resort. Non-dispensing PRACTICE about £630 p.a. Small panel. House (5 bedrooms) to let. Premium £1,100. Scope for increase

6 SOUTH COAST.—Non-dispensing Practice averaging £1,332 p.a in favourite Watering Place. No panel. House at nominal rent Scope. Premium 1½ years' purchase.

7 LONDON, N.—Practice averaging £636 p.a. in densely populated Suburb. No panel. Corner house containing 10 rooms to be sold or let. Plenty of scope. Premium £750 cash.

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12 YORKSHIRE (N.R.).—Practice of about £1,000 in small Country Town. Panel 430. House (5 bedrooms) to be let or sold. Sport. Scope. Premium £1,250.

13 S.E. COAST. — Non-dispensing Practice averaging nearly £1,850 in Health Resort. No panel. Detached house (7 bed and dressing rooms) and good garden, to be sold or let. Premium 1½ years' purchase.

14 N. OF ENGLAND.—Partnership in Practice about £1,830 p.a. in important City. Panel 1,600. Premium two-fifths share 1½ years' purchase. Partner must be young and well qualified.

15 SOUTH OF ENGLAND.—Partnership in Practice £2,250 p.a. in beautifully situated Country Town within 100 miles of London. Panel under 1,000. Suitable accommodation. One-third share at 2 years' purchase.

16 MIDLANDS.—Practice in attractive Agricultural District. Receipts 1928, £1,280, Panel nearly 900. Commodious house (5 bedrooms), with beautiful garden and paddock, to rent. Premium £1,850.

17 HOME COUNTY. — Practice averaging about £800 p.a. in beautiful Country District, near the Coast. Panel 600. House (about 4 bedrooms) to rent. Good scope. Premium 1½ years' purchase.

18 LONDON, S.W.—Practice of about £1,000 p.a. in pleasant Suburban District. Panel over 1,100. House (5 bedrooms) with nice garden to rent Premium 1½ years' purchase.

19 SOUTH AFRICA.—Old-established PRACTICE in one of the pleasantest towns, with beautiful climate, in the Cape Province. Receipts average £2,900 p.a. House (4 bedrooms) to rent. Purchaser should be able to do major surgery. Premium £2,500.

20 SHEFFIELD. — Non-dispensing Practice about £800 (including two appointments worth £155 p.a.). No panel. Conveniently situated house (6 bedrooms). Premium, Practice and house, £2,000.

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21 NORTHUMBERLAND.—Death Vacancy.—Seaside Practice of £1,300 p.a., including panel 1,100. Excellent prospects of increase. House (2 reception, 4 bedrooms) for sale.

22 HOME COUNTY.—Third Partner (young, well qualified) required in Country Practice averaging £4,550 p.a. in first-rate residential district under 50 miles from London. Panel about 1,000. One-fifth share at 2 years' purchase.

23 INLAND SPA.—Partnership in non-dispensing Practice over £5,100 p.a. Small select panel. House (6 bedrooms) to rent. Partner should be an Obstetrician, and there is scope for gynæcology. Premium five-twelfths share 2 years' purchase.

24 SUFFOLK. — Country Practice nearly £1,100 p.a. in agricultural district. Panel 530. Modernized house (6 bedrooms), with electric light, inside sanitation, and large garden, for sale. Sport. Premium £1,500.

25 SOUTH OF ENGLAND.—Seaport Town. PRACTICE doing £800 p.a., including appointments over £225 p.a., and panel nearly 1,000. Good house (6 bedrooms) for sale. Premium 1½ years' purchase.

26 N.W. OF ENGLAND. — Partnership in Practice about £2,000 p.a. in popular seaside resort. Small panel. Desirable modern residence (4 bedrooms) to rent. Premium one-half share 1½ years' purchase.

27 CARDIFF. — Non-dispensing Practice averaging £1,543 p.a. Small panel. Pleasantly situated house (5 bedrooms). Premium £2,000.

28 DERBYSHIRE.—Country Practice about £1,250 p.a. in beautiful district, easy distance of first-rate town. Panel 675. Small house to rent. Cottage Hospital. Premium 1½ years' purchase.

29 YORKSHIRE (W.R.).—Practice £1,380 p.a. in industrial district near important town. Panel 940. House (4 bedrooms) to rent. Premium £2,100.

30 EAR, NOSE, AND THROAT Practice of nearly £3,200 p.a. in Health Resort.

31 N. LONDON.—Steadily growing "Lock-up" Cash PRACTICE on main road. Receipts last 12 months £720. Panel 539. Shop-fronted premises to rent. Prem. £850.

32 S.W. OF ENGLAND.—Partnership in an old-established Practice of £5,000 p.a. in one of the chief towns. Panel 2,397. House (5 bedrooms) to rent. One-fifth share 2 yrs.' purchase.

33 LONDON, W. — Partnership in non-dispensing Practice about £2,500 p.a. No panel or appointments. One-third share with view to ultimate succession. Premium 2 years' purchase.

34 SOUTH MIDLANDS. — Partnership in Country Practice of £6,300 p.a. in residential and agricultural district. Panel over 2,200. Suitable house for sale. Hospital. Partner should be 28 to 30 and have held House appointment. Premium one-fifth share £2,510.

35 LONDON, N.—Partnership in well-estab. middle-class Practice, nearly £2,750 p.a., in pleasant outlying suburb. Panel about 800. Suitable accommodation to rent. Premium one-third share 2 years' purchase.

36 MIDLANDS. — Partnership (after preliminary assistantship) in good mixed Practice worth £4,000 p.a. in country town. Panel 3,600. House to rent. Hospital and scope for surgery. Partner should be keen on his work and have held H.S. and H.P. appointments. One-third share at 2 years' purchase.

37 YORKSHIRE (W.R.). — Practice averaging nearly £1,350 p.a. in manufacturing town. Panel 995. Detached house (4 bedrooms) for sale. Premium £2,000.

38 CARMARTHENSHIRE. — Steadily increasing PRACTICE of £800 in small country town. Panel 645. Small house (3 bedrooms) to rent. Premium 1½ years' purchase.

39 SOUTH OF ENGLAND.—Partnership in non-dispensing Practice £4,200 p.a. in attractive watering-place. Panel about 1,500. Incoming Partner must be F.R.C.S.Eng. or Edin., or M.D.Lond., Oxon., or Camb. One-fourth share at 2 years' purchase. (Preliminary assistantship.)

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41 ITALY.—Season (March to October) PRACTICE in famous city. Receipts average £563 p.a. No midwifery or night work. Up-to-date Hospital. Premium £563.

42 BUCKS.—Practice about £800 in small country town. Panel 741. Nice detached house (4 bedrooms), garden and garage, to rent. Premium £1,200.

43 KENT. — Practice averaging £1,030 p.a. (appts. and panel over £300) in beautiful country district. Convenient house (6 bedrooms) for sale. Premium, Practice, £1,500.

44 N.W. COAST. — Partnership in Practice over £3,000 in first-rate residential seaside town. Panel 450. Suitable house to rent. One-half share for sale (one-third first year) at 1½ years' purchase.

45 EAST ANGLIA.—Country Practice about £1,470 p.a., easy reach of important town. Panel about 1,000. Nice house (10 bed and dressing rooms), with electric light, etc., for sale. Premium 1½ years' purchase.

46 DEATH VACANCY.—DEVON.—Country PRACTICE. Receipts, 1928, £1,266. Panel about 700. Modern house (7 bed and dressing rooms) in grounds of 2 acres. Price of house £3,000.

47 S.E. COAST.—Practice averaging £1,127 p.a. in favourite resort. No panel. Very good semi-detached house (6 bedrooms) for sale. Scope. Premium 1½ years' purchase

48 N. GLOUCESTERSHIRE. — Country PRACTICE in delightful part. Cash receipts £560. Panel 450. Modern house (6 bed and dressing rooms), with garden 1 acre, for sale. Premium—Practice—£750.

49 SUSSEX. — Small Country Practice in delightful part near coast. Receipts past 12 months £346. Picturesque house (3 bedrooms), with nice garden to be sold or let. Premium £350.

50 MIDLANDS. — Partnership in old-estab. Practice (entirely Skin work) in first-rate town. Earnings about £2,200 p.a. Suitable house for sale or rent. Premium one third share 2 years' purchase.

51 EAST COAST. — Partnership in Practice £2,800 p.a. in popular watering-place. No panel. House to rent. One-third share at 2 years' purchase. Partner must have some knowledge of Ear, Nose, and Throat work.

52 YORKSHIRE (W.R.). — Partnership in Practice about £2,600 in one of the chief towns. Panel over 900. Partner should be a Protestant. One-third share at 1½ years' purchase after preliminary assistantship.

53 S.W. of ENGLAND.—Partnership in Practice about £3,000 in market town. Panel 1,100/1,200. Detached house (5 bed and dressing rooms), in 3/4 acre garden, for sale. Premium one-half share 2 years' purchase.

54 HOME COUNTIES.—Practice about £1,000 p.a., with great scope, in beautiful country district under 35 miles from London. House (6 bedrooms) to rent. Prem. 1½ yrs.' pur.

55 SOUTH AFRICA. — Compact unopposed Village PRACTICE of about £1,000 p.a., in attractive part of Cape Colony. Exceptional house (4 bedrooms) and about 2 acres ground. Price £1,000. Excellent climate. Premium £500.

56 HOME COUNTIES. — Country Practice about £425, in beautiful part about 40 miles from London. Small panel. House and about 50 acres farm land. Price, Practice, House, Farm, etc., £4,250.

57 LONDON S.E. — Practice about £800 in populous district. Panel 800. No midwifery. House (3 bedrooms) to rent. Premium 1½ years' purchase.

58 SUSSEX.—Partnership in Country Practice, £2,750, in residential district (appointments and panel about £1,000) Good house (5 bedrooms and 3 attics) with large garden. To rent. One-half share at 2 years' purchase.

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2. SURREY.—HOSPITAL TOWN. [illegible] fourth share (to commence) in an old-establi[illegible] average gross cash receipts £4,400, including [illegible] worth £600 p.a. Fees 3/5 to 21/-. Suitable house can be obtained. Premium 2 years' purchase. Purchaser should be about 30 years of age and a good surgeon.
3. SOUTH-WEST COUNTY.—PARTNERSHIP.—Good residential district, near large town.—A one-fourth or one-third share (with increase up to one-half later) is for disposal in an old-established and steadily increasing Practice. Average gross cash receipts for past three years over £3,000, of which £900 is from panel and about £100 from appts. Fees 3/6 to 42/-. Cottage Hospital and good scope for surgery. Choice of two houses. Premium 2 years' purchase.
4. NEAR BATH.—Old-established unopposed country PRACTICE, held by Vendor 10 years, and situated in an attractive district within easy reach of two good towns. Cash receipts for 1928 £656, and this year at rate of £700. Panel of over 500. Fees 2/6 to 12/6. Large house with 6 bedrooms, etc., and an acre of garden and paddock. Price for freehold £1,200. Premium £900.
5. DEATH VACANCY.—EAST COAST.—In a thriving Seaport and Hospital Town, an old-established good middle-class PRACTICE, the gross cash receipts of which have averaged for the past three years £1,180, including panel of 1,520. Suitable house in central position, with 2 reception, 4 bedrooms, usual offices, and professional rooms. Electric light. Garden. Can be rented on lease at £50 p.a. Efficient locum in charge. Premium 1½ years' purchase, or near offer.
6. EAST COAST.—SEAPORT TOWN.—Old-established middle and working class PRACTICE. Average cash receipts for the past three years £1,835, including panel of over 1,000. Fees 2/6 to 10/6. Midwifery has been discouraged, but much can be had at fees from 5 gns. upwards. Good house with 2 reception, 5 bedrooms, etc. Electric light. Small garden. Price for freehold £1,350, part on mortgage. Premium 1½ years' purchase, part by instals. Ill health reason for sale.
7. WEST END.—Good-class non-panel and non-dispensing PRACTICE, established many years. Average cash receipts for past three years nearly £1,400. Fees one guinea. Suitable accommodation available. Premium £2,000. Good introduction. Ill health reason for sale.
8. SOUTHAMPTON.—Old-established mixed-class PRACTICE. Average gross cash receipts for past 3 years £1,535, including panel and appts. worth about £850. Visits 3/6 to 10/6. Practically no midwifery. Exceptionally nice house, with ample accommodation and garden. Price £2,000. Premium 1½ years' purchase.
9. SOUTH CORNWALL.—COAST TOWN.—PARTNERSHIP.—A one-fifth share in an old-established Practice, producing about £5,000 p.a., including panel of nearly 2,400. Very good house, with 2 reception, 5 bedrooms, etc., and usual offices. Rent on lease £45 p.a. Well-equipped Hospital. Premium 2 years' purchase.
10. LONDON, S.W.—A HALF SHARE in a well-established Practice, the gross cash receipts of which for the past three years averaged £2,466. Panel of 1,250. Fees 3/6 upwards. Midwifery from 5 gns.; about 30-40 cases yearly. Suitable accommodation available. Premium 2 years' purchase.
11. SOUTH COAST. — Popular and Favourite Watering-place.—Old-established increasing mixed-class PRACTICE, producing last year nearly £1,600 (this year to end of May £880), including panel of over 1,150. Visits 3/6 upwards. Mids. from 4 gns. (30 cases yearly). House contains eight rooms, with usual offices and garden. Price for freehold £1,450 (£1,000 at least obtained on mortgage). Held by Vendor over 9 years.
12. EAST COAST.—Popular Resort.—Old-established non-panel better and middle-class PRACTICE, offering excellent scope. There is a Hospital with over 80 beds. Average cash receipts for the past three years £2,400. Fees 3/6 to 10/6 and upwards. Very little mid. Very good private residence near sea, with ample accommodation. This need not be taken, as purchaser could reside at suitable central surgery premises. Premium for prompt sale, owing ill health, only £1,500.
13. YORKS.—PROSPEROUS I[illegible] compact PRACTICE, averaging nea[illegible] of 1,400. Fees 3/- upwards. Not m[illegible] Very well-situated double-fronted hou[illegible], etc., and good professional rooms. [illegible]r freehold £1,500, of which £1,000 [illegible] remium 1½ years' purchase.
14. PARTNERSHIP.—SOUTH-WESTERN COUNTY.—In a large seaport town the THIRD SHARE (to commence with) of an old-established mixed-class Practice averaging £3,200 p.a., including panel of over 2,000, is offered. Visits 3/6 to 10/6. Midwifery discouraged; about 30 cases yearly at 3 gns. upwards. Expenses light. Suitable residence available. Premium 2 years' purchase.
15. EAST COAST.—ASSISTANTSHIP with view to PARTNERSHIP.—A one-third share in a very sound mixed-class Practice, producing £2,300 p.a., and offering excellent scope. Panel of about 1,000, and good appointments. Choice of houses. Premium 2 years' purchase.
16. EASTERN COUNTIES. — Unopposed Country PRACTICE, easily worked, and situated in beautiful district, near two good towns. Average cash receipts for past three years £1,064, including panel of 530. Nice house, with 3 reception, 6 bedrooms, etc. Price for freehold £2,000. Premium £1,500.
17. EASTERN SUBURB.—PARTNERSHIP, with succession.—A half-share in an old-established Practice averaging over £1,100 p.a., including panel of 1,145. No midwifery, but scope for this. Suitable house, with electric light and garden. Price £800. Premium 2 years' pur.
18. MANCHESTER.—PRACTICE is situated in a growing district offering very good scope. Income for the immediate past 12 months over £1,600, including panel of nearly 900. Fees 3/6 upwards. Detached well-situated house, with 3 reception, 5 bedrooms, etc. Can be rented on lease at £110 p.a. Premium 1½ years' purchase.
19. LONDON.—E[illegible]sh and panel PRACTICE producing £450 patients. Visits 3/- upwards. Very little [illegible] house on lease. Rent £78, inclusive of rates and taxes. Premium £650.
20. WITHIN 50 MILES OF LONDON.—In a small Country Town, in pretty district, a well-established increasing PRACTICE, worth last year over £800, including panel of 525, and appts. about £60. Visits 3/6 to 21/-, medicine extra. Midwifery discouraged. Railway station in place. Very good house (3 reception, 5 bedrooms, etc.), with large garden. Tennis court. Garage. Electric light. Price for freehold £3,100. Premium 1½ years' purchase. Exceptionally good educational facilities for boys.
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22. GLOS.—LARGE TOWN.—PARTNERSHIP.—A well-qualified experienced gentleman (aged about 40, married, and good at Gynaecology) is required to purchase the half share of an old-established good-class non-dispensing Practice owing to the retirement through ill health of the senior partner. Income about £5,000, including small select panel. Suitable house available, with ample accommodation, at low rental. Premium 2 years' purchase, part by instalments.
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25. SOUTH LONDON (Near CROYDON).—Sound and increasing mixed-class PRACTICE, in growing locality. Gross cash receipts for immediate past 12 months £2,800, including panel of 2,240. Fees 2/6 to 7/6. Convenient freehold house, with electric light. Garage. Garden. Good sport and schools. Premium £4,500. Efficient introd.
26. PARTNERSHIP, with ultimate succession.—SOUTH-WEST LONDON.—A third or half share, to commence with, in an old-established good mixed non-panel Practice, offering large scope. Receipts for last year nearly £2,300. Fees 2/6 to 7/6. Little midwifery. Good house, with garden. Can be obtained on long lease at the very moderate rent of £55 p.a. Premium 2 years' purchase.
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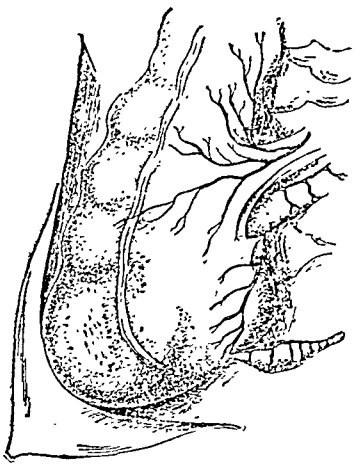

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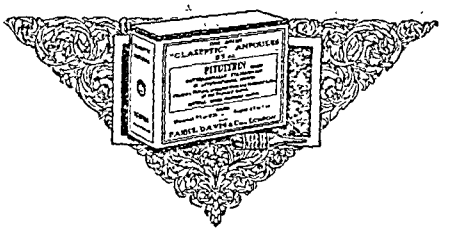

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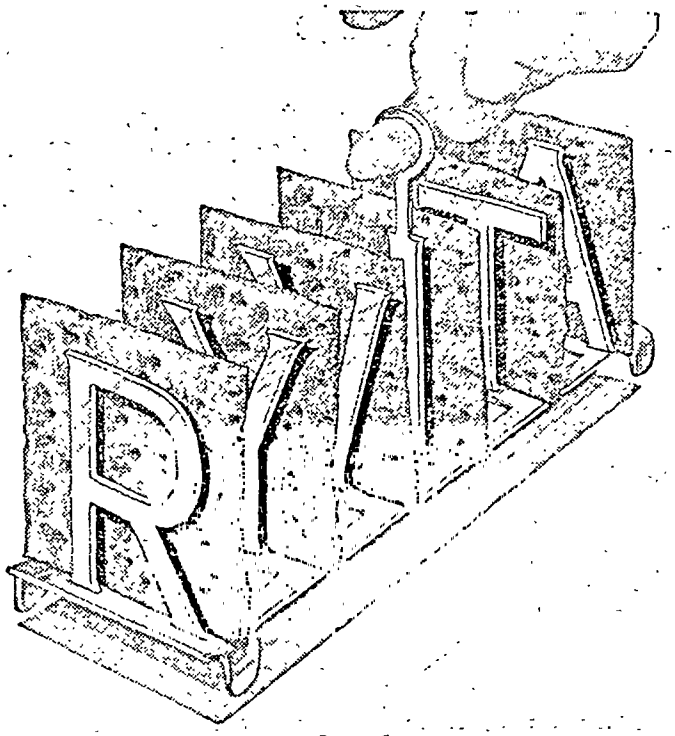

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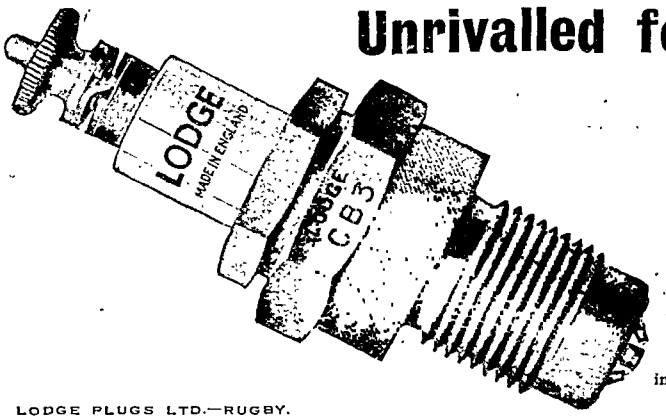

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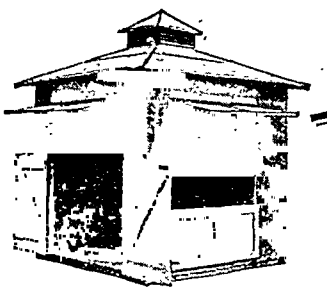

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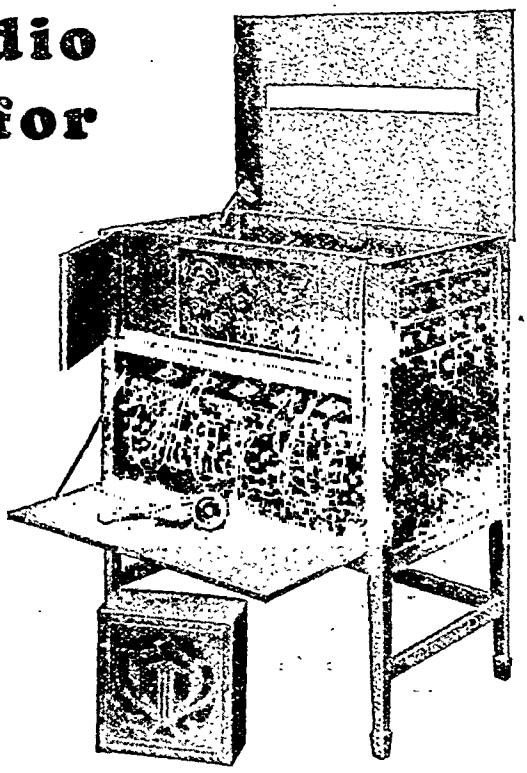

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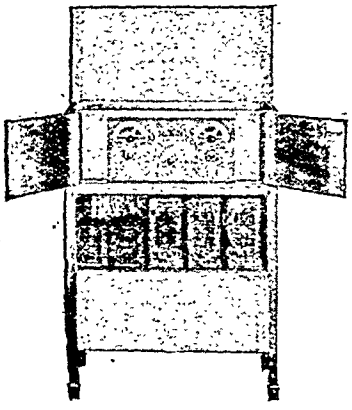

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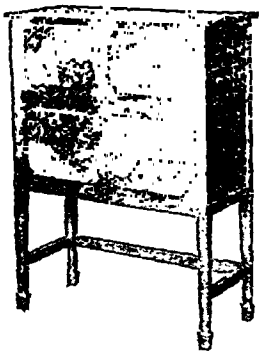

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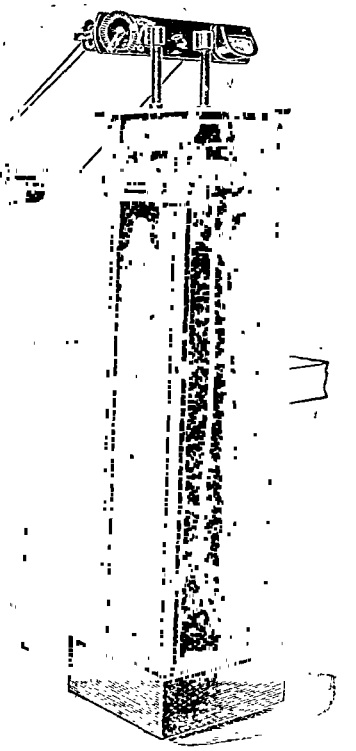

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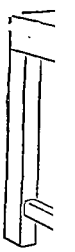

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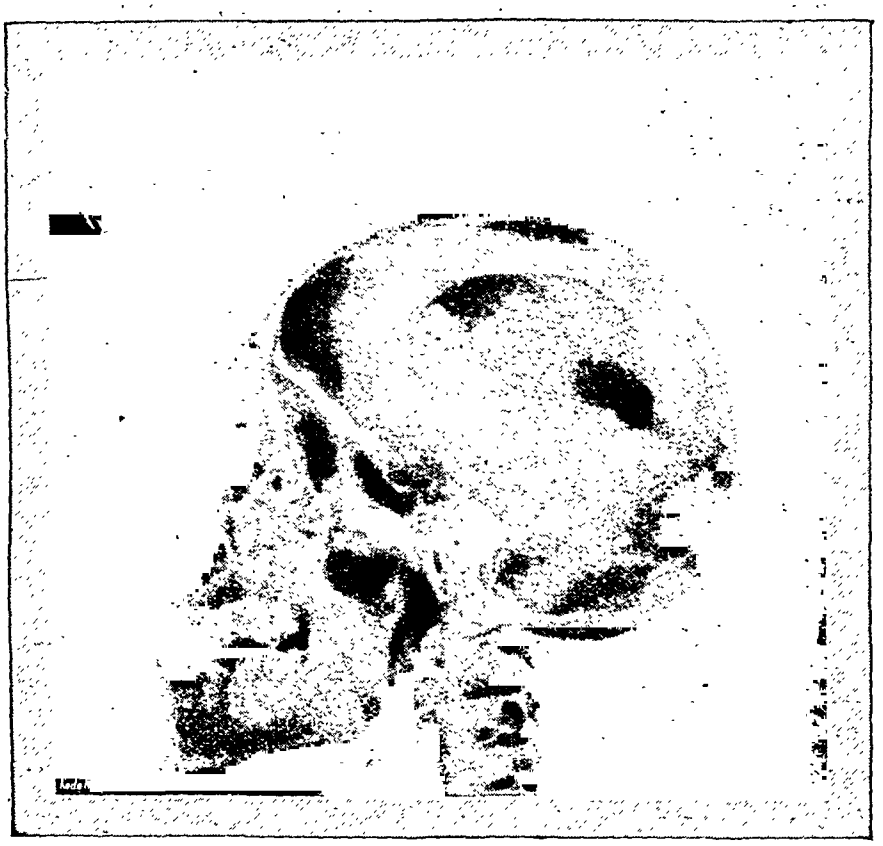

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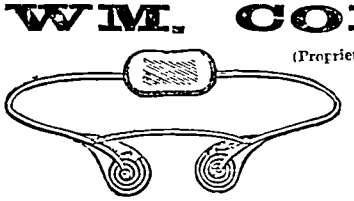

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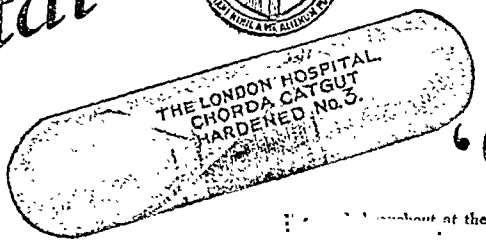

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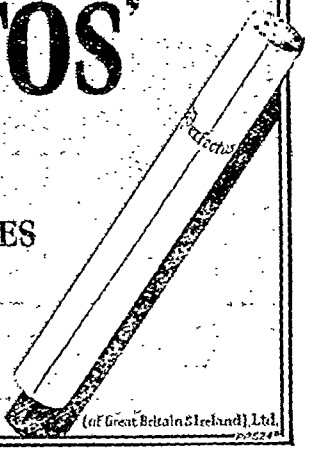

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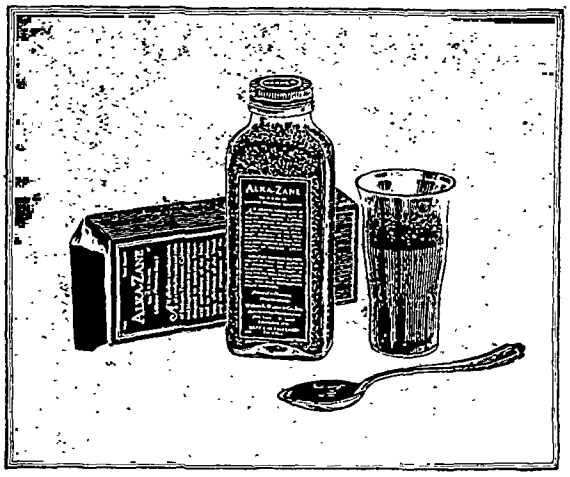

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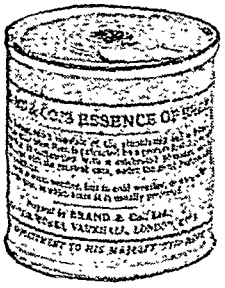

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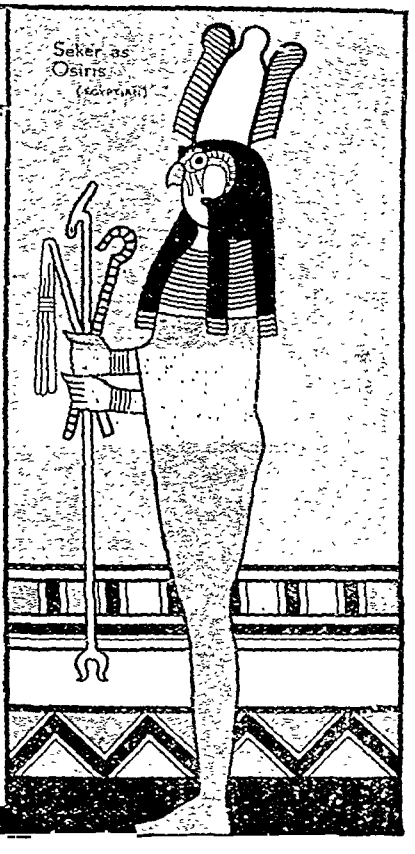

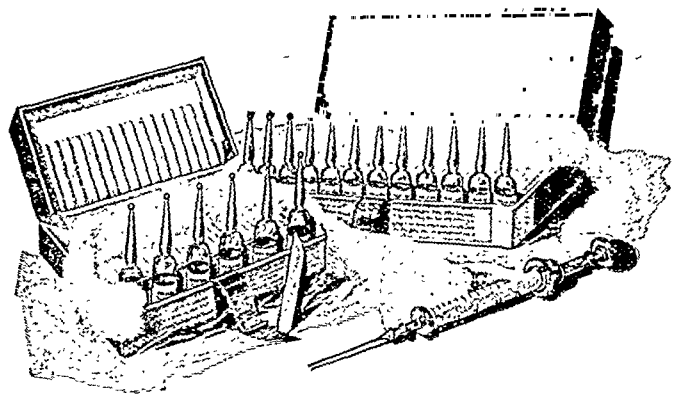

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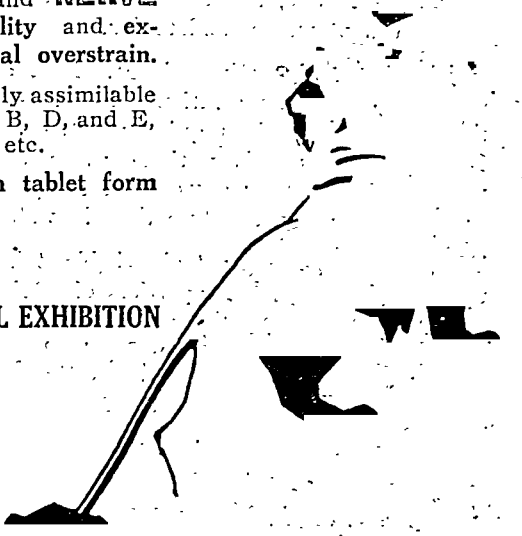

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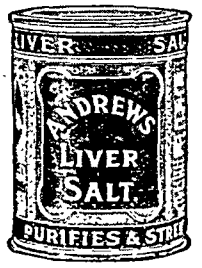

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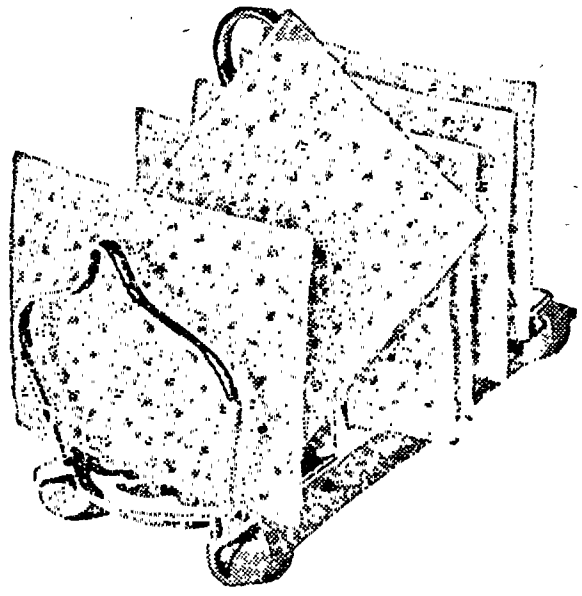

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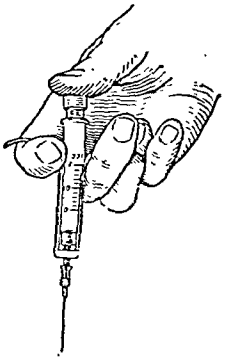

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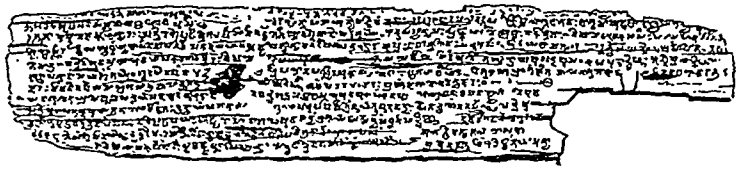

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Remarks
ON
THE GALL-BLADDER IN RELATION TO FOCAL INFECTION.*

BY
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GALL-BLADDER disease commands our attention from three aspects—namely: (1) As a cause of recurrent attacks of acute abdominal pain. (2) As a cause of persistent reflex flatulent dyspepsia. (3) As a focus from which infection spreads to various organs and tissues throughout the body.

With biliary colic and with gall-bladder dyspepsia we are all thoroughly familiar, and I do not propose to touch on these subjects, nor will I refer to complications such as obstructive jaundice and pancreatitis. Our concern to-day will be entirely with the infective aspect of gall-bladder disease and its relation to certain common ailments of obscure etiology.

The importance of the study of the "pathology of the living," which Moynihan has done so much to emphasize, is seen nowhere to such advantage as in the investigation of biliary disease. Post-mortem pathology taught us practically nothing in regard to the essential features of infection of the biliary passages. The gall-bladder is the organ above all others which suffers from early post-mortem changes which mask all the finer pathological features. Indeed, the frequency with which gall-stones were found at post-mortem examination tended to obscure the significance of gall-bladder disease and its relation to other morbid changes

To surgery belongs the credit of disclosing the frequency of gall-bladder infection and of defining its essential characters. The study of the early stages of cholecystitis in the operating theatre and clinical laboratory has proved a fruitful field of observation during recent years, and the correlation of this study with experimental research has led to results which are fundamental in their bearing on pathology. The practice of extirpating the gall-bladder when it has shown clear evidence of disease has provided an experiment the results of which have been illuminating, and we are now in a position to speak with some assurance regarding the role which this organ plays as a seat of focal infection. We now know that gall-bladder infection, far from being merely the result of the straying of bacteria into its lumen by way of the bile, as was so long believed and taught, is a very definite specific blood-borne infection of the wall of the organ by a streptococcus which has a specific affinity for this tissue. This idea, which sprang from the pioneer work of Rosenow, has received ample confirmation in the Surgical Research Laboratory in Edinburgh, from the work of Illingworth, and of A. L. Wilkie. The latter was able to isolate a streptococcus from 84 out of 100 gall-bladders removed at operation for biliary disease. He showed that, whilst the bile was usually sterile, there could be isolated from the wall of the viscus, and still more readily from the cystic lymph gland, a streptococcus which had this peculiarity—that it was killed or its growth inhibited by the presence of bile. The customary method of making cultures from a snipping of the whole thickness of the gall-bladder wall had failed to obtain a growth because the mucous membrane, included in the section, had bile adhering to it.

Wilkie showed that intravenous injections of an emulsion of this streptococcus into rabbits produced with great regularity a chronic cholecystitis with gall-stone formation in every way similar to that found in the human subject. The *Streptococcus viridans*, which was isolated in these cases, resembled closely that found so frequently in pyorrhœa, in infected dead teeth, in chronic tonsillitis, in chronic gastric ulcer, in chronic appendicitis, and in the nodules in chronic muscular rheumatism. In a few cases, three or four in all, we have isolated *B. welchii* from the wall of the gall-bladder, and, although rare, this form of infection is peculiarly toxic, and in its acute phase may prove fatal. The *B. coli*, although not infrequently found in acute obstructive cholecystitis, has proved in our experience to be a rare type of infection in chronic gall-bladder disease.

The conception of chronic cholecystitis as a blood-borne streptococcal infection situated within the wall of the gall-bladder, indolent, slow, tenacious, causing at first little interference with the bile storage and concentrating functions of the organ, but permitting of streptococcal invasion of the lymph stream, as evidenced by the frequent presence of the organism in the cystic lymph gland and thence possibly infection of the blood stream—this conception, now a proven reality, establishes the important role which the gall-bladder may play as a focus of infection. There is now a considerable body of proof that a chronic streptococcal infection may have an intimate etiological relationship to many of the so-called chronic rheumatic conditions of joints and of fascial planes, to myocardial degeneration, to certain renal conditions, and to some affections of the central nervous system.

Possessed of the knowledge that the gall-bladder is very frequently the seat of a chronic streptococcal infection, it would seem to be only natural that we should search for evidence of gall-bladder disease when casting about for a focus of infection in our investigation of cases of any of the above-mentioned maladies. I propose to refer to some cases in which such an etiological relationship appeared to be possible and in which the removal of an infected gall-bladder was followed by a notable amelioration in the secondary lesion.

Chronic Arthritis.

Miss S., aged 32, had suffered for almost two years from a chronic rheumatic affection of both knees which did not yield to local treatment or anti-rheumatic remedies, and which incapacitated her from all forms of active exercise. She also suffered from a mild flatulent dyspepsia, and on two occasions during the past six months had had an attack of severe pain in the upper abdomen, accompanied by vomiting and diarrhœa, and by marked tenderness under the right costal margin.

On examination she looked healthy and was well nourished. Her knees were slightly swollen and were painful on movement. Definite tenderness was elicited over the gall-bladder. A cholecystogram showed a fairly well-defined gall-bladder shadow.

At operation, in January, 1928, the gall-bladder was found to be small, was slightly opaque, but not appreciably thickened. There were no gall-stones; the other abdominal organs showed no abnormality. The gall-bladder was removed and cultures were taken from the bile, from the gall-bladder wall, and from the cystic lymph gland. Those from the bile and gland were negative, that from the wall of the gall-bladder gave a pure growth of a streptococcus which, on injection into rabbits, produced cholecystitis.

Progress.—One year after operation the patient reported that within a few months of the operation the rheumatic condition of the knees had cleared up completely, and that she could skate and play badminton for hours on end without ill effect.

Comment.—The above case is one of a number in which so-called rheumatoid joint conditions have shown lasting improvement following cholecystectomy.

Toxic Myocarditis.

Mrs. A., aged 45, complained that for two and a half years she had suffered from increasing breathlessness and palpitation on slight exertion. She had been subject to persistent flatulence after meals for at least seven years, and on several occasions had been laid up with attacks of severe pain in the epigastric region and the right side of the chest, and had been treated for "congestion of the lungs" in two of these attacks. Owing to her inability to take exercise without distressing breathlessness she had got much stouter during the past year.

On examination the patient was rather stout, pale, and of poor muscular tone. Moderate exercise induced breathlessness and rapid heart action. There were no cardiac murmurs, but the heart sounds were feeble. There was very definite tenderness on pressure below the right costal margin. A cholecystogram showed a definite gall-bladder shadow with a few negative areas indicating calculi.

A diagnosis of cholecystitis with gall-stones and myocarditis was made and operation was recommended.

Operation (June, 1926).—Owing to the heart condition gas and oxygen and ether were chosen as anæsthetics. A greatly thickened gall-bladder, containing numerous calculi, was removed. A pure growth of a streptococcus was obtained from the wall of the gall-bladder; the bile was sterile. Apart from having a rapid pulse rate for several days following operation the patient made a

* Part of an address (with lantern demonstration) to the South Wales and Monmouthshire Branch at Porthcawl on May 16th, 1929.

satisfactory recovery, and on leaving hospital was instructed to take graduated exercises.

Progress.—Two and a half years later the patient reported, looking thinner, with a healthy complexion, and obviously in good physical condition. She stated that during the year following the operation she gradually increased her physical exercise and was now able to walk and to climb stairs without any of her former distress.

Comment.—The "cholecystitic heart," as it has been termed, is, in my experience, a very common condition. It would appear to result from chronic toxaemia, probably first a slight myocardial degeneration, later complicated by fatty infiltration owing to the patient's inability to take exercise without distress, and the consequent obesity so common in these cases. It is the myocardial change which presents the chief risk of operation in old-standing and neglected cases, and which makes acute infective complications, when they supervene, so dangerous.

Toxic Nephritis.

The following case, although standing by itself, was perhaps the most dramatic in the series, and the credit for the successful result rests with the physician who advised, rather than with the surgeon who, with considerable trepidation, carried out the operation.

Mrs. B., aged 63, had for some years suffered from a chronic flatulent dyspepsia. In August, 1927, she had an acute attack of obstructive cholecystitis with great pain and fever, associated with a large palpable gall-bladder. As this was subsiding she developed the signs of nephritis—namely, marked generalized oedema and urine loaded with albumin. This persisted week after week and had several distinctive features. The oedema would vary greatly, even in the course of one day. As a rule there was a state of complete generalized anasarca, the conjunctivae hanging out as oedematous sacs. Twenty-four hours later, without apparent reason, the oedema would be much less. The excretion of urea was normal, as was the blood urea. There were no retinal changes. It was thought that the nephritis, or perhaps more accurately the nephrosis, must be toxic in origin and the diseased gall-bladder the most likely focus.

When first seen by me in October, 1927, the patient showed complete anasarca, the abdominal wall was oedematous, the abdomen contained much free fluid, and the limbs were tense and shiny with oedema. The risk of operative intervention appeared to me to be unjustified, and an expectant attitude was advised. The renal condition, however, showed no signs of improvement, and on November 21st, 1927, operation was undertaken.

Operation.—Twilight sleep and local anaesthesia, supplemented by gas and oxygen, was used. A Kocher incision was made through the extremely oedematous abdominal wall. A considerable quantity of free fluid escaped from the abdomen on opening the peritoneum. A very large, inflamed, and greatly thickened gall-bladder was exposed and tapped, muco-pus being drawn off. The gall-bladder, which contained one stone blocking the neck, was removed. Owing to the great oedema of the retroperitoneal tissues palpation of the kidneys was impossible. From the cystic gland a pure growth of *Streptococcus viridans* was obtained, and emulsion of this injected into a rabbit produced typical cholecystitis. Cultures from the muco-purulent content of the gall-bladder gave no growth.

Progress.—The patient was upset but little by the operation; within a week the oedema was seen to be disappearing rapidly and the albumin in the urine was diminishing. At the end of a month all oedema had gone and but a trace of albumin remained. Three months after operation the patient had resumed her normal life, and now, eighteen months after, she is enjoying better health than for many years past.

Comment.—This most striking case of immediate recovery in a waterlogged patient on removal of an infected gall-bladder confirmed our opinion that focal infection in this viscus has wide clinical bearings.

Toxic Hepatic Cirrhosis.

It has been held by many that an infective hepatitis may be the precursor of cholecystitis, the gall-bladder being infected through the lymphatics which reach it from the liver. The experiments of A. L. Wilkie showed that this is probably not the case. On the other hand, an infected gall-bladder usually leads to a local hepatitis, and may, as in the following case, have an etiological bearing in a true general hepatic cirrhosis.

Mr. A., aged 62, complained of flatulent dyspepsia, occasional attacks of dull pain in the region of the liver, of lassitude, loss of energy, and shortness of breath. He was not a heavy drinker, but had taken alcohol in strict moderation.

On examination he was seen to be of a high colour with a slightly cyanotic tint. The conjunctivae showed a definite icteric tinge. The liver was enlarged, its lower border being readily palpable one and a half inches below the right costal margin. There was very definite tenderness localized over the gall-bladder region. There was no free fluid in the abdomen and no swelling of the legs. A diagnosis of chronic cholecystitis was made, but operation was deemed to involve a risk in view of the cyanosis and hepatic enlargement. Persistence of pain and tenderness in the gall-bladder region, however, led ultimately to a decision in favour of operation.

Operation (June 6th, 1927).—On opening the abdomen the liver was seen to show the typical appearance of a hypertrophic cirrhosis involving the whole organ. The gall-bladder was not enlarged, but was greatly thickened, evidently from long-standing chronic inflammation. There were no gall-stones. The gall-bladder was removed, and from its wall and the cystic gland a pure culture of streptococcus was obtained.

Progress.—The immediate recovery was uneventful, but a guarded prognosis was given. One year later the patient reported, looking extremely well, with a fresh complexion and no trace of cyanosis. He stated that he had now no dyspepsia, was able to take active exercise, and was never breathless. On examination his liver was not palpable.

Comment.—Whilst this case is, in my experience, quite exceptional, it serves to show that the infection of the gall-bladder may occasionally be the determining cause of hepatic cirrhosis.

Toxic Mental Derangement.

The following case, for the notes of which I am indebted to Mr. J. J. M. Shaw, under whose care the patient was, illustrates the part which cholecystitis may play in relation to some forms of insanity.

J. C., aged 44, wounded in 1916 and taken prisoner. Gas gangrene developed in a flesh wound of the thigh and the patient became insane. He was kept in an asylum for nine months, and it was noted that his insanity returned at the same time as his thigh wound finally healed. He enjoyed good health from 1917 to 1928, when he began to be troubled with symptoms diagnosed as those of mild cholecystitis. In October, 1928, he had an acute attack of cholecystitis with definite tenderness over the gall-bladder and faint jaundice. The day following the onset of acute symptoms he was admitted to a nursing home and the same evening developed acute confusional insanity with a marked tendency to violence, necessitating his removal to an asylum. One month later his mental state was one of complete mental confusion with inability to recognize his relatives.

On examination, under light anaesthesia, a resistance could be felt in the gall-bladder region.

The diagnosis of the alienist was "confusional insanity probably from a toxic focus."

Operation (November 19th, 1928, by Mr. Shaw).—A moderately distended and much thickened gall-bladder, containing one stone impacted in Hartmann's pouch, was removed.

Bacteriological examination of the gall-bladder gave a growth of a large Gram-positive bacillus. Unfortunately this was regarded as a contamination and the cultures were not preserved.

Progress.—After a few days of marked improvement in the patient's mental condition there was a period of three months during which it remained uncertain. This was followed by steady improvement, and he was discharged from the asylum four months after the operation and returned to work. He is now, six months after operation, able to transact legal business without effort.

Comment.—The onset of insanity in this case with the development of gas gangrene in his war wound; the return to sanity coincidentally with the healing of the wound; the later attack of insanity along with the development of an acute cholecystitis; the regain of sanity following the removal of the inflamed gall-bladder, from the wall of which a Gram-positive bacillus was grown—these facts all point to an intimate relationship between the focus of infection and the mental derangement.

The cases recorded above have been selected as offering striking evidence of the importance of intramural infection of the gall-bladder in relation to certain chronic ailments. It is not suggested that in these diseases the gall-bladder will always be found at fault, but it is claimed that biliary infection has more than a local significance, and that it is the infection in the wall of the organ, and not its content, be that bile, pus, or calculi, which is the essential factor in its pathology.

"VIRGIN SOIL"—AND AFTER.

A WORKING CONCEPTION OF TUBERCULOSIS IN CHILDREN, ADOLESCENTS, AND ABORIGINES.

BY

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THE expression "virgin soil" in connexion with tuberculosis is generally used to describe the unprotected state of persons belonging to isolated communities so far cut off from human agglomerations as to have escaped all effective contact with the tubercle bacillus. The marked susceptibility of such persons when exposed to infection is generally admitted, and is quite similar to the susceptibility of wild animals when first domesticated or brought into confinement. For the medical practitioner in this country, however, the real interest of this great susceptibility of "virgin soil" to tuberculosis lies in its bearing upon the tuberculosis of infancy, childhood, and adolescence; and it is the importance of this aspect of the question that constrains me to submit a few general reflections on the subject.

The tuberculosis of early life differs in certain important respects from the tuberculosis of later life; and, great as has been the fall in tuberculosis at all age groups, coincident with the rise in the general standards of living within the last fifty years, these differences do not tend to disappear. In infancy and early childhood those individuals—happily much less numerous than formerly—who develop tuberculous disease still do so in three main forms: "primary foci" at portals of entry; adenitis of the cervical, mesenteric, and tracheo-bronchial glands; and, where the initial infection has been heavy or circumstances unfavourable, in the form of a generalized infection manifesting itself as disseminated tuberculosis, caseous pneumonia, or tuberculous meningitis. These three main types are matched by similar manifestations in the tuberculosis of "primitive" adults brought into contact with infection for the first time, and are comparable with the experimental tuberculosis produced in laboratory animals. They represent what I have ventured to call "natural" as opposed to "modified" tuberculosis.

As will be readily seen from the types above enumerated as characteristic of "virgin soil," tuberculosis, even in its "natural" phases, presents marked contrasts in severity, depending not merely on differences in natural resistance, but to a very large extent upon variations in the numbers of bacilli involved, the frequency of repetition of infection, the hazards of anatomical localization, and the time factor or incubation period intervening between the entry of the bacilli and their multiplication to numbers sufficient to produce disease. And, in view of the gradual and steady rise in the percentage of positive tuberculin reactions in the apparently healthy as the children grow older, we are in a position to know that, in the vast majority of instances, infection may occur, even at these susceptible ages, without passing on into disease. This is a point on which stress must be laid. Many appear to believe that tuberculous infection in virgin soil invariably causes acute and progressive tuberculosis. Nothing could be more untrue. All of us were once virgin soil to the tubercle bacillus, no matter how high our resistance may have since become. The fact is that in all except those cases in which the initial dose has been large, the process of "modification" starts at once and proceeds *pari passu* with the infective process, the resistance outstripping the disease or lagging behind it according to circumstances, so that the tissues soon cease to be virgin soil. The characteristic of tuberculosis in virgin soil is not necessarily a high morbidity, but a high case mortality. Latent infection tends to be well tolerated, but the *disease*, when it occurs at this stage, is usually severe.

Perhaps the most interesting age period in relation to tuberculosis is that which follows infancy and early childhood and leads on towards puberty. This age period may *appear* from a study of tuberculosis mortalities in the Registrar-General's reports to be one at which the resistance is high and the liability to tuberculosis minimal. It is undoubtedly a period in which the tendency to the infantile or fulminating type of tuberculosis has for the most part disappeared, and in which the tendency to the adult form of apical phthisis has not yet become marked. That is why it is the period of lowest tuberculosis mortality. But, from the point of view of the student of tuberculosis, it is a "larval" period, during which the fate of the individual is often in the balance, a period so little understood and so full of unsolved problems that it can hardly be discussed without raising controversial questions. This "larval" period, though characterized by a low mortality, has a fairly high and a fairly characteristic morbidity, depending upon the gradual fruition of successfully localized but not successfully arrested "infantile" lesions, and appearing in such forms as cervical adenitis, hip-joint disease, spinal caries, and all the various affections of bones, joints, and lymphatic glands; tuberculous conditions which cause a great deal of suffering and deformity, make prolonged claims on bed accommodation, but do not, as a rule, lead to a fatal issue. These lesions of the "larval" period are, in fact, found to be consistent with an astonishing absence of constitutional disturbance if the patient, and the affected part, be kept at rest and "secondary" infections prevented. A glance round the "surgical tuberculosis" wards at Alton or Llangwyfan will convince the observer that advanced tuberculosis of bones and joints, if properly managed, is quite consistent with rosy cheeks, well-nourished limbs, and a fine state of general health.

It is not suggested that the whole of this period of childhood and adolescence is consistently the same in relation to tuberculosis. The earlier the age, the closer the assimilation to the "generalized" tuberculosis of infancy; the later, the more marked the tendency to "adult" pulmonary types. On the whole, however, childhood and adolescence is the period of non-pulmonary localization combined with a surprising degree of "tolerance" to the disease.

Now if the visible and easily detected manifestations are so well tolerated at this stage, it is not difficult to realize that invisible and hidden lesions may go completely unrecognized. Suppose, for instance, that the neck were as safely concealed from view as the roots of the lungs and the mediastinum, how often would cervical adenitis escape our notice? It is this very quality of "tolerance" to tuberculous lesions that stamps this "larval" period with its peculiar importance and its characteristic dangers. For the hidden dangers of this period are just as characteristic as its "tolerance," and are best appreciated in terms of the latter.

We may assume that, so far as milk-borne bovine tubercle bacilli are concerned, the primary lesions are, for the most part, easily detected, being situated in the cervical or the mesenteric lymph nodes, which receive the lymph drainage from portals of entry in the tonsillar and pharyngeal regions and the intestinal tract. The difficulties of detection are much greater, however, in the case of infections with human tubercle bacilli, which, being for the most part breathed into the lungs with the inspired air, set up minute "primary" focal lesions—usually only recognized, at this stage, at post-mortem examinations, but actually very common—from which the bacilli pass on to cause far larger and more important lesions in the tracheo-bronchial glands.

The preponderating importance of these insidious thoracic lesions in initiating generalized tuberculosis is shown by the fact that A. Stanley Griffith has found human tubercle bacilli in 73 per cent. of cases of tuberculous meningitis. We learn, too, from the combined pathological and radiological observations of Opie, that, at a later stage, when the primary lung lesions have become calcified and reached a stage of good *x*-ray visibility, a large percentage of adult lungs show evidence of having been infected with "primary foci" in childhood. It is probable that many enlarged tracheo-bronchial glands escape detection in *x*-ray films through being too small to project visibly into the lung fields or through being obscured by neighbouring structures, nor is it possible to say that a glandular enlargement seen in an *x*-ray picture is necessarily tuberculous;

but the combined evidence of radiology and post-mortem pathology points strongly to the conclusion that many apparently healthy children and adolescents have latent tuberculosis in the tracheo-bronchial glands.

Now the sinister aspect of these latent lesions of hidden glands lies in the fact that, during the period of childhood and adolescence, they continue to contain caseo-necrotic foci which may easily be awakened into dangerous activity or from which small infective emboli may enter the blood stream. It is one of the fortunate circumstances of human development that this age period is, in most cases, a time of life free from personal responsibility and admitting of plenty of open air and exercise followed by adequate rest. At no other time is life, on the whole, so healthy and natural as at school age. But if we look more closely into the question we find that the stresses of this age period are definitely associated with increased liability to the acute forms of tuberculosis. Inquiry into the case-histories of children suffering from "surgical" tuberculosis will very often elicit a history of injury as the determining cause of the disease. The very distribution of "surgical" lesions carries with it the same suggestion, tuberculosis being commonest in the structures most liable to stress and strain—the spine, the hip-joints, and the knee-joints. Again, in the case of the thoracic lesions of childhood, it is exceedingly common for these to have their onset determined by other respiratory infections, especially those causing congestion of lymphatic glands or causing thoracic strain through excessive coughing; examples being whooping-cough, influenza, and measles.

Turning to physiological stress, the earlier onset of puberty and sex character in the growing female is definitely associated with an earlier liability to tuberculosis than in the later-developing male. Even at the end of the adolescent period we find the same liability to break down under stress in the acute tuberculosis frequent in young males on entering strenuous industries—for example, coal-mining, an industry not otherwise characterized by any marked tendency to produce tuberculosis—and in the risks to young females after parturition and lactation.

And this leads me to the point which I wish specially to emphasize. We have clear evidence that, among healthy children and adolescents, just as among healthy adults, there is much latent tuberculosis. Tuberculin tests, radiological examinations, and post-mortem records prove this to be so. But within these groups of latent tuberculosis we ought to distinguish in our minds between the "larval" lesions of childhood and adolescence and the "compensated" lesions of later life. The former would appear to be far more liable to break down and cause autogenous reinfection than the latter. It is quite possible, on the other hand, that the "compensated" lesions, permitting of a gradual loss of immunity, may be consistent with a greater liability to exogenous re-infection; and the marked association of the pulmonary phthisis of middle age with certain industries suggests that this may be so; but this latter question is an intricate one requiring separate consideration.

It is interesting to note, in several recent observations on intradermal tuberculin tests in "healthy" persons, that among positive reactors there is a tendency for the end-point of reaction to graded dilutions to be higher in youth than in middle age, suggesting a greater degree of allergic hypersensibility: and yet we have reason to know that this state of hypersensibility of early age does not necessarily imply any very marked exemption from liability to tuberculosis under unfavourable conditions.

The sequence of events which suggests itself is, in my opinion, as follows: The "larval" stage, with its still unstable lesions, favours the auto-inoculations which lead on rapidly to a high degree of tissue allergy and, much more slowly, to a building up of the cellular proliferations and fibrotic barriers of spontaneous healing. During this "larval" period exposure to undue stress or to unfavourable physiological conditions is liable to produce such marked auto-inoculations as to lead on, not to increased immunity, but to secondary lesions and acute, often generalized, disease.

For those, however, whose lesions are smaller and better localized, or whose lives are exempt from undue stress, the danger period is gradually passed and the stage of "compensation" reached without breakdown. This, of course, is what appears to happen in the majority of cases in this country; and the resistance acquired in the process is sufficient to ensure the safety of nurses and doctors, and even of the majority of healthy partners of tuberculous husbands or wives, though exposed to many infective contacts.

Such reflections as these have assumed, for me, a new importance in connexion with the industrialization of African natives. The entry of South African natives into industry takes a different course from that which has been usual in these islands. Here, with the growth of our industrial centres which followed the application of machinery to production, the labouring man quitted his agricultural pursuits and transferred himself and his family to the towns, where he and his descendants had to adapt themselves as best they could to urban overcrowding and the bacterial "contacts" associated with it. The result has been a wide diffusion of tuberculous infection, and, after a period of high morbidity and mortality, a steady decline in both.

In South Africa, for the last thirty or forty years, the native labouring man has merely bidden a temporary farewell to his tribal home, and, leaving his dependants behind him, has sought the gold mines or other industries, not as a permanent resident, but for short "contract periods" of nine months or a year, during which sufficient money might be saved to enable him to rejoin the "leisured classes" in the Transkei or in Portuguese East Africa at the expiration of his contract. This system of alternate industrial stress and pastoral leisure has its advantages and its disadvantages. The good effects of hard muscular work combined with plenty of food are evident in the fact that the average native worker gains in weight and condition during his contract period and returns home a fitter as well as a wealthier man. But the system must inevitably lead, also, to the carrying home of the bacterial parasites acquired in industry and their diffusion among the kraals in the native territories. In these native territories, however, the mode of life is no more strenuous than that of the children of school age in this country, and contact with tuberculous infection, when not too intimate or intense, leads to much the same results. What has occurred has been, not a rapidly spreading epidemic of tuberculous disease in the kraals, but the gradual establishment of endemic tuberculosis, leading, in the sunny open-air life of a native population, to a high average of positive tuberculin reactions in "healthy" persons as well as to a fairly large number of relatively chronic cases such as might be found in a country town in Ireland, Scotland, or Wales. The more acute types do undoubtedly occur, but are not frequently seen because they die quickly, and, as likely as not, their deaths are attributed to hostile magic or some other malign influence.

In contemplating this widely diffused and relatively benign endemic tuberculosis the observer is tempted to exclaim, "But this is just like the tuberculosis we meet with at home." The real test, however, lies in comparing the behaviour of the "healthy but infected" adults from these native communities with the behaviour of similar groups of adults of European stock when exposed to the stresses of such an industry, for instance, as that of gold mining on the Rand. Under this ordeal we find that, in spite of the fact that about 80 per cent. of the native mine workers react positively to the intradermal tuberculin test on arrival at the mines, they exhibit a much more marked liability to tuberculosis than the young adult of Dutch or British ancestry in the same industry. And this liability is manifest not only in a higher morbidity and mortality, but in a marked tendency to revert to the generalized and progressive lesions usually regarded as characteristic of "virgin soil." It is obvious that, although arriving at the mines with a sufficient margin of health over infection to pass a stringent medical examination, these natives are in a far less stable condition in relation to tuberculosis than gold miners of European stock. In this liability to break down under stress they resemble the "healthy but infected" children and adolescents of this country, and their condition suggests that they are, for the

most part, in the "larval" rather than in the "compensated" phase of latent tuberculosis. This is a situation which is likely to reproduce itself in the more recently occupied parts of Africa as well as in other countries where hitherto isolated communities are being brought into increasing contact with European civilization. It would be well if industrialists in such countries studied the methods of prevention arrived at, through long experience, by the Johannesburg Chamber of Mines.

The importance of a correct appreciation of the factors underlying the phenomena of tuberculosis in "virgin soil—and after" is not, then, confined to the management of children and adolescents in this country, but has a wide bearing upon the future of industrial populations in our dominions, colonies, and dependencies.

I hope that the suggestions here set forth, but for which no originality is claimed, may serve to stimulate further thought and further investigation into some of the basic problems of our most formidable bacterial disease.

THE RADIATIONAL TREATMENT OF CORNEAL ULCERS.

BY

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In a previous paper in this *Journal*[1] a preliminary account was given of the application of ultra-violet light to ophthalmological diseases. Subsequent experience, extending to well over a thousand cases, has wholly confirmed the opinion then tentatively put forward; but the results of radiational treatment applied locally to ulcerative conditions of the cornea merit a separate and more detailed account.

The action of ultra-violet light is primarily abiotic—that is, destructive. The most obvious effect produced in the radiation of a cell is the photochemical denaturation and subsequent coagulation of its proteins. This, with other reactions, involves the production of a certain amount of trauma, which may lead to the partial or complete destruction of the cell, an effect which is now well recognized in the desquamation of the outermost layers of the skin after radiation. In the tissues of the eye a precisely similar reaction takes place; with small intensities of radiation the cells are injured, with great intensities they are destroyed. It is this end, under proper control, which is desired in the treatment of ulcers of the cornea, and the active response which the traumatism of light evokes repairs, and more than repairs, the damage which is done.

Histological studies carried out on the cornea of rabbits[2] which were subjected to radiation with ultra-violet light in doses considerably above those which may be used clinically, show no observable change after radiation until four hours have elapsed, when, in both the superficial and basal cells of the epithelium, some spacing out and oedema are evident. The nuclei of some of the more superficial cells then show the presence of acidophil granules, which take on a sharply defined eosin stain. After six hours these same changes are much more generally evident, and the arrangement of the superficial layers becomes somewhat irregular. The pathological changes are most striking after twelve hours. A large number of the nuclei of the epithelial cells take on the red stain markedly; some remain granular, in others the granules appear to have coalesced to form amorphous red "inclusion bodies," and a nucleus may contain a very large number of the former or be entirely converted into one or two of the latter. At a later stage these inclusions tend to bulge out the nuclear membrane, giving the nucleus a polymorphic shape, and finally they may be extruded altogether into the cytoplasm. Thereafter, if the cell is a superficial one, it appears to be cast off. At any stage before this the process may stop and the cell return to normal in appearance and staining reaction. From twelve to twenty-four hours after radiation desquamation is proceeding in the central area, around which there is frequently, but not invariably, a heaped-up region of proliferating epithelium. Meanwhile the substantia propria shows somewhat similar changes, which gradually decrease in intensity in the deeper layers, and from the limbus an infiltration spreads, composed very largely of cosinophils, although some polymorphonuclear cells are present. After thirty-six hours this limbal infiltration becomes more marked, blood spaces of considerable size are seen, and the cosinophils, which preponderated initially, are largely replaced by a massive invasion of polymorphs.

About fifty hours after radiation the epithelium near the periphery becomes more regularly arranged, and over the desquamated area a single layer of cells, the nuclei of which show no acidophil properties, begins to appear. The process of regeneration goes on with surprising rapidity and little evidence of cellular activity until, at seventy-six hours, the epithelium is two or three layers thick. At the limbus vascular infiltration is at its height; large new blood spaces, frequently surrounded by young fibroblasts, are present in great numbers, while the whole tissue in this region, and for some considerable distance into the cornea, is infiltrated with blood cells. This marked vascular reaction at the limbus seems to be a secondary feature, and is not evident histologically until the abiotic changes are well advanced; it is probably stimulated by the absorption of the products of protein disintegration. In seven days the cornea is again entirely normal.

Therapeutic Effects.

It is probable that the therapeutic effect of ultra-violet light when applied to the cornea in inflammatory, ulcerative, and degenerative conditions depends on the following factors. In the first place, pathogenic micro-organisms in the most superficial layers of this tissue will be directly killed. The lethal action of short-waved light upon such organisms is well known, and in a transparent tissue like the cornea this bactericidal power will be much more effective and extend more deeply than in an opaque and highly absorbent tissue like the skin. Where there is much inflammatory reaction and infiltration present in the superficial corneal layers, however, the greater part of the abiotically active rays will be absorbed, and in this case any lethal effect will necessarily be slight and practically restricted to the surface; but in proportion as some degree of transparency remains, bactericidal action will be greater and extend more deeply. In the second place, the superficial cells of the diseased corneal epithelium are killed and cast off with contained bacteria. Thirdly, the intense vascular reaction at the limbus and the invasion of the cornea by blood cells and inflammatory oedema will flood the diseased area with bactericidal influences. Fourthly, the stimulation to rapid and healthy regeneration of the exfoliated epithelium is a beneficial factor in any type of ulcer, but one which becomes of first importance in chronic and recurring conditions. Finally, it is probable that the absorption of the products of disintegration of the proteins of the cells will exert a favourable influence over the local immunological mechanism.

The Biological Action of Ultra-violet Light upon the Lens.

We have seen that the traumatization with the subsequent active response which ultra-violet light rays evoke, when used in clinical doses, is the action which is desired in the cornea. In the lens, however, the case is different. This is an avascular tissue in which active repair is comparatively lacking, and consequently any damage which may be done to it tends to be cumulative. Coagulation of the proteins of its cells is recognized clinically as cataract, a condition which has been produced experimentally by radiation with ultra-violet light.[3] With radiation of such intensity as does not produce an opacity, changes take place in the colloid system of this tissue which result in the proteins becoming more labile and their subsequent coagulation by other influences more easy. Moreover, the autoxidation system of the lens, upon which it probably depends in large measure for the maintenance and regulation of its metabolism, is damaged by ultra-violet light; while, in addition, the permeability of the capsule is

altered, thus further increasing the susceptibility to pathological changes. It has been urged that, in the comparatively small doses in which ultra-violet light is used clinically upon the eye, there is little fear of causing permanent damage to the lens; but it is to be remembered that small doses, such as have no apparent effect, produce physico-chemical changes which predispose to the formation of cataract. In addition, in many diseased eyes the possibility of a complicated cataract without any artificial stimulus is by no means remote. In any technique of local phototherapy, therefore, it is essential that the lens be excluded from the path of the incident rays.

Clinical Technique.

In the treatment of corneal ulcers by ultra-violet light the first essential is that the beam should be adequately controlled so that it may be limited to the diseased area; in this way unnecessary traumatism to the healthy parts of the cornea is avoided, and the lens is excluded altogether from the path of the rays. For this purpose I have introduced an "ophthalmic radiation lamp," which has been already described in detail elsewhere.[4] In principle it is a modified Gullstrand slit-lamp fitted with a mercury vapour lamp instead of the usual nitra lamp, and provided with an optical system of quartz, mounted on a freely movable arm. The last lens in this system is capable of accurate focusing and fine adjustment in two planes by means of an Arruga screw arrangement, and the precise incidence of the beam is controlled by observation through a Zeiss binocular corneal microscope. Interposed in the beam is an adjustable diaphragm and a system of filters, by means of which the nature of the light employed can be varied. For therapeutic purposes the ultra-violet light is employed unfiltered, but a screen which cuts off the abiotically active rays (such as uviol glass or Crookes's B) is useful for examinations for diagnostic purposes; with these all the advantages of a slit-lamp with red-free light are attained. With such an instrument a beam of considerable intensity and any desired size can be used, its incidence can be adequately observed and controlled, and in all cases it is easy to avoid the lens by inclining the beam at a sufficient angle. The most convenient procedure to adopt is to instil cocaine into the eye, which is followed by fluorescein, which is again washed out by cocaine. The patient is then set down to the radiation lamp, and, a uviol filter being interposed in the beam of light, the nature and extent of the ulcerative process are examined through the microscope. A remarkably beautiful and well-pronounced fluorescent effect is produced in this way, and the depth and extent of the disease are clearly delimited. The beam is adjusted so that it plays upon the ulcerated area, and no other region of the cornea, and the uviol filter is thereupon turned off and the unfiltered light allowed to play upon the eye. If the patient is unable to keep his eye open during the whole time of the treatment there is no disadvantage in interruptions, for intermittent exposures, within very wide limits, are additive in their effects, and have the same accumulative action as a single long exposure.

Other methods have been proposed from time to time. Koeppe (1919) and Birch-Hirschfeld (1922) employ a carbon arc as the source of light, but this emits a very large amount of heat; infra-red rays readily penetrate into the tissues of the eye and are potent for harm, especially to the lens, while any attempt to filter them off necessarily reduces the intensity of the abiotic rays. Ascher (1922) uses a quartz rod as a director along which the ultra-violet rays are guided, but although such a method is very suitable for radiating the conjunctiva it is impossible in this way, in the case of cornea, to control the beam of light with sufficient accuracy.

Dosage.

In radiating the cornea extreme care must be exercised with the dosage. I have found experimentally that the intensity of light required to produce a response is very slightly less than that required to produce an erythema upon the skin.[5] It is to be noted that, as occurs in the skin, the response varies with different individuals; consequently the ideal method is to test the erythema dose on the skin of the arm of each individual patient, and to commence radiating the cornea with a dose slightly less than this. In many corneal ulcers, however, it may be inadvisable to wait the twenty-four hours necessary for the development of the cutaneous reaction, and in these cases it may be necessary to start treatment immediately with an average dose. This may be taken as representing a period of radiation lasting three to three and a half minutes with the apparatus described, where the mercury vapour lamp is of the atmospheric pressure (K.B.B.) type, and runs on 220 volts, 2 to 3 amperes. Once the initial dose is obtained and its reaction observed subsequent doses are based upon it, but any increases are to be graduated with care, for it must be remembered that a small increase will make the difference between a mild and a violent photophthalmia.

Since the beam is always kept at a focus upon the cornea, the distance of the lamp from the cornea is constant, and the dosage can be altered only by time. Allowance must be made, however, for the obliquity of the rays, for it is evident that if the rays are not falling normally upon the cornea their intensity per unit area will decrease with the degree of obliquity. Actually, the energy varies quantitatively as the cosine of the angle of incidence of the beam, this angle being that which the incident ray makes with the normal to the tangential plane. The following table gives the factor by which the time of exposure determined for a normal ray should be multiplied in order to give an equivalent exposure with oblique rays:

Angle of incidence.	Cosine.	Factor.
0 (i.e., normal)	1.000	× 0.00
15 degrees	0.966	× 1.03
30 ,,	0.866	× 1.16
40 ,,	0.766	× 1.30
45 ,,	0.707	× 1.40
60 ,,	0.500	× 2.00

Some hours after the administration of a small exposure to a normal cornea there is a pricking sensation as of a foreign body in the eye, a sensation which is frequently accompanied by the appearance of haloes,[6] and which is followed by the symptoms characteristic of photophthalmia. After intense doses the pricking sensation gives way to pain, accompanied by marked photophobia, lacrymation, and blepharospasm. The appearance of haloes is due to corneal oedema; the pain is due to the irritation of the corneal nerve endings after the trauma to the epithelium. It follows that in those conditions where the epithelium has already been destroyed (as in the majority of ulcers) pain does not occur, provided the rays have been allowed to play on the ulcerated area only. The latent period which elapses before the reaction starts is about eight hours. In practice, therefore, when dealing with cases when a subsequent reaction is expected, it is well to conduct the treatment during the afternoon so that the symptoms begin to assert themselves during the night. If the patient has the eye bandaged up so that the lids do not abrade the radiated area, he frequently experiences no subjective symptoms at all, especially if a small dose of aspirin or bromide be given before going to bed to ensure sleep.

Clinical Indications.

Corneal ulcers of practically every kind respond well to radiation with ultra-violet light, but, inasmuch as the more simple types of ulceration tend to heal up with the usual methods of treatment, it is in the more severe, the chronic, and the recurrent forms that the beneficial effect of treatment can be seen to the best advantage. In the more simple forms healing without any opacity is usually obtained; and the method has been found extremely useful in cases of foreign bodies in which infection has already become evident. With the more severe types of ulceration radiational treatment is the method of choice. In hypopyon ulcers, for example, a greater chance of recovery is offered than can be expected from cauterization, with, at the same time, less permanent damage to the cornea. In a series of 190 cases of this type of ulcer published recently by Hoffmann at Königsberg the percentage of excisions of the eye was reduced to 4.6 from the percentage of 32 which obtained before radiational treatment was introduced. Chronic ulcers, also, associated with a varying degree of deep keratitis and corneal opacity, and sometimes with

iridocyclitis, in which the eye has reached a torpid and sluggish state, and which have progressed over long periods in spite of the usual treatment, may frequently be made to heal over and remain quiet after a course of three, four, or more exposures to light. The deep lesions of acne may also be very favourably influenced.

There are, however, two conditions wherein the beneficial effects of treatment are very evident: recurrent ulcers, and phlyctenular ulcers. With regard to the former, especially those marginal lesions associated with a continually relapsing conjunctivitis, the ulcer itself readily clears, an end which is, of course, usually easily brought about. But after the epithelium round the ulcer has been desquamated in the photophthalmic reaction following exposure to ultra-violet light, the new layer seems so healthy and resistant that it is enabled to withstand the liability to break down on future occasions. As a general rule the ulcer heals up after the first or second exposure, and in the milder cases heals up leaving a transparent facet: but it is preferable in most of these cases to give a third or fourth exposure, bringing about a mild reaction each time, involving a traumatism and renewal of the epithelium in order to render the possibility of recurrences more remote.

Acute phlyctenular ulcers occurring in children respond so well to general light treatment[7] and efficient dieting and hygiene that it is not worth while, as a rule, to coax a child affected with this disease to submit to keeping its eye open in the beam of the slit-lamp. It is in the chronic cases which have gone on for years, leaving an ulcerated, opaque, and vascularized cornea, and involving continued irritation, frequently with acute exacerbations, that the method has its greatest use. Here again it is best employed along with general light baths. In these cases the eye quietens down and becomes white and comfortable, but the extensive opacities, which are already present with the resulting diminution of vision, remain.

One word may be said with regard to corneal opacities. In order to investigate claims in the literature, a series of nine cases of old corneal opacities were given a fair trial with local radiation. No results justifying the continuation of the treatment were seen anywhere. It is certainly the case, however, that recent opacities, such as those following ulceration, may be improved, and the prophylactic action of the treatment of ulceration by light in the prevention of opacity formation is very marked. Two factors seem to enter into this: the rapidity of healing with new-formed epithelial cells, and the large amount of vascularization which the photophthalmic response excites. To this extent its action would seem to be comparable to that of an irritant, such as dionine.

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FOCI AND NATURE OF INFECTION IN 100 CASES OF RHEUMATIC CONDITIONS.*

BY

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(*With Special Plate.*)

IT is now admitted that a large majority of rheumatic cases are due to some infective cause. Many types of organisms have been accredited with being the causal agents, but it has also been admitted that no one organism has proved to be the causal factor in more than a certain number of cases. Similarly, with regard to the focus held to be responsible in cases of infective arthritis and fibrositis: teeth, tonsils, accessory sinuses, gall-bladder, intestinal tract, and urinary and genital passages have all in turn fallen under suspicion as being the main or primary source of infection, and treatments designed to deal with these foci have sometimes been applied with good results, but more often without success.

It has generally been realized that while unhealthy and abnormal conditions of any of the areas above enumerated may be the cause of arthritis, fibrositis, myositis, neuritis, and other inflammatory conditions, it is exceedingly difficult to determine in any individual case whether the particular area under consideration is really the causal one, or whether it is only one of several equally important foci which may be present, but less obvious, in the patient. The bacteriological investigation of specimens from a patient suffering from some rheumatic infective condition, as indeed from an apparently normal person, will show numbers of varying strains of organisms in cultures made from teeth, tonsils, sinuses, post-nasal secretions, faeces, etc., and many of the isolated bacteria are of a possibly infective type and character. In the normal person they are obviously not so at the time, and the question arises of how to decide which, if any, are of infective importance to the patient under investigation. In the rheumatic case it is usually assumed that streptococci, if isolated, are probably causal, and past experience in treatment has certainly shown this conclusion to be frequently correct; but the types of streptococci are many and various, and the question again arises as to whether they are all of equal importance to the case from which they have been isolated, or whether one or other strain is the real causal agent of the condition present.

A great deal of work has been done on the bacteriology of rheumatic infection during the past thirty years. Paino and Poynton[1] claimed the organism they isolated and named *Micrococcus rheumaticus* to be the specific infective agent; Andrewes and Horder[2] later recognized this organism as probably similar to the *Streptococcus faecalis*. Shaw,[3] and later Beattie,[4] demonstrated the presence of streptococci in the synovial membranes of cases of acute rheumatism, and with these experimentally reproduced arthritis and endocarditis in rabbits; Topley and Weir,[5] however, showed that not only streptococci isolated from rheumatic lesions, but those from non-rheumatic sources, were capable of producing similar experimental lesions in rabbits. Warren Crowe[6] described a staphylococcal type of organism, which he named *Micrococcus deformans*, and believed it was frequently a specific cause of infection in chronic infective arthritis. Bach and Wheeler[7] have quoted many cases in which chronic intestinal infection, associated with the presence of atypical coliform organisms, has apparently been causal in certain forms of rheumatism. Ford Robertson,[8] after giving his reasons for not accepting the *Micrococcus rheumaticus* as an adequate specific agent, detailed several different species—namely, *Streptococcus pyogenes, anginosus, salivarius, B. influenzae, pneumococci, diphtheroid bacilli*, and *Micrococcus catarrhalis*—which he considered were all capable of being causal agents in rheumatic infections. Some indecision exists, therefore, as to which, if any, of the numerous organisms isolated from a case may be pathogenic to the patient concerned, and, further, as to which organisms should be employed as an antigen in the condition, if vaccine treatment is desired.

In approaching the question of ascertaining the focus and bacteria concerned in rheumatic cases, these difficulties were appreciated, and in view of the satisfactory results obtained by means of the pathogen selective culture method in previous cases already published (Solis-Cohen[9] and Cronin Lowe[10]), this method of bacteriological examination was carried out in a large number of cases which clinically fell into the group of rheumatic infections. An analysis of the findings in 100 of these cases is the subject of this communication.

* Communication read before the Wallasey Medical Society, March, 1929.

The pathogen selective method has been explained in detail elsewhere[10]; it depends upon employing the patient's freshly drawn blood to determine, by the presence or absence of efficient bactericidal power, whether any of the organisms present in suspected foci of infection are or are not pathogenic to the patient concerned. The method has several practical advantages. (1) It allows of many foci being examined at one sitting. In this group of 100 cases an average of three specimens in each patient was examined, the maximum being six and the minimum two. (2) It differentiates between foci which are causing systemic infection of the patient and those which are not doing so, at the time of examination. (3) It selects the organisms in such foci which are responsible for the systemic infection in certain cases, sometimes indicating one particular strain as the only important pathogenic agent in the patient infected.

The various specimens examined were classified according to the types of pathogen selective findings which resulted, and it was found that while a quarter of the total examinations gave evidence of a multiple or dual infection, and another quarter of no infection at all, practically half the specimens examined indicated that a single pathogenic micro-organism was the active infective agent. The appearance of these bacteriological results may be shown in the photographs of actual culture plates, demonstrating each of the findings enumerated. (Figs. 1 to 5.)

Clinically the cases of this series comprise infective arthritis 51, fibrositis 39, chronic neuritis 7, and sciatica 3 cases. In many of these cases full bacteriological examinations were made upon dental, tonsil, post-nasal, antral, intestinal, urinary and cervical (uterine) specimens wherever possible. An analysis of the specimens examined shows that in 20 cases two specimens were dealt with; in 55 cases three specimens; in 22 cases four specimens; in one case five specimens; and in 2 cases six specimens.

In Table I the number of cases in which more than one infective focus was shown to be present are detailed; in the lower section is shown how rarely a single focus is wholly responsible. These findings appear to emphasize

TABLE I.—*Positive Pathogen Selective Findings in 100 Cases of Rheumatic Infection.*

In 28 cases positive cultures occurred in	1	specimen only.
In 47	,,	,,	,,	,,	2 specimens only.
In 21	,,	,,	,,	,,	3 ,, ,,
In 4	,,	,,	,,	,,	4 ,, ,,

Thus in 100 cases positive cultures occurred in 201 specimens.

The 28 cases in which positive pathogen cultures resulted in one specimen only suggests that the foci responsible for infection were intestinal in 10 cases, post-nasal in 9 cases, tonsillar in 6 cases, and dental in 3 cases. In the remaining 72 cases more than one focus was responsible for, or contributed to, the generalized infection present.

the importance of making a wide search in any and every case of suspected infection, for frequently a pathogenic focus has been found in an area showing no clinical evidence of infection. It is possible that in the 28 cases with a single focus of infection cure of the disease might have been obtained by eradicating the focus, but it is almost certain that in the remaining 72 cases more extensive and more general means of treatment was called for.

Table II shows in more detail the numbers and percentages of positive pathogen selective findings obtained from various foci examined, and indicates that roughly two-thirds gave some type of positive findings and one-third gave negative results. It will be noted that very

TABLE II.—*Comparative Frequency of Positive Pathogen Selective Cultures in Specimens Examined from Foci in 100 Cases of Rheumatic Infection.*

Foci Examined.	Number Examined.	Positive Pathogen Selective Results in.
Post-nasal specimens ...	97	75 = 77%
Intestinal ,, ...	84	55 = 65%
Tonsillar ,, ...	57	37 = 63%
Dental ,, ...	47	29 = 62%
Antral ,, ...	9	2 = 22%
Urinary ,, ...	9	2 = 22%
Cervical ,, ...	5	1 = 20%
Total ...	303	201

few cervical examinations were made; there was, however, very little evidence of cervicitis, although it was inquired for in all women examined. The small percentage of pathogenic findings in catheter urine specimens is also of interest, confirming what has been emphasized elsewhere, that the mere presence of bacteria in a specimen of urine does not necessarily mean that they are an infective agent.

Table III further summarizes the relative clinical importance of potential infective foci as indicated by pathogen selective cultures in these 100 cases, and corresponds with

TABLE III.—*Showing the Relative Clinical Importance of Potential Infective Foci in 100 Cases of Rheumatic Infection.*

Foci Examined.	Number.	Positive Pathogen Selective Cultures in 308 Examinations.
Post-nasal specimens ...	97	37.5%
Intestinal ,, ...	84	27.5%
Tonsillar ,, ...	57	18.0%
Dental ,, ...	47	14.5%
Antral ,, ...	9	1.0%
Urinary ,, ...	9	1.0%
Cervical ,, ...	5	0.5%

the evidence of other observers that infective foci associated with the upper respiratory tract are the most frequently responsible for rheumatic infection conditions, while those of the intestinal tract come second, with tonsillar and dental foci taking third and fourth place respectively.

Table IV is introduced as a contrast, in which the completely negative pathogen selective findings resulted from similar examinations in 7 cases other than the 100 analysed, and in which subsequent clinical evidence confirmed that they were not cases of infective rheumatism.

TABLE IV.—*Cases with Symptoms of Rheumatic Infection in which Completely Negative Pathogen Selective Cultures Resulted.*

Case No.	Clinical Diagnosis.	Dental.	Tonsil.	Post-nasal.	Faecal.	Urinary.
250	Gout	—	—	0	0	—
201	Teno-synovitis ...	—	0	0	0	—
215	Diabetes...	—	0	0	0	—
965	Neuritis	—	0	0	—	—
320	Chronic arthritis ...	0	0	0	0	—
417	Rheumatic myositis...	0	0	0	0	—
2294	Traumatic spine ...	—	—	0	0	0

So far, I have attempted to indicate that it would appear possible to determine in cases of chronic infective disease which of several possible foci under consideration harboured bacteria capable of causing systemic infection to the patient concerned.

In Table V is shown a comparison of the incidence of organisms isolated by the pathogen selective cultures with their incidence in direct or ordinary cultures; the frequency with which they appeared in the various foci is also shown.

It would appear that while any organism may be pathogenic to a particular patient, the *catarrhalis*, diphtheroid, atypical coliform, and *B. influenzae* groups are comparatively rarely of pathogenic importance. The streptococcal, pneumococcal, staphylococcal, and coliform groups are not only the more commonly pathogenic organisms, but their percentage frequency in infective foci is about the same. Further, the pathogen selective culture method is not selective of one or other organism only, but, as demonstrated in these findings, it will select any of the ordinarily present strains to which the tissues of the patient have lost their bactericidal protection.

It has been objected to this form of examination that it is merely using an enriched and therefore selective medium. This contention is not borne out by these findings, for they clearly show that while the organisms have in some cases been isolated, they have with equal, or greater, frequency been inhibited. In some specimens one patient's blood is inhibitory to certain organisms and favourable to others, while the blood from another patient results in an exactly opposite selection; Solis-Cohen's view that these

E. CRONIN LOWE: FOCI AND NATURE OF INFECTION IN RHEUMATIC CONDITIONS.

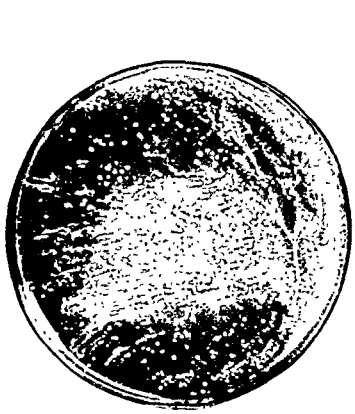


FIG. 1.

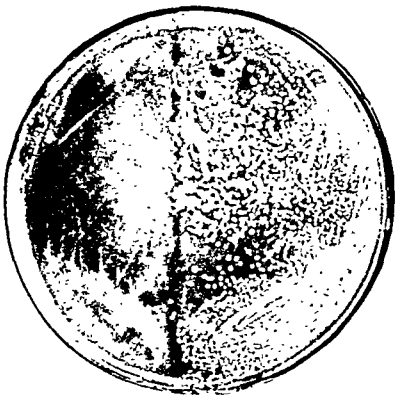


FIG. 2.

FIG. 3.

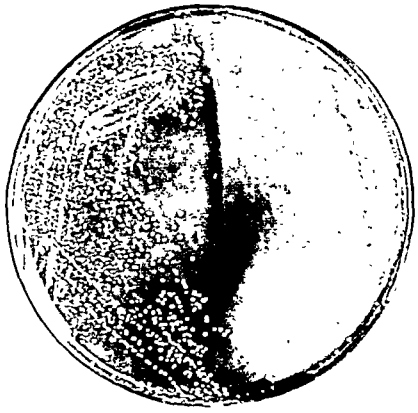


FIG. 4.

FIG. 5.

FIG. 1.—Culture plate "A" showing multiple strains of organisms.
FIGS. 2 AND 4.—Culture plate "B" showing positive single pathogen selective cultures.
FIG. 3.—Culture plate "B" showing positive double pathogen selective cultures.
FIG. 5.—Culture plate "B" showing negative or sterile pathogen selective cultures.

G. D. F. McFADDEN: CONGENITAL DIAPHRAGMATIC HERNIA.

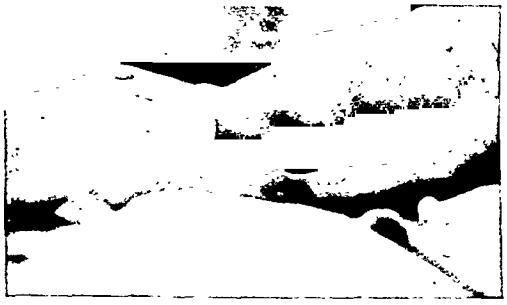


FIG. 1.—Showing retracted abdomen before operation.

FIG. 2.—Appearance of abdomen after operation.

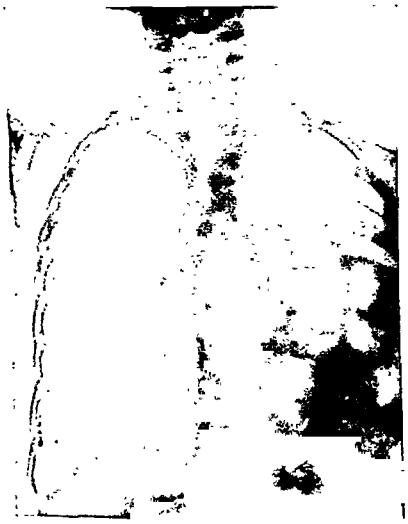


FIG. 3.—Radiogram of chest taken before operation. The left lung is collapsed, the heart shadow displaced to the right, and the gas-distended intestines are in the left pleural cavity.

FIG. 4.—Radiogram of chest ten days after operation. The left lung has expanded fully.

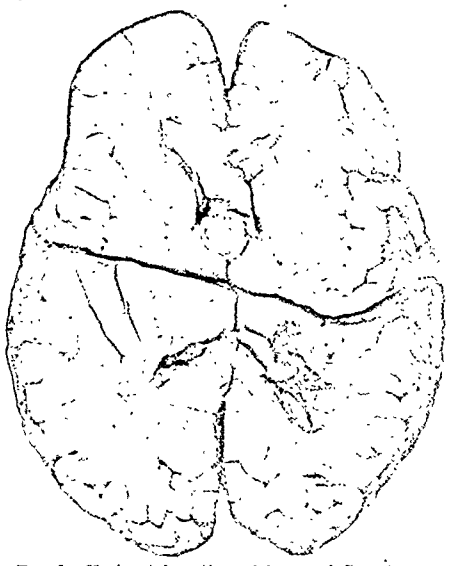
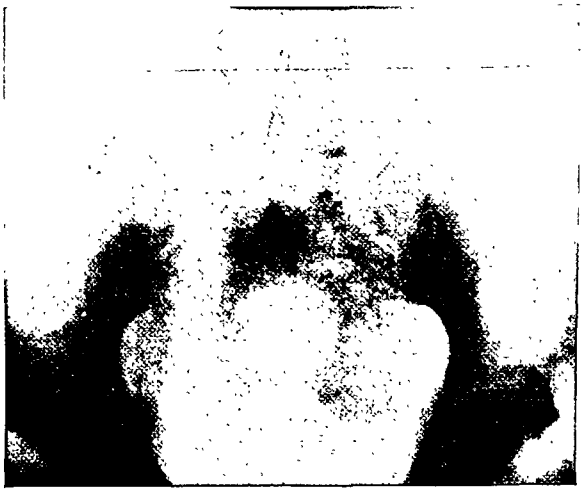


FIG. 1.—Horizontal section of brain of Case ii. The third ventricle is occupied by a rounded cyst, filled with colloid material; the lateral ventricles are moderately dilated. The transverse groove is a cut made into the brain at necropsy.

FIG. 2.—Low power view (× 50) of part of cyst wall of Case ii, to show colloid content with a few cells in it, a layer of lining cells cut tangentially, and part of the thin wall with lining of flattened cells.

FIG. 3.—Low power view (× 50) of part of cyst wall of Case i. The homogeneous colloid content is seen bounded by the thin wall of the cyst. A folding back of the wall is seen with part of it cut tangentially.

B. PICKERING PICK: MENINGOCELE.



Note absence of greater part of sacrum and the whole of the coccyx. The cyst occupied the resulting space.

C. R. NUNAN: RENAL ABNORMALITY.

FIG. 1.—A, Left kidney. B, Right kidney. C, Suprarenal gland. D, Enlarged lymphatic gland found near the kidneys.

FIG. 2.—Right kidney cut open, with a glass rod passed through the ureter and the pelvis.

TABLE V.—*Incidence of Organisms Isolated by Pathogen Selective Cultures in 100 Cases of Rheumatic Infection.*

Specimens Cultured.			Catarrhalis Group.	Staphylococci. Albus.	Staphylococci. Aureus.	Pneumococci.	Streptococci. Haemolytic.	Streptococci. Non-Haemolytic.	B. influenzae.	B. coli.	N.L.F.	Streptococci. Haemolytic.	Faecalis.	Staphylococci.	Diphtheroid Bacillus.
Dental... ...	47	A	42	5	5	20	41	27	7						
		B	1	0	0	10	25	9	1						
			2%	0		20%	72%								
Tonsil... ...	57	A	50	11	10	14	42	46	7						
		B	0	4	7	10	20	21	2						
				19%		15%	72%								
Post nasal ...	97	A	88	23	17	31	63	64	6						
		B	8	19	11	17	43	32	3						
			9%	39%		17%	75%								
Intestinal ...	84	A								83	8	39	74	5	15
		B								32	2	12	42	2	1
										40%		64%		4%	
Antral... ...	9	A	2	4	6	1	0	4	0						
		B	0	1	3	0	0	0	0						
Urinary ...	9	A								3	0	0	4	6	4
		B								1	0	0	1	2	0
Cervical ...	5	A								1	0	0	0	2	4
		B								0	0	0	0	1	0
Total isolations ..		A	182	43	38	65	146	141	23	87	8	39	78	13	23
		B	9	24	21	37	88	62	6	33	2	12	43	5	1
Percentage			0.5	56	55	56	60	44	33	38	25	30	55	8	4

"A" = Direct cultures. "B" = Pathogen selective cultures.

findings are dependent upon the presence or absence of efficient bactericidal power in the blood concerned appears to be confirmed by the details given above.

In Table VI is given the comparative frequency with which the various organisms detailed were isolated by the pathogen selective cultures, and it is of some interest to compare these findings, both as regards the organisms themselves and the numerical frequency of their isolation, with those of the many workers referred to earlier in this paper and to note the significant correspondence. As would be expected, streptococci as a group occur most frequently, especially the haemolytic types, both *pyogenes* and *anginosus*, while the *Streptococcus faecalis* of Andrewes and Horder is next in importance. Practically all the organisms which various writers have accredited with infective importance in rheumatic conditions have been selected, in one case or another, as pathogenic to the patient concerned, and it is striking to find Ford Robertson's[8] list of infective species in chronic rheumatism so closely and fully repeated.

TABLE VI.—*Percentage of Total Pathogen Selective Cultures isolated from 100 Cases of Rheumatic Infection.*

Streptococcus haemolyticus pyogenes ...	32%	66%
Streptococcus anginosus	20%	
Streptococcus faecalis (enterococcus) ...	14%	
Staphylococcus aureus	10%	18%
Staphylococcus albus	8%	
Pneumococci		12%
B. coli	10%	11%
Non-lactose fermenters	1%	
Catarrhalis group		3%
B. influenzae		2%
Diphtheroid bacillus		0.3%

SUMMARY.

1. One hundred cases of varying degrees and types of rheumatic disorder have been examined for evidence of focal and bacterial infection, employing the pathogen selective culture method.

2. An average of three specimens were examined in each case.

3. In 28 cases only one infective focus was suggested by the pathogen selective method from the several specimens examined in each case.

4. In 72 cases more than one focus was apparently responsible for some proportion of the infection.

5. Taking all the cases together the clinical importance of infective foci was shown to be in the following order: post-nasal and accessory sinuses first, then intestinal, tonsillar, and dental foci.

6. As regards the actual infective organisms the streptococcal group was markedly predominant, but practically any other commonly present organisms may be important in an individual case.

7. It is apparently possible to determine which or how many of various suspicious foci in any patient are infectious and which are not, and thereby radical or conservative treatment may be clearly indicated in any case.

8. The actual organisms present against which the patient has lost resistance and for which an adequate immunity should be developed is indicated, and makes possible the employment of rational and exact vaccine therapy.

No attempt is made in this paper to elaborate the results of treatment as shown by repeating pathogen selective cultures at later dates, but it is hoped to detail these very satisfactory results in a later communication.

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CONGENITAL DIAPHRAGMATIC HERNIA.

BY

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(*With Special Plate.*)

CONGENITAL diaphragmatic hernia is not a common condition, and it is rarely that a case presents itself with sufficient salient points for a diagnosis to be made in the clinical examination. The diagnosis can, as a rule, be made only in the *x*-ray department or in the operating theatre.

A boy, aged 4½ years, had been a premature child, and delicate since birth. He had no acute upset in his health till six weeks before he was seen by me at the Ulster Hospital for Children. In his first attack he suddenly screamed out with acute pain referred to the lower abdomen. He afterwards vomited. The pain and the vomiting continued and became more severe the following day. The bowels did not move even after repeated enemata. The third day the bowels moved and vomiting ceased. The pain lessened and finally disappeared. The boy was quite well till two weeks later, when he had a similar attack, which was less severe and lasted two days. Four days before I saw him he had another attack, from which he had not recovered when seen. This attack was like the others, but more severe. The mother had never noticed any fits of blueness or of breathlessness.

On examination the patient was seen to be a boy of delicate make, but not so ill as one would have expected a child to be with acute intestinal obstruction lasting four days. The colour was normal, with no signs of cyanosis. The pulse was 120, and the temperature normal. The abdomen was small and retracted, and appeared empty. The recti muscles stood out like a bow-string, especially during an attack of pain. The abdomen felt empty; no lump could be detected. The empty abdomen and the history of intestinal obstruction suggested the diagnosis of a diaphragmatic hernia. The chest showed diminished resonance over the base of the left lung, and the heart was slightly displaced to the right. There were no breath sounds to be heard

over the dull area, but occasionally a sound suggestive of an intestinal gurgle was heard. The diagnosis of a diaphragmatic hernia was made, and the child sent to the *x*-ray room for confirmation of the diagnosis.

A barium meal showed the stomach to be normal and in its usual position, but the left lung was collapsed into the apex of the left pleural cavity. A second radiogram (Fig. 3) showed the gas-filled colon and intestines in the pleural cavity. The patient was given glucose and sodium bicarbonate by the rectum to lower acidosis and prepare him for operation.

Operation.

An oblique incision was made from the ninth intercostal space downwards and forwards to the umbilicus. The upper part of the incision passed through all the musculature and the peritoneum. In the lower part the anterior and the posterior leaves of the rectus sheath were incised and the muscle pulled medially. The intestines were found passing through an opening in the diaphragm. The opening extended forward as far as the tenth intercostal space and was about two inches in diameter. The abdominal incision was continued through the tenth intercostal space so as to pass through this opening. By pulling from below and pushing from above, the contents (all the small intestine from the duodenum to the caecum, two-thirds of the colon, and a large part of the omentum) were reduced into the abdomen. The omentum was adherent to the edges of the opening, but was easily detached. The intestine was normal in appearance. The opening in the diaphragm was easily closed by continuous forty-day catgut suture. The intercostal opening was closed by interrupted catgut sutures passing above the tenth rib and below the eleventh rib. The remainder of the wound was then closed by suturing the layers in the usual manner. The child stood the operation well considering he was not a robust child.

An intravenous glucose saline, administered by Dr. Hilton Stewart during the operation, undoubtedly helped the patient. The boy's convalescence was uneventful.

Clinical Examination.

A radiogram taken ten days after the operation showed that the lung on the left side had returned to normal (Fig. 4).

Points of Interest in the Case.

1. Although the opening was evidently congenital the patient had no symptoms due to it till he was 4 years old. A thin membrane may have prevented herniation.
2. The symptoms were all referred to the abdomen.
3. The incision, planned so as to pass through the hernial orifice, made the reduction easy, and it did not appear to cause unnecessary shock.
4. The hernia was of the type most commonly found. It was situated on the left side at the point where the two embryonic migratory muscle elements meet—that is, those fibres developed from the ventral longitudinal muscles sheet and those from the subvertebral muscle mass. There was no peritoneal sac.
5. The contents were small and large intestines and omentum. The stomach and spleen were in their normal position.
6. The pleural cavity was opened without respiratory disturbance due to mediastinal adhesions.
7. The lung re-expanded without positive intratracheal pressure, and in spite of the irritation of that half of the diaphragm due to the surgical intervention.

A CASE OF MENINGOCELE.

BY

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(*With Special Plate.*)

THE following case must be of sufficient rarity to warrant its publication.

A warrant officer in the army, aged 32, first came under notice on May 26th, 1928, complaining of acute lumbar pain of ten to twelve days' duration. The onset had been sudden and was becoming progressively worse. Pain was also felt in the left knee. There was nothing of interest in his previous medical history except that he had had difficulty since birth in obtaining an action of the bowels. When first seen there had been no action for five days, in spite of purges and the administration of enemata, which had been retained. The passage of a rectal tube had produced a little flatus with some slight relief.

On examination the temperature was 102°, and he was complaining of headache. He was tender in the lumbar region and over both sacro-iliac joints, the tenderness corresponding with the site of pain. The abdomen was distended and hyper-resonant on percussion. No mass could be felt in the abdomen, but on rectal examination a large swelling could be felt behind the rectum; its limits, however, could not be determined by the examining finger. There was no abnormality of the urine. A blood count showed:

Red cells (per c.mm.)	3,490,000
White cells (per c.mm.)	6,400
Haemoglobin	85 per cent.
Colour index	1.2
Differential count:	
Polymorphonuclears	81 per cent.
Lymphocytes	15 ,,
Large mononuclears	4. ,,

May 27th. The patient was anaesthetized and placed in the lithotomy position. On examination the swelling felt cystic. It was tapped and 30 ounces of slightly opalescent fluid was drawn off. The fluid was subsequently reported on as follows: "Specific gravity 1008; neutral; serum globulin and serum albumin present; 250 mg. sugar per 100 c.cm.; urea above 20 mg. per 100 c.cm. The fluid appears to be cerebro-spinal in origin and slightly altered." As a result of emptying the cyst the obstruction was relieved and the distension was diminished. A more extensive examination was now possible, and it was found that the coccyx and a great part of the sacrum were missing. A subsequent *x*-ray examination confirmed this, and the radiologist suggested that "it was a congenital deformity, as there was no evidence of disease in the remaining bones."

May 28th. The patient had a good night on the whole, but had had a severe headache lasting about ten minutes. Bowels opened naturally. The abdomen was again somewhat distended and palpation in the lower part caused severe headache. The cyst had filled up again.

May 29th. In the evening slight retraction of the head was noted and there was slight opisthotonos. Kernig's sign was present. No abdominal reflexes obtained. A throat swab was negative to meningococcus.

May 30th: Severe headache and distress.

May 31st. Retraction more marked, and patient complained of cramps in the legs. Seen by Mr. Arthur Edmonds, who recommended aspiration of the cyst and irrigation with acriflavine. This was done under general anaesthesia, and examination of the fluid gave the following result. Deposit of pus. Organisms: (1) Gram-negative organisms, probably *B. coli*. (2) Gram-negative intracellular diplococci. No growth on media in sixteen hours.

June 1st. Had a fair night, but some intense headache at times. He was quite clear mentally, but the signs were more marked. The cyst was treated as before. Lumbar puncture was performed and turbid fluid, which was not under pressure, was withdrawn. On examination the fluid showed: Cell count 2,240. An abundance of polymorphonuclear leucocytes and some Gram-negative bacilli. No growth; 25 c.cm. of *B. coli* serum given subcutaneously.

June 2nd. Lumbar puncture repeated. The fluid contained a large deposit of pus; cell count 19,000 per c.mm. Numerous organisms, mostly Gram-negative bacilli, but also some Gram-positive cocci; 25 c.cm. of serum given intrathecally, the same amount having been given subcutaneously earlier in the day. Patient had some difficulty in swallowing.

June 3rd. Patient had a very good night and swallowing was easier. He moved less stiffly in bed and could move the head from side to side. Read the paper and talked intelligently. Operations as before, but there was no fluid from the lumbar puncture.

June 4th. A fair night, but at 4 a.m. patient became pulseless. He recovered and slept. There was no change in the signs, and leakage from the cyst in the coccygeal region was noted. He had a rigor at midday. Only a small drop of fluid was obtained by lumbar puncture. Serum given as before.

June 5th. Patient had had six and a half hours' sleep and said he was quite comfortable. He was quite rational. Pulse 160, and respirations rapid. Incontinence of urine. In the evening he was much worse and obviously dying. He became slightly delirious before death.

A post-mortem examination was held fifteen hours after death. The body was fairly well nourished. The meninges were very adherent to the skull. Cerebro-spinal fluid was scanty and almost clear. Meninges very little changed. Some oedema of pia mater on the surface of the brain, which showed nothing abnormal. On opening the abdomen the peritoneum and intestines appeared healthy. A swelling the size of a coco-nut was present in the mid-line of the pelvis and adherent to rectum and sacrum. Some sacral vertebrae and the whole coccyx were missing. The cyst contained a greenish glairy fluid and its walls were smooth and congested. It was realized that there must have been some communication with the neurenteric canal, but this was not demonstrated.

Two of the children have always suffered from constipation, but do not show any trace of the abnormality from which their father suffered.

IMPACTED CYST IN THIRD VENTRICLE OF BRAIN.

REPORT OF TWO CASES.

BY

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(With Special Plate.)

DURING a period of ten years two most unusual cases of cyst of the choroid plexus in the third ventricle have come to necropsy. Both patients died rapidly and formed the subjects of coroners' inquests, so that it seemed desirable to place the cases on record.

In searching the literature at my disposal I have been able to find but few records of similar cases. It is true that the pathological condition of cyst of the choroid plexus is referred to in pathological textbooks, but it is usually dismissed as being of little practical importance. J. H. Douty[1] described a case of "villous tumour" of the fourth ventricle which appeared to have the structure of the choroid plexus and which blocked the fourth ventricle. It occurred in a lad of 17 years, who had a history of reeling gait and gradually increasing weakness for months. The late Sir Frederick Mott with J. O. Wakelin Barratt,[2] in recording three cases of tumour of the third ventricle, found one of these to be a cyst which filled the third ventricle and had the structure of choroid plexus with a gelatinous content. The patient was a man, aged 34, who had attacks of severe headache, double vision, ptosis, and stupor. The condition persisted for about seven months, and he finally became comatose and died. Buzzard and Greenfield,[3] in their book (p. 259), illustrate "a colloid tumour of the third ventricle, possibly derived from the pituitary." The gross appearance of this is very similar to Case ii, described below.

CASE I.

The patient was an unmarried girl, aged 19. She had a history of headaches at intervals and attacks of faintness, the first said to have been about two years previously. On November 15th, 1919, she complained of pain in the head. During the night her parents applied cold cloths to relieve the headache. About 6 a.m. on November 16th she became worse and finally unconscious. A doctor was called, but on arrival he found the patient dead. The coroner ordered a post-mortem examination and held an inquest.

Post-mortem Examination.—The body was that of a well-developed and well-nourished young woman. There was pronounced post-mortem lividity in dependent parts and in the neck. On reflecting the scalp there were small pin-point haemorrhages in the scalp tissue over the right frontal region and in the occipital region. The brain showed flattening of the convolutions on both sides; there was no meningitis, and no adhesions were present. There was slight engorgement of the surface vessels and excess of clear cerebro-spinal fluid at the base. On section the brain tissue was very oedematous, with moderate engorgement of the vessels in both white and grey matter. The lateral ventricles were slightly dilated and filled with clear cerebro-spinal fluid. Lying in and completely blocking the third ventricle was a clear-walled cyst, the size of a large pea, attached to the choroid plexus at the anterior end of the third ventricle. The cyst could be dislodged, and was then freely movable except at its attachment to the choroid. In the choroid plexus of the right lateral ventricle was a similar but much smaller cyst. The spinal cord was oedematous. There was nothing of special note in the other organs, except an old encapsulated caseous nodule, 2 cm. in diameter, in the lower part of the upper lobe of the right lung.

Summary.—Cyst of choroid plexus blocking the third ventricle; acute hydrocephalus; acute cerebral oedema.

Microscopical Examination (see Fig. 3).—Portions of the choroid plexus and of the cyst wall were cut. The choroid plexus has the usual structure—namely, a scanty and loose areolar tissue in which are many small vessels and capillaries; covering the plications of the plexus are the ependymal cells. The wall proper of the cyst consists of a thin layer of connective tissue on which is a layer of clear cells, cubical to flat, similar to the ependymal cells of the choroid plexus adjacent. The content of the cyst has a homogeneous hyaline structure; in parts are a few scattered cells, some polymorph leucocytes, some mononuclear in type and difficult to identify.

CASE II.

The patient was a young man, aged 23, unmarried, a porter in a hotel. No history was obtainable of fits or illnesses of any kind, except a "strain" about a year previously; judging by the operation scar seen at necropsy this seems to have been an inguinal hernia which had been cured by operation. The family history was not good; his mother was said to have been a prostitute, one brother was in an asylum with general paralysis of the insane, and another brother was known to be addicted to drink.

On June 24th, 1928, the patient, who had been out, returned about 11 p.m. apparently in good health, and retired to bed. At 6.30 the following morning he was found by one of the hotel servants lying on his bed—which he had put on the floor—groaning and barely conscious. He had been sick out of the window and on the floor, and his bowels had moved. He was put back in his bed, and when visited about a quarter of an hour later was found to be dead. The police were informed, and the coroner ordered a post-mortem examination and later held an inquest.

Post-mortem Examination.—The body was that of a well-developed, strongly built young man. Rigor mortis was general throughout the body. There was the usual post-mortem lividity in dependent parts of the body. There was a slight bruise at the root of the nose towards the left side, and two small and quite superficial abrasions on the left side of the forehead. There were no other marks of injury, except a partially healed cut on the left hand and an old operation wound in the right groin. All the teeth of the upper jaw were absent, but no dental plate was present in the mouth, or elsewhere in the body. There was no obstruction in the upper air passages; the trachea contained scanty, frothy mucus; the oesophagus was empty. The thoracic and abdominal organs were healthy. The stomach was contracted, its mucous coat was covered with mucus and a few food remnants and was slightly congested.

Head: The skull cap was normal. *Brain:* The dura stripped readily and appeared healthy. There was slight excess of cerebro-spinal fluid around the base. The cerebral arteries appeared healthy. The surface convolutions were flattened. On section the brain substance was markedly oedematous and the lateral ventricles were moderately dilated and filled with clear cerebro-spinal fluid. In the mid-line was a round, clear-walled cyst firmly plugging the third ventricle; it was attached to the adjacent part of the choroid plexus of the ventricle. The illustration (Fig. 1) shows the appearance of the brain when cut horizontally through the plane of the cyst.

Microscopical Examination (see Fig. 2).—The appearances are the same as already described in the first case. The illustration shows a portion of the cyst wall, part of the homogeneous content, and some of the lining cells cut tangentially. Many of these cells are distended with granular content, staining pale lilac in the haematein-eosin section; the cyst content at its margin shows similar globules of granular material, as if composed of cells whose nuclei had disappeared. The amorphous content of the cyst stained blue with Leishman's stain and with toluidin-blue.

Summary.—Death in coma caused by a cyst of the choroid plexus of the third ventricle suddenly blocking that ventricle and causing an acute hydrocephalus and acute cerebral oedema.

The Wassermann and hydatid complement fixation tests were negative.

Commentary.

These two cases are interesting from both the pathological and the medico-legal point of view. Such cysts of the choroid plexuses are not unusual in the lateral ventricles, but apparently rare in the third ventricle. In both these cases it would appear as if the cysts had occurred at or near the apex of the third ventricle and had been freely movable; owing to this they had become impacted, with resulting oedema leading to firmer impaction and complete blockage of the ventricle; this in turn led to the acute hydrocephalus. The appearance of the content of the cysts suggests that it was formed partly by the activity of the lining cells and partly by serous transudation. The origin of the cysts is from the choroid plexus, judging by the microscopical structure; the exact mode of formation cannot be stated from the data available. The few inflammatory cells seen in the content are probably of terminal origin only, and there was no evidence found of previous inflammatory change.

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THE EARLY DIAGNOSIS OF PERNICIOUS ANAEMIA BY THE HALOMETER.

BY

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THE position of patients suffering from pernicious anaemia has lately been revolutionized by two discoveries: (1) the curative effect of liver and hydrochloric acid; (2) the diagnosis of pernicious anaemia by finding enlargement of the red cells (Price-Jones)—a feature which is always present, and which, apparently, is the first to appear and the last to go. By the halometer, a clinical instrument which instantly measures the size of the red cells, this latter diagnostic information becomes available to the general practitioner for the first time, and the liver cure can be instituted at a far earlier stage. Hence no more patients need be allowed to reach the stage of pallor or lemon colour.

These remarks apply also to subacute combined degeneration of the spinal cord, but not so absolutely, because occasionally the neurotoxic factor in pernicious anaemia is at first unaccompanied by the haemolytic. In both cases the poison originates from streptococci which have obtained a foothold in the upper bowel owing to the absence of hydrochloric acid in the stomach, which, had it been present, would almost infallibly have killed them there (A. F. Hurst). Achlorhydria is thus almost invariably a diagnostic feature of these two diseases. Achlorhydria is present from birth in 4 *per cent.* of normal people, who are unconscious of their danger. The streptococci are found in the tooth sockets (always unhealthy), and they generally cause glossitis. Hence our fourfold course of action to stop these diseases, long before anaemia is evident, is quite clear and logical:

1. In all suspicious cases ascertain if the red cells are enlarged (for example, by the halometer). If so, confirm by the colour index, or prove achlorhydria by a fractional test meal.
2. Should the latter investigation be unobtainable give daily half a pound of liver, or the corresponding amount of its extract, and if this causes the red cells to become normal in size in about two months the diagnosis of pernicious anaemia is established.
3. Extract suspicious teeth; remove septic tonsils or keep them clean by my suction method.*
4. Give 6 drachms of dilute hydrochloric acid daily, diluted with a pint and a half of water and flavoured with orange juice and sugar. Half a pint of this is taken three times a day on an empty stomach, and is known to kill the streptococci in twenty minutes. The results are usually miraculous, but relapse follows if the liver diet is omitted. Hence the halometer must be used every three months to ensure that the red cells remain normal in size. Hydrochloric acid must be taken for life to prevent streptococci from again obtaining a foothold in the upper bowel. Theoretically it should then be unnecessary to continue the liver treatment if periodical examination by the halometer shows red cells of normal size; but until we know more it is safer to continue it.

The first essential is to make the diagnosis of pernicious anaemia or spinal degeneration in the earliest stages, before tissue degeneration has damaged heart, cord, or other organs, or made it impossible for liver treatment to save life. As the diagnosis can now be made in a few seconds from a thin blood smear, it is not too much to expect that the size of the red cells should always be estimated in the following disorders: (1) anaemia, of which the cause is not evident; (2) chronic glossitis; (3) obscure cases of loss of strength and flesh; (4) achlorhydria (often present in cholecystitis, chronic appendicitis, and rheumatoid arthritis); (5) bleeding from the bowel ("piles"); (6) loss of power or sensation in the legs, which might be due to spinal degeneration; and (7) tingling in the hands or feet—often a sign of early spinal degeneration.

The use of the diagnostic instrument now to be described provides unsuspected opportunities of employing liver with success, and reveals a condition which might be called "pre-pernicious anaemia."

* See *British Medical Journal*, June 2nd, 1928, p. 941.

MEASUREMENT OF RED BLOOD CORPUSCLES.

Theory of the Method.—A thin blood smear acts as a very efficient diffraction grating and splits up the rays from a small source of light into a brightly coloured halo like a circular rainbow (Pijper). A halo round the moon is formed similarly by the presence in the air of fine water particles. The smaller the particles the larger the halo, and vice versa (T. Young), so that the large red cells characteristic of pernicious anaemia produce a halo which is smaller than the normal.

*The Halometer.**

This clinical instrument has been designed to enable the practitioner to measure the average size of the red cells quickly and easily, and thus to make an early diagnosis of pernicious anaemia and allied conditions. It consists of a tiny electric bulb of which the illumination (by a battery included in the instrument) is regulated by a graduated switch until it is just white and no longer reddish. The whole is encased in a small black box with a hole at one end against which the blood smear is clipped and through which the light is then seen surrounded by a coloured halo. To facilitate the estimation of the diameter of the halo it is duplicated by reflection from a pair of inclined mirrors, and the movement of a knob along a scale at the side of the box causes the haloes to approach each other until their red edges are just brought into contact. The scale now records a measure of the diameter of the halo. The calibration gives the angular measure of the halo, but the reading can be converted into the average size of the red cells by reference to a printed table. Except for comparison with other methods this is redundant, as the limits of normal blood are clearly indicated on the scale. By experience of a large number of blood smears I am able to make the following generalizations:

1. Normal blood haloes are 4.6 degrees to 4.9 degrees.
2. Blood haloes in definite pernicious anaemia or subacute combined degeneration are 4.4 degrees or less.
3. Blood haloes round and about 4.5 degrees are suspicious (confirm by achlorhydria, etc.).
4. Those of infants and in cases of polycythaemia and familial acholuric jaundice are usually over 5 degrees.
5. Cases of pernicious anaemia in an advanced stage yield hazy, very small, colourless haloes.
6. Hazy colourless haloes of normal size are characteristic of severe secondary anaemia.

In both (5) and (6) the lack of colour and definition is due to the irregularity in shape and size of the red cells, which naturally impairs the perfection with which they diffract the beam of light. It is better, perhaps, to confirm this by examining the film (unstained and not covered) with a 1/6 in. objective, partly to ensure that the film is only one cell in thickness. But I seldom find this proceeding necessary. Thick films are unreliable.

At first I used an ordinary reflex camera for blood halo work; later I realized that the human eye is the only camera required, and the halometer merely measures the diffraction halo produced on the retina. It is cheaper and more accurate than a camera, packs into a doctor's bag, and is independent of outside sources of illumination. The graduations on the scale of the halometer are all equal, so that if the normal graduation is correctly placed all other results are uniform.

To make a thin blood smear the essentials are: (1) clean grease-free glass slides, and (2) to push the inclined slide—and with it the blood—along the horizontal one, not pull it. Either the slides should be kept in ether or placed on a clean table with a drop of absolute alcohol or ether on each, and rubbed vigorously with a wad of absorbent wool. Better still, I find, is to clean off an old blood smear with wet cotton-wool and then dry lightly with a towel. The residual trace of albumin ensures a beautiful thin even blood film.

A small drop of blood (2 mm.) from the nail base of the warm thumb is touched on to one end of a slide. The end of another slide is dipped into the drop, which should quickly spread all along the edge. This slide is then firmly pushed, like a plane, along the first slide, leaving a broad thin film of blood. The best part of the best film is

* The halometer owes much to the ingenuity of Dr. Stenhouse Stewart and of the manufacturers (the Ellis Optical Co. of Croydon). It is obtainable from Messrs. Down Bros., St. Thomas Street, London, or Allen and Hanburys, Wigmore Street. Price £4 4s.

applied to the hole in the end of the halometer. The halo diameter and the date are recorded on the label of the slide, and kept so that the progress on liver diet may be noted. Most red cells preserve their size indefinitely, but I think that where the plasma is relatively abundant (as in severe pernicious anaemia) the red cells must be very slowly stretched in the course of weeks by shrinking of the plasma film; so it is well to measure (or post) the film without many days' delay. I do not heat the films.

PRE-PERNICIOUS ANAEMIA.

Our former conceptions of pernicious anaemia apply only to the late stages; the early stages are quite different. Enlargement of the red cells is the first reliable sign; anaemia is then slight, and is only shown by a small deficiency of haemoglobin. The pathologist may report "blood film normal, slight secondary anaemia, colour index well below unity." The usual overfilling of the red cell with haemoglobin has often not begun; nor has haemolysis, for the van den Bergh test is negative. In this early stage the patients are usually florid and well nourished, so that everyone is incredulous when anaemia of any sort is diagnosed. In fact, the term "pernicious anaemia" is inappropriate in the early stage revealed by enlargement of the red cells, and a special name is needed, such as "pre-pernicious anaemia." This condition would progress to the familiar pernicious stage if left untreated, for achlorhydria is almost invariably found, sore tongue is usual, and the size of the red cells soon becomes normal under liver treatment, which is known scarcely to influence other anaemias.

Similarly, subacute combined degeneration of the cord can usually be recognized by the enlarged red cells (because the neurotoxic and haemolytic toxins generally act in concert) at a far earlier stage than has hitherto been clinically possible. In the space of a year I have thus identified three cases, in which the patients complained solely of tingling of the hands and feet. This is a great advance, because if nervous tissue is once destroyed it cannot be regenerated. The streptococcicidal effect of hydrochloric acid should prevent the nervous disease from progressing further, while liver cures the early pernicious anaemia, as shown by the restoration of the red cells to their normal size.

SUMMARY.

Pernicious anaemia has not yet been defined; it is a syndrome of about a dozen symptoms, none of which is present of necessity, unless nowadays we except enlargement of the red cells. In the appended table I have set down these symptoms in double columns, and it is evident that those of the early stage of pernicious anaemia are so different from those of the later stages that it is absurd and misleading to include them in the same syndrome, and a separate name is required. It is pernicious anaemia before it has become pernicious; hence the name "pre-pernicious anaemia."

If, as I believe, it can be accepted that enlargement of the red cells is an invariable feature peculiar to pernicious anaemia in all its active stages, then the two dissimilar syndromes (pernicious and pre-pernicious anaemia) can be included under a single definable disease called megalocytic anaemia. But this definition can hardly be adopted until a ready means of measuring the average size of red cells is available to the clinician. I believe the halometer supplies this want.

Abstracts of ten cases which bore out the opinions expressed above were submitted with this paper, but space does not permit of the publication of more than the two case reports appended.

Table showing the Distinguishing Symptoms of Pernicious and Pre-pernicious Anaemia (not Absolute).

Symptoms.	Pernicious Anaemia.	Pre-pernicious Anaemia.
Nine surface differential symptoms:		
Complexion	Pale or lemon	Commonly florid
Haemolysis	Present	Usually absent
Poikilocytosis	Present	Absent
Anisocytosis	Conspicuous	Inconspicuous
Polychromasia	Present	Absent
Nucleated red cells	Often present	Absent
Colour index...	High	May be normal or low
Blood platelets	Absent	Present
Body weight	Well retained	Reduced initially
Six basic symptoms in common:		
Enlarged red cells	Present	Present
Achlorhydria	Present	Present
Tiredness	Present	Present
Glossitis and oral sepsis	Often present	Often present
Spinal cord changes	Often present	Often present
Response to liver	Marked	Marked

LIGATURE OF INNOMINATE AND COMMON CAROTID ARTERIES FOR SUB-CLAVIAN ANEURYSM.

BY

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THE case reported below is of interest as a sequel to a fractured clavicle and because of its comparative rarity.

A fisherman, aged 33, on August 19th, 1928, was struck on the right side of the chest at sea with a messenger hook, and reached hospital next day. He was much bruised over the whole of the right chest, and *x*-ray examination showed a very oblique fracture of the right clavicle at the junction of the inner and middle thirds. He developed pneumonia, and was discharged on September 7th. Three weeks after leaving hospital he noticed a swelling above the right clavicle; in seven to ten days the swelling rapidly increased in size, and he was readmitted to hospital on October 5th.

Previous History.—He had trench fever in 1914, but in 1919 was discharged as A1.

On readmission he was very pale and looked ill; the temperature was intermittent. The mouth was extremely foul, full of septic roots, and pyorrhoea was well marked. He had a large pulsating tumour extending from above the clavicle as high up in the neck

CASE I (from Dr. Sproulle).

A florid, well-nourished unmarried woman, aged 25, complained of loss of strength, appetite, and weight for one year. She had a sore tongue last year. The gums tasted nasty when sucked; her teeth were good. Examination was negative. The red cells numbered 3,200,000 per c.mm.; haemoglobin 90 per cent.; colour index 1.2. The red cells were irregular in size, but not in shape; there were no platelets. The blood halo was bright and sharp, but too small (4.1 degrees). Her weight was 8 st. 3 lb. At her first visit, in June, 1928, a diagnosis of early pernicious anaemia was made, and she was given liver and hydrochloric acid. In two months she felt quite well and resumed her work and tennis. She stopped treatment and did not report herself again, though solemnly warned that she must do so. After six months (December, 1928) I found her address and insisted on a fractional test meal, which duly showed achlorhydria. She had started to lose weight—6 lb. in three weeks—presumably the beginning of a relapse. The van den Bergh test was normal. The red cells numbered 4,800,000 per c.mm.; haemoglobin 80 per cent.; colour index 0.8. Blood halo 4.4 degrees; hence the red cells were improved in size, but not yet normal (4.6 degrees), owing to stopped treatment. She hated eating liver, so she minced it raw, rubbed it through a fine sieve, and mixed it with a cup of weak warm bovril seasoned with pepper and salt. This she drank three times a day with her eyes shut.

On April 23rd, 1929, she was very well and had gained 24 lb. in the nine months' treatment. Haemoglobin 100 per cent.; a few platelets. She can walk five miles. Blood halo 4.78 degrees (originally 4.1 degrees).

CASE II (from Dr. Cameron).

This patient, seen in November, 1928, was a well-nourished well-coloured man of 45. He complained only of tingling in the feet and finger-tips for a month. The legs felt a little numb and stiff; there was no anaesthesia. The reflexes were normal. Blood halo 4.2 degrees, sharp and bright. A diagnosis of subacute combined degeneration and pernicious anaemia (early) was made. This was confirmed by finding achlorhydria, and colour index 1.1, red cells 3,000,000 per c.mm., haemoglobin 65 per cent., white cells 9,600 per c.mm., a few poikilocytes and microcytes (Dr. Adamson). When seen again, after six months on liver and hydrochloric acid, he felt very well, and his colour was better than ever before. The tingling was much less; none in the hands. Walks a mile. Sexual power had returned after nine months' absence. Haemoglobin 90 per cent. Blood halo 4.78 degrees (high normal).

as the cricoid and also below the clavicle; the sterno-mastoid muscle was displaced outwards. The radial pulse could not be felt. The left pupil was slightly dilated, and there was some proptosis. Pain was felt at the site of the tumour. An *x*-ray photograph showed a tumour occupying a big area in the upper chest, but on attempting to screen him he collapsed. The Wassermann reaction was negative.

As the tumour was growing so rapidly and appeared likely to burst, in spite of his septic condition it was decided to do an immediate operation on October 16th.

Operation.—The whole of the right arm was carefully bandaged with a thick layer of wool. An incision was made along the sterno-mastoid to join a transverse incision along the clavicle. The sac was extremely thin, but an attempt was made to dissect it down, when it was found to extend to the left side and under the left sterno-mastoid. The middle third of the clavicle was resected subperiosteally, and it was then seen that the tumour arose from the subclavian artery. The sac ruptured, and the bleeding was very severe; this was stopped by the finger used as a plug to close the opening. The common carotid was exposed and tied, and the vagus nerve demonstrated. There was no part of the subclavian artery which could be tied. Traction was now made upon the common carotid, the pleura pushed downwards, when the innominate artery was exposed. No great difficulty was met in passing the aneurysm needle, and the artery was tied securely with two ligatures of kangaroo tendon, side by side. This immediately stopped all haemorrhage. The sac was then removed as far as possible, and the adherent portion sewn over. The clavicle was replaced, the periosteum sewn over it and joined by kangaroo tendons.

The patient left the theatre in good condition. During the night and all the next two days the right side of the head was obviously colder than the left; capillary circulation in the hand was present the next day, and the arm kept warm and comfortable.

He ran an intermittent temperature and developed bedsores and some suppuration in the wound; the centre piece of the clavicle separated. His mouth gave a good deal of trouble, and the roots of all teeth were extracted. Later he developed an empyema on the right side; a rib was resected, and the condition healed in three weeks.

He was discharged from hospital on April 10th, rapidly gaining weight and looking well.

I have to thank my colleague Mr. Cecil Burnett for his ablo assistance, and Dr. A. Thomson, the house-surgeon, for skilful anaesthesia in a poor subject for a long operation.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

RENAL ABNORMALITY.

(*With Special Plate.*)

APART from the pathological condition found, the following case appears to be interesting as an example of a physical stigma of degeneration in a congenital mental defective.

The patient was a mentally deficient lad, aged 20. He was operated on for acuto appendicitis, and died, leaving a faecal fistula at the site of operation. A post-mortem examination was made, and the following are notes having bearing on the condition found.

Having failed to find the kidneys in their normal situation, it was decided to explore a pelvic tumour occupying a position in the mid-line below the fifth lumbar vertebra. This tumour was retroperitoneal and gave a doughy resistance on palpation. When the peritoneum was incised there was no difficulty in enucleating the tumour, but owing to a single attachment it could not yet be removed from the body. This attachment was traced downwards, and turned out to be a ureter. About two inches from the bladder this ureter gave off a branch from its left side, which, when it was traced upwards, was found to enter a scarcely developed left kidney which was lying against the much larger right kidney (see Special Plate, Fig. 1). The ureters therefore joined and had a common entry into the bladder. Both kidneys were now removed and examined macroscopically, microscopically, and bacteriologically.

Right Kidney (weight 238 grams).—Nodular elevations filled with pus were present on the surface. On being cut open (Fig. 2) the kidney was found to consist mainly of abscess cavities with very little normal kidney substance, and no macroscopic differentiation between cortex and medulla. The pus contained *B. coli communior* and *Strep. faecalis*. Sections showed some normal kidney substance, enormous leucocytic infiltration of the kidney, and a streptococcus; bacillary forms did not show up on section.

Left Kidney.—Except for its size and its weight, which was 17 grams, the condition of the left kidney was similar to that of the right.

The faecal fistula communicated with copious pus in the appendicular region. There did not appear to be any direct connexion between this and the kidneys.

Didsbury, Manchester. C. R. NUNAN, M.B., D.P.H.

INTRAVENOUS ANTITOXIN IN AN OUTBREAK OF SCARLET FEVER IN A PUBLIC SCHOOL.

SCARLET fever of a severe semi-septic type broke out among the boys of a public school in February, 1929. The first nine cases were treated by ordinary expectant methods and without antitoxin. The course of the disease in these gave rise to much anxiety, and complications were frequent, as noted in the table below.

Then occurred the worst case of all, in a boy aged 13, who, when seen by me about the seventh day of the disease, had already a severely ulcerated throat, enlarged and tender cervical glands, double acute suppurative otitis media, and acute mastoid suppuration on one side. He was given 10 c.cm. of scarlatinal antitoxin intravenously, unfortunately without effect at this stage. The sepsis developed into pyaemia with multiple purulent arthritis, involving incisions into the hip-joint, the elbow-joint, and both ankle-joints, and the double mastoid operation. The serum was given too late in this instance, and the dose was too low for such a severe case.

The subsequent patients, sixteen in number, were treated early in the acute stage with antitoxin intravenously, according to the technique which I have previously described.[1] In these sixteen cases the acute stage, though apparently of the same sharp type as the others, was arrested within twelve to twenty-four hours of the injection. Further, no desquamation occurred; the complications were limited to mild adenitis in one patient, who received antitoxin on the fourth day of disease, and one simple hordeolum. All the sixteen patients were allowed up within a week, and were discharged from isolation in about a fortnight's time. All were boys between the ages of 12 and 18, except for one master aged 49. All received the injections within the first four days of their disease, generally on the second or third day.

No ill effects were noted from the serum administration, although one boy had a moderately severe rigor, and two had hyperpyrexia for a few hours after the injection. In one case intravenous serum appeared to be contraindicated owing to a history of hay fever. In this case an intradermal test injection of 1 in 10 dilution of the serum was performed, and it did not produce any reaction. Accordingly the usual dose, 10 c.cm. of serum, was injected intravenously, and no ill effect was noted.

The following table gives particulars of the complications noted in this interesting series.

SCARLET FEVER COMPLICATIONS.

Nine Cases not treated with Antitoxin.	
Suppurative otitis media with persistent otorrhoea...	2
Non-suppurative otitis media	2
Albuminuria or nephritis about third week	7
Empyema of maxillary antrum and frontal sinus ...	1
Dacryocystitis	1
Pneumonia	1
Jaundice	1
Adenitis	1
Nasal discharge	1
Desquamation	7
Sixteen Cases treated with Intravenous Antitoxin.	
Adenitis	6
Hordeolum	9

The only case omitted from the table is the one previously noted of severe pyaemia, in which the serum was given too late to be effective.

The injections, with the exception of the first two, were made by Dr. Hubert L. Ellison, to whom I am indebted for detailed information as to the course of the outbreak.

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[1] Banks and MacKenzie: *Lancet*, 1929, i, 381.

ANTIMONY TREATMENT OF ACNE ROSACEA.

HAVING recently demonstrated to my own satisfaction, and as far as is possible with the limited number of cases at my disposal, the great benefit to be derived from the use of antimony in chronic and subacute skin conditions, I record the following clinical details.

A woman, aged 36, came to me on March 18th, suffering from acne rosacea. She had a patch on each cheek about two inches square, much thickened and indurated, and very congested and red over the surface, with numerous indurated papules, especially along the lower edge. She gave a history of having been treated at a London skin hospital for six months without much improvement, and thinking that most of the usual remedies would have been tried, I decided to put her on antimony tartrate 1/16 grain in half an ounce of water three times a day after meals. The following lotion was applied night and morning:

Sulph. praecip. Pulv. zinci oxidi Mag. carb. levis	} ...	...	...	...	āā	2 drachms
Glycerini	...	...	...	...	...	1 oz.
Aquae	...	...	...	...	ad	8 oz.

There was a very marked improvement in a week, which steadily went on till April 22nd, when the whole of the skin of both cheeks was quite clear, except for one small papule low down on the left side, only noticeable on careful examination. On April 29th the skin was all clear and treatment was discontinued.

Believing that the above result was due to the use of antimony, I have since tried it on two cases of furunculosis, one of which was affecting the hair roots of the back of the neck and causing a condition similar to sycosis; in both cases the result was markedly and definitely beneficial.

A man came to see me on January 15th with several boils on his neck, combined with fairly severe seborrhoea of the scalp. At first he was treated with lotio plumbi and collosol manganese injections every four days, combined with active treatment for the seborrhoea. The improvement, if any, was very transient, and soon he began to lose one after another of his finger-nails with a kind of subacute paronychia ungualis. On February 18th there appeared to be no improvement, and he was put on biniodide lotion 1 in 2,000 and collosol manganese every two days. There was a slight improvement by March 27th, when I decided to try antimony tartrate 1/16 grain thrice daily. On April 3rd there was a definite improvement; on April 8th he was better still, all the boils and papules having quietened down, the fingers having improved, and no fresh point of inflammation having developed. On April 24th, not having seen him again, I wrote asking how he was, and he 'phoned to say he was going on famously. I have not seen him since.

I have also had good results in cases of ulcerated legs when the surrounding skin was thickened, red, and indurated; the administration of antimony caused an all-round improvement, and a more rapid healing of the sores.

Catford, S.E. L. W. BAIN.

Reports of Societies.

SOME DISEASES OF THE JEWISH RACE.

A SYMPOSIUM on some diseases of the Jewish race was held by the London Jewish Hospital Medical Society on June 13th. Dr. A. GOODMAN LEVY was in the chair.

Sir HUMPHRY ROLLESTON, in opening the discussion, said that diseases had been described as racial diseases of the Jews for no better reason than that the first recorded cases happened to have occurred among Jews. Such was the case with the condition known as dystonia musculorum deformans, also known as Oppenheim's disease. But there were diseases which, if they did not appear exclusively among Jews, were said to occur more frequently among them; thrombo-angiitis obliterans was a case in point. It had recently been suggested that this disease was on the decrease among Jews and on the increase among Gentiles. It was possible that the stress laid on the racial nature of this affection had led to its being overlooked when it occurred among Gentiles. According to Telford and Stopford the alleged racial character of this disease was the result of a "topographical" accident. A different course for the disease in Jews and Gentiles respectively had been claimed: it was said that its course in Jews was earlier and more severe; but the opposite view had also been advanced. On the question of amaurotic familial idiocy he pointed out that there were a series of allied conditions of which amaurotic familial idiocy and retinitis pigmentosa were the extremes, the first occurring early in life among Jews and the latter coming on much later in the case of both Jews and non-Jews. Both obesity and diabetes were relatively common in Jews, and it had been suggested by Joslin that Jews got diabetes because they were fat, and they were fat because of dietetic excess. But it must be remembered that Gaucher's and Niemann's diseases, which were disturbances of fat metabolism, were probably more frequent among Jews. Acromegaly had also been said to be more common among Jews, and anterior lobe pituitarism as a feature of the Jewish race was compatible with Keith's contention that the special effects of pituitary activity were best seen in the Caucasian type. That Gaucher's disease was regarded as being specially common among Jews was probably due to the accident that it was extensively investigated at the Mount Sinai Hospital. Niemann's disease, which was probably a more severe type of Gaucher's disease, appeared to be more frequent among them—if one could argue from the fifteen cases of this disease which had been reported. It probably exemplified the rule suggested by the relationship of amaurotic familial idiocy and retinitis pigmentosa—namely, that in the Jewish race there was a constitutional factor which determinated an earlier onset and a more severe form of certain diseases. On the incidence of cancer, the recent work of Sourasky had shown that whilst the total cancer mortality among Jews corresponded fairly with that of the countries in which they lived, there were some differences in the distribution of these growths, though these were probably due to the Jewish mode of life rather than to a racial factor. Tuberculosis had been regarded as rare among members of this race, but according to Feldman and others there was a great difference in their mortality and morbidity rates. Jews appeared to have a definite resistance to tuberculous infection, which was perhaps partly to be explained by their sobriety as a race. There seemed to be no special predilection for skin diseases among Jews.

Mr. A. H. LEVY, speaking of amaurotic familial idiocy, pointed out that it was wrong to regard the disease as a specifically Jewish one. Well-authenticated cases in non-Jewish infants were on record. Two such cases had been reported from London, one by Mr. Leslie Paton and the other by the speaker. The etiology of the disease was most puzzling; consanguinity and mental instability in the family of one of the parents had been blamed. Very little definite was known beyond the fact that the disease was familial in more senses than one. It appeared from a recent genealogy that the disease might establish extensive ramifications in a family, appearing in the offspring of a normal sister of victims of this affection. Another characteristic was that the disease might occur in only a single member of a family. The speaker had seen a case where one of twins had died of the disease, whilst the other showed no signs of it. The disease was not present at birth; it appeared at about the age of 3 months, and steadily progressed towards a fatal termination, usually by the age of 2. When fully developed Sach's symptom-tetrad was present: the typical macular appearance—a cherry-red spot surrounded by an area of milky haziness—blindness, idiocy, and paralysis. Pathologically the disease was definitely a degeneration of ganglion cells, not only of the retina but of the nervous system throughout, even involving the sympathetic. The appearance of the retina was striking: it was normal except for the complete absence of normal ganglion cells. From the racial point of view there was also some interest in juvenile and in adolescent cerebro-macular degeneration, diseases which were generally regarded as being allied to amaurotic familial idiocy. In the speaker's opinion the conditions were not at all allied. The juvenile and the adolescent affections had no predilections for Jews, and should not be regarded as later and milder forms of the infantile disease; the pathology appeared to be quite different, the first group being in all probability inflammatory and the infantile form degenerative. Mr. Levy also touched on the question of the alleged greater frequency of glaucoma among Jews, which he could not substantiate from his experience, and on the incidence of cataract, which was

probably not disappearing so rapidly in Jews as in the general population.

Mr. M. SOURASKY, speaking on cancer among Jews, said that the fact which emerged from a recent investigation was that Jews were neither immune to cancer nor specially prone to it. The statistics of six European capitals with large Jewish populations had been scrutinized, and in each of them the incidence of cancer among Jews followed closely that obtaining among their neighbours. On the whole, there was a closer relationship between the Jews and non-Jews of any particular city than between the Jews of different cities. That was to say, Jews did not show a specific racial incidence of cancer, but one subject to geographical variations. Jews and non-Jews showed, however, differences in the incidence of cancer in the various organs. Among Jews, cancer of the generative organs and of the mouth seemed to be rarer, and that of the gastro-intestinal tract commoner, than among non-Jews. There were, however, etiological factors operating in the Jewish community capable of explaining these differences without assuming the operation of a problematical racial factor—immunity or predisposition, as the case may be. Thus the well-known association of cancer of the tongue with chronic inflammation of this organ, which was so often of syphilitic origin, adequately explained the low incidence of cancer of the tongue in Jews, as syphilis was decidedly less common among them than among non-Jews. Not a single case of penile cancer has been recorded for Jews, whilst the disease accounted for about 1 to 2 per cent. of all cancer deaths among non-Jewish males. Yet in this case of apparent immunity the racial factor could not be invoked; it was also observed among the conglomeration of races who practised Mohammedanism. Most authorities accepted circumcision as the explanation. The incidence of cancer of the breast in Jewish women varied in different cities, being sometimes lower, sometimes a little higher, than that for the rest of the population. These differences could be accounted for by the established variations seen in different social groups. A similar explanation was advanced for the fact that in London the incidence among the poor Jews was lower than that among the wealthy. It was pointed out that among the richer Jews there were more unmarried women, the marriages were later, and the birth rate was lower, all factors favouring breast cancer. The remarkably low incidence of uterine cancer (one-third to one-half the number occurring in the rest of the population) might be attributable to the observance of the Mosaic system of hygiene, but the problem required further investigation. It was interesting to note that this form of cancer appeared to be rising in the Jewish community. Turning to the problem of the higher frequency of gastro-intestinal cancer in Jews, neither established nor possible etiological factors could be adduced as an explanation. The general tendency to attribute discrepancies observed in other forms of cancer to environmental influences would render a similar explanation of the higher incidence of gastro-intestinal cancer more feasible than one based on racial character. The well-known tendency of Jews towards metabolic disturbances—for example, obesity and diabetes—was worth remembering in this connexion.

Dr. J. BURNFORD remarked upon the extreme rarity of any specifically racial diseases, whether of Jews or of other races. The topography of disease was not so much a question of racial predisposition and immunity as of environment. Tropical diseases were tropical in the geographical and not in the racial sense. Theoretically speaking, there was a better case for racial immunity than for predisposition. Natural selection was more likely to produce a group of people resistant to certain affections than one which was specially prone to them. It was a remarkable fact that only one disease seemed to stand out as being specifically Jewish—amaurotic familial idiocy; but even this specificity was not absolute. Statistics from a hospital in the East End of London could legitimately be used to prove the frequency of certain diseases among Jews. It was generally assumed that diabetes was very common amongst Jews; in the speaker's experience this had not been very noticeable. Practice at the London Jewish Hospital did not involve treating more cases of diabetic coma than practice in a dominantly non-Jewish hospital. On the contrary, he had met with far more severe cases of diabetes and more cases of coma at hospitals where but few Jewish patients were seen. It was perhaps true that glycosuria was more frequent amongst the well-fed and under-exercised Jews, but that might equally well apply to any people. Environment was rapidly changing in the case of Jews, and in all probability less would be heard of "Jewish diseases" as time went on.

Dr. W. M. FELDMAN, speaking on tuberculosis, said that the mortality rate from tuberculosis was lower among Jews than among Gentiles, which was to be explained by the fact that the disease was less fatal among them. This could be seen from the greater number of Jews who responded favourably to treatment. Though the fact that the disease was milder in Jews was well established, the explanation was by no means clear. The dietary laws had been held responsible for this happy state, but the disease appeared to be as prevalent among the observant as among the non-observant. Natural selection operating through a heavy mortality among the Jews of earlier centuries had also been called in; but this process did not seem to have weeded out the narrow chests among the Jews. In the speaker's opinion the explanation was probably that Jews acquired immunity from frequent exposure during childhood to mild doses of tuberculosis, being especially prone to this on account of the greater frequency of the disease among Jews, its milder character, and the greater degree of overcrowding. The greater care Jews bestowed on their infants and their greater sobriety probably also counted.

Mr. A. SOURASKY, speaking of visual defects, said that in a recent investigation 1,649 Jewish boys were examined as regards eyesight in a group of Jewish evening schools in the East End of London, and 600 non-Jewish boys in London County Council schools in the same district. The tests showed that the percentage of Jewish boys with visual defect was 43.2, as against only 21.7 of the non-Jewish. The incidence of defective vision in Jewish boys was thus about double that in non-Jewish. In this respect the figures corresponded with the findings of previous inquiries. But the conclusion often drawn that the extra hours of evening study in Jewish classes were responsible was found to be unjustified, since a further analysis of the data obtained proved that the incidence of the defect in Jewish boys did not increase with the school age and was already present to the same extent among school entrants. Thus children at the age of 5 and 6, who had not yet reached school age and therefore could not be influenced by school life, showed a similar amount of visual defect to that found at the school leaving age, between 12 and 14. It would therefore appear that the preponderance of the defect among Jewish children was of a structural origin and not determined or brought out by an excessive amount of close work which had to be done by Jewish boys in evening schools. Defective vision was then studied with reference to the type of error involved, and it was found on an investigation of defects seen among 516 Jewish and 892 non-Jewish children that the proportion of long-sighted and short-sighted was such as to suggest that among Jewish children short sight was twice as frequent as among non-Jewish. At the same time, the tests led to the detection of very striking differences in the kind of long sight observed among Jewish children. One type, "low hypermetropia," was found to be more common in Jewish children than the other forms of long sight, and this was not the case with non-Jewish children. The predisposition to short sight in Jewish children and the greater incidence among Jews would appear to be the concomitant of the fact that the anthropological characteristics of the eyes of Jews were such as to leave little margin between the normal and the myopic. Hence slight disturbances were more likely to result in myopia in Jewish children than in the non-Jewish.

In the subsequent discussion Dr. F. PARKES WEBER said that in his opinion thrombo-angiitis obliterans was a disease with an economic basis rather than a racial one. Dr. BERNARD MYERS held that many Jewish characteristics could be explained on the basis of endocrine disturbances.

Reviews.

PRIMARY CANCER OF THE LUNG.

DR. HUGUENIN'S book on primary cancer of the lung[1] appears at a time when, for two reasons, the subject is attracting special attention. In the first place, it is now believed that cancer of the lung is of more frequent occurrence than formerly; and, secondly, excision of the growth has been proved in recent years to be a perfectly feasible operation in suitable cases. As regards frequency, Huguenin quotes statistics from Basle, Leipzig, Berlin, Hamburg, Vienna, and Zürich, and in every instance a considerable increase in its occurrence is recorded in recent years. The disease, however, is rare; in 8,056 necropsies in Jena between 1910 and 1924 there were 987 cases of cancer, and of these 41, or 4.2 per cent., were primary carcinomas of the lung. Lubarsch gives approximately the same percentage for the whole of Germany. With regard to the cause of the disease, its frequency among the miners of Schneeberg is strong evidence of the influence of the inhalation of irritating substances. It has been known for centuries that the miners were extremely liable to pulmonary disease, and in 1879 Härting and Hesse proved that it was due to malignant growth. The matter was thoroughly investigated by Rostoski and Saupe in 1922; 154 miners were examined, 21 died during the period of investigation, and of these no fewer than 13 had malignant tumour of the lung. The disease in Schneeberg appears to depend on some cause peculiar to that particular mining district: as regards the general increase, Huguenin discusses the question whether modern innovations, such as the extensive use of petrol, may not be regarded as responsible for it. The disease is stated to affect men much more frequently than women, a fact which has been attributed (erroneously, according to the author) to the greater exposure of men to sources of pulmonary irritation. To the subject of operative treatment the author refers but briefly; none of the 43 cases of which he gives full clinical details were operated upon, and he states that excision of the growth has not yet been attempted in France.

The book is chiefly concerned with the macroscopic and microscopic anatomy of the disease, and with its clinical manifestations. Careful descriptions are given of the various forms of the growth and of their histological characters, and these are illustrated by many excellent plates. The chapters on the symptomatology and diagnosis are equally good. The author has aimed at producing an anatomico-clinical picture of the disease, and in this he has been eminently successful.

DISEASE IN THE TROPICS.

To those who are familiar with the previous editions of STITT'S *Tropical Diseases*[2] the new edition will cause surprise, for the volume, so attractive on account of its modest dimensions, has now grown into a comprehensive treatise of over 900 pages. On this account the book is in many respects an entirely new one, though much of the matter from the smaller fourth edition has been incorporated. While the greater part of the book is devoted to those diseases which have come to be regarded as peculiar to or specially prevalent in the tropics, others such as influenza, tuberculosis, scarlet fever, etc., receive attention, and their importance to the practitioner in the tropics is emphasized. The book is thus more a treatise on general medicine and surgery as practised in the tropics than a textbook of so-called tropical diseases. This, however, does not detract from its usefulness; on the contrary, its value to the medical man far removed from the resources of civilization is thereby greatly increased. He will be prevented from falling into the error of concluding that the diseases with which he became familiar in temperate climates do not occur in tropical lands.

In its general arrangement and classification of diseases the text follows the usual lines, the various sections dealing in sequence with diseases caused by protozoa, with which the spirochaetes are included, bacteria, filterable viruses and Rickettsias, defects in nutrition, fungi and injurious plants, animal parasites including helminths, arthropods, fish, and snakes, while one section is devoted to diseases not satisfactorily grouped in the foregoing, such as heat-stroke, tropical ulcer, granuloma venereum, climatic bubo and ainhum, and another, the eighth, to problems of medical and surgical practice in the tropics. In all these sections the diseases are carefully and fully described and are thoroughly up to date. It is perhaps too much to have expected that the new *Filaria malayi* should have been mentioned, but reference might have been made to the doubts that have arisen as to the validity of the train of symptoms which have been attributed to infections with *Schizotrypanum cruzi* in South America. The part of the book occupied by the sections just referred to is in large clear type and is fully illustrated. It is followed by an appendix of almost 250 pages in small type. In this there are four sections—namely, index to clinical diagnosis, laboratory procedures, index to essential laboratory procedures, and tropical hygiene. The first section gives a very useful analysis of the main symptoms and signs described in the first part of the book. In that devoted to laboratory procedures almost every conceivable process is dealt with, and we imagine that laboratory workers in the tropics will make constant reference to it. The index to laboratory procedures gives at a glance the laboratory methods applicable to each disease for purposes of diagnosis, though we note a curious omission in the absence of reference to sleeping sickness. Section iv of the appendix deals with tropical hygiene, and this in itself is a very excellent outline of the subject.

The book concludes with an index which strikes one as relatively short for the size of the volume. Whether it will prove to be sufficient can only be determined by repeated reference. In matters of nomenclature of micro-organisms the American standard is adopted, but other names are inserted where this may lead to ambiguity. Reviewing the book as a whole, the only conclusion possible is that it is a remarkably good one, and those who decide to use it can do so with every confidence.

HISTORY OF PSYCHOLOGY.

PSYCHOLOGY has had to struggle hard for differentiation as a separate branch of study, and even to-day recognition of its individuality is not yet assured. At one time a mere appendage of philosophy, in the mid-nineteenth century it came to acquire the status of an experimental science; since then, however, it has been in danger of losing its identity in the larger disciplines of physiology and biology. Its history is the history of numerous philosophies, of the many kindred sciences, and of its own specific growth.

In tracing this development in *An Historical Introduction to Modern Psychology*,[3] Dr. GARDNER MURPHY has fulfilled admirably a most difficult task. The enormous and ever-increasing output of literature on all manner of psychological subjects makes the task of selection a peculiarly onerous one. The author admits that the fact of having to select from so great a mass of material, and of having to emphasize certain aspects of it, precludes the possibility of making, as he would have liked, an entirely impersonal and objective record of his subject. There is no cause for regret. No purely objective record could be as successful as Dr. Gardner Murphy's presentation of the history which bears evidence everywhere of a judicious choice of material and of such emphasis as is free from any prepossession. With regard to the space he allocates to the contributions of each era, the author likens his plan to Mercator's Projection. The nearer a decade approaches the present day, the more the space devoted to it. It is

[1] *Le Cancer Primitif du Poumon.* Par René Huguenin. Préface du Professeur G. Roussy. Paris: Masson et Cie. (6½ × 10. pp. iv + 330; 55 figures, 1 plate. 50 fr. sans majoration.)

[2] *The Diagnostics and Treatment of Tropical Diseases.* By E. R. Stitt, A.B., Phar., M.D., Sc.D., LL.D. Fifth edition, revised. London: H. K. Lewis and Co., Ltd. 1929. (Med. 8vo, pp. xx + 918; 243 figures. 31s. 6d. net.)

[3] *An Historical Introduction to Modern Psychology.* By Gardner Murphy, Ph.D. With a supplement by Heinrich Kluver, Ph.D. The International Library of Psychology, Philosophy, and Scientific Method. London: Kegan Paul, Trench, Trübner and Co., Ltd. (Demy 8vo, pp. xvii + 470. 21s. net.)

a plan which works very well and affords an adequate perspective. In Part I separate chapters are devoted to the psychology of the seventeenth, the eighteenth, and the early nineteenth centuries; and these are prefaced by a brief account of the intellectual background of seventeenth-century psychology. The contributions made to psychology by Hobbes, Locke, Berkeley, Hume, and Kant are skilfully summarized. The teaching of Cabanis and his doctrine of nervous system "levels" is of special interest to all who are familiar with the work of Hughlings Jackson a century later. In the early nineteenth century the Herbartian psychology was born. Herbart's theories have a curiously modern ring. His three modes of relationship of experience with consciousness bear a striking resemblance to the "conscious," "foreconscious," and "unconscious" of Freud; but though Herbart's psychology was a dynamic one, his theory of opposing ideas meant for him ideas in logical opposition, which does not presume, as the author points out, that they necessarily lead to divergent lines of conduct.

The second part of the work is devoted principally to the study of the growth of experimental psychology and of physiological psychology before and in the age of Wundt. There is a particularly interesting account of Fechner, both as the founder of the science of psychophysics and as a mystic. The contributions made to psychological thought by Pinel and later by Charcot are examined. In the larger portion of this book, which is devoted to contemporary psychology, Dr. Gardner Murphy maintains the strict continuity of thought which is so admirable a feature of his writing. He shows how experimental methods have been applied to the more complex problems of thinking and willing, and he traces the growth of the numerous subdivisions of the science of psychology. It would serve no useful purpose to set forth a summary of the contents of this part. Suffice it to say that the author is equally at home in dealing with the psycho-analytic problems of narcissism and regression as with the tenets of behaviourism. A study of contemporary German psychology by Dr. Heinrich Klüver forms a valuable supplement.

PAEDIATRICS FOR THE GENERAL PRACTITIONER.

DESPITE the growth of paediatrics as a specialty, it is the family doctor who, rightly, is first called upon to advise when children become ill, and it is important in the scientific study of children's diseases that the needs of the general practitioner should be kept in mind. Professor H. M. MCCLANAHAN has written an admirable book, entitled *Pediatrics for the General Practitioner*,[4] in which the practical aspect has been kept uppermost, while at the same time the scientific side is presented in a well-balanced manner. In just under 600 pages of clear print, well illustrated, the whole subject of diseases of children is set out, including chapters on the infectious disorders, diseases of the eye, ear, nose, and throat, tropical diseases, and diseases of the skin. The volume opens with a good chapter on the normal human infant, and the stages of normal development, physical and mental, are well traced, serving as a background for the rest of the book. Birth injuries and congenital malformations are next described, and thereafter the book follows the usual lines as far as chapter headings go. The author's description of symptoms and signs is clear throughout, and it will be noticed that again and again the most important part of his description of a disease is concerned with treatment. Rare disorders are mentioned without being given undue prominence, and a bibliography at the end of every chapter sums up the latest and the most important literature on the subject without attempting to be too detailed or complete. The author has recently visited this country, and in many parts of the book he acknowledges information picked up in his travels, a courtesy all too frequently forgotten. He has also read widely and digested a great deal of literature. This is a volume which is admirably suited to the needs of the practitioner.

[4] *Pediatrics for the General Practitioner.* By Harry Monroe McClanahan, A.M., M.D. London: J. B. Lippincott Company. 1929. (Med. 8vo, pp. xi + 606; 220 figures. 25s. net.)

MOVEMENTS OF PLANTS.

No more beautiful series of researches has ever been carried out than those recorded by Sir JAGADIS CHUNDER BOSE in his work on the *Motor Mechanism of Plants*.[5] Certain definite movements in response to stimulation have long been known in connexion with particular plant structures, such as the anthers of Berberis; but until Bose interested himself in the subject it was unsuspected that motility could be considered as a universal characteristic of plants, or that they possessed motor organs comparable to muscles, and conducting tissue comparable to the Purkinje fibres of the heart. The movements of the protoplasm within the cell membrane are well known to every student of botany, but it remained for Bose to show that under normal environmental conditions the cell exhibits a liquid tumescence or tonus, and that stimulation causes a depletion of liquid with a resulting diminution in the size of the cell—that is to say, a contraction. By means of experimental apparatus of extraordinary delicacy, devised by himself, Bose has succeeded in measuring the amount of this contraction in the individual cell, and has shown it to be about one thirty-millionth of an inch under feeble stimulation. Cells specially endowed with contractility are segregated into definite masses or tracts, somewhat analogous to muscles, subserving definite ends such as the movement of a leaf or the propulsion of sap; and they may be recognized microscopically by definite staining reactions. Bose has taken graphic records of the curve of contraction, with its latent or refractory period, its rapid rise and more gradual fall, and its associated electronegative variation, as in animal muscle. He finds that the response is of the "all-or-none" type exhibited by heart muscle, and that the effect of physical and chemical agents and poisons on the curve corresponds to that observed in animal tissue. Of particular interest are the observations on rhythmical and peristaltic movements. Good examples are afforded by Desmodium and Biophytum. The small lateral segments of the trifoliate leaf of the former plant exhibit automatic rhythmical contractions, each contraction being completed in about a hundred seconds; of the latter plant, when in a condition of good tonus, it is said that a mere touch of one of its leaves may set all its leaflets quivering, throwing them, it would seem, into clonic spasm. The explanation of the automatic rhythmical contractions is that usually accepted in the case of muscle—namely, the action of a continuous external or internal stimulus on a contractile tissue exhibiting a refractory period. Bose has made the interesting discovery of a connecting link between the single contraction or twitch and automatic rhythmical contractions. He has observed that while a single weak stimulus will provoke a single contraction, a single stronger stimulus will produce a series of several contractions; thus it appears that the energy evoked by the stimulus is not exhausted in the initial contraction, but is gradually expended in a short series of automatic rhythmical contractions. Special interest will be taken in Bose's account of the mechanism concerned in the propulsion of the sap; but the whole book will be found to be a veritable romance of plant life.

NOTES ON BOOKS.

ALL who are familiar with the French literature of tropical medicine know and esteem the name of Sergent. In one issue of *Archives de l'Institut Pasteur d'Algérie* (1928, tome vi, Nos. 2-3), Edmund and Etienne Sergent have gathered together the experience of twenty years' work for the suppression of malaria in Algeria. There is, therefore, nothing very new in the volume. It is divided into two parts: the first deals with the story of the efforts which have been made and with the lessons learnt from them; the second part is an annotated bibliography of the published work dealing with the subject under notice, largely, if not entirely, the publications of the Sergents, but the names of the authors are not stated against the papers quoted. All the familiar means of prophylaxis are dealt with, and a point is made of the fact that, in circumstances such as those of Algeria, it is easier to rid the population of the parasite than to clear the country of the vector. Curiously, though it is stated that the relative frequency of the

[5] *The Motor Mechanism of Plants.* By Sir Jagadis Chunder Bose, M.A., D.Sc., LL.D., F.R.S. London: Longmans, Green and Co. (Demy 8vo, pp. xxv + 429; 242 figures. 21s. net.)

species of plasmodium is in the order vivax, praecox, malariae, the proportionate incidence of each is not stated for Algeria, but is given for Corsica. The volume is profusely illustrated and carefully indexed.

In the Antimalaria Campaign in Corsica[6] Dr. J. SAUTET gives us one of the studies of purely local conditions which are becoming increasingly common with the spread of the realization that malaria is entirely a local problem. These detailed studies are probably of the greater local value the smaller the area surveyed, but it must be admitted that their general interest is correspondingly limited. It is by no means certain, for example, that the methods proving satisfactory in Corsican experience will be as effective elsewhere. It is the more regrettable, therefore, that some of the less immediately applicable lines of study which the author followed are not more fully reported. No doubt it is very important for Corsica that local incidence of malaria in plains, valleys, foothills, and mountains should be accurately studied, and that the peculiar habits of the local people should be considered; but Corsican people and Corsican conditions are not encountered over any great area of the world, while the several species of mosquito carrying malaria in Corsica fulfil the same function in many lands. One could wish, therefore, that in publishing his study of the conditions under which malaria carriers live and breed the author had given particulars of the species with which he was dealing. It seems reasonable to suppose that the same limits of salinity of water will prove objectionable or attractive to *Anopheles maculipennis* (or other species) in *any* country, and we know that different species of anopheles are *not* alike in their preferences in such matters. The matter is not at all advanced by observations that larvae of some sort or another, unstated, were or were not found under such and such conditions. These criticisms do not detract from the book's interest and value as a study of the local problems of Corsica, and the lot of sanitarians going to work in out-of-the-way places would be greatly lightened if they could there find ready for them such studies as this of the problems confronting them.

The second volume (Bandwürmer–Dyspnoe) of the new German dictionary of practical medicine,[7] edited by Professors GEORG and FELIX KLEMPERER, has appeared soon after the first, which we noticed some months ago in this column. Among the forty articles which the second volume contains we may draw attention to those on Barlow's disease by Professor L. F. Meyer, biochemistry by Dr. R. Ahlenstiel, lead poisoning by Professor Benno Chajes, examination of the blood by Professor H. Hirschfeld, infantile diarrhoea and vomiting by Professor H. Finkelstein of Berlin, bronchial asthma by Professor P. Krause of Münster, diseases of the heart by Professor A. W. Meyer of Charlottenburg, cocainism by Professor H. W. Maier of Zürich, methods of intestinal examination by Professor G. Ganter of Rostock, intestinal obstruction by Professor von Haberer of Düsseldorf, diabetes mellitus by Professor E. Graefe of Würzburg, diathermy by Dr. F. Nagelschmidt of Berlin, and diphtheria by Professor R. Fischl of Prague. The text of the present volume, like that of its predecessor, is liberally interspersed with illustrations, plain and coloured.

In their essay on arterio-sclerosis of the lesser circulation[8] Drs. BENEDETTI and DE CASTRO point out that this condition was first described by Andral just a hundred years ago. They give a lengthy and elaborate description and discussion of the subject, detailing two new cases of their own and quoting forty-eight others from the literature. The diagnosis of pulmonary arterio-sclerosis is, very properly, described as very difficult; its treatment is no less unsatisfactory, unless, indeed, a syphilitic factor is present. The book may be recommended to pathologists and to those interested in the rarities of medicine.

Dr. LOUIS MOINSON in his little volume on glandular therapy[9] has aimed at writing a semi-popular account of this fascinating new chapter in medicine. The author expresses the hope that his volume may help the general public to grasp the outstanding facts of the science, and that even medical men may find his summary of the facts useful in refreshing their memory. "Indocti discant et ament meminisse periti." The book, which only contains 190 pages, gives a very readable account of the nature and functions of the endocrine organs, and finishes with two chapters on organotherapy, which are written in a restrained and critical spirit. One of the most interesting features of the book is that it gives the French view of the history of the development of endocrinology. Owing to the dominance of the German work of reference, there is a certain danger of forgetting how much this science owes to such pioneers as Claude Bernard, Brown-Séquard, and Gley.

In her little book on *Health Work in Soviet Russia*[10] Miss ANNA J. HAINES, an American nurse connected with the American Friends Service Committee, gives a description, which though sympathetic is by no means blindly partisan, of the activities of the People's Commissariat for the Protection of Health. A vivid picture is presented of the departments for the protection of motherhood and infancy, health work in the army and navy, protection of children's health, health work along routes of travel, as well as those for combating tuberculosis, venereal disease, and epidemics. An instructive chapter deals with the campaign against alcoholism, which, since the suspension of prohibition in 1925, appears to be increasing in the towns, though diminishing in the villages. There is also a chapter on medical education in Russia, which includes an account of the curriculum for nurses and midwives.

[6] *La Lutte contre le Paludisme en Corse.* Par Jacques Sautet. Préface du Professeur Brumpt. Paris: Masson et Cie. 1928. (6½ × 10, pp. 86; illustrated. 16 fr.)

[7] *Neue Deutsche Klinik.* Handwörterbuch der praktischen Medizin. Herausgegeben von Professor Dr. Georg und Professor Dr. Felix Klemperer. Zweiter Band. Berlin and Wien: Urban und Schwarzenberg. 1928. (Sup. roy. 8vo, pp. iv + 794; 272 figures, 11 plates. Paper cover, M.33; bound, M.39.)

[8] *L'Arteriosclerosi del Piccolo Circolo.* By Piero Benedetti and Ugo de Castro. Bologna: L. Cappelli. 1928. (Sup. roy. 8vo, pp. 81. L.8.)

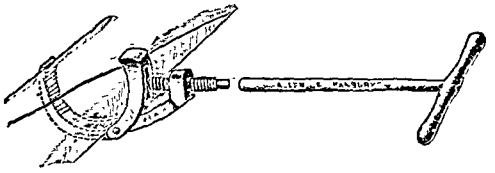
[9] *La Thérapeutique par les Glandes (Opothérapie).* By Dr. Louis Moinson. Paris: Le François. 1929. (4½ × 7½, pp. 191. 8 fr.)

[10] *Health Work in Soviet Russia.* By Anna J. Haines. New York: Vanguard Press. London: I.L.P. Bookshop. 1928. (4½ × 7½, pp. xviii + 177. 2s. 6d. net.)

PREPARATIONS AND APPLIANCES.

A BONE-RETAINING CLAMP.

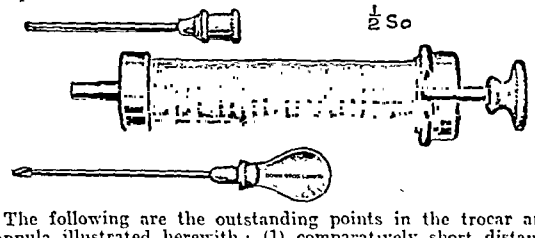
MR. ALAN H. TODD, M.S., F.R.C.S., writes: The instrument shown in the accompanying sketch is intended for use in operations upon oblique fractures of long bones, especially the femur and the humerus. The fragments are manipulated into perfect coaptation in the usual way with long bone-holding forceps, and the encircling clamp is then applied. If the fracture be of the long, oblique variety, two can be used, and retention is then perfect without the need of any other intervention by means of forceps, etc. This clamp has been devised to overcome some of the difficulties that are commonly met in the use of existing types. It is often



found that the handles of these clamps are very much in the way in the wound: either they have to be released in order to get the plate into position, or, as they can only be applied in one plane, they are not suitable for use in many cases of oblique fracture. The new clamp, the handle of which is detachable, occupies very little space in the wound, and it can be applied at almost any angle, according to the direction of the fracture. Even when one only can be used, it so far steadies the fragments that they can be held firmly in position by one assistant with very little effort. The clamp is made of stainless steel in two sizes by Allen and Hanburys, Ltd.

AN IMPROVED TROCAR AND CANNULA.

Dr. GEORGE JESSEL (consultant tuberculosis officer, Lancashire County Council) writes: In the aspiration of small abscesses—for example, cervical abscesses—and particularly in children, it is important to be able to carry this out as expeditiously as possible and with the minimum amount of inconvenience to the patient.



The following are the outstanding points in the trocar and cannula illustrated herewith: (1) comparatively short distance between point of trocar and the end of cannula; (2) close fitting of the end of cannula to the trocar, which is narrowed for the purpose, thus enabling the cannula to slip easily into the opening made in the skin; (3) convenient length and bore of cannula. The dimensions of the trocar are as follows: 2 in. long, No. 6 French catheter gauge.

The trocar and cannula have been made for me by Messrs. Down Brothers, Ltd., for use with a 10 c.cm. metal and glass syringe.

Nova et Vetera.

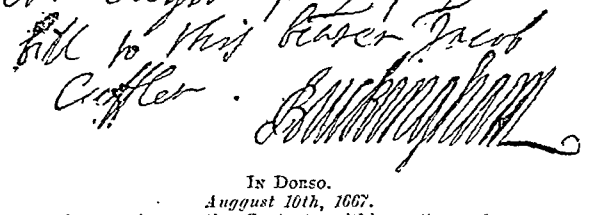
A CHEMIST'S BILL FOR THE SECOND DUKE OF BUCKINGHAM.

THIS fragment from the refuse heap of Time is interesting in many ways. First it bears out one of the epithets in Dryden's lines:

> "A man so various that he seem'd to be
> Not one, but all mankind's epitome;
> Stiff in opinions, always in the wrong,
> Was everything by starts, and nothing long;
> But in the course of one revolving moon
> Was chymist, fiddler, statesman, and buffoon."
> *Absalom and Achitophel*, Part 1, line 545.

A CHEMIST'S BILL FOR THE DUKE OF BUCKINGHAM.
His Grace the Duke of Buckinghams Bill.

(1667)		£ s. d.
	The bill which Mr. Wharton hath is ...	17=13=02
June 6.	2 Gall. Violls with stoppers double glasse ...	00=12=00
	1 Gall. Violl and stopper single glasse ...	00=05=00
	3 Pottle bottles and stoppers	00=09=00
	Porterage to Mr. Whartons	00=01=00
16.	1 half pint Retort and 1 pottle Retort ...	00=02=00
	6 ℥ Sal tartari	00=03=09
17.	2 lb Verdigreece	00=05=04
	1/2 lb Rhenish tartar	00=00=09
	6 pt Retorts	00=04=00
	6 1/2 pt Retorts	00=03=00
	6 Copping-glasses	00=02=00
	1 Nest of Crusibles and 1 Charne glasse ...	00=02=08
	1 qt Body, 1 vaporing glasse	00=02=00
	1/2 lb Salpeter	00=00=08
June 18.	Waterage to Chelsey and ye Rancounter wth ye Watch	00=05=00
	Ol: Vitrioli 1/2 lb and Salpeter 1/2 lb ...	00=04=08
20.	Reciever	00=02=06
22.	Ol: vitrioli 1 lb and Salpeter 1 lb	00=09=04
	6 Large Cohobating-glasses	02=08=00
July 13.	Sp: Guiaci 1 lb	00=16=00
	Antimonii 1 lb	00=00=08
	1 Bolts head for digesting it	00=00=06
	1 Bolts head broke where ye salt of tartar was in	01=00
	3 Crystall violls and stoppers	00=04=00
	1 Glass for ye sp: of wine and tartar ...	00=00=04
	1 halfe pint Retort	00=00=06
	facit	25=06=04



IN DORSO.
Auggust 10th, 1667.

Received according to the Contents within written of Mr. Morris and Mr. Clayton the sum of Twenty-five Pounds Six Shillings and Four Pence I say

£ s. d.
25 : 6 : 4

JACOB KUFFETER.

On the outside of the paper when folded:

The Duke of Bucks ordr for 25—6—4 and the Bill for the same.
Augo. 1667.

The bill of Jacob Kuffeter (? a Dutchman) points to several things in the Duke's requirements. First there are the instruments of simple chemical experiments. A charne or churn glass is, I believe, what we should now call a beaker. A cohobating glass or pelican is now called a returning or reflux still or retort. A pottle glass or bottle was one holding half a gallon. A bolts head was, and still is, a section of a sphere, mostly of glass, which was used to condense the vapours of volatile substances such as camphor or benzoin, also for evaporating solutions as was the vaporing glass.

The chemicals are of the simple kind too.

Sal tartari was the crude tartrate of potash or argol from wine casks which had been calcined to such an extent that the residue was an impure mixture of carbonate and hydrate of potash, with lime and other salts.

Rhenish tartar was the purest form of crude tartrate of potash found in the casks of hock and moselle. It was white in colour, whereas most other varieties were dark.

"*Verdigreece*" was impure acetate of copper. Often, however, the term was applied to green fatty acid salts of copper, produced on the metal when left in contact with stale fat or oil.

Antimonii. This was the purified sulphide of antimony, then sold in sugar-loaf shaped castings.

But among the simple chemicals and apparatus appear several items characteristic of the Duke. There is the "spirits of guaiacum," which in those days was a "sovran remedy to cure the wounds acquired in Venus' wars." Then on June 18th we find "Waterage [that is, boat hire] and the Rancounter with the Watch, 5 shillings." Evidently a street row, which his Grace was very fond of getting into. The prices seem reasonable enough, but as compared with present prices must be multiplied by about five times at least.

It is curious how fond many clever and learned men were of what might be called messing about with chemicals, much as schoolboys do now with a set of Statham's chemical experiments. Dr. Johnson confesses to having a small chemical laboratory, and that the making of essences was more or less an elusive pleasure, not to say a waste of time. At the time of this bill many celebrated men were doing the same; among them, if I remember rightly, was Prince Rupert. The Dutch seem to have been great workers in chemistry, both pharmacopoeial and industrial. The first official list of drugs and their prices was issued by the Apothecaries' Society in 1685, and their working chemist was a Dutchman.

The Mr. Wharton mentioned may possibly be George Wharton (1617–81), afterwards Sir George Wharton, Bart. He was greatly given to all kinds of trafficking in alchemy and astrology.

F. WILLIAM COCK.

BRITISH EMPIRE CANCER CAMPAIGN.

EXPERIMENTAL STUDY OF MALIGNANT DISEASE.

THE annual general meeting of the British Empire Cancer Campaign was held on July 8th at the House of Lords, with H.R.H. the DUKE OF YORK, the president, in the chair.

The Duke of York, in his presidential address, called attention to the work accomplished in the few years since the foundation of the Campaign, and made special reference to its great achievement in organizing the International Conference on Cancer, held in London last July. Probably the most important outcome of this conference was the national awakening to the possibilities of radium in combating cancer; the Campaign had played an active part in bringing about the scheme of the National Radium Fund, and a number of the members of the Grand Council were associated with the appeal itself. His Royal Highness expressed gratification at the establishment of the Garton prize of £500 and medal, which in 1931 would be awarded to any person or group of persons submitting the best essay on the early diagnosis of cancer, and in 1933 for an essay on some other aspect of the cancer problem. Since its inception, he continued, the disbursements of the Campaign, which had been directly applied to the assistance of cancer research, amounted to over £100,000, and to secure a continuous flow of contributions to this great object would call for strenuous effort on the part of the Appeal Committee. It had always been his experience that where a campaign was handled with business-like efficiency, as this one was, one could rely with confidence upon the wholehearted support of the generous British public.

Lord READING, having proposed a vote of thanks to the Duke of York for accepting the office as president and for his interest in the Campaign, Sir THOMAS HORDER submitted the annual report for adoption. The greatest result of the International Conference, he said, had been the impetus it had given to cancer research throughout the

world. A significant effect was that the accumulated experience in regard to the relative efficiency of radium treatment had been crystallized, and thereby in large measure a stimulus had been given to the formation in this country of a National Radium Fund. He would like, however, to mention a grave danger. In the minds of many people who, while intelligent, were yet uninitiated in medicine, there might have arisen an unfounded belief in the complete efficacy of radium as a cure for cancer; such a belief, if carried into practice in any case in which the growth was completely removable by operation, might have very unfortunate results for the patient. Perhaps in the course of time, as a result of wider experience and improvement in technique, radium might well come to equal, or even to exceed, operative measures in efficiency. At present, said Sir Thomas Horder, it was in many cases the bounden duty of the doctor acting in the patient's interest to overrule the not unnatural antipathy to surgical measures; it was none the less true that the number of cases to which radium was applicable, and in which brilliant results were achieved, increased every year. He would sound one further note of warning: it was open to doubt whether many of the institutions to-day advertising for money wherewith to purchase radium had upon their staffs men and women qualified to use it. The Radium Commission would have to satisfy itself that those into whose hands this powerful but dangerous remedy was placed had been properly trained in its use. Some of the money might even be devoted to the provision of such training.

Mr. J. BEAUMONT PEARSE, having seconded the adoption of the report, the Grand Council held its quarterly meeting, and re-elected Lord Reading as chairman and Lord Dawson of Penn and Sir John Bland-Sutton as vice-chairmen.

THE SIXTH ANNUAL REPORT.

In opening the sixth annual report the Grand Council is able to record the fact that by central co-ordination of the investigations conducted under its auspices not only has duplication been avoided, but researches considered unlikely to yield satisfactory results have been brought to a close. These are desirable economies, but the Grand Council points out that, failing increased public support, it may find it necessary to limit the amount of its grants to institutions and individuals engaged in cancer research. It feels sure that the public does not desire that there should be parsimony in subsidizing an effort of such importance, and that it is only necessary to draw attention to the need for increased financial support to stimulate further and adequate subscriptions.

Treatment by Radium.

During the past year a great deal of work has been carried out to ascertain the most effective dosage of radium in the treatment of malignant disease and the most suitable form of screening required. It is now generally recognized that the curative effect of radium is due to gamma irradiation, and, beta irradiation being undesirable, it is necessary to subdivide and distribute radium salt into containers which give the maximum screenage. Platinum, which on account of its density is the best filter available, is now generally used as the standard screen, its thickness varying with the amount of radium contained per unit of length. In practice it has been found that 0.5 mm. of platinum for 0.5 mg. of radium in a length of 1 cm. screens off 99.6 per cent. of beta rays, but to avoid the occurrence of radium necrosis in the region of radio-resistant neoplasms, which have to be treated by prolonged irradiation, it has been found necessary to increase screenage to as much as 1 mm. of platinum.

Careful investigations have been made into the best method of constructing and using the so-called radium bomb, by means of which rays from a large mass of radium, suitably screened, can be brought to bear upon the tumour from a distance outside the body. Owing largely to the radium shortage the bomb, which must contain almost a gram of radium, has hitherto been very little used in this country; but with the increased supply of radium soon to be made available by the National Radium Fund it is proposed to construct several such bombs, and to investigate how they may be adapted to obtain the best therapeutic results, combined with the greatest economy in the use of radium.

A large number of the figures from the various research centres deal with cancer of the uterus, in which cures estimated on a basis of three years' freedom from recurrence amount to about 50 per cent. Results of treatment in cancer of the rectum are less satisfactory, owing to the far greater difficulty of access to the tumour. The technique, however, has become standardized, and better results may be expected in the future.

X-Ray Therapy.

During the year research work has been continued on the use of hard x rays in the treatment of cancer. The so-called stimulation effect of small and repeated doses has been carefully studied in animals, and it is interesting to note that so far it has not been possible to verify the supposition that under-dosage stimulates rather than retards the growth. It has been shown that in certain situations x rays alone cause complete disappearance of the growth, patients having remained free from a recurrence for several years. Though the percentage of such cures has hitherto been disappointing, it seems possible that a combination of x rays with radium may give better results than the use of either of these therapeutic devices alone. The danger that x-ray workers run from slight leakage in the apparatus has served to initiate an investigation of the effect on the blood of very small and repeated doses of x rays extended over a long period. Animals have been exposed to daily doses of x rays of about the same size as those to which the radiologist might be exposed in the course of his work. It has been found that many months elapse before notable changes occur in the blood, and even then there is no distinct reduction in the number of lymphocytes, although the polymorphonuclear leucocytes increase. No evidence of impaired health can be detected in animals which have been thus treated for just over a year, but to reproduce the conditions under which the radiologist works it will be necessary to continue the exposures for very much longer. It must be remembered that the whole effect of irradiation does not manifest itself at once; there are persistent and usually progressive sequelae which must always be considered in planning treatment. It is possible, therefore, that in the animals just discussed there may still arise signs due to the long-continued treatment with x rays. On the clinical side blood examinations have been performed at frequent intervals during treatment of selected patients who have been subjected to irradiation by carefully measured doses of x rays. The correlation of the haematological changes with the physical dose of x rays has, so far, not been completed, but already the blood changes which indicate that treatment should be suspended are being recognized. In man, just as in the rabbit, it has been found that a rise in the number of the hyaline leucocytes to a level about that of the lymphocytes is a sign that the total dose administered has been too large; fortunately, it has also been found that the blood will return to normal if x-ray treatment is suspended, though several months may elapse before it can safely be resumed. As exposure to ultra-violet radiation appears to hasten the return of normal haematological conditions, it is possible that x-ray treatment, combined with exposure to ultra-violet rays, will permit of the use of a somewhat more *intensive x-ray therapy*.

The Virus of Rous Sarcoma.

Several investigations have been carried out to ascertain the nature of the virus of Rous sarcoma. It has previously been shown that the infective agent in filtrates is less easily destroyed by ultra-violet rays than are the common pathogenic bacteria. In the present experiments the time required to destroy the virus by ultra-violet rays is being compared with that required to destroy various antibodies and ferments, among them diastase, trypsin, complement, and haemolytic amboceptor. The results indicate that the susceptibility of the infective agent of the Rous sarcoma

lies between that of the ferments and of the bacteriophage, it being considerably more easily destroyed than in trypsin—the most susceptible of the ferments examined. Attempts to produce artificial tumours in fowls by the inoculation of embryo pulp and arsenic have so far failed, the results obtained last year being, therefore, unverified. Work on this subject, however, is still in progress.

Production of Immunity against Cancer.

Various methods for the prevention of cancer, or of its recurrence after operation, have been investigated, and last year the latter was shown to be possible in the transplantable tumours of rats. Jensen's rat sarcoma or rat carcinoma can be cured by injecting 1 per cent. formalin into the tumours, and, by this vaccine treatment, cured rats are rendered immune against subsequent implantation of the tumour cells concerned. The study of two spontaneous chicken tumours has yielded further evidence of the existence of antibodies having a special toxicity to cancer cells. Fragments of these tumours injected into rats produced in the serum antibodies which killed not only cultured chicken tumour cells, but cultures of mouse cancer cells as well; applied to cultures of normal mouse tissue they were quite harmless. While, however, vaccine treatment has readily brought about the disappearance of transplantable tumours, it has not been so effective in the treatment of spontaneous tumours.

Carcinogenic Agents.

It has been shown that mere prolonged irritation will not produce cancer, but that some other factor, the exact nature of which is not yet clear, is also necessary. There is no increase in the percentage of tumours obtained when the concentration of cancer-producing substances is raised above a certain critical level. Further observations in this connexion, bearing especially on the use of carbon dioxide snow as a carcinogenic agent, on the effect of tobacco smoke, and on artificially induced hyperplasia, have already been described in our issue of July 6th, at page 25.

Cancer of the Rectum and Alimentary Tract.

It is hoped that careful studies now proceeding of the mechanism by which cancer of the rectum and alimentary tract spreads from the primary tumour by way of the lymphatic tissues and blood stream will enable the surgeon more completely to eradicate the disease, either by planning more extended operations or by inserting radium along known areas of spread. In the vast majority of cases of rectal cancer there is nothing in the patient's history pointing to a previous condition which might be regarded as a forerunner of tumour. No confirmation of the views that long-existent haemorrhoids, chronic constipation, or, except very rarely, chronic pruritus ani, may give rise to cancer has been found. On the other hand, both experimental and clinical observation have shown that the onset of carcinoma is commonly preceded in different organs of the body by a pre-cancerous condition of the epithelium. According to studies made at St. Mark's Hospital, the earliest recognizable lesion in the development of cancer of the rectum is a hyperplastic change taking the form of irregular epithelial proliferations, scattered over an extensive area of the bowel. This condition is followed by the appearance of visible adenomata, numerous and often separated from each other by several inches of mucous membrane. The bowel may remain in this state for many years, or, at any stage in the epithelial proliferation or in the growth of an adenoma, the epithelium may assume the invasive properties characteristic of cancer. It would appear, then, that carcinoma formation is an accident happening to a previously existing adenoma. With the development and dissemination of the malignant tumour, the neighbouring epithelial proliferations and benign tumours tend to retrogress and disappear, so that they are less evident in association with large malignant ulcers. It is as yet early to estimate the value of investigations upon the pre-cancerous state, but it is suggested in the report that this line of research has in many cases already prevented the development of bowel cancer.

MATERNITY AND CHILD WELFARE CONFERENCE.

THE PROBLEM OF MATERNAL MORBIDITY.

DURING the week beginning July 1st the annual conference on maternity and child welfare, organized by the National Association for the Prevention of Infant Mortality, in co-operation with the Maternity and Child Welfare Group of the Society of Medical Officers of Health, was held at the Friends House, Euston Road. Mr. ARTHUR GREENWOOD, M.P., Minister of Health, addressed one session of the conference, over which Mr. E. B. TURNER presided. Mr. Greenwood emphasized the value of antenatal care in reducing maternal mortality, and said that he hoped it might be his privilege before he laid down his office to do something to strengthen the health services relating to maternity and infant welfare, to improve the status and opportunities of the midwife, and to ensure that, as far as was humanly possible, the terrors of confinement were removed from the mother.

Maternity Nursing.

A whole day was devoted to the subject of maternal morbidity, approached from the standpoint of maternity nursing, on which subject a paper was read by Dame JANET CAMPBELL. There was general agreement, she said, that maternity nursing as a rule was not so adequate or satisfactory as it should be, and that an improvement in this service could scarcely fail to lead to some reduction in morbidity, perhaps also in mortality. To secure the necessary improvement untrained women must be prevented from practising at all as maternity nurses, while encouraged to act as home helps, and recognized maternity nursing must be limited to women who were qualified midwives, who should be given a more adequate training in nursing, and have it made practicable for them to devote sufficient time and attention to all their patients. Dr. J. S. FAIRBAIRN spoke of the variable quality of the type of women serving as maternity nurses; they ranged from the handywoman or self-styled nurse to the certificated midwife. Unfortunately, the large class of people who were barely able to afford the services of a doctor were apt to engage a nurse without training because of her cheapness, and perhaps because she would do menial service in the house. Until every woman had a trained midwife to nurse her, and the handywoman and the "nurse" of inferior training were wiped out, puerperal morbidity would remain more rife than it should be. The experienced midwife regarded it as her primary duty to secure normal labour and lying-in. Miss E. DOUBLEDAY, representing the College of Nursing, thought that the public needed to be awakened to the fact that facilities for maternity nursing existed, both for those who could pay for the service and for those who could not.

At the same session Mrs. CHALMERS WATSON, M.D., spoke of the value of milk irradiated with ultra-violet rays as a curative agent for rickets. Her own clinical investigations at the Royal Infirmary, Edinburgh, bore out the indications from German researches that this was a therapeutic factor of importance.

Causes and Extent of Maternal Morbidity.

Mr. COMYNS BERKELEY dealt with the subject of maternal morbidity with special reference to abortions. He thought the importance of abortion as a cause of morbidity could not be exaggerated, more especially as there was reason to believe that criminal abortion was on the increase in this country, as it certainly was in other European States. It was with criminal abortions—those self-induced being included in this category—that most of the trouble with regard to subsequent morbidity arose. The absence of expert knowledge of the genital anatomy, and of any attempt to ensure antisepsis and asepsis, also the necessity of preserving secrecy, led to a large number of deaths, much misery, and perhaps lifelong invalidism. In natural or legitimate abortion sepsis and injury were of far less

frequent occurrence. The injury associated with abortion was generally perforation of the uterus, the result, in nearly every case, of criminal interference. After turning to other conditions productive of maternal morbidity, but in which the fact of abortion did not enter, Dr. Berkeley said that a vast amount of morbidity was due to ignorance, carelessness, and undue haste. The key to the situation was education—education of the practitioner, the student, the midwife, the pregnant woman herself, and the community generally. There should be some agency whereby every pregnant woman would have the importance of ante-natal supervision (and, if necessary, treatment) brought directly to her notice. A large amount of work had to be done before the community could be made fully to realize the vital importance of ante-natal care and efficient care during labour. The lay public must be made to understand that labour was in a sense an operation, and required just as much forethought. People would pay an adequate fee, more or less willingly, for a surgical operation or a specialist opinion, but would jib at paying an utterly inadequate and even absurd fee for the confinement of their wives. With regard to the difficult question of abortion, he supposed it was Utopian, but much misery and much maternal morbidity could be saved if abortion were made compulsorily notifiable.

After Miss MUSSON, secretary of the National Council for the Unmarried Mother and her Child, had spoken on the devious ways in which abortifacient drugs were brought before the public, Dr. DOROTHY MENDENHALL described the position in regard to maternal mortality in the United States. The deaths of women from puerperal causes in the registration area in the United States in 1921 were 68 per 10,000 live births, and in 1927 the number had declined to 65; but as in the meantime certain States which already had a high maternal death rate had come into the registration area, the improvement was rather better than the figures suggested. A preliminary tabulation of the causes of death in seven States in 1927 showed that puerperal septicaemia accounted for 40 per cent. of puerperal deaths, and that abortions preceded 42 per cent. of the deaths from septicaemia.

Dr. F. H. SCRASE (medical officer of health, Hampstead) urged the formation of panels of consultant gynaecologists and obstetricians in order that skilled assistance might be readily and freely accessible to the general practitioner in time of difficulty. Investigations in Hampstead showed that about one-half of the stillbirths were attributable to conditions where skilled assistance would have been of material help, and might have obviated the stillbirth. Consulting obstetricians, who could only be called in by a medical practitioner, and whose fees were guaranteed by the local authority, had now been appointed in several districts, and up to the present none of the difficulties anticipated in some quarters had occurred.

The Problem of Abortion.

During the conference a special medical session was organized by the Maternity and Child Welfare Group of the Society of Medical Officers of Health, when Dame LOUISE MCILROY spoke on the problem of abortion. She said that there had been an enormous increase in the number of abortions since the war. Formerly it was chiefly unmarried women who were concerned, but her experience in hospital was that now the majority of the victims were married women. Behind the trouble, to a large extent, lay unemployment and housing difficulties. Dealing first with spontaneous abortion, she said that this was being reduced with efficient ante-natal treatment. As for therapeutic abortion, this was undoubtedly lawful, but was it legal? She could not find any explicit reference in any statute to establish its legality. It was undoubtedly a confession of failure, and with further knowledge she believed that abortion as a method of treatment would cease. Was it an over-conscientious view on her part to regard the ovum as a life from the beginning, and that life should not be interfered with except for very grave medical reasons? The question arose acutely in pregnancy resulting from rape. French medical opinion during the war, when some French women had been violated by German soldiery, was that the pregnancy should go on unless there was a medical reason for interference. She supposed that was the correct view, though one's sympathies were with the victim. In the case of criminal (including self-induced) abortions, uterine injections appeared now to be the favoured method. Women of good (even university) education would take drugs to induce abortion, while stopping short of operation. As remedies one could only suggest the inculcation of a higher moral outlook. The grave danger attendant and consequent upon abortions might be impressed upon women. She also desired to see notification of abortion, under a confidential system, and the suppression of advertisements of abortifacients.

Professor BECKWITH WHITEHOUSE said that the frequency of abortion to-day on the Continent was appalling. It was stated that in Hamburg in 1926 there were two abortions for every three births. In this country he could not think that the figures approached to anywhere near those of Germany. Recently he analysed the incidence of abortion in 1,000 patients admitted successively to his ward at Birmingham General Hospital from 1924 to 1928. These women had produced 3,228 children, and in addition had had 597 abortions. He made a similar investigation for three pre-war years, 1911–13, when 616 women were responsible for 2,594 pregnancies at term and 524 abortions. The greatest number of abortions occurred in the most fertile women; this was specially marked in pre-war cases, when families were larger than now. He was rather inclined to think that many of these abortions were the result of impaired reproductive capacity, and due to defective vitality in the germ plasm. The extreme complexity of ante-natal physiology was gradually being revealed. It was known that if certain vitamins were withheld from the diet of pregnant rats the animals always aborted and the embryos were defective in development; also that if trauma were applied to the corpus luteum at any time until the placental circulation was established the decidua broke down and the developing ovum was aborted. It was conceivable that many cases of abortion that followed sudden mental and physical shock were caused by inhibition of the corpus luteum. Another important line of investigation in the causation of abortion was the physiological function of the endometrium. He believed that during the first weeks of gestation and before placental circulation was established, the secretion of the uterine glands was an important factor in the nutrition of the embryo. Why should the calcium and iodine content of the secretion of the uterine glands be so high if not for the welfare of the developing ovum? He knew of several instances of women, who habitually aborted, successfully going to term when treated with heavy doses of calcium and iodine and a diet rich in vitamin E. One patient who had had six abortions and had reached the age of 40 produced a child weighing over 10 lb., for which he had to perform Caesarean section. He believed that too important a role was attributed to syphilis as a cause of repeated miscarriage.

Dr. F. J. MCCANN considered that many abortions occurred because women did not get sufficient nutriment to keep the reproductive power going. He made a plea for special abortion wards. Mr. E. B. TURNER said that fifty years ago the abortionmonger carried on in a hole-and-corner way, but now the practice appeared to be countenanced by many people in good position and reputation, by whom it was not regarded as a criminal act. He thought it ought to be proclaimed from the housetops that an attitude of compliance with a patient's importunity on the part of a member of the profession was wrong. He also made some straightforward remarks on the need for maintaining strict professional secrecy.

The rest of the discussion was rather side-tracked by some speakers who put forward birth control as a necessary and innocent alternative to the practice of abortion; but one practical outcome of the debate was, at Dame Louise McIlroy's suggestion, the appointment of a small committee to seek the co-operation of the Medico-Legal Society in an investigation into the prevalence of criminal abortion and the death rate therefrom.

British Medical Journal.

SATURDAY, JULY 13TH, 1929.

DIATHESES AND TEMPERAMENTS IN A NEW LIGHT.

A PROFESSOR of clinical medicine who inscribes on the wall of his classroom in Genoa the aphorism "Anatomy and physiology separate the organs; the clinic reunites them," may well be expected to provide for his pupils some inspiring and interesting lessons. This expectation is amply confirmed when from the classroom we pass to the printed page, and read Professor Nicola Pende's *Constitutional Inadequacies*.[1] A modest volume of some 250 pages, it presents a closely reasoned argument based upon multiplied observations and a considerable scientific equipment; and the reading of its English translation is an enjoyable experience which we owe to the linguistic and literary abilities of Dr. Sante Naccarati.

The principal thesis which Dr. Pende advances is that the individual clinical problem can be fully understood only by the study of the patient's personality. This proposition—let it be admitted—does not on the face of it present a particularly novel or original quality. That the physician ought to treat the patient and not the disease, and that personal idiosynerasies display themselves in medicine as in other fields, are phrases familiar in many exhortations, though neither the one nor the other pretends to much in the shape of scientific explanation or practical guidance. Further, developments in medicine during the last generation or so have rather obscured the personal quality of the patient as an important element in the clinical discussion in which he believes himself to be the central figure. Preventive medicine cultivates a communal rather than a personal outlook, and under the influence of bacteriology and other etiological studies the individual patient has largely appeared as a victim on whom agents from without work their wicked will, while he himself is catalogued as merely one in a group of more or less numerous units suffering from discomfiture by some invading force. The application of general doctrines to individual sufferers, rather than the identification of particular personal qualities, has been the main ambition of clinical medicine. Under such influences terms which were at one time common in the medical vocabulary have to a large extent disappeared. *Temperament, diathesis, constitution*, have their pages and chapters throughout the centuries, but little has been heard of them for something like a generation, though now and again one listens to an expressed preference for a medical adviser who has had the opportunity of studying the family "constitution"—a plea perhaps condescendingly accepted with the tolerance due to a popular and harmless superstition.

Now, according to Dr. Pende's claim, the wheel has come full circle, and clinical medicine, alike in its etiological and therapeutic aspects, must include the study of "the constitutional personality" of the sick man; hints to be found in Hippocrates and in the humoral pathology must be recognized as of high value; and temperaments and diatheses are to be accepted as capable of confident identification and of groupings and classifications for which, to those who have eyes to see, appropriate pigeon-holes are duly waiting. There is, however, a difference between the old and the new. Whereas formerly the classification of temperaments depended largely on general impressions, the new classification professes a basis of measurements, or at least of morphological, psychological, or other recognizable and definable facts. If some of the names are old friends it is not so much their tradition and ancestry that they boast, though they do not disown these; rather their claim to attention is the shining light of scientific accuracy which they display upon their foreheads. In short, the argument is that there can be recognized by the physician "types" of constitution; that while in each group there are extreme and conspicuous members, the group includes also degrees and gradations which are not less significant because they are less obtrusive; that important agencies in the causation of the structural and functional inadequacies or maladjustments which explain the constitutional peculiarities of the individual are heredity and endocrine disturbances; and that the recognition and accurate interpretation of these peculiarities in each patient is a necessity for a well-judged diagnostic and therapeutic practice.

The earlier part of the book is occupied by a discussion of the criteria which must be applied in order to determine to which constitutional group the individual belongs, while the later chapters consider in series the various anatomical and physiological systems of the body and the constitutional inadequacies to which these are subject. The study is presented as "human biotypology" or the "science of the individual" as this is related to disease, whether determined, on the one hand, by structural inadequacies or physiological discords arising within the body itself, or, on the other, by the action of external agents and the particular quality of the patient's response, modified, as this may be, by the constitutional characters of individual tissues. The purpose of the argument may be summarized as an attempt to revive in clinical medicine and in clinical psychology the study of the factors which both give individuality to the patient and influence the degree or character of his reactions and responses.

In his preface Dr. Pende pays a cordial tribute to other teachers, and especially to De Giovanni, who, he writes, "for many years attacked the communistic regime which prevailed in medicine and under which the individual characteristics of the patient were ignored." The book altogether is a most interesting and engaging one, and even if, as we may fairly say, English medicine has always placed a sufficient emphasis on the personality of the patient, Dr. Pende has provided both a justification for this attitude and a plea for its cultivation and extension upon the basis of exact observation and scientific grouping. His pages are not for the passing moment; on the contrary, they call for careful study, and this they most certainly deserve.

[1] *Constitutional Inadequacies*. By Nicola Pende, M.D. Translated by Sante Naccarati, M.D., D.Sc., Ph.D. With a foreword by George Draper, M.D. Philadelphia: Lea and Febiger. 1929. 3.50 dollars.

POLIOMYELITIS IN MANITOBA.

IN the late summer and autumn of 1928 an epidemic of acute anterior poliomyelitis occurred in the province of Manitoba, 435 cases in all being reported. These cases afforded an opportunity for a close study of some of the problems of this disorder which still require solution, and in 161 instances the use of convalescent serum and a careful clinical study of the results brought to light many points of interest. The work has been done by the Medical Research Committee of the University of Manitoba, and is published at the request of the Ministry of Health and Public Welfare by the Great-West Life Assurance Company.[1]

A paper on the distribution of cases illustrates some of the difficulties concerned with the spread of the disease. The epidemic reached its peak in September, and nearly one-third of the patients were below the age of 5 and two-thirds below the age of 10. Evidence is brought forward to show that where contact is known to have existed through more than one case occurring in the same family, or revealed by some other information, such cases were usually related by time intervals of less than two days or of six or seven days. The latter period appeared in a larger number of pairs of cases in the same family than did the short interval. It is concluded that "it is reasonable to consider as a distinct possibility transmission of the disease from individual to individual *in some way* at present not definitely known." Another important series of papers deals with the preparation and use of convalescent serum for the cases of poliomyelitis. This serum was obtained from individuals who had previously suffered from the disease. Through the health authorities in the city of Winnipeg a fairly complete list of previous cases of poliomyelitis which had occurred in the city was prepared, and, although only a few individuals could be quickly traced, sufficient serum was obtained to meet the early demands. Donors were paid at the rate of 5 dollars for 50 c.cm. of blood or less, and 10 dollars for more than 50 and less than 100 c.cm. As soon as the demand for serum began a serious shortage of donors was apparent, and various measures were tried, such as obtaining serum from neighbouring towns and even from Paris. In September the newspapers were asked to help, and, thanks to the publicity thus afforded, a large number of donors were obtained. The serum used was Wassermann-negative sterile blood serum, pooled from six to eight donors. Of the cases seen by the consultants specially appointed to investigate the epidemic, 161 were selected on a basis of positive diagnosis and accurate records. The serum was given by the intramuscular route, standard doses of 25 c.cm. being employed in the pre-paralytic stage of the disease. Over 8,000 c.cm. of serum were administered during the course of the epidemic. Of the 161 cases used for analysing the results 74 received serum in the pre-paralytic stage of the disease, 54 received no serum, and 33 cases received serum too late to be of much value—that is, after the onset of paralysis. Within a few hours following the use of serum the usual result was a drop in temperature and complete recovery from most of the symptoms.

Dealing with the eventual results, the report shows that among the 74 cases receiving serum in the pre-paralytic stage no deaths occurred, and only 5 cases showed any residual paralysis—that is, approximately between 6 and 7 per cent. Among 33 cases given serum after the onset of paralysis there occurred 11 deaths and 15 cases of residual paralysis (or 45 per cent.), while among the 54 cases receiving no serum there were 6 deaths and 34 cases of residual paralysis (or 64 per cent.). It is recognized that the virus of the disease becomes attenuated in the later stages of an epidemic, and also that the serum-treated cases were in general milder cases, while the controls were for the most part those seen after paralysis had occurred; but despite these objections, which are well met in the report, there seems not the slightest doubt of the value of convalescent serum administered in the pre-paralytic stage of the disease by the intramuscular route, which is simple and safe. The pathology of the epidemic and the symptomatology and laboratory findings are well summarized in other papers included in this very excellent report, which should be carefully studied by all interested in the control and treatment of this essentially crippling disorder.

[1] Report on the Poliomyelitis Epidemic in Manitoba, 1928. By the Medical Research Committee of the University of Manitoba. Report No. 1 of the Department of Health and Public Welfare.

THE CAMPAIGN AGAINST VENEREAL DISEASE.

THE fourth imperial congress organized by the British Social Hygiene Council has been held in London during the past week. Representatives of eight Dominion Governments (State and Provincial) and twelve Colonial Governments, as well as of universities and voluntary organizations, were present. The general subject debated by the congress was the international situation with regard to venereal diseases, and reports on the progress of the anti-venereal campaign were made by delegates from many different parts of the Empire. Two sessions were devoted to educational propaganda, in particular to the question how a biological outlook on life and its problems could be developed by those in charge of university, public school, and elementary education. The delegates dined together at the Hotel Cecil on July 8th, when the company included Lord Passfield, Secretary of State for the Dominions and Colonies, Dr. Drummond Shiels, M.P., Under Secretary of State for India, and representatives of the League of Nations, the Ministry of Health, the Scottish Board of Health, and colonial health administrations. Lord Passfield (who will always be better known as Mr. Sidney Webb) said that he was glad that one of his earliest social functions as Secretary of State should be connected with the furthering of the moral and social welfare of the various races making up the British Empire. He paid a tribute to the patient and persistent work of the British Social Hygiene Council during the past decade. The council had carried out work under the aegis of the Colonial Office since 1920, when, on a grant of £7,500 provided by the Treasury at the request of the Colonial Office, three commissions were dispatched, each consisting of a medical and an educational specialist, to the West Indies, the Mediterranean, and the Far East. These commissions might be said to have initiated the recent move throughout the Colonial Empire in handling this difficult problem of venereal disease. Out of the liaison between the council and the Colonial Medical Service had grown the Imperial Social Hygiene Congresses, which had become biennial events of great utility. The council was called upon to deal with one of the worst scourges of mankind, which only in recent years had received the serious attention it deserved. "Will you forgive me if I add a few words, inappropriate perhaps to an after-dinner occasion," the Secretary of State went on, "on the philosophy that I detect in the work that you are doing, in so many different countries, with such varied devices and expedients, legislative and administrative, and with so great a promise of success? Forty-eight years ago, when I entered the Colonial Office—in a different grade from

that which I hold to-day—the only action taken by the community with regard to venereal diseases was in the nature of repression. Society rang the changes on punishment, obloquy, blame, ostracism. We even regarded the ill health, disease, and suffering of the victims—some of them innocent victims—as instruments in the social punishment we presumptuously meted out. Registration, regulation, hospital treatment—whatever was done—were all parts of a framework of repression. I must not tire you by even a passing tribute to the noble men and women who began to teach a more excellent way. The policy that the British Social Hygiene Council has been working out with ever-increasing approval may be described as the substitution for a social framework of repression of a social framework of prevention. To construct such a framework is a difficult task. It is easy to punish, but how futile! We can be prompt to blame, but in our ignorance how unjust! It is plausible to regulate what we do not know how to prevent, but how unsuccessful! To grow the new social tissue involved in better education in biology and physiology, in more healthful conditions of leisure and recreation, in medical treatment both up to date and adequately equipped and universally accessible, together with the strong arm of the law vigilant to protect the child, the woman, and also the man against abuse—all this calls for an enormous amount of personal service of philanthropic people, it requires from all Governments concerned not only cordial co-operation, but also money, and, hardest of all, it demands from statesmen and officials what someone has called the intolerable toil of thought."

IODINE AND GOITRE.

A RECENT study by Dr. Eric Adlercreutz of Helsingfors of the distribution of goitre in Finland and its relation to the iodine content of water[1] is valuable in affording a corrective to any narrow view of the causes of this condition. In his investigation Adlercreutz used two methods: by carefully checking the replies to a questionary sent out to all practising doctors in Finland he obtained what appears to be a just view of the distribution of goitre throughout the country; and by analysis of water samples from a large number of localities he obtained the data by which correlation could be effected between the incidence of goitre and the distribution of iodine. His work, however, is based on the unproven assumption that the iodine content of water is a fair reflection of the iodine in the soil, air, and food produce of its neighbourhood, and it takes no account of the fact that, except among primitive peoples who live off the land they cultivate, iodine intake is only slightly connected with the iodine content of the environment. His main conclusion is that in Finland there is generally a positive correlation between the prevalence of goitre and a low iodine content of water, but that there are many exceptions, notably at Vetil, where water of low iodine content supplies both a definite goitre area and its non-goitrous surroundings, and in Värtsila, where goitre is associated with water of high iodine content. From the exceptions he deduces that deficient iodine is not the only cause of goitre, and he recognizes, moreover, that even a demonstration of a strict correlation between goitre and the iodine content of the environment does not completely prove that between these facts there is a causal relation. One of the greatest difficulties in an investigation of this kind is in the accurate quantitative analysis of samples of water containing minute quantities of iodine. Adlercreutz, after six months' practice, adopted von Fellenberg's method, and appears to have taken great care to ensure the reliability of his findings, conducting a number of duplicate analyses with consistent results. But what he failed to do, and what in such a difficult estimation would appear to be essential, was to carry out regularly double analyses, one of the sample itself, the other after a known quantity of iodine had been added. Even if it is granted that the published estimations are to be relied upon to within 100 per cent.—with von Fellenberg's method a reasonable margin of error—there appear to be, as Adlercreutz himself has shown, large variations among samples of water from the same source taken at different times. A spring water, for example, tested in this way showed variations of iodine content from 0.07 to 0.30 part per thousand million. A single analysis of a water may give, therefore, not only an erroneous idea of the general iodine richness or poverty of the surrounding district, but of the average iodine content of the water itself. Adlercreutz analysed altogether 74 samples of water from 60 places in Finland, and eight samples of purified town supplies. The iodine content of spring waters, though not of the waters of rivers, lakes, and town supplies, appeared to be related with the prevalence of goitre, and, arbitrarily choosing the figure of 40 parts per hundred thousand millions as his criterion, above and below which he classes water as rich or poor in iodine, he found that of 36 places in the goitrous part of the country, spring water is poor in iodine in 31, while of 24 places in the non-goitrous part it is poor only in 8. If, however, the average iodine content of these waters in the goitrous and non-goitrous areas is compared, the differences, on account of the large variations, are statistically not very significant. The figures, indeed, are necessarily so uncertain both for the iodine content of water and for the prevalence of goitre that it seems doubtful if Adlercreutz has succeeded in establishing a conclusive association between them. His final conclusion is that "McCarrison's view of the multiple causes of goitre seems the most feasible. These causes are apparently different in different places (perhaps also of different intensities), a fact which may probably be connected with the prevalence of more than one type of endemic goitre."

[1] *Orienterende Untersuchung über die Verbreitung des Kropfes in Finnland und über deren Zusammenhang mit dem Jodvorkommen im Wasser.* Von Eric Adlercreutz. Stockholm: P. A. Norstedt und Söner.

CONGRESS OF BRITISH AND AMERICAN ORTHOPAEDISTS.

THE British and American Orthopaedic Associations held a joint meeting in London, at the House of the Royal Society of Medicine, from July 4th to 6th. The various sessions were presided over in turn by Professor E. Hey Groves and Dr. Fred Albee, presidents respectively of the two organizations, and were attended by about 150 members, of whom 60 had crossed the Atlantic. In addition to a full programme of lectures, discussions, and demonstrations, the members attended an evening reception at the Royal College of Surgeons, where they were received by Lord Moynihan; they also spent half a day at Alton, where Sir Henry Gauvain gave an address on the principles of treatment employed there. Occasion was taken during the meeting to present the Robert Jones medal to Mr. E. P. Brockman of St. Thomas's Hospital—an award already announced in these columns. One debate in which some little divergence was revealed as between the British and the American view arose on a paper by Dr. H. Winnett Orr of Lincoln, Nebraska, who pointed out what he considered to be the defects in modern antiseptic methods as applied especially to infections of bones and joints. Dr. Orr, who was with the American Expeditionary Force in France, paid a generous tribute to British surgeons for what he had learnt during that experience. He put forward a method of treating compound fractures whereby the injured parts are first placed in the correct position and then the wound is packed thoroughly with an aseptic non-absorbent vaseline mass; a splint or cast is applied over a sterile dressing to keep the parts in correct position.

The original dressing is allowed to remain until healing is well established and primary consolidation of the fracture has occurred. Dr. Orr claimed that this method, revolutionary as it might seem, rested on the fundamental principles of adequate operation, adequate drainage, and adequate rest. Several of Dr. Orr's compatriots praised his method, and said that in their hands it had given extraordinarily good results. Mr. Harry Platt of Manchester said that with the general principles which Dr. Orr had laid down everyone would be in agreement, but his technical methods of putting them into operation might provoke differences of opinion. Mr. Platt felt convinced that in wound infection the usual methods of irrigation were not lightly to be set aside. It was true that complete immobilization was a necessary condition, but this was possible with the Thomas splint; he believed, however, that many British surgeons would give a serious trial to this new American practice. The familiar subject of disabilities resulting from low back derangement was brought forward in a paper by Dr. Elliott G. Brackett of Boston (Massachusetts), who urged the necessity of keeping in mind the fact that in the lumbar-sacral region one was dealing, not with the problem of an individual joint, but with a group of joints anatomically and functionally interrelated, sharing the same stress, and frequently yielding, not as individuals, but as a group. Dr. J. T. Rugh added, as an observation from his own experience, that a structural defect in size of the sacro-iliac joint in relation to the pelvis was a very frequent explanation of the cases of low backache which found their way to the orthopaedic surgeon. Dr. Arthur Steindler still believed that low back sprain would be found to fit in with the postulates of sprains in general. It had been treated as something quite exceptional, rather like a spoilt child, but when the condition came to be fully analysed its characteristics would be found to be the same as those attaching to sprains anywhere in the body. Several of the American visitors joined in the discussion on this subject, and it was pointed out that although the anatomical variation or derangement must have existed from birth, or at least ever since the individual had grown up, the low back sprain was most common in middle life. However tempting it might be to make a diagnosis of back strain simply because an anatomical variation or disarrangement had been discovered, the possibility of some pathological change in the joint, not a purely mechanical thing, should be remembered. In the discussion on reconstructive surgery in paralytic deformities of the leg, Dr. Melville Henderson expressed a strong opinion in favour of tendon transplantation, supplemented by stabilization of the smaller joints of the foot. He gave American figures to show how popular the combination of tendon transplantation and arthrodesis had become, and claimed for this operation 97 per cent. of good results, as against much lower percentages for other procedures—50 per cent., for example, for osteotomy and tendon transference. Dr. Henderson was followed by Mr. Laming Evans, who gave an exhaustive review of the work on this subject since the war, and instanced the usefulness of astragalectomy with Whitman's backward displacement of the foot. Another discussion, reinforced by clinical demonstrations and specimens, was on the treatment of fractures of the neck of the femur, with special reference to end-results. The discussion had the advantage of contributions from Professor Hey Groves, Sir Robert Jones, and Dr. Royal Whitman, who is the American protagonist for the so-called abduction method in the treatment of these fractures. Other subjects considered during the four busy sessions were the compensation treatment of scoliosis; the end-results in operation for drop-foot; and the present status of arthroplasty. Seldom can a conference have done so much in so short a time, and nine o'clock in the morning proved to be not too early an hour for the commencement of the discussions. Mr. A. S. B. Bankart, honorary secretary of the British Orthopaedic Association, on whom fell the chief burden of organizing the event, received many congratulations. The suggestion that a return visit should be paid to the United States was cordially welcomed.

INDIAN MOTHERHOOD.

In 1927 the Far Eastern Association of Tropical Medicine held its seventh congress. The delegates met in India, and the first volume (of three) reporting their discussions runs to over 800 pages.[1] It would be futile to attempt to review a volume which contains eighty-seven original papers, and reports at some length the discussions to which these gave rise. For the bulk of the book it must suffice to say that it covers general medicine and dermatology, surgery, ophthalmology, gynaecology and diseases of pregnancy, mental hygiene and psychiatry, radiology, dentistry, State medicine, general and special hygiene, maternity, and child welfare. Among a wealth of interesting material attention may be drawn to certain papers on subjects connected with Indian motherhood. Dr. Margaret Balfour, to whom the women of India owe a debt of gratitude for her devotion to their interests, contributed to the proceedings of the congress an account of the common anaemia of pregnancy. Among 11,343 labour cases in hospitals there were 244 deaths, distributed by causes as follows:

		Per cent.
Anaemia of pregnancy	87	35.6
Puerperal sepsis	43	17.6
Eclampsia	25	10.2
Osteomalacia (its consequences) ...	22	9.0
Haemorrhage	29	11.9
Other complications of pregnancy and labour	38	15.6

The anaemia resembles pernicious anaemia in a general way, but is distinguished by sudden onset, rapid course, and absence of remissions. The blood picture resembles that of the rare anaemia of pregnancy reported from other countries. McSwiney (*Ind. Med. Gaz.*, 1927, vol. 62, 487) reported its occurrence in 1.7 per cent. of 2,544 Indian pregnancies. The observed facts indicate that the condition is a toxaemia. (1) Recovery does not take place before delivery. (2) If it takes place after delivery it is complete. (3) Generally it does not occur in subsequent pregnancies. (4) It occurs in excess in primiparae. It is associated with vomiting, albuminuria, and oedema. (5) The baby is never anaemic, but is often wasted as in eclampsia. Liver treatment has caused immediate and rapid improvement. Emanuelov and Mehta report their studies of the bacteria of excreta in these cases of anaemia, with particular reference to *Clostridium welchii*. Their results appear to be inclusive so far as any determination of etiology goes, but they did find that the toxins of *Cl. welchii* isolated from human cases caused anaemia in pregnant guinea-pigs, and stillbirths and neo-natal deaths of their young. Neither malaria nor hookworm disease seems to underlie this condition. Osteomalacia remains something of a mystery. Believed to be caused by insufficiency of vitamin D, arising from deficient diet or lack of sunlight, there are anomalies of its distribution difficult to explain. "Why," Dr. Balfour asks, "should Bombay suffer and Madras escape?" Interesting figures are given to show that in Bombay not osteomalacia alone, but also anaemia and eclampsia, are very much more common among Mohammedan women than among their Hindu sisters, while native Christian women escape with very little osteomalacia indeed. In general the diet of the Christian women is the most satisfactory, then that of Mohammedans, and that of Hindus the poorest, but no particulars are given of these diets in respect of vitamin D. The outstanding difference between the three classes of women which seems

[1] *Transactions of the Seventh Congress of the Far Eastern Association of Tropical Medicine.* Held in India, December, 1927. Vol. i. Edited by Lieut.-Colonel J. Cunningham, C.I.E., B.A., M.D., I.M.S. Calcutta: Thacker's Press Directories Ltd.

to go hand-in-hand with the incidence of the diseases mentioned is the deprivation of sunlight and exercise, which affects Mohammedans most because of their observation of purdah, and the Christian women least because of the much more active lives which their religion permits them to lead. In a very interesting discussion on the organization of child welfare work in India several speakers insisted on the need of general education. Rai Bahadur Dr. Chuni Lal Bose recalled that the rate of illiteracy among Indian women was 98 per 100. It is worth noting that the most important factor in preserving infant life in early days has been shown to be sufficient and proper care by the mother, and that the improvement in infant mortality figures shown by Western lands is attributable to the steadily increasing education of the mothers rather than directly to the multiplication of infant clinics and the like. There was reason behind the opinion that in Britain the most important public health legislative measure was the Education Act of 1870.

THE SUPPLY OF ANATOMICAL "SUBJECTS" IN PHILADELPHIA.

Our old friend, the beloved Father of American Surgery, Professor W. W. Keen, having read our "Nova et Vetera" article on the supply of anatomical "subjects," in London,[1] has very kindly sent us a copy of the Anatomical Act of the State of Pennsylvania. He tells us that since the passing of this Act in 1883 "no longer are graves violated, and the supply is ample both for dissection and for operative surgery." Under this Act, which Professor Keen says is the best Act of this kind known to him, an anatomical board is constituted as follows: "The professors of anatomy, the professors of surgery, the demonstrators of anatomy, and the demonstrators of surgery, of the medical and dental schools of this Commonwealth, which are now or may hereafter become incorporated, together with one representative from each of the unincorporated schools of anatomy or practical surgery, within this Commonwealth, in which there are, or, from time to time, at the time of the appointment of such representatives, shall be, not less than five scholars, shall be and hereby are constituted a board for the distribution and delivery of dead human bodies." The Act goes on to prescribe the duties of the board and the way in which they shall be carried out. The most important section is No. 8229, under which "All public officers, agents, and servants, and all officers, agents and servants of any and every county, city, township, borough, district, and other municipality, and of any and every almshouse, prison, morgue, hospital, or other municipality or other public institution, and all other persons having charge or control over dead human bodies required to be buried at the public expense, are hereby required to immediately notify the said board of distribution . . . and shall, without fee or reward, deliver such body or bodies, and permit and suffer the said board and its agents and the physicians and surgeons from time to time designated by them . . . to take and remove all such bodies to be used within the State for the advancement of medical science." The only exceptions allowed among unclaimed bodies are those of honourably discharged soldiers, sailors, or marines of the United States or of the militia of the State of Pennsylvania. It will thus be seen that those in charge of dead bodies are given no option as to whether they will hand over the cadavers or not. Such an option, as Professor Baillie Johnston and the writer of our article pointed out, is a fatal weakness in the British Anatomy Act, a weakness which is hardly likely to be remedied in these days, when ignorant prejudice and sentimentality have more influence in high places than reason and common sense.

[1] *British Medical Journal*, May 25th, 1929, p. 968.

DEATHS BY GAS POISONING.

THE President of the Board of Trade has appointed a committee to consider the increase during recent years in the number of deaths ascribed to poisoning by coal gas supplied for domestic purposes, and to make recommendations as to any measures relating to the production and use of gas for domestic purposes which might be taken with a view to diminishing the number of such deaths. The committee consists of: The Right Hon. Sir Evelyn Cecil, G.B.E. (chairman); Sir John Robertson, M.D., professor of public health at Birmingham University; Professor R. V. Wheeler, D.Sc., director of the Safety in the Mines Research Board experimental stations; and Mr. F. J. Wrottesley, K.C.; with Mr. H. L. Spencer of the Board of Trade, Great George Street, Westminster, as secretary.

THE HALF-YEARLY INDEXES.

THE usual half-yearly indexes to the *Journal* and to the *Supplement and Epitome* have been prepared and will be ready shortly; they will, however, not be issued with all copies of the *Journal*, but only to those readers who ask for them. Any member or subscriber who desires to have one or all of the indexes can obtain what he wants, post free, by sending a post-card notifying his desire to the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1. Those wishing to receive the indexes regularly as published should intimate this desire.

ON the recommendation of the Minister of Health, the King has been pleased to appoint Dr. Bedford Pierce to be a temporary Commissioner of the Board of Control.

THE Advisory Committee on Cancer, appointed by the Government of Victoria to advise on the leading developments abroad in the treatment of cancer, and on the steps to be taken both to co-ordinate research work in relation to the cause and treatment of cancer in the State of Victoria with similar work in other parts of the Commonwealth, and to make the treatment of cancer within the State as effective as possible, has recently issued its report to the Minister of Public Health (Melbourne: R. J. Green, Government Printer). In an interesting document the committee has summarized the more important developments abroad in research on cancer and improvement in its treatment, described past researches, and researches in progress and in contemplation in Victoria, and, having analysed the facilities for research and treatment at present available, outlined a scheme for the furtherance of research, treatment, and propaganda within the State.

THE KING.

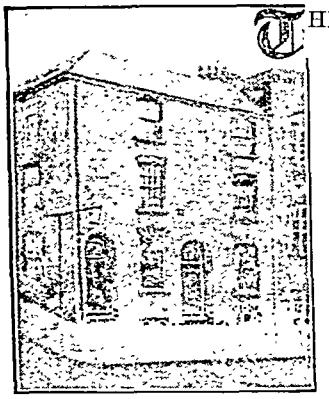
THE President of the British Medical Association, Sir Ewen Maclean, attended the Thanksgiving Service in Westminster Abbey on Sunday, July 7th, in response to an official invitation to represent the Association, of which the King is Patron. The medical men and nurses who have been in attendance on His Majesty during his illness were also present. A bulletin issued from Buckingham Palace on July 8th stated that the King was not fatigued by the ceremony of the Thanksgiving Service, but that, though his general health is good, the condition of the sinus in the right chest has not made satisfactory progress. His Majesty's visit to Sandringham has been postponed in order to allow time for further x-ray examination and consultation.

NINETY-SEVENTH ANNUAL MEETING

of the

British Medical Association,

MANCHESTER, 1929.



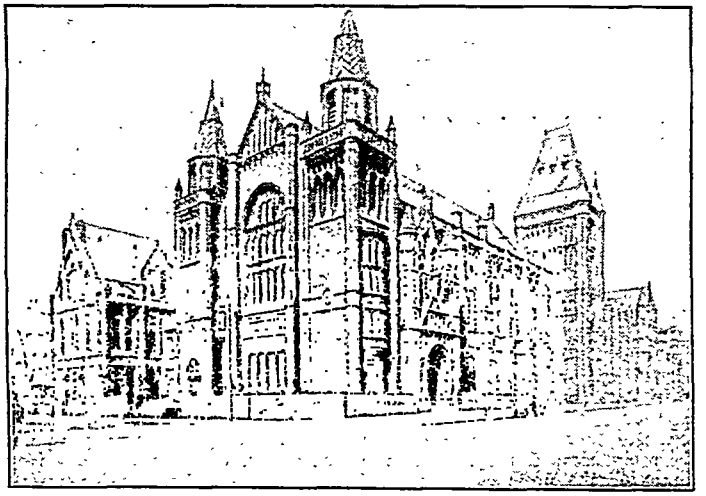
THE PUBLIC INFIRMARY IN MANCHESTER, 1752.

THE ninety-seventh Annual Meeting of the British Medical Association will be held in Manchester this month under the presidency of Mr. Arthur H. Burgess, F.R.C.S., Professor of Clinical Surgery in the University of Manchester, who will deliver his address to the Association, on "The Debt of Surgery to the Ancillary Sciences," on the evening of Tuesday, July 23rd. The sectional meetings for scientific and clinical work will be held, as usual, on the three following days, the morning sessions being given up to discussions and the reading of papers, and the afternoons to demonstrations or visits of inspection. The Annual Representative Meeting, for the transaction of medico-political business, will begin on the previous Friday, July 19th, at 9.30 a.m. The provisional programme for the nineteen Scientific Sections was published in the *Supplement* to our last issue. On the last day of the Annual Meeting (Saturday, July 27th) there will be an excursion to Colwyn Bay. We publish below the fifth of a series of descriptive and historical notes on Manchester and neighbourhood written for the occasion by Dr. E. M. Brockbank. The first article appeared on December 1st, 1928 (p. 1003), the second on January 26th, 1929 (p. 167), the third on April 27th (p. 781), and the fourth on June 8th (p. 1051).

MEDICAL EDUCATION IN MANCHESTER.

THIS subject is fully dealt with in the account of the facilities for education—primary, secondary, and university—in the cities of Manchester and Salford which is given in the *Book of Manchester and Salford* specially prepared for the meeting. A brief outline of the history of, and arrangements for, medical education may, however, be given here without, perhaps, detracting from the interest of the fuller account, especially as the University of Manchester was the first of the modern universities. The first event in the development of the Manchester Royal School of Medicine was the foundation of the Manchester Infirmary, as it was then called, in 1752. The medical students of the district until that time had received some years of their education from the physician or surgeon to whom they were apprenticed, and had to spend some months in London, Edinburgh, Glasgow, Aberdeen, or Dublin before they could qualify for examination by the licensing bodies of these towns. No lectures on medical subjects or demonstrations on anatomy were given outside London or south of the Border until about 1781. The conception and foundation of the infirmary is to be attributed on the medical side to Mr. Charles White. In 1757 the first rudiments of our hospital teaching appeared in the form of the admission of apprentices into the new infirmary to study the cases there. They were apprenticed for terms varying from two to seven years for a sum of thirty guineas, of which the surgeons received four. At later dates higher premiums were charged.

In 1781 there was founded in our city, mainly through the initiative of Dr. Thomas Percival, the Reverend Dr. Thomas Barnes, and Thomas Henry, F.R.S., with the support of Charles White, the Manchester Literary and Philosophical Society, which had for its object the "promotion of literature and science." It may be noted, in passing, that Percival and Barnes were born at Warrington, and that they and Henry were Unitarians, and it is also worthy of note that collegiate and university education in its earliest and, as will be seen later, in its final developments, was initiated by Nonconformity. In 1783 this society, chiefly through the initiative of Barnes, Percival, and Henry, fathered an institution which was really the beginning of collegiate or university education in the town. It was called "The College of Arts and Sciences in Manchester," and was designed for the instruction on very broad lines of those who, having finished the ordinary course of education, were about to engage in a commercial occupation. The prospectus then issued stated that lectures had already been given during the two previous winters, on anatomy and physiology by Mr. Charles White and his



THE MANCHESTER UNIVERSITY.

son Dr. Thomas White, and on chemistry by Mr. Thomas Henry. Owing to the fear that such education might unfit youth for ordinary business the institute declined, even from its first moments, and after two winters of unfavourable trial it was at length reluctantly abandoned.

Some of the early teachers of the medical students have left their mark for all time in the history of medicine. Charles White, the John Hunter of Manchester, was a great man, and much in advance of his contemporaries. Though practising general surgery he was more of a gynaecologist. He understood puerperal fever, and treated it on scientific lines, and he was the first man in England to recognize white leg as a definite morbid condition, which he called phlegmasia alba dolens puerperarum.

Dr. Thomas Percival was the founder of the principles of medical ethics, the Old Testament of professional conduct, and a pioneer in public health matters, especially as the new cotton factories affected it.

Thomas Henry was an apothecary and chemist, and has left his name in a preparation of magnesia which is still sold as Henry's magnesia.

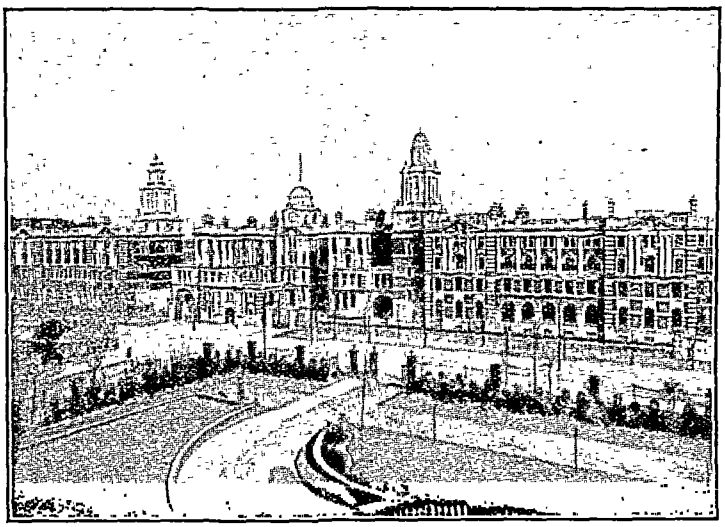
Dr. John Ferriar was the main force in getting a committee of public safety, or a board of health, formed to deal with fever epidemics in the town, and of opening a house of recovery, as they preferred to call a fever hospital in those days (circa 1796).

Peter Mark Roget, mathomatician, afterwards secretary of the Royal Society, taught physiology with the first printed syllabus of lectures. In what peaceful home nowadays are there no cross-words that cannot be smoothed out by Roget's *Thesaurus of Words and Phrases?*

Other relays of physicians and surgeons carried on the early torch of medical teaching, but the greatest credit must be given first to Joseph Jordan, and secondly to Thomas Turner, at the beginning of the last century, for being the real founders of a medical school proper in Manchester. Jordan began teaching dissection—on subjects of which he managed to get plenty by the methods described in the *Tale of Two Cities*, whilst other schools had but few—and included more systematic instruction than had to that date been given in other branches of the medical sciences. Jordan and Turner also forced the recognition of the school of medicine by the examining boards of London, and Turner and his colleagues secured for it the Royal patronage. In this way was the Manchester Royal School of Medicine founded. It flourished so much that various rival schools of ephemeral existence were started from time to time in the town, and finally in 1874 it joined forces with the Owens College, which had been founded in 1851 for general non-sectarian collegiate teaching, and which had barely escaped the fate of the College of Arts and Sciences of the previous century of dying of neglect and malnutrition. It was, however, saved chiefly by the enlightened and forceful care of its second principal, Professor Greenwood, and Henry Enfield Roscoe, the great chemist, and the Owens College, like so many feeble infants do, grew up into robust life. The union with the medical school greatly strengthened the college, and it attracted yearly an increasing number of students to its teaching. The next step was the formation of a university.

The Manchester University was the first of the group of English universities which were founded in the later nineteenth and early twentieth centuries. With the exception of Oxford, Cambridge, Durham, and London, all the universities of England conform to this new type. For six centuries Oxford and Cambridge held a monopoly of university education, but by the middle of the nineteenth century this was no longer possible. The two ancient Universities had catered for a certain well-defined class of the community, but the demand for education had become far more widespread. Oxford and Cambridge were still universities of the Anglican Church, fenced in by strict tests, but Nonconformity had greatly increased, not least in the North of England, and well-to-do Nonconformists were as anxious as Churchmen for the proper education of their sons. Moreover, for the north countrymen Oxford and Cambridge were difficult to reach and expensive to live in; nor did their scheme of studies take into account the conditions of the North.

Projects for a university of Manchester were in the air as early as the twenties and thirties of the last century, but the first effective step was taken by a private citizen, John Owens, who had an aversion to the religious tests imposed at the older universities. On his death in 1846 he bequeathed about £96,000 for the foundation of a college which would teach the subjects usual in universities to youths of the male sex. It was laid down as a fundamental principle that there were to be no religious tests. Legally, the college was a private trust, with absolute power in the hands of the trustees.



THE ROYAL INFIRMARY, MANCHESTER.

The Owens College, as it was called, was opened in 1851 in what was formerly a private residence in the town. After various vicissitudes and almost complete failure, the college became successful, and in 1873 was moved to the present site and to more commodious and better buildings. By the Acts of 1870 and 1871 the college was incorporated. It was now definitely a university college and received a new constitution. The admission of women was sanctioned.

Owens College, however, could not confer degrees; its students, if they wished to graduate, must sit for the examinations of London University. In 1875 a pamphlet was issued advocating the institution of a University of Manchester. But the Owens College was no longer the only university college in the North of England, and Manchester reluctantly consented to the institution of a federal university with constituent colleges, of which Manchester would only be the earliest. The title of the new university was to be the Victoria University, not the University of Manchester. University College, Liverpool, was admitted in 1884, and the Yorkshire College, Leeds, in 1887.

The first constitution of the University had great advantages. Freedom from the yoke of London had been secured; moreover, the admission of Liverpool and Leeds extended and encouraged university education. But there were also serious drawbacks. The staffs of the three colleges met together perhaps once a week on boards or committees; they had not the daily contact desirable for the staff of the same university. Each college had, naturally, its own policy and ambitions, and these could only be carried out by the consent and good will of the others, who might be indifferent or even antagonistic. Hence there was strife and friction. After twenty years a movement arose for the abandonment of the federal scheme and the institution of separate universities, and, in spite of considerable opposition, it was successful. In 1903 a university charter was

granted to Liverpool and a revised charter to Manchester, in 1904 to Leeds. The university founded in 1880 was still to continue in Manchester, but under the charter of 1903 it had received a new name—the Victoria University of Manchester—and a new constitution which secured its independent existence. Owens College closed its half-century of honourable activity by incorporation with the University in 1904.

The organization of the University teaching was based on faculties. In 1880, when the first charter was granted, there were three—arts, science, and law. Medicine was added in 1883, and other faculties—music, commerce, theology, technology, education—have subsequently been added.

All the necessary certificates of attendance for ordinary undergraduate clinical instruction have always been and must still be received at the Royal Infirmary, the present building having been erected on land provided by the University for convenience in teaching. In this way there is no difficulty for the dean of clinical instruction to keep an eye on the attendance of that certain proportion of students who are affected with "wanderlust" before its proper time. Courses of post-graduate instruction are arranged by the University at all the leading hospitals of the town.

The Manchester Royal Infirmary is a general hospital, which admits patients who are curable or capable of material relief, and who are not infectious. Children under 6 are not admitted unless urgently ill, nor are phthisis cases, except in acute stages, such as haemoptysis and pleurisy. Many early cases of phthisis naturally are diagnosed for the first time in the wards.

Students can be signed up for all necessary clinical work—medicine, surgery, "eyes, ears, throats, skins," pathology; all except fevers, midwifery, and mental and children's diseases by attendance at the Infirmary. The Eye Hospital, a branch of St. Mary's Hospitals, where students attend for instruction in diseases of children, the Public Health Laboratory, where instruction is given for the diploma in the subject, and the new pathological laboratories are all on the same plot of land, 400 yards square, as the Infirmary, and within two minutes' walk of each other, and five minutes from the University. The Radium Institute and the Christie Cancer Pavilion are also on the same plot of land, an aerial view of which was reproduced in the *Journal* of April 27th.

Midwifery is taught at the Maternity Branch of St. Mary's Hospitals, which is residential for students during their course of practical work. Students from other towns are attracted to the hospital by its very large practice, hospital and domiciliary.

The professors and lecturers of the medical school, in medicine, surgery, and their special departments, are, at the present time, almost without exception graduates of the University of Manchester in consulting practice. They are well acquainted with the conditions of medical work and the peculiar characteristics of the people in the neighbourhood, and therefore of the requirements of would-be practitioners. Whole-time professors of medicine and surgery have certain advantages, but are not the last word in preparing men for general practice.

The important function of a university—of research work, of searching for "what is hidden, what is lost beyond the ranges"—is encouraged to the fullest extent, and the degree of M.D. is generally obtained by original work, much of it carried out in laboratories. Fellowships of the Royal Society have been awarded to the heads of the anatomy and physiology departments for their scientific work. Several scholarships and fellowships are available to provide financial help for those students who are anxious to follow out some scientific problem or to work for their M.D. degree. Each student has to be signed up for dissection of the whole body, and there is no scarcity of subjects in the anatomical room to provide the necessary "parts" for this.

An important feature in the system of teaching anatomy and physiology in the school is to minimize the purely scientific aspect of these subjects and to pay great attention to their application to medicine and surgery with the help of x rays and instruments used in clinical investigation. The laboratory accommodation in these departments and in pharmacology has been considerably extended recently, and meets all the needs of the students. Applied physiology and anatomy courses, modified to meet the progress of the students in clinical knowledge, are given until the final year of study.

Instruction in mental diseases, as old Manchester students know, used to be received at Cheadle Royal Mental Hospital (a branch of the Royal Infirmary), and the lectures there were a great change and pleasant break from the "intramural" ones, and were much appreciated by students. This, however, is a registered mental hospital for private patients, and it was found that the visit of a score or two of students was objected to by relatives of patients. Instruction is therefore now received at the County Asylum, Prestwich, with its 1,000 and more patients, and the Cheshire County Asylum, Macclesfield; the students thus have every opportunity of studying what is one of the most important branches of general practice and one which has caused some alarming legal decisions in recent years.

Fevers are taught at the Corporation Hospital at Monsall with its 600 beds, and pulmonary tuberculosis at Baguley Sanatorium, also belonging to the Manchester Corporation, with its 300 beds.

When Sir William Osler was paying his last visit to Paris he wrote to me saying that the tendency in the medical schools there was to reduce academic lectures on the principles of this and that subject to a minimum and to get to the bedside as much as possible. He added that this was his own idea of the way to teach medicine and surgery. It is becoming more and more the tendency of British schools nowadays to adopt this plan, and a very great feature of the Manchester school is the clinical experience which students get of being taught from a variety of cases such as can hardly be seen in any similar teaching hospital. There are 600 beds in the Royal Infirmary, 280 in St. Mary's, and 148 in the Royal Eye Hospital.

At the Royal Infirmary there are so many beds that students, large as they are in number, have several allotted them for note-taking during their clinical instruction; they have thus every opportunity of learning on their own initiative to diagnose disease.

The dental school, with its own degree and diploma, is a very flourishing member of the medical school, and provides practical teaching at the Victoria Dental Hospital, which adjoins the University.

Women students are admitted to the medical school and to the hospitals for teaching purposes. The advantages and disadvantages of such mixed teaching are as many and various as the London schools have found.

The views of the University Buildings are reproduced by courtesy of the Warwick Brookes Studio, Manchester.

CHANGES IN LONDON LOCAL GOVERNMENT.

NEW ADMINISTRATIVE SCHEME OF THE COUNTY COUNCIL.

THE first announcement of the character of the new administrative scheme for the County of London, in accordance with the Local Government Act, 1929, for discharging the functions transferred to the London County Council under that Act, is made in a report to the council for its meeting on July 9th by the special committee appointed, under the chairmanship of Sir Cyril Cobb, to deal with this important subject.

The special committee advises the council to declare that as soon as circumstances permit, all assistance which could, after April 1st next, be provided either by way of poor relief or by virtue of certain special Acts (hereafter mentioned) shall be provided exclusively under the appropriate Act, and not by way of poor relief. The special Acts in question and the transferred services to which they relate are as follows:

Maintenance and treatment of sick persons and pregnant women in hospitals. (Local Government Act, 1888, as extended by Section 14 of the Local Government Act, 1929.)

Maintenance of mental defectives in institutions. (Mental Deficiency Act, 1913.)

Maintenance of blind persons in institutions and in their homes. (Blind Persons Act, 1920.)

Maintenance and treatment of tuberculous persons in sanatoriums and other institutions. (Public Health (Tuberculosis) Act, 1921.)

Education of children. (Education Act, 1921.)

One noteworthy omission from this list is maternity and child welfare under the Act of 1918. It is pointed out that the position in London is complicated by the fact that under this Act the City corporation and the metropolitan borough councils are the authorities. The county council will, however, have responsibility in cases in which assistance is sought from the Poor Law, and it can also make arrangements with the other authorities for the provision of assistance either by way of poor relief or under the Act of 1918. But before any declaration is made in respect to this service the special committee thinks it necessary to ascertain whether the borough councils are in a position to undertake the functions in question and to provide the necessary accommodation at institutions other than Poor Law institutions. It is proposed to give further consideration to this matter at a later stage.

Transferred Institutions.

On the appointed day the county council will have under its control about 130 transferred institutions, these including the hospitals and other institutions of the Metropolitan Asylums Board and the hospitals or infirmaries of the boards of guardians, some of which already fulfil the functions of general hospitals. It is felt undesirable at present to earmark particular institutions for specified purposes. A complete survey will have to be made of the existing buildings and accommodation, and evidence obtained as to the requirements of the several classes of cases to be dealt with.

A Public Assistance Committee is to be set up to exercise the transferred functions in so far as they are not specifically referred to other committees of the council. It is proposed that this shall consist of 48 persons, 32 of whom shall be members of the county council. The county is to be divided into ten administrative areas, grouping together usually three, in one case four, and in two cases two contiguous metropolitan boroughs. Local committees, to act as subcommittees of the Public Assistance Committee, will be set up, each consisting of from 32 to 50 persons, and their duties will include the supervision and co-ordination of relief. There will also be district committees, for local detailed relief work; these will consist of eight or ten persons appointed by the local committee, partly from a panel including ex-members of Poor Law authorities and other persons versed in social work.

The Central Public Health Committee.

The transferred work with regard to provision for the reception and treatment of the sick will fall upon the Public Health Committee of the council, which will be reconstituted and designated the Central Public Health Committee. The proposals for its constitution have not yet been framed. It will deal with the provision, classification, maintenance, and management of hospitals other than mental hospitals, and for the purposes of hospital administration the county will be divided into five areas, each of which will be coterminous with the boundaries of a group of metropolitan boroughs, and co-ordinated with the (smaller) administrative areas proposed to be formed for the purpose of public assistance. It will be possible to make these same hospital areas suitable for the school medical service, thus enabling the Poor Law medical service, the public health organization of the metropolitan boroughs, and the school medical service to be co-ordinated in each area.

The scheme provides for "consultation and co-operation with voluntary hospitals and other hospitals serving the county," but the report adds that, having regard to the terms of the declaration proposed to be made by the council, it is not necessary to include detailed provisions dealing with this matter. As a preliminary to the formulation of any scheme for dealing with hospital accommodation in London a survey will be necessary. "In view of the magnitude of the task of reclassification and of the practical considerations which render it difficult for rapid progress to be made in this matter before the appointed day, it will be realized that the development of the scheme must necessarily be gradual. We have been in communication with the authorities representing the London voluntary and other hospitals, and have explained the position to them and intimated that we will at the appropriate time make arrangements for consultation with the joint committee appointed by the hospital authorities." Other duties which will come within the purview of the Central Public Health Committee will be the conveyance of cases to and from hospital, the periodical review of cases receiving hospital treatment, the provision of local medical services, laboratory services, medical instruction, and the training of nurses and midwives in connexion with hospitals, and the direction of the staff exclusively employed at hospitals, and of the district medical staff.

The Mental Hospitals Committee will be charged with the exercise of the transferred functions relating to the care of persons suffering from mental infirmity or defect. A clear dividing line between this field and that allocated to the Central Public Health Committee cannot be drawn, and the two committees will have to work in close co-operation.

It is added that the whole scheme must be regarded as provisional, and subject to review when practical experience has been gained.

A PHYSIOLOGICAL STUDY OF ASTHMA.

WHEN the conception of a disease is undergoing rapid change it is well, if only as a check on misdirected enthusiasm, to return occasionally to a study of those facts about its nature and pathogenesis which appear to be well founded and fundamental. Our readers were reminded a few weeks ago (May 18th, p. 930) by Mr. H. Mortimer Wharry of a paper by the late Professor T. G. Brodie and Professor W. E. Dixon on the pathology of asthma (published in the *Transactions of the Pathological Society of London* in 1903, vol. liv, pp. 17–39) in which they described a series of experimental findings which might well be correlated with those of investigations being carried out at the present day. Mr. Wharry suggested that it would be a great service to all who are interested in asthma if we could reprint this report, otherwise difficult of access, in the *Journal*. Having obtained Professor Dixon's consent we now publish the following abstract of the original paper.

ABSTRACT OF BRODIE AND DIXON'S PAPER.

The authors open with a brief discussion of the theories of the causation of asthma current at the time of writing. These were that asthma was due (1) to spasm of the bronchial muscles; (2) to a swelling of the bronchial mucous membrane; (3) to a special form of bronchiolitis; (4) to reflex spasm of inspiratory muscles.

The authors' view is that the condition is due to spasm of the bronchial muscles, and their paper is devoted to descriptions of the experimental work, and development of the arguments, in favour of it. Their method consisted in operations on the whole animal, sometimes anaesthetized, more frequently decerebrated. The chest was opened, a lobe of lung enclosed in a plethysmograph, and variations in its volume recorded. Artificial respiration was maintained by a mechanical pump, the stroke and speed of which was under accurate control; any variation in the volume of the portion of lung under observation could be due, therefore, only to one of two factors: (*a*) variations in its blood content, (*b*) variations in the condition of the passages by which the air reached the alveoli—that is, in the condition of the bronchioles. This followed from the fact that the pressure at which air reached the lung and the period for which this pressure was exerted were kept quite constant by the pump. In practice, the two factors are easily distinguished by inspection of the tracings.

Innervation of the Bronchial Muscles.

The first problem to be satisfactorily solved was that of the innervation of the bronchial muscles. Clearly, any stimulus which resulted in a diminution of the air passing into and out of the lung must have caused a contraction of the bronchial muscles, any that increased it, an inhibition.

Previous workers had established the fact that the motor nerve to the bronchial muscles was the vagus; this was readily confirmed. In the dog and rabbit, bronchial constriction is easily produced by vagus stimulation; in the cat, this effect is present, but is complicated by a preliminary dilatation. This result with cats suggested a search for broncho-dilator, as well as broncho-constrictor, fibres in the vagus. Since the muscles possess no normal tonus, an artificial tonic constriction was produced with muscarine or pilocarpine; vagus stimulation then produced marked dilatation; this apparent vagal effect was shown later by Dixon and Ransom to be due to the sympathetic nerves which are intimately associated with the vagus in the dog.

If the main accelerator nerves—that is, those which leave the sympathetic in the region of the ganglion stellatum—are tied and cut, and the ends connected with the lungs are excited by the faradic current, decided broncho-dilatation invariably ensues, provided that the bronchioles are in a state of some tonus. The dilatation is often maximal; it starts with the stimulation, gradually passes off to the former condition of tonus as soon as the stimulus is removed, and can be repeated an indefinite number of times. Electrical excitation of the cut peripheral ends of the first, second, third, and sometimes the fourth dorsal rami also produced a like effect. Broncho-dilatation was not obtained by stimulation of the rami when the accelerator nerves on the same side had been previously cut. Some of the fibres in the cervical sympathetic are broncho-dilator in nature and pass out by the accelerators.

The sympathetic fibres in the neck passing to the lungs are not confined to their own side, but may cross partly, or, in some cases, the experiments suggest, almost completely, to supply the bronchioles of the opposite lung. The way in which efferent fibres to the lungs come to be in the cervical sympathetic nerves, which are generally regarded as composed of fibres going to the head and neck region only, is uncertain. It seems likely that the broncho-dilator fibres reach the cervical sympathetic nerve high up in the region of the ganglion nodosum, but it has not been possible to trace the fibres. Another explanation has been suggested by Professor Langley—namely, that the phenomenon depends upon an axon reflex.

Investigations of Reflex Constriction.

Throughout many of the experiments, and especially in those designed to investigate reflex effects, very great difficulty was caused by the anaesthetic. Chloroform and ether both depress the medullary centres concerned with the effects to be studied; pithing clearly cannot be resorted to, since it would abolish the medulla altogether. The method finally adopted was to decerebrate the animal under as light anaesthesia as was practicable and then to let several hours elapse before going on with the experiment, in order to allow the effects of the anaesthetic to wear off. Even this was not completely satisfactory, which was the more unfortunate because of the importance of reflex effects in causing the asthmatic attack; many interesting results were, however, obtained.

Reflex bronchial constriction was never produced by exciting a cutaneous sensory nerve, or the stomach, or intestines. Slight constriction followed stimulation of the central end of the vagus, divided in the neck, or of the superior laryngeal. While no effect was obtained on exciting the cornea, bronchial constriction quite regularly followed stimuli, electrical, mechanical, or chemical, applied to the nasal mucous membrane. The best site for stimulation is the upper and posterior part of the nasal septum. The effects are gradual in onset, and last for a long period. They are immediately abolished on section of the vagi. The authors had little doubt that, could the difficulty of maintaining the medullary centres in normal condition have been surmounted, vigorous reflex effects could have been obtained.

The Action of Drugs.

The next point to be studied was the action of various drugs on the bronchial musculature. Three groups of effects could be produced: contraction, due to stimulation of vagal endings, contraction due to direct stimulation of muscle fibres, and relaxation due to paralysis of vagal endings. The first of these effects was produced by muscarine, pilocarpine, physostigmine, and digitaline; the second by gold salts, barium salts, and veratrine; the third by atropine, hyoscyamine, and hyoscine. Lobelia, used clinically for the treatment of asthma, produced an effect of transitory dilatation on muscles contracted, for instance, by muscarine; the effect recalled that of vagus stimulation in animal experiments. Morphine also relaxed the constricted muscles, but the dose was relatively high—higher, for instance, than that of lobelia. Finally, very marked effects were produced by CO_2, the action of which is chiefly, though not exclusively, on the medullary centres. CO_2 may restrict the air movements by one-half of their original amplitude.

Various Conflicting Theories.

In discussing their results, the authors point out that there is practical unanimity in attributing the asthmatic attack to diminution in the calibre of the bronchioles. The question narrows itself to a choice between muscular spasm, partial plugging of the vessels with secretion, or partial occlusion by turgid mucous membrane, as the immediate cause of the condition. The physical signs and the symptoms of an attack are not consistent with the theory of plugging of bronchioles by secretion—for example, there is frequently no expectoration, and though bronchitis is often present, it is usually clearly secondary in origin.

It is improbable that the bronchiolar mucous membrane becomes engorged, and so obstructs the airway, for in the first place it is thin, and possesses a relatively poor blood supply, while much of the nasal mucous membrane may be regarded practically as cavernous erectile tissue. In the second place, no engorgement of the lungs is produced. On the other hand, the rapid onset and termination of the asthmatic attack is perfectly consistent with the behaviour of the involuntary muscle; it can be induced by giving pilocarpine or muscarine, and cut short, instantaneously and completely, by a dose of atropine, or by sympathetic excitation.

The spasm theory of asthma is further strongly supported by a study of the drugs, used empirically, to treat the condition. Chloroform and ether have both been employed, and it has been found experimentally that it is impossible to produce constriction of bronchioles by vagal stimulation under chloroform or ether, since the nerve endings are paralysed by the concentrated doses of the vapour which they receive. All the drugs of the atropine series act similarly, producing complete relaxation of bronchial muscles, and all are highly esteemed in the treatment of asthma. In doses which completely paralyse the vagus, the blood pressure is lowered, and peripheral vessels are dilated; they would tend to produce some engorgement of the mucous membrane, but they would tend to stop secretion. Adrenaline, on the other hand, which is almost specific in the asthmatic attack, produces profound congestion of the whole pulmonary system. No evidence can be advanced to show that these drugs produce their action by diminishing engorgement of the mucous membrane. Morphine, which may be an invaluable drug in the treatment of asthma, has little or no peripheral effect in medicinal doses, but it is more valuable than any other drug in diminishing medullary reflexes, a fact made use of by every physician in the treatment of cough.

One reason why so many pathologists stress the vascular effect is on account of experiments made on the guinea-pig. The mucous membrane of the bronchioles in this animal differs from that in all others in that it is composed of a thick highly vascular membrane, which forms folds projecting into the lumen of the cavity. Anaphylaxis, when it occurs in higher animals (and it is so rare as to be of little importance in man), is mainly a vascular phenomenon; but in the guinea-pig it is accompanied by all the signs of acute asthma; this is mainly due to the turgescence of the mucous membrane, which may entirely block the lumen of the middle-sized bronchioles. Guinea-pig experiments, then, though interesting, have little value as evidence of what occurs in man. Nor is the evidence of the bronchoscope of much value, since all the surgeon can do is to observe the larger bronchi and bronchioles, and these have little power of contraction.

Alveolar Over-distension.

Over-distension of the chest is a striking and prominent symptom of an attack of asthma, and it must be taken into account in any theory of the cause of the condition. It can be

readily reproduced under conditions of the experiments described by varying, in the exposed lung, (1) the force of inflation, and (2) the time allowed for deflation.

Under experimental conditions, and with lung exposed and shut in a plethysmograph, the force which inflates the lung is provided by the pump; it is relatively great (100–120 mm. Hg) and it acts for a brief period; the force which deflates the organ is provided by the elasticity of the alveoli, and the lung tissue in general. It is relatively weak, but acts for a fairly long period. In a normal lung under these experimental conditions, over-distension is not produced, because the alveoli have ample time to empty themselves. It is, however, easy to produce over-distension by modifying the conditions in either of two directions. In the first place, if the period allowed for deflation is gradually decreased, clearly a time must come when the alveoli have only just emptied themselves before the next stroke of the pump again distends them. Any further shortening of the deflation time will result in a failure of the lungs completely to deflate themselves, and a permanent state of over-distension must result. In the second place, an increase in the force of inflation will lead to an increased distension of the alveoli. This, it is true, will tend also to increase the deflating force, but, since the lungs are not constructed of perfectly elastic material, the increase will not be proportional to the increase in the amount of air forced into the alveoli. Again, therefore, unless the time allowed for the deflation suffers a compensatory prolongation, inflation may again, so to speak, catch the tissue with its task of deflation unfinished.

If, to either of these experimentally produced conditions—shortened deflation time, or increased inflating force—there is superadded a constriction of the bronchioles, the condition is aggravated, and over-inflation at once produced, for the increased resistance to the passage of air clearly must tell most heavily against the weaker of the two forces—that of deflation. The pump overcomes the increased resistance fairly easily, but deflation cannot possibly be completed unless the time allowed for it is much prolonged; hence, as the tracings show, over-inflation is quite readily produced during vagus stimulation, or when the animal is under the influence of some drug such as pilocarpine or muscarine.

An explanation of the occurrence of over-distension in the intact animal, accompanying an asthmatic attack, obviously follows analogous lines. Here again the force of inflation—inspiration—is much more powerful than that of deflation—expiration. Both can be increased, but the former much more than the latter. During an asthmatic attack, therefore, the chest is necessarily over-distended, for the constriction of the bronchioles tells far more heavily against expiration than inspiration. It is a matter of observation, which has not been nearly sufficiently stressed by authors of textbooks, that the effort, during an asthmatic attack, is an inspiratory one; expiration is quiet and prolonged. The patient's efforts are directed to getting air into the lungs, not to getting it out. In most instances the description is that *respiration* is violent; it should be that *inspiration* is violent.

If it be granted that asthma is due to contraction of the bronchial muscles, it beomes important to decide how such contraction is produced. It may be peripheral, central, or reflex.

The Cause of the Bronchial Contraction.

For the following reasons either of the last two possibilities is more likely than the first: the attack is sudden in origin, and involves the whole of both lungs; only the one particular set of muscle fibres is involved, and attempts to produce an attack by the injection of sputum from asthma patients, or solutions of Charcot-Leyden crystals, have been unsuccessful.

If the origin of the contraction is central, then the question to be decided is whether the stimulus reaches the centre directly, or is relayed from some receptor surface or organ—that is, is reflex. It may be noted that CO_2 was found to give rise to bronchial constriction probably by direct action on the centre, since the effect is usually abolished by section of the vagi. CO_2 must accumulate in the blood during an attack, and must therefore tend to prolong its duration and to increase its severity. If, however, the cause of an attack were some direct irritation of the centre, it would be fair to expect a spread of the disturbance to other neighbouring centres, but this expectation is not fulfilled.

In favour of the "reflex" theory, on the other hand, there is much evidence, clinical and experimental. Asthma is known to be common in persons of a "nervous" habit. In persons subject to it, it is important to maintain the alimentary tract in a normal state, and attacks may be produced by an injudicious meal. It has been suggested that the sight alone, of certain animals, can produce an attack, and there is no doubt that, in some patients, the smell of certain animals can do so. There are fair grounds for believing that abnormal conditions of any part of the respiratory tract are of importance in predisposing to an attack, but it is clear that the nasal mucous membrane is of very direct importance in its causation. It has been mentioned that, experimentally, stimuli applied to the upper and posterior part of the nasal septum prove effective. Odours, and minute changes in the atmosphere, dust particles, etc., can excite an attack, while between asthma and hay fever there is known to exist a causal relationship. Operative treatment of the nose often gives a complete cure. Dr. Greville MacDonald reports most success when he could find and remove a growth on the inferior turbinate bone. Francis claims almost uniformly successful results after cauterizing the upper and posterior portion of the nasal septum.

With regard to the theory that asthma is due to a turgescence of the bronchial mucous membrane similar to that which can occur in the nose, it is remarked that there is no histological similarity whatever between the two tissues, and that direct experiment, where congestion of the lung was produced by ligating a pulmonary vein, never produced interference with the passage of air into and out of the lungs.

Australia.

[FROM OUR CORRESPONDENT IN VICTORIA.]

The Late Sir George Syme.

ON April 19th Sir George Syme, one of the leaders of the medical profession in Australia, died after a short illness. For many years, until his retirement from active practice, he had been one of the leading surgeons of Victoria, and it was in no small measure due to his efforts that the practice of surgery in this State was established on a sound footing. He had a long association with the Melbourne Hospital, and held successively the positions of out-patient surgeon, surgeon to in-patients, and, after his retirement from active hospital practice, consulting surgeon. He always took a keen interest in the welfare of the hospital, and performed invaluable services as a member, and later as president, of the hospital committee. Sir George Syme played a leading part in medical politics, was for many years a member of the council of the Victorian Branch of the *British Medical Association*, and also a past-president. Shortly before his death he presided at a meeting of the Federal Committee, and his conduct of the meeting was as direct and as skilful and his personal relations with the members as charming as ever. He was also President of the College of Surgeons of Australasia, and played a prominent part in founding it and framing its constitution. During the great war he volunteered for active service, and did very valuable work. His loss will be keenly felt, not only by the medical profession, but also by the community at large, and he will long be remembered for his ability, his nobility of character, and his high ideals of service.

Federal Council.

It is proposed by the Federal Committee of the British *Medical Association in Australia to establish a council*, incorporated under the Companies Act of one of the States, and to give the council powers similar to those possessed individually by those Branches in Australia that have taken advantage of the sanction to become corporate bodies. It is felt that the Federal Committee, having served a useful purpose for a period of eighteen years, lacks sufficient power to act effectively for all the Branches in Australia. It is thought that there will be no need for the Federal Council to meet frequently, as a good deal of the work will be delegated to committees and subcommittees, consisting of members residing in one city. The council would have

power to organize meetings of members, including congresses, conferences on special subjects, and meetings analogous to the Representative Meeting in the United Kingdom. It would also have power to encourage and promote research and post-graduate teaching. It would also be the recognized body to conduct negotiations with the Commonwealth Government on behalf of the Branches, and to consider matters affecting the British Medical Association in Australia as a whole.

Melbourne Chair of Anatomy.

Professor Frederic Wood Jones, D.Sc., M.B., F.R.S., has accepted the invitation of the council of the University of Melbourne to the chair of anatomy, in succession to Professor R. J. A. Berry. He will take up his duties in March, 1930. Professor Wood Jones held the chair of anatomy at the University of Adelaide from 1919 to 1926, when he was appointed to the Rockefeller Professorship of Physical Anthropology in the University of Hawaii, Honolulu.

Medical Visitors in Melbourne.

Mr. W. Sampson Handley paid a short visit to Melbourne on his way from the meeting of the College of Surgeons of Australasia. During his stay he visited some of the hospitals in Melbourne, and was entertained by members of the local Branch of the British Medical Association. Sir Charles Ballance is at present in Melbourne on a holiday visit.

Australasian Medical Congress.

The third session of the Australasian Medical Congress (British Medical Association) will be held in Sydney in the week beginning September 9th, 1929. Dr. G. Abbott was appointed president, on the nomination of the New South Wales Branch.

Scotland.

Aberdeen University.

AT the summer graduation at the University of Aberdeen on July 3rd, when a number of medical and other degrees were conferred, Principal Sir George Adam Smith commented on certain features of the past session. The total number of matriculated students was 1,385. The figure for men students had risen by 33, but there were 41 fewer women students. In the Faculty of Medicine there were increases in respect of both sexes; the total of 294 (263 men and 31 women) contrasted with 233 in 1927–28. The year had witnessed several notable additions to the medical and scientific resources of the city, with all of which the University was more or less associated. The new Hospital for Sick Children had been completed and opened upon its portion of the ample site acquired for the great Aberdeen Joint Hospitals scheme. The Principal added that it was fitting that they should congratulate Lord Provost Lewis on the success of his endeavour to raise £400,000 for the new Royal Infirmary, as well as on the honour recently conferred upon him by the King. In close connexion with the Rowett Institute for Research in Animal Nutrition, an Imperial Bureau was being founded which would be the centre for recording and classifying researches in that subject and their results throughout the British Empire. Again, in addition to the Aberdeen Laboratory of the Scottish Fishery Board, the National Department of Scientific and Industrial Research was to open another laboratory, which would enlist the co-operation of different University departments such as that of bacteriology; it was confidently hoped that this new development would be of benefit to the science of ichthyology as well as to the fishing industry of the country. Lastly, the Scottish Department of Agriculture had arranged to establish in Aberdeen an institute of soil research; this would be named the Macaulay Research Institute in recognition of the munificence of the distinguished Canadian, a native of Aberdeenshire, who had rendered its establishment possible. In all of these directions Aberdeen and the North of Scotland were to be congratulated upon the increase of their scientific and educational facilities.

The Health of Edinburgh in 1928.

In the recently published annual report for 1928 of the Public Health Department of Edinburgh, the medical officer of health, Dr. William Robertson, regards the death rate of 13.7 per 1,000 as satisfactory, but points out that the birth rate of 17.3 is the lowest yet recorded, except for the years 1917 and 1918. In 1861 the figure was 33.4. With such a low birth rate prevailing he thinks it is reassuring to find that the infantile mortality figure for 1928, of 75 per 1,000 births, is a record for the city. The mortality figures would undoubtedly be still more satisfactory if it had been possible to expedite the slum clearance schemes. Year after year the worst figures have been recorded for those wards in which there are the largest number of single and two-roomed houses. St. Giles's ward, with 1,142 single and 1,694 two-roomed dwellings, mostly in tenement houses, had a death rate of 18.5 in 1928, and an infant mortality rate which was considerably higher than that of any other ward in the city. Dr. Robertson remarks that the slum clearance problem in Scotland differs from that in England, where the old style of tenement house, with its long dark passages, gloomy ill-ventilated lobbies, and centrally placed stairways is virtually non-existent. Reconditioning of these houses, in itself an expensive matter, might make them suitable for a certain class of tenant, but they always remained unfavourable for growing children. Dr. Robertson adds that it must not be thought, however, that the housing policy of the corporation had not been progressive: in the present century more than 5,000 houses had been closed and most of their inmates had been transferred to new houses in the Lochend, Prestonfield, Corstorphine, and other outlying districts, with notable improvement in the health and habits of the persons concerned. Reference is made in the report to the development in connexion with the maternity and child welfare service and of cookery classes for working-class mothers. Every effort has been made to render these classes practical, the demonstrations being given on open fireplaces and with the most elementary appliances. Instruction was supplied in food values and in the necessity of including in the dietary simple foods containing certain vital elements essential for health. The value of good milk was especially stressed. These classes were proving very popular. Dr. Robertson considers, therefore, that a great deal is being done to try to ensure that the poorer children shall have a sufficiency of fresh air, adequate space for exercise, and well-balanced dietary; as a result they were growing up better able to resist disease. It had long been felt that there was a lack of hostels for both men and women in the city, where good food, clean beds, and comfortable surroundings would be available at a low cost; plans for these were now taking definite shape. The tuberculosis notifications and the deaths from pulmonary tuberculosis were the lowest that had been recorded. Since the beginning of the century there had been a fall of over 50 per cent. in the deaths from tuberculosis of the lungs. Scarlet fever accounted for only eight deaths during the year, and the death rate from diphtheria was the lowest since 1912. The venereal disease scheme continued to prove highly successful, but Dr. David Lees again deplored the inability of his department to compel patients to complete their cure. The problem of rheumatism in young persons is giving the health authorities much concern. A very complete inquiry into dermatitis as it affects bakers has been made. The bacteriology of the water of the municipal swimming baths was in course of investigation by Dr. Grierson, and recommendations would be submitted to the committee responsible for the control of the baths in the city.

The Royal Victoria Hospital Tuberculosis Trust.

Under the title of "The white plague in Scotland—how it is being vanquished," a report has been published on the work during the past year of the Royal Victoria Hospital Tuberculosis Trust. Since the Victoria Dispensary was opened in November, 1887—the first of its kind—the dispensary scheme of Sir Robert Philip has been extensively developed, and, in Edinburgh, its birthplace, there has been established a sanatorium (the Royal Victoria

Hospital); a tuberculosis school; a working colony; a sanatorium colony (at Southfield); a tubercle-free dairy farm; and the chair of tuberculosis in the University. Some details of the work of the trust are given in the report, and the increasing tendency to admit young children with tuberculosis to the Southfield Sanatorium is welcomed. It is mentioned that there is no limit to the duration of treatment in this institution provided that there is any possibility of a successful issue. In the laboratory there an investigation of the standardization of tuberculin has been in progress in collaboration with the laboratory of the Royal College of Physicians of Edinburgh, and a method has been evolved which appears to be readily applicable. An appeal is made in the report for an additional sum in donations of £600 a year to enable the committee of the trust to appoint two more research workers.

England and Wales.

Combined Meeting of the British and American Orthopaedic Associations.

THE combined meeting in London of the British and American Orthopaedic Associations (to which reference is made at page 62) reached its culminating point on the social side on the night of July 5th, when nearly every member of the two associations attended the dinner at the Café Royal, Regent Street. An informal reception preceded the dinner, at which many prominent British and American representatives of orthopaedic surgery were to be seen in animated conversation. It is to be presumed that such conversations were not necessarily all of a scientific nature, but were many of them of the type which would indicate that fellowship and good feeling between English and American orthopaedic surgeons are happily cemented. The dinner which followed the reception was an outstanding success, and, though the programme provided for a certain number of formal speeches, the happy atmosphere of internationality was responsible for several delightful impromptu speeches in addition to those on the programme. The toast of "The King" was proposed by Sir Robert Jones, who presided over the gathering, and was honoured in silence. Dr. Goldthwait of Boston, in response to a request from the chairman, referred to a war-time telegram which had been responsible for twenty American orthopaedic surgeons being sent to join the British Forces in 1917. This cable was the beginning of the happy association between American and British orthopaedic surgeons which found expression in the present gathering in London. Sir Robert Jones referred in the happiest vein to the great services rendered by King Manoel of Portugal in the training of war cripples. King Manoel had, in spite of great difficulties, been able to arrange to come to the dinner, and was sitting on Sir Robert's right hand. After many pleasant allusions to the orthopaedic work during the war, Sir Robert proposed his Majesty's health, which was drunk with great enthusiasm. King Manoel, in his reply, made witty reference to his association with Sir Robert Jones and other distinguished American and British orthopaedic surgeons during and after the war. He touched a deeper note in speaking of their general experience in the treatment and after-care of the wounded and maimed. Professor Hey Groves proposed the health of "The American Orthopaedic Association" in a short and effective speech, and the toast was accorded musical honours. In replying to this toast, and in proposing the health of "The British Orthopaedic Association," Dr. Albee expressed his gratitude for the warm welcome they had received and the interesting programme which had been provided. This toast in its turn was accorded with musical honours by the American members present. Sir Robert Jones proposed the health of "The Guests," making particular reference to the good fortune of the orthopaedic associations in welcoming Professors Putti and Calvé, and further in obtaining a communication from Professor Putti. Sir Squire Sprigge replied very gracefully on behalf of the guests. The last speech was by Dr. Goldthwait, who proposed the health of the chairman, and Sir Robert Jones's health was drunk with great enthusiasm. During the intervals between the speeches Dr. Rugh greatly entertained the gathering by singing plantation songs at the piano.

Presentation to Dr. William Collier of Oxford.

An event of considerable interest to the medical profession in Oxford and district took place on July 1st when, by the courtesy of the Rector and Fellows of Exeter College, Dr. William Collier was entertained at dinner in the College Hall in commemoration of the fiftieth anniversary of his arrival in Oxford; about one hundred local practitioners and their wives were present. Advantage was taken of the occasion to present Dr. Collier with his portrait painted by the Hon. John Collier, representing him in his Cambridge M.D. gown, as a token of esteem and affection from his many friends and colleagues in and around Oxford. The ceremony was presided over by Dr. Cheatle of Burford, who laid stress on Dr. Collier's high sense of professional honour and benevolence towards the less fortunate members of the profession. He referred also to the extremely valuable work of Dr. Collier in connexion with the administrative side of the Radcliffe Infirmary as distinguished from his medical services. Dr. Collier, though a very busy man, had found time to serve his fellow citizens for a long period in the deliberations of the local authority. In conclusion, Dr. Cheatle paid a warm tribute to the practical efficiency and personal charm of Mrs. Collier. Sir Thomas Legge said that there were few now who could remember Dr. Collier's advent into Oxford as house-physician to the Radcliffe Infirmary, fresh from his success in the running field and on the bicycle path at Cambridge. After leaving the Radcliffe Infirmary he started practice in the High Street, but he subsequently returned to the Infirmary as physician, and the interests of that great institution and the causes affecting the honour, welfare, and glory of the profession, especially through the British Medical Association, became an absorbing influence on the remainder of his life. The development of the Oxford Medical School was the subject of Dr. Collier's presidential address to the Annual Meeting of the British Medical Association when it met in Oxford in 1904. Dr. Collier, in a cheerful and reminiscent vein, thanked the gathering and other subscribers for the honour they had conferred on him, and touched on the many changes that had taken place in private and hospital practice during the past fifty years. The arrangements for the dinner were admirably carried out by Dr. F. G. Hobson and the staff of Exeter College.

The New Middlesex Hospital.

Middlesex Hospital now presents one of the most anomalous architectural spectacles in London, for in contrast with the long familiar central portion and the east wing with their dilapidated appearance, the new west wing is a huge structure, doubling the height of its fellow, and of an impressive and pleasing design. This new wing is expected to be ready to receive patients in three months' time. The ground floor, which is to be used for administrative purposes, contains also an operating theatre. Each of the next four floors is arranged on an identical plan, with two main and two side wards, providing thirty-seven beds in each unit. The fifth floor is a gynaecological unit with twenty-four beds and a complete operating theatre suite. On the top floor is the children's ward, the gift of Mr. Bernard Baron, with wall tiles arranged as coloured pictures, and an adjoining roof playground from which there is a view across London to the country beyond. The floors of the wards are composed of marble terrazzo, and most of the internal joinery is of hard wood. The walls are tiled up to the ceilings, and the floors meet the walls in a curve. Every ward is heated by electric fires, and over every bed is an electric lamp and a wireless headphone. The walls of the operating theatre are glazed with a green-tinted plate glass, specially chosen for the protection of the eyesight of those operating, and all the appliances are chromium-plated. Some figures have been furnished with regard to the materials used in the construction of this building, from which it appears that about 1,000 tons of

steelwork have been used, together with 200 tons of reinforcing steel rods; 1,200 tons of sand and ballast; 2,000 tons of Portland cement, and one and a half million bricks. Sanitary towers have been constructed at the north and south ends of the building, carrying from the basement to the roof. There are four balconies, which may be used for open-air treatment. At a luncheon which preceded the press view of the new structure on July 4th, Sir Herbert Morgan, chairman of the appeal committee, announced that of the sum, exceeding £1,000,000, which was required for the execution of the entire scheme, more than £600,000 had been collected; the response to the new appeal which had been launched showed that the generosity of the public towards Middlesex was not abating. Mr. A. E. Webb-Johnson, surgeon to the hospital, said that after the completion of this new wing the demolition of all that remained of the old building would begin, and in its place would rise the most complete and up-to-date hospital in London. He referred with justifiable pride to the achievement of the Middlesex Hospital in rebuilding its wards without evacuating its site, closing a bed, or curtailing a service. Lord Leitrim emphasized the indebtness of places outside London to the Middlesex Hospital for taking patients with whom the local hospitals could not deal, and also for its great work as a research and training centre.

University College, London.

An assembly of faculties was held at University College, London, on July 4th, when Sir Walter Fletcher, secretary of the Medical Research Council, and special visitor to the College, distributed the awards to the scholars, prizemen, and medallists for the year, and briefly addressed the gathering. The annual report of the College, presented by Sir Gregory Foster, the provost, after a regretful reference to the passing of Lord Rosebery, who had held the office of Chancellor of the University for twenty-seven years, stated that the centenary fund now stood at £222,798, which was well on the way towards half the sum required. The College was still in search of a benefactor who would provide £120,000, and thus secure the single generous offer of a like sum for the building, equipment, and endowment of the department of zoology and comparative anatomy. The new building for this department is to be in Gower Street, immediately to the south of the anatomy block of the Faculty of Medical Sciences buildings. Sir Gregory Foster mentioned some important extensions which had taken place during the past session. The department of municipal engineering and hygiene had been provided with a new laboratory, and better accommodation had been afforded for the School of Librarianship, also lecture rooms for the Faculty of Arts. The new University observatory at Mill Hill Park is to be opened in October by the Astronomer-Royal. It is hoped next session to possess an exhibition room for the display of the valuable and expanding collection of etchings and prints which have been bequeathed to the College; one of the latest additions is a gift by Lady Godlee, in memory of her husband, the late Sir Rickman Godlee. Sir Gregory Foster added that the number of students on the College books was 3,175, as compared with 3,054 last session; 1,850 of them were full-time students, and 498 were doing post-graduate and research work. At the conclusion of the formal proceedings, the company, which included the Greek Minister, the High Commissioner for India, and many distinguished friends of the College, listened to a concert by the students, and afterwards inspected the new anatomy and physiology building, the gift of the Rockefeller Foundation, and other extensions. Sir Flinders Petrie's exhibition of the results of recent discoveries of the British School of Archaeology in Egypt aroused much interest; he has unearthed the remains of fortified "cities" in Southern Palestine which throw some illustrative light upon the Old Testament narrative. One little circumstance of Assembly Day which was noted was the wearing by the chairman of the College committee, Viscount Chelmsford, of the memorial ring (recently purchased by the College) of Jeremy Bentham, whose skeleton, dressed in Bentham's accustomed garb, is a College possession.

Correspondence.

LAVAGE IN PLEURITIC EFFUSION.

SIR,—In the discussion on the treatment of pleuritic effusion, to be held at the Annual Meeting of the Association at Manchester on July 25th, I hope that attention will be devoted to the danger of pleural lavage, and some conclusion be arrived at as to its real extent.

It used to be laid down that the proceeding was dangerous; lately the most divergent views have been expressed; here are two of them: (1) "If simple drainage is ineffectual, irrigation should be resorted to as a routine" (Grant Massie, *Recent Advances in Surgery*, 1928, p. 202); (2) "The pleura should not be washed out with antiseptic solutions, as this has, in a number of cases, caused death from shock" (Geoffrey Marshall, *Conybeare's Textbook of Medicine*, 1929, p. 493).

That danger exists the following case makes clear. It occurred some thirty-five years ago; unfortunately I could not publish it at the time as it was not my case, and its publication then would have thrown discredit on the colleague in charge of it. He is long since dead, and therefore many details have been lost, such as the side affected, the exact size of the cavity irrigated, the antiseptic used; but the main facts are indelibly impressed on my mind. Briefly they were these. The patient being irrigated died quickly (I was told) with all the symptoms of a rapidly fatal haemorrhage. At the necropsy (which I made) there was no haemorrhage, but the abdominal organs were engorged with blood to an extent which I have never seen in any other case; they literally dripped with blood like full sponges. It seemed to me that, in some way or other, the irrigation had "opened the splanchnic floodgates" and that the patient had bled to death into his own abdominal organs.

The question which ought to be settled is whether such a disaster is so extremely rare as to be negligible, as the first quotation suggests, or sufficiently common to justify the second quotation. The matter is much too serious to be left in so much doubt. It would also be well to know if side, size of cavity, or antiseptic used affects the risk.

I am sorry that it is impossible for me to be present at the Manchester Meeting.—I am, etc.,

Exeter, July 8th. W. GORDON.

RADIUM TREATMENT OF MALIGNANT DISEASE.

SIR,—May I be allowed to call attention to some points which appear to be not quite clear, and to correct some mistakes that have occurred, in the otherwise excellent summary to my Cavendish Lecture of June 21st, which you have been pleased to publish in your columns (June 29th, p. 1164).

As regards uterine cancers, no one (and perhaps least of all myself) considers as completely cured patients treated only two years previously. Lack of time prevented me from commenting as fully as I would have wished on the tables of statistics exhibited. Our patients treated in 1926 who, on examination at the end of 1928, presented neither signs nor symptoms of cancer were considered as "clinically or provisionally cured"; only those patients treated from 1919 to 1923 who had passed the five years' observation point were considered "cured." Among the patients treated during the years 1924–26 there will occur several cases of recurrence before all have reached the five years' observation point, and these cases will thus lower the proportion of cure for those years. I added that in cases at the limit of operability, and especially in inoperable cases, cure was sought in a combination of internal curietherapy with either roentgenotherapy or transpelvic curietherapy.

Following the remarks on the treatment of cancers of the superior maxilla by resection and the packing of radium tubes against the walls in the resulting cavity, your report states that in the cases of cancers of the tongue and floor of the mouth "the method adopted was again that of weak foci, the tubes being retained by gauze packing."

This latter statement is incorrect. The treatment is by radium puncture in the cases of carcinoma linguae, and by radium puncture often preceded or followed by the action of a surface moulded applicator in the cases of cancers of the floor of the mouth; but in no case are the tubes retained in position by gauze packing in cancers of these localizations, as is necessary in cancers of the superior maxilla. We are by no means opposed to the radium-surgical procedures, which give good results in a limited sphere of applicability.

Discussing telecurietherapy, I mentioned the necessity of protecting the body of the patient and neighbouring persons by surrounding the source of radiation with several centimetres (6 cm. actually), not inches, of lead. And, finally, a slip has been made in substituting screen distance for skin distance (that is, distance from the radiating surface to the skin) in the same paragraph.—I am, etc.,

Institut du Radium, Paris, July 3rd. C. REGAUD.

MEDICAL PRACTICE IN THE INTERNATIONAL SETTLEMENT OF SHANGHAI.

SIR,—The contribution on scientific medicine in China from "An Occasional Correspondent" (April 13th, p. 699) conveys an erroneous impression of the status of foreign medical practitioners in the International Settlement of Shanghai.

A brief statement of the facts will make the position clear. At the present time there are 171 medical practitioners of the following nationalities in the International Settlement, whose names are on the official list of the Public Health Department.

Japanese	55	German	11
British	28	Austrian	5
Russian	22	Hungarian	2
American	19	Polish	2
Chinese	14	Belgian	1
French	11	Czechoslovakian ...	1

There is no compulsory registration of medical practitioners in the Settlement, but before admission is granted to practise in the municipal, general, and country hospitals, and before certificates are accepted by the municipal council, medical practitioners must be attested by their respective consular authorities, and must present satisfactory credentials to the Municipal Public Health Department. Those, other than Chinese, who have no consular representation are required to pass a medical board formed by three medical men nominated by the Municipal Council of the International Settlement, the Provisional Commission of Municipal Administration of the French Concession, and the Board of Governors of the General Hospital.

The Land Regulations and Annexed By-laws by which the International Settlement is governed have very little bearing on public health, and make no provision for the compulsory registration of medical practitioners. From time to time since 1902 attempts have been made to obtain such powers as part of comprehensive public health legislation, yet for various political reasons the attempts have not been successful. In 1926 the Municipal Council of the International Settlement approved of a scheme of voluntary registration of medical practitioners, dentists, and veterinary surgeons with a view to controlling the sale of poisons and noxious drugs within the Settlement. Draft regulations were submitted to the principal national medical societies, but on account of conflicting national views and interests negotiations were not concluded until November, 1928. The scheme now only awaits the co-operation of the French municipal authorities before being put into effect.—I am, etc.,

Shanghai, June 17th. C. NOËL DAVIS, Commissioner of Public Health.

TREATMENT OF EXOPHTHALMIC GOITRE.

SIR,—After a careful perusal of Dr. Douglas Webster's letter (June 29th, p. 1179) criticizing a part of my conclusions on the treatment of exophthalmic goitre, it seems to me that he has not fully appreciated the essential point of my contribution. I have taken the basal metabolic rate, weight, and pulse as the essential standards of progress of amelioration or of failure. Unless one has some such standard of accuracy it is indeed extremely difficult or impossible to gauge the effect of any treatment. The literature of exophthalmic goitre is only too full of examples in which the term "cure" is used without any convincing proof that a cure has actually been obtained. I am afraid that the radiologists in this country have not sinned the least in this direction. I have been through the literature and am perfectly well acquainted with the papers to which Dr. Webster refers. I omitted reference to them because the cases were not in my opinion sufficiently completely investigated. One needs in scientific medicine instruments and methods of precision, and these are apt to upset the perfectly honest yet often inaccurate conclusion of the clinician who relies on the older methods, good enough it is true for many diseases, but apt to lead us astray in so complex a disease as exophthalmic goitre.

I have been at very great pains to check the results of the *x*-ray treatment, and all the patients undergoing that treatment were readmitted to hospital at intervals to check their progress. It was manifestly impossible to keep them in hospital for the whole twelve months of their treatment. I was quite prepared to find that *x*-ray therapy was curing the condition in the 80 per cent. of cases that has been claimed, but my results did not fulfil this expectation. Nor were these cases specially selected or particularly bad ones. They form a series that runs more or less parallel with the operated ones, save that one case only had been rejected by the surgeon, and this patient died even after *x*-ray therapy.

I find that I was misinformed as to the dosage, which should have been half an erythematous dose. Perhaps Dr. Webster will pardon me for a mistake which was not entirely my own.—I am, etc.,

Manchester, July 2nd. CHARLES S. D. DON.

GAS-OXYGEN ANAESTHESIA.

SIR,—The experience of Dr. T. de Lacy Walker (June 29th, p. 1180) has been different from my own. It is rare for me to come across any student who has been taught gas-oxygen anaesthesia at all—either with Boyle's or any other apparatus. They have been taught semi-open ether or C.E. in England and chloroform in Scotland.

I can say that he admits my contention that Boyle's apparatus is used chiefly in conjunction with other. This is necessary, because the control of the gases is so erratic. There are other points, too, besides control, about an efficient machine, which appeal to me, and probably would to Dr. Walker. One is an emergency oxygen valve, whereby, if a patient stops breathing from any cause, oxygen under pressure can be forced into the lungs, thereby doing the most efficient artificial respiration possible. As deaths under nitrous oxide gas occur almost wholly from asphyxia only, they may be prevented if oxygen can be forced in independently of the patient's own effort; I have seen patients who appeared to be dead restored by this means in a few seconds.

Dr. Walker entirely agrees with my plea for the more general use of gas and oxygen, but this cannot come about without a more efficient gas control than there is in Boyle's apparatus. What I mean is conveyed in the following extracts from letters I have recently received: "I quite agree with your statements of the difficulty of using Boyle's apparatus; but this is the only one I have seen." Another says: "We have a Boyle's bubble bottle apparatus, but I must confess I cannot do much with it—so much so that I have practically given up using it." Evidently I am not alone in my opinion.

With regard to the rest of Dr. Walker's letter, it is generally agreed that nitrous oxide and oxygen is the least toxic of any anaesthetic we know of at the present time. It is selected for bad risks such as diabotics, and toxic and nearly moribund intestinal obstruction cases, even by surgeons who would not consider using it for anything else. Surely if it is good for these it should be satisfactory for others. In fact, the comfort of all patients is so much enhanced by its use that I am of the opinion that the only contraindications are ignorance and lack of efficient apparatus. May I, in concluding, add the three following

generalizations: (1) careful selection of cases is not very necessary, as already the very worst are passed on to it; (2) any apparatus requires keeping in perfect working order to secure efficient working; (3) no man who gives gas-oxygen anaesthesia can afford to go to sleep on the job.—I am, etc.,

Doncaster, July 4th. E. J. CHAMBERS.

CONSULTATIVE COMMITTEES UNDER THE LOCAL GOVERNMENT ACT.

SIR,—It appears to me important that action taken in regard to the constitution of the Consultative Committees under Section 13 of the Local Government Act should be reported. I therefore send you the following facts for the information of your readers.

In Liverpool the Consultative Committee has been appointed, and consists of twelve members, six representing the governing bodies of the voluntary hospital and six representing the medical and surgical staffs. The six medical representatives have been nominated by the Liverpool Hospital Staffs Association, a body which includes in its membership all those who are on the staffs of the local voluntary hospitals.

In Lancashire the Consultative Committee has also already been constituted. It is to consist of one lay and one medical representative from each of the voluntary hospitals in the county area; the medical representatives have in each case been nominated by the medical board of the hospital concerned.

Several of the neighbouring county boroughs have elected their Consultative Councils on the same lines as those followed in Liverpool. A conference to constitute the Consultative Committee for the county of Cheshire is shortly to be held.—I am, etc.,

Liverpool, July 8th. K. W. MONSARRAT.

MEDICAL ATTENDANCE ON PATIENTS IN PRIVATE WARDS OF HOSPITALS.

SIR,—In your issue of June 29th (p. 1181) Dr. R. H. Dix comments on the proposed policy for the above-mentioned patients as outlined on page 127 of the *Supplement* for April 20th in Section XI, paragraph 29. He states that "hitherto the policy of the Association has granted to these people complete freedom of choice of medical attendant"; and that "the new policy deprives them of this right."

Up to the present the British Medical Association has had no policy at all with regard to these patients. It would seem that Dr. Dix is confusing with this group those in nursing homes or annexes attached to hospitals, for whom a quite different policy is outlined in the following section (XII). The time is so pregnant with far-extending changes in the relationship between State and voluntary hospitals and their effect on medicine and private practice that it is to be earnestly hoped that everyone will fully acquaint himself with what is going on and assist in formulating an equitable policy.—I am, etc.,

Hove, July 6th. E. ROWLAND FOTHERGILL.

PRURITUS ANI.

SIR,—In his article on the treatment of pruritus ani (June 15th, p. 1070) Mr. Gabriel did not mention the use of ultra-violet rays in the treatment of this intractable condition. I have had some satisfactory results with ultra-violet rays after many forms of treatment have been tried, including x-ray radiation. For some little time now I have been using an electrode which contains titanium, and I consider that the results are quicker and better with this metal than with tungsten. In hospital, the cases under me have been treated by the tungsten arc, and the results have been very satisfactory, but in private I have used the titanium arc with more rapid success. The treatment should be given daily, and I have found that natural sleep is forthcoming after comparatively few administrations. With pruritus vulvae the results are equally gratifying.—I am, etc.,

E. G. FRENCH, M.D., M.R.C.P.,
Physician in charge of the Skin Department, London Temperance Hospital.

July 2nd.

DIFFICULT LABOUR.

SIR,—Professor R. W. Johnstone's British Medical Association Lecture on difficult labour, published in your issue of June 22nd (p. 1105), reminds me of a case of non-rotated occipito-posterior presentation I treated some years ago. The head had come low down without rotation, and it occurred to me that by inserting one blade of the forceps behind it might be possible to lever it forward. I did this, and, taking great care not to use much pressure on the soft parts, I found it quite easy to rotate the head, and inflicted no injury in doing so. I may mention that I did not rotate the shoulders at the same time, and the child was born alive.

May I also mention a simple method of using a gum-elastic catheter for reducing the prolapsed cord? The books mention passing a tape or thread down the lumen of the catheter before looping it round the cord. It is far easier to bring the stilette out through the eye of the catheter, loop the thread round it, and reinsert the point within the catheter. When the cord has been replaced withdrawal of a couple of inches of the stilette releases it, and the tape is born with the placenta.—I am, etc.,

Wokingham, July 1st. F. R. HUMPHREYS.

DEFINITION OF RHEUMATOID ARTHRITIS.

SIR,—I wish to endorse the statement implied in the sentence "there are present signs of a general disturbance," in the third paragraph of Dr. Neligan's letter published in the *British Medical Journal* of July 6th (p. 32). Examples are the frequently associated colitis on the one hand and the liver disturbance on the other. Of these two I regard the liver as the more guilty.—I am, etc.,

Arnside, July 6th. D. M. MACDONALD.

Universities and Colleges.

UNIVERSITY OF OXFORD.

THE following candidates have been approved at the examination indicated:

FINAL B.M., B.CH.—H. H. Aitchison, G. Campbell, B. R. Caygill, J. A. Eyres, C. R. Greene, H. E. Mansell, J. C. Nicholson, M. G. Pearson, J. W. de W. G. Thornton, W. J. Walter. *Forensic Medicine and Public Health:* H. S. Atkinson, J. M. Gibson, T. N. Gledhill, H. M. Harris, R. S. Harrison, J. M. Lees, A. J. M. Melly, C. N. Milner, A. Secker-Walker, W. B. Williams, Annie D. M. Adams. *Pathology:* F. Bicknell, J. B. Bishop, J. R. Braybrooks, W. D. T. Brunyate, F. E. Buckland, E. C. Coaker, C. M. Duncan, D. G. Ferriman, J. H. Hunt, W. E. S. Merrett, C. N. Milner, R. D. Newton, W. R. Pullinger, [illegible] O. J. Vaughan-Jackson, [illegible] rcer. *Materia Medica:* [illegible] ckland, H. W. Davies, [illegible] y, M. A. Hatt, G. W. Hinchliff, H. de B. Kempthorne, R. M. Marshall, N. C. Parfit, N. L. Rusby, J. A. Scott, R. F. Woolmer, C. H. Yeoh.

UNIVERSITY OF LONDON.

AT a meeting of the Senate of the University of London, held on July 3rd, Dr. E. Graham Little, M.P., was elected as a representative of the Senate upon the Court, and was re-elected for the seventh time as chairman of the Council for External Students.

Sir Gregory Foster, B.A., Ph.D., has been elected Vice-Chancellor for the year 1929–30, and the Rev. John Scott Lidgett, D.D., M.A., Deputy Vice-Chancellor for the same period.

LONDON HOSPITAL MEDICAL COLLEGE.

The Freedom Research Entrance Scholarship in Pathology, value £100, open to students of the Universities of Oxford and Cambridge, has been awarded to Mr. J. F. Brock of University College, Oxford.

UNIVERSITY OF DURHAM.

AT the convocation held on June 27th the following medical degrees and diplomas were conferred:

M.D.—M. Coll, O. C. Dobson, J. Hare, A. H. Holmes, F. W. Marshall, P. M. Rivaz, Gladys Stableforth, A. J. Watson, R. Wear.

M.B., B.S.—S. Adler, J. C. Arthur, W. F. Cross, K. Daniels, C. E. Goldberg, H. W. T. Hall, W. Hall, J. Maddison, H. D. Ord, A. R. D. Pattison, J. K. H. Scott, J. B. Tilley, Nora Walkinshaw.

B.Hy., D.P.H.—Katherine M. Cellan-Jones, O. C. Dobson, A. J. Watson.

UNIVERSITY OF LIVERPOOL.

THE following candidates have been approved at the examination indicated:

M.D.—Helen M. Duvall, W. H. Evans, W. M. Frazer, L. S. Goldman, [illegible]

M.B [illegible] ndlay, [1234] T. N. A. Jeffcoate, [9] D. A. Jones, [29] J. A. Martinez, [29] W. W. Gerrard, [29] J. M. [illegible] rzilay, M. J. Bennett-Jones, [h] C. L. Pratt, G. K. Sconce, E. B. Whittingham, J. P. Woodward. *Part III (O B.):* S. Alstead, R. J. Doyle, R. A. Furniss, J. N. Parrington, Muriel S. Roberts.

N. W. Roberts, J. L. A. Webster, J. Williamson. *Part A (N.R.)*: L. G. Anderson, [6]Marjorie E. Birch, A. Blumfield, C. G. Burgess, [4 7]G. W. Causey, W. N. Chalmers, J. W. Cheetham, [6]D. H. Collins, A. Curtis, P. P. Fox, [7]D. O. Hughes, V. S. Hughes-Davies, A. T. Jones, R. P. Kemp, F. R. Kitchin, E. W. Malcomson, J. L. Mewton, W. J. Poole, M. Solomon, [4 6 7]Honora J. Twomey, [5]T. P. Twomey, [7]R. Wright. *Part I (O.R.)*: E. H. Williams. *Part II (O.R.)*: R. G. Walker, [5]E. H. Williams.

DIPLOMA IN PUBLIC HEALTH.—*Part I:* R. L. Corlett, R. W. Eldridge, A. B. Follows, Susan H. Gilchrist, E. Hulme. *Part II:* Kathleen Edgecombe, R. R. Evans, Bridget M. O. Gordon, F. C. S. Hinsbeck, J. S. Logan, F. L. Smith.

DIPLOMA IN TROPICAL HYGIENE.—G. D. Drury, N. D. Fraser, J. A. L. Innes, C. Ramdeholl.

[6] Distinction in public health.
[7] Distinction in pharmacology and general therapeutics.
[8] First-class honours.
[9] Second-class honours.

and toxicology.

UNIVERSITY OF MANCHESTER.

THE following candidates have been approved at the examination indicated:

FINAL M.B., CH.—
Bessie H. E.
W. W. Fox
Mary I. C. M
G. E. Plowright, Marian M. Reekie, C. F. Stott, Alan Taylor, L. C. Wright. *Forensic Medicine:* E. J. B. Sewell. *(New Regulations—Part I, Forensic Medicine and* *cine):* R. Barnes, A. Bisham, A. N.
Barbara E. Bleasdale, Edith M. Casas
Winifred Dean, J. Dobson, C. G. Eastwood, J. R. P. Edkins, E. G. Elwell, Margaret M. Ferguson, Dorothy A. Geiler, N. Harburn, E. W. Hardman, L. Jones, W. W. Kay, A. L. Kenyon, C. D. Leflaive, J. C. Nicholson, D. Ockman, G. J. Phillips, D. A. Richards, E. Riley, B. Sandler, M. W. Smith, H. W. Thompson, C. Verity, N. S. Walls, G. H. C. Walmsley.

DIPLOMA IN BACTERIOLOGY.—M. M. Barritt, R. Lyth, R. W. H. Miller, Lois Stent, Mary M. Stewart, Emmeline Wade, P. M. Wagle.

DIPLOMA IN PUBLIC HEALTH (*Part I*).—J. R. Beal, C. Campbell, A. H. Heyworth, D. Kemp, A. Meiklejohn, J. S. Sewell, R. Walshaw.

* With second-class honours.

UNIVERSITY OF SHEFFIELD.

THE following candidates have been approved at the examination indicated:

M.D.—Janet Breakey.
M.B., CH.B. (with second class honours).—F. Ellis, T. H. Pullar.

UNIVERSITY OF DUBLIN.

TRINITY COLLEGE.

AT the later summer commencements of Trinity term, held on July 2nd, the following degrees were conferred:

M.D.—H. G. Holdbrook, R. Schaffer.
M.B., B.CH., AND B.A.O.—W. R. Fearon, H. T. Fleming, M. H. Fridjohn, L. L. Griffiths, L. B. Harris, A. F. Kennedy, R. St. J. Lyburn, Anna M. E. M'Cabe, J. T. M'Ginn, T. B. M'Mahon, E. F. S. Morrison, R. J. Reid, E. B. A. Solomons, C. M. Taylor, R. M. Wilson, J. Beggs *(in absentia)*, N. H. Lindsay *(in absentia)*.
LICENCE IN MEDICINE, SURGERY, AND OBSTETRICS.—R. Kahn.

SCHOOL OF PHYSIC, TRINITY COLLEGE.

The following candidates have been approved at the examination indicated:

FINAL M.B.—*Part I, Materia Medica and Therapeutics; Medical Jurisprudence and Hygiene; Pathology and Bacteriology:* *Elizabeth K. Roberts, *A. H. Thompson, D. B. Bradshaw, I. G. L. Ford, T. A. Bouchier-Hayes, F. P. FitzGerald, D. J. O'Ryan, A. J. O'Connor, H. H. G. Dorman, J. Miller, P. H. Peacock. *In completion:* H. W. Dalton, G. F. West. *Part II, Medicine:* G. R. Beare, J. N. U. Russell, H. T. Fleming, R. T. O'Shea, A. H. O'Malley, L. L. Griffiths, R. St. J. Lyburn, C. M. Taylor, Frances E. Wilson, P. O'Shea, R. I. Reid, G. K. Graham, Anna M. E. M'Cabe, J. F. K. MacCarthy-Morrogh, E. J. M. Bam. *Surgery:* W. R. Fearon, *C. M. Taylor, H. T. Fleming, A. F. Kennedy, E. B. A. Solomons, R. St. J. Lyburn, L. B. Harris, T. B. M'Mahon, L. L. Griffiths, N. H. Lindsay, de, J. T. M'Ginn, F. S. Morrison, tton, W. Caldwell, ons.

D.P *sitology; Physics,* D. H. F. Milmo, *rt II, Sanitation Administration; Vital Statistics;*

*R. A. Q. O'Meara, A. Fava.

DIPLOMA IN GYNAECOLOGY AND OBSTETRICS.—A. El S. A. Ammar, F. El Ahmadi, A. W. Michie.

* Passed on high marks.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

ELECTION TO THE COUNCIL.

ON July 4th four Fellows were elected into the Council to fill the vacancies caused by the resignation of Sir James Berry and the retirement in rotation of Sir Holburt Waring, Mr. C. H. Fagge, and Mr. W. Sampson Handley. The result of the poll was as follows:

	Votes.	Plumpers.
WILLIAM SAMPSON HANDLEY (Middlesex) ...	627	10
CHARLES HERBERT FAGGE (Guy's)	587	14
Sir HOLBURT JACOB WARING (St. Bartholomew's)	560	30
GRAHAM SCALES SIMPSON (Sheffield)	527	48
Charles Coley Choyce	489	12
Thomas Percy Legg	334	14
Robert Milne	364	41

In all 1,091 Fellows voted, including 160 Fellows resident out of *Great Britain and Ireland; in addition 5 votes were found to be* invalid.

Mr. Simpson becomes substitute Member of Council for Sir James Berry until 1931; and Mr. Handley, Mr. Fagge, and Sir Holburt Waring are elected for the full period of eight years.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND.

THE following, having passed the Conjoint Final Examination, have been admitted to the Licences in Medicine and Midwifery:

T. G. De V. Coneys, T. J. Gilmartin, W. C. B. Harrison, D. J. Mangan, P. F. Murray, J. F. O'Halloran, M. H. O'Reilly, H. D. Plunkett, M. A. Roddy.

The Services.

PARKES MEMORIAL PRIZE.

THE essay for the next award of the Parkes Memorial Prize will be "The Causes and Means of Prevention of Tonsillitis, with Special Reference to Naval and Military Service." The prize, which consists of 75 guineas and a gold medal, is given every third year for the best essay dealing with hygiene; it is open to certain medical officers of the Royal Navy, Army, and Indian Army of executive rank on full pay.

TESTIMONIAL TO SIR RONALD ROSS.

SECOND LIST OF CONTRIBUTORS.

ON May 11th (p. 879) we published a letter from Sir James Barr and others informing our readers that a fund, called the Ross Award Fund, was being started in order to give some recognition to Sir Ronald Ross for his discoveries on the mode by which malaria is carried, and for his lifelong efforts regarding the prevention of that disease. The letter stated that donations should be sent to Lloyds Bank, Ltd., 110, High Street, Putney, S.W.15, cheques to be crossed "Ross Award Fund a/c." The names of those who had contributed to the Fund up to May 17th were printed in our issue of June 8th (p. 1065), the total amount then acknowledged being £2,490. We now print a second list of donors, whose contributions, amounting to £706 18s. 6d., were received between May 18th and May 29th, making a total of £3,196 18s. 6d. on May 29th. The list published below does not include anonymous contributors or contributors whose initials only have been supplied.

Dr. R. Aitken, Dr. R. G. Alford, Miss Anderson, Miss Arbuthnot, Misses M. T. and A. M. Ashburner, Edmund I. Ahns, B. E. Alston, Miss H. J. Aborne.

John Bain, Miss Ellen Baxter, N. E. Ball, F. L. Bradley, Rev. J. T. and Mrs. Barkley, Miss Eliza Broughton, Marion Bruce, Miss Bannister, Mr. and Mrs. W. Blyth, Mrs. M. M. Bevington, Mrs. J. M. Blomfield, Miss Bowie, John Fulton Barr, Mrs. Herbert Brock, Miss A. F. Bladon, Miss Boyd, B. H. Briggs, Lady Grace Baring, Miss L. E. Broadwood, Miss M. Bartleet, J. Stark Browne, Mr. H. Beddington.

Dr. Ernest Carlet, Mrs. Campbell, Mrs. Scott Cooper, The Misses Clark, Dr. Collier, Major Brunel Cohen, Mrs. A. Campbell, Mrs. Crossley, Mr. Edward W. Cox, Miss Ethel Charles, W. P. Connell, R. H. Cotton, J. Campbell, W. F. Carslake, James D. Cowan, W. Roper Caldbeck, Cheviot Rubber, Ltd.

Miss J. Duncan, Miss Mary Duncan, Mrs. Davison, Mrs. Davenport, Mrs. R. Dixon, Dr. M. Dawson, Colonel J. Day, H. M. and W. Drake, G. B. Dibbler, W. S. M. D'Urban, George Drinkwater.

Captain Arthur E. Ewart, Edith N. Evans and H. Winifred Cooke, James H. Edwards, Miss D. H. Fowle, M. A. and A. Eddy and Sister Harriett.

Mrs. A. Flanelle, Miss Franklin, Miss Constance Fenwick, Mrs. Frere, Fred. Fuller, Miss Fovargue and Miss Powell.

Dr. E. W. Goodall, Miss G. E. Gage, Robert M. Galloway, Dr. L. P. and Mrs. Gibson, Miss Gardner and Miss Lawrence, Miss F. Gray, Dr. W. Gosse, Sir Frederick Gardiner, Mrs. S. B. Gotst, P. O. Gordon, Stephen Gillanders, E. M. Gallie.

Dr. C. O. Hawthorne, Miss E. J. Heyworth, James Harper, Dr. Richard Haigston, Mrs. A. M. Holderness, Miss A. E. F. Horniman, J. A. Hutchinson, Mrs. Hurworth, G. C. Hay, L. Harrison, Mrs. Dorcas Hart, Miss A. S. Harrington, W. J. Harding-King, Dr. H. A. Haviland, Miss Dorothy Holman, Miss H. Clements Hassell, J. O. Hackman, O. N. Hollely, A. W. Jones, C. A. Jebens.

F. A. S. King, Alfred Kingdom, Mr. and Mrs. Kreisler.

Professor Luigi Liuggi, C. Lamb, P. Makepeace Lott, Mr. and Mrs. L. C. Lowther, Misses Leslie, Misses Lever, Misses Lewis, Mrs. A. Lane, Mrs. and Mr. J. Lee, R. G. Lawson, H. Lloyd, Lillian M. Leary, Dr. E. le C. Lancaster, Miss Luard, Labu (F.M.S.) Rubber Co., Ltd., Mrs. F. Littington.

Dr. F. G. Mackereth, Dr. E. Marsden, N. Martland, Mary Monkhouse, John Milligan, Mrs. Frank C. Minoprio, Mr. Julian D. Marks, C. Martin, Mrs. A. M. Morris, W. H. Marsh, Miss M. E. Mawson, S. Meakin, R. E. Mainprice, Miss S. Macpherson, Misses Morley, Mrs. Maurice Macmillan, Daniel Murphy, Miss H. M. Mainprice.

William Nuttall, Mrs. Nuttall, Mrs. S. Newman.

Mrs. Oldham.

Sir Horace Pinching, Julian Phillips, Dr. J. Wilson Paton, H. S. Part, A. M. Partridge and Sister, Miss Peck, Miss Pearson, Miss A. Prelyman, Arthur Peto, C. P. Peak.

Mrs. J. J. Richardson, Mrs. Reid, Miss M. Kate Robinson, Thomas O. Ruston, Mrs. Jesse Roberts, R. E. Robins, Dr. F. M. Rowland, H. J. Rudyard, A. Carnegie Ross, Col. A. S. Rooke, L. Ropner, Miss Kate Rogers.

Professor and Mrs. A. W. Stewart, Misses Stirling, R. D. Sisteon, Nurse Stoneham, Margaret Sherwin, Mrs. Stafford, Jesse H. Slatford, Mrs. A. Storey, Emma Smith, Miss Agatha Sadler, Rev. A. Spofford, Mr. and Mrs. Thornton Sharp, R. W. Spranger.

Ernest Taylor, A. J. Tweedie, Dr. H. Twyford, Mrs. Gerald Thompson.

Dr. F. Wyatt-Smith, Miss Watson, Dr. Edward A. Wilson, Mrs. Mary Woodward, Frederick Wagner, B. M. Ward, Albert L. Wright, Mrs. C. T. and Miss D. J. Wilson, Claude F. Westbury, Dr. G. H. Bateson Wright, Charles Wilson, Mrs. E. Walker, Major N. F. Webb, A. Webster, Mrs. Wrench, J. W. Wall.

Obituary.

JOHN MITCHELL BRUCE, C.V.O., M.D., LL.D., F.R.C.P.,

Consulting Physician to Charing Cross Hospital, and the Brompton Hospital.

WE have to record with much regret the death, at the age of 83, of Dr. J. Mitchell Bruce, which took place on July 7th at his house in Harley Street.

Born at Keig, in Aberdeenshire, John Mitchell Bruce received his early education at Aberdeen Grammar School, proceeding thence to the University of Aberdeen, where he took the degree of M.A. in 1856. Following a distinguished career at the Middlesex Hospital he graduated M.B. of the University of London (with honours and the gold medal in forensic medicine) in 1870, and proceeded M.D. in 1872. After graduation he studied for some time at Vienna and other European schools of medicine, and on his return to England engaged in pathological research under Sir John Burdon-Sanderson and Professor Emanuel Klein. In 1871 he was appointed lecturer in physiology and pathology to the Charing Cross Hospital Medical School, becoming assistant physician to the hospital in 1873, and physician in 1882, an appointment he held until his retirement in 1904, when he was elected consulting physician. While on the active staff of the hospital he lectured on materia medica and medicine, and from 1883 to 1890 he served as dean of the medical school; he was also for many years physician to the East London Hospital for Children, to the Brompton Hospital for Consumption and Diseases of the Chest, and to King Edward VII Sanatorium, Midhurst. Elected a Fellow of the Royal College of Physicians of London in 1878, Dr. Mitchell Bruce became senior censor and Lumleian lecturer in 1911, and Harveian orator in 1913. He served also as president of the Medical Society of London and president of the Section of Medicine of the Royal Society of Medicine. For some years he was examiner in medicine to the University of Cambridge, and to the Conjoint Examining Board in England, and examiner in materia medica to the Universities of London and Manchester.

In 1886, when the British Medical Association held its annual meeting at Brighton, Dr. Mitchell Bruce was vice-president of the Section of Pharmacology and Therapeutics, and held the same position in 1895, when the Association met in London. In 1899, at Portsmouth, he was president of the Section of Medicine, having been vice-president at Edinburgh in the previous year, and in 1910 he delivered the address in medicine when the Association again met in London for its annual meeting, taking as his subject "The dominance of etiology in modern medicine." In 1919 he was created C.V.O., and the University of Aberdeen conferred upon him the honorary degree of LL.D. He was also an honorary Fellow of the Royal College of Physicians of Ireland.

Dr. Mitchell Bruce wrote extensively on medical subjects. Early in his career he was on the staff of the *Medical Times and Gazette*, and later co-editor of the *Practitioner*, and assistant editor of *Quain's Dictionary of Medicine*. His publications include *Materia Medica and Therapeutics*, an extremely popular textbook, which first appeared in 1884, and has passed through many editions; *The Principles of Treatment*, which was thrice reprinted; *Lettsomian Lectures on the Diseases and Disorders of the Heart and Arteries in Middle and Advanced Life*; *Lumleian Lectures on Cardio-vascular Degeneration*; and many occasional contributions to our own columns and to those of other medical journals.

Dr. Mitchell Bruce was a man of great academic distinction, an enthusiastic teacher, and a sympathetic and skilled physician, whose habit of mind made him cautious in judgement and earned for him a high reputation as a clinician of the conservative and safe type. He is survived by one son.

Dr. WILLIAM HUNTER writes:

The death of Dr. Mitchell Bruce removes from our midst one who in a rare degree possessed the esteem and affection of the whole profession. By his writings and teaching and outlook on medicine he exercised a profound influence on all those with whom he was brought into contact in the sixty years of his active life. He was a great clinical physician and a great clinical teacher, of whom successive generations of students were proud. As lecturer in physiology, materia medica, and medicine, as dean of the school, and as assistant physician, physician, and consulting physician he rendered memorable services to Charing Cross Hospital and its medical school. His deanship of the school (1883–90) was associated with one of the most formative periods in its history, and by his death it loses one of the most loyal, devoted, and beloved teachers that ever served any institution.

But at this time of loss it is the personality of the man, rather than his services, that are uppermost in the thoughts of those who knew him and enjoyed his friendship—as was my privilege for some forty years. Honoured and honourable, he never lost his interest in all the many developments now connected with the subject of clinical medicine so dear to his heart. He had himself taken a more active part in inaugurating these developments than he ever realized. He formed one of the notable group—made up of Burdon-Sanderson, Lauder Brunton, Ferrier, and Klein—who, in the seventies, laid the basis of that scientific development in the physiological, pharmacological, and histological studies which they were the first to foster. As it happens, it was on these he dwelt in the last conversation I had with him. The occasion was the establishment of the memorial at the Royal Society to the memory of his old friend David Ferrier, and Bruce vividly recalled all the difficulties of that earlier period. Throughout all his life he maintained this same self-sacrificing and modest outlook on the part he himself had played. He possessed a singular geniality and an ever-present courtesy, which endeared him to all; his loss will be felt as a personal one by all who knew him and loved him.

Dr. W. CECIL BOSANQUET writes:

I gladly write a few lines of reminiscence and appreciation of my old chief, John Mitchell Bruce. Coming as a student to Charing Cross Hospital in 1894, I found that Bruce was regarded by all as the most brilliant member of the medical staff, and, having the good fortune to serve under him first as clinical clerk and later as house-physician, I had the best opportunities of realizing the great abilities of this able and accomplished physician. To see him examine a patient in his kindly yet thorough manner was in itself an instructive and impressive training for the beginner, while his explanation of the signs which he elicited was so clear and convincing that the art of medicine, as expounded by him, seemed deceptively easy and straightforward. It was the same with his systematic lectures in the medical school. His clear intellect enabled him to select the essential points in any subject and present them to the student embarking on his clinical work in logical sequence and without confusing detail; while his fluent utterance and graceful style rendered the lectures themselves a pleasure to the hearer. As students, our only complaint was that, owing to his busy practice, Bruce's visits to the hospital were somewhat irregular, and it was not unusual for his class to wait for half an hour in the hall in vain, to hear at last that "Dr. Bruce regrets that he cannot visit this afternoon." When he did come, he came briskly and full of energy. His time was precious; yet he never acted brusquely to his patients or showed less courtesy to a waif in hospital than to a well-to-do patient in his own house. As an adviser in hospital affairs he was practical and sagacious, not a regular attendant at boards and committees, but one whose words were listened to as those of a trusted counsellor. In private life he exhibited a wonderful charm of manner and had always a kindly word for anyone who had worked with him in any capacity. After his retirement from hospital duties he was always a genial member of the social gatherings of their staffs, and will be sadly missed by his remaining colleagues at both Charing Cross and Brompton Hospitals.

Dr. MARCUS CAMPLIN MOXHAM, who died at his home at Aldborough, near Norwich, on June 27th, at the age of 65, received his medical education at St. Bartholomew's Hospital, and qualified L.S.A. in 1886, and M.R.C.S., L.R.C.P.Lond. in 1887. After completing appointments as house-surgeon to the Central London Ophthalmic Hospital, the West Suffolk County Hospital, and the Stroud General Hospital, he engaged in private practice, first at Stickney, Lincs, for twenty-five years, and then at Aldborough from 1919 till the time of his death. In addition he held a post as medical officer to the Aylsham and Erpingham Unions. He had been a member of the British Medical Association for more than forty years. Dr. Moxham was a man of kindly disposition, a good companion, and a conscientious practitioner. He will be greatly missed among a wide circle of friends and patients, by whom he was respected and loved.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

THE House of Commons this week completed the debate on the Address. The House divided for the first time on July 9th, and a Conservative amendment to the Address was defeated by 340 to 220. Later in the week money resolutions were moved, proposing payments to increase the Government's contribution to the unemployment insurance scheme and for other purposes.

On July 9th medical members of Parliament and University members met to form a Parliamentary Medical Committee. Dr. Salter was elected chairman, Dr. Somerville Hastings honorary secretary, and Dr. Morris-Jones honorary treasurer. Thus, to maintain contact with the Government, Ministerialists are selected as chairman and honorary secretary. The honorary treasurer is a Liberal. Dr. Fremantle, the retiring chairman, was elected deputy chairman. The committee now includes eighteen medical members and the University members. It is thus stronger numerically than any previous Parliamentary Medical Committee, and greater activity is predicted for it, with an organized attempt to focus political opinion on health questions.

On July 9th Dr. Fremantle gave a dinner at the House of Commons to fourteen medical parliamentarians, including Lord Moynihan and Dr. Ethel Bentham, the first medical woman to sit in Parliament.

Debate on the Address.

During the debate on the Address in the House of Commons Dr. VERNON DAVIES, speaking on July 5th, suggested that the slum clearances proposed in the King's Speech should be accompanied by improvement of the "slums of the sea." Mr. Arthur Henderson, he said, had declared in a recent article that the accommodation of seamen called for reform, and that a Labour Government was not prepared to take no action. Dr. Vernon Davies suggested that an inter-departmental committee of the Board of Trade and the Ministry of Health should be set up to inquire into the question and to report to the House of Commons. Since the Merchant Shipping Act passed, thirty years ago, the only improvement in the conditions of British seamen had been made in 1906, when the space per man was increased from 72 to 120 cubic feet. The space for lascars was still 72 cubic feet. During the war standard ships were built in which the conditions were greatly improved, but since then there had been a slight setback. Some of our foreign competitors paid more attention to these matters. The Regulations and Instructions for the Survey of Ships, issued by the Board of Trade, made suggestions, and was not compulsory. In Australia and Norway Acts of Parliament made compulsory standards. Australia had medical men whose duty it was to supervise the hygienic accommodation in ships. Great Britain had nothing of the kind, except in the Royal Navy, where, on the staff of the Director-General of Medical Services, was an officer whose duty it was to see that in warships the conditions were hygienic for the men. Surely the same could be done through the Board of Trade in conjunction with the Ministry of Health. At present conditions were chaotic, and shipowners who followed the regulations interpreted them in different ways. One recently inspected vessel had only one wash-house basin, which served for twenty sailors and firemen. Another up-to-date vessel provided the sailors with a messroom in addition to sleeping room, but it was in the forecastle. A vessel with a large crew and a doctor had no hospital. It was not compulsory to provide a hospital in these ships. It was unnecessary to provide sanitary accommodation on a ship unless the owner wished that space to count for reduction of dues for tonnage. Seamen should not now be regarded as men to whom sanitary accommodation and proper hygienic accommodation were of no value.

Small-pox.

In an answer supplied to Mr. Neil Maclean, on July 4th, Mr. GREENWOOD (Minister of Health) stated that 27 cases—not 65 as asserted by Mr. Maclean—in which symptoms suggestive of disease of the central nervous system followed within a month of vaccination were reported to have occurred between July 1st, 1928, and June 30th, 1929. Thirteen were fatal. The report on vaccination, which an expert committee had published last year, was now receiving Mr. Greenwood's careful attention. This committee was still investigating certain questions, and he did not consider a useful purpose would be served by the appointment of a further committee of inquiry.

Replying to Mr. James Gardner, Mr. Greenwood said, on July 4th, that a declaration of conscientious objection to vaccination, made by a mother under the Vaccination Act of 1907, would not exempt the father from liability if he had the legal custody of the child. He could not at present undertake to introduce legislation to place the mother in the same position as the father for the purpose of the Vaccination Acts.

On July 5th Mr. Greenwood told Mr. Groves that 690 cases of small-pox were notified in the county borough of West Ham during the twenty-six weeks ended June 29th, 1929. The disease had generally been of a mild degree. For vaccination of persons resident in that county borough £91 was paid to public vaccinators during the three months ended March 31st.

Mr. Greenwood, on July 8th, told Mr. Groves that since January 1st, 1929, ten certificates had been received in which the words "vaccination," "vaccinia," or "post-vaccinal encephalitis" appeared in the coroner's certificate or the medical certificate of the cause of death. The ages of the deceased persons were respectively: 4 weeks, 4 months, 5 months, 6 months, 8 years, 9 years, 10 years, 17 years, 26 years, and 31 years; inquests were held on the persons aged 8 years, 10 years, 17 years, 26 years, and 31 years respectively. In addition, he had information of seven cases in which death occurred within one month after vaccination. The ages of the deceased persons were respectively: 9 years, 10 years, two of 13 years, and one each of 14, 51, and 58 years.

National Health Insurance.

Mr. GREENWOOD announced, on July 4th, that about 14,800,000 persons in England and Wales were entitled to medical benefit in 1928. Since 1913, when medical benefit came into operation, 46 insurance practitioners had been removed from the medical list.

On July 8th Miss LAWRENCE (Parliamentary Secretary to the Ministry of Health), replying to Dr. Morris-Jones, said she was

aware that a scheme had been submitted by the British Spa Federation to provide hydrotherapeutic treatment for insured persons suffering from chronic rheumatism as an additional benefit under the National Insurance Act. This scheme had received careful consideration, but had not yet been sanctioned. The present list of additional benefits afforded to approved societies a wide variety of remedial treatment from among which they might select those to which to allocate funds available for the purpose out of their disposable surpluses. Before adding further benefits to that list the Minister of Health would require to be satisfied that there was a fairly widespread desire on the part of the societies for such an extension.

Medical Research in India.—On July 8th Mr. BENN (Secretary of State for India) told Major Graham Poole that the report of the Committee on the Organization of Medical Research in India was published about five weeks ago. Some protests were made against the location of the Central Medical Institute at Dehra Dun; but the expenses for the scheme as proposed were approved on January 29th by the Standing Finance Committee of the Legislative Assembly.

Vivisection.—On July 8th Sir ROBERT GOWER asked if the Home Secretary intended to introduce legislation prohibiting the vivisection of dogs. Mr. CLYNES replied that on this subject the Government must be guided by the best possible advice which it could command. Having regard particularly to the carefully considered opinion which was expressed in the memorandum of the Medical Research Council presented to Parliament in 1927, he could not undertake to introduce legislation on the subject.

Dumping of London Refuse.—Mr. GREENWOOD told Sir Alfred Knox, on July 4th, that he was aware of the complaints about the dumping of London refuse at Iver and Little Britain in Middlesex. One district council had adopted special by-laws, and conditions had improved. He had no legal power to deal with particular cases of this kind, but where there was a nuisance or a danger to health the local authority could move. He had power to declare local authorities in default, but that could only be applied on overwhelming proof that a local authority deliberately intended to evade its responsibility. Comprehensive action must await the report from the departmental committee which was considering the general problem of refuse disposal.

Training of Veterinarians in London.—Mr. BUXTON (Minister of Agriculture), replying to Dr. Fremantle on July 8th, said he had not yet received the report of the committee appointed to consider the existing facilities for training veterinarians in London. He understood that the committee was considering a draft report. That report, when received, would be printed and published at an early date.

Colonial Veterinary Services.—Mr. PONSONBY (Under-Secretary for the Dominions) told Dr. Fremantle, on July 8th, that last April a dispatch was addressed to Colonial Governments dealing with the recommendations of Lord Lovat's Committee on the development of veterinary services in the colonial empire, and asking for observations upon them. Replies were being received. In view of the present lack of qualified candidates the Secretary of State was of opinion that the first step towards the further development of the Colonial Veterinary Services should be the institution of the scholarship scheme which the committee recommended. It would not be possible to bring this scheme into operation this year.

Proposed Additional School Dentist for West Ham.—Sir C. TREVELYAN told Mr. W. Thorne, on July 8th, he was aware that the West Ham Education Committee proposed to appoint an additional school dentist. It had not been brought to his notice that an advertisement inviting applications for the appointment at a salary of £450 a year, rising to £500, had been declined by three professional publications on the ground of the salary being below scale. The Board of Education had not prescribed or authorized the salary of this or any other school dentist.

Protection Against Gas Attacks.—On July 9th Mr. MACDONALD told Brigadier-General Clifton Brown that, in view of the recent ratification of the Geneva Gas Protocol of 1925 by most of the important European States, including this country, he did not think this was a moment to press the local authorities to develop plans for the protection of the civil population against gas attack. Much preparatory work had been done by the Committee of Imperial Defence upon this problem prior to the ratification of the protocol, and that work would not be thrown away if, unfortunately, a situation should arise requiring as a measure of prudence the development of plans for this purpose.

Radium.—On July 9th Mr. GREENWOOD told Commander Bellairs that the report of the Radium Subcommittee of the Committee of Civil Research had been brought to the notice of the League of Nations Health Organization. He could add nothing to a reply given on April 18th in regard to international action on the supply and price of radium.

Notes in Brief.

The Colonial Secretary is not satisfied with the information received with regard to the health of the miners in Northern Rhodesia. He has called on the Governor for a further report and recommendations.

The Government proposes to continue and extend the industrial transference scheme, with modifications designed to make it more elastic and more closely adjusted to the circumstances of the various distressed areas.

Model by-laws providing for the use of a mechanical instrument for the slaughter of cattle has now been adopted by over 300 authorities in England and Wales, and the Minister of Health promises to consider legislation making this use compulsory.

Medical News.

IT is proposed to hold an informal luncheon for all Leeds men who are visiting Manchester for the Annual Meeting of the British Medical Association this month. Those who wish to be present at the luncheon are asked to communicate as soon as possible with Dr. J. N. L. Thoseby, 42, East Road, Longsight, Manchester. The time and place will be announced later.

THE annual old students' dinner of St. Bartholomew's Hospital and College will be held in the great hall of the hospital on Tuesday, October 1st, at 7 for 7.30 p.m., with Sir Frederick Andrewes in the chair.

THE annual old students' dinner of St. Thomas's Hospital will be held at St. Thomas's House, Lambeth Palace Road, London, S.E.1, on Friday, October 4th, when Dr. H. G. Turney will be in the chair.

THE annual dinner of past and present students of St. Mary's Hospital Medical School will be held at the Trocadero Restaurant, on Friday, October 4th, at 7 p.m.

AS already announced the third Victor Horsley Memorial Lecture will be given by Sir Thomas Lewis at University College Hospital Medical School, Gower Street, W.C.1, on Tuesday, July 16th, at 5 p.m., on "Observations relating to the mechanism of Raynaud's disease." The chair will be taken by Sir John Rose Bradford, President of the Royal College of Physicians of London. Admission to the lecture is free on presentation of visiting cards.

AT a meeting of the house committee of the Royal Victoria Infirmary, Newcastle-upon-Tyne, held on July 4th, it was reported that a Rockefeller Travelling Fellowship had been awarded to one of the assistants in the pathological department. The committee expressed its appreciation of the distinction obtained, and noted that this was the third occasion in the last three years on which Rockefeller Fellowships had been awarded to members of the pathological staff of the Infirmary.

THE Fellowship of Medicine announces that it is proposed to hold a week's course in gastro-enterology from July 22nd to 26th at the Prince of Wales's Hospital, Tottenham, in conjunction with the North Middlesex Hospital; post-graduates interested in such a course are asked to communicate as soon as possible with the secretary of the Fellowship. From July 29th to August 24th there will be a course in urology at All Saints' Hospital, Vauxhall Bridge Road, occupying afternoons and evenings. A course in diseases of children will be held at the Queen's Hospital for Children, Bethnal Green, from August 12th to 24th. An intensive course in medicine and surgery at Queen Mary's Hospital, Stratford, from August 26th to September 7th, will consist of lectures, demonstrations, and operative work, occupying the whole of each day. The general course of work, consisting of attendance at the clinical practice of about forty London hospitals, continues throughout the year, and attendance may commence at any time. Details of clinics are provided and the post-graduate is free to arrange his time-table in accordance with his requirements. Copies of syllabuses and all information may be obtained from the secretary of the Fellowship, 1, Wimpole Street, W.1.

THE forty-seventh annual dinner of the West London Medico-Chirurgical Society took place at the Trocadero Restaurant on July 4th, with the president, Dr. Harold Sanguinetti, in the chair. There was a large attendance of members and visitors, and a very agreeable evening was spent. After the loyal toasts had been honoured Mr. Ivor Back deftly proposed the toast of "Success to the West London Medico-Chirurgical Society," and in the course of his speech in reply the chairman gave an account of the society's work during the past year, referring particularly to the conversazione on June 21st, when Professor Claude Regaud delivered the Cavendish Lecture on the treatment of malignant disease by radium, and when the triennial gold medal was presented to Sir Ronald Ross. The health of "The Guests" was proposed by Dr. Julius Burnford, and was responded to by Sir Nigel Playfair and Dr. F. G. Crookshank. Dr. Frederick J. McCann welcomed the representatives of kindred medical societies, on whose behalf Dr. Walter Carr (president of the Medical Society of London) and Dr. Ernest Young replied. The formal proceedings ended with compliments addressed to the chairman by Dr. Arthur Saunders.

THE London County Council is proposing to suggest to the Ministry of Health that a consultative committee should be set up to consider the question of the suitability of films (before they are shown) intended for exhibition to adolescents as a means of instruction in sex hygiene, such committee to be composed of representatives of the Ministry, the Board of Education, and the London County Council in its capacities as public health authority and local education authority.

THE current (June) issue of the *Bulletin of Hygiene* contains a review by Dr. J. D. Rolleston of recent literature on alcoholism, with a bibliography of forty references to journals, theses, or books published in nine different countries.

THE thirteenth international congress of ophthalmology will be held at Amsterdam from September 5th to 13th, under the presidency of Professor van der Hoeve of Leyden. The principal subjects for discussion will be the control of trachoma; the etiology and non-operative treatment of glaucoma; and the diagnosis of suprasellar tumours. We are asked to remind any ophthalmologists who intend to go to Amsterdam for this congress, and who have not yet sent their subscriptions, that it will greatly facilitate the work of the national committee if they will do so at once. Seven hundred members have already been enrolled, and 232 communications, covering all branches of ophthalmology, have been promised. The Transactions will be published, and promise to form a compendium of recent work in this subject. Those unable to go to Holland may, nevertheless, become members of the congress, and so be supplied with a copy of the Transactions, when they appear. Subscriptions, 25 Dutch florins, equivalent to £2 2s., should be sent to Dr. H. M. Roelofsz, Director of the Incassobank, Heerengracht 531, Amsterdam.

ACCORDING to the *Reichsmedizinalkalender* there were 48,507 medical practitioners in Germany in 1928, as compared with 47,338 in 1927. In 1928 there were 3,378 medical women, as compared with 2,078 in 1927. Among the thirteen German cities with more than 400,000 inhabitants, Munich in 1928 had 22.5 doctors for every 10,000 inhabitants, as compared with 7 doctors for every 10,000 inhabitants for Germany as a whole.

THREE fresh cases of leprosy were notified in Germany in 1928; four had emigrated or died during the year, and at the beginning of 1929 there were nine cases in the country.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to ***The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.***

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The ***TELEPHONE NUMBERS*** of the British Medical Association and the *British Medical Journal* are *MUSEUM 9861, 9862, 9863,* and *9864* (internal exchange, four lines).

The ***TELEGRAPHIC ADDRESSES*** are:
EDITOR of the *British Medical Journal, Aitiology Westcent, London.*
FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*
MEDICAL SECRETARY, *Medisecra Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone 24361 Edinburgh).

QUERIES AND ANSWERS.

HAY FEVER.

DR. J. M. DALZIEL (The Herbarium, Royal Botanic Gardens, Kew) writes: In reply to Dr. J. D. Hindley-Smith's query (June 29th, p. 1189) I would suggest that the dates indicate the "common foxtail grass," *Alopecurus pratensis* L., as the probable source of the exciting pollen.

RETROBULBAR NEURITIS.

IN answer to the inquiry of "Nescio" on July 6th (p. 36), Dr. J. ALDINGTON GIBB (Maidstone) writes: Retrobulbar neuritis is not infrequently originated by disease of the nasal sinuses. In my experience the anterior ethmoid cells have proved to be the most usual cause of this condition. In the recent cases—say, of eight weeks' duration—the improvement following opening and draining of these cells was most dramatic. In a chronic case of over six months' duration, with complete scotoma for colours, and the vision 6/60, the patient's recovery has been complete, the vision returning to 6/12. He has resumed his employment of shunter in a large railway yard.

INCOME TAX.

Cash Basis.

"J. P." is being pressed by the inspector of taxes "to sign a letter promising to pay tax on all the cash that comes in after retirement from the practice." The inspector affirms that other practitioners in the neighbourhood have signed such undertakings, and that the views expressed in this journal, that the assessment of such receipts is not legally justified, is without authority and is incorrect.

*** It is true that there is no specific legal authority for the views in question; that is because the authorities have not taken into court the contention that such receipts were assessable to tax for periods subsequent to retirement. We have no doubt whatever as to the legal position. As we have always said, the cash basis is a mere matter of mutual convenience; the correct basis is assessment on the value of the bookings for the year—that is, the gross amount less a careful and detailed estimate of that portion which is probably irrecoverable. A moment's thought will show that where the volume of bookings is fairly regular year by year, the net value after the allowance mentioned will be approximately the same as the amount of the cash receipts—the latter is more easily and accurately ascertained, and therefore is normally accepted by the authorities. Suppose that when "J. P." retires the inspector seeks to adjust his assessments, what precisely will the adjustment be? (Leaving aside certain technical objections which could be made to that course, he could, no doubt, arrange for the revision of the assessments for six years.) It can only be towards the strict legal basis of bookings. If, for instance, he says, in effect, "This £200 which you received in 1929 after retirement represents bookings of 1927, and that year must be adjusted," "J. P." has the obvious rejoinder, "True, but £210 which I received and returned for assessment as income of 1927 represented work done in 1925, and that £210 must come out when you make the adjustment." The net result of the whole shifting back of the receipts to the years when they were earned would be negligible in the case of a normal practice—if the practice has been growing it would adversely affect "J. P." to some extent, and vice versa if the practice has been diminishing.

LETTERS, NOTES, ETC.

TEAM WORK AT THE BRITISH LEGION VILLAGE.

DR. J. B. MCDOUGALL, medical director, British Legion Village, Preston Hall, Aylesford, writes: In your reviewer's kindly criticism of my book on percussion (July 6th, p. 17) there is an important omission for which your reviewer can scarcely be held responsible. I trust I may be forgiven if I venture to add that the line drawings in the book were executed by one of the settlers in the British Legion Village, an ex-patient in the sanatorium, and that the book itself was printed in the press associated with the settlement for tuberculous ex-servicemen at Preston Hall.

MALARIA TREATMENT OF GENERAL PARALYSIS.

DR. T. GERALD GARRY (Montecatini) writes: With reference to Dr. Dods Brown's remarks on the treatment of general paralysis by malaria infection, reported in the *Journal* of June 22nd (p. 1135), it may interest him to know that it is the custom in Tanganyika (a custom which has possibly existed for centuries) for the native medicine men to send their patients suffering from general paralysis to malaria districts, and from reliable reports the results appear to have been satisfactory.

THE PHOTOSTAT.

IN our report last week (p. 34) of the annual general meeting of the Royal Society of Medicine reference was made to the fact that, in order to make the service of its library better available to Fellows who live at a distance from London, the Society has installed an apparatus known as the "photostat," for making rapid photographic copies from the pages of books and journals. This is offered as an alternative to the old method, involving the laborious copying of abstracts, which even then failed to reproduce the illustrations. The photostat is an apparatus of rather surprising bulk and complexity, and occupies a large room at the Society's house. The process, however, is simple, the printed page being placed in position, illuminated by mercury vapour lamps, and the exposure made direct on to sensitized paper (with a prismatic reversing arrangement, so that the print comes the right way round in the reproduction), which is immediately developed and made ready to send to the inquirer. This innovation should be appreciated by Fellows of the Society in the provinces and abroad.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 44, 45, 46, 47, 48, 49, 52, 53, and 54 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 50 and 51.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 23.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

21. The Leprosy Reaction.

R. GREEN (*Trans. Roy. Soc. Trop. Med. and Hygiene*, January, 1929, p. 367) regards the "leprous reaction" sometimes occurring among lepers as a condition to which more attention should be paid, in view of its being a distinct and important clinical entity. The reaction may be mild, resulting in subsequent amelioration of the disease, or severe, with distressing symptoms and scarring, or, in some cases, death. Depending upon its occurrence in relation to the stage of the leprosy, especially Muir's second stage, the reaction seems to lead to rapid progress of the disease; it may be regarded as an acute exacerbation and a defence reaction against the invading *Mycobacterium leprae*. Green, working at the Federal Leper Settlement at Kuala Lumpur, adopted as the standard treatment of the condition injections of 10 minims of 1 in 1,000 adrenaline solution in 20 minims of normal saline twice a day for a week or ten days, thereby relieving the essential nerve pains and apparently shortening the reaction period. Notes of cases treated orally with ephedrine hydrochloride are given in which benefit resulted both to the skin lesions and the nerve pains. The reactions are characterized by swelling and erythema of existing lesions, with reappearance of fresh rose-coloured and often painful nodules. Fever is not always present, but there is marked acceleration of blood sedimentation rate, apparent granulation of lepra bacilli in the lesions, and a definite increase in the serum globulin. The newly formed cutaneous lesions may be classified into three types: (1) rapidly occurring superficial lesions with bleb formation becoming infected and leading to scarring and disfigurement; (2) a slower and more usual type without tendency to bleb formation; and (3) a less common type in which deeply situated painful subcutaneous nodules rapidly form without tending to break down and gradually becoming absorbed.

22. The Fate of Untreated Cases of Syphilis.

H. SÆTHRE (*Derm. Woch.* April 13th, 1929, p. 554) has collected statistics in an attempt to determine the question of the alleged increase in the number of cases of aortitis, tabes, and general paralysis, and formulates the following conclusions. In 2,181 cases of primary and secondary syphilis no specific treatment was given during the period 1891–1910; some of these patients had recent complications, and in 1925 there were 471 cases under observation. Recent nervous complications occurred in 3.4 per cent. (no examination of cerebro-spinal fluid). Almost all of the 2,181 patients had extensive exanthemata; many had alopecia and leucoderma, and not infrequently cases of iritis were observed also. Ten to forty years after infection 40 per cent. of the 228 cases under observation were without symptoms; of these, 10 per cent. had a positive Wassermann blood reaction. Syphilis of the central nervous system appearing many years after infection was remarkably rare; tabes was only noted in 1.28 per cent. and neuro-syphilis in 2.34 per cent. of 471 cases. In the whole series of 2,181 patients only 13 cases of general paralysis were observed—approximately 0.6 per cent., having regard to possible sources of error. The diagnosed recent complications in the central nervous system did not indicate any tendency to the later occurrence of tabes and general paralysis. All the patients with tabes and general paralysis had in the early stages extensive exanthemata. Only 65 cases of aortitis and other vascular lesions were present among 371 living or dead patients ten to forty years after infection (17.5 per cent.). The author adds that his Norwegian statistics differ widely from recent German figures quoted by him; these German figures indicate incidence of aortitis in 1906–7 as 33 per cent., in 1915 as 63 per cent., in 1924 as 74 per cent., and in 1925 as 83 per cent., although the percentage of cases of visceral syphilis was not increased.

23. House Mice as Carriers of Infection.

E. PALIER (*Bull. de l'Acad. de Méd.*, May 7th, 1929, p. 587) points out that the pneumococcus of Fränkel, the causative agent of fibrinous pneumonia, is present in the mouths of the majority of healthy persons, but with very attenuated virulence. Cold cannot be so great a factor in causing pneumonia as is supposed, since cases are almost unknown in Arctic regions. Yet the disease is more prevalent in the winter, and Palier remarks that this is the season when houses are particularly infested with mice. Rats are immune to the pneumococcus, but become susceptible to it after its passage through mice. Palier concludes that the mouse is the chief, if not the sole, agent in the transmission of pneumococcal diseases. Support is given to this view by the work of Mauriac, who showed that mice can become infected with pneumococci; that infection can be carried to other mice and to human beings by fleas; and that, therefore, this parasite can play a part in the transmission of the disease. Colon bacilli and other intestinal microbes have also been found in the cadavers of mice and rats, and it is possible that diseases such as appendicitis may be caused through the agency of these animals. As prophylactic measures, Palier advocates the avoidance of indiscriminate expectoration; the construction of houses of a kind unfavourable to infestation by mice and rats; greater care as regards the preservation of food from contamination by these rodents; and, whenever possible, their extermination and incineration. He adds that Béguins has shown that cats do not transmit pneumonia to any considerable extent.

24. The Prognosis of Pachypleuritis following Artificial Pneumothorax.

C. ROUBIER (*Journ. de Méd. de Lyon*, April 5th, 1929, p. 223) has found that among tuberculous patients who have undergone artificial pneumothorax a hyperplasic pachypleuritis follows a pleuritic effusion and terminates in complete adhesion of the parietal and visceral pleura. This condition exhibits three clinical stages. (1) A stage of effusion is characterized by all the signs of more or less extensive effusion. This may often fill the pleural cavity completely, substituting a hydrothorax for the artificial pneumothorax. In spite of its volume this effusion often causes but little [illegible] pachypleuritis follows; [illegible] re somewhat modified; [illegible] thickening and induration, and it is often difficult to find the pleural cavity. This fibrous pachypleuritis occasionally undergoes calcification; puncture then becomes impossible, and further insufflations cannot be performed. (3) The next stage is one of established adhesion, in which the thoracic retraction, which commenced in the preceding stage, increases more and more, completely immobilizing the affected half of the chest. Roubier thinks that the prognosis in these cases is far from being as grave as might be expected. In many cases the fibrosis appears to exert a favourable influence on the progress of the disease. Generally speaking, the prognosis is better when the adhesive fibrosis occurs later and more slowly, but this rule is far from being absolute; if the early, rapidly progressive adhesion indicates generally a grave prognosis; the author has seen cases in which this has been followed by considerable improvement generally and locally, suggestive of actual cure. It is nevertheless certain that, in general, the prognosis will be better if the adhesion occurs at a later period, when the lung, having been compressed for a long period, has undergone sclerosis and an actual artificial fibrothorax has been established.

25. The Distal Phenomena of Hyperpiesia.

C. F. COOMBS (*Bristol Med.-Chir. Journ.*, Spring, 1929, p. 35) calls attention to the diversity of the cerebral symptoms that may accompany high arterial tension, and discusses the parallelism between these phenomena and those seen in other organs. For example, the distal effects of high pressure in relation to the muscular functions of the cardiac wall and the leg are analogous, and it is clear that in hyperpiesia two kinds of interference with muscular function occur: a transient attack, in which pain is the prominent symptom; and a more lasting condition, which involves permanent injury of the parts affected. In the case of the heart a third group must be added—namely, the slowly progressive degradation of muscle function. The objective cerebral phenomena of high blood pressure show the same three groups. Cases are cited illustrating these points, and the author has little doubt that these phenomena, whether gradual or abrupt in onset, temporary or permanent in their results, are intimately related to the high arterial tension. However, it seems that the relation is not direct but is mediated by arterial degeneration, and that it is not the high pressure so much as the arterial wear and tear which the pressure has exacted that is responsible for these distal manifestations. Those phenomena usually ascribed to arterial spasm and obstruction are discussed, and it is shown that these are really due to a failure of arterial function; in illustration of this the pathology of ischaemia cordis (the

angina of effort) is reviewed. From the evidence adduced Coombs concludes that all the distal phenomena of high arterial tension can be ascribed in part to a gradual wearing down of the elasticity of the arterial tree—that is, to progressive arterial failure.

26. The Nervous System in Typhus.

P. DECOURT (*Paris Méd.*, April 27th, 1929, p. 400) states that nervous manifestations may occur during active typhus or in convalescence several days after the temperature has fallen. In the course of the disease, in addition to headache, insomnia, and delirium, diplopia is one of the earliest symptoms, appearing sometimes on the first day of disease or frequently at the same time as deafness. Myoclonus, chiefly involving the upper limbs and the muscles of the trunk and face, is a frequent occurrence, and is often transient. Attacks of hiccup may occur and may be regarded as a form of myoclonus. Contractures may affect any part of the body, but chiefly the limbs. As a rule they are ill marked, but sometimes they become intense without being accompanied by any disturbance of the reflexes. Tremors of various types are also fairly frequent and chiefly affect the limbs, predominating in the extremities. The eyes may or may not react to light; spontaneous nystagmus is frequent. A few days after the temperature has fallen contractures may develop; tremors of the Parkinsonian type, accompanied by hiccup, myoclonus, and jerky movements resembling chorea, paraesthesiae, cramp, and especially asthenia, may be remote sequels of typhus.

27. Inflammation of the Tendo Achillis in Influenza.

H. DEUTSCH (*Med. Klinik*, May 3rd, 1929, p. 710) during the last two years has seen some ten cases of inflammation of the tendo Achillis following influenza. As the patients had almost always been confined to bed, a traumatic origin, which is the usual cause of this condition, could be excluded. In most cases the affection was bilateral, although one side was usually affected one or two days later than the other. It usually developed a few days after the temperature had become normal. The whole tendon became thickened and painful, and the overlying skin was sometimes reddened. The inflammation subsided in ten to fourteen days, but tender nodules might persist for months. The temperature was only raised in those cases in which the influenza had not yet subsided, and as a rule the temperature was subfebrile. Treatment consisted in rest in bed and warm damp compresses. Deutsch adds that the complication does not appear to have been previously described.

Surgery.

28. Epithelioma of the Penis.

A. J. DEAN, jun. (*Arch. of Surg.*, April, 1929, p. 1273), records a clinical study of 75 cases of epithelioma of the penis. He defines the principal factor in the causation of penile cancer as a tight prepuce which is generally difficult to retract, retained secretions being a source of chronic irritation and hard inspissated smegma a factor of mechanical irritation; fatty acids may cause chemical irritation. Phimosis alone occurred in 74 per cent., and syphilis combined with a degree of phimosis in 20 per cent.; in 3 per cent. leucoplakia preceded the cancer. The most common site for the first symptom to appear was on the glans, in the form of a small sore which gradually increased in size until pain developed; there was generally a purulent discharge from under an inflamed prepuce. There are two clinical varieties of penile epithelioma, the papillary and the flat. The former consists of a densely matted villous overgrowth with a broad base covered with areas of slough on the surface and cauliflower-like in appearance. The flat carcinoma is usually an indurated area with an ulcer of irregular outline in the centre which is covered with a foul greyish or greenish-yellow slough. Both types of lesion are squamous carcinomas, which spread by progressive involvement of contiguous structures; metastases occur by embolism later in the course of the disease, and are encouraged by any treatment which incompletely destroys the primary lesion. Treatment depends on the size of the primary tumour and how deeply it has penetrated; if the primary lesion is 2 cm. or less in diameter and is superficial, without metastases, it can be treated with a radium plaque, the dose being 1,200 millicurie hours per square centimetre, at 1 cm. distance. Of cases treated in this way 92 per cent. were successful. For primary tumours larger than 2 cm. in diameter, irradiation, followed in three to four weeks by conservative amputation, is the treatment employed, and this was successful in 61 per cent. of cases. Where patients are not seen until both the primary lesion and metastases exist, amputation of the penis was performed with a radical dissection of the groins. Operative treatment was preceded by irradiation, but neither was satisfactory as the disease was seldom eradicated, and infection of the wound was frequent. A more recent method of treatment of advanced cases has been the amputation of the penis under spinal anaesthesia with a preliminary injection of ephedrine, precautions being taken to ensure prompt healing by primary union. This operation gives little shock, and by removing the source of infection lymphatic absorption ceases and inflammation in the regional nodes subsides. The health of the patient can then be built up and irradiation will be more effective; the dissection of the groins can be performed at a later date when no time will be lost in amputating the penis and the danger of post-operative suppuration is diminished.

29. Surgical Treatment of Raynaud's Disease.

A. W. ADSON and G. E. BROWN (*Surg., Gynecol. and Obstet.*, May, 1929, p. 577) discuss the treatment of Raynaud's disease by resection of the upper thoracic and lumbar sympathetic ganglia and trunks, thereby blocking the vasomotor paths to the parts affected. Notes of five cases are given in which marked and maintained vaso-dilatation in the feet followed the lumbar operation; similar successful results followed intrathoracic ganglionectomy by the dorsal approach in two cases in which the hands were affected. In two cases, however, cervical sympathetic ganglionectomy was unsuccessful in producing vaso-dilatation or in relieving the symptoms. From an anatomical and physiological consideration of the innervation of the arteries of the upper and lower extremities with the view of interrupting the efferent vaso-constrictor impulses, care must be taken that the section in the lumbar area is high enough, and that that in the thorax is low enough. Since the distribution of rami is not constant, and in order to avoid the possibility of missing fibres, resection of the lumbar sympathetic trunk is advised, including the ganglia *in toto* from above the second lumbar to a point below the fourth ganglion. In the cervico-thoracic area it is important to include the second thoracic ganglion, and make a thorough resection of the second thoracic and the cervico-thoracic ganglia with the intervening trunk, in order to interrupt all vaso-constrictor impulses passing directly to the first and second thoracic spinal nerves and arteries, as well as to sever the efferent fibres passing through the ganglia and trunk to the cervical ganglia and thence to the brachial plexus. In the author's first case two (bilateral) operations were performed—namely, resection of the second thoracic ganglion, the cervico-thoracic ganglion, and the intervening sympathetic trunk on the right side, followed later by a similar resection on the left side. The steps of the cervical and lumbar operations are described in detail. The authors conclude that the therapeutic effects of lumbar and dorsal sympathetic ganglionectomy have been so striking and lasting in their experience as to warrant the belief that Raynaud's disease can be surgically controlled by these methods.

30. Results of Operations for Hallux Valgus.

A. BERNTSEN (*Ugeskrift for Laeger*, May 9th, 1929, p. 397) reviews the results of the operations performed for hallux valgus at his hospital. Of 49 patients, as many as 45 were women. After an interval of one to eight years since the operation the results were checked in every case, in 35 cases by a medical examination, and in 14 cases by answers to a questionary. Altogether ninety toes were operated on, the operations being performed on both sides in the overwhelming majority of the cases. Three kinds of operation were performed, but common to all three were resection of the head of the first metatarsal bone, the removal of the sesamoid bones, and the displacement of the pull of the extensor tendons in the median direction. The sesamoid bones were removed for fear of the formation of troublesome adhesions, but the author admits that Saudelin's statistics show that good results can be achieved without this measure. After the operation a pad of gauze was fixed between the first and second toes, and the foot was secured in plaster-of-Paris up to the ankle, and in such a way as to maintain the foot well arched. The plaster and stitches were removed after fourteen days, and after one more week in bed the patient was allowed to get up, being provided with supports modelled on a plaster cast. The subsequent examination showed that subjective improvement had been achieved in 73 of the 90 cases, and objective improvement also in 73 cases, no recurrence of the deformity being demonstrable. The cases of subjective and objective improvement were usually identical, but there were a few cases in which the improvement was only subjective or objective. The patient's age did not appreciably influence the results, as many as seven of the patients showing subjective improvement being over 50 at the time of the operation. The failures (seventeen toes belonging to nine patients) could not be explained as the result of the patient neglecting

to use any special support after the operation; but it was significant that among the failures were four toes accompanied by pes cavus, and seven which were the seat of arthritis deformans. These two conditions should therefore be regarded as contraindications to any operation for hallux valgus.

31. Injection Treatment of Spontaneous Thrombosis.

SCHAEFER (*Med. Klinik*, May 3rd, 1929, p. 708) suggests that in cases of spontaneous thrombophlebitis of the superficial vessels the veins affected should be blocked by injecting one of the solutions commonly used in recent times for the obliteration of varicose veins, thus producing an artificial thrombus proximal to the original lesion. By this means the dissemination of emboli from the spontaneous thrombus, which in its early stages is not very firmly adherent to the vessel wall, is prevented; the artificial thrombus is at all stages so firmly adherent that embolism never occurs, and the need is avoided for prolonged rest, so irksome to a patient with practically no symptoms. He has used injections in three such cases with entirely successful results, keeping the patient recumbent for one day only after the injection. He suggests that a similar method, after suitable preliminary experiments, might possibly be applied to the treatment of thrombosis of deep veins—as, for example, injection at the saphenous opening where the long saphenous vein joins the femoral.

32. Acute Cystitis as a Complication of Influenza.

J. A. WEIJTLANDT (*Nederl. Tijdschr. v. Geneesk.*, May 11th, 1929, p. 2262) records five illustrative cases of cystitis in influenza patients aged from 17 to 37. While as a rule cystitis is more frequent in women than in men, four of the patients were males and only one a female. The usual symptoms of cystitis—namely, frequent micturition, pain, and pyuria—were present. In two instances there was macroscopically evident haematuria, and in all blood was found on microscopical examination, with an excess of leucocytes. At the height of the attack albumin was also found in the urine. In two cases frequency of micturition was not increased even in the acute stage, although the pain was severe. On cystoscopic examination, which was undertaken in three cases, the vesical mucosa showed a diffuse redness and oedema. The renal function as determined by the indigo-carmine test was unaffected in these cases. Two cases were complicated by pyelitis and epididymitis respectively in convalescence. No regular bacteriological examination was carried out, and on two occasions no special treatment was required. Comparatively little has been published on the urological complications of influenza in the last fifteen years. Goldberg recorded four cases of metastatic influenzal prostatitis in 1920, and cases of urethritis and epididymitis in 1921, while Smirnov in 1926 recorded cases of paranephritis, renal carbuncle, pyelonephritis, and pyelitis. In view of the fact that Weijtlandt saw his five cases in the course of six weeks he maintains that acute cystitis has been much more frequent during the last influenza epidemic than previously.

33. Essential Thrombopenia.

F. VAN GOIDSENHOVEN (*Rev. Belge des Sci. Méd.*, February, 1929, p. 97) publishes thirteen cases of essential thrombopenia treated by ligature of the splenic artery. After this operation slow atrophy of the spleen sets in, with functional modifications similar to those which follow splenectomy. The mucous and cutaneous haemorrhages quickly cease, and the number of blood platelets increases and reaches the normal. The contractility of the clot is usually greater, the bleeding time is improved, and the ligature test is favourably modified. The immediate danger of the operation is only slight, but usually it is advisable to transfuse as well. As compared with splenectomy, the results, although slower in appearing, are equally good, and the operative risks are less. The author adds that the operation is especially advisable in acute cases, or in chronic cases where the general state is bad.

34. Carcinoma Arising in a Tuberculous Fistula.

W. KREY (*Deut. Zeit. f. Chirurg.*, April, 1929, p. 355) gives details of the clinical history and treatment of a case of squamous-celled carcinoma associated with long-standing suppurating fistula from the knee-joint connected with old tuberculosis of the femur. The malignant growth was restricted to the orifice of the fistula and did not extend along its track. The author regards this as a special type of carcinoma—a fistula carcinoma arising from the irritation caused by the chronic discharge from the fistula, and allied to the malignant diseases of the skin following the irritation of tar, soot, and *x* rays. The limb was amputated and the patient has developed no recurrence after two years. The histology of the growth is discussed and illustrated, and the author includes a useful review of the literature bearing on this rare form of malignant growth.

35. Alcohol Injections in Trophic Ulcers.

A POSSIBLE therapeutical improvement on Leriche's operation of decortication of the arterial wall in order to improve the blood supply to a limb is advanced by C. F. MCCLINTIC (*Journ. Amer. Med. Assoc.*, March 23rd, 1929, p. 956). He exposes the femoral artery in the lower two-thirds of Scarpa's triangle and injects 1 to 2 c.cm. of 95 per cent. alcohol with a very fine needle into the nerve-bearing tissue of the artery wall. When completed there is a collar of alcoholized tissue completely surrounding the artery. The effect is said to be immediate; the limb becomes flushed, its temperature is raised, and there is no period of vaso-constriction. Shock is very slight, and there is little risk of damaging the artery. McClintic states that the results have proved to be more lasting than periarterial sympathectomy, as advocated by Leriche. The four cases reported are an indolent ulcer, an ulcer from senile arterio-sclerosis, a varicose ulcer, and a chronic traumatic ulcer. These four patients had negative Wassermann reactions, no sugar in the urine, and normal blood sugar figures. All the ulcers healed healthily within two weeks of the operation, and six months later the flesh was healthy. The conditions for which McClintic suggests this operation, in addition to those reported, are Raynaud's disease, chronic arthritis deformans, painful acroparaesthesia, gangrene from frost-bite, *x*-ray burns, certain types of hypertension, and as a preliminary to amputation for gangrene.

Therapeutics.

36. Modern Remedies for Asthma.

P. VALLERY-RADOT and F. CLAUDE (*Arch. Méd. Chir. de l'Appareil Respirat.*, December, 1928, p. 459) discuss critically the newer methods of treating asthma, and commend ephedrine, *x* rays, certain forms of sensitization, and bleeding. They remark that ephedrine is of especial value in cases of nocturnal asthma, or when the attacks occur at more or less regular times. Nocturnal asthma can often be prevented by the administration of 25 to 50 mg. of ephedrine (Merck) when going to bed, and diurnal attacks by similar treatment one or two hours before they are expected. Ephedrine is much less effective when given during an attack, and the authors obtained only 56 per cent. of good results. It has to be given in the first few minutes of an attack, otherwise it is of little use. They consider this the best form of treatment of the milder varieties of asthma, but do not advise it when the attacks are severe. Ephedrine has also proved useful when given by the mouth; the total dose in twenty-four hours must not exceed 150 mg. With regard to sensitization methods, the authors have used intradermal injections of Witte's peptone for four years, and commend this in cases where there are no signs of any irritative condition of the bronchi or lungs. They use a 50 per cent. solution of peptone in distilled water. The intradermal injections are given in the deltoid region, care being taken that the fluid enters the skin itself and does not pass beneath it. A white prominence forms and increases rapidly in size, like an urticarial spot; this disappears almost entirely in about twenty-four hours. The first injection given is 0.1 c.cm. of the solution; if the reaction is not too intense twice this dose is given on the following day, and 0.3 c.cm. on the third day, this being the maximum dose advised. The authors report very satisfactory results in many cases, but not in all, and emphasize the point that the size of the dose must be graded to suit individual patients. Treatment by *x* rays is advised for those cases which are unsuitable for ephedrine or peptone treatment; the *x* rays act by originating protein shock. Heliotherapy is said to be preferable in the case of children. Bleeding has also been found effective in some cases, and the authors think that this method might be tried more frequently, since it often terminates a crisis quickly.

37. Cod-liver Oil in Tuberculosis.

G. R. BOYES and J. S. WHITE (*Brit. Journ. Tuberc.*, April, 1929, p. 75) discuss the value of cod-liver oil in the treatment of tuberculosis and review the literature on this subject, with especial reference to the parts played by its content of vitamins A and D. They agree that in order to obtain the maximum effect from it as regards the promotion of calcification in tuberculosis it is very necessary to provide an adequate amount of calcium salts, either by regulating the diet accordingly or by administering suitable calcium preparations. In the preparation of the oil it is essential to estimate separately the amounts present of the two vitamin factors, since the curative effects of one do not influence the lesions resulting from the deficiency of the other. There is, moreover, no parallel between the relative amounts of each present in different samples. They quote Kerschner, who, in 1926,

pointed out that by increasing the calcium content of the body in tuberculosis the demineralization caused by the disease is overcome and the normal calcium balance restored, a condition very essential to health. Moreover, the deposition of calcium in tuberculous foci promoted healing by inducing fibrosis and subsequent calcification; phagocytosis is also favoured by calcium administration. The authors refer to Green and Mellanby's article in the *British Medical Journal* (1928, vol. ii, p. 691) with reference to the significant part played by vitamin A in raising the body resistance to infection, and comment on the necessity of extracting the oil from the cod's liver with as little delay as possible, and under conditions which reduce to a minimum the detrimental effects of atmospheric oxidation, which is known to destroy this vitamin.

38. Sodium Thiosulphate in Mercury Poisoning.

T. E. MCMURRAY and G. G. GIBSON (*Med. Journ. and Record*, May 1st, 1929, p. 519) record five cases of mercury poisoning, not to prove that sodium thiosulphate is the only important antidote for this condition, but to show that, owing to its low toxicity, it may be advantageously used with other routine measures. One patient had taken three mercury bichloride tablets, another had swallowed four, two had each taken two tablets, and the last patient only half a tablet. The cardinal symptoms of mercury poisoning were present in all these cases. The administration of sodium thiosulphate gave much relief within a few hours, and all the patients recovered. The treatment employed was gastric lavage with white of egg and sodium bicarbonate solution, followed by 10 per cent. solution of sodium thiosulphate, some of which was left in the stomach. One ounce of the 10 per cent. solution of the drug was given intravenously three times a day for two days, and 2 oz. by the mouth every two hours for the first day, then three times a day for four days. In one case a high enema of 300 c.cm. was given on two successive days, and in another case two high enemas, each of a pint. Supportive treatment was instituted and catheterization performed when necessary. The authors state that bowel and kidney lesions clear up more rapidly under the sodium thiosulphate treatment, and that very large doses of this salt can be used with impunity, and seem to have more effect than smaller ones.

39. Specific Treatment of Chancroids.

H. J. GORDON (*Urol. and Cut. Review*, April, 1929, p. 233), from a comparative study of 221 cases of chancroids, two-thirds of which were treated by old standard methods and the remainder by Rosenwald's method, came to the conclusion that the latter effected a saving of 50 per cent. of the days necessary to effect a cure in each case. The procedure is as follows. After gently cleaning the chancroidal ulcer a thin piece of cotton-wool, well moistened with Rosenwald's suspension (calomel 1 oz., zinc sulphate 2 oz., camphorated tincture of opium 2 oz., lime water 8 oz.), is applied to the ulcer for one day by the use of a condom. At the end of twenty-four hours the dressing is removed and replaced by Rosenwald's ointment (zinc oxide, starch, boric acid, green camphor, 1 oz. of each, 3 per cent. carbolated vaseline 12 oz.) applied on cotton-wool. In a day or two the diseased tissue separates, usually *en masse*, leaving a clean surface which rapidly heals. Owing to the early sterilization of the ulcer buboes do not develop. The treatment has little or no effect upon chancres, and breaking down of the lesions after healing is, in Gordon's experience, pathognomonic of syphilis.

40. Local Application of Besredka's Antivirus.

G. DENES (*Studium*, April 20th, 1929, p. 152) reports good results from the treatment of vaginal discharge by means of tampons soaked in a filtrate of broth culture prepared from the specific organisms concerned. In over sixty cases where this treatment was applied the discharge was cured and remained cured. Denes adds that this treatment can be used in many cases where local applications are indicated, and instances otitis, furunculosis, erysipelas, and blepharitis. He states that no general reaction follows, and that the procedure is simpler than injections. For some obscure reason the results appeared to be better in chronic or subacute morbid processes.

41. Action of Adrenaline after Sympathectomy.

P. TOMESCO (*Bull. et Mém. Soc. Méd. des Hôp. de Bucarest*, February, 1929, p. 48) describes the effect of intravenous injections of adrenaline on patients who had undergone section of the cervical sympathetic. Four epileptics were chosen, and for the purpose of comparison a normal individual whose response to atropine, according to the method of Danielopolu, gave the same vegetative formula as the sympathectomized patients—namely, hypo-amphotonic. An intravenous injection of 1 c.cm. of a 1 in 100,000 solution of adrenaline was given, and plethysmographic tracings were taken. Care was exercised to make the results comparable in every way, and the experiments were repeated on several occasions. The tracings showed that peripheral vaso-dilatation was in every case more feeble in the sympathectomized patients, and that the length of this phase was shorter than in the normal. In the control case it lasted from 111 to 115 seconds, while in the sympathectomized it lasted only 64 to 99 seconds.

Anaesthetics.

42. Anaesthesia for Head Operations.

L. A. RETHWILM (*Anesth. and Analges.*, March-April, 1929, p. 120), from an experience of 4,238 anaesthesias during a period of over three years, reviews the various anaesthetic procedures and preferences in operations about the head, excluding brain surgery. Nearly 3,000 tonsillectomies alone were performed under general anaesthesia induced with the nitrous oxide-oxygen-ether sequence, followed by ether-oxygen vapour given through a mouth-hook at the side of the cheek. Two bottles of ether were used in sequence, so that a stronger vapour could be obtained as desired. Light anaesthesia, with the reflexes not completely abolished, was aimed at in order to prevent aspiration, and it was found that recovery was quicker and better than with deep anaesthesia. In eye work a similar technique was adopted, but in 55 cases nitrous oxide-oxygen anaesthesia was used because of some such condition as diabetes, or because it was desired that the return to consciousness should be smooth, with a minimum of straining, movement, or vomiting. For radical intranasal sinus operations the same technique was employed, though the patient was kept more deeply under with a post-nasal plug to shut off blood and secretions from the pharynx; for intranasal antrum operations and mastoid work this form of anaesthesia was found to be very satisfactory. Ether-oxygen vapour was given for oesophagoscopies, laryngoscopies, and bronchoscopies, with the patient deeply under to enable the instruments to be inserted quickly. From this series of cases Rethwilm concludes that all patients requiring head operations can be satisfactorily anaesthetized with ether or nitrous oxide-oxygen, or a combination of the two, according to the suitability for each individual case. The second is considered the best anaesthetic for eye and mastoid operations, dental work, and tumours about the head and neck; it can be administered intrapharyngeally when the cautery has to be used, or when breathing is mechanically obstructed.

43. Anaesthesia produced by Barbituric Acid Compounds.

H. STEINER (*Narkose und Anaesthesie*, April 15th, 1929, p. 103) records his observations on 170 cases in the obstetrical and gynaecological department of the Cantonal hospital at Aarau in which numal, or allylisopropylbarbituric acid, was employed as a general anaesthetic. It had the advantage of rendering unnecessary the injection of morphine and atropine before the operation. As regards the dosage, 1 cg. of numal was usually given per kilo of body weight; since the solution used contained 10 cg. per c.cm., a patient weighing 50 kilos would require 5 c.cm. The drug is given intravenously, and the administration should be carried out very slowly. It is important that the anaesthesia should be induced in a quiet room. This anaesthetic is said to be specially suited for cases in which it is desirable to reduce ether and chloroform to a minimum. Small doses of pantopon are very effective in controlling the stage of excitement which may occur after its administration. A previous reference to this form of anaesthetic was published in the *Epitome* on May 25th (para. 503).

44. Rectal Anaesthesia with Ether Oil.

F. LEMPERG (*Deut. Zeit. f. Chir.*, April, 1929, p. 43) records his observations on 100 cases in which anaesthesia was induced by rectal injections of ether oil. The composition of the mixture used was: ether 100 parts, olive oil 45, cacao butter 50, liquid paraffin 45, alcohol 8, quinine hydrochloride 1. The volume of the mixture is 260 c.cm., and 2 grams of ether are given per kilo of body weight. The chief advantages of the method are detailed as follows. It renders the presence of an anaesthetist unnecessary in operations on the face and middle ear. The anaesthesia can be entrusted to students or experienced nurses. Costly anaesthetic apparatus is unnecessary. The long duration of the anaesthesia (three to four hours) is a useful feature. The main drawback of the method is that an operation must not be undertaken until an hour after the injection, so that the method is unsuitable for urgent cases.

Obstetrics and Gynaecology.

45. Pregnancy complicated by Concurrent Appendicitis and Pyelitis.

E. LIEK (*Zentralbl. f. Chir.*, April 13th, 1929 p. 907) has performed approximately 1,500 appendicectomies, 200 of which were for chronic recurrent appendicitis, yet he has found occasional difficulty in the differential diagnosis of appendicitis and pyelitis occurring in pregnancy. He describes the case of a woman, aged 29, who was seven months pregnant. After an indigestible meal she had pain in the right flank, without vomiting. The temperature was normal, the pulse 80 to 84, and nothing was found on vaginal examination. The skin was very tender from the right groin upwards to the kidney region. The patient had had pyelitis in the third month of pregnancy; on this occasion a catheter specimen was turbid and contained a large number of leucocytes and *B. coli*. Liek's diagnosis was pyelitis of the right kidney with a possibility of concurrent appendicitis. The next day spontaneous abortion occurred, the child dying in half an hour. On the third day pain and slight fever were present, without other symptoms. Two days later the temperature rose suddenly to 101.5° F. and the pulse to 130. Profuse bilious vomiting occurred, and the abdomen was tense and very tender, giving a typical picture of diffuse peritonitis, which was confirmed by operation. An abscess in Douglas's pouch contained the appendix, which had a faecal concretion in its distal portion and a necrotic perforated area as large as a linseed. A counter opening in the left flank released a quantity of liquid pus, and Douglas's pouch was drained also. After several anxious days the patient improved. Sixteen days later an abscess as large as an apple was opened in the left iliac fossa; the patient improved and was discharged seven weeks after the operation. Two hours later she was readmitted with severe abdominal pain, rigidity, and bilious vomiting. After washing out the stomach and the passage of a long rectal tube peristalsis appeared to be restored and the bowels acted normally, but ten days later enterostomy was necessary, and a large mass of faecal concretions was evacuated. A month after her readmission the patient was again discharged, but the former symptoms returned, and fifteen days later the patient was admitted for the third time. Her condition was very serious, the pulse being 152 and small, and the abdomen distended; there was bilious vomiting and visible peristalsis. A tender swelling occupied the right iliac fossa. A second smaller abscess, lying between intestinal coils, was opened, but natural bowel action was not restored. Faecal vomiting followed and a second enterostomy was performed eight hours later. The patient progressed for two weeks, then the abdominal symptoms returned, accompanied by dysuria and pyrexia. Nineteen days later a small retroperitoneal abscess was opened; the pus contained *B. coli* and numerous streptococci. The patient improved until a spontaneous faecal fistula opened in the latest operation scar, but this healed naturally. Liek mentions other similar cases, and insists upon the necessity for systematic examination of the urine in every case of suspected appendicitis occurring during pregnancy.

46. The Early Diagnosis of Ectopic Gestation.

M. SABEL (*Med. Journ. and Record*, May 1st, 1929, p. 512) remarks that ectopic gestation is so varied in nature that at times other acute abdominal conditions, such as renal colic or acute peritonitis, may be closely simulated; this is particularly true when a double pregnancy—both intra- and extra-uterine—is present. The early and accurate diagnosis of the ectopic condition is of great importance, and the diagnostic aids most to be noted are: the history, with special reference to alterations in the menstrual cycle; pain in the lower abdomen as well as pain elicited after the sudden release of pressure on the abdomen; vaginal bleeding; intense sensitiveness on one side upon moving the uterus from side to side; and, in later cases, rapid increase in size of mass, associated with tenderness. Ectopic gestation is not common among coloured women, and it occurs most frequently at advanced ages. Sabel believes that previous abortions have an etiological significance, and the advanced age incidence support this belief, since there is thus time for tubal changes favouring ectopic gestation to develop. The menstrual history is a highly important point in diagnosis, and any alteration of the periodicity in conjunction with other signs is very indicative of an ectopic gestation. The most constant symptom is pain in the lower abdomen, which varies in degree; vaginal bleeding is the next most common symptom, but the amount is usually slight. The extreme sensitiveness of the unruptured tube is a very valuable sign. High temperature is usually evidence against extrauterine pregnancy, unless there is infection of the tubal sac: the pulse rate is in proportion to the temperature. Leucocytosis is generally present, but the red cell count and haemoglobin percentage are normal. A rapid sedimentation reaction is said to be more suggestive of pelvic inflammation than of ectopic gestation. Urinalysis is of no assistance as regards making the diagnosis, but the urine test for pregnancy is of definite value. Two cases are reported by the author: in one, owing to a criminal abortion having been induced, an erroneous diagnosis of acute peritonitis had been made; in the other a double pregnancy existed.

47. Carcinoma in Ovarian Dermoid Cysts.

J. C. MASSON and N. C. OCHSENHIRT (*Surg., Gynecol. and Obstet.*, May, 1929, p. 702) record three cases of squamous-cell carcinoma arising in dermoid cysts of the ovary and review thirty-three cases from the literature. Many reported cases were rejected because the evidence was insufficient to establish that the carcinoma actually developed within the dermoid, a condition only occurring in from 0.5 to 5 per cent. of the cases. The clinical differentiation of a benign dermoid cyst from one with early malignant degeneration is described as almost impossible until the carcinoma has so advanced as to penetrate the cyst wall or give rise to metastatic nodules in the adjacent organs. A certain diagnosis depends upon microscopical examination, and, consequently, all ovarian dermoid cysts should be carefully examined for malignant changes. Failing an absolute certainty as to its nature, an exploratory operation should be performed in every case of ovarian tumour; the prognosis is said to be grave unless early removal of the cyst is adopted. Malignant changes usually appear as a few areas of vegetation on the internal lining of the cyst, or as a thickening of its wall, but even on most careful examination early changes may escape notice. In the series of cases reviewed the longest duration of the presence of a tumour was nineteen years and the shortest six weeks.

48. Pregnancy following Amputation of Both Breasts.

CONTRARY to the view that there is some functional association between the breasts and the female genital organs, LEUNCKENS and PASTIELS (*Bruxelles-Méd.*, April 28th, 1929, p. 739) report a case indicating that the mammary glands apparently exert no influence on the utero-ovarian apparatus. A woman, aged 37, had phlegmonous inflammation of both breasts soon after her confinement; all varieties of local and general treatment were ineffective. The blood culture showed a staphylococcal infection. The breasts continued to inflame and suppurate, and amputation of the right breast was therefore undertaken to save the patient's life. The general condition improved, and the left breast was accordingly removed. Recovery was uncomplicated. The physiological results of the operation were awaited with interest. Menstruation was not affected in rhythm, duration, or regularity; the patient noticed faint prickings in the operation scars at the beginning of the menses. The genital feelings were unaltered. Eight months later the patient became pregnant and went to term without any noteworthy event. The accouchement was uncomplicated and the infant survived. The puerperium and the involution of the uterus were quite normal. Two later pregnancies occurred, but neither of these went to term. The authors, however, do not consider that the operation could have affected these remote events. They add that in animals a glycosuria has been noted immediately after amputation of the breasts; no glycosuria was reported in this patient.

49. Primary Syphilis of the Umbilical Vein.

Y. MANOUÉLIAN (*Gynécol. et Obstét.*, March, 1929, p. 161) records a case of primary syphilitic phlebitis of the umbilical vein, and emphasizes the necessity for care on the part of doctors and midwives lest they should be infected with syphilis. A woman, aged 28, who had previously had one miscarriage at the seventh month, and in whom the only possible syphilitic stigmata were scars on the shoulder and an osteophyte at a chondrosternal junction, went to term and had a labour which was normal save for a spontaneous tearing off of the umbilical cord at its placental attachment. The infant, although jaundiced, showed no morbid signs in the skin or mucous membranes. The cord had cicatrices on the surface and nodosities along the vessels; microscopically *Treponema pallidum* was demonstrated in great abundance in the blood of the umbilical vein, and also in the perivascular infiltration of polymorphs and macrophages. The infant died on the ninth day from haemorrhage from the umbilicus. The Wassermann test could not be performed on account of laking of the foetal blood, and no syphilitic lesions were detected on macroscopical or microscopical examination of the viscera. The author has previously described a case of primary syphilitic phlebitis in which both mother and child were apparently healthy at birth, but the umbilical vein was full of spirochaetes.

Pathology.

50. Bacteriophage Phenomena.

AFTER reviewing d'Herelle's work F. M. BURNET (*Med. Journ. of Australia*, March 30th, 1929, p. 405) discusses certain effects of bacteriophage phenomena that seem to have a bearing on disease; it has been shown that in most intestinal affections a phage, active against the infecting organism, is present in the intestinal contents at some period of the disease. Certain authors, particularly *Bordet, maintain that the appearance* of phage is due to the effect of the body defences on the infecting bacterium inducing a metabolic vitiation, but, according to the virus theory of d'Herelle, all phage is derived from pre-existent bacteria. It has been shown that a phage is not necessarily limited in its action to the one bacterial strain on which it has been isolated, but that a single phage may be active against two or more bacterial species, and that an originally weak phage may become much more active after it has been cultivated at the expense of some new organism. Closely related to this power of adaptation to a new organism is the question of the increase in virulence of the phage. This virulence is difficult to define, but its increase or decrease is easily recognized. If a phage is to be used therapeutically, it is advantageous to use one of the greatest activity. D'Herelle emphasizes this; he states that by using weak phages the infecting organism is enabled to develop a resistance against stronger phages, and with this resistance becomes more pathogenic. Certain factors tend to reduce the activity of phage *in vivo*, this being less than *in vitro*. In the body bacteria are in relatively smaller numbers than in broth cultures, and when in the tissues are multiplying in complex colloidal systems where there is little freedom of movement. Certain colloids actively inhibit lysis, and serum has a similar but less evident effect. Burnet concludes that the most reasonable view possible at present as to the importance of the bacteriophage in disease is that in those conditions, such as plague and typhoid fever, which are essentially or largely septicaemic, it plays but little part, and can be of therapeutic use only indirectly owing to its content of associated bacterial antigens. In infections such as bacillary dysentery and cholera, which are practically limited to the contents and lining of the alimentary canal, involving a body cavity rather than the tissues, a phage active against the pathogen usually develops, and may play a part in determining recovery. In this group the administration of active phage by the mouth is a rational therapeutic procedure.

51. Lactic Acid Excretion in Sport.

I. SNAPPER and A. GRÜNBAUM (*Nederl. Tijdschr. v. Geneesk.*, March 16th, 1929, p. 1358) examined the urine of 55 men who had played in football matches of two and three-quarter hours' duration on a warm day, and found more than 60 mg. lactic acid in 11 per cent., whereas after a game on a cold day 50 per cent. of the players showed more than 60 mg. lactic acid in the urine. In a match played on a warm day an average of 468 mg. lactic acid and 846 mg. chlorine was found in the players' shirts. The total loss of lactic acid in the sweat during the game was probably 1 to 2 grams. In a boat race extending over 2 kilometres and lasting six to eight minutes 28 of the 39 oarsmen showed more than 60 mg. lactic acid in the urine, and 95 mg. lactic acid and 84 mg. chlorine in their shirts. In foot races of 3, 5, 10, and 42 kilometres, lasting between nine minutes and about two and a half hours, little lactic acid as a rule was found in the urine. In swimming, on the other hand, much lactic acid was usually found in the urine, not only in the 400 metre races lasting five minutes, but in the 1,500 metre races lasting twenty to twenty-two minutes, and the water polo matches lasting seven and a half minutes. Albuminuria was rarely found after football matches, foot races, or rowing in the case of trained sportsmen, but was very frequent in swimmers.

52. Carbohydrate Metabolism and the Ovarian Hormone.

E. KAUFMANN (*Deut. med. Woch.*, April 19th, 1929, p. 650) has investigated the effect of ovarian hormone in several diabetic women a few years after the menopause; they had all been under observation for some years, and their metabolism was comparatively stable. One who was very refractory to insulin was given one tablet of progynon (250 mouse units) daily, the dose being subsequently raised to 500 mouse units. Though the vasomotor symptoms and neuritis improved, glycosuria and blood sugar increased. In another similar case menformon folliculin was injected with insulin for one month, the dose of the ovarian preparation being gradually increased from 20 to 80 mouse units; the combined treatment again had a deleterious effect on carbohydrate metabolism. Kaufmann disagrees with Bauer, Flata, Zondek, and others who consider that the pancreas and ovaries affect carbohydrate metabolism in the same direction, though differing in manner and degree, and counteract the thyroid, pituitary, and chromaffin systems in this respect; he concludes that the ovarian secretion antagonizes insulin in its action on metabolism in diabetes, and suggests that this may be one of the reasons why children (in whom the sex glands are not functioning fully) are particularly liable to hypoglycaemic symptoms. It may also account for the variations in carbohydrate metabolism associated with the menstrual cycle and occurring during pregnancy in the diabetic and non-diabetic. The great risk of hypoglycaemia during the puerperium in diabetics on insulin which has been reported may also be partly due to a sudden diminution in the circulating ovarian hormone. The return of menstruation as a result of insulin treatment in diabetes with amenorrhoea must not be regarded as evidence of synergism between insulin and ovarian hormone, but is probably due to a general improvement in the metabolism.

53. Action of Saponin upon Intestinal Absorption.

N. ENDO, T. MIZOGUCHI, and K. NAITO (*Japan Med. World*, February 15th, 1929, p. 35) report a series of investigations on mice relating to the way in which the oral administration of saponins (toxic nitrogen-free glucosides contained in such preparations as sarsaparilla) raises the degree of absorption of the intestinal canal for certain substances. Koller and Kaurek, in 1925, found that strophanthin and digitoxin are absorbed much more rapidly if administered with saponin, and this has been shown by other observers to be true also in the case of calcium, curare, glucose, aspirin, and pituitary extract, but not in the case of thymol, camphor, and veronal. The present authors found that various chemical substances, such as magnesium sulphate and reduced iron, become very toxic to mice when mixed with saponin, and a similar result followed where certain bacilli and serums were concerned.

54. Resistance of the Diphtheria Bacillus.

DURING an examination of 10,000 throat swabs P. LOMRY (*C. R. Soc. de Biologie*, May 17th, 1929, p. 161) made some observations on the resistance of the diphtheria bacillus. He finds that after an attack of diphtheria 90 per cent. of patients remain carriers for five or six weeks, 9.9 per cent. (? 9.1) for three to four months, and 0.9 per cent. for one to two years. Though it is not unusual to find that the bacilli in the throats of chronic carriers are fully virulent, the author considers that as a rule the virulence diminishes progressively. On artificial media, provided subcultures are made sufficiently often, the virulence remains high indefinitely. Inoculated into water from various sources—rain, well, river, pond, snow—contained in test-tubes, the diphtheria bacillus remains alive for three days at room temperature and for thirty hours in an incubator. The result is the same whether the water is used fresh or is previously boiled. Dried on pieces of fabric, wood, or metal, and kept in the light or in the dark, the bacilli live for about fifteen to twenty-five days. This time is not diminished by exposing them in a room submitted to formalin fumigation. Before actually dying, bacilli which are undergoing desiccation are stated by the author to decolorize with Gram's method, to lose their power of fermenting glucose, and to become practically avirulent. As a practical conclusion from these observations, the author states that disinfection of rooms after diphtheria, other than by washing, is not of sufficient value to be justifiable.

55. Anaerobic Organisms in Otitis.

P. C. MONTI (*Arch. Ital. Otolog.*, March, 1929, p. 185) reports observations on 25 cases of purulent otitis media, both subacute and chronic, and with and without endocranial complications. The object of the investigation was to discover whether any of the organisms found in the pus of the ear were true anaerobes. Surrounded and penetrated as the auditory apparatus is by the atmosphere, and influenced by the movements of respiration and deglutition, it was not surprising to find that as a result of this investigation no strict anaerobes were found in the pus. The pus was diluted with sterile broth, plated on alkaline glucose agar and milk agar, and incubated for two to seven days. All the organisms isolated from the anaerobic cultures successfully lived aerobically on subculturing. The principal anaerobes found were Gram-negative cocco-bacilli and Gram-positive spore-bearing rods; all these proved to be facultative anaerobes. Some investigators have found strict anaerobes in certain auditory affections, and the present author suggests that strict anaerobes in the presence of living tissue may live in a state of symbiosis with aerobes. Since these conditions are not artificially reproduced in culture, only facultative anaerobes appear.

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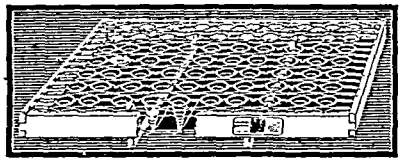

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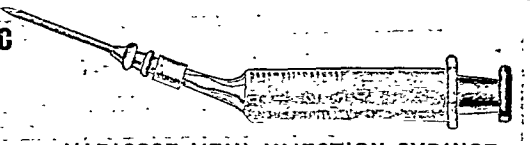

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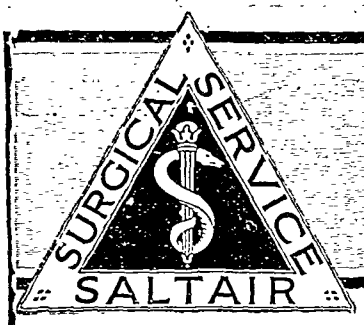

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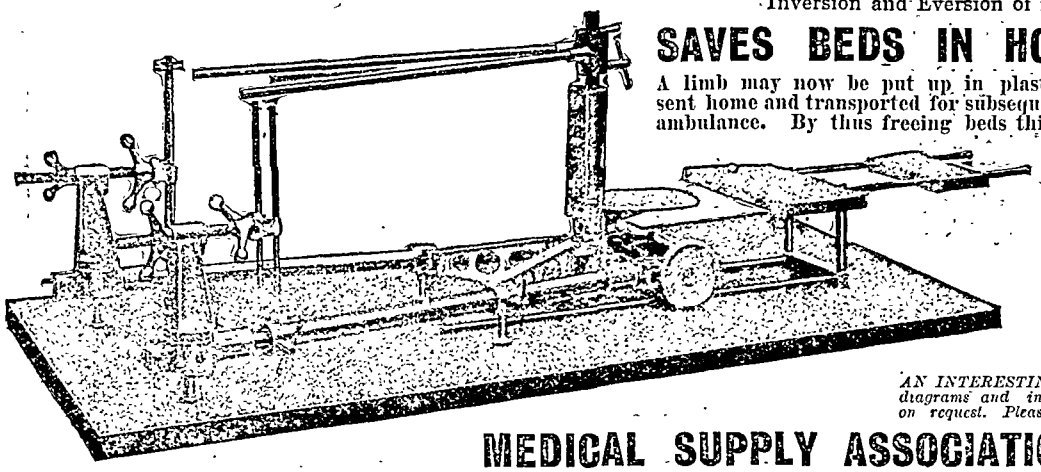

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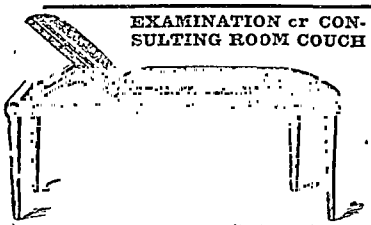

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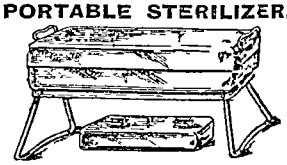

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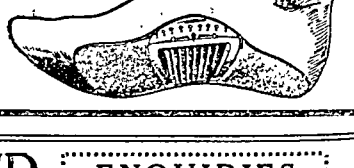

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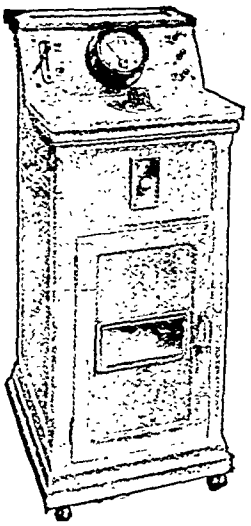

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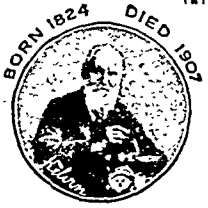

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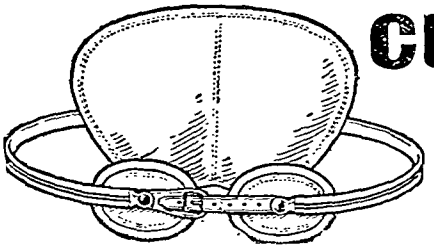

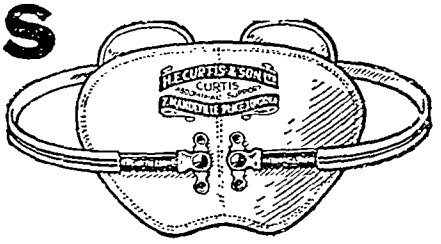

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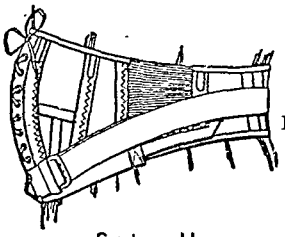

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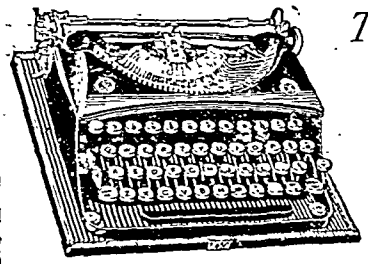

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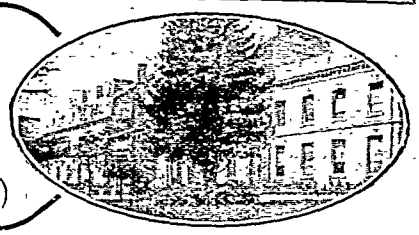

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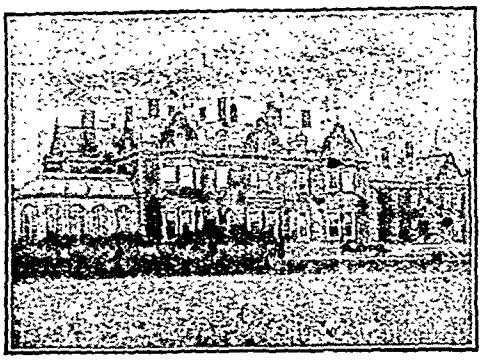

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University of Birmingham.

APPOINTMENT OF LECTURER IN PHYSIOLOGICAL DEPARTMENT.

Applications are invited for the post of Lecturer in Physiology. Stipend £400 per annum. Four copies of application, with copies of testimonials, must be sent, on or before August 5th, to the undersigned, from whom further particulars may be obtained.

The University, Edmund Street, Birmingham. July, 1929. C. G. BURTON, Secretary.

Preliminary Examinations.

The COLLEGE OF PRECEPTORS holds Preliminary Examinations for Medical and Dental Students in London and at Provincial Centres in March, June, September, and December. For Regulations, apply to the Secretary, College of Preceptors, Bloomsbury Square, London, W.C.1

D.P.H.Camb. & Lond., B.Sc., M.D., M.R.C.P.,

prepares candidates for Degrees or Diplomas in Hygiene. Experienced as Lecturer, Demonstrator, and Tutor. Typed notes. Many successes.—Address, No. 4320, B.M.A. House, Tavistock Square, W.C.1.

Lowestoft and North Suffolk HOSPITAL.

HOUSE SURGEON (male) preferably with knowledge of X-ray. Salary £120 p.a., with board, residence, and laundry.

Applications, with copies of three recent testimonials, to the Honorary Medical Supt

London Jewish Hospital,

Stepney Green, E.1.

Applications are invited (and should be sent to the Secretary immediately) for the post of OUT-PATIENT ASSISTANT for the months of August and September. Honorarium at the rate of £50 per annum.

Malayan Medical Service.

VACANCIES FOR ASSISTANT MEDICAL SUPERINTENDENTS IN MENTAL HOSPITALS AT SINGAPORE AND TANJONG RAMBUTAN.

Qualifications.—Applicants, who must be British subjects of European parentage and not over 35 years of age, should have been Resident Medical Officers at an Asylum or other Institution for Mental Diseases for not less than one year.

Salary.—$500 per mensem (£700 per annum), rising by annual increments of $25 per mensem (£35 per annum) to $550 per mensem (£770 per annum). Officers are appointed on probation for a period of three years and then become eligible for confirmation, after which the salary rises by annual increments of $25 per mensem (£35 per annum) to $800 per mensem (£1,120 per annum).

Allowances.—In addition to salary, there is at present a temporary non-pensionable allowance of 10 per cent. of salary to unmarried officers and 20 per cent. to married officers.

Currency.—The Straits dollar is equivalent to 2/4 of English currency. The rate is liable to alteration but has remained unchanged for many years past; so far as can be foreseen, no change is anticipated.

Passages.—Free first-class passages are provided both on first appointment and on leave.

Quarters.—Free quarters with heavy furniture are provided.

Further particulars and forms of application may be obta[illegible] riting, to the Private Secretary, Colonial Office, 2, Ric[illegible] S.W.1.

Egyptian Government.

EGYPTIAN UNIVERSITY.

Applications are invited for the post of PROFESSOR OF CLINICAL PATHOLOGY.

The salary offered is £E.1,500 (about £1,530) a year without pension, and the appointment will be on contract for five years, but may be renewed by mutual consent for a further period.

The Professor of Clinical Pathology will be expected to organize the work of the Department of Clinical Pathology in its relation to the Kasr-el-Aini Hospital and to give such courses of instruction as may be decided upon. Preference will be given to candidates possessing a special knowledge of diseases of warm climates. The appointment is to be a full-time post, no private practice being allowed.

An allowance equal to one month's salary will be paid on arrival at Cairo for travelling expenses.

Applications, accompanied by testimonials and references, to be addressed to the Dean, Faculty of Medicine, Egyptian University, Cairo, so as to be received not later than September 15th, 1929.

British Red Cross Society's [illegible]F PARK PARK.

There is a vacancy for the post of MEDICAL SUPERINTENDENT (Non-resident). It is hoped that the building will be ready for patients by November 1st next, but the duties of the Medical Superintendent will begin in September, as he will be expected to help in the preparation for the reception of patients, who will be Out-patients only. After the Clinic is opened his duties will be to see that treatment prescribed by the staff is properly carried out and to supervise the general administration of the Clinic. Applications may be accompanied by not more than two testimonials (copies). Salary £600 a year payable quarterly. The initial appointment will be for one year, but may be renewable.

Applications to be sent to the Secretary of the Clinic Committee, British Red Cross Society, 19, Berkeley Street, London, W.1, not later than July 24th next.

The Willesden General Hospital, N.W.10.

SURGICAL OUT-PATIENTS' DEPARTMENT. CLINICAL ASSISTANT.

GYNÆCOLOGICAL OUT-PATIENTS' DEPT. CLINICAL ASSISTANT.

Applications are invited for each of the above appointments for a period of six months from August 1st. The successful applicants will be expected to attend the Hospital regularly and to take charge of the Department when the Medical Officer is absent.

Applications should be addressed to the undersigned not later than Wednesday, July 17th, from whom full particulars of each appointment can be obtained.

R. J. HEARNE, Secretary.

City of Manchester.

APPOINTMENT OF ASSISTANT TUBERCULOSIS OFFICER.

The Public Health Committee invites applications for the position of Assistant Tuberculosis Officer at a commencing salary of £650 per annum, rising by annual increments of £25 to £750 per annum. (First increment January 1st, 1931.)

Candidates must be fully qualified Medical Practitioners having [illegible] of Medical and Surgical [illegible] should state whether t[illegible] Public Health.

Applications, stating age, qualifications, and experience, with copies of not more than three recent testimonials, and endorsed on the envelope "Assistant Tuberculosis Officer," must be addressed to the Town Clerk only, and not to members of the Committee or Council, and must be received by him not later than Monday, July 29th.

The gentleman appointed will be under the administrative control of the Medical Officer of Health and the immediate control of the Senior Tuberculosis Officer. He will be required to devote the whole of his time to the duties of his position, to execute the Deed of Service, and to contribute to the Corporation Superannuation Fund.

Canvassing in any form, oral or written, direct or indirect, is prohibited.

By Order,
F. E. WARBRECK HOWELL,
Town Clerk.

Town Hall, Manchester.
July, 1929.

City of Birmingham.

APPOINTMENT OF MEDICAL SUPERINTENDENT.

Applications are invited for the post of Medical Superintendent at the Mental Deficiency Institution shortly to be opened at Coleshill Hall, about 10 miles fro[illegible]

Candidates must [illegible] d medical practitione[illegible] in institutions for [illegible]

Commencing salary £700 [illegible] ments (including house, fuel, lighting, and laundry) valued at £200 for superannuation purposes. The appointment will be subject to three months' notice on either side, and the selected candidate will be required to join the Asylums and Certified Institutions (Officers Pensions) Act, 1918.

Applications, stating age, medical qualifications, and experience, accompanied by copies of not more than three recent testimonials, endorsed "Medical Supt., Coleshill Hall," should be addressed to the undersigned not later than August 22nd.

Canvassing will be deemed a disqualification.

Council House, Birmingham. F. H. C. WILTSHIRE, Town Clerk.

Holborn Union, London.

HOLBORN AND FINSBURY HOSPITAL, Archway Road, N.19.

The Guardians of the Holborn Union invite applications for the post of FIRST ASSISTANT MEDICAL OFFICER at their Holborn and Finsbury Hospital, Archway Road, Upper Holloway, N.19. Salary £500 per annum, with board, furnished apartments, etc.

The gentleman appointed will be required to devote the whole of his time to the duties of the office and to act under the direction of the Medical Superintendent.

The appointment will be subject to the provisions of the Poor Law Officers Superannuation Act, 1896, and the Local Government Act, 1929.

Applications, by letter only, stating age, qualifications, experience, etc., together with copies of not more than three recent testimonials, must reach me by or before noon on July 22nd.

By Order,
CHAS. J. CROSS,
Clerk to the Guardians.

Administrative Offices, 53, Clerkenwell Rd., E.C.1.
July 8th, 1929.

County Borough of West Ham.

PLAISTOW FEVER HOSPITAL.

SECOND ASSISTANT MEDICAL OFFICER (male) required. Appointment will be for one year. Salary £300 per annum, with board, residence, and laundry. Preference will be given to candidates who have held a resident appointment in a General Hospital. Good facilities for post-graduate study, such as the D.P.H.

Applications, with copies of three recent testimonials, to be sent to the Medical Supt., Plaistow Fever Hospital, London, E.13.

City and County of Kingston upon Hull.

HULL MATERNITY HOME AND INFANTS' HOSPITAL.

RESIDENT MEDICAL OFFICER (WOMAN).

The Corporation of Hull invites applications from unmarried or widowed Registered Medical Practitioners, under the age of 40 years, for the appointment of Resident Medical Officer (Woman) at the Maternity Home and Infants' Hospital, Hedon Road, Hull. Candidates must be of at least three years' standing in their profession.

Salary £450 per annum, together with board, washing, and residence at the Maternity Home. The appointment is subject to the provisions of the Local Government and Other Officers Superannuation Act, 1922.

Applicants must have had post-graduate experience in obstetrics, paediatrics, and the treatment of venereal disease in women.

The successful candidate will be required to devote the whole of her time to the duties of the appointment, which will also include attendance, when required, at Ante-Natal, Post-Natal, and other clinics.

Particulars of the duties and forms of application may be obtained from the undersigned.

Completed applications (in an envelope endorsed "Resident Medical Officer, Maternity Home"), together with copies of three recent testimonials, must be received not later than Thursday, July 18th.

W. ALLEN DALEY,
Medical Officer of Health.

Health Department, Guildhall, Hull.
July 1st, 1929.

Devon County Council.

APPOINTMENT OF COUNTY MEDICAL OFFICER OF HEALTH.

The County Council invite applications from duly qualified medical men holding a Diploma of Public Health, of not more than 45 years of age, for this appointment.

The salary will commence at the rate of £1,200 a year, with four annual increments of £50 to a maximum of £1,400.

The officer appointed will be required to devote the whole of his time to his official duties, to provide his own motor car and use the same when necessary in the discharge of his duties, for which he will be allowed expenses in accordance with Grade A of the Council's scale. He will also be allowed the usual subsistence allowance and for necessary journeys by rail.

[illegible] been designated an establ[illegible] Government and [illegible] Act, 1922.

[illegible] ed form, to which [illegible] ment of the conditions of appointment and the duties, can be obtained from me, and must be returned, accompanied by copies of not more than three recent testimonials, so as to reach me not later than the first post on July 16th next

Personal canvassing by or in favour of a candidate will disqualify, but a candidate may, if he wishes, send me 40 copies of his application for the use of the Committee.

The officer appointed will be required to take up his duties on December 1st next.

The Castle, Exeter. BRIAN S. MILLER, Clerk.
June 24th, 1929.

City and County of Newcastle-upon-Tyne Education Committee.

Wanted, full-time ASSISTANT SCHOOL MEDICAL OFFICER possessing special experience in throat, nose, and ear work, including the operative treatment of tonsils and adenoids. Salary £650 per annum, rising by annual increments of £25 per annum to a maximum of £750 per annum. The successful applicant will be required to begin duty on October 1st.

Form of application and conditions of appointment may be obtained from the undersigned upon receipt of a stamped addressed foolscap envelope. Applications will be received up to and including July 31st.

THOS. WALLING,
Director of Education.

Education Office, Northumberland Road, Newcastle-upon-Tyne. July 3rd, 1929.

Dorset County Council.

EDUCATION COMMITTEE.

APPOINTMENT OF ASSISTANT SCHOOL DENTIST.

Assistant School Dentist required. Salary £450 per annum, rising to £600, with further discretionary merit advance to £650 per annum. Application form and terms of appointment may be obtained, on receipt of stamped addressed envelope, from Director of Education, County Education Office, Dorchester.

Greenwich Union.

APPOINTMENT OF FIFTH AND SIXTH ASSISTANT MEDICAL OFFICERS.

The Guardians invite applications from fully qualified medical practitioners for the above appointments.

Salary £300 per annum, with furnished apartments, rations, and washing.

The officers appointed will be expected to act generally under the direction of the Medical Superintendent, and to take duty in the Hospital or other Institutions as required

Applications to be made on forms obtainable from the Guardians' Offices, Board Room, East Greenwich, S.E.10, and should be returned duly completed by July 20th.

Particulars of duties can be obtained from the Medical Superintendent at the Hospital by appointment.

Canvassing the Guardians, either directly or indirectly, is prohibited and will disqualify.

By Order,
W. C. CORNISH,
Clerk to the Guardians.

Guardians' Offices,
July, 1929.

Salop County Council.

MEDICAL INSPECTION OF SCHOOL CHILDREN AND MATERNITY AND CHILD WELFARE.

Applications are invited from registered medical practitioners (male) for the post of Assistant Medical Officer to work under these Schemes. Salary £600 per annum, rising by annual increments of £25 to a maximum of £700, with travelling and out-of-pocket expenses on a fixed scale.

The salary will be subject to a deduction of 5 per cent. for superannuation under the Local Government and Other Officers Superannuation Act, 1922, and the candidate selected will be required to pass a medical examination.

Candidates must possess a Diploma in Public Health, and experience in Refraction work will be considered an important additional qualification.

Applications should be received on or before Saturday, July 27th, by the County Medical Officer of Health, College Hill House, Shrewsbury, from whom forms of application, conditions of appointment, list of duties, and any other information can be obtained.

Evelina Hospital for Children, Southwark, S.E.1.

The Committee of Management requires a HOUSE SURGEON (male) for eight months, from August 12th (during first four months duty in Casualty and Out-patient Department). Salary £120 per annum, with board and residence. Candidates, duly registered, to send applications, giving age, qualifications (with dates), and copies of four testimonials, to the undersigned at the Hospital, before July 26th. Applicants will be informed if they will be interviewed by the Medical Committee. Selected candidates must attend Committee of Management. Date of meeting will be notified by undersigned, from whom rules and other particulars relating to the post must be obtained.

By Order of the Committee of Management,
H. C. S. SMITH,
Secretary-Supt.

July 9th, 1929.

Preston and County of Lancaster Queen Victoria Royal Infirmary.

The Board of Management invites applications from unmarried gentlemen, doubly qualified and registered, for the post of HOUSE PHYSICIAN. Duties in Medical, Maternity, and Eye and Ear Wards. Six months' appointment.

Salary £150 per annum, with board, residence, and laundry.

Applications, stating age, qualifications, and experience, together with copies of recent testimonials, to be forwarded to the undersigned at once.

R[illegible] JOHN GIBSON,
and Secretary.

Preston and County of Lancaster Queen Victoria Royal Infirmary.

The Board of Management invite applications from unmarried gentlemen, duly qualified and registered, for the post of HOUSE SURGEON. Duties under Consulting Surgeon.

Salary £150 per annum, with board, residence, and laundry

Applications, stating age, qualifications, and experience, to be forwarded to the undersigned as soon as possible.

JOHN GIBSON,
Superintendent and Secretary.

Royal Infirmary, Preston.
June, 1929.

INDIAN MEDICAL SERVICE

Recruitment of European Officers.

Applications are invited from medical men for permanent commissions in H.M.'s Indian Medical Service. The terms offered include a gratuity of £1,000 on retirement after six years' service, or £2,500 after 12 years' service, together with free return passages, for those who no longer desire to remain in the Service In other respects the terms will be as detailed below.

Candidates must be British subjects under 32 years of age at the time of application, and must be registered under the Medical Acts in force in Great Britain and Northern Ireland.

CAREERS.

The Indian Medical Service offers wide opportunities of medical experience, including clinical, preventive, specialist, and research work. At the beginning of his career an officer is employed on the military side, which has medical charge of the Indian Army. Promotion is on a time scale up to the rank of Lieutenant-Colonel, and by selection to the ranks of Colonel and Major-General. An officer may apply after two years' Indian service for transfer to the civil side, from which appointments are made to Civil Surgeoncies, which are established at the principal civil centres to provide for the medical needs of civil officials and for general medical administrative purposes; to specialist (for example, public health and bacteriological) services; to research posts; and to professorships at the Medical Schools.

PAY.

The monthly rates of pay for European officers in the Service who have a "non-Asiatic" domicile are as follows:

Rank.	Service in Rank.	Basic Pay.	Overseas Pay.	Year of Total Service.
1	2	3	4	5
		Rs.	Rs.	
			150	1st
Lieut.		500	150	2nd
			150	3rd
			150	4th
Capt.	(i) During first 3 years' service as Captain	650	£15	5th
			£15	6th
			£25	7th
	(ii) With more than 3 and less than 6 yrs.' service as Captain	750	£25	8th
			£25	9th
			£25	10th
	(iii) With more than 6 years' service as Captain	850	£25	11th
			£30	12th
Major	(i) During first 3 years' service as Major	950		
	(ii) With more than 3 and less than 6 years' service as Major	1100		
	(iii) With more than 6 years' service as Major	1250		
Lieut.-Col.	(i) Until completion of 23 years' total service	1500	£30	13th and over
	(ii) During 24th and 25th years' service	1600		
	(iii) After completion of 25 years' total service	1700		
	(iv) When selected for increased pay	1850		

EXTRAS.—In addition to the above rates various allowances are admissible for a large number of special appointments on both the military and the civil side which may be held by members of the Indian Medical Service. Special high rates of pay are also attached to the numerous administrative appointments open to officers in both branches of the Service.

WAR SERVICE CONCESSIONS.

Any service rendered by an officer during the war as a medical or combatant officer, or in a position usually filled by an officer, may be counted as service for increments of pay, promotion, retirement and retired pay, but not for gratuity.

One half of any service in the ranks during the war may be counted as service for retirement and retired pay only.

OUTFIT ALLOWANCE.

Officers on appointment will receive an outfit allowance of £50.

PRIVATE PRACTICE.

With the exception of Administrative Officers, military or civil, and officers holding certain special appointments, officers are not debarred from taking private practice, so long as it does not interfere with their proper duties.

PENSIONS.

The rates of pension are as follows:

	Per annum. £
After 17 years' service for pension	400
,, 18 ,, ,, ,, ...	430
,, 19 ,, ,, ,, ...	460
,, 20 ,, ,, ,, ...	500
,, 21 ,, ,, ,, ...	540
,, 22 ,, ,, ,, ...	580
,, 23 ,, ,, ,, ...	620
,, 24 ,, ,, ,, ...	660
,, 25 ,, ,, ,, ...	700
,, 26 ,, ,, ,, ...	750
,, 27 ,, ,, ,, ...	800

These rates are subject to alteration on account of a rise or fall in the cost of living as compared with the year 1919 to an extent not exceeding 20 per cent. in all, the revision being undertaken triennially. With effect from July 1st, 1927, a reduction of 4½ per cent. has been made on this account from the amounts shown.

There are additional pensions ranging from £65 to £350 per annum for officers who have held administrative appointments.

PASSAGES.

An officer on appointment is provided with a free passage to India. The wives and families of officers who are married prior to the date of the officers' embarkation on first appointment will also be provided with free passage to India, subject to the payment of messing charges.

Officers and their families are also eligible for passage concessions under which they are granted a certain number of return passages home at Government expense during their service.

INSTRUCTION PRIOR TO EMBARKATION.

Officers are required to undergo courses of instruction at the Royal Army Medical College and at Aldershot, lasting approximately six months, prior to their embarkation for India on first appointment.

Full details regarding these appointments and forms of application may be obtained from the Under-Secretary of State for India, Military Department, India Office, London, S.W.1. Applications should be submitted as soon as possible. The Selection Committee will meet early in July to make nominations, and the selected candidates will be required to attend a course of instruction commencing on the 6th August, 1929.

ROYAL ARMY MEDICAL CORPS.

TWENTY-FIVE COMMISSIONS in the ROYAL ARMY MEDICAL CORPS will be offered in July, 1929. Applications should reach the War Office not later than July 20th.

Candidates will be selected for Commissions without competitive examination, and will be required to present themselves in London for interview and medical examination towards the end of July. They must be under 28 years of age on August 1st, 1929, and registered under the Medical Acts.

Officers of the R.A.M.C. are liable to serve in any part of the world where British Troops are quartered.

Ample opportunities exist in the Army for clinical professional work, both Medical and Surgical, as well as for the study and practice of Hygiene, Pathology, and all the special branches.

The cost of Post-Graduate study, which is compulsory, is met from Army Funds.

Pay and Allowances.—Pay from £500 to £2,000 a year according to rank and length of service.

Gratuities on Retirement.—After 7 years' service £1,000.
„ 15 „ „ £2,800.
„ 18 „ „ £3,500.

Current rates of retired pay range from £372 per annum normally earned by a Major after 20 years' service to £940 per annum, the maximum for which a Major-General is eligible. The rates of pay and retired pay are subject to periodical variation consequent on fluctuation in the cost of living.

Outfit Grant.—An officer on joining receives £50 as outfit allowance.

Marriage Allowance.—Officers of 30 years of age and over who are married are entitled to draw special rates of allowances.

A Voluntary Widows' and Orphans' Fund exists for officers of the Corps.

All particulars may be obtained by application, in writing or personally, to the Under Secretary of State, The War Office (A.M.D.1), Whitehall, London, S.W.1.

Cardiff Royal Infirmary.
(Associated with Welsh National School of Medicine.)

Applications are invited for the undermentioned posts:
Two HOUSE SURGEONS.
One HOUSE SURGEON (Surgical Unit).
Two HOUSE PHYSICIANS.
One HOUSE PHYSICIAN (Medical Unit).
One HOUSE SURGEON—Gynæcological.

Salary at the rate of £50 per annum, with board and lodging. Appointments are for six months as from August 20th, with the exception of one House Surgeon who will be required to commence duties on July 20th for a period of seven months.

Forms of application can be obtained from the undersigned, and should be returned, with copies of three recent testimonials, on or before July 29th. Applications for the seven months' appointment must be returned on or before July 15th.

R. H. ENOCH,
July 9th, 1929. Deputy Medical Supt.

Oldham Royal Infirmary.

Applications are invited for the undermentioned posts:
HOUSE SURGEON in charge of Women's and Children's Wards.
HOUSE SURGEON in charge of Male Wards.
HOUSE SURGEON in charge of Out-patients' and Special Departments (in this post a knowledge of Retractions is desirable).

Salary £175 in each case, with board, residence, and laundry. Appointments tenable for six months. Successful applicants may reapply for a further six months' service.

Applications, with copies of not more than three recent testimonials, to be forwarded to the undersigned immediately.

CHARLES D. DRAKE, Gen. Supt.

Kettering and District General Hospital.
(80 Beds)

Applications are invited for the post of JUNIOR HOUSE SURGEON. Salary £100 p.a., with board, residence, and washing. Candidates (male and unmarried) must be fully qualified and registered.

The appointment is for six months commencing from August 1st, but candidates will be eligible for re-election.

Applications, stating age, nationality, and qualifications, together with copies of three recent testimonials, to be sent to the undersigned on or before July 22nd.

H. J. LANCASTER, Secretary-Supt.
July 7th, 1929.

Tynemouth Victoria Jubilee Infirmary.

Two HOUSE SURGEONS (male or female) required September 1st. Applicants must be doubly qualified and registered. Salary £100 per annum, with board, residence, and laundry.

Applications, stating age and other essential particulars, and accompanied by copies of recent testimonials, to be addressed to the undersigned, from whom all particulars may obtained.

The Hospital has two resident House Surgeons and contains 80 beds and cots, an X-ray Department, and an Out-patient Department where accident cases are received.

1, Northumberland Place, T. E. ROWELL,
North Shields. Secretary.

King Edward VII Hospital, Windsor. (181 Beds.)

Applications are invited for the post of THIRD HOUSE SURGEON from August 1st to January 1st, 1930.

Applicants must be fully qualified women, and preferably have held a resident appointment in a General Hospital.

Salary at the rate of £100 per annum, with board, residence, and laundry allowance.

Applications, with copies of testimonials, to be sent not later than July 22nd to the Secretary.

Dundee Royal Infirmary.

The Directors invite applications for the office of VISITING MEDICAL OFFICER of the Department of Medical Diseases of Children.

Applications, with 20 copies of three testimonials, must reach the Secretary not later than Saturday, August 3rd.

Male Locum Tenens Medical Officer (resident)

required from August 5th to Sept. 30th. Seven guineas per week, and travelling expenses one way from London or equivalent distance. Must be active, healthy, and preferably under 40.—Apply, Medical Superintendent, ISLE OF WIGHT COUNTY MENTAL HOSPITAL, WHITECROFT, NEWPORT, ISLE OF WIGHT.

The Gloucestershire Royal Infirmary and Eye Institution, Gloucester. (145 Beds.)

Applications are invited for the post of SECOND HOUSE SURGEON (male). Salary £100 per annum, with board, residence, and laundry. (Four Resident Medical Officers.)

The appointment is for six months, which may be extended for similar periods by re-election from time to time.

Applications, stating age, qualifications, and nationality, with copies of not less than three recent testimonials, must be received by the undersigned not later than Wednesday, July 17th. The elected candidate will be required to enter upon his duties at once.

F. J. SYMONS,
July 10th, 1929. Secretary.

Princess Alice Memorial Hospital, Eastbourne. (96 Beds.)

Applications are invited for the post of JUNIOR HOUSE SURGEON (male), rising to SENIOR after three months, subject to satisfactory performance of duties. Candidates must be unmarried, fully qualified, and registered. The appointment is for six months commencing August 1st. Salary at the rate of £100 per annum as Junior, £125 as Senior, together with board, lodging, and laundry.

Applications, stating age and qualifications, and accompanied by copies of not more than three recent testimonials (one of which must be from Medical School) should reach the Secretary not later than July 18th.

Bootle Borough Hospital
(General, 100 Beds),
Derby Road, BOOTLE.

Applications are invited from medical men for the posts of SENIOR MEDICAL OFFICER and Two JUNIOR MEDICAL OFFICERS for the period ending March 31st, 1930. Salaries at the rate of £150 per annum Senior Officer, £125 per annum each Junior Officer, with board, residence, and laundry.

Duties to commence October 1st. Applications, stating age and qualifications, with copies of testimonials, to be sent to the undersigned on or before July 26th.

J. A. BEARDSALL, Secretary-Supt.

The Royal Hospital, Wolverhampton.
(Incorporated under Charter.)

The Board [illegible] out to appoint Two [illegible] to the Ear, Throat, [illegible]. The Surgeons appointed must agree to reside in Wolverhampton and will be debarred from General Practice.

The Department is a large one and is rapidly growing.

Applications, stating qualifications and experience, should be forwarded to the undersigned.

Wolverhampton. W. H. HARPER,
July 12th, 1929. House Gov. & Sec.

Guy's Hospital Venereal Diseases Clinic.

Three MEDICAL OFFICERS (female) required. Duties to commence on October 1st. Honorarium at the rate of £365 per annum. Particulars of duties and hours of attendance may be obtained from the Superintendent, Guy's Hospital, S.E.1.

Applications, with copies of not more than three testimonials, should be sent to the Treasurer, Superintendent's Office, Guy's Hospital, not later than Saturday, July 20th.

Burton-on-Trent General Infirmary.

HOUSE SURGEON.

The Committee require the services of a duly qualified Second Resident House Surgeon (male). Salary £150, with board and furnished quarters. Duties to commence August 1st.

Applications, stating age and experience, and accompanied by copies of testimonials, to be sent to the undersigned.

The Infirmary, E. W. THORNLEY,
Burton-on-Trent. Secretary.

St. Thomas's Hospital.

VACANCIES.

Appointment of Three MEDICAL REGISTRARS, who will be appointed for one year and be eligible for re-appointment annually for a total period of three years at a salary of £250, rising by £25 per annum to £300 per annum.

Applications, accompanied by testimonials and full academic record, should be sent to the Dean's Office at the Hospital not later than Wednesday, July 24th.

Worcester County and City Mental Hospital, Powick, near Worcester.

JUNIOR ASSISTANT MEDICAL OFFICER (male, single) required. Candidates must be duly qualified in Medicine and Surgery, and should be able to undertake clinical laboratory work. Salary £350 per annum, rising by two annual increments of £25 to £400 per annum, with furnished apartments, board, laundry, and attendance. The appointment is subject to the provisions of the [illegible] Act, 1909.

[illegible] together with [illegible] to be sent to the Medical Superintendent not later than Wednesday, July 24th.

Wrexham & East Denbighshire War Memorial Hospital.
(105 Beds.)

RESIDENT HOUSE SURGEON (male) required at above Hospital, to commence on August 1st. Appointment is for a period of not less than six months. Salary £150 per annum, with board and laundry.

Applications, stating age, nationality, experience, and qualifications, accompanied by copies of three recent testimonials, to be sent to the undersigned not later than Saturday, July 20th.

LESLIE SPENCER,
July 8th, 1929. Secretary.

St. Mary's Hospital for Women and Children, Plaistow, E.13.

Applications are invited for the posts of RESIDENT and ASSISTANT RESIDENT MEDICAL OFFICERS (vacant September 1st), male or female. The appointments are for six months. Board, residence, and laundry are provided. Salaries at the rate of £175 and £125 per annum respectively. The duties of the Resident Medical Officer are mainly surgical and those of the Assistant Resident Medical Officer mainly medical. Personal canvassing not desired. Applications, with copies of three recent testimonials, to be sent to the undersigned not later than July 23rd.

A. ERNEST WILKES, Secretary.

West End Hospital for Nervous Diseases.
(In-Patient Dept., Gloucester Gate, Regent's Park, N.W.1.)

The Committee of Management invites applications from British male candidates for the vacancy of JUNIOR HOUSE PHYSICIAN to start duty August 1st. Salary £100, with board, residence, and laundry. Appointment in first instance for six months. Applications, with copies of three testimonials, must be received by the undersigned not later than July 22nd.

J. P. WETENHALL, Secretary.
73, Welbeck Street, W.1.

The Prince of Wales's General Hospital, Tottenham, N.15.

Applications are invited for the post of HONORARY ASSISTANT PHYSICIAN.

Candidates must be Graduates in Medicine of a recognized British University, Fellows or Members of the Royal College of Physicians of London, and engaged in the practice of Medicine only.

Applications, stating age, qualifications, and accompanied by copies of three recent testimonials, must be sent in by the first post on Monday, July 22nd next.

FREDR. W. DREWETT,
July 6th, 1929. Director.

Worthing Hospital.
(78 Beds.)

Applications are invited for the post of HOUSE SURGEON, vacant July 23rd. The appointment is for six months, renewable. Salary at the rate of £150 per annum, with board, lodging, and washing.

Applications, stating age, qualifications, and experience, with copies of testimonials, to be sent to the Secretary at once.

A. O. KAYE.
Worthing Hospital. Secretary.

Swansea Hospital.
(316 Beds.)

CASUALTY OFFICER wanted, gentleman, single. Salary £150, with board, residence, and laundry. Duties to commence August 1st.

Applications, stating age, nationality, qualifications, and experience, with copies of three recent testimonials, to be forwarded to the undersigned.

O. C. HOWELLS, Secretary.

APPOINTMENTS—Important Notice.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

(a) British Islands.

Town or District.	Town or District.	Town or District.
CONTRACT PRACTICE.	**CONTRACT PRACTICE** *(Contd.)*.	**PUBLIC HEALTH** *(continued)*.
EBBW VALE, MON. *(Workmen's Medical Society.)*	NEATH AND DISTRICT. *(Medical Aid Association.)*	DOWN COUNTY COUNCIL. *(Assistant Tuberculosis Medical Officer.)*
GILFACH GOCH, GLAMORGAN. *(Workmen's Medical Scheme.)*	OAKDALE, MON. *(Medical Officer for Medical Aid Association.)*	GLASGOW EDUCATION AUTHORITY. *(Male Assistant Medical Officer.)*
LLWYNYPIA, CLYDACH VALE PENYGRAIG, GLAMORGAN. *(Workmen's Medical Scheme.)*	OGMORE VALLEY, GLAMORGAN. *(Wyndham Colliery Medical Aid Society.)* *(Workmen's Medical Scheme.)*	SOUTH SHIELDS COUNTY BOROUGH. *(Assistant Medical Officer.)*
MARDY, GLAMORGAN. *(Workmen's Medical Scheme.)*	**PUBLIC HEALTH.**	YORKSHIRE NORTH RIDING COUNTY COUNCIL EDUCATION COMMITTEE. *(Assistant School Medical Officer.)*
	CORNWALL EDUCATION COMMITTEE. *(Assistant School Medical Officer—Female.)*	YORKSHIRE WEST RIDING COUNTY COUNCIL. *(School Medical Inspector.)*

(b) Colonial Medical Service.—

WINDWARD ISLANDS MEDICAL SERVICE. (Grenada with Carriacou, St. Vincent and St. Lucia.)

(c) Overseas.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.
NEW SOUTH WALES. *(All Friendly Society Appointments.)*	Dr. R. H. TODD (Hon. Sec., New South Wales Branch), B.M.A. Building, 30-34, Elizabeth St., Sydney, N.S.W.	VICTORIA. *(All Institute or Medical Dispensaries.)*	Dr. FRANK DAVIES (Hon. Sec., Victorian Branch), British Medical Association, Medical Society Hall, East Melbourne, Victoria.	WESTERN AUSTRALIA. *(Contract and Lodge Practice.)*	Hon. Sec., Western Australian Branch, British Medical Association, No. 6, Bank of N.S.W. Chambers, St. George's Terr., Perth, Western Australia.
QUEENSLAND. *(Brisbane Associated Friendly Societies Institute.)*	Dr. E. S. MEYERS (Hon. Sec., Queensland Branch), British Medical Association, Adelaide St., Brisbane.	WELLINGTON, NEW ZEALAND. *(Contract Practice Appointments.)*	Dr. G. F. V. ANSON (Hon. Sec., New Zealand Branch), British Medical Association, P.O. Box 156, Wellington, New Zealand.		

Address: B.M.A. House, Tavistock Square, W.C.1.
July 10th, 1929.

By Order of the Council of the British Medical Association.
ALFRED COX, Medical Secretary.

Bristol Royal Infirmary.

Applications are invited for the following resident appointments for the six months commencing September 1st.

2 HOUSE PHYSICIANS.
4 HOUSE SURGEONS.
1 HOUSE PHYSICIAN to the Cancer Research Department.
1 HOUSE SURGEON to the Ear, Nose, and Throat Department.
1 HOUSE SURGEON to the Gynaecological and Ophthalmic Departments.
1 OBSTETRIC HOUSE PHYSICIAN.
1 CASUALTY HOUSE SURGEON.
1 ASSISTANT HOUSE SURGEON and H.S. to the Dermatological Department.

Salary at the rate of £60 per annum, with board, apartments, and laundry, except in the case of the Casualty House Surgeon, when the salary will be at the rate of £80 per annum, with board, apartments, and laundry.

1 DENTAL HOUSE SURGEON.

If resident, salary at the rate of £80 per annum, but if non-resident, salary at the rate of £116 per annum, with board.

Candidates, who must be duly qualified, to send in their applications, stating age, together with copies of not more than three testimonials, to the undersigned on or before Saturday, July 20th.

ELLIS C. SMITH, F.C.I.S.,
Secretary and House Governor.

Bristol Royal Infirmary.

Applications are invited for the post of SENIOR RESIDENT MEDICAL OFFICER. The appointment to date as from September 1st next. Salary at the rate of £200 per annum, together with board, apartments, and laundry. Candidates, who must be qualified, to send in their applications, stating age, together with copies of not more than three testimonials, to the undersigned on or before Saturday, July 20th.

ELLIS C. SMITH, F.C.I.S.,
Secretary and House Governor.

Nottingham General Hospital.

(377 Beds.)

A HOUSE SURGEON (male) is required for the Ear, Nose, and Throat Department (40 beds).

The appointment is for six months, with salary at the rate of £150 a year, with board, residence, and laundry.

Candidates are desired to send applications giving age, experience, and qualifications, together with copies of testimonials, to the undersigned not later than Wednesday, July 17th.

The appointment will be made on July 24th, and the successful candidate will be expected to commence duty on Saturday, July 27th.

P. M. MACCOLL,
House Governor and Secretary.

Nottingham General Hospital.

(377 Beds.)

A HOUSE SURGEON (male) is required at the above Institution. The appointment is for six months, with salary at the rate of £150 a year, with board, residence, and laundry.

Candidates are desired to send applications giving age, experience, and qualifications, together with copies of testimonials, to the undersigned not later than Wednesday, July 17th.

The appointment will be made on July 24th, and the successful candidate will be expected to commence duty on Saturday, August 10th.

P. M. MACCOLL,
House Governor and Secretary.

Rotherham Hospital.

Wanted, SENIOR HOUSE SURGEON (male), qualified. A knowledge of Eye work is desirable. Salary £200, with board, lodgings, and washing.

Applications, with copies of recent testimonials, to be sent to the Secretary, G. W. ROBERTS, 8, Moorgate Street, Rotherham.

Royal Sussex County Hospital,

BRIGHTON.

(225 Beds.)

HOUSE SURGEON (male) required about the middle of August, with charge of beds, part casualties, and anaesthetics.

Salary £150 per annum, with board, residence, and laundry.

Candidates must hold Medical and Surgical qualifications of the British Empire, and be duly registered under the Medical Acts.

They must be unmarried, and when elected under 30 years of age. Applications, with copies of testimonials, should be sent immediately to the undersigned.

L. L. W. LANCASTER-GAYE,
Secretary-Superintendent.

General Hospital, Gt. Yarmouth.

(72 Beds.)

Applications are invited for the post of JUNIOR HOUSE SURGEON. Salary £100 per annum, with board, residence, and laundry. Candidates (male and unmarried) must be fully qualified and registered.

Applications, stating age, nationality, and qualifications, together with copies of three recent testimonials, to be sent immediately to the undersigned.

T. H. G. GARTLAND, Secretary.

The Royal Waterloo Hospital for

CHILDREN AND WOMEN,
Waterloo Road, S.E.1.

Applications are invited from qualified male practitioners for the following post, vacant on August 1st: A CASUALTY OFFICER, to work in the Out-Patient Department on week-days, at £150 per annum, lunch and tea provided. Applications, with copies of testimonials, should be forwarded by Tuesday morning, July 16th, to the Secretary at the Hospital, from whom further particulars can be obtained.

British Medical Journal,
BRITISH MEDICAL ASSOCIATION HOUSE,
TAVISTOCK SQ., LONDON, W.C.1.
T/A: ARTICULATE, WESTCENT, LONDON.
Tel.: MUSEUM 9861 (4 lines).

SMALL ADVERTISEMENT RATES.

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(Address included.)

Sixpence should be added if replies to a box number are to be posted.

All advertisements must be received not later than first post Tuesday previous to date of publication.

ASSISTANCIES.

Wanted immediately, outdoor male ASSISTANT for Notts Practice. Salary £400 first year, with suitable house, rates and light, rising £50 per annum to £600. —Address, No. 4302, B.M.A. House, Tavistock Square, W.C.1.

Wanted immediately, Indoor and Outdoor ASSISTANTS (male), with and without view. Also LOCUM TENENS. Good salaries offered. State full particulars.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester

Wanted immediately, outdoor male ASSISTANT for Colliery Practice in Glamorganshire. Would suit recently qualified man. Salary £350, with rooms and attendance.—Address, No. 4314, B.M.A. House, Tavistock Square, W.C.1.

Wanted immediately, full-time ASSISTANT (male), British, under 40. —Apply personally 11 a.m. at 103, Bethnal Green Road, E.2.

Wanted immediately, indoor male ASSISTANT for Yorkshire Practice, preferably with own car. Salary £350, rising to £400 if suitable.—Address, No. 4301, B.M.A. House, Tavistock Square, W.C.1.

Wanted at once, Assistant, part-time preferred as work very light. Suitable post in which to read for higher degree. Good-class Country Practice. Photo. if possible. —Address, No. 4238, B.M.A. House, Tavistock Square, W.C.1.

Wanted, September, Assistant, male and unmarried, for General Practice in South of England. Ex-Resident, motor cyclist. Commencing salary £400 p.a. outdoor.—Address, No. 4222, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—Outdoor ASSISTANTSHIP by experienced G.P. Middle-aged; hard worker; total abstainer. Reliable, British. Take sole charge Free now.—Add., No. 4233, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—Assistant, London area; salary £300; furnished rooms, electric light, and coal. Usual bond.—Address, with full particulars, No. 4220, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—Young unmarried male indoor ASSISTANT for 12 months. Usual bond, etc. Initial salary £250, all found. Near Manchester.—Address, No. 4306, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Lady Assistant, for mixed London Practice. Edinburgh Graduate preferred. State full particulars.—Address, No. 4226, B.M.A. House, Tavistock Square, W.C.1.

Wanted, an indoor Assistant in a South Wales port. Salary £300 p.a. Usual bond, and testimonials required. Abstainer preferred.—Address, No. 4203, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Indoor Assistant, single, male, used to panel and private practice. Salary £300 per annum. Give references, etc.—Address, No. 4228, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Married Assistant, outdoor (house available), with definite view to Partnership. Mixed Practice, near Newcastle-on-Tyne. Must have experience in G.P. Salary £400. Abstainer pref. Photo, testimonials. —No. 4181, B.M.A. House, Tavistock Sq., W.C.1.

Wanted.-Indoor Assistant, male, young, single, English or Scotch, Protestant. Salary £300, with experience. View to suitable man. Keen and energetic. Country town. —Address, No. 4223, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—Assistant, male (outdoor), with view to Partnership. Private and panel Practice, West London Suburb. Salary £400 per annum. House, rent free.—Address, No. 4315, B.M.A. House, Tavistock Square, W.C.1.

Wanted, male outdoor Assistant for industrial Practice near Birmingham. £300, all found. Usual bond. Photo, etc.—Address, No. 4303, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Outdoor Assistant, preferably with Dental degree, for Practice near Manchester. Salary £400 p.a. State full particulars.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Wanted.—Indoor Assistantship by Woman M.B., Ch.B.Edin., four years' experience general practice, private and panel, dispensing, book-keeping, Public Health, Fevers. Keen on Refractions.—Address, No. 4304, B.M.A. House, Tavistock Square, W.C.1.

Wanted by Woman M.B., B.Ch., B.A.O., LIGHT or PART-TIME ASSISTANTSHIP, Birmingham, preferably commencing October, view D.P.H. Five years' excellent experience G.P., midwifery, anæsthetics, sanatorium, eyes. Cyclist, small car. Interview. —No. 4213, B.M.A. House, Tavistock Sq, W.C.1.

Assistantship wanted in September by Woman M.B., B.Ch. Over a year's experience of general practice. Keen on experience. Cyclist or can drive car. —Address, No. 4305, B.M.A. House, Tavistock Square, W.C.1.

MEDICAL POSTS, DISPENSERS, etc.

Wanted.—Two fully qualified DOCTORS for service in the Tropics. Preferably ex House Surgeons or Physicians. Agreement for three years on salary £850, £900, £950. Renewable on higher terms. Free furnished quarters and first-class passages provided. Candidates must be unmarried. Ladies not eligible.—Address, with copies of *testimonials (not returnable)*, No. 4312, B.M.A. House, Tavistock Square, W.C.1.

A Lady Dispenser-Bookkeeper supplied immediately on request, qualified and with practical experience in private practice and dispensary work, also trained in Bacteriological Laboratories of the LONDON COLLEGE OF PHARMACY FOR LADIES. Preparation for Examinations.—Write, wire, or 'phone (Park 0969), Secretary, 7, Westbourne Park Road, W.2.

Dispensers supplied to Doctors at short notice, without fee. Qualified and exper. in priv. and panel prac. Perm. and part-time Bookkeeper-Dispensers, Secretary-Dispensers, Nurse-Dispensers, and Chauffeuse-Dispensers.—Write, wire, or 'phone Central 3679, THE RELIANCE BUREAU FOR DISPENSERS, 87, Holborn Viaduct House, 12, Holb. Viad. E.C.1.

Doctors requiring qualified Dispensers, Nurse Dispensers, Secretary Dispensers or Chauffeuse Dispensers, are invited to write, wire, or 'phone Gerrard 2699, THE DISPENSERS' BUREAU, 145, Shaftesbury Avenue, London, W.C.2.

Doctor's Widow is willing to FURNISH waiting room and surgery, and act as RECEPTIONIST for Doctor or Dentist, or both. London or Home Counties preferred.—No. 4317, B.M.A. House, Tavistock Sq., W.C.1.

M.R.C.P., M.B., B.S.(Lond.), Barts. man, ample Clinical and Hospital experience, including 8 years' coaching in medicine in London, requires a BILLET.—Add., No. 4209A, B.M.A. House, Tavistock Sq., W.C.1.

Typewriting.—Expert undertakes Theses, Testimonials, etc. Numerous letters of appreciation from Doctors.—Write or 'Phone: BEATRICE RADFORD, 27, Buckland Crescent, Swiss Cottage, London, N.W.3. Primrose Hill 0803.

Pathological and Bacterial[illegible] LABORATION.—Pathology SKILLED ASSISTANTS a[illegible] H. GOODING, Ho[illegible] Grove, Victoria

Pathologist. — Young American M.D. staying in England for an extended length of time offers his SERVICES to some *hospital in or about London. Excellently* trained in all branches of pathology, with exceptional references. Asks no honorarium if board be given. — Address, No. 4109, B.M.A. House, Tavistock Square, W.C.1.

The Services of a Medical Man, EXPERIENCED in the MANUFACTURE of THERAPEUTIC SERA and ALLIED PRODUCTS, are required to control the production of, and undertake research into, these products, at Evans' Biological Institute, Runcorn, Cheshire. Every facility is available for the carrying out of such work in congen[illegible] up-to-date [illegible] Applicati[illegible] accompani[illegible] monials, should be addressed to the Chairman of Directors, EVANS SONS LESCHER & WEBB, Ltd., 56, Hanover Street, Liverpool.

LOCUMS.

HOLIDAY LOCUMS.

THE MEDICAL AGENCY has pleasure in announcing that lists are now being prepared for Locum engagements for the forthcoming Holiday Season. Principals requiring a RELIABLE SUBSTITUTE are advised to make early application.—Address, W. H. GRANT, The Medical Agency, Watergate House, Adelphi, W.C.1. Tel.: Gerrard 8954 and Riverside 1254 (night calls).

Wanted. — Locum by M.B., Ch.B., æt. 39. Panel Practice near London preferred. Free now. Single, Protestant, abstainer, own car. At present resident in London. — Address, No. 4217, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Locum (male or female), August, 3 to 4 weeks, Midlands. State experience and other essential particulars. —Address, No. 4206, B.M.A. House, Tavistock Square, W.C.1.

Doctor with own Practice near London requires Seaside LOCUM, first fortnight September. Hospitality for wife, and five guineas per week. No midwifery. Will use own car. — Address, No. 4215, B.M.A. House, Tavistock Square, W.C.1.

Experienced Medical Man is now disengaged for LOCUM WORK or ASSISTANCY. Bachelor, cyclist, and abstainer. Terms 6 guineas per week and travelling expenses. — Address, No. 4318, B.M.A. House, Tavistock Square, W.C.1.

Locum wanted for last two weeks in July, male or female, single. Succession possible. £7 7s. per week.—Address, No. 4204, B.M.A. House, Tavistock Square, W.C.1.

Locum, M.B., Ch.B.; free now; ex H.S. and H.P.; well experienced in private and panel practice.—Address, No. 4211, B.M.A. House, Tavistock Square, W.C.1.

Locum Tenens or Outdoor ASSISTANT, married man (50), free for locum or permanent work. Highest qualifications and all-round private and hospital experience. — Address, No. 4313, B.M.A. House, Tavistock Square, W.C.1.

Locum wanted by Woman M.B., B.S. Several years' experience general practice, private and panel. Excellent refs. Free in London till August 16th. 'Phone: Temple Bar 8620.—Address, No. 4218, B.M.A. House, Tavistock Square, W.C.1.

Locum Tenens.—Now available, experienced G.P., qual. 1907. English. St. Barts. Recent references available.—Apply, stating terms, LOCUM, The Red House, Lancing, Sussex. 'Phone: Lancing 57.

Locum wanted from July 16th for three weeks, by M.B., aged 30. Ex H.S., H.P., R.M.O. Experienced in private and panel work. Abstainer. Southampton or Bournemouth districts preferred, but not essential.—Address, No. 4227, B.M.A. House, Tavistock Square, W.C.1.

FOR LOCUM TENENS APPLY TO Mr. PERCIVAL TURNER, Ltd.
The oldest and only Agent who for 40 years has supplied substitutes at short notice without fee to principals.
4, ADAM ST., Strand, London, W.C.2.
Teleg.: "Epsomian, Lond." 'Phone: Gerrard 0399

Malaya. — Locum Tenens, with Tropical experience, for 15 months from October. £80 p.m., with passages, free quarters, car and allowance. Healthy social centre. Further work similar terms at close of engagement if desired. Necessary for home appointee sail early September.
Fullest particulars for interview either end to (in East) Box 869, "Straits Times," Singapore, or (in West) No. 4219, B.M.A. House, Tavistock Square, W.C.1.

Woman M.B. wants Locums in July. Free now. Can drive car. Experienced.—Address, Dr. O'CALLAGHAN, Frampton-on-Severn, Gloucester.

PARTNERSHIPS.

Wanted.—Partner or Assistant, with view succession, in very old-estab. Practice in N.E. Lond. The approved candidate should have knowl. of Eye work, and will be admitted on exceptionally favourable terms re pay. —No. 4309, B.M.A. House, Tavistock Sq., W.C.1.

Wanted.—Partnership in or near Edinburgh, by M.B., Ch.B. (Edin.). Male, single, aged 29. Two years' Hospital experience. Capital available.—Address, No. 4307, B.M.A. House, Tavistock Square, W.C.1.

Bradford, Yorks.—Partnership in old-established PRACTICE doing over £3,000 yearly. Good house, garden, garage. £50 per annum. Panel 2,050. Price (quarter share to commence) 2 years' purchase, part deferred.—MANCHESTER MEDICAL AND SCHOLASTIC ASSOCIATION, 6, Brown Street.

Experienced Lady Partner wanted for cash and panel Practice London, S.E. Capital required £1,200 —Address, No. 4234, B.M.A. House, Tavistock Square, W.C.1.

Lancashire Town.—Partnership. —Half share in old-estab. Practice. Average cash receipts £3,000. Panel 2,516. Excellent house for sale, 5 bedrooms, garage, and garden. Price £1,000. Premium—Practice—1½ years' purchase.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Lancs Seaside Resort.—Partner wanted in sound Practice. Income over £3,000 p.a. Good opening for Surgeon possessing all-round ability. Excellent house to rent, with ample accommodation. Premium—one-third share—1¾ years' purchase. — BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Partnership, 1/3 to 1/2 share, offered in Surrey, within 10 miles of London, to a Doctor (preferably Scotch). Cash receipts average £2,500, panel of 1,300. Visits from 3/6 to 15/6. Beautiful district, population of 64,000. Incoming Partner must have plenty of [illegible] antship. University [illegible]). 3528, B.M.A. Hou[illegible]

Partnership. — Doctor about to open Branch Surgery requires PARTNER. Practice about 12 miles from Piccadilly, estab. 5 months. Average cash receipts from inception £12 per week. Panel about 60. Two years' purchase for just under half share.—Address, No. 4216, B.M.A. House, Tavistock Sq., W.C.1.

PRACTICES.

Wanted at once, by M.R.C.S., L.R.C.P., PRACTICE (with or without panel with guide Capt House

Wanted, by experienced Practitioner, PRACTICE of at out £2,000,

Wanted, in Southern or South-Western County (Devon preferred but not essential), a medium-sized GENERAL PRACTICE or PARTNERSHIP. Ample capital available for immediate cash settlement. Replies will be treated in strict confidence and should be sent to Mr. C. S. MOORES, 15, Bedford Circus, Exeter.

Wanted. — Practice in London, with good panel. Income £1,700 £3,500. Can wait up to twelve months if necessary. Ample capital. No agents.—Address, No. 3862, B.M.A. House, Tavistock Square, W.C.1

Wanted.—We have innumerable applicants for sound investments in all districts, incomes from £600 to £4,000, with and without panel. Correspondence invited from prospective Vendors. — THE MEDICAL AGENCY (W. H. Grant), Watergate House, 15, York Buildings, Adelphi, W.C.2.

Wanted. — Large non-panel PRACTICE in Winchester, Cheltenham, or similar town, producing not less than £2,000 per annum. House with 6 bedrooms and garden desired, preferably to rent. Advertiser has necessary capital and is free to negotiate.—No. 3415, B.M.A. House, Tavistock Sq., W.C.1.

Wanted by M.D.Cantab., F.R.C.S.Eng., Public School, better-class PRACTICE or PARTNERSHIP, within 100 miles London, or good-class suburb. Ample capital. —Address, No. 1505, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—Practice, with good panel, about £1,100 p.a., in pleasant Town, Midland or South preferred. Private advertisement. — Address, No. 4319, B.M.A. House, Tavistock Square, W.C.1.

Cheshire Town, nr. Manchester.—Cash receipts £500. Scope. Panel 700. Good house in excellent position, 6 bedrooms, 3 reception rooms, garage. Premium—Practice, house, drugs, surgery fittings, etc.—£1,400; part on mortgage.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Death Vacancy, Norfolk.—Good-class PRACTICE. Cash receipts 1928-29, £1,340, including income of £174 from appointments. Panel 954. Excellent house, cottage, and garden, freehold.—PURDY & HOLLEY, Solicitors, Aylsham.

Death Vacancy.—Lancs Town.—Old-estab. PRACTICE. Average cash receipts £1,500. Panel 800. Good house to rent, 2 reception rooms, 4 bedrooms. Garage. Premium 1 year's purchase.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

For Disposal.—A good Practice is not always to be had directly, but Mr. PERCIVAL TURNER can generally offer applicants something suitable. Nearly all the best Practices are sold by him without being advertised. Inform. free on applic.—4, Adam St., W.C.2.

For Sale.—Branch Surgery in Lancashire. Was original surgery over 40 years. Panel 2,500, can be increased. Average cash receipts £3,000.—Address, No. 4201, B.M.A. House, Tavistock Square, W.C.1.

For Sale, N.W. Midlands Practice (County Town). Receipts for 1928 over £1,500, and rapidly increasing. Scope for surgery if desired. Visits 7/6—10/6. House to rent, with garden. Prem. 1½ years' purchase. —No. 4208, B.M.A. House, Tavistock Sq., W.C.1.

Lancs Town, near Manchester.—Average cash receipts £1,002. Panel 1,330. Good house to rent in main street, 4 bedrooms, 2 reception rooms, garage. Premium 1½ years' purchase.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

London Suburb.—Practice yielding £900. Visits 3/6, 5/-; cons. 3/6, 5/-. Panel 125, but good scope. House, with garage, main road, best position, £1,100. Premium £1,100.—Address, No. 2905, B.M.A. House, Tavistock Square, W.C.1.

London, S.E. — Mixed-class cash and panel PRACTICE. Receipts about £1,200 per annum. Nice house, rent £90 long lease. Vendor going abroad. Premium £2,000. —Apply, PEACOCK & HADLEY Ltd., 19, Craven Street, Strand, W.C.2.

Lancs Coast Resort.—Old-estab. PRACTICE. Average cash receipts £1,100. Panel 550. Scope. Modern house (freehold) for sale, containing 2 reception rooms, 5 bedrooms, garage, and garden. Premium—Practice—1½ years' purchase.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

London, S.E.—Cash and panel PRACTICE. Receipts at the rate of over [illegible] ad living accommodation £1,500. Good opportunity for [illegible] or.—Apply, PEACOCK & Street, Strand, W.C.2.

London Suburb.—Increasing cash and panel PRACTICE. Income £450. Panel 300. Compact house. Moderate rent, on lease. P[illegible] plete fu[illegible] No. 422

Lancs Town.—Half Share in excellent Practice. Average cash receipts £3,250. Panel 3,750. Good house, 3 bedrooms, 2 reception rooms. Garage and garden. Rent £35 p.a. Premium 1½ years' purchase.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

London, N.—Old-established mixed PRACTICE. Average receipts £700 a year, fair panel. Very nice house for sale, but might be rented. Premium £1,200. Vendor going abroad.—Apply, PEACOCK & HADLEY Ltd., 19, Craven Street, Strand, W.C.2.

Manchester. — Well-established, in populous district. Good house, front garden, garage, rent £84. Receipts over £700; panel more than 600. Great scope. Price 1½ years' purchase, part deferred.—MANCHESTER MEDICAL & SCHOLASTIC ASSOCIATION, 6 Brown St.

Manchester.—Old-estab. Practice Av. cash receipts £2,523. Panel 1,021. Prominent house, 6 bedrooms, garden, and garage. Premium 1½ years' purchase. A preliminary partnership might be arranged.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Midlands. — Country Practice, yielding £1,000. Panel 560. Convenient house, 5 bedrooms, electric light, garden, garage; rent £85, or sale. Premium for Practice £1,350. — Address, No. 4230, B.M.A. House, Tavistock Square, W.C.1.

Medical Practice for Disposal.—West Coast, Scotland (about three hours from Glasgow in ideal district). Exceptional opportunity for man of experience to secure old-established, large, and valuable first-class PRACTICE. Present owner retiring from general practice. Excellent house and grounds, garage and chauffeur's house, electric light, all included in sale. — Address, No. 4310, B.M.A. House, Tavistock Square, W.C.1.

Nr. Chester.—Practice. Cash receipts 1928, £600. Panel 440. Scope. Nice modern house to rent., 2 enter., 3 bedrooms. Garden and garage. Premium £650 cash (to include surgery furniture and drugs).—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Northern Heights (London). —Increasing PRACTICE of £700, situate in pleasant residential district, for prompt sale, with good corner house (built for doctor 25 years ag), garden and garage.—Details of HERBERT NEEDES, 31, Bedford Street, Strand, W.C.2.

Nucleus for Sale or Exchange. —Mostly working-class cash Practice. One hour London. Exceptional scope. Has been worked from rooms. Purchaser taking small house would do better. Price £100. — Address No. 4231, B.M.A. House, Tavistock Square, W.C.1.

North Wales Coast.—Good-class PRACTICE. Cash receipts 1928, £1,749. Panel 715. Excellent modern house to rent, 4 bedrooms. Garden; also well-fitted surgery and garage. Good scope. Premium 1½ years' purchase.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Practice wanted.—Panel over 1,500. Income over £1,500 Cash available. No agents.—Address, No. 4225, B.M.A. House, Tavistock Square, W.C.1.

Streatham, Wimbledon, Putney. —Wanted in any one of above districts, good-class non-panel PRACTICE. Income £500 —£1,000 p.a. Cash available.—Address, No. 4214, B.M.A. House, Tavistock Square, W.C.1.

To Purchasers. — Do not buy without expert assistance. With 40 yrs.' experience Mr. PERCIVAL TURNER can advise in all cases. Terms free on application to 4, Adam St., Strand, W.C.2. Telephone: Gerrard 0399. Telegrams: "Epsomian, London."

West Riding Industrial City. —Old-establ shed mixed PRACTICE for sale. Panel 2 500. Average receipts last three years £2.600. Premium 1½ years' purcha e, by arrangement. Good family house, with garage, for sale with Practice. Good introduction. No agents. Sound investment for energetic man.—Address, No. 4229, B.M.A. House, Tavistock Square, W.C.1.

Wirral. — Good-class Practice, established 3 years, excellent scope; growing residential area. Panel 66, appointment £150, panel could be greatly increased. Semi-detached house, gardens, garage, £1,450. —No. 4212, B.M.A. House, Tavistock Sq., W.C.1.

HOUSES, CONSULTING ROOMS.

A Doctor is needed in rapidly developing district. The only suitable HOUSE available is "The Elms," Slough Lane,

Consulting Rooms to Let.— Harley Street and District. Whole or part-time. Lists sent on application.—ELWOOD & Co., 10, Henrietta Street, Cavendish Square, W 1. Mayfa r 5659

Consulting Rooms (whole or part-time, with or without plate) will shortly be available in Doctor's house in Harley Street district.—Full particulars from No. 4235, B.M.A. House, Tavistock Square, W.C.1

Consulting Room, Wimpole Street, W.1. Large beautiful ground floor room, furnished. Four half days a week, with plate, 120 gns. per annum —BM/BOL4, London, W C.1.

Eastbourne, West End.— Suitable for Doctor Within easy distance of the sea front and Royal Eastbourne Golf Links. RESIDENCE containing three reception rooms, nine bedrooms bathroom, and servants' hall. Pleasant garden. For Sale, Freehold.—Apply, OAKDEN & Co., Estate Agents, Eastbourne.

Glamorganshire. — Freehold RESIDENCE, standing in its own grounds (about ¾ acre), for sale. Good garden, tennis lawn; gas and electric. Excellent opportunity to an energetic Medical Man. Densely populated district—large iron and steel works, also big mining population. Applications treated confidentially.—Address, No. 4224. B.M A. House, Tavistock Square, W.C.

Harley Street. — Consultant wants EXTRA BEDROOM (furnished or unfurnished) in Harley Street. State if large or small, and rent required.—Address, No. 4207, B.M.A. House, Tavistock Square, W.C 1.

Stanmore, Middx.—Suit Doctor or NURSING HOME, etc. — FREEHOLD DETACHED CORNER RESIDENCE, close Village, main road. Six bed., 4 recep., bath, exc. offices, central heating, all services, garage, acre charming garden For sale by auction on premises, BELMONT LODGE, London Road, July 18th, 11.30 a.m. — Particulars of NEWCOME WRIGHT & PARTNERS, Auctioneers, Pinner and Stanmore.

To Doctors and others.—Perfectly appointed TOWN HOUSE in Manchester Square Could be used for professional and residential purposes — Address, No. 4210, B.M.A. House, Tavistock Square, W.C.1.

To Let on lease, delightful small PERIOD HOUSE off Portland Place. Very suitable medical man. Rent £650 p.a Might entertain sale, practically freehold, £8,000 — Address, No 4205, B.M.A. House, Tavistock Square, W.C.1.

Two furnished Bedrooms in Doctor's house adjoining Harley Street. Can be let as bedroom and sitting room if desired Breakfast supplied and use of telephone by arrangement —Address, No. 4316, B.M.A. House, Tavistock Square, W.C 1.

MISCELLANEOUS SALES, etc.

IMPORTANT

MEMBERS OF THE MEDICAL PROFESSION

Can secure Perfect Fitting and Distinctive Clothes of Exceptional value. FINEST QUALITY MATERIALS. *BEST WORKMANSHIP ONLY.*

SPECIAL OFFER.

JACKET & VEST (in black or grey), £5 5s.
SOLID FANCY WORSTED TROUSERS, £2 2s.
THE Ideal Suit for Professional or Business wear

TWEED SUITS & [illegible]
SOLID WORSTED [illegible]

LL Sporting Purposes.
[illegible] CHES ... from £2 2s.
[illegible] COSTUMES fr. £6 6s.

UNSOLICITED APPRECIATION.

"I strongly advise all medical men who wish to have satisfaction to patronize Harry Hall Ltd., as all the clothes I have had from them during 30 years have been perfect in Fit, Cut, and Finish." (Signed) S.J.A., M.A., M.B., F.R.C.P.S.

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Supply Instruments, Dressings, Attaché Cases, etc.

Let us quote for your requirements.
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For Sale. — (1) Potter-Bucky DIAPHRAGM for X-ray apparatus, practically new. (2) STERILIZER, in excellent condition, will take 4 dressing drums. Offers for one of the above or both.—Address, No. 4202, B.M A. House, Tavistock Square, W.C.1.

Operating Theatre Fittings and EQUIPMENT, suitable for large nursing home. Little used. Best offer taken. Can be seen by appointment. — Address, No. 4232, B.M.A. House, Tavistock Square, W.C.1.

X-Ray and Electro-Medical APPARATUS (SECOND-HAND), by the best makers, in stock. Re-conditioned and in perfect working order. Very moderate prices. Write for list, stating requirements.—The COX-CAVENDISH ELECTRICAL Co. (1924) Ltd., 105, Great Portland Street, London, W.1.

Wanted. — X-ray Installation for small Cottage Hospital. Gross expenditure, with installation, not to exceed £500. Specifications and quotations to be forwarded to No. 4311, B.M.A. House, Tavistock Square, W.C.1.

APPOINTMENTS.—Contd.

University College Hospital.

Applications are invited for the honorary post of a FIRST ASSISTANT in the Ear, Nose, and Throat Department, for a period of one year from August 1st.

Applications, giving evidence of fitness for the post, must reach the Secretary, University College Hospital, Gower Street, W.C.1, by noon on Thursday, July 25th

Torbay Hospital, Torquay.

Notice is hereby given, in accordance with Rule 8, that the Court of Governors will meet on Friday, August 16th next, to elect an HONORARY SURGEON in charge of the Surgical Out-patients' Department.

Candidates are required to be registered under the Medical Act.

Applications (sixteen copies), accompanied by sixteen copies of not more than three testimonials, should be sent to the undersigned not later than Friday, August 9th.

E. L. GRIST,
July 6th, 1929. Secretary.

Napsbury Mental Hospital,
NAPSBURY, ST. ALBANS, HERTS.

COUNTY COUNCIL OF MIDDLESEX.

Male JUNIOR ASSISTANT MEDICAL OFFICER required. Salary £485 per annum, rising by £10 per annum to £525. Deductions for board, lodging, washing, and attendance, £120 per annum. Appointment is subject to the Asylum Officers Superannuation Act, 1909.

Applications, with copies of testimonials, to the Medical Superintendent.

Liverpool Stanley Hospital.

There will be vacancies for Two Male HOUSE SURGEONS and One Female GYNÆCOLOGICAL HOUSE SURGEON on October 1st.

Engagement for a period of six months. Salary at the rate of £100 per annum, with board, laundry, etc.

Applicants must be on the *Medical Register*, and applications, with copies of three recent testimonials, should be lodged with the undersigned on or before July 26th.

E. W. OSBORN, Secretary.

Liverpool Stanley Hospital.

Wanted at once, One Male HOUSE PHYSICIAN. Engagement for a period of six months. Salary at the rate of £100 per annum, with board, laundry, etc.

Applicants must be on the *Medical Register*, and applications, with copies of three recent testimonials, should be sent to the undersigned.

E. W. OSBORN, Secretary.

London Jewish Hospital,
Stepney Green, E.1.

The Council of Management invites applications for the post of HONORARY MEDICAL OFFICER in charge of the Actino-Therapeutic Department, who will be required to attend the Department at least twice a week.

Candidates desiring to make application must send twenty copies of their application, with copies of three recent testimonials, to the Secretary at the Hospital on or before Friday, July 26th.

The Middlesex Hospital.

Applications are invited for the post of ASSISTANT to the Ophthalmic Department, to attend the Out-patient Clinics on Tuesdays and Fridays from 9 a.m. to 1 p.m. Honorarium £100 per annum. Candidates must be registered medical practitioners with previous experience of this work. Further particulars may be obtained from the undersigned, to whom applications should be submitted by July 22nd.

S. R. C. PLIMSOLL,
July 6th, 1929. Secretary-Supt.

Ilford Emergency Hospital
(8 miles from London) to be extended and renamed KING GEORGE HOSPITAL.

APPOINTMENT OF HOUSE SURGEONS.

Applications are invited from unmarried Medical Men to the appointments of Senior and Junior House Surgeons now vacant. Board-residence will be provided. Salary according to experience. Applications should be sent to the Secretary immediately.

Invalid and Crippled Children's
SOCIETY'S HOSPITAL,
Balaam Street, Plaistow, E.13.

Applications are invited for the post of HONORARY SURGEON to the Ear, Nose, and Throat Department (12 beds). Monday and Friday afternoons.

Applications, with copies of testimonials, should be sent to the Secretary not later than Saturday, July 20th.

R. I. HOWARD, Secretary.

CAVENDISH NURSES (Male and Female)

Head Office: 54, BEAUMONT ST., LONDON, W.1 (late 43, New Cavendish St., London, W.1.)

A very convenient form of telephone message pad sent free on application to the Secretary.

Branches: *MANCHESTER*: 176, *Oxford Road.* *GLASGOW*: 28, *Windsor Terrace.* *DUBLIN*: 25, *Upper Baggot Street.*

TELEGRAMS: TELEPHONES:

Tactear, London. Surgical, Glasgow. London, 1277 Welbeck. Glasgow, 477 Douglas.

Tactear, Manchester. Tactear, Dublin. Manchester, 3152 Ardwick. Dublin, 531 Ballsbridge.

Superior trained Nurses for Medical, Surgical, Mental, Dipsomania, Travelling and all cases. Nurses reside on the premises, and are always ready for urgent calls Day and Night. Skilled Masseuses, Masseurs, and good Valet attendants supplied.

Terms from £3 3s. *Apply to the Secretary or Lady Supt.*

Bethnal Green Hospital,
London, E.2.

ASSISTANT MEDICAL OFFICER.

Applications are invited for the appointment of an Assistant Medical Officer at the above Hospital, at an inclusive salary of £350 per annum, with furnished apartments, board, and washing.

The Hospital is a recognized Training School for Nurses, has accommodation for 650 patients, and possesses X-ray apparatus and a fully equipped laboratory. The medical staff consists of eight medical men, a visiting Dental Surgeon, a consulting General Surgeon, and Consulting Specialists for certain diseases.

Candidates must possess both medical and surgical qualifications, be duly registered, and have held previous Hospital appointments. The candidate appointed will be required to devote the whole of his time to the duties of the office, as assigned by the Medical Superintendent, which duties include such outdoor medical work as may be necessary.

Applications must be made upon forms which are obtainable from the undersigned, and which must be completed and returned not later than Saturday, July 20th.

C. FAULKNER JONES,
Administrative Offices, Clerk to the
Bishop's Road, Board.
Bethnal Green, E.2. July 4th, 1929.

District Infirmary,
ASHTON-UNDER-LYNE. (200 Beds.)

The Board of Governors invite applications for the post of ASSISTANT RADIOLOGIST to the above Infirmary, at a salary of £500 per annum.

The X-ray Department is under the charge of an Honorary Radiologist, who will be present two days each week.

The Assistant Radiologist will be required to attend daily for a minimum of five hours and such further time as may be required to carry out the work. In addition to his salary he will receive half the fees for private work done in the Hospital, and will not be debarred from private X-ray work outside.

Applicants (who should hold a Diploma in Radiology) must send their applications, with testimonials, to the undersigned not later than July 26th.

The Infirmary, FRANK OLIVER,
Ashton-under-Lyne. Gen. Supt. and
July 8th, 1929. Secretary.

Bradford Royal Infirmary.

Two HOUSE SURGEONS (male) wanted for September 1st.

Candidates must be single and legally qualified. Salary £150 per annum each, with board, residence, and washing.

There are 215 beds and six resident officers.

Applications, stating age, qualifications, and previous experience (if any), with copies of recent testimonials, to be received by the undersigned not later than Wednesday, July 24th.

J. J. BARRON, Secretary-Supt.

Chester Royal Infirmary.
(211 Beds.)

Wanted, HOUSE SURGEON (male) to the Ear, Nose, and Throat Department and Casualty Officer, to commence duties on August 1st. Salary £120 per annum, with board, lodging, and washing. Candidates must be doubly qualified and registered. Applications, stating age, and accompanied by copies of testimonials, to be sent to the undersigned not later than July 18th.

J. ROWSE MITCHELL.
July 2nd, 1929. Secretary.

Birmingham and Midland
HOMŒOPATHIC HOSPITAL AND DISPENSARY, EASY ROW, BIRMINGHAM.

A vacancy occurs for the post of HOUSE SURGEON at the above Hospital on August 1st. Salary £150, with board, residence, and laundry.

Applications, stating age and qualifications, accompanied by three recent testimonials, should be sent to the Secretary at the Hospital at once.

Bristol General Hospital.

The Committee invite applications for the following appointments which become vacant on September 1st next:

Two HOUSE PHYSICIANS, Two HOUSE SURGEONS, RESIDENT OBSTETRIC OFFICER, HOUSE SURGEON to the Special Departments, and a CASUALTY HOUSE SURGEON.

The appointments will be for five months at salaries at the rate of £60 per annum, and at the rate of £80 per annum for the Casualty House Surgeon, with board, residence, etc., provided in the Hospital.

Candidates must be registered under the Medical Acts and produce testimonials of good personal character and ability, and must have recent experience in the administration of Anæsthetics.

Forms of application, etc., to be obtained from the Secretary, must be returned completed with copies of testimonials, addressed to the undersigned, on or before Monday, August 5th next, from whom further particulars may be obtained.

THOMAS W. GREGG, Secretary.

North Staffordshire Royal
INFIRMARY, STOKE-ON-TRENT.
(350 Beds.)

The General Committee invite applications for the post of HOUSE SURGEON for Ophthalmic and Aural Departments. Salary £150 per annum, with board, residence, and laundry. The appointment will be for six months, renewable.

Applications to be sent to the undersigned immediately, together with two or three copies of recent testimonials. Preference will be given to candidates having had previous Hospital experience in Ophthalmic and Aural Departments. There are six residents—two medical, four surgical.

North Staffs W. STEVENSON,
Royal Infirmary, Secretary and
Stoke-on-Trent. House Governor.

North Staffordshire Royal
INFIRMARY, STOKE-ON-TRENT.
(350 Beds.)

The General Committee invite applications for the post of HOUSE SURGEON. Salary £150 per annum, with board, residence, and laundry. [illegible] for a period of twelve [illegible] sent to the under- [illegible]r with copies of two [illegible] Preference will be given to candidates having had previous Hospital experience. There are six residents—two medical, four surgical.

North Staffs W. STEVENSON,
Royal Infirmary, Secretary and
Stoke-on-Trent. House Governor.

David Lewis Northern Hospital,
LIVERPOOL.

RESIDENT MEDICAL OFFICERS.

Applications are invited for the posts of HOUSE SURGEONS and HOUSE PHYSICIANS.

Applications, with testimonials, to be sent to the Secretary-Superintendent on or before Monday, July 22nd.

David Lewis Northern Hospital,
LIVERPOOL.

Applications are invited for the post of MEDICAL TUTOR and REGISTRAR. Duties to commence October 1st next. Salary £120 per annum. Non-resident. Applications to be sent to the Secretary-Superintendent on or before July 31st.

David Lewis Northern Hospital,
LIVERPOOL.

HONORARY ANÆSTHETISTS.

Applications are invited for Honorary Anæsthetists to the above Hospital, and should be sent to the Secretary-Superintendent on or before July 31st.

Manor Hospital, Walsall.

A JUNIOR RESIDENT ASSISTANT MEDICAL OFFICER.

The Guardians of the Walsall Union invite applications from duly qualified gentlemen for the appointment of Junior Resident Assistant Medical Officer at Manor Hospital, Walsall.

The appointment will be for a period of six months, renewable at the option of the Guardians, and the salary will be at the rate of £130 per annum, together with the usual residential emoluments.

The gentleman appointed will be required to act under the general direction of the Medical Officer, from whom particulars of the appointment may be obtained.

Applications, stating age, professional qualifications, and experience, accompanied by not more than three copies of recent testimonials, should be sent to the undersigned at once.

Union Offices, C. S. FOTHERGILL,
29, Leicester Street, Clerk to the
Walsall. Guardians.

Seamen's Hospital Society.

The Committee of Management invite applications for the appointment of ASSISTANT *RADIOLOGIST* at the DREADNOUGHT HOSPITAL, Greenwich.

The elected candidate will be appointed for twelve months, but will be eligible for re-election.

Candidates must be fully qualified medical practitioners. In view of the future rearrangement and extension of this Department the elected officer will be required to attend not less than two half-days a week.

There is an honorarium of 50 guineas attached to the post.

Applications, with copies of three recent testimonials, to be sent in on or *before July* 16th to the undersigned, from whom further particulars can be obtained.

Greenwich. R. E. V. BAX,
June 24th, 1929. Secretary.

Seamen's Hospital Society,
Greenwich, S.E.

RESIDENT MEDICAL OFFICER required at QUEEN ALEXANDRA MEMORIAL HOSPITAL, MARSEILLES, for six months from August 1st. Salary £150 per annum, with board, residence, and laundry. Candidates must be male and know French. Applications, with copies of three recent testimonials, to be sent in by July 23rd to the undersigned, from whom further particulars can be obtained.

Greenwich. R. E. V. BAX,
July 1st, 1929. Secretary.

Princess Louise Kensington
HOSPITAL FOR CHILDREN,
North Kensington.
(42 Beds pending completion.)

The Board of Management invite applications for the post of HON. RADIOLOGIST. Candidates must be registered medical practitioners, and it is desirable that they should hold the D.M.R.E.Camb.

At least one attendance weekly will be necessary. Further details should be obtained from the Secretary, Princess Louise Kensington Hospital for Children, St Quintin Avenue, W.10, and formal applications should be sent in not later than first post on Thursday, July 25th.

Royal Victoria and West Hants
HOSPITAL, BOURNEMOUTH.
(Boscombe Branch—170 Beds.)

A HOUSE SURGEON (male, British nationality) required to commence duty about the end of July. Salary £120 per annum, with board, lodging, and washing. The appointment is tenable for six months, and candidates must be registered according to the provisions of the Medical Act.

Applications, stating place of birth, with copies of three testimonials, to be sent immediately to the undersigned. Women and married men are ineligible.

GORDON M. SAUL, Secretary.
June 21st, 1929.

West London Hospital,
Hammersmith Road, W.6. (225 Beds.)

Required, one AURAL AND OPHTHALMIC HOUSE SURGEON AND RESIDENT ASSISTANT CASUALTY OFFICER (male). This appointment is tenable for a period of not less than five months from August 1st next, subject to one month's notice on either side. Salary at the rate of £100 per annum, with board, lodging, and laundry allowance. Candidates must be registered under the Medical Act.

Applications (which must be made on printed forms obtained from me) must reach me not later than first post on July 19th. Candidates must call upon such members of the Medical Staff as directed, and attend a meeting of the Medical Council at 4 p.m. on Friday, July 26th, and the House Committee meeting at 4.45 p.m. the same day, when the appointment will be made.

H. A. MADGE, Secretary.

West London Hospital,
Hammersmith Road, W.6. (225 Beds.)

Required, one RESIDENT ANÆSTHETIST for a period of not less than five months from August 1st next, subject to one month's notice on either side. Salary at the rate of £100 per annum, with board, lodging, and laundry allowance. Candidates must be registered under the Medical Act.

Applications (in quadruplicate), giving full details of age, experience, qualifications, etc., and accompanied by copies of testimonials, must reach me not later than first post on Tuesday, July 23rd. Candidates must call upon such members of the Medical Staff as directed, and attend a meeting of the Medical Council at 4 p.m. on Friday, July 26th, and the House Committee meeting at 4.45 p.m. the same day, when the appointment will be made.

H. A. MADGE, Secretary.

Woolwich and District War
MEMORIAL HOSPITAL, Shooters Hill, London, S.E.18.
GENERAL HOSPITAL (112 Beds).

HOUSE PHYSICIAN; also HOUSE SURGEON.

The Appointments Committee invite applications for appointment as (a) House Physician and (b) House Surgeon An honorarium of £125 per annum will be paid in respect of each appointment, which will be for a period of six months as from August 13th.

Applications, accompanied by copies of not more than three recent testimonials, are invited from suitably qualified candidates, and should be addressed to the undersigned to reach him not later than 10 a.m. on Monday, July 15th.

EDWIN RADFORD, J.P.
Secretary-Superintendent.

West Herts Hospital,
HEMEL HEMPSTEAD.
(110 Beds. 24 miles from Euston.)

Applications are invited for the appointment of a SENIOR RESIDENT MEDICAL OFFICER, to commence duties on August 1st next. Salary £150, with rooms, board, and laundry.

Also a JUNIOR RESIDENT MEDICAL OFFICER, to commence duties on or about August 1st next. Salary £100, etc.

Preference will be given to male candidates.

Particulars to be obtained of, and applications, stating essential particulars, and enclosing copies of recent testimonials, to be sent at once to

ROBT. L. BUTTERFIELD,
Clerk to the Hospital.

West Herts Hospital,
HEMEL HEMPSTEAD.
(110 Beds. 24 miles from Euston.)

Applications are invited for the appointment of a JUNIOR RESIDENT MEDICAL OFFICER, to commence duties on or about August 1st next. Salary £100, with rooms, board, and laundry.

Preference will be given to male candidates.

Particulars to be obtained of, and applications, stating essential particulars, and enclosing copies of recent testimonials, to be sent at once to

ROBT. L. BUTTERFIELD,
Clerk to the Hospital.

West Kent General Hospital,
MAIDSTONE.

APPOINTMENT OF HONORARY ANÆSTHETIST.

Applications are invited for the post of Honorary Anæsthetist at the above Hospital. Applications, stating qualifications, and accompanied by copies of recent testimonials, should be sent to the undersigned on or before July 19th.

EDWARD J. GREGG.
House Governor and Secretary.

Messrs. R. SUMNER & Co., Ltd.,
Chemists,
4C . . . IVERPOOL, have the
for disposal:
lis . . . for sale, well-estab-
ar . . . teceipts £1,150 per
. . . ited.

PARTNERSHIP in Seaside Resort, Lancashire Coast. Receipts £3,000 per annum. Share for disposal one-third. Preference given to Surgeon.

PRACTICE in Bradford. Receipts £1,200 per annum, panel nearly 1,000. Reason for disposal ill health.

For further particulars apply to above.

Romford Isolation Hospital.

The Romford Joint Hospital Board invite applications from registered medical practitioners (male) for the appointment of MEDICAL SUPERINTENDENT of the Hospital at Rush Green, Romford, which is to be enlarged to 150 beds.

The salary is £750 per annum, and in addition a temporary allowance of £250 per annum in lieu of board-residence will be made pending the provision of residential quarters.

Candidates must have held a resident post in a recognized Fever Hospital, and be experienced in the modern treatment of all the infectious diseases now treated in Isolation Hospitals.

Applications, stating nationality, age, and previous experience, together with copies of three recent testimonials, to be sent not later than July 20th next to the Clerk to the Board, who will furnish further particulars on request.

By Order of the Board,
T. W. A. GREENHALGH, Clerk.
16A, South Street, Romford.
July 2nd, 1929.

Royal Devon & Exeter Hospital,
EXETER. (225 Beds.)

ASSISTANT HOUSE SURGEON (Male).

. . . . . ted for the post of
at this Hospital, now
. . . is for six months, but
or re-election.
. . . iting in the Ear, Nose,
Casualty Departments,
and the giving of anæsthetics.

Salary at the rate of £100 per annum, with board, apartments, and washing.

Applications, giving particulars as to age and qualifications, together with copies of three recent testimonials, should be sent to the undersigned as soon as possible.

By Order of the Committee,
S. S. COLE,
July 2nd, 1929. Secretary and Manager.

The Devon Mental Hospital,
EXMINSTER, near EXETER.
(1,400 Beds.)

Required, JUNIOR ASSISTANT MEDICAL OFFICER (male.)

Candidates must be registered Medical Practitioners, and unmarried. Preference will be given to candidates who either have or are anxious to obtain a Diploma in Psychological Medicine. The Hospital is fully equipped with . . . Installation, Bacterio-
. . . Salary £300 per
. . . annum to £350, with
. . . and attendance.

The appointment is subject to the provisions of the Asylums Officers Superannuation Act, 1909. Form of application to be obtained from the Clerk to the Devon Mental Hospital, Exminster, which must be completed and returned on or before July 29th.

The General Hospital,
BIRMINGHAM.

Applications are invited for the post of RESIDENT SURGICAL REGISTRAR.

This officer will be attached to two Surgical units and to the Throat and Ear Department. The salary will be £100—£20—£140.

The appointment will be made for one year in the first instance, and be subject to renewal for two further years. Candidates must have had previous surgical experience.

Applications, giving full details of qualifications and experience, and accompanied by testimonials, should reach the undersigned by July 22nd.

A. H. LEANEY, House Governor.

Shropshire Orthopaedic Hospital
AND AGNES HUNT SURGICAL HOME, OSWESTRY.

HOUSE SURGEON (male) required. Appointment for one year. Salary £200 per annum, with board, residence, laundry, and four weeks' holiday.

Applications, stating age, with copies of three recent testimonials, should be received by the Secretary-Superintendent, Shropshire Orthopaedic Hospital, Oswestry, not later than first post on Saturday, July 20th.

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N. Devon.—About £750 p.a. Panel 330. Appts. £30. Usual fees. Good house and garden, 5 bed., etc.—No. 8499.

Sussex Coast.—About £1,400 p.a. Good-class, non-panel, non-dispensing. Appt. £35. Visits 5/- to 15/-. Large house to rent.—No. 8476.

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Southampton. — Over £1500. Panel and appts. £858. Good house, 6 bed., etc., for sale. Good schools.—No. 8495.

Home County.—Over £700 p.a. Small residential town within 25 miles, South. Panel 462. Good fees. Large well-built house and garden.—No. 8494.

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Berkshire. — About £700 p.a. General mixed Country PRACTICE. Panel about £287 p.a. Few mids. Fees 2/6—7/6. Excellent house and garden.—No. 8490.

Cambridgeshire. — Nearly £600 p.a. Appts. and panel over £250 p.a. Visits 3/6 up. House, 7 bed., etc., good garden, to rent.—No. 8487.

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S.W. County. — 1/2 share of about £3,000 p.a. Appts. £125 p.a. Panel about £520 p.a. Fees up to 21/-. Good house, 4 bed., etc., large gard. Sep. sgy.—No. 8470.

Kent.—Country Practice. About £1,000 p.a. Panel about 400. Appts. over £50 p.a. Visits 3/6 to 10/6. House, 5 bed., etc. Extensive grounds.—No. 8408.

Birmingham.—About £2,300 p.a. Panel 1,700. Mids. from 2 gns. Visits 3/6 up. Good house, 4 beds., etc. Large garden. Two branches. Suitable for two.—No. 8466.

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2. KENT. — Mixed Practice, £1,800 p.a., in industrial town. Panel 1,745. Well-situated house (4 bedrooms) in busy part to rent. Light expenses. Premium 1½ years' pur.

3. MIDLANDS.—Country Practice over £900 p.a. within 5 miles of good town. Panel 560. Comfortable and convenient house (5 bedrooms), electric light and central heating, to be sold or let. Premium—Practice £1,350, part by instalments.

4. BUCKS.—Small Country Practice over £300 p.a. Panel 250. Very attractive house (8 bedrooms), with fine garden, garage, etc., for sale. Premium—Practice—£300.

5. SOUTH AFRICA. — Death Vacancy (Natal).—Splendid opportunity offers for well-qualified man to acquire for £75 PRACTICE doing at rate of £2,000 p.a. Further particulars on application.

6. SOUTH AFRICA.—Well-established Practice £1,350 p.a. in small town in Orange Free State. Ten-roomed house in centre of town to rent. Premium £750.

7. CARMARTHENSHIRE.—Practice of £900 p.a. derived from contract work and panel, in pretty village. Modern bungalow residence (3 bedrooms), with separate surgery, standing in 1½ acres of ground. Premium—Practice and house—£2,500, part on mortgage if desired.

8. YORKSHIRE (W.R.).—Partner required in better working-class Practice in good district of large city. Panel over 2,000. Seven-roomed house, with garden, to be sold or let. Great scope Share worth over £750 p.a at 2 years' pur.

9. PLYMOUTH.—Panel and Private Practice of about £150. Panel 226. Good scope for young energetic man. Premium £150.

10 ISLE OF WIGHT.—Easily worked Practice of £1,340 p.a. (including clubs and appointments worth £300) Panel 500. Convenient modern house. Garden and garage. Scope Premium, Practice and house, £3,800.

11 MIDLANDS. — Practice averaging over £1,850 p.a. in small Industrial Town with pretty country all round. Panel 1,580. Double-fronted house (7 bedrooms) for sale. Good scope Premium £3,250, to include drugs.

12. WEST OF ENGLAND.—*Partnership in* Practice over £3,000 p.a. (£1,000 from panel and appointments) in Residential and partly Agricultural District. House available. Very good Cottage Hospital. One-fourth or one-third share at 2 years' purchase.

13 SOUTH COAST.—Seaside Resort. Non-dispensing PRACTICE about £630 p.a. Small panel. House (5 bedrooms) to let. Premium £1,100. Scope for increase.

14 SOUTH COAST.—Non-dispensing Practice averaging £1,332 p.a. in favourite Watering Place. No panel. House at nominal rent. Scope. Premium 1½ years' purchase.

15 LONDON, N.—Practice averaging £636 p.a. in densely populated Suburb. No panel. Corner house containing 10 rooms to be sold or let. Plenty of scope. Premium £750.

16 HOME COUNTY.—Non-dispensing Practice about £950 p.a. in delightful Residential Country District under 40 miles from London. No panel. Choice of house. Premium 1½ years' purchase.

17 LONDON, E.—Partnership in exceptionally old-established Practice averaging over £3,500 p.a. Good fees and appointments. Two-fifths share for disposal at 1½ years' purchase, or one-third could be purchased at first, part by instalments. Small house may be bought or rented at a moderate figure.

18 SOUTH AFRICA.—Old-established Practice. Receipts last year £1,816. Travelling and midwifery light. Climate ideal—no tropical diseases (altitude nearly 5,000 ft.). Delightful residence (5 bedrooms), in perfect order, with 2 acres grounds. Excellent scope. Local Hospital. Premium £1,200, with option to purchase house.

19 SOUTH OF ENGLAND.—Partnership in Practice in Residential Seaside Town and Holiday Resort within 100 miles of London. Earnings past twelve months £2,900 (average £2,566 p.a.). Panel 1,100. House (4 bedrooms) to rent. Abundant scope for increase. Premium one-fourth share £1,285.

20 YORKSHIRE (N.R.).—Practice of about £1,000 in small Country Town. Panel 430. House (5 bedrooms) to be let or sold. Sport. Scope. Premium £1,250.

21 S.E. COAST. — Non-dispensing Practice averaging nearly £1,850 in Health Resort. No panel. Detached house (7 bed and dressing rooms) and good garden, to be sold or let. Premium 1½ years' purchase.

22 N. OF ENGLAND.—Partnership in Practice about £1,830 p.a. in important City. Panel 1,600. Premium two-fifths share 1½ years' purchase. Partner must be young and well qualified.

23 SOUTH OF ENGLAND.—Partnership in Practice £2,250 p.a. in beautifully situated Country Town within 100 miles of London. Panel under 1,000. Suitable accommodation. One-third share at 2 years' purchase.

24 MIDLANDS.—*Practice in attractive Agricultural District.* Receipts 1928, £1,280, Panel nearly 900. Commodious house (5 bedrooms), with beautiful garden and paddock, to rent. Premium £1,850.

25 HOME COUNTY. — Practice averaging about £800 p.a. in country district, near the Coast. Panel 600. House (about 4 bedrooms) to rent. Good scope. Premium 1½ years' purchase.

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27 SOUTH AFRICA.—Old-established PRACTICE in one of the pleasantest towns, with beautiful climate, in the Cape Province. Receipts average £2,900 p.a. House (4 bedrooms) to rent. Purchaser should be able to do major surgery. *Premium £2,500.*

28 SHEFFIELD. — Non-dispensing Practice about £800 (including two appointments worth £155 p.a.). No panel. Conveniently situated house (6 bedrooms). Premium, Practice and house, £2,000.

29 HOME COUNTY.—Third Partner (young, well qualified) required in Country Practice averaging £4,550 p.a. in first-rate residential district under 50 miles from London. Panel about 1,000. One-fifth share at 2 years' purchase.

30. WEST OF ENGLAND.—Partnership in non-dispensing Practice over £5,100 p.a. in first-rate town. Small select panel. House (6 bedrooms) to rent. Partner should be an Obstetrician, and there is scope for gynæcology. Premium five-twelfths share 2 years' purchase.

31 SUFFOLK. — Country Practice nearly £1,100 p.a. in agricultural district. Panel 530. Modernized house (6 bedrooms), with electric light, inside sanitation, and large garden, for sale. Sport. *Premium £1,500.*

32 SOUTH OF ENGLAND.—Seaport Town. PRACTICE doing £800 p.a., including appointments over £225 p.a., and panel nearly 1,000. Good house (6 bedrooms) for sale. Premium 1½ years' purchase.

33 N.W. OF ENGLAND. — Partnership in Practice about £2,000 p.a. in popular seaside resort. Small panel. Desirable modern residence (4 bedrooms) to rent. Premium one-half share 1½ years' purchase.

34 CARDIFF. — Non-dispensing Practice averaging £1,543 p.a. Small panel. Pleasantly situated house (5 bedrooms). Premium £2,000.

35 DERBYSHIRE.—Country Practice about £1,250 p.a. in beautiful district, easy distance of first-rate town. Panel 675. Small house to rent. Cottage Hospital. Premium 1½ years' purchase

36 EAR, NOSE, AND THROAT Practice of nearly £3,200 p.a. in Health Resort.

37 N. LONDON.—Steadily growing "Lock-up" Cash PRACTICE on main road. Receipts last 12 months £720. Panel 539. Shop-fronted premises to rent. Prem. £850.

38 S.W. OF ENGLAND.—Partnership in an old-established Practice of £5,000 p.a. in one of the chief towns. Panel 2,397. House (5 bed and dressing rooms) to rent. One-fifth share 2 years' purchase.

39 LONDON, W. — Partnership in non-dispensing Practice about £2,500 p.a. No panel or appointments. One-third share with view to ultimate succession. Premium 2 years' purchase.

40 SOUTH MIDLANDS. — Partnership in Country Practice of £6,300 p.a. in residential and agricultural district. Panel over 2,200. Suitable house for sale. Hospital. Partner should be 28 to 30 and have held House appointment. Premium one-fifth share £2,510.

41 LONDON, N.—Partnership in well-estab. middle-class Practice, nearly £2,750 p.a., in pleasant outlying suburb. Panel about 800. Suitable accommodation to rent. Premium one-third share 2 years' purchase.

42 MIDLANDS. — Partnership (after preliminary assistantship) in good mixed Practice worth £4,000 p.a. in country town. Panel 3,600. House to rent. Hospital and scope for surgery. Partner should be keen on his work and have held H.S. and H.P. appointments. One-third share at 2 years' purchase.

43 YORKSHIRE (W.R.). — Practice averaging nearly £1,350 p.a. in manufacturing town. Panel 995. Detached house (4 bedrooms) for sale. Premium £2,000

44 CARMARTHENSHIRE. — Steadily increasing PRACTICE of £800 in small country town. Panel 645. Small house (3 bedrooms) to rent. Premium 1½ years' purchase.

45 SOUTH OF ENGLAND.—Partnership in non-dispensing Practice £4,200 p.a. in attractive watering-place. Panel about 1,500. Incoming Partner must be F.R.C.S.Eng. or Edin., or M.D.Lond., Oxon., or Camb. One-fourth share at 2 years' purchase. (Preliminary assistantship.)

46 ESSEX. — Partnership in mixed-class Practice £4,400 p.a. Panel over 2,200. Small house (3 bedrooms) to rent. One-fourth share at 1¾ years' purchase. Good Hospital.

47 ITALY.—Season (March to October) PRACTICE in famous city. Receipts average £563 p.a. No midwifery or night work. Up-to-date Hospital. Premium £563.

48 BUCKS.—Practice about £800 in small country town. Panel 741. Nice detached house (4 bedrooms), garden and garage, to rent. Premium £1,200.

49 KENT. — Practice averaging £1,030 p.a. (appts. and panel over £300) in beautiful country district. Convenient house (6 bedrooms) for sale. *Premium, Practice, £1,500.*

50 N.W. COAST. — Partnership in Practice over £3,000 in first-rate residential seaside town. Panel 450. Suitable house to rent. One-half share for sale (one-third first year) at 1¾ years' purchase.

51 EAST ANGLIA.—Country Practice about £1,470 p.a., easy reach of important town. Panel about 1,000. Nice house (10 bed and dressing rooms), with electric light, etc., for sale. Premium 1½ years' purchase.

52 DEATH VACANCY.—DEVON.—Country PRACTICE Receipts, 1928, £1,266. Panel about 700. Modern house (7 bed and dressing rooms) in grounds of 2 acres. Price of house £3,000.

53 S.E. COAST.—Practice averaging £1,127 p.a. in favourite resort. No panel. Very good semi-detached house (6 bedrooms) for sale. Scope. Premium 1½ years' purchase.

54 N. GLOUCESTERSHIRE. — Country PRACTICE in delightful part. Cash receipts £560. Panel 450. Modern house (6 bed and dressing rooms), with garden 1 acre, for sale. Premium—Practice—£750.

55 SUSSEX. — Small Country Practice in delightful part near coast. Receipts past 12 months £346. Picturesque house (3 bedrooms), with nice garden to be sold or let. Premium £350.

56 MIDLANDS. — Partnership in old-estab. Practice (entirely Skin work) in first-rate town. Earnings about £2,200 p.a. Suitable house for sale or rent. Premium one-third share 2 years' purchase.

57 EAST COAST — Partnership in Practice £2,800 p.a. in popular watering-place. No panel. House to rent. One-third share at 2 years' purchase. Partner must have some knowledge of Ear, Nose, and Throat work.

58 YORKSHIRE (W.R.). — Partnership in Practice about £2,600 in one of the chief towns. Panel over 900. Partner should be a Protestant. One-third share at 1¾ years' purchase after preliminary assistantship.

59 S.W. of ENGLAND.—Partnership in Practice about £3,000 in market town. Panel 1,100/1,200. Detached house (5 bed and dressing rooms), in 3/4 acre garden, for sale. Premium one-half share 2 years' purchase.

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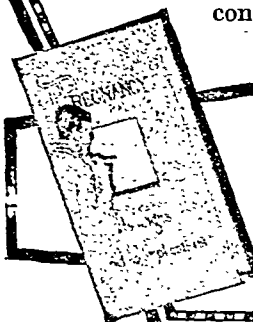

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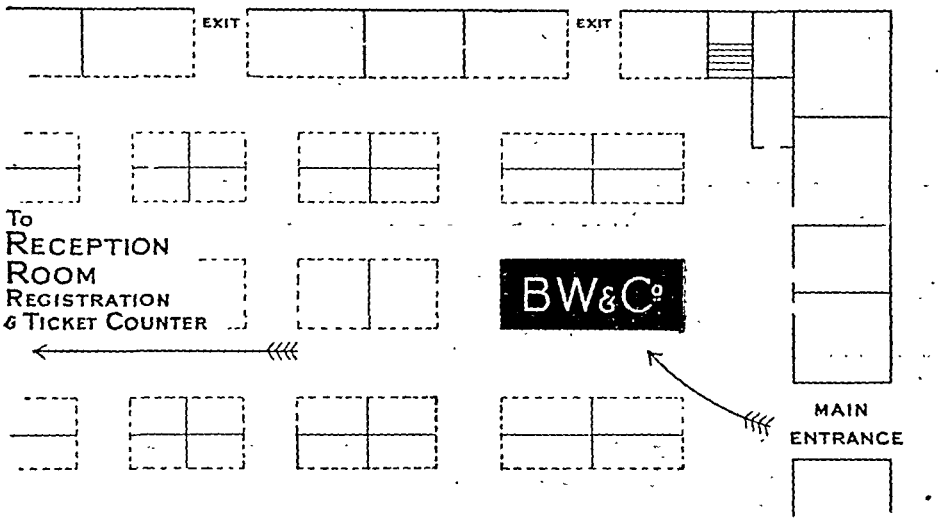

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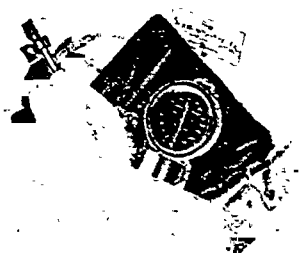

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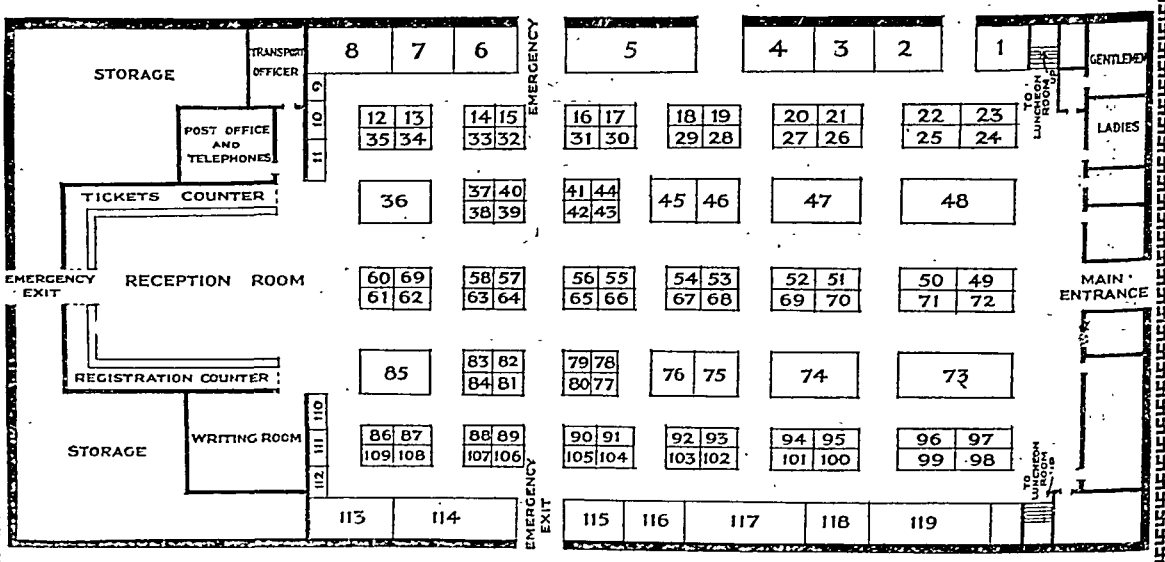

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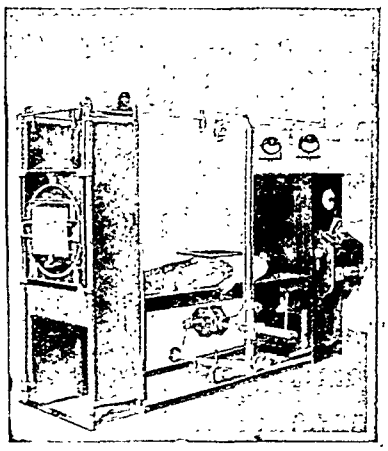

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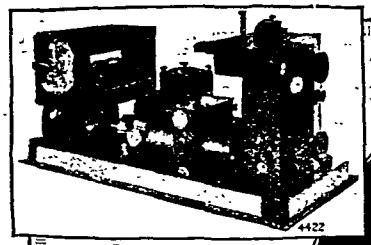

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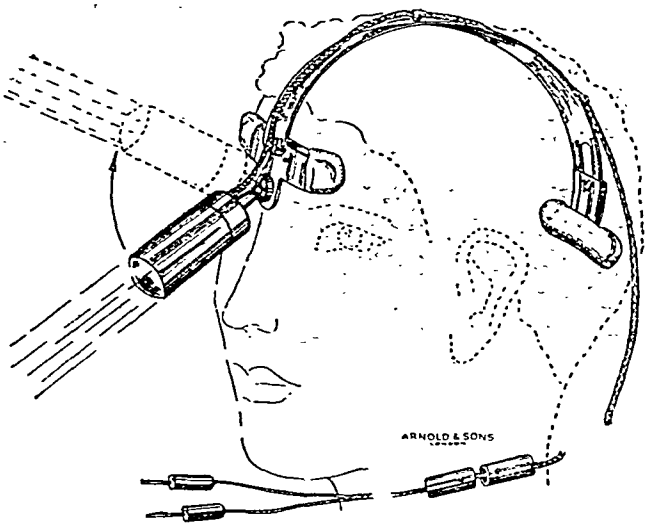

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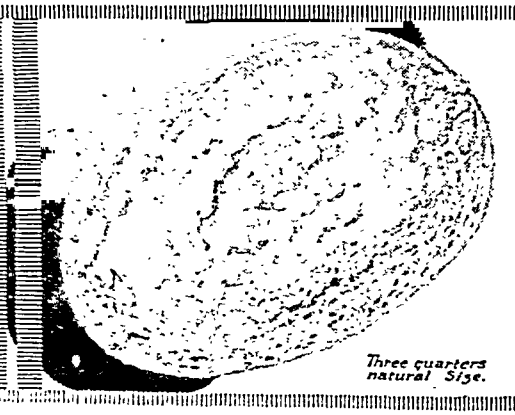

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Ung Acid Boric., B.P., 28 lb. pail @ 11d. lb.
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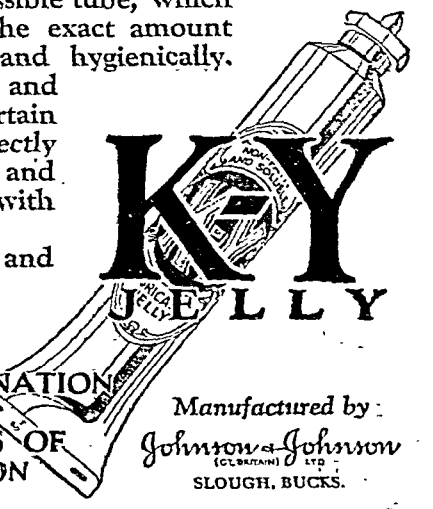

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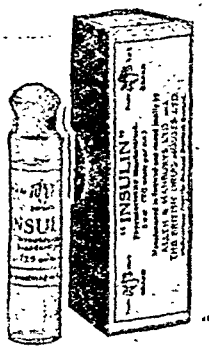

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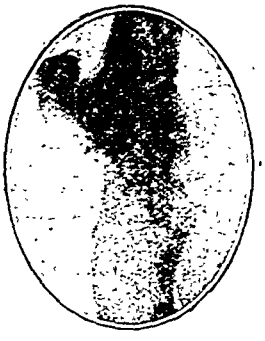

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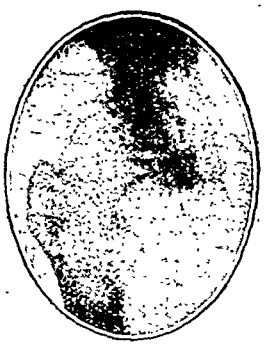

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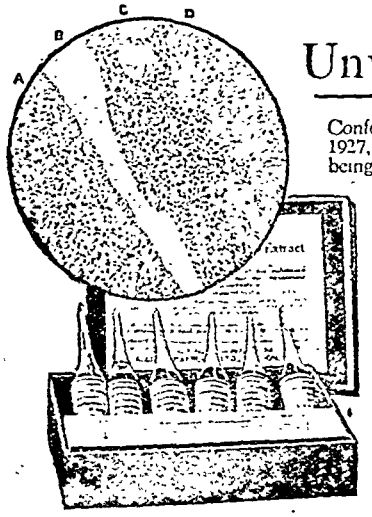

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An Address
ON
THE NATIONAL INQUIRY INTO THE CAUSES OF OUR HIGH MATERNAL MORTALITY RATE.*

BY

T. WATTS EDEN, M.D.,

CONSULTING OBSTETRIC PHYSICIAN TO CHARING CROSS HOSPITAL.

WHEN the decision of the Ministry of Health to set up a National Committee to investigate the causes of maternal deaths in England and Wales was announced I was one of those who were inclined to think that, except in one direction, no very definite results could be anticipated from such an inquiry. It was clear that an inquiry conducted by the medical officers of health in the districts for which they were responsible might result in improved organization and in a better understanding on the part of doctors and midwives of the assistance which the public health authorities were able and willing to render in such ways as dealing with cases of difficult labour, or with cases in which septic and other complications developed after delivery, or in rendering assistance in the provision of extra food or medicines, or domestic help, to the poorer classes of their patients, or in placing laboratory investigation within the reach of these patients when conditions arose which called for such investigation. The great questions underlying the causation of maternal mortality, such as (*a*) the conditions which determine the occurrence of puerperal infection, (*b*) the causation of the toxaemias and the haemorrhages of pregnancy, (*c*) the steps required to provide better and longer practical training in midwifery both for medical students and for midwives—these questions could, it appeared, hardly be reached at all, certainly not closely investigated, by this inquiry. And until these three great questions, which lie at the heart of the problem, are seriously grappled with we can hardly expect to make any deep impression upon the figures of maternal mortality which have for so many years caused us, as doctors, the greatest concern, and which have now roused the conscience of the nation itself.

The inquiry set up by the Ministry is now fairly launched, and is, I believe, proceeding smoothly; but it is as yet too early to glean any indications as to the results which may emerge from it. We shall probably have to wait some time for these.

THE ABERDEEN INQUIRY.

It so happens, however, that a large Scottish city, Aberdeen, a town of some 160,000 inhabitants, has anticipated the Ministry of Health, and a similar inquiry has been proceeding there for the last ten years. The objects of the Aberdeen inquiry are identical with those envisaged by our own Ministry of Health, which, it will be remembered, has no jurisdiction in Scotland. The Aberdeen inquiry was conceived and organized by the then medical officer of health for the city—Professor Matthew Hay—who was also professor of medical jurisprudence in the University of Aberdeen when the inquiry was launched in 1917. The first report was published by the Scottish Board of Health in November, 1928, and is written by Dr. Parlane Kinloch, Dr. F. Smith, and Dr. J. G. Stephen. The information contained in this report is of great importance and interest, and it appears to foreshadow the kind of information which will be gained from the much more extensive inquiry now proceeding in England and Wales. I thought, therefore, that it might be of interest if we went over this report, with the object of gleaning from it such facts, or such conclusions, as may appear to bear a practical value.

The first step taken in the Aberdeen inquiry was to issue special regulations requiring the registrars of births, marriages, and deaths to make an immediate return to the Public Health Department of all maternal deaths occurring within a month (this period was later extended) of confinement, whether the death had been attributed to the confinement or not. This the registrar could do by checking the notified or registered births by the certified deaths of mothers. Occasionally an omission by the registrar was detected by means of information brought to the public health department by the district visitors. The authors of the report believed that such precautions as these were required in order that all cases which properly came within the scope of the inquiry might be disclosed. This view proved, in the event, to be correct, for the methods employed resulted in the disclosure of a considerable number of maternal deaths which would otherwise have remained concealed; in fact, the cases thus disclosed added 15 per cent. to the total number of maternal deaths. This is a very disquieting revelation, and if comparable results should be obtained generally, we shall have to admit that we have underestimated our maternal mortality rate by a considerable figure, and that the problem is of even larger dimensions, and greater gravity, than we supposed.

There are no details in the report as to the nature of the cases which were not certified. It is to be supposed that the investigators satisfied themselves that they were all cases of death properly attributable to child-bearing, although not regarded as such by the individual medical attendants.

I have no information about what is being done in the direction indicated in connexion with the English inquiry, but it would appear to be a point that should not be overlooked. Perhaps we may hear whether Nottingham has taken any similar steps to avoid the escape of cases which ought to be included in the returns.

In Aberdeen the actual inquiries were conducted in much the same manner as, I gather, it is the intention of the Ministry that our own inquiries should be carried out. In the case of both doctor and midwife an inquiry card was first sent out, asking for information under three heads: (*a*) home conditions and pre-natal health; (*b*) previous obstetric history; (*c*) main facts of the confinement. In the case of deaths in the practice of a midwife each midwife was interrogated by a member of the Department of Public Health, and additional information was obtained, if required, through health visitors.

In the case of doctors, we are told that a personal interview was generally requested with the doctor by a member of the health staff, and that the fullest respect was always given to his opinion; it is added that the relations between the doctors and the Health Department have been perfectly friendly in all cases. The medical officer of health often found that he could give useful information to doctors about the facilities which were available for obtaining assistance in necessitous cases, and about other matters. One can readily believe that this would be the case, for it was one of the directions in which it appeared that useful results could be confidently anticipated from an inquiry.

It is emphasized that the inquiries made were *private* inquiries, that no information obtained by the means described was, or would be, made public, and that in the publication of results the greatest care was taken to avoid the escape of any information received in confidence from doctors and midwives. We know that it is the expressed intention of the Ministry that the English inquiry should be conducted in the same scrupulously confidential manner, and that its objective is not to impute blame, but to discover upon what lines preventive work may best proceed.

The report, in fact, contains an interesting item of internal evidence that the relations between medical officers of health and practising doctors in Aberdeen have improved considerably during the period of the inquiry. This is shown by figures which are given as to the notification of cases of puerperal fever. It is well recognized that, over the country generally, only a small proportion of all cases of puerperal fever are actually notified as such; the temptation to call them something else is no doubt difficult to resist, and, further, diagnosis is not always an easy matter. The Aberdeen records show that until quite recently in that city practically only the cases which terminated fatally were notified, as is shown by the fact that the number of deaths roughly equalled the number

* Delivered to the Nottingham Medico-Chirurgical Society, March 27th, 1929.

of cases notified. In one quinquennium (1898–1902) the number of certified deaths actually exceeded the number of cases notified. In England and Wales non-certification of cases of puerperal fever has been quite as common as in Aberdeen. During the period of the inquiry there has been a very remarkable change in the attitude of Aberdeen doctors towards notification, and during the quinquennium 1923–27 the number of cases notified was nearly three times as great as the number of certified deaths. If this change is the result of closer contact between the practising doctors and the public health service then it speaks volumes both for the helpfulness of the medical officers of health and for the willing co-operation of the doctors. I regard this as one of the most promising features of the report.

FACTORS INFLUENCING MATERNAL MORTALITY.

We may now consider some of the results of the Aberdeen inquiry into certain factors which may be thought to influence maternal mortality.

First of all, a word as to the effects of *illegitimacy*. The illegitimate birth rate is relatively high in Aberdeen, and the number of cases under consideration is considerable, amounting to one-tenth of the total births during the ten years under consideration (3,331 out of a total of 34,653). The maternal death rate of the unmarried mothers is more than double the total rate, and the mortality from sepsis is three times as high as the total maternal death rate from sepsis. The problem of the care of unmarried mothers is as much a social as a medical problem, and it seems to me that this is a channel into which philanthropic effort might well be guided, for there is surely much to be done, much which cries loudly to be done, in helping these heavily burdened women through the ordeal which is to them infinitely more formidable than it is to their married sisters.

The influence of the *general health* of the mother upon maternal mortality is a question upon which very little information has hitherto been available. The Aberdeen report does not overlook this matter, but it is naturally a difficult subject for investigation. For the purposes of their inquiry "general health" was divided into two classes—"good" and "unsatisfactory." We have, of course, no information as to the proportion of the total adult female population of Aberdeen which suffers from "unsatisfactory" general health, but the investigators found that among the women who died from causes associated with child-bearing 31.8 per cent. (roughly one-third) had been in unsatisfactory general health *before the beginning* of the pregnancy which terminated fatally. This must be much in excess of the general rate of unsatisfactory health among the total adult female population.

With regard to the health of the mother *during* pregnancy, the Aberdeen records from the ante-natal departments show that, generally speaking, 80 per cent. of expectant mothers are classed as being in "good" health. Among those who died in the period covered by the inquiry only 40 per cent. were classed as having "good" health.

I am not suggesting that these findings should be accepted without confirmation, but they certainly seem to imply that more careful attention to the general health of our prospective mothers is a direction in which useful preventive work may be done. Dr. Charles Douglas of Cupar has for several years been preaching the importance of the maternal factor in determining the risks of child-bearing, and this piece of evidence, as far as it goes, justifies his attitude, for it suggests that the expectant mother who is in poor health runs a considerably greater risk than one whose health is good.

There are certain points with regard to which the report confirms what may be termed conventional views—for example, that the risks of the first confinement are the greatest, that housing conditions, such as overcrowding and defective cleanliness, and what might be called stringency of means, have no apparent influence in increasing the risks of childbirth. The advantages of *ante-natal supervision* are confirmed in the statement that the death rate among those who attended ante-natal clinics was approximately only one-half of the rate among those who did not—3.8 to 7.3 per cent. respectively.

When the report comes to deal with the *venue of the confinement*, the results which emerge are startling: 3,765 confinements (roughly 10 per cent. of the total) took place in institutions, under which term are included hospitals and nursing homes; of these, roughly one-third were cases specially admitted either because of ante-natal complications or from difficulties encountered during the course of labour; the remainder, roughly two-thirds (2,220), were cases for which the institutions had been responsible throughout. It is instructive to compare the results obtained by the institutions in the cases for which they were solely responsible with those obtained privately by practising doctors and midwives. The total maternal death rate for the city from all causes over the ten years was 6.6 per thousand, a figure rather higher than the average for England and Wales. The maternal death rate for the 2,220 cases for which the institutions were directly responsible reached the astonishing figure of 14.9 per thousand; the corresponding rate for patients attended in the hospital districts was 5.6 per thousand, that for patients attended privately by doctors was 6.9 per thousand, and that for cases attended by midwives only—that is, without medical assistance—was 2.8 per thousand; for cases attended by midwives, with medical assistance, the rate was the lowest of all—namely, 2.5 per thousand. The death rate from sepsis was also remarkably high in the cases delivered in institutions, and for which the institutions were solely responsible. The general mortality rate for sepsis in Aberdeen during the period of the inquiry was 1.5 per thousand—about the average for the whole country; in the institutional cases it reached 4.5 per thousand; in the remaining groups just specified it was below the average, attaining the lowest point of all in the cases attended in the hospital districts, for which the rate was only 0.7 per thousand—that is, less than one-half of the general septic rate. The report does not distinguish the results obtained in private nursing homes from those in other institutions.

One cannot help regarding these returns with great disquietude. The old prejudice among mothers in favour of having their babies at home is disappearing, and they are becoming more and more willing, indeed often anxious, to go into an institution instead. We have been urging mothers to do this in the expectation that they would receive better care, and would in consequence be freer from risks in these institutions than at home. In this belief the Ministry of Health has encouraged municipalities to open maternity homes available for all to whom the arrangements for a confinement involve a difficult financial strain. We knew already that the results obtained in these municipal homes were not entirely satisfactory, but the results disclosed in Aberdeen are more than serious, unless there be some special explanation of them which does not appear in the report. A partial explanation of the relatively high maternal death rate in institutions may possibly be found in the more difficult or complex character of the cases dealt with by these institutions, but in compiling the figures I have just given you all *emergency* cases have been eliminated—that is, those transferred to the institution after previous treatment by doctors and midwives. The figures, therefore, apply only to cases for which the institutions had been responsible throughout. Thus the institutional death rate from albuminuria and convulsions is more than two and a half times as high as the general rate for that condition for the city (no emergency cases being included), the rates being 2.7 and 1.0 per thousand respectively. Also the death rate from haemorrhage is more than double the general rate for that condition (1.4 and 0.7 per thousand). The report does not distinguish between ante-partum and post-partum haemorrhage, so that the obstetric significance of the latter figures is not very clear.

We see, then, that the death rate from sepsis in the institutions was exactly three times as high as the death rate for the whole city from that condition (4.5 and 1.5 per thousand); and for this distressing fact no explanatory circumstances are forthcoming in the report.

So far as we have gone the instructive results emerging from this report are: first, the evidence suggesting that the general health, and perhaps also the physique, of the mother have more influence upon maternal mortality than

we have hitherto believed; and secondly, the relatively high mortality from all causes occurring among women whose confinement had been managed throughout in the in-patient departments of hospitals and other institutions.

ETIOLOGY OF PUERPERAL SEPSIS.

A considerable body of work is presented in the report dealing with the causation of puerperal infection. The bacteriological work confirms the view, now almost universally held, that a haemolytic streptococcus is the causative organism in all but a small minority of cases. The question of how this organism gains access to the maternal passages is reviewed. The possibility that streptococci may make their habitat in the cervical and vaginal secretions during pregnancy, and after labour may become active and invade lacerations or the placental site, while admitted, is dismissed as being possible in only a very small proportion of cases. We are told that the natural habitat of the haemolytic streptococcus is the throat. Great importance is attached to the possibility of "droplet infection"—that is, infection of hands, instruments, or appliances by droplets of saliva expelled, in speaking or coughing, from the mouth of a carrier of the haemolytic streptococcus. In support of this view it is mentioned that in January, 1928, an outbreak of puerperal fever occurred in a maternity institution in Aberdeen in which 12 cases became infected, of whom 4 died. The outbreak was found to be due to the haemolytic streptococcus; an outbreak of icterus neonatorum accompanied it, which proved fatal in 7 cases, and in 2 of the fatal cases the haemolytic streptococcus was proved to be the cause of the infants' death from septicaemia. Throat cultures were taken from the twelve nurses in the institution, and in five of them the haemolytic streptococcus was found. Seventeen contacts among patients were also examined, with the result that in eight of them haemolytic streptococci were found in either the throat or the uterus, or in both—that is, eight out of seventeen examined were found to be carriers.

In pursuance of this view it is suggested that many individual doctors and midwives may unconsciously be carriers of the causative organism of puerperal sepsis, and may convey infection to their patients by what is known as the "droplet" method. In support of this the report points out that in Aberdeen, during the period of the inquiry, the death rate from sepsis among women attended privately by doctors was nearly double the rate found in women who had been delivered by midwives, either alone or with medical assistance. Doctors being brought more frequently into contact with other diseases of streptococcal origin, such as scarlet fever, erysipelas, and pyogenic conditions, are more likely, it is suggested, to become carriers of the organism than are midwives, who are relatively immune from risks of contact with these conditions.

It is not necessary for us at this stage to do more than pigeon-hole this theory for future consideration. The medical officer to the Scottish Board of Health (Dr. T. F. Dewar), in a preface to the Aberdeen report, very fairly points out some of the difficulties in accepting the theory of throat infection as the usual channel by which the infecting organisms reach the maternal passages. In the course of the extensive English inquiry now in progress no doubt other theories will be advanced, and it is all to the good that we should be in a position to consider all the possible explanations which research and discussion may bring to light. On the other hand, the theory of throat infection cannot be lightly dismissed. It certainly offers a possible explanation of those rare but puzzling cases of sepsis which occur in patients, who can be proved not to be carriers of streptococci themselves in the cervical or vaginal secretions, and who have been confined in hospitals of repute. If the theory of throat infection as the usual channel were to become established, one feels appalled at the prospect of the consequences which would ensue in the practical work of midwifery. The task of discovering carriers, their suspension from work until freed from the organism, the means which might have to be employed to free them, and the practical impossibility of preventing droplet distribution by any form of mask worn by the medical and nursing attendants, suggest only a few of the complications which the establishment of the theory would entail. Let us hope that further work may relegate it to a position of rarity among the possible channels of infection.

In considering puerperal sepsis we must, however, face the fact that in institutions this disease still assumes epidemic form; it is true that the outbreaks are not comparable in extent or in severity to those which devastated lying-in hospitals so frequently in pre-antiseptic days. It has to be admitted, however, that we have not got rid of epidemics of puerperal fever in our lying-in institutions, and it appears to me that this is one of the most serious features of the problem of maternal mortality. I have mentioned the outbreak which occurred in an Aberdeen hospital in January, 1928. We are told in the report that "Similar outbreaks of puerperal sepsis, spread by gross contagion, occurred in 1922 and in 1924." The report does not state the total number of deaths for which the two earlier outbreaks were responsible; we know, however, that in the third epidemic 4 died, and the total number of deaths from sepsis in the institution during the ten years of the inquiry was only 10. It is therefore probable that the three epidemics in 1922, 1924, and 1928 accounted for the great majority, possibly for all, of the institutional deaths from sepsis. If these outbreaks could have been prevented a notable reduction of the maternal mortality rate from sepsis in Aberdeen would have resulted.

A good deal of information is available which shows that similar outbreaks have occurred in other centres than Aberdeen, so that the conditions which favour the occurrence of such outbreaks are not peculiar to that city. Through the kindness of Dr. Parlane Kinloch I have been furnished with details of an outbreak which occurred a few months ago in an English town. In this town there is a small maternity hospital of fourteen beds, staffed by a matron, nurses, and pupil midwives. In December, 1928, an outbreak of puerperal fever occurred in this hospital, in which three women only were affected, and all three died. The throats of all the staff were examined and haemolytic streptococci were found in the case of the matron and several others. The epidemic was controlled by closing the hospital entirely for disinfection, and sending the staff away for a few days' holiday.

In connexion with this hospital a certain small number of women are attended in their homes by a midwife assisted by pupils. The midwife who attends the district cases has no duties in the hospital itself. In January, 1929, three cases of puerperal fever occurred in women attended in their homes by this midwife and a pupil, and again all of them proved fatal. It is known that the midwife's throat was free from the haemolytic streptococcus at the time of the outbreak in the hospital, but unfortunately neither the district midwife nor her pupil was re-examined when the cases occurred in the district. The pupil was one of those whose throat culture gave positive results at the time of the hospital outbreak, and further inquiry showed that this particular pupil had been in actual attendance on the three women who died during the first epidemic. The presence of this pupil seemed to be the only factor common to all six of the cases. The hospital accordingly dispensed with her services, and she decided to give up the idea of qualifying as a midwife. Wherever the infecting organism may have come from, it was evidently one of high virulence, the case mortality of the two outbreaks being 100 per cent.

The evidence so far adduced in support of the theory of throat infection cannot be regarded as conclusive. Probably haemolytic streptococci could be found in the throats of the majority of healthy persons, and proof requires something further than their discovery in the throat of an attendant at the confinement. Assuming that they can be conveyed by "droplet" infection to the parturient canal, is it certain that these throat organisms are capable of setting up an acute blood infection? Or is it possible that in some instances they are capable of so doing, and in other instances they are not? In the latter case, is it practicable to distinguish between throat cultures which are dangerous and those which are not? Assuming that the majority of healthy persons are throat carriers of the haemolytic streptococcus, and that this organism can be borne by droplet infection to the genital canal, would not puerperal infection be very much commoner than it actually

is? One would like to see the theory supplemented by exact experimental observations before accepting it.

If a single case of acute infection occurs in a hospital or other institution, the evidence is conclusive that it is liable to spread by gross contagion from one woman to another, and also to the infants. It is clear that the ordinary methods of isolation and of disinfection, and perhaps also the routine antiseptic technique, of these institutions in which outbreaks have occurred, are not adequate to prevent the occasional occurrence of puerperal infection within their walls, and given the occurrence of a single case they are unable adequately to protect their other patients from the risks of contagion. Now that the English inquiry is fairly launched, any further outbreak which occurs will no doubt be studied as an epidemic phenomenon by the experts of the local health departments.

In its bacteriological aspects the Aberdeen outbreak of 1928 was very closely studied, and the suggestions I have referred to as to throat infection were the direct outcome of this work. No information is given, however, apart from this, about the conditions which permitted the infection to be conveyed from one patient to another in the hospital, or as to how these conditions could be remedied.

Isolation of Septic Cases.

It would appear that the provision of adequate facilities, whether public or private, for the isolation of all septic cases must be regarded as essential; and isolation must be effected immediately, as in the case of all other notifiable infectious fevers, for every day's delay multiplies the risks. In fact, an isolation block is a *sine qua non* of a properly equipped maternity hospital, for the experience I have referred to shows that the less complete methods of segregation which are now employed cannot be relied upon. The isolation block would require its separate building, its separate staff, its separate operating theatre and equipment, and would consequently be very expensive to provide. The numerous small maternity hospitals which now exist, and which have increased so rapidly in recent years owing to the policy of the Ministry of Health in encouraging the provision of municipal maternity homes, have been organized on the simplest lines in order that they may come within the reach of the middle classes, and they have as a rule no effective means of isolating septic cases. The consequence is that there have been a number of outbreaks of puerperal sepsis in them. The difficulties of these small institutions are increased by the fact that when a septic case occurs there is so much difficulty in getting it transferred to another place, although the Poor Law hospitals, and in London the fever hospitals of the Metropolitan Asylums Board, are able and willing to undertake the care of these cases, but patients are not willing to be sent to these hospitals.

The provision of isolation blocks in connexion with all our great maternity hospitals, to which both private cases and others from small institutions could be immediately transferred, would permit of an intensive study of puerperal sepsis by a combined team of obstetricians, bacteriologists, and public health authorities, which up to now has never been carried out on a sufficiently large scale. It may be a long time before we can attain such a system as this, but I am glad to know that an institution to which I have been attached for many years, Queen Charlotte's Hospital in London, has made the erection of an isolation block the first step to be taken in the projected building of the new hospital, which is to take the place of the old one.

Doctors' Cases and Midwives' Cases.

There is one more matter in the Aberdeen report to which I must draw attention. The report has been able to differentiate between the cases attended by doctors and those attended by midwives, and emphasis is laid on a comparison of the results. It appears from this comparison that the doctors' cases showed a general maternal mortality rate of 6.9 per thousand, and the midwives' cases a rate of only 2.8 per thousand. Attention has been called by Dame Janet Campbell, in the Ministry of Health reports, to the fact that the returns of midwives' cases in many localities show a death rate well below the average maternal death rate; and Dr. Fairbairn has shown that the picked body of midwives who work for the Queen Victoria's Jubilee Institute for Nurses have achieved even better results than those disclosed by the Ministry of Health, and that their results are progressively improving. The Aberdeen report is, however, I believe, the first report in which it has been possible to institute a direct comparison between cases attended privately by doctors and those attended by midwives. I know that the comparison between doctors' and midwives' cases is to some extent an unfair one, because midwives accept none but normal cases, or cases which they believe to be normal; while doctors get a correspondingly large number of abnormal, and therefore more difficult ones.

Now I mention this matter not with the idea of imputing blame or suggesting explanations, but because by the Aberdeen report it is made the basis of a plea for a fresh orientation of midwifery practice, or, in the words of the report, "a new midwifery organization in which midwives conduct all normal deliveries, and in which doctors provide the ante-natal services and deal with obstetrical complications." This, they believe, would result in "a significant reduction in maternal mortality." I have already mentioned that the report attributes greater risks to doctors than to midwives of becoming throat carriers of the streptococcus, and this consideration has no doubt weighed heavily with the authors in making this proposal.

Now I should very much like to know what my colleagues in general practice will think of this proposal. So far as I can judge at present the definite objections to it appear to me to outweigh the more or less problematical advantages. There is a basic objection which I think is of great importance—namely, that the ability of doctors generally to deal with cases of obstetrical complications will steadily deteriorate if experience in normal midwifery is withdrawn from them. An intimate acquaintance with the course of the birth process under normal conditions is the first requisite for dealing with complications, and do we not all know that intimate knowledge can only be acquired, and when acquired can only be maintained, by constant practice? I have always held that it was the duty of an obstetric specialist to maintain touch with normal labour, by undertaking the private care of a certain number of cases each year, as well as by his hospital work. And what is true of the specialist will equally apply to the doctors who, under this new scheme, would be required to deal with the complicated cases. The tendency would be that the work of dealing with these cases would pass into the hands of a few men in each locality, while the remainder of the practising doctors withdrew from midwifery altogether. This, to my mind, would be a deplorable result. Midwifery has long been regarded as an essential subject in the examination for registration as a medical practitioner, and has taken its place alongside medicine and surgery in the foundations of medical education. To withdraw it from the sphere of the general medical practitioner would be to change its status as a basic subject in medical education, and would deprive the practitioner of work which he can undoubtedly be trained to do with success and with advantage to the community.

I think it can be anticipated that other reports will in time appear dealing with the same point—that is, in the way of comparison between doctors' and midwives' cases. It may be that they will not correspond with the data given us from Aberdeen, but if the contrary should be the case—I mean if similar results should appear generally—the medical profession will be brought face to face with a situation so grave that it cannot be ignored. This matter cannot be dealt with in a few words, but I feel that we should all be thinking about it, about its many implications and the consequences which would inevitably follow if this situation persists and is shown to apply generally. It would indeed constitute a serious indictment of our profession if the opinion became established that partly trained women were more successful in the management of normal midwifery than are fully trained members of our profession.

I hope what I have said about the Aberdeen report will show that, although it adds little to our knowledge of the causes of maternal mortality, it is yet of great interest and does a great deal to indicate the direction along which further inquiries may usefully proceed. We do not know what are the intentions of the Ministry of Health with regard to the English report; we may get a series of reports from different centres, or we may have to await the preparation of a national report. The work will occupy many years, and I am sure we shall be prepared to do everything we can to assist the investigators in their tremendous task, realizing how urgently necessary it is in the national interest to reduce our terrible wastage of maternal life.

A Study
OF
THE BACTERICIDAL POWER OF THE BLOOD DURING PREGNANCY AND THE PUERPERIUM,
*AND ITS RELATIONSHIP TO THE DEVELOPMENT AND COURSE OF PUERPERAL INFECTION.**

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THE introduction of pyogenic organisms into the reproductive tract, with or without trauma as an important contributory agency, is recognized as the commonest and most important factor in the causation of puerperal infection. While this is so, the anomalous nature of its incidence is a commonplace attribute of this disease; the occasional appearance of infection in a case in which delivery has been spontaneous and even free from examination, and on the other hand its failure to develop where trauma and manipulation have made its occurrence probable, constitute a paradox with which everyone engaged in midwifery practice is familiar.

A partial explanation of this phenomenon was suggested by those workers who investigated the cervical and vaginal flora during pregnancy and attempted to relate the occasional unexpected development of sepsis to a pre-existing infective condition of the genital passages. The recent observations of Burt-White and Armstrong,[1] however, would appear to call into question the validity of the conclusions offered by previous observers. Burt-White and Armstrong examined the cervical flora in 55 pregnant women; in 40 per cent. of these cases streptococci of different types were isolated, but in only one did the strain present the characters of the *Streptococcus pyogenes*, the common cause of puerperal fever; they report, moreover, 15 cases of pregnant women whose cervices harboured haemolytic streptococci, including *Streptococcus pyogenes*, and in none did sepsis occur. These workers conclude that "the presence of the haemolytic streptococcus in the reproductive tract does not necessarily give rise to sepsis in the puerperium," and state further that their results appear "to support definitely an exogenous origin for infection in puerperal sepsis, while leaving unexplained those rare cases of sepsis in which there has been no manipulation during pregnancy or labour." A similar conclusion is suggested by a study of the epidemics of puerperal sepsis with which hospitals in pre-Listerian days were ravaged, and Young[2] instances in this connexion the long intervals of freedom from fatal sepsis in support of the view that, as compared with trauma and contagion, autogenous infection must at best play a minor part in the etiology of the disease.

Bacteriological and clinical evidence seems accordingly to warrant the inference that puerperal sepsis can rarely be explained on the basis of an endogenous infection. It appeared to us possible, however, that the occurrence of sepsis in cases in which there has been a minimum of interference might be related to an abnormally low degree of resistance on the part of the individual; a variation in susceptibility of this nature would readily explain the capricious distribution of puerperal sepsis—for example, in the lying-in wards of a maternity hospital.

To test the validity of this hypothesis it was decided to examine the bactericidal and bacteriostatic* power of the blood in a large series of pregnant and parturient women. Coincidentally with this larger investigation the skin sensitiveness to streptococcal toxin was examined in a small number of those women in whom at the same time the bactericidal power of the blood was tested. The toxin employed in the test of skin sensitiveness was isolated from a culture of a haemolytic streptococcus found in the blood of a woman suffering from puerperal sepsis and was prepared by the method described by Lash and Kaplan.[3]

For two reasons it was decided not to persevere with the examination of skin sensitiveness as a method of determining individual susceptibility to infection. In the first place, in those cases in which this reaction was tested no relationship was observed between the type of reaction and the incidence of pyrexia in the puerperium. Of the 49 women tested, 10 were toxin-sensitive, while 39 did not react; among the positive reactors the puerperium was morbid in two cases, in one of which delivery was effected by forceps; of the non-reactors six women, one of whom was delivered by forceps, experienced morbid puerperia. The inconsistent character of these results is disappointing in view of the observations of Burt-White,[4] who found a morbidity rate of 30 per cent. in women who reacted positively to streptococcal toxin. It should be mentioned, however, that Burt-White employed scarlatina toxin and that his investigation was on a scale considerably larger than that here reported. In those cases in which the two tests above referred to were carried out it was found that one had no relationship to the other, the bactericidal power of the blood being in point of fact higher as a rule in those cases in which the skin reaction was positive than in those in which it was negative.

In the second place, although a negative skin reaction of the type referred to may indicate that the patient possesses antitoxic substances to streptococcal toxin, it is probably not in the same sense a measure of resistance on the part of the individual to the important *locally invasive* as distinct from the *toxin-producing* property of the organism, a property which, from anatomical considerations, is of special importance in puerperal sepsis. In the expectation that such resistance to organismal invasion might possibly be related to the bactericidal activity of the blood, we decided to employ this test in our investigation, and were influenced further in our choice by its non-specific character (see Table II), and its applicability, therefore, to forms of infection other than streptococcal.

The method employed in the examination of bactericidal and bacteriostatic power was that described by Wright, Colebrook, and Storer,[5] and consists essentially in mixing whole blood with a known quantity of bacteria on "slide cells," the bactericidal power being gauged by the number of colonies which develop after incubation for twenty-four hours.

One disadvantage of this method may be mentioned: in an investigation of this kind a very large number of individual observations is required to provide the necessary data. This is so in the first place because of the technical impossibility of preparing for the purposes of a series of tests, carried out at different times, inocula each of exactly the same uniform density, with the result that a direct comparison is possible only between units of a group each member of which has been tested with the same inoculum, and not between units of different groups in

* Read at a joint meeting of the Edinburgh Pathological Club and Edinburgh Obstetrical Society, April 17th, 1929.

* The term "bacterio-static" implies inhibition of bacterial growth. Wright[5] has interpreted the results obtained by the method which he originally described as due to a "bactericidal" action; it seems possible that growth inhibition may also be an important factor, but while recognizing this we have in this paper employed the term "bactericidal," as originally used by Wright.

which different inocula may have been employed.[6] Furthermore, as the subjoined table shows, after blood has been drawn off it loses, at first slowly, then more rapidly, its bactericidal property.

Blood was withdrawn from the same individual at the same time each day on four successive days; on the fourth day all the samples were tested together, approximately 80 organisms being implanted in each sample.

TABLE I.

The number of colonies which grew in—	
Blood tested as soon as withdrawn	= 5
Blood kept for one day	= 18
Blood kept for two days	= 38
Blood kept for three days	= 63

Because of this deterioration in the bactericidal power of the blood on keeping it is possible only to compare the results in a group of samples of blood withdrawn at approximately the same time. Each group has to be investigated at once and considered individually. In practice it was found convenient to examine at one time a group of six samples of blood all withdrawn simultaneously and all tested with one inoculum of uniform density.

Before presenting the results of our investigation two further preliminary observations may be made: (1) Little or no variation has been observed in the bactericidal power of the blood of a healthy individual from hour to hour, or from day to day; this finding is not in keeping with the observation of Alston[7] that a diurnal variation in bactericidal activity occurs. (2) In the majority of our observations a twenty-four-hour broth culture of *Staphylococcus aureus*, dilution 1 in 5,000, was employed; the non-specific character of the test, however, is illustrated in Table II.

TABLE II.

Patient	Twenty-four-hours broth culture Staph. aureus, dilution 1 in 5,000: viable organisms introduced estimated to be 85.					Streptococcus (haemolytic type), dilution 1 in 5,000: viable organisms introduced estimated to be 176.				
	Slide Cells.				Average No. of Colonies.	Slide Cells				Average No. of Colonies.
	(1)	(2)	(3)	(4)		(1)	(2)	(3)	(4)	
1	18	17	16	13	16	50	42	35	32	35
2	25	24	20	26	24	63	64	65	67	61
3	25	30	21	24	25	47	70	53	65	59
4	34	25	34	34	32	74	87	61	63	72

In all, the bactericidal power of the blood of 396 individuals was examined; as each sample of blood was incubated with organisms in four separate "slide cells," and each of these four subdivisions individually examined, a total of approximately 1,600 clinical experiments was performed.

The first series of experiments was undertaken to determine whether or not such individual variation in bactericidal activity as might exist could be related to the incidence of pyrexia in the puerperium. This series comprised 229 healthy individuals, all of whom experienced spontaneous, uncomplicated labours, blood being withdrawn at or about the time of delivery. There were in this group 17 women who subsequently experienced febrile puerperia due to pelvic infection. *An analysis of these cases shows that in 14 of them the degree of bactericidal power in the patient who subsequently developed sepsis was lower than the average bactericidal power of the other members of the respective groups, while in 3 cases it was higher.* These findings appear to us of such importance that we include a short summary of the cases herewith.

Brief Notes of 17 Women who, subsequent to Delivery, Experienced Morbid Puerperia.

Case 39.—Spontaneous delivery; mild sepsis; one vaginal examination; blood withdrawn 5 hours after delivery; colonies = 82; average number of colonies in group = 54.

Case 14.—Spontaneous delivery; severe sepsis; blood withdrawn 6 hours before delivery; colonies = 90; average number of colonies in group = 55.

Case 3.—Spontaneous delivery; mild sepsis; blood withdrawn 24 hours after delivery; colonies = 22; average number of colonies per group = 17.

Case 27.—Spontaneous delivery, mild sepsis, blood withdrawn one hour after delivery; colonies = 2; average number of colonies in group = 6.

Case 54.—Spontaneous delivery; one vaginal examination; severe sepsis; blood withdrawn 6 hours before delivery; colonies = 21; average number of colonies in group = 6.

Case 59.—Spontaneous delivery; one vaginal examination; mild sepsis; blood withdrawn 6 hours before delivery; colonies = 59; average = 21.

Case 93.—Spontaneous delivery; one vaginal examination, died from acute streptococcal septicaemia 7 days after delivery; blood withdrawn 10 hours after delivery; colonies = 60; average = 19.

Case 175.—Spontaneous delivery; mild sepsis; blood withdrawn 7 days before labour; colonies = 12; average = 5.

Case 145.—Spontaneous delivery; two vaginal examinations; mild sepsis; blood withdrawn one hour after delivery; colonies = 3; average = 6.

Case 129.—Spontaneous delivery; one vaginal examination; mild sepsis; blood withdrawn one hour before delivery; colonies = 12; average = 5.

Case 121.—Spontaneous delivery; one vaginal examination; mild sepsis; blood withdrawn at onset of labour; colonies = 7; average = 3.

Case 169.—Spontaneous delivery; one vaginal examination; died of acute streptococcal septicaemia; blood withdrawn 20 hours after delivery; colonies = 10; average = 17.

Case 224.—Spontaneous delivery; no vaginal examination; mild sepsis; blood withdrawn 10 hours after delivery; colonies = 21; average = 17.

Case 103.—Spontaneous delivery; three vaginal examinations; severe sepsis; blood withdrawn 5 days before labour; colonies = 52; average = 37.

Case 37.—Spontaneous delivery; four vaginal examinations; mild sepsis; blood withdrawn one week before labour; colonies = 113; average = 70.

Case 102.—Spontaneous delivery; three vaginal examinations; severe sepsis; blood withdrawn at onset of labour; colonies = 14; average = 5.

Case 218.—Spontaneous delivery; three vaginal examinations; mild sepsis; blood withdrawn 12 hours after delivery; colonies = 70; average = 45.

A further investigation, complementary to that just described, was concerned with cases in which labour had been seriously complicated and in which, from the amount of interference and extent of trauma, it appeared probable that serious sepsis would develop. Twelve such cases were investigated, each potentially septic case being as far as practicable grouped along with women who had experienced normal labours, the latter constituting a control by which the degree of bactericidal power might be compared. In each of the twelve cases referred to the blood in one of the four "slide cells" was not inoculated, so that should the blood already contain organisms their presence might in this way be detected and a source of fallacy be excluded. In none of the twelve cases examined, however, was any organismal growth obtained in the "slide cells" which were left unimplanted as described.

In eight of the twelve groups investigated the bactericidal power of the potentially septic case was above the average of that of the other members of the respective groups; all of these patients recovered, and in two cases (*vide infra*, Cases 313 and 201) in which there had been extensive trauma and contamination the puerperium was afebrile. In one case no difference was noted in the degree of bactericidal power of the "suspect" as compared with the others; this patient recovered. In three cases the bactericidal power of the potentially septic patients was lower than the average; two of these patients died.

Short Notes on the 12 Cases referred to above.

Case 49.—Labour 60 hours; numerous vaginal examinations; difficult forceps delivery; mild sepsis; recovery; blood withdrawn 9 hours before delivery; colonies = 10; average = 30.

Case 215.—Labour 28 hours; numerous vaginal examinations; difficult forceps delivery; traumatic post-partum haemorrhage; primary cervical repair; mild sepsis; recovery; blood withdrawn 2 hours before delivery; colonies = 6; average = 35.

Case 94.—Labour 36 hours; numerous vaginal examinations; difficult forceps delivery; mild sepsis; recovery; blood withdrawn 12 hours after delivery; colonies = 8; average = 19.

Case 318.—Labour 28 hours; unsuccessful forceps outside; craniotomy; extensive laceration; severe sepsis; recovery; blood withdrawn 2 hours before delivery; colonies = 2; average = 13.

Case 326.—Labour 55 hours: numerous vaginal examinations; forceps delivery; mild sepsis; recovery; blood withdrawn 2 hours before delivery: colonies = 2; average = 13.

Case 311.—Labour 28 hours: unsuccessful forceps outside; forceps delivery; extensive laceration; normal puerperium; blood withdrawn 12 hours after delivery; colonies—no growth; average = 14.

Case 161.—Shoulder presentation; early rupture of membranes; labour 60 hours; ineffectual attempts to deliver outside; Caesarean hysterectomy; clinically very bad prognosis; cellulitis; recovery; blood withdrawn immediately before operation; colonies = 5; average = 16.

Case 261.—Labour 20 hours; unsuccessful forceps outside; spontaneous delivery in hospital; extensive laceration; normal puerperium; blood withdrawn 36 hours after delivery; colonies=33; average = 49.

Case 81.—Labour 40 hours; unsuccessful forceps outside; spontaneous delivery in hospital; normal puerperium; blood withdrawn 21 hours after delivery: colonies = 22; average = 22.

Case 21.—Labour 31 hours; unsuccessful forceps outside; forceps delivery; severe sepsis; recovery; blood withdrawn 18 hours after delivery: colonies = 16; average = 12.

Case 230.—Labour 14 hours; unsuccessful forceps outside; craniotomy; death from streptococcal septicaemia 14 days after delivery; blood withdrawn 60 hours after delivery; colonies = 32; average = 10.

Case 93.—Difficult forceps delivery outside; post-partum eclampsia; death from streptococcal septicaemia 4 days after delivery; blood withdrawn 30 hours after delivery; colonies = 32; average = 7.

There were in these two series of observations, comprising a total of 29 cases, 7 cases (Nos. 3 and 100 in the first series, and the last five cases in the second) in which blood was withdrawn for examination more than twelve hours after delivery; the findings in these cases must on that account be interpreted with caution as representing the primary degree of haemo-bactericidal power possessed by the individual. With these exceptions, however, the investigation was made either before delivery or so soon afterwards as probably to anticipate any serious modification in antibacterial activity which might result from the introduction of infection. The data obtained appear to show with considerable conclusiveness that the degree of resisting power to infection, as measured in this way, has an important influence on the subsequent development and course of puerperal sepsis.

The variation in degree of antibacterial power which the above investigation disclosed led naturally to an effort to determine the factors on which this variability might depend. The next series of experiments accordingly was undertaken to determine (1) whether or not the degree of bactericidal power varied as between pregnant and non-pregnant individuals; (2) whether the bactericidal power during pregnancy was within limits constant or was influenced by the stage of gestation reached; and (3) the influence on bactericidal power of multiparity as compared with nulliparity or primiparity, and of such conditions as albuminuria, prolonged labour, instrumental delivery, and severe blood loss.

I. A Comparison of the Bactericidal Power of the Blood in Pregnant and Non-pregnant Individuals* (see Chart 1).

A series of observations was made in which the blood of healthy non-pregnant individuals was compared with that of women at or about the sixth month of pregnancy, at the end of the eighth month of pregnancy, at the time of delivery, and at ten days, at six weeks, and at twelve weeks after delivery. The following results were obtained:

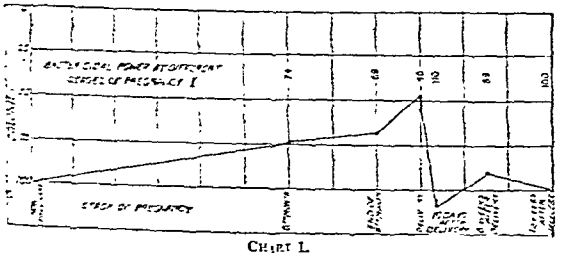

Chart I.

A. *Comparison of Non-pregnant Women and Women at or about the Sixth Month of Pregnancy.*—Three groups of cases were investigated, each containing three non-pregnant and three pregnant individuals. In each of the three groups the average bactericidal power of the pregnant exceeded that of the non-pregnant women. The combined ratio, pregnant to non-pregnant, expressed in terms of the colonies which formed after incubation, was approximately as 74 to 100. The method of calculation is shown in the following table.

Table III.

Case	Group I.		Group II.		Group III.	
		Average No. of Colonies.		Average No. of Colonies.		Average No. of Colonies.
1	Pregnant	8	33		27	
2	.. ..	6 } 6	28 } 32		17 } 23	
3	.. ..	5 }	30 }	= 60/100	25 }	= 82/100
4	Non-pregnant ...	7	32		13	
5	.. ..	10 } 10	50 } 40		31 } 23	
6	.. ..	14 }	38 }		35 }	

Combined group ratio, pregnant to non-pregnant ... ... = 60/100 + 80/100 + 82/100 = 74/100.

As the number of organisms introduced was not constant for each group this figure represents an approximate and qualitative rather than an exact mathematical ratio.

B. *Comparison of Non-pregnant Women and Women at End of the Eighth Month of Pregnancy.*—Six groups of cases were investigated, each group containing two or more non-pregnant and two or more pregnant individuals. In four groups the average bactericidal power of the pregnant exceeded that of the non-pregnant; in one group no difference was found, and in one group the bactericidal power of the non-pregnant women was the higher. The combined ratio, pregnant to non-pregnant, expressed in terms of colonies, was approximately as 69 to 100.

C. *Comparison of Non-pregnant Women and Women in Labour or Shortly after Delivery at Term.**—Seven groups of cases were investigated, each group containing two or more pregnant and two or more non-pregnant individuals. In six groups the average bactericidal power of the parturient individuals exceeded that of the non-pregnant, while in one group no appreciable difference was found. The combined ratio, parturient to non-pregnant, expressed in terms of colonies, was approximately as 46 to 100.

D. *Comparison of Non-pregnant Women and Women Ten Days after Delivery at Term.*—Four groups of cases were investigated. In two groups the bactericidal power of the puerperal women exceeded that of the non-pregnant, while in two groups the reverse obtained. In none of the four groups was the difference marked, the combined ratio, puerperal to non-pregnant, expressed in terms of colonies, being approximately as 110 to 100.

E. *Comparison of Non-pregnant Women and Women Six Weeks after Delivery.*—Three groups of cases were investigated. In all three groups the bactericidal power of the late puerperal individuals slightly exceeded that of the others. The combined ratio, late puerperal to non-pregnant, expressed in terms of colonies, was approximately as 89 to 100.

F. *Comparison of Non-pregnant Women and Women Twelve Weeks after Delivery.*—In three groups of cases investigated no appreciable difference was observed in the bactericidal power of the one as compared with the other.

II. The Bactericidal Power of the Blood at Different Stages of Pregnancy (see Chart 2).

A complementary series of observations was made in which the blood of healthy parturient women, in labour or immediately after delivery, was compared with that of non-pregnant women and of women at or about the sixth month of pregnancy, the end of the eighth month, and at ten days, at six weeks, and at twelve weeks after delivery.

A. *Comparison of Women at Full Term and Non-pregnant Women.*—This group has already been considered (*vide supra*, C).

* The possibility that pregnancy might confer an enhanced degree of bactericidal power was suggested by a chance observation that in one of a series of six women investigated in the ante-natal out-patient department of the Royal Maternity Hospital the bactericidal power of the blood was markedly lower than that of the other women whose blood was tested; on this being subsequently examined showed that in this individual the abdominal enlargement was due to an ovarian tumour and not to pregnancy.

* *So far as our observations go, the effect of spontaneous uncomplicated labour on bactericidal activity is inconsiderable. The bactericidal power of fifteen healthy women at the commencement of labour was contrasted with that of a similar number at its conclusion. It was found that at the commencement of labour colonies were more numerous in eight and less numerous in six than at the time of delivery, while in one case no difference was observed. There is thus apparently a slight increase in bactericidal activity at the time of delivery as compared with the onset of labour, but the difference is not pronounced.*

B. *Comparison of Women at Full Term and at the Sixth Month of Pregnancy.*—Three groups of cases were investigated, each containing three women at full term and three at or about the sixth month of pregnancy. In each of the three groups the bactericidal power of the former exceeded that of the latter. The combined ratio, expressed in terms of colonies, six months to full term, was approximately 160 to 100.

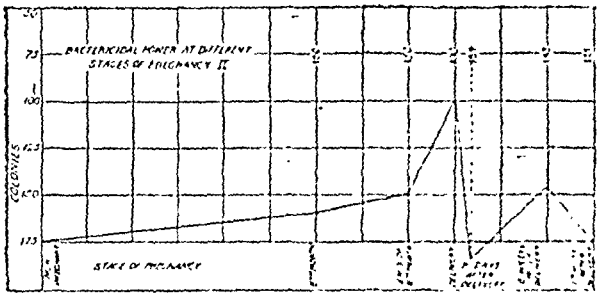

CHART 2.

C. *Comparison of Women at Full Term and at End of Eighth Month of Pregnancy.*—Seven groups of cases were investigated. In each of the seven groups the bactericidal power at full term exceeded that at the end of the eighth month; the combined ratio, expressed in terms of colonies, eighth month to full term, being approximately as 129 to 100.

D. *Comparison of Women at Full Term and at the Tenth Day after Delivery.*—Five groups of cases were investigated. In three groups the bactericidal power of the blood of women at full term considerably exceeded that of women ten days after delivery, while in two groups no appreciable difference was observed. The combined ratio, expressed in terms of colonies, ten days post partum to full term, was approximately as 184 to 100.

E. *Comparison of Women at Full Term and at the Sixth Week after Delivery.*—Three groups of cases were investigated. In two groups the bactericidal power at full term exceeded that of the late puerperium, while in one no appreciable difference was observed. The combined ratio, expressed in terms of colonies, six weeks post partum to full term, was as 143 to 100.

F. *Comparison of Blood of Women at Full Term and at the Twelfth Week after Delivery.*—Three groups of cases were investigated. The combined ratio, expressed in terms of colonies, twelve weeks post partum to full term, was as 175 to 100.

So far it is evident that in both pregnant and non-pregnant individuals there is considerable variation in the degree of bactericidal activity which the individual possesses. This variation is more marked during pregnancy and has a definite relationship to the period of gestation which has been reached. There appears to be a gradual increase in bactericidal activity as pregnancy advances which reaches its maximum at or about the full term of pregnancy. After labour there is a rapid decline in bactericidal power, the curve (see Charts 1 and 2) falling sharply, so that about the tenth day of the puerperium it reaches the non-pregnant level; thereafter there is a further temporary increase, which has disappeared by the twelfth week after *parturition*. In contrast to the views expressed by Bonney,[8] Douglas,[9] and others, a woman at the time of delivery appears to possess a degree of resisting power to infection considerably in excess of that of the non-pregnant individual. During the days which immediately follow delivery there is, however, a relative "negative phase" which may have an important application in the light of the serious character which a puerperal infection is liable to assume.

III. The Influence on Bactericidal Power of Parity and of such Conditions as Albuminuria, Prolonged Labour, Instrumental Delivery, and Severe Loss of Blood.

1. *Parity.*—So far as our observations go, there appears to be no difference in the degree of bactericidal power possessed by the parous as compared with the nulliparous non-pregnant individual; nor have we found any difference in this respect between the primigravid and the multigravid woman. In thirty-six groups of cases which were investigated it was found that the colonies which formed in the blood of primigravidae were more numerous than those in the blood of multigravidae in ten groups, and less numerous in eleven, while in fifteen groups no appreciable difference was observed. The more frequent occurrence of repair in primiparae than in multiparae is probably to be explained by the greater difficulty which generally attends a first labour rather than by any difference in resisting power to infection which the one class possesses as compared with the other.

2. *Albuminuria.*—The increased liability to infection which appears clinically to be associated with albuminuria and eclampsia prompted an investigation into the influence which this complication of pregnancy might exert on the bactericidal activity of the individual. In sixteen groups of cases the blood of a patient suffering from albuminuria or eclampsia was compared with that of healthy women advanced to the same stage of pregnancy; in eleven cases the bactericidal power of the albuminuric individual was below and in four cases above that of the others, while in one case no difference was observed. It would appear, accordingly, that albuminuric toxaemia tends to depress the resisting power to infection as measured in this way.

3. *Duration of Labour.*—In thirty groups of cases the bactericidal power of the blood was investigated in relation to the duration of labour, blood being withdrawn for examination at or about the time of delivery. For the purposes of analysis cases of difficult instrumental delivery were excluded. In each group the average duration of labour in the six cases making up the group was ascertained; the blood of those in whom the duration of labour exceeded the average was then compared with that of those in whom it was shorter than the average. In nineteen groups the bactericidal power was poorer in those women who had relatively long labours, in six groups the reverse obtained, while in the remaining five groups no appreciable difference was observed.

4. *Instrumental Delivery.*—In twelve groups of cases an attempt was made to determine the effect of instrumental delivery on the bactericidal power of the blood. Each group contained one or more cases in which the patient had been delivered by forceps, and in addition, for purposes of comparison, two or more cases in which delivery had been spontaneous. So far as was practicable blood was withdrawn within a few hours of delivery so as to minimize any modification in the bactericidal activity of the blood which might result from the introduction of infection. In ten of the twelve groups analysed it was found that the bactericidal power of those women who had been delivered by forceps was poorer than that of those delivered spontaneously, while in the remaining two groups this finding was reversed.

The above analysis of the effect of prolonged labour and of instrumental delivery (3 and 4) does not take into account the influence of such associated factors as fatigue, anaesthesia, or incidental obstetric complications, the effect of which it is difficult to appraise. It is illogical, accordingly, to interpret the findings just quoted as indicating that the resisting power to infection is necessarily affected either by the number of hours which a woman may pass in labour or by the forceps operation as such. All that seems reasonable to assume is that, apart from any question of the introduction of infection, a labour which is short and spontaneous will in general tend to react less injuriously on bactericidal activity than one which is tedious and instrumental.

5. *Severe Blood Loss.*—The number of cases in which it was possible to estimate the effect of severe blood loss on bactericidal power was restricted by the difficulty of excluding extraneous and, for the purposes of analysis, confusing factors in such conditions as ante-partum and post-partum haemorrhage, in which measures employed for the control of bleeding may of themselves modify bactericidal activity. So far, however, as an analysis has been possible it has conveyed the impression that with severe loss of blood a lowering of bactericidal power occurs.

Relationship of Bactericidal Activity to the Blood Elements and in Particular to the Leucocyte Count.

The observations of Payer,[10] Dietrich,[11] and others have shown that during pregnancy an increasing leucocytosis occurs, which reaches its maximum at the time of delivery and thereafter rapidly subsides. It was decided, accordingly, to examine the extent to which the modification in antibacterial activity which we have described could be related to the changes which occur in the blood elements, and in particular to the numerical increase in the white cells.

THE PUERPERAL MORBIDITY RATE IN PATIENTS DELIVERED NORMALLY.*

A COMPARISON BETWEEN CASES EXAMINED VAGINALLY AND CASES NOT SO EXAMINED, WITH REMARKS ON THE ADVANTAGES AND LIMITATIONS OF RECTAL EXAMINATION.

BY

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MEDICAL students and pupil midwives at the Leeds Maternity Hospital have been taught for some years that vaginal examination during labour is a risky procedure, which should not be used except in certain indications. It was with a view to finding out whether this teaching was justified by the facts that I have investigated a series of 1,546 consecutive normal cases delivered in the hospital between August, 1926, and March, 1928, during which time I was the resident medical officer.

I have excluded from my normal category (1) all cases requiring intrauterine manipulation or instrumental assistance during labour; (2) all cases where there was any obvious predisposing cause of puerperal sepsis—for example, ante-partum and post-partum haemorrhage; (3) all cases of puerperal pyrexia, due to definite extragenital causes such as bronchitis, mastitis, phthisis, pneumonia, pyelitis, tonsillitis, etc. All cases with a perineal tear are classified separately to avoid confusing the issue.

A number of cases admitted from outside and subsequently delivered spontaneously without vaginal examination in the hospital are omitted, as, although they were almost certainly examined vaginally before admission, I have no sure information on the point. The morbidity rate in this class was abnormally high.

The normal cases remaining I have classified according to whether they were examined vaginally or not, and I have described the puerperium as either (1) morbid—by the Ministry of Health standard of puerperal pyrexia; (2) submorbid—where the temperature reached 99° or more at least twice during the twenty-one days following delivery; (3) normal—including apyrexial cases, cases where the temperature never reached 99°, and cases where the temperature reached or exceeded 99° on one occasion only. The temperature was taken in the axilla in all cases.

The vaginal examinations were done in almost all cases by pupil midwives under the supervision of the labour ward sister, in order to comply with the existing rule of the Central Midwives Board, which requires a pupil to perform a certain number of vaginal examinations before she can be signed up. It is a rule of the hospital that the labour ward sisters only perform abdominal and rectal examinations in their management of the normal cases.

The patient's vulva is shaved on admission and the external parts are cleaned with watery biniodide solution 1 in 1,000 before any vaginal examination is done, and also before delivery. The examiner wears gloves which have been boiled and steeped in biniodide solution.

The results of the investigation are rather what might have been expected. The morbidity rate of cases examined vaginally was almost twice that of cases examined only abdominally and rectally, and the morbid *plus* submorbid rate of cases examined vaginally was nearly one and a half times as great as that of those not so examined.

TABLE I.—*Cases Examined Vaginally* (309).

Number morbid	7 = 2.3	per cent.
Number submorbid	21 = 6.8	,,
Total morbid and submorbid	28 = 9.1	,,

TABLE II.—*Cases not Examined Vaginally* (778).

Number morbid	10 = 1.3	per cent.
Number submorbid	41 = 5.3	,,
Total morbid and submorbid	51 = 6.6	,,

The remainder of the 1,546 cases consisted of those with

1. *Parity.* In this class the morbidity was, again as be no difference between the primigravid by the parous as expected, still higher.

individual; nor have [illegible] North of England Obstetrical and Gynaecothirty-six groups of cases [illegible] found that the colonies which to.

TABLE III.—*Cases with Perineal Tears* (459).

Number morbid	12 = 2.6	per cent.
Number submorbid	50 = 10.9	,,
Total morbid and submorbid	62 = 13.5	,,

I quote the figures for forceps deliveries in the booked cases of the hospital over about the same period—that is, 1926, 1927, and 1928—to show how increasing the elements of vaginal examination and of trauma in a case increases still further the morbidity from sepsis. Of 199 cases, 21, or 10.6 per cent., were morbid from sepsis.

Presumably the increased morbidity in normal cases examined vaginally is not due, or at any rate not entirely due, to the introduction of organisms from outside by the examining finger, since this should be avoided by the precautions which are taken before a vaginal examination is made; it is probably due to the finger moving infected matter from a comparatively safe position in the vagina to a dangerous position within the cervix.

If it be accepted that vaginal examination during labour carries with it an increased risk of puerperal morbidity, I take it that we should avoid such vaginal examination when possible. In my view vaginal examination cannot be satisfactorily avoided in the following classes of case, and should be restricted to them:

1. Cases of ante-partum haemorrhage, however slight the loss, because of the importance of making an early diagnosis and establishing early treatment in cases of placenta praevia.

2. Cases where it is important to know the exact size of the os, and this cannot be gauged from the rectum; these are usually cases of breech presentation.

3. Cases where the doctor has been called in by a midwife or another doctor to a patient whom he has not seen before, where he cannot decide on the proper treatment without vaginal examination—for example, a case where there is some incompatibility between the head and the pelvis.

4. Cases where the doctor is about to resort to operative treatment—for example, before applying forceps or extracting a breech presentation.

In the remaining cases rectal examination is quite sufficient if any pelvic examination is necessary.

In cases seen at the ante-natal clinic where there is any question of incompatibility between the head and the pelvis, we avoid the necessity for making a vaginal examination during labour by examining the patient under anaesthesia at the thirty-sixth week and estimating, by Munro Kerr's method, the probability of the head passing through the pelvis undamaged at term; the diagonal conjugate is measured on the same occasion.

I now propose to amplify the statement already made that rectal examination, except in the four categories mentioned, is sufficient when a pelvic examination is necessary during labour.

Pelvic examination during labour is most usually undertaken to find out the amount of dilatation of the cervix, virtually all the other facts which it is desirable to know being ascertainable by abdominal examination. Any person of average intelligence who has had the necessary amount of experience can tell the size of the cervix by rectal examination, except in a very small proportion of cases. This small proportion is largely composed of breech presentations, where the consistency of the presenting part so closely resembles that of the cervix that it is not easy from the rectum to distinguish the one from the other; the same difficulty is encountered rarely in cases of head presentation where there is a large amount of caput.

Rectal examination can supplement abdominal examination in several other points of diagnosis. For example, if the membranes are intact their presence is no more difficult to recognize from the rectum than from the vagina. If the anterior tip of the cervix is oedematous, this can be felt from the rectum, though its treatment generally requires vaginal examination. Prolapse of the cord is another condition usually calling for treatment involving vaginal examination; in the majority of cases the cord appears at the vulva immediately after prolapse; if it does not it can be felt on rectal examination. Diagnosis of presentation can nearly always be made from the abdomen; but it is seldom possible to be sure of a

face presentation abdominally, while the diagnosis is easily made from the rectum as soon as the face is within reach of the examining finger; I have seen it so made by a pupil midwife on several occasions.

Let us consider the position of the midwife with regard to vaginal examination, in view of the four indications for it which I have already given.

1. If one of her patients bleeds ante partum, her duty is to summon medical aid; vaginal examination should be done, not by her, but by the doctor who is going to treat the patient.

2. If she has a case of breech presentation, she should again obtain medical aid. By the existing Central Midwives Board rules she is allowed to treat the uncomplicated breech, but who can be certain that a breech will be uncomplicated until delivery is in progress?

The third and fourth indications are not applicable to the midwife.

I therefore hold that it is not necessary for midwives to make vaginal examinations, and very desirable that they should be forbidden to do so.

Lastly, I should like to point out that if a doctor makes no vaginal examination on a given patient, and she subsequently develops puerperal sepsis, he can be quite clear in his own mind that he has not introduced the infection.

I am indebted to the honorary staff of the Leeds Maternity Hospital for their permission to make use of the records of cases under their care in compiling this paper, and particularly to Mr. William Gough for suggesting the investigation.

THE MICROSCOPICAL EXAMINATION OF MATERIAL CONTAINING FILTERABLE VIRUSES, AND THE LIMITS OF VISIBILITY.

BY

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THE term ultra-microscopic applied to the filter-passers seems somewhat unfortunate, and this expression, together with the idea that they could only be studied by means of ultra-violet photomicrography, and the erroneous idea of the limit of the ordinary microscope, is perhaps responsible for the meagre account of the actual appearance of some at least of these bodies.

THE EXTENT OF VISIBILITY WITH THE ORDINARY MICROSCOPE.

The size of a minute organism or particle that is visible with the microscope depends on several factors, amongst which are: the numerical aperture of the objective; the wave-length of the colour by which it is illuminated; the method of illumination, whether by transmitted, oblique, or dark ground; the refractive index of the medium in which it is mounted; and the depth of the stain. The numerical aperture (N.A.) of the objective and the wave-length of the colour used are by far the most important elements, and, speaking generally, the higher the N.A. and the shorter the wave-length of light the smaller the particle that can be seen.

In stained preparations the depth or the duration of the staining makes a very considerable difference in the apparent size of an object. For example, if a film containing *T. pallidum* be stained for only five minutes with Giemsa, and then examined dry, without a cover-glass, with an 8 mm. objective, using dark-ground illumination, it is possible to find a spirochaete. If this be examined with 1/12 inch oil immersion with ordinary illumination it will be very difficult to see the spirochaete, but when seen it will appear as the most delicate spiral that can be imagined. Let the film be stained for twelve or twenty-four hours, and the spirochaete will appear as a thick spiral cord. Even greater differences will be found in the apparent size of an object when faintly stained with one of the aniline dyes, when compared with one stained or impregnated with one of the flagella stains.

It is often stated in the literature dealing with filter-passers (Boycott, Martin, Cowdry) that organisms of the size of 0.2 or 0.25μ are "somewhat about the limit of direct microscopic vision" (Boycott[1]), and that anything smaller than that would be invisible with the highest powers of the microscope. But this is very far from being correct.

It would seem that the limit of *resolution* or separation has been confused with that of *visibility*, whereas they are totally different things. The resolution of an object glass is its power of dividing or separating a certain number of lines or dots to the inch, and our present limit of resolution of two lines or dots with ordinary light and axial illumination is generally given as 0.25μ, and for oblique light 0.2μ. The limit of visibility, or extinction limit, is the size of the smallest isolated dark particle that can be seen with transmitted light on a bright field with a given numerical aperture.

Whilst the limit of resolution with a lens of N.A. 1.4 is about 0.25μ, the limit of visibility of the same lens employed at full aperture would be considerably greater; and with this object glass, using white light, a dark isolated germ or particle just over 0.074μ in diameter will be visible, whilst with green light a germ just over 0.0673μ should be seen.

Mr. Edward Miles Nelson, who has devoted the whole of his life to the microscope, and who is undoubtedly the greatest authority on the subject, more than twenty years ago communicated a paper to the Royal Microscopical Society[2] "On the measurement of very minute microscopical objects." He states: "Briefly, then, the method is to bring the object just to the point of invisibility by reducing the W.A. (working aperture), and then the correction for antipoint will be the measure of the object." A full table of the values of the N.A. is given in the paper. I may add that one can determine the minimal visible of any objective by the following calculation: for white light of 43,000 waves per inch divide 1.041 by the N.A.; for green light of 50,000 waves per inch divide 0.942 by the N.A. of the object glass. These figures assume that the objective is used at its full aperture, and not, as is so commonly the case, by using, or rather degrading, say a 1/12 inch lens of N.A. 1.3 or 1.4 with an ordinary Abbé condenser.

Mr. Eliot Merlin, also a very great expert on both the microscope and telescope, has stated the case very clearly in *Watson's Microscope Record*, 1929, No. 17.

"The separating limit of any given N.A. should not be confused with its visibility limit for an isolated particle, such as a stained coccus viewed by transmitted light on a bright field. Unfortunately such confusion is common, it being frequently assumed that the minimum diameter of an isolated particle, or germ, observable under such conditions in the ordinary microscope must exceed about 0.25μ, this being really only slightly beyond the limit for an object glass of only N.A. 0.4 (that is, about that for a low-apertured cheap 1/2 inch objective) employed at its full working aperture in white light (5,607 wave-lengths), while the visibility limit for the same object glass with a screen (5,030 wave-lengths) is 0.236μ. That the separation and visibility limits are different can be quite easily demonstrated. Select on a virus preparation two cocci, the diameter of which happens to be about their distance apart. Reduce the aperture of the object glass until no interval between the two cocci can be detected. This is the *separation limit for that aperture for germs* or particles of similar diameter, but the joined-up pair of cocci will still be quite visible. Of course, it will be borne in mind that two distinct just-in-contact images of the two equal-sized (in reality well separated) cocci are being dealt with. It will require a considerable further reduction in the N.A. of the object glass to cause the images to completely fade away, which they will be found to do at a certain very definite aperture, this forming the visibility limit. Any selected single isolated coccus of accurately estimated (or otherwise measured) similar size will be found to exhibit a like visibility limit."

In an earlier number of the same journal[3] Mr. Merlin says:

"Apparently the difficulty of demonstrating living filter-passing cocci is in most cases merely due to their transparency in aqueous media, and not to their minute dimensions being beyond the diagram-defining power of the ordinary microscope. This difficulty is minute readily overcome by observing them on dark ground."

In conclusion he says:

"In the writer's opinion it is of paramount importance that neither a pathologist nor a bacteriologist should undertake true optical capacity of the ordinary microscope, for the very first time, unless furnished with ordinary glass and [illegible] matic object glasses, should [illegible] rated, this being the [illegible]

laboratory and technical workers all the world over. It cannot therefore be too emphatically maintained that it is an experimentally absolute fact that an object glass of 0.4 N.A. will, in white light of wave-length 45,300 per inch, just render visible a particle of 0.262μ in diameter; and similarly the 1/12 oil immersion of 1.30 N.A., in common laboratory use, should, if properly used to its full defining capacity, reveal particles of not less than 0.08μ diameter in white light, of 0.0724μ diameter with a screen wave-length of 50,000 per inch, and of 0.0571μ diameter with the photographic wave-length of 63,500 per inch.

Methods.

The material containing viruses that I have examined has been taken from the skin or mucous membranes—for example, herpes, vaccinia, etc. The part is well washed, dried, and then gently rubbed with a swab moistened with spirit. Vesicles and bullae, if present, are punctured, and in some cases the base is rubbed, and the resulting exudation, as free as possible from blood, is spread uniformly either on the cover-glass or more usually on the slide.

In the case of papules, etc., the cleansed surface is scraped with a sharp scalpel till some serum is present, just as one would do for the examination for *T. pallidum*. The film is usually exposed next to the vapour of iodine for about half a minute, allowed to dry in the air, and then fixed in alcohol for half an hour to an hour. In some cases the air-dried films are fixed in lucidol. They are subsequently stained in Giemsa all night, or from twenty-four to forty-eight hours, and the stain renewed once or twice. After washing, and when thoroughly dry, they are mounted in Gurr's mounting medium, in which less fading occurs than in any medium I know up till the present. Films are also made by the process of relief staining—that is, one drop of the serum and one drop of Indian ink, or a saturated aqueous solution of nigrosin, are thoroughly mixed with a needle, and the resulting mixture spread on the slide in as uniform a film as possible. The Indian ink I use is either Gunter Wagner's "chinchin" or "pelican," and the process is that well known as Burri's method. In the preparation of the commercial chinchin or pelican ink some workers recommend the addition of tincture of iodine, about one part to twenty-five parts of ink, and the mixture, after being well shaken, is allowed to stand for twenty-four hours, and then centrifuged. The German writers generally advise diluting the ink with five to ten times the amount of distilled water, centrifuging, and finally sterilizing the diluted ink.

Some time ago, after long experimenting with various methods of relief staining, I wrote an article, "Relief staining of bacteria, protozoa, infusoria,"[1] in which I stated that, after trying various methods, I came to the conclusion that nothing was equal to a saturated aqueous solution of nigrosin, which gives magnificent pictures of many flagellates and spirochaetes; but I now find, to my surprise, that the old Burri's Indian ink method gave much better results with the "virus bodies." I therefore look forward to any suggestions for improving the preparation of little use for diagnostic purposes, but when the organism is known no other method will give as fine an insight into the shape and external structure, but it must always be controlled by a stained preparation, and also by a film of the ink, or nigrosin alone, used as a control.

I am of opinion that any method of relief staining is of the ink, or a good substitute for it.

As to the microscopic outfit, I generally use Leitz 8 mm. 1/3 inch apo-objective of N.A. 0.65, and 1/10 inch. of N.A. 1.33, or 1/16 inch fluorite, and either Watson's paramatic dry or their holoscopic oil immersion condenser. In all cases I employ a green colour screen, generally Watten's No. 15 and 60 used together. For dark-ground illumination one of three methods is in use: (1) the paramatic condenser, used without oil, with a stop; (2) the holoscopic condenser, used with oil and a stop; and (3) Leitz dark-ground illuminator, with fixed stop.

I generally find that the ordinary paraffin lamp with half-[illegible] gives sufficient light, but for the most brilliant [illegible] effects nothing is as convenient or as cheap [illegible] small electric bulb of 60 candle-power, or the same candle-power, as first suggested by Mr. Nelson. Of course, these must be placed in a dark box, with only a small hole [illegible] at one side.

As a matter of fact, all the [illegible] filterable virus bodies that I have up to the present examined [illegible] are distinctly seen with the apochromatic 1/3 inch objective by dry dark-ground illumination, and this is the method I use in the first instance to determine whether these bodies are present, and, when present, in what part of the film they are most numerous or well defined.

General Microscopic Appearance of Bodies seen in Material Containing Viruses.

The bodies are Gram-negative, and they are not easily stained with any of the ordinary aniline dyes. With Giemsa they stain a red to reddish-violet colour, practically the same tint as most of the spirochaetes and many of the Rickettsia bodies. On microscopical examination exceedingly numerous minute granules of varying sizes, of unequal depth of stain, and generally of a round or an oval shape, are to be seen. They may roughly be recognized as having three or four different sizes. The largest are generally round, more rarely oval in form, and with Giemsa they stain a deep red-violet, much darker in colour than the smaller bodies. Their outline is not sharp like a coccus, but is somewhat ragged and ill defined. By careful focusing many of them seem to have a projection, tag, or spike, and in some a distinct, very fine flagellum-like structure can be seen. They are usually single, but not infrequently are attached or closely joined to one of the smaller bodies, which is, however, more faintly stained. Very seldom are the two larger bodies joined together like diplococci, but two, three, or four may be arranged in a straight or curved line at considerable distance apart, and they are apparently connected to one another by a very delicate thread; but this is difficult to see in Giemsa-stained films. The smaller types stain less deeply and more reddish in colour, are generally much more numerous, but not nearly as conspicuous as the larger bodies. They may be arranged singly, in pairs, or in short chains. All the virus bodies appear more deeply stained when they are seen lying over some stained background than when seen in a clear space. Their most characteristic features are: their inequality in size, their arrangement in loosely connected chains made up of bodies of unequal size, unequal density of stain, unequal distance apart, and, if they are oval in shape, the long axis may lie at a different angle from the rest.

If the preparation be examined by dark-ground illumination, by any of the methods previously described, they will be quite easily seen, shining brilliantly as very definite and distinct golden grains, of unequal size and somewhat irregular arrangement, often lying two, three, or more in a chain. Indian ink preparations—made as described—show them, in parts at least, extremely well. The inequality in size, the arrangement, and the spiked or flagella-like projections, and at times the very delicate filaments connecting two, three, or more bodies in loose irregular chains, are much more easily made out than in stained films. Relief staining with nigrosin is inferior to the Indian ink for these particular minute structures; the larger bodies are well seen, but the smaller ones seem to be somewhat lost in the stain, and are not at all conspicuous objects.

In 1922 Mr. Nelson first noticed the flagellum-like structure on the "virus bodies" of vaccinia, and says "it is the smallest germ on which I have seen a flagellum, and in spite of their smallness these were not at all difficult to see; the medium-sized germs measure about 0.3μ by my extinction method."

Later in the same year he writes: "The vaccine virus germs are not isolated, but are fixed to a very delicate mycelium, just like tubers on a rhizome." Mr. Eliot Merlin a little later confirmed both these findings. I was able to see the flagella-like processes on many of these bodies. (By the by, it is still a little uncertain whether the filter-passers possess the power of motion, or whether what is seen is merely Brownian movement. The majority of observers incline to the latter theory.)

I could not distinctly make out the connecting threads, at least not convincingly, and I was at that time of opinion that what these skilled observers had seen were merely very delicate fibrin filaments underlying these bodies. Only quite recently in films made from herpes labialis with Indian ink have I abundantly satisfied myself of the existence of these very delicate threads.

The existence or not of these connecting filamentous structures might be regarded as merely of academic interest, but I think that if the bodies I have described are indeed the virus, their presence might explain one of the peculiar attributes of the virus—that is, their marked difficulty, in some cases at least, of passing through the pores of a filter.

My friend Mr. Eliot Merlin has very kindly examined stained preparations of many virus bodies which I have submitted for his opinion. I here add his quite independent view of the appearance and size of some of them.

"It appears to me that the 'virus bodies' only differ from ordinary cocci in point of smallness and variations in size.

"*Shape.*—Some of the larger bodies are markedly oval, but *most of the average and smaller-sized germs appear quite round.* Deeply stained Giemsa forms, large and small, appear well defined in most cases. Some exhibit a projecting knob, and a few have apparent flagella, but not much attention has been given to the search for flagella.

"*Size.*—Observation has been mainly concentrated on accurately measuring the diameter of the large and small forms. A seeming peculiarity of 'virus bodies' is their numerous graduation in size.

"On the slide of *herpes labialis*, stained Giemsa, measurements of the virus bodies on a bright field show:

	Diameter.
Largest bodies	0.63μ
Large bodies	0.75μ
Numerous average bodies	0.52μ
Small bodies	0.3μ
Smaller bodies	0.26μ
Smallest, but quite numerous, grade ...	0.21μ

"The measurement of the germs has been carefully done and may be relied upon within small limits of error. The probable error is within a trifling amount (say less than one unit), in the second decimal place of a micron. Thus there are, in this preparation, about six well-marked grades of size easily seen, and *well within the visibility capacity of an 8 mm. objective of N.A. 0.65.*

"*Vaccine virus.*—Here are my measurements for this:

Large bodies	0.8μ
Medium, numerous common size, same as herpes labialis	0.52μ
Small	0.44μ
Smaller	0.32μ
Smallest	0.26-0.21μ

"Practically the vaccine virus germs are about the same in variations of size as the herpes.

"By the way, re shape. All bodies so small that their diameter would be beyond the separation limit of the N.A. employed would be imaged as round, *even if really square or oblong.* Thus a germ that is imaged as square-shaped, such as a tetraspore, must be truly so shaped, and therefore within the resolving (separating) limit of the optical combination employed. But a minute germ imaged as round *may* be any shape—square, triangular, or oval—should its diameter happen to be below the resolving limit of the N.A. available to reveal its true shape."

The following is a list of the morbid conditions in which I have found definite "virus bodies": vaccinia, varicella, herpes labialis, herpes zoster, pemphigus, psoriasis, lichen planus, dermatitis herpetiformis, verruca plana, conjunctivitis, influenza, and the common cold. There is little to be said about any of these conditions.

The influenza bodies were found associated with pneumococci in films made from the lung of a child, and my experience is in agreement with Mervyn Gordon, that the bodies met with were coccoid rather than bacilloid. The only obscure case was that of chronic conjunctivitis, the film being sent me by my friend Dr. Maddox.

The association of herpes zoster and varicella is always of interest, and I have seen a case of an adult with typical herpes over the right shoulder, in whom within a few days an equally typical attack of varicella occurred.

What are the criteria which suggest that the small bodies seen with the microscope are indeed the viruses? It is not easy to answer this question definitely, but after the eye has been accustomed to the appearance of these minute organisms—say in a film of vaccine—there is little difficulty with other specimens. Their small size, the faintness and colour of the staining reaction, the occurrence in enormous numbers, the numerous gradations in size, the arrangement in two, three, or more at long and often irregular distances, and their connexion in some cases by very fine filaments, are together very suggestive, and, as experience is gained, diagnostic. As Arkwright[3] says

"The differentiation of colloid particles of about 0.2μ in size by means of the microscope is often extremely difficult, and requires attention, especially to their arrangement and the range of size and shape, rather than to the appearance of individual particles."

I have examined very many controls, such as fluid from blister, the exudation from many cases of dermatitis, etc., but I have not found anything like these minute yet definite bodies. My impressions seem to indicate that they are fairly easily recognizable in films from the skin or mucous membrane in the diseases mentioned and known to be due to filterable viruses, but I should not expect to detect them in films of the peripheral blood.

The next obvious question is, Can you differentiate the virus bodies of one disease from those of another? At present I should say this was very difficult, and in many wellnigh impossible, but I put the problem to Mr. Merlin, who writes:

"*Herpes Zoster.*—The germs are rather markedly of one uniform size, measuring 0.35μ, many being diplococci, but some also single.

"*Conjunctivitis.*—Resembles vaccine virus, size of germs varying, large forms rather plentiful; medium-sized forms measure 0.35μ.

"*Influenza* (from lung).—Quite typical virus-like vaccine, consisting of many grades in size. Medium forms 0.3μ.

"*Lichen Planus.*—Varying grades of size, but the largest forms in this preparation that are numerous only run at about 0.52μ, while the medium small equal about 0.3μ.

"*Common Cold.*—Typical range of size, large forms seemingly more numerous than smaller grades. Medium small 0.35μ.

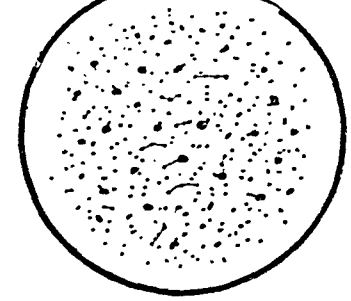
"*Varicella.*—Medium-sized bodies numerous at 0.3μ, and so greatly preponderate as to perhaps constitute a feature by which this virus can be recognized.

"In reply to your query as to whether any of the virus bodies could be distinguished from each other, I certainly think, with practice at least, some of the preparations exhibit sufficiently marked differences, such as uniformity of size of bodies. In some large bodies are numerous, in others not.

"Then, too, the exceptionally numerous large bodies in the cold slide serve to distinguish this virus from the others, whilst on the varicella slide the very numerous 0.3μ forms might serve a like purpose."

So far I have only had an opportunity of examining fairly common filter-passing diseases, but our experience of these leads me to think that the statement made by Martin, that "he preferred to consider the dimensions were not of the small order suggested by some observers," as being very near the truth.

I should very much like to be able to examine preparations of other diseases due to filter-passers, such as variola, molluscum contagiosa, dengue, etc. Films could easily be made from variola, molluscum, and the vesicles of foot-and-mouth disease, and I should be most grateful if those working on any of these diseases would be kind enough, as opportunity occurred, to forward me air-dried films from any of these.



Diagrammatic sketch showing appearances of the virus bodies.

What part ultra-violet photography will play in the further elucidation of virus diseases remains to be seen, but I am mindful of a statement made to me some time ago by a great microscopist and scientist. He said that laboratory microscopists remain unchanged from the old days when they commonly used an oil immersion objective to show objects quite within the range of dry lenses. So now may it not be that ultra-violet light is sometimes considered necessary when the ordinary microscope is really fairly adequate?

I have taken sixteen photomicrographs at a magnification of 1,500 diameters of ten different virus bodies on one quarter-plate, but am afraid this hardly lends itself to reproduction. I have therefore made a very diagrammatic drawing of the general appearance of these minute bodies (see figure).

I take this opportunity of expressing my very great thanks to Mr. Eliot Merlin who, though he is not a pathologist but a bacteriologist, is [illegible] at the microscope, for his very valuable help he has given me.

YELLOW FEVER: PRELIMINARY NOTE.

I have had the opportunity, since the above was written, of examining films containing the virus of yellow fever. Dr. Edward Hindle, whose very successful work with this dangerous disease is well known, kindly sent me films of the blood, liver, and spleen from four rhesus monkeys infected with yellow fever, and later blood films from one bitten by infected mosquitos, from the first to the last day of illness. I would here express my heartiest thanks to Dr. Hindle.

In these films, when stained with Giemsa, I have found certain minute bodies which closely correspond with those I have already described from other filterable diseases. On microscopic examination a large number of very faintly stained bodies were found lying in the space between the tissue cells or corpuscles. At first glance they were regarded as probably minute precipitates of stain, but on closer and more prolonged examination they were found to have definite form and shape. In the majority of cases they were minute round or oval bodies, stained a faint red colour with Giemsa, irregularly arranged, of somewhat unequal size, and unequal depth of stain. Most of them were single, many arranged in pairs, and a few in lines. The individual particle may have a distinct flagellum-like process, others have a bud- or spike-like projection, giving the organism the appearance of a comma. Rarely filaments are seen connecting two, three, or four together, as was noted in other virus diseases.

These minute bodies were never found in dense groups or compact clumps as one so commonly sees in the Rickettsias, but they were fairly equally distributed in the blood serum. They were very numerous in the liver and spleen, but were fewer though quite distinctive in the blood. It was particularly noticed that many of them were in pairs, like minute diplococci—or, as I call them, diplogloboid bodies—and in the blood I regarded these as especially suggestive. When examined with dark-ground illumination these minute bodies shone out very brilliantly.

Mr. Merlin, who has confirmed these findings, has kindly taken the following measurements. In the liver and spleen their size varied from 0.9μ to 0.17μ; intermediate sizes being 0.39, 0.28, and 0.22μ. The average size of the most numerous form was about 0.3 to 0.25μ. In the blood faintly stained bodies varied from 0.5 to 0.17μ; the other grades being 0.3, 0.24, and 0.17μ in diameter.

"The variations in size," Mr. Merlin remarks, "approximate to the bodies in the vaccinia virus, except that the smallest in the latter only reached 0.21μ, whilst in the yellow fever preparations the most minute are 0.17μ or even slightly less in diameter."

The question naturally arises, What are these bodies, and with what may they be confused? They are quite easily seen with 1/3 inch objective and dark-ground illumination, and are very fairly uniformly distributed in all parts of the films in which the corpuscles are not too close together. They could not, in my opinion, be confused with the contents of cells, or the granules from a neutrophile leucocyte which has been ruptured in spreading; but it may be very difficult to differentiate them from debris from stain.

All the filter-passing bodies that I have examined require fairly deep staining with Giemsa to render them at all conspicuous, and prolonged staining with Giemsa tends to the production of some debris, however carefully it is carried out.

In films of vaccinia, etc., we have to deal with almost a pure culture of the virus bodies, whilst yellow fever is the first disease in which I have looked for such bodies in the blood or organs. Notwithstanding these difficulties I am of opinion, after spending considerable time on the examination of them, that these very minute bodies, with such definite characteristics, are not artefacts or debris from stain. I have made controls by spreading films of normal blood on the same slides, and subjecting them to precisely the same fixing and staining.

I think it will be found that these bodies, if not the virus, may have some connexion with it.

DISTEMPER IN DOGS.

Sir Charles Martin and Professor J. C. G. Ledingham kindly sent me some unstained films labelled "distemper," and a piece of spleen from distemper in dog. I found in the former, and, after staining films from the spleen, in the latter, bodies which were very like those previously described. They were very numerous in films made from the spleen. They were on the whole somewhat smaller than those met with in vaccinia.

Much further work, however, must be undertaken before one can definitely express an opinion on the exact nature of such minute bodies.

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A CASE OF CARDIAC SYPHILIS WITH VENTRICULAR ANEURYSMS.

BY

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An unusual cardiac condition, the result of syphilitic processes, is here recorded.

The patient, a woman of 43, was admitted to University College Hospital in April, 1927, with a history of breathlessness on exertion for two years, epigastric pain on exertion for three months, and oedema of the legs for five days. A diagnosis of aortic syphilis with aortic incompetence was made. An electro-cardiogram taken at this time is reproduced in Fig. 1; it shows normal rhythm,

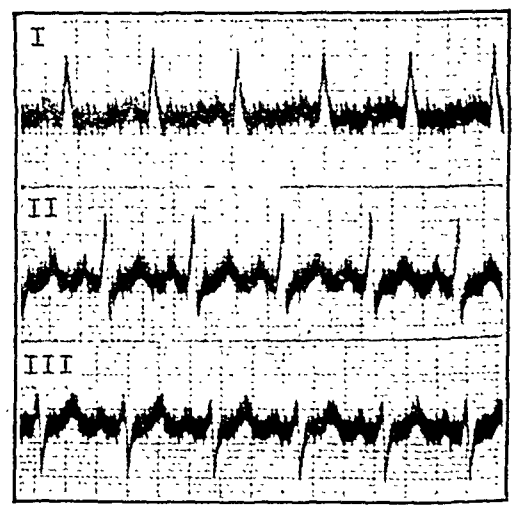

FIG. 1.—Time marks = 1/5 sec.

sinus tachycardia, slight left ventricular predominance, and the T wave just negative in lead 1. The patient was treated with anti-syphilitic drugs (sulfarsenol, novarsenobillon, bismuth, and iodides) for one month, and was discharged considerably improved.

Four months later she was admitted to the Middlesex Hospital in a very distressed condition. She was orthopnoeic, cyanosed, and had oedema of the feet; she complained of epigastric pain, and vomited continuously. Sino-auricular rhythm with many extra-systoles was present, the rate being about 70. The heart was enlarged (apex beat in the fifth space five inches from the middle line); no murmurs were audible. Shortly after admission auricular fibrillation occurred, the ventricular rate being at first about 140. This was reduced by digitalis in the course of three days to 100, but the patient's condition got worse; vomiting was more frequent, and epigastric pain was still complained of. Death occurred suddenly five days after admission, while the patient was trying to defaecate.

The post-mortem findings were as follows (Bland-Sutton Institute of Pathology): The heart weighed 19 oz., and in

the pericardial sac were 19 oz. of straw-coloured fluid. The parietal layer of pericardium was adherent to the left lung, and the visceral layer was covered with organized fibrin, especially at the base of the heart. The myocardium was pale and slightly softened. Three cavities, or aneurysmal dilatations (Fig. 2), occupied the posterior part of the base of the left ventricle; their diameters were 1½, 1/2, and 1/2 in. Their ventricular surface was covered with rough injected granulation tissue; externally they were covered by the area of greatest pericardial thickening. On section the walls of the aneurysms were found to consist of fibrous tissue containing considerable deposits of calcium. All the valves were normal. The aorta showed only very slight atheroma, and the coronary arteries were patent except for a branch of the circumflex division of the left coronary, which was obstructed as it crossed one of the aneurysmal pouches. The other organs showed chronic venous congestion only. Microscopic section of the aneurysmal walls showed necrotic tissue bounded by dense fibrous tissue, the last infiltrated with plasma cells and lymphocytes, the plasma cells predominating. The vessels surrounding the degenerated area showed marked obliterative changes, and in some cases the lumen was occluded.

FIG. 2.—Showing the left ventricle opened. The anterior wall has been reflected to the left; the three aneurysms lie in the posterior wall at the base. The wall of the lowest pouch has been incised to show layers of calcified tissue.

Comment.

Aneurysm of the ventricle is not an uncommon finding; it nearly always follows cardiac infarction resulting from atheroma and thrombosis of the coronary arteries. Syphilitic aneurysms of the ventricle are rare. The site of election for an aneurysm which is the result of an infarct is at or near the apex of the left ventricle; syphilitic aneurysm of the ventricle, judging from the few cases published, seems to be commoner near the base. Morris[1] records one occupying the same site as those in the case herewith described. McFie and Ingram[2] relate the case of a native boy of the Gold Coast who fell dead; he had two aneurysms near the apex of the left ventricle, one of which had ruptured; in the interventricular septum just below the aortic valve was a mass of 10 mm. diameter, which appeared macroscopically and microscopically to be a gumma; it is presumed that the aneurysms were of syphilitic origin. A similar heart in which a gumma and an aneurysm were found is recorded by Young[3]; the aneurysm was at the base of the left ventricle.

In the present case the walls of the aneurysms were composed of fibrous tissue of great thickness and density, and in them were considerable deposits of calcium. It must be concluded, therefore, that the condition had been present for a long time—probably many years. During this time a slow replacement of muscle tissue would be taking place with the gradual development of heart failure. The pericardial effusion was no doubt the last straw which increased the cardiac burden beyond endurance.

I am indebted to Sir Thomas Lewis for the electro-cardiogram, and for details of the patient's condition when in University College Hospital; and to Dr. G. E. Beaumont for permission to use the findings when she was admitted under him at the Middlesex Hospital.

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THE PROBLEMS PRESENTED BY SCHOOL PREVENTIVE MEDICINE IN RURAL AREAS.*

BY

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THE problems presented by school preventive medicine in rural areas, though not differing fundamentally from those arising in urban districts, are to a large extent modified owing to the scattered nature of a country population. Moreover, solutions which have been found satisfactory in large centres of population are in many cases totally impracticable when applied to country districts.

The district dealt with in this study is a typical rural area in which about 75 per cent. of the population are engaged in agricultural pursuits, and live for the most part in scattered villages and hamlets. The population at the census of 1921 was returned as 108,982, with a density of approximately 250 per square mile as compared with 588 for England and Wales as a whole. In the whole of the administrative county there are only four towns with a population exceeding 3,000. Leaving out these four towns, there are left in the rural areas proper approximately 9,392 children distributed in 139 village schools, making an average attendance of 67 per school.

The medical staff concerned in administering the county school medical service consists of a school medical officer, who is also county medical officer of health, one assistant school medical officer, one dental surgeon, one dental attendant, and four school nurses. All of these officers are whole-time and also employed in other public health duties in the county. This staff, as I shall show, is totally inadequate for the work which confronts it, but nevertheless it probably represents a fair average of that which is to be found in any similar district. No use is made of private practitioners in respect of the school medical service, though their services are to some extent made use of in other departments of the county's public health activities.

Two medical inspections are carried out at each school yearly. The first of these is the routine inspection, at which the age groups laid down by the Board of Education are examined. In addition, those children marked for "re-inspection" are also seen. These are children in whom some defect requiring treatment or observation has been noted at a previous inspection. At the second visit these "re-inspections" are again reviewed.

Whenever a defect requiring treatment is found, except in such minor conditions as impetigo, etc., the initial

* This paper is an abridgement of the winning essay submitted in competition for the Hempson Prize of the British Medical Association, 1929.

procedure is always the same. The parents are informed verbally or by notice of the defect found and urged to call in their family doctor. If at a subsequent inspection it is found that treatment has not been obtained, further pressure is brought to bear, the *modus operandi* differing according to the circumstances of the case. It is our invariable practice, in nearly all cases, to urge that the necessary treatment be carried out through the family doctor. Nevertheless, experience has shown that the number of cases actually obtaining treatment in this way constitutes a very small percentage of the whole. For this state of affairs there are various reasons. In the first place the local doctor may himself prefer treatment to be carried out under one or other of the county schemes. For example, comparatively few general practitioners are prepared to deal with errors of refraction. Secondly, we have to cope with the almost invariable reluctance of the parents themselves to call in medical aid before a child is obviously ill. In my experience this applies even when a child is a juvenile member of one or other of the approved societies. Even where there is frank illness the family doctor is often not called until late in its course, if at all. In nearly every case I have found that poverty is the explanation of a reluctance to consult the family doctor. A tremendous amount of work is carried out by private doctors in this district every day for which they know only too well they are likely to receive little or no return. But even so, many cases escape attention because of a certain sturdy independence which refuses to call in aid for which it knows it cannot pay. Where it is possible for definite illness to go unattended in this way it is small wonder that less alarming conditions such as anaemia, malnutrition, or "nerves" are not regarded with the gravity which they truly deserve. In urban districts, where an ailing child can be kept under more or less frequent observation, the onset of more serious trouble may be detected and dealt with early, but in a rural area like this the biannual visits of the school medical officer are, in many cases, quite useless from a preventive point of view.

A partial solution of the difficulty lies in the extension of the Insurance Acts to cover the dependants of insured persons. A workable scheme of this nature would ensure a great deal of potential chronic disease being checked in its early stages, and also considerably facilitate co-operation between private practitioners and the school medical service. On the other hand, the financial aspect of such a scheme is formidable in the extreme, and it would need the greatest consideration and circumspection to formulate a practicable working arrangement.

A problem, more grave because less susceptible of solution, is that arising in connexion with *cases of defect not diagnosed at medical inspection*. Actually, in my experience, in a large number of cases requiring active treatment this is shelved because, as will be shown, inadequate facilities for "following up" result in a failure to arrive at a definite diagnosis. An examination of the figures showing the distribution of defects found to require treatment in this area during 1927 is illuminating.

Return of Defects (excluding Uncleanliness and Dental Diseases) found by Routine Medical Inspection to require Treatment in 1927.

Malnutrition	2
Skin:	
Ringworm—	
Scalp	8
Body	1
Scabies	1
Impetigo	23
Other diseases (non-tuberculous)	8
Eye:	
Blepharitis	12
Conjunctivitis	4
Keratitis	—
Corneal opacities	—
Defective vision (excluding squint)	86
Squint	4
Other eye conditions	2
Ear:	
Defective hearing	1
Otitis media	1
Other ear diseases	6
Nose and throat:	
Enlarged tonsils only	32
Adenoids	1
Enlarged tonsils and adenoids	5
Other conditions	14
Defective speech	1
Heart and circulation:	
Heart disease—	
Organic	—
Functional	4
Slight abnormality	—
Anaemia	5
Lungs:	
Bronchitis	4
Other non-tuberculous diseases	—
Tuberculosis:	
Pulmonary—	
Definite	—
Suspected	1
Non-pulmonary—	
Glands	2
Osseous	—
Skin	—
Other forms	—
Nervous system:	
Epilepsy	1
Chorea	—
Other conditions	—
Deformities:	
Rickets	1
Spinal curvature	1
Other forms	5
Other defects and diseases	16

By far the majority of these defects do not come within the realm of general medicine. They consist chiefly of defects suitable for treatment at minor ailment clinics—for example, minor skin complaints—or conditions calling for some form of specialist treatment—for example, defective sight or enlarged tonsils and adenoids. We all know, however, that such defects do not, in practice, constitute the bulk or even a large proportion of the morbid conditions which, in childhood, are found to require treatment. To take a concrete example, rheumatic diseases of the heart, and many other manifestations of chronic rheumatism, have their inception in acute or subacute conditions occurring in childhood. In London it has been computed that 25 per cent. of chronic invalidity in children is due to rheumatism.[1] In rural districts, where a child has frequently to walk long distances in inclement weather, with no adequate provision for drying clothes at school or for a suitable midday meal, conditions predisposing to rheumatism are even more prevalent than in towns. Yet the records for this area show that comparatively few defects definitely attributable to rheumatism have been noted. No case of organic heart disease requiring treatment was diagnosed during 1927, though there were 104 cases of abnormality recorded as requiring observation. Chorea was not recorded in a single instance, while "growing pains" were only noted in a few cases accompanying more gross lesions such as enlarged tonsils. It is fundamentally improbable that juvenile rheumatism in this county is as rare as these figures would suggest. It is more likely that in the hurly-burly of a routine medical inspection minor manifestations of rheumatism have been, in the past, entirely missed. Careful observations made by the writer during the year 1928 on this specific point suggest that not less than 2 to 3 per cent. of all children are definitely rheumatic, though the complete figures are not yet available.

The lack of due recognition accorded to rheumatic manifestations throws into relief the comparative superficiality of much of the work done at school medical inspections. In my opinion, this is largely due to the lack of any proper means of following the minor degrees of defect found at school inspections down to their real place of origin *in the home*. It is a point easily lost sight of that while, for reasons of convenience, inspection of children takes place in school, yet some five-sixths of a child's life, even in term-time, is spent outside the school precincts. It is in the home, in the street, in the field, that defects have their origin—not in the comparatively hygienic environment of the school. If it is to be truly preventive in its functions school medicine must follow the *early* defect back to its origin in the home.

When every allowance has been made for inherited predisposition to disease it still has to be admitted that faulty hygiene, in some form or other, is the match which sets ablaze the ready-laid faggots we call a diathesis. It is the duty of school medicine first, on the preventive side, to extinguish the match; secondly, on the curative side, so to drench the faggots of predisposition that they are no longer combustible.

Under the present system it is only the more severe degrees of defect which are followed up, and this, indeed, fully occupies the available time of the existing medical staff. Minor degrees of defect are merely recorded, and then forgotten until the child comes up for the next *routine* inspection three to five years later. This is a grave fault. Any defect, however slight, indicates a morbid process already at work. Before the child is next seen the invader may have become too firmly entrenched to be easily ejected. A defect inevitably points to some faulty hygienic factor in the environment, and it is only while it is still slight in degree that rectification of the faulty factor will result in a cure of the defect. *To investigate the environment we must go from the school into the home.*

Every practitioner is familiar with the type of child who is quite obviously physically unfit, and yet in whom systematic examination reveals no morbid condition to which a definite label can be attached. We call the condition debility, slight anaemia, "nerves" (the common parental diagnosis), and so on. These are merely symptoms, and in most cases definite disease is not revealed even by the most careful examination. But all symptoms must have causes, and if we write down the cause in this type of case as "faulty home hygiene" we shall usually be not far wrong.

It is, however, rarely possible at the school to detect the precise factor in the home environment which is at fault. I have found inquiries in this direction especially difficult owing to the fact that the parents of a child are frequently absent at the time of inspection; this is largely due to the parents living at a distance from the school, indifference, etc. Accordingly one has not even the advantage of being able, by questioning the parents, to obtain reliable information as to the home environment. I have found that the only practicable method of investigating the home conditions is to send a school nurse to make a personal visit to the parents. Unfortunately I have found it quite impossible, in practice, for the present staff of school nurses, with numerous other public health duties to perform, to make more than a mere start upon the immense amount of work waiting to be carried out in this connexion. Apart from the preliminary inquiries, many "following-up" visits are required in order to ensure that the environmental faults detected are being satisfactorily corrected. In order to carry out the necessary work adequately a total of not more than 1,500 pupils per *full-time* school nurse has been suggested for urban districts.[2] In a rural area this would need further reduction, and a figure nearer 1,000 would be more reasonable. This would entail, in this district, a staff of twelve *full-time* against the present staff of four *part-time* nurses.

If it be admitted that most of the defects found in children of school age actually originate in the home, our focus is at once shifted to the pre-school child. In 1927, excluding uncleanliness and dental defects, 4.7 per cent. of entrants were found to require treatment, compared with 5.5 per cent. and 5.02 for leavers and intermediates respectively. Moreover, I have found that most children requiring treatment at a later age have usually possessed a slighter degree of defect as entrants.

It is useless to tackle the environment of the school child if he is left to pass his pre-school years unheeded. The toddler requires a periodical medical inspection and subsequent following up by a nurse even more urgently than his bigger brothers at school. Unfortunately there is at present in rural districts no adequate machinery for carrying out such examinations. Mothers cannot usually even if willing, bring their younger children long distances to a child welfare clinic. In this county we have only nine such clinics. I have found that while these are well patronized by parents living close at hand, children are not brought to them from any considerable distance. To derive real benefit from child welfare clinics in a rural district it is essential to establish one in practically every village throughout the area. Such a large number of clinics could only be staffed adequately by utilizing the services of local practitioners on a very much bigger scale than at present.

In the case of the pre-school child this would offer definite advantages. The child could be seen at more frequent intervals. The local practitioner has usually an intimate knowledge of the previous and family history of each child, and parents are probably more willing to bring their children to be examined by the family doctor than by a comparative stranger from the public health department. Finally, "following up" would be easier, since the local practitioner is constantly in and out of the homes in his district. In this county I have found that the child welfare centres conducted by a local practitioner go with a distinctly greater "swing" than do those for which the whole-time staff of the public health department are responsible.

The importance of preventive work in the pre-school years cannot be overestimated. Most of the defects which I find at school inspections can be traced back to the toddling age, and could have been prevented by adequate medical supervision during that critical period. Sir George Newman has remarked on the fact that "year by year there is a steady stream of defect or physical impairment of the entrants coming into the schools . . . apparently never lessening, which requires medical or surgical treatment."[3] My experience in a scattered rural district suggests that this deplorable condition is due largely to a system which, ignoring the vague imponderable signs of a faulty environment, takes cognizance of it only when its inevitable results have become established. Such a system may avoid a certain amount of permanent crippling; it cannot be termed truly preventive. The stream of defect by the time it reaches the school has become too large to be mopped up, like a puddle, without leaving a trace. It must be followed back, and that without delay, to be stemmed at its source in the home during the pre-school years.

The disposal of exceptional children is another big problem which faces the school medical service in rural areas. By the term "exceptional children" is to be understood those children suffering from a defect of such a nature as to preclude their deriving the maximum benefit from instruction in an ordinary elementary school. There are in this county 392 such children, including 16 children totally or partially blind or deaf, 84 mental defectives, 7 epileptics, 65 cases of active tuberculosis of all types, 122 crippled children (including orthopaedic defects and those with severe heart disease), and 95 cases classed as merely "delicate"—for example, pre- or latent tuberculosis, malnutrition, anaemia, etc. Of these children 332, or 84.8 per cent., attend ordinary elementary schools. They are scattered over the district—one, two, or three in each school. In existing circumstances it is impossible to organize them into special classes, where they might receive the attention and instruction best suited to their individual needs. The only alternative at present is to send them to suitable residential special schools. Unfortunately to carry out such a scheme for any considerable portion of the exceptional children in this area has been found to present practically insuperable difficulties. The annual cost of maintaining a child in a residential school is about £80. If every exceptional child in this county were thus dealt with, the annual cost would be about £25,000, or ten times the present total expenditure on school medical services. Further, the benefit to the child (and ultimately to the community at large), especially in the case of mental defectives, has not been found commensurate with the expenditure involved. Moreover, it is often impossible to obtain parental consent to the removal of children suffering from only a moderate degree of defect. Finally, the accommodation available at residential special schools is still so limited that it is often difficult to secure admission for any given case.

The disposal of exceptional children is a problem largely peculiar to rural areas. In urban districts it is easy to provide non-residential special schools or classes within a

reasonable distance of children's homes. In London 6,282 out of a total of 6,307 mental defectives are attending certified special schools or other institutions.[4] To attain a similar result in this district it would be necessary to provide a number of special classes sufficiently accessible for all those children suitable for them. For approximately 400 children the total number of such classes could hardly exceed about thirty in all. Scattered over the county, they would be so separated that it would be impossible for children to attend without providing some means of mechanical transport. This is obviously not an economic proposition, since it would involve sending a vehicle daily to each village solely to pick up one or two children.

In venturing to suggest a tentative solution of the grave difficulties I have detailed, I approach my task with some diffidence, for I have no personal experience of the practicability of such a scheme as I am about to suggest, nor do I know of any other district where a similar scheme is already in operation.

Shortly, I suggest the total abolition of the present numerous small village schools and their replacement by a small number of large central schools, each providing accommodation for at least 1,000 pupils. Children from outlying villages could then be brought in by motor buses, run by the county council. The whole of the children attending an average village school could easily be accommodated in a single bus of modern type. Two buses would be ample to transport all the children at even the largest of the village schools. Leaving a convenient central point at a fixed time daily, the bus could easily stop at one or two points *en route* to pick up children who at present have to walk long distances to school from outlying hamlets. This would be of immense benefit to many young children who at present reach home at the end of the day tired out and often soaked to the skin. The expense of providing this transport could be partly covered by allowing some or all of the buses to run as public conveyances during the hours between and after the school journeys.

A scheme of this magnitude, like Rome, could not be built up into existence in a day, but it is not Utopian. The advantages of central schools are already recognized by the Board of Education on quite general grounds. In this county small steps towards centralization have already been made. During the last two years five village schools have been entirely closed, and transport has been provided to convey the children attending them to the nearest large school. This movement is likely to increase more rapidly in the near future.

With the establishment of central schools the exceptional children problem solves itself. Instead of one or two such children in each school there would be forty or more. Such a number would make feasible the establishment of special classes. Three such classes, of about fifteen children each, would be a convenient number in the average central school. One would provide for the older mentally defective or seriously backward children; one for the younger, and one for older physically defectives. In fairly small classes of this nature children could have just that individual attention which is necessary if they are to derive the maximum amount of benefit from their instruction. Within wide limits the disadvantage of mixing children of different educational standards would be offset by the individual instruction received.

I have referred in some detail to this exceptional children problem because it is one which is incapable of any solution under the system of elementary education at present practically universal in rural areas. But the advantages offered to the school medical service by central schools by no means end with the disposal of exceptional children. I will briefly outline some of the directions in which my experience suggests that the provision of central schools would greatly facilitate and even augment the work done in other branches of school medicine.

Provision is made for the treatment of certain specified classes of defect under a scheme of the education authority, notably defects of vision, dental defects, and certain minor ailments. Some of these are dealt with by local practitioners or dentists, but something like four-fifths are treated directly under the county schemes. Owing to the fact that inadequate transport facilities make it impossible for most children to attend at a central clinic, nearly the whole of the refraction and dental work has to be carried out at the schools themselves. The dental surgeon, or myself, arrives at a school where there are children to be treated, perhaps only two or three in all, equipped with all the necessary impedimenta for the work in hand. It is not difficult to imagine the degree of disorganization in the ordinary school routine entailed by our visit. Many of these village schools consist of a single room, and few of them have more than two, so that, practically speaking, the school has to be more or less cleared. If it is raining and the children cannot be turned into the playground, the difficulties of all concerned are increased tenfold. I have vivid memories of hours spent in cramped quarters, doing refractions in darkened lobbies, provided with no form of artificial heating even in mid-winter, and surrounded by the wet, malodorous hats and coats of the scholars. In such circumstances it is astonishing what satisfactory results are obtained, but the waste of time entailed in the repeated packing, unpacking, and inter-school travelling is immense.

The arrangements for treating minor ailments are even more chaotic. The conditions dealt with include minor skin diseases—impetigo, for example—and such small injuries as bruises and slight cuts, with miscellaneous defects such as chilblains, and so on. Usually all that can be done is to give directions for their treatment to the parents and head teacher, relying for skilled supervision on such comparatively infrequent visits as the school nurse (who may have forty or more widely separated schools in her district) is able to pay. It is probable that much work coming under the head of minor ailments which at present is referred to the local doctor would, if better facilities were available, be dealt with under the county scheme. This is usually work which, as Dr. Alfred Cox has pointed out,[5] the private practitioner would prefer to be without, since it entails an amount of trouble quite incommensurate with the recompense likely to be obtained.

With the advent of the central school all this wasteful expenditure of time and energy could be obviated. It would be easy enough to provide suitable accommodation at the school itself for all the work of the school doctor and nurse. Reduced to essentials, two rooms would suffice. There should be a nurse's room, equipped for the efficient treatment of the various minor ailments, and a doctor's room, which could easily be arranged to be suitable for purposes of both inspection and treatment. In respect of minor ailments, it would be easy enough for the school nurse to visit each central school in her district at a fixed hour daily and attend personally to the treatment of all children requiring it. If the present number of school nurses were augmented to the figure suggested earlier in this essay, each school would have its own individual and full-time nurse.

The school nurse could also carry out another invaluable service which at present is not attempted at all. Teachers often present to me children concerning whom they wish for one reason or another to have a skilled opinion. Under our present system it is often months before a chance comes for a child to be thus presented. If a school nurse were in attendance daily, teachers could present children about whom they were worried for a preliminary "screening." The nurse, who in this as in most areas is a highly trained individual, would be quite competent to advise as to the best mode of procedure in each case. Some she would be able to advise or treat herself. In others—probably the majority—she would advise the services of the family doctor to be sought, and from such a source there would be more likelihood of the advice being followed than if it came from the teacher. The remaining cases would be referred for special examination by the school doctor at his next visit. These visits would take place at least once a fortnight at each school, instead of, as at present, two or three times a year. Thus there is no reason why a child should not receive medical attention within a short time of anything wrong being noticed. In addition, the more frequent attendances of doctor and nurse would make it much easier than at present to follow up vigorously any special case, and to ensure that adequate treatment was obtained without delay.

A further argument for abolishing the present village schools lies in the extremely unsatisfactory sanitary conditions obtaining in the majority. Many are old and built without that provision for satisfactory lighting and ventilation which modern research has shown to be necessary for health. Heating, in nearly all cases, is by open grate or slow combustion stove, which makes for bad distribution and insufficiency. In many schools there is no supply of water fit for drinking purposes, and in the majority the closet and urinal accommodation is inadequate and correspondingly insanitary. At no school is there any special arrangement for the drying of children's clothing and boots. In this connexion I would cite the report of the chief medical officer to the Board of Education for 1925.[6] The sanitary condition of most of the schools in this area is as bad as, if not worse than, any of the instances there quoted. Rectification of these conditions, in view of the local circumstances of isolated country villages, would be in many respects quite impracticable, and in any case would impose upon the managers a much greater expense than could reasonably be insisted upon. It would probably be a more economic proposition to close unsatisfactory schools as rapidly as circumstances permit, transferring the pupils to suitable central schools.

I do not wish to suggest that the expenditure which would be involved in the establishment of central schools would be justified in the interests of the school medical service alone. As a matter of fact, if these schools were built on an open-air pavilion system, leaving ample space for expansion as circumstances required, the initial outlay would not be nearly so great as at first sight would appear. In any case the demands of school preventive medicine do appear to me to offer strong support to any arguments in favour of establishing central schools on more general educational grounds. My attention was first drawn to the possibilities of such schools from a medical point of view by numerous conversations with head teachers throughout the county; these I have found to be, almost without exception, strongly in favour of such a move on quite general grounds, both of economy in administration and as the best means of attaining a higher standard of elementary education in rural areas. Of these wider considerations I am, of course, not entitled to speak with authority, but my experience leads me to believe that they do in fact exist, and provide a thorough justification for urging the claims of the school medical service to a share in the benefits that the central school has to offer.

In conclusion, I would reiterate what I have endeavoured to show earlier in this study—namely, that in all cases even a slight departure from the normal and healthy condition has its origin in a faulty environment. Sometimes that faulty environment may be found in the school, but far more often it is to be found in the home, where, after all, the child passes the greater part of its early and adolescent years. More and more are we beginning to realize the importance of the pre-school years to the future history of the individual. In the proper direction of those critical years the local practitioner might be granted a very much larger share than he has been offered in the past.

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[4] London County Council, Annual Report of S.M.O., 1927, p. 174.
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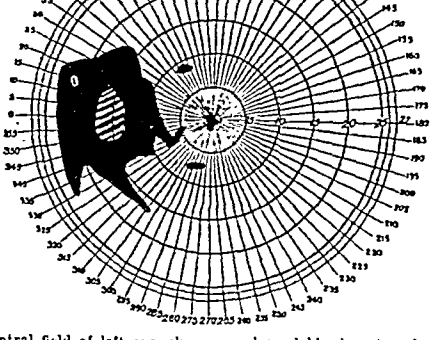
Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

OPTIC NEURITIS AND DENTAL SEPSIS.

On November 21st, 1928, a man consulted me because for three days previously he had been conscious of "a black cloud" in the outer field of his left eye; there was no gross field defect. He had one dioptre of hypermetropia with slight astigmatism. The vision in each eye with correction was normal (6/6). There was no central scotoma. Young's "threshold" test (a very delicate one) for light difference was negative. The macula was unaffected, but the nasal edge of the left optic disc was "fluffy." So far, then, there was nothing much to be found abnormal beyond his consciousness of a cloud in his left field; but a definitely described symptom is a quarry always worth pursuing.



Central field of left eye, showing enlarged blind spot and scotomata. The cross-hatched area represents the normal size of the blind spot of Mariotte.

On examination of his central field with the Elliot scotometer the blind spot of Mariotte was found to be much enlarged, with snail-track extensions towards the fixation point and one or two isolated scotomata (see diagram). The average normal blind spot is marked by cross-hatchings for comparison. This, in conjunction with the hazy nerve-head, pointed to optic neuritis. It was evidently not of the usual toxic type met with in tobacco and some other poisonings, where the *papillo-macular bundle of nerve fibres* is affected first, and macular vision with colour impairment is a very early symptom.

The patient, a watchmaker, aged 35, was a non-smoker, the urine was free from sugar and albumin, and syphilis could be virtually excluded. His breath was foul, and examination by a laryngologist showed a tonsil with stale secretion in one of the crypts; this was evacuated. Five days later the vision had fallen from 6/6 to 6/12, and there was slight loss of central colour perception. I then had his teeth examined radiologically, although they appeared sound to the eye except for some pyorrhœa of the lower incisors. He had root fillings in two upper bicuspids; the film showed probable septic trouble at the apices of these teeth. His dentist extracted them both, finding a broken-down granuloma at the root of one; he also extracted the lower incisors.

On December 4th vision in the left eye had now improved to 6/9 partly. The relative central scotoma was still present. His next visit to me was on January 25th, seven weeks later, during which time his mouth had been dealt with antiseptically. His vision was now 6/6 easily, and there was no central scotoma. The blind-spot enlargement and the two small scotomata had disappeared; he had lost the consciousness of a cloud, and the optic disc had resumed its normal appearance. He had made a complete recovery, and has regained much better general health.

I think there is no doubt that the optic neuritis was due to the apical dental sepsis, and that the patient's resistance was impaired by absorption from the septic tonsil and from the pyorrhœa.

At a time when there is a tendency to a reaction from the wholesale removal of teeth on *x*-ray findings it is well to remember that where an important organ such as the eye is in jeopardy, and search for other causes has failed, a suspicious tooth should be sacrificed without hesitation.

I should like here to emphasize the great value of the Elliot scotometer, which is, of course, only a very quick and convenient means of applying Bjerrum's test. The enlargement of the blind spot and the two small scotomata would be entirely missed by the ordinary perimeter. A 2-millimetre white object is used at a metre distance, and the central field up to 25 degrees is, as it were, magnified.

The slight haziness at the nasal edge of the disc was not obviously pathological; and, with normal vision and no central scotoma, had I not found confirmatory evidence of its significance by means of the scotometer, I might on his first visit have missed it altogether. A second opportunity, when the diagnosis was obvious, might not have been afforded me, to the detriment of the patient and the discredit of our specialty.

Sydney, Australia. E. TEMPLE SMITH, F.R.C.S.Ed.

PERFORATION OF A GASTRIC ULCER IN A SEPTUAGENARIAN.

THE following case of perforation of a chronic gastric ulcer is worth recording in view of the age of the patient and the long history of illness.

Miss X, aged 70, was admitted in a collapsed state to the Seamen's Hospital, Tilbury, on May 9th. Her pulse rate was 136, temperature 98.4° F., and respiration rate 28; her tongue was furred and she had an anxious expression. On examination it was noted that the abdomen did not move on respiration; it was acutely tender all over, especially in the epigastrium, and of board-like rigidity. Liver dullness was present and the flanks were dull on percussion.

History.—On the previous night the patient, while in bed, was suddenly seized with violent abdominal pain and difficulty in breathing. The pain was severe and continuous, and had not abated when she was admitted to hospital. She vomited some mucus. There had been a slight action of the bowels during the same morning. Her past history suggested that she had had a chronic gastric ulcer for at least thirty-two years; she had had severe haematemesis thirty-two years ago, and during the whole period up to the present had suffered from pain and vomiting after food, with periods of remission lasting several months during which she was quite well. There had been a recurrence of haematemesis sixteen years ago.

Operation.—On opening the abdomen I found the peritoneal cavity full of serous fluid, with flakes of lymph over the stomach and intestines. There was a perforation the size of a sixpenny-piece high up on the lesser curvature, which appeared previously to have been adherent to the under surface of the liver. The pylorus and duodenum were normal. Having closed the perforation with chromic catgut sutures and sutured the omentum over it, I placed a drainage tube in the pelvis and left it in for thirty-six hours. Towards the end of the operation the patient's condition gave rise to some anxiety, and on her return to the ward she was given saline subcutaneously. She made a perfect recovery and was discharged a fortnight later.

Perforation of gastric ulcer in a patient aged 70 is very rare, other points of interest in this case being the thirty-two years' history of ulcer, and the fact that recovery took place though operation was not undertaken till eighteen hours after the occurrence of perforation.

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British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

DEPTFORD DIVISION.

AT a meeting of the Deptford Division of the British Medical Association, held on June 19th at the Erith District Hospital, Dr. GEOFFREY BOURNE delivered an address on some clinical aspects of cardiac pain.

Dr. Bourne began by reminding his audience that William Heberden was the first physician to describe accurately the type of pain now known as cardiac, and to associate it definitely with disease of the heart. This he did in a paper read to the Royal College of Physicians in 1768. He then referred to the "danger belonging to it," the "sense of strangling and anxiety," and called it angina pectoris. Jenner, visiting Hunter at Bath, wrote to Heberden and predicted that disease of the coronary arteries would be found ultimately, a view which was confirmed at the autopsy. Physiologically speaking, continued the lecturer, pain stimuli could arise in or near the heart from the pericardium, from the adventitia of the cardiac vessels, and from the first part of the aorta; the myocardium itself was insensitive to trauma. The impulses so arising passed through the cardiac ganglia, thence to the three left cervical ganglia, and finally, by way of the rami communicantes of the last cervical and upper five dorsal segments, into the spinal cord. The common conditions clinically associated with cardiac pain were true angina pectoris, coronary thrombosis, coronary sclerosis, and pseudo-angina. In coronary thrombosis there was usually present some previous coronary disease, due to arterio-sclerosis or syphilis. A thrombosis most frequently occurred in the branches of the left coronary artery, often in the distribution of the anterior septal branch, and near the apex. If large it was followed by rupture of the heart and death; if small, it might become healed and leave little but scar tissue behind; if intermediate, there remained some impairment of cardiac effort. The event was often preceded by the symptoms of coronary sclerosis. The onset was sudden, with pain, fever, and leucocytosis. Cardiac function was impaired and a pericardial rub would emerge after a few days if the lesion was severe. The pain was like that of angina, but was not relieved by amyl nitrite; it was not pericardial, for it was immediate and sudden, whereas the friction, if it appeared, was later. The fever was often masked by the associated shock, and the temperature should therefore be taken in the rectum. The blood pressure, which might well have been taken at some previous time, would be found to be much lowered. The prognosis was worse if fever was high, leucocytosis considerable, and friction and cardiac irregularities were present. Recurrence was always possible. In making a diagnosis it was important to differentiate true angina and acute abdominal conditions. Electro-cardiographic tracings were characteristic.

True angina, said Dr. Bourne, was that serious, often fatal, condition which was characterized by four criteria: the patient was seized in an attack, often with no exact relation to exercise; he was unable to move; he feared that he might die; and relief was often obtained by amyl nitrite. The heart muscle and the coronary vessels were usually diseased. Disease of both or either might be absent, in which case disease of the aorta was often present. The condition was to be differentiated from coronary sclerosis where the pain was not severe, there was no fear of death, and there was a relationship between the pain and the amount of exercise taken. Allbutt's theory was that the pain was due to over-distension of the aorta, and that death was by inhibition through the depressor nerve and the vagus. But angina was not relieved by atropine, and there were no vagal endings in the ventricular muscle. Mackenzie's theory was that the pain was due to muscular exhaustion. But conditions which showed acute and chronic generalized cardiac failure to the greatest extent—namely, acute rheumatism, diphtheria, and chronic congestive mitral failure with fibrillation—were remarkably free from cardiac pain. Was it not therefore possible, suggested the lecturer, that the pain was due to local differences in ventricular function, the result of local physical tension or chemical variation, rather than to some generally acting cause? Attempts had recently been made to alleviate the severe attacks of pain. Surgery, on the whole, was disappointing, but alcohol injection of the affected nerve roots had been practised with success, at first by Mandl, latterly by others. Of White's five most severe cases two were completely relieved, two had no more severe attacks, and one was unchanged. Relief had now lasted for nine months. There was no danger in the proceeding. The patients most suitable were those in whom pain was very severe, so that life became burdensome, and those who had a relatively healthy myocardium.

The pain of coronary sclerosis, continued Dr. Bourne, had the same distribution as true angina. Its onset was gradual, and after a definite amount of work, which was pretty constant in the individual, it disappeared on resting, and there was no fear of death. In all respects it resembled the pain of intermittent claudication. It appeared to be associated with a hardening and narrowing of a coronary vessel. In treating the patient it was important to relieve him of the suspicion that he might have "angina." As much exercise should be allowed as would not produce pain. Lactose was useful in the diet. Theobromine sodium salicylate was of value in many cases in doses of 7½ to 20 grains, three times a day, after food.

Reports of Societies.

THE SCIENTIFIC STUDY OF INEBRIETY.

AT the meeting of the Society for the Study of Inebriety on July 9th a brief presidential address, which resolved itself into a series of questions, was delivered by Mr. W. MCADAM ECCLES, entitled "Some gaps in the study of inebriety."

Dealing first with alcohol and the vascular system, Mr. McAdam Eccles asked what was the exact action of varying percentages of circulating ethylic alcohol in the blood. Was there any effect upon the blood plasma itself? Had alcohol any direct action upon the delicate cellular tissue composing the walls of the arteries when they became, it might be said, bathed in a dilute alcoholic solution? Was arterio-sclerosis definitely more common in inimoderate than in moderate drinkers of alcoholic beverages? Was the absence of development of arterio-sclerosis in total abstainers one of the reasons why their expected mortality was so markedly lower than that of moderate drinkers? Further, was there any actual effect of alcohol upon the innervation of the muscular tissue in the blood-vessel wall? With regard to the heart, again some pertinent questions might be asked. Did the alcohol circulating in the blood passing through the heart affect more than the endocardium, possibly by reaching even the muscular tissue? What was the actual cause of the fatty degeneration of the heart in even moderate drinkers? Alcohol might have much to do with upsetting the finely adjusted heart muscle. Was it of the nature of a true peripheral neuritis affecting the cardiac innervation? Why was there quickening of the rate of the heart's beat? Was it interference with inhibition, or was it a "stimulation"? Turning to alcohol and the central nervous mechanism, the speaker asked, What was delirium tremens? No decisive answer was given in the textbooks. Was this delirium due to ethylic alcohol circulating in the blood, or to some other constituent of the favoured alcoholic beverage, or to some chemical substance—a toxin—produced somewhere in the body? Much research work was desirable on the actual effects of alcohol on the excretion of urine. What caused the increase of flow after the drinking of alcohol? How soon after a glass of champagne could alcohol be detected in the urine, and for how long after such a quantity had been drunk could traces of alcohol be observed in the urine excreted? Some of these gaps in knowledge urgently required filling, and the fact that they remained gaps did not redound to the credit of our fine body of investigators. The public, and many medical practitioners, were still living with the ideas of the past century, and it was for that society to make definite pronouncements and thus to create public opinion. Mr. McAdam Eccles hoped that his year of office as president might not be unproductive of a right form of "stimulation" in this respect.

Methylated Spirits and Impure Forms of Alcohol.

Sir WILLIAM WILLCOX then gave an address, illustrated by specimens of various alcohols, on the toxic effects of methylated spirits and impure forms of alcohol. He said that methylated spirit was first introduced in 1858. When it was found that people were drinking methylated spirit, which was a spirit diluted with wood naphtha, the composition of methylated spirit was altered, and certain small percentages of piridine and paraffin were added. The commercial methylated spirit of to-day was a noxious fluid: it not only caused poisoning if taken internally, but its application externally to the body was dangerous also. It had been so much altered in order to make it non-potable that its use in industry was somewhat hampered. The Government had met the case by introducing another form of methylated spirit, which was sold under great restrictions—an industrial methylated spirit, which was 90 per cent. alcohol mixed with only 5 per cent. of wood naphtha, instead of 10 per cent. as in the days before the war. Therefore industrial methylated spirit was poorer than the pre-war methylated spirit, and the wood naphtha also was itself poorer, he believed, than in the past. Surgical spirit was industrial methylated spirit to which had been added some substances to make it more unsuitable for drinking purposes—namely, 2½ per cent. of castor oil and 1 per cent. of boric acid. It was extremely unlikely that ordinary methylated or denatured spirit would be used by anyone as a beverage, though the industrial spirit might be so used. There had been a great many recorded cases of methylated spirit drinking. In 1926, it was stated, 2,000 deaths had occurred in America from this cause. In Scotland, in 1922, methylated spirit drinking became so prevalent as to necessitate the passing of strict regulations. Sir William Willcox said that he had seen cases of addiction when the spirit consisted simply of alcohol and wood naphtha, but not of addiction to the new composition. Of the evil effects which followed methylated spirit drinking the most notable was blindness, which was frequently permanent. Yet he was not aware of a single recorded case of blindness in this country due to methylated spirit drinking. But the fact that at least 5 per cent. of the cases of optic atrophy seen at the ophthalmic hospitals were due to undiscovered causes was significant, and it seemed possible that methylated spirit or methyl alcohol had not been investigated as a possible cause. In the United States every package of methylated spirit containing less than five gallons was marked by a skull and crossbones, and on the label was the following: "Complete denatured alcohol is a violent poison. It cannot be applied externally to the human or animal tissues without serious injuries resulting. It cannot be taken internally without inducing blindness and general physical decay, ultimately resulting in death." Thus was medical knowledge conveyed to the American public. It was the impure forms of alcohol which were the most dangerous. When the term "alcohol" was used in the popular sense, what was meant was ethyl alcohol (C_2H_5OH), but there were several other kinds of alcohol, some of which, like methyl alcohol, were offered or sought as substitutes. Purified methyl alcohol had a remarkable effect on the body. The symptoms following ordinary alcohol consumption (ethyl alcohol) came on within an hour, but with methyl alcohol they were delayed for several hours. The preparation produced much irritation to the stomach, with pain and vomiting; also intense headache, drowsiness, and coma; the last of these might persist for several days, differing again from the effects of ethyl alcohol, after indulgence in which the patient never remained unconscious for more than twenty-four hours. Methyl alcohol was much more poisonous than the ethylic form, its fatal dose being from one to two ounces. The substance was very slowly excreted, and could be smelt in the breath for a week after imbibition. Methyl alcohol had been used in many countries as a substitute for ethyl alcohol; the preparations containing it were the most dangerous things in the world. In America methyl alcohol was sold under deceptive names, such as "Colonial spirit" or "Eagle spirit," "or "essences" of this or that. It had been used for adulterating whiskey, brandy, sherry, rum, and even cider. In Germany there had been two serious epidemics of methyl alcohol poisoning from an adulteration of brandy with it. Finally, Sir William Willcox mentioned some other forms of alcohol, which, however, did not come to the same extent into the picture as possible resources of the addict. Propyl alcohol (C_3H_7OH) was not very unpleasant to the nose, and it could be used to some extent to replace ethyl alcohol in medicine. It was about twice as poisonous as ethyl alcohol, and induced a somnolent and drowsy condition. It also, on being drunk, produced a large quantity of acetone in the body. Its permanent effects were no more harmful than those of ordinary alcohol. Amyl alcohol ($C_5H_{11}OH$) was five times as poisonous as ordinary alcohol; it caused vomiting, intense headache, and drowsiness.

Sir William Willcox mentioned the case of a brilliant young man on a mission in America, who at a New York hotel was brought a bottle of some spirit by a waiter, and took a glass reluctantly on the pressure of a friend. As a result he went blind, though he later recovered his sight, a central scotoma remained, and this so depressed him that eventually mental degeneration supervened and he died.

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Reviews.

NEUROLOGY AND PSYCHOPATHOLOGY.

JELIFFE and WHITE'S *Diseases of the Nervous System*[1] has come to occupy an important position in the libraries of all neurologists, and indeed of very many general practitioners who take a keen interest in neurology and psychiatry. The authors, more particularly Jeliffe, are of an encyclopaedic turn of mind, and the fifth edition of their book shows us to what an extraordinary extent they are conversant with the most recent advances in the literature of their work. At the same time they are careful to stress, some may say unduly so, their own attitude towards neuro-psychiatric problems. The section dealing with the vegetative nervous system and with the endocrinopathies has been extensively revised and brought up to date. It is the best account in English of this difficult department of neurology at the present moment. In the chapter dealing with neurosyphilis, the authors wisely lay stress on the fact that meningo-vascular neurosyphilis and parenchymatous neurosyphilis are not always differentiated; the former is usually very amenable to treatment, the latter much less so; this is an important distinction. The account of the treatment of general paralysis to our mind leaves a great deal to be desired. No results of malarial treatment are given, although large numbers are available in the literature, and treatment by means of tryparsamide is not mentioned. It is in Part Three, devoted to what the authors call the "psychical or symbolic systems," that most fault will be found by English psychiatrists. Here the psycho-analytic viewpoint is given too much rein, and many hypothetical and nebulous concepts are allowed to take the place of the more solid ground on which modern psychiatry has been built. An extensive account of epilepsy from a psycho-analytic viewpoint is given, but in the discussion of therapeutic measures we find no results of the treatment of epilepsy on psycho-analytic principles. These criticisms, however, apply only to a small portion of the book, and, considering the ground covered, the authors are to be congratulated on a worthy presentation of a very wide and difficult subject.

In the eighteenth volume of *Nouveau Traité de Médecine*,[2] which is devoted to the general symptomatology of the pathology of the nervous system, the editors, Drs. ROGER, TEISSIER, and the late Professor WIDAL, have given us a typical presentation of the French school of thought in neurology. The chapter on aphasia by Foix is the best in the book; eighty pages are devoted to it. Foix gives a good description of the time-honoured sensory and motor aphasia of Wernicke and Broca. The illustrations to this chapter are very pleasing. It seems a pity, however that the views of Henry Head should be dismissed in a paltry twelve lines, and that the views of Henschen, who has devoted such a busy life largely to the study of aphasia, should receive even less—to wit, five lines. In the chapter dealing with disorders of pronunciation and elocution we find stuttering defined as clonic convulsive dysphasia, and stammering as tonic convulsive dysphasia; these may sound rather lengthy definitions, but they are undoubtedly useful. The chapters on tremors and contractures by Haskovec, the Prague neurologist, are particularly good; the photographs and diagrams of gait are excellent. Foix and Chavany provide us with sixty pages on the reflexes, and cover the ground very thoroughly, introducing electromyograms of the knee-jerks, etc. Mme Dejerine and Gauckler deal with the sensory disturbances in great detail, accompanying their article with a wealth of excellent diagrams. This chapter competes strongly with the one on aphasia for first place in order of merit. The last few chapters deal with the eye, the ear—a particularly good chapter—and the cerebro-spinal fluid. Mental diseases are dismissed in seventy pages. Looking back on the book as a whole we are struck by the predominantly French tone of it; there is little attempt to discuss the views of others, though in fairness we must admit that this failing is not confined to the fellow-countrymen of Duchenne, Charcot, and Pierre Marie.

[1] *Diseases of the Nervous System.* By Smith Ely Jelliffe, M.D., Ph.D., and William A. White, M.D. Fifth edition, revised, rewritten, and enlarged. London: H. K. Lewis and Co., Ltd. 1929. (Med. 8vo, pp. xx + 1174, 476 figures, 13 plates. £2 2s. net.)

[2] *Nouveau Traité de Médecine.* Par G. H. Roger, Fernand Widal, et P. J. Teissier. Fascicule xviii: *Pathologie du Système Nerveux. Séméiologie générale.* Paris: Masson et Cie. 1928. (Sup. roy. 8vo, pp. 812; illustrated. 85 fr.)

ASHHURST'S "SURGERY."

THE third edition of ASHHURST'S *Surgery, its Principles and Practice*,[3] bears a somewhat close resemblance in its general arrangement and get-up to another well-known textbook representing the views of the Philadelphian school of American surgeons—namely, Da Costa's *Surgery*. Ashhurst's *Surgery* is a general textbook for the use, primarily, of the student, and by including chapters on orthopaedics, venereal diseases, and gynaecology it covers the field in a comprehensive manner. The subject-matter is clearly written and reasonably condensed, and while the proportionate space devoted to the less common diseases is perhaps greater than that in most English textbooks, it cannot be suggested that too much space has been thus used. The English student would do well to supplement his reading by reference to such a book as this, which will broaden his surgical outlook and make his ideas of treatment less insular.

Modern methods of treatment and diagnosis are well represented and, like most American productions, the book is copiously and well illustrated, including fifteen plates in colour. Even the smaller illustrations are clear, and, with the exception of a few radiograms which have lost so much of their definition as to render them almost useless, none may be considered redundant. A small point of great value is the inclusion of a reference to the authority (name of author and date of publication) for all special statements made throughout the book. There are many hundreds of such references, which are quite up to date, and are rendered still more useful by a complete index of authors. There is little to be adversely criticized in Ashhurst's *Surgery*, but we feel that, in view of modern tendencies, a little more attention should have been devoted to radiotherapy with gamma rays. Without losing sight of the fact that the author of a standard textbook has to be reasonably cautious in his attitude to innovations, there can be no doubt that the student ignorant of the beneficial effects of gamma rays on certain types of neoplasm, and of the fact that in some clinics gamma irradiation has replaced excisional surgery in their treatment, cannot be considered properly equipped to advise his patients. The quotation with which the author prefaces his book is very relevant in this particular respect: "Les moyens chirurgicaux sont directs et quelquefois terribles" (Vidal de Cassis). We hope that the defect to which we have drawn attention may be remedied in the next edition, so that an excellent book may achieve its author's aspiration, expressed in the first edition, "to afford a true perspective—providing a source of information which shall indicate where further knowledge is to be found—giving clear and accurate statements and setting the facts definitely before the student."

[3] *Surgery, its Principles and Practice.* By Astley Paston Cooper Ashhurst, M.D., F.A.C.S. Third edition, thoroughly revised. Philadelphia: Lea and Febiger. (Roy. 8vo, pp. xx + 1179; 1,065 figures, 15 plates. 10 dollars net.)

CUTI-VACCINATION IN TUBERCULOSIS.

Is it creditable to scientific medicine that after forty years the position of tuberculin as a therapeutic agent is still undecided? This question is raised again by the publication of a monograph by Dr. J. DEKKER on local immunization against tuberculosis by the cutaneous route.[4] In a preface to the book Professor BESREDKA tells how one morning a serious young enthusiast presented himself at the Pasteur Institute in Paris, full of the success which had attended his treatment of patients in his country district. He was advised to continue his observations, and to publish nothing until he had obtained further proofs of the efficacy of his treatment. Dr. Dekker died while still young, but under the aegis of Professor

[4] *Immunisation Locale contre la Tuberculose par Voie Cutanée.* Par J. Dekker. Preface de A. Besredka. Amsterdam: H. J. Paris. 1928. (Med. 8vo, pp. viii + 104; 17 plates. 7s. 6d.)

Besredka his observations in one hundred cases are now submitted to the judgement of clinicians, together with his views on the mode of action of tuberculin given by the method of cuti-vaccination.

In developing his treatment Dr. Dekker followed the lead of Dr. W. Poundorf, who, while not the first to practise cuti-vaccination, introduced simple technique into the procedure. Dr. Dekker used two vaccines: A, a mixture of tuberculin and of an emulsion of dead bacilli; and B, the same as A with the addition of anti-staphylococcic, anti-streptococcic, anti-pneumococcic, and anti-influenzal vaccines. He scarified the skin of the patient so as to reach the endothelio-reticular layer, causing a drop or two of blood to appear. As a rule 32 to 40 scarifications were made, each eight centimetres long, and into these six drops of the vaccine were rubbed. Except in acute cases, dangerous to life, in which immediate large doses were necessary, a preliminary test vaccination was made. This consisted of five scarifications, one centimetre long, into which one drop of vaccine was rubbed. This procedure, however, seemed to be of no prognostic value, since, according to Dr. Dekker, excellent results had followed treatment when the skin reaction was entirely negative. Moreover, in more than five hundred treatments undertaken he never saw a focal reaction lead to an increase of focal or general disease.

Dr. Dekker maintains that, owing to the impermeability of the superficial layers of the skin, inunction with preparations of tuberculin and dead bacilli has uncertain effect, except in the form of Moro's keratolytic ointment. Scarification, however, offers a much more effective method of introducing therapeutic agents to deeper layers of the skin, and promoting changes which enable the skin to produce its beneficial effects on disease. As an example of immunizing results produced in this way, Dr. Dekker quotes the experiments on anthrax carried out by Besredka in guinea-pigs. It was only by scarification of the skin, or by intracutaneous injection, that these animals could be rendered immune to the disease. Inspired by these experiments, and by researches conducted by Verploegh which showed the relative dangers of different methods of introducing tuberculin into the organism, Dr. Dekker came to the conclusion that for the tubercle bacillus, as for anthrax, the staphylococcus, and the streptococcus, it is in the deeper layers of the skin that immunizing bodies are chiefly elaborated. When the skin is scarified, and tuberculin rubbed in, some of the vaccine penetrates into the blood or lymph streams, and a focal reaction is produced. But at the same moment the endothelio-reticular layer has been activated; defensive elements are poured into the blood, and bacilli and toxins which have escaped from the focus of disease are destroyed. With repeated supplies of defensive elements, kept up by a series of cuti-vaccinations, the foci are themselves attacked, and the disease may become fully checked. It is only, says Dr. Dekker, when the production of antibodies by the skin has become insufficient to strangle the morbid processes at the centres of infection that the process of cuti-vaccination is contraindicated. Such conditions, he thinks, are only met with in very advanced stages of the disease, when common prudence suggests interfering with the patient as little as possible. In such cases prolonged intoxication prevents the formation by the skin of sufficient antibodies. Whatever may be thought of Dr. Dekker's theories, it is at least interesting that tuberculin, notwithstanding its condemnation as a therapeutic agent by a congress in London in 1913, is still thought worthy abroad of observation as to its effects, and of the building up of hypotheses to account for its action.

HELMINTHOLOGY.

THE study of the parasitic worms has of recent years become more and more important, and a large, if scattered, literature has grown up round the subject. Accordingly, Dr. BAYLIS's new *Manual of Helminthology*[5] is opportune. The task which he has set himself is a difficult one, and to include within the compass of some three hundred pages short, yet concise, descriptions of all the helminthic parasites of man and the domestic animals, calls for no inconsiderable powers of compression. The descriptions are necessarily brief, but are lucid and sufficient. The essential facts of those life-histories which are known are sketched in outline only; and as the scope of the book is confessedly biological, little or no reference is made to pathological, clinical, or therapeutical aspects of helminthology. Accordingly, the full title "A Manual of Helminthology: Medical and Veterinary" is somewhat misleading. As a textbook for classes of medical men studying parasitology, it has definite limitations, since the human parasites constitute a comparatively small portion of the whole, and the biology is not considered in sufficient detail to suit their needs. As a reference book for laboratory workers who take a wider view of their subject, or for workers in the tropics who are interested in the parasites which they may encounter in the domestic animals and birds, it should prove invaluable.

The manual falls into two parts, dealing with the flat and round worms respectively; these in turn are subdivided into flukes and tapeworms, nematodes, and thorny-headed worms; and each part is preceded by a general account of the group. Within the groups the parasites are considered systematically without reference to hosts. At the end of the book is a set of host indices showing the parasites of man and the principal domestic animals, arranged under the names of the hosts, together with a comprehensive general index. The volume is well and generously illustrated and strongly bound, and the author is to be congratulated on having produced, within the limits set by its conception, a thoroughly useful and readable manual.

POST-OPERATIVE PHLEBITIS.

PROFESSOR DUCUING has written a full and interesting account of post-operative phlebitis, thrombosis, and embolism[6] that can be confidently recommended to surgeons as the latest word on a subject of no little importance. The author begins with chapters on the histology, etiology, pathology, and symptoms of post-operative phlebitis in its various clinical forms. He has seen 225 cases of phlebitis occur in his last 3,000 operations, including all the forms of phlebitis, mild and severe, that were identified; this relatively high percentage of cases, much higher than the percentages recorded by other surgeons, is naturally to be attributed to the greater care with which evidences of phlebitis have been sought for in this series. Similarly, with embolism, Professor Ducuing enumerates 300 instances in 3,000 operations, while other writers have recorded no more than from 2 to 7 cases per 1,000 operations. Elaborate chapters discuss the sequels, diagnosis, prognosis, pathogeny, and treatment of such thromboses and embolisms, over 100 pages being given to those unsatisfactory matters, their prophylaxis and treatment. Full details of preoperative prophylactic vaccination and of treatment by anticoagulating substances are set down, and also the author's own unsatisfactory trials of leeches and leech extracts in the treatment of established post-operative phlebitis. When all is said and done, these operative risks—thrombosis and embolism—remain impossible to foresee and well-nigh intractable. The book is well arranged and well written; it contains an immense amount of valuable information, and should be of great service to all medical men who are interested in the subject with which it deals.

NOTES ON BOOKS.

THE appearance of the third edition of *The Treatment of Fractures and Dislocations in General Practice*[7] is good evidence that Messrs. MAX PAGE and ROWLEY BRISTOW's work is appreciated by the medical public. The book has been kept up to date and improved by the addition of a number of line drawings which bring out the important features of radiographs. Some sections have been rewritten. This edition may be commended as a practical guide to the up-to-date treatment of fractures.

[5] *A Manual of Helminthology: Medical and Veterinary.* By H. A. Baylis, D.Sc. London: Bailliere, Tindall and Cox. 1929. (6½ × 9½, pp. xi + 303; 203 figures. 30s. net.)

[6] *Phlébites, Thromboses et Embolies Post-opératoires.* Par J. Ducuing. Préface du Professeur J.-L. Faure. Paris: Masson et Cie. 1929. (6½ × 10, pp. xxxii + 512; 65 figures, 16 charts. 60 fr.)

[7] *The Treatment of Fractures and Dislocations in General Practice.* By C. Max Page, D.S.O., M.S., F.R.C.S., and W. Rowley Bristow, M.B., B.S., F.R.C.S. Third edition. Oxford Medical Publications. London: Milford, Oxford University Press. 1929. (Demy 8vo, pp. xvii + 284; 161 figures. 14s. net.)

Chronic rheumatism is one of the most widespread complaints in Great Britain, and it is therefore of considerable interest to read how it is regarded in other countries. Drs. WEISSENBACH of Paris and FRANÇON of Aix-les-Bains have made a very thorough study of the subject, and their book on the causes and treatment of chronic rheumatism[8] gives a lucid and complete picture of the way in which it is approached in France. The first part of the volume deals with the etiology and pathology of chronic rheumatism; and here the authors discuss the notion of focal infection that is so widely accepted in this country and in America as a common cause of the disease, and dismiss it as unproven but still worthy of further investigation. They find more trustworthy evidence of the pathogenetic causes of chronic rheumatism in factors such as toxic and humoral disturbances, and troubles involving the vascular or nervous systems, the ductless glands, and, finally, in the arthritic diathesis—though their discussion of "arthritism," one of the blessed words of French medicine, shows that they do not accept all that is claimed for it in the pathogenesis of chronic disorders of the joints. The second and third parts of the volume deal with the diagnosis, prophylaxis, and treatment of chronic rheumatism, particular attention being paid to hydrotherapy and spa treatment; nothing seems to be said about vaccine treatment. The book is well arranged, and is clearly the work of medical men with open minds and considerable experience; it may be warmly recommended to medical readers in search of an authoritative account of the subject with which it deals.

We have received a collection of papers delivered at the tenth post-graduate course held at Karlsbad in 1928,[9] and, although it purports to be directed specially to the subjects of balneology and balneotherapy, only a few of the papers have a bearing on this subject. Others are concerned with metabolic questions, endocrine physiology, and surgical subjects such as chronic suppurative middle-ear disease, while Professor MacLean contributes a paper on the alkaline treatment of gastric and duodenal ulcer. The contributors are authoritative, and the papers attractively presented and adequately illustrated. At the beginning of the book there is a collection of portraits of all those who have contributed to the first ten courses.

Professor WILSON'S *Laboratory Manual of Physiological Chemistry*[10] is a revision of one written by Professors Jones and Wilson and used for several years at the Johns Hopkins University and the University of Pennsylvania. The first hundred pages deal with the general outlines and processes of physiological chemistry, while the rest of the volume is devoted to the various tissues and fluids of the body. The text is found only on the left-hand page when the book is opened, the right-hand pages being blank for the reception of the user's notes. The book is concisely and clearly written, and may be warmly recommended to senior students with a good working knowledge of chemistry and physics. One cannot help thinking that it would be improved by the addition of an index.

To the second edition of her little book on *The Hygiene of Marriage*[11] Dr. EMSLIE HUTTON has added chapters on menstruation and the menopause, and on sterility. It is curious to reflect that civilization should have led in man to the necessity for instruction in such a natural instinctive act as consummation of marriage. However, Dr. Hutton, in common with most medical practitioners, is convinced that much unhappiness, and even ill health, is caused in some married people by ignorance of the facts of sex. The average healthy couple will probably get on quite comfortably without her book. Those in difficulty will find reassurance from its perusal. As we said of the first edition, the language is quiet, but explicit, the taste and tone are unexceptionable, and the information is generally in accordance with scientific knowledge.

The book on *Soap Films*[12] by Mr. A. S. C. LAWRENCE gives an interesting and scientific account of a subject that was, no doubt, of great attraction to us all in the nursery, and has yet been employed by physicists to afford information of critical importance in the physics of the molecule and the atom. Soap films have engaged the attention and pen of many men of science, from Plateau in the earlier days to Vernon Boys, Dewar, and Perrin in the later. Mr. Lawrence's book deals in a practical and scientific spirit with the whole subject of the production of soap films and with the interpretation of the various optical phenomena they present. It should appeal to chemists and physicists in the first instance, but may be warmly recommended to the attention of all general readers interested in the subject and willing to take a little trouble over the mathematical and chemical formulas involved in the author's clear and well-written exposition. The book is well illustrated and well produced.

[8] *Causes et Traitements des Rhumatismes Chroniques.* Par R.-J. Weissenbach et F. Françon. Collection des Actualités de Médecine Pratique. Paris: G. Doin. 1928. (5½ × 7, pp. XXIII + 342. 32 fr.)

[9] *Internationaler Ärztlicher Fortbildungskursus, mit besonderer Berücksichtigung der Balneologie und Balneotherapie, 1928.* Veranstaltet und herausgegeben von Stadtrat Karlsbad. In dessen Auftrage redigiert von Dr. Edgar Ganz. Jena: G. Fischer. 1929. (Roy. 8vo, pp. iv + 463; illustrated.)

[10] *A Laboratory Manual of* [illegible] By D. Wright Wilson. London: Bailliere, [illegible]: The Williams and Wilkins Company. 1928. [illegible])

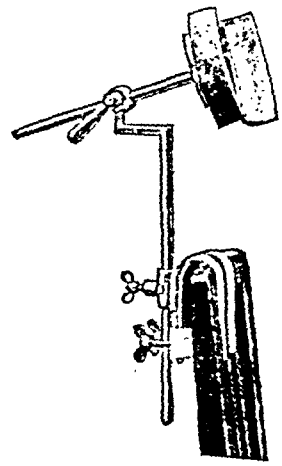
[11] *The Hygiene of Marriage* [illegible], M.D. Second edition. London: William Heinemann. 1929. (5s. net.)

[12] *Soap Films.* By A. S. C. [illegible] by Sir William Bragg, F.R.S. London: G. Bell and Sons, Ltd. 1929. (Demy 8vo, pp. XI + 141; 61 figures, 15 plates. 12s. 6d. net.)

PREPARATIONS AND APPLIANCES.

HEAD REST FOR USE IN NOSE AND THROAT WORK.

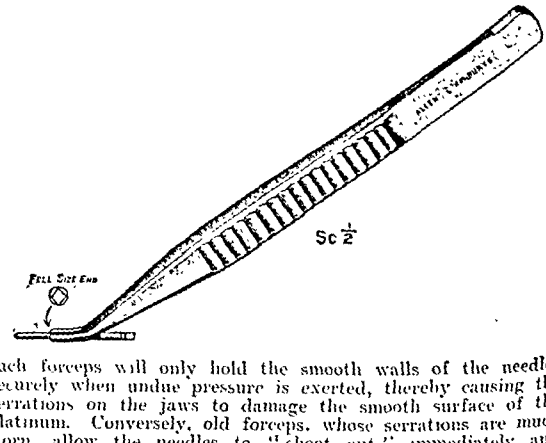
DR. L. J. CURTIN (*oto-laryngologist, Royal Victoria Eye and Ear Hospital, Dublin*) writes: Very often when performing minor operations on the nose and throat away from the operating theatre or consulting room one feels the need of



a head rest for the patient. The illustration shows such a head rest, made to my design by Messrs. Mayer and Phelps (New Cavendish Street, W.). It is portable, light, and in a few moments readily adjustable to any type of chair, while at the same time it gives the necessary support to the patient.

FORCEPS FOR RADIUM NEEDLES.

DR. F. E. CHESTER-WILLIAMS (*medical officer in charge of the Radium Therapy Department, Royal Infirmary, Bradford*) writes: The constant handling of radium needles, particularly in the "making-up" room where they are threaded or placed on the surface of Columbia paste collars, is associated with definite dangers to the workers. To minimize these risks as far as possible, all needles are held with forceps, the ordinary long dissecting forceps being most commonly used. The jaws of



such forceps will only hold the smooth walls of the needles securely when undue pressure is exerted, thereby causing the serrations on the jaws to damage the smooth surface of the platinum. Conversely, old forceps, whose serrations are much worn, allow the needles to "shoot out" immediately any pressure is applied to them, with the result that the needles may be difficult to recover, or even lost altogether.

I have had made for me by Messrs. Allen and Hanburys, Ltd., the forceps illustrated herewith. They are shaped like the well-known Childe's dissecting forceps, but, having angular cut jaws, they readily adjust themselves to, and firmly hold without undue pressure, any needle from 1.75 mm. diameter to 2.2 mm. diameter.

OXFORD OPHTHALMOLOGICAL CONGRESS.

THE nineteenth annual meeting of the Oxford Ophthalmological Congress was held at Oxford on July 4th, 5th, and 6th. Members met informally at dinner on July 3rd in the Hall of Keble College, which had again offered its hospitality as in former years. The attendance of 112 constituted a "record" in the history of the Congress, and the present one was generally regarded as the most successful that had been held. The advantage gained by the all-too-short stay in the College, where each member is assigned rooms and becomes for the time being a student again, is a prominent feature of this successful annual gathering of ophthalmic surgeons, which was founded by the late Robert Doyne nearly twenty years ago. The proceedings of the Congress were held in the department of human anatomy of the University, kindly lent for the purpose by Professor Arthur Thomson. In addition to the scientific exhibitions, fourteen well-known firms of ophthalmic instrument makers showed the latest forms of apparatus and instruments.

The new Master this year was Mr. Bernard Cridland, who has been secretary for the past sixteen years. This appointment has been received with high approval by the members, as it is common knowledge amongst them that one of the great factors in the continuous success of the Congress had been the yeoman work put into the organization and arrangements of the meetings by Mr. Cridland.

An unusually large number of foreign members, and others resident abroad, attended the Congress this year, among whom were Professor Josef Meller of Vienna, Professor Lundsgaard and Drs. Holgar Ehlers (Copenhagen), Holland (Quetta), Bernard Samuels (New York), Thomas Poole (Washington), Swan (Evaston), Lichtenberg (Kansas City), and J. A. van Heuven (Utrecht).

Treatment of Diseases of the Lacrymal Sac.

The proceedings commenced on the morning of July 4th with a short address of welcome by the MASTER. Immediately following this, Professor MELLER opened his address with a short historical summary of the treatment of diseases of the lacrymal sac, pointing out that the idea of making an opening into the nose could be traced back to Celsus. In the eighteenth century Woolhouse suggested the purely surgical operation of extirpation of the sac, and, finally, Professor Meller brought the historical review up to the methods of Toti and West in the present century. Contemporary methods of treatment were then discussed for pure epiphora without ascertainable involvement of the lacrymal passage. From this Professor Meller passed on to the treatment of pure stenoses, and considered those cases which would be benefited by probing. The great value of employing x rays before treatment was insisted upon, and the use of thick probes deprecated. Strictorotomy of the duct was next described. The medicamental treatment of chronic dacryocystitis was then fully explained. Following this, the treatment of acute purulent dacryocystitis was illustrated, and the operative treatment of chronic dacryocystitis was delineated. The technique of the operation of extirpation of the sac was minutely described and the difficulties were emphasized. The various intranasal operations were related and commented upon.

Professor Meller's address was listened to with rapt attention by his large audience, and was a triumph of lucid expression in faultless English; at its conclusion he was accorded quite an ovation.

Dr. J. S. FRASER approached the lacrymal question from the rhinological standpoint. He confined his attention to the results of 103 dacryocystostomy operations, describing the technique minutely, its difficulties, complications, and results.

The papers were discussed by Mr. HARRISON BUTLER and by Mr. EDWARD D. D. DAVIS, who mentioned the nasal causes of dacryocystitis, of which in a series of ten cases lupus had caused five, atrophic rhinitis one, enlarged cystic middle turbinate three, and carcinoma of the ethmoid one. Mr. Davis stated that his experience of West's operation had not been satisfactory. He emphasized the value of lipiodol in x-ray photographs as a means of diagnosis. Mr. BROWNING, Mr. JAMESON EVANS, and Professor LUNDSGAARD also joined in the discussion, the last-named raising the question of tuberculous lacrymal disease, and pointing out that it was generally secondary to a nasal infection. He drew attention to the Finsen light, mentioning that it had no perceptible effect on the closed sac, but was decidedly favourable when the cavity was open. Professor MELLER replied to the discussion.

Vascularization of the Vertebrate Eye.

The Doyne Memorial Lecture, the most important contribution to the proceedings of the Congress, was delivered on the morning of July 5th by Miss IDA MANN, D.Sc., F.R.C.S., the title being "Some observations on the vascularization of the vertebrate eye."

Prefacing her remarks with a fitting tribute to the founder, the late Robert Walter Doyne, the lecturer, for the purpose of this study, classified the intraocular vessels into three groups, those of the retina, iris, and choroid. The choroid was only briefly described, emphasis being laid on the vessels of the retina and iris. Miss Mann commented on the stability of the structure of the choroid throughout the phylum, and mentioned certain modifications which appeared in some fish, producing the structure known as the choroidal gland. Reference was also made to the reflecting membranes—the argentea in fish and the tapetum of the carnivora. It was pointed out that the variations of the retinal and iris vessels were of great interest, as would have been expected, because both sets appeared relatively late in ontogeny in all species. The development of the hyaloid vessel was minutely described and the varying forms were noted; it was only in the higher mammals that a single vessel was found.

The main varieties of the adult retinal blood supply which were found among vertebrates were: (1) a completely avascular retina, the blood supply being entirely from the choroid; (2) an avascular retina associated with a pecten; (3) a vascular retina supplied by vessels lying on its inner surface; and (4) a vascular retina supplied by vessels ramifying in its substance. The modifications of the anterior end of the hyaloid vessel were divided into two groups, those with and those without a pupillary membrane during development. The former were confined to the mammals, while the latter were found in the rest of the vertebrates.

The lecture was illustrated by over sixty lantern slides, which were of very great interest. These were chiefly drawn under slit-lamp illumination at the Zoological Gardens in London, and comprised among them anterior ocular drawings of a salamander, a python, and numerous fish. The lecture was delivered in a very clear and lucid manner, and commanded the greatest attention. At its conclusion Miss Mann was presented with the Doyne Memorial Medal for the year.

Ocular Manifestations in Head Injuries.

Mr. HUGH CAIRNS opened a discussion on the ocular manifestations found in head injuries. He thought that undue attention had been paid to the actual fracture of the skull and too little to the underlying brain. The importance of the intracranial pressure was stressed, being caused by haemorrhage or oedema of the brain substance. It was difficult to decide which cases would benefit by operation and which would not. Blurring of the optic discs was seen in many cases where there was a large blood clot in the brain. In 80 patients, only 7 showed definite papilloedema; this sign was an indication for operative measures, which would give the patient a better chance, and obviate the chronic ill health which so frequently followed head injuries. Dilatation and fixation of the pupil indicated the side of the most serious lesion. Homonomous visual field defects were rarely seen in civil practice, and injury to the fibre tracts and nuclei were also rare. Persistent headache and photopsia following a head injury were not functional, but were probably due to an unresolved cerebral contusion.

Mr. CHARLES GOULDEN, who treated the subject from the point of view of the ophthalmic surgeon, described very fully the direction which fractures took when blows were applied to certain parts of the skull. He showed that a rupture involving the optic canal could occur in any fracture of the skull, but was most common when the blow was in the neighbourhood of the external angular process. The various ocular symptoms due to haemorrhage into the sheath of the optic nerve were described, and the important pupillary reactions well portrayed. The various ocular paralyses were minutely detailed and their localizing value explained. Pulsating exophthalmos and its causation were described; consideration was also given to haemorrhages into the orbital region and dislocation of the eyeball with its mechanism.

The discussion was continued by Mr. JAMESON EVANS, Mr. RIDLEY, Mr. HARRISON BUTLER, Mr. COLLYER SUMMERS, Mr. COULTER, Mr. TRAQUAIR, Mr. NORMAN PIKE, Mr. BAMFORD, Mr. STEWART BARRIE, and Mr. DAVENPORT.

Miscellaneous Papers.

The proceedings on the morning of July 5th were opened by Dr. THOMAS POOLE of Washington, whose paper on the effects of disease of the paranasal sinuses upon the fixation point should be studied in the original. It was discussed by Mr. MADDOX and Dr. ROSA FORD.

Mr. RIDLEY then read a paper on an unusual complication of Hodgkin's disease in which the lacrymal glands were seriously infected.

Mr. NICHOLAS HUGHES contributed an original and interesting paper on the structure of the vitreous. Research had been conducted on sheep's eyes in which the vitreous was suspended in a vessel containing a solution of sodium chloride of a specific gravity adjusted to that of the vitreous. Observations were then made with the arc slit-lamp. The investigation showed that the vitreous had a slender attachment to the optic disc and a much firmer union to the ciliary processes. The interior of the vitreous was occupied by membranes which had a remarkable disposition; their structure was fully described in the paper.

In the afternoon Lieut.-Colonel H. HERBERT read a paper on the cement substance of the intraocular muscles and chronic glaucoma.

On Saturday morning Mr. BERNARD SAMUELS of New York gave a paper entitled "Necrosis of the iris," the results of his research work in the Vienna Clinic under Professor Fuchs. It was illustrated by a number of slides, which demonstrated the condition very clearly. It was discussed by Professor MELLER, who emphasized the difference between primary and secondary necrosis of the iris.

Mr. PHILIP ADAMS, the deputy master, contributed a most interesting paper on three cases of toxic amblyopia, due respectively to iodoform, digitaline, and chlorodyne. This was discussed by Dr. STEWART BARRIE, Mr. TRAQUAIR, Mr. HARRISON BUTLER, and Mr. CRAIG.

Dr. H. T. HOLLAND of Quetta then read a very instructive paper on iritis as a post-operative complication of cataract extraction, comprising a review of 2,627 consecutive extractions for cataract, of which the large majority had been intracapsular, and showing that a higher proportion of iritis ensued in those operations which were performed with capsulotomy. This was discussed by Professor MELLER, Mr. HARRISON BUTLER, Mr. TRAQUAIR, Dr. SAMUELS, Mr. CRIDLAND, and Mr. RUSS WOOD.

Demonstrations.

During the afternoon of July 4th there were demonstrations in the Scientific Museum. Mr. MADDOX showed his cheiroscope and frame-fitting method. Miss MADDOX demonstrated a few simple expedients in squint training. Mr. BURDON-COOPER exhibited spectrograms showing the composition of the ash in the senile cataractous lens. Mr. THOMSON HENDERSON demonstrated a specimen of an intradural tumour of the optic nerve. Mr. RAYNER BATTEN contributed a collection of drawings illustrating disease of the macular region. Mr. ARMSTRONG showed a recording scotometer, and Mr. GEORGE YOUNG a case of transplantation of the whole cornea and conjunctiva.

Social Events.

At the conclusion of the afternoon's proceedings, on July 4th, members and their friends repaired to the gardens of Exeter College for tea, where they were welcomed by the Vice-Principal of Ripon Hall, the Rev. J. S. Bezzant, Fellow of Exeter College, and Mrs. Bezzant, and also by Mr. Philip Adams, Fellow of Exeter College and deputy master of the Congress, who, with Mrs. Adams, kindly acted as hosts and hostesses.

The annual dinner of the Congress was held in the evening in the Hall of Keble College, at which the largest number in the history of the Congress attended. Among the guests were the Dean of the Oxford School of Medicine, Dr. Ainley Walker, the Rev. J. S. and Mrs. Bezzant, Dr. J. S. Fraser, and Professor Meller. The Master, Mr. BERNARD CRIDLAND, mentioned that 23 new members had been elected during the year, and the total membership was now 411. He regretted the loss, through death, of Drs. Andrews of California and Beauman of South Africa. The Master then gave a detailed account of the history of the Congress from the time of its inception, nineteen years previously, pointing out its remarkable and steady progress, until it had assumed its present position of importance in the ophthalmological world. After referring to the numerous foreign and overseas members who were there, he drew attention to the presence of Mr. Richardson Cross of Bristol, a member of the original council of the Congress, and added, further, that three-fourths of the members of the executive of the Congress at the present time were former pupils of Mr. Richardson Cross. The toast of "The Visitors" was proposed by the deputy master, Mr. PHILIP ADAMS, and replied to by Dr. AINLEY WALKER.

ROYAL MEDICO-PSYCHOLOGICAL ASSOCIATION.

INCIDENCE AND CONTROL OF MENTAL DEFICIENCY.

On the closing day, July 12th, of the annual meetings of the Royal Medico-Psychological Association, held at the British Medical Association House, Tavistock Square, under the presidency of Dr. NATHAN RAW, a discussion took place on the report of the Mental Deficiency Committee (the joint committee of the Board of Education and the Board of Control), which is now available in its entirety, including Part III, on the mentally defective adult.

Dr. A. F. TREDGOLD, a member of the committee, gave an outline of the report. Much confusion on the subject of mental deficiency, he said, was due to the different criteria adopted, on the one hand in the Mental Deficiency Acts, and on the other in the Education Acts. The committee had proceeded on the basis that mere lack of educational attainments could not in itself be regarded as constituting mental deficiency; the only criterion was social incapacity. In 1908 the inquiry by the Royal Commission on the Feeble-minded estimated that there were 4.6 mental defectives per 1,000 of population; Dr. E. O. Lewis in the present report gave the number as 8.56 per 1,000. The higher incidence was to some extent more apparent than real; in other words it was due to a more complete investigation, but not all the increase could be explained in that way. If it were so, one would expect to find included a relatively larger number of persons suffering from mild degrees of defect, but in fact the proportions of the different grades in the two computations were almost exactly the same. It was evident that during the last twenty years there had been some definite increase in the proportion of mental defectives to the population. One factor might be the concurrent reduction in the infantile mortality rate, another the longer life span of the population generally, a third the selective decline in the birth rate; mental defectives were the offspring of a mentally subnormal stock, and the birth rate amongst these was higher than the average for the community. For years past the nation had been breeding "from the dregs rather than from the cream." With regard to the education of the mentally defective, the special schools were quite insufficient even

for the number of defectives ascertained. During the last twenty years the education of the mentally defective, formerly optional, had been made compulsory, and no doubt something had been done under the Mental Deficiency Acts, but only the fringe of the problem had been touched. There were still thousands of mentally defective children who were receiving no proper education and training, and thousands of adults totally unemployed and under no adequate supervision. There were thousands of defectives also encumbering the mental hospitals and interfering with the proper treatment of mental disorder. The magnitude of the problem was just as great as it was twenty years ago. The recommendation of the joint committee was that the local education authority should be responsible for providing suitable education according to their needs for all children under the age of 11 who were able to attend day schools and centres; the lower grades would be notified to the mental deficiency authority, which would pay for the cost of their provision, and there should be a new educational unit of retarded children. It insisted that the existing powers for dealing with defectives—the powers of supervision and guardianship—should be made real, and that there should be also the closest possible co-operation between the authorities concerned with the mentally deficient and those concerned with the mentally disordered. With this in view there should be available the services of an expert—an officer of mental health, possessed of knowledge and experience in all branches of psychological medicine—who would be responsible for co-ordinating the various clinics and arrangements. On the social and genetic aspects of the question the committee felt that the present state of knowledge was not sufficient to enable definite conclusions to be drawn as to the preventive value of segregation and sterilization, and therefore urged the need for further definite research.

Dr. W. A. POTTS said that the recommendation of the joint committee that backward and feeble-minded children should be dealt with together by education authorities without special certification had a great deal to recommend it; but at the same time the policy of taking these children together, without any clear differentiation, would possibly emphasize the difficulty that already arose from the constant mistake of talking of well-marked defectives as borderline cases. It was now demanded that all practitioners should have some instruction in mental deficiency. In 1913 it was made a duty on the part of practitioners to certify any mental defective who required to be placed in an institution, yet no provision had been made for the instruction of medical students in the necessary diagnostic work. He did not think the problem would ever be brought near solution until the proper education of all medical practitioners in this important matter was insisted upon.

Dr. JOHN CARSWELL was satisfied that the awe with which tests of intelligence had been regarded in the past had greatly obscured the early estimation of mental defect. If instruction in mental deficiency was to be set going at all it must be by those who were teaching medical students mental diseases.

Dr. A. H. MACDONALD, chief medical officer, Dr. Barnardo's Homes, had found a diffidence among medical officers in certifying children because of the stigma attached to certification. If that stigma were removed it would be possible to get more children into the special schools.

Dr. W. F. MENZIES referred to the astonishing lack of interest shown by the press in the report of the joint committee. Mental deficiency was not "copy" for the newspapers, yet many members of the public, especially lay members of public bodies, were showing the liveliest interest in this question and asking what the medical profession was going to do. His own idea was that the numbers of mental defectives were not 8 per 1,000, but nearer 12 per 1,000. There were certain rough-and-ready rules which, in country places and among the labouring population, served fairly well to assess the incidence: in the case of juveniles, had they been able to pass the fourth standard? If not, they were likely to be mental defectives. In the case of adults, marriage being almost an economic necessity among the labouring classes, if a man in those classes was not married by the age of 30 it was likely that he was a mental defective. From a rough assessment, he felt that 12 per 1,000 was a closer approximation than that given by Dr. E. O. Lewis. In North Staffordshire country districts he had been struck by three things: the astuteness of the grandparents, the fewness of the parents, and the large number of mental defectives in the third generation. The interpretation was that the past generation had been able to make a fairly comfortable living; that with financial stringency the present generation had moved to the towns, and it was surprising how many of these people had sent back their defective children to be looked after by the grandparents and unmarried aunts. On the question of sterilization, Dr. Menzies argued that our whole population was heterozygous. There was no distinction between mental defect and an acquired mental illness; it was only a question of the stage at which the toxin acted as exciting cause on the inherent instability. He did not suppose that any body of people would object to sterilization if it was going to do any good. But if sterilization was practised it would be possible to get hold only of the gross case. Again, was it desirable to be without deficiency? Mental deficiency was evidence of a genetic variation, and where there was genetic variation there were variants from the mean in both directions. If a time came when there was no deficiency, it would be a time when there was no genius either.

Dr. J. R. LORD proposed the following resolution, which was adopted:

> That the Association, being deeply concerned with the evidence of the report of the Joint Mental Deficiency Committee of the Board of Education and the Board of Control regarding the number of mental defectives in the country, the insufficient provision for their education and training, and the inadequacy of the measures for their care, supervision, and control, strongly urges upon His Majesty's Government the necessity for action being taken without delay: (1) To provide suitable educational and training facilities for all mentally defective and mentally subnormal school children and young adults. (2) To provide sufficient boarding school and institutional accommodation for all those in need of these forms of care, and to provide adequate means for the protection, care, and supervision of those not in need of institutional care.

Another resolution urged the setting up of a Royal Commission, but to this Sir C. HUBERT BOND objected, and it was eventually agreed merely to ask for a full inquiry into the causation of mental deficiency and its relationship to other abnormal mental conditions and to social problems.

It was agreed to send the resolutions to the Prime Minister, the Minister of Health, the President of the Board of Education, and the Chairman of the Board of Control.

ANNUAL DINNER.

The annual dinner of the association was held on July 10th at the Hotel Metropole, when Dr. Nathan Raw, Lord Chancellor's Visitor, presided over a large and distinguished company. The speeches, though numerous, were brief and to the point, and between some of them there were musical interludes. After the King's health had been honoured, the toast of "The City of Westminster" was proposed by Dr. J. R. Lord, and replied to by the Mayor of Westminster, Major Vivian Rogers, who had addressed the members earlier in the day in the City Hall. The toast of "The University of London and Westminster Hospital School of Medicine" was proposed by the outgoing president of the association, Professor J. Shaw Bolton, and responded to by Sir James Purves-Stewart, senior physician to the hospital. Representatives of allied societies were welcomed by Sir Hubert Bond, medical commissioner of the Board of Control, and the response on their behalf was made by Dr. Alfred Cox, Medical Secretary of the British Medical Association. The health of "The Guests and Visitors," proposed by Professor G. M. Robertson of Edinburgh, was responded to by Dr. Fleury of Geneva, Dr. J. H. Pameijer, director of the Rotterdam Mental Hospital, Lady Barrett, dean of the London School of Medicine for Women, and Sir Arthur Robinson, secretary of the Ministry of Health. The concluding toast, that of "The Royal Medico-Psychological Association," was submitted by Lord Riddell, and the president, Dr. Nathan Raw, replied.

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SATURDAY, JULY 20TH, 1929.

THE MENTALLY DEFICIENT ADULT.

IN our review of Parts I, II, and IV of the Report of the Joint Committee of the Board of Education and the Board of Control on Mental Deficiency (April 27th, 1929, p. 775) we pressed for the immediate publication of the remaining Part III, which, against the wish of the committee itself, had been withheld. The mystery of this withholding is not disclosed by its belated publication, which has just taken place.[1] This part of the committee's report is a very important and valuable document, dealing mainly with the adult defective as Parts I and II dealt mainly with the mentally deficient child. Since, however, many of the administrative and social problems presented by mental deficiency are common both to adults and to children, much inconvenient overlapping and repetition and cross-reference is involved in the separate publication of the parts. This was entirely unnecessary, and, as the committee itself evidently wishes to emphasize, the report should be studied as a whole. The earlier publication of Part III would have enhanced its value—which should still be considerable—in connexion with the administrative schemes of local authorities under the Local Government Act, 1929.

The report now issued opens with a statement of the law as it affects the adult defective, and of the functions of local mental deficiency authorities, of Poor Law authorities, and of local authorities under the Lunacy Acts. It then describes the present arrangements for the ascertainment and care of defectives by the first-named authorities, as distinguished from the arrangements that are, or should be, made by local education authorities. Ascertainment is, of course, the duty of both; and in this connexion the extraordinarily careful, laborious, and valuable special investigations carried out by Dr. E. O. Lewis, and described in Part IV of the report, necessarily come into the picture once more. The broad findings were stated in our former article. Those relating to adults may now be more particularly referred to. The total number of adult defectives of all grades in England and Wales is estimated at 150,000—some 105,000 in urban and 45,000 in rural areas. The mean incidences are 3.2 and 5.6 per 1,000 total population respectively. Of these defectives 57 per cent. are living at home, 23 per cent. are in Poor Law institutions, 14 per cent. in mental hospitals, and only 5 per cent. in certified mental deficiency institutions. Some very interesting data as to the age distribution of adult defectives are given; it is stated also that 13 per cent. of the men and only 5 per cent. of the women are almost self-supporting, that approximately half of the defectives of all grades are partially self-supporting, and that those who contribute nothing to their own support amount to about 40 per cent. of both sexes.

The methods which the State prescribes for the care of these persons are supervision, guardianship, and institutional care. None of these methods is fully or properly functioning at the present time. The exact meaning and field of each of them requires careful consideration, and the committee makes valuable suggestions under each heading for the future allocation of responsibility and improvement in the provision for the care, training, and control of defectives. If supervision and guardianship are effectively exercised (especially if a new form of guardianship by the local authority itself is established), and if in connexion with each central institution and colony there are suitable hostels in centres where employment can be obtained, and a system of licensing of defectives from the institution, the amount of institutional provision needed will be very materially reduced. The various types of institution required are described, their methods of care and occupation indicated, and the point is made that they should not be "stagnant pools," but "flowing lakes always taking in and always sending out." The happiness of the great majority of defectives in such institutions is an encouraging feature which should be better known to the public than it is. As regards numbers, about 6,000 adults would require provision in mental hospitals, while more than 1,200 would have to be dealt with in State-provided colonies as having dangerous or violent propensities. Of the remainder, some 57,000 children and younger adults should be sent to fully equipped colonies, while the 37,000 older defectives might go to some simpler form of institution. It will be appreciated that the main body of educable defective children should in any given year be provided for by the local education authorities. The amount of institutional provision now made is, therefore, appallingly insufficient, and there is no prospect in the near future of the lack being supplied. The majority of adult defectives must for many years to come remain in the general community. Up to the present they have been left to manage for themselves, with such help as their relatives can give them, and the results have been disastrous and costly. Moreover, the tendency is for defectives to be ostracized rather than socialized. The number that can be safely cared for in the community depends on the amount of training and supervision the community is willing to provide. These are complementary factors. As the report says, "To train defectives and then to neglect their social care is simply wasteful, whilst, on the other hand, successful supervision is impossible unless the defectives are properly trained."

Part III of the report concludes with an important chapter on "Mental deficiency as a genetic and social problem," which should be read in conjunction with the chapter on "The nature of mental defect" with which Part I opens. Questions of segregation and sterilization are considered in the light of the fact that mental deficiency is intimately related in its social aspects to a number of other questions, and that "if we are to prevent the racial disaster of mental deficiency we must deal not merely with mentally defective persons, but with the whole subnormal group from which the majority of them come." If, as is evidently true in view of this established principle, nothing short of the sterilization of one-tenth of the whole population can be an effective preventive measure along such lines, the question whether systematic sterilization should be resorted to has only to be asked in order to be dismissed. The adoption of this measure in individual cases and for certain very limited purposes is, however, a matter for more careful consideration; and, as the whole question of the causation of mental deficiency and its relationship to other abnormal mental conditions and social problems is at present difficult and obscure, the demand that a Royal Commission or other suitable official committee should

[1] Report of the Mental Deficiency Committee, Part III. The Adult Defective. London: H.M. Stationery Office. 1929. 1s. 6d. net.

be appointed to make full investigation of the subject is worthy of support, always provided that such inquiry is not seized upon by reluctant authorities to refrain from making the institutional and supervising provision which the report of the Joint Committee has proved to be even more urgently needed than had before been generally realized.

A SURVEY OF IRREGULAR PRACTICE.

WE complete in to-day's *Supplement* a review of irregular practice in Europe based on an inquiry undertaken last year by the Association Professionnelle Internationale des Médecins (A.P.I.M.). The review is unfortunately incomplete through the absence of information from Spain, Portugal, Italy, and Russia. If we remark also that the result of the inquiry illustrates the limitations as well as the possibilities of investigation by questionary, we must not be taken as belittling an achievement of which Dr. Fernand Decourt may well be proud. It is not always easy from the information supplied to form a clear picture of national conditions under one head or another, simply because the national standards and points of view, as well as national methods of organization, differ so widely that the connotation of the terms used may well be different for the several Correspondents. A short and definite answer to a direct question is sometimes misleading, while a detailed and explanatory reply may be difficult to correlate with the information supplied from other quarters. In face of such difficulties Dr. Decourt, on whom has fallen the chief burden, not only of framing the original questions, but of collation, translation, and condensation of the replies, has produced a valuable report, and one which serves to emphasize certain facts and point to certain conclusions of no small interest. The report ends with a suggestion for a common programme of legislation, as to the practicability of which opinions must inevitably differ. There is no doubt room for standardized methods of dealing with newspaper advertisements and the production and distribution of secret remedies, and the knowledge that abuse in this connexion has been definitely eliminated in some countries should be a useful stimulus to legislators, but beyond this it would clearly be very difficult to go, in view of the wide differences between one European country and another in the whole system of social organization.

The first point of interest is the almost universal replacement of the old system, which recognized minor medical qualifications for limited functions, by one based on a general minimum medical qualification, and the evolution of groups of competent non-medical auxiliaries, working in a well-defined professional relationship with the doctor in an increasingly definite sphere of their own. The importance of protecting these auxiliary practitioners from unqualified opposition cannot be overestimated, and it is a matter which depends at least as much upon the attitude of the rank and file of the medical profession as upon legislative provisions, for the universal recognition of the ultimate responsibility of the doctor whenever he is associated with an auxiliary worker enables him to "cover" unqualified practice amongst auxiliaries without actual breach of the law. The outstanding feature in the whole of this development is a tendency to uniformity, which throws into relief the divergent views held as to the position of dentistry, which is regarded on the one hand as a medical specialty, on the other as a co-ordinated independent profession. Another fact worth notice is the absence of any striking difference in the comparative prevalence of unqualified practice as between the countries where medical practice is legally restricted to the qualified and those where it is, theoretically at least, free. Here again there seems to be similarity in practice if not in theory. The free countries all show an imposing list of restrictions on the activities of the unqualified. The majority of the protected countries admit an amount of uncontrolled, unqualified practice which, with few exceptions, seems to equal, if not necessarily to exceed, that found in the free countries. The general tendency in both groups seems to be towards the multiplication of restrictions, the enhancement of penalties, and increased severity in administration. Complaints of the inadequacy of the law in both groups are coupled with complaints as to laxity of administration, and although the absence of special machinery for giving effect to penal measures often renders such measures nugatory, the existence of machinery to secure their application and of voluntary organization to supplement the official does not seem invariably to attain the desired object. That such voluntary organizations should be necessary is in itself an indication of a public frame of mind conducive to the continued existence of the evil. Against such an attitude it is unlikely that the law can prevail.

It might be expected that the volume of irregular practice would be found to vary inversely with the ratio of qualified practitioners to population. This, however, is not the case. It is true that Yugoslavia traces an increase in the unqualified to an absolute deficiency in the supply of qualified practitioners, but the ratio of doctors to population in three out of the four countries which seem to be least overspread by the unqualified is definitely below the mean, and in the fourth only just above it, while the ratio in the four countries which seem to have most recourse to the services of the unqualified is in only one case below the mean. The economic factor cannot, of course, be ignored. As the Swedish Correspondent points out, the unqualified practitioner starts at an advantage, since he can dispense with a costly, as well as a protracted and arduous, period of training. In some of the countries under review it seems possible that a large amount of unqualified practice is accounted for by the relatively low charges and easy accessibility of the unqualified. At the other end of the scale freedom from ethical restrictions allows greatly enhanced profits to the irregular practitioner. It is the general, though not the universal, experience that the introduction of social legislation which places the services of qualified practitioners within the reach of large sections of the population does result in a diminution of unqualified practice, and little abuse of this particular restrictive legislation is recorded. The experience of France and Hungary seems to be exceptional in this respect, and will doubtless prove transitory. Incidentally, the analysis of forms of unqualified practice suggests that the osteopath, the chiropractor, and the naturopath have found in this country pastures sufficiently rich to stop them in their eastward migration, for they seem as yet to be relatively rare on the other side of the Channel.

On the whole, the Correspondents seem to be at one in looking to improved standards of education, both general and professional, as the most effective means of eliminating the more dangerous type of unqualified practice. With this conclusion we may agree, though experience suggests that general progress in education may in certain circumstances simply replace one type of quackery by another. It is inevitable in

periods of scientific advance that test and assimilation should lag behind discovery, and the interval gives the highly educated charlatan, lay and professional, his chance. The best means of meeting this difficulty in connexion with medicine probably lies in a deliberate effort on the part of the main body of medical practitioners to educate their own patients. The replies received from Luxembourg are significant in this connexion. Taken all round, it seems safe to say that Luxembourg occupies a remarkably favourable position with regard to unqualified practice. The Correspondent is satisfied as to the adequacy of the law on the subject and the efficiency of the administration. While recognizing the dangers attending unqualified practice he can give no local examples, for the activities of the unqualified in Luxembourg seem to be of a very minor nature. No special organization seems necessary to control abuse, and, when the rare opportunity occurs, the lay press whole-heartedly supports the restrictions placed on the unqualified, and gives adequate publicity to the penalties inflicted for breach of the law. The people of Luxembourg, states the Correspondent, are kept sufficiently informed through the prevailing habit of consulting the doctor, who, as occasion offers, enlightens them about the activities of the charlatan. "The best means of controlling quackery would seem to be popular instruction by the doctor in the ordinary course of his practice." Perhaps the final word on this subject lies with the Correspondent from Poland, who points out that, while the victims of quacks are recruited from all classes of society, even the highest (and, we may add, the most highly educated according to accepted standards), all these persons show one common defect—the absence of a critical sense, coupled with a subconscious leaning to the miraculous. "To diminish the scourge of charlatanism it is necessary from the earliest years to develop a critical sense in every individual and to develop the humane outlook amongst medical practitioners, reminding them always that their patients are compact of spirit as well as body. Nevertheless charlatanism will never disappear, for there will always be persons with the congenital defect of the absence of a critical sense, a deficiency which no system of education can eradicate. These will always frequent the quack in spite of the strictest penal measures."

THE R.I.B.A. REPORT ON DAMP HOUSES.

THE report of the Royal Institute of British Architects on damp houses, to which we give prominence at page 114, is assured of a cordial welcome from the medical profession. To the British Medical Association this report is of particular interest, for it owes its origin to certain action taken by the Association's Committee on Rheumatic Heart Disease in Children. This committee, it will be remembered, in investigating the environmental factors significant in the causation of juvenile rheumatism, concluded that important among them was residence in damp dwellings; it therefore approached the R.I.B.A. with a view to discovering if expert opinion was satisfied with the conditions under which the erection of houses was proceeding. So cordially were these inquiries received that the committee was asked to attend a special meeting of the Institute, at which, following the reading of a medical paper by Dr. Reginald Miller and an architectural exposition by Mr. J. Ernest Franck, members of the two professions discussed the whole subject of damp houses. As an outcome of this meeting and of other conversations the R.I.B.A. appointed a strong subcommittee "to investigate the causes and prevention of dampness in dwellings," and it is the report of this subcommittee, approved by the council of the Institute, which has now been issued.

The report is based upon the answers received to a questionary drawn up by the subcommittee, and circularized to all members of the Society of Medical Officers of Health. It consists of an analysis of the causes of damp in over a thousand damp houses, of which 1,014 were more than ten years old and 53 less than that age. Official critics will doubtless emphasize the smallness of the number of post-war houses reported on, but those who retain their knowledge of human nature will realize that large numbers of recently erected houses are not likely to be reported as damp through official sources alone. Of the older houses exhibiting damp, 65 per cent. were damp owing to lack of maintenance, but excluding these the chief causes of damp were defective or absent damp courses and porosity of walls. Of greater moment, perhaps, is the fact that the same two faults are the commonest causes of damp in the post-war houses examined. The conclusion is therefore inevitable that the great enemy is thoroughly bad building.

There are several points on which the public needs enlightenment. Probably few are aware that a qualified architect is concerned in the building of only about 13 per cent. of the residential houses erected; that is to say, the great majority of dwellings are neither planned nor built nor surveyed by those whose profession it is to know how a healthy house should be built. Many, again, imagine that the by-laws and regulations under which residential houses are erected provide safeguards against damp. But expert architectural opinion is to the effect that this view is unduly optimistic—indeed, that with certain sites and exposures houses complying with every official by-law may be persistently damp. During the housing shortage of the last few years local authorities have been permitted to relax some of the regulations under which the erection of dwellings had hitherto been controlled, and we imagine that it will be a shock to many to realize that even now houses are being built without efficient damp courses, or, indeed, without damp courses of any kind. On this point the report is quite clear: "The high proportion of reported cases of dampness due to the absence of, or defects in, damp courses in new dwellings is surprising. While the absence of this protection in old buildings may be expected, it may be recorded that as regards buildings erected within recent years, all codes of building by-laws, and the conditions on which certain relaxations of by-laws have been permitted, are alike in calling for an adequate damp course, consequently its absence in new buildings must imply failure to comply with this by-law, while defects arise from improper compliance or the use of damp-course materials of inferior quality." Such a statement makes unpalatable reading, and it is a disagreeable thought that even such regulations as exist can be evaded through faulty supervision. The report urges that, since the by-laws as they at present stand do not provide a complete safeguard against damp, suitable amendments in the Public Health Act are necessary and should be made. When we remember how irksome are public regulations to any body of professional men striving to do their work honestly and well, this public-spirited recommendation must be taken as an index of the degree of dissatisfaction felt by architects in the present state of affairs. The alternative would seem to be simply to rest on what we believe is, strange as it may seem, still the law of the land—namely, that a dwelling-house must not be damp.

In welcoming this valuable report, which indicates so clearly the unsatisfactory state of present building operations, we may express the hope that the architectural and the medical professions, having come together to such good purpose, may not again drift apart. The combined meeting which we have already mentioned constituted, we believe, the first occasion on which the R.I.B.A. has ever been addressed by practising physicians. We hope that it will not be the last, for there are many problems of house construction, such as those appertaining to heating, lighting, noise prevention, and labour saving, to name but a few, in which co-operation between the two professions might lead to a better state of things for the public health.

THE EPIDEMIOLOGY OF MEASLES.

In the eighties of the last century most epidemiologists accepted the simple formula of Hirsch that the recurrence of epidemics of measles depended "solely on two factors, the time of importation of the morbid poison, and the number of persons susceptible to it." Some twenty years later Sir William Hamer attempted to explain the phenomena in terms of variation of the proportion of susceptibles, and Mr. H. E. Soper has quite recently[1] provided an elegant mathematical expression of the consequences of that hypothesis. Subsequent research and speculation have led to the factor of variation in susceptibility of a population being less regarded in this case, while, contemporaneously, work on other diseases—notably cerebro-spinal meningitis, poliomyelitis, and diphtheria—has had a different result. In some instances, indeed, it has appeared that variations of susceptibility, to be measured in terms other than those of clinical manifestation of "illness," should be deemed the most important objects of epidemiological study. In the memoir under notice Dr. Percy Stocks has taken variations of susceptibility not as the only, but as an important, object of his research.[2] Dr. Stocks has had at his disposal Dr. Sowden's data of measles in the metropolitan borough of St. Pancras, where measles is compulsorily notifiable. In the first part of the memoir an estimate is prepared of the numbers of children at risk both in the houses wherein, during the period of study, at least one case of measles occurred, and in the residual population. A result of this study is to show that the periodicity of epidemics cannot be satisfactorily accounted for by variations in the numbers of susceptibles, *if we assume that all children who have not had measles are equally susceptible.* Dr. Stocks then asks himself whether a temporary latent immunization might not be produced by exposure not leading to clinical manifestation. From a careful study of the histories of members of families exposed a second time to measles, he deduces evidence that such exposure has an immunizing effect which wears off gradually. The estimated rate of loss of this immunity (the method of estimation is, of course, tentative) is consistent with a roughly biennial periodicity of epidemics. Dr. Stocks next presents a study of the spatial distribution of measles, which again is consistent with the hypothesis that latent immunization is an important factor. Dr. Stocks then passes to a discussion of the term infectivity, which, as he notes, has been used in different senses by different writers. His idea is to take as an essential element of the measure of infectivity the ratio of cases occurring in an exposed group at an interval, equal to the mean incubation period, from the date of the primary case. The idea is carefully elaborated, and resultant indices of infectiousness are computed for various periods. The relation of these to meteorological conditions is studied, with results which are suggestive but not very definite. The outcome of the research may be stated in Dr. Stocks's words: "A satisfactory explanation of most of the epidemiological phenomena of measles is thus provided by the concept of an active *plus* latent immunization of the child population on the one hand, and changes in facility of transmission of the virus by droplet infection from cases or carriers to other persons coming in contact with them on the other. If we suppose that this facility can be suddenly increased two- or three-fold by favourable combinations of seasonal and atmospheric conditions, most of the phenomena can be explained without recourse to such vague generalizations as 'biological modifications' of the virus, though a few, such as certain cyclical changes in the seasonal incidence of measles epidemics, still remain unsolved." Although we are not satisfied that the rather cavalier dismissal of the late Dr. John Brownlee's conclusions, implied in one of the sentences just quoted, is justifiable—unless there is some methodological fallacy underlying Brownlee's use of the periodogram it is hard to see how the periodicities constant for a particular place and series of years, but different in different places and epochs, can be described by Dr. Stocks's hypotheses—we have no doubt that this memoir is an important contribution to epidemiological science, reflecting much credit upon its author and worthy of the great school of which he is a distinguished member. We might add that, although the memoir needs to be read with attention—for its subject is intricate—the medical epidemiologist is not called upon to grapple with abstruse algebraical formulae. In other words, there is no reasonable excuse for not reading a valuable paper.

[1] *Journ. Roy. Stat. Soc.*, xcii, 1929, 34.
[2] A Study of the Epidemiology of Measles. By Percy Stocks, M.D., D.P.H., assisted by Mary N. Karn, M.A. *Annals of Eugenics*, vol. iii, October, 1928, pp. 361-368.

VICTOR HORSLEY MEMORIAL LECTURE.

To a very large audience, over which Sir John Rose Bradford presided and which included Lady Horsley, Sir Thomas Lewis delivered, on July 16th, at University College Hospital Medical School, the third Victor Horsley Memorial Lecture. He prefaced his remarks with a brief tribute to the man to whose memory the lecture was dedicated. He spoke of his brilliant intellect and fascinating personality, and of the fact that to all who worked with him or for him he was a constant inspiration. Horsley was possessed of rare genius, untiring energy, and a resolute courage in his unflinching pursuit of truth. He was in the front rank of those men who, by the originality of their work, established the great tradition of the University College Hospital School of Medicine. The lecturer added that it was Horsley's fame which brought him (Sir Thomas Lewis) to that hospital, and it was in Horsley's laboratory at the college that he found encouragement to pursue his own investigational work. He was proud to have the opportunity of bringing forward some new observations in the form of a tribute to his old chief.

Sir Thomas Lewis then described some observations relating to the mechanism of Raynaud's disease which he had been carrying out recently in association with Professor William Kerr. It was Raynaud's thesis that obstruction occurred spasmodically mainly in the smaller arteries of the digits, and, further, that this spasmodic condition of the arterioles was brought about through an overaction of the vasomotor nerves. So far as the spasmodic character of the malady was concerned, Sir Thomas Lewis thought that Raynaud produced a very striking case in favour of his thesis. As for the involvement, in the main, of the small arteries of the part, Raynaud was unquestionably right, but his evidence was not very strong, and could now be strengthened. But so far as concerned the third part of his thesis—that the malady was due primarily to overaction of the vasomotor system, Sir Thomas Lewis considered that Raynaud was wrong, and that the cause was to

be found elsewhere. Raynaud's disease might be defined as Raynaud himself defined it, or (not quite the same thing) in the sense in which the term was used to-day; but neither definition would serve a very useful purpose, and Sir Thomas Lewis preferred to make his own definition—namely, "a malady in which the fingers and toes become periodically pale or cyanotic, and in which, after many winters of repeated attacks, the terminal portions of the digits may be lost by a process of dry gangrene." In this malady the main vessels affected were the arterioles of the parts involved, and the primary cause of the disease was in those vessels, not in the nervous system. Sir Thomas Lewis showed how it was possible to exclude the venous system from participation, also how rare was the evidence that the main arteries of the limb were affected, and he described a number of experiments showing, for example, that loss of the circulation to the tip of the finger could be produced by cooling the end of the finger itself in water, by cooling simply the middle portion of the finger, or by cooling the base of the finger—in fact, by cooling any portion of the finger which held a convenient stretch of digital artery. When the cyanosis disappeared from the fingers of patients owing to the warmth of the room it was not to be supposed that the attack had ended; in many of these patients there was scarcely an "attack," these small vessels being always in spasm, though from time to time a little extra "pinch" occurred, when the phenomena became manifest—or more manifest—clinically. In the United States Raynaud's phenomenon had been treated by excision of portions of the sympathetic nervous system. No doubt sympathectomy, in which the sympathetic nerves were found and excised, would lead to a very great improvement in the condition of the patient; he offered no criticism of the surgical operation, but the conclusions which were held to follow from that operation—that the condition was due to a vasomotor impulse—were unjustified. The observations on which he had been engaged led him to the view that the real cause of the malady was a local defect in the vessel, whereby cold acted unduly upon the vessel wall. Some rearrangement of ideas about the mechanism of Raynaud's phenomenon appeared to be necessary. The cause was a local one, and it lay in the parts of which the patient complained. It was not a general arterial phenomenon, so far as could be determined; the defect was in the small vessels, and it was only because the temperature effect upon these vessels was reinforced from time to time by increase in the nervous tone that the idea that the malady was primarily a vasomotor one had arisen.

THE NATIONAL RADIUM FUND.

THE Privy Council has now approved a charter constituting a body of Trustees to hold the National Radium Fund, and defining the duties of the administrative body of experts to be known as the National Radium Commission. Until the Great Seal is affixed the charter is technically in draft only, but we understand that the necessary letters patent to give it full legal effect will be issued almost immediately. The provisions of the charter, and the constitution of the body of Trustees and the National Radium Commission, follow the lines foreshadowed in our leading article on May 4th (p. 820). The Trustees will consist of the Lord President of the Council, the Minister of Health, the Secretary of State for Scotland, the President of the Royal Society, the President of the Royal College of Physicians of London, the President of the Royal College of Surgeons of England, the Chairman of the Central Liaison Committee of the Voluntary Hospitals in Scotland, the President of the Royal Society of Medicine, and the President of the British Medical Association, with power to co-opt as additional Trustees two medical members of the National Radium Commission on the nomination of the Commission itself, and not more than three other persons. The titular heads of the medical profession in Great Britain—namely, the occupants for the time being of the offices of President of the Royal College of Physicians of London, President of the Royal College of Surgeons of England, President of the Royal Society of Medicine, President of the British Medical Association, President of the Royal College of Physicians of Edinburgh, President of the Royal College of Surgeons of Edinburgh, President of the Royal Faculty of Physicians and Surgeons of Glasgow, Regius Professor of Medicine at Oxford, and Regius Professor of Physic at Cambridge—are empowered to nominate a panel of not fewer than twelve persons having special knowledge of the use of radium in medicine, from which number six will be chosen by the Trustees to form the majority of the members of the National Radium Commission. The Commission will comprise, in addition, a chairman appointed by the Trustees and four members nominated respectively by the Minister of Health, the Secretary for Scotland, the Medical Research Council, and the Department of Scientific and Industrial Research. It will come into existence only when the six members chosen from the panel of experts have been appointed. The charter provides that the Trustees shall hold the funds and buy therewith radium for use by the Commission. The Commission, as an administrative body, will deal with the distribution and use of all the radium held by the Trustees, having regard to the advancement of knowledge, treatment of the sick, and economy in use; in particular, it will be authorized to consider and approve plans submitted to it for the use of radium for the purposes of medical treatment and research. The members of the Commission will be appointed for four years, and be eligible for reappointment one year after retirement; the chairman, however, may be reappointed immediately. The Commission will arrange with the National Physical Laboratory at Teddington for the custody of radium not actually in use for medical purposes, for its preparation in a form ready for use, and its recovery from such preparation when returned from loan.

SLUMS AND CRIPPLES.

THE current number of *The Cripple*, a quarterly review, takes the form mainly of a special number dealing with "the slum problem." It contains some important articles on a subject which all the political parties put into their programmes during the recent electoral campaign, and which has since appeared in the King's Speech as one to which the Government is to direct immediate attention and presumably to attempt legislation. The two most important books of a general character on this subject are those which have recently been reviewed in these columns—*The Slum Problem*, by Mr. B. S. Townroe (December 1st, 1928, p. 998), and *How to Abolish the Slums*, by Mr. E. D. Simon, now happily once more a *member of Parliament* (March 2nd, 1929, p. 408). Each of these writers has a short but suggestive article in *The Cripple*. There is a noteworthy article also by Mr. Frederick Watson, the editor, on "The slum mind," which should clear away some sentimental notions, and in which he shows that it is apathy and contentment rather than wickedness and unhappiness which characterize the slum dweller, and that cottages in a picturesque village may be worse than any house in an urban courtyard. Probably the most important contribution is that by Mr. Harold Stannard, entitled simply "The slums." It puts in small compass the facts, the difficulties, and the common sense of the situation with regard to slum clearance and reconditioning. "If it has taken ten years," he says, "to build houses for people who wanted them and had the means to pay for them, how long will it take to rehouse a substantially poorer population

with no general desire to leave its present inadequate homes? . . . A demand for rehousing will not be generated among slum dwellers unless or until the causes which produce slums are precisely analysed and vigorously attacked." The cause is, in a word, poverty leading to overcrowding. But Government drive and lots of money will not by themselves solve the problem. "If we build another million houses at rents of ten shillings a week and upwards we shall not shift the slum population." The need is for houses to be let at from six to eight shillings. Nor is it true that it is only the slum mind that makes the slum. "There is truth in the dictum that the confirmed slum dweller will wreck any decent house to which he is transported. So strongly has this fact been appreciated by the municipality of Amsterdam that on demolishing old houses it sends their inhabitants to live for a while in a special building under continuous observation before drafting them to its new houses. Though the slum mind tends to perpetuate the character of its surroundings, it is a more fundamental truth that in the first instance the slum made the slum mind." It is naturally to the child born into the slum that most sympathy will be directed. Mr. E. D. Simon has estimated that there are some two million children whose environment causes them to need our social services, and at the same time forbids their deriving proper benefit from them. The slums levy a cruel toll on young life. The municipality of Glasgow, where overcrowding was specially acute, adopted its housing scheme in 1922. In that year 3,336 cases of pulmonary tuberculosis were moved to the city's hospitals. Three years later this figure was reduced by 742, or nearly a quarter. Consumption, rheumatism, deformity, can never be abolished while slums exist. A child may be taken to an orthopaedic clinic or hospital, but he must perforce often return to a one-room home, where there is no peace and but little of those three essential needs, air, light, and water. All the articles named deserve attention, and that by Mr. Stannard might well be reprinted and sent to every member of Parliament and town and county councillor.

STEPHEN HALES: PHYSIOLOGIST AND BOTANIST.

In June, 1927, when Corpus Christi College, Cambridge, was celebrating the 250th anniversary of the birth of Stephen Hales, D.D., F.R.S., Dr. A. E. Clark-Kennedy gave an address upon the life and work of this remarkable man. Overwhelmed by the number of facts he had collected, Dr. Clark-Kennedy has now brought them together into a book.[1] The original dissertation was summarized at length in our issue of June 18th, 1927, and the far-reaching effects of Hales's ingenious experiments on the circulation of the blood, the movements of sap, and growth in plants and animals were fully set forth. A description was given also of his system of ventilators, an invention which was applied to ships, hospitals, and prisons, and helped to reduce the mortality amongst inmates of such places as Newgate. But the great range and ingenuity of his experiments in these matters did not prevent Hales from devoting attention to many minor problems. He invented a winnowing machine, and a pair of forceps for extracting stones from the bladder. He recommended that airholes should be placed in the outer walls of ground-floor rooms, and teacups at the bottom of pies to prevent the syrup from boiling over. He taught a princess how to spread out and preserve Red Sea mosses. He made inquiries into the use of tar-water as a remedy, and examined the principal purging waters, especially that of Jessop's Well. He showed that the much-extolled waters of Glastonbury and of Godstone possessed no other properties than those of common spring water; and though he unfortunately upheld the claims of Mrs. Joanna Stephens to dissolve urinary calculi with a decoction of swine-cresses, soap, herbs, and calcined snails, and though he himself gained the Copley medal of the Royal Society for the least creditable part of his scientific work—his experiments on calculi—he was instrumental in exposing sundry quacks in the cure of this disease. With all this work he found time to be clerk of the closet to the Princess Dowager, and to carry on the duties of parish priest with great energy and thoroughness. He died at Teddington on January 4th, 1761, in the eighty-fourth year of his age.

[1] *Stephen Hales, D.D., F.R.S.: An Eighteenth Century Biography.* By A. E. Clark-Kennedy, M.D., M.R.C.P. London: Cambridge University Press. 1929. (15s. net.)

APPOINTMENT OF PRINCIPAL MEDICAL OFFICERS TO LONDON COUNTY COUNCIL.

THE London County Council recently resolved, as announced in our issue of June 15th (p. 1092), to increase the staff of its public health department by three principal medical officers, in view of the magnitude of the duties to be undertaken in respect of transferred functions under the Local Government Act. At its meeting on July 16th, on the recommendation of the Public Health Committee, the following candidates were selected for the posts: Dr. J. A. H. Brincker, a senior medical officer on the council's staff, to be promoted to take charge of the work formerly carried on by the Metropolitan Asylums Board; Dr. William Brander, formerly of Hackney Hospital, to take control of the infirmaries which will come under the council; and Dr. W. Allen Daley, medical officer of health for Hull, to take over the general health work of the council, and to be medical officer for the council schools. The salary of these three officers will be an inclusive one of £2,000 a year, rising by annual increments of £100 to £2,500 a year. At the same time the maximum salaries of the chief officers of the council, including the medical officer of health (Dr. F. N. Kay Menzies), on whom additional work will be thrown, are to be raised from £2,500 to £3,000. Another appointment made is that of Miss D. E. Bannon, formerly matron at St. Mary's, who will be matron to the institutions and hospitals which the council will take over under the Act. Her salary will be £750, rising to £1,000 a year.

THE KING.

AT a consultation on July 9th between Lord Dawson, Sir Stanley Hewett, Sir Hugh Rigby, Mr. Wilfred Trotter, and Mr. H. L. Martyn, it was decided that a further operation on the King was necessary in order to provide adequate drainage for the residual abscess at the site of the empyema wound. This abscess communicated with the surface by an oblique sinus, which had become increasingly difficult to keep open. The size of the abscess (1½ inches across) and its position were determined by stereoscopic *x*-ray examination following injection of lipiodol through the sinus. The operation was performed at Buckingham Palace on July 15th by Sir Hugh Rigby and Mr. Trotter, under general anaesthesia administered by Sir Francis Shipway. The exposed ends of the rib resected on December 12th were cut away, and a portion of the next rib was also removed, thus giving free access to the abscess cavity, which, as Dr. Graham Hodgson's radiograms had suggested, was found to be circumscribed. His Majesty stood the operation very well, and both the general and local conditions are satisfactory. The immediate result of the operation is regarded as fulfilling all expectations, and we may hope that the cavity will now gradually, heal up from the bottom.

PREVENTION OF DAMPNESS IN DWELLINGS.

REPORT BY A SUBCOMMITTEE OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

IN December, 1926, the Science Committee of the British Medical Association approached the Royal Institute of British Architects with a request for its help in the investigation of the causes of dampness prevalent in certain types of dwellings. It may be recalled that the subcommittee appointed by the Science Committee to inquire into the prevention and control of rheumatic infection in children had presented its first report[1] to the Council of the Association in the previous July, but thereafter it continued to meet to discuss, somewhat informally, the lines on which any national effort to cope with the problems of juvenile rheumatism should proceed. Following discussions between certain members of the subcommittee and the Science Standing Committee of the Royal Institute of British Architects, the council of the Institute adopted the following resolution:

> The council of the Royal Institute of British Architects have had their attention called to the Report on Rheumatic Heart Disease in Children by the British Medical Association, and, having regard to the fact that it is in the public interest to eliminate dampness in all dwellings, they note with approval that the Science Standing Committee have appointed a subcommittee to investigate and report on this subject.

The subcommittee referred to in this resolution concerned itself not with any particular disease, but with the wider question of the causes and prevention of dampness in dwellings, and its report has just been issued in pamphlet form.[2]

The first evidence before the subcommittee was that presented by Dr. Reginald Miller and Dr. A. P. Thomson on behalf of the Science Committee of the British Medical Association. Dr. Miller discussed dampness in particular types of town dwellings and the stories thereby affected; Dr. Thomson gave evidence relating to the line of dampness in a district. The subcommittee reports that, while these witnesses were able to show the peculiarities of dampness either in a particular dwelling or district, they were not in a position to advance any reasons for the effects they observed. With a view to obtaining further evidence the subcommittee prepared a questionary which, on May 27th, 1927, was sent out by the Society of Medical Officers of Health to all its members. The aim of these questions was to ascertain the number and proportion of damp houses in each district, and, as far as possible, which causes of house dampness were most widely prevalent.

CAUSES OF DAMPNESS.

From the evidence before it the subcommittee was able to summarize the causes of dampness as follows:

1. Absence of, insufficiency of, or defects in damp courses, whether horizontal or vertical.
2. Absence of, insufficiency of, or defects in the covering of the ground over the internal area of the dwelling, or the covering of the ground immediately adjoining the dwelling.
3. Lack of, or insufficiency of, the drainage of the subsoil.
4. Porosity or the capacity of the material forming the walls to absorb moisture, or the construction of the walls.
5. Defects mainly due to lack of maintenance, but including some cases of faulty roof construction.
6. Condensation on internal surfaces of walls.

From an analysis of the extent to which the various causes operated in houses classified as (*a*) less than ten years old, and (*b*) more than ten years old, the subcommittee concluded that the causes of dampness in the latter arose chiefly from the original absence of a damp course or from insufficient maintenance, a view which is largely supported by the observations of each medical officer who forwarded information on the matter. In the houses less than ten years old the causes in order of magnitude were 4, 1, 5, 2, 3, 6, of the above summary. In respect of each of these causes the subcommittee makes the following comments and suggestions.

Damp Courses.

In view of the fact that all codes of building by-laws now call for an adequate damp course, the subcommittee is surprised to note the high proportion of cases of dampness in new dwellings due to the absence of, or defects in, damp courses. Such absence must imply failure to comply with the by-laws, the defects arising either from the same cause or from the use of materials of inferior quality. The subcommittee holds that stricter supervision of building in respect of damp courses is called for, care being especially necessary to prohibit the use of any materials other than those of proved durability. It points out that the difference between damp courses of reliable and those of inferior quality may not easily be detected by casual inspection, and raises the question of the advisability of subjecting damp-course materials to standard specification.

Floors and Sub-soil.

The subcommittee is of opinion that the extensive use of solid floors for small dwellings during the time when timber was scarce and expensive has probably increased the number of cases of dampness which arise from failure to cover the whole surface of the ground within the building, or from the use for such purpose of unsuitable materials. It points out that surface concrete is seldom completely impervious to moisture, and that in any kind of solid floor resting on a subsoil liable to dampness complete dryness can be secured only if a layer of hard, broken material, unable to conduct moisture by capillarity, is interspersed between the concrete and the soil. Such a layer, however, would be worse than useless if, for lack of subsoil drainage, the water-level could rise into it. Some by-laws require the use of concrete in all cases, others only "wherever the dampness of the site or the nature of the soil renders such a protection necessary," and the subcommittee suggests that, possibly, surveyors have been willing, on insufficient grounds, to dispense with this protection. In its view, surface concrete should be dispensed with only when there can be no doubt that the surface of the ground will be exceptionally dry.

Absorption of Moisture by Walls.

This cause of dampness is prominent both in new and in old houses, and the subcommittee considers that in post-war houses the majority of cases of penetration of damp from external walls has occurred where traditional solid brick or masonry, or solid concrete walls, have been employed. A large proportion of the "alternative" methods of construction have involved the use of a cavity wall construction, and, whatever their other defects, these methods may be considered to have been more effective than certain traditional systems in preventing the access of moisture into houses. The surest way of protecting interiors from dampness, whether from water passing in under a head or penetrating by the operation of capillary forces, is to provide a continuous cavity in external walls. It is extremely difficult to guard against the possibility of shrinkage cracks developing in the external cement renderings, often applied to outer walls built of solid brick or masonry, and, once these cracks appear, water entering through them will tend to evaporate from the more porous interior face, and produce a cold wall. The subcommittee holds that overhanging eaves have far greater value than is generally appreciated in keeping external walls dry, and it deprecates the present tendency to cut down the overhang.

Defective Maintenance.

Defective maintenance naturally shows itself to a greater extent in old buildings. It is impossible to differentiate precisely between cases due solely to want of repair and those which are aggravated by original defects in the structure; there is no doubt, however, that much damp is due to inadequate maintenance of roofs, rain-water gutters, and the like. The subcommittee suggests that local authorities may in this matter play an important part by calling upon, and if necessary compelling, owners to keep their property in repair. Such measures, far from imposing hardship, would in the end secure the greatest economy. In general, sufficient care is not taken to construct thoroughly water- and snow-proof roofs,

[1] The report was printed in full in the *Supplement* to the *British Medical Journal* of July 3rd, 1926.

[2] Report on Damp Houses. London: The Royal Institute of British Architects, 9, Conduit Street, W.1. Price 6d.

and it is probable that the use of various types of pantiles or interlocking tiles treated with unsuitable pitch has been responsible for the penetration of moisture into dwellings. Similarly, insufficient pitch and perishable nails, or inadequate lap, are frequently sources of danger when flat tiles and slates are employed in the construction. The practice of bedding tiles down on to gable walls may, in certain circumstances, lead to the penetration of dampness; furthermore, tiles which are satisfactory over the roof surface may, when bedded in mortar on the wall, be sufficiently permeable to transmit moisture by capillarity. The subcommittee considers unsatisfactory the use of cement fillets alone between roofs and walls or other vertical surfaces. The shrinkage of roof timbers causes movement, and cement and cement mortar tend to shrink on drying; wherever such movement or shrinkage may provide a passage for moisture cement should be banned.

Condensation of Moisture on Walls.

While condensation on the more impervious surfaces occurs usually in the form of running water, on a more porous surface the condensed moisture may be absorbed, and thereby rendered invisible. As it is on the walls of low temperature that condensation occurs, the construction should be such as to permit of rapid heating of interior surfaces.

CONCLUSIONS.

In concluding its report, the subcommittee expresses the conviction that no consideration of economy can justify the sacrifice of treatments necessary to secure a reliable waterproof shell for buildings and adequate damp-course protection. It strongly recommends that the erection of dwelling-houses should be subjected to stricter technical supervision, whether by architects or by properly qualified officers of local authorities. It also draws attention to the fact that present by-laws do not provide a complete safeguard against the construction of unsatisfactory buildings, and holds, therefore, that deficiencies in the Public Health Act should be remedied by suitable amendments.

THE CAMPAIGN AGAINST VENEREAL DISEASE.

CONGRESS IN LONDON.

THE fourth Imperial Social Hygiene Congress, of which a preliminary report appeared in last week's issue (p. 61), devoted its first session, on July 8th, to a consideration of the international situation with regard to venereal disease.

The International Situation.

Dame RACHEL CROWDIE of the Social Question Section of the League of Nations read a paper on the activities of the Advisory Committee in relation to prostitution. Signatures on behalf of twenty-two countries had been appended to the protocol for the suppression of traffic in women, and an inquiry had been conducted into the facts of the traffic in about thirty countries. Of forty-seven countries which had adopted the system of licensed houses, twenty-eight had abolished it, and of the rest, fourteen or fifteen had set up commissions of inquiry with a view to its abolition. Closer co-operation between nations, particularly in the sharing of information about such matters as the activities of bogus employment agencies, would help to reduce the amount of prostitution. The ages of marriage and consent should be raised, and there should be stricter punishment of men living on the immoral earnings of women. Finally, it was urgent that there should be better moral and biological education for young people. With regard to the already infected, nations must choose definitely between compulsory notification and treatment, and the voluntary method coupled with secrecy.

Sir GEORGE BUCHANAN, representing the Health Section of the League, explained the methods adopted for securing continuous treatment of infected seamen of the Mercantile Marine by means of personal cards, which were carried by the sailor from port to port, and contained full particulars of diagnosis and treatment. Colonel L. W. HARRISON, the British expert delegate to the Health Organization, dealt with the co-ordination and development of work in connexion with serological tests and the scientific treatment of syphilis. He emphasized the difficulties of securing reliable standard tests of syphilitic infection.

In reply to a delegate from Scotland, who urged the necessity for compulsory notification and treatment of venereal diseases, Mr. E. B. TURNER suggested that public opinion in Great Britain was not yet sufficiently developed to justify the council in pressing for legislation on the lines suggested; indeed, compulsion might undo much of the good work already achieved by voluntary methods.

Colonel L. W. HARNETT, representing the Government of Bengal, informed the conference that at the port of Calcutta the recreational facilities for seamen were being extended, and that in the autumn a new club would be opened, which would include a venereal diseases treatment centre.

Social Hygiene and the Services.

Mr. E. B. TURNER took the chair at the afternoon session, when the congress considered the efforts made to reduce venereal diseases in the Navy, Army, and Air Force, and the Mercantile Marine. The discussion was opened by Surgeon Commander RIVAZ, who dealt with the subject in its relation to the Navy. The incidence of all forms of these diseases, he pointed out, was lowest in 1914 and 1915. It increased during the war and after the armistice. Since then there had been a drop each year, which promised to continue as the result of the preventive measures adopted in the Navy. Statistics were given to illustrate the value of early disinfection; at the same time, Commander Rivaz emphasized the point that one of the chief causes for the decline was the diminished consumption of alcohol obtaining throughout the service. Squadron Leader STARKEY, representing the Air Ministry, said that the temptation to which the Royal Air Force was exposed was less than in the case of other services, as the most desolate spots were always selected as Air Force stations.

Admiral Sir REGINALD TUPPER, chairman of the British Council for the Welfare of the Mercantile Marine, said that his council was now taking definite and practical steps to promote the health of the merchant seamen throughout the world. At the National Conference on the Health and Welfare of the British Merchant Navy, which was held in May last, resolutions furnishing a programme for immediate adoption at home were passed unanimously. It was also agreed that committees should be constituted without delay in all the major ports of Great Britain by the co-operation of the port and local authorities, and of the voluntary organizations concerned; they would be able to link up the harbours and the towns and abolish the condition of segregation which was responsible for so much disaster in the lives of the seafaring population.

Dr. A. O. ROSS, venereal diseases officer, city and port of Liverpool, pointed out that merchant ships varied in class, from the Atlantic liner to small vessels engaged on short voyages. Efficient treatment reached its high-water mark in the liners engaged in the Far Eastern trade. Most of the patients at Liverpool came from the class of ocean-going tramps; the special conditions found in neglected cases came from this class. Most men of this type had no sense of responsibility; compulsion was the only real remedy for them. It would be of great help if all men signed on for a long voyage were examined for venereal disease. He did not believe that brothel regulation was a safeguard. One-third of the cases in Liverpool were of seamen infected abroad.

During the discussion which followed it was suggested that the inference to be drawn from Commander Rivaz's figures was that the incidence of disease depended upon the cleanliness of the civil population, and that this was justification for the work of the local authorities in this country. Commander Rivaz was closely questioned as to the discharge to civil life of sailors who refused treatment and the basis of his statistics relating to the value of early disinfection.

Professor BOSTOCK HILL emphasized the difficulties which arose in dealing with the Mercantile Marine. Little was done on the voyage for the entertainment and instruction of crews; there was therefore a powerful temptation when port was reached, and this was increased where there were no regulations to prevent the invasion of ships by undesirable persons whilst they were in ports. The remedy was the formation of committees who would undertake the entertainment of crews during their leisure time ashore.

Compulsory Treatment.

On July 9th, with Professor A. BOSTOCK HILL in the chair, Dr. T. F. DEWAR, medical officer, Scottish Board of Health, raised the question of compulsory treatment. The worst problem was that of the sufferers who, having started treatment, defied all attempts to persuade them to resume. The three outstanding problems of the future were: the patient who attended too late, the patient who desisted from treatment, and the doctor whose training in relation to the venereal diseases was inadequate.

Dr. T. W. WADE, medical officer, Welsh Board of Health, emphasized the fact that in Wales a high proportion of patients ceased attendance before being discharged as cured. Record, showed, also, that very few patients found their way to centres of their own accord. Women, especially, must be sought out if they were to be brought under treatment.

Discussing the steps taken to deal with the problem in Australia, Dr. C. L. PARK, chief medical officer, Australia House, insisted that compulsory treatment had not encouraged concealment, and stated that 80 per cent. of defaulters resumed treatment under persuasion, no legal proceedings being necessary. He also emphasized the need for better education of medical students and the general public, and for teaching elementary physiology in schools.

The Hon. HERBERT GREENFIELD, agent in London for the Government of Alberta, explained that, in view of the predominantly rural nature of the province, although well-equipped clinics were open to all sufferers free of charge, patients in remote parts were treated by their local doctors at the Government's expense until they became non-infectious. A limited measure of compulsory treatment had been enforced against persons arrested on certain specified charges and found to be infected.

The subsequent discussion was almost entirely confined to pleas by Scottish delegates that Scotland should be permitted to experiment with compulsory treatment, at any rate of known defaulters. Mrs. NEVILLE ROLFE, after stating that the British Social Hygiene Council would not oppose an experiment in an area where public opinion was favourable to compulsion, suggested that statistics led to the belief that greater continuity of treatment was secured under the voluntary system.

A delegate from Southern India urged the conference to press for compulsory circumcision of all male children. Experience with a Mohammedan battalion, all of whom were circumcised, and a Hindu battalion, very few of whom were circumcised, seemed to indicate that the former kept very free from infection without being noticeably more moral than the latter.

Dr. W. G. CLARK of Glasgow recounted the case of 1,000 men sent on leave from Scapa Flow with prophylactic packets, only three of whom became infected, and those were too drunk to carry out the prophylaxis. Against this, however, Mrs. ROLFE urged the test carried out by the French army authorities, which showed that the incidence of infection was reduced more rapidly by hygiene teaching alone than by teaching combined with the issue of prophylactics.

At the afternoon session, after introductory remarks by Mr. L. S. AMERY, M.P., the congress resumed its study of progress reports and methods of treatment. The report from New Zealand stated that the knowledge that there was power to enforce treatment was a factor in persuading sufferers to continue until cured. There was evidence, however, that all practitioners did not, as required by law, notify all cases of patients ceasing to attend until discharged.

During the discussion, Colonel HARRISON rebutted the opinion expressed in certain quarters that infected persons who evaded treatment were more likely to escape general paralysis than those who submitted themselves to treatment. The result of a questionary circulated on an extensive scale showed that this view was without foundation.

Methods of Reaching the Infected Population.

The chair was taken during the morning session of July 10th by Mr. SOMERVILLE HASTINGS, M.P., and Colonel HARRISON opened the subject of the attraction to treatment and the rendering non-infective of the infected population. Education of the public had already had an important effect, and more infected cases now came to treatment at the earliest moment. With regard to liaison between venereal disease and other public health services, Colonel Harrison suggested the provision of adequate treatment at maternity and child welfare centres for cases of infection discovered there. He stressed the importance of venereal disease officers being imbued with the public health ideal rather than with the "hospital out-patient attitude." It was important that there should be good relations between the venereal disease officer and the local medical officer of health. Attendances depended largely upon the personality of the venereal disease officer and his staff.

The CHAIRMAN then read a paper submitted by Mr. S. B. JONES of St. Kitts. The largest proportion of the infected population of St. Kitts, he said, consisted of agricultural labourers, domestic servants, porters, and boatmen, descended from African slaves. The presence of venereal diseases among them was due to ignorance, low standards of living, and bad environment. To attract them to treatment it was necessary to explain to them the nature of these diseases, and how they affected their social life and wage-earning capacity. The campaign should be in the hands of a single physician who, by moral suasion, would urge the infected to persist in treatment, but, failing this, notification and compulsory treatment would be enforced.

Dr. HENRY CLUCKMAN, director, Johannesburg City Council Special Treatment Centre, pointed out the difficulty, by reason of expense, of having separate clinics with full-time medical staffs in small communities. On behalf of the Birmingham Public Health Committee, Miss H. BARTLETT stated that Birmingham had found it much easier to obtain attendance at ordinary hospitals, maternity centres, etc., than at special clinics. Mentally deficient and insane persons presented a special problem. In Birmingham tests were made for syphilitic infection upon every person admitted to an institution.

Dr. MARJORIE SMITH-WILSON urged the desirability of having a special social worker attached to each treatment centre for the purpose of examining the social background of the patient in such matters as the ability to pay train fares, the securing of affiliation orders or separation from an infected husband or wife. There was also the question of the provision of hostels for residence during treatment and pending rehabilitation, and Dr. Smith-Wilson described some successful efforts in this direction. The important factor was that inmates should, as nearly as possible, enjoy a normal existence. Boys, in particular, were very poorly served in this respect.

The Position in India.

The chair was taken at the afternoon session by Sir ATUL CHATTERJEE, High Commissioner for India.

Dr. A. B. SOUSA, assistant director of public health in the United Provinces, said that in the Provinces about 20 per cent. of the population was infected. On the other hand, there had been a big drop in the number of cases among British troops. Many municipalities were framing by-laws for the confinements of prostitutes in outlying quarters, and the Government had passed legislation prohibiting girls from being brought up for immoral purposes among the Naik families. Another bill was now before the council making the prohibition general.

Colonel HARNETT stated that one of the most effective means of checking venereal disease in Calcutta had been found to be the provision by employers of married quarters for labour from up-country districts. The great obstacle to effective propaganda was the illiteracy of 88 per cent. of the population. It was particularly necessary that the education of women should be pressed for; at the last census only 1.8 per cent. of native women were literate.

Sir ATUL CHATTERJEE said that, with a general improvement in the social conditions of India, knowledge of sex hygiene should not be difficult to spread, because there was far less squeamishness there than in the West in discussing sexual problems.

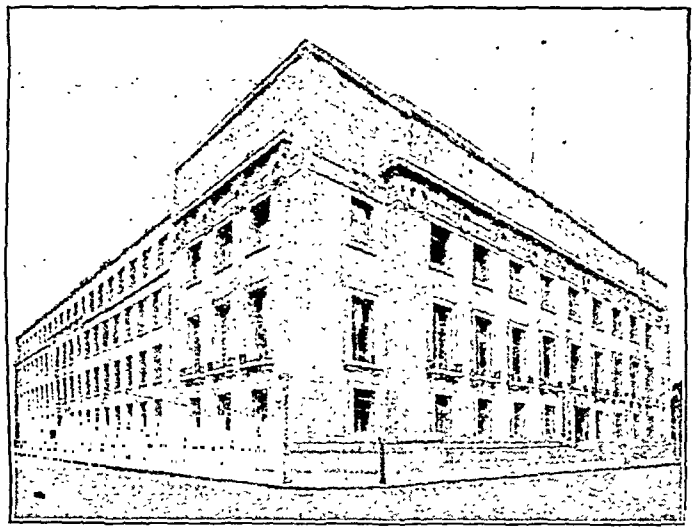
General HOOTON of the Government of Bombay said that, thanks to the visit of a delegation from the council, special equipment for the treatment of venereal diseases had been incorporated in the new hospital constructed at Bombay. The crux of the whole problem in India was female education. Westerners must not judge India from Miss Mayo's books, which, although based on facts, took no account of enlightened Indian opinion, and had made a large number of Indians very touchy about reform.

THE LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE.

OPENING OF THE NEW BUILDING.

THE new building of the London School of Hygiene and Tropical Medicine, which was opened by H.R.H. the PRINCE OF WALES, on July 18th, was made available for inspection by representatives of the press four days before the official ceremony. Sir HOLBURT WARING, chairman of the court of governors, presided over the informal proceedings, and after brief addresses by Dr. ANDREW BALFOUR, director of the School, Professor W. W. JAMESON, director of the division of public health, and Mr. VERNER O. REES, one of the architects (the other being Mr. P. Morley Horder), the visitors were conducted over the structure, which was receiving the finishing touches at the hands of busy workmen.

This magnificent building, which has been three years in erection, occupies a site in Bloomsbury, just north of the British Museum and south of University College. It is one of the largest of modern buildings in London, and a noteworthy addition to academic architecture. The outstanding impression, both within and without, is of great plainness and purposefulness. The exterior, which on one side faces Gower Street, is plain almost to severity. The only decorative notes are the gilded bronze insects, carriers of *tropical diseases*, which enrich the balconies of the first-floor windows, some allegorical sculpture over the main entrance in Keppel Street, and the frieze running round the building, bearing the names of twenty pioneers in hygiene and tropical medicine. The interior has been arranged to embody two large open courts, which not only serve as pleasant promenades, but give light and air to the surrounding rooms.



Before describing the general arrangement of the interior it is necessary to recall the circumstances which have led up to this foundation. The School is the outcome of the recommendations of the Athlone Committee in 1921 for the establishment of a central institution, affiliated to the University of London, wherein full provision should be made for instruction in all branches of preventive medicine. It has been made possible by the gift of the trustees of the Rockefeller Foundation in New York, who offered the Ministry of Health £460,000 for the purchase of the site and the erection and equipment of the building, on condition that the British Government should contribute adequately towards its maintenance. The primary function of the School, as Dr. Balfour explained on July 14th, was to train medical men and women desirous of entering the public health services in this country or abroad and to undertake research work in preventive medicine.

Before the preliminary plans were approved, however, its role was enlarged by union with the London School of Tropical Medicine, the institution which for many years occupied premises at the Albert Docks, and after the war removed to Endsleigh Gardens. The union, as Dr. Balfour said, was timely, for there is now recognized to be no sharp dividing line between the diseases of hot climates and those familiar in temperate latitudes. Therefore this new London School of Hygiene and Tropical Medicine, which was incorporated as such by Royal Charter in 1924, is charged with the duty of continuing and enlarging the instruction given in the old School founded by Mr. Joseph Chamberlain thirty years ago, and of providing facilities for research on the lines which have made that School famous the world over.

Divisions of the School.

The work of the School has been arranged in the following divisions, each in charge of a director and staff: public health, including a section devoted to the physiology of hygiene, whose activities will bear closely upon industrial problems; epidemiology and vital statistics; bacteriology and immunology; biochemistry, including a department for chemistry as applied to hygiene; medical zoology, embracing the departments of protozoology, helminthology, and entomology; and, finally, tropical medicine and hygiene, of which Dr. Balfour himself has charge, and which embraces the all-important clinical work in diseases of the tropics, for which facilities are afforded by the Hospital for Tropical Diseases in Gordon Street close by.

Description of Building.

The building consists of two principal parts, the first comprising the rooms for public uses—namely, the library, museum, and lecture theatre—and the second the accommodation required for teaching and research, including the laboratories, workshops, and animal quarters. The library, panelled in oak, is a spacious apartment, with a balcony, and the aim is to make it a large and representative library of hygiene in the widest sense of the word. The museum also occupies a very large amount of space. It consists of three parts—namely, sanitary hygiene, hygiene in the popular sense, and tropical medicine. It marks a new departure in the sense that the assistance of various large commercial interests has been sought and generously granted. A number of leading firms whose business is concerned with public health activities of various kinds have co-operated to present to the museum exhibits of educational value. Both the library and the museum owe their nucleus to the collections of the old London School of Tropical Medicine.

The lecture theatre, which seats about 250, must be one of the finest in any university. Behind the screen is a large cinematograph projector. The comfort of the seats, with the collapsible desk for note-taking, the provision for lighting and ventilation, the arrangement for instantaneous darkening of the windows, are all on the most modern plan. This theatre, like the library and museum, will be available for public uses, and here it may be said that members of the public health services, who also have a common room placed at their disposal, will be welcomed at the School at all times, not only at the lectures given by the staff, but also at a series of special lectures to be given by experts on public health problems.

The laboratory accommodation is planned on the same generous scale. The benching and many other items of equipment in the laboratories, large and small, have been standardized, and every mechanical service has been provided. The pipes for power, gas, steam, light, and hot and cold water have been left exposed for free access, and painted in different colours to aid identification. Every provision for the convenience of the 250 or 300 students who, it is hoped, may be working at these benches has been installed. In addition to two very large laboratories, one of them accommodating eighty students, there are what seemed to be a quite bewildering number of small

rooms for special research, as well as class-rooms and workshops. One apartment is equipped with calculating machines for assisting in statistical investigations. Then there are the extensive animal quarters, including a detached building of unusual design, intended as an insectarium. The whole of the School is warmed by radiant heat from heating coils embedded in the ceilings. The flooring of the public rooms and administrative offices is of cork, and that of the laboratories and corridors of teak blocks. At every turn one comes upon some dextrous device—a new kind of door handle, a specially designed gas-fire, a lighting fixture of very unusual type.

It is worth while on leaving to glance at the names on the frontage. The British names are Chadwick, William Farr, Edward Jenner, William Leishman, Timothy Richard Lewis (who discovered the trypanosome bearing his name), James Lind (physician at Haslar in the eighteenth century), Lister, Manson, Edward Parkes, Sir John Pringle, Sir John Simon, and the great Sydenham. The Americans are Hermann Biggs, the leading figure in public health work in New York early in the present century, General Gorgas, Walter Reed, who carried out important work on typhoid in the Spanish-American war, and Shattuck, described as the Chadwick of the United States. The Continental selections are Johann Peter Frank, a name almost forgotten in this country, Koch, Laveran Pasteur, and von Pettenkofer of Munich who has been called the founder of experimental medicine. There are plenty of spaces left, and no doubt the School itself will in time furnish other names, perhaps names to eclipse all forerunners.

It was announced that the first course of training in public health would begin in the new building on September 30th, and that a curriculum had been arranged which would give students a more comprehensive view of the whole field of public health than had hitherto been possible.

England and Wales.

Dreadnought Hospital: Opening of Laboratory and Nurses' Home.

AT the Dreadnought Hospital, Greenwich (Seamen's Hospital Society), on July 15th, the Duke and Duchess of York opened the new pathological laboratory and nurses' home. These buildings are the most recent outcome of the fund inaugurated by Viscount Devonport in 1915 for the improvement and extension of this hospital. The response to Lord Devonport's appeal was universal, being prompted by the gratitude felt in all parts of the Empire, especially during the war, to the men of the mercantile marine. The pathological laboratory has been built to serve the hospital and also to carry out the bacteriological work of Greenwich and four neighbouring boroughs. The new building is planned in three sections. The laboratories with their administrative offices, library, and museum, are placed around a central entrance hall and staircase. On the south side of the building are the operating and post-mortem rooms, mortuary, and chapel, and on the north side the workshops and other necessary accommodation, such as an animal room. The new nurses' home is situated near the fine gardens of the Royal Hospital School, and includes a private bedroom for each nurse. The whole of the work of the two buildings, which were greatly admired, was designed and executed by the architect, Sir Edwin Cooper. The Duke of York, after declaring the buildings open, said how glad he was to feel that the "Dreadnought" was now equipped with an adequate pathological laboratory, which was available for the neighbouring municipal boroughs, as well as for the needs of the hospital itself. The people in the neighbourhood of Greenwich had helped the "Dreadnought" splendidly, through the Seamen's Hospital Aid Committee, and he was glad to feel that the hospital was able also to help them. In addition to the erection of these new buildings a certain amount of the Devonport fund had been put aside for endowment; this was a wise policy, of which he heartily approved. It was the policy of the Seamen's Hospital Society, which aimed at freedom from indebtedness for its network of establishments. It might not be generally known that this was the largest group of seamen's hospitals in the world; it included seven establishments, and required the raising of £95,000 every year to keep the institutions going. He paid a tribute to the skill and devotion of the medical staff, both honorary and resident. All concerned were indebted to the medical officers for their services.

On the evening of the day of the opening of the laboratory, the London School of Clinical Medicine entertained Lord Devonport at dinner at the Langham Hotel. Professor R. T. Hewlett, who presided, reminded the gathering of the great services rendered by their guest since 1915, when he stepped into the breach and organized the fund which had been such a splendid success. The buildings now erected would be a lasting memorial to the men of the mercantile marine, and they would also help to continue the tradition of the "Dreadnought" for pathological research, although in the past such research had often been carried on under the most difficult conditions. Lord Devonport explained that it was when he became chairman of the Port of London Authority that the needs of the Seamen's Hospital were brought home to him. He recognized how many urgent developments were held up on account of lack of funds. The very first week after the appeal was launched brought in a sum far in excess of the £10,000 which had been anticipated. Mr. Percival Cole, F.R.C.S., the dean of the school, maintained that the London School of Clinical Medicine had sustained the prestige of the Seamen's Hospital Society throughout the world. In these days it was not sufficient for a charity to be deserving; it must be backed by professional ability. He envisaged a closer liaison between the clinical and pathological departments. Sir John Rose Bradford, F.R.C.P., responding to the toast of "The Guests," which was proposed by Sir Arthur Clarke, chairman of the Seamen's Hospital Society, said that he could speak as one who had been and still was attached to the staff of the hospital. All who had been at any time connected with the "Dreadnought" were impressed by the camaraderie and good fellowship between the governing body and the staff.

New Pharmacological Laboratories at the University of Manchester.

On July 10th Mr. F. H. Carr, late president of the Society of Chemical Industry, opened the new laboratories which Messrs. Benger's Food, Ltd., have presented to the Medical School of the University of Manchester. The new laboratories are for the study of pharmacology, pharmaceutical chemistry, and biochemistry in its relation to pharmacology. They consist of a room suitably equipped for experiments on animals and man, with a preparation room attached; a biochemical laboratory; a pharmaceutical chemistry laboratory with separate balance and furnace rooms; a demonstration theatre to accommodate some fifty students; private laboratories for the head of the department and a lecturer; and a room to be used as a library and secretary's room. There are three small rooms near by in which animals can be housed under ideal conditions. This extension has been rendered possible, first, through the removal of the department of pathology to York Place, where it is in more immediate contact with clinical work and the departments of bacteriology and public health, and secondly, through the generosity of Messrs. Benger's Food, Ltd., who have given the University £2,000 to furnish and equip these laboratories, in memory of Frederick Baden Benger, the founder of the firm. This department of the Medical School owes its present efficient condition to the influence, material support, and devotion of the late Professor D. J. Leech, who organized and fully equipped it for its needs in 1884. He furthermore endowed the Leech Chair of Materia Medica and Therapeutics, which he held himself for some years, making thus a valuable addition to the endowed chairs of the school. He was succeeded in it by Professor R. B. Wild. The Leech Library (a departmental library for material medica, therapeutics, and pharmacology) was founded in memory of Professor Leech. Professor Wild retired in 1927, and the chair has not been filled since, but a readership has been instituted for the present, and this is held by Dr. A. D. Macdonald. The University, with its fine school of chemistry, its well-equipped school of physiology, and the magnificent clinical facilities of the Manchester Royal Infirmary, should provide a fruitful

field in which pharmacology and pharmaceutical chemistry should flourish. It is hoped that the present scheme will provide a modest beginning out of which a school of pharmacology and pharmaceutical chemistry may grow, a school comparable in its influence with the other great schools of the University.

The first systematic course on pharmaceutical chemistry was given in 1824 by John Dalton, F.R.S., then president of the Literary and Philosophical Society; it consisted of about fifteen lectures, delivered in the evenings at 7 o'clock. It is on record that the lecturer, after explaining the first principles of chemistry, proceeded to apply them to investigations respecting materia medica, and to other purposes relating to the profession. According to a printed syllabus the lectures dealt with heat or caloric, constitution of bodies, chemical syntheses and analyses, simple or elementary gases, elementary solids, compound bodies, alkalis, acids, etc., earths, sulphurets, metals, the vegetable kingdom, and the animal kingdom. The lecturer received fees amounting to £27 8s. 9d., but his expenses were £10 10s. He continued his connexion with the Medical School for at least six sessions; in the later period he had in each session three separate classes attended by eight or nine students. Benger's preparations owe their origin to the endeavour of Sir William Roberts in the eighties of last century, as he told the Royal College of Physicians, to prepare a predigested and more palatable food of different nature to what was then known as "Darby's peptonized fluid meat."

Rat Extermination in the Port of Liverpool.

The occurrence of cases of plague in ports at which a considerable proportion of the cargoes destined for this country are loaded—above all, in the ports of South America, West Africa, and India—indicates how vital is adequate extermination of rats, both on board ship and in dock areas, for the protection of the population against an epidemic. Dr. A. A. Mussen, medical officer of health to the Liverpool Port Sanitary Authority, in his report for the year 1923, points out that it was a realization of this fact and of the fact that, to be effective, measures designed to combat the incidence and spread of plague must be world-wide in their application, which brought about the International Sanitary Conference of 1926. Among the general provisions laid down by the conference is one requiring that "all ships, except those engaged in national coastwise service, shall be periodically deratized, or be permanently so maintained that any rat population is kept down to a minimum." In Liverpool, vessels which have been "deratized" are granted a deratization certificate, or, if found by the Port Authority to be free from rats, a deratization exemption certificate. These certificates are valid for six months, at the end of which the vessel is re-examined, unless it has become definitely reinfested in the interval. The Port Authority issued the first certificate on October 5th, 1928, and up to the end of the year twenty-five deratization certificates and eleven exemption certificates had been issued. Dr. Mussen records that during the past few years a very marked diminution has been observed in the number of rats found on vessels entering the Port of Liverpool, the average number of rats per ship having fallen from 68.6 in 1914 to 14.7 in 1928. Vessels trading with River Plate and Brazilian ports—owing largely to the fact that they carry cargoes of grain—are found to contain a high average number. Vessels arriving from the west coast of South America, North America, New Zealand, and Australia, on the other hand, show a reasonably low figure, mainly, perhaps, on account of the strict insistence on periodic fumigation which has been the policy of the United States and Australasian Governments. Cargoes unattractive to rats include hardware, fruit in boxes, and other products that can be so tightly packed in the holds that no room is left for the rats to move about; attractive cargoes, besides grain, are palm kernels and sugar. No adequate returns are available to show the relation between rat incidence and the number of cats on board, but of 87 ships arriving in Liverpool during December 78 carried cats, and, according to the Authority's catchers, they were also carrying a certain number of rats. The general experience suggests that cats are of value for deratizing purposes only when other food is scarce—a comparatively rare occurrence. "Trapping," though a most important method, must necessarily prove less valuable than fumigation, simply because in the time available to the catchers it is usually impossible completely to rid a vessel carrying more than a small number of rats; it has, on the other hand, the advantage of being a less expensive method than fumigation. The private catchers of the shipping companies are reported to have caught 22,047 rats during 1928. In fumigation lies the only sure way of completely ridding a vessel of rats; the agent generally used is sulphur dioxide, but hydrocyanic acid has been used in a certain number of cases. To maintain the diminution in the number of rats per ship Dr. Mussen suggests the following measures: (1) greater care at foreign ports in the loading of cargoes known to be "rat attractive," in order that as few rats as possible may be allowed to enter the vessel; (2) the "rat-proofing" of all vessels; (3) the continuance of the present measures with regard to trapping; (4) periodic fumigation of vessels engaged in carrying "rat attractive" cargoes, and other vessels, when the rat population is abnormally increased.

The Danger of Water Shortage.

The Minister of Health, Mr. Arthur Greenwood, received a deputation on July 12th from the British Waterworks Association. The speakers emphasized the danger of a grave shortage of water unless very heavy rainfalls occurred in the near future. In some parts of England, and especially in Lancashire and Yorkshire, the situation was already giving cause for anxiety, and in certain towns the water reserves were now disquietingly low. The deputation suggested that emergency legislation should be introduced to enable economies to be effected by reducing the volume of "compensation" water, much of which at present ran to waste, and urged that the Minister should take steps to impress upon the public the need for drastic economy in the use of water. The Minister said, in reply, that he fully realized the gravity of the situation caused by the present very exceptional drought. While there was no possibility of introducing legislation before the recess, he was anxious to do all that he could to help water authorities to meet their difficulties. He proposed, therefore, to issue at once a memorandum drawing attention to the need for economy and suggesting the precautions that should be taken. He hoped that the interests concerned would appreciate the seriousness of the situation and be willing to come to agreements with water undertakers in the matter of compensation water, and he trusted that the general public would exercise strict economy in their consumption of water for domestic and garden purposes. This memorandum, issued on July 16th, emphasizes the value of forming advisory regional committees, supplementing existing water supplies, and guarding against pollution. Other points commended for immediate attention are the prevention of waste, the temporary reduction of compensation water, and the use of non-potable water for the flushing of drains and street watering.

The Osler Club.

The sixteenth meeting of the Osler Club was held at 27, Wimpole Street, London, on the evening of Friday, July 12th, to celebrate the eightieth anniversary of the birth of Sir William Osler. Sir Archibald Garrod delivered the second Oslerian Oration, on the power of personality. The orator dealt with personality from the point of view of medicine, of the practice of medicine, and as exemplified by Osler in the teaching of medicine. The discussion was opened by Dr. A. G. Gibson, and speeches were made by Dr. G. Feine, Professor Francis Fraser, and Mr. W. A. Betts. A selection of the writings of Osler on medical education was displayed, together with many messages which had been received from friends and corresponding members of the club abroad. Among those present were Sir D'Arcy Power, Sir William Hale-White, Sir F. G. Kenyon, Dr. Andrew Balfour, Mr. Hugh Cairns, Mr. Philip Franklin, Dr. Marshall Fulton, Mr. R. H. Hill, Dr. N. G. Horner, Mr. E. Muirhead Little, Dr. J. D. Rolleston, and Mr. Paterson Ross.

Scotland.

Health of Glasgow.

THE annual report for 1928 of the medical officer of health for Glasgow (Dr. A. S. M. Macgregor) was issued on July 8th. The population of the city is estimated at 1,147,103, and its density as 39 persons per acre. The births registered during the year numbered 23,649, giving a rate of 20.62 per 1,000—the lowest on record. The corresponding rate for Edinburgh, reported in the *British Medical Journal* of July 13th (p. 71), was 17.3. The birth rate varied from 28.6 in the industrial ward of Mile End to 7.9 in Kelvinside. The total number of deaths was 16,727, representing a rate of 13.7 per 1,000, which is the same as in Edinburgh. The infantile mortality rate was similar to that of the previous year—107 per 1,000. Dr. Macgregor points out that this figure, which is higher than that of most other large towns, cannot be regarded as satisfactory. About 36 per cent. of these deaths occurred in the first month of life. The maternal mortality rate of 8.79 per 1,000 births was higher than in the preceding two years. The rate for infectious diseases was greater than in 1927, principally because of the larger number of fatal cases of measles. The serious problem constituted by measles, whooping-cough, and acute pneumonia, all of which destroy life by attacking the lungs, is commented upon. The figures for tuberculosis are much the same as in the previous year. There were 1,247 deaths from malignant disease, a reduction of 81. Dealing with housing, the report refers to the fact that 6,895 houses were granted by the Dean of Guild Court for new dwellings, which is the highest figure for more than half a century; 60 per cent. of the new houses were of three apartments. The custom of subletting a room, mostly in houses of two apartments, which has been a feature of recent years owing to the housing shortage and unemployment, is still very prevalent. Although the housing schemes are now affording a definite measure of relief, there is still a large volume of overcrowding in the city. About 80 per cent. of the tenants in the new housing areas have proved satisfactory so far as cleanliness is concerned.

The number of persons who default from attendance for treatment at the Glasgow venereal disease clinics is still large enough to be disquieting. Dr. Macgregor attributes this failure to attend largely to ignorance and indifference. The nurse almoner appointed to visit defaulters has made more visits than ever, but personal persuasion alone appears quite inadequate to secure continued attendance. Dr. Macgregor records his opinion that the voluntary system of treatment of venereal disease without official notification and without the application of any special powers of compulsory treatment is still on its trial; most of the efforts to deal with the problem of venereal disease, he continues, are still in the experimental stage. Dr. Macgregor finds it difficult to decide whether there has been an increase of venereal disease or not; it might be argued, he thinks, that propaganda among the public and instruction given to patients at clinics are causing a diminution of venereal disease, and that the increased numbers attending the clinics, and the increased aggregate attendances, only mean that cases which hitherto would have been undiscovered are now coming for, and accepting, treatment to a fuller extent than formerly. Treatment of venereal disease is carried out at six of the thirteen maternity and child welfare centres. As the diagnosis of syphilis in the pregnant woman is not always easy, it is becoming more and more the practice in Glasgow to take blood for the Wassermann test from every pregnant woman attending the municipal ante-natal clinics; of 584 pregnant women so examined 29 were found to be infected with syphilis.

Glasgow is the only area in the United Kingdom in which trachoma is a notifiable disease. A trachoma dispensary and a special trachoma nurse are provided; cases requiring in-patient treatment are admitted to the special ward in Ruchill Hospital. Of 127 cases on the register 111 were born in these islands; the age group 15 to 20 yielded the largest number of new cases. The disease does not spread much in the home; an examination of the home contacts of 33 cases notified in 1928 yielded only one case of definite trachoma; in only five instances are there multiple cases in a family. There were 36 new applicants during the year for insulin, which is given to persons not already provided for under the national insurance scheme or the Poor Law. The report provides support for the view that scarlet fever may take the form of sore throat. Groupings of scarlet fever and sore throat occurred in two schools. In one, a county school on the city boundary, three cases of definite scarlet fever were followed by a series of thirteen cases of sore throat, occurring at short intervals, and by a fourth case of scarlet fever. In ten of the sore throat cases the tongue was generally coated, but definite peeling occurred only in three; in no case was there any trace of desquamation. Examination of throat swabs showed the presence of haemolytic streptococci in ten out of the thirteen cases. No other case of scarlet fever was present in the district to infect the fourth case; also, for six months after the last case of sore throat there was no further absenteeism due either to scarlet fever or to sore throat. The need for international hygiene is shown by the bacteriological examination of goat-skin thongs used to bind orange boxes. Nine out of fifty-two tests revealed the presence of anthrax bacilli. Dr. R. M. Buchanan, bacteriologist to the corporation of Glasgow, states that since the inception of these examinations certain places have stood out conspicuously as sources from which infected thongs have been derived.

Finances of Edinburgh University.

A memorandum on the finances of Edinburgh University was read at a recent meeting of the University Court. The ordinary revenue had increased from £110,000 in 1913-14, the last pre-war year, to £250,000 in 1927-28. In these figures no account is taken of scholarships and bursaries, in respect of which the University is only a trustee. Of the whole regular income, about £48,000 comes as interest from endowments; £91,800 as parliamentary grants (made up of £10,800 granted under the Local Taxation (Scotland) Act of 1892, and £81,000 from the University Grants Committee); and £107,000 in fees. No form of rate aid is received, as is the case with most of the English universities. As regards ordinary expenditure, the salaries of the teaching staff, amounting to £141,000, constitute the heaviest item. Pensions and superannuation contributions account for £15,000, departmental expenses for £25,000, libraries and museums for £9,000. The cost of administration, including the salaries of the principal and of members of the secretarial staff, is about £18,000. There is a charge of £30,000 for maintenance of premises, and an item of £10,000 for incidental alterations and adaptations of buildings apart from any large schemes of university development, the costs of which are met by means of special gifts. The whole expenditure charged to the ordinary account for 1927-28 was £253,000, leaving a deficit on the year's working of £3,500. The second part of the memorandum dealt with bequests and gifts which had been received during the thirteen years of Sir Alfred Ewing's principalship. These were as follows: bequests, £291,018; gifts from private persons, £298,030; gifts from public bodies, including £198,000 from the Rockefeller Foundation, £316,494; grants from the Carnegie Trust, £202,000; and non-recurrent grants for capital purposes from the University Grants Committee, £67,153; making a grand total of £1,174,695. Of this sum of over a million pounds, fully one-half has been invested to provide endowments, while the remainder has been or is being applied to various extensions.

Extension of Lewis Hospital.

On July 5th Mrs. Macaulay formally opened, at the Lewis Hospital, Stornoway, a new wing, consisting of two maternity wards with nurses' accommodation, the gift of her husband, Mr. T. B. Macaulay, president of the Sun Life Assurance Company of Canada. Mr. Macaulay, to whom reference was made in our issue of July 13th (p. 71) in connexion with his gift to the Aberdeen Institute of Soil Research, was born in Aberdeenshire, but his forebears came from the Island of Lewis, and he has taken an active interest in all that pertains to the welfare of the island. Provost Bain, chairman of the hospital managers, who

presided, explained that, in addition to presenting the new wing, Mr. Macaulay had endowed the hospital to the extent of £16,000, besides setting aside a further sum of £1,500, which will ultimately come to the hospital. Mr. Macaulay, in the course of an address, said that it gave him great pleasure and satisfaction to be able to contribute to the good of the people of the island, but he was anxious that the hospital should not be so well endowed that there should remain little or no incentive for the people themselves to support it. He had, however, been assured that there was no ground for such a fear. His feeling was that the hospital was not yet large enough for the needs of a population of 32,000 persons, and that still further extensions would be necessary. It was later intimated that another gift of £3,000 towards the endowment fund had been received from Mr. John Bain of Chicago, a brother of the Provost of Stornoway.

New Chair of Botany at St. Andrews.

By a recent ordinance a chair of botany has been established in St. Andrews University, and the departments of botany in the United College of St. Andrews and in University College, Dundee, are to be placed under the charge of the new professor. The lectureship in botany in Dundee and the assistant lectureship in the United College, at present existing, are continued under the new arrangement. The council of University College, Dundee having concurred in the appointment, the University Court has elected Mr. R. A. Robertson, M.A., B.Sc., to be the first professor of botany, as from October 1st next. Mr. Robertson was lecturer in botany in the United College, St. Andrews, from 1891 to 1915, and has been reader in botany in the same department since that year. Mr. Robertson's long and valuable services to the University in many capacities are highly appreciated by the Court and by the Senatus, of which he became an elected member in 1924.

Correspondence.

A PHYSIOLOGICAL STUDY OF ASTHMA.

SIR,—You have rendered a service to all those interested in the physiology and pathology of spasmodic asthma by issuing an abstract (July 13th, p. 68) of the valuable paper by the late Professor T. G. Brodie and Professor W. E. Dixon on the pathology of this affection (published in 1903).

The authors devote a considerable proportion of their paper to the over-distension of the chest observable during the asthmatic paroxysm. They state—I quote from the abstract—that during the over-distension accompanying an asthmatic attack, inspiration is much more powerful than expiration. "It is a matter of observation, which has not been nearly sufficiently stressed by authors of textbooks, that the effort, during an asthmatic attack, is an inspiratory one; expiration is quiet and prolonged. The patient's efforts are directed to getting air into the lungs, not to getting it out. In most instances the description is that *respiration* is violent; it should be that *inspiration* is violent."

All this is perfectly true. How are we to explain this curious type of breathing—the comparatively short, violent inspirations followed by the longer, less vigorous expirations, a sequence speedily resulting in superdistension of the lungs? The authors state that the chest is necessarily over-distended during an asthmatic attack, "for the constriction of the bronchioles tells far more heavily against expiration than inspiration." I have to confess that I do not understand why it should, but I defer on this point to their wider knowledge; what I desire to emphasize is a truth which seems very generally to have been overlooked, although I have myself more than once drawn attention to it—namely, that in all ordinary cases of dyspnoea, such as result from physiological causes, or from heart or lung disease, the mean size of the lungs tends to undergo a compensatory increase. This increase is effected by powerful inspirations followed by less powerful expirations, the expansions and contractions of the chest taking place about an increased mean; were the expiratory muscles to act as powerfully as the inspiratory, the range of the respiratory movements would be greatly amplified, but the *mean size of the chest would not be increased*. This type of breathing is well illustrated in physiological dyspnoea, such as is produced by running rapidly up several flights of stairs. At the end the chest will be found to be expanded, inspirations being short and powerful, while expirations are effected by little more than the elastic recoil of the lungs and ribs. Manifestly the purpose of this type of breathing is to increase the *mean* respiratory area and to facilitate the flow of blood from the right to the left heart. The same type of breathing, leading to pulmonary expansion, is observed in the dyspnoea of heart and lung disease, and with the same object—to increase the mean respiratory area (note that the mean would not be increased if expirations were deep), and to facilitate the pulmonary flow. An additional reason for expansion in heart disease is the considerable encroachment which a greatly enlarged heart makes upon the pulmonary area. A similar type of breathing with expanded chest is observed in the dyspnoea of elderly obese persons.

One of the most interesting forms of dyspnoeic expansion is that which occurs in so-called hypertrophous emphysema, the pathology of which is as simple as it is interesting. In ordinary circumstances nearly the whole of the pulmonary tissue is kept in a condition of moderate tautness (elastic tension). It is the business of the inspiratory muscles to maintain this tautness at the right degree, so that the walls of the expanding and contracting alveoli shall always be stretched and not allowed to become wrinkled and encroach upon the alveolar cavities, thus seriously interfering with the aeration of the blood (as happens at the end of an extraordinary expiration).

With advancing years the elasticity (capacity of recoil after being stretched) of the lungs lessens like that of the skin, and tends to produce a wrinkling of the alveolar walls, and thus greatly to curtail the respiratory area of the lungs. To prevent this the inspiratory muscles, ever on the watch to maintain the alveolar walls at their normal degree of (rhythmically waxing and waning) tautness, come into extra play and tighten up the elastic fibres to the requisite degree, just as one would tighten up a violin string which had become too lax. In this way the overacting inspiratory muscles bring about a gradual increase in the size of the chest. In consequence, the inspiratory muscles of the neck shorten (just as happens in the case of the overacting muscles in the different forms of talipes), causing the shoulders to be raised and the neck to shorten, the curvature of the ribs becomes permanently altered, the costo-vertebral joints and ligaments undergo adaptive changes, and eventually we have the typical barrel-shaped chest fixed in a position of super-extraordinary inspiration.

Such, as it seems to me, is the essential pathology of hypertrophous emphysema, which, by the way, may occur independently of asthma or dyspnoea, and may have advanced considerably before any rupture of the pulmonary alveoli has taken place. The expansion of the chest in this affection is manifestly compensatory; were the chest of a patient in an advanced case of emphysema reduced to the normal dimensions of early adult life, death from suffocation would result in a few minutes.

The same tendency to thoracic expansion may be seen in advanced pulmonary tuberculosis, when a struggle takes place between the scar tissue of the adherent lungs (tending to pull the ribs inwards and to produce flattening), and the powerfully contracting inspiratory muscles (tending to pull the ribs outwards). The expanding forces may lead to such a degree of expansion of old cavities, such a degree of dilatation of the bronchi, and such stretching of the pulmonary alveoli, as to cause an actual deepening of the chest, as may be seen by observing the chest in profile.

I come now to the rationale of the breathing and of the expanded chest observed in spasmodic asthma. I suggest that the chest expands in this affection in accordance with the principles I have enunciated: the expansion is, I suggest, a compensatory measure—a physiological effort to make the best of a bad job. A chest expanded to the maximum maximizes the respiratory area and minimizes the resistance to the pulmonary flow from the right to the

left heart. Further, the air conduits between the bronchi and the alveoli are far more likely to be kept open when the chest is fully expanded—that is, when these conduits are tugged upon from without by tissues stretched to an extra degree of tautness—than when these tissues are in a condition of average tautness. My impression is that the asthmatic is instinctively led to act during the attack in a way best calculated to cope with the situation. He makes mighty inspiratory efforts to get air into his chest, but he *dare not* expire deeply, and has to be content with cautious, inadequate expirations, through fear of completely occluding the minute air conduits. Expiration beyond a certain degree would tend to have this effect, and the asthmatic is careful to cease to expire before that contingency arises, for we must remember that the respiratory interchange between the bronchioles and the alveoli takes place mainly by transfusion—there is little air current between them—and hence aeration takes place during expiration as well as during inspiration.

I have said that in dyspnoea, whether physiological or pathological, the chest tends to expand through overaction of the inspiratory muscles. In all cases of heart and lung disease, in which dyspnoea is urgent, the inspiratory muscles of the neck can be felt, and often seen, to be acting powerfully. Normally the sterno-mastoids only come into action towards the end of inspiration. When these muscles stand out in a state of chronic tonic contraction we may draw the certain conclusion that the chest is expanded beyond the normal mean size.—I am, etc.,

London, July 15th. HARRY CAMPBELL.

ABDOMINAL SEPSIS AS A CAUSE OF EYE DISEASE.

SIR,—Professor Wilkie's article, "The gall-bladder in relation to focal infection" (July 13th, p. 37) should be of great interest to ophthalmic surgeons. For many years I have regarded the gall-bladder as a source of infection of the eye, and when trying to find the septic focus in a case of cyclitis or other ocular inflammation it is my practice to ask a general surgeon to examine the case, when, often an *x*-ray examination is made of the gall-bladder and cholecystitis diagnosed.

There is a low-grade optic neuritis which can generally be traced to some variety of abdominal sepsis; in fact, I speak of the "abdominal eye" to my students. The edges of the disc are slightly blurred, the surface is slimy-looking, the vessels have sheaths, and there is a general hyperaemic appearance. In such cases I have suggested to the patient that she is suffering from some abdominal disorder, and have often found that my guess is correct. One woman said, "Oh yes, I had my appendix out a month ago."

Cholecystitis is, I think, the commonest abdominal cause of this condition, and should never be neglected in any case of inflammation of the eye. In the Coventry Hospital I have no difficulty in making these investigations. The patient is admitted to my ward: one of the general surgeons attached to the hospital examines her, and if the gall-bladder is diseased the patient is transferred to the surgical wards and the gall-bladder is removed. In a special eye hospital it is not so easy, because the patient has to be sent to a general hospital and may be lost sight of.—I am, etc.,

Birmingham, July 15th. T. HARRISON BUTLER.

IMPACTED CYST IN THIRD VENTRICLE OF BRAIN.

SIR,—In his interesting account of two fatal cases of impacted cyst in the third ventricle, published in the *British Medical Journal* of July 13th (p. 47), Professor A. M. Drennan mentions the rarity of records of similar cases.

In 1913 I was able to find records of nine similar cases, including two under my own care, the specimens from which were shown at a meeting of the Pathological Section of the Royal Society of Medicine in 1911. Those two cases were recorded in full in the *Lancet* of January 11th, 1913, under the title "Two cases of colloid tumour of the third ventricle causing death." The histories and the appearances (both naked-eye and histological) of the nine cases recorded up to 1913 correspond so closely with those described by Dr. Drennan that there can be no doubt they have the same etiology. Thus one of my patients was a young woman who had suffered for a few months from intermittent attacks of severe headache, thought to be merely "migraine"; after she had been lying down for a few hours they would pass off. One day she stayed in bed on account of an attack, and later in the day was found there dead. At the necropsy there was found extreme distension of the lateral ventricles due to a small globular cyst of the choroid plexus plugging the foramen of Monro. In my second case a man was found lying unconscious in the street; he died soon after admission to hospital. Nothing was known of his previous history. At the necropsy an exactly similar condition was found—a small globular cyst of the choroid plexus plugging the foramen of Monro. In neither instance was there any evidence of disease elsewhere.

There are few sites in the body where so small a mass can produce death solely by its mechanical effects, and few conditions in which a fatal result can follow such an extremely localized lesion. The actual size of these colloid cysts of the third ventricle is usually somewhat less than that of a child's "toy marble." In character they are innocent, and their effect is purely mechanical. As a rule they are discovered in young adults, in whom no other lesion is found at necropsy. Death is due solely to obstruction of the anterior end of the third ventricle at the foramen of Monro, where the streams of cerebro-spinal fluid from the two lateral ventricles converge and pass into the third ventricle.

That such a series of events leading to death occurs in these cases is a confirmation of the truth of our physiological views on the cerebro-spinal circulation. No doubt each attack of headache represented some slight change of position of the cyst causing a temporary and partial obstruction. This was relieved possibly by a change of position of the cyst on the patient lying down, or by some alteration in the relative pressures, so that the temporary obstruction was relieved. As the cyst enlarged, however, the time arrived when it became wedged; the resulting increase of pressure which this caused in the lateral ventricles simply added more and more to its immobility, and recovery was impossible.—I am, etc.,

Sheffield, July 15th. ARTHUR J. HALL.

SIR,—Professor Drennan describes in your columns two cases of "rapid death," in both of which the fatal termination was determined by a cyst, growing from the choroid plexus, which had become impacted in the foramen of Monro, with consequent acute hydrocephalus and oedema of the brain.

I recall two cases in which death was due to this most unusual accident. One of these, which was observed by Sir Farquhar Buzzard and myself during life, is briefly reported, and figured in another context, by the late Dr. F. E. Batten and Dr. James Collier in their paper on "Spinal cord changes in cases of cerebral tumour" (*Brain*, vol. xxii, 1899, p. 532). The second case is described, with an illustration of the brain, by the late Sir Thomas Fraser in a communication entitled "A case of complete transposition of the viscera with cerebral tumour and other pathological conditions" (*Trans. Med.-Chir. Soc. Edin.*, vol. xxiii, New Series, 1903–4, p. 233). A third instance is recorded by Dr. T. H. Weisenburg in his paper on "Tumours of the third ventricle" (*Brain*, vol. xxxiii, 1910, p. 243).

This mode of death has not hitherto, so far as I am aware, been specially referred to in the literature, hence the reason for this note.

The cyst in one of Professor Drennan's cases was only "the size of a large pea," and the lateral ventricles were but "slightly dilated"; it is indeed not improbable that in some cases of the kind death may have been attributed to an oedema of the brain of undetermined etiology.—I am, etc.,

Edinburgh, July 13th. EDWIN BRAMWELL.

IMMUNIZATION BY TUBERCULIN.

SIR,—"The method of stamping out tuberculosis is to immunize children of tuberculous parents and to produce active immunity in early cases of tuberculous infection" (Dr. Nathan Raw, May 25th, p. 951). Nothing could be more admirably succinct than this statement, which Dr. Manning justly comments upon as opening up "a subject of enthralling interest" (June 22nd, p. 1142). Where conviction fails is, not in the presentation of the case, but in the details of procedure by which it is proposed to attain the object.

Will Dr. Nathan Raw's two injections of attenuated tubercle bacilli (June 29th, p. 1180), or even his six such injections in doses of from 0.001 mg. to 0.006 mg. at weekly intervals, repeated in three months (April 23rd, 1921, p. 596), confer sufficient immunity to be of practical value? Will his twelve such injections from 0.001 mg. to a maximum of 0.025 mg. go very far towards the cure of those already infected? The problem in both cases is, I fear, much more difficult than Dr. Nathan Raw would have us believe, and the evidence which he has hitherto produced from animal experiments and otherwise does not appear to me to be at all convincing. Dr. Nathan Raw himself does not appear to expect very much from specific curative procedures, judging from his quotation from Metchnikoff: "The results," he quotes, "amount practically to nothing," and, he goes on to say, "we have reluctantly to admit that we are in much the same position to-day" (June 29th, p. 1180). Again, will Dr. Manning's judicious pushing of P.T.O. up to P.T. (June 22nd, p. 1142) "stem and finally oust the disease" in those who are already infected? Although we are here on somewhat firmer ground, I am not aware of any evidence which gives the use of P.T.O. or P.T. as described by Dr. Manning a title to preference over B.E. or T.R. as used in accordance with the directions of Koch in force at the time of his death.

This is the whole case in a nutshell. In the material presented in these communications sufficient proof is wanting to carry conviction. As soon as that is forthcoming, and not before, will the case for initial immunization, both protective and remedial, be accepted and the stage of simplification of procedure entered upon. It is necessary to proceed with the greatest caution in these fundamental conceptions, and to prove each part of the argument beyond the possibility of doubt or error.

Like Dr. Manning, I think that sufficient evidence has not been produced by Dr. Nathan Raw to prove that his tuberculin from attenuated cultures possesses any advantage over Koch's B.E. or T.R. properly diluted and skilfully used, and the evidence in support of Dr. Nathan Raw's immunizing procedure is, to my mind, quite insufficient upon which to found a clinical scheme. I think I may say, judging from experience of the administration of B.E. in doses of many milligrams, repeated over long periods, that Dr. Nathan Raw's specific methods will not do much to arrest the disease when present, and I fear that his two minute doses of killed attenuated cultures likewise will not go far in the direction of prophylactic immunization.

On the other hand, there is sufficient evidence in the literature of the subject to corroborate Koch's claims as to the reliability and harmlessness of his subcutaneous tuberculin test as a proof of the presence or absence of tuberculous infection, and there is also evidence to support his claim that B.E. or T.R., administered in accordance with his instructions, will cure incipient infection with certainty. Success with tuberculin seems to depend inversely upon the amount and severity of infection, as might have been anticipated. We have therefore, as Dr. Manning clearly foreshadows, already in our hands a practicable scheme for the complete elimination of tuberculosis. Test all children who conform to Koch's criteria of suitability for the test, by Koch's subcutaneous tuberculin test, treat the reactors *by every available method*, including Koch's specific treatment by B.E. or T.R., until they become permanently negative, and pass them into a tuberculosis-free group, and tuberculosis will have become a thing of the past within one generation. Three years ago I described in detail in your pages (October 16th, 1926, p. 662) three cases of changed reaction to tuberculin from positive to negative, illustrating this procedure, and I have just successfully completed a still more illustrative case in a girl of 14 with a parallel negative control case. The difficulty at present lies in the lack of general acceptance of such views—"it is a controversial subject"—and in the tedious nature of the process.

The argument quoted at the beginning of this letter is a definite landmark in the anti-tuberculosis campaign and a prophecy of victory. It is an urgent necessity in the interests of all who are infected, or destined to become infected, with tuberculosis, that the fundamental conceptions of Koch should be examined and re-examined and proved and proved again, till the facts are placed altogether beyond the range of controversy. The present position is very much as Koch left it and as Koch envisaged it, and the time is opportune for a reaffirmation and, what is more important, a re-examination of his claims, now that attention has been caught and focused upon the salient points. The lamentably slow progress of investigation of his important claims is a reproach to medicine. Surely the crucifixion of the human race by this particular disease has lasted long enough.—I am, etc.,

London, S.W.18, July 5th. ROBERT CARSWELL.

BREAST-FEEDING BY TUBERCULOUS MOTHERS.

SIR,—I have been re-reading Dr. Bernard Schlesinger's admirable article on "Tuberculosis in childhood" (April 27th, p. 759) and there is one small sentence to which I would like to call attention. He says, "tuberculous mothers should not breast-feed their babies." In a fairly extensive reading of the literature of tuberculosis I have come across but one authority—Dr. Joseph Walsh of Philadelphia—to disagree with the above teaching, and as I think his views are at least worthy of discussion, I give them, as far as I can, from hasty notes taken at the time. He stated some years ago in an American medical journal that "with a tuberculous mother, it is a question of the bottle or the mother's milk. Most physicians decide for the bottle, with the idea of conserving the mother's energy and lessening the risk of infecting the baby. Personally, I think if the circumstances of the family are such that the mother must care for the baby, it is more satisfactory for her to nurse it, for if the baby is brought up on the bottle it will almost surely be ill; if on the breast it will almost surely be well. It seems to me to be less waste of energy for a mother to nurse a well baby from her own breast than an ill baby artificially. In regards to infection, there appears to be little or no danger of transferring tubercle bacilli by the milk, and in relation to handling, I think the mother is just as likely to infect the nipples of the bottle as of her breast."

In my own work, if the mother is my main consideration, I am guided by the particular circumstances of the case, but if I am more concerned with the baby, I have mostly followed Walsh's teaching, and I think I have been justified by the results.—I am, etc.,

P. J. BURKE, L.R.C.P., D.P.H.,
Sligo, June 30th. County Tuberculosis Officer.

THROMBO-ANGIITIS OBLITERANS.

SIR,—In your account of the discussion on diseases of the Jewish race, on June 13th, at the London Jewish Hospital Medical Society (*Journal*, July 13th, p. 51), I am reported as saying that in my opinion thrombo-angiitis obliterans was a disease with an economic rather than a racial basis. May I be allowed to correct this, and at the same time to make some remarks on the subject?

I certainly did say that some of the Jewish patients had had hardships to pass through in their early life—imperfect nourishment, perhaps, qualitatively or quantitatively, in some cases—and that the affected individuals were nearly all of the poorer classes, as were also the subjects of the disease in China and Japan. What, however, I chiefly urged was that there was a constitutional basis of some kind which favoured the development of the disease, and which seemed not to be specially connected with the endocrine glands. Though there was hardly any evidence of the familial incidence of thrombo-angiitis obliterans,

there were sometimes grave constitutional defects in other members of the patient's family (for example, grave diabetes mellitus in two children of one of my patients and Raynaud's *syndrome* in the baby grandchild of the same patient).

I would here suggest that the constitutional congenital-developmental factor in question may be of the nature of a primary defect in the walls of the blood vessels of the limbs, sometimes manifested by definite hypoplasia. Indeed, in cases of intermittent claudication in one or both legs in early middle life (whether in Hebrews or others), when thrombo-angiitis obliterans is suspected to be the cause, it is sometimes difficult to be sure that the symptoms are not entirely the result of arterial hypoplasia without any actual arteritis.

The lower limbs may be chiefly affected because, as a rule, they are subjected to more muscular strain than the upper ones: if nicotine is an exciting cause, it should be remembered that more nicotine must pass through the blood vessels of the parts that are most functionally exercised. The immunity of females may be partly explained by the abuse of nicotine having been as yet very rare or non-existent amongst Hebrew women of the poorer classes, and possibly by there having been less muscular exercise involving the lower limbs. But there may also be some other unknown factor to account for the sex-immunity, which appears to be almost as remarkable as in haemophilia.

All this *does not prove that thrombo-angiitis obliterans* may not be the result of a non-suppurative "low-grade" infection, for a low-grade infection may be dependent on a constitutional defect (for instance, some cases of chronic osteo-arthritis?). Indeed, in some cases the "matting" of the tissue around the affected blood vessels is suggestive of a low-grade infective process, and (by involvement of the peri-arterial nerve plexus) partly explains the frequency of associated erythromelalgia-like symptoms. An almost equally strong argument in favour of a microbic factor in the etiology of thrombo-angiitis obliterans is the occasional (though very exceptional) gradual dying-out of the disease after repeated exacerbations. This has occurred in the case of a man first seen by me in 1906 and still under my observation.[1]—I am, etc.,

London, W., July 13th. F. PARKES WEBER.

GAS-OXYGEN ANAESTHESIA.

SIR,—I cannot leave unchallenged certain statements made by Dr. E. J. Chambers on July 13th (p. 74).

It is not so rare "to come across any student who has been taught gas-oxygen anaesthesia." Most, if not all, students at St. Bartholomew's are instructed by means of Boyle's apparatus, which is to be found now at most *teaching hospitals*. At the Middlesex Hospital anaesthetic clerks are taught, not by the "semi-open ether or C.E." method, but by Hewitt's gas-ether inhaler followed by open ether.

The next misapprehension is that "the control of the gases is so erratic." By means of Adam's reducing valve the gases flow at a remarkably steady and easily controllable rate, even at the end of long operations. An "emergency" oxygen valve is not essential, it only being necessary to shut off the nitrous oxide or ethylene, and to increase the oxygen flow, remembering always to have a safety valve attached to the apparatus. Artificial inflation of the lungs under positive pressure is considered inadvisable by many anaesthetists, for fear of rupturing the pulmonary alveoli or of causing cardiac embarrassment.

Finally, in answer to Dr. Chambers's third generalization, it should be apparent that no man who gives any form of anaesthesia can afford to go to sleep on the job.—I am, etc.,

Chelmsford, July 13th E. V. SLAUGHTER.

RELATIONSHIP OF ALASTRIM (VARIOLA MINOR) TO SMALL-POX (VARIOLA MAJOR).

SIR,—I thank Dr. Killick Millard for his courteous letter published in the *Journal* of June 15th (p. 1099). My delay in replying is due to the fact that I had mislaid the copy of *Nature* dealing with the inheritability of acquired characters.

I was, however, fortunate to-day in finding in *Nature* of June 29th (p. 930) a letter by Professor MacBride, in which, under the heading of "The Origin of Adaptations," he states as follows: "Since that time Metalnikoff, of the Pasteur Institute in Paris, has proved the inheritability of acquired immunity in the caterpillars of the beeswax moth; and this experiment is doubly interesting, because the effect on the offspring of the acquired character only became obvious after five generations, incidentally confirming Lamarck's view, who rightly emphasized the importance of the time factor in use-inheritance."

I do not find myself in agreement with Dr. Killick Millard in his belief that the immunity of native races to malaria is due to natural selection, and I think the time is now ripe for a general review of the whole question of the so-called natural immunity.—I am, etc.,

Little Island, County Cork, July 11th. E. G. FENTON.

SIR,—Correspondence at a distance of 6,000 miles, with consequent interval of about eight weeks between letters, is unsatisfactory; but I cannot allow the arrogant and discourteous letter (May 18th, p. 927) from Dr. Millard to pass. I am quite aware that I am a mere general practitioner, while he would appear to be among those whom he styles "experts"; but with thirty years of practice behind me I am certainly not going to swallow humbly such a farrago of assumption as Dr. Millard would have me accept. The date of the case in question was 1920. Deeming the actual year to be a detail of no moment, I referred to it as occurring some years ago. These words Dr. Millard puts in inverted commas. Why he should do so I fail to understand, unless his idea was to query the case having occurred at all. Then he styles my term "mild small-pox" a most unscientific name. I should like to know why. Is it because it is in plain English and not camouflaged in Latin or Greek? A scientific term should convey to the reader exactly what it means. When one writes "mild small-pox" not only 99½ per cent. of medical men, but 100 per cent. of laymen know what is meant. If one writes "variola minor" not even the expert knows, according to Dr. Millard. From the days of Hippocrates and earlier there has been held up to ridicule in plays and books the pompous creature who covers his ignorance in a flood of long and unmeaning words.

Dr. Millard complains of my settling the *crucial point in* such a "facile manner," while he himself assumes the whole question to be as he sees it. He accuses me of failing to appreciate the difference between clinical type and strain or variety. When he or any other expert can demonstrate, *without room for doubt or cavil*, that there exist *different* strains of small-pox, I shall be delighted to accept the position; but mere assertion is not proof. Nor is the record of strings of cases proof. In other diseases, as measles and scarlatina, one sees epidemics of very mild cases and *epidemics of very severe cases*. Possibly these are also different strains, but so far that has not been demonstrated. He says that there is no practical difference between his strains, that a mild (here quite a scientific term) case of "variola major" may be indistinguishable from a severe case of "variola minor." (The only difference, according to evidence to date, exists in paper and expert assumption.) He says that the only way to distinguish them is to allow them to propagate other cases and see whether they produce similar cases. Well, supposing my culminating case, the severest of the series, had propagated similar severe confluent cases, would that have elevated it to the rank of major? Unfortunately an unscientific Government sent me to that farm to put an end to the "small-pox"—they did not even mention "variola"—and I promptly and without a thought for "science" did as they asked.

Dr. Millard mentions a similar case to mine of severe confluent small-pox occurring in an outbreak of "undoubted variola minor," and says that even if it had been fatal there would still have been no question of its being a case of "variola major." He seems to have settled the matter to his own satisfaction—to use his own expression, in a facile manner, that of dogmatic assertion—but of proof under the microscope or on a plate he adduces not a scintilla

[1] F. Parkes Weber *Proc. Roy. Soc. Med.*, Clinical Section, 1925, xviii, p. 38.

Such mere assumption of things, however dogmatically and expertly asserted, does not amount to scientific, not even to ordinary, proof.—I am, etc.,

JOHN A. GRAHAM, M.B., C.M.

Bethulie, South Africa, June 24th.

APPENDICITIS CAUSED BY BILHARZIA.

SIR,—Under this heading in your issue of May 4th (p. 810) Dr. H. Elwin Harris, jun., records an interesting case, but gives as his reason for bringing it forward that in the records of bilharzial lesions he has been unable to find any instance of appendicitis caused by this parasite.

He has overlooked a communication entitled "Bilharzial appendicitis," which I published in the *Transactions* of the Royal Society of Tropical Medicine and Hygiene, vol. xviii, 1924, p. 210, in which I recorded twenty cases occurring during the years 1919–23. These came under my notice in carrying out routine examinations of specimens sent to the South African Institute for Medical Research, for histological report. These were all specimens removed at operation, and in all but one the ova and structural changes due to them appeared to be the sole lesion present, and were presumably, therefore, the cause of the symptoms which had led to appendicectomy being performed. In the one exception there was a haemorrhagic, almost gangrenous, inflammation, obviously an acute condition complicating the chronic bilharzial lesion. Several other cases from literature were also referred to in this communication.

I might add that bilharzial appendicitis is now fairly commonly recognized in South Africa, and during the five years 1924–28 some 31 further appendices removed at operation have been reported on at the Institute as bilharzial—10 of these by Dr. A. Sutherland Strachan and 21 by Dr. F. W. Simson. Reference is being made to these in the annual report of the Institute for 1928, now in the press.—I am, etc.,

Johannesburg, June 10th. J. H. HARVEY PIRIE.

SPA TREATMENT.

SIR,—In the *Journal* of June 22nd (p. 1141) I suggested that it would be helpful if members of the Spa Practitioners Group would think over the wording of a definition of a spa and spa treatment before the forthcoming Annual Meeting in Manchester, and at the same time I put forward a definition, which I still think includes the essential points. In the *Journal* of June 29th (p. 1181) Dr. Collis Hallowes says he thinks the definition cumbersome and unlikely to meet with general approval, but does not offer any suggestions for its improvement. He asks, "What is the necessity at the present time for a definition of forms of treatment which are difficult to define when the word 'spa' is attached to them?" I think the mere fact of the formation of the Spa Practitioners Group is evidence of this necessity.

It is difficult to define a spa practitioner without defining spa treatment, or to define spa treatment without defining spa waters. Now, while medical men may hold widely different views as to the comparative therapeutic value of spa waters and "tap water," the corporations, or similar bodies, owning the spa waters, are quite unanimous about their money value, and jealously guard their proprietary rights. Any medical man may give a patient a prescription to drink or bathe in these waters, and in fact there is nothing to prevent any person willing to pay for them from drinking and bathing without a prescription. The spa authorities, from the mere business point of view, would probably prefer to employ whole-time medical men to administer their waters and treatments, but on the whole work amicably with the spa doctors, realizing that their individual reputations, and skill in the use of their waters and baths, are assets in attracting patients and custom to the spas.

What, then, was the need for the formation of the Spa Practitioners Group? Briefly, the proposal to make spa treatment an additional benefit under the National Insurance Act, not necessarily for the treatment of the rheumatic group of diseases only. The three bodies most nearly concerned were the large approved societies, the spa authorities represented by the British Spa Federation, and the spa doctors. The spa doctors alone had no representative organization. They were situated mainly in some dozen spas, and were collectively but a small number. They agreed that the British Medical Association was the proper body to represent them in negotiations with the Ministry of Health, the Approved Societies, and the Spa Federation. As a whole, the spa doctors welcomed the proposed spa treatment of insured patients. They realized that a well-organized scheme would be a great advantage to the spas, as well as to the patients, but that inadequate arrangements would be a great waste of public money and most harmful to the reputation of the spas. Individually they realized that, whether they gave their personal services to the scheme or not, it would affect their personal interests, as administrative changes in a spa affect the work of all the local spa practitioners.

The first step was to agree upon terms of membership of the Spa Practitioners Group, which are approximately as follows: Members shall be regularly engaged in prescribing the baths and waters of the spa in which they reside, *or*, shall be on the staff of an institution or clinic where the use of the local spa waters forms part of the routine treatment. The spa doctors who first discussed this matter wished to make the terms of membership such that they would include every qualified medical man actively engaged in spa practice who was willing to join; but for the group to be of any real use to its members it was essential that there should be a clear differentiation between those medical men practising as spa doctors and those using other forms of physiotherapy—hydrotherapy, electrotherapy, etc.—independently of spa authorities. This was the only means by which they could safeguard themselves from being outvoted on matters specially pertaining to spa practice.

I trust that the foregoing remarks will make it clear that my attempts to define spa treatment and to differentiate it from other forms of physiotherapy have not been deliberately "contentious," or in any way calculated to belittle other forms of treatment.

In the *Journal* of July 6th (p. 31) Dr. Fortescue Fox, referring to the comments of Dr. Collis Hallowes, writes, "A name may have unlooked-for effects, especially when it becomes a more or less exclusive label for a society or group of medical men." I think I have already made it clear that the terms of membership of the Spa Practitioners Group were as *inclusive* as possible. Dr. Fortescue Fox continues, "For practical purposes it is better, if possible, to find a name that will unite in one group all who study different parts of the same subject." I agree with Dr. Fortescue Fox, who possibly has in mind some such body as the "Committee of the National Campaign against Rheumatic Diseases," but I hold to the opinion that for a *particular* practical purpose, such as the formation within the British Medical Association of craft groups, a definition which is not exclusive (in the right spirit) is useless. With the concluding paragraph of Dr. Fortescue Fox's letter I am also in entire agreement; but this is hardly relevant to the subject under discussion—namely, the definition of spa treatment.—I am, etc.,

Harrogate, July 8th. GEOFFREY HOLMES.

THE RELATION BETWEEN MUNICIPAL AND VOLUNTARY HOSPITALS.

SIR,—Mr. C. A. Morton (July 6th, p. 33) has performed a public service by his clear and detailed exposition of the policy of degrading the Poor Law or municipal hospitals. Thus bluntly expressed, the defects of the policy are fairly obvious, and it is not likely to gain universal support. If it really represents the views of those who have been clamouring for the setting up of medical councils with the majority of representatives of the voluntary hospitals, the danger of any such scheme should be made clear.

It is difficult to understand why efforts to reach or maintain a reasonable standard of work in Poor Law hospitals should arouse such indignation in the profession. The attack on the service was formerly grounded, with considerable justification, on general inefficiency; but now the increasing efficiency seems to be regarded as a danger by those who speak for the voluntary system.

I believe Walton is the "largest Poor Law hospital" in England, and the differences between it and the voluntary hospitals are not as stated by Mr. Morton. The consultants have wards allocated to them, and, subject to the general responsibility of the medical officer, carry as much responsibility for their patients as in voluntary hospitals. They are not called in merely to give opinions on selected cases. They are assisted by residents who have all had experience as residents in voluntary hospitals. Practically every case admitted is examined by one of the consultants or by the medical officer.

Some years ago I had considerable experience in running this hospital somewhat on the lines suggested in Mr. Morton's letter, and I have no wish to return to any such system. I am satisfied that a healthy and efficient medical and nursing staff cannot be held together in a hospital which cares exclusively for dull and uninteresting cases. The stimulating effect of a portion of acute cases is essential. Although chronic cases are frequently just as important as acute, they do not make the same appeal to nurses and junior members of the medical staff. In my view the ideal hospital should be large enough to treat cases of almost all kinds of disease, and should have an appropriate specialist staff. Classification should be in the institution and not by separate institutions. Classification in this way in large Poor Law areas has often been carried out to an extent that has been detrimental to the interests of the patients. After all, hospitals deal with human begins, and classification by disease does not exactly correspond with individuals. The plight of a patient in a special hospital when he happens to have some disease in addition to that with which the hospital is especially concerned is not always happy.

The problem the medical profession is concerned with is not the salvation of the voluntary hospitals, but the health of the community as a whole, and this will not be solved by placing the municipal hospitals in an inferior position with an admittedly lower standard of care, but by reasonable co-operation among all the agencies concerned with the public health.—I am, etc.,

HENRY H. MACWILLIAM,
Liverpool, July 8th. Medical Officer, Walton Infirmary.

SIR,—There will be general agreement with the opinion expressed by Mr. Charles Morton in his letter, published in your issue of July 6th (p. 33), that in order to bring the transferred Poor Law hospitals up to the standard of the voluntary hospitals, the city, borough, or county councils would need to appoint visiting specialists to the staffs of their newly acquired hospitals. I trust, however, that few will share his pessimism in assuming such a course to be impossible of achievement, except at the price of general financial ruin due to the cost of whole-time specialists, or, alternatively, if part-time specialists are appointed, of a lethal struggle for existence amongst them.

May I remind Mr. Morton and your readers that, in Bradford, the transference of a large Poor Law hospital to the municipal authority occurred nearly ten years ago: that part-time specialists were appointed for surgery, orthopaedics, gynaecology, midwifery, medicine, radiology, eyes, ears and throats, and anaesthetics; that the scheme has worked excellently, and the hospital runs smoothly as a general hospital, to the great benefit of the sick and of the general practitioners in the city; and that the specialists flourish?

Mr. Morton says: "It is a mistake to suppose that because the Poor Law hospitals are to be transferred to city and county councils the scope of their work should necessarily be altered." In my opinion it is a still greater mistake to assume that alteration of scope will be optional. Bradford is a fair type of the non-university provincial city, and judging by what has happened here the change over to municipal control will necessarily, and very materially, affect the scope of the erstwhile Poor Law hospital. For example, since 1920, when St. Luke's Hospital, Bradford, was taken over by the Health Committee, the number of admissions has steadily increased from 3,804 to 7,176; the average daily number of in-patients from 500 to 710; live births from 158 to 654, and major operations from 428 to 2,219. In spite of this increased work the local voluntary hospital still has a waiting list, though a small one. Obviously such increase in the number of those requiring and seeking hospital treatment was not created by municipalization. The need for treatment existed previously, but did not begin to be satisfied until the Poor Law stigma was removed. And so, I feel sure, it will be in other centres of municipal life.

Mr. Morton's idea of using the transferred hospitals as dumps, to be picked over by the voluntary hospitals for surgical treasure, and where they may deposit their dejecta, is too fantastic to find much favour with progressive municipal bodies.—I am, etc.,

B. HOLROYD SLATER.

St. Luke's Hospital, Bradford, July 12th.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

THE House of Commons this week discussed a money resolution for continuing at the present level the subsidy on houses built for letting. Government speakers promised a bolder Housing Bill after Parliament reassembles in the autumn. Debate also arose on financial proposals for stimulating industry and in settlement of the claims of former Irish civil servants. A Local Government (Scotland) Act Amendment Bill was down for Thursday, but there was doubt about the Government's intention to carry this bill, whose object was to suspend the provisions of the Local Government (Scotland) Act, 1929, so far as these relate to education authorities.

The Government was questioned during the week regarding lunacy law reform. No definite promise was given, but this subject is understood to be prominent in the list of bills which the Ministry of Health will propose to the Cabinet for legislation next winter. Its adoption will probably depend on the time allocated for debates on housing and slum clearance.

The publication and authorization of the Radium Charter was expected to be made during the week, and the hope was that action could be taken upon it before the summer recess.

The Parliamentary Medical Committee met at the House of Commons on July 16th, Dr. Salter in the chair, and noted, as subjects for discussion at future meetings, vaccination, vivisection, sterilization of the mentally defective, the Social Hygiene Council, the Lunacy Acts, radium, the Factories Bill, milk legislation, education in food values, the relation of the State to blind and deaf persons, and maternity benefit. The meeting decided to recommend that members of the Committee who proposed to introduce private members' bills on health subjects should first lay these before the Committee. The report of the Medical Research Council on the value of light treatment was considered by the Committee, which decided to take no action on it at present.

The Committee decided to meet fortnightly, and it discussed at length whether it should consist only of medical members. A decision was taken that only members of Parliament with a medical qualification should be invited to attend the first meeting of the Committee after the summer recess, and these will then decide whether, as in past years, other members representing university constituencies, or other members with special interests, shall be invited to join the Committee. It is hoped that at its second meeting after the recess the Committee will discuss vaccination against small-pox.

Housing: Proposed Rescission of the 1928 Order.

In the House of Commons, on July 15th, Mr. GREENWOOD (Minister of Health) moved a resolution rescinding the Housing Act (Revisions of Contributions) Order, 1928, relating to houses for which contributions were provided under the Housing Act of 1924. He explained that he proposed, until September next year, when the next revision was due, to maintain the subsidy under the 1924 Act at its present level. He proposed that the subsidy under the Chamberlain Act should be allowed to fall, as the late Government desired that it should fall. The resolution, and the bill which would follow, were designed to continue the building of houses to let while a larger and more comprehensive scheme was being prepared and passed through Parliament. He hoped to secure within a relatively short time the adoption of a more determined housing and slum clearance policy.

Dr. FREMANTLE said that the Government's present proposals could not be defended by argument from either side of the House. There was a limit to the amount of money that could be spent on housing, and Parliament had also to consider whether they were spending that money rightly. Members should think for a moment of the gigantic amount which was being spent on subsidies and housing. He would not object if they were getting

their money's worth, but he was bound to say, as a medical officer of health, that many other health schemes were turned down because they would cost, perhaps, £1,000,000, whereas the Government now proposed to increase the housing subsidy to the extent of £6,000,000 a year. Medical officers of health urged that the Treasury should reduce the sums which were spent by the late Government upon housing in order to provide more money for other important health services which called out for aid. All medical officers recognized the gravity of the housing question. They recognized that by improving the housing of the working classes they could do more than in any other way, with the exception of education, to prevent the ill health of future generations. It was important to get proper housing; but they must consider the cost. If the House gave this £6,000,000 to the local authorities under the Local Government Act to use in reduction of rent or in other ways for relieving householders who really needed aid, they would get ten times the value they were going to get from the housing subsidy.

Dr. MORGAN said that the bulk of Dr. Fremantle's speech meant that the housing policy which was being proposed that day—a policy which was put into operation for a considerable time by the Government which he supported—was an extravagant one. Dr. Fremantle said that the expenditure on housing now proposed was wrong. The late Minister of Health had asked the question, "Is the subsidy always to go on?" The Labour party's answer was, "Yes, as long as overcrowding goes on." The report of the special committee appointed by the National Housing and Town-planning Council stated that the Glasgow slums had been described in the annual report of the Scottish Board of Health for 1926. The commissioner appointed to hold the local inquiry wrote, among other things, that it was impossible to draw any picture which could adequately describe the conditions under which they found human beings living in practically the whole of the houses which they inspected. There were, it was true, differences in degree, but all were hopelessly unfit for habitation. Damp was present everywhere, the walls and ceilings in a large number of houses being literally soaking. Everywhere they noticed an almost total lack of sanitation. Conveniences being few, and for the most part out of repair, and in some cases leaking down the stairs, and even into the houses. A very revolting feature of the slums was that the majority of the houses were infested with bugs. The Labour party knew of these conditions, and that was why they wanted money spent on housing. In his final remarks Dr. Fremantle made a very excellent suggestion, which, however, was not his own, although he said it was his alternative policy. It was well known, and had been published in many books on slum clearance. He suggested rent subsidies, or family allowances, but that was the only contribution that he made to the discussion. Here was a professional man, who had been a medical officer of health, and who ought to know about housing conditions, coming there and making a speech such as he had made, at a time when people were crying out for houses, when they were living in conditions of overcrowding, when family life was practically in abeyance, when the Housing Acts were inoperative, and when children's whole morale was being disturbed by the conditions under which they existed. The policy of the Government was not extravagant. They wanted the Minister of Health to increase the subsidy still further, and to see more houses built.

The resolution was agreed to.

Dangerous Drugs.

Thefts of Drugs from Doctors' Cars.—On July 11th Mr. GEORGE OLIVER asked the Home Secretary a question concerning thefts of drugs from motor cars belonging to doctors. He desired to know whether, in view of the increase of this class of theft and the consequent danger, the Home Secretary proposed to take steps to prevent medical practitioners leaving dangerous drugs unattended. Mr. CLYNES replied that there had been a number of such thefts, but the police were satisfied they were ordinary cases of petty larceny and had no connexion with any form of traffic in dangerous drugs. Mr. Clynes said he had difficulty in seeing what action he could usefully take. It was desirable that medical practitioners and others who had dangerous drugs in their possession should be particularly careful to avoid risk of their being lost or stolen. He hoped the publicity given to the matter would lead to greater care being taken. Mr. OLIVER asked if Mr. Clynes was aware that twenty-nine cases of this description had occurred during the last twelve months, and that on July 10th, at Bolton, when such drugs were stolen, the press had stated that sufficient to kill twenty people had reached the hands of children. Mr. CLYNES said that he was not aware of any such occurrence. Mr. OLIVER asked whether Mr. Clynes would suggest to the medical profession that if cases of this kind increased and continued at the present rate some method would be adopted for enforcing penalties. He further asked whether Mr. Clynes knew that criminal negligence on the part of miners or railwaymen was punished with imprisonment. Mr. CLYNES said that if the answer he had given had no effect further steps might be taken.

Manufacture of Morphine at Ghazipur.—Mr. BENN (Secretary of State for India), in an answer to Major Pole, on July 11th, gave figures showing the amount of morphine manufactured at Ghazipur in the last five years. The amount manufactured from October, 1927, to September, 1928, was 165 lb., of which 119lb. was issued in India. The balance in hand on September 30th last was 144 lb. No morphine had been exported from Ghazipur to the United Kingdom since 1923-24, in which year 430 lb. was so exported. There were elaborate and strict regulations under the Indian Opium Act No. 1 to regulate the sale of the drug by licensed dealers for genuine medical and scientific requirements. These regulations provided that sales must be vouched by qualified medical practitioners.

National Health Insurance.

Mr. T. LEWIS asked, on July 11th, whether Mr. Greenwood would bring in a bill to restore the State grant on national health insurance benefits and administration expenditure to the two-ninths, as provided in the National Health Insurance Act, 1924. Mr. GREENWOOD replied that he would make no statement pending the results of the general survey which the Government was making of the national health insurance and pensions schemes.

In the reply on the same date to Mr. Daggar, Mr. Greenwood said he knew that a few of the smaller approved societies and branches, covering less than 1 per cent. of the total number of insured persons entitled to dental benefit, could not for the time being consider claims from their members for that benefit, by reason of the depletion of the annual sums available for the purpose. Mr. DAGGAR asked whether Mr. Greenwood proposed to introduce legislation which would make it binding on such societies to honour the obligation made with their members. Mr. GREENWOOD replied that there was no such obligation. Dental benefit was merely an additional benefit which might be provided by a society within the limits of the amount available in each year for benefit.

On July 16th Mr. GREENWOOD, replying to a question, said no regulations had yet been made under the National Health Insurance Act governing the provision of ophthalmic and other forms of treatment of insured persons in clinics, and, consequently, no clinics had been set up under the Act. Dental and ophthalmic clinics had been set up by private enterprise, and some insured persons had elected to obtain through them treatment, towards the cost of which their approved societies had contributed by way of additional benefit. No official recognition had yet been given to any of such clinics. Their continued use as agencies providing treatment to insured persons entitled to additional benefits would be conditional on their complying with requirements which might in due course be laid down by regulations under the Act.

Radium.

In a reply to Sir Charles Cayzer, on July 11th, Mr. GREENWOOD said he could not adopt the suggestion that local hospital authorities sending contributions to the National Radium Fund should be allowed to earmark them so that they should be doubled by the State grant. Mr. Greenwood said the contributions from public funds towards the purchase of radium were subject to a maximum limit of £100,000, and an equal sum had already been raised by private subscription. The claim of provincial hospitals to receive some assistance from the central fund was now being dealt with, and a public statement would shortly be made on the manner in which the radium was to be allocated.

Small-pox.—During the twelve months ended May 31st there were 39 deaths in England and Wales in which small-pox appeared in the coroner's or medical certificate as the cause or one of the causes of death. In the same twelve months 29 deaths were returned as associated with vaccination.

Tuberculosis in the Navy.—Mr. AMMON, in an answer to Sir Bertram Falle, on July 11th, said that in the calendar year 1928 there were 1,081 seamen and marines invalided from the Royal Navy, and 132 cases were found to be attributable to service. The number invalided with tuberculosis was 140, of which 42 were found to be attributable to service.

Effect of the Local Government Act on Maternity and Child Welfare.—Mr. SIMON asked Mr. Greenwood, on July 11th, whether he was aware that persons interested in maternity and child welfare work feared the provisions of the Local Government Act, 1929, would hamper the development of this work. He further asked if the Minister of Health proposed to restore the percentage grant for these services. Mr. GREENWOOD said he was aware of this apprehension in certain quarters, but could not at present undertake to introduce legislation for the continuance of percentage grants for maternity and child welfare work. The effect of the development of the public health services of the new system of grants would be carefully watched. He had no reason to suppose that any restriction on the development of maternity and child welfare services was contemplated by local authorities; he saw no ground for issuing a special circular on the subject.

Milk and Maternity Centres.—Sir GEORGE PENNY, on July 11th, asked whether the Minister of Health proposed to make a greater allowance for milk and maternity centres than was granted by the late Government. Mr. GREENWOOD replied that the maximum expenditure during the current year by each local authority for milk to mothers and babies which would be recognized by the Ministry of Health for grant had been fixed last March. He would consider on its merits any case in which he was asked to approve additional expenditure for this purpose.

Experiments on Animals.—Mr. SHORT, replying to Mr. Bromley on July 15th, said that applicants for licences or certificates under the Cruelty to Animals Act, 1876, for the performance of experiments on animals were not required to state

the number of animals they proposed to use for experiments. The Home Office had no record of the number of animals used as distinct from the number of experiments performed under the Act in 1927, nor of the number of dogs and cats used for experiments in 1927 under Certificate B, *plus* E E. Section 5 of the Act, which governed Certificate E E, did not distinguish between cats and dogs. On July 15th Mr. MACDONALD told Sir R. Gower that he could not undertake to give special facilities for a bill to make the vivisection of dogs illegal. Private members interested would no doubt use, as before, the facilities they had for testing the opinion of the House on the subject.

Chemical Warfare: Experiments with Animals.—Mr. SHINWELL (Financial Secretary, War Office), answering Mr. Oliver on July 10th, said he was advised that the experiments with living animals at the Chemical Warfare Experimental Station were essential to obtain data for adequate defence against poison gas and for evolving efficient methods of treating human beings who might become gas casualties.

Schools for Mentally Deficient Children.—Sir C. TREVELYAN, replying on July 15th to Dr. Morgan, said that the number of mentally deficient children attending certified special schools in England and Wales last year was 15,339. A joint committee of the Board of Education and the Board of Control had recently presented a report on the future of such institutions, which was receiving his careful consideration.

Lunacy Law.—On July 15th Miss LAWRENCE told Mr. Hore-Belisha that the question of putting into operation the recommendations of the Royal Commission on Lunacy Law was under consideration, but the Minister of Health was not at present in a position to indicate when it would be practicable to introduce legislation on the subject.

Highlands and Islands (Medical Services) Fund.—Mr. ADAMSON, replying on July 16th to Sir Robert Hamilton, said that the war-time accumulations in the Highlands and Islands (Medical Services) Fund would be exhausted within the next few months, and the present statutory income of the Fund would require to be supplemented. There had been no curtailment of established services assisted from the Fund, and certain expansions had been sanctioned from year to year, but other desirable developments had been delayed pending reconstitution of the Fund. He hoped to be able to submit proposals to the House on an early date.

Notes in Brief.

The Government is considering the lowering of the pension age for the blind from 50 years to 40 years.

Mr. Greenwood promises to consider representations he has received for the provision of pensions for the deaf and dumb similar to pensions already instituted for the blind.

In the year ended March 31st, 1929, in England and Wales £23,200,000 was contributed by, or in respect of, insured persons under the National Health Insurance Act, and £20,900,000 under the Widows Contributory Pensions Act.

Medico-Legal.

POISONING BY ASPIRIN.

AT the Sussex Assizes on July 9th a woman, aged 25, charged with poisoning her infant by means of aspirin, was found guilty but insane, and the judge directed that she be kept in custody as a criminal lunatic until His Majesty's pleasure be known. It appeared in evidence that the accused had dissolved 300 tablets of aspirin, each of 5 grains, in a pint of water, and, having given two dessertspoonfuls to the infant, had taken the rest herself; the infant died the following day. Dr. E. J. Budd-Budd stated that for a child two dessertspoonfuls of a solution containing 1,500 grains of aspirin to the pint would be a fatal dose. The defence was that the accused was insane at the time she committed the act.

Universities and Colleges.

UNIVERSITY OF OXFORD.

THE Radcliffe Scholarship in Pharmacology has been awarded to J. R. Braybrooks (New College) and G. S. Grist (Pembroke College), who were equal in merit. The Theodore Williams Scholarship in Pathology, of the annual value of £60 and tenable for two years, is awarded to J. R. Braybrooks.

UNIVERSITY OF LONDON.

UNIVERSITY COLLEGE.

THE following awards have been made at University College in the Faculty of Medical Sciences:

Ent[illegible]

An[illegible]

[illegible] Morton; Junior Class (histology and embryology—prize equivalent to silver medal), G. Qvist.

Physiology and Biochemistry: Schafer Prize, L. E. Bayliss; Senior Class (prize equivalent to gold medal), E. A. Devenish; Junior Class (prize equivalent to silver medal), D. A. Andersen; (additional silver medal), Margaret H. Morton.

Organic and Applied Chemistry: General course (prize equivalent to silver medal), Esther Copperman.

Pharmacology: Silver medal, Kitty K. Cohen.

UNIVERSITY OF SHEFFIELD.

THE following candidates have been approved at the examinations indicated:

M.D.—Janet Breakey.

FINAL M.B., CH.B.—T. Ellis,* T. H. Fullar, W. H. Carlisle, Iris M. Moody, I. Slesnick.

* With honours.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

A QUARTERLY Council meeting of the Royal College of Surgeons of England was held on July 14th, when the President, Lord Moynihan, was in the chair.

Council Election.

The President stated that, as a result of the poll for the election of four Fellows into the Council, Sir H. J. Waring, Mr. C. H. Fagge, and Mr. W. Sampson Handley were re-elected and Mr. Graham Simpson of Sheffield was elected a member of the Council.

The President stated that Mr. Simpson becomes substitute member of Council for Sir James Berry until 1931.

Sir H. J. Waring, Mr. Fagge, Mr. Handley, and Mr. Simpson were introduced and took their seats in the Council.

Professors and Lecturers.

The following were elected professors and lecturers for the ensuing year:

Hunterian Professors.—Sir John Rose Bradford, K.C.M.G. (one lecture); Victor Ponney (one lecture on the surgical treatment of carcinoma of the cervix); John Herbert Fisher (one lecture on some points in connexion with perforating injuries of the eyeball); George Ernest Gask, C.M.G. (one lecture on a contribution to the treatment of epithelioma of the tongue by radium); William Sampson Handley (one lecture on the papilloma and its metastasis); Sir Arthur Keith (six further lectures on human anatomy—structures old and new); Geoffrey Langdon Keynes (one lecture on the treatment of carcinoma of the breast).

Arris and Gale Lecturers.—William Mc Adam Eccles (one lecture on anatomy, orthodox and heterodox, in relation to surgery); Ethelbert Best Flint (one lecture on the association between gall-bladder lesions and hepatitis in the human subject); Ronald H. V. Botham Robinson (one lecture on the surgical treatment of cholecystitis).

Erasmus Wilson Lecturers.—Clement Edward Shattock (three demonstrations on pathology); Cecil Pembrey Grey Wakeley (three demonstrations on pathology).

Arnott Demonstrator.—Sir Arthur Keith (six demonstrations on the contents of the museum).

The President reported that, as Dr. M. E. Delafield had been unable to undertake the duty of examining at Part I of the examination for the D.P.H., he had nominated Dr. John Eyre in his stead.

Diplomas.

The diploma of Fellowship was granted to R. L. Almond.

The diplomas of Membership were granted to V. L. Misso and R. M. Sargent, who had passed the necessary examinations and complied with the regulations.

The following diplomas were conferred jointly with the Royal College of Physicians of London:

LARYNGOLOGY AND OTOLOGY.—B. R. Chaudhri, P. Hicker, G. J. Hutchison, R. Kacker, W. A. Kerr, K. S. May, R. F. Paterson, C. L. Rosenfield, G. Vaishnavi.

1 [illegible] Barber, Flora H. MacD. Calder, Viola C. S. W. Davies, J. H. Ewen, E. A. Haslam-Rao, Kathleen M. Told.

A report was read from the Board of Examiners in Anatomy and Physiology for the Fellowship stating that at the examination concluded on June 13th 163 candidates were examined, of whom 47 were approved and 116 rejected.

A report from the same Board was also read announcing the award of the Hallett Prize for the examination concluded on June 13th to Leith Alexander Riddell, M.B., Ch.B., New Zealand.

Licences in Dental Surgery were granted to 40 candidates.

Election of Officers.

The following were elected for the ensuing year: President, Lord Moynihan; Vice-Presidents, Mr. C. H. Fagge and Mr. Warren Low; Physiological Curator, Mr. R. H. Burne; Pathological Curator, Mr. C. F. Beadles; Honorary Curator of the Odontological Collection, Sir Frank Colyer.

Appointments.

Mr. C. J. S. Thompson was reappointed Honorary Curator of the Historical Section of the Museum (including surgical instruments and appliances) for the ensuing year.

Mr. Harold Jackson Burrows, F.R.C.S., was appointed Beaverbrook Research Scholar of the Royal College of Surgeons for two years from January 1st, 1930. In the meantime he will work at the Research Hospital, Cambridge, on tissue culture research.

Mr. W. R. Le Fanu, B.A., second librarian of the Hellenic Society, was appointed assistant librarian for one year from October 1st, 1929. A portrait group of the Council in 1927–28, painted by Mr. Moussa Ayoub, was presented to the College by Lord Moynihan and was accepted with thanks.

SOCIETY OF APOTHECARIES OF LONDON.

THE following candidates have been approved at the examination indicated:

MASTER OF MIDWIFERY.—B. P. Baliga, M.B., B.S., C. A. Birch, M.D., W. C. V. Brothwood, M.B., Ch.B.

TESTIMONIAL TO SIR RONALD ROSS.

THIRD LIST OF CONTRIBUTORS.

ON May 11th (p. 879) we published a letter from Sir James Barr and others announcing that a fund, called the Ross Award Fund, was being started in order to give some recognition to Sir Ronald Ross for his discoveries on the mode by which malaria is carried, and for his lifelong efforts regarding the prevention of that disease. The letter stated that donations should be sent to Lloyds Bank, Ltd., 110, High Street, Putney, S.W.15, cheques to be crossed "Ross Award Fund a/c." The names of those who had contributed to the Fund up to May 17th were printed in our issue of June 8th (p. 1065), and a second list of donors appeared in our issue of July 13th (p. 76). We now print a third list of those whose donations, amounting to £458 8s. 6d., were received during the month of June. The total amount contributed up to June 30th was £3,663 17s. 4d. The list published below does not include anonymous contributors or contributors whose initials only have been supplied.

M. H. Alson, J. Alston, Mrs. E. G. Ayton, Mrs. L. Adams, W. J. Ashworth, Charles Allen.

C. Burt Brill, Mrs. Beesley, R. E. Burlston, H. S. Badcock, Mrs. Banan, H. Vaughan Barber, Miss M. H. Benson, Commander of s.s. *Balmanald*, Florence B. Bright, H. Brock, Miss M. E. Butcher, A. W. Blomeley, Mrs. Charles Bishop, Mrs. Jessie Ballantyne.

Dr. Alfred Cox, Robert Corry, Alan A. Campbell.

Mrs. Delaney and Mrs Webb, B. E. Dalton, G. F. Donne.

Mrs Mary Haldane Eckford, Mr. J. D. Edelston.

M. L. and E. Goss, Mrs Henry Gordon-Watson, Messrs. *Guthrie and* Co., Ltd.

Dr. H. Mather Hare, Dr. W. Savile Henderson, Dr. Hubert Henstock, Dr. A. E. Horn, Mrs. Heron, Councillor Miss Hartley, Mrs. Hay, T. Holmes, W. Hargreaves, Albert Hovenden, W. L. Harrison.

Margaret Isaacson.

Colonel F. S. Jackson, Mrs. Johnston, C. Jennings.

Dr G. C. Low, Lincoln Medical Society, P. Leftwich.

Mr. and Mrs. W. Mason, Mary Stewart Miller, M. L. Martin, Charles Maggs, Malaya General Co., Ltd., Sedenak Rubber Estates, Ltd, Mengkibol (Central Johore) Rubber Co., Ltd., and Pontian (Malay) Rubber Co., Ltd., Mr. and Mrs J. N. Metaxa, Mrs. Edith E. MacIver.

Miss H. G Nutter, E. Nichol, Hon. J. B. Napier.

Mrs. Paulsom, S. C. Payne, E. Pearce, F. W. Pelke.

Miss D. Ruddick, R. F. Ruddick, Mr. W. G. Rawlingson, Dr. S. M. Ross, Mrs. E. G. Reid, Mr. F. Renfield.

Miss C. L. Skeat, L. A. Stephens, Mrs. Sherriff, Dr. P. S. Selwyn-Clarke, D. M. Stevenson, Miss B. Scott, A. W. Still, F. Simpson, J. H. Sargant.

G. A. Taylor.

The Misses Vernham, Frank A. Venrenen.

Dr. F. Parkes Weber, Dr. Watson-Williams, A. B. Warde, C. J. M. Whitaker, E. and M. Williams.

Dr. Reginald A. Yeld.

Medical News.

MR. C. THURSTAN HOLLAND, Ch.M., F.R.C.S., has been elected president of the British Institute of Radiology (with which is incorporated the Röntgen Society) for the session 1929-30, which commences in October. The honorary treasurer is Dr. D. B. McGrigor, and the honorary secretaries are Dr. Stanley Melville and Mr. George Shearer, D.Sc.

THE new Orthopaedic Hospital at Harlow Wood, near Mansfield, Notts, will be opened by H.R.H. the Duchess of York on Saturday, August 3rd. This voluntary hospital is being built in connection with the work of the Nottingham District Cripples' Guild, as a central hospital school for patients attending the clinics in Nottingham, Hucknall, Loughborough, Mansfield, Newark, and Worksop. An ideal site of fourteen acres was presented by the Duke of Portland, and a fully equipped country hospital is being erected where children may be treated and educated amid perfect surroundings. There is, in addition, accommodation for adults.

WE are informed that Dr. George P. Pitkin, of Hackensack, New Jersey, or Dr. Frank A. Kelly, of Detroit, Mich., will give demonstrations of controllable spinal anaesthesia with spinocain, at Bristol to-day (July 19th); at the Rotunda Hospital, Dublin, on the 20th and 22nd: at St. Bartholomew's Hospital, London, on the 22nd, at 1.30 p.m., and on the 23rd at 9 a.m. and 1.30 p.m.; at St. Peter's Hospital, London, on the 22nd at 2.30 p.m.; at Liverpool on the 23rd; and at Manchester on the 27th.

At the third International Congress of the World League for Sexual Reform, to be held at the Wigmore Hall from September 8th to 14th, under the presidency of Drs. Havelock Ellis, August Forel, and Magnus Hirschfeld, sessions will be devoted to discussions on the following subjects: marriage and divorce; birth control, abortion, and sterilization; prevention of venereal disease and prostitution; and sex and censorship. Among those who have promised to read papers are Professor Patrick Geddes, Captain G. L. F. Pitt Rivers, the Hon. Bertrand Russell, Mr. Bernard Shaw, Dr. B. P. Wiesner, and Dr. C. V. Drysdale.

THE Fellowship of Medicine announces that the course in gastro-enterology which it was proposed to hold from July 22nd to 26th has been postponed until September 30th to October 4th, when it will be conducted at the Prince of Wales's Hospital, Tottenham. There will be three courses in August: one in urology at All Saints' Hospital, Vauxhall Bridge Road, will be held each afternoon from July 29th to August 24th; one in diseases of children at the Queen's Hospital for Children, Bethnal Green, will occupy most of each day from August 12th to 21st; and the third, a whole-day course in medicine, surgery, and the specialties at the Queen Mary's Hospital, Stratford, will continue from August 26th to September 7th. Courses in September will comprise: diseases of the chest, at Brompton Hospital from September 9th to 14th; diseases of infants, at the Infants Hospital from September 9th to 21st; psychological medicine, at the Bethlem Hospital on Tuesdays and Saturday mornings from September 10th to October 5th; and medicine, surgery, and the specialties, at Westminster Hospital from September 16th to 28th. The following special courses have been arranged in addition to those in the list published for the year: M.R.C.P. evening course, October 15th to December 6th, Tuesdays and Fridays, at 8.30 p.m., at the Medical Society Lectures Room; and a whole-day course in medicine, surgery, and the specialties at the Metropolitan Hospital, Kingsland Road, from October 21st to November 2nd. Syllabuses of all special courses, together with information in regard to the general course of work, may be obtained on application to the secretary of the Fellowship, 1, Wimpole Street, W.1.

THE fourth ordinary general meeting of the Ross Institute and Hospital for Tropical Diseases was held at the Institute, Putney Heath, on July 3rd, when the chairman of the council, Sir Charles McLeod, presented the annual report and accounts for 1928. After commenting on various details in the report, he pleaded for a greater measure of financial support in view of the absence of any endowment of the Institute, and also warmly commended the appeal which was being made on behalf of a testimonial to Sir Ronald Ross. Two representatives of the Ross Institute and Hospital, Sir Malcolm Watson and Major Lockwood Stevens, spent five months in touring India and Ceylon to prepare the ground for the formation of local committees to work in conjunction with the Institute's central committee, which aims at "giving direct assistance in tropical industries." These visitors got into touch with the health officials of many parts of the Indian Empire, as well as with many branches of the voluntary co-operative antimalaria movement, which has made encouraging progress in Bengal. Mining areas, tea gardens, great cities, and small villages were visited, and the report shows how important a problem malaria is in them all. It seems probable that the major needs for malaria control in India are already well known to those working on the spot. It may be that discussion with visiting experts will help to overcome the difficulties in the way of putting the necessary measures into force.

THE ambulance hut at the annual show of the Royal Agricultural Society of England, held at Harrogate from July 9th to 13th, comprised a dressing room, two small wards, and a kitchen; it was in the charge of the Harrogate nursing division of the St. John Ambulance Brigade, by whom it had been equipped. Assistance was also given by the Ripon nursing division and by the men of the Barnoldswick and Ripon ambulance divisions, there being no men's division in Harrogate. During the whole period of the show ambulance men and St. John nurses were on duty, and dealt with upwards of 200 casualties—fortunately, none of a serious nature—which included bites by animals, cuts from machinery, sprains, bruises, scalds, septic wounds, fainting attacks, and collapses. Colonel Scatterty, M.D., and Dr. Wesley Smith (divisional surgeon) were in attendance every day, and many calls were made at the hut by other doctors visiting the show.

THE Minister of Health received a deputation, on July 16th, from the National Anti-Vaccination League. Mr. H. G. Chancellor and Mr. Arnold Lupton urged that, in view especially of the inadequacy of the conscience clause, the Vaccination Acts should be completely repealed. They submitted to the Minister their grounds for believing in the inefficacy of vaccination as a protection against small-pox and in its extreme danger to health. In support of their views they quoted numerous cases of deaths following vaccination. Dr. Beddow Bayly referred to the cases that have occurred of post-vaccinal encephalitis, and pressed the point that as the small-pox now prevalent was of so mild a character it was unnecessary to urge vaccination. The Minister said, in reply, that he thought that politically it would be very difficult to pass through Parliament a bill to repeal the vaccination laws, but he could not, of course, make any statement on the policy involved without consulting the Cabinet. He promised, however, that he would

give his close personal attention to the statements that had been presented to him by the deputation.

SIR ROBERT PHILIP'S paper entitled "The principles underlying a scheme of anti-tuberculosis measures in any country" has been reprinted from the *Transactions* of the fourteenth annual conference of the National Association for the Prevention of Tuberculosis, by direction of the council.

LISTS of medical practitioners serving as members of local authorities or their subsidiary bodies in Great Britain have been published in recent issues of the *Journal*. We have since received notification that Dr. E. H. M. Stancomb is a co-opted member of the Education Committee of the Southampton Borough, and that Dr. A. J. Knowlton, J.P., and Dr. E. Sakoschansky are members of the Southampton Borough Council.

THE eighth Rumanian congress of oto-rhino-laryngology will be held at Bucarest from October 26th to 28th, under the presidency of Dr. Christian Oroseo. Further information can be obtained from the general secretary, Dr. Lazare Magersohn, 81, Calea Mosilov, Bucarest.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to ***The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.***

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, *on receipt of proofs*.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The ***TELEPHONE NUMBERS*** of the British Medical Association and the *British Medical Journal* are *MUSEUM 9561, 9562, 9563*, and *9564* (internal exchange, four lines).

The ***TELEGRAPHIC ADDRESSES*** are:
EDITOR of the *British Medical Journal*, *Aitiology Westcent, London.*
FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*
MEDICAL SECRETARY, *Mediocera Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone 24361 Edinburgh).

QUERIES AND ANSWERS.

INTESTINAL STASIS WITH SPASM.

"B. M." (Boscombe) writes: I should be grateful for advice in the treatment of the following case of intestinal stasis with colonic spasm. The patient, a man aged 42, was operated on eight years ago for duodenal ulcer. He has extremely obstinate constipation which aperients fail adequately to remedy. The motions are solid, semi-solid, or fluid, according to the aperient taken. His weight is 8 st. 4 lb., though eighteen months after the operation it was 10 st. 7 lb. He is irritable and has insomnia, with sudden fits of drowsiness during the day. He is always tired and seems to have severe toxaemia. His diet is as follows: Breakfast: lightly boiled egg, porridge, toasted wholemeal bread, a small cup of tea. Lunch: small quantities of ham, potatoes, green vegetables, cheese, wholemeal bread, and a pudding. Tea: wholemeal bread and tea. Dinner: very little fish, vegetables, pudding or fruit, cheese, bread, and a biscuit. I should like to know if new potatoes may be included in the diet, and what kinds of fruit are allowable.

THE PLURAL OF LINCTUS.

"PERDIX" (London, S.E.) writes: I should be obliged if some of the classical scholars among your readers would inform me of the plural of *linctus*. I am told by people who speak with an air of authority that it is *lineti*. I was under the impression that it was derived from *lingo*, I lick, and that it was a masculine noun with genitive *linctūs*, and declined like *portus*, in which case the nominative plural is *linctūs*.

*** The Oxford English Dictionary gives *linctuses* as the plural of *linctus*.

PAINFUL HEEL.

"AJAX" writes: I am much interested in the discussion of painful heel, as I have suffered from this condition for seven years, and can get but little relief. *X*-ray examinations show no obvious outgrowth of bone or other malformation. It is aggravated most by playing tennis, especially on a hard court. It is also especially painful on getting up in the mornings, or on restarting to walk after a rest. Towards the centre and back of the heel underneath can be felt something which gives the feeling of a movable nodule of some kind, and it would appear that the pain came from it, as it is most painful on deep pressure. Can anyone help me?

"N. D." (Guernsey) writes: I passed through Bart's 1895-98. One of my teachers laid it down categorically that this affection meant gout or syphilis, and nothing else. So I have found it. The last case I treated, a young married man with two healthy children, gave a positive Wassermann reaction, and a short course of N.A.B. injections cured a very troublesome and intractable complaint.

UMBILICAL DISCHARGE.

DR. CASSIE E. PRATT (Bexley Heath) writes: With reference to the above condition I should like to report a case which came under my care recently. A woman, aged 24, gave a history of umbilical discharge with soreness, occurring at intervals over a number of years, but much worse during the past month. There was much excoriation, with a milky, offensive discharge. The umbilicus was funnel-shaped, and similar to the one described by "B. B. L." on July 6th (p. 56). On passing a probe I removed a hard white concretion the size of a melon seed—undoubtedly the cause of her trouble. It was certainly a collection of sebaceous matter—epithelium, soap, and debris. I gave instructions for careful cleansing, and the condition should now clear up.

LETTERS, NOTES, ETC.

RADIUM FOR LONDON HOSPITALS.

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give his close personal attention to the statements that had been presented to him by the deputation.

SIR ROBERT PHILIP'S paper entitled "The principles underlying a scheme of anti-tuberculosis measures in any country" has been reprinted from the *Transactions* of the fourteenth annual conference of the National Association for the Prevention of Tuberculosis, by direction of the council.

LISTS of medical practitioners serving as members of local authorities or their subsidiary bodies in Great Britain have been published in recent issues of the *Journal*. We have since received notification that Dr. E. H. M. Stancomb is a co-opted member of the Education Committee of the Southampton Borough, and that Dr. A. J. Knowlton, J.P., and Dr. E. Sakoschansky are members of the Southampton Borough Council.

THE eighth Rumanian congress of oto-rhino-laryngology will be held at Bucarest from October 26th to 28th, under the presidency of Dr. Christian Orosco. Further information can be obtained from the general secretary, Dr. Lazare Magersohn, 81, Calea Mosilov, Bucarest.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to ***The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.***

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, *on receipt of proofs.*

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The ***TELEPHONE NUMBERS*** of the *British Medical Association* and the *British Medical Journal* are *MUSEUM 9861, 9862, 9863,* and *9864* (internal exchange, four lines).

The ***TELEGRAPHIC ADDRESSES*** are:
EDITOR of the *British Medical Journal, Aitiology Westcent, London.*
FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*
MEDICAL SECRETARY, *Mediocera Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 *Dublin*), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone 24361 Edinburgh).

QUERIES AND ANSWERS.

INTESTINAL STASIS WITH SPASM.

"B. M." (Boscombe) writes: I should be grateful for advice in the treatment of the following case of intestinal stasis with colonic spasm. The patient, a man aged 42, was operated on eight years ago for duodenal ulcer. He has extremely obstinate constipation which aperients fail adequately to remedy. The motions are solid, semi-solid, or fluid, according to the aperient taken. His weight is 8 st. 4 lb., though eighteen months after the operation it was 10 st. 7 lb. He is irritable and has insomnia, with sudden fits of drowsiness during the day. He is always tired and seems to have severe toxaemia. His diet is as follows: Breakfast: lightly boiled egg, porridge, toasted wholemeal bread, a small cup of tea. Lunch: small quantities of ham, potatoes, green vegetables, cheese, wholemeal bread, and a pudding. Tea: wholemeal bread and tea. Dinner: very little fish, vegetables, pudding or fruit, cheese, bread, and a biscuit. I should like to know if new potatoes may be included in the diet, and what kinds of fruit are allowable.

THE PLURAL OF *LINCTUS*.

"PERDIX" (London, S.E.) writes: I should be obliged if some of the classical scholars among your readers would inform me of the plural of *linctus*. I am told by people who speak with an air of authority that it is *lincti*. I was *under the impression* that it was derived from *lingo*, I lick, and that it was a masculine noun with genitive *linctūs*, and declined like *portus*, in which case the nominative plural is *linctūs*.

*** The Oxford English Dictionary gives *linctuses* as the plural of *linctus*.

PAINFUL HEEL.

"AJAX" writes: I am much interested in the discussion of painful heel, as I have suffered from this condition *for seven years, and can get but little* relief. X-ray examinations show no obvious outgrowth of bone or other malformation. It is aggravated most by playing tennis, especially on a hard court. It is also especially painful on getting up in the mornings, or on restarting to walk after a rest. Towards the centre and back of the heel underneath can be felt something which gives the feeling of a movable nodule of some kind, and it would appear that the pain came from it, as it is most painful on deep pressure. Can anyone help me?

"N. D." (Guernsey) writes: I passed through Bart's 1895–98. One of my teachers laid it down categorically that this affection meant gout or syphilis, and nothing else. So I have found it. *The last case I treated, a young married man with two healthy children,* gave a positive Wassermann reaction, and a short course of N.A.B. injections cured a very troublesome and intractable complaint.

UMBILICAL DISCHARGE.

DR. CASSIE E. PRATT (Bexley Heath) writes: With reference to the above condition I should like to report a case which came under my care recently. A woman, aged 24, gave a history of umbilical discharge with soreness, occurring at intervals over a number of years, but much worse during the past month. There was much excoriation, with a milky, offensive discharge. The umbilicus was funnel-shaped, and similar to the one described by "B. B. L." on July 6th (p. 56). On passing a probe I removed a hard white concretion the size of a melon seed—undoubtedly the cause of her trouble. It was certainly a collection of sebaceous matter—epithelium, soap, and debris. I gave instructions for careful cleansing, and the condition should now clear up.

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case of carcinoma arising from *x*-ray dermatitis it is imperative that all keratotic spots should be excised regardless of their extent. The prognosis for carcinoma of the hand is relatively favourable, as the slow growth makes the lesion less to be feared, but the tendency for multiple growth must be kept in mind. There was a favourable result in 65 per cent. of the cases under review.

60. Pruritus Ani.

J. F. MONTAGUE (*Amer. Journ. of Surg.*, April, 1929, p. 475) states that, from his experience of 391 cases of pruritus ani, he has found that every case is definitely curable. He considers that the use of *x*-ray treatment should be avoided, and that ultra-violet or quartz light therapy often causes an aggravation and extension of the pruritus. The use of carbolic acid ointment and belladonna or cocaine suppositories he also deprecates, and avoids giving opium suppositories and morphine owing to the danger of habit formation in a chronic ailment. Every patient should undergo a complete physical examination, to include the entire anal canal, rectum, and sigmoid, and also a blood chemistry and urine analysis. It has sometimes been found that incorrect diet has been responsible for the intestinal causes of the pruritus. In order to give relief from the persistent and distressing itching and to give the patient rest and sleep the undercutting operation is performed. This consists of the severing of the sensory nerves immediately under the skin in the perianal region by means of a pair of double-edged dissecting scissors under a local anaesthetic. This operation gives the skin sufficient sensory rest for it to heal, and in early cases the same result may be obtained by cauterizing with a 10 per cent. aqueous solution of silver nitrate the sensory nerve endings which have been exposed by scratching in the pruritic area. Protective ointments such as vaseline, boric ointment, or zinc oxide ointment may then be used. Vaccines, especially the pruritus vaccine of Lederle, are useful in minimizing the low-grade dermal infection which is often present in these cases.

61. Tuberculous Adenitis of the Cheek.

A. V. RODRIGUEZ (*La med. Ibera*, May 25th, 1929, p. 683), who records two illustrative cases, states that this form of adenitis originates in dental cavities which become infected by the tubercle bacillus, though its presence is not always easy to demonstrate. Adenitis of the cheek has been classified by Lenormand into three groups: (1) an upper or molar group, situated over the upper jaw or malar bone (uncommon); (2) a middle or buccinator group, situated on a line running from the labial commissure to the lobe of the ear; and (3) a lower or maxillary group, formed by two or three glands situated on the outer surface of the lower jaw in front of the masseter muscle. Tuberculous adenitis of the cheek must be distinguished from inflammatory processes of the lips, cheeks, and alae nasi, which may give rise to infections of the glands, as well as from mycosis, sporotrichosis, osteomyelitis of the jaw, and gummata. Ultra-violet rays, which possess a strong bactericidal power as well as an intense biological and biochemical action, have a remarkable effect on these tuberculous lesions, and generally by the third or fourth sitting the appearance of the lesion completely changes, owing to cessation of the suppuration and inflammation. The scar remaining is less visible than with any other treatment, such as the galvano-cautery or chemotherapy.

62. Difficulties in Appendicectomy.

H. B. DEVINE (*Journ. Coll. of Surg. of Australasia*, March, 1929, p. 375) is of the opinion that appendicectomy may be one of the most difficult and responsible of operations, and that a complete knowledge of the anomalous appendix and of the requisite surgical technique is necessary. The sources of difficulty are various. One may be the particular stage of the inflammatory process—thus, for example, the appendix may lie in the wall of the abscess. In such conditions it is wise not to look for the appendix but for the ileo-caecal junction, which may be easily found by following along a piece of free ileum nearest to the mass; the base of the appendix usually lies an inch below and an inch posterior to this point. An appendicectomy may be difficult because resistant fibrosis has taken place in a partially cured appendicitis, rendering the peritoneal tissue planes almost inseparable. Devine thinks it is sometimes wiser to leave such an appendix alone and to operate six months later, when these adhesions will have been absorbed. An appendix situated in an abnormal position through a developmental error is a frequent cause of dangerous symptoms and of difficult operation. The development of the appendix is described, and three important misplacements are discussed—the subhepatic, pelvic, and retroperitoneal. Chronic appendicitis in the subhepatic region is confused with chronic cholecystitis; *x*-ray localization may be impossible, and tenderness, caused by dragging on the caecum, may be the only differential diagnostic point. An upper paramedian incision is best for this type of appendicitis. Pelvic appendicitis presents such a variety of symptoms that diagnosis is often difficult. Some of these are enumerated, and the operation advocated is fully described. Retroperitoneal or retrocaecal appendicitis presents peculiar diagnostic difficulties. Generally there is some form of obscure abdominal pain; it may be in the right loin or in the vicinity of the gall-bladder, with disease of which it is often confused. Localization by *x* rays may fail, and this, with the anomalous symptoms, may be evidence that a retroperitoneal appendix is present. There may be no tender point and no reflex rigidity, especially in fat people. A split-muscle McBurney incision, as in pelvic appendicitis, is most suitable.

Therapeutics.

63. Treatment of Pernicious Anaemia.

P. VÉRAN (*Rev. de Méd.*, 1929, No. 3, p. 325) fears lest the brilliant results of the liver treatment of pernicious anaemia may cause other measures to be neglected, notably insulin therapy and blood transfusion, which are of great practical importance and have their own indications. A historical review of liver treatment is given; its preparation, dosage, indications for its employment, and the results following its use are described. In the plastic (cryptogenetic) type of pernicious anaemia no treatment can compare with that of liver. Two hypotheses have been advanced as to its action—namely, that it neutralizes haemolytic poisons of probably intestinal origin, or that it specifically supplies the deficiency of an unknown chemical agent. If, on careful examination, the anaemia is found not to be merely symptomatic and curable by an etiological treatment, Véran at once gives daily 200 to 250 grams of boiled or raw calves' liver, prepared according to one of the methods described. If the patient is very weak or anorexic, very nauseated or diarrhoeic, hepatic extract should first be given in such doses as to establish toleration for natural liver. The diet, which need not be rigorously calculated, should be simple, varied, and substantial, rich in vitamins and poor in carbohydrates. Large doses of hydrochloric acid (8 c.cm. of a 10 per cent. solution in 350 grams of lemonade) and ergosterol in infantile cases is given, but no other medication. In cases of slow blood regeneration, hepatic extract should be added to the liver diet and the method of Walinski be employed. This consists in the injection twice daily of 5 to 10 units of insulin, combined with weekly blood transfusions of 250 to 300 grams. A patient, though apparently cured, should continue to take daily a maintenance dose of liver, based on regular blood examinations; in order to avoid satiation, the extract may be alternated with the natural liver and some days of rest be allowed between courses of treatment. In aplastic anaemia liver therapy has always proved to be inefficacious.

64. Thymus Extract in Fragilitas Ossium.

E. GORTER (*Nederl. Tijdschr. v. Geneesk.*, April 27th, 1929, p. 2022) records two illustrative cases in children, aged 1½ and 2 years respectively, suffering from fragilitas ossium and rickets. The latter condition was cured by the ordinary antirachitic treatment, which did not have any effect on the fragilitas ossium. Rapid recovery, however, followed administration of thymus gland capsules. Enriquez and Robuski, as well as Goldner, have found that in fractures the thymus gland presents signs of hyperfunction, shown by a more rapid and complete evolution of all the thymus elements and the absence of all signs of involution. It is particularly in the early stages of the fracture that the signs of regeneration are evident, while after the fracture has been consolidated the thymus becomes normal again. Gorter suggests that in his cases there was a thymus insufficiency, and that the lack of thymus hormones was the cause of the fragilitas ossium. He adds that it would be desirable to investigate the question whether a patient with uncomplicated osteopsathyrosis, or even with osteogenesis imperfecta, would also derive distinct benefit from the administration of thymus extract.

65. Danger of Excessive Doses of Vitamin D.

L. J. HARRIS and T. MOORE (*Biochem. Journ.*, vol. xxiii, No. 2, p. 261) submit evidence supporting the view that the excessive administration of vitamin D induces *per se* a condition of specific hypervitaminosis, quite apart from any possible ill effects due to any poisonous by-products, if such exist. They found that when radiostol (activated in oil) and irradiated ergosterol (activated in alcohol) were given as foods, the high vitamin D dosage being the same in each

case, they produced hypervitaminoses of the same degree of severity. Ergosterol, when irradiated in the absence of any solvent, also produced specific ill effects. Details are given of their experiments which showed that the toxicity of irradiated ergosterol disappeared concurrently with the destruction of vitamin D by over-irradiation, and that non-irradiated ergosterol, and ergosterol which had been resinized without the production of vitamin D, were both non-toxic. The pathological conditions so induced included large deposits of calcium in the heart muscle and the kidneys; the formation of urinary calculi also appears to have been facilitated, and in this connexion reference is made to the paper of Dixon and Hoyle in the *British Medical Journal* (1928, vol. ii, p. 832). The authors suggest that there is an optimum dosage for vitamin D; underdosage and overdosage cause respectively deficient and excessive figures of the blood phosphorus and/or blood calcium, with consequent calcification. The atrophy of the thymus gland and spleen which may be thus provoked are contrasted with the enlargement or hypertrophy often seen in clinical rickets. The evil consequences of excessive vitamin administration seemed to be more marked in earlier life.

Laryngology and Otology.

65. Disease of the Middle Turbinate.

GRAIN (*Rev. de Méd.*, 1929, No. 2, p. 217) defines three clinical varieties of the ethmoidal disease of Bosworth: hypertrophy of the mucosa, with or without degeneration; osseous hypertrophy of the middle turbinate, simple or complicated with mucosal degeneration, which may be localized or generalized over the ethmoid; and ethmoidal suppurations. He discusses the first two groups and describes their anatomical pathology. Hypertrophy of the bone takes the form of a cystic or ampullar dilatation. In uncomplicated types the disease is unaccompanied by nasal symptoms, and the most prominent symptom is headache. The pain, localized exclusively to the corresponding hemicranium, is felt especially in the frontal, parietal, and orbital regions; it is constantly present, and does not respond to treatment with sedatives and hypnotics. These three characteristics easily distinguish the headache from other cephalalgias. Accessory symptoms are variable appetite, general asthenia, insomnia, inaptitude for work, and ocular fatigue, especially marked on the side of the lesion. Permanent compression of the terminal filaments of the spheno-palatine nerve, which supplies the middle turbinate, causes an irritation or excitation that is transmitted to the centres of the fifth and sixth pairs and of the sympathetic; thus the triple characters of the headache are produced. Besides this ampullar dilatation, other causes of the pain may be polypoid degeneration, high deviation of the septum, and the presence of a bony irritative spine of the septum. Treatment is solely surgical, and resection of the ethmoidal head or of the bony spine is the method of choice. Attention should also be paid to the inferior turbinate if necessary. The headache and other symptoms immediately and definitely disappear on removal of the cause. A case of ampullar dilatation together with its treatment is reported.

67. Tuberculous Otitis Media.

G. H. COX and J. G. DWYER (*Arch. of Otolaryngol.*, April, 1929, p. 414) comment on the frequent occurrence of tuberculosis of the middle ear, especially in children of school age, and place the incidence as high as 15 per cent. of all cases of purulent otitis media. They state that the condition is occasionally primary, but most often secondary to tuberculosis of some other structure, usually a tuberculous gland. The infection may be carried by the Eustachian tube or by the blood stream. A blood-borne infection, however, usually affects the mastoid process primarily and alone. The authors describe two types of aural tuberculosis. The first consists of cases of chronic otitis media which give no typical signs and are only discovered to be tuberculous on bacteriological examination of the discharge. The second type of case begins insidiously without the pain and rise of temperature usually associated with otitis media. If these patients are seen early small tubercles may be discovered on the membrane, and a small perforation which rapidly increases in size is common. Facial nerve paralysis frequently accompanies tuberculous otitis media, and the ear may become completely deaf from involvement of the labyrinth. Tuberculous meningitis is a complication to be feared; it occurs in 5 per cent. of the reported cases. Tuberculous mastoiditis heals slowly and is associated with the formation of small sequestra. The authors have treated their cases by exposure of the middle ear to sunlight (either real or artificial) by means of a special apparatus, and the instillation of alcohol drops into the middle ear. They have also used injections of tuberculin in some of their cases, with good results. Great importance is attached to the bovine type of tubercle bacillus in the pathology of these cases, and the bacteriological examination of the milk which the child is receiving is advised.

68. The Treatment of Chronic Otorrhoea.

I. HARNICK (*Canadian Med. Assoc. Journ.*, May, 1929, p. 503) states that chronic otorrhoea takes its origin from an acute otitis media, and, after discussing the causes leading to the persistence of the inflammation and the development of the chronic process, concludes that chronic infection, excessive formation of granulations, osteitis, and tubal disturbances are the leading factors in maintaining a chronic aural discharge. Treatment must be directed to the removal of these causes, and the best medicament in this condition is Calot's mixture, which is of the following composition: *guaiacol* 1 part, *creosote* 5, *sulphuric ether* 30, *iodoform* 10, and olive oil 70 parts. The guaiacol and creosote have a caustic action upon the granulations in addition to their antiseptic properties; the iodoform is an excellent antiseptic and cicatrizant; and the ether, by dissolving the fatty components of the discharge, allows a more intimate contact of the solution with the diseased tissue. When applying the treatment the ear should first be cleansed of all secretions. After carefully shaking the bottle, 5 to 10 drops of the mixture are instilled into the affected aural canal, the head being so inclined that the treated ear is uppermost, and in order to get the fluid into the Eustachian tube tragus massage is employed. This procedure is carried out every night for a week. By this time the character of the secretion will have changed, and when it is markedly reduced in amount the Calot's solution is discontinued and insufflations of boric acid are used. In cases which do not rapidly improve, granulations may need treatment with silver nitrate (60 per cent.), aural polyps may need snaring off, or surgical intervention on the nasopharynx may be necessary. Harnick believes that Calot's solution is exceedingly efficacious in properly selected cases of otorrhoea, and should be tried before deciding on a radical operation. It is of little value in cases complicated by cholesteatoma, and in those on the basis of lues, diabetes, local malignancy, or actinomycosis.

Obstetrics and Gynaecology.

69. Dangers of Pituitary Extract in Obstetrics.

A. M. MENDENHALL (*Journ. Amer. Med. Assoc.*, April 20th, 1929, p. 1341) emphasizes the dangers attending the use of pituitary extract in labour, and states that there is no dependable way of knowing the degree of its effect that may be expected. Different extracts, and even two ampoules of the same extract, may vary widely in their effects, and, in addition, marked idiosyncrasies to this drug have been noted. These two factors render impossible the fixing of a safe dose. The action of pituitary extract often begins within four minutes after its injection, and may continue from twenty to thirty minutes without intermission. It produces a tonicity of the uterus that is often extreme and uninterrupted for many minutes, and among the results reported from its use is uterine rupture. The action may be so violent as to produce serious injury to mother or child, and, since there is no satisfactory antidote, it is a very dangerous drug. Mendenhall considers pituitary extract valuable in post-partum haemorrhage; it is probably safe in the third stage of labour, and in induction if used cautiously and in properly chosen cases. It is never safe in the first stage of labour, and rarely, if ever, in the second; other obstetrical procedures are nearly always safer. While no definite rule can be made as to the treatment of ruptured uterus, Mendenhall believes that the conservative treatment of packing from below may save many patients when more radical measures may prove fatal. Should laparotomy be performed, the rent, if not too large and irregular, may be repaired; this, however, increases the risk of a future labour. For this reason, and also because of the possibility of reducing sepsis, hysterectomy is often preferable.

70. Avertin Anaesthesia in Gynaecology.

ACCORDING to H. GROSSMANN (*Zentralbl. f. Gynäk.*, March 30th, 1929, p. 780) avertin is a safe basal narcotic if full anaesthesia is avoided, and the action of the drug is assisted by careful preparation of the patient and, when necessary, by the addition of ether. The use of a solution of avertin in amylene hydrate, 1 c.cm. of the solution containing 1 gram of avertin, is said to mark a distinct advance; amylene hydrate has a hypnotic action intermediate in intensity between that of chloral hydrate and paraldehyde. This avertin solution was

effective in doses of 0.1 gram per kilogram of body weight, as compared with 0.15 gram of avertin; about one-third of the patients required ether in addition. The maximum dose of avertin used was 8 grams, and, because of the relative frequency in them of asphyxial attacks, persons aged under 22, or weighing less than 45 kilograms, are unsuitable subjects. Major vaginal and abdominal gynaecological operations of all kinds have been performed under avertin narcosis; two deaths have followed in a series of 300 cases reported by the author.

71. Puerperal Inversion of Uterus.

L. E. PHANEUF (*Surg., Gynecol. and Obstet.*, May, 1929, p. 709) records three cases of complete inversion of the uterus; in one the condition was acute and in the other two it was chronic. In the acute case the inversion occurred with the delivery of the placenta; the organ was replaced manually under ether, the resulting shock being treated by hypodermoclysis of salt solution. The puerperium was uneventful and recovery was complete. In the two chronic cases, one of which had existed for thirty-four days and the other for two and a half months, anterior colpo-hysterotomy (Spinelli's operation) was performed, with eventual recovery. Phaneuf states that the condition is rare in occurrence. Its predisposing causes bring uterine inertia, pressure above the fundus, and traction on the cord. Severe shock is the main symptom, and should this occur after the third stage of labour uterine inversion should be borne in mind. When the occurrence is acute, treatment consists of manual reduction when possible, or, otherwise, laparotomy, and reposition by taxis. Chronic cases are best treated by anterior colpo-hysterotomy when it is possible for the uterus to be saved, or by vaginal hysterectomy when this is impossible. Before attempting any operative procedure shock must be treated by blood transfusion. The author considers that the obstetrical future after Spinelli's operation should be similar to that following Caesarean section.

72. Torsion of the Ovary during Pregnancy.

R. BERNARD (*Soc. Nat. de Chir.*, May 18th, 1929, p. 651) reports an unusual case of a twisted ovary in a woman who had been pregnant for six weeks. She complained of pain in the right side, and as this was most severe over McBurney's point, and was accompanied by vomiting and an elevated temperature, a diagnosis of appendicitis was made. This pain subsided, but reappeared in the lumbar region; it was later localized in the bladder, suggesting the possibility of cholecystitis or infection of the urinary system. Further examination showed an absence of rigidity of the abdominal wall, and it was possible to feel a hard mass, about the size of an orange, to the right of the pouch of Douglas. This mass was painful to the touch, mobile, and separated from the uterus, which was enlarged to a size corresponding with the time of pregnancy. A diagnosis of extrauterine pregnancy was therefore made, and an operation disclosed, to the front and right of a gravid uterus, a small dark tumour; the pedicle of this was about as thick as the little finger, and was composed of utero-ovarian vessels which were coming from the pelvis. The Fallopian tube was normal and healthy, and situated in front of the tumour. The ovary and tube were removed, and it was found that the tumour was solid and appeared, not as an ovarian cyst, but as a normal ovary enlarged by interstitial oedema. Recovery was uninterrupted and pregnancy followed the normal course.

73. Gastro-Intestinal Symptoms of the Climacteric.

J. M. G. GALVÁN (*Rev. Med. Latino-Americana*, March, 1929, p. 649) discusses the digestive disturbances caused by the climacteric, and states that when it is spontaneous the symptoms are generally less violent than those associated with a climacteric due to an accident or to surgical operation. The date of onset of the climacteric ranges between the ages of 30 and 50. Galván classifies the resulting phenomena by defining the following three groups. (1) The gastric climacteric, of which the symptoms fall into the four sub-groups of gastric neurosis, functional dyspepsias, haemorrhages, and organic lesions such as ulcer and cancer. (2) The intestinal climacteric, which may appear in the five different forms of stenosis, diarrhoea, colitis (especially the muco-membranous type), haemorrhoids, and melaena. (3) The hepatic [illegible] climacteric, in which the symptoms fall into the four groups of cholecystitis and cholelithiasis, [illegible], jaundice, and diabetes.

74. Peritonization after Hysterectomy.

GUYOT and MORIN (*Bull. Soc. d'Obstét. et de Gynécol. de Paris*, March, 1929, p. 218) describe a method of peritonization which can be used in the operation of hysterectomy. This method is particularly applicable to cases where the pedicles are long and the peritoneum is consequently abundant. By means of a catgut stitch the layer of peritoneum over the posterior surface of the cervix is approximated to the vesical peritoneum on the anterior cervical wall in the mid-line. On either side of this stitch a purse-string suture is used to invaginate the ends of the round and infundibulo-pelvic ligaments and, at the same time, to bring together the anterior and posterior edges of peritoneum. The authors claim that the advantages gained by adopting this procedure are that it is easily and rapidly performed; that the area liable to become adherent subsequent to operation is lessened; and that the portion of the cervix remaining is prevented from prolapsing.

Pathology.

75. Malignant Embryonic Nephroma.

G. FORNI (*Arch. Ital. de Chir.*, April, 1929, p. 411) reports a case of renal tumour in a boy 3 years old. The child was somewhat restless, but otherwise his health had been normal. The hypochondrium and left flank were notably distended, and the subcutaneous venules over this area were very evident. Palpation revealed a rounded mass in the left hypochondrium, which was smooth, somewhat hard, not fluctuating, and about the size of a foetal head; its position changed with the respiratory movements. Nephrectomy was performed, and, in spite of the large size of the tumour, no difficulties were experienced; the patient's recovery was without incident. The tumour was found to arise from the convexity of the kidney, both poles and hilum being concerned; it weighed 500 grams. Growth had been so rapid that in a few months the presence of a tumour was obvious to the mother, and its weight was between one-quarter and one-third of that of the child. Microscopically the neoplasm presented a varied structure. Part consisted of masses of round cells of medium size, separated by bundles of spindle-shaped cells; both cell types had an immature appearance. Another part of the tumour was composed of tubules of various calibre with round lumina, and a capillary formation resembling the structure of an embryonic glomerulus. Portions of the growth were myxosarcomatous. Between the tumour and the renal cortex there was a stratum of fibrous connective tissue. After discussing the various types of renal tumours found in children, Forni agrees with other observers that an adenosarcoma appears to be derived from the mesonephros, but he concludes that the name "malignant embryonic nephroma" (Trappe) applies to the tumour he describes.

76. Cultivation of Tubercle Bacilli.

SINCE guinea-pig inoculation is both costly and slow, H. J. CORPER and N. UYEI (*Journ. Lab. and Clin. Med.*, February, 1929, p. 393) have devised a special method for the identification of tubercle bacilli when these are present in small numbers in sputum, urine, or tissues. In order to destroy contaminating organisms the tuberculous material is incubated with an equal volume of 6 per cent. sulphuric or 3 per cent. hydrochloric acid, intimate contact being secured by centrifuging. They have obtained good results by subsequently planting the deposit on a medium comprising potato (autoclaved and subsequently ground), agar, glycerol, and crystal violet. A good growth of tubercle bacilli appears in from two to five weeks. The authors state that tests have proved this medium to be superior to that of Petroff, and as good as guinea-pig inoculation from the practical clinical standpoint. The amount of glycerol employed (1 to 5 per cent.) has no appreciable influence on the growth of the tubercle bacilli.

77. Effect of Lipoids on Resistance to Infection.

H. REITER (*Zeit. f. Immun. u. exp. Therap.*, May 6th, 1929, p. 433) records some experiments on the resistance of mice fed on different dietaries to mouse typhoid infection. The control animals were given bread, oats, and water; the experimental animals received milk instead of water, or dried testicle, lecithin, or cholesterol in place of the oats. Infection was achieved by giving 1/1,000th or 1/2,000th of a culture by an oesophageal sound. The results showed that, judging by the expectation of life in days (apparently up to 19 days), the figures were 75 per cent. higher for the mice fed on milk, 68 per cent. for those fed on dried testis, 38 per cent. for those fed on lecithin, and 54 per cent. for those fed on cholesterol. In a previous paper the author found that mice inoculated subcutaneously with dead mouse typhoid bacilli developed a higher agglutination titre when fed on a lipoid-containing diet than similar mice fed on a lipoid-free diet. He considers, therefore, that the presence of lipoid in the food has a beneficial effect on the resistance to infection.

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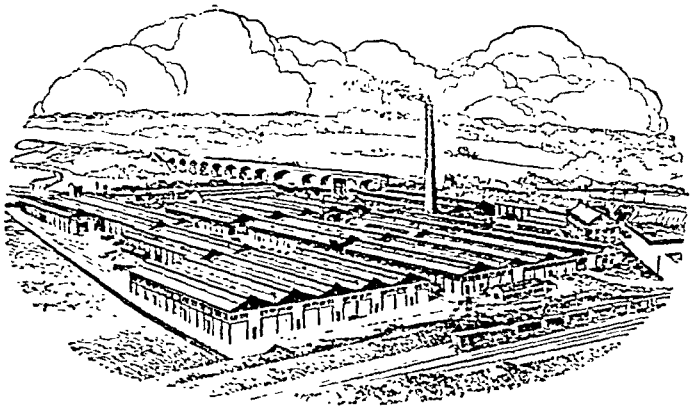

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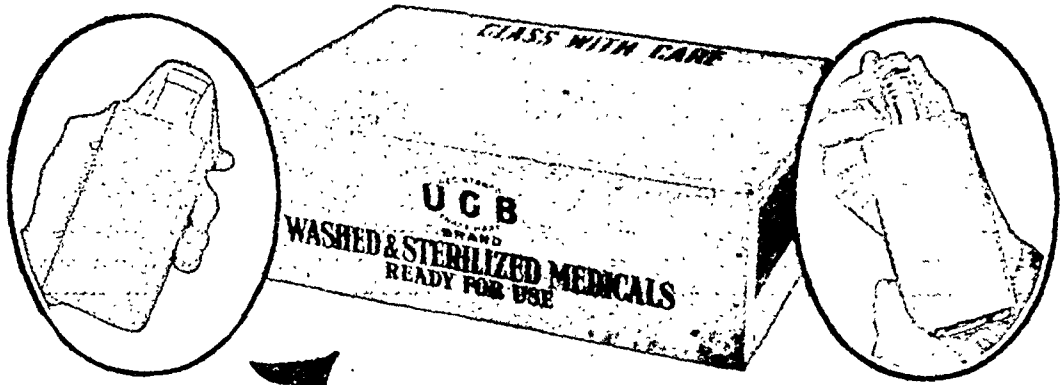

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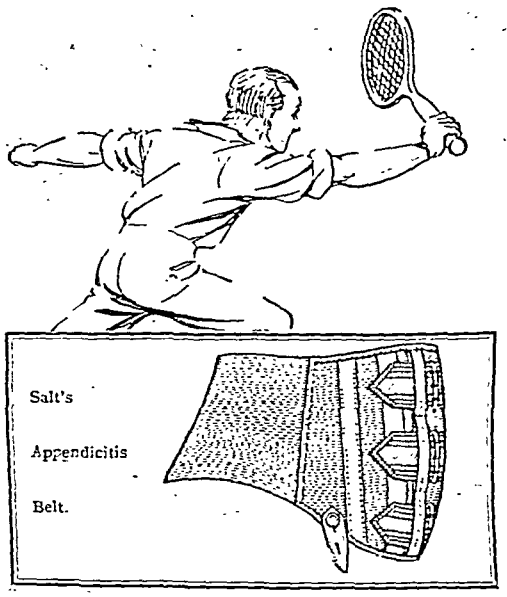

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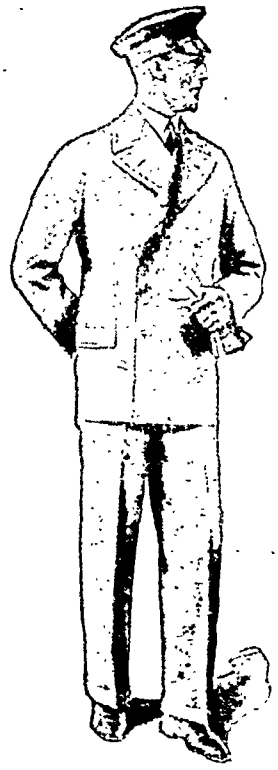

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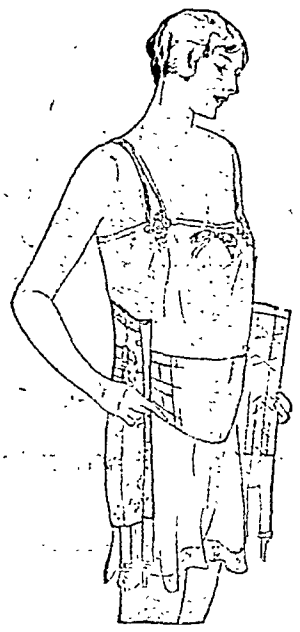

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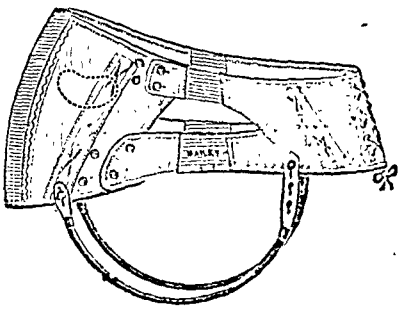

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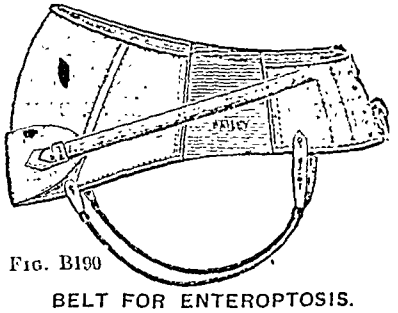
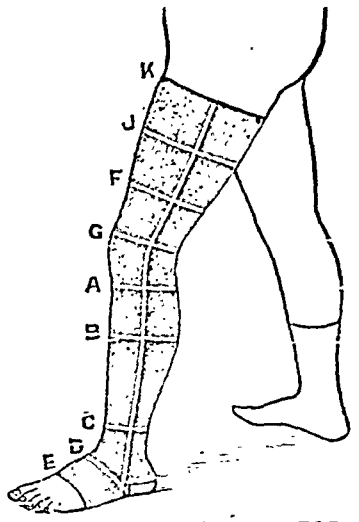


FIG. B190
BELT FOR ENTEROPTOSIS.



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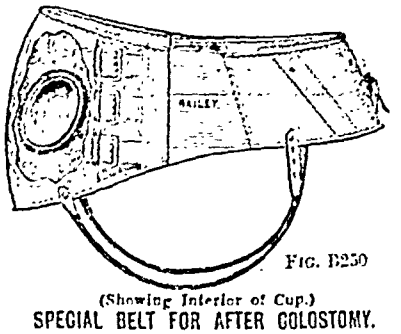
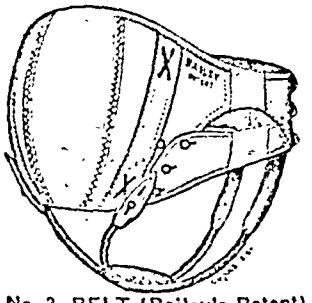


FIG. B250
(Showing Interior of Cup.)
SPECIAL BELT FOR AFTER COLOSTOMY.



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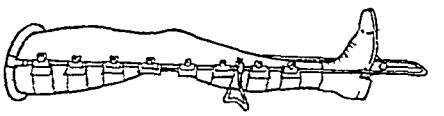

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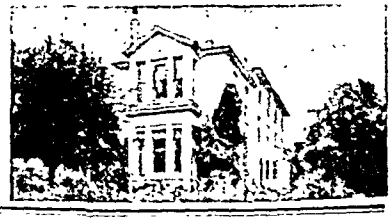

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The Seaside house of St. Andrew's Hospital is beautifully situated in a Park of 330 acres, at Llanfairfechan, amidst the finest scenery in North Wales. On the North-West side of the Estate a mile of sea coast forms the boundary. Voluntary Boarders or Patients may visit this branch for a short seaside change or for longer periods. The Hospital has its own private bathing house on the seashore. There is trout-fishing in the park.

At all the branches of the Hospital there are cricket grounds, football and hockey grounds, lawn tennis courts (grass and hard courts), croquet grounds, golf courses, and bowling greens. Ladies and gentlemen have their own gardens, and facilities are provided for handicrafts, such as carpentry, etc.

For terms and further particulars apply to the Medical Superintendent (Telephone No. 56, Northampton), who can be seen in London by appointment.

THE COPPICE, NOTTINGHAM.
HOSPITAL FOR MENTAL DISEASES.

This Institution is exclusively for the reception of a limited number of Private Patients of both sexes of the Upper and Middle Classes at moderate rates of payment. It is beautifully situated in its own grounds on an eminence a short distance from Nottingham, and from its singularly healthy position and comfortable arrangements affords every facility for the relief and cure of those mentally afflicted. Voluntary Boarders received without Certificates.

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NEURASTHENIA
BELVOIR NURSING HOME, ASTON-ON-TRENT, DERBY.

Private Nursing Home for Neurasthenia and allied Functional Nervous Disorders, for general Convalescent Cases, and those requiring Electrical Treatment.

The Home, a Georgian mansion, 14 miles from Nottingham and 6 miles from Derby, is for both sexes. In addition to the methods of general medicine, Psycho-Therapeutic treatment is used extensively in suitable cases. Certifiable cases are not received. Electrical Treatment, Radiant Heat, X-ray, Ultra-violet Light, and Massage is available in the Nursing Home. Billiards, tennis, etc. Fees from 5 to 12 guineas per week. For further particulars apply to—
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COURT HALL, KENTON, EXETER,
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For the care and treatment of Ladies suffering from Mental Diseases. Limited to eight patients. Telephone: Starcross 19.

CLIFFDEN, TEIGNMOUTH, in connection with Court Hall, for early and convalescent cases. Cliffden is a large well-appointed house, with lovely views of the South Devon Coast. It is beautifully situated in grounds of 19 acres. The gardens are very attractive, and there is a private road to the beach.

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NEWTON-LE-WILLOWS, LANCASHIRE.

'Phone: 11 Ashton-in-Makerfield.

For the reception and treatment of PRIVATE PATIENTS of both sexes of the UPPER AND MIDDLE CLASSES either voluntarily or under Certificate. Patients are classified in separate buildings according to their mental condition.

Situated in park and grounds of 400 acres. Self-supported by its own farm and gardens, in which patients are encouraged to occupy themselves. Every facility for indoor and outdoor recreation. For terms, prospectus, etc., apply MEDICAL SUPERINTENDENT.

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A Private Mental Hospital for the Treatment and Care of Mental and Nervous Disorders.

Now removed to:

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A modern country house, 12 miles from Marble Arch, in beautiful secluded grounds.

Fees are from 10 guineas a week.

Voluntary Patients received for treatment.

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A registered Hospital for the treatment of patients of both sexes suffering from Nervous and Mental Disorders, situated in beautiful country within a mile and a half of the City of Exeter.

Hard and grass Tennis Courts, Croquet Lawn, Cricket Field, and all indoor amusements, Dancing, Concerts, Wireless, Billiards, Badminton. Occupational treatment.

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Voluntary and certified patients are received for treatment.

A prospectus and full particulars can be obtained from the Medical Superintendent.

BARNWOOD HOUSE,
GLOUCESTER.

A REGISTERED HOSPITAL for the CARE and TREATMENT of LADIES and GENTLEMEN suffering from MENTAL DISORDERS, G.W. Railway and Stations at Gloucester, accessible by rail from the United Kingdom. at the foot of the Cotswold Hills, and stands in its own grounds of over 280 acres. Voluntary boarders of both sexes are also received for treatment.

Special accommodation for Lady Voluntary Boarders is also provided at the MANOR HOUSE, which has its own private grounds and is entirely separate from the main Hospital.

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Telephone: No. 7 Barnwood.

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Further particulars from the Secretary, Preston Deanery Hall, Northampton.
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PRIVATE HOME for MENTALLY AFFLICTED LADIES. Ten only received. Apply, Medical Officer or Mrs. PELLE. *Telephone*: 2708.

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Telegrams: Castle, Ruthin. Telephone: 66, Ruthin. Ruthin Castle, North Wales.

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(For the reception and treatment of cases of nervous and mental disease.) Tel.: Reliance 2182.

President: Colonel and Alderman Sir CHARLES CHRISP WAKEFIELD, Bart., C.B.E.
Treasurer: Sir LLOYD FAUDEL-PHILLIPS, Bart.
PHYSICIAN SUPERINTENDENT: J. G. PORTER PHILLIPS, M.D., F.R.C.P. Assisted by Physicians, a Pathologist, and a staff of Visiting Consultants.

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For further particulars apply to the PHYSICIAN SUPERINTENDENT.

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Telegrams: "Alleviated, London." Telephone: Rodney 4741—4742.

The above House, which was established in 1826, is an Institution for the care and treatment of persons suffering from mental diseases and nervous disorders. Both certified patients and voluntary boarders are received. Separate houses for treatment and accommodation of special cases adjoin the Institution. There is a seaside branch, Kearsney Court, near Dover, to which patients may be sent for treatment or on holiday. Motor and carriage exercise is provided as required. Patients can avail themselves of a course of physical drill. Tennis courts. Entertainments, dances, and indoor amusements held throughout the year.
Illustrated prospectus and further particulars can be obtained from the Medical Superintendent.

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Telegrams: "SUBSIDIARY, LONDON" *Telephone*: NORTH 0888.

A PRIVATE HOME for the treatment of patients of both sexes suffering from Mental Illnesses.
Conveniently situated four miles from Charing Cross. Easy of access from all parts.
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FOR THE TREATMENT OF MENTAL DISORDERS.

Completely detached Villas for mild cases, with private suites if desired. Voluntary Patients received. Twenty acres of grounds. Hard and Grass Tennis Courts, Croquet, Squash Racquets, and all indoor Amusements, including Wireless and other Concerts. Occupational Therapy. Daily services in the Chapel.
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A Private Hospital for the Care and Treatment of those of both sexes suffering from MENTAL DISORDERS.

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CHEADLE ROYAL, CHEADLE, CHESHIRE.

This registered Hospital for MENTAL DISEASES, with its seaside branch Glan-y-Don, Colwyn Bay, is for the treatment and care of PRIVATE PATIENTS of the UPPER and MIDDLE CLASSES. Voluntary Boarders received.
For terms, etc., apply to the Medical Superintendent, J. A. C. ROY, M.B., who may also be seen in Manchester by appointment.
Telephone: 481 GATLEY.

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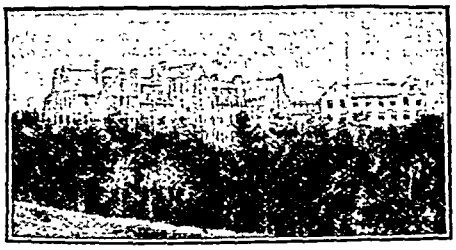

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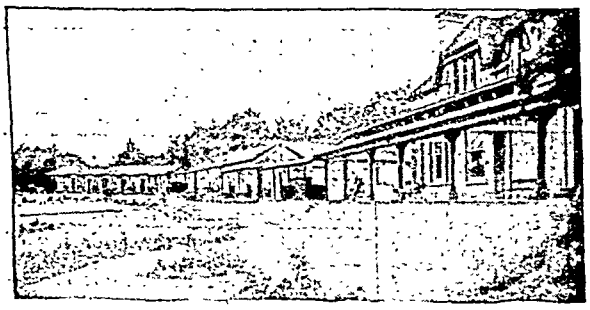

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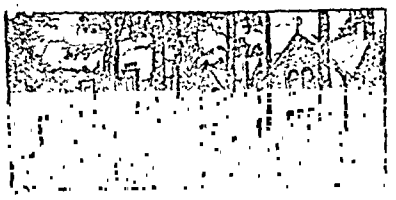

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Applications for information as to the above courses and other special advanced courses of study should be addressed to the Secretary, Keppel Street (Gower Street), London, W.C.1.

LIVERPOOL SCHOOL OF TROPICAL MEDICINE.

(UNIVERSITY OF LIVERPOOL)

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For particulars apply to the Hon. Dean, Liverpool School of Tropical Medicine, Pembroke Place, Liverpool.

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The Courses in the University will be held during the afternoons, October to March, from 2 to 6 p.m. daily.

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Further particulars may be obtained from the Dean of the Faculty of Medicine.

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Enquiries should be addressed to the Secretary, London School of Hygiene and Tropical Medicine, Malet Street, London, W.C.1.

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STAMMERING, CLEFT PALATE SPEECH, LISPING, 39 of Miss BEHNKE, 39, Earl's Court Sq., S.W.5.

MEDICAL PROSPECTUS (48pp.)

CONTENTS:—The method and the cost of entering the Medical Profession. *Particulars of all* [illegible] *al Courses, and Oral* [illegible] *the higher Medical* [illegible] *for the higher Surgestions for the Special resher Course. Open-writing theses.*

Medical Prospectus gratis along with list of Tutors, etc., on application to the Principal, Mr. E. S. WEYMOUTH, M.A., 17, Red Lion Sq., London, W.C.1. (Telephone: HOLBORN 6512).

URSULINE CONVENT, WESTGATE-ON-SEA, KENT.

A High Class BOARDING SCHOOL is conducted here by the Ursulines of the Roman Union.

The School is situated in its own extensive and beautiful grounds, in a neighbourhood renowned for its bracing and healthy air.

Pupils are prepared for the Cambridge Local and Royal Academy of Music Examinations.

On leaving school pupils may be transferred to houses of the Order in France, Italy, Austria, and other countries.

Terms on application to the Reverend Mother Prioress.

LONDON HOSPITAL MEDICAL COLLEGE.

F.R.C.S.

A COURSE OF INSTRUCTION for the Final Fellowship Examination will begin on *Monday*, September 2nd.

Fees: (exclusive of Operative Surgery) 20 guineas. Operative Surgery 5 guineas.

A separate entry can be made for all Classes other than those of a strictly Clinical character.

(Men students only are eligible for admission.)

Further particulars may be obtained from Professor WILLIAM WRIGHT, M.B., D.Sc., F.R.C.S., Dean, London Hospital Medical College, Mile End, E.1.

LONDON HOSPITAL MEDICAL COLLEGE.

Primary Fellowship Examination.

A COURSE OF INSTRUCTION for the above Examination will begin on Monday, Sept. 2nd.

The Fee for the Course is 15 guineas.

Further particulars may be obtained from Professor WILLIAM WRIGHT, M.B., D.Sc., F.R.C.S., Dean, Mile End, E.1.

ST. BARTHOLOMEW'S HOSPITAL MEDICAL COLLEGE.

POST-GRADUATE COURSE ON RADIUM THERAPY.

An introductory Course of Instruction on Radium Therapy and Technique for Post-Graduates will be given at St Bartholomew's Hospital from September 30th to October 3rd, 1929, inclusive.

For syllabus and details apply to THE DEAN, St. Bartholomew's Hospital, London, E.C.1.

A REALLY GOOD SCHOOL FOR GIRLS. REASONABLE INCLUSIVE FEES.

MARLBOROUGH COLLEGE,

Tytherington Hall, nr. Macclesfield.

Sound Education. Upper and Lower Schools Preparation, when desired, for all University Entrance Examinations. Particulars from Sec. *Special Terms to Medical Men.*

ST. BARTHOLOMEW'S HOSPITAL MEDICAL COLLEGE.

Final F.R.C.S. Class.

A Course of instruction, suitable to the requirements of candidates for the Final F.R.C.S. Examination in November, will begin on September 5th, 1929.

For syllabus and full particulars apply to the DEAN, Medical College, St. Bartholomew's Hospital, London, E.C.1.

NORTH-EAST LONDON POST-GRADUATE COLLEGE,

PRINCE OF WALES'S GENERAL HOSPITAL, N.15.

The Practice of the Hospital is limited to Medical Practitioners. Particulars from T. H. C. BENIANS, F.R.C.S., Dean

F.R.C.S.(Edin.).

Prep. Classes and Museum Demons. for next Fellowship Exam will commence shortly. Correspondence course for Jany. and later exams. should begin now. Partics., Mr. H. C. ORRIN, F.R.C.S., at Surgeons' Hall, Edinburgh.

Glasgow Post-Graduate Medical ASSOCIATION.

The following arrangements have been made for Post-Graduate Teaching in Glasgow during the summer of 1929:

(*a*) A GENERAL MEDICAL AND SURGICAL COURSE from August 19th to September 13th. Fee £10 10s., or £6 6s. for first or second fortnight.

(*b*) CLINICAL ASSISTANTSHIPS in General and Special Hospitals.

Syllabuses and any other information may be had on application to the Secretary, Post-Graduate Medical Association, The University, Glasgow

University of Birmingham.

APPOINTMENT OF LECTURER IN PHYSIOLOGICAL DEPARTMENT.

Applications are invited for the post of Lecturer in Physiology. Stipend £400 per annum. Four copies of application, with copies of testimonials, must be sent, on or before August 5th, to the undersigned, from whom further particulars may be obtained.

The University, Edmund Street, Birmingham. July, 1929. C. G. BURTON, Secretary.

Egyptian Government.

EGYPTIAN UNIVERSITY.

Applications are invited for the post of PROFESSOR OF CLINICAL PATHOLOGY.

The salary offered is £E.1,500 (about £1,530) a year without pension, and the appointment will be on contract for five years, but may be renewed by mutual consent for a further period.

The Professor of Clinical Pathology will be expected to organize the work of the Department of Clinical Pathology in its relation to the Kasr el-Aini Hospital and to give such courses of instruction as may be decided upon. Preference will be given to candidates possessing a special knowledge of diseases of warm climates. The appointment is to be a full time post, no private practice being allowed.

An allowance equal to one month's salary will be paid on arrival at Cairo for travelling expenses.

Applications, accompanied by testimonials and references, to be addressed to the Dean, Faculty of Medicine, Egyptian University, Cairo, so as to be received not later than September 15th, 1929

British Red Cross Society's CLINIC FOR TREATMENT OF RHEUMATIC DISEASES, PARK SQUARE EAST, REGENT'S PARK.

There is a vacancy for the post of MEDICAL SUPERINTENDENT (Non-resident). It is hoped that the building will be ready for patients by November 1st next, but the duties of the Medical Superintendent will begin in September, as he will be expected to help in the preparation for the reception of patients, who will be Out-patients only. After the Clinic is opened his duties will be to see that treatment prescribed by the staff is properly carried out and to supervise the general administration of the Clinic. Applications may be accompanied by not more than two testimonials (copies). Salary £600 a year payable quarterly. The initial appointment will be for one year, but may be renewable.

Applications to be sent to the Secretary of the Clinic Committee, British Red Cross Society, 19, Berkeley Street, London, W.1, not later than July 24th next.

Salop County Council.

MEDICAL INSPECTION OF SCHOOL CHILDREN AND MATERNITY AND CHILD WELFARE.

Applications are invited from registered medical practitioners (male) for the post of Assistant Medical Officer to work under these Schemes. Salary £600 per annum, rising by annual increments of £25 to a maximum of £700, with travelling and out-of-pocket expenses on a fixed scale.

The salary will be subject to a deduction of 5 per cent. for superannuation under the Local Government and Other Officers Superannuation Act, 1922, and the candidate selected will be required to pass a medical examination

Candidates must possess a Diploma in Public Health, and experience in Refraction work will be *considered an important* additional qualification

Applications should be received on or before Saturday, July 27th, by the County Medical Officer of Health, College Hill House, Shrewsbury, from whom forms of application, conditions of appointment, list of duties, and any other information can be obtained.

County Borough of Croydon.

CROYDON MENTAL HOSPITAL, UPPER WARLINGHAM, SURREY.

APPOINTMENT OF SECOND ASSISTANT MEDICAL OFFICER.

The Visiting Committee of the Croydon Mental Hospital are prepared to receive applications from medical men for the appointment of *Second Assistant Medical Officer* at the Croydon Mental Hospital. No married quarters are provided.

The salary will be at the rate of £350 per annum, rising by annual increments of £25 each to a maximum of £450 per annum, and the age of the candidate should not exceed 35.

Furnished apartments will be provided, with board and washing, and for the purpose of Superannuation will be valued at £150 per annum.

Candidates must be registered under the Medical Act, and *preference will be given to* those candidates who have held the post of House Surgeon or House Physician at a General Hospital.

The appointment will be subject to the provisions of the Asylum Officers Superannuation Act, 1909.

Applications to be made on forms to be obtained by sending a stamped addressed foolscap envelope to the undersigned, with copies (not originals) of not more than three testimonials of recent date, not later than 11 o'clock in the forenoon of Thursday, August 8th, endorsed "Croydon Mental Hospital, Second Assistant Medical Officer."

Canvassing in any form is prohibited.

Town Hall, Croydon. July 17th, 1929. JOHN M. NEWNHAM, Clerk to the Visiting Committee.

City of Manchester.

APPOINTMENT OF ASSISTANT TUBERCULOSIS OFFICER.

The Public Health Committee invites applications for the position of Assistant Tuberculosis Officer at a commencing salary of £650 per annum, rising by annual increments of £25 to £750 per annum. (First increment January 1st, 1931.)

Candidates must be fully qualified Medical Practitioners having special knowledge of Medical and Surgical Tuberculosis. Candidates should state whether they possess the Diploma of Public Health.

Applications, stating age, qualifications, and experience, with copies of not more than three recent testimonials, and endorsed on the envelope "Assistant Tuberculosis Officer," must be addressed to the Town Clerk only, and not to members of the Committee or Council, and must be received by him not later than Monday, July 29th.

The gentleman appointed will be under the administrative control of the Medical Officer of Health and the immediate control of the Senior Tuberculosis Officer. He will be required to devote the whole of his time to the duties of his position, to execute the Deed of Service, and to contribute to the Corporation Superannuation Fund.

Canvassing in any form, oral or written, direct or indirect, is prohibited.

By Order, F. E. WARBRECK HOWELL, Town Clerk.

Town Hall, Manchester. July, 1929.

Poplar Board of Guardians.

APPOINTMENT OF ASSISTANT MEDICAL OFFICERS.

The Guardians of the above-named Parish hereby give notice that they will, at their meeting to be held on August 28th next, proceed to the appointment of Three Assistant Medical Officers at the St. Andrew's Hospital, Devons Road, Bow, E.3, each at a basic salary of £228 p.a., rising by two instalments to £254, thence by one instalment to £260, together with bonus in accordance with the Civil Service Award, producing at present a total commencing salary of £350, with board, lodging, and washing. The persons appointed will be required to carry out such duties as may be required of them by the Medical Superintendent of the Hospital or the Guardians.

Special consideration will be given to candidates who hold qualifications and have had experience in up-to-date Maternity work.

Forms of application may be obtained from the Clerk to the Guardians, 45, Upper North St., Poplar, E.14, and must be returned, with copies of not more than three recent testimonials, not later than first post Saturday, July 27th.

By Order, G. BUTLER, Clerk to the Guardians.

Clerk's Office, 45, Upper North St., Poplar, E.14.

City and Port of Plymouth.

ASSISTANT MEDICAL OFFICER OF HEALTH.

Applications are invited from duly qualified medical men for the post of Assistant Medical Officer of Health to the City and Port of Plymouth.

Applicants should not be more than 35 years of age, and must possess a Diploma in Public Health, or a qualification in State Medicine, or a Diploma in Tropical Medicine.

The person appointed will be required to assist the Port Medical Officer from time to time as required, and he will also assist in the general public health work of the City and in the various sub-departments of the Public Health Department. He will be required to act under the general supervision of the Medical Officer of Health and to carry out any duties delegated to him from time to time.

The salary will be at the rate of £600 per annum, and the appointment will be terminable by three months' notice on either side.

Forms of application are not provided, and applicants should send a statement of their professional qualifications and experience, together with copies of not more than three recent testimonials, to the undersigned on or before Saturday, August 24th. Canvassing will disqualify the applicant.

Envelopes must be endorsed "Assistant Medical Officer of Health."

A. T. NANKIVELL,
Medical Officer of Health,
City and Port of
Plymouth.

Town Hall,
Stonehouse.
July 15th, 1929.

City of Birmingham.

APPOINTMENT OF MEDICAL SUPERINTENDENT.

Applications are invited for the post of Medical Superintendent at the Mental Deficiency Institution shortly to be opened at Coleshill Hall, about 10 miles from Birmingham.

Candidates must be fully qualified registered medical practitioners, and have had experience in institutions for mental defectives.

Commencing salary £700 p.a. and emoluments (including house, fuel, lighting, and laundry) valued at £200 for superannuation purposes. The appointment will be subject to three months' notice on either side, and the selected candidate will be required to join the Asylums and Certified Institutions (Officers Pensions) Act, 1918.

Applications, stating age, medical qualifications, and experience, accompanied by copies of not more than three recent testimonials, endorsed "Medical Supt., Coleshill Hall," should be addressed to the undersigned not later than August 22nd.

Canvassing will be deemed a disqualification.

F. H. C. WILTSHIRE,
Town Clerk.

Council House,
Birmingham

West Derby Union.

RESIDENT ASSISTANT MEDICAL OFFICER (Male).

The Guardians invite applications for the above position at the MILL ROAD INFIRMARY, EVERTON, LIVERPOOL, at a salary after the rate of £200 per annum, together with rations, apartments, etc.

Candidates must be single, fully qualified, and registered.

Appointment will be for a period of one year in the first instance, subject to one month's notice to terminate on either side at any time, and to extension for a further period of twelve months at the option of the Guardians.

Applications to be sent, stating age, qualifications, etc., with copies of three recent testimonials, to the undersigned not later than first post on Tuesday, August 6th.

G. O. HOLLOWAY,
Clerk to the
Guardians.

Union Offices,
Brougham Terrace,
Liverpool.
July 15th, 1929.

County Council of the West Riding of Yorkshire.

PUBLIC HEALTH LABORATORIES.

TEMPORARY PATHOLOGIST.

... the post of ... ants must be ... with experi... ...gy, and Path... ...ology. Salary at the rate of £750. Forms of application and particulars of the appointment may be obtained from the undersigned, to ... t marked ... ...ies of not ... not later than August 3rd.

J. CHARLES McGRATH.

County Hall,
Wakefield. July 10th, 1929.

Birmingham Union.

ERDINGTON HOUSE.

RESIDENT ASSISTANT MEDICAL OFFICER (Female).

Applications are invited from fully qualified medical practitioners for the above appointment at the Erdington House. The Institution accommodates 1,800 inmates, of whom approximately 800 are mental patients of varying types, and 250 are sick, the remainder being aged and infirm, ordinary house cases, etc. Parts of the Institution are certified under the provisions of the Mental Deficiency Acts, 1913 to 1927.

The person appointed will be required to assist in the general medical work of the Institution and to undertake such other duties as may be assigned to her by the Guardians or the Medical Officer, and, should occasion arise, to assist at any other Institutions under the control of the Guardians.

The minimum and maximum of the scale of salary attached to the appointment are £250 and £350 per annum respectively, and the salary of the successful candidate will be fixed within these limits according to qualifications and experience. In addition, full residential emoluments (rations, apartments, laundry, and attendance) will be provided. A deduction of 2 per cent. will be made from the salary and value of emoluments under the provisions of the Poor Law Officers' Superannuation Act, 1896, and for this purpose emoluments are valued at £200 per annum.

Applications, stating age, experience, and qualifications, accompanied by copies of recent testimonials, should be forwarded so as to reach me not later than July 29th.

Canvassing the Guardians, directly or indirectly, will disqualify.

C. P. BEECH,
Clerk to the Guardians.

Union Offices,
Edmund Street,
Birmingham. July 13th, 1929.

City of Plymouth.

UDAL TORRE SANATORIUM, YELVERTON.

RESIDENT MEDICAL OFFICER.

Applications are invited from duly qualified and registered practitioners (male) for the post of Resident Medical Officer at Udal Torre Sanatorium (39 beds). The Sanatorium is situated on Dartmoor about 9 miles from Plymouth, and is reserved for the treatment of intermediate and advanced cases of pulmonary tuberculosis in male persons.

The salary will be at the rate of £450 per annum, together with board, residence, and laundry. Quarters are not provided for a married man. The appointment will be terminable by three months' notice on either side. Canvassing will be a disqualification.

The person appointed will rank as an Assistant Medical Officer of Health, and will be required to act under the general supervision of the Medical Officer of Health and to carry out any duties delegated to him from time to time.

Forms of application will not be provided, but candidates must state their age and experience.

Applications, together with copies of not more than three recent testimonials, must be delivered to the undersigned at his office on or before Saturday, August 24th, and envelopes must be endorsed "Resident Medical Officer."

A. T. NANKIVELL,
Medical Officer of Health.

Town Hall,
Stonehouse,
July 15th, 1929.

City of Nottingham Education Committee.

Applications are invited from duly qualified and registered medical practitioners for the post of SENIOR ASSISTANT SCHOOL MEDICAL OFFICER.

The salary scale for the post will be £600 p.a., rising, upon approved service, by annual increments of £25 to £800 p.a. The Committee will, in fixing the commencing salary, take into consideration any special qualifications and experience of the selected candidate.

Applications, which should be made on the special forms obtainable from the undersigned, must be returned by August 30th.

Canvassing, either directly or indirectly, will be deemed a disqualification.

A. H. WHIPPLE,
Director of
Education.

School Medical Service,
28, Chaucer St.,
Nottingham.

Wanted at the Plymouth Poor Law Institution, a Resident Locum Tenens for four weeks from August 5th. Particulars of remuneration, etc., may be obtained upon application to W. H. Davy, Clerk to the Guardians, Poor Law Offices, Greenbank Road, Plymouth.

Salisbury Municipality

MEDICAL OFFICER OF HEALTH.

Applications are invited for the position of Medical Officer of Health to the Salisbury Municipality, at a salary of £900 per annum.

Applicants must possess the Diploma of Public Health.

Duties will include those prescribed by the Local Government Board (England) for Medical Officers of Health and, in addition, the medical examination of natives in the Municipal Area; attendance on natives at the Lazaretto; and European patients at the Isolation Hospital.

The officer appointed will be the administrative head of the Sanitary and Public Health Department.

Applicants must state age, and whether single or married, submit qualifications and present occupation, together with three testimonials.

Applications close on August 31st, and must be addressed to the undersigned, endorsed "M.O.H." on the cover.

The successful applicant will be required to assume duties as soon as possible after October 15th. No travelling expenses will be paid, but salary will commence from date of leaving to take up duties.

By Order of the Council,
R. L. POLLETT,
Town Clerk.

Town House, Salisbury, S. RHODESIA.
June 25th, 1929.

The Royal Infirmary, Sheffield.

(500 Beds.)

OPEN APPOINTMENTS.

The Weekly Board of Management invite applications for the four undermentioned posts:

ASSISTANT CASUALTY OFFICER,
HOUSE SURGEON,
OPHTHALMIC HOUSE SURGEON, and
ASSISTANT OPHTHALMIC HOUSE SURGEON.

The appointments will be tenable for six months from July 1st. The salary attached to each appointment is £80 per annum, with board and residence. Applications, with copies of testimonials, to be sent to the undersigned immediately.

JNO. W. BARNES, F.C.I.S.,
General Superintendent and Secretary.

Board Room, June 19th, 1929.

The Royal Infirmary, Sheffield.

OPEN ELECTION.

A vacancy having arisen in the post of SURGICAL REGISTRAR to the Royal Infirmary, Sheffield, the Weekly Board invite applications therefor.

Candidates must be Fellows of one of the Colleges, and the successful candidate will not be allowed to engage in general practice. The post is tenable for one year, and the holder will be eligible for re-election. The salary is £200 per annum.

Applications, stating age and qualifications, together with copies of testimonials, to be sent to the undersigned immediately.

JNO. W. BARNES, F.C.I.S.,
General Superintendent and Secretary.

Board Room, June 19th, 1929.

The General Hospital, Birmingham.

Applications are invited for the post of SECOND ASSISTANT VISITING ANÆSTHETIST.

The successful candidate will be required to attend on three mornings a week from 9.30 to 1, and will be paid an honorarium of £50 per annum.

Applicants, who must be registered medical practitioners, and have had experience in the administration of anæsthetics, should send in their applications to the undersigned, with copies of testimonials, by July 22nd.

A. H. LEANEY, House Governor.

The Miller General Hospital, Greenwich Road, S.E.10.

HONORARY PHYSICIAN TO THE SKIN DEPARTMENT.

The Board of Management invite applications for the above post. Candidates must be Fellows or Members of the Royal College of Physicians of London and not engaged in general practice, and they will be expected to call upon the Members of the Honorary Medical and Surgical staff, a list of whom can be obtained from the Secretary.

Applications, together with copies of three recent testimonials, should be sent to the Chairman of the Hospital as soon as possible.

July 16th, 1929.

ROYAL ARMY MEDICAL CORPS.

TWENTY-FIVE COMMISSIONS in the ROYAL ARMY MEDICAL CORPS will be offered in July, 1929. Applications should reach the War Office not later than July 20th.

Candidates will be selected for Commissions without competitive examination, and will be required to present themselves in London for interview and medical examination towards the end of July. They must be under 28 years of age on August 1st, 1929, and registered under the Medical Acts.

Officers of the R.A.M.C. are liable to serve in any part of the world where British Troops are quartered.

Ample opportunities exist in the Army for clinical professional work, both Medical and Surgical, as well as for the study and practice of Hygiene, Pathology, and all the special branches.

The cost of Post-Graduate study, which is compulsory, is met from Army Funds.

Pay and Allowances.—Pay from £500 to £2,000 a year according to rank and length of service.

Gratuities on Retirement.—After 7 years' service £1,000.
„ 15 „ „ £2,800.
„ 18 „ „ £3,500.

Current rates of retired pay range from £372 per annum normally earned by a Major after 20 years' service to £940 per annum, the maximum for which a Major-General is eligible. The rates of pay and retired pay are subject to periodical variation consequent on fluctuation in the cost of living.

Outfit Grant.—An officer on joining receives £50 as outfit allowance.

Marriage Allowance.—Officers of 30 years of age and over who are married are entitled to draw special rates of allowances.

A Voluntary Widows' and Orphans' Fund exists for officers of the Corps.

All particulars may be obtained by application, in writing or personally, to the Under Secretary of State, The War Office (A.M.D.1), Whitehall, London, S.W.1.

INDIAN MEDICAL SERVICE

Recruitment of European Officers.

Applications are invited from medical men for permanent commissions in H.M.'s Indian Medical Service. The terms offered include a gratuity of £1,000 on retirement after six years' service, or £2,500 after 12 years' service, together with free return passages, for those who no longer desire to remain in the Service In other respects the terms will be as detailed below.

Candidates must be British subjects under 32 years of age at the time of application, and must be registered under the Medical Acts in force in Great Britain and Northern Ireland.

CAREERS.

The Indian Medical Service offers wide opportunities of medical experience, including clinical, preventive, specialist, and research work. At the beginning of his career an officer is employed on the military side, which has medical charge of the Indian Army. Promotion is on a time scale up to the rank of Lieutenant-Colonel, and by selection to the ranks of Colonel and Major-General. An officer may apply after two years' Indian service for transfer to the civil side, from which appointments are made to Civil Surgeoncies, which are established at the principal civil centres to provide for the medical needs of civil officials and for general medical administrative purposes; to specialist (for example, public health and bacteriological) services; to research posts; and to professorships at the Medical Schools.

PAY.

The monthly rates of pay for European officers in the Service who have a "non-Asiatic" domicile are as follows:

Rank.	Service in Rank.	Basic Pay.	Overseas Pay.	Year of Total Service.
1	2	3	4	5
		Rs.	Rs.	
Lieut.		500	150	1st
			150	2nd
			150	3rd
Capt.	(i) During first 3 years' service as Captain	650	150	4th
			£15	5th
			£15	6th
	(ii) With more than 3 and less than 6 yrs.' service as Captain	750	£25	7th
			£25	8th
			£25	9th
	(iii) With more than 6 years' service as Captain	850	£25	10th
			£25	11th
			£30	12th
Major	(i) During first 3 years' service as Major	950		
	(ii) With more than 3 and less than 6 years' service as Major	1100		
	(iii) With more than 6 years' service as Major	1250		
Lieut.-Col.	(i) Until completion of 23 years' total service	1500	£30	13th and over
	(ii) During 24th and 25th years' service	1600		
	(iii) After completion of 25 years' total service	1700		
	(iv) When selected for increased pay	1850		

EXTRAS.—In addition to the above rates various allowances are admissible for a large number of special appointments on both the military and the civil side which may be held by members of the Indian Medical Service. Special high rates of pay are also attached to the numerous administrative appointments open to officers in both branches of the Service.

WAR SERVICE CONCESSIONS.

Any service rendered by an officer during the war as a medical or combatant officer, or in a position usually filled by an officer, may be counted as service for increments of pay, promotion, retirement and retired pay, but not for gratuity.

One *half* of any service in the ranks during the war may be counted as service for retirement and retired pay only.

OUTFIT ALLOWANCE.

Officers on appointment will receive an outfit allowance of £50.

PRIVATE PRACTICE.

With the exception of Administrative Officers, military or civil, and officers holding certain special appointments, officers are not debarred from taking private practice, so long as it does not interfere with their proper duties.

PENSIONS.

The rates of pension are as follows:

	Per annum.
	£
After 17 years' service for pension	400
,, 18 ,, ,, ,, ...	430
,, 19 ,, ,, ,, ...	460
,, 20 ,, ,, ,, ...	500
,, 21 ,, ,, ,, ...	540
,, 22 ,, ,, ,, ...	580
,, 23 ,, ,, ,, ...	620
,, 24 ,, ,, ,, ...	660
,, 25 ,, ,, ,, ...	700
,, 26 ,, ,, ,, ...	750
,, 27 ,, ,, ,, ...	800

These rates are subject to alteration on account of a rise or fall in the cost of living as compared with the year 1919 to an extent not exceeding 20 per cent. in all, the revision being undertaken triennially. With effect from July 1st, 1927, a reduction of 4½ per cent. has been made on this account from the amounts shown.

There are additional pensions ranging from £65 to £350 per annum for officers who have held administrative appointments.

PASSAGES.

An officer on appointment is provided with a free passage to India. The wives and families of officers who are married prior to the date of the officers' embarkation on first appointment will also be provided with free passage to India, subject to the payment of messing charges.

Officers and their families are also eligible for passage concessions under which they are granted a certain number of return passages home at Government expense during their service.

INSTRUCTION PRIOR TO EMBARKATION.

Officers are required to undergo courses of instruction at the Royal Army Medical College and at Aldershot, lasting approximately six months, prior to their embarkation for India on first appointment.

Full details regarding these appointments and forms of application may be obtained from the Under-Secretary of State for India, Military Department, India Office, London, S.W.1. Applications should be submitted as soon as possible. The Selection Committee will meet early in July to make nominations, and the selected candidates will be required to attend a course of instruction commencing on the 6th August, 1929.

Devonshire Hospital, Buxton,
DERBYSHIRE. (300 Beds.)
(A Special Hospital for Rheumatism and Allied Diseases.)

ASSISTANT HOUSE PHYSICIAN.

The Committee invite applications for this post. To commence duties August 1st. The successful candidate will be engaged for a period of not less than six months. The appointment is not open to ladies. Salary commencing £150 per annum, rising to £175 after three months' service, with furnished apartments, board (excepting stimulants), and laundry. Applications, with copies of three recent testimonials, endorsed "Assistant House Physician," to be sent in at once. The Medical Staff consists of eight Honorary Physicians, an Honorary Surgeon, a Bacteriologist, a Radiologist, a Biochemist, and two Resident House Physicians. The Hospital contains a Pathological Laboratory, and X-ray Department. This appointment offers special facilities for anyone preparing a thesis or wishing to do research work.

Canvassing will disqualify.

By Order,
TOM B. HARRISON,
General Superintendent and Secretary.

General Hospital, Gt. Yarmouth.
(72 Beds.)

Applications are invited for the post of SENIOR HOUSE SURGEON. Salary £150 per annum, with board, residence, and laundry. Duties to commence August 13th. Candidates (male and unmarried) must be fully qualified and registered.

Applications, stating age, nationality, and qualifications, together with copies of three recent testimonials, to be sent immediately to the undersigned.

T. H. G. GARTLAND, Secretary.

General Hospital, Gt. Yarmouth.
(72 Beds.)

Applications are invited for the post of JUNIOR HOUSE SURGEON. Salary £100 per annum, with board, residence, and laundry. Candidates (male and unmarried) must be *fully qualified and registered*

Applications, stating age, nationality, and qualifications, together with copies of three recent testimonials, to be sent immediately to the undersigned.

T. H. G. GARTLAND, Secretary.

East Ham Memorial Hospital,
Shrewsbury Road, E.7.

Applications (male) are invited for the appointment of RESIDENT MEDICAL OFFICER which is now vacant. The appointment terminates on December 31st, with salary at the rate of £150 per annum, and board, residence, and laundry. Applications, stating age, experience, and full particulars, should be sent immediately, together with copies of testimonials, to the undersigned.

J. T. MORTON, Secretary.

Burton - on - Trent General INFIRMARY.

HOUSE SURGEON.

The Committee require the services of a duly qualified Second Resident House Surgeon (male). Salary £150, with board and furnished quarters.

Applications, stating age and experience, and accompanied by copies of testimonials, to be sent to the undersigned.

The Infirmary, E. W. THORNLEY,
Burton-on-Trent. Secretary.

Birkenhead General Hospital.
(156 Beds.)

Applications are invited for the post of CASUALTY SURGEON (male). Salary £100, with board and residence. To take up duties beginning of August.

Applications, stating qualifications, experience, and nationality, with three copies of recent testimonials, to be sent to the Secretary-Supt. as early as possible.

Durham County and Sunderland EYE INFIRMARY.

Wanted, a LOCUM for the above Institution for the months of August and September.

Must have good experience in Ophthalmic work.

Apply, with full particulars, to—
Eye Infirmary, JOHN BUTTERFIELD,
Stockton Rd., Sunderland. Secretary.

Birmingham and Midland Eye HOSPITAL, Church Street, BIRMINGHAM.

Applications are invited from duly registered medical practitioners for the following resident posts at the above Hospital:

RESIDENT SURGICAL OFFICER. Salary £150 per annum.

Two HOUSE SURGEONS. Salary £110 per annum.

Applications must be received by first post on Tuesday, July 30th.

Particulars can be had on application to the undersigned.

C. A. MASON,
July 16th, 1929. Gen. Superintendent.

Hull Royal Infirmary.
(272 Beds.)

Applications are invited for the post of CASUALTY HOUSE SURGEON (male), now vacant.

The appointment will be for six months in the first instance, terminable on either side by one month's notice.

Salary at the rate of £130 per annum, with residence, board, and laundry.

Applications should be addressed to the undersigned.

R. J. CARLESS,
July 15th, 1929. House Governor.

London Temperance Hospital,
Hampstead Road, N.W.1.

Applications are invited for the post of CASUALTY OFFICER, which will become vacant on or about August 7th.

The appointment will be for a period of six months, at a salary of £120 per annum. (Ceteris paribus, preference will be given to abstainers, and to those who have held resident post.)

Candidates must submit applications, stating qualifications, age, etc., with copies of not more than three testimonials, by Friday, August 2nd, addressed to the Secretary.

Beckett Hospital & Dispensary,
BARNSLEY.

JUNIOR HOUSE SURGEON (male) required. Applicants must be fully qualified, registered, and unmarried.

Salary attached to this appointment is at the rate of £140 per annum, together with board, residence, and laundry.

Applications, stating age, qualifications, and experience (Ophthalmology desirable), accompanied by testimonials, should be sent to the undersigned not later than July 27th.

July 16th, 1929.

Longton Hospital.

Applications are invited for the post of HOUSE SURGEON to the above Hospital.

Salary £120 per annum, with board, residence, and laundry, plus certain fees.

Applications, with copies of three recent testimonials, should reach me the undersigned not later than July 30th, addressed to the Chairman of Directors, Longton Hospital, Stoke-on-Trent, Staffs.

By Order of the Board of Management,
W. HOLFORD, Secretary.

Darlington General Hospital.

Wanted, JUNIOR HOUSE SURGEON, male, fully qualified. Salary £125 per annum, board and residence. Applications, stating qualifications and experience, together with copies of two recent testimonials, to be addressed to me forthwith.

G. H. SHARPE, Hon. Secretary.

Liverpool Stanley Hospital.

Wanted at once, One Male HOUSE PHYSICIAN. Engagement for a period of six months. Salary at the rate of £100 per annum, with board, laundry, etc.

Applicants must be on the *Medical Register*, and applications, with copies of three recent testimonials, should be sent to the undersigned.

E. W. OSBORN, Secretary.

Macclesfield General Infirmary.
(100 Beds.)

Wanted, RESIDENT HOUSE SURGEON. Salary £180 per annum, with board and residence. Candidates must be fully qualified and registered.

Applications, with copies of testimonials, to be sent to the undersigned.

A. E. HANRAHAN, Secretary.

Queen Mary's Hospital for the EAST END, E.15.

Applications are invited for the post of HONORARY ASSISTANT RADIOLOGIST at the above Hospital.

Applicants must be registered medical practitioners, engaged solely in the practice of Radiology. Applications, together with copies of not more than three recent testimonials, should be forwarded to the undersigned on or before Friday, August 2nd.

Further particulars may be obtained from—
RAPHAEL JACKSON (Major),
Secretary.

Nuneaton General Hospital,
WARWICKSHIRE. (76 Beds.)

HOUSE SURGEON (male) required. Salary £120 per annum, with board, lodging, and laundry. The appointment is tenable for six months, but application may be made for an extension of this period.

Candidates must be registered according to the provisions of the Medical Act and be Members of one of the Medical Protection Societies.

Applications, stating age, nationality, etc., together with copies of three recent testimonials, to be sent at once to the Medical Secretary.

West Herts Hospital,
HEMEL HEMPSTEAD.
(110 Beds. 24 miles from Euston.)

Applications are invited for the appointment of a JUNIOR RESIDENT MEDICAL OFFICER, to commence duties on or about August 1st next. Salary £100, with rooms, board, and laundry.

Preference will be given to male candidates

Particulars to be obtained of, and applications, stating essential particulars, and enclosing copies of recent testimonials, to be sent at once to

ROBT. L. BUTTERFIELD,
Clerk to the Hospital.

The Staffordshire General INFIRMARY, STAFFORD.

Applications are invited for the post of HOUSE SURGEON (male). Salary at the rate of £200 per annum, with board, lodging, etc. Candidates must be fully qualified and registered. The appointment to be held for at least six months. Applications, stating age, accompanied by copies of three recent testimonials, should reach the undersigned not later than Thursday, July 25th.

Stafford. A. E. COLLINS,
July 2nd, 1929. Secretary.

Royal South Hants and SOUTHAMPTON HOSPITAL, SOUTHAMPTON.

Applications are invited for the post of CASUALTY OFFICER at the above. Six months' engagement. Salary £120 per annum, with rooms, board, and laundry. Candidates must be male and unmarried, and should apply, stating age, etc., to the undersigned before July 29th.

HY. TRUSSON, Secretary.

Royal Hampshire County HOSPITAL, WINCHESTER.

RESIDENT HOUSE SURGEON (male) required as soon as possible. Must be of British nationality. Salary £150 per annum, board, lodging, and attendance provided. Candidates must be duly qualified and registered.

Applications, stating age, and enclosing copies of recent testimonials, should be sent to the undersigned as soon as possible.

HERBERT MASLEN, Secretary.

Stockport Infirmary.

Applications are invited from fully qualified gentlemen for the position of HOUSE SURGEON at this Infirmary.

Salary £175 per annum, with board, residence, and laundry.

Applications, with copies of three recent testimonials, to be delivered to the undersigned as soon as possible. Duties to commence on August 1st.

EDWIN J. PEARCE,
July 10th, 1929. Secretary-Supt.

Manchester Royal Eye Hospital.

JUNIOR HOUSE SURGEON required. Salary £120 per annum, with residence, board, etc. Applications (with copies of testimonials), endorsed "House Surgeon," to be addressed to the Chairman of the Board of Management, not later than July 26th.

H. R. NORTH,
July 12th, 1929. Secretary.

APPOINTMENTS—Important Notice.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

(a) British Islands.

Town or District.	Town or District.	Town or District.
CONTRACT PRACTICE.	**CONTRACT PRACTICE** *(Contd.).*	**PUBLIC HEALTH** *(continued).*
EBBW VALE, MON. *(Workmen's Medical Society.)*	NEATH AND DISTRICT. *(Medical Aid Association.)*	DOWN COUNTY COUNCIL. *(Assistant Tuberculosis Medical Officer.)*
GILFACH GOCH, GLAMORGAN. *(Workmen's Medical Scheme.)*	OAKDALE, MON. *(Medical Officer for Medical Aid Association.)*	GLASGOW EDUCATION AUTHORITY. *(Male Assistant Medical Officer.)*
LLWYNYPIA, CLYDACH VALE PENYGRAIG, GLAMORGAN. *(Workmen's Medical Scheme.)*	OGMORE VALLEY, GLAMORGAN. *(Wyndham Colliery Medical Aid Society) (Workmen's Medical Scheme.)*	SOUTH SHIELDS COUNTY BOROUGH. *(Assistant Medical Officer.)*
MARDY, GLAMORGAN. *(Workmen's Medical Scheme.)*	**PUBLIC HEALTH.**	YORKSHIRE NORTH RIDING COUNTY COUNCIL EDUCATION COMMITTEE *(Assistant School Medical Officer.)*
	CORNWALL EDUCATION COMMITTEE. *(Assistant School Medical Officer—Female.)*	YORKSHIRE WEST RIDING COUNTY COUNCIL. *(School Medical Inspector.)*

(b) Colonial Medical Service.— WINDWARD ISLANDS MEDICAL SERVICE. (Grenada with Carriacou, St. Vincent and St. Lucia.)

(c) Overseas.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.
NEW SOUTH WALES. *(All Friendly Society Appointments.)*	Dr. R. H. TODD (Hon. Sec., New South Wales Branch), B.M.A. Building, 30-34, Elizabeth St., Sydney, N.S.W.	**VICTORIA.** *(All Institute or Medical Dispensaries.)*	Dr. FRANK DAVIES (Hon. Sec., Victorian Branch), British Medical Association, Medical Society Hall, East Melbourne, Victoria.	**WESTERN AUSTRALIA.** *(Contract and Lodge Practice.)*	Hon. Sec., Western Australian Branch, British Medical Association, No. 6, Bank of N.S.W. Chambers, St. George's Terr., Perth, Western Australia.
QUEENSLAND. *(Brisbane Associated Friendly Societies Institute.)*	Dr. E. S. MEYERS (Hon. Sec., Queensland Branch), British Medical Association, Adelaide St., Brisbane.	**WELLINGTON, NEW ZEALAND.** *(Contract Practice Appointments.)*	Dr. G. F. V. ANSON (Hon. Sec., New Zealand Branch), British Medical Association, P.O. Box 156, Wellington, New Zealand.		

Address: B.M.A. House, Tavistock Square, W.C.1.
July 17th, 1929.

By Order of the Council of the British Medical Association.
ALFRED COX, Medical Secretary.

Bradford Royal Infirmary.

Two HOUSE SURGEONS (male) wanted for September 1st.

Candidates must be single and legally qualified. Salary £150 per annum each, with board, residence, and washing.

There are 215 beds and six resident officers.

Applications, stating age, qualifications, and previous experience (if any), with copies of recent testimonials, to be received by the undersigned not later than Wednesday, July 24th.

J. J. BARRON, Secretary-Supt.

Liverpool Stanley Hospital.

There will be vacancies for Two Male HOUSE SURGEONS and One Female GYNÆCOLOGICAL HOUSE SURGEON on October 1st.

Engagement for a period of six months. Salary at the rate of £100 per annum, with board, laundry, etc.

Applicants must be on the *Medical Register*, and applications, with copies of three recent testimonials, should be lodged with the undersigned on or before July 26th.

E. W. OSBORN, Secretary.

London Jewish Hospital,
Stepney Green, E.1.

Applications are invited (and should be sent to the Secretary immediately) for the post of OUT-PATIENT ASSISTANT for the months of August and September. Honorarium at the rate of £50 per annum.

The Gloucestershire Royal INFIRMARY AND EYE INSTITUTION, GLOUCESTER. (145 Beds.)

Applications are invited for the post of SECOND HOUSE SURGEON (male). Salary £100 per annum, with board, residence, and laundry. (Four Resident Medical Officers.)

The appointment is for six months, which may be extended for similar periods by re-election from time to time.

Applications, stating age, qualifications, and nationality, with copies of not less than three recent testimonials, must be received by the undersigned not later than Wednesday, July 24th. The elected candidate will be required to enter upon his duties at once.

F. J. SYMONS, Secretary.

July 10th, 1929.

Dundee Royal Infirmary.

The Directors invite applications for the office of VISITING MEDICAL OFFICER of the Department of Medical Diseases of Children.

Applications, with 20 copies of three testimonials, must reach the Secretary not later than Saturday, August 3rd.

Bradford Children's Hospital.

HOUSE SURGEON and HOUSE PHYSICIAN wanted, fully qualified. Salary £120 each, with board, residence, and laundry.

Applications, stating age, with recent testimonials, not later than July 29th, to—

J. W. LONGLEY, Secretary.

The Prince of Wales's General HOSPITAL, Tottenham, N.15.

Applications are invited for the post of HONORARY ASSISTANT PHYSICIAN.

Candidates must be Graduates in Medicine of a recognized British University; Fellows or Members of the Royal College of Physicians of London, and engaged in the practice of Medicine only.

Applications, stating age, qualifications, and accompanied by copies of three recent testimonials, must be sent in by the first post on Monday, *July 22nd next.*

FREDK. W. DREWETT, Director.

July 6th, 1929.

Rotherham Hospital.

Wanted, SENIOR HOUSE SURGEON (male), qualified. A knowledge of Eye work is desirable. Salary £200, with board, lodgings, and washing.

Applications, with copies of recent testimonials, to be sent to the Secretary, G. W. ROBERTS, 8, Moorgate Street, Rotherham.

Liverpool Hahnemann Hospital,
HOPE STREET.

Applications are invited for the post of CLINICAL ASSISTANT to the OPHTHALMOLOGICAL DEPT. of the Hospital. One half-day *per week.*

Apply, stating age, experience, sex, and enclosing testimonials, to the Registrar.

British Medical Journal,
BRITISH MEDICAL ASSOCIATION HOUSE,
TAVISTOCK SQ., LONDON, W.C.1.
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ASSISTANCIES.

Wanted.--Assistant with definite view early Partnership. Colliery Practice near Newcastle-on-Tyne. Salary £400 outdoor, or £300 indoor. Abstainer preferred. —Address, No. 4430, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistantship, with view early Partnership or succession, by Woman Graduate, æt 37. Good address, excellent testimonials; 5 years' resident hospital and G.P. experience. Capital available.—Add., No. 4408, B.M.A. House, Tavistock Sq., W.C.1.

Wanted, young male Assistant to manage Branch Surgery. Very light post, time for reading. Country. View to Partnership in about 2 years. Salary £260, all found. Car provided.—Address, No. 4435, B.M.A. House, Tavistock Square, W.C.1.

Wanted immediately, Assistant, outdoor, single, abstainer, for mixed Practice, Somerset; pleasant district. Work easy. Salary £350 per annum, and allowance for transport. Photo and testimonials.—Address, No. 4453, B.M.A. House, Tavistock Square, W.C.1.

Wanted, commencing September, for panel Practice, recently qualified male outdoor ASSISTANT. Work light. Salary £300. Testimonials required.—Apply, Dr. WALLICE, *Leasde, Rhosddu, Wrexham*, N. Wales.

Wanted, September, Assistant, male and unmarried, for General Practice in South of England. Ex-Resident, motor cyclist. Commencing salary £400 p.a. outdoor.—Address, No. 4222, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Outdoor Assistant, preferably with Dental degree, for Practice near Manchester. Salary £400 p.a. State full particulars.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Wanted. — Married Assistant, outdoor (house available), with definite view to Partnership. Mixed Practice, near Newcastle-on-Tyne. Must have experience in G.P. Salary £400. Abstainer pref. Photo, testimonials. —No 4181, B.M.A. House, Tavistock Sq., W.C.1.

Wanted.—An Assistant, male, single, indoor, cyclist, age under 30. Protestant preferred. salary £250 *a year, for* North Yorkshire.—Address, No. 4417, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—Assistant, London area; salary £300; furnished rooms, electric light, and coal. Usual bond.—Address, with *full particulars*, No. 4413, B.M.A. House, Tavistock Square, W.C.1.

Wanted immediately, young ASSISTANT, male (indoor) for panel and private Practice, North England. Full particulars. — Address, No. 4409, B.M.A. House, Tavistock Square, W.C.1.

Wanted, a qualified Assistant for an East End Practice. No dispensing or midwifery, and good time off. Good salary to a suitable man.—Address, No. 4434, B.M.A. House, Tavistock Square, W.C.1.

Wanted, September 1st, ASSISTANT, young, male, unmarried, for general Practice, Newcastle on Tyne. Salary £250 p.a., all found.—Address, No. 4420, B.M.A. House, Tavistock Square, W.C.1.

Wanted immediately. Outdoor ASSISTANT, near Manchester. Salary £400. Experienced, keen, and energetic. State full particulars.—Address, No. 4420, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Male Assistant, *young.* Salary £400 *and house*, increasing to £500; ex resident preferred.—Address, No. 4412, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—An Assistant, male, single, ind or, cyclist; age under 30; Protestant. £300 a year. North-East Coast. —Address, No. 4416, B.M.A. House, Tavistock Square, W.C.1.

Wanted immediately. — Male indoor and outdoor ASSISTANTS, with and without view. Also LOCUM TENENS. Good salaries offered. State full particulars.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Assistantship wanted by Woman M.B., B.S.*Lond.*, M.R.C.S., æt. 32. Experienced and used sole charge. Country preferred. Interview. — Address, No. 4415, B.M.A. House, Tavistock Square, W.C.1.

Indian Doctor, ex-army, qualified 1915, taking M.R.C.P.London, age 30, requires ASSISTANTSHIP, with view to partnership, or LOCUM TENENS near London. Fond of hard work, abstainer, now free. — Address, No. 4419, B.M.A. House, Tavistock Square, W.C.1.

Indian, experienced panel and private, really good man, wants ASSISTANTSHIP. — Address, No. 4410, B.M.A. House, Tavistock Square, W.C.1.

M.B., B.Ch., B.A.O., seeks ASSISTANTSHIP; 2½ years' experience G.P., panel, private, etc. Irish and R.C. Now free and in London.—Address, No. 4405, B.M.A. House, Tavistock Square, W.C.1.

Part-time Assistant required in West Central London. Rooms provided over surgery. Might suit retired Medical Man.—Address, No. 4420, B.M.A. House, Tavistock Square, W.C.1.

Thoroughly experienced keen young married man seeks OUTDOOR ASSISTANTSHIP, with or without view. Definite proof of success in 5½ years of every branch general practice, including heliotherapy and minor surgery. Good appearance and excellent testimonials. English. Interview anywhere provided there is adequate *remuneration* for hard work, and, if scope exists, increase of practice.—Address, No. 4451, B.M.A. House, Tavistock Square, W.C.1.

X-ray.—Radiologist in Northern city requires an ASSISTANT with view to Partnership. State age and experience. D.M.R. & E. preferred.—Address, No. 4425, B.M.A. House, Tavistock Square, W.C.1.

MEDICAL POSTS, DISPENSERS, etc.

Wanted immediately, Lady DISPENSER-BOOKKEEPER for Partnership in Midlands. One other Dispenser kept.—Dr. ELLIOT, Melton Mowbray.

Wanted.—Nurse between 30 and 40. Educated lady for three children, 4½, 3, and eight months. Nursemaid kept. In village near Nottingham.—Apply, "NURSE," Box 7, G.P.O., Nottingham.

Doctors requiring qualified Dispensers, Nurse Dispensers, Secretary Dispensers or Chauffeuse Dispensers, are invited to write, wire, or 'phone Gerrard 2699, THE DISPENSERS' BUREAU, 145, Shaftesbury Avenue, London, W.C.2.

A Lady Dispenser-Bookkeeper supplied immediately on request, qualified and with practical experience in private practice and dispensary work, also trained in Bacteriological Laboratories of the LONDON COLLEGE OF PHARMACY FOR LADIES. Preparation for Examinations.—Write, wire, or 'phone (Park 0959), Secretary, 7, Westbourne Park Road, W.2.

Dispenser - Secretary requires POSITION, also as Surgical Dresser, Bookkeeper, etc. For Practice or Hospital. At liberty first week August. Age 42, married, C.E. Holds all necessary Diplomas and excellent testimonials.—Write Box 899, REYNELLS, 44, Chancery Lane, W.C.2.

Dispensers supplied to Doctors at short notice, without fee. Qualified and exper. in priv. and panel prac. Perm. and part-time Bookkeeper-Dispensers, Secretary Dispensers, Nurse-Dispensers, and Chauffeuse Dispensers.—Write, wire, or 'phone Central 3679, THE RELIANCE BUREAU FOR DISPENSERS, 87, Holborn Viaduct House, 12, Holb. Viad. E.C.1.

Medical Officer (preferably unmarried), with British Degree, required shortly for a Group of Rubber Estates in NORTH BORNEO; passage out and home paid; plainly furnished quarters; four years' agreement.—Apply for further particulars to the Secretary, BRITISH NORTH BORNEO (CHARTERED) COMPANY, 17, St. Helen's Place, London, E.C.3.

Radiologist (male) required to do holiday work during August, in London.—Address, No. 4421, B.M.A. House, Tavistock Square, W.C.1.

The Royal Army Medical Corps ASSOCIATION.—If you require men trained in all branches of hospital work.—Dispensers (capable of undertaking returns, clerical work, etc., connected with Ministry of Health), Clerks, Laboratory Assistants, general hospital duties, Porters, Caretakers, etc.—Apply, Secretary, 76, Clarendon Street, S.W.1.

Typewriting.—Expert undertakes Theses, Testimonials, etc. Numerous letters of appreciation from Doctors.—Write or 'Phone: BEATRICE RADFORD, 27, Buckland Crescent, Swiss Cottage, London, N.W.3. *Primrose Hill 0803.*

LOCUMS.

FOR LOCUM TENENS APPLY TO Mr. PERCIVAL TURNER, Ltd.
The oldest and only Agent who for 40 years has supplied substitutes at short notice without fee to principals.
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HOLIDAY LOCUMS.

THE MEDICAL AGENCY has pleasure in announcing that lists are now being prepared for Locum engagements for the forthcoming Holiday Season. Principals requiring a RELIABLE SUBSTITUTE are advised to make early application.—Address, W. H. GRANT, The Medical Agency, Watergate House, Adelphi, W.C.1. Tel.: Gerrard 8954 and Riverside 1254 (night calls).

Wanted. — Locum, male, for private and panel Practice within 12 miles. Four weeks from August 4th. State experience and other particulars.—Address, No. 4457, B.M.A. House, Tavistock Square, W.C.1.

An experienced Locum is disengaged the last week of this month, 25th to 31st. Total abstainer. Well versed in all kinds of Practices. Ordinary terms.—Add., No. 4432, B.M.A. House, Tavistock Sq., W.C.1.

General Practitioner (retired), with wide experience, is willing to undertake LOCUM APPOINTMENTS. Life abstainer. If work light—terms 5 guineas. Disengaged end of August. — Address, No. 4422, B.M.A. House, Tavistock Square, W.C.1.

Locum wanted for August, and for a few week-ends in September if available. Panel and private Practice. Good qualifications and recent references necessary. —Address, No. 4431, B.M.A. House, Tavistock Square, W.C.1.

Locums. — Exper. and reliable Doctor, had own practice, desires further Locums from Aug. 8th. Terms: 7 gns. p.w. London pref. If country, where car and driver available. Good refs.—Address, "MEDICUS," 24, Colville Road, Bayswater, W.

Locum Tenens and Assistants required.—Apply to Messrs. R. SUMNER & Co., LTD., Manufacturing Chemists, 40, Hanover Street, Liverpool.

M.B., Ch.B.Edin., 35, married, no family, desires HOSPITALITY LOCUM and remuneration 3 or 4 weeks August 9th. Own car.—Address, No. 4458, B.M.A. House, Tavistock Square, W.C.1.

M.B., Ch.B. wants Locum. Ex H.S., H.P., well experienced in private and panel practice. Free now.—Address, No. 4427, B.M.A. House, Tavistock Square, W.C.1.

PARTNERSHIPS.

Wanted to Purchase or acquire, a PARTNERSHIP in panel and private Practice (London or suburbs). Income to be about £1,000 p.a. Advertiser young and energetic. — Write Box 330, DIXON'S, 195, Oxford Street, London, W.1.

Wanted by F.R.C.S., with very good practical experience, PARTNERSHIP in Southern County, preferably South Coast, to bring in about £1,000 per year, with scope for increase in Surgical work.—Address, No. 4414, B.M.A. House, Tavistock Sq., W.C.1.

Wanted.—Energetic Partner to work up new Surgery in North London. Enormous scope. Half share offered for £175 cash. —Address, No. 4454, B.M.A. House, Tavistock Square, W.C.1.

Lancashire Town.—Partnership. —Half share in old-estab. Practice. Average cash receipts £3,000. Panel 2,516. Excellent house for sale, 5 bedrooms, garage, and garden. Price £1,000. Premium—Practice—1½ years' purchase.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Lancs Town. — Partnership. — Old established Practice. Third share. Average cash receipts £2,568. Panel 1,645. Good house, 2 reception and 4 bedrooms. Rent £40 p.a.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Partnership.—Half Share of PRACTICE. West Riding, Yorks. Semi-country. Panel £500. Appointments about £75. Share value £700. Scope for energetic man. Price 1½ years.—*Address, No. 4428, B.M.A. House, Tavistock Square, W.C.1.*

Partnership required late Autumn by experienced very energetic bachelor, 34, Graduate, abstainer. Good panel. Not more than 1½ yrs.' pur. Perhaps prelim. short assistancy. Interview August. No agents. —No. 4411, B.M.A. House, Tavistock Sq., W.C.1.

Well-qualified man wanted as JUNIOR PARTNER; quarter or third share. Panel and private. £4,000 p.a. Manufacturing town, North Midlands.—Address, No. 4405, B.M.A. House, Tavistock Square, W.C.1.

PRACTICES.

Wanted. — Large non-panel PRACTICE in Winchester, Cheltenham, or similar town, producing not less than £2,000 per annum. House with 6 bedrooms and garden desired, preferably to rent. Advertiser has necessary capital and is free to negotiate.—No. 3415, B.M.A. House, Tavistock Sq., W.C.1.

Wanted by M.B., mixed PRACTICE, with sound panel, in London (S.W. preferred, but not essential). Income about £1,500, with good house. Ample capital available. —Address, No. 4418, B.M.A. House, Tavistock Square, W.C.1.

Wanted by M.D.Cantab., F.R.C.S.Eng., Public School, better-class PRACTICE or PARTNERSHIP, within 100 miles London, or good-class suburb. Ample capital. —Address, No. 1505, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—We have innumerable applicants for sound investments in all districts, incomes from £600 to £4,000, with and without panel. Correspondence invited from prospective Vendors. — THE MEDICAL AGENCY (W. H. Grant), Watergate House, 15, York Buildings, Adelphi, W.C.2.

Cheshire Town, nr. Manchester. — Cash receipts £500. Scope. Panel 700. Good house in excellent position, 6 bedrooms, 3 reception rooms, garage. Premium—Practice, house, drugs, surgery fittings, etc.—£1,400; part on mortgage.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

For Sale, in large Industrial University Town in Midlands, very old-established mixed general Practice averaging approximately £1,800 per annum. Panel approximately 2,200. Fees: surgery 2/6—5/-; visits, etc., 3/6—7/6; large proportion cash. Midwiferies latterly refused; much could be done. Night work refused. Vendor retiring from general practice. Great scope. House to rent; used in practice for approximately sixty years. Premium £2,750 cash, with good introduction. No agents.
Address, No. 4433, B.M.A. House, Tavistock Square, W.C.1.

For Disposal.—A good Practice is not always to be had directly, but Mr. PERCIVAL TURNER can generally offer applicants something suitable. Nearly all the best Practices are sold by him without being advertised. Inform. free on applic.—4, Adam St., W.C.2.

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Manchester.-Residential Suburb, —Good-class PRACTICE. Average cash receipts £1,506. Excellent corner house for sale. Three reception, 8 bedrooms. Garden and garage. Premium—Practice—1½ years' purchase. —BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Manchester.—Well-estab- lished LOCK-UP SURGERY, rent 21/- weekly. Receipts about £400, rapidly increasing. Panel 350, with great scope. Very compact. Price £300, or nearest cash offer.—MANCHESTER MED. & SCHOLASTIC ASSOCIATION, 6, Brown Street.

Manchester.—Old-estab. Practice Av. cash receipts £2,525. Panel 1,021. Prominent house, 6 bedrooms, garden, and garage. Premium 1½ years' purchase. A preliminary partnership might be arranged.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Midlands. — Country Practice, yielding £1,000. Panel 560. Convenient house, 5 bedrooms, electric light, garden, garage; rent £85, or sale. Premium for Practice £1,350. — Address, No. 4230, B.M.A. House, Tavistock Square, W.C.1.

Manchester. — Practice £1,430. Panel over 900. House to rent. Two reception, 3 bedroms. Garage, garden. Premium £2,100, part by arrangement.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Manchester.—Medical Woman's NUCLEUS. Cash receipts April—July £113. Panel 72. Scope. Corner house available. — BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Near Cardiff. — Practice (about £350 p.a.), rapidly growing district. Small panel; ample scope. Corner house, main road; garage; 4 beds. Price £250, with drugs, instruments. House to be sold, £800. Part in rt. —No. 4456, B.M.A. House, Tavistock Sq., W.C.1.

Near Manchester. — Residential district. Cash receipts £630. Panel 530. Good scope. House to rent, 3 bedrooms. Garage and garden. Premium £650.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Nr. Chester.—Practice. Cash receipts 1928, £600. Panel 440. Scope. Nice modern house to rent, 2 enter., 3 bedrooms, garden and garage. Premium £650 cash (to include surgery furniture and drugs).—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Orkney. — Well-established, very pretty district. Good house, large garden, garage; rent £12. Receipts £650. Panel 120, much scope. Price £400, including small car, cycle, and drugs.—MANCHESTER MEDICAL & SCHOLASTIC ASSOCIATION, 6, Brown Street.

Oxford.—Sale, Practice, general and Ophthalmic, small panel, recently started, rapidly increasing, profitable from beginning, ideal nucleus, picturesque situation, very large new populous growing area, swiftly progressive, lucrative scope. Competition ignorable. Vendor required abroad. £150, with furniture, equip., etc., and beautiful little mod. house, £575, or £100 down, and easy instal.—No. 4406, B.M.A. House, Tavistock Sq., W.C.1.

Pretty Country District, Lancs. — Very nice house, garden, garage. Receipts £500, excellent scope. Panel 300. Appointments £150. Price 1½ years' purchase. House also for sale. Golf, tennis.—MANCHESTER MED. & SCHOLASTIC ASSOCIATION, 6, Brown Street.

Radiologist in South Coast Health Resort would like to EXCHANGE PRACTICES for one month's holiday with another Radiologist, preferably one West Coast. —Address, No. 4459, B.M.A. House, Tavistock Square, W.C.1.

S. Staffs.—Recently founded PRACTICE in pleasant mining village. Panel 300. Pretty house and garden, with garage; moderate rental. Surgery separate. Suit semi-retired man. Holder entering Government service.—Address, No. 4452, B.M.A. House, Tavistock Square W.C.1.

Scotland.—Practice in beautiful district. Cash receipts £802. Scope. House, low rent. Garden 1/4 acre. Garage. Premium—quick sale—£400 (to include car, drugs, etc.).—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

To Purchasers. — Do not buy without expert assistance. With 40 yrs.' experience Mr. PERCIVAL TURNER can advise in all cases. Terms free on application to 4, Adam St., Strand, W.C.2. Telephone: Gerrard 0399. Telegrams: "Epsomian, London."

Unique Opportunity.—Oxford Graduate, appointment accepted, disposing G.P. Popular resort. Audit £750. Practice recently purchased. Original Vendor conducting sale by courtesy. Good panel, increasing. Growing locality. One year's purchase. — Address, BM/HNFR, London.

£100.—A Nucleus for Sale in pleasant country district. Small panel. House to rent. Scope. Would suit semi-retired man.—Address, No. 4455, B.M.A. House Tavistock Square, W.C.1.

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Second-hand X-ray and Electro- MEDICAL APPARATUS for disposal, including Couches, Screening Stands, etc. Low prices accepted for clearance purposes.—A. E. DEAN & Co., Leigh Place, Brooke Street, Holborn, London, E.C.1.

X-ray Installation, complete for 200 volt mains. 16-in. coil unit with almost new interrupter, exposure time switch, Coolidge tube transformer and controls; also additional trolley control with foot switch. £60. —Address, 50, Putney Hill. Tel.: Putney 2288.

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Consulting Room, Wimpole Street, W.1. Large beautiful ground floor room, furnished. Four half days a week, with plate, 120 gns. per annum.—BM BOG4, London, W.C.1.

Eastbourne.—Beautiful Consult-ING ROOM to let furnished, part-time. Also whole-time ROOM, use of waiting room, 'phone, and attendance. Also FLAT, furnished or unfurnished. Mansion house, sunny corner. Owned by late Harley St. Spec. 1 min. station. —No. 4407, B.M.A. House, Tavistock Sq., W.C.1.

Glamorganshire. — Freehold RESIDENCE, standing in its own grounds (about ¾ acre), for sale. Good garden, tennis lawn; gas and electric. Excellent opportunity for an energetic Medical Man. Densely populated district—large iron and steel works, also big mining population. Applications treated confidentially.—Address, No. 4224, B.M.A. House, Tavistock Square, W.C. .

Harrogate. — For Sale (vacant possession). — Unique and attractive HOUSE, freehold, Queen Anne style, south aspect, opposite Hotel Majestic, at present occupied by Physician, easily worked. *Ground floor*—hall, two reception rooms, kitchen, w.c. *First floor*—one reception room, three bedrooms, bathroom, w.c. *Second floor*—three bedrooms. £2,250.—Apply, 12, Ripon Road, Harrogate.

Sloane Street. — Ground Floor, overlooking Gardens, in exclusive Block of new Flats. TO BE LET ON LEASE. Two or 4 bedrooms, 2 bathrooms, 2 spacious reception rooms. Luxuriously appointed. Labour saving. Constant hot water. Central heating.—Agents, WINKWORTH & Co., 48, Curzon Street, W.1.

To Let for the month of August, a Charming HOUSE in one of the most delightful parts of Devon, in return for light duties as LOCUM, about one hour daily. Five bedrooms, four reception rooms, large garden, and tennis court. Near sea.—Address, No. 4404, B.M.A. House, Tavistock Square, W.C.1.

To Let. — Two communicating ROOMS, with lavatory, on ground floor. Constant hot water, electric power, and telephone installed. At present completely fitted with up-to-date massage, light, and electric treatment. Highly recommended. — Apply, Lady M., 29, Upper Berkeley Street, W.1.

Two furnished Bedrooms in Doctor's house adjoining Harley Street. Can be let as bedroom and sitting room if desired. Breakfast supplied and use of telephone by arrangement. — Address, No. 4316, B.M.A. House, Tavistock Square, W.C.1.

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APPOINTMENTS.—Contd.

University College Hospital,
Gower Street, W.C.1.

Applications are invited for the post of ASSISTANT RADIOLOGIST. Candidates should have had previous Hospital experience. Duties require attendance on four half-days a week. Salary £200 per annum.

Applications, accompanied by two recent testimonials, should reach the Secretary by noon on Thursday, September 5th.

Victoria Hospital for Sick CHILDREN, HULL (Incorporated).

RESIDENT HOUSE PHYSICIAN (lady) required; experience in laboratory work desirable. Salary £80 per annum. 105 beds. Applications (with copies of recent testimonials), stating age, qualifications, and other particulars, to be sent to the Secretary not later than Thursday, July 25th

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Lowestoft and North Suffolk HOSPITAL.

HOUSE SURGEON (male) preferably with knowledge of X-ray. Salary £120 p.a., with board, residence, and laundry.

Applications, with copies of three recent testimonials, to the Honorary Medical Supt.

St. Paul's Eye Hospital,
OLDHALL STREET, LIVERPOOL.

Applications are invited for the post of HOUSE SURGEON to this Hospital. The post will be vacant on August 1st. Salary commencing £60 per annum.

Applications, with copies of testimonials, should be sent to the Secretary at the Hospital

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Swansea Hospital.
(316 Beds.)

CASUALTY OFFICER wanted, gentleman, single. Salary £150, with board, residence, and laundry. Duties to commence August 1st.

Applications, stating age, nationality, qualifications, and experience, with copies of three recent testimonials, to be forwarded to the undersigned.

O. C. HOWELLS, Secretary.

The Royal Infirmary,
SUNDERLAND. (290 Beds.)

Wanted middle of August, HOUSE PHYSICIAN (male). Salary £140 per annum, with board, residence, and laundry.

Applications, stating age, qualifications, and accompanied by copies of testimonials, to be sent to the undersigned by July 26th.

S. C. BEVERS, House Gov. & Sec

The General Hospital,
BIRMINGHAM.

Applications are invited for the following residential appointment from August 15th:

HOUSE PHYSICIAN. Salary £70 per annum.

Applications, giving full details of qualifications, and accompanied by testimonials (if desired), should reach the undersigned by July 22nd.

A. H. LEANEY, House Governor.

The Willesden General Hospital
(Incorporated), London, N.W.10.

The Council of Management invite applications for the appointment of OPHTHALMIC SURGEON to the above Hospital.

Candidates must be Fellows of the Royal College of Surgeons of England.

Thirty copies of application and testimonials must reach the Secretary not later than Monday, July 29th, from whom a list of the Members of the Honorary Medical Staff can be obtained.

R. J. HEARNE, Secretary

The Royal Albert Hospital and
EYE INFIRMARY, DEVONPORT.

A vacancy for an ASSISTANT HOUSE SURGEON (unmarried) exists. Applicants must be fully qualified, registered, and the appointment will be for six months. Salary £50 per annum, with apartments, board, and laundry free.

Applications, stating age, accompanied by copies of not more than three testimonials, should reach the undersigned not later than Friday, July 26th.

By Order of the Committee,
FRANK ROWE.
Secretary.

July 15th, 1929.

West Herts Hospital,
HEMEL HEMPSTEAD.
(110 Beds. 24 miles from Euston.)

Applications are invited for the appointment of a SENIOR RESIDENT MEDICAL OFFICER, to commence duties on August 1st next. Salary £150, with rooms, board, and laundry.

Also a JUNIOR RESIDENT MEDICAL OFFICER, to commence duties on or about August 1st next. Salary £100, etc.

Preference will be given to male candidates.

Particulars to be obtained of, and applications, stating essential particulars, and enclosing copies of recent testimonials, to be sent at once to

ROBT. L. BUTTERFIELD,
Clerk to the Hospital.

Worthing Hospital.
(78 Beds.)

Applications are invited for the post of HOUSE SURGEON, vacant July 23rd. The appointment is for six months, renewable. Salary at the rate of £150 per annum, with board, lodging, and washing.

Applications, stating age, qualifications, and experience, with copies of testimonials, to be sent to the Secretary at once.

A. O. KAYE,
Secretary.

Worthing Hospital.

CAVENDISH NURSES (Male and Female)

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TELEPHONES: London, 1277 Welbeck. Manchester, 3152 Ardwick. Glasgow, 477 Douglas. Dublin, 531 Ballsbridge.

Superior trained Nurses for Medical, Surgical, Mental, Dipsomania, Travelling and all cases. Nurses reside on the premises, and are always ready for urgent calls Day and Night. Skilled Masseuses, Masseurs, and good Valet attendants supplied.

Terms from £3 3s. *Apply to the Secretary or Lady Supt.*

Notts County Mental Hospital,
RADCLIFFE-ON-TRENT, NOTTS.

The Committee of Visitors invite applications for the position of SENIOR ASSISTANT MEDICAL OFFICER AND DEPUTY MEDICAL SUPERINTENDENT, from gentlemen duly registered under the Medical Acts.

Salary will be after the rate of £520 per annum, rising £20 per annum to a maximum of £620 per annum, together with unfurnished house, coal, light, and water, valued at £50 for superannuation purposes; there will be no other emoluments.

The appointment is subject to the Asylums Officers Superannuation Act, 1909, and will also be subject to three months' notice on either side.

Applications forms, which must be returned not later than August 3rd, may be obtained from the Clerk to the Committee, Mr. J. F. GELL.

Radcliffe-on-Trent. July 13th, 1929.

The Devon Mental Hospital,
EXMINSTER, near EXETER.
(1,400 Beds.)

Required, JUNIOR ASSISTANT MEDICAL OFFICER (male.)

Candidates must be registered Medical Practitioners, and unmarried. Preference will be given to candidates who either have or are anxious to obtain a Diploma in Psychological Medicine. The Hospital is fully equipped with Operating Theatre, X-Ray Installation, Bacteriological Laboratory, etc. Salary £300 per annum, rising by £25 per annum to £350, with board, apartments, laundry, and attendance.

The appointment is subject to the provisions of the Asylums Officers Superannuation Act, 1909. Form of application to be obtained from the Clerk to the Devon Mental Hospital, Exminster, which must be completed and returned on or before July 29th.

Worcester County and City
MENTAL HOSPITAL, POWICK, near WORCESTER.

JUNIOR ASSISTANT MEDICAL OFFICER (male, single) required. Candidates must be duly qualified in Medicine and Surgery, and should be able to undertake clinical laboratory work. Salary £350 per annum, rising by two annual increments of £25 to £400 per annum, [illegible] apartments, board, laundry, and subject to the [illegible] superannuation Act, [illegible] ing age, etc., together with copies of three recent testimonials, to be sent to the Medical Superintendent not later than Wednesday, July 24th.

Bootle Borough Hospital
(General, 100 Beds).
Derby Road, BOOTLE.

Applications are invited from medical men for the posts of SENIOR MEDICAL OFFICER and Two JUNIOR MEDICAL OFFICERS for the period ending March 31st, 1930. Salaries at the rate of £150 per annum Senior Officer, £125 per annum each Junior Officer, with board, residence, and laundry.

Duties to commence October 1st. Applications, stating age and qualifications, with copies of testimonials, to be sent to the undersigned on or before July 26th.

J. A. BEARDSALL, Secretary-Supt.

St. Mary's Hospital for Women
AND CHILDREN, Plaistow, E.13.

Applications are invited for the posts of RESIDENT and ASSISTANT RESIDENT MEDICAL OFFICERS (vacant September 1st), male or female. The appointments are for six months. Board, residence, and laundry are provided. Salaries at the rate of £175 and £120 per annum respectively. The duties of the Resident Medical Officer are mainly surgical and those of the Assistant Resident Medical Officer mainly medical. Personal canvassing not desired. Applications, with copies of three recent testimonials, to be sent to the undersigned not later than July 25rd.

A. ERNEST WILKES, Secretary.

District Infirmary,
ASHTON-UNDER-LYNE. (200 Beds.)

The Board of Governors invite applications for the post of ASSISTANT RADIOLOGIST to the above Infirmary, at a salary of £500 per annum.

The X-ray Department is under the charge of an Honorary Radiologist, who will be present two days each week.

The Assistant Radiologist will be required to attend daily for a minimum of five hours and such further time as may be required to carry out the work. In addition to his salary he will receive half the fees for private work done in the Hospital, and will not be debarred from private X-ray work outside.

Applicants (who should hold a Diploma in Radiology) must send their applications, with testimonials, to the undersigned not later than July 26th.

The Infirmary, Ashton-under-Lyne. July 8th, 1929.

FRANK OLIVER, Gen. Supt. and Secretary.

Royal Devon & Exeter Hospital,
EXETER. (225 Beds.)

ASSISTANT HOUSE SURGEON (Male).

Applications are invited for the post of Assistant House Surgeon at this Hospital, now vacant. The appointment is for six months, but candidates are eligible for re-election.

The duties include assisting in the Ear, Nose, Throat, Radiological, and Casualty Departments, and the giving of anæsthetics.

Salary at the rate of £100 per annum, with board, apartments, and washing.

Applications, giving particulars as to age and qualifications, together with copies of three recent testimonials, should be sent to the undersigned as soon as possible.

By Order of the Committee,
S. S. COLE,
July 2nd, 1929. Secretary and Manager.

Derbyshire Hospital for Women,
DERBY. (50 Beds.)

Applications are invited for the following vacancies:

HONORARY ASSISTANT SURGEON.

HOUSE SURGEON. Salary £150 per annum, with apartments, board, etc. The appointment is tenable for six months, with a possibility of extension for a further period of 6—12 months.

Applications for both posts, with copies of not more than three testimonials, to be sent to the undersigned not later than July 24th. Duties to commence July 27th.

W. T. COCKER, Secretary.

Evelina Hospital for Children,
Southwark, S.E.1.

The Committee of Management requires a HOUSE SURGEON (male) for eight months, from August 12th (during first four months duty in Casualty and Out-patient Department). Salary £120 per annum, with board and residence. Candidates, duly registered, to send applications, giving age, qualifications (with dates), and copies of four testimonials, to the undersigned at the Hospital, before July 26th. Applicants will be informed if they will be interviewed by the Medical Committee. Selected candidates must attend Committee of Management. Date of meeting will be notified by undersigned, from whom rules and other particulars relating to the post must be obtained.

By Order of the Committee of Management,
H. C. S. SMITH,
July 9th, 1929. Secretary-Supt.

The Royal Gwent Hospital,
NEWPORT, MON.

There is a vacancy for a JUNIOR RESIDENT MEDICAL OFFICER at the above Hospital. Salary at the rate of £125 per annum, with board, lodging, and laundry.

Applications, stating age and qualifications, with copies of three testimonials, to be sent to the undersigned.

Applications from ladies not entertained.

J. K. MILLWARD,
July 11th, 1929. Secretary-Supt.

The Guest Hospital and Eye
INFIRMARY, DUDLEY.
(General Hospital, 104 Beds.)

Applications are invited for the post of HOUSE SURGEON. Duties include Medical, Surgical, Eye, Ear, Nose, and Throat, and Venereal Diseases work. Salary £150 to £175 per annum, according to experience, with furnished apartments, board, and laundry. Candidates must be fully qualified and registered.

Applications, stating age, qualifications, and experience, and accompanied by copies of testimonials, to be sent to the undersigned.

H. RAYMOND HURST,
The Guest Hospital, Dudley. July 13th, 1929. Secretary.

Hull and Sculcoates Dispensary.

Applications are invited for the appointment of a MEDICAL OFFICER, to devote the whole of his time to the work of the above Institution, at a salary of £500 per annum, and house, rent and rates free. Duties to commence October 1st.

Applications, with copies of testimonials (which will not be returned), stating age and qualifications, to be sent to the undersigned on or before July 31st.

By Order,
37, Scale Lane, Hull. July 12th, 1929.
J. E. D. STICKNEY, Hon. Secretary.

The Willesden General Hospital,
N.W.10.

SURGICAL OUT-PATIENT DEPARTMENT.
CLINICAL ASSISTANT.

GYNÆCOLOGICAL OUT-PATIENT DEPT.
CLINICAL ASSISTANT.

Applications are invited for each of the above appointments, for a period of six months from August 1st.

The successful applicants will be expected to attend the Hospital regularly, and to take charge of the Department when the Medical Officer is absent.

Applications should be addressed to the undersigned not later than Friday, July 26th, from whom full particulars of each appointment can be obtained.

R. J. HEARNE, Secretary.

West-London Hospital,
Hammersmith Road, W.6. (225 Beds.)

Required, one RESIDENT ANÆSTHETIST for a period of not less than five months from August 1st next, subject to one month's notice on either side. Salary at the rate of £100 per annum, with board, lodging, and laundry allowance. Candidates must be registered under the Medical Act.

Applications (in quadruplicate), giving full details of age, experience, qualifications, etc., and accompanied by copies of testimonials, must reach me not later than first post on Tuesday, July 23rd. Candidates must call upon such members of the Medical Staff as directed, and attend a meeting of the Medical Council at 4 p.m. on Friday, July 26th, and the House Committee meeting at 4.45 p.m. the same day, when the appointment will be made.

H. A. MADGE, Secretary.

St. Bartholomew's Hospital,
ROCHESTER. (126 Beds.)

Applications are invited for the post of HOUSE PHYSICIAN, vacant September 1st.

Candidates must be unmarried, qualified, and registered medical men. The appointment is for six months, and the salary is at the rate of £175 per annum, with board, residence, and laundry. The officer appointed will have charge of the Medical beds. Some knowledge of Ophthalmic work is desirable.

Applications, stating age, qualifications, and experience, accompanied by copies of three recent testimonials, to be sent to the Secretary not later than Thursday, July 25th.

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and those seeking

PARTNERSHIPS

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BRITISH MEDICAL BUREAU

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7, Windsor Place, Newcastle - on - Tyne.

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B.M.A. House, Tavistock Sq., London, W.C.1.

Doncaster Royal Infirmary.

HOUSE SURGEON (SECOND) required at once. Staff of three. Experience in Anæsthetics essential.

Appointment offers opportunity to gain good surgical experience.

Salary £150 per annum, with board, residence, and laundry.

Applications, stating age, experience, and full particulars, together with copies of three testimonials, should reach the undersigned by Wednesday, July 24th.

J. LAWRENCE MEARS,
July 15th, 1929. Secretary-Supt.

Chester Royal Infirmary.

(211 Beds.)

Wanted, HOUSE SURGEON (male) to the Ear, Nose, and Throat Department and Casualty Officer, to commence duties on August 1st. Salary £120 per annum, with board, lodging, and washing. Candidates must be doubly qualified and registered. Applications, stating age, and accompanied by copies of testimonials, to be sent to the undersigned not later than July 25th.

J. ROWSE MITCHELL,
July 15th, 1929. Secretary.

Coventry and Warwickshire HOSPITAL (307 Beds.)

RESIDENT HOUSE SURGEON (male) wanted. Salary £125 per annum. Board, lodging, and attendance provided. Candidates must be duly qualified and registered. Applications, stating age, and enclosing copies of recent testimonials, should be sent to the Secretary on or before July 29th.

(Miss) R. HOOPER, Secretary.

Dewsbury and District General INFIRMARY.

HOUSE SURGEON wanted (male). Post vacant August 15th.

Salary £200 per annum, with board, residence, and laundry. Candidates must be fully qualified.

Applications, stating age, qualifications, etc., with copies of 3 testimonials, to be sent to the undersigned not later than Monday, July 22nd.

EDWARD HEMINGWAY, Gen. Secretary.

BRITISH MEDICAL BUREAU

NORTHERN BRANCH.
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18. SOUTH COAST.—Seaside Resort. Non-dispensing PRACTICE about £550 p.a. Small panel. House (5 bedrooms) to let. Premium £1,100. Scope for increase.

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27. N. OF ENGLAND.—Partnership in Practice about £1,930 p.a. in important City. Panel 1,600. Premium two-fifths share 1½ years' purchase. Partner must be young and well qualified.

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29. SUSSEX.—Practice averaging about £800 p.a. in country district, near the Coast. Panel 600. House about 4 bedrooms) to rent. Good scope. Premium 1½ years' purchase.

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Practices and Partnerships for Disposal (continued).

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34 WEST OF ENGLAND.—Partnership in non-dispensing Practice over £5,100 p.a. in first-rate town. Small select panel. House (6 bedrooms) to rent. Partner should be an Obstetrician, and there is scope for gynæcology. Premium five-twelfths share 2 years' purchase.

35 SUFFOLK. — Country Practice nearly £1,100 p.a. in agricultural district. Panel 530. Modernized house (6 bedrooms), with electric light, inside sanitation, and large garden, for sale. Sport. Premium £1,500.

36 SOUTH OF ENGLAND.—Seaport Town. PRACTICE doing £800 p.a., including appointments over £225 p.a., and panel nearly 1,000. Good house (6 bedrooms) for sale. Premium 1½ years' purchase.

37 N.W. OF ENGLAND. — Partnership in Practice about £2,000 p.a. in popular seaside resort. Small panel. Desirable modern residence (4 bedrooms) to rent. Premium one-half share 1½ years' purchase.

38 CARDIFF. — Non-dispensing Practice averaging £1,543 p.a. Small panel. Pleasantly situated house (5 bedrooms). Premium £2,000.

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43 LONDON, W. — Partnership in non-dispensing Practice about £2,500 p.a. No panel or appointments. One-third share with view to ultimate succession. Premium 2 years' purchase.

44 SOUTH MIDLANDS. — Partnership in Country Practice of £6,300 p.a. in residential and agricultural district. Panel over 2,200. Suitable house for sale. Hospital. Partner should be 28 to 30 and have held House appointment. Premium one-fifth share £2,510.

45 LONDON, N.—Partnership in well-estab. middle-class Practice, nearly £2,750 p.a., in pleasant outlying suburb. Panel about 800. Suitable accommodation to rent. Premium one-third share 2 years' purchase.

46 MIDLANDS. — Partnership (after preliminary assistantship) in good mixed Practice worth £4,000 p.a. in country town. Panel 3,600. House to rent. Hospital and scope for surgery. Partner should be keen on his work and have held H.S. and H.P. appointments. One-third share at 2 years' purchase.

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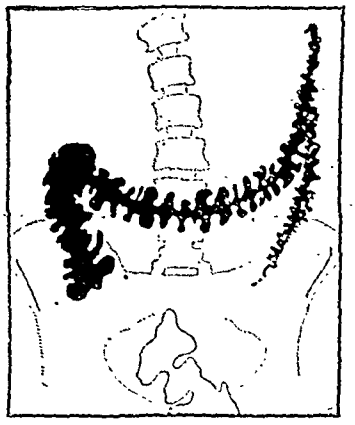

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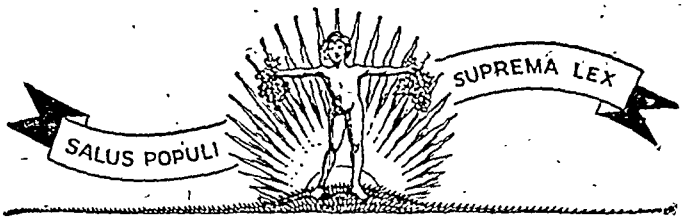
The

British Medical Journal

THE JOURNAL OF THE BRITISH MEDICAL ASSOCIATION.

WITH SUPPLEMENT.

No. 3577. SATURDAY, JULY 27, 1929. Price 1/3



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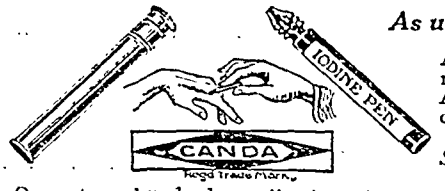

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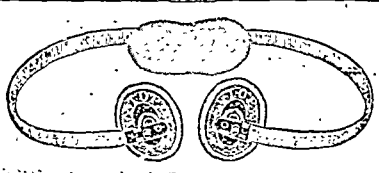

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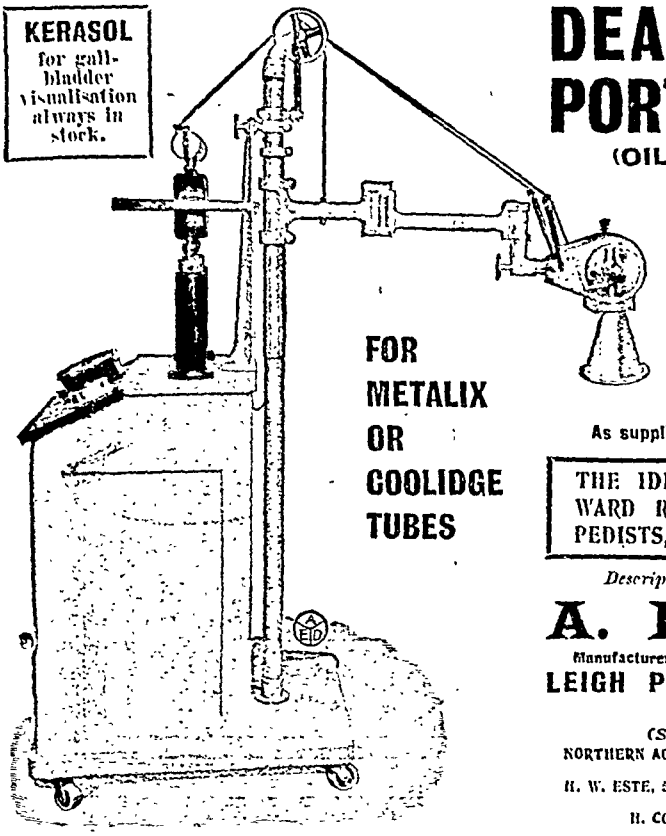

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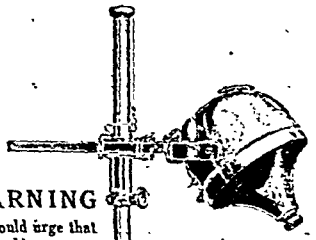

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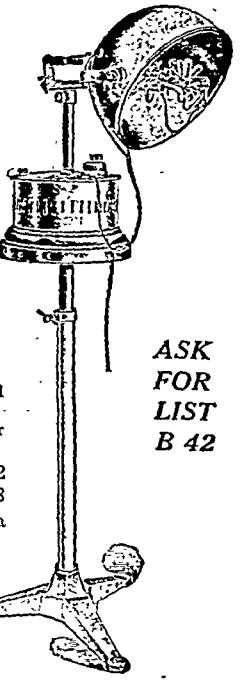

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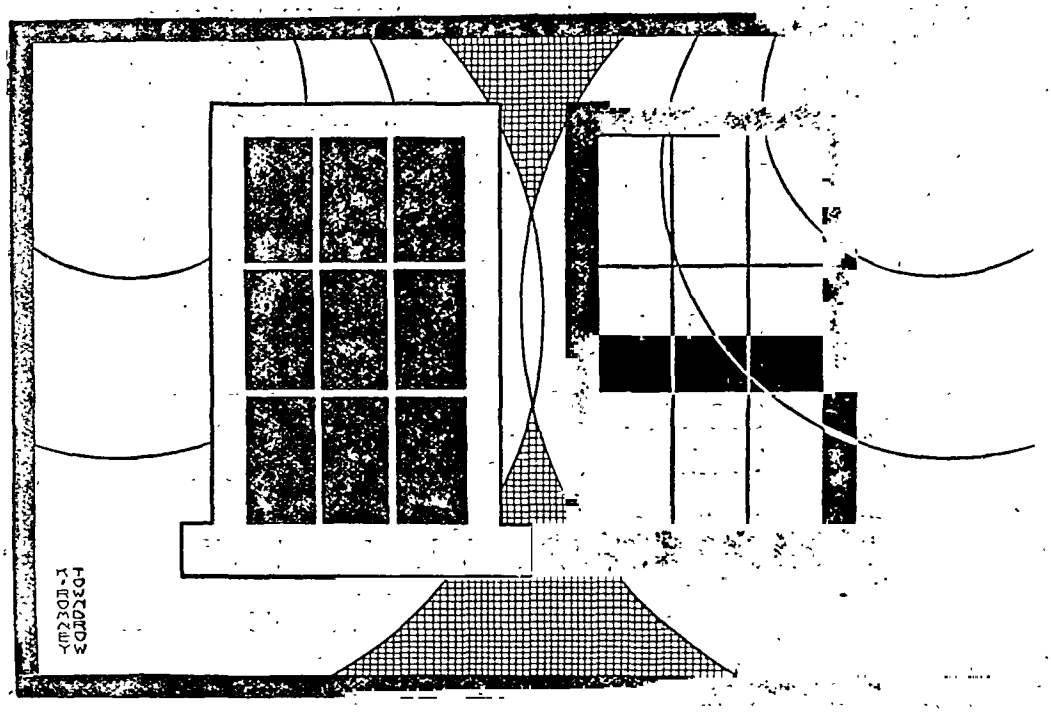

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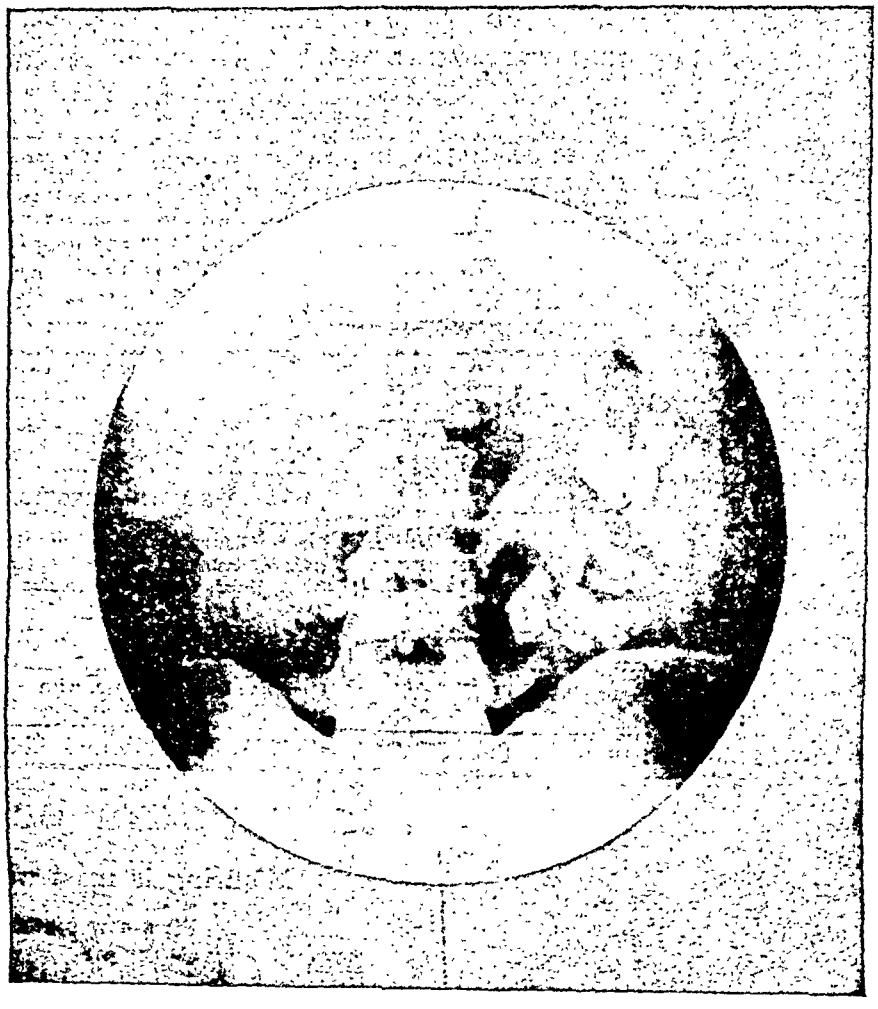

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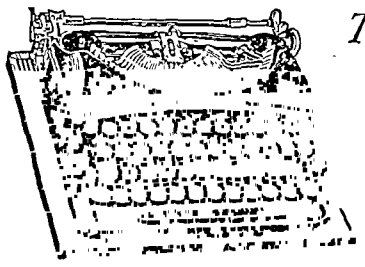

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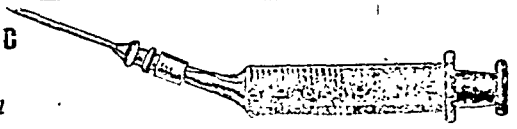

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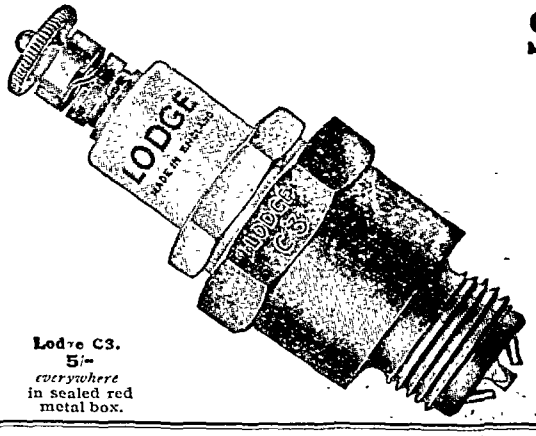

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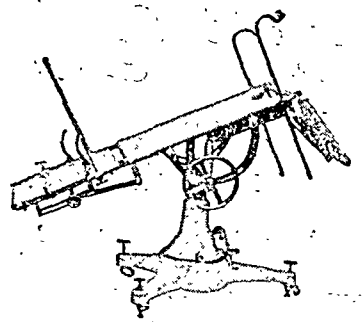

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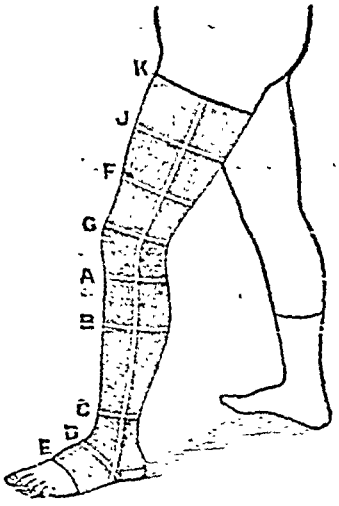

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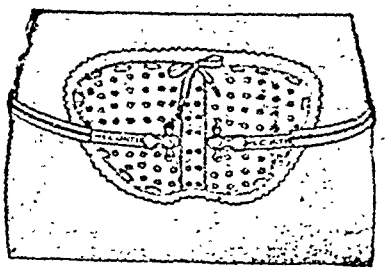

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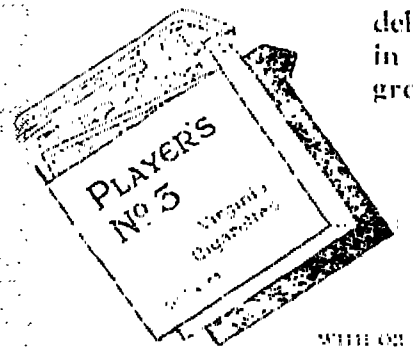

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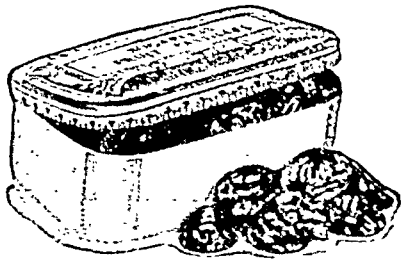

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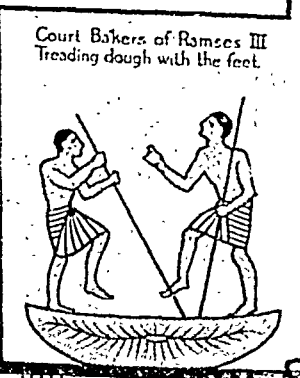

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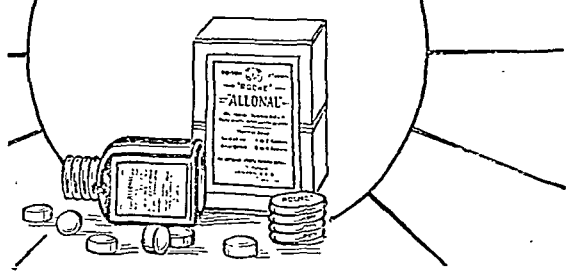

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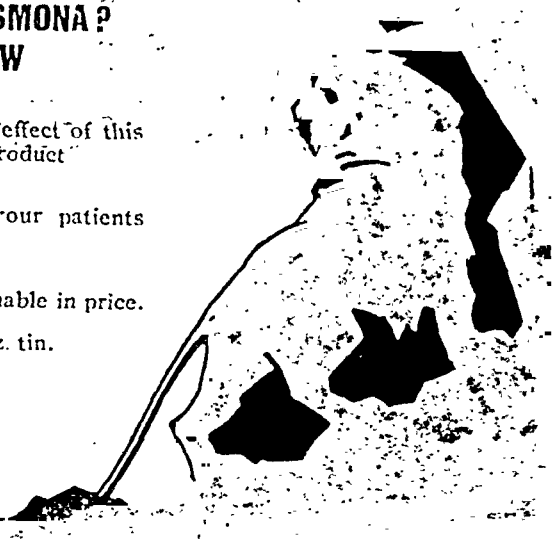

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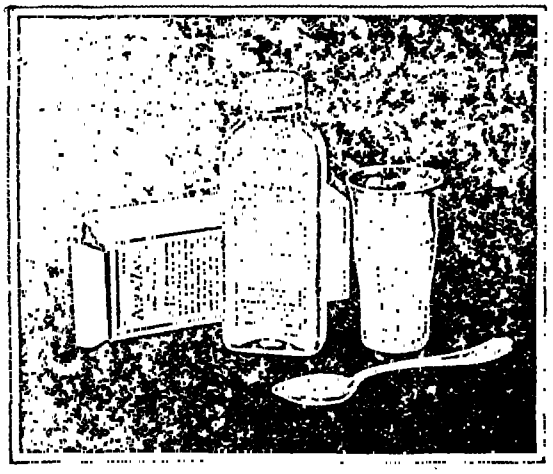

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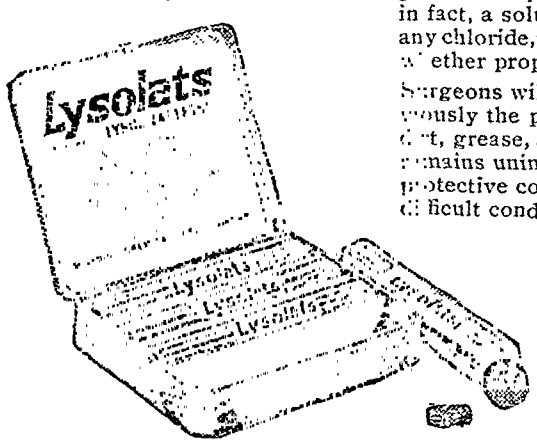

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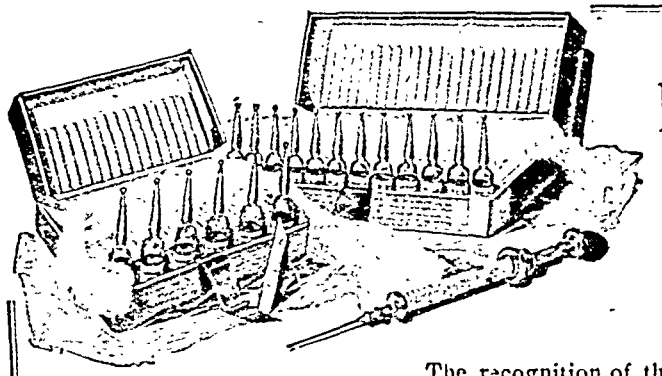

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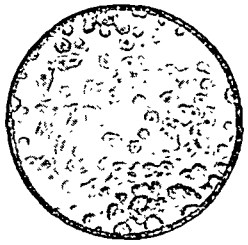
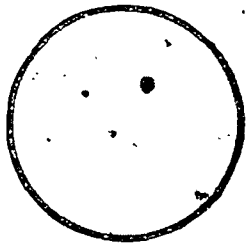


Photograph 1



Photograph 2

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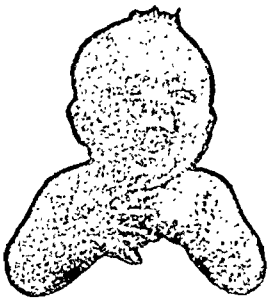

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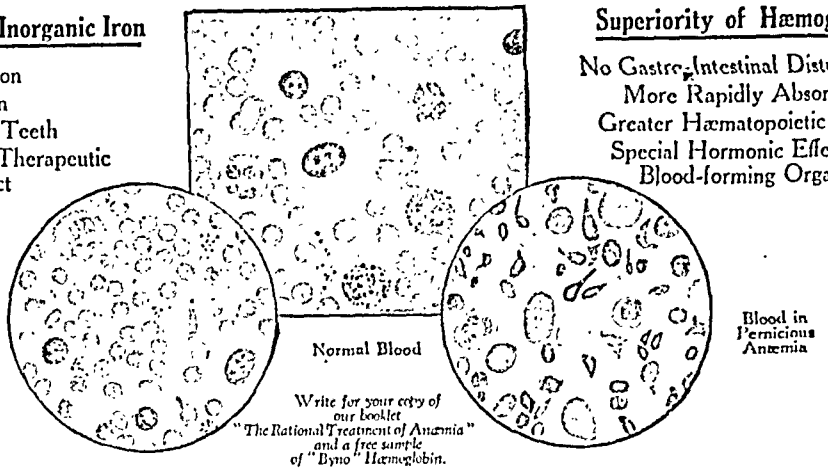

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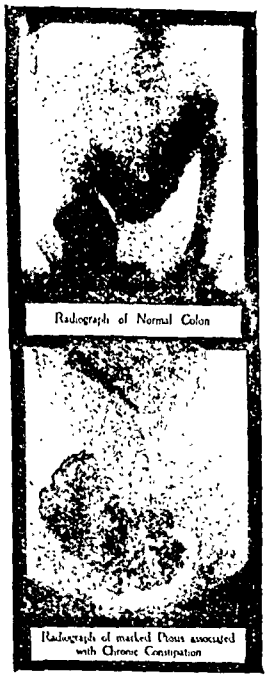

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British Medical Association.

NINETY-SEVENTH ANNUAL MEETING, MANCHESTER, 1929.

President's Address

ON

THE DEBT OF MODERN SURGERY TO THE ANCILLARY SCIENCES.

BY

ARTHUR HENRY BURGESS, D.L., M.B., CH.B., M.Sc., F.R.C.S.,

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[BEFORE commencing his address the President welcomed the British Medical Association to Manchester and Salford, and expressed his thanks for the great honour of his election to its presidential chair and for the invaluable assistance of medical and lay friends in the preparations for the meeting; he referred to the changes in the personnel of the local profession and of the cities' hospital arrangements since the Association's fourth visit to Manchester in 1902, and mentioned the work during the great war of Manchester's Territorial Hospital—the 2nd Western General.]

In no sphere of the world's activities has a single discovery constituted a sharper dividing line between two stages of its history than in the division of surgery into two periods—pre- and post-Listerian—by Lister's epoch-making discovery of the antiseptic treatment of wounds. Prior to 1865, the year of its first application, the surgical wards of our hospitals, infested as they were by erysipelas, pyaemia, and hospital gangrene, had come to be looked upon as veritable death traps, and a greater measure of success often attended a surgical operation performed in the simple environment of the poorest home than a similar one under the best conditions afforded by the hospitals of that date. The introduction of anaesthesia—surely one of the most merciful events in the history of mankind—had, nevertheless, unwittingly served but to augment the death rate of operative surgery. By abolishing the element of pain therewith associated it had increased the frequency with which surgical operations were performed in theatres and wards where septic infection was the rule, almost without exception, and where suppuration was still regarded as the normal process of wound healing.

Lister has changed all this, but the full extent of that change is very difficult to realize by those of us who, practising surgery sixty years later, and having, therefore, of necessity, had no personal experience of the conditions under which surgeons of the fifties and sixties of the last century had to work, accept the priceless benefits of this radical change almost as a matter of course, and often with very imperfect appreciation of the evolutionary developments that have rendered possible the brilliant surgical work that is being carried on all over the civilized world to-day. As skilled surgical craftsmen, and in their knowledge of anatomy and of the gross manifestations of disease, the older surgeons were in no sense inferior, and yet the ever-present spectre of septic infection rendered each surgical effort a truly perilous adventure, keeping the surgeon in a state of constant anxiety until the wound was safely healed—an anxiety no less disturbing in that, the cause of the infection being unknown, no care or foresight could avail to prevent it.

Commonplace, though none the less true, has now become the statement that Lister's work has revolutionized surgical practice: it has for all time freed surgical operations from the dreaded risks of their most dangerous complication—septic infection—thereby not only vastly increasing their safety, but enormously diminishing the extent of pain and suffering formerly connected therewith. When we consider the incalculable number of lives already saved, the immeasurable amount of suffering already prevented, and the continuation of these benefits throughout the ages yet to come in which surgery will continue to be practised, we must admit that the description given of Lister as the greatest human benefactor the world has yet known is in no sense an exaggeration.

In the numerous Listerian centenary celebrations held two years ago throughout the civilized world the tale of his great discovery has been repeatedly unfolded—how that, like most epoch-making discoveries, it was at first received with incredulity and opposition, against which advancement was slow and laborious. To Edward Lund belongs the credit of introducing Lister's work to Manchester and of establishing antiseptic treatment at the Royal Infirmary. Refused at first by the Infirmary authorities of that day the provision of the requisite antiseptic dressings, Lund for a long while supplied these for his Infirmary patients at his own expense, and mostly prepared them with his own hands. His enthusiasm for Listerian principles and his success in their application steadily wore down all opposition, and antiseptic measures became gradually adopted by his surgical colleagues.

My personal acquaintance with surgery at the Manchester Royal Infirmary dates from 1893, when the transition from antiseptic to so-called "aseptic" methods was just commencing. The carbolic spray had then been given up, yet all operation wounds were still flushed with a strong solution of either carbolic acid or mercury perchloride and thoroughly dusted over with iodoform before being sutured, drainage being almost invariably employed. I well recall an occasion, some two years later, when Walter Whitehead, who was certainly one of the most go-ahead surgeons of his day, announced that he would perform an operation for the removal of a cancerous breast without applying any antiseptic to the wound. Nothing was used save boiled water, nor was the wound drained. This, at that date, very unorthodox procedure excited keen interest among the house-surgeons and dressers, and considerable misgivings were freely expressed as to the result. The wound, however, healed with perfect primary union, and with this encouraging experience antiseptics came to be applied less freely to operation wounds—aseptic gradually replaced antiseptic surgery. The basic principle of aseptic surgery is that everything which comes in contact with the wound during the course of an operation must be sterile, so that, no germs having been introduced, the application of antiseptics is not only unnecessary, but is actually harmful to a degree dependent upon the amount of tissue damage they inflict. In some quarters "aseptic" is spoken of as if it were a rival method to "antiseptic" surgery, and as if it represented a great advance upon anything that Lister had taught. Far from any such antagonism, however, aseptic surgery is but the natural complement and logical outcome of Listerian principles, and although everything else used in a modern aseptic operation may be sterilized by heat, yet the surgeon, worship he never so devoutly at the shrine of asepsis, must use antiseptics for the preparation of the skin of his patient and of his own hands.

As a sequel to the increased safety engendered by the practice of Listerism there naturally followed the extension of surgery into anatomical fields hitherto approached only when urgent necessity demanded the repair of grave injury. Concerned at first mainly with the limbs and the more readily accessible parts of the trunk, attacks were soon made upon the great cavities of the body—the cranial and spinal cavities, the abdomen, and the chest. Thus the operative field has been gradually extended until now every part of the body has been brought within the sphere of surgical activity. Even the heart—always prominent in popular imagination—is no exception; its stab wounds have been many times successfully sutured, bullets have been extracted from its walls and even from its cavities, and plastic operations have been performed actually upon its valves, while injection of drugs directly into the heart muscle, and massage of the heart through either an abdominal or a thoracic incision have become part of the routine treatment of cardiac failure during anaesthesia. At the present time prominent surgical attention is being paid to the last remaining surgically unfamiliar system—the sympathetic nervous system—and to the last remaining organ—the suprarenal body.*

Of the advances that have occurred in almost every branch of surgical work during the present century (a period almost coincident with that since the last visit of the British Medical Association to this city) I think it will be generally admitted that the most outstanding is that in the department of abdominal, and especially of acute abdominal, surgery. This is locally illustrated by a comparison of the abdominal surgery of the Manchester Royal Infirmary at the beginning with that at the end of the first quarter of the present century. During this period, of the general surgical operations the proportion of those on the abdomen has risen from 10.97 per cent. to 56.99 per cent., the annual number of operations for acute abdominal conditions from 82 to 1,241, while their total mortality has diminished from 36.5 to 8.1 per cent. A closer analysis shows that the percentage mortality of operations for strangulated hernia—the only frequently performed urgent abdominal operation in 1900—has fallen from 22 to 9.4, for acute intestinal obstruction from 44.4 to 20.8, for perforated gastric or duodenal ulcer from 80 to 11.1, and for acute appendicitis from 64.2 to 5.1. The enormous increase in the number of operations for acute appendicitis constitutes the most prominent feature of this period. Thus in 1900 only 14 operations were performed in the Manchester Royal Infirmary for this condition—all for either appendicular abscess or peritonitis, there being no recorded instance of removal of an acutely inflamed appendix prior to the onset of one of these complications; in 1924 there were 798 operations for acute appendicitis, of which 337 were performed sufficiently early to permit of removal of the appendix without drainage.

Similar progress, though perhaps less dramatic, has been maintained in the surgery of non-urgent abdominal conditions, the annual number of operations for which at the Royal Infirmary has increased from 184 in 1900 to 1,810 in 1924. The increases shown by the four most frequently performed of these operations are—those for quiescent appendicitis from 24 to 407, for radical cure of hernia from 108 to 333, for gastric and duodenal ulcer from 1 to 250, and for gall-stones from 3 to 176.

Time does not permit me to make more than a passing reference to the present-century advances in other departments of surgical work, though specific mention must be made of the wonderful progress in orthopaedic surgery under the stimulating influence of Sir Robert Jones, of the extraordinary achievements during and since the war in plastic and reconstructive surgery, more especially of the face and jaws, prominently associated in this country with the name of Major Gillies, and of the great increase in our knowledge of the surgical treatment of tuberculosis of the lungs and of other intrathoracic diseases.

This progress in surgery—which, I feel strongly, will compare favourably with that attained in any other branch of the arts and sciences—has not, nor could it have been, achieved without the material assistance of the contemporary advances in the allied sciences; it is, indeed, this which constitutes my main thesis to-night. Modern victories are rarely won single-handed, and the greater the number, the more effective the strength and the more vigorous the activities of the allied forces whence assistance is forthcoming, the more confidently may we look forward to a victorious issue. Prior to the time of John Hunter surgery was almost entirely an art—a glorified handicraft, taught and practised quite independently of all other arts and sciences, devoid of any physiological basis for its methods, and essentially empirical in its attempts at progress. Hunter, deeply imbued with the scientific spirit, introduced into surgery the method of careful observation, collection, and collation of facts, and their thorough testing by direct experimental investigation, rather than that of trusting to theories founded on insufficient and unproved evidence. "Don't think—try" was his favourite exhortation. He it was who first gave allies to surgery, urging that surgery should be regarded as a branch of natural science, to be studied in its appropriate relationship to all the other branches, thus bringing it into close association with chemistry, physics, biology, comparative anatomy, physiology, and pathology. Had the microscope been available in Hunter's day he would doubtless have added to these bacteriology.

Every important discovery in the natural sciences since Hunter's time has exerted its influence upon contemporary surgical thought and practice, and overwhelming indeed would be surgery's debt to its allies were it not offset by a corresponding counter-debt for the help rendered to them in return by the great advances that have been made in surgical knowledge.

Though the choice for consideration to-night of a few only of the numerous component factors of this debt of modern surgery to the ancillary sciences must necessarily prove an arbitrary and rather an invidious task, yet I feel that the consensus of surgical opinion will endorse my selection of physics and of physiology as the two sciences to which, in recent times, surgery is most indebted; and further, that of the many useful applications in surgery of the results of researches in physics three have established a special claim upon our attention—x rays, radium, and light therapy.

RADIOLOGY.

The x rays, discovered by Wilhelm von Röntgen of Würzburg in 1895, were early applied to the diagnosis of pathological states in the human being, and thus was founded the science of radiology, whose subsequent brilliant achievements not only constitute one of the most important chapters of progress in medical affairs during the present century, but also open up vistas of still greater possibilities for the future.

The organs and tissues of the body vary in the degree of resistance they offer to the passage of the x rays, and it is upon the relative opacity of an organ to that of the tissues in its immediate vicinity that the possibility of demonstrating its shadow upon the radiographic plate or screen depends. The bones and teeth are very much more opaque than the soft structures, and cast the deepest shadows; the lungs are the most translucent, so that the heart placed between them is relatively opaque, and casts a very definite pulsating shadow. The kidneys are seen only to a very limited degree, since they are surrounded by tissues of approximately the same density as themselves; were they situated in the thorax their visibility would equal that of the heart.

Foreign bodies are displayable in proportion to their density, those of a metallic nature taking the first place. Had we not had available during the great war the assistance of the x rays in the detection and accurate localization of the bullets, shell fragments, and other metallic particles lodged in the tissues of so many of our wounded, war surgery would have had a very much less successful tale to unfold. Calculi are opaque to the x rays proportionately to the amount of lime salts they contain, those of the urinary tract being nowadays displayed with

* Oppel of Leningrad, in *Annals of Surgery*, June, 1928, reports 130 adrenalectomies for Raynaud's disease, and other forms of "hyperadrenalinaemia."

such reliability that operations for the removal of renal and ureteric stones are practically never undertaken unless the presence of the calculus has been previously radiographically demonstrated. In the bladder, it is true, stones are occasionally met with composed of uric acid only and quite translucent ("radiolucent") to the *x* rays; such may easily be overlooked even if of large size, but fortunately we have, in the cystoscope, a certain means of their recognition. Calculi in the salivary and other glands are readily displayed, while, with improving technique, gallstones are being shown in a steadily increasing proportion of cases.

The assistance of the *x* rays in the diagnosis and treatment of fractures and dislocations has proved invaluable, and the advice given recently by the council of the Medical Defence Union in a circular letter to its members, to insist upon radiography in every case of suspected fracture, would appear to be extremely sound from several points of view other than the intended one of defence against a possible legal action for malpraxis. Radiography soon taught us that in a large proportion of what were formerly considered to be merely "sprains" of joints some definite bony injury was present, the overlooking of and consequent failure to apply appropriate treatment to which explains the popular idea that "a sprain is worse than a break." Many incomplete and impacted fractures, and some of those without displacement, cannot be detected by any other means than radiography, and of this the general public is becoming aware. The public is, however, much too prone to estimate the success or failure of treatment of a fractured bone by the extent of the anatomical deformity displayed in the radiogram, rather than by the functional result; to the popular mind the "setting" of a fractured bone seems to imply that the radiographic picture should show the perfect apposition of the broken surface—an ideal which, though frequently most eloquently stressed by counsel for the plaintiff in an action for malpraxis, is, as the medical profession knows only too well, rarely attainable apart from open surgical operation.

X-ray apparatus is now so efficient that the finest details of structure of the bones are easily shown, and the slightest changes therein induced by early disease can be readily detected. Thus the earliest manifestations of tubercle, of rickets, of syphilis, and of new growths as they affect bone are readily recognizable, and such knowledge conduces to earlier and more effective treatment. One of the commonest applications of radiography of the present day is that to the sockets of the teeth, and many a local source of origin of "focal sepsis," otherwise inexplicable, has been thereby disclosed.

At an early stage of radiography its utility was vastly extended by the introduction of substances opaque to the *x* rays into parts of the body otherwise radiolucent, thus rendering them visible. The ramifications of sinuses in the soft parts were demonstrated radiographically by previously injecting them with bismuth paste. The introduction of the bismuth and, later, of the barium meal has been *the* outstanding advance in radiology, and has completely changed many of our former ideas regarding the anatomical position, the form, and the physiological movements of the different parts of the alimentary tract, while it has added in a truly marvellous degree to our knowledge of their pathology. Radiology, to the infinitely greater safety of the patient, has entirely displaced the bougie in the diagnosis of oesophageal obstruction, and yields an accuracy of information as to the exact situation, extent, and nature of the cause of the obstruction previously quite unattainable. It thus differentiates readily between simple cicatricial stricture, malignant stricture, compression of the oesophagus by tumours from without, and the very imperfectly understood muscular obstruction at its lower end, to which the term "cardiospasm" is applied. The presence, situation, size, and shape of pharyngeal and oesophageal diverticula are demonstrated with certainty by means of the opaque meal, which has also taught us that diverticula of the alimentary canal, though most frequently met with in the pelvic colon, may occur also in the rest of the large intestine, in the appendix, the small intestine, the duodenum, and even in the stomach. The recognition of gastric and duodenal ulcers, of their complications, such as hour-glass contraction and pyloric stenosis; of gastric cancer, more particularly in its earlier stages; of obstructions of the intestines, especially that of carcinoma of the colon, by means of the opaque enema, either alone or in combination with the opaque meal; of displacements of the viscera such as are observed in diaphragmatic hernia or in visceroptosis, and the demonstration by Graham's method of the outline of the gall-bladder some ten to twelve hours after the administration of tetraiodo-phenolphthalein, owing to the power of this viscus to concentrate the bile, in which the drug is excreted, to such a degree as to prove opaque to the *x* rays—all these constitute veritable triumphs of radiology, and have enormously facilitated the diagnosis of abdominal conditions.

Much the same may be said of the application of the opaque ureteral bougie and of the introduction of opaque media into some part of the genito-urinary tract during radiography—pyelography, ureterography, cystography, or urethrography, according to the portion of the tract concerned. Of these, pyelography has been most employed, and has disclosed alterations in the size, shape, and position of the renal pelvis, calyces, and ureters which have proved of the highest possible value in the diagnosis of renal pathological states.

The introduction into the trachea of the opaque medium lipiodol—a combination of 40 per cent. iodine with oil of poppy seeds—renders the bronchi and their ramifications visible upon a radiogram taken very shortly afterwards, and has been found useful in determining the relation of a foreign body in the lung to the nearest accessible bronchus, in demonstrating the outlines of lung abscesses, the presence and extent of bronchiectasis, the existence of a broncho-pleural fistula, and the extent of malignant growths involving the bronchi. Lipiodol was originally recommended by Sicard of Paris in 1921 for the localization of the site of blockage of the subarachnoid space by spinal cord tumours. Introduced into the upper part of this space, as by injection into the cisterna magna, the medium falls by gravity to the level of the upper limit of the obstruction, and can there be radiographically shown. By injecting into the lumbar sac an "ascending" mixture of lipiodol and olive oil, of lighter specific gravity than the cerebro-spinal fluid, the lower extent of the subarachnoid block can be defined. The method is not altogether devoid of danger, and lipiodol, once introduced, appears to remain unabsorbed for a long period, even for years. The injection of lipiodol into the uterine cavity has been used to indicate its size and shape, and any encroachment upon it, as by a growth, while the failure of the medium to pass along one or both Fallopian tubes has been utilized in the diagnosis of their obstruction in cases of sterility.

Another method of altering the relative densities to *x* rays of adjacent soft structures, and thus rendering their outlines visible, is the introduction of a gaseous medium—air, oxygen, or carbon dioxide—as into the perirenal tissues, thereby allowing the outline of the renal shadow to be readily discerned; or into the peritoneal cavity, when the liver, spleen, and kidneys are rendered visible. The withdrawal by puncture through a drill hole in the skull of a small amount of fluid from one of the lateral ventricles of the brain and its replacement by air or oxygen has allowed the outlines of the ventricles to be rendered visible upon the radiographic plate; their increased size in internal hydrocephalus can thus be readily demonstrated, whilst the position relative to the ventricle of an otherwise obscure cerebral tumour can often be accurately ascertained.

The growing importance of radiology is evidenced by the steadily increasing proportion of patients who pass through the *x*-ray department of our hospitals either for diagnosis or treatment. At the Manchester Royal Infirmary this proportion has gradually risen from 1 in 100 in 1908 to 1 in 24 in 1912, 1 in 11 in 1917, and 1 in 5 in 1928.

RADIUM.

Radium was discovered in 1898 by Professor and Madame Curie in a deposit of pitchblende from Jonchimstal in Bohemia, and was at first a monopoly of the Austrian Government. This monopoly was transferred to the American Government in 1913 owing to the discovery in Colorado and Utah of carnotite—a mineral which, although

the proportion of radium it contained was as small as one gram in 400 tons, nevertheless proved profitable to work owing to the ease with which the radium could be extracted. The finding of some very rich lodes of pitchblende in the Belgian Congo in 1921 has now placed the monopoly in the hands of a Belgian syndicate, who, in their factory at Oolen, at present supply most of the world's demand. It requires from thirty to forty tons of ore to yield one gram of radium, and its extraction necessitates spacious premises, much labour, and many highly skilled operatives, all these factors being reflected in the present market price of about £12,000 per gram. This monopoly seems likely to persist for some time, and only the discovery of a new source of really rich deposit can ameliorate the present situation.

Radium emits rays of three varieties—alpha, beta, and gamma—the last, similar to the Roentgen rays, and of high penetrative power, being those mainly used in deep treatment. Upon both animal and vegetable life radium has a decidedly detrimental effect, which is not, however, exercised equally upon all tissue cells, and even upon normal tissues radium has a decidedly selective action. Thus the cells of glandular structures, especially those of the ovary and testis, are much more susceptible than those of fibrous tissue, while muscle, cartilage, and nerve cells are the least sensitive. Actively dividing cells are the most vulnerable, and the cells of malignant growths, in which activity of cell division is a prominent feature, are more readily affected by radium than the other cells of the body. Upon this selective action the therapeutic value of radium in cancer depends, and our problem is to determine the exact dose that will exert the maximal destructive effect upon the cells of the malignant growth with the minimal upon those of the other tissues. There is a minimal dose below which no destructive action occurs, and many believe that these weak irradiations can stimulate the growth of tumour cells, and even stir into activity cells actually quiescent. The total dosage of radium, calculated in milligram-hours, can be applied either as a large amount of radium acting for a short time, or a small amount acting for a long time, and opinion is not yet decided upon the optimal dosage for each type of growth. On the one hand, by prolonging the duration of exposure, a greater number of cells will be adversely influenced during the vulnerable stage of active cell division; on the other hand, it has been shown experimentally that repeated sublethal doses may actually increase the resistance of the tumour cell to radium, and radiation treatment should, therefore, be concluded within a reasonably short time, and not indefinitely repeated.

As a therapeutic agent radium has been found of considerable value in non-malignant conditions—such as naevus, keloid, lupus and other skin diseases, exophthalmic goitre, and benign tumours—but it is in the treatment of malignant disease (including rodent ulcer) that its chief interest to us lies. Restricted at first entirely to cases too advanced for radical operative treatment, its scope has within the last few years been extended, either alone or in combination with surgery, to the treatment of operable cases. There has arisen a special branch of surgical technique—"the surgery of access"—concerned with the planning of operative procedures for the appropriate exposure of deeply seated malignant growths in order that radium tubes may be placed in correct relation thereto—as when a rectal carcinoma is exposed by removal of the coccyx and lower portion of the sacrum, an oesophageal carcinoma through the posterior mediastinum after rib resection or across the pleural cavity by lateral thoracotomy, or an intralaryngeal growth through a "window" cut in the thyroid cartilage. Modern methods of radium application have met with such considerable success in cancers of the skin, of the cervix uteri, of the mouth and tongue, and of the larynx, that there is an increasing tendency in these cases to prefer radium to operative treatment, at any rate so far as the primary growth is concerned. The comparatively slight disturbance of radium tube insertion, or of radium bomb treatment, their lesser risks, and the absence of that mutilation necessarily associated with a radical surgical operation, and which, as in the case of the tongue, may prove a considerable and permanent disadvantage, are factors favourable to radium, and should tend to overcome the natural reluctance of the average patient to submit to early treatment. It is, however, upon the end-results that the question must be ultimately decided, and these are not yet sufficiently known in the case of radium for a conclusive judgement, although some promising series of five-year statistics have been reported. In many cases the best results are obtained by a combination of radium treatment with surgery, as when the radical operation for cancer of the breast is associated with the implantation of radium tubes or needles into the supraclavicular and anterior mediastinal regions. At the present moment expert opinion seems to favour reversion to the external application of radium, either alone or in combination with radium tube insertion and very short wave-length x-ray irradiation. There are, however, two most important changes from the surface applications as originally practised: (1) the much larger quantities of radium used—up to 4 grams—and (2) the much greater distance from the skin—as much as 16 cm.—at which it is applied, thereby ensuring a more uniform dosage to all parts of the area irradiated, with lessened risk of cutaneous damage. This "bomb" or "cannon" treatment—as at present carried out in Paris, Brussels, Stockholm, and on a smaller scale at the Westminster Hospital, London—is considered by many likely to prove the method of choice in radium therapy, and it certainly deserves to be tested very thoroughly, should a sufficiency of radium be forthcoming. The still very high cost of radium in spite of the removal of the one-third *ad valorem* Government duty, and its restricted supply, are matters requiring urgent attention, and every means must be taken not only to increase its production, but also to ensure that the most efficient and most economical use is made of such supply as is already available, having regard to the absolute necessity, in this connexion, of maintaining an intimate association between treatment and research. The technique of radium therapy is highly specialized, and such work should be centralized, and restricted to the expert staffs of special institutions established in a few of the largest cities of a country. Until the supply of radium becomes less inadequate to cope with the increasing demand it may be advisable to arrange for a "night" as well as a "day" staff of workers at these institutions in order to minimize the number of hours ("radium-hours") during which any of the radium is unemployed in treatment.

ACTINOTHERAPY.

Heliotherapy—treatment by sunlight—is probably as old as human history. Hippocrates (460 to 370 B.C.) refers to the effect of sunlight in promoting health, and recommends sufferers from various ailments to walk about naked in the sun as much as possible—a simple remedy, which seems, however, to have been overlooked for many subsequent centuries.

At the end of the last century a considerable proportion of the beds in the hospital wards of our large cities was occupied with cases of tuberculous disease of the bones, joints, and spine, and other forms of "surgical" tuberculosis, for which operations, often of a very extensive and mutilating nature, and frequently requiring repetition, were considered the only chance of a cure. How frequently they failed, and, even when successful in saving life, the unsightly deformities and fearful defects of function that resulted, are some of the unpleasant memories of those of us who practised at that time. No more beneficent change has occurred in any department of treatment than in that of surgical tuberculosis during the past quarter of a century.

Thanks to the pioneer work of Bernhard and Rollier in Switzerland, and of Sir Henry Gauvain and Sir Robert Jones in this country, these mutilating surgical operations are things of the past. Surgical tuberculosis is nowadays treated by a general exposure of the body to sunlight in the open air in summer, and to artificial sunlight in the winter or whenever natural sunlight is not available. This should be combined with local treatment so designed as to ensure complete immobilization of any active focus, the removal of any pressure or weight-bearing, the correction, so far as is possible, of any existing deformity, and the antiseptic care of any discharging sinuses. Active surgery is limited almost

entirely to the evacuation of any cold abscesses that may develop, although in tuberculous spinal disease operations (Albee's, Hibb's) are occasionally performed, not as a direct attack upon the affected tissues, but to ensure better immobilization of the morbid focus in the vertebral bodies by producing ankylosis of the spinous processes of the diseased vertebrae and of those immediately above and below. Under this modern plan of campaign not only is victory assured in a much greater proportion of cases, but the bronzed and robust-looking bodies of the patients under sunlight treatment contrast pleasurably with the waxen faces and wasted limbs of the old days, while the local focus of disease heals with the minimum of deformity and the maximum preservation of function.

Treatment by ultra-violet radiation (actinotherapy) is now being extended to rickets and other general diseases, to most forms of skin disease, and to many disorders of the circulatory, respiratory, alimentary, nervous, and genito-urinary systems, as well as to those of the special senses. It has, in fact, assumed the dimensions of a "boom" treatment, and "sunray" centres are being established all over the country, not only as private ventures, often controlled by laymen only, but also at the municipal bathing establishments of many of our cities and towns, while there are sunbaths in many factories and at "pitheads" in several of our coal-mining districts.

The ultra-violet rays are, however, far from being innocuous, and their correct dosage is a matter of great importance and of careful individualization, since what is a safe dose for one may be dangerous to another. Over-exposure to their influence produces sleeplessness, restlessness, loss of weight, lassitude, and even sickness, while severe burns and serious forms of dermatitis may result in sensitive persons. Moreover, some ailments are adversely influenced by ultra-violet ray treatment—notably chronic nephritis, arterio-sclerosis, and quiescent tuberculosis, the last of which may easily be stirred into renewed activity. It is therefore in the public interest that the prescription of ultra-violet rays be restricted to the medical profession, and that their application be undertaken only by those who have received a proper course of training for this special work.

In view of the risks to the public involved in the use of electricity and radiation as methods of treatment by untrained and unqualified persons, the Representative Body of the British Medical Association, at the last Annual Meeting (July, 1928), expressed the opinion that suitable courses of training should be organized under medical direction for persons wishing to administer this form of treatment; that persons who have satisfactorily followed such a course should be entitled to have their names entered on an approved roll; that they should undertake to treat only patients sent to them by medical men, and that medical men should refer their patients only to those persons whose names are on the approved roll. Along these lines the Society of Apothecaries of London, acting in concert with the British Medical Association, has recently agreed to set up a standard to which persons practising physio-therapeutic treatment should attain, to institute a diploma, and to establish a register of those found qualified to serve as "biophysical assistants," such registration to entitle the appendage of the letters "B.P.A." to their names. The unqualified, unregistered chemist, dentist, and midwife are forbidden by law, and it seems only logical that the unqualified electrotherapist, who handles therapeutic measures equally potential of danger, should be placed under similar legal control.

PHYSIOLOGY.

Physiology has often been referred to in the past as the handmaiden of medicine, but such a description very inadequately represents its present status as a proud and independent branch of true science—the science of life itself. Rather must it be described as the essential foundation of modern medicine and surgery, as the means by which many of our former purely empirical methods of treatment have been placed upon a rational basis, and as the main factor by which the practice of medicine and surgery is daily becoming proportionately more of a science and less of an art. That the element of art must continue permanently to play a considerable part in surgery is self-evident when we remember how largely handicraft enters into its daily routine, but the merely artistic aspect of surgery has now, we may fairly claim, been brought to so high a degree of perfection that it is not so much upon outstanding advancements in surgical artistry that we must rely for future progress as upon a more thorough understanding of the physiological principles involved in our work, and their application to what is, after all, the great aim of surgery—the restoration of deranged function to the normal. The greater comprehension the surgeon obtains of what constitutes normal function the better equipped is he to achieve this aim, and to improve his methods by means which were not possible in the days when physiology was less advanced. The surgeon and the physiologist must tread the path of progress hand-in-hand, to the great advantage of each, since the debt between them is essentially a mutual one. For the success of his experiments upon animals the physiologist has to depend largely upon the methods of modern aseptic surgery, and has, therefore, a very vital interest in any improvements in surgical technique that may from time to time accrue. Moreover, though it is true that many discoveries made by physiologists which have found valuable practical application in medicine and surgery have originated purely in the search after truth and without any thought of their possible clinical utility, yet, on the other hand, there are many instances where clinical observation has been the starting-point of physiological researches which have ultimately proved of the greatest benefit in the treatment of human disease. One of the most impressive illustrations of this is yielded by the development of our knowledge of the localization of function in the cortex of the brain.

Prior to 1861 physiologists taught us that the brain acted as a whole, without any allotment of specific function to localized areas within it, but with all its parts working equally together. In that year Broca demonstrated to the Anthropological Society of Paris the brain of a man who had lost the power of speech for forty-one years, and showed that the only pathological change was softening of the third left frontal convolution. From this and other observations Broca deduced that this area was the seat of the faculty of articulate speech, and he further made the revolutionary suggestion that other areas of the brain might similarly be associated with special localization of function. In 1869 that great clinical observer Hughlings Jackson, from a study of cases of fits, and of hemiplegia, in which he carefully correlated the clinical manifestations with the necropsy findings, advanced the opinion that the cerebral cortex could be divided up into separate areas with distinctive function in regard to voluntary movement. In 1870 Fritsch and Hitzig applied the methods of experimental physiology, and by means of a galvanic current electrically stimulated the exposed cerebral cortex in dogs; they found that co-ordinated movements of certain muscles on the opposite side of the body invariably followed upon stimulation of certain definite areas of the cortex. In 1873 David Ferrier repeated and extended these experiments to the monkey, and utilized the faradic in preference to the galvanic current. He proved conclusively that certain portions of the cortex are definitely associated with specific motor and sensory functions, and his results were subsequently confirmed and extended by Horsley, Schafer, Beevor, Sherrington, and others who made similar experiments in the higher apes and in man. The way was thus paved for the application of these experimentally obtained results to man, and in 1876 Macewen (the late Sir William Macewen) of Glasgow correctly diagnosed an abscess in the immediate vicinity of Broca's lobe, the result of an injury to the skull. Unfortunately consent to operation could not be obtained, but after death the friends allowed the operation to be performed just as had been intended during life, when the finding of an abscess the size of a pigeon's egg in the white matter of the bases of the second and third frontal convolutions showed how accurate had been the diagnosis. In 1879 Macewen successfully operated upon two cases—one of abscess and one of tumour; in 1884 Godlee reported an operation for cerebral tumour; in 1886 Horsley recorded three cases of cerebral surgery; and in 1888 Macewen, in his address to the British Medical Association in Glasgow, recorded 21 cerebral operations with 18 recoveries, the three fatal cases all being *in extremis* when operated upon.

Since that time the continued experimental investigations by physiologists, the carefully recorded clinical observations of physicians, and their correlation with the results either of necropsy findings or of the operative disclosures of their surgical colleagues, have each played their part in the acquisition of the infinitely fuller, though even yet far from complete, knowledge of the localization of cerebral function of the present day—a knowledge which constitutes the essential basis of the great advances that have occurred during the present generation in the realm of cerebral and intracranial surgery.

Age[illegible] e functions of the thyroid gland
comm[illegible] bservations of Caleb Parry (1786),
Grov[illegible] (1840) on the condition we now
desig[illegible] and those of Curling (1850), Sir
Willi[illegible] (1877) on the opposite condition
of[illegible] which Ord applied the term

"myxoedema." Schiff of Geneva had shown in 1856 that removal of the thyroid in dogs led to a fatal result; in 1882 A. and J. Reverdin of Geneva produced myxoedema in animals by total or partial thyroidectomy, and in 1883 Kocher of Bern reported that of 100 cases in which he had removed large goitrous tumours from human beings 30 developed the condition he described as "cachexia strumipriva," which he attributed to injuries of structures in the neck rather than to the loss of the thyroid. In the same year Sir Felix Semon suggested, at a meeting of the Clinical Society of London, that myxoedema, cachexia strumipriva, and cretinism were identical, and were due to loss of function of the thyroid gland. The Clinical Society of London thereupon appointed a commission to investigate this question, and selected Victor Horsley to undertake the experimental part of the work: he produced cachexia strumipriva in monkeys and other animals by removing the thyroid gland. In 1884 Schiff, repeating his previous experiments upon dogs, showed that death after thyroidectomy could be averted by transplanting the gland under the skin or into the peritoneal cavity, and von Eiselsberg proved the same to be true of the cat. In 1890 Horsley independently suggested thyroid grafting to arrest myxoedema in man; this suggestion was acted upon by several surgeons, especially Bettencourt and Serrano, who attributed the improvement following immediately upon operation to absorption of the juice of the transplanted gland. Thereupon Murray, in 1891, suggested that the regular administration of the thyroid secretion in the form of an extract of the gland would remove the symptoms of myxoedema; he prepared a glycerin extract of a sheep's thyroid and injected it hypodermically at intervals into a patient with myxoedema, all the symptoms of which rapidly disappeared. In the following year Howitz of Copenhagen, and Hector Mackenzie and Fox in this country, found that a similar good result could be obtained by oral administration of thyroid extract or of the raw fresh gland itself, and thus was inaugurated the wonderfully successful thyroid therapy of the present day.

The progress of physiology during the present century has been characterized by many new methods of study, by the greater attention devoted to human physiology, and by the enormous strides made in the physiology of nutrition. If we look back to the beginning of this century and compare the state of physiological knowledge then with that of the present day it is wonderful to contemplate the discoveries that have been made. The use of x rays for the examination of the function of the stomach and small intestines, developed first of all by Cannon for physiological purposes, had only just begun to be applied to the diagnosis of alimentary diseases. The role of proteins in nutrition was imperfectly understood and their chemical constitution was only a conjecture. Vitamins had not been heard of. Insulin was still a hypothetical substance. None of the active principles of the ductless glands had been synthesized and their mode of action was very incompletely known. Micro-methods for the biochemical examination of the blood and other body fluids were practically unknown. The buffering mechanisms of the blood were not dreamt of, and the close interplay between normal physiological functions such as secretion and respiration, and their part in the regulation of body neutrality, was not known. The relation of the capillary circulation to the production of shock is also a relatively recent discovery.

All these advances in knowledge, and many others that might be mentioned, have had their influence on surgery—directly, because they have improved methods of diagnosis and treatment, and indirectly on account of their influence on the attitude of the surgeon to his subject. It is impossible to deal in detail with each particular advancement which surgery owes to physiology, but a few examples may be mentioned.

Rickets.

This disease, responsible for a large number of the deformities with which surgeons have been called upon to deal, may be expected to disappear within the next decade, as a result of the discoveries which have been made on the influence of vitamins, and especially vitamin D, on nutrition. It is a matter of congratulation that the pioneer work of Hopkins on the discovery of vitamins, and of Mellanby on the dietetic factors which influence the development of rickets in dogs, was done in this country. In 1915 Mellanby showed that rickets was a "deficiency disease" due to absence from the diet of some unknown factor which controls the calcification of bone and the development of the teeth, and he thus foreshadowed the discovery of a fourth vitamin now known as "vitamin D"—the antirachitic vitamin. It was shown that rickets experimentally produced in animals could be readily cured by administering cod-liver oil, and the same was known to be true of rickets in children. This knowledge was successfully utilized on a large scale in Vienna in 1919 for the treatment of children afflicted with rickets as a result of an insufficiency of fats in their diet during the great war, when, in the Mid-European countries, all available fats were deflected to the production of high explosives. It was there observed that rickets was much more easily cured in summer than in winter, and that exposure to the summer sunlight alone, even without the administration of cod-liver oil, could arrest the disease. Later the discovery was made that exposure to the ultra-violet rays from a carbon arc or a quartz mercury vapour lamp had the same beneficial effect as sunlight or as cod-liver oil; while, still later, irradiation of the body of the child or animal was proved to be unnecessary provided that the food be exposed to the ultra-violet rays prior to administration. Tests applied to the different constituents of the food indicated that only the fatty portion could be activated by ultra-violet irradiation, and by further elimination the essential factor concerned was finally shown to be "ergosterol"—one of the group of sterols usually associated in small amount in the human body with cholesterol, and found plentifully in yeasts and in the fungus ergot of rye, from which it was first isolated. On exposure to the ultra-violet rays ergosterol changes from a white crystalline substance to a pale yellow resinous material, which is the most potent in vitamin D content of any known body. It is estimated that 5 milligrams of this substance is the equivalent in antirachitic power of one litre of cod-liver oil, and the daily dose needed to prevent rickets is only a small fraction of a milligram. Upon the presence of ergosterol in the natural fats of the skin, and the production of vitamin D by the action thereon of the ultra-violet rays, depends the curative power of sunlight on rickets.

Irradiated ergosterol is now produced on a commercial scale by many of the large drug firms, under such names as "radiostol," "vigantol," etc., and by its substitution for cod-liver oil the preventive and curative action of the latter upon rickets can be obtained without the disadvantage of its taste, or of its tendency to upset digestion. This direct production of vitamin D is certainly the most important advance yet made in the chemistry of the vitamins, and has not only paved the way to a rational therapy of rickets, but, better still, has pointed out methods of prevention that should lead to its disappearance. Mild degrees of rickets are, unfortunately, still very prevalent, and in a recent report Sir George Newman states that as a result of the examination of nearly 1,000 children of 3 years of age in various parts of the country some manifestation of rickets was discovered in as high a percentage as 48.7. The time required for cure by the various methods of treating rickets is a question of some practical importance. At Alder Hey Hospital, Liverpool, Dr. Aidin (*Lancet*, February 4th, 1928) found that in severe cases treatment by antirachitic diet together with cod-liver oil effected a cure, as shown by radiological examination of the bones, in approximately fifteen weeks; additional treatment by exposure to the tungsten-cored carbon arc lamp shortened this period to nine weeks; while the further addition of irradiated cholesterol internally and the substitution of the quartz mercury vapour lamp for the tungsten carbon arc brought about a radiological cure in approximately five weeks. Not only has this new treatment of rickets—the administration of concentrated vitamin D—an apparent advantage in point of time, but its great convenience, its exactness of dosage, and its economy are all in its favour. Before its adoption on an extensive scale, however, much requires to be known as to the stability of the new preparations, their keeping properties under various conditions, the exact dosage required for the cure of human rickets, and the possible dangers of excessive dosage.

Blood Transfusion.

This, one of the most useful of our emergency surgical therapeutic measures, although first performed upon animals by Lower so long ago as 1666, and upon a youth of 15 years by Denys of Paris in 1667, was very little

practised until the present century. Thus was largely owing to the uncertainty of the outcome, the blood of one man not being always compatible with that of another, but sometimes reacting so that the corpuscles of the donor's blood are agglutinated by the serum of the recipient, and more or less rapidly destroyed; not only does the recipient then fail to receive any benefit from the transfusion, but injurious consequences may ensue varying from slight discomfort to sudden death. The physiological researches of Jansky in 1907 and of Moss in 1910 (in America) into the interaction of a large number of specimens of human blood led to the establishment of the four now well-known blood groups. The blood of individuals belonging to the same group may safely be transferred from one to another, and even if of different groups may still prove compatible under certain conditions of admixture now fully investigated. Simple means have been discovered of determining the group to which a person belongs, and consequently this valuable surgical procedure has been reintroduced on a sound physiological basis, while an increased knowledge of the phenomena of blood congulation has evolved a relatively simple technique—the sodium citrate method—which has largely replaced the older one in which the blood vessels of the donor and recipient were directly connected. In the war it was not until the advent of the U.S.A. army medical officers in 1917 that blood transfusion was utilized on any large scale, but thereafter it proved invaluable as a means of combating haemorrhage and shock, both of which factors were usually associated with the extensive wounds of warfare. In the surgery of civil life blood transfusion is destined to play a steadily increasing part in the treatment of acute anaemia, whether due to haemorrhage alone, as in severe haematemesis from gastric or duodenal ulcer, or to secondary haemorrhage from an amputation stump: or whether associated with shock, as in severe industrial railway and motor-car accidents, and after serious surgical operations. In such emergencies there can be no question as to its immediate life-saving value. Transfusion has also proved of great benefit in the more slowly developing anaemia of repeated small haemorrhages, such as occur in ulcers and malignant growths of the stomach and colon, and has frequently enabled a radical surgical operation, otherwise quite impossible, to be safely undertaken. In jaundice, purpura, haemophilia, and other haemorrhagic diseases, transfusion, in addition to replacing the blood actually lost, has a beneficial effect upon the tendency to haemorrhage; in pernicious anaemia repeated transfusions, though not a cure for the disease, may prolong life for months or even years; in pyogenic infections transfusions of blood from a donor, who himself is first actively immunized ("immuno-transfusion"), has met with some success and is at present on its trial; whilst in other toxaemias and in other directions blood transfusion is being increasingly utilized.

Insulin.

Although the isolation of insulin and its preparation in a suitable form, standardized for therapeutic use, is a triumph of physiology which finds its greatest use to the physician in the treatment of diabetes, yet it has not been without its value to the surgeon. Diabetic patients require surgical attention proportionately much more frequently than non-diabetics, or than sufferers from other chronic diseases. Thus Fitz found that 14 per cent. of 386 diabetics consecutively treated at the Massachusetts General Hospital required surgical intervention, chiefly on account of the frequent occurrence of carbuncle and of gangrene. Prior to the introduction of insulin a high mortality attended surgical operations in diabetes, mainly owing to slow healing of the tissues, to their increased liability to infection, and to the frequent development of post-operative coma; insulin administration, together with precision in diet, has so completely transformed the surgical outlook that, as reported from the Mayo Clinic in 1926, no patient is now refused any necessary operation because of diabetes, and the mortality of operations upon diabetics has been reduced to that in cases without this complication. It seems likely that in the future, with a better knowledge of the part played by insulin in carbohydrate metabolism, it may find other uses. Its value in furthering the deposition of glycogen has already been applied to the improvement of the functional activity of the liver, and in cases of inanition which have to be operated upon it may be of value in rapidly inducing a better nutritive condition of body tissues; while the combination of glucose intravenously with insulin subcutaneously has proved of considerable value in the treatment of shock, creating an immediate supply of energy from the rapid oxidation of the glucose by insulin.

Assessment of Renal Function.

It is principally to the painstaking and persevering work of the American biochemist Folin that we owe the modern micro methods of blood analysis whereby, using only a few cubic centimetres of blood, all the important constituents can be accurately determined. These methods have been particularly helpful in cases where prostatectomy is contemplated and where it is essential to know to what extent the excretory functions of the kidneys have been already adversely affected by back-pressure from the prostatic obstruction, as indicated by the abnormal retention in the blood of urea, uric acid, creatinin, and other waste products to an extent varying directly with the degree of renal derangement. It cannot, in fact, be too strongly stressed that the operative risks of prostatectomy are concerned infinitely more with the condition of the kidneys than of the prostate, and that by delaying the major operation until the renal functions have been improved by the relief from "back-pressure" afforded by adequate preliminary drainage of the bladder—either by the indwelling catheter or by suprapubic cystostomy—the dangers attending the removal of the prostate can be very materially diminished. Biochemists, by means of their tests of renal functional capacity, have enabled surgeons to estimate the power of the kidneys to withstand surgical intervention with a degree of accuracy that is truly remarkable. Would that the same could be said of the liver, and that we could "size up" the functional state of that organ as simply and as correctly as we can that of the kidneys. So manifold and varied, however, are the functions of the liver, and so diverse the directions in which deranged hepatic function may become clinically manifest, that any reliable estimation thereof must necessarily involve more extensive and more complicated procedures than in the case of the kidneys.

Of other methods of applied physiology to which the surgeon is indebted, mention may be made of the use of fractional gastric analysis for investigation of the activity, both digestive and motor, of the stomach; the duodenal tube for the collection and examination of bile; estimation of the basal metabolism as a guide to over- and under-activity of the thyroid and pituitary glands, and to the nature of the operative procedures to be undertaken in connexion therewith; determination of the carbon dioxide combining power of the blood and its relation to the diagnosis of those conditions of acidosis and alkalosis that occasionally complicate surgical procedures; and the examination of the red blood corpuscles for "fragility" in cases of splenic enlargement, as in haemolytic jaundice.

In the past a large proportion of the discoveries of physiology has been the outcome of experiments upon animals, conducted in physiological laboratories, while the wide field for the investigation of its problems offered by the hospital wards and operating theatres has been comparatively little utilized. For the elucidation of many points man himself possesses several advantages over the lower animals as a subject of investigation, and a more active encouragement of clinical research in human physiology is one of the prominent needs of to-day. In Manchester the University professor of physiology has been placed along with his colleagues in anatomy, physics, and pharmacology, upon the consulting staff of the Royal Infirmary, so that the closest possible connexion is maintained between these ancillary sciences and the clinical aspects of medicine and surgery.

Pregnant with promise, too, is the recent extension of physiological research to the whole field of human activity. Laboratory investigations have taught us much of the

physical and chemical workings of the individual systems of the human body, and have supplied us with various measures by which these can be tested. But of the workings of the human machine as a whole under the varying conditions and stresses of industrial and other forms of activity comparatively little was known. Early in the war it was recognized that the methods of medical examination of recruits then in vogue were far from satisfactory, and their inefficiency was frequently shown up on the parade ground and in the training camps. Especially was this so in the case of individuals in the Royal Air Force, where it was soon recognized that perfectly "sound" men, in the usually accepted medical sense, might nevertheless be quite unfitted to control an aeroplane. New and more delicate tests were required of the functional activity of the various systems, especially the visual, circulatory, and nervous systems, and of their quickness of response to the constantly changing conditions met with in flying. The medical officers of the Royal Air Force have shown most praiseworthy ingenuity in devising methods for the more efficient testing of the body functions, and have given a great impetus to the study of the healthy human machine at work under conditions hitherto unknown. In the field of industry it is becoming more generally recognized that the test of health is the capacity to perform effective work, and researches are constantly being made into the effects of environmental factors—for example, fatigue, monotony, noise, high illumination—upon the productive efficiency of the industrial worker. It has been shown that the distribution of industrial accidents amongst workers exposed to similar conditions of risk is not a mere matter of chance, but that each has an individual proneness to accident which can be fairly exactly estimated by testing the rapidity and accuracy with which he reacts to certain visual, auditory, and tactile stimuli. Though much still remains to be accomplished, the valuable information thus acquired has already brought about vast improvements in working conditions in many of our industries, and in the standard of health and the productive capacity of those employed therein.

Of modern surgery's debt to the other ancillary sciences that to bacteriology is assuredly the most fundamental, since it was Pasteur's discovery that fermentation and putrefaction were caused by minute living organisms and were, therefore, vital and not merely chemical processes, as hitherto believed, that led Lister to his great conception of the antiseptic treatment of that putrefaction then found in almost all wounds—a conception which constitutes, as we have seen, the very starting point of modern surgery. Time permits me merely to mention other advances in bacteriology: the detection of the causative germs of almost all the infective diseases; the enunciation of the great principles of immunity, both "active" and "passive"; the preparation of vaccines and of antitoxic serums and their use in the prevention and treatment of bacterial infections; the therapy of systemic infections by the intravenous introduction of chemical antiseptics resulting, among other notable gains, in that brilliant conquest of the former scourge of syphilis that has been achieved within the present century—all of which constitute milestones along the highway of bacteriology's triumphal progress.

Nor have I time to refer to the great help that modern surgery has received from research workers in anatomy, pathology, and pharmacology, valuable as their contributions have been; nor yet to more general sources of assistance such as the greatly improved means of rapid intercommunication—the telephone, the wireless—and of rapid transport—the motor-car, the aeroplane—factors which have so materially facilitated the prompt application of surgical relief in cases of emergency, whether on land or at sea.

I trust, however, that enough has been said to indicate that modern surgery, with the aid of its allies, has made and is still making great progress towards that end we all so fervently desire—the prevention of those abnormal conditions, the late results of which to-day necessitate so much surgical attention of a destructive rather than a constructive character. Much yet remains to be done, and the natural sciences must continue to advance, each ready to assist and to accept assistance from its fellows, each along its own special path yet all in mutual friendly alliance working for the common good, all in zealous pursuit of that goal, unattainable though it must ever remain, that will-o'-the-wisp of perfect knowledge and complete understanding. In so doing they will but follow the precept and the spirit of that motto upon the crest of our beloved University, in whose venerable precincts this great Association will to-morrow enter upon its full scientific programme, and of which we in this city are all so intensely proud: "Arduus ad solem"—"leaping upwards to the sunshine"—"ever striving towards the very highest."

PHYSIOLOGY THE BASIS OF TREATMENT.*

BY

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THE ultimate aim of medicine is the prevention or cure of disease: this practical aspect so far dominates all others that it is often referred to as the healing art; indeed, it is difficult to think of medicine apart from treatment.

The term "physiology" is usually used to designate the science of function, whether it is studied in broad outline and dealing with the mechanism of action or as the physico-chemical mechanisms leading up to this action. Disease means the unusual functioning of tissues which may be the result of accident, hereditary weakness, or parasitic organisms. Generally it is wrong to speak of this as malfunctioning: the unusual functioning is physiological and perhaps the best for the organism under the unusual conditions. The science of medicine, then, is nothing more than trained and organized common sense based on physiology. It is still usual to speak of it as an inexact science; this is obviously wrong, since medicine uses the same methods as every other science, and the results of observation are as definite as those of the chemist or physicist; although it is true that, in the complexity of the problem with which the physician may have to deal, all the conditions of importance may not be known, and the results of an investigation, though correct for the conditions under which it is undertaken, may be misleading.

When the sciences of physiology and pathology a century ago passed from the realms of natural history to deduction and experiment, they naturally attracted the more original and eager minds in medicine, and the text of the writings of the nineteenth century deals with changes in structure and function. Treatment became neglected, the old shibboleths and rituals of treatment which had held sway for centuries were discarded, and there was nothing with which to replace them. In the middle of the last century S. Skoda and K. Rokitansky perfected a system of physical diagnosis which has had a practical bearing on medicine ever since. Skoda made many experiments with drugs on the patient without any expectation of producing benefit; the patients were not improved and Skoda thought it mattered little how the patient was treated. Scientific medicine looked askance at treatment; textbooks spent many pages in describing the symptoms, diagnosis, and pathology of disease, but two or three lines dismissed the treatment: and even in our times the "scientific" physician is apt to be a diagnostician rather than a healer. The study of disease as an entity was the object aimed at, and a complete case was one which went to autopsy. This state of affairs was unavoidable; there was no specific treatment, there was no science of treatment, for such a science could only come into existence when physiology and pathology had reached some degree of

* Abstract of Presidential Address delivered on July 24th at Capetown before the Section of Physiology, British Association.

precision. Diagnosis was then, and is now, far ahead of treatment: diagnosis is often accurate where there is no satisfactory treatment, and yet diagnosis is only a means to the end.

The science of treatment or pharmacology is the climax of physiology and pathology, devised to subserve a practical end, and forms an important part of the great biological topic of the influence of conditions on the living organism. Few drugs now exist the mode of action of which is not understood, and the goal is not so far distant when it will be possible to introduce into the animal economy a factor which will exaggerate or retard the function of any tissue or collection of cells in the body, leaving the others unaffected; and most of these results have been obtained by the methods used in experimental physiology.

The first object of science is to ascertain facts: certain facts in physiology are relatively easily ascertained—those, for example, which involve the behaviour of ferments of isolated cells or of tissues and which require well-known chemical or physical methods. Other facts involving the physiology of the whole organism are more difficult to interpret, though they are the basis of the therapeutic side of medicine. More and more is physiology being regarded as the application of physics and chemistry to the phenomena of life. The modern attitude is expressed by a distinguished young biochemist who, in reviewing a well-known book on chemotherapy in 1928, asks, "Might not the time and resources spent on chemotherapeutic research be diverted more profitably to the study of chemical and physical mechanism?" The same attitude is reflected in the awards of fellowships and scholarships for medical research. Formerly all the recipients were primarily biologists with a medical training; now a medico-biological training is unusual. Physiology in the broad sense in which it was used by Claude Bernard and Huxley has given place to a new physiology of physico-chemical reactions: I might go beyond this and say that physiology is getting further and further from practical medicine, and this is the more regrettable as most of the chairs in physiology are connected with the medical schools and because the science of treatment is largely dependent on experimental physiology.

Pharmacology and Therapeutics.

No branch of experimental biology has received less consideration in Great Britain than that of pharmacology: it is also the most neglected branch of medicine, and although the object of medicine is the healing of the sick, it is amazing that medical schools in Britain, often equipped with all other modern laboratories, lack departments of therapeutics. I was once asked at a meeting, by a leading medical man, what has pharmacology ever done? The answer is, *of course, that it has formulated* and brought reason and knowledge into treatment of the sick; so much did it impress that great pathologist Ehrlich that he left his serums and turned his attention to drugs, and with the unlimited resources at his disposal gave the world, amongst other drugs, salvarsan; so much did it impress the brilliant French chemist M. Fourneau that he has confined his studies to those of drugs, a study which has resulted in the synthesis of many valuable arsenical compounds and dyes.

I have heard it said by a leading official of our Ministry of Health, speaking to panel practitioners, that they, in the Ministry, do not want stereotyped prescribing in treatment. Surely there was never such nonsense. If there is a best treatment, let us have it, whether it is stereotyped or not. In this respect the British Medical Association has given the profession a lead, and shown by the experience of a great number of doctors that there is a best way of treating varicose ulcer in which the patient gets well quicker than by other ways, an advantage both to the patient and to the community who have to keep him whilst he is unfit for work.

The British physician is a skilled diagnostician and is in the forefront in all that pertains to this subject. The literature is so extensive that it is impossible for the average clinician to do more than this. But how few of them do, or perhaps the more correct word is "can," occupy the same time in the study of recent advances in general therapeutics! The successful physician has, generally speaking, to be content with such references to treatment as are to be found in clinical reading. The general physician must always be a necessity for diagnosis; but the details of treatment of patients will, I believe, in the future be handed over to those who have made a special study of the treatment of that particular group of diseases from one of which the patient is suffering.

It has been often said that the action of remedies may be best determined by experimenting with them on healthy men. This is not true; quinine is used to treat malaria, yet not one of the subjective symptoms induced in man has the remotest connexion with its curative properties. The same is true of the use of the iodides in syphilis and salicylates in rheumatism. The experiments of Joig and his pupils in 1825 with camphor, digitalis, and other drugs on healthy men added nothing of value to pharmacology. Subjective sensations are, it is true, produced, which are erroneously attributed to the drug which has been taken. The late Dr. Rivers and myself were nearly the dupes of such an experiment, which I will give in full because it illustrates the imaginary sensations and effects produced by S. Hahnemann and his pupils, by Perkin with his retractors, and by more modern physicians with their mystic apparatus.

> Our experiments were made on healthy men under a regular regime as regarded sleep, exercise, and diet. The men were practised with the use of the ergograph during several weeks at the same hour daily, until their output of work was constant. We found that the administration of a dose of caffeine dissolved in water one hour before the experiment greatly increased the output of work for that day. This was repeated on several occasions, always with the same result, and we naturally regarded the effect as due to the caffeine. This, however, was not the case: the effect was due to the ritual of taking a drug; the drug day assumed an enhanced importance in the mind of the operator, and the mental effect sometimes referred to as suggestion was principally responsible. We had no difficulty in showing that water made bitter with a trace of quassia or other simple bitter had a similar effect.

Few, if any, experiments made on man without the most careful controls are of any real value. Properly controlled experiments have been made, however, with many substances. Precise experiments, for example, have been made in both Germany and America with bromides in epilepsy. In these experiments half the epileptics were given potassium chloride and the other half sodium bromide; after several weeks' use the bromide had decreased the number of attacks, whilst the chloride had no distinct action.

Chemotherapy.

At one time hopes ran high that the chemical structure of the molecule might indicate pharmacological action. During the last fifty years many laborious researches have been conducted with this object: to modify the molecule that it may conform to some required action. But the mystery remains as mighty as ever. It is most probable that subtle energy factors binding the molecule—factors not displayed in a formula—control the action; certain it is that drug action is not determined directly by chemical combination with body constituents, but rather by delicate physical processes such as those of adsorption, solution, and surface tension. Chemists have as yet not even determined the requirements of the molecule for the production of colour sensation. On the other hand, slight alteration of a molecule already complicated and with a known action has led to the production of many useful compounds, and not infrequently we may foresee the type of action which will occur under such special conditions. Considerations of this nature have led to the synthesis of the new local anaesthetics, antiseptics, antipyretics, diuretics, tropeines, and other useful substances.

But chemistry has taken yet a further step in its assistance given to medicine in the development of that branch of science to which the name chemotherapy has been given. Ehrlich noticed that colouring matters injected into the living organism had a selective affinity for certain cells, and he believed that it might be possible, by making use of

this property, to select suitable substances which would destroy the causal agents of disease—parasites and microbes—and leave the tissues of the host uninfluenced. Parasites causing disease in man may be crudely divided into worms, protozoa, and bacteria. Chemotherapy—that is, specific therapy of infectious disease—has had marked success in curing disease due to parasites in the first and second of these groups; these diseases are found mainly in the tropics. It has obtained much less success in the third group.

Diseases due to protozoa have a special significance in Africa, and it is appropriate that in this meeting some reference should be made to that area of tropical Africa occupying more than a million square miles in which one form of these—namely, trypanosomes—produce their ravages. Two forms of trypanosomes are known to infect man, *T. gambiense* and *T. rhodesiense*; the latter is more rapidly fatal than *T. gambiense*, and its treatment is less satisfactory. *T. gambiense* is transferred by *Glossina palpalis*, *T. brucei* by *G. morsitans* and *pallidipes*, and *T. rhodesiense* by *G. morsitans*. Besides the human form of the disease another tsetse fly is responsible for the trypanosomes of domestic animals, including horses and cattle, *T. brucei*, which produces the disease n'gana, so that in infected districts draft animals and dairy cattle cannot exist. Trypanosomiasis is one of the most serious of all tropical diseases, and affects both man and beast; it is a scourge which renders vast tracts of land practically uninhabitable, and which takes its death toll even in thousands, and occasionally even in hundreds of thousands, and yet it is a disease which I believe should be curable, if not preventable.

The members of two groups of chemical substances excel all others in their curative value in trypanosomiasis and spirochaetosis; these are the organic arsenical compounds and the dyes. The specific action of organic arsenic compounds really begins with some observations of Thomas on the action of atoxyl on trypanosomes. Ehrlich had previously discarded this substance because it was without direct action on the protozoon, but later he observed, like Levaditi and Mesnil, that in infected animals it had a more pronounced action than that of any other substance up to then employed. Atoxyl was, however, soon discarded as a curative remedy, because it caused permanent and complete blindness in some cases. Acetyl-atoxyl, known as arsacetin, which was at one time widely used, had no better fortune, and several cases of permanent blindness resulted from its use. Ehrlich's experiments with Hata, in which innumerable arsenical compounds were employed, led him to select salvarsan as the best; in this substance the nitrogen and arsenic are in the meta position, and not in the para, as in atoxyl. This substance as a treatment of syphilis and other spirochaetal infections stands as firmly to-day as it did ten years ago; it has one drawback—it does not influence the condition of the patient if the central nervous system is attacked. Other substances, like tetramethyl hexamino-arsenobenzene (arsalyte Giemsa), have been produced which are also very efficient in spirochaetosis.

The most satisfactory arsenic compound yet discovered for the cure of trypanosomiasis is tryparsamide. It is less toxic than atoxyl, and has a slightly higher therapeutic index; it has a most marked trypanosidal action in animals, and has been used with some success in cases of sleeping sickness from *T. gambiense*. One injection causes the disappearance of the parasite from the blood of man, and if the injections are repeated in courses the cure may be complete. Like atoxyl it affects the eye: even the smaller therapeutic doses cause visual disturbance, and the risk of complete blindness is always present; perhaps as many as 30 per cent. of all patients treated with this drug suffer from some eye lesions. Tryparsamide is valuable also in certain forms of syphilis, particularly cerebral syphilis: approximately 40 per cent. of the cases of general paresis committed to the State Insane Hospitals in Wisconsin were restored to sanity (Loevenhart). This action is probably indirect, since there is no evidence to show that it is absorbed into the central nervous system more than other organic arsenicals.

All these organic arsenical compounds must be injected in order to produce a satisfactory effect; but one compound, m. amino-p. hydroxyl phenyl arsenic acid, acts upon and destroys spirochaetes when taken by the mouth (Levaditi); it is generally administered as its acetyl derivative, which is known as stovarsol. Stovarsol has been largely used as a preventive to syphilis, but it is now known that it has a remarkable curative action in amoebic dysentery like emetine (Valenti), and that in cases of benign tertiary malaria it checks the attacks and prevents the return of the disease, at all events for many months.

It was at first thought that, as laboratory animals are so easily infected with trypanosomes, it should be an easy matter to determine which compounds were likely to be most valuable in the treatment of trypanosomiasis. Unfortunately this is not the case; a drug may cure trypanosomiasis in one animal and not another, and the crucial tests must always be made on man.

Most of the antimony derivatives corresponding with the organic arsenicals have been prepared; for example, that corresponding with acetyl-atoxyl, also m. chloro-p-acetyl amino phenyl stibamate of soda (Heyden 471) have been extensively employed in kala-azar and bilharzia. Speaking generally, they have a more powerful action than tartar emetic on such diseases as bilharziasis, kala-azar, and filariasis, and to some of them, like sodium antimony thioglycollate, the parasites do not become readily immune. Unfortunately the organic compounds of antimony have a toxic action on the tissues, and are very difficult to administer, so that antimony tartrate or stibamine urea, a compound which has recently been prepared pure, are generally preferred.

DYES.

Many dye substances have been used in medicine: as they are readily adsorbed on to cell surfaces the concentration here is always high, and the surface properties of such cells are often modified in consequence. One general principle which follows from this is that widely different dyes often possess properties in common—for example, that of being antiseptic. To-day I propose to refer only to one group, the benzidine dyes.

Trypan red and trypan blue belong to this group. Trypan blue was employed by my colleague Professor Nuttall in piroplasma infections in animals, with results that most South Africans are well acquainted with. Afridol violet, a derivative of diamino diphenyl urea, and some allied dyes have also a powerful action on piroplasma. How these substances act is not known, for like the organic arsenicals they do not kill the parasite *in vitro*. They have the property, however, of being adsorbed to the blepharoplast of the trypanosome; this adsorption is associated with diminished virulence of the parasite in infected animals, and after successive inoculations through several animals the organ may disappear. This direct action of a drug on a tissue, causing ultimately the complete disappearance of that tissue, is so remarkable that it is worthy of notice, as it represents the first known action of the kind. The most valuable member of the afridol-violet group so far produced was first made in the Bayer laboratory, but its composition was kept secret. It was, however, subsequently synthesized and its formula published by Fourneau, but only after long trials and infinite patience. Fourneau has made many allied substances and derivatives of "205"; the number of such derivatives is obviously legion, and this makes it the more remarkable that he should have succeeded in synthesizing "307," which at the present time is superior as a therapeutic agent to all other dyes in trypanosomiasis. This "307" has a remarkable action on trypanosomes in laboratory animals, being 300 times more effective than atoxyl. Its discovery has also opened a new era in therapeutics, since it represents the first chemical substance which, when administered to man or animals in an infected trypanosome district, gives a complete immunity to the disease for several months; it does not necessarily prevent trypanosome infection, but it prevents the effects of the disease. There is much in these experiments that suggests that we are on the fringe of a new pathology, and that our present crude methods of preparing antibodies in the future will be replaced by those of the organic and colloid chemist.

In man "205" has not done all that was expected of it; it invariably benefits those that show infection and enlargement of glands—that is, during the early stages of the disease—and its value is also assured even when the nervous system is affected. If care is taken in the treatment, and a series of injections given at not too frequent intervals to prevent the parasite acquiring a tolerance, and if the patient is kept under observation for a prolonged period of time, the happiest issue may be anticipated; "307" is much less valuable on n'gana in animals.

Bacterial Infections.

Much the most important industrial disease in South Africa is the silicosis produced in the extraction of gold from the conglomerate, both the pebbles and the matrix consisting of quartz. The gravity of pneumoconiosis depends largely on superadded tuberculous infection, to which the workers have a predisposition, and in this respect crystalline silica is much more harmful than either amorphous silica or carbon.

The report of the Miners' Phthisis Medical Bureau, dealing with the years 1914–26, shows that the incidence of silicosis is increasing. Of the average number of 178,000 natives employed on the scheduled mines during the year 1925–26, of whom 133,260 were employed underground, simple tuberculosis was found to be present in 566, simple silicosis in 231, and tuberculosis with silicosis in 446. Workers employed in other dusty trades, such as the preparation of asbestos materials, also suffer from pulmonary disability, and Dr. Collis found that five deaths from phthisis had occurred in five years amongst a staff of less than forty workers employed in a factory where asbestos was woven; asbestos contains about 50 per cent. of silica. The dust associated with the process of carding, before its extraction was efficient, at one time in England produced a pneumoconiosis resembling that of silicosis. It is well recognized that a patient suffering from tuberculosis who is placed under treatment will, for a time at least, improve in health, no matter what drugs, vaccines, or "specialties" may be employed. The beneficial result is due, in this as in other disease, to efficient nursing, to the regulation of food, exercise, and sleep, and to light and fresh air. General hygienic measures are of primary importance in treatment, and it is not until all the beneficial effects which are known to ensue from these have been exhausted that the physician has any right to ascribe an effect, beneficial or otherwise, to a special treatment.

Drugs are employed in tuberculosis either with the object of attacking and preventing the growth of the tubercle bacillus or other organisms with which the disease may be associated, of neutralizing poisonous toxins, or of removing or relieving symptoms. It is with the first group that I am now concerned. Two groups of organic compounds are especially remarkable for their chemotherapeutic action on bacteria. The first group has the quinine complex: the action of optoquin on the pneumococcus and of vuzin on *Bacillus diphtheriae* is highly specific; the higher and lower homologues have a greatly diminished effect. Many substances destroy bacteria in the test tube, but these drugs act in the animal body as well as in the test tube, and enough can be given by medicinal doses to animals and men to render the blood of these animals bactericidal.

The second group of drugs which exert a marked action on bacteria are certain derivatives of acridine. Trypaflavine was used during the war for infected wounds; unlike most antiseptics, it acts better in the presence of protein, but is not sufficiently selective or specific on micro-organisms in the presence of body tissues to be of any real value; it is easily absorbed, and readily causes oedema. Rivanol is a more recent derivative of acridine. Morgenroth cured streptococcic infections by injections of rivanol under the skin. The injections to be efficient must be made soon after the infection and in the neighbourhood of the inoculated zone; rivanol will not cure a blood infection. Its discovery is, however, a great advance over any substance previously available in this group, and we can anticipate with some confidence in the near future the introduction of other derivatives which will destroy acute infective agents.

Two other chemical substances are worthy of consideration for the remarkable effects accredited to them in the treatment of microbial infections—mercurochrome and hexyl-resorcinol. Clinical evidence shows that mercurochrome exerts a curative effect, especially in the case of streptococcic and staphylococcic infections, and these effects have been repeated in animal experiments. Hexylresorcinol has a phenol coefficient of 72, and it renders the urine in which it is excreted germicidal; many reports show that it effects remarkable cures in cystitis and pyelitis. Unlike mercurochrome, the action of this substance, at least in the urine, may be direct on micro-organisms.

The chemotherapeutic substances which are known to act on bacteria are without value in tuberculosis. Thus flavine and its silver salts do not influence the tuberculous process in living animals, and the same is true of the quinine derivatives which have been prepared so far. The destruction of the tubercle bacillus presents two special difficulties: first in the fatty and protective envelope surrounding the bacillus, and second in the small blood supply to the tuberculous lesion. Success, however, has been claimed for several metallic compounds, and I shall confine my remarks to three of these. It is by no means clear that the results which have been obtained by administering gold salts to tuberculous patients or animals are superior to those given by copper salts, which preceded them. "Krysolgan" was introduced by Feldt; it prevents the growth of the tubercle bacillus in cultures in 1 part in 1,000,000. Nevertheless, animal experiments with this substance are not promising, though the clinical results published in Feldt's monograph in 1923 are certainly both helpful and inspiring.

Another "gold" cure is that recently introduced by Moellgaard. It is a double thiosulphate of gold and sodium, which, although a well-recognized substance, he calls "sanocrysin." Like its predecessors, it retards growth of the tubercle bacillus in glycerinated bouillon in such strengths as 1 in 8,000,000, but how serum added to the cultures affects its action I have not discovered. Nevertheless, this is a very important point, since such chemotherapeutic substances as exert an undoubted action on bacteria invariably act the better in the presence of the tissue fluids. Moellgaard assumes that his gold injections destroy the tubercle bacillus *in vivo*, and states that doses which are not poisonous to normal animals kill the tuberculous animal by producing a tuberculin shock. This shock begins with an albuminuria and sometimes haematuria; it is followed by toxic myocarditis and pulmonary oedema. There is, however, no clear evidence to prove that the shock in tuberculous animals after an injection of sanocrysin is due to the destruction of tubercle bacilli and the setting free of endotoxins, which act as tuberculin acts on tuberculous animals. Another feature of importance in these experiments is that the cultures used were attenuated. The doses necessary to kill were enormous, and many control animals failed to die or contract severe disease.

Hoyle and I have recently investigated two new types of gold compounds in tuberculosis. One of these is a complex aurous salt of ethylenethiocarbamide with the formula $(Au,2etu)H_2O$, where etu represents ethylenethiocarbamide. It was tested for therapeutic effects on both human and bovine types of infection. For the former, inoculations were made subcutaneously into guinea-pigs with 1-mg. doses of a virulent human strain. All the animals, control and experimental groups, died within a few days of one another, and all showed characteristic progressive lesions of similar extent. It was found that treatment with the gold compound in bovine disease in rabbits prolonged life about 50 per cent. when compared with controls. We adopted the arbitrary standard that treated animals should survive at least two or three times longer than the average length of life of the controls before clinical trial should be proceeded with. In view of the wide variations in individual susceptibility, and the difficulty that this entails in drawing sound positive conclusions from a small series of animals, it is absolutely necessary to exercise the utmost caution before arousing clinical expectations.

The second compound tested by us was a complex gold derivative of succinimide, prepared by my colleague Sir William Pope. This substance was tested for therapeutic effect in experimental bovine infections in rabbits. In some animals this treatment was supplemented by injections of potassium iodide subcutaneously; in no case have any therapeutic benefits been observed. There has been no increase in the lengths of life of the treated animals, and the type and extent of disease at post-mortem examination in treated and control animals has in every case up to the present been similar.

These compounds are interesting because the one delays death and the other is entirely without action. They may afford a hint as to the lines on which organic chemists should proceed, and perhaps show that gold in the ionic form is desirable.

THE INTERNAL SECRETIONS.

In the last twenty years much evidence has accumulated to show that the glands of internal secretion are responsible for the regulation of growth, of metabolism, and often for our appearance if not for our very character. Exaggeration or diminution in the secretion of one or other of the tissues may induce conditions so decided as to be obvious to everybody, though the effects produced by minor alterations in the co-ordination of the several secretions may not be so evident. Giants and dwarfs, unusual pigmentation and anaemia, disproportion in the growth of the skeleton, such as enlarged hands and face, bulging deer-like eyes or oriental eyes and beards in women are noticeable to everyone; excessive fatness or emaciation, a choleric or bucolic temperament cause no comment, yet may equally arise in the victim from a want of co-ordination in the internal secretion.

The general outlook and significance of drug therapy was led into new channels when it was revealed that the animal body through these glands elaborates its own drugs, stores them generally at the seat of formation, and doles them out to the tissues to meet the needs of the economy. Some of these drugs are of the nature of alkaloids comparable with those elaborated by plants. It is a remarkable fact that when Nature elaborates a drug in either a plant or an animal, that drug is invariably the ideal drug for producing the action for which it is characteristic. No drug relieves pain like morphine or produces local anaesthesia so well as cocaine; no drug paralyses the parasympathetics so perfectly as atropine or the motor nerves so effectively as curarine; strychnine supersedes all other drugs in exaggerating spinal reflexes, and caffeine in its remarkable power of stimulating the psychical centres of the brain. Of the animal drugs, adrenaline has a superlative effect on the sympathetic system, pituitary on the uterus, and thyroxin on general metabolism.

The Suprarenal Gland.

The suprarenal gland is composed of two distinct organs. The medulla elaborates an alkaloid named adrenaline, the action of which corresponds with stimulation of the entire sympathetic system. What exactly its functions may be in the animal economy is not certain; its output under normal conditions is so limited that it can hardly affect the blood pressure and it is not apparently essential for life. There can be little doubt, however, that in moments of excitement adrenaline is liberated in large amounts and that it is responsible for some of the expressions of the emotions. The action of adrenaline under such conditions is to raise the blood pressure by constricting peripheral vessels, to dilate bronchioles, to erect the hair, to increase the blood sugar, to immobilize the alimentary canal, and to facilitate the clotting of blood. Cannon has shown that cats respond to psychical stimulation, such as may be induced by the presence of a dog, after the entire thoracic sympathetic system has been removed; the interpretation must be that in these emotional conditions adrenaline is set free in relatively large amounts.

The expressions of the emotions, such as anger and terror, are to the animals an advantage: the easy breathing, the ready clotting of the blood, the increased circulation may all have their advantages in a fight. The ultimate cause of spasmodic asthma is constriction of the bronchiolar muscle; if during an asthmatic attack the patient is subjected to some sudden terror or other pronounced emotion the attack sometimes promptly ceases, in a manner exactly simulating the way in which a small injection of adrenaline will abort an attack.

In parts of West Africa the calabar bean, *Physostigma*, was sometimes used, in trial by ordeal, to determine the innocence or guilt of persons accused of witchcraft or other crimes. A normal person, after drinking an infusion of this bean, promptly vomits and gets rid of the poison. In states of emotion, which might well occur in a guilty person, the stomach is flaccid and immobile, vomiting does not occur, and the poison is absorbed. The adrenaline takes some part in this inhibition of vomiting as it stops the movements of the stomach. The bean ordinarily induces violent contractions of the stomach which cause reflex vomiting.

Ephedrine is an alkaloid which has been used by the Chinese as a medicine from time immemorial. It is closely related to adrenaline and has an action very similar to it; but ephedrine acts when taken by the mouth, while adrenaline is so easily oxidized that it is destroyed when administered in this manner. Adrenaline causes pulmonary congestion by dilatation of the coronaries; ephedrine has no such effect. Ephedrine has proved of great value in the treatment of spasmodic asthma, since oral administration produces prolonged broncho-dilatation.

The Parathyroids.

Another striking result from experimental work in the field of internal secretion has recently been obtained in the case of the parathyroid glands. Many vague and unsatisfactory statements existed in the older literature as to the functions of these bodies; but now a potent extract of bovine parathyroid glands accurately standardized can be obtained, and precise knowledge of the part these glands play in the animal economy has become possible. Extracts when injected into a variety of animals raise the level of the blood calcium; if the injection is made into an animal that has been previously parathyroidectomized, tetany and the usual fatal outcome are prevented. Repeated or very large doses in normal animals produce a condition with a definite clinical and biochemical picture—a condition of "hypercalcaemia," in which the blood calcium may rise to very high levels and in which a characteristic train of symptoms is found with terminal renal failure. All this work has shown beyond doubt that the parathyroid glands produce a substance which is responsible for controlling the level of blood calcium, and that interference with this function by removal or disease of the glands can be overcome by treatment with the potent extracts now available.

The Ovary.

The gonads present the clearest evidence of the influence which a tissue may exert on metabolism. I will refer only to the ovary. Virchow is reported to have said that all the peculiarities of the body and mind of woman, all which in the true woman we admire and revere as womanly, are dependent on the ovary. Knauer showed that this organ was intimately connected with oestrus, and that ovarian grafting could at least partly antagonize the effects of spaying. This ovarian action can be produced in both sexes. If a portion of an ovary is grafted into a castrated male animal the mammary glands and teats hypertrophy, the glands develop to the secretory stage, and the animal comes to resemble a pregnant female: males so grafted become hyperfeminine in appearance. In the male the development of the mammary glands is uninterrupted, the Graafian follicles mature but do not rupture, and the ovary soon degenerates. In the engrafted female development is slower and, unlike the male, shows a rhythm which is associated with the development of the Graafian follicle, and in the regressive phase with its rupture and the formation of the corpus luteum.

The ovary does not function till puberty, and there is considerable evidence to show that this is brought about by some internal stimulus. A young ovary grafted into an adult male or female will begin its secretion sooner than its age warrants, whilst an adult ovary engrafted into a young animal will not function until the animal reaches maturity. This fact is of practical importance, since in cases of infantilism it is not necessarily the ovaries which are at fault, and ovarian transplantation may not improve the patient. The ovary differs from other organs of internal secretion in that it functions in a cyclic manner, and it is obvious that extracts made from ovarian tissue may exert a different action according to the period of the cycle when they are made.

Numerous extracts have been prepared from the ovary which are reputed to exert one or other type of action. "Oestrin", is the name given to one such substance; it can be made from many sources, both animal and vegetable, besides the ovary. Oestrin exerts a very definite action in lower animals, but its use in man is so variable and disappointing as to make it valueless in practical medicine. When it is injected subcutaneously into spayed rats and mice it produces typical oestrus with normal sex instincts, and when injected into immature animals it induces puberty; regular injections at fixed intervals will keep animals sterile.

Many experimental observations show that the corpus luteum is concerned with the rhythm of the oestrous cycle and with the prevention of ovulation. A persistent corpus luteum, in both animals and women, produces sterility, a condition which is cured by its removal. The presence of fully formed corpora lutea appears to inhibit some ovarian secretion, and this condition obtains in animals for a time between the heat periods, but more particularly during pregnancy. In women there is plenty of pathological evidence to show that functional corpora lutea are not present during menstruation. If the corpora lutea exert this controlling action on ovarian function, then their removal should release the normal ovarian function; such operations during pregnancy are invariably followed by abortion. On the other hand, injections of properly prepared corpus luteum prevent ovulation; this has been shown in the case of the hen, the rabbit, and the guinea-pig.

Interstitial Hormone.

A third active substance distinct from oestrin and corpus luteum is elaborated from the ovary, and was described by Marshall and myself. The substance is water-soluble and therme-stabile, and can be prepared from the ovary at one stage of its cycle only, by maceration with warm saline, followed by boiling and filtering. The injection of this substance into animals causes a secretion of pituitrin, and this in turn renders the uterus supersensitive and highly responsive to other forms of stimulation.

The pituitary gland is intimately connected with the phenomenon of pregnancy; statistics show that the size and weight of the gland in men and nulliparae are about the same; in primiparae the weight has increased by about 50 per cent., and in multiparae by about 90 per cent., though most of the increased weight is due to the anterior lobe. The posterior pituitary substance has at least three actions of importance in medicine: it inhibits the secretion of urine, it has an antagonistic action to the insulin effect, and it sensitizes and, in larger doses, contracts the plain muscle of the uterus. The last action is so profound that it overshadows all the other muscular effects, and pituitrin may be said to have a true specific action on uterine muscle in rendering it supersensitive to every form of extraneous stimulus. Our experiments showed that at one stage only of the ovarian cycle was this hormone elaborated —namely, at the stage when the corpora lutea are degenerating. So long as the corpora are functioning they control the metabolism of the ovary, but when they degenerate control is lost and the ovary liberates the specific substance which excites the pituitary gland to secrete. This means that extracts of the ovary made between the heat periods or during pregnancy are without effect on the pituitary gland, but extracts made just before the heat period or just before parturition induce secretion of the gland. As the significant action of pituitary extract is to sensitize the uterus it is difficult, if not impossible, to avoid the conclusion that these two phenomena are closely associated.

It is well known that substances introduced into the cerebro-spinal fluid find their way almost immediately into the blood, and hence it might be expected that extracts made from the blood of pregnant rabbits obtained at the time of delivery would have a contractile influence on the uterus; this has been found to occur. Similarly, blood obtained from pregnant women at the time of delivery contracts the guinea-pig's uterus to a considerably greater degree than normal blood. Mayer collected the cerebro-spinal fluid from women during Caesarean section. This fluid he injected subsequently into ten women with deficient labour pains. In eight of the women pains were induced, which in four were followed by the birth of the child. In another case an intradural injection was made, which was followed by labour pains within twenty-four hours. The interaction of bile salts and pituitary secretion is antagonistic on the uterus. Hofbauer shows that there is a steady increase in the bile salts in the blood of pregnant women as gestation proceeds. He thinks that this factor is responsible for the control of the pituitary secretion during pregnancy, and that towards the end of labour the pituitrin action overshadows the bile-salt action, so that labour occurs.

All these experiments consistently support the view that in the presence of fully formed corpora lutea the normal ovarian secretion is held in abeyance, and this is the condition for a short part of the time between the heat periods, but more particularly during pregnancy. At the close of pregnancy, when the corpora lutea are in an advanced stage of involution, the normal secretory activity recurs, and the pituitary gland is excited to secrete more actively. When the threshold stimulus of the pituitrin on the uterus is reached the pains of labour set in and parturition results. The well-known phenomenon of the growing irritability of the uterus in the later stages of pregnancy, which is the typical effect of the pituitary action, is explained as being functionally correlated with the involution of the corpus luteum. It is not suggested that the ovario-pituitary endocrine mechanism is the sole factor in producing labour pains. No doubt the foetus itself acts as a direct stimulus, and without the foetus the intense muscular contractions would not occur, but it is also clear that the onset of labour cannot easily be accounted for without postulating some further exciting cause apart from the foetus and the uterus. No romance can be more remarkable than the fact that doctors, by using pituitary extract to stimulate the uterus in pregnancy, should have adopted the method which Nature herself employs, and that physiological function is, after all, a pharmacological action.

Concluding Remarks.

I have endeavoured to show that all precise knowledge in therapeutics is based upon controlled experiments on animals or man, and that the elucidation of the action of medicaments by the methods and data of experimental physiology is one of the most important steps taken to place medicine on a scientific basis. How important this is may be gauged from the fact that all fundamental advances in treatment in the last thirty years have originated, directly or indirectly, from experiments on animals. There can be no doubt, then, that the future of therapeutics, and therefore of medicine as a whole, is intimately connected with physiology; there can be no doubt that advance in the practice of medicine is dependent on those trained in the methods and fundamental truths of physiology, who devote themselves in the ward and biological laboratory to investigating how best to prevent or cure disease, and so relieve suffering.

Britain for fifty years has every reason to be proud of her progress and achievements in physiology; it is acknowledged that she can show records second to none, and that her savants have included some of the world's greatest investigators. It remains for us to hope that in the future she may attain equal success in the associated sciences directly concerned with the relief of suffering and cure of disease.

TRAUMATIC RUPTURE OF THE STOMACH

BY

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IN the *Glasgow Medical Journal* of 1894, J. Grant Andrew, in a paper read before the Glasgow Pathological and Clinical Society in December, 1893, reports a fatal case of traumatic rupture of the stomach due to a crush, for which no operation was performed. In his review of the literature, he states that up to 1858 three cases of complete rupture of the stomach had been reported, and, including the one he related, there were eight further ones up to 1893. All these cases were fatal, some immediately following the injury, two being five days after the injury. He makes a note that the rupture was generally near the pylorus, and that vomiting was frequent in most of the cases.

In *Acute Abdominal Diseases*, published by Adams in 1923, it is stated that rupture of a normal stomach may be caused by violent contraction of the abdominal muscles, by blows, or by crushes. He states that the rupture is usually longitudinal, and near the pyloric portion of the lesser curvature of the stomach, and the only pathognomonic signs are fresh blood in the vomit and obliteration of the liver dullness—in addition, of course, to the usual signs of rupture of any abdominal viscus.

Sherren states that between the years 1899 and 1919 eleven cases of ruptured stomachs were admitted to the London Hospital, but in only three was it the sole viscus ruptured, and all these cases treated in the London Hospital died. He says that ruptures from external violence are usually situated in the region of the greater curvature. He also quotes Deaver and Ashurst as stating that only four operations for traumatic rupture of the stomach have been recorded, and all resulted in death.

Walton, in his *Surgical Dyspepsias*, states that traumatic rupture of the stomach is rare, and generally other viscera are affected. He quotes Sherren as saying that of 270 cases of abdominal contusion admitted to the London Hospital in ten years the stomach was ruptured in five, and in only one of these cases was no other viscus affected. He also quotes Battle, who published 165 cases of intestinal injury, but no example of injury to the stomach. Walton states that practically all reported cases of rupture have occurred when the stomach is full, and that rupture takes place at the weakest part of the wall—namely, the greater curvature. Owing to the severity of the injury and the frequency of the accompanying lesions these injuries are nearly always fatal.

I thought it would be interesting for me to publish (with the kind permission of Professor Burgess and Mr. Wrigley, under whose care these patients were while at the Manchester Royal Infirmary) two cases which I operated on, and in which the rupture of the stomach was the only abdominal injury present, and both of which made uninterrupted recoveries, each patient being discharged from the Infirmary in a fortnight.

CASE I.

Mrs. J. G. was admitted to the hospital on July 14th, 1928, following the injuries she received by her car colliding with another one, the impact doubling her up and throwing her under the dashboard. When I examined her she was pale, she had vomited once following the accident, the abdomen was rigid, she was suffering severe abdominal pain, and there was diffuse tenderness and guarding all over the abdomen, more especially at the right side. There was no shifting dullness to be detected in the flanks. Her pulse rate was 92, and temperature 99° F. There were no other signs of injury anywhere to be made out. On the diagnosis of the rupture of an intestinal viscus, I made a right rectus slide incision, and on opening the peritoneum I found blood and extravasated contents in the abdominal cavity. These were swabbed out, and rupture about the size of a threepenny piece was found at the pyloric end of the stomach near the lesser curvature. The rent was sutured with interrupted Lembert sutures of catgut, and the abdomen was then closed, with drainage to the abdominal wall. She was discharged home on July 28th.

CASE II.

Mr. A. F. was admitted to the Manchester Royal Infirmary on December 18th. He could not give any account of the accident; as he was suffering from some slight degree of concussion of the brain. I learnt from witnesses that he had been knocked off a pedal cycle by a motor bus. A neighbouring doctor, who saw him immediately after the accident, gave him 1/4 grain of morphine. When I saw him he was complaining of abdominal pain, and also the abdomen was generally rigid and tender. His pulse was 70, strong and steady, and the temperature 97° F. At operation I found much free blood, gas, and stomach contents in the abdominal cavity. These latter were swabbed out. The stomach was bruised and oedematous, and there was a rent about an inch long high up on the lesser curvature of the stomach, which was sutured, as in the previous case. The abdominal cavity was then filled with hot saline solution and the abdomen closed. The wound healed by first intention, and he was discharged to the convalescent home on December 31st.

Both these cases were caused by injuries when the stomach was full, and both were operated on within eight hours of the accident. In one case the upper part of the lesser curvature of the stomach was affected, and in the other the pyloric portion of the stomach. In neither case were there any other abdominal injuries, either internal or external. The immediate after-treatment was similar to that employed in the case of rupture of a gastric or duodenal ulcer.

I have examined both patients about four months after the injuries, and neither complains of any disability.

TOXIC JAUNDICE WITH ASCITES.

BY

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ALTHOUGH the occurrence of ascites in cases of toxic jaundice is a relatively uncommon happening, it is probable that its frequency is considerably greater than the very sparse literature would suggest. I have given much attention to certain aspects of liver disease, and naturally a fair concentration of liver cases has occurred in my practice; it was not until recently, however, that an example of the syndrome under consideration came under my care. A search of the literature disclosed only four references to it, and I felt that a brief review of the subject would not be devoid of interest.

Fiessinger and Brodin[1] and Fiessinger and Walter[2] give a very clear account of their conception of what they have termed the "syndrome ictéro-ascitique," and their description, both of the clinical features and of the pathology, cannot be bettered. During the course of a multilobular cirrhosis of the liver the clinical picture occasionally becomes dramatically altered by the sudden onset of ascites and jaundice. This jaundice, they say, is not the usual subicteric tint of the cirrhotic, but a frank icterus with deep coloration of the integuments, bile in the urine, and clay-coloured stools. Ascites develops rapidly, but the amount of the effusion, and the necessity for frequent tapping, vary widely in different cases. At the same time the patient's general condition degenerates rapidly, emaciation and marked weakness ensue, and there are usually digestive troubles; fever may appear, and its explanation is a matter of some difficulty.

The progress of the malady is variable; usually the condition is rapidly fatal, and the presence of the syndrome may be taken to mean the presence of an acute or subacute hepatitis—cholaemia may carry off the patient with its familiar train of symptoms. Some patients recover, however, and these are the ones in whom some definite cause can be found for the onset of toxic jaundice—the transitory toxaemia of surgical anaesthesia, the action of novarsenobillon, etc. Where no cause can be found the outlook is grave.

With regard to the pathology of the condition these authors describe a widespread fatty degeneration of the parenchymal cells of the liver, together with the usual findings of atrophic cirrhosis. Their explanation of the syndrome is ingenious; it is obvious that acute hepatitis in a normal liver would produce jaundice, and in such a liver the swelling of individual cells would result in an increase in the volume of the organ. If such a hepatitis arose in a cirrhotic liver jaundice would naturally ensue, but the fibrosis of the organ would prevent, in certain

cases, any increase in volume, and the swelling of the liver cells could only occur by encroachment on the portal capillaries with consequent portal obstruction. The work of Azoulay and Jaquelin[3] gives important confirmation to this contention. They found that the healthy human liver after death would increase and diminish in volume according to the pressure of the fluid with which it was perfused, but in a cirrhotic liver practically no volume changes could be produced.

Willcox[4] quotes two cases of an analogous but not exactly comparable type occurring as a result of tetrachlorethane poisoning; after many weeks of toxic jaundice symptoms of portal obstruction developed. There is, however, a definite probability that in these cases the obstruction was due to replacement fibrosis. There are, of course, other explanations, and the case quoted by Halita[5] of toxic jaundice of four months' duration with generalized anasarca cannot be accounted for on these lines. Halita regarded the dropsy as due to an upset in the metabolism of water, probably as the result of an alteration of the colloidal balance of the plasma.

The frequent oedema of the ankles in cases of pre-ascitic cirrhosis has been similarly ascribed. There is no reason why the two explanations should be mutually exclusive, as the two types of case are not clinically identical. A third explanation for the ascites is that it is caused by peritoneal irritation, and this cannot be denied; Fiessinger's views are, however, too alluring to be lightly spurned.

The case that came under my observation was that of a man aged 52; he was first seen in August, 1928, with the history that his Wassermann reaction two years before had been strongly positive and that he had then been *successfully treated with* novarsenobillon for paroxysmal tachycardia. The complaint had recurred, and a further course was suggested. Apart from rather an interesting tachycardia of the paroxysmal type there was nothing on examination, but the Wassermann reaction in the blood was strongly positive. He received six injections of 0.3 gram of novarsenobillon, a total of 1.8 grams, and his treatment was stopped on November 6th, as jaundice had developed. He was treated by his own doctor for some weeks, but as the jaundice did not clear up he was referred to me again on December 16th. He had a deep jaundice with bile in the urine and clay-coloured stools, and it appeared to be a case of rather severe toxic icterus. He was treated with the intravenous injection of sodium thiosulphate, and he received in all 4.5 grams. The jaundice increased rather than diminished, and the liver could be felt about two finger-breadths below the costal margin; ascites developed, and it became gross and of sufficient amount to produce oedema of the legs. He was sent back to his doctor on December 28th, and a very bad prognosis was given, with the suggestion that it must be a case of cancer of the liver, and the suggestion of toxic jaundice incorrect. He remained in bed for fifteen weeks, and both jaundice and ascites gradually cleared. He had become very emaciated, but it was now obvious that he was going to recover. On May 23rd I saw him again; he was rather thin, but there were no signs of jaundice; the liver appeared to be the same size as it had been at the height of the disease. Retrospectively the case was then diagnosed as an example of the ictero-ascitic syndrome, and it is difficult to see what else it could be. Liver function tests were carried out with the following results: Van den Bergh test negative. Icterus index 2. Levulose tolerance test: before levulose, blood sugar 0.093; half an hour after 50 grams, 0.154; 1 hour after, 0.168; 1½ hours after, 0.132; 2 hours after, 0.115; 2½ hours after, 0.108. Galactose tolerance test: before, 0.103; half an hour after 50 grams, 0.141; 1 hour after, 0.162; 1½ hours after, 0.110; 2 hours after, 0.105; 2½ hours after, 0.096.

It will be seen that both of the sugar tolerance tests show a definite abnormality in the functional capacity of the liver; this confirms my view of the pathology of the case—an initial cirrhosis of the liver, possibly of syphilitic origin, and a superimposed arsenical jaundice complicated by ascites.

Finally, due acknowledgement must be made to Mr. Garfield Thomas, biochemist to the General Hospital, for the chemical findings.

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THE DICK TEST IN PREGNANCY.

REPORT ON 533 CASES IN THE OBSTETRICAL UNIT OF THE ROYAL FREE HOSPITAL.

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IN the *Lancet* (April 14th, 1928, pp. 746, 748) there were two interesting articles by Dr. Parish and Dr. Okell on the relationship of the haemolytic streptococci to scarlet fever and other diseases. The authors suggested that the closest relationship existed between the streptococci of puerperal fever and scarlet fever. It obviously became of great interest to see if there were any agreement between the reaction of pregnant women to the Dick test and their liability to puerperal sepsis. A paper by Burt-White[1] suggested that there was a definite relationship. The following investigation was also designed to test the hypothesis that such a relationship exists. Shortly after our work was begun the British Medical Association most generously awarded us a research grant, which has considerably facilitated the investigation.

In all, 533 cases have been tested. The test is performed as is described below on patients when they come into hospital in labour. Messrs. Burroughs Wellcome's standardized scarlet fever toxin and control are used. An intradermal injection of 0.2 c.cm. of toxin is made into the patient's left forearm, and 0.2 c.cm. of control into the right forearm.

The reactions are noted in six hours, and again in twelve to eighteen hours. Positive reactions begin to fade in about twenty-four hours. A positive reaction is indicated by an area of erythema, varying in size, surrounding the point of injection in the left forearm. Occasionally an erythematous area is also seen on the control arm. If there is an area of erythema only on the control arm a protein reaction is indicated, and this is also shown by areas of erythema of equal size on both arms. If there are erythematous areas on both, but that on the left is larger than that on the right, the reaction is positive. No erythema at all indicates a negative reaction. It is also of interest to note when doing the test whether the patient has previously had scarlet fever, erysipelas, puerperal fever, or severe sore throat.

The results of the tests are as follows, the Queen Charlotte's standard of morbidity (100° F. *on one occasion* at any time during the puerperium) having been used:

1. Of the 533 cases tested 158 (or 29.6 per cent.) were Dick-positive, 373 (or 69.9 per cent.) were Dick-negative, and 2 (or 0.3 per cent.) had protein reactions only.

2. Among the Dick-positive cases 126 (or 80 per cent.) remained afebrile throughout the puerperium, and 32 (or 20 per cent.) were at some time febrile, according to the above-named standard morbidity. Among the Dick-negative cases 317 (or 85 per cent.) remained afebrile, and 56 (or 15 per cent.) were febrile. In all, there were 443 (or 84 per cent.) afebrile patients, and 88 (or 16 per cent.) febrile patients.

3. An analysis of the afebrile and febrile cases in relation to complications yields the following statistical data: manipulations were necessary in the delivery of 50 Dick-positive patients and 140 Dick-negative patients; of the former, 14 (or 28 per cent.), and of the latter, 30 (or 21 per cent.) were febrile. Of the 108 remaining Dick-positive cases, in whose treatment manipulations were not undertaken, 18 (or 17 per cent.) were febrile; and of the corresponding 233 Dick-negative cases 26 (or 11 per cent.) were febrile. A history of previous attacks of scarlet fever, erysipelas, sore throat, etc., was obtained from 42 Dick-positive and from 123 Dick-negative cases. Of the former, 5 (or 12 per cent.), and of the latter, 22 (or 18 per cent.) were febrile. Among the 116 Dick-positive cases giving no such history 84 (or 72 per cent.) were febrile, and among

the 60 corresponding Dick-negative cases 34 (or 56 per cent.) were febrile.

The following are the clinical conditions that were found in association with the febrile cases: urinary infections with *B. coli* and streptococci isolated from catheter specimens; clinical sapraemia in conjunction with urinary infections; clinical sapraemia; streptococcal sore throat; breast abscess; white leg and clinical sapraemia and general peritonitis following septic abortion. There were three cases of Caesarean section in the series: one in which no cause for fever could be found, one with a septic abdominal wound, and one followed by general peritonitis. There was only one case of septicaemia in which the blood culture yielded *B. coli* and streptococci. In a number of cases in which a rise of temperature occurred on one occasion only no definite cause of fever could be found.

All the 32 febrile Dick-positive cases made a complete recovery; one death, from streptococcal general peritonitis following Caesarean section, occurred among the 56 febrile Dick-negative cases.

Discussion of Results.

The object of our work was to see if the pregnant woman giving a positive Dick reaction was more liable during the puerperium to suffer from "fever" than the negative reactor. Our results do not suggest that she is more liable. If she is, the difference is so small that it would obviously take a very large number of observations to establish it. Such a series of observations would have to be controlled by taking one or more cervical swabs in every case and examining them by complete bacteriological methods to establish the percentage incidence of haemolytic streptococci. It is not opportune to carry on the investigation on this large scale over a long period, and we have therefore been advised to discontinue the work.

The results obtained by Burt-White indicated a greater liability of the Dick-positive woman to suffer from "fever." We cannot give any explanation of the difference between those results and our own, and, as we are closing the research, we cannot further investigate the discrepancy.

Summary and Conclusions.

1. Of 533 pregnant women tested by the Dick method 70 per cent. were negative.

2. Of 158 Dick-positive reactors 20 per cent., and of 373 Dick-negative reactors 15 per cent., became febrile.

3. No attempt was made to decide whether the febrile condition was due to haemolytic streptococci or not.

4. There was *no significant* difference between the liability of the Dick-positive and Dick-negative pregnant women to suffer from "fever" in the puerperium.

We have to thank the British Medical Association for their grant, which has enabled us to do this work; Drs. O'Brien, Okell, and Parish for their help and advice, and Professor Dame Louise McIlroy for allowing us to publish the report of the cases from the Obstetrical Unit of the Royal Free Hospital.

REFERENCE.

1 *British Medical Journal*, 1928, ii, 974.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

FULL-TERM ECTOPIC PREGNANCY.

THE following case is of interest on account of its comparative rarity.

Mrs. H., aged 22, was seen by one of us on April 25th, 1929. She complained of vomiting of greenish fluid, and looked extremely toxic. The temperature was normal, but the pulse rate was rapid (110). There was a history of amenorrhoea since June 6th, 1928, the menstrual flow on that occasion only lasting one day. She felt well, and pregnancy apparently was following a normal course until April 5th (about three weeks overdue, according to her reckoning). On this date she fell, striking the abdomen against a door. This was followed by severe abdominal pain, with vomiting, for two days, causing her to remain in bed. Since that date she had felt no foetal movements. She had had two normal confinements, two and three years ago respectively.

On examination the contour of the abdomen was found to be conical, with the apex at the umbilicus, and corresponded in size to a full-term pregnancy. The foetal parts were unusually palpable, even the individual skull bones could be felt and made to override one another. There were no foetal movements or heart sounds. Other systems were normal. Per vaginam the cervix was soft with the internal os closed, but the presenting part was too high to be palpated.

The patient was admitted to the Scarthoe Road Infirmary, where, owing to her toxic condition and the presumed death of the foetus, we decided to induce labour. Watson's method of induction was tried and failed. Three days later induction by the stomach-tube method was tried, but it was found that only about four inches of the tube could be introduced, giving rise to the suspicion of ectopic gestation.

An examination was then made under general anaesthesia, and it was found that the uterus, corresponding in size to a two months pregnancy, could be palpated against the right pelvic wall. A definite diagnosis of ectopic pregnancy was made. During examination a small piece of decidua was expelled and the remainder the following night.

On May 8th abdominal section was performed. On opening the peritoneal cavity *membranes presented. These were much thickened* (1/8 inch), greenish-brown in colour, and lightly adherent to the anterior abdominal wall. They were incised and a large quantity of greenish-brown fluid escaped. A macerated foetus of about 9 lb. weight was then removed.

Adhesions between the membranes and abdominal contents were now separated and in parts were found to be very firm. The structures of the broad ligament on the left side were directly continuous with the membranes and formed the entire placental attachment. The broad ligament was ligated and divided, the membranes, placenta, and a portion of the ligament being removed as a whole. The position and size of the uterus confirmed the findings at the previous examination. A large drainage tube was inserted into Douglas's pouch and the abdomen closed.

The convalescence of the patient was prolonged but without incident, and she left the infirmary six weeks after the operation.

In this case the relationship of the placenta to the broad ligament alone showed that the foetus must have escaped from the tube by a process of gradual erosion, an interesting point being that both the amnion and the chorion were intact.

We are indebted to the medical superintendent of the infirmary, Dr. S. W. Swindells, and to Dr. D. S. Campbell for their advice and permission to publish this case.

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PARAPHIMOSIS OF THE CLITORIS.

I WAS greatly interested in Mr. R. J. Willan's description of a case of paraphimosis of the clitoris, which appeared in the issue of the *British Medical Journal* on December 22nd, 1928 (p. 1130). This condition is evidently a rare one, so that a case of mine in a girl, aged 9 years, may be worth recording.

This child was out walking with her guardian when it was noticed that she was limping and appeared to be suffering some pain. When questioned by the guardian her reply was evasive, but she gave the information that two days previously she had fallen when climbing a fence and had injured herself. The guardian became alarmed when she discovered the site of the trouble, and decided to have her examined at once by a doctor.

When I saw the child on January 22nd, 1929, there was a large abrasion upon the outer aspect of the right thigh, and this seemed to confirm the history of a fall. I then placed the child in the lithotomy position and examined the external genitals in a bright light. I was surprised to find what I took to be a condition of paraphimosis of the clitoris. On closer inspection, after cleaning the parts with hydrogen peroxide and saline, I made an endeavour to identify the disturbed anatomical relations. At the base of the swollen and oedematous clitoris was a band of constriction and ulceration. From the dorsal aspect of this constriction a tiny speck of foreign matter was seen. I seized this with a pair of epilating forceps, and for some queer reason put into action the mechanism for taking out a suture. Sure enough, a short strand of linen thread tied tightly in a knot came away with a snip of the scissors.

On displaying this before the patient's eyes and asking her what she knew of it, a confession was finally wrung from her that, with the assistance of a girl friend, a piece of sewing machine thread had been deliberately tied round the organ, but their efforts to remove the string had been unsuccessful. Hence the awkward situation.

I must state in conclusion that I strongly suspect that the cause of the condition in Mr. Willan's case was not altogether an accidental one.

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Reviews.

ULTRA-MICROSCOPIC VIRUSES.

THE literature of the medical sciences has assumed such enormous proportions, the advance in knowledge is so rapid and specialization so highly developed, that the writing of a treatise on any but the most circumscribed subject is beyond the powers of a single individual. Even a branch of bacteriology, such as the ultra-microscopic viruses, cannot receive adequate and rapid treatment from a single pen, so extensive has its literature become. Dr. HAUDUROY is aware of this difficulty, for in the introduction to *Les Ultravirus et les Formes Filtrantes des Microbes*[1] he warns the reader against expecting anything in the nature of a treatise, but it is to be feared that he has allowed enthusiasm for his subject to overcome his better judgement. He has attempted to cover too large a field in a too limited space and time, with the inevitable result of sketchy and inadequate treatment.

The book is divided into two parts, the first dealing with the ultra-microscopic viruses, and the second devoted to a consideration of the question of filterable forms of bacteria. The former commences with what purports to be a summary of our knowledge of the various diseases caused by ultra-microscopic viruses, followed by chapters on the principal characters of these viruses, their physiology, cultivation, the histology of virus diseases, immunity, and epidemiology. While making all allowances for defects inherent in such brevity of exposition, it must really be questioned whether, in many instances, the author does give a correct representation of the present position of our knowledge. Who, for instance, would be prepared to accept, as reflecting our present knowledge of the bacteriophage, an account in which this agent is treated dogmatically as a bacterial parasite without any mention of alternative hypotheses? Dr. Hauduroy may be right in his opinion on this question, but there are equally competent observers who do not share this view. Again, the section devoted to epidemic encephalitis in man is entirely coloured by the work of Levaditi and his collaborators, to the exclusion of conflicting results obtained by other investigators. Brevity has had other unfortunate consequences. Not infrequently the bald statement of fact, even though true, is deprived of its value for want of a few all-important details. For instance, of what use is it to say that a virus is destroyed by ultra-violet light, or that it is not susceptible to centrifugalization? Such information is valueless when shorn of the experimental details. In the introduction the author tells us that, contrary to the generally held opinion, these viruses can be quite readily cultivated by means of a rather special technique. It is true that he says that this is done daily in the laboratory; nevertheless, one turns hopefully to the chapter on cultivation only to find the statement that when a susceptible animal is inoculated with a virus, and more virus is recovered from the lesions so produced, cultivation in vitro has been realized. But surely it is only the ultra-philosophic individual who ever expressed a contrary opinion; most virus workers have long held this "revolutionary" view. This part of the book is practically without bibliography, and the author seems unaware of much work of outstanding merit published in languages other than French. Where foreign literature is quoted the reference is sometimes incorrect. Findlay, for instance, cultivated the virus of fowl-pox, not fowl-plague, and the excellent American work on the transmission of dengue was carried out by Siler, Hall, and Hitchens, not Giler and Halls.

In the second part of the volume dealing with the filterable forms of bacteria the author speaks with authority, for he has devoted the major part of the last few years to a study of this problem. It is not surprising that this conception, upsetting as it is to orthodox bacteriology, should have been received with scepticism and antagonism. The contention that visible bacteria have a filterable phase is supported to-day, however, by such a wealth of testimony from independent sources that it can no longer be cast lightly aside; it demands serious consideration. The author describes how these filterable forms can be obtained and the technique necessary for their cultivation and transformation into the visible bacterial phase. Finally, he discusses their possible role in pathology. Whatever views one may hold, this part of the book will provide stimulating reading.

[1] *Les Ultravirus et les Formes Filtrantes des Microbes.* Par Dr. Paul Hauduroy. Paris: Masson et Cie. 1929. (Med. 8vo, pp. 392. 40 fr.)

THE CRITICAL AGE.

The Critical Age[2] is a translation of the second Spanish edition of a work on the climacteric by GREGORIO MARAÑÓN, professor of medical pathology at Madrid. It is edited and annotated by Professor CAREY CULBERTSON of Chicago, and is in many ways remarkable, more especially in the fresh aspect from which the subject is regarded. Professor Marañón disclaims the narrow perspective of the gynaecologist and claims to have considered the subject from the general practitioner's point of view, by which is meant that of general medicine. The term "critical age" is preferred and justified by the consideration given to this epoch in the life of both sexes. It is defined as "a necessary phenomenon in the evolution of every human being who reaches old age, be it man or woman." Frequent reference is made throughout to conditions met with in the male, and a whole chapter is specially devoted to the critical age in man, particularly in reference to its emotional disorders. The two are compared; the masculine episode comes later, is of more diffuse evolution and limits, and its organic symptomatology more attenuated. The menopause is strictly differentiated from the climacteric, the former being regarded merely as a genital symptom marking the cessation of the reproductive function.

The first few chapters are given up to a discussion of the endocrine elements, in order to show that the disorders associated with this epoch in life are not due to insufficiency of the genital gland, but are rather the expression of a complex endocrine crisis, that differs in every case, because any or all systems of the body may play a part in it and in variable degree. The nervous and circulatory systems are most constantly affected, the respiratory and digestive less often, but the primary cause is the same in all, the reaction of the nervous and endocrine-vegetative systems to the gonadal insufficiency. The true climacteric symptoms are endocrine-vegetative, and the various glandular and nervous upsets of which they are the expression form the principal theme of the book. Symptoms arising from disordered function in the circulatory, nervous, sensory and psychic, endocrine, and digestive systems are discussed in the middle chapters, the artificial menopause, the critical age in the male, and treatment occupying the last four chapters.

In a nutshell the thesis of the author is that pathologically and clinically the critical age is characterized by instability. The emotional disturbances of this period being specially significant, considerable space is devoted to the full discussion of the nature and treatment of emotional disorder, and, in this connexion, the writer's enthusiasm over the results obtained by ovarian therapy will surprise most gynaecologists in this country. He advises beginning treatment as soon as symptoms appear and continuing it, in association with such other medical treatment (for example, circulatory tonics, sedatives) as may be indicated by the nature of the symptoms, till they have all disappeared. He prefers the use of desiccated whole-gland preparations, given by the mouth, and gives instructions for the selection of cases calling for the administration of thyroid and other gland extracts, and regarding diet and general management.

The book can be recommended as an interesting and useful contribution to a difficult subject, but the reader must be critical and not carried away by the author's obvious enthusiasm for his own views.

[2] *The Climacteric (The Critical Age).* By Gregorio Marañón. Translated by K. S. Stevens. Edited by Carey Culbertson, A.B., M.D., F.A.C.S. London: H. Kimpton. 1929. (6 × 9½, pp. 425; 18 figures; 1 plate. 28s. net.)

"KER'S INFECTIOUS DISEASES."

THE third edition of *Ker's Infectious Diseases*[3] has been revised by Dr. CLAUDE RUNDLE, who was also responsible for the revision of the smaller manual of fevers, to which we drew attention in the *Journal* of August 20th, 1927. As nine years have elapsed since the appearance of the second edition of the larger work numerous important additions had to be made, particularly in the chapters on scarlet fever, diphtheria, and measles. The present edition differs externally from its predecessors in being of a smaller and more convenient size. Its price also is lower, and we venture to think it might have been reduced still further by the omission of several worthless plates, supposed to represent the eruption of rubella (p. 72), scarlet fever (p. 96), and serum sickness (pp. 434 and 438) respectively.

Dr. Rundle has done his work well on the whole, but a few points call for criticism. We think it unfortunate that in the opening sentence of his preface, in which he says that "important results have been attained during the past few years by workers in immunology both in the United States and in this country," he should not have included Continental workers. In view of the fact, ascertained by the comparative observations of Pospischill and Weiss many years ago, that the character of the diet does not have any influence on the occurrence of nephritis, we regard the withholding of meat diet till the middle of the fourth week as an unnecessary restriction. Moreover, the exclusive milk diet recommended for nephritis cases on page 140 is not in accordance with modern practice. The same may be said of the routine administration of alcohol in diphtheria in all but the mildest cases (p. 444), while the use of "alcoholic stimulants" such as port wine or stout for small-pox convalescents (p. 189) is becoming an obsolete practice. Lastly, in view of the increasing importance which the history of medicine is assuming in the medical curriculum, the absence of even the briefest historical introduction to the various diseases in a work of this size is to be regretted. These, however, are comparatively minor criticisms of a work that has justly won a high reputation.

PRACTICAL SURGERY OF THE ABDOMEN.

Practical Surgery of the Abdomen,[4] by Dr. GEORGE H. JUILLY of San Francisco, differs little in aim and method from many of the textbooks lately produced in this country. The author presents the subject in a practical manner, laying special stress on diagnosis, and describing for each condition the operation he has found best in his own practice. In addressing his readers in the second person, he conveys the impression of a general marshalling his forces and setting them to their allotted tasks. The work is in two volumes, and the author has made use of the method increasingly popular in present-day surgical textbooks of illustrating, with a profusion of pen-and-ink sketches, the anatomy and successive stages of the operations he describes. In the first volume he deals with surface anatomy, the diagnosis of abdominal diseases, laparotomy, and the operations on the alimentary tract, biliary tract, liver, pancreas, and spleen. In the second he deals with the genito-urinary tract, acute lesions of the abdomen, gynaecology and obstetrics, abdominal surgery of the diabetic subject, anaesthesia, and post-operative care. In discussing gastric and duodenal ulcers he holds, contrary to the general view, that all chronic ulcers should be treated by operation. Gastric ulcers, he believes, should be excised, and, if there is a six-hour residue, posterior gastro-enterostomy should be performed as well. He advocates pylorectomy for large ulcers and carcinoma only. Where the patient's symptoms and the radiological appearances suggest duodenal ulcer, he recommends gastro-enterostomy, even if the ulcer is not seen at operation. Jejunal ulcers, in his view, follow when the stoma is made too large. We cannot agree that any of the procedures he describes for removing a safety-pin from the stomach, though they are in accord with those generally given in the textbooks, can compare in simplicity with that of passing a rubber stomach tube, threading and clipping on to it the pin, and then withdrawing the tube with the pin attached. The work includes no account of treatment by radium, but otherwise covers practically the whole of modern operative technique. Its style is colloquial, dogmatic, and terse; its production is admirable.

[3] *Ker's Infectious Diseases: A Practical Textbook.* Revised by Claude Rundle, O.B.E., M.D.Lond., etc. Third edition. London: Milford, Oxford University Press. 1929. (Demy 8vo, pp. xii + 614; 67 figures, 32 plates. 30s. net.)

[4] *Practical Surgery of the Abdomen.* By George H. Juilly, ... (Demy 8vo, pp. ... 12s. 6d. net.)

THE ART OF THE APOTHECARY.

IN *The Mystery and Art of the Apothecary*[5] Mr. C. J. S. THOMPSON, formerly in charge of the Wellcome Historical Museum and now Honorary Curator of the Historical Section of the Museum of the Royal College of Surgeons of England, adds another to the interesting books he has written on those by-paths of medical history about which he has such an extensive store of curious knowledge. The present well-illustrated volume is full of out-of-the-way information, and in a charmingly easy style traces the history of the dispensers of drugs from Babylonian and Assyrian times up to the end of the eighteenth century. Among the ancient Greeks there were two distinct classes, the rhizotomists who collected the roots and herbs and prepared the preparations, and the pharmacopolists who sold them in the public market places. The word apothecary, first employed by the Romans, was derived from apotheca, meaning a store-room. In a chapter on the oldest remedies in the world, the three ancient Greek preparations—holy bitter (hiera picra), sacred sealed earth from the island of Lemnos, and theriaca or treacle—are described at some length, and the variations in their formulae set out; the name treacle, for example, was applied to any thick compound of which honey was the chief ingredient. Among the numerous antidotes employed in classical days, some were associated with the names of famous persons, such as the "antidote of Caesar," or the "gold antidote," which contained forty ingredients, including gold and silver, and took a year to make.

During the eighth to the twelfth century pharmacy advanced among the Arabians, and the practice of the apothecary and the physician were distinct; the Mohammedan invasion of Western Europe carried the study of drugs into Spain and founded universities before the twelfth century. The earliest record of the apothecary in England is in 1180, and the account of the relations, in the succeeding centuries, of the apothecaries with the City Guilds—the Pepperers, the Spicers, and the Grocers—throws light on the slow progress of the healing art. The story of the pharmacopoeias dates from the early days of printing, when in 1498 a small folio of 88 leaves appeared at Florence, where "the learned doctors of medicine of the College of Florence, in order to prevent errors and to preserve constancy in the preparations employed in their practice, sought to collect the most important formulae from the works of Mesue, Nicholas, Avicenna, Galen, and other authors."

The history of the Society of Apothecaries of London and of some famous drugs is attractively sketched, and the story of the long disputes between the physicians and apothecaries, satirized by Garth in his well-known poem, *The Dispensary*, published anonymously in 1699, carries the reader towards more modern days. Mr. Thompson is to be congratulated on the enormous amount of information which he has collected and presented in an eminently readable form.

NOTES ON BOOKS.

A FOURTH edition of BOURNE'S *Synopsis of Midwifery and Gynaecology*[6] has now appeared. The work has been fully revised, and every effort has been made to render it as practically useful as possible to the medical student and general practitioner. It makes no pretence at being a textbook, and is arranged simply as a manual for reference or for revision

[5] *The Mystery and Art of the Apothecary.* By C. J. S. Thompson, M.B.E. London: John Lane, The Bodley Head, Ltd. 1929. (Demy 8vo, pp. viii + 287; 28 illustrations. 12s. 6d. net.)

before an examination. As such its popularity has been well deserved, and the present edition is a worthy successor to earlier ones.

The lectures on certain medical subjects given under the aegis of the Medical School of Harvard serve a very useful purpose in health propaganda; some of these—for example, on cancer and pneumonia—have been published, and now, in *The Facts of Modern Medicine*,[7] Dr. F. W. PALFREY, who is an instructor in medicine and in hygiene in that university, has provided *A Simplified Statement of Established Knowledge on Medical Subjects, with Reference also to certain Current Misconceptions*. The last part of the subtitle may perhaps recall the books on vulgar medical errors in the seventeenth century, by James Primrose, James Thompson, and Obadiah Walker. Some books of this kind are of good report, and Dr. Palfrey's is written on sound lines. It expands the scope of the public lectures given by the Medical School of Harvard, and provides the amount of knowledge which every cultivated layman should have of human physiology, normal and disordered, in clear and pleasantly written chapters.

Mr. PICKLES'S *Practical Chemistry for Senior Forms*[8] is intended for the use of students following an advanced science course and taking higher schools examinations. The book contains directions for the performance of about 130 experiments in inorganic chemistry, physical chemistry, and organic chemistry; methods are also given for preparing a number of organic compounds, and there is a short account of the methods of gas analysis by Mr. Brewin. The text is clearly written, and the chemical exercises it contains seem to be well fitted for the students for whom the book has been written, and to them it may be warmly commended.

The Physics of X-Ray Therapy,[9] by W. V. MAYNEORD, is a book which should be of use to students and radiologists, especially those who practise *x*-ray therapy. The most important section is that devoted to the consideration of practical therapeutic *x*-ray measurement, in which all the different methods are described and illustrated. Other sections deal with the radiation from an *x*-ray tube, *x* rays and matter, *x*-ray absorption, and *x*-ray apparatus. The book is well written, easily understood, and excellently illustrated.

To the many medical students whose previous studies have not taken them far into the Latin language Mr. TREASE'S *Aids to Pharmaceutical Latin*[10] should come as a boon and a blessing. The author set out with the intention of providing pharmaceutical and medical students with a concise Latin Grammar adapted to their special needs, and he seems to have succeeded in his endeavour. The book is clearly written, and covers the ground in a satisfactory manner. A few misprints may be noted: on page 96 *decubita* should be *decubitus*; on page 99 *exsiccatae* should be *exsiccati*; on page 100, ten lines from the bottom, *Lavandutae* should be *Lavandulae*.

The second edition, revised, of *Lippincott's Pocket Formulary*,[11] by Dr. GEORGE E. REHBERGER, contains additions to the description and treatment of several diseases. Under the alphabetical headings of each condition several prescriptions are given, together with a brief account of the dietetic and general measures suitable to the case. The second part of the book gives lists of the drugs and preparations of the *U.S.P.X*; of the medical preparations of the United States National Formulary; and of new and unofficial remedies. Various weights, measures, and tables are appended to the little volume. *The New Pocket Medical Formulary*,[12] by Dr W. E. FITCH, is another American aid to prescribing, which has reached its fifth edition. Whether it has been revised seems doubtful, judging from Dr. Fitch's remarks about the use of organic salts of arsenic in syphilis. To the majority of practitioners these remarks will probably appear decidedly archaic. Extensive diet lists are appended to the book, together with tables of differential diagnosis. A useful feature for a polyglot country is a new section entitled the "physician's interpreter," wherein a series of questions designed to assist diagnosis are given in English, French, Italian, and German. An English effort at compiling formulae for various diseases is Dr. ESPINE WARD'S *Favourite Prescriptions*,[13] now in its second edition. Unlike Dr. Rehberger, who gives an elaborate account of various courses of arsenic compounds for two years in the treatment of syphilis, and unlike Dr. Fitch, who mentions salvarsan, but states that its use is "confined to certain investigators," Dr. Ward contents himself with giving prescriptions for sundry mercury pills, mixtures, ointments, and washes for the treatment of this disease. A useful feature in his book is the interleaving, whereby space is provided for accumulating other prescriptions. Hints for the treatment of cases of poisoning are also given.

The last two volumes of the Notable British Trials Series deal respectively with the case of John Donald Merrett,[14] who was tried in Edinburgh, in February, 1927, for the murder of his mother, and with that of Jean Pierre Vaquier,[15] who was tried at Guildford, in April, 1924, and found guilty of the murder of Alfred Jones, licensee of the Blue Anchor Hotel at Byfleet. Each volume is carefully edited and well produced, and in each the full report of the trial is preceded by an informative introductory note. Merrett's trial must have been one of the last appearances of Professor Harvey Littlejohn in the witness-box; the other medical witnesses included Professor Glaister, Professor George M. Robertson, and Sir Bernard Spilsbury.

[7] *The Facts of Modern Medicine. A Simplified Statement of Established Knowledge on Medical Subjects, with Reference also to certain Current Misconceptions.* By Francis W. Palfrey, M.D.; New York and London: D. Appleton and Co. 1929. (Demy 8vo, pp. xvi + 490; 31 figures. 21s. net.)

[8] *Practical Chemistry for Senior Forms.* By Alwyn Pickles, M.Sc.Lond. London: G. Bell and Sons, Ltd. 1929. (Cr. 8vo, pp. xv + 224; 53 figures. 4s. 6d. net.)

[9] *The Physics of X-Ray Therapy.* By W. V. Mayneord, M.Sc. London: J. and A. Churchill. 1929. (5½ × 8¼, pp. viii + 177; 106 figures. 10s. 6d.)

[10] *Aids to Pharmaceutical Latin.* By G. E. Trease, Ph.C. London: Bailliere, Tindall and Cox. 1929. (4 × 6¼, pp. vii + 168. 3s. 6d. net.)

[11] *Lippincott's Pocket Formulary.* By George E. Rehberger, M.D. Second edition, revised. Philadelphia and London: J. B. Lippincott Company. 1929. (4 × 8¼. 15s.)

[12] *The New Pocket Medical Formulary.* By William Edward Fitch, M.D. Fifth edition, revised and enlarged. Philadelphia: F. A. Davis Company. 1928. (Fcap. 8vo, pp. x + 501; 1 figure. 3 dollars.)

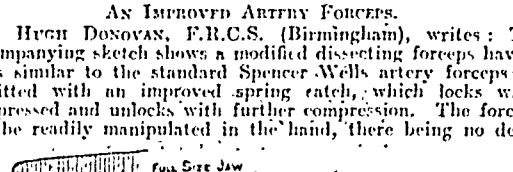
[13] *Favourite Prescriptions.* By Espine Ward, M.D.Belfast. Second edition. London: J. and A. Churchill. 1929. (Fcap. 8vo, pp. 101. 5s.)

[14] [15] *Trial of John Donald Merrett.* Edited by William Roughead. *Trial of Jean Pierre Vaquier.* Edited by R. H. Blundell and R. E. Seaton. Notable British Trials. Edinburgh and London: W. Hodge and Co., Ltd. 1929. (10s. 6d. net each volume.)

PREPARATIONS AND APPLIANCES.

AN IMPROVED ARTERY FORCEPS.

MR. HUGH DONOVAN, F.R.C.S. (Birmingham), writes: The accompanying sketch shows a modified dissecting forceps having jaws similar to the standard Spencer Wells artery forceps; it is fitted with an improved spring catch, which locks when compressed and unlocks with further compression. The forceps can be readily manipulated in the hand, there being no delay



in inserting digits into rings as in ordinary forceps, and it can be gently and easily removed with either hand, even by an unpractised assistant. The instrument has been made to my design by Messrs. Allen and Hanburys, Ltd., Wigmore Street, W.1.

AN ORGANIC GOLD SALT.

Allochrysine Lumiere (sodium auro-proposal sulphonate) contains 35 per cent. of its weight in gold. It is supplied in ampoules for intramuscular or subcutaneous injection. Each ampoule contains 0.2 gram of the salt, which is injected in a bulk of 10 c.cm. of saline. According to the makers this compound represents a considerable advance on sanocrysin (double thiosulphate of gold and sodium). The advantages claimed are that it produces no local or general reaction, it does not produce albuminuria, and its toxicity is very feeble. Clinical tests are said to have given favourable results in tuberculosis of various forms. The general claim made on behalf of this new gold compound is that it deserves attention by investigators of the therapeutics of tuberculosis. The distributing agents are the Anglo-French Drug Company, Ltd.

SICCOPAN.

"Siccopan" is a preparation containing haemoglobin, albumin, lecithin, calcium lactate, and soluble silicic acid. It is recommended as a tonic food in anaemia and conditions of undernutrition. The claims for the food are supported by an article from Professor Zuelzer's clinic by Dr. Fritz Stern. The author has used the preparation with benefit in a variety of diseases, and its use has been followed by an increase in the haemoglobin content of the blood. He points out, however, that the absorption of the haemoglobin is not complete. The distributors of this product in Great Britain are Messrs. Coates and Cooper, Great Tower Street, E.C.3.

BULBOCAPNINE.

Messrs. Burroughs Wellcome and Co. now manufacture tabloid hypodermic bulbocapnine phosphate 0.1 gram. Bulbocapnine was formerly used in the treatment of tremor due to paralysis agitans; this preparation is recommended for the treatment of disorders of behaviour in chronic epidemic encephalitis in children.

Bulbocapnine is obtainable also, in tablets and ampoules, from Messrs. H. R. Napp, Ltd.

A NEW DENTIFRICE.

Genozo tooth paste, prepared by Messrs. Genatosan, Ltd., represents an interesting application of Besredka's methods of producing local immunity. The special point about the preparation is that it contains an er[illegible] emulsion to the gums that produce pyorrhoea. It is hoped that [illegible] will confer local

British Medical Journal.

SATURDAY, JULY 27TH, 1929.

THE PRESIDENT'S ADDRESS.

AMONG the resolutions passed at the original foundation meeting of the Provincial Medical and Surgical Association in 1832 was one which referred to the Annual Meeting: "At this meeting it is proposed that one of the members shall be appointed to give, at the *next Annual Meeting, an account of the state of* progress of medical science during the last year, or an oration on some subject connected with medical science, or a biographical memoir of some eminent cultivator of medical science who may have resided in the Provinces." This "retrospective address," as it came to be called, although in the early years it was not invariably delivered by the President, is the direct ancestor of the Presidential Address which has since been delivered annually. It is often profitable to look back and see what our distinguished forerunners did, and some such intention was no doubt in Professor A. H. Burgess's mind when he set to work to prepare his Presidential Address to the British Medical Association, of which the full text appears in our opening pages to-day.

Ninety-three years have passed since the Provincial Medical and Surgical Association first met in Manchester. It was the fourth anniversary of the Association's foundation, and Mr. John Green Crosse, F.R.S., surgeon to the Norfolk and Norwich Hospital, delivered the retrospective address. Although he had only to review the progress of medicine and surgery during one year, the orator professed to find himself overwhelmed by the magnitude of the task. "In a yearly retrospect of medicine and its associate sciences," he said, "so much new matter presents itself, so many changes and improvements have been effected, that the mind of an individual unaccustomed to the task feels oppressed by its immensity, and if not bound by the sacredness of a pledge, would thankfully relinquish it to abler capacities." Mr. Crosse, who no doubt did not intend his apology to be taken quite literally, then went on to comment on a great variety of subjects, the first of which was the rise and progress of provincial medical schools, and in particular the "Plan of a University for the Town of Manchester by H. L. Jones, M.A." If the President of 1836 really felt his task a heavy one, what, we may ask, would he have thought of that undertaken by the President of 1929, who led his hearers back to the time when Lister had evolved and was perfecting the antiseptic treatment of wounds? For although the title of Professor Burgess's Address is "The debt of modern surgery to the ancillary sciences," any consideration of that subject necessarily involves a great deal of retrospective study of medicine and surgery. The fact that on physiology are based, not only our present knowledge, but all prospect of advance in medicine, might seem too self-evident to require mention to a medical audience. But public addresses of this nature, delivered in a great centre such as Manchester, are reported far and wide in the lay newspapers, and it is well that their readers should know how unanimous the medical profession is in the belief that in experimental physiology lies one of our greatest hopes of progress in medical treatment. By a happy coincidence this fundamental idea is developed also by Professor W. E. Dixon in his presidential address to the Section of Physiology of the British Association at Capetown, as will be seen from the abridged version printed elsewhere in this issue.

It was on the science of bacteriology as practised by Pasteur that Lister based his work. Chemistry had long before supplied us with effective anaesthetics, and it was on the science of electro-physics and the work of Crookes, and others not in our profession, that Röntgen's happy discovery was based. Radium, a more recent gift, was revealed by the industry of two scientific workers who were not looking for therapeutic substances or procedures. These discoveries stand out from all others, perhaps on account of the dramatic suddenness with which they brought about advances in surgical practice, but, as Professor Burgess reminds us, surgical thought and practice have been influenced, directly and indirectly, by every discovery that has been made in natural science. Progress is attained not only by sudden steps, but also by slopes, which may be so gentle that their gradient escapes observation and estimation. To go beyond the somewhat narrow confines of surgery into the realm of general medicine, who can estimate what our profession, indeed, what all mankind, owes to the once-despised science of entomology, that "bug-hunting" without which malaria and other insect-borne diseases might never have been successfully grappled with?

The great part played by Edward Lund in the introduction of the antiseptic system to Manchester is worthy of remembrance. This original-minded surgeon rendered valuable services to surgery in general and to orthopaedic surgery in particular, and the fact that he had to provide his own antiseptic dressings indicates how grave were the obstacles sometimes put in the way of a progressive surgeon, even in so liberal and enlightened a city as Manchester. The substitution of aseptic for antiseptic procedure occurred later in the country of Lister's birth than in some parts of the Continent, but we welcome the President's reminder that the principle of both methods is the same—namely, the exclusion of pathogenic organisms from wounds. The experiences of the great war forced us, in the presence of wounds already gravely infected, once more to fall back on antiseptic measures, for in principle there is no difference between Lister's carbolic solution and the bipp of Rutherford Morison or the solutions of Carrel and Dakin. It is well, too, that we should be reminded not only of the extension of the field of surgery—what one may call its qualitative advances—but of its quantitative increase also. A hundred years ago, about the time that Mr. Crosse was delivering his retrospective address, there was a week during which, according to the press, there were no operations in the theatres of the hospitals of London. When by contrast we consider the statistics quoted by Professor Burgess we may faintly apprehend what vast Aceldamas of suffering remained unrelieved before the days of anaesthetics and antiseptics, and feel assured that those who come after us will be able to relieve much suffering and disability before which even the surgery of 1929 is helpless.

Probably no new method of treatment has been more quickly popularized than actinotherapy. The public, especially the public of these cloud-shaded islands, has readily assimilated the idea of the beneficial effects of sunlight in all sorts of diseases, and, believing that one cannot have too much of a good thing, is inclined to expect too much of ultra-violet ray apparatus. To many persons it does not seem to have occurred that on the hypothesis of the all-healing but

wholly innocuous power of sunshine those races who have had so much of it ought to have outstripped the Nordic races in energy and ability, and the Goths and Northmen ought not to have overrun Europe from Britain to Constantinople and the Pillars of Hercules. The President did well to warn his hearers, and those who read reports of his address, that, like most powerful remedies, ultra-violet rays are two-edged weapons, capable, if improperly used, of causing much harm. There is a therapeutic dose and a poisonous dose of the rays, just as there is of hydrocyanic acid or arsenic, and only the expert can decide on the appropriate amount to administer in any given circumstances. Professor Burgess's list of conditions in which the rays should not be used is a formidable one. The same cautions apply, as he says, to other powerful remedies, such as applications of the various kinds of electric current. The action of the British Medical Association and the Society of Apothecaries of London should lead to a great improvement in present conditions by enabling the public to know who is and who is not qualified to administer actinotherapy

Readers of this address may profitably digest the President's remarks on the progress of treatment of rickets, and on the importance of recent inquiries into the assessment of renal function which have a direct bearing on the prognosis of cases of prostatectomy. All of us will join with him in the aspiration that, strivers after the ever-receding goal of perfection, we may be animated by the motto of Manchester University and continue to seek the very highest.

THE NEGLECT OF PHARMACOLOGY.

PROFESSOR W. E. DIXON, in his presidential address to the Section of Physiology of the British Association, of which a full abstract appears this week at page 138, has made an admirable summary of recent progress in the sciences of pharmacology and therapeutics—above all, in their chemotherapeutic and endocrinological aspects. In surveying the field covered by this paper one cannot but realize that, while British workers have contributed largely to the development of endocrinology, their contribution to chemotherapy has been relatively small. The explanation of this anomaly lies perhaps in the widely different attitudes taken up in this country towards the study of physiology and of pharmacology respectively. The former has been consistently fostered; the latter is consistently neglected. We have in England and Scotland numerous strong schools of physiology, to whose work Professor Dixon pays a just tribute; these schools have not only played an outstanding part in the development of endocrinology, but have been pioneers in the study of vitamins—another aspect of physiology which is attaining increasing importance in therapeutics. But full-time teachers of pharmacology in this country are few, and still fewer are full-time chairs in the subject at the universities. It is little matter for surprise, therefore, that in chemotherapy—a subject which is bound up with pharmacology, but receives only little help from pure physiology—the British contribution has been inadequate.

The relative neglect of pharmacology in this country is the more to be deplored in view of the fact that, as Professor Dixon so clearly shows, much of the recent advance in chemotherapy has concerned itself with the quest of specific remedies for tropical diseases—a matter of more direct interest to this country than to any other. Life in the tropics, particularly in tropical Africa, depends upon the possession of adequate means for the prevention and cure of protozoal diseases; it is unsatisfactory, humiliating even, that we should be dependent on workers of other countries—on, for example, the Americans, Frenchmen, and Germans, who synthesized tryparsamide, stovarsol, Bayer 205, and plasmoquine (to name but a few of the more important products)—for the discovery of remedies which are vital to the well-being of large populations within our own Empire. To know the cause of an evil is by no means the same as to find its cure; but in this matter the diagnosis sufficiently suggests the proper treatment. "No branch of experimental biology," says Professor Dixon, "has received less consideration in Great Britain than that of pharmacology; it is also the most neglected branch of medicine, and, although the object of medicine is the healing of the sick, it is amazing that medical schools in Britain, often equipped with all other modern laboratories, lack departments of therapeutics." And later he says: "Britain for fifty years has every reason to be proud of her progress and achievements in physiology; it is acknowledged that she can show records second to none, and that her savants have included some of the world's greatest investigators. It remains for us to hope that in the future she may attain equal success in the associated sciences directly concerned with the relief of suffering and cure of disease."

Professor Dixon has rendered valuable service to medical education in Great Britain by focusing attention on one of its outstanding defects. The systematic search for synthetic drugs promises in the future to yield even more important results than it has in the past two decades. If our country is to enter this field of investigation with a sufficient equipment it will need strong schools of pharmacology, in each of which whole-time specialists may work together as a team. Until such provision has been made there is a danger that chemotherapy in Great Britain will remain to a large extent parasitic on ideas and discoveries imported from abroad.

ANNUAL MEETING NOTES.

"The Book of Manchester."

ANNUAL Meetings come and go, and memories fade all too soon. It is therefore very appropriate that such a souvenir volume as *The Book of Manchester and Salford*[1] should have been prepared, and that each member who is attending the present meeting, which is now drawing to its close, should have a permanent record of the place where he has spent happy and profitable hours. In the compilation of this book the Printing and Publicity Committee, of which Dr. E. M. Brockbank was the chairman and guiding spirit, had no easy task, but it was able to enlist support from many sources, and has produced a really interesting account of the various aspects of the life and growth of a great city, particular attention being paid, naturally, to the local medical institutions, municipal developments, commercial achievements, and the evolution of the University. Mr. Ernest Axon, who is deputy chief librarian of the Manchester public libraries, gives a readable account of the general and political history of Manchester, which is followed appropriately by a description of the city as it is to-day by Mr. Henry Price, the city architect. Dr. E. M. Brockbank—to whom our readers have been indebted for the five graphic articles on Manchester published on

[1] *The Book of Manchester and Salford.* Written for the Ninety-seventh Annual Meeting of the British Medical Association in July, 1929. Manchester: G. Falkner and Sons, Ltd. (10s. 6d.)

December 1st, 1928, and January 26th, April 27th, June 8th, and July 13th, 1929—deals here in fuller detail with the history of collegiate teaching in the city, and the progress of the local hospitals. A particularly interesting section of this chapter is Dr. Brockbank's series of biographical notes on pioneers in medical teaching. Mr. Edward Fiddes, the Ward professor of history, supplies a brief but illuminating account of the growth of the Victoria University of Manchester, which was the first of the provincial universities founded in the later nineteenth and earlier twentieth centuries, and has had a considerable influence in determining the character of later foundations of this kind. Short descriptions are also given of various other educational institutions in the city. Lieut.-Colonel G. Westcott, Lord Mayor of Manchester, in a practical delineation of the work of the corporation as regards local government and development, calls attention to the effective way in which street and house refuse is being utilized for such purposes as land reclamation and the manufacture of concentrated manure, soap, tallow, and mortar. The activities of Salford are ably portrayed by Councillor A. H. Collins, the Mayor of this essentially industrial city. The pioneer work of Manchester and Salford as regards the playing fields movement—on which a note is contributed by Councillor Will Melland—may be singled out for praise in view of the fact that the Manchester and Salford Playing Fields Society was founded so long ago as 1907, and has therefore attained its majority in a campaign with which medical practitioners must feel special sympathy. Articles relating to industry and commerce could not be absent from any attempt to estimate the part played in the present day by Manchester, and members of the Association are here given authoritative information about the Ship Canal, the Chamber of Commerce, and the Lancashire cotton trade. Manchester has a well-deserved reputation for music and art, and the short notes on this topic will be welcomed. Professor Bragg contributes an article on the Literary and Philosophical Society, and Dr. Brockbank on the Manchester Medical Society, with its valuable library. It is impossible to comment on every detail in this praiseworthy addition to the long series of books which have been prepared for visitors to the Annual Meetings, but a special word of commendation may perhaps be allowed for the excellent illustrations. Hearty congratulations must be accorded to Dr. Brockbank and his committee for their share in securing that the Annual Meeting of 1929 shall not soon be forgotten.

The Annual Representative Meeting.

Friday, July 19th.

BEFORE settling to the more arduous business of the day, the Representative Body carried by acclamation the election of Sir Robert Philip as Vice-President of the Association. It had also to record its appreciation of two generous gifts —that of a symbolic staff of the Association from Mr. Bishop Harman, and that of a Past-President's badge from the President, Sir Ewen Maclean. The meeting was also distinguished by the presence, with the President-Elect, Professor Burgess, of the President nominated for 1930, Professor Harvey Smith of Winnipeg, who received a warm welcome. Nothing could have been better of its kind than Dr. Hawthorne's speech in acknowledgement of the civic welcome by the Lord Mayor of Manchester.

The greater part of the first day's session was devoted to a detailed discussion of the revised and expanded statement of hospital policy elaborated by the Hospitals Committee during the past twelve months. The character of the discussion marks a definite stage in the progress of the Association policy towards general acceptance by the profession; although, as Sir Richard Luce pointed out, that policy is still to be regarded as educative rather than mandatory. Hitherto controversy has centred upon the basic principles underlying the policy. On Friday attention was in the main focused upon the best methods of its immediate application in a period of rapid transition. Last year the Representative Body directed the formulation of a middle-class hospital policy. This year it was content to accept the finding of the Council that its existing policy was comprehensive enough to be adapted to this field of hospital development, as well as to those for which it was originally formulated. The substantial acceptance of the model contributory scheme for hospital benefit, and the memorandum on interpretation of the policy in connexion with radiological services—the former, as Mr. McAdam Eccles remarked, long overdue—showed agreement as to the immediate applicability of the policy to new as well as to old-standing problems. The only major modification effected in the report as presented by Sir Richard Luce was the reference back for further consideration, on the motion of Newcastle, of the detailed classification of hospital patients. The discussion under this head illustrated once again the difficulty of framing a formula applicable to all the widely differing hospital conditions throughout the country. Decision seemed to turn upon considerations of immediate expediency rather than upon any question as to the general accuracy of the proposed classification. The determining factor was probably the fear that the comprehensive analysis of existing conditions might lessen the value of the policy as an instrument for securing the modification of those conditions in the desired direction. The financial statement this year presented no outstanding features. It was accepted with the usual appreciation of the Treasurer's qualities in exposition and debate no less than in finance. A question from Dr. W. Griffith allowed Mr. Bishop Harman to submit an interesting analysis of expenditure on the advancement of science, showing that over one-half of the annual income of the Association is directly allocated to this object. Sir Robert Bolam's statement on the progress of building at Tavistock Square required this year no particular elaboration or comment. His presentation of the report on the progress of the *British Medical Journal*, and his tribute to the success achieved during the past year, was heard with warm appreciation. His reference to the great increase in the number of careful and critical readers of the *Journal* received some confirmation from the discussion raised by the well-argued plea of Edinburgh and Leith for further improvement in certain directions. The speakers fully understood that the desired improvements would have to be paid for; they were equally convinced that money so spent would be an excellent investment. The session ended punctually with the introduction of the report on the agreement arrived at by the series of conferences on the salaries of whole-time public health medical officers held between representatives of the British Medical Association and representatives of local authorities since the beginning of the year, under the chairmanship of Lord Askwith. This arrangement of the business gave members of the Representative Body an excellent opportunity of assimilating the contents of a document of unusual importance before entering upon any discussion of its features.

Saturday, July 20th.

The first business for Saturday morning was consideration of the agreement reached by the conference on public health salaries. The reception accorded to Sir Robert Bolam's report on the memorandum must have been an ample recompense to him and the other representatives of the British Medical Association for the labour spent on its formulation. The scheme embodied is admittedly incomplete, and was subjected to frank criticism on that score. At some points and in some respects, as Sir Robert Bolam pointed out, it even falls short of the conditions which the Association has been able to impose in recent years in an

increasingly large number of cases, but it was welcomed by public health members and by the main body of the representatives alike in no uncertain terms, as offering a sound basis for the development of the public health service. When Dr. D'Ewart's voice was raised with its accustomed vigour, not in castigation of the Council, but in benediction, there was little need to anticipate adverse criticism. The chief virtue of the scheme, according to Sir Robert Bolam's exposition, lies in the atmosphere of common concession in the public interest wherein it is conceived. If it is considered by local authorities in an atmosphere in any way comparable to that in which it was accepted by the Representative Body, there need be little doubt as to its success as a basis of settlement. Dr. Bone had this year an unusually light task in handling the medico-political report. On the Council's recommendation as to the propriety of neither asking nor accepting fees for help in the investigation of maternal mortality set on foot by the Departmental Committee, there was just sufficient opposition to lend importance to the decision. The meeting showed no inclination to follow St. Pancras in an attempt to upset the position of equilibrium based on last year's decision as to contract fees for juvenile Oddfellows, though feeling still runs high whenever club practice conditions come under review. On the subject of fees for attendance on road accidents the Representative Body, heartened by the pertinacity of the Representative for Aberdeen, and fired by Dr. J. B. Miller's glowing picture of the police force acting in this matter as fee collectors for the profession, refused to accept the Council's plea of *non possumus*. Under the same leadership they showed themselves equally determined to surmount the difficulties involved in the formulation of standards of fitness for applicants for driving licences. On the vexed question of the restrictions on the use of heroin imposed by the latest Dangerous Drugs Regulations, Dr. Bone was enabled, by his intimate knowledge, both of the history of the offending restrictions and of the actual provisions of the Regulations, to emerge unscathed from a heavy fire of criticism. The one resolution actually passed in this connexion was calculated to help the Council in its attempt to secure reconsideration of an irksome and unnecessary restriction on medical practice.

The debate on the national maternity service scheme for England and Wales was maintained at a definitely higher level than any which had preceded it, a fact due in part, at least, to Dr. Dain's admirably direct and balanced introductory speech. The scheme was submitted "not as an endowment scheme for doctors," but as a serious and timely contribution to an urgent national need. As such it was criticized and subjected to the test of local experience, and the tone of the debate should in itself go far to satisfy Sir Ewen Maclean that what he characterized as the essential condition of its successful application—namely, the active good will of the general practitioners of the country—will not be lacking. Questions of cost and remuneration were canvassed, it is true, but in the main only because their right adjustment is a factor of efficiency. The acceptance of the scheme in its entirety, with a minimum of agreed modification and addition, was a triumph for the committee and its chairman. Incidentally, the debate was enlivened by a maiden speech from Dr. B. H. Pain of a quality warmly appreciated by the Representative Body. Discussion of the Psycho-Analysis Committee's report, concisely presented by Dr. Langdon-Down, was cut short by the hands of the clock. The heat of the room and the lateness of the hour might have excused a certain apathy; but of apathy there was none, either in the brief speeches by Dr. Parry and Mr. Turner and by Dr. Biggs and Dr. Gordon, or in the applause that greeted these statements of opposing points of view.

The Manchester War Memorial.

Just before the representatives left for their excursion to Chester and Eaton Hall on Sunday, July 21st, they gathered at the Manchester War Memorial in St. Peter's Square, at the foot of which a wreath was laid on behalf of the Association. The simple ceremony was performed by the President-Elect, Professor Arthur H. Burgess. The wreath, a large and beautiful one of lilies and carnations, bore a card stating that it was a tribute from the British Medical Association, visiting Manchester, in remembrance of Manchester's fallen.

The Overseas Luncheon.

On Friday, July 19th, the representatives of the Overseas Branches and Divisions visiting Manchester for the Annual Representative Meeting were entertained to lunch at the Queen's Hotel by the four officers of the Association, the chairman of the Organization Committee, and the chairman of the Dominions, India, Colonies, and Dependencies Committee. The other guests included Professor A. H. Burgess, President-Elect, Professor W. Harvey Smith, who will preside over the Annual Meeting next year in Winnipeg, Sir Jenner Verrall, Sir Malcolm Watson, Colonel Ashton Street, Dr. E. Bosdin Leech, Dr. R. G. McGowan, Mr. Oswald Hempson, and the senior officials of the Association. Dr. C. O. Hawthorne, who took the chair, explained that this was not in any sense a formal part of the proceedings at Manchester, but a brief opportunity for cultivating good fellowship and getting to know workers from different parts of the Empire. In welcoming most cordially the overseas representatives, he wished to assure them of the gratitude felt by the Association at home for the hospitality and kindness shown to those from headquarters who had paid official visits to the Dominions and Colonies. Dr. Hawthorne asked each visitor to stand up in his place for a moment as his name was read from the list, and ended with a few happy phrases by way of introduction between hosts and guests. The luncheon party ended with brief replies by Dr. Gordon Anderson, who conveyed the best wishes of his colleagues in New Zealand, and by Dr. N. C. Sikri, who said that a gathering like this at Manchester made him feel what an honour it was to belong to such a great professional body as the British Medical Association. The names and constituencies of the overseas guests present are: Dr. E. Gordon Anderson (New Zealand, Wellington), Dr. A. B. Black (Southern Transvaal, Johannesburg), Dr. A. S. Erulkar (Bombay), Dr. Dunbar Hughes (Grenada), Dr. H. Huff Johnston (New South Wales), Dr. G. W. R. Ross (Mashonaland), Dr. Eustace Russell (Queensland), Dr. H. B. Savage (Northern Transvaal, Pretoria), Colonel J. A. Shorten (Calcutta Branch), Dr. N. C. Sikri (Punjab), Dr. H. C. Sinderson (Mesopotamia), Dr. H. Douglas Stephens (Victorian Branch), Dr. R. Y. Stones (Uganda), Dr. G. C. Strathairn (Jamaica).

General Medical Council Election.

At the Representative Meeting on Monday afternoon the Chairman (Dr. Hawthorne) announced that the vote of representatives on the names of candidates to be supported by the Association for the forthcoming election of two direct representatives for England and Wales on the General Medical Council had resulted in the selection of Dr. H. B. Brackenbury and Mr. Bishop Harman. The announcement was received with applause. The Chairman added that it might be concluded that these two gentlemen would "shine in the firmament" of the General Medical Council from January 1st, 1930. The satisfaction which was felt with regard to these nominations was qualified by the fact that a star of considerable magnitude would disappear from that firmament—he referred, of course, to

Sir Jenner Verrall, who had occupied a position on the General Medical Council for, he believed, eighteen years. There were others in the meeting who were able to speak with close and detailed knowledge of the services Sir Jenner had rendered, but all of them, without that specific and detailed information, had a sufficient general knowledge of his character, his achievements in connexion with the British Medical Association, and the services he had rendered to the public interest, to be perfectly certain that in discharging his duties as a representative, not of the Association, but of the medical profession, on the General Medical Council he had acquired the respect, regard, and confidence of every member of that Council, and had more than justified the confidence placed in him by the voices and votes of his fellow practitioners. The Association was not saying good-bye to Sir Jenner Verrall; it was merely that, as he had served the profession and the public so admirably in a particular capacity, the Association could not allow him to terminate that function without according him a cordial vote of thanks. At the same time, knowing he was to be released from that duty, the Association counted all the more confidently on the number and variety of services he would render it in the future. The motion he desired to propose was as follows:

> "That on the occasion of the retirement of Sir Jenner Verrall, LL.D., after eighteen years' service as a direct representative on the General Medical Council, the Representative Body desires to place on record its deep appreciation of his valuable work for this profession in this special field of service, whilst sincerely hoping he may long be spared to increase the debt which the medical profession of this country in general, and the British Medical Association in particular, owe to him for counsel, for inspiration, and for leadership."

The Chairman of Council (Dr. Brackenbury) said it so happened that in the absence of Sir Robert Bolam he was the senior member present of those sitting on the General Medical Council. He did not propose to repeat the eulogy the Chairman had expressed in such felicitous terms, but he thought it right that one who had watched Sir Jenner Verrall as a member of the General Medical Council should say how much the profession of this country owed to his work and influence and advice in that body. Mr. E. B. Turner, as one who had been associated with Sir Jenner Verrall on the General Medical Council for five years, cordially welcomed the proposal to accord him a special vote of thanks. Sir Jenner Verrall had often swayed the deliberations of that Council; his words were wise and his vote given with discretion and great intelligence. He tempered justice with mercy, and was always willing to do anything in his power for the honour and interest of the profession he represented. Now that he was retiring with honour from that position the Council would lose one whom it could ill spare, and the loss to it would be as great as the loss to the profession. The vote of thanks was carried with acclamation, and Sir Jenner Verrall, who was received with loud applause, briefly responded.

The Religious Service.

The official religious service in connexion with the Annual Meeting took place on Tuesday afternoon in Manchester Cathedral, when the sermon was preached by the Archbishop of York (Dr. Temple), who was until recently Bishop of the diocese of Manchester. The President, officers, and members of the Association assembled and robed at the Grammar School near by, and from there a procession was formed, headed by the Ceremonial Staff which had just been presented by the Treasurer. Those attending the service included the Lord Mayor of Manchester, the Mayor of Salford, the Chancellor and Vice-Chancellor of the University, and representatives of the nursing profession, St. John Ambulance, and the British Red Cross. The lesson (Romans xii, 1–18) was read by the President, and a special thanksgiving prayer was offered for the King. The Archbishop began his sermon by saying that the marvellous advance of science, which was at once the most pronounced characteristic of the period in which we lived and the chief influence upon the thoughts of men in this period, impressed those who had any religious faith at all with an ever deeper sense of the infinite majesty of God. On the other hand, in its first impact such a growth in knowledge was very liable to create a sense of personal insignificance, and thereby to paralyse the sense of responsibility which was a necessary part of the life of a religious man. As men became more closely acquainted with the vast ranges in time and space that were opened up by scientific researches, it was difficult to realize that the lives they themselves lived could be of any very great or ultimate significance. Their forefathers were often inclined to suppose that divine manifestations were only recognizable in connexion with occurrences where their own knowledge as to their causes failed. Where they could not trace those rational connexions between events to which the term "explanation" was applied, they propounded a hypothesis of Divine intervention. Having learned to see God chiefly in the gaps of human knowledge, they inevitably felt, as knowledge filled in those gaps, that the sphere of Divine action was being curtailed, and they began to wonder whether, with still more knowledge, they might not be able to dispense with God altogether. A very large amount of the agnosticism of the later nineteenth century, added the Archbishop, was the inevitable result of the habit which religious men had unconsciously adopted of limiting the Divine action to those regions where no other explanation of what took place was forthcoming. But that was not a view of the world which could be logically associated with belief in "God Almighty, Maker of heaven and earth, Creator of all things visible and invisible." If only men had trusted more confidently to the faith they professed they would have seen in every advance of science, not an exclusion of God from the world He had made, but only a further explanation of the way in which God did all His work. All new knowledge of the world was, and ever must be, new knowledge of Him. The Archbishop went on to speak of the problem of suffering, one of the two great forms of evil in the world, and the one which medical science was devoted to remedying and preventing. The problem of pain was peculiarly disturbing to those minds and hearts which were otherwise disposed to faith in God. But it was in the suffering of the Son of God that the means was found whereby the world was redeemed, and in the light which that threw upon suffering some gleams were caught of what might be the solution of this mystery. Concluding with a reference to the medical profession, the preacher said that in all the work which was done by that profession God could be seen at work in His world, helping humanity to rise above its customary levels of experience. Physical healing, and the healing of the soul, though best perhaps carried out by separate hands, were not really different ministries; they were one in the purpose of God for His world—a purpose which was "joy triumphant over pain." Following the sermon there was a solemn procession, round the interior of the cathedral, of the choir, clergy, municipal authorities, the Council of the Association, and many medical graduates wearing robes. The Archbishop pronounced his benediction while the remainder of the procession stood in the aisles, and so a dignified service came to an end. The offertory is being devoted to the B.M.A. Charities Fund, with the exception of one-quarter, which will be used to place in the cathedral a memorial of the present Annual Meeting.

A telegram received from Manchester as we go to press announces that up to noon on Wednesday those attending and registering at the Annual Meeting numbered 1,420.

WATER SHORTAGE AND THE PUBLIC HEALTH.

ATTENTION has been drawn by the Minister of Health to the dangers attending the present water shortage—dangers which will not be entirely removed until there has been long-continued and exceptionally heavy rainfall. In his recent memorandum—to which we referred last week at page 119—the warning is given that should the next few months be at all dry there will be considerable risk of scarcity in several districts. In many neighbourhoods at present where the water supply is relatively deep-seated little or no anxiety is being felt, but it has unfortunately to be remembered that even these supplies may suffer severely later on from the drought, perhaps long after the surface supplies have been fully replenished. The abnormally low rainfall since last December has resulted in a greater water scarcity than at any corresponding period since 1921, and we are again being reminded how dependent a modern urbanized community has become on a few fundamental sanitary conditions. Among the most important of these are a continuous and adequate supply of pure water, and the rapid removal of waste products, the accumulation of which among collections of human beings is incompatible with healthy life. Apart from the consequent interference with industry the ordinary intensive conditions of city life cannot be maintained in the absence of a sufficient water supply. Diminished rainfall results inevitably in the streets becoming dirtier; the flushing of gulleys, drains, and sewers is decreased, or even stopped altogether. The resulting accumulations in these conduits are extensive and foul; they constitute a serious insanitary condition, which it is impossible to deal with. This being the case, no surprise will be felt that the Minister of Health insists that there must be no delay in conserving existing water supplies wherever a shortage exists or is threatened, since new supplies cannot usually be improvised at short notice. Moreover, it is mentioned in the memorandum that statistics now available for a long succession of years indicate that the rainfall during the next few years may continue to fall short of the average. The problem is, therefore, not to be dismissed even with the incidence of some days of heavy rain. The first consideration, doubtless, is the supplementing of the existing supplies, but this is not often possible, and accordingly attention has to be directed to the economical use of water and the prevention of remediable waste. As an illustration, it is suggested in the memorandum that there is much to be said for providing new washers to defective taps without charge to the consumers, since the small cost of this will be amply met by the saving in water. The voluntary curtailment of domestic supplies in respect to the watering of gardens and the washing of motor cars may be made a little less irksome if it is realized that voluntary co-operation in this way by individual householders may prevent the imposition of definite restrictions later on. The important matter of "*compensation* water" is not overlooked, and it is suggested that agreements for the temporary reduction or intermission of discharges will often divert large quantities of water to the domestic needs of the public. Wherever available, supplies of non-potable water should be used for street watering and the flushing of drains. Every effort has to be made to prevent intermitting the domestic supply, since there is always some risk of contamination where pipes are not fully watertight, or when the influx of impure water is possible. Chlorination, though the readiest means of purifying water, should only be employed under expert supervision. In the last resort, particularly in rural parishes where the residents use shallow wells and similar sources, the importance of boiling water should be emphasized if there is any serious danger of pollution. The Minister of Health adds that where expense has to be incurred by a local authority in relieving water shortage in its district, the county council is empowered by Section 57 of the Local Government Act, 1929, to contribute towards this expenditure. Similarly, district councils are empowered by the preceding section of this Act to contribute towards the expenses, which would otherwise have to be defrayed by a special rate upon the place concerned. Co-operation between adjoining districts will undoubtedly help to solve some local problems, and emphasis is laid on the advantages of forming regional advisory committees on the lines indicated by the booklet which was issued by the Minister of Health last October.

SIR WILLIAM OSLER'S LIBRARIES.

THERE has lately been published by the Clarendon Press "Bibliotheca Osleriana: a catalogue of books illustrating the history of medicine and science, collected, arranged, and annotated by Sir William Osler, Bt., and bequeathed to McGill University."[1] It is an exceedingly fine example of cataloguing, indexing, and printing. The eight sections into which the catalogue is divided were Sir William Osler's own arrangement, and it had been his intention to write a special introduction to each section to "explain to students how they are to be used." These introductions unfortunately were not written, and their place is taken by a more general preface by the editors, W. W. Francis (librarian, Osler Library), R. H. Hill (Bodleian Library), and Archibald Malloch (librarian, New York Academy of Medicine). The idea of the Bibliotheca Prima, which is the chief feature of the library and of the catalogue, was outlined by Sir William Osler in a leaflet in 1919; it is "to have in a comparatively small number of works the essential literature grouped about the men of the first rank, arranged in chronological order." This unusual arrangement is carried out in an interesting and very informative way, and many of the items are in themselves of a fascinating character in their biographical and historical details and incidental comments. The same is true of the entries in the other sections, though these are arranged in the more usual way, in the main alphabetical. Besides the editors' preface there is an introduction entitled "The Collecting of a Library," written by Sir William Osler himself, and to this is appended a note on "A Record Day at Sotheby's," which was intended by the author to be incorporated in some form in his introduction which was left incomplete. This essay, covering in print less than twelve large pages, should not be missed by anyone who cares for literature, for libraries and books, or for the work and memory of Sir William Osler. It is a brief account of his introduction to, love for, and dealings with, books from his days in "a country parson's house in Canada in the 'fifties and 'sixties" to his disposition of those which he owned at his death. George Borrow was, perhaps, his first delight, but "the first book bought was the Globe Shakespeare, the second the 1862 edition, Boston, of the *Religio Medici*, both of which were the close companions of my student days. The Shakespeare was stolen and the curses of Bishop Ernulphus have often been invoked on the son of Belial who took it; the Browne, bought in 1867, is the father of my Browne collection"—a collection which is almost complete and has been kept together. The narrative of another annexation is thus given: "Schmidt's 'Shakespeare-Lexicon' I asked to have sent to me as soon as published. I moved to rooms with Mr. King, who had but one thought in life—Shakespeare. He was a dear old man, much esteemed and always ready to spend more than he could afford on his hobby. One afternoon at the College the postman left a parcel, and to my delight it was Schmidt's Concordance. My first thought was, how happy Mr. King will be to see it. On my return Mr. King greeted me with 'What's that you've

[1] Oxford: The Clarendon Press. 1929. (6s. net.)

got?' 'Something that will rejoice your heart,' I said, and deposited the work in his lap. The shock of the realization of a life-long dream, a complete concordance of Shakespeare, seemed to daze the old man. He had no further interest in me, and not a word did he say. I never got it back! For months he avoided me and he never referred to it again. The work went to McGill College with his Shakespeare collection. When in the library in 1910 I asked for the first edition of Schmidt and was glad to see my book again after thirty-five years." It was, however, with medical and scientific books and libraries that Osler's interests were most intimately concerned, and he takes the reader on a fascinating pilgrimage through the schools and libraries of Weston, Toronto, Montreal, Philadelphia, Baltimore, and Oxford, with incidents from Berlin, Vienna, and London on the way. A particular seat in the Bodleian was evidently his favourite spot, but he tells in a beautiful passage why he felt drawn to make his bequest to McGill—"the formative years were there with the strong ties of head and heart." He introduces us on the journey to many of his teachers, comrades, and friends, including librarians and founders of libraries, for "a library is usually the result of the enthusiasm of one or two men." A library, he says, "represents the mind of its collector, his fancies and foibles, his strength and weakness, his prejudices and preferences. Particularly is this the case if to the character of a collector he adds—or tries to add—the qualities of a student who wishes to know the books and the lives of the men who wrote them. The friendships of his life, the phases of his growth, the vagaries of his mind, all are represented." So in this catalogue of his books—even though we have not the names of those "left over, a motley collection of miscellaneous works which may remain in the house to help fill the shelves"—and in this introductory essay, we really feel the charm, the attraction, and some of the value of the author and collector himself.

THE TRAFFIC IN DANGEROUS DRUGS.

THE British Government's report for 1928 to the League of Nations on the traffic in opium and other dangerous drugs contains information as to the working of the system of control which has been established in this country in accordance with the Hague and Geneva International Conventions over the trade in dangerous drugs, and as to the action taken by the Government in co-operation with other Governments to suppress the illicit traffic. No seizures of importance occurred in Great Britain during the year, and the year's record helps to confirm the experience of previous years that illicit traffic in drugs exists in this country only on a very small scale. The reports of seizures received from British Colonies, from the British Dominions, in particular India and Canada, from the United States of America, and (through the secretariat of the League) from other countries, showed, however, that the illicit traffic in drugs was being carried on vigorously throughout the year, and that great quantities of these drugs were smuggled, particularly to North America, Egypt, India, and China. Great Britain has continued to work in close co-operation with the authorities in the Dominions (particularly Canada and India), the Colonies, the United States of America, and other countries with a view to the suppression of this traffic. Tables in the report show that the output of morphine in Great Britain has decreased by over 23,000 ounces on the figure for 1927. The exports have also decreased by nearly 18,000 ounces, and are now about one-half of what they were five years ago. The output of heroin is also down, and the exports touched the lowest figure yet reached—6,038 ounces. France took 3,244 ounces less of heroin last year than in 1927. About three-quarters of the opium used in the manufacture of drugs in this country is now Indian; one-quarter is Turkish. Practically no Persian or Serbian opium is now being used. For the first time a large proportion of Great Britain's supply of cocaine was made in the country. The output for the year was 4,934 ounces; the imports totalled 9,353 ounces, being some 6,000 ounces less than the imports during 1927. During the current year the output in this country will be increased and the imports correspondingly decreased.

WHITE AND BROWN BREAD.

EVERYONE knows that what he sees printed in black-and-white may be if not a black lie, a white one; but the popular faith in printed figures, especially when these are marshalled in impressive tables, reduced to percentages, and corrected for all sorts of errors, dies hard. It is difficult even for statisticians to remember that the validity of such tables depends entirely on the precision of the data out of which they had been constructed, and that no form of mathematical treatment has yet been discovered which will produce an accurate synthesis from inaccurate figures. As a case in point may be cited many of the generally accepted estimations of the carbohydrate content of common foodstuffs, which, according to Dr. R. A. McCance and Dr. R. D. Lawrence, the authors of *The Carbohydrate Content of Foods*,[1] are often out by several hundreds per cent. Their repudiation of the analysis given in the tables in current use will probably come as a painful shock to those who, armed with slide rules, have laboured long and faithfully, working out from them detailed balanced diets for their diabetic patients. The authors do not confine themselves, however, to destructive criticism, but devote the first part of their work to tables in which are presented corrected analyses of the available carbohydrate content of fruit, nuts, and vegetables. In the second part of the paper they deal with the nutritive properties of vegetable fibre, and, from the fact that a considerable proportion of ingested cellulose disappears from the gut they conclude that the laxative action of cellulose and that of cell membranes cannot simply be due to their addition of bulk to the faeces, but to the stimulant action of the products which result from their fermentative digestion. Of more general interest is their discussion of the dietetic value of wholemeal bread: "Discussions on the relative merits of white and wholemeal bread," they write, "are usually directed more by psychological bias than by experimental facts. People who neither know the facts nor are able to appraise them, people with vested money interests and cranks of all kinds, speak and write freely on the subject with ever-recurring waves of enthusiasm. So few of the facts, however, seem to be generally known and the position could so fitly be discussed here, that we have devoted a section to the subject." After this introduction we learn without surprise that the authors are unfavourable to the use of wholemeal bread. They remark that when allowance is made for the food calories lost in the faeces, wholemeal bread has a lower calorie value than white bread; and the argument that, white bread being deficient in vitamin B, its consumption is a common cause of digestive disorders, they meet as follows: "If the vitamin deficiency of white bread were the cause of so much constipation and the vitamins of wholemeal bread were the specific cure, then this could hardly have failed to attract the attention of physicians and the public, neither of whom are slow to apply such simple remedies." This argument, that a new idea cannot be true, because if it were true someone would have thought of it long ago, has been advanced against every new idea since the dawn of history, and we confess to some surprise at finding it in a serious scientific publication. We hold no brief for white bread

[1] *The Carbohydrate Content of Foods.* By R. A. McCance and R. D. Lawrence. Medical Research Council. Special Report Series No. 135. Price 2s. net.

or brown, but suggest that the authors would have done well to examine their own rationalizations a little more carefully before directing attention to the "psychological bias" of other people. It is true that the validity of the evidence which has been brought forward to support the claim that vitamin B deficiency causes intestinal disorders is questioned by many workers of repute; until, however, this evidence has been definitely refuted it should not be ignored. The authors' final conclusions are sound: "Children," they write, "are very intolerant of high cellulose diets, and, for some, brown bread is far too irritating, even if given with the idea of relieving constipation. Appetite is such an important factor in all digestive considerations that no one who dislikes a food of unproved value should be forced to eat it if it can be avoided. In time of peace, of course, the grown-up population, if they have the choice, will never eat wholemeal bread unless they like it, no matter how specious the advertisement, but they may force their children to eat it in the belief that they are doing them good. One should, therefore, be cautious in advising wholemeal bread generally, and wait until careful unbiased experiments have been done on a sufficient number of men, women, and children. Thus only can accurate conclusions be drawn."

"MYOCARDIA."

PROFESSOR EMILE SERGENT has recently sponsored an interesting volume of lectures delivered in his clinic in Paris by his colleagues, former pupils, and distinguished visitors, and the result is eighteen essays in the delightful clear style for which French clinical medicine is famous.[1] Any of these essays would provide material for comment: one of the most striking, with interesting practical bearing, is on the subject of "myocardie," for which the English word "myocardia" is suggested. This term, which is new to medicine, was introduced in recent years by Laubry and Walser, who wished by it to describe a type of primary cardiac failure of unknown origin. The word "myocarditis" is frequently applied to cases of cardiac failure, especially if the exact etiology is unknown, but careful pathological investigation of cases that come to autopsy may fail to reveal any evidence of gross inflammation of the heart muscle, either acute or chronic, and such small changes as are found may be quite well explained as post-mortem effects. It was to avoid the use of the term "myocarditis," with the implications carried by its ending, that the French workers began to talk of "myocardie," which has no such etiological significance. Professor Francis Bordet, in one of the lectures in this volume, discusses the diagnosis of myocardia, basing his remarks on the case of a man, aged 35, who died from rapidly advancing heart failure for which no obvious cause could be found in life. This patient suffered from shortness of breath on exertion; he had cyanosis of the face, and there were also present signs of stasis in both the systemic and pulmonary circulations, pulsation of the jugular veins, oedema of the back and legs, and enlargement of the liver. The heart was enlarged, and an *x*-ray examination showed this to be due to dilatation of both ventricles; the pulse was rapid and irregular, with gallop rhythm heard on auscultation. The history of the patient before admission to hospital was to the effect that only four months previously he had noticed some difficulty in climbing a steep hill, and from that time onwards progress of the heart failure had been rapid. Rest and digitalis therapy had proved useless, and at the time of Professor Bordet's lecture the patient had to be propped up in a sitting position. No etiological factor could be found to account for this failure, except that during the war the patient had suffered from a gunshot wound of the left side of the chest with a haemothorax, and the left side of the diaphragm did not move as well as the right side. There was also a doubtful history of alcoholism. In view of these two possible factors in the causation of the cardiac failure, Professor Bordet considered that the case of this patient could not be regarded strictly as of pure myocardia, but would come under the category of associated myocardia, a term reserved for cases of cardiac failure where an etiological inquiry is not entirely unproductive, but where such factors as are present do not appear sufficient to account for the severity and rapidity of the evolution of the disorder. Not long after the delivery of this lecture Professor Bordet's patient died, and at the necropsy the heart was found to be dilated, all the cavities being affected. There was no disease of the aorta or coronary arteries, and microscopic examination showed no evidence of myocarditis. Such is the usual finding in cases of myocardia, and the exact pathogenesis remains obscure. It is suggested that the condition is due to a cardiac hypotonia, possibly connected with the nervous system and muscle tone, and brought on, perhaps, by emotion or physical strain. It is always a serious matter to introduce a new term into medicine, but non-inflammatory disorder of the cardiac muscle cannot be satisfactorily classified as a myocarditis, so that there is some justification for the use of the term "myocardia." The diagnosis of this condition is largely by the unsatisfactory method of exclusion, and in any case it is not a diagnosis to be lightly proffered in view of the serious prognosis.

[1] *Questions Cliniques d'Actualité.* Paris: Masson et Cie. 1929. (24 fr.)

CO-OPERATION BETWEEN THE MEDICAL PROFESSION AND THE MINISTER OF HEALTH.

ONE of the first acts of the present Minister of Health (Mr. Arthur Greenwood) has been to enlarge the very wide range of the various forms of consultation which already subsist between the Minister and the medical profession. This extension of contact between the Government and medical opinion takes shape in the appointment, in a purely personal capacity, of Sir John Rose Bradford, Lord Moynihan of Leeds, Lord Dawson of Penn, and Dr. H. B. Brackenbury as a small informal committee to confer from time to time with Sir George Newman, the Chief Medical Officer of the Ministry of Health. The object of the conferences will be to give ample opportunity for the committee to place before the Minister their views on any current medical matters about which they desire him to be specially informed, and for the Minister to consult the committee with the same case. Mr. Greenwood has added that he hopes personally to find in this arrangement a ready means of communication between the committee and himself as occasion arises; and that it will contribute to the close, continuous, and sympathetic association which he desires to see maintained between the medical profession and the Minister.

THE INTERNATIONAL MEDICAL CLUB, NEW YORK.

THE International Medical Club of New York is an institution which aims at the promotion of social and scientific relations between American medical graduates and medical practitioners of other countries who are visiting, residing, or practising in the United States. It keeps in close touch with the various medical societies in that country, and is therefore in the position to advise and assist medical practitioners who are touring and wish to visit medical institutions. The club has interested itself particularly in medical progress in foreign countries, and has a number of corresponding members in Europe; information is made available also as regards post-graduate instruction in Great Britain. Members of the British medical profession who would like to know more about this institution should write to the chairman of the Liaison Committee, Dr. F. H. Allbee, 30, East 40th Street, New York City.

ROYAL SANITARY INSTITUTE.

CONGRESS IN SHEFFIELD.

THE fortieth congress of the Royal Sanitary Institute was held in Sheffield from July 13th to 20th, and was attended by over one thousand delegates, including more than sixty from the Dominions and foreign countries. The president of the congress was EARL FITZWILLIAM, who devoted his address from the chair to a sketch of recent sanitary progress. The congress met in six sections, and, in addition, there were six conferences for different categories of administrators and social workers.

Child Guidance.

The Section of Preventive Medicine, presided over by Professor ARTHUR HALL (who expressed some distrust of the term "preventive medicine" as likely to frighten the man in the street because it suggested another medical preserve), devoted itself entirely to mental hygiene. Dr. R. H. CROWLEY, senior medical officer, Board of Education, described the principles and practice of the child guidance clinic. He said that a great deal of pioneer child guidance work had been carried on in London, and clinics on modest lines were at work in several places in the provinces, connected either with the local education authority, the hospital, or the university. These were beginnings of activities likely to develop into a great national service. Dr. WILLIAM MOODIE further developed this subject, and he was followed by Miss EVELYN FOX, secretary of the Child Guidance Council, who said that the unit of clinic work was one psychiatrist, one psychologist, and three or four social workers. Dr. G. A. AUDEN, school medical officer, Birmingham, spoke sympathetically of "adventure fantasies" and psychopathic conflicts in the "difficult" child.

Mental Hygiene in Adults.

On the subject of mental hygiene from the point of view of the adult, Dr. E. MAPOTHER, superintendent of Maudsley Hospital, contributed a thought-provoking paper. The statistical influence of organic factors in mental disorder, he said, would be almost negligible apart from alcoholism, syphilis, arterio-sclerosis, encephalitis, and epilepsy. In functional mental disorder, as in epilepsy, little or nothing could be done in advance of the symptoms. The factors operative in determining such disorder were congenital make-up, abnormalities of the changes incidental to normal events and epochs of life, and recent or remote experiences. The pivot of the system for early treatment in progressive countries was the psychopathic clinic, of which at present the Maudsley Hospital was the only English example. Wards in general hospitals, municipal or voluntary, could no more replace psychopathic clinics than cottage hospitals could do the work of medical schools. He wholly approved of a voluntary system at public asylums for other reasons, but this would not touch the problem of treating the really early case. Observation centres also were needed for the early treatment of cases objecting to, or too objectionable for, the psychopathic clinic. Direct admission to the mental hospitals had been advocated as a better way of dealing with such cases, but as a matter of experience only 50 per cent. of the cases admitted to observation wards went on to asylums. The observation centre should be sections of one of the municipal general hospitals, and should be large enough to permit of proper classification. Most of these patients would be under some such authority as the provisional order of the Royal Commission.

In further discussion of this subject, Dr. W. VINCENT spoke of the prophylaxis of mental disorder, including the role of alcohol and syphilis as causes, and pleaded for the establishment of a large number of mental clinics at which advice and treatment could be offered in the early stages of mental illness. Dr. R. W. GILMOUR described the role of the general hospital as a centre for mental hygiene. He held that there should be an out-patient department at every general hospital for the treatment of mental cases, with a few beds set aside in the neurological ward for those requiring special care. Examination and treatment should be undertaken by someone doing mental work alone, which would be possible if a liaison were established between the mental and the general hospital.

Maternity and Child Welfare.

The Maternity and Child Welfare Section was presided over by Lady MABEL SMITH, who spoke of the need for a national maternity service. Among the papers read in this section was one by Dr. RON[illegible] mentioned some routine starvation and the giving ventive treatment of summer diarrhoea. In his borough during the last five years there had been 115 deaths of infants due to enteritis, but only five of these occurred amongst those who had received the routine treatment. Dr. ALLEN DALEY (M.O.H., Hull) sketched the manner in which the Local Government Act will affect maternity and child welfare and school medical services. Dr. W. M. ASH described how existing institutions within the county might be utilized for a complete maternity service. He believed it was for the good of all concerned to make the smaller hospitals, scattered about counties, serve wider interests than they were doing at present, and to concentrate at these centres work at present done by a multitude of small uneconomical institutions. He would have these hospitals not only accommodate maternity in-patients, but provide for midwifery and sick nursing in the area around them. The hospital should be the centre of the ambulance service, and also the centre from which accouchement outfits could be distributed to necessitous cases.

Dame LOUISE MCILROY dealt with the influence of syphilis on pregnancy, describing and commending the system of co-operation between the obstetric and venereal diseases departments of the Royal Free Hospital; and she was followed by Dr. MARGARET ROBIE, who said that at that hospital during the last five years there had not been one child stillborn or showing signs of congenital syphilis at birth or soon after where the mother had had treatment during pregnancy. Mr. JOHN ADAMS, F.R.C.S., who gave some account of the good work at Thavies Inn, urged that the authorities should provide hospitals for in-patient and out-patient syphilitic pregnant women, which would also be training schools for the treatment of ante-natal and post-natal syphilis. All pregnant women in hospitals and public institutions should have a blood test on admission.

National Health Insurance and Other Subjects.

A conference on the national health insurance services was presided over by Mr. STANLEY L. DUFF, chairman of the approved societies' consultative council. He referred to the question of medical certification and the rise in claims for sickness benefit. The recent proposal to treat as an infraction of the medical benefit regulations the issue of medical certificates without the exercise of due care was one which should command the support of all practitioners whose obligations and relationship to the health insurance scheme were rightly conceived. The discussions in this conference were non-controversial, relating to such subjects as health education, convalescent treatment and after-care welfare, and the education of officials in the national insurance service.

In a discussion on the progress of cremation, which, he said, was much slower in this country than in Germany or America, Professor BOSTOCK HILL complained of the attitude of the British Medical Association in preventing the proper functioning of an arrangement whereby in several populous localities medical practitioners of standing could give the necessary certificates at a reasonable fee. Excessive fees had been charged for certificates in the past, and as the final responsibility in the matter rested with the medical referee appointed by the Home Office, no onus requiring an excessive fee was placed upon the practitioner.

The increasing frequency of abortion, and also of pneumonia without previous symptoms, as causes of sudden death was the subject of a paper by Mr. C. J. HAWORTH, coroner for the West Riding. He mentioned that in his area over fifty sudden deaths from pneumonia, in which there were few or no symptoms of previous illness, had taken place within six months.

A section was devoted to hygiene in industry, over which a great industrialist, Mr. W. L. HICHENS, presided. He pleaded with his fellow industrialists for a keener interest in these problems. Artificial industrial illumination, the rural worker and housing, and the social and economic

effects of raising the school-leaving age were the subjects discussed in this section.

Even this does not by any means exhaust the subjects placed before the Congress. The planning of the mental hospital was also discussed: the whole opinion being in favour of villas of moderate dimensions rather than great blocks of several stories. Other subjects were the Sheffield water supply, asphaltic roads and their influence on health, the smoke problem, improved methods of disposal of refuse, reconstruction schemes under the Housing Act, the evolution of the sanitary inspector, biological education as an essential factor in the creation of a public health conscience, regional planning, main drainage schemes, meat inspection, milk hygiene, conditions in bakeries, rivers pollution—the mere recital shows how big a brood the Royal Sanitary Institute has under its wing and how manifold are hygienic implications in modern life.

THE LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE.

THE OPENING CEREMONY.

THE new building of the London School of Hygiene and Tropical Medicine, of which we gave a description in our last issue (p. 117), was declared open at noon on Thursday, July 18th, by the Prince of Wales. His Royal Highness was received at the main entrance in Keppel Street by Lord Melchett (chairman of the Board of Management), Sir Holburt J. Waring, F.R.C.S. (chairman of the Court of Governors), and Sir Gregory Foster (Vice-Chancellor of the University of London). After the architects (Mr. P. Morley Horder and Mr. Verner O. Rees) and the director of the School (Dr. Andrew Balfour) had been presented, His Royal Highness proceeded to the main library, where a large and distinguished company, many of them in academic dress, had assembled.

Lord MELCHETT, in the course of his Address of Welcome, made grateful reference to the generosity of the Rockefeller Trustees, whose benefaction had made it possible to embark on this great enterprise. Their traditional policy of self-effacement explained the absence of the Trustees from the opening ceremony. Nevertheless, he wished to say that the whole British nation and all other nations were under a great debt of gratitude to the Rockefeller Foundation for the gift of this magnificent building. Lord Melchett then briefly outlined the history of the School, and recalled that the foundation stone of the building had been laid three years ago by his successor in the office of Minister of Health, Mr. Neville Chamberlain, whom he welcomed at this ceremony, together with Mr. Arthur Greenwood, the present Minister. He welcomed also the Dominion High Commissioners and other distinguished visitors from overseas, among them the Turkish Minister of Health (Dr. Refik Bey). Their presence was a reminder that hygiene knew no frontiers.

The PRINCE OF WALES, in his reply, said that if the laboratories, museum, and lecture rooms made good the promise of its library the School was indeed to be congratulated, and the building would be a notable addition to the homes of learning in London. Reference had been made by Lord Melchett to the part played by America, and to the duty which lay both on the British Government and on the British people to see that the London School of Hygiene was worthily endowed and maintained. The building was a sign that post-graduate education in medicine was about to come into its own. The establishment and endowment of this centre of teaching in preventive medicine was a signal example of the bond between the two great English-speaking races of the world. The research and teaching carried out there would find its results wherever man lived and moved and had his being. His Royal Highness said in conclusion: "We now stand in the early days of an era of preventive medicine, in which the progress made in sanitation and care of the individual will be developed, and fresh research will lead to the solution of problems not yet solved and to the prevention of much ill health. The establishment of this School is of special importance to the British Empire, and it has undertaken great responsibilities. In my travels I have discovered at first hand the appalling loss of life and effort due to tropical diseases; and I have realized how great is the need for research in tropical medicine and hygiene. In the cause of hygiene generally the School will help and develop the growing work that has already been done. For these reasons I believe that the establishment of this School provides a great opportunity for this country and for the whole world. If its work is properly conceived and carried out there should follow a special development and interest, and a quickening of the public conscience, which will lead to a steady decrease in preventable diseases, suffering, and death. By its work in this connexion the School will be judged."

His Royal Highness then formally declared the building open, and after a fanfare of trumpets sounded by the Coldstream Guards, the Chairman of the Court and the Vice-Chancellor expressed to the Prince the thanks of the governors of the School and of the University of London for his attendance and his sympathetic interest in the work of the School. A point made by Sir HOLBURT WARING was that in planning the building, and at all stages throughout its erection and equipment, they had kept clearly in view that the primary and essential purpose of the School of Hygiene was to serve as a workshop. Their architects had thoroughly grasped that idea, and with it the associated idea that space and light were primary considerations. Sir GREGORY FOSTER said that the school, as a part of the University of the capital city of the Empire, would add to the glories of the University of London, and help to maintain and extend its tradition of service in the cause of humanity. From the colleges and medical schools of that University many men had gone forth whose zeal and skill had made the world a better and a happier place. Foremost among these was Lord Lister, who received his medical training in London and was a graduate of its University.

The Prince of Wales then paid a visit to the museum, laboratories, and lecture theatre, and the guests were entertained at luncheon by Lord Melchett. Later in the afternoon they were shown round the building by the director, the professors, and other members of the staff, and short cinematograph displays were given in the large theatre.

ROYAL MEDICAL BENEVOLENT FUND.

AT a recent meeting of the committee of the Royal Medical Benevolent Fund, thirty-nine grants were made, amounting to £612 1s. It is the hope of the committee that financial help will never be refused to a deserving case, but to be in a position to meet the ever-increasing demand the committee urgently appeals for the support of new subscribers. The summaries given below of a few of the cases recently helped clearly show what abject poverty some applicants have to endure. Subscriptions and donations should be sent to the Honorary Treasurer, Royal Medical Benevolent Fund, 11, Chandos Street, Cavendish Square, W.1.

The following are short notes on six of the cases helped by grants and annuities at the last meeting.

Widow, aged 72, of L.R.C.P., M.R.C.S., whose husband received an annuity from this Fund during the last years of his life. On his death his widow had only the old age pension of £25. Voted £35. Her total income is therefore only £62 a year. Further assistance is being sought for this lady.

Widow, aged 80, of M.R.C.S., L.S.A., is totally blind. She has an income of £77 a year. The Fund voted £36, making a total income of £113, on which the widow and two daughters have to live. One daughter has to give her full time to looking after her mother, owing to her infirmities; the other is trying to find work, but as she is 47 years of age she has been unable to get employment as a clerk.

Widow, aged 75, of M.R.C.S., L.S.A., has an income of £72 a year. Voted £26.

Daughter, aged 76, of M.R.C.S., with a private income of £20 and old age pension of £26. Voted an annuity of £30, making a total of £76.

Daughter, aged 84, of M.D. No private income, only the old age pension of £26. Voted an annuity of £30, making a total income of £56. This lady lives with her niece, a music teacher, who has to keep and maintain her on the above.

Daughter, aged 73, of M.R.C.S., has only the old age pension of £26. Granted an annuity of £40, making her total income £66.

The Royal Medical Benevolent Fund Guild still receives many applications for clothing, especially for coats and skirts for ladies and girls holding secretarial posts, and suits for working boys. The Guild appeals for second-hand clothes and household articles. The gifts should be sent to the Secretary of the Guild, 58, Great Marlborough Street, W.1.

BEIT MEMORIAL FELLOWSHIPS.

A RECENT meeting of the trustees of the Beit Memorial Fellowships for Medical Research was held for the election of Fellows and the reception of the annual report.

The honorary secretary, Sir James K. Fowler, M.D., referred in the annual report to the great assistance rendered to the trustees by the late Lord Haldane since its foundation in 1909 and until his death; Lord Rayleigh had been appointed to fill the vacancy thus caused. Reports of the directors of laboratories on the work of the Fellows had been uniformly favourable, and mention was made of the energy which was being devoted to the prosecution of the various researches. There had been an unusual number of resignations during the year under review, due to the appointment of the Fellow in each case to a scientific post of a permanent character; such resignations were, therefore, tributes to the value which attached to the tenure of a Fellowship. Researches were in increasing proportion being directed to problems in scientific subjects relating to medicine, and the secretary, commenting on Dr. Canti's work in connexion with tissue culture, mentioned that Miss Honor Bridget Fell, who last year was elected to a senior Fellowship at the value of £700 a year, had been associated in this work at the Strangeways Research Hospital, Cambridge. A serious difficulty had been encountered by Dr. Hindle in his work on a yellow fever vaccine in which he had been engaged. The practical consequence was that it was much harder to test the preventive value of the vaccine, since it was necessary to use large numbers of monkeys. Efforts were being made to re-establish the virulence of this strain and to obtain others. Further evidence had been obtained showing how serious was the risk of infection to those engaged in this research if they were unprotected. The advisory board believed that the records of the candidates at the present election for Fellowships showed that the standard as regards academic distinctions and subsequent performances was at least as high as in any previous year.

The following were elected to Beit Research Fellowships:

Fourth-year Fellowships (value £500 per annum).—Junior Fellows elected to fourth-year Fellowships: (1) Richard James Lythgoe; (2) Maurice Walter Goldblatt.

Junior Fellowships (value £400 per annum).—(1) Robert Hill, M.A.; subject: the specificity of haemoglobins and the function of pigments in cell respiration; (2) Ann Bishop, M.Sc., Ph.D.; subject: morphology and development of trichomonas and other intestinal protozoa; (3) Cuthbert Leslie Cope, M.B., B.Ch.; subject: diuretics and renal function; (4) Leonard Ernest Bayliss, Ph.D.; subject: metabolism of the isolated heart and kidney; (5) Walter Phillips Kennedy, B.Sc., D.Ph.; subject: ovarian function; (6) Eric Boyland, B.Sc.; subject: the mechanism of carbohydrate metabolism; (7) Edwin Martin Case, B.A.; subject: the metabolism and thermodynamics of muscle; (8) Kenneth Allan Caldwell Elliott, M.Sc.; subject: biological oxidations; (9) Margaret Honora Roscoe, B.Sc.; subject: the distribution and possible synthesis of vitamins B 1 and B 2.

THE HOUSING PROBLEM.

DEPUTATION TO THE MINISTER OF HEALTH.

THE Minister of Health, the Right Hon. Arthur Greenwood, M.P., received, on July 22nd, a deputation from the National Housing and Town-Planning Council, which put before him the following points:

1. That the Government should adopt a definite national programme for the building of 1,500,000 working-class dwellings with State assistance during the next ten years.

2. That all housing authorities should now be required to undertake a comprehensive and detailed housing survey of their respective areas.

3. That housing standards should be fully maintained and, in particular, that no three-bedroomed house built with State assistance should have a combined floor area of less than 760 square feet.

4. That the subsidy under the Housing Act of 1924 should be stabilized for a reasonable period of time, and that additional financial assistance should be provided to enable poor families with many dependants to occupy healthy dwellings.

5. That the Exchequer grant in aid of slum clearance schemes should be increased from one-half to at least two-thirds of the estimated annual loss on the schemes.

6. That the Town Planning Act should be extended so that it may apply to all land whether built upon or not, and that the existing powers for zoning should be extended.

The Minister's Reply.

The Minister, in reply, said that his frame of mind on housing generally was the same as in 1924. On the particular points put to him by the deputation he said that the 1924 Act recognized that there might be legitimate reasons for revision of the subsidy from time to time. He himself felt that it was impossible to commit Parliament for ten years, and any attempt to do so could be reversed by subsequent legislation. He could, however, say that he hoped to continue whatever subsidy was reasonable in the circumstances from time to time, and meanwhile had taken steps to preserve the Wheatley subsidy at its present figure until the next statutory review was due. This figure included the special provision made in the 1924 Act for rural areas. He doubted whether a general survey was desirable, but he thought that local authorities did keep a grip on the needs of their areas, and that they could be relied upon to keep abreast of changes in local circumstances. He agreed that accurate knowledge was necessary, but it ought not to be obtained in such a way as to divert the attention of local authorities from the actual provision of houses. He trusted that it would be possible in the next census to obtain better statistics than hitherto in regard to housing. He agreed that housing standards ought to be fully maintained, but he felt that in many areas there might be a real need for houses smaller than the three-bedroomed type for old couples and small families. While the main need was for three-bedroomed houses, he thought that local authorities should not be debarred from providing smaller houses, and that they could be trusted not to provide them in excessive numbers.

In conclusion, Mr. Greenwood said that the slum problem was not a separate problem from the provision of new houses. The Government were committed in the King's Speech to slum legislation, which he hoped to be able to produce at an early date. Slums could not be dealt with merely as a problem of finance, important as that was, and he trusted in his legislation to be able to ease the local authorities' task by making the procedure more simple. He agreed that the slum problem was bound up with a number of town-planning considerations. While he must avoid overloading any bill he might introduce, he would, at the same time, recognize the town-planning considerations that inevitably arose.

Ireland.

Health Insurance Bill (Irish Free State).

THE text of the National Health Insurance Bill, introduced in the Dail a fortnight ago to give effect to the major recommendations of the Committee on National Health Insurance, has been published. The bill proposes to abolish the county insurance committees, and to transfer their functions to the county councils, and to provide funds for the county councils for the purpose. The general purpose of the measure is to codify the Insurance Acts, and to simplify and lessen the expense of their administration. The difficulties which hitherto have existed regarding insurable married women are being surmounted by giving an insured female on marriage a marriage benefit, and providing that if she desires to work after marriage she will be in the category of persons who have never been insured. The measure also abolishes the deposit contributors' fund, and authorizes the entrance of members of this fund to approved societies within a prescribed period. Another section provides that persons in insurable occupations hitherto exempt because of certain private means can no longer claim exemption after January 5th next.

Down County Mental Hospital.

Dr. M. J. Nolan, resident medical superintendent of the Down County Mental Hospital, Kirkpatrick, in his report for the year ending December 31st, 1928, draws attention to the fact that valuable time is often allowed to elapse before patients are brought under care. The delay, in his view, is to some extent due to the troublesome legal formalities which have to be complied with before a patient may be subjected to treatment, and he expresses the hope that in the coming session of the new Parliament time may be found for legislation on matters of such vital importance both to the community and to the individual sufferer. In discussing questions of treatment, Dr. Nolan states that at no time since the opening of the hospital—now some sixty years ago—has moral treatment been exercised so thoroughly for the benefit of the patients. He

attributes the advance to the special qualifications of the medical staff, who have a more definite grasp than heretofore of the problems underlying mental abnormality; to the training of a nursing staff capable of carrying out instructions and combating conditions arising from derangement; and to the better equipment of the hospital, whereby the surroundings have been made as comfortable as those of a well-regulated home, and facilities are present for the application of whatever treatment may be indicated in particular cases. Moral treatment, he points out, involves the inculcation of regular habits and the provision of suitable occupation. In Holland, where he had recently made a tour of the mental hospitals, he found practically every patient employed, though this desirable state of affairs demanded in some cases the establishment of a very large nursing staff, even in the ratio of one nurse to every three patients. Dr. Nolan pays a tribute to the work of the National Council for Mental Hygiene, a branch of which is in course of formation in Northern Ireland; he hopes when the branch is in full working order that popular and practical addresses on mental hygiene will be given in Belfast and other northern centres. Dr. N. C. Patrick, inspector of lunatics, Northern Ireland, in his memorandum of inspection, draws attention to the high standard of excellence which continues to be maintained in the Down County Mental Hospital.

Maryborough Mental Hospital.

At a recent meeting of the committee of Maryborough (Portlaoighise) Mental Hospital, Dr. P. Grace, medical superintendent, presented his annual report. The report stated that the number resident on December 31st, 1928, was 528 (males 304, females 224), being an increase of 26 over the number in 1927. The daily average resident during the year was 618 as against 489 for the previous year. Of the assigned causes of insanity heredity was the chief, 25 men and 20 women being classified under that heading; mental stress accounted for 11 admissions; 5 cases were classified under mental instability; 7 cases were associated with senile decay and the same number with puberty and adolescence. There were no zymotic diseases during the year, and the general health of the patients and staff had been satisfactory. Occupational therapy received much attention in the treatment of patients, about seventy being employed on the farm, in the workshop, laundry, and sewing room. In the latter department, under the supervision of the matron, excellent work continued to be done in rug-making, needlework, etc. At the recent exhibition of work held at Castletown nine prizes were secured by the mental hospital exhibits.

Tuberculosis in County Galway.

Evidence of the satisfactory progress which has been made in recent years in the campaign against tuberculosis in Galway is supplied by Dr. Bartly O'Beirne, tuberculosis officer for this county. In his annual report he gives the following statistical details. The number of new applicants for treatment was 375; of these, 68 were insured persons and 307 were not. Tuberculosis was found to be present in 209 of the non-insured, and in 67 of the insured patients, the total thus being 276. Pulmonary tuberculosis was present in 155 non-insured patients and in 60 of the insured. Non-pulmonary tuberculosis was found in 54 non-insured patients and 7 insured ones. One hundred patients were still under observation, of whom all except one were not insured. The number of patients under 15 years old who were suffering from pulmonary tuberculosis was 13, and from the non-pulmonary form 23; 19 children were being kept under observation. In Dr. O'Beirne's report last year he stated that, though the number seeking advice had increased, it was not to be inferred that tuberculosis was extending in the county; what was actually happening was that the educational propaganda was having good effect. He remarks that in 1912, when the tuberculosis scheme was started in the county, it was only with great difficulty that a patient with early tuberculosis could be persuaded to go away to a sanatorium. At the present time the position had been reversed, and the great drawback in the county is that there is not sufficient accommodation for the number of applicants anxious to receive treatment. Many factors have brought about this desirable advance, but Dr. O'Beirne thinks that unquestionably the sanatorium has been the principal one. Medical practitioners have given great help by notifying all cases coming under their notice. The infected home is thus known, and measures are taken to prevent recurrence of the disease in other members of the family. Disinfection of the houses and rooms has been a very important weapon in the anti-tuberculosis campaign. Though much has been done, Dr. O'Beirne adds, there is still plenty of room for improvement.

A County Health Scheme in Limerick.

At a recent meeting of the Limerick County Board of Health a discussion was held on the proposed appointment of a county medical officer of health, and particulars of the recoupment for school inspection and child welfare. Dr. O'Dea, Government department medical inspector, said that the salary for the county medical officer of health would be allocated under three headings—one portion in respect of his duties as chief school medical inspector, a second portion for those of chief tuberculosis officer in the county, and the third portion for those of county medical officer of health. The sum allotted as chief medical officer of health was not recoupable, except in so far as allowed by the Public Health Act, 1878. Regarding the question of assistance, Dr. O'Dea said that with respect to school medical inspection the county would be divided into two; 50 per cent. was recoupable for assistants. The adoption of the scheme would not interfere with the position of the present county tuberculosis officer, but his duties might be altered. The speaker added that 50 per cent. was also recoupable in regard to nurses, and in the case of all other expenses that he knew of, such as travelling, printing, and stationery, 50 per cent. would also be refunded. The chairman estimated the annual cost of the county health scheme at £2,000. A resolution put to the meeting, that the county council be recommended to adopt the scheme, was carried by a very narrow majority.

England and Wales.

The British Social Hygiene Council.

THE annual general meeting of the British Social Hygiene Council was held on July 12th, when the Marquess of Linlithgow, the president, gave an address from the chair. Surveying the position since 1918, since which time the Council had received financial aid from the Government for specified purposes in connexion with propaganda against venereal diseases, the president said that the first thing to be noticed was the complete change in public opinion which had taken place. Before the agitation for the appointment of the Royal Commission the press of this country would publish nothing at all on the subject of venereal diseases. Now there was not much more difficulty in getting the subject of venereal diseases into the daily press than in getting any other serious subject into its columns. The Council, Lord Linlithgow continued, had undoubtedly done its share towards the reduction in the incidence of venereal diseases, but it was always difficult to assess the result of propaganda. Through direct lectures some six millions of the population had been reached during and since the war (excluding the men in the services). Written information had been sent to 112,000 persons on request as to facilities for treatment. He cited the case of two areas, each comprising a population of something over a quarter of a million, in one of which no active interest had been taken in venereal diseases propaganda, while in the other a regular campaign had been organized and an efficient scheme put into operation. In the former, in the most recent year, the new cases visiting the centres numbered 141, the non-venereal cases 11, and the number of attendances divided by new cases was 15.85. In the other area, in which there had been propaganda, the new cases visiting the centres numbered 171, the non-venereal

117, and the attendances divided by new cases were 33.1. Turning to the programme for the immediate future, Lord Linlithgow said that the first item was to endeavour to bring women infected with gonorrhœa under treatment. There was a large field awaiting the Council for work in connexion with the quicker recognition of gonorrhœa in women. The proportion of women suffering from gonorrhœa brought under treatment was less than it should be. The second item was to secure some adequate provision for the young mental defective and the borderline case. The third was to increase the measures of protective education and enlightenment among young people; and the fourth to secure the general approval of venereal diseases schemes supported by continuous propaganda throughout the country. The Council would continue to press for the appointment of whole-time or part-time social workers attached to the treatment centres, for following up non-attending patients and trying to secure the attendance of contacts. Under the provisions of the new Local Government Act the Council would be dependent upon contributions made by county and county borough local authorities to replace the central grant hitherto received from the Ministry of Health, and in view of the fact that the propaganda with which the Council was concerned was not a popular subject, some misgivings were felt as to its future financial resources. The difficulties had, however, been brought prominently before the Government and local authorities, and the president read a sympathetic letter from the new Minister of Health (Mr. Arthur Greenwood), expressing full agreement with the view that there were certain kinds of propaganda which could be most effectively directed by a voluntary body, such as the British Social Hygiene Council. Lord Linlithgow said also that the Council was much indebted to several medical bodies which had warmly endorsed the value of its work, and especially to the British Medical Association, which, in a letter issued to those of its members who were serving on public bodies, had stressed the great desirability of the Council obtaining an adequate measure of support from local authorities.

The Council has arranged a summer school, which is being held at the Westminster College, Cambridge, from July 25th to August 1st. Professor F. A. E. Crew will deliver a course of six lectures on biology and human affairs, and Professor P. S. Lelean five lectures on public health and social hygiene. Dr. Letitia Fairfield will discuss the report of the Mental Deficiency Committee, and other speakers include Dr. I. Feldman and Sir Basil Blackett. A course in evolutionary biology, with special reference to the work in school classes, will be given under the supervision of Dr. E. Watkin, at the West Riding of Yorkshire Education's Committee summer school at Bingley from July 31st to August 14th. Further particulars may be obtained from the secretary of the British Social Hygiene Council, Carteret House, S.W.1.

Mental Disease Research in Birmingham.

During the past year the work of the laboratory of the Joint Board of Research for Mental Diseases of the City and University of Birmingham, under the direction of Dr. F. A. Pickworth, has continued to centre round chronic infections of nasal sinuses and the intestinal tract. The relation of these infections to local lesions of the nervous system and disturbance of endocrine imbalance has been investigated bacteriologically, histologically, and chemically. The histological studies have involved careful sectioning and examination of post-mortem sinus material; the chemical studies have included basal metabolism determinations during sleep and, in the diagnosis of low-grade meningitis, estimation of the chloride content of the cerebro-spinal fluid. In 328 bacteriological examinations of urine and faeces two typical and one atypical dysentery Y organisms were recovered; on fifteen occasions were found Salmonella organisms differing only in agglutinative reaction or some other minor way from pathogenic paratyphoid organisms. Friedländer's bacillus has occurred twenty-nine times, and *B. faecalis alcaligenes*, *B. alkalescens*, and *B. proteus* each four times. Of 549 new admissions, 112—that is, 20.4 per cent.—gave positive agglutination reactions to the paratyphoid group; since it has been shown that the agglutination titre disappears far more rapidly in mental hospital patients than in normal subjects, these figures may be taken as evidence of the importance of gastro-intestinal infection in the etiology of mental disease. Of 760 sinus specimens taken from 73 patients, 103 contained staphylococci, 52 Hoffmann's bacillus, 37 organisms of the intestinal group, and 73 streptococci. Histologically, about half of the sphenoidal sinuses examined post mortem showed gross macroscopic inflammatory changes of the mucosa; a number also showed gross changes of the pituitary gland. To follow the results of treatment and estimate changes in the permeability of the brain membranes, 124 specimens of cerebro-spinal fluid have been examined cytologically, experiments being now in progress to detect areas of pathological change by injecting dyes into the cerebro-spinal system. By a modification of existing methods of estimating the chloride content of cerebro-spinal fluid, a technique requiring the use of only 0.15 c.cm. of fluid has been evolved, so far forty specimens having been examined. The normal chloride content of cerebro-spinal fluid is 725 to 750 mg. per 100 c.cm.; the average found in this investigation was 718 mg. It is held that this finding corroborates the theoretical consideration on which the research was undertaken—namely, that a low-grade meningitis is common in mental hospital patients.

Extension of Royal Victoria Infirmary, Newcastle.

In the previous annual report of the Royal Victoria Infirmary, Newcastle-on-Tyne, the house committee referred to the pressing need for further bed accommodation for staff and patients, and now in the recently issued report for the year ending December, 1928, some progress can be recorded in the attempt to deal with this. The committee's deliberations have largely centred round the question of how to use most effectively the Infirmary extension vacated by the Ministry of Pensions on the expiration of their lease on September 3rd, 1928; the most prominent point in this connexion has been the financial aspect of any suggested project of building extension or alteration, and the liabilities that might consequently be incurred for maintenance. The medical staff urged the desirability of providing a number of beds for paying patients; but while no definite decision has yet been reached, the committee considered it advisable to meet the apparently more urgent need of providing increased accommodation for the nursing staff, and has decided to extend the existing nurses' home by the addition of 150 bedrooms, since at present nearly 100 nurses are sleeping in other quarters. It is anticipated that the excess number provided for in the new extension will meet the requirements of the hospital when additional beds for patients are brought into use. The medical staff has urgently represented that part of the Infirmary extension should be set aside for paying beds, holding that such a measure would not only afford a solution of many difficulties which have faced the committee, but would impose no further financial liability upon the institution. The provision of such accommodation, it is claimed, would meet the special needs of certain classes of the community at present occupying the general beds of the Infirmary.

Beds for Paying Patients at Voluntary Hospitals.

A pamphlet[1] has been issued by King Edward's Hospital Fund for London containing a complete list of pay beds at the voluntary hospitals in London making returns to the King's Fund. When in 1928 the special committee appointed by the Prince of Wales, President of the Fund, to inquire into the subject of hospital accommodation for those prepared to pay more than ordinary voluntary hospital patients published its report[2] there were 1,055 pay beds at eighty voluntary hospitals in London. In May, 1929, the number had increased to 1,154 at eighty-eight hospitals, and particulars of these are embodied in the pamphlet under review. In an introduction attention is drawn to some of the salient matters in the Pay Beds Committee's report. The committee found that, exclusive

[1] London: Published for King Edward's Hospital Fund by George Barber and Son, Ltd., Furnival Street, E.C.4. 6d. post free.
[2] Report of the Pay Beds Committee of King Edward's Hospital Fund for London, July, 1928. London: George Barber and Son, Ltd., Furnival Street, E.C.4. Part I, 1s.; post free, 1s. 5d.

of certain extras and of medical and surgical fees, the charges for pay beds were usually round about four to six guineas a week, though at either end of the scale there were beds for the well-to-do and some for those in straitened circumstances. The committee concluded its report by expressing the following opinion.

"We consider that the existing provision of 1,055 pay beds has proved to be a very valuable addition to the voluntary hospital service of London; that a material extension of this provision is urgently required to meet the existing demand; and that the organization of a mutual insurance scheme to assist persons of moderate means to meet the cost of maintenance and medical fees is strongly to be recommended. We believe that an extension of the pay bed system at the voluntary hospitals, with due safeguards for the maintenance and extension of the ordinary beds, would be of advantage to the patients of all classes, to the individual hospitals, and to the voluntary hospital system as a whole."

In discussing an insurance scheme for the professional and middle classes the committee concluded that as it was desirable for as many prospective pay bed patients as possible to be in a position to pay full cost of maintenance in a pay ward and a medical fee as well, an effective mutual insurance scheme should be organized for assisting them to make provision in advance. Similar schemes already in existence, it pointed out, were those organized for ordinary hospital patients by the Hospital Saving Association and, for middle-class patients, by the British Provident Association. The committee held that, as far as London is concerned, an insurance scheme should be organized by a central body working in co-operation with the individual hospitals with pay beds, and concluded with the suggestion that the raising of a large capital sum for the provision and equipment of such beds for the use of those who cannot afford more than the cost of maintenance would be a form of assistance to the voluntary hospitals which might be commended to possible donors. In the pamphlet under review hospitals with pay beds are classified as follows: (1) general hospitals with schools; (2) general hospitals with resident medical officers; (3) general and cottage hospitals without resident medical officers; (4) hospitals for women; and (5) other special hospitals. Further particulars relating to the pay beds, including procedure as regards medical attendance and medical fees, are summarized in the report of the Pay Beds Committee. For detailed information about a particular hospital application should be made to its secretary.

The London Lock Hospital and Home.

In February last year, at the request of the board of management of the London Lock Hospital and Home, the late Minister of Health appointed a committee to inquire into the management, administration, and staffing of the institution, with special reference to the arrangements for the medical treatment of the patients, and the provision made for the moral, social, and material welfare of the inmates. The members of the committee were: the Right Hon. Sir John Eldon Bankes, chairman; Dr. John Fawcett; and Mrs. H. J. Tennant. During last December the committee submitted two reports, signed respectively by Sir John Eldon Bankes and Dr. Fawcett, and by Mrs. Tennant. The findings were communicated to the hospital towards the end of last January, and on July 11th the board furnished particulars of the action taken and said it contemplated giving effect to the recommendations of the committee. This letter, together with the committee's conclusions and recommendations, has now been published by H.M. Stationery Office (Cmd. 3363, price 3d.). In the letter from the board of the hospital to the present Minister of Health it is pointed out that, although only six months have been available to consider the recommendations, several of them have already been adopted and the rest are under active consideration. The laws of the hospital have been drastically revised, and the new ones, which were finally approved at the beginning of June, provide for a new and enlarged board of management, which shall include women to the extent of at least one-third. Under these new laws a house committee is being established to deal with the internal domestic management of the institution; this committee will be responsible for general supervision, and will arrange for constant and regular visitation. A finance committee has also been set up, and plans have been prepared for enlarging the out-patient department at the male hospital. Various domestic changes have been made, as the result of which the matron now attends all meetings of the board; the position and duties of the various registrars have been clearly defined; a female honorary surgeon has been elected with the same standing as a male honorary surgeon; the nursing staff has been increased, though it is admittedly not yet wholly adequate; and a teacher is to be appointed by the London County Council for the children's ward. The new board of the hospital has now come into existence and will take into consideration the advisability of reintroducing the training of pupil midwives; the nursing arrangements in the male hospital; the condition and improvement of the buildings; and the appointment of a whole-time trained social service worker. It is added in the letter that, as an act of grace, it has been decided to offer a monetary payment to the three former members of the staff who were dismissed in circumstances which have been reviewed by the committee of inquiry.

Sir William Hodgson.

Sir William Hodgson of Crewe, who has been for the last three years chairman of the Mental Hospitals Association, was the recipient of a cordial vote of thanks from the executive committee at the annual meeting of the association, which was held on July 17th, at the Guildhall. The value of his services was strongly emphasized, and great gratitude was expressed not only in respect of what he had done to advance the importance and prestige of the association, but also as regards his energetic and successful efforts to secure co-operation between this body, the County Councils Association, and the various other organizations which were concerned in the work of mental hospitals. Sir William Hodgson, who delivered an address, remarked that now that he had spent fifty years in the public service he thought the time had come for him to recognize the limitations of age. He hoped that certain of the very urgent questions relating to lunacy and mental deficiency would be realized as being outside the scope of party politics, and that a bill might be forthcoming without undue delay which would go far to meet some of the most acutely felt needs. He suggested that an early conference of representatives of local authorities should be called to consider the drafting of such a bill; it would undoubtedly meet with general support if it was constructed on enabling rather than compulsory lines, and tended to protect local government from undue arbitrary interference. Sir William Hodgson, who was mayor of Crewe in 1893, received his medical education at St. Thomas's Hospital, and has always shown a very active interest in the administrative side of mental medicine, and taken prominent part in local government in the county of Cheshire.

Victoria Hospital for Children, Chelsea.

Repeated outbreaks of infection, together with renovations of two wards during the past year, caused the average daily resident number of patients at the Victoria Hospital for Children, Tite Street, Chelsea, to drop from 105.25 in 1927 to 94.17 in 1928. While the pressure upon medical in-patient beds remained severe, the demand lessened on the surgical side, except for accommodation for tonsil and adenoid cases. In the annual report of this institution for 1928 this fall is attributed to the work of the welfare centres and the medical supervision of school children, which have reduced the need for major surgery in children, as compared with the position of ten or twenty years ago. Of the 3,419 cases treated in the tonsil ward, which was in constant occupation throughout the year, 389 were cases received in consequence of an agreement with the London County Council for treating recommended school children. It is mentioned in the report that this co-operation of the hospital with the council has proved to be most satisfactory and of great public utility. Operations in the out-patient theatre numbered 9,276, and there were 11,645 new cases in the out-patient department. The number of operations in the in-patient theatres was 409, as compared with 573 in the previous year.

Belgium.

[FROM AN OCCASIONAL CORRESPONDENT.]

Psychological Research in Industry.

THERE has come into existence in Belgium a research laboratory and registration bureau whose aims are to assist employers in all branches of industry in choosing new members of all grades for their staffs; to undertake research on matters of practical interest, either for individuals or for industries and commercial organizations; and to instruct students in psychological investigations, qualifying them to carry on practical work under the guidance of the laboratory staff. A new publication, *The Review of the Science of Labour*, has also appeared, with the subtitle *Psychological Technique, Organization*. Its scope includes general psychology; the physiology concerned in work; and psychological technique from the professional standpoint, or affecting the selection of workmen, or required in the scientific organization of industry. It deals, in short, with all those questions at issue in the leading industrial countries, most of which have such special journals of their own.

A Belgian Hospital Association.

For some time past those responsible for the organization, establishment, and administration of hospitals have been complaining that their work has not been adequately co-ordinated, and have asked for the creation of a central body to collect and record information, arrange meetings for discussions, and publish a periodical bulletin. The need has now been met by the formation of a Belgian Hospital Association, the functions of which have been defined after several meetings of a committee which included medical members of the hospital staffs, presidents and members of the Commission de l'Assistance Publique et de l'Hygiene, hospital and clinic superintendents, and representatives of the Red Cross. The work of the association comes within four categories: legislation; hospital administration and organization; hygiene; and architecture. The association comprises active members (representing public and private medical and charitable institutions), and also honorary members such as the presidents, directors, and administrators of hospitals and kindred organizations.

A Medical Course for Marine Officers.

The Lloyd Royal Belgian Society of Antwerp has just issued instructions that medical officers on some of its ships shall give, during voyages, a certain amount of medical instruction to the deck engineers and officers, with a view to teaching them enough about the signs and symptoms of various diseases to enable them, when necessary, to transmit accurate medical reports by wireless, and thereafter efficiently to apply any prescribed treatment. To ensure that all the higher ranks have been thus instructed, whenever they have to travel without a doctor, the company has arranged for these officers to serve in turn on boats to which medical officers are attached. These decisions have been taken on the initiative of the Marine Department of the Belgian Government, and are in accordance with the recommendations adopted at the Antwerp Medico-Radiological Conference.

Experiments on Animals.

The antivivisection campaign started some years ago in Belgium has culminated in the adoption by the legislature of the following proposal for the protection of animals: "Vivisection experiments carried out for the purpose of research or demonstration shall take place only in university laboratories, or in laboratories of similar status, under the control of the responsible director, and, with prescribed exceptions, only on anaesthetized animals." Approval of such laboratories will be conferred by royal decree.

Sanitary Brigades in the Belgian Congo.

In accordance with the request of the Belgian Colonial Association, steps have been taken for the formation of sanitary brigades entrusted with the special duty of dealing promptly with the primary sources of yellow fever. The Governor-General has ordered the establishment in all the chief outlying stations of a special supervisory control of sanitary services, and in the chief towns the reorganization of permanent sanitary brigades under the charge of an engineer or surveyor, and including a certain number of inspectors, sanitary officers, and native assistants.

First Aid in Industrial Accidents.

An exhibition dealing with accidents in the various industries has been organized at Liège for the purpose of giving instruction as regards their prevention. A large hall has been set apart for education in prevention and in first aid, which, when rightly applied immediately after the injury has occurred, obviates the risk of long incapacitation and grave sequels. Another hall has been devoted to electricity and the many essential precautions in this respect. In stands are illustrated the dangers arising from mismanagement of personnel and of machinery.

Correspondence.

A PHYSIOLOGICAL STUDY OF ASTHMA.

SIR,—The paper by the late Professor Brody and Professor W. E. Dixon, published in 1903, was, and still remains, so valuable that your recent abstract on July 13th (p. 68) will render good service to those who endeavour to solve the problem of asthma. Nevertheless I hold that, in one respect, these workers failed to reach the true clinical explanation of their brilliant researches, and which Dr. Harry Campbell (July 20th, p. 121) equally misinterprets—namely, the phenomena associated with the asthmatic paroxysm. I venture to recall my article on bronchitis in the *Encyclopaedia Medica* (Vol. II, 1899, p. 117):

"It is not improbable that, like the alae nasi and vocal cords, the bronchial muscle may rhythmically dilate and contract with inspiration and expiration. I believe that this largely explains why in bronchitis and asthma the dyspnoea is expiratory rather than inspiratory, inasmuch as the muscular spasm is more or less inhibited during inspiration, permitting air to be inspired more freely than during the period of bronchial spasm it can be expired, consequently the lungs become distended and emphysematous."

The asthmatic paroxysm is merely an exaggeration of the physiological bronchiolar dilatation on inspiration and contraction on expiration. The result is that the excessive bronchial contraction during expiration prevents the patient expelling as much as he had just inspired, before being compelled "to take a fresh breath," and with each succeeding inspiration and expiration more and more air becomes "locked in."

Gradually these short, quick, unhampered inspirations and prolonged hampered expirations cause so much retention of air that the lungs and chest walls are expanded to their utmost capacity, and then the patient has to struggle hard to get air inspired into the persistently overfilled lung—not because inspiration is hampered, but because there is no more room for the air to enter, owing to expiration being so obstructed that no effort can overcome the obstruction. But the over-activity of respiratory centres can be overcome by an anaesthetic or morphine, and almost at once the "lock gates" become normally open in expiration.

The collapsed lung of the newborn baby is physiologically expanded by precisely the same rhythmical dilatation and contraction of the bronchioles, for if the air inspired escaped as freely as it entered, the baby's tidal respirations would never distend the alveoli. In the newborn the distension goes on till a physiological balance is reached. In later life some over-expansion occurs with exercise—for example, in running, the increased air tension probably increases the *rate* of oxygenation of the blood. In the asthmatic, running often brings on asthma because the respiratory centres exaggerate this expiratory contraction phase.—I am, etc.,

Clifton, Bristol, July 20th. PATRICK WATSON-WILLIAMS.

THE TREATMENT OF PLACENTA PRAEVIA.

SIR,—Certain references which have appeared in the *Journal* from time to time to a letter of mine published in your issue of August 1st, 1925 (p. 230), on the treatment of placenta praevia, seem to make it advisable that I should restate my attitude on this important matter.

The fact that, within the last few years, ante-natal care has become more general makes it necessary to distinguish clearly between the condition placenta praevia and its consequent unavoidable haemorrhage. Before ante-natal care was widely adopted it was extremely rare for the existence of a placenta praevia to be recognized until unavoidable haemorrhage had occurred, and, consequently, our treatment was the treatment of the haemorrhage rather than of the placental malplacement. Now, on the contrary, many cases of placenta praevia are diagnosed before unavoidable haemorrhage has occurred—that is to say, at a stage when our treatment of the haemorrhage is prophylactic rather than active.

Accordingly, I would like to modify the views I expressed in 1925 in the following direction. If the existence of placenta praevia is recognized before serious bleeding has occurred, and after the child has become viable, then I think Caesarean section is justifiable, both with the object of saving the life of the child and of slightly improving the prognosis of the labour. Similarly, if the condition is recognized before the child is viable, and if it is possible to keep the woman under most careful supervision, so that, should bleeding occur, treatment can be adopted at any moment, I think again Caesarean section is justifiable as soon as the child has become viable. Naturally, the longer it is possible to wait the better.

If, on the other hand, unavoidable haemorrhage has occurred, and the woman is suffering from its effects, then I have still to learn that there is any treatment more efficacious than the classical treatment which I outlined in my previous letter. I would like, however, to add to what I then said: that I feel sure that Willett's forceps will often be found to provide a satisfactory substitute to bipolar version in cases of central placenta praevia.—I am, etc.,

Christchurch, N.Z., June 10th. HENRY JELLETT.

PERFORATION FOR THE SECOND TIME OF A GASTRIC ULCER IN AN OCTOGENARIAN.

SIR,—Mr. J. Price's case of perforation in a patient aged 70 (*British Medical Journal*, July 20th, p. 100) calls to my mind a man whose history from a surgical point of view is interesting. I will give the details as briefly as possible.

On April 1st, 1903, I removed three phosphatic stones from his bladder by the suprapubic route. He was then aged 67 years. On May 30th, 1911, I removed his prostate. He made a good recovery from both these operations. A very reserved man, he said very little about himself, but he admitted on interrogation that he occasionally suffered from dyspepsia. About a week before his first abdominal catastrophe he consulted his medical attendant for dyspeptic symptoms and pain in the epigastrium, which he said had no fixed relation to the taking of food.

On December 16th, 1919, the patient being now 78 years of age, he was seized with a sudden severe pain in the epigastrium, and became cold, clammy, and blue, with dilated pupils and rigid abdomen. I opened his abdomen about five hours after the first onset of pain, and found a perforation about the diameter of an ordinary lead pencil situated in an indurated area on the anterior surface of the stomach, towards the pyloric end and near the lesser curvature. The perforation was closed with linen thread sutures, and a portion of the great omentum was brought up and sutured to the damaged area. The abdomen was closed without drainage. The patient made a good recovery, and left the nursing home in three weeks. I saw him from time to time, and on inquiry he always said he felt quite well. At any rate, he made no complaint of his stomach.

At the age of 81, on September 9th, 1922, nearly three years after his last operation, he was again seized with a sudden severe pain in his epigastric region, with a rigid abdomen and collapse. Two and a half hours after the onset of symptoms I again opened his abdomen, and found a ragged opening over the site of the previous operation on his stomach. Owing to adhesions the operation was very difficult. The walls of the stomach were of almost cartilaginous hardness from an inch or so round the perforation, and the liver, omentum, and stomach were so closely adherent that great difficulty was found in closing the opening. Some of the indurated area had to be removed to allow of approximation of the margins of the perforation. Finally, by bringing down the edge of the liver and using any available portions of omentum in the neighbourhood, the opening in the stomach was occluded. Catgut sutures only were used on this occasion. The abdomen, after mopping out extravasated stomach contents, was again closed without drainage. The patient left the home about three weeks after his operation. Six months later he died suddenly of cardiac failure.

Recovery after operations for perforation of a gastric ulcer on two occasions, between the ages of 78 and 81 years, must be unique.—I am, etc.,

ANDREW FULLERTON,
July 21st. Professor of Surgery, Queen's University, Belfast.

PERFORATION OF A GASTRIC ULCER IN A SEPTUAGENARIAN.

SIR,—I was interested to read Mr. J. Price's account of a successful operation on a septuagenarian for a perforated gastric ulcer in the *Journal* of July 20th (p. 100), for I have recently had a similar case under my care.

On June 8th last I was called to see a Mr. W, aged 72, at 6 a.m. At 2 a.m. he had had an attack of acute abdominal pain, which was followed by "coffee ground" vomiting. When I saw him he was suffering from a considerable degree of shock. He was cold and clammy, his pulse was rapid and feeble, and he had a subnormal temperature. The abdomen did not move on respiration, and there was general rigidity of the abdominal wall. After his removal to a nursing home and consultation with Mr. A. E. Webb-Johnson, a perforation of a gastric or duodenal ulcer was diagnosed. Operation was delayed for a few hours owing to the patient's collapsed condition. He was kept very warm, and his general condition improved. At 2 p.m., twelve hours after perforation, his temperature had risen to 99.6° F., and operation was performed. A large perforation was found on the anterior surface of the first part of the duodenum. The perforation was closed, and gastro-jejunostomy was performed. The abdominal cavity was drained for forty-eight hours. The patient made an excellent recovery, and left the nursing home three weeks later.

In this case there had been no previous history of gastric symptoms, and the patient had had no occasion to see a doctor for over twenty years.—I am, etc.,

London, W.C., July 22nd. R. F. BOLT.

PRIMARY AND SECONDARY VACCINATION.

SIR,—During a recent visit to the Infectious Diseases Hospital, Singapore, it was recalled to my notice that secondary vaccinations as a rule run quicker and milder courses, and have shorter periods of incubation, than primary vaccinations. Where a revaccination reaches its height as to eruption about the twelfth day, the period of incubation is about three days. Revaccination may run an unaltered course resembling in all respects a primary vaccination, showing that immunity has disappeared. In other cases, however, a papule will appear in as short a time as twenty-four hours. This is what is known as "reaction of immunity," and actually is immediate, though not apparent as a papule until twenty-four hours later. The papule grows in size for three or four days, never becomes a vesicle, consequently never a pustule, and fades away within two or three weeks. I saw this in revaccinations when I was medical officer in the Egyptian Quarantine Service at the Hedjaz Pilgrimage Camp at El Tor in the Sinai Peninsula in 1906. In New Zealand in 1908 we had so mild a vaccine that even in primary vaccinations it was almost impossible to get a definite papule, vesicle, or pustule. As a matter of fact it was necessary to import from Cairo a fresh strain of vaccine.

In some cases there is a distinct accelerated reaction, the papule appearing within thirty-six hours and developing more quickly than in primary cases; the reaction reaches its zenith at the end of the seventh day and then rapidly subsides. Accelerated reaction indicates partial protection. Modified vaccinal lesions are really an index of satisfactory protection, and should be recorded on all vaccination certificates. If the interval between the first and second vaccination is less than two years, revaccination generally gives an immediate reaction; between two and ten years, usually an accelerated reaction; after ten years, revaccination runs

the course of a primary vaccination, though possibly not quite so severe. Modified reactions are explained in terms of anaphylaxis, and indicate increased protection. It is claimed that persons should be released from quarantine the moment they show a modified reaction, and that immediate reaction indicates complete protection.

With regard to actual vaccination, my experience in 1913 in the Sydney epidemic was that the younger members of the profession and the lay people assisting did not understand how to vaccinate; I saw numerous instances where blood was drawn. The method of using an ordinary sterilized needle, then merely dropping the vaccine on the arm and scratching the skin in four places, is simple and effective. In Singapore I was shown an even simpler method, that of pricking the skin with the point of a needle previously dipped in vaccine. The sharp sterile needle is held between the fingers of the right hand, so that the needle is parallel to the skin and pointing to the operator's left. The needle point is then pressed into the drop of vaccine each time. The motion should be at right angles to the skin and the needle, and not in the direction of the needle. It is claimed that the elasticity of the skin will pull a *minute portion of the epidermis over the point of the needle* at each pressure, so that the virus is carried into the layer of epithelial cells. The area of punctures should never be greater than one-eighth of an inch in diameter, and never deep enough to bleed. Properly done it is claimed that the percentage of successful vaccinations equals that of the vertical scratch method. The advantages of this method are its mildness, painlessness, and rapidity. A control site is unnecessary, as evidence of trauma disappears in about twelve hours, before the immediate reaction appears, and as the excess of virus is wiped off immediately, no dressing is required.

As Voltaire says, it is never safe to foretell the future—there has never been any—yet, although neither a prophet nor the son of a prophet, I suggest that the chances favour the occurrence some day, possibly soon, of an outbreak of small-pox in Australia. Should this outbreak occur I trust we shall be prepared to meet it.—I am, etc.,

J. S. PURDY, M.D.,
Metropolitan Medical Officer of Health, Sydney.

Sydney, N.S.W., June 6th.

"HELIOTROPE CYANOSIS."

SIR,—To your issue of June 15th (p. 1070) Dr. J. S. Haldane contributes a brief article upon the colour of the blood in fatal cases of the influenza epidemic of 1918. He thinks it extremely probable that the peculiar blue or violet cyanosis—heliotrope perhaps best describes the discoloration—was due to methaemoglobin, and that the organism responsible for the fatal character of the epidemic was a nitrite-forming bacillus.

May I be permitted a somewhat belated observation on this subject? In company, doubtless, with many other clinicians and pathologists, my colleagues and I in the Aldershot command were deeply interested in the causation of this conspicuous discoloration with its traditional baleful significance. But our investigations failed to supply any evidence for the tempting explanation that methaemoglobin was responsible, although we accepted the term "anoxaemia" originally advanced, I believe, by Dr. Haldane in relation to gassed cases examined at the front.

In no case investigated were the absorption bands of methaemoglobin detected, nor was there evidence of the oxygen-carrying capacity of the blood being reduced when Haldane's potassium ferricyanide method was employed. I may quote four cases from a paper which is before me as I write.[1]

Oxygen per 100 c.cm. blood:	
Control case	18.5 c.cm.
Case 1	17.0 "
Case 2	20.5 "
Case 3	18.5 "
Case 4	18.0 "

I regret I have no note or vivid recollection of the colour of the blood post mortem.—I am, etc.,

London, W.1, July 20th. ADOLPHE ABRAHAMS.

[1] Abrahams, Hallows, and French: Influenzo-pneumococcal and influenzo-streptococcal septicaemia, *Lancet*, January 4th, 1919.

RELATIONSHIP OF ALASTRIM (VARIOLA MINOR) TO SMALL-POX (VARIOLA MAJOR).

SIR,—I am sorry to find that I have hurt Dr. J. A. Graham's feelings. I can assure him that it was quite unintentional, but since he thinks my letter, published in your issue of May 18th, lacking in courtesy, I can only express my regret.

As regards Dr. E. G. Fenton (*Journal*, July 20th, p. 124) the quotation he gives from Professor MacBride certainly seems to suggest that his theory of an inherited immunity due to vaccination in previous generations cannot be ruled out *a priori* as an impossibility. The main objections to it, however, rest on the following apparently established facts: (1) Non-fatal variola minor has long existed (under the names of "alastrim," "amaas," "Kaffir-pox," etc.) amongst primitive and comparatively non-vaccinated races. (2) Variola minor shows no sign of increased virulence in Leicester and other unvaccinated towns. (3) Variola major, when imported into this country, shows no sign of reduced virulence.

Personally, I see no difficulty in the view that variola major and variola minor split off from one another by a mutation at some period in their history, and that each variety has since become fixed. Variola major because of its severity and ease of recognition is finding it difficult to survive in this country under the conditions of modern public health administration; whereas variola minor, lacking these attributes, finds it much easier to survive.—I am, etc.,

Leicester, July 21st. C. KILLICK MILLARD.

THE WINNIPEG MEETING.

SIR,—I am sure everyone wishes to make the Annual Meeting at Winnipeg next year an outstanding success, and that on both sides of the Atlantic there is a hope that a large and representative party will travel from the Home Country. The opportunity is one which can only occur once in the average professional lifetime. It is satisfactory to know that arrangements are already well in hand to make the visit memorable to all those who are fortunate enough to be able to undertake the journey.

There is only one fly in the ointment, and that is the expense; and this, I fear, will be the determining factor in deciding the majority whether or not they can attend. The Association has issued a very attractive folder giving details of three tours in connexion with the meeting, but the cheapest of these works out at £96, which means that considerably more will have to be spent before the member gets back home again. I am afraid that very many general practitioners will have to abandon the idea of going to Canada unless the expense can be reduced substantially below this figure. The shipping companies advertise trips to the United States for £38 return, while special concessions are made to large parties, such as groups of school teachers, and so on. A large party belonging to one of the Free Churches visited Canada in the early summer of this year, and their numbers were so great that one of the big transatlantic companies provided them with a special ship for the round voyage. I cannot believe that the cost to each member of a party such as this could work out at £100 or over.

Of recent years I fear that the dazzling vision of wonderful new offices and such-like displays of wealth have rather blinded Headquarters to the fact that far and away the majority of the members of the British Medical Association are in fact men of strictly limited means. It would be a pity if the rank and file are going to be denied the chance of helping to make the Winnipeg Meeting historic in the annals of the Association.—I am, etc.,

Bridlington, July 10th. C. J. GORDON TAYLOR.

PROPHYLAXIS OF POST-OPERATIVE THROMBOSIS.

SIR,—Considerable light is thrown on the causation of post-operative thrombosis by Dr. Howel Evans's description (*British Medical Journal*, January 26th, p. 154) of the changes he found in the blood of patients recently subjected to operation. He states that following the operation there is an increase in the platelet count, which begins to be

marked from the fourth to the sixth day, reaching a maximum by the tenth day and returning to normal within another ten days. The average increase for his series was 60 per cent., though following major operations the rise was up to 150 per cent. Hitherto it has been taught that disintegration of the platelets resulted in the production of the coagulating substance pro-thrombin. Such disintegration is dependent, however, on the presence of ionized calcium in the blood (*Lancet*, May 11th, p. 993). Apparently calcium takes a part in the process of coagulation, not only after the coagulating agent has been liberated from the platelets, but also in securing its liberation. The corollary would seem to be that no matter how much the platelet count may be increased, if the ionized blood calcium is kept at a minimum, and mostly in the protein-combined, inactive form, then the period during which there is a tendency to post-operative thrombosis—namely, the tenth to the twentieth day—could be tided over safely.

Post-operative acidosis is said to have the effect of increasing the serum calcium; if the blood is rendered more alkaline, the *p*H being altered from 7.4 to 7.8, ionization of calcium salt is reduced by 60 per cent. With increasing alkalinity of the blood, calcium changes from the ionized to the non-ionized protein-combined state, in which it is chemically and electrolytically inactive. To achieve such alkalinity I use sodium bicarbonate and the disodium hydrogen phosphate, the former acting as a buffer of plasma, but dealing with only 5 per cent. of acid, while the latter acts as a buffer for red blood corpuscles, and is able to deal with 25 per cent. of acids.

I am not suggesting that an inflamed intima could not of itself be a sufficient cause of post-operative thrombosis; I am merely proposing a possible biochemical explanation. The administration of alkalis during convalescence may hinder the sound healing of wounds, it having been shown that a *p*H to the acid side of normal favours rapid healing. It is for this reason that some give ammonium chloride with the object of producing acidosis.—I am, etc.,

R. CHALMERS, M.D., F.R.C.S.Ed.

Darlington, July 17th.

SUNLIGHT VERSUS DIET IN RICKETS.

SIR,—In rickets, as in osteomalacia, the light factor is far more important than the diet. I do not believe that a child ever has rickets whose whole body is exposed to sunlight, any more than osteomalacia ever occurs in the outdoor worker.

In Kashmir, where osteomalacia is very common among the purdah women, rickets is hardly ever seen because the children go out from infancy and are in the sunlight all day. Soon after birth they may be seen sitting astride the mother or father's hip with no clothing other than a cap. Later, when they can crawl or walk, a coin or charm on a string round the waist is full dress till the age of 3 or 4, when they wear a shirt cut nearly to the waist for fear of soiling, a longer shirt with sleeves being adopted with advancing years. When rickets is seen it is among the richer infants kept indoors and overclothed in European fashion The disease is common in Bombay and big towns, where narrow streets and houses eight stories high exist, because sunlight hardly reaches the ground in the narrow alleys and the children cannot go out so freely.

It is a matter of common observation in the East that light on the body of the child can supplement the miserable milk supply of a mother suffering from acute osteomalacia (presumably because vitamin D is formed in the infant's skin by sunlight). No doubt this is why the outdoor worker in India thrives and does hard work on a diet inadequate for the indoor-living European who is deprived of light. The Indian coolie is healthy and well because his simple vegetarian diet is supplemented by the sun. Vegetarians who are office workers should note this, since the expensive craving for meat and variety in diet, as seen among town dwellers and the over-civilized, is an effort to obtain the necessary vitamin D which they could make better and more cheaply by exposing their bodies to light.

Dr. Rollier, in his own person, demonstrates the adequacy of a vegetarian diet provided there is sunlight on the body.—I am, etc.,

London, W.2, July 13th. KATHLEEN VAUGHAN.

GAS-OXYGEN ANAESTHESIA.

SIR,—With reference to the teaching of anaesthetics, may I relate an incident which, though possibly quite exceptional, may, however, be of some significance? A few years ago I was discussing the anaesthetic for a particular case with a house-surgeon at a small hospital; he had qualified at one of the leading London schools, after which he had held an appointment at another small hospital, where, incidentally, a Boyle's apparatus was in use. I recommended gas and oxygen for this particular case, whereupon the house-surgeon looked at me in some surprise and said, "But can you give gas and oxygen unless you give an endotracheal?"—I am, etc.,

London, W.1, July 20th. R. J. CLAUSEN.

Obituary.

GEORGE ALLAN MALING, V.C., M.B., B.Ch.

WE regret to record the death of Dr. George A. Maling, on July 9th, at his residence in Lee, S.E.

George Allan Maling was the youngest son of Dr. E. A. Maling, J.P., of Blackwell Hall, Darlington. He was born at Sunderland, in October, 1888, and after leaving Uppingham School studied medicine at the University of Oxford and St. Thomas's Hospital. He graduated M.B., B.Ch.Oxon. in 1914, and in the following year took the diplomas M.R.C.S., L.R.C.P. He obtained a temporary commission in the R.A.M.C. in January, 1915, and five months later crossed to France, being attached to the 12th Battalion of the Rifle Brigade.

It was announced in the *London Gazette* of November 18th, 1915, that the Victoria Cross had been conferred on him "for most conspicuous bravery and devotion to duty during the heavy fighting near Fauquissart on September 25th, 1915. Lieutenant Maling worked incessantly with untiring energy from 6.15 a.m. on the 25th till 8 a.m. on the 26th, collecting and treating in the open under heavy shell fire more than 300 men. At about 11 a.m. on the 25th he was flung down and temporarily stunned by the bursting of a large high-explosive shell, which wounded his only assistant and killed several of his patients. A second shell soon after covered him and his instruments with debris, but his high courage and zeal never failed him, and he continued his gallant work single-handed."

Dr. Maling was also mentioned in dispatches and was promoted captain. He subsequently served for a short time at the Military Hospital, Grantham, and then returned to France for two years with the 34th Field Ambulance of the 11th Division.

After being demobilized at the end of the war he obtained the post of resident medical officer to the Victoria Hospital for Children, Chelsea. He subsequently commenced practice in Lee, and was appointed surgeon to out-patients at St. John's Hospital, Lewisham. In 1917 he married, and leaves a widow and one son.

Medico-Legal.

ALLEGED PROFESSIONAL NEGLIGENCE.

SHEWRY *v.* MAYBURY.

THE special jury having failed to agree upon a vital question which had been left to them to answer, the Lord Chief Justice, after consideration, held that it was not possible for him to enter judgement for either party in the action brought in the High Court of Justice by Leslie Eric Shewry, an infant suing by his father, Inspector Marcus Sidney Shewry of the Portsmouth Borough Police Force, for damages for injuries suffered through the alleged negligence of Dr. Lysander Maybury, a medical practitioner of Southsea. The case was fully reported in the *Journal* of June 29th (p. 1185).

It was alleged that in August, 1920, when the infant plaintiff was 14 days old, Dr. Maybury diagnosed him to be suffering from congenital syphilis, and injected a preparation known as "N.A.B." into the neighbourhood of the child's brain, with the result that he had convulsive fits and became an incurable mentally defective epileptic.

Dr. Maybury, whilst admitting having made five injections of "N.A.B." into the child's head, said that his treatment was in accordance with the best medical practice.

The special jury, in their answers to the questions left them by the Lord Chief Justice, found that Dr. Maybury believed that the child had congenital syphilis, but was negligent in diagnosing that he was suffering from that disease, and that the doctor was not negligent in deciding on the method of treatment, but that he was negligent in his general treatment. The jury, however, failed to agree on the first question: "Was the condition of this infant caused by the treatment administered by the defendant?" and stated that there was no prospect of agreement.

Counsel directed the Lord Chief Justice's attention to a provision in Order XXXVI, rule 39, of the Rules of the Supreme Court: that "the judge shall, at or after trial, direct judgement to be entered as he shall think right."

The Lord Chief Justice's Decision.

In his reserved judgement, Lord Hewart said there appeared to be no doubt that a judge who had ruled at the conclusion of the plaintiff's case that there was some evidence for the jury was nevertheless entitled at the conclusion of the whole case to reconsider his ruling and to enter judgement for the defendant if he was then of opinion that the plaintiff's evidence failed to disclose any cause of action against the defendant. This case went to the jury in the usual way, and the jury, having failed to agree on the first and fundamental question (though they agreed upon the remaining questions), were discharged. In these circumstances he was asked to consider whether there was a case to go to the jury. Having carefully examined the whole of the evidence, he had no doubt that, if it had been his duty to answer the question, "Was the condition of this infant caused by the treatment administered by the defendant?" he would have answered it in the defendant's favour. But a judge could not be placed in the position of the jury, and the very different question which he had now to decide was whether on the evidence it would have been right to direct the jury to find a verdict in the defendant's favour. In his opinion it would have been wrong so to direct them. There was some evidence, including some medical evidence, which, if the jury were prevailed on to accept it, was sufficient to entitle them to answer the question affirmatively. It might well be that, in view of the intrinsic value of that evidence, and of the contrast between it and the cogent evidence adduced on behalf of the defendant, such an answer would have excited legitimate surprise. But all such considerations appeared to him to be quite irrelevant if, in fact, there was a conflict of evidence for the jury to determine. Here, he thought, there was such a conflict, and the jury having disagreed it was not possible for him to enter judgement.

MEDICAL MAN ACQUITTED.

At the Birmingham Assizes, on July 16th, Dr. B. E. Acland of Hanley was charged with unlawfully using an instrument in February last with intent to procure the miscarriage of Elsie Hulme, aged 19; and Norman Birkett, brassfounder, was charged with aiding and abetting. The case had been transferred to Birmingham from the Staffordshire Assizes. Both defendants pleaded "Not guilty." After hearing the opening speech by Mr. St. John Micklethwaite, K.C., for the prosecution, and the evidence of the girl, Mr. Justice McCardie held that, on the evidence, there was no case for the jury, and at his direction the jury returned a verdict of "Not guilty." Both defendants were accordingly discharged.

POST-ENCEPHALITIC MORAL DEFECT.

At the Folkestone Quarter Sessions, on July 20th, before the Recorder, Mr. Roland Oliver, K.C., a man named Hills, aged 26, was charged with an offence against a young woman. The jury returned a verdict of "Guilty," the foreman stating that they regarded the prisoner as a *pest to society*. The chief constable informed the Recorder that there were fifteen convictions against Hills, most of them for assaults on women, and he had been deported from Canada after conviction for a similar offence. Dr. W. D. Higson, medical officer to H.M. Prison, Maidstone, stated that he had had Hills under observation since his remand. In his opinion the prisoner was a mental defective and certifiable under the Mental Deficiency Acts. It appeared that at the age of 16 Hills suffered from encephalitis lethargica, and as a sequel to that disease his morals and general behaviour had deteriorated. The Recorder announced that the prisoner had been certified as a moral imbecile, and that he was making an order for him to be sent to an institution without specifying any time for his detention. After the prisoner's removal the Recorder explained to the jury that under the new statute he had power to deal in this manner with a person in whom mental defect was coupled with strongly vicious or criminal propensities, and who needed care, supervision, and control for the protection of others.

Universities and Colleges.

UNIVERSITY OF OXFORD.

At a congregation held on July 20th the following medical degrees were conferred:

D.M.—F. J. Bach.
B.M.—J. C. Nicholson, W. J. Walter.

UNIVERSITY OF CAMBRIDGE.

At a special congregation held on July 20th the following medical degrees were conferred:

M.D.—E. A. B. Pritchard, W. R. F. Collis, R. A. McCance.
M.B., B.Chir.—*G. E. Lewis, F. R. McCay, C. L. Stote, C. E. Woodrow, R. W. Windle, D. M. Stern.
M.B.—P. B. Rittel.
B.Chir.—*S. Tyagaraja, F. Bush, C. P. Campion, F. W. J. Wood, C. J. Grouch.

* Admitted by proxy.

UNIVERSITY OF LONDON.

[illegible] University [illegible]sion to Sir [illegible] University Chair of Anatomy, tenable at St. Bartholomew's Hospital. From 1923 to 1927 he was Assistant Professor of Anatomy at University College, and since 1927 has been Professor of Anatomy in the University of Adelaide.

Dr. R. A. Young has been appointed the representative of the University at the conference of the National Association for the Prevention of Tuberculosis, to be held at Newcastle-on-Tyne in October.

Mr. H. L. Eason has been appointed a governor of Bedford College and Mr. H. J. Nightingale a governor of University College, Southampton.

The University Studentship in Physiology for 1929-30, value £100, and tenable in a physiological laboratory of the University, or of a school of the University, has been awarded to Miss Margaret Hill, B.Sc.

Dr. E. Graham Little, M.P., has been elected chairman of the Council for External Students.

The following candidates have been approved at the examinations indicated:

M.D.—*Branch I, Medicine*: A. R. Balmain, S. Berman, M. H. C. Dyson, L. I. Honzell, J. C. Hoyle (University Medal), R. H. Knight, Lucy M. T. Masterman, S. K. Montgomery, T. Robson, K. S. Smith, R. G. R. West, Katharine G. L. Williams. *Branch IV, Midwifery and Diseases of Women*: Elaine G. H. Barenger, Phyllis V. L. Epps, Dorothy E. Stewart. *Branch V, State Medicine*: W. E. Snell. *Branch VI, Tropical Medicine*: J. A. Carman.
M.S.—*Branch I, Surgery*: R. Brooke, H. I. Deitch, J. R. M. Whigham. *Branch IV, Oto-Rhino-Laryngology*: S. A. Beards, Mildred Wards (University Medal).

UNIVERSITY OF LEEDS.

MR. W. R. SPURRELL, F.R.C.S., has been appointed Research Assistant in the Department of Experimental Pathology and Cancer Research.

UNIVERSITY OF EDINBURGH.

A GRADUATION ceremonial took place in the McEwan Hall on July 17th, when the following medical degrees and diplomas were conferred:

M.D.—‡G. G. Allan, ‡H. M. Anderson, ‡J. M. Bassett, *G. L. Bord, E. H. Brindle, ‡W. R. D. Fairbairn, ‡G. B. Flint, Alice J. Gray, J. W. Hunter, *C. F. W. Illingworth, ‡J. B. King, S. Maevicar, R. [illegible] T. Moir, J. R. Murdoch, A. [illegible] Smith, Florence L. Telfer.
M.B., [illegible] *I. Alcock, D. M. Alston, L. [illegible] Bishop, ‡T. P. Bliss, W. J. Bra[illegible], J. A. P. Cameron, A. F. K. Cla[illegible]xley, T. Crowley, J. A. Cuthber[illegible] S. C. M. Downing, E. F. J. Dun[illegible] Fletcher, J. M. Fosbrooke, D. A. Fowler, D. Fraser, J. A. Gemmell, ‡W. H. Gillespie, K. Girsis, ‡E. L. Godfrey, G. Graham-Cumming, G. M. Greig, A. Haddow, R. Hardy, ‡R. Harkness, D. Harley, R. A. K. Harper, ‡C. F. Hay, Jean M. [illegible] D. K. L. [illegible] R. P. A. [illegible] Orchard, D. S. J. R. M. Rea ‡Agnes Y. Sa[illegible] Agnes D. Sloan B. Stein, W. [illegible] E. J. G. Walla[illegible] W. E. Willis, Jessie R. Wilson, J. F. A. Wood.

DIPLOMA IN RADIOLOGY.—G. C. Field, A. J. G. Mackay, M. J. S. Pillai, S. Singh, Elizabeth N. Thompson.

The following awards were presented:

[illegible] [illegible]nard [illegible] has [illegible]cular [illegible]rosy. [illegible] and [illegible] Gold Medal: J. Laurie.
Allan Fellow[illegible] [illegible]nd Clinical Surgery: G. P. Hay: Murchison Memorial Scholarship in Clinical Medicine:

J. G. W. Hill. M'Cosh Graduate's and Medical Bursaries: R. M'K. Honey. Mount Scholarship in the Practice of Physic: R. Harkness. Buchanan Scholarship in Midwifery and Gynæcology: J. Laurie. James Scott Scholarship in Midwifery and Hunter Prize in Anatomy and Surgery: E. L. Godfrey. Conan Doyle Prize: R. D. Aitken. Annandale Gold Medal in Clinical Surgery: R. F. Barbour. Murdoch Brown Silver Medal in Clinical Medicine: C. P. Hay. Royal Victoria Hospital Tuberculosis Trust Gold Medal: A. G. G. Melville. Scottish Association for Medical Education of Women Prize and Dorothy Gilfillan Memorial Prize: Agnes Y. Savage. Wightman Prize in Clinical Medicine: R. D. Aitken. Pattison Prize in Clinical Surgery: J. A. P. Cameron and R. A. T. Rouse (equal). Cunningham Memorial Medal and Prize in Anatomy: C. A. Green. Whiteside Bruce Bursary: A. Brown.

* Awarded go'd medal for thesis. ‡ Commended for thesis.
† Highly commended for thesis. ‖ Passed with honours.

At the conclusion of the graduation ceremony an address to the new graduates was delivered by Professor T. J. Mackie.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.

A QUARTERLY meeting of the Royal College of Physicians of Edinburgh was held on July 16th, with the President, Dr. Robert A. Fleming, in the chair.

Drs. G. S. Brock (London), F. W. Woolmbe (Rhodesia), A. Rae Gilchrist (Edinburgh), and Rutherford Dow (Fife) were introduced and took their seats as Fellows of the College.

Drs. F. T. Bowerbank (New Zealand) and W. T. Munro (Kinross) were elected Fellows of the College.

It was announced that Dr. S. A. Kinnier Wilson (London) had been appointed Morison Lecturer for 1930.

NATIONAL UNIVERSITY OF IRELAND.

THE following medical degrees were conferred by Dr. Denis J. Coffey, Pro-Vice-Chancellor of the University, on July 13th:

M.D.—T. B. Gallagher.
M.Ch.—R. T. Cullen, W. D. O'Donoghue.
M.A.O.—A. W. Spain.
M.B., B.Ch., B.A.O.—W. P. O'Callaghan, D. Finn, T. J. P. Kerwick, J. T. Lavan, T. J. A. Carty, J. Hannigan, P. Hogan, M. J. Howlett, D. McCarthy, D. A. MacLaughlin, Susan MacMahon, Maureen V. Magee, J. A. A. Murray, P. J. Naglo, Florence O'Driscoll, J. J. Stuart.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

BEFORE Parliament rose, on July 26th, for the summer recess legislation was carried dealing with unemployment insurance, the housing subsidy, and other subjects. On several of these issues larger bills are to be introduced after the House reassembles in October. A bill is also promised dealing with the mining industry and hours of labour in coal mines. A preliminary outline of this was given in the House of Commons this week.

Pensions.

Answering Dr. Morgan, on July 18th, Mr. ROBERTS (Minister of Pensions) said that during the last period for which information was available 363 medical officers on an average were employed by the Ministry of Pensions on a sessional basis. Two-thirds were specialists. In the six months ended June 30th, 24,677 *final* awards were made, and about 380,000 pensioners now received final awards of life pensions. During the past two years 7,529 appeals were made to assessment appeal tribunals.

In reply to Mr. Ayles on July 18th, Mr. *Roberts said the* male nursing staff in institutions under his control dealing with mental and severe nervous disorder was required, to the utmost extent possible, to be experienced in handling such cases. Of 62 male nurses employed in nursing certified cases, 25 also had a certificate. Mr. AYLES asked whether Mr. Roberts would see that only certified male nurses were *employed* in State institutions. Mr. ROBERTS replied that he understood the Board of Control had not found it practicable or desirable to advise that standard in public mental hospitals.

Mr. MACLEAN asked, on July 18th, whether the Minister of Pensions had considered reorganizing the constitution of the appeal tribunals. Mr. BEN SMITH (Treasurer of the Household) replied that members of the pensions appeal tribunals were not appointed by the Minister of Pensions. Save for the reduction from time to time in the number of their members there was no intention of reorganizing their constitution.

Housing Bill.

In the House of Commons, *on* July 22nd, Mr. GREENWOOD moved the third reading of the Housing (Revision of Contributions) Bill. During the debate which followed, Mr. T. SNOWDEN regretted that Dr. Fremantle had, on a previous occasion, asserted that medical officers of health urged that the Treasury should reduce the sums which were spent by the late Government on housing in order to provide more money for other important health services which were calling out for treatment. He (Mr. Snowden) regretted that speech because if, as he believed, the subsidy would encourage housing, it would remove evils caused by bad houses and, in consequence, *reduce* possible expenditure on the other matters to which Dr. Fremantle had referred.

Dr. FREMANTLE: I only said that it was an extremely extravagant way of doing it.

Mr. SNOWDEN replied that it was better to spend money on housing than to have to spend it on building hospitals. He would like to think that Dr. Fremantle did not represent the views of other medical officers of health, or even of the medical profession. At any rate, it would not do for a medical officer in the West Riding of Yorkshire to adopt the views expressed by Dr. Fremantle in that House.

Miss RATHBONE, speaking as a member of the Liverpool Housing Committee, asked whether the subsidy would assist in the production of houses which would meet the needs of those who could not pay economic rents. The error in the past had been in the method of applying the subsidy. It should never have been used for a flat-rate reduction of rents. Certain authorities had adopted the plan of making a rebate off rent of 6d. for each child, balanced by 1s. on the rent for each lodger. The Government, while thinking out their slum clearance policy, should give every possible encouragement to local authorities to use their subsidies in the way she suggested.

Dr. VERNON DAVIES said the question the House had to decide was *whether* the subsidy really filtered down to benefit the tenant or merely went to builders and builders' merchants. His belief up to the present was that the late Minister of Health had been right in his attitude, and that the present Government were *making a grave mistake.*

The third reading was agreed to, and subsequently the bill received a first reading in the House of Lords.

The second reading of the bill was moved by Lord ARNOLD in the House of Lords on July 23rd. He said that the Government had received an assurance from a body representing the local authorities that, after the passage of the bill, their programmes would be continued without any hiatus. This bill was a temporary measure. The BISHOP OF SOUTHWARK said that the problem of slum clearance never would be tackled until new houses, at low rents, were built within reach of their occupants' work. If the problem was to be solved they would be driven back on the policy of giving special children's allowances for rent. The medical officer of health for Southwark had stated that in one year there were 10,000 occupied houses in Southwark which were not in a reasonably fit state for human habitation.

The Lords agreed to the second reading.

Small-pox.—Answering Mr. Beaumont, on July 18th, Mr. GREENWOOD said small-pox accommodation had been provided in every county with the exception of two in England and one in Wales. In these three counties arrangements had been made for the treatment of cases of small-pox in hospitals situated in adjoining counties. With modern means of transport there were advantages in providing small-pox hospitals to serve wide areas. Answering Mr. Harris on the same day, Mr *Greenwood* said there were occasional errors in diagnosis, and he could not say that no case of chicken-pox was included among the cases notified as small-pox.

Treatment of Physically Defective Children.—Mr. ADAMSON, replying to the Duchess of Atholl on July 16th, said that no education authority made independent provision for *major operative* treatment of physically defective children, such treatment being ordinarily carried out by the voluntary hospitals. Thirteen education authorities had approved arrangements for the treatment of deformities by massage and remedial exercises, and twenty-one authorities had approved arrangements for treatment by orthopaedic appliances. In practice, all education authorities supplied splints, surgical boots, and such-like appliances where necessary. There was no scheme for orthopaedic treatment *provided jointly* by an education authority and a maternity service and child welfare authority, though there were a number of cases in which there was co-operation between the two authorities in the use of premises.

Venereal Disease Clinics.—In a reply to Dr. Morgan, on July 18th, Mr. GREENWOOD said the Ministry of Health had approved 183 venereal disease clinics in England and Wales, of which 60 were administered directly by local authorities. During 1928 the number of new cases dealt with *at these* clinics was 65,903: of these, 27,597 were found not to be suffering from venereal disease, and the total number of attendances of patients was 2,422,749. Proposals for the provision of new clinics, or for the extension and improvement of the present facilities for treatment, were under consideration.

Workmen's Compensation.—In an answer, on July 18th, to Mr. Philip Oliver, who asked him to make an order extending the Workmen's Compensation Acts to cancer of the bladder affecting workers in aniline factories, Mr. CLYNES said it had not been definitely established that cancer of the bladder was caused by employment in aniline works. The matter was a subject for research by the London Cancer Hospital. He would see if the Home Office could facilitate this investigation.

London Lock Hospital.—On July 22nd Miss LAWRENCE told Mr. Knight that the Minister of Health had received a request from the National Council of Women and other societies for the publication of the report on the London Lock Hospital. The papers recently presented to Parliament gave particulars of the recommendations of the committee, and of the action taken and contemplated by the governing body of the hospital to give effect to them. This action had improved the administration of the hospital, and further improvements were in prospect. The best interest of the future of this voluntary hospital would not be served by reviving discussion of former unsatisfactory conditions which the governing body had altered or proposed to alter. It was accordingly not the Minister's intention to publish the *committee's* reports.

Phototherapy.—Mr. GREENWOOD, in reply to Mr. Harris on July 18th, said inquiries had been made during recent years by medical officers of the Ministry of Health into the application of phototherapy (including artificial light) to the treatment of disease. Results had been published in the annual reports of the chief medical officer. These observations were being continued, and he did not see any necessity for a further inquiry. The best results of this form of treatment had apparently been obtained in cases of rickets and of certain forms of non-pulmonary tuberculosis.

Raising of School Leaving Age.—Sir CHARLES TREVELYAN (Minister of Education) announced to the House of Commons on July 18th that the Government had decided to prepare legislation to raise the school age to 15 from April 1st, 1931. He would ask local education authorities and professional bodies to consult him on the proposal. He could not say whether legislation would be introduced in the present session of Parliament.

Opium Consumption in India.—On July 22nd Mr. BENN told Mr. Cecil Wilson that the committee appointed to examine the position in regard to opium in the Malwa States had reported, but no decisions had been taken. Four of the six inquiries into the consumption of opium in areas under five provincial Governments in India had been completed. As soon as the remaining two were finished the Government of India proposed to convene a conference to collate the results obtained before the local Governments passed Orders. The Bengal report had been published.

The Country's Water Supplies.—Mr. GREENWOOD, on July 22nd, told Mr. Ayles that a survey of potential water supplies of the country would involve a great amount of detailed investigation, and would by itself be of doubtful value. The most practical course was the formation of more advisory regional water committees on the lines advocated in the booklet issued by his department last October. By means of these committees not only the available supplies, but also the needs, of all the districts in the region could be ascertained and a definite policy recommended for meeting requirements over a long period. The findings of these committees could then be co-ordinated in the general interests and a national policy formulated.

Effect of Re-valuation on Hospitals.—Mr. GREENWOOD told Mr. Lee, on July 18th, that the Ministry of Health had received communications about the effect of the general re-valuation on hospitals and similar institutions, but he had no general information on how far the recommendations of the Central Valuation Committee with respect to the assessment of such hereditaments had been followed. The matter was not one in which he was empowered to interfere with the discretion of the local authorities, but it was open to any representative body to call the attention of the Central Valuation Committee to substantial departures from their recommendations and to submit suggestions on which, if necessary, more precise recommendations might be based.

Education of Blind, Deaf, and Mentally Defective Children.—Sir C. TREVELYAN told Dr. Morgan, on July 15th, that the cost (excluding loan charges) of educating a blind child was approximately £29 in a day school, and £88 in a residential school. The corresponding figures for the deaf were £43 and £82, and for the mentally defective £25 and £71. Dr. MORGAN asked whether part of this cost could be saved in future by a judicious health expenditure in infant years, and by the development and extension of infant welfare centres. Sir CHARLES said this raised issues with which it was difficult to deal in an answer to a question.

Pensions of Tuberculous Ex-service Men.—Answering General Wright, who suggested the stabilization of pensions of tuberculous ex-service men residing in a colony at Efford, near Plymouth, Mr. ROBERTS (Minister of Pensions) said it would not be in the interests of the men to make final awards to any particular group of men suffering from tuberculosis. Final awards were made in any cases found to be suitable. In other cases awards were made, wherever possible, for long periods to spare the pensioners frequent examinations.

Notes in Brief.

In the opinion of the Minister of Transport the provision of first-aid outfits on public vehicles is not a matter to be associated with the conditions attached to licences.

Legislation for amendment of the present law must precede ratification of the International Labour Office Convention of 1921 concerning the use of white lead in paint. The Home Secretary states that such legislation will be considered in connexion with the proposed Factories Bill.

On January 1st, 1929, there were 68 private institutions in England and Wales under the Lunacy Acts, with 4,619 patients therein. The discharges in 1928 were 742.

Not including feeble-minded children in the charge of the education authorities, there were in England and Wales on January 1st, 1929, 66,454 mental defectives recognized by local authorities, 19,138 being maintained in institutions.

Sir Charles Trevelyan is considering making provision for blind or crippled children who do not at present attend any schools. At the end of 1928 in England and Wales 602 blind and 5,336 crippled children were not attending any school. On the same date there were 3,935 totally deaf children of school age in England and Wales, of whom 3,464 were taught in special schools.

A reduction in the port establishment numbers of the chief and petty officers of the sick berth branch of the Royal Navy has been authorized, and vacancies in the Portsmouth Port Division have not been filled.

Medical News.

THE Fellowship of Medicine announces that from July 29th to August 24th a course in urology will be held at the All Saints' Hospital during the afternoons and evenings. A two weeks' course at the Queen's Hospital for Children, from August 12th to 21st, will consist of demonstration of cases rather than lectures. Luncheon and tea are provided by the hospital authorities. The courses in September will include diseases of the chest at the Brompton Hospital, from September 9th to 14th; diseases of infants at the Infants Hospital, from September 9th to 22nd; psychological medicine at the Bethlem Royal Hospital, from September 10th to October 5th; and medicine, surgery, and the specialties at the Westminster Hospital, from September 16th to 28th. The Fellowship has also made the following arrangements: a whole-day course in gastro-enterology at the Prince of Wales's Hospital, from September 30th to October 4th; a M.R.C.P. course comprising a series of sixteen lectures by well-known authorities, at 8.30 p.m., at the Medical Society of London, from October 15th to December 6th; and an all-day course comprising medicine, surgery, and the specialties at the Metropolitan Hospital, Kingsland Road, from October 21st to November 2nd. A general course consisting of the clinical practice of the hospitals associated with the Fellowship continues throughout the year, and may be begun on any day of any week. Comprehensive tickets are issued for varying periods from one week upwards to one year at fees ranging from £2 2s. to £21. Special arrangements are made for part-time work. Syllabuses of all courses and other information may be obtained from the Secretary of the Fellowship, 1, Wimpole Street, W.1.

A SPECIAL two weeks' course in orthopaedics (lectures, demonstrations, operations, and the practice of the hospital) will be held at the Royal National Orthopaedic Hospital from November 18th to 30th; fee three guineas. Names of those wishing to attend should be sent to the secretary of the hospital, 234, Great Portland Street, W.1, or to the secretary, Fellowship of Medicine, 1, Wimpole Street, W.1, not later than November 12th.

AN address and a sum of money will be presented to Robert Hopkins, Bedell of the Medical School, St. Thomas's Hospital, from the past and present students at the annual dinner on October 4th, on entering his fiftieth year in the service of the Medical School.

AT a special meeting of the Section of Odontology of the Royal Society of Medicine held on July 17th a bust of the late Dr. J. Howard Mummery was unveiled and presented to Professor A. D. Black, of the Dental Faculty of the North-western University, Chicago, by its London *alumni*. The American Ambassador was present at the ceremony. Professor Black, who received the bust on behalf of the North-western University, said that it was because of his high regard for the scientific achievements of John Howard Mummery that he had journeyed to London for this occasion.

A CIVIL LIST pension of £50 has been granted to Mrs. Elizabeth Mottram Williams in recognition of the services of her husband, the late George Chisholm Waldemar Williams, in connexion with the application of Roentgen rays to the treatment of disease. Mr. Waldemar Williams died on April 10th, 1928, and an obituary notice appeared in our issue of April 21st of that year.

THE Metropolitan Asylums Board have appointed E. W. Todd, M.A., M.D., B.Ch., D.P.H., as bacteriologist at their antitoxin establishment, Belmont Laboratories, Sutton, Surrey, of which Dr. R. G. White is the director. Dr. Todd has been research assistant in the inoculation department of St. Mary's Hospital since January, 1924.

FOR the forthcoming international competition for the detection of mustard gas in the air the assessors appointed by the International Red Cross Committee are: Professor F. Haber, Berlin; Sir William Pope, F.R.S., Cambridge; Professor F. Swarts, University of Ghent; and Professor G. Urbain, Paris; with Professor J. Demolis, University of Geneva, as secretary. The assessors, who will elect their own president, will meet in April, 1931, at the University of Paris, to examine the proposals submitted to them by competitors, and to award the prizes offered by the International Red Cross Committee for reagents for the detection of mustard gas in the air.

THE French League against Cancer announces that donors have placed at its disposal two prizes of 100,000 francs each for the encouragement of research on cancer. Further information can be obtained from La Ligue Contre le Cancer, 2 Avenue Marceau, Paris.

THE Eighth International Congress of Dermatology will be held at Copenhagen from August 5th to 9th, 1930, when the chief subjects for discussion will be the etiology of syphilis and eczema, immunity, reinfection, and superinfection.

THE second Italian Congress of Eugenics will be held in Rome from September 30th to October 2nd, with his Excellency Benito Mussolini as president of honour and Professor Corrado Gini as president. Further information can be obtained from the general secretary, Istituto di Statistica e Politica Economica, 10, Via delle Thermo di Diocleziano, Roma.

THE sixth annual report of the *Journal of the American Medical Association* on the mortality from diphtheria in the eighty-one large cities of the United States, with a population of more than 100,000, shows that every one of the eight geographical divisions had a lower diphtheria death rate in 1928 than in 1927.

IN 1928 only 2 cases of small-pox occurred in Germany, both of a mild type, as compared with 4 in 1927 with one death, and 7 in 1926 with no deaths. In England and Wales the number of cases of small-pox in 1928 was about 12,400.

AN institute of forensic medicine has recently been opened at the University of Frankfort.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to ***The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.***

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The ***TELEPHONE NUMBERS*** of the *British Medical Association* and the *British Medical Journal* are *MUSEUM 9561, 9562, 9563,* and *9564* (internal exchange, four lines).

The ***TELEGRAPHIC ADDRESSES*** are:
EDITOR of the *British Medical Journal, Aitiology Westcent, London.*
FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*
MEDICAL SECRETARY, *Mediocrity Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, *Drumsheugh Gardens,* Edinburgh (telegrams: *Associate, Edinburgh*; telephone 24361 Edinburgh).

QUERIES AND ANSWERS.

TREATMENT OF LOCALIZED PULMONARY TUBERCULOSIS.

"W. J. D." asks for advice in the treatment of a man, aged 27½, who has pulmonary tuberculosis. The symptoms are slight; there are about eight expectorations per day, no night sweats, and no loss of weight. Fatigue and the existence of sputum are the chief trouble. Would the best treatment be to send him to Switzerland for a year? An *x*-ray examination revealed one small cavity in the apex of the right lung and two small ones in the left apex.

TREATMENT OF FUNCTIONAL TACHYCARDIA.

"PUZZLED" asks for suggestions as to diagnosis and treatment in the case of a man, aged 54, who has suffered from attacks of tachycardia at intervals during the last twenty years. They caused very little discomfort until recently, but are now occasionally accompanied by a feeling of anxiety or dread of impending death. They last two or three minutes; a few of the longer and more severe ones ended with vomiting and shivering. Though liable to attacks at any time, the patient has remarked that they often occur after eating or drinking; he has, however, often had one in the middle of the night. Pain is entirely absent. Soon after the attack the patient feels well, but he may have irregular heart action for a day or two following. There is a reduplicated cardiac first sound, but an electro-cardiogram (taken twice) has not been helpful. The teeth have been *x*-rayed and all stumps removed. There is a very dilated and dropped stomach, and the large intestine is similar; the patient wears an abdominal support. He is a non-smoker and moderate drinker. He has taken purgative medicine almost every night for many years. He is thin and not quite 10 st. in weight, but is able to play eighteen holes of golf without any undue fatigue. There is no albuminuria. If he could get rid of the very distressing feeling which accompanied his recent attacks, he says he would not worry about the tachycardia.

A POSSIBLE SECONDARY STREPTOCOCCAL INFECTION OF THE FEET.

"M. D." writes: I shall be glad to learn if any fellow members have met with circumstances similar to the following, and relating, unfortunately, to myself. A fortnight ago I suffered from a mild general inflammation of the tonsils and soft palate, together with painful enlargement of the cervical glands, some fever, and malaise, probably a streptococcal infection. A chlorine gargle was used and symptoms were subsiding, when suddenly, on July 18th, all the toes of my right foot, the small one excepted, together with the great toe of the left foot, became swollen, inflamed, and acutely painful. I am confined to bed, and, on July 20th, I feared incisions might be needed in some of the toes. The following day my temperature had fallen, the general pain, etc., were subsiding, and resolution was taking place. The toes affected were those employed in driving the car, which I had used a little more than was my custom during the week. I believe the symptoms to be due to a little excess of the use of my feet at a time when my blood was charged with a streptococcal infection. Hot weather, and a thin and too pliable sole, may also have played parts not unimportant.

TREATMENT OF A STRAINED LEG.

"V. S." writes: Six months ago I sprained my right foot. Leaving my seat in a dark cinema, I forgot the seats were raised and hooked myself up on the step at the side; the heel of the boot kept my foot suspended for some seconds. It was a forward "hook." The leg did not swell, but there has been persistent pain and tenderness at times, especially up the course of the peroneus tendon and tendo Achillis, and also in the region of both malleoli and in the heel. Doubtless there was some stretching and tearing of tendons and ligaments. I have had the foot strapped, also massage, some diathermy, and ionization. Faradization set up acute pain, but ionization helped. Can anyone suggest further treatment? I lose confidence when driving the car.

PAINFUL HEEL.

DR. PERCY HALL (London, W.1) writes: In reply to the question of "Ajax" on July 20th (p. 130), I may say that I have treated a number of patients—usually middle-aged men—with this condition. I regard it as a fibrositis, rheumatic or gouty in origin in most cases. Diathermy applied direct, with massage and manipulations, will in most cases effect a cure.

INTESTINAL STASIS WITH SPASM.

"B. M.," whose query under this heading appeared last week (p. 130), writes to say that the patient's age is 62, and not 42, as printed.

DR. G. C. CATHCART (London, W.) writes: I am much interested in the letter from "B. M." (Boscombe), who asks advice for treatment in a case of a patient with colitis and constipation, who is "always tired and seems to have severe toxæmia." In 1927 I published a paper on "Tonsillectomy in adult patients," in which I said that several cases of colitis, which had resisted all the usual methods of treatment, had been cured by tonsillectomy; since then I have had some others. All these cases had the symptoms of being "always tired," which disappeared shortly after the operation. I would suggest, therefore, that the condition may be kept up by septic tonsils. If so, it will probably be cured by their removal.

"J. F." (London) writes: Perhaps the advice of a dyspeptic who, in his 72nd year, still enjoys his work, as the result of careful dieting, may be worth noticing. Eliminate porridge, wholemeal bread, ham, cheese, puddings, pastry, jam, and acid fruits; these in my own case produce acidity, drowsiness, and headache. Allow plenty of well-cooked New Zealand lamb (English is tough and new), white bread, white fish, poultry; no new potatoes less in size than a hen's egg. Eat cabbage, young peas, French beans, and boiled celery, but no sprouts, cauliflower, spinach, or parsnips.

INCOME TAX.

Purchase of Share in Practice.

"R. L.," after being an assistant to Dr. S. for a few months, commenced, on January 1st, 1928, a two years' partnership introduction. The practice accounts are made up to March 31st of each year, and the assessment for the financial year 1928–29 was made on the basis of the practice accounts for 1927–28. The profits for the year 1928–29 have fallen short of the sum assessed by £350, but the inspector of taxes states that there is now no remedy, and that the assessment for that year must stand.

*** We presume that "R. L.'s" salary for the period to December 31st, 1927, has been treated as an expense in arriving at the profits of the practice for the year ended March 31st, 1928; if this has not been done the facts should be explained and an adjustment of the assessment for 1928–29 asked for accordingly. On the technical merits of the question the inspector of taxes is correct, though if it could be shown that the change in the constitution of the practice reduced the earnings for the period January 1st to March 31st, 1928, some adjustment might be obtainable. We gather, however, that the facts would not support this form of application.

Cash Basis.

"S. M. V." bought a practice a year ago, and has been informed by the inspector of taxes that for his first three years he must pay on an earnings basis.

*** This is correct. In the case of a new practice the cash receipts do not represent the full earnings of the practice. He should, however, take care to examine the list of debts outstanding at the end of each year, and to deduct reasonable amounts in respect of specific debts for which he considers he is unlikely to receive payment in full.

Motor Expenses: Salaried Appointment.

"A. P." and his wife were both whole-time medical officers of a local authority, he receiving a fixed allowance of £100 for motor expenses and his wife an allowance of 5d. per mile. The wife resigned her appointment and "A. P." sold his car and bought his wife's for professional use by himself. He has claimed obsolescence allowance accordingly, but the inspector of taxes refuses to admit it on the ground that the motor expenses—the whole of such expenses and not merely running costs—are borne by the local authority in the form of an expenses allowance, and cannot therefore be set against "A. P.'s" assessable salary.

*** It seems to us immaterial that the car was bought from the wife, and that the real point in dispute is whether the £100 is adequate—in the circumstances following the wife's resignation—to cover the expenses "incurred wholly, exclusively, and necessarily" in the performance of his duties. The practical difficulty, of course, is that any such inadequacy would normally be a matter for "A. P." to press on the local authority, and the acceptance without energetic protest of that amount is likely to prejudice his claim that for income tax purposes it should be regarded as insufficient. "A. P." might be well advised to approach the local authority first, pointing out that the allowance is not enough to cover depreciation as well as running costs. If he gets no direct satisfaction he may extract some statement as to the basis on which it is computed which will assist him in his negotiations with the income tax authorities.

Motor Cars: Private Use.

"J. M. B." has been using two cars, A and B, of which B has been used substantially for private purposes. Some time ago it was agreed that there should be excluded from the car expenses, to cover private use, £50 *plus* three-fifths of the depreciation applicable to B. That car has now been disposed of and a higher-powered second-hand car C bought in replacement. The obsolescence allowance claim for B is £97, of which the inspector proposes to allow £9 only—that is, two-fifths of £97. The result is to disallow for private use a total amount which is distinctly in excess of that applicable to the year in question.

*** The obsolescence allowance is in substance a postponed depreciation, and it is difficult to suggest any grounds on which our correspondent can base his claim to discard the three-fifths and two-fifths basis for the year in question. It is—as he says—particularly difficult to deal with, because the converse will arise when A is sold and replaced. Probably the basis adopted—namely, the isolation of one car as the one used privately—was bound to lead to trouble sooner or later. A definite amount estimated in round figures each year, and, having regard to the actual amount of private use in that year, is preferable. We advise "J. M. B." to have a personal interview with the inspector, pointing out to him the converse position that will arise when A is sold and asking him to agree to an amount—to include depreciation and obsolescence—to be added back to the net profit for private use.

Motor Car Allowance.

"X. X." is a consulting surgeon with rooms in the West End, but resident in the suburbs. His work necessitates visiting cases near his consulting rooms and daily attendance at hospitals in Central London to carry out his honorary duties. The inspector of taxes has refused the motor car allowance on the ground that that expense is not incurred in performing his work.

*** It must be admitted that the expense of travelling from the residence to the place where the work is performed is not strictly allowable by law—it is, for instance, analogous to the city worker's season ticket. But, in our opinion, the holding of honorary hospital appointments and the performance of the duties attached thereto are a natural and usual adjunct to a consulting surgeon's practice. To carry out such duties the use of a car is a recognized necessity, and we consider that such portion of the motor car expenses should be allowed as fairly represents the cost of travelling about visiting patients at the hospitals or elsewhere. Possibly "X. X." can persuade the authorities to make an allowance on the basis of the total cost less the estimated expense incurred in travelling from and to his residence and in other private use. As the car is required primarily for professional purposes, that would seem to be a reasonable basis.

LETTERS, NOTES, ETC.

THE "MEDICAL DIRECTORY."

WE are informed by the Editors of the *Medical Directory* that the annual circular has been posted to each member of the medical profession; if the form has not been received a duplicate will be sent on request. They hope for the return of the completed forms by an early post to them at 40, Gloucester Place, Portman Square, W.1.

CHRONIC ARTHRITIS.

DR. WM. J. MIDELTON (Bournemouth) writes: I have read with interest the articles and correspondence concerning arthritis which have appeared in the *British Medical Journal* recently. I agree with those who say we have too many labels in connexion with rheumatic ailments. Many years ago Dr. R. L. Jones-Llewellyn suggested chronic cerebro-spinal toxaemia as a substitute for the term rheumatoid arthritis, and it is a matter of regret to me that it never came into use. When dealing with a case of arthritis I try to forget that the patient has any joints; I think of the central nervous system and the endocrine system. To me these are of far greater importance than the joints. I believe that in all cases of chronic arthritis they are affected little or much. I am a whole-hearted believer in the germ theory, but I have difficulty in accepting the view that staphylococci, streptococci, the *B. coli*, etc., are ever the chief cause. I think that some infective malady, even one so apparently slight as measles or chicken-pox, may be a main factor in the production of arthritis. I hold that germs may linger in the system for an indefinite period. None of the writers have called attention to tuberculosis as a factor, in spite of the fact that French authorities have given great prominence to this. I find, personally, that non-specific treatment, skilfully handled, acts admirably in dealing with rheumatic ailments. Of course, if a pneumococcus or a *B. influenzae* (Pfeiffer) can be found, then an autogenous vaccine should be utilized. As many of your readers are aware, for nearly thirty years I have pinned my faith to continuous counter-irritation, and I have yet to find a method of treatment that I can handle more efficaciously.

TREATMENT OF VENEREAL DISEASE IN MANCHESTER AND SALFORD.

DR. E. TYTLER BURKE, venereal diseases medical officer to the city of Salford, writes: Might I point out a mistake in The Handbook of the Meeting of the B.M.A. in Manchester? On page 61 it is stated that St. Luke's Hospital "is the chief hospital for the treatment of venereal diseases in the district." It would appear from the following figures that this honour belongs to Salford Municipal Clinic.

Item.	St. Luke's Hospital, 1927.	Salford Municipal Clinic, April 1st, 1928, to March 31st, 1929.
New cases...	1,232	1,597
Intermediate treatment	19,784	35,144
Medical officers' attendances ...	14,200	14,135
Total attendances...	33,984	49,279

WATER WASTERS.

MR. THOMAS W. GOMM, honorary secretary, the Pure Rivers Society (1, Lincoln's Inn Fields, W.C.2), writes: During this period of drought, when everyone is being called on to use less water, it is desirable to point out that the greatest water wasters of all are the authorities and individuals *who pour into our* pure rivers crude sewage, trade wastes, and filth of every kind, and quite unlawfully render the natural water supply unfit for drinking, or agricultural and other trade purposes.

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VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 34, 36, 37, 40, 41, and 42 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 38 and 39.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 76.

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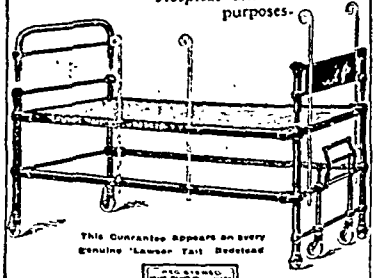

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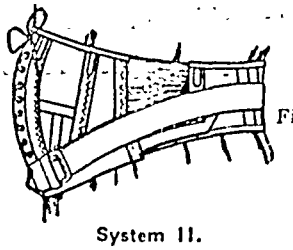

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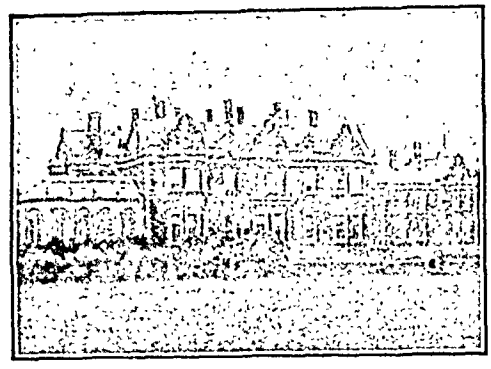

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Two miles from the Main Hospital there are several branch establishments and villas situated in a park and farm of 650 acres. Milk, meat, fruit, and vegetables are supplied to the Hospital from the farm, gardens, and orchards of Moulton Park. Occupation therapy is a feature of this branch, and patients are given every facility for occupying themselves in farming, gardening, and fruit-growing.

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The Seaside house of St. Andrew's Hospital is beautifully situated in a Park of 330 acres, at Llanfairfechan, amidst the finest scenery in North Wales. On the North-West side of the Estate a mile of sea coast forms the boundary. Voluntary Boarders or Patients may visit this branch for a short seaside change or for longer periods. The Hospital has its own private bathing house on the seashore. There is trout-fishing in the park.

At all the branches of the Hospital there are cricket grounds, football and hockey grounds, lawn tennis courts (grass and hard courts), croquet grounds, golf courses, and bowling greens. Ladies and gentlemen have their own gardens, and facilities are provided for handicrafts, such as carpentry, etc.

For terms and further particulars apply to the Medical Superintendent (Telephone No. 56. Northampton), who can be seen in London by appointment.

THE COPPICE, NOTTINGHAM.
HOSPITAL FOR MENTAL DISEASES.

This Institution is exclusively for the reception of a limited number of Private Patients of both sexes of the Upper and Middle Classes at moderate rates of payment. It is beautifully situated in its own grounds on an eminence a short distance from Nottingham, and from its singularly healthy position and comfortable arrangements affords every facility for the relief and cure of those mentally afflicted. Voluntary Boarders received without Certificates.

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Private Nursing Home for Neurasthenia and allied Functional Nervous Disorders, for general Convalescent Cases, and those requiring Electrical Treatment.

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Terms:

(*a*) **£5** a week, but in case of patients with a legal settlement in the County of London a less sum may be charged according to means.
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Terms include (with rare exceptions) *all forms of treatment, for which exceptional facilities exist*—there being a staff of consultant specialists and the central laboratory of London County Mental Hospitals being attached to the hospital. Inquiries of EDWARD MAPOTHER, M.D., M.R.C.P., F.R.C.S., Medical Superintendent.

WONFORD HOUSE HOSPITAL,
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Telegrams: Exeter 2642. *Telephone*: Exeter 2642.

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The above House, which was established in 1826, is an Institution for the care and treatment of persons suffering from mental diseases and nervous disorders. Both certified patients and voluntary boarders are received. Separate houses for treatment and accommodation of special cases adjoin the Institution. There is a seaside branch, Kearsney Court, near Dover, to which patients may be sent for treatment or on holiday. Motor and carriage exercise is provided as required. Patients can avail themselves of a course of physical drill. Tennis courts. Entertainments, dances, and indoor amusements held throughout the year.

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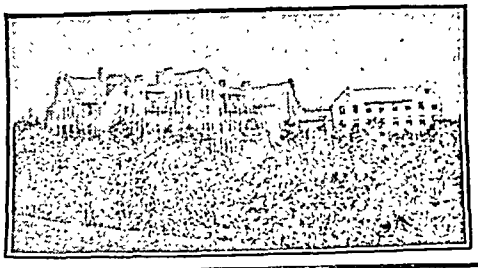

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For Syllabus and further information apply to Prof. J. O. BRASH, M.A., M.D., Dean.

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For syllabus and full particulars apply to the DEAN, Medical College, St. Bartholomew's Hospital, London, E.C.1.

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F.R.C.S.

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(FACULTY OF MEDICINE).

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MIDWIFERY TRAINING SCHOOL.

MEDICAL STUDENTS admitted to Hospital practice, with operative Midwifery, and Obstetrical complications.

PUPILS TRAINED as Midwives and Monthly Nurses in accordance with C.M.B. regulations.

PRIVATE WARDS for paying patients.

TAUNTON SCHOOL,

TAUNTON.

A PUBLIC SCHOOL FOR BOYS.

Boys are regularly prepared for the First M.B. Examination, University Scholarships in Chemistry, Biology, etc.

Special facilities are offered for the teaching of Chemistry, Physics, Botany, and Zoology.

New Science Buildings, containing seven laboratories, two lecture rooms, science library, store rooms, etc., opened in September, 1925. Prospectus from Head Master.

SCHOOLS for BOYS and GIRLS.

TUTORS FOR ALL EXAMS.

Messrs. J. & J. PATON, having an up-to-date knowledge of the BEST SCHOOLS and TUTORS in this Country and on the Continent, will be pleased to AID PARENTS in their choice by sending (free of charge) prospectuses and TRUSTWORTHY INFORMATION and ADVICE.

The age of the pupil, district preferred, and rough idea of fee should be given.

J. & J. PATON, Educational Agents, 143, Cannon St., London, E.C.4. Tel.: Mansion House 5053.

Preliminary Examinations.

The COLLEGE OF PRECEPTORS holds Preliminary Examinations for Medical and Dental Students in London and at Provincial Centres in March, June, September, and December. For Regulations, apply to the Secretary, College of Preceptors, Bloomsbury Square, London, W.C.1.

The Glasgow Royal Cancer Hospital.

—PATHOLOGIST required. Salary £400 to £500 per annum. Applications, stating qualifications, with testimonials and references, to be lodged with the Secretary, 156, St. Vincent Street, Glasgow, C.2.

Egyptian Government.

EGYPTIAN UNIVERSITY.

Applications are invited for the post of PROFESSOR OF CLINICAL PATHOLOGY.

The salary offered is £E.1,500 (about £1,550) a year without pension, and the appointment will be on contract for five years, but may be renewed by mutual consent for a further period.

The Professor of Clinical Pathology will be expected to organize the work of the Department of Clinical Pathology in its relation to the Kasr-el-Aini Hospital and to give such courses of instruction as may be decided upon. Preference will be given to candidates possessing a special knowledge of diseases of warm climates. The appointment is to be a full-time post, no private practice being allowed.

An allowance equal to one month's salary will be paid on arrival at Cairo for travelling expenses.

Applications, accompanied by testimonials and references, to be addressed to the Dean, Faculty of Medicine, Egyptian University, Cairo, so as to be received not later than September 15th, 1929.

County of Aberdeen.

PUBLIC HEALTH DEPARTMENT.

ASSISTANT MEDICAL OFFICER OF HEALTH.

Applications are invited from qualified Medical Men and Women for the post of Assistant Medical Officer of Health (Junior) under the Joint Committee for Public Health Services for the County of Aberdeen.

Applicants must possess the Diploma in Public Health and have had previous experience in public health work, especially maternity and child welfare work. The duties will also include the examination of school children and general public health work within a definite area. The successful applicant will be required to reside in a centre within the County other than the City of Aberdeen.

The salary will be at the rate of £500 per annum, with increments of £25 per annum for ten years. Travelling and other expenses will be allowed according to the Committee's scale.

Applications (forms for which may be obtained from the undersigned) must be lodged with him, together with twelve copies of three recent testimonials, not later than August 17th next.

County Buildings, Aberdeen. July 20th, 1929. WILLIAM MURISON, County Clerk.

County Borough of Rochdale.

ASSISTANT MATERNITY AND CHILD WELFARE MEDICAL OFFICER (Lady).

The Health Committee invite applications for the appointment of Assistant Medical Officer for Maternity and Child Welfare.

Candidates must be fully qualified medical practitioners, with post-graduate experience in maternity and child welfare work, and in the treatment of venereal diseases in women.

The officer appointed will be required to devote the whole of her time to the duties of the appointment, which include attendance at the Ante-Natal, Maternity and Child Welfare, and Venereal Diseases Clinics, and the Infants and Children's Hospital. Also the inspection of, and lectures to, midwives, or any other public health duties assigned by the Medical Officer of Health, under whose directions and supervision such officer will act.

Salary at the rate of £600 per annum.

Forms of application may be obtained from the Medical Officer of Health, Town Hall, Rochdale, and when completed should be returned, together with copies of three recent testimonials, so as to be delivered at this office not later than Thursday, August 8th. Envelopes must be endorsed "Medical Officer."

Town Hall, Rochdale. July 27th, 1929. WM. HENRY HICKSON, Town Hall.

City of Nottingham Education Committee.

Applications are invited from duly qualified and registered medical practitioners for the post of SENIOR ASSISTANT SCHOOL MEDICAL OFFICER.

The salary scale for the post will be £600 p.a., rising, upon approved service, by annual increments of £25 to £800 p.a. The Committee will, in fixing the commencing salary, take into consideration any special qualifications and experience of the selected candidate.

Applications, which should be made on the special forms obtainable from the undersigned, must be returned by August 30th.

Canvassing, either directly or indirectly, will be deemed a disqualification.

School Medical Service, 28, Chaucer St., Nottingham. A. H. WHIPPLE, Director of Education.

INDIAN MEDICAL SERVICE

Recruitment of European Officers.

Applications are invited from medical men for permanent commissions in H.M.'s Indian Medical Service. The terms offered include a gratuity of £1,000 on retirement after six years' service, or £2,500 after 12 years' service, together with free return passages, for those who no longer desire to remain in the Service. In other respects the terms will be as detailed below.

Candidates must be British subjects under 32 years of age at the time of application, and must be registered under the Medical Acts in force in Great Britain and Northern Ireland.

CAREERS.

The Indian Medical Service offers wide opportunities of medical experience, including clinical, preventive, specialist, and research work. At the beginning of his career an officer is employed on the military side, which has medical charge of the Indian Army. Promotion is on a time scale up to the rank of Lieutenant-Colonel, and by selection to the ranks of Colonel and Major-General. An officer may apply after two years' Indian service for transfer to the civil side, from which appointments are made to Civil Surgeoncies, which are established at the principal civil centres to provide for the medical needs of civil officials and for general medical administrative purposes; to specialist (for example, public health and bacteriological) services; to research posts; and to professorships at the Medical Schools.

PAY.

The monthly rates of pay for European officers in the Service who have a "non-Asiatic" domicile are as follows:

Rank.	Service in Rank.	Basic Pay.	Overseas Pay.	Year of Total Service.
1	2	3	4	5
		Rs.	Rs.	
Lieut.		500	150	1st
			150	2nd
Capt.			150	3rd
	(i) During first 3 years' service as Captain	650	150	4th
			£15	5th
			£15	6th
	(ii) With more than 3 and less than 6 yrs.' service as Captain	750	£25	7th
			£25	8th
			£25	9th
	(iii) With more than 6 years' service as Captain	850	£25	10th
			£25	11th
			£50	12th
Major	(i) During first 3 years' service as Major	950		
	(ii) With more than 3 and less than 6 years' service as Major	1100		
	(iii) With more than 6 years' service as Major	1250		
Lieut.-Col.	(i) Until completion of 21 years' total service	1500	£30	13th and over
	(ii) During 21th and 22th years' service	1600		
	(iii) After completion of 25 years' total service	1700		
	(iv) When selected for increased pay	1850		

EXTRAS.—In addition to the above rates various allowances are admissible for a large number of special appointments on both the military and the civil side which may be held by members of the Indian Medical Service. Special high rates of pay are also attached to the numerous administrative appointments open to officers in both branches of the Service.

WAR SERVICE CONCESSIONS.

Any service rendered by an officer during the war as a medical or combatant officer, or in a position usually filled by an officer, may be counted as service for increments of pay, promotion, retirement and retired pay, but not for gratuity.

One half of any service in the ranks during the war may be counted as service for retirement and retired pay only.

OUTFIT ALLOWANCE.

Officers on appointment will receive an outfit allowance of £50.

PRIVATE PRACTICE.

With the exception of Administrative Officers, military or civil, and officers holding certain special appointments, officers are *not debarred* from taking private practice, so long as it does not interfere with their proper duties.

PENSIONS.

The rates of pension are as follows:

			Per annum. £
After 17 years' service for pension			400
,, 18 ,, ,, ,, ...			430
,, 19 ,, ,, ,, ...			460
,, 20 ,, ,, ,, ...			500
,, 21 ,, ,, ,, ...			540
,, 22 ,, ,, ,, ...			580
,, 23 ,, ,, ,, ...			620
,, 24 ,, ,, ,, ...			660
,, 25 ,, ,, ,, ...			700
,, 26 ,, ,, ,, ...			750
,, 27 ,, ,, ,, ...			800

These rates are subject to alteration on account of a rise or fall in the cost of living as compared with the year 1919 to an extent not exceeding 20 per cent. in all, the revision being undertaken triennially. With effect from July 1st, 1927, a reduction of 4½ per cent. has been made on this account from the amounts shown.

There are additional pensions ranging from £65 to £350 *per annum* for officers who have held administrative appointments.

PASSAGES.

An officer on appointment is provided with a free passage to India. The wives and families of officers who are married prior to the date of the officers' embarkation on first appointment will also be provided with free passage to India, subject to the payment of messing charges.

Officers and their families are also eligible for passage concessions under which they are granted a certain number of return passages home at Government expense during their service.

INSTRUCTION PRIOR TO EMBARKATION.

Officers are required to undergo courses of instruction at the Royal Army Medical College and at Aldershot, lasting approximately six months, prior to their embarkation for India on first appointment.

Full details regarding these appointments and forms of application may be obtained from the Under-Secretary of State for India, Military Department, India Office, London, S.W.1. Applications should be submitted as soon as possible. The Selection Committee will meet in July to make nominations, and the selected candidates will be required to attend a course of instruction commencing on the 6th August, 1929.

County Borough of Croydon.

CROYDON MENTAL HOSPITAL, UPPER WARLINGHAM, SURREY.

APPOINTMENT OF SECOND ASSISTANT MEDICAL OFFICER.

The Visiting Committee of the Croydon Mental Hospital are prepared to receive applications from medical men for the appointment of Second Assistant Medical Officer at the Croydon Mental Hospital. No married quarters are provided.

The salary will be at the rate of £350 per annum, rising by annual increments of £25 each to a maximum of £450 per annum, and the age of the candidate should not exceed 35.

Furnished apartments will be provided, with board and washing, and for the purpose of Superannuation will be valued at £150 per annum.

Candidates must be registered under the Medical Act, and preference will be given to those candidates who have held the post of House Surgeon or House Physician at a General Hospital.

The appointment will be subject to the provisions of the Asylum Officers Superannuation Act, 1909.

Applications to be made on forms to be obtained by sending a stamped addressed foolscap envelope to the undersigned, with copies (not originals) of not more than three testimonials of recent date, not later than 11 o'clock in the forenoon of Thursday, August 8th, endorsed "Croydon Mental Hospital, Second Assistant Medical Officer."

Canvassing in any form is prohibited.

Town Hall, Croydon. JOHN M. NEWNHAM, Clerk to the Visiting Committee.

July 17th, 1929.

City and Port of Plymouth.

ASSISTANT MEDICAL OFFICER OF HEALTH.

Applications are invited from duly qualified medical men for the post of Assistant Medical Officer of Health to the City and Port of Plymouth.

Applicants should not be more than 35 years of age, and must possess a Diploma in Public Health, or a qualification in State Medicine, or a Diploma in Tropical Medicine.

The person appointed will be required to assist the Port Medical Officer from time to time as required, and he will also assist in the general public health work of the City and in the various sub-departments of the Public Health Department. He will be required to act under the general supervision of the Medical Officer of Health and to carry out any duties delegated to him from time to time.

The salary will be at the rate of £600 per annum, and the appointment will be terminable by three months' notice on either side.

Forms of application are not provided, and applicants should send a statement of their professional qualifications and experience, together with copies of not more than three recent testimonials, to the undersigned on or before Saturday, August 24th. Canvassing will disqualify the applicant.

Envelopes must be endorsed "Assistant Medical Officer of Health."

A. T. NANKIVELL, Medical Officer of Health, City and Port of Plymouth.

Town Hall, Stonehouse. July 15th, 1929.

City of Plymouth.

UDAL TORRE SANATORIUM, YELVERTON.

RESIDENT MEDICAL OFFICER.

Applications are invited from duly qualified and registered practitioners (male) for the post of Resident Medical Officer at Udal Torre Sanatorium (39 beds). The Sanatorium is situated on Dartmoor about 9 miles from Plymouth, and is reserved for the treatment of intermediate and advanced cases of pulmonary tuberculosis in male persons.

The salary will be at the rate of £450 per annum, together with board, residence, and laundry. Quarters are not provided for a married man. The appointment will be terminable by three months' notice on either side. Canvassing will be a disqualification.

The person appointed will rank as an Assistant Medical Officer of Health, and will be required to act under the general supervision of the Medical Officer of Health and to carry out any duties delegated to him from time to time.

Forms of application will not be provided, but candidates must state their age and experience.

Applications, together with copies of not more than three recent testimonials, must be delivered to the undersigned at his office on or before Saturday, August 24th, and envelopes must be endorsed "Resident Medical Officer."

Town Hall, Stonehouse. A. T. NANKIVELL, Medical Officer of Health.

July 15th, 1929.

Liverpool County Borough.

LOCAL EDUCATION AUTHORITY.

JUNIOR ASSISTANT SCHOOL MEDICAL OFFICER.

Applications are invited for a Junior Assistant School Medical Officer, in the Department of the Medical Officer to the Local Education Authority, at a salary of £600 per annum.

Applicants must be registered medical practitioners, and shall have had at least three years' experience. It is desirable that they should have had some special experience in school hygiene and in diseases of children.

The officer appointed will be required to devote his whole time to the service of the Education Authority, under the direction of the Medical Officer to the Education Authority. He will not be allowed to undertake private practice, and will be required to contribute to the Liverpool [illegible] Scheme, as required the City Council.

[illegible] qualifications, etc., [illegible] ot more than three endorsed "Junior Assistant School Medical Officer," must be delivered at the office of the Town Clerk, Municipal Buildings, Liverpool, on or before August 27th.

Canvassing of members of the Committee or the City Council is strictly prohibited, and will be considered a disqualification.

WALTER MOON, Town Clerk and Clerk to the Local Education Authority.

Municipal Buildings, Liverpool. July 20th, 1929.

Salisbury Municipality

MEDICAL OFFICER OF HEALTH.

Applications are invited for the position of Medical Officer of Health to the Salisbury Municipality, at a salary of £900 per annum.

Applicants must possess the Diploma of Public Health.

Duties will include those prescribed by the Local Government Board (England) for Medical Officers of Health and, in addition, the medical examination of natives in the Municipal Area; attendance on natives at the Lazaretto; and European patients at the Isolation Hospital.

The officer appointed will be the administrative head of the Sanitary and Public Health Department.

Applicants must state age, and whether single or married, submit qualifications and present occupation, together with three testimonials.

Applications close on August 31st, and must be addressed to the undersigned, endorsed "M.O.H." on the cover.

The successful applicant will be required to assume duties as soon as possible after October 15th. No travelling expenses will be paid, but salary will commence from date of leaving to take up duties.

By Order of the Council,
R. L. POLLETT, Town Clerk.

Town House, Salisbury, SALISBURY, S. RHODESIA.
June 25th, 1929.

West Derby Union.

RESIDENT ASSISTANT MEDICAL OFFICER (Male).

The Guardians invite applications for the appointment of a male Resident Assistant Medical Officer at the ALDER HEY CHILDREN'S HOSPITAL, WEST DERBY, LIVERPOOL (800 beds), at a salary after the rate of £200 per annum, together with the usual resident allowances.

Candidates must be single, fully qualified, and registered.

The appointment will be for a period of one year in the first instance, subject to extension for a further period not exceeding twelve months at the option of the Guardians.

Applications to be sent, stating age, qualifications, etc., with copies of three testimonials, to the undersigned, not later than Tuesday, August 6th.

G. O. HOLLOWAY, Clerk to the Guardians.

Union Offices, Brougham Terrace, Liverpool.

Miller General Hospital,

Greenwich Road, S.E.10.

CASUALTY OFFICER (male and unmarried) required. Salary £150 per annum, with board, residence, and laundry. The appointment is for the period from August 13th next until March 31st, 1930.

Applications, stating age, nationality, qualifications, and experience, accompanied by copies of not more than three recent testimonials, to be sent to the Secretary as soon as possible.

July 23rd, 1929.

County Borough of Rotherham,

DEPUTY MEDICAL OFFICER OF HEALTH, TUBERCULOSIS OFFICER, and RESIDENT MEDICAL OFFICER.

OAKWOOD HALL SANATORIUM.

Applications are invited for the above post at a salary of £650 per annum, together with a house and certain other emoluments valued at £25 yearly. Candidates must be duly qualified and registered, possess the D.P.H., or other similar qualification, and not be over 45 years of age. The Sanatorium accommodates 100 patients, and preference will be given to applicants with a knowledge of X-ray work. While the main duties of the office will be in connection with Tuberculosis, the officer will be required to undertake other work relating to the Infectious Diseases Hospital and General Public Health, and be prepared to act under the instructions and general superintendence of the Medical Officer of Health. The successful candidate will be required to devote the whole of his time to the duties of the office and, subject to a recent satisfactory medical certificate being provided, to contribute to the Rotherham Corporation Superannuation Fund. The appointment will be subject to the approval of the Ministry of Health. Three months' notice to be given to terminate the engagement. Applications, accompanied by three recent testimonials, must be sent to me, endorsed "Deputy M.O.H.," not later than August 7th next.

CHAS. L. DES FORGES, Town Clerk.

Municipal Offices.
July 26th, 1929.

Manchester Royal Infirmary.

CENTRAL BRANCH, ROBY STREET, MANCHESTER.

JUNIOR HOUSE SURGEON (Lady).

The Board of Management of the Manchester Royal Infirmary invite applications for the above appointment.

Applicants must be registered and hold a Medical and Surgical qualification.

The appointment is subject to one month's notice, in writing, from or to the Board, and is tenable for an indefinite period from September 12th. Commencing salary £100 per annum, together with board and allowance for laundry.

Applicants must state age and qualifications, and send twelve copies of their application and testimonials to the undersigned by Monday, August 19th.

By Order,
FRANK G. HAZELL, Gen. Supt. & Sec.

Oldham Royal Infirmary.

Applications are invited for the undermentioned posts:

HOUSE SURGEON in charge of Women's and Children's Wards.
HOUSE SURGEON in charge of Male Wards.
HOUSE SURGEON in charge of Out-patients' and Special Departments (in this post a knowledge of Refractions is desirable).

Salary £175 in each case, with board, residence, and laundry. Appointments tenable for six months. Successful applicants may re-apply for a further six months' service.

Applications, with copies of not more than three recent testimonials, to be forwarded to the undersigned.

CHARLES D. DRAKE, Gen. Supt.

Oldham Royal Infirmary.

Applications are invited for the post of ASSISTANT to the General Superintendent.

Applicants must have experience in Hospital administration, and a thorough knowledge of the uniform system of hospital accounts.

Applications, stating age, experience, and salary required, together with copies of not more than three recent testimonials, to be forwarded to the undersigned forthwith.

CHARLES D. DRAKE, Gen. Supt.

Beckett Hospital & Dispensary,

BARNSLEY.

JUNIOR HOUSE SURGEON (male) required. Applicants must be fully qualified, registered, and unmarried.

Salary attached to this appointment is at the rate of £140 per annum, together with board, residence, and laundry.

Applications, stating age, qualifications, and experience (Ophthalmology desirable), accompanied by testimonials, should be sent to the undersigned immediately.

ARTHUR L. BOURNE, Secretary-Supt.

July 16th, 1929.

APPOINTMENTS—Important Notice.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

(a) British Islands.

Town or District.	Town or District.	Town or District.
CONTRACT PRACTICE.	**CONTRACT PRACTICE** *(Contd.)*.	**PUBLIC HEALTH** *(continued)*.
EBBW VALE, MON. *(Workmen's Medical Society.)*	NEATH AND DISTRICT. *(Medical Aid Association.)*	DOWN COUNTY COUNCIL. *(Assistant Tuberculosis Medical Officer.)*
GILFACH GOCH, GLAMORGAN. *(Workmen's Medical Scheme.)*	OAKDALE, MON. *(Medical Officer for Medical Aid Association.)*	GLASGOW EDUCATION AUTHORITY. *(Male Assistant Medical Officer.)*
LLWYNYPIA, CLYDACH VALE PENYGRAIG, GLAMORGAN. *(Workmen's Medical Scheme.)*	OGMORE VALLEY, GLAMORGAN. *(Wyndham Colliery Medical Aid Society.)* *(Workmen's Medical Scheme.)*	SOUTH SHIELDS COUNTY BOROUGH. *(Assistant Medical Officer.)*
MARDY, GLAMORGAN. *(Workmen's Medical Scheme.)*	**PUBLIC HEALTH.**	YORKSHIRE NORTH RIDING COUNTY COUNCIL EDUCATION COMMITTEE. *(Assistant School Medical Officer.)*
	CORNWALL EDUCATION COMMITTEE. *(Assistant School Medical Officer—Female.)*	YORKSHIRE WEST RIDING COUNTY COUNCIL. *(School Medical Inspector.)*

(b) Colonial Medical Service.— WINDWARD ISLANDS MEDICAL SERVICE. (Grenada with Carriacou, St. Vincent and St. Lucia.)

(c) Overseas.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.
NEW SOUTH WALES. *(All Friendly Society Appointments.)*	Dr. R. H. TODD (Hon Sec., New South Wales Branch), B.M.A. Building, 30-34, Elizabeth St., Sydney, N.S.W.	**VICTORIA.** *(All Institute or Medical Dispensaries.)*	Dr. FRANK DAVIES (Hon. Sec., Victorian Branch), British Medical Association, Medical Society Hall, East Melbourne, Victoria.	**WESTERN AUSTRALIA.** *(Contract and Lodge Practice.)*	Hon. Sec., Western Australian Branch, British Medical Association, No. 6, Bank of N.S.W. Chambers, St. George's Terr., Perth, Western Australia.
QUEENSLAND. *(Brisbane Associated Friendly Societies Institute.)*	Dr. E. S. MEYERS (Hon Sec., Queensland Branch), British Medical Association, Adelaide St., Brisbane	**WELLINGTON, NEW ZEALAND.** *(Contract Practice Appointments.)*	Dr. G. F. V. ANSON (Hon. Sec., New Zealand Branch), British Medical Association, P.O. Box 156, Wellington, New Zealand.		

Address: B.M.A. House, Tavistock Square, W.C.1.
July 24th, 1929.

By Order of the Council of the British Medical Association.
ALFRED COX, Medical Secretary.

Notts County Mental Hospital,
RADCLIFFE-ON-TRENT, NOTTS.

The Committee of Visitors invite applications for the position of SENIOR ASSISTANT MEDICAL OFFICER AND DEPUTY MEDICAL SUPERINTENDENT, from gentlemen duly registered under the Medical Acts.

Salary will be after the rate of £520 per annum, rising £20 per annum to a maximum of £620 per annum, together with unfurnished house, coal, light, and water, valued at £50 for superannuation purposes; there will be no other emoluments.

The appointment is subject to the Asylums Officers Superannuation Act, 1909, and will also be subject to three months' notice on either side.

Applications forms, which must be returned not later than August 3rd, may be obtained from the Clerk to the Committee, Mr. J. F. GELL.

Radcliffe-on-Trent. July 13th, 1929.

Hull Royal Infirmary.
(272 Beds.)

Applications are invited for the post of CASUALTY HOUSE SURGEON (male), now vacant.

The appointment will be for six months in the first instance, terminable on either side by one month's notice.

Salary at the rate of £130 per annum, with residence, board, and laundry.

Applications should be addressed to the undersigned.

July 15th, 1929.

R. J. CARLESS,
House Governor.

London Temperance Hospital,
Hampstead Road, N.W.1.

Applications are invited for the post of CASUALTY OFFICER, which will become vacant on or about August 7th.

The appointment will be for a period of six months, at a salary of £120 per annum. (Ceteris paribus, preference will be given to Distainers, and to those who have held resident post.)

Candidates must submit applications, stating qualifications, age, etc., with copies of not more than three testimonials, by Friday, August 2nd, addressed to the Secretary.

Longton Hospital.

Applications are invited for the post of HOUSE SURGEON to the above Hospital.

Salary £120 per annum, with board, residence, and laundry, plus certain fees.

Applications, with copies of three recent testimonials, should reach me the undersigned not later than July 30th, addressed to the Chairman of Directors, Longton Hospital, Stoke-on-Trent, Staffs.

By Order of the Board of Management,
W. HOLFORD, Secretary.

Bradford Children's Hospital.

Male HOUSE SURGEON and Male HOUSE PHYSICIAN wanted, fully qualified. Salary £120 each, with board, residence, and laundry.

Applications, stating age, with recent testimonials, not later than July 29th, to—

J. W. LONGLEY, Secretary.

Queen Mary's Hospital for the
EAST END, E.15.

Applications are invited for the post of HONORARY ASSISTANT RADIOLOGIST at the above Hospital.

Applicants must be registered medical practitioners, engaged solely in the practice of Radiology. Applications, together with copies of not more than three recent testimonials, should be forwarded to the undersigned on or before Friday, August 2nd.

Further particulars may be obtained from—

RAPHAEL JACKSON (Major),
Secretary.

Birkenhead General Hospital.
(156 Beds.)

Applications are invited for the post of CASUALTY SURGEON (male). Salary £100, with board and residence. To take up duties beginning of August.

Applications, stating qualifications, experience, and nationality, with three copies of recent testimonials, to be sent to the Secretary-Supt. as early as possible.

Durham County and Sunderland
EYE INFIRMARY.

Wanted, a LOCUM for the above Institution for the months of August and September.

Must have good experience in Ophthalmic work.

Apply, with full particulars, to—

Eye Infirmary, JOHN BUTTERFIELD,
Stockton Rd., Sunderland. Secretary.

British Medical Journal,
BRITISH MEDICAL ASSOCIATION HOUSE,
TAVISTOCK SQ., LONDON, W.C.1.
T/A: ARTICULATE, WESTCENT, LONDON.
Tel.: MUSEUM 9361 (4 lines).

SMALL ADVERTISEMENT RATES.

Up to Six Lines (32 Words) 9s.
Each Additional Line, 1s. 6d.
(Address included.)

Sixpence should be added if replies to a box number are to be posted.

All advertisements must be received not later than first post Tuesday previous to date of publication.

ASSISTANCIES.

Wanted shortly.—Indoor male ASSISTANT, single, English or Scotch, in Practice near Manchester. Must recently qualified man. Cyclist. Initial salary £280, all found, with early rise to suitable man. Dispenser kept. Usual bond. Photo, etc.—Address, No. 4518, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — An indoor Assistant in large Colliery and Private Practice in South Wales Hospital Town. Partnership free in twelve months certain to first-class man with bent for surgery.—Address, with essential particulars, No. 4605, B.M.A. House, Tavistock Square, W.C.1.

Wanted immediately, Assistant, British, male, outdoor, in Cornwall. Single, able to drive car. £500. Usual bond. Must be experienced, keen, and energetic.—Address, No. 4520, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—Assistant (outdoor) in good-class panel and private country Practice. Part-time only required at present. Suitable post for man reading for higher degree. View to ultimate partner-ship. West of England.—No. 4514, B.M.A. House, Tavistock Square, W.C.1.

Wanted shortly.—Exper. male ASSISTANT, with view. Eng. or Scotch, Protestant. Pref. ex Res. Country Practice, S.W. County. Salary £450, rising £25 p.a. House provided, also transport allow. £50. Photo., tests. —No. 4526, B.M.A. House, Tavistock Sq., W.C.1.

Wanted.—Lady Assistant (out- door) for large panel and private Practice, industrial town, Kent. Must be experienced in dispensing and book-keeping. Good references. Sign usual bond.—Address, No. 4502, B.M.A. House, Tavistock Square, W.C.1.

Wanted, October, outdoor male ASSISTANT, country town in the Midlands, no colliery; ex H.S., Cambridge or Lond. man preferred. Salary £450 to suitable man. Photo., testimonials.—Address, No. 4503, B.M.A. House, Tavistock Square, W.C.1.

Wanted, commencing Sept., ASSISTANT for private and panel Practice, Scottish Midlands. Salary £300, rooms, garage, and transport allowance. Some experience essential. References required.—Address, No. 4531, B.M.A. House, Tavistock Sq., W.C.1.

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Royal Devon & Exeter Hospital, EXETER. (225 Beds.)

ASSISTANT HOUSE SURGEON (Male)

Applications are invited for the post of Assistant House Surgeon at this Hospital, now vacant. The appointment is for six months, but candidates are eligible for re-election.
The duties include assisting in the Ear, Nose, Throat, Radiological, and Casualty Departments, and the giving of anæsthetics.
Salary at the rate of £100 per annum, with board, apartments, and washing.
Applications, giving particulars as to age and qualifications, together with copies of three recent testimonials, should be sent to the undersigned as soon as possible.
By Order of the Committee,
S. S. COLE,
July 2nd, 1929. Secretary and Manager.

CAVENDISH NURSES (Male and Female)

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TELEGRAMS: Tactear, London. Surgical, Glasgow. London, 1277 Welbeck. Glasgow, 477 Douglas.
Tactear, Manchester. Tactear, Dublin. Manchester, 3152 Ardwick. Dublin, 631 Ballsbridge.

Superior trained Nurses for Medical, Surgical, Mental, Dipsomania, Travelling and all cases. Nurses reside on the premises, and are always ready for urgent calls Day and Night. Skilled Masseuse, Masseurs, and good Valet attendants supplied.

Terms from £3 3s. *Apply to the Secretary or Lady Supt.*

The Children's Hospital,
BIRMINGHAM. (230 Beds.)

RESIDENT MEDICAL OFFICER.

Applications are invited for the above post, which is the Senior Resident appointment.

Candidates must be qualified and registered and have held previous resident appointments at a Hospital.

The salary is at the rate of £175 per annum, with board, residence, and laundry.

The appointment is tenable for one year, and the officer is eligible for re-election for a second year.

Duties to commence on October 1st.

Applications, with certificate of registration and not more than three testimonials, should be addressed to the undersigned on or before August 31st.

HAROLD F. SHRIMPTON,
July 22nd, 1929. House Governor.

Manchester Royal Infirmary.

JUNIOR ASSISTANT MEDICAL OFFICER IN RADIOLOGICAL DEPARTMENT.

The Board of Management of the Manchester Royal Infirmary invite applications for the above appointment. Applicants must be registered and hold a Medical and Surgical qualification.

The appointment (non-resident) is for twelve months, renewable for a further period of twelve months, subject to the provisions of the By-laws as to notice. Salary is at the rate of £350 per annum. Applicants must state age, and send twelve copies of their application and testimonials to the undersigned by Thursday, August 29th.

By Order,
FRANK G. HAZELL,
August 3rd, 1929. Gen. Supt. & Sec.

The Sheffield Royal Hospital.
(340 Beds.)

There will be a vacancy on the Resident Staff on August 1st for an OPHTHALMIC HOUSE SURGEON (male). The appointment will be for a period of six months, and the selected candidate will be eligible for re-appointment or appointment to another office on the resident staff. Salary £80 per annum, with board, residence, and laundry. Applications, with copies of testimonials, should be sent as soon as possible to—

W. H. BOOTH,
July 20th, 1929. Supt. & Secretary.

Ilford Emergency Hospital
(8 miles from London), to be extended and re-named KING GEORGE HOSPITAL.

APPOINTMENT OF HOUSE SURGEONS.

Applications are invited from unmarried medical men for the appointments of SENIOR and JUNIOR HOUSE SURGEONS, now vacant. Board-residence will be provided. Salary according to experience. Applications should be sent to the Secretary immediately.

Liverpool Hahnemann Hospital,
HOPE STREET.

Applications are invited for the post of non-resident STIPENDIARY MEDICAL OFFICER to the above Hospital. Successful candidate will be expected to study and apply Homœopathy.

Appointment is for six months, renewable. Salary at the rate of £125 p.a. Some visiting.

Apply, stating age, sex, experience, and enclosing copies of recent testimonials, to the Registrar before August 2nd.

Worcester General Infirmary.

SENIOR and JUNIOR RESIDENT MEDICAL OFFICERS wanted. Applications from gentlemen are invited; stating age, qualifications, experience, and whether married or single, with copies of recent testimonials (not more than four), not later than August 8th. Salaries £180 and £120 per annum respectively, inclusive, with board, residence, and washing.

E. J. HOLLAND, Secretary.

East Suffolk and Ipswich
HOSPITAL, IPSWICH.
(260 Beds. Seven Residents.)

Wanted at once, a HOUSE SURGEON (male, British). Salary at the rate of £120 per annum (six months' contract), with board, residence, and laundry.

Applications, stating age, qualifications, and experience, and accompanied by copies of three recent testimonials, to be sent to the undersigned.

Forthcoming Vacancies.—September 1st, 1929, House Surgeon. October 1st, 1929, Two House Surgeons. Will candidates desirous of applying for these vacancies when they occur please communicate with me now.

The Hospital, ARTHUR GRIFFITHS,
Ipswich. Secretary.
July 27th, 1929.

The London Female Lock
HOSPITAL, 283, Harrow Rd., London, W.9.

The Board of Management invite applications for the appointment of HOUSE SURGEON (male or female) at the Female Lock Hospital. Salary at the rate of £150 per annum, with furnished rooms, full board, and washing. Candidates, who must be doubly qualified and duly registered, should send in their applications by August 12th, accompanied by copies of three recent testimonials, to the Secretary, from whom further particulars can be obtained. The appointment is for six months commencing September 6th.

Liverpool Open-air Hospital for
CHILDREN, LEASOWE. (260 Beds.)
(Surgical Tuberculosis and Orthopædics.)

Vacant October 1st, the post of JUNIOR RESIDENT MEDICAL OFFICER. Salary £200, with residence, board, and laundry. Tenable for six months as Junior and a further six months as Senior Resident. Applications, with copies of testimonials, to be sent to the Senior Medical Officer not later than September 2nd.

The Infants Hospital,
Vincent Square, Westminster.

Applications are invited for the post of HOUSE PHYSICIAN (female). The appointment is for six months. Salary at the rate of £75 per annum, with board, residence and laundry. Applications and copies of testimonials should reach the undersigned by August 15th.

ALFRED J. SMALL, Secretary.

General Hospital, Gt. Yarmouth.
(72 Beds.)

Applications are invited for the post of SENIOR HOUSE SURGEON. Salary £150 per annum, with board, residence, and laundry. Duties to commence August 13th. Candidates (male and unmarried) must be fully qualified and registered.

Applications, stating age, nationality, and qualifications, together with copies of three recent testimonials, to be sent immediately to the undersigned.

T. H. G. GARTLAND, Secretary.

Birmingham and Midland Eye
HOSPITAL, Church Street, BIRMINGHAM.

Applications are invited from duly registered medical practitioners for the following resident posts at the above Hospital:

RESIDENT SURGICAL OFFICER. Salary £150 per annum.

Two HOUSE SURGEONS. Salary £110 per annum.

Applications must be received by first post on Tuesday, July 30th.

Particulars can be had on application to the undersigned.

C. A. MASON,
July 16th, 1929. Gen. Superintendent.

Lowestoft and North Suffolk
HOSPITAL.

HOUSE SURGEON (male) preferably with knowledge of X-ray. Salary £120 p.a., with board, residence, and laundry.

Applications, with copies of three recent testimonials, to the Honorary Medical Supt.

Tynemouth Victoria Jubilee
INFIRMARY.

Two HOUSE SURGEONS (male or female) required September 1st. Applicants must be doubly qualified and registered. Salary £100 per annum, with board, residence, and laundry.

Applications stating age and other essential particulars, and accompanied by copies of recent testimonials, to be addressed to the undersigned, from whom all particulars may be obtained.

The Hospital has two resident House Surgeons and contains 80 beds and cots, an X-ray Department, and an Out-patient Department where accident cases are received.

1, Northumberland Place, T. E. ROWELL,
North Shields. Secretary.

Huddersfield Royal Infirmary.

JUNIOR HOUSE SURGEON wanted to commence duty August 14th. Salary £150 per annum, with board, residence, and laundry. The appointment is for six months, subject to renewal.

Applications, with copies of testimonials, are invited from qualified and registered gentlemen, and should be addressed to the undersigned at the Infirmary, not later than Wednesday, August 7th.

H. E. G. HALL, Secretary.

Ancoats Hospital, Manchester.

HOUSE SURGEON (Orthopædic) required to commence September 1st. Appointment for six months. Also HOUSE PHYSICIAN required to commence September 1st. Appointment for six months. Salary for each appointment at the rate of £100 per annum, with board, apartments, and washing. Applications, stating age, qualifications, experience if any, and full particulars, to be forwarded to the undersigned on or before August 7th next, together with copies of three recent testimonials.

By Order of the Board,
HERBERT J. DAFFORNE,
Gen. Supt. & Secretary.

Royal Sussex County Hospital,
BRIGHTON. (225 Beds.)

HOUSE SURGEON (male) required end of August, with charge of beds, part casualties, and anæsthetics. Salary £150 per annum, with board, residence, and laundry. Candidates must hold Medical and Surgical qualifications of the British Empire, and be duly registered under the Medical Acts. They must be unmarried, and when elected under 30 years of age. Applications, with copies of testimonials, should be sent immediately to the undersigned.

L. L. W. LANCASTER-GAYE,
Secretary-Superintendent.

The Royal Gwent Hospital,
NEWPORT, MON.

There is a vacancy for a JUNIOR RESIDENT MEDICAL OFFICER at the above Hospital. Salary at the rate of £125 per annum, with board, lodging, and laundry.

Applications, stating age and qualifications, with copies of three testimonials, to be sent to the undersigned.

Applications from ladies not entertained.

J. K. MILLWARD,
July 11th, 1929. Secretary-Supt.

Liverpool and District Hospital
FOR DISEASES OF THE HEART.

HOUSE PHYSICIAN wanted at the above Hospital for six months from October 1st. Salary at the rate of fifty guineas per annum. Board, rooms, and laundry. Apply, before August 15th, to the Secretary, Miss LEWIS, 14, Cook Street, Liverpool.

General Infirmary, Salisbury.
(General Hospital—151 Beds.)

A RESIDENT HOUSE PHYSICIAN (male) required as soon as possible.

Candidates must be [illegible] fully qualified and registered. Salar[illegible]

Applications, with [illegible] be sent to the House [illegible] at once.

London Homœopathic Hospital

(Incorporated by Royal Charter),
Great Ormond Street and Queen Square,
Bloomsbury, W.C.1. (172 Beds.)

The Board of Management are prepared to receive applications, male or female, for the following appointment:

ASSISTANT SURGEON for Diseases of the Eye.

The successful candidate must possess or obtain a registrable University Degree, and be or become a Member of the British Homœopathic Society. Any candidates canvassing the Members of the Board, Medical Council, or Medical Committee are thereby disqualified.

Candidates may be required to attend a Meeting of the Medical Committee.

Applications, stating age, with 35 copies of application and 35 copies of each testimonial, should be sent addressed to the Secretary, of whom further particulars may be obtained.

EDWARD A. ATTWOOD,
July, 1929. Secretary.

London Homœopathic Hospital

(Incorporated by Royal Charter),
Great Ormond Street and Queen Square,
Bloomsbury, W.C.1.
(A General Hospital—172 Beds.)

RESIDENT MEDICAL OFFICER required (one of three), male or female, the appointment being for twelve months, four months as Medical and Casualty Officer, four months as House Surgeon, and four months as Medical and Gynæcological Officer, with salary at the rate of £100 per annum, and board, apartments, and laundry.

Candidates must be legally qualified and registered.

Candidates will be required to attend a meeting of the Medical Committee.

Applications, stating age, with 35 copies of application and 35 copies of each testimonial, may be sent to the Secretary at any time.

Successful candidates are required to take the Hospital course of instruction in the principles and practice of Homœopathy.

EDWARD A. ATTWOOD, Secretary.

West Herts Hospital,

HEMEL HEMPSTEAD.
(110 Beds 24 miles from Euston.)

Applications are invited for the appointment of a SENIOR RESIDENT MEDICAL OFFICER, to commence duties on August 1st next. Salary £150, with rooms, board, and laundry.

Also a JUNIOR RESIDENT MEDICAL OFFICER, to commence duties on or about August 1st next. Salary £100, etc.

Preference will be given to male candidates.

Particulars to be obtained of, and applications, stating essential particulars, and enclosing copies of recent testimonials, to be sent at once to

ROBT. L. BUTTERFIELD,
Clerk to the Hospital.

West Herts Hospital,

HEMEL HEMPSTEAD.
(110 Beds. 24 miles from Euston.)

Applications are invited for the appointment
MEDICAL OFFICER,
about August 1st next.
, board, and laundry.
to male candidates.
d of, and applications,
ulars, and enclosing

copies of recent testimonials, to be sent at once to

ROBT. L. BUTTERFIELD,
Clerk to the Hospital.

Woolwich and District War

MEMORIAL HOSPITAL,
Shooters Hill, London, S.E.18.
(General Hospital—112 Beds.)

JUNIOR HOUSE SURGEON.

The Appointments Committee invite applications for appointment as Junior House Surgeon. An honorarium of £125 per annum will be paid in respect of this appointment, which will be for a period of six months.

Applications, accompanied by copies of not more than three recent testimonials, are invited from suitably qualified candidates, and should be addressed to the
not later than 10 a
EDWIN

St. John's Hospital, Lewisham,

S.E.13.

There is a vacancy for a male RESIDENT HOUSE APPOINTMENT for a period ending October 31st next. Salary £100 p.a. Applications, with copies of references, to be addressed to the Secretary of the Hospital as soon as possible.

PROSPECTIVE PURCHASERS

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7, Windsor Place, Newcastle - on - Tyne.

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The Royal Infirmary, Sheffield.

OPEN ELECTION.

A vacancy having arisen in the post of SURGICAL REGISTRAR to the Royal Infirmary, Sheffield, the Weekly Board invite applications therefor.

Candidates must be Fellows of one of the Colleges, and the successful candidate will not be allowed to engage in general practice. The post is tenable for one year, and the holder will be eligible for re-election. The salary is £200 per annum.

Applications, stating age and qualifications, together with copies of testimonials, to be sent to the undersigned immediately.

JNO. W. BARNES, F.C.I.S.,
General Superintendent and Secretary.
Board Room, June 19th, 1929.

The Royal Infirmary, Sheffield.

(500 Beds.)

OPEN APPOINTMENTS.

The Weekly Board of Management invite applications for the two undermentioned posts:

OPHTHALMIC HOUSE SURGEON, and
ASSISTANT OPHTHALMIC HOUSE SURGEON.

The appointments will be tenable for five months to December 31st next, when the officers appointed will be eligible for re-election. The salary attached to each appointment is £80 per annum, with board and residence. Applications, with copies of testimonials, to be sent to the undersigned immediately.

JNO. W. BARNES, F.C.I.S.,
Board Room. Gen. Supt. & Secretary.
July 22nd, 1929.

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Terms post free on application.

Northern Suburb.—About £700 p.a. Small panel, ample scope for increase. Visits from 5/-. Good house, 4 bed, etc.—No. 8518.

Home Counties.—Death Vacancy.—About £760 p.a. Mids. 2 gns. Panel 510. Visits up to 10/-. Good house and large garden to rent.—No. 8516.

Home Counties. — £3,600 p.a. 1/3 or 2/3 share. Panel over 2,000 Mids. from 2 gns. Visits 3/6—10/6. Good house and garden.—No. 8514.

South Coast.—£1,200 p.a. increasing. Panel over 400. Mids. 3 gns. up. Visits 2/6—7/6. House, 8 bed., etc., large garden, to rent.—No. 8511.

Yorks.—Over £3,000 p.a. 1/4 share, good scope for increase. Panel over 2,000. Mids. 2—5 gns. Med. house to rent or buy.—No. 8510.

Lancs.—£4,000 p.a., increasing. Panel over 2,600. Visits 2/6—7/-. Mids. 2—5 gns. Suitable for two. Two houses to rent or buy.—No. 8509.

London, South. — About £800 p.a. Residential. Panel and appts. about £600 p.a. Good house and large garden. Prem.—house and Practice—£3,000—No. 8507.

Hants.—£750 p.a. Panel about 860. Appts. £250 p.a. Good house, 6 bed., etc. Usual fees.—No. 8501.

N. Devon.—About £750 p.a. Panel 330. Appts. £30. Usual fees. Good house and garden, 5 bed., etc.—No. 8499.

Sussex Coast.—About £1,400 p.a. Good-class, non-panel, non-dispensing. Appt. £35. Visits 5/- to 15/-. Large house to rent.—No. 8476.

N.E. Coast.—Nearly £1,200 p.a. and chance of sev. appts. Fees 3/6 to 5/-. Panel 600. Compact PRACTICE. Good house, garden and garage, etc.—No. 8493.

Southampton. — Over £1500. Panel and appts. £858. Good house, 6 bed., etc., for sale. Good schools.—No. 8495.

Home County.—Over £700 p.a. Small residential town within 25 miles, South. Panel 462. Good fees. Large well-built house and garden.—No. 8494.

Cornwall. — Share £1,000 p.a. General mixed Practice. Panel nearly 2,400. House, 5 bed., etc., low rent.—No. 8495.

Berkshire. — About £700 p.a. General mixed Country PRACTICE. Panel about £287 p.a. Few mids. Fees 2/6—7/6. Excellent house and garden.—No. 8490.

Lancs.—1/3 or 1/2 share of over £2,400 after prelim. assistancy. Panel £500. Mixed class. Good house, with 4 bed., 2 attics, etc.—No. 8454.

Bucks.—About £2,800 p.a. 1/2 share. Appts. £200 p.a. Panel over 1,900. Visits 3/6—10/6. Mids. 2—5 gns. House, 4 bed., to rent. Prem. 1½ yrs.—No. 8483.

Suffolk.—Over £1,000 p.a., unop. Old-estab. Panel 530. Appts. £50 [illegible] Usual fees. Good house, large gard.—N[illegible]

S. W. County. — 1/2 sh[illegible] of about £3,000 p.a. Appts. £125 retary-ship about £520 p.a. Fees up to 21/-. G[illegible] 4 bed., etc., large gard. Sep. sgy.—[illegible]470.

Kent.—Country Practice. [illegible]bout £1,000 p.a. Panel about 400. Appts. over £50 p.a. Visits 3/6 to 10/6. House, 5 bed., etc. Extensive grounds.—No. 8408.

Birmingham.—About £2,[illegible]00 p.a. Panel 1,700. Mids. from 2 gns. Visits 3/6 up. Good house, 4 beds., etc. Large garden. Two branches. Suitable for two.—No. 8466.

N. W. Coast Town.—Over £3,000 p.a. Old-established. Panel over 1,500. Usual fees. Medium house to rent.—No. 8465.

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MIDLANDS.—Industrial Town.—Old-established G.P. Receipts approx. £1,750. Panel 2,200. House to rent. Fees 2/6 up. Night work and midwifery refused. Ample scope for development. Premium £2,750, cash.

WEST COUNTRY.—Rural G.P. situated in charming district. Sport of all kinds. Receipts over £2,000. Increasing panel. Premium 1½ years' purchase. House for sale.

WEST MIDLANDS.—Unopposed Country PRACTICE. Receipts nearly £1,500. Panel. Suitable house available. Premium 1½ years' purchase; part down and balance by arrangement.

SCOTLAND.—NUCLEUS growing G.P. in rural district. Receipts over £600 p.a. Suitable house available. Premium open to reasonable offer for quick sale.

YORKS.—PARTNERSHIP in middle and working-class G.P. Receipts over £3,000 p.a. Panel over 2,000. House to rent. Premium for 1/4 share £1,500.

EASTERN COUNTIES.—PARTNERSHIP with view to succession. Non-panel Practice. Receipts over £3,000 p.a. Suitable house available. Premium for half share 2 years' purchase, or would sell whole Practice with long introduction.

MIDLANDS.—Cash and panel PRACTICE situated in manufacturing town. Suitable accommodation available. Receipts £650. Panel about 800. Premium £1,000 cash.

LIVERPOOL.—NUCLEUS G.P.—Receipts over £500 p.a. Panel 700. Premium £750. House to rent or for sale.

LONDON, E.—Working class PRACTICE. Receipts £850. Panel approx. 500. House to rent at £80 p.a. Premium 1½ years' purchase.

LONDON, S.E.—Lower middle-class G.P. Receipts over £1,200. Panel nearly 600. Medium sized house to rent. Premium 1½ years' pur.

LONDON, S.E.—Near West End.—Well-established G.P. Excellent corner site. Receipts £1,000. Panel 750. Suitable house available at low rental. Premium £1,500 cash.

LONDON, N.—NUCLEUS Lock-up Practice with living accommodation if desired. Receipts over £750. Panel 510. Premium £800 cash, for quick sale.

HANTS.—Seaport.—Well-established G.P. Medium-sized house with small garden and branch surgery. Panel 900. Receipts average £800 p.a. Premium 1½ years' purchase.

EASTERN COUNTIES.—PARTNERSHIP in good-class non-panel Practice situated in best part of large town. Receipts average nearly £4,500 p.a. Premium for 1/4th share to commence with, 2 years' purchase. Suitable only to well experienced practitioner used to good class practice. Personal interview London essential.

MIDLANDS.—PARTNERSHIP in good-class non-panel G.P. Receipts over £3,000 p.a. Appointments £500. Premium 2 years' purchase for 1/4th share, with view to larger share and ultimate succession. Suitable to well-qualified experienced practitioner aged 28 to 35 years.

MIDLANDS.—Well established G.P. Receipts £2,500. Panel 1,900. Choice of two residences for sale or to rent. Premium 1½ years' purchase. Partnership up to half share entertained at 2 years' purchase.

SHROPSHIRE.—NUCLEUS PRACTICE. Receipts approx. £350. Panel 380. House to rent at £35. Premium £475.

EASTERN COUNTIES.—PARTNERSHIP in rural G.P. Receipts over £2,200. Panel 1,500. Premium for 1/3rd share 2 years' purchase Part down and balance by arrangement.

SURREY.—PARTNERSHIP in old-established middle-class G.P. Receipts approx. £2,000 p.a. Panel 1,400. Prem. for 1/3rd share 2 yrs.' purchase.

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ESTABLISHED 1877.

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4. NORTH-WEST MIDLANDS (County Town).—Well-estab. PRACTICE. Receipts £1,450, and increasing. Panel approx. 510, and ample scope for increase. Good fees. House to rent. Garage and garden.
5. SOMERSET.—PARTNERSHIP (Half Share) in well-estab. unop. Country Practice. Receipts £3,040, and increasing. Panel about 1,200. Good modern house, garden, garage.
6. BIRMINGHAM.—Industrial Cash and Panel PRACTICE. Receipts about £400 p.a. Panel 630. Good house, garden, and garage accommodation.
7. NORTH WALES COAST. — Well-established middle-class PRACTICE. Receipts average £1,745 p.a. Panel 713. Good modern house to rent. Garage and garden.
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W. J. HICKS, *Secretary*

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1 DEATH VACANCY. — NOTTS. — Old-established PRACTICE over £2,000 p.a. in good town. Commodious house, with garden and garage. Rent £55 p.a.

2 DEATH VACANCY.—BUCKS.—Practice about £750 p.a. Panel 516. Visits 2/6 to 7/6. Good detached house (2 reception, 3 bedrooms, etc.). Rent £72 p.a.

3 LONDON, S.W.—Good Residential Suburb. PARTNERSHIP in very old-established non-dispensing Practice over £3,700 p.a. Visits 5/- to 10/6. Midwifery £5 5s. to £10 10s. Good house (5 bedrooms, etc.). Price, long lease-hold, £1,500. Premium one-half share 2 years' purchase.

4 SOUTH OF ENGLAND.—Partnership in sound old-established Practice. Beautifully situated country town. Small nice house available. Rent £47 p.a. Preference Oxford or Cambridge Graduate. Premium 2 years' purchase for share about £1,000 p.a.

5 MIDLANDS.—Old-established non-dispensing PRACTICE in Cathedral city. Receipts over £2,400 p.a. No panel. Good house (14 rooms). Rent £100 p.a. Premium 1½ years' purchase.

6 N. WALES (SEASIDE RESORT).—Well-established PRACTICE £600 p.a. in nice residential town. Panel 245. House (7 bedrooms, etc.). Premium, house and Practice, only £2,300.

7 HEREFORDSHIRE.—Practice over £1,000 p.a. Panel 240. Good town. Cottage Hospital. House (4 bedrooms, etc.). Price £1,500. Premium for Practice 1½ years' pur.

8 LONDON, W. — Non-dispensing Practice £3,000 p.a. (25 per cent. N.D.). Consultations and visits 10/6 (a few), mainly 1, 2, and 3 guineas. First-rate opportunity for good man. Easy terms.

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10 EASTERN COUNTIES. — Old-established unopposed Country PRACTICE over £2,450 p.a. Panel 1,800. Visits 6/- to 10/6. Good house (6 bedrooms); freehold £1,000. Premium 1½ years' purchase.

11 DORSET. — Old-established unopposed Country PRACTICE between £1,300 and £1,400 p.a. Panel about 650. Visits 2/6 to £1 1s. Good house (6 bedrooms) and garden. Price £1,000. Premium for Practice 1½ years' purchase.

12 S.W. OF ENGLAND. — Non-dispensing PRACTICE £1,730 p.a. in Cathedral City. No panel. House (6 bedrooms) in best quarter. Hospital. Premium 1½ years' purchase.

13 SOUTH COAST.—Favourite Health Resort. —Small old-established PRACTICE, £300 to £350 p.a. Capable of great increase. Excellent house (5 to 6 bedrooms) in unique position. Garage and large garden. Freehold £2,000. Premium for Practice £500.

14 LONDON, E. — Cash and Panel Practice about £680 p.a. Panel 800. Visits 3/6 to 5/-. No midwifery. Shop-fronted house. Freehold about £600.

15 SOUTH MIDLANDS. — Well-established Country PRACTICE about £1,500 in first-rate Hunting centre. Panel 733. House (6 bedrooms) with every modern convenience in grounds (2 acres), on lease. Cottage Hospital. Premium 1½ years' purchase.

16 N.E. COAST.—Partnership in sound Practice in rapidly growing and attractive seaside town. Panel about 700. Suitable house available. Share of about £1,400 for disposal at 2 years' purchase. Partner aged about 30 and well qualified, who has held resident Hospital appointments.

17 MIDLANDS.—Country Practice over £900 p.a. within 5 miles of good town. Panel 550. Comfortable and convenient house (6 bedrooms), electric light and central heating, to be sold or let. Premium—Practice £1,350, part by instalments.

18 BUCKS.—Small Country Practice over £300 p.a. Panel 250. Very attractive house (8 bedrooms), with fine garden, garage, etc., for sale. Premium—Practice—£300.

19 SOUTH AFRICA (Natal). — Splendid opportunity offers for well-qualified man to acquire for £75 PRACTICE doing at rate of £2,000 p.a. Further particulars on application.

20 SOUTH AFRICA.—Well-established PRACTICE £1,350 p.a. in small town in Orange Free State. Ten-roomed house in centre of town to rent. Premium £750.

21 YORKSHIRE (W.R.).—Partner required in better working-class Practice in good district of large city. Panel over 2,000. Seven-roomed house, with garden, to be sold or let. Great scope. Share worth over £750 p.a. at 2 years' pur.

22 PLYMOUTH.—Panel and Private Practice of about £150. Panel 226. Good scope for young energetic man. Premium £150.

23 MIDLANDS. — Practice averaging over £1,850 p.a. in small Industrial Town with pretty country all round. Panel 1,380. Double-fronted house (7 bedrooms) for sale. Good scope. Premium £3,250, to include drugs.

24 WEST OF ENGLAND.—Partnership in Practice over £3,000 p.a. (£1,000 from panel and appointments) in Residential and partly Agricultural District. House available. Very good Cottage Hospital. One-fourth or one-third share at 2 years' purchase.

25 SOUTH COAST.—Seaside Resort. Non-dispensing PRACTICE about £550 p.a. Small panel. House (5 bedrooms) to let. Premium £1,100. Scope for increase.

26 SOUTH COAST.—Non-dispensing Practice averaging £1,332 p.a. in favourite Watering Place. No panel. House at nominal rent. Scope. Premium 1½ years' purchase.

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Practices and Partnerships for Disposal (continued).

27 SUSSEX.—Non-dispensing Practice about £950 p.a. in delightful residential Country District under 40 miles from London. No panel. Choice of house. Premium 1½ years' purchase.

28 LONDON, E.—Partnership in exceptionally old-established Practice averaging over £3,500 p.a. Good fees and appointments. Two-fifths share for disposal at first, part by instalments. Small house may be purchased at first, part by instalment, or one-third could be purchased at 1½ years' purchase.

29 SOUTH AFRICA.—Old-established Practice. Receipts last year £1,816. Travelling and midwifery light. Climate ideal—no tropical diseases (altitude nearly 5,000 ft.). Delightful residence (5 bedrooms), in perfect order, with 2 acres grounds. Excellent scope. Local Hospital. Premium £1,200, with option to purchase house.

30 YORKSHIRE (N.R.).—Practice of about £1,000 in small Country Town. Panel 430. House (5 bedrooms) to be let or sold. Sport. Scope. Premium £1,250.

31 S.E. COAST. — Non-dispensing Practice averaging nearly £1,850 in Health Resort. No panel. Detached house (7 bed and dressing rooms) and good garden, to be sold or let. Premium 1½ years' purchase.

32 N. OF ENGLAND.—Partnership in Practice about £1,830 p.a. in important City. Panel 1,600. Premium two-fifths share 1½ years' purchase. Partner must be young and well qualified.

33 SOUTH OF ENGLAND.—Partnership in Practice £2,250 p.a. in beautifully situated Country Town within 100 miles of London. Panel under 1,000. Suitable accommodation. One-third share at 2 years' purchase.

34 SUSSEX.—Practice averaging about £800 p.a. in country district, near the Coast. Panel 600. House about 4 bedrooms) to rent. Good scope. Premium 1½ years' purchase.

35 SOUTH AFRICA.—Old-established Practice in one of the pleasantest towns, with beautiful climate, in the Cape Province. Receipts average £2,900 p.a. House (4 bedrooms) to rent. Purchaser should be able to do major surgery. Premium £2,500.

36 SHEFFIELD. — Non-dispensing Practice about £800 (including two appointments worth £155 p.a.). No panel. Conveniently situated house (6 bedrooms). Premium, Practice and house, £2,000.

37 HOME COUNTY.—Partner (young, well qualified) required in Country Practice averaging £4,550 p.a. in first-rate residential district under 50 miles from London. Panel about 1,000. One-fifth share at 2 years' purchase.

38 WEST OF ENGLAND.—Partnership in non-dispensing Practice over £5,100 p.a. in first-rate town. Small select panel. House (6 bedrooms) to rent. Partner should be an Obstetrician, and there is scope for gynæcology. Premium five-twelfths share 2 years' purchase.

39 SOUTH OF ENGLAND.—Seaport Town. PRACTICE doing £800 p.a. including appointments over £225 p.a., and panel nearly 1,000. Good house (6 bedrooms) for sale. Premium 1½ years' purchase.

40 N.W. OF ENGLAND. — Partnership in Practice about £2,000 p.a. in popular seaside resort. Small panel. Desirable modern residence (4 bedrooms) to rent. Premium one-half share 1½ years' purchase.

41 CARDIFF. — Non-dispensing Practice averaging £1,543 p.a. Small panel. Premium £2,000.

42 DERBYSHIRE.—Country Practice about £1,250 p.a. in beautiful district, easy distance of first-rate town. Panel 675. Small house to rent. Cottage Hospital. Premium 1½ years' purchase.

43 EAR, NOSE, AND THROAT Practice of nearly £3,200 p.a. in Health Resort.

44 N. LONDON.—Steadily growing "Lock-up." Cash PRACTICE on main road. Receipts last 12 months £720. Panel 539. Shop-fronted premises to rent. Prem. £850.

45 S.W. OF ENGLAND.—Partnership in an old-established Practice of £5,000 p.a. in one of the chief towns. Panel 2,397. House (5 bed and dressing rooms) to rent. One-fifth share 2 years' purchase.

46 LONDON, W. — Partnership in non-dispensing Practice about £2,500 p.a. No panel or appointments. One-third share with view to ultimate succession. Premium 2 years' purchase.

47 SOUTH MIDLANDS. — Partnership in Country Practice of £6,300 p.a. in residential and agricultural district. Panel over 2,200. Suitable house for sale. Hospital. Partner should be 28 to 30 and have held House appointment. Premium one fifth share £2,610.

48 LONDON, N.—Partnership in well-established middle class Practice, nearly £2,750 p.a., in pleasant outlying suburb. Panel about 800. Suitable accommodation to rent. Premium one-third share 2 years' purchase.

49 MIDLANDS. — Partnership (after preliminary assistantship) in good mixed Practice worth £4,000 p.a. in country town. Panel 3,600. House to rent. Hospital and scope for surgery. Partner should be keen on his work and have held H.S. and H.P. appointments. One-third share at 2 years' purchase.

50 YORKSHIRE (W.R.). — Practice averaging nearly £1,350 p.a. in manufacturing town. Panel 995. Detached house (4 bedrooms) for sale. Premium £2,000.

51 SOUTH OF ENGLAND.—Partnership in non-dispensing Practice £4,200 p.a. in attractive watering place. Panel about 1,500. Incoming Partner must be F.R.C.S.Eng. or Edin., or M.D.Lond., Oxon., or Camb. One-fourth share at 2 years' purchase. (Preliminary assistantship.)

52 ITALY.—Season (March to October) PRACTICE in famous city. Receipts average £563 p.a. No midwifery or night work. Up-to-date Hospital. Premium £563.

53 BUCKS.—Practice about £800 in small country town. Panel 741. Nice detached house (4 bedrooms), garden and garage, to rent. Premium £1,200.

54 KENT. — Practice averaging £1,030 p.a. (appts. and panel over £300) in beautiful country district. Convenient house (6 bedrooms) for sale. Premium, Practice, £1,500.

55 N.W. COAST. — Partnership in Practice over £3,000 in first-rate residential seaside town. Panel 450. Suitable house to rent. One-half share for sale (one-third first year) at 1½ years' purchase.

56 EAST ANGLIA.—Country Practice about £1,470 p.a., easy reach of important town. Panel about 1,000. Nice house (10 bed and dressing rooms), with electric light, etc., for sale. Premium 1½ years' purchase.

57 S.E. COAST.—Practice averaging £1,127 p.a. in favourite resort. No panel. Very good semi-detached house (6 bedrooms) for sale. Scope. Premium 1½ years' purchase.

58 N. GLOUCESTERSHIRE. — Country PRACTICE in delightful part. Cash receipts £560. Panel 460. Modern house (6 bed and dressing rooms), with garden 1 acre, for sale. Premium—Practice—£750.

59 SUSSEX. — Small Country Practice in delightful part near coast. Receipts past 12 months £346. Picturesque house (5 bedrooms), with nice garden to be sold or let. Premium £350.

60 MIDLANDS. — Partnership in old-established Practice (entirely Skin work) in first-rate town. Earnings about £2,800 p.a. Suitable house for sale or rent. Premium one third share 2 years' purchase.

61 EAST COAST — Partnership in Practice £2,200 p.a. in popular watering-place. No panel. House to rent. One-third share at 2 years' purchase. Partner must have some knowledge of Ear, Nose, and Throat work.

62 YORKSHIRE (W.R.). — Partnership in Practice about £2,600 in one of the chief towns. Panel over 900. Partner should be a Protestant. One-third share at 1½ years' purchase after preliminary assistantship.

63 S.W. of ENGLAND.—Partnership in Practice about £3,000 in market town. Panel 1,100/1,200. Detached house (5 bed and dressing rooms), in 3/4 acre garden, for sale. Premium one-half share 2 years' purchase

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1 NOTTS.—PLEASANT TOWN.—DEATH VACANCY.—Old-established good mixed-class PRACTICE, averaging for the past three years over £2,100, including panel of 550. M.O.H. and School appointments worth about £260 p.a. Fees 3/6 to 21/-. Mid. from 2 gns. (about 16 cases yearly). There is a Hospital of over 30 beds, and good scope for surgery. Late Incumbent was on staff. Excellent house, with 1/2 an acre of garden, and containing 3 reception, 8 bedrooms, etc. Separate entrance to professional rooms. Can be rented on lease at £55 p.a. Sport of all kinds and good schools. Premium £2,500 or near offer.

2. SUSSEX—VILLAGE PRACTICE in delightful surroundings, at present producing over £1,150 p.a., but capable of considerable increase. Fees from 3/6 upwards. Exceptionally charming residence standing in 1½ acres of well laid out garden, and containing lounge hall, 2 reception, 7 bedrooms (3 fitted with h. and c. water basins), dressing room with fitted bath, and other usual offices. Central heating. Electric light. Garage for 2 or 3 cars. Price for freehold £4,300. Premium £1,700.

3. HANTS—COUNTRY PRACTICE, at present producing about £480 p.a., but offering large scope. Panel of 280. Fees 3/6 to 10/6. Mid. from 3 gns. Convenient house, with 2 reception, 5 bedrooms, etc Garden and garage. Can be rented on lease at £75 p.a. Premium £800, part by arrangement.

4. LONDON, N.W.—Old-established mixed-class PRACTICE, averaging £2,000 p.a., including panel of about 1,500. Fees 2/6 to 10/6. Midwifery 3 to 15 gns. (about 50 cases yearly). Six-roomed house, with bathroom, kitchen, etc. Garage. Rent on lease £85 p.a.

5. HOME COUNTY.—Within 40 miles of London—Good Country PRACTICE, established over 100 years, in very attractive district within 10 miles of favourite County Town. Patients include many county families. Income for immediate past year nearly £1,400, including transferable appts. worth about £120, and panel of 750, producing with mileage £470. Fees from 2/- to 21/-. Little midwifery. Excellent house, with 3 reception, 5 bedrooms, etc. Good garden. Garage. Rented on lease at £80 p.a. Premium £2,200.

6. ESSEX.—PARTNERSHIP.—Country Practice, near Coast.—A one-third share in an old-established very sound Practice, producing last year over £3,600, including panel of 2,250. Fees 2/6 to 10/6. Suitable house, with 2 reception, 4 bedrooms, etc., and good professional rooms. Large garden. Garage. Price for freehold £2,100. Premium £2,400, £1,800 down and two yearly instalments of £300.

7. PARTNERSHIP.—YORKS.—Suburb of large Town.—A share representing £750 p.a. (which will be guaranteed by Vendor for first 2 years) is offered in a well-established Practice producing about £3,000 p.a., offering large scope, and having a panel of over 2,000. Seven-roomed house available in nice district, with garden and garage. Can be rented; or bought for £750. Premium 2 years' purchase.

8. LIVERPOOL.—Centrally situated old-established PRACTICE. Income about £1,500. Panel of over 2,500, worked from Branch Surgery. Visits and medicine from 3/6 to 7/6. Little midwifery. Large corner house, with garden and garage. Recently redecorated. Electric light and new hot water system throughout. Price, freehold, £2,000. Large scope for increase. Premium 1½ years' purchase.

9. GLOS.—LARGE TOWN.—PARTNERSHIP.—A half share of an old-established good-class non-dispensing Practice, owing to retirement through ill health of senior partner. Income about £5,000, with small select panel. Fees 5/- to 10/6. Purchaser should be about 40, married, and keen on midwifery. Good house available at low rental. Premium 2 years' purc[illegible]

10. KENT.—FAVOURITE COAST [illegible] one-third share (to commence) in an [illegible] chiefly better-class Practice, averaging [illegible] £3,000 p.a. Fees 5/- to 21/-. Only about 10 midwiferies at from 3 to 10 gns. Very good house with 4 reception, 6 bedrooms, usual offices. Garden. Large garage. Price for freehold £3,000, half on mortgage. Premium 2 to 2½ years' purchase.

11. NEAR [illegible] COUNTRY PRACTICE.—Income for last [illegible] done about £1,500. Visits and medicine [illegible] wifery. Large house in 7½ acres of ground [illegible] kinds. Price, freehold, £2,000. Premium [illegible] 50.

12. NEAR I[illegible] losed country PRACTICE, held by Vendor [illegible] an attractive district within easy reach of two good towns. Cash receipts for 1928 £656, and this year at rate of £700. Panel of over 500. Fees 2/6 to 12/6. Large house w[illegible] cre of garden and paddock. Price fo[illegible] 900.

13. KENT.— [illegible] mainly industrial PRACTICE. Steady average income of over £1,560. Panel of 1,350. Advice and medicine mainly 3/- and 5/-, a few at 7/6. Visits and medicine 3/6 to 7/6, a few at 15/- and 21/-. Convenient house, with 5 bedrooms, on lease (9 years), rent £100 p.a. Premium 1½ years' purchase.

14. [illegible] better and middle-class PRACtice been much more. Fees 5/- to situated house freehold. Excellent schools and sport. Good hospital. Practice very easily worked. Price for house and Practice £4,000.

15. BLACKPOOL.—Well established better and middle-class PRACTICE. Income last year over £1,200. Panel of 555. Fees from 2/6 to 4/-. Little midwifery. Good house in quiet residential district. Price, freehold, £2,700. Premium 1½ years' purchase, £1,000 cash and balance by instalments.

16. LIVERPOOL.—Mixed class PRACTICE, producing this year at the rate of over £1,200. Panel of 560. Good house, specially built and well situated, containing 2 reception, 4 bedrooms, etc. Large garden. Garage. Price for leasehold £1,800, part on mortgage. Prem. £1,650.

17. SOUTH-WEST OF ENGLAND.—Large Thriving Hospital Town.—PARTNERSHIP.—The half or five ninths share in an old-established better and middle class non panel general and surgical Practice can be acquired by a suitable qualified man possessing the F.R.C.S. Receipts for the past three years average over £5,000 p.a. Good house, with ample accommodation, at present held on lease with option to purchase. Premium 2 years' purchase.

18. MIDLANDS.—UNOPPOSED COUNTRY PRACTICE, near good town.—Well-established Practice, averaging over £1,000 p.a., including panel of nearly 600. Fees 2/6 to 10/-. Excellently situated house, with 2 reception, 5 bedrooms, etc., and separate entrance to professional rooms. Good garden and garage for 2 cars. Can be rented on lease at £100 p.a. Premium £1,350.

19. PARTNERSHIP, with ultimate succession.—SOUTH-WEST LONDON.—A third or half share, to commence with, in an old established good mixed non panel Practice, offering large scope. Receipts for last year nearly £2,300. Fees 2/6 to 7/6. Little midwifery. Good house, with garden. Can be obtained on long lease at the very moderate rent of £55 p.a. Premium 2 years' purchase

20. KENT.—COAST TOWN.—In a rapidly developing middle and working-class district, an increasing PRACTICE, producing this year at the rate of £900, including panel of 560. Fees from 3/-. Good freehold house, with large garden. Premium for Practice and house £2,000.

21. SOUTHAMPTON.—Very sound mixed class PRACTICE, averaging over £1,530 p.a., including panel and transferable appts. worth about £850. Visits 3/6 to 10/6. Particularly nice house, in quiet road, with ample accommodation and good garden. Price £1,900, of which £1,250 on mortgage. Premium 1½ years' purchase, or near offer.

22. EAST COAST.—SEAPORT TOWN.—Old-established middle and working class PRACTICE. Average cash receipts for the past three years £1,835, including panel of over 1,000. Fees 2/6 to 10/6. Midwifery has been discouraged, but much can be had at fees from 5 gns. upwards. Good house with 2 reception, 5 bedrooms, etc. Electric light. Small garden. Can be rented on lease at £80 p.a. Premium 1½ years' purchase, payable £1,000 down and balance by arrangement.

23. SOUTH CORNWALL.—COAST TOWN.—PARTNERSHIP.—A one-fifth share in an old-established Practice, producing about £5,000 p.a., including panel of nearly 2,400. Very good house, with 2 reception, 5 bedrooms, etc., and usual offices. Rent on lease £45 p.a. Well-equipped Hospital. Premium 2 years' purchase.

24. SUSSEX COAST TOWN.—Old-established and increasing PRACTICE producing last year nearly £1,600, and this year at the rate of over £2,000. Panel of 1,150. Visits from 3/6. Eight-roomed house, with usual offices and garden. Price for freehold £1,450, £1,000 on mortgage. Premium 1½ years' purchase.

25. YORKS.—PROSPEROUS LARGE TOWN.—Well-established compact PRACTICE, averaging nearly £1,600 p.a., including panel of 1,400. Fees 3/- upwards. Not much midwifery. Low expenses. Very well-situated double-fronted house, 2 reception, 4 bedrooms, etc., and good professional rooms. Garden. Price for freehold £1,500 (£1,000 on mortgage). Premium 1½ years' purchase.

26. MANCHESTER.—PRACTICE is situated in a growing district offering very good scope. Income for the immediate past 12 months over £1,600, including panel of nearly 900. Fees 3/6 upwards. Detached well-situated house, with 3 reception, 5 bedrooms, etc. Can be rented on lease at £110 p.a. Premium 1½ years' purchase.

27. WEST END.—Good-class non-panel and non-dispensing PRACTICE established many years. Average cash receipts for past three years nearly £1,400. Fees one guinea. Suitable accommodation available. Premium £2,000. Good [illegible]

28. EASTERN [illegible] health reason for sale. [illegible] worked, and [illegible] untry PRACTICE, easily [illegible] Average cas[illegible] t, near two good towns, [illegible] of 530. Nic[illegible] £1,064, including panel freehold £2,000. Premium £1,500. bedrooms, etc. Price for

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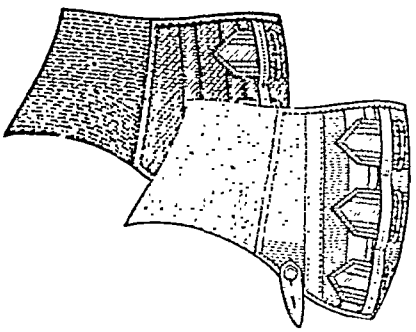

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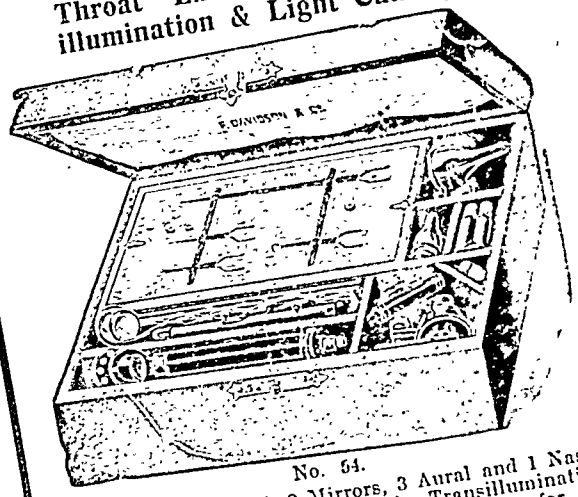

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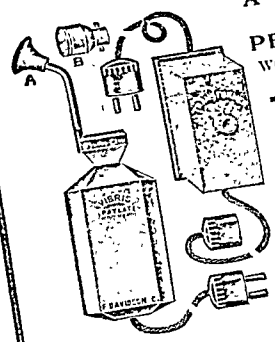

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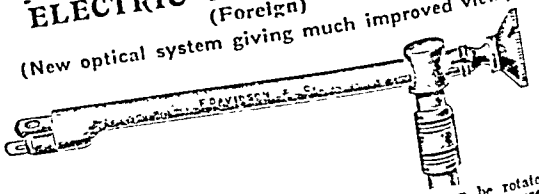

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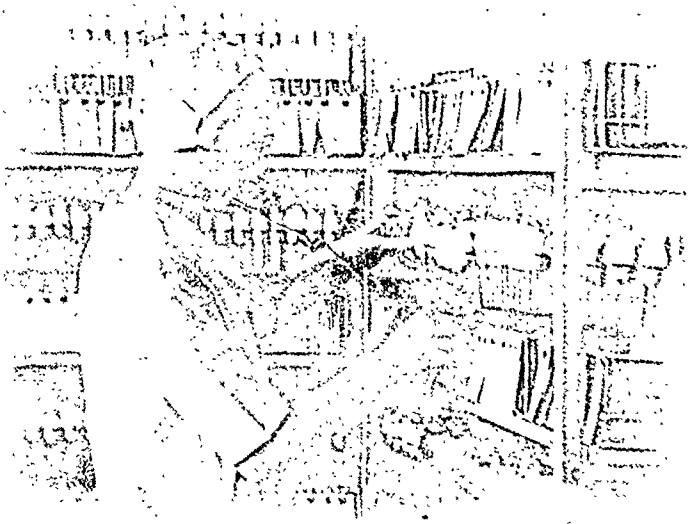

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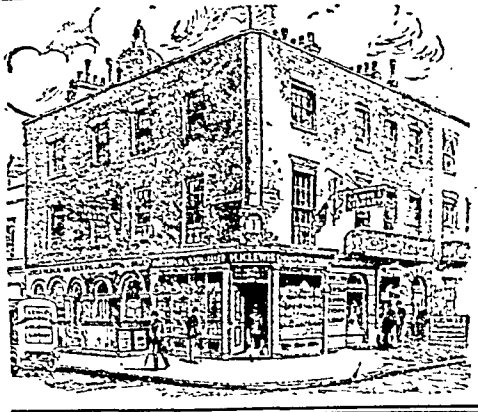

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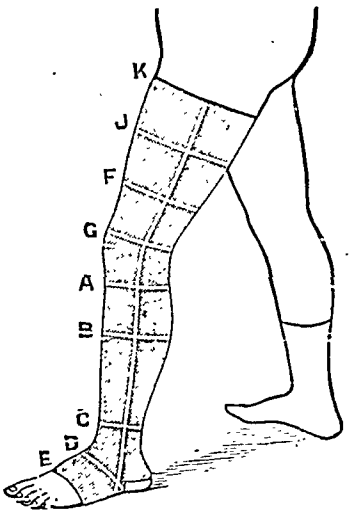

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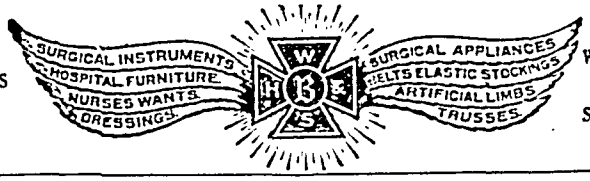

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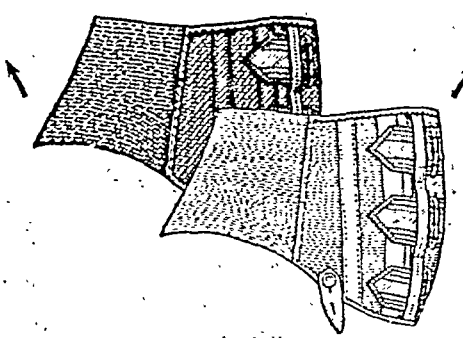

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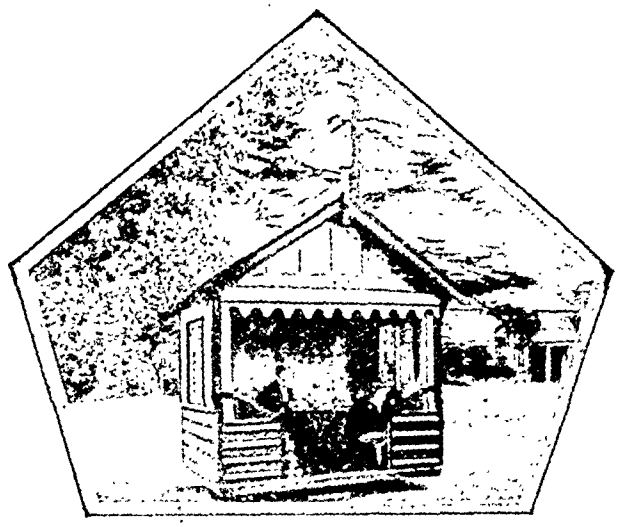

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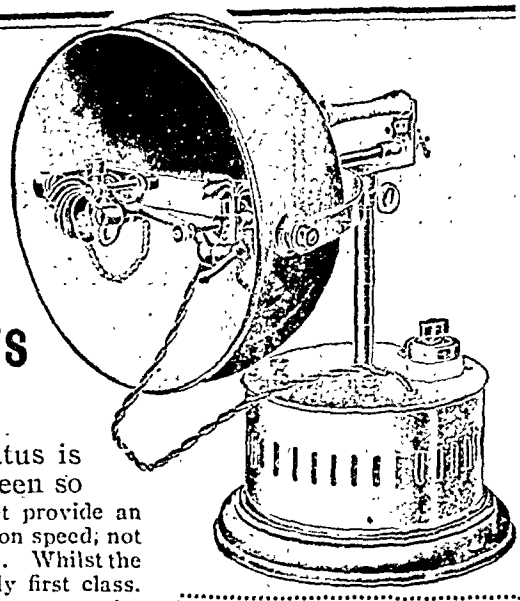

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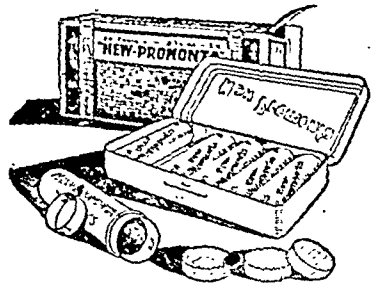

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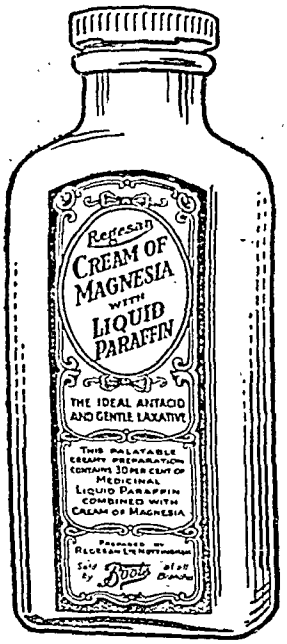

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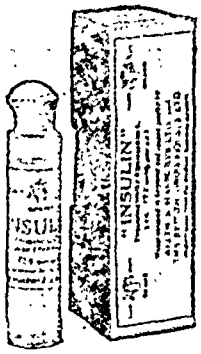

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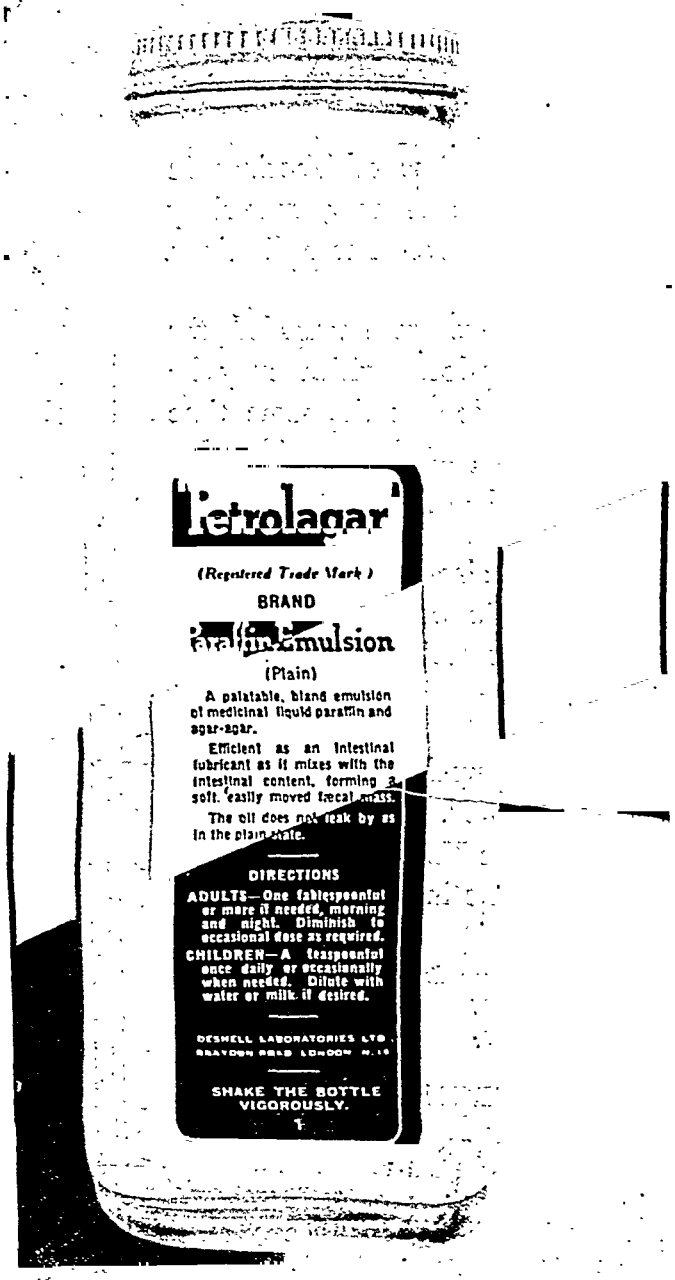

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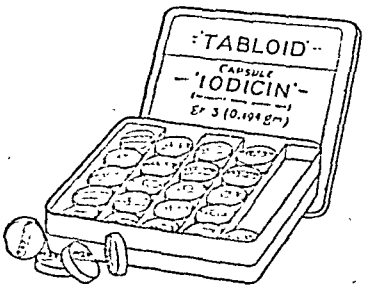

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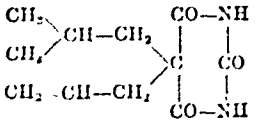

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Observations
ON
X RAYS IN THE DIAGNOSIS OF EARLY CARCINOMA OF THE STOMACH.*

BY
PROFESSOR MARTIN HAUDEK, M.D.,
WILHELMINENSPITAL, VIENNA.

THE vital statistics of most countries show a steady decline in the birth rate and a contemporary increase in the average duration of life—in Germany an increase from the age of 38 to 57 years in the last decades. The decrease in the death rate is attributable to the progress of medicine, and especially to the methods adopted in grappling with the problems of infantile mortality, tuberculosis, and infectious diseases. One other fact stands out clearly from the statistics (in which in latter times diseases due to old age and debility greatly preponderate as causes of death)—namely, that *next to cardio-vascular disease comes cancer.* The war on cancer is therefore becoming a problem of ever-increasing importance to the medical profession.

Of all fatal cases of cancer, cancer of the stomach is shown to be the commonest. Its victims constitute a percentage of the total cancer deaths which varies in different countries from 35 to 40. Deaths from cancer of the intestine, uterus, œsophagus, and breast are far less common. So that if we are to wage effective war on cancer, then early recognition and treatment of cancer of the stomach are clearly indicated as the most promising line of attack. This is the reasoning which has apparently been followed by the Section of Radiology and Radiotherapeutics of the British Medical Association in selecting the early diagnosis of cancer of the stomach, and the relation of *x*-ray examination to that problem, as the subject for discussion at its first session.

SUCCESS ATTAINED UP TO THE PRESENT TIME IN RADIOLOGICAL DIAGNOSIS OF GASTRIC CANCER.

We can best envisage the prospects of success in the future by drawing upon the accumulated experience of the past; *x* rays have now been employed in the clinical diagnosis of gastric carcinoma for twenty years. During that time *x*-ray examination has in all countries become so general a practice in diseases attended by gastric symptoms that its omission amounts to a professional error. In many thousands of cases gastric carcinoma has been correctly diagnosed by its aid, and a very large number of patients have been submitted to radical operation. The number of *late* laparotomies—that is, operations at which incurable cancer was found—has decreased, as has also the number of *unnecessary* laparotomies, made as a result of a wrong diagnosis of cancer. *Exploratory* laparotomies, undertaken to clear up the doubt as to the presence of cancer, have become very rare, but were still of daily occurrence twenty years ago.

And again, on the question whether a gastric carcinoma is operable or not the *x* rays can give important information. This fulfils the expectation which I entertained as to the role of *x* rays in my paper, "Die Bedeutung der Magenradiologie für die Chirurgie," published in conjunction with Clairmont in 1911.[1]

As numerical evidence of the reduction of late laparotomies I quote the publication by Schönbauer and Freidel[2] of the Eiselsberg Clinic in Vienna "Ueber einige besonders lange Dauerheilungen nach Magenresektion wegen auch histologisch nachgewiesenen Carcinoma ventriculi." Of the 651 cases of *gastric carcinoma* in the period 1901–14, resection was done in 26.2 per cent.; of the 535 cases in the second period resection was done in 37.9 per cent. The primary mortality (18.5 per cent.) was the same in both periods. A comparison between the years 1908 and 1924 shows an increase of resections of 18 per cent. (from 22 per cent. to 40 per cent.). The increase in radical operations can be put to the credit of *x*-ray diagnosis, without, however, losing sight of the improvements in surgical technique. Yet 40 per cent. of possible radical operations still means more than 60 per cent. of operations undertaken too late—a figure which corresponds to the average of surgical statistics.

In the surgical department of the Wilhelminenspital in Vienna, for which I have done the *x*-ray examinations during the past nine years, the statistics show the same proportions. In all places must be added to these a great number of patients, in whom inoperability of the disease is recognized beforehand, so that not even an exploratory laparotomy is attempted. Thus the death rate in gastric cancer is still extraordinarily high.

How, then, can we attain to further progress? Are we merely to subscribe to the views of Boas (Berlin), the famous expert on gastric disease, who doubts the possibility of an early diagnosis of gastric cancer, on account of the more or less extended latent period connected with the disease? Those who have devoted much time to *x*-ray examination of the stomach, and have become convinced that *x*-ray methods allow gastric cancer to be recognized considerably earlier than by any other method of examination, will not incline towards pessimism, but will believe in the possibility of yet further progress.

CAUSES OF DELAYED RADIOLOGICAL DIAGNOSIS OF GASTRIC CARCINOMA.

We can distinguish four causes of delayed radiological diagnosis: (1) the latent period; (2) delayed *x*-ray examination; (3) faulty *x*-ray examination; and (4) a defect which still exists—namely, the incompleteness of our present-day technique.

The latent period—that is, the time during which gastric carcinoma remains symptom-free—is still the prime factor to be reckoned with. This period is of varying duration, depending on the type and site of the tumour. In carcinoma of the body of the stomach, especially with diffusely infiltrating growths, local symptoms often occur so late that, however prompt the examination, there is but rarely a chance of finding radical operation possible. The symptoms which lead to the earliest recognition of the growth are pyloric stenosis and haemorrhage.

Delayed x-ray examination has its cause, apart from latency, first in the often insidious origin of the disease and its indefinite symptoms; secondly, in non-recognition of the gravity of the local symptoms by the patient and his doctor alike. In the history of the cancer patient we usually hear of symptoms which have already existed, treated or untreated, for a considerable number of months, but at the same time we find such an advanced stage of carcinoma that we would have been quite able to diagnose the condition many months earlier. One way to improve the early diagnosis of cancer of the stomach would lie in eliminating this loss of many months' time and carrying out *x*-ray examination without delay.

Faulty x-ray examination is for us the most important subject. In my work, principally as consulting specialist, I have had many opportunities of convincing myself that the possibilities which an *x*-ray examination offers of deciding whether gastric cancer is present or no are not sufficiently utilized. I strongly maintain that by a sufficiently precise examination, supported by sufficient experience, we are in a position to establish at an early stage with a considerable degree of certainty whether a carcinoma is present or whether this can be definitely excluded. Since, however, the results of *x*-ray examination are often unsatisfactory, and since, in consequence, *x*-ray examination of the stomach does not enjoy the universal confidence which should be reposed in it, I must refer to the sources of errors.

At one time the difficulty of examination of the stomach was underestimated. Especially in connexion with *x*-ray examinations, the lay public, and unfortunately a good many doctors as well, think that the *x*-ray apparatus is the important thing for establishing a correct diagnosis. A man sometimes undertakes the work, without supervision, after a short period of mainly technical training, without possessing the rudiments of knowledge necessary for the responsible task of the radiologist. We must make everybody realize that *the result of an x-ray examination*

* A paper read in opening a discussion in the Section of Radiology and Radio-therapeutics at the Annual Meeting of the British Medical Association, Manchester, 1929.

depends far more on the skill of the investigator than on the quality of the apparatus.

The examiner, when he is an *x*-ray specialist, must arm himself with a thorough basic knowledge of pathological anatomy and internal medicine; similarly, a physician or surgeon who uses *x*-ray examination of the stomach independently in his cases must be familiar with general radiology. In cases where he does not feel certain of his own findings he must never hesitate to consult a radiologist with special experience. I find that *x*-ray consultation is far too seldom asked for, and this is a serious misfortune for the patient.

To attempt *x*-ray diagnosis of conditions of the stomach and duodenum without being able to employ photography as well implies a defective method. Although screen examination gives so much information, yet it must be supplemented by photography, and, moreover, by films taken with special skill and first-rate technique in order to obtain a permanent record of the significant signs. The diagnosis of early carcinoma, bound up as it is with the study of the "relief-pattern" of the mucous membrane, is, apart from radiograms, unthinkable. But even an experienced radiologist will surely make mistakes if too many examinations are required of him and if he undertakes them.

Personally I allow about half an hour for each examination I make, and will not undertake to carry out more than six to eight consecutive examinations. At the same time, I do not always complete a stomach investigation in one day, but sometimes explain that a second examination is necessary on the next day under different conditions. How, then, can those who carry out twenty or even thirty stomach examinations in a few hours expect to obtain equally good results? Such conditions do exist in many hospitals, and still more in the "panel" clinics, which are increasing in number. Superficiality and the danger of fatigue are inimical to accurate work. Many important or often in the interests of economy, which such conditions aids to diagnosis are perforce omitted for want of time, demand. Even if the results are only 10 per cent. worse than when the radiologist devotes himself entirely to his task of attaining a conclusive diagnosis, what patient would like to find himself among the 10 per cent. in which a stomach carcinoma is not recognized in time, simply because of insufficient examination?

Overburdening of the radiologist must therefore be stigmatized as a further source of error in the diagnosis of stomach carcinoma.

Technique and Method of Investigation of the Stomach.

There is no standard method or technique amongst radiologists engaged in stomach examinations. Neither screening nor radiography is carried out to the same extent or on exactly similar lines by different workers. But the whole outcome depends on bringing to light and critically analysing the appearances in detail.

I should like to describe my own method of investigation —a method progressively developed over twenty years. In every case I personally take an *accurate history of the illness*, because it forms a frame into which the *x*-ray findings are fitted; it is, however, often treated in a biased manner by the referring physician.

Screening of the chest is carried out before each abdominal examination. Often this reveals the cause of the symptoms hitherto ascribed to a carcinoma of the stomach; such as a serious aortic disease, or a tuberculous process in the lungs which may be accompanied by tuberculosis of the small intestine. We shall not be likely to overlook such lesions as metastatic carcinoma in the lungs, secondary malignant pleurisy, or a clinically undiagnosed bronchial carcinoma.

For screening of the stomach the patient stands on a low footstool, and I begin by *palpation* to estimate the tension of both *recti*, the possible presence of localized tenderness, or abnormal resistance. In weak and anaemic patients, and especially in those who are cachectic, I omit the palpation, otherwise the investigation in the erect position may be interrupted by the development of cerebral anaemia. The examination of the stomach usually begins with the *motility test*, four hours after the patient has taken a small portion of thick gruel with 70 grams of barium sulphate—so far just like the old Rieder meal. For the diagnosis of carcinoma this test for residue, apart from any secondary pyloric stenosis, may be of importance, inasmuch as a residue, or "surface film," on an ulcerated carcinoma may be the only visible remainder of the contrast meal.

Now follows the *second filling of the stomach*: this time not with gruel, but with a thick barium mixture just fluid enough to drink (double meal method). The total of this amounts to 300 c.cm., in which the quantity of barium is about 120 grams. Raspberry juice is employed to improve the taste. With the barium which I use (supplied by Merck) a special suspending agent is not necessary. The large quantity of barium used considerably diminishes the tendency of the contrast substance to sediment. Careful churning up with a whisk is sufficient to produce a suspension of the barium which will remain for a long time without sedimenting.

First of all the patient drinks only one large mouthful of about 20 to 30 c.cm. This is followed during its passage down the oesophagus. If the swallowing of fluid appears to me to be delayed in the least, or if the patient complains of difficulty in swallowing, I never omit giving him a small gelatin capsule filled with 1 gram of barium to swallow. If this, when followed by a drink of water, passes down the oesophagus and without hindrance through the cardia into the stomach, then a malignant stenosis can be excluded. Conversely, the holding up of the capsule, despite repeated drinks of water, is of great service in the early diagnosis of carcinoma at the cardia, whether originating in the cardia itself or in the upper part of the stomach. As an example I will quote the following case.

Case I.

Recently I examined a female patient of 60, whose symptoms appeared to the physician referring the case to be suspicious of stomach carcinoma. I found nothing unusual in the stomach except a slight diminution in size of the gastric air bubble on its medial aspect. Fluid barium flowed without obstruction into the stomach, and the gastric peristalsis and contour were quite normal. A small capsule, however, remained stationary close to the cardia. The film (Fig. 1) showed that the deformity of the

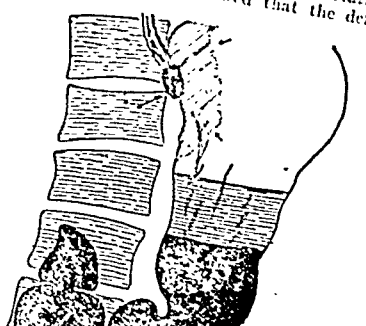

Fig. 1.—Medullary tumour in fornix. A small opaque capsule held up at the cardia. Stomach shadow elsewhere normal.

gas bubble was due to the shadow of soft-part density caused by a medullary tumour, which projected into the lumen of the stomach from the lesser curvature. The patient had no definite dysphagia, but only complained of the stomach. With screen examination alone, without the use of the capsule, I might have failed to observe it.

If the small portion of about 30 c.cm. of suspension passes into the stomach, it is dispersed by compression with Holzknecht's "distinctor" or a pad. The thin film of barium between the folds of the gastric mucosa throws them into clear relief. The "Magenblase" and the wall contours of the fornix, the course of the mucosal folds in the body of the stomach and in the pyloric segment are

examined successively with a small diaphragm and compression. *Retained secretion* interferes with the study of the mucosal "relief pattern." Secretion is recognized by a horizontal fluid level which is visible in the fasting condition below the Magenblase, by the paleness of the marking of the folds, by the very pale grey shadow which the contrast substance produces, and by an early crescentic sediment of the barium in the lower pole. If the marking of the folds is distinct, minute niches between the folds, or an abnormal thickness or irregular course of the folds, may be noticed. Irregular central shadow defects, or barium rests in the crater of a tumour or in the furrows between the lobules of a medullary carcinoma, lead to a definite diagnosis of tumour. With polypi or non-malignant tumours the borders are circular and well defined. After another drink the pars pylorica, the pylorus, and the bulbus duodeni become visible.

Now the patient drinks the remaining suspension, during which time the increasing filling of the stomach is watched, screening it at different angles. Observation is then directed to the flexibility of the walls, the sharpness and the regularity of the contours, and the course of peristalsis. With atonic stomachs the highest parts remain empty in the standing position. In these cases the contents of the upper third are dammed back while the patient drinks, by closing the lumen by pressure of the hand, or of the "distinctor" below the left costal margin. This procedure completely separates the folds in this part, which are now examined in different directions. In this way the very inaccessible tumours of this portion, so easy to overlook altogether, can be brought to light.

The usual examination in the standing position is often insufficient for the lesser curvature of the pars pylorica, the most important part of the stomach in the diagnosis of carcinoma. With atony, hypersecretion, and dilatation of the stomach, the contrast shadow is crescentic, and in spite of massaging the contents upwards, the lesser curvature is not reached by the barium and the bulb is poorly filled. In this case the patient is laid for a few minutes on a couch, on his right side, with the pelvis raised. After this preparation he is examined again standing up, and now the filling of the pyloric canal and of the duodenal cap is often satisfactory, or easily effected by pressing out the contents of the stomach. If manual manœuvres are impossible owing to the patient's condition—for instance, in anaemia, or with an inflamed irritated condition of the peritoneum, which may be recognized by increased tension of the rectus on one side—an examination with the patient lying down is most effective.

I attach great importance to the examination made in the *prone position*. In this position the contents of the stomach return from the backwardly directed fornix (formerly called "fundus" by the anatomists) into the ventral part—that is, the pars pylorica, which now becomes expanded to its maximum. The flexibility of the walls, the perfect curve of the pyloric terminal contour, and the normal convexity of the outlines are now most clearly visualized. *The prone position is indispensable for the examination of the peristalsis on the lesser curvature.* It must not be forgotten that quite a number of carcinomata are confined to the lesser curvature and leave the greater curvature completely free. In these circumstances perfect peristalsis is seen on the greater curvature in the standing position, and there is a risk of an early or even quite extensive disease of the lesser curvature being overlooked if it takes the form of a flat infiltrating growth.

The observation of the mucous membrane with partial filling, together with the flexibility of the walls and the regular course of peristalsis in the prone position, is the safest protection against overlooking a carcinoma. The diagnosis of small tumours depends on a scrupulous observation of this rule.

The object of Fränkel's (Berlin) cinematography is to diagnose rigidity of the walls in a small or large section of the lesser curvature by local absence of peristalsis. This is done by means of numerous photographs, taken in quick succession and projected on to a diaphragm. The photographs for this purpose are made in the standing position. The method of examination which I employ, and which I have just described, does, I think, render this expensive apparatus superfluous. As a matter of fact I decidedly prefer an examination of the peristalsis of the lesser curvature in the prone position to one made in the standing position; for the waves of both curvatures are of equal depth in the prone position because the pressure of the gastric contents then affects both curvatures in an equal degree.

I use the examination in the supine position in order to see the mucous folds in the pars pylorica, for in this position most of the contents of the stomach flow to the fornix, and the pars pylorica is then only scantily filled. But the examination in this position is of small importance compared with that in the standing and prone positions, and is employed only in rare cases.

A single *x*-ray examination gives the desired results in the great majority of cases, but not always. If the motility examination has shown gastric retention of food or secretion, then the detailed examination becomes more difficult, and its results cannot be relied upon as regards fine anatomical points. The patient has to come for a second examination, which may quite well take place on the following day. The patient takes only liquid in the evening and comes the next day for examination in a fasting condition. Before the examination he is made to lie on his right side for at least two hours, his pelvis being raised by a pillow. In this position the pylorus becomes the lowest point of the stomach, and the stagnant contents can be most readily removed. This method of evacuation of the stomach has served me better than evacuation by tube, which is usually incomplete. Into the completely emptied stomach is now introduced about 50 c.cm. of very thick barium cream, and the examination of the mucous membrane with compression is made in the standing and lying positions. Then the examination already described is continued with the full drink. If the preparatory measures just described have failed to remove the retained secretion, then there is either a pyloric stenosis, the cause of which, ulcer or carcinoma, can be ascertained, or there is hypersecretion of higher grade, due to ulcer. The diagnosis is made from the combination of the anatomical abnormality with disorder of function.

Photography is used at every important stage of the screening in order to fix the characteristic appearances. It is upon the care and judgement applied to the preparation of the part for the radiogram—whether by suitable filling of the suspicious segment of the stomach, by compression, or by the use of the correct diaphragm and the angle of radiation—that the whole prospect depends of obtaining pictures of decisive diagnostic value.

To distribute the contrast-substance to best advantage in stomach and duodenum I use Holzknecht's "distinctor" during screening, and when necessary, for quite short periods, one or even both hands. Though I have not used lead-rubber gloves, and have made innumerable examinations, my hands have in twenty years suffered no ill effects. The patient's body, with a tissue thickness of some 20 centimetres, constitutes in the usual antero-posterior examination an excellent protective medium. But, of course, exposure of the hands in the rays must be rigidly limited to the most important manœuvres of palpation or distribution of the contrasting substance. In making radiograms I use translucent pads (wadding sewn up in material) of various sizes to compress and spread out the barium.

The work of Berg[4] and Chaoul[5] has done much to popularize a similar technique. Berg prefers a very small diaphragm. Chaoul makes films giving a more extended view. He examines in the prone position on his special support, with a mirror below for observation, and makes compression with rubber air bags blown up to different degrees of tension. He uses a barium tragacanth mixture. I am engaged in trying out the suggested modifications of technique, but have not yet reached a definite decision whether, or to what extent, my own results can be thereby improved.

My own Results in Cancer Diagnosis.

Coming now to the results of my own examinations, I should like to test the reliability of my technique on three counts: Has it sufficed to determine slight changes

in the gastric wall? Have I overlooked an existing carcinoma? Or, on the other hand, has a commencing carcinoma been wrongly assumed to be present?

The number of really small carcinomata discovered by me in the earliest stage is very small. Much larger is the number of quite operable carcinomata which I have sent to operation. Most numerous of all my cancer cases have been those in which I was compelled to report inoperability.

Figs. 2 and 3 show a quite resectable tumour above the angulus. In the first, with a small meal, the mucous folds are shown, and terminate at the edge of a *dish-shaped* carcinoma. The second radiogram, after complete filling, shows what might be readily confused with an ulcer niche, because this also shows projection of the surrounding stomach wall into the lumen, due to swollen mucosa. But the folds *converge* towards an ulcer niche; they merely *terminate abruptly* before they reach a carcinomatous crater—a differential diagnostic point of great significance.

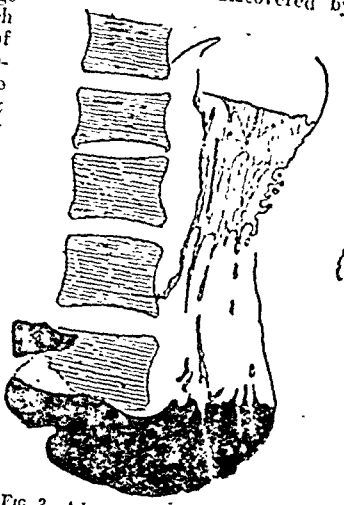

Fig. 2.—Adenocarcinoma at angulus. Mucosal "relief pattern" shows sudden interruption of rugae (arrow).

Fig. 3.—The same case with stomach completely filled. Carcinoma crater with infiltration and marginal ledges.

Case II.

Fig. 4 shows a dish-shaped adenocarcinoma on the prepyloric lesser curvature (histologically, ulcerating carcinoma). The patient, a female aged 44, had suffered from griping pain and tenderness over the epigastrium for four months. Another observer had interpreted the appearance as ulcer niche. My own diagnosis was crateriform carcinoma. The decisive point, to my mind, was the recognition of angular projecting ledges on the film proximal to the pylorus and at the angulus (arrowed). These ledges are really typical of a carcinomatous filling defect, whereas ulcer shows smoothly concave semicircular contours on the edges of the mucosal swelling which surrounds the niche.

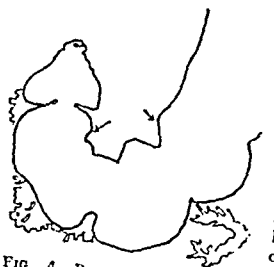

Fig. 4.—Prepyloric carcinoma on lesser curvature with crater and marginal ledges.

On the other hand, a shadow projecting into a filling defect signifies carcinoma. Fig. 5 relates to a still smaller carcinoma.

Case III.

The patient was a woman of 40, of healthy appearance, well nourished, with slight symptoms of over six months' duration. An *x*-ray examination by another observer six months previously had shown a suspicious region proximal to the pylorus, of uncertain significance, which disappeared after atropine.

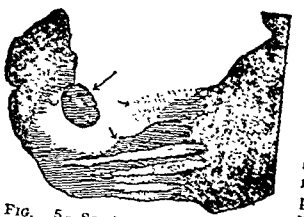

Fig. 5.—Small prepyloric carcinoma, with surrounding wall of infiltration. The rugae are interrupted at the edge of the zone surrounding the central barium deposit

X-ray Findings.—Stomach of normal size; moderate peristalsis; greater curvature of normal outline; near the pylorus is a bean-sized transversely oval dense shadow with a fairly sharply defined outline on all sides, which lies within a filling defect; this filling defect remains constant in the erect and prone positions. The mucous folds proximal to the filling defect shows an indistinct outline against the surrounding barium. In the supine position the mucous folds proximal to the defect are clearly seen to terminate abruptly (Fig. 5). No resistance. No tender pressure point. The duodenum fills normally. The bulb has regular contours; its medial recess is partly covered by the prepyloric barium mass. My interpretation is: Not ulcer, but a small carcinoma just proximal to the pylorus, with a deep crater. The decisive point in the diagnosis is the abrupt termination of the longitudinal folds about a finger-breadth from a central sharply defined barium deposit, and the clear rim surrounding the deposit as a constant filling defect. The deposit was not interpreted as an ulcer niche in spite of its well-defined outline.

Macroscopic examination of the resected specimen also in favour of ulcer, showing a flat dish-shaped crater, the size of half a hazel-nut, within an indurated area of small extent.

Histological Report: Strongly infiltrating carcinoma with deep ulceration.

Two years after the operation the patient is free from symptoms and in perfect health.

It is worth observing that the radiological interpretation of the changes as being due to carcinoma were even more accurate than the macroscopic examination of the resected specimen, at which it was assumed to be ulcer.

A small easily operable *scirrhus* is shown in Fig. 6. Circumscribed scirrhus almost always originates on the lesser curvature just proximal to the pylorus. Its pathognomonic feature is a "spigot" formation. The spigot lies on the lesser curvature, since the flat tumour of a fibrous nature with relatively few cells narrows the lumen by drawing the greater curvature towards the lesser. The stomach wall is therefore free from tumour at the point where it suddenly turns towards the lumen.

Fig. 6.—Small prepyloric scirrhus on lesser curvature. The characteristic point is the indrawing of a broad segment of intact greater curvature toward the lesser (arrows).

In prepyloric ulcer and benign thickenings of the gastric wall the lesser curvature is flattened, the convexity of the greater curvature maintained. The narrowed strip of shadow is therefore eccentrically placed in the opposite sense to what occurs in scirrhus (Fig. 7).

Medullary carcinoma offers the best chances for correct radiological diagnosis, for palpation, and for operation. Even when situated high up it is still quite resectable, because the stomach, having no tendency to shrink, retains its normal shape and mobility. Small medullary carcinomata show a central filling defect, like benign tumours—adenoma, fibroma, etc.—except that in these cases pedunculation and a well-defined edge of the filling defect may reveal their benign nature.

Fig. 8 refers to a tumour which was recognized as benign and consisted of several fibro-adenomata up to cherry size (operative confirmation). It is never possible to diagnose the benign nature of a tumour with complete assurance—first, because the differential diagnosis is not quite certain; secondly, because malignant degeneration not uncommonly occurs in a benign tumour.

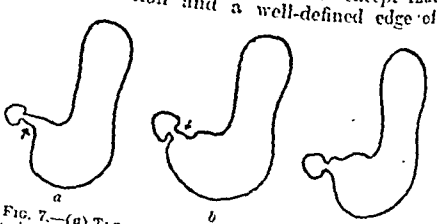

Fig. 7.—(*a*) Typical of prepyloric scirrhus. The barium shadow lies along the lesser curvature. (*b*) Typical of benign narrowing. The barium shadow lies along the greater curvature. (*c*) Upward convexity of lesser curvature bending due to pressure or traction.

Wechselmann[8] estimates that carcinomatous degeneration occurs in possibly 60 per cent. of all adenomata. Konjetzny[7] actually states that the majority of gastric carcinomata originate from adenomata and polypi, or at all events from an adenomatous precancerous stage.

The expert radiologist should therefore never assume the responsibility of having delayed a suggested operation, but should be prepared to accept the reproach of having supported rather than opposed an operation in a doubtful case. In my department a case of prepyloric polypi was watched for three years, and gradually began to show signs of malignant degeneration—namely, progressive growth and increasing loss of definition of the contours. Operation was continually refused by the patient, who had only slight symptoms. At the necropsy a carcinomatous degeneration of the tumour was found, which still retained a recognizable polypoid character.

FIG. 8.—Prepyloric fibro-adenoma resembling a commencing medullary carcinoma.

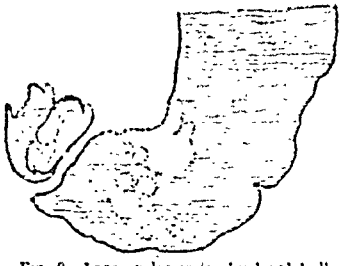

FIG. 9.—Large polypus in duodenal bulb. Small polypi in pars pylorica. (The translucent area at angulus was caused by compression.)

According to the foregoing conception the early diagnosis of adeno-carcinoma and medullary carcinoma is to some extent bound up with the early diagnosis of adenoma, fibroma, and polypi. How *small* a polypus can be detected by *x*-ray examination is seen by reference to Fig. 9. A date-sized polypus was situated close to the pylorus and was invaginated into the duodenum, as the operation proved. The radiogram clearly showed three translucent areas from linseed to pea size, arranged in clover-leaf fashion, which corresponded to polypi of exactly this size.

The early diagnosis of tumours of the upper part of the stomach, inaccessible to operation on account of their position, is, unfortunately, merely of diagnostic and prognostic importance, and does not affect their treatment. The same is true at the present time of cancers of the oesophagus and cardia.

CASE IV.

A commencing carcinoma of the ulcerating adenocarcinoma type is shown in Fig. 10. The changes could only be clearly recognized in the *partly filled stomach*, and the differential diagnosis from ulcer was by no means certain. With complete filling (Fig. 11) the stomach appears normal. The contrast between these two pictures proves how utterly inadmissible it is to make the first examination *after the patient has drunk the entire meal*. There was no operation, and the patient died fourteen months after the first examination.

FIG. 10.—Commencing adeno-carcinoma high up in body of stomach. In the *partly filled* stomach it is clearly visible.

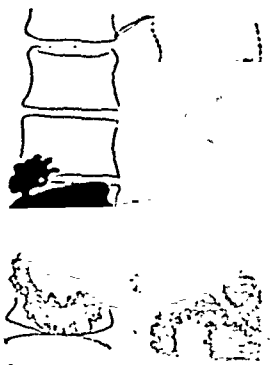

FIG. 11.—Same case as Fig. 10, stomach *completely filled*: stomach, to all appearance normal.

If we are right in our opinion that gastric carcinoma is recognizable in an early stage, then negative *x*-ray findings, denying the presence of a suspected carcinoma, must also be considered reliable. It has for many years been my experience that an exploratory laparotomy is not made when I have given a negative report, though a control by laparotomy would be a welcome event to me personally. Such a measure of trust, however, connotes no small personal responsibility, and I consider it my bounden duty to test the accuracy of my negative findings. For this purpose I use a rubber stamp which adds to the report the words, "If further clinical observation does *not* confirm the *x*-ray findings, please inform me."

In operation cases I only ask for information or (in hospital) an invitation to attend when the operative findings do *not* appear to agree with the *x*-ray report. A further method of precaution is to call up again those patients in whom a decision as to the cause of the symptoms can only be made by re-examination.

With this system of checking results not a single case has come to my knowledge in the post-war period in which, after I have excluded carcinoma in a clinically suspicious case, gastric carcinoma has eventually been shown to exist, either by operation or by the further course of the disease.

The only exploratory laparotomy made in recent years, in spite of a denial by me that cancer was present, was performed in the following case.

CASE V.

In a man of 73, with vomiting, wasting, and cachectic appearance, another observer had made an *x*-ray diagnosis of carcinoma of the body of the stomach. I found no carcinoma, only an organic cascade stomach with adhesions of the anterior stomach wall to the belly wall. As he was feeling very ill the patient himself wished to have the operation which had previously been recommended to him.

I attended the laparotomy. On opening the abdomen the surgeon found extensive adhesions, especially in the gall-bladder region. The gall-bladder was small, shrunken, and full of stones. The stomach was completely free from carcinoma, but *adherent in front*. Death occurred within twenty-four hours with severe cardio-vascular symptoms.

Cause of death: advanced arterio-sclerosis.

I now come to the erroneous positive diagnosis of early carcinoma. The more pain-taking the endeavours to show that a slight variation from the normal is due to a small carcinoma, the greater the risk of a wrong diagnosis in the positive sense—that is, *of diagnosing a carcinoma when none is present*.

As far as I know I have not myself fallen into this particular kind of error in latter years. It is true that I could *not* in all cases find with any certainty whether the case was ulcer or growth; yet I hold that it is possible in the majority of cases to distinguish a carcinoma crater from an ulcer niche. To avoid the horns of the dilemma by using the hybrid term "tumour niche" is, I consider, quite unjustifiable. I gave detailed reasons for this point of view some years ago in the *Fortschritte auf dem Gebiete der Rontgenstrahlen*,[9] stating precisely the points in the differential diagnosis.

In my consulting practice I most frequently see erroneous positive diagnosis of carcinoma in the pars prepylorica. I, too, have found myself face to face with the problem—in many cases extremely difficult, in a few cases insoluble—of distinguishing between a benign and a malignant lesion in this region. The reason is this: the prepyloric segment is the most frequent site of carcinoma—about 80 per cent. of carcinomata start here. Ulcers are certainly least commonly found here—occurring in about the proportion of 1 to 10 as compared with ulcers of the pars media. But the relatively small number of ulcers which occur in this region have three peculiarities which complicate the differential diagnosis: (1) They show "niches" less frequently than in other situations. (2) These ulcers are associated with more pronounced submucous oedema, with an increased tendency to spasm of the gastric musculature, and a greater degree of mucous membrane swelling. As a

part of the stomach is quite
, giving appea. illustrative in this con-
ng case (Case vi)

of the pylor ances similar to carcinoma.

CASE VI.—ered for four years from
n a young man of 21, who had suf in standing and prone
acidity, the x-ray photograph showe gent with a defect with
positions a narrowing of the prepyloric segm
blurred outlines on both curvatures
(Fig. 12). The appearances in them-
selves necessarily suggested car-
cinoma. The patient's healthy appear-
ance, his youth, the duration of the
symptoms, and increased acidity were
against carcinoma. On clinical grounds
a benign condition had therefore to
be diagnosed, in spite of the x-ray
appearances. And so I decided that
it might well be a case of several
ulcers close together. The operation
confirmed this. A barium cast of the
resected specimen corresponded exactly
with the radiogram taken before the
operation. A marked submucous
oedema (rather uncommon) around two
ulcers had caused the shadow defect.
One surgical authority (Jedlicka) has emphasized the liability of
prepyloric ulcers to submucous oedema.

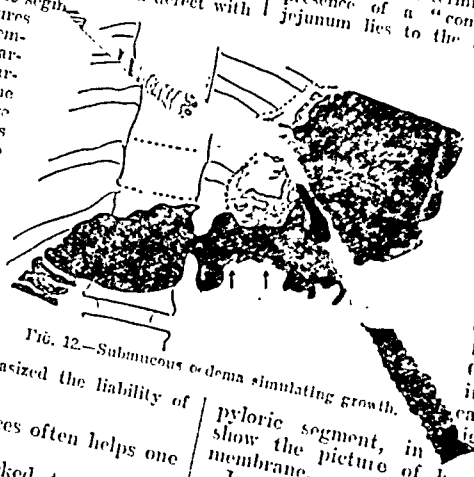

FIG. 12.—Submucous oedema simulating growth.

A very exact analysis of the appearances often helps one to a correct conclusion, but not always.

(3) The third peculiarity is the marked tendency of prepyloric ulcers to malignant degeneration.

My own experience agrees with the facts established by Orator[9] on material from the Eiselsberg Clinic, that about one-third of prepyloric ulcers undergo cancerous degeneration, but only 3 per cent. of ulcers of the pars media, and hardly ever a duodenal ulcer. The difficult differential diagnosis and the tendency to malignant degeneration are sound reasons for recommending operation in prepyloric ulcer.

The diagnosis of these ulcers is in a certain sense a contribution to the early diagnosis of gastric carcinoma. Early recognition of malignant degeneration of ulcer is really the province of the histological investigation, and extremely unreliable by x-ray investigation.

Even when there is no peptic ulcer, conditions simulating carcinoma may occur in the prepyloric segment caused by non-malignant thickening and contractions of the wall. Regional gastrospasm, the cause of which is still unexplained, circumscribed fibromatosis—linitis plastica—and gastric syphilis must be mentioned in this connexion. Atropine and papaverin usually fail to overcome the condition of spasm. Only by the fact that the course of the disease does not correspond with that of cancer, or by the presence of normal acidity, is the benign character of the disease occasionally recognized in these rare conditions.

In case of doubt one will never dare to put off recourse to operation. On these and other still slighter deformities of a harmless nature which alter the prepyloric segment by tapering it to a point and bending it, and may therefore add to the difficulties of early diagnosis of scirrhus, I have already reported at Stockholm.[10] I give here an instance of one from the group of cases just mentioned.

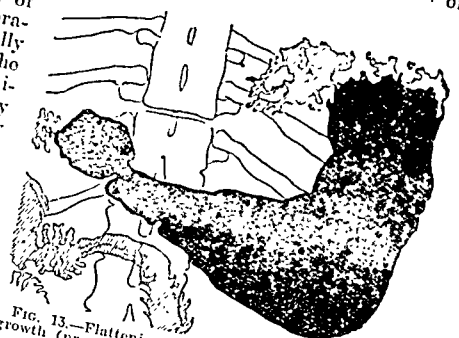

FIG. 13.—Flattening of lesser curvature simulating growth (prone position).

CASE VII.

In a doctor of 40 a narrowing of the prepyloric region, shown in Fig. 13 (prone) and in Fig. 14 (erect), had been interpreted by another observer as scirrhus, and resection of the stomach had been advised. I considered the narrowing to be due to a benign condition, as the longitudinal prepyloric folds were present in the erect position (arrow, Fig. 14), and in the prone position the eccentricity of the small prepyloric barium mass is clearly seen to be towards the greater curvature side. The fine indentation is merely due to thickened mucosa. Peristalsis in the prone position is normal. I determined the cause of the abnormality to be the presence of a "common mesentery," in which condition the jejunum lies to the right of the stomach, and the caecum lies in the mid-abdominal region. On the strength of my findings no operation was performed.

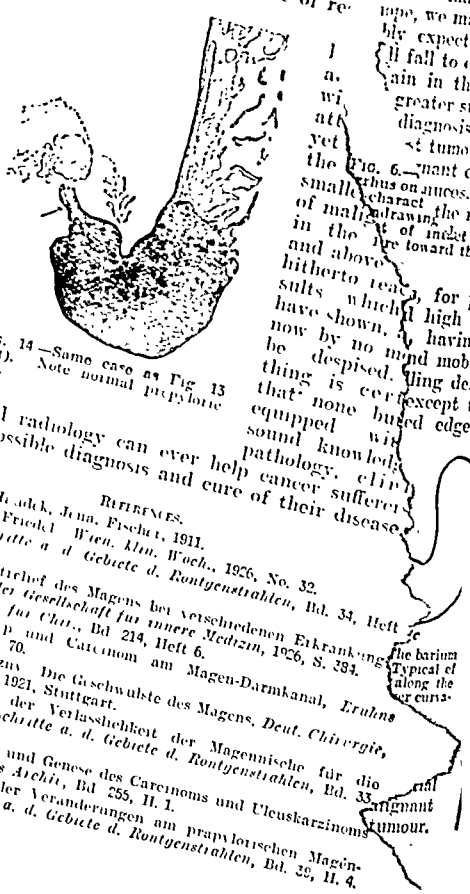

FIG. 14.—Same case as Fig. 13 (erect). Note normal prepyloric rugae.

I should like to say something in conclusion on the *significance of gastritis in the early diagnosis of gastric carcinoma.*

The difference between the gastritis in patients with ulcer and gastritis in patients with carcinoma is the subject of increasing comment in surgical and pathological literature. According to Orator, the inflammatory changes in ulcer are confined to the pyloric segment, in cancer they are generalized and show the picture of high-grade atrophy of the mucous membrane.

In ulcers which had become carcinomatous, as proved by histological examination, Orator found, in the majority of cases, the pyloric gastritis characteristic of ulcer, in contradistinction to the cases of true carcinoma.

If the claim, put forward with [illegible] that it is possible anatomically to distinguish a precancerous gastritis from a gastritis associated with predisposition to ulcer—then be eventually established—namely, that the question that the Konjetzny would be justified in his suggestion that the study of the resection of the precancerous gastritis represents the early operation on a carcinoma. In this case the study of the gastritis would relief pattern of the mucous membrane search. offer an extremely promising line of research.

We may fairly hope, we may reasonably expect, that it will fall to our lot to attain in the future greater success in the diagnosis of the yet [illegible] tumours and

FIG. 6.—[illegible]mant changes [illegible]rbus on mucosa, other [illegible] smaller character the point [illegible]drawing of malignant [illegible] of indent gres in the [illegible]re toward the l

and above hitherto teac[illegible], for pa[illegible] sults which high up have shown, having now by no mind mobili[illegible] be despised. [illegible]ling defec[illegible] thing is cer[illegible] except th[illegible] that none bu[illegible] edge of equipped wi[illegible] sound knowl[illegible] pathology, clin[illegible] medicine, and radiology can ever help cancer sufferers the earliest possible diagnosis and cure of their disease.

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[9] Orator: Zur Pathologie und Genese des Carcinoms und Ulcuskarzinoms des Magens, *Lurchow's Archiv*, Bd 255, H. 1.
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THE VALUE OF PHYSIOLOGICAL TESTS OF RENAL FUNCTION.*

BY

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THROUGH the employment of the tests of renal function I presume that it is sought to determine the manner in which the kidney responds to a stimulus superimposed upon that which it is already receiving, and that the hope is entertained of interpreting this response in terms of renal reserve. I propose, therefore, to confine my remarks to some considerations based partly on experimental fact, partly on theory and analogy, as to the manner in which the kidney, endowed with varying degrees of renal reserve, responds on the one hand to an increase in the work which it is called upon to perform, and on the other hand to a diminution in its functional capacity. The assessment of the value of the many tests which have been introduced to prove the functional capacity of the kidney I shall leave to speakers whose experience in their use has been much wider than my own.

It is essential, therefore, that we should first attempt to form some picture of the reserves of the kidney. They may be divided into those of a structural and those of a functional nature. The former are represented by a large excess of renal tissue over and above that competent alone to carry on the excretory work demanded during resting metabolism. The latter are represented by an inherent and variable capacity exhibited by any given amount of renal substance for the performance, under an adequate increment of stimulus, of an increased amount of work. Let us pursue this question a little further. The architecture of the kidney, as Bowman clearly recognized and described, is repetitive in character, and the functional response of the whole kidney at any time is the integral of the responses of the individual units of which the kidney is composed. The number of such units in a human kidney is 4.5×10^6, so that the normal man is provided with roughly ten million units, each potentially capable of supplying its quota of fully formed urine. That such an enormous number represents a considerable reserve of secretory tissue is indicated by the results of the experiments of Richards and his colleagues. Richards has shown by direct observation of the glomerular tufts of the frog's kidney that the number of active glomeruli—that is, those through which a flow of blood is visible—varies continuously, and that the number of active glomeruli in a given field can be increased by injection of diuretic substances and diminished by injection of vaso-constrictor substances. Each unit passes through alternate periods of rest and activity, and, as we should perhaps expect, these interruptions are not regular in occurrence and do not affect all the glomeruli within a single field at the same time. The number of units is so large that it is possible for the kidney as a whole to function efficiently under normal conditions when each unit comprising it works for a fraction only of its time. Such experiments give us a clearer insight into the meaning of the term "reserve of the kidney," since clearly, when increased work is called for, more units may be mobilized, and the units themselves may respond either by increasing their intervals of work at the expense of their intervals of repose or by increasing the intensity of their work during their active periods. This alternation of activity and rest which the units of the kidney undergo may be looked upon as the concrete representation of its first line of defence against the inroads of disease, and of a part of its total capacity for dealing with an increased load of work. A simple increase in the secretory stimulus, or stimuli if these are different in nature or if each has a different seat at which it becomes effective, may be expected, therefore, to cause an increase in the output of urine by requisitioning units previously inactive, and by diminishing the rest pauses of the active units. It is not necessary to assume that such an increase would be necessarily accompanied by any change in the composition of the urine. As the work demanded of each unit increases still further its commencing failure will be reflected in a change in the composition of its secretion—a change which exhibits an approach towards the composition of the blood plasma. Such a change is seen in the polyuria of chronic nephritis, and is the expression of the involvement of the functional reserves of the units, as contrasted with that of the anatomical reserves of the kidney to which attention has just been directed. This functional change is probably initiated by a local increase in the pressure stimulus—namely, the glomerular capillary pressure—and it may be instructive to compare such a change with that occurring in the heart when its load of work is increased.

When the heart of the dog is isolated and disposed in such a manner that the blood entering the right side of the heart is ejected by the left ventricle against a measurable and variable resistance—the heart-lung preparation of the late Professor Starling—it is possible to vary at will the amount of work performed by it. As the heart tires under a constant load, or if it is given more work to do, it dilates, and we speak of this dilatation as an indication of partial failure. Its "tone" is diminished and its functional reserves are dwindling. An analogous state of affairs is found in the case of the kidney. Here, however, the work performed is osmotic in character, and the sign of failure on the part of the kidney is an approach in the composition of the urine towards that of the blood plasma. Obviously, if the composition of the urine were the same as that of the plasma, no energy would be expended in its formation. And since the osmotic pressure of the protein fraction of the plasma is so very small any work involved in its separation is negligible. We may state therefore with accuracy that a kidney which is engaged in producing a urine having the same composition as the protein-free filtrate of the blood plasma is doing no work; failure is complete. Any degree of approach, then, in the composition of the urine to that of the plasma is a sign of renal failure, and in this respect is analogous to dilatation in the case of the heart.

We may, indeed, press the analogy still further. We have already referred to the fact that the heart responds, by dilatation, in two main conditions—first, when its tone is diminishing under a constant output of work, and, secondly, when an increase in the work performed is demanded of it. Likewise, the kidney responds in two main conditions by secreting a urine the composition of which moves towards that of the plasma—first, when its tone is diminishing under a constant stimulus, and secondly, when an increase in the stimulus to secretion is effected. This stimulus, upon which the function of urine secretion by the kidney is absolutely dependent, is in all probability the glomerular capillary pressure, and it is perhaps not stretching analogy too far in drawing a functional comparison between the glomerular capillary pressure and the right auricular pressure. By definition, then, if two kidneys, each having the same amount of functioning tissue, each being supplied with blood of the same composition, and each receiving the same pressure stimulus, secrete urines at the same rate but of different compositions, the reserve capacity for performing work of that kidney the composition of the urine from which more nearly approaches that of the blood plasma is smaller than that of the other kidney. But clearly such a definition is of no practical value in clinical medicine unless some means are available of measuring these reserves. We may summarize our knowledge of the reserves of the kidney as follows:

Anatomical reserve	Number of renal units in kidney.
Functional reserve	(Magnitude of pressure stimulus to secretion. ("Tone" of secretory unit.

A fall in the functional capacity of the kidney is to be regarded as being due to a diminution in one or more of these three factors. The fall may be explicable in terms of a diminution in the number of renal units, or in the magnitude of the pressure stimulus, or in terms of a diminution in the tone of the secretory units. It is of interest to observe that a relationship may be shown

* Read in opening a discussion in the Section of Physiology and Biochemistry at the Annual Meeting of the British Medical Association, Manchester, 1929

experimentally to exist between the first two factors. Rose Bradford demonstrated that a diminution in the amount of kidney substance led to an increase in the urine production by the remaining tissue, and it can be shown in the case of the isolated kidney of the dog that functional removal of a part of the kidney leads to an increased flow of urine from the remainder, and that this increase in urine flow is accompanied by just those changes in composition which occur when the perfusion pressure to the kidney is raised. A diminution in the anatomical reserves of the kidney is thus partially or completely compensated by an encroachment upon the functional reserves, in that the pressure stimulus to secretion becomes more effective, and polyuria of varying intensity results. This is of interest, since the excretion of urea and of substances eliminated by a similar mechanism is dependent mainly upon the amount of kidney substance, that of chloride mainly upon the rate of urine flow.

We may, then, recognize theoretically three main types of renal failure corresponding to the primary involvement of one of the reserve factors indicated above. That type, resulting from a severe diminution in the number of renal units, would be expected to be the most serious, since the disturbance could be rectified only by profuse regenerative changes. Renal failure resulting from a fall in the magnitude of the pressure stimulus or in the tone of the secretory units might well be of temporary duration and *susceptible to therapeutic intervention*. Is it possible that the *primary involvement* of each of these theoretical factors in the decrement of renal reserve has its clinical and pathological counterpart in polyuria with cirrhosis of the kidney, in oedema with parenchymatous nephritis, and in nephritis associated with toxaemia?

The three factors mentioned are possibly indissolubly involved in any given case of renal impairment, but their recognition may indicate the *principles upon which* any test of renal function should be based and the limitations to which its interpretation should subscribe. Since our present knowledge of the physiology of urine secretion suggests that the most important factors upon which the successful mobilization of the reserve of the kidney would seem to depend are the number of renal units and the pressure stimulus to secretion, a systematic investigation of the effects of some substances which, in the normal kidney, increase this number and pressure, might reasonably be supposed to give some indication of the magnitude of these reserves. Caffeine is such a substance. It was shown by Richards and his colleagues that this drug increased the number of active glomeruli in the frog's kidney, and it can be shown in the case of the isolated kidney of the dog that the increased flow of urine is explicable in terms of an increased effectiveness of the pressure stimulus. These facts suggest that the systematic employment of this drug under controlled conditions in nephritis might throw some light on the capacity of the kidney to perform extra work. A large response would point to a correspondingly large functional reserve, a small response to a small current reserve, which might or might not increase with the lapse of time. It will be of great interest to hear the experiences of members of this Association in the use of this drug, and their views as to the significance of the results obtained.

With regard to the employment of substances eliminated by the kidney as a test of renal function, it would seem that the surest indication would be given by the results of the administration of urea or other bodies eliminated by a similar mechanism, such as phenol red. And in this connexion it would seem advisable to take the amount eliminated over a given period of time at any given concentration of the substance in the blood plasma compared with that eliminated under similar conditions by the normal kidney as an index of the current reserves of the kidney. But the practical application of the present state of our knowledge of renal function and renal adaptation to the evolvement of methods of assessment of renal reserve is fraught with difficulty, and it should prove most instructive to hear from those who are interested in this problem which tests they employ and the interpretation they are inclined to place on the results obtained.

RADIUM TELETHERAPY:
CLINICAL EXPERIENCE WITH A TEMPORARY "BOMB."*

BY

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WHEN it became possible to employ a gram of radium as one unit, at a distance from the skin of 10 cm., the staff of the Westminster Hospital (to *nine of whom we tender* thanks for permission to use their notes and cases) had already constant personal familiarity with interstitial and surface methods. This practical experience had taught, or driven home, lessons others had learned. First and foremost was the paramount importance of screenage; but there were also the capabilities of small total doses; the difficulty of gauging sensitivity, or regulating doses, by histological appearances; the diversity between immediate response, especially of primary growths, and ultimate prognosis; the difference in the *response of glandular metastases* from tumours themselves, not very dissimilar in their response at the primary site; the want of a reliable means of increasing, differentially, the sensitivity of cancer cells, or of influencing their metabolism; the conviction that cure of disseminated cancer must probably not be looked for *from local irradiation*.

Whilst, on the one hand, it was learned that a patient with advanced fixed fungating cancers of both breasts and extensive glandular metastases, seemingly near her end, might resume what appeared to be radiant health; on the other hand, a patient with a rapidly advancing cancer of the vulva and vagina, in the moment of satisfactory success as to her "growth," might die—of what? The necropsy supplied no answer, and the rest is speculation. It was found, as others had found before us, that anaemia was an inconstant factor, often amenable to control by administration of liver; that irradiation of the liver was accompanied by severe disturbance in the gastro-intestinal tract, and disorder of its own functions. As to the skin, it was known that, with exceptions, it was possible to steer clear of lasting injury, and that warnings, generally speaking, are timely. So far as it already burdens the lymphatic vessels and glands in relation to a growth, sepsis is a grave menace to success. Neuritis in the presence of sepsis about a nerve trunk, or actual invasion of the sheath by growth, is to be feared even with well-screened radium; and particularly in the case of the mouth and jaw.

On commencing work with a provisional teletherapy apparatus, it was not entirely an advance into an unexplored field—partly because others had been there long before us, partly because interstitial methods inevitably involve irradiation of the tissues surrounding the mass in which needles were implanted, and at least no obvious harm has come, in our cases, from screened rays reaching the tissues of and round the uterus and rectum, the colon, the breast, the cervical glands, and other parts. In teletherapy, however, unless very narrow beams can be directed with great accuracy on a growth, important structures, such as the heart, the spleen, the liver, the ovaries, the bone marrow, the thyroid, the thymus, and so on, must at times be irradiated. Always there must be a considerable intensity, and a considerable dose, of irradiation upon subcutaneous and more important intervening tissues. In cases treated by teletherapy the element of infective oedema is generally absent, but in local extensions the lymphatics are often blocked, and it is to reach infiltrating extensions, as well as primary growths difficult of access, or visceral metastases, that the method lends itself.

As to the difficulty of obtaining a valid intensity at the depths required for visceral growths, a preliminary physical inquiry could start from the observation that when certain growths were needled, notwithstanding an irradiation

* Sequel to the article by Francis Rock Carling, B.Sc., published in the *British Medical Journal*, May 11th, 1929, p. 845.

inadequate from the physical point of view as to homogeneity, yet the whole tumour would disappear. Clearly, then, a dose and an intensity inferior to that aimed at and striven for must sometimes be effective. Why? Because the dose needed had been overestimated? because the secondary radiations were more potent than had been believed? because an effective alteration of the metabolism of the great mass of the growth could effect, in the same sense, the adjacent imperfectly changed cells? or because the healthy cells surrounding were no longer overwhelmed into defencelessness? or because of reasons too fanciful to put to paper?

It is true that Regaud, Failla, Sluys, and Cheval have employed very large amounts of radium in their bombs, but Forsell, Malet, Perussia, and others use amounts of less than the gram we had available. To look up one gram of radium (to say nothing of three or four) in an apparatus, even one giving a twenty-four hours' service, requires some justification. It is very satisfactory, with needles and seeds, to see a primary growth disappear, and to be able sometimes to banish signs of glandular implication. Many patients are thus rid of an intolerable discomfort or disability, or of evidence, such as a discharge or a lump, that affects their minds; but while the patient may thus be spared suffering and anxiety, the surgeon is not freed from gloomy forebodings, and constantly meets severe disappointment. Patient after patient, free from the primary lesion, comes back with visceral metastases, perhaps with fresh evidence in the lymphatic glands, occasionally with recurrence in, or immediately adjacent to, the primary site. Either the dose was insufficient in intensity or in extent, or lacking in homogeneity, or too short in duration, or too intense, or too long, or the spacing of the exposures was wrongly timed. Inevitably the need arises for some means of reaching the visceral deposits; of covering a whole lymphatic field uniformly; as well as some other means of dealing primarily with growths from the out-set unsuitable for needling.

The teletherapy apparatus in a general hospital is a means of treating patients, and only in a secondary sense a method of investigation of the powers of radium so applied.

It is difficult to make selection of a particular type of growth or of particular stages in its progress; it is not possible to restrict treatment to teletherapy alone; men and women present themselves for relief in the hope of cure, often when their vital powers are already grossly impaired, and hitherto none have been rejected who were not obviously dying. The patients so far treated have been those with growths that do not lend themselves to any other form of radium application: those with growths which clearly need something in addition to interstitial, cavitary, or surface treatment; those with growths which by their volume and extent preclude homogeneous irradiation by local methods; and those who, having been treated surgically, receive prophylactic irradiation. The great majority of the patients would be classed as hopeless, and a number were already within sight of the grave.

It is difficult to envisage radiation as "curing" cancer in any other manner than through normal physiological processes of defence or repair, rejuvenation, or restitution. Radium might be employed merely to necrose the malignant cells, but the cautery, escharotics, coagulation, or the knife are cheaper, safer, and less uncertain. The energy from screened radium supplying all but pure gamma rays is actually very small in quantity, and of that more reaches the normal tissues than the growth, except in very favourable anatomical circumstances. Can we believe that all the benefit is derived from action on the cancer cell? Is not a part due to beneficial action on cells of the invaded tissues—if not on more distant units? The work of Dominici as far back as 1909 already suggested that that might be the case.

Perhaps, then, the energy received by the tissues surrounding a growth, when the cone or cones of rays from a "bomb" cannot be accurately adapted to the exact contour of the tumour, far from being wasted, may prove of great value.

Our notions of dosage, though based upon experience with interstitial and surface work, have been purely empirical. Forsell and others have discovered certain general truths—as, for example, that "a certain minimum of absorbed irradiation in a given time is necessary to secure healing of a given type of tumour," but it is as yet far from easy to measure the amount absorbed; that certain maxima must not be exceeded if the whole organism is not to be damaged; that, other things being equal, the dose should be as concentrated, as to time, as may be, to minimize the duration of exposure to metastasis; and that an interval should not be so long as to give opportunity for the malignant process to re-establish itself. It is difficult, however, to translate these principles into figures. In the first place it was necessary to ascertain what dose the skin would stand with impunity in the conditions—a gram of radium at 10 cm. distance—so that the dose possible through one port of entry might be known. So far 50 gram hours have resulted at the worst in a slight pigmentation of the skin with a trifling alteration of texture; though the parts do not pit, the skin has lost a little suppleness as if slightly swollen. The brownness does not persist more than a week or two, and no loss, even of epidermis, has resulted. With, say, four ports of entry then 200 gram hours may be given without danger; but in the circumstances of our present use of the bomb it is rarely possible to give more than four hours a day, and this means a month's treatment, for ordinarily the radium staff are deliberately excluded from the premises on Sundays. Clinical experience quickly showed that the dose possible, under the conditions concerned, for deeply seated small tumours, such as a carcinoma of the oesophagus and of the bronchus, was inadequate. This agreed with calculation. On the other hand, growths such as carcinomata of the pyriform fossa proved susceptible and showed early changes, with great betterment; but there the short distance beneath the skin surface makes a much greater intensity possible. No ill effect on cartilage has been observed. Dosage has actually varied from 12 to 150 gram hours.

The first fifty cases treated have been:

Carcinoma.	
Larynx	3
Pharynx	4
Tongue and mouth (extensions)	4
Oesophagus	2
Ovary	2
Cervix	3
Vulva	2
Renal	4
Breast (recurrences and metastases)	5
Testicle (multiple metastases)	1
Prostate, parotid, lung, rectum, and colon—one each	5
Sarcoma.	
Of bone	4
Other	8
Cerebral tumours	3
	50

Taking these by classes it may be said of:

(1) The tongue and mouth cases treated for local or glandular extensions, that they have done badly, they were in any case the hopeless failures of other methods. There has been temporary improvement, but the effect has been limited to slight delay in downward progress.

(2) The larynx and pharynx cases have been the most satisfactory; they hold out definite hopes of success when the best dosage has been ascertained.

(3) The oesophagus is beyond our range unless the post-cricoid growth be included, but it belongs in this respect to the previous group.

(4) The uterine and ovarian cases were failures, but were all the subject of extensive abdominal invasion.

(5) Of the renal cases the same must be said—the results are merely palliative.

(6) Breast recurrences can be kept in check, even when very extensive, but previous deep *x*-ray therapy may be a formidable handicap.

(7) Vulval glandular extensions do not prove nearly so sensitive as the primary growth.

(8) Osteogenetic sarcomata have not shown more than quite temporary recession; other round- and spindle-celled growths are more promising.

A few sample cases may be briefly mentioned.

Case 1.—An instructive case of epithelioma of the whole area of the buccal surface of the left cheek, invading the lower and upper alveolar borders back to their junction. A mass of growth was protruding upon the skin surface covered only by a thin pellicle. After twenty-five hours' exposure the lump had disappeared, and was represented by a deep dimple; the skin surface of the cheek, slightly browned and a little inelastic, was intact over the whole area. It was then possible to give a cavitary treatment to the ulcerated mucosal surface, and all appeared well, but in less than a month—and one week after an injection of DHS—a new "lump" appeared beneath the skin close to the original fungation, and a hard mass, rapidly growing at the angle of the jaw involving the masseter, as well as enlarged cervical glands.

The first response was remarkable; not only did the fungating mass disappear, but the normal dermal tissues were re-formed. Why, then, the sudden re-emergence? One possibility is that the cavitary dose upon the top of the teletherapy damaged the stroma and vascular apparatus and permitted surviving lethargic cancer cells to regain dominance. Another is that it was wrong to administer lead just at that stage. Two other cases suggest the inadvisability of approximating lead injections too closely to irradiation. Cheek epithelioma, however, is notoriously difficult to treat satisfactorily by any means, except in quite early stages.

Cases 2 and 3: Retroperitoneal Sarcoma.—These two cases, one a known subject of endothelioma of lymphatic glands, who by operation and medium *x*-ray therapy for other regions has been kept alive for three years, came back with a large retroperitoneal tumour in the epigastrium; the other, a retroperitoneal tumour disclosed at operation, believed to be a lymphosarcoma (but without biopsy). Both proved radio-sensitive. In the one case the mass disappeared after 40 gram hours; in the other it was reduced to less than one-third its size forthwith, but shows a tendency to enlarge again and again when treatment is stopped. The latter patient feels so well, in general health, that it is very difficult to persuade her to spend the necessary time and trouble in coming to the hospital for treatment. She has had 100 gram hours.

Case 4.—This case was one of an immense and bleeding round-celled sarcoma of the neck, filling the space from acromion to mastoid, the patient being in a desperate state of cachexia with anaemia, dyspnoea, and dysphagia. Under treatment by radon and surface appliance, with certain heavy metal injections, the mass was reduced to a thick induration covered with skin. After six months nodules began to appear in the skin, and teletherapy was begun. The general condition of the patient has been well maintained at the high level attained after the original treatment, and the cutaneous masses, though they have not disappeared, have diminished in size. There is no evidence of visceral metastases. A slight loss of weight seems to be of no particular significance.

Case 5.—A case (under the care of Mr. Stanford Cade) of metastases (in the liver and elsewhere) from carcinoma of the breast. The patient received 18,000 mg. hours in the hepatic region, but the treatment had to be discontinued, and death occurred soon after cessation. In this case, certainly, liver function was already seriously impaired by actual destruction, and direct irradiation added to the effect.

Case 6.—A case of extensive metastases from carcinoma of the left breast, in the right breast, chest wall, pleura, left axillary, and supraclavicular glands, which failed to yield to interstitial treatment and received no surface application. "Bomb" treatment was followed by immediate ease, cessation of pain, and remarkable return of well-being, lasting, however, only a few hours after each application. Final result not yet known (June 20th).

Case 7.—This patient (under the care of Mr. Chubb), suffering from post-cricoid carcinoma, was quite unable to swallow, was too weak to get out of bed, and weighed only 4 st. 10 lb. After insertion of radon in January, 1929, she began teletherapy on March 9th, and has received so far 110 gram hours. She is well, runs about briskly, weighs nearly 7 st., and, beyond a slight hoarseness, seems quite well (June 20th).

Case 8.—This patient (under the care of Mr. Arthur Evans) had carcinoma of the larynx with very large fixed glands in the neck; after 700 mg. hours interstitially for the glands, he received 38,000 by teletherapy. The laryngeal growth disappeared, and his general condition, which was grave, has improved so remarkably that, although now (June 20th) he has a pedunculated recurrence from the right cord, he declares himself very well indeed.

Case 9.—This patient (under the care of Mr. Stanford Cade), a case of carcinoma of the pyriform fossa, has made a striking recovery, and will be, with other similar cases, the subject of a special report by Mr. Cade.

An important result in general has been relief from pain. It is not always maintained, especially in cases involving bone. Some of the ameliorative effects of irradiation may be immediate; betterment as to pain and discomfort often surprises by its rapid occurrence. Perhaps it is only a psychological effect, but it is grateful, nevertheless, to the sufferer, and often persists longer than would be expected if purely psychological. Appetite is often improved, but where the liver is involved or suffers, nausea and vomiting may interfere with the taking of food. Whilst most patients experience a grateful wellbeing, some suffer from serious depression, which, however, is only temporary if progress is made. Sleep is nearly improved, many patients sleeping undisturbed while in position on the apparatus. Ten patients have died during the six months.

CAUSES OF USELESS.

Insufficiency of irradiation intensity; wrong or improperly spaced dosage. Harmful effects upon the blood and haemopoietic system, necessitating cessation of treatment. Depression of function of glands, liver, kidney, thyroid, and pancreas, with deterioration of general health. These are the subject, at present, of special investigation by Dr. F. D. M. Hocking.

The effect upon the blood seems to differ slightly in carcinoma and sarcoma cases. In the latter the red count may increase, with a slight falling off of the white cells. In the former the red count falls, but the haemoglobin decreases less, so that the colour index tends to rise. The quantity of urine passed during the period of irradiation is diminished—a consideration of importance in connexion with the blood estimations.

When the first fifty cases so far treated are reviewed, what can be said of the effects?

The many very advanced cases have not gained materially, and in one or two instances the surgeon in charge has noted the impression that the neoplastic process has been hastened. There is, however, no proof that its development has been more rapid than the terminal rush downhill often seen in such cases apart from irradiation. That the effects of irradiation are purely local is evidenced by the steady march, even whilst one group of metastases is vanishing, of others beyond the field of irradiation.

The growths capable from their situation of receiving irradiation of high intensity have shown the best results—those, that is to say, in the pyriform fossa, the post-cricoid region, abdominal and cervical glands; but it must be remembered that the last group includes some that are susceptible of satisfactory treatment by *x* rays even of medium penetration.

For dealing with carcinoma and administering a dose of adequate intensity in a short enough time, there seems little doubt that the amount of radium necessary is greater than our present supply, and we have seen nothing to suggest that by greater intensity the organs or tissues will be seriously damaged. Modifications in our apparatus promise us greater efficiency, but we need at least another gram.

So long as the amount available is no more than a gram, it will probably be advisable to restrict its curative use to cases of carcinoma at a depth not greater than 6 cm. Very susceptible tumours may more cheaply be treated by *x* rays. Prophylactic use after surgical operation seems well warranted. Preliminary treatment in cases of doubtful operability should also be tried.

The following note on radium teletherapy is by Mr. Leslie-Spinks, who has personally made the majority of adjustments of patients for treatment.

Note by A. J. LESLIE-SPINKS, M.A., B.M., Ch.B.

The structure and mechanism of the temporary "bomb" in use at Westminster Hospital has already been described in a previous paper (vide *British Medical Journal*, May 11th), but perhaps some account of the routine followed in its use may be of interest. Before any patient is treated with this apparatus a drawing is made to scale of the lesion and its situation in the body, and an intensity chart is applied to this drawing. By means of this chart the intensity of irradiation at the growth when approached from various ports of entry can be ascertained, and the best way of treating the growth decided upon. Though the calculations are made for conditions in which the source of irradiation is at a distance of 10 cm., yet with the apparatus at our disposal it has been necessary, in many cases, for purely mechanical and anatomical reasons, considerably to exceed this focal distance, with the result that the intensity actually received at the lesion has been much

diminished. This fact may in part account for our lack of successful results in some cases. In the permanent apparatus now under consideration measures are being taken to overcome this difficulty. The results obtained in those cases (for example, intra-abdominal or mammary or cutaneous neoplasms) in which the lesion is accessible to the full intensity have been so much more favourable than in those in which, either for anatomical reasons or on account of the patient's comfort, the distance has had to be increased, that it would appear that a smaller apparatus is necessary for dealing with some lesions.

The "bomb" is in use continuously for twenty-four hours daily for six days each week. During the day out-patients are treated, and during the night in-patients, the average time given to each case being two hours. It has been found that most patients are very nervous during their first period of treatment; but that on the second and subsequent occasions they are quite reassured and comfortable. The majority of our patients sleep quite peacefully, and say that their sense of comfort and well-being is increased while they are on the "bomb" and for some time afterwards. Thus it is no great hardship for the patients to leave their beds in the wards and go to the "bomb" at night. Two patients have even said—and it has been confirmed—that they slept better while having their treatment than when in bed in the ward.

When the patient is put on the stretcher the "bomb" is adjusted as near as possible to the correct focal distance at the port of entry decided upon, the patient is made comfortable, and in the majority of cases falls asleep in a short time. The ports of entry are changed on alternate days, and in this way not only is the danger—and this is apparently very slight—of damage to the skin minimized, but the intensity at the growth is increased.

Periodical examinations of the blood are carried out, as are tests of liver function and other biological tests, and in this way the effects of irradiation on the organism as a whole are controlled. A register is kept and discussed at a weekly meeting of the staff, at which the past week's results are examined and the programme for the succeeding week is decided upon.

SPINOCAIN: THE CONTROLLABLE SPINAL ANAESTHETIC.*

BY

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To discuss the clinical features of spinocain would seem somewhat far-fetched. Dr. Frank A. Kelly of the Grace Hospital, Detroit, Michigan, has worked with the solution from its early experimental days, and he, I believe, will gladly enlighten you as to its clinical advantages. With your permission I will endeavour to enumerate some of the theories we had concerning spinal anaesthesia and explain the reasons for our conclusions.

Since the introduction of painless surgery our dreams have been an ideal anaesthetic—one that would abolish pain completely, be reliable and certain in its action, constant in duration and intensity in direct ratio to the amount employed; one that would not alter the normal secretions of the body; one that would not affect respiration and circulation; one that would be free from all complications brought about by the action of inhalation anaesthesias, such as pulmonary oedema, bronchitis, pneumonia, lung abscess, acidosis, distension, ileus, acute circulatory failures, etc.; one that would not materially disturb the central nervous system. Such an anaesthetic should essentially be non-toxic, be simple of administration, lessen morbidity, and abolish anaesthetic mortality altogether. However, such an anaesthetic is still a dream. The reality is our present-day anaesthesia, the deleterious effects of which are an ever-growing concern of thoughtful surgeons.

The short time allotted to this paper does not permit going into the problem of the causes of anaesthetic morbidity and mortality. It should be pointed out, however, that the problem is a part of the great problem complex of cardio-respiratory physiology and pathology, that has remained largely unsolved to our very days.

However, we know that it is through their interference with the normal cardio-respiratory correlation that anaesthetics cause their ill effects. We see the phenomena of cardio-respiratory decompensation ensue as soon as the anaesthetic action reaches and depresses higher central nervous elements regulating respiration and circulation, regardless of whether the anaesthetic was inhaled through the lungs or injected into the subarachnoid space in a manner enabling it to diffuse in a cephalic direction. The respiratory embarrassment as manifested then in the degree of anoxaemia, or the circulatory collapse as manifested in the degree of hypotension, is in both cases directly proportionate to the action of the anaesthetic. The functions involve central nervous mechanisms upon which the effect of the anaesthetic varies greatly even from one individual to another; it is therefore beyond our power to estimate or control. In this lack of control lies the source of all complications of anaesthesia, caused by the anaesthetic, regardless of whether inhaled or injected. The action of the anaesthetic depends on its diffusion. To control diffusion of the anaesthetic thus becomes the paramount goal of all anaesthetists.

The fatalities of respiratory embarrassment or circulatory collapse at the time of operation, are not to be compared with the secondary mortality, which is 99 per cent. of the whole as compared to a scant 1 per cent. of a primary mortality. How many anaesthetists or surgeons can truthfully say that they have had 100 consecutive cases without some post-anaesthetic complication, such as shock, bronchitis, pneumonia, lung abscess, distension, ileus, acute cardiac or gastric dilatation, albuminuria, suppression, or acidosis; many or all of which may be directly attributable to a partial or impaired respiratory or circulatory dysfunction?

The surest method of eliminating anaesthetic complications is by the use of local or conduction anaesthesia. Unfortunately its art is not familiar to all of us, nor is the method adaptable for all operative procedures. But, with a combination of these and controllable spinal anaesthesia, any operative procedure may be carried out with greater protection to the patient and better facilities to the surgeon. To eliminate the possibility of respiratory and circulatory disturbance, permit me to suggest a spinal anaesthetic that will not diffuse with the spinal fluid, one that can, with the proper technique, be placed under the direct control of the operator.

As we have known spinal anaesthesia in the past it produces hypotension. In fact, so great is the circulatory depression that one well-known author in America states that "the radial pulse cannot be felt by the finger, nor can it be detected by the ear when the arm is subjected to the pressure of the cuff of the sphygmotonometer." This extreme drop in the blood pressure is due to diffusion of the anaesthetic fluid cephalically. If the anaesthetic fluid is confined to the lumbar spine there is no change in the blood pressure; if it reaches the first thoracic the pressure becomes *nil*. If the nerves controlling the diaphragm and intercostal muscles are anaesthetized, respiratory embarrassment arises. If it reaches still higher levels the sympathetic cardiac accelerators are anaesthetized, and unrestricted vagus action slows down the heart. Extreme pallor, nausea, vomiting, a cold clammy sweat, a feeling of pressure over the precardium, thirst, air-hunger, and the fear of impending danger are the alarming symptoms such diffusion of the anaesthetic causes.

With an endeavour to overcome any or all of these objectionable symptoms of an otherwise ideal anaesthetic a series of experiments were conducted to ascertain the physiology and the physiological action of the various drugs advocated for spinal anaesthesia. We attempted to bring the anaesthetic under the control of the operator, to prevent uncertainty as to the parts involved, to stabilize the intensity and regulate the time of anaesthesia, to diminish the tremendous drop in blood pressure, to minimize nausea and vomiting, to abolish cold sweats and

* Read in opening a discussion in the Section of Anaesthetics at the Annual Meeting of the British Medical Association, Manchester, 1929.

anxiety of the patient, to eliminate air-hunger and cardiac pains, to solve the mystery of post-anaesthetic headaches, to prevent localized peristalsis and systemic disturbances.

We set out to produce a spinal anaesthetic that would minimize the toxic reactions, be certain in effect, constant in duration, act in direct ratio to the amount of anaesthetic agent injected, would not in any way affect the heart action, vascular tension, or respiratory function; one that would lessen nausea and vomiting, abolish pallor and cold sweats, that would eliminate the anxiety of the patients as well as systemic disturbances and after-effects; one that would restore, if possible, the confidence of the surgeon to this form of anaesthesia. A new anaesthetic compound had to be devised and the technique so modified that the procedure could be carried out almost with the exactness of the micrometer, if the desired results were to be obtained. Some of the experiments and the reasons for our deductions in devising spinocain may be of interest.

To obviate anaesthesia—temporary paralysis of the thoracic voluntary nerves and sympathetic chain—diffusion of the anaesthetic within the subarachnoid space must necessarily be prevented. Our experiments were carried out with tubes shaped to conform to the human spine. In the larger tubes we employed an isotonic solution, in the smaller tubes with a capacity of 40 min. human spinal fluid was used. In these tubes we studied the action of various viscid substances in an endeavour to secure a solution that would mix but not diffuse with spinal fluid, that would remain *en masse* until the anaesthetic drug had become fixed or absorbed. A substance that would not inhibit anaesthesia but regulate its durability and intensify its action had to be found, always bearing in mind the oscillatory action of spinal fluid within the dural sac due to vascular pulsations, and the external physical disturbances, such as are caused by respiration, coughing, motion of the body, straining, vomiting, etc.

To simulate the first, a clock-like arrangement was devised that would pulsate against a rubber cap; to produce the action of the latter disturbances, a bulb arrangement was attached to the tubes as well as an oscillating device. The first would increase or decrease the interspinal pressure in the tubes from 1 to 8 mm. of mercury; the slight oscillation compensated for the motions of the body. To prevent diffusion we employed many viscous agents, some of which had been advocated before. But, by the use of a solution of starch paste, we were enabled to prevent dissemination for forty minutes. This solution, even in sealed ampoules, could only be used when fresh. It would ferment, precipitate, and become unstable within six to eight weeks. Later we discovered that gliadin (the mucilaginous content of wheat starch) was the substance that really produced the viscid properties desired. This is relatively insoluble, being soluble only in certain alcoholic solutions. If the alcoholic content is increased or diminished it will precipitate out of the solution in crystalline masses. From gliadin we were able to produce a jelly-like gelatinous substance that we chose to call amyloprolamin, which was stable, soluble, prevented dissemination for over two hours, or until the anaesthetic drug was spent. This was necessary because we observed that by dissemination any anaesthetic solution became weakened by dilution. This accounted in a great part for the uncertainty of duration and variation of intensity of various methods formerly employed in spinal anaesthesia.

To further check the action of the solution within the subarachnoid space and to determine whether a definite and fixed volume could be maintained throughout the duration of the anaesthesia, to prove that dissemination would not occur in a cephalic direction, we coloured the solution with methylene blue and tapped human spines from twenty minutes to one hour after the original injection. We obtained no coloured solution from the sixth or seventh thoracic interspace. Its action was further checked by adding stains to the solution, injecting it into the dural sac of dogs, and noting the stained regions of the cord and arachnoid in necropsy specimens.

To enable us to control the anaesthetic so as to bathe only the spinal nerves desired, it became necessary to determine the capacity of the dural sac at various heights in adults and children of various ages. This was accomplished by colouring the spinocain with methylene blue and making taps along the spine until we obtained clear fluid. A further check was made by adding eosin to the light and heavy solutions and injecting these into cadavers, the body being maintained in a position similar to that of the patient on the operating table. The solution was found to expand in a like manner. The results were observed by performing a laminectomy. We added sodium iodide to a solution of the same specific gravity and viscosity as spinocain and injected this into the spinal canal of cadavers and radiographed them. The results verified our other findings. With the dural sac capacity determined it was easy to anaesthetize various pairs of spinal nerves at will, by expanding the solutions as has been described in the technique.

The toxicity of novocain injected intradurally is practically the same as when introduced intravenously. When 300 mg. of normal saline were injected into dogs weighing 9 kg. (20 lb.) convulsions occurred, followed by death. If liquid alboline or olive oil was employed as a solvent for the novocain before it was dissolved and injected into the subarachnoid space, satisfactory anaesthesia was obtained. Although it was delayed, the duration was extended, and by elevating the hips of the dog we were enabled to limit anaesthesia to the legs only. Anaesthesia appeared to be more intense, and with the oil preparation convulsions did not occur in the six dogs injected. There were no toxic reactions when as much as 750 mg. of novocain were employed. The viscosity of the amyloprolamin solution acts similarly to the oils, and materially reduces the toxicity of novocain within the subarachnoid space. This is well exemplified by the introduction of a sufficient amount of spinocain to be equivalent to 1,200 mg. of novocain into a patient weighing 135 lb., when no toxic symptoms or vascular relaxation resulted. It prolongs the time of absorption and extends the duration of anaesthesia. When novocain is dissolved in normal saline or spinal fluid, 120 mg. is considered a maximum dose, but with the use of spinocain we do not hesitate to use amounts equivalent to 400 or even 600 mg.

The selection of novocain as the most desirable anaesthetic agent resulted from a study of the physiological action of the drugs ordinarily used in spinal anaesthesia. Stovaine produces the most intense anaesthesia—a complete and absolute transitory paralysis and anaesthesia of not only the sensory nerves, but also the motor nerves, the tactile and thermo sensation, the sphincters and the vasomotors of the anaesthetized field. It may, if not acidified, produce incomplete anaesthesia. The alkalinity of the spinal fluid often causes the stovaine to crystallize out of the solution injected into almost insoluble particles. Traces of stovaine have been found in the spinal fluid twenty-six hours after injection. As the anaesthetic is subsiding it often produces severe pains in the lower limbs; headaches of a hypertonic nature occasionally follow its use. Tropacocaine produces anaesthesia not unlike stovaine, with perhaps a slightly lessened action of the vasomotors. Apothesin gives a perfect anaesthesia and complete relaxation. Tactile sensation is not constantly impaired. Primarily there is very little vasomotor disturbance, its absorbability is slow or retarded. Secondarily, and in one or two hours after injection, it produces a severe vasomotor disturbance. Cases have been observed without more than a ten to fifteen points drop in blood pressure within forty minutes. Two hours after the injection the pressure had dropped to zero in many cases. This secondary action does not occur with any other drug but butyn. At times it is impossible to raise the patient's head for twenty-four hours after administration. Apothesin, stovaine, and butyn have been considered too dangerous to use, and we have abandoned them for this reason. Novocain gives a complete anaesthesia of the sensory nerves, satisfactory relaxation, and affects the tactile and muscular sensation only slightly. It affects the vasomotors less than any other drug used. Thermosensation disappears with all drugs. Occasionally the motor nerves are not involved with novocain, but this is not constant.

It is interesting to note that a 100 per cent. solution of novocain-amyloprolamin solution, used to produce intra-

dural sacral anaesthesia, caused no appreciable increase in the cell count of the spinal fluid. But the acid anaesthetics, as apothesin and stovaine, produce a marked increase in the number of cells, and not infrequently we have observed 15, 20, and as many as 25 cells to the cubic millimetre after a 5 per cent. solution of the latter had been injected. The anaesthetic agents with an acid reaction increase also the intradural pressure.

A transitory or prolonged paralysis of the hind legs was produced in 30 per cent. of our dogs after a 5 per cent. stovaine solution had been introduced into the subarachnoid space. This paralysis lasted from six hours to nine days. All cases in which stovaine was employed showed a perivascular round-cell infiltration, and by the Cajal method of nerve staining we found the axis cylinders swollen, marked degeneration of the fibres of the anterior roots, and in a dog that was paralysed for five days the sciatic nerve showed marked degeneration of the nerve fibres. On the other hand, novocain in 5, 10, and 20 per cent. solutions failed to produce any macroscopic or microscopic changes.

The absorption time of various anaesthetic agents from the spinal fluid shows great variations. Traces of stovaine have been found in the spinal fluid twenty-six hours after introduction; whereas all traces of novocain had disappeared in innumerable cases in four hours, and in all cases in six hours. In mentioning novocain, I include neocaine and procaine, as they are all nearly identical, the only variation being in the manufacture of the product and not in the primary formula.

Deductions led us to believe that novocain is absorbed by the nerve trunks, and enters the system in this way, rather than through the veins or lymphatics by osmosis. As has been shown, the osmotic rate between spinal fluid and the venous blood is very slow, due to the similarity of intravenous and intraspinal pressure. With the patient in a reclining position the former is 3 to 4 mm. Hg, and the latter is 6 to 8 mm. Hg. This may also account for the fact that if a vein is accidentally punctured during a spinal tap, bleeding does not occur into the spinal canal, but there is a possibility of seepage of spinal fluid into the vein. Possibly this accounts for the frequent hypotonic headaches, as these headaches are observed more frequently after blood enters the spinal needle or after bungling attempts at a spinal tap.

Intraspinal pressure with the patient in a sitting posture is greater than when the patient is recumbent, but there is no difference between the pressure of a recumbent patient and one in a 45 degree Trendelenburg position. This may be accounted for by the cerebral congestion produced when the patient is placed in a position of so marked a degree. This fact is observed if the spinal manometer is permitted to remain attached to the needle intact, when the patient is recumbent, and then placed immediately in a 45 degree Trendelenburg position. A slight remission in the pressure is seen, which almost at once assumes its original reading. We have observed that headaches are more likely to occur when the spinal tap is made with the patient sitting, as with this method a greater amount of spinal fluid is permitted to escape. This is also true when large needles of 15 to 17 gauge are employed. They permit seepage through the dura into the surrounding tissues, and not infrequently cause post-operative backaches, either as a result of the oedema by the spinal fluid or trauma of the tissues. A long tapering point is likely to produce more bleeding than the short bevelled fine-gauge needle.

We conducted a series of tests and animal experiments with all the drugs that have been advocated as vaso-constrictors. Strychnine, intradurally, was the only one that showed satisfactory results in the presence of novocain. These tests and animal experiments were not only in relation to intradural circulation, but the drugs were introduced intravenously, intramuscularly, and subcutaneously. Of the so-called stimulants, strychnine is the only one with any definite value, with the exception of ephedrine and suprarenin. Ephedrine and suprarenin combined, and introduced intravenously, proved the most effective as well as lasting. Suprarenin has little or no value when injected into the muscles, where it produces a localized ischaemia which delays absorption. These experiments enabled us to establish a ratio of the approximate amount of ephedrine required for the stabilization of definite amounts of novocain, with anaesthesia at various heights on the body surface. We also learned how much of ephedrine-suprarenin mixture should be used to cause a hypotension case to approach normal and maintain a constant pressure for from four to six hours, as well as how to gauge the dosage of ephedrine in hypertension cases. Given a case of hypotension of 67/42, 50 mg. of ephedrine and 0.7 mg. of suprarenin introduced intravenously will increase the pressure to approximately 120/70, which will be maintained for at least four hours from the time of injection, during which time one can proceed as with a normal case. A hypertension case of 200/110 pressure, however, should not have over one-half the amount of ephedrine that would ordinarily be used in a case with a pressure of 120/70, or 25 mg. of ephedrine.

Bearing in mind that the vaso-constrictors leave the cord by way of the anterior nerve routes from the second dorsal to the third lumbar vertebra, one must estimate the amount of ephedrine necessary to maintain a constant pressure. With intradural sacral anaesthesia none is required. When the lumbar nerves are bathed in spinocain, with anaesthesia of the legs, 25 mg. should be used. If the anaesthetic is to be carried to the ninth dorsal for anaesthesia up to the umbilicus, 50 mg. should be employed. If the anaesthesia is to expand to the sixth dorsal and anaesthesia to the uniform process, 60 to 100 mg. of ephedrine will be necessary. Strychnine intradurally stimulates the vaso-motor constrictors, but will have little or no effect if injected intravenously or intramuscularly. Ephedrine will fortify the anaesthetized nerves, stimulate the unaffected vaso-constrictors, and if administered before the spinocain will stabilize the arterial pressure. Ephedrine should fortify the vasomotors against the attack of the anaesthetic. To obtain the best results it must be injected before the spinal tap is made. The result will be disappointing if used after the pressure has fallen, and the vaso-constrictors have become anaesthetized, as it will not re-establish a normal pressure if employed at this time. We should then resort to an intravenous injection of 50 to 60 mg. of ephedrine and 0.7 mg. of suprarenin combined.

There has been considerable discussion as to the toxicity of ephedrine. Two of my colleagues have reported deaths which they attributed to the administration of 50 mg. doses. There must have been some error in their conclusions. With an effort to estimate the maximum safe dose we used a 1 in 1,000 solution in rats weighing 100 grams, and by transposing our findings in ratio to a human being weighing 72 kilograms (160 lb.) the lethal dose was estimated at 13,200 c.cm., or 13 grams. The maximum safe dose, according to Solis-Cohen and Gilhens, is 5 grams.

As a result of these studies and reports on 1,100 primary inductions (the total is now 160,000) with controllable spinal anaesthesia—performed by surgeons in every State in the Union and several foreign countries—we feel justified in asserting that spinocain is controllable within the dural sac. The physiological action of spinocain is quite different from that of any other spinal anaesthetic, inasmuch as nearly all of the objectionable features of the others are eliminated. When local conduction or spinal anaesthesia is used, the paramount issue at all times is never to hurt the patient in any way. The patient once hurt may lose confidence in the method and in the operator. A lost confidence may be very hard to regain, and frequently constitutes the direct cause of unsuccessful anaesthesia. A patient who is immediately subjected to one painful manipulation becomes hypersensitive to every following procedure. In spinal anaesthesia with novocain it must be remembered that tactile sensation is not abolished. All the more reason why every precaution should be taken, and the technique employed with such finesse that spinal anaesthesia may be administered without producing any pain. With an entirely satisfactory anaesthesia the patient should be cheerful and comfortable throughout the operative procedures.

To enable us to carry out this technique with as few manipulations as possible, and to place at our disposal solutions that could be controlled within the subarachnoid space, we devised the ephedrine-novocain solution, and

the light and heavy spinocain. The ephedrine-novocain ampoule consists of ephedrine 50 mg. and novocain 10 mg. The light solution of spinocain has a specific gravity of 1.0005. It contains: strychnine 2 mg., novocain 200 mg., amyloprolamin 130 mg., ethyl hydrate 300 mg., normal saline q.s. 2 c.cm. The heavy solution has a specific gravity of 1.109, and contains: strychnine sulphate 2 mg., novocain 200 mg., amyloprolamin 130 mg., propantriol 100 mg., and normal saline q.s. 0.5 c.cm.

The heavy solution should always be given with the patient sitting or in a marked Fowler's position. After administration patients should never be placed in a Trendelenburg position; they should, if possible, be maintained in Fowler's position for at least two hours. If for any reason it becomes necessary they may be placed flat for from fifteen to twenty minutes after the anaesthetic has become fixed.

It would hardly seem necessary to repeat the details of technique for the use of spinocain anaesthesia, as that was described in the October issue of the *British Journal of Anaesthesia*. The method of using the heavy solution is again explained by the author in the current July issue; also in an article by Dr. Frank A. Kelly. There are, however, a few points that should be emphasized as essential to the perfection of this form of anaesthesia. The needles used should be of small calibre, 22 gauge, with a short tapered point, and made of a special alloy of chrome steel that will neither rust, corrode, nor break on bending. To reassure oneself that they are safe for use they should be bent into a semicircle, with the stylet removed, before sterilization. The point of the needle should at all times be very sharp: in fact, it is a good practice never to use a needle twice without resharpening. There is a certain sense of "touch" that one acquires which materially facilitates a lumbar puncture. The development of this is essential to obtain the best results. A large needle will traumatize the tissues, permit seepage of the spinal fluid, produce an increased cell count, and cause post-anaesthetic headaches, to say nothing of the injury to the strands of the cauda. A long tapered pointed needle causes bleeding more frequently at the time of puncture, and it is often the direct cause of unsatisfactory anaesthesias. Owing to the fact that a part of the taper is within the dura and the remainder outside when the solution is injected, a portion escapes extradurally. A part of the long tapered needle may be within a vein, and when concentrated solution is introduced intravenously novocain convulsions may result. An all-steel needle is very apt to break within the tissues if the patient moves or jumps, or if side pressure is applied. The extraction of a needle from the interspinous ligament is not a pleasant experience.

The syringes should be light, and preferably of the all-glass type. It is advisable to fit the needles to the syringe before they are sterilized, to reassure oneself that there is no leakage between needle and syringe, or against the possibility of aspirating air into the syringe. They should be so constructed that the piston works freely in the barrel; there should be no leakage about, or sticking of the plunger. It is advisable, but not essential, that the syringe should have a suitable locking device that will not permit the needle to become detached when in use.

When the anaesthetic is to be injected with the patient in a prone position the posture must be essentially correct—that is, lying on the side with the knees flexed upon the abdomen and the head bent forward, the chin resting on the chest, the back bowed outward. The hips and shoulders should be in the same plane. If the shoulders are tilted and the hips vertical, or the hips tilted and the shoulders vertical, "a corkscrew spine" results. With this condition dry taps may be produced, bleeding may be caused, or the needle may deviate to the side of the dura, and unsatisfactory results will be obtained. The size of the subarachnoid space varies in different individuals, but with a little experience one will quickly learn the extent of expansion of spinocain necessary to produce anaesthesia on the body surface at various heights. Better results will be obtained if the patient is allowed to remain flat on the table for three to five minutes after injection, or until such time as anaesthesia has reached the desired height. Then the degree of Trendelenburg position is assumed as measured by the tiltometer.

Children tolerate spinocain anaesthesia very well; in fact, they are able to withstand larger doses in proportion to the body weight than the adult. It must be remembered that the cord extends lower in infants and children than in the adult. Therefore it is necessary to make the spinal puncture in the fourth interspace so as to avoid accidentally injuring the cord. To determine the amount of spinocain one should consider the body weight of the infant rather than the age. The spinous processes are not fully developed, and this lessens the distance from the skin to the dura. The accompanying table shows the age, weight, distance from skin to dura, amount of spinocain advocated, the mechanical expansion required, and the approximate duration of anaesthesia. I am offering this as an aid to those who may be unfamiliar with the technique in children.

Age.	Weight.		Height.		Distance from skin to Dura.		Amount of Spinocain.		Mechanically to expand to	Duration of Anaesthesia (minutes).
	lb	kg	in.	cm	in.	cm.	Minims	c.cm.	c.cm.	
1 mth.	8	3.6	23 8	52.7	0.65	1 8	6	0 40	1.0	15-25
2 mths.	10	4 5	22.3	57.0	0.65	1.8	6 8	0.4 -0.55	1.0	15-30
4 ,,	14	6 6	24.7	60.1	0.75	2 0	6-8	0.4 -0 55	1.0	15-30
6 ,,	16	7.2	25	63 7	0.75	2 0	6-8	0 4 -0.55	1.0	15-30
8 ,,	18	8 1	26 5	67.4	0 85	2 2	8-10	0.55-0 65	1.3	20-40
10 ,,	21	9 9	23 3	72 2	0 85	2 2	8-10	0.55-0 65	1.3	20-40
1 yr.	23	10.4	29	73 8	0 83	2 3	8-10	0 5 -0 65	1.3	20 50
2 yrs.	28	12 6	32.5	82.8	1 0	2 5	10-12	0.65-0.8	1 5	25-60
3 ,,	32	14.7	25	89 1	1.0	2.5	10-12	0 65-0 8	1 5	25-60
4 ,,	35	15 8	38	95.7	1.2	2 8	12-14	0 8 -1.0	1.8	40-80
5 ,,	41	18 9	41	104.3	1.2	2 8	12-14	0 8 -1 0	1.8	40-70
6 ,,	45	20 3	44	111.7	1.2	3 0	14-16	0.8 -1 0	2.0	60 90
7 ,,	49	22.5	46	116 8	1.2	3.0	16-18	1.0 -1.2	2.3	80-110
8 ,,	54	24.8	48	122.0	1.2	3.1	18-20	1.2 -1.3	2.5	80-100
9 ,,	60	27.0	50	127 0	1.3	3.4	20-22	1.3 -1.5	2.7	90-120
10 ,,	65	29.4	52	132.0	1.3	3.5	20-24	1.3 -1.6	3.0	80-120
11 ,,	72	32.1	54	137.2	1.4	3.7	20-26	1.3 -1.65	3.3	70-120
12 ,,	79	35.1	56	142.2	1.4	3.7	22-26	1.5 -1 65	3.5	70-100
13 ,,	88	39 8	58	147.3	1.5	4.0	22-26	1.5 -1.66	4.0	60-90
14 ,,	99	45 0	61	155.0	1.5	4.1	24-30	1.6 -2.0	4.5	70-100
15 ,,	110	50.3	63	160 0	1.7	4.4	25-40	1.6 -2.6	5 0	80-120

For intradural sacral anaesthesia, with the light solution, a 15 degree Trendelenburg position should be assumed at once. With the heavy solution the patient should remain sitting after injection until the anaesthesia has become fixed; he should then be placed in a reverse Trendelenburg position. *One should not confuse the light and heavy solutions;* if this happens, a case of collapse may occur, due to the ascent of the solution in a cephalic direction.

Morphine and scopolamine are necessary, not to intensify the anaesthesia, but to allay the fear and apprehension of the patient. For upper abdominal work the first lumbar interspace should be selected. With the patient in the prone position the second interspace is usually the wider and more accessible; it is the interspace of choice. In children the level of the conus medullaris should always be borne in mind. In infants it terminates at the fourth lumbar; in children from 4 to 5 years of age it is found between the second and third; from 10 to 11 years at the second lumbar. It does not ascend to the dorso-lumbar interspace until early in adult life. The site of puncture should be selected accordingly.

For prolonged operations 2, 3, or 4 c.cm. of spinocain may be used with safety, provided an equalizing amount of ephedrine is employed. For nervous individuals it is always advisable to use 0.5 to 1 c.cm. more than in a normal case.

as this produces a deeper and more intense anaesthesia, that will greatly diminish tactile sensations, which often disturb the hypersensitive patient. One should never attempt to introduce spinocain except into the lumbar spine, never above the conus medullaris. The introduction of a local anaesthetic directly into the cord substance may, and probably will, result in an instantaneous catastrophe.

Spinal anaesthesia is adaptable in all classes of cases, be the blood pressure high or low, the patient young or old, fat or thin, cardiac, diabetic, alcoholic, or addict. Should the blood pressure be extremely low it may be elevated to normal by the intravenous injection of suprarenin and ephedrine combined. Our youngest patient was 2 months and the oldest 91 years of age.

Patients suffering from tuberculosis, bronchitis, asthma, renal toxaemias, pyelitis, diabetes, or arterio-sclerosis should not be subjected to the harmful influences of inhalation anaesthesia.

In the acute abdomen this form of anaesthesia almost becomes a matter of life or death: morbidity is lessened, convalescence shortened, and the mortality rate lowered.

Spinocain offers more protection to the patient and better working facilities to the surgeon. It has been taken up as a routine anaesthetic by innumerable American operators, because they realize the above conditions. The revived enthusiasm of spinal anaesthesia in America can hardly be estimated. An idea of the recent increase in spinocain anaesthesia may be obtained by attending any of the National Surgical Association meetings. It is the safest form of anaesthesia we possess for operative procedures below the costal margin.

Concluding, I do not wish to advocate the use only of spinal, conduction, or local anaesthesia, but I wish to emphasize that past experiences have taught me that with their use we can prevent the aftermath of operations—the nausea, vomiting, distension, ileus, acidosis, pneumonia, and innumerable other complications—which are directly or indirectly attributable to inhalation anaesthesia. Patients no longer fear an operation or dread the effects of the anaesthetic. Permit me to foretell that within ten years, possibly less, local, conduction, or spinal anaesthesia will be the anaesthetic procedure of choice.

THE CLINICAL ASPECTS OF CONTROLLABLE SPINAL ANAESTHESIA.*

BY

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IT has been said, and we thoroughly agree with the statement, that "all textbooks on spinal anaesthesia will have to be rewritten as a result of the epochal work of Dr. George Pitkin." My object in writing this article is twofold: first, to try and shed some light on the subject; and, secondly, to correct some of the erroneous impressions that are abroad concerning it.

This subject is a very old one, dating back to the work of Corning in 1888, and during the forty years there have been many successes and failures, many advocates and detractors. In some localities and with some operators it has gradually gained and held favour, but in most cases it has been doomed to early failure and disuse. In the last few months, however, it has received a tremendous impetus, as note the great number of articles published in the last year; particularly I would call attention to the December number of the *American Journal of Surgery*, where no fewer than fourteen different articles appear on the subject. I believe this great impetus is largely due to the admirable work of Dr. Pitkin and his associates of Teaneck, New Jersey, and his development of a new solution. Dr. Pitkin has used every effort to have this method thoroughly tried out, and has worked out a technique which to my mind does away with the objections to the older methods of spinal anaesthesia.

The main objections in the past have been, first, the transitory nature of the anaesthesia; secondly, lack of control of the height or extent of the anaesthesia; thirdly, the serious depression of the blood pressure. The technique devised and first advocated by Dr. Pitkin, and now by a host of his followers, completely negatives all of the above objections, and with them other objections that one so often hears.

First, the transitory nature of the anaesthesia is corrected by making the solution viscid by the addition of gliadin (the active principle of wheat starch). This very greatly prolongs the period of the anaesthesia—our usual anaesthesia now lasting from one and a half hours to two hours.

Secondly, the height or extent of the anaesthesia is controlled by the tilting of the table and expansion of the solution. Owing to the fact that the anaesthetizing agent is lighter than the spinal fluid and floats upon it, the upper extent of the anaesthesia is very definitely controlled by placing the patient in the Trendelenburg position as soon as the anaesthesia has reached the desired height.

Thirdly, the severe drop in the blood pressure is controlled by ephedrine, used before the spinal injection in an amount to be determined by the existing blood pressure, and is repeated or added to as the case requires, always keeping the blood pressure within the range of normal. One must bear in mind, however, that the ephedrine will not act as efficiently after the spinal anaesthesia has been administered as before.

Formerly the systolic blood pressure of less than 100 mm. of mercury was considered a contraindication to spinal anaesthesia. Now, having a patient with a low systolic pressure, ephedrine is used in sufficient quantities to raise the blood pressure to the desired amount and the operation is started. Frequent blood pressure readings are taken and the blood pressure is maintained by the use of further ephedrine, if needed; 1/30 grain of strychnine is also added to spinocain, or spinal anaesthetizing agent, as it has been shown that this has a decided effect on the vasomotor nerves if given intraspinally.

To act intelligently one must thoroughly understand the cause of the drop in the blood pressure. It must be remembered that *all* the vasomotor nerves controlling the blood vessels of the body are given off the spinal cord from the second dorsal to the third lumbar segment. Therefore, if the anaesthetizing agent is allowed to extend as high as the second dorsal all the vasomotors will be paralysed and a very considerable blood pressure drop will take place. This illustrates the very great value of the controllable feature of this anaesthetizing agent, because it can be limited to lower levels so that a large portion of the vasomotor nerves are not affected.

Another safety factor is of the greatest importance in the use of this lighter specific gravity solution: if a blood pressure drop of serious proportions should occur, and even if the ephedrine should not control it (a circumstance we have never encountered), the head of the table, which is already lowered, should be lowered still more, and this in itself would cause blood to flow to the brain by gravity and prevent a cerebral anaemia, even if all other methods fail. It is a well-understood fact that the blood pressure drop is due to the involvement of the vasomotor nerves, with the consequent "pooling" of most of the blood in the splanchnics. The method of putting the patient into a decided Trendelenburg position always causes a flow of pooled blood to the brain, even if there is no recordable blood pressure. I think we will all agree that gravity will not fail us even though all other methods may, and we will continue to have a sufficient amount of blood in the brain to carry on the necessary functions of life. The importance of this is at once recognized by the fact that our great interest in blood pressure depression is really one of fear of serious cerebral anaemia.

The use of ephedrine before the spinal injection is made is essential for two reasons: first, that ephedrine will act much better before anaesthesia; and secondly, that we believe in the *prevention* of a serious blood pressure

* Read in a discussion in the Section of Anaesthetics at the Annual Meeting of the British Medical Association, Manchester, 1929.

depression rather than in attempting to correct it after it has happened.

It is of great importance in this type of anaesthesia that we know the absolute degree of the tilting of the table and the tilting to be used in the control of the extent of the anaesthesia. For this purpose we make use of the tiltometer devised by Dr. Pitkin.

It will be well at this time to explain the extent of the high and low anaesthesia and the technique by which they are obtained, bearing in mind that we never operate under spinal anaesthesia above the costal arch.

The extent of the low anaesthesia is that of a true sacral or caudal anaesthesia secured by an intradural injection. The technique for securing this anaesthesia—where only the perineum, vagina, and rectum are involved, taking in the urethra but not the fundus of the bladder, also the cervix of the uterus but not the fundus, together with the so-called saddle anaesthesia down the inside of the thigh for a short distance—is obtained by injection of one-half an ampoule of spinocain into the fourth lumbar interspace without any mixture with the spinal fluid and having the patient immediately tipped into at least a 15 degree Trendelenburg position. This anaesthesia is ideal for operations on the vagina and rectum. It does not anaesthetize the legs or abdomen. It is especially well adapted to obstetrics, except for one thing, and that is that the patient has to be put into the Trendelenburg position, and thus would have to propel the foetus in an upward direction. We therefore find that the heavy solution, while the patient is in the reversed Trendelenburg position, or Fowler's position, is better adapted to confinement work. Here also a true caudal or sacral anaesthesia can be secured by the subarachnoid injection.

The extent of the high anaesthesia that we use is the anaesthesia to the costal arch for such operations as those on the gall-bladder, etc. This anaesthesia is accomplished by making the injection in about the first lumbar interspace and mixing with the anaesthetizing agent about 6 c.cm. of spinal fluid. This so expands the anaesthetizing agent that it will give anaesthesia to well above the costal arch, and when this anaesthesia is complete to the desired height the patient is immediately placed in the Trendelenburg position and the upward movement of the anaesthesia is at once stopped.

The various degrees of anaesthesia between the extent of the high and low anaesthesia already referred to are accomplished by a modification of the two above-mentioned methods.

Many contraindications to spinal anaesthesia have been mentioned in the literature, but we find that there are no contraindications to its use except a persistent thymus and a patient who is in an absolutely moribund state. Both extremes of age tolerate spinal anaesthesia very well. Many patients as young as 2 or 3 weeks, and others over 80 years of age, have been operated upon under this method.

Rarely a patient feels nauseated during the operation, and there will be some drop in the blood pressure. The transitory blood pressure drop due to nausea should be disregarded, as it will immediately come back after the nausea feeling has passed off, which always occurs in a very short time. The blood pressure drop otherwise is always in relation to the number of vasomotor nerves involved, and hence in relation to the height and extent of the anaesthesia.

An objection to spinal anaesthesia which is frequently heard is that of post-operative headaches. In our series of cases we have had several patients who had a slight headache and two patients who had a severe headache. These severe headaches were very quickly and permanently relieved by a retention enema of 6 ounces of a 50 per cent. magnesium sulphate solution.

It is generally conceded now that many of the severe headaches in the past were due to the choice of a spinal needle with a long point, either one that was too large or one with a long sharp point. Dr. Pitkin has devised a needle with a very short bevel which is sharp only on the very point, the rest of the bevel being rounded so that it does not cut a section out of the dura, but really makes a miniature trapdoor in the dura, which immediately closes with the withdrawal of the needle, and does not allow leakage of the spinal fluid afterwards.

Many writers on spinal anaesthesia in the past, and in fact some of them in the present, speak of a very decided lack of bleeding in the wounds. It must be apparent to anyone who gives the matter thought that these so-called "dry wounds" can be the result of only one condition, and that is an extremely low blood pressure. We have not found this condition in any of our cases, and should be very much surprised and alarmed if such a condition should arise.

It has been our experience in doing very high abdominal surgery, such as extensive gall-bladder and common duct surgery, that if the anaesthesia was carried to a high enough level to allow us to complete a long operation without difficulty, some of the patients have complained of a feeling of weakness and difficulty in breathing. We attribute this to the fact that a number of the intercostal nerves have been involved. It has therefore been our practice to limit the height of the anaesthesia a little more closely in this work, supplementing it with an intercostal block of the eighth, ninth, tenth, and eleventh costal nerves at the angle. This has made it unnecessary to have the anaesthesia quite as high as otherwise would be needed. Since we have employed it we have had no difficulty due to respiratory embarrassment.

A word of explanation should be made in regard to the relative action of ephedrine and adrenaline. The action of adrenaline is more transitory, but more quickly available if given intravenously, than that of ephedrine; however, ephedrine will act just as quickly as adrenaline when given subcutaneously or intramuscularly, owing to the fact that adrenaline causes an ischaemia which holds it in this location, and this ischaemia is not caused by ephedrine.

In testing for the height of anaesthesia one should carefully distinguish between pain sense and tactile sense, as it is very apparent that tactile sense remains considerably longer than pain sense in the anaesthetized area. This is also true of thermal sense.

Everyone who has seen operations performed under spinal anaesthesia very quickly notices the presence of an active peristalsis. A very definite reason for this exists, the explanation of which is as follows: the vasomotor nerves (the source of intestinal inhibition) are blocked, and the sympathetic automatic influences from the vagi and the motor stimulus from the ganglia of Auerbach are left unopposed. The increased peristalsis, you will readily see, is of tremendous value, particularly in cases that are very toxic and are to a certain degree dehydrated or have paralytic or adynamic ileus. It is also especially valuable in the toxic cases because of the fact that the toxic matter in the intestines is so much more readily evacuated. It must be remembered in this connexion that ether often stops all peristalsis for many hours after its administration. Spinal anaesthesia produces true anoci-association, as all the nerves in the affected area are completely blocked.

Experimental study shows that barbital is a very definite antidote to novocain poisoning, and while the very small amount of novocain that is used in these cases will hardly ever need any antidote, we always aim to be on the safe side, and our routine orders are to give 10 grains of barbital one hour before the operation. The experiments of Dr. E. G. Martin and his associates of Detroit would tend to prove that 340 grains of novocain could be given to an individual weighing 170 pounds, and his life be saved by the administration of 120 grains of barbital. It is our practice always to have an ampoule of soluble barbital in the operating room, but thus far we have never had occasion to use it.

I would particularly recommend in speaking to the laity that the word "spinal" be not used, and would suggest in its stead either "lumbar" anaesthesia or "local" anaesthesia, as it has been our experience that many people have a dread of anything entering their spinal canal, as it is in their mind in some way associated with their brain.

Dr. Wayne Babcock of Philadelphia says of spinal anaesthesia: "It is a very personal method strongly appealing to the temperament of certain operators but equally unadapted to others."

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NINETY-SEVENTH ANNUAL MEETING
OF THE

British Medical Association.

Held at Manchester, July, 1929.

THE SECTIONS.

SUMMARY OF PROCEEDINGS.

FULL reports of the opening papers communicated to the Scientific Sections of the Annual Meeting at Manchester will be published in the *British Medical Journal* during the next few months. The summaries of discussions printed below, and those which will appear in subsequent issues, are intended to give members who were not present a general idea of the proceedings.

SECTION OF MEDICINE.

Wednesday, July 24th.

CARDIO-VASCULAR SYPHILIS.

THE PRESIDENT opened the proceedings by outlining the programme of work lying before the members attending its meetings. He was followed by Dr. J. M. COWAN (Glasgow), who, in an excellent paper, initiated a discussion on cardio-vascular syphilis. In this he dealt with the incidence, etiology, and pathology of the condition, adding valuable remarks on its treatment, and illustrating the subject with photomicrographic slides and tables of statistics. He was followed by Dr. BOYD CAMPBELL (Belfast), who discussed the effect of treatment on the Wassermann reaction of these patients, dwelling on the importance of giving mercury and potassium iodide in addition to the customary arsenical preparations. Prolonged and repeated courses of treatment were recommended, and the apparently harmful influence of intercurrent secondary infections on the Wassermann titre was illustrated. Dr. CRIGHTON BRAMWELL (Manchester), who confined himself to a discussion of the clinical symptoms displayed in cardio-vascular syphilis, endeavoured to correlate such arrhythmias as extra-systoles, paroxysmal tachycardia, and heart-block with the existence of a syphilitic infection, which he stated was but rarely the cause of auricular fibrillation. Professor A. S. WARTHIN (Michigan) gave a full account of the macroscopic and microscopic appearances of cardiac syphilis, illustrated by a number of lantern slides from specimens admirably prepared and stained. He had found that some of the so-called myxomas of the heart were syphilitic in origin, and crammed with spirochaetes, and might well be called myxogummas; it was interesting to note that an English observer had applied this term to these tumours a hundred years ago. Professor WARTHIN showed a number of slides illustrating the myocarditis of congenital syphilis, and dwelt on the difficulty met with by clinicians in distinguishing such cases from cases of rheumatic infection. He referred to the very high percentage of the hospital population—about 60 per cent.—that gave microscopical evidence of syphilitic infection, and remarked on the fact that the lesions characteristic of syphilitic myocarditis, so common in the male, were quite rare in the female heart, a fact attributable to some radical constitutional difference between the two sexes. Sir HUMPHRY ROLLESTON referred to the absence of any secondary cutaneous manifestations in the patients with these extensive secondary cardiac syphilitic lesions, and questioned the completeness of the so-called cures of syphilis effected by the arsenical drugs. Dr. STARLING (Norwich) contrasted the difficulty of securing complete data in private practice with the comparative ease with which they can be obtained from patients seen and treated in well-equipped hospitals, and gave an account of his own methods of treatment in cases of cardio-vascular syphilis. Dr. SPEARES (Dublin) emphasized the importance of a good skiagraphic examination in the diagnosis of aneurysm of the aorta, quoting a number of cases in which all the commoner physical signs relied on in its diagnosis were absent, though the skiagram gave positive evidence; in others, again, weakness or paralysis of one vocal cord might be the only positive evidence. He was followed by Dr. ILLINGWORTH (Preston), who spoke on treatment; and by Dr. NABARRO, who referred more particularly to the case with which congenital syphilis might be overlooked in a child apparently suffering from a rheumatic infection, and to the fact that chorea might be evidence of congenital syphilis. Dr. LANGLEY (Manchester) commented on the relatively low percentage of positive Wassermann reactions recorded by previous speakers; in his own experience a positive reaction was practically universal. Professor HAY (Manchester) discussed the effect on treatment of finding a positive reaction, and pointed out the difficulties that might be created by such a discovery if, as had been suggested by one speaker, the antisyphilitic treatment should be prolonged for the duration of life, and, as had been suggested by another, syphilis might properly be regarded as incurable by treatment. He asked if it was not the case that many patients with cardio-vascular syphilis were best served by treatment for cardiac failure only. This question was later considered by Dr. CAMPBELL, who quoted instances in which antisyphilitic treatment proved of great benefit after treatment for cardiac failure had proved comparatively unsuccessful. Dr. COWAN briefly replied to a number of questions that had been raised during the discussion; and Professor WARTHIN, in reply to questions asked by various speakers, observed that in his experience aortic aneurysm was practically always due either to syphilis or a streptococcal infection, and that in the former both the Wassermann and the Conn tests frequently gave negative results, though the microscopical examination might show later on that the aortic tissue was packed with spirochaetes. He commented on the fact that the ovary was apparently highly immune to syphilis, while the testis was particularly prone to be attacked by it. He added that he had not yet met with a true case of a second infection with syphilis in a patient supposedly cured of a first attack; should such cases actually occur, the explanation might perhaps lie in a superinfection with a second strain of spirochaete differing from that which had produced the first infection. The PRESIDENT (Professor G. R. Murray) thanked Professor Warthin for the excellence of his address and of his lantern slides.

Dr. PARKES WEBER read a paper entitled "Endocrine tumours." He pointed out that the cells of certain malignant new growths endeavoured to carry on the secretory functions of the particular glandular tissue from which they originated, and discussed the possible action of such secretions on the tissue of the rest of the body. From this point of view the removal of endocrine tumours by the surgeon might actually be harmful to the body as a whole.

SECTION OF SURGERY.

Wednesday, July 24th.

DIVERTICULITIS.

AT the opening meeting of the Section of Surgery, Dr. EDMUND SPRIGGS introduced a discussion on diverticulitis. He said that from combined clinical and *x*-ray examination of the bowel three main stages in the progress of the disease had been discovered:

1. Prediverticular state
2. Stage of formed diverticula } Diverticulosis.
3. Diverticulitis.

Each of these stages had been observed passing into the next, and they were sometimes all present together. As a rule there were no symptoms during the prediverticular stage, but if the lesion was of wide extent pain or burning discomfort was felt. The speaker said that there was pathological as well as radiological evidence of this early prediverticular state. The formation of pouches, according to Keith and also from independent observation, was probably due to irregular sustained muscle contraction analogous to auricular fibrillation in heart muscle. The second stage of diverticula had been found in 10 per cent. of *x*-ray examinations of the alimentary tract. The number and size of these pouches could be well seen in photographs taken after evacuation of the barium meal. Large pouches with wide necks, though they looked the worst, were less troublesome than small narrow-necked diverticula, which produced crescentic and wine-glass shadows. Retention of faecal matter in these was the frequent starting-place of diverticulitis. The wall of the pouches consisted of submucosa and mucosa, but in many there was also muscle. The diverticula might be simple pulsion pouches, but from observation through the stages of development inflammation was a factor. Associated infective foci, especially teeth and spondylitis, were often present. Referring to the etiology, Dr. Spriggs stated that constipation had not been found to be a definite cause, and it was probable that aperients were just as likely a cause, due to chemical and bacterial damage of fluid faeces in the sigmoid. The symptoms and clinical features of the disease were fully surveyed; symptoms occurred most frequently in the first and last stages of the disease. Radiological appearances were definite and diagnostic. Barium shadows in diverticula were not characteristic features. The typical appearances were: (1) inopaque intrusions into the lumen of the bowel, due to inflamed mucosal folds; (2) spike projections of barium from the lumen, due to deformed and contracted haustra and fixity of the bowel, as shown by serial films. It had been found that with an exacerbation of symptoms there was a new attack of diverticulosis. Threatened obstruction occurred in diverticulitis as the result of two conditions: (1) inflamed mucosal folds, and (2) fibrous stricture. It was important to distinguish between these two causes, since douching and warm oil enemas would reduce the swelling in the former and give relief. With the latter condition the risk of obstruction was greater, though in this form douching might give relief. In all the early and many of the advanced cases the disease could be arrested and controlled by medical means. In advanced cases with localized stricture formation there was prospect of complete relief by resection; in other cases, if colostomy had to be performed, it was sometimes possible to restore the bowel by closure of the colostomy at a later date. The treatment of early diverticulitis was the same as that for diverticulosis: removal of septic foci and the institution of a simple and regular diet with a good deal of fruit and vegetables (if possible). The avoidance of aperients was of great importance. Colonic lavage and warm oil enemas at night were of great assistance. Saline douching, though more liable to produce discomfort, had been proved to be more effective in washing out the diverticula than oil enemas. The result of medical treatment in the pre-diverticular state and diverticulosis was very good. The symptoms of subacute diverticulitis subsided rapidly under medical treatment, and the bowel was made more flexible, as detected by both palpation and radiology. Surgical intervention was necessary for perforation, severe obstruction, abscess, and fistula formation, but these complications would become very infrequent as the disease became more widely known and treated. Medical treatment should be employed in all early cases, and resection should never be carried out until the effect of medical treatment had been estimated clinically and radiologically. A portion of bowel with diverticulosis should never be removed on the ground that it might become the seat of inflammation. The situation and localization of the disease was of great importance when considering surgical intervention. Excellent radiograms were shown by Dr. Spriggs to illustrate the various stages of the disease. The development of inflammation at the neck of the pouch was particularly well demonstrated.

Dr. WILLIAM J. MAYO (Rochester, U.S.A.) said that there were two types of diverticula of the colon—acquired and true. The acquired type was concerned in diverticulosis, and was produced by pouches of mucous membrane passing through weak points in the bowel wall. In the true diverticula of the congenital, traction, or pulsion types, all the intestinal coats covered the sac. The diagnosis of diverticulosis was now firmly established on radiological evidence. Some interesting statistics from the Mayo Clinic were given by the speaker, who said that the disease was commoner in men than in women. He agreed with Dr. Spriggs that constipation was not an important etiological factor. Obesity was not always associated with the disease, since it had been found that half the cases were under weight. Cases of diverticulitis could be classified clinically into four types:

1. Self-limiting diverticulitis.
2. Associated with abscess and fistula formation.
3. Associated with obstruction.
4. Associated with carcinoma.

The slow progress and prolonged history of carcinoma of the colon had been demonstrated by review of the earlier histories and examination of the bowel after resection in several instances as being due to diverticulitis, carcinoma being a more recent development. Carcinoma of the sigmoid was nearly twice as common as diverticulitis. Radiology usually distinguished between carcinoma and diverticulitis, and would also usually show carcinomatous change in a diverticulous bowel, but if diverticulitis was present, this diagnostic agent could not be used as freely during the acute stages of the process. Concerning the surgical treatment of diverticulitis, Mr. Mayo said that if the infection went on to pus formation the abscess should be evacuated. In acute obstruction, colostomy should be performed as close as possible to the obstruction, so that at a subsequent operation the diseased bowel and the colostomy could be excised simultaneously through the same incision. In some cases the colostomy could be closed at a later date, after the lumen of the bowel had been restored and the inflammation had subsided. The speaker referred to the serious problems of internal fistula. An important point in technique had been described by C. H. Mayo; after separating and repairing the involved structures, the sutured colon was brought through a hole in the great omentum and attached to the peritoneum of the parietal incision; the omentum was thus thrown between the defects in the colon, bladder, and adherent intestine. In view of the recent investigations of Alvarez on the influence of food products on mass, it would be interesting to compare the incidence of the disease in rice- and fish-eating peoples on the one hand and potato- and red-meat-eating peoples on the other. Some of the phases in the development of diverticula might possibly be due to the sympathetic nervous system. X-ray pictures suggestive of diverticulosis had been obtained by Learmonth and Markowitz after section of the inhibitory nerves to the colon.

Dr. MAXWELL TELLING (Leeds) briefly summarized the advancement in the knowledge of the disease since his paper in 1908. He said that the following points had been learnt: (1) confirmation of the fact that the disease was common and of great importance; (2) perfection of radiological technique and the accurate diagnosis possible; (3) the separation and study of the prediverticular state; (4) the realization that the treatment was medical, surgery being reserved for catastrophes and urgent conditions; (5) the prognosis was not entirely gloomy; (6) the significance and use of the term diverticulosis. He was not convinced about the inflammatory prediverticular stage, and was of the opinion that the main etiological factor was a congenital predisposition to herniation. He had failed to find any evidence of inflammation in the earliest stages of diverticula. Lumbago and fibrositic conditions were the result of toxic absorption; the sigmoid should never be overlooked, in cases of myalgia and arthropathy, as a source of toxic absorption associated with diverticulosis. Dr. Maxwell Telling described, from personal experience, in great detail the symptoms of the disease. As the result of his experience, both in his own case and in his patients, he said that there were certain essentials in treatment—

namely, softening of the faeces by means of liquid paraffin, weekly lavage of the bowel, satisfactorily accomplished by a mild saline purge followed by liquid paraffin, and an ordinary diet with few restrictions. Food leaving solid and indigestible particles, such as nuts, should be avoided, and also abdominal exertion, exercises, or massage. Perforation had occurred in patients while straining at stool. The speaker added that surgical treatment should be postponed until it became inevitable. The use of *B. acidophilus* might be useful in certain cases, but he felt that what was urgently needed for the treatment of this condition was a harmless antiseptic incorporated with paraffin.

Mr. J. P. LOCKHART-MUMMERY said that the radiological evidence of the prediverticular stage described by Dr. Spriggs was unconvincing. Robert Mailer had failed to demonstrate pathologically any such condition. Though there were comparatively few opportunities of direct observation of the colon during the earliest stages, he had been fortunate in seeing the early stage at operation. Small millet seed projections (minute diverticula) were present at points where the blood vessels and lymphatics perforated the muscle coat of the bowel. Inflammation was not present as a rule, but in one case he had noticed inflammation, especially around these small diverticula. This was the earliest stage of diverticulitis. Diverticula were true pulsion herniae of mucous membrane through the muscle coat, and retention of faecal matter in them produced inflammation, which spread into neighbouring tissues. It was probable that there was some degeneration of the bowel wall due to age and unnatural bowel functions. The disease was certainly confined to the later half of life, and occurred most frequently in fat people. There were two definite types of the disease: (1) Inflammation of the colon at an early stage, resulting in an ultimate hard fibrous stricture. This was the type in which obstruction occurred. (2) Diverticula without inflammation — diverticulosis. *Inflammation might occur, as described, giving rise to* abscess formation, peritonitis, and obstruction due to adhesions. A curious unexplained fact was that diverticulitis was most common amongst well-to-do patients. Mr. Lockhart-Mummery added that diverticulitis could be diagnosed with considerable accuracy from the clinical picture. X-ray examination revealed diverticula when little inflammation was present, but in the stenosing type only a filling defect might be seen which was mistaken for carcinoma. Symptoms differed in men and women; in the former, adhesions formed to the bladder, and in the latter, the Fallopian tube, ovary, and uterus were involved. Perforation into the bladder should be prevented. There were often premonitory symptoms of bladder involvement which made early operation imperative. X-ray examination assisted the surgeon in estimating the extent of bowel involved and the degree of stricture. Diverticulitis was a disease with very serious results, and unless the surgeon was called in before complications had occurred, he could often only perform colostomy, which might be permanent. He agreed that diverticulosis and the earlier cases of diverticulitis could be treated medically, but once inflammation was well established it was progressive, and though the condition could be kept in abeyance for a while, disaster was liable to occur quite suddenly and unexpectedly. The best result was obtained by resection and anastomosis, but this could only be carried out when the disease was definitely limited and the situation was favourable. As a rule, however, resection was not possible, and colostomy had to be performed. Wrapping the diseased area carefully in omentum might obviate colostomy, but again this could only be done if the inflammatory process had not spread and the stricture formation was not well advanced. Abscess and fistula formation necessitated colostomy. In a few instances it had been possible to resect the bowel six to eight months later, when the inflammation had subsided, but the operation was usually extraordinarily difficult. If the patient wished to avoid colostomy the involved area could be short-circuited, appendicostomy being performed to keep the blind loop clean. The paramount importance of early operation in preventing complications in all cases with established inflammation was strongly urged. The speaker had seen cases of diverticulitis complicated by carcinoma, and on three occasions he had observed carcinoma developing apparently as the direct result of diverticulitis.

Mr. SEYMOUR BARLING (Birmingham) said that to the surgeon the disease most frequently presented itself as an emergency. Then the simplest procedures of drainage or colostomy should be carried out. In the less acute stages of the disease there were two points worthy of consideration. First, the disease was of slow progress, but nevertheless there was always the possibility of a sudden disaster occurring, and careful supervision was necessary to detect any deepening of symptoms. Secondly, there was always great technical difficulty in removing the affected area of the colon. Resection was advisable in carefully selected cases for repeated inflammatory attacks, threatened obstruction, or fistula formation. Mr. Barling described a case with an inflamed and irritable colon on the left side, in which he saw the sudden projection of thin transparent finger-like processes from the bowel wall as the result of violent contraction. After the spasm passed the protrusions withdrew into the thickness of the bowel wall. Spasm and inflammation appeared to be the essential underlying causes of the fully developed condition. Inflammation of the colon was the primary and essential condition, diverticula, though usually present, being concomitants of the disease. He had excised a portion of colon resembling diverticulitis, in which there were no diverticula. He had had two cases of diverticulitis associated with papillomata. Mr. GARNETT WRIGHT (Manchester) agreed with Mr. Seymour Barling concerning the emergency surgery of the condition. He said that inflammation and perforation of only one diverticulum had produced peritonitis and also vesico-colic fistula. One case was described in which the colostomy which was performed for acute intestinal obstruction was successfully closed after the inflammation had subsided. Professor WILKIE (Edinburgh) said it was essential to draw a clear distinction between diverticulitis and diverticulosis. X-ray evidence should be carefully interpretated in correlation with the clinical signs and symptoms. The surgeon was usually consulted for one of three conditions: (1) Acute symptoms comparable to acute appendicitis on the left side. Usually in these cases expectant treatment with local heat and petroleum by the mouth was indicated; occasionally, however, immediate operation for perforation was imperative. (2) Subacute obstruction of the colon. Here colostomy might be needed. (3) A group in which chronic toxaemia was an outstanding feature. Cholecystitis was also frequently present, probably as a secondary infection. The patients were usually unsuited to surgical intervention, and expectant treatment and liquid paraffin were indicated. In very few instances was it possible to resect the diseased area. The crux of the operative question was whether the diverticulitis did or did not extend so low down as to render resection unjustifiable. Preliminary colostomy was safer, and the results had been most gratifying.

Dr. SPRIGGS, in reply, said that the diverticula protruded through gaps in the muscle and did not follow the track of vessels through the bowel wall. Their formation was usually preceded by the prediverticular state. He said that the earliest stages could not be seen, as they were analogous to auricular fibrillation. He felt that many catastrophes could be avoided by examination by means of opaque enemas every six months. Care should be taken not to mistake the condition for neurasthenia.

SCOPE OF RECONSTRUCTIVE PLASTIC SURGERY.

Mr. T. P. KILNER gave an extremely interesting and instructive demonstration, with lantern slides, of the methods and results of reconstructive plastic surgery. Excellent results were shown of pressure Thiersch grafting in the mouth and elsewhere. The uses and results of many methods of plastic surgery. Wolff grafts, pedicle grafts, bone and cartilage grafts, were demonstrated. Mr. Kilner said that excision of a severe *x*-ray burn relieved the pain, and the results of grafting in extensive burns of the neck and hand were shown. The use of fat grafts for filling depressions due to fractures or bone loss on the face were strikingly illustrated. It was impossible to describe adequately the wonderful results obtained by rhinoplasty and by the "Cupid's bow" operation in hare-lip. He appealed

to surgeons to avoid stitch marks on the neck and face, as these were singularly tedious to deface.

A new instrument for cutting cranial bone flaps was shown by Mr. Lambert Rogers (Cardiff). The essentials were a pistol grip carrying the saw, a dura mater guard, and a small electrically driven circular saw. The saw was controlled by a thumb push and by the pistol grip. A number of lantern slides were shown demonstrating its use. The following advantages were claimed: (1) flaps of any size or shape could be cut; (2) the brain and meninges were protected; (3) did not jar or concuss the patient; (4) an opening in the centre of the flap was not necessary—an undesirable procedure in the case of a vascular meningeal tumour with underlying bony changes; (5) flaps could be turned down rapidly and easily.

SECTION OF OBSTETRICS AND GYNAECOLOGY.

Wednesday, July 24th.

Chronic Cervicitis.

The President, Professor Fletcher Shaw, in welcoming the members of the Section, referred to the work done in Manchester in advancing the cause of medical education, especially in their own branch. The Manchester school was the first to obtain recognition from the examining bodies and to break down the monopoly of the London schools. He mentioned some of the great gynaecologists who had helped to make the Manchester school famous. Charles Clay was the first to perform ovariotomy, and was the first surgeon to perform hysterectomy for fibroids. His name was little known, but he had done much pioneer work in gynaecology.

The subject for discussion at the first meeting was chronic cervicitis (leucorrhoea). The opening paper was contributed by Dr. John Barris, who reviewed the subject from the point of view of etiology and symptoms. The condition, he said, was one of the commonest met with in both hospital and private practice. Chronic cervicitis might be defined as an inflammatory affection which involved the mucous membrane of the cervical canal and of the os uteri externum. It was characterized by leucorrhoea and the presence usually, but not invariably, of a cervical erosion. It was due to infection, and was accompanied by microscopic signs of inflammation. Dr. Barris sketched the development and anatomy of the normal cervix, pointing out the various types of epithelium met with in different parts of the canal. In the normal vagina the upper part was sterile, due, it was supposed, to the presence of an acid medium hostile to the growth of pathogenic organisms. Invasions of organisms might be due to direct infection as in the case of the gonococcus, or by indirect infection following injuries to the cervix at childbirth. Chronic cervicitis was very common, particularly between the ages of 30 and 40, the child-bearing age. The chief symptom was leucorrhoea. General debility, anaemia, and constipation were not unusually accompanying symptoms. Sterility might result. Disorders of menstruation and backache did not occur unless the infection involved the endometrium or the uterine appendages. Finally, cervical trauma and erosion might be associated with malignant disease.

Dr. Gilbert Strachan (Cardiff) dealt with the pathology of chronic cervicitis. It was, he said, the commonest lesion by far met with in gynaecological practice. British gynaecologists had not devoted the attention to the subject which it deserved or such as had been given to it by their colleagues in America and on the Continent. As regards the infective process the most usual mechanism was chronic pyogenic infection after laceration of the cervix in childbirth. In his opinion the incidence of gonorrhoea as a causative agent was exaggerated. The erosion of the cervix was not an ulcer nor yet a granulating patch; it was an epithelial covered surface, though there was often a breach of continuity between the two types of epithelium at the periphery of the erosion. Discussing the late results of cervicitis Dr. Strachan said that these were many and important, and might be grave. Infiltration of the parametrium and later fibrosis might be produced by lymphatic extension. The utero-sacral ligaments were often involved, and pain was produced in the lower part of the back by pulling the cervix forwards. These parametrial extensions were the commonest causes of backache or chronic pelvic pain in women. He thought the effect of the discharge in bringing about mental disease had probably been exaggerated. Pruritus vulvae might be caused by the constant irritating discharge, but the most important sequel was carcinoma. About 96 per cent. of carcinomas of the cervix occurred in parous women. Nulliparae with congenital or gonococcal erosions were not predisposed to carcinoma, so they were forced to the conclusion that it was not the erosion but the damage to the cervix associated with it which was the predisposing factor.

Dr. R. S. Statham (Bristol) devoted his paper to the treatment of cervicitis, and as the methods advised were so numerous and diverse, he expressed merely his own personal preferences. He commented on the frequency with which thickening and inflammation of the cellular tissue at the base of the broad ligaments gave rise to pressure upon and nipping of the ureter, producing chronic backache and renal pain. He pressed for the early treatment of all lacerations of the cervix, and for all established erosions. Laceration of the cervix during childbirth should be properly repaired as soon as it occurred. He was convinced *that gonorrhoea was far more commonly at the bottom* of cervical infection than was usually thought. He believed that if the presence of the gonococcus had been demonstrated, and *in all early cases, there was no treatment so good* as daily douching with boric acid, followed by thorough swabbing of the cervix and vaginal vault with 1 per cent. mercurochrome. This treatment could only be adequately carried out by an attendant. If severe laceration were present, with spread of infection into the pelvic cellular tissue, then he had found really hot and prolonged douching the most efficient remedy. The douche should be as hot as could be borne, and should be continued for at least fifteen minutes. Glycerin or glycerin and ichthyol tampons were only of use when applied by a skilled nurse, otherwise they were positively harmful. He *condemned* the practice of putting in ring pessaries to relieve backache; they only tended to keep up the cervical infection, and pressed upon tender fornices and ureters. For chronic and persistent cases there was no question but that the treatment must be operative. For some time past he had been using the electro-cautery with the greatest success. When the endocervicitis was complicated by laceration the operations possible fell into three groups: (*a*) repair operations, (*b*) amputation of cervix, and (*c*) panhysterectomy. He was not in favour of amputation in young patients, rather reserving this operation for women who were not likely to have more children. In elderly patients, especially if there was reason to suspect fibrosis, panhysterectomy was certainly the operation of choice. In this connexion he spoke very favourably of operation by the vaginal route.

The President, in declaring the discussion open, said that the subject had been chosen as the condition was so common and the treatment was generally so unsatisfactory. Dr. James Young (Edinburgh) emphasized the amount of abdominal and pelvic pain which might follow on infections of the cervix. In the majority of cases there was some spread into the parametrium, and there was no condition so likely to cause low abdominal distress as chronic cervical infection. If that were recognized much good could be done in giving relief. He advocated freely opening up the cervix by means of the cautery. The common site of the pain was the left lower abdomen. Much chronic invalidism, such as persistent arthritis or chronic heart disease, could be traced to cervical infection. He asked about the frequency of involvement, and especially stricture, of the ureter. In his own experience this was rare, and he thought its importance had been overestimated.

Professor Cullen (Baltimore) said that early in his career he had been interested in the histology of the cervix. They did not get very many cases of true erosion. He had never seen ciliated epithelium in the cervix. In regard to treatment there was naturally much difference of opinion. He thought that prolonged irrigation was of very great value; mercurochrome had given great satisfaction. They should remember that many cases with gonorrhoeal infection became reinfected. Repair of one

side of a lacerated cervix was often sufficient. He did not approve of vaginal hysterectomy in prolapse, as it involved removing the keystone of the arch supporting the abdominal and pelvic viscera. In regard to ureteral stricture, Hunner was a pioneer, and, like all who were in advance of their time, was going through the stage of being discredited. He thought stricture of the ureter was more common than was realized. Dilatation of the ureter was often a godsend in giving relief.

Mr. L. C. RIVETT was a little doubtful about carcinoma being a sequel to chronic cervical infection. His experience did not bear this out. He found the cases of very profuse discharge the most difficult to deal with. These cases did clear up with swabbing, but nearly always recurred. He believed that gonorrhoea was responsible in nine cases out of ten. Dr. BETHEL SOLOMONS (Dublin) thought that the discussion very clearly brought out that no cure of these cases was possible by other than definitely surgical methods. Prolonged treatment with douches and swabbing was merely a waste of time. He could not see how they could escape from the conclusion that carcinoma was frequently a sequel. He was doubtful about advising immediate repair of lacerations by all and sundry; it would add enormously to the risk of childbirth. In regard to sterility, it was difficult to say whether it was the cervicitis or salpingo-oöphoritis which was responsible. He did not think very highly of mercurochrome or brilliant green. Leucorrhoea might almost be normal in some women. Unless it caused definite trouble he did not think it should be considered. Treatment with the cautery was a waste of time. He had never seen any ill results from amputation of the cervix. Hysterectomy should only be considered as a last resort. Dr. FORBES (Aberdeen), speaking as a general practitioner, thought that all cases of leucorrhoea could not be due to inflammation of the cervix. In regard to left iliac pain, he had been taught many years ago that it was due to inflammation in a band of tissue running from the cervix to the pelvic wall. Many cases of bacilluria were due to a stricture of the ureter. Professor LOWRY (Belfast) agreed with the view that the cervix was a very important focus of general infection such as rheumatism. It was often impossible to demonstrate the gonococcus when on clinical grounds one was certain that it was the causative organism. Often women with very profuse leucorrhoea had babies; he did not consider it was a frequent cause of sterility. He spoke favourably of mercurochrome. He was strongly against teaching students that immediate repair of the cervix was advisable. Lysol was one of the most pernicious things to use as a douche; he was against indiscriminate douching altogether.

Dr. K. V. BAILEY (Manchester) thought that by pure histological means the connexion between lacerations of the cervix and carcinoma could be definitely demonstrated. Dr. RIDDELL (Plymouth) felt that traumatism was the commonest cause of cervicitis. He hoped that the term "erosion" would be dropped entirely. He suggested that a time limit should be imposed for medical methods of treatment—say, six months; surgical treatment should then be considered. He thought that vaginal hysterectomy was a step in the wrong direction; fewer mistakes would be made if the abdominal operation were performed. He did not agree that cervicitis was the cause of the one-child marriage, and he did not think that a case had been made out for the causation of carcinoma by cervicitis. The question of focal infection was a very important one indeed.

Dr. FARQUHAR MURRAY (Newcastle) laid emphasis on the point that in a large number of patients who came complaining of leucorrhoea there was no evidence of any inflammatory process. He strongly protested against indiscriminate douching without a careful preliminary examination. It was highly important to treat any concomitant urinary infection. Pain might be due to the urinary infection. It was not practicable or advisable to teach immediate repair of cervical lacerations. It would be most highly dangerous to attempt immediate repair of a high laceration spreading above the vault of the vagina. Regulation of the bowels was of supreme importance in all these cases. At this stage the discussion was suspended for a few minutes while the President of the Association, Mr. A. H. Burgess, addressed a welcome to the Section.

On resuming, Mr. KENNETH FOSTER (Worcester) thought there was no doubt that the cause of most cases of cervicitis was trauma at confinement. He pleaded for more care to obviate the use of forceps. Proper ante-natal care was supremely important. Professor MAXWELL (Pekin) said that a few years ago he stopped all douching, except for those patients who were actually attending the hospital. They had picked up ten cases of early cancer recently by examining patients in whom the discharge had not quickly cleared up after this intensive douching. Professor DOUGAL (Manchester) wanted to know how to treat a case of constant discharge. Attention to general health would clear up discharge in young patients. It was a different proposition when the discharge was largely pus. Here rest, heat, and raising the general powers of resistance were the lines of treatment. The PRESIDENT thought the question of general douching had at least been settled for good at this discussion. They had heard very little about cauterization and diathermy; he had treated a number of patients this way during the past year, but he was disappointed in his results. It was important to improve the general health of the patient.

Dr. STATHAM, in reply, pointed out that the cases in which he advocated vaginal hysterectomy were those of elderly women with profuse bleeding who required repair of the perineum. He agreed that medical treatment wasted a lot of time, and he would limit it to six months. Dr. STRACHAN agreed with Professor Cullen that he had never seen ciliated epithelium in the cervix. The cervix as a source of focal infection was of great importance. The changes in cervicitis were certainly definite histological changes. He thought there was little evidence of the connexion between cervicitis and sterility.

SECTION OF DISEASES OF CHILDREN.

Wednesday, July 24th.

TUBERCULOSIS IN EARLY CHILDHOOD.

Dr. C. P. LARAGE, President of the Section, took the chair at its first meeting.

Dr. C. McNEIL (Edinburgh) referred sadly to the fact that the late Professor Pirquet should have introduced this subject. He added a brief comment on the great contribution made by Pirquet to the elucidation of the problems of tuberculosis in childhood. In a survey of the first five years of life Dr. McNeil showed how the number of deaths during this period from tuberculosis greatly exceeded those in the later period of childhood and of puberty. Meningitis was easily first as the most frequent form of fatal tuberculosis at this age period, while the number of cases of pulmonary tuberculosis and abdominal tuberculosis was about equal. Cases of surgical tuberculosis only added a small contribution to the number of deaths at this period, while examples of disseminated tuberculosis amounted to a considerable total. Dr. McNeil then presented in tabular form a survey of 254 cases of tuberculosis admitted to his wards during the past eight years, including both non-fatal cases and the results of post-mortem examinations. He did not agree with the common statement that the Pirquet test often failed in tuberculous meningitis and in general tuberculosis: if properly performed this was not so, and during the first two years of life he regarded a positive tuberculin reaction as of great value in diagnosis and of grave significance. A negative reaction was of value in the later periods of childhood in excluding tuberculosis, while the positive test was of less help in diagnosis. Dr. McNeil next discussed the problem of latent tuberculosis; he stated that in the first two years of life tuberculous infection nearly always proceeded to tuberculous disease, and this disease in nearly all cases ended in death. This should enable physicians to rid themselves of the haunting fear of latent tuberculosis in the early years of childhood, at which period the problem of diagnosis was the discovery of active disease in the thorax or abdomen. Tuberculous meningitis was a secondary manifestation, being the end-result of an earlier focus of disease. Post-mortem results warranted the general statement that the primary focus was glandular or visceral, either thoracic or abdominal, in nearly all cases

with a clear majority of thoracic origin. Dr. McNeil next discussed some of the problems of diagnosis in pulmonary tuberculosis when difficulty was especially likely to be present during the first two years. At this period four varieties were common: tuberculous bronchitis becoming broncho-pneumonia, acute caseous pneumonia, chronic fibroid pneumonia with cavities, and a caseous process at the hilum of the lung spreading into it. The first two occurred at an age when bronchitis and lobar pneumonia were both common, and gave the same physical signs, whether simple or tuberculous. In the tuberculous forms the onset was insidious with less general distress and dyspnœa, while the course was quiet, leading on to loss of weight and pallor. *X*-ray examination, a positive sputum test, and a positive tuberculin test were all of great value. The most difficult to diagnose was the type beginning at the hilum, and often signs of a severe progressive toxæmia were the only manifestation. Summing up these cases, Dr. McNeil again insisted that at the early period of childhood healed tuberculosis in glands or in the lungs was very rare. With regard to abdominal tuberculosis, he pointed out the interesting local variations which occurred: in northern England and in Scotland this form was still a grave problem, and was a reliable index of widespread infection of the milk supply with tubercle bacilli. Turning lastly to the question of preventive measures, Dr. McNeil laid it down that the greatest impetus towards the success of such measures was the conviction of the medical mind that the disease was a contagious one. The fact of contagion from another human being, and the fact of the transmission of the disease from milk to man, were of greatest importance in childhood. The problem of tuberculous milk in relation to tuberculosis in children was complicated, and in some areas, including Manchester, there had lately been an increase in the samples of such milk obtained. There appeared to be no generally agreed policy with regard to such milk, and even the medical profession was not agreed as to the necessity for boiling milk. Finally, Dr. McNeil dealt with the human source of tuberculosis, and indicated how detection of pulmonary disease in the adult and the prevention of close contact with the children were the important steps to be taken in order to cut down the occurrence of tuberculosis in early childhood.

Dr. HUGH THURSFIELD, who discussed the difficulties of diagnosis of tuberculosis, first in infants, and secondly in children of school age, said that in infants the main difficulty lay in distinguishing between a tuberculous broncho-pneumonia, a simple broncho-pneumonia, and an empyema. Acute miliary tuberculosis of the lungs was easier, on the whole, although the so-called typical *x*-ray pictures did not always occur. Dr. Thursfield then illustrated the various types of diseases in the thorax which gave rise to difficulty by means of lantern slides. He said that the term "epituberculosis" was a useful one, and for him meant the sort of case in which consolidation of the lung was present in association with a tuberculous focus, and yet was not in itself tuberculous in character, and therefore capable of resolution. He emphasized several points which facilitated diagnosis: a history of contact, a palpable spleen, and the enlargement of the lymphatic glands of the thoracic wall were all of great help; it was also of great importance to puncture the chest with an exploring needle if there was any doubt about the diagnosis in a chronic case. The tuberculin skin reactions did not appear to give much assistance. With regard to the diagnosis of tuberculosis in older children, he thought the disease was far too often said to be present in the chest when actually all that was present was evidence of healed mediastinal glands, which were not a frequent cause of ill health.

Dr. JAMES M. SMELLIE (Birmingham) based his remarks on his experience of 1,190 post-mortem examinations during the last seven years. In 182 cases death was due to tuberculosis, which was approximately 15 per cent. of the autopsies. The peak of the mortality occurred in the second year of life; the seasonal incidence showed that the highest occurrence was in the period from January to April, and the lowest in August. In 33 per cent. of cases the mediastinal glands were the only ones involved, in 31 per cent. both mediastinal and mesenteric glands were infected, while in 17 per cent. only the mesenteric glands had become affected, and it might be deduced that in about two-thirds of all cases the infecting organism was the human tubercle bacillus. Dr. Smellie emphasized that latent tuberculosis was a very rare lesion to find at autopsy, and under 5 years of age the disease seemed to run a very rapid and fatal course in most cases. He pointed out the importance of tuberculous otorrhœa as a symptom in some cases. In dealing with the question of treatment it was obvious that this must centre round prevention, and in this connexion he remarked on the studies of immunity in relation to other infections, such as diphtheria, where subminimal doses brought about an increased resistance, and it was along these lines—as, for example, by the use of the B.C.G. vaccine—that hope for the future lay, as well as in building up the general health of the child.

Dr. STANLEY MELVILLE emphasized the point that in nearly all cases the primary lesion in tuberculosis in children lay in the lung parenchyma; from this the glands in the mediastinum became involved secondarily. If the initial infection was massive an acute caseating broncho-pneumonia or miliary tuberculosis developed, but if resistance was higher or the infection less, then either hilum tuberculosis or the adult and more chronic type of the disease resulted. He regarded the diagnosis of hilum tuberculosis as a purely topographical one, and he thought that both radiologists and clinicians had allowed themselves to become overwhelmed by the size of the shadows produced in the mediastinum. He urged that when an *x*-ray picture was examined the hilum be covered up for a correct estimation of the extent of the disease to be ascertained. Dr. HUGH ASHBY (Manchester) said that he always had difficulty in diagnosing tuberculosis in children. He had given up the skin tests, and attached very much more value to the ordinary clinical signs and to an *x*-ray photograph of the thorax wherever the situation of the suspected tuberculosis might be. He thought that empyema presented a very real difficulty; needling should always be employed in a doubtful case.

Dr. C. CHISHOLM (Manchester) gave her experiences in tuberculosis in infancy, basing her remarks on 3,500 cases of digestive disorders and wasting, where the diagnosis of tuberculosis had been made in 130 instances. Out of these cases the diagnosis had been established in only 50 cases, among whom 72 per cent. had died. A history of contact among members of the patient's family was very commonly found. She pleaded that a strong stand should be made for obtaining a pure milk supply, and that the profession should not be satisfied with sterilization and pasteurization. In 10 per cent. of all cases admitted to her care a positive skin reaction to tuberculin had been obtained. Dr. E. A. SAUNDERS emphasized the value of close co-operation between the radiologist and the clinician in these cases. He thought that segregation of open tuberculosis cases was an important means of prevention; the danger of creating a virgin-soil population in this way was exaggerated, since even those children thus separated from their parents were exposed to subminimal doses in everyday life.

The President, Dr. C. P. LARAGE, thought that he was seeing fewer cases of tuberculosis now than formerly, and that recent measures of tackling the problem were already bearing fruit. Tuberculosis was very infectious to young children, and they might be endangered, not only by open cases, but also by such cases as tuberculosis of the hip. He remarked on the relation of injury to the onset of tuberculosis in the hip and meningitis cases, and inquired what was implied by this. Professor C. W. VINING (Leeds) spoke of certain other forms of tuberculosis in early childhood, instancing generalized glandular tuberculosis and tuberculosis of the ear; he thought the prognosis in the first of these was good. He also mentioned the problem arising in children under the age of 3 where signs at one apex gradually but very slowly disappeared. He commented on the difficulty of finding tubercle bacilli in the sputum, and also of the radiological picture in thoracic tuberculosis where only the miliary, and possibly the broncho-pneumonic, types gave rise to a characteristic appearance. He did not think that infected glands at the root of the lung could be diagnosed in this way.

SECTION OF PHYSIOLOGY AND BIOCHEMISTRY.

Wednesday, July 24th.

PHYSIOLOGICAL TESTS OF RENAL FUNCTION.

PROFESSOR RAPER, the President of the Section, took the chair, and Professor E. B. VERNEY opened the discussion with a paper which is printed in full at page 179. Sir WILLIAM H. WILLCOX examined as a routine the volume of urine passed in twenty-four hours, together with its percentage content of urea and chlorides. The most valuable test was undoubtedly the estimation of blood urea; it was of special value in showing whether defective renal function played any part in toxaemic symptoms such as occurred in advanced heart failure or in acute infections. Cases were quoted of blood urea figures over 100 mg. per cent. in diphtheria. In one case of acute alcohol poisoning 330 mg. per cent. was observed; the patient made a complete recovery. In congenital cystic kidney extremely high values might be obtained, although the clinical history might be very short. Attention was also drawn to cases of *B. coli* infection with sudden convulsions, in which the estimation of the blood urea was of value. Caffeine citrate was of value in some cases of chronic nephritis, but it sometimes ceased to have any diuretic action after two or three days.

Professor E. C. DODDS laid stress on the importance of estimating not only the urea, but also the non-protein nitrogen, the cholesterol, and the total protein of the blood. Thus the two latter may be much altered in non-oedematous cases where there was little or no evidence of nitrogen retention. These estimations were of value in deciding whether a patient would or would not benefit from a high protein diet. If the cholesterol and protein were normal this treatment would be of no value. Since a low blood urea did not certainly exclude uraemia, the estimation of calcium and phosphorus was of value. If the calcium was reduced to 5 or 6 mg. per cent. and the phosphorus raised, the prognosis was grave. Stress was also laid on the importance of "dehydration," as in vomiting, as a cause of high blood urea. The estimation of the total solids of the blood would reveal this state.

Professor J. SHAW DUNN (Manchester) gave an account of experimental oxalate nephritis in animals. The subject was difficult, because a nephritis severe enough to cause oedema usually killed the animal. The urea output and concentration of normal rabbits were compared with those of nephritic animals on a series of lantern slides; the concentration of urea was definitely impaired. If these rabbits were fed on a dry diet their weight fell, their blood urea rose, and in some cases the animals died of uraemia. This occurred over two hundred days after the production of nephritis, when the animals had apparently reached a steady state. Professor Shaw Dunn suggested that this observation might be of practical value in therapeutics. Mr. H. D. KAY gave an original method of testing renal function: 550 mg. of sodium β-glycero-phosphate was injected intravenously, and the urine excreted during the following hour was analysed for phosphate and compared with a specimen taken the hour before. A normal man would excrete at least 150 mg. extra phosphate; a severe case of nephritis would sometimes excrete none. Over sixty cases of renal disease had so far been examined, and this new test appeared to conform with clinical and post-mortem findings more closely than the phenol sulphonephthalein or the urea concentration test. The other advantages were that the substance was harmless and easy to obtain and to sterilize; the ward preparations were simple; there were two urine analyses to perform and no blood analysis; the presence of blood or of urine pigment did not disturb the test. Mr. J. B. MACALPINE (Manchester) dwelt on the importance of desiccation of the tissues resulting from polyuria, and the necessity of waiting in cases of enlarged prostate until the blood urea came down again after cystostomy before proceeding with the major operation. He also mentioned the importance of avoiding catheterization of a healthy ureter across an infected bladder; the indigo-carmine test enabled this to be achieved. The blood urea estimation was of the utmost value, and, in addition, he always employed the urea concentration test. A series of slides were shown to illustrate the great value of pyelography. Dr. F. H. SMIRK (Manchester) said that the effects on the urinary composition of administering either water, urea, or caffeine by mouth to normal individuals differed sufficiently from the responses of patients with defective kidney function to be of value as tests of renal inadequacy. The renal elimination of water under stress, when one litre of water had been administered by mouth, was found inadequate in all nephritics examined, including interstitial nephritis with polyuria. The effect on the renal salt excretion of administering urea was a practical and useful test of renal function, and had the advantage that a urea concentration test was simultaneously performed; 18 of 22 normals (yet only 2 out of 55 patients with Bright's disease) attained a urinary percentage NaCl of 0.8 after giving urea by mouth. Normal individuals failing to attain the 0.8 per cent. NaCl were readily distinguished by the considerable increase in salt concentration after administration of urea: 17 out of 18 nephritis cases with normal urea concentrations were detected by this test. The NaCl percentage usually increased in diuresis produced by urea and caffeine. The total amounts of other excreted substances were usually increased in varying proportions after administration of these drugs, but their concentration varied almost inversely as their diuresis.

Dr. E. P. POULTON held the view that caffeine produced an increased glomerular filtrate so that the excretion of chloride was increased; urea did not produce this effect. The urea concentration test in its most common form was criticized, because, by ignoring the total quantity of urea excreted, half the information obtainable by the test was lost. He showed numerous analyses obtained from patients to illustrate this point. With regard to oedema, Dr. Poulton considered that the causation was not always due to a fall in serum proteins, because examination of these immediately before and after a diuresis showed no change. He did not attach much importance to dehydration as a cause of high blood urea, considering that, in addition to this, the kidney must be deranged to account for such high figures as had been mentioned after vomiting. He suggested that Dr. Kay should compare the new glycerophosphate test with the urea test in its best form. Mr. SWIFT JOLY spoke of the importance of following the urea excretion over several hours. He discussed the observation of American surgeons that hypertrophy of one kidney usually meant complete failure of the other.

In reply, Professor VERNEY congratulated Mr. Kay on the test he had described. He considered that as at the present moment there was such disagreement among physiologists about the precise location of the functions of the different parts of the renal unit, it was probably desirable to consider these units together, and not to dissociate the functions of tubule and glomerulus. With regard to caffeine, this drug increased the effectiveness of the kidney stimulus to excretion: when it was administered an adequate quantity of water should be given at the same time. In conclusion, Professor RAPER thanked those who had contributed to the discussion. Although no general decision was at present possible, yet it was to be hoped that the stimulus received from the interesting communications which had been given would lead to more work on this important subject.

SECTION OF PATHOLOGY AND BACTERIOLOGY.

Wednesday, July 24th.

RELATION OF MALIGNANT DISEASE TO BENIGN TUMOURS IN THE INTESTINAL TRACT.

PROFESSOR M. J. STEWART (Leeds), in opening the discussion, reviewed the various kinds of simple tumours that occurred in the alimentary tract, and discussed the incidence and the nature of the malignant changes to which each was liable. Simple connective tissue tumours were comparatively infrequent, the only two of any importance being lipoma and leiomyoma. Submucous lipomas were rare and were mostly mere casual findings at autopsies. Subserous lipomas were frequent, but neither type of tumour underwent malignant change in the intestinal tract. Leiomyomas were much more common; they were found chiefly in the stomach and oesophagus; they were

flat sessile growths, which grew slowly and seldom reached a large size. As with uterine fibroids, alimentary tract leiomyomas occasionally became sarcomatous, but as the latter were usually single tumours it was often difficult to decide whether they had begun as simple tumours or had shown malignant characteristics from the start. The simple epithelial tumours, however, were clearly the most important of the group under discussion, for they were with good reason suspect as precancerous lesions. They were generally adenomatous in structure; starting as small flat patches, they rapidly became polypoid and showed a remarkable tendency to multiplicity, especially in the large intestine. The muscularis mucosae was dragged inwards with the rest of the mucous membrane, and was frequently thickened. The presence of an intact muscularis mucosae unbreached by epithelium was the best evidence that a polyp had not become malignant. Definite connexion between simple adenoma and carcinoma of the intestine had now been established, and in this connexion Professor Stewart mentioned briefly Dr. Dukes's statistics. With regard to the stomach, too, opinion was hardening in the same direction, and his own experience afforded further evidence of the sinister significance of ostensibly benign growths. In 11,000 necropsies during nineteen years at the Leeds General Infirmary, gastric polypi were found in 47 (0.43 per cent.); in 13 of these (28 per cent.) carcinoma of the stomach was present in association with the polypus. The total number of cases showing carcinoma of the stomach was 263. In his view simple adenomatous polypi of the stomach, whether single or multiple, must be accepted as a definitely precancerous lesion. Adenomyoma and pancreatic heterotopia occurred in the stomach, duodenum, and small intestine, but there was no evidence that they were specially liable to malignant change. Carcinoid tumours of the appendix and small intestine, like rodent ulcer of the skin, occupied an intermediate position between the simple and malignant tumours; but there was no evidence that these tumours underwent the malignant metamorphosis under discussion. Professor Stewart ended with a brief reference to experimental pathology.

Professor A. LEITCH considered that the experience of any single pathologist in respect of epithelial tumours of the small intestine was unlikely to be sufficiently extensive to enable him to define a relationship between benign and malignant tumours. He himself had seen only two carcinomata, one a small pedunculated growth in the third part of the duodenum with extensive metastases, and the other an annular carcinoma low down in the ileum. He had seen one simple sessile adenoma of the jejunum with no suspicion of malignant change. His personal experience of tumours of the large intestine, especially rectum and pelvic colon, owing to his association with Mr. W. Ernest Miles and his colleagues, had been possibly unique. In attempting to associate carcinomata with simple epithelial growths there were two points to be considered: (1) the frequency with which one or more of a series of multiple adenomata showed malignant change, and (2) the frequency with which a well-defined carcinoma was accompanied by satellite papillomata. In both cases it was impossible to arrive at a definite figure, for the reason that we had no control observations. His own strong impression was that definite multiple adenomata were very liable to become malignant, and he showed several instances in the museum. On the other hand, he could not agree with the thesis sustained by Dr. Dukes that frank carcinoma was accompanied in any large percentage of cases by simple tumour formations. It was a thesis with which he, as an experimentalist, was in sympathy, but actual analysis of museum specimens was against it. Taking 50 consecutive cases of cancer of the rectum or pelvic colon, and examining the specimens with a lens, he found that 40 had no papillomata or hypertrophic patches, 2 had pedunculated adenomata, 3 had one or more warts not exceeding the size of lentils, and 5 showed pinhead-sized plaques, but whether those "plaques" were as commonly found in normal rectums no one could say, but he would attach no importance to them. He would be inclined to say that no more than 15 per cent. of rectal cancers were accompanied by papillomata.

Dr. CUTHBERT DUKES classified his last 75 specimens of carcinoma of the rectum into three groups: "A" cases where the cancer had only infiltrated the submucous coat, "B" cases where it had penetrated into the muscular coat, and "C" cases where it had spread by direct continuity into the perirectal tissues. He had only one "A" case in this series, and this was associated with papillomata; of 18 "B" cases, 9 (50 per cent.) were associated with papillomata; and of 56 "C" cases, only 17 (30 per cent.) were associated with papillomata. The conclusion was that papillomata were commoner in early than in late cases of cancer, and that the occurrence of papillomata could not depend on the irritating discharges of an ulcerating growth, but that they represented the response to an irritant acting over a far more extensive area of mucous membrane than that which ultimately bore the malignant growth. The comparative rarity of papillomata associated with "C" cases suggested that some sort of immunity developed as the result of malignant invasion with retrogression of the epithelial proliferation in the immediate neighbourhood. With regard to the figures Professor Stewart had quoted from an earlier paper, Dr. Dukes said that in his present series he was reporting only cases where the papillomata were visible at first glance; in the previous series the mucous membrane and mucosa had been dissected away from the muscle, and by this method a much larger proportion of cases of papillomata had been recorded. Dr. SUSMAN (Manchester) said that in 883 autopsies investigated, 38 cases (4.3 per cent.) showed polypi of the colon. There were 25 males and 13 females; the average age was 57. Polypi were associated with gastro-intestinal cancer in 14 cases, and in 3 cases with carcinoma elsewhere, suggesting that polypi of the colon were frequently associated with gastro-intestinal carcinoma. Carcinoma of polypi was observed in 4 cases of carcinoma of the colon, all cases showing multiple polypi. Carcinoma of the colon appeared to follow on polypi of the colon in many cases. In all there appeared to be a common cause for gastro-intestinal cancer and polypi. The condition had a distinct male preference.

Dr. J. S. YOUNG (Leeds), after a brief reference to his own experiments in the production of epithelial hyperplasia following intrapleural injection of Sudan III dissolved in olive oil and emulsified with bile salts, recalled the work of Stoeber and Walker, who demonstrated an irregular type of epithelial proliferation following the injection of indole and skatol. These substances were derivatives of the bacterial disintegration of tyrosine and tryptophane, and it was suggested that under certain conditions the bile salts in the chyme might facilitate the action of these products in stimulating simple epithelial hyperplasia. Whereas, however, it had been easy to provoke such hyperplasia experimentally by a great variety of biologically active substances, it had not been possible by a single injection to determine a pregressive malignant growth.

Dr. C. E. JENKINS (Salford) recalled the fact that *B. coli* produced phenol, and questioned whether it might not produce more complicated substances of the same order with possible carcinogenic properties. Professor CRUICKSHANK (Aberdeen) criticized Dr. Dukes's evidence that retrogression of the papillomata occurred during malignant invasion of the tissues. A paper was read by Dr. D. F. CAPPELL of Glasgow on the reticulo-endothelial system studied by intra-vitam staining.

SECTION OF OTO-RHINO-LARYNGOLOGY.

Wednesday, July 24th.

INFLAMMATORY INTRACRANIAL LESIONS.

At the first meeting of the Section the subject of discussion was the cerebro-spinal fluid as an aid to the diagnosis and treatment of inflammatory intracranial lesions. Mr. F. H. WESTMACOTT was in the chair. The opening paper was read by Dr. WELLS P. EAGLETON (Newark, New Jersey), and was of an altogether exceptional character. The speaker first traced the development of the meninges, and then described the basal cisterns which were in relation with the arterial supply—the basilar and external carotid arteries.

The prolongations from the internal auditory meatus into the cisterns were extremely small, thus limiting the rapid spread of inflammation. The meshes of the cortical arachnoid, on the contrary, were related to the veins, and the cerebral veins, unlike the arteries, had no outer fibrous coat, so that a spreading thrombophlebitis was very virulent, for the outer layer of these veins was formed by the arachnoid itself. The cerebro-spinal fluid came from all the vessels, and seemed to contain a ferment in addition to glucose and chlorides. Increase of pressure meant irritation of the arachnoid, the disappearance of glucose meant its consumption by organisms, and the reduction of chlorides showed that the barrier between the blood and the cerebro-spinal fluid was breaking down. Dr. Eagleton brought many other points forward, an original one being that an early sign of increased intracranial pressure was a lack of response by the vestibular apparatus to the caloric test in the upright position, whilst nystagmus was produced normally in the horizontal position.

Dr. J. G. GREENFIELD described the chemical characters of the cerebro-spinal fluid in relation to meningeal and cerebral lesions. Dr. HENRY COHEN (Liverpool) insisted on the importance of the chemical investigation of the cerebro-spinal fluid, the fluid tending towards the composition of the plasma in inflammation, so that chlorides fell while phosphates and uric acid rose. The presence of a ferment was not proved, because brain tissue would undergo autolysis in saline. The Wassermann reaction in the fluid might be positive in abscess of the brain and lead to an erroneous diagnosis of neuro-syphilis. Mr. D. L. SEWELL, Mr. SCOTT RIDOUT, and Mr. NORMAN BARNETT joined in the discussion. Mr. W. M. MOLLISON followed with a paper on the drug treatment of spasmodic rhinorrhoea. He described numerous remedies, but had found many cases relieved by the administration of calcium salts in conjunction with extract of parathyroid or of thyroid gland. Mr. SEWELL (Manchester), Dr. JAMES ADAM (Glasgow), and Mr. F. H. DIGGLE (Manchester) discussed this paper. The morning ended with papers by Mr. RITCHIE RODGER (Hull) and Mr. NORMAN BARNETT (Bath), which were a plea for the more efficient treatment of discharging ears and for the prevention of this malady.

Thursday, July 25th.

PERSISTENT NASAL CATARRH.

The proceedings opened with a paper by Dr. DAN MCKENZIE on persistent nasal catarrh, especially in children. The local causes of nasal catarrh in children, together with the means of dealing with them, were fully described, but there were cases which failed to respond, and for these a plea was made for a *via media* and the avoidance of extreme measures either of exposure or of coddling. Mr. F. B. GILHESPY (Birmingham) gave an account of an investigation of fifty children with nasal discharge who were kept under observation for two years. Thirty-two of these had infection of the maxillary antrum. The cases were fully analysed under four groups relating to the presence or absence of adenoids and of maxillary sinusitis. Attention was drawn to the failures after removal of adenoids due to sinusitis or ethmoiditis in children. It had to be remembered also that a purulent nasal discharge might be due to the Klebs-Loeffler bacillus. Dr. DOUGLAS GUTHRIE (Edinburgh) presented a careful review of this question, emphasizing that in those children where no apparent cause could be found there was usually nasal obstruction. Cleansing of the nose was important, and large doses of sodium bicarbonate were beneficial. The dental condition was important, but most important of all was restoration of the respiratory function by systematic re-education, and the breathing exercises must include proper expiration as well as inspiration. Mr. T. C. GRAVES (Birmingham Mental Hospitals) described cases of mental disorders due to this cause, and the discussion was continued by Dr. P. WATSON-WILLIAMS and Dr. NAISH (Sheffield), who insisted on the importance of sneezing.

Dr. GORDON WILSON (Chicago) then demonstrated a model of the endolymphatic valve, which lies between the saccus endolymphaticus and the utricle. Investigation had proved its existence in a variety of animals, but its function was so far chiefly a matter of surmise. It was presumably concerned in regulating the pressure of the fluid in the saccus endolymphaticus.

TUBERCULOSIS OF THE LARYNX.

The important business of the morning then followed, when the Section of Tuberculosis joined in a discussion on tuberculosis of the larynx. This was opened by Mr. W. G. HOWARTH, who gave a brief but comprehensive review of the whole subject, but referred chiefly to treatment. The chief means at present were absolute vocal rest and the galvano-cautery, which had now been substituted for any other active surgical treatment. Sunlight had been employed, but too much sunning might be harmful, whilst artificial sunlight, advocated by Wessely, only acted very slowly, and the treatment was lengthy. Tracheotomy was justified by obstruction, and for an occasional indolent lupoid infiltration, where the lung was inactive or fibroid. Nerve blocking for dysphagia had proved disappointing, and the application of cocaine to the spheno-palatine ganglion had only a transitory effect. Creosote in olive oil and chaulmoogra oil had been advocated also. The contribution of Sir STCLAIR THOMSON was mainly statistical, and he was able to show that complete repair of the larynx had been obtained in no less than 25 per cent. of patients with tuberculous laryngitis. That was encouraging to those who recalled that Morrel Mackenzie wrote that "it is not certain that any cases ever recover." Sir StClair Thomson showed many slides illustrating the appearances of the larynx in the various stages and during the process of repair. Mr. H. MORRISTON DAVIES (Vale of Clwyd Sanatorium) emphasized that a knowledge of the condition of the larynx was very necessary to the physician treating pulmonary tuberculosis, but even more so to the surgeon when the suitability of the case for operation had to be decided, and each case had to be considered from the vantage point of the lung and of the larynx separately. There were many laryngeal conditions which presented an absolute barrier to the operation of thoracoplasty in an otherwise suitable case. Such were malnutrition from pain on deglutition, extensive oedema or induration of the larynx, or such destruction of the glottis that the explosive power of the cough was lost. Tuberculous laryngitis was no contraindication in itself to artificial pneumothorax, but this proviso excluded these types of laryngeal tuberculosis. The state of the larynx had also to be taken into account when phrenic evulsion was under consideration. Sir J. DUNDAS-GRANT, Dr. SCOTT STEVENSON, Dr. MORITZ, and Dr. SUTHERLAND (President of the Tuberculosis Section) joined in the discussion.

In the afternoon Mr. Westmacott took members to a demonstration of instructional methods at the Royal Deaf Schools, Old Trafford, by Mr. J. Spalding. The children had been formed into corps of boy scouts and girl guides, and the training had been so perfect that they were able to respond to the word of command, and performed their exercises as smartly and efficiently as though they had good hearing.

SECTION OF OPHTHALMOLOGY.

Wednesday, July 24th.

TOXIC ABSORPTION DUE TO FOCAL SEPTIC LESIONS.

A DISCUSSION on toxic absorption due to focal septic lesions, with special reference to its effect on the production of eye disease, was introduced by Mr. A. F. MACCALLAN, who detailed the various sites of the septic foci. The more common were dental apical abscesses and tonsillar infections in children. Less frequently intestinal and appendix diseases were concerned, and, in women, affections of the pelvic organs. The various ocular diseases which were attributed to these causes were corneal ulcer, episcleritis, conjunctivitis, chalazion, iridocyclitis, phlyctenular conjunctivitis, dacryocystitis, retinal hyperaemia, vitreous opacities, primary glaucoma, cataract, and progressive myopia.

Dr. ARTHUR F. HURST (Windsor Forest) held the opinion that the mouth must be considered as a whole, and all dead teeth be regarded as possible sources of infection. Buried septic roots should be searched for in edentulous patients. He agreed that the tonsils and paranasal

sinuses were a frequent source of infection, but not duodenal ulcer. In Dr. Hurst's experience achlorhydria was a common cause of septic infection, and was due to the loss of bactericidal power of the gastric juice. Dr. ARNOLD RENSHAW (Manchester) thought that remote infection was a frequent cause of ocular inflammations. He classified such infection into four groups: (1) infection during septicaemia, (2) embolism in chronic sepsis, (3) reaction to toxins elaborated in another region, and (4) degenerative changes due to abnormal enzyme action. Mr. E. MUSGRAVE WOODMAN (Birmingham) said that the upper nasal sinuses were a frequent source of infection, not only in ocular but also in cerebral conditions. The method of washing out these areas was described and the results of such treatment in these cases were outlined. The great difficulty of carrying out this method of treatment was emphasized.

Mr. E. E. MADDOX (Bournemouth) confined his remarks to dental infections, and pointed out the close relation between the teeth and the eyes. He warned his hearers that because dental sepsis was present it was not necessarily the cause of an ocular condition, although it frequently was so. He quoted cases of detached retina which had been relieved by extraction of septic dental roots. He pointed out that in children the upper parts of the teeth and superficial areas in the eyes were associated, whereas in adults it was the deeper dental infection which was related to deeper ocular conditions such as choroiditis. Dr. INGLIS POLLOCK (Glasgow) emphasized the danger of infected unerupted teeth as a cause of ocular disease. He did not think retrobulbar neuritis was frequently due to paranasal sinusitis, and rarely found operation was called for in these cases.

Dr. P. WATSON-WILLIAMS (Bristol) drew attention to many cases of nasal sinusitis which caused ocular disease and distinguished between a bacterial and a toxin infection. The methods of tissue defence were described, and the advantage of eliminating the primary focus dwelt upon. Dr. E. J. PRIMROSE (Glasgow) described syphilitic ocular infections which were combined with septic infections, and insisted that both should be treated. Mr. ORMOND mentioned the septic origins of detached retina, and suggested that the ultimate cause might be a chemical one, secreted by the primary bacterial focus. He asked if dendritic keratitis was found to be benefited by dental treatment. Mr. LEASK cited fourteen cases of orbital cellulitis due to nasal sinusitis. Mr. T. ARMEY JONES (Stoke-on-Trent) thought that these ocular diseases were merely symptoms. He had treated these patients on the lines suggested by Mr. McDonagh. Dr. GRAVES discussed infection of the pituitary body due to sepsis and the treatment by non-specific protein therapy such as T.A.B. vaccine. He quoted the results of the treatment of residual abscesses found in antral inflammation. Mr. BISHOP HARMAN discussed the question of ocular conditions in children due to septic teeth and tonsils, and pointed out in which part of the cornea phlyctens began when caused in this way. He quoted cases of detached retina due to dental and nasal sinusitis. Mr. MACCALLAN, in reply, said he had known cases of dendritic ulcer clear up when dental sepsis had been relieved.

In the afternoon a clinical meeting was held at the Manchester Royal Eye Hospital, when cases were shown and specimens exhibited.

SECTION OF RADIOLOGY AND RADIO-THERAPEUTICS.

Wednesday, July 24th.

X-ray Diagnosis of Early Carcinoma of the Stomach.

DR. W. J. S. BYTHELL presided over this Section, and in a few opening remarks pointed out that, twenty-seven years ago, when the Association last met in Manchester, the subject of radiology was in such an embryonic state that no Section was allotted to it. Professor MARTIN HAUDEK of Vienna then read the paper on *x* rays in the diagnosis of early carcinoma of the stomach which is printed in full at page 173 of this issue.

Dr. A. E. BARCLAY (Cambridge) considered that the statistics given in the paper were of great value; indeed, the contribution was of the kind which should be kept handy, and consulted from time to time. He supported Professor Haudek's contention that one of the causes of failure was delay in making the examination. The latent factor was one which defied detection unless a routine examination were undertaken in the case of every apparently healthy person aged 40 and over. On one occasion the speaker had made a bad mistake while feeling very tired during the war; he pronounced a certain stomach to be normal, whereas it turned out to be the seat of an infiltrating scirrhus. When an observer felt very fatigued his judgement was liable to be disorganized. As for methods, he himself had not used the capsule; he employed a bolus of very thick food. The study of mucous membrane patterns was well worth while. A growth had the effect of cutting off the mucous membrane pattern, whereas in simple ulcer with cicatrization it was infolded. He was glad that the value of re-examination had been insisted on. Non-radiological colleagues sometimes expected an instant diagnosis to be made on a first glance at the radiograph, but an examination to be of any value took time, and no radiologist should be afraid of making a re-examination. If the radiologist was not well acquainted with the normal he would make many diagnostic errors. In early carcinoma a rapid emptying of the stomach was often to be noted—it did not seem to matter whether the growth was at the cardiac end or further down—and he would like to learn from Professor Haudek as to the reason. Dr. CECIL BELL said that in *x*-ray work, more than in any other branch of science, the workers were indebted to the pioneers, and especially in this field to Haudek for the standards laid down with regard to the motility of the stomach. When the signs of cancer of the stomach were yet slight, no method of elucidation was so valuable as *x* rays, and there could be little excuse for waiting or for making a mistake. Sometimes spasm of the stomach was helpful, and at other times the reverse; in a fat person, with a high stomach, it was very difficult to detect. Fluoroscopic visibility was notoriously bad. Spasm in the fundus and the greater curvature, which could not be palpated, was difficult to interpret. Fortunately cases rarely started in that situation. Dr. GILBERT SCOTT recalled the thrill he experienced when he first detected, by the Haudek method, an ulcer on the lesser curvature, which was verified at operation. The technique advocated was one which should be used in all routine examinations, not only for new growths, but for all kinds of lesions. He was keen on systematic radiographic palpation of the stomach, using a small meal at first, and "whitewashing" the interior of the stomach, visualizing the rugae, in preference to filling up the stomach and examining it by silhouette. When the lesion was a simple one the rugae tapered off gradually, but when the filling defect was due to malignant disease they stopped abruptly. The meals given should be so thick that a portion adhered to the ulcer surface; with a watery solution this did not happen. It was well to try the consistency on the cadaver. With regard to history, it was best to go into this after attempting to interpret the radiographic findings. Generally, the less one was guided by history the better. He had also come to disregard indirect evidences, such as tender spots or muscular rigidity. Having detected a lesion, how far was the radiologist justified in giving an opinion, as to its nature? In borderline cases it was difficult to distinguish between a large benign chronic and a chronic upon which a malignant section had become engrafted. On radiographic examination alone the point of malignancy should not be determined. Radiologists should keep in touch with the operative findings; thereby their diagnostic skill was prevented from becoming stationary. The radiologist should not venture an opinion as to whether a case was operable or not, as surgery accomplished many things now which would not have been thought possible a short time ago. He hoped the paper would act as a stimulus to radiologists to bring their methods up to date. Reliance must not be placed on indirect evidence; it was necessary actually to see the culpable lesion, especially as there existed so many fallacies and pitfalls. He wished to know whether peristalsis reaching to the point of defect in the

outline was of value in distinguishing between simple adenoma and malignant tumour. Dr. L. A. Rowden (Leeds) was pleased to hear Professor Haudek advocate deliberate and unhurried examination of *x*-ray plates. The speaker always took a good time over this, often half an hour. He also insisted on examining the patient in the prone position. It was a great aid to watch the peristalsis on the lesser curvature if the tube was brought up close beneath the patient; it resulted in a greater exaggeration of the peristaltic wave. Help was also obtained from serial radiography of the pyloric end—he meant, taking radiograms at intervals of a minute. He believed that the number of people now being operated on in the way of stomach resection for malignant disease was on the increase; formerly it was a case of doing a laparotomy and closing up. He believed that in a person of a certain age, with obvious pyloric obstruction, if the stomach was small, the obstruction was due to malignant disease; if large, it was *not a malignant* case.

The President (Dr. Bythell) spoke of two recent cases in which the screen and film examinations strongly suggested malignant disease of the pylorus, but operation showed there was a small malignant growth in the head of the pancreas, yet producing a filling defect. These cases were difficult to distinguish from those in which the cancer was actually in the stomach wall. He did not agree with Dr. Scott's excessive caution before diagnosing malignant disease; he had long felt that the opaque meal and *x* rays afforded better means of recognizing this disease than any other. With improving technique and closer observation this would probably become more and more the case. Professor Haudek, in reply, said that twenty years ago patients had their second examination twenty-four hours after the first, but he had long since concluded that the interval was too great. Six- and four-hourly intervals were his present practice. Some stomachs not the seat of lesions emptied rapidly, and in general he asked for caution before making a diagnosis on functional symptoms. Sometimes the jejunum took on the functions of the stomach. A tumour outside the stomach always caused diagnostic difficulties. Usually he examined a patient first before taking any notice of the history. In all cases it was important to remember that the *x*-ray examination was no more than a partial diagnosis. In conclusion, Dr. Haudek spoke of his great admiration for British science and culture.

SECTION OF VENEREAL DISEASES.

Wednesday, July 24th.

Lesions of Latent Syphilis.

The President of the Section, Mr. William Coates, took the chair at the opening meeting, which dealt with the above subject. In the course of a presidential address, he referred to the fact that the present was the fourth occasion on which there had been a Venereal Diseases Section at the Annual Meeting. Co-operation between all branches of the profession was needed to wage war against the group of venereal diseases. The policy of the Ministry of Health was a wise and far-reaching one, based upon achieving the ultimate welfare of the nation. Much remained to be done in the way of research, and agents must be found whereby immunity might be ensured. The discussion was opened by Professor Aldred Scott Warthin (Michigan), who illustrated his theme by a series of original and valuable photomicrographs. He said that the lesion of latent syphilis was pathologically a repetition of the hard chancre and of the secondary and tertiary lesions of the active stage of syphilis, by reason of the fact that it was principally vascular and perivascular, and that the infiltrations were produced by the proliferation of the cells *in situ*. If plasma cells and lymphocytes were found forming local perivascular infiltrations, this fact might be taken as evidence of the presence of *Spirochaeta pallida*. Clinical symptoms did not arise until the resultant atrophy and fibrosis of the parenchyma produced functional disturbances. In the male, functional inadequacy generally first affected the cardio-vascular system, and therefore accounted for the frequency of deaths from cardiac insufficiency in patients with latent syphilis. Dr. Warthin had never seen at a necropsy a case of perfectly healed syphilis. It was important to realize that the foregoing statement applied to patients subjected either to mercurial or to the more modern methods of treatment, the difference being that chronic hepatitis followed more frequently upon the treatment by modern methods. Either form of treatment achieved a more rapid reduction of the average active case to a stage of latency. There was no evidence pathologically that a case of syphilis ever became entirely free from spirochaetes. Latency of infection might persist through life, or exacerbation take place at any time. The determining factor of this resuscitation of spirochaetal virulence was not known, but the possibility of its occurrence hung over the head of every infected individual. The relatively immune syphilitic patient might go through life free from any clinical outbreak, yet by the development of various functional abnormalities he paid the price of the latency of the infection. The very mechanism of immunity became in time a source of danger to its possessor by reason of *the functional inadequacies produced. If antisyphilitic* treatment was carried out consistently for five years, would spirochaetes entirely disappear from the body? To this all-important question Dr. Warthin could give no answer. Sir Humphry Rolleston, after expressing admiration for Professor Warthin's valuable paper on a subject on which he had long been the authority, said that this work confirmed the dictum of Sir William Gull fifty years ago, "Call no man cured of syphilis until my friend Wilks has done his post-mortem." But was it to be concluded that syphilis was absolutely incurable when early and efficient treatment was employed? The occurrence of second infections was generally regarded as evidence that the first infection had been entirely removed. Halley and Wasserman of Baltimore,[1] who accepted 237 only out of 684 reported cases of second infection with syphilis since 1910, showed that the number of cases of second infection diminished as the interval between the onset of infection and the commencement of treatment increased, for out of these 237 cases 232, or 97.8 per cent., were treated during the primary or secondary infection. They also found that the ratio of patients treated in the early and late stages respectively was as one to two, and yet secondary infections occurred forty-six times more often in the early than the late series of cases treated. This would suggest that early treatment might prevent the haemic infection from producing the lesions of latent syphilis, so carefully described by Professor Warthin in the dead body, but that tertiary syphilis was curable. In support of this deduction was Halley and Wasserman's statement that they did not find *any undoubted* case of second infection in a patient who had, previously or concomitantly, had syphilis of the central nervous system or of the heart or aorta. A point of great clinical importance, the relation of latent syphilis to the Wassermann reaction, had not been considered by Professor Warthin. Cases occurred of tertiary syphilis—especially of the liver—which presented clinical manifestations, and so were far from latent, yet in which, as had been emphasized by McCrae and Caven,[2] the Wassermann reaction was negative. In such clinical cases the therapeutic test was of value.

Dr. H. M. Hanschell said that careful clinical observation gave no support to the thesis that there was noticeable early loss of sexual desire and potency in man after infection with syphilis. The clinician would anxiously ask whether Professor Warthin included serological cures—that is, Wassermann-negative blood serum—in the "complete clinical cure" of his necropsy material. Proof, however, of complete cure in the sense of complete disinfestation must ultimately rest on research such as Professor Warthin's. Professor Warthin had shown that each localization of spirochaetes led to a chancre. Conclusions drawn from observations on the penile chancre were then valid for the localized chancres in other organs lying beyond observation in life. Dr. Hanschell cited cases where treatment had failed to destroy all spirochaetes in the primary lesion, or to prevent clinical or serological relapse so long as some palpable, though slight, induration

[1] Halley, C. R. L., and Wasserman, H. *Arch. Int. Med.*, Chicago, 1928, xli, 843.
[2] McCrae, T., and Caven, W. R.: *Journ. Amer. Med Assoc.*, Philadelphia, 1925, clxxii, 781.

remained at the site of the primary penile lesion; and in which, after extirpation of that residual induration (granuloma), the same treatment as before had been followed by absence of clinical signs of syphilis, and by a Wassermann-negative blood serum and cerebro-spinal fluid, for periods of observation of the patients ranging from two to five years. He concluded that the dense persisting granuloma on the penis had shielded its contained spirochaetes from the drug. If this were true of the granuloma on the penis it was true of the granuloma in any other part of the body. In face of this comparative impenetrability of the granuloma it was unnecessary to postulate the existence of drug-fast spirochaetes, intracellular spirochaetes, or spirochaete granules, to account for latency and failure of treatment.

Dr. NABARRO, in dealing especially with latent congenital syphilis, emphasized the need for the employment of more thorough methods of investigation in certain cases —for example, a confirmatory Kahn, Sachs-Georgi, or Vermes test, as well as the Wassermann test, with regard to mother and child. He referred especially to cases of mild hydrocephalus, mental backwardness or deterioration, swelling of joints, adenitis, spastic and other paralysis. Early diagnosis and prompt treatment might prevent tragic catastrophes. The spinal fluid should be examined in every case of congenital syphilis. X rays should be used in diagnosing congenital syphilis, as very many infants were thus found to show a characteristic osteochondritis, osteitis, or periostitis. The speaker illustrated his statement by lantern slides. As in acquired syphilis, so in congenital, the heart, vascular, and endocrine systems might be invaded by spirochaetes. Dr. Nabarro announced his intention of employing in the future the Warthin-Starry method of demonstrating spirochaetes. In conclusion, he made an earnest appeal on behalf of the congenital syphilitic. Colonel E. T. BURKE (Manchester) said the term "endosyphilis" was more desirable than "latent syphilis." It was necessary to destroy the idea that the condition under discussion might be "inactive." He wished to know what proportion of Professor Warthin's post-mortem material showing histological evidence of active syphilis was negative to serological tests during life. He made a strong protest against the "standard" treatment of syphilitic patients without reference to the disease itself and its true pathology. In this way were "endosyphilitics" made. In applying serological tests of cure to treated patients it was necessary that the patient should have had a provocative injection and have been subjected for weeks to large doses of iodides, in order to break down his fibrous tissue fortification. He believed that endosyphilis was one of the commonest affections of a modern community. Colonel L. W. HARRISON wished to strike a more optimistic note than Professor Warthin's. He had difficulty in believing that treatment with novarsenobillon was productive of immunity only; why otherwise did spirachaetes disappear to the extent shown by experiment? He believed N.A.B. to be of distinct benefit in cardio-vascular cases of syphilitic origin. Mr. LEES (Edinburgh) wished to know why the ovary and Fallopian tubes failed to show the presence of spirochaetes, and also whether the organisms were alive in cases of latent syphilis. Professor LORAIN asked what was responsible for causing "atrophy" of the liver in cases of syphilis. Professor Warthin regarded the condition as being due to a vascular factor, and not to spirochaetal toxins. Dr. HENRY GLUCKMAN (Johannesburg) asked if Professor Warthin's statement that he "had never seen a perfectly healed or completely cured syphilitic" applied even to the earliest primary type of case—to the patient whose only manifestation was the primary lesion, and who had been treated by modern methods from the very start. He further inquired as to what attitude was to be adopted towards a patient who, many years previously, had had syphilis, for which he had been intensively treated, and wished to get married. He had no symptoms, but the Wassermann reaction was positive. Should he be treated intensively, and should he be allowed to marry? Unfortunately, course after course of treatment might have little effect on the serological picture, while clinically such a patient frequently developed active lesions after treatment had been given.

Professor WARTHIN, in reply, was very doubtful whether any man who had suffered from syphilis should be allowed to marry. In replying to other questions and criticisms he stated that: (1) He was sceptical about so-called double infections with syphilis; animal experiments showed that "superinfection" with a spirochaete of a different strain might take place. In man, if this happened, he believed that there was no real cure of the first infection; the patient was not immune to the latent effects of the original strain of organism. (2) Clinical cure meant a high-grade immunity. (3) He believed in the use of "arsenicals," as thereby immunity was increased, though the liver was more injured. (4) He had found the histological lesions, on the whole, to be the same, whether cases had been treated well or indifferently or not at all. (5) He was definitely against arsenical treatment in cardiac cases. (6) He regarded the spirochaetes found by him in the cardiac and other lesions to be alive, or to have only recently died.

SECTION OF ORTHOPAEDICS.

Wednesday, July 24th.

OPERATIVE TREATMENT IN TUBERCULOSIS OF THE LARGER JOINTS.

SIR ROBERT JONES, the President of this Section, presided over its first meeting on July 24th, when Mr. C. R. GIRDLESTONE (Oxford) opened a discussion on the indications for, and the results of, operative treatment in tuberculosis of the larger joints, with a brief review of the pathology of joint tuberculosis. He brought forward a number of arguments in support of the opinion that the danger of dissemination of tuberculosis lay in the lymphatic lesions rather than in the joint focus. In both types of lesion the fundamental need of the patient was prolonged rest and fresh air treatment. The part the surgeon could play in the treatment of tuberculous joints was: (1) to remove a tuberculous focus, metastatic in origin, and a potent source of toxaemia; (2) to buttress or rebuild a part of the skeleton which could not otherwise safely carry the strains it would have to bear. He operated at a time so chosen as: (1) to interfere least with the improvement of his patient's vitality—indeed, in some middle-aged or old patients radical measures were necessary in order to make that improvement possible; (2) to supply him with materials which would answer his needs (this applied to buttress building). Radical operations might have to be performed comparatively early, to save life and limb in the middle-aged or old; extra-articular arthrodesis was best done later. He next discussed the indications for, and results of, operation in the individual joints, ending with the method of drainage employed when secondary infection had taken place. For adults aspiration of the joint lesion should be performed whenever possible, supplemented by graft extra-articular fixation in the case of the hip-joint. In sacro-iliac disease an extra-articular arthrodesis alone was recommended. As regards children, Mr. Girdlestone felt that both the hip- and the knee-joints required operative fixation more frequently than had hitherto been generally accepted. He emphasized the point that in such cases an operation was only valuable if it was an integral part of a long course of general treatment, in the open air. Apart from such treatment these operations were useless.

Sir WILLIAM DE COURCY WHEELER (Dublin) said he would refer to some points in diagnosis, to the work of the older surgeons, and to some lessons learned from personal experience. He was not convinced that the fate of a patient suffering from bone and joint tuberculosis depended entirely on the showers of bacilli from the primary focus with which the patient was drenched. After effective operation, either fixation or amputation, the patient was cured, as well as the local condition. Each joint was a problem in itself, and treatment needed modification according to the facilities at hand. The diagnosis was often difficult, because, he believed, a mixed infection was frequently carried from the primary focus; at various stages one organism predominated and the other was submerged. Thus cases occurred of clinical osteomyelitis which were microscopically tuberculous, and many cases with osteoblastic

activity in which tubercle bacilli were found. Mixed local infections confused the diagnostic issue. Some cases of tuberculosis were definitely associated with general streptococcal infections. Tubercle bacilli were regularly found in tuberculous pus and in the urine in a number of cases of bone and joint tuberculosis. Sir W. Wheeler advocated free and frank excision of the knee in adults with retention of the patella. He was not sure that complete removal of the synovial membrane was necessary; if it was, the arguments in favour of extra-articular fixation of the hip fell largely to the ground. If children needed operation, arthrodesis, with a very limited removal of bone, gave good results. He discussed arthroplasty, which had a limited field of usefulness, and mentioned a case, published by Bennett in 1886, in which, more by accident than design, an excellently functionating movable joint was obtained after free excision for tuberculosis. It was just possible in carefully selected cases that a movable joint might be aimed at and obtained when treated on the same lines as excision of the elbow. Early osteotomy of the femur in the active stages of tuberculosis of the hip was sometimes followed by rapid repair of the joint. The leverage of the limb was removed for the time being, and osteoblastic action extending upwards from the fracture appeared to help. He showed lantern slides illustrating the results of removal of the head, neck, trochanters, and part of the shaft, together with the results of astragalectomy in children, and of excision of the elbow, wrist, and other joints. He looked upon extra-articular arthrodesis of the hip as a formidable procedure in delicate children, but he had only a limited experience. He was surprised to find the end-results of sacro-iliac disease in his own cases as good as they were. It was the part of the surgeon to keep an ever open mind; the pendulum of the surgical clock moved erratically, and history taught that the hands of the surgical clock often moved backwards instead of forwards. The speaker advocated conservative treatment if operations were needed, as they usually were in adults. Conservative treatment was a good pre-operative preparation, and was essential as a post-operative precaution against relapse.

Mr. A. MITCHELL (Aberdeen) emphasized the difficulty of establishing a diagnosis in tuberculous lesions, and of observing the patients over a period sufficiently long to allow conclusions of real value to be made. He laid stress upon the need of rest and exposure to the sun and air in all cases, but he was dissatisfied with the results of purely conservative treatment in a large proportion of the more advanced and serious cases. For that reason he recommended operative intervention at a stage earlier than that at the present time usually accepted as suitable. He advised waiting only until the acute and difficult phase had passed and the general health of the patient had improved.

Miss FORRESTER-BROWN (Bath) showed the desirability, when performing an extra-articular hip arthrodesis, of using a femoral graft with a surface sufficiently massive to make effective contact with the ilium, and described the operation which she used in suitably selected cases. In this, important features were the excavation of a deep bed in the overhanging lip of the acetabulum, and effective rawing of the femoral neck.

Mr. FAIRBANK protested against the practice of performing arthrodesis in adult tuberculosis of the knee. Removal of the whole disease should be the aim of the surgeon. When this was not practicable a true extra-articular arthrodesis should be done. He reminded the meeting of the old and effective use of sulphur by Sir A. Lane many years ago. Mr. HOWELL pointed out that sinuses may in exceptional conditions continue for years without serious menace to life. In children's knees his practice was to try conservative treatment for twelve months, and then, in suitable cases, perform an arthrodesis, using bipp. He deprecated the use of a tourniquet. Mr. A. W. ADAMS (Bristol) asked how often, in actual experience, did general tuberculous dissemination follow operative intervention. In children he recommended the removal, immediately on diagnosis, of foci situated in epiphyses or metaphyses. Early treatment would prevent secondary infection of the joint and would preserve function. Mr. W. R. BRISTOW questioned the reliability of the guinea-pig test for tuberculosis. Though a positive result was of great value, entire reliance was not to be placed on a negative one. He emphasized the difficulty of treating the tuberculous knee in the child, and recommended early arthrodesis when the *x* ray left no doubt that the function of the knee was permanently impaired. Mr. GIBSON (Winnipeg) had been much impressed by Hibbs's cases. He did not consider that without external assistance cases treated conservatively were capable of withstanding the strain of vigorous daily life. Arthrodesis combined with curettage was, in his opinion, the method of choice in treating knees.

Sir ROBERT JONES (Liverpool), speaking from the chair, deprecated any suggestion that there should be separate and distinct schools of treatment of joint tuberculosis. He had always regarded rest and fresh air as essential to success, but it was homage, and not allegiance, that he paid to any method of treatment. Any sound advance, such as Hibbs's operation, should be heralded with joy, but we must not forget that to give its best results each method must be supported by the application of the cardinal rules of rest in proper position and fresh air.

Demonstrations of cases were given in the afternoon at the Grangethorpe Ministry of Pensions Hospital by Mr. OLLERENSHAW, Mr. POSTON, Miss GREG, Miss JOHNSTONE, and Mr. PLATT. Dr. S. POPE reported the results of experimental production of brachial plexus lesions in the full-time foetus.

SECTION OF TUBERCULOSIS.

Wednesday, July 24th.

APICAL AND SUBAPICAL TUBERCULOSIS.

AT the opening of the Tuberculosis Section Dr. D. P. SUTHERLAND, the President, described briefly the origin of institutional treatment of tuberculosis in Manchester. He then introduced Dr. MAURICE FISHBERG, consulting physician to the Bedford Hills Sanatorium, New York, who opened a discussion on apical and subapical tuberculosis. After acknowledging the claims of Dr. William Ewart and Sir James Kingston Fowler in recognizing that early consolidations of the lung were more commonly situated in the subclavicular region than at the apex, and that the spread of the disease was possibly more rapid when the primary lesion occupied the former site, Dr. Fishberg drew a sharp distinction in the progress of the disease in these respective seats of origin. In his opinion patients with apical disease lived indefinitely unless carried off by some intercurrent disease. They were diagnosed as tuberculous by over-cautious physicians, and they supplied the clinical material for any "cure" which happened to be introduced. They supplied the "early" and "curable" cases considered ideally suitable for sanatorium treatment; they formed the large contingent of "repeaters" at sanatoriums and the droves of well-to-do tuberculous at health resorts, and they were the backbone of favourable sanatorium statistics. Apparently the lesions were the residua of childhood infection which had become obsolete, and had been discovered when, for some reason, a physical examination of the chest had been made. Subapical tuberculosis was a different matter. It more often occurred in individuals under the age of 25, who felt "out of sorts"; it had a relatively abrupt onset; and physical examination of the chest very often revealed nothing definite. Unless a good radiogram was taken, or tubercle bacilli were found in the sputum, the patient was apt to be treated for neurasthenia, bronchitis, or gastritis. Dr. Fishberg was of opinion that these cases were not of recent exogenous superinfection, and that in the vast majority evidence could be found of earlier tuberculous infection. In these subclavicular cases the lesion tended to extend, to caseate, to form cavities, and to lead to the common variety of chronic phthisis, with a prognosis much less favourable than in apical cases. From the therapeutic point of view the differentiation of apical from subapical lesions was of immense importance. Prophylaxis, in Dr. Fishberg's opinion, was mainly to be confined to the subapical group. Open tuberculosis was uncommon in the apical group; and as prophylaxis was one of the main reasons for institutional treatment, such prolonged and costly treatment was unnecessary in the vast

majority of apical cases. A large proportion of such patients could be discharged from sanatoriums with benefit to themselves, the institutions, and the committees charged with their care.

Sir HUMPHRY ROLLESTON said that the wide recognition of the primary focus of pulmonary tuberculosis had been emphasized by Sir Clifford Allbutt's paper at the Portsmouth meeting of the British Medical Association in 1899, when photographs were shown of Birch-Hirschfeld's fusible metal casts of the bronchi. Sir Humphry called attention to the loose use of the word "apex" in this country, when the expression "upper lobe" would be more correct. He expressed interest in Dr. Fishberg's argument in favour of an endogenous infection from dormant foci as opposed to *exogenous reinfection in a person who had lost all the immunity conferred by an infantile infection*; he doubted whether the question of the futility of retaining benign apical cases in sanatoriums bulked as largely here as it appeared to do in America.

Professor A. RAMSBOTTOM (Manchester) believed that the majority of true apical lesions originated in childhood as blood-borne infections, probably bovine. Their characteristics, if lighted up later, were chronicity and easy response to treatment. Adult tuberculosis began in the region of the hilum, or in the lower part of the upper lobe, or in the middle lobe. Professor Ramsbottom called attention to the difference in resonance, sometimes very marked, found in percussion of the upper lobes of opposite sides. He regarded abortive tuberculosis as a pathological fact rather than as a clinical disease.

Dr. JAMES WATT (King George V Sanatorium, Godalming) produced figures which he thought contradicted the idea that the infraclavicular lesion was of different type and prognosis from apical tuberculosis. He was sure that in many patients with apical infiltration the morbid condition went on to progressive phthisis, while many cases of infraclavicular lesions were benign. He based his conclusions on a search of 250 radiograms for the two types of the disease. In 32 cases which appeared to be apical, and 43 infraclavicular, the differences in history and clinical course appeared to be slight. Of the patients with apical lesions 58 per cent. left the institution with quiescent disease; of the infraclavicular, 48 per cent. He regarded it as a dangerous doctrine to suggest that the 32 patients scarcely required sanatorium treatment. He saw no reason why an infraclavicular focus should not arise sometimes from endogenous infection from a small apical lesion. He thought that the advocates of the newer views went much too far in saying that the infraclavicular site was almost invariably the origin of a spreading phthisis, while the apical site was seldom or never so. Morbid anatomists were almost unanimously opposed to this view. All the new work was based on radiography, which was not yet an infallible means of recognizing early tubercle. Dr. Watts was sure that apical tuberculosis was not diagnosed in this country with anything like the frequency it appeared to be in America and in Germany. His figures of T.B. positive cases was 72 per cent., as compared with Dr. Fishberg's 15. British sanatoriums could not, therefore, be accused of needlessly retaining obsolete apical cases. He was convinced that the so-called infraclavicular early infiltration was not something *sui generis*, but differed only in degree from the apical form.

Dr. W. BROCKBANK (Manchester) departed somewhat from relevance to the discussion by pleading for investigation of the influence of calcium in the repair of tuberculous lesions. He pointed out that only in tuberculosis, and some cases of pneumonoconiosis, did Nature attempt to combat the disease by the deposition of calcium salts. Moreover, pulmonary tuberculosis was almost unknown amongst workers in lime. The absorption of calcium from the alimentary canal was slow; but, administered intravenously, it raised the serum calcium above the normal for forty-eight hours. Injections were given to six patients suffering from fairly severe forms of phthisis. In four cases surprising improvement took place, and two of the patients maintained the improvement after the injections ceased. Two patients had relapses shortly after cessation of the treatment, but regained the ground when the injections were recommenced. Of the remaining patients one had improved gradually and steadily, while the other had been a failure. Dr. FISHBERG, in reply, suggested that radiography was not being used in Europe in the extensive manner now common in America. In this way many cases of the disease in America were discovered accidentally. Under similar conditions Dr. Watts's figures would have presented a different aspect.

SANOCRYSIN TREATMENT.

During the discussion on sanocrysin treatment of *pulmonary tuberculosis*, *Dr. J. R. GILLESPIE, Vice-President*, took the chair. Dr. R. R. CLARKE (Belfast) set himself four questions: (1) What were the dangers of sanocrysin treatment? (2) What was the correct dosage? (3) Had it any value in the treatment of phthisis? (4) What type of case did it benefit? It would appear, he thought, that sanocrysin was not injurious to healthy mammals in doses of 1 to 1.5 cg. per kilo of body weight; that tolerance was increased by graduated dosage at sufficient intervals; that the kidneys were mainly responsible for elimination; that the drug was much more likely to damage the tuberculous organism than the healthy one. Apparently the original dosage was excessive, and led in many cases to hyperpyrexia, intense focal reaction in the lungs, haematuria, albuminuria, anuria, jaundice, and sometimes death. By graduating the doses tolerance was created, and ultimately large doses were injected without causing any severe symptoms. Under such conditions Dr. Clarke had observed benefit in a high proportion of patients. Tubercle bacilli disappeared from the sputum; often the *x*-ray picture rapidly cleared up. Sometimes a shrunken fibroid lung was observed. The phthisical facies disappeared. Among the exudative group of patients there was heavy mortality, but many did well. In the fibroid group the results were more satisfactory. Dr. Clarke thought that with unilateral disease, and when collapse therapy was clearly indicated, sanocrysin should not be used unless, later, fresh foci developed in the functioning lung. But the drug was a valuable aid to treatment if used with caution. Dr. F. HEAP (Warwickshire) had treated 120 cases at the Warwickshire Sanatorium with small and gradually increased doses of sanocrysin, varied according to weight and sedimentation rate. He had found that the cases had a rather better prognosis than otherwise, and that benign cases benefited more than the malignant. The immediate results in the way of arrest were good, the symptoms disappearing in many cases, and the sputum being negative in five examinations. But in fifty cases of artificial pneumothorax, as similar as possible to cases treated with sanocrysin, the results from the former procedure were decidedly superior. In ten children treated with the drug the results were encouraging, especially considering the unfavourable nature of the prognosis in children with positive sputum. Dr. P. W. EDWARDS (Market Drayton) had treated with sanocrysin thirty-seven patients with very advanced exudative phthisis. Of these, thirty-one were definitely improved, three became worse, and three died. Sputum ceased in fifteen cases, and bacilli disappeared in twenty-four. The results appeared infinitely better than in cases not treated by sanocrysin, but so far the patients had not been followed up. Rashes in the course of treatment should not be overlooked, as their cure was frequently a prolonged matter.

Dr. W. STONE (Oxford) thought that complications due to sanocrysin might perhaps be avoided by diluting the fluid medium, or possibly by using normal saline as a diluent. The use of glucose also might be useful. He was inclined to use the treatment in some moderate fibrocaseous cases, though these should be treated mainly with tuberculin. Patients treated with sanocrysin could be got out of the sanatorium in three months instead of twelve. Professor S. LYLE CUMMINS (Cardiff) submitted a paper, which was read by Dr. Dobson. He deprecated comparison of sanocrysin treatment with such methods as artificial pneumothorax or sanatorium treatment. Sanocrysin represented a direct attack on the causative agent or the infected foeus. He gave a detailed account of twenty-one cases treated with sanocrysin between 1925 and 1928, and followed up. Six of these, probably seven, were known to be dead. Three patients could be regarded as well; five were decidedly

better, one was *in statu quo*, and four were worse. But in every suitable case marked improvement had followed the treatment temporarily. Professor Cummins therefore advocated sanocrysin for raising the status of certain patients so that they might enjoy the benefits of collapse therapy or sanatorium treatment. Dr. J. R. GILLESPIE (Manchester) hoped that the discussion would throw light on the dosage question, which still seemed to be in an experimental stage. It seemed possible that doses should be given, as with tuberculin, in geometrical rather than arithmetical progression. Dr. CANTOR (Manchester) described the use in Paris of the double thiosulphate of gold and sodium, known as crisalline. Patients with moderate temperatures responded best to the treatment, with diminution of fever, cough, sputum, and number of bacilli. Radiographic signs cleared up remarkably. The results in afebrile cases were not so marked as in the moderately febrile. Dr. CLARKE, in reply, said he was glad that so much interest was now being taken in sanocrysin in this country. He thought that a closer study of individual cases was necessary.

SECTION OF PUBLIC HEALTH.

Wednesday, July 24th.

REDUCTION OF HUMAN TUBERCULOSIS OF BOVINE ORIGIN.

DR. W. G. SAVAGE (Somerset), in his opening paper, gave a number of figures which he contended proved that the death rate from tuberculosis of bovine origin was steadily declining, and that its prevalence was often exaggerated. As to the extent of bovine tuberculosis, he said it varied in different areas, but probably 40 per cent. of all cows were affected. Most of these were non-infectious and never became infectious. He estimated the number of actually infectious animals as probably less than 1 per cent., and the number of cases of disease of the udder as 0.3 per cent. as a maximum, and in some areas considerably less. Dealing with preventive measures he regarded the elimination of all tuberculous animals as impracticable. The attempt to build up tubercle-free herds had not been successful, but had had considerable educational value. Routine veterinary inspection would remove cases of gross infection, but could not remove all sources of infection. He advocated improvement in the hygienic environment of the cows, and even the abolition of the cowshed. In the meantime pasteurization of the milk supply was probably our best safeguard against infection. Colonel BRITTLEBANK (Manchester) expressed disappointment at Dr. Savage's rather pessimistic attitude, and challenged his figures. He believed that Dr. Savage had underestimated the prevalence of the disease, and contended that routine veterinary inspection had already achieved a proved success.

Mr. A. GOFTON (Edinburgh) also challenged Dr. Savage's figures and quoted others from reports of the Board of Agriculture which contradicted them. In his experience every reacting cow was capable of becoming a source of infection. Dr. MORISON (Cumberland) said he believed at least 5 per cent. of all cattle had definite infections and 25 to 30 per cent. were reactors and capable of infecting the milk they produced. He believed the safest and best form of milk for distribution was dried milk. Dr. EUSTACE HILL (Durham) also expressed his disappointment at Dr. Savage's pessimistic attitude. He himself was more optimistic. In his experience 10 per cent. of all samples of milk were found to be infected. In Durham, as in the West Riding of Yorkshire, routine veterinary inspection was carried out by a full-time staff and was resulting in a definite improvement. Sir MALCOLM WATSON (Malaya) said that in that country there was no tuberculosis among the cattle, and surgical tuberculosis among children was unknown. He attributed this to the fact that the cattle were not kept in cowsheds. Dr. MIDDLETON MARTIN (Gloucestershire) emphasized the difficulty of diagnosis, and also advocated the value of pasteurization as a safeguard. Dr. SAVAGE, in reply, maintained the accuracy of his figures, and stated that those quoted by Mr. Gofton referred to selected groups and not to the cow population as a whole.

RIVER POLLUTION.

In the absence of Dr. McLEAN WILSON (West Riding River Board) his paper on river pollution was read by Dr. Calvert. It opened with a brief description of the terrible conditions which prevailed some forty years ago, in spite of the reports of the Royal Commissions of 1865 and 1868. Only spasmodic action was taken, although the Thames Conservancy Board was already an active body, being charged with the duty of protecting the London water supply. The passing of the Public Health Act of 1875, and the Rivers Pollution Prevention Act of 1876 indicated that the public conscience was becoming stirred by the foul condition of the rivers generally. It was not until the formation of the county councils and county borough councils in 1889 that any serious work was done, and then only by a minority of the counties. Later on fresh parliamentary powers were obtained by the Mersey and Irwell Joint Board and the West Riding Rivers Board. After considering the comparative inaction of the local authorities up to the present he asked, What was the remedy? He believed it was to be found in the report of the Royal Commission of 1898, which strongly advised the formation of joint committees or boards to deal with rivers throughout their whole length. Without such boards he did not think the proper measures were likely to be thoroughly undertaken. Dr. W. G. SAVAGE dissented strongly from the proposition that rivers boards should be set up everywhere. While they might be necessary in heavily industrialized districts, in more rural areas the county council was the proper body to administer the existing powers. What was needed was amendment of the law. A very serious problem was the occasional discharge of works refuse of a highly polluting description. The best standard to be aimed at in country districts was a degree of purity which would not be injurious to fish life. Mr. H. STOWELL, M.Inst.C.E. (Manchester), said that he believed joint boards were the best means of co-ordinating the activities of local authorities. Industry was spreading southwards, and we were faced with problems connected with trade waste from new industries, especially the manufacture of artificial silk and beet sugar. The need for amendment of the law was urgent. There were too many Acts, and procedure was too cumbrous. The Act of 1876 was riddled with inconsistencies. What was needed was a consolidating Act on the lines of the Salmon and Freshwater Fisheries Act, with clauses on the lines of those obtained under several private Acts. A paper by Dr. MEREDITH YOUNG (Cheshire) was read in his absence by Dr. Tough, dealing mainly with the purification of tidal rivers and estuaries. Dr. EUSTACE HILL (Durham) agreed with Dr. Savage that the establishment of numerous joint boards would be undesirable. The matter was a national one; it should be dealt with on a national scale by a centralized department. Dr. MIDDLETON MARTIN (Gloucestershire) said he would not be jealous of any other body that could do the work better, and mentioned the admirable work done by the Thames Conservancy Commissioners. He regretted that the condition of the Severn compared unfavourably with that of the Thames. Dr. CALVERT replied briefly on the points raised. In closing the meeting, the President, Dr. VEITCH CLARK, proposed a vote of thanks to the speakers, which was carried with acclamation.

SECTION OF OCCUPATIONAL DISEASES.

Wednesday, July 24th.

OCCUPATIONAL DUST.

AT the first meeting of the Section Dr. DEARDEN, the President, gave a cordial welcome to all present, and referred to the fact that the Section was first held in 1902 in Manchester, on the occasion of the centenary of factory legislation and regulation.

Dr. J. C. BRIDGE, H.M. senior medical inspector of factories, introduced the subject of occupational dust. He said that it was common in such papers to deal with mortality rates, but he would submit that these did not give a complete picture. Dr. Dearden, in his Milroy

Lectures, had added the subject of occupational sickness, and that and the habits of the worker added much to a complete presentation of the subject. After defining dust and classifying dusts as toxic and non-toxic, he proceeded to speak briefly on some of these—for example, lead, silica, aniline products, organic dusts, wool, cotton, moulds—and pleaded for a new nomenclature in the group of dust diseases. He referred briefly to the incidence of cancer of the lung, skin, and bladder, and alluded to the peculiarity of the industrial dermatoses which, though mostly local, could and did affect the skin generally. He concluded by emphasizing the need for co-operation between the engineer, chemist, and industrial physician in the solution of the problems of occupational dust. Dr. W. E. COOKE (Wigan) said that asbestos belonged to the pyroxene group of minerals, and was mostly silica in chemical composition. Black particles containing iron varied in frequency. The fine black granule dust in the carding room contained 18 per cent. of iron oxide. Necrotic areas in the lung showed similar large black and blue-black fragments. In addition to these large black bodies and fine granules, curious streptococcal, dumbbell, as well as many nondescript forms were seen in lung sections. They were 100 to 200 times larger than ordinary bacteria; they did not stain with aniline dyes, but gave a Prussian blue reaction. They appeared to comprise a central fine spicule with agglomerations around them. The spicule was probably asbestos enveloped in minute extravasations of whole blood or serous exudates.

Dr. A. C. HADDOW (Leeds) read a paper on clinical aspects of asbestosis among workers. A post-mortem examination of a worker who had died of the disease showed bodies in the lung similar to those described by Dr. Cooke. The average age at death was 41 years, and of employment at asbestos work two and a half years. Many workers, feeling that the job was unhealthy, drifted away from the factory. Such workers were not much under medical care until the later stages. They believed that symptoms began after five years. Several excellent radiographic photographs showed the density of the shadow was increased in the basal portions of the lungs, mostly flocculent masses with small cavities. The results of lung puncture showed the curious bodies, as also did the sputum. In a summary Dr. Haddow stated that tuberculosis was *not necessarily an accompaniment* of asbestosis; that asbestosis was generally discovered during an intercurrent attack of influenza; and that the disabled worker might continue at work for many years.

Dr. BURTON WOOD read a paper and showed slides, beginning with one of an *x*-ray film from a case of gold miners' phthisis with no tubercle. Films of radiograms from asbestos workers showed tiny mottled shadows. Such patients had extreme dyspnoea, some cyanosis, and slight cough. Tuberculosis was present in some patients, but in some it seemed to be secondary and made slow progress. Sir THOMAS LEGGE, as a retired medical inspector, expressed regret at the opportunities he had been obliged to forego, in part owing to the cramped nature of the medical inspector's powers in former years, and to the absence of team work with the medical officer of health, the certifying factory surgeon, the private practitioner, and the pathologist. Cases were reported in 1907, and a question was then asked in the House of Commons. Sir THOMAS OLIVER said that the bodies described in asbestosis were extremely large, and discussed the symptomatology. The interesting point was the long interval, as a rule, before symptoms became clamant. Referring to Dr. Bridge's plea for a revised nomenclature, he preferred to retain the present style, but avoiding the term "*pneumonoconiosis*."

SILICOSIS.

Dr. E. L. MIDDLETON (Home Office, London) opened his remarks by asking those present to inspect the exhibit of radiographic films and slides on view in the pathological museum. Silica might be inhaled without causing symptoms for a long time. It did not produce sufficient irritation of the nasal passages to cause immediate alarm. The first outstanding symptom was dyspnoea, but even when this was extreme the worker might persist at his employment. The cause of the dyspnoea was the increasing fibrosis. There was no curative treatment for the established disease. With regard to nomenclature, as legislation had been introduced the term "silicosis" was restricted to the disease produced by silica, no matter how derived. To achieve prevention research was needed in regard to all dusts. Dr. WATKINS-PITCHFORD asked Dr. Bridge if there was an explanation for the constant increase in the number of lead notifications and the diminishing number of deaths reported. Officially organized research was necessary in regard to occupational dusts. Siliceous dust was not noxious from its chemical action, but from its quantity and its tendency to produce lesions suitable for the settlement of tubercle bacilli. The elimination of the chances of tuberculous infection from the environment of persons exposed to dust was an important measure. Dr. P. HEFFERNAN (Derbyshire) said that in the lowest forms of life, silica was much associated with the animal matter. In the siliceous sponges there was a deposit of colloidal silica very much like the curious bodies Dr. Cooke had described in the lungs. In Germany silica was administered to promote fibrosis. How did the silica exist in the lung? The modern conception of cell metabolism and growth suggested that it was in the colloidal state. Recent researches showed that when silicosis and tuberculosis were associated, the silicosis was usually the precedent condition. The substances which appeared to delay the onset of silicosis were carbon and clay: the alkalis and soaps accelerated its onset. Both results were strongly in agreement with the colloidal action of silica. Three cases of very rapid fatal silicosis had lately been noted in young girls working in soap-powder works.

LEAD DUST.

Dr. R. E. LANE (Manchester) read a paper on lead dust and showed slides. He said that his experience inclined him to believe that absorption of lead was mainly by the respiratory system. An investigation in electric accumulator works had demonstrated many of the points previously discussed. The dust was very fine. Control took the form of improved ventilation, estimation of lead content of air, and study of blood films and lead content of urine. The blood films were taken six from each man—two at start of work, two at the end of the day, and two next morning. The red cells showing punctates were counted and the size of points—small, medium, and large—noted. Very interesting statistics were given: a large punctate count was found in correlation with other findings, yet the men's condition was not diagnosable by the usual routine examination. In new workers the punctate count rose very rapidly, and suggested susceptibility. Any sudden rise in the older workers suggested a new hazard or a failure of ventilation plant, whose efficiency had to be inspected daily. An upper limit of 3 mg. of lead dust per 10 cubic metres of air was found to be better than Sir Thomas Legge's standard of 5 mg. per 10 cubic metres of air in the workshop.

SECTION OF ANAESTHETICS.

Friday, July 26th.

CONTROLLABLE SPINAL ANAESTHESIA WITH SPINOCAIN.

AT the second meeting of the Section the chairman, Mr. A. L. FLEMMING, President of the Section, called on Dr. GEORGE P. PITKIN (New Jersey, U.S.A.) to open a discussion on controllable anaesthesia with spinocain. Dr. Pitkin's paper is published in this issue at page 183. Dr. FRANK A. KELLY (Detroit, U.S.A.) paid a tribute to the work of Dr. Pitkin. His paper is published at page 187. Dr. FALKNER HILL (Manchester), while realizing the value of the method, wondered whether the question of fall of blood pressure had not been unduly stressed. It was important to distinguish between fall of blood pressure due to surgical intervention and that due to the spinal anaesthetic. The latter could be counteracted by the Trendelenburg position. Any respiratory failure could be dealt with by artificial means. Was a temporary fall of blood pressure

therefore to be feared? He thought that the last word had not been said in this connexion, and that much work remained to be done. He did not approve the use of strychnine in the spinocain. The personality of the anaesthetist was a very big factor in the success of this method. He had obtained very satisfactory results with a combination of spinocain and general anaesthesia. The PRESIDENT remarked that the question of co-operation between surgeon and anaesthetist was of the greatest importance. The method undoubtedly had a very definite place in anaesthesia. He mentioned that active peristalsis was not necessarily stopped by a general anaesthetic. He had frequently seen peristalsis in progress during the course of an abdominal operation under general anaesthesia. Dr. PINSON said that, taking as criteria the points of view of surgeon, anaesthetist, and patient, only 45 per cent. of his cases had been really successful. He concluded, therefore, that the method was still in the experimental stage. However, in many of his cases he was ready to admit that he had been more than delighted with the results, especially with reference to the remarkable freedom from shock. Dr. SALISBURY (Northampton) said that technique was of primary importance in any form of spinal anaesthesia. He had used the heavy stovaine glucose solution with marked success. Dr. GERRARD (Manchester) spoke of his experience of spinocain in obstetric practice. Advantages were the softness and relaxation of the cervix and perineum, and the extremely easy time the patient had with the labour. He gave a warning about the use of pituitrin, which should not be administered till the head was in the pelvis. If given before, there was definite risk of rupture of the uterus. He hoped that the interest aroused by this new solution would lead to its more regular application to obstetrical cases. Dr. PITKIN replied.

CINEMATOGRAPH DEMONSTRATIONS.

Dr. A. G. SCHWARTZ (New York) gave a very interesting and instructive demonstration on the cinematograph, illustrating the technique that he employed in intratracheal methods of anaesthesia and in the Flagg method of resuscitation. Dr. F. L. RICHARDSON (Boston, U.S.A.) showed a film illustrating the teaching of anaesthetics with the aid of the cinema. He said that the cinematograph was a most useful adjunct to the teaching of anaesthetics, but should not, of course, be used to the exclusion of other methods. The film could be slowed down, if necessary, and important parts repeated. Dr. Richardson extended a hearty invitation on behalf of the Associated Anaesthetists of the United States and Canada and of the International Anaesthesia Research Society to anaesthetists in this country to attend the next Annual Meeting in Winnipeg. Dr. GEORGE EDWARDS showed a film illustrating the technique of administration and the action of avertin. In discussing the value of this drug in anaesthesia, Dr. Edwards said that it could be used to provide a deep narcosis, which was easily convertible into anaesthesia by the addition of very small quantities of ordinary anaesthetic. It was reasonably safe in doses up to 0.1 gram per kilogram of body weight. It eliminated nearly all the mental stress which accompanied the usual giving of an anaesthetic, and it had no effect on the respiratory tract, being excreted almost entirely by the liver and kidneys. It was certainly not an anaesthetic that anybody could give at any time. An experienced anaesthetist was required to control the superimposed anaesthesia. The routine of its administration made it difficult to use in hospital practice. In certain types of cases, especially where general anaesthesia was contraindicated, it was of definite value.

Reviews.

LIFE, GROWTH, AND REPRODUCTION.

PROFESSOR MAX ARON'S recent book on life and reproduction[1] has many merits; its author has the gift of clear exposition; it gives just what so many medical readers are in search of—an outline of the advances made in modern biology by a master who has a first-hand knowledge of its major problems. Professor Aron has studied life as revealed by the microscope; he finds the simplest cell to be a "prodigious laboratory" in which processes of a physical and chemical nature go forward as long as the cell is alive. He is convinced that we can know what life is only by following the clues provided by these physico-chemical processes. He expects, however, that even when the physicist and chemist have done their utmost there will still remain something for the biologist to explain.

Professor Aron's book is divided into three sections. In the first he describes the anatomy and physiology of the living unit of protoplasm called the cell. In particular he treats of the causes and conditions which determine cellular movement, cellular reproduction, and cellular differentiation. In the second section he reviews the manifestations of cell life as seen in the complex bodies of animals—particularly the phenomena of development and growth. In the third section he enters fully upon the problems of sex and reproduction. In all three sections we see the same method of approach. Professor Aron views all his problems as revealed upon the stage of his microscope, but views them with the eye of a physiologist—being a student of function rather than of structure. In all three sections of his book he first produces his evidence and then discusses his inferences in a manner which the youngest student may understand. He never loses sight of the needs of medical students and of medical practitioners. Again and again he returns to that enigma of growth—cancer.

It is impossible to summarize such a book as this—one which ranges so widely across the field of biology. A few of its conclusions may be cited. The author divides substances (hormones) which serve to co-ordinate the living processes of the body into three classes: (1) Differentiators—substances contained in certain cells, chiefly embryonic, which can cause other cells to change both in form and in function. (2) Growth regulators, such as are formed in the pituitary and sex glands, and the cortex of the adrenals. (3) Function regulators, such as secretin, insulin, etc. Professor Aron is convinced that even in the higher vertebrates the central nervous system takes a much more active part in regulating the growth of the body than is now supposed. He cites the experimental evidence which has led him to form this opinion. This conclusion is of particular interest at the present time, when evidence accumulates in favour of the belief that some nerves, such as the vagus, produce their functional effects (correlations) by producing a hormone at their terminal distribution. It begins to look as though, after all, the differences between the hormone system and the nervous system are not so great as they were supposed to be at first. Both systems seem to employ chemical messengers to produce their effects on the growth and action of the various parts of the body.

ANALYTICAL PSYCHOLOGY.

A NUMBER of Dr. C. J. JUNG'S recent contributions to psychology have been translated into English and published in two separate volumes. The first of these is entitled *Two Essays on Analytical Psychology*,[2] and its subject-matter is admittedly such as to make no ordinary demands upon the understanding of its readers. The author himself observes that, though he has done his utmost to smooth the path of understanding, there is one great difficulty which he is powerless to remove—namely, that the psychical processes and problems with which he deals are somewhat inaccessible to ordinary experience, and indeed to many are quite unknown. Thus these two advanced essays—the one on the unconscious in the normal and pathological mind, the other on the relation of the ego to the unconscious—will probably be most appreciated by

[1] *Vie et Reproduction: Notions Actuelles sur les Problèmes Généraux de la Biologie Animale.* By Max Aron, Docteur ès Sciences, Professeur à la Faculté de Médecine de Strasbourg. Paris: Masson et Cie. 1929. (6¼ × 9; pp. 366; 190 figures. 38 fr.)

[2] *Two Essays on Analytical Psychology.* By C. J. Jung, M.D., LL.D. Authorized translation by H. G. and C. F. Baynes. London: Bailhère, Tindall and Cox. 1928. (Demy 8vo, pp. xviii + 280. 10s. 6d. net.)

those who are already more or less conversant with the teachings of the school of psychology of which Dr. Jung is the founder, and who have actually applied the analytical methods and theories described to their own psychic life or that of others. The book is certainly one which requires to be expounded and discussed in circles interested in the views as to the nature and significance of the unconscious psyche therein developed.

The second volume, *Contributions to Analytical Psychology*,[3] contains more of interest to the reader who is not familiar with Jung's teaching than those referred to above. The opening chapter is highly technical, being concerned with an elaboration of Dr. Jung's theory of the *libido*, but in subsequent essays the writer applies his views to a variety of concrete problems of modern life. Papers on mind and earth, analytical psychology and *Weltanschauung*, women in Europe, marriage as a psychological relationship, the love problem of the student, the relation of analytical psychology to poetic art, the psychological foundations of belief in spirits, and psychological types are included. A contribution on analytical psychology in education, consisting of a series of lectures delivered at three meetings of the International Congress of Education, 1923-24-25, will interest the increasing number of those who are concerned in the problems of child life. Dr. Jung is strongly of the opinion that the causes of child neurosis should not be sought by analytical interference in the child's psychology, but rather in the atmosphere engendered in the home by the attitude of the parents, both to the child and to their own problems.

These works reveal their writer as an original and independent observer, who is gifted with keen psychological insight. How far Jung's formulations are calculated to give a new orientation to the problems of life and disease time alone will show. In his preface to the first of these books, Dr. H. G. BAYNES expresses the opinion that the discovery of the *collective unconscious* has added "yet another star to the constellation of major discoveries," and that the technique of its exploration which *Jung* has elaborated has incalculable effect on the course and character of human destiny. Though the reader may perhaps feel that these claims are pitched rather high, he will certainly find much in these volumes which is stimulating and suggestive.

OPERATIVE COMPLICATIONS OF CHOLECYSTECTOMY.

IN *Les accidents de la cholécystectomie*[4] M. SERGE HUARD of Paris gives a description of the untoward events that may occur during removal of the gall-bladder, under the two headings of those which are recognized during the course of the operation and can then be remedied, and those not noticed at the time but which, by giving rise to jaundice, biliary fistula, or peritonitis, necessitate further operation when the cause is revealed. Of the numerous accidents that may be due to operative intervention, wounds of the bile ducts, especially the common bile ducts, are much more frequent than damage to the hepatic artery or its branches; in the author's collected cases there were 64 records of biliary tract injuries and only 6 of wounds of the hepatic artery. Although wounds of the portal vein might naturally be anticipated, no example of this accident appears to have been put on record. In order to throw light on the occurrence of these operative accidents the normal anatomy of the biliary tract and the hepatic artery is first described, and then the abnormalities and pathological changes are considered in detail. After discussing the classical methods of performing cholecystectomy, such as those of Kehr and of Mayo and Moynihan, the author describes his new technique of removing the gall-bladder, and in a number of illustrations shows the six steps recommended, which, as borne out by six cases on which this form of operation was done by his chief, Professor Schwartz, renders it easy to avoid these operative complications.

[3] *Contributions to Analytical Psychology.* By C. J. Jung. Translated by H. G. and C. F. Baynes. International Library of Psychology, Philosophy, and Scientific Method. London: Kegan Paul, Trench, Trubner and Co., Ltd. 1928. (Demy 8vo, pp. xi + 410. 18s. net.)

[4] *Les accidents de la cholécystectomie.* Par Serge Huard. Préface du Dr. A. Schwartz. Paris: Masson et Cie. 1929. (6½ × 9¼, pp. 116; 17 figures. 16 fr.)

PATHOGENIC STREPTOCOCCI.

THE *Annals of the Pickett-Thomson Research Laboratory*, the fourth volume of which has now been published,[5] are devoted mainly to bacteriology, protozoology, and biochemistry, and to recording photographically the whole range of bacteria and protozoa. The present volume, which is issued in two parts, deals with the rôle of the pathogenic streptococci in various diseases. In Part I an endeavour has been made to give as comprehensively as possible a historical survey of the part played by streptococci in acute rheumatic fever and its complications—chorea, erythema nodosum, and carditis. Part II deals with the rôle of streptococci in acute and subacute suppurative and chronic rheumatism, including rheumatoid arthritis and osteo-arthritis. The several monographs give a more or less complete summary of the researches which have been carried out since the beginnings of bacteriology, and are not confined to the streptococcal theories alone, but supply an account of most of the important views and theories held by various clinicians. The volume should therefore be of interest to the clinician as well as to the bacteriologist. The two bulky volumes are comprehensive in the sense that they contain all that has been, or at present can be, said on the subjects dealt with. With regard to rheumatic fever the author's conclusions coincide with those reached by Bulloch. "In spite of the numerous investigations which have been carried out, it seems to me that the etiology of rheumatic fever still belongs to the arcana of pathology, and, although what clinicians call rheumatic fever is probably a specific infective disease, the virus is not known." With regard to rheumatoid arthritis the chief bacteria which have been suspected are streptococci, *B. coli*, and staphylococci. The most definite researches yet published are those of Cecil, Nicholls, and Stainsby, who have isolated a streptococcus of the viridans group from the blood of a large percentage of cases. On the other hand, Warren Crowe believes that the disease is due to a special variety of staphylococcus, which he has named *M. deformans*. Both of these views require confirmation. In any case the disease is regarded as organismal; and endocrine, metabolic, and traumatic factors are considered to play a merely predisposing part. The authors adhere to the view that osteo-arthritis and the allied affections are associated with focal sepsis in the teeth and bowel, a view which the recent researches of Warren Crowe have tended to confirm. Senile degeneration and metabolic disturbances are not considered to play any part in the etiology, except as predisposing causes.

The authors have collected a very large amount of photographic material on the streptococci, and they propose to devote Volume VII to the publication of these accumulated photographs. They have solved the problem of taking extremely distinct photographs of the colonies on Crowe's medium, and they anticipate that Volume VII will form a complete atlas of the streptococcus group, which will enable the research worker with very little difficulty to differentiate between the various species.

INDUSTRIAL BIOCHEMISTRY.

A RECENT monograph by Dr. T. P. HILDITCH gives short accounts of all the most important catalytic processes used in modern industry.[6] Perusal of this volume brings home very forcibly to the reader the fact that modern civilization is rapidly becoming based on large-scale chemical processes, nearly all of which depend for their economic working on the use of catalysts. The most important chemical processes described are those employed in the synthesis of ammonia. It is interesting to learn that the world now gets 400,000 tons of fixed nitrogen annually from the air as compared with 312,000 tons from Chile nitrate, and that the world demand for fixed nitrogen

[5] *Annals of the Pickett-Thomson Research Laboratory.* Vol. IV. Parts I and II. The Pathogenic Streptococci: An Historical Survey of their Rôle in Human and Animal Disease. London: Baillière, Tindall and Cox. Baltimore: The Williams and Wilkins Company. 1929. (8½ × 11¼, pp. xv + 494; 2 figures; 18 plates. 42s. net per volume, post free).

[6] *Catalytic Processes in Applied Chemistry.* By T. P. Hilditch, D.Sc.Lond., F.I.C. Vol. II of a series of Monographs on Applied Chemistry. London: Chapman and Hall, Ltd. 1929. (Demy 8vo, pp. xx + 360. 16s. net.)

is increasing by 11 per cent. per annum. Some other catalytic processes of great importance are the production from water-gas of the petrol substitute synthol, the production of cellulose acetate, the hydrogenation of fats, and the use of accelerators for vulcanization of rubber. Many of the catalytic processes involve the use of very high pressures and in some cases of high temperatures. The author holds that the possibility of utilizing enzymes in industrial chemical processes deserves much more attention than it has received, because enzyme actions proceed under the ordinary conditions of temperature and pressure, and therefore their successful use would result in a great economy of fuel. The growing list of chemical compounds produced by enzyme action indicates the value of this branch of applied catalysts, and suggests that its employment will receive considerable extension in the future. The discovery of the Fernbach and Weizmann bacilli, which provided most of the acetone needed for cordite manufacture in the war, is one of the best known of the successes hitherto attained in biochemical commercial processes.

Biochemistry first developed as a science in the medical schools under the title of physiological chemistry. Orthodox chemists expressed their opinion of the new science in its early days by such terms as "blood and bone boiling," while orthodox physiologists were scarcely less contemptuous. The dominant position that biochemistry has attained in physiology and medicine will be familiar to all our readers, but probably only a few will have realized how important is the position that biochemistry has attained in industrial chemistry, and that its future importance promises to be very much greater. These facts are set out very clearly in the volume under review, and although some of it is occupied by technical details that are chiefly of interest to specialists, yet the volume is well worth the perusal of all who take a general interest in biochemistry.

NOTES ON BOOKS.

In *The Origins and the Growth of Chemical Science*[7] the theme is developed that the advance of chemistry did not take place at successive outbursts, but that its progress was uniform and gradual. The author, Mr. J. E. MARSH, has traced chronologically the successive stages of scientific discovery, and connected these with the expansion of theoretical views, showing how the erroneous theories of early times led to the growth of a knowledge of facts which in turn caused theories to be abandoned, modified, or remoulded. He reminds his readers that the ability to produce fire was the first introductory step to the practice of chemical operations, and, with fire as the experimental agent, philosophers passed forward from the stage of speculation towards that of deductive reasoning. Thus Aristotle's theory of four elements gave place to Paracelsus's theory of the hypostatical principles, which were held to be sulphur, mercury, and salt. This conception was followed in turn by the theory of phlogiston, which, as a working theory, was more substantially helpful than any previously devised. So little was the conflict between this theory and experience that even Cavendish, with all his experimental achievements and learning, saw no cause to abandon it. But on the discovery by Lavoisier that oxygen was a real substance, and not merely an assemblage of the negative qualities of phlogiston, the formulation of Dalton's atomic theory became possible. Meanwhile the theory of salt formation and the experimental work to which it directly led had become interwoven with the growing structure which ultimately developed into modern chemistry. Progress became more rapid in the earlier part of the nineteenth century, and the names of men grew more numerous who were destined to leave their mark on the work that followed them. The theory of atom linkage, introduced independently by Couper and by Kekulé, became the foundations of a structure that is even now receiving new additions; yet, as the author remarks in conclusion, the oldest real chemical theory, the theory of salt formation, which is mainly responsible for the growth of chemical science as it exists to-day, still presents many problems which await solution. Everyone interested in this side of chemistry should read this book; it is not too bulky for the ordinary reader; we think, indeed, that Mr. Marsh might well have enlarged his comments and added to his narrative of incident. For example, the derision met by Newlands when he first drew attention to what is now known as the periodic classification of the elements deserves to be noticed in any history of chemical theory.

[7] *The Origins and the Growth of Chemical Science.* By J. E. Marsh, F.R.S. London: J. Murray. 1929. (Cr. 8vo, pp. x + 161; 15 plates. 5s. net.)

Not until page 24 is reached does the reason become evident for the publication of Dr. LUTEMBACHER'S elementary study of the arrhythmias,[8] The author has already published cinematographic films and gramophone records illustrating the cardiac irregularities, and now he produces this "hybrid," giving the corresponding electro-cardiographic and polygraphic curves to illustrate the films and records. The book, he says, is not a treatise, it is not even a précis of electrocardiography. This is true, for apart from brief descriptions of the author's new and "prodigious" methods for the study of irregularities, one might describe the remainder of the text as being in the form of snappy captions.

Professor UDAONDO of Buenos Aires has written a small book on chronic ulcerative colitis,[9] in which the various aspects of this serious but obscure complaint are somewhat superficially dealt with. Over 200 references to the literature are given, and the ten plates at the end of the volume reproduce photographs showing the nature of the lesions produced in the disease, together with a number of x-ray pictures.

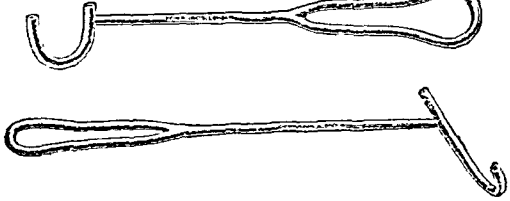
Dr. NEUBERGER'S book on the treatment of nervous diseases[10] gives a general and optimistic account of the subject with which it deals, written for medical men, supplied with a chapter on the treatment of the patients at the various watering-places appropriate to their special maladies, and ending with over twenty pages of references to the literature. It is well arranged and clearly written, and contains a well-digested mass of information.

[8] *Etude Élémentaire des Arythmies.* Par R. Lutembacher. Paris: Masson et Cie. 1929. (7¼ × 10¼, pp. 110, 78 figures. 30 fr.)
[9] *Les Colites Ulcereuses Chroniques.* Par Carlos Bonorino Udaondo. Collection des Actualités de Medecine Pratique. Paris: G. Doin. 1929. (5½ × 7, pp. 217; 10 plates. 25 fr.)
[10] *Le Traitement des Maladies Nerveuses en Clientèle.* Par le Dr. Neuberger. Comment Guérir? Bibliothèque des Praticiens. Paris: N. Maloine. 1928. (5½ × 7½, pp. 300. 30 fr.)

PREPARATIONS AND APPLIANCES.

A WIRE INTRODUCER FOR THE OPERATIVE TREATMENT OF FRACTURES.

MAJOR MEURICE SINCLAIR, C.M.G., R.A.M.C. (ret.), London, writes: The instrument illustrated herewith helps a surgeon readily to encircle the fragments of bone with wire. It is made in three sizes—large, medium, and small—to pass round various calibres of bones, and is best constructed of steel tubing to withstand the complex strains and leverages to which it has to be subjected during its passage around the bone; the original one was made from a curved section of a metal catheter, but it duly split longitudinally, and the softer metals are found to be not so satisfactory. The bore of the tubing should be smooth in order to reduce to a minimum the friction while the wire is being passed into it. The diagrams show that a curved length of tubing, which has a slightly smaller but rounded orifice (to prevent transfixion) at one end and is fully open at the other, is attached to a shaft at about an inch from the patent end. The shaft is fixed at an angle to permit of unobstructed vision, and to allow at first the instrument being placed length-



wise into the wound, and then, by a simple manœuvre of the handle, the orifice can be made to travel over the deep surfaces of the bone and come into view on the opposite curvature of the fragments. The wire is then easily passed into the opening, and by a combined movement of "wire-feeding" the introducer with one hand, and simultaneously withdrawing the instrument from the wound with the other, the impression is so conveyed that the instrument is being pushed out of the wound by the wire, and the surrounding of fragments is readily accomplished while the instrument is being gradually led back. Two twisted hoops of wire, which are fixed just within the extremities of the cleavage, are an excellent method of fixation for all closed spiral fractures; small plates and screws are not efficient in these cases, and should at any rate be removed as early as possible, but wire, in my experience, can remain in with safety.

The instrument has been made for me by Messrs. Down Bros., London.

British Medical Journal.

SATURDAY, AUGUST 3RD, 1929.

THE MANCHESTER MEETING.

THE observant cannot fail to note that in one important respect no Annual Meeting of the British Medical Association is like another. It becomes more and more clear, as the series lengthens, that on every occasion something of the native spirit of each town asserts itself and gives a distinctive colour to the programme and proceedings. This has been especially true of the Annual Meeting held last week in Manchester under the presidency of Professor Arthur Burgess, who, as his local colleagues and fellow citizens are proud to remember, is a Manchester man through and through. Our new President has been identified with the Victoria University and the Royal Infirmary during the whole of his career, and he has played a leading part in bringing to its present eminence the Manchester School of Surgery. His personality and his standing in the eyes of the profession of this country made the success of the 1929 Annual Meeting a foregone conclusion.

Overcoming of difficulties was, perhaps, one of the most noteworthy features of the week's proceedings in Manchester. Thus, for example, the serious obstacle of distance between such important centres as the Registration Hall and the University, where the nineteen scientific Sections held their meetings, was surmounted by facilities for free travelling over the tramway system provided to members by the Corporation, and the arrangement made with motor omnibuses and taxicabs by the local executive of the Association. The cordial interest taken in the meeting by the civic authorities of Manchester and Salford was indeed evident at every turn. No fewer than three impressive and enjoyable receptions invited members of the Association and their friends to realize that the city wished to honour to the best of its ability those who devote their lives to the prevention of disease and the alleviation of suffering. Public institutions of all kinds were thrown open, so that visitors could judge how this great centre of commerce and education, which prides itself justly on its modernity, is not only keeping abreast of the advance of knowledge, but also takes pride in treasuring in libraries and art galleries graceful memories of past ages.

The Sectional meetings were very well attended, and the sacrifices made by the University authorities to provide accommodation for so many simultaneous sessions deserve a special word of thanks. The subjects for debate had been chosen with great forethought and discretion, and the distinguished speakers drew audiences worthy of their efforts. Something of a note of home-coming was struck by the presence of the Mayo brothers, William and Charles, who received a warm welcome from the municipality and University, as well as locally at Eccles and in the scientific discussions. The Pathological Museum evoked particular admiration. It was obvious that very great care had been taken to render it fully adequate for a great occasion, and it played a prominent part in illustrating many of the subjects under consideration in the Sections. With so many Sectional meetings scattered through large groups of buildings, visitors might have expected some considerable difficulty in finding their way about; but this had been foreseen, and particularly good arrangements were made to direct them to the theatres and classrooms, medical students lending willing aid in this and in other respects. One difficulty alone seemed to be insuperable: many of those wishing to get the most out of the three days' scientific business complained gently that it was really very hard to decide which discussion to attend out of so many proceeding at the same hour. It may be added, however, as some partial compensation, that the summaries appearing in this and subsequent issues of the *British Medical Journal* will enable an idea to be obtained of the ground covered at each session. Moreover, the introductory papers of each debate will be printed in full in these columns between now and the end of the year. The subjects to which they relate are undoubtedly topical and of much interest from the point of view of general therapy and diagnosis. It was noticeable that throughout all the discussions theoretical considerations gave way as far as possible to practical details, and this, no doubt, accounts in large measure for the keen attention with which the clinical and scientific proceedings were followed.

As we have indicated, a feature of this Annual Meeting—the fifth to be held by our Association in Manchester—was the excellence of its organization. This was the result of many months of thought and unselfish labour on the part of those chosen by their colleagues to plan and carry out the local arrangements. Among the corps of willing workers who associated themselves with the President and Mrs. Burgess a few outstanding names must be mentioned here. Dr. E. Bosdin Leech and Dr. R. G. McGowan, the indefatigable honorary general secretaries, supported between them the main fabric of the meeting. By harmonious division of labour and infinite care for detail they ensured the smooth running of every part of the machine. No one who has not had personal experience behind the scenes can realize how great a burden is borne by the local secretaries of a congress such as this. Beside them, always genial and ever regardful for sound finance, stood Dr. John D'Ewart, the honorary treasurer of the meeting. Two other names among many that deserve to be placed on record are those of Colonel F. H. Westmacott, chairman of the Entertainments and Transport Committee, and Dr. E. M. Brockbank, who, as editor and part author of the *Book of Manchester and Salford*, has provided every visitor with a worthy memento. By their efforts to achieve success for the ninety-seventh Annual Meeting the local executive have played a notable part in forwarding two of the main objects for which the British Medical Association exists—namely, the advancement of medical science and practice, and the promotion of good fellowship among members of our profession.

EARLY DIAGNOSIS OF CANCER OF THE STOMACH.

THERE is a fairly general belief among the medical profession that cancer of the stomach is more common than formerly. Pathologists, however, point out that in recent series of consecutive post-mortem examinations the incidence of cancer of the stomach is found to be about one in every fifty-five necropsies, a figure much in accord with earlier statistics. A big factor, no doubt, in the apparent increase is that there are now much greater facilities for examination of gastric cases. The advances in chemical knowledge and in radiological technique have made diagnosis easier in cases of cancer of the digestive tract, which was

formerly invisible, and therefore less obvious, than cancer in such accessible situations as the breast, the uterus, and the tongue. Further, the emphasis laid by the leaders of the profession, physicians and surgeons alike, on the need for early recognition of cases of cancer, at a time when the only treatment available—extirpation—is still possible, has awakened the sense of responsibility of practitioners to the prevalence of the disease and its sinister course if allowed to make headway. Again, the education of the people has made possible a general dissemination of knowledge of the facts of cancer, and has led the layman to expect, and rightly to expect, increased acumen in medical diagnosis. The disease is thus constantly in the minds of those called upon to see and treat digestive disturbances in their patients. It does not come as such a surprise, and, being sought for, is less often missed. It is not enough to diagnose cancer of the stomach, however; it is essential to diagnose it as early as possible. In its natural evolution the course of the disease is short and the end sure. It is rarely that more than two years elapse before the inevitably fatal termination.

Cancer of the stomach starts as a local disease in the mucous membrane, or sometimes in embryonic epithelial remains in the submucosa, and at first spreads centrifugally in the lymphatics of the submucosa, producing a local rigidity. Although in most cases gastritis is found associated with cancer, it is most likely a toxic condition secondary to the growth. The view that there is a form of gastritis preceding the onset of cancer is not generally accepted. Cancer of the stomach does not commonly follow on ulcer. In the pathological studies of Stewart, and of Dible and Morley independently, only 6 per cent. of cases of cancer of the stomach examined microscopically showed evidences of previous ulceration. It is, as a rule, by later spread that the mucous membrane becomes eroded and ulcerated, or the peritoneum invaded. The lymphatic glands along the curvatures are soon involved, and from these dissemination results in implication of the liver, and the mediastinal and cervical glands. Surgical removal is the only method of treatment; to be successful this must be carried out at a stage when the disease is localized and complete extirpation is possible.

It is unfortunate that in the textbooks the cardinal symptoms of cancer of the stomach are those of the established disease, when it is usually too late for effective surgical intervention. Wasting, vomiting, cachexia, anaemia, and tumour form a syndrome in which diagnosis is easy, but at this stage rarely any except palliative measures can be adopted. In looking back over the histories of such patients, however, there are often to be found clues which should have aroused suspicion, and it is in the suspicious stage that every ancillary aid should be used. Each suspected case should be investigated fully; by awaiting developments valuable time may be lost. Indigestion starting in a patient in middle life or later is suspicious, for two-thirds of the cases occur in those who have been hitherto unaware of digestive trouble. The indigestion may take many forms, and almost all the symptoms of gastric disturbance may be found at times in cases of cancer of the stomach. The commonest are loss of appetite, discomfort in the upper abdomen—either constant, or more or less related to the taking of food—flatulence, heartburn, and eructation, and regurgitation of stomach contents. The discomfort may be a mere sense of fullness or weight in the stomach, or may be actual pain. It is usually not severe; but the persistent, though mild, dyspepsia should arouse suspicion. In about one-third of the cases digestive trouble of long standing precedes the onset of cancer, though in less than 10 per cent. is there a history of ulcer preceding cancer. Faced, then, with an apparently causeless indigestion in a patient of the cancer-bearing age, or with suspicious symptoms in one who has long suffered from indigestion, the practitioner must take every means possible of clearing up the doubt. Objectively there may be little evidence of trouble, and ordinary physical examination may elicit little of importance. A feeling of resistance of the left upper rectus abdominis muscle may, however, give an early suspicion of beginning peritoneal involvement before any tumour can be palpated. The chemistry of the gastric contents may be normal, and occult blood absent from the faeces. Indeed, abnormal results with these tests show that the mucous membrane is already much involved. If, however, the chemical findings are correlated with the clinical findings they are often of considerable value. No biological tests of the serum and blood are yet available. Direct inspection by gastroscopy is a difficult and often dangerous procedure, which can rarely be applied. It is by x-ray methods that gastric cancer may be recognized considerably earlier than by any other methods. Filling defects caused by mucosal swellings which project into the lumen of the stomach, or interruptions of the normal striae of the mucosal folds in the partially filled viscus can be demonstrated. In addition, loss of flexibility of the wall, or the arrest of peristalsis in a small area infiltrated by growth, may be the earliest sign to arouse suspicion that all is not well with the stomach, though a similar picture may be obtained in some cases of ulcer or perigastric adhesions.

The place of x rays in the diagnosis of early carcinoma of the stomach was discussed by the Section of Radiology and Radio-Therapeutics at the Annual Meeting of the British Medical Association held at Manchester last week. The Section was fortunate in having as opener of the discussion Professor Martin Haudek of Vienna, who has already contributed greatly to advances in our knowledge of the application of x rays to gastric diseases. Professor Haudek, in his introductory address, which is published in full at page 173 of this issue, gave a masterly description of the technique which should be adopted in the examination of patients with suspected disease of the stomach. This will be studied with interest by all workers on the subject. Professor Haudek uses the double-meal method, and examines the patient first for residues in the stomach four hours after an opaque meal. Many workers would prefer, when possible, to observe the emptying time of the stomach, as may be done by observation at suitable intervals after a single meal, if the patient remains close at hand for several hours after the meal is taken, since the time at which the stomach is emptied cannot be estimated from the residue at four hours. The examination is then continued by observing the filling of the stomach with another barium meal, the patient standing behind the screen. When the meal is finished the patient is placed in suitable postures for demonstrating each part of the stomach in the filled and partially emptied condition. Emphasis is laid by Professor Haudek on the need for care in examining the cardiac end of the stomach at the upper margin of the barium meal to prevent mistakes. The advantages of the prone position in defining the contour and motility of the lesser curvature are not only the increased filling of the lesser curvature in this posture, but also that with the screen at the back slight magnification occurs of

small defects. Professor Haudek, too, insists rightly on the need for photographs at each stage, both as a permanent record and as a verification of surmises made in screening. He has not, however, used the cinematographic camera, which in the hands of others has given results otherwise unobtainable in showing lack of flexibility of the stomach wall or hesitating peristalsis—results that are of the greatest value in the diagnosis of those prepyloric ulcers and growths which are often so difficult to identify. Portable cinema cameras are now in use which enable a series of observations to be made with the patient in any position desired.

Such a complete *x*-ray examination takes time. Professor Haudek spends at least half an hour on each case, and does not examine more than eight or ten patients a day. There is a very real danger that a hurried and incomplete *x*-ray examination which fails to reveal an early lesion may give a false sense of security to doctor and patient alike; valuable time may thus be lost, during which the disease advances so that successful treatment by removal becomes impossible. Although 40 per cent. of cases of cancer of the stomach are now successfully operated upon, in the greater number laparotomy is too late. Professor Haudek concludes that none but men equipped with a sound knowledge of pathology, clinical medicine, and radiology can ever help cancer sufferers to the earliest possible diagnosis and cure of their disease. Of such men Professor Haudek himself is clearly in the front rank.

With all the immense help afforded by a complete *x* ray examination in avoiding late and useless laparotomies and in giving evidence for early exploration, it is, however, with the patient's medical attendant that the decision ultimately rests. It is only after carefully considering all the data that such a decision should be made; in cases where doubt arises laparotomy should be advised. The patient and his relatives will naturally expect an opinion as to the outcome of such an operation, but the course of action to be taken may have to be determined finally at the consultation on the operating table, when the state of matters is laid bare. Laparotomy should not be lightly undertaken as a mere exploration, nor should it be deferred when, after due consideration, doubt remains. As a famous surgeon who has recently passed from among us used to say: "Gentlemen, I am not afraid that you will cut too deep; all I am afraid of is that you will not cut soon enough."

ANNUAL MEETING NOTES.

The Annual Representative Meeting.

Monday, July 21st.

In the *Supplement* this week we conclude publication of the full report of the Annual Representative Meeting at Manchester. The short notes printed below, supplementing those printed last week, are intended to give, in very general and informal terms, an outline of the course of the discussions during the latter part of the meeting.

The debate on the report of the Psycho-analysis Committee, resumed at the beginning of Monday's session, followed the lines set by Dr. Langdon-Down in his admirably lucid and balanced introduction of the subject on Saturday evening. The course of the discussion made it clear that Dr. Biggs had spoken for the large majority of the representatives in his effective intervention at the beginning of the debate. With respect and sympathy for the patent sincerity with which Dr. Parry, Dr. D'Ewart, and Mr. Turner voiced what Dr. Gordon characterized as an "article of faith," the representatives showed themselves determined—soberly, and with full realization of the dangers of exploratory dealing with the human mind—to vindicate the scientific method in this as in other fields of therapeutics. In the absence of conclusive data the report called for no final verdict on any undecided issue, and none was expressed, but there was ample testimony to the practical value of the report. This was accepted as discharging the reference to the committee, and with the thanks of the Representative Body to its members. With the exception of the Psycho-Analysis and Parliamentary Elections reports, the matters brought before the meeting on Monday were singularly unproductive of controversy. They were, nevertheless, neither of minor importance nor lacking in interest. The report on Poor Law reform, for example, gave Dr. Brackenbury an opportunity, not only of explaining the action taken by the Council during the legislative stage of the present recasting of local administration, but of emphasizing the importance of local vigilance and initiative in the "scheme stage" now reached. So the Science report allowed Mr. Souttar to make a review which, notwithstanding its brevity, demonstrated the direct value to the general practitioner of the scientific work undertaken or promoted by his committee. The report on medical benevolence, presented by Dr. Douglas in the regretted absence through illness of Dr. Walker, raised no new issues. The discussion showed a need no less urgent than heretofore, and a response little less inadequate, despite the efforts of the Charities Committee and of some Divisions. The lead given by Manchester in this connexion was not in dispute. On the Ethical report, presented by Dr. Langdon-Down, the Representative Body expressed its hearty sympathy with Dr. Lyndon, who was absent through illness, although he had succeeded in attending the earlier sessions of the meeting. The Overseas report, presented by Sir Jenner Verrall in the unavoidable absence of Dr. Paterson, was taken, as usual, after the lunch interval, a procedure which gives the Representative Body leisure to make the acquaintance of some at least of the overseas representatives. The speeches showed warm appreciation of the work of the Association overseas, and a marked agreement as to the value of visits, whether from members of the central staff of the Association or from leading members of the profession in this country. The Naval and Military report, which contained no controversial matter, enabled Dr. Goodbody to comment on the efficiency of the Association's intervention in service matters, and Dr. Brackenbury to emphasize the spirit in which such intervention is undertaken.

The outstanding item on the agenda for the day was the report on encroachments on the sphere of private practice. Its reception demonstrated once again the urgent need for patient investigation of facts as a preliminary to the formulation of policy. The undisputed acceptance of the main conclusions of the committee, without modification or addition, showed the thoroughness of its deliberations, no less than the comprehensive character of the Medical Secretary's investigations and report, which supplied the basis for those conclusions and earned the unstinted appreciation of the meeting. In view of the atmosphere of suspicion and dissatisfaction in which the inquiry was set on foot last year, the general agreement on the report was surprising. Discussion was barely sufficient to dispel a doubt as to the interest of the Divisions in a question of primary importance. Dr. Le Fleming's report on the position of the Parliamentary Elections Fund provoked a lively debate, and one which showed a greater diversity of opinion than any which had preceded it—presumably because it turned upon political rather than professional conceptions. It was perhaps due to that very diversity that the suggestion of Brighton,

that a fund which has admittedly failed to secure adequate financial support after a reasonable period of trial should be wound up, was rejected.

Tuesday, July 22nd.

The Representative Body met on Tuesday with a sufficiently heavy agenda for the short time at its disposal, but succeeded in completing its business according to programme, without having recourse to evening sessions or special limitation of speeches. Votes of thanks to those responsible for the success of the meeting were taken early, in order to ensure a more dignified procedure than has sometimes been attained, and there was ample time to accord a hearty welcome to Dr. Bazin and Dr. Primrose of the Canadian Medical Association, who attended part of the session. A few words of farewell addressed to the meeting by Dr. Milner Moore of Lewes and East Grinstead were received with hearty applause, and members echoed the hope expressed by the Chairman that in the event of his withdrawal from their deliberations on the disbanding of the Division he has so long represented they would yet see him at future meetings.

On the report of the Ophthalmic Committee Dr. Wallace Henry urged once again the great public and professional importance of the Association's scheme, now being brought into operation. An amendment from Dundee was withdrawn after it had served to emphasize the drawbacks of existing conditions, from which the scheme offers a hope of escape. On the Organization report, a motion by Lancashire and Cheshire, ably presented by Dr. Matthews, secured a reference to the Council of the problem of dealing with inactive Divisions. The Welsh and Irish reports were presented with admirable and admired brevity. On the Scottish report Dr. Buist was able to announce a gratifying measure of success in applying the Association's scale of salaries in Scotland. The Public Health and Poor Law report, and the amendments put forward by Bath and Newcastle, gave rise to a discussion of considerable interest. It allowed Dr. Lewys-Lloyd and Dr. Brackenbury to explain the difficulty and urge the importance of finding some means of securing for the community under the Local Government Act the continued services on local authorities of medical practitioners. Moreover, it drew attention to the importance of the quality of the supply of vaccine lymph available for use in private practice. It was made very clear that, whatever the statutory obligation and administrative activities of the Therapeutic Substances Committee, the standardization of the lymph available to private practitioners is not considered effective by the profession at large, and that the public health is affected by that fact. A recent unfortunate case was the occasion of an instruction to Council, on the motion of Gateshead, to take steps to secure from local authorities, not only the adoption of superannuation schemes, but also the provision for compensation in cases where infection incurred in the discharge of his duties causes the death or permanent disablement of a public health officer. There was no discussion on the reports on lunacy and mental disorder, the international medical sea code, or puerperal morbidity and mortality, all of which were confined to indicating compliance with instructions given by the Representative Body last year.

The motions not related by the Agenda Committee to any section of the Annual Report of Council have a special interest as an index to the vitality and initiative of the Divisions. A motion by Marylebone on the provision of institutional accommodation under the Mental Deficiency Acts, and one from Bath and five from Windsor dealing with the treatment of nervous and borderland cases, and referred to the Council on the proposal of Dr. Gordon and Dr. Elizabeth Casson, deserve special mention as dealing primarily with the welfare of the public. Another group of motions directed to safeguarding the independence of the private practitioner was received with less enthusiasm. Two of these were not accepted, while the third, which anticipated the creation of a whole-time salaried State medical service, was reduced to a simple reaffirmation of accepted policy. The discussion on this motion elicited some curious estimates of the general outlook of the younger members of the profession in various parts of the country. On a motion by Gateshead the meeting showed itself fully alive to the need for securing adequate conditions of service for Poor Law medical officers under the new machinery of local government, and the danger of prejudicing the settlement by untimely reference to existing conditions. A somewhat involved motion by Brighton, asserting the interest of the patient in choosing the class of institution to which he should be referred for treatment, was, after clarification of its purpose by Dr. Brackenbury, accepted in an amended form. From Marylebone came an interesting suggestion for a definition of the Association's policy on medical privilege. On the revised standing orders—in accordance with which the business of the meeting had been transacted with no small success, under the skilful and patient chairmanship of Dr. Hawthorne—the Representative Body was not prepared as yet to pass judgement. Some fear was expressed lest the new procedure should curtail existing facilities for the discussion of motions from Divisions and Branches not bearing on any particular section of the Annual Report, and the question was postponed till next year.

Throughout this year's meeting the debates were maintained at an unusually high level. There was little confusion of thought or inadequacy of expression, and attention was concentrated on the main issues, effective use being made of the appropriate machinery for public discussion. To this result the acoustic properties of the Milton Hall doubtless contributed, but it must have been largely determined by adequate preliminary consideration in the Divisions of the matters under review, as well as judicious presentation of the several topics, both in the published reports and in their introduction to the meeting.

Popular Lecture: Experiments on Frogs and Men.

The Popular Lecture, by Professor A. V. Hill, D.Sc., F.R.S., of University College, London, was delivered on Friday evening in the Free Trade Hall. The President (Professor Burgess) was in the chair, and the spacious hall was comfortably filled. Although the provocative title might have been expected to stimulate opposition in anti-vivisectionist circles in Manchester, only one voice was raised in what appeared to be dissent.

Professor Hill began by pointing out that man was an inveterate experimenter. Every new adventure on which he had embarked through the ages, every change in his social and economic and political condition, had meant experiments upon his bodily frame and organization, experiments sometimes successful, but often followed by disaster. The search for truth, for wealth, for power, for control of surroundings, even for comfort and the avoidance of suffering or disease, was impossible without experiment. Nature also was continually performing experiments. Every patient represented an experiment performed by Nature, often an apparently cruel and ruthless experiment. Nature was an extremely bad experimenter; she was, in fact, the imaginary vivisector of antivivisectionist literature, whose experiments were made without mercy or apparent cause. So badly and casually performed were they, and so ill controlled, that it was often impossible to reason accurately from them at all. Small wonder that for thousands of years medical knowledge advanced relatively so slowly when it had to be based only on experiments such as those which Nature provided. In most of Nature's experiments the variables involved were all confused with one another, the factors at work could not be disentangled,

the results were not clear-cut. The only way in which the confusion might be avoided was by comparing the results of Nature's casual, random, and complex experiments on human beings with those of simple properly controlled experiments on animals. Such a comparison was the means by which, in the last few hundred years, and especially in the last seventy-five, medical science had made such startling progress. After quoting what Claude Bernard had to say about the experimental method, the lecturer said that current thought was returning to Bernard's conception of medicine as an experimental biological science, of which zoological vivisection was, and was likely to remain, an integral part. Bernard's own work had shown how a few controlled experiments on living animals might shed light on the countless uncontrolled experiments of Nature on living man. In 1851 Bernard made his first communication on the effect of dividing the cervical sympathetic nerve in the neck of a living animal. The ensuing rise of temperature on the affected side—a surprising and quite unexpected phenomenon—led by a long series of researches directly to the present knowledge of the vaso-motor system. This was a vivisectional experiment, such an experiment as some would prohibit to-day, willing though they might be, when they went to a medical man, to profit from similar experiments in the past. True, the knowledge thus gained might have been arrived at in the course of time in other ways, but up to the day of Bernard's experiments all Nature's own experiments, seemingly cruel, carried out continuously on suffering men and animals, had passed before the eyes of eager observers without suggesting more than the dimmest idea of such an action of nerve fibre on blood vessel. Would anyone to-day, had he the power, give the pain which Bernard's discovery abolished in order to save the pain by which the discovery was made? If so he might call himself the friend of animals, but he was an enemy of mankind. Nearly all fundamental knowledge in the medical sciences had, in fact, sprung from experiments on living animals. It was by vivisection, as Harvey said, of "toads, serpents, frogs, house snails, shrimps, crevisses, and all manner of little fishes" that modern physiology and modern experimental medicine were born. In using the various animals in his discovery of the circulation of the blood, Harvey assumed unconsciously the fact of evolution. He realized, being a sensible person, that the hearts of snakes or crabs did not differ so much from those of man and the higher animals that an investigation of the former could throw no light on the latter. There were differences, of course, but they were more apparent than real; the fundamental properties of the ultimate living units—that is, of the single cells which built up the various organs—were surprisingly alike. By methods of comparative physiology or of experimental biology, by the choice of a suitable organ, tissue, or process, in some animal far removed in evolution, considerable light might be thrown upon some function or process in the higher animals or in man.

The lecturer went on to refer to other discoveries the result of animal experiment. How safe would surgery be to-day had the researches of Pasteur on animals and their applications by Lister to man never been made? The basis for the taking of blood pressure was laid by Stephen Hales as a result of experiments on living animals in the parsonage at Teddington. The knowledge of the thyroid gland was due to the so-called vivisection of animals and man. Very many branches of surgery, the ligature and suture of arteries, the use of artificial respiration, the treatment of diphtheria, tetanus, syphilis, all depended, in the researches which had led to them, upon experiments on animals. Not only did the discovery of insulin rest absolutely upon experiments on animals, but its supply could not be maintained without continual experiments on mice and rabbits for its standardization. The liver treatment of pernicious anaemia was the result of experiments on dogs; the discovery of vitamins similarly depended on tests made upon animals. The object of the antivivisectionists was, frankly, to put an end to all this research. It was not inconceivable that they might get their way. There were States in America where the teaching of evolution was forbidden, but England ought not to be allowed to become the laughing-stock of the world like Tennessee.

Professor Hill then turned to consider the physiology of the nerves of frogs and its bearing upon the characteristics of the human nervous system. He referred to the work of Professor Adrian and his pupils; their experiments, conducted with splendid simplicity and skill, had left no doubt of the quantitative nature of sensory response. With the aid of the tools which wireless engineers had provided, single nerve waves in single nerve fibres could be amplified and recorded, and a whole new world of hurrying activity was opened up to analysis. Not only could the separate waves in an afferent nerve fibre be registered photographically, but they could even be transformed into sound and heard in a loud-speaker. The physiology of sensation had taken a new jump forward, and nobody with a particle of scientific imagination could doubt that this new knowledge would have important bearings upon the pathology of nerve affections. This research had also developed on the efferent or motor side, and it seemed now from Adrian's work that variation of the number of fibres involved in a muscular response was only the coarse adjustment; the fine adjustment was due to a graduation of the frequency with which the muscle fibres were excited by their nerves. These fundamental facts, bearing upon the theory of the working of the nervous system, had been established by experiments on frogs and other animals, and confirmed by experiments on man, and it could not be long before they affected the pathology of the nervous system. He was sure that they had involved for the animals no pain worthy of the name. Professor Hill described how, in a recent experiment of his own, he had examined the limb nerves of Maia, the spider crab, and had recorded their electric response to stimulation. The nerve, to his astonishment, was found to be obviously and highly fatigable. It was almost impossible to fatigue a medullated nerve, but the non-medullated nerve of Maia could be fatigued almost to complete exhaustion by stimulation for a few minutes. Fatigue at the point of stimulation was greater than at a distance from it. In the presence of oxygen the nerve recovered; in the absence of oxygen it did not. The central nervous system consisted largely of grey matter—that is, of nerve cells and of non-medullated nerve processes; only to a minor degree could its properties depend upon its medullated fibres. In the fatigability, in the large amount of energy used, in the dependence on oxygen, in the varying degree of electric polarization of its surface, might there not be seen, in the crab's non-medullated nerve, more faithfully reproduced, the properties of the central nervous cells, rather than in the simple medullated nerve of the frog?

Finally, Professor Hill spoke of the general advantage of unbiased experiment and observation, as against the danger and folly of scholasticism and unverified hypothesis. "If you wish to find out about the stars you must observe the stars, you must experiment with the materials which you suspect the stars to contain, you must try to reproduce, and to experiment under, the conditions which obtain in the stars; you will not be content merely with pictures of the sky at night." Living processes were subject to the same determinism as the phenomena of the inorganic world. The only difference was that the problems of physiology, taken in its widest sense, were far more difficult and complex than those of the so-called exact sciences. The problems of biology required greater, and not less, experimental skill. Much of the field of biology was unexplored, and the

present need—which would remain for many years to come—was for exact quantitative experiment on living creatures and tissues. One objection to the use of animals in experimental medicine had been the anti-evolutionary prejudice, but to-day the conclusion can hardly be seriously contested that medicine and human physiology were branches of experimental biology. "To-day there are unlimited opportunities for experimental biologists, adequately schooled and disciplined in hard reasoning and exact methods, in its border sciences. From frogs to elephants upwards, from frogs to filterable viruses downwards, we may take our choice, according to the demands of the experiment: and the end of it is man. Puny, fearful, unreasonable, selfish he may sometimes be, yet possessing always elements of nobility, courage, kindness, and devotion such as no other animals have, which make him, as was said nineteen hundred years ago, 'of more value than many sparrows.'"

The Pathological Museum.

Of the many activities of the Association at the Annual Meeting, none provides a more varied or instructive fare than the Pathological Museum, and this year proved no exception to the established rule. Complementary, as the exhibits were in many cases, to the discussions of the various Sections, they gave to those who can only visit one or two sections at least a glimpse of the work that is being done in others; and memory of them will add greatly to the interest with which the published account of the Sectional activities will be read. In the Section of Medicine the number of exhibits was small, and chiefly devoted to rare cardiac abnormalities; but the graphic records of heart murmurs and the Korotkow sounds by Drs. Crighton Bramwell and R. Ellis were fascinating examples of the newer methods of approach in cardiac problems. Diverticulitis, which was the subject of discussion in the Section of Surgery, was admirably illustrated by some specimens and large microscope slides by Mr. Lockhart-Mummery; a display of cystoscopic drawings of the normal and pathological appearances of the bladder and ureter were of great interest to many whose experience necessarily lies chiefly in general surgery rather than in a specialized branch. The largest division was naturally that devoted to the Section of Pathology and Bacteriology. Here a fine collection of specimens of the intestinal tract, showing the association of malignant and benign tumours in the same individual, was clearly suggestive of a more intimate connexion between the two conditions than mere coincidence; the specimens exhibited by Dr. Dukes were designed to show the early change from simple adenoma to carcinomatous invasion. Yet, as Professor Leitch pointed out, museum preparations may be misleading, for although the twelve specimens he himself showed were all examples of this same association, yet he entirely dissented from Dr. Dukes's conclusions. Dr. Cappell's beautiful demonstrations of the reticulo-endothelial system by vital staining left a lingering regret that the ordinary worker, with no special experience of a rather elaborate technique, is so completely dependent upon the expert in matters of interpretation. In addition, a large number of tumours and other lesions of the alimentary tract were shown. Among a large number of specimens contributed by the Manchester University Pathological Museum, those dealing with diseases of the haemopoietic system and the genito-urinary system attracted much attention. The appearances of the bone marrow in pernicious anaemia and leukaemia were excellently shown, and contrasted well with the two types of carcinomatous invasion—osteoplastic and osteoclastic—and we were reminded here of the oft-forgotten help that *x*-ray examination of the bones may give in the diagnosis of anaemia dependent on unsuspected or undetected carcinoma. Many pathologists must have wished that all the kidneys they had to deal with showed as clearly the destructive points to be demonstrated as the nephritic kidneys in the genito-urinary section. In the Section of Occupational Diseases the museum provided an illuminating insight into the special diseases to which so many industrial workers are as yet inevitably exposed. Mule-spinner's cancer—the subject of much special investigation by the Manchester Committee on Cancer—was extremely well illustrated, and this exhibit derived additional interest from Dr. Brockbank's brochure on cotton-spinning that was presented to members attending the meeting. Oil and tar cancer and dermatitis were fully represented, and the specimens illustrating asbestosis of the lung and silicosis were of special interest to those who had heard the discussion on occupational dust. The majority of the specimens devoted to the diseases of children were of tumours or congenital abnormalities, the chief interest of which lay, fortunately, in their comparative rarity; on the other hand, Dr. Catherine Chisholm's series of radiographs illustrating the curative effect of cod-liver oil in the treatment of rickets was a pleasant reminder that medicine has its triumphs as well as surgery. Professor Martin Haudek's series of lantern slides illustrating the use of *x* rays in the early diagnosis of cancer of the stomach were the basis of a discussion in the Section of Radiology; they showed not only the invaluable help that *x* rays may give, but also the need for expert technique and expert interpretation if full advantage is to be taken and mistakes avoided. A series of *x*-ray slides was also used to illustrate the treatment of apical dental infections, both by the surgical method of resection of the root apices and by the use of antiseptics sealed into the pulp cavity. In the specimens of foot-and-mouth disease, anthrax, glanders, and tuberculosis in the cow, which Professor Maitland contributed from the Public Health Laboratory, members had a very welcome opportunity of seeing conditions of which they hear a good deal but mostly see very little. From the technical side of museum preparation and arrangements there were no very novel suggestions, but Dr. McCartney's exhibits, all mounted by the "slab" method, showed how conveniently specimens could be preserved in this way, and how excellently it serves its purpose for many types of specimen.

When the Reception Room at Manchester closed on Friday evening, July 26th, 1,925 members had registered as attending the Annual Meeting.

SILICOSIS IN NEW YORK AND SYDNEY.

SEVERAL papers have been published recently showing the widespread interest aroused in the effects of inhalation of siliceous dust—an interest which will be quickened by last week's discussion at Manchester in the Section of Occupational Diseases. We use the word siliceous advisedly, because soon probably the terms "silicosis" and "asbestosis" will be confined to the effects of inhalation of free silica dust and asbestos dust, and some other term (possibly "silicatosis") will be applied to those due to the less injurious dust from silicates. Already it is claimed that radiological differentiation of these is easy enough. The most ambitious paper comes from New York.[1] Here a haphazard study of 208 volunteers from among the two or three thousand men employed in drilling, blasting, and excavating rock of a total silica content varying from 56 to 94 per cent. was carried out. Diagnosis was based entirely on the *x*-ray findings. The remarkable statement is made early on in the report that "physical signs in the lung were noted, but were not given

[1] Silicosis among Rock Drillers, Blasters, and Excavators in New York City. *Journal of Industrial Hygiene*, vol. xi, No. 2, February, 1927, pp. 37-81.

diagnostic weight because of the well-known fact that in this condition they may be absent or misleading." This is contrary to the wide experience in Great Britain from examination of over 1,000 pottery and sandstone workers, where fibrosis of the lungs was diagnosed by medical examination at a period of employment earlier than that at which silicosis has been found by radiological examination. But let that pass; the results brought to light in this random group by reliance on the means adopted are sufficiently startling. Twenty-three per cent. of the workpeople showed evidence of ante-primary silicosis, 19 per cent. of first stage silicosis, 7 per cent. of second stage silicosis, and 8 per cent. of third stage. Second and third stage silicosis occurred four times as frequently among underground workers as among open-air excavators. Apparently at present no protection whatever is afforded to these workmen in the shape of ventilation in the tunnelling operations, or by prohibiting, as is done in South Africa, the use of dry jack-hammer drills. The disabled receive no compensation. No wonder the conclusion is reached that "silicosis constitutes a serious health hazard" to the New York drillers and blasters, and immediate action is urged by the representative committee which arranged the inquiry, as 5,000 men are about to be employed for six years in tunnelling at a depth of 500 ft. through twenty miles of Manhattan and Bronx siliceous rock. "The necessity of safeguarding the lives of these men must be recognized before it is too late." No recommendation, however, is made as to the need for any periodic medical examination. As a contrast it is refreshing to read of what has been done under the inspiration of Dr. Charles Badham, the young medical officer of industrial hygiene in Sydney, in ventilating the underground workings through sandstone containing 86 to 95 per cent. of insoluble silica.[2] All shafts, drives, and adits are now rigged out with exhaust pipes along the sides of the shaft. The exhaust is produced by a compressed-air ejector situated in the centre of the pipe and near the outlet end. The compressed air is derived from the same source as that used for working the drills. Systematic sampling with the Owens dust counter controls the efficiency. In other cases—as, for example, tunnelling for the electric railway—ventilation is through holes in the roof, spaced at about 16 ft., each connected up to an exhaust fan. Dr. Badham is altogether satisfied with the results obtained with the Owens dust counter; from comparison made with commonly used methods of gravimetric sampling he comes to a most helpful conclusion that correlation between them exists, so that one milligram of quartz or sandstone dust per cubic metre is equivalent to 100 particles of less than 10 microns per c.cm. The average dust exposure of men using axial water-fed drills works out at 110 particles per c.cm. The Sydney sandstone mason, on the other hand, is exposed to an average of 4.2 milligrams, or 420 particles per c.cm. Important developments in simplification of methods of dust determinations should follow from this piece of work. In the New York report neither the Owens dust counter nor the Kotzé konimeter is even mentioned. All through these diverse reports on effects of dust we are confused by the different methods, not only of determining the dust content, but also of describing the results; and it is the same in the account given of the radiological findings as to the stage the silicotic condition has reached. The New York report accepts Pancoast and Pendergrass's classification into four stages—an ante-primary, a first, second, and third stage. Much space is taken up in showing how neither of the first two of these is apparently comprised within the South African classification into ante-primary, primary, and secondary. The Medical Board under the Refractories Industries in Great Britain uses the scientific formula of first, second, and third. "Ante-primary" sounds almost like a contradiction in terms. All these complications ought to be put right at the Johannesburg conference on silicosis next year. In his second paper Dr. Badham describes a case of rapidly fatal silicatosis from inhalation of orthoclase basalt dust containing no free silica. He refers to the very similar fine fibrosis found among the Broken Hill miners, where the dust contained less than 10 per cent. of quartz, but much silicate of iron and manganese. Finally, Dr. Irving Clark,[3] medical officer of the Norton Company, Worcester, Mass., manufacturers of artificial grindstones, from a review of the radiological examination of 137 men exposed to large doses of dust over periods varying from 10 to 41 years, concludes that continued inhalation of artificial abrasive dust composed of aluminium oxide or silicon carbide will not produce *disabling* silicosis in the working period studied.

[2] Dust Sampling in Sydney Sandstone Industries (Charles Badham, H. E. G. Rayner, and H. D. Broose). Notes on a fine type of Pneumonokoniosis produced by Silicates and other Minerals (Charles Badham). Extracts from the *Report* of the Director-General of Public Health for New South Wales, 1927.

[3] The Dust Hazard in the Abrasive Industry. *Journal of Industrial Hygiene*, vol. xi, No. 3, March, 1929, pp. 92-96.

THE GUARDIANS COMMITTEES.

THE Ministry of Health has now issued a further memorandum in connexion with the Local Government Act, 1929, dealing with the areas into which administrative counties should be divided for the purpose of forming Guardians Committees. The financial consequences of the Act should not be confused with the administrative consequences in this matter. The widening of the areas for the purpose of Poor Law finance is finally accomplished by the Act itself. The financial charges will in future be borne by the county as a whole. The main administrative responsibility also will be with the county council and such of its own committees as it chooses to use, but the very large function of arranging and supervising out-relief will, under the general authority of the Public Assistance Committee, be performed by local Guardians Committees for suitable areas within the county. A large number of county councils are exercised as to the formation of these areas. Some of them have indicated that they propose to retain the old Poor Law union areas. The Minister, however, points out that this is inadvisable. Such areas were originally formed about the year 1834, upon consideration of the means of travel then available. The railway and the motor car have long since made much larger areas both possible and convenient, and an adjustment is greatly overdue. It is better to make such adjustment now, when the functions of a Guardians Committee will necessarily be much less comprehensive than those of an old board of guardians (since many of these functions will pass to the Public Assistance Committee itself), and at a time when the major change is being made, rather than to postpone it till the further survey of the county districts prescribed by the Act for other purposes is made. There can be no doubt as to the wisdom of this advice; at the same time, the administrative schemes should be carefully scrutinized in this particular, for there may be a tendency for the areas now being determined for the purposes of out-relief being subsequently adopted for other public health purposes for which they might not be equally appropriate. It will be remembered that the Act lays down that the Guardians Committees should be composed partly of the county councillors elected for the area, partly of district councillors elected by the district councils comprising the area, and partly of suitable co-optative members. Their main function will, as has been said, be the direction of out-relief, but other functions may be assigned to them, in accordance with the Act, by the Public Assistance Committee. Amongst these is the duty of inspecting, visiting, and managing transferred hospitals or institutions situated

in their area. It is much to be hoped that the actual management of such hospitals will be reserved by the county council to its Public Assistance or Public Health Committee (preferably the latter), and that nothing beyond perhaps powers of visitation will be given to the local bodies. It is gratifying to note that in the present official memorandum this is the advice given to county councils by the Minister.

INSTITUTES OF RADIOLOGY AND RADIUM THERAPY.

THE twelfth set of papers on *Methods and Problems of Medical Education*,[1] brought out since 1924 by the Division of Medical Education of the Rockefeller Foundation, has now been published. This, the most voluminous of a valuable series, is entirely devoted to descriptions, written by the professors and directors in charge, of departments and institutes of radiology and radium therapy. There are thus brought together reports from 38 departments in eleven different countries; the United States heads the list with 13 reports, followed by Germany with 6, and Great Britain and France with 5 reports each. The first article, on radiology in practice, research, and teaching, and on the training of the medical radiologist, by Professor Holzknecht of Vienna, was published elsewhere last year and is now translated into English. This discusses methods of teaching and the period in the clinical course (whether at the beginning or the end) when instruction should be given, and the conclusion is reached that teaching and research must proceed independently. The second article, also a general one, on the organization and equipment of an *x*-ray department, by Dr. A. E. Barclay, formerly of Manchester and now lecturer in radiology in the University of Cambridge, is based on a paper read before the Röntgen Society in 1923: it contains a great deal of valuable detailed information. In dealing at some length with the important subject of protection Dr. Barclay expresses his own views, which in certain respects are at variance with those held by some members of the X-Ray and Radium Protection Committee. Professor Pancoast of Philadelphia writes on the problems concerned in planning radiological laboratories, and in his elaborate account of the departments of radio-physiology and medicine in the Radium Institute of Paris the director, Professor C. Regaud of the Pasteur Institute, deals with questions of organization and equipment, and after discussing whether or not an institution devoted to the radiotherapy of malignant new growths is worth while, decides that such efforts will be largely repaid in the future. Dr. Axel Reyn's account of the Finsen Medical Light Institute at Copenhagen is particularly well illustrated, and traces its evolution from small beginnings in a wooden building. The London radiological departments described are those of the Cancer Hospital, by the late Dr. Robert Knox, who sent his account in November, 1927, and of Guy's Hospital by Mr. J. M. Redding, who records the teaching given in the department —a routine course of ten lectures in the winter session and informal demonstrations, for which there is always plenty of material available. The *x*-ray department of the Royal Infirmary, Liverpool, is described by Mr. Thurstan Holland and Dr. Roberts, and the new radiological department of the Edinburgh Royal Infirmary, opened in October, 1926, by Dr. J. M. Woodburn Morison. The arrangements at several institutions for the treatment of cancer in Paris, Belgium, and elsewhere are set out, Professor Henri Hartmann providing the account of the surgical clinic at the Hôtel-Dieu, Paris. Space forbids even a mention of the other centres described, but everyone practically interested in the organization of a radiological department should be in possession of this volume.

[1] *Methods and Problems of Medical Education* (Twelfth Series): Departments and Institutes of Roentgenology and Radium Therapy. New York: The Rockefeller Foundation. 1929. (Imp. 8vo, pp. 466, 151 illustrations.)

THE PREVENTION OF MENTAL DEFICIENCY.

AT the end of our leading article in the *Journal* of July 20th last (p. 108), we said that "as the whole question of the causation of mental deficiency and its relationship to other abnormal mental conditions and social problems is at present difficult and obscure, the demand that a Royal Commission or other suitable official committee should be appointed to make full investigation of the subject is worthy of support." This demand is reinforced by a powerful letter, printed in the *Times* last week, from the Central Association for Mental Welfare, and signed, amongst others, by Sir Leslie Scott, the president, Miss Evelyn Fox, the honorary secretary, and by Drs. H. B. Brackenbury, Letitia Fairfield, F. E. Fremantle, F. C. Shrubsall, A. F. Tredgold, and F. Douglas Turner, who are all officers of that association. The letter points out, what we have ourselves drawn attention to, that the recent report of the Joint Mental Deficiency Committee proves that the problem is much more serious and pressing than has hitherto been thought. The number of mental defectives in England and Wales is increasing, both actually and relatively to the total population. Those who are socially as well as intellectually defective become a very heavy economic burden on the community in any event, but this burden is demonstrably much heavier if they are neglected than if they are cared for. For them all special training and social supervision are equally necessary complementary factors, and can be fully justified on grounds both of finance and of humanity. The prevention of the condition is a much more difficult problem. Mentally defective persons tend to produce mentally deficient offspring in relative abundance; but the vast majority of mentally defective children are not the offspring of mentally deficient parents. This makes inquiry difficult and systematic sterilization futile as a preventive measure. The council of the Central Association say in their letter, quite truly: "The segregation in institutions of defectives who are likely to propagate offspring and the prohibition of the marriage of defectives would have some preventive effect," by diminishing in small degree that proportion of defectives who derive from defective parents. These measures should therefore obviously be adopted without delay. "But," it is added, "before any preventive measures of real value can be taken, it is essential to have complete and accurate data regarding the many factors concerned in causation." A good deal of knowledge of the ancestry and family history of mentally defective persons is now available, and some experience of the genetic factors which lead to the condition in a number of cases is gradually being acquired. Along with this, demands for premature and drastic action are being made, based usually upon theories of the origin of the condition which are now quite untenable or very incomplete. Some authoritative inquiry and pronouncement is therefore needed, and even if such inquiry and pronouncement should ultimately prove to be inconclusive, it will not have failed in usefulness. Results of more positive value might, however, well be attained. It is to be hoped that action in the direction indicated will soon be taken by the Government.

THE council of the Canadian Medical Association has determined to establish a Blackader lectureship in diseases of children as a tangible expression of its appreciation of the services rendered by Dr. A. D. Blackader, who has just resigned the editorship of the *Canadian Medical Association Journal*, and as a mark of recognition of his eighty-second birthday. It was agreed that 5,000 dollars should be collected to endow the proposed lectureship, which will commemorate the pioneer and long-lasting interest taken by Dr. Blackader in the field of disease in childhood. The income of this capital will be applied once in every three years to provide an honorarium for the paediatrician chosen to deliver the lecture.

RADIOTHERAPY OF UTERINE CANCER.

THE RADIOLOGICAL SUBCOMMISSION'S REPORT.

THE Health Section of the League of Nations has just issued a valuable report from its Cancer Commission (of which Sir George Buchanan is chairman) on the subject of radiotherapy in cancer of the uterus.[1] This document of 82 pages takes the form of a general review of the work undertaken by the expert Radiological Subcommission which has been dealing specially with methods and results of radium and *x*-ray therapy in this region, together with reports on the technique and results of treatment in three large Continental centres—namely, the Radiumhemmet at Stockholm, by Dr. J. Heyman, chief of the gynaecological department; the Radiological Section of the University Gynaecological Clinic at Munich, by Professor F. Voltz; and the Radium Institute at Paris, by Dr. A. Lacassagne, assistant director of the Pasteur Laboratory.

An account of the preliminary meetings at Geneva of the Radiological Subcommission appeared in our issue of July 7th, 1928 (*p.* 21). At the first session its chairman (Professor Claude Regaud, director of the Radiophysiology Laboratory and of the Medical Department of the Radium Institute, University of Paris) undertook to prepare a statement of the principles which should now be accepted, on the basis of experience, in order to secure that radiotherapeutic treatment of uterine cancer is organized on the most effective lines, and that any dangers that have been demonstrated are avoided as far as possible. This statement forms Chapter VI of the subcommission's report, and is headed "Memorandum on the organization of, and the conditions required for, an effective campaign against cancer of the uterus."

Professor Regaud's Memorandum.

Professor Regaud deals first with factors which delay the diagnosis of cancer of the uterus and the means for promoting early diagnosis—namely, by propaganda among doctors and midwives and improvement of their gynaecological education, and by the general recommendation of a periodical examination for all women who have borne one or more children. For the latter purpose, he says, well-staffed and well-equipped clinics for gynaecological consultation would be required in every town, having direct liaison with micropathological laboratories in large centres. Whereas consultation centres for the detection of cases of uterine cancer should be numerous and easily accessible to all women of a district, Professor Regaud maintains that treatment centres should be few in number. This argument is developed in the next section on "appropriate treatment," which he defines as that treatment which at any given time corresponds to the level of progress reached by medicine. Unfortunately, in the treatment of cancer of the uterus medicine has not reached a condition of stability.

"As regards operable cancer of the cervix, surgical removal and radio-therapeutic methods both find ardent supporters. When the stage of operability is passed, the proportion of cures, or temporary improvement, stated to have been obtained by different experts is very unequal. 'Appropriate treatment' of uterine cancer is thus interpreted and put into practice in very different ways. It is clear that these divergences are attributable to the diversity and the inequality of the technique employed, and that the truth can only be established by a bureau of statistics which are above suspicion."

Apart from questions of technique properly so called, a considerable number of biological problems remain to be solved as regards the radiotherapy of cancer in general. Thus, as far as radiotherapy is concerned, whatever may be said for surgery, the last stage of progress is not nearly reached.

Professor Regaud then discusses the difficulties in the way of organizing radiotherapy, paying particular attention to the danger that arises from the increasing use of radium by practitioners insufficiently trained to its use.

"One of the most detrimental forms of this danger lies in the possibility for any doctor to hire radium, and, in certain countries, radium emanations, in the same way that he might order some surgical material or a drug. Information is usually furnished to doctors on the use of the radio-active material which they obtain by hire, but this consultation by correspondence is inadequate for the carrying out of appropriate treatment."

He develops this line of thought, indicating the harm that may ensue at different stages of the disease, from the propagation of radio-therapeutic methods among doctors and establishments having only a mediocre experience or insufficient material at their disposal. His conclusion is that the treatment of cancer of the uterus should be concentrated in a small number of institutions completely and perfectly equipped in every respect, these large centres being in close liaison with gynaecological and surgical clinics acting as subcentres. He recognizes the great difficulty in recommending limitation of the right of doctors to use radiotherapy in the treatment of cancer, but insists that the danger of widespread and uncontrolled employment of this method should be made plain to all.

So long as methods of technique are not standardized and divergent opinions exist among eminent surgeons on the subject, dogmatism would be premature. At the same time certain warnings are agreed to be necessary. In particular, doctors and the public should be put on their guard against the use of insufficient quantities of radium—a few needles, one or two tubes—with which it is well known that doctors of small clinics attempt to treat their patients. Abuse of *x* rays is less actively harmful than abuse of radium, but "it is well to insist on the difficulty of providing a deep pelvic irradiation which is at the same time both effective and not injurious; on the strength which machines and tubes ought to have; on the particularly laborious character of efficacious treatment; on the obligation resting on doctors not to allow, in their absence, the direction of the anatomo-topographical and physical requirements of the radiation treatment to pass out of their hands into those of mere manipulators."

Rules for Compilation of Statistics.

No less important than Professor Regaud's memorandum is Chapter II, which has been based on preliminary proposals put forward by Dr. Heyman, Dr. Lacassagne, and Professor Voltz. This embodies a set of rules adopted by the subcommission with the object of establishing a basis for full and comparable statistics of radiotherapy for utero-vaginal cancer. These rules might with advantage be displayed in every place where this treatment is given. The classification of the different varieties and stages of cancer of the cervix appears to be thoroughly sound; while for purposes of comparison it is clearly essential to have full data relating to the technique of treatment as set out at page 17 of the report. Our only criticism is that there are no headings for entering these particulars on the model individual case record appended to the rules. This record card, indeed, scarcely seems quite adequate for the purpose in view. It may be intended to serve merely as an index card, but, even so, the headings seem insufficient, and some of the vacant spaces on the back might have been allocated for the entry of essential details of diagnosis and treatment, instead of crowding these on to the front of the card.

Reports from Three Radium Centres.

The three detailed accounts of methods and results at the clinics represented on the Radiological Subcommission—namely, the Radium Institutes of Stockholm and Paris, and the Frauenklinik of the University of Munich—comprise respectively Chapters III, IV, and V of the report. These are highly technical, and each is freely illustrated. The subcommission recognized that in order to appraise at the present time the potentialities of radium treatment in cancer of the uterus, it would be necessary to have resort only to a small number of institutes possessing lengthy experience of the subject, and that in assessing results only those cases should be taken as cured in which five years of survival after treatment had been proved. In the preparation of the reports of these clinics at Stockholm, Paris, and Munich, the subcommission arranged for co-operation through Dr. Tomanek, secretary of the Cancer Commission, so that a thorough study might be made of the results achieved at different stages of the disease.

[1] League of Nations Health Organization. Cancer Commission. Reports submitted by the Radiological Subcommission. June, 1929. [C.H. 783.] Geneva.

Originally it had been anticipated that this work of study and comparison would enable statistical data to be drawn up on the basis of which certain forms of radiotherapy—radium alone or combined with *x*-ray therapy—could be specified as giving the best proportion of cures. The methods employed in the three clinics differed, however, in so many essential particulars, that it was not possible to realize this anticipation. Each clinic, moreover, had a different conception of the definition of the various stages of uterine cancer, while the data regarding after-histories and survival were inconsistent. The material supplied to Dr. Janet Lane-Claypon (who acts as investigator for the subcommission) showed that the three clinics have not hitherto followed the same principles in classifying the forms and stages of carcinoma of the cervix, and that the methods of treatment over a number of years have varied considerably, not only as between the different clinics, but also in the same period. It was accordingly decided, after full consultation between those concerned, that the expert at each clinic should set out in his own way the details of the methods there followed, and the results obtained at the institution which he represented.

These three reports show very clearly the wide variety in the radio-therapeutic methods used at the three clinics in question. At Stockholm the internal use of radium only has been the chief method during the whole period dealt with (1913–23). In Munich, although the available data go as far back as at Stockholm, there have been notable variations in the methods of treatment used, which have led up to the present method of combined *x*-ray and radium therapy described by Professor Voltz in Chapter IV. The work of the Radium Institute in Paris (Fondation Curie) having commenced somewhat later, in 1919, the available sample is both numerically smaller and the results have been collected for a shorter period than at the other two clinics. On the other hand, the methods at the Fondation have undergone an almost continuous evolution with continuously improving results.

Much of the information contained in these chapters dealing with the work of the clinics in Stockholm, Munich, and Paris has already been published in some form or other, but further information is given here for the first time or in a new way, and its publication gives an opportunity for studying side by side the methods and results of these three important institutions.

General Considerations.

The subcommission, in concluding its introduction to the whole report, lays great stress on the importance of the general considerations formulated by Professor Regaud in Chapter VI, holding that the assertion of these principles is an important duty. They represent conclusions which the members of the subcommission as a whole (Professor Regaud, Mr. Comyns Berkeley, Professor A. Doederlein, Dr. Heyman, Professor Lahm, Professor Pestalozza, and Professor Van Rooy, with Sir George Buchanan, *ex officio*) have been able to accept unanimously. The members are all agreed as to the necessity for promoting earlier diagnosis of cancer of the uterus, and the consequent greater facility of cure by radiological methods. Propaganda with this end in view is needed in every country, and not least in Great Britain.

Reviewing the report as a whole, and the three special monographs it contains, it becomes apparent that when the results therein shown are compared with those obtained only a little earlier, even by the most skilled surgical treatment, the position already reached by radiotherapy in cancer of the cervix uteri is highly encouraging. At a time when radium is being used more than ever before, the kind of information given in this report should be invaluable. Without its guidance medical men coming to radium treatment fresh and with enthusiasm will be tempted to waste time and possibly cause loss of life by following lines of procedure which foreign expert experience has already conclusively shown to be unprofitable. Moreover, the standard classification of stages of cervical carcinoma and of the data required for the comparison of statistics should prove of great advantage to all clinics and hospitals, and to those who undertake a similar inquiry in the future.

Scotland.

Report of the Scottish Board of Health.

The tenth annual report of the Scottish Board of Health, dealing with the year 1928, was issued in April last, and reference was made to it in our columns on April 20th (p. 740). The functions of this Board have now been taken over by the Department of Health for Scotland, and the report, therefore, dealt at some length with the more important developments in public health matters in Scotland which had occurred during the ten years of its existence. Certain sections of it have now been reprinted; these comprise the work of the district medical officers under the National Health Insurance Act; hospital planning and construction; medical service in the Highlands and Islands; milk and the school child; and mortality and sickness associated with pregnancy and parturition. These reprints may be purchased directly from H.M. Stationery Office, each of the first three named at the price of 6d. net, the fourth at 4d., and the fifth at 3d. The important information which was contained in this report is therefore made available now in convenient form for all interested.

Summer Graduations at Edinburgh University.

At a graduation ceremony, on June 28th, eighteen honorary graduands were capped and more than four hundred other non-medical degrees and diplomas were conferred. Among the honorary graduates were Dr. Albert Schweitzer, medical missionary in West Africa, who had the unusual distinction of receiving two honorary degrees at the one time, those of Doctor of Divinity and Doctor of Music; Edward Stephen Goodrich, D.Sc., F.R.S., professor of zoology, University of Oxford; Archibald Vivian Hill, Sc.D., F.R.S., Foulerton Research Professor, Royal Society; and Sir James Walker, D.Sc., F.R.S., professor emeritus of chemistry, University of Edinburgh. Miss Sybil Thorndike, the distinguished actress, who received the honorary degree of Doctor of Laws, had a particularly cordial reception. On July 17th, at the medical graduation, twenty M.D. and ninety-five M.B., Ch.B. degrees were conferred, thirteen of the latter upon women. James Laurie, Scotland, was the most distinguished male graduate, gaining the Ettles Scholarship, and Agnes Yewande Savage, West Africa, the most distinguished woman graduate, receiving the Dorothy Gilfillan Memorial Prize. It was announced that the Cameron Prize in therapeutics had been awarded to Lieut.-Colonel Sir Leonard Rogers, C.I.E., M.D., F.R.S., in recognition of the discoveries he had made in the treatment of tropical diseases, in particular of cholera, amoebic dysentery, and leprosy. Professor T. J. Mackie, M.D., of the chair of bacteriology, in the course of an address to the new graduates, said that the last twenty-five years had witnessed radical changes in medicine, and it was open to doubt whether medical education had adapted itself properly to the new orientation. Some educationists seemed to regard a medical training as lacking in general culture, but in reality it was a liberal education. Much, of course, depended on the seeds of general education that had been sown during the school years. Variation in that educational "substrate" was enormous, and their statutory minimum of general education was probably not sufficient on which to build the philosophic and scientific training which the ideal medical education should consist of. The outstanding faults of their medical educational system at the present time were the products of its growth and evolution, and the time had perhaps come when it should undergo a radical reconstruction. The trend of practical medicine had been towards scientific application, and the most thorough science training was now indispensable in medical education. Apart from the knowledge it conferred, there were habits of mind it created, and a technique of work it instigated, which were essential if medicine was to maintain a high standard of rationality immune from all encroachments of quackery and empiricism. It was all-important that at the very threshold of university study there should be a broad introduction to general biology—not botany or zoology as such, but the science of life in its broadest aspects—leading up to the more specialized study of the biology of the human species.

The physical sciences also lay at the very foundation of medicine. Anatomy and physiology, with biology, physics, and chemistry, made up the complete basic structure of their educational edifice. The closest co-ordination of these preliminary studies was necessary, and probably still more could be effected in this direction. When the student passed on to the applied biology of practical medicine he had to pass through the hands of an increasingly large number of specialists, and at this stage of the curriculum there was an even greater danger of overlapping and lack of proportion. Different departments of medicine could join in a co-ordinated plan of teaching and still maintain their identity and express their individuality. The further question arose whether the existing system of examinations in subjects might be replaced by yearly examinations corresponding to annual units of instruction. Professor Mackie had no sympathy with the view that the scientific attitude was almost incompatible with practicality, and that their duty was to teach the medical student the so-called art of medicine by bedside training according to thoroughly practical tenets, leaving scientific medicine as a thing apart in the research laboratories. If medical training were stripped of its scientific instruction it would hardly justify a university degree, and would be degraded to a mere apprenticeship. Again, it was often lamented that in certain of the medical schools clinical training was inadequate, and that the student did not see and personally handle a sufficient amount of so-called clinical material. But how could any undergraduate training give real experience? Several years of responsible medical work was required for that, and responsibility began only after graduation. Other matters touched upon by Professor Mackie were the feasibility of having an Honours Degree in Medicine on the analogy of honours degrees in other faculties, and the desirability of reducing the output of doctors by selecting a limited number of pupils. After wishing the new graduates success in their life's work in the name of the University, Professor Mackie paid a warm tribute to the principal, who was that day presiding over his last graduation ceremony, and Sir Alfred Ewing feelingly replied.

Gift to Edinburgh University.

Mr. Thomas Cowan, LL.D., has given a further sum of £20,000 to Edinburgh University to be held in trust as a fund, out of the revenue of which grants may be made, in the form of scholarships or otherwise, to promote the entry of thoroughly well-qualified students to Cowan House (see *British Medical Journal*, June 15th, p. 1097). Mr. Cowan desires that the residence should attract young men who, in respect of intellectual force or other personal characteristics, are likely to have a useful influence on their fellow students and to become a credit to the University, and he is anxious that no such student should be debarred from taking up residence because of monetary considerations. Mr. Cowan's gifts to the University, mainly in connexion with the residential hall which bears his name, now total £35,000.

Extension of Edinburgh University Settlement.

Tucked away in a corner off Infirmary Street, Edinburgh, are the remains of the old High School, of the former Infirmary buildings, and of the anatomical room connected with Burke and Hare. The anatomical room is now the billiard room of the Edinburgh University Settlement, a new annexe to which was opened by Lady Ewing on July 17th. This is a hall which has been erected on ground loaned by the University Court, and which will eventually be used in a variety of ways related to the objects of the Settlement, which are to supply social and educational facilities to residents in the Cowgate district. In the meantime, it is to be used as a toddlers' playground, and as an occupation centre for mentally backward children.

Peerage for Sir James Mackenzie's Brother.

The announcement on July 11th that the King had been pleased to approve that the dignity of a barony of the United Kingdom be conferred upon Sir William Warrender Mackenzie, G.B.E., K.C., is of interest to the medical profession because of the fact that the new peer's brother was the late Sir James Mackenzie of Burnley, London, and St. Andrews. Sir William Mackenzie was educated at Perth Academy, Edinburgh University, and University College, London, and was called to the Bar at Lincoln's Inn in 1886. After practising on the northern circuit, and publishing several well-known works on local government and the licensing laws, he was appointed, in 1917, chairman of commissions on industrial unrest in the Manchester and the south-west district. Since that date it has fallen to his lot to sign hundreds of awards adjudicating highly technical problems and conciliating great numbers of men. His colleagues testify to his effective methods of tackling difficult and long-standing labour troubles, and to his ways of appeasing and reconciling long-estranged sections of capital and labour in the public interest. Sir William was chairman of the British Government industrial delegation to Canada and the United States, 1926-27.

England and Wales.

Central Midwives Board.

The Central Midwives Board for England and Wales met on July 18th. The Standing Committee considered a letter from the medical officer of health for the County of London, stating that the Midwives Act Committee desired the Board's views on certain points submitted:

(1) Is it obligatory upon a midwife to examine a patient herself, even if the patient is referred by the midwife to an ante-natal clinic, provided the midwife assures herself that the patient is in fact attending such clinic?

(2) Must the midwife keep ante-natal notes of the patient in the above circumstances?

(3) If so, is it sufficient if the midwife enters as her ante-natal notes any information conveyed to her from the ante-natal clinic?

The Board's replies were:

(1) If a midwife does not make the necessary ante-natal examination of her patient, she must see that the patient attends an ante-natal clinic and undergoes such examination.

(2) Ante-natal notes must, in any event, be kept by the midwife, but she can, in preparing such notes, make use of the information conveyed by the ante-natal clinic.

(3) It is, of course, highly desirable that a midwife should herself ascertain the condition of any patient whose confinement she will undertake.

A letter was read from the clerk of the county council of the West Riding of Yorkshire, on behalf of its Child Welfare Committee, asking the Board to take into consideration the question of changing the description of "midwife" to that of "certified maternity nurse," as being a more suitable description, and to take steps in that direction. It was agreed to reply that the word "midwife" is of extreme antiquity and of unambiguous meaning: the term "certified maternity nurse" has neither of these points in its favour, and the Board cannot entertain the suggestion made.

An Ambulance for Liverpool Hospitals.

An ambulance presented to the Merseyside Hospitals Council by the Guild of Undergraduates of the University of Liverpool is claimed to be the most luxurious in the country. It will help to meet an urgent need in the city, where at present there is no organized system of motor transport to serve the sixteen voluntary hospitals. The Merseyside Hospitals Council has introduced a scheme of regular weekly contributions to voluntary hospitals, and already 200,000 employees contribute one penny in each £ of their wages, to which employers add one-third of their employees' contributions. This scheme produces £100,000 per annum for the local voluntary hospitals, and no less than £63,000 has been collected already this year. The ambulance, which was purchased out of part of the money collected by the students at their annual "rag," will assist to provide transport for members of this wide circle of regular contributors and their families, the unemployed, and other necessitous persons. It is a 35/120 h.p. Daimler long chassis model, the interior being equipped with all the latest appliances, including revolving seats which can be converted for stretcher or sitting patients. Rubber cushions are provided on both stretchers, and the seats are also padded with sorbo rubber with leather covers. By

means of the revolving ratchet system the ambulance can be used for ten sitting patients, or two stretcher patients, or five sitting patients and one stretcher case. The stretchers are fitted with adjustable back rests where it is necessary for the patient to be in a reclining or partially sitting position. A hot-water tank fed from the silencer heats the ambulance, and also supplies a nickel-plated collapsible wash-bowl. A first-aid cabinet has been fitted, and there is a folding seat for the use of an attendant. A fully qualified attendant and driver will always accompany the vehicle. Specially illuminated canopy signs have been fitted at the front and rear in order that the vehicle may be recognized as an ambulance at night on the country roads, and a Winkworth bell will give a distinctive warning note. The wings and wheels are painted red and the bonnet and body a deep cream, bearing the words, in gold lettering, "1d. in the £ Fund." It is expected that the Merseyside Hospitals Council will soon add further vehicles of a similar kind to cope with the urgent problem of transport to and from the voluntary hospitals.

Local After-effects of Radium Treatment.

Valuable observations on the local after-effects of radium treatment are recorded in the sixth annual report of the Harker-Smith registrar (Dr. N. Asherson), who deals with all cases treated by means of this agent from November 1st, 1927, to October 31st, 1928, in the Obstetric Unit of University College Hospital, London. He states that certain late local sequels, not previously noted, followed the application to the pelvic organs of larger doses of radium than have hitherto been employed. In the treatment of non-malignant conditions the slipping out of the tube from the uterus into the vagina has resulted in the production of radium burn of the vagina. To prevent this accident a plug of gauze was inserted into the cervix, fixing the tube to its lip; adequate screening of the radium with a tube of platinum (walls 0.5 mm. thick) encased in a rubber tube 2 mm. thick, by cutting out the alpha and beta rays, has also proved effective to the same end. Atrophy of the whole of the vaginal portion of the cervix, leaving the external os flush with the vaginal wall, has occurred after the application of a dose of 2,500 mg.-hours. Other sequels observed to follow the treatment of non-malignant conditions have been vaginitis, shortening and stenosis of the vagina, annular constriction of the vagina, and ovarian neuralgia. The vaginitis has been both purulent and adhesive, the former being associated with profuse discharge which, though chronic, ultimately ceases, after causing flimsy adhesions between the anterior and posterior vaginal walls. Shortening and stenosis of the vagina has been a not uncommon result of exposure to doses larger than 3,000 mg.-hours of element. Where it has developed, the examining finger, within two months of the treatment, could be admitted for about 1 inch only, the rest of the canal being cicatrized in all directions. The mucous membrane was intact, and there was no ulceration or bleeding. The changes have occurred in the submucous tissues, and are apparently fibrotic in nature. Two cases of annular constriction were noted during the year, both being associated with complete atrophy of the vaginal portion of the cervix; in one the dose was 4,200 mg.-hours, in the other 4,000 mg.-hours of element. The constriction has appeared as a fibrous linear ring, about 1 inch from the introitus; it has been found to yield to firm pressure, the vagina, proximal and distal to it, being normal. In neither of the cases was there any ulceration. Only one case of ovarian neuralgia was noted. The patient was a woman, aged 51, with menopausal haemorrhage, who after treatment with 2,500 mg.-hours of element, complained of neuralgia over both ovarian regions extending down the inner side of each thigh to near the knee. It is stated in the report that in no instance has malignant disease supervened in a uterus which has been subjected to radium treatment for menopausal or any other kind of menorrhagia; nor has pyometra been noted in the non-malignant series. In cases of malignant disease analysis of the after-effects of radium is complicated by the fact that it is impossible to differentiate between the normal ravages of the disease itself and the lesions produced by the treatment. In previous reports the following conditions have been recorded: persistent pyrexia, pyometra, pelvic abscess, pelvic peritonitis, fistulation, and dissemination of growth. In the present report attention is drawn to two cases in which stenosis and shortening of the vagina occurred. In one, an application of 8,530 mg.-hours of element was followed in six weeks by complete atrophy of the cervix, with shortening of the vagina; in the other, the application of 10,000 mg.-hours of element was followed in five months by marked vaginal shortening.

Correspondence.

MATERNAL MORTALITY.

SIR,—Dr. Watts Eden's article on the national inquiry into the causes of our high maternal mortality rate (*Journal*, July 20th, p. 81) should be welcomed as a well-balanced and unbiased critical survey of evidence which has recently emerged in the course of inquiry into the factors influencing maternal mortality, and particularly that due to puerperal sepsis.

In dealing with the Aberdeen report on maternal mortality, Dr. Eden points out that the influence of the general health of the mother is a matter on which very little information has been available in the past; yet it is now recognized that its true significance is a matter requiring the fullest investigation in the future. So far as the "droplet" infection theory is concerned, this is, of course, largely hypothetical, but assuming the haemolytic streptococcus can be conveyed by droplet infection to the genital canal, is it not reasonable to suppose that puerperal sepsis would be of much more frequent occurrence than it is?

When Dr. Eden touches on the importance of providing proper means of isolating septic cases, he must surely carry the weight of experienced obstetric opinion with him when he says that an isolation block is a *sine qua non* of every properly equipped maternity hospital. I do not think that any maternity hospital can be regarded as safe, much less ideal, unless it provides for the treatment of septic cases arising within its walls, in a block which forms a separate building and has a separate staff, where segregation is absolute. It is therefore gratifying to know that Queen Charlotte's Hospital has taken a lead in this direction, for such provision is not, as has been stated by some, to be regarded as a relic of the past, but, on the contrary, is an essential of the future. There is abundant evidence that once a virulent streptococcus invades a maternity ward, which may happen to be overcrowded, the rapidity of infection may be so intense that neither aseptic nor antiseptic measures will be able to cope with the spread of infection.

There is only one way in which the study of puerperal sepsis is likely to be followed by fruitful results, and that is by a much closer co-operation between the obstetrician, bacteriologist, and public health authority than has existed in the past. One of the greatest advantages in having isolation provision for a certain number of cases at the maternity hospital is the giving of clinical instruction to the medical student and midwife by the obstetrician. This, which should be a strong feature in our teaching, is unfortunately often the weakest, and it is therefore not surprising to find many cases of puerperal sepsis unrecognized as such by the young practitioner.

Lastly, the Aberdeen report endorses the view that the development of a new midwifery organization in which midwives will conduct *all* normal deliveries, and in which doctors will only provide ante-natal services and deal with obstetrical complications, would result in a significant reduction in puerperal mortality. While I agree that there is great need for an improved maternity service based on a midwife-doctor combination, I very much doubt the wisdom of restricting the general practitioner's activities to complicated labour only, and dispensing with his services altogether in cases of normal labour. I venture to think that this would prove a retrograde step of considerable magnitude. This assuredly would lower the whole status of midwifery, and while it would be profoundly interesting to have the views of those engaged in general practice,

frankly I believe it would tend to a state of affairs which, as a teacher of midwifery, I shudder to contemplate.—I am, etc.,

University College, Dundee, July 23rd. JOHN MCGIBBON.

SCHOOL PREVENTIVE MEDICINE IN RURAL AREAS.

SIR,—As chief school medical officer of an agricultural county I read the article by Dr. A. C. T. Perkins in the *Journal* of July 20th (p. 95) with an interest which was enhanced as I found that the problems encountered in Suffolk resemble, in many respects, those which confront us in Dumfriesshire.

I need not detail the many points on which I heartily agree with Dr. Perkins, but turn rather to that on which I disagree, with equal cordiality. The abolition of rural schools and their replacement by large central institutions for at least 1,000 pupils would doubtless simplify medical inspection and after-care, and might, I admit, have other real advantages, but it would give the *coup de grâce* to what remains of the rural culture of these islands. This, I submit, would be not only a matter for sentimental regret, but a hygienic catastrophe. It is in the national interest that we should retain a strong and vigorous country life, and anything which might tend to increase rural depopulation is to be avoided. Not only is the country child generally superior physically to his town-bred fellow of the same age group, but the mentality induced by bucolic life, albeit somewhat lethargic, provides counterpoise to that of the urban intelligentsia and thus is not without its value in the national economy.

Dr. Perkins points out, very justly, that school occupies only a small part of a child's time, and that home conditions are of paramount importance. I fear that schools of the kind he proposes would develop an atmosphere so alien to that of the pupil's domestic environment that any influence they could exert on the home life of future generations of country dwellers would be very small. Inevitably pupils would leave them less attracted by the prospects and the "cultural accessories" of country life than by those of the town. But many of the public health problems which the nation has to face to-day are sequelae of the uncontrolled development of towns at the expense of the country during past generations. City life for the masses has become so strenuous and so specialized, so detached from tradition and, in consequence, so easily affected by the catchword of the moment, that the steadying influence of the countryside is almost essential to national sanity. So while the ambitious country lad, convinced that a clerk in an office lives more nobly than a rural blacksmith, sees his Mecca in the town, and the disillusioned townsman seeks tranquillity in the country, successive Governments, by "small holding" schemes, and social workers, through such agencies as rural institutes, are endeavouring to salvage something of the life and art which are in peril of disappearing in the clash of urban and rural cultures.

I admit that the medical supervision of a number of small and scattered schools is wasteful of time and temper, and that most country schemes are in need of improvement and development, but this is only one aspect of a much larger question. Rural hygiene can be made to justify itself, not by imitating that of towns, but by developing its own methods to suit its own needs. I think we must stop short, meantime, of Dr. Perkins's schools with their thousands of infant rusties, and inquire whether we cannot make the desired reforms without taking quite so long a step towards universal urbanization.—I am, etc.,

Dumfries, July 23rd. JOHN RITCHIE.

PHYSIOLOGY AND PHYSICO-CHEMICAL REACTIONS.

SIR,—The address on "Physiology the Basis of Treatment," by Professor W. E. Dixon (July 27th, p. 138), and your leading article on that address are obviously of great importance. But you head your article "The Neglect of Pharmacology," which seems to me a partial consideration of Professor Dixon's problem, which might be just as aptly entitled "The neglect of physiology."

"Physiology," writes Professor Dixon, "in the broad sense in which it was used by Claude Bernard and Huxley has given place to a new physiology of physico-chemical reactions: I might go beyond this and say that physiology is getting further and further from practical medicine, and this is the more regrettable as most of the chairs in physiology are connected with the medical schools and because the science of treatment is largely dependent on experimental physiology."

I am afraid many modern textbooks are apt to give the impression that there is arising a new physiology of physico-chemical reactions. But those whose hobby it is to follow in the tracks of investigators who glibly apply physico-chemical reactions to elucidate the working of the body, know that their triumphs have been very short-lived. For example, there is a monograph on the function of the kidney which might be called an example of "the new physiology of physico-chemical reactions." A few ugly facts discovered by physiologists in the *broad sense used* by Claude Bernard and Huxley have shattered the underlying theory of that work, but not its usefulness.

There is another work on the fluids of the body which might be called an example of the new physiology of physico-chemical reactions. Some more ugly facts discovered by physiologists in the broad sense used by Claude Bernard and Huxley have left very little of that excellent and most stimulating monograph standing.

There is ample room for both schools of physiologists, because the ill-equipped school is the school of exponents of physico-chemical reactions. Any schoolboy can take a physico-chemical law and apply it to phenomena in the body, but it requires physiology in the wider sense which embraces, or attempts to embrace, all data, whether physico-chemical or otherwise, to revise the application of physico-chemical law. But the real regret in Professor Dixon's mind is that those who apply exclusively physico-chemical laws are in many of the chairs of physiology in this country. A far greater danger to advance in physiology and in the treatment of disease lies in the extraordinary document I received from a university desirous of electing a new professor of physiology. It was an essential condition that a photograph of the applicant should be sent in with his application. Consequently I see signs that physiologists of the future must visit the beauty parlours, and, if this example spreads, physiologists will be chosen not because they are devotees of physico-chemical law or followers of Claude Bernard and Huxley, but because they can with credit compete with the leading man of a musical comedy.—I am, etc.,

Halesowen, July 27th. JAMES M. MCQUEEN.

A PHYSIOLOGICAL STUDY OF ASTHMA.

SIR,—The abstract of Brodie and Dixon's paper which you published lately (July 13th, p. 68) is a very valuable piece of work, but I would like to point out that though the writers say that "previous workers had established the fact that the motor nerve to the bronchial muscles was the vagus," yet in 1885 the late Professor Roy and Dr. Graham Brown discovered that the vagus contained fibres which caused expansion of the bronchi.[1] They employed a new method of experiment, and say that "section of one vagus usually causes a marked expansion of the bronchi of the corresponding lung," and that "frequently, and especially in non-curarized animals, narcotized with ether, stimulation of the central end of one cut vagus, the other being intact, causes a powerful expansion of the bronchi"; and "in these animals stimulation of one uncut nerve, the other being cut, causes often a marked expansion of the bronchi," etc. Such and other facts given indicate that "the vagi contain centripetal fibres which can cause both contraction and expansion." Discussion is given of the centres, direct or reflex, in the cerebro-spinal tissue, and of the drugs which can influence the bronchi, and they ask whether the brochial contractions are vermicular or rhythmic, which they have reason to believe they occasionally are.—I am, etc.,

London, W.1, July 24th. A. GUNN AULD.

[1] *Proc. Physiol. Soc.*, May 10th, 1885, p. 21.

THE DICK TEST IN PREGNANCY.

SIR,—Drs. Salmond and Turner, in their paper on the results of 533 pregnant women tested at the Royal Free Hospital (*Journal*, July 27th, p. 145), state:

"2. Of 158 Dick-positive reactors 20 per cent., and of 373 Dick-negative reactors 15 per cent., became febrile. . . .

"4. There was no significant difference between the liability of the Dick-positive and Dick-negative pregnant women to suffer from 'fever' in the puerperium."

Dick-positive reactors therefore suffered from febrile disturbances in a greater percentage than Dick-negative reactors, the difference being 5.0 ± 2.3 per cent. The ordinary statistical criterion of significance is a difference three times the probable error, which corresponds to a probability of 22.24 to 1 against the difference being purely a matter of chance.

In this case the difference is 2.2 times its probable error, corresponding to a probability of 6.25 to 1 against the difference being purely a matter of chance. This observation supports that of Burt-White, and the bald statement that the difference is not "significant" is a rather lame conclusion to an interesting piece of work. The accepted criterion of "significance"—that is, of adequacy of data for conclusions—is purely arbitrary. The results appear to have some significance, though the exact significance is not yet clear.—I am, etc.,

C. O. STALLYBRASS, M.D., D.P.H.,
July 29th. Assistant Medical Officer of Health, Liverpool.

GAS-OXYGEN ANAESTHESIA.

SIR,—I disagree entirely with Dr. E. J. Chambers's statement on July 13th (p. 74) that very few students have ever been taught gas-oxygen anaesthesia—at any rate in London. I agree that gas-oxygen is the least toxic form of anaesthesia, but in the course of my experience I have noticed: (1) That it is very difficult to obtain sufficient relaxation for emergency abdominal work. Personally I have almost always found it necessary to add ether in order to preserve peace with the surgeon. (2) That it appears to increase bleeding, even when very great care is taken to avoid cyanosis. These to me appear distinct drawbacks to its use as a routine anaesthetic, although I admit its value in specially selected cases.

Personally I have often found that in bad cases of intestinal obstruction it has been impossible to induce on gas-oxygen, while the patient goes quietly to sleep on a few drops of pure chloroform, followed either by open ether or by ether from a Shipway's apparatus. For general upper abdominal work I have been won over to endotracheal gas-oxygen-ether anaesthesia after ether induction.

Lastly, I entirely agree with Dr. de Lacy Walker's maxim (June 29th, p. 1180) that "routine anaesthesia is bad anaesthesia," and that each case must be judged on its merits.—I am, etc.,

ARTHUR L. MOORBY, M.R.C.S., L.R.C.P.,
Late Junior Honorary Anaesthetist, King's College Hospital.
H.M.S. *Sandhurst*, July 22nd.

CYST IN THIRD VENTRICLE OF THE BRAIN.

SIR,—I was extremely interested to read in the *British Medical Journal* of July 13th (p. 47) Professor Drennan's account of two cases of cyst in the third ventricle, and also the letters on the same subject on July 20th (p. 122) from Dr. Arthur Hall and Dr. Edwin Bramwell. A similar case occurred in my practice about six years ago.

The patient, an Australian business man, aged 36, was on a visit to this country, and called me in because of severe headache. He gave a history of headaches off and on all his life, stating that three years previously they had been very severe, with the result that he had a complete breakdown, and was advised to rest for three months; the headaches disappeared, and his health improved greatly. The condition was evidently considered to be migraine by his medical advisers.

On November 7th, 1923, I first saw him; the headache was obviously very severe; his complaint was of "throbbing in the temples" and of "waves beating inside his head." The pulse rate was normal, and there was no vomiting nor visual disturbance. I assumed it to be a case of migraine, and kept the patient in bed for a few days; during this period the headache was completely relieved at times, but returned at irregular intervals, though not so severely as on the first day. I was struck, however, by the patient's great apprehension of a return of his symptoms.

On November 12th, at 5 p.m., I received an urgent call, and found him very ill; the headache was agonizing; he had been sick, and was pale, sweating, and collapsed, with an irregular pulse of 36. I had him moved to a nursing home, having made a tentative diagnosis of cerebral tumour. He was given morphine, and slept at intervals during the night, but called out with pain frequently. In the early morning he gradually became comatose, and at 7 a.m. suddenly became cyanosed and died. A post-mortem examination was performed with the help of Mr. T. W. Letchworth. The brain then revealed a definite flattening of the convolutions; the lateral ventricles were markedly distended, and on opening into the third ventricle a small cystic tumour, about the size of a large currant, popped out. Unlike Professor Drennan's cases the cyst was not impacted, but was on a long pedicle, and appeared to have been acting as a ball-valve over the opening of the aqueduct of Sylvius, thus accounting for the periodical headaches. The cyst was connected with the choroid plexus of the ventricle, and was reported by Professor L. S. Dudgeon to be haemangiomatous in nature.

—I am, etc.,

Surbiton, July 27th. A. R. C. DOORLY.

PRURITUS ANI.

SIR,—Within the last few weeks you have printed considerable correspondence on the subject of a very common, distressing, and persistent complaint—pruritus ani. Many are its causes and many the suggestions that have been offered in the way of treatment, but I have failed to notice one very simple and often effectual way of dealing with this troublesome affection: that of ablution of the anus and surrounding parts with cold water after defaecation, and gently drying the skin with some soft material. By such easy means the parts are perfectly cleansed, and the frictional effect of using paper is removed. One of the most resistant and intractable cases I ever encountered, one which had resisted almost all known methods of treatment—oils, ointments, sedative lotions, soothing suppositories, and injections—responded rapidly and completely to this simple plan of anal toilet.

So impressed am I with the fact that very many of these cases are the result of irritation of the skin, first evoked by the faeces, and added to by the frictional rubbing necessary in the use of paper, that Messrs Shanks, the Scottish sanitary engineers, have, at my suggestion, devised and placed on the market a closet termed "bidet," that enables the easy toilet of perineal ablution after each movement of the bowels. I have ventured to suggest, after a very long hospital experience, that no institution of the kind should be without the installation of one or more of these "bidets." The simple method of ablution should, at least, be employed as an initial procedure in all cases, whatever may be the primary cause of the complaint.—*I am, etc.*,

Peebles, July 19th. A. ERNEST MAYLARD.

THE RELATION BETWEEN MUNICIPAL AND VOLUNTARY HOSPITALS.

SIR,—I am not surprised at the vigorous protest called forth by my letter in your issue of July 6th (p. 33) from the medical officer of a Poor Law infirmary, and a member of the staff of a large municipal general hospital, run on the same lines as a large voluntary general hospital in a great city—the only municipal hospital run on these lines, I believe, in this country. But I have expressed no desire to "degrade" the Poor Law or municipal hospitals; indeed, the present municipal hospitals, with the exception of the one at Bradford, only admit infectious and tuberculous cases, and I did not refer to them in my letter. I expressed the view that the transferred Poor Law hospitals should continue to work on exactly the same lines as they do now, except that cases requiring major operations should be treated at the large voluntary city hospital; and neither I, nor so far as I know anyone else, is "indignant" at

any improvement in their standard of work. What I do think is that they are doing a very necessary work, and should, when transferred to city councils, continue that work—for it must be done—and leave the voluntary hospitals to carry on the work for which they are better suited than the Poor Law hospitals. Mr. Holroyd Slater (July 20th, p. 126) calls attention to the hospital at Bradford as an example of what the transferred Poor Law hospitals should become. But the circumstances connected with the origin of this Bradford Municipal Hospital were altogether exceptional. The Poor Law Infirmary was municipalized ten years ago, for at that time the majority of the members of the city council were socialists, and they thought Bradford ought to have a municipal hospital. The large voluntary hospital of the city was too small, but a new site for it had been acquired, and attempts were made to raise the £200,000 required for its rebuilding. This was during the war, and, as might have been expected at that time, was unsuccessful. At this juncture the corporation started its scheme of the municipal hospital as a rival to the voluntary one. (See *Journal*, 1920, vol. ii, pp. 527, 552, and 753.)

If the voluntary hospitals do not receive adequate support from the charitable public, then we must have municipal hospitals to replace them, or the municipality must finance and control the hospitals now supported by voluntary effort; but once rate-supported hospitals, of equal efficiency to the voluntary ones, replace some of them, the charitable public will naturally feel inclined to leave the support of all hospitals to the municipality. The poorer classes will be the sufferers, for they will have to pay their share of the increased rates. It may be pointed out that at Bradford, although it has a municipal hospital run on the same lines as the voluntary one, still the latter continues to receive support from the public; but nevertheless I am inclined to think that the existence of such municipal hospitals will inevitably tend to put an end to voluntary support.

I see Mr. Slater agrees with me that in order to bring the transferred Poor Law hospitals up to the standard of the voluntary hospitals it is necessary to appoint visiting specialists on their staffs. But that is not enough to effect the change. There are already visiting specialists on the staffs of some of the large Poor Law hospitals, acting only as consultants. To raise the status of the Poor Law hospitals to that of the voluntary hospitals the whole system of treatment must be altered, so that all patients are admitted under the care of a specialist, and not under the care of a medical officer who is in charge of the whole institution. Dr. MacWilliam says in his letter in the *Journal* of July 20th (p. 125) that in the Walton Poor Law Infirmary at Liverpool specialists have wards allotted to them. This is not so in the large Poor Law hospital in Bristol, and must, I think, be quite exceptional. But even in these wards at Liverpool the specialists do not seem to have complete control over the treatment of their patients, for Dr. MacWilliam says they are "subject to the general responsibility of the medical officer." This seems to me a very undesirable position for any specialist, and one which would not be tolerated in a large city voluntary hospital. In the *Medical Directory* the medical officer is given the first place on the list of the staff, and then follows a list of eight "visiting medical officers," who are not described as in charge of any special departments. This is very far from being comparable to the working of a large city voluntary hospital.

I agree with Dr. MacWilliam when he says that the medical work and nursing in a Poor Law hospital are not as interesting as in a large voluntary city hospital, but when cases are transferred to the city council which would be better dealt with in the large voluntary hospitals, we cannot allot them to a Poor Law hospital simply to interest the staff. Dr. MacWilliam suggests that we should classify patients as "individuals," not by diseases. Does he suggest doing so by their temperaments or the colour of their hair? As for Mr. Slater's representation of my "fantastic" idea of the municipal hospital dump and the voluntary hospital treasure seekers therein, this is really too absurd to need reply.—I am, etc.,

Bristol, July 21st. CHARLES A. MORTON.

SIR,—The problem of the relation of the voluntary hospitals to the municipal hospitals is the same as that which confronts us with regard to trade in the Empire. The voluntary hospitals naturally regard themselves as senior partners, while the municipal hospitals, quite rightly, wish to preserve and foster their growing industries. Given good will, a realization that both exist for the good of the community, and an efficient clearing-house, the problem should not be insoluble.—I am, etc.,

Dulwich, S.E.21, July 22nd. H. M. STEWART.

FEES FOR ATTENDANCE ON DIFFICULT LABOUR.

SIR,—A primigravida was referred to me, by a form for medical help, on account of small pelvic measurements. After several examinations without anaesthetic I was still undecided as to the chances of normal delivery. An anaesthetic for possible induction of labour revealed that Caesarean section was inevitable, my colleague confirming this finding. The operation was performed later with the help of two practitioners. The baby was also circumcized. Apart from this the mother received much treatment before operation for gastric ulcer and burns.

A bill for fourteen guineas, together with a description of the treatment, was tendered to the medical officer to the county. The reply was that there are no provisions for fees outside those covered by the scale of fees, and I am allowed three guineas, including the fee for the anaesthetist.

I am dissatisfied, not only on my own account, but also that the colleagues who so willingly helped me are not to be sufficiently paid. I am anxious to know whether this unfortunate state of affairs exists only in my area: and as I propose to refer the matter to the local Branch of the British Medical Association, I should be grateful for any suggestions, and particularly the experiences of practitioners in this direction.—I am, etc.,

Llanelly, July 24th. RHYS PATON.

Obituary.

THOMAS EAGLESON GORDON, M.Ch., F.R.C.S.I.,

President of the Royal College of Surgeons in Ireland.

WE regret to record the death of Mr. T. E. Gordon, President of the Royal College of Surgeons in Ireland, which took place on July 25th in Dublin. He was a native of the North of Ireland, and had been associated with the Adelaide Hospital in Dublin from his student days until a few months ago, when he resigned on account of trouble with his eyesight and general ill health.

Thomas Eagleson Gordon received his medical education in Dublin, and shortly after he had graduated M.B., B.Ch., in 1880, he was appointed house-surgeon at the Adelaide Hospital, where he had obtained a Hudson Scholarship; he later became assistant surgeon. In 1885 he obtained the diploma F.R.C.S.I., and on the death of Professor Edward Taylor in the same year he went to the Royal City of Dublin Hospital, where he was surgeon for about twelve months. When Dr. Henry FitzGibbon resigned his position as surgeon at the Adelaide Hospital he was succeeded by Dr. Gordon. For many years he was a demonstrator of anatomy in the Medical School of Dublin University, and in 1922 he was appointed professor of surgery; four years later he proceeded M.Ch. He was a member of the Dublin Biological Club, and of the Anatomical Society of Great Britain; he was a Fellow of the Association of Surgeons of Great Britain and Ireland, and of the Royal Academy of Medicine in Ireland, in which also he was president of the Surgical Section. For a number of years he was consulting surgeon to the Rotunda Hospital, Dublin. He was a vice-president of the Section of Surgery at the Annual Meeting of the British Medical Association at Aberdeen in 1914. In addition to conducting a large private practice, he was the London Midland

and Scottish Railway Company's surgeon for Ireland. Outside his professional work he had many interests, two of his chief studies being geology and archaeology. He was the author of a pamphlet, *The Surgery of the Hypertrophied Prostate;* also of an article entitled "Haemorrhagic infraction of the small intestine—successful resection," in the *British Medical Journal*, 1898; of "A case of ununited fracture of head and neck of radius treated by incision" in the *Dublin Journal of Medical Science*, 1897; and of "A successful case of pylorectomy" in the *Transactions of the Royal Academy of Medicine in Ireland*, 1902.

Mr. Gordon's funeral on July 27th was private, but a memorial service held in the Chapel of Trinity College, Dublin, was attended by a large gathering of his personal friends and colleagues. At this service Canon Griffin, a personal friend of the family, paid a high tribute to Mr. Gordon's work in Dublin, making particular reference to his activities in connexion with the Home for Crippled Children, the Adelaide Hospital, and Trinity College Medical School. Professor Gordon, he said, had varied interests apart from his profession; his great desire was to do his work well, and, as they all knew, in the most unobtrusive way. By his death Dublin and Ireland had lost a worthy citizen, whose life was devoted to the well-being of his fellow man. The Royal College of Surgeons in Ireland was represented at the memorial service by the following: Mr. R. Atkinson Stoney, vice-president; Sir Robert H. Woods, Mr. R. C. B. Maunsell, Sir Conway Dwyer, Mr. Trevor N. Smith, Sir C. A. K. Ball, Mr. L. A. Byrne, Mr. Seaton Pringle, Mr. Edward Sheridan, Mr. W. Pearson, Mr. G. E. P. Meldon, Mr. W. C. P. Smyly, Mr. Arthur Chance, and Mr. P. E. Hayden. Owing to absence from Dublin, Sir Thomas Myles, Sir William Taylor, Mr. Andrew Fullerton, and Mr. Howard Stevenson were unable to be present.

WILLIAM DOUGLAS, M.D.,

Past-President, Kent Branch, British Medical Association.

THE news of the death of Dr. William Douglas, at the age of nearly 84, will be received with great regret by a wide circle of friends in the British Medical Association, for he was for many years one of the best known and best liked members of the Representative Body. He was, in fact, the only man who had been a member of that Body and had attended every meeting from its commencement in 1903 up to the meeting at Cardiff last year, and during the whole of that time he represented the Maidstone Division.

William Douglas was the son of Alexander Douglas of Belfast, and was born in that city in 1845. He was educated at Queen's College, Belfast, and in the University of Edinburgh, and took the degree of M.D. of Queen's University of Ireland in 1869. He was for some years in practice at Leamington, and after a time devoted himself entirely to the private treatment of mental disease. He was a member of the Royal Medico-Psychological Association and of the Society for the Study of Inebriety. He travelled very considerably, residing at one time professionally at Madeira, and acting also as a surgeon on the Cunard Line. He took a keen interest in all branches of the profession, and everyone who knew him will remember him as a most interesting conversationalist. But he will chiefly be remembered for the very active part he took in the Irish Medical Schools' and Graduates' Association and in the British Medical Association. Dr. Douglas was recognized as the mainspring of the former society, and was never seen to greater advantage than in the organization and carrying out of its dinners and luncheons. He was for a long time secretary of the society and had been its president; but the mere mention of his official connexion with the body conveys little impression of the keen interest he took in it, and the affection which he inspired amongst his colleagues. He was an active member of the British Medical Association for fifty years, taking a prominent part in the many meetings at the time of the reconstruction of the Association at the beginning of the century, and was a strong supporter of those who believed that the Association would be best served by placing it on a more democratic basis. He took little part in any of the central work of the Association, but was very influential in his own area, and could always be relied upon to do anything within his power for the Association. He was at one time President of the Kent Branch. During recent years he resided at Staines, but advancing age caused no deterioration of his marvellous memory of Association affairs or diminution of his interest in them.

THE MEDICAL SECRETARY adds the following personal tribute:

The loss of my old friend Douglas means for me the breaking of a very close personal and Association tie. He was very proud of his long connexion with the Representative Body, and was a perfect mine of information about its history. Latterly he did not often speak, but he was always listened to with great respect and, indeed, affection. A large number of members of the Representative Body had experienced his hospitality at the functions of the Irish Medical Schools' and Graduates' Association, where he will be very greatly missed. His thoughts up to the last were about that body and about the Representative Meeting. I have been in the habit lately of going to see him whenever I could get an opportunity, and the interest he took in the forthcoming Manchester Meeting, the first he had missed for very many years, was pathetic. I saw him on the Saturday preceding his death, when he asked me to communicate certain wishes about the Irish Graduates' luncheon at Manchester to the present secretary of that body, and sent his best wishes to many of his old colleagues in the Representative Meeting. The above account of his career and these few remarks of mine are a melancholy example of the inefficacy of words to convey to those who do not know the man all that he meant to many of us. I can only add that he was one of the most devoted members of the Association I have ever known, and a most hospitable and kindly gentleman.

THE REV. JAMES M. MACPHAIL, M.A., M.D., C.M.,

Medical Missionary, U.F. Church of Scotland, Santalia, India.

WE regret to record the death in India of Dr. James M. Macphail on June 15th. He had been suffering from dyspnoea for a considerable time, but carried on in his usual cheerful, strenuous way until a week before the end. He was buried at Bamdah the same night, in the place where he had faithfully served for forty years. We are indebted to a medical colleague (D. R.) for the following note.

James Merry Macphail was born in 1863, and was educated at Glasgow. He graduated M.B., C.M. in 1889, proceeding M.D. six years later. Long before he began the study of medicine he had resolved to be a medical missionary, and all his preparation had that end in view. During his medical course he managed to put in attendance at some of the classes in the Theological Hall of the Free Church of Scotland, and he acted for some years as missionary to the Pollokshields Free Church. He spent no time in this country after graduation, but left towards the end of the year for India; he was sent by the Free Church to Bamdah, a village in the Chakai region of Santalia, for work amongst the Santal aboriginals. It was a place where no missionary had been stationed before. It had been visited by preachers from neighbouring stations, and a small congregation awaited him; but there had been no medical work, and he had to start it in a very humble way, gradually winning the confidence of the people and building up a reputation which drew patients from a gradually widening radius. In 1894 a hospital was erected, and the work was carried on with more comfort. Dr. Macphail was particularly interested in eye work, and early made a name for himself in cataract extractions. Many of his patients were pilgrims, and his fame as an operator was carried back by them to villages; after a few years a very large majority of his cataract patients came from villages far distant, even hundreds of miles. From scores of cataract operations yearly, the number soon rose to hundreds, then it passed the thousand mark, and in 1928 reached 2,250. He had a wonderfully dexterous touch, and everything was carried out in the simplest possible manner. On the last occasion on which

the writer had the privilege of visiting Bamdah, now thirty years ago, there was no aseptic surgery; it was all antiseptic, and probably it was the same to the end, as being the most suitable for the surroundings. Macphail's results were amazingly good; failures were few, and generally from causes over which the operator had no control. If a patient chooses to run off from hospital the next day, and removes his bandages in dirty surroundings, he has no cause of complaint if the results are unsatisfactory. In addition to all his medical and missionary work Dr. Macphail was a prolific writer, chiefly in the form of articles to the *Indian Medical Gazette* on professional subjects, and to the *Indian Standard* on scientific, literary, and missionary topics; and all he wrote was well worth reading—sane, interesting, and humorous. He edited two quarterly magazines, *Medical Missions in India* and *Conference*, the latter of which he founded about twenty-five years ago, and continued to edit until his death, as a journal of missionary activities in all parts of India. He published a small manual on eye diseases, called *Eyes Right*, for the use of non-medical readers, a very useful book to place in the hands of missionaries and school teachers in India. He wrote a monograph on *Asoka*, in the Heritage of India Series, which recently reached a third edition, a biography of the late Dr. K. S. Macdonald, and *The Story of the Santal*, of which a translation has recently been published in Copenhagen. He also published for private circulation interesting accounts in diary form of two seasons' touring through his district. A few years after going out to India he married Dr. Jennie R. Wells, a daughter of his late chief, the Rev. Dr. Wells of Pollokshields. She was for some time before marriage in charge of the Mure Memorial Hospital for Women at Nagpur, C.P. Mrs. Macphail has been of immense help to her husband both in his work and in his home. His son Ronald joined him soon after he qualified in 1924.

Macphail was a lovable man, who had many friends, and retained them all. No letter to Macphail remained unanswered long, in fact it became almost a jocular grievance that we were always in his debt, and could never get him into our debt for any length of time. He will be much missed by his many friends, as well as by those among whom he laboured so long and faithfully.

KENNETH ARTHUR LEES, O.B.E., M.B., B.Ch., F.R.C.S.,

Assistant Surgeon, Diseases of the Throat, Nose, and Ear, St. Mary's Hospital.

WE regret to report the death, on July 23rd, of Mr. Kenneth Arthur Lees, after an operation. He was the second son of Dr. D. B. Lees, physician to St. Mary's Hospital from 1887 to 1907, and was born in London in 1881. He received his medical education at the University of Cambridge and St. Mary's Hospital, and obtained the diplomas M.R.C.S., L.R.C.P. in 1907; two years later he graduated M.B., B.Ch., and in 1912 he became F.R.C.S. At St. Mary's Hospital he held in succession the posts of casualty house-surgeon, house-physician, and house-surgeon; he then occupied the post of surgical registrar for two years. For his services during the war he was awarded the O.B.E. In 1919 he was elected assistant surgeon to the department for diseases of the throat, nose, and ear at St. Mary's Hospital, and subsequently obtained the following additional appointments: surgeon for diseases of the throat, nose, and ear, Queen's Hospital for Children, Hackney; and consulting surgeon for diseases of the throat, nose, and ear, Ilford Emergency Hospital; Paddington Hospital; St. Mary Abbott's Hospital; the Victoria Hospital, Swindon; and Letchworth Hospital. Mr. Lees was the author of several contributions to medical literature. He reported a case of ruptured intestine in *St. Mary's Hospital Gazette* in 1916, and in the same journal published an article on chronic suppuration of the middle ear and its adnexa in 1921. His interest in general surgery was indicated by an article based on notes on 900 abdominal sections, which appeared in *The Practitioner* in 1919. He reported two cases of coin in the oesophagus in the *British Medical Journal* in 1927.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

BEFORE Parliament adjourned for the long recess, on July 26th, the Royal Assent was given to the Unemployment Insurance Act, Irish Free State (Confirmation of Agreement) Act, Housing (Revision of Contributions) Act, and other Acts.

The Expiring Laws Continuance Bill was introduced in the House of Commons on July 25th. On the previous day a Widows', Orphans', and Old Age Contributory Pensions Bill was presented by Mr. Greenwood, and a Collecting Charities (Regulation) Bill by Mr. Clynes. The former bill will be debated when the House of Commons reassembles on October 29th.

Radium.

In the House of Commons, on July 24th, Mr. GREENWOOD moved an estimate for £100,000 to defray the charge during the year ending March 31st, 1930, for a grant in aid of the National Radium Trust. He said he had inherited the estimate from the late Government. The purpose of the vote was to augment the supply of radium for the use and treatment of the sick and to advance knowledge of the best methods of radiological treatment. The money would be expended by the National Radium Trust under the terms of a Royal Charter incorporating that body. Earlier this year a subcommittee of the Civil Research Committee had recommended that steps should be taken to ensure the acquisition of an additional 20 grams of radium by instalments for medical purposes. As the result of an appeal from the National Radium Fund, made over the signatures of many medical men, more than £100,000 had been raised by public subscription in a short time. Parliament accordingly was now asked to make this maximum grant of £100,000 to add to the sum obtained as the result of public appeal. Since the recommendations of the Radium Subcommittee had been accepted in principle by the late Government a consultation had taken place with leaders of various branches of the medical profession, and certain minor changes had been made in the proposals of the subcommittee. A Royal Charter had now been received empowering the Government to establish the Radium Trust and the Radium Commission. The Trust would hold the money, and would be responsible for the actual ownership of the radium. The Commission would be responsible for its custody, its care, and its utilization. The Radium Trust would be constituted of the Lord President of the Council (Chairman), the Minister of Health, the Secretary for Scotland, the President of the Royal Society, the President of the Royal College of Physicians of London, the President of the Royal College of Surgeons, England, the Chairman of the Central Liaison Committee for Voluntary Hospitals in Scotland, the President of the Royal Society of Medicine, and the President of the British Medical Association. The Trust was also required to co-opt two medical members of the Commission, and might co-opt not more than three other persons. That was now under consideration. The Radium Commission would consist of a chairman to be appointed by the Trust; four members nominated by, respectively, the Minister of Health, the Secretary for Scotland, the Medical Research Council, and the Department of Scientific and Industrial Research; and six members having special knowledge and experience of the application of radium in the treatment of the sick. These six persons were to be appointed by the Trustees from a panel of twelve, who would be selected by the heads of the medical profession named in the Royal Charter. He understood that there would be a meeting that week which would select the panel of twelve. Within a few days a preliminary meeting of the Radium Trustees would be held. Arrangements were being put in hand as rapidly as practicable in the circumstances, but as these bodies had not yet formally met there might be a little delay in getting the scheme fully into operation. The radium had to be purchased under the most advantageous terms, and the Commission had to consider what were the best ways in which it could be used. The vote was to be accounted for by the Ministry of Health, but the expenditure of the grant in aid would not be accounted for in detail by the Controller and Auditor-General. The Treasury proposed to ask the Auditor-General to audit the accounts of the National Radium Trust and the Radium Commission, and to direct the Trustees to furnish an annual report together with the audited financial statement to Parliament, so that Parliament would keep ultimate control over that part of the fund which had been raised from public sources.

Sir KINGSLEY WOOD said the matter was vital and important, and the expenditure of this large sum represented a considerable step in the campaign against one of the most distressing maladies known to mankind. He was afraid that the cases of cancer in the United Kingdom were on the increase, and up to the moment no investigation had shown what was the real cause of the disease; but radium was certainly one of the most hopeful forms of treatment, and the demands for this were increasing and urgent. The expenditure of the money Parliament was voting was attended with difficulty, because radium was found in very few spots in the

world, and he was almost driven to the conclusion that if the 20 grams of radium was to be obtained immediately the money would have to be expended in practically the only country which was supplying radium in any quantities to-day, and that was Belgium—the supply came from the Belgian Congo. Under the terms of the Charter the purchase of radium was left to the Trustees, but he expressed the hope that the greatest vigilance would be exercised to avoid undue demands being made upon this country in the matter of price. It did not appear as though any of the money could be spent, immediately at any rate, in any part of the British Empire, but he would like to hear whether anything further had been learnt regarding the possibilities of Australia, which, according to the report of the Radium Subcommittee, were engaging the attention of the Commonwealth Council of Scientific and Industrial Research. It would be a great blessing to mankind, and desirable also from the point of view of expenditure, if radium were found in Australia or in any other part of the British Empire. He did not say, and had no evidence, that there was anything in the nature of a hold-up of radium in the one source to which the Trustees could go. The process of extracting radium was a very expensive one, and considerable capital had to be sunk. A suggestion had been made that the purchase of radium should be entrusted to the League of Nations, and that idea might be achieved some day, but in the interval the urgency of obtaining radium for the United Kingdom was very great. It was a matter for regret that while the radium practice in this country was as good as in any other, such countries as Sweden and France were ahead of us in the provision they made for the treatment of people suffering from cancer. He suggested to the Minister of Health the advisability of increasing the number of surgeons associated with radium treatment. They not only required a good deal more radium, but they wanted many more skilled persons to administer it. Radium, if used unskilfully, could cause tremendous mischief. He further asked the Minister to ensure that when the distribution of radium was made there would be fair treatment of the various hospitals up and down the country. Up to the present time there had been great waste, having regard to the amount of radium available, and he thought that various types of disease likely to be successfully treated by radium should be concentrated in certain centres. Recognizing the individual interests of hospital associations he was afraid that suggestion might be difficult in practice. France had a dozen special centres for the treatment of various diseases by radium, and so was able to save a good deal of waste and to use radium more to the advantage of the people than we could do while our centres were scattered up and down the country among a large number of institutions. He was sure the estimates would meet with approval in all parts of the House.

Mr. SOMERVILLE HASTINGS hoped the committee would agree with the supplementary estimate. The terrible need for radium was constantly being pressed upon him. Like many other members of his profession who dealt with cancer, he constantly found that he needed radium for the treatment of patients, and it was very hard to obtain. On the previous morning in hospital he saw many cases of cancer, and for two of them radium was required. He asked the radium officer of the hospital how soon a supply of radium could be obtained, and he said not for a month in either of those cases. While those patients were waiting, and he was waiting to carry out the proper treatment, the disease must steadily advance. The same thing occurred in other hospitals. On the day after that debate he hoped to treat cancer with radium, but he had waited twenty days to obtain the necessary supply commercially. He regretted to agree with Sir Kingsley Wood that during the last few years Sweden and France had made much greater advances in radium treatment than had this country. The Government of France possessed 31.5 grams of radium, which it allocated to various treatment centres, whereas the Government of this country, through the Medical Research Council, possessed no more than 2.4 grams. Two years ago Mr. Hastings had occasion to investigate the results of radium treatment of cancer of one organ of the body, which involved the result of an experience of some fifteen years. When he looked carefully into these results he had to confess they were unsatisfactory. Good had undoubtedly been done in some cases by treatment, but he could not point with confidence to a certain patient that had been cured. To-day things were different. During the past two years extraordinary advances had been made, and surgeons now were able to do with radium what they never dreamt was possible two or three years ago. In the opinion of many surgeons it was now better to treat many forms of cancer in their early stages by radium rather than by cutting away the growth, because the radium treatment left the condition of the patient much more like the normal. No fewer than 54,000 people died of cancer in the United Kingdom in 1927, and many of those lives might have been saved had there been sufficient radium in this country to give them the necessary treatment. Treatment by radium was not simple. It required experience and research. In his opinion the advances made in this country were very largely due to the wise use which the Medical Research Council had made of the 2.4 grams which the Government placed in their charge. Efficient treatment by radium meant that there must be careful, painstaking research and pooled experience. When these two things were combined they would get the advance which they all desired. He wished the Government had undertaken a bolder policy than giving pound for pound for the money collected by voluntary subscription. The shortage of radium in this country seemed to him a national disgrace, and to give a fair prospect of cure to those suffering from cancer appeared to him a national duty which the Government should shoulder completely. He hoped that next time the Government dealt with the sick of this country it would go the whole way.

Sir CHARLES CAYZER asked for an assurance that the provincial hospitals would get equal treatment with the London hospitals in the distribution of radium. What would be the position of provincial hospitals when they came to buy radium themselves with money which they had themselves raised locally? Would they have the right to send the funds they had raised to the central Commission, and to ask that Commission to buy for them? He further asked for an assurance that the provincial hospitals would have a representative on the Radium Commission.

Mr. HAYCOCK expressed his disapproval of the smallness of the vote. Something like one in seven of the population died of cancer, and £100,000 would only pay for treating sixty-six women. The cost of radium salt used surgically on the breast was £1,500, compared with £800 for the brain and £120 for the tongue. He believed that not one person in fifty who ought to get the treatment was getting it, and he pointed out that the £100,000 voted was not merely for radium salt, but to provide for research. It did not pay individual surgeons to invest their time and money in learning how to use radium. There was a surgeon in Manchester who, if he had devoted his time and his great abilities to an ordinary practice, would have made a large income. That man, after investing his best abilities and his capital, was rewarded by poverty, and the hat had to go round to provide him with the ordinary necessities of life. It was a disgrace and a shame that the men who were doing something to make this world less a home of agony could not provide for their old age or ill health. Sir Ronald Ross, perhaps the greatest benefactor of the human race now alive, was dependent on the mercies of charity. As regards the supply of radium, he reminded the committee that in 1904, long before the deposits of uranium were discovered in the Congo, radium cost from £2 to £4 per milligram. In spite of the fact that the process was enormously simplified, the price in 1923 was over £11 per milligram. He suggested that the Government might think of controlling a home supply, of investing money in securing a source of raw material by buying areas where pitchblende existed, and thus getting radium at a less price than in 1904 instead of at the present price.

Commander BELLAIRS said the monopoly of radium was a monopoly of something which was required by medical science and research in every nation. If a nation extorted monopoly prices every endeavour ought to be made through the League of Nations to bring that nation to reason. If necessary, that nation must be pilloried before the whole world. The sum asked from Parliament was a small one, but was a beginning. He thought that before long the State would be contributing something like £1,000,000.

Mr. ROBERT MORRISON said the prices charged by Radium Belge, which held the monopoly, were £10,000 per gram to European countries, £12,000 per gram to Great Britain and some colonies, and £14,000 to America. The principle was that the more money a country had the more it had to pay. Were the Radium Trustees to buy radium from Radium Belge at its own price and make no effort to obtain more? He hoped someone might be co-opted to the Board who could deal with the vital question of where supplies of radium could be obtained. The Trustees should receive further powers to discover new sources of supply.

Miss SUSAN LAWRENCE said Mr. Hastings had spoken with full knowledge of the need for additional supplies. When the Government took office the scheme was in an advanced state, the constitution of the two committees had been decided, and neither the medical profession nor the sufferers would have thanked Ministers if they had held up the vote for six months to get a better scheme. The main business of the Trust would be the purchase of radium at the best prices, and it would explore all possible sources. By the fact that there would be one big buyer instead of a number of little buyers it was far more likely to obtain the substance at reasonable prices. The Committee of Civil Research had mentioned Australia as a source of radium, and was anxiously exploring every possibility. The Commonwealth Government was considering the possibilities of radium in Australia. The House must exercise patience, and would be better able to judge prices when the Trust had been functioning some time. The object of the Radium Commission would be to secure not only a fair distribution of radium between hospital and hospital, but a division which would secure the most profitable and continuous use of radium. The substance was capable of continuous use, and could be used far more profitably if treatment could be concentrated in centres able to take such a number of patients as would ensure continuous use of the remedy. It was calculated that the money available—£384,000—would buy about 17 grams of radium, and the experts held that that was as much as could be used at present. The difficulty was not so much the purchase of radium as to secure

a sufficient number of medical men and assistants capable of handling this substance. That was engaging the attention of the Minister of Health, who hoped to make some announcement on the training of medical men and assistants. Mr. Haycock was wrong about the cost of treatment by radium. The quantity required to treat one case might cost £1,500, but the same little pinhead of substance would treat case after case. In a short time this beneficent work would begin. A report on it might very properly be issued by the Minister of Health. The Lord President of the Council, as chairman of the Commission, would be responsible for answering questions in Parliament on its behalf, and the House of Commons would have no difficulty in securing information. She added that the supply of radium was already engaging the attention of the League of Nations.

The House then agreed with the resolution to vote £100,000. This resolution again came before the Commons on the report stage the next day, July 25th.

Commander KENWORTHY remarked that international action would be needed to conserve and distribute the supplies of radium and to prevent undue increases in its price. At present one Government competed against another. The Australian Government had taken steps to buy £130,000 worth of radium. The Swedish Government had bought a number of grams, and the Greek Government had done the same. He asked the Minister of Health to pursue inquiries into this aspect of the question.

Captain BOURNE asked whether the Radium Commission was to be a profit-making body, letting out the radium, or whether it would make free grants to hospitals.

Mr. GREENWOOD, in reply, said he imagined the Trust would co-operate with any other nation to get its supply at the lowest possible price. That problem was causing anxiety in other countries. The Health Section of the League of Nations already had radium under its notice, and had issued a technical report. The method of buying radium was for the Radium Trust to decide, but the general idea was purchase by instalments. If it went into the market to buy £250,000 worth it might easily put up the market against itself. It was not proposed that the Commission should operate at a profit. Local hospitals would not be given radium; they would be lent it, and it would continue to be held legally by the Radium Trust. A small charge for the loan of the radium would be made against the cost of administering the scheme.

The House then agreed with the resolution as reported.

Colonial Development Bill.

At the close of a debate, on July 12th, upon a Government motion to authorize Treasury advances by grant or loan for colonial development, Dr. VERNON DAVIES said he was glad that Mr. J. H. Thomas, who was in charge of the motion, recognized the importance of health services. He asked him to think not only of colonial health services against tropical diseases, but to bear in mind also the question of venereal disease. The medical services often had to be the advance guard in imperial or colonial development. Mr. Thomas should see that the colonial medical services were in a position to meet any sudden demand. If the projected development were achieved suddenly the medical service might be found not to have the full personnel that was needed. In cases where schemes of development were handed over to private firms the medical services should be maintained under the colonial medical administration. Instead of ordinary medical men going out without much experience let them keep the colonial medical service in the hands of the colonial medical authorities.

On July 17th Mr. LUNN moved the second reading of the Colonial Development Bill, based on the motion of July 12th. He said that in the previous debate on the financial resolution emphasis had been put on the medical services, and speakers had urged that these should be considered in schemes of colonial development. Many schemes had been undertaken in recent years by this and other countries in which that aspect had been closely considered. Experience proved the wisdom of giving attention to the health conditions of those who laboured in these great enterprises. He assured the House that in any new schemes of colonial development the medical services and medical research work for the improvement of health conditions would find a very important place.

Lord EUSTACE PERCY asked the Government to make sure that grants for health services would not be excluded from the bill.

Sir HERBERT SAMUEL suggested that the Advisory Committee proposed under the bill should have at least one person who would make it his duty to promote all kinds of research.

Lord WINTERTON said Parliament had responsibility to indigenous Africans, who were entitled to protection against diseases in themselves and their cattle.

Sir HILTON YOUNG condemned the manner in which an undivided fund was provided for research and for industrial development under a single committee. These subjects should be separated at the outset.

Sir OSWALD MOSLEY, for the Government, said, in answer to Lord Eustace Percy, that the bill would admit expenditure on diseases which affected persons engaged in industry and impaired their efficiency. Such diseases as hookworm could certainly be dealt with under the bill.

Dr. VERNON DAVIES asked why health was not included specifically in the bill.

Sir OSWALD MOSLEY said Dr. Davies's fears were not justified.

The bill was read a second time.

On July 18th the House of Commons went into committee on the bill. Sir OSWALD MOSLEY moved to add to the authorized purposes of expenditure "The promotion of public health."

The House accepted the amendment. Subsequently Sir OSWALD MOSLEY admitted that to divide research from development would be better, but it should be done when the machinery of the Empire Marketing Board was dovetailed with that of the present bill.

The bill then passed through committee, and after the third reading, on July 19th, was sent to the House of Lords, where it was read the first time on July 22nd and the second time on July 23rd.

Post-vaccinal Encephalitis.

In an answer to Mr. Broad, on July 22th, Mr. GREENWOOD said rabbits had been systematically used in the production of Government lymph since 1902, whereas no case of post-vaccinal encephalitis was reported in England and Wales till December, 1922. Discussion with the use of rabbits had been considered, but no change in the present practice was deemed necessary.

Mr. FREEMAN asked whether, in view of the deaths which had followed vaccination, the Ministry would institute a full inquiry into the subject, with the object of avoiding such deaths and unnecessary cruelty to animals.

Mr. GREENWOOD replied that there was no indication that these deaths necessarily arose from the use of rabbit lymph. The question of deaths from encephalitis was under continuous and very serious consideration.

Mr. CHAMBERLAIN asked whether a committee had investigated this question under the chairmanship of Sir Humphry Rolleston.

Mr. GREENWOOD said that was so. The committee had made recommendations for further research, which was now being carried on.

Mr. BROAD asked whether the Minister of Health was prepared to guarantee that any child or person vaccinated with Government lymph would not be seriously injured by the operation; and, if that were not possible, whether he would consider the desirability of introducing legislation to secure that compensation should be given in such cases to parents or dependants.

Mr. GREENWOOD said it was impossible to give an absolute guarantee that no person vaccinated with Government or any other lymph would suffer injury, but lymph produced by the Government lymph establishment complied in all respects with the standards laid down in the regulations made under the Therapeutic Substances Act. As at present advised he could not introduce legislation to provide for payment of compensation.

Answering a further question by Mr. Broad, Mr. GREENWOOD said no funds were at his disposal out of which grants could be made to parents for funeral expenses in cases where a fatal result ensued after vaccination by public vaccinators.

Mr. GREENWOOD told Mr. Freeman, on July 25th, that his attention had been called to the case of a boy, aged 12, of East Ferry Road, Cubitt Town, who died on July 20th, after being vaccinated on July 3rd. He was informed that Government lymph was not used.

Deaths from Bovine Tuberculosis.—On July 23rd Dr. FREMANTLE asked if the Minister of Health was aware that over 2,000 infants died every year from bovine tuberculosis. Miss LAWRENCE said the Minister of Health was advised that it was not possible to ascertain precisely how many infants died each year from bovine tuberculosis, but such evidence as was available suggested that the number was less than that given in the question. Bovine tuberculosis was mainly conveyed by milk, but she had no information to support the figure of £9,000,000 a year which Dr. Fremantle calculated to be the expenditure on treatment, convalescence, and after-care of this disease in infants. Dr. FREMANTLE suggested that measures should be introduced to secure that only milk free from tubercle should be given to infants attending the 3,000 existing infant welfare centres. Miss LAWRENCE replied that dried milk was supplied at most of these centres. This was recommended by the Ministry of Health in any case in which the ordinary milk supply was of doubtful quality. A few local authorities supplied tuberculin-tested milk, but it would not be practicable to require such a supply in every case, nor would such a requirement be justified having regard to the many available supplies of dried milk of reliable brands.

[Owing to the great pressure on our space this week we are compelled to hold over a few notes until our next issue.]

The Services.

THE Royal Naval Volunteer Reserve Officers' Decoration has been awarded to Surgeon Lieutenant Commander J. Lorimer, R.N.V.R.

NAVAL MEDICAL COMPASSIONATE FUND.

AT the quarterly meeting of the directors of the Naval Medical Compassionate Fund, held on July 3rd, under the chairmanship of Surgeon Vice-Admiral Arthur Gaskell, C.B., Medical Director-General of the Navy, the sum of £40 was awarded to the only applicant.

Universities and Colleges.

UNIVERSITY OF LONDON.

MISS EDITH GUEST, M.A., M.D., has been appointed honorary assistant in the Department of Egyptology. In the Department of Anatomy and Embryology Miss Doris Dingwall and Miss Mary Levine have been appointed honorary assistants, and Mr. R. W. Haines honorary demonstrator. In the Department of the History of Medicine Mr. J. S. Prendergast has been appointed honorary research assistant.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE.

Division of Tropical Medicine and Hygiene.

The following have successfully passed the school examination at the termination of the eighty-sixth term (March–July):

*S. Taneja (Duncan medal), *M. A. A. El Gammal, *A. H. Lowther, *S. J. De Navasquez, *R. W. Scanlon, *H. A. Yenikomshian, [illegible] C. [illegible], *I. Arndt, Sh. Atta-Ullah, [illegible] rnard, H. Birmingham, D. B. Clay, W. G. Evans, Fraser-Smith, K. K. Goh, Husinim, R. C. Jones, [illegible] O. W. A. Mahon-Daly, McCarthy, S. K. Mitra, L. H. Mottet, C. P. Murray, H. M. O'Connor, R. F. Pinson, T. Simpson, J. T. Smith, C. E. Soodeen, R. Stuart, D. R. Thapar, M. A. Ullah, G. N. Unnithan, K. C. Yost.

* Passed with distinction.

UNIVERSITY OF MANCHESTER.

THE following appointments are announced: Lecturer in clinical medicine, Dr. E. Beaslin Leech; demonstrators in anatomy, Mr. F. H. Bentley and Dr. R. P. Osborne.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

AT a meeting of the Royal College of Surgeons of Edinburgh held July 23rd, when Mr. Alexander Miles (President) was in the chair, the following 27 successful candidates (out of 81 entered) who passed the requisite examinations between March 21st and 28th were admitted Fellows:

G. Brown, Eva T. Cairns, J. Campbell, K. R. Chaudhri, D. B. Craig, R. A. Grant, G. Y. Graves, T. P. Gill, D. Hardie, A. T. Henry, R. S. Jones, G. D. Kapur, J. K. R. Landells, D. P. McDonald, G. H. Mahony, M. Y. May, A. Patrick, W. V. Semple, W. S. Shearer, B. Singh, N. Singh, W. C. Spackman, R. S. Stevenson, G. M. Sturrock, A. B. Taylor, M. K. Tucker, G. S. Thompson.

The Ivison Macadam Memorial Prize, consisting of a bronze medal and a set of books, was, after a competitive examination in organic chemistry, awarded to Mr. C. D. Campbell.

Dr. H. P. Lal, having passed the requisite examination on July 12th, obtained the diploma of L.R.C.S.Edin.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

AN ordinary meeting of the Royal College of Physicians of London was held on July 25th, when the President, Sir John Rose Bradford, was in the chair.

Election of Officers.

The following officers were elected for the ensuing year:—*Censors:* Robert Hutchison, M.D., James S. Collier, M.D., R. A. Young, C.B.E., M.D., W. C. Bosanquet, M.D. *Treasurer:* Sidney P. Phillips, M.D. *Registrar:* Raymond Crawfurd, M.D. *Harveian Librarian:* Arnold Chaplin, M.D. *Assistant Registrar:* R. O. Moon, M.D.

Appointment of Representatives.

Dr. H. Letheby Tidy was elected representative of the College on the General Medical Council, in succession to Sir Farquhar Buzzard, and Sir Ewen Maclean a representative on the Advisory Medical Board of the University of Wales. Sir Maurice Craig was appointed a delegate to the Conference of the National Council of Mental Hygiene, to be held in October, and Dr. Maurice Davidson a delegate to the fifteenth annual Conference of the National Association for the Prevention of Tuberculosis at Newcastle-upon-Tyne in October.

Medals and Scholarships.

The Baly Medal for distinction in the science of physiology was awarded to Dr. Edgar Douglas Adrian, F.R.S., and the Bisset-Hawkins Medal for advancing sanitary science and public health to Professor Edward Mellanby, F.R.S. The Murchison Scholarship was awarded to Ian G. W. Hill, M.B., of Edinburgh University. Professor J. B. Leathes was appointed to deliver the Harveian Oration and Dr. W. E. Hume the Bradshaw Lecture in 1930.

Lectures.

The following further appointments were announced: Dr. Andrew Balfour as FitzPatrick Lecturer for 1930, Dr. Carey F. Coombs as Lumleian Lecturer for 1930, Dr. Donald Hunter as Goulstonian Lecturer for 1930, Dr. J. J. R. Macleod as Oliver-Sharpey Lecturer for 1930, Dr. L. S. T. Burrell as Mitchell Lecturer for 1930, and Dr. M. J. Stewart as Croonian Lecturer for 1931.

Vote of Thanks.

The thanks of the College were voted to Sir Wilmot Herringham and Dr. John Fawcett for their valuable and lengthy services as representatives of the College on the Senate of the University of London.

The "Nomenclature of Diseases."

The President nominated a committee for the preparation of a new edition of the official *Nomenclature of Diseases.*

Membership.

The following gentlemen, having satisfied the Censors' Board, were admitted Members of the College:

William Wray Barraclough, M.B.Toronto, Richard Alan Brews, [illegible], M.B.Liverp., Geoffrey Pretor [illegible] nan, M.B.Manch., Frederick [illegible] B.Lond., Kenneth Alexander Campbell Golding, M.B.Syd., [illegible] Hartsilver, L.R.C.P., Aubrey [illegible] Julian Lewis, M.B. Adelaide, [illegible] M.B.Camb., Charles [illegible] s Twining McNath, [illegible] ncis John Niall, [illegible] ghunath Saran, [illegible] Gordon Murray

Licences.

Licences to practise physic were conferred on the following:

C. Abraham, S. Annaswami, M. A. E. Anous, S. W. K. Arundell, *†Nancy M. Badeley, C. P. Bailey, E. F. Barnardo, D. W. Bawtree, D. R. Belletty, M. J. Bennett-Jones, H. J. W. Bergh, W. R. Bett, P. M. F. Bishop, R. M. Bolan, *Bertha A. Briant, C. E. Brie, V. I. C. Cadogan, E. H. Cape, P. A. Cooper, W. J. Cotton, P. Dalzell, A. C. Dawes, *†Catherine Day, *Jessie E. Dodds, C. E. Dolman, W. J. L. Downing, G. Duckworth, T. F. H. Duffell, D. H. A. Edmondson, L. M. Edwards, J. L. Egan, *Cordelia H. England, I. Q. Evans, M. D. A. Evans, R. G. P. Evans, D. Ezekiel, R. B. H. Faichney, M. Farid, W. J. Ferguson, J. A. Fernandez, K. S. Fitch, S. K. Foster, W. W. Fox, A. W. Franklin, A. Freitag, R. L. Frost, *Ruth C. Galletly, S. Gasson, N. D. Gerrish, J. J. J. Giraldi, *Elizabeth L. Haden, Hafizuddin, *Nellie M. E. Hallinan, *†Margaret L. Hamburger, A. G. J. Harris, R. L. H. Harris, F. Hawking, *Dora M. Hill, R. E. Holmes, I. P. G. Howells, W. V. Howells, J. M. Hulett, *Laura F. Hutton, D. E. Hyman, K. G. W. James, S. K. Jatar, A. N. Jones, D. S. Jones, H. H. Kenshole, T. H. Khan, C. W. Kidson, S. Knight, M. Kokia, M. Kremer, J. Libman, F. J. G. Lishman, M. Luckeenarain, S. D. McClean, [illegible] S. W. R. Nottis, [illegible] each, W. Pearce, [illegible] Prowse, W. Rad- [illegible] W. H. Reynolds, P. J. Richards, K. M. Robertson, J. A. Robson, *Irene H. Rogers, [illegible] K. Sconce, J. M. Scott, [illegible] Simon, A. R. Smith, [illegible] tor, E. W. Thompson, [illegible] H. Wace, J. V. Walker, R. Warnecke, J. A. White, J. O. Williams, J. K. Wilson-Pepper, *Camille Wiseham, M. G. Woolff, L. C. Wright, P. Yarmarko, D. J. Young.

* Under the Medical Act, 1876.
† M.R.C.S. previously granted.

Diplomas.

The following diplomas were conferred, jointly with the Royal College of Surgeons:

PUBLIC HEALTH.—K. P. Anklesaria, D. D. Bhargava, D. L. Brown, H. A. Bulman, Helen Bumstead, K. Cathiravelu, K. B. Chakravarti, A. N. Chatterjee, M. Das, A. W. H. Donaldson, D. C. Farquharson, L. S. Farquharson, J. W. Fisher, L. Fourie, Hilda M. Garlick, D. Hughes, A. T. [illegible], A. Macmillan, [illegible], Joan Nixon, J. [illegible], J. H. Stritch, R. [illegible]

OPHTHALMIC MEDICINE AND SURGERY.—[illegible], P. K. Banerjee, W. A. Briggs, R. D. [illegible], Costobadie, T. Edmunds, Julia M [illegible], Gibbons, S. L. Geerin, J. R. McC [illegible], M. D. Nunan, P. Pattabhiramaiya, A. N. Ponnambalam, C. S. V. Ramanan, K. Sen, L. B. Somerville-Large, B. R. Tandan, M. Tree, T. K. Uttam Singh, D. G. Vyas, G. B. White.

PSYCHOLOGICAL MEDICINE.—L. Barber, Flora H. MacD. Calder, Viola C. Cameron, Ruby T. Carr, S. W. Davies, J. H. Ewen, E. A. Haslam-Fox, J. E. S. Lloyd, S. V. S. Rao, Kathleen M. Todd.

LARYNGOLOGY AND OTOLOGY.—B. R. Chaudhri, P. Hickey, G. J. Hutchison, R. Kacker, W. A. Kerr, K. S. May, R. F. Paterson, C. L. Rosenfield, G. Vaishnavi.

SOCIETY OF APOTHECARIES OF LONDON.

THE following candidates have passed in the subjects indicated:

SURGERY.—C. E. P. Davies, W. M. Hamer, A. Hamid, C. Horton, V. J. Lopez, W. McDermott, K. M. Seedat, V. J. C. Vandenbosch, T. K. White.

MEDICINE.—A. Campbell, V. N. Datta, A. N. de Monte, C. Parthasarthe, C. F. H. Quick, P. U. Rao, A. Somerville.

FORENSIC MEDICINE.—V. N. Datta, E. T. Garthwaite, J. Gordon, C. Parthasarthe, C. J. Poh, C. F. H. Quick, P. U. Rao.

MIDWIFERY.—A. R. Edwards, R. W. Goldsbrough, P. D. Kapur, E. Marks, C. J. Poh, S. V. S. Rao, T. G. Robinson, G. W. Sturgess.

The diploma of the Society has been granted to the following candidates: A. Campbell, V. N. Datta, C. J. Poh, C. F. H. Quick, P. U. Rao, K. M. Seedat.

Medico-Legal.

WORKMEN'S COMPENSATION: EFFECT OF MEDICAL REFEREE'S CERTIFICATE.

THE legal effect of a certificate of complete recovery given by a medical referee in accordance with the terms of Subsection 3, Section 19, of the Workmen's Compensation Act, 1925, was argued before the House of Lords in the case Wilsons and Clyde Coal Company, Ltd., v. Burrows, and, in the judgements delivered on July 18th, it was unanimously held that where a certificate given by the medical referee was unambiguous the arbitrator must accept it as final.

The case was one in which the workman received compensation for injuries to his back by an accident arising out of and in the course of his employment, and on three occasions the question of his condition and fitness was referred to a medical referee. The third certificate, given on October 18th, 1928, said the workman had completely recovered, but in the proceedings before the Sheriff-Substitute of Lanarkshire, as arbitrator, the workman lodged a minute stating that skiagrams taken since the giving of the certificate disclosed conditions not apparent on external examination, and that there was a reasonable probability of incapacity. The arbitrator refused to remit the matter to the medical referee for further report, however, holding that the certificate was unambiguous and ending the compensation. The Second Division of the Scottish Court of Session was appealed to on two questions of law: whether the arbitrator was right in refusing to re-remit the case to the medical referee for further certificate, and whether he was entitled to end the compensation. It was held that the arbitrator had a discretion to re-remit which he had duly exercised but, without answering the second question, the Second Division remitted the case to the arbitrator to inquire into the facts set out in the workman's minute lodged after the medical referee's certificate was given.

The employers appealed to the House of Lords against the remission, and Lord Dunedin, in his judgement—in which the other members concurred—drew an important legal distinction between the duties of the arbitrator and of the medical referee. He characterized the remission as a departure from procedure of a grave character as tending to interfere with the carrying out of the Workmen's Compensation Act. The arbitrator's duty was to inquire whether there was an accident, whether the injury resulted therefrom, and whether it arose out of and in the course of the employment. The medical referee's duty was to determine the question of recovery. This, the Legislature had made clear, was a better method than by more proof before an arbitrator. Lord Dunedin detailed the procedure relating to medical examinations in Sections 17 and 18, and relating to a further examination by a medical referee in Section 19 where the parties failed to agree, and emphasized the fact that it was the duty of the workman to bring to the notice of the medical referee such a matter as a reasonable probability that the injury might break out again in the future. Of course, if the certificate of the medical referee had been ambiguous it was competent for the arbitrator to remit it back to the medical referee, but as here in this case the certificate was not ambiguous it was clearly for the arbitrator to accept it as final.

The arbitrator was right in treating the medical referee's certificate as final and in stopping compensation, and therefore the appeal was allowed.

CHLORODYNE: FALSE TRADE DESCRIPTION.

Over a qualified chemist is entitled under the Pharmacy Act to sell poisons [illegible] on the other hand, any unqualified chemist who professes to the public that a particular drug compound [illegible] a poison when it, in fact, it does not, is liable to prosecution under the Merchandise Marks Act either for applying a false trade description to the goods or for selling such goods or even for having such goods in his possession. The case of Chandler v. Boots is an example of the risk of contravening the Act [illegible] by drug-store keepers who do not keep [illegible] on their premises. In selling a bottle described as containing "chlorodyne" which in fact, does not contain [illegible] a drug-store keeper commits no offence, either under the Pharmacy Act [illegible] under the Merchandise Marks Act [illegible] to the description he adds "B.P.85" he commits the [illegible] complies with the [illegible] according to the formula given in the British Pharmacopœia of 1925 and there [illegible] under the Merchandise Marks Act. [illegible] Hawkins, Limited, [illegible] at Manor Park, Ilford, [illegible] manufacture at East Ham [illegible] £20 and £5 5s. respectively [illegible] fraud if a preparation sold with the label 'B.P.85' is without morphine." The fact that no offence is committed by a chemist, whether qualified or not, who applies the word "chlorodyne" to a bottle of fluid which, in fact, contains no morphine, is probably explained by the prosecuting solicitor's remark that chlorodyne was originally a proprietary medicine, but that the term had now come to be applied generically to other similar preparations, but not necessarily of the same formula. The inference to be drawn from this statement is that there are preparations of this kind not containing morphine, to which a chemist may apply the word "chlorodyne" without committing an offence under the Merchandise Marks Act.

Medical News.

SIR DONALD MACALISTER, Bt., M.D., who has been Principal and Vice-Chancellor of the University of Glasgow since 1907, has announced his intention to retire from the Principalship in October next.

MR. SAMPSON HANDLEY has now returned from his visit to Australia and New Zealand in the capacity of official delegate of the British Medical Association to the Annual Meeting of the New Zealand Branch.

Dr. William J. Mayo and Dr. Charles H. Mayo of Rochester, U.S.A., visited the Eccles and Patricroft Hospital, Manchester, on Thursday, July 25th, and inspected the surgical wards. They were offered and accepted the positions as patrons of the hospital. Professor A. H. Burgess, President of the British Medical Association, and Professor W. Harvey Smith (Winnipeg), President-Elect, also visited the hospital.

THE Fellowship of Medicine announces that a special course in urology is being held at All Saints' Hospital, Vauxhall Bridge Road, and will continue throughout the present month. From August 12th to 21st a whole-day course in diseases of children at the Queen's Hospital for Children, Bethnal Green, will include operations, demonstrations, and lectures. The following arrangements have been made for September: a whole-day course in diseases of the chest at the Brompton Hospital from September 9th to 14th; an afternoon course in diseases of infants at the Infants Hospital from September 9th to 21st; a course in psychological medicine at the Bethlem Royal Hospital on Tuesday and Saturday mornings at 11 a.m., from September 10th to October 5th; a whole-day course in medicine, surgery, and the specialties at the Westminster Hospital from September 16th to 28th, for men only; and a whole-day course in gastro-enterology from September 30th to October 4th at the Prince of Wales's Hospital, Tottenham. Intending entrants are asked to communicate as soon as possible with the Fellowship of Medicine. In October two courses in addition to the list for 1929 already published will be held. One, an evening course in preparation for the M.R.C.P. examination, will consist of lectures on Tuesday and Friday evenings at 8.30 p.m. at the Medical Society's lecture room, 11, Chandos Street. The second additional course in medicine, surgery, and the specialties will be held at the Metropolitan Hospital, Kingsland Road, from October 21st to November 2nd. Full particulars of all courses can be obtained from the Secretary of the Fellowship, 1, Wimpole Street, W.1.

THE National Council for Mental Hygiene, in association with the Joint Committee of the National Council for Mental Hygiene and the Tavistock Square Clinic, has arranged a conference on mental health, to be held in the Central Hall, Westminster, from October 30th to November 2nd. The main subjects for discussion are: sex education; the personal equation in industry; the child and the parent; and delinquency—a problem in mental hygiene. Further particulars may be had from the conference secretaries, 51, Tavistock Square, W.C.1.

THE Department of Scientific and Industrial Research has published an index to the literature of food investigation. The first number, dated March, 1929, covers publications up to last January. It is proposed to issue these lists twice a year, and it is hoped that in this way workers in different parts of the Empire will be put in touch with each other. A brief historical review of the subject is included in this first number, and the general bibliography is arranged under such headings as: meat; fish; eggs; dairy produce; fruit and vegetables; theories of canning, freezing, and chilling; bacteriology; and engineering. The price of this issue is 2s. net, and it may be obtained in England from H.M. Stationery Office, or in America from the British Library of Information, French Buildings, 5, East 45th Street, New York.

THE Health and Cleanliness Council, which was inaugurated in 1925, reports its activities in the form of occasional bulletins, of which the seventh, just published, contains an account of the third annual general meeting of the council,

and of its propaganda work as conducted by means of the travelling cinema, lectures and demonstrations at health weeks, and poster and publication campaigns. Among the posters is a new one warning against the dangers caused by flies; it may be had free on application. Particulars of the council's work may be obtained from its secretary, 5, Tavistock Square, W.C.1.

WE are informed that *A System of Bacteriology in Relation to Medicine*, by various authors, is being prepared under the auspices of the Medical Research Council and published by H.M. Stationery Office. It will be issued in nine volumes, each of some 400 pages, the earliest of which (Volume III) will appear in the latter part of August, and the others at intervals of a few months. Nearly a hundred British bacteriologists are collaborating in this work, the aim of which is to give a comprehensive but not encyclopaedic survey of our present knowledge of bacteria and spirochaetes, with special regard to their relations to the various fields of medical work.

THE International Medical Group for the Investigation of Birth Control, formed in 1927 to facilitate the exchange of information on the subject of birth control between members of the medical profession in different countries, has issued in pamphlet form a compilation, edited by Dr. C. P. Blacker, of the reports received from the medical representatives of the group in America, Austria, Germany, Great Britain, Spain, and Sweden. The pamphlet contains useful information on the legal status of contraception and the attitude towards the subject of the medical profession and the general public in the various countries under survey, an account of the researches now in progress under the auspices of the Birth Control Investigation Committee, and a paper by Dr. B. P. Wiesner, of the Animal Breeding Research Department, Edinburgh, on controlled fertility by means of hormonic interference. Copies, price 6d., may be obtained from the Hon. Mrs. M. Farrer, 41B, Clanricarde Gardens, W.2.

THE late Dr. George Thompson Henderson has bequeathed £5,000 to Guy's Hospital, the income to be used for the general purposes of the hospital other than the medical school or college.

NO. 8 of Vol. 2 of the Summary of Current Literature, issued periodically by the Water Pollution Research Board's Department of Scientific and Industrial Research, has now been received, and may be consulted in the Library of the British Medical Association.

THE Thirty-eighth French Congress of Surgery will be held in Paris under the presidency of Dr. Tixier, professor of clinical surgery at Lyons, from October 7th to 11th, when the following subjects will be discussed: Indications for, and results of, osteo-synthesis in Pott's disease, introduced by Roche of Bordeaux and Sorrel of Paris; evolution and treatment of wounds of the tendons of the hands, introduced by J. C. Bloch of Paris and P. Bonnet of Lyons; surgical treatment of pulmonary tuberculosis, introduced by L. Bérard of Lyons and G. Lardennois of Paris. Further information can be obtained from the general secretary, 12, Rue de Seine, Paris.

DR. J. HUGH THURSFIELD has been elected a governor of St. Bartholomew's Hospital.

DR. ARTHUR E. GILES, consulting surgeon, Chelsea Hospital for Women, has been elected Master of the Drapers' Company.

THE following appointments have recently been made in foreign faculties of medicine: Professor Paul Heim of the University of Fünfkirchen has succeeded Professor Johann von Bokay in the chair of children's diseases at Budapest; Dr. Georges Bickel has succeeded the late Professor Gustave Humbert as extraordinary professor of propaedeutic medicine at Geneva; and Dr. Hermann Loeschke, director of the Pathological Institute of the Mannheim Municipal Hospital, has been appointed honorary professor at Heidelberg.

A MONUMENT to the late medical historian, Dr. Cabanès, will be dedicated in the cemetery at Gourdon (Lot) on September 1st.

A FURTHER series of brochures (Nos. 150 to 154) has been issued by the International Labour Office, the subjects being: carpets, hangings, and table covers; clerks and office employees; women's work; cresols, cresylic acid; and dimethylsulphate. These brochures, which are eventually to be published in volume form, can be obtained from the London office of this organization, 12, Victoria Street, S.W.1.

WE have received the first issue of *Archives de l'Institut Prophylactique*, a quarterly publication edited by Dr. Arthur Vernes. It contains original articles by the editor on syphilis.

conditions.

DR. HERMANN SAHLI, professor of special nosology and treatment, and director of the medical clinic at Bern, will retire this autumn.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to ***The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.***

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The ***TELEPHONE NUMBERS*** of the British Medical Association and the *British Medical Journal* are *MUSEUM 9861, 9862, 9863,* and *9864* (internal exchange, four lines).

The ***TELEGRAPHIC ADDRESSES*** are:
EDITOR of the *British Medical Journal, Astrology Westcent, London.*
FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*
MEDICAL SECRETARY, *Mediocrem Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone 24361 Edinburgh).

QUERIES AND ANSWERS.

ACCOMMODATION IN UPPER EGYPT.

DR. ANTHONY DELMEGE (Weaverham, Cheshire) writes: I am anxious to hear of inexpensive accommodation—furnished flat or small hotel—in Cairo or neighbourhood, or indeed anywhere in Upper Egypt, for a patient with bronchitis and emphysema who will have to winter there.

TREATMENT OF LOCALIZED PULMONARY TUBERCULOSIS.

DR. J. GORDON HUME (London) writes in reply to the request of "W. J. D." (July 27th, p. 171) for advice in the treatment of a man, aged 27. [illegible]ces, and fatigue. He states: I [illegible] treatment with tuberculin b[illegible] I have administered many thousands of doses of tuberculin in the last few years, with the most satisfactory results, and I repeat what I have said elsewhere—namely, that tuberculin alone, when properly used, yields far better results than all other forms of treatment put together, including sanatorium and residence abroad. In every case where tuberculin has been used in time and the result has been failure, careful inquiry will elicit the facts that some form of tuberculin other than the original Koch's type has been used, and that some system of administration other than that taught by Dr. Camac Wilkinson has been employed.

SPONTANEOUS RUPTURE OF HYDROCELE.

"R. J. M." writes as follows in reply to Dr. R. Cock's question on July 20th (p. 130): In September, 1928, I was called urgently to attend a man, aged 56, who had collapsed while walking some distance from his home. On examination I found the left side of his scrotum enlarged to the size of a coco-nut; from the patient's history and my examination I diagnosed this a ruptured hydrocele. I inserted a trocar and cannula into the scrotum and drained away a pint of blood-stained fluid, leaving some of the fluid in the scrotum, which was absorbed in the course of a few weeks. When the fluid had drained away I was able to identify the left testicle with a hydrocele of small size. Six months later I examined the patient and found a large hydrocele on the left side, which showed no clinical evidence to mark its previous rupture; I tapped this in the usual way.

INCOME TAX.

Locumtenent and Assistant.

"X. Y. Z." asks for information on some questions the nature of which will be apparent from the following replies.

*** Where a professional man is definitely carrying on his profession by *short* term assistantship and locumtenencies we are of opinion that the correct schedule for assessment is Sched. D (professional profits) and not Sched. E (earnings of employment). On that basis the agency commission and costs of travelling are admissible expenses of carrying on the profession in a particular manner. Cash allowances for cost of living are assessable as part of the remuneration received. A reasonable proportion (representing professional as distinct from private use) of the running costs of the car *plus* depreciation at, say, 20 per cent. on a written-down basis, can be treated as expenses, but in that case the cash allowance received in respect of use of the car must be brought in as assessable to tax.

Basis of Assessment.

"W. B." qualified in July, 1927, and acted as an assistant for part of the period January to March, 1928, receiving £3½ for that work. He took over a practice as from July, 1928. What should be the basis of assessment of his earnings for the year to April 5th, 1929?

**** As there has been a change in the source of his earnings his liability for the year 1928-29 is determined by the actual amount of his earnings for that year. It is quite clear also that "W. B." must bring into the first year's account not only the cash received in that year but the value of the debts outstanding at the end of it. The liability for the nine months to April, 1929, will, of course, be three-quarters of the profit calculated for the year to July, 1929.

Motor-car Expenses—Private Use.

"J. R." has been informed that a medical man is entitled to deduct the whole expenses in connexion with his car, whether he uses it for private as well as professional purposes or not.

**** The governing provision is Rule 3 of Cases I and II, Sched. D, which runs as follows: "In computing the amount of the profits . . . to be charged no sum shall be deducted in respect of any . . . expenses not being money wholly and exclusively . . . expended for the purpose of the . . . profession." We have no doubt but that the courts would regard that portion of the motor expenses which are attributable to pleasure or other non-professional use of the car as coming within the prohibition of that rule. Further, we are of opinion that in calculating the amount to be excluded from the total expenses the basis adopted would normally be reckoned according to the mileage ratio of private to professional use.

Motor-car Transactions.

"G. T." bought a coupé in 1925 for £325 and replaced it in April, 1928, with a saloon costing £525. The local inspector of taxes claims to exclude £25 from the net cost of replacement as representing the improved capital value of a saloon as compared with a coupé. "G. T." points out that the amount of the capital expenditure on his car equipment is the same as before.

**** *Reliance on capital cost as the test cannot be regarded as safe.* When motor-car prices were rising the revenue authorities admitted that the whole of the (higher) capital cost represented replacement without improvement. The converse cannot successfully be resisted—that is, that improvement can be effected during a period of falling costs without an increase in the capital cost as compared with the former car.

"M. H." bought a new car in June, 1926, for £200 and sold it in June, 1928, for £65, buying another car for £120. What can he claim for 1927-28 onwards?

**** For 1927-28 and 1928-29 he could have claimed depreciation allowance at, say, 20 per cent. on the reducing value of the car, but that claim should be made when the return is lodged, and those claims are now apparently out of date. (The amounts on the 20 per cent. basis would have been £40 and £33.) The cost of replacement—that is, £120 − £65 = £55, is a professional expense of the year 1928, and will *pro tanto* reduce the amount assessable for 1929-30. For that year depreciation allowance should be claimed in respect of motor-car expenditure as *follows*: £200 − £65 − £55 + £120 = £200 at 20 per cent.—that is, £40.

"D. J. M." bought "A" car in 1924 for £225, and "B" car in 1927 for £155. In 1929 he sold both cars for (£10 + £60 =) £70, and bought "C" for £154. No "depreciation" allowance has been received in respect of the cars. What allowance is due?

**** The maximum allowance for the expense of car maintenance is the amount actually expended—that is, £154 − £70 = £84. If a second car is purchased it should be remembered that that car is also a replacement, and a further allowance will be due. This case illustrates the risks of not claiming depreciation allowance. Unless "D. J. M." buys a second car he will have lost substantially by not making that claim.

LETTERS, NOTES, ETC.

SIR WILLIAM OSLER'S LIBRARIES.

A Correction.

IN the footnote to the annotation published under the above heading in our last issue (p. 155) the price of the "Bibliotheca Osleriana" is given as 6s. This is obviously so absurd a price for such a work that we may hope that none of our readers have been misled into applying to the publishers for a copy at that figure. The correct price is 63s. net.

HERPES ZOSTER AND VARICELLA.

DR. IVAN H. MCCAW (Belfast) writes: In connexion with this subject I think the following is worthy of publication: A mother brought her family *of four children to my out-patient clinic* at the Belfast Hospital for Sick Children this morning. The eldest, a girl of 8 years, showed healing lesions of herpes zoster on the area of distribution of the left tenth thoracic nerve, the eruption having first appeared almost three weeks ago. This child had had an attack of chicken-pox during convalescence after scarlet fever while in the fever hospital three years ago. Two days ago her brother, aged 3½ years, developed a rash which, on examination, is chicken-pox. Yesterday two more brothers, aged 6 years and 18 months respectively, developed rashes, which also prove to be chicken-pox. This group of cases would suggest that the three brothers have been infected with chicken-pox from their sister's herpes zoster.

CONSULTATIVE COMMITTEES UNDER THE LOCAL GOVERNMENT ACT.

DR. I. HARRIS (Liverpool) writes: Your correspondent, Mr. E. W. Monnarrat (July 13th, p. 75) has made a misstatement. He says that the Liverpool Staffs Association "includes in its membership all those who are on the staffs of the local voluntary hospitals." Your correspondent must know quite well that there are three voluntary hospitals in Liverpool not included in the Association. In this respect the Heart Hospital is an instructive example. Its teaching material under one firm about equals the sum total of heart cases at the disposal of the eight physicians and seven assistant physicians of the four general hospitals. As a matter of fact, the number of students attending the hospital, considering its size, *by far exceeds* the number of students of the teaching hospitals. (It is temporarily closed to students owing to an accidental factor.) It is, however, not affiliated to the local school; therefore, it must be excluded, directly or indirectly, from representation on bodies such as the "Penny in the Pound" Council, which have nothing whatever to do with teaching! In order to safeguard their interests, there are four or five medical bodies on Merseyside in course of formation, which, no doubt, will receive recognition by the various lay committees interested in hospital work. Instead of showing a united front at this juncture, so vital to the interests of our profession, there will be four or five bodies acting independently and, to some extent, in opposition to each other.

CANE SUGAR IN THERAPEUTICS.

DR. C. HOLMES (Tongaat, Natal), with reference to Dr. C. G. S. Baronsfeather's note on the above subject (May 4th, p. 838), writes: If, indeed, "cane" sugar and "beet" sugar are indistinguishable chemically, it seems curious that therapeutic qualities should be possessed by the one and not the other. One must then assume that the action of cane sugar on heart muscle does not depend on an increased supply of glycogen, but on the presence of something in cane which is absent in beet. I do not know to what processes beet sugar is subjected in the course of its manufacture, but cane sugar is treated as follows: The cane juice is first treated with sulphur fumes, then lime. Following this it is boiled and treated with phosphoric acid. Lastly, it is filtered through animal charcoal. The sulphur is used for bleaching purposes; the lime, to precipitate impurities and to render the juice alkaline. Following boiling, phosphoric acid is added until the reaction to litmus is *slightly* acid. Is it possible that any delicate substance present in cane would remain unchanged throughout this procedure? It is true that boiling generally takes place at a low temperature at decreased pressure in order to hasten evaporation. The above process is applied to sugar manufactured in this district. I believe that in Cuba the treatment is somewhat different, and that sulphur and phosphoric acid are not used. Pure cane sugar should be white (colourless in solution), and require no bleaching with blue if properly cleaned. Brown sugar I have seen manufactured in Peru, but this certainly was not artificially coloured. Its brownness and stickiness are due, I think, to very slight *burning* in the boiling process carried out at atmospheric pressure. The "Demerara" referred to by Dr. J. Cameron (May 11th, p. 890) is probably a white sugar coloured purposely, but in that case the crystals would not be sticky or hold together. It would be interesting to learn whether the process of manufacture has any effect on the therapeutic qualities of sugar.

TRANSFORMER FOR SMALL SURGICAL APPLIANCES.

DR. E. M. R. FRAZER (Newhall, Burton-on-Trent) writes: With reference to the small *transformer* board for replacing dry batteries in the consulting room, which I described in your issue of May 11th (p. 857), I have had many inquiries regarding its use and where it may be obtained. Further inquirers may be glad to know that these boards can be obtained from Mr. Stone, 114, New Street, Burton-on-Trent.

LEAFLETS FOR PATIENTS.

FURTHER leaflets (Nos. 9, 11, 15, and 16) of the series of Instructions to Patients, prepared by Dr. T. P. B. Watson, have been issued by Messrs. H. K. Lewis and Co. The new leaflets give particulars of (*a*) how to prepare and apply poultices, (*b*) how to deal with constipation, (*c*) with pulmonary tuberculosis, and (*d*) general instructions for feverish cases, respectively. The price is 1s. per packet of 25.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 35, 36, 37, 40, 41, and 42 of our advertisement columns, and advertisements as to partnerships, assistantships, and [illegible] at pages 38 and 39.

A short summary of [illegible] advertisements columns appears in the [illegible].

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

78. Site of the Primary Focus in Pulmonary Tuberculosis.

S. BANG (*Ugeskrift for Laeger*, May 2nd, 1929, p. 389) reviews the conceptions of the pathology of pulmonary tuberculosis, which, in the course of only three or four years, have been so changed that it is now considered a rarity for the disease to begin in the apex. When it does start here it is supposed to be of a comparatively benign character, usually clearing up without the help of sanatorium treatment. On the other hand, it is now assumed that the first demonstrable signs of the disease are most often to be found below the clavicle. To verify these teachings, which are associated with the names of Redeker and others, the author has made a study of 30 consecutive unselected instances of pulmonary tuberculosis in adults, many of which were early cases. In 19 the *x*-ray examination showed the most extensive processes to be infraclavicular. Begtrup Hansen has made a similar comparative study of the site of the exudative processes in 118 cases, and only in 29 did he locate these processes in the apex. In the remaining 89 cases these processes were scattered in other parts of the lungs, being found in the infraclavicular region in 45. In another series of 324 cases, in which cavities were found, the largest cavity was situated above the first rib only in 16 per cent., whereas it was found between the first and third ribs in 79 per cent. The practical results of the present-day conception of the pathology of pulmonary tuberculosis, so far as its diagnosis and treatment are concerned, are considered by Bang most important. Stethoscopically demonstrable signs in an apex do not necessarily imply that treatment is indicated, while the absence of stethoscopic signs over the apex are no guarantee of freedom from pulmonary tuberculosis. Indeed, he adds, no negative verdict must be given without the help of the *x* rays. The early cavities, which they alone can demonstrate, react very satisfactorily to one, and only one, treatment—an artificial pneumothorax. The absence of pleural involvement in these early cases contributes greatly to the success of this treatment.

79. Etiology of the Asthmatic Attack.

H. T. R. MOUNT (*Amer. Journ. Med. Sci.*, May, 1929, p. 697) remarks that the chief characteristic of asthma is the occurrence of paroxysmal attacks of respiratory dyspnoea, and that the suddenness of the onset and the course of the attack suggest, as the underlying mechanism, spasm of the bronchial musculature in response to some stimulus. It is generally accepted that the constrictor fibres to the bronchi travel through the vagi, and that there are cases of reflex asthma. Accepting these two factors, and that bronchial spasm plays a large part in the attack, it may be assumed that stimuli reach the lung and produce the asthmatic attack through the vagi. If certain cases of asthma are due to this cause, relief should result from a method of treatment which would interrupt the pathway of these stimuli. A series of animal experiments was performed to determine whether a physiological basis existed for a reflex mechanism in certain cases of asthma, and whether changes could be produced in the lungs of the animals similar to those found in asthmatic patients by various methods of stimulation of the vagi. The effects of section and evulsion of the bronchial branches of the vagi in a series of dogs were also studied. These tests established a [illegible] r the reflex nature of certain types of [illegible] in the lungs (bronchial constriction, bronchorrhoea, cellular infiltration, and emphysema) which resulted from stimulation of the vagi were similar to those seen in asthma. Since no untoward symptoms occurred in the dogs from section of the vagi, Mount suggests that in certain types of intractable asthma posterior mediastinotomy, with section of the bronchial branches of the vagi, using the extrapleural approach, might be considered.

80. Vascular Calcification in Diabetes.

L. B. MORRISON and I. K. BOGAN (*Journ. Amer. Med. Assoc.*, April 27th, 1929, p. 1424) report a study of the *x*-ray pictures of the legs and feet of 324 diabetic patients ranging in age from 2 to 81. The lower instead of the upper extremities were chosen for the study because the vessels of the leg show evidence of sclerosis earlier than those of the arms. Calcification was not always seen in the aorta even when the process was moderately advanced in the vessels of the legs; this was due partly, perhaps, to the fact that it is more difficult to detect calcification in the aorta. This investigation showed that the incidence and, as a rule, the degree of vascular calcification increases with age and with the duration of the disease. Evidence of calcification was present in 53 per cent. of the cases; in the third decade 6 per cent. of the patients had vascular calcification, and in the seventh decade 87 per cent. Advanced calcification was not found under the age of 40; it was noted in 21 per cent. of the cases. No case of gangrene occurred in patients younger than 40. Syphilis, dental infections, and arthritis appeared to play no part in the production of vascular calcification. The blood pressure in this series of cases increased with age, but not with the duration of the condition. The authors consider that radiology affords an accurate method of judging the presence of calcium in vessel walls, and is more reliable than clinical methods in the diagnosis of vascular calcification; they suggest that it might be helpful to insurance physicians. They conclude that diabetes mellitus is an etiological factor in the production of vascular calcification.

81. Rocky Mountain Spotted Fever.

R. R. SPENCER (*Journ. Infect. Dis.*, April, 1929, p. 257) states that this fever is an acute, specific, non-contagious tick-borne disease endemic in the north-western part of the United States, and closely resembling typhus fever clinically. The endemic area corresponds to the distribution of the tick, the virulence of the infection varying with the locality from 5 per cent. to 89 per cent. *Dermacentroxenus rickettsi*, a Gram-negative, pleomorphic, intracellular Rickettsia-like organism, is generally regarded as the causative agent. The average incubation period in man following natural infection by a tick bite is four to seven days, while in experimental animals the incubation ranges from twenty-four hours to ten days. The Weil-Felix reaction was present in most of the cases tested by Spencer. Prevention of the disease is threefold: (1) Tick or rodent destruction. Poisoned grain is used for the destruction of small rodents, and adult ticks are killed by dipping the domestic stock in water containing arsenic, washing soda, and pine tar. (2) Introduction of the tick parasite *Ixodiphagus caucurtei* for control of the spotted fever tick. (3) Inoculation with a vaccine prepared from infected ticks. The duration and degree of immunity conferred by vaccination vary greatly, and in some cases the immunity may not last longer than one season. There is no specific treatment.

Surgery.

82. Indications for Tonsillectomy.

A. FORSELLES (*Finska Läkaresällsk. Handlingar*, February, 1929, p. 101) prefaces a statistical analysis of the work of his hospital department with a review of the history of tonsillectomy in Europe and America. In the latter, within an unspecified period, 124 doctors were involved in judicial proceedings connected with tonsillectomies, 31 of which operations terminated fatally. In this series there were 9 cases of post-operative haemorrhage, 5 of abscess of the lung, 20 of injuries to the pillars of the fauces, and 16 in which the uvula was accidentally amputated. It is with this background of wholesale tonsillectomies, undertaken without definitely specified indications and involving legal sequels, that the author attempts to define concisely the indications for this operation. He concludes that it is justifiable in the case of (1) adults suffering from oft-recurring angina or chronic tonsillitis, with local or general symptoms; (2) malignant tumours, or benign tumours if these are more easily removed by tonsillectomy than by extirpation of the tumours; (3) sepsis of the tonsils; (4) children whose tonsillar symptoms are due to hypertrophy of the tonsils only in exceptional cases, and when tonsillotomy cannot be performed. Adults who have no tonsillar symptoms, and whose tonsils appear to be normal, should be allowed to retain them intact. In the ten-year period 1918–27, in the oto-rhino-laryngological department of the University Hospital in Helsingfors, 561 tonsillectomies were performed on 308 patients. In 55 cases the operation was limited to one side, whereas in 253 cases it was performed on both sides. 121 of these patients being operated on (each on two different occasions), and 132 having both tonsils removed at the same time. Only four of the patients were under the age of 10; seventeen were between the ages of 10 and 15. The youngest was 5 years old, the oldest 48. The only case that terminated fatally was that of a patient who, after being discharged from

hospital, was readmitted suffering from diphtheria, which necessitated tracheotomy, and was followed by pneumonia. There were twelve cases of rather severe haemorrhage at the time of operation, and nine of severe post-operative haemorrhage; one patient had abscess of the tongue. The indications for these tonsillectomies were recurrent attacks of quinsy in 72 cases, tonsillar plugs in 13, endocarditis or some other morbid condition of the heart in 24, polyarthritis in 48, nephritis in 6, lymphadenitis in 3, a fibroma of the tonsil in 1, meningitis in 1, and sepsis with empyema in 1 case. In the remaining 139 cases the patients suffered from relapsing angina or chronic tonsillitis.

83. Cancer of the Pancreas.

Dealing only with its semeiology, M. Roch (*Rev. Méd. de la Suisse Romande*, May 25th, 1929, p. 326) points out that the diagnosis of cancer of the pancreas is very difficult owing to the similarity of the symptoms to those of other conditions. It is essential to know the most frequent symptoms, and for this purpose the organ is considered as having three parts—the head, body, and tail. This classification is not absolute, since cancer, localized at first to one region, may successively involve all. Cancer of the head is by far the most frequent form, comprising 75 to 80 per cent. of the cases, and its symptoms have been ably described by Bard and Pic. The positive signs are a rapid cachexia, a bronzed icterus with faecal discoloration, distension of the gall-bladder, and sometimes pains and an epigastric tumour; the negative signs are the absence of ascites, of tumour of the liver, and of splenomegaly. The essential symptom is the icterus, while distension of the gall-bladder is also very characteristic and of great practical importance. This (the pancreatic-biliary) syndrome is the most frequent, and is due to compression of the common bile duct. In rare cases this compression does not occur, and this gives rise to a pancreatic-duodenal or pyloric syndrome which may simulate cancer of the alimentary tract. This can be differentiated by the presence of achlorhydria and occult or gross haemorrhages and by radiology. The symptoms of cancer of the body have been well described by Chauffard as a pancreatic-solar syndrome characterized by epigastralgias with very intense exacerbations and varied irradiations, gastric intolerance, and the presence of Einhorn's sign—increase of the pain in the dorsal decubitus, due to pressure on the retro-pancreatic solar plexus. This condition may be mistaken for tabes or gastric ulcer; differential points are the absence of signs of tabes, the cachexia, and the results of radiological and gastric juice examinations. Sometimes the tumour causes compression of the aorta; in these cases a pulsatile tumour, often with a systolic souffle, is felt on or a little to the left of the median line. This condition may simulate abdominal aortic aneurysm; the duration of the tumour, the absence of lateral extension and of retardation of the femoral pulse, rapid cachexia, and negative Wassermann reactions indicate malignancy. Cancer of the tail remains latent for a long period, slowly gives rise to signs of compression in neighbouring organs, and simulates tumours of the left kidney or spleen. The stomach is mostly affected. While cancer of the head compresses particularly the duodenum, and that of the body the lesser gastric curvature, cancer of the tail causes compression of the greater curvature, manifested by gastric pain, dyspepsia, and vomiting. X rays reveal a notch, causing almost an incomplete bilocunation, at the middle third of the stomach. This picture, variations according to position, the presence of peristalsis, and the rapid cachexia differentiate this condition from gastric cancer.

84. Injection Treatment of Varicose Veins.

M. B. Cooperman (*Med. Journ. and Record*, May 15th, 1929, p. 511) discusses the injection treatment of varicose veins from an experience of 500 injections given to 62 patients ranging in age from 22 to 67 years. In addition to the usual indications for treatment of the condition, such as unsightliness, pain, eczema, and ulceration, Cooperman considers that chronic hypertrophic villous synovitis of the knee-joint and other secondary degenerative changes, including hypertrophy, fibrosis, and osteo-arthritis, are often caused by the condition, and that sclerosing injections afford an effective remedy. The treatment is contraindicated in advanced diabetes, or if age accompanied by cardiac or renal degeneration, acute thrombophlebitis, and in cases in which the varicose veins are occluded or where there is lymphatic [illegible]. The only [illegible] the sclerosing [illegible] of 5 per cent. solution of sodium salicylate, the average total amount injected at [illegible] varying from 2 to 20 c.cm., the amount [illegible] injections a [illegible] solution of [illegible] but to counteract the cramp-like pains occurring after injection, normal salt solution freely injected round the vein after each puncture is advised. While cure is not claimed in all cases, and exceptional recurrences may occur, the proportion of successes is larger and relapses are less frequent than with the older surgical treatments.

85. L. Gaugier (*Presse Méd.*, May 25th, 1929, p. 686), in using the term "fragility" with reference to the veins, calls attention to the variety of response found to the injection of sclerosing solutions in the practice of Sicard's method for the cure of varicose veins. If it is arbitrarily admitted that the normal condition is to find a length of 6-8 cm. of a vein undergoing sclerosis, without any signs except those of an obliterative endovenitis, as the result of injecting 3 c.cm. of a 30 per cent. solution of sodium salicylate, then it must be admitted that in many cases there is a great variation in the direction of either hyper- or hypo-sensitiveness towards irritation, as measured by the extent of sclerosis resulting. In estimating the probable response of any patient's veins to treatment, Gaugier considers that the key to the question is to be found in the previous history. Wherever the circulation of toxins or bacteria in general diseases has been associated with thrombosis or phlebitis, a special "fragility" or hypersensitiveness of the venous walls to irritation should be suspected, and in such cases particular care should be exercised in choosing the strength and amount of the initial injection.

Therapeutics.

86. The Treatment of Hyperthyroidism.

D. Dautrebande (*Le Scalpel*, May 25th, 1929, p. 561) believes that rest is one of the principal treatments of hyperthyroidism, and cites the work of Kessel in this respect. This investigator placed fifty patients under the most favourable conditions of rest and quiet without any other treatment. Graphs are given which show that the results were as brilliant as those from surgery or radiotherapy. Dautrebande is not in accord with those who hold that iodine produces symptoms of Basedow's disease in cases of ordinary endemic goitre, nor with those who deny the prolonged action of this drug; he has found that prolonged effects can be obtained by increasing the dose each time metabolism rises after the initial drop. In refractory cases very high fractioning of the doses should be employed and the prescribed amount of iodine be given five or even up to twenty times a day. A commencing dose of 2 minims of Lugol's solution should be given five times, or in more severe cases ten times, a day; the solution contains 10 per cent. of iodine and 20 per cent. of potassium iodide. Guided by examinations of the basal metabolism, this fractioning is increased as is necessary; rarely is a larger amount than 30 minims a day required. By this method the gastric troubles caused by large doses of iodine are avoided. When the metabolism has been maintained at a minimum for several months, if the general state is good and particularly if there is no nervousness, the dosage can be decreased and finally discontinued for a period if a close watch is kept on the nutritive exchanges and the patient is guarded from emotional disturbances and infections. If a patient is refractory to even this treatment he should be put to bed and given very frequent small doses of iodine; a subtotal thyroidectomy may be performed during a lull in the nervousness. This treatment by rest, quiet, and fractional doses of iodine has proved most efficacious in maintaining a metabolic minimum, in restoring weight despite ambulatory treatment, and in creating physical conditions better able to tolerate more radical measures. This technique should be employed even in the most severe crises. If the goitre continues to exist despite thyroidectomy, it is the only possible treatment.

87. Plasmoquine in Malaria.

In a series of three papers R. Green (*Bull. Instit. Med. Res., Fed. Malay States*, 1929, No. 3) reports the results of treating cre-cent carriers and quartan malarial cases with plasmoquine compound, as compared with those resulting from quinine treatment alone. The daily dose of plasmoquine co., administered in tablets, was 0.04 gram of plasmoquine and 0.5 gram of quinine sulphate (8 grains of quinine sulphate). The results, in the author's opinion, justify the following conclusions. Plasmoquine appears to be more efficient than quinine in destroying the gametocytes of both *P. falciparum* and *P. vivax*. A dose of 0.04 gram daily in adult cases is an efficient gametocide, and, though this dosage is sufficiently free from toxic effects, continuous medical supervision is necessary in view of the narrow margin between the effective dose and that which may cause toxic symptoms. This dosage is sufficiently active against gametocytes to be effective in

sterilizing all but a very few crescent carriers in approximately twelve days. As each drug is effective in its own sphere, a combination permitting the convenient daily administration of 0.04 gram plasmoquine and 20 grains of quinine would be an advantage in treating cases of subtertian malaria which are also crescent carriers; in quartan malaria a similar dosage might be considered. No evidence was found in 96 cases that plasmoquine causes bradycardia. Contradictory results noted in subtertian and quartan cases do not permit the conclusion that plasmoquine causes a more rapid reduction in size of malarial spleens than does quinine, nor that abdominal pains after taking plasmoquine are due to rapid reduction in size of the spleen.

88. Mercurochrome in Biliary Therapeutics.

CONTINUING the previous work of Hill and Scott on the hepatic excretion of mercurochrome, L. MARTIN and J. H. HILL (*Amer. Journ. Med. Sci.*, May, 1929, p. 710) have studied the use of mercurochrome as a biliary antiseptic, as a means to visualize gall-bladders, and as a treatment in cholecystitis. Working with rabbits, Hill and Scott demonstrated that mercurochrome is excreted in large amounts by the liver, that the drug may be present in the bile in bactericidal quantities, and that artificially produced infectious of the gall-bladder could be controlled by intravenous injections of the dye. Some authorities agree with these findings; others contradict them. The present authors found that, after oral administration of mercurochrome to the point of salivation in thirteen individuals, the bile was never bactericidal or inhibitory and never contained visible traces of the dye; the treatment had no alleviating effects upon the symptoms in eight cases of cholecystitis. Following intravenous injections in man, the drug may be demonstrated in the bile siphoned out through a duodenal tube in eighteen to twenty-three minutes; this bile is bactericidal and contains mercury. Mercurochrome may be obtained also by duodenal drainage eighteen to twenty hours after intravenous injection; therefore it can apparently be stored in the gall-bladder. This latter bile is also bactericidal and contains mercury. Of eight patients with cholecystitis who received mercurochrome intravenously, three were not helped, but five were clinically cured and their bile specimens were sterile. The storage of mercurochrome in the gall-bladder results in a shadow being caused in *x*-ray films.

Neurology and Psychology.

83. Arterio-sclerotic Parkinsonism.

M. CRITCHLEY (*Brain*, April, 1929, p. 23) draws attention to a variety of Parkinsonism due to cerebral arterio-sclerosis. All gradations occur, from the mildest degree of hypokinesis and hypertonus (arterio-sclerotic rigidity) to forms barely distinguishable from classical paralysis agitans, but incomplete forms are more common. Arterio-sclerotic Parkinsonism may be classified into five clinical types: (1) early cases characterized by some immobility of expression and short-stepping gait; (2) cases forming part of the pseudo bulbar syndrome; (3) cases associated with marked intellectual defect; (4) pyramido-pallidal syndromes; and (5) cerebello-pallidal syndromes. Several clinically distinctive points between this condition and idiopathic paralysis agitans may be noted. The symptoms may commence suddenly in arterio-sclerotic cases, though an insidious onset is more usual. The progression is more rapid and may present abrupt exacerbations. The age of onset is approximately the same in the two conditions, but an unusually early or a very late age at onset suggests a vascular basis. In the arteriopathic cases tremor is usually absent, the muscles feel firmer to the touch, and the rigidity is often characterized by a superadded tendency to katatonia. Many arterio-sclerotic cases (those in Group 2) have "bulbar" signs and emotional incontinence, and in a large number there is also a more or less profound dementia. The presence of other focal cerebral symptoms (aphasic, apraxic, cerebellar, or pyramidal) indicates an arterio-sclerotic basis. Evidence of disease in the cerebral or peripheral blood vessels is present in the arterio-sclerotic varieties; the blood pressure is often high, but in the senile or decrescent types of arterial degeneration the tension may be low. The pathological appearances vary greatly in character and distribution; the essential features comprise lesions in the globus pallidus, and, to a lesser extent, in the substantia nigra, directly consequent on vascular disease. Pallidal lesions must not be regarded as solely responsible for the clinical appearances, for changes at other levels contribute to the rigidity. Thus, mental impairment, pyramidal disease, changes in the peripheral nerves and in the muscles, tendons, joints, and blood vessels of the extremities, all play a part in producing a hypertonic-hypokinetic syndrome. By isolating an arterio-sclerotic variety, support is given to the conception of Parkinsonism as a syndrome which may occur under numerous pathological circumstances. It is the site rather than the nature of the disease which produces the characteristic clinical picture.

90. Myasthenia Gravis.

A. QUERIDO (*Journ. Nerv. and Ment. Dis.*, May, 1929, p. 522) records a case presenting all the clinical characteristics of myasthenia gravis in which the pathological changes in the striated muscles, liver, lung, and kidney pointed to the condition being a general vascular disease defined as a perivasculitis chronica proliferans. The patient, a servant girl with a family history of lunacy, alcohol, and tuberculosis, involving several of her relations, had good health until she was 28, when she began to complain of extreme fatigue after slight exertion, double images, and attacks of collapse and dyspnœa, which gradually became worse until her death at the age of 35, after an illness of eight years. Necropsy showed cardiac degeneration, pericarditis, congestion of most organs, and a change in the aspect of the skeletal muscles. In addition to a marked distension of the capillaries, with occasional microscopic haemorrhages in nearly all the organs, the striped muscles, lungs, liver, and kidneys showed analogous microscopic changes, consisting of perivascular foci containing leucocytes, lymphocytes, plasmatic cells, fibroblast and ripe fibrous tissue, with traces of haemorrhage, and the walls of the vessel running through such foci were infiltrated with the same types of cells. The author, supported by evidence from the literature, regards the loss of muscle strength as a symptom of a general vascular disease caused by a chronic inflammation of the small vessels, which may occur in all parts of the body, thus affording an explanation of many hitherto puzzling accessory symptoms.

91. The Ocular Signs of General Paralysis.

J. V. ALVIM (*Rev. oto-neuro-oftalmol. y de cir. neurol.*, March, 1929, p. 104), who records 11 cases in patients aged from 26 to 58, states that in spite of the frequency of inequality of the pupils in general paralysis, it cannot be regarded as pathognomonic of this disease, since it is met with in numerous intoxications, infections, dementia præcox, cerebral tumours, and other psychoses, as noted by Mignot, Sérieux, and Marandel de Montyel. In addition to excessive contraction or dilatation, inequality in the size of the pupils, and changes in the reflex, ptosis, strabismus, diplopia, nystagmus, and amaurosis have been found in general paralysis. Apart from such causes as congenital ocular affections, influence of emotion, changes due to drugs such as morphine, eserine, scopolamine, and duboisine, a previous attack of iritis, and imperfect illumination, it should be remembered that rigidity of the pupils and the Argyll Robertson pupil are stigmata of syphilis and are the precursors of tabes or general paralysis. Although the Argyll Robertson pupil is not found in all cases of general paralysis, there is no doubt that its presence is in most cases a sign of syphilis of the cerebro-spinal axis, especially of the meningeal form, tabo-paralysis, or general paralysis.

Obstetrics and Gynaecology.

92. Cerebral Manifestations in Labour.

A. FRUHINSHOLZ and L. CORNIL (*Presse Méd.*, May 11th, 1929, p. 617) report sixteen cases of transient aphasia and hemiplegia occurring in parturient women, in order to show that in addition to cases where there is coexistent syphilitic disease of the brain, gross uterine sepsis, albuminuria, eclampsia, or valvular disease of the heart, there is a class of case where similar signs appear as the direct result of parturition itself. In their series all the manifestations were noted during the first three weeks after confinement, and in young and generally healthy women free from any of the complications mentioned above. The authors dissociate their views from those of Vinay, who published in 1894 an account of similar cases which he attributed to unrecognized lesions of the cardiac valves; they deplore also the tendency of writers of modern textbooks to regard all aphasic and hemiplegic incidents in parturition, from whatever cause, as being of equally grave import, one author having stated that the mortality in all cases was 47 per cent. With regard to etiology, the authors find that most patients were women between the ages of 20 and 30; of 15 cases where the parity was known, 7 were primiparæ, 4 confined for the second time, and 4 were multiparæ. In only three cases was labour normal; in the remainder there was some abnormality of placental insertion, forceps delivery, or other potential cause of minor degrees of sepsis. Two main varieties of cases are recognized. In the first the condition develops on the second

or third day without prodromal signs; these cases are essentially of transient duration, lasting from a few hours to two or three days. In the second variety there is more commonly a gradual onset between the seventh and twenty-fifth days, and the condition is of longer duration. In 14 of the 16 cases recorded there was a right-sided hemiplegia of varying severity, with all the classical signs except for the absence of Babinski's reflex—a point in favour of a transitory lesion of the cerebral cortex. The appearance of Jacksonian movements of the right arm, in 4 cases, suggests to the authors that the lesion was a cerebral oedema, while the occurrence in others of subjective paraesthesia without any pain is regarded as proof of the lesion being cortical rather than deep. In 13 cases aphasia was associated with right hemiplegia. In one case aphasia occurred as the sole symptom, and in 3 there was no aphasia. When present it was usually of the Broca type, both expression and comprehension being affected. The prognosis, judging from this series, is relatively good. There was one death from pulmonary embolism, but in the majority the condition cleared up completely in a few days to a few weeks; in only one case was there a residual paralysis after three months, while in 4 patients further confinements were without complications. With regard to pathology, the authors admit that nothing can be stated with certainty, but they note that the selective period of occurrence (mostly from the ninth to the seventeenth day) is the same as that for embolic accidents; they have also been struck by the fact that in their small series two cases of phlegmasia alba dolens were found, and that this condition is seen most often in the same type of patient. Among other hypotheses to explain the condition, one is the existence of a patent interauricular septum in association with minute haemic or bacterial emboli of venous origin. The authors are inclined to support this theory of causation because of the common localization of the lesion to the left side of the brain.

93. Streptococcal Antitoxin in Puerperal Fever.

A. F. LASH (*Amer. Journ. Obstet. and Gynecol.*, March, 1929, p. 297) records his observations on 57 women in various stages of puerperal fever treated by a new concentrated streptococcal antitoxin; 20 were cases of uncomplicated acute endometritis and metritis, 20 of acute endometritis and parametritis, 10 of pelvic peritonitis and generalized peritonitis, 30 of parametritis and thrombophlebitis, and 4 of embolic pulmonary complications. Lash's conclusions were as follows. Small doses of concentrated antitoxin producing favourable clinical results without immediate reactions indicated a specific rather than a non-specific action. Further evidence of this specific action was adduced by the fact that with the increasing potency of the serum correspondingly smaller doses were used with equivalent results. The large amounts of serum employed at first were probably superfluous, as the only guide then used was fever rather than the condition of the patient. Immediate reactions were uncommon, and serum sickness only occurred after large doses. The antitoxin did not produce any irritating effect upon the kidney or any other organ. As this antitoxin is comparable in its efficacy in the treatment of puerperal fever to diphtheria, scarlet fever, or tetanus antitoxin, a woman developing symptoms of puerperal fever should receive it within thirty-six to forty-eight hours of the onset. In an advanced stage it is practically useless. Comparison of mortalities in the group of patients receiving antitoxin (32 per cent.) and control group (61 and 61 per cent.) is evidence of the therapeutic value of puerperal fever streptococcal antitoxin.

94. Caesarean Section in Infected Cases.

A. PAGEZ (*Zentralbl. f. Gynäk.*, March 23rd, 1929, p. 726) compares the merits and demerits of Porter's and Sellheim's operations in cases in which, although there is indubitable clinical evidence of infection of the mother, natural delivery is impossible. He contrasts an operation with the mortality of the living or dead foetus [illegible] per cent. mortality of Porter's operation [illegible] these seven cases hitherto recorded [illegible] Porter's operation as illusory. Sellheim's [illegible] Porter records a further successful example, consisting [illegible] which was described twenty years ago, and of [illegible] operation [illegible] the past [illegible] the anterior wall of the [illegible] patient in the horizontal position [illegible] the uterus [illegible] and the wound [illegible] by [illegible] Porter's [illegible]

Pathology.

95. Secondary Echinococcosis.

H. DEW (*Journ. Coll. of Surg. of Australasia*, March, 1929, p. 337) describes the structure of a simple hydatid cyst, and states that if one be punctured or ruptured under aseptic conditions death of the parasite does not invariably follow. The parasitic cells in many cases are so persistent that the germinal elements give rise to a fresh local or generalized series of cysts, the phenomena being best described as secondary echinococcosis. In the case of multiple cysts, it is probable that they are secondary. Dew believes that secondary cysts are mainly derived from the relatively undifferentiated scolices rather than from the mature type, and that daughter cysts, brood capsules, scolices, and germinal membrane can all give rise to secondary cysts that may ultimately become fertile. Four types of this condition are discussed: localized secondary echinococcosis; peritoneal and pelvic echinococcosis; pleural; and metastatic echinococcosis. A good example of the localized type is seen in cysts of the subcutaneous or muscular tissues, in which either direct mechanical trauma or violent muscular contraction leads to the shedding of germinal elements into the tissues. Post-operative recurrence in the original cyst, in the scar, or in the depths of the operation field constitutes another type. Secondary cysts in the peritoneum are the most familiar type, and are always due to leakage from a primary abdominal cyst, which is usually situated in the liver. The scolices may remain localized near the liver, giving rise to multiple perihepatic cysts, but as a rule the lower quadrants of the abdomen and the pelvis are their favourite sites. These cysts are of slow growth during a latent period of five to fifteen years. Following intrapleural rupture of a cyst, a simple or valvular pneumothorax is usually seen. These secondary cysts may be localized by adhesions or become generalized throughout the cavity. Metastatic secondary cysts are the rarest type, may occur in the lungs, brain (the commonest), heart, spleen, and kidneys, and are always due to an intravascular rupture of a fertile simple cyst. Such rupture may occur into the venous circulation, either into the peripheral veins or into the arterial stream, when it always involves the heart, or into the arterial veins or into the right side of one of the left cardiac chambers.

95. Clive's Serum Test for Syphilis.

F. CANTANI (*Ref. Med.*, April 27th, 1929, p. 564) has repeated the technique of Clive, who, by his acetic anhydride method of testing the serum for syphilis, obtained in a series of 574 serums only 80 that were not in agreement with Wassermann test results. Two cases gave positive Wassermann reactions and negative Clive ones, while 78 with negative Wassermann reactions were positive according to the Clive test. But, after excluding from the last group those cases which were undoubtedly or probably syphilitic, Clive concluded that his method only gave an erroneous positive result in eighteen non-syphilitic cases, equivalent to the small error of 3.35 per cent. Cantani's observations, however, on 193 serums were as follows. Out of 82 serums positive according to the Wassermann test 78 were similarly positive by the Clive test, but the Clive reaction was positive also in no fewer than 93 of the remaining 108 serums in which the Wassermann reaction was negative. These results show an agreement of 95 per cent. for the positive group, but only a 16.6 per cent. agreement for the negative group. Cantani concludes that Clive's test is not applicable to the serum diagnosis of syphilis.

97. The Reaction of Brucella abortus and Brucella melitensis to Certain Aniline Dyes.

S. SAITTA (*Giorn. di Batter. e Immunol.*, April, 1929, p. 307) has examined the effect of certain aniline dyes on the growth of seven strains of *Br. melitensis* and eight strains of *Br. abortus*. The dye was incorporated in an agar medium; the tubes were inoculated with the same number of organisms; and readings of the amount of growth were taken after two or three days or so. It was found that on agar containing 1 in 50,000 gentian violet all but one of the *abortus* strains multiplied freely, while only two of the seven *melitensis* strains grew well. The differentiation of the two groups of strains was rather more marked on agar containing 1 in 25,000 basic fuchsin. The best differentiation, however, was obtained with 1 in 25,000 malachite green; on this medium all of the *abortus* strains developed, while only three of the *melitensis* strains grew at all, and then only in discrete colonies. The author does not maintain that the use of aniline dyes will enable one to distinguish with certainty between the two organisms; but he does assert that the difference in relation between the two organisms is sufficient to show that they cannot be considered as identical.

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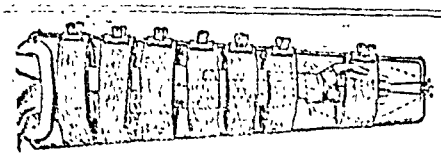

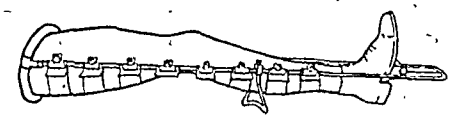

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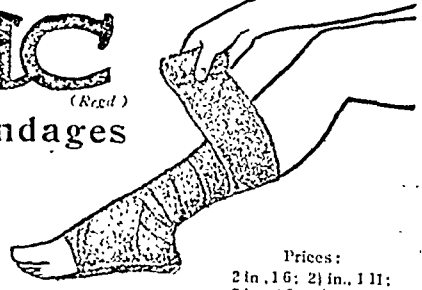

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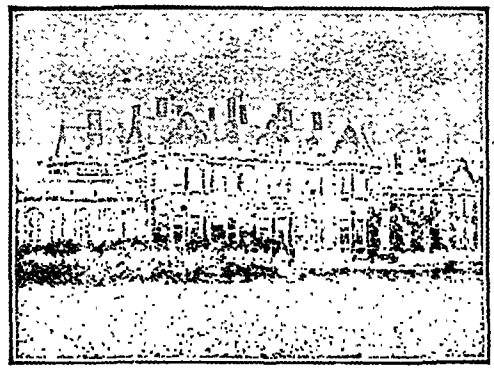

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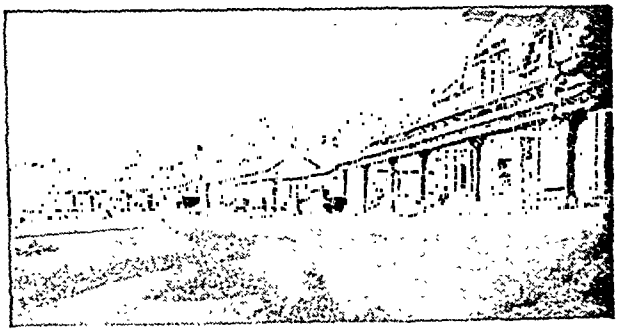

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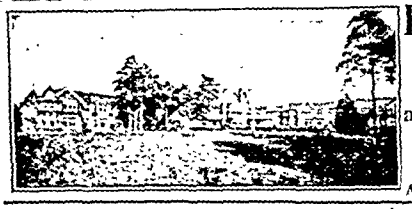

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2. Radiology and Electrology, with examinations in April and July.
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The second three months must be spent in London, where courses of lectures are given at the British Institute of Radiology, and are combined with clinical instruction in the large teaching hospitals.

The third three months may be spent in recognized hospitals in London or elsewhere, the student acting as clinical assistant or in similar capacity.

Further information as to the Courses may be obtained from:

G. STEAD, M.A., Secretary for the Diploma, and Lecturer in Physics as applied to Medical Radiology, Cavendish Laboratory, Cambridge.

A. E. BARCLAY, O.B.E., M.A., M.D., Lecturer in Radiology, Department of Radiology, Medical School, Cambridge.

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[illegible] R.C.P.I.
[illegible] C.P.I.
[illegible] F.R.C.P.I.
[illegible] C.B., M.D., F.R.C.S.I.
Sir WILLIAM WHEELER, M.D., F.R.C.S.I.
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This Examination will commence on Tuesday, October 1st, 1929.

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This Examination will commence on Thursday, October 3rd, 1929.

FIRST EXAMINATION (NEW REGULATIONS).
This Examination will commence on Thursday, October 3rd, 1929.

THIRD OR FINAL EXAMINATION.
This Examination will commence on Monday, October 7th, 1929.

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HORACE H. REW,
July 26th, 1929. *Secretary.*

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Candidates are required to give not less than twenty-one days' notice in writing of their desire to present themselves for these examinations to Mr H. H. REW, Examination Hall, Queen Square, London, W.C.1, from whom all particulars relating thereto may be obtained.

DIPLOMA OF FELLOW.

Notice is hereby given that the next PRIMARY and FINAL [illegible] Diploma of Fellow will [illegible] DECEMBER 3rd, and 21st, 1929, respectively.

Candidates are required to give not less than fourteen days' notice of their desire to present themselves for either of these examinations.

Particulars relating to these examinations may be obtained from Mr. H. H. REW, as above.

July 26th, 1929.

Refraction and the Ordering of GLASSES

taught by Practising Ophthalmic Surgeon in London. £8 8s for 10 lessons.—Address, No. 125, B.M.A. House, Tavistock Square, W.C.1.

COLONIAL MEDICAL SERVICES.

Vacancies exist at present for MEDICAL OFFICERS in:—

(*a*) THE WEST AFRICAN MEDICAL STAFF.

(*b*) THE MALAYAN MEDICAL SERVICE.

QUALIFICATIONS.

Applicants must be British subjects of European parentage and between 22 and 35 years of age. They must possess a double qualification and be on the British Medical Register. Preference will be given to candidates who have held hospital or public health appointments, or who have special knowledge of anæsthetics, radiology, surgery, medicine, ophthalmology, gynæcology and midwifery, diseases of the ear, nose, and throat, venereal diseases, etc.

COURSES OF STUDY.

Selected candidates will be required to take a special course of study in tropical medicine and hygiene commencing in October, either at the London School of Hygiene and Tropical Medicine or at the Liverpool School of Tropical Medicine, or at the University of Edinburgh, before taking up their appointments. Tuition fees will be paid and an allowance granted by Government subject to certain conditions.

Further particulars and forms of application may be obtained, on application in writing, from the PRIVATE SECRETARY (APPOINTMENTS), COLONIAL OFFICE, 2, Richmond Terrace, Whitehall, London, S.W.1.

ROYAL AIR FORCE MEDICAL SERVICE.

A limited number of candidates will be selected for Commissions as MEDICAL OFFICERS in the Royal Air Force in September, 1929.

The next course of instruction for Medical Officers on joining will begin on October 1st, 1929.

There will be no entrance examination, candidates being appointed by selection. Candidates wishing to submit applications should apply for full particulars as to the conditions of service and emoluments and forms of application to the *Secretary, Air Ministry (D.M.S.), Adastral House, Kingsway, London, W.C.2.*

They should be prepared to attend for interview and medical examination in London about the middle of September.

Middlesex Hospital Medical SCHOOL (UNIVERSITY OF LONDON), London, W.1.

PHYSIOLOGY.

A SECOND DEMONSTRATOR (not necessarily medically qualified) is required for the Department of Physiology. He will be expected to carry out research under the direction of the Professor, and ample time and facilities will be afforded for this work.

The appointment will be for one year in the first instance, and the holder will be eligible for re-appointment on the recommendation of the Professor. Initial salary £250 per annum. Applications, together with copies of testimonials, should be sent to the School Secretary, Middlesex Hospital, London, W.1, not later than September 1st, 1929.

Glasgow Asylum Service.

JUNIOR ASSISTANT MEDICAL OFFICER (male) wanted for the GOVAN DISTRICT ASYLUM. Previous asylum experience unnecessary, but preference will be given to one who has engaged in pathological work or has been House Physician. Ample opportunity afforded for research. Salary to commence £525 per annum, with board, lodging, and laundry. Full particulars on application to the Medical Superintendent, Hawkhead Asylum, Glasgow, S.W.2.

University of Sydney.

The Senate invites applications from gentlemen qualified to hold the BOSCH CHAIR OF SURGERY, the duties of which commence on March 1st, 1930. The salary is £2,500 per annum, without Superannuation rights. Applications (8 copies) should reach the undersigned by October 19th, 1929, but the University reserves to itself the right to invite any person to the Chair. A memorandum giving further particulars may be obtained on request.

The Senate invites applications from gentlemen qualified to hold the BOSCH CHAIR OF MEDICINE, the duties of which commence on March 1st, 1930. The salary is £2,500 per annum, without Superannuation rights. Applications (8 copies) should reach the undersigned by October 9th, 1929, but the University reserves to itself the right to invite any person to the Chair. A memorandum giving further particulars may be obtained on request.

The Senate invites applications from gentlemen qualified to hold the BOSCH CHAIR OF BACTERIOLOGY, the duties of which commence on March 1st, 1930. The salary is £1,100 per annum, subject to a deduction of 5 per cent. for the University Professorial Superannuation Scheme. Applications (8 copies should reach the undersigned by October 19th, 1929. A memorandum giving further particulars may be obtained on request.

AGENT-GENERAL FOR NEW SOUTH WALES, LONDON.
Australia House, Strand, London, W.C.2.

General Infirmary, Salisbury.

(General Hospital—151 Beds.)

A RESIDENT HOUSE PHYSICIAN (male) required as soon as possible.

Candidates must be unmarried, fully qualified, and registered. Salary £150, with board, etc.

Applications, with copies of testimonials, to be sent to the House Governor and Secretary at once.

Lowestoft and North Suffolk HOSPITAL.

HOUSE SURGEON (male) required. Salary £150 per annum, with board, residence, and laundry. Applications, with copies of three recent testimonials, to the Honorary Medical Superintendent.

Kettering Urban District COUNCIL.

MEDICAL OFFICER OF HEALTH.

for the appointment
with for the Urban

ed 45 years of age,
will be required to
posed on a Medical
as School Medical
the *Joint Hospital*
ll the duties *in con-*
nection with the Council's Maternity and Child Welfare Service, and all such other duties as the Council, with the consent, if necessary, of the Minister of Health, may from time to time direct.

He will be required to devote his whole time to the duties of the offices and will not be permitted to engage in private practice.

ect to the provisions
and Other Officers
the Public Health (Officers) Act, 1921, and the Sanitary Officers Order, 1926.

The successful candidate will be required to pass a medical examination.

The commencing salary, which will cover all the duties above mentioned, will be £825 per annum inclusive, rising by annual increments of £25 to a maximum of £900, subject to a rise or fall of 1½ per cent. for every five points variation in the cost of living, the salary being calculated on a basis of 65 per cent. above pre-war.

Applications, on forms to be obtained from me, together with copies of not more than three recent testimonials, must reach me not later than Monday, August 26th.

Canvassing in any form will disqualify.

Council Offices, High Street, Kettering. July 30th, 1929. JOHN CHASTON, Clerk of the Council.

British Legion Village, PRESTON HALL.

There is a vacancy on the staff for a SECOND ASSISTANT MEDICAL OFFICER to PRESTON HALL SANATORIUM. Salary £200 p.a., with board and residence. Applications, stating age, past experience, and accompanied by copies of not more than three testimonials, should be sent in not later than August 9th to the Medical Director, Preston Hall, Aylesford, Kent.

Hackney Union.

APPOINTMENT OF MEDICAL SUPERINTENDENT OF THE HOSPITAL AND CHIEF MEDICAL OFFICER OF THE UNION.

The Hackney Board of Guardians invite applications from duly qualified gentlemen for the post of Medical Superintendent of the Hackney Hospital, Homerton, and Chief Medical Officer of the Union.

The Hospital accommodation is 800 beds, and there is a completely equipped Clinical Laboratory, also X-ray, Massage, Electro-Therapeutical, and Out-patient Departments.

The Hospital is recognized as a training school by the General Nursing Council for England and Wales and the Central Midwives Board.

Applicants must not be over 45 years of age. They must have held the appointment of House Physician or House Surgeon in a Public General Hospital or a Resident Medical appointment equivalent thereto, and had experience in the administration of a Public General Hospital or Poor Law Infirmary, and also had experience in operative surgery.

The combined salary is at the rate of £1,000 per annum, with meals when on duty, valued at £45 10s. per annum. In addition, there is a money allowance in lieu of other residential emoluments of £125 per annum, while non-resident.

All Lunacy fees are to be regarded as included in the salary. The officer, however, will be allowed to retain Vaccination and certain other fees (*without guarantee from the Guardians*), which last year amounted approximately to £300.

The appointment will be subject to the *approval of the Ministry of Health and to the* provisions of the Poor Law Officers Superannuation Act, 1896.

Canvassing the Guardians, directly or indirectly, will *disqualify.*

Forms of application and full details may be obtained from this office.

Completed forms of application must be returned by 10 a.m. on Monday, August 5th.

By Order,
E. W. HARBOUR,
Clerk to the Guardians.

Clerk's Offices,
Hackney Union,
2, Sidney Road,
Homerton, E.9. July 24th, 1929.

Urban District of Shipley.

Applications are invited from duly qualified gentlemen for the appointment of MEDICAL OFFICER OF HEALTH of the Urban District, subject to the provisions of the Public Health (Officers) Act, 1921, and the Sanitary Officers Order, 1926.

The gentleman appointed will be required to perform all the duties imposed on a Medical Officer of *Health, to act as* School Medical Officer, Superintendent of the Maternity and Child Welfare Centre, and to carry out all such duties as the Council may, with the consent (if necessary) of the Ministry of Health, from time to time direct.

He must reside in the district, and devote all his time to the duties of the office, and must not engage in private practice.

The appointment will be subject to the approval of the Minister of Health, and will also be subject to the provisions of the Local Government and Other Officers Superannuation Act, 1922, and the successful candidate will be required to pass a medical examination.

The salary to cover all the duties specified above will be £800 per annum.

Applications, stating age, qualifications, and experience, accompanied by copies of not more than three recent testimonials, should reach the undersigned not later than August 10th, endorsed "Medical Officer."

Canvassing, either directly or indirectly, will be a disqualification.

H. BARNES,
Clerk to the Council.

Council Offices,
Shipley.
July 25rd, 1929.

Ilford Emergency Hospital

(8 miles from London), to be extended and renamed KING GEORGE HOSPITAL.

APPOINTMENT OF HOUSE SURGEONS.

Applications are invited from unmarried medical men for the appointments of SENIOR and JUNIOR HOUSE SURGEONS now vacant. Experience will be provided. Salary according to experience. All forms should be sent to the Secretary immediately.

Eccles and Patricroft Hospital

(Near MANCHESTER) (92 Beds.)

Applications are invited for the post of [illegible] HOUSE PHYSICIAN [illegible] appointment for six months in first place, [illegible] at the rate of £120 per annum [illegible] Applications to be addressed to the Secretary, as above.

County Borough of Rotherham.

DEPUTY-MI
TUBERCULO

OAKWOOD HALL SANATORIUM.

Applications are invited for the above post at a salary of £650 per annum, together with a house and certain other emoluments valued at £25 yearly. Candidates must be duly qualified and registered, possess the D.P.H., or other similar qualification, and not be over 45 years of age. The Sanatorium accommodates 100 *patients, and preference will be given to appli*cants with a knowledge of X-ray work. While the main duties of the office will be in connection with Tuberculosis, the officer will be required to undertake other work relating to the Infectious Diseases Hospital and General Public Health, and be prepared to act under the instructions and general superintendence of the Medical Officer of Health. The successful candidate will be required to devote the whole of his time to the duties of the office and, subject to a recent satisfactory medical certificate being provided, to contribute to the Rotherham Corporation Superannuation Fund. The appointment will be subject to the approval of the Ministry of Health. Three months' notice to be given to terminate the engagement. Applications, accompanied by three recent testimonials, must be sent to me, endorsed "Deputy M.O.H.," not later than August 7th next.

CHAS. L. DES FORGES,
Town Clerk.

Municipal Offices.
July 26th, 1929.

County Borough of Rochdale.

ASSISTANT MATERNITY AND CHILD WELFARE MEDICAL OFFICER (Lady).

The Health Committee invite applications for the appointment of Assistant Medical Officer for Maternity and Child Welfare.

Candidates must be fully qualified medical practitioners, with post-graduate experience in maternity and child welfare work, and in the treatment of venereal diseases in women.

The officer appointed will be required to devote the whole of her time to the duties of the [illegible]ude attendance at the [illegible]d Child Welfare, and [illegible] and the Infants and [illegible] the inspection of, and lectures to, midwives, or any other public health duties assigned by the Medical Officer of Health, under whose directions and supervision such officer will act.

Salary at the rate of £600 per annum.

Forms of application may be obtained from the Medical Officer of Health, Town Hall, Rochdale, and when completed should be returned, together with copies of three recent testimonials, so as to be delivered at this office not later than Thursday, August 8th. Envelopes must be endorsed "Medical Officer."

WM. HENRY HICKSON,
Town Hall.

Town Hall,
Rochdale.
July 27th, 1929.

Oldham County Borough.

EDUCATION COMMITTEE.

Wanted immediately, ASSISTANT SCHOOLS MEDICAL OFFICER (*man*). Salary £600 per annum. Applicants must have had at least three years' experience since qualifying. The person appointed will not be permitted to undertake any other duties.

List of duties and form of application, which must be returned immediately, may be obtained from the undersigned.

W. KERSHAW,
Secretary for Education.

Education Offices,
Oldham.
July 24th, 1929.

Liverpool Maternity Hospital,

Oxford Street.

HOUSE SURGEON required for six months commencing October 1st next. Salary at the rate of £90 per annum, with board, residence, and laundry. Previous experience as House Surgeon essential. Membership of a Medical Defence Society is a condition of appointment.

Applications, stating age, qualifications, and experience, together with copies of testimonials, to be sent to the Hon. Secretary of the Medical Board on or before August 24th.

Swansea Hospital,

(316 Beds.)

HOUSE SURGEON wanted gentleman single Duties include Casualties and Orthopædics Salary £15[illegible] with board residence and laundry. Apply [illegible] stating age, nationality, qualifications, and experience with copies of three recent testimonials to be forwarded to the undersigned

O. C. HOWELLS, Secretary.

West Riding of Yorkshire.

APPOINTMENT OF COUNTY MEDICAL OFFICER OF HEALTH.

The County Council of the West Riding of Yorkshire invite applications for the appointment of Medical Officer of Health for the County.

The commencing salary will be £1,600 per annum.

Candidates must not only be duly qualified as prescribed by the Local Government Act, 1888, but must also possess considerable administrative capacity, and a wide knowledge and experience of the organization of Public Health work.

The appointment will be subject to the provisions of the Local Government and Other Officers Superannuation Act, 1922, and the successful applicant will be required to pass a medical examination.

Canvassing, directly or indirectly, will be a disqualification.

Particulars of qualifications and duties of the office, and terms and conditions of service and forms of application, may be obtained from the undersigned, and applications (on forms supplied), together with copies of not more than three recent testimonials, should be sent, marked "Confidential," not later than August 31st, to the Clerk of the County Council, County Hall, Wakefield.

J. CHARLES McGRATH.

July 23rd, 1929.

Nottingham Children's Hospital.

Applications are invited for the post of RESIDENT HOUSE SURGEON (woman). Candidates must have held a resident Hospital appointment. Experience in the administration of Anæsthetics essential. The salary will be at the rate of £150 per annum, with apartments, board, and laundry. The appointment will be for six months.

Applications, together with testimonials, and stating age, qualifications, and experience, to be sent to F. PRAGNELL, the Honorary Secretary, 1, *King John's Chambers, Bridlesmith Gate,* Nottingham, by August 20th. Selected candidates will be required to attend at the Hospital for a personal interview on August 27th, when the appointment will be made.

East Ham Memorial Hospital,

Shrewsbury Road, E.7. (100 Beds.)

This Hospital, which was opened on January 1st last, is now in full working order, and applications (male) are invited for the appointment of RESIDENT MEDICAL OFFICER. The appointment is for six months commencing August 15th, with salary at the rate of £150 per annum, and board, residence, and laundry.

Applications, stating age, experience, and full particulars, should be sent (with copies of testimonials) as soon as possible to the undersigned, from whom any further information may be obtained.

J. F. MORTON, Secretary.

Beckett Hospital & Dispensary,

BARNSLEY.

JUNIOR HOUSE SURGEON (male) required. *Applicants must be fully qualified, registered, and unmarried.*

Salary attached to this appointment is at the rate of £140 per annum, together with board, residence, and laundry.

[illegible]*alifications, and* [illegible]*sirable), accom-* [illegible] *be sent to the* undersigned immediately.

ARTHUR L. BOURNE,
Secretary-Supt.

July 16th, 1929.

Miller General Hospital,

Greenwich Road, S.E.10.

CASUALTY OFFICER (male and unmarried) required. Salary £150 per annum, with board, residence, and laundry. The appointment is for the period from August 13th next until March 31st, 1930.

Applications, stating age, nationality, qualifications, and experience, accompanied by copies of not more than three recent testimonials, to be sent to the Secretary as soon as possible.

July 23rd, 1929

The Royal Eye and Ear Hospital,

BRADFORD.

Applications are invited for the post of JUNIOR HOUSE SURGEON (male), to commence duties September 1st.

Salary £120, with board, residence, and laundry.

Applications, stating qualifications, age, etc., with copies of recent testimonials, to be forwarded to the undersigned on or before August 13th.

F. BRIGGS, Secretary-Supt.

APPOINTMENTS—Important Notice.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

(a) British Islands.

Town or District.	Town or District.	Town or District.
CONTRACT PRACTICE.	**CONTRACT PRACTICE** *(Contd.)*.	**PUBLIC HEALTH** *(continued)*.
EBBW VALE, MON. *(Workmen's Medical Society.)*	NEATH AND DISTRICT. *(Medical Aid Association.)*	GLASGOW EDUCATION AUTHORITY. *(Male Assistant Medical Officer.)*
GILFACH GOCH, GLAMORGAN. *(Workmen's Medical Scheme.)*	OAKDALE, MON. *(Medical Officer for Medical Aid Association.)*	SOUTH SHIELDS COUNTY BOROUGH. *(Assistant Medical Officer.)*
LLWYNYPIA, CLYDACH VALE PENYGRAIG, GLAMORGAN. *(Workmen's Medical Scheme.)*	OGMORE VALLEY, GLAMORGAN. *(Wyndham Colliery Medical Aid Society.)* *(Workmen's Medical Scheme.)*	YORKSHIRE NORTH RIDING COUNTY COUNCIL EDUCATION COMMITTEE. *(Assistant School Medical Officer.)*
MARDY, GLAMORGAN. *(Workmen's Medical Scheme.)*	**PUBLIC HEALTH.**	YORKSHIRE WEST RIDING COUNTY COUNCIL. *(School Medical Inspector.)*
	CORNWALL EDUCATION COMMITTEE. *(Assistant School Medical Officer—Female.)*	

(b) Colonial Medical Service.— WINDWARD ISLANDS MEDICAL SERVICE. (Grenada with Carriacou, St. Vincent and St. Lucia.)

(c) Overseas.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.
NEW SOUTH WALES. *(All Friendly Society Appointments.)*	Dr. R. H. TODD (Hon. Sec., New South Wales Branch), B.M.A. Building, 30-34, Elizabeth St., Sydney, N.S.W.	VICTORIA. *(All Institute or Medical Dispensaries.)*	Dr. FRANK DAVIES (Hon. Sec., Victorian Branch), British Medical Association, Medical Society Hall, East Melbourne, Victoria.	WESTERN AUSTRALIA. *(Contract and Lodge Practice.)*	Hon. Sec., Western Australian Branch, British Medical Association, No. 6, Bank of N.S.W. Chambers, St. George's Terr., Perth, Western Australia.
QUEENSLAND. *(Brisbane Associated Friendly Societies Institute.)*	Dr. E. S. MEYERS (Hon Sec., Queensland Branch), British Medical Association, Adelaide St., Brisbane	WELLINGTON, NEW ZEALAND. *(Contract Practice Appointments.)*	Dr. G. F. V. ANSON (Hon. Sec., New Zealand Branch), British Medical Association, P.O. Box 156, Wellington, New Zealand.		

Address: B.M.A. House, Tavistock Square, W.C.1. By Order of the Council of the British Medical Association.
July 31st, 1929. ALFRED COX, Medical Secretary.

Manchester Royal Infirmary.

CENTRAL BRANCH, ROBY STREET, MANCHESTER.

JUNIOR HOUSE SURGEON (Lady).

The Board of Management of the Manchester Royal Infirmary invite applications for the above appointment.

Applicants must be registered and hold a Medical and Surgical qualification.

The appointment is subject to one month's notice, in writing, from or to the Board, and is tenable for an indefinite period from September 12th. Commencing salary £100 per annum, together with board and allowance for laundry.

Applicants must state age and qualifications, and send twelve copies of their application and testimonials to the undersigned by Monday, August 19th.

By Order,
FRANK G. HAZELL, Gen. Supt. & Sec.

Birkenhead General Hospital.

(156 Beds.)

for the post of
le). Salary £100,
To take up duties
beginning of August.

Applications, stating qualifications, experience, and nationality, with three copies of recent testimonials, to be sent to the Secretary-Supt. as early as possible.

Durham County and Sunderland

EYE INFIRMARY.

Wanted, a LOCUM for the above Institution for the months of August and September.

Must have good experience in Ophthalmic work.

Apply, with full particulars, to—
Eye Infirmary, JOHN BUTTERFIELD,
Stockton Rd., Sunderland. Secretary.

Ancoats Hospital, Manchester.

HOUSE SURGEON (Orthopædic) required to commence September 1st. Appointment for six months. Also HOUSE PHYSICIAN required to commence September 1st. Appointment for six months. Salary for each appointment at the rate of £100 per annum, with board, apartments, and washing. Applications, stating age, qualifications, experience if any, and full particulars, to be forwarded to the undersigned on or before August 7th next, together with copies of three recent testimonials.

By Order of the Board,
HERBERT J. DAFFORNE,
Gen. Supt. & Secretary.

The London Female Lock

HOSPITAL, 283, Harrow Rd., London, W.9.

The Board of Management invite applications for the appointment of HOUSE SURGEON (male or female) at the Female Lock Hospital. Salary at the rate of £150 per annum, with furnished rooms, full board, and washing. Candidates, who must be doubly qualified and duly registered, should send in their applications by August 12th, accompanied by copies of three recent testimonials, to the Secretary, from whom further particulars can be obtained. The appointment is for six months commencing September 6th.

Liverpool Open-air Hospital for

CHILDREN, LEASOWE. (260 Beds.)
(Surgical Tuberculosis and Orthopædics.)

Vacant October 1st, the post of JUNIOR RESIDENT MEDICAL OFFICER. Salary £200, with residence, board, and laundry. Tenable for six months as Junior and a further six months as Senior Resident. Applications, with copies of testimonials, to be sent to the Senior Medical Officer not later than September 2nd.

Woolwich and District War

MEMORIAL HOSPITAL,
Shooters Hill, London, S.E.18.
(General Hospital—112 Beds.)

JUNIOR HOUSE SURGEON.

The Appointments Committee invite applications for appointment as Junior House Surgeon. An honorarium of £125 per annum will be paid in respect of this appointment, which will be for a period of six months.

Applications, accompanied by copies of not more than three recent testimonials, are invited from suitably qualified candidates, and should be addressed to the undersigned, to reach him not later than 10 a.m. on Monday, August 12th.

EDWIN RADFORD, Secretary-Supt.

Royal Sussex County Hospital,

BRIGHTON. (225 Beds.)

HOUSE SURGEON (male) required end of August, with charge of beds, part casualties, and anæsthetics. Salary £150 per annum, with board, residence, and laundry. Candidates must hold Medical and Surgical qualifications of the British Empire, and be duly registered under the Medical Acts. They must be unmarried, and when elected under 30 years of age. Applications, with copies of testimonials, should be sent immediately to the undersigned.

L. L. W. LANCASTER-GAYE,
Secretary-Superintendent.

Worcester General Infirmary.

SENIOR and [illegible]
OFFICERS wa
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clusive, with

British Medical Journal,
BRITISH MEDICAL ASSOCIATION HOUSE,
TAVISTOCK SQ., LONDON, W.C.1.
T/A: ARTICULATE, WESTCENT, LONDON.
Tel.: MUSEUM 9861 (4 lines).

SMALL ADVERTISEMENT RATES.

Up to Six Lines (32 Words) 9s.
Each Additional Line, 1s. 6d.
(Address included.)

Sixpence should be added if replies to a box number are to be posted.

All advertisements must be received not later than first post Tuesday previous to date of publication.

ASSISTANCIES.

Wanted, September 1st, Assistant, young, male, unmarried, for general Practice, Newcastle-on-Tyne. To reside at and assist in management of Branch Surgery. Salary £250 p.a., all found, plus com. on mids. —No. 4655, B.M.A. House, Tavistock Sq., W.C.1.

Wanted, October 1st, male assistant to manage Branch Practice [illegible] lary £360 p.a., [illegible], B.M.A. House,

Wanted, October, outdoor male assistant, country town in the Midlands, no colliery; ex H.S., Cambridge or Lond. man prefetred. Salary £450 to suitable man. Photo., testimonials.—Address, No. 4503, B.M.A. House, Tavistock Square, W.C.1.

Wanted immediately, Assistant physician (male) for Private Sanatorium. Salary £300, with board and residence. Please state qualifications, experience, and age. —Address, No. 4765, B.M.A. House, Tavistock Square, W.C.1.

Wanted for Liverpool in September, indoor ASSISTANT, male, unmarried, ex H.P. or H.S. Private and panel Practice.—Address, with photo., stating age, experience, nationality, No. 4760, B.M.A. House, Tavistock Square, W.C.1.

Wanted, 13th September, Indoor Female ASSISTANT in industrial area. Hospital experience essential. Salary £300 per annum. Usual bond.—Address, Dr. LANG, Fairfield House, Droylsden, Manchester.

Wanted, Oct. or Nov., male ASSISTANT in Indus Practice near Manchester. English or Scotch, Protestant, single. View partnership and succession. Panel over 2,000. Essential; refs., photo, and capital available.—No. 4662, B.M.A House, Tavistock Square W.C.1.

Wanted shortly, Assistant, English, abstainer, married or single, for Industrial Practice near Manchester. House available. Dispenser and book-keeper kept. State essential particulars, and when free.—No. 4693, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — Assistant, outdoor, for Branch in North-East England, near large town. Private, panel, and clubs. Good furnished house provided, with garden, garage, fuel and light. Single married man, cyclist or motorist, abstainer, aged about 30. Protestant preferred. Commencement. Salary £350 (increasing). Photo, experience, testimonials and refs.—Addl., No. 4661, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — Assistant, married, [illegible] to a panel Practice in a working class area in North-East [illegible]. Would accept as Partner after [illegible] terms. Address, No. [illegible], B.M.A. House, Tavistock Square, W.C.1.

Wanted Assistant, London [illegible] £300 [illegible] Practice [illegible] Address No. 4213, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Outdoor Assistant, male, for general Practice near Manchester. View early Partnership. Must possess capital. Salary £500 p.a. *State full particulars.*—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Wanted. — Indoor Assistant, young, male, Scotch or English, Protestant, for private and panel Practice. Salary £300, with experience. View or without view. University Town.—Address, No. 4680, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Indoor Assistant, male, young, active, motor cyclist. State full essential particulars; photo. if possible. — Address, No. 4694, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—Assistant, C. of E., of good experience; £300 to £350, indoor. Could live out. Car provided. Good prospects. —Address, No. 4691, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistant, indoor, male, commencing September 1st, for private and panel Practice in Yorkshire. Scotsman preferred; motor cyclist. Salary £275 p.a. Essential particulars and photo.—Address, No. 4674, B.M.A. House, Tavistock Sq., W.C.1.

Wanted.—Assistant, male (indoor), British. Practice near Manchester. £300, all found, and extra fees. Good Hospitals and good sport. Particulars.—Address, No. 4681, B.M.A. House, Tavistock Square, W.C.1.

Wanted, reading Man as out[illegible] very light post in [illegible] be British. Photo. if [illegible] 4688, B.M.A. House, Tavistock Square, W.C.1.

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Bury Infirmary.

(A General Hospital of 150 Beds.)

Wanted on August 31st next, a SENIOR [illegible] who must have both Medical and Surgical qualifications and experiences in the administration of Anæsthetics.

The appointments are for periods of six months, the salary of the Senior being at the rate of £200 per annum, the salary of the Second at the rate of £175, and the salary of the Third at the rate of £150, with board, residence, and washing.

Applications, stating age and nationality, with copies of three recent testimonials, to be sent in not later than Tuesday, August 13th, addressed to the Hon. Secretary, H. MOSCROP ROBINSON, Esq., 4, Manchester Road, Bury, Lancs.

Ministry of Pensions Hospital

FOR EPILEPTICS,
MAGHULL, LIVERPOOL.

Vacancy for a JUNIOR MEDICAL OFFICER. Salary £300 per annum, plus quarters.

Applicants must be unmarried, and not more than 32 years of age.

Appointment is temporary, and is subject to termination by one month's notice.

Applications, stating age, qualifications, previous experience, war service (if any), with copies of two recent testimonials, should be addressed to the Director-General of Medical Services, Ministry of Pensions (D.M.S.2), Sanctuary Buildings, 18, Great Smith Street, London, S.W.1.

The Royal Albert Hospital and

EYE INFIRMARY, DEVONPORT.

A vacancy for an ASSISTANT HOUSE SURGEON (unmarried) exists.

Applicants must be fully qualified, registered, and the appointment will be for six months. Salary £50 per annum, with apartments, board, and laundry free.

Applications, stating age, accompanied by copies of not more than three testimonials, should reach the undersigned not later than Friday, August 9th.

By Order of the Committee,
FRANK ROWE,
July 29th, 1929. Secretary.

Royal Devon & Exeter Hospital,

EXETER. (225 Beds.)

ASSISTANT HOUSE SURGEON (Male).

Applications are invited for the post of Assistant House Surgeon at this Hospital, now vacant. The appointment is for six months, but candidates are eligible for re-election.

Salary at the rate of £100 per annum, with board, apartments, and washing.

Applications, giving particulars as to age and qualifications, together with copies of three recent testimonials, should be sent to the undersigned as soon as possible.

By Order of the Committee,
S. S. COLE,
July 29th, 1929. Secretary & Manager.

Burton-on-Trent General

INFIRMARY.

HOUSE SURGEON.

The Committee require the services of a duly qualified Second Resident House Surgeon (male). Salary £150, with board, residence, and laundry. Duties to commence as soon as possible.

Applications, with copies of testimonials, to be sent to the undersigned.

The Infirmary, E. W. THORNLEY,
Burton-on-Trent. Secretary.

Manor Hospital, Walsall.

A JUNIOR RESIDENT ASSISTANT MEDICAL OFFICER.

The Guardians of the Walsall Union invite applications from duly qualified gentlemen for the appointment of Junior Resident Assistant Medical Officer at Manor Hospital, Walsall.

The appointment will be for a period of six months, renewable at the option of the Guardians, and the salary will be at the rate of £150 per annum, together with the usual residential emoluments.

The gentlemen appointed will be required to act under the general direction of the Medical Officer, from whom particulars of the appointment may be obtained.

In addition to the Resident Medical Staff there is also a Consulting Staff.

Applications, stating age, professional qualifications, and experience, accompanied by not more than three copies of recent testimonials, should be sent to the undersigned at once.

Union Offices, C. S. FOTHERGILL,
29, Leicester Street, Walsall. Clerk to the Guardians.

Cumberland Infirmary, Carlisle.

Applications are invited for the following posts (male), vacant on October 1st next (six months' appointment); previous experience in each case desirable:

1. HOUSE PHYSICIAN.
2. HOUSE SURGEON to Special Departments (Eyes, Ear, Nose, and Throat).

Salary in each case at the rate of £155 per annum, board, residence, etc.

Applications, stating age, with copies of not more than four testimonials, must be received by first post on Monday, August 19th, by the undersigned, who will supply further particulars if desired.

Separate applications required for each post.

J. G. HOWITT,
July 29th, 1929. Secretary.

East Suffolk and Ipswich

HOSPITAL, IPSWICH.
(260 Beds. Seven Residents.)

Wanted at once, a HOUSE SURGEON (male, British). Salary at the rate of £120 per annum (six months' contract), with board, residence, and laundry.

Applications, stating age, qualifications, and experience, and accompanied by copies of three recent testimonials, to be sent to the undersigned.

Forthcoming Vacancies.—September 1st, 1929, House Surgeon. October 1st, 1929, Two House Surgeons. Will candidates desirous of applying for these vacancies when they occur please communicate with me now.

The Hospital, ARTHUR GRIFFITHS,
Ipswich. Secretary.
July 27th, 1929.

Royal Victoria and West Hants

HOSPITAL, BOURNEMOUTH.

The Board of Management will, after the expiration of one month, proceed to appoint
An HONORARY ASSISTANT SURGEON;
An HONORARY OPHTHALMIC SURGEON;
An HONO
Applicatio age, and experience, ndersigned by August 30th. Canvassing, personally or otherwise, will disqualify.

By Order of the Board of Management,
GORDON M. SAUL,
July 25th, 1929. Secretary.

Scarborough Hospital and

DISPENSARY. (70 Beds.)

Wanted, November 1st, Two HOUSE SURGEONS (male or female). Duties include Home Visiting. Salary £126 per annum, with board, residence, etc. Appointment for six months.

Applications, stating age, with copies of testimonials and essential particulars, to be sent to the undersigned by August 16th, from whom further particulars may be obtained.

J. DOUGLAS MUNBY,
Hon. Secretary.

Park Prewett Mental Hospital,

BASINGSTOKE, HANTS. (1,450 Beds.)

JUNIOR ASSISTANT MEDICAL OFFICER.

Applications are invited for the post of Junior Assistant Medical Officer (male).

Candidates must be registered and unmarried. Age not exceeding 36 years. Experience in the treatment of Mental Diseases and having been a House Surgeon in a General Hospital will be considered additional qualifications.

The appointment is subject to the provisions of the Asylums Officers Superannuation Act, 1909.

Salary £350 per annum, with board, furnished apartments, laundry, and attendance, valued for Superannuation purposes at £150 per annum. An additional £50 a year is payable for the possession of a Diploma in Psychological Medicine.

Applications must be made on the prescribed form, obtainable on request, with a stamped addressed foolscap envelope, from the Medical Superintendent, to whom applications must be sent (marked A.M.O.), accompanied by three recent testimonials, on or before Thursday, August 15th.

Cardiff Royal Infirmary.

(Associated with Welsh National School of Medicine.)

Applications are invited for the post of AURAL HOUSE SURGEON.

Salary at the rate of £75 per annum, with board and lodging. The appointment is for six months, duties to commence as soon as possible.

Forms of application can be obtained from the undersigned, and should be returned, with copies of three recent testimonials, on or before August 12th.

R. ARMSTRONG,
July 26th, 1929. Medical Supt.

General Hospital, Nottingham.

(377 Beds.)

An ASSISTANT RESIDENT CASUALTY OFFICER (male) required at the above Institution. Candidates are desired to send applications, stating age, qualifications, and experience, together with copies of testimonials, to the undersigned, with an intimation as to when they can commence duty if appointed.

The appointment is for six months. Salary at the rate of £150 a year, with board, residence, and laundry.

PETER M. MACCOLL,
House Governor & Secretary.

Royal Hospital, Richmond,

SURREY.

JUNIOR HOUSE SURGEON (male) required, to take up duties on September 4th. Salary £100 per annum, together with board, residence, and laundry. Candidates must be fully qualified, registered, and single. Applications, stating age, experience, and copies of recent testimonials, should be addressed and sent to the undersigned not later than August 15th.

RICHARD ALLEN, Secretary.

The Kidderminster and District

GENERAL HOSPITAL. (120 Beds.)

HOUSE SURGEON required immediately. Salary £150 per annum, with residence, board, and washing. The appointment is for twelve or six months, renewable if mutually arranged. The duties are mainly surgical. Candidates must be unmarried, and should state nationality.

Applications, with not more than three testimonials, to be sent to the Assistant Secretary, Miss S. SMITH, South Cliff, Kidderminster.

The Infants Hospital,

Vincent Square, Westminster.

The Committee of [illegible] cations for the post [illegible] cations, with copies testimonials, to be from whom further obtained.

ALFRED J. SMALL, Secretary.

Manfield Orthopædic Hospital,
NORTHAMPTON. (128 Beds.)

Applications are invited for the following appointments:

SENIOR RESIDENT MEDICAL OFFICER. Salary commencing £200 per annum, with board, residence, and laundry. Candidates must have held resident appointments in a General Hospital for at least one year; previous experience in orthopædics and a knowledge of X-ray will be an advantage.

JUNIOR RESIDENT MEDICAL OFFICER. Salary £150 per annum, with board, residence, and laundry. Candidates must have had experience in the administration of anæsthetics.

Further particulars may be obtained from the Secretary-Superintendent, to whom applications, giving age and qualifications, together with copies of recent testimonials, should be sent not later than August 12th.

H. G. LEWIS, Secretary-Supt.

The Guest Hospital and Eye
INFIRMARY, DUDLEY.
(General Hospital, 104 Beds.)

Applications are invited for the post of HOUSE SURGEON. Duties include Medical, Surgical, Eye, Ear, Nose, and Throat, and Venereal Diseases work. Salary £150 to £175 per annum, according to experience, with furnished apartments, board, and laundry. Candidates must be fully qualified and registered.

Applications, stating age, qualifications, and experience, and accompanied by copies of testimonials, to be sent to the undersigned.

H. RAYMOND HURST,
Secretary.

The Guest Hospital,
Dudley. July 26th, 1929.

The Miller General Hospital,
Greenwich Road, S.E.10.

HONORARY PHYSICIAN TO THE SKIN DEPARTMENT.

The Board of Management invite applications for the above post. Candidates must be Fellows or Members of the Royal College of Physicians of London and not engaged in general practice, and they will be expected to call upon the Members of the Honorary Medical and Surgical staff, a list of whom can be obtained from the Secretary.

Applications, together with copies of three recent testimonials, should be sent to the Chairman of the Hospital as soon as possible.

July 16th, 1929.

Royal Liverpool Children's HOSPITAL.

There will be vacancies on October 1st next for Two RESIDENT HOUSE PHYSICIANS and Two RESIDENT HOUSE SURGEONS at the CITY BRANCH, Myrtle Street. The appointments will be for a period of six months. Salary in each case at the rate of £60 p.a.

Applications are invited, preferably from men, and should be sent, with copies of recent testimonials, to the Secretary, Royal Liverpool Children's Hospital, Myrtle Street, Liverpool, on or before Friday, August 9th.

Royal Liverpool Children's HOSPITAL.

The Committee invite applications from Graduates, with previous Hospital experience, for the post of RESIDENT MEDICAL OFFICER at the HESWALL BRANCH of the Institution, vacant on October 1st next. Salary at the rate of £120 per annum. The appointment will be for a period of six months. Applications, with copies of recent testimonials, to be sent to the Secretary, Royal Liverpool Children's Hospital, Myrtle Street, Liverpool, on or before Friday, August 9th.

North Lonsdale Hospital,
BARROW IN FURNESS

Applications for a HOUSE SURGEON are invited from fully qualified male practitioners experienced in the administration of Anæsthetics. Salary £150 per annum, with board, residence, and laundry. Applications, stating age, qualifications, and experience, and accompanied by copies of three recent testimonials, are to be sent to the Secretary so as to reach him not later than August 12th.

Rotherham Hospital.

[illegible] HOUSE PHYSICIAN (male), qualified [illegible] salary £150 p.a., with board, lodging, laundry, &c. [illegible] of Applications, and [illegible] Hon. Secretary, [illegible] Rotherham.

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19, Nottingham Place, London, W.1.
Telephone: Mayfair 5420.

Northern Branch.—Apply, Lady Superintendent 57, Clarendon Rd., Leeds. 'Phone: Leeds 26165.

North Riding Infirmary,
MIDDLESBROUGH
(General Hospital, 150 Beds.)

JUNIOR HOUSE SURGEON (gentleman) wanted to take up duties September 1st. Salary £150 per annum with board and residence, and laundry for first six months appointment. Applications, with three recent testimonials, stating age, qualifications, experience, and nationality, to reach the undersigned not later than [illegible] 9th.

(CHARLES POSTGATE.
Secretary-Supt.

July 29th, 1929.

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West Yorks. — About £7,200. 1/4 share. Panel about 8,000. Not much midwifery. Visits 4/6 up. House (4 bed., etc.) to rent.—No. 8522.

N. Wales Borders.—£4,000 p.a. 1/3 or 2/3 share. Panel 3,800. Appts. worth £1,600 p.a. Visits 5/- up. About 50 mids. at £2 2s. House (4 bed., etc.) to rent or buy.—No. 8519.

Northern Suburb.—About £700 p.a. Small panel, ample scope for increase. Visits from 5/-. Good house, 4 bed., etc.—No. 8518.

Home Counties.—Death Vacancy. —About £760 p.a. Mids. 2 gns. Panel 516. Visits up to 10/-. Good house and large garden to rent.—No. 8516.

Home Counties. — £3,600 p.a. 1/3 or 2/3 share. Panel over 2,000. Mids. from 2 gns. Visits 3/6—10/6. Good house and garden.—No. 8514.

Yorks.—Over £3,000 p.a. 1/4 share, good scope for increase. Panel over 2,000. Mids. 2—5 gns. Med. house to rent or buy.—No. 8510.

Lancs.—£4,000 p.a., increasing. Panel over 2,600. Visits 2/6—7/-. Mids. 2—5 gns. Suitable for two. Two houses, rent or buy.—No. 8509.

London, South. — About £800 p.a. Residential. Panel and appts. about £600 p.a. Good house and large garden. Prem.—house and Practice—£3,000.—No. 8507.

Hants.—£750 p.a. Panel about 860. Appts. £230 p.a. Good house, 6 bed., etc. Usual fees.—No. 8501.

Sussex Coast.—About £1,400 p.a. Good-class, non-panel, non-dispensing. Appt. £35. Visits 5/- to 15/-. Large house to rent.—No. 8476.

N.E. Coast.—Nearly £1,200 p.a. and chance of sev. appts. Fees 3/6 to 5/-. Panel 600. Compact PRACTICE. Good house, garden and garage, etc.—No. 8493.

Southampton. — Over £1500. Panel and appts. £858. Good house, 6 bed., etc., for sale. Good schools.—No. 8495.

Home County.—Over £700 p.a. Small residential town within 25 miles, South. Panel 462. Good fees. Large well-built house and garden.—No. 8494.

Cornwall. — Share £1,000 p.a. General mixed Practice. Panel nearly 2,400. House, 5 bed., etc., low rent.—No. 8493.

Berkshire. — About £700 p.a. General mixed Country PRACTICE. Panel about £287 p.a. Few mids. Fees 2/6—7/6. Excellent house and garden.—No. 8490.

Lancs.—1/3 or 1/2 share of over £2,400 after prelim. assistancy. Panel £500. Mixed class. Good house, with 4 bed., 2 attics, etc.—No. 8454.

Bucks.—About £2,800 p.a. 1/2 share. Appts. £200 p.a. Panel over 1,900. Visits 3/6—10/6. Mids. 2—5 gns. House, 4 bed., to rent. Prem. 14 yrs.—No 8483.

Suffolk.—Over £1,000 p.a., unop. Old-estab. Panel 650. Appts. £50 p.a. Usual fees. Good house, large gard.—No. 8479.

S.W. County. — 1/2 share of about £3,000 p.a. Appts. £125 p.a. Panel about £520 p.a. Fees up to 21/-. Good house, 4 bed., etc., large gard. Sep. sgy.—No. 8470.

Kent.—Country Practice. About £1,000 p.a. Panel about 400. Appts. over £50 p.a. Visits 3/6 to 10/6. House, 5 bed., etc. Extensive grounds.—No. 8468.

Birmingham.—About £2,300 p.a. Panel 1,700. Mids. from 2 gns. Visits 3/6 up. Good house, 4 beds., etc. Large garden. Two branches. Suitable for two.—No. 8466.

N.W. Coast Town.—Over £3,000 p.a. Old-established. Panel over 1,500. Usual fees. Medium house to rent.—No. 8465.

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MIDDLESEX.—Well-established growing G.P. Receipts over £1,500 p.a. Panel 1,100. Two appointments. Premium £2,500, cash. House for sale. Wonderful scope for increase.

LONDON, E.—PARTNERSHIP in old-established industrial and mixed-class Practice. Receipts average £3,550. Panel 1,000. Fees 5/6 up. Premium for 1/3rd share, with view to larger share, £1,775, cash.

BEDS.—ASSISTANTSHIP, with view to PARTNERSHIP and SUCCESSION in old-established G.P. Receipts approx. £1,300. Panel 1,760. Suitable to experienced man aged 30 to 40.

LONDON, S.E.—Middle-class G.P., with branch surgery on new L.C.C. estate. Receipts over £1,200. Panel nearly 600. Medium-sized house to rent. Premium £1,600, or offer.

SOUTHERN COUNTIES.—PARTNERSHIP in old-established Practice situated in delightful country town, with splendid surroundings. Excellent house to rent. Receipts over £6,400. Increasing panel of 3,000. Premium for 1/6th share (guaranteed at £1,000) £2,000. Suitable for experienced practitioner used to good-class Practice, aged 30 to 35 years.

MIDLANDS.—Industrial Town.—Old-established G.P. Receipts approx. £1,750. Panel 2,200. House to rent. Fees 2/6 up. Night work and midwifery refused. Ample scope for development. Premium £2,750, cash.

WEST COUNTRY.—Rural G.P., situated in charming district. Sport of all kinds. Receipts over £2,000. Increasing panel. Premium 1½ years' purchase. House for sale.

SCOTLAND.—NUCLEUS growing G.P. in rural district. Receipts over £800 p.a. Suitable house available. Premium open to reasonable offer for quick sale.

YORKS.—PARTNERSHIP in middle and working-class G.P. Receipts over £3,000 p.a. Panel over 2,000. House to rent. Premium for 1/4 share £1,500.

EASTERN COUNTIES.—PARTNERSHIP with view to succession. Non-panel Practice. Receipts over £3,000 p.a. Suitable house available. Premium for half share 2 years' purchase, or would sell whole Practice with long introduction.

MIDLANDS.—Cash and panel PRACTICE situated in manufacturing town. Suitable accommodation available. Receipts £650. Panel about 800. Premium £1,000 cash.

LONDON, E.—Working-class PRACTICE. Receipts £850. Panel approx. 500. House to rent at £80 p.a. Premium 1½ years' purchase.

LONDON, S.E.—Near West End.—Well-established G.P. Excellent corner site. Receipts £1,000. Panel 750. Suitable house available at low rental. Premium £1,500 cash.

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EASTERN COUNTIES.—PARTNERSHIP in rural G.P. Receipts over £2,200. Panel 1,500. Premium for 1/3rd share 2 years' purchase. Part down and balance by arrangement.

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4. LONDON, N.—Old-estab. mixed PRACTICE. Average receipts £700 a year, fair panel. Very nice house for sale, but might be rented. Premium £1,200. Vendor going abroad.
5. LONDON, S.E.—Old-estab. cash and panel PRACTICE. Receipts average over £800 p.a. Panel 800. House to rent, £62 p.a. Prem. £1,200. Densely populated district. Excellent scope for increase.
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8. LONDON, S.E.—Cash and panel PRACTICE. Receipts at the rate of over £1,500 a year. Surgery and living accommodation 17/6 per week. Premium £1,500, part by instalments. Good opportunity for energetic Doctor.
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(FOUNDED 1880.)

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9. MIDLANDS. — Practice £1,100 p.a. in industrial town. Panel over 1,100. House (5 bedrooms) to be sold or let. Premium £1,000 cash.

10 DEATH VACANCY. — NOTTS. — Old-established PRACTICE over £2,000 p.a. in good town. Commodious house, with garden and garage. Rent £55 p.a.

11 DEATH VACANCY.—BUCKS.—Practice about £750 p.a. Panel 516. Visits 2 6 to 7 6. Good detached house (2 reception, 3 bedrooms, etc.). Rent £72 p.a.

12 LONDON, S.E.—Good Residential Suburb. PARTNERSHIP in very old-established non-dispensing Practice over £3,700 p.a. Visits 5/- to 10/6. Midwifery £5 5s. to £10 10s. Good house (5 bedrooms, etc.). Price, long leasehold, £1,500. Premium one-half share 2 years' purchase.

13 SOUTH OF ENGLAND.—Partnership in sound old-established Practice. Beautifully situated country town. Small new house available. Rent £47 p.a. Preference Oxford or Cambridge Graduate. Premium 2 years' purchase for share about £1,000 p.a.

14 MIDLANDS.—Old-established non-dispensing PRACTICE in Cathedral city. Receipts over £2,400 p.a. No panel. Good house (14 rooms). Rent £100 p.a. Premium 1½ years purchase.

15 N. WALES (SEASIDE RESORT).—Well-established PRACTICE £600 p.a. in fine residential town. Panel 245. House (7 bedrooms, etc.). Premium, house and Practice, £2,500.

16 HEREFORDSHIRE.—Practice over £1,000 p.a. Panel 240. Good town. Cottage Hospital. House (4 bedrooms, etc.). Price £1,500. Premium for Practice 1½ years' pur.

17 LONDON, W. — Non-dispensing Practice £3,000 p.a. (25 per cent. V.D.). Consultations and visits 10/6 (a few), mainly 1, 2, and 3 guineas. First-rate opportunity for good man. Easy terms.

18 PRIVATE ASYLUM.—Partnership.—Exceptional opportunity for suitably qualified Medical Man (age 30—33) in first-rate establishment. Preliminary assistantship 12 months. Capital required about £4,000.

19 NORFOLK. — Old-established unopposed Country PRACTICE over £2,450 p.a. Panel 1,800. Visits 6/- to 10/6. Good house (6 bedrooms); freehold £1,000. Premium 1½ years' purchase.

20 S.W. OF ENGLAND. — Non-dispensing PRACTICE £1,750 p.a. in Cathedral City. No panel. House (6 bedrooms) in best quarter. Hospital. Premium 1½ years' purchase.

21 SOUTH COAST.—Favourite Health Resort. —Small old-established PRACTICE, £300 to £350 p.a. Capable of great increase. Excellent house (5 to 6 bedrooms) in unique position. Garage and large garden. Freehold £2,000. Premium for Practice £500.

22 LONDON, E. — Cash and Panel Practice about £680 p.a. Panel 800. Visits 3/6 to 5/-. No midwifery. Shop-fronted house. Freehold about £600.

23 SOUTH MIDLANDS. — Well-established Country PRACTICE about £1,500 in first-rate Hunting centre. Panel 733. House (6 bedrooms) with every modern convenience in grounds (2 acres), on lease. Cottage Hospital. Premium 1½ years' purchase.

24 N.E. COAST.—Partnership in sound Practice in rapidly growing and attractive seaside town. Panel about 700. Suitable house available. Share of about £1,400 for disposal at 2 years' purchase. Partner aged about 30 and well qualified, who has held resident Hospital appointments.

25 MIDLANDS.—Country Practice over £900 p.a. within 5 miles of good town. Panel 560. Comfortable and convenient house (5 bedrooms), electric light and central heating, to be sold or let. Premium—Practice £1,350, part by instalments.

26 BUCKS.—Small Country Practice over £300 p.a. Panel 250. Very attractive house (8 bedrooms), with fine garden, garage, etc., for sale. Premium—Practice—£300.

27 SOUTH AFRICA.—Well-established PRACTICE £1,350 p.a. in small town in Orange Free State. Ten-roomed house in centre of town to rent. Premium £750.

28 YORKSHIRE (W.R.).—Partner required in better working class Practice in good district of large city. Panel over 2,000. Seven roomed house, with garden, to be sold or let. Great scope. Share worth over £750 p.a. at 2 years' pur.

29 PLYMOUTH.—Panel and Private Practice of about £150. Panel 226. Good scope for young energetic man. Premium £150.

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Practices and Partnerships for Disposal (continued).

30 MIDLANDS. — Practice averaging over £1,850 p.a. in small Industrial Town with pretty country all round. Panel 1,380. Double-fronted house (7 bedrooms) for sale. Good scope. Premium £3,250, to include drugs.

31 WEST OF ENGLAND.—Partnership in Practice over £3,000 p.a. (£1,000 from panel and appointments) in Residential and partly Agricultural District. House available. Very good Cottage Hospital. One-fourth or one-third share at 2 years' purchase.

32 SOUTH COAST.—Seaside Resort. Non-dispensing PRACTICE about £550 p.a. Small panel. House (5 bedrooms) to let. Scope for increase.

33 SOUTH COAST.—Non-dispensing Practice averaging £1,332 p.a. in favourite Watering Place. No panel. House at nominal rent. Scope. Premium 1½ years' purchase.

34 SUSSEX.—Non-dispensing Practice about £950 p.a. in delightful residential Country District under 40 miles from London. No panel. Choice of house. Premium 1½ years' purchase.

35 LONDON, E.—Partnership in exceptionally old-established Practice averaging over £3,500 p.a. Good fees and appointments. Two-fifths share for disposal at 1½ years' purchase, or one-third could be purchased at first, part by instalments. Small house may be bought or rented at a moderate figure.

36 SOUTH AFRICA.—Old-established PRACTICE. Receipts last year £1,816. Travelling and midwifery light. Climate ideal—no tropical diseases (altitude nearly 5,000 ft.). Delightful residence (6 bedrooms), in perfect order, with 2 acres grounds. Excellent scope. Local Hospital. Premium £1,200, with option to purchase house.

37 YORKSHIRE (N.R.).—Practice of about £1,000 in small Country Town. Panel 430. House (5 bedrooms) to be let or sold. Sport. Scope. Premium £1,250.

38 S.E. COAST. — Non-dispensing Practice averaging nearly £1,850 in Health Resort. No panel. Detached house (7 bed and dressing rooms) and good garden, to be sold or let. Premium 1½ years' purchase.

39 SOUTH OF ENGLAND.—Partnership in Practice £2,250 p.a. in beautifully situated Country Town within 100 miles of London. Panel under 1,000. Suitable accommodation. One-third share at 2 years' purchase.

40 SOUTH AFRICA.—Old-established PRACTICE in one of the pleasantest towns, with beautiful climate, in the Cape Province. Receipts average £2,900 p.a. House (4 bedrooms) to rent. Purchaser should be able to do major surgery. Knowledge of Dutch unnecessary. Premium £2,250.

41 HOME COUNTY.—Partner (young, well qualified) required in Country Practice averaging £4,550 p.a. in first-rate residential district under 50 miles from London. Panel about 1,000. One-fifth share at 2 years' purchase.

42 WEST OF ENGLAND.—Partnership in non-dispensing Practice over £5,100 p.a. in first-rate town. Small select panel. House (6 bedrooms) to rent. Partner should be an Obstetrician, and there is scope for gynæcology. Premium five-twelfths share 2 years' purchase.

41 SOUTH OF ENGLAND.—Seaport Town. PRACTICE doing £800 p.a., including appointments over £225 p.a., and panel nearly 1,000. Good house (6 bedrooms) for sale. Premium 1½ years' purchase.

44 CARDIFF. — Non-dispensing Practice averaging £1,543 p.a. Small panel. Pleasantly situated house (5 bedrooms). Premium £2,000.

45 DERBYSHIRE.—Country Practice about £1,250 p.a. in beautiful district, easy distance of first-rate town. Panel 675. Small house to rent. Cottage Hospital. Premium 1½ years' purchase

46 EAR, NOSE, AND THROAT Practice of nearly £3,200 p.a. in Health Resort.

47 N. LONDON.—Steadily growing "Lock-up" Cash PRACTICE on main road. Receipts last 12 months £720. Panel 539. Shop-fronted premises to rent. Prem. £850.

48 S.W. OF ENGLAND.—Partnership in an old-established Practice of £5,000 p.a. in one of the chief towns. Panel 2,397. House (5 bed and dressing rooms) to rent. One-fifth share 2 years' purchase.

49 SOUTH MIDLANDS. — Partnership in Country Practice of £6,300 p.a. in residential and agricultural district. Panel over 2,200. Suitable house for sale. Hospital. Partner should be 28 to 30 and have held House appointment. Premium one-fifth share £2,510.

50 LONDON, N.—Partnership in well-estab. middle-class Practice, nearly £2,750 p.a., in pleasant outlying suburb. Panel about 800. Suitable accommodation to rent. Premium one-third share 2 years' purchase.

51 MIDLANDS. — Partnership (after preliminary assistantship) in good mixed Practice worth £4,000 p.a. in country town. Panel 3,600. House to rent. Hospital and scope for surgery. Partner should be keen on his work and have held H.S. and H.P. appointments. One-third share at 2 years' purchase.

52 YORKSHIRE (W.R.). — Practice averaging nearly £1,350 p.a. in manufacturing town. Panel 995. Detached house (4 bedrooms) for sale. Premium £2,000.

53 SOUTH OF ENGLAND.—Partnership in non-dispensing Practice £4,200 p.a. in attractive watering-place. Panel about 1,500. Incoming Partner must be F.R.C.S.Eng. or Edin., or M.D.Lond., Oxon., or Camb. One-fourth share at 2 years' purchase. (Preliminary assistantship.)

54 ITALY.—Season (March to October) PRACTICE in famous city. Receipts average £563 p.a. No midwifery or night work. Up-to-date Hospital. Premium £563.

55 BUCKS.—Practice about £800 in small country town. Panel 741. Nice detached house (4 bedrooms), garden and garage, to rent. Premium £1,200.

56 KENT. — Practice averaging £1,030 p.a. (appts. and panel over £300) in beautiful country district. Convenient house (6 bedrooms) for sale. Premium, Practice, £1,500.

57 N.W. COAST. — Partnership in Practice over £3,000 in first-rate residential seaside town. Panel 450. Suitable house to rent. One-half share for sale (one-third first year) at 1½ years' purchase.

58 EAST ANGLIA.—Country Practice about £1,470 p.a., easy reach of important town. Panel about 1,000. Nice house (10 bed and dressing rooms), with electric light, etc., for sale. Premium 1½ years' purchase.

59 S.E. COAST.—Practice averaging £1,127 p.a. in favourite resort. No panel. Very good semi-detached house (6 bedrooms) for sale. Scope. Premium 1½ years' purchase.

60 N. GLOUCESTERSHIRE. — Country PRACTICE [illegible] h receipts £560. Panel 450. Modern h [illegible] rooms), with garden 1 acre, for sale.

61 SUSSEX. — Small Country Practice in delightful part near coast. Receipts past 12 months £346. Picturesque house (3 bedrooms), with nice garden to be sold or let. Premium £350.

62 MIDLANDS. — Partnership in old-estab. Practice (entirely Skin work) in first rate town. Earnings about £2,200 p.a. Suitable house for sale or rent. Premium one-third share 2 years' purchase.

63 EAST COAST — Partnership in Practice £2,800 p.a. in popular watering-place. No panel. House to rent. One-third share at 2 years' purchase. Partner must have some knowledge of Ear, Nose, and Throat work.

64 YORKSHIRE (W.R.). — Partnership in Practice about £2,600 in one of the chief towns. Panel over 900. Partner should be a Protestant. One-third share at 1½ years' purchase after preliminary assistantship.

65 S.W. of ENGLAND.—Partnership in Practice about £3,000 in market town. Panel 1,100/1,200. Detached house (5 bed and dressing rooms), in 3/4 acre garden, for sale. Premium one-half share 2 years' purchase.

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2. BRISTOL.—PARTNERSHIP.—A half share in an old-estab. and increasing mixed general Practice. Income for last year about £2,050, including panel of 2,400. Fees 2/6 to 10/-. Low expenses. Good house, with nice garden. Electric light. Garage. Rent on lease £80 p.a. Premium £2,000.
3. NEAR EPPING FOREST.—Well-established and rapidly increasing mainly middle-class PRACTICE. Income for the present year at the rate of £1,200. Panel of 730, with good scope. Fees 3/-, 5/-, etc. Excellent house, not overlooked, with ample accommodation and good features, £2,500. Premium £1,800. Price for freehold, to include all fittings and garden. Garage.
4. NOTTS.—PLEASANT TOWN.—DEATH VACANCY.—Old-established good mixed-class PRACTICE, averaging for the past three years over £2,100, including panel of 550. M.O.H. and School appointments worth about £260 p.a. Fees 3/6 to 21/-. Mid. from 2 gns. (about 15 cases yearly). There is a Hospital of over 30 beds, and good scope for surgery. Late Incumbent was on staff. Excellent house, with 1/2 an acre of garden, and containing 3 reception, 8 bedrooms, etc. Separate entrance to professional rooms. Rent on lease £55 p.a.
5. SUSSEX.—VILLAGE PRACTICE in delightful surroundings, at present producing over £1,150 p.a., but capable of considerable increase. Fees from 3/6 upwards. Exceptionally charming residence standing in 1¼ acres of well laid out garden, and containing lounge hall, 2 reception, 7 bedrooms (3 fitted with h. and c. water basins), dressing room with fitted bath, and other usual offices. Central heating. Electric light. Garage for 2 or 3 cars. Price for freehold £4,300. Premium £1,700.
6. HANTS.—COUNTRY PRACTICE, at present producing about £480 p.a., but offering large scope. Panel of 280. Fees 3/6 to 10/6. Mid. from 3 gns. Convenient house, with 2 reception, 5 bedrooms, etc. Garden and garage. Can be rented on lease at £75 p.a. Premium £800, part by arrangement.
7. LONDON, N.W.—Old-established mixed-class PRACTICE, averaging £2,000 p.a., including panel of about 1,500. Fees 2/6 to 10/6. Midwifery 3 to 15 gns. (about 50 cases yearly). Six-roomed house, with bathroom, kitchen, etc. Garage. Rent on lease £85 p.a.
8. ESSEX.—PARTNERSHIP.—Country Practice, near Coast.—A one-third share in an old-established very sound Practice, producing last year over £3,600, including panel of 2,250. Fees 2/6 to 10/6. Suitable house, with 2 reception, 4 bedrooms, etc., and good professional rooms. Large garden. Garage. Price for freehold £2,100. Premium £2,400, £1,800 down and two yearly instalments of £300.
9. PARTNERSHIP.—YORKS.—Suburb of large Town.—A share representing £750 p.a. (which will be guaranteed by Vendor for first 2 years) is offered in a well-established Practice producing about £3,000 p.a., offering large scope, and having a panel of over 2,000. Seven-roomed house available in nice district, with garden and garage. Can be rented; or bought for £750. Premium 2 years' purchase.
10. LIVERPOOL.—Centrally situated old-established PRACTICE. Income about £1,500. Panel of over 2,500, worked from Branch Surgery. Visits and medicine from 3/6 to 7/6. Little midwifery. Large corner house, with garden and garage. Recently redecorated. Electric light and new hot water system throughout. Price, freehold, £2,000. Large scope for increase. Premium 1½ years' purchase.
11. GLOS.—LARGE TOWN.—PARTNERSHIP.—A half share of an old-established good-class non-dispensing Practice, owing to retirement through ill health of senior partner. Income about £5,000, with small select panel. Fees 5/- to 10/6. Good house available at low rental. Premium 2 years' purchase, part by instalments.
12. KENT.—FAVOURITE COAST TOWN.—PARTNERSHIP.—A one-third share (to commence) in an old-established non-dispensing chiefly better-class Practice, averaging for the past three years over £3,000 p.a. Fees 5/- to 21/- Only about 10 midwiferies at from 3 to 10 gns. Very good house with 4 reception, 6 bedrooms, usual offices. Garden. Large garage. Price for freehold £3,000, half on mortgage. Premium 2 to 2½ years' purchase.
13. KENT.—COAST TOWN.—In a rapidly developing middle and working-class district, an increasing PRACTICE, producing this year at the rate of £930, including panel of 560. Fees from 3/-. Good freehold house, with large garden. Premium for Practice and house £2,000. Can be let unfurnished at £90 p.a. Average cash receipts for the past three years £1,535, including panel of over 1,000. Fees 2/6 to 10/6 Suitable for good midwifery, but scope for this work. Suitable house, with reception, 5 bedrooms, etc. Electric light. Small garden. Rent £50 p.a. Premium 1½ years' purchase, about £1,500 down and balance by instalments.
14. EAST COAST.—SEAPORT TOWN.—Old-established middle and working-class PRACTICE. Average cash receipts for the past three years £1,800. Panel of over 1,000. Fees 2/6 to 10/6 Suitable for good midwifery, but scope for this work. Suitable house, with 2 reception, 5 bedrooms, etc. Electric light. Small garden. Rent £50 p.a. Premium 1½ years' purchase, about £1,500 down and balance by instalments.
15. NEAR HARROGATE.—UNOPPOSED COUNTRY PRACTICE.—Income for last year over £500, but has done about £1,500. Visits and medicine 3/6 to 10/6. Little midwifery. Large house in 7½ acres of ground. Excellent sport of all kinds. Price, freehold, £2,000. Premium, including drugs, etc., £550.
16. NEAR BATH.—Old-established unopposed country PRACTICE, held by Vendor 10 years, and situated in an attractive district within easy reach of two good towns. Cash receipts for 1928 £656, and this year at rate of £700. Panel of over 500. Fees 2/6 to 12/6. Large house with 6 bedrooms, etc., and an acre of garden and paddock. Price for freehold £1,200. Premium £900.
17. CHANNEL ISLANDS.—Old-established better and middle-class PRACTICE. Income about £1,000, but has been much more. Fees 5/- to 21/-. Income midwifery. Large well-situated house freehold. Excellent schools and sport. Little midwifery. Good hospital. Practice very easily worked. Price for house and Practice £4,000.
18. LIVERPOOL.—Mixed-class PRACTICE, producing this year at the rate of over £1,200. Panel of 560. Good house, specially built and well situated, containing 2 reception, 4 bedrooms, etc. Large garden. Garage. Price for leasehold £1,800, part on mortgage. Prem. £1,650.
19. MIDLANDS.—UNOPPOSED COUNTRY PRACTICE, near good town.—Well-established Practice, averaging over £1,000 p.a., including panel of nearly 600. Fees 2/6 to 10/-. Excellently situated house, with 2 reception, 5 bedrooms, etc., and separate entrance to professional rooms. Good garden and garage for 2 cars. Can be rented on lease at £100 p.a. Premium £1,350.
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24. SUSSEX COAST TOWN.—Old-established and increasing PRACTICE producing last year nearly £1,600, and this year at the rate of over £2,000. Panel of 1,150. Visits from 3/6. Eight-roomed house, with usual offices and garden. Price for freehold £1,450, £1,000 on mortgage. Premium 1½ years' purchase.
25. YORKS.—PROSPEROUS LARGE TOWN.—Well-established compact PRACTICE, averaging nearly £1,600 p.a., including panel of 1,400. Fees 3/- upwards. Not much midwifery. Low expenses. Very well situated double-fronted house, 2 reception, 4 bedrooms, etc., and good professional rooms. Garden. Price for freehold £1,500 (£1,000 on mortgage). Premium 1½ years' purchase.
26. MANCHESTER.—PRACTICE is situated in a growing district offering very good scope. Income for the immediate past 12 months over £1,600, including panel of nearly 900. Fees 3/6 upwards. Detached well-situated house, with 3 reception, 6 bedrooms, etc. Can be rented on lease at £110 p.a. Premium 1½ years' purchase.
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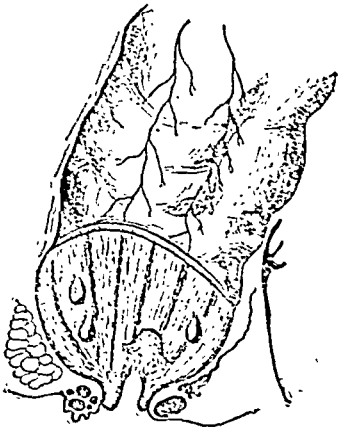

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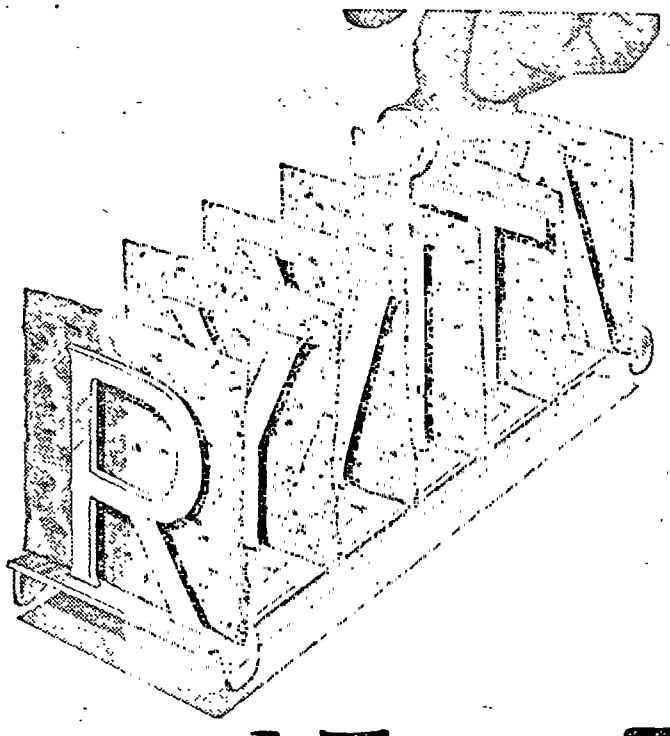

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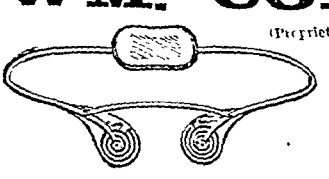

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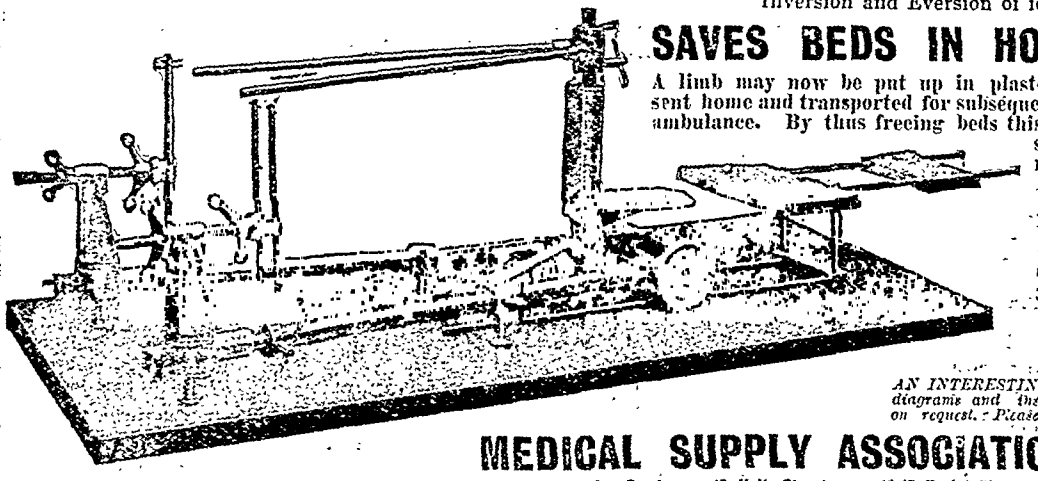

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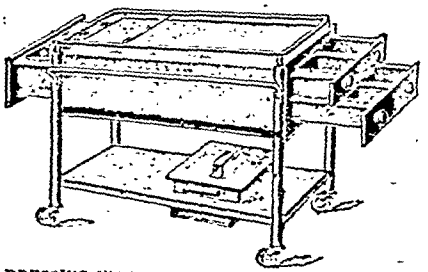

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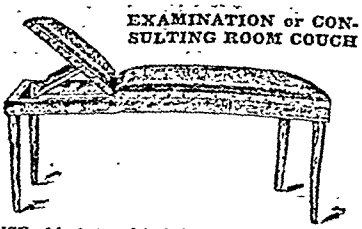

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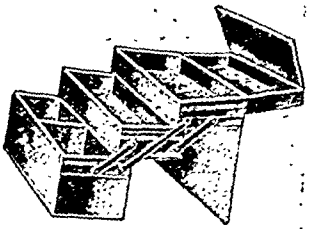

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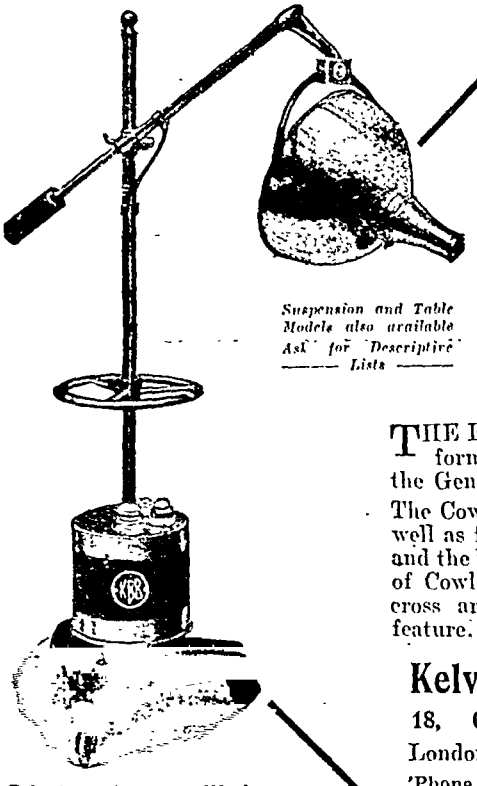

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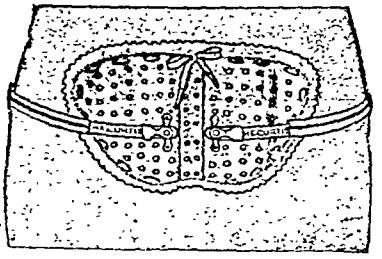

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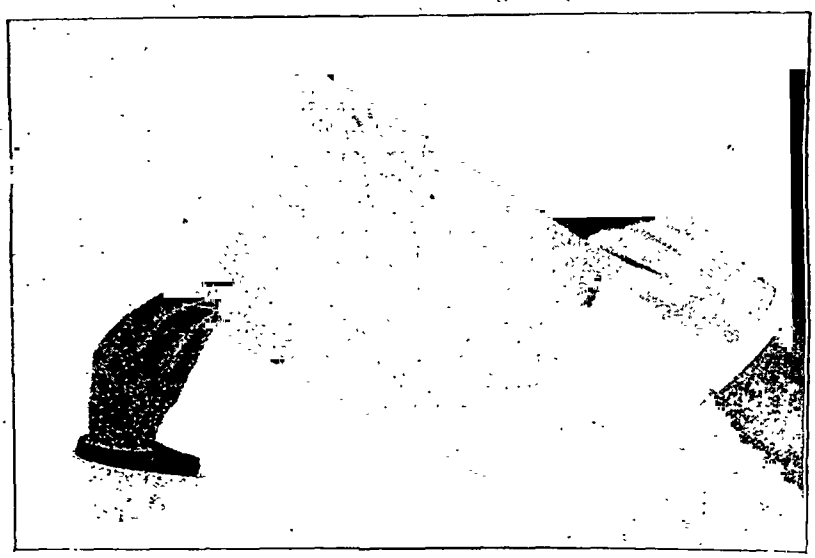

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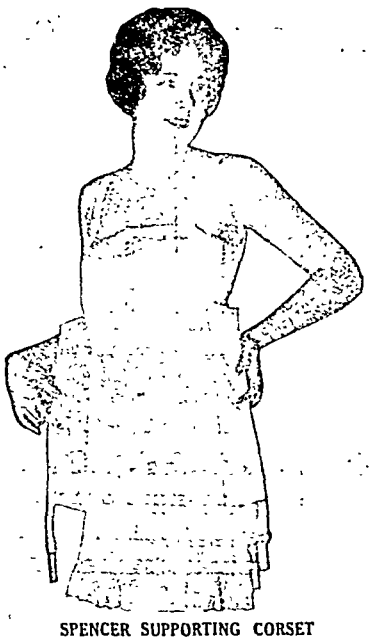

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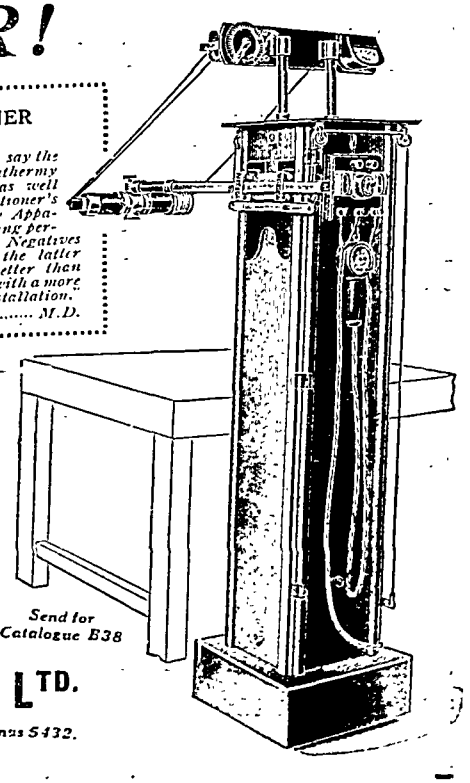

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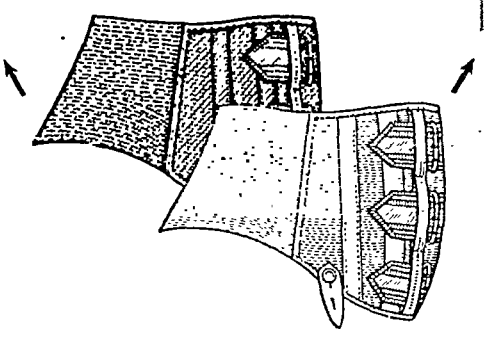

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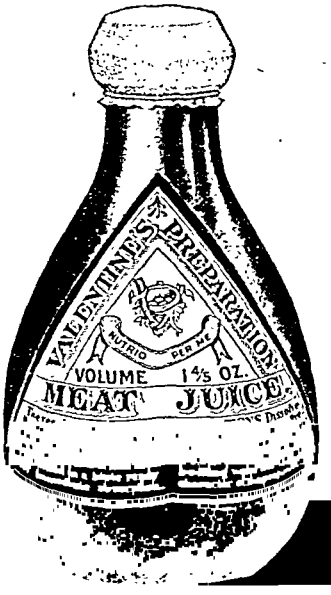

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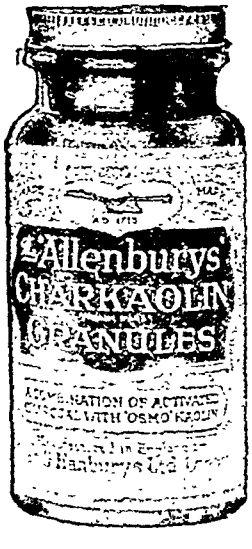

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Typical Case.

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Operation: Block dissection of the neck (right side).

Anæsthesia: Local infiltration, cervical neck block, 160 c.c. of a 0.7 of 1 per cent. Novocain-Adrenaline solution were used. A complete block dissection was made under perfect anæsthesia. On October 3rd, 1919, the patient re-entered the hospital for a dissection of the opposite side, and the same procedure was carried out.

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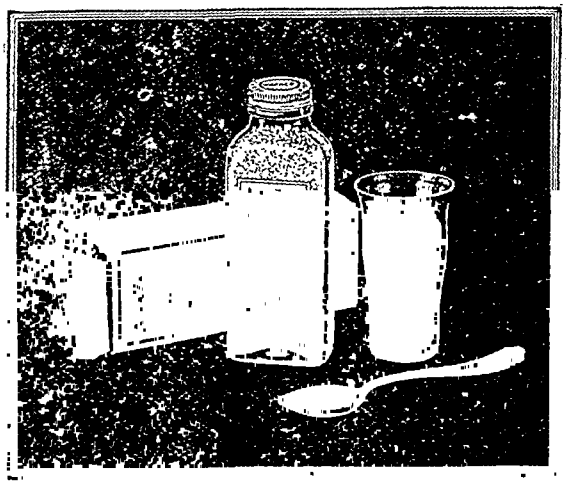

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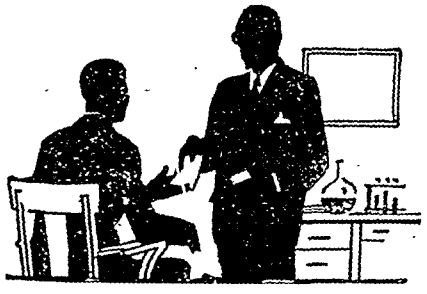

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Coating on the tongue consists of epithelial cells, molds, yeast, and many bacteria, some highly virulent. Normally the saliva prevents growth of the latter. If the resistance of the blood is lowered, the saliva loses its germ-destroying and inhibiting power. A tongue coating appears.

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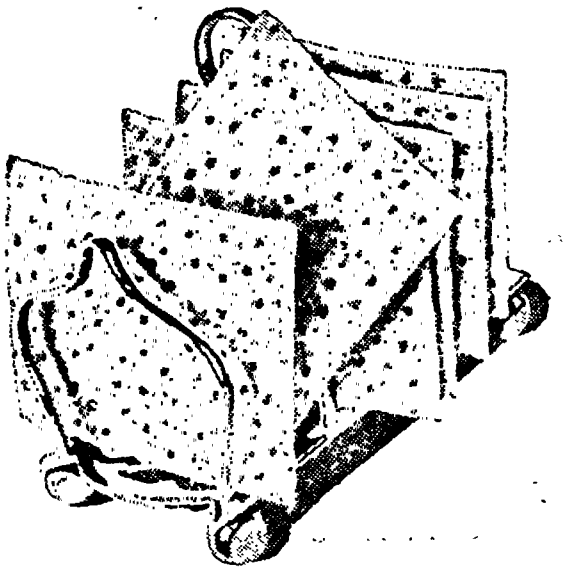

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Concentrated Fluid Extract of LIVER

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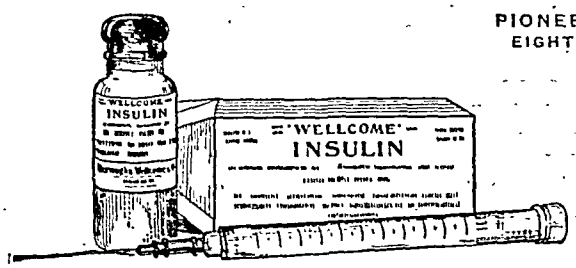

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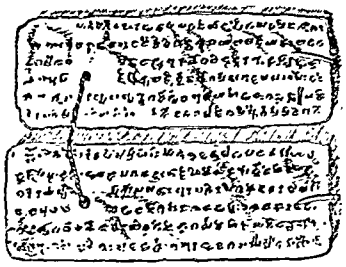

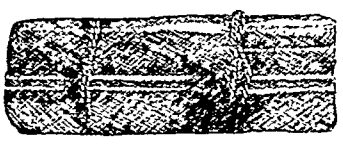

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An Address
ON
PELVIC SEPSIS.

GIVEN TO THE SOUTH-WEST ESSEX DIVISION OF THE BRITISH MEDICAL ASSOCIATION

BY

A. LOUISE McILROY, D.B.E., M.D., D.Sc.GLAS.,
PROFESSOR OF OBSTETRICS AND GYNAECOLOGY, UNIVERSITY OF LONDON (ROYAL FREE HOSPITAL).

PELVIC SEPSIS is one of the most important subjects in medicine. It is a danger to life. It is the cause of ill health on the part of many women. It interferes with reproductive function, and leads to more domestic anxiety and conjugal infelicity than almost any other disease.

What are the natural defences of the pelvic organs against infection? Although the reproductive organs consist of a series of canals which potentially lead from the open air to the peritoneal cavity, the structure of these passages is so arranged as to ensure almost complete occlusion. The labia close over the vaginal entrance, and the walls of the latter lie in antero-posterior apposition. The cervical canal is narrow and sealed by mucus. The secretion of the uterine glands, the cilia, the muscular contractions, all prevent the ascent of bacteria. The tortuous condition of the Fallopian tube is an important element in the closure of its lumen. The vagina contains the bacillus of Döderlein, which is a powerful agent against the entrance of infection. When this bacillus is present pathological bacteria are as a rule absent. Dr. Charlotte Houlton, in the Obstetrical Unit at the Royal Free Hospital, made a very comprehensive investigation of the vaginal and cervical discharge during pregnancy. If the *Bacillus vaginalis* was present in numbers puerperal sepsis was less likely to occur than in those cases where the bacilli were scanty or absent. Various other research workers have also found that streptococci are so frequently present in the vagina as to warrant the assumption that these bacteria are protective in function.

With all these methods of defence, how does infection gain an entrance? Mainly by means of the exercise of the reproductive function. In virgins pelvic sepsis is rare, apart from toxic intestinal conditions or tuberculous lesions. The mode of invasion is mainly by the pelvic route by direct infection, as in gonorrhoea, or from infection occurring at the time of labour or abortion. The most important organisms we have to deal with are the gonococcus, the streptococcus, and the *Bacillus coli*. The gonococcus is rarely to be found except in the acute stage, and I do not propose to deal with the subject of venereal disease except to mention that in cases of chronic pelvic sepsis in hospital practice which do not yield to treatment the gonococcus is the chief factor for consideration. Sepsis may gain admission by means of the blood and lymphatics. Septic foci, such as are found in carious teeth or intestinal toxaemia, are a source of infection. The *Bacillus coli* may affect the urinary tract and give rise to pelvic complications. Streptococci or *B. coli* infection of the caecum or appendix may involve the right tube and ovary. The vulva and vagina are not easily infected apart from venereal disease. The cervix may retain bacteria because of its crypts and complicated glands, and a chronic discharge may persist for months or years. Recurrent vascular changes in the endometrium and the formation and exfoliation of the decidua render the uterus liable to attacks of micro-organisms.

Infection during Pregnancy.

In pregnancy infection is not common. The most common infection is by the *Bacillus coli*. It is closely associated with toxaemia and pre-eclamptic manifestations. Urinary symptoms should never be ignored in pregnancy, and bacteriological examinations of the urine should be carried out if toxaemia is present. The presence of albumin is not the only important factor in urinary analysis. Treatment of *B. coli* infection by the oral administration of alkalis, followed by acids and formalin preparations, is much to be preferred to local applications and douches to the bladder. The treatment of urinary infections in pregnancy is, as a rule, satisfactory. Rest in bed, heat to the abdomen, fluid diet, and non-protein solids, with plenty of fresh fruit and vegetables, give good results. Pregnancy rarely has to be terminated for *B. coli* infection, and only in those cases where there is kidney involvement. The bacilli may persist in the urine for weeks after the patient appears cured. No special clinical significance seems to be attached to their presence in such cases.

General ill health in pregnancy means low resistance to infection at the time of labour. The teeth should be examined as a routine, and attended to when caries or pyorrhoea is present. Even one carious tooth can affect the well-being of a patient. About 70 per cent. of the ordinary hospital patients attending the ante-natal clinics require dental treatment, even though it may merely mean cleaning the teeth and gums. I have never seen abortion occur as the result of dental extraction. On the contrary, many cases of habitual abortion owe the condition to septic mouths. Every focus of infection, such as in disease of the middle ear or skin, should be treated. Defective states of the excretory organs, especially intestinal stasis, and abnormal conditions of the heart and lungs all lower resistance to infection.

If there is a purulent discharge from the cervix a swab should be taken for bacteriological examination. Vaginal swabs are useless. Treatment by antiseptic swabbing of the cervix or by medicated pessaries can be given. Lactic acid pessaries are of benefit, as they stimulate the growth of the vaginal bacillus. Douching is of no value unless carried out by a nurse. It often does more harm than good if left to the patient herself. It inhibits the protective bacteria, and should only be employed for infective discharges. It is quite unnecessary to douche patients during labour or before the application of forceps. A not uncommon cause of puerperal infection is intercourse in the later weeks of pregnancy.

Labour.

Sepsis may be introduced directly by the attendant by means of repeated vaginal examinations, but in the majority of cases the infection is in the patient herself. Lacerated and especially contused tissues may become infected in any part of the body, and the same condition may occur in the pelvic organs. Bacteria which are harmless on an intact mucous surface may easily take on a pathological character when they gain access to tissues filled with blood and damaged cells. Saprophytic organisms invade blood clot or placental tissue which is separated or necrosed, and in some cases they prepare the way for the invasion of pyogenic bacteria. Lacerations are not so likely to occur if the labour is easy and not unduly hurried. An easy labour means less shock, and therefore less lowering of resistance. If the patient is assured that she will not suffer the results are better.

The psychological aspect of labour is of great importance. Fear is often inhibitory in its influence, and causes contraction of the outlet of the pelvis. Shock can be avoided to a great extent by the administration of sedatives in the first stage, sedatives and intermittent anaesthetics in the second stage, and full anaesthesia in primigravidae when delivery is taking place. In domestic practice the medical attendant may be forced to interfere with the course of labour against his better judgement because of the suffering of the patient or the persuasions of her anxious relatives. If the patient sleeps or does not complain of pain the conduct of the labour is much more easy. Chloral hydrate and potassium bromide can be given with safety from the beginning of painful labour and throughout. Morphine is the most efficacious of all drugs, as it hastens the dilatation of the cervix; opoidine, 1/6 to 1/4 grain, is a good preparation of morphine to be given in the first stage. Adaline, 5 to 10 grains, is also useful, and easily administered by the mouth. There is no rule for the repetition of the dose in labour; the dose is regulated by the condition of the patient. The best anaesthetic is gas and oxygen, but it is cumbersome for domestic practice. Chloroform is useful during delivery and at intervals during the later second stage. If the patient is anaesthetized so as to

prevent undue pressure during the delivery of the head, damage to the perineum can be prevented in many cases. In obstetric practice it is not always possible to have an anaesthetist, because of the additional expense. No surgeon would operate under the conditions enforced upon a practitioner in maternity work. Lacerations of the cervix should always be looked for by means of a speculum, and if present stitches must be applied. Tears in the vagina require repair just as much as the perineum. How is this all to be carried out if the light is bad and the patient rolling about the bed? If midwifery practice is to be improved the public must be made to realize that it means more financial responsibility. Skilled medical help in the repair of lacerated tissues will solve to some extent the problem of maternal mortality. Although ante-natal work is doing much to prevent complications in labour, we must direct more attention in the future to the more rational treatment of labour itself and its immediate consequences. If over 60 per cent. of the women of the country are attended by midwives, are these labours to be borne with pain and suffering? Every expectant mother should be seen at least once by a medical practitioner, and I see no reason why he should not arrange for a suitable sedative to be given by the midwife during labour in each particular case. If there is great suffering and an anaesthetic would give relief, this should be an indication for sending for a practitioner, preferably one who has already seen the patient during pregnancy. Pupil midwives should be given some special training in the administration of sedatives. Drugs such as chloral hydrate and potassium bromide could be put up in measured doses and indications taught for their safe administration. Anaesthetics should be given by the medical practitioner as in surgical practice. The obstetric attendant cannot be expected to deliver or operate and give an anaesthetic at the same time. I am not quite sure of the legal aspect of the case, but I could quite well imagine some difficulty arising in the case of a fatal termination from anaesthesia if only one medical practitioner were present.

The practice of making women bear down in labour often results in general and uterine fatigue. Pressing the feet against a board is less tiring than pulling with the arms. Sometimes the squatting position aids the descent of the head.

Third Stage of Labour.

As long as the placenta is in the uterus and no haemorrhage is taking place the uterus should not be manipulated, as irregular contractions may be retracted upwards towards the placenta is adherent and manual removal is necessary, edge of the membranes may be retracted upwards towards the cervix, thus causing infection. When the placenta reaches the vagina it can be expelled by gentle massage. If it is not infrequently found that a certain degree of sepsis follows. In cows, if the placenta is adherent, *B. coli* infection is suspected. It may be that a parallel condition exists in human obstetric practice, and that the infection is already in the uterus. To remove an adherent placenta it is better to keep the hand inside the uterus when the placenta is entirely separated and to pull it out by the cord with the other hand. If it is not intact or membranes are left behind, the internal hand can clear the uterus without additional risk of reintroduction. Exploration is unnecessary for retained membranes or small pieces of placenta in other cases, because of the risk of introducing sepsis. The patient should be carefully watched, and if signs of sepsis appear the uterus can be drained or explored. As a rule the uterus expels all retained membranes, and can be aided to do so by the administration of fermogen or pituitrin.

Drainage of the uterus in the puerperium may be aided by sitting up in bed and by exercises. Lochia are retained if the patient lies on her back for any length of time. If the perineum has been lacerated and healing does not take place the stitches should be removed and the perineum cleaned up with antiseptics and sitz baths. As soon as tissue are clean usually in about ten days—the patient should be anaesthetized and deep silkworm-gut secondary sutures applied after freshening the granulation tissue with a scalpel. If the perineum is slow in becoming clean [illegible] applied for a few days stimulates the [illegible] underlying tissues and renders operation possible. Complete union as a rule occurs after suturing, and thus vaginal operations for prolapse are prevented. This method of treatment is most satisfactory, and is carried out as a routine in the Obstetrical Unit in every case where healing has not taken place.

Local Sepsis: Diagnosis and Treatment.

True puerperal sepsis, or septicaemia with blood infection, is not common in hospital obstetric practice, but local sepsis is met with not infrequently. District patients rarely go septic, probably because of their protective organisms. These may be destroyed when a patient comes into hospital, in the process of cleansing.

Local sepsis, in addition to a rise of temperature and pulse, is manifested usually by offensive-smelling intermittent copious lochial discharge. The uterus is tender, and the abdomen is not distended. The main object of treatment is to stimulate uterine drainage and contractions. Ergot, pituitrin, or quinine can be given. Low-pressure vaginal douches are of benefit, also sitz baths. Drainage by means of a wick of gauze with glycerin in the uterine cavity is effective. In some cases digital exploration is necessary to remove pieces of placenta. If pus forms incisions must be made, but with early glycerin drainage cases of pelvic cellulitis have almost completely disappeared. A fresh wick of glycerin gauze is put in daily until the temperature subsides. This method is easier of application than the frequent injections of glycerin as recommended by Dr. Remington Hobbs. As a rule two, or at the most three, applications are sufficient.

Treatment of Acute Sepsis.

In acute sepsis rigors are present in many cases, the lochia dry up, and the abdomen is tender and distended by the paralysed intestine. Streptococci may be found in the blood, usually when the temperature is high. Sometimes the *Bacillus coli* is found, but not frequently. The treatment is more general than local. Antistreptococcus serum in daily doses of 20 to 30 c.cm., or even 40 c.cm., is given. Quinine bihydrochloride intramuscularly, 5 to 10 grains daily, is also given. The two essentials, however, are open air and daily colon lavage. The latter clears away the intestinal toxins, and is the most efficient remedy I know of for sepsis. It helps to prevent the onset of pneumonia. Blood transfusion is of value in some cases. If there is any uterine discharge a glycerin drain may be employed. Vaccines, unless in stock, are difficult to obtain in time for immediate treatment. The Dick serum has not proved itself of much benefit according to the researches of Dr. Salmond and Dr. Turner in the Obstetric Unit at the Royal Free Hospital.

Post-natal care is essential in the prevention of the extension of latent sepsis. The uterus should be encouraged to rise up in the pelvis by making the patient take knee-chest exercises. A pessary may be necessary for a month or two if the uterus is not involuted. If catarrhal conditions of the cervix are present vaginal tampons of ichthyol and glycerin are of use. Operative treatment should not be advised until all other methods of treatment have proved useless and symptoms are present and found to be definitely due to the malpresentation.

Abortion is a very frequent cause of pelvic sepsis, especially if criminal induction has taken place. Drug induction often causes an incomplete abortion, with consequent chronic ill health. As a rule the placenta is retained, and may become foul-smelling with septic necrosis. The patient should be treated as a case of acute sepsis and her resistance raised. Glycerin should be injected into the uterus, and after the acute symptoms have subsided the placenta can be removed by the fingers or ovum forceps. Early removal of the placenta may break down the protective cell barrier in the uterine wall and so turn a local into a general sepsis. Curettage or hysterectomy for puerperal sepsis have been given up by most obstetricians.

Pelvic Sepsis in Gynaecological Practice.

I cannot do more than touch upon one or two points on this subject. Most infections are puerperal or gonorrhoeal in origin. In the treatment of chronic pelvic sepsis the

FIG. 1.—Active latent syphilis of meninges.

FIG. 2.—High power view of active infiltrations of meninges in latent syphilis.

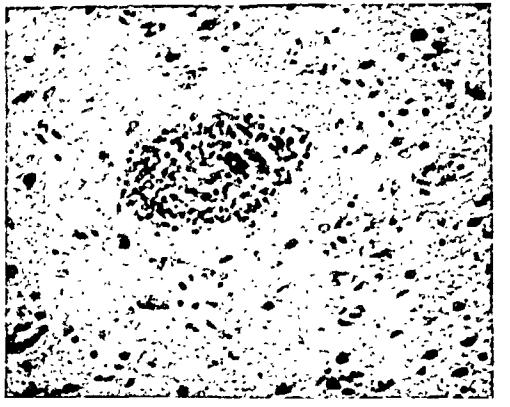

FIG. 3.—Perivascular infiltration in brain of latent syphilis.

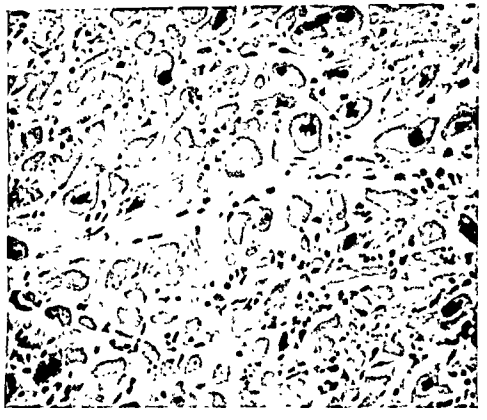

FIG. 4.—Latent syphilis of myocardium.

FIG. 5.—Lesions of latent syphilis in para-aortic tissues.

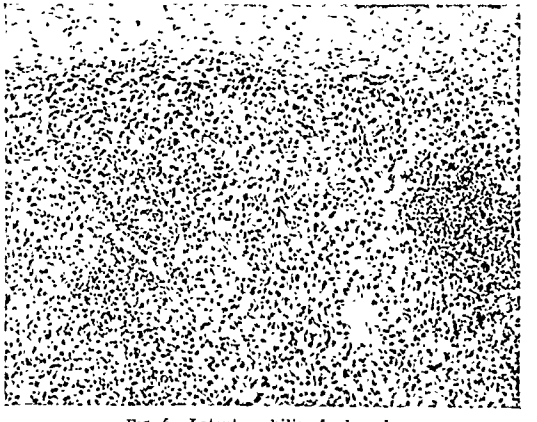

FIG. 6.—Latent syphilis of adrenals.

FIG. 1. October 1st, 1928.

FIG. 2. October 22nd, 1928.

FIG. 3. November 5th, 1928.

FIG. 4. December 31st, 1928.

FIG. 1.—Radiogram taken on admission, showing bilateral pneumothorax. The limits of lung tissue have been outlined.

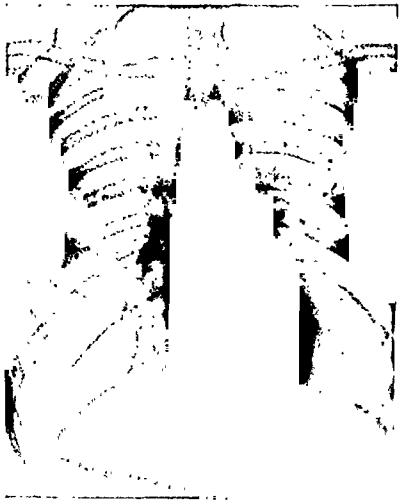

FIG. 2.—Radiogram taken on December 12th, 1928, showing complete re-expansion of both lungs and absence of any gross lesion therein.

medical aspect of the question is coming more into prominence than hitherto. The general condition of the patient is more important than the local. Chronic cervical discharge may clear up in many cases with local treatment, but the uterus is frequently the channel for the excretion of toxic products, the result of intestinal stasis or rheumatic affections. Teeth are a source of chronic infection. Dieting, exercise, baths, intestinal lavage, and artificial sunlight all help towards a cure. If there is stenosis of the cervical canal or retained uterine discharge, as in cases of chronic subinvolution with defective uterine contractions, local treatment, such as dilatation, curettage, and drainage, is valuable. Drainage can be carried out by stitching a self-retaining rubber catheter into the uterus for five or six days and injecting a drachm of glycerin with a serum syringe into the tube several times a day. This does not disturb the patient, and can be done by a nurse. Glycerin drainage relieves the pain and uterine spasm of acute sepsis, such as occurs in salpingitis or pyosalpinx. It is used as a preliminary measure to operation, but in many cases of pelvic peritonitis the symptoms subside with drainage, and operative intervention is unnecessary. It is useless operating upon adherent tubes and ovaries if the uterine canal is stenosed. A preliminary dilatation and drainage is necessary. If pus is present in the tubes, and removal or some conservative operation is adopted, drainage of the pelvis is best performed by placing a wick of gauze in the pouch of Douglas and bringing one end out through a vaginal incision. Amputation of the cervix for chronic sepsis may give good results if pregnancy does not occur subsequently, but rigidity from scar tissue may complicate labour. I have seen several cases where Cæsarean section was necessary for this condition. The operation is not a desirable one in the case of young women. Hysterectomy for chronic sepsis is beneficial when drainage has failed, but it is not so frequently employed now that general methods of treatment are available.

The restoration of reproductive function, and not its destruction, should be the aim of the practitioner. A radical pelvic operation should not be performed before treatment of septic teeth or intestinal stasis has been tried. Hysterectomy, if performed, should, when possible, be limited to the supravaginal operation. Panhysterectomy causes contraction of the vaginal vault, with subsequent dyspareunia or difficult intercourse. Hysterectomy not only causes sterility, but gives rise in some cases to domestic unhappiness and infidelity, both on account of its physical and mental consequences. The after-histories of cases when followed up may make one question the advisability of radical operations, which may physically benefit the patient but cause unhappiness in her marital relationships. If the uterus is removed and the ovaries are left, the cervix acts to a certain extent as a channel of excretion.

Tuberculous affections of the pelvic organs should be treated on the same lines as surgical tuberculosis—fresh air and sunlight. The recurrence of menstruation may cause attacks of pain and keep up the activity of the disease. X rays are of value in suppressing menstruation and thus bringing about physiological rest. The dose can be graded to be temporary in its effects.

I have merely touched upon the fringe of the subject of pelvic sepsis. My opinions are perhaps controversial, but they are at least the result of my experience.

"ACTIVATED" (IRRADIATED) FLUORESCEIN IN THE TREATMENT OF CANCER.

BY

S. MONCKTON COPEMAN, M.D., F.R.C.P., F.R.S.,
FRANK COKE, F.R.C.S.,
AND
CLAUDE GOULDESBROUGH, M.B., B.Ch.,
RADIOLOGIST TO THE ROYAL NORTHERN HOSPITAL.

(*With Special Plate.*)

Two years ago (in 1927) we tentatively initiated a method of treatment on cases of inoperable cancer involving the use of a soluble salt of fluorescein, followed by the application of a comparatively small dosage of *x* rays or radium.

This method, and the results obtained therefrom, formed the subject of preliminary communications by one of us (S. M. C.) to a meeting of the local Branch of the British Medical Association at the Hampstead General Hospital on February 9th, 1928, and to the Chemio-Therapeutic Section of the International Cancer Conference[1] which met in London in July of that year. On the occasion of the London conference we also demonstrated at the Royal Northern Hospital several cases of previously inoperable cancer, which, subsequent to varying periods of treatment, then exhibited no evidences of the malignant disease from which they were suffering when treatment by means of activated fluorescein was commenced.

Activation of Fluorescein.

Fluorescein ($C_{20}H_{12}O_5$), which may be regarded as the prototype of a long serious of acid phthalein dye-stuffs, is formed by heating to a temperature of 190° C. a mixture of phthalic anhydride (1 part) and resorcinol (2 parts). By the introduction of halogen atoms into its molecule most of the fluorescein produced is transformed into dye-stuffs known by the generic term of "eosins." Of these the most important is eosin ($C_{20}H_6O_5Br_4K_2$), well known by reason of its extensive use in histological investigations. This is the potassium salt of tetra-brom-fluorescein, which is usually marketed rather than the sodium salt, which does not crystallize so well. On the other hand, fluorescein, which is quite insoluble in water, but readily soluble in alkaline liquids, is produced as the sodium salt, under the trade name of uranin. In the course of our investigations we have also made use of the potassium salt, but found it necessary to have this specially prepared.

For some years past it has been known, as the outcome of researches by von Tappeiner and Raab, Noguchi, Salant and Bengis, Pereira, and others, that when lowly organisms such as paramoecia, or embryonic cells, including ova and spermatazoa, are exposed to the action of daylight in the presence of a dilute solution of eosin or fluorescein they are rapidly killed, whereas if protected from light, as when the containing vessel is placed in a dark cupboard, no such lethal effect is produced. Many other dyes, dye-stuffs, and acridine derivatives, in addition to haematoporphyrin, a derivative of haemoglobin, all of which fluoresce in the presence of light, exhibit similar properties. This fact has been abundantly demonstrated in the case of eosin, most recently by Pereira.

Eosin, and the similar iodine compound erythrosin, have, however, from the clinical point of view, the disadvantage as compared with fluorescein, that, especially if injected intravenously, they are found to be definitely toxic to the animal body, whereas fluorescein appears to be completely non-toxic even if administered in comparatively enormous doses. Thus experiments carried out by W. S. C. Copeman and D. Levi have proved that continuous administration of 1 per cent. fluorescein to mice, over a period of several weeks, in place of water, has no obvious harmful effect; while tadpoles can live in a 1 per cent. solution of fluorescein, if protected from light, for a shorter period of time.

Dr. H. Colwell, radiologist to King's College Hospital, is at present engaged in an investigation on somewhat similar lines with the aid of a grant from the Medical Research Council, but his report has not yet become available.

Recently, in view of suggestions received from Professor Lindemann, F.R.S., of Oxford, we have carried out a series of tests, clinical and experimental, on the action of fluorescein salts of metals other than sodium with, and

department of the Royal Northern Hospital. The tabulated list of cases kindly supplied by the secretary of the hospital affords, on analysis, the following results:

Apparent recovery	8
Much improved	20
Too recent for statement	7
No change	8
Not improved	2
Discontinued treatment	12
Dead	7
Prophylactic	6
	70

As regards patients treated elsewhere, four successful cases have been reported to us from King's College Hospital; two cases of carcinoma of the breast in private practice have apparently recovered; and several instances have come to our knowledge in which recurrent nodules on or near operation scars have disappeared. In a letter recently received from Drs. Dight and Cutter of Sydney, Australia, the writers say, *inter alia*: "We have tried the method in a number of cases . . . and, so far, our results are very encouraging." They give certain details as to a case of "obstructive neoplasm of the œsophagus," treated by means of intravenous injections of 10 c.cm. of a 1 per cent. solution of potassium fluorescein in normal saline before each irradiation given at intervals of fourteen days, with the result that "whereas before the treatment the patient had difficulty in swallowing fluids, she now can take semi-solids quite easily."

Recently a test was carried out on similar lines to those adopted in our first case, radium, however, being employed in place of *x* rays.

The patient was a man, aged 39, who had been operated on at varying intervals on five separate occasions for sarcoma of the thigh. Recurrence having taken place in the form of a fungating mass measuring about 4 by 3 inches and raised above the surface of the surrounding skin, it was decided to treat it with radium, the inner half of the growth being also painted and injected with 2.5 per cent. Na-fluorescein solution. Radium was used in the form of radon, a number of tubes containing which were inserted around the periphery of the growth. Some weeks later letters were received from Mr. Clifford Morson, the surgeon in charge, and from Dr. Muir, medical superintendent of Whipp's Cross Hospital, stating, in each instance, that the effect produced was definitely more marked on the portion of the tumour treated with radium + fluorescein.

To Mr. Stanford Cade of Westminster Hospital we are indebted for the following notes of two of his cases, which also afford evidence that the simultaneous use of fluorescein may considerably augment the action of radium.

Case 1.—Mrs. A. S., aged 55. Atrophic schirrosis of right breast; fourteen years' history. Ulceration and tumour. Treated by me with radium application, and daily painting with fluorescein while the radium was in position. Complete disappearance of the lesions, although the total quantity of radium was much smaller than what I use as a rule.

Case 2.—Mrs. T. B., aged 50. Carcinoma of breast, secondary deposits above clavicle and in axilla. Same treatment as in previous case. Complete disap[illegible] ummary tumour and axillary glands; marke[illegible] raclavicular glands. In this case, too, in my [illegible] has accelerated the reactions to irradiation.

Dr. Mottram,[2] experimenting with the cells of rat sarcoma with which other rats were subsequently inoculated, has shown that dosages of radium and of fluorescein, each incapable alone of exerting any appreciable restraining effect on the growth of the cell substance inoculated, nevertheless, in conjunction, though apparently irrespective of which is first applied, exhibit such summated action as to prevent growth of tumours in the majority of the subsequently inoculated animals.

The fact that it is possible so greatly to augment the action of radium by the concurrent use of fluorescein is obviously of considerable interest, and likely to prove of practical importance where perhaps only a minimal amount of radium is available for purposes of treatment.

Finally we desire to direct attention to a few points which we have found to exert a definite influence on the extent of success likely to be attained by the use of "activated" fluorescein in the treatment of certain forms of cancer.

(*a*) Cases which respond most satisfactorily are those in which other methods of treatment have not previously been employed. If the patient has already been subjected to courses of *x* rays or radium, this fact will probably militate against obtaining useful results with fluorescein.

(*b*) The more cellular and rapidly growing (that is, the more malignant) the growth, the more readily is it likely to respond to treatment.

(*c*) When fluorescein is given internally, in the course of treatment of cases of breast cancer, enlarged glands in the axilla have been found to disappear although not themselves directly activated.

(*d*) In the case of superficial secondary growths, such as recurrent nodules on or near the scar of an operation wound, excellent results have been obtained by the injection with a hypodermic needle of a few drops of fluorescein solution into the substance of the nodule prior to irradiation. Treated in this way, secondary nodules even of considerable size may disappear with unexpected rapidity.

(*e*) Cases previously regarded as inoperable, after a course of treatment with activated fluorescein have, in certain instances, been found, at a comparatively early stage, to have undergone such changes as to render them amenable to surgical intervention with satisfactory results.

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LESIONS OF LATENT SYPHILIS.*

BY

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(*With Special Plate.*)

SINCE 1906 I have made an intensive study of the histologic lesions of latent syphilis in relationship to the presence in these lesions of the etiologic agent of syphilis, the *Spirochæta pallida*. The results of this work have been published from time to time in various articles in American medical journals. This study began with the demonstration of spirochaetes in the myocardium and with the establishment of the histologic entity of syphilitic myocarditis. The first studies were made with the Levaditi method; because of the length of time required for it and because of the large number of negative results obtained by this method from cases showing identical histologic lesions as those seen in positive cases, my attention was drawn to the necessity of developing a better staining method than the Levaditi. With the aid of my assistant Dr. Starry, there was perfected the Warthin-Starry silver-agar method, which possessed great advantages over the Levaditi method, notably in the reduction of time required, from ten days to ten hours or less, in the use of the method on single sections mounted on cover-glasses, thereby permitting a control of the histologic lesions, and finally in the much greater percentage of positive spirochaete finding. Through the use of this staining method the greater part of my work on latent syphilis has been carried out, but the method, although in our opinion much superior to the Levaditi method in every way, is still far from being a perfect method, in that it does not give more than 60 to 75 per cent. of positive spirochaete demonstrations in cases showing identical tissue lesions. This has led us to continuous experimentation with staining methods, and recently in my laboratory we have developed a silver-starch modification of the Warthin-Starry method which promises a higher percentage of positive results than with the old method.

The material upon which this study has been carried out has been chiefly necropsy material coming into my laboratory from the University Hospital clinics. As this hospital is a State institution, its patients are drawn from all over the State of Michigan, largely from the small towns and rural districts. It represents chiefly the lower middle-class population. The present necropsy service examines about

* A paper read in opening a discussion in the Section of Venereal Diseases at the Annual Meeting of the British Medical Association, Manchester, 1929.

300 to 350 cases a year. A systematic microscopic study of all organs and tissues from each necropsy is made, and cases showing histologic lesions of syphilis are then checked with the spirochaete stain. The percentage of syphilis in this post-mortem material is very high, but shows a great variation in different years—30 to 60 per cent. A very large percentage of these cases are middle-aged males, who have entered the hospital because of cardio-vascular symptoms, or who have died from heart failure while in the hospital for surgical operations. A smaller number have been known cases of syphilis with history of treatment. Based upon the study of this material, I have arrived at the following conclusions regarding the occurrence of latent syphilis in the various organs and tissues of the body.

Leptomeninges.

Lesions of latent syphilis occur very frequently in the meninges, being present in the great majority of cases. They vary greatly in intensity, from small, localized opacities or thickenings to more patchy or even generalized thickenings of the arachnoid and pia. They are found most frequently over the parietal and frontal lobes, usually over the sulci, and not over the convolutions. In the active latent lesions these meningeal thickenings and opacities appear microscopically as localized areas of a mild productive process with slight infiltrations of monocytes, plasma cells, and lymphoid cells. There is a proliferation and increase of the reticulo-endothelial cells of the membranes, with eventually cells of fibroblastic type leading to fibrosis. Small perivascular collections of lymphocytes and plasma cells may occur throughout the meninges; the number and degree of these being in proportion to the severity of the process. In many cases there is only a slight productive reaction, leading slowly to thickening and hyaline change in the membranes. The sharply localized character of these mild lesions is very striking. Often they are seen in the gross with difficulty, by oblique light or upon floating the membrane. In the old case of latent syphilis the process may be for the greater part healed or inactive; the membranes show hyaline thickening, while cellular areas may be found only after prolonged search. Every transition stage of severity may occur, from slight fibrosis of the meninges to the active and clinically recognizable form of syphilitic meningitis.

Brain.

Localized perivascular infiltrations occur within the brain tissue of the latent syphilitic. They are precisely similar to those found in paresis and cerebral syphilis, the difference being only in number and degree. They occur usually throughout the frontal and parietal lobes, and near the ventricles. They are usually few in number; in some brains only one or two such infiltrations may be found on extensive examination microscopically. Here again all transition stages in degree and number of these lesions occur, up to active brain syphilis and paresis. In many cases of syphilitic psychoses these latent lesions are found in very moderate numbers associated with a moderate atrophy and gliosis of the brain tissue, involving particularly the frontal lobes. It may be said that every latent syphilitic has localized lesions identical with those of paresis, the only difference being in the number and intensity of these lesions. The meningeal lesions and those of the brain tissue do not always show a corresponding degree of involvement; as a rule the meningeal lesions are more numerous and more marked than the cerebral.

Spinal Cord.

Similar lesions are found in the meninges of the cord and in the cord itself, but less frequently than in the brain.

Heart.

In my experience the heart of every male latent syphilitic has shown latent lesions, varying from small and few microscopic areas of increased stroma nuclei and plasma cell and lymphocyte infiltrations up to more diffuse areas of interstitial myocarditis. In the majority of latent syphilitic females these cardiac lesions do not occur, or are very small. Nevertheless, in some women more severe forms of syphilitic myocarditis do occur. The part of the heart usually involved in these latent lesions is the septum, and the anterior and posterior walls of the left ventricle near the apex, rather than the walls of the right ventricle, although in some cases the right ventricle has shown more marked involvement than the left. The lesions are usually intermuscular, rather than perivascular. In the mildest degree they consist of an increase in the number of stroma nuclei, the latter being arranged in single or double file, occasionally with large aggregations of nuclei between the muscle. These aggregations represent perivascular infiltrations around the smallest coronary branches. The infiltrations present a variety of cell forms: plasma cells, lymphocytes, monocytes, and cells of fibroblastic type. Occasionally polynuclears are present. The chief characteristic of these infiltrations is their diffuse or patchy character. They are not sharply demarcated, but trail off irregularly into the neighbouring heart muscle. The papillary muscles are often involved. Very characteristic is an increase of nuclei beneath the endocardium, the cells lying in two to five rows, closely crowded together. They appear to be derivatives chiefly of the subendothelial reticulo-endothelial cells. The stroma often appears markedly oedematous, as in congenital cardiac syphilis, and very frequently it gives a mucoid reaction with mucin-staining dyes. The more active the process, the more marked is the oedema. Fibrosis of the myocardium is the eventual result of this interstitial proliferation and infiltration. Between the active infiltrations the heart muscle fibres are well preserved, often hypertrophic. As the active cellular infiltration diminishes and fibrosis results, the heart muscle becomes atrophic, and often shows fatty degenerative infiltration. In many cases the fibrosis of the stroma takes place without much change in the muscle fibres. Ultimately, however, atrophy of the muscle results, and there is a patchy fibrosis of the myocardium containing atrophic fibres. This latter distinguishes infarct scars from the syphilitic fibrosis; the former being more sharply circumscribed and devoid of muscle fibres in their central portions, at least. Spirochaetes may be found, often after prolonged search, in the active infiltrations, and even in the scar tissue, when the latter is still fairly cellular. When the fibrosis becomes hyaline it is impossible to find them. Hence the advantage of the Warthin-Starry method of staining spirochaetes in single sections, permitting control of the histologic lesions. With the exception of the aortic, the valves are rarely involved in latent syphilis. The aortic valves are affected chiefly through the vasa vasorum of the aorta, and a certain degree of sclerosis of the aortic valves is almost always present in the latent syphilitic in later years. Acute exacerbations of the latent lesions occur without known cause, and are characterized by a polymorphonuclear infiltration, in which spirochaetes are present.

The heart of the latent syphilitic usually shows at necropsy dilatation of the left ventricle or of both ventricles. In the great majority of cases there is no valvular lesion, although the sequelae of bacterial endocarditis may be coincident in some cases. In the younger individual latent syphilis of the heart probably predisposes to secondary bacterial endocarditis, as numerous cases showing this combination have been observed. In the older cases the majority show no secondary valvular involvement. The great majority of cases of latent syphilis come into the clinic of internal medicine as patients showing more or less vague myocardial insufficiency, with symptoms of dyspnoea, palpitation, slight or marked cyanosis, and chronic passive congestion. They represent a definite cardio-vascular complex. When questioned as to the occurrence of rheumatic symptoms they almost invariably give affirmative answers, and the common clinical diagnosis is therefore "rheumatic heart," even in the absence of all evidence of valvular lesion. A progressive course downhill of increasing cardiac dilatation and insufficiency follows, and the cause of death in the latent syphilitic is most frequently "cardiac or myocardial insufficiency." To what extent this cardiac failure is due to the myocardial lesion or to the associated aortic lesions is usually very difficult to determine. At necropsy the heart is dilated, the wall thin and atrophic, with a certain degree of subendocardial fatty degenerative infiltration. The endocardium is usually

more or less thickened and opaque. Cross-section of the heart wall will show more or less marked irregular areas of fibrosis, particularly in the left ventricular wall towards the apex. A cardiac death is a very frequent form of death for the latent male syphilitic, and a large percentage of the deaths occurring in middle life from "myocardial degeneration" are due to this cause.

Aorta.

Latent active lesions are found in the aorta of every male syphilitic and in the majority of female syphilitics, although usually they are much less marked in the women than in the men. The lesion is essentially a disease of the vasa vasorum, consisting in obliteration and thickening of the walls of the small nutrient arterioles of the aorta, with plasma cell and lymphocyte infiltrations along the course of these vessels. The term "mesaortitis" is a misnomer, as syphilis of the aorta does not affect primarily the muscle coat of the vessel, but is primarily localized in the vasa vasorum. The infiltrations are always more marked in the adventitia around the larger vasa vasorum than in the media, decreasing in size towards the intima. As the result of the obliteration of the nutrient vessels there is a slow infarction of the intima and inner portion of the media, resulting in sclerosis and atrophy of the muscle and degeneration of the yellow elastic tissue. In the mildest cases small infiltrations are found only in the adventitia and around the para-aortic blood vessels. The gross pathological picture in the mild cases of aortic syphilis is that of a single area of aortic sclerosis or atherosclerosis. In many cases it cannot be diagnosed as syphilitic in character from the gross appearances. Even in aortas that appear normal latent syphilitic lesions can be found in the adventitia around the vasa vasorum. The gross appearance of any aorta cannot be taken as a criterion for the absence of active syphilitic lesions in its wall; only the microscopic examination can decide as to the absence or presence of syphilis. It is in the severe forms of aortic syphilis that characteristic lesions of syphilis show grossly in the form of irregular fissures and depressions in the intima with the characteristic porcelain-blue appearance. In the great majority of cases, however, the changes produced in the aortic wall by syphilis are covered up by the associated secondary sclerosis of intima and inner portion of the media.

Syphilis of the aorta may exist in three forms: with aneurysm; with aortic insufficiency; and in the form of perivascular lesions around the vasa vasorum in the absence of both aneurysm and aortic insufficiency. The third form is by far the most common, but is rarely recognized by the clinician. It may be either symptomless, or present the clinical syndrome of an aortalgia, or even that of angina pectoris. In the cases associated with aortic insufficiency the valvular lesion is the result of an extension of the syphilitic disease of the vasa vasorum of the aorta to those of the valves. In the cases with aneurysm the weakening of the aortic wall is usually due to a localized development through the media. As in the case of the heart, acute exacerbations of latent aortic lesions occur without known cause. They are also characterized by a polymorphonuclear infiltration, and frequently by localized necrosis in the media. Spirochaetes are easily demonstrated in the aortic lesions by the improved starch-gelatin modification of the Warthin-Starry method. They occur in the perivascular nuclear infiltrations. They are usually not found in large numbers, but in small groups, in the latent lesions. In the acute exacerbations they may be present in very large numbers, and extending into apparently normal aortic tissue, some distance from the area of infiltration.

Para-aortic Vessels.

A favourite site of predilection for the latent lesions of syphilis are the small blood vessels of the para-aortic tissues. Thickening of the arteriole walls occurs, often leading to marked sclerosis or to obliteration of the vessel, while active plasma cell and lymphocyte infiltrations occur around the vessels, particularly around the veins. These lesions may be very slight; in some cases they are the only evidences found of a latent syphilitic infection. Usually, however, the process is continuous with that involving the vasa vasorum of the adventitia. In more severe cases the lymphocyte infiltrations are marked, forming irregular cords of cells following the course of the vessels. They extend along the retroperitoneal vessels, and into the root of the mesentery. Spirochaetes are found in these infiltrations in very small numbers; it is usually more difficult to demonstrate them in these areas than in the infiltrations extending along the aortic vasa vasorum. Very rarely small miliary gummas may develop along the course of these small para-aortic vessels.

Liver.

In both sexes the liver is usually the seat of latent syphilitic lesions. They consist essentially in plasma cell and lymphocyte infiltrations of the periportal tissue, leading eventually to fibrosis and a certain degree of chronic hepatitis. All stages of severity exist, from the mildest to the most severe forms of cirrhosis (hepar lobatum). The frequency of occurrence of a mild grade of atrophic hepatitis in latent syphilitics is very high, as is also that of hepar lobatum. The latter condition, in my experience, is much more frequent in women than in men. The percentage of liver involvement in my material appears to be on the increase, particularly in the cases given a modern treatment with the arsenicals. In fifteen successive necropsies on latent syphilitics performed in my laboratory during the last year there was found a chronic diffuse hepatitis, varying in degree from an early mild form to that of an advanced severe atrophic cirrhosis. The relation of this condition to the treatment rather than to the syphilis remains to be determined. It is probable that the diffuse forms of hepatitis are due to something else than the syphilitic infection, as the syphilitic forms of hepatitis are usually irregular and localized, instead of being diffuse. In the average case the liver presents grossly the picture of brown atrophy and chronic passive congestion, with slight or marked irregularity of the surface. In some cases the small periportal infiltrations occur in livers that otherwise appear perfectly normal. The demonstration of spirochaetes in the hepatic lesions is more difficult and unsatisfactory than in the case of any other organ. They are found usually only in the most active areas of infiltration, and then in small numbers. Throughout the newly formed connective tissue they are not present, or at least cannot be demonstrated.

Pancreas.

Lesions of latent syphilis are common in this organ, in the form of an interstitial pancreatitis not arising from the pancreatic ducts. In the great majority of cases the process is very mild. The interlobular stroma is increased; oedematous, and infiltrated with small collections of plasma cells and lymphocytes. The intralobular stroma is increased, the vessel walls are thickened, and the islands may become fibroid. This lesion may be associated with diabetes, and has been the most common form of pancreatic disease seen in our diabetic material. I believe, therefore, that syphilitic pancreatitis may be one cause of pancreatic insufficiency, although not the only cause. In the severe forms the organ is small, and much firmer than normal; except in cases in which there is marked oedema of the interlobular stroma, in which cases the organ may be larger and softer. Syphilitic pancreatitis is frequently of congenital origin, and may cause pancreatic insufficiency early in life. We have seen two cases of diffuse pancreatic fibrosis in congenital syphilities with enormous numbers of spirochaetes present in all parts of the gland. In the older milder cases the spirochaetes are more difficult of demonstration, because, as a rule, they are few in number, and sharply localized in the active plasma cell infiltrations. They occur singly or in small groups. In a case of very active diffuse interstitial myocarditis occurring in a young man of 24 the pancreas showed large areas of infiltration, associated with the occurrence of aggregations of plasma cells and lymphocytes large enough to be regarded as miliary gummas.

Adrenals.

In the latent syphilitic these organs show almost constantly active infiltrations of plasma cells and lymphocytes varying in size and number from a few small infiltrations

scattered through cortex and medulla, up to diffuse infiltrations of marked degree, with interstitial fibrosis and parenchymatous atrophy, and thickening of the capsule. These lesions are more frequent and more severe in women than in men. While in the average case of latent syphilis these lesions are not severe enough to produce any clinical disturbances referable to the adrenals, yet they may be severe enough to cause marked atrophy and fibrosis of these organs, with a typical picture clinically of Addison's disease. I have seen several such cases, and in my opinion the cases reported in the literature as Addison's disease due to atrophy of the adrenals are probably all of them due to syphilis. There has been an increasing number of such cases reported. Further, I believe that milder degrees of adrenal syphilis may be recognized clinically as a distinct syndrome consisting of low blood pressure, asthenia, irregular patches of pigmentation not marked enough to be regarded as typical of Addison's disease, and accompanied by more or less constant pain in the lumbar region. As has been shown, these cases respond to antisyphilitic treatment, with cure or great improvement in the symptoms. These cases of adrenal syphilis showing a syndrome which might be characterized as sub-Addisonian are probably fairly common among latent syphilities. Spirochaetes are easily demonstrated in the cellular infiltrations, but are usually present in small numbers.

Testis.

The testis of every latent syphilitic shows sooner or later a patchy interstitial orchitis, with atrophy of the germinal epithelium and hyaline fibrosis of the basement membrane of the tubules. The process is usually slow and prolonged over a number of years, but is progressive in character, and ultimately the entire organ may become atrophic and hyaline. It preserves its normal size and consistency, however, in spite of the most marked change. An early loss of spermatogenic function occurs in the majority of those who have had syphilis. Owing to its patchy character and the involvement of individual lobules some sperm may continue to be produced by lobules which are not involved in the process. The interstitial cells usually appear hyperplastic and show a brown pigmentation. In spite of this hyperplasia there is generally a loss or reduction in sexual desire and potency on the part of the latent syphilitic. Spirochaetes are found in the intertubular-cellular infiltrations that are present in the earlier course of the process. They have been found even in the lumen of the tubules and in the hyaline stroma of the basement membrane. They are numerous in the earlier stages, but are extremely difficult to demonstrate in the later atrophic stages.

Ovary.

I have never found a syphilitic lesion in the ovary, or, at least, any lesion that I could convince myself was due to syphilis. Spirochaetes are common in this organ in congenital syphilis, but have never been found in it in acquired syphilis. This organ appears to be immune to the spirochaetes; if not absolutely immune, it at least possesses a very high degree of relative immunity.

Tubes.

The same thing is true of the tubes. They appear to possess a high degree of immunity to the localization or action of the spirochaete. I have never seen any lesions in the tubes of the latent syphilitic woman that I could feel convinced were syphilitic in nature; and I have never found any spirochaetes in the tubes in acquired syphilis. As is true of the ovary, spirochaetes are abundant in the tubes of the syphilitic newborn.

Uterus.

Syphilis of the uterus is by no means rare, both in the primary and in the later stages of the infection. In only a few cases in the latent syphilitic woman have I observed typical syphilitic lesions in the endometrium and extending into the uterine wall, along its smaller blood vessels. There were characteristic perivascular plasma cell and lymphocyte infiltrations, as found elsewhere in the body. Spirochaetes were present in small numbers.

Lymph Nodes.

Latent syphilitic lesions are commonly present in the form of a chronic lymphadenitis which is essentially vascular or perivascular in character. It can usually be recognized histologically only when the process is marked. In such cases spirochaetes are fairly abundant.

Lungs.

Consideration of this organ has been reserved to the last because of the uncertainty of diagnosis of pulmonary latent syphilis. It is true that the latent syphilitic presents a very high percentage of pulmonary fibrosis and chronic passive congestion (induration). Localized patches of fibrosis, usually regarded as chronic broncho-pneumonia, are extremely common in the lungs of latent syphilities, but unless there is a gumma present in association, it is practically impossible to diagnose these fibroses as syphilitic in nature. The infiltrations are less perivascular and show fewer plasma cells than those in other organs, and the fibrosis predominates. The demonstration of the spirochaete is the deciding criterion of pulmonary syphilis, and in the usual necropsy case of latent syphilis this is practically impossible. I have seen not more than fifteen cases in which the presence of pulmonary syphilis was positively proved. The majority of these cases were associated with gummatous lesions; in the others the process was essentially a disease of the pulmonary arteries (cases of Ayerza's disease). Spirochaetes have been demonstrated in the vessel walls of such lungs.

Summary.

It will be seen from the preceding descriptions that the lesion of latent syphilis repeats the essential pathology of the hard chancre and of the secondary and tertiary lesions of the active stage of syphilis, in that it is predominantly vascular and perivascular, and that the infiltrations are derived from the proliferation of cells *in situ*. Each localization of the spirochaete leads to the production of what is essentially a miniature chancre. The presence of plasma cells and lymphocytes in the tissues in the form of localized perivascular infiltrations may be taken as the criterion for the presence of *Spirochæta pallida*. The organisms, therefore, persist in the tissues, producing slight lesions leading eventually to fibrosis and atrophy of the parenchyma. Clinical symptoms will arise only when this atrophy and fibrosis reaches such a degree that functional disturbance results. In the average case in the male this functional inadequacy appears first usually in the cardio-vascular system, and death from latent syphilis is most frequently due to cardiac insufficiency. There are, however, especial organ susceptibilities to the localization of the spirochaete: in one individual the central nervous system, in another the liver, in a third the adrenals, etc., may bear the brunt of the latent infection, so that the clinical picture and the manner of death may vary greatly, according to the organ or tissue chiefly involved.

I have never seen at necropsy a case of perfectly healed syphilis. Search, often prolonged, always reveals active latent lesions in aorta, heart, or other organ. This is as true of cases treated in the modern manner as it is of cases treated with the old mercurial method. If any difference results in the two methods of treatment it would appear to be in the more frequent occurrence of chronic hepatitis in cases treated by the arsenical method. What the treatment accomplishes in either case is the more rapid reduction of the average active case to a stage of latency. There is no evidence pathologically that the case of syphilis ever becomes wholly free from spirochaetes. The latency of the infection may last throughout the individual's life; or at any time exacerbations may take place, and the disease arise above the clinical horizon. What determines these renewals of virulence on the part of the spirochaete, whether it be due to a changed quality on the part of the organism or to changes in the resistance of the body, we do not know. The possibility of such a clinical renewal of activity on the part of the spirochaete is always a possibility hanging over the head of the individual who once acquires this infection. Even if the disease never again produces a clinical outbreak, the relatively immune syphilitic will nevertheless develop various functional

inadequacies as the price of the latency of his infection. These minute local infiltrations of plasma cells and lymphocytes represent the processes of a local tissue immunity. With time this immunity mechanism in itself becomes dangerous to the individual through the functional inadequacies which it may eventually produce. Whether a consistent five-year period of treatment would finally rid the body entirely of spirochaetes I cannot say, for in my material there have been no cases that have been under continuous treatment for that period of time. The fact remains, however, that in syphilitics accorded what has been regarded by the clinician as thoroughly satisfactory treatment, with complete clinical cure, latent lesions of syphilis still present themselves on microscopical examination of the necropsy material derived from such cases.

BILATERAL SPONTANEOUS PNEUMOTHORAX.

REPORT OF A CASE WITH RECOVERY.

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(With Special Plate.)

IT is well known that bilateral artificial pneumothorax can safely be employed as a therapeutic measure in suitable cases of bilateral lung disease. Provided that collapse is induced gradually and is carefully controlled, dyspnoea and cyanosis do not occur. Spontaneous pneumothorax, even when unilateral, often provokes severe symptoms owing to the suddenness of the collapse and to the high positive pressure which may develop in the pleural cavity. McLaughlin and Fildes,[1] writing in 1927, state "it is well known that double spontaneous pneumothorax is incompatible with life." We have recently observed the following case of bilateral spontaneous pneumothorax in which, in spite of symptoms of the utmost severity, recovery eventually took place.

A. S., a male aged 19, came to the Middlesex Hospital on March 7th, 1928. He had always enjoyed good health, and had been perfectly well up to the morning of his visit to hospital. On rising at 7 o'clock, he noticed a pain starting beneath the left scapula and working round to the front of the left chest. The pain was described as shooting in character, and gradually increased in severity; it was intensified by any exertion, by deep breathing, or by moving the left arm. Breathlessness started five hours after the onset of pain and gradually became worse. He was seen at hospital at 4 p.m., complaining of severe pain in the chest and of breathlessness.

Examination.

The patient was well developed physically. He appeared to be in the greatest distress; the expression was anxious and the face was pale and somewhat cyanosed. Respiration was laboured, and at each expiration he made a peculiar whistling or whining sound. On attempting to lie flat the face and hands became severely cyanosed. There were exaggerated respiratory movements of the extraordinary muscles of respiration of the neck and upper part of the chest, but the lower part of the chest hardly moved at all, and the intercostal spaces were sucked in during inspiration. The abdominal respiratory movements were excessive. The left side of the chest moved a little better than the right. On percussion there was hyper-resonance over the whole of the chest with absence of cardiac and hepatic dullness; the note over the right base was more drum-like than on the left side. On auscultation hollow blowing breath sounds were heard. The coin apices, but at the bases no breath sounds were just audible at the sound was not elicited. The pulse was regular, rate 90, and of good volume. The blood pressure was 150 mm. systolic. The apex beat was felt in the left nipple line, and the heart sounds were normal.

A tentative diagnosis of right pneumothorax was made, but the absence of displacement of the heart and the unusual chest signs could not be explained, so that it was decided to make an immediate *x*-ray examination. On screening, the heart was normally situated and of normal size, though the vascular pedicle was slightly displaced to the left, and the cardiac pulsation appeared excessive. There was a large pneumothorax on each side of the chest, and both lungs were almost completely collapsed, except for a small area at each apex which remained expanded. There was about half an inch of lung visible surrounding the left border of the heart, and an inch surrounding the right border. With each inspiration there was slight movement of the collapsed lungs. The diaphragm moved well. A radiogram was taken, and is reproduced in the special plate; owing to the urgency of the symptoms a good record was not obtained.

Course.

On arriving in the ward the distress became more severe; the face and arms were almost black, and the pulse became small and rapid. Oxygen was administered by nasal catheter, and the needle of a pneumothorax apparatus was inserted into the fourth right intercostal space, in the anterior axillary line. The intrapleural pressure was so high that fluid was expelled from the manometer, but a pressure of well over 30 cm. of water was certainly present; 550 c.cm. of air were withdrawn slowly, and the intrapleural pressure fell to + 12 – 12 cm. of water. This procedure was attended with most dramatic relief of the distress. Morphine 1/4 grain and strychnine 1/30 grain were then given, and the patient was left receiving continuous intranasal oxygen. The left pneumothorax was not interfered with. During the night he again became severely distressed, and air was allowed to escape by inserting an ordinary serum needle into the right pleural cavity. From this time onwards he remained perfectly comfortable. Slight cyanosis of the lips and cheeks was present for a few days, but there was no distress. Respiration was 24, the pulse 65 to 80, and the temperature remained normal.

During the next fourteen days the physical signs suggested gradual expansion of both lungs, occurring first on the right side. The cardiac and liver dullness remained absent. Signs of fluid were never found, nor was the coin sound ever elicited. The heart was neither palpable nor audible at this period. After two weeks he was allowed up without ill effect. Cough was negligible and sputum scanty in amount, and contained no tubercle bacilli. Physical examination prior to discharge from hospital, on March 28th, 1928, showed the heart to be normally situated; the chest signs suggested that there was still some air in both sides of the chest. An *x*-ray examination on March 23rd, 1928, showed the right lung to be fully expanded and a fairly large pneumothorax still present on the left.

The patient has been kept under observation as an out-patient since his discharge from hospital up to the present time (May, 1929), and no signs or symptoms of any lung lesion have ever been detected. *X*-ray examination on December 12th, 1928, showed both lungs fully expanded and no signs of lung disease.

COMMENT.

Bilateral spontaneous pneumothorax has been previously reported by Benedict,[2] Briggs,[3] Emerson,[4] Hawes,[5] Hazen,[6] Marshank,[7] Meyer,[8] Le Wald,[9] and others; altogether we have been able to find reports of ten cases in the literature. The most frequent underlying cause of spontaneous double pneumothorax is pulmonary tuberculosis, though it may occur in apparently healthy subjects, as in our case. Recovery is uncommon, ensuing in but three of the above, and those that do recover may get a recurrence of pneumothorax.

Le Wald's patient was a healthy male, aged 20, who first had a right pneumothorax, and a week later a large double pneumothorax. Meyer reported a case of bilateral pneumothorax which recurred four times, always during coitus; at necropsy no active tuberculous lesion was found. In Hawes's case, that of a male aged 27, there were recurrent attacks over a period of ten years, involving the right and left sides alternately, recovery eventually taking place.

In our case it is difficult to account for the onset of pneumothorax, which apparently took place during the night and apart from physical exertion. No signs of disease have ever been found, though the patient has now been under close observation for a year, and we may assume that the chest is healthy. The occurrence of bilateral pneumothorax in such a case may have been due to a unilateral pneumothorax with high positive pressure rupturing into the opposite pleural cavity through the mediastinum, as in Le Wald's case, and the fact that severe symptoms were not present until some hours after the onset rather favours this explanation. Another possibility was the existence of a natural communication between the two pleural sacs; this seems unlikely in our case, as the left pneumothorax, which was not aspirated, persisted longer than the right.

With regard to diagnosis, the absence of any displacement of the heart in a case with signs of pneumothorax

and in which there is great distress should suggest a bilateral one. The advisability of aspirating both pleural cavities was considered. Aspiration of the right side, however, gave sufficient relief on both occasions, and it was decided to leave well alone and to avoid all unnecessary interference which might increase the risk of infection. There is no doubt that aspiration saved the patient's life. It seems remarkable that both lungs finally expanded without any complication such as effusion or infection.

We are indebted to Dr. G. E. S. Ward for permission to continue our observation of this case while under his care, and to record it.

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NEW ANALYSES OF CARBOHYDRATE FOODS AND THEIR APPLICATION TO DIABETIC DIETS.

BY

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AND

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ANYONE who has taken the trouble to compare the carbohydrate content of foodstuffs given in different food tables must have been struck by their divergencies and contradictions, often amounting to several hundred per cent. It therefore seemed essential to investigate the subject further if any degree of accuracy in dietetics, and especially diabetic diets, was ever to be obtained. Fresh analyses have therefore been carried out and the results published.[1]

In the past compilers of food tables have largely failed to differentiate between (*a*) starch and the soluble sugars which are completely available as such for metabolism, and (*b*) other carbohydrates such as cellulose, pentosans, inulin, which are certainly not available as carbohydrate and whose exact value in nutrition is doubtful. By our methods of analysis we have separated these two groups, and our final tables show the carbohydrate physiologically available for metabolism. Some of the new figures differ greatly from older ones, as the following comparison shows. The older figures are taken from food tables[2] prepared by Harrison and Lawrence in 1923 from the sources then available. The figures give the percentage of carbohydrate in foods as eaten.

	Percentage Carbohydrate. Old.	New.
Cabbage	2-3	1.0
Celery	3 5	1.0
Lettuce	2.5	0.7
Olives	9.0	0
Rhubarb...	2.5	0.6
Strawberries	9.0	4.4
Tomato	4.0	2.4
Beetroot	7.0	8.0
Potato	20.0	19.2
Bread	50-55	50-55

It will be noticed that great changes appear in most vegetables and fruits, in which much of the total carbohydrate has been found to be "unavailable." On the other hand, the new and old figures agree in foodstuffs rich in the available carbohydrates (sugar and starch), such as beetroot, bread, and potatoes.

Application to Diabetic Diets.

These new analyses explain the specific effect that has been attributed to green vegetables in the treatment of diabetes. Thus when a patient confined himself for a day or two to green vegetables instead of their supposed equivalent of bread or rich carbohydrate food, the glycosuria disappeared. This was because the available carbohydrate was much lower than was supposed.

In practice, therefore, diabetics may always be allowed large amounts of green vegetables, enough to satisfy the most voracious appetite. Moreover, it is quite unnecessary to boil vegetables three times, as was often done in the past, because they contain so little carbohydrate after ordinary domestic methods of cooking. It will be possible in future to make the carbohydrate content of diabetic diets more uniformly accurate, and consequently treatment, and especially experimental therapeutic investigations, may be made more accurate also.

Changes in the Line Ration Diet.

These new food values for carbohydrates have already been incorporated in the line ration diet cards introduced by one of us in 1924,[3] and in the last edition of *The Diabetic Life*.[4] Indeed, some confusion for patients and doctors using the scheme has been unavoidable, as new figures have from time to time been substituted for old as analyses became completed. However, the basis of the scheme is unchanged, and each line still contains 5 grams of carbohydrate, 7½ grams of protein, and 15 grams of fat. The protein and fat food values remain the same, and many of the richer carbohydrate foods, such as bread and potatoes. But practically all the amounts prescribed of green vegetables and many fruits have been increased. The values for such articles as cabbage, spinach, cucumber, and tomatoes have been doubled because the carbohydrate content is about half what we supposed in 1924. A few others, such as lettuce, asparagus, and rhubarb, have been found to contain so little carbohydrate that they have been allowed as "extras," because average helpings contain a negligible amount of carbohydrate.

Naturally the patients are getting more carbohydrate than before, and some have required a few more units of insulin. Depending on the foods chosen by the patient, the increase in carbohydrate now allowed is from 30 to 60 per cent., calculated on old food values. Thus the amount of carbohydrate now allowed in a diet of ten lines (50 grams of carbohydrate) may equal 65 to 80 grams when worked out with previous food values. This increase is probably better for the patient and conforms with the general tendency to increase the carbohydrate in diabetic diets. It has had the effect of reducing the amount of acetone bodies in the urine of patients using the line ration scheme. The ratio of carbohydrate to fat in this scheme was originally intended to be 1 to 3, just high enough to allow complete combustion of fats to proceed. In practice, however, complete combustion was seldom obtained, as Rothera's test was frequently positive in the urine. This was because less carbohydrate was being given than was supposed in theory. The introduction of the new values has corrected this, and the patients' urines are now more consistently free from traces of acetone bodies.

It may be of interest to see how our new figures apply to other schemes of diabetic diets. MacLean's[5] "fifth day" diet contains 42 grams of carbohydrate, but on our new reckoning only about 26 grams. Similarly, some of the sample meals given by Joslin[6] as containing 10 grams of carbohydrate contain only about 5 grams. And working out a ten-line diet (50 grams of carbohydrate) containing much vegetable by the food values given by Joslin (the standard figures used in America) gives a carbohydrate content of 94 grams—admittedly an extreme example. It is interesting to note that Joslin now aims at giving even his severe diabetics 80 to 100 grams of carbohydrate a day—amounts the same as the line ration scheme when the different food values used are considered.

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HEALTH PROPAGANDA.

I.—THE ADMINISTRATIVE POINT OF VIEW.*

BY

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IT seems to me impossible to consider the question of "propaganda" in connexion with health matters as dissociated from education on the same subject. "Propaganda" is in any case a horrible word. Though not born of the war, it is one of the unpleasant things that were popularized as a result of that disastrous episode in modern history. During the war the word "propaganda" came to mean a competitive effort in misleading the public of the particular nation concerned. It is essentially associated with the vulgarity that is an integral part of all successful advertisement. Personally I do not believe that any good thing ever comes out of vulgarity. Having said that, I may say that I have a constitutional objection to what are called, in one of the most offensive items of American slang—also popularized during the war—"stunts."

My belief is that preventive medicine is now winning its way into its true position as the spear-head of medical progress in the future. Everybody agrees that "prevention is better than cure," and there is a great deal of lip service of sanitation and other preventive measures. But the patient and persistent efforts of the members of the public health service and their staffs have not yet achieved—and perhaps never will achieve—the prestige that attaches to the successful physician or surgeon or research worker. This, to some degree, is natural. The work of the public health officer is less individual, and much less dramatic than that of the successful physician or surgeon. This somewhat tends to depreciate the status of the public health administrator in the eyes of the general public in comparison with the status of specialists in other branches of medicine and surgery. This is especially regrettable as, almost more than his colleagues, the medical officer is required to be a "doctor" in the etymological sense of the word.

The primary function of the local sanitary authority is to provide, as far as possible, an environment in which it is possible for all classes of the community to lead a reasonably healthy life. During the present century, however, the activities of local authorities and the expenditure of public funds have been more and more devoted to the personal aspect of public health, and local authorities are now largely concerned in the actual treatment of individuals, through their pre-natal clinics, child-welfare centres, school medical services, tuberculosis services, clinics for venereal diseases, and the administration of the National Health Insurance Act.

All the vast expenditure involved has impressed those responsible with the necessity of instructing the public as to the existence of these services and the proper methods of utilizing them, and in the general principles of hygiene, so that we may maintain the "preventive" principle and lessen the necessity for purely therapeutic measures undertaken for persons who have already become diseased, largely through poverty, ignorance, and faulty environment. Public health propaganda and education has thus become perhaps the latest duty imposed upon local authorities; for the reasons I have given it should be regarded as a basic duty, from the point of view of both improving the public health and promoting economy of public funds. Serious steps in this direction have only been taken quite recently by a minority of local authorities, and those in a somewhat tentative fashion. For instance, it was only during the last financial year that the very progressive health committee of Sheffield allocated a definite portion of its estimates to this purpose. In the meantime much work of this kind has been undertaken by many voluntary organizations, so many that the medical officer of health, who is commissioned by his authority to organize some form of propaganda and education, is utterly bewildered by the number of organizations calling themselves "national councils," and "leagues," and "societies," all competing to advise him and supply him with lectures, demonstrations, exhibitions, and "weeks," devoted to various purposes. The inevitable result is that their competing communications find their way rather quickly to the waste-paper basket. Practically all of these organizations have secured the name of some innocent member of the nobility as president or patron, and a long list of eminent persons as members of their council or committee as the case may be. They all collect subscriptions and have a paid staff, and they tumble over each over in trying to do the same thing. Their multiplication and overlapping has become, in my opinion, almost a public scandal.

A very eminent member of this Association said at a recent meeting that they should all be "scrapped." I do not fully agree with this view. They have a right to exist, and must be given credit for admirable intentions and even a certain amount of achievement; but I am sure they ought to be co-ordinated, and, if I may humbly suggest it, I think this a function which might usefully be carried out by the Minister of Health, who might insist on registration of existing organizations with power to refuse registration to new competitors in this field, and to remove from the register existing organizations found to be obviously redundant. The register might then be reduced from about three hundred to three. The notepaper of one well-known organization of this description contains in its margin a list of affiliated societies which extends all down the page. The number of councils and committees cited, and their subtly different titles, would be comic were it not for the waste of effort and money represented. These organizations also introduce into certain branches of preventive medicine a baneful sentimentality that must tend to bring our work into disrepute. This is typified by the introduction of the word "toddlers" as a description of infants and children between the ages of 1 and 5. The term is now unfortunately officially adopted, although it is not only insulting to childhood, but misleading. It would be more applicable to persons between the age periods 90 to 95, and then it would be an insult to old age.

When the responsible administrative officer has evaded the importunacy of these competing organizations he has to consider very seriously the best methods of instructing the public in the possibilities of avoiding diseases that are the direct outcome of faulty living, and leading the people into the way of health. He has a number of alternatives.

It is a common theory that such instruction should be objective, and appeal mainly to the eye, generally in the form of exhibitions. From that theory evolved the plan of adopting one method of commercial advertisement and devoting a week in the year to "focusing public opinion" on questions of health generally or some special aspect of it, such as the welfare of infants or the extermination of rats. An outcome of this was at one time "baby shows" —the ultimate indignity inflicted on infancy. I was once entrapped into association with a performance of this description. Some 900 mothers brought over 1,000 infants. They were divided into various classes on lines similar to those of the cattle show. There was approximately one prize awarded per 100 exhibitors. The result was about a dozen perspiring but triumphant mothers, and nearly 900 outraged females wounded in their tenderest susceptibilities. Nearly all the babies were made ill, and there was a material rise in the scarlet fever and measles rates of incidence. This was the *reductio ad absurdum* of "propaganda," and thoroughly mischievous. It had no element of educational value.

The other methods available are the promotion of public lectures and instruction in the schools, the distribution of special literature, and judicious use of the public press. Whichever of these methods, be adopted, it is essential that attention these methods, or whatever combination of should be directed to communal health, and that nothing should be done or said to accentuate that morbid absorption in his, or her, own health, on the part of individuals, which is one of the worst vices of our time. The "*malade imaginaire*" was sufficiently rare in the days of Molière to be made a subject of comedy. To-day he is so common as to be a public nuisance, lacking the dignity to become a tragic figure.

* A paper opening a discussion in the Section of Medical Sciences at the Annual Meeting of the British Medical Association, Manchester, 1929.

Briefly, to review the various forms of propaganda enumerated above, the promotion of a "week to focus public attention, etc.," has certainly the advantage of objective appeal, and may be so organized as to have real educational value. On the other hand, it may degenerate into a mere "stunt," stimulating curiosity for a few days, without any lasting effect. It should not be made an annual affair in any locality, as it is certain to become stereotyped and monotonous. It may have great value in small centres of population where public opinion needs stimulation as to the necessity of progressive action towards the advancement of public health. In large centres of population, where administration is already highly organized and progressive, it is unnecessary, and has the grave disadvantage that its organization necessarily falls upon the staff of the public health department and seriously interrupts the routine duties of its officials.

Teaching of hygiene in the schools should be a most valuable means both of propaganda and of education in hygiene. At present I fear it is not. With an overcrowded curriculum, and the necessity of cramming for examinations, the subject is not generally popular among school teachers, directors of education, or those utterly undefined people who arrogate to themselves the title of educationists. In my experience any teaching of hygiene that is given is, with few exceptions, perfunctory and in the wrong hands. In too many cases, especially in the so-called "non-provided" schools, the hygienic conditions in which the children are still compelled to spend a large portion of their childhood are so deplorable that any attempt at "precept" would be merely farcical. In my experience the schools now provided by local authorities are not only sanitary, but provide an environment of dignity which must have an elevating effect on the character, outlook, and ambition of children from the squalid homes of the poorest classes in the community. It is unfortunately nearly always in the schools maintained by the various religious sects in this country that we find conditions that are likely to hasten the departure of children to the next world—doubtless under the best auspices from the point of view of the "denominational" managers.

The promotion of public lectures can be of the utmost value, provided the lectures are given by people with the right experience and the inborn faculty of interesting and really instructing people about subjects in which they are intimately concerned. Public lectures in large halls, given by eminent persons to large audiences, even with the aid of magic lanterns, may be widely attended, but are of doubtful value. On the other hand, intimate conversations on health matters, given to quite small audiences, especially when followed by questions, which develop into a discussion between the lecturer and his audience, can be of real educational value. A number of such lectures have been given in Sheffield under the auspices of the local Insurance Committee actually in the works, and during the employees' own time. They have not only been well attended, but we have evidence that the interest aroused has spread widely among the very classes whom we wish to approach. A great deal of similar and equally successful work is being done under the auspices of the Workers' Education Association and the Miners' Welfare Association.

The distribution of special literature is a process of careful selection, of elimination of propaganda by uninformed or unbalanced faddists, and the encouragement of well-written and sound educational matter. Like every medical officer of health, I have submitted to me an inordinate number of pamphlets, etc., with offers of unlimited supplies for free distribution. I look upon them all with suspicion, and most of them find their way to the wastepaper basket. In common with most of my colleagues, I find the little magazine called *Better Health*, published by the Central Council for Health Education, of real value, and so well edited as to be free from any objectionable features. It is the only publication at present distributed officially by my department, apart from purely local leaflets, etc.

There remains for consideration only the proper use of the press. All medical men know that we have to use great discretion in this matter, and that we are very properly restrained by rules laid down by the General Medical Council. The general health, thanks largely to past propaganda work, has become of such public interest that anything bearing on it is now good "copy" for the press, and consequently welcome. There is accordingly an inducement to medical men to contribute articles dealing with these matters. If such articles are signed, the writer, if in practice, inevitably comes under the suspicion of advertising, which is, and I hope will always continue to be, anathema to the profession in this country. It is, however, open to any medical man to contribute to the press any information which he believes to be of public importance, and reliable, as from "a medical correspondent," and for such contributions he is perfectly entitled to receive any fees usually paid by the journal which publishes his contribution. Personally I believe it to be most important that the public should be kept in touch with the progress of medical science by wise and well-informed contributions to the public press.

In conclusion, I wish to declare my belief that the most important work done in the propagation of knowledge about health matters is that which is being done daily and persistently, without ostentation or advertisement, by our public health departments, their sanitary services, their maternity and child welfare services, their school medical services, tuberculosis services, and other sections of their activities of which the public know little, but from which they derive more benefit than they ever will from any much-advertised "propaganda."

II.—THE PRACTITIONER.*

BY

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IN any discussion which may prove to be controversial it is a great advantage to find some basis of agreement from which to start. In this case we may well find one in the statement that *health is the most important element in human happiness*. Since the object of propaganda can only be to increase the standard of health, we must, then, agree that the question of its value deserves our sympathetic study and demands our frank and careful scrutiny.

This movement, with the backing of a young and energetic Ministry, has been taken up with enthusiasm by many public-spirited persons. Sections of the press have pushed it in the interests of their readers, or eagerly exploited it in the pursuit of their net sales campaign. The result is that it has attained the rank of a fashion, so that the G.P. (the initials stand for both general practitioner and general public) find it easier to render their unstudied sympathy than to apply the scrutiny either frank or careful.

No one who speaks on this question fails to quote Mr. Lloyd George's phrase: "You cannot run an A1 empire on a C3 population." Having quoted it they consider that there is no necessity to go further, and no one ever inquires into the evidence on which our population was alleged to be C3. If in the interests of careful scrutiny you do inquire, you will find no evidence to disprove, and some to support, the view that it was based on the figures obtained as the result of medical examination of those civilians left when the Conscription Act was passed—that is to say, at a time when Mr. Asquith told us that five million men had already volunteered and had been passed A1. Until someone can disprove this view, and unless figures are produced capable of some sort of comparison with other countries like France and Germany, the phrase has no whit more value for our present discussion than has the exactly parallel statement of fact that "You cannot make butter out of buttermilk."

But apart from all this, there is other evidence that we can judge for ourselves. Both the birth rate and the death rate are falling, therefore the average age of the population must be increasing. It needs no proving that the years per head spent in unproductive old age are also increasing, and it follows that it is more than ever important that the effective years of every life should be as

* Read in a discussion in the Section of Medical Sociology at the Annual Meeting of the British Medical Association, Manchester, 1929.

healthful as possible, in the interests of the nation, apart from all considerations of the happiness of the individual.

In this health campaign every sort of method is adopted. There are lectures, leaflets, posters, films, and, last but not least, powerful articles from the pens of various discarded leaders of medical thought in the columns of certain organs of the press. The most promising sign about all these activities is the stress that is laid on the education of the young. Whether or no the performance keeps faith with that promise is a question which requires our serious consideration. It should always be borne in mind that health is more likely to be attained when it is not the direct object of pursuit. If we wish to instruct the individual, health education is more valuable if it teaches the main conditions of a healthy life, and forms those habits which are likely to attain it.

Everyone here will admit that the Boy Scouts and the Girl Guides are doing the most valuable work possible for those of school age, while the National Association for the Provision of Playing Fields is carrying on the work for the older children and the adolescents. Their success is due to the fact that health is not the direct object of pursuit, but that they do teach those habits which are likely to attain it. It has been claimed that previous health propaganda dots the i's and crosses the t's for all these movements. One can only insist that in so far as they succeed in making the young think of health with a capital H they are doing the very worst thing possible for the furtherance of their ultimate aim.

With regard to the posters here are three questions for the consideration of the meeting:

1. As they are at present do they do any good?
2. Could they be amended so as to do more good?
3. Are they edited with sufficient care?.

The third question I would myself answer with an emphatic *No*.

One poster was put up in at least one child welfare centre depicting in gay and attractive colours a little girl reaching up to get hold of a kettle boiling on an open stove. The audience to be instructed consisted of children under 5 years old. One must admit that is a perfectly sound way of teaching children by bitter experience the maxim "The burnt child shuns the fire"; but surely if the health societies really think it necessary that this lesson has to be learnt by personal experience, it would have been more humane and probably less costly in child life to have instituted during health week, on the lines of the old vaccination stations, a *burning station* where each child was made to touch a red-hot poker. It would at least have been possible to regulate the dosage.

From the extended use that is made of lectures, articles in the press, etc., it is evident that it is not intended to restrict propaganda to the juveniles. No child could be expected to read and enjoy Mr. Bruce Lane's weekly letter in the *Daily Ailment*. Probably more, and not less, care is needed in the editing of these for the advice of adults. Because men and women have more reason to think of their health it is the more incumbent on us to see that our teaching does not fall into the easy but disastrous error of making them think of their ill health. No poster or lecturer ever reminds people to think of their manifold blessings; and yet all doctors in their daily work achieve more than half of their success by engendering in patients a cheery optimism, either because of the doctor's personality, or because, seeing that his doctor does not look worried, the patient decides for himself that all is well.

There are various bodies and societies which devote themselves to certain special aspects of the social health. For instance, the British Council of Social Hygiene, which runs the anti-venereal disease campaign. Its efforts are worthy of all praise, and it does achieve a large measure of success with regard to men; perhaps to a less extent with women. It does produce a certain amount of syphilophobia; but this is a small matter, since the complaint is so promptly cured as soon as advice is sought. In considering the success of this propaganda it must never be forgotten that it has an enormous advantage, in that it advocates early advice, and can point to an almost certain cure free of all expense if its advice is followed.

The position of the cancer leaflets issued by the Ministry of Health is by no means so satisfactory. It would be very valuable if this meeting would discuss thoroughly the advisability of the distribution of these to the public. The leaflets have not the value noted as appertaining to the anti-venereal disease campaign. We cannot point to any certain cure even in the early stages of the disease. We are not able to tell people how to distinguish those symptoms which may arise early enough in the course of the malady to give treatment every possible chance of success with the one exception of uterine haemorrhage after the menopause. On the other hand, we do know that if we circulate these pamphlets we shall cause an enormous number of the laity to be more terrified of cancer than they already are. My own view is definitely against circulation. There is one great disadvantage that a doctor suffers when ill: he knows too much about disease for his own peace of mind; the qualifying mitigation is that his training enables him to appreciate reasons against his worst fears. Why should we hand our disability to the public in an aggravated form, since we can give them part only of the knowledge and none of the training?

It is very difficult to harm the young by propaganda, since they care for none of these things; but with adults the position is vastly different. The particular class of adult which greedily devours everything about health it can get hold of is exactly that type to whom it is most harmful. This group of introspective people is already far too much occupied with the functioning of the various bodily organs. On all of them the effect is bound to be deleterious, to many it will be disastrous. A genuine hypochondriac is a sick man, and as such deserves our respect and care. But does not propaganda tend to produce his pinchbeck imitation the valetudinarian, who is of all men the most miserable, and of all human objects the most useless? So long as health is regarded as a means to a useful life, it is life's greatest boon; once it is made his aim in life, it is man's greatest curse. This danger is peculiarly inherent in the activities of that society which advocates constant regular medical examinations.

The infinitesimal good that might be gained is far outweighed by the enormous harm that is certain to be caused by making people overanxious. Take, for example, their suggestion that all persons should be examined before taking a holiday in order to see what they were fit for. What sort of a holiday would the golfer get after the doctor had told him to wear gumboots on a wet day, the angler who might go out only when the sun had full power, or the Leicestershire man told that he might not jump any fences? Why, the thing is an absurdity.

It is surely unnecessary to say anything on the subject of health weeks. If a man holds that health can only be taught by teaching healthy habits in youth, what can you expect him to say about a scheme which sets aside some hours of one week out of fifty-two for the consideration of the subject? The very idea of a health week is the complete reversal of all his views on health.

Lest you should say that no constructive suggestion has been put forward, may I give you a quotation from *How to Make the Best of Life*, by Dr. Glanville? It contains a truth much neglected at the present time; it is a better motto for a poster than any yet issued by a health society, and it is no bad creed for any man.

"The best way to live well is to work well. Good work is the daily test and safeguard of personal health."

III.—THE PRESS.*

BY

H. A. GWYNNE,

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THE press and the medical profession in some respects are opposed to each other, for the former lives and has its being by purveying publicity, while the latter must by the nature of the functions it performs be restrained and discreet. A common ground of agreement between these opposite aims is somewhat difficult to discover, but I am

* Read in a discussion in the Section of Medical Sociology at the Annual Meeting of the British Medical Association, Manchester, 1929.

inclined to think that health propaganda is perhaps the one subject in which the two can co-operate wholeheartedly. We both ardently desire to improve the health of the nation, and we must frankly admit that neither of us can do much in this direction without the help of the other.

I hope this conference will pardon a personal reminiscence, but I relate it only in order to put myself on good terms at the outset with my audience. I am, in a way, a pioneer, for in the year 1913 I published a letter, courageously signed by some of the greatest men of your profession, drawing attention to the grave consequences of the ignorance of the public on the subject of venereal diseases, especially syphilis. It was urged upon me by many eminent doctors and surgeons that such an indictment of our apathy and indifference was necessary in the interests of the nation. I took what little courage was left me by my friends in both hands, published the letter, and supported it warmly with a leading article. The result was that in a short time a matter of great and even vital importance to health was openly discussed and is now no longer confined to the technical columns of the medical press.

It may therefore be taken for granted that the press is only too anxious to march side by side with medicine in the fight for public health. Yet, in spite of this, there are some obstacles to be overcome before we can act together with complete understanding. The press will help in the good work, but it will always want to do so in its own way. The medical profession, bound and tied by strict rules and regulations, would like it done in its way, and there comes the first difficulty. Every newspaper seeks to have an individuality of its own and to carry this individuality right through its pages. For this reason, the concentrated wisdom of all the doctors, if it be distributed to the press generally, will be set aside in favour of the contribution of a lowly general practitioner with a lively pen. Let not this be counted against my profession. I have known of cases where a good-looking doctor with tenuous qualifications has snatched away the woman's portion of the practice of his colleagues in a few months.

Health is a matter of intense interest to everybody, and journalists, having quickly grasped the fact, are naturally eager to provide their readers with the best information they can. In the search for this they often find themselves face to face with the strict rules and regulations of the medical profession. Like many other institutions, such as the Law Society and the Stock Exchange, members are forbidden to advertise, and it has, I believe, been laid down that a signed article in a lay paper is an infraction of this rule. We are thus brought to an impasse. Newspapers require articles at odd times and on odd subjects. They search out the best specialist on the particular subject required, and in nine cases out of ten meet with a ready, not to say eager, response. Then comes the difficulty. It must not be signed by the author—that would bring the wrath of the gods on his head. The article is therefore published as from "a distinguished Harley Street specialist," and all we get for our pains is a series of letters from our readers accusing us of inventing the specialist and writing the article in the office.

Any fair-minded journalist will readily grant that it would not be in the interest of medicine generally that doctors should advertise. It certainly would add to the attraction and revenue of a journal that Dr. X. should use the advertising columns to announce that he would "undertake to make the most melancholy sing in his bath," or that Dr. Y. should say to the world "Don't let them cut you up; let Nature and Dr. Y. put you right without an operation." One's imagination soars at the thought, and, like Clive, we are amazed at our moderation in not starting a press campaign in favour of the abolition of this rule.

Still, there is the problem. We journalists want authoritative information in a hurry, with a name at the top of it, and you of the medical profession would rightly see in that a dangerous innovation which might do infinite harm. It is to be remembered, however, that several eminent doctors do contribute to the press under their own names and no protest appears to have been made by the General Medical Council. Doubtless you might argue that this small band of privileged writers should suffice for the needs of newspapers; but in point of fact they are not numerous enough to fulfil the requirements of the newspaper press to-day. It seems to me that the British Medical Association might well examine this matter and see whether it cannot evolve a solution of the difficulty. As things are at present I am convinced that medicine is losing many great opportunities of teaching the people the great lessons of health, so essential for the well-being of the country.

A cynic once remarked that one of the reasons why a doctor is called in is because the patient has the rare and refreshing opportunity of talking about himself and being heard with attention. Whether that is true or not the fact remains that there is nothing quite so interesting to newspaper readers as discussions on health. Rarely a day passes without a letter being received from a reader asking how best he or she can get fatter or thinner; acquire an appetite or lose some of the craving for food; where to find the best brand of vitamins; whether a whisky-and-soda at bedtime is good for insomnia; or which is the best doctor to consult for persistent halitosis. To our credit be it said that our invariable answer is "Consult a doctor," and in the last case the reply was "Consult any doctor." Such daily experiences are conclusive proofs of the fact that medical matters are, in the language of our craft, "good copy," and therefore it needs no stimulus from outside to quicken our interest in them. However pontifically we may speak to the public on a great variety of subjects, we are quick to realize that it is highly dangerous to pronounce opinions on matters that concern the physical health of our readers. To help us we must turn to your profession, and often in vain.

It might well be suggested that, if there exist such an interest in medical matters among the newspaper reading public, it would be to the advantage of journalism to have a doctor on the permanent staff as general adviser and writer on all that concerns medicine. This suggestion may have been put into practice, though personally I cannot recall any instance of its adoption. There are objections to it which are fairly obvious. In the first place it is possible that a qualified doctor who accepted such a position on the staff of a newspaper might be running foul of some of the conventions of the General Medical Council. Even if it was otherwise, I am somewhat doubtful whether such an experiment would succeed. One of two things would happen: either the medical correspondent would absorb the spirit of his environment and become more of a journalist than a sober *terre-à-terre* doctor, or he would retain the restraint, reticence, and admirable dignity of his profession and be useless as a member of the staff of a newspaper. Besides all this, I doubt very much, except in cases of young doctors still in search of a practice, whether the career of journalism would be tempting enough for a man who has spent four to six years to qualify. It would be a bad thing for both medicine and journalism if incompetent men were engaged.

Owing to the restrictions to which I have referred we journalists are limited in our endeavours to act as interpreters for your profession to the people. We are driven, therefore, to the published words of eminent physicians or surgeons over whom the General Medical Council does not seem to exercise control. Here we are met with the difficulties of such a divergence of opinion as to render our efforts nugatory. Take diet for example. Sir A.B., a physician with a most distinguished record, says alcohol is poison. Sir B.C. makes a speech and pronounces it to be a most excellent and salutary stimulant when taken in moderation, and confesses that he himself always takes a nightcap. "Beer," says Sir D.E., "is both drink and food. Taken in moderation it is an excellent digestive, a magnificent and safe pick-me-up, and should be on every table in the land." Whereupon Sir F.G. declares that if a man has any sort of regard for his liver, he should not even smell an empty beer-pot, much less drink the vile stuff. If people will drink, let

them drink light wines, whisky, or egg-flip. Who will decide when doctors disagree?

So far, I am afraid that you will think that I have been a little lukewarm in my advocacy of joint action between the doctors and journalists. This, however, is not the case. If I have mentioned particular circumstances under which co-operation between the two has been somewhat difficult, I have no hesitation whatever in declaring that on the broad question of the presentation of the plain facts of health there can be, and there should be, the most hearty and constant collaboration of the two professions.

There will be moments in our national life when disaster can only be averted by the combination of medicine and journalism. Epidemics may rage again, and the people will require daily warnings and advice. When this happens I feel sure that the doctors can call on the press to help, and that call will receive an immediate and enthusiastic response. The seasonal ills of spring, summer, autumn, and winter are topics of interest to the press, and we gladly receive and print the advice so generously placed at our disposal by your great profession. Every day there is made some advance in the great science of medicine, and if, as is right and proper, you are reluctant to raise hopes too soon, or to divulge a secret until it has been thoroughly tried out, we, too, are willing to keep silent until the right time for discovery has come. To enforce the simple rules of health which are approved by your profession, to save the people from expensive and dangerous quacks, to do all that is in our power to make of our people the healthiest, as they are the sanest, in the world—these are noble aims worthy of the great professions to which you and I belong.

The Sections.

SUMMARY OF PROCEEDINGS.

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SECTION OF MEDICINE.

Thursday, July 25th.

TREATMENT OF PLEURITIC EFFUSION.

DR. H. J. STARLING (Norwich) presided over the second session of this Section, when SIR THOMAS HORDER read a paper on the treatment of pleuritic effusion. First enumerating the various factors of importance that had to be considered in any case, the speaker went on to uphold the traditional division of effusions into serous and purulent, and enumerated their various causes. He emphasized the fact that it was bad practice to remove all effusions at sight, whether they were serous or purulent; before the fluid was tapped the associated condition of the lung must be assessed as carefully as possible, and it must be determined how far the patient was embarrassed by the fluid itself. In a general way the more ill the patient the more carefully and slowly should the fluid be removed. Speaking more particularly of serous effusions, Sir Thomas Horder argued that too early intervention was meddlesome; if postponed till unduly late it might result in permanent collapse of the lung. Strapping of the chest was often advantageous, and so might be the exhibition of iodides and even calcium. Little good could be said of autoserotherapy. Once tapping had been determined on, slow aspiration was preferable to siphonage, and a portion only of the effusion should be removed. Local anaesthesia and the preliminary use of a sharp scalpel were to be recommended. It must be remembered that most serous effusions were tuberculous in origin, and a prolonged convalescence was indicated. Turning to empyema, the speaker advocated the removal of the pus as soon as it was diagnosed. One or two aspirations might be successful in pneumococcal and in some septicaemic cases (streptococcal). should the patient be too ill to stand the resection of a rib, or open method, that was most generally advisable. But rarely could the septic cavity be opened, emptied cleaned out, and closed up again with success. It was important to disturb the diseased lung as little as possible; irrigation of the diseased cavity, though it had been tried again and again, was of but doubtful virtue, whatever the nature of the irrigating fluid. DR. L. S. T. BURRELL confined his remarks to exudates of doubtful or tuberculous origin. The great majority of pleural exudates were due to tuberculosis, so that, unless there was any definite evidence to the contrary, it was safest to base treatment on the assumption of a tuberculous origin. The patient sought advice in most cases either because of acute pain from pleurisy—the effusion develops later—or because of dyspnoea and general malaise; he was found to have a pleural effusion. In the latter case it might be possible to obtain a history of previous pain for which the patient did not see a doctor, but in many cases there was no history of any pain or illness, and the sole complaint was increasing dyspnoea. In either case the patient should be put to bed and 5 c.cm. of the liquid should be aspirated for examination, because treatment was largely dependent upon the character of the effusion, and a cytological examination helped to determine the cause. Aspiration should not be performed except (1) to relieve pressure symptoms such as dyspnoea; (2) to convert the condition into one of artificial pneumothorax if the underlying lung was actively tuberculous; (3) to encourage the underlying lung to re-expand owing to active disease in the other lung; (4) to treat chronic or recurrent pleural effusion. Removal of a quantity of liquid from the chest was not free from danger, and had led even to sudden death. More common complications, however, were violent paroxysms of cough, severe dyspnoea, oedema of lung, or activation of a tuberculous lesion which was previously quiescent in the lung. In order to prevent these dangers it was wise to introduce air or oxygen into the pleural cavity if more than 15 ounces of liquid were withdrawn. Air should be used if it was desired to maintain an artificial pneumothorax, and oxygen if one wished the lung to re-expand, because oxygen was more rapidly absorbed than air. In an acute case with high fever and toxaemia the effusion was the result and not the cause of the condition, so that although it was often necessary to aspirate in order to relieve pressure symptoms resulting from a rapidly accumulating effusion, in the absence of such pressure symptoms it was very rare that aspiration would relieve the toxaemic symptoms; indeed, it would often make them worse. Most of the acute cases settled down and did best without aspiration. In the very chronic or recurrent cases aspiration should be performed and the pleural cavity gently irrigated with Dakin's solution; oxygen introduced, and a negative pressure of about 6 in. of water left. The general condition of the patient should be treated by fresh air, good food, and, if necessary, aperients, tonics, etc., but no drug had any effect on the actual effusion. The after-treatment was of the greatest importance, for on it might depend whether the patient became consumptive; 40 per cent. of such cases subsequently developed pulmonary tuberculosis, and sanatorium treatment was the best for them. PROFESSOR A. RAMSBOTTOM (Manchester) said that all the evidence went to show that idiopathic pleurisy was in the vast majority of cases tuberculous; cold and injury, important medico-legally, were merely predisposing. It was noticeable how few soldiers, after chest wounds in the war, contracted pulmonary tuberculosis. Although by ordinary methods the bacilli could seldom be demonstrated in the fluid, by modified methods the bacilli had been found in seventeen consecutive cases. These observations were also borne out by inoculation experiments, and by following up the cases (43 per cent. within six years). Tuberculous pleurisy was rarely if ever primary; it was secondary to tuberculosis elsewhere, usually the lungs. The presence of pleural effusion was usually readily determined by clinical examination. It was frequently noticed that the affected side was smaller than the sound side, due no doubt to the fact that when effusion began the cohesive property of the pleural surfaces was lost; the lung collapsed and overprepared for effusion, with the result that the chest wall fell in. Bulging of intercostal spaces, or increase in size of the affected side, usually indicated positive intrathoracic pressure. This collapsing of the lung on the affected side played a most important part in the displacement of the heart in the early stages, and in cases

of moderate effusion by allowing it to be dragged over by the traction of the sound lung. Therefore displacement of the heart was one of the most important, if not the most important, of the physical signs of pleural effusion. Considerable time should therefore be spent in locating the position of the heart; one fallacy had to be borne in mind —the base of the lung on the affected side often retracted, exposing the heart up to its margin. Withdrawal of the fluid should not be hurried, but, if the fluid was left too long, permanent impairment of breathing might result. Provided that the fluid was serous, removal was undertaken under two conditions: (1) At any time should the signs of positive intrathoracic pressure supervene. (2) If with the subsidence of the temperature there was no evidence that absorption was taking place. It was very unsatisfactory to remove fluid before the temperature had subsided, for as a rule it rapidly accumulated again. In distinguishing serous from purulent effusion, tenderness of the chest wall was a useful positive sign.

Dr. RUSSELL dissented from Dr. Burrell's view that most cases of serous pleuritis should be treated as if they were tuberculous. His own experience in these cases was very different. Professor G. R. MURRAY (Manchester) advised the immediate removal of a serous effusion if it reached as high as the fourth costal cartilage. He recommended light freezing with ethyl chloride spray as the local anaesthetic for the paracentesis, and spoke highly of convalescence at high altitudes for such patients. He had had no experience of the treatment of empyema by aspiration alone. Dr. M. ASTON KEY (Southsea) referred to many of the difficulties met with in the diagnosis of empyema; in the case of children he had found it unnecessary to resect a portion of a rib in draining the abscess. Dr. J. SPEARES (Dublin) discussed a number of the difficulties met with in treating empyemas, particularly in cases in which healing of the operation wound is long delayed. He recommended breathing exercises in the after-treatment, and stated his preference for Dieulafoy's aspirating apparatus. Dr. ASTLEY CLARKE (Leicester) advocated siphonage rather than aspiration in the removal of pleuritic effusions; and recorded his conviction that most simple serous effusions were tuberculous in origin. Children, after an empyema operation, might with advantage be allowed to irrigate the cavity by being put to sit in a bath of warm boric solution. He had met with a single case of death due to pleural shock.

Dr. WILLARD J. STONE (Pasadena, California) said that in the experience of the United States Army empyema operations performed early without preliminary repeated aspirations were followed, in about fifty cases, by a high mortality (approximately 64 per cent.), which resulted from an open pneumothorax with collapse of both lungs before the mediastinum had become mobilized by adhesions; since it had been shown that, before mobilization had occurred, for practical purposes the two sides of the pleural cavities existed as one. The mortality was also influenced by operations for drainage before the areas of consolidation had cleared up in the lung on the opposite side. When the plan was followed of treating such cases by repeated aspirations, with rib resection after twelve to fifteen days, the mortality was reduced in a series of 100 cases to 16 per cent.; in the next series of 100 cases the mortality in cases so treated was 9 per cent., while in the last series of 100 cases the mortality was 8 per cent. The haemolytic streptococcus was largely responsible for the empyemas in the series, regardless of the type of pneumonia which preceded; this was, however, to be expected, especially in the pneumonia of measles. A large percentage of the soldiers in the camp where the pneumonias occurred were throat carriers of haemolytic streptococci. The complications producing death after empyema operations were: (1) purulent pericarditis; (2) septic peritonitis; (3) substernal mediastinal pus pockets often associated with purulent pericarditis by contiguity; (4) so-called septic nephritis; (5) meningitis. The figures given previously referred largely to the pneumonia following measles (bilateral streptococcal pneumonias), and to lobar pneumonia in which the complications were largely due to *Streptococcus haemolyticus* in throat carriers of the infection. In epidemic influenza pneumonias fewer empyemas were encountered among 15,000 cases treated at the same hospital later in 1918 (Camp Funston), since the infection, whatever its nature might ultimately be proved to be, produced death in about 25 per cent. within two or three days, before there had been time for an empyema to develop. In the relatively few empyemas which followed among those who survived their pneumonia, the haemolytic streptococcus was again found as the predominating causative organism. The work of the Empyema Commission later appointed by the Surgeon-General confirmed the clinical observations which had led them to adopt conservative measures in the treatment of empyema early in 1918, and to the so-called early aspiration-late operation plan. Instillations of large quantities of anti-streptococcal serum into the pleural cavities of empyema patients were not followed by improved results. Cases of empyema developing sporadically in pneumonia not existing in epidemic form might be expected to have a more favourable outcome than in a similar series of cases occurring during the course of an epidemic in which increased virulence might play an important but little understood part. The CHAIRMAN recorded his own experience with the continuous drainage and aspiration of empyemas, which was not too satisfactory; the method seemed only to postpone the usual operation of rib resection. Replying to a number of questions, Sir THOMAS HORDER recommended novocain and adrenaline for local anaesthesia; he had seen three sudden deaths apparently due to pleural shock, one occurring on pleural puncture, the other two following irrigation of an empyema cavity. Exercises for expanding the lung should not be begun too soon after the tapping of the chest; and vaccine treatment gave disappointing results in empyema. Dr. BURRELL, also answering questions, said that he had met with three instances of sudden death from paracentesis thoracis. The meeting of the Section was well attended, over ninety members being present at one time.

SECTIONS OF SURGERY, AND PHYSIOLOGY AND BIOCHEMISTRY.

Thursday, July 25th.

ABDOMINAL PAIN.

AT this joint meeting, on July 25th, with the President of the Surgical Section, Professor E. D. TELFORD, in the chair, Dr. CHARLES H. MAYO (Rochester, U.S.A.) opened a discussion on abdominal pain by remarking that abdominal pain when not due to peritoneal involvement was dependent either on violent contraction or extreme distension of a viscus. Poulton and Payne had shown recently that pain might be felt during the relaxation of a peristaltic wave. Anaemia of the bowel wall from contraction, or possibly lack of oxygen, might be the cause of visceral pain. Solid viscera were also sensitive—for example, the liver and ovary. The anatomical side of the problem was adequately dealt with, and the presence of true sensory fibres in the splanchnic nerves was emphasized. The speaker described the viscero-sensory reflexes associated with diseases of the gall-bladder and stomach, and said that realization of the inadequacy of knowledge of abdominal pain was made manifest in the surgical treatment of the gastric crises of tabes. The types of gastric crisis were described, and it was stated that complete denervation of the entire stomach had failed to abolish the pain, but some relief had been obtained from cutting the spinothalamic tracts. The study of the surgery of tabetic crises showed clearly how diverse were the sensory paths from the stomach. Severe localized and long-continued pain in a localized abdominal area might possibly be due to bacterial involvement of the requisite spinal nerve. The pain of peptic ulceration might be compared with the pain of varicose ulceration; it was perhaps due to vascular spasms, and later to small extensions at the margins. Summation of stimuli acting on an abdominal viscus might produce pain, while such stimuli acting singly would not be felt. Sound knowledge of abdominal sensations facilitated earlier diagnosis. Sir FARQUHAR BUZZARD (Oxford) said that the problems of the sympathetic nervous system were fundamentally different from the rest of the nervous system. Normally the visceral nervous mechanism did not affect the higher cerebral

centres, but when irritating material was present in the lumen of a viscus there were spasmodic contractions of the involuntary musculature of the organ reinforced by the skeletal musculature, and giving rise to the clinical picture of colic. Splanchnic pain was certainly real, and since the organs were insensitive to ordinary painful stimuli the absence of pain receptors was assumed, the pain being due to stimulation of nerve fibres. The speaker referred to the variations in the threshold of pain sensibility, and also to the persistence of a low pain threshold after all structural abnormality had been removed or disappeared. Knowledge of the length of time during which this low threshold existed would throw much light on certain chronic abdominal conditions. The hypersensibility of some patients might be more fairly attributed to a derangement at the sympathetic rather than the higher levels of the nervous system. Certain heteronomous types of abdominal pain were referred to: coronary thrombosis, "angina abdominalis," and the gastric crises of tabes. In the latter condition examination of the knee-jerks only gave information of a tabetic lesion at the lumbar level of the cord, and therefore was of little use. The type of pains, the intense superficial hyperaesthesia with comparatively slight rigidity, were characteristic features. Mr. John Morley (Manchester) said that his observations of the pain in appendicitis were incompatible with Mackenzie's theory of the viscero-sensory and viscero-motor reflexes. The appendix was developmentally a median organ; it would therefore have a bilateral splanchnic nerve supply, and to accord with Mackenzie's theory the pain and tenderness should be bilaterally symmetrical. After the passing of the initial pain, and before perforation occurred, the remaining pain, tenderness, and rigidity were unilaterally situated. Again, the localized deep tenderness and rigidity in an early case of appendicitis was an undoubted fact, and the precise position of the organ could be determined. The same phenomenon was present in early acute obstructive cholecystitis, and, as the gall-bladder enlarged, the area of maximum tenderness and rigidity spread downwards. The splanchnic nerve stimulation did not cause the rigidity, otherwise the pain would remain in the same situation. The change of position was proof of its origin from the parietal peritoneum by a process of peritoneo-cutaneous irradiation and a peritoneo-muscular reflex. It had been claimed that the abolition or diminution of the pain by infiltrating the skin over the painful area with novocain supported Mackenzie's theory. Mr. Morley had repeated these experiments, and in two cases with perforated duodenal ulcer and right shoulder-tip pain showed how the infiltration of novocain really blocked the peritoneo-cutaneous irradiation. The splanchnic nerves were certainly not the afferent nerves concerned in these two cases, but the phrenic nerves. The speaker demonstrated clearly, by means of radiograms of a patient with a gastric ulcer, taken in different positions, that the tender points corresponded to the altering position of the ulcer.

Dr. E. P. Poulton remarked that the term "tone" had caused confusion, and he pointed out that at Cannon's tonus ring the tension of the muscle was lower than elsewhere. He described experiments on oesophageal sensations which proved that pain was due to stretching and deformity of the nerve endings in the walls of the viscus. When pain was produced by inserting a bag containing air into the oesophagus, the pain was diminished either by increase in posture of the organ or by systolic contraction. Though the tension of the muscle was increased during systole, the tension on the nerve endings was less, since the diameter of the viscus was less. If the bag could not be moved down the oesophagus by the contraction, the pain became worse during diastole. Further experiments with an incompressible bag showed that at two points in the cycle of peristalsis was there increased pain—one at the beginning of systole, when the oesophagus was contracted above the incompressible bag, and, secondly, at the end of systole, when the stretching of the wall of the oesophagus by the bag was re-established. Dr. Poulton did not agree with Dr. Mayo that there were local painful areas in peptic ulceration, but that the whole wall was concerned. Dr. Arthur F. Hurst attributed visceral pain to tension. The normal physiological action of a hollow viscus was alteration in tension in its walls; increase of this tension produced fullness, and, if intense, pain. Localization of pain in the mobile abdominal viscera was not accurate; there was no corresponding moving of position of the pain if the viscus was displaced in or from the abdomen. Localization of pain in gall-bladder disease and in appendicitis was constant, even though the gall-bladder might be displaced downwards by enlargement of the liver or the appendix be in the pelvis. Dr. Hurst referred to the situation of the pain associated with tension of the pyloric sphincter in gastric or duodenal ulceration, or reflexly from the gall-bladder and appendix, and described the situations of the pain in tension of the duodenal bulb and whole stomach. Dr. J. A. Ryle reported observations on colonic pain. The pain of a disease affecting a hollow viscus was experienced in that viscus, and was a function of its musculature. Visceral pain could be localized with considerable accuracy. Referred somatic signs and symptoms were usually absent when inflammation or severe mechanical stress was absent. Abnormal degrees of tonic shortening or hardening were not the sole or usual cause of pain in hollow organs. There were other stresses which would increase the tension in plain muscle fibre and so produce pain. Mr. V. Zachary Cope alluded to referred testicular pain in appendicitis. He said that referred shoulder pain was classified as occurring in three areas: pain below the clavicle; pain over the acromio-clavicular joint; and pain over the supraspinatus. These three areas corresponded with the anterior, middle, and posterior portions of the diaphragm respectively. Several interesting cases were quoted illustrating these points. The parietes gave accurate localizations for both fixed and unfixed organs. The pelvis and the portion of the posterior abdominal wall were the silent areas, the remaining portions of the cavity being supplied by the somatic nerves. The spontaneous pain in appendicitis was referred and the deep pressure tenderness was localized. Professor A. W. Sheen (Cardiff) considered the objective more important than the subjective symptoms. Dr. A. W. Cawadias said that some of the cases of abdominal pain might be due to splanchnic neuritis.

SECTION OF OBSTETRICS AND GYNAECOLOGY.

Thursday, July 25th.

Placenta Praevia.

Dr. C. E. Douglas, a Vice-President of this Section, occupied the chair during the second session, and expressed his gratification at the honour thus conferred on a country practitioner. The increasing concentration on the prevention of disease, he said, applied as much to obstetrics as to other branches of medicine; but placenta praevia would always be with them until someone discovered why the ovum became fixed in the lower uterine segment instead of in the fundus. Dr. Bethel Solomons (Dublin) thought it absolutely necessary to insist that placenta praevia could only occur from the twenty-eighth week onwards; any haemorrhage before that period must be grouped under the heading "miscarriage." He classified the varieties of location of the placenta as: (1) central or total placenta praevia, where the placenta covered the internal os completely; (2) partial, where the os was not covered, but the edge of the placenta could be felt just above the internal os in the lower uterine segment. There were various theories to account for the causation of placenta praevia: in the basal theory the ovum had to seek a healthy endometrium in the lower segment; in the capsularis theory the ovum had to spread. In support of the theory that unhealthy endometrium was to blame, he claimed that curettage two months after a placenta praevia labour would prevent the complication in future labours. In diagnosis, the first symptom which should arouse suspicion was fresh haemorrhage accompanied by clots. Bleeding might be extremely insidious in its onset: it was entirely unaccompanied by pain. Bleeding might be slight and recurrent, or the first haemorrhage might be so severe as to cause grave constitutional disturbances, even death. In the emergency practice of the general practitioner to combat the first shock nothing could compare with the infusion

of two pints of saline under the breasts. Examination of the abdomen would show that the uterus was soft and painless, that the presenting part was high and unfixed, and that a uterine souffle was heard in the hypogastrium. These cardinal facts suggested the diagnosis, but it could only be confirmed by vaginal examination, when the characteristic feeling of the placenta could not be missed. Dr. Solomons discussed the differential diagnosis from other possible causes of haemorrhage. He regarded the prognosis in a case which had been correctly diagnosed and treated as excellent. Dr. F. HAMILTON LACEY (Manchester) discussed treatment and reviewed the statistics of the last ten years (1919–28) at St. Mary's Hospital, Manchester. Rupture of the membranes had been carried out in 126 cases, with a maternal mortality of 2.3 per cent., and a foetal mortality of 45 per cent. In 76 cases no active treatment was adopted: maternal deaths in this series were 2.6 per cent., and stillbirths 30 per cent. Version had been performed in 273 cases, with a maternal mortality of 7.6 per cent. and a foetal mortality of 81 per cent. The results showed that version with immediate extraction gave very bad results. In 21 cases of breech presentation a leg had been brought down and labour allowed to terminate naturally with no maternal deaths. Caesarean section had been performed in 33 cases. The maternal death rate in this series had been 6 per cent. and the stillbirths 13 per cent. Fifteen cases had been treated by induction with no maternal deaths, and a foetal mortality of 70 per cent. In 11 cases Willett's method of fixing a weight to the foetal scalp by means of a vulsellum had been tried: the maternal mortality was *nil* and the stillbirths had been at the rate of 27 per cent. Summing up, Dr. Lacey added that as haemorrhage, shock, and sepsis were the commonest causes of death, it was better to empty the uterus soon, when the patient was in good condition, than to temporize. He thought that in the case of central placenta praevia there might be scope for a slightly higher proportion of Caesarean sections, especially where the foetus was alive and near full term. As 75 per cent. of the children were premature, mortality must be very high whatever treatment was adopted. Professor ESSEN MÖLLER (Lund, Sweden) said that their aim should be to treat at the time when the interests of mother and child were common. Caesarean section should be performed more often than at present. Dr. J. W. G. H. RIDDEL (Plymouth) remarked that it was obvious from the paper that the figures for version were extremely bad, whereas Caesarean section gave much better results, at or near term, for both mother and child. It was essential to get cases early, and he was fortunate in his district in getting most of his cases in good time. Dr. L. C. RIVETT was very glad that the Master of the Rotunda Hospital had been emphatic on the question of nomenclature. He asked why, if placenta praevia only occurred once in an individual, it should be necessary to cuiette to prevent its recurrence. He commented upon the high mortality in version, which he did not favour himself: most patients would deliver themselves after such a simple procedure as rupture of the membranes or the use of Willett's forceps. The severe cases of central placenta should invariably be treated by Caesarean section. The condition must be treated as soon as diagnosed. He disapproved of spinal anaesthesia in bad heart cases on account of its effect on the blood pressure. Dr. A. K. MUDALIAR (Madras) pointed out that a placenta which was central before the cervix dilated might become lateral when the cervix began to dilate. The one certain method of diagnosis was by vaginal examination. He had had one or two remarkable instances of difficulty in diagnosing placenta praevia—one such was in a case of vesicular mole. He strongly agreed with the giving of saline solution at once, as soon as the diagnosis was made, owing to the risk of sudden collapse from delayed shock. No mention had been made of administering small doses of pituitary extract—for instance, after performing version and bringing down a leg. He had no experience of recurrence of placenta praevia. He hoped that the impression would not go abroad that the one safe method of treatment in all cases was Caesarean section; there must be absolute justification for operation in the interests of the child, but a central placenta near term was an absolute indication for Caesarean section. Dr. J. P. HEDLEY agreed that Caesarean section had a very limited field of usefulness in placenta praevia. A young woman should take some risk in her first labour to avoid the nervous disturbance experienced in later pregnancies by patients who had once been submitted to Caesarean section. Professor R. W. JOHNSTONE (Edinburgh) raised two points which he wished to emphasize: (1) The importance of diagnosis. There was only one way—that was, actually feeling the placenta. (2) Placenta praevia should never be treated by temporizing. Once the diagnosis was made, treatment must be undertaken there and then. The risk of sudden cataclysmal haemorrhage was too great otherwise. As for Caesarean section, other considerations besides infant mortality must be borne in mind, but he thought its field might be cautiously widened. Dr. GIBBON FITZGIBBON (Dublin) recognized that Caesarean section had a place in the treatment of placenta praevia, but statistics might give a false impression of the frequency with which the operation should be done. At thirty-two weeks it was relatively easy to treat even a primipara by version. Treatment should be available immediately after vaginal examination had been made. When all factors were taken into consideration the statistics of cases treated by version compared very favourably with other methods. It might be justifiable to temporize when bleeding commenced about the thirty-second week and a living child was very anxiously desired. Dr. G. I. STRACHAN (Cardiff) agreed that the term "central placenta praevia" was a relative term. He did not think enough emphasis had been laid on the bearing of the period of gestation upon the line of treatment to be adopted. The interests of the foetus must not be allowed too much prominence. There was an enormous amount of shock connected with these cases, even when the bleeding had not been very great. Blood transfusion had not in his experience given any better results than saline infusion. Dr. R. S. S. STATHAM (Bristol) protested against the too frequent performance of Caesarean section, and the submammary administration of saline. He had seen two cases of sloughing breasts result, so he now recommended injection into the flank. He was against giving hot douches in ante-partum haemorrhage. Treatment should be applied on the spot: patients should not be brought miles over country roads into a large hospital. He spoke favourably of Willett's method, and de Ribes's bag. He had had a case of two Caesarean sections for placenta praevia in the same patient, with a year's interval between operations. Miss MARGARET BASDEN remarked that not much had been said of the treatment of severe haemorrhage by plugging the vagina, which gave very good immediate results, but ulceration or even stenosis of the vagina might occur afterwards. Her alternative method was Caesarean section, with very good results for the mother and fair results for the baby. With regard to the alleged fear in subsequent labours after section, she could see no reason why the next labour should not be allowed to follow a natural course, though she had found that women who had once had Caesarean section performed always pleaded for delivery in that way again.

Professor BLAIR BELL (Liverpool) said that it was necessary to consider every case on its merits. He agreed with those who wished to simplify the anatomical types, and he thought that the correct terms were placenta praevia centralis and placenta praevia partialis—the former to include all examples in which there was encroachment of the maternal os by the placenta. Even well-known authors of textbooks confused the terms "marginal" and "lateral" placenta praevia. Diagnosis and treatment were affected by the position of the placenta, for it might be said that in partial placenta praevia with overlapping by the placenta of merely the edge of the lower uterine segment (so-called "marginal" type) it was often impossible to distinguish the condition from external accidental haemorrhage, and the treatment, so far as delivery was concerned, was the same—usually puncture of the membranes, the administration of pituitary extract, and possibly the application of a tight binder. Professor Blair Bell thought that Dr. Solomons had been meticulous in bringing into the question of differential diagnosis, "erosion" of the cervix and carcinoma of the cervix. All

said and done, the differential diagnosis lay between accidental haemorrhage and placenta praevia partialis. The chief diagnostic points in vaginal palpation were the recognition or otherwise of the placenta through the os uteri, and the fullness or otherwise of fornices with inability to feel the foetal parts. Abdominal palpation revealed malpresentations or failure of the head to engage, owing to position of the placenta, or, on the other hand, a normal presentation and engagement. Another diagnostic point was albuminuria; accidental haemorrhage was often due to toxaemia, and was associated with albuminuria and other toxic manifestations. Placenta praevia might be associated with toxaemia, but this was rare. In many cases Caesarean section was the only proper treatment unless there were grave contraindications such as the condition of the mother or environmental impossibilities. All being equal, placenta praevia centralis, in a primigravida with an undilated cervix, especially when the child was alive and viable, could be properly treated only by Caesarean section. In the remaining cases, if circumstances were propitious, a further considerable percentage of both types of case, when the child was viable, should be treated by Caesarean section. The duration of gestation was, however, an important consideration; while in cases of doubt the mother's life should be the first consideration, in many cases no additional danger to the mother was incurred, whereas by Caesarean section a totally different complexion was placed upon the foetal mortality. The saving of infant life had not, he thought, been adequately taken into account. He warned operators of the danger of post-partum haemorrhage after Caesarean section, as after other modes of delivery with placenta praevia; he had seen two such cases. The accident might be avoided by the use of pituitary extract and ergotin administered every few hours for two days after delivery. He preferred blood transfusion to that of saline. Because of the very high foetal mortality he did not view with favour version as a routine measure in the treatment of these cases; though in multiparae with placenta praevia partialis and careful management it was often—especially outside hospital—the correct line of treatment. Above all, however, it must be remembered that a considerable number of cases, especially those in which the cervix was not involved, terminated by the normal processes of parturition alone. Many cases, no doubt, escaped recognition or were assisted by puncture of the membranes and pituitary extract, which drug, he believed, was extremely useful in the treatment of placenta praevia. Dr. W. R. ADDIS (Manchester) stressed very strongly the need for some simple standard method of treatment; rupture of the membranes, application of a tight binder, and administration of pituitary extract could be employed anywhere. Use of the vulsellum to drag down the child had been made in hospital, but he did not think this a method to commend to the general practitioner. Professor D. DOUGAL (Manchester) thought that "safety first" for the mother should be their motto. There were four methods of compressing the placental site: (1) Plugging with the half breech—but Willett's method—foetal mortality was higher than it should be. (2) the foetal mortality halved. It was not a difficult method to apply, but he was a little doubtful whether it was a safe method to use in the patient's own house. (3) De Ribes's bag was clumsy, and very severe haemorrhage might occur when it came away. (4) Plugging the vagina was very difficult to apply in the patient's house. The classical method of podalic version was the safest and simplest, but he pleaded for the greater use of Willett's method. The indications for Caesarean section were limited to the opportunities of obtaining a living child. Dr. H. L. H. GREER (Belfast) advocated caution in recommending Caesarean section. There was no expectant treatment for placenta praevia; the statistics quoted had answered the question against the justification of routine Caesarean section. As a preliminary to bringing down a leg he always endeavoured to perform external version; much haemorrhage and shock might be caused by internal manipulations. He advocated taking the blood pressure as an aid in diagnosis. He condemned the use of de Ribes's bag: at the time when one wanted to use it in an urgent hurry the rubber was found to have perished. Sir EWEN MACLEAN (Cardiff) quoted Herman's dictum "early version and slow extraction"; he believed this method should by no means be ruled out. He had had one death from post-partum haemorrhage after Caesarean section for placenta praevia; he was not, therefore, personally predisposed to using it in these cases. On the whole the tendency was not to consider the child's life in multiparae so much as one did in a primigravida. The question of having a live child might be of extreme importance, and he thought that more attention would be paid to this in the future. The older methods might often be more fortunate in their results for both mother and child. Dr. E. A. GERRARD (Manchester) suggested that if they could obtain a lower foetal mortality without undue risk to the mother, they should adopt methods to secure this; in this connexion immediate treatment was necessary. Bipolar version gave a foetal mortality of 75 per cent. Dr. C. E. DOUGLAS, Vice-President, thought they had had a mass of very valuable experience from all over the world presented to them. There was evidently still a strong body of informed opinion in favour of version carried out at the proper time. With regard to the diagnosis between accidental hacmorrhage and placenta praevia it was always a good plan to ask a working-class woman when she did her washing. In his limited experience he had waited for the os to admit two fingers and had then turned, brought down a leg, and waited.

Dr. SOLOMONS, in reply, said that plugging of the vagina had been given up at the Rotunda since Dr. FitzGibbon and himself had been Masters. When it had to be used he advised using pledgets of cotton-wool soaked in a very weak antiseptic. He urged strongly that version was the treatment, not version with immediate extraction. Extreme caution was essential in giving pituitary extract, and still greater caution in teaching students that it should be employed. He adhered to his belief in submammary saline injections if given properly. He agreed that giving a douche in ante-partum haemorrhage was bad practice. He thought it safer to bring a patient a short distance to hospital, where she could be given proper nursing attention, than to treat her in her own home. Chloroform was very dangerous in haemorrhage cases; he preferred to use ether. Immediate diagnosis was not always possible if the cervix was closed. It was clear from the discussion that version was a very good method. He had had a modified form of Willett's forceps made for his own use, but thought their application limited to very few cases. He hoped that the warning would go out from that meeting against extraction of the child immediately after version. Dr. LACEY, who closed the discussion, agreed that immediate treatment must be carried out. In cases with shock he gave morphine as well as saline solution. He by no means advocated Caesarean section in all cases. He used strips of lint for plugging the vagina. External version should be employed whenever possible. In about 15 per cent. of these cases the haemorrhage was of the extremely violent type referred to by Dr. Douglas.

SECTION OF DISEASES OF CHILDREN.

Thursday, July 25th.

CHRONIC DYSPEPSIA IN SCHOOL CHILDREN.

DR. E. A. SAUNDERS, a Vice-President of the Section, took the chair, when Professor Frederick LANGMEAD opened a discussion on chronic dyspepsia in children of school age. Professor Langmead defined the usual clinical features of dyspepsia, emphasizing the variability of the signs and symptoms in degree and in proportion. The child was generally vaguely ailing, with an altered appetite, muddy complexion, abdominal pains of differing characters, a poor state of general nutrition, irregular stools, restless sleep, and slight nocturnal fever. The child was often morose, irritable, and solitary in habits. Examination of the abdomen might reveal no physical signs, or occasionally some distension was present with or without faecal accumulation. Dyspepsia in adults resembled the manifestations in childhood more closely than was usually taught. The organic types of dyspepsia were much commoner in adults, but in the present state of knowledge about the precise nature of the functional disturbances of

the stomach and intestines in children it was probably incorrect, he thought, to disregard the stomach in the common dyspepsia of childhood, which was called intestinal. The symptoms of this form of dyspepsia fell into three groups: abdominal, constitutional, and psychical. One line of thought was that the intestinal disturbance came first, leading to the absorption of poisons, and the other troubles followed this. H. C. Cameron, on the other hand, had held that an antecedent acidosis was the cause of the intestinal and nervous symptoms. In Professor Langmead's opinion much more work was necessary in order to settle the question. In the causation of dyspepsia food was undoubtedly important; overfeeding and irregularity in feeding, both as regards quantity and quality, were frequently present. Giving food near bedtime often led to restless sleep, and the bolting of food in excitable children often brought on a sort of "stitch," accompanied by flatulence. Too much roughage in a diet was also a prominent factor in many cases leading to a colitis. Liquid paraffin given too plentifully might also produce colitis. Relative excess of one of the elementary food factors was often not considered sufficiently in the dyspepsias of children of school age; as in the infant, there might be present a disability to deal with carbohydrates and fats. Vitamin deficiency probably played no part in producing dyspepsia at this age period. Defective mastication was another cause of dyspepsia which was often overlooked. There were undoubtedly some cases of entero-colitis due to the dysentery organisms; infection with lamblia might also cause trouble, but with regard to other organisms it was not possible to correlate the symptoms and the course of the dyspepsia with the type of infection, nor was it possible to be sure that the abnormal organisms were not a secondary manifestation. As long as the mucosa remained healthy it seemed to have been shown satisfactorily that stasis and putrefaction could not be the sources of the intoxication. Focal sepsis, such as in the teeth or tonsils, seemed to be concerned, for dyspepsia often cleared up when these foci were dealt with. In the forms of dyspepsia known as hepatic Professor Langmead pointed out that it was the fats which were badly digested, the results being bouts of toxaemia, greasy stools, and slight jaundice. Liver function tests did not give much information in these cases. In fatal cases of cyclical vomiting advanced fatty changes in the liver were found, and there were cases which resembled cyclical vomiting in every respect, except that vomiting was absent. All other symptoms occurred, and the liver certainly seemed to be at fault, although recent work indicated that the mechanism of the bile flow played an important part in the digestive processes. Nervous symptoms were probably secondary to the intestinal upset. Dr. H. CHODAK GREGORY thought that gastric dyspepsia was less frequent in children, possibly because the young animal would vomit so readily. Professor Taillens had recently stated that hyperchlorhydria was a prominent cause of dyspepsia in children, but the difficulties of performing fractional test meals in children led to many fallacies; the fact that rest in bed and the administration of alkalis often cured the condition was not a direct proof. Appendicitis was not, in the speaker's opinion, a common cause of chronic dyspeptic symptoms, but tuberculosis of the mesenteric glands did account for some cases with rather vague disorders. While the dangers of high fat diets had rightly been emphasized, there was the opposite danger of cutting out so much of the fatty foodstuffs that general nutrition and resistance suffered. It was important to maintain a balanced diet, and in particular to ascertain just what sort of fat indigestion was present. The common types of dyspepsia in children were functional, and the system chiefly involved was the nervous system; hence, it was important to study carefully the child's surroundings, and to correct any maladjustment to environment. Mr. HERBERT RAYNER (Manchester) alluded to certain organic lesions in children which produced dyspepsia. In many cases of appendicitis in later life symptoms could be traced back to the later years of childhood. In some cases of acute appendix trouble in children there was a history of recurrent attacks of pain in the abdomen, lasting a few hours, and rarely associated with vomiting. Such attacks ceased on removal of the appendix, which showed evidence of previous inflammation. In another group there had been definite attacks of mild appendicitis, sometimes with perfect health between the attacks, but often with definite deterioration in health and delayed development. Tuberculous glands in the right iliac fossa became important from a surgical point of view when secondary effects were produced, but they often remained quite quiescent. Finally, Mr. Rayner mentioned that the surgeon was not uncommonly called to cases of cyclical vomiting. Mr. S. T. IRWIN (Belfast) dealt especially with duodenal ulcer as a cause of chronic dyspepsia in childhood. The disease certainly occurred in infancy, often with a familial incidence, and, in adults with the complaint, symptoms could often be traced back into the period of school age. Such symptoms included recurrent attacks of pain, sometimes purely nocturnal, and perforation might occur before the diagnosis was established. Mr. Irwin described four cases of duodenal ulcer in some detail, and then went on to discuss symptoms of the pre-ulcer state. It was remarkable how well such patients were; they suffered from discomfort rather than pain until the ulcer actually made its appearance. Vomiting occurring at night without cause and without pain was important, and an excessive appetite was frequently present. Professor C. W. VINING (Leeds) said that the digestive processes in the ordinary child were difficult to upset; it was doubtful whether it was possible to overfeed a child with three meals a day. Nervous influences and environmental conditions were important. He believed that often symptoms classified as dyspeptic really represented a deficiency disease. Protein deficiency was often a cause; he thought children needed more meat than was usually supposed. Dr. J. J. SPIRA discussed the pathology of gastric and duodenal ulceration, emphasizing the differences between the acute and chronic ulcers. Dr. CATHERINE CHISHOLM (Manchester) questioned whether nervous strain at school had much to do with dyspepsia. Out of over 3,500 high-school girls the incidence of any form of constipation, indigestion, diarrhoea, and gastric disturbance was only 4.5 per cent.; even among much poorer children the incidence only rose to 10 per cent. for all forms of dyspepsia. She thought that "feckless mothering" had a lot to do with dyspepsia in children of school age; defective hygiene, including irregular meals and staying up late at night, was an important factor.

SECTION OF PATHOLOGY AND BACTERIOLOGY.

Thursday, July 25th.

ACUTE FOOD POISONING.

PROFESSOR J. CRUICKSHANK (Aberdeen) described the characteristic features of bacterial food poisoning as sudden onset of sickness, vomiting, severe diarrhoea, abdominal pain, and pyrexia. The interval between the taking of infected food and the onset of symptoms varied from two to thirty-six hours. On account of the extremely short incubation period in some cases it had been suggested that the symptoms were due to the presence of preformed toxins, as it was impossible to believe that the viable organisms ingested could proliferate in sufficient numbers to produce such severe symptoms in so short a time. Moreover, in some epidemics the suspected food had been exposed to such temperatures as would have destroyed all vegetative forms of bacteria. Since Gärtner described the organism in food poisoning, great attention had been paid to this or related organisms, and a large group of organisms closely related to the paratyphoid organisms had been described. The one most commonly found in cases of food poisoning was *B. aertrycke*. In a general study of the outbreaks the habits of the people and the sanitary methods, especially methods of slaughter of animals and preparation of food, must also be considered. In many cases the suspected food showed no evidence of deterioration either in colour, taste, or appearance, and often it had been entirely consumed before any suspicion arose, so that none was available for bacteriological examination. A wide variety of foodstuffs were concerned: tinned meat, salmon, sardines, milk, meat, sausages, pork, and mutton; and recently the possibility of infection from eggs had been raised. The only one of these

that seemed to offer suitable conditions for the growth of salmonella was milk, and there was evidence that milk-spread epidemics were widespread and severe. The way in which tinned foods, such as salmon and sardines, became infected was not clear; it was necessary to suppose that, previous to "processing," infection had resulted in some individual tins from some unknown source, and that considerable growth of organisms had occurred, with development of toxins which were resistant to subsequent heating. He had considerable difficulty in following the chain of reasoning put forward to explain those outbreaks when no organism could be found, and which were accounted for by the presence of preformed toxin. The relatively infrequent finding of Gärtner and *B. suipestifer* types was important, as these types were the most frequent exciting agents of disease in cows and pigs; the *B. aertrycke* type, on the other hand, was extremely uncommon in the food diseases of animals, but the most common finding in human outbreaks. He pleaded for a consideration of the possibility that other organisms besides the salmonella might be causative agents. Much interest lay in the production of heat-resistant toxins, and here the evidence was at present conflicting. The clinical aspect presented many points of interest. Although he agreed that in most epidemics of paratyphoid fever the typical signs of food poisoning were absent, in some cases acute symptoms—diarrhoea, sickness, and abdominal pain—had occurred immediately after the ingestion of food, and these could not be dismissed as unimportant. Dr. W. G. SAVAGE (Weston-super-Mare) confined his remarks to the question of food poisoning from preformed toxins. These outbreaks occurred frequently, gave rise to the same clinical picture, and ran the same course. They presented the same negative bacteriological findings, and often occurred with the same kind of food-stuffs. The incubation period was very short (two to four hours), the onset was acute, the symptoms were severe, similar to outbreaks due to living salmonella, but more severe, followed almost always by quick recovery. The foodstuffs responsible were unaltered physically, and free from all pathogenic bacteria; agglutinins were rarely found in the blood, and never in high titre. He thought Professor Cruickshank had magnified the difficulties in accepting outbreaks due to preformed toxin. He had brought forward evidence showing that salmonella did proliferate at an enormous rate on meat foods at warm temperatures, and as the result of personal observation of canning he was quite satisfied that there were ample opportunities for the occasional contamination of a few tins with preformed toxin. He agreed that the experimental proof of the existence of preformed toxins was beset with difficulties. In his experience milk-borne epidemics had not been unusually severe. Mr. P. BRUCE WHITE discussed the botanical question of classification of the food-poisoning bacilli. The known causal organisms belonged to the colon typhoid group, and two genera had been definitely established as causes of acute food poisoning; although relatively rare, the organisms of the Sonne-Flexner dysentery group assuredly did cause some cases clinically indistinguishable from the more usual types of infection by the salmonella group. The importance of the antigenic properties in the classification of this group was then discussed. Dr. W. M. SCOTT spoke of the egg as a possible source of acute food poisoning, particularly in cases of solitary infection. He reported epidemics in which the only possible source of infection was the ducks' eggs used for making whipped cream or custard. It was possible to infect ducks' eggs experimentally with salmonella, and he described the methods by which natural infection of the egg took place. Dr. D. N. NABARRO emphasized the need for considering dysentery infection in what was clinically described as food poisoning, and he related a series of cases presenting the symptoms of acute food poisoning which had been established bacteriologically as dysenteric infection.

BRUCELLA ABORTUS INFECTION IN MAN.

Dr. W. D. CHAMPNEYS read a paper on *Br. abortus* infection in man. He briefly described the history of our knowledge of this disease, and gave a short description of its bacteriology. His main desire was to bring it more conspicuously to the notice of bacteriologists and clinicians, so that if, as was suspected, there were an appreciable number of cases undiagnosed in this country, they might be more readily detected. The number of cases reported on the Continent was steadily increasing, and this was due entirely to more widespread recognition of the disease. Clinically it corresponded closely with *Br. melitensis* infection, and the most useful diagnostic laboratory tests were haemoculture, inoculation of a guinea-pig with blood intraperitoneally, and an agglutination test; a titre of 1 in 80 was sufficient for diagnostic purposes. Dr. G. R. ROSS (Rhodesia) said that in Rhodesia they had definitely established that the prominent type of undulant fever was due to *Br. abortus*. In diagnosis haemoculture was most important, but the organisms frequently required long incubation to show up, and at least fourteen days' observation was necessary before the cultures were discarded. Agglutination tests were so far indecisive, as the serum of a patient suffering from a *Br. melitensis* infection reacted similarly. Dr. PARRY MORGAN (Cardiff) had met with four cases of brucella infection, all of which would have been missed but for laboratory investigations. Of 46 bloods examined for enteric fever 2 showed agglutination of 1 in 250, and both were cases of undulant fever. Of 1,325 cases of blood sent for the Wassermann reaction 5 showed doubtful agglutination of 1 in 40. The milk of infected cows showed distinct agglutination up to 1 in 500; the opacity of the diluted milk did not interfere with the reading. Dr. W. G. SAVAGE (Weston-super-Mare) reported the summarized results of experimental infection of monkeys by Professor Meyer of California.

SECTION OF OPHTHALMOLOGY.

Thursday, July 25th.

A MODIFIED FORM OF LAGRANGE'S OPERATION.

THE second day of this Section was devoted to the reading of short papers. The first speaker, Mr. W. H. KIEP (Bradford), described a modification of Lagrange's operation, which consisted of a thickened flap of conjunctiva reflected down to within about 2 mm. of the limbus, a furrow being cut in the sclera. Into the furrow a keratome was introduced to make the incision, and the part of the anterior lip of the wound was excised. A peripheral iridectomy was now performed and the wound in the conjunctiva was closed with a suture. The advantages claimed were simplicity and diminished liability to late infection. Mr. W. B. INGLIS POLLOCK (Glasgow) agreed with the previous speaker as regards the advantages of the Lagrange operation; the risks of a conjunctival fistula were far less, and the end-results superior. He preferred a Graefe knife to a keratome. Mr. A. BERNARD CRIDLAND (Wolverhampton) thought the Lagrange operation the best in chronic glaucoma. He advised waiting to operate until the tension was reduced to about 40 mm. His experience was that late infection in these operations was extremely rare. Mr. A. F. MACCALLAN thought late infection was generally due to focal sepsis. Mr. H. H. MCNABB (Manchester) quoted a case of late infection in Elliot's operation. Mr. E. E. MADDOX (Bournemouth) asked if the opener had experienced any difficulty in excising the scleral tissue in the operation described by him. He mentioned two modifications of Lagrange's operation. Dr. A. NELL (Colombo) supported the view of the advantages of Lagrange's operation. Mr. J. GRAY CLEGG (Manchester) had seen very few late infections after Elliot's operation, and thought the chances of healing of the sclerostomy were greater in Lagrange's operation. Mr. KIEP, replying, said he did not agree with a posterior sclerotomy, but always used intravenous injections of saline solution, since he had found them more efficacious in reducing the ocular tension.

MINOR INJURIES OF THE EYE IN INDUSTRY.

Mr. A. BERNARD CRIDLAND (Wolverhampton), in a paper on minor injuries of the eye in industry, pointed out that there had been a steady increase in these accidents reported during the last twenty years. The various occupations which caused them and their varieties were described. It was shown that protective measures were not used in 70 per cent. of the cases. The loss of time to the workman

was estimated to be on the average one day's work for every three of these minor injuries. Protective measures were fully described, and various forms of goggles were shown to the meeting. Mr. BISHOP HARMAN commented on the large number of minor accidents, and said the types of goggles were by no means ideal in many respects. Mr. AUBREY JONES (Tunstall) mentioned the number of accidents in coal mines and the potteries, and thought the employers were not very enthusiastic with regard to the use of protective measures. He dwelt on the large amount of time lost by workers on account of these minor accidents. Mr. TUDOR JONES (Cardiff) discussed the question of miners wearing spectacles when working in the coal mines. Mr. BICKERTON thought that insurance companies should be approached as regards the premiums in these cases where protectors had been used.

VITREOUS OPACITIES: SENILE BLINDNESS.

Dr. T. L. DE COURCY (Liverpool) read a paper on the significance of vitreous opacities. He described the development of the vitreous and its structure in the adult. The causation of opacities was stated to be due to the condition of the blood vessels, the blood itself, and vestigial remains. It was shown that in a series of patients 37 per cent. had vitreous opacities; the methods of examination were detailed. The causation of asteroid bodies was discussed, and its treatment. Mr. MACCALLAN also described vitreous opacities due to focal sepsis.

Mr. J. JAMESON EVANS (Birmingham), in a paper on blindness in old age, detailed the provisions of the Blind Persons Act. It was shown that the number of these cases was rapidly increasing. The various causes of blindness in old persons were described; of these cataract was the most frequent.

Mr. BISHOP HARMAN discussed the cause of blindness in old persons, and said his figures showed the largest number to be due to macular degeneration. He did not agree that a hard-and-fast rule as regards the definition of blindness was necessary. Mr. J. G. CLEGG (Manchester) asked if it was obligatory for blind people with cataract to undergo an operation. Dr. H. CAIGER stated his experience in these cases and his methods of filling in the certificate. Dr. F. C. B. GITTINGS discussed the remuneration for granting these certificates.

SECTION OF ANAESTHETICS.

Thursday, July 25th.

THE President of the Section, Dr. A. L. FLEMMING (Bristol), in opening the proceedings, referred to the serious blow which had been dealt to anaesthesia by the untimely death of Dr. S. R. Wilson, who, by his work in Manchester, had set such a high standard to those who followed him. Dr. Flemming believed that the considerable advances in anaesthesia during recent years were very largely due to two factors: (1) the freer interchange of views between workers in widely separated centres; (2) the greater interest taken by surgeons in the endeavours of the anaesthetist. Co-operation between the surgeon and the anaesthetist was becoming more and more necessary. The key to many of their problems was held by the autonomic nervous system, and the greater appreciation of reflex phenomena might result in modifications of technique which would reduce anaesthetic and surgical risks to a minimum.

ETHYLENE AND OXYGEN ANAESTHESIAS.

Dr. H. P. FAIRLIE (Glasgow), in a paper on ethylene anaesthesia, said it could justly occupy a place among the regular methods of anaesthesia. If due care were taken to avoid cyanosis it was a safe anaesthetic. In the results obtained ethylene and oxygen closely resembled N_2O and oxygen; but there were two important differences. Ethylene produced a more profound anaesthesia, and was thereby rendered applicable to a wider range of operations. The second difference, an unfavourable one, was its unpleasant odour, not so much from the patient's point of view as for those who were working near it. The induction of anaesthesia was quite pleasant, though preliminary medication with morphine and hyoscine was desirable. The gas was rapid in its action and excretion, and after-effects as a rule were negligible. From the surgeon's point of view the main criticism lay in lack of muscular relaxation, and haemorrhage. In operations where neither of these was of serious moment ethylene was adequate. The anaesthetist was working within fairly wide limits of safety, and ample warning of danger was always given by cyanosis. The gas could be given by means of any good gas and oxygen apparatus. Ethylene was very inflammable, and great care was needed in handling it. If rigid precautions were taken, however, he could see no reason why it should not be used. For many cases he considered it to be the anaesthetic of choice. Dr. K. B. PINSON (Manchester) referred to his experience of ethylene in dental work. In some cases where N_2O had failed to produce satisfactory anaesthesia, ethylene had been successful. The considerable amount of oxygen which could be given with it rendered it safer in some cases than N_2O. The one thing against it was its inflammability. The ignition point of ethylene and oxygen was very low. Dr. C. F. HADFIELD drew attention to the valuable work done by Professor H. B. Dixon at Manchester University on the ignition points of anaesthetic mixtures. The explosibility of ethylene had been specially studied. It was important to notice that nitrous oxide in some cases would support the combustion of these gases at a lower temperature than oxygen. He also drew attention to the smell of ethylene, which had been proved to be intrinsically that of ethylene, and not the odour of contained impurities.

GAS-OXYGEN IN MIDWIFERY.

Dr. H. E. G. BOYLE, in a paper on gas-oxygen anaesthesia in midwifery, said that the idea that the pregnant woman stood chloroform well was wrong. There had been a number of fatalities in the past, and they would continue so long as this method was employed. In his opinion a better plan was the administration of gas and oxygen for childbirth. He expressed his indebtedness to Dr. Wesly Bourne of Montreal for his introduction to the method. Gas and oxygen, being non-toxic, could be given for a very long time without harm to mother or child, provided always that cyanosis was never allowed to be present. The patient was given enough gas and oxygen with each pain to render her analgesic. Between pains she was conscious. For the birth of the head anaesthesia was produced by the addition of a little ether, and then a mixture of CO_2 and oxygen was given as a respiratory stimulant, and the mother and child were rapidly brought round. The anaesthesia could again be deepened if necessary for the birth of the placenta. He preferred to start the anaesthetic at the beginning of the second stage of labour, but with a nervous patient it could be begun earlier. Disadvantages were: (1) the anaesthetic was naturally more costly; (2) a special anaesthetist must be present; (3) a suitable apparatus must be obtained. The speaker's impression was that the pains, if anything, were increased in force and frequency; the patients were far less exhausted afterwards. He was convinced that the adoption of this method would result in the saving of a certain number of lives—both mother and child. Dr. FALKNER HILL (Manchester) criticized the method on the ground of expense. He thought that chloroform in small quantities was quite an adequate anaesthetic, and was of particular use when a labour had to be conducted single-handed. He had used the Vernon Harcourt inhaler with success.

THE EMPLOYMENT OF GLUCOSE.

Dr. F. P. DE CAUX discussed the use of glucose, chiefly as an antidote to the shock of operation and anaesthesia. He outlined McDonagh's theory of electrical and other changes in the body protein, and in terms of this theory dealt with the nature and treatment of shock, the preparation of patients for anaesthetics, and their post-anaesthetic treatment. As regards acute shock, the main consideration was to give enough glucose at once. The only drawback to a large dose was the risk of subsequent thrombosis; this could be combated by giving insulin or "Sup. 36," which should be injected on the first sign of recovery. Oxygen, when injected subcutaneously, acted like glucose,

but was not so potent; it could, however, be used in mild cases of shock. Purgation and starvation before operation were to be condemned, as they exhausted the glycogen reserve in the liver—the patient's natural defence against shock. The uses of glucose at operations were summarized as follows. (1) Always give glucose before a severe operation: when the liver efficiency was suspected; when the metabolic rate was high; and when the patient was undernourished or emaciated. (2) After a severe operation give glucose when blood transfusion was impossible. (3) It should be employed also after any anaesthetic: where loss of blood had been heavy and blood transfusion was not practicable; when the patient showed signs of shock; where glucose had not been given before the anaesthetic; where a rough surgeon had operated, or where more than the usual quantity of anaesthetic had been used; and where there was a history of epilepsy. The President said he was gratified that there was a really rational explanation for the use of glucose, the value of which everyone recognized. Drs. Hill, Mott, and Fairlie joined in the subsequent discussion, and Dr. de Caux replied.

Rectal Ether Oil Anaesthesia and Brain Surgery.

Dr. Winifred Wood (Edinburgh), in a paper on this subject, said that the uses of rectal ether oil anaesthesia in general surgery were wide, and its safety had made it the anaesthetic of choice in all bad surgical risks in her practice. It was particularly valuable in all operations which imposed a prolonged strain on the patient. In brain surgery it had several advantages: (1) access to the patient's face was rendered unnecessary; (2) the dose of ether was comparatively small; (3) the anaesthetist had time to take observations and chart them. Dr. Wood described the technique of its administration and the preparation of the patient. Rectal anaesthesia was a controlled anaesthesia. It was her custom to supplement the rectal ether with intrapharyngeal ether vapour, this being the most convenient method in brain operations. The type of anaesthesia produced was very light, sometimes amounting only to an analgesia. The breathing remained quiet throughout, and there was very little interference with metabolism, which in this type of case was very important. She had never seen any respiratory complications, even in elderly patients. Dr. A. B. Clery (Dublin) reported a series of nearly 100 cases in which he had used rectal ether. Gwathmey's technique had been followed, and local anaesthesia with novocain had been used in addition. He was well satisfied with the results. Dr. C. F. Hadfield mentioned the difficulty of adopting an elaborate technique in hospital practice. There was passive resistance on the part of the ward staff, which usually led to the gradual dropping of such a method as this. Dr. Coogan, Dr. Ross Mackenzie, and Dr. Boyle also took part in the discussion, and Dr. Wood briefly replied.

The Scientific Administration of Anaesthetics.

Dr. S. T. Rowling (Leeds) read a paper on the scientific administration of anaesthetics, embodying a series of investigations which had been carried out in collaboration with other departments, the object of which had been to place anaesthetics on a definite scientific basis. He described a new type of inhaler and anaesthetic table, the use of which enabled the exact percentages of ether, gas, and oxygen which were being given to be read off at a glance. The importance of anoxaemia was emphasized; the oxygen content of the anaesthetic atmosphere was always reduced, notably in closed, but also in open methods of administration. Carbon dioxide was of the very greatest importance during the administration; it was the natural physiological stimulant of both respiration and circulation. Oxygen and CO_2 must be available in order to give anaesthetics with safety and precision. The speaker described the correct methods of preventing dangers on the operating table, and stressed the importance of rapid elimination of the anaesthetic with a rapid return of reflexes. By means of this new method it was possible to administer an anaesthetic which was pleasant from the patient's point of view, which relieved the anaesthetist of anxiety, and which gave the surgeon perfect muscular relaxation.

SECTIONS OF RADIOLOGY AND DERMATOLOGY.

Thursday, July 25th.

X Rays and the Healing of Wounds.

After making some introductory remarks, Dr. Lancashire, *President* of the Dermatological Section, read a paper on the *x*-ray treatment of wounds, by Professor Freund of Vienna, who was unfortunately unable to be present. Although the rationale of the action of *x* rays was still under discussion, there was no doubt of its beneficent action in sluggish and badly healing wounds, but in the present paper attention was paid to the influence of *x* rays on fresh and open wounds. Professor Freund had begun his work on this subject by employing *x* rays on wounds purposely left open after the excision of tumours in persons liable to keloid formation; the method was subsequently extended to other conditions. He had found the cosmetic results excellent, and in lupus vulgaris and malignant disease the duration of treatment had been considerably shortened. He could cure a patch of lupus vulgaris the size of the palm within six to eight weeks. The total quantity of *x* rays administered was 6 to 7 H. units—rather more than a depilatory dose—and it was spread over six or seven sittings, with intervals of two or three days between. The time of healing was slightly shorter than if no *x* rays were used. If larger doses of *x* rays were given the results were not so good, nor was the prophylactic application of *x* rays before operation so satisfactory. Professor Hauden (Vienna) discussed treatment with and without filters; it was his impression that thick filters had no advantages, and that the best results were obtained with unfiltered rays. He contrasted the practice of surgeons and dermatologists; whereas surgeons preferred a single large dose of rays, dermatologists preferred repeated small doses. Sir Norman Walker (Edinburgh) referred to his experiences in the early days of *x*-ray therapy. He hoped that there would be real co-operation between the dermatologist and radiologist, involving the experience and observation of both. Dr. Ferguson Smith (Glasgow) said that he had had little experience of the exact method of Freund, but that he had often scraped thoroughly cases of lupus vulgaris, followed this up with a chemical caustic, and subsequently given a single pastille dose to the wound, with the happiest results. He considered that excision followed by irradiation was the method of choice in treating keloid. Dr. W. H. Rowden (Leeds) said that the dermatologist should conduct his own *x*-ray work, and take the responsibility for the results. He believed neither in hard rays nor in filtration in dermatological cases. Dr. W. Dyson (Manchester) said that the exact dosage was all-important, and should be suited to the type of cell to be dealt with. Softer rays were indicated for skin cells, harder rays for deeper cells. Dr. Lancashire wound up the discussion, and said that he was tempted to try Freund's methods.

X-Ray Treatment of Skin Infections.

Dr. W. J. S. Bythell (Manchester), *President of the* Radiological Section, then took the chair, and called upon Dr. J. B. Higgins (Manchester) to read his paper on *x*-ray treatment of the commoner microbic diseases of the skin. Dr. Higgins said that he would confine himself for the most part to the methods employed at the Royal Infirmary, Manchester. The theory of the mechanism of *x* rays was very uncertain, but their value was undoubted. The diseases he proposed to discuss were acne vulgaris, sycosis, paronychia, and furunculosis. He always used a 16-inch coil and a Coolidge tube. In acne vulgaris he said that *x*-ray treatment was above all others the method of choice, and he gave details of treatment in thirty-seven consecutive cases. His practice was to begin with three to four half-pastille doses of unfiltered rays, with an interval of seven days between successive doses. Subsequently filtered doses were used. Many variations in dosage were employed by various dermatologists. McKee used quarter-pastille doses of unfiltered rays to the number of sixteen in all, giving one per week, while Artz and Fuchs administered rays filtered through an aluminium screen three or four times only, at intervals for ten to fourteen days. With regard to the rationale of the treatment, he added that one thing was

certain—that it was not due to any bactericidal action by the rays. In sycosis there was a choice of three methods: (1) epilation, (2) stimulation, (3) a combination of the two. He found that his results were very unequal—sometimes unexpectedly good, sometimes disappointing. He always used unfiltered rays. In paronychia and furunculosis the results were not very encouraging. He referred finally to the new work by Eller of New York on supersoft rays in dermatology. This method was still in its infancy, but might ultimately become of importance. Dr. DOUGLAS WEBSTER said that he had had some of his best results in acne with doses only about one-sixth of a pastille, given weekly or fortnightly, even in indurated cases. Fuchs and Conrad of Vienna had claimed good results with doses as small as one-fiftieth of a pastille—almost homœopathic doses—in acne, sycosis, eczema, furunculosis, and psoriasis. As to the quality of radiation, Dr. Higgins had mentioned supersoft rays, but Dr. Webster thought high voltage and heavily filtered rays should be more extensively tried. Dr. F. GARDINER (Edinburgh) said that a dermatologist who treated his cases with x rays needed to be an expert radiologist, and to keep up to date in radiology. He denied that x rays were the method of choice in the treatment of acne, although he admitted their great value. He limited himself to three doses of one-third of a pastille each, at intervals of ten days. He laid stress on the constitutional factor both in acne and in sycosis. In sycosis he used only small stimulating doses. He thought x rays were comparatively useless in paronychia. Dr. CONNELL (Carlisle) also considered that x rays were only an adjunct in the treatment of acne; x rays reduced induration, and facilitated the work of other remedies. Dr. HALDIN-DAVIS said that his own technique was almost the same as Dr. Gardiner's, but that it did not matter how many doses of x rays were given to a patient so long as the intervals were sufficient and no erythema was ever produced. Dr. ELIZABETH HUNT (Liverpool) referred to the importance of gastric analysis in the treatment of acne, and to the general resistance of the skin to infection. Dr. FERGUSON SMITH (Glasgow) had obtained brilliant results from one-sixth pastille doses weekly for twelve weeks. Dr. W. DYSON (Manchester) agreed that small doses were the most valuable in the treatment of acne. Dr. LANCASHIRE, the President of the Dermatological Section, said that, while overdosage might be disastrous, underdosage was useless.

SECTION OF VENEREAL DISEASES.

Thursday, July 25th.

DIAGNOSTIC AND OTHER ERRORS IN VENEREAL DISEASE.

THE President, Mr. W. COATES, took the chair at the second meeting of the Section, when Colonel L. W. HARRISON opened the discussion on errors in connexion with venereal disease. He called attention to the serious mistakes resulting from the failure to examine patients thoroughly, and illustrated his theme by a series of illuminating and dramatic examples. The welfare and happiness of many patients had been sacrificed, because although suffering from gonorrhœa they had been passed as free from it after a single microscopical test or naked-eye examination. The speaker emphasized the necessity of the culture medium being properly made, of the Gram test being adequately carried out; the complement-fixation test ought also to be employed. Attention was directed to the necessity in chronic gonorrhœa of examining the anterior urethra by urethroscopic and other methods. The practice of treating patients as being syphilitic on mere suspicion received well-merited criticism, as did the basing of a diagnosis of syphilis on a "weakly positive" serum reaction, or upon a single positive reaction where the clinical signs were only slightly suspicious. A warning note was uttered as to the tendency to assume that all abnormalities exhibited by patients with positive serum reactions were necessarily syphilitic. Mr. DAVID LEES (Edinburgh) cautioned practitioners against being misled in diagnosis by the social position of patients. He gave examples of pitfalls presented by varicose ulceration of the leg, cervical glandular enlargement, and osteomyelitis. Syphilis must not be diagnosed without every method being utilized. To treat the diagnosis of syphilis lightly was little short of malpraxis. In early suspected lesions provocative injections should not be used until the end of the fourth week. He was impressed by the tendency of tuberculosis to follow upon gonococcal epididymitis. The diagnostic value of urethroscopic examination was vividly shown by cases in which a gonococcal condition was simulated by a urethral polypus, impacted calculus, and fibrous stricture. Mrs. MARGARET ROBKE said that *B. coli* was the commonest infection of all in women, and often resulted from primary intercourse associated with bruising. The symptoms and signs were those of gonorrhœa, but watch must be kept for an acute *B. coli* infection superimposed on gonorrhœa; thus a pyelitis, when it cleared up, might reveal an ordinary gonococcal condition. All complications of gonorrhœa were not gonococcal; tuberculosis of the tubes or a tuberculous arthritis might follow. A weakly positive Wassermann reaction in a toxic pregnancy was not evidence of the presence of syphilis. A strongly positive reaction appeared in some cases of inoperable carcinoma without any history of syphilis, and in some rapidly advancing ulcers of the throat.

Sir ROBERT BOLAM referred to errors in regard to lichen planus, Bazin's disease, and venereal disease. The venereologist must aim at being the perfect physician, and therefore the possessor of a broad outlook. Dr. HENRY GLUCKMANN (Johannesburg) gave examples from his own experience of gonococcal conditions being mistaken for syphilitic ones, and vice versa. A condition of balanitis and a drug eruption was diagnosed as a syphilitic sore and a secondary rash. Dr. G. WHITEHEAD (Manchester) pleaded for the abandonment of diagnosis of early syphilis by the Wassermann test, and showed how satisfaction was expressed by some when such a report was negative. He quoted further cases, and urged practitioners to approach patients with a view to clinical diagnosis in its entirety as a means of lessening error. Dr. ROXBURGH spoke of diagnostic errors brought to his notice in relation to lesions suggestive of syphilis, which were possibly herpetic, and of syphilitic conditions mistaken for eczematous ones. Dr. T. WHEELER HART (Manchester) referred to a case of vulvitis with gross discharge due to disinfectants. He advised the general practitioner to invoke the specialist's advice at an early date. Dr. SELBY PHILIPPSON (Aden) quoted a case in which a marked ulceration of the genitalia produced by the possibly accidental application of potassium permanganate was a source of great diagnostic difficulty. Dr. MURRAY referred to the difficulty of arriving at a correct diagnosis on the part of the general practitioner. Dr. CRITCHLEY asked for information as to the standard of cure in gonorrhœa in the male, and expressed a doubt as to the adequacy of tests at his command. Colonel E. T. BURKE (Manchester) advised practitioners to think of syphilis in all obscure cases, and spoke of the high percentage of fibrous stricture in which the Wassermann reaction was positive. This statement was based on work by Dr. Ross of Liverpool and himself. He warned against overtreatment of the urethra. Dr. V. E. LLOYD referred to the simulation of a gonococcal discharge by diabetic conditions. Colonel HARRISON, in conclusion, commented on the methods employed in making the final test for cure, including, *inter alia*, full dilatation of the urethra by Kollmann's dilator, careful visual examination, the complement-fixation test, and auto-inoculation of the prostatic urethra.

BISMUTH THERAPY IN SYPHILIS.

Dr. SVEND LOMHOLT (Copenhagen), in a paper on the various preparations of bismuth in the therapy of syphilis, stated that practically all syphilologists regarded this metal as a substance superior to mercury. He considered it to be, with few exceptions, more effective and less toxic than the old remedies. Complete cure was attained only after a prolonged course of bismuth therapy, and large quantities of the metal must be introduced, taking care that the resultant bismuth concentration in the organism stopped short of the point of intoxication, but maintained a strong saturation over a long period. The essential aim was to secure uniform and regular absorption of the metal. Internal

and percutaneous administration was ineffectual owing to the restricted and irregular absorption of bismuth. Intravenous treatment was dangerous in large doses, and not sufficiently effective in well-tolerated doses; it was impracticable, since it required frequent injections. Intramuscular treatment secured a fairly quick, regular, effective saturation of the body, without risk of intoxication. The speaker detailed the ways in which the drug might be administered. The course of routine treatment advised consisted of a series of five or six intravenous injections of 60 to 70 cg. neosalvarsan and bismuth oxychloride in watery suspensions in doses of 15 to 20 cg., in a series of eight to ten intramuscular injections. About eighteen injections of neosalvarsan and 60 of bismuth oxychloride should be spread over a period of two years. The daily dose of bismuth metal was about 0.5 mg. per kilo of body weight. The result of treating 152 patients suffering from recently acquired syphilis was as follows: no clinical relapse was seen during or after treatment; no woman gave birth to a child with congenital syphilis; at the end of treatment 2 patients showed a positive Wassermann reaction, 7 a doubtful reaction, and 143 a definitely negative one.

Dr. V. E. Lloyd asked if there were any measures—such as massage, counter-irritants, thiosinamin—by the use of which the absorption of long-standing deposits of bismuth could be hastened. Would it not be better to use rapidly absorbed preparations at first in order to attain a quick general saturation of the tissues, and then to employ more slowly absorbed ones in order to maintain general tissue reserve? He was inclined to think that in view of the small quantity of bismuth contained in the tissues compared with the large amount excreted it would be well to use a slowly absorbed preparation, when the small quantities entering the circulation would be more easily taken up by the tissues instead of being rapidly excreted. Dr. Morna Rawlins asked what Dr. Lomholt considered the point of intoxication in bismuth therapy. Whereas he regarded the "blue line" as indicative of intensive absorption, she was inclined to regard it as chiefly associated with pyorrhoea. As to pain after intramuscular injections, she thought that it was largely due to the technique employed. She asked if Dr. Lomholt considered that as a patient became saturated with the metal absorption and consequent elimination was slower. If so, when dosage was maintained, or even increased, was there a risk of the bismuth storehouse causing dangerous sequels? Should dosage, therefore, be regulated by elimination? Did Dr. Lomholt know of a method suitable for a venereal diseases clinic of measuring elimination? Was it more advisable to give large doses for a short time, which involved a storing up of the metal, rather than small absorbable doses (if such could be determined) continued over a long period? Mr. David Lees (Edinburgh) asked if the results of animal experiments were applicable to man. He believed that pain after injection was associated with technique. Colonel L. W. Harrison wished to know the maximum amount of bismuth which could safely be given in order to achieve the best effect. In his opinion too small an amount was generally administered. He maintained that deep subcutaneous injections were not particularly painful, and regarded them as safer. He thought that the amount of massage employed after an intramuscular injection should be increased. Colonel E. T. Burke suggested that possibly there was no definite relation between the amount of bismuth elimination and the therapeutic result. He asked for information as to the employment of metallic bismuth alone. Dr. Lomholt agreed that caution must be used in making deductions from animal experiments; he believed the figures he had quoted were applicable to man. He thought that pain after intramuscular injection was to be correlated to the preparation used, although faulty technique might be a causal factor. Colloidal preparations presented a difficult problem. He was inclined to think that their therapeutic effect was less than that of some others. There was less danger of intoxication arising, or being caused, by bismuth than by mercury. It was most necessary to maintain regular absorption. He knew of no method for the estimation of the elimination of bismuth which was suitable for a venereal diseases clinic. Of the metallic bismuth he had had but little experience.

SECTION OF ORTHOPAEDICS.

Thursday, July 25th.

The Treatment of Scoliosis.

Mr. D. McCrae Aitken opened a discussion on the treatment of scoliosis by tracing his endeavours to follow certain fundamental principles based on established anatomical and physiological rules. He considered scoliosis the result of a disturbance of the symmetrical co-ordinate reflex action of muscles controlling posture, producing a twisted asymmetrical body associated with lateral deviation of the spine, asymmetrical kyphosis, and asymmetrical lordosis. To restore the postural balance he aimed at eliminating every extraneous factor which might excite scoliosis, and at re-educating all postural reflexes (including the respiratory) after correcting gross deformities, if possible. He stressed the importance of exercises re-educating and maintaining posture, and urged that they should be of extremely simple type, and should correct breathing and balancing errors during lying, sitting, or walking, and should be practised habitually. He gave an excellent demonstration with a cinematograph of the application of a corrective jacket with the aid of an Abbott frame, by which the deformity was improved and controlled. At the same time, pressure applied in the oblique prominent diameter dramatically encouraged increased antero-posterior chest movements in the flattened thoracic areas. The ultimate test of correction was the freedom and spontaneity of the antero-posterior respiratory expansion in the flattened diameter, together with the reduction of lordosis and an even distribution of the body weight.

Mr. A. S. B. Bankart regarded scoliosis as a deformity of a large compound joint subject to the same contractions as other joints. Faulty attitudes would, if neglected, become fixed, and a return of normal muscular activity was only possible with the help of exercises. If exercise and re-education were impossible the spine would have to be supported. When a contracture was present it was necessary to correct this first by sufficiently drastic measures, and then to restore muscle activity. With regard to the deformity, he considered the spinal disturbance itself as the main feature. If this was corrected the ribs would spontaneously return to their normal positions. It was, unfortunately, impossible to bring effective pressure to bear on the spine through the ribs. Most of the improvement obtained by present forcible methods was a compensatory re-alignment of the spine, but he anticipated that methods of true correction of the contractions would be ultimately evolved. Possibly, as in [illegible]k, the first essential was to exert [illegible] the trunk, using methods sufficient [illegible] It might ultimately be found necessary to turn the lateral into an antero-posterior curve. He suggested that some form of effective skeletal traction might be found possible. Miss Forrester-Brown (Bath) agreed that the restoration and rearrangement of reflex muscle control was as much the prime factor in the cure as its defects were in the causation of scoliosis. Treatment must conform to the same principles as applied to any other contracted joints. Lateral postural curves associated with kypho-lordosis which could be voluntarily corrected by the patient had not, in her experience, gone on to rotation and fixed lateral deviation. The complex group of scoliosis with rotation had been treated by various methods in the cases under her care. Corrective plaster jackets were applied with the lumbar spine always flexed and occasionally the thoracic spine flexed. Recumbency for a long time in the Jansen plaster bed had been beneficial in certain cases. Exercises varied to suit the type of deformity were part of the treatment of all cases. Goldthwait's postural exercises, Klapp's kneeling and crawling, head suspension during walking, were used in order to aid active over-correction of the curve. Accurately fitting braces were helpful in maintaining the correction obtained by other methods, and were used as a supplementary to more vigorous treatment in a large proportion of her cases. The aim of treatment was to produce secondary curves close to the irreducible primary curve, and to restore the body axis to the vertical, and this was possible in most patients who persisted under treatment. Mr. Paul Bernard Roth refused to accept the

analogy of the contracted flexed wrist as applied to scoliosis. In scoliosis the bones were deformed and the muscles not necessarily paretic. He repudiated the advisability of attempts to hold the body in a corrected position by pressure applied to the ribs, and denied the possibility of adaptive change taking place thereby. As one who had been brought up in an atmosphere of gymnastic exercise class work from his earliest youth, he found no flaw in this treatment, which was directed to correcting perverted muscle sense. Force and immobilization were useless in scoliosis. Gymnastic treatment gave results which could not be considered anything but highly satisfactory by the most critical.

Treatment of Torticollis.

Mr. B. Whitchurch Howell, in a paper illustrated by lantern slides, recommended that the treatment of congenital torticollis should start as soon as possible. If begun in the first few days it was followed by early and complete cure. It consisted in regular stretching of the affected side of the neck, and massage of the contracted muscles. In later cases his routine was to tenotomize the sternal head of the muscle by the subcutaneous method, and knead the clavicular fibres thoroughly. Describing his method in detail, he emphasized the technical seriousness of the operation. He recommended immobilization in an over-corrected position by means of plaster-of-Paris for several weeks afterwards. Later, re-education for some weeks was desirable. In all but one of his patients treated in this way complete cure had resulted. He only performed the open operation on incomplete or relapsed cases, or on those in whom other deformities existed. Operation was contra-indicated for bilateral congenital torticollis. The subsequent discussion was directed almost exclusively to the advisability or the reverse of (1) subcutaneous tenotomy of the sterno-mastoid muscle; and (2) post-operative control by plaster-of-Paris or other means. Mr. R. Ollerenshaw (Manchester), although agreeing with most of Mr. Howell's suggestions, differed strongly in one important matter. He was definitely opposed to subcutaneous division of the sterno-mastoid. It was surprising to him that anyone who had performed open division of the muscle and had noticed that the layer of cervical fascia which formed the posterior layer of the muscle was always contracted, forming a tight band behind the muscle, could propose to attempt division of this structure with a blind tenotomy. It was too dangerous if done effectively. For a number of years he had been in the habit of using plaster-of-Paris after the open operation, and no case treated at the Royal Manchester Children's Hospital since 1924 had been subjected to any other form of after-treatment. The plaster, which took in the head, neck, and upper chest, was left in position for six weeks until the deep healing, with lengthened muscle, was complete. After this time active and passive exercises were given daily and a light appliance to maintain over-correction was worn at night.

SECTION OF PUBLIC HEALTH.

Thursday, July 25th.

Maternal Mortality.

The President, Dr. R. Veitch Clark (Manchester), presided over this session. In the absence of Dr. Parlane Kinloch, chief medical officer, Department of Health for Scotland, his paper on maternal mortality was read by Dr. Charlotte Douglas. This paper dealt with a statistical inquiry into the 252 maternal deaths that had occurred in Aberdeen during the ten years 1918-27, which provided a basis for the discussion on this subject. No definite relation had been traced between such mortality and environmental conditions, but contagion undoubtedly played a very important part, the *Streptococcus haemolyticus* being chiefly implicated. A plea was made for an extension of adequate ante-natal services and the development of a new midwifery organization. In such a scheme midwives would conduct all normal deliveries, while medical practitioners would provide ante-natal services and deal with any complications brought to light or occurring during pregnancy. The President said that as a cause of death, if taken in gross numbers, maternity was overshadowed by the great killing diseases, such as cancer, heart disease, and respiratory diseases. But although, fortunately, it did not produce the bulk of deaths represented by these diseases, it was of even greater seriousness, for two reasons. One was the disastrous effect on the surviving relatives, especially the children; the other was the high proportion of deaths among persons "at risk." Calculated as a rate per 1,000 births it would be seen that maternal mortality was three times as great as the mortality from cancer per 1,000 of the population, where the whole population above the age of 25 was "at risk." Dr. Kinloch had shown in his paper that during 1928 there had been 676 maternal deaths in Scotland, giving a rate of 7 per 1,000 births, as against an average of 6.4 for the preceding ten years. Of these 676 deaths, 234, or 2.4 per 1,000 births, were attributed to puerperal sepsis. Dr. Veitch Clark believed that the notification of pyrexia, leading, as it had done, to earlier diagnosis of puerperal sepsis, was bound to have a profound effect on the efficacy of treatment. Mr. Bright Bannister said that owing to recent awakening of public opinion on this subject there appeared to be some danger of panic legislation. He thought it necessary to inform the public that it was a problem which could not be solved in a moment. They must recognize that owing to the cruelty of Nature a certain mortality was inseparable from childbirth, but every nerve should be strained to reduce it to a minimum. The predominance of sepsis as a cause was the most serious aspect of the problem. It was natural to ask, and difficult to answer, the question why sepsis had not been reduced in connexion with midwifery to the extent it had in surgery. But he himself had seen a large number of other acute conditions occurring at the time of parturition and wrongly diagnosed as puerperal sepsis. The onset of labour caused a great lowering of resistance, and the speaker thought that autogenous infection was of much greater importance than some authorities averred. He believed that as many women as possible should be delivered in fully equipped institutions. Professor D. Dougal (Manchester) declared his opinion that with the knowledge and the means already in our possession *maternal mortality could be reduced by* 50 per cent. at a comparatively early date. Dr. A. K. Chalmers (late M.O.H., Glasgow) said that Dr. Kinloch's figures were a further illustration of the value of notification, which had already been proved by the result of the Infectious Diseases (Notification) Act and the Notification of Births Act. Dr. James Young (Edinburgh) spoke as the author of the scheme for an improved maternity service which had now become the policy of the Association. The basis of that scheme, he said, was that every pregnant and parturient woman should be assured of the services of a properly trained and competent midwife, and that the confinement in normal cases, which constituted well over 90 per cent. of the whole, should be in their own homes. He was sure it was a mistake to suppose that the provision of institutional treatment for normal cases would bring about any material improvement. The next essential was the provision of skilled ante-natal supervision by a doctor, so that morbid conditions might be detected and their results anticipated. The whole scheme depended on intimate co-operation between doctor, midwife, and hospital, and it was suggested that this should become an integral part of the national health insurance scheme. The success of such a scheme was assured by the fact that in parts of the country where a similar system was in operation the mortality had been reduced to 1 per 1,000, as against the national rate of 5 per 1,000. He especially commended the results obtained by the East End Maternity Hospital of London, where among both in-patients and out-patients the mortality had been reduced to 0.64 per 1,000. Dr. W. H. F. Oxley described some of the methods which had achieved the success alluded to by Dr. Young, and were attributable to the genius and foresight of the matron of the institution. Puerperal sepsis and eclampsia had become almost unknown in their practice. The only antiseptic used was mercury perchloride, and no gloves were worn. He believed that the abandonment of a certain well-known antiseptic fluid would reduce maternal mortality by 50 per cent. The toxaemias of pregnancy had proved very amenable to treatment. Dr. Harper Murray (Newcastle) also emphasized the dangers of this fluid as a disinfectant.

Professor HENDRY (Glasgow) said the Glasgow figures confirmed those of Aberdeen as to the comparative mortality in the practices of doctors, midwives, and hospitals. The practice of midwives could be improved by insisting on the use of mercurial antiseptics and limiting the number of vaginal examinations. All midwives should have an occasional "refresher" course at a maternity hospital. The higher mortality in the practice of doctors was largely because the patients who called them in were mainly those in whom the risk was greatest—primiparae, those who had previously had difficult labours, and those who demanded the luxury of instrumental delivery under an anaesthetic. Dr. ARTHUR GILES classified maternal deaths as those due to non-intervention and those due to unnecessary intervention. The former group were those which would be reduced by ante-natal examination. Unnecessary intervention was sometimes forced upon the doctor by the exigencies of practice. He might have two cases at the same time miles apart, and be compelled to deliver Mrs. A. by forceps in order to get to Mrs. B. in time. Professor F. E. WYNNE (Sheffield), discussing the subject from the epidemiological point of view, said they were presented with many puzzles. One was why some women escaped when all the factors for infection were apparently present. Another was the difficulty of detecting carriers. In the case of one obvious carrier, who had infected eight patients in succession, the most elaborate bacteriological investigation had failed to reveal the presence of the haemolytic streptococcus. He believed there was evidence that the infection was capable of assuming an epidemic form. Miss IVENS (Liverpool) believed that in any future scheme there should be a service of midwives with sufficient education to enable them to be trained. Such women would not be obtained until proper payment was provided instead of the present inadequate fees. Professor LOWRIE (Belfast) emphasized the importance of blood pressure observations in the prevention of eclampsia. Since these observations had been made in their hospital at Belfast there had been no case for nine years. The President, Dr. VEITCH CLARK, summed up the discussion, and said he welcomed the unanimous desire that had been expressed for cordial co-operation between the public authority and the private practitioner. He wished to lay stress on Professor Dougal's declaration that maternal mortality might be reduced by 50 per cent., but he also felt the urgent need for further research.

SECTION OF TUBERCULOSIS.

Thursday, July 25th.

CONDITIONS SIMULATING PHTHISIS.

AT the second session of the Section, the chair having been taken by Dr. G. LISSANT COX, a Vice-President, Dr. F. G. CHANDLER read a paper on conditions simulating pulmonary tuberculosis, with special reference to pneumonoconiosis and bronchiectasis. The speaker summarized the matter with which he dealt by saying that it was by bacteriological examinations of the sputum and faeces, and by these examinations almost alone, that a diagnosis of pulmonary tuberculosis could be established or excluded. He then described various points which helped in the recognition of the association with pulmonary tuberculosis of pneumonoconiosis, lymphadenoma, syphilis, new growth, bronchiectasis, and mitral stenosis. He noted the difficulties in distinguishing the causes of some serous effusions, and the many aspirations which might be necessary in diagnosing polyserositis. He next enumerated seventeen chronic conditions which might simulate pulmonary tuberculosis, and especially called attention to apical catarrh following such conditions as influenza, to asbestosis, and to bronchiectasis. He pointed out that, owing to the introduction of iodized oil by Sicard and Forestier, it was now possible to prove or exclude bronchiectasis, and to localize it. He thought that the routine to be followed in difficult chest cases should be: a careful history, an exhaustive bacteriological investigation, bronchial injections, x-ray examination, and bronchoscopical investigation. In some cases replacement and thoracoscopy were needed, and in others an exploratory thoracotomy. But bacteriological investigation was of primary importance. Professor F. E. TAYLOR (Manchester) said that the occurrence of apical catarrh should be more widely known. In this condition, unlike tuberculosis, the crepitations were constant, and audible over a wide area. He showed slides to support his opinion that syphilis of the lung was more common than had been supposed. He described a case which appeared to be typical Hodgkin's disease, in which x-ray examination proved the existence of multiple calcified tuberculous glands. Unresolved pneumonia frequently simulated fibroid phthisis. Professor Tylecote was accustomed to regard absolute, intense dullness associated with entire absence of adventitious sounds as very suggestive of neoplasm and against tubercle. Dr. BURTON WOOD devoted his remarks to asbestosis, which was becoming of increasing importance in modern manufacture. He showed slides to demonstrate the coarse, cobwebby appearance in the lungs disclosed in x-ray examination, and contrasted this with the disseminated granular appearance in some cases of pulmonary tuberculosis. Dr. P. HEFFERNAN (Buxton) dealt with the diagnosis of silicosis among the gritstone workers, potters, and refractory brick makers in Derbyshire. He had met with no acute cases of the disease. The symptoms of the chronic form were passive or mechanical—dyspnoea and its sequels. Several patients had haemoptysis. The diagnosis for other forms of chronic fibrosis could only be made by radiography. If a patient became infected with tuberculosis, a rapidly fatal form of this disease usually ensued. But such a conjunction was not always fatal, and an antecedent tuberculosis might be arrested by a mild degree of silica fibrosis. Thus three patients with pulmonary tuberculosis had steadily improved after taking up employment in silica brickworks. Dr. H. G. TRAYER (Manchester) gave the findings in the post-mortem room in seventeen cases out of 306 autopsies in a sanatorium, in which macroscopic evidence of tuberculosis could not be found. Eleven of the patients had died of primary neoplasms of the lung. The attaching of undue weight to a single positive sputum in the midst of a series of negative results was, in Dr. Trayer's opinion, dangerous. He described briefly the symptoms and conditions in the eleven patients; and thought that vital statistics of pulmonary tuberculosis would reach a much higher standard of accuracy if all cases of supposed advanced phthisis in which the bacillus was found were submitted to post-mortem examination. Dr. L. S. T. BURRELL enumerated the causes of non-tuberculous fibrosis of the lung under the headings: occupational, injury or foreign body, empyema, broncho-pneumonia, and healed tuberculosis. He held that it was misleading to classify cases of healed tuberculous disease with active tuberculosis. He emphasized the need for making sure that fibrosis, apparently tuberculous, had not been set up by a foreign body lodged in the bronchus without the knowledge of the patient. Empyema, especially when interlobar, might lead to fibrosis. Broncho-pneumonia was an especially frequent cause. In differential diagnosis failure to find the tubercle bacillus in purulent sputum was strong evidence against tuberculosis. Haemoptysis, even when considerable, could not be taken as certain evidence of tuberculosis. The important point was to decide whether fibrosis was progressive or stationary. In the latter case no treatment was necessary except to relieve symptoms.

SECTION OF OCCUPATIONAL DISEASES.

Thursday, July 25th.

INDUSTRIAL DISEASES AFFECTING THE BLADDER.

AT the second session of the Section the President, Dr. DEARDEN, took the chair, and Dr. THOMAS H. WIGNALL (Manchester) read a paper on the incidence of disease of the bladder in workers with certain chemicals. In an experience extending over thirty years he had met workers who had been employed for fifty years in chemical occupations. In the early years, 1870–80, illnesses were noted among the workers, but not connected with their employment; there was no complete examination, so that the records did not afford help in settling the point whether an illness was occupational or not. From 1920 careful investigations of all cases of illness had been made, and all the employees had been encouraged to seek advice for any symptoms that disturbed them. It was very difficult to define the offending agent owing to the variety of

chemicals and their fumes to which any one worker was exposed. Other difficulties were due to the changing of jobs within the factory, men lapsing from employment, and the presence of men whose previous employments had been blamed for similar effects. Experience accumulated over some years suggested that the notable effects of aniline compounds appeared, if at all, in the urinary tract, and specially the bladder. Mr. J. B. MACALPINE (Manchester) showed some specimens of tumours he had removed from such cases. He also gave a very interesting lantern demonstration on the cystoscopic appearances, diagnosis, and treatment of new growths in the bladder. Dr. ARCHIBALD LEITCH, after much research, had concluded that the effect under discussion was due to a final product in the body which irritated the urinary tract in certain individuals. Professor MATTHEW J. STEWART (Leeds) asked whether inhalation or ingestion was the method of absorption. Dr. VERNON DAVIES asked if any definite pronouncement could be made at present. The PRESIDENT referred to a paper by Dr. Alice Hamilton. Dr. H. F. WATKINS had only seen two cases of affection by aniline compounds (excluding dermatitis) in seventeen years' experience. Dr. WIGNALL, in reply, stated that there undoubtedly seemed to be some correlation between the chemicals and the incidence of the bladder conditions, but the main difficulty was to elucidate which of the many used were culpable, and under what conditions.

METHODS OF DUST REMOVAL.

Mr. L. WARD (Senior Engineering Inspector of Factories, Home Office) gave an instructive and interesting lantern demonstration on mechanical methods of dust removal. He said that the plant should be well designed and efficient, the dust removed as near the point of origin as possible, and the removed dust discharged so as not to blow into other workrooms. The velocity of dust removal and the question of the temperature of air were closely related, so that heating arrangements had quite often to be supplemented after the introduction of improved ventilation. The PRESIDENT also showed some slides illustrating dust prevention in the cotton industry.

CHROME AND ARSENIC DUST IN INDUSTRY.

Dr. E. S. BURT HAMILTON (Manchester) read a paper on chrome and arsenic dust in industry. The chief chromium salts concerned were the sodium and potassium bichromates. The effect on the nasal passages of such dust was to produce devitalized patches, with crusting, and, later, ulceration, leading to perforation of the septum of the nose. There was no pus production, probably owing to antiseptic action of the dust which continued to be inhaled. The perforation of the septum was noted in 20 out of 100 workers; no offensive smell was associated. Arsenic in the form of dust had very similar effects. Dr. DONALD CAMPBELL (St. Helens) spoke on the silicotic lung and its relation to pulmonary fibrosis. He stressed the importance of radiographical study and of examining the sputum.

SECTION OF NEUROLOGY AND PSYCHOLOGICAL MEDICINE.

Wednesday, July 24th.

THE EPILEPSIES.

Professor JUDSON S. BURY (Manchester), President of the Section, took the chair at the first session on July 24th, when Dr. S. A. KINNIER WILSON opened a discussion on the epilepsies. Dr. Wilson said that the complexity of this subject arose from the heterogenous etiology of the condition; its pathology was doubtful, and its therapeutics empirical. Epileptic phenomena showed clinical polymorphism, motor, sensory, psychical, and visceral variants existed. Apart from the seizure itself, there were "pre-seizure" and "post-seizure" disorders to be considered. The aura was a sensation and, therefore, a symptom belonging to the psychical series. Interruption of consciousness might, or might not, accompany epileptic manifestations. The motor content usually consisted of violent convulsive movements, though the entire motor performance might involve little more than mild finger twitchings, or momentary spasms. The sensory elements might constitute practically the whole of an epileptic fit. The visceral components were less significant, and included circulatory, respiratory, vasomotor, vesical, rectal, pupillary, and other phenomena. The post-seizure manifestations might be most varied, ranging from sleep to extreme violence. Twenty-one years of experience had convinced Dr. Wilson that the hereditary factor was persistently overrated, and the personal, or constitutional, factor underrated. The number of cases in which there was no congenital element was far greater than that of those in which such a factor seemed responsible. Experiments had shown that normal animals could be made to develop convulsions without difficulty, and the inheritance factor was not essential in the case of laboratory animals. Two technical procedures were requisite for the production of the convulsive state; the first of these, the humoral factor, might be defined as that component which consisted in the alteration of body fluids and biochemical constituents, and included such mechanical alterations as: (1) increased intracranial pressure and increased permeability of tissues; (2) exogenous noxae, such as convulsants (alcohol, lead, absinthe, thujone, picrotoxin), insulin, foreign proteins, anoxaemia, alkalosis; and (3) endogenous factors, such as endocrine disorders. The second factor concerned the mental mechanism. It had long been known that direct irritation of neural centres could result in the development of unilateral or generalized epileptic attacks. After discussing the occurrence of convulsions and pathological states, Dr. Wilson dealt with the mechanism of the production of epileptic seizures, and remarked that what had already been said implied the existence of three or four determinants, such as increase in pressure of the cerebro-spinal fluid. Dr. Wilson believed that, though it had long been held that evidence of cerebral and general anaemia was more or less discernible at the commencement of the seizure, yet there was not sufficient to show that the fit began with a vasomotor constriction. It was equally conceivable that a neural factor originated the vascular change. Anoxemia might be a contributory factor, but the essence of all epileptic manifestations was neurotic derangement. It was impossible to find one single common factor for the totality of epileptic manifestations, unless the significance of some inherent nervous factor or some functional propensity was allowed. Dr. Wilson concluded with a brief note on the influence of intercurrent conditions in the epileptic state.

Dr. J. J. L. MUSKENS (Amsterdam) considered that it was possible to recognize at least two definite clinical entities among the many forms and varieties that epilepsy might present. (1) *Myoclonic epilepsy.* So long ago as eighty years an English physician, Russell Reynolds, had pointed out the great frequency of minor motor symptoms, particularly myoclonic jerks, in true epilepsy; the observation attracted practically no attention. The condition of "myoclonic epilepsy" consisted of the syndrome of headaches, myoclonic jerks, and myoclonic fits—fits tantamount to genuine epileptic fits—whether these symptoms appeared in rapid succession or only after a lapse of years. In some cases headache might be the only symptom, followed after some years—as many as ten—by myoclonic jerks, while again, after a lapse of years, "fits" appeared. In some cases the development of the complete clinical picture was more rapid, while in others all the symptoms were not present or varied greatly in severity. The observation by Russell Reynolds on the frequency of the minor motor symptoms was accurate, but it was not until later work involving the experimental administration of drugs such as camphor bromide demonstrated in the cat and the dog the close relationship between the tactile and acoustic myoclonic reflex and the complete epileptic fit with the characteristic cry, biting of the tongue, and general convulsion. In the lower animals, as in man, the myoclonic jerks and epileptic fits merged into one another, while in both there appeared the same time of selection for the appearance of fits—namely, the time of transition from sleep to wakefulness or from wakefulness to sleep. When an animal was given a suitable dose of camphor bromide the first toxic symptom was exaggeration of both the tactile and acoustic reflexes. It was a fact recognized

by those in charge of premature infants that should the door bang or some such sudden sharp noise occur all the infants reacted by a sharp shudder. Dr. Muskens had described the intermediate conditions between myoclonic jerks and the classical fit, and had been fortunate enough to obtain graphic tracings of the least severe form of fit yet recorded, associated with slight alteration in consciousness. Experiments seemed to indicate that the loss, or change, of consciousness accompanying a fit was due to the anatomical and physiological connexions between certain centres in the brain stem. Among some 3,000 epileptics he had found several cases where simple syncope was frequent before the appearance of fits, and transitional states between syncope and seizure were occasionally met with. With reference to the exaggerated tactile and acoustic phenomena, experiments on cats had suggested that the reticular portion of the pons and medulla played an important part in the production of both these reflexes. If it was appreciated and admitted that these exaggerated myoclonic reflexes easily and frequently merged into myoclonic or genuine epileptic fits, it seemed probable that this area was associated with the production of the myoclonic epileptic fit. Further experimental work supplied evidence that when an animal was dosed with camphor bromide the irritability of the reticular region of the pons and medulla was increased, and at the same time the irritability of the contralateral motor cortex for faradic currents was also increased. This was a detail which had an important bearing on traumatic epilepsy. When confronted with a patient suffering from headaches only or headaches and myoclonic jerks attention should at once be directed to discovering the cause of this condition of "charge" of which the headaches and "jerks" were the manifestations, and in many cases also hypalgesia of certain zones of the skin. This condition of "charge" might suddenly be seen to disappear under the influence of a series of myoclonic jerks, or a regular epileptic fit, and also by an ample evacuation of the bowels. It was of practical value to ascertain the circumstances under which the patient tended to manifest the symptoms of "charge." Such circumstances could be avoided and the patient put on a most carefully arranged hygienic regime of life. Food, rest, recreation, hours of work, and indeed the whole cycle of life must be provided for. Dr. Muskens protested against the habit of classifying epileptic patients as belonging to two classes: (1) those who did not. Until lately luminal or bromide; (2) those who reacted to this was essentially the attitude of mind of the medical staff of the State Insurance Department in Holland. He insisted emphatically that early and incipient cases should not be given such drugs. Even where definite fits had occurred they could in many cases be prevented and the disorder checked by a definite, exact, hygienic mode of life. Years of experience had convinced him that the danger from the use of such drugs was twofold: (1) the mental faculties of patients deteriorated (certainly repeated fits may, and in the long run did, affect adversely the mental faculties); (2) where the dose of a drug that had been taken over a long period was diminished the dread condition of status epilepticus often appeared. (11) *Traumatic epilepsy in civilian practice.* From this class must be excluded all cases which were based on the history of an injury or fracture of the skull, but of which injury there was no tangible trace. Parents frequently recalled some cranial injury to explain or account for the outbreak of the disorder. Cases in which cranial injury had occurred through a gunshot wound in which the bullet had injured deep structures must also be excluded. On the other hand, those cases were included in which there was no actual bone injury as shown by the *x*-ray examination, but there existed a superficial scar and a history of focal cerebral symptoms appearing immediately after the injury. With this delimitation the number of cases of true traumatic epilepsy shrank considerably; probably only one of 200 cases of epilepsy belonged to this class. Dr. Muskens said he had recorded eleven cases of traumatic epilepsy in his book. In the majority the trauma was in the parietal region and the motor zone was involved; in three cases the trauma was in other parts of the head. This selection of the parietal area was also found to be the rule in traumatic epilepsy occurring after war wounds. All eleven patients had fits, nine had headaches, and in three psychical disturbances were present, but were slight and fugitive in character; in two these were well marked, the patients being heavy and dreamy. Whereas in genuine epilepsy of long standing the motor cortex became hyperexcitable, it would be found that in traumatic epilepsy after many years symptoms of the genuine disorder (quite frequently myoclonic jerks) developed. It seemed, therefore, that whether the disorder was due to the "genuine" disease or whether to injury of the cerebral cortex, the hyperexcitability proceeded either from the cortex to the contralateral ponto-medullary centres, or else from the latter centres to the cortex. In this way, by this interdependence of the cortex and the medullary centres, the identity of the final condition in both disorders found its explanation. In ordinary epilepsy the hyperexcitability was supposed to proceed from the reticular region of the pons and medulla to the contralateral motor area, while in traumatic epilepsy the development of the disorder certainly suggested that the hyperexcitability was transferred to the reticular region from the contralateral motor area, *casu quo* also from the non-motor area. The important question was, What was the type of patient who developed traumatic epilepsy after a cranial injury? From a consideration and careful analysis of his cases it was evident that persons suffering from gastro-intestinal disturbances had a strong predisposition to develop epilepsy following trauma. The arrest of fits that occurred in many cases he believed to be due to the combination of general or hygienic treatment, as indicated for genuine epilepsy and surgical treatment. The best surgical operation, however, in traumatic epilepsy the importance of combining those two lines of treatment could not be too strongly insisted on. The original lesion could but remove one of the conditions which facilitated the development of chronic epilepsy. The original lesion was but the exciting condition; operation might, and did, deal with this, but the fact that the patient had had a certain number of fits postulated a change in the nervous structures. He had come under the law that each epileptic fit makes the next one easier of occurrence, therefore the same careful prophylactic treatment was necessary for this class of patient as for the myoclonic epileptic. The same exact and careful regulation of life as regards food, drink, exercise, rest, fresh air, and habit of life was necessary. Great care must be taken to avoid all gastro-intestinal disturbances, and especially constipation. In such cases it might be necessary to give drugs, but only under careful supervision, and an increase of the dose be only after careful consideration.

Dr. GORDON HOLMES regretted the choice of the title "epilepsies," as though epileptic symptoms might be associated with various organic diseases of the nervous system, the action of poisons of many natures, circulatory disturbances and metabolic changes, as well as occurring apart from any demonstrable alterations in the structure or chemistry of the body. He believed the essential factor was the same in all—a liability of the grey matter of the brain to discharge or react by an epileptic seizure under the influence of physiological or pathological factors. Epilepsy was essentially a cerebral disease, but factors that could influence the activity or nutrition of the grey matter might play a predisposing, or even an exciting, part in the appearance of its phenomena. Such hypotheses as that epilepsy was merely a "metabolic dyscrasia" could only retard advance in knowledge. The investigations of microscopists and the work of Foerster, Penfield, Fay, and others on the nature of local lesions that produced epileptic seizures, promised to throw light on its pathology, but an organ might be normal in structure and abnormal in function. The most promising approach for the clinician was the systematic study of Jacksonian or local epilepsy, as the same physiological processes must underlie it. The speaker had recently emphasized the fact that the positive and negative phenomena observed in local epilepsy might be seen in both major and minor attacks of the so-called idiopathic disease, but some of the most interesting observations bore on the excitation of local seizures by simple physiological processes. Here there could be no question of toxic, metabolic, endocrine, psychical, or other

factors, in which the causation of an epileptic attack was so commonly sought. But of the cortical processes involved in a seizure we must remain ignorant until physiologists taught us more of the nature of cortical activity. Of the various possible factors suggested within recent years the most important were probably the metabolic changes to which Dr. Wilson had referred. Alkalosis, anoxaemia, and excessive hydration favoured attacks, but played, probably, only a subsidiary part by influencing the nutrition and functional activity of nervous elements predisposed to epileptic discharge. Circulatory disturbances were undoubtedly more important, though he could not accept the theory that the epileptic attack was initiated by sudden changes in the cerebral circulation. Since they were ignorant of the nature of the cerebral disturbances that constituted the basis of epilepsy and the means of controlling them, they could only attempt to deal with factors that predisposed to, or excited, seizures. Cortical sedatives must be employed in the majority of cases, though a few patients were undoubtedly better without bromide, luminal, and other such drugs. Of equal importance was the care of the general health and the regulation of the life of the epileptic. The cardinal rules should be to maintain health at as high a level as possible, to place as few restrictions as possible on the epileptic, and to assure that he had a congenial occupation for which he was fitted. Diet had rarely much influence on the frequency of the seizures, but many epileptics did better on mainly vegetarian food. Possibly the ketogenic diet lately suggested, or some modification of it, might prove a valuable accessory in the treatment of some cases at least. Dr. W. Russell Brain spoke of his experimental investigations with thujone carried out with Dr. Riddoch. Thujone was the convulsant constituent of absinthe, and could be obtained from oil of tansy, and was so powerful a convulsant that 1/4 minim administered intravenously would convulse a cat of average size. The observations left no doubt that there were many phenomena in a thujone convulsion which could only be explained in terms of neural excitation. Dr. Brain's own view, based on clinical as well as on physiological experience, was that inhibition and excitation both played a part in producing the symptoms of an epileptic fit. Any part of the nervous system, even the spinal cord, was capable of being the site of a convulsion in certain circumstances; and if such circumstances arose such regional fits bore the physiological stamp or local sign of the motor or postural functions normally served by the excited area. But a characteristic spinal or mid-brain fit was only experimentally elicitable when the higher centres had been removed; from which it appeared that the convulsion in an intact animal was to some extent an integrated reaction, the convulsion discharge of the highest levels controlling or suppressing lower level fits. In Dr. Brain's opinion there had been in some quarters a tendency to overstress the symptomatic character of epilepsy and to minimize the part played by constitutional factors. The family history of epilepsy obtainable in about 30 per cent. of epileptics also pointed to an inherited constitutional abnormality, and the relation between a local cerebral lesion and an inherited predisposition was well shown in patients with a family history of epilepsy who only develop convulsions after acquiring a cerebral lesion. He therefore regarded the majority of epileptics as possessing a constitutional predisposition to convulsions, and many also exhibited some indication of a cerebral lesion which acted as a trigger to the charge. He thought it was established that the average blood cholesterol was lower in epileptics than in normals. It was exceptionally low during status epilepticus and serial epilepsy; it tended to be unstable in the neighbourhood of a fit; in a number of cases (15) a fall had been observed to precede a fit. There was an intimate relationship between cholesterol and the liver, and there was considerable evidence of some form of liver deficiency in epilepsy. Therapeutically there was much more hope of alleviating epilepsy on a large scale if we could discover its underlying basis than if we were compelled to look upon it always as a symptom.

Dr. Donald Core (Manchester) drew attention to treatment and prognosis. It was important to realize that people, otherwise normal, were liable to have isolated fits that symptomatically were epileptic—attacks of sudden loss of consciousness with falling, generalized convulsions, and subsequent coma and sleep. Such people might never have more than one or two such attacks, and this in the entire absence of any treatment. Emotionally uncontrolled, nervous, worrying, introspective young men, patients who were continually skating on the edge of hyperthyroidism with its associated vasomotor instability, were peculiarly liable to epileptic attacks, though these were not typically frequent. Two or three attacks might occur at short intervals, and then the patient go for a prolonged period quite free. Such people, however, conformed to the hyperthyroid type in that their intelligence was above the average and, what was of greater importance, they showed normal constructive intelligence. They were capable of bearing the burden of responsible and increasingly complex organization, for example. Another class of patient in whom epileptic fits were liable to occur showed no such impairment of emotional control. They tended towards mental dullness, and this dullness varied from a slight stupidity, which often escaped notice as such, to a definite dementia. Dr. Core suggested that, clinically, from the point of view of treatment and prognosis, epileptic attacks occurred in three types of people: (1) as isolated incidents in normal individuals; (2) in persons who showed well-marked signs of emotional uncontrol with normal intelligence; (3) in individuals whose constructive intelligence was defective. From the standpoint of symptoms these three groups were one; there was no difference between the attacks in any of them. But from that of treatment they were poles apart, and what might be a proper line to follow in one might be disastrous in the others. The first group required no treatment at all, and the less they were brought into the medical atmosphere the better for them. A thorough examination was desirable to exclude the possibility of gross disease of the central nervous system such as a frontal or a temporosphenoidal tumour and of poisons such as syphilis; but as soon as this had been done the patient should be told not to trouble about the incident. Patients of the second group required emphatic reassurance that the occasional occurrence of an attack had in their case no serious significance, and that it did not imply any tendency to brain deterioration. Such sedative treatment as might be prescribed for the attacks need not be continued for any length of time. In the third group the most important element of treatment was to prevent the patient from looking upon himself as a pariah or an outcast. If the mental dullness was such as to prevent even the semblance of a useful life in the home surroundings, then he should be sent into an epileptic colony, where he would live the life that his companions lived. Dr. Core had found the best results from a combination of bromides with borax and arsenic; this was especially useful in the type of case just discussed. For the emotional type of case where specific treatment need not be prolonged luminal was useful.

Dr. E. L. Fox (Plymouth) spoke on the importance of recognizing the psychogenic origin of idiopathic epilepsy, and instanced the fact that in studying the history of cases of epilepsy the close analogy of the emotional characteristics of the epileptic with those of the hysteric was almost invariably forthcoming. He mentioned cases in which repression was apparently an important factor in the causation of epilepsy, and in which the attacks ceased altogether on the repressed incident being recalled. It was important to recognize the existence of a pre-epileptic condition, which was often to be found in children. Dr. Fox felt that if this state was recognized and treated many cases of epilepsy might be altogether prevented. The epileptic gestures which so frequently ushered in an attack were of value in helping to locate the event which started the epilepsy, and also to the patients in their efforts to resist the oncoming of attacks. He advocated trying to raise the level of the emotional standards in all epileptics, so that they could more readily resist the attacks, until they ceased altogether. Dr. F. A. Pickworth (Birmingham) said that about 10 per cent. of cases in mental hospitals were epileptics, and many more had epileptiform fits. Epileptics showed periods

of mental instability and often became demented. In the work on mental disorder at Birmingham certain highly interesting findings applied also to epileptics. Dr. Pickworth then showed a series of slides demonstrating the presence of sphenoidal sinusitis and infection of the pituitary gland in four cases of epilepsy. He considered that epilepsy might be due to an extension of sepsis from an infected sphenoidal sinus along the course of the carotid artery producing the minute focal areas of brain necrosis often found in epileptics. It was conceivable that organisms or their septic products which obtained access to the carotid sheath might be transmitted along the course of the artery by its pulsations. In support of this were (*a*) the haemorrhagic condition of the pia arachnoid in one case, and (*b*) healed conditions sometimes found as a brown staining of the dura. Of the more intimate association between anoxaemia and epilepsy little was known, but Speransky had shown that by freezing a small area of brain tissue autoneuro-toxins were produced which caused convulsions and death in animals; probably freezing was analogous to the angiospasm, which caused the minute focal areas of destruction found in epileptics, and which he had tried to show might be due to bacterial infection of the vessel walls. Epilepsy might also be due to the extension of sepsis through the pituitary gland to the area of the brain immediately above it. The production of macroscopic changes in the pituitary gland by a sphenoidal sinusitis showed that the quality and quantity of its secretion must suffer. From anatomical considerations the secretion should especially influence that part of the brain with which it first came into contact. This was an area of brain concerned with metabolic processes which were often affected in epilepsy, as indicated by the vasomotor changes before, and the somnolence after, a seizure; the low temperature, and the high temperatures not directly due to muscle effort, the peculiar tolerance of fats and the extraordinary success of a diet consisting almost wholly of fats; the disturbances of acid-base equilibrium; the variable glycosuria and other chemically demonstrable substances in the blood and urine; the abnormal hunger and thirst. Dr. TYLOR FOX (Lingfield) outlined his experiences of a ketogenic diet in five cases of epilepsy. In common with American observers, he had found this diet to be most effective in cases of "petit mal." The patients remained almost free from attacks while the diet was taken, but the fits tended to recur, although with less frequency, when it was discontinued. Dr. Tylor Fox expressed the hope that others who were experimenting with the diet would publish their results. The President, Dr. JUDSON BURY (Manchester), confined his remarks to two problems—namely (1) the occasional spontaneous arrest of the disease, and (2) the influence on epilepsy of intercurrent maladies, such as measles. If it was admitted that the cardinal factor in the epileptic condition was instability of the cerebral neurones, then such cessation of the seizures indicated that the neural mechanism had become more stable. It therefore seemed more probable that such restoration resulted from biochemical changes, rather than vascular or other extraneural factors. In favour of this hypothesis was the fact that benefit resulted from the administration of chemical substances such as bromides and luminal. There was therefore reason for hope that some day a curative remedy would be discovered. A ketogenic diet in association with small doses of the bromides or luminal was said to keep the patient free from seizures. He commented on recent communications by Drs. Gordon and Tylor Fox on the levulose tolerance test for hepatic efficiency for patients with epilepsy, and on the cholesterol content of the blood plasma in which these authors had collaborated with Dr. Russell Brain. The upshot seemed to be that there was a definite liver deficiency in epilepsy which was particularly marked during severe fits. He suggested that it might be worth trying minced liver in the treatment of epileptic patients. The pathology of the disease was so obscure that such a simple variation in diet as this might reasonably be employed. Dr. A. MCDOUGALL (Manchester) spoke of his experiences at the David Lewis Colony regarding the general character and temperament of epileptics.

SECTION OF MEDICAL SOCIOLOGY.

Friday, July 26th.

THE VALUE OF HEALTH PROPAGANDA.

THE subject for discussion in the Section of Medical Sociology, the value of health propaganda, was developed in three opening papers, which are published in this issue of the *Journal* at page 242. Dr. E. K. LE FLEMING, on taking the chair, said that the object of the discussion was to elicit the basic principles underlying health propaganda. The opening papers would deal with the points of view of the medical profession, the administrative officer, the press, and the public. Lord Leverhulme, a Vice-President of the Section, offered friendly criticism of Professor Wynne's statement that vulgarity was an integral part of all successful advertisement. Advertising which was vulgar was not permanently successful. Lord Leverhulme was interested in the difficulties, perhaps unavoidable, in the contribution by medical men of signed articles to newspapers. He referred to the suggestion that those engaged in industry should be medically examined at regular intervals. The difficulties were the expense and the suspicion of many workpeople that the suggestion had ulterior motives. He pleaded for some measure of co-operation between manufacturers and the medical profession in propaganda relating to proprietary articles; and, while recognizing the caution necessary in the profession, reminded his audience that large sums of money were spent by manufacturers in research and experiment, in order to increase the health value of their products. The opening papers were then read by Professor F. E. Wynne (Sheffield), Dr. H. C. JONAS (Barnstaple), Mr. H. A. Gwynne, Editor of the *Morning Post* and President of the Institute of Journalists, and a communication was made by Mrs. E. D. SIMON (Manchester).

Councillor WRIGHT ROBINSON (Manchester) expressed the opinion that more houses were wanted and not more doctors. He thought that health lectures were often more successful, and had more effect, than medical officers of health suspected. He advocated the reading of the health reports of these officers; and he desired further investigation of the food we ate, and the removal of diseased people who prepared it. Only those in the pink of health should assist in food production. He referred to the dermatitis which sometimes occurred in the manufacture of bread; and regretted that while a sum of money up to £200 could be spent on a milkman deprived of his occupation, such compensation could not be given in other trades. Mr. Robinson believed that the best form of propaganda was to be found in the methods of medical inspection of school children. Dr. F. E. FREMANTLE, M.P. (St. Albans), thought that the voluntary societies were an essential part of the health propaganda organization. Not only were they experimenters and forerunners of official activity, but they were a prominent and logical part of the health machinery of the nation, and a preservative against the deadening dangers of bureaucracy. The Central Council for Health Education, with its committee representative of many authorities, its thirty-four voluntary bodies, and its associated members, was a necessary bridge between official and voluntary machinery; and societies such as those dealing with mental welfare, venereal disease, tubercle, cancer, leprosy, midwives, and maternity were doing essential work, supplementing that of official authorities. He hoped that industrial assurance societies would take more part in the work. Dr. R. VEITCH CLARK (Manchester) said that the value of health education lay in enabling people to reach out towards the physical well-being which was essential to full happiness. Health education should not be introduced as a new unit of interest, but should be made part of the daily and monthly life of the people in their organized entertainments and amusements. Thus short public health films should be included in the winter programme of general cinema shows in local societies and among boy scouts, girl guides, and so on. The education given by doctors and nurses in maternity centres, and infant and school clinics, should be extended. Education should be given specially to the young parent, as well as to youth in general. Mr. NICHOLLS (*Manchester Guardian*)

suggested that the chief qualification of the journalist was in knowing "when to put the dope on the spike instead of in the waste-paper basket." What was of value to the newspaper was of value to the public. He thought that the medical profession should consider improvements in its publicity methods. Public health departments were generally of great help to the press.

Dr. H. B. BRACKENBURY explained the position of the General Medical Council, and its discouragement of advertisement, not primarily in the interests of the medical profession, but in those of the public. The point at issue was whether publicity was indulged in for personal advantage and in order to attract patients. Dr. Brackenbury deprecated Mrs. Simon's remarks about the school medical service. There was no antagonism between the service and the medical profession; and it was through the efforts of the British Medical Association that the service was established. But the methods of carrying on the service were often objected to. The best methods of health propaganda were: the public health services, used primarily as educational agencies; the schools, through the teaching of personal hygiene; and the family doctor. Dr. T. WHEELER HART (Stretford) thought that health posters were useful if they were humorous. But propaganda should not be such as to make people over-anxious, lest they should become distressing to themselves and an appalling nuisance to the general practitioner. He criticized the emphasis laid on the infectiousness of tuberculosis, which led to patients being looked upon as worse than lepers. Miss NORAH MARSH (Secretary, National Baby Week Council) pointed out that many of the voluntary child welfare societies were already establishing co-ordination; and instanced the formation of the National Council for Maternity and Child Welfare. Through this body and the Central Council for Health Education, medical officers of health could secure almost any propaganda service. She thought that a system of registration, as advocated by Dr. Wynne, was impracticable under existing legislation.

Dr. A. K. CHALMERS (Glasgow) emphasized the value of home education, and of the opportunity afforded by the Notification of Births Act for reaching the centre of the family circle. With the enormous expansion of housing during recent years, and with the well-known evil effects of bad housing, it was plain that little progress in health could be made while knowledge was confined to the few, and failed to gain the driving power of an educated public opinion. Now that the legislature had seen the need for unifying the administrative authorities concerned with health, the complement of this new epoch was the co-ordination of the many agencies engaged in health propaganda, with an intelligence service to cover the whole field of voluntary effort. Miss OLGA NETHERSOLE (People's League of Health) traversed Dr. Jonas's opinion that the statement, "You cannot run an A1 empire on a C3 population," was based on examination of the residue of civilians left after five million men had been passed A1. She quoted remarks of Sir George Newman, before and during the war, about the existence of not less than a million defective children. She took the optimistic view that a few pounds spent in disseminating knowledge would obviate the expenditure of hundreds of thousands of pounds on defectives, and hazarded the opinion that a very small percentage of our legislators knew how the masses lived. To teach the people scientifically the principles of life which govern health, with the object of getting taxes voted for the support of health, she had founded the People's League of Health. She hoped to see the Royal Colleges of Physicians and Surgeons, the Medical Research Council, and the British Medical Association issuing considered opinions and conclusions for dissemination by the public-education-in-health department of the Ministry of Health. Dr. HELEN BOYLE (Brighton) urged the need for publicity in mental hygiene, since a simple little thing like the mind tended to be overlooked in the presence of such mighty atoms as the appendix, the teeth, and the tonsils. Thus matters such as the admission of voluntary boarders to mental hospitals, agreed, by those who knew, for twenty or thirty years, had not been acted upon, while young offenders were put on probation with no inquiry as to their mental make-up, and recidivists came forty, fifty, or one hundred times into the courts. Dr. CONSTANCE MORTLOCK-BROWN (Devon) aired a local grievance in water supply. All was not well in North Devon; present-day propaganda was useless. She demanded action, and not propaganda.

Dr. T. EUSTACE HILL (Durham) supported the work of voluntary health organizations, which had been largely responsible for the development of health propaganda, and a great stimulus to its progress. He declined to take all of Professor Wynne's statements seriously, and thought that some of them might be described as "stunts" such as Professor Wynne condemned in others. He was convinced of the value of the press in sound health propaganda, and would like to see a committee of representative editors, medical officers of health, and others, which would issue to the public periodically articles of medical and public health interest. Lord LEVERHULME, Professor WYNNE, Dr. JONAS, and Mr. GWYNNE replied briefly on the discussion, and a vote of thanks to Dr. Le Fleming for his skill and courtesy in the control of the meeting was carried by acclamation.

Reviews.

UNIVERSITY COLLEGE, LONDON.

THE centenary of the founding of University College, London, was celebrated three years ago. The history of that institution through the hundred years has now been written by Mr. H. HALE BELLOT, formerly of the Department of History in the College, and now Reader in Modern History in the University of Manchester, and published by the University of London Press. It makes a handsome volume,[1] and includes a considerable number of very interesting illustrations, some of them reproduced from *Punch* and the *Illustrated London News* of past years, vividly recalling the topography and the teaching conditions of the days that are gone. In a pocket of the cover, too, will be found statistical charts of some value, showing the growth of the departments and other matters.

The College, it will be remembered, was first established as the London University, becoming afterwards, as the result of much controversy, a college merely in association with the new university, and now being a constituent part of that university lately reconstituted and reformed. Since the date of Gresham's foundation in the sixteenth century the proposal to establish a university in the metropolis had from time to time been made. Social, industrial, and religious conditions did not, however, become favourable for this till the first quarter of the nineteenth century, and so it fell to Thomas Campbell, who, after a visit to Bonn in 1820, revived the proposal, to have more success than his forerunners. The English universities by the end of the eighteenth century had become the preserve of a section of the community. Social exclusiveness and religious tests forbade them to large numbers whose intellectual activity justified admission. The tests, in particular, led to a movement for the establishment of a Dissenters' University, but it was fortunately on a wider basis than this that the Deed of Settlement of the University of London, 1826, was drawn up. Thomas Campbell first secured the practical assistance of Isaac Lyon Goldsmid, representing the aristocracy of the Jewish race in England. Goldsmid's long association with Brougham brought in the support of the Whigs, the Duke of Norfolk, who spoke for the Catholics, the prominent Dissenters, and, through his association with the Mechanics' Institution, George Birkbeck, together with the Utilitarians represented by Grote, Mill, Tooke, and Warburton. These men formed the bulk of the original council, and entered upon their further struggle for the actual establishment and building of the institution. The first actual appointment made to the professoriate was

[1] *University College, London, 1826–1926.* By H. Hale Bellot, M.A. London University of London Press, Ltd. 1929. (Roy. 8vo, pp. xvi + 464; illustrated. 25s net.)

that of Leonard Horner as Warden. The University actually opened at the beginning of October, 1828. It was not until ten years after the Deed of Settlement that a Charter of Incorporation was granted, and then it was as a University College, and not as a University, that the College was incorporated, a second charter, sealed immediately after the first, establishing the new University of London, empowered to grant degrees in Arts, Laws, and Medicine, after examination, to candidates holding certificates of having completed a course of instruction at University College, King's College, and such other institutions as might thereafter be approved for the purpose.

The volume under review describes in an interesting way, and with relatively full details, the initial struggle for foundation, the start, the early difficulties, disappointments, and quarrels, the depression of the years immediately following upon incorporation, and the revival and triumphs of a time more recent. Separate chapters deal with the admission of women to the College and University, and with the establishment and development of the library. Throughout the volume the medical school necessarily takes a prominent place, since the faculty of medicine has from the beginning been perhaps the most important department of the College. It was the first to begin work, and the expectation of some of the promoters that the reform of medical education would be the most practicable part of their project has been fulfilled. Mr. Bellot, indeed, specifically records that "in its early years the University owed its survival to the success of its medical school." The aim was to replace by systematic instruction and training an empirical and mainly clinical training provided by practising physicians and surgeons. Even so, the course for the diplomas of the Royal College of Surgeons and the Company of Apothecaries was commonly of only fifteen months' duration, but the council consistently recommended a four years' course at least to those who could afford it. Complaint was inevitably made that the number of lectures to be attended was excessive, and that the new school was too expensive. The organization of the several studies in a single school was difficult, and the early history of the medical chairs is very confused. "The delimitation of their several provinces was experimentally determined, and the conflicts which ensued nearly exploded the University." The feuds and recriminations which up to that time were characteristic of physicians, surgeons, and apothecaries as general classes of medical practitioners were abundantly illustrated by those of Bell, Pattison, Bennett, Richard Quain, Elliotson, Cooper, and Liston in particular. The biographical details relating to these men—their characters, qualities, idiosyncrasies, their mutual jealousies and jarrings—will be found set out and described in the fifth chapter of Mr. Bellot's history. William Sharpey, appointed to the chair of anatomy and physiology in 1886, alone appears to have fully justified the choice of the council, both by his own personal fitness and by that adaptability which is required when working as one of a team. The internecine quarrels of the professors were aggravated by their common quarrel with the Warden, Horner; and it was long before a sufficient number were got rid of to produce a relative peace. Later came W. H. Carpenter, G. Viner Ellis, J. E. Erichsen, T. Wharton Jones, and others, remarkably interesting and vivid sketches of whom are to be found in Mr. Bellot's book. These names begin to link up with the student days of many who are still engaged in the active practice of their profession. Such personal connexions, remote though they may be, necessarily add to the interest with which this history of University College will be read: but even those who have not any such connexion, and those who have no personal association with the College at all, will find themselves greatly attracted by much of this story, and will learn from its pages many things of value with regard not only to medical education, but to other branches of collegiate and university work. It is an important contribution to the history of freedom of thought, of the examination of women, of the profession of medicine, and of higher education in all its branches.

RADIOGRAPHY OF THE VERTEBRAE.

The Vertebrae Roentgenologically Considered,[2] by Drs. A. W. GROAGE and R. D. LEONARD, is one of a series of monographic atlases edited by Dr. James T. Case, and is quite up to the high standard of the seven volumes preceding it. The eight chapters into which the book is divided deal successively with general considerations, structural abnormalities of the spine, and pathological conditions of vertebrae, as Part 1. Various sections of the spine are considered in detail in Part 2, and the fifth lumbar vertebra has a chapter all to itself. Illustrating the text there are 203 *x*-ray studies, together with thirteen clinical illustrations and one coloured plate; all are good and adequately fulfil their purpose. There is little to criticize in this work and much to praise: nothing appears to have been omitted. The chapter in which the authors discuss the changes in vertebrae, usually described as due to chronic osteo-arthritis, is very interesting, especially as to the relationship of these changes to trauma. It is considered that the hypertrophic changes—often described as "lipping of vertebrae"—should not be considered as true arthritis, but as due largely to chronologic age changes. The authors are especially strong on the various types of fracture, and their remarks on injuries involving the atlas and axis, and the *x*-ray diagnosis of the same, are a valuable and original contribution to what is often a difficult problem. We would also call attention to what they have to say as regards the post-traumatic disease of vertebrae which Kümmell first described. Another strong feature noticeable throughout the whole work is the lucid and clear manner in which the main points of differential diagnosis are set out. Altogether this is a delightful and instructive book, well printed on good paper, well written, well illustrated, most valuable for reference to all surgeons, more especially those practising orthopaedic surgery, and to all radiologists.

ORTHOPAEDIC SURGERY.

IN *Diseases and Deformities of the Spine and Thorax*[3] Dr. STEINDLER of Iowa offers a serious contribution to the study of deformities. In his preface he expresses a preference for the plan of developing his subject with strong emphasis upon its theoretical and experimental foundation. In dealing with a subject like this, in which there is so much that is even now uncertain, and in the treatment of which principles are apt to be neglected or forgotten, such a foundation is particularly desirable. The human spinal column is such an extremely important structure, and at the same time built up of so many parts and with so many functions, that a recourse to basic principles and facts is necessary if success in treatment is to be attained.

The first chapter is devoted to congenital deformities. These are interesting in themselves and important for their immediate and remote effects; some of these—for example, scoliosis—occupy much attention in later chapters. Static and static constitutional antero-posterior deformities of the spine have of late years occupied a large place in orthopaedic literature, including as they do those anomalies of posture many of which depend more on the neuromuscular regulation of tone than on inherent defects in the spinal column. Scoliosis has long furnished battlefields for warring theories and systems of treatment. In its slighter unprogressive form of no clinical importance whatever and easily dealt with, it is in its more severe and progressive grades an opprobrium chirurgiae—a condition still incurable although capable of relief. Dr. Steindler devotes 118 of his 572 pages to consideration of this subject, and takes up the position that in severe cases compensation should be aimed at when complete correction is unattainable. A deformity having so many varying basic causes cannot, however, be treated by any one method. Fracture and dislocation deformities are, as the author says, matters of secondary consideration in them-

[2] *The Vertebrae Roentgenologically Considered.* By Ariel Wellington George, M.D., Sc.D., F.A.C.R., and Ralph Davis Leonard, A.B., M.D. Annals of Roentgenology, Volume eight. New York: P. B. Hoeber, Inc. 1929. (8 × 10¼, pp. xxv + 256; 216 figures, 1 plate. 10 dollars.)

[3] *Diseases and Deformities of the Spine and Thorax.* By Arthur Steindler, M.D., F.A.C.S. London: H. Kimpton. 1929. (7 × 10¼, pp. 573; 76 plates. 52s. 6d. net.)

selves. It is the results of displacement of bone which matter, and sometimes are relieved by operative intervention.

Low back pain, like static deformities, has of late come very much to the front in orthopaedic literature, and has, we think, provided osteopaths and bone-setters with much of their occupation in the past. The increased attention paid to it at the present time will probably diminish the opportunities of irregular practitioners. In this disorder the symptoms are often slight and illusory, and the surgeon must depend to an unusual extent upon patients' statements. It is perhaps surprising to find that, according to Herndon (as quoted by Dr. Steindler), out of 900 cases only 5 per cent. were malingerers. Yet it may be said that in the realm of industrial medicine the best treatment for many cases of low back pain is settlement of claims to compensation. Dr. Steindler describes bone-fixation operations for symptoms attributed to sacro-iliac subluxation, but is not very enthusiastic in recommending them.

Tuberculosis of the spine has been so much investigated and discussed that its treatment, or at least the principles of its treatment, are almost standardized; nevertheless, this work contains a safe guide to its pathology, symptoms, and cure. As to osteomyelitis of the spine, Dr. Steindler realizes that, as recommended by Starr and others for osteomyelitis of the long bones, early diagnosis and drainage is of the first importance. Syphilis, chronic arthritis, and tumours of the spine all have due consideration; their treatment is described, but does not call for comment here. Dr. Steindler is a safe guide to the surgeon in the treatment of spinal lesions and deformities. He is not over-enthusiastic in the recommendation of operative intervention, but takes judicial views of the problems offered, and if his advice is followed the best results may be hoped for in any given case.

HEART DISEASE IN CHILDREN.

THE most recent addition to the Modern Medical Monographs is by Drs. H. B. RUSSELL and C. K. J. HAMILTON, on the important subject of *Heart Disease in Childhood*.[4] It is a compact volume containing much useful information, as, for example, on electro-cardiographic records in children, but at the same time it is disappointing in many places. It is scarcely permissible in a modern monograph to omit all references to the current literature even at the risk of making the book "unduly cumbersome," which is the excuse offered in the preface. Such an omission makes it difficult to explain certain weaknesses in the text on other grounds than that the authors are not too familiar with this literature. No mention is made of Naish's work on rheumatic pneumonia as an explanation of certain signs at the base of the left lung in pericardial effusion (p. 39). The use of adrenaline in heart-block, as advocated by Sutherland, is not mentioned in connexion with this disorder (p. 53), and Cabot's work on the heart should surely be more fully mentioned in connexion with "mitral regurgitation." Indeed, the description of this latter condition is poor; no adequate pathological explanation is offered, and the disorder is described quite separately from dilatation and called "the commonest of all the valvular lesions that are met with in children." In fact, a very weak case is made out for the occurrence of mitral regurgitation as an isolated valvular lesion, and the authors use the term loosely as a mere label for cases of endocarditis unaccompanied by the types of murmurs usually accepted as indicating stenosis. Apart from shortcomings in these respects, which are after all fundamental, the book is good in many details. The description of the evolution of the murmurs in commencing mitral stenosis is excellent, and so also is the section on treatment of compensated endocardial lesions with its insistence on the pulse rate as a guide rather than the murmurs present. The "large" doses of salicylates recommended on page 65, however, are small compared with those advocated and used by some authorities, as, for example, the late David Lees. The bulk of the book is necessarily concerned with rheumatic heart disease, yet in a modern monograph it is surely a deficiency that ulcerative endocarditis is not considered at all, either alone or in its relations to the lesions of the heart in rheumatic fever. The authors have presented a good summary of some of the disorders of the heart in childhood, but the result is rather too superficial to justify the title of a "modern monograph."

[4] *Heart Disease in Childhood*. By H. B. Russell, M.D., M.R.C.P., and C. K. J. Hamilton, B.M., M.R.C.P. Modern Medical Monographs. London: Constable and Co., Ltd. 1929. (Demy 8vo, pp. xii + 104; 19 figures, 1 plate. 7s. 6d. net.)

NOTES ON BOOKS.

Fundamentals of Objective Psychology,[5] by JOHN FREDERICK DASHIELL, professor of psychology, University of North Carolina, has been written from the standpoint of the behaviouristic school. While the treatment offered in this book is that of consistent objectivism, the writer has not intended to imply an antagonism to the employment of an introspective approach where the teacher wishes to apply it. He explains that some guidance for the study of "self-observing technique" might have been included in this work, but he felt that it was better to let the strictly objective approach stand for itself. The subject-matter is excellently arranged, illustrations and diagrams are numerous, and considerable attention has been given to experimental methods of study. The student of psychology will find this volume thoroughly adequate as an introductory textbook.

DR. CLAES GRILL has produced a well-documented monograph[6] on the acoustic signs used in the diagnosis of lung cavities. The inadequacy of the classical signs in many cases has long been recognized, cavities found at post-mortem examination or radiologically having been overlooked even by skilled diagnosticians. Dr. Grill has attempted in a large number of sanatorium and clinic cases to correlate the physical signs found in the course of the ordinary examination with the *x*-ray appearances. He has, moreover, investigated some of the problems of sound transmission, and related his findings to the mechanical conditions that are present in cases of superficial and deep-lying cavity. From these two methods of investigation he has been able to suggest a useful revision of the physical signs generally held to indicate cavity, and to formulate a differential diagnosis between cavity and pseudo-cavity. The monograph is well printed and illustrated; it is supplied with a good bibliography.

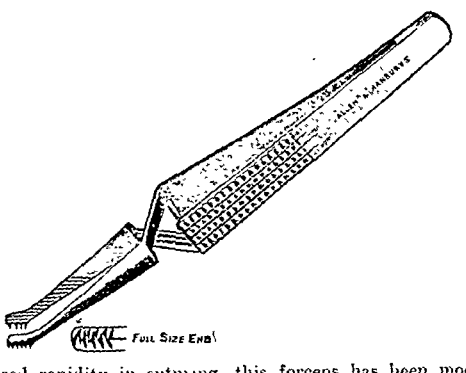
[5] *Fundamentals of Objective Psychology*. By John Frederick Dashiell. London: G. Allen and Unwin, Ltd. 1929. (9½ × 8¼, pp. xviii + 388; 109 figures. 16s. net.)

[6] *Kavernendiagnostik*. Von Claes Grill. Stockholm: P. A. Norstedt and Söner. 1929. (6 × 9¼, pp. 124; 8 plates.)

PREPARATIONS AND APPLIANCES.

APPROXIMATING FORCEPS FOR THE SKIN.

MR. A. W. HOLTHUSEN, B.S. (surgeon to the Southend Victoria Hospital), writes: The approximating forceps for the skin designed by the late Mr. C. P. Childe of Portsmouth is of great assistance in avoiding the in-turning of skin edges during suture when completing an operation. It needs, however, the use of one hand in holding the ends together while the stitch is tied. In order to free this hand, and so make for



increased rapidity in suturing, this forceps has been modified by reversing the spring action, so that when the finger grip is released the ends remain in apposition. A certain amount of practice is necessary to get accustomed to the reverse action of the spring, but it will be found that the modified instrument does help in producing a neat and therefore quick-healing scar.

The instrument has been made for me by Messrs. Allen and Hanburys.

British Medical Journal.

SATURDAY, AUGUST 10TH, 1929.

HEALTH PROPAGANDA.

Whether the modern hedonistic doctrine which subordinates everything to the pursuit of happiness is the true philosophy of life or not, most people will agree that health is a contributory factor to what is commonly supposed to be happiness. If this is so, instruction of the ignorant in the principles of health must be a matter of the first importance. Plainly, the whole community cannot be put through a medical course. When appropriate subjects have been chosen, a way must be found to introduce the health pabulum into the minds of the people, and in dealing with vast communities the only method is by means of what is called propaganda. How this should be carried out, and the value of health propaganda of various kinds, was the subject under discussion in the Section of Medical Sociology at the recent Annual Meeting of the British Medical Association in Manchester. If no very startling conclusion was arrived at in the discussion, nevertheless its value was great in calling attention to some of the pitfalls in health propaganda, and in enabling enthusiasts in the pursuit of health for the community to compare views with one another.

The Section was largely attended, and interest was maintained throughout its session by a number of valuable contributions to the discussion from very varied aspects. The opening papers, of which the full text is published in our present issue, approached the subject from the points of view of the administrative medical officer, the general practitioner, and the press; and speeches from even more special aspects were not lacking—as, for example, that of the rural sanitarian, who declared that true health propaganda had not yet begun to reach even medical officers of health. It is perhaps not surprising in these circumstances that the final impression is one of fruitful hints being given and taken, rather than of definite conclusions being formulated. Nevertheless, it is not unprofitable or without significance to discover a general (but not unanimous) agreement that "baby shows" are useless or even harmful; that "health weeks" are of little use except as an initial shock in communities where but small attention is given to health matters at all; and that formal lectures to large audiences, as distinguished from more familiar talks to smaller companies, are of very limited value. It was a wise suggestion of one speaker that education in health should not be given as a solid indigestible meal. Posters and leaflets met with considerable condemnation from another speaker, who was emphatic in stating that these productions are not edited with sufficient care, and that highly unsuitable pictures are often introduced to the notice of children and young people. He admitted, however, that it is very difficult to harm the young by propaganda, since they care for none of these things. This is a point too often overlooked by many earnest reformers. On the other hand, it is possible that lurid pictures may leave a permanent mark, quite different from that desired, upon the minds of highly imaginative, ill-balanced, or over-sensitive children.

A number of misunderstandings came to the surface in the course of the debate, and we hope that some of them were removed. They are not new; but seem peculiarly ineradicable from the lay mind. The constant confusion between the General Medical Council and the British Medical Association was still in evidence, and the range and meaning of the former's notices with regard to advertisement in the newspapers and elsewhere had not been clearly grasped. There is no ban on a legitimate publicity; and this still may cover a very wide field. The medical profession and the lay press may alike be reminded that the British Medical Association issued in 1925 a memorandum on indirect methods of advertising, approved by the Representative Body in that year. The most important paragraphs of that memorandum were reprinted in the *Supplement* to our issue of September 11th, 1926 (p. 141), and were circulated to the lay press. Republication of this memorandum, or of those paragraphs, might be of value at the present time, and a few sentences may be quoted here. It may be premised that it is the seeking of personal professional advantage from publicity that constitutes the gravamen of an offence. "It is the recognized duty and right of a medical man to take his share as a citizen in public life, but there is no reason why this should involve any advertisement of himself as a doctor." Publication and lecturing "on semi-medical topics which are of general public interest and require medical knowledge for their proper presentation have been recognized as legitimate, subject to the avoidance of methods which tend to personal professional advantage of their authors. There are many things innocent in themselves which may, by the manner and frequency of their doing, gravely contravene the principle that medical practitioners should not advertise." A practitioner contributing to discussions in lay papers "ought to make it a condition of publication that laudatory editorial comments or headlines . . . shall not be permitted, that his address or photograph shall not be published, and that there shall be no unnecessary display of his medical qualifications or appointments." It can scarcely be maintained that by these requirements the essential needs or purposes of the press and public are in any way cramped or unduly restricted. Full scope for journalistic zeal in the interests of individual and public health is still left.

Another misunderstanding of even greater fundamental importance was disclosed. It relates to the position of the private medical practitioner, whether general or special, in regard to health education and propaganda. It was specifically stated by one lay speaker, whose influence is considerable, that the general practitioner was necessarily so engrossed in the treatment of sickness that he could, and should, take no part in the direction or education of the healthy. This conception of the position and work of the private practitioner is, of course, wholly wrong; and it is exactly from such an idea of the divorcement of curative from preventive medicine that the greatest public danger at the moment arises. The public health or school medical officer and the private practitioner are alike concerned with both. The general practitioner especially, and to an ever-increasing degree, going into the homes of the people, and seeing all classes under all conditions, is actually in his daily practice one of the most potent agents for health instruction, and his advice is now commonly sought in this capacity. The need of the moment is the development of this work in closer connexion with the public health service, whether at clinics or otherwise.

It may be said, indeed, as the outcome of the debate in the Section of Medical Sociology at Manchester,

that the three most valuable means of health propaganda are recognized to be the public health and school medical service, the general practitioner, and the school teacher; that it is not any special or extraordinary effort through these means that is most valuable, but rather their steady daily routine effect; and that since all three should and must be used, severally and in conjunction one with another, there should be no occasion for rivalry or useless comparison between them.

STUDIES ON TUBERCULOUS INFECTION.

As stone by stone the mason builds the temple the idle onlooker, in his thoughtlessness, may pity him for the monotony of his task. Each stone differs but little from its neighbour; laboriously fashioned, it is laboriously lifted, and meticulously placed. The work is slow; culmination is immeasurably far ahead. The onlooker lacks knowledge and vision: the master mason has no such lack. To him each stone is a thing of beauty and of value; each has its appropriate function to the final structure that he can envisage. Full well he knows and appreciates that in other parts of the vast building other craftsmen are busy, each labouring faithfully for the great architect in whom they have implicit trust that he will, at his appointed time, correlate their labours and cause them to fructify.

Recently a series of studies on tuberculous infection have been assembled in a beautiful volume[1] dedicated to the memory of Kenneth Dows, a man of inquiring mind, who, before his untimely death in 1919, established a tuberculosis research fund at Johns Hopkins University. Its authors, Dr. Allen K. Krause, Dr. William Snow Miller, and Dr. Henry Stuart Willis, show us a section of the great temple of the knowledge of tuberculosis. It has its ragged ends ready for additional building, but it is finely conceived and complete enough to stand and be admired alone. For many years these men have laboured at the task of answering two fundamental questions: (1) Does the lymphatic system play a decisive part in the focalization of tuberculous infection; and, if so, what are its significant elements? (2) How does tuberculo-immunity arrive at its effects—that is, less and more chronic disease; and through what agencies does it work? Here at length is their answer. Most students of tuberculosis will have seen and admired the "stones"—articles published sporadically in the *American Review of Tuberculosis* between the years 1919 and 1926. In this volume they have been brought together, and their collective value and the beauty of their structure are shown us in the summary, analysis, and application by Dr. Krause in study No. 15. Criticism and eulogy are alike unnecessary. The work is a marvel of perseverance and direct simplicity. Intelligent and searching criticism of the technical methods and of the conclusions is permissible, as for any work. But, as he reads, the student can feel that this criticism would be welcomed and appreciated by these authors; such is the open-minded and humble spirit in which they have approached their task.

Standing by itself the structure is worthy, but a wider view of contemporary work confirms its value. Krause, Miller, and Willis have approached their problem from the laboratory standpoint, using mainly the guinea-pig and the rabbit as keys to the solution. The application to human disease, caused by natural infection, of conclusions derived from a study of the artificially produced disease in animals may be a source of dangerous error. But other craftsmen are at work. Their countryman Opie and his collaborators are seeking the solution of much the same essential problem by another route—namely, that of clinical investigation. Their work has not yet been collected, but those who are familiar with it will realize how well it dovetails with these studies, and how the two strengthen and bear witness to each other's conclusions.

The temple of knowledge knows no bounds of land or race, and the published researches of Calmette in France, using bacteriological, post-mortem, and clinical material as a medium, will further underline the truth and enlarge the scope of what we read in this memorial volume. Master craftsmen all. But what of the onlooker, in this case neither idle nor ignorant, Kenneth Dows? In their introduction the authors pay tribute to the "simplicity and directness" of his character. Though no craftsman by training, the clearness of his vision showed him the simple but basic problems needing solution. His public spirit made the work possible. It would seem that by the simplicity and directness with which they have handled their task these men have paid him the highest tribute and built a memorial in which he would have taken pride.

[1] *Studies on Tuberculous Infection.* By Allen K. Krause, William Snow Miller, and Henry Stuart Willis. Baltimore: Assembled from reprints of papers published in the *American Review of Tuberculosis*, 1919-1926. 1929. (Sup. Roy. 8vo, pp. xiii + 591. Illustrated.)

NOISE.

THE problem of the prevention of unnecessary noise is a difficult one. The deputation from the British Medical Association which waited on the late Minister of Health on December 4th, 1928, got little out of Mr. Neville Chamberlain beyond an expression of sympathy, accompanied by some questions to which it is not easy to find definite answers. He wanted proofs of the injurious effects of noise in concrete cases, and asked for statistics, which, unfortunately, are not forthcoming. At the Annual Representative Meeting at Manchester the West Suffolk Branch, represented by Dr. Grace Griffith, moved to instruct the Council to take further steps, but the Council, after its experience with the late Minister of Health, did not see its way to further action at present, and the meeting decided to pass to the next business. The mischief of noise in modern life, especially in town-life, is notorious and admitted by all; but the concrete evidence demanded by Mr. Chamberlain is extremely hard to come by. It cannot be shown on the stage of a microscope or in a jar of spirit, nor can the effects of noise on the nervous system be satisfactorily separated from the many other noxious results of modern life. The police cannot lay hands upon a noise, however tremendous it be, so as to bring it before a magistrate for condemnation, until they are equipped with standardized recording instruments. Indeed, the question of definition of noxious noises and the distinction of harmful from harmless sounds is one of the fundamental difficulties of the whole matter. Many townspeople fondly believe that quiet and peace are inherent in agricultural surroundings, but we learn from Dr. Grace Griffith that a mechanical pig-feeder may disturb the calm of the fields and shatter the nerves of a susceptible patient. Despite all these difficulties, Dr. T. G. Nasmyth and his fellow members of the Edinburgh and Leith Division of the Association have not let the question sleep, but have agitated to such good effect that clauses making noise legally a nuisance, suggested by them, have found a place in a bill which

the Edinburgh Corporation is promoting in Parliament. The clauses referred to are the following:

"33. Any trade, business, or occupation carried on within the city in such a way as to cause unreasonable or unnecessary noise or noise which is capable of being prevented or mitigated and which is dangerous or injurious to health, shall be deemed to be a nuisance within the meaning of the Public Health Acts.

"34. (1) The corporation may from time to time make by-laws for the following purposes, or any of them, namely:

(*a*) For the prevention, removal, or mitigation of noise affecting injuriously, or calculated to affect injuriously, the health of the inhabitants of dwelling-houses or occupied apartments;

(*b*) For the prevention, removal, or mitigation of any nuisance or annoyance due to unreasonable or unnecessary noise or noise calculated to be dangerous or injurious to health; and

(*c*) For the reduction of preventable noise.

"(2) The provisions of Section 207 (provisions in regard to by-laws) of the Streets, Buildings, and Sewers Order of 1926 shall apply to all by-laws made under the provisions of this section."

It will be seen that these clauses do not specifically refer to traffic noises, and it seems doubtful whether such noises could be attacked as nuisances. It was probably for some such reason that Mr. Chamberlain suggested that the Minister of Transport was a fitter person than himself to deal with vehicular noise. Whatever the limitations of scope of the proposed clauses, we wish the Edinburgh Corporation success in pushing its bill through Parliament, and we heartily congratulate our Edinburgh colleagues on their public-spirited pioneer effort. It will be recalled that the Ministry of Transport took up the question and held a conference on the subject of traffic noises and priority of traffic at cross-roads, of which the report and proposed regulations were published on May 10th, and commented upon in our columns on June 22nd. The new Motor Cars (Excessive Noise) Regulations came into operation last week, and it is to be hoped that they will be duly enforced and will mitigate to some extent the noise nuisance, but there are considerable difficulties to be foreseen as long as "excessive noise" is not clearly defined. We may hope also that the circular issued on August 2nd by the Minister of Transport, appealing to motorists to refrain from using "exceptionally strident and disturbing" motor horns, will do something to abate the pandemonium of the roads.

SCIENCE AND EMPIRE MARKETING.

THE third annual report of the Empire Marketing Board, which reviews the twelve months ending May, 1929, was published by the Stationery Office on July 23rd, and deals with the three branches of its work—scientific research, economic investigation, and publicity. In no other department of the national life can the increasing importance of science be more clearly seen. The Board has taken many opportunities of financing scientific research, and a most informative section of the report is Appendix II, which contains details of the purposes for which grants have been made. The first two pages of the appendix cover a wide field, including grants to the University of Cambridge for biological and agricultural research, to the Imperial College of Tropical Agriculture in Trinidad, to the Amani Institute in Tanganyika (the research station established by the former German Government), and to a research station in tropical Australia. The grants are spread impartially over the Empire, and those who realize how research stations are the power houses of science will find even the bare record most stimulating. Co-ordinated and directed research is being applied to all the problems which come within the scope of the Board's activities over the world-wide field of Empire organization in a way to which the past supplies no parallel. Much attention has been given lately to research on the mineral content of pastures, with special reference to certain deficiencies in the soil and their effect on the growth and strength of live stock; results of great practical value have been obtained already in Scotland and in New Zealand. But the research is more widespread than that, and takes in the Rowett Research Institute at Aberdeen, the Australian Council for Scientific and Industrial Research, the New Zealand Government, the Government of Southern Rhodesia, the Falkland Islands, and Palestine. It is already obvious that these researches will have a great interest for all students of human nutrition; they link up with recent work on the influence of foodstuffs on the human body and resistance to disease. Investigations of metazoan immunity with reference to animal health are being continued at the Liverpool School of Tropical Medicine; tsetse-fly research is being conducted by the Government of Tanganyika, and entomological studies proceed in Great Britain, New Zealand, and Australia. Many of these lines of research are dealt with in special publications of the Board, and the only serious criticism we have to make of this annual report is that in dealing with many matters of great scientific interest in new fields it is almost too condensed in its statements. The excellent advertising of the Board with regard to Empire products has contributed to a great increase in their use, and it is at least worth while considering whether the "Romance of Empire science" is not as worth while advertising as the slogan "Eat more fruit." Since this report was in type a General Election has taken place and a Labour Government is now in power; it is already certain that colonial development is to have special attention, and it has become an accepted axiom that colonial development depends more on the scientific conquest of environment than on any mere expenditure of money. Furthermore, the new Government has already stated that it intends to maintain the Empire Marketing Board, which has the spending of the annual grant of £1,000,000. In comparison with the expenditure represented by the united budgets of Great Britain, the Dominions, India, and the Colonies, the sum of £1,000,000 is very small, and out of this only a fraction is spent on scientific research. But the existence of the Board enables what are in fact world economic scientific problems to be surveyed as a whole. The necessary research is then directed to making good the gaps in our knowledge, and the work required is carried out in whatever is the most suitable part of the world. In one aspect of its work the Board looks upon the Empire as an experimental laboratory, and it has at its disposal all climates and conditions. When we add to this that it has associated with its work some of the most eminent scientists of the day, we realize that science is more and more taking its true place as one of the main directing considerations in the framing of policy for the British Commonwealth of Nations, and because of the world-wide spread of this Commonwealth the solution by us of scientific problems benefits the whole of civilization.

"A TRIUMPH OF PREVENTIVE MEDICINE."

TO many of the public, as well as to many sanitarians, preventive medicine in the tropics spells Panama. In a sense this is right and proper, for the magnitude of the task undertaken by the Americans was matched by the thoroughness of their methods and the success which crowned their efforts. It is well, however, to remember that the work in Panama cannot be taken as a measure of what it is practicable to achieve elsewhere. The success gained by Gorgas and his successors, following the application of newly acquired knowledge, stands out in such dramatic contrast to the tragic experience of the French canal company, that admiration for the results has sometimes been blind to important circumstances without which the great work could never have been done. British colonial legislators have been known to reproach their

health officials for their failure to go and do likewise. Such should note the words of Colonel Chamberlain, the present chief health officer of the canal: "Endowed by treaty with absolute sanitary jurisdiction over a wide area, and provided with almost unlimited funds, the authorities from the United States in 1904 were in a position to cope effectively with the health situation on the Isthmus, a *situation which had theretofore defied control.*"[1] It should be recalled, too, that the area dealt with is a very small one compared with many of the tropical territories where mosquito-borne disease is still uncontrolled; that more than half of the present annual budget of one and a half million dollars for the health department comes from that department's earnings, and the remainder from appropriations by Congress, so that the cost of present maintenance does not, any more than did that of the original works, form a charge upon the inhabitants of the area. The cost of "strictly antimosquito work" (exclusive of screening) for the last ten years has averaged about 100,000 dollars per annum, while a further 50,000 dollars is spent on the same work from military funds. The entire population benefiting from this expenditure is about 130,000. The work has now reached a point where the principal problems of the public health are no longer distinctively tropical. It may be doubted, however, whether Colonel Chamberlain is justified in interpreting the results as "one of the strongest links in the growing chain of evidence which supports the recently evolved theorem that the white man can prosper in the tropics." The recently evolved theorem would have us believe that the white man can populate the tropics permanently and healthfully, and without the aid of coloured labour. To establish this will require evidence of a different sort from the striking demonstration of disease control which the Panama sanitarians have furnished. The three anopheles noted by Chamberlain as important malaria carriers are *albimanus, tarsimaculatus,* and *bachmanni,* with *eransi* as a probable carrier. One of the puzzling problems of malaria appears in the apparent innocence of *Anopheles argyrotarsis* in Panama while it is an important carrier elsewhere. The gradual progress of the Panama work from the pioneer, almost makeshift, methods of early days to the permanent measures now being extended over wider and wider areas makes fascinating reading and commands the admiration of the world.

THE LAW AND MEDICAL PRACTICE.

MEDICAL practitioners, dentists, and veterinary surgeons alike, to say nothing of the lawyers, will be grateful to Dr. Fred Bullock for his essay entitled *The Law Relating to Medical, Dental, and Veterinary Practice.*[2] It will be found to be meticulous in its accuracy, explicit in its references, and, unlike most such books, really interesting in its arrangement and exposition. The chapters which enunciate and explain the present state of the law relating to professional discipline, unqualified practice, the recovery of fees, and negligence, in so far as these concern medical, dental, and veterinary practice, are led up to by a brief but sufficient historical sketch explaining the origin and the development of the law in question, and showing the struggles of the apothecaries, the surgeons, and the physicians to differentiate themselves from the unqualified practitioners, and their feuds with each other. This part of the volume is not only of much interest in itself, but is essential to the proper understanding of the present state of affairs—to an appreciation of the limitations of the Acts under which the professions are carrying on their work and of many of the difficult problems which still confront them. Towards the end of the volume the questions of medical secrecy and of lunacy certification are dealt with, and some notable and valuable suggestions are made for the practical solution of some of the important points involved. In these and similar matters the author seems *fully to appreciate the position of the professions.* For instance, "That the prohibition of advertising is desirable cannot be gainsaid, for it is clearly in the public interest that the doctor shall be allowed to have not that reputation which can be made by self-advertisement, but that alone which comes from the care and skill he shows in the exercise of his art. . . . The sale of secret remedies can flourish only on the view that every member of the public is competent to diagnose his own complaint and to select an appropriate remedy, and no trained practitioner should subscribe to such an erroneous assumption. . . . Though advertising is a virtue in commerce, it is a vice in a professional man." The essential difference between the employment or covering of unqualified assistants or persons *and the employment of expert lay assistance to carry out* special treatment under the direction of a qualified practitioner is noted; and even the recent arrangement of the Society of Apothecaries, at the instance of the British Medical Association, for the examination and registration of such assistants in the sphere of electro-therapeutics is described. Here and there in the volume there appears a sort of wonder that, in spite of the absence of professional demand, public opinion has not insisted upon the prohibition of unqualified practice. Of course, this is forbidden in the field of dentistry, and the author points out the less fully appreciated fact that the same is true of the treatment of venereal disease. "Since persons lacking a medical education cannot possibly acquire the essential knowledge and skill by any means other than experiment, with its concomitants of unnecessary suffering and danger to the patient, we might well ask why the law continues to allow them to practise. If unqualified practice in medicine were prohibited the hardship inflicted on any class of persons would certainly be a lesser evil than the continuance of the present dangerous laxity. Can there be any reason in the public interest why unqualified persons should be allowed to treat diseases such as cancer, consumption, epilepsy, locomotor ataxy, paralysis? Is cancer more easily curable than venereal disease? Is paralysis less important than an aching tooth? It is clear, at all events, that the present state of the law cannot be regarded as final." After a different fashion, and with a different purpose from that of Dr. Bullock, Lord Riddell discusses certain *Medico-Legal Problems*[3] in four papers he has read before the Medico-Legal Society. They are concerned with "The surgeon's responsibility," "Abortion," Medical confidences," and "The sterilization of the unfit." In this small book we have the views of one who formerly practised as a solicitor, and who in many ways has shown himself interested in the work and the well-being of our profession, and anxious in a very practical fashion to further its efforts for the public good. Here and there, especially in the last essay, the doctor with specialist knowledge will note the failure of the non-expert to appreciate fully some vital factors, but throughout there is a clear posing of the problems to be considered, together with a shrewdness of opinion and of judgement, which are valuable contributions towards their solution. An addendum to the paper on "Medical confidences," referring to the Public Health V.D. Regulations, contains the following sentence: "If the regulations were *intra vires* it might well be contended that statutory secrecy had been established." It is curious, therefore, that there should be no

[1] *Twenty-five Years of American Medical Activity on the Isthmus of Panama, 1904–1929. A Triumph of Preventive Medicine.* By Weston P. Chamberlain, Colonel, Medical Corps, U.S. Army, Chief Medical Officer, Panama Canal. Copies may be had from the Panama Health Department, Balboa Heights, Canal Zone.

[2] *The Law Relating to Medical, Dental, and Veterinary Practice.* By Fred Bullock, LL.D. London: Baillière, Tindall and Cox. 1929. (12s. 6d. net).

[3] *Medico-Legal Problems.* By Lord Riddell. London: H. K. Lewis and Co., Ltd. 1929. (5s. net.)

reference to the very important anonymous case (duly recorded in Dr. Bullock's book) in which, in July, 1927, Mr. Justice McCardie said: "Doctors are not in a privileged position because they are acting in a department under control of the Minister of Health through the local health committees. Nothing in the regulations saves a doctor from disclosing, if ordered by the Court, all the information he might have of the facts he has gained while acting under the regulations." While we are unable to endorse fully the claims made for sterilization in Lord Riddell's last chapter, the plea, as he states it, may well be regarded as a reinforcement of the suggestion now being made for an inquiry by Royal Commission, or some similar method, into the whole subject of the causation and prevention of mental deficiency.

"THE HOWARD JOURNAL."

THE official organ of the Howard League for Penal Reform is *The Howard Journal*, which is described as a review of modern methods for the prevention and treatment of crime and juvenile delinquency, and is said to be the only periodical publication devoted to the scientific treatment of crime. It is published half-yearly, and the current number, dated June, 1929, should be both interesting and valuable to the increasing number of persons who are concerned with the sphere of social effort indicated—magistrates, prison officials, medical men and women, psychologists and teachers, and other social workers. It is of some interest to note that among the contributors are Dr. R. G. Gordon and Mr. Charles Duff, whose remarkable little books—*Autolycus, or the Future of Miscreant Youth* by the former, and *A Handbook of Hanging* by the latter—were recently reviewed in these columns. Other items include a particularly informative series of reviews, an account of current and recent activities of the Howard League both at home and in the Colonies, and comments on such documents as the reports of the Prison Commissioners, of the Children's Branch of the Home Office, of the Street Offences Committee, and of the Royal Commission on Police Powers and Procedure. There is an account of the Federal Industrial Institution established by an Act of Congress in 1924 at Alderson, West Virginia, which, with its accompanying illustrations, seems almost to indicate that it is highly desirable for many persons to qualify to become inmates. It has a capacity for 500 women over 18 years of age whose "offences thus far have been mainly violations of the Harrison Narcotic Act, the Prohibition Act, the Postal Act, as well as all kinds of crimes in the district of Columbia." It would have been interesting for English readers to have had a more exact indication of the status of this institution and the field which it is intended to cover. Perhaps the two most important articles, however, are one which describes the activities of "The psychological clinic," by Dr. Cyril Burt, and one by Dr. J. Hall Morton, the governor and medical officer of Holloway prison, entitled "Alcoholics in prison." The former of these articles is timely in view of the establishment of a child guidance clinic in Islington under the auspices of the Child Guidance Council and the London County Council, with the approval of the Board of Education. To see clinics of this character in full working order we must go to America, where for more than ten years they have been developing under a great variety of circumstances, and doing valuable experimental work by means of the Commonwealth Fund, established in 1918 "for the welfare of mankind" by Mrs. Stephen V. Harkness. This fund has lately provided the necessary financial support for an extension of the movement in this country, and for the establishment of the clinic just mentioned. Dr. Cyril Burt's article affords a clear indication of the methods and objects of such a clinic, as also does a small pamphlet just issued by the Child Guidance Council from 24, Buckingham Palace Road, S.W.1. Dr. Morton's article is illuminating on certain aspects of alcoholism in women, and may well lead to further and better directed efforts for its prevention and control.

SANATORIUM TREATMENT IN SWITZERLAND.

THE Queen Alexandra Sanatorium Fund owes its origin to the late Lord Balfour of Burleigh, by whose exertions the Queen Alexandra Sanatorium was built at Davos for British consumptive patients of small means some years before the war. Subsequently the great increase in costs of all kinds made it impossible to reopen the sanatorium at at a fee within the reach of the class of patient for whom it had been intended, and the council was faced with the alternatives either of altering the whole character of the institution, or of selling the building and devoting the proceeds to helping patients of small means to get treatment in an Alpine climate in some other manner. It decided on the latter course, and details of the new arrangement were published in the *British Medical Journal* (1922, vol. ii, p. 698, and 1924, vol. ii, p. 480). For several years the income of the fund has been devoted to making grants to selected cases staying at Davos during the winter months. The cases to be helped are chosen on the results of medical examination by honorary examining physicians to the fund at various centres throughout Great Britain, and of inquiry into their means. The grants are made for about six months, at the rate of £2 a week, and are conditional on the assisted patient staying at an approved sanatorium or pension at Davos; unless there is a resident medical practitioner at the sanatorium the patient must place himself under the care of one of the visiting physicians to the fund at Davos. In the annual report of the fund for 1928–29 it is stated that last winter fifty-three patients were helped. The average cost per week of a careful patient in the cheaper establishments at Davos is estimated to be not less than £5 per week, which means that in addition to the grant from the fund the patient will have to spend about £3 a week. The ordinary income of the fund is about £2,000 a year, and has recently been augmented by the amalgamation with it of the St. Moritz Aid Fund, a similar though smaller organization formerly operating at St. Moritz. Application forms are issued on request by the local secretary, Mr. W. G. Lockett, The British Consulate, Davos Platz, Switzerland, in September. Advanced cases are not eligible.

KING FUAD AT THE ROYAL COLLEGE OF SURGEONS.

THE King of Egypt paid a visit, on August 1st, to the Royal College of Surgeons of England, and was made an Honorary Fellow of the College. Lord Moynihan, the President, on presenting the diploma to King Fuad, referred to the close connexion of the Royal College of Surgeons with the Egyptian School of Medicine. Fellows and members of the College had been teachers in the School, and until recently the post of dean had been held by an English Fellow of the College. Dr. Aly Ibrahim, the present dean, had recently been made an Honorary Fellow, and within recent years nine Egyptians, trained in the School at Cairo, had become F.R.C.S.Eng. by examination. The President also referred to the great personal interest His Majesty took in the faculty of medicine at Cairo and the Kasr-el-Aini Hospital, for the new building of which he lately laid the foundation stone. King Fuad, having signed the Roll of Honorary Fellows, inspected the museum and other parts of the building.

THE Royal College of Physicians of London will be closed for the summer vacation from August 12th to September 14th, both days inclusive.

THE HEALTH OF LONDON.

REPORT FOR 1928.

THE report of the county medical officer of health and school medical officer, Dr. F. N. Kay Menzies, records the progress of public health in London during 1928.

Births and Deaths.

The population of the County of London in the middle of 1928 is estimated at 4,469,000 (including 10,800 non-civilians), a decrease of about 80,000 since last year. The births were 72,352, equivalent to a birth rate of 16.2 per 1,000, as against 16.1 in 1927; in the last quarter of 1928 the births fell below the lowest number recorded for this quarter in 1918, when the effects of the war were at its maximum. The deaths were 53,695, giving a death rate of 12.1 per 1,000, the same as that of 1927. Measles was epidemic in the year, causing 1,358 deaths, as against 181 in the preceding year; the weather conditions were not so favourable to infant life as in 1927, and the deaths under 1 year per 1,000 births increased to 67, as against 59 in the preceding year; this latter rate, however, was the lowest recorded in London.

Small-pox.

A fascinating and illuminating account is given of the origin and travel of small-pox in London and the Home Counties. *Small-pox was brought to the South of England in December, 1927, by a man who had tramped from Lincolnshire to the East Preston casual ward, near Worthing.* The nature of his illness was not recognized until secondary cases occurred a fortnight later; by this time large numbers of vagrants in the casual ward had been infected, had left the institution, and were scattering the disease over the adjoining counties. During January, 1928, cases were reported in the casual wards at Guildford, Isleworth, Barnet, Edmonton, and Ware. The source of infection of the first two cases in London could not be traced; the third case was infected in the Southwark Hospital by a vagrant admitted from a Salvation Army shelter, who was first thought to be suffering from influenza and then from chicken-pox. Eight direct contacts acquired the disease, and one of these, a cleaner in the hospital, gave rise to four other cases in her family. In February a man was found in the initial stage of small-pox in the Metropolitan Asylums Board Hostel in Holborn: no spread developed from this source. The infection was traced to the Holborn and Finsbury Hospital, Islington; prompt and vigorous measures reduced the outbreak to five cases. In March a visitor from Middlesex probably introduced the infection into the Springfield Mental Hospital in Wandsworth: 12 cases occurred, including that of a female nurse. The disease spread to the general population of the borough and, lasting till July, caused 76 other cases. No original source of infection was discovered for cases appearing in Poplar in April, or for the 9 cases in Lambeth Hospital in April and May, nor for the 29 cases arising in the St. Marylebone workhouse in June. Associated with the outbreak in Wandsworth were a few cases in South Lambeth in June and July, but the main outbreak in Lambeth was traced to a schoolgirl who visited her mother, an in-patient at St. Thomas's Hospital. As the result of these visits there was a series of "missed" cases in the neighbourhood of the hospital, and in September the infection was taken to the hopfields by one of these. On their return to London hop-pickers who had been infected spread the disease in Poplar and North Lambeth. Poplar had 68 cases in all in the year and Lambeth 53; cases in other boroughs brought the total for London up to 285. In October the outbreak, still present in West Ham, was started by the occurrence of an unrecognized attack in the proprietress of a dressmaker's establishment; up to May, 1929, some 500 cases have been reported. This outbreak on the eastern border of London constitutes a menace to the county, as many of the patients and their contacts are employed in or visit London daily. (The last available return shows that small-pox is present in Bethnal Green, Islington, Poplar, St. Pancras, and Stepney.)

How long it will take to clear small-pox out of London is a matter for conjecture, and depends largely on the response to appeals to the unprotected to be vaccinated.

Diphtheria.

The notified cases of diphtheria numbered 12,155; death occurred in 399, the case mortality being 3.3 per cent. In spite of improved sanitary conditions, better housing, more efficient medical supervision of children in the school and home, earlier diagnosis, earlier treatment and admission of cases to hospital, diphtheria in London has shown no diminution in incidence and mortality during the past few years. The average number of cases yearly between 1903 and 1919 was about 7,850, and the number of deaths 633; in the period 1920-28 the average number of cases was 12,960 and of deaths 703. There has been a tendency for the disease to become established in certain localities in London, and for it to develop exacerbations of virulence from time to time. The increasing number of children actively immunized against diphtheria is all to the good, but the present amount of dilution of the total child population by so small a number can exert but little effect upon the incidence of diphtheria as a whole; every effort must be made to prevent the transfer of infection from patients and "carriers" to the uninfected. Many carriers soon cease to harbour the bacilli, but others remain capable of spreading infection for long periods; for this some abnormality of the nose or throat is responsible. Arrangements have been made for dealing with such children at the special clinics at Guy's, London, and St. Mary's Hospitals. As a routine the children are given a polyvalent vaccine composed of twelve virulent strains of diphtheria bacilli isolated from carriers; usually four injections are given, at weekly intervals, of doses containing 5, 10, 15, and 20 million dead bacilli. When the condition has been found to be due to the presence of bacilli deep down at the base of the tonsillar crypts, tonsillectomy and the removal of adenoids, if present, have been found sufficient to remove the infection. The condition more frequently found—namely, that of children harbouring the bacilli either in the nose alone or in the nose and the throat or the ear—is more difficult to treat. With the use of nasal douches, and the satisfactory remedying when possible of any nasal abnormality present, the bacilli disappear, not only from the nose, but from other parts which have been infected from this source.

The Control of Measles.

The deaths from measles totalled 1,358, the highest number since 1922. All measures hitherto tried for the prevention of measles have proved valueless; in practice, school or class closure is not resorted to until the outbreak has become well established, and by that time all the susceptibles have already been exposed to infection. There has always been difficulty in obtaining sufficiently early knowledge of the first cases; the policy of excluding unprotected children from class-rooms for selected periods on receiving information of the first cases of measles has proved as ineffective as school or class closure. Owing to the fact that the first case in a family may be in a child not yet in attendance at school, exchange of information with the medical officers of health of the metropolitan boroughs was arranged in 1921. During the past three epidemics efforts have been concentrated upon the schools situated in overcrowded and insanitary areas; the school nurses visit daily to find cases and report any suspicious absentees, who are followed up by the school attendance staff. Any cases of measles thus disclosed are reported to the borough medical officer of health. In Wandsworth time was saved by the school nurses passing on the information direct to the health visitors, who visited the suspicious absentees; the number of deaths from measles was less than during previous epidemics. In addition, when measles breaks out in a school, leaflets are distributed by the borough medical officers through the school organization, advising the parents if their children suffer from a "cold" to isolate them and seek medical advice.

Tuberculosis.

The artificial light treatment made available was very little used by the tuberculosis officers; where used no evidence was forthcoming of benefit derived by the patients from this form of treatment. Dr. Menzies considers that the best results are only obtained when light treatment is given as an additional method of treatment, under suitable conditions, in residential institutions in the country, where all methods of treatment are available, in addition to fresh air, good food, and a regular regime.

There is much evidence that the help and advice given at the right moment by the Tuberculosis Care Committee enables the patients to re-establish themselves in life after residential treatment. Handicraft classes for dispensary patients unfit for ordinary employment have proved of considerable value: they have improved the morale of the patients long unaccustomed to work; the rekindling of the work habit has ultimately led to the patients' obtaining permanent employment. Incidentally, the patients appreciate the opportunity of obtaining pocket-money by the sale of the articles made.

The Metropolitan Asylums Board has adopted a scheme which provides for the training of selected patients; nine posts for nurses and nine for domestic servants are to be reserved for satisfactory trainees. The Invalid Children's Aid Association has co-operated in the scheme for boarding-out children living in contact with cases of advanced pulmonary tuberculosis; in a few cases also, where it was not possible to make other arrangements, children have been provided for in order to enable their mothers to accept institutional treatment. During the year 149 children were dealt with in this way.

Venereal Disease.

The number of new patients with venereal disease dealt with by the hospitals under the London and Home Counties scheme during 1928 was 16,401, of whom 5,270 were suffering with syphilis, 10,896 with gonorrhoea, and 235 with soft chancre. Dr. Menzies reports that the need for improving conditions likely to cause patients to discontinue attendance at venereal disease clinics continues to receive careful attention. A very large number of non-venereal patients presented themselves for examination, indicating that the public are becoming more and more aware of the serious nature and grave after-effects of the venereal diseases. There is a gradual advance in the number of attendances made by the new V.D. cases—46 in 1928, as compared with 40 in 1927, and 38 in 1926. The number of pathological examinations made for private practitioners is increasing; 459 medical practitioners are now entitled to free supplies of the approved arsenobenzol preparations for the treatment of their private patients.

Experience has shown the value of the provision of accommodation in hostels where young women and children under treatment could be lodged during the period of infectivity; 235 patients were dealt with in this way. In order to maintain treatment and observation, in 1928 arrangements were made for transfer of such patients, when no longer infectious, to certain rescue homes providing vocational training in domestic and other work.

Milk.

The biological examinations which could be completed showed that of 1,605 samples of milk, 143, or 8.9 per cent., contained tubercle bacilli; in 1927 the corresponding figure was 7.8 per cent. Much of the milk sent to London is bulked at the depot in the country before dispatch; this mixing of the milk has always made the tracing of tuberculous milk to its source difficult, and the position has become even more difficult since the recently introduced use of glass-lined containers, which may hold as much as 3,000 gallons, derived from a few 200 farms. Obviously the introduction of a single infected milk into the tank may infect the whole of the milk in the tank—whether the dilution of the tubercle bacilli so brought about is a compensating advantage or not cannot at present be decided. A large number (397) of the guinea-pigs injected with the milk died of an acute intercurrent infection by some organism other than tubercle. In the past year increased evidence has been obtained as to the frequent association of the death of the guinea-pig with unhygienic conditions at the farm; consequently the practice has been continued of informing the county medical officers of health concerned of such occurrences. On examination, milk produced in London was found to provide slightly less (0.9 per cent.) tuberculous samples than imported milk; there was, however, a marked difference (11.4 per cent.) in the percentage of guinea-pigs succumbing to an acute intercurrent infection; the many opportunities of contamination during transport, in wholesale and retail storage, and in final distribution, is undoubtedly a factor adverse to the cleanliness of milk of distant origin.

Rheumatism in Children.

The preponderance of rheumatic infection in producing chronic invalidity becomes more marked each year; heart disease, rheumatism, and chorea accounted for 31 per cent. of the children who had been three months out of school on account of illness. In addition to the rheumatic supervisory centres at voluntary hospitals, two directly administrative supervisory centres have been established in Wandsworth, and there has been a further extension of beds placed at the council's disposal for rheumatic children by the Metropolitan Asylums Board. The nominations for these beds, however, are far in excess of the accommodation, and those not so provided for are referred to the Invalid Children's Aid Association, who report on the children and arrange for the treatment of many of them. The supervisory centres are especially useful in supplementing the routine examination of the children in schools: they afford an opportunity for a more extended examination and review of the indefinite symptoms and signs that are the features of early rheumatism, and avoid the harm done by labelling merely delicate children as rheumatic. They also serve as a "clearing house" for shepherding the rheumatic child into the channels that fit his particular condition. Of 305 homes visited in connexion with the Great Ormond Street clinic, 111 were reported damp and 81 as ill-lighted.

Maternal Mortality.

The report includes a discussion of the fertility of married women in connexion with the maternal mortality rate; evidence is produced that deaths from accidents of childbirth in London tend to increase as the birth rate falls. The mortality from puerperal fever has been excluded from consideration in this connexion owing to acceptance of Longstaff's observation (for which further evidence is given) that the mortality from puerperal fever is subject to periodical fluctuations closely related to the mortality from erysipelas and in a less degree from scarlet fever. A comparison of maternal mortality in a group of boroughs consisting mainly of better-to-do residents with a group of poorer boroughs shows that the dominating factor in maternal mortality is not social condition *per se*, but the fertility of the women compared. In 1909 it was shown that where allowance is made for the difference in the ages of the married women the fertility of a group of metropolitan boroughs with a poorer class population is about one and a half times that of a group of the boroughs having the highest proportion of well-to-do residents. Pronounced changes in the fertility rate have masked the effects of the ever-widening scope of administrative effort to improve the conditions of childbirth. From a consideration of the maternal mortality from all causes in England and Wales during the period 1911-21, the conclusion is reached that the maternal risk in childbirth is lowest at the ages under 25 years, and increases rapidly with age after the thirtieth year. At the age period 15-20 there is a high post-natal mortality due to the far greater risk of death from convulsions and puerperal albuminuria at this age, especially in primiparae; the lower death rates from pre-natal and natal causes, however, make the total death rate exactly equal to that of the age period 20-25. London figures relating to the case mortality from puerperal fever according to the age of the mother during 1911-14 show clearly the increase of mortality with age. The same result is reached by a comparison of parity and puerperal fever; other figures given also show a lower case mortality among primiparae. It would seem, therefore, that resistance to the infective process (presumably greater at younger ages) rather than the severity of the confinement is the predominant factor in the occurrence of puerperal fever. The hypothesis that the doctor is a carrier of puerperal infection receives no support: in those metropolitan boroughs where obviously the greater proportion of the births have been delivered by doctors or medical students the puerperal fever mortality is lower than in a group of boroughs where midwives' cases are in a majority. The section relating to maternal mortality, probably the most valuable original contribution to public health contained in the report, should be studied in its entirety.

Flat Feet in School Children.

Special attention has been paid to the condition of the feet of the children by several school doctors, following on the observation by an orthopaedic surgeon of the number of boys attending for treatment at hospital for painful flat-foot within a year after leaving school and going to work.

Some of the children, varying from 3 to 12 per cent. of those specially examined, were found to present various degrees of flattening of the arch of the foot when in repose, but it is pointed out that it is by no means certain that these children will be ones who fail later in industry owing to

the development of acute flat-foot causing pain and disability. The children who present themselves for licensing as stage dancers are found to have feet which in repose are flat, but they are perfectly mobile; the children possess well-developed calf muscles, and on springing into activity the feet become well arched. The worst symptoms of flat-foot occur in the high-arched, thick-set or sturdy foot, which offers painful resistance to distortion of its joints. To anticipate and prevent the development of flat feet in adolescence the physical exercises given in schools must be directed towards increasing foot mobility and muscular development, and should be carried out in flexible shoes or, better still, without any footgear.

Hop-pickers.

A report on the examination of 1,510 children before and after going hopping showed that, in somewhat over half, their health benefited; in about 4 per cent. deterioration of health had occurred. The weather was exceptionally favourable last year; *the short hopping season of fifteen days* was bright and sunny throughout, and the dangers to health were less than usual. Pneumonia was less frequent, and so were burns and scalds owing to the lessened need for fires for drying clothes, and the increased possibility and practice of outdoor cooking. At least forty medical dispensaries and branch dispensaries were available. At the Hop-pickers' Hospital at Marden, among 646 children treated there were 11 cases of conjunctivitis and "hop-eye" and 13 of dermatitis and "hop-rash." "Hop-eye" and "hop-rash" occur chiefly among women and children; they are probably the result of protein sensitiveness. Shortly after the eyes have been rubbed with fingers, dirty from hop-picking, they begin to smart. A conjunctivitis or considerable oedema of the eyelids, with or without conjunctivitis, is seen; the trouble rapidly yields to treatment. In "hop-rash," within a few hours an intensive papular erythema appears, which, if not treated, goes on to pustulation; general constitutional disturbance may occur, the patient complaining chiefly of extreme drowsiness. Thirty cases of enteritis were treated; the cause was either unsuitable food or food actually unfit for consumption, and the disease was sometimes traceable to unripe fruit, especially apples and hedgerow fruit. Some of this illness might be avoided if definite instruction on the subject were given in the schools before hop-picking began. Although improvement has taken place in the hop gardens during recent years, the conditions under which the hoppers live are still often unsatisfactory. Most of the huts have no windows; in some areas there is no supervision as to the numbers sleeping in the huts, and consequent overcrowding. In many instances the latrine accommodation is insufficient and often filthy, causing reluctance to use them and consequent constipation; the water supply is very unequal, many encampments having to rely on streams and ponds, in some cases half a mile away. The dangers of burns and fire are very real. The hutments are often of wood, and the bedding is loose straw on the floor; some of the hop-pickers use oil stoves inside their huts. Three children were burnt to death in a hop-picker's hut owing to the straw being set alight by a naked candle. Reference is made to a conference at the Royal Sanitary Institute in April, 1928, when the county medical officer for Kent, Dr. A. Greenwood, pointed out that there was ample machinery for securing satisfactory conditions, but the rural district councils tended to show leniency in the administration of the by-laws. He suggested compulsory registration of encampments and annual licensing, the licences only to be granted if the provision made before occupation satisfied the district council concerned. In the hopping season probably 100,000 workers migrate into the Kent hop gardens. The bringing together in crowded encampments of families derived from many of the poorer districts of London gives special opportunity for the spread of infectious disease and, as a consequence, the return of the hop-pickers to London is the signal for the outbreak of infection in new centres. In 1928 an outbreak of small-pox among the hop-pickers was followed by the appearance of the disease in London schools hitherto free, the first cases being the children who had been away hopping.

Sanitary Administration.

In other sections of the report are items of much interest. The promotion of legislation prohibiting the use of underground rooms as living rooms is being considered. The council intimated its dissatisfaction to keepers of common lodging houses at the increased number (125) of children found in them on the occasion of the census of homeless persons in February; on an emergency children under 14 might be admitted for one night in the ordinary type of common lodging house; even at houses with approved accommodation for children they should not be kept there for an indefinite period.

Chlorination of the water in the outdoor swimming baths in the council's parks has effected some improvement, but the use of filters improves its appearance and purity.

A survey of the public sanitary conveniences for men and women within the county was made. Although the standard of excellence in sanitary attainment in London has nowhere been surpassed, the influx of women into the metropolis of late years calls for more provision for women. A cleaner and purer lower part of the Thames is foreshadowed; a unit of plant has been installed at the Northern Outfall capable of treating from 5 to 10 millions a day of the effluent from the sedimentation tanks with activated sludge.

Scotland.

Retirement of Sir Donald MacAlister.

THE announcement that Sir Donald MacAlister, Bt., M.D., had decided to retire from the positions of Principal and Vice-Chancellor of Glasgow University was briefly mentioned in the *British Medical Journal* of August 3rd (p. 228). The Principal is one of the most distinguished Scotsmen of the time, and has been honoured by many of the important universities of the world. His academic career is an unbroken record of brilliant achievement. He was born at Perth in 1854, and is the son of the late Mr. Donald MacAlister, formerly of Tarbert, Loch Fyne, Argyllshire. Having received his early education at Aberdeen, he went to Liverpool before entering St. John's College, Cambridge, and in those early days were developed gifts of mind and character which were to carry him to eminence. Senior Wrangler and First Smith's Prizeman at Cambridge, he was elected a Fellow of his College, and afterwards became tutor and director of medical studies there. Later he was Lecturer in Natural Philosophy at St. Bartholomew's Hospital, London, and in 1899 he became Thomson Lecturer at Aberdeen. For many years he represented Cambridge on the General Medical Council, and in 1905 he succeeded Sir William Turner of Edinburgh in the presidency of that body. His appointment to the Principalship of Glasgow University in 1907 broke the line of divinity principals. He succeeded the Very Rev. Principal Story. Combined with his eminence in arts and science, and his deep and varied scholarship, Sir Donald MacAlister has great business aptitude and capacity for organization. His tenure of high office at Gilmorehill will be memorable, probably historic. He saw the foundation of many new chairs and lectureships, among them being the chairs of obstetrics and gynaecology, surgery, medicine, and pathology, at Glasgow Royal Infirmary; and at the University the chairs of Scottish history and literature, French, German, bacteriology, organic chemistry, mercantile law, and applied physics. Sir Donald MacAlister has a long list of publications to his name, including a translation of *Ziegler's Pathological Anatomy*. A master of tongues, he speaks no fewer than fourteen languages with fluency. The appointment of a successor to the Principalship will be made by the Crown authorities.

Neglect of Pharmacology.

In view of the presidential address delivered on July 24th at Capetown by Professor W. E. Dixon before the Section of Physiology, British Association, of which a full abstract appeared in the *British Medical Journal* of July 27th (p. 138) and which was commented upon in a leading article in the same issue (p. 151), an address by Professor A. J. Clark, of the department of pharmacology, University of Edinburgh, to the Edinburgh Rotary Club on July 18th, is of interest. Professor Clark, after tracing the growth of synthetically produced drugs, said that about thirty years ago the "nihilist" idea was dominant. People said that drugs were things of the past, but that was just the end of a period, when the sciences of physiology and bacteriology had reached their full development, and the science

of pharmacology had not yet started. The importance of pharmacology to-day was best seen by the number of new drugs which had been discovered in the last twenty years. The revolution which had occurred in connexion with tropical diseases was most significant. The real value of the drugs could hardly be overestimated; they were factors in the development of tropical countries. A large number of drugs of high therapeutic utility had also been discovered. But whereas in physiology Britain had very much led the world, in pure pharmacology they could not claim anything like such success. Unhappily, in the discovery of new drugs Britain had definitely lagged behind. The reason was that the production of those drugs required very big organized laboratories. That kind of team work existed in Germany, and had been very largely fostered by the great German chemical firms, but it did not exist in this country, and the result had been that they had not really taken their share in that particular line of investigation, which there was every reason to suppose would be even more important in the future than in the past.

Death Certification in Scotland.

The Registrar-General for Scotland has issued a leaflet intimating to medical practitioners that an alteration of the statutory form of medical certificate of cause of death has been approved by an Order in Council dated June 8th, 1929, and that the new form of certificate supersedes that now in use and should in future be used for all deaths in Scotland. The change consists in the insertion of a panel at the bottom of the schedule stating that in future, when certifying the cause of death of a married woman, if the certifier is aware that the deceased was either pregnant at the time of death or was pregnant four weeks previous to death, it will be his statutory duty to enter the word "Yes" in the appropriate place on the certificate. This requirement will not apply when certifying the death of an unmarried woman or widow. Negative answers are not required. Whenever pregnancy, parturition, or miscarriage has been in any way a contributory cause of death, the fact should be mentioned in the main portion of the certificate, regardless of whether the special pregnancy question has been answered or not. For instance, a death from puerperal eclampsia or puerperal septicaemia or postpartum haemorrhage should be so described, and not merely described as "eclampsia," or "septicaemia," or "haemorrhage." The additional information now required will not be inserted by registrars in the death register books, and will not appear in extracts or certificates issued by registrars. It will be conveyed to the medical officer of health for use for public health purposes, more particularly in connexion with a special study of maternity mortality. Medical practitioners should at once obtain supplies of the new form of certificates from their local registrars, and stocks of unused old forms should be destroyed. If any practitioner has difficulty in obtaining a supply of the new forms he should communicate with the Registrar-General, Dr. J. C. Dunlop, New Register House, Edinburgh.

Perth Doctor Honoured.

In recognition of the many public services rendered by him to the city and county generally, and in particular to the Hillside Homes, which were in a large measure brought into being in 1876 through the efforts of his father, Dr. Robert Stirling was, on July 24th, presented with his portrait in oils and a cheque from upwards of 600 subscribers in Perthshire. The ceremony, which took place in the Station Hotel, was attended by a large and representative gathering. Mr. David Martin of Keithbyhead, Auchterarder, convener of the committee in charge of the arrangements, occupied the chair in the absence of the Earl of Moray, and the portrait, which was the work of Mr. Fiddes Watt, R.S.A., was presented by Mr. F. Norie-Miller, J.P., of Cleeve. In the course of his reply, Dr. Stirling recalled in a most interesting way the changes in medical thought and practice which had taken place in the course of his professional life, referring in particular to bacteriological, radiological, and public health developments. He thought that in the future the State would have to subsidize the voluntary hospitals, but hoped that in the extension of State and municipal control the poor practitioner would not be left altogether out in the cold. He concluded by affirming his affection for Perth and Perthshire, and said that it had always been his endeavour to advance the fair name of his native city.

Visit of Continental Doctors to Edinburgh.

On August 1st the Lord Provost, magistrates, and town council of Edinburgh entertained about 320 members of a party of Continental tourists at a garden party in the grounds of Lauriston Castle. The guests were composed of doctors, medical students, and their relatives, together with a small number of tourists not attached to the medical profession, and were completing a holiday cruise under the auspices of the *Bruxelles-Médical*. The majority were Belgian and French, but the party included also Swiss, Italian, Spanish, Rumanian, Czechoslovakian, Dutch, and Egyptian members. Leith was their last port of call before returning to Bordeaux, and they had already visited Norway, the Faroe Islands, and Shetland. Lord Provost Sir Alexander Stevenson extended a welcome to the guests, which was acknowledged by Professor Ley of Brussels University. During the afternoon the Edinburgh City Police Pipe Band played selections on the lawn, and this part of the programme excited much interest and enthusiasm. During the course of the day a number of the medical men in the party visited Edinburgh Royal Infirmary. A visit was also paid to the Scottish National War Memorial, where a wreath was laid, and to the Palace of Holyroodhouse.

Ireland.

Health Services in the Irish Free State.

CONSIDERABLE progress has been made with the appointment of medical officers of health in the Irish Free State. Dr. Stephenson, chief medical officer of the Department of Local Government and Public Health, stated recently that in addition to the six counties which have county medical officers already installed, advertisements have been issued for such officers for Donegal and Meath. The Local Appointments Commission, he said, are also being asked to recommend suitable persons for the position in the counties of Limerick, Monaghan, and Wicklow. The question has been under consideration in Galway, Kerry, Roscommon, Leitrim, and Wexford, where appointments will also be made shortly, and it is being raised in Leix, Waterford, and other counties. The appointment of a county medical officer of health in every county is now a matter of urgency, as, in addition to epidemiological and the other public health problems that have been urged from time to time, it is felt that the successful administration of the Milk and Dairies Bill, which will be shortly introduced, and the efficient supervision of the meat supplies, can best be achieved by a whole-time trained sanitarian. When the arrangements now pending are completed more than half the State will have been organized, and it is expected that the example set by these counties will hasten the adoption of schemes by the others. Dr. Stephenson said the attitude of his department was that a uniform health service throughout the State was essential, and that it was obvious that the adoption of analogous schemes by the remaining counties could not be allowed to be delayed. School medical service is being developed in each county concurrently with the appointment of county medical officers. Waterford is the only county borough now in which medical inspection of school children has not been undertaken. Considerable progress has been made with the schemes in Dublin and Cork county boroughs, in Clonmel urban district, and in the counties of Cork, Kildare, Louth, and Offaly.

Tuberculosis in County Wexford.

Dr. W. O'Connor, tuberculosis medical officer, in his annual report to the County Wexford Insurance Committee, draws attention to the following facts. The number of cases of insured persons who had been treated was eighty-seven; forty-four cases proved to be non-tuberculous. He remarks that as regards the occupations of these patients labourers (agricultural and urban), ex-soldiers (most of

whom were previously labourers), and domestic servants constitute by far the largest number; these comprise the principal occupations in the county. No special evidence of tuberculosis is shown in any particular part of the county more than another, except in so far as determined by density of population—namely, in urban areas, as contrasted with rural. Possibly there is less tuberculosis in the north-west part of the county. As has been the case hitherto, bad home conditions, and small crowded houses, unemployment or irregular work, with consequent undernutrition, tend to lower the vitality and favour the development of tuberculosis. In rural districts the long journeys of underfed and insufficiently clad children to schools have a bearing on the propagation of tuberculosis. It may not be possible to distinguish between direct and indirect infection; both may occur, but indirect infection is more frequent. Where considered necessary, cases, chiefly surgical, are sent to a Dublin hospital for *x*-ray examination, there being no apparatus in the county. The need exists for a continuation of sanatorium treatment beyond that usually given—about six months. This period is not often sufficient to restore working capacity, and, when it does, the patient is likely to fail under conditions involving hard work. To complete treatment, reliable settlements or colonies are required. These could serve a group of counties, and might be made to some extent self-supporting. Dr. J. J. Hogan, tuberculosis officer, Waterford, in his annual report, states that last year's figures represent a reduction of nearly 60 per cent. in the death rate from tuberculosis as compared with 1919.

Vaccination in Wexford.

At a recent meeting of Wexford corporation letters were read from the Department of Local Government and Public Health, requesting that energetic action be taken to ensure that all defaulters under the Vaccination Acts would comply with the law. The town clerk said that in his last report Dr. Pierse stated that there were 2,679 defaulters, and that the amount of vaccination performed was not in proportion to the population. Dr. Pierse had served a hundred notices on people who had not had their children vaccinated, and the result was forty-nine complied, thirteen children were proved unfit for vaccination, and two defaulters had left Wexford, but had promised to have the children vaccinated in their new abode. That left only thirty-six defaulters out of the hundred, and the town clerk thought that this was very good.

England and Wales.

Medical Arrangements for the Jamboree.

ALTHOUGH some 15,000 scouts from foreign countries are now visiting England, and more than 50,000 are in camp together near Birkenhead, there has been a surprisingly small amount of sickness and very few serious casualties. To these figures must be added the many thousands of visitors of all ages who have free access to the encampment during the day. The highly gratifying freedom from illness must undoubtedly be attributed to the elaborate medical and sanitary organization which has come into being. In the main camp at Arrowe Park, which contains some 30,000 scouts, large areas of woodland alternate with undulating slopes, and even during the drought there were several stagnant pools. Energetic steps were taken in advance by the local public health authorities to free these pools from insect infestation, and the success achieved in this respect is an outstanding feature of a carefully planned scheme. Well-constructed latrines are disposed in sufficient numbers and at suitable spots, and their emptying and cleansing has been placed in expert hands. The water supply was thoughtfully planned, and energetic measures are in operation to prevent waste. So far as possible all the boys underwent a medical examination before coming to camp, and, in the case of the foreign contingents, clearance certificates were issued at the British ports and elsewhere. The health organization of the camp in Arrowe Park is in the hands of Major M. B. H. Ritchie; it comprises the medical staffing of nine sub-camps; consulting physicians for general medical conditions, and for such specialties as dermatology, tropical diseases, pathology, and infectious diseases; consulting surgeons, orthopaedists, ophthalmologists, and oto-rhino-laryngologists; dentists; a hygiene advisory council: a staff for the improvised hospital; and a large number of public first-aid posts under medical supervision. The hospital contains four marquees, each with fifteen beds; one ward is reserved as a "silent ward" for head injuries and cases of severe shock. Another marquee has been fully fitted as an operating theatre, thanks to the generosity of several leading surgical instrument firms. A well-equipped dental department has been in constant use. Bell tents have been set apart for isolating cases of suspected infectious disease, and have enabled the medical officers to stamp out threatened outbreaks of scarlet fever, diphtheria, and chicken-pox. The hospital is in the charge of Lieut.-Colonel J. C. H. Leicester, I.M.S.(ret.), and is administered and staffed by the Cheshire Girl Guides, under Miss M. C. Royden, the majority of whom have received full V.A.D. training or served as nurses during the war. All the arenas and open spaces of the vast camping ground are patrolled continually by members of the St. John Ambulance Brigade and the British Red Cross Society; a fleet of motor cars is kept ready to convey any serious cases to hospital, and all the units are linked together by telephone. The hospital, with its seventy-two beds, has on one or two occasions been more than filled, but the local hospitals of Birkenhead and Liverpool are co-operating whole-heartedly, and deal with all cases which cannot conveniently be kept in camp. The elaborate organization is working with the utmost smoothness, and the collection and evacuation of cases is proceeding with exemplary rapidity. Since very many of the foreign scouts have desired to spend some time in London before or after the Jamboree a rest camp has been established in the buildings of the Earl's Court Exhibition, where a first-aid post is operating night and day under medical supervision. Here, again, outside institutions are co-operating cordially, in particular the West London Hospital and the Metropolitan Asylums Board. Apart from accidents the chief anxieties are infectious diseases, and such acute conditions as pneumonia; all emergencies are being dealt with effectively. The adverse weather conditions have caused very little illness up to the present; the very manifest cheeriness of those in camp witnesses to their soundness of body in spite of the morasses of mud which for a time defied the efforts of large parties of sanitary workers and road makers. The inevitable digestive disturbances resulting from the unaccustomed dietaries to which some of the foreign scouts had to adapt themselves have proved amenable to treatment.

Epsom College.

The seventy-sixth anniversary of Founder's Day was celebrated at Epsom College on July 27th. The council entertained 150 guests at luncheon, and more than 1,000 parents and friends were present in the afternoon, when Lord Eustace Percy gave away the prizes. Addressing the boys, he insisted that the essential point in what was implied by the word "education" was the quality of understanding men and women. General education meant acquiring the ability to know and understand other people and to sympathize with them. The world would not necessarily fail if specialists were lacking, but it might very well fail if there was a deficiency of people with simple human understanding and the power of handling others. They constituted the cement which kept society together, and in this country to-day there was a special need of such cement. The headmaster reported a large number of successes in school examinations and a good cricket season. There had been continued progress in other branches of athletics, and an open sizarship had been won at Cambridge. He paid tribute to the memory of Lord Rosebery, who had been president of the College for twenty-nine years; to Dr. de Havilland Hall, who had been vice-chairman for very many years; and to Mr. Aeneas Mackay. Dr. Raymond Crawfurd, chairman of the council, who moved a vote of thanks to Lord Eustace Percy, commented on the material progress that had been achieved at the school.

The scale of masters' salaries had been considerably increased during the present year, additions had been made to the dietary, and various improvements effected for the well-being of the boys. Among these he mentioned particularly alterations in the swimming bath, including the provision of an electrolyser for disinfection; the building of a new changing room in one of the houses; the utilization of Lord Beaverbrook's donation for the furtherance of scientific education; and the provision of a new cricket practice pitch. Improvements planned for the immediate future were the building of a new rifle range which would be capable of accommodating eight marksmen abreast, and considerable structural alterations at Wilson House. Dr. Crawfurd hoped that the building of the new sanatorium would not be long delayed, since, with its completion, the council could consider that their main plans for enlargement had been brought to a successful conclusion. A two-day cricket match resulted in a decisive win for the College against an "Old Epsomian" eleven. In the evening the College Dramatic Society gave a very successful performance of Bernard Shaw's *St. Joan*.

Complimentary Dinner to Dr. Morris-Jones, M.P.

Dr. J. H. Morris-Jones, who represents the Denbigh Division in Parliament, was entertained by the Colwyn Bay and District Medical Society to a complimentary dinner on July 19th. This Society consists of about thirty medical practitioners, most of whom are members of the British Medical Association. Dr. Morris-Jones, replying to the toast of his health, commented on the great interest of the work which had been undertaken in the new Parliament; special attention was being paid to the various problems associated with road transport generally.

Correspondence.

MATERNAL MORTALITY.

Problem of the Unmarried Mother and Her Child.

SIR,—In the interesting and instructive address given in Nottingham on "The national inquiry into the causes of our high maternal mortality rate," Dr. T. W. Eden says (*Journal*, July 20th, p. 81): "The problem of the care of unmarried mothers is as much a social as a medical problem, and it seems to me that this is a channel into which philanthropic effort might well be guided, for there is surely much to be done, much which cries loudly to be done, in helping these heavily burdened women through the ordeal which is to them infinitely more formidable than it is to their married sisters." It is a terrible reflection that in the number of cases under consideration the mortality from sepsis in the mothers was three times as high as the total maternal death rate from sepsis, and that the maternal death rate of the unmarried mothers was more than double the total rate.

According to the statistical report of the Registrar-General for England and Wales for 1927, there were 29,023 illegitimate children. There are many reasons into which it is not necessary to enter, why the mother of an illegitimate child receives less attention during pregnancy than a married woman. I have had under my care in the hospital an unmarried girl who, left alone in charge of a large house, gave birth to her child unattended, and directly after the birth left her room to answer the front-door bell; she was septic when admitted. I have also known an unmarried mother throw her child on the dust heap to die. These are instances which unfortunately could be multiplied from my own knowledge.

I agree with Dr. Eden that there is much to be done to help these poor women. Some years before the war, when I was in Russia, I tried to do something which I believed would be of service, because I was struck with the fact that the Foundling Hospital at Moscow, a hospital of enormous advantage from a clinical point of view, admitted yearly about 15,000 infants. To that institution any illegitimate child was admitted immediately on presentation, without any question being asked. I do not know what has happened since the war. On my return I spoke to many wealthy people, saying I wanted to raise money to build a foundling hospital which could be affiliated to a lying-in charity, and that, as soon as the unmarried mother recovered from her confinement, if she could not take care of the child, it should be transferred to the hospital. In Moscow the child after a time was sent into the country, and, later, was taught some useful work; but it could always be traced by its registration number. I was listened to sympathetically by women regarding the hospital, but when I explained what I wanted about the foundling hospital, I was told that it was a premium on vice, etc., so that, after taking a great deal of trouble, I had to let the matter drop.

My scheme was to allow girls about to become mothers to be admitted to the lying-in hospital some time before confinement, and that the foundling hospital was to be conducted on the same lines as the one in Russia, admitting infants from the lying-in hospital attached, and also any child presented who was known to be illegitimate. I certainly failed in my endeavour at that time; but perhaps, now that so much interest is being taken in puerperal sepsis and mortality, something substantial may be done. The members of our profession are in touch *with many who are philanthropically inclined, and it would* be a real blessing if we could make some provision for these poor women in their time of trouble.—I am, etc.,

London, S.W., July 30th. R. A. GIBBONS.

TREATMENT OF EXOPHTHALMIC GOITRE.

SIR,—It is difficult for the opposing schools of thought on this question to find common ground on which they can meet. Dr. Don rules out all cases—the vast majority—that have not been submitted to a basal metabolic rate test, whereas Dr. Webster bases his arguments on the very cases that Dr. Don dismisses as "not . . . sufficiently completely investigated." I agree that instruments and methods of precision have their value, but the trained clinical sense of a competent observer who has watched hundreds of cases recovering under *x*-ray treatment is not to be dismissed lightly.

Not to admit a diagnosis of exophthalmic goitre without a metabolic rate test is surely an extreme view, in a disease where signs and symptoms are so distinctive. I take similar exception to the view that metabolism must be proved, by the same method, to be normal, before the patient can be regarded as "cured." I venture to submit that not only is the clinical method perfectly adequate at this stage, but the patient himself knows perfectly well when he is restored to health. The weight goes up as the pulse rate comes down; nervousness and tremor disappear, and the ordinary activities of life are resumed. With results like these, what further evidence is required?—I am, etc.,

F. M. FELLOWS, M.B., C.M., F.R.C.S.Ed.

Poynton, July 28th.

SIR,—It has been truly said of medicine that science is a first-rate furnishing to the upper stories, provided that the ground floor is well stocked with common sense. If a patient who has been bedridden, weeping without cause, nervy to the last degree, and showing one or more of the other stigmata of hyperthyroidism, is able to go about her daily work, and is able to lead an ordinary life which is no longer a burden but a pleasure, both to herself and her friends, then it does not need science to determine that the patient is cured, no matter what the metabolic pulse rate may have been or is. There are probably many sick people who, "scientifically," are perfectly well, and there are, I regret to say, many perfectly healthy people who are ill simply because, according to science, they ought to be ill.

A little knowledge is a very dangerous thing, and medicine is not a science—it is still an art; until we know the secrets of life itself it always will defy all our efforts to make it into a science. Poor weak humanity—it does not know when it is ill or when it is well. It has to be told these things by the doctor, and if he has any clinical acumen or gumption he can, and perhaps will, tell the patient the truth every time, without the aid of metabolic or other tests. Such tests are of great use in supplying us with figures as records that are particularly helpful in

writing papers. Communications with such figures are imposing as compared with those based on clinical data and experience, but it does not follow that the conclusions arrived at are any less scientific or reliable.—I am, etc.,

Cambridge, July 30th. A. E. BARCLAY.

PHYSIOLOGICAL STUDY OF ASTHMA.

SIR,—In my letter of July 20th (p. 121) I pointed out that the type of breathing which affords the maximum respiratory interchange in the lungs is that in which the mean size of the chest is increased and breathing takes about this increased mean. This type of breathing not only secures a maximum respiratory area, but a minimum resistance to the blood flow from the right to the left heart. In order to maximize the mean size of the lungs the deepest possible inspirations are taken, while expirations stop far short of their maximum: full expirations would fail to increase the mean size of the lungs, and would greatly impede the pulmonary circulation.

Accordingly we find that both in physiological breathlessness and in the breathlessness of organic heart and lung disease the chest is expanded and the respiratory movements take place about this increased mean. Inspirations tend to be powerful; expirations (with certain exceptions) moderate. In physiological breathlessness, indeed, expirations are effected by little more than elastic recoil.

Let us now suppose a case in which the bronchioles are narrowed (whether by muscular spasm or urticurial swelling of their mucous membrane) to a degree seriously interfering with the passage of air through them; the chest would expand in accordance with the principles enunciated, inspirations would be violent, while (for reasons given in my previous letter) expirations would be cautious and prolonged.

While admitting that Dr. Watson-Williams's ingenious hypothesis would explain in a neat and seductive fashion the phenomena of the asthmatic attack, I suggest that my explanation brings the pathology of asthmatic breathing more into line with other types of dyspnoea than Dr. Watson-Williams's view, attractive though it be.

The effective expansion of the collapsed lungs of the newborn baby is, as Dr. Watson-Williams observes, facilitated by obstructing the easy exit of expired air. Such obstruction, he suggests, is afforded by an (exaggerated) expiratory contraction of the bronchioles; but he omits to take into consideration what I conceive to be a much more effective mechanism for securing adequate expansion of the collapsed lungs—namely, the baby's lusty cries; the forcible expirations thus resulting, by increasing intrapulmonary air pressure, provide, I suggest, a more effectual means of opening up collapsed vesicles than that advocated by Dr. Watson-Williams.—I am, etc.,

London, Aug. 1st. HARRY CAMPBELL.

GENERAL CONVULSIONS UNDER ETHER.

SIR,—Since first describing general convulsions occurring under surgical anaesthesia in the *British Medical Journal* (May 28th, 1927, p. 956) a number of correspondents have discussed in your columns their experiences, and I should like now to restate my views in the light of subsequent manifestations of this rather obscure phenomenon.

The advice as to treatment which I originally gave I have found completely successful, so that though I have little doubt that deaths still sometimes occur (and several have been reported since I wrote), I have had no more. I believe it well, therefore, to repeat this advice. It is necessary to recognize the very beginning of the spasm, and immediately remove all coverings and sources of vapour away from the face, giving free access of fresh air. The recovery from the anaesthetic is delayed in cases where the convulsions have been well established, but if any more anaesthetic is needed then it should be chloroform.

Many suggestions have been made as to the cause of the convulsions: I am quite sure that it is not due to some decomposition or impurity in ether. These impurities exist in very small quantities, and though often accused of various offences, have never been convicted by a majority of anaesthetists. In the Clover inhaler and its modifications, so much used a few years ago, where the ether had an excellent chance of decomposition, no cases were reported. For many years methylated ether was used exclusively at the Royal Infirmary here, before a case was noticed; moreover, without doubt, our ether is generally purer now than formerly, not less pure. Many cases have occurred where fresh bottles of a good brand had been used by a method which precludes the theory of decomposition subsequent to opening them. One such I remember witnessing where the ether was poured on to lint without decanting it into any other bottle. Though isolated cases may tempt one to this hypothesis, there is scarcely any real evidence in favour, and plenty against.

The "bomb" apparatus has been blamed, but so many cases have occurred without it that it cannot be that. In the last case that was reported to me ether was given by the Shipway apparatus; the patient was a boy, and he died. It is said that the bomb apparatus, which I have used continuously for the last ten years, is likely to decompose the ether. Perhaps it is, but, if it does, the products formed are harmless, or I would not be using it now. In the last case but one that I had, I made an experiment; I returned to ether from the bomb, after the convulsions, which had rapidly been advancing, had subsided, and before the operation was half done. In this case the above theories (of decomposition or impurities) were to some extent put to the test: convulsions did not recur, and there was no ill effect.

My view is this, after seeing a considerable number of such cases (almost twenty): it is the method which is at fault—the way the patient is handled; anaesthetists will know what I mean. It is not the ether itself (or anything in the ether), but something besides. I believe the breathing is earliest affected, and that this is directly responsible for an extension of irregular muscular action from the respiratory muscles to those of the rest of the body; and when I repeat that it is an excess of CO_2 which affects it, I mean in conjunction with the other factors—etheration, toxaemia, pyrexia, idiosyncrasy, and, perhaps not least, an excess of oxygen. Usually an excess of CO_2 in the blood has been manifested by a corresponding anoxaemia, but nowadays that is not allowed to occur; so that accumulation of it would be marked by the good colour. We cannot always handle or guide a patient as we could wish; but are sometimes forced, by his reaction to it, to push the anaesthetic, as it were, into him, cover his face with towels, or otherwise adopt measures which we might not have desired. These methods, I suggest, are the cause of a state of things the outcome of which is general convulsions.—I am etc.,

Manchester, July 23rd. K. B. PINSON.

GAS-OXYGEN ANAESTHESIA.

SIR,—I have inquired of many students from various hospitals and have found none who have been taught gas and oxygen anaesthesia. Dr. Slaughter (July 20th, p. 124) seems to have a very poor estimate of my opinion, so I will quote others which may possibly carry more weight.

I received this week an article entitled "Anaesthesia in thoracic operations," by C. Langton Hewer, M.B. It is marked "With compliments, v. pp. 78–79." On referring to page 78, I find specially marked:

> "Apparatus: The type of apparatus employed will naturally depend on the preference of the individual anaesthetist and upon local conveniences. If expense and portability are of no object, the elaborate American machines such as the Hiedbrink and McKesson are very efficient and permit of very fine mixture control. For ordinary use, however, a much simpler and more portable sight-feed apparatus can be used with every satisfaction. The writer employs a Boyle's machine with a modified sight-feed as shown."

Evidently Dr. Hewer considers Boyle's machine inferior to the American ones, but uses it on account of expense and portability. The reason I use my machine is solely on account of efficiency—no other reason counts with me. The argument about portability will not stand, because the portability of all gas machines is limited by the gas cylinders, and whatever machine is used these are an unavoidable drawback. I do not like the argument of expense when imported into a medical discussion, as it savours of commercialism; still, even that is not altogether in favour of Boyle's apparatus. When it is realized that

an efficient machine uses only about two-thirds the amount of gas an inefficient one does, it will be seen that, though the first cost may be higher, the more expensive may be much the cheapest in the end.

On page 79 of Dr. Hewer's paper I find, under the illustration of the modified Boyle's machine, this statement: "The flow of oxygen remains constant, but difficulty may be experienced in maintaining regularity in the nitrous oxide supply." In an article in the *British Journal of Anaesthesia* for April, 1929, by S. Thompson Rowling, M.D., the author points out the difficulty of regulating a "bubble bottle." I was at the British Medical Association meeting at Manchester and saw Dr. Rowling demonstrating his apparatus; I pointed out that the oxygen was not flowing regularly. Dr. Rowling admitted that it was not, but said there was some defect in the machine. I thought it curious to show a defective machine at an exhibition. I don't apologize for mine: it "delivers the goods." With regard to the nitrous oxide flow, Dr. Hewer says it is difficult to control. I go further and say it is impossible with the machine he uses.

Turning to page 74 of Dr. Hewer's paper, I find that he says:

"In war surgery of the chest, where patients have been badly shocked, there is no doubt whatever that many lives have been saved by operations performed under nitrous oxide-oxygen anaesthesia which would be regarded as hopeless if attempted with other methods. The above remark must be taken to apply to pure nitrous oxide-oxygen anaesthesia only; if ether or chloroform be added to the gases, even in small amounts, toxic effects may ensue."

And yet Dr. Hewer uses and teaches students with a Boyle's machine in which the gas control is so bad that ether has to be added in more than 60 per cent. of cases, when he knows and admits there are better machines to be obtained, and, mark you, because of expense and portability. I think I need comment no further on this point.

Dr. Slaughter says an emergency oxygen valve is not essential. I would much appreciate Dr. de Lacy Walker's views on this. In my opinion (for what it is worth) it is a most vital fitment to have, because gas deaths are from asphyxia in the vast majority of cases; and although gas is the safest anaesthetic known, yet it is a great comfort to know that you have oxygen under pressure at your instant call. Already this letter is too long, but I suggest that if cheapness and portability are the chief objects to be sought, nothing compares with a bit of rag and a chloroform bottle.—I am, etc.,

E. J. CHAMBERS.

Doncaster, Aug. 3rd.

SIR,—Sometimes the evidence of a bystander may be as useful as that of a principal performer, and I, having been privileged to see 100 operations done under gas and oxygen, given by one of the protagonists in the discussion about that anaesthetic, can contribute an onlooker's point of view.

My notes give the actual cases as follows:

Cholecystectomies	4
Partial gastrectomy	1
Gastro-enterostomy	1
Renal calculus	1
Radical amputation of breast	2
Resection caecum	10
Appendix	7
Hernia	18
Gynaecological, including 3 hysterectomies	11
Bone operations	3
Prostatectomies	41
Miscellaneous	100

These operations were performed by a series of seven surgeons, in this and other towns, and they expressed themselves as satisfied with the access obtained. The apparatus used was that of McKesson, which allows very delicate control of the proportions of the mixture.

In only nine of these was any other given, three times to carry on while cylinders were being changed, three times in mouth cases because difficulty was experienced with the Kuhn's tube, and in three cases to save a few minutes, as some patients require more time for relaxation than others. In most of 38 tonsillectomies (not included in the 100) ether was given simply to afford that surgeon a little longer grace after the mask was removed.

Of the 100 cases, 2 only, appendices, were emergencies, but they differed in no way from the rest. If any lack of relaxation were anticipated it was forestalled by the use of a few cubic centimetres of local anaesthetic before the incision, and the little extra trouble was quite compensated by the increased well-being of the patient. In this series bleeding has never appeared more copious than with any other anaesthetic, and it is worth while in this respect to refer to Dr. Kelly's article (August 3rd, p. 187), where he suggests that deficient haemorrhage is the result of only one condition, and that a dangerous one—namely, "extremely low blood pressure."

A peaceful induction, a quiet maintenance, a quick recovery without vomiting, and a grateful patient afterwards, appear the chief features of a gas-oxygen anaesthetic as I have seen it. As to the label of "routine anaesthesia," words are less important than facts, and surely no one would wish to expose any patient to a more toxic drug than another simply to escape the reproach of monotony. Besides which, this method can provide quicker control and finer adjustment to the needs of a particular case than any other, at the present stage.—I am, etc.,

B. E. COOK, M.B., Ch.B.

Doncaster, Aug. 4th.

TREATMENT OF PLACENTA PRAEVIA.

SIR,—I attended to-day the meeting of the Gynaecological Section at Manchester and listened to two papers on placenta praevia and its treatment. The discussion which followed resolved itself into a wrangle on the merits and demerits of Caesarean section as the treatment of choice. More than half our time was wasted on this account. All the speakers, with one exception, the chairman, seemed to forget the fact that the early diagnosis of placenta praevia depends entirely upon the general practitioner. He it is who first sees the condition and first diagnoses it (and this he can do without per vaginam examination), and he therefore should be the one to apply the correct treatment at the earliest possible moment.

The meeting agreed that immediate action was imperative, but instead of helping the general practitioner by discovering and discussing the best treatment to apply at this juncture, those who are supposed to know most about the condition wasted valuable time airily discussing Caesarean section. Dr. Solomons told us that it is impossible to make a diagnosis without per vaginam examination, and he and others emphasized the fact that this examination caused the sudden onset of haemorrhage. The patient is examined at home, again on admission to hospital, and again by the gynaecologist before he takes his "immediate action." That is, she is subjected to at least three examinations, by each of which her chances are lessened enormously, not only by the loss of blood, but by concomitant shock and exposure to sepsis. Added to all this there is the conveying of the patient from her home to hospital. If she arrives there alive, there is possibly nothing else for it but Caesarean section! To my mind this is all wrong. The most important factor in the successful treatment of haemorrhage from any part of the body, uterus included, is absolute rest, and if this is kept in mind the question of Caesarean section fades immediately out of the picture.

Placenta praevia is not generally recognized until the last four weeks of pregnancy, when haemorrhage sets in, and I should like to submit a simple remedy to the highbrows, a remedy which is well within the scope of the average general practitioner, and is easily and quickly applied. It is intramuscular injection of ovarian residue without corpus luteum. This is of use only after the eighth month. I have used this as a routine in the first and second stages of all my midwifery cases for the last three years. Labour is shortened enormously, relaxation is so complete that delivery with forceps is easy, and laceration rarely occurs. Post-partum haemorrhage loses its terrors because it does not occur. Recovery is rapid, and the milk supply increased. Without exception every multipara says immediately afterwards, "I have never felt so well."

Now, Sir, with regard to the application to placenta praevia, I should like to give details of one of my cases.

Mrs. S., admitted to St. Mary's five years previously with placenta praevia, was delivered of a dead child and nearly lost her life from haemorrhage, and was confined to bed for five months afterwards. Her second pregnancy seemed to go on all right until at the eighth month, when she began to have a "show" without any pain. This recurred repeatedly during the ensuing ten days, when I was called in on account of a severe attack of haemorrhage. Without making any per vaginam examination, I gave her 1 c.cm. of ovarian residue immediately, and within ten minutes the haemorrhage ceased and did not recur in any excessive quantity. Uterine contractions commenced at the same time, and to keep these going I gave her 1 c.cm. at intervals of two hours, until she had received eight injections in all.

Eighteen hours after the first injection I examined her per vaginam for the first time. The os was three parts dilated. Expecting every moment the usual gush of blood, I put her under chloroform, ruptured the membranes, confirmed my diagnosis of placenta praevia (which was lateral), applied forceps, and delivered rapidly. I was able to express the placenta almost immediately. The puerperium was uneventful, and the patient was up on the tenth day.

—I am, etc.,

Manchester, July 25th. D. C. MACDONALD, M.B.

BREAST-FEEDING BY TUBERCULOUS MOTHERS.

SIR,—Dr. P. J. Burke states, in your issue of July 20th (p. 123), that he is guided by circumstances in his advice to tuberculous mothers as to whether they shall breast-feed their babies, if the mother is his main consideration; and advises breast-feeding if the baby is his concern.

Both mother and baby can be well advised in this respect if the teaching of Professors Léon Bernard and Robert Debré be followed, and this is based on long and scientific research data at the Laennec Hospital, Paris. They allow nursing, but take precautions as to contact. At the crèche the mother has her face covered with a linen mask, wears a sterilized blouse, and has her hands washed before the child is put to the breast. The mother is allowed to feed her baby on the bottle only if she suffers in health herself from suckling (*La prophylaxie de la Tuberculose à l'âge pré-scolaire*, pp. 42, 48, and 54: Third International Congress against Tuberculosis, Brussels, 1922). Again, they say in the *Annales de Médecine*, Tome xiii, No. 5, Mai, 1923 (p. 396), that it is only the intimate contact of the mother with her baby when she fondles it, kisses it, plays with it, and takes it in her arms which is responsible for infection; and breast-feeding only increases the risk by closer and more frequent contact.

This method of infection is one only in the grave national problem of the prevention of tuberculosis in the home, and the need for a universal public health system and tuberculosis schemes which would offer to parents or others the opportunity of separating infants and children from home sources of infection, especially from the massive and repeated doses from tuberculous parents or others who are receiving domiciliary treatment in overcrowded tenements. At present we carry out the costly ritual throughout our tuberculosis dispensaries of examining "contacts" and advising the public not to let themselves or others get infected, but we offer no practical means of prevention as do the French nation. We should actively advise infective parents to allow their children to be separated in a home, either collectively, as in a residential open-air school or home (as in Plymouth), or by "boarding out" as in France.

What is the policy of the Ministry of Health? In June it informed me: (1) That it has no power to make grants in respect of maintenance of "contact" children (which I doubt, but which should be remedied). (2) That its policy is to remove advanced cases of consumption to hospital, thus segregating the patient rather than the contact. To which I ask, How many infective consumptives are compulsorily removed to hospital? What proportion of the duration of lives of all infective consumptives in this country is spent in hospital, and what at home under domiciliary treatment? A minute percentage of time only, so that the Ministry's policy and practice do not coincide. (3) Lastly, the Ministry says its policy does not exclude a child from being sent to an open-air school or sanatorium if symptoms of "incipient tuberculosis" become evident.

The homely proverb of "A stitch in time saves nine" occurs to those who desire to establish a scientific, sane, and humane system of preventive medicine. We should offer the child its chance of health as well as the parent; the helpless one needs most protection.—I am, etc.,

F. G. BUSHNELL,
Vice-President, Devon and Cornwall Sanatorium for Consumptives.

Plymouth, July 22nd.

IMMUNIZATION BY TUBERCULIN.

SIR,—With reference to Dr. Carswell's letter (July 20th, p. 123) I claim no general superiority for exotoxic tuberculins over Koch's emulsionized and more perfected preparations. These latter, seeming to approximate more ideally to the natural toxins *in vivo*, especially commend themselves in the later stages of immunization. Personally I like to use B.E. as an additional, or finishing, course, when the usual one (terminating, arbitrarily perhaps, at 1 c.cm. O.T. human) appears, after a definite interval, to have given insufficiently good results. But, for *commencing* a course, I do prefer P.T.O. because, being a bovine filtrate and containing no endotoxins, its toxicity is weak compared with other tuberculins. This saves excessive diluting. Also the chief consideration, when starting to beleaguer the entrenched bacilli, is to keep focal inflammations at a minimum, and so to avoid as far as possible necrosing those degenerating cells, which form, as it were, the no-man's land between healthy vascular tissue and the dying or already dead products of the tubercle. At this stage careful mining work will, I feel sure, regain more of this damaged tissue than fierce onslaughts, which tend rather to repeat the errors of 1891. Here, as always, "Well begun is half done." Later, when the body has grown used to tuberculin, attacks may be vigorously and successfully pressed with the more potent preparations.—I am, etc.,

Weymouth, July 30th. H. C. MANNING.

PERFORATION OF A GASTRIC ULCER IN A SEPTUAGENARIAN.

SIR,—I have been interested to read the accounts of the successful operations for perforated gastric ulcer in patients aged 70 years and over, reported in the *Journal* of July 20th and of July 27th, and would like to add to them a case I had under my care some years ago.

On July 15th, 1922, I was called out at 7.15 a.m. to see Mr. M., aged 71. The history was that at 1 a.m. he had been seized with acute abdominal pain, which was so severe that some time later his doctor was called in and he was given morphine (grain 1/2). When I saw the patient he was very drowsy and made no particular complaint of any severe pain. Abdominal tenderness was not marked, and the man's chief inclination seemed to be to go to sleep; this made it exceedingly difficult to get a clear history or to arrive at a definite diagnosis. After much trouble I elicited that for many years there had been considerable pain and discomfort after food, and that the day previously the pain had been much worse than usual. An attempt was made to do some work in the garden to see if it would relieve the "indigestion"; this did not give any relief, and, as already noted, the pain went suddenly worse at 1 a.m., after retiring to bed.

I diagnosed a perforated gastric ulcer and had the patient removed to a nursing home. At 10 a.m. I opened the upper abdomen through a right rectus muscle-splitting incision, and found a moderate-sized perforation of a chronic ulcer on the anterior wall of the stomach near the pylorus. There had not been a great deal of extravasation of the stomach contents into the peritoneal cavity, and there was not much general soiling, probably partly due to the large dose of morphine which had been given. The perforation was sutured with thread sutures, and overlapped with a piece of omentum. After the abdomen had been sponged out it was closed without drainage. The patient stood the operation well, but for some days afterwards he gave us a certain amount of anxiety as he became very "chesty." The condition of the lungs, however, gradually cleared up under appropriate treatment, and about a week after the operation he was on the high road to recovery. From this time complete recovery was uneventful, and the man left the home a little over two weeks after the operation.

About two years ago I heard from the patient's doctor that there was some slight recurrence of symptoms suggesting ulcer, but apparently this passed away with medical treatment. The man is still alive and in fairly good health over seven years after the operation, and is able to lead a moderately active life.—I am, etc.,

Manchester, July 29th. GILBERT B. WARBURTON.

SIR,—The case of recovery after operations for gastric perforation on two occasions between the ages of 78 and 81 years described by Professor Fullerton in the *Journal* of July 27th (p. 165), must, as he says, be unique. I was interested also to read the accounts by Mr. J. Price on July 20th (p. 100), and of Mr. R. F. Bolt on July 27th (p. 165) of perforation of gastric ulcer in septuagenarians followed by recovery after operation. The following case may also be of interest.

A man, aged 73, had previously suffered from occasional slight indigestion for which he had never consulted a doctor. At 2 p.m. on September 5th, 1928, while at work, he was suddenly seized with intense epigastric pain. He had had no food since breakfast at 8 a.m. With great difficulty he walked a distance of over a quarter of a mile to the hospital, and was found lying doubled up on the doorstep in a state of collapse. He was in great agony and pouring with cold, clammy sweat; the pulse was imperceptible, and the abdomen was immobile, intensely rigid, and tender. Morphine gr. 1/4 and atropine gr. 1/100 were given, and he was kept very warm. He rallied somewhat and was operated on one hour later. Anaesthesia was induced by gas and oxygen, followed by open ether. A thickened and indurated area with a small perforation was found on the anterior surface of the first part of the duodenum. The edges of the perforation were friable and rigid; a portion of omentum was therefore plugged in and sutured over. The pelvis was drained for twenty-four hours. The patient made a smooth recovery, and left hospital in three weeks; since then he has been in good health, and makes no complaint.

The points of interest in this case are: (1) There was little or no history of previous gastric trouble, though the ulcer was obviously of old standing. (2) The man managed unaided to walk a distance of a quarter of a mile after the perforation had occurred.—I am, etc.,

B. SOUTAR SIMPSON, M.B., F.R.C.S.Ed.,
Surgeon to the Lawson Memorial Hospital.

Golspie, Sutherland, July 30th.

MEDICAL WOMEN AND THE BOARD OF CONTROL.

SIR,—*In your issue of July 13th (p. 64)* you report the appointment of a new "temporary" medical man commissioner to the Board of Control. This brings the number of salaried medical men commissioners to four, two being "temporary." I understand that temporary means "pending further legislation," or for an estimated period of two or three years. In addition, there are one medical man commissioner unpaid and four salaried medical men inspectors, of whom one is "temporary." Thus the number of medical men on the Board totals nine, while, despite the fact that on January 1st, 1928, the number of female patients notified insane exceeded the number of male patients by 12 per cent., not a single medical woman has yet been appointed to the Board of Control.

It appears that the new appointment (of Dr. Bedford Pierce) was arranged by the late Government. Sir Richard Luce, a member of Parliament during its tenure, promised last autumn that he would look into the matter of the then Government's neglect to appoint a medical woman, and the British Medical Association has expressed itself in favour of such appointment. One would like to know what Sir Richard Luce did in the matter, and what the Association has done to substantiate its views. The non-appointment must primarily be a question of sex prejudice and not even of money, for, since there is an honorary medical man commissioner, there can be no objection to appointing an honorary medical woman commissioner. Moreover, in 1928 the income of the Board ran to £746,094.

I appeal to the present medical members of Parliament (numbering seventeen)—of whom nine are Labour, and therefore must have influence with the present Government—to rectify this slight upon medical women and the lack of consideration shown to those female patients and women relatives who may prefer to have medical women commissioners to whom to refer—I appeal, I repeat, to our medical members of Parliament to arrange forthwith for the immediate appointment of at least two medical women commissioners, one salaried and one unsalaried. Are we women never to be free of the wearisome and unpleasant job of perpetually pushing the rights of our sex?—I am, etc.,

Braunton, North Devon, July 30th. C. A. MORTLOCK-BROWN.

Obituary.

JOHN BROWN, M.D., D.P.H.,

Formerly Medical Officer of Health, Bacup, Lancs.

WE regret to record the death of Dr. John Brown, which took place at his home at Blackpool on July 29th; he was in his eightieth year.

John Brown is best remembered for his work as medical officer of health at Bacup, in Lancashire, which office he held for more than one-third of a century. He was born at Callington in Cornwall, and came to London to begin his medical education. He studied at Charing Cross Hospital, where he was [illegible] man of his day, and later at Owens [illegible] University, Manchester. He qualified L.S.A. and L.R.C.P.Lond. in 1877, graduated M.B., Ch.B. Manchester in 1888, and M.D. in 1889, in which year he also took the D.P.H. After holding a house appointment at the Western Ophthalmic Hospital, London, for a brief period, he took up his official work at Bacup, and performed noteworthy services to the town and district in various capacities related to the public health. He was a keen student of chemistry, and interested himself in many phases of sanitary engineering, especially water supplies. He published certain observations on plumbism due to lead-polluted water, a subject on which he spoke in the Public Health Section at Annual Meetings of the British Medical Association. Another publication of his was on tests for colour vision. After his retirement fifteen years ago he devoted himself to the subject of cancer research, and contributed various articles on the subject to medical and other periodicals. His investigation of this problem led to no conclusive results, but his earnestness in pursuing it was most admirable.

He was for many years a member of the Lancashire and Cheshire Branch of the British Medical Association, but in medical politics he was a pronounced individualist. His brother, Dr. George Brown, was for ten years a direct representative for England and Wales on the General Medical Council, and in 1919 Dr. John Brown himself stood for election. He was at the bottom of the poll, with only 1,636 votes, but he declared that this result far exceeded his expectations, for he had no committee nor fund to enable him to circulate the electors. He stated that, having received the support of thirty medical men in Blackpool, he stood as an earnest protest against the action of the British Medical Association in putting forward its own nominees for all the seats, thus practically excluding, in his view, a free election of representatives who were not members of the Association. At the election of direct representatives in 1924 he stood again, with a similar result.

Dr. John Brown carried in his face and demeanour the marks of a personality self-effacing and full of good will. He interested himself in various excellent causes, was an indefatigable worker for charity, and a prominent member of the Wesleyan Methodist body. He leaves a widow and five sons, two of whom are members of the medical profession, both of them medical officers of health; one, Dr. J. Percival Brown, occupies his father's former position as medical officer of health for Bacup, and the other, Dr. George B. Brown, is medical officer of health for Failsworth, Manchester. The funeral took place at Blackpool on August 1st amid many manifestations of regard by the public and the profession.

Medico-Legal.

STATUS OF AN UNREGISTERED PRACTITIONER.

LIEUT.-COLONEL JOHN WILLIAM KYNASTON appeared in both police court and High Court proceedings recently respecting his status as a medical practitioner. The decisions in both courts are of importance to the medical profession and the public in so far as they maintain the disciplinary powers given by the Legislature to the General Medical Council. Lieut.-Colonel Kynaston's name was removed penally from the *Medical Register* in May, 1922, on the ground that he was guilty of infamous conduct in a professional capacity, in that he had sought to attract to himself patients for his own gain by means of advertising. The hearing of the disciplinary proceedings before the General Medical Council was reported in our issue of June 3rd, 1922 (*Supplement*, p. 215). In November of the same year the Executive Committee of the Council was informed that the Royal College of Physicians of London had withdrawn Lieut.-Colonel Kynaston's licence to practise physic, that the Society of Apothecaries had ordered his name to be erased from the list of its Licentiates, and that he had been removed from being a Member of the Royal College of Surgeons of England.

The proceedings at Marlborough Street Police Court began on March 16th, 1929, when two summonses under Section 40 of the Medical Act, 1858, were heard at the instance of the Royal College of Surgeons of England. The first summons, alleging that the defendant wilfully and falsely pretended to be a doctor of medicine, was dismissed by the stipendiary (Mr. Cancellor), who held that there was not sufficient evidence to justify a conviction which could only have been supported by proof of wilful falsity. The defendant was bound over under the Probation of Offenders Act, 1907, on the second summons for wilfully and falsely using the title "M.R.C.S. Eng." in order to pretend that he was registered, the stipendiary finding as a fact that he must have known that the use of the letters "M.R.C.S." would imply that he was still a member of that body.

In the King's Bench Division, Lieut.-Colonel Kynaston sought to make absolute a rule nisi for mandamus requiring the General Medical Council to delete from the *Medical Register* the record of penal removal in 1922. The three judges who constituted the court were unanimous in refusing to make the rule absolute.

The rule nisi had been granted on three grounds. First, Lieut.-Colonel Kynaston complained that his name ought to have been removed by the General Medical Council at his own request in March, 1922, when there were no charges against him. Instead, the Council had retained his name on the *Register*, and in April, 1922, had removed it penally on charges, made by the Medical Defence Union, of infamous conduct in a professional capacity. Upon this, Mr. Justice Avory pointed out that Standing Orders of the General Medical Council required Lieut.-Colonel Kynaston to support his application for the removal of his name at his own request by a declaration that he was not even aware of any reason for the institution of any proceedings for the removal of his name penally. Mr. Justice Branson exposed Lieut-Colonel Kynaston's counsel's argument as amounting to this: that if a medical practitioner desired to do something which he knew was regarded as infamous conduct in a professional respect he might have his name removed, then commit the offence, and then have his name restored! Counsel replied that, if such a loophole existed, his client was entitled to take advantage of it, but the Lord Chief Justice characterized the whole argument as a *reductio ad absurdum*.

The second ground—that Lieut.-Colonel Kynaston's name was erased from the *Register* to discredit a theory of medicine and surgery advocated by him in the publications which were the subject of the charge before the General Medical Council—was held by the court to be an invitation to them to review the conclusions of that Council. It was settled law that the court had no such power.

The third ground was that Sir George Newman ought not to have been present and taken part in the disciplinary proceedings of the General Medical Council in this case, because Lieut.-Colonel Kynaston's criticisms of Sir George Newman had biased and prejudiced him against Lieut.-Colonel Kynaston. In fact, Sir George Newman did not take part in the decision of the Council; but the court rejected the argument that the mere fact that Sir George Newman had been attacked by Lieut.-Colonel Kynaston was in itself evidence of bias. In the words of the Lord Chief Justice, "there was not a tittle of evidence of bias."

The rule nisi was thereupon discharged.

The Services.

COLONEL ALFRED PETERKIN, C.B., Army Medical Service (ret.), died in Queen Alexandra's Military Hospital, Millbank, on July 17th, aged 74. He was born at Slateford, Midlothian, on October 2nd, 1854, the son of Mr. W. A Peterkin of the Board of Supervision, Edinburgh, and was educated at Glasgow, where he graduated as M.A. in 1875, and as M.B. in 1878. Entering the R.A.M.C. as surgeon on July 31st, 1880, he attained the rank of colonel on April 11th, 1908. As an administrative officer he served as principal medical officer, with local rank, in Mauritius in 1906–7, and, after his promotion, in South Africa in 1908–10, and in London up to his retirement on October 2nd, 1911. He served in the first Boer war in 1881, in the Bechuanaland campaign of 1885, and in the South African war in 1902, when he took part in operations in the Transvaal, the Orange River Colony, and Cape Colony, and received the Queen's medal with four clasps. He rejoined for service when the recent war began in 1914, and served as D.D.M.S. of the Western Command for the first month, as D.D.M.S. London Command for the three years, October, 1914, to October, 1917; as inspector of troops in the Eastern Command in 1917–19; and as A.D.M.S. at Bedford in 1918–19; being twice mentioned in dispatches, and receiving the C.B. in 1917. He was the author of *A List of Commissioned Medical Officers Serving in the Army from 1660 to 1727*. He married Miriam, daughter of the Rev. T. D. Kirkwood of Bridge of Allan. A former colleague (A. T.) writes: At the beginning of the war the D.D.M.S. London—that is, the senior army medical officer in the London District—was mobilized. He was replaced temporarily by the commandant of the R.A.M. College, who was succeeded by several senior army medical officers, all of whom broke down with the work. Colonel Peterkin, a retired officer, who had previously been P.M.O. London (an older name), then acting D.D.M.S. of the Western Command, was specially brought to London, and eventually put things straight. He was a particularly fine type of officer—sturdy, level-headed, and imperturbable. He had an uphill fight as, in addition to the ordinary army duties of his position, which in peace time were comparatively slight, he had to deal with five Territorial hospitals, many private hospitals run by ladies of title, etc., the Territorial units of the two London divisions, amounting to over sixty units, all of which, as well as the Guards and the Central Recruiting Depot at Whitehall, were recruiting briskly, and after a short while crowds of wounded arrived. Medical officers were very scarce, and the first addition to his staff was a retired non-medical major of the London Scottish, who was placed in charge of the transport of the wounded from the stations to the various hospitals.

Universities and Colleges.

UNIVERSITY OF OXFORD.

AT a congregation held on August 3rd the following medical degrees were conferred:

M.CH.—E. W. M. H. Phillips.
B.M.—J. W. de W. G. Thornton.

UNIVERSITY OF LONDON.

LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN.

THE following scholarships have been awarded for the session 1929-30:

St. Dunstan's Medical Exhibition: Miss M. I. McHaffie. Mrs. George M. Smith Scholarship: Miss B. Clark. Isabel Thorne Scholarship: Miss J. M. Cass. Dr. Margaret Todd Scholarship: Miss Q. I. May. Special Dr. Margaret Todd [illegible] Corner, Miss B. Wileman, Sarah [illegible] Miss D. Leachman, Miss M. A. Pov[illegible] ship: Miss J. M. Done. Ellen Walker Bursary: Miss M. E. Gould. Flora Murray Bursary: Miss O. N. Grant. Special Flora Murray Bursary: Miss P. Farncombe. Mabel Sharman Crawford Scholarship: Miss E. J. Browne. Helen Prideaux Scholarship: Miss M. Fraser. Dr. Edith Pechey Phipson Post-Graduate Scholarship: Miss N. R. Macadam.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

AN ordinary meeting of the Council was held on August 1st, when the President, Lord Moynihan, was in the chair.

Honorary Fellowship.

Dr. Aly Ibrahim, Dean of the Faculty of Medicine, Cairo, who was elected an honorary Fellow in November last, attended and signed the roll of honorary Fellows.

Research Scholarship.

On the recommendation of the Museum Committee it was decided to establish a research scholarship of £500 per annum, payable out of the general funds of the College, tenable from year to year for a period not exceeding seven years.

Diplomas and Licences.

Diplomas of membership were granted to 142 candidates. (The names were included in the list published in the report of the comitia of the Royal College of Physicians of London, printed in our issue of August 3rd (p. 227), as were also the names of those receiving the Diplomas in Public Health and in Ophthalmic Medicine and Surgery.)

Diplomas in Tropical Medicine and Hygiene were granted jointly with the Royal College of Physicians to the following:

[illegible]. Baboo, R. M. Buntine, [illegible]vasquez, G. H. Fitzgerald, [illegible]. K. Goh, S. A. Haque, [illegible]owther, D. D. McCarthy, [illegible]st, T. V. Rajagopalan, [illegible]. Salem, R. W. Scanlon, [illegible]. D. R. Thapar, H. A. Yenikomshian.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

West Ham Guardians.

IN the House of Commons, on July 23rd, Mr. CHAMBERLAIN moved a resolution for an address to the King, praying that certain orders made by the Ministry of Health in reference to the Bedwellty, Chester-le-Street, and West Ham Unions, in which appointed guardians are functioning, should be annulled. He said that the orders purported to extend the period of office of the present appointed guardians until August 2nd, but he understood that the Minister of Health intended to dismiss them on that date and, by a new order, substitute other appointed guardians, who would function until April 1st next. Since the appointed guardians had been at work all further borrowing by the unions concerned had ceased, and the financial position had improved. In addition, the West Ham appointed guardians had given a great deal of time and thought to improving the arrangements for the people to whose needs they were attending. At the hospital they had increased the efficiency of the medical and nursing service by appointing four consultants—a gynaecologist, an orthopaedic surgeon, an ophthalmic surgeon, and a neurologist. They had appointed a dentist and an anaesthetist, they had added one medical officer to the staff, and had substituted fourteen staff nurses for a corresponding number of probationers. In the children's homes they had provided a new and more varied diet at additional cost, and had changed the clothing of the children, which was heavy and unsuitable, for lighter and healthier clothing. They had encouraged games and outdoor exercises for the children, and had encouraged them to join the local groups of boy scouts and girl guides. In place of part-time district medical officers, full-time medical officers had been appointed, and the number of district nurses had been increased.

Mr. GREENWOOD, in reply, said that he had had to take some action as otherwise the orders affecting the appointment of the guardians in the three unions concerned would have come to an end on June 30th. He reappointed these gentlemen for the shortest possible time, and he proposed to go back to normality for all boards of guardians on April 1st of next year. His action was really in support of good administration, and would smooth the transition period before the Local Government Act came into operation.

The resolution was defeated by 284 votes to 154.

Conjunctivitis among Artificial Silk Workers.—Mr. CLYNES told Mr. Kelly, on July 25th, that the cases of conjunctivitis which had been the main source of trouble in the artificial silk manufacturing industry had been diminishing, and that, following on the conference which the chief inspector had last spring with the firms concerned, improved methods of ventilation were being tried which should result in a further reduction. The general health conditions continued to be satisfactory, but much remained to be done at some of the works to eliminate the eye trouble. He had asked the chief inspector to hold a further conference with the firms at an early date, to review the position and consider what further steps should be taken.

Undulant Fever caused by B. abortus.—In a reply to Mr. Guinness, on July 25th, Mr. NOEL BUXTON said he understood that the Ministry of Health would shortly issue a report containing the evidence, mainly obtained abroad, on which was based the theory that a form of undulant fever was caused by the bacillus which produced abortion in animals. The publication of this report would attract the attention of medical and veterinary practitioners and research workers to the study of this question, on which, so far as this country was concerned, there was at present little information.

Hospitals and Accidents due to Motor Traffic.—Mr. HERBERT MORRISON states that under Section 16 of the Local Government Act, 1929, hospitals maintained by local authorities may recover expenses for treatment of accidents due to motor traffic. He does not think it practicable to apply similar provisions to other hospitals or to impose an additional statutory charge on drivers' licences with a view to dividing the proceeds among them.

The Water Supply.—Answering questions on July 25th about [illegible] Mr. GREENWOOD said he was advised that there was no cause for alarm about the position of the water supply, but great difficulties in certain localities. No serious shortage of water in London was expected. Particulars of water supply were now being collected by local investigators. He was anxious that local authorities should undertake without delay measures on the lines advocated in a booklet issued by the Ministry of Health in October, 1928, which advocated comprehensive surveys through advisory regional committees.

International Labour Office Conventions.—Miss BONDFIELD stated, on July 24th, that as soon as necessary amendments had been made in the National Health Insurance Act as affecting Northern Ireland, the British Government would ratify the International Labour Office Conventions of 1927 concerning sickness insurance for agricultural workers, for workers in industry and mines, and for domestic servants. On the same date Mr. LAWSON stated that the Government intended to examine in the light of existing law and practice in this country, the League of Nations' Maternity Convention and other unratified International Labour Conventions. It was not possible to say yet what action would be decided on.

All-India Medical Council.—The Government of India recently convened a conference of representatives of provincial Governments to consider the proposal to create an All-India Medical Council. Mr. BENN had not, on July 25th, received a report of the conference. He hoped to be able shortly to make an announcement regarding the appointment of a Commissioner of Medical Qualifications and Standards.

Mental Examination of Convicted Persons.—Mr. LANG asked, on July 25th, whether, in view of the fact that for the three years 1926 to 1928 inclusive, 295 male and 43 female prisoners were certified as insane after their reception into prison as convicted persons, the Home Secretary would provide for the obligatory mental examination of all convicted persons before sentence. Mr. CLYNES replied that wherever there was reason for suspecting mental abnormality it was right that the court should have a medical report before proceeding to conviction and sentence. It was the duty of prison medical officers to make such reports on prisoners committed for trial or remanded by courts of summary jurisdiction to prison for medical observation.

Provision for Mental Defectives.—On July 25th Mr. GREENWOOD said his attention had been drawn to the cases of mental defectives in Plymouth who were in need of institutional care and for whom no vacancies could be found. The responsibility for making proper provision for mental defectives rested with the local authority, but the Board of Control [illegible] with regard to the provision of temporary [illegible] the provision of a colony jointly by the [illegible] and other local authorities. Any suitable proposal by the local authority would receive favourable consideration.

The Census of 1931 and Overcrowding.—In the House of Lords on July 24th Lord BALFOUR OF BURLEIGH asked the Government whether, in order to secure full information as to the existence [illegible] would be taken to distinguish, in the [illegible] houses of four and five rooms, and between [illegible] and for sleeping purposes. Lord ANSON, [illegible] that the whole question of the particulars [illegible] ensus of 1931 would receive the careful and earnest consideration of the Government at an early date, with a view to seeing how far changes should be made in them so as to enlarge the general information on the housing conditions of the people.

Notes in Brief.

The Secretary for the Colonies is obtaining the views of his advisory committees and of the Government of Northern Rhodesia on the provision of hospitals in the copperfields of that protectorate.

Answering the Duchess of Atholl, Mr. W. Adamson laid down that the after-care of children who, when at school, had been ascertained to have medical defects was not, in Scotland, a responsibility of education authorities.

A comparison is furnished by the Home Secretary of street accidents at points in London where roundabout and one-way traffic systems have been in operation for twelve months. This shows that from the inception of the systems, 16 persons have been killed at these points and 121 seriously injured, compared with 26 killed and 108 seriously injured in the corresponding period before the systems were introduced. Slight accidents were more numerous after the change.

Mr. Clynes states that arrangements are required to be made at every engineering factory for the first-aid treatment of eye injuries, but the subsequent provision of specialist treatment is outside the scope of the Factories Acts.

A draft report on the pollution of rivers will be ready for consideration in the autumn by the standing committee on that subject.

Of 138 male hospital officers in the prison service, 45 are registered by the General Nursing Council. Of 50 women hospital officers, 43 are fully trained nurses, all of whom are State registered. At Birmingham, Liverpool, Manchester, Parkhurst, Wandsworth, and Wormwood Scrubs prisons the principal hospital officer is not registered.

Mr. Greenwood states that the Registrar-General's estimates of population for the year 1928 were made with a greater thoroughness and with regard to a higher standard of precision than has hitherto been necessary, and effected some amendment of the intervening estimates.

During 1928 in England and Wales 161,412 cows were examined under the Tuberculosis Order of 1925, and 13,832 cows were slaughtered.

Mr. Buxton states that the International Veterinary Bureau, which exists to secure co-ordination of research into foot-and-mouth and other serious animal diseases, has recommended that Governments shall consider the exchange of specialists engaged in such research work.

Medical News.

The Minister of Health, the Rt. Hon. Arthur Greenwood, M.P., has appointed Mr. H. W. S. Francis, O.B.E., to be a principal assistant secretary, and Mr. R. H. H. Keenlyside, O.B.E., and Mr. J. N. Beckett to be assistant secretaries of the Ministry.

The Minister of Pensions has appointed a committee to inquire into the administration of the Queen Alexandra (Ministry of Pensions) Hospital, Cosham, Hampshire, and to report thereon. The members are as follows: Sir Frederick Willis (Chairman), Mr. John Bromley, M.P., Major J. B. Cohen, Mr. Isaac Foot, Sir Adair Hore, and Dr. Edward Mapother. It is understood that no public meeting of the committee will be held while legal proceedings arising out of the death of a patient at this hospital are pending.

The *Times* of August 1st contained the following information, described as an "official statement," which had been issued on July 31st: "A meeting of the National Radium Trust was held at the Privy Council Office to-day under the chairmanship of the Lord President of the Council, Lord Parmoor, at which the constitution of the Radium Commission and other matters connected with the Trust were considered. The meeting selected six names for membership of the Radium Commission out of the panel prepared by the medical authorities nominated in the Charter of the Trust. Steps were also discussed for ensuring that the Trust and Commission should be put on a business basis in order that as soon as possible benefit might be derived from the resources at the Trust's disposal. The appointment of a secretary and an assistant secretary will be announced shortly." We have received an intimation, dated August 1st, from the National Radium Trust, Ministry of Health, Whitehall, S.W., stating that the Trust has appointed Mr. P. Barter, of the Ministry of Health, to be its secretary, and Mr. Niven F. McNicoll, of the Department of Health for Scotland, to be assistant secretary.

A three months' course of lectures and demonstrations on clinical practice and in hospital administration will be given at the North-Eastern Hospital of the Metropolitan Asylums Board, St. Ann's Road, Tottenham, N.15, by the medical superintendent, Dr. F. H. Thomson, on Wednesdays and Fridays at 4.45 p.m., and alternate Saturdays at 11 a.m., beginning on October 2nd. The fee for the course, which complies with the revised regulations of the General Medical Council for the diploma in public health, is £4 4s. A course under the old regulations may be taken for £3 3s.

The Fellowship of Medicine announces that a fortnight's whole-day course in diseases of children will be given at the Queen's Hospital for Children from August 12th to 21st. Courses in September will be as follows: diseases of the chest, Brompton Hospital, September 9th to 14th; diseases of infants, Infants Hospital, September 9th to 21st; psychological medicine, the Bethlem Royal Hospital, Tuesday and Saturday mornings from September 10th to October 5th; medicine, surgery, and the specialties, the Westminster Hospital (for men graduates only) from September 16th to 28th. An experimental whole-day course in gastro-enterology will be arranged at the Prince of Wales's Hospital, Tottenham, from September 30th to October 4th; post-graduates interested in this course are asked to apply early for the syllabus. The Metropolitan Hospital, Kingsland Road, will hold an experimental course in medicine, surgery, and the specialties from October 21st to November 2nd; this course will occupy the whole of each day, and will cover all branches of medicine and surgery. Another evening course for the M.R.C.P. examination will be arranged from October 15th to December 6th; it will be held on Tuesday and Friday evenings at 8.30 p.m. at the lecture room of the Medical Society of London, 11, Chandos Street. Full particulars of all the courses are obtainable from the secretary of the Fellowship, 1, Wimpole Street, W.1.

In view of the quality and number of the applications received for the two Chadwick Travelling Scholarships in Sanitary Science and Municipal Engineering, advertised in January last for award in July, the Trustees have decided to make three instead of two appointments. The successful candidates are Francis Bach, M.A., M.D.(Oxon.), to whom a scholarship is granted for the purpose of investigating the environmental and other causes of rheumatic diseases and their influence in producing diseases of the heart; Edmund A. Elsby, B.Sc., who is appointed to study and collect data in this country and America respecting the removal of silica dust from atmosphere in factories and other places where grinding operations are carried on; and John B. Dempster, B.Sc., to study sewage and sewerage with special regard to trade waste—alone and with crude sewage. All these scholarships are tenable for one year, and are of the value of £400 each.

In addition to the lists of medical practitioners serving as members of local authorities or their subsidiary bodies in Great Britain, which have been published in our columns from time to time, we have received intimation that Drs. G. H. R. Holden, William Hartnett, J.P., and D. Saunders Jones are members of the Reading County Borough Council.

The trustees of the William Shepherd estate have sent a third donation of £1,000 to the General Lying-In Hospital, York Road, Lambeth.

The seventeenth annual report on typhoid fever in the large cities of the United States, which has been recently issued by the *Journal of the American Medical Association*, deals with 81 cities in the United States with more than 100,000 population, and shows that nine cities had no typhoid deaths during 1928 (as compared with seven in 1927). Of the 45 cities with death rates below 2 per 100,000, 30 had the same low death rate in 1927. The six cities with populations of more than a million (Chicago, Cleveland, Detroit, Los Angeles, New York City, and Philadelphia) had rates below 2 per 100,000. The total typhoid death rate (627 deaths) for 74 cities in 1928 was a little lower than in 1927 (1.89 as against 1.96). The different groups of cities were in about the same order as in all the years since 1925 inclusive; the New England, East North Central, Middle Atlantic, West North Central, and Mountain cities all had low group rates very nearly alike, while the 1928 rates in the three Southern groups were far below the rates for 1925 and 1926 and, in the case of the East South Central, also far below the 1927 rate as well.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to ***The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.***

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The ***TELEPHONE NUMBERS*** of the British Medical Association and the *British Medical Journal* are *MUSEUM 9861, 9862, 9863,* and *9864* (internal exchange, four lines).

The ***TELEGRAPHIC ADDRESSES*** are:
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FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*
MEDICAL SECRETARY, *Mediocra Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone 24361 Edinburgh).

QUERIES AND ANSWERS.

Darwin's Home.

Dr. E. J. Pritchard (Wandsworth Common) writes: I was interested to read in the *British Medical Journal* of June 15th an account of the opening of Down House, "Charles Darwin's Home." Could you tell me where the house is? It might be a pleasant afternoon's motor run to visit it on some summer day, and I am sure there are many other medical men who would like to do likewise.

*** Down House stands a quarter of a mile from the village of Downe in Kent, at the edge of a narrow lane, some 16 miles from London Bridge, between the high roads to Westerham and Sevenoaks. In 1842, when Charles Darwin bought it and made it his home for life, a long coach drive was the only means of access. The nearest railway station now is Orpington (Southern Railway), four miles away; the village is not served by public conveyance. The accompanying sketch map may be of service to those who, like Dr. Pritchard, think of going to Down House by motor car.

TREATMENT OF FUNCTIONAL TACHYCARDIA.

"M.D.CANTAB." writes: "Puzzled" (July 27th, p. 171) should try *small doses of calcium lactate*. For nearly thirty years I had been subject to paroxysms of tachycardia and auricular fibrillation, often lasting eight hours and occasionally much longer. They often occurred without evident cause—for example, during sleep—and probably they were due to some chemical disturbance. I then found that calcium lactate (taken at first for chilblains) improved the general health and acted especially on the heart. I have taken 15 grains every night for seven years, and during that time have been almost entirely free from the trouble. I am 75 years old, and am still able to live a fairly active life.

INCOME TAX.

Resident Abroad Visiting the United Kingdom.

"INQUIRER" asks for information as to the circumstances in which a person working and residing abroad may become liable to United Kingdom income tax through visits to this country. He is unmarried, and has no residence in the United Kingdom.

*** The statutory rule is that a person is not chargeable to tax in respect of income received from abroad (1) if he is in the United Kingdom for some temporary purpose only and not with a view of establishing a residence, and (2) if he is also not actually in the country for six months in any one financial year. Both conditions must be complied with to entitle the visitor to exemption. *The difficulty in the application of the rule lies in* the interpretation of the first of the two conditions. On that point the Board of Inland Revenue issued a public memorandum some months ago, a copy of which would, no doubt, be forwarded to "Inquirer" on application to the Secretary, Inland Revenue, Somerset House, London, W.C.2. Briefly stated, the view of that department—based apparently on judicial decisions of the High Court in recent years—is that even though a visitor does not maintain a place of abode in this country, and does not stay for six months in any one year, he becomes a resident if he visits this country habitually year after year and the annual visits are for substantial periods. The memorandum went on to say that normally the department would regard visits of three months as "substantial" and visits as becoming "habitual" after four years, and further, that where the visitor's arrangements indicated from the start that regular visits for substantial periods were to be made he would be regarded as resident in and from the first year. *Unless and until that statement of the legal* position is successfully challenged in the High Court it may be taken as authoritative. If liable at all on his foreign income, "Inquirer" would be taxable only on that part of it which he received in or had remitted to the United Kingdom, and he would be entitled to the usual personal reliefs—£135 free, £225 at half rate, etc.

Partnership Agreement.

"S. A. M." took a partner into his practice "on July 1st, 1928, and paid him a salary till July, 1929 (not in agreement)." The local official requests the production of the partnership deed. Is he *entitled to demand its production?*

*** The assessor or inspector has no specific powers under the Income Tax Acts, but the Commissioners responsible for dealing with the assessment could refuse to grant the personal allowances against the gross assessment until they have been satisfied as to the correct method of dividing the burden between the partners. The local official is probably making his request with a view to arriving at an agreed basis of division; in the absence of that agreement the Commissioners will, no doubt, use their statutory powers. On the merits of the particular case the request is the more difficult to refuse, as the payment actually made seems to have been different from that for which the agreement provided. Section 20 of the Income Tax Acts, 1918, lays down the rule that "the income of a partner . . . shall be deemed to be the share to which he is entitled during the year to which the claim relates," and the exact provisions of the partnership agreement are therefore material.

LETTERS, NOTES, ETC.

SIR JAMES BARRIE AND LANDLADIES.

SIR JAMES BARRIE'S speech on the occasion of the conferment upon him, on July 29th, of the freedom of the city of Edinburgh has been very fully reported in the public press, but it is perhaps justifiable to repeat his delightful tribute to his old landlady, and to good landladies in general, in a medical publication, for generations of medical students, especially in Scottish universities, where the system of residential halls has never been greatly in evidence, have had good reason to be grateful to their landladies. Sir James's remarks, therefore, must have struck a responsive chord in the memory of many who were students at Scottish universities. He said: ". . . Without throwing discretion to the winds, I shall tell you about the woman. I would rather have had her here to-day than almost anyone I can think of. If she had been here, I am sure she would have been wearing a black silk dress, or something she considered uncommonly like it. She kept lodgings—fortunately for me. She was an old and poor widow woman, without kith or kin, but I think it would ill become me to stand up in Edinburgh without recalling the fragrant memories of Mrs. Edwards. In after-years, when I used to go and see her, she would shake a playful fist at me and say: 'Yer play wis here, being acted by the play-actors, and I wis fain to go, but, oh, Mr. Barrie, I coulina daur!' If she had lived into the war I can conceive her forcing her way on to the Castle to fire Mons Meg at the enemy. I can hear her, pausing after each shot to shout out: 'Count your men now, Mr. Kaiser!' A short play of mine, *The Old Lady Shows Her Medals*, was written entirely thinking of Mrs. Edwards. Why is it that landladies are so much maligned? I think all we old Edinburgh graduates, who had good ones, might do worse than raise a statue in Edinburgh to the students' friend."

PROFESSOR HILL'S POPULAR LECTURE.

DR. AGNES ESTCOURT-OSWALD (Colchester), in the course of a letter with this heading, writes: From the report in the *British Medical Journal* of the Popular Lecture given at Manchester, *Professor A. V. Hill seems to have wished to impress upon his* audience that the various advances in modern medicine and surgery depended upon experiments on animals. The question that one naturally asks is, "Does such dependence really exist?" A fact having been found out in one way, it would be absurd to say it could be found in no other. Because America was discovered by a sailing vessel should not make anyone declare that the discovery of America depended on such primitive craft, and that a steamer could not have done the job. During the last hundred years or so many benefits—the greatest, I believe—have accrued to mankind from the science of medicine without experiments on animals. Therefore there is no reason to think that no more benefits will arise except by the infliction of suffering on living creatures. And it is the suffering of animals to which the antivivisectors wish to put an end; not, as Professor Hill said, "to all this research." No one wants to end any research which can be guaranteed to cause no suffering to any animal except for its own individual benefit.

MILK AND COMMUNICABLE DISEASE.

MR. P. B. TUSTIN (United Dairies Ltd.) writes: It is *disconcerting to hear of a medical man of the prominence of Dr. Charles* McNeil making the fantastic and misleading statement (at the Annual Meeting of the British Medical Association) that tuberculous milk, which constitutes the greatest and most serious example of food poisoning, is widespread in this country. Great Britain may not lead the way among the countries of the world in regard to the quantity of milk consumed by its population, but it is generally agreed to be in the front as far as purity of supply is concerned. At the Public Health Conference organized by the Ministry of Health at the Agricultural Hall last year, and again at the Royal Sanitary Institute Conference at Sheffield this year, I asked a large number of medical and sanitary authorities if anyone present could tell me of an outbreak of communicable disease caused by milk that had come under his own personal knowledge during the past ten years. In neither case was a reply given in the affirmative. In the United States official report for 1926–27 all the outbreaks of disease were due entirely to raw milk; 104 *epidemics were* definitely traced to milk. The reason of our freedom from outbreaks is that milk in London and other large centres is nearly all pasteurized.

ASSOCIATION OF RICKETS WITH A CYSTIC KIDNEY.

DR. S. F. LEAVINE (Kitchener, Ontario) suggests that renal disease may possibly be concerned in some forms of rickets. He reports a case in a boy, aged 5, who began to limp and suffered from pain in the knee and left hip, which became progressively worse. This was associated with an abdominal tumour, apparently of renal origin. Although an *x*-ray examination suggested a tuberculous etiology for the hip condition, the Pirquet and [illegible] were *negative*, and the *blood only* lymphocytosis, which was considered [illegible]ge; the urine showed no abnormalities [illegible] cystic kidney was removed, and after two months treatment by cod-liver oil and *sunshine* the patient recovered perfectly, though a radiological examination subsequently revealed irregular destruction and condensation in the neck of the femur, suggesting chronic osteomyelitis. While Dr. Leavine admits the possibility of coincidence in this case, he suggests that the condition may have been rickets of renal origin.

THE CERVIX DURING COITUS.

DR. MAURICE B. JAY (Clapton Common, E.5) writes: The following case is interesting, as it seems to throw light on the action of the cervix uteri during coitus. I was called to see a woman who informed me that one hour previously, during coitus, a part of the sheath worn by her husband was torn away and remained in the vagina, whence she could not remove it. On examination I found the sheath firmly fixed in the cervical canal; some force was required to pull it out. As about 2 in. of the sheath was in the canal, I think the tip must have passed through the internal os. I examined the woman the *following day*; the cervix was quite healthy, and the cervical canal would not permit the passage of a fine probe.

VACANCIES.

NOTIFICATIONS of offices vacant *in universities, medical colleges*, and of vacant resident and other appointments at hospitals, will be found at pages 37, 38, 39, 42, 43, and 44 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 40 and 41.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page *116*.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

98. Herpetic Fever.

H. PETTE (*Acta Med. Scand.*, May 28th, 1929, p. 421), who records an illustrative case, states that herpetic fever was first described as a clinical entity by Griesinger. The lively discussion which ensued showed that by no means all the cases of transient fever followed by more or less extensive herpes simplex were of herpetic origin. Kühn in particular pointed out that many cases of so-called herpetic fever were really examples of rudimentary pneumonia with a herpetic eruption. Subsequently Schottmüller showed that many cases of one-day fever with herpes simplex were the result of an acute *B. coli* infection of the urinary tract. At present, however, Pette has no doubt that febrile states with extensive herpetic eruption do exist; they cannot be regarded as the expression of pneumonia or any other infection, but are probably entirely due to the virus of herpes. Zlocisti in 1920 described a number of cases which he saw in Constantinople and regarded as examples of herpetic fever, as he was able to exclude every other infection by careful bacteriological and serological examination. The cases occurred in men, aged from 20 to 40, who became ill with symptoms of shivering and fever and developed extensive facial herpes, usually on the third day as the temperature fell. Lauder and Luger, after careful study of the literature, also came to the conclusion that there was a clinical entity which, owing to its most prominent symptoms, could rightly be described as herpetic fever. Pette's patient was a man, aged 31, who within the last six years had repeatedly suffered from attacks resembling influenza, followed by acute meningitis with very extensive facial herpes; he always recovered in a few days. Experimental evidence was found of the presence of a very virulent strain of herpes which caused the herpes facialis, though the virus was not detected in the cerebro-spinal fluid or blood.

99. Cerebral Complications in Broncho-pulmonary Cases.

A. GORDON (*Med. Journ. and Record*, June 19th, 1929, p. 694) states that complicating cerebral manifestations may occur in broncho-pulmonary affections of prolonged duration, though the lung disorder may be so pronounced that the brain symptoms may be overlooked. In a case which he reports bronchiectasis was associated with abscesses in the right temporal and left frontal lobes and in the posterior horn of the left lateral ventricle. The pus from these revealed the presence of non-haemolytic streptococci. The patient had suffered from bronchitis for several years and from severe headache for many months, but, owing to the absence of gross objective motor and sensory phenomena, the nervous complications were overlooked. Brain abscess has been observed in many broncho-pulmonary conditions, and among these the most common is bronchiectasis, probably due to its longer duration. Then follow in order of frequency lung suppuration, tuberculosis, empyema, and pneumonia. The formation of these abscesses may be due to thrombophlebitis, metastasis, or to direct bacterial invasion through the small pulmonary or bronchial veins to the superior vena cava, the jugulars, the cerebral sinuses, and finally to individual veins in the brain. Gordon emphasizes the point that the absence of gross symptoms of an organic involvement of the central nervous system does not always exclude invasion of brain tissue, and that, when the motor or sensory cortex or other important cerebral centres are not involved, the respective clinical signs will be absent. Persistent severe headache with periodic attacks of somnolence indicate cerebral involvement, and attention should be directed to areas other than the special centres of the brain. According to Eagleton, the frontal lobe is the most frequent seat of abscess. The temporal lobe, especially its apex, is another site involvement of which may be unaccompanied by any marked signs.

100. Spinal Changes in Pernicious Anaemia.

B. M. FRIED (*Journ. Amer. Med. Assoc.*, April 13th, 1929, p. 1260) discusses the histological changes which occur in the spinal cord in the course of pernicious anaemia, and comments on the limitations of liver diet. He shows that whereas the degenerative cellular changes in the visceral organs in this disease are often followed by restitution of structure and function, analogous processes of regeneration of nerve cells or fibres in the central nervous system have never been observed. In pernicious anaemia the nerve cells and axis cylinders of the white matter of the cord become degenerated, and are eventually replaced by fibrous tissue. Advanced sclerotic changes, however, are seen relatively seldom, possibly because the process of organization in pernicious anaemia is extremely slow. The histological picture is essentially that of a progressive degeneration and not of inflammation. Liver diet does not cure pernicious anaemia, but leads to a protracted remission, during which the lesions of the central nervous system probably do not progress. Before this treatment was introduced natural remissions of the disease occurred, but during them the spinal lesions remained, as a rule, active and even became more marked. It is not to be expected, therefore, that great improvement in the nervous symptoms of pernicious anaemia will follow the continued administration of liver, and the author adds that it is remarkable that some functional improvement does, nevertheless, occur.

101. Typhoid Infection of the Spine.

A. DOUBLET (*Thèse de Paris*, 1929, *No.* 96), who records six cases in persons aged from 10 to 42, one of which is original, states that typhoid spondylitis is a relatively rare localization of typhoid bacilli. It usually occurs in adults, but adolescents and even children are not immune; it most frequently appears at the onset of convalescence. The principal symptoms are sudden and severe lumbar pain, most marked at night. The bone and joint lesions are characterized by disappearance of the intervertebral discs and the production of osteophytes. Sensory or sphincter troubles are absent, and the constitutional disturbance is slight. The Widal reaction is always positive for *B. typhosus* or *B. paratyphosus*. The condition must be distinguished from acute vertebral osteomyelitis, high sciatica, and especially incipient Pott's disease. The diagnosis is made by the history, symptoms, and Widal test. The condition is of relatively long duration, as it may last from two to six months. But whereas all the other forms of typhoid osteitis end in suppuration, it is rare to find abscesses in typhoid spondylitis. The prognosis is good as regards life, and under modern treatment is also favourable as regards recovery of function. Treatment consists chiefly in rest in the horizontal position, with slight immobilization if necessary. It is most important, however, to inject typhoid or paratyphoid vaccine, or both, as early as possible.

102. Etiology of Influenza.

K. KISSKALT (*Deut. med. Woch.*, April 19th, 1929, p. 648) deprecates regarding the bacillus in influenza as the most important factor in etiology. He remarks that the most striking phenomenon in connexion with influenza is its seasonal occurrence. It is hardly ever possible to foretell the occurrence of other epidemic diseases, but expectation of the appearance of influenza from the close of the year until April is very often realized; prophylaxis should therefore be undertaken accordingly. Influenza is stated by Kisskalt to be a disease which is more frequently caused by damp shoes than by cold air; changing wet shoes and stockings is therefore a wiser plan than attempting to avoid an often inevitable infection. He adds that, as regards the morphology and biology of the casual agent, the objection to Pfeiffer's bacillus being so considered is that it has not been found at the beginning of pandemics even by expert investigators. Its subsequent wide dissemination may be explained by an epidemic spread of a saprophyte, as Kisskalt claims to have shown to occur in the case of *Streptococcus pleomorphus*.

103. Sex Factors in Influenza.

E. APERT (*Bull. et Mém. Soc. Méd. des Hôp. de Paris*, May 20th, 1929, p. 625) presents figures showing that during the epidemic of influenza in 1918 the attacks were accompanied by a higher temperature, had a longer duration, and were more frequently complicated and fatal in girls than in boys. The deaths from pneumonia and other respiratory diseases, with the exception of tuberculosis, not only in childhood but also in adult life, were also than in males during that period. In epidemic of the first quarter of 1929 t were more than a quarter heavier among females than among males, while as regards the diseases of the respiratory tract most liable to be affected by influenza, such as pneumonia and bronchitis, the mortality was only three times the usual rate in the male sex, whereas it was more than five times the

normal in the female sex. The greater susceptibility of the female sex to the virus of influenza was thus confirmed in the recent epidemic. Apert had previously shown that the same was true as regards whooping-cough.

104. Clinical Significance of Premature Heart Beats.

J. W. ESLER and P. D. WHITE (*Arch. Int. Med.*, May, 1929, p. 606) compare a series of 100 patients with premature heart beats but no marked degree of auriculo-ventricular or intra-ventricular block with 100 patients whose cardiac rhythm was normal, their object being to determine the prognostic significance of this condition with special relation to the degree of cardiac rapidity. They found that the prognosis was no graver when premature beats were associated with a rapidly beating heart, when due allowance was made for the increase in mortality attributable to the increased rate alone. Auricular premature beats were not found to be more significant as regards prognosis of life than were the ventricular beats; in the latter the prognosis was not more serious when the origin was multifocal, and the authors doubt whether such multifocal premature beats are always accompanied by myocardial involvement. The frequency with which premature beats occurred in a given case seemed to bear little relation to prognosis.

105. Musculo-tendinous Contracture in Syphilis.

M. FAVRE (*Journ. de Méd. de Lyon*, May 20th, 1929, p. 347) describes a peculiar condition known as syphilitic contracture of the biceps, which sometimes begins suddenly, causing limitation of extension of the forearm; any attempt at extension is painful, and the biceps is abnormally tender at the junction of the tendon with the muscle fibres. This syphilitic contracture occurs most frequently during the secondary period, but it may be found much later. It appears to be peculiar to syphilis, and Fournier asserted that it had never been found definitely in any muscle other than the biceps. Favre, however, describes the case of a man, aged 31, in whom the gastrocnemii were involved. He had severe pain on walking or standing. The condition had been diagnosed as rheumatic, but he had a large whitish scar on the prepuce. The ulcer had been thought to be a soft chancre, and the patient had not received any antisyphilitic treatment. His Wassermann reaction was strongly positive before the commencement of treatment. The pain in both calves forced the patient to maintain full extension of his feet; these pains had persisted for fifteen days, and had been preceded by nocturnal headache, lumbar pain, general weakness, and slight fever. Immediate improvement followed antisyphilitic treatment, and the patient was quite freed from pain in six weeks after commencement of treatment.

106. Prognostic Value of Intradermal Injections of Horse Serum.

A. FIORENTINI (*Il Policlinico*, Sez. Prat., May 27th, 1929, p. 731) gives the results of some 700 injections of horse serum in 223 patients suffering from various diseases, mostly tuberculosis or syphilis. He finds that a negative reaction is of bad prognostic import, especially when this is persistently negative or becomes negative after a brief positive reaction. Of the 46 who gave a persistent negative reaction, 7 died. The patients could be classified in three groups: those who gave a positive reaction at once; those who gave a preliminary negative followed by a positive reaction; and those who were negative throughout. In the third class the prognosis is unfavourable.

107. The Healthy Carrier in Scarlet Fever.

R. TUNNICLIFF and T. T. CROOKS (*Journ. Amer. Med. Assoc.*, May 4th, 1929, p. 1498) record an outbreak of fourteen cases of scarlet fever which was traced to three healthy carriers of scarlet fever streptococci. The method of detection is as follows. Cultures are taken on the ordinary Loeffler's medium for diphtheria bacilli. This is sent to a laboratory, where blood-agar plates are made. If after eighteen to twenty-four hours' incubation haemolytic streptococci are not present, it is assumed that the culture is negative for scarlet fever. If haemolytic streptococci are present, they are examined by the following rapid opsonic method. Equal parts of normal human serum, citrated blood, and bacterial suspension are mixed in bent capillary pipettes, and the mixtures are incubated for twenty-five minutes at 36°C. They are then smeared on glass slides and stained; fifty or more polymorphonuclear leucocytes are counted, and the number of cells taking part in phagocytosis is noted (phagocytic index). If the phagocytic index of the immune serum exceeds that of normal serum determined by the same method, it is concluded that the coccus belongs to the scarlet fever group. The opsonic indices with the scarlatinal streptococci from the carriers in the authors' series varied from 4 to 18.

108. Nephritis in Diphtheria.

J. BÉDOURET (*Thèse de Paris*, 1929, No. 68), who records seven illustrative cases in patients aged from 2 to 38 years, states that two clinical forms of diphtherial intoxication of the kidney may be encountered. The first is a temporary albuminuria which has no prognostic significance, while the second is a nephritis which is much more serious. Bédouret maintains that the diphtheria toxin, apart from association with other organisms, and especially streptococci, is not capable of giving rise to this nephritis. Pathologically the condition is a tubulo-nephritis without glomerulitis. The existence of the nephritis is not a contraindication to serum treatment.

Surgery.

109. Transillumination in Breast Lesions.

M. CUTLER (*Surg., Gynecol. and Obstet.*, June, 1929, p. 721) calls attention to the value of transillumination as an aid to the diagnosis of breast lesions, and especially to their localization in cases of bleeding nipple. The examination is made in a totally dark room with a Cameron transilluminating electric light placed against the under surface of the breast and gradually moved for the inspection of different areas, so that any particular portion is directly between the light and the examiner's eye. The degree of translucence can be increased by compressing the breast between the hand above and the light beneath. The findings vary normally, depending mainly upon the relative content of fat, fibrous tissue, and epithelial elements. The study of 174 pathological breast conditions showed the value of the method as an aid to differential diagnosis and treatment, it being found that acute, subacute, and chronic inflammations present a diffuse opacity, which diminishes and disappears as the inflammation subsides. Solid tumours are opaque, the degree of opacity varying with their size and location, but without affording a means of differentiation between benign and malignant tumours. Cysts containing clear fluid are translucent, and this may be of great value in differentiating carcinoma from tense deep cysts with skin adherence clinically simulating a malignant growth. Blood effusions are intensely opaque, and a traumatic haematoma shows an irregular outline disappearing as the blood is absorbed. The method is of especial value in cases of bleeding nipple in which no tumour can be palpated, and it affords a means of distinguishing between those due to a single localized papilloma and those caused by multiple papillomata, its practical importance being demonstrated by those cases in which the removal of a duct papilloma has failed to cure, while on subsequent transillumination several opacities point to the existence of multiple lesions. When, however, the discharge from the nipple is not distinctly haemorrhagic, localization may be impossible.

110. Sarcoma of the Prostate.

H. E. PAUL (*Urol. and Cutan. Review*, May, 1929, p. 307), who records a fatal case in a boy aged 14, states that sarcoma of the prostate is a rare disease, as only about 85 cases have been reported in the literature. Parmenter in 1917 collected 59 cases, to which Culver added 17 more in 1925, including one of his own; in 1926 Kretschmer reported 2 more from his own practice. About one-third of the cases occurred in patients under the age of 10, though the ages in all reported cases range from 8 months to 77 years. Perineal injury prior to the onset has been frequently reported, but probably the trauma only hastens the progress of the growth. Metastasis is usually by the blood stream, especially in the young. Eleven pathological types of sarcoma have been described, the following six being the commonest in order of frequency: round cell, spindle cell, myxosarcoma, lymphosarcoma, rhabdosarcoma, and angiosarcoma. The symptoms are those of vesical and rectal obstruction. In adults, in whom the progress is less rapid than in children, intestinal disturbance, such as constipation alternating with diarrhoea, is common. Haematuria is not frequent.

111. Post-operative Meningococcal Infection.

M. PERRIN, V. DE LAVERGNE, and M. POIRIER (*Paris Méd.*, May 11th, 1929, p. 465) record the case of a soldier, aged 21, who, four days after spinal anaesthesia for radical cure of inguinal hernia, developed a meningococcal infection which at first assumed a septicaemic form of the pseudo-malarial type, with which a meningeal form was subsequently associated. The discovery of the meningococcus in the cerebro-spinal fluid confirmed the clinical diagnosis of meningococcal infection. The disease was unusually protracted, as it lasted for nine months, and was not benefited by any treatment, including serotherapy, protein therapy, and two fixation abscesses. Although it is possible that the trauma caused

by the spinal anaesthesia had nothing to do with the development of the infection, the authors think it more probable that there was a relation of cause and effect. It is very likely that the spinal anaesthesia, whether by removal of fluid or by the addition of foreign material, caused a considerable change in the composition and tension of the cerebro-spinal fluid. Consequently, the organs concerned with keeping the composition and tension of the cerebro-spinal fluid constant, particularly the choroid plexuses, showed an increase of function. As the result of absorption the lymphatics draining the nasopharynx, in which the meningococcus was present, came in contact with the cerebro-spinal fluid, and thus the infection became generalized.

112. Primary Neoplasms of the Renal Pelvis.

L. HERMAN and L. B. GREENE (*Annals of Surgery*, May, 1929, p. 682) point out that carcinomata comprise approximately 5 per cent. of all renal neoplasms, and consider that the majority of extensive new growths of epithelial origin originate from the pelvic mucosa. Infiltrating, non-papillary, or alveolar carcinomata are always malignant, and, in spite of microscopic characteristics of benignancy, it may be assumed that all papillary tumours are inherently malignant. Primary non-papillary neoplasms of the renal pelvis originate from the transitional epithelium; the parent cells are probably certain ones which have become squamous in type as the result of metaplasia, or true ectodermic cells representative of developmental inclusions. Chronic irritation is an important predetermining factor in squamous-cell epithelioma of the renal pelvis, and a chronic bacterial inflammation, calculus, or leucoplakia is usually present. The type of tumour generally associated with calculi is characterized by early replacement of the renal parenchyma by tumour cells and fibrosis, leading to enlargement, induration, nodulation, and dense fixation of the kidney. Metastasis by way of the lymphatics occurs very early in the course of squamous-cell tumours of the renal pelvis. Perirenal nerve involvement and carcinomatous infiltration of the parenchyma usually denote inoperability. The prognosis is very bad, and out of a series of 30 patients operated on 16 died as the result of operation; the average length of life among the survivors was only seven and a half months. It would appear to be impossible to recognize the condition as neoplastic early enough to permit complete eradication of the disease by nephrectomy. Papillary tumours are less malignant, but give rise in 70 per cent. of cases to tumour implants in the ureter and bladder. In most instances parenchymal invasion and metastatic dissemination occur comparatively late in the disease. Haematuria, often massive and sometimes painless, is present in 90 per cent. of cases, and generally appears comparatively early. Renal colic, caused by the passage of clots or by pelvic blockage due to a pedunculated growth, is a frequent symptom. Palpable renal enlargement, when due to parenchymal involvement, indicates inoperability. In the majority of cases the diagnosis of intrapelvic tumours can be made certain by means of pyelography. Treatment should be surgical whenever possible, followed by the exhibition of radium.

113. *Treatment of Furunculosis.*

W. MAYER (*Münch. med. Woch.*, May 17th, 1929, p. 838) points out that the treatment of superficial boils by the method of complete rest and poulticing is often impracticable under industrial conditions. He therefore advocates the following procedure, which has also been found useful in factories and hospitals. If a furuncle requires opening a piece of aluminium foil, perforated by a hole 4 mm. in diameter, is placed on the affected skin so that the furuncle projects through the hole and can be readily frozen by ethyl chloride; a small incision is made and any escaping pus wiped away. The lesion is then dressed with an ointment cell dressing. This consists of a strip of rubber adhesive plaster in which a circular hole has been cut, covered with cellophane tissue, and surrounded by a ring of felt; these together form a small cell which is filled about three-quarters full with an ointment containing pure phenol, camphor, and ichthyol. Since the phenol is analgesic and the camphor induces hyperaemia the dressing has a soothing effect, while the ring of felt not only keeps the ointment in contact with the lesion longer than if it were spread on gauze, but also protects the surrounding skin follicles from infection. The core of the boil is extruded in a few days and healing is more rapid than with moist dressings. Other advantages of this dressing are said to be that it remains in position, even on the limbs, and does not require adjusting; it is impervious to water, so that the patient can wash as usual. Both the disc of plaster and the cellophane window can be removed by sponging with ether if it is necessary to re-dress the lesion; a fresh application of ointment is then introduced and covered with another disc of cellophane. Occasionally a fresh dressing has to be applied after a few days, but in many cases one was found to be sufficient. The antiseptic action of the ointment was demonstrated by applying the dressing to the surface of an agar plate inoculated with cultures of staphylococci and streptococci, and incubating. No growth occurred in the area in contact with the ointment, though numerous colonies appeared on the rest of the plate.

114. Post-operative Thrombosis and Embolism.

ACCORDING to E. SULGER and T. BOZSIN (*Deut. Zeit. f. Chir.*, May, 1929, p. 175) there has been in recent years a considerable increase in the number of fatal cases of pulmonary embolism following operations. Several causes have been suggested, such as intravenous therapy, infections (especially influenza), therapeutic use of metals (such as mercury, silver, and arsenic), changes in diet, and potassium nitrate. In the Heidelberg surgical clinic there were 24 fatal cases of pulmonary embolism in 1926, 18 in 1927, and 16 in 1928. During the last two years the authors have been treating thrombosis of the leg by the application of leeches, of which four are usually placed over the affected vein. The subsequent bleeding is considerable, and the patient experiences great relief. Infection of the bites very rarely occurred. At Kleinschmidt's suggestion they have recently been using leeches as a prophylactic measure against post-operative emboli, but their observations are not at present sufficiently numerous to justify any conclusions. No bad effects have resulted from the method.

115. Surgical Treatment of Gastric Cancer.

FINSTERER (*Zentralbl. f. Chir.*, May 25th, 1929, p. 1306) gives the following statistics of 535 operations performed for carcinoma of the stomach; 340 were resections, 8 total extirpations, 88 gastro-enterostomies, and 99 exploratory laparotomies or jejunotomies. The results were relatively satisfactory when the stomach alone was resected, there being 13 deaths, or a mortality of 6.1 per cent., among 211 simple gastric resections. In 129 complicated resections in which the pancreas, colon, or oesophageal wall was involved, the mortality was as high as 41 per cent. In advanced age (60–78) the results were not decidedly worse than in younger patients, the mortality being 5.7 per cent. among 139 cases under 60, as compared with a mortality of 6.9 per cent. among 72 cases over 60. In 85 complicated cases under 60 the mortality was 42.3 per cent., as compared with a mortality of 38.6 per cent. in 44 cases over 60. The remote results were as follows: 50 out of 199 cases resected, or 25 per cent., had been free from recurrence for periods ranging from five to eighteen years; 14, or 17 per cent., of those kept under observation for ten years had been free from recurrence. In the case of carcinoma following gastric ulcer the remote results were worse than with primary carcinoma, for although 10 out of 32 incipient cases had remained free from recurrence for longer than five years, only one out of 28 advanced cases had shown no recurrence at the end of five years.

Therapeutics.

116. The Treatment of Gout.

P. F. RICHTER (*Deut. med. Woch.*, May 17th, 1929, p. 821) considers the therapy of gout under three heads: (1) the *acute attack*; (2) the *period free from attacks*; and (3) chronic gout and its results. In the acute attack colchicum and atophan are the two certain drugs. Colchicum (Merck) in doses of 1 mg. is administered five to six times within two hours; and if the pain has not *quite disappeared on the* following day two or three tablets are given during the twenty-four hours, but continuing it further is not advisable. The prophylactic action of colchicum is quite uncertain. Richter warns against the many proprietary preparations which contain colchicum in insignificant quantities, and also against tinctura colchici or vinum colchici in which the colchicum content is not standardized. The way in which colchicum acts is, he adds, still unexplained. The relief from pain by colchicum is in most cases dramatic, but it is often associated with unpleasant weakening of the patient and more or less severe diarrhoea, although according to some authors it is this purging effect which has so much benefit on the acute attacks. Atophan and novatophan act more slowly than colchicum and less surely in acute attacks, but they can be given for a longer period, and produce no important secondary effects. On the first day 2 to 6 grams are given, and on subsequent days half that dose until the pain and swelling have gone; by the intravenous injection of atophan or of atophan with salicylic acid (atophanyl) a more rapid effect is obtained than by oral administration. Diet in acute gout should be mild and non-stimulating, but a strict purin-free diet is not advocated. The treatment of gout during the periods free from acute

attacks is chiefly dietetic; foods with high purin content, such as liver, kidney, brain, pigeon, certain fish, beans, lentils, and mushrooms, should be avoided. The alkali and acid therapy is often useful from its beneficial effect on the stomach and bowels; treatment at spas with the idea of removing surplus uric acid from the tissues of the kidneys is of doubtful use. The action on chronic gout of massage and baths is still but little understood, though clinically it is of undoubted value.

117. Digitalization by a Small Dose Method.

H. GOLD and A. C. DEGRAFF (*Journ. Amer. Med. Assoc.*, April 27th, 1929, p. 1421) remark that it should be remembered when considering whether digitalis should be prescribed that while this drug in cases of failing circulation sometimes brings about striking improvement, there are, nevertheless, types of failing circulation in which its use is indicated on the basis of certain experimental data and theoretical considerations, but clinically little, if any, beneficial effect results. Numerous errors in the interpretation of clinical observations have arisen from failure to consider this distinction. There is no essential difference between the behaviour of digitalis in children and adults. The drug less often produces striking improvement in children because the type of heart failure that is relieved most effectively by digitalis (congestive heart failure without active infection of the heart) is relatively common among adults and rare among children. In those cases in which less definite therapeutic effects are obtained, insufficient or excessive digitalization is more apt to occur because of the absence of a satisfactory guide to the intensity of digitalis action. The gradual accumulation of digitalis in the body which occurs in the course of daily administrations of a suitable fixed dose of the drug can be shown to be a self-limiting process; the intensity of therapeutic action present at the time when further accumulation ceases depends on the size of the daily dose. Experiments are cited which show that, contrary to the view commonly held, a patient does not eliminate a fixed quantity (2 grains of digitalis leaf) of digitalis daily, but a quantity which varies with the amount present in the body; the full therapeutic effects of digitalis may be induced in many cases by the daily repetition of such doses as the patient may eliminate daily after having been fully digitalized. Prescribing the drug on these lines diminishes the danger of toxic symptoms being evoked.

118. Indications for Salt Treatment in Bright's Disease.

L. BLUM, VAN CAULAERT, and GRABAR (*Presse Méd.*, May 1st, 1929, p. 569) divide cases of nephritis into two types: (1) with oedema (always associated with excess of chloride in the organism), and (2) dry nephritis, which may be found with a normal, increased, or diminished amount of chloride. The diagnosis of hypo- and hyper-chlorhydria is considered at some length in terms of the chloride contents of the serum or plasma, of the total blood, of the cerebro-spinal fluid, and the chloropexic index of the red cells. These considerations are then applied to the different types of nephritis. Clinical diagnosis is sometimes difficult without laboratory means. The authors state that after a diagnosis of hyperchlorhydria or hypochlorhydria has been reached treatment becomes simple, and they give the following three practical rules. (1) Every nephritis case with oedema demands a strict non-chloride regime. (2) Dry and non-azotaemic nephritis requires no salt; if laboratory investigation is not available it is better to suppress or limit salt in every case. (3) In dry azotaemic nephritis it is difficult to tell whether there is chloropexy or chloropenia, and the aid of the laboratory must be sought. In hypochlorhydria salt must be given boldly in quantities sufficient to replenish the chloride insufficiency in the body. Repeated intravenous injections are advised in urgent cases, but subcutaneous injections are advocated as the method of choice in cases of less urgency. Salt can also be given by the mouth, but in patients subject to vomiting or to diarrhoea this method may be rendered useless. The authors emphasize the advice that water is as indispensable as salt; the administration of intravenous injections of hypertonic solutions can only be of temporary therapeutic value, and should be replaced by injections of dilute solutions.

119. Synthalin in Diabetes.

ELAINE P. RALLI and CONNIE M. GUION (*Journ. Lab. and Clin. Med.*, May, 1929, p. 699) consider that experimental and clinical results of different investigators indicate that synthalin causes a reduction of blood sugar in both normal and diabetic subjects; various hypotheses have been advanced as to its mode of action and effect on liver function. Synthalin is a derivative of amino-penthylen-guanidin, in which, by lengthening the methyl chain, the toxicity of the basic group is greatly lessened; it has been asserted that its oral administration will lower the blood sugar in diabetics. Twelve cases, with the doses employed in each, are here reported, all of which showed a definite fall in blood sugar. The urine in each case remained sugar-free, and urobilinogen tests were negative in all but one, in which they were only faintly positive. These patients showed no loss of weight, and when the synthalin was stopped the blood sugar rose and glycosuria reappeared. Only one case showed any toxic symptoms referable to the liver, and in this patient slight jaundice, which disappeared in about four days, was noted after two months of treatment. While synthalin is held to be of great use owing to its effects on the blood sugar following oral administration, the authors do not advocate the use of this drug indiscriminately in diabetes; they have employed it only for patients who could not be kept sugar-free on diet alone, and who were unwilling to take insulin. They insist, moreover, that it cannot and should not replace insulin, especially in the case of younger diabetic patients.

120. Intracardiac Blood Transfusion.

A. TZANCK (*Bull. de l'Acad. de Méd.*, May 27th, 1929, p. 630) reports a case in which a young woman on the verge of death from extreme haemorrhage was saved by intracardiac blood transfusion. Following an abortion so much blood was lost that the patient became unconscious; she was covered with cold perspiration, the pulse disappeared, the pupils dilated, and one or two sighing respirations were obviously the forerunners of death. In this emergency 650 grams of unaltered blood were injected into the heart, there being no time to determine the necessary type, nor could any vein be found. Quick restoration of colour followed and consciousness returned. The uterus was then plugged, but this caused a slight attack of faintness, which necessitated the further transfusion of 400 grams of blood intravenously, after verification of the blood group. The patient's subsequent convalescence was uneventful. The author recalls the case of this kind reported by Achard, Cournand, and Pichot. [See *Epitome*, March 30th, para. 320.].

Disease in Childhood.

121. Surgical Treatment of Empyema in Young Children.

A. FISCHER (*Zentralbl. f. Chir.*, March 16th, 1929, p. 656) refers to the very high mortality in children and infants suffering from empyema when treated by open drainage, and describes a method of closed drainage which he has used since 1925. He has treated 21 children, 8 of them under the age of 2 years, and has had only two deaths. The method is described as being quick and painless: it maintains a constant negative pressure in the pleural cavity, and it can be used in cases when open drainage would be dangerous—such as influenzal and pneumococcal empyemata. The disadvantages of closed drainage—the risk of the tube becoming blocked or kinked—are obviated by using metal tubes of a special pattern; these consist of a short, wide metal tube with stilette, and a narrower one which fits inside the first and can be fixed to it. Both tubes have side openings near the inner end and flat pieces at the outer ends; the inner tube is continued outwards so that rubber tubing may be attached to it. The site of election for insertion of the tubes is the seventh intercostal space at the posterior axillary line; if introduced more posteriorily the tube is apt to become kinked when the patient lies down, and if lower down the diaphragm may interfere with the inner opening after the effusion has decreased. The skin and tissues are infiltrated with a 1 per cent. novocain and adrenaline solution, and a test puncture is made to confirm the presence of pus. When this is detected a skin incision half to three-quarters of an inch long in line of the ribs is made, and the first tube with its stilette is inserted; after withdrawal of the stilette the opening of the tube is kept closed by the finger until the second tube is placed inside the first and fixed to it; attached to this one is a long rubber tube clamped at the end; this tube is led into a vessel which is at a lower level and half filled with antiseptic solution. The clamp is then loosened and the outer tube is fixed in position with bandages and plaster. This procedure, according to the author, has no ill effects on the child; on the contrary, the general condition improves rapidly. From the third day, or sooner if the tube blocks, the pleural cavity may be washed out with a mild non-toxic antiseptic. A certain degree of pneumothorax may develop gradually, but this is not dangerous owing to the formation of adhesions and the consequent shutting off of the inflammatory process and fixation of the mediastinum. Progress should be watched from the eighth day by x-ray examinations; if drainage is not complete the opening should be enlarged by resection of rib, which will now cause no disturbance. If drainage has been sufficient, the metal tube is removed on the tenth day, and a simple rubber drain is substituted.

122. C. CATTERUCCIA (*La Pediatria*, April 1st, 1929, p. 375) ives brief details of 41 cases of empyema in infancy reated by autogenous vaccines, principally by intravenous njection, and associated with evacuatory puncture or simple leurotomy. The results of this method of treatment were atisfactory, since 34 infants were cured and 7 died, 4 of hom were under 10 months old. The author states that in he milder cases puncture alone may be sufficient; in his iore severe cases injections were given on alternate days, nd if pleurotomy became necessary it was performed in he eighth or ninth intercostal space as far back as possible. n very septic cases the pleural cavity was washed out with hysiological saline solution. Fraenckel's diplococcus was resent in 37 and a streptococcus in 2 cases, associated in ne case with staphylococci.

123. Thyrotoxicosis in Childhood.

. GINSBURG (*Amer. Journ. Dis. Child.*, May, 1929, p. 923) elieves that thyrotoxicosis (toxic or exophthalmic goitre) is y no means so rare in childhood as is generally thought. hough it is generally milder and more atypical in its mani- estations than in adults, it may nevertheless run an acute ourse with a fatal issue. The author records details of arious cases he has observed, and discusses the diagnosis f the atypical forms. He finds that when the clinical sym- toms and signs, supplemented by laboratory investigations, re not decisive in distinguishing a simple from a toxic goitre, ne iodine and radium therapeutic diagnostic tests may be ery helpful. Surgical intervention in thyrotoxicosis cases children is not always successful and may be very danger- us. Ginsburg believes that radium therapy offers a safe nd dependable method which rivals medical treatment and rgical operation as regards successful results. He describes detail the treatment of several cases in this way which nd previously failed to respond to other therapeutical ocedures.

124. Acute Intussusception in Infants.

D. R. MURRAY (*Brit. Journ. Child. Dis.*, April-June, 1929, 83) records eight instances of acute intussusception in male fants aged from 3 to 22 months. In the case of six infants ged 12 months and under the patients were breast-fed, with e exception of a child who was being weaned during the eek prior to the onset of acute symptoms. Six of the hole series made an uninterrupted recovery after operation, cluding two children, each of whom had three intussus- ptions in the space of thirteen months; two died. In each these two the intussusception could be felt on rectal amination. Treatment in every instance was open reduc- on after laparotomy. In each case the wall of the lower d of the ileum (which was the starting point of each intus- sception) was markedly thickened, partly as the result of dematous infiltration, and partly as the result of swelling lymphoid tissue in this region. Dietetic errors were corded in the history of each case.

Obstetrics and Gynaecology.

125. Primary Epithelioma of the Vulva.

B. RENTSCHLER (*Annals of Surgery*, May, 1929, p. 703) views a series of 71 cases of primary epithelioma of the lva, and points out the rarity of the disease, the ratio to ncinoma of the cervix being 1 to 25. It is most common in ne sixth and seventh decades, but may occur much earlier. is doubtful whether trauma plays any significant part in ne causation of the condition, but it was found that 40 per nt. of the patients gave a history of chronic irritation such s pruritus; it may be supposed that the excoriation, abrasion, nd resultant pigmentation caused by the pruritus were the ndirect factors of the production of the epithelioma which eveloped subsequently. Epithelioma may also appear on reas of leucoplakia or on benign growths such as warts, heromas, and papillomas; in four cases kraurosis was resent. The first symptom is itching, followed by ulcera- on associated with pain, discharge, and slight bleeding; rinary incontinence and difficult micturition are common mptoms. Secondary anaemia and cachexia follow with ss of strength; other complications may be cystitis, lebitis, thrombosis of femoral vessels, with lymphoedema the legs and chronic septicaemia. Death usually follows ogressive failure and exhaustion. Epithelioma of the vulva ises most frequently from the labia majora on either side the vulva. Metastasis may be noted in the neighbouring eas of the vulva or in the perineum, the infection being rried through the lymphatics. Treatment must fit the dividual case, and if possible should be the wide excision of e growth and of the regional lymph nodes on both sides, llowed by the use of radium and *x* rays. When the lesion is too far advanced for removal, surgical diathermy, which is electro-coagulation, should be employed, or the intensive application of radium, or superficial and deep *x* rays. In the most advanced cases radium and *x* rays only are used; these give alleviation of pain and inhibition of the external growth for a time, but recurrence and the progressive course of the disease are inevitable. Prognosis is fair for prolongation of life, but poor for cure, and in direct proportion to the grade of malignancy. Out of 71 patients, 3 died following operation; a further 44 died from carcinoma, and one from relapsing pneumonia, which may have been a metastatic lesion. Six patients could not be traced, and the remaining 17 are still living, though one had a recurrence after eight years, one after four years, and one within a year after operation.

125. Diabetic Coma complicating Pregnancy.

DIABETIC coma as a complication of pregnancy is a rare condition; five cases alone have hitherto been reported, with only one recovery, in which insulin was used. M. S. MERRIAM (*Amer. Journ. Obstet. and Gynecol.*, May, 1929, p. 684) records another case with recovery following the use of insulin. The patient was given 120 units of insulin, 2,400 c.cm. of 5 per cent. glucose intravenously, and 1,500 c.cm. of saline by clysis, before coming out of the coma, which lasted twelve hours. About seven hours later she delivered herself of a stillborn foetus, and insulin was continued in doses of 15 units every three hours. From this time the patient showed continued improvement, and ultimately recovered. For the following year it was found necessary to give her 15 to 30 units of insulin daily, but during the past year the condition has been controlled entirely by diet. Merriam states that even very mild diabetics may suddenly go into coma during pregnancy, and that young diabetics, especially when the condition is aggravated during their menstrual periods, have the worst prognoses. The use of insulin results in marked improvement immediately after delivery, similar to that noted in the toxaemias of pregnancy. However, the death of the foetus before delivery makes the prognosis much more grave, because, while the foetus is alive, the foetal pancreas helps the mother in the carbohydrate metabolism. Operative delivery during diabetic coma would seem to have as serious a prognosis as in eclampsia.

127. Local Treatment of Puerperal Infection.

LOP (*Bull. Soc. de Thér.*, April 10th, 1929, p. 113) maintains that local treatment should not be entirely omitted in puerperal infection, and that it may yield excellent results if combined with vaccine and serum treatment and fixation abscesses. In mild cases Delbet's vaccine or large doses of antistreptococcal serum may be sufficient, but when these are inadequate local treatment is indicated. Lop recommends two or three intrauterine irrigations in the twenty-four hours with sterilized water or normal saline solution at a temperature ranging from 96.8° to 104°. The irrigations should be given by a rubber intestinal tube, and two or three litres of fluid should be used. When the lochia are very fetid a solution of potassium permanganate in a 1, 2, or even 3 per 1,000 dilution should be employed. Antiflexion of the uterus, which is almost always present, should first be corrected by slow and continuous abdominal pressure, so as to restore the uterus to its proper position and enable its secretions to drain away.

128. Endometriosis.

J. V. MEIGS (*New England Journ. of Med.*, May 16th, 1929, p. 1020) believes that endometrioma of the abdominal wall is not an infrequent occurrence, and that it is probably a preventable lesion; he reports four cases of this condition. Aberrant endometrium may be found in many regions in the pelvis and in a few outside it. It is frequently seen in the uterine wall, the ovary, and the recto-vaginal septum. The condition also occurs in many other areas of the pelvic peritoneum, the tubes, the sigmoid, the appendix, the umbilicus, and occasionally in the inguinal canal and vulva; lesions have also been found in abdominal scars. The etiology of all these growths is probably the same. They are likely to be due to transplantation of endometrial tissue either from the uterus or ovarian haematomas, or from growths from "rests" of the Müllerian or Wolffian bodies in the pelvis which have been stimulated into activity by some unknown substance. This excitant may be the ovarian secretions, the menstrual blood, or some other substance. A typical endometrioma is a firm, hard tumour without capsule, which on gross section shows small cystic areas containing bloody fluid, and microscopically a glandular structure with characteristic uterine stroma about it, and frequently areas of smooth muscle. Numerous theories have been advanced to explain endometriosis, but none account for the presence of all aberrant endometrium. The finding of endometriomata in operative scars seems to substantiate Sampson's theory of implantation; but there are so few cases, in comparison with

the great number of operations in which the endometrium is exposed or cut across, that some other factor besides implantation may be necessary for the growth of the lesions. Microscopical diagnosis is easy, and diagnostic curettage is very important. The treatment consists in entire removal of the lesions, or in total ovarian ablation either by removal of the ovaries or by their irradiation to the menopausal dose. Greater protection of the abdominal wound during pelvic operations would probably prevent some scar endometriomata. The prognosis is excellent if the lesion is definitely understood and correct methods are used either to remove it or to cause cessation and atrophy of the growth.

Pathology.

129. Resistance of the Diphtheria Bacillus.

P. LOMRY (*C. R. Soc. de Biologie*, May 17th, 1929, p. 161) during a period of three years conducted a number of investigations on the vitality of twenty strains of the diphtheria bacillus and the retention of its virulence in the throat in nutrient media, water, and on various substances. From the study of 10,000 throat swabs he found that 90 per cent. of patients remain carriers for five or six weeks, 9.9 per cent. for three or four months, and 0.9 per cent. for one or two years. The virulence of the bacillus varies considerably in different individuals, but as a general rule it diminishes with age in the same throat. On nutrient media, such as agar, serum, and broth, the bacillus retains its virulence for many months—a year or more. Lomry filled test tubes with water derived from snow, rain, wells, rivers, and ponds, boiled or not, and inoculated them with a loopful of a fresh culture of diphtheria bacilli. He found that as a rule the bacilli were killed after three days at the ordinary temperature, and after thirty hours at 37° C. Inoculation of various objects, such as pieces of wool, cotton, wood, or metal, with broth cultures showed that the diphtheria bacillus survived for fifteen to twenty-five days. Some strains died on the tenth day, while others lasted to the thirtieth. The average duration was ten to twenty days, but before death the bacilli lost much of their virulence. Lomry has not found any previous references in literature to the vitality of the diphtheria bacillus in water. His observations regarding its persistence in the throat and on nutrient media agree with those of previous investigators, but the results obtained by *desiccation* differ from those of most of his predecessors.

130. The Effect of Liver Feeding on the Blood Sugar Content.

IN continuation of a previous preliminary report, H. BLOTNER and W. P. MURPHY (*Journ. Amer. Med. Assoc.*, April 20th, 1929, p. 1332) now report in further detail observations on the effect of liver on the blood sugar levels in 18 cases of diabetes, 9 of primary and secondary anaemia, and in 2 normal persons. The similarity of certain symptoms (marked hunger, headache, nervousness, and sweating) after liver treatment in some cases of pernicious anaemia to those of hypoglycaemia led to this study. A comparison was also made of the relative effects of insulin, liver, and various liver extracts in certain cases. The blood sugar concentration was determined by the Folin-Wu method in a morning fasting specimen, and usually three, six, and nine hours following the ingestion of a uniform test meal; and on another day, at the same intervals, after a test meal containing 180 grams of raw liver pulp. It was found that the liver had the effect of lowering the blood sugar level. Hunger, headache of varying intensity, and slight dizziness were outstanding complaints which all the patients made six and nine hours after the liver test meal, and these symptoms, not noticeable after the control meal, were possibly attributable to the rapid lowering of the blood sugar level. These observations suggest that liver contains a blood sugar reducing substance when taken by the mouth, which is non-toxic and has an effect on the blood sugar concentration similar to that obtained with insulin. It is difficult to estimate the quantity of liver that will replace a known amount of insulin, but the authors believe that 180 grams of liver will have an effect on the blood sugar of certain diabetic patients equal to that of from 10 to 15 units of insulin.

131. Precipitable Substances in Bacilli of the Salmonella Group.

J. FURTH and K. LANDSTEINER (*Journ. Exper. Med.*, May, 1929, p. 727), working with organisms of the salmonella group, have succeeded in isolating from them specific precipitable substances which appear to be of carbohydrate nature. Three methods of extraction were employed: (1) with alkaline hypochlorite solution; (2) with boiling saline solution, and (3) by autoclaving with subsequent tryptic digestion. The substances obtained by one or other of these methods were tested against immune serums prepared by the injection of rabbits with whole cultures killed by heating to 62–65° C. for forty minutes. Though there was a certain amount of cross-precipitation, the results showed clearly that the strains fell into three groups: the first contained *B. typhosus* and *B. enteritidis*; the second *B. paratyphosus* B and the Derby bacillus; and the third *B. suipestifer* and the Newport bacillus. The precipitable substances derived from *B. abortivo-equinus* and from the Stanley and Reading types behaved like *B. paratyphosus* B. A comparison of these results with those obtained by Bruce White in this country, using the agglutination reaction, shows a substantial measure of agreement in the grouping of the salmonella bacilli. It would therefore appear probable that the precipitable substances correspond to the heat-stable or O agglutinogens. This probability is increased by the finding that absorption of an immune serum against *B. typhosus* with alcohol-treated *B. enteritidis* removes the O but not the H agglutinins from the serum. Chemical examination of the precipitable substances showed that they were rich in carbohydrate but contained little or no protein. Though differing markedly in their serological reactions, chemically they were more or less indistinguishable. In this respect they differ from the polysaccharides extracted from different types of pneumococci.

132. Experimental Amyloid Degeneration.

E. PUCCINELLI (*Lo Sperimentale*, May 10th, 1929, p. 213) has produced amyloid degeneration in rats by the intraperitoneal injection of nutrose. Thirty-two rats were treated, and after twenty to forty injections small portions of the spleen were removed from each animal. In twelve no trace of amyloid deposit was detected; in twenty the spleens showed commencing amyloid changes in varying amounts. The injections were then discontinued. Three months later only seven rats were alive; the remaining thirteen had died within the first fifty days. The spleens of these thirteen rats all showed characteristic foci of amyloid degeneration in the spleen similar to those observed at the biopsies. The seven survivors were killed and found to be free from all trace of amyloid disease, the spleens having returned to normal size. In some the lymph follicles were enlarged; in the pulp were megakaryocytes, cells containing pigment giving the iron reaction, and also small clusters of cells with excentric nuclei resembling plasma cells. The other organs appeared healthy. The author regards these results as demonstration of perfect regression—an example of reversibility of amyloid degeneration. Histologically, the regression was independent of any phagocytic action. During the reabsorption he was unable to detect any modification of the staining reaction of the amyloid substance such as has been described by other workers.

133. Alkali Load as a Test of the Kidney Function.

A. SYLLA (*Deut. med. Woch.*, May 10th, 1929, p. 783) administered 20 grams of sodium bicarbonate in 400 c.cm. of water by the mouth and estimated the *p*H of the urine when starving, and at the four subsequent half-hours, after eight hours, and after twenty-four hours, using Walpole's comparator and Michaeli's test tubes. With healthy kidneys the *p*H was about 5.8 when starving; half an hour after the alkali load it rose to 7.2; after an hour it was 8.4; and it afterwards slowly fell. The rising of the *p*H curve was usually slower in elderly persons. In 31 cases with various morbid conditions of the kidney the alkali excretion was delayed and diminished in 17 cases, and a *p*H of 8.4 was never reached. In patients with high blood pressure, and cases of hyper-acidity, the alkali excretion was also delayed and diminished; whether in the last class this is influenced by the secretion of the stomach is a disputed point. The author recommends the test as a simple way of estimating renal function.

134. Neutralization of Tetanus Toxin with Glucose.

M. GAROFEANU and P. IONESCU (*C. R. Soc. de Biologie*, May 24th, 1929, p. 227), in view of recent reports on the beneficial action of intravenous inoculations of glucose in cases of tetanus in the horse, have examined the neutralizing power of glucose on tetanus toxin *in vitro*. Using the mouse as the test animal, it was found that 10 mg. or more of glucose—added in a 20 per cent. solution—were able to neutralize one minimal lethal dose of toxin. Neutralization was sufficiently complete after one hour's sojourn at room temperature to protect the animal from death. When two minimal lethal doses of toxin were used it was found that even 50 mg. of glucose failed to neutralize it completely. Mice injected with the toxin-glucose mixtures all died, though their survival time was considerably greater than that of the control animals. How the neutralizing action of the glucose is exerted was not determined, but it does not appear to be due to alterations in the *p*H of the toxin.

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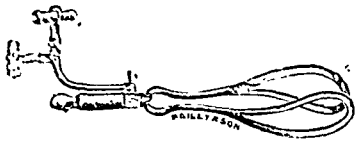

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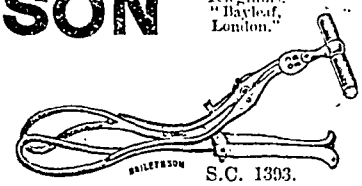

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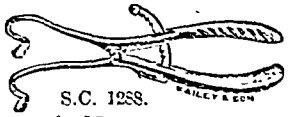

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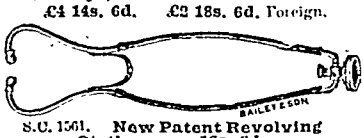

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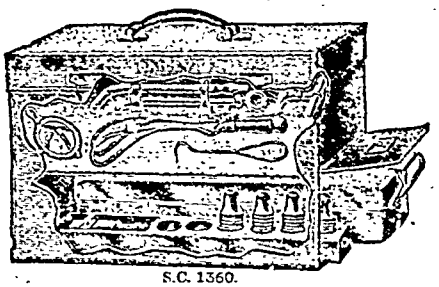

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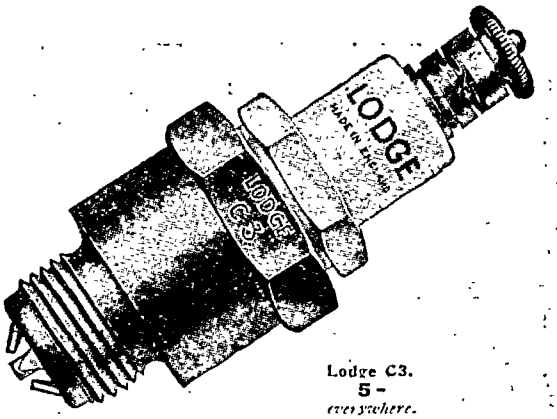

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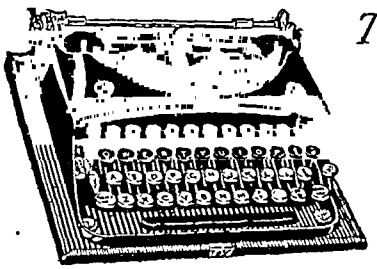

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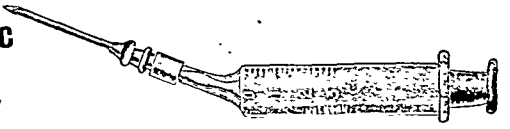

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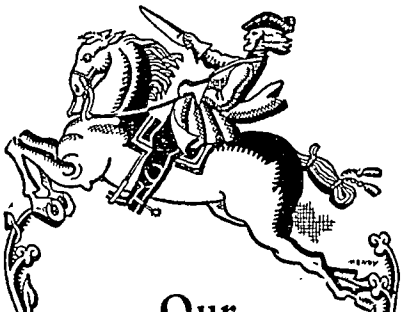

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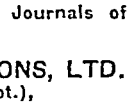
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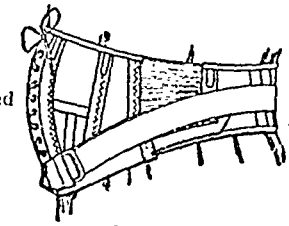
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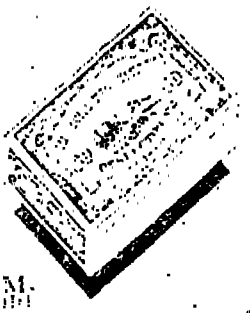

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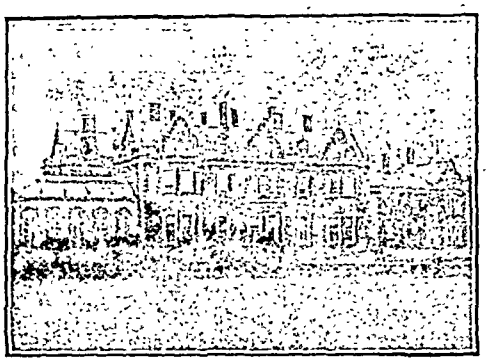

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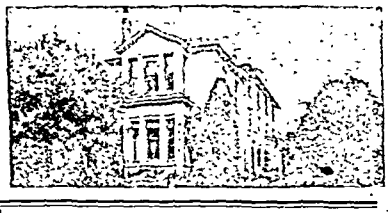

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PRIVATE PATIENTS are received at a weekly charge of TWO GUINEAS and upwards.

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As founded and established by the late Dr. FRANCIS HARE, for 20 years Med. Supt. of The Norwood Sanatorium, and author of "Alcoholism," etc.; for the treatment of ALCOHOLISM, other Drug Habits, Insomnia, Neurasthenia, Functional Nervous Disorders, TROPICAL Ailments, etc.

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FOR MENTAL DISORDERS,
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FOR THE UPPER AND MIDDLE CLASSES ONLY.

President: THE MOST HON. THE MARQUESS OF EXETER, C.M.G., A.D.C.

Medical Superintendent: DANIEL F. RAMBAUT, M.A., M.D.

This registered Hospital is situated in 120 acres of park and pleasure grounds. Voluntary Boarders, persons suffering from incipient nervous and mental disorders, as well as certified patients of both sexes, are received for treatment. Careful clinical, biochemical, bacteriological, and pathological examinations. Private rooms with special nurses, male or female, in the Hospital or in one of the numerous villas in the grounds of the various branches can be provided.

WANTAGE HOUSE.

This is a Reception Hospital in detached grounds, with a separate entrance, to which patients and voluntary boarders can be admitted. It is equipped with all the apparatus for the most modern treatment of Mental and Nervous Disorders. It contains special departments for hydrotherapy by various methods, including Turkish and Russian baths, the prolonged immersion bath, Vichy Douche, Scotch Douche, Electrical baths, Plombières treatment, etc. There is an Operating Theatre, a Dental Surgery, an X-ray Room, an Ultra-violet Apparatus, and a Department for Diathermy and High Frequency treatment. It also contains Laboratories for biochemical, bacteriological, and pathological research.

MOULTON PARK.

Two miles from the Main Hospital there are several branch establishments and villas situated in a park and farm of 650 acres. Milk, meat, fruit, and vegetables are supplied to the Hospital from the farm, gardens, and orchards of Moulton Park. Occupation therapy is a feature of this branch, and patients are given every facility for occupying themselves in farming, gardening, and fruit-growing.

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The Seaside house of St. Andrew's Hospital is beautifully situated in a Park of 330 acres, at Llanfairfechan, amidst the finest scenery in North Wales. On the North-West side of the Estate a mile of sea coast forms the boundary. Voluntary Boarders or Patients may visit this branch for a short seaside change or for longer periods. The Hospital has its own private bathing house on the seashore. There is trout-fishing in the park.

At all the branches of the Hospital there are cricket grounds, football and hockey grounds, lawn tennis courts (grass and hard courts), croquet grounds, golf courses, and bowling greens. Ladies and gentlemen have their own gardens, and facilities are provided for handicrafts, such as carpentry, etc.

For terms and further particulars apply to the Medical Superintendent (Telephone No. 56. Northampton), who can be seen in London by appointment.

HAYDOCK LODGE
NEWTON-LE-WILLOWS, LANCASHIRE.

'Phone: 11 Ashton-in-Makerfield.

For the reception and treatment of PRIVATE PATIENTS of both sexes of the UPPER AND MIDDLE CLASSES either voluntarily or under Certificate. Patients are classified in separate buildings according to their mental condition.

Situated in park and grounds of 400 acres. Self-supported by its own farm and gardens, in which patients are encouraged to occupy themselves. Every facility for indoor and out-door recreation. For terms, prospectus, etc., apply MEDICAL SUPERINTENDENT.

NEURASTHENIA
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Private Nursing Home for Neurasthenia and allied Functional Nervous Disorders, for general Convalescent Cases, and those requiring Electrical Treatment.

The Home, a Georgian mansion, 14 miles from Nottingham and 6 miles from Derby, is for both sexes. In addition to the methods of general medicine, Psycho-Therapeutic treatment is used extensively in suitable cases. Certifiable cases are not received. Electrical Treatment, Radiant Heat, X-ray, Ultra-violet Light, and Massage is available in the Nursing Home. Billiards, tennis, etc. Fees from 5 to 12 guineas per week. For further particulars apply to—
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Dr. Douglas-Morris can be seen by appointment in London.

COURT HALL, KENTON, EXETER,
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For the care and treatment of Ladies suffering from Mental Diseases. Limited to eight patients. Telephone: Starcross 19.

CLIFFDEN, TEIGNMOUTH, in connection with Court Hall, for early and convalescent cases. Cliffden is a large well-appointed house, with lovely views of the South Devon Coast. It is beautifully situated in grounds of 19 acres. The gardens are very attractive, and there is a private road to the beach.

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Telephone: *Teignmouth* 289.

THE COPPICE, NOTTINGHAM.
HOSPITAL FOR MENTAL DISEASES.

This Institution is exclusively for the reception of a limited number of Private Patients of both sexes of the Upper and Middle Classes at moderate rates of payment. It is beautifully situated in its own grounds on an eminence a short distance from Nottingham, and from its singularly healthy position and comfortable arrangements affords every facility for the relief and cure of those mentally afflicted. Voluntary Boarders received without Certificates.

For terms, etc., apply to the Medical Superintendent.

MAUDSLEY HOSPITAL,
DENMARK HILL, S.E.5.

Telephone: RODNEY 4841.

A CLINIC instituted by the London County Council for Treatment of NERVOUS and CURABLE MENTAL DISORDER. Voluntary patients ONLY RECEIVED.

OUT-PATIENTS—2 p.m.: MEN—Mondays and Thursdays. WOMEN—Tuesdays and Fridays.
IN-PATIENTS: (*a*) 160 beds (both sexes) in wards or separate rooms. (*b*) 13 private rooms (for ladies) with special sitting room, garden, and dietary.

Terms:

(*a*) £5 a week, but in case of patients with a legal settlement in the County of London a less sum may be charged according to means.
(*b*) £6 6s. a week.

Terms include (with rare exceptions) all forms of treatment, for which exceptional facilities exist—there being a staff of consultant specialists and the central laboratory of London County Mental Hospitals being attached to the hospital. Inquiries of EDWARD MAPOTHER, M.D., M.R.C.P., F.R.C.S., Medical Superintendent.

WONFORD HOUSE HOSPITAL,
EXETER, DEVON.

Telegrams: Exeter 2642. *Telephone*: Exeter 2642

A registered Hospital for the treatment of patients of both sexes suffering from Nervous and Mental Disorders, situated in beautiful country within a mile and a half of the City of Exeter.

Hard and grass Tennis Courts, Croquet Lawn, Cricket Field, and all indoor amusements, Dancing, Concerts, Wireless, Billiards, Badminton. Occupational treatment.

The patients are carefully graded, and accommodation provides for the separate treatment of early recoverable and convalescent patients.

Voluntary and certified patients are received for treatment.

A prospectus and full particulars can be obtained from the Medical Superintendent.

BARNWOOD HOUSE,
GLOUCESTER.

A REGISTERED HOSPITAL for the CARE and TREATMENT of LADIES and GENTLEMEN suffering from NERVOUS and MENTAL DISORDERS. Within two miles of the G.W. Railway and L. M. & S. Railway Stations at Gloucester, the Hospital is easily accessible by rail from London and all parts of the United Kingdom. It is beautifully situated at the foot of the Cotswold Hills, and stands in its own grounds of over 280 acres. Voluntary boarders of both sexes are also received for treatment.

Special accommodation for Lady Voluntary Boarders is also provided at the MANOR HOUSE, which has its own private grounds and is entirely separate from the main Hospital.

For particulars as to terms, etc., apply to—
ARTHUR TOWNSEND, M.D., Resident Supt
Telephone: No. 7 Barnwood.

CHISWICK HOUSE.

A Private Mental Hospital for the Treatment and Care of Mental and Nervous Disorders.

Now removed to:

CHISWICK HOUSE,
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A modern country house, 12 miles from Marble Arch, in beautiful secluded grounds.

Fees are from 10 guineas a week.

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Established 1816. For the TREATMENT of a few LADIES suffering from NERVOUS and MENTAL DISORDERS. Voluntary patients received. For terms apply to Proprietor and Licensee: Dr. LOWSON. Tel.: 108 Tamworth.

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Telegrams: Castle, Ruthin. Telephone: 66, Ruthin. Ruthin Castle, North Wales.

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A NURSING HOME OPENED IN 1911 FOR THE INVESTIGATION AND TREATMENT OF FUNCTIONAL NERVOUS DISORDERS OF ALL TYPES.

No cases under certificate. Thorough clinical and pathological examinations. Psychotherapeutic treatment, occupation, and recreation as suited to the individual case.

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Telegrams: "Psycholia, London." Telephone: Rodney 4731—4732.

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Completely detached Villas for mild cases, with private suites if desired. Voluntary Patients received. Twenty acres of grounds. Hard and Grass Tennis Courts, Croquet, Squash Racquets, and all indoor Amusements, including Wireless and other Concerts. Occupational Therapy. Daily services in the Chapel.

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Telegrams: "Alleviated, London." Telephone: Rodney 4741—4742.

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Illustrated prospectus and further particulars can be obtained from the Medical Superintendent.

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GREEN LANES, FINSBURY PARK, N.4.

Telegrams: "SUBSIDIARY, LONDON." *Telephone*: NORTH 0888.

A PRIVATE HOME for the treatment of patients of both sexes suffering from Mental Illnesses.
Conveniently situated four miles from Charing Cross. Easy of access from all parts.
Six acres of ground, highly situated, facing Finsbury Park.
Voluntary Boarders received without certificates. Private suites. Convalescent Home, Kearsney Court, Dover.
For further particulars, apply to the MEDICAL SUPERINTENDENT.

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NEAR BASINGSTOKE, HANTS.

Private Hospital for Mental Diseases

A modern building situated in a healthy district, easily accessible by rail and road. Patients taken at from three guineas per week.

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FOR THE TREATMENT OF PULMONARY AND OTHER FORMS OF TUBERCULOSIS
WAS OPENED IN JANUARY, 1899.

Patients are received for open-air, inoculation, or operative treatment. There are X-ray and ultra-violet ray installations. Full nursing staff. The Sanatorium stands in gardens and private grounds of 65 acres, at an elevation of 862 feet above sea-level, surrounded by woods and moorland. The patients' rooms are heated by hot-water pipes and electrically lighted.

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For full particulars apply to *The Secretary*, Nordrach-upon-Mendip, Blagdon, Bristol. *Telegrams*: Nordrach, Blagdon. *Telephone*: Blagdon 23.

Preston Deanery Hall, Northampton.

(3½ miles from L.M.S. Station.)

This DIETETIC ESTABLISHMENT is equipped for the complete investigation and treatment of patients on rational lines. Own X-ray and Laboratory Biochemical investigation is made a special feature.

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Further particulars from the Secretary, Preston Deanery Hall, Northampton.
Tel.: Hardingstone 6.

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A Private HOME for the Care and Treatment of a limited number of Ladies with Mental and Nervous Disorders. Separate accommodation for Voluntary Boarders. Large Mansion with 12 acres of ground. (See *Medical Directory*, p. 2190.) Apply J. H. EARLS, M.D., Resident Physician. Telephone: Streatham 8430.

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A Registered Hospital situated in large grounds near the Cathedral receives VOLUNTARY BOARDERS and PRIVATE PATIENTS of both sexes for treatment of Mental and Nervous Disorders, including Post-Encephalitic conditions. Special facilities for Psychotherapy in co-operative cases.

All particulars may be obtained from the Resident Medical Superintendent,
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BROOKE HOUSE,

CLAPTON, LONDON, E.5.
Telephone: Clissold 1648.

PRIVATE HOSPITAL for Ladies and Gentlemen suffering from Mental and Nervous Disorders. The hospital is situated in nine acres of pleasure grounds. Both voluntary and patients under certificates received. For further particulars apply Dr. GERALD JOHNSTON and Dr ERNEST ROLLINS, Resident Physicians.

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Lady or Gentleman taken in a Charming Flat. Nurse. Electric light; central heating. Every comfort. Under Specialist's supervision.

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This old-established Licensed House offers every advantage that experience can suggest for the care and treatment of mental cases.

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Unrivalled suites of Baths for Ladies and Gentlemen, including Turkish and Russian Baths, Aix and Vichy Douches, Massage and Plombières Treatment, an Electric Installation for Baths and other Medical purposes, Dowsing Radiant Heat, D'Arsonval High Frequency, Diathermy, Nauheim Baths, etc. Special provision for invalids. Milk from our farm. Large Winter Garden. Night Attendance. Rooms well ventilated and all bedrooms warmed in Winter. A large Staff (upwards of 60) of trained Male and Female Nurses, Masseurs, and Attendants.

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THE VICTORIA SANATORIUM,

AN ENTIRELY BRITISH SANATORIUM,
DAVOS (GRISONS), SWITZERLAND.

Terms - - from £5 a week.

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THE GRANGE,

near ROTHERHAM.

A HOUSE Licensed for the reception of a limited number of ladies suffering from Nervous and Mental disorders. Both certified and voluntary patients received. This is a large country house with beautiful grounds and park, 5 miles from Sheffield. Station, Grange Lane, G.C. Railway, Sheffield. Telephone: No 40030 Ecclesfield. Resident Physician: GILBERT E. MOULD, L.R.C.P., M.R.C.S.

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A first-class Country Mansion especially adapted for the reception of a limited number of ladies and gentlemen mentally affected.
For particulars, apply Dr. Sankey.

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Situated in 3½ acres of secluded gardens
HOME FOR TWELVE MENTAL PATIENTS (LADIES).
Well-appointed private house. Home comforts and Trained Nursing Staff. Eminent Mental Specialist Visiting Physician. A new feature in the Home is the Ultra-violet Ray Treatment.
Station: *Telephone*: Brixton 0494.
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A PRIVATE HOME for the treatment of Gentlemen suffering from Mental or Nervous Illness, including the allied disorders of Alcoholism and the Drug Habit. All types of early Mental or Nervous cases are received without certificates as Voluntary Boarders. Bracing Hill country. See *Medical Directory*, p. 2138.—Apply to Medical Superintendent. Telephone: 10 P.O., Church Stretton.

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Unsurpassed situation, 600 ft. above sea-level, high sunshine record, own farm. Resident Medical Officer. Male cases only.

Inclusive weekly terms 50/-.

Special preferential arrangements for a few private cases at 4 guineas.

Artificial Pneumothorax, etc.

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famous for its natural Brine Baths, which will cure Rheumatism and Allied Ailments.

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Adjoining Brine Baths. 230 rooms. Extensive grounds. Golf, tennis, mixed bathing
Lock-up Garages and cars for hire.

Illustrated Booklet on request. 'Phone 50 or 38.

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Beautifully situated 600 feet. above sea-level. Facing south, completely sheltered from north and east. 21 miles from Edinburgh.
All modern Baths, Douches, Massage, and Electrical Treatme
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with Vita-glass Sun-lounge and Marine Balcony on the South Coast.
Every kind of Bath. Plombière Lavage.
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Every kind of Diet.
Carlsbad and Vichy Waters, etc.
High Frequency. Electric Lift.
Prospectus from Secretary. *Tele.* 341.
Resident Physician: W. JOHNSON SMYTH, M.D.

GRAMPIAN SANATORIUM,

KINGUSSIE, INVERNESS-SHIRE.

Specially built for the Open-air Treatment of Tuberculosis, and opened in 1901. Bracing mountain air. Elevation 860 ft. above sea-level. Sheltered situation in pine wood. Graduated walks. Electric light throughout building and in shelters. Central heating. Fully equipped X-ray Plant. Inoculation Treatment available for patients—24 beds. Trained Nurse on duty all night. Terms £4 6s. 8d. to £6 6s *inclusive p.w.* Med. Supt.—FELIX SAVY, M.B., Ch.B. For particulars apply to the Secretary.

WYE HOUSE, BUXTON.

For the treatment of Ladies and Gentlemen mentally afflicted. Voluntary Boarders received. Situated 1,200 ft. above sea-level, facing S.; 14 acres of grounds.—For terms, apply to the Resident Medical Superintendent, W. W. HORTON, M.D. Nat. Tel. 130.

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MURTLE DEESIDE ABERDEENSHIRE.

Medical Director: David Lawson, M.D., F.R.S.E.

FULLY EQUIPPED WITH EVERY MODERN APPLIANCE FOR THE DIAGNOSIS AND TREATMENT OF ALL FORMS OF TUBERCULOSIS & ALLIED DISEASES.

Physician Superintendent - J. M. JOHNSTON, M.B., D.P.H., etc.

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Established 1900 for the treatment of Tuberculosis. Miles of carefully graduated walks through pine-clad hills, with sea and mountain views. Modern treatment, including SANOCRYSIN, ARTIFICIAL PNEUMOTHORAX, etc. X-ray plant, electric light, central heating, wireless. Full day and night nursing staff. On L.M.S. Main Line to Holyhead. 4¼ hours from London. Resident Physicians: Dennison Pickering, M.D.(Cantab.), F. W. Godbey, M.D., D.P.H., Matron: Miss N. Rennardson, S.R.N.

For particulars apply to the Secretary, Pendyffryn Hall, Penmaenmawr, N. Wales. ('Phone, 20.)

LINFORD SANATORIUM,

RINGWOOD, NEW FOREST, HANTS.

Established 1898 for the treatment of Tuberculosis. Radiators and Electric Light throughout. Hot and cold water and shower bath in nearly all rooms. Powerful X-ray Plant. Ultra-violet Rays. Full Nursing Staff. All forms of treatment available Farm of 120 acres, including 40 acres of wood. Herd of Tuberculin-tested Guernsey cows kept. Resident Physicians—Arthur de W. Snowden, M.D., B.Ch.(Cantab.), A. G. E. Wilcock, M.R.C.S., L.R.C.P., Colin Cassidy, M.B., B.Ch.(Cantab.).

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(Camb., Edin., Glasg., Durh., &c.)

SKILLED COACHING, GUIDANCE, and ADVICE. From Specialist Tutors, in conformity with the Regulations of the various Universities. Apply for particulars and free booklet, "Hints on Writing a Thesis for the M.D. Degree," to the SECRETARY, Medical Correspondence College, 19, Welbeck Street, London, W.1.

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BEHNKE METHOD. Estab. 1882. Cases, non-resident, treated at 39, Earl's Court Square, S.W.5, and in residence, in the Summer holidays, at Miss BEHNKE'S house on the Chilterns.

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F.R.C.S.(Edin.).

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Resident and non-resident pupils. Full particulars upon request.—Mr. A. C. SCHNELLE, 119, Bedford Court Mansions, London, W.C.1. Estab 1905. Telephone: Museum 3665.

Medical and Dental Students.

Special Classes for Pre-Medical and Dental Exams., Matric., and Prelims. Chemistry, Physics, and Biology Labs. MANCHESTER TUTORIAL COLLEGE. 327, Oxford Road, Manchester

Home for Children, delicate or predisposed to Tuberculosis, in English Doctor's House, near Davos, Switzerland. Children up to school age taken. Terms from £6 6s. weekly.—Apply, Mrs. BERNARD HUDSON, Victoria, Davos, Switzerland.

LONDON SCHOOL OF DERMATOLOGY,

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN,

LEICESTER SQUARE, W.C.2.

Conducted by the Honorary Staff of the Hospital, together with the Physicians in charge of the Dermatological Departments of the London Teaching Hospitals. Lectures and Demonstrations every Tuesday and Thursday, at 5 p.m., from October to March, and four times weekly during May. Clinics daily at 2 p.m. and 6 p.m., Saturdays, 2 p.m. only. Pathological Laboratory for Instruction or Research Work.

For further particulars, fees, etc., apply to J. E. M. WIGLEY, M.B., Dean.

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(UNIVERSITY OF LIVERPOOL)

COURSES OF INSTRUCTION (lasting about three months) for the Diploma in Tropical Medicine commence on October 1st and January 7th, and for the Diploma in Tropical Hygiene on January 12th and April 26th. (Candidates for the D.T.H. must possess the D.T.M. of this University.)

For particulars apply to the Hon. Dean, Liverpool School of Tropical Medicine, Pembroke Place, Liverpool

CITY OF LONDON MATERNITY HOSPITAL,

CITY ROAD, E.C.1.

MIDWIFERY TRAINING SCHOOL.

MEDICAL STUDENTS admitted to Hospital practice, with operative Midwifery, and Obstetrical complications.

PUPILS TRAINED as Midwives and Monthly Nurses in accordance with C.M.B. regulations.

PRIVATE WARDS for paying patients.

Gentleman's Son, about 8 to 12 years of age, crippled by poliomyelitis, is required as COMPANION in Education and *Treatment* to a similar case, preferably sharing Tutor and Nurse.

Apply, Dr. WILLIAMSON, Frinton, Essex.

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A Course in Clinical Medicine, Pathology, Morbid Histology, and Biochemistry, suitable for M.D. and M.R.C.P. Examinations, will be given for six weeks, commencing October 29th.

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A Course suitable for M.S. and F.R.C.S. Examinations, lasting nine weeks, will *commence on September 3rd.*

Further particulars may be obtained on application to the Dean (H. WILLOUGHBY LYLE, M.D., F.R.C.S.), King's College Hospital Medical School, Denmark Hill, S.E.5

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New Science Buildings, containing seven laboratories, two lecture rooms, science library, store rooms, etc., opened in September, 1925. Prospectus from Head Master.

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UNIVERSITY OF BIRMINGHAM

FACULTY OF MEDICINE

(Associated with the General, Queen's, and Special Hospitals for Clinical Teaching.)

THE SESSION OPENS ON MONDAY, SEPTEMBER 30th, 1929.

The University grants Degrees in Medicine, Surgery, and Public Health, and a Diploma in Public Health; also Degrees and a Diploma in Dental Surgery.

The courses of instruction are also adapted to meet the requirements of other Universities and Licensing Bodies.

HOSPITAL APPOINTMENTS.

A large number of Resident Hospital appointments in Birmingham and District are open to qualified students of the School.

SCHOLARSHIPS, EXHIBITIONS, AND PRIZES.

Entrance and other Scholarships and Exhibitions and various Prizes and Medals are awarded annually in the Faculty of Medicine.

SCHOOL OF DENTISTRY. (University of Birmingham and Birmingham Dental Hospital.)

The School of Dentistry, in conjunction with the General and Queen's Hospitals, affords a complete curriculum for the Dental Diplomas and Dental Degrees of the University and all other Licensing Bodies. There is a Dental Scholarship of the value of £46 17s. 6d. offered annually.

PRE-MEDICAL AND PRE-DENTAL EXAMINATIONS.

The necessary Courses of Instruction in Chemistry and Physics and in Biology may be attended in the University.

RESIDENCE FOR UNDERGRADUATES AND OTHER STUDENTS.

There are Halls of Residence for Men and for Women Students. A register of approved lodgings is also kept by the Secretary of the University.

For Syllabus and further information apply to Prof. J. C. BRASH, M.A., M.D., Dean.

LONDON HOSPITAL MEDICAL COLLEGE & DENTAL SCHOOL.

THE WINTER SESSION will Open on Tuesday, October 1st.

The Hospital is the largest in England. There are 839 beds in constant use. Last year: number of in-patients 14,698; new out-patients, 96,928; attendances, 555,762; new dental patients, 5,857; major operations, 7,649.

The MEDICAL COLLEGE and DENTAL SCHOOL are essentially modern, with large laboratories equipped with the latest and the most approved appliances. *The STAFF is so large as to permit of individual attention being paid to all Students.*

MEDICAL UNIT.—A Clinical Unit in Medicine, under the charge of a whole-time Director, provides for the more elaborate methods of diagnosis and treatment, and takes a leading part in the initiation and co ordination of medical research.

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SCHOLARSHIPS and PRIZES to the value of £1,158 are awarded annually, including four Open Entrance Scholarships to the value of £350, and two Entrance Scholarships open to students of the Universities of Oxford and Cambridge to the value of £200.

APPOINTMENTS.—Over 160 Appointments are made annually from Students of the College recently qualified.

SPECIAL COURSES are held for all the University Examinations, for the Primary and Final Fellowship Examinations of the Royal College of Surgeons, and for the Membership Examination of the Royal College of Physicians.

HOSPITAL PRACTICE.—Exceptional opportunities are offered to qualified Practitioners wishing to attend the General Practice or the Practice of a Special Department of the Hospital.

A Clubs' Union, an Athletic Ground of over 13 acres, and a *Students' Hostel*, promote the recreation, health, and comfort of the Students.

For Prospectus and Particulars apply to the Dean (Professor WILLIAM WRIGHT, M.B., D.Sc., F.R.C.S.), who will be pleased to make arrangements for anyone wishing to see the Medical College and Dental School.

MILE END, E.

MEDICAL CORRESPONDENCE COLLEGE

19, WELBECK ST., LONDON, W.1. Tel: Langham 1166.

PROVIDES HIGHLY SUCCESSFUL ORAL AND POSTAL COACHING FOR ALL MEDICAL EXAMINATIONS.

Special Preparations for all Surgical Qualifications.

F.R.C.S.ENGLAND. (Primary & Final.) CH.M.EDINBURGH. M.C.CANTAB. F.R.C.S.EDINBURGH. M.S.LONDON.

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¶ The remarkable success of Students of the Medical Correspondence College at the higher Surgical Examinations is specially noteworthy.

¶ Both at the Primary and Final F.R.C.S. England the majority of our Students are successful at the first attempt, and Candidates who have failed at these Examinations on several previous occasions get through without difficulty after going through our courses

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THE

LONDON HOSPITAL MEDICAL COLLEGE.

(University of London.)

ADVANCED MEDICINE.

A Course of Post-Graduate Instructions in Advanced Medicine suitable for candidates preparing for the M.D., M.R.C.P. Examinations will begin on Monday, October 14th.

The Course will comprise the examination of selected cases in the Wards, Ward Demonstrations, and instruction in Applied Physiology, Morbid Anatomy, Clinical Pathology, and [illegible] Chemistry.

[illegible] obtained on application to Professor WILLIAM WRIGHT, M.B., D.Sc., F.R.C.S., London Hospital Medical College, Mile End, E.

LONDON HOSPITAL MEDICAL COLLEGE.

Primary Fellowship Examination.

A COURSE OF INSTRUCTION for the above Examination will begin on Monday, Sept. 2nd.

The Fee for the Course is 15 guineas.

Further particulars may be obtained from Professor WILLIAM WRIGHT, M.B., D.Sc., F.R.C.S., Dean, Mile End, E.1.

POST-GRADUATE MIDWIFERY.

Qualified Medical Women are admitted to **The Mothers' Hospital of the Salvation Army, Lower Clapton Road, E.5** for practical fortnightly Courses in Midwifery. These include delivery of normal cases, attendances at all abnormal cases, operations, ward rounds of visiting staff, V.D. clinics, and antenatal clinics. For further particulars, fees, etc., apply to the Secretary.

F.R.C.S.(Edin.).

Prep. Classes and Museum Demons. for next Fellowship Exam will commence shortly. Correspondence course for Jany. and later exams. should begin now. Partics., Mr. H. C. ORRIN, F.R.C.S., at Surgeons' Hall, Edinburgh.

LONDON HOSPITAL MEDICAL COLLEGE.

F.R.C.S.

A COURSE OF INSTRUCTION for the Final Fellowship Examination will begin on *Monday, September 2nd.*

Fees: (exclusive of Operative Surgery) 20 guineas. Operative Surgery 5 guineas.

A separate entry can be made for all Classes other than those of a strictly Clinical character. (Men students only are eligible for admission.)

Further [illegible]

Professor [illegible]

Dean, Lon[illegible]

End, E.1.

ST. BARTHOLOMEW'S HOSPITAL MEDICAL COLLEGE.

Final F.R.C.S. Class.

A Course of instruction, suitable to the requirements of candidates for the Final F.R.C.S. Examination in November, will begin on September 5th, 1929.

For syllabus and full particulars apply to the DEAN, Medical College, St. Bartholomew's Hospital, London, E.C.1.

A REALLY GOOD SCHOOL FOR GIRLS. REASONABLE INCLUSIVE FEES.

MARLBOROUGH COLLEGE,

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Sound Education. Upper and Lower Schools. Preparation, when desired, for all University Entrance Examinations. Particulars from Sec.

Special Terms to Medical Men.

Society of Apothecaries of London.

MASTERY OF MIDWIFERY EXAMINATION.

The next Examination will take place on Monday, *November 18th, and following days.* For regulations apply to—

FRANK HAYDON, Secretary.

UNIVERSITY EXAMINATION POSTAL INSTITUTION

17, RED LION SQ., LONDON, W.C.1.

(FOUNDED IN 1882.)

Principal: Mr. E. S. WEYMOUTH, M.A. (Lond.). POSTAL OR ORAL PREPARATIONS FOR ALL MEDICAL EXAMINATIONS.

SOME SUCCESSES:

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F.R.C.S.(Eng.), *Primary* 1906-28)	149
Final	135
M.R.C.P.(Lond.), 1914-28	152
D.P.H. (Various) 1906-28 (Completed Exam.)	280
F.R.C.S.(Edin.), 1918-28	39
M.R.C.S., L.R.C.P. *Final* 1910-28 (Completed Exam.)	402
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Preparation for Medical Preliminary, and Chemistry, Physics, Anatomy, Physiology, and final subjects for the Conjoint Board; M.B.(Cantab., etc.); also D.P.M., D.O.M.S., D.T.M. & H., D.L.O., L.M.S.S.A., etc. Numerous successes.

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M.R.C.P., M.D., Final F.R.C.S., F.R.C.S. (Edin.), Final M.B., B.S., and M.R.C.S., L.R.C.P. Museum and Microscope Work. Also Private Tuition.

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CONTENTS:—The method and the cost of entering the Medical Profession. *Particulars of all Medical Examinations*, Postal Courses, and Oral Classes. Suggestions for the higher Medical Examinations. Suggestions for the higher Surgical Examinations. Suggestions for the Special Diploma Examinations. Refresher Course. Openings for Women. Hints for writing theses.

Medical Prospectus gratis along with list of Tutors, etc., on application to the Principal, Mr. E. S. WEYMOUTH, M.A., 17, Red Lion Sq., London, W.C.1. (Telephone: HOLBORN 6313.)

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THE ROYAL INSTITUTE OF PUBLIC HEALTH.

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Director of Chemical Laboratories: ALAN WEST STEWART, D.Sc., A.I.C., Public Analyst for the County of Berks, Oxford, Paddington, etc.; Assistant Director: E. H. BUNCE, A.I.C.

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The Course of Instruction can be commenced at any time.

The Principal will be pleased to interview intending candidates for the purpose of advice.

Further particulars can be obtained from the Secretary, 37, Russell Square, W.C.1.

Telephone: MUSEUM 0766.

F.R.C.S. (Edin.).

A TUTORIAL CLASS, with Museum Demonstrations, for the next Examination will commence shortly. Correspondence tuition if desired.—FRED GRAHAM, M.D., F.R.C.S.(Edin.), Surgeons' Hall, Edinburgh.

County Borough of Dewsbury.

ASSISTANT SCHOOL MEDICAL OFFICER AND ASSISTANT MEDICAL OFFICER OF HEALTH.

Applications are invited from duly qualified and registered medical practitioners (men or women) for the post of Assistant School Medical Officer and Assistant Medical Officer of Health (Tuberculosis and Child Welfare). Applicants should have had at least three years' experience since qualification. Experience in Eye work and Refractions is essential. The possession of the D.P.H., and previous experience in School Medical Inspections and the work of a School Clinic, and in Tuberculosis and Child Welfare, will be considered important additional qualifications.

The inclusive salary will be at the rate of £600 per annum. Particulars of the duties and conditions of appointment, together with application forms, may be obtained from Dr. W. M. FRAZER, Medical Officer of Health, Market Place, Dewsbury, to whom all applications, accompanied by copies of not more than three recent testimonials, should be delivered not later than Saturday, August 24th.

Town Hall, Dewsbury. August, 1929. HOLLAND BOOTH, Town Clerk.

The Warwickshire and Coventry

JOINT COMMITTEE FOR TUBERCULOSIS.

WARWICKSHIRE KING EDWARD VII MEMORIAL SANATORIUM. (190 Beds.)

Applications are invited from fully qualified medical men for the following posts:

1. SENIOR HOUSE PHYSICIAN. Salary £275 per annum, with board, residence, and laundry. Tenable for six months.
2. JUNIOR HOUSE PHYSICIAN. Salary £200 per annum, with board, residence, and laundry. If satisfactory, the successful candidate may be appointed to the post of Senior House Physician at the end of six months.

Applications, stating age, qualifications, and experience, together with copies of three recent testimonials, should be sent to the undersigned on or before August 24th.

Warwickshire King Edward VII Memorial Sanatorium, Warwick. FREDERICK HEAF, Med. Supt.

Parish of St. Mary, Islington.

RADIOLOGIST WANTED.

The Guardians of the Poor of the Parish of St. Mary, Islington, require a Radiologist at their Infirmary, Highgate Hill, N.19.

The appointment will be for twelve months in the first instance.

The person appointed will be required to attend one morning each week at the Infirmary, and the duties include—

1. The undertaking of screen examinations of cases referred to him by the Medical Superintendent.
2. General assistance to the Medical Superintendent in the work of the X-ray Dept.

Remuneration £125 per annum, with lunch at each visit.

Written applications, *stating age, experience*, etc., to be sent to the undermentioned offices not later than August 17th.

By Order,
Guardians' Offices, St. John's Road, Upper Holloway, N.19. ALBERT KING, Clerk to the Guardians.

Manchester and District Radium INSTITUTION.

ASSISTANT RADIOLOGIST.

Applications are invited for the post of Assistant Radiologist to the Manchester and District Radium Institution. Salary at the rate of £350 per annum, to be increased to £450 at the end of one year's service. Candidates should forward applications and testimonials to the Hon. Secretary, The Radium Institute, Nelson Street, Manchester, S.

All Saints' Hospital (For Genito-URINARY DISEASES).

49/55, Vauxhall Bridge Road, S.W.1.

DEMONSTRATIONS IN CYSTOSCOPY are held on:

Wednesdays ...	Mr. Coyte ...	1.30 p.m.
Thursdays ...	Mr. Attwater ...	1.30 p.m.
Saturdays ...	Mr. Loughnane...	1.30 p.m.

Special classes and tuition by arrangement.

Preliminary Examinations.

The COLLEGE OF PRECEPTORS holds Preliminary Examinations for Medical and Dental Students in London and at Provincial Centres in March, June, September, and December. For Regulations, apply to the Secretary, College of Preceptors, Bloomsbury Square, London, W.C.1.

County Borough of Wigan.

APPOINTMENT OF CLINICAL TUBERCULOSIS OFFICER AND ASSISTANT MEDICAL OFFICER OF HEALTH.

The Corporation invite applications from fully qualified and registered medical men for the position of Clinical Tuberculosis Officer and Assistant Medical Officer of Health for the County Borough of Wigan.

Applicants must have had special practical experience in the treatment of Tuberculosis in Sanatoria, Dispensaries, and otherwise, and must be thoroughly acquainted with the modern methods of diagnosis and treatment. The possession of a Diploma in Public Health is essential.

Preference will be given to candidates who have field, subsequent to qualification, an appointment as Resident Medical Officer in a General Hospital, and who have had practical experience in treatment by artificial sunlight. Knowledge of X-ray work in connection with Tuberculosis is desirable.

The appointment will be subject to the approval of the Ministry of Health, and will also be subject to the provisions of the Local Government and Other Officers Superannuation Act, 1922, and the successful candidate will be required to pass a medical examination.

Salary to be at the rate of £750 per annum.

A list of duties appertaining to the appointment *may be obtained on application to the* undersigned.

Sealed applications, endorsed "Appointment of Clinical Tuberculosis Officer and Assistant Medical Officer of Health," stating age, qualifications, and experience, and accompanied by *copies of three recent testimonials, to be in my* hands not later than Saturday, August 17th.

WILLIAM HENRY TYRER, Town Clerk.

Town Clerk's Office, Library Street, Wigan. July 31st, 1929.

Parish of Leicester.

RESIDENT MEDICAL OFFICER (Male).

The Guardians of the Parish of Leicester invite applications for the position of Resident Medical Officer at their NORTH EVINGTON INFIRMARY, for a period of twelve months.

The Hospital is a modern building with 550 beds, and two Resident Medical Officers.

Salary £250 per *annum, increasing* after six months' approved service to £300 per annum, together with apartments, rations, laundry, and attendance.

The gentleman appointed to the post will be required, when requested, to assist at the other Institutions of the Board.

The appointment is subject to the provisions of the Poor Law Officers Superannuation Act, 1896, and the provisions of the Local Government Act, 1929, which may affect this appointment.

Further particulars of the appointment may be obtained from the Medical Superintendent, E. C. HADL[illegible] North Evington Leicester, to *experience*, panied by c[illegible] should be addressed on or before August 26th.

Poor Law Offices, Pocklington's Walk, Leicester. H. C. MANSFIELD, Clerk to the Guardians.

August 3rd, 1929.

West Riding of Yorkshire.

APPOINTMENT OF COUNTY MEDICAL OFFICER OF HEALTH.

The County Council of the West Riding of Yorkshire invite applications for the appointment of Medical Officer of Health for the County.

The commencing salary will be £1,600 per annum.

Candidates must not only be duly qualified as prescribed by the Local Government Act, 1888, but must also possess considerable administrative capacity, and a wide knowledge and experience of the organization of Public Health work.

The appointment will be subject to the provisions of the Local Government and Other Officers Superannuation Act, 1922, and the successful applicant will be required to pass a medical examination.

Canvassing, directly or indirectly, will be a disqualification.

Particulars of qualifications and duties of the office, and terms and conditions of service and forms of application, may be obtained from the undersigned, and applications (on forms supplied), together with copies of not more than three recent testimonials, should be sent, marked "Confidential," not later than August 31st, to the Clerk of the County Council, County Hall, Wakefield.

J. CHARLES McGRATH.

July 23rd, 1929.

COLONIAL MEDICAL SERVICES.

Vacancies exist at present for MEDICAL OFFICERS in:—

(*a*) THE WEST AFRICAN MEDICAL STAFF.

(*b*) THE MALAYAN MEDICAL SERVICE.

QUALIFICATIONS.

Applicants must be British subjects of European parentage and between 22 and 35 years of age. They must possess a double qualification and be on the British Medical Register. Preference will be given to candidates who have held hospital or public health appointments, or who have special knowledge of anæsthetics, radiology, surgery, medicine, ophthalmology, gynæcology and midwifery, diseases of the ear, nose, and throat, venereal diseases, etc.

COURSES OF STUDY.

Selected candidates will be required to take a special course of study in tropical medicine and hygiene commencing in October, either at the London School of Hygiene and Tropical Medicine or at the Liverpool School of Tropical Medicine, or at the University of Edinburgh, before taking up their appointments. Tuition fees will be paid and an allowance granted by Government subject to certain conditions.

Further particulars and forms of application may be obtained, on application in writing, from the PRIVATE SECRETARY (APPOINTMENTS), COLONIAL OFFICE, 2, Richmond Terrace, Whitehall, London, S.W.1.

University of Sydney.

The Senate invites applications from gentlemen qualified to hold the BOSCH CHAIR OF SURGERY, the duties of which commence on March 1st, 1930. The salary is £2,500 per annum, without Superannuation rights. Applications (8 copies) should reach the undersigned by October 19th, 1929, but the University reserves to itself the right to invite any person to the Chair. A memorandum giving further particulars may be obtained on request.

The Senate invites applications from gentlemen qualified to hold the BOSCH CHAIR OF MEDICINE, the duties of which commence on March 1st, 1930. The salary is £2,500 per annum, without Superannuation rights. Applications (8 copies) should reach the undersigned by October 9th, 1929, but the University reserves to itself the right to invite any person to the Chair. A memorandum giving further particulars may be obtained on request.

The Senate invites applications from gentlemen qualified to hold the BOSCH CHAIR OF BACTERIOLOGY, the duties of which commence on March 1st, 1930. The salary is £1,100 per annum, subject to a deduction of 5 per cent. for the University Professorial Superannuation Scheme. Applications (8 copies should reach the undersigned by October 19th, 1929. A memorandum giving further particulars may be obtained on request.

AGENT-GENERAL FOR NEW SOUTH WALES, LONDON.
Australia House,
Strand, London, W.C.2.

University College Hospital,
Gower Street, W.C.1.

Applications are invited for the post of ASSISTANT RADIOLOGIST. Candidates should have had previous Hospital experience. Duties require attendance on four half-days a week. Salary £200 per annum.

Applications, accompanied by two recent testimonials, should reach the Secretary by noon on Thursday, September 5th.

Lowestoft and North Suffolk HOSPITAL.

HOUSE SURGEON (male) required. Salary £150 per annum, with board, residence, and laundry. Applications, with copies of three recent testimonials, to the Honorary Medical Superintendent.

ROYAL AIR FORCE MEDICAL SERVICE.

The Royal Air Force Medical Service has a limited number of appointments to TEMPORARY COMMISSION on yearly contract to offer to selected candidates.

Full particulars of these appointments and forms of application may be obtained either by writing to the Secretary, Air Ministry (D.M.S.), Adastral House, Kingsway, W.C.2, or by personal application to the Medical Department, Air Ministry, 5/6, Clement's Inn, Strand, W.C.2.

Applications, in writing, should be marked "Temporary Commission, Medical Branch."

West Bromwich and District GENERAL HOSPITAL. (130 Beds.)

Applications are invited for the posts of
HOUSE SURGEON;
HOUSE PHYSICIAN;
CASUALTY HOUSE SURGEON.

Candidates (males) must be doubly qualified and unmarried. Salary, in each case, at the rate of £200 per annum, with board, residence, and laundry.

The appointments are for six months and the candidates will be required to take up their duties on October 1st next.

Applications, stating age and qualifications, with copies of three recent testimonials, should be sent to the undersigned on or before the 22nd instant.

By Order,
Edward St., FRANK I. HANCOCK,
West Bromwich. Secretary & Supt.

Swindon and North Wilts VICTORIA HOSPITAL, SWINDON.

APPOINTMENT OF HONORARY AURAL SURGEON.

The Committee invite applications for the post as Honorary Surgeon to the Ear, Nose, and Throat Dept., in succession to the late Mr. Kenneth Lees.

Candidates should be Fellows of the Royal College of Surgeons.

Applications, together with full particulars of qualifications, experience, and posts held, should be forwarded to the Secretary at the Hospital, from whom any further particulars relating to the appointment may be obtained.

Newcastle-upon-Tyne City MENTAL HOSPITAL, GOSFORTH, NEWCASTLE-UPON-TYNE.

Wanted, JUNIOR ASSISTANT MEDICAL OFFICER (male). Preference will be given to candidates with experience in Bacteriology and Laboratory technique. Salary £350, rising to £400 on obtaining the Diploma of Psychiatry, with board, furnished apartments, and laundry, subject to deductions under the Asylums Officers Superannuation Act, 1909.

Form of application may be obtained from the Medical Superintendent.

Harrogate Infirmary.

Applications are invited from British subjects (male) for the posts of SENIOR and JUNIOR HOUSE SURGEONS, vacant on September 30th, on which date successful applicants will require to take up appointments. Salary is at the rate of £150 and £100 per annum respectively, with board, lodging, and laundry. Applications, to be made on official form to be had from the undersigned, should be sent in not later than August 31st.

GEO. BALLANTYNE, Secretary.

Bradford Children's Hospital.

Male HOUSE SURGEON and Male HOUSE PHYSICIAN wanted, fully qualified. Salary £120 each, with board, residence, and laundry.

Applications, stating age, with recent testimonials, not later than August 17th, to—

J. W. LONGLEY, Secretary.

Clayton Hospital, Wakefield.

Applications are invited for the post of HONORARY ASSISTANT SURGEON to take charge of the Casualty Department.

Applications should be sent to the undersigned on or before Tuesday, August 20th.

HENRY MAW, Gen. Supt. & Sec.

General Lying-In Hospital, York Road, Lambeth, S.E.1.

RESIDENT MEDICAL OFFICER required for October 1st next, appointment for three months. £100 per annum, with board. Applications, with three testimonials, to be sent to the Secretary not later than August 19th next.

APPOINTMENTS—Important Notice.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

(a) British Islands.

Town or District.	Town or District.	Town or District.
CONTRACT PRACTICE.	**CONTRACT PRACTICE** *(Contd.).*	**PUBLIC HEALTH** *(continued).*
EBBW VALE, MON. *(Workmen's Medical Society.)*	NEATH AND DISTRICT. *(Medical Aid Association.)*	GLASGOW EDUCATION AUTHORITY. *(Male Assistant Medical Officer.)*
GILFACH GOCH, GLAMORGAN. *(Workmen's Medical Scheme.)*	OAKDALE, MON. *(Medical Officer for Medical Aid Association.)*	SOUTH SHIELDS COUNTY BOROUGH. *(Assistant Medical Officer.)*
LLWYNYPIA, CLYDACH VALE PENYGRAIG, GLAMORGAN. *(Workmen's Medical Scheme.)*	OGMORE VALLEY, GLAMORGAN. *(Wyndham Colliery Medical Aid Society) (Workmen's Medical Scheme.)*	YORKSHIRE NORTH RIDING COUNTY COUNCIL EDUCATION COMMITTEE. *(Assistant School Medical Officer.)*
MARDY, GLAMORGAN. *(Workmen's Medical Scheme.)*	**PUBLIC HEALTH.**	YORKSHIRE WEST RIDING COUNTY COUNCIL. *(School Medical Inspector.)*
	CORNWALL EDUCATION COMMITTEE. *(Assistant School Medical Officer—Female.)*	

(b) Colonial Medical Service.—

WINDWARD ISLANDS MEDICAL SERVICE. (Grenada with Carriacou, St. Vincent and St. Lucia.)

(c) Overseas.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.
NEW SOUTH WALES. *(All Friendly Society Appointments)*	Dr. R. H. TODD (Hon. Sec., New South Wales Branch), B.M.A. Building, 30-34, Elizabeth St., Sydney, N.S.W.	VICTORIA. *(All Institute or Medical Dispensaries.)*	Dr. FRANK DAVIES (Hon. Sec., Victorian Branch), British Medical Association, Medical Society Hall, East Melbourne, Victoria.	WESTERN AUSTRALIA. *(Contract and Lodge Practice.)*	Hon. Sec., Western Australian Branch, British Medical Association, No. 6, Bank of N.S.W. Chambers, St. George's Terr., Perth, Western Australia.
QUEENSLAND. *(Brisbane Associated Friendly Societies Institute)*	Dr. E. S. MEYERS (Hon Sec., Queensland Branch), British Medical Association, Adelaide St., Brisbane	WELLINGTON, NEW ZEALAND. *(Contract Practice Appointments.)*	Dr. G. F. V. ANSON (Hon. Sec., New Zealand Branch), British Medical Association, P.O. Box 156, Wellington, New Zealand.		

Address: B.M.A. House, Tavistock Square, W.C.1. By Order of the Council of the British Medical Association.
August 7th, 1929. ALFRED COX, Medical Secretary.

Cumberland Infirmary, Carlisle.

Applications are invited for the following posts (male), vacant on October 1st next (six months' appointment); previous experience in each case desirable:

1. HOUSE PHYSICIAN.
2. HOUSE SURGEON to Special Departments (Eyes, Ear, Nose, and Throat).

Salary in each case at the rate of £155 per annum, board, residence, etc.

Applications, stating age, with copies of not more than four testimonials, must be received by first post on Monday, August 19th, by the undersigned, who will supply further particulars if desired.

Separate applications required for each post.

J. G. HOWITT, Secretary.

July 29th, 1929.

General Hospital, Nottingham.

(317 Beds.)

An ASSISTANT RESIDENT CASUALTY OFFICER (male) required at the above Institution. Candidates are desired to send applications, stating age, qualifications, and experience, together with copies of testimonials, to the undersigned, with an intimation as to when they can commence duty if appointed.

The appointment is for six months. Salary at the rate of £150 a year, with board, residence, and laundry.

PETER M. MacCOLL, House Governor & Secretary.

Cheshire Joint Sanatorium,

MARKET DRAYTON, SALOP.

HOUSE PHYSICIAN (male) required. The appointment is temporary, for twelve months. Inclusive salary at the rate of £250 per annum, with board, residence, and laundry.

Applications to be made on forms which may be obtained from the Medical Superintendent, and must be returned not later than August 15th.

Manor Hospital, Walsall.

A JUNIOR RESIDENT ASSISTANT MEDICAL OFFICER.

The Guardians of the Walsall Union invite applications *from* duly qualified gentlemen for the appointment of Junior Resident Assistant Medical Officer at Manor Hospital, Walsall.

The appointment will be for a period of six months, renewable at the option of the Guardians, and the salary will be at the rate of £150 per annum, together with the usual residential emoluments.

The gentlemen appointed will be required to act under the general direction of the Medical Officer, from whom particulars of the appointment may be obtained.

In addition to the Resident Medical Staff there is also a Consulting Staff.

Applications, stating age, professional qualifications, and experience, accompanied by not more than three copies of recent testimonials, should be sent to the undersigned at once.

C. S. FOTHERGILL, Clerk to the Guardians.

Union Offices, 29, Leicester Street, Walsall.

East Suffolk and Ipswich

HOSPITAL, IPSWICH.

(260 Beds. Seven Residents.)

Wanted at once, a HOUSE SURGEON (male, British). Salary at the rate of £120 per annum (six months' contract), with board, residence, and laundry.

Applications, stating age, qualifications, and experience, and accompanied by copies of three recent testimonials, to be sent to the undersigned.

Forthcoming Vacancies.—September 1st, 1929, House Surgeon. October 1st, 1929, Two House Surgeons. Will candidates desirous of applying for these vacancies when they occur please communicate with me now.

ARTHUR GRIFFITHS, Secretary.

The Hospital, Ipswich.

July 27th, 1929.

Nottingham Children's Hospital.

Applications are invited for the post of RESIDENT HOUSE SURGEON (woman). Candidates must have held a resident Hospital appointment. Experience in the administration of *Anæsthetics essential.* The salary will be at the rate of £150 per annum, with apartments, board, and laundry. The appointment will be for six months.

Applications, together with testimonials, and stating age, qualifications, and experience, to be sent to F. PEAGNELL, the Honorary Secretary, 1, King John's Chambers, Bridlesmith Gate, Nottingham, by August 20th. Selected candidates will be required to attend at the Hospital for a personal interview on August 27th, when the appointment will be made.

The London Female Lock

HOSPITAL, 283, Harrow Rd., London, W.9.

The Board of Management invite applications for the appointment of HOUSE SURGEON (male or female) at the Female Lock Hospital. Salary at the rate of £150 per annum, with furnished rooms, full board, and washing. Candidates, who must be doubly qualified and duly registered, should send in their applications by August 12th, accompanied by copies of three recent testimonials, to the Secretary, from whom further particulars can be obtained. The appointment is for six months commencing September 6th.

Liverpool Open-air Hospital for

CHILDREN, LEASOWE. (260 Beds.)

(Surgical Tuberculosis and Orthopædics.)

Vacant October 1st, the post of JUNIOR RESIDENT MEDICAL OFFICER. Salary £200, with residence, board, and laundry. Tenable for six months as Junior and a further six months as Senior Resident. Applications, with copies of testimonials, to be sent to the Senior Medical Officer not later than September 2nd.

British Medical Journal,
BRITISH MEDICAL ASSOCIATION HOUSE,
TAVISTOCK SQ., LONDON, W.C.1.
T/A: ARTICULATE, WESTCENT, LONDON.
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All advertisements must be received not later than first post Tuesday previous to date of publication.

ASSISTANCIES.

Wanted shortly, outdoor male ASSISTANT for private and panel Practice in the West of England. Liberal salary and good prospects to suitable man. State age, qualifications, experience, testimonials, and other essential particulars.—Add., *No.* 4805, B.M.A. House, Tavistock Sq., W.C.1.

Wanted on September 1st, ASSISTANT, with view to early Partnership, for a mixed Practice in growing Midland Town. Receipts over £4,000. One-third share to commence with, one-half share in 5 years. 1½ years' purchase. Hospital and scope for surgery. Excellent prospects for suitable man.—No. 4818, B.M.A. House, Tavistock Sq., W.C.1.

Wanted, early in September, in busy Practice in South Midland Town, indoor ASSISTANT (outdoor can be arranged later). Salary £400 p.a. indoor, with car or motor cycle running expenses allowance. Interview desirable.—Address, No. 4810, B.M.A. House, Tavistock Square, W.C.1.

Wanted, September 1st, Assistant, male, unmarried, for general Practice in Leeds. To live in, all found. Commencing salary £250 per annum.—Add., No. 4907, B.M.A. House, Tavistock Sq., W.C.1.

Wanted, October 1st, male ASSISTANT to manage Branch Practice in Lancashire. Commencing salary £360 p.a., *with rooms.*—Address, *No.* 4664, B.M.A. House, Tavistock Square, W.C.1.

Wanted, October, outdoor male ASSISTANT, country town in the Midlands, no colliery; ex H.S., Cambridge or Lond. man preferred. Salary £450 to suitable man. Photo., testimonials.—Address, No. 4802, B.M.A. *House,* Tavistock Square, W.C.1.

Wanted.—Assistant, London area; salary £300; furnished rooms, electric light, and coal. Usual bond.—Address, with full particulars, No. 4413, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistant (outdoor) in good-class Country Practice, panel, private, and dispensing. Work very light and asst. post for gentleman desir. ample time for study and recreation, view ultimate partner'p. —No. 4839, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — Assistant, outdoor, to run branch of growing Practice in pleasant suburb, large city. Salary half takings, and all found.—Address, stating age, nationality, sex, religion, with refs and photo., No. 4836, B.M.A. House, Tavistock Sq., W.C.1

Wanted. — Assistant, married, capable of taking charge of sound Practice. If with view, state available capital. Easy terms. £300 (indoor). Usual bond. State height, age, and enclose photo.—Add., No. 4820, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — Assistant, indoor, male, for September 1st. Industrial area, East London. Ex H.S. or H.P. preferred. Salary £500 p.a., plus commission on midwifery. Car will be provided. Testimonials needed.—No. 4817, B.M.A. House, Tavistock Sq., W.C.1.

Wanted.—A whole-time Assistant, board and lodgings found. Must be keen. Salary £4 14s. 6d. per week.—Add., No. 4835, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — Experienced Assistant, with view to Partnership; Midland City. Easy terms and excellent opportunity for a suitable man.—Address, with full particulars of experience, etc., No. 4801, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Part-time Assistant (outdoor), male or female, in large residential village. Suitable post in which to study. Must be British. Photo. if possible.—Address, No. 4838, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Indoor Assistant, male, young, active, motor cyclist. State full essential particulars; photo. if possible. — Address, No. 4694, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Outdoor Assistant, male, for general Practice near Manchester. View early Partnership. Must possess capital. Salary £500 p.a. State full particulars.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Wanted. — Outdoor Assistantship by exper. G.P., middle-aged, hard worker. Total abstainer, steady and reliable. London East suburb preferred.—Address, No. 4824, B.M.A. House, Tavistock Square, W.C.1.

Wanted, a male indoor Assistant in Colliery Practice in South Wales. Salary £250 p.a. State nationality, age, and references.—Address, No. 4904, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistantship, with or without view, by Woman M.B., Ch.B., 4½ years' P.G. exper. hospitals, panel, private. Free September. Drive car.—Address, No. 4808, B.M.A. House, Tavistock Square, W.C.1.

Assistant wanted, with or without view, for a large middle and working-class Practice in a large city in the W. Riding of Yorkshire, to reside at and assist in the management of Branch Surgery. Excellent *prospect for energetic man.* — Address, No. 4908, B.M.A. House, Tavistock Square, W.C.1.

Assistant, male, single, wanted, with or without view, for a middle, working, and panel Practice, London, S.E. Live in at Surgery. Salary £250 to £300 according to experience. Protestant. State age, height, experience, and refs. Dispenser kept.—No. 4830, B.M.A. House, Tavistock Sq., W.C.1.

Assistant wanted to manage Branch, with view to Partnership, about October 1st. House or rooms available in nice district. Please state age and experience, etc. — Address, No. 4833, B.M.A. House, Tavistock Square, W.C.1.

Assistants and Locum Tenens wanted immediately. Good salaries offered. —BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Assistantship, outdoor, with view to early Partnership, required by B.Sc., M.R.C.S.(Eng.), L.R.C.P.(Lond.); 18 months' experience in general practice; used to *sole charge. Held four resident appointments,* two senior appointments. Height 6 feet, age 28, single, Protestant. — Address, No. 4909, B.M.A. House, Tavistock Square, W.C.1.

Assistantship wanted, with definite view. Scope for increase (e.g., branch) pref. Tall, single, 34, English, well received, own car. District immaterial. Or would buy Practice, chiefly panel. House to rent, Bristol district. (In confidence.)—Add., No. 4803, B.M.A. House, Tavistock Sq., W.C.1.

Assistantship desired by Woman L.R.C.P.Ed., etc., 4½ years' exper. in G.P., Mids., and Ultra-violet Ray Therapy. Used to sole charge. Free early September.—Address, No. 4827, B.M.A. House, Tavistock Sq., W.C.1.

Full-time (male, English) Assistant wanted for a large mixed Practice 15 miles from Marble Arch for two weeks from September 1st. Must be experienced. Car useful, and allowance given. If suitable might be taken on for longer.—Address, with details, No. 4901, B.M.A. House, Tavistock Sq., W.C.1.

MEDICAL POSTS, DISPENSERS, etc.

Doctors requiring qualified Dispensers, Nurse Dispensers, Secretary Dispensers or Chauffeuse Dispensers, are invited to write, wire or 'phone Gerrard 2699. THE DISPENSERS' BUREAU, 145, Shaftesbury Avenue, London, W.C.2.

Wanted.—An Assistant Medical OFFICER for work in IRAQ. Not over 30 years of age and unmarried. Good prospects for energetic young Doctor. Further particulars on application. — Apply, by letter only, IRAQ PETROLEUM COMPANY, LTD., King William Street House, Arthur Street, London, E.C.4.

Wanted.—One Medical Officer, fully qualified, for Whaling Venture sailing shortly for Sub-Antarctic whaling grounds. Probable duration 7 to 10 months. —Apply, CHR. SALVESEN & CO., Leith.

A Lady Dispenser-Bookkeeper supplied immediately on request, qualified and with practical experience in private practice and dispensary work, also trained in Bacteriological Laboratories of the LONDON COLLEGE OF PHARMACY FOR WOMEN. Preparation for Examinations.—Write, wire, or 'phone (Park 0969), Secretary, 7, Westbourne Park Road, W.2.

Dispensers supplied to Doctors at short notice, without fee. Qualified and exper. in priv. and panel prac. Perm. and part-time Bookkeeper-Dispensers, Secretary-Dispensers, Nurse-Dispensers, and Chauffeuse-Dispensers.—Write, wire, or 'phone Central 3679, THE RELIANCE BUREAU FOR DISPENSERS, 87, Holborn Viaduct House, 12, Holb. Viad., E.C.1.

Dispenser, Lady, qualified, many years' practical experience, seeks POST. —Address, No. 4906, B.M.A. House, Tavistock Square, W.C.1.

Experienced Dispenser-Bookkeeper would like to RENEW WORK. Has not dispensed some years, owing home duties. Would go anywhere. Country or Seaside preferred. *Salary not important.* — *Miss* M. LENNAN, *The Haven, Epsom Road, Guildford.*

Pathological and Bacteriological LABORATORY ASSISTANTS ASSOCIA- [illegible] ologists requir. LABORATORY [illegible] mmunicate with H. GOODING, Hon. Sec., "Moelfre," 10, Holbeck Grove, Victoria Park, Manchester. No fees.

Resident Medical Officer required for British Hospital, BUENOS AIRES. Salary £250 first year, £300 second year, with full board and free quarters. Passage out and home.—Apply, BRITISH MEDICAL BUREAU, 12, Stratford Place, W.1.

Typewriting.—Expert undertakes Theses, Testimonials, etc. Numerous letters of appreciation from Doctors.—Write or 'Phone: BEATRICE RADFORD, 27, Buckland Crescent, Swiss Cottage, London, N.W.3. Primrose Hill 0803.

LOCUMS.

HOLIDAY LOCUMS.

THE MEDICAL AGENCY has pleasure in announcing that lists are now being prepared for Locum engagements for the forthcoming Holiday Season. Principals requiring a *RELIABLE SUBSTITUTE* are advised to make *early application.*—Address, W. H. GRANT, The Medical Agency, Watergate House, Adelphi, W.C.1. Tel.: Gerrard 8954 and Riverside 1254 (night calls).

Wanted.—Locums or Assistantships by M.R.C.S., L.R.C.P. Reliable, active, well received. Large experience G.P., panel and private. Free now.—Address, No. 4804, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Locum, two weeks, from August 23rd. Hospitality Doctor and wife. £4 4s. weekly. Small Country Practice.—Apply, Dr. WATTS, Westcroft, Hatfield, Bury St. Edmunds.

Locums. — Experienced and reliable Doctor, had own practice, desires further LOCUMS from August 10th. Terms from 6 gns. p.w. London pref. If country, where car and driver available. Good references.—"MEDICUS," 24, Colville Rd., Bayswater, W.

Locum Tenens and Assistants required.—For further particulars apply to Messrs. R. SUMNER & Co., Ltd., Manufacturing Chemists, 40, Hanover Street, Liverpool.

FOR LOCUM TENENS APPLY TO
Mr. PERCIVAL TURNER, Ltd.
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PARTNERSHIPS.

Wanted.—Partner in sound old-established mixed Practice in prosperous industrial district within 15 miles Manchester. Cash receipts £4,500. Large panel. One-third to one-half share for disposal, 1½ years' pur.—No. 4831, B.M.A. House, Tavistock Sq., W.C.1.

Wanted.—Young, well-qualified man, interested in Surgery, as THIRD PARTNER in good class non-dispensing Practice within 20 miles of London.—Address, No. 4764, B.M.A. House, Tavistock Square, W.C.1.

Cheshire.—Partnership. — Old-estab. PRACTICE. Cash receipts 1928, nearly £4,000. Premium—1/4 share—1½ years' purchase (to include book debts).—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Immediate.—Partnership in Panel and Industrial Practice in Birmingham.—Address, No. 4811, B.M.A. House, Tavistock Square, W.C.1.

North Wales Partnership.—Third Partner required. Share worth £700 net. Part by instalments.—Address, No. 4807, B.M.A. House, Tavistock Square, W.C.1.

Partner, young, wanted in Practice in nice district, outskirts of Birmingham. Short preliminary assistantship. Nice house available. Essential particulars.—Address, No. 4832, B.M.A. House, Tavistock Square, W.C.1.

Senior Partner retiring from old-established mixed Practice in large provincial town. Remaining partner, with higher qualifications, wishes to find younger man as JUNIOR PARTNER. Share at first £800 to £1,000, after preliminary assistantship. Easy terms to man of ability. Excellent house, with garden, garage, etc., available for married man if desired. Public School man preferred, Edinburgh or London training, some experience. Enquirers should state nationality, religion, age, etc. — Address, No. 4852, B.M.A. House, Tavistock Square, W.C.1.

Well-qualified Man wanted as JUNIOR PARTNER in good-class Practice on South Coast. Share valued about £1,200 p.a. *No panel, no dispensing.*—Address, No. 4865, B.M.A. House, Tavistock Square, W.C.1.

Woman Doctor, London Grad., wide experience, requires PARTNERSHIP, large panel Practice. Share about £600. — Address, No. 4903, B.M.A. House, Tavistock Square, W.C.1.

Woman Graduate would like to meet another Woman Graduate, aged 26—30, keen on midwifery, who would JOIN BUYING small suitable PRACTICE to work up. Exchange testimonials, photo., etc. Confidential. —No. 4809, B.M.A. House, Tavistock Sq., W.C.1.

PRACTICES.

Wanted in the Midlands or South-Western County (Seaside Town in Devon or Dorset preferred, but not essential), a good class TOWN PRACTICE OR PARTNERSHIP, producing from about £1,500 to £3,000 per annum. Necessary capital available. Negotiations can be commenced at once.—Full particulars should be sent, in the first instance, to Mr. C. S. MOORES, F.S.A.A., Incorporated Accountant, 15, Bedford Circus, Exeter.

Wanted by M.Ch., Practice or PARTNERSHIP, preferably latter, in Kent, Surrey, or London suburb. Share worth £2,000 up required. Advertiser has extensive experience of general practice, and has been on the Honorary Surgical Staff of a General Hospital for eight years.—Address, No. 4602, B.M.A. House, Tavistock Square, W.C.1

Wanted by M.D.Cantab., F.R.C.S.Eng., Public School, better-class PRACTICE or PARTNERSHIP, within 100 miles London, or good-class suburb.—Ample capital. —Address, No 1595, B.M.A. House, Tavistock Square, W.C.1

Wanted.—We have innumerable applicants for sound investments in all districts, incomes from £600 to £4,000, with and without panel. Correspondence invited from prospective Vendors. — THE MEDICAL AGENCY (W. H. Grant), Watergate House, 15, York Buildings, Adelphi, W.C.2.

Wanted to Purchase. — First-class Country PRACTICE. Detached house, garden, and garage desirable.—Address, No. 4815, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — Middle-class PRACTICE, £1,200 upwards, with panel. Good house and garden essential. Necessary capital available. No agents.—Address, No. 4821, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—Town of Derby. PRACTICE with panel, or Nucleus. Small house.—Address, No. 4822, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—Mixed Practice in Yorkshire or Midlands of about £1,000. Convenient house to rent essential. Capital available.—Address, No. 4814, B.M.A. House, Tavistock Square, W.C.1.

A Client desires to purchase well-established PRACTICE in good residential town. Bath or Cheltenham preferred. Income *not* under £1,800. Midwifery and *panel* minimum or nil.—Replies to Messrs. HUMFRYS, SYMONDS & SPENCER, 34, Bridge Street, Hereford.

Birmingham. — Old-established mixed Cash PRACTICE, good industrial area. Ready cash averages £60 monthly. Select panel £600 per annum, growing steadily. Working expenses very low. Freehold house for sale or mortgage could be arranged. Premium, including Practice, drugs, surgery furniture, house, and fittings, £3,000.—Address, No. 4675, B.M.A. House, Tavistock Square, W.C.1.

Bradford.—For immediate disposal.—Mixed PRACTICE, in Vendor's hands 30 years. Panel 1,000, appointment worth £75. Average receipts £1,350 p.a. Premium £2,000. Detached modern house, garage, etc., for sale, or let for period.—Address, No. 4829, B.M.A. House, Tavistock Square, W.C.

Cash Transaction. — Wanted, PRACTICE (with or without panel) in good residential London Suburb. Income £1,000 to £2,000. Good house, garden, garage; also cash. Strict confidence. — Address, No. 4854, B.M.A. House, Tavistock Square, W.C.1.

Doctor wishes to hear of good Country PRACTICE. Border Counties preferred, but not essential. Capital available.—Box 34, W. H. SMITH & SON, Ltd., Grange Road, Birkenhead

For Sale.—General Practice, five miles from Blackpool. Growing population; last year 1,500 odd booked. Excellent house and garden. Suit a good energetic man.—Address, No. 4806, B.M.A. House, Tavistock Square, W.C.1.

For Disposal.—A good Practice is not always to be had directly, but Mr. PERCIVAL TURNER can generally offer applicants something suitable. Nearly all the best Practices are sold by him without being advertised. Inform. free on applic.—4, Adam St., W.C.2.

Hants. — Half Share. — Well-established cash and panel PRACTICE. Receipts last year nearly £1,000, including panel 900, increasing. Good scope. Offers invited.—Apply, PEACOCK & HADLEY, Ltd., 19, Craven Street, Strand, W.C.2.

Kent. — In rapidly developing *district, 20 minutes Charing Cross.*—Small PRACTICE held many years by Vendor, retiring through age. Receipts about £300 p.a., with panel nearly 200. House on lease. Suit lady or gentleman. Prem. £300. Excellent scope.—Apply, PEACOCK & HADLEY, Ltd., 19, Craven Street, Strand, W.C.2.

London, S.W.—Nucleus general Practice for sale. Panel 150, increasing. Price £250, to include drugs, surgery furniture, and fittings. Suit man or woman Doctor.—Address, No. 4902, B.M.A. House, Tavistock Square, W.C.1.

Lancs Town.—Excellent non-panel PRACTICE. Owner leaving to specialize in distant city. Nice house, garage; rent £60, on lease. Average receipts £1,200, last year over £1,500. Much scope. Price £1,200.—MANCHESTER MEDICAL & SCHOLASTIC ASSOCIATION, 6, Brown St.

London, N.W.—Nucleus General PRACTICE for Sale. Lock up surgery. Panel 230. Reasonable premium.—Address, No. 4826, B.M.A. House, Tavistock Square, W.C.1.

Lancs Town.—Old-established. Good house (residential district), rent £65; Branch, £26 Receipts £870; much scope. Transferable appointment £100. Panel 1,000. Price £1,200, part deferred.—MANCHESTER MEDICAL & SCHOLASTIC ASSOCIATION, 6, Brown Street.

London, E., main road.—Good-class cash PRACTICE, about £600 p.a. Small selected panel 336. Good scope for energetic man. Best offer for immediate sale.—Address, No. 4812, B.M.A. House, Tavistock Square, W.C.1.

London, S.W. — Non-panel, middle-class PRACTICE. Great scope. Receipts about £2,000. For sale at 1½ years' purchase.—Address, No. 4816, B.M.A. House, Tavistock Square, W.C.1.

London, N.—Old-established mixed PRACTICE. Panel over 1,700. Receipts £1,500. Premium 2 years'. No agents. Introduction as required.—Address, No. 4819, B.M.A. House, Tavistock Square, W.C.1.

Lancashire Town. — Non-panel PRACTICE. Cash *receipts last year*, £1,508. Fees 7/6 upwards. Purchaser must be capable of doing major surgery. Good house to rent at £60 p.a. Two reception and four bedrooms. Premium £1,200.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

London, N.W.—Small but well-established mixed-class PRACTICE. Receipts at rate of £250 p.a. Rent 17/6 per week. Vendor going abroad immediately. Will accept £80. Excellent scope.—Apply, PEACOCK & HADLEY, Ltd., 19, Craven St., Strand, W.C.2.

Lancs Town.—Half Share in excellent PRACTICE. Gross cash receipts £2,400. Panel 1,900. Good house to rent. Premium 1½ years' purchase.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Lake District.—Old-established PRACTICE. Cash receipts 1928, £1,398. Panel 700. Good detached house to rent at £60 p.a., containing 3 entertain., 9 bedrooms, garage, and large garden. Premium £2,000, part by arrangement. — BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Medical Practice for Sale, North of England; old-established general Practice; net profit over £1,000 per annum; very desirable district; house, garage, and garden; Practice and house, £3,000. — Apply, MURRAY LAWSON & MACDONALD, W.S., 10, Great Stuart Street, Edinburgh.

Mental Hospital.—For Disposal, an old-established PRIVATE HOME, returning over £1,000 a year profit, fully licensed. —Further particulars will be given to those interested in such work on application to Mr. PERCIVAL TURNER, 4 & 5, Adam Street, London, W.C.2.

Medical Practice. — Scotland, East. Good house. Panel 650. Receipts exceed £1,000.—ROBERT FLEMING, S.S.C., 21, Hill Street, Edinburgh.

Midlands.—Mixed-class Practice for immediate disposal. Receipts £1,100, including panel 1,100. Nice house on lease, £52 p.a. Premium £1,000 cash.—Apply, PEACOCK & HADLEY, Ltd., 19, Craven Street, Strand, W.C.2.

Manchester.-Residential Suburb. —*Good-class PRACTICE. Average cash* receipts £1,506. Excellent corner house for sale. Three reception, 8 bedrooms. Garden and garage. Premium—Practice—1½ years' purchase. —BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Near Liverpool. — Nucleus. — Cash receipts last year, £226. Panel 330. Scope. Good house, 4 bedrooms, 3 reception rooms, garage, and garden. Premium—Practice and house—£1,150.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Oldham.—Old-established PRACTICE, carried on by late Dr. R. W. Pickering at 161, Rochdale Road, Oldham, together with freehold dwelling-house, surgery, etc. — Apply, MELLOR & JACKSON, Solicitors, 8, Church Lane, Oldham.

Practice for Sale in large progressive Midland city. Panel numbers 950. Average income last three years nearly £1,200. Large house, with large garden, must also be purchased. Scope for increase. 1½ years' purchase. —No. 4813, B.M.A. House, Tavistock Sq., W.C.1.

Seaside Nucleus.—Dispensary (Lock-up, or rooms adjoining), suitable for commencing a Practice in growing district in old seaside town in Kent.—Apply, BM/BCGX, London, W.C.

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Can secure Perfect Fitting and Distinctive Clothes of Exceptional value. FINEST QUALITY MATERIALS. *BEST WORKMANSHIP ONLY.*

SPECIAL OFFER.

JACKET & VEST (in black or grey), £5 5s.
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. 2s.
. 6s.

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For Sale. — "Solus" X-Ray TRANSFORMER, 220 v. 10 k.v.a. Mechanical rectifier. Complete with Universal Couch and Screening Stand, "Metalix" tube, etc. Perfect condition, scarcely used. Sacrifice. Must sell immediately. — Address, No. 4857, B.M.A. House, Tavistock Square, W.C.1.

HOUSES, CONSULTING ROOMS.

Bournemouth. — On the main Christchurch Road, in a position much favoured by the medical community. To be sold, a very attractive HOUSE, which has been modernized and is very suitable for a Doctor's residence. Seven bedrooms, bathroom, 3 reception rooms.—Further particulars from FOX & SONS, Estate Agents, Bournemouth.

Blackpool.—Suitable in position, adaptation of premises, and good centre in desirable neighbourhood for Medical Practitioner, No. 11, Bryan Road. For sale, cheap. —Apply, J. TAYLOR & SON, 74, Talbot Road, Blackpool.

Birmingham.—House to Let in a rapidly growing suburb, admirably suitable for Doctor, 2 recep., 5 bed., bath, garage, and charming garden. Surgery and waiting room will be built to suit good tenant.—R. WINTER, Birmingham.

To Purchasers. — Do not buy without expert assistance. With 40 yrs.' experience Mr PERCIVAL TURNER can advise in all cases. Terms free on application to 4, Adam St., Strand, W.C.2. Telephone: Gerrard 0399. Telegrams: "Epsomian, London."

Leeds. — Consulting Rooms, Specialist or Practitioner. Large house, own grounds, entrances 2 roads, minutes to Univ. and all hospit[illegible] w.c., sep. entran[illegible] ex-Nurse. —No. [illegible], W.C.1.

Gloucester Place, Portman Square, W.1. — CONSULTING ROOM, entrance floor, to let, with attendance, use of waiting-room and telephone, etc. £165 p.a.—Address, No. 4823, B.M.A. House, Tavistock Square, W.C.1.

Midlands. — House to Let, densely populated industrial district. Suit Doctor. Low rent, option to purchase if desired —Address, No. 4828, B.M.A. House, Tavistock Square, W.C.1.

To Let.—Queen Anne St., W.1. Part-time CONSULTING ROOM, use waiting room, etc., from £40 per annum.—Address, No. 4905, B.M.A. House, Tavistock Square, W.C.1.

APPOINTMENTS.—Contd.

Whitehaven and West Cumberland Hospital, Whitehaven.
(90 Beds.)

Wanted, JUNIOR HOUSE SURGEON (male). Salary £100 per annum, including board, residence, and laundry. Twelve months' appointment. After six months as Junior an opportunity is given of becoming Senior for the second six months at the rate of £150 per annum.

Applications, stating age, nationality, etc., together with copies of three testimonials, to be sent to the Secretary, endorsed "House Surgeon," not later than Tuesday, August 20th.

R. HIGGINS, Secretary.

Glasgow Asylum Service.

JUNIOR ASSISTANT MEDICAL OFFICER (male) wanted for the GOVAN DISTRICT ASYLUM. Previous asylum experience unnecessary, but preference will be given to one who has engaged in pathological work or has been House Physician. Ample opportunity afforded for research. Salary to commence £325 per annum, with board, lodging, and laundry. Full particulars on application to the Medical Superintendent, Hawkhead Asylum, Glasgow, S.W.2

Royal Hampshire County Hospital, Winchester.

RESIDENT HOUSE SURGEON, male, required as soon as possible. Must be of British nationality. Salary £150 per annum, board, lodging, and attendance provided. Candidates must be duly qualified and registered.

Applications, stating age, and enclosing copies of recent testimonials, should be sent to the undersigned as soon as possible.

HERBERT MASLEN, Secretary.

Stannington Sanatorium for Children.
(310 Beds—Medical and Surgical Tuberculosis.)

Wanted, JUNIOR RESIDENT MEDICAL OFFICER (female). The appointment will be for a period of six months from October 1st. Honorarium at the rate of £50 per annum.

Applications, with copies of testimonials, should reach the Medical Superintendent, Stannington Sanatorium, Clifton, Morpeth, Northumberland, not later than August 22nd.

Ilford Emergency Hospital,

to be extended as a General Hospital to serve a wide area on the Eastern Outskirts of London, and renamed
KING GEORGE HOSPITAL.

Applications are invited for the post of HON. AURAL SURGEON.

Candidates, who must be Fellows of a Royal College of Surgeons, may obtain further particulars from the undersigned, to whom applications, with copies of testimonials, should be sent not later than August 22nd.

G. AUSTIN HEPWORTH, Secretary.

Ilford Emergency Hospital
(8 miles from London), to be extended and renamed KING GEORGE HOSPITAL.

Applications are invited for the appointment of SENIOR HOUSE SURGEON. Salary £150, with board, residence, etc. Applications should be sent at once to the Secretary.

Victoria Hospital, Burnley.
(120 Beds.)

Wanted, HOUSE PHYSICIAN, male. Salary £125 per annum, with residence, board, and washing.

Candidates, who must be fully qualified, are requested to send in their applications, with copies of testimonials, to the Hon. Secretary as early as possible.

N.B.—This Hospital is approved by the London Universities for the M.B. and M.S. Examinations.

7, Grimshaw St., Burnley. F. A. HARGREAVES, Hon. Secretary.
August 6th, 1929.

The Royal Portsmouth Hospital, Portsmouth.
(Five Resident Medical Officers.)

CASUALTY OFFICER, male (qualified), required to commence on September 1st. Salary at the rate of £100 per annum, with board, etc. Six months' appointment. Eligible on completion of term for appointment to other resident posts.

Application, stating age, nationality, etc., and copies of three recent testimonials, to be sent to the undersigned on or before August 22nd, from whom all particulars can be obtained.

B. WAGSTAFF, Secretary.

Swansea Hospital.
(316 Beds.)

Experienced RADIOGRAPHER wanted, male or female, capable of taking charge X-ray Department. Must hold M.S.R. Salary £4 4s. to £6 6s. per week, according to experience. If lady appointed, board and residence may be provided, in which case salary will be modified accordingly.

Applications, stating age, qualifications, and experience, together with copies of three recent testimonials, to be forwarded to the undersigned.

O. C. HOWELLS, Secretary.

Stockton and Thornaby Hospital, Stockton-on-Tees.
(140 Beds.)

Applications are invited for LOCUM for JUNIOR RESIDENT MEDICAL OFFICER for one month, with view of further engagement if satisfactory. Commence duties earliest possible. Salary £150 per annum, with residence, board, and laundry. Applicants must be doubly qualified and unmarried. Applications, stating age, nationality, and experience, together with copies of three testimonials, to be sent to the undersigned as early as possible.

Stockton and Thornaby Hospital, Stockton-on-Tees. J. WILKINSON, Secretary.

Beckett Hospital & Dispensary, Barnsley.

HOUSE PHYSICIAN (male) required. Applicants must be fully qualified, registered, and unmarried.

Salary attached to this appointment is at the rate of £140 per annum, together with board, residence, and laundry.

Applications, stating age, qualifications, and experience (Ophthalmology desirable), accompanied by testimonials, should be sent to the undersigned immediately.

ARTHUR L. BOURNE,
July 16th, 1929. Secretary-Supt.

Miller General Hospital,
Greenwich Road, S.E.10.

CASUALTY OFFICER (male and unmarried) required. Salary £150 per annum, with board, residence, and laundry. The appointment is for the period from August 13th next until March 31st, 1930.

Applications, stating age, nationality, qualifications, and experience, accompanied by copies of not more than three recent testimonials, to be sent to the Secretary as soon as possible.

July 23rd, 1929.

Hull Royal Infirmary.
(272 Beds.)

Applications are invited for the post of SECOND HOUSE SURGEON, vacant August 31st. The appointment will be for six months in the first instance and will be terminable by one month's notice on either side.

Salary at the rate of £150 per annum, with board, residence, and laundry.

Applications should reach the undersigned on or before Tuesday, August 20th.

R. J. CARLESS,
August 2nd, 1929. House Governor.

Hull Royal Infirmary.

CASUALTY HOUSE SURGEON wanted at once. Salary £130 per annum.

CAVENDISH NURSES (Male and Female)

Head Office: 54, BEAUMONT ST., LONDON, W.1 (late 43, New Cavendish St., London, W.1.)

A very convenient form of telephone message pad sent free on application to the Secretary.

Branches: MANCHESTER: 176, *Oxford Road.* *GLASGOW:* 28, *Windsor Terrace.* *DUBLIN:* 23, *Upper Baggot Street.*

TELEGRAMS: Tactear, London. Surgical, Glasgow. London, 1277 Welbeck. Glasgow, 477 Douglas. Tactear, Manchester. Tactear, Dublin. Manchester, 3152 Ardwick. Dublin, 531 Ballsbridge.

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Superior trained Nurses for Medical, Surgical, Mental, Dipsomania Travelling and all cases. Nurses reside on the premises, and are always ready for urgent calls Day and Night. Skilled Masseuses, Masseurs, and good Valet attendants supplied.

Terms from £3 3s. *Apply to the Secretary or Lady Supt.*

Surrey County Sanatorium,
MILFORD, SURREY. (300 Beds.)

Applications are invited from qualified and registered practitioners for the post of SECOND ASSISTANT MEDICAL OFFICER at this Sanatorium.

Salary at the rate of £400 per annum, plus board, lodging, and laundry, valued at £100 per annum for purposes of superannuation.

The appointment is subject to the Local Government and Other Officers Superannuation Act, 1922, and to the standing orders of the County Council.

Forms of application may be obtained from the Medical Superintendent, and when completed they should be sent to the County Medical Officer of Health, 5, Grove Crescent, Kingston-upon-Thames, not later than August 28th, together with copies of not more than three testimonials.

The Jessop Hospital for Women,
SHEFFIELD.

GYNÆCOLOGICAL AND MATERNITY DEPTS. (145 Beds.)

The Board of Management invite applications for the post of SENIOR RESIDENT OFFICER (male).

The appointment is for one year, and the salary is at the rate of £250 per annum, with board, residence, and laundry.

The duties include charge of the Maternity Department, and general supervision of the Gynæcological Department.

Applications, stating age and experience, with copies of recent testimonials, should be forwarded immediately to the undersigned.

H. B. SHELSWELL, Secretary.

St. Bartholomew's Hospital,
ROCHESTER. (126 Beds.)

The House and Finance Committee invite applications for the post of HOUSE PHYSICIAN, vacant on October 1st.

Candidates must be unmarried, qualified, and registered medical men. The appointment is for six months and the salary is at the rate of £175 per annum, with board, residence, and laundry. The officer appointed will have charge of the Medical beds. Some knowledge of Ophthalmic work is desirable.

Applications, stating age, qualifications, and experience, accompanied by copies of three recent testimonials, to be sent to the Secretary not later than August 23rd.

The King Edward VII Welsh
NATIONAL MEMORIAL ASSOCIATION.

Applications are invited from duly registered medical practitioners for the post of AREA ASSISTANT TUBERCULOSIS PHYSICIAN. Salary £600 per annum, together with travelling and subsistence allowances when absent from base.

Applications, stating full qualifications and previous experience, together with copies of three recent testimonials, should reach the undersigned not later than August 19th.

Memorial Offices, Westgate Street, Cardiff. D. A. POWELL, Principal Medical Officer.

Golden Square Throat, Nose, and
EAR HOSPITAL, London, W.1.

HOUSE SURGEON (male) required for October 1st. Salary £100 per annum, with board and lodging.

Applications, stating age, qualifications, and experience, together with copies of three testimonials, should reach the undersigned on or before August 31st.

F. P. CARROLL, Secretary-Supt.

The Royal Waterloo Hospital
FOR CHILDREN AND WOMEN, Waterloo Road, S.E.1.

There is a vacancy for Two Part-time Male CLINICAL ASSISTANTS (unpaid) in the X-ray Department of the above Hospital. Applications, with copies of testimonials, should be sent to the Secretary at the Hospital not later than August 20th.

Bracebridge Mental Hospital,
LINCOLN.

THIRD ASSISTANT MEDICAL OFFICER (male) required. Commencing salary £350 per annum, with furnished apartments, board, washing, and attendance, valued for superannuation purposes at £100 per annum. Candidates must be duly qualified, registered, and unmarried. Previous Mental Hospital experience not essential. The appointment is subject to the provisions of the Asylum Officers Superannuation Act, 1909. Applications, stating age and qualifications, together with copies of three recent testimonials, to reach the Medical Superintendent on or before August 26th.

East London Hospital for
CHILDREN AND DISPENSARY FOR WOMEN, Shadwell, E.1.

Applications are invited for the resident posts of HOUSE SURGEON and HOUSE PHYSICIAN (male). The appointments are for six months.

Salary at the rate of £125 per annum, with board, residence, and laundry provided. Applications, together with testimonials, should be sent to the undersigned not later than August 24th.

W. M. WILCOX, Secretary.

N.B.—Residents at this Hospital are eligible for the reciprocity scheme with Barnes Hospital, St. Louis, U.S.A.

Royal Victoria and West Hants
HOSPITAL, BOURNEMOUTH. (BOSCOMBE BRANCH. 182 Beds.)

A HOUSE SURGEON (male, British nationality) required to commence duty August 18th. Salary £120 per annum, with board, lodging, and washing. The appointment is tenable for six months, and candidates must be registered according to the provisions of the Medical Act.

Applications, stating place of birth, with copies of three testimonials, to be sent immediately to the undersigned. Women and married men are ineligible.

GORDON M. SAUL, Secretary.

August 2nd, 1929.

Cheadle Royal, Cheadle,
CHESHIRE.

An ASSISTANT MEDICAL OFFICER (male) required in the above registered Hospital for Mental Diseases. Candidates must be unmarried, duly registered under the Medical Act, and not more than 30 years of age. Salary to commence at £350 per annum, with board, attendance, furnished apartments, and laundry. Facilities for attending classes for D.P.M. can be arranged.

Applications, accompanied by copies of three recent testimonials, to be sent to the Medical Superintendent.

London Temperance Hospital,
Hampstead Road, N.W.1.

Applications are invited for the post of CASUALTY OFFICER, which will become vacant on or about September 16th.

The appointment will be for a period of six months, at a salary of £120 per annum. Ceteris paribus, preference will be given to abstainers, and to those who have held resident post.

Candidates must submit applications, stating qualifications, age, etc., with copies of not more than three testimonials, by Saturday, August 31st, addressed to the Secretary.

Scarborough Hospital and
DISPENSARY. (70 Beds.)

Wanted, November 1st, Two HOUSE SURGEONS (male or female). Duties include Home Visiting. Salary £126 per annum, with board, residence, etc. Appointment for six months.

Applications, stating age, with copies of testimonials and essential particulars, to be sent to the undersigned by August 16th, from whom further particulars may be obtained.

J. DOUGLAS MCNAY, Hon. Secretary.

Royal Devon & Exeter Hospital,
EXETER. (225 Beds.)

ASSISTANT HOUSE SURGEON (Male).

Applications are invited for the post of Assistant House Surgeon at this Hospital, now vacant. The appointment is for six months, but candidates are eligible for re-election.

Salary at the rate of £100 per annum, with board, apartments, and washing.

Applications, giving particulars as to age and qualifications, together with copies of three recent testimonials, should be sent to the undersigned as soon as possible.

By Order of the Committee,
S. S. COLE, Secretary & Manager.

July 29th, 1929.

Woolwich and District War
MEMORIAL HOSPITAL, Shooters Hill, London, S.E.18. (General Hospital—112 Beds.)

JUNIOR HOUSE SURGEON

The Appointments Committee invite applications for appointment as Junior House Surgeon. An honorarium of £125 per annum will be paid in respect of this appointment, which will be for a period of six months.

Applications, accompanied by copies of not more than three recent testimonials, are invited from suitably qualified candidates, and should be addressed to the undersigned, to reach him not later than 10 a.m. on Monday, August 12th.

EDWIN RADFORD, Secretary-Supt.

The Northern Infirmary,
INVERNESS. (104 Beds.)

Wanted, HOUSE PHYSICIAN and JUNIOR HOUSE SURGEON (combined post), fully qualified and registered, male, unmarried. Salary £100 per annum, with board, residence, and laundry. Applications, stating age, medical school, qualifications, and experience, with copies of recent testimonials, to be sent before August 14th to Mr. ROBT. GILBERT, Hon. Secretary to the Institution, 20, Church Street, Inverness.

July 30th, 1929.

Burton-on-Trent General
INFIRMARY.

HOUSE SURGEON.

The Committee require the services of a duly qualified Second Resident House Surgeon (male). Salary £150, with board, residence, and laundry. Duties to commence as soon as possible.

Applications, with copies of testimonials, to be sent to the undersigned.

The Infirmary, Burton-on-Trent. E. W. THORNLEY, Secretary.

Royal Hospital, Richmond,
SURREY.

JUNIOR HOUSE SURGEON (male) required, to take up duties on September 4th. Salary £100 per annum, together with board, residence, and laundry. Candidates must be fully qualified, registered, and single. Applications, stating age, experience, and copies of recent testimonials, should be addressed and sent to the undersigned not later than August 15th.

RICHARD ALLEN, Secretary.

Rotherham Hospital.

Wanted, HOUSE PHYSICIAN (male), qualified. Salary £180 p.a., with board, lodgings, and laundry, to have charge of Out-patients, administer Anæsthetics, and assist Honorary Physician.

Applications, with copies of recent testimonials, to be sent to the Secretary, G. W. ROBERTS, 8, Moorgate Street, Rotherham.

St. Paul's Eye Hospital,
OLD HALL STREET, LIVERPOOL.

Applications are invited for the post of HOUSE SURGEON to this Hospital. Salary £100 per annum. Applications, with copies of testimonials, should be sent to the Secretary, at the Hospital, on or before August 19th.

Manchester Victoria Memorial
JEWISH HOSPITAL, MANCHESTER.
(Non-Sectarian.)

Applications are invited for the post of SENIOR HOUSE SURGEON (male). The appointment is for one year, the holder being eligible for re-election for a further period of one year. Salary £250 per annum, with board, residence, and laundry. Duties to commence September 1st. Must be fully qualified and registered.

Applications, stating age and qualifications, together with copies of three recent testimonials, to be forwarded to the undersigned immediately.

FRANK JENNINGS, Superintendent.

Manchester Victoria Memorial
JEWISH HOSPITAL, MANCHESTER.
(Non-Sectarian.)

Applications are invited for the post of JUNIOR HOUSE SURGEON (male). The appointment is for six months. Salary at the rate of £125 per annum, with board, residence, and laundry. Duties to commence Sept. 1st.

Applications, stating age and qualifications, together with copies of three recent testimonials, to be forwarded to the undersigned immediately.

FRANK JENNINGS, Superintendent.

Bolingbroke Hospital
Wandsworth Common, S.W.11.

HOUSE SURGEON (male) required. The appointment is for six months, commencing on September 1st next. Salary £120 per annum, with board, residence, and laundry.

Candidates must be fully qualified and registered. Applications, stating age, qualifications, and experience, with copies of not more than three testimonials, should be sent to the undersigned on or before August 21st.

W. S. RANDOLPH BISS, Secretary-Supt.

Royal Eye Hospital,
St. George's Circus, S.E.1.

Applications are invited for the following appointments at the above Hospital for a period of one year from October 1st:

12 SALARIED REFRACTIONISTS.
12 CLINICAL ASSISTANTS.
1 PATHOLOGIST.

Applications, with copies of testimonials, to be sent to the Secretary at the above Hospital on or before August 27th.

F. E. D'ALTON, Secretary.

Swansea Hospital.
(316 Beds.)

HOUSE SURGEON wanted, gentleman, single. Duties include Casualties and Orthopædics. Salary £150, with board, residence, and laundry. Applications, stating age, nationality, qualifications, and experience, with copies of three recent testimonials, to be forwarded to the undersigned.

O. C. HOWELLS, Secretary.

Haywood Hospital, Burslem.

Wanted, RESIDENT MEDICAL OFFICER (female), unmarried. Salary £175 per annum, with board and residence. Must be fully qualified. Applications, stating age and experience, *together with copies of three recent testimonials*, to be sent to me not later than August 15th.

Duties to commence on August 31st.

Public Offices, Price Street, Burslem. F. C. POWELL, F.C.I.S., Secretary.

Birkenhead General Hospital.
(156 Beds.)

Applications are invited for the post of CASUALTY SURGEON (male). Salary £100, with board and residence. To take up duties beginning of August.

Applications, stating qualifications, experience, and nationality, with three copies of recent testimonials, to be sent to the Secretary-Supt. as early as possible.

Jewish Maternity Hospital.
Jewish Maternity Home (Incorporated), Underwood Street, E.1.

RESIDENT MEDICAL OFFICER required to commence duties on August 31st. Board, residence, and laundry provided. Salary £50 per annum. The appointment is for six months.

Applicants may be either male or female.

Applications, with copies of three testimonials, to be sent to the Secretary not later than August 17th.

The Queen Alexandra Memorial
HOSPITAL, WESTON-SUPER-MARE.

RESIDENT MEDICAL OFFICER (male, unmarried). Salary £150. Duties to commence September 1st.

MR. HERBERT NEEDES,
31, Bedford Street, Strand, W.C.2.
(Gerrard 3873.) (Estab. 1860.)

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Upon application to Dr. P. K. McCOWAN, Medical Superintendent, at the above address (from whom further particulars are obtainable), a form will be forwarded.

Birmingham and Midland Ear
AND THROAT HOSPITAL.

Applications are invited for the appointment of SECOND ASSISTANT SURGEON. Honorarium at the rate of £200 per annum.

The Assistant Surgeons of the Hospital shall possess a registered Medical and Surgical qualification. They are elected for a term of three years, and are eligible for re-election. They shall confine their practice to the speciality of the Hospital, and shall not hold any other voluntary hospital appointment.

Candidates are requested to forward their applications and testimonials to the Secretary at the Hospital on or before August 24th.

By Order of the Committee,
S. G. GREW,
August 2nd, 1929. Secretary.

The Royal Eye and Ear Hospital,
BRADFORD.

Applications are invited for the post of JUNIOR HOUSE SURGEON (male), to commence duties September 1st.

Salary £120, with board, residence, and laundry.

Applications, stating qualifications, age, etc., with copies of recent testimonials, to be forwarded to the undersigned on or before August 13th.

F. BRIGGS, Secretary-Supt.

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HOSPITAL. (82 Beds.)

Applications are invited for the post of JUNIOR HOUSE SURGEON. Salary £100 p.a., with board, residence, and washing. Candidates must be fully qualified and registered.

The appointment is for six months, but candidates will be eligible for re-election.

Applications, stating age, nationality, and qualifications, together with copies of three recent testimonials, to be sent immediately to the Secretary-Superintendent.

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Home Counties. — £3,600 p.a. 1/3 or 2/3 share. Panel over 2,000. Mids. from 2 gns. Visits 3/6—10/6. Good house and garden.—No. 8514.

Yorks.—Over £3,000 p.a. 1/4 share, good scope for increase. Panel over 2,000. Mids. 2—5 gns. Med. house to rent or buy.—No. 8510.

Lancs.—£4,000 p.a., increasing. Panel over 2,600. Visits 2/6—7/-. Mids. 2—5 gns. Suitable for two. Two houses, rent or buy.—No. 8509.

London; South. — About £800 p.a. *Residential.* Panel and appts. about £500 p.a. Good house and large garden. Prem.—house and Practice—£3,000.—No. 8507.

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N.E. Coast.—Nearly £1,200 p.a. and chance of sev. appts. Fees 3/6 to 5/-. Panel 600. Compact PRACTICE. Good house, garden and garage, etc.—No. 8498.

Southampton. — Over £1500. Panel and appts. £858. Good house, 6 bed, etc., for sale. Good schools.—No. 8495.

Home County.—Over £700 p.a. Small residential town within 25 *miles*, South. Panel 462. Good fees. Large well-built house and garden.—No. 8494.

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Berkshire. — About £700 p.a. General mixed Country PRACTICE. *Panel about* £287 p.a. *Few mids. Fees* 2/6—7/6. Excellent house and garden.—No. 8490.

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1 MIDLANDS.—Partnership in sound well-established Practice over £4,000 p.a. in flourishing town. Panel 2,800. House, with 4 bedrooms, to rent. One-fifth share at 2 years' purchase. Partner should be experienced in Surgery.

2 LANCASHIRE.—Partnership in Practice averaging £2,100 p.a. in an industrial district. Panel over 1,500. One-third share at 1½ years' purchase after prelim. assistantship.

3 N. WALES.—Country Practice averaging nearly £450 p.a. in agricultural district. Small panel. Good house (4 bedrooms), with 9½ acres of meadow land, for sale. Hunting, shooting, etc. Premium £450.

4 DEATH VACANCY.—London, S.E.—Old-established PRACTICE nearly £600 p.a., including small panel. Good double-fronted house to rent.

5 EASTERN CITY. — Assistantship with view to Partnership in non-dispensing Practice Rs 4,500 a month. After assistantship six months at Rs.700 a month, all found. Third share would be sold at 1½ years' purchase. Applicant must be F.R.C.S.

6 N.E. COAST. — Seaside Town. — Practice £1,180 p.a. Panel 600. House (5 bedrooms), with every modern convenience. Rent about £65 p.a. Premium £1,300.

7 MIDLANDS. — Partnership in industrial and middle-class non-dispensing Practice £3,900 p.a., in close proximity to county town. Panel 3,250. One-fourth share at 1½ years' purchase.

8 SHEFFIELD.—Practice about £800 (including two appointments £155). No panel and no dispensing. Convenient house (6 bedrooms) for sale or to rent. Prem. £800.

9 CARMARTHENSHIRE. — Steadily increasing PRACTICE of £800 in small country town. Panel 645. Small house (3 bedrooms, etc.) to rent. Premium 1½ years' pur.

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11 ESSEX.—PARTNERSHIP. — Sound old-established Practice. Receipts £3,600. Panel 2,250. Visits 3/6 to 10/6. Excellent house and garden for sale or to rent. Premium 2 years' purchase (part by instalments).

12 DURHAM. — Well-established Practice £1,169 p.a., including appointments worth about £300 and panel 1,050. House contains 7 rooms, surgery, and waiting room, with separate entrance, to be sold or let. Premium 1½ years' purchase.

13 CHESHIRE.—Practice £1,300 p.a. Panel over 1,300. House (5 bedrooms) to be sold or let. Prem. £1,000.

14 DEATH VACANCY.—BUCKS.—Practice about £750 p.a. Panel 516. Visits 2/6 to 7/6. Good detached house (2 reception, 3 bedrooms, etc.). Rent £72 p.a.

15 LONDON, S.E.—Good Residential Suburb. PARTNERSHIP in very old-established non-dispensing Practice over £3,700 p.a. Visits 5/- to 10/6. Midwifery £5 5s. to £10 10s. Good house (5 bedrooms, etc.). Price, long leasehold, £1,500. Premium one-half share 2 years' purchase.

16 SOUTH OF ENGLAND.—Partnership in sound old-established Practice. Beautifully situated country town. Small nice house available. Rent £47 p.a. Preference Oxford or Cambridge Graduate. Premium 2 years' purchase for share about £1,000 p.a.

17 N. WALES (SEASIDE RESORT).—Well-established PRACTICE £600 p.a. in nice residential town. Panel 245. House (7 bedrooms, etc.). Premium, house and Practice, only £2,300.

18 HEREFORDSHIRE.—Practice over £1,000 p.a. Panel 240. Good town. Cottage Hospital. House (4 bedrooms, etc.). Price £1,500. Premium for Practice 1½ years' pur.

19 PRIVATE ASYLUM.—Partnership.—Exceptional opportunity for suitably qualified Medical Man (age 30—33) in first-rate establishment. Preliminary assistantship 12 months. Capital required about £4,000.

20 NORFOLK. — Old-established unopposed Country PRACTICE over £2,450 p.a. Panel 1,800. Visits 6/- to 10/6. Good house (6 bedrooms); freehold £1,000. Premium 1½ years' purchase.

21 S.W. OF ENGLAND. — Non-dispensing PRACTICE £1,750 p.a. in Cathedral City. No panel. House (6 bedrooms) in best quarter. Hospital. Premium 1½ years' purchase.

22 SOUTH COAST.—Favourite Health Resort. —Small old-established PRACTICE, £300 to £350 p.a. Capable of great increase. Excellent house (5 to 6 bedrooms) in unique position. Garage and large garden. Freehold £2,000. Premium for Practice £500.

23 LONDON, E. — Cash and Panel Practice about £680 p.a. Panel 800. Visits 3/6 to 5/-. No midwifery. Shop fronted house. Freehold about £600.

24 SOUTH MIDLANDS. — Well-established Country PRACTICE about £1,500 in first-rate Hunting centre. Panel 733. House (6 bedrooms) with every modern convenience in grounds (2 acres), on lease. Cottage Hospital. Premium 1½ years' purchase.

25 N.E. COAST.—Partnership in sound Practice in rapidly growing and attractive seaside town. Panel about 700. Suitable house available. Share of about £1,400 for disposal at 2 years' purchase. Partner aged about 30 and well qualified, who has held resident Hospital appointments.

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Practices and Partnerships for Disposal (continued).

26 BUCKS.—Small Country Practice over £300 p.a. Panel 250. Very attractive house (8 bedrooms), with fine garden, garage, etc., for sale. Premium—Practice—£300.

27 SOUTH AFRICA.—Well-established PRACTICE £1,350 p.a. in small town in Orange Free State. Ten-roomed house in centre of town to rent. Premium £750.

28 YORKSHIRE (W.R.).—Partner required in better working-class Practice in good district of large city. Panel over 2,000. Seven-roomed house, with garden, to be sold or let. Great scope. Share worth over £750 p.a. at 2 years' pur.

29 PLYMOUTH.—Panel and Private Practice of about £150. Panel 226. Good scope for young energetic man. Premium £150.

30 MIDLANDS. — Practice averaging over £1,850 p.a. in small Industrial Town with pretty country all round. Panel 1,380. Double-fronted house (7 bedrooms) for sale. Good scope. Premium £3,000, to include drugs.

31 WEST OF ENGLAND.—Partnership in Practice over £3,000 p.a. (£1,000 from panel and appointments) in Residential and partly Agricultural District. House available. Very good Cottage Hospital. One-fourth or one-third share at 2 years' purchase.

32 SOUTH COAST.—Seaside Resort. Non-dispensing PRACTICE about £550 p.a. Small panel. House (5 bedrooms) to let. Scope for increase. Premium £800.

33 SOUTH COAST.—Non-dispensing Practice averaging £1,332 p.a. in favourite Watering Place. No panel. House at nominal rent. Scope. Premium 1½ years' purchase.

34 LONDON, E.—Partnership in exceptionally old-established Practice averaging over £3,500 p.a. Good fees and appointments. Two-fifths share for disposal at 1½ years' purchase, or one-third could be purchased at first, part by instalments. Small house may be bought or rented at a moderate figure.

35 SOUTH AFRICA.—Old-established PRACTICE. Receipts last year £1,816. Travelling and midwifery light. Climate ideal—no tropical diseases (altitude nearly 5,000 ft.). Delightful residence (5 bedrooms), in perfect order, with 2 acres grounds. Excellent scope. Local Hospital. Premium £1,200, with option to purchase house.

36 YORKSHIRE (N.R.).—Practice of about £1,000 in small Country Town. Panel 430. House (5 bedrooms) to be let or sold. Sport. Scope. Premium £1,250.

37 S.E. COAST. — Non-dispensing Practice averaging nearly £1,850 in Health Resort. No panel. Detached house (7 bed and dressing rooms) and good garden, to be sold or let. Premium 1½ years' purchase.

38 SOUTH OF ENGLAND.—Partnership in Practice £2,250 p.a. in beautifully situated Country Town within 100 miles of London. Panel under 1,000. Suitable accommodation. One-third share at 2 years' purchase.

39 SOUTH AFRICA.—Old-established PRACTICE in one of the pleasantest towns, with beautiful climate, in the Cape Province. Receipts average £2,900 p.a. House (4 bedrooms) to rent. Purchaser should be able to do major surgery. Knowledge of Dutch unnecessary. Premium £2,250.

40 HOME COUNTY.—Partner (young, well qualified) required in Country Practice averaging £4,550 p.a. in first-rate residential district under 50 miles from London. Panel about 1,000. One-fifth share at 2 years' purchase.

41 WEST OF ENGLAND.—Partnership in non-dispensing Practice over £5,100 p.a. in first-rate town. Small select panel. House (6 bedrooms) to rent. Partner should be an Obstetrician, and there is scope for gynæcology. Premium five-twelfths share 2 years' purchase.

42 SOUTH OF ENGLAND.—Seaport Town. PRACTICE doing £860 p.a., including appointments over £225 p.a., and panel nearly 1,000. Good house (6 bedrooms) for sale. Premium 1½ years' purchase.

43 CARDIFF. — Non-dispensing Practice averaging £1,543 p.a. Small panel. Pleasantly situated house (5 bedrooms). Premium £2,000.

44 EAR, NOSE, AND THROAT Practice of nearly £3,200 p.a. in Health Resort.

45 N. LONDON.—Steadily growing "Lock-up" Cash PRACTICE on main road. Receipts last 12 months £720. Panel 539. Shop-fronted premises to rent. Prem. £850.

46 S.W. OF ENGLAND.—Partnership in an old-established Practice of £5,000 p.a. in one of the chief towns. Panel 2,397. House (5 bed and dressing rooms) to rent. One-fifth share 2 years' purchase.

47 SOUTH MIDLANDS. — Partnership in Country Practice of £6,300 p.a. in residential and agricultural district. Panel over 2,200. Suitable house for sale. Hospital. Partner should be 28 to 30 and have held House appointment. Premium one-fifth share £2,610.

48 LONDON, N.—Partnership in well-estab. middle-class Practice, nearly £2,750 p.a., in pleasant outlying suburb. Panel about 800. Suitable accommodation to rent. Premium one-third share 2 years' purchase.

49 MIDLANDS. — Partnership (after preliminary assistantship) in good mixed Practice worth £4,000 p.a. in country town. Panel 3,600. House to rent. Hospital and scope for surgery. Partner should be keen on his work and have held H.S. and H.P. appointments. One-third share at 2 years' purchase.

50 YORKSHIRE (W.R.). — Practice averaging nearly £1,350 p.a. in manufacturing town. Panel 995. Detached house (4 bedrooms) for sale. Premium £2,000

51 SOUTH OF ENGLAND.—Partnership in non-dispensing Practice £4,200 p.a. in attractive watering-place. Panel about 1,500. Incoming Partner must be F.R.C.S Eng. or Edin., or M.D Lond., Oxon., or Camb. One-fourth share at 2 years' purchase. (Preliminary assistantship.)

52 ITALY.—Season (March to October) PRACTICE in famous city Receipts average £563 p.a. No midwifery or night work. Up-to-date Hospital Premium £563.

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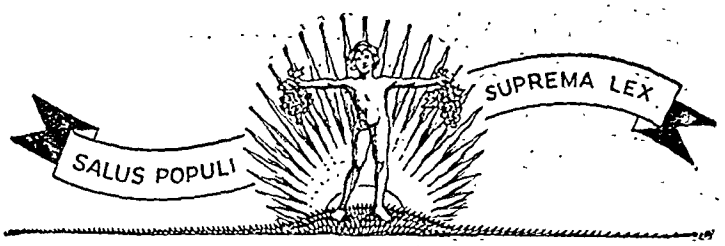

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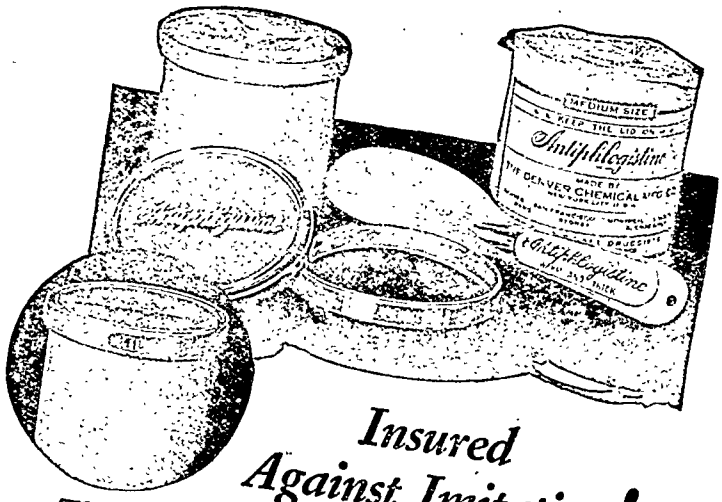

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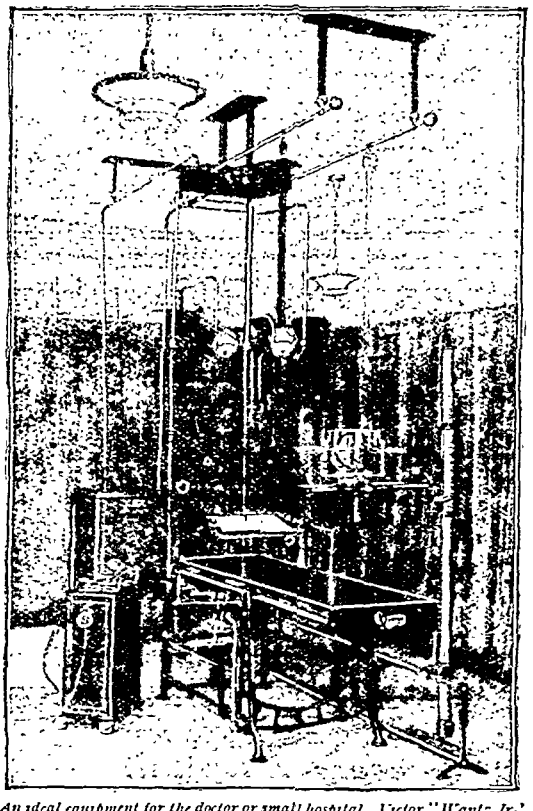

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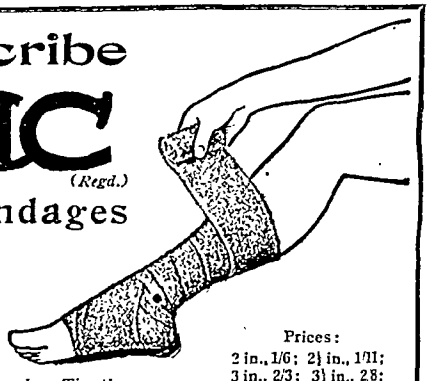

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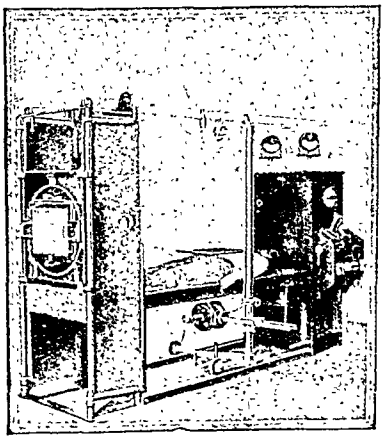

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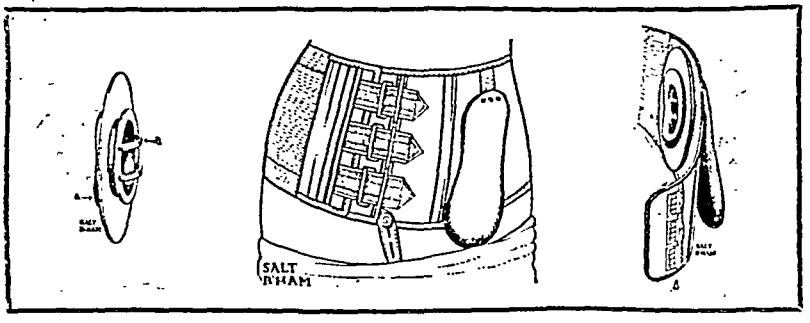

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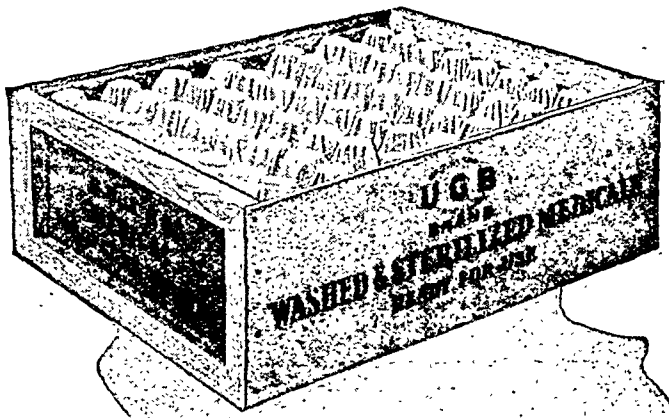

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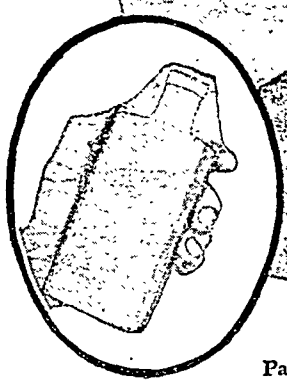

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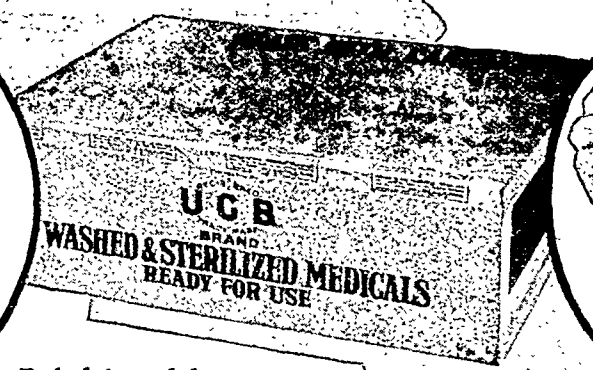

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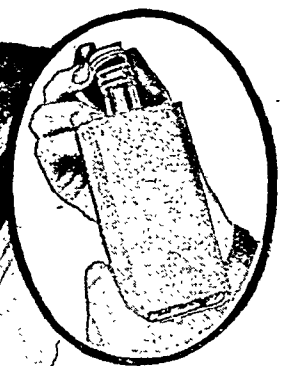

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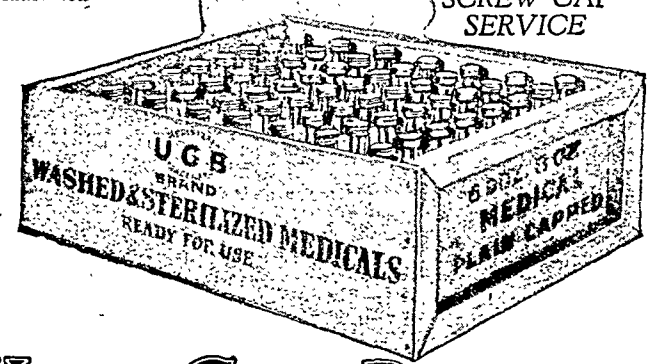

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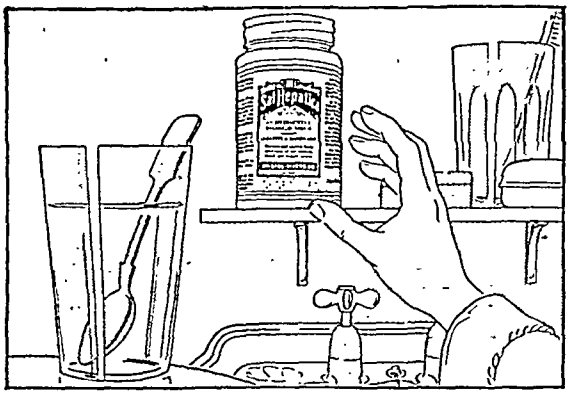

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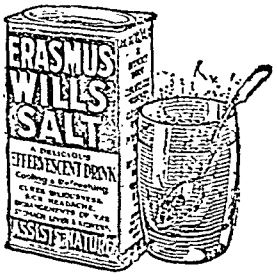

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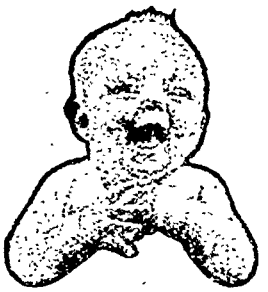

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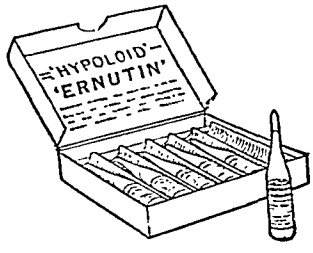

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A Paper on SYPHILIS OF THE HEART AND AORTA.*

BY

JOHN COWAN, M.D., AND J. STEVEN FAULDS, M.B.

(From the Royal Infirmary, Glasgow.)

IT is extremely difficult to assess the importance of syphilis as a cause of heart disease. We have little knowledge of its incidence among the general population, and still less of its influence upon the heart. In consequence we do not know whether the cases which we recognize as syphilitic heart disease are merely isolated curiosities or the common sequel of uncured syphilis.

The immediate mortality of syphilis is trifling; it kills through visceral complications. But no one indicates the specific nature of the organic disease upon the death certificate, and cirrhosis of the liver, cerebral disease, etc., figure on the records. The mortality of syphilis must, however, be considerable, for aneurysm alone kills a thousand people every year in England and Wales, and the vast majority of fatal aneurysms are due to syphilis.

The disease is common. Osler and Macrae[1] state that it has been estimated that 12 per cent. of the adult population in Berlin and 15 per cent. in Paris are affected, while in America the incidence is said to vary between 6 and 40 per cent., a positive Wassermann reaction being present in 15 per cent. of hospital patients. Though in England statistics are less numerous, it is known that about 100,000 men of our armies in the last war were infected,[2] and "as it is reasonable to suppose that more venereal disease was imported into France than vice versa," the incidence at home must be considerable. In our wards routine Wassermann tests showed positive results in 8.6 per cent. of the male, and 7.2 per cent. of the female patients, quite irrespective of their ailments.

The influence of syphilis in heart disease is evidently considerable. Carey Coombs[3] states that syphilis was present in 9 per cent. of his hospital, and 4 per cent. of his private, patients. Allan[4] states that a syphilitic infection was present in 63 of 320 cases of "failing heart" admitted into hospital (19.7 per cent.). Our own figures, in a series of 395 cases of organic valvular disease, show a syphilitic incidence of 17.7 per cent. Routine Wassermann tests have shown that the incidence is much greater than was formerly supposed.

The evidence from the pathological side suggests that the higher figures are the more accurate. In our series of 390 cases presenting naked-eye signs of cardio-vascular disease 60 (15.3 per cent.) were syphilitic. It must be remembered that these figures are a conservative estimate, for a negative Wassermann reaction does not prove that syphilis has not been active in the past, and the results of syphilis cannot always be recognized as syphilitic after death. Any part of the heart may be affected, and any disease of the heart may be due to syphilis. In some diseases syphilis is the common cause, in others the exception.

THE PATHOLOGICAL LESIONS.

The chief pathological lesions are: endarteritis obliterans, aortitis, aortic valvular disease, gumma of the heart, and myocardial fibrosis. The other lesions are rarely syphilitic. We have analysed a series of 1,000 consecutive necropsies. Of these cases 390 presented some disease of the heart or aorta, judged by naked-eye examination. These lesions were not, however, necessarily the cause of death, some of the patients having died from pneumonia, cancer, etc. Of these 390 cases 60 presented some evidence of syphilitic heart disease.

Endarteritis Obliterans.

Endarteritis obliterans occurs chiefly in the smaller arteries and the arterioles. It is always local in its distribution, and never affects more than a short length of a vessel, but, as it affects the whole circumference of the wall, the lumen is always narrowed, and not infrequently completely blocked, usually by thrombosis.

In this lesion the *intima* is always thickened, the new-formed connective tissue being in the early stage loose and cellular, with much hyperplasia of the elastic elements. In the later stages it is poorly nucleated and hyaline, with degeneration of the elastic tissue. The *media* may be little altered or greatly thinned. The *adventitia* is always thickened, sometimes to an extraordinary degree, and, like the intima, shows new formation of elastic tissue. The relative thickness of the intima and the adventitia varies considerably in different cases, sometimes the one and sometimes the other showing the maximal change. Gross calcareous and fatty changes are rarely found.

Muir[5] states that this lesion represents the ordinary reaction of the arterial wall to an irritant, which often approaches it from without. It is common in the vicinity of an ulcerative process, in pulmonary silicosis, tuberculous lesions, and granular kidneys. It is perhaps the special arterial lesion in syphilis, and occurs at all stages of the disease, in the chancre as well as in the tertiary lesions. It is always present in gummata, and occurs as well in their absence. Its occurrence in the adventitia of the aorta, and in the arteries of the heart, plays an important part in the causation of aneurysm and of ischaemic fibrosis of the myocardium.

Syphilitic Aortitis.

The syphilitic lesions in the aorta occur as soft elevated plaques, usually sharply circumscribed, and of considerable thickness. They have a greyish, gelatinous appearance, and as they extend and fuse may affect considerable tracts. In older specimens, where absorption and contraction have ensued, the plaques are thin and pearly white; the ultimate cicatrix has sometimes a stellate appearance. The thoracic aorta, in particular its first part, is most often involved, and this selection is unfortunate, as a spread downwards is likely to involve the orifices of the coronary arteries or the aortic cusps, with resultant ischaemia of the cardiac muscle or aortic valvular disease. The aortic wall, too, is always weakened, and syphilitic aortitis is thus the common cause of aortic aneurysm.

The early lesions in the aorta are, however, not intimal but adventitial. The earliest change consists of an infiltration into the outer coat, accompanied by endarteritis and periarteritis. The infiltration then extends along the vessels into the media, branching out in places into irregular cellular areas in which there is also new formation of thin-walled vessels. In some cases necrosis of the media ensues. This leads to absorption of the muscular and elastic tissues of the media, and sections stained to show the elastic tissue present breaks, or "windows," corresponding to the cellular areas, which may extend across even the full extent of the media. At a later period new formation of connective tissue takes place, with resultant fibrous patches in the media, wholly devoid of muscle and elastic tissue. This scar tissue is weak, and localized depressions or pouches, the potential predecessors of aneurysm, are often visible on the intimal aspect.

If the aorta is affected immediately above the valve the aortic cusps may be affected, so producing valvular disease. The orifices of the coronary arteries, too, may become involved, with narrowing, or even complete occlusion, of the lumen. Occasionally a plaque may form on the mitral valve, but it is usually small, and syphilis plays an insignificant part in the production of chronic mitral disease.

Aneurysm.

The essential cause of aneurysm is weakness of the arterial wall, which gives way before the pressure of the blood within the vessel; this weakness mainly affects the media. Medial weakness may arise in different ways. It is most commonly due to syphilis, but a comparable lesion may occur from an acute infection—for instance in phthisis—if an ulcerative process happens to hit an artery; or in ulceration of the stomach. Thus fatal gastric haemorrhage may arise from the rupture of an aneurysm of the splenic artery, which has become involved in a chronic ulcer of the stomach. The media may also be affected from within in acute aortitis secondary to acute endocarditis or sepsis elsewhere. It may be damaged by the pressure of an atheromatous patch to

* Read in opening a discussion in the Section of Medicine at the Annual Meeting of the British Medical Association, Manchester, 1929.

a degree that permits dilatation; trauma may be an occasional cause. But aneurysm is most commonly of syphilitic origin.

Chronic Aortic Valvular Disease.

There is considerable difficulty in determining the precise causes of chronic valvular disease. More than one cause is often active; the chronicity of the disease prevents accurate observation of its progress, and the effects of different causes are similar, the ultimate result depending upon the site of the lesion rather than on the nature of the cause. In each case the cause has usually to be deduced from the history of the development of the symptoms, the antecedent illnesses, and the associated lesions in the aorta and elsewhere, rather than from the actual lesions which are found to be present.

Varied lesions are found at the post-mortem examination. The cusps are thickened, hardened, and opaque, the change being sometimes uniformly distributed throughout them, and sometimes confined to, or most extreme at, the free margins. Calcareous and atheromatous deposits are not uncommon, and, though usually merely an addition to a general lesion, are sometimes an isolated lesion in a fairly normal cusp. The calcareous masses may be large, and from their bulk interfere with the proper action of the valve.

The cusps may be shortened, or adherent to each other. Shortening produces incompetence, and adhesion narrowing, of the orifice; the two conditions frequently coexist. The ultimate result varies. The cusps may be more or less uniformly adherent, forming a funnel or dome or diaphragm. The orifice may be greatly narrowed, and rounded, linear, or stellate. Not infrequently warty outgrowths of varying size and consistence occur near the free margins. In other cases there is loss of substance, and the edges are puckered and uneven. The line of attachment of a cusp may be destroyed, and a part of it may be freely mobile in the blood stream, or, if calcified, project stiffly into the lumen.

A cusp may be perforated through its substance. This is most commonly the sequel of acute endocarditis, but, rarely, it follows severe muscular exertion or an external trauma, and then usually in a valve which has already been damaged. In the majority of chronic lesions the edges of the cusps are inverted to some extent. In exceptional cases the cusps are voluminous and soft, with everted edges, thus producing gross incompetence of the valve.

Chronic valvular disease may be of congenital origin, or it may follow acute endocarditis, a syphilitic infection, or mechanical strain; it may be merely an incident in a general cardio-vascular degeneration. Aortic valves with thick uneven edges and adhesion of the cusps, those which present scars in the immediate vicinity of the valve, whether in the aorta or the adjacent endocardium, and those accompanied by chronic disease of the mitral valve, are most frequently the result of acute endocarditis, usually of rheumatic origin. Cases which present syphilitic masses or scars on the proximal parts of the aorta, with comparable lesions on the aortic valves, are evidently specific in origin. But in many cases atheromatous disease is also present, and the exact origin of the valvular lesion is, in consequence, difficult to determine.

Atheroma.

Atheroma is by far the most common affection of the vascular tree. It affects arteries of all sizes, from the smallest to the largest, and is most common in the first part of the aorta, the coronary arteries, the cerebral arteries, and those of the limbs. The lesions may be widespread or localized to some particular set of vessels. A chronic affection of the aortic valve, with thickening and induration, often coexists, from a spread on to the valve of the same process that has affected the arteries.

The causes of atheroma are numerous. It is most common in persons of advanced years, representing the scars and bruises of ancient wars and the defective nutrition of a failing organism. In some instances the special localization points to stress or strain as causal, at any rate in part; in others, toxic influences or metabolic disturbances seem to have been active. In the majority of cases many or all of these factors have been active in the past. Atheroma is especially frequent in cases of chronic renal disease, with a high blood pressure and thickened arteries. If, in addition, a rheumatic or a syphilitic infection has been antecedent, the causes of the ultimate disease must of necessity be obscure. The exact influence of each can only be determined by the survey of a large series of cases.

Myocardial Disease.

There are several specific myocardial lesions, but in the majority of cases the myocardial lesions are only side issues, the result of coronary disease, and so in no way specific. The typical specific lesion is the gumma, but its occurrence is rare, and none is recorded in our series. Gummata vary in size from microscopic lesions to tumours as large as a pigeon's egg. They may be single or multiple; they may occur anywhere; and may occasion disturbances of the cardiac rhythm if they involve the primitive tissues. A diffuse fibrosis (subacute interstitial fibrosis) has been found during the secondary stages in the adult, and, more often, in congenital syphilis in infants and young children.

The most important, and the most frequent, sequel of syphilis follows disease of the coronary arteries and interference with the blood supply of the muscle. The arteries may be occluded at their orifice by a syphilitic plaque in the aorta, or narrowed in their course by a specific endarteritis. If the circulation is completely blocked an infarct occurs, while if the narrowing is incomplete a para-arterial fibrosis results. The ultimate lesions in the muscle are not syphilitic, though they have a syphilitic cause.

Pericarditis.

The influence of syphilis as a cause of pericarditis is negligible. Pericarditis may, of course, occur in relation to a gumma of the heart or a diffuse syphilitic fibrosis. Syphilis seems sometimes to be the cause of indurative mediastino-pericarditis, the inflammation usually arising beneath the diaphragm, about the liver, and spreading upwards. But the few cases of syphilitic pericarditis which have been reported are unconvincing, and can be neglected.

THE CLINICAL DATA.

Aortitis.

Aortitis may occur in any acute infection, but it is rare save in acute endocarditis, particularly of the aortic valve. The infection may be conveyed directly, by continuity or through the aortic blood, or through the vasa in the adventitia. The most common organisms are streptococci; but any pathogenic bacteria may be active. It occurs not infrequently in acute rheumatism and rarely in tuberculosis, but the lesions in these diseases are usually limited in their extent and not excessive in degree.

The chief cause of aortitis is undoubtedly syphilis. It is difficult to say when the lesions arise, but it seems probable that they may occur early, in untreated cases even in the secondary stages, though they are rarely recognized until many years have passed. The reason of this failure to recognize its presence is clear. Aortitis *per se* does not occasion any symptoms. These only arise if "something happens"—an aneurysm forming, or the aortic cusps or the orifices of the coronary arteries becoming implicated in the syphilitic process. Aortitis is thus most commonly a post-mortem discovery. It was present in 59 of the 60 syphilitic cases in the post-mortem series. Of these, 29 died from lesions in the heart and aorta, the remaining 30 from other causes, the most frequent of which were cerebral.

In this form of syphilitic disease it is impossible to ascribe particular symptoms to particular lesions, for aneurysm, aortic valvular disease, and obstruction of the coronary arteries are all almost always present in some degree in every case. The degree, of course, varies. The "aneurysm" may be a mere pouching of the aortic wall, or a sac as large as a baby's head. The damage to the cusps may be trifling or extreme. The coronary narrowing may be slight or complete.

None of these lesions necessarily produce symptoms. One of our patients with a large aneurysm and well-marked aortic valvular disease had no cardiac symptoms. He was

admitted into hospital on account of a chill, which followed a very gallant and successful attempt to save a comrade who had fallen overboard in wintry weather. He had carried on his work easily and well. Another patient, a labourer, was admitted on account of the thrombosis of a popliteal aneurysm. He had well-marked aortic valvular disease, which had never inconvenienced him. A padre, who had had an infarct of his heart in 1920, carried on his work, easily and well, for more than five years after his convalescence, and even took on fresh responsibilities, though on his death in 1928 a large area of fibrosis was found to be present on the posterior wall of the left ventricle and the adjacent septum.

The symptoms of syphilitic heart disease do not differ from those of similar disease due to other causes. But although the symptoms of rheumatic and syphilitic disease are essentially similar there are some features peculiar to each. The dyspnœa of rheumatic disease is most often associated with exertion, while that of the syphilitic form often occurs in paroxysms at night, when the patient is in bed. One of our patients, who admitted that he had been becoming more short of breath on exertion for a few months, but had paid no attention to his discomforts, was forced to seek help when, without warning, he was wakened from sleep by paroxysms of intense breathlessness. Pain, too, may be of this paroxysmal character, and occur at night, without warning. These paroxysmal attacks are, of course, due to coronary obstruction, which is much more rare in the rheumatic disease.

Continued pain is sometimes due to aneurysm. In rheumatic disease continued pain is usually due to pericarditis or infarctions. The palpitation of rheumatic disease is generally due to an alteration of the cardiac rhythm, extra-systoles, fibrillation, etc., while in syphilitic disease it is usually the result of gross incompetence of the aortic valve and the throbbing of the arteries. If the aorta is dilated the palpitation may be referred to the base of the heart rather than to the cardiac area generally. Œdema in rheumatic disease is of gravity distribution, while in syphilis it may be local, from pressure of an aneurysm upon a vein. Complaint of constriction, oppression, or discomfort over the manubrium on exertion is suggestive of aortitis.

The appearance of the patient may be instructive. The rheumatic patient may be cyanosed, or, occasionally, pale, if an acute endocarditis has supervened. The syphilitic patient is often thin and emaciated, and perhaps of sallow, earthy complexion. Physical signs are sometimes suggestive. Not infrequently pulsation, from some slight dilatation of the vessels, is well marked over the upper part of the chest, above the sternum, or above the clavicle. A systolic aortic murmur sometimes precedes the advent of the diastolic murmur, though stenosis of the orifice is rare. The second aortic sound may be accentuated, though the blood pressure is not high, and may be intoned or ringing in character. The *x*-ray picture may show enlargement of the aortic shadow, even in minor dilatations, the normal outlines of the heart and aorta being lost.

The association of syphilis with aneurysm has long been recognized (Ambroise Paré[6]), but was forgotten by most writers until, in the latter half of last century, the connexion was again stressed by our army surgeons (Lewer,[7] Lawson,[8] Welch[9]), and in 1909[10] spirochætes were demonstrated in syphilitic aortitis. Further researches, using the Wassermann test, have emphasized the frequency of the connexion In our series of 66 cases of chronic aneurysm, 49 (74.2 per cent.) were syphilitic.

The incidence of aneurysm points the same moral. It is most common in men between 40 and 60, the age when syphilitic disease of the heart is most frequent; our youngest patient was aged 26. Usually the condition occurs ten to twenty years after the primary infection, but it has been reported during the secondary stages (Lewer, ten months after the chancre), and in one of Osler's cerebral cases eighteen months after infection.

Chronic Aortic Valvular Disease.

Syphilis is an important etiological factor in chronic aortic valvular disease. In a clinical series of 224 cases it was apparently causal in nearly a third of the cases. The incidence in men and women, however, differs, as it occurred in rather more than a third of the men, and rather less than a fifth of the women. The age incidence is important. Nearly half of the cases in the forties and the fifties were due to syphilis, while only one case occurred under 30, and less than a quarter of the patients over 60 were syphilitic. In the post-mortem series of 145 cases rather less than a fifth of the cases were syphilitic. Nearly a fourth of the patients in the forties and fifties were syphilitic, while after 60 the incidence diminished to less than an eleventh.

It is interesting to note that in the clinical series the incidence of syphilis and rheumatism is approximately the same—32.1 and 33.9 per cent. The age and the sex incidence, however, differ. Less than a third of the men and more than a half of the women were rheumatic, and nearly a third of these patients were under 30 years old. The occurrence of aortic valvular disease in the forties or the fifties, especialy in men, without a clear history of antecedent rheumatism, is thus very suggestive of a specific origin of the lesion.

The physical signs of aortic valvular disease are merely the signs of the valvular lesion, irrespective of its origin. It has been suggested that the absence of the second aortic sound suggests syphilis rather than rheumatism. It is quite true that the second sound usually persists in the rheumatic group; it is often accentuated, and frequently intoned in the degenerative cases, as one would expect from the nature of the lesions. Too much attention, however, must not be paid to this point, as it is really more an index of the degree of the lesion than a suggestion of its cause; but attention should be paid to the second pulmonary sound.

In syphilitic disease of the aortic valve the mitral valve is rarely affected, while in the rheumatic disease the mitral valve is affected in the majority of cases. In a clinical series of 51 syphilitic cases the aortic valve was alone involved in 31 cases; and in a series of 146 cases of acute endocarditis in 18 cases alone. The post-mortem series are equally striking. The mitral valve was only affected in one of 27 syphilitic cases, but in 45—more than 25 per cent.—of 163 cases in the non-syphilitic group. In mitral disease the second pulmonary sound is usually accentuated, and its presence thus suggests coincident mitral disease, and so a rheumatic origin of the double lesion.

Aortic aneurysm and dilatation of the aorta are usually due to syphilis. Widespread pulsation over the upper part of the chest, pulsation in the suprasternal notch, and dilated carotid arteries thus suggest a syphilitic cause. In some cases an abnormal distribution of the murmurs, beyond the cardiac area, points to a dilatation of the aorta which has not yet shown itself by the signs which we have just mentioned. All these data, however, may be absent, and the diagnosis will depend upon the recognition of a specific infection in the past, a positive Wassermann reaction, or syphilitic stigmata elsewhere.

Chronic Mitral Valvular Disease.

Mitral valvular disease is rarely due to syphilis. In a clinical series of 102 cases of chronic mitral disease only two patients were known to be syphilitic, and in another series of 121 cases only one patient. In the post-mortem series only one of the 60 syphilitic patients had mitral disease, in this case coincident with aortic disease. In the non-syphilitic group (330 cases) there were 55 cases of coincident mitral and aortic disease, as well as 32 cases in which the mitral valve alone was affected.

The incidence of acute endocarditis, too, differs. Only 5 of the 27 syphilitic aortic cases were accompanied by acute endocarditis; while 35 of the 55 cases of aortic and mitral disease, and 16 of the 32 purely mitral cases, presented some degree of acute endocarditis at necropsy. It is, of course, well known that patients suffering from a chronic rheumatic endocarditis frequently develop an acute reinfection of the valve affected.

The sex and age incidence of aortic and mitral disease differ. In the clinical series of aortic disease 173 were male and 51 female. In the post-mortem series 112 were male and 41 female. The combined aortic and mitral series show 31 males and 24 females. The pure mitral

cases show 14 males and 18 females. In the clinical aortic series 63 of 224 cases occurred before the age of 40, and in the post-mortem series 15 of 153 cases. In the mitral group 13 of the 32 cases, and in the combined group 23 of the 55 cases, occurred before this age.

Myocardial Disease.

We have tried to estimate the relative frequency of syphilitic disease of the myocardium by examination of our data. The clinical series, however, affords little information, for the majority of the patients were unable to give a full account of their past illnesses or, indeed, to permit a complete examination. But it is interesting to note that *the maximal incidence occurred in the fifties and the sixties*, a decade later than the maximal incidence of the syphilitic group in the post-mortem series. In the latter series disease of the coronary arteries was more frequent in the syphilitic cases (23.3 per cent.) than in the non-syphilitic cases (15.7 per cent.). The incidence of fibrosis in the two groups, however, is but little different (50 per cent. and 57 per cent.), which suggests that the degree of the arterial lesions is of more importance than its cause.

The incidence of fibrosis, with and without coronary disease, is greater in the non-syphilitic (21.2 per cent.) *than in the syphilitic group (16.6 per cent.). This is* probably due to the frequency of valvular disease in the non-coronary cases (16 of 40), and the resulting myocarditis.

We have been unable to discover any symptoms which are suggestive of a specific origin of myocardial disease; but the occurrence of symptoms of myocardial weakness without obvious cause should at once suggest the possibility of a syphilitic origin, particularly if the patient has not reached the age of 60. The majority of the patients suffering from gumma of the heart seem to have been "admitted dead" into hospital.[11]

Angina Pectoris.

The connexion between syphilis and angina has been stressed by many writers, but the exact relationship has not yet been determined, as the cause of angina is still disputed. The current theory, a revival of one first suggested by Allan Burns[12] in 1809, has been elaborated from the experimental side by J. A. MacWilliam[13] in 1923, and from the clinical side by C. S. Keefer and W. H. Resnik[14] in 1928. According to this theory angina is due to anoxaemia of the heart muscle, most commonly as the result of disease of the coronary arteries. The conception is physiological, not anatomical—a relative insufficiency of the blood supply of the heart, taking into account the work which the heart is accomplishing at the moment.

We cannot find many statistics as to the incidence of syphilis in angina. Huchard[15] recognized a syphilitic taint in 170 of 740 cases, and Josue[16] found a positive Wassermann reaction in 33 per cent. of his patients. Heimann[17] noted that 68 of his 105 cases of cardio-vascular syphilis made a complaint of pain, and in 44 pain was the cardinal symptom. In 3 of 7 cases in which we secured a post-mortem examination a syphilitic aortitis was present.

Angina is most common between the ages of 50 and 70. This is a decade later than the common age of aortitis as shown post mortem. But, although it is uncommon before 30, it may occur earlier, as in Wild's patient aged 12, in Moxon's patient aged 11, and in Daniélopolu's syphilitic patient aged 20.[18] There does not seem to be any special symptom suggestive of a syphilitic origin. The occurrence of angina before the age of 40, and its association with aortic valvular disease, should suggest a syphilitic cause, and an investigation into the possibility of a syphilitic origin should be made.

DIAGNOSIS.

The chief causes of heart disease are rheumatism, syphilis, bacterial endocarditis, and the degenerative lesions, of which atheroma is the type. It is difficult to say which is the most important, as their activities are maximal at different periods of life. Rheumatism is most important in early life, the degenerative lesions towards its close. Bacterial endocarditis accompanies rheumatism, while syphilis enters the stage at the very prime of life. Their actions, too, differ. Rheumatism and bacterial endocarditis attack the valves and the pericardium. Degenerative lesions attack the valves and the arteries, and syphilis follows suit. The diagnosis of syphilitic disease of the heart depends upon the recognition that syphilis is an important cause of heart disease.

In a general way syphilitic heart disease occurs in the later phases of the illness, when the primary illness has been almost forgotten and specific symptoms are absent. It is most frequent in the forties and the fifties, and in men as contrasted with women. The symptoms it causes are those of the cardiac lesion, and not those of syphilis. Aortitis and aneurysm are so frequently due to syphilis that their mere recognition suggests the cause. Of the valvular lesions mitral disease is so seldom associated with syphilis that its influence can be ignored. Aortic valvular disease, on the other hand, is frequently due to syphilis, whose influence should always be investigated. Myocardial disease and angina pectoris are often the result of syphilis, but less frequently than aortic valvular disease. Pericarditis is rarely due to syphilis.

The personal and the family history are important, but these are not always accurate. One must remember that the primary manifestations are sometimes trivial and unrecognized, even when suspected. The error may be due *to the patient or to his medical adviser.* A positive Wassermann reaction is important, for although the test is not specific in the serological sense, it is rarely obtained in this country save in syphilitic cases. A negative result has not the same significance, for the reaction is *only* positive in about 75 per cent. of patients in the tertiary stage, the period at which most syphilitic cardiac patients come under observation. We have all, we imagine, seen good results follow specific treatment in patients whose Wassermann reaction has been frankly negative.

A full routine examination may discover signs of diagnostic significance elsewhere than in the heart. Scars on the penis, the throat, or the shins, nodes on the bones, loss of the deep reflexes or the light response in the eyes, leucoplakia, orchitis, unequal pupils, iritis, choroiditis, periphlebitis of the retinal vessels, optic atrophy, or the early symptoms of tabes or general paralysis of the insane, if present, may be decisive.

TREATMENT.

In the treatment of cardiac syphilis the two sides of the question—the constitutional and the local—must be borne in mind. From the cardiac side the treatment is the same as in the non-syphilitic varieties. From the constitutional side specific treatment is required as urgently as in syphilitic disease elsewhere. Too much, however, must not be expected from such medication, for the lesions, when recognized, are as a rule in an advanced stage.

The most common lesion is endarteritis, which is often accompanied by thrombosis. But the latter, as Gowers pointed out many years ago, is not a specific process, and is not amenable to specific treatment. The necrotic tissue cannot be revived; but at its periphery the tissues are linked up with other arterial territories, and if, by specific treatment, the lumen of their arteries can be enlarged the nutrition of the tissues, starved but not killed by the cessation of the blood supply from the thrombosed vessel, will be increased, and their functional activity correspondingly increased.

Syphilitic lesions may be "active" many years after the initial infection. One of our patients, who died at the age of 50, had contracted the disease thirty-three years before. The aorta, which presented syphilitic scars over most of its thoracic course, showed one small typical "active" nodule.

The nature of the specific treatment requires consideration. Should a "sterilizing" treatment be attempted or a milder course pursued? Are the arsenical preparations advisable, or mercury and iodide? It is obviously inadvisable to administer full doses of salvarsan to a man *racked with pain or distressed with orthopnoea. Renal disease, which is so often present, is another contra-*indication, and, of course, massive oedema; but is it inadvisable in the case of a strong man whose disability has been discovered in the course of some routine examination, in whom no symptoms of cardiac difficulty obtain, or in those whose disabilities are slight?

Those of us who had to deal with malaria during the late war found a similar difficulty before us. But it was soon apparent to us all that, although we could treat primary malaria successfully by massive doses of quinine, such treatment was useless, if not harmful, in the chronic infections. Smaller doses were more efficacious. Syphilitic heart disease is of the chronic type.

Another consideration should also be borne in mind. It is well known that the administration of tuberculin in large doses to a patient suffering from phthisis may produce both a general reaction *and* a local one at the site of the focus. A similar reaction may occur in syphilis if large doses of the arsenical preparations are administered (Jarisch-Herxheimer reaction).[19] The general opinion is that this is due to the sudden liberation of toxins from the bodies of the organisms that are destroyed. But, whatever the cause, it is obviously hazardous to expose a patient with, possibly, a narrowed coronary orifice to the danger of a local reaction and the complete obstruction of the artery. If arsenic is used in such cases it should only be subsequent to a course of mercury and iodide, and in moderate doses.

We have thus continued to treat cases of cardiac syphilis along the usual lines, with moderate doses of mercury and iodide, etc., over long periods of time. Small doses of kharsivan, or neokharsivan, are sometimes useful, as are Donovan's solution, the green iodide of mercury, arsenic iodide, and potassium iodide. The results which we have observed have sometimes been extremely satisfactory. We must always remember, however, that *the true treatment of cardiac syphilis is preventive*, the successful treatment of the primary illness, and that cardiac syphilis is the result of error, on the part of the patient or his medical adviser.

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THE DIAGNOSIS OF FRONTAL TUMOURS.*

BY

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FROM the very nature of the cerebral hemispheres the regional diagnosis of disease situated therein is often a matter of peculiar difficulty. The cerebral hemispheres have their origin as appendages to the nervous mechanism subserving the olfactory sense, and have doubtless acquired dominance in the nervous system from the importance of the sense of smell in acquiring food and scenting danger, and so providing for the survival and advance of the race.

The cerebral hemispheres have no primary and direct connexions with any other function than that of smell, nor with any other region than the olfactory region. Secondary connexions are developed, as evolution proceeds, by mediate paths with every function and with every region of the body; and in the higher vertebrates the cerebral hemispheres become increasingly and more directly linked up with specific bodily functions, by the development of certain great white tracts which directly impinge upon, or take their origin from, the cerebral cortex. Interference with the integrity of these white tracts produces definite and recognizable clinical signs. Even in man there are not many of these paths. There is the visual path entering the cortex of the cuneus and posterior pole. There is the auditory path to the temporal regions, the higher sensory path to the parietal lobes, and paths subserving incoming and outgoing speech connected with the left temporal lobe. With the knowledge of the anatomical details of these paths and of the results of lesions interrupting them, our knowledge of cerebral localization of function begins and ends. It is only because quick and easy compensation does not occur for lesions of these paths in man that we have even this slight knowledge of cerebral localization. In vertebrates lower than man such compensation occurs readily. Sherrington removed successively the right and left motor cortex from a chimpanzee. The animal recovered his motility perfectly. And when long recovered and a normal chimpanzee, an investigation was made to find where the motor cortex had been transferred to, and it was found that there was no excitable cortex—that there was no motor area in this perfect animal. No local motor function of the cortex had been abrogated by the destruction of the motor cortex. Only the pyramidal path had been destroyed, and Nature had found another way out for the exteriorization of motor function.

Hughlings Jackson, in the Croonian Lectures for 1884, formulated a theory of the way in which the nervous system worked. It has long since been proved to be anatomically acceptable by Golgi and his followers, who built up the "neurone" concept. It seems to be increasingly acceptable, physiologically and clinically, as time goes on. That part of Jackson's theory which concerns us on this subject may be put in two sentences. There are several structural and functional levels in the nervous system from the lowest to the highest. In the lowest level, which is represented by the spinal segment, simple structure and simple function are directly represented, but with each higher level everything below is re-represented in increasing compound proportion, so that in the highest level there can be no local representation, but a representation of some attribute of the physiological individual as a whole. Hughlings Jackson—so often on the lips of neurologists, so little read and so ill understood—is often called the "father of cortical localization," for his theory preceded Hitzig's experimental work; he was, in fact, the destroyer of cortical localization in that his theory is directly antagonistic to local residence of function in the highest part of the nervous system. Therefore, in considering what may be the signs of tumours within the frontal lobe, if we are to advance in knowledge we must divest our minds of any idea of local function, mental or other, peculiar to lesions of the prefrontal lobes; we must expect a varying clinical picture, and often one which is negative so far as localizing symptoms are concerned. We must bear in mind the great facility for compensation for local lesions within this region so fully emphasized by Gowers forty years ago, and keep in mind the disturbing effects of long-standing increase of intracranial pressure and of hydrocephalus upon the value of those signs which we use for localization, and strive to make a collect of those signs which have been useful to us collectively in the successful localization of tumours within the frontal lobe, for we do locate them successfully very often. I may conveniently divide the signs which are used for the location of a tumour within the prefrontal lobes into five categories:

1. The negative signs.
2. The contiguous signs.
3. The signs which have been deemed peculiar to, or especially marked in, prefrontal lesions.
4. The signs peculiar to lesions within the anterior fossa of the skull.
5. The signs revealed by ventriculography.

Negative Signs.

The negative signs are of especial importance, since tumours within the posterior fossa below the tentorium, and those of the occipital, parietal, central, and left temporal regions, except sometimes in their latest stages, give unmistakable signs of their position. Therefore if there be no definite localizing sign, it is commonly a matter of a

* A paper read in opening a discussion in the Section of Neurology and Psychological Medicine at the Annual Meeting of the British Medical Association, Manchester, 1929.

prefrontal or a right temporal site. It is only when a subtentorial tumour has given rise to hydrocephalus that we are likely to choose a frontal location from the mental reduction therewith associated—recently under my observation a [illegible] t larger than an inch of slate pencil, the length of the aqueduct of Sylvius and not itself producing any local signs, gave rise to hydrocephalus and secondary dyspituitarism closely simulating a suprasellar tumour—or when the long-raised pressure from a frontal tumour has shifted the brain stem backwards and pushed some of the cerebellum into the spinal canal and so caused paralysis of cranial nerves and cerebellar signs.

The Contiguous Signs.

The contiguous signs are those produced by the extension of some process connected with the growth—either pressure, oedema, or vascular disturbance—into the neighbouring ascending frontal convolution giving rise to motor weakness, or into the insula of the left side giving rise to interference with the execution of language, or into the paths converging to the forward part of the corpus callosum and so producing motor apraxia. The motor weakness is seen first and most in the face, rarely in the arm, and almost never in the leg. It is perhaps the most important lateralizing sign of a frontal tumour, but it does not distinguish a frontal tumour from a temporal tumour, which also frequently causes weakness of the face as a contiguous sign. When the facial weakness is obviously greater for emotional movement than for volitional the location should be a temporal one.

Difficulty in the exteriorization of language is a certain lateralizing sign of a left hemisphere lesion in a right-handed person, but it is also caused by tumours of the left insula and those of the anterior temporal region. It should be of the nature of a stammering defect or of a "pure aphasia" if due to a frontal lesion. The presence of any lack of speech acceptance or any difficulty of recall demands a location far back in the temporal lobe. Pure executive apraxia seems to be a certain sign of prefrontal involvement and to lateralize to the left side. Presumably it indicates a lesion extending deeply and far back in the upper two prefrontal convolutions. It can hardly be confused with agnostic or ideational apraxia, which results from a lesion further back in the hemisphere. Unfortunately it is of uncommon occurrence with prefrontal tumours.

Lesions Peculiar to the Frontal Lobe.

I will now proceed to a consideration of those signs which have been held to be peculiar to lesions of the frontal lobe, or to be especially marked as the result of such lesions.

Mental Symptoms.—We shall, I am sure, all agree that mental changes of a very variable order, from slight changes in the way of loss of reserve, childishness, and change of character, to severe disturbance such as megalomania, "witzelsucht," and amentia, do result from tumours of the prefrontal region. I will ask you whether you agree with Cushing's very confident statement that mental changes are always much more conspicuous in left-sided lesions, for I am doubtful as to this point. On the other hand, we all know well that most extensive lesions of the frontal lobe often exist without any obvious mental change. The explanation seems to be the possibility of compensation, and whether the other frontal lobe is relatively intact as regards its callosal connexions, since bilateral frontal lesions always give rise, both experimentally and clinically, to marked mental reduction. The point of importance is whether mental changes are of sufficiently higher incidence with prefrontal lesions, as compared with lesions of other regions of the brain, as to make them reliable symptoms when other localizing symptoms are absent. "Seelenlahmung," or "soul paralysis," "witzelsucht," and "mind blindness," were all originally described as resulting from lesions of the posterior part of the hemisphere. The most dramatic mental changes that I have ever seen resulting from cerebral tumour occurred with tumours of the temporal lobe, the outer surface of the occipital lobe, and the splenium of the corpus callosum respectively. I wish especially to emphasize the early loss of memory and the mental reduction occurring in tumours of the splenium callosi, because it may be the key to the explanation of mental changes and their variability in cases of cerebral tumour. I have in six cases made a correct regional diagnosis in the splenium callosi on the mental symptoms alone. Bristowe, many years ago, published four cases so alike as to enable him to make an accurate regional diagnosis in the last three of them. Giese and Bruns confirmed Bristowe's opinion, and Ferrier made an analysis of sixteen recorded cases and agreed with his clinical findings.

The lesion of the splenium callosi interrupts many of the connecting paths between the various regions of the hemispheres, and thereby, I submit, causes disorientation and mental changes. The isolated lesions of the brain which have been recorded as productive of "seelenlahmung," "witzelsucht," "mind blindness," and the apraxias have on my analysis always been lesions extending deeply into the white matter, and presumably freely interrupting transcortical paths, and I submit that it is the isolation of the various parts of the cortex from one another which is the chief cause of mental impairment rather than damage to the cortex itself. In Shilder's disease, for example, when the lesion is of the central white matter with the cortex intact, the mental change is very great. Therefore, in lesions of the prefrontal lobe, I suggest that mental changes are only conspicuous when the tumour extends deeply and cuts the callosal and other transcortical paths.

Frontal tremors, most marked upon the homolateral side and sometimes confined to that side, were first described by Grainger Stewart in 1906. Like other signs described at first as proper to the prefrontal lobe it has come to belong also to the temporal lobe, for Schwab in 1925, in 6 cases of temporal tumour, describes it as contralateral and of great lateralizing value. Kolodny, working under Gordon Holmes at Queen Square, describes it in 14 out of 38 cases of temporal tumour. In 4 cases it was homolateral, in 7 cases contralateral, and in 3 cases bilateral. He concludes that this tremor is not of lateralizing value, and that it will not distinguish frontal tumours from temporal tumours. Collins records an identical tremor in tumours of the post-central region. Recently, when called to a case of cerebral tumour in which the general symptoms were very urgent, these tremors were conspicuous in the left hand and foot, and they were the only localizing signs which I could find. Consequently an operation for left frontal tumour was carried out. On laying bare the bone for a very wide decompression a dark patch was seen in the posterior inferior temporal region, and this led to the completely successful removal of an endothelium buried in the back of the left temporal. How this tumour could have existed in such a situation in a right-handed subject without trace of speech defect or hemianopia, either before or after the operation, is a matter worthy of reflection. In this case Stewart's tremors were of certain lateralizing value, and the patient's life was saved thereby, though the location was wrong.

The "*grasping and groping*" reflex of Adie and Critchley is, as far as I know, a certain sign of prefrontal location which has not yet been seen with lesions elsewhere. Gordon Holmes thinks it is seen with very extensive frontal lesions, but I disagree with this opinion. Critchley associates it with lesions high up and far back in the prefrontal region.

Conjugate deviation of head and eyes, or of eyes alone, to the contralateral side, explained by an involvement of the frontal ocular area said to occupy Exner's region in the second frontal gyrus, has been repeatedly emphasized as of locating and lateralizing value, and recently by Gordon Holmes. Now I have seen Schafer's experiment producing conjugate deviation by stimulation of the occipital cortex. I know well of Ferrier's equally striking and similar result from stimulation of the parietal cortex, as well as Foerster's result from the temporal cortex, and everyone's result from the central cortex, and it seems to me certain that every cortical region must of necessity be an origin for incitations for conjugate deviation, considering the necessary association in life of conjugate deviation with every movement and sensation, and therefore conjugate deviation cannot be in any way special to the prefrontal lobes; nor do I believe that there is any special region

for this function. I have recently had under my care two patients with extreme and persistent conjugate deviation of head and eyes lasting for weeks. In one case a large glioma almost completely excavating the left frontal lobe, but not involving the cortex, was found. In the second case, in which the lesion was right-sided, the presence of complete hemianopia and astereognosis with marked hemianalgesia and very little hemiplegia made it certain that the lesion was in the posterior half of the hemisphere. I may, however, go so far as to say that conjugate deviation, when persisting in the absence of other localizing signs, may indicate either a frontal or a temporal location, but it will not distinguish between the two, for Kolodny found it well marked in 6 out of 38 cases of temporal tumour. When present it is of certain lateralizing value for tumours in any part of the hemisphere. It may be seen in the form of persistent deviation to the contralateral side, or of weakness and unwillingness in deviation to the ipsolateral side.

Loss or diminution of the trunk reflexes may be of great lateralizing value, and is said to be valuable in frontal location. But I hold that it is much more characteristic of the temporal tumour, and I have several times located a temporal tumour and had it successfully removed when this was the only localizing sign present. In one-half of Kolodny's temporal cases the trunk reflexes were completely absent on the contralateral side. The presence of these reflexes has no negating significance. In both frontal and temporal tumours it is probably a contiguous sign of pressure upon the pyramidal mechanism.

Incontinence is sometimes very marked in frontal tumours, even when the mental aberration is inconspicuous. I think I have seen it more often in temporal tumours. It was present in 20 per cent. of Kolodny's cases of temporal tumours.

Papilloedema was said by Leslie Paton to occur earlier and more severely with tumours of the hemisphere the farther forward these were situated. Recently Stopford has analysed another series of cases, and comes to the conclusion that the farther back the situation the earlier and more intense the papilloedema. I am inclined to agree with Stopford, though I do not think papilloedema is of any value, either in localization or in lateralization. Horsley affirmed that it was greater on the side of the tumour. With frontal tumours one might reasonably expect it to be less on the side of the tumour, since major local pressure at the back of the orbit tends to delay the onset of papilloedema. I have seen a good many very large frontal tumours come to autopsy without having developed papilloedema.

Lethargy of a deep but rousable kind has occurred many times in frontal tumour, and when existing without headache or papilloedema it has caused several cases at the National Hospital to reach the post-mortem room with the label "lethargic encephalitis." One patient came under my care with deep lethargy following immediately upon an attack of influenza. I cured this patient at St. George's Hospital with injections of collosol iodine and salicylates, and she remained quite well and at work until fifteen months later, when a second attack of lethargy proved fatal, and I found a very large right-sided frontal tumour. This patient had no headache and never developed papilloedema. I am well aware of lethargy as occurring with pineal tumours and tumours of the upper brain stem, but I have only seen lethargy of this nature in tumours of the frontal region so far as the hemispheres are concerned.

Fits of many kinds occur with frontal tumours. I have seen characteristic minor attacks occurring frequently as the sole epileptic manifestation. Hughlings Jackson spoke of convulsions with bilateral commencement as indications of frontal location, but perhaps this was more from theoretical considerations than from practical experience. The convulsions I have seen have always commenced with conjugate deviation, which deviation has been a sure lateralizing sign. Status epilepticus is an interesting frontal symptom. I have records of two cases which were in hospital under treatment for fits, and in which no signs of local lesion of the nervous system were found. These patients developed status epilepticus and perished, and in both cases a frontal tumour was found. I have no knowledge of any other region of the brain in which a tumour has produced status epilepticus.

There remain for consideration certain phenomena, such as Mayer's reflex, Leri's reflex, and Hoffman's reflex, which are said to be absent in prefrontal lesions, and Wessenberg's sign, which is supposed to be found only when a prefrontal lesion is present. Of these signs I have not much experience.

Signs Peculiar to Lesions of the Anterior Fossa.

The signs peculiar to the anterior fossa of the skull are those of pressure upon the olfactory tract, the optic nerve or chiasma, or upon the nerves and vessels passing through the sphenoidal fissure, and those of bony involvement. These are always certain localizing and lateralizing signs, but they only obtain with a hard tumour coming to the surface of the orbital lobe or with a growth of meninges or bone.

Signs Revealed by Ventriculography.

There remains the method of ventriculography, which in skilled hands has resulted in many brilliant successes in this and in other difficult regions of the brain.

I hope that in introducing this subject to you I have said nothing that is dogmatic and nothing that is antagonistic to the feelings of any of you. If I have done so my fate will surely be that of all who are too sure about so delicate a subject as location within the cerebral hemispheres. May I tell you a story of one who did dogmatize? It concerns no less an observer and fine neurologist than Albert Knapp, who, in his monograph on *Tumours of the Temporal Lobe*, wrote: "Paralysis of the sixth nerve, so common in tumours of the hemispheres elsewhere, is practically unknown with temporal tumours, and its absence is of localizing value. I have myself recorded the only case in the literature of the subject." I am informed that after publishing this monograph the six consecutive cases of temporal tumour which came under Professor Knapp's care all had sixth nerve paralysis.

INCIDENCE OF DISEASE OF THE BLADDER IN WORKERS IN CERTAIN CHEMICALS.*

BY

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I HAVE lived in the vicinity of a chemical works for nearly thirty years, and for the period 1900 to 1910 had, as patients, many men who had worked at this factory for several years. Since 1918 I have held the position of appointed surgeon for the factory, and have had, at all times, perfect freedom of access and much help from the managers and staff chemists in all problems that arose.

In the early periods (1860 and on) of the making of certain dyes from coal-tar products arsenic was largely used (As_2O_3); workers were not protected in any way, and cases of toxaemia were only beginning to be observed. At these times any man who offered himself got a job, if such were available. Cases were sent to the doctor simply as they happened, and no records were kept. No other system was thought necessary. Now we only take mature men below a certain age; they are examined as to indications of good health and evidences of skin trouble. A well-fitted first-aid station and a competent nurse are provided, and all cases are seen medically on the spot as soon as possible after report. Also, men are encouraged to report on any deviation from general health, and such cases are investigated, there being an attempt to promote good feeling always between doctor, nurse, and men, so no trivial report is ignored, and all cases are recorded. It is, however, not easy to give percentages of incidence of disease in chemical workers, because usually a man's job is not the same over a long period, and prior to coming

* Read in opening a discussion in the Section of Occupational Diseases at the Annual Meeting of the British Medical Association, Manchester, 1929.

to this factory he may have worked on pitch, tar, etc., or at a similar dye-making works. Chemical plants do not employ the same number of men constantly, and in the dyestuffs industry there may be such a large number of products chemically different that the works atmosphere is a mixture of various odours, and so, day after day, one inhales something from everything going on.

Again, quite a large percentage of the men employed are lead-burners, plumbers, joiners, mechanics, electricians, and other artisans, so that unless we had a steady number of men constantly on the same chemical process over many years, percentages would be of little value.

In a chemical work[illegible] one might expect men reporting, [illegible] of urine, because sometimes, in spite of muzzles, air-draughts, washing, etc., face, hands, tongue, and mouth are freely coloured, and ingestion, or perhaps absorption through the skin, occurs. This pigmentation of urine rarely happens, but we must impress upon men the necessity of reporting such changes. Of course, the object of this desire for a report from men is to see quite early any alteration of urinary colour in order to eliminate pathological pigmentation.

It is well known that reaction to dyestuffs varies with individuals, and with age and habits, blonds being more susceptible, and alcoholics also.

Primarily, certain chemical groups are known to cause forms of acute dermatitis and conjunctivitis, or bronchial and nasal troubles; others—for example, aniline—by absorption, ingestion, or inhalation, in acute cases produce illness, and pigmentation, visible on face, hands, and ears, as well as general bodily weakness, dyspnoea, and possibly blood in the urine, owing to the production of methaemoglobin in the blood. Such cases, seen early and treated, recover health, and I have not heard of any subsequent growths from acute illnesses of this type.

During 1919 a number of men working on a reduction process reported alteration in urinary colour, and some, not even feeling ill, were found passing blood in the urine; there were about 23 cases in all. This was traced to the effects of AsH_3. Many of the men were sent to hospital, and all recovered their health. After the war, and the change over to peace conditions, many of these men left the works, and their subsequent history is not known. The source of the arsenic was in the acid employed, and only pure acid afterwards was used. Lead-burners using hydrogen produced from impure acid containing arsenic were liable to be affected as the result of inhalation, and two cases were known. With improved conditions no further case of this type has been seen.

Quite a number of intermediates, as well as finished dyestuffs, can produce in some persons, varying with idiosyncrasies—for example, sweating, colour of hair and skin, seasons—extensive acute dermatitis, and this often recurs in the same individual if re-employed.

Although I have had many such cases, I have only met one case of surface epithelioma which might follow this irritation, and I have not seen any undue development of warts on hands or other parts affected, and no rodent ulcer of the face. I am not certain that the cause of the case now related is true.

A man about 48 years of age, with twenty years' service, alleged that three months before seeing me a piece of Na_2S had slipped down his waist belt and caused a sore on one side of the scrotum. At my examination he had a well-defined epitheliomatous ulcer, with deposits in the groin. He was sent to hospital, no operation was performed, and he died six months later from systemic invasion. The cause in his case was doubtful. I do not think his statement was reliable.

I have no records of malignancy in nose, throat, larynx, or lungs resulting from inhalation of $CoCl_2$, H_2S, AsH_3, or other toxic gases, and no permanent eye trouble; and I have not any indication of ulcer or growth in stomach or bowels being more common in the chemical dye industry than in other occupations.

Up to 1900 various preparations were produced in the manufacture of which arsenic acid was used. Considerable quantities of α-naphthylamine were also produced, and normally in this no arsenic would be used. The number of workmen then employed varied from 100 to 200, and there were periods when the works shut down. No records of men are available, but W. F. Dearden in 1902 had some experience with acute aniline poisoning occurring in other workmen on fast aniline black, and this was reported in the *British Medical Journal*. Up to 1910 I had personal knowledge of three men working on α-naphthylamine who died from urinary trouble due to neoplasm, and I know the names of more, but having no personal proof they cannot be included. It is possible these men might have suffered from arsenical poisoning, as we know that surgical diagnosis and treatment was then less precise.

Since 1918 α-naphthylamine has been in fairly continuous production save for a period of some months. All the men engaged on those parts of processes where there is risk in handling the material wear gloves; they are not in the open air. Others, working on distillation, are in the open air, and ordinarily do not handle the product, because pipe lines are used to transfer from one vessel to another by pressure. All the men are provided with baths, which they certainly use daily. There are good facilities for washing hands before meals, and separate lockers for working clothes and day clothes; they do not go home in working clothes; there is a canteen away from the plant for food, etc., and milk is given to each man daily.

Moreover, α-naphthylamine does not cause acute cyanosis, or any irritation of skin, nose, fauces, larynx, eyes, or stomach. For a period of six months a weekly examination by a competent analyst of carefully obtained specimens of urine yielded no indications of abnormal contents. Whereas, on another plant—distillation of nitrotoluol—workers were found passing nitro-bodies, and yet feeling quite well. This observation could not be followed up for a prolonged period for various reasons. After many years' service on plants men report a frequent desire to micturate, with possibly strangury and blood. Competent examination at hospital perhaps reveals a neoplasm at the ureteric orifice in the bladder. Some of these men have been treated by diathermy endovesically, others by incision, and have returned to work, their job being changed where possible.

I will report now the cases known amongst workers on the α-naphthylamine plant, and it is curious that cases only seem to occur amongst workmen, for staff chemists on the plant with service equally as long, and always in the odours and dust, have not so far been affected. Moreover, large amounts of this crude stuff have been used for experiments on mice by cancer research authorities, and, taking the whole length of life in a mouse in comparison with man, no pathological results were found. This stuff, when new, has a faint aromatic odour, like naphthalene. As it becomes older, or if in contact with human clothes, skin, etc., it develops an intense faecal odour similar to skatol.

URINARY DISEASES IN WORKERS CONNECTED WITH α-NAPHTHYLAMINE AND DYES PRODUCED WITH ARSENIC AS AN AGENT.

From 1880 to 1910.

During this period there were eight men who were said to have had pronounced urinary trouble. All are dead, but their history was not known to me personally. Three others, who were engaged chiefly on α-naphthylamine, are also dead—one after about fifteen years' service, one after twenty years' service, the other for an unknown period. These men were known to me and were at times treated by me. The average number of men on the job before 1910 is not known—probably 150 to 200.

From 1918.—Production of α-Naphthylamine.

R. H., aged about 56; nearly thirty years' service. Primary operation 1906; again operated on in 1911. Worked on stills, and sodium naphthionate. Died December, 1924—inoperable carcinoma of the bladder.

T. B., aged 58. Employed as farm labourer in Shropshire to 1894; in tar works to 1900. Distillation of naphthol for eight years; then charge-hand on distillation of α-naphthylamine for twenty years. Neoplasm of bladder; operation in 1927. Died in December, 1928, with extensive carcinoma of the bladder.

F. G., aged 54. In 1914 was engaged in production of α-naphthylamine. In 1915 had papilloma removed at the Royal Infirmary, and since then has been employed on other processes and work as a foreman. In 1929 he had urinary difficulty; is now under Mr. Macalpine. Not yet diagnosed as growth.

J. W., aged 56. Thirty years' service on plant (reductions chiefly). Had urinary trouble about 1917. Papilloma removed at the Royal Infirmary by Mr. Burgess. In October, 1928, had recurrence of blood in urine, pain, etc. Seen at Ancoats Hospital. Had papilloma which was treated by endovesical diathermy. Is now under Mr. Macalpine at Salford Royal Hospital. He has extensive old phthisis pulmonalis with cavitation, and is not working.

Urinary Cases in Other Departments.

1924. M. J., aged 54. Twenty-five years in works. Had urinary trouble, and was sent to Ancoats Hospital and later to the Radium Institute. He died, and at necropsy was found to have had a malignant growth of the prostate.

1926–27. K., aged 56. Twenty years' service: metaphenylenediamine, di-nitro-toluol, benzidine. Had neoplasm of the bladder, and died in 1927. H. was employed at the same place, and same service. *He also had neoplasm of the bladder and calculus.* He died in 1926. W. had the same twenty years' service as K. Was in hospital for five weeks in 1919 with acute benzidine toxaemia. Died in 1927 with growth of the bladder.

1927. W. T. was engaged for nearly thirty years in the same service as the last three cases. He complained of pain, and blood was present in the urine. He was admitted to Crumpsall Infirmary, and died. *Post-mortem examination disclosed lymphosarcoma* of the abdomen invading the bladder. N., aged 56, had nearly thirty years' service; *at first for some years in the warehouse at the works.* He was for ten years on the sulphuric acid plant; later on metaphenylenediamine. For the last ten years he was weighing barrels of finished dyes. At necropsy he was found to have extensive growth of the bladder.

1924. W. and D., *young men of 25 to 30 years of age, of short* service; employed in grinding diphenylguanidine. They had serious urinary pain, but no haemorrhages. They left the works, and their further history is not known.

1924. R. J., aged 42, was employed in the works for five years. He died in Crescent Road Hospital with malignant growth of the bladder S. was employed for many years in drying finished dyes in stoves, *mainly of triphenylmethane type. He had dysuria and* blood in urine in 1925. *Was operated on for papilloma at the* Royal Infirmary. He is still living, but not at work.

1926–27. W., a big, 16 st. *man of 30.* Was employed on naphthalene intermediates—sulphonations, nitrations, and reductions. Had pain, and blood was present in the urine. He was seen and treated by Mr. Macalpine. *No neoplasm was found.* He is now working as a mechanic, and is well.

1927. A. had dysuria and blood in urine. He was working on cyanide crushing; no connexion established. He is quite well.

1928. T., aged 60, has had fifteen years' service on azo colours. He had blood in the urine and was treated by his own doctor. He is well and still at work.

The urines of several of the above employees were analysed, but yielded no evidence of toxic bodies.

Non-urinary Cases.

1930. Incog.; employed on various products; had carcinoma of the caecum.

1924. R. H. *was employed on various products—intermediates* and triphenylmethane; also, prior to this engagement, for many years on phenol distillation. He had carcinoma of the pylorus and died.

1927. K. C. suffered from epithelioma of the scrotum, said to be due to Na_2S; deposits in abdomen. He died.

Owing to the fact that many of the men previously had worked on processes other than α-naphthylamine, and some never on α-naphthylamine at any time, it is, in my opinion, impossible to assume this to be the most potent agent. If it were possible to have men under medical observation for a long period of years in works solely concerned with the making of α-naphthylamine, and not near any contaminating plant, and a staff of men with no previous chemical history, we might be able to trace the irritant. So far we cannot arrive at any true percentage of cases in general, owing to the following facts: (*a*) men sometimes employed on one job, then on another; (*b*) *irregular operation of the plant owing* to trade; (*c*) no proper history of men after leaving the works.

THE EFFECT OF RADIATION ON THE RESISTANCE OF RABBITS TO INFECTION WITH VIRULENT STAPHYLOCOCCI.

BY

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INTRODUCTION.

THE *clinical study of disease treated by general light baths* suggests that the absorption of rays of light by the skin increases the general resistance of the body to bacterial infection. The curative action of light has been successful not only in surgical tuberculosis, but in certain bacterial diseases of the eye, mucous membrane, and skin. Recent research *on the action of light in the cure and prevention* of rickets has proved that this disease is due to deficiency of vitamin D, and that irradiation causes the production of vitamin D from ergosterol in the skin and the absorption of this vitamin. Up to the present the experimental work on the effect *of irradiation on resistance to infection has* been *limited and contradictory. Rhode*[1] *found that irradiated guinea-pigs* were *less susceptible to inoculation* of saline emulsion of tuberculous sputum than control animals. These experiments were repeated by Hase,[2] but his results were negative. Mayer[3] carried out a similar series of experiments, and infected guinea-pigs by inhalation; his results *indicated a possible increase in* resistance when irradiation preceded infection. C. M. Hill and Janet H. Clarke[4] tested the effect of ultra-violet radiation on the resistance of rats to a culture of pneumococci; their conclusions signify some possible benefit if irradiation precedes infection. In their experiments shaved rats were exposed to a *quartz mercury vapour lamp; the skin of* some of the animals was severely burned, and this suggests that the results of their *experiments may be associated with* the effects of local necrosis or inflammation. Animal experiments of this nature are difficult, for it is impossible to study the effects of repeated applications of short ultra-violet rays *on small areas of skin unless the hair is shaved* or removed by a depilatory. This would mean that such *animals would have* to be almost completely shaved if the principles of "short-ray therapy" were correctly adopted.

The "minimal erythema dose" of ultra-violet rays applied to an area of skin-equivalent to 20 to 30 sq. cm. per kilogram of weight increases the bactericidal power of samples of defibrinated blood, collected one to two and a half hours following irradiation, and tested *in vitro* by the "slide cell technique" of Wright, Colebrook, and Storer.[4] Colebrook suggests that this effect is due to *increased function of the leucocytes. My own experiments*[5] on living animals suggest that following irradiation of the surface layers of the skin a photo-biochemical reaction occurs, and a bactericidal substance is first produced locally at the site of irradiation and is carried by the blood stream into the general circulation. So far experiments have *failed to demonstrate bactericidal activity in extracts* of irradiated skin or other tissue cell emulsions—that is, liver, spleen, testes, brain, and thymus. When defibrinated blood is directly irradiated, the bactericidal properties are diminished and the leucocytes are damaged. The intravenous injection into the living animal of irradiated blood cells *and other tissue cells (testes, liver, thymus) is followed* by an increase in the bactericidal power of the blood as tested *in vitro*.

The correlation of the bactericidal power of the blood so tested with the resistance to infection is so far indefinite. *While some of the tests on human blood show a high bactericidal effect during acute pyrexial infections*, a low *haemo-bactericidal power and an impaired efficiency of the* leucocytes must be regarded as giving an unfavourable prognosis. The effects of irradiation and of many chemotherapeutic substances are only of a transient nature; it has not been possible to discover an innocuous therapeutic agent which can produce a high haemo-bactericidal action for a prolonged period. The majority of the bactericidal compounds rapidly disappear from the blood stream and are quickly excreted; others are less soluble, are retained within the tissues, and are slowly eliminated. *There is no suitable* "*in vitro* technique" to estimate the resistance of the *fixed cell or tissue immunity, and this increases the diffi*culties of assessment of resistance by experimental methods.

P. Hartley[6] has shown that the exposure of immunized animals to ultra-violet rays is without effect on the content of diphtheria antitoxin or typhoid agglutinins of their serums. The conclusion which can be drawn is that the *biologically active ultra-violet rays shorter than 3,100 A.U.* appear to have some power to increase the "non-specific" immunity of the blood cells, but not the specific immunity. M. Hardy[7] has summarized the effects of measured amounts of ultra-violet rays on the blood cell count of animals. The conclusions from her observations agree with those of Trangott,[8] Aschenheim and Meyer,[9] Cramer,[10]

Laurens and Sooy,[11] Gunn,[12] and Sooy and Morse,[13] who all showed that irradiation of the skin increased the numbers of blood platelets, especially if they were abnormally low. Successive small doses of light had no effect on the total white count, but intensive irradiation between 3,000 and 2,750 A.U. increased the number of polymorphonuclear cells. Other observers have reported a leucocytosis and a relative increase of lymphocytes.

In conclusion, the observations obtained by experimental methods which support the theory that irradiation can increase the body resistance against infection are summarized below:

1. Antibody production may be increased by heat effects due to the absorption of infra-red and luminous rays.
2. The haemo-bactericidal power is increased by the action of ultra-violet rays from 3,100 A.U. on the skin.
3. Bactericidal substances may be formed by photo-biochemical reactions.
4. The erythema reaction causes changes in the capillary circulation and causes an intradermal polymorphonuclear leucocytosis.
5. Prolonged radiation causes an increase in total number of blood platelets and white cells, and a possible relative lymphocytosis.
6. Radiation *may* influence the function of the endocrine system, as shown by the effect on the suprarenal and thyroid glands.

SCHEME OF EXPERIMENTS.

During the past four years the bactericidal power of the blood has been tested *in vitro* against a stock culture of staphylococci. It has been found that one to two hours after the application of an erythema dose of rays shorter than 3,100 A.U. the haemo-bactericidal power tested *in vitro* was temporarily increased. These results have been accepted by some as evidence suggesting that irradiation of the skin increases the resistance against infection. Conversely the significance of these results has been disputed by others, who maintain that effects of irradiation are due only to erythema and counter-irritation of the skin, and the test of the haemo-bactericidal power is no index for increased resistance or immunity.

I have therefore planned a series of experiments to study the effects of irradiation on the resistance of living animals to infection. To avoid the controversy of the erythema reaction produced by short ultra-violet rays, a source of light was used by which the short ultra-violet rays were omitted and radiation to infra-red, luminous, and ultra-violet rays up to 2,850 A.U. could be applied for a prolonged period without the production of skin reactions. This method is similar to solar irradiation. Animals were infected by an intravenous injection of the same stock broth culture of staphylococci as was used in the haemo-bactericidal tests. An intravenous injection of 0.6 c.cm. of this culture was found to be constantly lethal to normal rabbits weighing about 2 kilograms.

Three groups of experiments were performed, and in each series of experiments a suitable number of normal rabbits were infected and kept in the dark, so that control observations could be made as to the virulence of infection. The series of experiments described are:

GROUP A: The effects of radiation before infection.
GROUP B: The effects of radiation directly after infection.
GROUP C: The effects of radiation before and directly after infection.

Method.

Young rabbits each weighing 1,500 to 2,200 grams were selected. Each experiment was carried out with groups of four or six treated animals, and two control untreated animals. In some cases the hair of the back was removed by means of a depilatory (calcium sulphide) one or two days previous to irradiation. These animals were carefully weighed before infection. All animals were fed on a daily diet of oats and water, and a green vegetable once or twice a week.

Technique of Irradiation.

Each rabbit was kept in a wide-meshed wire cage. Irradiation was carried out in a special treatment cubicle. The source of light employed was my new daylight lamp, which has already been fully described.[14] The spectrophotographic examination showed that infra-red, visible, and ultra-violet rays up to 2,850 A.U. were transmitted. The relative intensity of visible and long ultra-violet rays was high, and in this respect the source of light was more comparable with solar radiation than other artificial sources of light. With the normal white skin it was possible to produce erythema, but only after many hours' exposure. At a distance of 30 inches a standard culture of infusoria was killed in 120 minutes; a surface culture of staphylococci was killed in 150 minutes. The acetone methylene-blue gauge was bleached from 9 to 7.5 units after twenty-four hours' exposure. The lamp was placed in a horizontal position. All animals were exposed at a distance of 4 feet. A small motor fan was kept running in the cubicle to control the possibility of overheating; the temperature was kept at 20 to 22° C. The rectal temperatures of the animals were observed during irradiation. With this source of light prolonged exposures of forty-eight hours could be applied without the dangers of the production of severe erythema, oedema, or necrosis of the skin. In a general way this was similar to solar radiation.

Cultures and Technique of Infection.

The culture of staphylococcus employed in these experiments was a stock culture which had been periodically "passaged" through rabbits and was found to retain its virulence. Subcultures were made from the stock culture by adding 50 c.mm. to 5 c.cm. of Hartley's broth; fourteen to sixteen hour cultures were always used. Rabbits were infected by 0.6 c.cm. of a broth subculture injected intravenously into the lateral vein of the left ear.

RESULTS OF EXPERIMENTS.

Control Animals.

Total number of normal rabbits infected intravenously with 0.6 c.cm. of broth culture of staphylococci	22
Total number which died	22
Average length of time alive	under 24 hrs.
Average weight (grams) of control animals	2,054

Grouping together the control experiments, 22 normal rabbits were given an intravenous injection of 0.6 c.cm. of broth culture of staphylococci. All these animals died within twenty-four hours. Before death the rabbits were in a state of coma, breathing rapidly, and showed a rectal temperature of 106–107° F.

Post-mortem examination invariably showed acute pericarditis with 1 to 2 c.cm. of serous or sero-purulent fluid in the pericardial cavity. Heart blood cultures were positive, and grew abundant colonies of staphylococci. Occasionally a haemorrhagic congestion or oedema of the lungs was seen. Death was due to acute septicaemia.

GROUP A.—*Irradiated before Infection.*

Total number of rabbits irradiated and later infected intravenously with 0.6 c.cm. of broth culture of staphylococci	30
Total number which ultimately died	26
Total number alive	4
Average number of days alive (lethal time)—from 26 animals	7.43
Average weight (grams)	1,844.3

All these animals lived longer than the controls, which were not irradiated. Of 22 animals which were irradiated for 48 hours:

The number which lived for only 24 to 48 hours	6
The number which lived for 3 to 7 days	5
The number which lived for 8 to 14 days	5
The number which lived longer than 14 days	6

Two of the latter have lived over 60 days, and the remaining four are still alive.

Eight rabbits were exposed for short periods—that is, two to twelve hours. Two of these animals were only exposed for two hours, and died within twenty-four hours. Of the remaining six rabbits:

Number which lived for 24 to 48 hours	2
Number which lived for 3 to 7 days	2
Number which lived for 8 to 14 days	1
Number which lived longer than 14 days	1

Post-mortem Examination.—The irradiated animals which died within twenty-four to forty-eight hours showed pericarditis with serous effusion, broncho-pneumonia, a positive blood culture, and death from septicaemia; some of these animals had petechial haemorrhages of the bowel. Rabbits which died after three to fourteen days had a dilated heart and myocarditis; multiple pyaemic abscesses were present in the myocardium varying in size from less than a millimetre in

diameter to 4 mm. Serous effusion, empyema, and purulent effusions were seen in the pleural cavity, with collapse of the lung, abscess formation, or purulent broncho-pneumonia. Multiple abscesses of both kidneys were frequent. Death was due to pyaemia, and the heart blood cultures were mostly positive. Rabbits which died after fourteen days showed myocardial failure; the heart was very dilated, and showed degeneration of the muscle due to myocarditis; fluid was present in the pleural and peritoneal cavities; the liver and kidneys showed changes typical of a failing circulation. The heart blood cultures of these cases were negative.

Estimation of Haemo-bactericidal Power.—Samples of defibrinated blood were collected before, during, and at the end of irradiation, and the bactericidal power against the broth cultures of staphylococci was determined. The average results from these tests indicate that the haemo-bactericidal power became slightly higher during irradiation than it was in the same animals before they were irradiated, and also higher than in control animals. This increase in haemo-bactericidal power is not as great as the results which have been obtained by irradiation with the short erythema-producing ultra-violet rays. It may be noted that the results of the tests of haemo-bactericidal power expressed in terms of the percentage average of colonies of microbes which were killed was only increased 8.5 per cent. at the end of forty-eight hours' irradiation. This was the period when many of the irradiated animals were infected.

Estimation of the Total Number of Corpuscles.—Blood counts were carried out in normal and irradiated animals. The total number of red blood corpuscles per cubic millimetre was not greatly changed, but prolonged irradiation increased the total number of leucocytes. Differential blood counts showed no change, and the relative lymphocytosis could not be confirmed.

Rectal Temperatures.—Prolonged radiation by the technique which has been described did not alter the rectal temperatures of rabbits to any marked degree.

GROUP B.—*Irradiation Directly After Infection.*

Total number of rabbits irradiated directly after intravenous infection with 0.6 c.cm. of broth culture of staphylococci	11
Total number of animals which died	10
Number still alive (56 days)	1
Average number of days alive after infection ...	2.9
Number of animals which lived 24 to 48 hours after infection	9
Number of animals which lived longer than 14 days after infection	2
Average weight (grams) of rabbits used in Group B experiments	2,127.2

These animals were injected with 0.6 c.cm. of a fifteen-hour broth culture of staphylococci, and were irradiated immediately after, irradiation being continued till death or for forty-eight hours. The shaved animals responded better than unshaved rabbits. Except for two animals which survived for seventeen and over fifty-six days, the irradiation had no marked effect, for the remainder died within forty-eight hours. Post-mortem examination showed acute pericarditis with serous effusion and haemorrhagic oedema of the lungs; heart blood cultures were positive. In all the experiments the rabbits were very ill during the first twenty-four hours following inoculation, and the rectal temperature was 105° F. to 107° F. During this acute pyrexial stage exposure to light was harmful; this view is supported by similar experiments on infected albino rabbits, all of which died rapidly when exposed to light.

GROUP C.—*Irradiation Before and Directly After Infection.*

Total number of rabbits irradiated before and directly after intravenous infection with 0.6 c.cm. of broth culture of staphylococci ...	12
Total number which died	11
Total number alive	1
Average number of days alive after infection ...	2.1
Number of animals which only lived 24 to 48 hours	10
Number of animals which lived longer than 14 days	2
Average weight (grams) of rabbits used in Group C experiments	1,612.5

These animals were exposed to the daylight lamp for forty-eight hours. They were then each given an intravenous injection of 0.6 c.cm. of a fifteen-hour broth culture of staphylococci, and were irradiated immediately after, irradiation being continued till death or for forty-eight hours. Except for two shaved rabbits which lived for thirteen days and over thirty-five days (still alive), these animals did not show any marked increase of resistance compared with controls kept in the dark or the Group B experiments. Irradiation during the acute pyrexial stage of illness not only failed to have any beneficial action, but antagonized the good effect of previous irradiation.

COMMENT.

It is difficult to assess the effects of radiation by clinical methods, for the variation of factors cannot establish the absolute figures necessary for statistical data. The general impression which has been recorded supports the view that irradiation increases the resistance against infection and improves the general health. In many cases this impression has been entirely based upon subjective data. Maughan and Smiley,[15] working with students at the Cornell University, have shown that the frequency of colds in "cold susceptible" students was reduced 40.3 per cent. by weekly exposure to moderate irradiation from a mercury vapour lamp. In the experiments which have been described prolonged irradiation of rabbits increased their resistance, insomuch as a rapid infection by an acute and virulent staphylococcus was checked, and a subacute or chronic pyaemic infection slowly progressed. The irradiated animals showed a lethal time average of 7.43 days. Although the average weight of the control rabbits was higher than the average weight of the irradiated animals (Group A), these animals all died within twenty-four hours. There was no marked erythema or skin reaction following prolonged irradiation, so that the results in this series cannot be attributed to counter-irritation or local inflammation. The observations from experiments carried out *in vitro* indicate that an increased haemo-bactericidal power and an increased leucocytosis occur during irradiation. The bactericidal effect was not as big as the results which have been previously obtained one to two hours after irradiation of the rabbit's skin with an erythema dose of rays from a quartz mercury vapour lamp. At present it is impossible definitely to associate the results of haemo-bactericidal tests *in vitro* with resistance to infection *in vivo*. These experiments prove that the intensity of infection was arrested, for although the rabbits in Group A were unwell for twenty-four hours after infection, some made a progressive recovery, while the remainder steadily lost weight and died after three to eleven days of pyaemia. During the stage of infection, irradiation was not sufficient to withstand the rapid and acute bacterial invasion. It is possible that the absorption of infra-red and luminous rays increased the pyrexial state and accelerated death, for the onset of exhaustion, dyspnoea, and coma was more rapid with unshaved infected rabbits. It would be of interest in the future to repeat these experiments with a slowly progressive infection and also to observe the results by short ultra-violet radiation.

Green and Mellanby[16] have suggested that animals deficient of vitamin A are more susceptible to pyaemic infection, and their recent experiments on the treatment of puerperal septicaemia by radiostoleum support their theory. It is known that vitamin D can be produced by irradiation of the skin, and it has been suggested that the activation of this vitamin by irradiation may influence resistance to infection. As a control experiment I have recently given six rabbits a daily dose of 1.0 c.cm. of radiostoleum (which contains both vitamin A and D) by mouth for twelve successive days; after this period the animals and two control untreated rabbits of similar weight were given an intravenous injection of 0.6 c.cm. of the same broth culture of staphylococcus as was used in the experiments on irradiation. All eight animals have died within twenty-four hours from acute septicaemia. This indicates that the nature of the protection given by irradiation in these experiments was not due to either of these vitamins.

SUMMARY.

1. Previous prolonged irradiation of rabbits with a "daylight lamp" emitting infra-red, luminous, and ultra-violet rays up to 2,850 A.U. increases their resistance against virulent infection with staphylococci.

2. Experiments *in vitro* show that after forty-eight hours' irradiation the haemo-bactericidal power is increased and a general leucocytosis is produced. There is not, however, sufficient evidence to correlate these results with the increased resistance to infection. In the case of the haemo-bactericidal power as measured *in vitro*, the evidence obtained indicates that a high bactericidal power of the blood was not maintained during this method of prolonged irradiation.

3. Irradiation of rabbits with an identical technique, after infection with virulent staphylococcus, gives no protection.

4. Experiments indicate that the results are not due to the production of vitamins (A or D).

This research was carried out in Professor Leonard Hill's laboratory at the National Institute for Medical Research, Hampstead. I am greatly indebted for his kindness, constant advice, and help during the progress of these experiments.

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THE RELATION OF EAR CONDITIONS TO BATHING.

BY

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As the bathing season is now at its height, it does not seem out of place to set down some of the dangers which are liable to beset the community at this time of year. The daily papers are taking an increasing interest in the health of the populace, yet insufficient attention has been drawn to the precautions necessary for those who wish to avoid the inconveniences which may result from careless indulgence in swimming. Many medical men allow their patients too much licence in this direction, and fail to pay attention to small details which would increase the comfort of all.

It is obvious to those who attend out-patients in any large ear, nose, and throat clinic that a great number of acute aural conditions develop as the result of bathing. Moreover, such conditions may have dangerous sequels. For a long time at King's College Hospital we have had a notice placed in the out-patients' department which warns patients against bathing without leave from the surgeon.

From the point of view of the ear, nose, and throat surgeon the bathing community can be divided into (1) healthy persons; (2) those with septic nasal conditions (including the common cold); (3) those with a perforation of the tympanic membrane; (4) those with recurrent dermatitis or furunculosis of the external auditory meatus.

As regards persons in normal health, the public has a vague idea that water introduced into the meatus may be dangerous, and cotton-wool and other substances are used to prevent this. In such persons the entry of water does no harm, though it may give rise to several unpleasant symptoms. Among these are deafness and tinnitus following immersion. This is due to the swelling of wax and occlusion of the meatus, or to water collecting behind an accumulation of wax, where it may remain for some time. Another cause is the foolish practice of drying the ears with the rolled-up corner of a towel, thus pressing down against the drum any wax that may be in the meatus. Some may complain of a transitory earache due to cold water impinging on the drum, but this symptom should not be "passed off" without thorough examination lest acute otitis media be the cause. We have not yet met a case of vertigo; in fact, this is hardly to be expected, as cold water enters each meatus with equal caloric stimulus to both labyrinths, so that the labyrinthine equilibrium remains undisturbed. The possibility of the occurrence of such a symptom must, however, not be overlooked, for it could occur if one meatus was occluded and the other patent.

Too often acute otitis media, with or without dangerous complications, occurs in the healthy swimmer. This is due to the entrance of infected water into the Eustachian tube and middle-ear tract. Public swimming baths and "town" rivers are great sources of danger. Those who bathe in the sea or in mountain streams are usually exempt from trouble. The healthy Englishman is fond of swimming, and in the large towns public baths afford the only facility. There is therefore a crying need for those in authority to render the public baths as safe as possible. It is essential that constant inspections should be undertaken. The problem is a difficult one, for disinfectants cannot be introduced in sufficient concentration without rendering bathing irksome. Calcium chloride is used in many places; it imparts a somewhat unpleasant taste to the water, and usually gives rise to a mild conjunctivitis. Naturally water is not rendered safe by this means, but if continuous filtration is carried out as well the risk is minimized. It is interesting to note that we have not been able to trace more than an isolated case of ear trouble attributable to bathing in the Camberwell baths, where this method is practised. In far too great a proportion of public baths the water is not changed often enough, whilst scouring of the empty bath is inefficiently carried out. It should be made compulsory for bathers to wash with soap before entering; in Germany this is an almost universal practice. Again, it is a bad principle that bathers should be allowed to come in straight from the streets and tramp along the sides of the bath in their grimed boots. All this filth must sooner or later find its way into the water.

The present facilities for bathing will not be revolutionized for some time, so we must consider what type of swimmer tends to develop acute otitis media and how the risk may be minimized. As a rule it is the badly taught, inexperienced swimmer who suffers most and becomes the victim of an "acute ear." Correct breathing is essential to prevent the entry of infected water into the Eustachian tubes, and it is here that the tyro fails. The practised swimmer fills his lungs at regular intervals through the widely opened mouth, keeping the soft palate raised and thus shutting off the nasopharynx. In fact, many swimmers of repute continually have the mouth open, even under water, gradually blowing air out until they need a fresh inspiration, when the head is turned clear of the water and air taken in through the mouth. The inexperienced swimmer fails to regulate his breathing properly, draws the water into his nose, chokes, and swallows; this last action opens up the Eustachian tubes and water is allowed to enter. For the same reason it is unwise to "duck" suddenly or to push a friend in unawares; proper inspiration is difficult in such crises. Jumping in from a high board should not be practised without holding the nose, as the sudden inrush of water into the nostrils may force some into the sinuses or into the Eustachian tubes.

It will be argued that thousands of people in normal health bathe regularly without precautions and come to no harm; nevertheless, the risk is there, and correct breathing should be taught.

The second class, those suffering from septic nasal conditions (including the common cold), should not be allowed in public baths. Not only do they spread infection, but any water entering the nose may carry infection backwards into the nasal accessory sinuses or Eustachian tubes. Swimming is dangerous in the same way as the pernicious habit of sniffing salt and water up the nose to relieve the common cold.

Patients who have a perforated tympanic membrane often ask whether bathing is permissible. Whether or not there is discharge the answer should be an emphatic "No." Those in whom the discharge has ceased will almost certainly become reinfected, with consequent exacerbation of old trouble; whereas those with an active discharge will contaminate the water and lay themselves

open to the risk of added virulent infection and acute symptoms supervening on the chronic. The professional or expert swimmer may possibly be excepted if the ear has been dry for two years or more, although the perforation has not healed, but every precaution must be taken as regards breathing and against the entry of water into the meatus. No form of precaution is "foolproof," though a small piece of wool impregnated with vaseline and laid in the meatus may serve a useful purpose. Better still, a thin piece of wool may be laid over this and kept in place with collodion. A successful radical operation, one year after complete healing, places the patient in Class 1 (healthy persons) as regards bathing. Patients with acute or chronic meatal eczema or recurrent attacks of meatal furunculosis are best advised not to bathe, for exacerbations are only too common.

Many swimmers who make a practice of diving into deep water complain that when they go beyond a certain depth they get a violent singing in the ears. This is as a rule temporary; it is partially due to prolonged holding of the breath and partially to increased pressure on the tympanic membrane and stapes. Should it persist it will probably be found that there is some degree of Eustachian obstruction and retraction of the tympanic membrane and that politzerization will relieve the noises.

Conclusions.

1. There should be regular and frequent inspections of all public baths, and the water should be maintained as pure as possible.

2. All swimmers should be compelled to wash with soap under a shower before entering a public bath.

3. The public should be educated as regards correct breathing in the water.

4. "Ducking" and pushing people in should be discouraged.

5. Those persons with colds, septic nasal conditions, perforated ear drums, or recurrent inflammatory conditions of the external auditory meatus should not be allowed in public baths without leave from an aural surgeon.

ARSENICAL POISONING:

WITH SPECIAL REFERENCE TO TREATMENT WITH THE GALVANIC CURRENT.

BY

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THE following case is of exceptional interest both scientifically and also from the practical aspect. It suggests strongly that the continuous galvanic current should be used in cases of arsenical poisoning, and also in other cases in which it is found that the toxic factor carries a positive or negative charge.

Mr. X, aged 40, had been an arsenical worker from 1919 until September, 1928; during this period he had a number of attacks of "indigestion" and colic following exposures to arsenic, and also various sensory changes from time to time. On April 6th, 1929, a sudden "foot-drop" occurred, and he attended for treatment on April 10th.

On physical examination, voluntary movement involving the anterior tibial and peroneal groups of muscles was absent; the skin over the middle third of the right leg in front showed diminished sensation. The muscles were tested, and the electrical reactions showed a normal response to the faradic current with the exception of the extensor longus digitorum, which, however, reacted briskly to the galvanic current.

Treatment was carried out three times a week, the affected muscles being stimulated by interrupted galvanism. In addition, the continuous galvanic current was applied by means of foot-baths, and a pad was placed reaching up the shin of the right leg; the negative pole was attached to the bath, which contained the right foot. The idea of this was that arsenic would be likely to be present in the form of the hydrochloride, and that the alkaloid would be extracted by this means.

After about a fortnight it was noticed that the skin on the right leg was becoming markedly scaly, and as this was most unusual I suggested that arsenic was being extracted. In consequence of this I collected some of the fluid from the pad at the end of one treatment, and also a sample of scales which were brushed off the skin of the leg. Both these samples were tested by an expert analytical chemist, and arsenic was reported to be definitely present by Marsh's reaction.

After three weeks' treatment, voluntary movement of the peronei began to return, and was followed a fortnight later by the tibialis anticus. Treatment was terminated on May 30th, when the condition had almost approached the normal; the extensor longus digitorum would contract to galvanic stimuli, but not to the faradic current. A further test, on June 6th, revealed that all the muscles would contract to the faradic current. On June 20th the affected muscles had completely recovered, and normal sensation of the skin on the front of the right leg was found to be present.

The continuous galvanic current is known to have an attractive or repulsive action to all substances which carry a negative or positive charge. Medical electro-therapeutists are frequently criticized because they are unable to give proof of how their methods act, and it is always satisfactory when it is possible to do so without question or doubt.

Similar work to the above has been carried out, I believe, in cases of lead poisoning, and also in the treatment of gout, but I can find no case on record in which arsenic has definitely been proved to be present chemically following treatment by the galvanic current. There can be no doubt that a considerable quantity of arsenic was extracted in the course of treatment, and the rapid recovery of the patient suggests, further, that this is the correct procedure in these cases.

The Sections.

SUMMARY OF PROCEEDINGS.

(*Concluded from page 263.*)

SECTION OF MEDICINE.

Friday, July 26th.

ASTHMA.

DR. F. PARKES WEBER occupied the chair on the third morning of this Section, and called upon DR. ARTHUR F. HURST to open a discussion on asthma. Dr. Hurst began by remarking that the oft-repeated hopes of a panacea were still far from realization. He drew attention to the importance of studying the constitution or diatheses of sufferers from asthma. There must be a lack of balance, due to some chemical cause, between the vagus and the sympathetic system, in asthmatic persons, resulting in a preponderant activity of that part of the vagal nuclei that regulated the contraction of the bronchial unstriped muscle. He further discussed the subject of abnormal sensitiveness to proteins and other chemical substances; the nasal and other conditions that might give rise to reflex asthma; and the psychological factors that might bring on asthma in any asthmatic subject. As for treatment, the only cure should be a change in the constitution or in the chemistry of the blood of the asthmatic person: the diet must always be a matter of great importance, and so must altitude. The skin tests he described as valueless in asthma, though in hay fever they were often valuable. Nasal treatment he thought was often most useful in selected cases. Asthma powders he condemned, but the use of adrenaline was commended on physiological grounds. In status asthmaticus the continuous injection of adrenaline in small quantities (up to even a drachm in half an hour) was the only cure. DR. JAMES ADAM (Glasgow) said that for thirty years he had held that there was a toxic basis in asthma and that in most cases the nasal condition was a most important factor. This toxaemia, which originated in the intestine and the tissues, was partly due to the absorption of nitrogenous poisons and partly to an error in nitrogenous metabolism, the result of imperfect oxidation or enzyme action. The toxaemia tended to show itself first as a catarrh and

later as a spasm in the respiratory tract. This conclusion was based on eight observations: (1) the frequent recurrence of asthma in working folk at week-ends, when overfeeding and under-exercise predominated; (2) evidence was usually obtainable in asthmatics of neglect of the alimentary and skin functions; (3) asthma patients lost their complaint temporarily during the activities of the war years; (4) periodicity was a common feature of the case records; (5) the common complications of eczema and urticaria responded promptly to dietetic treatment; (6) the start of asthma was before the 15th year in 50 per cent. of all cases; (7) in this time of life infections were common; and (8) detoxication was a potent remedy. Moreover, the urea content in the blood and urine of asthmatics was reduced, and ammonia was increased in the urine. Dr. Adam then submitted further biochemical and clinical evidence in support of asthma being a toxicosis. He believed that its incidence was increasing owing to the greater complexity of modern civilization, more marked tendency to indoor life, perverse use of body organs, and defective foods. Allergy, though an interesting feature in about 50 per cent. of asthmatics, was not the most important factor; a so-called history of heredity was no bar to cure. Special treatment of the nose was necessary and mouth breathing must be stopped. Professor R. J. S. McDOWALL, from the physiological standpoint, enumerated the various ways in which different stimuli, such as local irritants, injections of peptone and histamine, nervous excitation, and psychic factors, might bring about an asthmatic attack. He then discussed in detail the part which might be played by the vagus, and mentioned that he had recently shown that peptone injections greatly increased the sensitivity of this nerve. This appeared to be a key of some importance in the asthma problem, but the abnormal proteins probably caused also a temporary bronchial constriction which was seen in an enhanced form in typical anaphylaxis. This increased sensitivity was not limited to the bronchi and heart, but extended to the autonomic nervous system, including the visceral vessels. The speaker then passed to consider how such abnormal proteins might enter the body, and the part played by the amino-acids, certain of which in the protein molecule might have a special significance. Thus, he remarked, the many divergent views about asthma might be fitted into a simple picture; it would be possible also to harmonize the different kinds of treatment for which success had been claimed. Each case had to be dealt with according to its nature, but a combination of treatments was sometimes desirable. When the nature of sensitization was discovered the cause of asthma would be revealed and also the etiology of a large number of allied diseases. Dr. G. H. ORIEL gave an account of the physiological chemistry of asthma, and of the deductions as to its causation that might be made from the various examinations of the tissues and secretions. He outlined the possibility of a urinary test for asthma which was now under investigation; a specific substance was apparently present in the urine of asthmatics. He spoke of the use of glucose in the treatment of asthma in children. He defined asthma as a symptom rather than a disease. Dr. E. WATSON-WILLIAMS (Clifton) emphasized the importance of toxaemia, and stated that in his opinion the cases of asthma due to a nasal reflex were not many. He discussed the effects of bronchial contraction and expansion in the asthmatic attack, comparing them with the process whereby the newborn infant first aerated his solid lungs. Dr. HARRINGTON agreed that asthma was toxaemic in the great majority of cases, if not in all. Treatment should be on the lines indicated by this supposition—detoxication. Stress was laid on the importance of correct diet[illegible] iber of illustrative cas[illegible] of young children with milk was deprecated. The resumption of bad or unhealthy conditions of life would cause relapse in any cured asthmatic; cure was a relative term, and its maintenance depended on the good will of the patient. Dr. WHERRY alluded to the nasal factor in asthma, pointing out the abnormal excitability of the nasal mucosa in all asthmatic patients. He believed this to be the main element in the etiology of these cases. The treatment of asthma should therefore have the nose and its adjoining structures as its chief theatre. Other contributory factors such as overwork and unsuitable diet were mentioned; loss of sleep was described as one of the worst results of the attacks; it should be treated by medinal rather than by adrenaline. Dr. CAMPS (Teddington) discussed treatment by inhalations of oxygen and adrenaline, which he had employed in cases of every type. This treatment saved much trouble, and its nightly use might break the asthma habit; it would also stop an attack of asthma. Dr. J. SPEARES (Dublin) dwelt on the difficulties induced by ignorance of the causation of asthma, an incurable constitutional disorder. In certain cases vaccine treatment had given him good results.

Dr. HUDSON's contribution to the discussion took the form of a lantern demonstration of experimental bronchial muscular movements. During inspiration the tubes widened and lipiodol injected into them was seen to outline a tube wider than it was in expiration. Evidence of the existence of an atrial sphincter was obtained. In bronchiectasis the lipiodol did not change its position in respiration. Films taken in cases of asthma showed the tubes to be small and their permeability to lipiodol much reduced; the oil failed to reach the bronchioles. The bronchi narrowed with expiration and widened in inspiration of their own motion and without the interference of any external musculature. Dr. HURST briefly replied to a number of the points raised in the course of the discussion, demonstrating his view that in asthma the bronchial spasm was expiratory and was aggravated by the fact that the expiration was forced. He added that in pure asthma true emphysema did not occur. The breathing exercises for an asthmatic child or adult should be expiratory and not inspiratory, and should include nose breathing also if necessary. The treatment of constipation he believed to be harmful in most cases, and he objected similarly to the Plombières douche treatment. Ephedrine he thought less useful than adrenaline, unless perhaps in the milder cases of asthma; in actual attacks it was of little service. Caffeine was a more useful drug in doses of 6 or 8 grains of the citrate, taken early in the day and not at night. The meeting of this Section was attended by over 180 members.

THE HALOMETER.

Dr. FRANK C. EVE (Hull) described an instrument he had devised for facilitating the diagnosis of certain blood diseases. (See *British Medical Journal*, July 13th, 1929, p. 48.) He said that this instrument, the name of which should be pronounced halo-meter, indicated the average size of red cells in a blood smear by measuring the diffraction halo they produced. Dr. Eve said that as enlargement of the red cells was the earliest sign of pernicious anaemia, this difficult diagnosis was rendered rapid and easy. In fact, the syndrome of the early stage revealed by the instrument was often so dissimilar to the syndrome usually described that a separate name, such as pre-pernicious anaemia, seemed necessary. The two syndromes could be combined into a single definable disease (megalocytic anaemia) if a ready means such as the halometer was found of measuring red cells. In cases where the enlargement of the red cells was too slight to warrant a definite diagnosis of pernicious anaemia, liver might be given for two months. If the red cells were thereby restored to normal size the diagnosis was confirmed. The halometer was the readiest means of checking (weekly) the efficacy of treatment by liver or its extracts. In "cured" cases it should be used every quarter to detect incipient relapse. Dr. Eve found it necessary to measure the red cells in all cases of glossitis, tingling of the extremities, achlorhydria, obscure anaemia or loss of energy and weight, bleeding from the bowel, and even cholecystitis. A thin blood smear was essential—produced by pushing (like a plane) a small drop of blood along a grease-free slide. Dr. Eve said he had found the halometer reliable in that he had yet to meet the case where its diagnostic verdict had been proved erroneous by time or by other clinical evidence. Similarly with subacute spinal degeneration, but less absolutely because occasionally the neurotoxic poison was at first unaccompanied by the haemolytic,

SECTION OF SURGERY.

Friday, July 26th.

PAPILLOMA OF THE BLADDER.

MR. C. ROBERTS (Manchester), a Vice-President of the Section, occupied the chair on the third morning, when Mr. J. B. MACALPINE (Manchester) opened a discussion on papilloma of the bladder. Mr. Macalpine said that two problems presented themselves for preliminary discussion. The first, did all papillomata of the bladder become malignant? Recent literature supported the views of earlier writers that papillomata of the bladder were malignant, but this could not be entirely true, since records existed of many patients living for twenty years, and finally dying of malignant disease. The long history, however, showed that even very benign growths would eventually become malignant. The second problem was, how could the nature of the growth be decided? Pathological evidence up to the present had been misleading, and opinions still differed as to the best portion of the tumour for examination. Added to the difficulties of microscopic diagnosis were the practical difficulties of obtaining the specimen. A portion of the surface could be obtained by cystoscopy with a rongeur, but there was a very real risk of producing dissemination. The base of the tumour could be examined after open excision, but the uncertainty of the diagnosis might prevent a necessarily bold excision. For these reasons, the speaker relied solely on cystoscopic diagnosis when deciding treatment. Mr. Macalpine gave a detailed account of the cystoscopic diagnosis of the nature of papillomata. The longer and more delicate the villi the more benign was the growth; surface necrosis, uneven arrangement, coalescence of villi, and thickening of the epithelial layer giving rise to a coarser and paler appearance were indicative of malignancy. Examination of the pedicle was very important; a short, stout, stiffened pedicle was suspicious. A large villous growth completely sessile was malignant. Bullous oedema at the base should be noted, but the oedema from a previous diathermy burn should be remembered. It was only possible to distinguish these two types of oedema by repeated cystoscopy examinations. The significance of multiplicity of papillomata was debatable, but undoubtedly multiple growths recurred more readily and successive recurrences were more malignant. When in doubt concerning the nature of a growth the reaction to perurethral diathermy was of diagnostic importance. If diathermy was not definitely succeeding, partial cystectomy should be performed without any delay, since malignant tumours did not react favourably to diathermy and might possibly be stimulated by it. Cystography was of use when cystoscopy was impossible owing to bleeding, a small or intolerant bladder, or a very large growth filling the bladder. The speaker reported six cases of papilloma occurring in aniline dye workers. Before the formation of a neoplasm, there was a stage of cystitis with haematuria; cystoscopy during this prodromal stage showed a bright red mucous membrane with some mottling. The absence of exudate (as compared with the condition in septic cystitis) was characteristic. Prolonged contact with the dye was necessary before development of cystitis. Primary and secondary growths not uncommonly developed around the vesical orifice; these could be treated by means of a retrograde cystoscope, but the posterior urethroscope was sometimes necessary. Implantation papillomata from kidney and ureter occasionally occurred. The speaker gave a detailed account of the technique of bipolar diathermy. Concentration of the current on the pedicle was of great use, and the method of securing this was described. Mr. Macalpine said that growths situated high in the bladder were usually benign, but if malignancy occurred, though the growth was easily accessible by operation, late operative results were worse than in the case of growths occurring at the site of election. Excellent lantern slides were shown illustrating the various facts discussed. Mr. HENRY WADE (Edinburgh) emphasized the importance of early cystoscopy in all cases of symptomless haematuria. Fulguration was certainly indicated for the majority of growths. Situated on the bladder wall around the stalk was a roughened area, usually hidden by the growth; it was most important to treat this area also by diathermy. The speaker said that because diathermy obscured further treatment by producing a zone of reaction around the tumour, he recommended that the growth should be destroyed at one sitting under a general anaesthetic. The patient should be warned of the possibility of a secondary haemorrhage when the large slough separated. It was advisable to remove the slough to prevent formation of a concretion around it. There were four indications for open operation for an early benign growth: (1) The size; if the size of a walnut or larger he recommended open operation and diathermy. (2) The situation; collar growths around the internal meatus. (3) The clinical history. It should be remembered that vesical spasm meant infiltration. (4) Local complications, such as enlarged prostate. Endovesical diathermy in these cases had no advantages, and there was an increased risk of infection. When malignant the growth was sessile and the villi were fused and irregular. Mr. Wade said he had no knowledge of radium, therefore in these cases he practised excision. When the growth could be pulled up with a tube of mucous membrane at base, he performed a mucous resection. If there was adherence he employed a partial cystectomy. When the intravesical part of the ureter had to be sacrificed, he said that, having reconstructed the bladder, Nature produced a ureteric opening into the bladder, and the ureter could be seen later, on cystoscopy, opening into a diverticulum. The bladder should be opened first if total cystectomy had to be performed. He had found that transplantation of the ureters into the bowel was the best procedure. Early diagnosis and the education of the public was of paramount importance in the treatment of growths of the bladder.

Mr. SWIFT JOLY limited his remarks to the treatment and results of treatment of benign growths of the bladder, including growths with thick pale mucous membrane, but having no infiltration. If the growth remained superficial perurethral diathermy should be used, but the slightest indication of infiltration called for open operation and destruction of the growth by excision or deep diathermy and radium. He gave the record of 39 cases before the introduction of diathermy: there were 4 recurrences (2 early and 2 late) in 30 cases of single growths, while there was recurrence in all the 9 cases with multiple growths. From the literature he had found that 98 per cent. of sessile or multiple growths recurred. This extremely high recurrence in cases of multiple growths was a very important fact. In 25 cases with single growths treated with diathermy more than five years ago there were 6 recurrences, some being very late—14 years. All these recurrences had been destroyed and the patients remained well. Multiple growths treated by diathermy recurred, but with care and trouble an ultimate good result could be obtained by diathermy and not by open operation. Recurrences after open operation on single growths were often sessile and multiple, and he had found it impossible to get these cases clear by diathermy. From his experience he said that all cases of growths of the bladder should be kept under observation for an indefinite period, even for the rest of the patients' lives, since recurrences might become manifest at any time. The use of the various patterns of cystoscopes made growths accessible by perurethral diathermy. When the growth almost filled the bladder he used a posterior urethroscope with a continuous irrigation. Growths in the internal meatus could be treated through a posterior urethroscope, and those situated around the meatus and especially in front and at the apex of the bladder could be treated by means of a retrograde cystoscope. The use of his modification of the cystoscope enabled the treatment of growths lying behind an enlarged prostate to be carried out. The results of open diathermy were better than resection. Excellent lantern slides were shown. Mr. R. J. WILLAN (Newcastle-on-Tyne) reported an analysis of 68 cases of papillomata of the bladder. The disease was very much more common in the male—53 males, 15 females. He agreed that the pathological diagnosis of malignancy was unsatisfactory even when a portion of the pedicle was examined. The cystoscopist was sometimes misled and a benign growth

occasionally concealed a malignant ulcer. Referring to the results of treatment he said that he had not a single case alive treated more than nine years ago. An excellent analytical table was shown. The cause of death in 19 cases was given. Dissemination caused the fatal result in 6; malignant cachexia in 6; local extension to the vagina or rectum in 2; haemorrhage in 2; surgical kidney in 1; heart disease in 1; and one patient died from post-operative shock.

Professor ANDREW FULLERTON (Belfast) showed some excellent coloured drawings illustrating the technique of cystectomy. He did not like tying the ureter, and did not agree that the proximal end of the ureter should not be passed through the bladder wall and sutured as already stated. A large resection was necessary to prevent recurrence; the reconstructed bladder readily readapted itself. The troublesome bleeding from the venous plexuses at the base and posterior wall of the bladder could be much lessened by ligature of some of the larger feeding veins behind and in front. The reconstructed bladder was certainly not water-tight, and adequate drainage was important. Suprapubic drainage was not satisfactory, and his method of dependent drainage of the perivesical space by the use of a rigid tube passing downwards through the levator ani into the ischio-rectal fossa was described. He had had no trouble from this method of drainage. The best results were certainly obtained by large operations, as the glands were more easily accessible. Cystograms showing the result of large resections of the bladder were shown. This method of drainage could be used after prostatectomy. Professor Fullerton pointed out that when a growth had infiltrated the ureteric orifice, the opaque medium introduced into the bladder for cystography travelled up the ureter. A pyelogram procured by this method was shown. The disease was much more common in men, and was most frequently malignant in patients more than 60 years old. These growths recurred, whatever means of treatment was employed, and he agreed that recurrences after open operation were difficult to extirpate. Mr. H. H. RAYNER (Manchester) reported two cases of malignant diseases of the bladder treated by radium; one by the suprapubic route, and the other by a blind perurethral method.

"PARAFFINOMA" OF THE RECTUM.

Dr. A. T. BAZIN (Montreal) described a case of "paraffinoma" of the rectum resulting from the injection of melted hard paraffin for the treatment of prolapsing internal haemorrhoids. The patient was referred to him with the diagnosis of carcinoma of the rectum. At the distance of 1½ inches from the anus was a nodular mass completely encircling the bowel and producing marked stenosis; the vertical extent of the infiltration was 2¼ inches. The mucosa was smooth, mobile, and non-ulcerated. Extending distally from the constricting ring were tongue-like processes under the mucous membrane. The tumour was resected, preserving the lower end of the canal and sphincters and restoring continuity by rectorrhaphy. Another case—of paraffinoma of the thigh—was reported in a woman who had received three injections of camphor in oil as a cardiac stimulant eight years previously. Lantern slides were shown illustrating the histology of the tumour in these two cases. Dr. Bazin said that clinical observation and experimental work with monkeys had demonstrated that mineral oils, when injected, might cause foreign body reaction and tumour formation. In some cases the injected paraffin oil had spread along the lymph channels and lymph nodes, producing a condition simulating tuberculous adenitis or malignant lymphatic metastases. Vegetable oils injected experimentally had not produced these tissue masses. Mr. J. P. KILNER condemned the use of injection of paraffin into the human tissues. He had seen a large number of pathetic cases where paraffin had been injected to restore the contour of the face and neck. The histological appearances of the paraffinomata removed were similar to those demonstrated. One case of a large epithelioma which extended from the clavicles to the nipples was described; it had developed after the injection of paraffin.

CONGENITAL ARTERIO-VENOUS FISTULA.

Professor DEAN LEWIS (Baltimore) read a most learned and instructive paper on congenital arterio-venous fistula. He demonstrated his remarks with very excellent lantern slides. In this type of arterio-venous fistula, in contradistinction to the acquired type, it was of the utmost importance to ligature all the channels of communication between the artery and the vein.

SECTION OF OBSTETRICS AND GYNAECOLOGY.

Friday, July 26th.

SURGICAL TENDENCIES IN MODERN MIDWIFERY.

THE President of the Section, Professor FLETCHER SHAW, was in the chair at the final meeting of the Section, when a series of papers was read and discussed. The first communication was that of Professor ESSEN-MÖLLER (Lund, Sweden), whose subject was surgical tendencies in modern midwifery. Professor Essen-Möller asserted that surgical methods were being introduced into obstetrical practice with increasing frequency in the interests of mother and child. In cases of disproportion and of placenta praevia the old rule used to be to wait until a favourable opportunity occurred and then to assist the natural forces. The most important advance on this came about at the end of the last century with the revival of Caesarean section. The speaker had been brought up in the environment of the old ways of thinking, but his experiences had made him a convinced partisan of the newer methods. He was now afraid, however, that the pendulum had swung rather too far in the direction of operative intervention. No surgical procedure could be described as entirely harmless, but technique had now become so perfect that the risk of infection was practically non-existent. Two important considerations were: the risk of rupture of the scar in subsequent pregnancy, and the fear instilled into a mother who had undergone delivery by Caesarean section. It was not practicable to remove all cases to hospital. The speaker did not approve of Thiersch's new orientation of midwifery, which sought to substitute surgical intervention for natural labour in practically all cases. Such tendencies indicated an insufficient understanding of the normal processes of labour. Nothing great or valuable in life could be obtained except by struggle. Surgical methods were not designed to substitute and anticipate the natural forces. The PRESIDENT thought that in many ways Caesarean section had proved very disappointing. They were using it to rescue cases which they might have delivered in the old days by other methods, but they were not saving the very bad type of case. As many craniotomies were being performed now as in the past, since patients were sent into hospital too late. Dr. A. DONALD (Manchester) said that he represented the old school in some respects. In the days when he was a resident it was considered too dangerous to have cases of ordinary confinement in a hospital. Progress in obstetrics had not advanced with anything like the speed that had been experienced in gynaecology. Dr. Donald remembered the introduction of pituitrin. He imagined that this must have caused many cases of rupture of the uterus and bad tearing of the cervix and of the pelvic floor. The one line of advance had been the careful antenatal examination of cases. There had been no progress in avoiding sepsis; there was as much septicaemia as there used to be. The introduction of mercury perchloride had certainly constituted a great advance. Many students had no conception of treatment between absolute carelessness and the most up-to-date hospital methods. They ought to be instructed in the use of antiseptic procedures. Professor R. J. JOHNSTONE (Belfast) said he had been trained in the old methods, when the first maxim taught was the avoidance of "meddlesome midwifery." There was no such thing as a perfectly safe operation, and it was a serious matter to recommend surgical intervention instead of some simpler method. His experience had been that when once a patient had had Caesarean section she refused afterwards to undergo natural labour. Aseptic midwifery in the home was an impossibility; students must, therefore, learn antiseptic methods. Professor R. W. JOHNSTONE (Edinburgh)

entirely agreed with emphasizing the importance of antiseptic technique in view of the difficulties attending asepsis in the poorer homes. In domestic midwifery the use of mercurial preparations had led to a very great improvement. Weak lysol solutions were most dangerous and their employment had done much harm. In Edinburgh they were not very fond of vaginal hysterectomy; they saw a considerable number of cases of pernicious vomiting, and vaginal hysterectomy had been disastrous. Latterly they had been performing abdominal hysterectomy with very good results. Dr. Bethel Solomons (Dublin) thought there were two classes of specialists: the obstetrician, and the gynaecologist who also practised obstetrics. Obstetrics was both a science and an art, not a slap-dash surgical procedure. He thought the problem started with teaching students how to wash their hands and to put on gloves. He did not teach people to wear masks, but he taught the application of forceps without wearing a sterilized coat. Professor Miles Phillips (Sheffield) said the great difficulty in midwifery was accurate prognosis. Too many Caesarean sections were being performed owing to errors of judgement. The multipara in her twelfth or thirteenth pregnancy was not infrequently a suitable case for Caesarean section and sterilization. Professor Essen-Möller, replying, said he agreed fully with Professor Phillips that Caesarean section was applicable in many instances which could not be set out in the form of a hard-and-fast classification. He thought that the domestic circumstances in Sweden differed from those in England. Although no operation was ever performed in a patient's home in Sweden, version was employed, and forceps were applied.

Training of the Gynaecologist.

Professor T. S. Cullen (Baltimore) read a paper in which he expressed the conviction that each gynaecologist should be a surgeon capable of performing any abdominal operation. A fundamental knowledge of medicine was essential, and also a thorough grounding in general and special pathology. He gave an account of the method of training in force at the Johns Hopkins University, which aimed at the production of a man with a good knowledge of general pathology and a wide acquaintance with regional pathology. He referred to the vague and puzzling symptoms which might accompany stricture of the ureter, and which illustrated the point that every gynaecologist should also be a urologist. He gave examples of occasions on which the pelvic surgeon might have to go far afield—for example, resecting the bowel. The gynaecologist must, in short, be trained to handle any abdominal emergency which it was possible to treat. Dr. J. W. G. H. Riddel (Plymouth) remarked that all practitioners had not had the good fortune to be attached to a large teaching school. He described his own experiences, and submitted that the training of a general practitioner was by no means negligible as a branch of education in obstetrics and gynaecology. Professor R. J. Johnstone (Belfast) agreed that the gynaecologist should be capable of dealing with any condition which he might find in the abdomen. All of them were constantly meeting with surprises in their practices, and diagnoses could seldom be exact. He thought that each gynaecologist would do well to spend a year as a demonstrator of anatomy immediately after qualifying. Considerable time must be devoted to pathology. Professor Johnstone did not agree, however, that a gynaecologist should not also be an obstetrician. Professor J. P. Maxwell (Peking) thought that an obstetrician should be allowed a large working knowledge of gynaecology. He had had experience of the training in Baltimore, and he did not think that the education given in Great Britain in pathology combined with surgery was so intensive as in Baltimore. Dr. A. E. Giles praised the systematic training of Baltimore, and agreed that a sound knowledge of obstetrics was essential to a gynaecological surgeon; experience of general practice was also of very great value. The association of gynaecology with abdominal surgery was most intimate; manual skill was of less importance than sound judgement and good diagnostic ability. Professor C. G. Lowry (Belfast) thought that the intensive training in pathology was the keynote of the training at Baltimore. The President remarked that they had been made to feel the shortcomings of their own education. It was most important that great attention should be paid to the special pathology of the pelvic organs. The personality of the teacher was also a matter of considerable weight. Professor Cullen, replying, thought that anatomy should be studied by a man for himself.

A fundamental knowledge of medicine was essential. He felt very strongly that no operator had a right to open the abdomen unless he could deal with any condition he might find there.

Prophylaxis in Connexion with the Albuminuria of Pregnancy.

Mr. L. C. Rivett discussed the prophylactic treatment of cases in which albuminuria had been present in previous pregnancies. Recent work had shown that permanent renal damage resulted frequently in this way. It was important that all such patients should report at once as soon as the menstrual period was missed. It then became necessary to maintain the alkalinity of the urine at a fixed figure, and, to do this, as much as one and a half ounces of solid alkali might have to be given daily. The protein intake, including meat, milk, and eggs, should be curtailed, and milk as a beverage should be absolutely prohibited. Bread or greasy meat might be taken sparingly, however, every other day. Free daily action of the bowels should be maintained, and care taken as regards sufficient fresh air, rest, and avoidance of strenuous exertion. He cited a series of cases in illustration of these points. The President said that they had been brought up in the idea that these cases were purely functional, but recently they had become rather uneasy in their minds about the subject. Dr. James Young (Edinburgh) thought that if the facts as cited in the paper should be confirmed they must necessarily shed some new light on the etiology of the condition, and he inquired what theory underlay the line of treatment proposed. His own investigations had shown that permanent renal damage occurred in only about 8 per cent. of cases. In about 50 per cent. of the total there was evidence of recurrence in subsequent pregnancies, and in these cases there was risk of permanent damage to the cardio-renal system. The total risk of permanent damage was, however, comparatively small. The old classification would have to go by the board, since these cases showed a tendency to recur. The general rules of hygiene had doubtless a very great effect on the progress of these patients, but did not constitute the whole of the treatment. Dr. A. Crook (Norwich) said he had been giving heroic doses of sodium bicarbonate, but without much result. A considerable proportion of chronic renal cases showed no albumin in the urine during pregnancy. Dr. H. L. H. Greer (Belfast) had given alkali for heartburn, and found that there was a general improvement in the comfort and condition of his patients. In scarlet fever it had been observed that, if the urine was kept slightly alkaline, nephritis did not occur. Since he had been giving his patients alkalis he had had no case of albuminuria, even in those who had suffered with eclampsia in previous pregnancies. Other factors, such as diet, focal sepsis, and constipation, had an important bearing; the fatty substances especially should be avoided. The indiscriminate drinking of milk during pregnancy was not good; the teeth required attention, and also the tonsils and nasal sinuses; the cervix should be treated if necessary. Dr. F. H. Lacey (Manchester) said that for some time he had had the urine very carefully examined in these albuminuric cases, and he was surprised how frequently *B. coli* had been detected. The administration of alkalis in these cases was of undoubted benefit. Dr. L. C. Rivett, in replying, said that the theory underlying the treatment was the same as that in scarlatinal nephritis. He was not convinced that there was any specific toxin at the root of the trouble; he thought it was due rather to the excess of the normal products of metabolism. He had been particularly impressed by the great improvement in patients treated with alkalis. The question of focal sepsis was important, but this might occur in the absence of albuminuria.

SECTION OF DISEASES OF CHILDREN.

Friday, July 26th.

TONSILS AND ADENOIDS.

THE third morning in this Section was devoted to a discussion of the medical and surgical aspects of tonsils and adenoids, with Mr. T. TWISTINGTON HIGGINS in the chair.

The opener, Mr. J. ARNOLD JONES (Manchester), said that the function of the tonsils was still undecided; while it was probable that they were concerned with the defence of the alimentary and respiratory tracts, it was also known that when a tonsil became chronically hypertrophied or diseased it lost this defensive power. Hypertrophy of Luschka's tonsil was widespread among all climates and races, but undoubtedly adenoids were commoner in damp temperate climates. Although most prevalent between the ages of 3 and 14 years, the condition did occur in quite young babies, producing difficulties in sucking, and easily remedied by removal of the vegetations without an anaesthetic. The diagnosis of adenoids was usually easy, but the procedure of inserting a finger into the naso-pharynx was a disagreeable process and rarely necessary. In infants where the condition was suspected it was the speaker's practice to introduce a small cage curette and remove any growth that was found. In older children the only form of treatment was surgical removal. He preferred a cage curette; the commonest cause of haemorrhage was the leaving behind of a tag of adenoid tissue. It had recently been his practice to give all his patients a course of sodium bicarbonate before operation; secondary haemorrhage was rare, and out of 12,000 cases had been the cause of fatality in only two instances. Recurrence of adenoids did occur in a small percentage of cases. Mr. Arnold Jones enumerated the indications for tonsillectomy, which included interference with respiration or speech, chronic enlargement of the cervical glands, recurrent sore throats, systemic affections attributable to a focus in the tonsil, chronic lacunar tonsillitis, and diphtheria carriers. In the diagnosis of chronic sepsis in the tonsils the size of the organs was no guide; by applying pressure, pus or cheesy secretions might sometimes be squeezed out, while enlarged glands at the angle of the jaw were a useful help. Tonsil puncture was undoubtedly promising as a method of diagnosis, but Mr. Arnold Jones preferred to rely on ordinary clinical grounds. Tonsillectomy by the guillotine in expert hands was safer than dissection, and equally efficient. The deeper anaesthesia required for dissection put the operation in the ranks of the major ones, and in inefficient hands either operation might end in failure. For the guillotine operation Mr. Arnold Jones preferred Heath's type, although he had been recently trying the Popper-Heath modification. Haemorrhage was usually easily controlled by bathing the face with cold water, and occasionally a swab squeezed in hydrogen peroxide could be held in the tonsillar fossa. Beyond this it was seldom necessary to go, and it was only a tedious procedure to ligature all bleeding points. Occasionally an unusually large artery might have to be dealt with, and haemorrhage occurring a few hours after operation was sometimes troublesome. During the period 1913–28 there had only been at the most six fatalities following the operation for tonsils and adenoids at the Royal Manchester Children's Hospital; the total number of operations performed numbered 27,000. Dr. T. A. GOODFELLOW (Manchester), speaking as a general practitioner, said that diseased tonsils and adenoids were a matter of daily concern, especially where the climate was humid. He thought that more attention ought to be paid to the acute affections of these organs, for by early and prompt treatment of acute conditions there was a chance of preventing dire results. He did not agree that the diagnosis of adenoids was so easy as the opening speaker had made out, and he had been frequently struck at operations by the mass of adenoid tissue removed out of all proportion to the symptoms present. He enumerated some of the symptoms which would lead a general practitioner to suspect the presence of adenoids, and mentioned the familial incidence of the condition and its greater frequency among the Jews. He thought that there was some value in nose drill if properly carried out, especially after the adenoids had been removed. With regard to the tonsils, it was an important point to determine which cases ought to be operated on: local treatment with such substances as Mandle's paint did a lot of good sometimes, and it was his practice to allow one lapse before calling in the surgeon. He referred to the importance of suspecting diphtheria in all cases of acute tonsillitis, and ended with a strongly worded protest against the removal of tonsils and adenoids in out-patient departments. Miss G. HERZFELD (Edinburgh) discussed the relationship between the tonsils and enlarged cervical glands. She had analysed a large number of cases of tuberculous cervical glands, including nearly 700 cases on which she had operated. She found that in 95 per cent. of cases it was the tonsillar gland which was primarily involved, and yet on inspection the tonsils often appeared healthy and not markedly enlarged. Examination of tonsils removed in such cases showed evidence of tuberculosis in a varying percentage of cases, and out of a recent series of seventeen cases *tuberculous tonsils had been found in nine.* Removal of the tonsils in early childhood seemed to prevent the development of tuberculous cervical glands in later life, but if the glands were already involved it was doubtful whether tonsillectomy ever cured the condition. Miss Herzfeld mentioned other surgical conditions for which tonsillectomy was indicated, including the presence of pneumococcal infections of bones and joints. She mentioned the association of adenoids and flat feet in the same type of child, and concluded by referring to the psychological shock of the closed bag type of anaesthesia.

Dr. D. NABARRO reported some work by Dr. R. A. MacDonald at the Hospital for Sick Children, Great Ormond Street, on the bacteriology of the tonsils in relation to rheumatism in children. It had often been suggested, he said, that the infective agent in this condition was to be found in the tonsils, and especially the streptococcus had been blamed. It ought therefore to be possible to find a bacteriological flora in the rheumatic type of child different from that in the tonsils of the non-rheumatic, and for this purpose a series of 50 rheumatic tonsils and 48 non-rheumatic tonsils had been investigated, and all varieties of streptococci present isolated. The results showed, however, that the tonsils from rheumatic patients did not differ materially from those of non-rheumatic cases as regards the characteristics investigated: actually the percentage of "inert" streptococci was slightly lower in the rheumatic group. Dr. Nabarro summarized the work which had previously been done on this aspect of the subject, and indicated that modern theories inclined to some hypersensitive state as a cause of rheumatism rather than an ordinary streptococcal infection. Dr. JEFFREY RAMSAY (Blackburn) referred to the work of himself and Mr. C. M. Pearce on the use of tonsil puncture for assessing the state of the doubtful tonsil. He mentioned the reasons for adopting the procedure, and described briefly the technique employed. In two cases of Henoch's purpura recently examined by means of tonsil puncture a pure growth of *Streptococcus pyogenes* was obtained and tonsillectomy led to great benefit. In the diphtheria carrier it was possible that infection lurked deep in the tonsils; it was also possible that in lobar pneumonia the organism might be present in the tonsil, as had happened in a recent case some eight weeks after the crisis. Dr. FRANK C. EVE (Hull) explained the method of tonsil suction by a simple instrument introduced by himself consisting of a glass funnel and tube and a strong rubber suction ball. Pus could be obtained for diagnostic purposes from the tonsil by this apparatus, and application of medicaments on to the everted tonsil could also be carried out by slipping a finger-stall over a similar instrument. The cleaning up of diseased tonsils before tonsillectomy by this means was important and might prevent haemorrhage. Mr. DENIS BROWNE said that the functions of the tonsils and adenoids were completely unknown, and he pleaded for some straight thinking on the matter. For the removal of adenoids he used a form of guillotine which cut from below upwards, and he showed how the ordinary curette, besides being often too big, was also liable to produce ripping of the pharyngeal wall, especially under light anaesthesia, which allowed "gagging." With regard

to removal of the tonsils, he made a spirited attack on the guillotine, enumerating certain elementary surgical principles which its use violated. He looked upon the leaving of a piece of tonsil behind as a surgical disaster likely to do the patient harm, and he particularly stressed the loss of blood which occurred when methods other than dissection were used. Mr. F. HOLT DIGGLE (Manchester) commented on the use of the finger for examining the nasopharynx, and explained that he preferred to rely on clinical examination of the child and a consideration of the symptoms. He discussed the recurrence of adenoids, and said that there ought to be a more careful scrutiny of the child before removing various portions of hypertrophied lymphoid tissue. It was his experience that enlarged tonsils and adenoids not infrequently disappeared while the patient was awaiting admission to hospital. It was important to ask in every case, Was the tonsil diseased? Was it the source of infection? and Was it the only source of infection? He emphasized the point that the slow, deliberate guillotine operation under a long anaesthesia met many of the objections raised to this form of tonsillectomy. Dr. H. BRACEY (North Warwickshire) discussed some of the aspects of tonsils and adenoids which came under his consideration. He mentioned the importance of the general type of child who had tonsillar hypertrophy as part of a general defect. Dr. ESTHER L. CARLING (Oxford) drew attention to the potentially tuberculous child whose main trouble was frequently throat affections. She emphasized the dangers of operations performed in out-patient departments. Dr. C. P. LARAGE (President) agreed as to the connexion between flat feet and enlarged tonsils. He emphasized the importance of the toxaemia that arose from diseased tonsils, and explained how it might simulate tuberculosis. Dr. H. T. ASHBY (Manchester) said that beneficial effects of removal of tonsils and adenoids could only be expected if the proper cases were selected, and he insisted that a skilled operator was essential. Professor C. W. VINING (Leeds) had not found that tonsillectomy benefited cases of rheumatism, and he had not noticed the increase in weight after the operation which some other observers had reported. Dr. R. SCOTT STEVENSON said that the present method of removing tonsils and adenoids in the out-patient department of hospitals was a disgrace to British surgery. After some further discussion it was unanimously agreed that the following resolution should be sent to the Council of the British Medical Association:

> That this Section of Children's Diseases is of the opinion that operations for removal of the tonsils and adenoids in a child should not be carried out as an out-patient operation; and that provision should be made by hospital authorities and local authorities for children to be kept in bed under observation for at least forty-eight hours after operation.

SECTION OF NEUROLOGY AND PSYCHOLOGICAL MEDICINE.

Thursday, July 25th.

THE PRESENT POSITION OF THE VOLUNTARY BOARDER.

THE second session of this Section was devoted to consideration of the problems presented by the voluntary boarder in mental hospitals. Dr. HENRY YELLOWLEES, who opened the discussion, said that in this country there were three classes of "mental" institutions: the county or borough establishments for rate-supported patients, the privately owned "licensed houses," and the registered mental hospitals. In addition to rate-aided patients, many of the county asylums were allowed to admit paying patients at a low figure, but no patient could enter these institutions unless he had been certified and a magistrate's order obtained. This was probably the greatest blot on the present lunacy administration. The licensed houses and the registered hospitals only received voluntary boarders. A voluntary boarder was a person who entered the institution on his own request, and was free to leave it at twenty-four hours' notice should he desire to do so; expressed willingness to remain was the sole criterion of such a patient's suitability to stay in a mental hospital. There was no more pitiable *reductio ad absurdum* than this, that the deciding factor as to a person's legal sanity was simply whether he could express a desire to remain in hospital. Another important question was that of the patient who, having entered a mental hospital of his own accord, became, owing to illness, incapable of expressing his wishes. This problem of the non-volitional case had always been the centre of controversy, and had led to the criticism that if a patient, fearing a mental breakdown, entered a mental hospital, he would not be permitted to remain when the very illness for which he sought care supervened, should it render him incapable of expressing his wishes. The Lunacy Act regarded voluntary boarders purely from the point of view of the liberty of the subject. It looked on them as persons who, having taken the risk of jeopardizing their personal liberty, must be safeguarded from any unscrupulous persons who might attempt to take advantage of this fact. The conception of a voluntary boarder as a sufferer seeking advice, treatment, and care in a hospital was utterly foreign to the Act. The unenviable task of interpreting and administering the law as to voluntary boarders fell on the Board of Control, and the result was a reasonably broad and common-sense interpretation. The Board did all it properly could to avoid or postpone the certification or removal of the non-volitional case. When there was some ground for expecting return of volition in a reasonable period, a week or two's grace was usually granted, particularly when the relatives urgently desired it. The crux of the whole matter was that the non-volitional patient could not legally remain in a mental hospital; the problem had so far proved insoluble, and seemed likely to remain so until the public view of mental disorder and its treatment had been re-educated and the law entirely recast. Assuming that care and treatment at home were impracticable, there was no alternative to certification, but two other possibilities might be legalized, the first being treatment of such patients in a nursing home, "free from the taint of lunacy." Dr. Yellowlees mentioned this course only to condemn it. Secondly, it might be made legal to retain uncertified in the mental hospital a voluntary boarder who had become non-volitional. This was the ideal arrangement, but it was difficult to see how it could be brought about. In the present state of public opinion, Dr. Yellowlees could imagine no workable system of "safeguards" which would be likely to meet with general acceptance. Provisional certification was a clumsy compromise which would probably have been unworkable, and in any case did not meet the difficulty. As things were, however, there was no alternative to certification if the voluntary boarder who had become non-volitional was to remain in a mental hospital. One practical difficulty immediately presented itself. The patient became certifiable; his relatives wished him to remain in hospital and were agreed that he should be certified. Was it fair to proceed with this and retain him as a certified patient? A majority of the public regarded this procedure as a gross breach of faith in the case of a patient who wished to leave, and many mental hospitals refused to keep as certified those who had been with them as voluntary boarders. Certification, though distasteful, would remain necessary until there was a more satisfactory alternative, and until the problem of the non-volitional case had been solved. There was much to be said in favour of certification in many cases, even under the existing law, and most of the public horror of it was the result of ignorance and prejudice. The extraordinary variety in the symptoms and needs of the patients admitted to a central hospital of any size, along with the constant dead weight of irrecoverable chronic cases, presented a problem which needed—among many other things—almost unlimited space, staff, and money for its solution. Dr. Yellowlees had long thought that the chronic, unpleasant, and noisy cases should be removed to completely separate and independent branches of the mental hospital.

Professor GEORGE M. ROBERTSON (Edinburgh) said that the Scottish Lunacy Act, though passed so long ago as 1857, was inspired by a medical spirit that seemed surprising for that period. The experiment of treating voluntarily patients suffering from mental disorders was first tried in Scotland in 1862. The voluntary patients who were

admitted to mental hospitals in Scotland under the 1862 Act were all of unsound mind. Any person could be admitted as a voluntary patient provided he made a written application to that effect. After admission to a mental hospital he might continue to enjoy the status of a voluntary patient, so long as he lived or until he gave notice of desire to leave. Since Scotland enjoyed such exceptional facilities in law for voluntary treatment, and possessed extensive resources in accommodation for private patients at moderate rates, the number of voluntary admissions of this class was very large, and far exceeded the number of those who were certified; 60 per cent. of all the private patients entering the mental hospitals in Scotland did so as voluntary patients, and in some hospitals among the richer classes this percentage was exceeded. If this was taken in association with the fact that a large number of persons suffering from mental disorder were also treated without certification in nursing homes in Scotland, it was obvious that the great majority of persons of the richer classes in England who suffered from mental illness were not certified. There were two great differences between the English and Scottish lunacy laws relating to voluntary patients. (1) *According to the strict interpretation of the* English law, a person of unsound mind, one who could be *certified, could not legally become a voluntary boarder; or*, after he had become one, could not remain so. Although in practice this law was not now strictly administered, nevertheless the legal difficulty existed and frequently created anxious problems. No such difficulty existed in Scotland, and the question whether the voluntary patient was of sound or of unsound mind did not arise. Only one condition need be fulfilled for becoming a voluntary patient in Scotland—namely, a written application expressing a desire to submit to treatment. The presence or absence of sanity was not a condition. (2) A voluntary boarder might only remain as such in England so long as he was definitely desirous of remaining so; in Scotland in these circumstances the patient would not be certified. There was only one condition that normally put an end to the status of a voluntary patient, and that was when the patient himself gave notice of his desire to leave. The onus of taking action to terminate the voluntary status was very appropriately placed on the patient himself, and the procedure had to be initiated by a definite and unmistakable signal. The problem of the non-volitional case was of two kinds: (1) the patient already in a mental hospital as a voluntary boarder, and (2) the patient at home. (1) A voluntary boarder who became non-volitional could not remain as such in a mental hospital in England; in Scotland he could, so long as no notice of his intention or desire to leave had been given. As the question of the soundness or unsoundness of mind of a voluntary patient did not arise in Scotland, the problem of the non-volitional case was so far simplified. It seemed a work of supererogation to certify a patient for reception and detention in a mental hospital who had already been legally received and was undergoing treatment there. (2) For over eighty years it had been legal in Scotland to treat a patient suffering from mental disorder, with a view to his recovery, in any house or home, without certifying him to be insane. The authority for this was the well-known "Schedule G," and its provisions had been more or less closely followed in bill after bill for England, none of which had, however, passed into Acts. This schedule undoubtedly influenced the views of the Royal Commission. As regarded treatment in nursing homes the speaker agreed with Dr. Yellowlees, provided that he had referred to ordinary nursing homes in England. A very different situation existed when a public corporation, with a disinterested board of managers, with a century of experience behind it and with unbounded resources, provided special nursing homes for mental patients. Professor Robertson had no hesitation in saying that at present such nursing homes were the very last word in the treatment of non-volitional cases of mental disease, without certification. The managers of the Royal Edinburgh Hospital at Morningside had established six associated nursing homes for nervous and mental patients. These admitted about 150 patients a year; they had a resident population of about seventy-five, and they had a staff of nearly ninety nurses. The demand for admission from all parts of Great Britain was so great that all these homes were full, and three more were about to be opened. The whole resources and experience of the Royal Edinburgh Hospital were placed at the disposal of these associated homes, and they appeared to be the ideal form of care for non-volitional patients, suffering from mental disease, whom it was not desired to certify. The treatment of the poor, especially of the rate-aided poor, had not kept pace with this progress. There had been legal difficulties in the way, just as in England. By the repeal of the provisions of Section 64 of the 1913 Lunacy Act (the Local Government (Scotland) Act), these legal difficulties had now been swept away, and there was nothing to prevent the rate-aided poor from enjoying in the future all the advantages of voluntary treatment that the rich had had in the past.

Sir C. HUBERT BOND thought that much confusion had arisen on the subject of the voluntary boarder owing to the wrong way in which the term "voluntary" was used—namely, the habit of regarding it as synonymous with early, mild, and recoverable, and applying it to such cases. Moreover, the continued use of the term "boarder" was misleading. Originally, it was meant to apply only to (1) those patients who had previously been under certificate, and who wished to re-enter the mental hospital *voluntarily; and (2) relatives of patients who desired to* stay as boarders in the asylum. The crux of the problem, however, was that the so-called voluntary patient might pass into a stage that had been termed "involuntary" or "non-volitional." The speaker did not look upon these terms with favour, and, moreover, the public did not understand them. As regards their attitude to treatment, he would prefer to place patients into one of three classes: willing, indifferent, or unwilling. Alterations in the existing Act were certainly desirable, but in order that they might be brought about it was necessary, in the words of the late Sir Clifford Allbutt, "that the static mind of the lawyer come to terms with the dynamic mind of the biologist." Sir Hubert Bond considered that it was impossible to do without certification. He hoped it would be retained for those patients who could not perceive that they were mentally ill, and also to protect people who had to meet those often hostile and dangerous patients—the "unwilling" class. Dr. E. MAPOTHER said that, in addition to the voluntary boarders in registered hospitals and licensed houses, there were two other groups which were very important, not only at present, but, owing to their significance, in the future. Into the Maudsley Hospital were admitted every year half as many voluntary boarders as into the sixty private institutions. In the City of London Mental Hospital there was a large group of voluntary boarders. Though these patients were not supported at public cost, they were probably more like those who would be so supported in the other public hospitals (when such expenditure is legalized) than any in the private institutions or the Maudsley Hospital. Dr. Mapother contended that so far as difficulties existed for the public mental hospital they were financial, and as regards the private mental institutions, they were not now, and had not been, in the law, but in the practice of the Board of Control. This was entirely at variance with Dr. Yellowlees's view, but it was the fact. The Board had persistently obstructed and restricted voluntary treatment. The law, in permitting this for the recurrent case, had obviously intended permission to continue when certifiable. The Board had not only insisted on certification, where possible, in the recurrent case, but opposed voluntary treatment in all but the recurrent case. In his view there was nothing in the law to prevent continued treatment as voluntary boarders of either certifiable or non-volitional patients. This view was strengthened by the fact that such a regime had been approved by the Board and in force for six years at the Maudsley Hospital. Elsewhere the Board was only slowly being forced by pressure of outside opinion into action upon the two logical principles: that the sole criterion of fitness to be a voluntary boarder is willingness, and the sole criterion of willingness is the last expressed wish of the patient. The moral was that, *before* the really essential changes in law, such as financial provision for voluntary patients in public hospitals, there was necessary a change in the connexion in the policy and in the personnel of the

Board. This was almost vital in order to ensure that the great influence of the Board in framing the law was used in the right direction. If such reconstitution of the Board was really impossible, then it should take representative opinion before using its influence. Dr. HELEN BOYLE (Brighton), speaking as a member of the National Council for Mental Hygiene, felt profoundly dissatisfied with the present position of the voluntary boarder. Excepting a few cases in London, it was a provision only for the well-to-do and the rich; it was entirely unattainable for the poor, for whom it was far more essential. It had been said that it was pushing at an open door to demand this amendment. Each Government, and every body of persons concerned, agreed to and approved this provision for the last twenty-five years and more. The speaker could not help thinking that the door was transparent, but not yet open, and that the glass which barred them out had a metal in it. So good were the present mental hospitals that it was thought that they would be besieged by those impecunious members of the public who would prefer ease to work. Surely, if discretion was given to the medical superintendent, it was a reflection upon him if he could not separate the sheep from the goats. In time, probably most mental patients would be voluntary boarders. In America there were far more voluntary boarders than certified patients. Now was the time to push open the door. There was reason to suppose that the Government would certainly not be uninterested in the provision of help for the most unfortunate of mankind.

Dr. R. EAGER (Exeter) said that it was surely time that these laws were altered so as to allow the same facilities to the rate-supported class as now only pertained to private patients. The present lunacy laws were framed in 1890, and were now sadly in need of revision, yet years went on and nothing seemed to be done in this matter. When the present laws were made it was evident that the sole idea in the minds of those who framed them was one of detention, and that this was thought necessary, on the one hand, to guard the patients against ill treatment by their relatives and those outside mental hospitals who did not understand them, as well as, on the other hand, to protect the public from homicidal attacks and other risks of disturbance to which some cases of mental disorder were prone. The idea of treatment, however, was not to be gathered from reading the Lunacy Act from beginning to end; in these days, when so much was being done in mental hospitals in this country to try to restore patients to health and discharge them back to their homes, it seemed that it was quite time for something to be done to make the law in this matter meet modern progress. It could not be claimed that the private mental hospitals in this country had any better provision for the treatment of cases of mental disorders in their early stages than the county or borough mental hospitals; indeed, it was improbable that many of them had as good equipment for the treatment of patients as had the public mental hospitals, and yet these were the very institutions that were forbidden to treat early cases which were wishful to obtain that treatment. He had had patients come to him and ask for admission who were, even on superficial examination, obviously suffering from early symptoms of mental disorder, and he had to refuse them. Also one had to tell them to wait till their symptoms were so bad as to be easily recognized, not only by the general practitioner, but by a magistrate, who need not be, and usually was not, a medical man. He sincerely hoped that the outcome of this discussion would be that some alterations would be quickly made to right this wrong. Dr. W. A. POTTS (Birmingham) said the opener of the discussion had raised the question, Why could not the mental case be certified and removed as a matter of course like a small-pox patient? His feeling was that there must be much education, not only of the public, but also of the medical profession, before this would be possible. The small-pox patient was told that, through no fault on his part, he had caught an infection dangerous to himself and others. But his experience was that the majority of the nervous or early mental cases had been told one of two things—either that there was nothing wrong with them, or that, if there was, it was their own fault for worrying and having such silly ideas. It was unusual for the patient to be told, as he should be, that he was either suffering from some chronic infection or, if thorough investigation showed there was nothing of that kind, that he must have some form of mental conflict, which was not his fault, but the inevitable consequence of an unsatisfactory environment in his home or school, or during some other important period of his life. As regards the statement that there was nowhere where the poor could go for satisfactory treatment, he knew that if they lived in West Bromwich they could go to Hallam Hospital, and would be welcomed there at any stage of their illness. So far from a mental hospital being the only suitable place for treatment, the fact was that the general hospital had many advantages, such as specialists in other departments, but, above all, the fact that it was happier for the patient to be treated just like any other patient, while it made nurses and junior medical assistants realize that the treatment of nervous and mental cases was just one province of general medicine, and not an occult science to be practised in a place apart.

Dr. F. E. FREMANTLE, M.P., was quite sure that there was not a single member of Parliament who did not sympathize with the difficulties regarding the voluntary boarder and early mental case. It was essential that the public should be made to realize what was wrong—and also *their representatives in Parliament*. Medical men should give more time to bringing the matter to the relatively uninstructed and static mind of the lawyer; the same applied to most members of Parliament. It was essential to try and get the Government to include the necessary legislation as part of their programme, and so bring about a much-needed reform. Dr. C. A. MORTLOCK-BROWN (Braunton) said that three classifications had emerged: (1) the legal one of "certifiable" and "non-certifiable"; (2) that recommended by the Board of Control to the Royal Commission of voluntary, non-volitional, and unwilling; and (3) noisy and quiet patients. The legal classification was a more or less practicable working one, and if the other classifications were adopted, would it really be any easier to forecast whether at a given time in the future a patient would be willing or noisy, than it now was to decide whether he would be certifiable? She saw no reason why non-certifiable cases could not be treated in institutions separated in every way from asylums. She did not wish it thought for a moment that she was averse to the total abolition of certification, but notification by name and address was a similar stigma, and in the three-fold stigma—the nature of the illness itself, residence in a mental hospital, and certification—enveloping the patient, certification was the minimum factor. Whereas both relatives and friends knew of the patient's being "put away," it was not until recently, when certification had been advertised in the press by the medical profession, that anyone but the immediate relatives knew or understood anything about certification. There were now on the Board of Control five medical men commissioners, one being honorary, and four medical men inspectors—in all nine medical men—but not one medical woman, and this despite the fact that for four successive years the number of females certified insane exceeded the number of males by 12 per cent. She appealed to Dr. Fremantle to use his influence to get two medical woman commissioners appointed forthwith—one honorary and one salaried.

Friday, July 26th.

FRONTAL LOBE TUMOURS.

The difficult problem of diagnosing and localizing tumours in the frontal lobes was the subject of a discussion on the third day of this Section. The discussion was opened by Dr. JAMES COLLIER, whose paper is published in full at page 289.

Dr. W. J. ADIE said that the "grasping reflex" had been of value in localizing tumours of the opposite frontal lobe. The fully developed reflex was very striking, but it also appeared in various incomplete forms; hence the term "grasping reflex" did not cover the entire phenomenon. In his opinion it was not necessarily confined to extensive lesions. The fits seen in frontal lobe tumours might consist of some movement of the head, eyes, and trunk to the opposite side, with simultaneous involvement of the limbs

of the contralateral side. Such an attack, however, might also occur in temporal lobe tumours. A fit beginning with clonic movements of the eyes with deviation to the opposite side was of localizing value in frontal lobe tumour; in fact, such movements might constitute the entire fit. Mayer's reflex was of great value, a unilateral exaggeration being a lateralizer to the opposite side and a localizer to the opposite frontal lobe. Homolateral hemiplegia appeared to be particularly common in endotheliomata of the frontal lobe, and Dr. Adie described cases illustrating this point. He thought ventriculography was especially valuable in frontal lobe tumours. Mr. GEOFFREY JEFFERSON (Manchester) considered that ventriculography could be well replaced by the method of "ventricular estimation." This consisted in the bilateral tapping of the ventricles by the occipital route, the withdrawal of cerebro-spinal fluid from each, and the comparison of the volume of the two samples of fluid. He had not found the injection of dyes of great value. Mr. Jefferson then described certain cases of frontal lobe tumour which he had encountered, and illustrated his cases with admirable lantern slides. Dr. L. J. J. MUSKENS (Amsterdam) said that he had met with a case showing the sudden occurrence of status epilepticus, without previous symptoms, in frontal tumour. Differential diagnosis from general paresis was sometimes difficult, particularly since general paresis was changing in character, cases of excitement becoming rarer. Bruns had called attention to ataxia and vestibular symptoms in frontal tumours. In 1917 the speaker had pointed out that cats, after an extensive frontal lesion on the right side, and also persons suffering from right frontal tumour, tended to fall to the left; in supratentorial tumours use might be made of this lateralizing symptom. This observation was confirmed by Grosmann in 1919, who described six cases of frontal lesion from bullet wounds; in every one of these cases the patient fell to the contralateral side. Dr. C. WORSTER-DROUGHT thought that mental symptoms were more frequent in frontal lobe tumours than in those affecting other regions of the brain. In his experience the mental symptoms associated with right-sided lesions were slighter than those accompanying left-sided lesions; the former might consist of mere memory defects, while the latter varied from euphoria to dementia. He agreed that involvement of the white matter of the brain was the important determining factor. Tremor he had found of no assistance, but the "grasping reflex" was a valuable sign when present; it was, however, often absent. Incontinence was a very frequent sign of frontal lobe tumour, and might be the only symptom present, or occur with only slight mental dullness. The absence of the epigastric and abdominal reflex on the homolateral side was also helpful. He had been impressed with the frequent absence of headache in cases of frontal tumour he had seen. The presence of papilloedema was very variable, and, he agreed, could not be relied upon, either for localization or for lateralization. Air ventriculography was of considerable assistance, but he had come to regard the procedure somewhat risky in posteriorly situated tumours; he was, therefore, glad to have heard Mr. Jefferson's opinion regarding the value of ventricular estimation. Dr. J. GODWIN GREENFIELD commented on the extraordinarily long history and the hardness of the tumour often met with in the astrocytoma type of frontal glioma. There was a greater tendency to degeneration and cyst formation in frontal lobe tumours; this probably resulted from some peculiarity of the blood supply. Dr. MACDONALD CRITCHLEY stated that the phenomenon described by Adie and himself as "forced grasping and groping" had been originally reported by Janischewsky as the "réflexe de la préhension." The phenomenon was made up of several component parts. First, it comprised a slow and gentle flexion movement of the fingers on appropriate stimulation of the palm. The optimum stimulus was a moving contact on the base of the fingers and ball of the thumb. The second phase consisted in a forceful and involuntary closure of the fingers when the examiner attempted to withdraw an object from the patient's hand. The involuntary nature of the inability to relax the grasp was shown by the fact that a painful stimulus—such as a live electrode—still elicited an identical firm closure of the hand. After the object had finally been extracted from the patient's hand the third part of the phenomenon became manifested by a slow, full extension of the fingers, followed by a slight closure. In this way the patient's hand might close again on the object which had just been released ("after-grasping"). In some cases a fourth set of phenomena was seen; if the examiner was attending to some other part of the anatomy, the patient's affected hand frequently "butted in" and obtruded itself by clasping the examiner's hand. Or it might be possible to get the patient to follow one's hand with his eyes shut by merely lightly touching the finger-tips. Each contact caused the patient to grope towards the examiner's hand ("forced groping"). In cases in which there was some impairment of mentation a feature may be noticeable, spoken of by Schuster and others as the "grasping affinity." Thus it might be observed that the patient's hand was always clutching an object—the lapel of the coat, or the bedclothes—as though the patient were unwilling to have his hand empty. In other cases, also, it might be noted that as soon as the physician entered the room or approached the bed, the patient's hand was extended like a tentacle in an effort to clutch the physician as he passed. It was now realized that the grasping phenomenon might appear in regions other than the hand. Thus it had been observed in the sole of the foot; Janischewsky had recently described a similar concomitant inability to relax in the jaw, so that an object placed between the teeth could not be released ("the bulldog phenomenon"). Although forced grasping and groping might be seen in various states of stupor and coma and in some instances of diffuse cerebro-vascular disease, its presence in cases of cerebral tumour usually indicated a frontal localization. Although of high localizing value, its importance as a lateralizing sign required some qualification. Thus, Dr. Critchley had seen two cases—and Schuster had also reported one—in which the grasping phenomena had occurred on the same side as the tumour. In these instances, however, there had been a severe degree of hemiplegia on the contralateral side, with the presence of ipsolateral slight psychomotor abnormalities such as the grasping reflex. Presumably the tumours were large ones in such cases, and were capable of producing bilateral signs. Dr. F. R. FERGUSON emphasized the importance of investigating all possible channels of information—a full detailed history, the careful examination of the patient, and the employment of ventriculography and ventricular puncture in suitable cases. In some cases daily physical examination revealed such variation in the physical signs that it was impossible to correlate them and localize the tumour; this was especially marked in cases seen some time after the onset. A patient presenting clinically a marked right-sided "frontal tremor," but with other signs at one time indicating a left-sided frontal lesion and at other times a right-sided, was proved at the necropsy to have a cholesteatoma situated exactly in the middle line at the posterior end of the corpus callosum. With regard to the localizing value of the "grasp reflex," he drew attention to a case at the National Hospital, Queen Square, with a right-sided grasp reflex; a left cerebellar tumour was found at autopsy. In this patient the cerebration and co-operation were very poor, and there was evidence of secondary hydrocephalus. Dr. Collier had said, in reference to the occurrence of mental symptoms in frontal tumours, that they were almost invariably present in bilateral frontal neoplasms. Dr. Ferguson had observed a patient with bilateral frontal metastatic deposits in addition to twelve other intracranial tumours, who did not show any abnormal mental symptoms ten days before death; despite the fact that Globus and Selinsky and Siefert had described a syndrome characteristic of metastatic deposits in which psychological abnormalities played an important part. Dr. A. A. MCCONNELL (Dublin) considered that ventricular estimation was of more value in the lateralization of a tumour than in localization, and especially in the case of frontal lobe tumours. One fallacy, however, was that a frontal tumour might cause occlusion of the foramen of Monro and so prevent the injected air from reaching the opposite ventricle. Dr. McConnell also dealt with the displacement of the ventricular cavities seen in ventriculograms.

SECTION OF DERMATOLOGY.

Friday, July 26th.

THE EPIDERMOMYCOSES.

DR. G. H. LANCASHIRE, President of the Section, took the chair at the second session, when three papers were read. Dr. G. B. DOWLING gave an account of epidermal infections with yeast-like organisms, and made special reference to the spore of Malassez. He said that, during the last few years, considerable additions had been made to their knowledge of pathogenic yeasts. All the epidermomycoses were due to one family—the Oösporaceae—which resembled ordinary yeast in many ways, but were of simpler reproductive habits and also produced a mycelium. They were also very pleomorphic. From the pathological point of view the most important genus was monilia, of which the chief species was *M. albicans*, the organism that caused thrush. Clinically, scales from the lesions on the skin caused by monilia showed long, thin mycelia, with lateral thallospores. As a rule, it affected skin folds only, but when warmth and moisture were provided it might spread on to wider surfaces. There were six main types of infection: (1) generalized cases occurring in those subject to continuous water bath therapy; (2) cases in nursing infants; (3) intertriginous cases; (4) paronychia; (5) infections of the nail; and (6) dysidrosiform infections. In all cases the site of maximum infection was marked by a whitish accumulation of epithelium. Both intertriginous eruptions, paronychia, and dysidrosis were quite commonly caused by monilia. Dr. Dowling then proceeded to discuss the role of the spore of Malassez in dermatology. He pointed out that this organism, of which the forms were very varied, was always found in scales from the scalp. Many attempts had been made to cultivate it, and the first success had been claimed by W. G. Garner (1908); his work had been confirmed by MacLeod and the speaker in 1926. Benedek had also claimed to cultivate it in 1926; he stated that it was an ascomycete, and named it schizosaccharomyces, ascribing to it many dermatoses, including seborrhoea itself, pityriasis of the scalp, and acne. He had also been able occasionally to recover it from the blood, and had made very comprehensive and far-reaching claims for his organism, the characteristics of which, however, were quite different from that grown by Garner. Acton and Panja, in India, claimed to have cultivated the spore of Malassez on Petroff's medium as dry, white, chalky colonies, but their work was incomplete. Templeton also seemed to have done much the same. During 1927 and 1928 the speaker and Dr. MacLeod had published some observations on the organism cultivated by Garner's methods, principally on maltose agar. The organism was pleomorphic: it produced mycelial filaments, and fermented many sugars. When inoculated intradermically it was always pathogenic, giving rise in normal individuals to temporary follicular lesions only, but in seborrhoeic subjects to similar lesions which were rather more active and lasting; in those suffering from seborrhoeic dermatitis the lesions were often absolutely identical with those already present. Hence it was concluded that Garner's organism was, in fact, the spore of Malassez, and that this fungus alone was probably responsible for seborrhoeic dermatitis. Recently Dr. Dowling had also found that exactly similar lesions could also be produced by the inoculation of monilia. He thought there was no doubt that the spore of Malassez was a member of the monilia group. The PRESIDENT said that this was a most important and valuable paper, and a solid contribution to dermatology. Dr. ROXBURGH stated that in the treatment of monilia affections he had found prolonged soaking in iodine and water most useful. Sir NORMAN WALKER (Edinburgh) remarked that Unna's original ideas were now, after a lapse of time, being confirmed.

TREATMENT OF LUPUS VULGARIS.

Dr. A. R. HALLAM (Sheffield), in a paper on the early and organized treatment of lupus vulgaris, said that this was a common disease essentially associated with poverty, which was a grave drawback to its successful treatment. He emphasized the enormous time and trouble required in dealing with it. It was not a superficial, but a constitutional disease, for which no single remedy was adequate, and which few practitioners were sufficiently expert to treat. Besides a dermatologist other specialists were also required; for example, mucous membrane lesions were common, but often overlooked, to remain a source of danger unless the cases were submitted to a competent rhinological examination. Excision was extremely valuable in the early stages, but needed an experienced surgeon; in advanced cases this was impossible, and one had then to fall back on various measures, such as diathermy, caustics, and actinotherapy. The speaker regarded the Finsen light as very valuable, but said that it should be associated with the carbon arc as an auxiliary; the latter alone was quite insufficient. When available in summer time natural sunlight was still more effective. One of the greatest difficulties was the fact that the patients only came to seek expert advice when the disease was far advanced. Of 138 cases 34 alone were in such a stage as to offer a reasonable hope of cure, while in 85 the prognosis was very doubtful, and 19 were hopeless; 53 patients had had the disease ten years before they had applied for expert treatment. He held that all cases should have at their disposal the best treatment available, which fell into four categories: (1) prophylaxis; (2) education both of the medical profession and the public; (3) establishment of *treatment centres; and (4) the systematic following up* of cases. All senior medical students should be taught to recognize the disease in its early stages. Centres such as the Finsen Institute at Copenhagen would be of great value, not only to the patients actually treated there, but as a stimulus to other medical men. The PRESIDENT commended this very practical and apposite paper. He thought that on the whole the early diagnosis of lupus was much better now than formerly; one saw the severer forms of the disease much less often. Nevertheless, of course, there was much room for advance. Dr. P. B. MUMFORD (Manchester) supported Dr. Hallam's suggestion for the specialization of lupus treatment and the establishment of lupus clinics. Sir ROBERT BOLAM (Newcastle) said that in Durham much had been done by the county council to organize the control of surgical tuberculosis, including lupus, on sound lines in association with the tuberculosis officers and with hospitals specially qualified and equipped to deal with these cases. The county council paid for the work done, and the medical men employed received some remuneration. The scheme had been established about two years, and was working successfully. Sir NORMAN WALKER agreed with Dr. Hallam; special lupus clinics should be held. The sight of the advanced cases acted as a warning against neglect to the early ones. Local authorities were most helpful. Dr. L. SAVATARD (Manchester) remarked that the local authorities in the neighbourhood of Manchester were also anxious to do all they could to assist these sufferers. Medical practitioners still needed education in the early diagnosis of the disease. Dr. GARDINER (Edinburgh) said that in some cases the local authorities were to blame in taking away the cases from expert treatment, and in treating them blindly by light.

SYCOSIS BARBAE.

Dr. J. T. INGRAM (Leeds) read a paper on sycosis barbae, and reminded the meeting that Sabouraud had called this disease a disgrace to dermatology. Pathologically the condition was an external infection of the hair follicles of the adult beard with the staphylococcus, accompanied by surrounding hyperaemia. He distinguished it from seborrhoeic dermatitis of the same region, which never affected the beard alone. Sycosis was almost exclusively seen in the hospital type of patient, and he thought that the reason was that they shaved irregularly. He considered that he had had better results than the average in this disease (he had cured 11 out of 14 cases during a year) because he had studiously avoided the use of ointments, preferring strong antiseptic lotions, and had advocated regularly daily shaving by the patients. The prognosis of cases treated on such lines was, he believed, quite good. Dr. R. GIBSON (Manchester) believed that there was often a constitutional factor; he had found sea air useful in raising

the level of the patient's resistance to bacterial infection. He did not believe much in regular shaving, and thought that strong applications irritated the skin. Sir ROBERT BOLAM ... many of the worst cases were due to measles in early life; no less than 70 per cent. of the bad cases had such a history. Dr. SAVATARD asserted that the lower eyelids were constantly affected. Dr. DOWLING asked why in one patient affected with an acute staphylococcal affection of the beard the condition cleared up while another developed sycosis; he thought some constitutional factor must be at work. Dr. J. FERGUSON SMITH (Glasgow) said that the cases associated with blepharitis were really seborrhoeic sycosis. He held that sycosis was essentially seborrhoea *plus* staphylococcic infection. Dr. GARDINER recommended collosol manganese and eusol soap in preventing impetigo from developing into sycosis. Dr. HALLAM expressed agreement with Sir Robert Bolam. The PRESIDENT said that vaccines were useless in his experience. Colonel LONGHURST said that grooms in the Royal Artillery were very frequently affected by sycosis, although discipline compelled them to shave very regularly. Dr. INGRAM replied, and the proceedings of the Section then terminated.

SECTION OF PHYSIOLOGY AND BIOCHEMISTRY.

Friday, July 26th.

PHYSIOLOGY IN THE MEDICAL CURRICULUM.

THE chairman of the third session of this Section was Dr. J. A. MILROY, a Vice-President, who called on Professor F. R. FRASER to open a discussion on the place of human physiology in the training of medical students. Professor Fraser began by comparing the older physiology and the new. Physiology now meant not only the study of individual organs, but also the way in which all the systems reacted to each other and adjusted themselves to changes in the environment. Good adjustment indicated what was called health. In disease an attempt was made to find external factors which had interfered with this co-ordination; hence the importance of physiology to medical men. Textbooks of medicine often gave a wrong impression of the practice of medicine. The necessity of studying the individual differences in patients and their differing reactions was not made clear enough. At the present time, although physiology was taught to every medical student, he did not come to the wards with such knowledge as would be of most use for the practice of medicine. In the pre-clinical years he could not fully appreciate the significance of physiology to his future medical studies. When he had begun his clinical work and had become able to appreciate the importance of physiology most of his clinical teachers were unable to teach him modern physiology. Also, the postponing of applied physiology suggested that there was a separation between physiology pure and applied which really did not exist. There should be no jump between experimental work on animals to observations in man. Professor Fraser pleaded for more co-operation between the physiologist and the clinician in their teaching of students; they would together find the best way of presenting applied physiology. A teacher must, if possible, be an investigator, in order to preserve his keenness in the subject; here also co-operation of the clinician and physiologist would lead to greater advance of knowledge. During the last ten years some progress had been made in this direction. As for methods in promoting this desirable relationship, American methods were quoted, where the physiological department was sometimes placed close to the wards. Another way was to encourage the young clinicians to become demonstrators of physiology. The heads of departments were so burdened with teaching and administration that it was difficult to work together. The freeing of the clinician from outside duties enabled him to keep in touch with physiology, and to infuse physiological principles into his clinical teaching. Dr. C. G. DOUGLAS (Oxford) commented on the difficulty of making the medical student realize the value of physiology. This might be due to the way in which the subject was presented to him. The present progress in practical human physiology had enabled them to study the body both at rest and at exercise, and its adaptation under varying conditions without interfering with its integrity. He advocated attention to human physiology early in his career. Interest and curiosity in his own body, if once aroused, would provide the student with a ground plan into which details might later be fitted. With regard to practical physiology, it must be admitted that apart from histology, there was a lagging behind, as compared with theoretical physiology. The restricting of studies to nerve and muscle did not arouse a student's interest to the slightest degree. These failed to represent the modern progress of knowledge. If all but the most essential were abolished, and experimental human physiology were developed instead, the teaching of the medical student would be more successful. The objective in a practical course was to get him to appreciate the broad fundamentals from his own experience. Human experiment could be used to make him think quantitatively. Dr. Douglas stressed the importance of studying the sense organs, which could only be investigated satisfactorily in man. To keep teaching abreast of the times expense was involved; this must be faced. Human physiology should be studied as soon as the student entered the department, but reference to disease should not be made too early, because the interrelation of the two could not be grasped at this stage. The function of the whole organism must be constantly kept in view. Sir HUMPHRY ROLLESTON (Cambridge) thought that it would perhaps be better to extend the confines of physiology while still maintaining the idea that there was one physiology, in contrast with comparative and human anatomy, rather than to emphasize the distinction between analytical or laboratory physiology on the one hand and human physiology on the other. This might perhaps be thought to be mainly a question of words, but there was the danger that if only those parts and details of physiology known at the time to have a direct bearing on human disease were insisted upon, the teaching of physiology would cease to lead the way to clinical advances, and that a full recognition of the significance of new observations in medicine would be delayed. It was universally recognized that advances in physiology, which at the time might seem to be devoid of any bearing on practical medicine, might subsequently become most valuable. In the speaker's student days the observations of Langley and others on the granules in the secretory cells of glands did not appear to have any practical application. Without in any way impairing the teaching of pure physiology in the pre-clinical years, much could and had been done to adapt the methods of instruction to the needs of future clinicians. Thus the members of a class could experiment on each other in testing the phenomena of the vascular, respiratory, and muscular systems, and of metabolism; the effects of failure in physiological efficiency, such as cyanosis, oedema, paralysis, anaesthesia, and paraesthesia, in patients from the hospital wards could be correlated with the normal; and histology, whether in the physiological or the anatomical department, could be studied in human instead of animal tissues when there were normally differences. By these means not only might the transition from the pre-clinical to the clinical period be made gradual instead of abrupt, and the watertight character of the curriculum mitigated, but an approach to, and even an anticipation of, the effect of similar teaching during the clinical years might be obtained. The problem by whom, when, and how physiological teaching should be given in the clinical years was, as Professor Fraser had shown, difficult to solve satisfactorily. With regard to the teachers most suitable for this task, it should be borne in mind that physiology, especially in its clinical applications, merged into experimental pathology and pharmacology. A young man primarily trained in physiology who intended eventually to take up clinical work, and who in the meantime was attached to a professional medical unit and had one foot in an experimental pathological or pharmacological department, would, from his extended sympathies, be well fitted to give the required physiological teaching in the wards, where he had a recognized position and was at home. Such a teacher should be free from the limitations inseparable from a purely laboratory or a purely clinical

worker. In hospitals without clinical units the difficulty might perhaps best be met by a pathologist of the physiologico-pathological type mentioned above, if such a one was available. It was to be hoped that the demand would create the supply. The instruction should be given when the students were in contact with patients, and perhaps most suitably in the second three months of their clerking, but a second course should be available later, in the third year of the clinical period, when the students were attending the out-patient departments.

Professor Joseph Barcroft (Cambridge) said, in a letter which was read by Sir Humphry Rolleston, that Professor Fraser's main contention was wholly admirable; "the whole body was fitly framed together," and each part depended upon each other part—qualitatively and quantitatively. Their interdependence meant a position of mutual stability, to which the body would return in health if it was displaced by circumstances from that position. In so far as it did not return health was impaired. The failure of the body to return to its stable state was a matter of pathology, but pathology might rightly be held to include also, not only the actual failure and its signs, but also the causes of failure, of which by far the most prominent in recent years had been bacterial or other parasitic infections. The appearance of a toxin in the blood was an alteration in the internal environment of the organism, just as was an increase of hydrogen ion or a rise in temperature. The reactions to that increase in toxin—which reactions enabled the body to return to its normal condition of stability—were on all fours, philosophically, with the reactions to temperature and to acid-aemia. Fifty years ago pathology was dominated by morbid anatomy, then it became dominated by bacteriology, now it should find a place for what Professor Fraser called human physiology, in so far as this, in his sense, really was pathology. There was no sharp line between physiology and pathology, and the medical student should be shown in physiological lectures and practical work the consequences of impairment of physiological function. All the points in Professor Fraser's remarks about the signs and symptoms of cardiac failure were enforced in the regular physiology course in Cambridge, except that the word "digitalis" was probably not used, but the expression "a drug" or "a medicine" substituted. Alternatively, the medical student had much to learn from consideration of evolution and primitive forms of life, and it would be an ill-balanced course which excluded such learning. Professor Fraser would, doubtless, not agree that the physiology of man was fundamentally different from that of the brute creation, except in detail. Probably, being less adaptable to alterations in external environment, man required, and had acquired, a more rigorous control over the constancy of his internal environment, but the difference was trifling. The reasons for using man as the example were: (1) that it is man whom the doctor is going to treat—a reason which would not apply to a veterinary class; and (2) many important experiments demanded intelligence on the part of the person on whom the experiment was performed. For these reasons, and in virtue of the general considerations put forth so forcibly and clearly by Professor Fraser, quite one-half of the practical experimental work in Cambridge was now done on the students themselves: about one-third was on the nerves, heart, and muscles of the frog; and the remaining sixth on general principles governing oedema, etc., which involved no living organism. Professor B. A. McSwiney (Leeds) was disappointed in Professor Fraser's paper because he had left so little of a disputable nature. He thoroughly approved the suggestion of increasing human experiments in the preclinical years. The student was taught to realize the variations among normals. Not enough attention was given to applying these principles to biochemistry. Experiments on the student himself were numerous in this field. The speaker considered that the chief value of these studies was before the student entered the wards, but they should be continued during clinical work. Much depended on the choice of the teacher. There was a need of full-time appointments for experimental medicine. These officers could link up the departments of physiology and clinical medicine. Room could be found in the curriculum for practical physiology if some less necessary studies were cut out.

Dr. F. W. J. A. Lamb (Manchester) suggested that many practical experiments of an easy kind could be performed on the blood, the circulation, and the sense organs. He advocated a second practical course during the time of clinical work, taking such subjects as dyspnoea and cyanosis. These lectures aroused the students' interest. Physiology was a science subject as well as a medical subject. He preferred not to speak of human physiology contrasted with animal physiology, so much as synthetic and analytic. Lectures were a necessity, as also was a good equipment. Dr. J. A. Ryle agreed with Professor Fraser that enough had not been done. He approved of the appointment as medical registrars of men who had worked in the physiology department. He discussed Dr. Batten's views on defining the limits of the normal. As instances of practical physiology he mentioned the examination of the intestinal tract with the barium meal and the sigmoidoscope; also the examination of the circulation and the fundus oculi. Where there was no medical unit these difficulties of teaching applied physiology were greater. He suggested that this teaching should continue right through the medical curriculum. Co-operation of the different departments would be more likely to achieve their object rather than the establishment of a special department. Professor A. V. Hill agreed with the previous speakers as to the importance of practical human physiology. He explained that the nerve muscle work was allotted its proper proportion. He emphasized the great danger of insisting that the head of physiological departments should be medical men. The majority might be, but care must be taken not to exclude from such positions men approaching the subject from other sciences, such as physicists and biologists. This would be very bad for physiology. Another point was that bad experiments on man were not as good as satisfactory animal experiments. Care must be exercised in selecting satisfactory human experiments. Dr. H. W. Davies (Leeds) said he preferred to put these human studies early in the physiology course and continued then in advanced courses after the second M.B. Medical units made the problem much simpler as regards the continuation of these principles. A background of experimental medicine during the study of physiology gained the students' interest and facilitated teaching. He disagreed with the occasional entry of physiologists into wards; it must be regular if it was to be useful, and medical units enabled this to be done. Dr. C. G. Imrie (Sheffield) spoke of Professor Leathes and his early introduction of physiological investigations into the physiology course. He considered that bedside teaching of physiological principles was essential. Professor H. S. Raper (Manchester) was of the opinion that some changes were desirable to increase the students' interest. In biochemical studies the material studied should be obtained direct from biological sources and not from bottles. With present staffs it was not possible for the physiological department to continue the teaching of applied physiology. A special appointment might be made for this purpose. The teaching of pure physiology must not be neglected in a university. He emphasized the importance of self-examination by the student. He was accustomed to using radiological methods in teaching students. Dr. J. A. Milroy (Chairman) wished to see a special department of applied physiology. He spoke of the danger of exceeding the limits of assimilation of the students. Professor Fraser, replying, spoke of his satisfaction in hearing what was being done in the preclinical years. Little mention had been made of the later ward teaching and its difficulties. He agreed with Professor Hill that the professor of physiology should not necessarily have studied clinical medicine, but he wished that the physiologist would sometimes enter the wards in order to help in suggesting investigations and their methods. Dr. Douglas, in his reply, discussed the effects of a lack of human physiology introduced early in the course. He considered that in time there would be a supply of clinical teachers with physiological knowledge.

SECTION OF HISTORY OF MEDICINE.

Friday, July 26th.

THIS Section met under the presidency of Dr. E. M. BROCKBANK, and its business consisted of five papers, the first of which was read by the PRESIDENT, and entitled "John Dalton, physiologist and would-be physician." He chose this subject because he had heard personal accounts of Dalton from relatives, who on their part had hearsay information from their forebears who lived with him. Several unpublished letters were read, giving an account of his desire to take up physic and of his comments on the discouraging criticism of relatives to whom he had communicated his wishes. Eventually he accepted the post of teacher of mathematics and natural philosophy in the Manchester College, and joined the local literary and philosophical society, where he read five papers on physiological subjects. The most important of these was on colour vision, in which he described carefully, for the first time, various forms of colour-blindness, of which he was a subject himself. This defect was called Daltonism for some time. The other papers were on the mind; on the mechanical effects of atmospheric pressure on the animal frame; on respiration and the causes of animal heat; and on the quantity of food taken in health compared with the quantity of the excreta during the same period. Dalton's want of tolerance of other people's opinions until he had tested them for himself, and some rather remarkable conclusions which he drew, were referred to. Some personal characteristics, and an account of his association with doctors and medical studies, concluded the paper.

Sir D'ARCY POWER then read a paper on "Surgeons who were never surgeons," in which he gave short accounts of the lives of those who obtained the Fellowship of the Royal College of Surgeons of England without having practised and sometimes without having intended to practice. He told of Richard Robert Madden, who became a notable author and traveller; of William Guybon Atherstone, who identified the first diamond at what is now Kimberley; of Robert James Stone, who wrote notable textbooks on astronomy, chemistry, physiology, and health; of George Redford, who is best known in connexion with sculpture; of Francis Thomas McDougall, who became Bishop of Labuan and Sarawak—the only English bishop who passed the examinations and was admitted to the Fellowship; and, lastly, of Alfred Smee, who became scientist to the Bank of England, and who perfected a system of printing the cheques and bank-notes. All these gentlemen were honoured in their generations and were the glory of their times, although they were never surgeons, for they left a name behind them that their praises might be reported.

Dr. WILSON PARRY'S paper was entitled "A note on the impetus given by religion to surgery during the third epoch of the Neolithic period." He explained that in order to facilitate the exit of demons from the cranial cavity of man it was the custom in the Stone Age (prior to 2000 B.C.) for the priest doctors to trephine the skulls of the living, using only the stone implements of the period. The site chosen for the operation was always on healthy bone, and there were rarely any signs of injury, fracture, or post-operative bony infection. The lumen was either circular or oval and funnel-shaped, and the edges perfectly smooth. These ritualistic operations were far in advance of the surgery of the period, and, being successfully performed, gradually paved the way for cranial operations for the relief of diseases. Dr. Parry showed a large number of lantern slides illustrating his points, and at the close of his paper answered a number of questions.

Dr. G. FLETCHER (Manchester) gave an account of the life and work of Dr. James Braid (1795–1860) of Manchester, a general practitioner who in his day won something of a European reputation for himself, mainly in connexion with hypnotism, the art of which he learnt in 1841 from a travelling mesmerist. He became interested in the subject, and treated hypnotically, with more or less success, many cases suffering from various kinds of rheumatism and paralysis, as well as cases of deaf-mutism, failing vision, corneal opacities, and tic-douloureux. He was not the first to discover the hypnotic state nor was he the first to assert that this state was wholly subjective; but he did reach that conclusion independently and by dint of much experiment, and he also devised a simple method of producing hypnosis. His great merit lay in the fact that he stripped mesmerism of its occult and baseless extravagances, and reissued it in the form of hypnotism for the service of the physician and the psychologist. To his work is directly attributable the subsequent developments of hypnotism in France and elsewhere, and for this work he ranks with the notable figures in the records of Manchester medicine.

The last paper was read by Dr. E. BOSDIN LEECH (Manchester) who gave an account of the work of Dr. Charles Harrison Blackley, a pioneer in researches into the causation of hay fever by pollen, work which, though recognized in America, is still practically unknown and unrecognized in his own country. He was born in Bolton in 1820, and became a general practitioner in Manchester. Himself a sufferer from hay fever, he recorded in detail the symptoms of his own disease, and used himself for experiments designed to discover the causation of the disease and the best methods for its relief. His claim to fame lies in the fact that, whilst others had described the disease and had theorized on its cause, he experimented and proved that it was due to pollen. As he himself stated, he started out to test by actual experiment the validity of the various opinions on the cause of the disease. He experimented with the air of the town, comparing it with that on the edge of the town and that of the hayfield, and regulating his holidays to sea or country that he might try new areas for his investigations. He tried the effect on himself of all sorts of grasses and flowers, choosing certain fields in turn, according to the crops growing in them, in all experimenting with thirty-five different natural orders, and as a result he brought extensive evidence to show that pollen was the cause of hay fever. In his lifetime Blackley, like many pioneers, was looked upon as somewhat of a faddist—a man who played with grasses—but in reality he is one of whom both Manchester and England may justly be proud.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

A SIMPLE METHOD OF REMOVING TONSILS.

BY the following technique we believe that most general practitioners should be able to remove tonsils safely and efficiently. Our opinion is derived from a series of several hundreds of cases which we have treated by this method during the past twelve months.

Anaesthetic.—In children up to about the age of 12 years anaesthesia is inducted with ethyl chloride on an open gauze mask of the type used in ordinary general anaesthesia, followed by ether until the patient is well under, when ether and oxygen are given through a Boyle's apparatus. For older children and adults a chloroform-ether mixture is used for induction.

Method.—The patient is put into position lying on his back, and after induction a sandbag is placed under the shoulders and a Davis-Boyle's gag introduced. The gag gives an excellent exposure of the fauces, maintains the tongue in position, and carries, as an integral part of the tongue-piece, a tube for connecting with the anaesthetic apparatus. The gag may usefully be held by a University College pattern jack. Illumination is provided by a head mirror and a Phelps lamp. The tonsils are gripped at the anatomical upper pole with tensil forceps, preferably not toothed, and the tonsil is pulled as far as possible from its bed. The mucous membrane of the anterior pillar close to the tonsil is then snicked with a pair of special scissors (made by Down Bros.) with long handles and blades curved on the flat, which also act as blunt dissectors, and the space between the capsule and faucial muscles defined. It is of advantage next to separate the upper pole first, and then to enucleate the tonsil by blunt dissection. In doing this the most difficult part is in the region of the lower pole and lingual tonsil, but with care the difficulty can be overcome. It is important to see every stage, and frequent swabbing may be necessary, but when once the tonsil is completely enucleated

bleeding is usually comparatively slight, and can, if necessary, be controlled by crushing the bleeding vessel with artery forceps; or, if there is a general ooze, by firm pressure with a swab for several minutes. The whole operation, except with the most grossly adherent tonsils, occupies about ten minutes. We have only rarely found it necessary to ligature bleeding vessels, and have never had to obliterate the tonsillar fossa by sewing up the anterior and posterior pillars.

After-treatment.—Sponging the face and throat with iced water is useful. Before recovery from the anaesthetic a rectal saline, containing potassium bromide and calcium lactate āā gr. xx, is given, and to this syr. chloral ʒj is added in adult cases.

Dissection seems to us the method of election. We are sure that patients treated by our method will not return with tonsils that have "grown again," as they so often do after the guillotine operation. Securing complete haemostasis before returning the patient to the ward, even at the sacrifice of a little time, seems to us to be desirable.

We have found ethyl chloride given by this open method to be a perfectly safe anaesthetic for young persons. One precaution we take is to discontinue its use if there is not an immediate flushing of the face after the first spray is given.

We are well aware that this technique is practised by others. We would only urge that it be more widely adopted by non-specialists, and feel sure that then tonsillectomy will be more efficiently performed and with less risk.

We are indebted for his help and advice to Dr. R. Ellis, surgeon to this hospital.

L. MILNER, M.R.C.S., L.R.C.P.,
E. CAMERON-MURPHY, L.R.C.P., M.R.C.S.,
Resident Medical Officers, Taunton and Somerset Hospital.

VOLVULUS OF THE CAECUM FOLLOWED BY VOLVULUS OF THE JEJUNUM.

IN the *British Medical Journal* of March 16th (p. 500), I described three cases of volvulus of the sigmoid flexure of the colon successfully operated on in 1928. The case now related was admitted to the Bedford County Hospital on May 6th, 1929. For the notes I am indebted to Mr. J. S. Whiting, house-surgeon of the hospital.

J. P., a labourer, aged 56, had been subject to indigestion. On May 5th, 1929, he had a sudden severe attack of abdominal pain and vomiting. Next day he was admitted to hospital. The abdomen was distended, especially in the upper half, tender, and very rigid. There was no great difficulty in breathing. The diagnosis was probable rupture of a duodenal ulcer.

Operation.—The abdomen was opened through a right upper paramedial incision. An enormously distended large intestine presented, which turned out to be the caecum and ascending colon twisted just below the hepatic flexure. The distended coil had passed upwards and to the left, and lay transversely. An opening was made in the caecum and a tube tied in. The other end of the tube was brought out through a small incision in the usual position of a caecostomy, where the caecum and tube were fixed. The caecum now occupied its normal position. The pelvis was drained through a suprapubic incision, as the peritoneal cavity contained some discoloured fluid. The original incision was then closed.

On the following day the patient was very well and the caecostomy draining freely. On May 8th, about midday, the patient vomited some dark-green fluid, and it was then thought that he had acute dilatation of the stomach. The stomach was washed out repeatedly with a solution of sodium bicarbonate, rectal salines containing brandy were given, also strychnine, pituitrin, and digitaline subcutaneously. On May 9th, at 7 p.m., he died.

Post-mortem Examination.—The stomach, which contained half a pint of green fluid, was much distended with gas. The duodenum and commencement of the jejunum were dilated to about three times their normal calibre. The dilatation was caused by a volvulus of the jejunum, which consisted of a double twist three feet below the duodeno-jejunal junction. The small intestine below this and the large intestine were collapsed. Signs of old peritonitis were present. The caecum was collapsed and healthy. In the ascending colon, six inches from the ileo-caecal valve, was some thickening, which indicated the site of the volvulus. The mesentery of the caecum and ascending colon was considerably longer than usual. The other abdominal viscera showed nothing abnormal.

W. GIFFORD NASH, F.R.C.S.,
Surgeon, Bedford County Hospital.

Reviews.

SLEEP AND ITS DISORDERS.

Sleep and the Treatment of its Disorders,[1] by Dr. R. D. GILLESPIE, is a useful addition to the Minor Monograph Series. It is the aim of the author not only to indicate methods of treatment which might be suitably employed in disturbances of sleep-rhythm, but also to provide, however provisionally, a rational basis for the methods recommended. This aim is admirably realized. In compact form and readable style this book provides the medical practitioner with an outline of the physiology and pathophysiology of sleep: the effects of sleeplessness; the treatment of disorders of sleep; and the various theories of the nature of sleep. The time is certainly ripe for a book of this kind. During the last few years a considerable number of data, experimental and clinical, normal and pathological, having a bearing upon the problem of sleep, have accumulated, and a variety of theories on this subject have been formulated. A work such as this, in which recent observations are outlined, and the latest theories submitted to critical discussion, therefore meets a definite need. In concluding his book Dr. Gillespie states that the body of evidence which has been considered supports the conclusion which R. Dubois reached thirty-three years ago, when, as a result of experimental work on marmosets, he proved to his own satisfaction that there existed in the floor of the third ventricle a "centre for waking" which was one and the same with a "sleep-centre."

THE NOSE, THROAT, AND EAR.

THE long-awaited American system of otology and laryngology[2] edited by CHEVALIER JACKSON and GEORGE M. COATES has now been published. The seventy-five contributors are mostly Americans, but there are several from France, including E. J. Moure and Lemaitre, and from Great Britain including StClair Thomson and Logan Turner. It is confined to a single volume weighing six pounds, but it aims to give practical information on all relevant subjects. The editors say, "What to do and how to do it has been considered the kind of information for which most readers will consult this book." For this reason almost everything historical has been excluded, and there is very little attempt to show how the present practice of otology and laryngology has been evolved in any of its various fields. The editors have no doubt judged their public correctly, perhaps on the dictum of "Cut Hippocrates right out, and begin at the day before yesterday," but this severely practical point of view results in the loss of much that is not only of profound interest but of importance to a proper comprehension of the actual state of knowledge and practice.

It would be scarcely possible to avoid some overlapping when the writing has been distributed among so many authors, and it is only natural that some conflict of opinion should appear occasionally. This in no way detracts from the value of the articles, for when subjects are discussed in such detail many doubtful points must arise. There is, however, a lack of uniformity in the manner in which the various writers have approached their tasks. As instances of sections which seem to be perfectly suited in scope and style to their setting those on the tonsils by Birkett and on the diagnosis of intracranial complications of aural disease by Eagleton are striking, for they are not too long; they are packed with information, and are interesting to read. It would be easy to mention many others of great merit, such as Barnes on neoplasms of the nose and nasal accessory sinuses, Moure on the vocal organ in singing, and Tucker on cicatricial stenosis of the larynx. There are, however, some sections in which the editors have allowed the riders of hobby-horses to mount their steeds and ride them at full speed

[1] *Sleep and the Treatment of its Disorders.* By R. D. Gillespie, M.D., M.R.C.P., D.P.M. London: Baillière, Tindall and Cox. 1929. (Cr. 8vo, pp. ix + 267; 5 figures. 7s. 6d. net.)

[2] *The Nose, Throat, and Ear, and their Diseases.* Edited by Chevalier Jackson, M.D., Sc.D., LL.D., F.A.C.S., and George Morrison Coates, M.D.; assisted by Chevalier L. Jackson, M.D. Philadelphia and London: W. B. Saunders Co. 1929. (Roy. 8vo, pp. xvi + 2177; 657 figures. 60s.)

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The book opens with a short dissertation on the principles of physical chemistry. This subject, too, is one which does not lend itself readily to summary treatment, and we doubt if the student unfamiliar with the material would follow easily the description of Donnan's equilibrium, which the author has condensed into half a page. The rest of his subject he has arranged under the heading of the important drugs or groups of drugs. In some cases his principles of arrangement are not quite clear; for example, the chapter headed "lipins or lipoids" contains, as is only right and proper, an account of the fixed oils, fats, and phosphatides. Within it are also included insulin, vitamins, volatile oils, carbohydrates, and glucosides. It is difficult to follow the author's train of thought in this matter; cod-liver oil probably suggested vitamins, and by an easy transition of free associations the name "volatile oil" came to mind, bringing with it the terpines; but how the carbohydrates and glucosides crept in we cannot imagine. Unfortunately, the inclusion of such a diversity of substances under a common heading is likely to suggest to the student relationships that do not exist, and the book would, in our view, be improved if this heterogeneous group were carefully sorted out and its components allocated to their proper places. A similar criticism applies to the author's classification of paratyphoid extract, thymol, and sulphocyanides under the heading "Iodides."

Taken as a whole the book contains a fair and readable account of modern pharmacology and of recent advances in knowledge. It is surprising, however, to find no mention of the therapeutic value of liver extract in pernicious anaemia. Careful examination of the book confirms the author's own statement that he has drawn freely from various standard works on the subject.

SURGICAL ILLUSTRATIONS.

EVERY teacher of surgery realizes the importance of the graphic illustration of the facts which he places before his students. In *A Graphic Guide to Elementary Surgery*[6] Professor NAEGELI has attempted to carry out this idea in detail, and with considerable success. It is true that his illustrations are for the most part thumbnail sketches, and an artist might consider them somewhat crude, but in every single instance the picture shows what it is intended to represent, so much so that it would be quite possible for a student to go through the whole book and get a very fair idea of the elementary principles of surgery

[5] *A Text-Book of Pharmacology and Therapeutics.* By Hugh Alister McGuigan, Ph.D., M.D. Philadelphia and London: W. B. Saunders Company. 1928. (6 × 9¼, pp. 660; 43 figures. 28s. net.)

[6] *A Graphic Guide to Elementary Surgery.* By Professor Dr. Th. Naegeli. Translated by J. Snowman, M.D., M.R.C.P. With an introduction by Dr. C. Garré. London: J. Bale, Sons, and Danielsson, Ltd. 1929. (Roy. 8vo, pp. 205; 322 figures. 12s. 6d. net.)

without ever reading a single word of the letterpress. Only those who have attempted to produce such illustrations can realize their difficulty or how easy it is to lose the *whole point* of the illustration in an effort after artistic perfection. We can *most strongly recommend* Professor Naegeli's *Guide*, both to the student and to his teacher, for there is not a single illustration in the book which could not be produced in a few lines on a blackboard in the course of a lecture. An excellent translation of the letterpress by Dr. SNOWMAN furnishes explanatory comment wherever this is necessary, but it is essentially upon its illustrations that the book depends for its utility and its attractiveness.

GUY'S HOSPITAL REPORTS.

THE third quarterly instalment of *Guy's Hospital Reports*[7] opens with a sympathetic obituary notice of the late Dr. George Newton Pitt by his colleague Dr. John Fawcett, who says, "Whether at Guy's or elsewhere, Pitt exercised his faculties and expended his superabundant energy largely for the benefit of others," and shows that he was the first physician in London to recognize the pioneer work of James Mackenzie, and to apply it in his own teaching. The first of the seven professional articles is Dr. Maurice Campbell's valuable analysis of the hundred cases of auricular fibrillation which occurred among 500 consecutive patients sent to the cardiographic department of the hospital; 53 of the cases were rheumatic, about 36 arterio-sclerotic, and 11 hyperthyroid in origin; a high blood pressure was not a common feature, for in 4 only was it over 200 mm. Dr. R. D. Gillespie contributes an essay on the clinical differentiation of the types of mental depression, illustrated by cases. A number of unusual cases in the medical out-patient department are described by Dr. E. C. Warner, and Drs. L. W. and R. J. Cann give an account of the diphtheria carrier clinic which was established in July, 1926, at Guy's, at the request of the London County Council, for the investigation and treatment of school children carrying diphtheria bacilli. Mr. A. Ralph Thompson follows up his recent papers on horse-shoe kidney and solitary kidney by one on other congenital lesions of the kidneys and ureters. Dr. G. H. Oriel, demonstrator of clinical chemistry, makes a preliminary communication on a substance, of a proteose nature, extracted from the urine of patients with asthma, urticaria, migraine, some infections which in active allergic conditions give positive skin reactions. An elaborate report of the maternity department of the hospital for 1928 is provided by Mr. G. F. Gibberd, the obstetric registrar.

NOTES ON BOOKS.

THE appearance of a second edition of ROGERS'S *Recent Advances in Tropical Medicine*[8] only eighteen months after its original publication speaks for itself. The scope of this volume was discussed in the notice of the first edition appearing in our issue of January 28th, 1928, and little need be added, except to hope that we may see further editions appearing at short intervals, as it is obvious to the reader of to-day that Sir Leonard Rogers means to maintain the title, and each edition is still to include *recent* advances in tropical medicine. Thus, in the new edition, the use of plasmoquine in malaria is dealt with; the recent observations of Baker and Dodds on renal stasis and the mechanism of suppression in black-water fever find a place; the recent work on yellow fever is referred to, and *B. dysenteriae* Sonne is mentioned as a causative agent in dysentery; treatment by bacteriophage is also noticed. There are some additions to the work on sprue, and reference is made to the use of potassium iodide in leprosy. The book remains approximately the same size, some thirty pages only having been added.

We confess to a deep affection for the West of England, and as it is well known that a great number of readers of the *Journal* share this feeling, we have no hesitation in mentioning here two little books that have lately come into our hands for review—one about Somerset[9] and the other about Devon.[10] Both are early numbers of Bell's Pocket Guides to the English Counties; they are written by S. E. WIMBOLT, and copiously illustrated with reproductions from photographs by EDGAR and WINIFRED WARD. Unlike most works of the kind, they represent true collaboration between author and illustrator. The wrappers say that they are "intended for Devon and Somerset folk as well as for the visitor," and, indeed, there can be few West Country people who will fail to appreciate Mr. and Mrs. Ward's charming photographs of familiar places, or learn something of interest from Mr. Wimbolt's descriptive notes. A better collection of views of Devon and Somerset it would be hard to imagine, and the text, if a shade too exuberant here and there, is well informed and judiciously balanced in its general plan. If there is now nothing new to be said about these delightful counties, at any rate the author and his colleagues have succeeded in putting old things in a fresh light, and the result of their labour of love is two well-produced and handy pocket books, "useful, suggestive, and companionable," at a reasonable price.

The pocket pathological anatomy[11] by Professor E. VON GIERKE will be found of service to students who can read German. It consists of concise abstracts such as a student who is skilful in taking notes would make of the lectures he is attending, and it will serve as a substitute for such notes. Professor von Gierke's object in compiling the book, which consists of two thin volumes, is to prevent note-taking during the delivery of lectures, a custom which he considers to be objectionable as distracting attention and destroying the essential features of lectures as a special mode of instruction.

[7] *Guy's Hospital Reports*. Vol. 79 (Vol. 9, Fourth Series), No. 3, July, 1929. Edited by Arthur F. Hurst, M.D. London: The *Lancet* Limited. (6 × 9¼, pp. 253-378; 1 plate, 14 figures. Annual subscription £2 2s.; single numbers 12s. 6d. each.)

[8] *Recent Advances in Tropical Medicine*. By Sir Leonard Rogers, C.I.E., M.D., F.R.C.P., F.R.C.S., F.R.S., etc. Second edition. London: J. and A. Churchill. 1929. (5½ × 8¼, pp. x + 439; 16 figures. 12s. 6d. net.)

[9 10] *Somerset*. By S. E. Wimbolt, M.A. *Devon*. By S. E. Wimbolt, M.A. Bell's Pocket Guides, "English Counties." London: G. Bell and Sons, Ltd. 1929. (6s. *net each volume.*)

[11] *Taschenbuch der Pathologischen Anatomie*. Von Professor Dr. Med. Edgar von Gierke. 1. Allgemeiner Teil. Zehnte Auflage. Leipzig: G. Thieme. 1929. (6½ × 9¼, pp. 143; 68 figures. M.5.)

PREPARATIONS AND APPLIANCES.

EMERGENCY SURFACE SUTURES.

MR. H. DE P. B. VEALE (*honorary surgeon to the Ilkley Coronation Hospital*) writes: I have devised, and Messrs. A. de St. Dalmas and Co., Ltd. (Leicester) have made for me, what may be described as "surface sutures" ("Surfasutes"). They are intended to do away largely with the necessity for using clips or a needle to suture lacerated wounds. The device consists of strips of specially adhesive plaster cut in various shapes and sizes, each furnished with small smooth eyelets. As shown in Fig. 1, after the laceration has been cleaned, sterilized, and

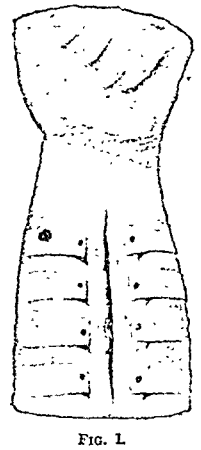

FIG. 1.

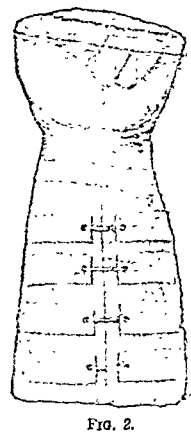

FIG. 2.

dried, they are laid in interrupted position on each side of the wound, the eyelets being about half an inch distant from the cut edge. A sterile curved needle and silk, or silkworm gut, is then passed through the eyelets instead of the skin, and the edges of the wound can be accurately approximated, as shown in Fig. 2.

There are many obvious advantages. The sterile surface sutures, needle, and silk or silkworm gut can be carried in the doctor's bag, and are always ready for immediate use. The pain of stitching is entirely done away with. No stitch scars are left, and there is no danger of stitch abscesses. Dressings can be changed without disturbing the surface sutures. The plaster strips are antiseptic and specially adhesive, and therefore cannot slip. The smooth surface of the eyelets is in contact with the skin, and therefore there is no chafing. The eyelets can be raised for the ready introduction of the sutures, because the adhesive surface does not run beyond them, but is enfolded to strengthen their insertion.

These sutures are obtainable from Mr. Chas. F. Thackray, Park Street, Leeds.

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PHARMACOLOGY AND THERAPEUTICS.

PROFESSOR H. A. MCGUIGAN of the University of Illinois, in his *Text-Book of Pharmacology and Therapeutics*,[5] has aimed at providing the medical student with a readable account of the subjects within a reasonable compass. If he has not fulfilled his intention it is largely because, in any presentation of the whole field of pharmacology, brevity can be attained only by setting out much of the material in what is practically a catalogue of facts and dogmatic assertions. A great mass of detail has to be included; and in relation to much of this our knowledge is so fragmentary, and conflicting theories are so many, that only seldom is it possible to give an accurate and yet concise account of the action of a drug.

The book opens with a short dissertation on the principles of physical chemistry. This subject, too, is one which does not lend itself readily to summary treatment, and we doubt if the student unfamiliar with the material would follow easily the description of Donnan's equilibrium, which the author has condensed into half a page. The rest of his subject he has arranged under the heading of the important drugs or groups of drugs. In some cases his principles of arrangement are not quite clear; for example, the chapter headed "lipins or lipoids" contains, as is only right and proper, an account of the fixed oils, fats, and phosphatides. Within it are also included insulin, vitamins, volatile oils, carbohydrates, and glucosides. It is difficult to follow the author's train of thought in this matter; cod-liver oil probably suggested vitamins, and by an easy transition of free associations the name "volatile oil" came to mind, bringing with it the terpines; but how the carbohydrates and glucosides crept in we cannot imagine. Unfortunately, the inclusion of such a diversity of substances under a common heading is likely to suggest to the student relationships that do not exist, and the book would, in our view, be improved if this heterogeneous group were carefully sorted out and its components allocated to their proper places. A similar criticism applies to the author's classification of paratyphoid extract, thymol, and sulphocyanides under the heading "Iodides."

Taken as a whole the book contains a fair and readable account of modern pharmacology and of recent advances in knowledge. It is surprising, however, to find no mention of the therapeutic value of liver extract in pernicious anæmia. Careful examination of the book confirms the author's own statement that he has drawn freely from various standard works on the subject.

SURGICAL ILLUSTRATIONS.

EVERY teacher of surgery realizes the importance of the graphic illustration of the facts which he places before his students. In *A Graphic Guide to Elementary Surgery*[6] Professor NAEGELI has attempted to carry out this idea in detail, and with considerable success. It is true that his illustrations are for the most part thumbnail sketches, and an artist might consider them somewhat crude, but in every single instance the picture shows what it is intended to represent, so much so that it would be quite possible for a student to go through the whole book and get a very fair idea of the elementary principles of surgery

[5] *A Text-Book of Pharmacology and Therapeutics.* By Hugh Allister McGuigan, Ph.D., M.D. Philadelphia and London: W. B. Saunders Company. 1928. (6 × 9½, pp. 660; 43 figures. 28s. net.)

[6] *A Graphic Guide to Elementary Surgery.* By Professor Dr. Th. Naegeli. Translated by J. Snowman, M.D., M.R.C.P. With an introduction by Dr. C. Garré. London: J. Bale, Sons, and Danielsson, Ltd. 1929. (Roy. 8vo, pp. 205; 322 figures. 12s. 6d. net.)

without ever reading a single word of the letterpress. Only those who have attempted to produce such illustrations can realize their difficulty or how easy it is to lose the whole point of the illustration in an effort after artistic perfection. We can most strongly recommend Professor Naegeli's *Guide*, both to the student and to his teacher, for there is not a single illustration in the book which could not be produced in a few lines on a blackboard in the course of a lecture. An excellent translation of the letterpress by Dr. SNOWMAN furnishes explanatory comment *wherever this is necessary, but it is essentially upon* its illustrations that the book depends for its utility and its attractiveness.

GUY'S HOSPITAL REPORTS.

THE third quarterly instalment of *Guy's Hospital Reports*[7] opens with a sympathetic obituary notice of the late Dr. George Newton Pitt by his colleague Dr. John Fawcett, who says, "Whether at Guy's or elsewhere, Pitt exercised his faculties and expended his superabundant energy largely for the benefit of others," and shows that he was the first physician in London to recognize the pioneer work of James Mackenzie, and to apply it in his own teaching. The first of the seven professional articles is Dr. Maurice Campbell's valuable analysis of the hundred cases of auricular fibrillation which occurred among 500 consecutive patients sent to the cardiographic department of the hospital; 53 of the cases were rheumatic, about 36 arterio-sclerotic, and 11 hyperthyroid in origin; a high blood pressure was not a common feature, for in 4 only was it over 200 mm. Dr. R. D. Gillespie contributes an essay on the clinical differentiation of the types of mental depression, illustrated by cases. A number of unusual cases in the medical outpatient department are described by Dr. E. C. Warner, and Drs. L. W. and R. J. Cann give an account of the diphtheria carrier clinic which was established in July, 1926, at Guy's, at the request of the London County Council, for the investigation and treatment of school children carrying diphtheria bacilli. Mr. A. Ralph Thompson follows up his recent papers on horse-shoe kidney and solitary kidney by one on other congenital lesions of the kidneys and ureters. Dr. G. H. *Oriel*, demonstrator of clinical chemistry, makes a preliminary communication on a substance, of a proteose nature, extracted from the urine of patients with asthma, urticaria, migraine, some infections which in active allergic conditions give positive skin reactions. An elaborate report of the maternity department of the hospital for 1928 is provided by Mr. G. F. Gibberd, the obstetric registrar.

NOTES ON BOOKS.

THE appearance of a second edition of ROGERS'S *Recent Advances in Tropical Medicine*[8] only eighteen months after its original publication speaks for itself. The scope of this volume was discussed in the notice of the first edition appearing in our issue of January 28th, 1928, and little need be added, except to hope that we may see further editions appearing at short intervals, as it is obvious to the reader of to-day that Sir Leonard Rogers means to maintain the title, and each edition is still to include *recent* advances in tropical medicine. Thus, in the new edition, the use of plasmoquine in malaria is dealt with; the recent observations of Baker and Dodds on renal stasis and the mechanism of suppression in *black-water fever find a place; the recent work on yellow fever* is referred to, and *B. dysenteriae* Sonne is mentioned as a causative agent in dysentery; treatment by bacteriophage is also noticed. There are some additions to the work on sprue, and reference is made to the use of potassium iodide in leprosy. The book remains approximately the same size, some thirty pages only having been added.

We confess to a deep affection for the West of England, and as it is well known that a great number of readers of the *Journal* share this feeling, we have no hesitation in mentioning here two little books that have lately come into our hands for review—one about Somerset[9] and the other about Devon.[10] Both are early numbers of Bell's Pocket Guides to the *English Counties*; they are written by S. E. WIMBOLT, and copiously illustrated with reproductions from photographs by EDGAR and WINIFRED WARD. Unlike most works of the kind, they represent true collaboration between author and illustrator. The wrappers say that they are "intended for Devon and Somerset folk as well as for the visitor," and, indeed, there can be few West Country people who will fail to appreciate Mr. and Mrs. Ward's charming photographs of familiar places, or learn something of interest from Mr. Wimbolt's descriptive notes. A better collection of views of Devon and Somerset it would be hard to imagine, and the text, if a shade too exuberant here and there, is well informed and judiciously balanced in its general plan. If there is now nothing new to be said about these delightful counties, at any rate the author and his colleagues have succeeded in putting old things in a fresh light, and the result of their labour of love is two well-produced and handy pocket books, "useful, suggestive, and companionable," at a reasonable price.

The pocket pathological anatomy[11] by Professor E. VON GIERKE will be found of service to students who can read German. It consists of concise abstracts such as a student who is skilful in taking notes would make of the lectures he is attending, and it will serve as a substitute for such notes. Professor von Gierke's object in compiling the book, which consists of two thin volumes, is to prevent note-taking during the delivery of lectures, a custom which he considers to be objectionable as distracting attention and destroying the essential features of lectures as a special mode of instruction.

[7] *Guy's Hospital Reports*. Vol. 79 (Vol. 9, Fourth Series), No. 3, July, 1929. Edited by Arthur F. Hurst, M.D. London: The *Lancet* Limited. 1929. (6 × 9¼, pp. 253-378; 1 plate, 14 figures. Annual subscription £2 2s.; single numbers 12s. 6d. each.)

[8] *Recent Advances in Tropical Medicine*. By Sir Leonard Rogers, C.I.E., M.D., F.R.C.P., F.R.C.S., F.R.S., etc. Second edition. London: J. and A. Churchill. 1929. (5½ × 8½, pp. x + 439; 16 figures. 12s. 6d. net.)

[9] [10] *Somerset*. By S. E. Wimbolt, M.A. *Devon*. By S. E. Wimbolt, M.A. Bell's Pocket Guides, "English Counties." London: G. Bell and Sons, Ltd. 1929. (6s. net each volume.)

[11] *Taschenbuch der Pathologischen Anatomie*. Von Professor Dr. Med. Edgar von Gierke. 1. Allgemeiner Teil. Zehnte Auflage. Leipzig: G. Thieme. 1929. (6½ × 9¾, pp. 143; 68 figures. M.5.)

PREPARATIONS AND APPLIANCES.

EMERGENCY SURFACE SUTURES.

MR. H. DE P. B. VEALE (honorary surgeon to the Ilkley Coronation Hospital) writes: I have devised, and Messrs. A. de St. Dalmas and Co., Ltd. (Leicester) have made for me, what may be described as "surface sutures" ("Surfasutes"). They are intended to do away largely with the necessity for using clips or a needle to suture lacerated wounds. The device consists of strips of specially adhesive plaster cut in various shapes and sizes, each furnished with small smooth eyelets. As shown in Fig. 1, after the laceration has been cleaned, sterilized, and

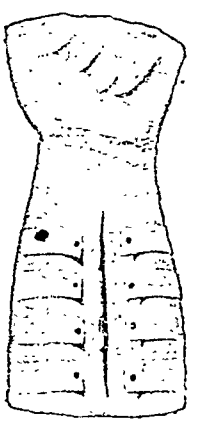

FIG. 1.

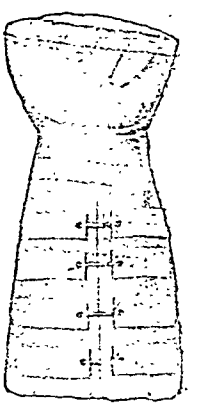

FIG. 2.

dried, they are laid in interrupted position on each side of the wound, the eyelets being about half an inch distant from the cut edge. A sterile curved needle and silk, or silkworm gut, is then passed through the eyelets instead of the skin, and the edges of the wound can be accurately approximated, as shown in Fig. 2.

There are many obvious advantages. The sterile surface sutures, needle, and silk or silkworm gut can be carried in the doctor's bag, and are always ready for immediate use. The pain of stitching is entirely done away with. No stitch scars are left, and there is no danger of stitch abscesses. Dressings can be changed without disturbing the surface sutures. The plaster strips are antiseptic and specially adhesive, and therefore cannot slip. The smooth surface of the eyelets is in contact with the skin, and therefore there is no chafing. The eyelets can be raised for the ready introduction of the sutures, because the adhesive surface does not run beyond them, but is enfolded to strengthen their insertion.

These sutures are obtainable from Mr. Chas. F. Thackray, Park Street, Leeds.

British Medical Journal.

SATURDAY, AUGUST 17TH, 1929.

CARDIAC SYPHILIS.

AMONG the subjects of far-reaching importance that periodically come up for discussion at the Sectional Meetings of the British Medical Association the two great infections syphilis and tuberculosis are naturally in the first rank. At the Newcastle Meeting in 1921 the late Sir Clifford Allbutt opened a discussion in the Section of Medicine on visceral syphilis, especially of the central nervous and the cardio-vascular systems, and at one point in his comprehensive review remarked, "of congenital syphilitic disease of the heart we may guess much but we do not know much." This, though not perhaps of outstanding importance, is worth recalling as its hint has now been taken and the condition elucidated. At the Manchester Meeting last month Professor Alfred Scott Warthin, of the University of Michigan, Ann Arbor, spoke both in the Section of Venereal Diseases (*Journal*, August 10th, p. 236) and in the course of the discussion on syphilis of the heart and aorta, opened by Drs. John M. Cowan and J. Steven Faulds, in the Section of Medicine, where he gave a beautiful and convincing lantern slide demonstration on the cardio-vascular lesions of latent syphilis. Great interest must attach to his observation (and his experience is very extensive) that he has never seen at necropsy a case of cured syphilis; search, often be it noted prolonged, has always revealed active latent lesions in the aorta, heart, or other organs; further, he contested the validity of the argument that the now numerous reported cases of a second attack of syphilis prove that a previous syphilitic infection had been cured. Remarkable microscope slides were shown of the lesions—cell infiltration, oedema, myxomatous change (formerly described as "myxomas"), and spirochaetes—in the heart in congenital syphilis. Professor Warthin also brought out the striking difference in the two sexes of the localization of the latent syphilitic lesions; this was so well marked as to suggest a radical distinction of the male and female constitutions: in males with latent syphilis the heart and aorta are invariably affected, whereas among syphilitic females the cardiac lesions are absent or, if present, slight, and the aorta, though usually involved, is so in a much less degree than in males. The great majority of his cases of latent syphilis came under clinical observation with a definite clinical picture—some degree of myocardial failure with dyspnoea, cyanosis, and chronic venous engorgement—and were commonly but erroneously labelled as "rheumatic," especially in the young. Death from latent syphilis was most often due to cardiac insufficiency, and a large proportion of the deaths in middle life from myocardial degeneration were caused by latent syphilis; four years ago he reported a series of sudden deaths, all in men, of this nature. As he considered that in young patients latent syphilis of the heart probably disposes to secondary bacterial endocarditis, the questions might be asked, Does not rheumatic infection also supervene? and May not both factors play their parts in bringing about cardiac failure?

It may be interesting to compare these pathological data and deductions with current clinical opinion. The reasons for divergence between the bedside and the laboratory diagnoses are fairly obvious; the clinician peers through a glass darkly, whereas the pathologist has before his eyes evidence invisible during life. In these circumstances the physician has no doubt often paid too much respect to a negative Wassermann reaction, and in the absence of all signs and symptoms of syphilis has regarded a negative serological test as confirming the exclusion of a luetic origin for the cardiac disability. This opens up difficult problems; what of course is urgently needed is some clinical criterion which indicates a syphilitic form of cardiac failure, in the absence of any gross or serological evidence of syphilitic infection. Drs. Cowan and Faulds, as would be anticipated from Cowan and Rennie's contribution on syphilis of the heart to the discussion at Newcastle in 1921, fully recognize the frequency and importance on the one hand and the diagnostic difficulties on the other hand of syphilitic myocardial lesions. In this connexion it is well to recall Cowan and Rennie's aphorism, "Syphilis has no originality. It is merely a servile copyist"; for it follows that any form of clinical heart disease may thus be produced. The importance of syphilis in the etiology of aneurysm, aortic regurgitation, and angina pectoris is now generally accepted, and the same conception is gaining ground as regards myocardial failure. It is, however, rather surprising how rarely auricular fibrillation is due to syphilitic myocarditis; this was insisted upon by Dr. Crighton Bramwell; and in the current number of the *Guy's Hospital Reports* is an analysis by Dr. Maurice Campbell of 100 cases of auricular fibrillation among which only two were found to be syphilitic. Drs. Cowan and Faulds have evidently searched for some clinical characters whereby syphilitic can be distinguished from other forms of heart disease, and have gone so far as to state that, although the symptoms of rheumatic and syphilitic disease are essentially similar, there are some features peculiar to each, and that the occurrence of symptoms of myocardial weakness without obvious cause should at once suggest the possibility of a syphilitic origin, particularly if the patient is under 60 years of age; thus agreeing specially with the general dictum of Vigo in 1785, quoted in East and Bain's *Recent Advances in Cardiology*, "When you meet with a disease that does not respond to the ordinary remedies, you may think that this is the disease called French."

While the importance of an accurate diagnosis as an essential preliminary to rational treatment is incontrovertible, there is room for discussion whether or not vigorous and prolonged antisyphilitic treatment is the best routine form of treatment for well-marked cardiac failure in a syphilitic patient. In some cases the syphilitic change, though extensive, may be old and stationary, in others it may be progressive, and it may be difficult in a given case to decide this question. In the discussion in the Section of Medicine at Manchester Dr. Boyd Campbell insisted on the value of prolonged and repeated courses of antiluetic treatment, and quoted cases in support of this procedure; while Dr. John Hay held a brief for treatment directed to the cardiac failure. There can, however, be no doubt that the best treatment is on preventive lines—namely, thorough antisyphilitic treatment as early as possible in the course of the infection so as to destroy the spirochaetes before they have become firmly entrenched in the myocardium. As will be seen from their paper, published this week at page 285, Drs. Cowan and Faulds enforce this in the dictum that "cardiac syphilis is the result of error, on the part of the patient or his medical adviser."

ANTE-NATAL CLINICS.

THE failure to effect any reduction in the maternal mortality rate in the ten years following the passing of the Maternity and Child Welfare Act, with the consequent general establishment of ante-natal clinics by local authorities, has naturally given rise to disappointment and to heart-searching for the reasons thereof. As a result of its consideration of this question, the Committee on Maternal Mortality at present sitting at the Ministry of Health has drawn up a memorandum which has been issued by the Ministry as an official document[1] for the guidance of local authorities and their officers concerned, but there is much in it applicable to prematernity work in family practice, and a study of it will repay all who practise midwifery. The British Medical Association has recently expressed very emphatically the opinion that, apart from their educational work, there is nothing essential done at ante-natal clinics that should not be done equally well either at the woman's own house or at the doctor's consulting room. It is admitted that at present a large number of midwives are not fully competent for this purpose and that there are doctors who do not show willingness to undertake the work. Both these unfortunate conditions are, however, in process of being overcome, and, unless general practitioners are prepared to see midwifery go the way of infectious fevers, venereal disease, and tuberculosis, it is essential that they should keep themselves informed of what is expected of public ante-natal clinics, so that they may themselves give like service.

A brief review of its contents may serve to draw attention to this memorandum on ante-natal clinics, published by H.M. Stationery Office at the modest price of one penny. It begins by laying down six principles on which ante-natal care should be based, and these are, shortly: (1) the prevention of foreseeable difficulties in labour; (2) the early detection and treatment of toxaemia; (3) measures for increasing resistance to infection and for the detection and treatment of septic foci; (4) the diagnosis and treatment of venereal disease; (5) co-operation between those responsible for the care of the child-bearing woman; and (6) educational efforts. On these fundamental points there will be general agreement, though regret may be felt at the absence of emphasis on attention to the health of body and mind in the expectant mother. Apart from picking out serious conditions—for example, cardiac, renal, tuberculous—that may be aggravated by pregnancy, a very material part of ante-natal care is the relief of many minor ailments—such, for instance, as digestive disorders, piles, and varicose veins—which by reason of their frequency form a large factor in the disabilities arising out of child-bearing. Nothing serves better to suggest to the women the advantages of prematernity care than that their little troubles and discomforts should have attention, whether in the direction of treatment or reassurance.

Before discussing the application of the principles as laid down, the organization and staffing of ante-natal clinics is considered, evidently in order to forestall what has been the chief criticism made against them—that of putting prematernity work into a separate pigeon-hole and divorcing it from the rest of midwifery practice, and the staffing of clinics by whole-time, and often junior, officers not in obstetric practice and with little or no obstetric experience. These criticisms are not mentioned, nor, so far as we can see, is any real effort made to meet them, except for some praiseworthy suggestions as to co-operation between clinic officers, doctors, midwives, and hospitals. Ante-natal care is successful chiefly where those responsible for it are responsible for the rest of the maternity work, natal and post-natal, and it is in institutions and in private practices where there is continued observation of and responsibility for the woman throughout child-bearing that good results are apparent. Recommendation is made that officers in charge of clinics, whole-time or part-time, should have had post-graduate obstetric experience, preferably in resident posts at a maternity hospital. Valuable as this advice is, the essential condition for successful ante-natal care is not met. The suggestions on co-operation are welcome, for there is no direction in which public health officers can be more helpful than in the staff work of co-ordinating the various units in a maternity service.

The minimum scope of ante-natal examinations, including their extent and frequency, is set out in the final section, and this will appeal more particularly to the general practitioner. One point that a study of the memorandum should make clear is that the doctor ought to have a midwife as his maternity nurse, using her services at his ante-natal examinations, to maintain touch with his patients, advise them on minor matters, and generally play the part for him that the health visitor does in the public clinic. Where this arrangement subsists the doctor delegates to his nurse-midwife the following up and observation of his patients, and the giving of advice as to preparation for the confinement, and he receives and checks her reports at intervals. Without a well-trained woman of this kind beside him he cannot give all that the ante-natal clinics give, for it is on the educational and social side that they have had most success. It is to be hoped that the final words of the memorandum will receive due attention from local authorities and their officers: "Generally speaking, treatment of abnormal conditions is not the work of an ante-natal clinic. Any cases requiring treatment should be referred, whenever possible, to the family doctor, or to a consulting clinic or a hospital. The importance of co-operation between the clinic and the professional attendant cannot be overestimated."

[1] 145/M.C.W. Ministry of Health. Maternal Mortality in Childbirth. Ante-natal Clinics, their Conduct and Scope. H.M. Stationery Office. 1d.

IDENTIFICATION OF FIREARMS USED BY CRIMINALS.

UNTIL recently it has not been considered possible to identify with any degree of certainty the firearm used in connexion with crime, even although the bullet which caused the death and the used cartridge case were available. Authorities admitted the possibility of recognizing certain resemblances, but dismissed the idea of any certain method of identification. There were, of course, experts who were prepared to give an opinion on such matters; but such opinions were, as a rule, *obiter dicta* unsupported by demonstrable evidence of identity. Of late years, however, the investigation of these cases by scientifically minded people has opened up a new field of research, and at the present time the identification of the weapon used in a crime may be made with precision in the greater proportion of cases.

Every bullet fired from a weapon has imprinted on its surface a series of marks. The most prominent of these are the grooves caused by the rifling of the barrel of the weapon used, and these, from their number, direction, width, and pitch, give a fair indication of the type of weapon used. In addition, however,

there are usually individual differences not only in the grooves, but on the surface between the grooves, which are specific to the particular weapon used, and are repeated on any projectile fired from the said weapon. By means of enlarged photographs or by a comparison microscope, which brings the images of the two objects (in this instance the bullet found in the case and another fired from a suspected weapon) side by side in one field, these individual characteristics can be recognized and demonstrated with precision. If a cartridge case has been discovered at the scene of the crime a similar technique is observed, and marks caused by the magazine, firing chamber, breech block, or firing pin may be compared with similar marks on a sample fired from a suspected weapon and definite individual characteristics again recognized. The methods adopted are excellently summarized in a recent paper by Mr. Robert Churchill (*Police Journal*, July, 1929), who took part in the identification of the weapons found in connexion with the murder of P.C. Gutteridge, which caused such a sensation in this country last year. Our readers will also remember the article contributed by Professor Sydney Smith to the *British Medical Journal* of January 2nd, 1926, in which similar methods were described which resulted in the conviction of the murderers of the Governor-General of the Sudan in the previous year.

Medical men play a not unimportant part in all such cases, for in the primary examination of the murdered person information of the greatest value may be obtained or lost according to the knowledge of the practitioner. For example, the marks on the victim's clothing and on the skin may show not only the distance and direction from which the shot was fired, but, if the traces are retained for microscopic and chemical examination, may give a clear indication of the nature of the powder used. Spectroscopic examination of such traces for emission spectra may give valuable evidence, and as such traces are often minute they stand considerable risk of being overlooked, washed off, or destroyed.

Not only in cases of firearm wounds, but in all cases of injury to the person, the medical evidence may be of paramount importance in fixing the guilt or innocence of an accused person, and it would appear that the time has arrived to consider whether sufficient attention is paid to the training of practitioners in forensic medicine in this country. Expert evidence is being used to a greater extent every year in our courts, and the judicial authorities naturally are demanding a higher standard of professional knowledge from medical experts. Our universities and medical schools ought to insist that their graduates should acquire a sufficient knowledge of forensic medicine, so that if called upon to help the investigating authority they are not destitute of the requisite knowledge.

MORPHOLOGICAL VARIATIONS IN BACTERIA.

BACTERIOLOGY has developed very largely as an applied science, for it has been in the investigation of disease that the greater part of our knowledge of bacteria has been acquired. Admittedly this has had its advantages. The stimulus so given to bacteriological research has been immense, and rapid strides in knowledge have been made in consequence. On the other hand, bacteriology as a pure science has suffered, for, though we have learned much about the etiology of disease and the isolation and identification of bacteria, we know next to nothing of their natural history. For long now the monomorphist tradition has dominated our views on the reproduction of bacteria. In recent years, however, the monomorphist conception has been called in question by the work of Lohnis, Hort, Mellon, and others, but the polymorphist view put forward by them has not gained general credence because their evidence has been scanty and unsatisfactory. Professor Arthur Henrici of the University of Minnesota has endeavoured to find out whether bacteria really do pass through some developmental cycle as the polymorphist school claims, and the fruits of his investigations are embodied in a monograph entitled *Morphologic Variation and the Rate of Growth of Bacteria*.[1] This investigation has entailed an immense amount of laborious work, including the measuring and counting of large numbers of bacteria and the observation of changes in form and structure. Professor Henrici admits that he has not gone far enough yet to allow him to dogmatize on the subject, nevertheless his findings warrant the drawing of certain conclusions. Bacteria do appear to pass through a developmental cycle comprising changes in length, affinity for basic aniline dyes, and the development of metachromatic (volutin) granules, each of these changes being quite definitely and constantly associated with a particular growth phase of a bacterial culture. His conception goes further than that of the orthodox monomorphist, but, on the other hand, he fails to find any support for the polymorphist idea of sexual reproduction on the part of bacteria. He certainly noted the appearance of abnormal forms in his cultures, but these invariably appeared when the cultures were dying and the bacteria were undergoing dissolution. Further, these departures from the normal morphology comprised the most varied and bizarre forms, suggesting irregular or patchy autolysis of the bacterial envelope, with consequent cellular asymmetry. These are the forms which the polymorphists have light-heartedly identified as buds, conidia, sporangia, and the like; there seems no good reason for abandoning the orthodox view of their being involution forms. Bacteriologists owe a debt to those who, like Professor Henrici, are endeavouring by their labours to remedy the defect in the foundations of this science which have resulted from too great haste to erect the superstructure.

EXPERIMENTS ON ANIMALS.

THE summer number of *The Fight Against Disease*, the quarterly journal of the Research Defence Society, contains an account of the annual general meeting of the society on June 12th, when Professor A. V. Hill, F.R.S., delivered the third of the Stephen Paget memorial lectures, entitled "Enemies of knowledge." Those who saw the report of this lecture in our issue of June 22nd now have an opportunity to read the full text. They will note that, while denouncing calumnies, Professor Hill pleads for tolerance and fairness in dealing with all arguments on either side which have any rational basis. Elsewhere in the issue appear notes on antivivisection meetings and a protest against the unfounded allegation that the Research Defence Society had anything whatever to do with the deplorable rowdiness at a recent meeting in Caxton Hall. We are glad to learn that Dr. Hadwen himself has not suggested that the society was responsible for what happened on that occasion. The society, now in its twenty-first year, needs further support. The annual subscription is 10s., and life membership costs five guineas; inquiries should be addressed to the honorary secretary, 11, Chandos Street, Cavendish Square, W.1. Opportunely enough, the current number of its journal appears almost at the same moment as the Home Office return for 1928 on experiments on living animals,[2] a sober document well worth studying.

[1] *Morphologic Variation and the Rate of Growth of Bacteria.* By Arthur T. Henrici, M.D. Monographs on General Agricultural and Industrial Microbiology, Vol. I. London: Baillière, Tindall and Cox. (13s. 6d. net.)

[2] Home Office Return on Experiments on Living Animals. H.M. Stationery Office. 1929. (pp. 70. 1s. 3d. net.)

The report of the chief inspector includes the names of all persons in Great Britain who held licences during any part of the year, together with a statement of the special certificates which were in force, and a list of the 256 registered places at which the licences were valid. The experiments are classified numerically according to their nature. Of the 1,310 persons who held licences, 339 performed no experiments during the year. The table showing the number of experiments returned by each licensee is divided into two parts in order to distinguish experiments performed without anaesthetics from those in which anaesthetics were used. The 14,976 experiments under anaesthesia comprise all those in which any serious operation was involved. The remainder of the experiments on living animals carried out during the year, numbering 300,915, were devoted entirely to inoculations, hypodermic injections, and some few other proceedings performed without anaesthetics. In no case was a certificate dispensing entirely with the use of anaesthetics allowed for an operative proceeding more severe than a subcutaneous venesection. Serious operations are always required to be performed under anaesthesia. Experiments performed without anaesthetics are mostly inoculations, but some are feeding experiments, or the administration of various substances by the mouth or by inhalation, or by external application, or the abstraction of blood by puncture, or simple venesection. "The operative procedures in the experiments performed under Certificate A without anaesthetics are only such as are attended by no considerable, if appreciable, pain." In a very large number of such experiments the results are negative and the animals suffer no inconvenience whatever from the inoculation. Antivivisectionists make great play with the total number of experiments performed without anaesthetics, ignoring the fact that for the most part these are entirely painless procedures carried out on behalf of official bodies with a view to the preservation of public health, or directly for the diagnosis and treatment of disease, or for the testing and standardizing of antitoxic serums, vaccines, and drugs. During the year the several registered places were visited frequently by the inspectors and a large number of experiments were witnessed; for the most part such visits were made without previous notice. The animals were found to be suitably lodged and well cared for, and the licensees generally attentive to the requirements of the Act and the conditions attached to their licences by the Secretary of State. Three irregularities only were reported during the year.

ANOTHER X-RAY DANGER.

An article by Dr. N. S. Finzi in the July issue of *The British Journal of Radiology* calls attention to the risk of x-ray emission from the hot cathode valve tubes used to rectify the high tension current supplied for radiological investigations. These valve tubes are usually sufficiently near to the patient and to the operator for such stray radiation to produce recognizable effects. Dr. Finzi illustrates his warning by reproducing a skiagram of the chest, which clearly indicates irregular shadows cast by x rays which came from his four valve tubes, although these were situated considerably further away from the film than the x-ray tube. Valve tubes are usually mounted inside a wooden cabinet with the transformer and other parts of the generating set, and the walls of such a cabinet, while concealing the apparatus from view, would offer little obstruction to the passage of x rays. It is usual for such tubes to be marked with figures indicating the correct current to be used when operating the set, and if less current is employed than that stipulated then x rays are liable to be produced in such a tube. Dr. Finzi alludes to this in a remark to the effect that the difficulty may be overcome by passing extra current through the offending tube. No doubt the ideal arrangement is that adopted in some large x-ray departments, such as that at Edinburgh, in which the generating apparatus is housed in a separate room, all the walls, ceilings, and floors of the building being constructed of x-ray-proof materials. If this cannot be done, a valve set may be rendered safe from this risk by screening it off from the patient and operator, as by the cabinet being lined with some protective material such as lead-rubber.

RADIUM TRUST AND COMMISSION.

At a meeting of the National Radium Trust held on August 15th under the chairmanship of Lord Parmoor at the Privy Council Office, Viscount Lee of Fareham was appointed chairman of the Radium Commission and to be a member of the Trust, and preliminary arrangements were made in connexion with the purchase of radium, with a view to placing it as soon as practicable at the disposal of the Commission. The National Radium Trust is constituted as follows:

The Right Hon. Lord PARMOOR, K.C.V.O., K.G., Lord President of the Council (Chairman).
The Right Hon. ARTHUR GREENWOOD, M.P., Minister of Health.
The Right Hon. W. ADAMSON, M.P., Secretary of State for Scotland.
Sir ERNEST RUTHERFORD, O.M., President of the Royal Society.
Sir JOHN ROSE BRADFORD, K.C.M.G., M.D., F.R.S., President of the Royal College of Physicians of London.
The Right Hon. Lord MOYNIHAN OF LEEDS, K.C.M.G., C.B., President of the Royal College of Surgeons of England.
The Right Hon. Lord DAWSON OF PENN, G.C.V.O., K.C.B., K.C.M.G., M.D., F.R.C.P., President of the Royal Society of Medicine.
The Hon. Lord MACKENZIE, LL.D., Chairman of the Central Liaison Committee for Voluntary Hospitals in Scotland.
Professor A. H. BURGESS, M.B., M.Sc., F.R.C.S., President of the British Medical Association.
The Right Hon. Viscount LEE OF FAREHAM, P.C., G.C.B., G.C.S.I., G.B.E.

The Radium Commission has now been set up in accordance with the provisions of the Royal Charter, and is composed as follows:

Viscount LEE OF FAREHAM. Appointed by the National Radium Trust (Chairman).
Lieut.-Colonel A. B. SMALLMAN, C.B.E., D.S.O., M.D., Medical Officer of the Ministry of Health. Appointed by the Minister of Health.
H. L. F. FRASER, LL.B., Assistant Secretary, Department of Health for Scotland. Appointed by the Secretary of State for Scotland.
SIDNEY RUSS, D.Sc., Professor of Physics, Middlesex Hospital Medical School. Appointed by the Medical Research Council.
G. W. C. KAYE, O.B.E., D.Sc., Superintendent of the Physics Department of the National Physical Laboratory. Appointed by the Department of Scientific and Industrial Research.

Six members appointed by the Trust from the panel of twelve persons selected by the heads of the medical profession under Article 4 (2) of the Charter, as "having special knowledge and experience of the application of radium in the treatment of the sick":

J. M. WOODBURN MORISON, M.D.Glas., F.R.C.P.Ed., Lecturer in Radiology, University of Edinburgh.
G. E. GASK, C.M.G., D.S.O., F.R.C.S., Professor of Surgery, University of London.
W. ERNEST MILES, F.R.C.S., Surgeon to the Cancer Hospital, Brompton.
COMYNS BERKELEY, M.D., M.Ch., F.R.C.P., F.R.C.S., Gynaecological Surgeon to the Middlesex Hospital.
CARLTON OLDFIELD, M.D., F.R.C.P., F.R.C.S., Professor of Gynaecology, University of Leeds.
ARTHUR J. HALL, M.D., F.R.C.P., Professor of Medicine, University of Sheffield.

PROBLEMS OF THE UNFIT.

There is a good deal of undoubted truth, together with some statements of a more dogmatic character than can perhaps be justified and a few which will not bear strict examination, in an article entitled "The multiplication of the less fit," by Dr. K. B. Aikman, in the current number of the *Edinburgh Review*. The importance of the subject and the urgent need of action in regard to it justify reiterated attempts to keep it in the public mind, but panic propaganda and panic legislation or administrative action are almost always unwise, and are likely to fail in their real objects. There is just a suspicion of such panic in many recent letters and articles in the lay press dealing with the prevalence of mental and physical deficiency and with the question of eugenic reform; and in Dr. Aikman's article the picture is probably a little out of true perspective. The comparative and the superlative are not always kept in their proper places. Referring to the differential birth rate in the various grades of society, Dr. Aikman, following a not uncommon line, says: "A much higher proportion of the middle classes is now on the road to extinction. Some might argue that this would be no great loss, as their places would be filled with the pick of the lower grades of society. . . . Every unprejudiced person will admit that the average level of ability in the great middle class is higher than in the lowest classes." Here a *non sequitur* is patent, owing to a confusion between the "lower" and the "lowest." This confusion pervades, indeed, a good deal of recent argument. There is no biological or practical reason to believe that there is any fundamental difference in stock value at birth between the offspring of the skilled artisans, the bulk of the decent labourers, agricultural or other, and of those commonly regarded as above them in the social scale. History and science alike support this view. It is with the "lowest," not with what some are pleased to call the "lower," that danger lies. Within this lowest class—perhaps almost one-tenth of the whole population—will be found a larger proportion of physically and mentally defective persons than among the rest, but certifiable defectives by no means constitute the whole of this class, nor even the greater part of it. Conversely, physically and mentally defective children are born in considerable numbers in every grade of society; and, though mentally defective parents will tend to produce mentally defective offspring, yet the vast majority of such offspring are not the children of parents who are certifiably mentally defective or insane. Moreover, it has now come to be recognized that a large proportion of those who are intellectually defective are not at the same time socially defective, and that with very slight supervision these can be trusted to behave as decently in the community as the average member thereof, though their economic value be less than the average. It follows from these considerations, first, that the need for provision for segregation of defectives, though more is required than at present exists, is not so immense as is often assumed; and secondly, that the sterilization of certified mental defectives, though probably of value in dealing with particular individuals or families, would be futile as a general preventive measure. Fortunately, this lowest class of society, however constituted, tends to segregate itself, and though its rate of reproduction is above the normal its expectation of life is less than the normal. Dr. Aikman is in error when he says that "everything making for increased expectation of life favours the poorest." Nevertheless, the question of how to deal with the lowest class, with all its difficult interrelated problems, remains and becomes more urgent year by year. It is certain that these problems cannot be solved by any simple legislative enactment. Inquiry, however, as to the way in which the questions of poverty and of deficiency are related to one another, and as to the exact genetic causes of deficiency, is imperatively needed, and, quite apart from inquiry and action by the State, Dr. Aikman is surely right in his suggestion that something at least might be done by impressing upon the fitter citizens the recognition of their duty to have a reasonable number of children, and by insistently pointing out to the younger generation the undesirable consequences to themselves and to their offspring of choosing a mate from a bad stock.

FARADAY CENTENARY, 1931.

The arrangements initiated by the Royal Institution for the celebration of the centenary of Faraday's discovery of electro-magnetic induction are already well in hand. At the meeting held on February 5th last the formation of two committees was agreed to, and these committees are now at work. The first, consisting of representatives of the Royal Society, the British Association, and other scientific societies, as well as the Royal Institution, is concerned with the purely scientific aspects of Faraday's work; the second committee, called together by the Institution of Electrical Engineers, includes representatives of the principal organizations of those industries which have risen in the past hundred years upon the scientific foundation of Faraday's discoveries, and is dealing with the industrial aspects of the celebrations. The two committees are working in close co-operation, and their preliminary discussions indicate that the significance of the centenary is very widely appreciated and that the celebrations are likely to arouse world-wide interest. The proceedings will open in London on Monday, September 21st, 1931, two days before the British Association begins its centenary meeting in London.

MEDICAL RESEARCH COUNCIL.

By an Order of the Committee of Privy Council, Viscount D'Abernon and Mr. A. G. Church, M.P., are appointed members of the Medical Research Council on the retirement of the Earl of Balfour and of Sir Charles Trevelyan, Bt., M.P. Lord D'Abernon will succeed Lord Balfour as chairman of the council. By another Order, made after consultation with the Medical Research Council and with the president of the Royal Society, Professor J. J. R. Macleod, M.D., regius professor of physiology in the University of Aberdeen, and Mr. Wilfred Trotter, F.R.C.S., honorary surgeon to H.M. the King and surgeon to University College Hospital, London, are appointed members of the council in succession to Professor E. P. Cathcart and Sir Charles Sherrington, who retire in rotation on September 30th.

We regret to announce the death in London, in his eighty-second year, of Dr. William Ewart, consulting physician to St. George's Hospital and the Belgrave Hospital for Children. We hope to publish a memoir in our next issue.

The Hungarian Government is offering a prize of 2,000 Swiss francs for an independent essay on the etiology of trachoma indicating definite research. These essays must be addressed to the Eye Clinic No. 1 of the Royal Hungarian Peter Pázmány University, Mária-utca 39, Budapest VIII, not later than June 30th, 1931. Works that have already appeared in print are likewise eligible for this competition. The jury of award may also consider works not submitted for competition but appearing in print between July 1st, 1929, and June 30th, 1931. The essays may be written in German, English, French, Italian, or Hungarian. The jury of award will be appointed by the Hungarian Minister of Public Welfare and Labour, and its decision will be announced not later than December 31st, 1931.

Nova et Vetera.

A SEVENTEENTH CENTURY MANUSCRIPT PRESCRIPTION BOOK.

Before us lies a quaint little book with a request from the owner for information about it. It is a 12mo, 5.25 x 3.1 x 1.3 inches, bound in calf, with the original leather ties. The leather is stout, and the piece not being large enough, the binder has sewn strips on the top and bottom infoldings so that the pasteboards should be adequately covered. The ties, which are of untanned leather with broad ends pasted down on the boards, are quite sound and fasten easily. On the liner of the upper cover is written "Thomas Boraston his Booke." The writing is that of the later of the two main handwritings with which the book is filled. None of the usual books of reference give any account of this name, but there was an ecclesiastical family in Worcester and Herts with several Thomas Borastons in their list, the earliest of whom subscribed at Oxford in 1635.*

The book is essentially a manuscript pharmacopoeia of mid-seventeenth century writing; probably one of those written for medical students by scribes who copied the lectures and extracted from books hand-lists of notes. The custom lasted down as late as the first twenty years of the last century, especially at the great schools in London. This manuscript is unusually full. It gives pharmaceutical directions as to the various medicaments, their kinds, methods of exhibition, such as how to dilute a concentrated preparation to an 8 oz. measure, and so forth. Then there are schemata under the headings of heart, lungs, abdomen, and the other parts of the body, with signs and treatment. The whole of the original work is written in contracted Latin and in a hand of the first half of the seventeenth century; very neat and easily read, with the headings and the chief words of the paragraphs written in red ink.

The first leaf is filled with an account of the conditions following conception. It is written in a somewhat later hand, and the writer has added here and there throughout the book notes and prescriptions enlarging those of the original script; some of these are in English. The extract is as follows:

"The sign of Conception for ye woman. The first day after Conception she feels a slight quivering rushing al through the whole body a tickling in ye womb & a little paine in ye lower pts of ye belly 10 or 12 days after ye hede is affected with giddiness ye eyes with dimness of sight, then followes red pimples in ye face with a blew circle about ye eyes ye breasts swell & grow hard wth some paine & pricking in the', ye belly suddenly sinketh and riseth againe by degrees w'th a hardness about ye navill ye nipples of ye brests waxe red ye hearte beats inordinately ye appetite dejected yett she hath a longing desire after straingo meats, ye necke of ye wombe is retracted yt it can hardly be felt by ye finger being putt up & this is an infallible signe. She is soone merry & soone sad her monthly courses are stayde wthout any evident cause, her excrements likewise unaccustomably retained by ye wombe pressing ye great gutt & her desire to vent is abated. The surest sign is taken from ye infant wh begins to move in ye 3d or 4th month & yt not in manner of a mole fro' [ye] side like a stone but mildly as may be p'sed [perceived] by applying ye hand hott on ye belly. The urine is white & hath little nodes [? motes] like those in ye sun & a cloud swi'ming, ye last of an opall coloure ye sediment being divided by shaking of ye reines .... appeares like carded wool. In ye middle of her time ye urine turneth yellow, next red & lastly blacke wth a red cloud. Ergo from experience atte night going to bed lett her drinke water & hony afterwards if shee feeles a heating paine in her belly & about her navill she hath conceived or else take the juice of cardu' [carduus benedictus] and if she vomit it uppe it is a signe of Conception. Cast a cleane needle into a womans urine put into a brazen bason lett it stand all night & in ye morning if itt be coloured with redd spotts she hath conceived, butt if it be black or rusty she hath nott. Beinge with child of a male ye right breast swells first ye right eye is more lively than ye left her face well coloured & red motes in ye urine settling downe to ye sediment, butt if white [motes] a female. Putt a womans water who is with child into a glasse bottle let it stand close stopt 3 days then straine it through a fine cloath & you shall find little living creatures, if red a male, if white a female."

There are prescriptions given, too, to aid conception. This extract practically dates the book; it is the sort of thing found in *The Women's Book*, Culpeper, and a whole host of writers down to the time when Harvey began to rationalize treatment and theory. It lingered on into the eighteenth century, and some of it still appears in the so-called *Secrets of Aristotle*, which may be seen in the windows of the shops in Charing Cross Road, where "rubber goods" may be obtained by those who want them.

On the fourth leaf is written in an uneducated late eighteenth century hand, "A resite for a Waste. 1 ounce of Hartshorn shavings, 1/2 oz. of Isinglass, 2 calves feet, 3 pints of cows (?) milke. Stew the calves feet in a jare in the oven, then strayne through a cloath. Tack a Tee cuppe 2 or 3 tims a day." Not bad food for a consumptive. About the middle of the book two pages are taken up with remedies preservative "against the lues Ungarica or the new disorder raging through England." These are chiefly taken from Dr. Whitmore's book. This would be Humphry Whitmore, M.D.Oxon., 1648, and Hon. F.R.C.P., 1664. What the disease was is unknown, but as the remedies were chiefly of a stimulant kind, and bleeding only recommended to the plethoric and robust, it was probably influenza, certainly not plague, as that had been and was too well known. The writing is in the same hand as that describing the signs of pregnancy.

In conclusion, we have here a little bit of the flotsam cast up on the shores of Time, bringing to mind that even in the time of the Civil War the careful practitioner carried about with him what is equivalent to Martindale's or Squire's compendia, adding thereto from time to time some useful prescription or bit of knowledge which would stand him in good stead when up against a difficulty whether of a single case or, as in the last quotation, an epidemic.

F. W. C.

* The arms of the Boraston family are given in *Arch. Cant.*, xvii, p. 242: "Quarterly arg. and sab. on a bend between 2 cotises gules, 3 crosses formy fitchy, or. Crest, out of a mural coronet sable a griffin's head, or, gorged with a fess between 2 bars gemel gules."

THE METROPOLITAN ASYLUMS BOARD.

REVIEW OF THE YEAR 1928-29.

"*Morituri te salutant*" might be inscribed on the orange cover of the report of the Metropolitan Asylums Board for 1928-29,[1] for, as the Board announces, in a tone of regret if not of complaint, the functions which it has discharged for more than sixty years are to be transferred to the London County Council. The Board points out that since its inauguration it has enlisted the services of a large number of men and women who have devoted themselves to the work of providing, maintaining, and extending where necessary the public hospitals required by London for infectious diseases, tuberculosis, and mental cases; that it has organized an ambulance service which last year conveyed nearly 100,000 patients; and that it has under its control about 25,000 hospital beds, and in times of pressure employs a staff of 10,000 persons. The Board is naturally anxious to have it placed on record that its disappearance with forthcoming changes in local government is not due to any shortcomings; on the contrary, a tribute has been paid to the efficiency of its organization by the late Minister of Health and by the London County Council, which is the absorbing body. The Board believes that this absorption may well be viewed by the people of London with regret, and it observes that under the "guillotine" no opportunity was afforded in the House of Commons for a discussion of the provisions of the Local Government Bill as affecting London, and consequently no reference could be made in Parliament to the Board's work.

Infectious Diseases.

Turning from the indefinite future to the very definite and documented past, we have the usual tables of statistics relating to cases dealt with by the Board. The following figures show

[1] Metropolitan Asylums Board. Annual Report for the year 1928-29. Office of the Board, Victoria Embankment, E.C.4. 5s.

the admissions to its hospitals for the commoner infectious diseases, with the corresponding figures for 1927:

	1928.		1927.	
	Cases Admitted.	Deaths.	Cases Admitted.	Deaths.
Diphtheria	8,931	335	9,155	370
Diphtheria (Bacteriological)*...	1,037	9	1,165	11
Measles	7,307	561	2,350	123
Scarlet fever	13,065	81	11,470	64
Whooping-cough	1,455	122	1,888	217

*Cases in which bacteriological evidence of diphtheria has been found, but no clinical evidence, such as inflammation of throat or nose.

The chief point calling for notice is the large number of whooping-cough cases, which, though below the figure for 1927, is nearly double the yearly average since 1911, when the Board was first empowered to admit this disease into its hospitals. The figures for 1929 bid fair to be higher still. The greatest pressure on the accommodation for whooping-cough cases occurred on April 3rd last, when there were 1,222 such cases in the hospitals; the previous highest number at any one time was 789 in 1911. The mortality percentage of patients treated for whooping-cough was 9.33, compared with 7.17 for measles and 0.63 for scarlet fever. The mortality for scarlet fever was much the same as for 1927, though the personal observation of the chief medical officer of the infectious hospitals service, Dr. F. H. Thomson, is that the type of scarlet fever prevalent in 1928 was less benign. Dr. F. M. Turner, medical superintendent of the South-Eastern Hospital, makes a comparison between the scarlet fever cases at that hospital in 1903 and 1928; in the former year the case mortality was 3.11 per cent., and in the latter year 0.55, and he states that scarlet fever now is definitely less severe, the duration of the fever shorter, and the maximum temperature lower. The case mortality of diphtheria in 1928 was 3.66, the lowest yet recorded. With regard to measles, it is noted that the case mortality during the epidemic of 1927-28 was much higher in children under the age of 2 than in children of older years. Dr. Thomson states that it is almost certain that in the course of every epidemic of measles in London a time will come when the pressure on the hospital accommodation will be such that not all cases can be admitted. At present, when a shortage of beds becomes imminent, the medical officer of health, on whose recommendation alone in that event such cases are accepted, bases his selection rather upon the type of home than the type of case. While fully realizing that the type of home influences the case mortality of measles, Dr. Thomson says that it should not be forgotten that the case mortality under 2 years is very high, and therefore the age of the patient should also be a factor in the selection of admissions.

The Small-pox Outbreaks.

The number of admissions for small-pox during 1928 was 288, and there were 2 deaths. The highest figure for monthly admissions (84) was reached in June. The disease throughout was characterized by a low degree of toxicity and infectivity—that is to say, it was a type highly amenable to the influence of vaccination, and a type against which infantile vaccination affords a much more prolonged immunity than in the severe toxic type of the disease to which London has been accustomed in times gone by. "It is possible to say," proceeds the report, "that the experience of the past year has shown that the subtoxic type of the disease can be kept under control by vaccination even more easily than the more severe type, and that it is precisely in those districts in which vaccination is neglected subsequent to the appearance of the disease, and where the innocuous character of the disease induced the people to refuse to submit themselves or their children to vaccination, that widespread prevalence has occurred." The danger of neglect is illustrated by the recent intercurrence of the more severe and deadly type of infection, imported to London from Bombay in April last amongst the crew and passengers of a large liner. In connexion with this invasion, fourteen patients were admitted to hospital, of whom two died, while six of the others suffered attacks so severe as to put life in jeopardy. The deaths occurred in patients who had refused the protection of vaccination subsequent to exposure to infection, and one of them came from West Ham, where the subtoxic type has been very prevalent, and vaccination has been neglected. This patient was the only instance of the infection passing from a member of the ship's company to one of his family. During the first four months of the present year no fewer than 661 patients have been admitted for small-pox (370 of them in the month of April), and nearly half of them from West Ham.

Mental Diseases: Tuberculosis.

The average annual number of direct admissions of mental cases to the Board's institutions during the past three years has been 1,534; these include cases under the Lunacy and under the Mental Deficiency Acts, feeble-minded patients uncertified, uncertified aged poor, and sane epileptic patients. The demands of the metropolis on the Board's accommodation for cases of mental defect have been increasing for some years past, so that it has now become necessary to give notice to extra-metropolitan authorities to remove as soon as possible their mental defectives who are maintained in the Board's certified institutions; over sixty authorities and 1,400 patients are affected by this order. A unit of 100 beds has been maintained since 1925 at the Northern Hospital for the reception of children suffering from the after-effects of encephalitis lethargica. Now, following representations from certain metropolitan boards of guardians, it has been decided to reserve 50 beds at the same hospital for the treatment of adults suffering from the same condition, and to reduce to 75 the beds available for persons under 16.

During the year under review 3,631 cases of pulmonary tuberculosis were admitted to the Board's institutions, which is about the same figure as for 1927. The average duration of stay again increased at all the institutions for adults, the mean figure being now 22 weeks in sanatoriums and 18½ weeks in hospitals for advanced cases. A symposium is published in which the medical superintendents pool their experiences of treatment by gold salts. While selected cases may benefit, the general tenor of the report does not appear very encouraging. Surgical methods of treatment are being more widely used, and the Board has taken the step of appointing a chest consulting surgeon.

Special Clinics.

Mr. Comyns Berkeley, the honorary director, reports on the first six months' working of the radium centre for the treatment of carcinoma of the uterus, primarily the cervix. This centre, for which radium has been purchased at a cost of over £4,000, is at the North-Western Hospital. Up to the present 54 patients have been admitted, of whom 33 have completed their treatment. All cases of cancer received at the centre, if not obviously in the last stages of the disease, have been treated, if only as a palliative measure. No indication can be given as yet of the results, but Mr. Berkeley believes that if medical practitioners were allowed to send their patients direct to the centre, as obtains in fever cases, instead of through the Poor Law hospitals, many more patients would be received in the early stages, and therefore the lives of many more women would be saved. The majority of such cases are now sent to the general hospitals, where they may have to wait some time before admission, and meanwhile the disease is progressing.

The 208 cases admitted to the wards set aside for the treatment of uterine infection are reviewed by Mr. James Wyatt. He states that, with regard to septicaemia, nothing specific has been found that appears to help in any way, and in cases where the blood culture is positive the mortality seems to be almost 100 per cent. There is no doubt, in his opinion, that some cases are infected by manipulations, but this certainly does not account for all. He believes that the organism is sometimes air-borne from the nose or mouth of the attendant, and suggests that a veil should be worn at every confinement. The Board has decided to concentrate all the acute cases of puerperal fever and puerperal pyrexia in future at the North-Western Hospital, instead of at two or three hospitals as hitherto, and arrangements have also been made for the assistant director of research and pathological services to be in frequent attendance to see new cases and discuss with the visiting obstetric consultant what bacteriological measures should be adopted.

The report embodies the usual large number of contributions by members of the staff, some of them in the form of notes on special cases, others relating to original investigations.

Scotland.

Bicentenary of the Edinburgh Royal Infirmary.

The bicentenary of the opening of the Royal Infirmary of Edinburgh fell on August 6th, and on that day an interesting memento of the occasion in the form of an illustrated commemorative card was presented to all the patients and members of the staff. The public celebration of the bicentenary has been deferred till early in October, when it is proposed to have a thanksgiving service in St. Giles's Cathedral, followed by a public meeting in the Usher Hall, and to launch an extension appeal for £300,000.

The remarkable story of the growth of the Royal Infirmary has been sketched in a most interesting and attractive small volume by Dr. A. Logan Turner, which is being printed by Messrs. Oliver and Boyd, and will be sold eventually in aid of the Infirmary funds. Dr. Logan Turner recalls that, in the medical history of Scotland, the dawn of the eighteenth century witnessed the inception of two great interdependent movements—the foundation of her schools of medicine and the establishment of the voluntary hospital. As befitted the capital of the country, both these movements were initiated in Edinburgh, where they first took practical shape. The Edinburgh School of Medicine began its long and distinguished record in 1726. In 1721 John Munro, the Deacon of the Incorporation of Surgeons, who, as was then the fashion, had studied in Leyden, issued a pamphlet in which he set forth the great necessity of founding a hospital, not only for maintaining and curing the sick poor, but also as a means of imparting clinical instruction. The scheme languished, but received a fresh impetus in 1725, when the physicians called a public meeting and made an appeal for subscriptions. In due course a sum slightly exceeding £2,000 was raised, and this was deemed sufficient to justify action being taken. In December, 1728, at a meeting of the contributors, twenty of their number were elected managers, and the rules of management were drawn up. A small house was rented at the top of Robertson's Close, which linked the Cowgate on the north with a thoroughfare (now known as Infirmary Street) giving approach from the west to the grounds of the old Black Friars' Monastery. After the provision of the necessary furniture, a gentlewoman was appointed as mistress or housekeeper at a salary of £5, along with one servant or nurse for the care of the patients. On August 6th, 1729, the hospital was ready for the admission of patients, and at the end of the first month the six beds which it contained were occupied. From the outset no restrictions were placed upon admission to the hospital; the first patient came from Caithness, and others during the early months from Peterhead and the Island of Mull. In the first year 35 patients were treated. It is of interest to note that ague or malaria is mentioned four times as one of the diseases treated. The cost of upkeep during the year was about £98.

With the grant of a charter by King George II in 1736 the Infirmary entered upon a new phase of its progress. The change of status had the effect of increasing public interest, and in August, 1738, the foundation stone of a new building was laid with appropriate civic ceremony in Infirmary Street. The east wing was opened in 1741, and the whole scheme was completed in 1745. During the fighting in the rebellion of '45 the hospital was extensively used by the military authorities for the treatment of wounded soldiers. There followed in the new building a notable development in medical education in Scotland, for Professor John Rutherford and his colleagues introduced the Leyden method of clinical teaching, which, as developed by them, became one of the distinctive methods of instruction in the Edinburgh School. In 1749 the managers issued instructions that a ward should be placed at the disposal of Professor Rutherford to accommodate those patients—not exceeding ten in number—whom he proposed to use as the text of his lectures. Early in the nineteenth century the question of enlargement again became urgent, and opportunity of effecting an extension arose in 1828, when the pupils of the High School were transferred to the Calton Hill. A sum of £7,500 was paid by the managers to the town council for the High School buildings just vacated, and these were adapted and furnished as a surgical hospital with 72 beds, which later was to be associated with the great work of Syme, Simpson, and Lister. This part of the old Infirmary is still standing, and is now the engineering department of the University.

With the passage of years the buildings at the foot of Infirmary Street became totally inadequate, and plans for a new building were prepared. There was much controversy as to whether it should be erected on the site of the old or whether a new neighbourhood should be chosen. Eventually the site in Lauriston was selected, and there sprang up the great baronial pile we know to-day. Altogether £350,000 was expended on the new Infirmary, and it was a noteworthy achievement on the part of the people of Scotland that the hospital was opened with a debt of only £50,000. The foundation stone had been laid in 1870 by the Prince of Wales, and the formal opening took place in 1879. The present year, therefore, marks not only the bicentenary of the opening of the first building, but the fiftieth anniversary of the opening of the present buildings. On October 31st, 1879, some 240 patients were transferred in cabs and other vehicles from the old quarters to the new. The accommodation was 500 beds, which had since been doubled. In 1770, 1,302 patients were treated; in 1805 the number had risen to 2,103; last year 19,680 indoor patients and 62,085 outdoor patients were treated. In 1730 the upkeep cost £97 19s. 7d.; last year it was £136,831. The latest additions to the equipment of the Infirmary are the radiological department, which cost £50,000, and was opened by the Duke of York in 1926, and the clinical research laboratory, presented at a cost of £35,000 by the Rockefeller Trust. The most recent development in connexion with the institution is the reconstruction of the mansion house of Beechmount, Murrayfield, as a radium institute for Edinburgh and the south-east area of Scotland; this institute will be under the management and direction of the Infirmary board. But still another extension is being made, as mentioned previously. George Watson's College and grounds, which adjoin the Infirmary, have been acquired at a cost of £90,000, and it is proposed to erect here a maternity and gynaecological hospital with accommodation for 240 patients, and a new nurses' home. The ultimate cost, it is estimated, will be about £300,000.

Whatever the future has in store for the Royal Infirmary, it can be claimed that, since its humble and modest origin two hundred years ago, it has continuously discharged the double function which its founders, just prior to 1729, desired that it should fulfil—"the saving and restoring to health members of society," and the education of the future practitioner of medicine.

Research at the Glasgow Children's Hospital.

In the annual report of the Royal Hospital for Sick Children, Glasgow, for the year 1928, a special appeal is made for a research fund of £20,000. It is urged that an important function of such a hospital with its very large clinical material is research into the causes and the best means of preventing and curing the diseases of infancy and childhood. In close association with the University, where valuable foundations exist for scientific workers in diseases of children, the hospital has to provide the requisite facilities, skilled assistance, accommodation, expensive apparatus, etc., to enable these investigators to carry out their work. The directors feel that the ordinary funds of the hospital should not be called upon to bear this burden, and the research fund is required to meet this form of expenditure. Another university lectureship associated with the hospital has recently been founded, to be known as the Gardiner Research Lectureship on the Pathology of the Diseases of Infancy and Childhood, and Dr. John S. Blacklock, pathologist to the hospital since 1924, has been appointed to hold this position, and Dr. Katherine J. Guthrie to be assistant pathologist. These recent appointments only serve to accentuate the position outlined above, and the success of the appeal for the research fund becomes a matter of urgency.

Health of Dundee.

The report for 1928 of Dr. W. L. Burgess, medical officer of health for Dundee, begins with the statement that the year showed a marked improvement in the vital statistics compared with the previous years, an improvement which was due almost entirely to a reduced prevalence of certain of the epidemic diseases. The death rate was 15.1 per 1,000, as against 16.9 in 1927. This compares with 13.7 for Edinburgh and Glasgow (*Journal*, July 13th, p. 71, and July 20th, p. 120). The birth rate was 20.3, which is the lowest recorded for the city except for the war years. The corresponding figures for Edinburgh and Glasgow were 17.3 and 20.62. The infantile mortality rate was 102 per 1,000 births, the second lowest on record. Edinburgh's infantile death rate was 75 and Glasgow's 107. Dr. Burgess remarks that the conditions prevailing in Dundee are particularly hard on infant life. The tuberculosis death rate was 1.05 per 1,000, compared with 1.16 in 1927. The number of deaths from malignant disease, 338, is greater than in any previous year. There were 623 cases of diphtheria notified, as against 1,023 in 1927, when there was a severe epidemic; the mortality was 4.8 per cent. Each death from diphtheria occurring during the year has been the subject of inquiry and report. The evidence provided by these reports suggests that a very marked decline in the number of deaths from diphtheria would follow a more thorough understanding on the part of the public of the nature of the infection. The year's experience also provides further proof that recovery depends mainly on the prompt recognition of the disease and the immediate administration of antitoxin. Small-pox again appeared in the city, but was confined to a small outbreak of five cases.

New Haddington Hospital.

The laying of the memorial stone of the Haddington and District Cottage Hospital took place on August 1st, the ceremony being performed by the Earl of Wemyss, Lord-Lieutenant of the county. The hospital is being erected on a splendidly elevated site to the north of the burgh, commanding a fine panoramic view of the town and Tyne valley, as well as the Lammermuir ranges to the south. Provost George Rattray, chairman of the hospital committee, presided, and remarked that there had been a very generous response to the appeal for funds. A donation of £8,000 had been made by Mr. John Vert, a native of the burgh resident in the United States. Another native in America, Mr. Horsburgh, had forwarded a cheque for £1,000. Altogether £16,000 had been received. In addition, Mr. Henry Veitch had given the excellent site; the builder, Mr. Richard Baillie, had generously offered to build the front and sides of the hospital with stone, in place of brick, taken from Lord Wemyss's old mansion house, Amisfield; and Lady Wemyss and other ladies had contributed certain furnishings. On the motion of Lord Polwarth, a vote of thanks was awarded to the Earl of Wemyss, and on the call of Dr. W. R. Martine a similar compliment was accorded to Provost Rattray.

Preservatives in Cream.

Speaking recently at the annual meeting of the Galloway Creamery, Ltd., at Stranraer, Mr. F. T. Ferguson, chairman, said that since the Order eliminating preservatives from cream the company had found that half a million gallons less milk were required for their cream trade. That amount had either to be thrown into the liquid milk market, where it was not wanted, or manufactured into cheese, where it was not wanted either. Conferences and pleadings with the Public Health Department had been of no avail. He had received a letter from Major Dudgeon, member of Parliament for Galloway, in which he said that several Scottish members of Parliament had been going into the question of getting the order rescinded, and they were to discuss the matter fully with a responsible representative of the Ministry of Health. The Galloway Creamery, the chairman continued, had had to make 7,000 more cheeses than in the previous year, and with the estimated stocks of New Zealand cheese more than double and Canadian stocks two and a half times more than a year ago, there was no market for this large quantity.

Central Midwives Board for Scotland.

At the recent examination of the Central Midwives Board for Scotland, held simultaneously in Edinburgh, Glasgow, Dundee, and Aberdeen, out of 123 candidates who appeared for the examination, 110 passed. Of the successful candidates, 35 were trained at the Royal Maternity Hospital, Glasgow; 27 at the Royal Maternity Hospital, Edinburgh; 9 at the Royal Infirmary, Dundee; 6 at the Maternity Hospital, Aberdeen; 10 at the Elsie Inglis Memorial Hospital; 5 at Stobhill General Hospital; 2 at Barshaw Maternity Hospital; 4 at Motherwell Maternity Home; 3 at the County Hospital, Bellshill; 3 at the Cottage Nurses Training Home, Govan; 3 at the County and City of Perth Royal Infirmary.

England and Wales.

London Coroners: Proposed Alteration of Districts and Revision of Salaries.

NINE coroners at present officiate in the County of London, exclusive of the City of London, which has its own coroner. There are seven districts to which the coroners are appointed by the London County Council, and there are also five franchise districts, to which the coroners are appointed by other bodies or persons, but in the case of three of these franchise districts the coroner is also a county coroner. The five districts are Westminster, where the appointment is by the Dean and Chapter; Southwark, where it is by the City Corporation; the Duchy of Lancaster (Clapham) and the Duchy of Lancaster (Savoy), where the Crown appoints, and the Liberty of the Tower, where the appointing person is the Constable. The abolition of these franchise districts has been advocated by the London County Council for thirty years. Under the recent Coroners (Amendment) Act they will be absorbed into the county for coroners' purposes as and when vacancies occur. The London County Council, therefore, has been considering the division of the county under the new and more uniform arrangement which will eventually come about. It is proposed to divide the county into six districts, having regard to recognized electoral areas, the situation of the larger hospitals, travelling facilities, inquest and post-mortem accommodation, and traffic conditions. The districts will be as follows:

District.		Metropolitan boroughs.
Western ...	...	Hammersmith, Fulham, Battersea, Wandsworth, and Chelsea.
Central ...	...	Westminster, St. Marylebone, Paddington, Holborn, Finsbury, and Kensington.
Eastern ...	...	Shoreditch, Bethnal Green, Stepney, and Poplar.
Northern	...	St. Pancras, Islington, Stoke Newington, Hackney.
Southern	...	Lambeth, [illegible] wark.
South-Eastern ...		Bermondsey. [illegible], Greenwich, and Woolwich.

The present North-Eastern and South-Western districts will disappear, the former being divided between the Eastern and Northern, and the latter between the Southern and Western, while all the franchise districts will be absorbed according to their geographical areas. This rearrangement involves a reconsideration of salaries. The salaries received by the coroners at present, all of which are paid by the London County Council, vary from £1,041 to £1,500, and in addition each county coroner receives an allowance of £100 during the council's pleasure. The new salary proposed to be fixed is £1,700 inclusive. In arriving at this figure it is stated that regard has been paid to the fact that London coroners are required to possess both medical and legal qualifications, and to bear expenses connected with their office estimated to amount to £250 for each coroner yearly. The question of pensions for coroners has also been raised. Two of the present coroners are over 70 years of age, and it is thought that preliminary steps

should now be taken in order that there may be the least possible delay in making a change. Under the Act power to pay pensions to coroners is conferred upon the council. The pensions laid down in the Act are more liberal than those normally granted out of the London County Council's superannuation fund, but in view of the qualifications now required for the position of coroner, combined with the comparatively advanced age at which the majority of them are appointed, it is felt that coroners are not as a class entirely comparable with the general body of the council's staff. It is proposed to adopt the scale of pensions set out in the first schedule of the Coroners Act, with the modification that ten instead of five years' service be the qualifying period. A coroner reaching the age of 65, or on being permanently incapacitated, will be granted a pension at the rate of ten-sixtieths of his salary, with the addition of one-fortieth of his last annual salary for each completed year of service after five years, provided that no pension shall exceed two-thirds of the last annual salary.

East Ham War Memorial Hospital.

What was formerly the East Ham (Passmore Edwards) Cottage Hospital in Shrewsbury Road, founded in 1902, with twenty-five beds, has recently been converted into a general hospital containing 100 beds, as a memorial to the two thousand men belonging to this county borough who gave their lives in the great war. The reconstructed hospital, the only voluntary institution of its kind in this crowded district, is of very pleasing architecture and excellent planning. The ward blocks are so arranged, with their main axes north and south, as to secure the maximum circulation of air and sunlight, and they overlook extensive grounds which are available for the use of the patients. Accommodation for private paying patients is provided, and there is included a very well-equipped operating theatre and x-ray department, while the kitchens and other offices are all in the most modern style. In the entrance hall, on memorial tablets, are inscribed the names of East Ham's war heroes. The capital cost of the building and equipment is £75,000, towards which £60,000 has been subscribed, mainly by way of small local contributions, and a further £2,000 has been promised by the King Edward's Hospital Fund. It is being put to East Ham as a point of honour that the major portion of the cost of maintenance, which will be at least £10,000 a year, should be met from local sources. Although the hospital has been receiving patients since the beginning of the year, the formal opening did not take place until the close of last month, when Her Majesty the Queen paid the hospital a visit, made an extended tour of inspection, and spoke to many of the patients. Sir Hugh M. Rigby, honorary consulting surgeon to the hospital, and Dr. Maurice B. Shaw and Mr. A. E. Mortimer Woolf, honorary senior physician and honorary senior surgeon respectively, were among those presented.

Ante-natal Clinic at Guy's Hospital.

The annual report of Guy's Hospital for 1928 recalls that it is now ten years since the governors, through the generosity of the trustees of the late Mr. Leopold Salomons, instituted a welfare centre in connexion with the hospital. Provision was made in this centre for an ante-natal clinic at which mothers could receive advice during pregnancy, and for an infant welfare centre for advising mothers as to the general care of their children until the age of 5. The essential principle of the ante-natal scheme was that mothers should, throughout their pregnancy, be under the direct personal supervision of the assistant obstetric surgeons, who would eventually be responsible for their care during confinement, either at their own homes or in the maternity ward of the hospital. The result of the institution of this ante-natal clinic has been to revolutionize the midwifery practice of the hospital. Unforeseen complications, which formerly had to be dealt with as emergencies when labour had actually begun, are now provided for, and can be dealt with in good time; there are now available from the clinic full notes for the guidance of every hospital doctor or midwife who goes out to attend a mother in the maternity district. The maternal death rate among all the confinements attended by the hospital last year, both in the maternity ward and in the patients' own homes, was only 0.56 per 1,000, or one death in 1,782 cases. In view of the widespread interest now being taken in the subject, and the fact that the average mortality among mothers throughout the country is about 4 per 1,000, the governors feel that they can but congratulate themselves upon the success of the Guy's Hospital maternity district as proving the value of a properly organized ante-natal centre.

The Excursion to Colwyn Bay.

The very last event of the Annual Meeting of the British Medical Association at Manchester, briefly mentioned on August 10th (*Supplement*, p. 112), was a visit to Colwyn Bay, in which about seventy members participated. On arrival at this pleasant North Wales resort the visitors were conveyed to Penrhos College, in the beautiful hall of which they were entertained to lunch. The hosts of the day were the Colwyn Bay Medical Society, who had taken over the privilege from the North Carnarvon and Anglesey Division. Dr. R. E. Lord, J.P., president of the society, occupied the chair, and was supported by Dr. D. I. Currie and Dr. Edith Shaw, honorary secretaries, and others. Lord Colwyn and Miss Wainwright, principal of the college, spoke a few welcoming words, which were responded to on behalf of the visitors by Mrs. Burgess, wife of the President of the British Medical Association, and by Dr. Bosdin Leech, one of the general secretaries of the meeting, who acted as cicerone. After luncheon the visitors were taken on a motor tour, beginning with the high land at the back of the town, proceeding to the picturesque town of Llanrwst, and touching on the return journey Trefriw, with its iron and arsenic mineral spring, and the old town of Conway. Several of the visitors returned direct to their homes by earlier trains, but those who remained, and returned to Manchester, enjoyed the further hospitality of their Colwyn Bay friends at tea.

The Central Public Health Committee for London.

It is proposed that the new Central Public Health Committee for London, upon which very important duties in relation to hospitals and medical services will devolve under the Local Government Act, shall consist of twenty-five members, of whom eighteen shall be members of the London County Council, the parent body, and seven shall be co-opted members. This committee may, under the Act, appoint subcommittees consisting wholly or partly of members of the committee as it sees fit.

Correspondence.

ACUTE ANTERIOR POLIOMYELITIS.

SIR,—I do not think it would be superfluous to remind ourselves that an epidemic of acute anterior poliomyelitis is very liable to occur at this particular period of the year. It will be remembered that the epidemic of 1926 started that summer, and reached its height during the drought. During that epidemic I saw over 150 cases, chiefly in Essex. I was fortunate enough to treat most of them from the very onset of the disease. This was at their own homes, or in fever hospitals, or at the various hospitals to which I am attached. In addition to the ordinary orthopaedic treatment it was also possible to give suitable cases the serum from convalescent or chronic cases of the disease, with encouraging results.

History may be repeating itself, as I have already seen a number of acute cases within the last few weeks. I would therefore plead that the orthopaedic surgeon should be allowed to treat the patients, wherever they may be, in fever hospital or elsewhere, from the moment of the onset of the disease, thereby following out, to the minutest detail, the teaching of Sir Robert Jones, that the affected muscles should have *immediate*, complete, and absolute rest in the orthodox positions necessary for optimum utility after the acute stage has passed.—I am, etc.,

London, W.1, Aug. 7th. B. WHITCHURCH HOWELL.

POST-VACCINAL ENCEPHALITIS.

SIR,—The disturbing problem of the occurrence of acute nervous diseases after vaccination takes on a new aspect with the intimation that much of the lymph which is sold to medical practitioners is obtained from rabbits and not from the calf.

An examination of the literature of experimental epidemic encephalitis shows many conflicting results obtained by different observers. McIntosh[1] thinks that rabbit inoculation is of the greatest value in confirming a diagnosis after death, using emulsions made from the basal nuclei. Levaditi and Hervier[2] also found that the virus of encephalitis is pathogenic to rabbits and guinea-pigs, whilst Veratti and Sala[3] were unable to obtain any results in rabbits with a similar virus. On the other hand, McCartney[4] examined the brains of 372 rabbits, some of which were healthy and others of which were being used for experiments not connected with epidemic encephalitis. It was found that 70 to 76 per cent. of these animals showed lesions which could be mistaken for those of encephalitis — for example, perivascular infiltration, meningeal haemorrhages, etc. Attempts to transfer the lesion to other rabbits failed. It is concluded by this investigator that the "accidental" cerebral lesion in the rabbit is of a wide variety and of so frequent occurrence as to be regarded as existing before any experimental procedure. Da Fano[5] agrees with these observations, and believes that this "spontaneous" form of encephalitis or encephalomyelitis may occasionally occur in circumscribed epizootics.

Whatever may be the diagnostic value of rabbit inoculation as regards epidemic encephalitis, it appears almost certain that if rabbits do not have an encephalitis of their own they are susceptible to such a disease, and the wholesale preparation of lymph from susceptible animals is a probable explanation of the 62 reported cases of post-vaccinal encephalitis in this country.

I bring these views forward in the hope that they will lead to further research in order to give us evidence as to whether we may or may not rely upon the lymph which is usually supplied commercially. To those of us who are called upon by a public which is well informed by the press to decide as to whether vaccination is perfectly safe or not, the possibility, however remote, of nervous complications is disquieting. The possible, though statistically infinitesimal, danger in vaccination is quite great enough to allow one to acquiesce tacitly in the conscientious objection of the parent to allow a child to undergo a risk which might lead to a tragic future. The provision of lymph which is beyond reproach is not only necessary for the repute of preventive medicine, but also for the welfare of the community.—I am, etc.,

RICHARD I. POSTON, M.D.,
Honorary Assistant Surgeon, Oldham Royal Infirmary.

Manchester, Aug. 8th.

BACTERIAL FILTRATES OR "ANTIVIRUS" THERAPY.

SIR,—After two years' personal experience of the therapeutic action of bacterial filtrates, I feel it would be unfortunate, as Mr. R. F. Hunwicke remarked in your issue of June 15th (p. 1100), if indifferent criticism discouraged a more extensive trial of bacterial filtrates in practice. I purposely avoid the term "antivirus," as Besredka thereby connotes specific, selective, and local immunizing properties, all of which are still subjects of controversy. Properties inhibitory to bacterial growth are undoubtedly present in bacterial filtrates, but that they are specific has not been proved by experiments *in vitro*. Acidity of the medium resulting from biological activity is, no doubt, one of the inhibitory factors of pneumococcal, streptococcal, staphylococcal, and *B. proteus* filtrates, the *p*H of which ranges from 4.5 to 6.5, but acidity does not operate in the case of filtrates prepared from diphtheroid and Friedländer bacilli, the *p*H of which was found to be 7 and 8 respectively. Apart, however, from the debatable problems of selective action and local immunity, I venture to suggest, from the apparently benign action of filtrates on septic tissues, that filtrates act in a dual capacity—namely, as a bactericidal agent and as a tissue stimulant. The local immunity aspect has been somewhat laboured experimentally, but as regards the possible beneficent action of amino-acid products of the medium on the tissues little has been said.

The medium used by myself is trypsinated broth with glucose added, which, acted on further by the biological activities of bacterial growth, may possibly be broken down into such radicles as may be more readily assimilated by the locally infected tissue cells, and to their advantage. In this respect filtrates may act in an anti-infective as well as an antibacterial capacity. I experimented with trypsinated broth alone in control septic cases, using it as a wet dressing, but, as was to be expected, it was found wanting. On the other hand, the healthy skin of guinea-pigs, to which were applied plain broth compresses, was protected locally against subcutaneous injections of *Staphylococcus aureus*, according to Friedländer and Toomey. Plain broth compresses were stated to produce a local cellular reaction in the form of proliferation of clasmatocytes, and exudation of polymorphs and small mononuclears, which may be interpreted as an anti-infective response.

Although the tenets of immunology may not be satisfied by Besredka's "antivirus," this does not detract from the therapeutic value of bacterial filtrates. The main theme of this letter, however, is merely to advocate a wider trial of bacterial filtrates in acute infections such as erysipelas, and in chronic infective conditions, when evidence of their value, "apart from pious opinion," may then be obtained.—I am, etc.,

G. BUCHANAN, M.D., D.P.H.,
Superintendent, Routine Division, South African Institute for Medical Research.

Johannesburg, July 17th.

PHYSIOLOGICAL STUDY OF ASTHMA.

SIR,—I have read with interest the letters from Dr. Harry Campbell and Dr. P. Watson-Williams relating to the abstract of Brodie and Dixon's paper which you published on July 13th (p. 68).

Dr. Dixon is at present in South Africa, and will not have seen the correspondence. I feel that certain criticisms contained in Dr. Watson-Williams's letter of July 27th (p. 164) can and should be answered. As a colleague of Dr. Dixon's, I shall endeavour to do so; it will, of course, be clear that the views I express do not, in the circumstances, commit Dr. Dixon in any way.

The evidence for the normal rhythmical contraction and dilatation of the bronchioles is indirect, but, as Dr. Watson-Williams suggests, fairly strong, and is well summarized by Macklin (*Phys. Reviews*, 1929, vol. ix, p. 1). There do not appear, however, to be at present any grounds for Dr. Watson-Williams's assumption that "the asthmatic paroxysm is merely an exaggeration of the physiological bronchiolar dilatation on inspiration and contraction on expiration."

An inspection of the tracings obtained by Brodie and Dixon, and published in their original paper, makes it clear that they were dealing with steady states of bronchial constriction and dilatation; their interpretation of their own experimental findings admits of no question. On the other hand, they were dealing, not with clinical asthma, but with an experimental condition which resembled it very closely indeed. They would probably not deny, in theory, the possibility of rhythmical contraction and dilatation playing a part in the clinical condition; but, in the absence of any direct proof of its occurrence, they would presumably consider it unnecessary to invoke it to explain phenomena already quite satisfactorily accounted for by other and directly observable factors.—I am, etc.,

ERIC HOLMES,
Pharmacological Laboratory, Cambridge.

August 12th.

[1] McIntosh: *Brit. Journ. Exper. Path.*, 1923, 4, 24.
[2] Levaditi and Hervier: *Bull. de l'Inst. Pasteur*, 1920, 84, 411.
[3] Veratti and Sala: *Boll. d. Soc. Med. di Pavia*, 1922, 34, 239.
[4] McCartney: *Journ. of Exper. Med.*, 1924, 39, 51.
[5] Da Fano: *Med. Science*, 1924, 10, 355.

SIR,—In his letter in your issue of August 10th (p. 277) Dr. Harry Campbell, while maintaining his own views, kindly admits "that Dr. Watson-Williams's . . . hypothesis would explain . . . the phenomena of the asthmatic attack." May I remind him that this physiological dilatation of the bronchioles on inspiration and contraction on expiration was visibly demonstrated by Dr. W. Hudson's radiograms that he showed at the discussion on asthma on July 26th at the Annual Meeting of the British Medical Association at Manchester. In the light of these facts we can explain many clinical problems bearing on the questions at issue. For example, we may turn to Drs. Evan Bedford and Joules's record of bilateral spontaneous pneumothorax which also appeared in the issue of August 10th (p. 240). When both lungs had collapsed the intrapleural pressure registered over 30 cm. of water in the manometer, which was reduced by aspiration, and ere long first one and then the other lung became fully expanded.

Here the alternating dilatations and contractions of the bronchioles, instead of keeping the lung expanded, went on pumping air through a small perforation in the visceral pleura into the intrapleural sac till the air therein was under high pressure and had to be aspirated. But when the perforation healed, the same bronchiolar mechanism dilated the lungs till their expansion was complete. What happened at the patient's birth causing his solid newborn lungs to expand happened again when his lungs were almost completely collapsed—his bronchiolar dilatations on inspiration and contraction on expiration brought about the alveolar inflation and lung distension on both occasions. —I am, etc.,

Bristol, Aug. 12th. PATRICK WATSON-WILLIAMS.

TUBERCULOSIS OF THE LARYNX.

SIR,—In the conjoined Sections of Oto-Laryngology and Tuberculosis at the recent meeting in Manchester I drew attention to two points in relation to tuberculosis of the larynx which are, in my opinion, of such importance that I ask your permission to mention them here, while reserving any arguments in support of them to some future occasion when the pressure on your space is less heavy.

The first is the *microscopical examination (biopsy) of a portion of tissue* removed from the larynx in cases (and there are such) in which there is a great element of doubt as to the diagnosis between tuberculosis and, say, carcinoma. The second is that *pain in tuberculosis of the larynx is in general a strong indication for the use of the galvano-cautery*, not a contraindication.—I am, etc.,

London, Aug. 12th. JAMES DUNDAS-GRANT.

PERFORATION OF DUODENAL ULCER IN AN OCTOGENARIAN.

SIR,—Several cases have been recorded recently of successful operations for perforation in persons of 70 or more years of age. But I think that, during the ninth decade, such cases must be more uncommon.

About ten years ago I operated on a man, aged 83, for perforated duodenal ulcer. He was healthy and fairly robust for his age. Fortunately I saw him very soon after the perforation had occurred, and was able to transfer him to a nursing home, and operated with a minimum of delay. He made an uneventful recovery, left the home in a fortnight, and lived for another four years without any gastric discomfort.

—I am, etc.,

Ipswich, Aug. 10th. HERBERT H. BROWN.

FRACTURE OF ANTERIOR ILIAC SPINE.

SIR,—In your issue of June 15th (p. 1077) Dr. James Crawford reports a case of avulsion of the anterior superior spine of the ilium by the action of the sartorius in running. It is surprising that such a long and attenuated muscle should have power enough to do this, but I had an exactly similar case in 1926. My patient, a youngster of 18, while running in a hundred yards race, "felt something break at the front of his right hip, and distinctly heard a grating of bone." He finished, *and won*, and then collapsed on the ground.

At operation I found a piece of bone as big as a sixpence torn off with part of the origin of the sartorius muscle. I stitched it in place by sutures through the muscle and periosteum, with hip and knee flexed, and he has since won more hundred yard races.

Recently I have had another interesting avulsion, this time the lesser trochanter of the femur, in a boy of 12, who suffers from fragilitas ossium, with the usual accompaniment of blue sclerotics and an extensive family history of the same. This boy had had nine fractures previously, the last two years ago. With the idea of strengthening him his father put him under a "physical culturist," who succeeded in developing his muscles more than his bones, the result being a lesser trochanter torn off while running on level ground. It reunited quite readily under rest treatment with hip flexed and rotated outwards.—I am, etc.,

MAURICE G. PEARSON, M.B., B.Sc., F.R.C.S.

Durban, South Africa, July 15th.

GAS-OXYGEN ANAESTHESIA.

SIR,—I had not intended to join in the discussion initiated by Dr. Chambers, nor were the views in my article which was sent to him intended for publication in the *British Medical Journal*, but since he quotes from them I feel bound to reply briefly.

It is agreed by all that pure nitrous oxide-oxygen is the least toxic general anaesthetic at present known, although it has obvious limitations. The various machines designed for its administration all have their advantages and drawbacks. I, personally, have used Hewitt, Marshall, Boyle, Gwathmey, McKesson "G," McKesson "Special," and Walton types, and I have come to the conclusion that the skill and experience of the anaesthetist are of much greater importance than the machine he employs.

When giving gas mixtures by means other than face or nose inhalers, I definitely prefer the sight-feed type of apparatus. For example, the extremely useful rebreathing intubation method of pure N_2O-O_2 anaesthesia, introduced, I believe, by Drs. Magill and Rowbotham, and the endotracheal and endopharyngeal techniques using N_2O-O_2 with minimal ether, can all be done with the simplest machine.

With regard to teaching students, I believe that it is our duty to instruct men in the simple methods which will be most useful to them in after-life as general practitioners. If it is possible to include instruction in gas-oxygen anaesthesia during the very limited time available, surely it is better to teach them how to use a simple sight-feed apparatus, such as is to be found in most hospitals, than to explain the intricacies of some complicated imported machine costing nearly £100, and which the average practitioner would not dream of acquiring. If the student intends to take up anaesthetic work he will be well advised after qualification to apply for a post as resident anaesthetist at some large hospital, where he will have ample opportunity to obtain experience in every variety of anaesthetic procedure. He will then doubtless find out for himself the technique with which he gets the best results, and will eventually purchase the type of machine which fulfils his requirements. This is a purely individual matter, and there are probably no two anaesthetists who use exactly the same apparatus and technique, any more than there are two surgeons who do partial gastrectomies in exactly the same detailed way. Each man evolves the method which he finds gives him the best all-round results.—I am, etc.,

London, N.W.1, Aug. 10th. C. LANGTON HEWER.

SIR,—In recent correspondence on the subject of gas-oxygen anaesthesia Dr. Chambers quotes instances of writers stating that "they have had a bubble-bottle apparatus, and have not been able to do much with it," and at the same time he seems to dismiss rather lightly my point of contention, that to get good results from Boyle's apparatus "the greatest care must be taken in maintaining the perfect working order of apparatus." It is, in my opinion, principally because of neglect of this precaution that failures of accurate regulation of flow are recorded. Such failure is only attributable to one of three causes. First, the

delicacy of reducing valves is often ruined by the latter being used to shut off gas from cylinders when the apparatus is finished with, instead of using the "main tap." This procedure entails very tight screwing down of the reducing valves, which, after prolonged use of this variety, naturally fail to respond accurately to the hand of the anaesthetist when he wishes for one more or less "hole" of gas or oxygen. Secondly, unless great care is taken that the "sight-feed" bottle is not overfilled, drops of water tend to get blown over into the tubing, and this fact will almost invariably stem the regularity of flow of gases. Thirdly, the nitrous oxide may tend to freeze at the valve junctions. Using the non-freezing variety of nitrous oxide as now supplied by Messrs. Coxeters, this is now a very rare occurrence, and it can be still further guarded against by not opening the "main valve" of the cylinder too far at the commencement of use.

I am quite aware of the existence of other gas-oxygen machines, whose advocates claim finer degrees of control, but my argument was to the effect that gas-oxygen anaesthesia can be attained efficiently by means of a "bubble-bottle" apparatus, provided the above precautions are taken; that ether as an accessory anaesthetic is by no means always essential; and that, even in cases where ether is used, the amount is generally so small as to be for all practical purposes negligible.—I am, etc.,

London, Aug. 11th. T. de Lacy Walker.

*** This correspondence is now closed.—Ed., *B.M.J.*

THE NATIONAL MATERNITY SERVICE SCHEME.

Sir,—In the summary of the discussion on maternal mortality at the Section of Public Health in Manchester, published in the *Journal* of August 10th (p. 257), it is stated that I "spoke as the author of the scheme for an improved maternity service which had now become the policy of the Association." As this might be read to mean that I had claimed sole authorship of the scheme, may I be allowed to state that in the course of my remarks I merely said that I had had the privilege of sitting on the committee charged with the responsibility of preparing a scheme? The scheme was ultimately produced as the result of prolonged discussion, to which, of course, each member of the committee contributed his share.—I am, etc.,

Edinburgh, Aug. 10th. James Young.

PUERPERAL SEPSIS AND THE GENERAL PRACTITIONER.

Sir,—I was much interested to read Dr. Colin M. Craig's letter in your issue of June 8th (p. 1057), in which he tells of delivering cases with forceps in remote English farm-houses under hopeless conditions from the point of view of surgical asepsis. Having been a teacher of obstetrics and gynaecology I have had a varied experience of delivering women in villages in their own homes, with or without the aid of forceps or performing a craniotomy, and, to my consternation, many patients in whom I considered the prognosis perfectly hopeless made wonderful recoveries, even after previous meddlesome interference and unnecessary examination by what are called *dais* (women who attend confinements in a village, but have no knowledge of obstetrics or asepsis; this particular profession seems almost hereditary in India). Such good results often tempt one to disbelieve in that much belaboured "sepsis introduced from without," and to think that sepsis is for all practical purposes introduced from within—namely, teeth, tonsils, gall-bladder, bowel, etc. But there is no doubt—and here I disagree with Dr. Craig—that sepsis can be and is introduced from without. I have come across young, strong, healthy primiparae with no evident signs of infection of the teeth, tonsils, sinuses, etc., who, owing to bad (by which I mean septic) management by the village *dai*, have succumbed to a septicaemia. One of my patients who was lying on straw developed tetanus, which latter could not have been due to infection from within. The conclusion is that one must use all the precautions possible.—I am, etc.,

July 10th. A. F. Winnington da Costa, F.R.C.S.,
Civil Surgeon, Bilaspur, C.P.

FROZEN ORANGES.

Sir,—Considering all one hears about the importance of fresh food, it seems to me surprising that nobody appears to have noticed the great change in the condition of the orange as retailed in this country. Up to some years before the war one could be reasonably certain when purchasing an ordinary orange that a firm, full, juicy fruit would be obtained. Now such a fruit is almost unobtainable, unless an excessive price is paid for what is sold as a very special article. Indeed, those who wish for a fruit of the consistency of the former orange, and are not prepared for disappointment, are compelled to buy the more expensive grape fruit, which is still sold in the fresh state. The vast bulk of oranges when opened have a partially dried, fibrous appearance. The ends of the sections are dry, pale, and hard; the sections separate easily, and the separated surfaces have often a mouldy appearance, while, sometimes, the fruit appears to be definitely infected with mould.

I believe this changed condition of the orange is due to the fruit having been kept in cold storage in the hope of wringing some extra profit out of the consumer. In other words, instead of a living fruit we now get a frozen and dead orange, subject to altered conditions as regards evaporation and resistance to infection with moulds, etc. Oranges and apples probably form the chief or only fruit supply of the poor, while orange juice is the most frequently used source of anti-scorbutic vitamin for bottle-fed babies. Whatever may be the effect of freezing on the anti-scorbutic vitamin, I have seen from time to time sickness among babies attending infant clinics which, on investigation, seemed most likely to be due to the use of decayed oranges. Consequently I feel considerable difficulty in advising poor parents as to the use of fruit juice.

Seeing that the orange has been a common import for well over a century, and that for all, or the greater portion, of that period it has been sold, I presume profitably, as one of the cheapest of fruits, the preservation of oranges by freezing would seem to be an altogether unnecessary and retrograde measure calling surely for the serious attention of those whose duty it is to safeguard our food supply.—I am, etc.,

Swansea, July 30th. H. R. Tighe, F.R.C.S.I., D.P.H.

MEDICAL WOMEN AND THE BOARD OF CONTROL.

Sir,—In your issue of August 10th (p. 280) Dr. C. A. Mortlock-Brown writes of the "slight upon medical women" arising from the appointment of a new temporary medical man commissioner to the Board of Control. She appeals to the medical members of Parliament to rectify it.

It does not appear that Dr. Mortlock-Brown's objection to the appointment of Dr. Bedford Pierce lies in her knowledge of a medical woman better fitted than Dr. Bedford Pierce to fill the post, but that, because the patients are women as well as men, a medical woman of some sort should therefore be appointed. To what does this type of argument lead? Inasmuch as several women have been called to the Bar, and women not infrequently appear in the dock, it is obvious that women judges should be appointed without delay. Again, women travel by train, therefore women engine drivers should be added to our railway staffs. Conversely, as male as well as female infants are to be seen occupying perambulators, male "nursemen" must be found.

I venture to suggest that if Dr. Mortlock-Brown has no better reasons than those she adduces in her letter for the innovation she desires, she should spare herself the "wearisome and unpleasant job" of pushing the "rights" of her sex. I feel sure that few medical women will be grateful for her advocacy of their cause.

One still hopes and believes that appointments of this nature are made on qualifications for the post, and that the sex, religious opinions, political views, and other irrelevant matters do not weigh. When a medical woman arises who is better fitted to fill a vacancy on the Board of Control than any medical man, Dr. Mortlock-Brown need have little fear but that she will be appointed.—I am, etc.,

Cheltenham, Aug. 12th. John Bernard Davey, M.B.Lond.

Obituary.

EDWARD OCTAVIUS CROFT, M.D.,

Late Professor of Obstetrics, University of Leeds; Honorary Surgeon, Leeds Hospital for Women and Children and Leeds Maternity Hospital.

The death of Dr. E. O. Croft has come as a great shock and sorrow to a large circle of personal and professional friends. Though Dr. Croft had reached his seventieth year, his youthful figure and his alert manner made one forget his age, and so to many he appears to have died comparatively young. We are indebted to Professor T. Wardrop Griffith for the following memoir.

Edward Octavius Croft was the eighth son of Dr. Charles Ilderton Croft, who practised in London. He was educated at Epsom College, and until the end of his life took a

Dr. E. O. Croft.

(Photograph by James Bacon and Sons, Leeds.)

great interest in the school, of which he always spoke in terms of warm affection. His medical education was received at University College and Hospital, London; in 1883 he became M.R.C.S.Eng., taking the licentiateship of the Royal College of Physicians in the following year, and obtaining the M.D. at Durham in 1893.

After holding the appointments of resident obstetrical assistant at University College Hospital and resident medical officer to the General Lying-in Hospital, he came to Leeds in 1885. Until that year there was no special department for the diseases of women at the General Infirmary. These were supposed to be adequately dealt with at the Women and Children's Hospital, but the development of surgery and the increase in the number of patients led to the formation of a department for the diseases peculiar to women, with both an out-patient and an in-patient department. The first honorary medical officer in charge of this was the late Dr. James Braithwaite. Till this time the students had to rely upon the Poor Law officers and upon private practitioners for their experience in midwifery, and one of the great requirements which it was desired to meet, and one which the board of the infirmary was most anxious to co-operate in securing, was the establishment of an extern department for attending women in their confinements at their own homes. Fortunately for the Leeds School of Medicine, Croft was selected for the new post of resident obstetric officer. The writer of these lines, who was resident medical officer at the time of his election, can testify to the diligence, the tact, and the efficiency that he manifested in organizing the new department. Dr. Braithwaite was less interested in the midwifery side of his appointment than in that dealing with gynaecology, and the department of midwifery was practically launched by Croft. From this time the students have had every opportunity of gaining experience under adequate supervision in this most important part of their training; although, with the development of the new Maternity Hospital, with its in-patient department, the extern department of the infirmary has passed to the newer institution, the germ of Croft's early work in Leeds has blossomed in a way it could not have done had it not been well and wisely planted and nursed during its earlier years. Shortly after leaving the infirmary he was appointed to the honorary staff of the Women and Children's Hospital, and this position he held from 1890 till the time of his death.

Great though his contribution was to the teaching of midwifery, as has just been explained, everyone will feel that his chief reputation attaches to his association with this institution for which he worked so well, and for which he had such a deep affection. When the hospital was rebuilt he was concerned from the start with the work, watched with care every suggested improvement, and helped by his knowledge and acumen the completion of a building which is admirable in all respects. He was demonstrator and lecturer in obstetrics, and subsequently professor of obstetrics, in the University of Leeds. In his earlier years some general practice fell to his lot, but he relinquished this very soon, and confined himself to consulting work in obstetrics and gynaecology, in which he acquired a great reputation.

By everyone who knew him Croft was looked upon as a man of sterling integrity of character; quiet and reserved in manner, but with a charming laying aside of this when among those who were privileged to know him intimately, he was liked by all. His leisure time he devoted to natural history, and in his earlier years to long rambles in the country, which his residence in Yorkshire rendered so accessible. He served in the old Leeds Rifles for many years as medical officer, and made a regular appearance at the annual camp, where he was often the life and soul of the mess and a respected favourite with all.

The funeral service at Lawnswood was attended by a large number of his personal and professional friends, and the Women's Hospital was represented by Colonel Tetley, the chairman of the board of directors, and by others concerned in that institution.

ALEXANDER GORDON MILLER, M.D., F.R.C.S.Ed.,

Consulting Surgeon, Edinburgh Royal Infirmary.

We regret to record the death in Edinburgh, on July 29th, of Mr. A. G. Miller, who was one of those associated with Lister during his residence in that city.

Alexander Gordon Miller, who was born in 1843, was the son of James Miller, then professor of surgery in Edinburgh University, having succeeded Sir Charles Bell in 1842 when he was only 30. Alexander Miller was educated at Edinburgh Academy and graduated M.D.Ed. in 1864; three years later he became a Fellow of the Royal College of Surgeons of Edinburgh. In 1877 he was appointed junior assistant surgeon at the old Royal Infirmary, then situated in the High School Yards. In 1882 he became full surgeon at the new Royal Infirmary—the present building—and in 1897 he retired, after the full term of fifteen years' service, with the honorary title of consulting surgeon.

At the time when he joined the staff of the old Royal Infirmary as an assistant surgeon most of his seniors were general practitioners as well as surgeons; Mr. Miller combined both forms of practice for a short time, but then devoted himself entirely to surgery. When Lister went to Edinburgh in 1869 as professor of clinical surgery, Mr. Miller was one of those who accepted the new teaching with enthusiasm, though a certain amount of opposition was encountered from the senior surgeons of the Infirmary. He was a skilful and cautious surgeon, and a teacher who encouraged his students to practise careful investigation of all the cases they had to deal with. He took great interest in the welfare of the medical students, and was a keen supporter of the Royal Medical Society, and, at a later date, of the Students' Union. His method of amputation through the knee is well known, as also is his procedure

for reducing a dislocation of the shoulder by manipulation, while the bougie named after him is a most valuable instrument for dealing with a tight stricture.

In his younger days Mr. Miller was an excellent boxer and took keen interest in other forms of physical exercise. He was an enthusiastic walker, and knew the Pentlands well. When the wave of military enthusiasm spread over the country after the Crimea, he became a medical officer in the Queen's Edinburgh Volunteer Brigade, with Sir Douglas Maclagan and Dr. Patrick Heron Watson as colleagues. He was a staunch abstainer from alcohol, and did pioneer work in establishing the Medical Missionary Society, of which he held the post of vice-president for many years.

Dr. Hugh Campbell Highet, who died on July 29th at the age of 62, received his medical education at Glasgow and University College Hospital. He graduated M.B., C.M.Glas. in 1888, and proceeded M.D. in 1892; he obtained the D.P.H. of the Royal College of Physicians and Surgeons in 1901. After holding house appointments at the Glasgow Royal Infirmary and the Glasgow Eye Infirmary, he spent a year at the Hertford British Hospital in Paris. From 1892 to 1897 he engaged in private practice at Singapore, and was then appointed physician to the British Legation at Bangkok, Siam. He held this post until 1904, when he joined the Siamese service as principal medical officer of health at Bangkok; he was also ophthalmic surgeon to the Chulalongkorn Hospital, Bangkok. He was vice-president of the Far Eastern Association of Tropical Medicine and Hygiene, and president of the Siam Society. For his distinguished services in that country he was awarded the Order of the White Elephant. During the war Dr. Highet held a temporary commission in the Royal Army Medical Corps, and was appointed examining oculist to Winchester barracks. He subsequently returned to Siam for a short time, but in 1920 he went back to Winchester, where he practised as an ophthalmic surgeon, and was for some years honorary ophthalmic surgeon to the Basingstoke Cottage Hospital. He was a keen member of the British Medical Association, and in 1894, when honorary secretary of the Straits Medical Association, he took an active part in founding the Malaya Branch, which came into existence in the following year. He acted as honorary secretary of this Branch from 1894 to 1899. At Winchester he was for some time a member of the Southern Branch Council and its Executive Committee. Dr. Bruce Young, honorary secretary of the Winchester Division, writes: Dr. Highet's tact and *savoir faire* have been very helpful, but what perhaps more than anything else endeared him to us was his consistent geniality and friendliness, and his anxiety to help his fellows, both privately and in the life of the Division. These qualities, with his wide knowledge of the world and of men, combined to make him a colleague who was a high favourite with us all, and his sudden passing has been a cause of genuine grief to his many friends here. Just previous to his last illness he had willingly accepted nomination as chairman of the Division for 1929–30, but soon afterwards, in view of possible health developments, he reluctantly withdrew his nomination, much to our disappointment.

Dr. Stanley Bott, who died at his residence in Broadstairs on July 23rd, was born in 1879. He received his medical education at the London Hospital, where he obtained the diplomas M.R.C.S., L.R.C.P. in 1905; he graduated M.D. Durham in 1921. He held house appointments at the Westminster Hospital; the Royal Berkshire Hospital, Reading; and the County Hospital, Dorchester, and as a ship medical officer travelled frequently to the East and to Australia. He subsequently carried on practice at Caistor, Lincolnshire, in a scattered agricultural district, and during the war was involved in very heavy work, which eventually led to the breakdown in his health in 1923. For some time before his death he had lived in retirement at Broadstairs. He was the author of several articles in the *Lancet* on clinical subjects. He devoted himself almost entirely to his professional work, and was not greatly interested in anything else.

TESTIMONIAL TO SIR RONALD ROSS.

Fourth List of Contributors.

On May 11th we published a letter announcing that a fund, called the Ross Award Fund, was being started in order to give some recognition to Sir Ronald Ross for his discoveries on the mode by which malaria is carried, and for his lifelong efforts regarding the prevention of that disease. The letter stated that donations should be sent to Lloyds Bank, Ltd., 110, High Street, Putney, S.W.15, cheques to be crossed "Ross Award Fund a/c." The names of those who had contributed to the Fund up to May 17th were printed in our issue of June 8th (p. 1065); a second list of donors appeared on July 13th (p. 76); and a third list on July 20th (p. 129). We now print a further list of those whose donations, amounting to £652 7s., were received between July 1st and 12th. The total amount of the Fund on August 7th was £7,368 16s. 4d., which included £2,000 contributed by readers of the *Straits Times*, Singapore. The list published below does not include anonymous contributors or contributors whose initials only have been supplied.

Lord Aberconway, A. J. Avery.
Sir Harry Baldwin, J. E. Bracher, Miss E. C. Bell, B. Blackenson, Alan H. Black, D. Barnicott, Thomas Blakeley.
Miss H. Clarke, Miss E. M. Collis, Miss C. W. Cameron.
Mrs. A. H. Deane, Miss Nora Day, Duckwari Tea and Rubber Estates, Ltd.
Mrs. W. U. Gooding.
Dr. G. Hickes, Mrs. E. B. Holt.
F. J. Knight-Adkin.
Laras (Sumatra) Rubber Estates, Ltd.
J. M. Mackenzie, P. Monsley, B. Monsley.
Lieut.-Colonel H. R. Palmer.
Miss E. M. Read, Mrs. E. S. Rees, S. G. Rhodes, N. Raleigh, P. Raleigh.
H. E. G. Sobbé.
E. M. Vyvyan.
Dr. Watson-Griffiths, C. E. Wells, Miss M. A. Webster, Rev. and Mrs C. Kingsley Williams.

Universities and Colleges.

UNIVERSITY OF LONDON.

The annual report of the Graham Legacy Committee for the year 1928–29 records that Dr. G. R. Cameron has succeeded Mr. G. P. Wright as Graham scholar. The activities of the laboratories continue on the usual lines. Apart from the recipients of definite grants towards the expenses of their investigations, most of those engaged in research in University College Hospital Medical School were substantially assisted by the facilities and equipment provided by the fund. Grants amounting to £110 were made to six workers who had been engaged in special inquiries. Professor Boycott, M.D., F.R.S., has been reappointed Director of Research for one year from September 1st, 1929.

The date for the written examination for the academic Diploma in Bacteriology has been fixed for the first Tuesday and Wednesday in July, and the practical examination will commence on the Monday in the following week.

The regulations for the M.D. examination, Branch III (Psychological Medicine) have been amended by the addition after the words "A clinical examination" (Red Book, 1928–29, p. 247, and Blue Book, September, 1928, p. 234) of the words "in both mental diseases and mental deficiency."

Applications for the William Julius Mickle Fellowship, of the value of £200, must be received by the Principal of the University by, at latest, the first post on October 1st. It is awarded by the Senate annually to the man or woman who, being resident in London and a graduate of the University, has, in its opinion, done most to advance medical art or science within the preceding five years, and has shown conspicuous merit.

The Services.

GREENWICH HOSPITAL PENSION.

A Greenwich Hospital pension of £50 a year has been awarded to Surgeon Captain J. Andrews, R.N. (ret.).

DEATHS IN THE SERVICES.

Surgeon Major George Henderson, Bengal Medical Service (ret.), died at Inverness on June 23rd, at the great age of 92. He was born on November 29th, 1836, the son of the Rev. George Henderson of Cullen, and was educated at King's College, Aberdeen, where he graduated as M.D. in 1858, also taking the L.R.C.S.Ed. in the same year. Entering the I.M.S. as assistant surgeon on July 27th, 1859, he became surgeon after twelve years' service, and surgeon major on July 1st, 1873, retiring on November 20th, 1889, with over thirty years' service. Most of his service was in civil employment in the Punjab. He had a considerable reputation as a botanist, and for some time filled the post of director of the Royal Botanical Gardens at Calcutta, and afterwards that of professor of

medicine in the Lahore Medical College. He was the author of a *Catalogue of Plants in the Royal Botanic Gardens, Calcutta* (1873), and in the same year, in collaboration with A. O. Hume, I.C.S., of a work called *Lahore to Yarkand*, an account of a journey of exploration in Central Asia which they had together made. Henderson was the last survivor, in Bengal, of the Company's medical officers; there is one left in Madras, who now stands alone, as there is none in Bombay. He leaves a widow, two sons, and two daughters.

Medical News.

THE Fellowship of Medicine states that there is still one week remaining of each of the courses in urology at the All Saints' Hospital and at the Queen's Hospital for Children respectively. The former is an afternoon and evening course, and the latter covers the whole day; proportionate fees are payable. Special courses in the following subjects will be given during September: diseases of the chest, Brompton Hospital, September 9th to 14th; diseases of infants, The Infants Hospital, September 9th to 22nd; psychological medicine, the Bethlem Royal Hospital, Tuesday and Saturday mornings from September 10th to October 5th; medicine, surgery, and the specialties at the Westminster Hospital (for men graduates only), September 16th to 28th. A whole-day course in gastro-enterology will be held at the Prince of Wales's Hospital, Tottenham, from September 30th to October 4th. The Metropolitan Hospital will conduct its first all-day course, under the auspices of the Fellowship, in medicine, surgery, and the specialties, from October 21st to November 2nd. The Fellowship proposes also to hold another evening course for the M.R.C.P. examination, from October 15th to December 6th; it will consist of sixteen lectures by well-known authorities, on Tuesdays and Fridays, at 8.30 p.m., at the Medical Society of London, 11, Chandos Street, Cavendish Square. Full particulars of all these courses, information regarding the general course arranged by the Fellowship, and copies of its *Journal* are obtainable from the Secretary of the Fellowship, 1, Wimpole Street, W.1.

A POST-GRADUATE course on diseases of the nervous system will be held at the National Hospital, Queen Square, London, from October 7th to November 29th. The fee for the general course will be £6 6s.; it will consist of thirty-two clinical lectures and demonstrations, teaching in the out-patient department, and eight pathological lectures and demonstrations. It is also proposed to arrange for a course of eight lectures on the anatomy and physiology of the nervous system if there are sufficient applicants, and for a course of twelve clinical demonstrations chiefly on methods of examination of the nervous system. Full particulars can be obtained from the Secretary, Medical School, National Hospital, Queen Square, W.C.1.

A SERIES of lectures and demonstrations on the pathology of digestion, the radio-diagnosis of diseases of the digestive tract, and elementary laboratory methods will be held at the Hospital de la Santa Cruz y San Pablo, Barcelona, from October 5th to December 10th.

MR. L. S. AMERY, M.P., has accepted the chairmanship of the Imperial and International Committee of the British Social Hygiene Council. A diploma course in social hygiene has been instituted at the University of Aberystwyth, and steps have been taken by the council to secure the extension of instruction courses for Colonial officials before taking up appointments abroad. A joint committee of the British Social Hygiene Council and the board of study has been established for promoting the education of missionaries in this subject, with a view to equipping them with scientific knowledge.

DURING the Annual Meeting of the British Medical Association at Manchester a visit was paid to the school and working colony at Saddlebridge of the Lancashire and Cheshire Society for the Permanent Care of the Feeble-minded. The party was shown round by Miss Mary Dendy, M.A., chairman of the society and founder of the colony. The colony consists of eight houses, workshops, a farm, a school, a recreation room, and a hospital. Suitable children from all parts of the country are received under the age of 13; they attend school until they are 16, and then pass on to the working colony, being, in most instances, then certified under the Board of Control. The men work in the gardens, on the farm, or in the various workshops as tailors, bootmakers, etc. The women undertake laundry work, sewing, knitting (by machine and hand), and some gardening. Those who visited it were much impressed by the efficiency and contentment of both children and adults, and by the exceptionally good health record.

DR. DUNCAN MACDIARMID, Oakbank, Kippen, and his wife, were, on August 2nd, the recipients of presentations from the people of Kippen, Fintry, and Gargunnock, on the occasion of Dr. MacDiarmid's retirement, after having been in practice in these districts for about forty years. The ceremony took place on the lawn at Oakbank House, in the presence of about 200 people. Mr. John Monteath of Wright Park, Kippen, presided, and the Rev. H. W. Hunter, Kippen, made the presentations. Among those who took part in the proceedings were Sir Steven Bilsland, Sir D. Y. Cameron, R.A., and Colonel Ewing Crawford of Duchray Castle, Aberfoyle.

TWO useful booklets have been published, one giving details of the "Harrogate cure," and the other describing the social amenities of the locality. Full information is provided with regard to clinical indications and the nature of the treatment, and both booklets are handsomely illustrated. They may be obtained without charge from the publicity manager, Mr. F. J. C. Broome, the Royal Baths and Wells, Harrogate. We have also received a booklet on similar lines dealing with Droitwich, and brought up to date for 1929. Application for it should be addressed to the manager of the baths, Droitwich Spa.

UNDER the will of the late Dame Edith Florence Waterhouse, wife of Sir Herbert F. Waterhouse, F.R.C.S., the Royal Medical Benevolent Fund Guild receives £500.

THE sixth Congress of French-speaking Paediatrists will be held in Paris, under the presidency of Dr. Barbier, from September 30th to October 2nd, when the following subjects will be discussed: oedema in infants, introduced by Dr. Cathala of Paris; rapid or unforeseen death in infants, especially during operations, introduced by Professors Nobécourt and Ombrédanne of Paris; jaundice in the newborn, introduced by Dr. Rocaz of Bordeaux. Further information can be obtained from the general secretary, Dr. Ribadeau-Dumas, 61, Rue de Ponthieu, Paris.

UGO BARBERI of Bologna has sent us a list of incunabula and other old medical books, as well as a list of five pictures of medical interest from one of the galleries at Bologna.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to ***The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.***

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QUERIES AND ANSWERS.

VACCINATION AND ENCEPHALITIS.

"L. E. B." inquires: "Has there ever been known a case of encephalitis among non-vaccinated persons?"

*** An encephalitis, indistinguishable from that which occasionally follows recent vaccination ("post-vaccinal encephalitis"), quite commonly occurs idiopathically—that is, without being preceded by any known infectious disease: such an encephalitis also occurs after influenza and whooping-cough, again in subjects who have never been vaccinated or not vaccinated recently. In the *Lancet*, 1928, i, 1250, and 1929, i, 221, Russell Brain and Donald Hunter reported on six cases of encephalo-myelitis in children, three of whom were vaccinated

in infancy and two had never been vaccinated. (No reference to vaccination is made as regards the sixth child.) They distinguish this condition from encephalitis lethargica, but stress its marked clinical similarity with the encephalitis following vaccination. It is plain, therefore, that cases of encephalitis of the post-vaccinal type may occur in unvaccinated persons.

PRURITUS AFTER MUMPS.

CAPTAIN C. W. GREENWAY, R.A.M.C., asks for advice in treating a woman, who, after an attack of mumps of moderate severity, is now suffering from a generalized pruritus. He writes: There is no skin lesion, the condition being an intolerable itching over the whole body, which is worse at night. There is no obvious cause; the urine is alkaline, and there is no albumin or sugar present. *The patient is not, and has not been, jaundiced, and* feels in perfect health. My treatment has been: salines internally, bromides, alkaline baths, a calamine lotion containing *liquor carbonis detergens*, 4 drachms to the pint, and *liquor plumbi subacetatis*. The condition has improved somewhat, but only to relapse again.

TREATMENT OF SEVERE HEADACHE WITHOUT PHYSICAL SIGNS.

"M. B." asks for advice in the treatment of a woman, aged 35, who for several years has suffered from acute headaches chiefly during the menstrual periods. The headaches are usually frontal, sometimes unilateral, but sometimes vertical; they last three to four days, and are worse about the second or third day of the periods. They interfere with sleep and are not relieved by lying down. The patient is a multipara and is normal in all respects except for slight astigmatism; this has been corrected without any improvement in her condition. The bowels are regulated by aperients. The appendix has been removed, and also a number of suspicious teeth. All the usual remedies have been tried—phenazone, bromides, thyroid extract, calcium, etc.—but nothing seems to have the slightest effect.

"T. H. H." asks for suggestions for treating a woman, aged 60, who complains of severe attacks of headache and continued weakness, *but has no abnormal physical signs. The blood picture is normal,* as also is the non-protein nitrogen; the blood pressure is 110 mm. S.B.P., *and the urine is normal. The patient quickly becomes* breathless on exertion, but her cardio-vascular system appears healthy. Her climacteric occurred ten years ago. She is inclined to be neurotic, and has also had several attacks of dyspnoea which simulated asthma. She is able to walk about. Her eyes are normal. Her central nervous system shows no abnormal physical signs.

TREATMENT OF PLACENTA PRAEVIA.

DR. M. MALGLAVE (Dagenham) writes: With regard to the letter from Dr. D. C. Macdonald in the *Journal* of August 10th (p. 278), I should be very glad to know where "ovarian residue without corpus luteum" is obtainable; also if there is any known *physiology of its action.*

BLISTERING WITH SCARLET-RED.

"R. V." (Cochin State) writes: A patient with fistula-in-ano, operated upon a few days ago, was dressed with 1 per cent. scarlet-red ointment. About four hours later the dressings had to be removed as the patient was complaining of a severe burning *sensation. When the wound* was examined the whole surface, including the healthy parts with which the ointment was in contact, was found to be blistered. The wound was then dressed with boric ointment. Next day 5 per cent. scarlet-red ointment (Parke Davis and Co.) was tried. The patient was quite happy with it, and the wound is now showing signs of rapid healing. Can any reader suggest an explanation for the above?

TREATMENT OF LOCALIZED PULMONARY TUBERCULOSIS.

DR. J. B. DALÁL (Vejle-Fjord Sanatorium, Pr. Vejle, Denmark) writes: In reply to the query by "W. J. D." on July 27th (p. 171) as regards the treatment of localized pulmonary tuberculosis, I would suggest, in such a case, the performance of bilateral artificial pneumothorax, first on one side and then on the other.

INCOME TAX.

Succession—Cash Basis.

"A" and "B" were equal partners up to March 31st, 1928, when "A" retired. "B" bought "A's" share of the outstanding book debts for £350 and has included the cash received therefrom in his accounts for income tax purposes. Can he claim any adjustment, seeing that he paid for them out of capital?

*** The correct procedure would have been for "B" to calculate the profits of the practice for the year ended March 31st, 1929, as being the cash received *plus* any increase or less any decrease in the value of the book debts outstanding to the practice at that date as compared with March 31st, 1928. If that had been done no question as to the £350 paid by "B" would have arisen. But unless there has been some appreciable change in the volume of bookings the basis adopted will have produced a similar result, and with the advantage of a more convenient basis of calculation. If, however, "B" should find that the method actually followed has been averse to him, he should inform the inspector of taxes that he adopted the cash basis in error (it is not strictly applicable to the first year after a succession) and supply the figures calculated on the basis first mentioned above.

Car Transactions.

"R. M. L." bought a car in 1922 for £625 in respect of which he has received depreciation allowances amounting to £389, leaving a written-down value of £236. In April, 1928, he bought a second car for £158 and in June, 1928, he sold the first car for £57 and bought a third for £284. His accounts are always made up as at December 31st. What can he claim for 1929–30?

*** (*a*) Obsolescence allowance in respect of the first car—namely, £236 – £57 = £179. This amount is an expense of the year 1928, affecting, therefore, the gross amount of the assessment for 1929–30. (*b*) Depreciation allowance as follows:

Value brought forward			£236
Deduct: Sale	£57		
Obsolescence allowance	£179		
		£236	
			nil
Add: Second car			£158
Third car			£284
		£442	
Allowance at 20 per cent.			£88
Value to carry forward			£354

In his computation the inspector of taxes has not made the obsolescence allowance—presumably because it was not claimed—but has left the £179 in the calculation to increase future depreciation allowances.

LETTERS, NOTES, ETC.

A WARNING.

DR. J. G. BENNETT (Hyde, Cheshire) writes: May I caution *medical colleagues about a new type of confidence trick which* was played upon me to-day? It may help to save their pockets and also bring the perpetrator to book. While I was on my rounds a young man called at my surgery and intimated that he had come with a verbal message from me to the effect that my car had had *engine trouble and that it was being repaired on the* road. He then stated that I had sent him for 30*s.*, as I had no money with me, to remunerate the *mechanic who was on the* job at the time. My wife gave him the money, and obtained a receipt for it. When I returned home later the scheme was apparent, and on ringing up the police they informed me that they had had a similar complaint the same morning. Possibly the "receipt" may be useful later to establish identity—I sincerely hope so, for rogues of this kind seem to prosper.

DIET AND PRURITUS ANI.

"PANTAGRUEL" (Sussex) writes: I have recently had two separate experiences, each quite different from and independent of the other, yet I cannot help wondering whether they have any common factor. Perhaps someone more expert than myself in proctology and/or veterinary science can offer an opinion on this possibility. The first concerns a Sealyham terrier which gave obvious indications of pruritus ani, not amenable to anti-helminthic treatment, for some time before developing a rectal abscess, which necessitated a visit to a veterinary surgeon. This practitioner told me that in a state of nature and on a carnivorous diet a dog's motions are hard and are lubricated by *glands in the anus.* A diet consisting largely of dog biscuit, mainly farinaceous, results in soft motions, disuse of the rectal glands, loss of function, inflammation, pruritus, and frequently abscess. He stated that the condition was common among his canine patients. I was myself the subject of the second experience. I used to imagine that I could live more healthily and more cheaply on a diet containing a minimum of meat and other proteins and a maximum of farinaceous food. Judged by the action of my intestines (which we are frequently told is the great criterion of health), the results were very satisfactory. There were regularly from one to three copious soft formed motions a day. But I suffered considerably at times from pruritus ani, as well as being much troubled by a tendency to soil my linen, in spite of every precaution as regards cleanliness, such as using wet cotton-wool instead of paper. Rather more than a year ago, as a result of trying to get into a pair of trousers that had been made some years previously, I weighed myself for the first time for some years. I was horrified to find that, instead of about 11 st., as in the days of my athletic youth, I weighed over 12½ st. in middle age. I at once went on to a weight-reducing diet, a minimum of carbohydrates, with entirely satisfactory results, as indicated by the scales. It is well known that such a diet results in "constipation," but in my case I consider this word a misnomer. My motions continue to be from one to three daily, are ample in amount, and are passed without difficulty. But instead of being soft and only just formed, they consist of small hard masses. From being bovine in nature, they have become caprine. And, moreover, I am now completely free from any pruritus ani or any tendency to soiling of linen.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 35, 36, 37, 40, 41, and 42 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 38 and 39.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 124.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

135. Fulminating Meningococcal Septicaemia.

THE lymphatics were formerly considered as the most frequent route by which meningococci reached the central nervous system, but of late years it has been recognized that meningococcaemia very frequently occurs before localization of the infection. Fulminating infections with this organism may occur and cause death within a few hours, the only clinical and anatomical findings being those of an intense septicaemia, and R. MIDDLETON and W. DUANE, jun. (*Amer. Journ. Med. Sci.*, May, 1929, p. 648), report an illustration of such an event. Two forms of purely septic meningococcus infection are defined. In the first there is a prolonged febrile state, characterized frequently by arthritic symptoms and a mild roseolar or petechial eruption. Prostration is often not severe, and this form may resemble typhoid fever or malaria. The second form includes fulminating cases with widespread purpuric blotches; in these patients death may occur very rapidly, and it has been reported as early as four hours after the onset of symptoms. In the authors' case death ensued in fifteen and a half hours; a remarkable feature was the intensity of the septicaemia, large numbers of meningococci being found in the blood smears. A strikingly low blood sugar value and marked hypotension seem to have been due to a bilateral haemorrhagic destruction of the suprarenal glands which was discovered at the necropsy. The total absence of suprarenal secretion, with the resulting failure of carbohydrate mobilization and vasomotor control, may well have been the immediate cause of death. The authors believe that meningococcal meningitis is frequently, perhaps usually, preceded by meningococcal bacteriaemia, and that vigorous intravenous therapy should never be omitted in such cases even when localization of the infection in the meninges seems to have occurred.

136. Adiposity following Suppression of Catamenia.

A CASE presenting the syndrome of familial adiposity with amenorrhoea and the unexpected effect of an injection of T.A.B. vaccine is reported by J. TROISIER and M. MONNEROT-DUMAINE (*Bull. et Mem. Soc. Méd. des Hôp. de Paris*, May, 1929, p. 546). A woman, aged 29, was admitted to hospital with influenza, and was found to be suffering from a syndrome due to endocrine disturbances. The menstrual periods had been regular in rhythm and duration from the age of 10 to 21, when the patient's weight was just over 8 st. At 21 menstruation abruptly ceased during a painful period, and the patient became pregnant in the course of the following month. Her general health remained good during pregnancy, but she became thinner and was unusually somnolent; 265 days after conception she had a difficult labour and gave birth to a child nearly double the normal weight. After the confinement there was complete cessation of the menses for nine years and a remarkable gain in weight. In the first month 15 lb. were added to her weight; and at the end of one year she weighed 19 st. She suffered from insomnia, and did not respond to hypnotics; oliguria was present. Succeeding years brought no alteration in her condition. Nine years after her confinement she had a subcutaneous injection of T.A.B. (Pasteur). After three days she had a progressive fever which persisted for three weeks with irregular oscillations, violent headache, and prostration. On the third day of this pyrexia menstruation started, was abundant, and lasted five days. After her recovery and discharge the menses continued as regularly as before her confinement nine years previously; moreover, she began to lose weight. During the vaccinial malady she lost more than 2 st., and afterwards in ten months she lost one-third of her weight without any dieting. Her general health apart from the influenza was perfect. Adiposity was still marked and oliguria present. The blood sugar figure was about 0.2 per cent., and the Wassermann reaction was negative. The sella turcica was normal, and the parasympathetic system could not be excited nor paralysed. Examination of the family history revealed the fact that the patient's mother and two sisters suffered from adiposity and amenorrhoea; one sister had given birth to an unusually large child. The patient's brothers were thin. The authors suggest that the inherited condition was due to a dissociation of female hormones. Presumably "hysterauxin" (the growth hormone of Champy) was circulating in the blood uncorrected by the "hysterythrin" (the congestive hormone of Champy); hence a condition of adiposity with amenorrhoea resulted.

137. Variations in Blood Pressure Produced by Meals.

SEVERAL investigators have recently emphasized the importance in diagnosis and prognosis of variations in blood pressure, and consider that too much stress should not be laid on the figures obtained from a single reading. Since, however, the observation of blood pressure at frequent intervals *over a comparatively prolonged period is often impracticable* clinically and "the response to effort" variations cannot be estimated in bed-ridden patients, H. MAY (*Med. Klinik*, May 24th, 1929, p. 829) has compared the alterations in blood pressure produced by a meal in healthy persons and patients suffering from various pathological conditions. For this purpose the systolic and diastolic pressures were recorded immediately before and during the meal and at intervals of five minutes for half an hour after. In persons with a normal circulation the alterations in pulse amplitude (difference between diastolic and systolic pressure) were similar to those produced by exercise, such as climbing stairs. The pulse amplitude was increased during the meal generally by 10 to 20 mm. of mercury; it fell to its initial value five minutes after the meal and then continued to diminish during the next half-hour, while in some cases this diminution was found to persist for one to two hours. In patients with circulatory failure the initial increase in pulse amplitude was small—up to 5 mm.—or absent, and in the more severe cases of failure was replaced by more or less prolonged diminution in pulse amplitude. In patients with chronic nephritis and high blood pressure the meal had no effect on the pulse amplitude. May therefore suggests that such blood pressure recording constitutes a useful and simple aid in estimating the efficiency of the circulation.

138. Rat-bite Fever.

F. C. KUIPERS and A. CHARLOTTE RUYS (*Nederl. Tijdschr. v. Geneesk.*, March 9th, 1929, p. 1207), who record an illustrative case in a boy aged 9, state that rat-bite fever may run its course without any local symptoms or eruption, fever being the only symptom. Mice inoculated with the patient's blood showed an infection with the *Spirillum morsus muriun*. The positive result was obtained by inoculating mice with the blood of patients on the day that the temperature fell after an attack. It is therefore advisable to inoculate mice with the blood of patients suspected to have rat-bite fever after the acme of the fever in order to obtain a positive result. The blood picture showed peculiar and constant changes. The most important was leucocytosis with relative lymphopenia and disappearance of the eosinophil cells during an attack, and an increase of the eosinophil cells some days before an attack. Eosinophilia was also found in convalescence. When rat-bite fever appeared to be cured *mild attacks might occur, manifested by rise in the pulse* frequently and the behaviour of the eosinophils and leucocytes. Salvarsan appeared to be of value therapeutically.

Surgery.

139. Ambulatory Operative Treatment of Haemorrhoids.

J. JENSEN (*Ugeskrift for Laeger*, May 16th, 1929, p. 419) has treated during the past eight years 413 patients with haemorrhoids (304 men and 109 women), of whom 199 (145 men and 54 women) required no surgical treatment, since conservative measures, such as special dieting, provided sufficient relief. The success of such conservative measures disproves the common belief that external haemorrhoids are necessarily an indication for some operation and a sojourn in hospital. Only internal haemorrhoids, and sometimes those of the intermediary group, under certain conditions, usually haemorrhage, require operative treatment, and then only after acute symptoms have disappeared. The author instructs patients to secure a thorough evacuation of the bowels before coming for operation; a modification of Whitehead's procedure is performed under local novocain-adrenaline anaesthesia after a hypodermic injection of morphine. The patient is subsequently taken to his home in an ambulance, and is visited the same afternoon or evening by a nurse, who gives an injection of morphine if necessary. The patient is also supplied with morphine drops. The nurse visits him twice a day, takes his temperature, and changes the dressings. Evacuation of the bowels is effected on the fourth day, and the patient is subsequently allowed to get up. After eight days he reports, and in many cases is fit for work in a fortnight. Among the 214 patients (159 men,

55 women) thus treated there were no fatalities or serious complications such as phlebitis, thrombosis, embolism, phlegmon, or abscess formation. Great care was taken at the time of operation to reduce the risk of post-operative haemorrhage, and only in three cases were patients admitted to hospital for this sequel; in two of these the haemorrhage was not serious, and the patients were discharged in a day or two. In the third case a rather severe haemorrhage occurred on the seventeenth day after the operation, the patient being 70 years old and suffering from arterio-sclerosis. On the rare occasions when retention of urine occurred the patient was catheterized at home by his doctor or taken to hospital, one or two catheterizations being usually sufficient to cure this condition. Among the 152 patients subsequently examined not one relapse had occurred; there was no troublesome stricture, and, even when cicatricial tissue could be felt, there was no obstruction to the passage of faeces. In every instance there was complete continence of normal motions, but in ten cases there were, under certain conditions, difficulties with regard to retention of flatus, which had in two cases existed before the operation. The author argues that the injection treatment of haemorrhoids cannot become the chief or normal treatment for haemorrhoids since it is not applicable to every case, it is uncertain in its effects, it provokes as many or more complications, and does not yield such good and permanent results as Whitehead's operation. On account of these drawbacks and the comparatively great number of cases of embolism and necrosis, the author believes that the injection treatment has been extensively abandoned.

140. Rupture of the Liver.

P. H. T. THORLAKSON and A. W. S. HAY (*Canadian Med. Assoc. Journ.*, June, 1929, p. 593) state that rupture of the liver, though rare, is an emergency quite amenable to early surgical treatment; they emphasize the importance of early diagnosis and prompt surgical measures. Owing to its size, consistency, and position the liver is particularly vulnerable to external forces, and the fact that lacerations usually occur along the posterior surface where the organ lies in contact with the vertebral column indicates that antero-posterior compression is the commonest cause of the injury. Eleven cases of rupture of the liver are reported; the mortality was 37.5 per cent., this high rate being chiefly due to the multiplicity of injuries and to the length of time between the injury and operation. The chief symptoms of ruptured liver are due to free haemorrhage into the peritoneal cavity. The patient becomes pale, weak, and later restless and dyspnoeic. The pulse becomes more frequent and compressible, and the blood pressure falls. Severe pain in the right upper abdomen, tenderness, and muscular rigidity are invariably present. The temperature is subnormal for the first few hours, and then gradually rises if the patient reacts favourably. Blood examinations at intervals show a progressive decline in the red cells and haemoglobin, but an increase in the leucocytes. Rupture of the liver must be distinguished from conditions of shock alone, and rupture of the stomach, kidney, spleen, or bladder. The primary shock should be treated for several hours, especially if the injuries are severe, and surgical measures should only be applied when this is past. If conditions indicate a decided loss of blood, a blood transfusion may be advisable just before or during the operation. As regards the operative site, the upper right transverse incision has certain definite advantages over the longitudinal one. Haemorrhage may be controlled by compression of the vessels in front of the foramen of Winslow, packing, tying, or by cauterization. Repeated observation of the following points is of great aid in determining the optimum time for operation: pulse rate and temperature; blood pressure; the numbers of red and white blood cells, and the haemoglobin percentage. The presence of other complicating injuries chiefly determines the prognosis. The authors stress the value of routine complete blood counts in all cases of severe injury, since these may later be valuable guides to the differential diagnosis and treatment.

141. Acute Osteomyelitis of the Pubis.

A. ZAFFAGNINI (*La Chir. degli Organi di Movimento*, April, 1929, p. 333) has collected 29 cases of this very rare disease. In a record of 1,469 cases of osteomyelitis only 23 were referred to the pelvis and none to the pubis. Of 71 cases of pelvic osteomyelitis collected by Klemm, 7 were pubic, 46 in the ileum, 16 in the sacrum, and 2 in the ischium. Zaffagnini met with only two pubic cases in hospital during eight years. Osteomyelitis, which has been described as "furuncle of bone," is an infective disease more commonly of the long bones, the site of attack being the growing tissue of the epiphyseal area, which has an increased capillary network and supply of blood, associated with a lowered resistance to infection. The commonest infecting organism is *Staphylococcus pyogenes aureus*, but *Staphylococcus albus*, a streptococcus, or any pyogenic organism of requisite virulence may be the causative agent, which is carried by the blood stream from the various sites of entry—skin, throat, tonsil, alimentary canal, and respiratory passages—to the medullary cavities of the long bones. It occurs in children of the school age; of 100 patients 41 were between the ages of 10 and 15. The frequent traumata among children favour the infection either by the direct admission of germs, or indirectly by extravasations of blood, which assist the attachment and development of organisms. Dislocation of an epiphysis seems especially favourable. The relatively high development of the lymphatic system in children, and the facility with which children catch cold, are contributing causes. The cases reported occur five times more frequently in boys than in girls. The disease is usually unilateral and slightly more frequent on the left side; one bilateral case is reported. In diagnosis radiography may reveal no changes, though *sometimes there is an increased transparency of the bone*; definite appearances are seen only after the destructive processes have commenced. The treatment is surgical and vaccine therapy is not advocated.

Therapeutics.

142. Calcium in the Treatment of Tuberculosis.

J. F. HALLS DALLY (*Brit. Journ. Tuberculosis*, April, 1929, p. 70) discusses the part played by calcium in the prevention and treatment of tuberculosis, and mentions that milk contains 0.72 gram in a pint, while half an ounce of cheese contains 0.14 gram. For administration he thinks the most useful form is a mixture of calcium carbonate and tribasic calcium orthophosphate, with 2 per cent. magnesium phosphate in 0.1 gram tablets (tricalcine); it may be given also in the form of powder or cachets by the mouth three times daily with meals. He also commends calcium gluconate, of which one teaspoonful may be given by the mouth three times daily, one hour after meals; this salt may also be injected intramuscularly or intravenously, the dose being 10 c.cm. every two or three days except in the case of severe haemorrhage, when still larger doses may be given with safety. He has obtained good results also with the double salt of calcium and sodium lactate, and colloidal calcium. The author finds that with these preparations more useful results are usually obtainable than when the lactate is used alone. He adds that a useful method of giving calcium chloride is in 10-grain doses in a mixture combined with 10-minim doses of dilute phosphoric acid. The relative lack of success in the treatment of tuberculosis by calcium, as compared with that reported by French authorities, is, he thinks, mainly due to improper selection of cases, though possibly the comparative lack of sunlight may also have some influence. Fibro-calcareous cases of pulmonary tuberculosis do not need calcium therapy unless their resistance becomes impaired; they then benefit by the exhibition of calcium alone. The exudative type of phthisis, however, calls for the administration of calcium in combination with parathyroid extract and vitamin D.

143. Bismuth as a Diuretic.

P. J. HANSLIK, A. L. BLOOMFIELD, A. B. STOCKTON, and D. A. WOOD (*Journ. Amer. Med. Assoc.*, April 27th, 1929, p. 1413) remark that although the diuretic action of the bismuth ion is prompt and definite when injected in the form of insoluble compounds or of soluble compounds in oil, its action does not usually last more than twenty-four hours; it is therefore of little value in cases where a sustained diuretic action is desired, as in conditions accompanied by anasarca or oedema. They thought that prolongation of its action might occur if water-soluble solutions were prepared, owing to the consequent more rapid diffusion and absorption of bismuth, and to the obviation of encapsulation. The excretion of the bismuth might also be completed sooner, thereby avoiding unnecessary actions of the bismuth on the body. Water-soluble bismuth sodium tartrate was accordingly tried on two convalescent patients without anasarca and oedema, and on three patients in which these conditions were present. This salt, said to be a tetrabismuth tartrate, is dispensed as a water-clear solution of 1.5 per cent. strength in a 25 per cent. (hypertonic) solution of sucrose containing 2 per cent. benzyl alcohol; 2 c.cm., or 0.03 gram, of the compound was injected intramuscularly as a single dose, or the equivalent of 0.0221 gram of metallic mercury. The patients also received constant supply of fluid throughout. The bismuth sodium tartrate injections were painless; they caused a prompt and well-sustained diuresis in subjects both with and without oedema. This action, which continued far longer than that observed with insoluble and oil-suspended bismuth preparations, was not accompanied by demonstrable

local or systemic reactions, and apparently did not injure the renal functional efficiency. The authors conclude, therefore, that it does not seem to be contraindicated in oedema associated with mild or moderate degrees of nephritis. The prompt, rapid, and complete excretion of bismuth after this compound is of practical importance in preventing possibilities of harm from retained bismuth.

145. Therapeutic Agents in Allergic Conditions.

A. H. W. CAULFEILD (*Canadian Med. Assoc. Journ.*, May, 1929, p. 493) reports the results obtained in certain allergic conditions by the use of trypsin and ephedrine, the latter being dissolved in gomenol. The work of Prausnitz and Kuster, and of Walzer, on allergy suggested the employment of large doses of trypsin or pepsin in cases of multiple food sensitization, in which food elimination, or desensitization, was difficult or impossible. Cases of bronchial asthma and urticaria occur in which food can be demonstrated or suspected to be a factor. Ephedrine ingested or applied locally in bronchial asthma and hay fever is highly regarded by authorities who have extensively tried it. Gomenol, an essential oil, is non-irritating to the mucous membranes, of pleasant odour, and has been much used for bronchial instillation. Bronchial instillations of solutions of ephedrine in gomenol were therefore tried in cases of bronchitic asthma—that is, in cases in which asthmatic spasms or respiratory distress occurred and were associated with a definite or presumable bronchitis. Frequent instillations were administered to 17 cases, and in only 2 was the treatment without a favourable effect; in 6 it was of considerable, and in 9 of pronounced, benefit. The favourable effect was prolonged from two to six days, and no case of idiosyncrasy to ephedrine was encountered. The method adopted was to instil into the trachea about 2 c.cm. of ephedrine (from 1 to 1.5 per cent.) in gomenol (10 to 20 per cent.) by the supraglottic method with a Yankhauer laryngeal syringe. The routine method when employing trypsin was to give daily three doses of 30 grains each for ten days, followed by an intermission. Four cases are briefly reported, illustrative of the benefits resulting from each method of treatment.

145. Indications for Malariotherapy.

G. STÜMPKE (*Deut. med. Woch.*, May 24th, 1929, p. 865) urges that the utmost caution should be exercised in recommending malariotherapy, for the following reasons. In general paralysis the patients generally offer little resistance and are usually of advanced age, the mortality in cases so treated ranging from 18 to 27 per cent. Moreover, the question of infectivity should not be dismissed so light-heartedly as is generally done. The investigations of v. Mühlens, Yorke, and Wright contradict the view that inoculated malaria is not infectious. Lastly, the cutting short of inoculated malaria by the usual methods (quinine and salvarsan) is not always successful. Stümpke obtained the best results from malariotherapy in cerebro-spinal syphilis and general paralysis, in which repeated examination of the spinal fluid showed that a decided clinical improvement was accompanied by a more healthy condition of the spinal fluid. As regards tabes, Stümpke thinks it better to apply some other form of fever treatment, such as Dmelcos vaccine (the French vaccine against chancroid), and comes to the conclusion that malariotherapy should be reserved for cases of general paralysis, cerebro-spinal syphilis which is refractory clinically, and cases in which the changes in the cerebro-spinal fluid persist.

Ophthalmology.

146. Trichinosis with Exophthalmos.

B. W. KEY (*Amer. Journ. Ophthalmol.*, March, 1929, p. 178) reports a case of the association of trichinosis with exophthalmos. A man, aged 25, came for treatment of lacrymation, puffiness of the lids, and headache. On examination some oedema of the lids was detected, together with considerable chemosis of the conjunctiva, more marked in the right eye than in the left, and some proptosis of the right eye. It was at first thought that the condition was due to nasal sinusitis, but on general examination a marked eosinophilia (69 per cent.) was found. A small section of the left deltoid muscle was excised, and on examination of this the curled-up larval *Trichinella spiralis* was seen. The acute course of the disease lasted seventeen days, and during this time the visual acuity varied considerably, though at no time did examination of the fundus reveal anything abnormal except possibly slight congestion of the disc. Treatment consisted of calomel followed by magnesium sulphate every four days; thymol, 3 grains twice a day; tincture of digitalis, 10 minims three times daily; and neosalvarsan, 0.2 gram every three days, six doses being given in all. It was found that he had been eating raw ham for his dinner every day during the week preceding his illness. Key comments on the various clinical signs in this case, and suggests that there may have been retrobulbar involvement, possibly neuritis, and due to trichina toxins, or a heavy infection of the extrinsic ocular muscles.

147. Remote Results of Dacryocystorhinostomy.

J. BASZERRA (*La med. Ibera*, April 27th, 1929, p. 545) records his observations on 283 cases of dacryocystorhinostomy, which he has performed in the course of the last four years for the treatment of dacryocystitis. His results were as follows: complete success in 85–88 per cent., relief or partial cure in 8–10 per cent., and failure in 5–7 per cent. Although the immediate result was excellent in every case, in some instances there was a return of the symptoms after an interval ranging from forty-eight hours to a month after the operation. In view of the satisfactory results obtained Baszerra comes to the conclusion that extirpation of the lacrymal sac in dacryocystitis should only be performed when dacryocystorhinostomy is contraindicated, or in a patient who, owing to advanced age and persistence of epiphora, does not wish to submit to a prolonged operation.

148. Amaurosis in Epidemic Encephalitis.

I. J. SANDS (*Journ. Amer. Med. Assoc.*, April 13th, 1929, p. 1241), who records an illustrative case, states that papilloedema is not a common occurrence in epidemic encephalitis, though cases have been described by Buzzard, Spiller, Kennedy, Naccarati, and others. Sands himself has encountered nine other cases, in three of which the diagnosis of cerebral tumour was made. Optic atrophy secondary to optic neuritis and papilloedema in encephalitis has been reported by Grinker, Hart, and others. Sands's patient was a woman, aged 37, suffering from epidemic encephalitis, who developed bilateral amaurosis and was totally blind for twelve days. Gradual improvement followed the injection of foreign protein in the form of typhoid vaccine.

Obstetrics and Gynaecology.

149. Cancer of the Cervix Uteri.

H. B. WOOD (*Med. Journ. and Record*, May 1st, 1929, p. 515) gives a summarized study of the records of cases of cervical carcinoma which occurred in the State of Pennsylvania during the year 1927. He reports that malignancy of the cervix is markedly increasing, and that there is no reason to believe that this increase is due to better diagnosis. More women are being saved by operation than formerly, and, therefore, with the increase in deaths there must be an even greater increase in the number of cases. The ratio of cervical cancer to that of the fundus cannot be determined, since many death certificates give merely "cancer of the uterus" as the cause of death without specifying the site. Cervical cancer usually spreads by extension into the surrounding pelvic tissues, but metastases into the lungs, stomach, liver, or other parts have been reported. Apparently the menopause is not an important factor in the development of cancer, since it began before that period in one-third to one-half of the cases. Childbirth also is not necessarily a factor in its causation, and multiplicity of pregnancies had no influence. Chronic irritation, usually regarded as provocative of cancer, was not present in all the childless patients. The returns showed a great variation in the duration of the disease, this ranging from one month to five years. Only one-third of the women were operated on, and Wood considers that this indicates the necessity for more extended educational methods and an increase of clinics for free diagnosis. Earlier operations are necessary, and a greater use of biopsy examinations for diagnostic purposes is advocated.

150. Paget's Disease of the Vulva.

J. A. DRAKE and A. WHITFIELD (*Brit. Journ. Dermatol. and Syph.*, May, 1929, p. 177) record a case of Paget's disease of the vulva with histological details, and discuss the etiology of this rare form of new growth. They conclude that this condition should be considered as a very indolent form of carcinoma. In the case of their patient the disease originated in more than one spot; in some places heavily affected ducts were seen leading to normal sweat glands, while in others normal ducts were connected with grossly involved glands. In the epidermis the disease began in the basal layer, some individual cells becoming affected, but not sufficiently close together to prevent completely the degeneration of the overlying mucous layer. Invasion of the fibrous tissues occurred only downwards from the surface epidermis, as was shown by an extensive downgrowth between the papillae, and the

heavy barrier of lymphoid and plasma cells which developed as a defensive reaction. The affected hair follicles, sweat ducts, and sweat glands, where no bursting through had occurred, showed no surrounding reactive infiltration. The authors consider that the "Paget cells" are of autochthonous production, and, in the case of the sweat ducts and glands, maintain their original position. On the other hand, in the case of the constantly proliferating surface epidermis these cells are detached and carried up between the normal prickle cells until they eventually reach the horny layer. The authors' patient was aged 68; she had been twice married, but had had no pregnancies. The condition had gradually increased for eight years, and the affected parts were so extensive that excision was not considered practicable.

151. Radium Treatment of Non-malignant Uterine Haemorrhage.

J. R. LINTON, G. A. MARKS, and G. VAN S. SMITH (*Journ. Amer. Med. Assoc.*, March 23rd, 1929, p. 966) report the results of treating by radium a series of 250 cases of uterine bleeding not due to malignant disease. With the exception of forty-one cases in which fibroid tumours were definitely present, only one patient had any demonstrable pathological condition (idiopathic thrombopenic purpura) which might account for the haemorrhage. All the patients with fibroid growths were relieved by the end of two weeks. In the 209 remaining patients immediate relief within ten days was afforded to all, by curetting followed by the introduction into the uterus of screened radium, except to one who died the day after admission; there were, however, twelve cases of recurrence. The one patient with purpura haemorrhagica had three local radium applications and intensive ultra-violet ray treatment over the spleen; she is now apparently well, nine years after her first admission. The authors state that no abnormal menopausal symptoms can be unquestionably attributed to the use of radium. There was some indication that the possibility of subsequent pregnancies was reduced, but the evidence was uncertain. None of the patients in the series had malignant disease at the time of treatment, and only two are known to have developed carcinoma later.

152. F. A. CLELAND (*Amer. Journ. Obstet. and Gynecol.*, April, 1929, p. 502) states that in adolescence radium should not be used until all other measures have failed, when the dose should be small enough to preclude any possible injury to the ovary. Not more than 200 to 250 mg. hours should be used in the initial treatment. The use of radium is of distinct value in controlling the menorrhagia of the menopause, 800 to 1,000 mg. hours of intrauterine radium giving satisfactory results in more than 90 per cent. of patients treated. Radium is contraindicated when there is a history of pelvic infection even eight or ten years previously, or evidence of existing infection. Preliminary curetting for diagnostic purposes should be performed in practically all cases when the patient is more than 40 years old.

153. Treatment of Engorged Breasts.

LOCAL applications of camphor have been used for many years to relieve pain in the engorged breast, but little reference has been made to its general effect on the lactating breast. N. W. PHILPOTT (*Canadian Med. Assoc. Journ.*, May, 1929, p. 494) reports the results of its administration in 80 cases, which indicate a definite inhibiting action by this drug on the milk secretion. Intramuscular injections of camphor in oil were given in doses of 1½ grains. The first day two injections were given, and one daily on the following three days. Other forms of treatment were discarded, and, though occasionally a loose Indian binder was used to support pendulous breasts, no form of pressure binder was employed at any stage. Of the 80 cases, 68 showed beneficial results, and in only 12 was the action slight or absent. This appears to be the most effective form of treating breast engorgement, and is far simpler and less painful than applying tight binders, local applications of ice, or the administration of large doses of magnesium sulphate. Philpott also believes that the child should not be put to the breast for at least twenty-four hours after delivery, and that both mother and child benefit from waiting till the breasts show signs of filling. Rest is most essential to the mother; suction on an empty breast causes much irritation, which predisposes to cracked or fissured nipples; in multiparae the after-pains on the second and third days after delivery are not so troublesome when the child is not taking the breast. Infants progress very favourably on the later nursing, and, if 5 per cent. lactose is given at regular intervals, dehydration and the usual starvation temperature are prevented.

Pathology.

154. The Excretion of Lead.

SINCE evidence has been presented that measurable quantities of lead are excreted in the urine and faeces of patients with and without a history of industrial exposure to lead compounds, and since Leake has verified these findings so far as faecal excretion is concerned, R. A. KEHOE and F. THAMANN (*Journ. Amer. Med. Assoc.*, April 27th, 1929, p. 1418) considered that further investigation was necessary. Few industries exist in which some lead compound is not used; an examination, therefore, into the entire occupational history of a person might yield information pointing to exposure previously unrecognized. Lead is present in the dust of city streets and elsewhere on the earth's surface. It is found so commonly in the carcasses of experimental animals as to suggest that meat-producing animals similarly have lead in their tissues; and other foods, especially fruits, often contain small amounts of lead. The authors accordingly made extensive investigations, a large number of persons being placed in the following groups: those with no occupational exposure to lead; those with slight exposure; and those with a present exposure to recognized lead hazards. They report that they have demonstrated that lead is excreted in the urine and faeces of normal persons, quite apart from industrial exposure to lead compounds; in those thus exposed the amount of lead excreted is in proportion to the degree of exposure. It is generally believed that absorbed lead accumulates in the tissues and that it is stored in a comparatively inert form in the bones. Evidence has been obtained in the case of experimental animals that such stored lead is not inert, and that its excretion is more rapid than is ordinarily supposed. To determine whether a person has absorbed significant amounts of lead it is necessary to study the excreta under carefully controlled conditions, over a period of time sufficient to equalize the variability of the excretory rate. Certain factors, such as acute illnesses, the administration of medicaments which are believed to influence the excretion of lead, and dietary variations, may seriously affect the processes of excretion and hence give rise to misleading information.

155. The Swarming of Proteus Bacilli.

O. MOLTKE (*Centralbl. f. Bakt.*, April 25th, 1929, p. 399) has studied the swarming of *proteus* bacilli by Orskov's agar block method. During the formation of the primary colony the bacilli are of moderate size, but after seven or eight hours or so, as soon as swarming sets in, the bacilli elongate extensively, forming long curved filamentous rods, which are in continuous movement. Experiments suggested that the time of onset of the swarming was determined largely by the thickness of the inoculating; the greater the number of organisms collected on a given area, the sooner did swarming commence. The author therefore considers that swarming is due to overcrowding and failure of nutrition at the site of the parent colony. The phenomenon does not occur on a plate that has already been used once for the growth of *proteus* bacilli.

156. The Intestinal Flora after Gastro-enterostomy.

B. PORTIS (*Surg., Gynecol. and Obstet.*, April, 1929, p. 470), as the result of experiments on dogs, came to the following conclusions. The upper intestinal flora was markedly changed after subtotal gastrectomy, and gradually assumed the faecal character of the lower intestine. Gastro-enterostomy did not materially change the bacterial flora of the intestinal tract. Alteration in the intestinal flora after partial removal of the stomach was probably owing partly to the loss of the bactericidal activity of the stomach through the establishment of achlorhydria, partly to the more rapid emptying time of the stomach, and partly to the alkaline medium of the jejunum. The clinical deduction to be drawn is that although partial gastrectomy seems to be the best operation in certain cases of gastric and duodenal ulcer, a new factor is introduced with the faecal change of the upper intestinal flora. The results of this alteration will take many years to establish.

157. Irradiated Cholesterin in Experimental Rickets.

G. VITETTI (*La Pediatria*, April 1st, 1929, p. 359) has devised experiments to determine the effect of irradiated cholesterin in rickets artificially produced in rats. He finds that the lesions produced by deficiency diet are in no way modified by cholesterin, and that if pushed it has a deleterious effect on the bone medulla, increasing the fatty content. The only positive effect he observed was a slight increase in the blood phosphorus content.

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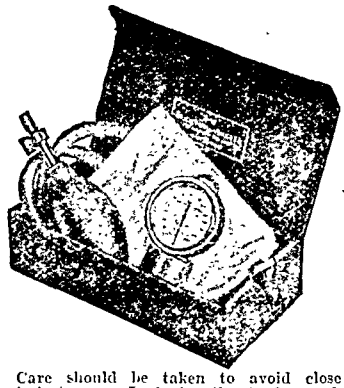

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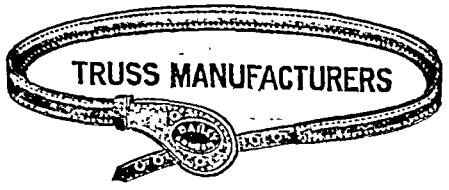

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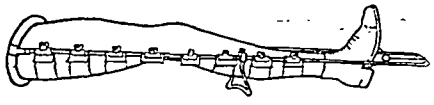

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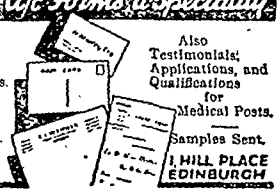

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A HOUSE Licensed for the reception of a limited number of ladies suffering from Nervous and Mental disorders. Both certified and voluntary patients received. This is a large country house with beautiful grounds and park, 5 miles from Sheffield. Station, Grange Lane, G.C. Railway, Sheffield. Telephone: No. 40030 Ecclesfield. Resident Physician: GILBERT E. MOULD, L.R.C.P., M.R.C.S.

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Situated in 3½ acres of secluded gardens

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Rendlesham Hall has 45 bedrooms, and about 450 acres of gardens and park. It has also a private nine-hole golf course, tennis and croquet lawns, and bowling green.

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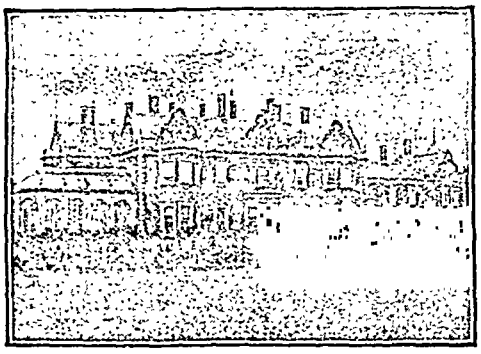
RESIDENT MEDICAL SUPERINTENDENT.

Telegrams and Telephone: Wickham Market 16.



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Telephone: RAVENSBOURNE 0648 *Telegrams:* NOROTORIUM, BECKENHAM.

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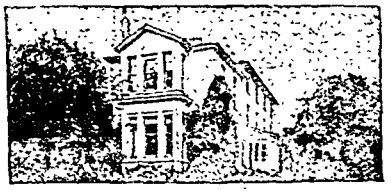

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As founded and established by the late Dr. FRANCIS HARE, for 20 years Med. Supt. of The Norwood Sanatorium, and author of "Alcoholism," etc.; for the treatment of ALCOHOLISM, other Drug Habits, Insomnia, Neurasthenia, Functional Nervous Disorders, TROPICAL Ailments, etc.

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Terms moderate. Quiet and pleasant situation. *Ladies and gentlemen admitted for treatment.* For Prospectus, etc., write or 'phone: WALTER E. MASTERS, M.D., M.R.C.S., D.P.H., Barrister-at-Law (Resident Medical Superintendent). *'Phone:* Chislehurst 451. *Telegrams:* "Masters," Chislehurst.

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ST. ANDREW'S HOSPITAL
FOR MENTAL DISORDERS,
NORTHAMPTON

FOR THE UPPER AND MIDDLE CLASSES ONLY.

President: THE MOST HON. THE MARQUESS OF EXETER, C.M.G., A.D.C.

Medical Superintendent: DANIEL F. RAMBAUT, M.A., M.D.

This registered Hospital is situated in 120 acres of park and pleasure grounds. Voluntary Boarders, persons suffering from incipient nervous and mental disorders, as well as certified patients of both sexes, are received for treatment. Careful clinical, biochemical, bacteriological, and pathological examinations. Private rooms with special nurses, male or female, in the Hospital or in one of the numerous villas in the grounds of the various branches can be provided.

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This is a Reception Hospital in detached grounds, with a separate entrance, to which patients and voluntary boarders can be admitted. It is equipped with all the apparatus for the most modern treatment of Mental and Nervous Disorders. It contains special departments for hydrotherapy by various methods, including Turkish and Russian baths, the prolonged immersion bath, Vichy Douche, Scotch Douche, Electrical baths, Plombières treatment, etc. There is an Operating Theatre, a Dental Surgery, an X-ray Room, an Ultra-violet Apparatus, and a Department for Diathermy and High Frequency treatment. It also contains Laboratories for biochemical, bacteriological, and pathological research.

MOULTON PARK.

Two miles from the Main Hospital there are several branch establishments and villas situated in a park and farm of 650 acres. Milk, meat, fruit, an *to the Hospital from the farm, gardens, and orchards of Moulton* is a feature of this branch, and patients are given every facility in farming, gardening, and fruit-growing.

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The Seaside house of St. Andrew's Hospital is beautifully situated in a Park of 330 acres, at Llanfairfechan, amidst the finest scenery in North Wales. On the North-West side of the Estate a mile of sea coast forms the boundary. Voluntary Boarders or Patients may visit this branch for a short seaside change or for longer periods. The Hospital has its own private bathing house on the seashore. There is trout-fishing in the park.

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For terms and further particulars apply to the Medical Superintendent (Telephone No. 56. Northampton), who can be seen in London by appointment.

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HOSPITAL FOR MENTAL DISEASES.

This Institution is exclusively for the reception of a limited number of Private Patients of both sexes of the Upper and Middle Classes at moderate rates of payment. It is beautifully situated in its own grounds on an eminence a short distance from Nottingham, and from its singularly healthy position and comfortable arrangements affords every facility for the relief and cure of those mentally afflicted. Voluntary Boarders received without Certificates.

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For the care and treatment of Ladies suffering from Mental Diseases. Limited to eight patients. Telephone: Starcross 19.

CLIFFDEN, TEIGNMOUTH, in connection with Court Hall, for early and convalescent cases. Cliffden is a large well-appointed house, with lovely views of the South Devon Coast. It is beautifully situated in grounds of 19 acres. The gardens are very attractive, and there is a private road to the beach.

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Telephone: *Teignmouth* 289.

HAYDOCK LODGE
NEWTON-LE-WILLOWS, LANCASHIRE.

'Phone: 11 Ashton-in-Makerfield.

For the reception and treatment of PRIVATE PATIENTS of both sexes of the UPPER AND MIDDLE CLASSES either voluntarily or under Certificate. Patients are classified in separate buildings according to their mental condition.

Situated in park and grounds of 400 acres. Self-supported by its own farm and gardens, in which patients are encouraged to occupy themselves. Every facility for indoor and out-door recreation. For terms, prospectus, etc., apply MEDICAL SUPERINTENDENT.

NEURASTHENIA
BELVOIR NURSING HOME, ASTON-ON-TRENT, DERBY.

Private Nursing Home for Neurasthenia and allied Functional Nervous Disorders, for general Convalescent Cases, and those requiring Electrical Treatment.

The Home, a Georgian mansion, 14 miles from Nottingham and 6 miles from Derby, is for both sexes. In addition to the methods of general medicine, Psycho-Therapeutic treatment is used extensively in suitable cases. Certifiable cases are not received. Electrical Treatment, Radiant Heat, X-ray, Ultra-violet Light, and Massage is available in the Nursing Home. Billiards, tennis, etc. Fees from 5 to 12 guineas per week. For further particulars apply to—

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A Private Mental Hospital for the Treatment and Care of Mental and Nervous Disorders.

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Voluntary Patients received for treatment.

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Telegrams: Exeter 2642. *Telephone*: Exeter 2642.

A registered Hospital for the treatment of patients of both sexes suffering from Nervous and Mental Disorders, situated in beautiful country within a mile and a half of the City of Exeter.

Hard and grass Tennis Courts, Croquet Lawn, Cricket Field, and all indoor amusements, Dancing, Concerts, Wireless, Billiards, Badminton. Occupational treatment.

The patients are carefully graded, and accommodation provides for the separate treatment of early recoverable and convalescent patients.

Voluntary and certified patients are received for treatment.

A prospectus and full particulars can be obtained from the Medical Superintendent.

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Attendance at School is a necessary part of the satisfactory treatment of Epilepsy in Children.

COLTHURST HOUSE SCHOOL meets all the requirements of children of middle-class parentage. Extensions, made necessary by the success of the school, have created several vacancies.

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Telephone: 481 GATLEY.

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A PRIVATE HOME for the treatment of patients of both sexes suffering from Mental Illnesses.
Conveniently situated four miles from Charing Cross. Easy of access from all parts.
Six acres of ground, highly situated, facing Finsbury Park.
Voluntary Boarders received without certificates. Private suites. Convalescent Home, Kearsney Court, Dover.
For further particulars, apply to the MEDICAL SUPERINTENDENT.

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Telegrams: "Alleviated, London." Telephone: Rodney 4741—4742.

The above House, which was established in 1826, is an Institution for the care and treatment of persons suffering from mental diseases and nervous disorders. Both certified patients and voluntary boarders are received. Separate houses for treatment and accommodation of special cases adjoin the Institution. There is a seaside branch, Kearsney Court, near Dover, to which patients may be sent for treatment or on holiday. Motor and carriage exercise is provided as required. Patients can avail themselves of a course of physical drill. Tennis courts. Entertainments, dances, and indoor amusements held throughout the year.
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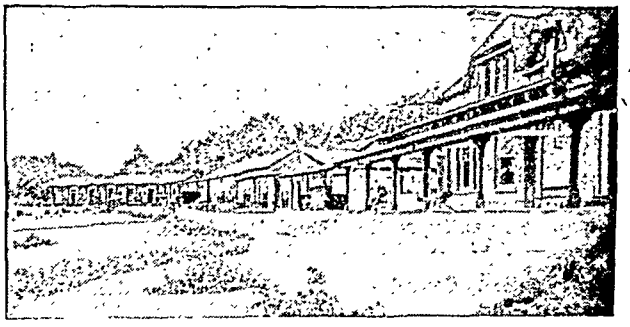

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Apply: The Secretary, The Cotswold Sanatorium, Cranham, Gloucester.

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Every kind of Bath. *Plombière Lavage.*
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High Frequency. Electric Lift.
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For the treatment of Ladies and Gentlemen mentally afflicted. Voluntary Boarders received. Situated 1,200 ft. above sea-level, facing S.: 14 acres of grounds.—For terms, apply to the Resident Medical Superintendent, W. W. HORTON, M.D. Nat. Tel. 130

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Voluntary BOARDERS can now be admitted.—Apply to the MED. SUPERINTENDENT.

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Large grounds, 400 ft. above sea. HOME for Ladies Mentally afflicted. Voluntary Boarders received. Stations: Brentwood and Shenfield 1 mile. Liverp'l St. 26 min.—Apply, Dr. HAYNES

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PRIVATE HOME for MENTALLY AFFLICTED LADIES. Ten only received. Apply, Medical Officer or Mrs. PEELE. *Telephone:* 2708

There is a Vacancy for a Boy under 15 years of age at a HOME known as ROCK HALL HOUSE, COMBE DOWN, BATH, which is an Institution for the training and education of Mentally Defective Children, and has been very favourably reported on by the Board of Control on several occasions. Full particulars and terms of admission may be obtained from the Lady Superintendent, Rock Hall House, Combe Down, Bath, or from the Clerk to the Trustees, E. NEWTON FULLER, 1, Queen Square, Bath.

Grove House, All Stretton,
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A Private Home for the care and treatment of a limited number of ladies mentally afflicted. Climate healthy and bracing.
Medical Superintendent: Dr. MCCLINTOCK.

Home for Children, delicate or predisposed to Tuberculosis, in English Doctor's House, near Davos, Switzerland. Children up to school age taken. Terms from £6 6s. weekly.—Apply, Mrs. BERNARD HUDSON, Victoria, Davos, Switzerland.

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MEDICAL PROSPECTUS (48pp.)

CONTENTS:—The method and the cost of entering the Medical Profession. *Particulars of all Medical Examinations*, Postal Courses, and Oral Classes. Suggestions for the higher Medical Examinations. Suggestions for the higher Surgical Examinations. Suggestions for the Special Diploma Examinations. Refresher Course. *Openings for Women. Hints for writing theses.*
Medical Prospectus gratis along with list of Tutors, etc., on application to the Principal, Mr. E. S. WEYMOUTH, M.A., 17, Red Lion Sq., London, W.C.1. (Telephone: HOLBORN 6313.)

F.R.C.S.(Edin.).

Prep. Classes and Museum Demons. for next Fellowship Exam. will commence shortly. Correspondence course for Jany. and later exams. should begin now. Partics., Mr. H. C. ORRIN, F.R.C.S., at Surgeons' Hall, Edinburgh.

Medical and Dental Students.

Special Classes for Pre-Medical and Dental Exams., Matric., and Prelims.
Chemistry, Physics, and Biology Labs.
MANCHESTER TUTORIAL COLLEGE,
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Resident and non-resident pupils. Full particulars upon request.—Mr. A. C. SCHNELLE, 119, Bedford Court Mansions, London, W.C.1. Estab. 1905. Telephone: Museum 3665.

HIGHER MEDICAL QUALIFICATIONS

Are you desirous of obtaining one of the special higher qualifications?

Diploma in Psychological Medicine.
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Diploma in Tropical Medicine.
All Higher Medical and Surgical Degrees and Diplomas.

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From Specialist Tutors, in conformity with the Regulations of the various Universities. Apply for particulars and free booklet, "Hints on Writing a Thesis for the M.D. Degree," to the SECRETARY, Medical Correspondence College, 19, Welbeck Street, London, W.1.

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BEHNKE METHOD. Estab. 1882. Cases, non-resident, treated at 39, Earl's Court Square, S.W.5, and in residence, in the Summer holidays, at Miss BEHNKE'S house on the Chilterns.

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POST-GRADUATE MIDWIFERY.

Qualified Medical Women are admitted to The Mothers' Hospital of the Salvation Army, Lower Clapton Road, E.5 for practical fortnightly Courses in Midwifery. These include delivery of normal cases, attendances at all abnormal cases, operations, ward rounds of visiting staff, V.D. clinics, and antenatal clinics. For further particulars, fees, etc., apply to the Secretary.

F.R.C.S.(Edin.).

CLASSES, with Museum and Anatomical Demonstrations, for next Exam. will commence shortly. Particulars from CHAS. WHITTAKER, F.R.C.S., Surgeons' Hall, Edinburgh.

Refraction and the Ordering of GLASSES taught by Practising Ophthalmic Surgeon in London. £8 8s. for 10 lessons.—Address, No. 123, B.M.A. House, Tavistock Square, W.C.1.

UNIVERSITY OF BIRMINGHAM

FACULTY OF MEDICINE

(Associated with the General, Queen's, and Special Hospitals for Clinical Teaching.)

THE SESSION OPENS ON MONDAY, SEPTEMBER 30th, 1929.

The University grants Degrees in Medicine, Surgery, and Public Health, and a Diploma in Public Health; also Degrees and a Diploma in Dental Surgery.

The courses of instruction are also adapted to meet the requirements of other Universities and Licensing Bodies.

HOSPITAL APPOINTMENTS.

A large number of Resident Hospital appointments in Birmingham and District are open to qualified students of the School.

SCHOLARSHIPS, EXHIBITIONS, AND PRIZES.

Entrance and other Scholarships and Exhibitions and various Prizes and Medals are awarded annually in the Faculty of Medicine.

SCHOOL OF DENTISTRY. (University of Birmingham and Birmingham Dental Hospital.)

The School of Dentistry, in conjunction with the General and Queen's Hospitals, affords a complete curriculum for the Dental Diplomas and Dental Degrees of the University and all other Licensing Bodies. There is a Dental Scholarship of the value of £46 17s. 6d. offered annually.

PRE-MEDICAL AND PRE-DENTAL EXAMINATIONS.

The necessary Courses of Instruction in Chemistry and Physics and in Biology may be attended in the University.

RESIDENCE FOR UNDERGRADUATES AND OTHER STUDENTS.

There are Halls of Residence for Men and for Women Students. A register of approved lodgings is also kept by the Secretary of the University.

For Syllabus and further information apply to Prof. J. C. BRASH, M.A., M.D., Dean.

THE FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION,

1, WIMPOLE STREET, LONDON, W.1. Telephone: Mayfair 2236.

POST-GRADUATE SPECIAL COURSES have been arranged for September and October as follows: Diseases of the Chest and Infants, Psychological Medicine, Gastro-enterology, and Medicine, Surgery and Specialities (Intensive Course), Cardiology, Ophthalmology, Tropical Medicine, Gynæcology, Diseases of Children and Throat, Nose, and Ear, and Medicine, Surgery and Specialities. Detailed syllabuses, "General Course" programme, from the Secretary.

UNIVERSITY OF LONDON. KING'S COLLEGE.

FACULTY OF MEDICAL SCIENCE.

COMPLETE COURSES OF STUDY ARE PROVIDED FOR THE PRELIMINARY AND INTERMEDIATE EXAMINATIONS OF:

(1) The University of London.
(2) The Conjoint Examining Board of the Royal Colleges of Physicians and Surgeons; and also for
(3) The Degree in Dental Surgery (B.D.S.).
(4) The Primary Fellowship Examination of the Royal College of Surgeons.
(5) The First Professional Examination for the Licence in Dental Surgery of the Royal College of Surgeons.

The College, without in any way lengthening the duration of the Course, offers, like Oxford and Cambridge, the advantages of a broad University Education to Medical Students before they proceed with the purely clinical subjects.

Valuable Scholarships and Prizes are awarded on the results of examinations held annually.

The hostel for men students (King's College Hall, Champion Hill, S.E.5) is close to the hospital, and contains accommodation for 80 students. The hostel for women students is at 58, Queensborough Terrace, Bayswater.

For detailed prospectus of the Medical and Dental Courses and for further information apply to the Dean, Prof. R. J. S. McDOWALL, D.Sc., M.B., Ch.B., F.R.C.P.(Edin.), or to

S. T. SHOVELTON, M.A.,
Strand, W.C.2. Secretary.

UNIVERSITY OF CAMBRIDGE

Diplomas in (*a*) PUBLIC HEALTH, (*b*) HYGIENE (for foreign graduates), (*c*) TROPICAL MEDICINE AND HYGIENE

Courses of Instruction in the Subjects of the Examinations commence October 9th, 1929. Full particulars to be obtained from Mr. J. E. PURVIS, Public Health Chemical Laboratory, Medical School, Cambridge.

ST. BARTHOLOMEW'S HOSPITAL MEDICAL COLLEGE.

Final F.R.C.S. Class.

A Course of instruction, suitable to the requirements of candidates for the Final F.R.C.S Examination in November, will begin on September 5th, 1929.

For syllabus and full particulars apply to the DEAN, Medical College, St. Bartholomew's Hospital, London, E.C.1.

UNIVERSITY OF LONDON, UNIVERSITY COLLEGE.

FACULTY OF MEDICAL SCIENCES.

SPECIAL COURSE FOR THE PRIMARY FELLOWSHIP EXAMINATION OF THE ROYAL COLLEGE OF SURGEONS.

Special short Courses in Anatomy and Physiology will begin on Monday, Sept. 2nd, 1929, in preparation for the December examination.

Anatomy.—E. P. STIBBE, F.R.C.S.

Physiology.—H. P. GILDING, M.A., B.M., B.Ch.; M. GRACE EGGLETON, M.Sc., M.R.C.S., L.R.C.P.

The Course in Anatomy includes Histology, and is made up of lectures and demonstrations. Students are permitted to use the Dissecting Rooms and Museums of Anatomy.

The Course in Physiology includes Biochemistry, and consists of lectures and demonstrations, together with revision of practical work on those branches of the subject which are of particular importance in medical practice.

Full particulars may be obtained on application to—

University College, London. C. O. G. DOUIE, Secretary.
(Gower Street, W.C.1.)

GUY'S HOSPITAL MEDICAL SCHOOL.

FINAL F.R.C.S. COURSE, SEPTEMBER—NOVEMBER, 1929.

The next Course in preparation for the Final Examination for the Fellowship of the Royal College of Surgeons of England will commence on Wednesday, September 4th. It is regretted that no further applications can be received as all the vacancies have now been allocated.

T. B. JOHNSTON,
August 12th, 1929. Dean.

TAUNTON SCHOOL,

TAUNTON.

A PUBLIC SCHOOL FOR BOYS.

Boys are regularly prepared for the First M.B. Examination, University Scholarships in Chemistry, Biology, etc.

Special facilities are offered for the teaching of Chemistry, Physics, Botany, and Zoology.

New Science Buildings, containing seven laboratories, two lecture rooms, science library, store rooms, etc., opened in September, 1925. Prospectus from Head Master

A REALLY GOOD SCHOOL FOR GIRLS. REASONABLE INCLUSIVE FEES.

MARLBOROUGH COLLEGE,

Tytherington Hall, nr. Macclesfield.

Sound Education. Upper and Lower Schools Preparation, when desired, for all University Entrance Examinations. Particulars from Sec. *Special Terms to Medical Men.*

LONDON HOSPITAL MEDICAL COLLEGE.

F.R.C.S.

A COURSE OF INSTRUCTION for the Final Fellowship Examination will begin on Monday, September 2nd.

Fees: (exclusive of Operative Surgery) 20 guineas. Operative Surgery 5 guineas.

A separate entry can be made for all Classes other than those of a strictly Clinical character. (Men students only are eligible for admission.)

Further particulars may be obtained from Professor WILLIAM WRIGHT, M.B., D.Sc., F.R.C.S., Dean, London Hospital Medical College, Mile End, E.1.

LONDON HOSPITAL MEDICAL COLLEGE.

Primary Fellowship Examination.

A COURSE OF INSTRUCTION for the above Examination will begin on Monday, Sept. 2nd.

The Fee for the Course is 15 guineas.

Further particulars may be obtained from Professor WILLIAM WRIGHT, M.B., D.Sc., F.R.C.S., Dean, Mile End, E.1.

CITY OF LONDON MATERNITY HOSPITAL,

CITY ROAD, E.C.1.

MIDWIFERY TRAINING SCHOOL.

MEDICAL STUDENTS admitted to Hospital practice, with operative Midwifery, and Obstetrical complications.

PUPILS TRAINED as Midwives and Monthly Nurses in accordance with C.M.B. regulations.

PRIVATE WARDS for paying patients

LIVERPOOL SCHOOL OF TROPICAL MEDICINE.

(UNIVERSITY OF LIVERPOOL)

COURSES OF INSTRUCTION (lasting about three months) for the Diploma in Tropical Medicine commence on October 1st and January 7th, and for the Diploma in Tropical Hygiene on January 12th and April 26th. (Candidates for the D.T.H. must possess the D.T.M. of this University.)

For particulars apply to the Hon. Dean, Liverpool School of Tropical Medicine, Pembroke Place, Liverpool

NORTH-EAST LONDON POST-GRADUATE COLLEGE,

PRINCE OF WALES'S GENERAL HOSPITAL, N.15.

The Practice of the Hospital is limited to Medical Practitioners. Particulars from T. H. C. BENIANS, F.R.C.S., Dean.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE.

(University of London.)

Tropical Medicine and Hygiene.

The School provides two courses yearly, each of 20 weeks. The next courses commence on September 30th, 1929, and February 3rd, 1930.

Diploma in Public Health.

The course of study in Public Health, covering a period of 12 calendar months, commences on September 30th, 1929, and is so designed that students wishing to do so can proceed to the new academic dilploma instituted by the University of London.

The inclusive fee of 50 guineas will cover the cost, not only of the ordinary lectures and demonstrations, but also of the necessary practical work in public health departments and instruction in infectious diseases, etc.

Diploma in Bacteriology.

The course of study, covering one academic year, commences in October.

Special advanced courses of study in various branches of Medicine and Science are given by the Professors and other teachers on the staff of the School.

Applications for information as to the above courses and other special advanced courses of study should be addressed to the Secretary, Keppel Street (Gower Street), London, W.C.1.

THE MIDDLESEX HOSPITAL MEDICAL SCHOOL, W.1.

(University of London.)

The Winter Session opens on October 1st.

Students wishing to enter the Medical School should apply for admission as early as possible.

The Medical School is fully equipped for teaching the entire M.B., B.S., and Conjoint curriculum, including the PRE-MEDICAL EXAMINATION IN CHEMISTRY AND PHYSICS.

VALUE OF SCHOLARSHIPS AWARDED ANNUALLY EXCEEDS £1,000.

Research Funds of over £25,000.

Parents and Guardians desiring information and advice with regard to the Medical Curriculum should write to the Dean or to the School Secretary.

The rebuilt West Wing of the Hospital, representing the latest advances in Hospital construction, will be opened this year.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL

(UNIVERSITY OF LONDON),

ADVANCED MEDICINE.

A Course in Clinical Medicine, Pathology, Morbid Histology, and Biochemistry, suitable for M.D. and M.R.C.P. Examinations, will be given for six weeks, commencing October 29th.

ADVANCED SURGERY.

A Course suitable for M.S. and F.R.C.S. Examinations, lasting nine weeks, will commence on September 3rd.

Further particulars may be obtained on application to the Dean (H. WILLOUGHBY LYLE, M.D., F.R.C.S.), King's College Hospital Medical School, Denmark Hill, S.E.5

Shropshire Orthopædic Hospital

AND AGNES HUNT SURGICAL HOME, OSWESTRY.

HOUSE SURGEON (male) required. Appointment for one year. Salary £200 per annum, with board, residence, laundry, and four weeks' holiday.

Applications, stating age, with copies of three recent testimonials, should be received by the Secretary-Superintendent, Shropshire Orthopædic Hospital, Oswestry, not later than first post on August 29th.

LONDON HOSPITAL MEDICAL COLLEGE AND DENTAL SCHOOL.

THE WINTER SESSION will open on TUESDAY, *OCTOBER 1st.*

THE HOSPITAL is the largest in England. There are 859 beds in constant use. Last year, In-patients, 14,698; Out-patients 96,928 (attendances 555,762); Dental patients 6,857; Major operations, 7,649.

THE MEDICAL COLLEGE AND DENTAL SCHOOL are essentially modern, with large laboratories equipped with the latest and most approved appliances.

SCHOLARSHIPS AND PRIZES to the value of £1,158 are awarded annually, including four Open Entrance Scholarships to the value of £350, and two Entrance Scholarships open to students of the Universities of Oxford and Cambridge to the value of £200.

RESEARCH FUNDS of approximately £113,000 give unrivalled facilities for medical research.

APPOINTMENTS.—Over 160 appointments are made annually from Students of the College recently qualified.

SPECIAL COURSES are held for all the University Examinations for the Primary and Final Fellowship Examinations of the Royal College of Surgeons, and for the Membership Examinations of the Royal College of Physicians.

HOSPITAL PRACTICE.—Exceptional opportunities are offered to qualified Practitioners wishing to attend the General Practice or the Practice of a Special Department of the Hospital.

Club's Union, Athletic Ground of 13 acres, Students' Hostel, etc.

For prospectus and particulars, apply to the Dean (Professor WILLIAM WRIGHT, M.B., D.Sc., F.R.C.S.), who will be pleased to make arrangements for anyone wishing to see the Medical College and Dental School. Mile End, E.1.

LONDON (Royal Free Hospital) SCHOOL of MEDICINE for WOMEN.

(UNIVERSITY OF LONDON.)

8, Hunter Street, Brunswick Square, W.C.1.

Full COURSES are arranged for the M.B., B.S. Degrees of the University of London, and for the Diplomas of the Royal Colleges of Physicians and Surgeons (including Pre-Medical Course).

Special Classes for the Primary Fellowship Examination.

Arrangements for Dental Students in conjunction with the Royal Dental Hospital.

Clinical Instruction is given at the Royal Free Hospital, and also at the National Cancer, Great Ormond Street Children's, Elizabeth Garrett Anderson, South London, and Royal Ophthalmic Hospitals.

Scholarships, Bursaries, and Prizes are awarded annually to the value of £1,450.

WINTER SESSIONS will begin on MONDAY, SEPTEMBER 30th, 1929.

Prospectus and information as to Scholarships, residence in the School, Chambers, etc., from the Warden and Sec., Miss L. M. BROOKS.

FLORENCE E. BARRETT, C.B.E., M.S., M.D., Dean.

The Warwickshire and Coventry

JOINT COMMITTEE FOR TUBERCULOSIS.

WARWICKSHIRE KING EDWARD VII MEMORIAL SANATORIUM. (190 Beds.)

Applications are invited from fully qualified medical men for the following posts:

1. SENIOR HOUSE PHYSICIAN. Salary £275 per annum, with board, residence, and laundry. Tenable for six months.
2. *JUNIOR HOUSE PHYSICIAN.* Salary £200 per annum, with board, residence, and laundry. If satisfactory, the successful candidate may be appointed to the post of Senior House Physician at the end of six months.

Applications, stating age, qualifications, and experience, together with copies of three recent testimonials, should be sent to the undersigned on or before August 24th.

Warwickshire King Edward VII Memorial Sanatorium, Warwick. FREDERICK HEAF, Med. Supt.

City of Bradford.

MUNICIPAL GENERAL HOSPITAL, ST. LUKE'S.

HOUSE PHYSICIANS and HOUSE SURGEONS required. Salary in each case £200 per annum, with board and lodgings.

These appointments are for six months, renewable for a further period of six months.

Application forms may be obtained from the Medical Officer of Health, Town Hall, Bradford, and should be returned to him not later than August 31st.

Town Hall, Bradford. N. L. FLEMING, Town Clerk.

August 12th, 1929.

Woolwich Union.

THIRD ASSISTANT MEDICAL OFFICER (Male).

A *Third Assistant* Medical Officer (male) is required at the PLUMSTEAD AND DISTRICT HOSPITAL, Plumstead High Street, S.E.18.

Candidates must be single and be doubly qualified and registered.

The gentleman appointed must have held *Resident* Hospital appointments, and have experience in the administration of Anæsthetics. He will be required to carry out such duties as may be assigned to him by the Medical Superintendent, and should occasion arise, to assist at any of the other establishments under the control of the Guardians.

Salary £300 per annum, rising £25 annually to £350 per annum, with residence and rations, subject to deductions under the Poor Law Officers Superannuation Act.

Further particulars of the appointment may be obtained by personal application to the Medical Superintendent between the hours of 10 a.m. and 1 p.m. or by letter.

Applications, upon forms to be obtained at my office, as under, upon receipt of a stamped addressed foolscap envelope, or by personal application, must be returned to me not later than September 16th.

The appointment will be made by the Guardians at their meeting on October 3rd. The gentleman selected to appear before the Guardians will be notified, and if they have not had an interview with the Medical Superintendent they will be expected to call upon him before that date.

By Order,

Union Offices, Plumstead High St., S.E.18. ARTHUR HOLDER, Clerk to the Guardians.

August 12th, 1929.

Liverpool County Borough.

LOCAL EDUCATION AUTHORITY.

JUNIOR ASSISTANT SCHOOL MEDICAL OFFICER.

Applications are invited for a Junior Assistant School Medical Officer, in the Department of the Medical Officer to the Local Education Authority, at a salary of £600 per annum.

Applicants must be registered medical practitioners, and shall have had at least three years' experience. It is desirable that they should have had some special experience in school hygiene and in diseases of children.

The officer appointed will be required to devote his whole time to the service of the Education Authority, under the direction of the Medical Officer to the Education Authority. He will not be allowed to undertake private practice, and will be required to contribute to the Liverpool Corporation Superannuation Scheme, as required by the City Council.

Candidates must send in a statement of their qualifications, etc., to the City Council, and must obtain and forward to me not more than three recent *testimonials*, and endorsed "Junior Assistant School Medical Officer," must be delivered at the office of the Town Clerk, Municipal Buildings, Liverpool, on or before August 27th.

Canvassing of members of the Committee or the City Council is strictly prohibited, and will be considered a disqualification.

WALTER MOON, Municipal Buildings, Liverpool. Town Clerk and Clerk to the Local *Education Authority.*

July 20th, 1929.

Parish of Stepney.

RESIDENT ASSISTANT MEDICAL OFFICER.

The Guardians invite applications from duly qualified medical practitioners for the vacant post of Resident Assistant Medical Officer at their Mile End Hospital, Bancroft Road, Mile End, London, E.1. Salary £450 per annum, together with full residential emoluments.

Candidates must have previously held a Resident House appointment at a Hospital, and the person appointed will be required to work generally under the direction of the Medical Superintendent.

The appointment is for a probationary period of six months in the first instance, and is subject to a medical examination as to physical fitness before commencing duties, and also to any provisions affecting officers in the Local Government Act, 1929.

Forms of application may be obtained from the undermentioned address upon receipt of a stamped addressed foolscap envelope or by personal application to the Medical Superintendent at the Hospital, and must be returned to this office by not later than Thursday, August 29th.

By Order,

Administrative Offices, Bancroft Road, Mile End, E.1. T. ROWLAND, Acting Clerk to the Guardians.

August 8th, 1929.

Kettering Urban District COUNCIL.

MEDICAL OFFICER OF HEALTH.

Applications are invited for the appointment of Medical Officer of Health for the Urban District of Kettering.

Applicants must not exceed 45 years of age.

The gentleman appointed will be required to perform all the duties imposed on a Medical Officer of Health, to act as School Medical Officer, Medical Officer of the Joint Hospital Board, and to carry out all the duties in connection with the Council's Maternity and Child Welfare Service, and all such other duties as the Council, with the consent, if necessary, of the Minister of Health, may from time to time direct.

He will be required to devote his whole time to the duties of the offices and will not be permitted to engage in private practice.

The appointment is subject to the provisions of the Local Government and Other Officers Superannuation Act, 1922, the Public Health (Officers) Act, 1921, and the Sanitary Officers Order, 1926.

The successful candidate will be required to pass a medical examination.

The commencing salary, which will cover all the duties above mentioned, will be £825 per annum inclusive, rising by annual increments of £25 to a maximum of £900, subject to a rise or fall of 1½ per cent. for every five points variation in the cost of living, the salary being calculated on a basis of 65 per cent. above pre-war.

Applications, on forms to be obtained from me, together with copies of not more than three recent testimonials, must reach me not later than Monday, August 26th.

Canvassing in any form will disqualify.

Council Offices, High Street, Kettering. July 30th, 1929. JOHN CHASTON, Clerk of the Council.

City and County of Kingston-upon-Hull.

APPOINTMENT OF MEDICAL OFFICER OF HEALTH.

The Corporation of Kingston-upon-Hull invite applications for the position of Medical Officer of Health of the City at a salary of £1,500 per annum, rising by annual increments of £50 to £1,750 per annum.

The gentleman appointed will be required to act as School Medical Officer for the City, and Port Medical Officer and Medical Inspector of Aliens for the Hull and Goole Port Sanitary Authority. He will be required to devote his whole time to the duties of the offices to which he is appointed and will not be allowed to engage in private practice, and all emoluments out of public moneys, which may be payable to or received by him, will have to be paid to the Corporation. He will be required to reside in the City and contribute to the Corporation's Superannuation Fund.

Particulars of duties and a form on which application should be made, may be obtained from the Town Clerk.

Applications, endorsed "Medical Officer of Health," addressed to the Town Clerk, Guildhall, Hull, must be delivered at the Town Clerk's Office, Hull, not later than September 7th.

Guildhall, Hull. August 12th, 1929. J. R. HOWARD ROBERTS, Town Clerk.

City of Birmingham Education COMMITTEE.

ASSISTANT SCHOOL MEDICAL OFFICER (Male).

Applications are invited for the appointment of Male Assistant School Medical Officer, to begin duty on November 1st. Remuneration for a candidate with suitable experience and qualifications, £600 per annum; £10 per annum travelling expenses.

Forms of application should be returned not later than Thursday, September 4th. Further information may be obtained from the undersigned. Communications should be endorsed "Assistant School Medical Officer."

Canvassing will disqualify.

Education Office, Council House, Margaret Street, Birmingham. August 12th, 1929. P. D. INNES, Chief Education Officer.

Manchester and District Radium INSTITUTION.

ASSISTANT RADIOLOGIST.

Applications are invited for the post of Assistant Radiologist to the Manchester and District Radium Institution. Salary at the rate of £350 per annum, to be increased to £450 at the end of one year's service. Candidates should forward applications and testimonials to the Hon. Secretary, The Radium Institute, Nelson Street, Manchester, S.

The King Edward VII Welsh NATIONAL MEMORIAL ASSOCIATION.

Applications are invited from duly registered medical practitioners for the following appointments:

(*a*) LADY ASSISTANT RESIDENT MEDICAL OFFICER at the Cefn Mably Hospital, Michaelstone-y-vedw, near Newport, Monmouthshire (110 beds for male and female pulmonary cases).

(*b*) THIRD ASSISTANT RESIDENT MEDICAL OFFICER at the North Wales Sanatorium, Llangwyfan, near Denbigh (236 beds for pulmonary and non-pulmonary cases).

Salary in each case £250 per annum, plus maintenance, the appointments being limited to one year.

Applications, stating full qualifications and experience, together with copies of three recent testimonials, should reach the undersigned not later than August 24th.

Memorial Offices, Westgate Street, Cardiff. D. A. POWELL, Principal Medical Officer.

West Derby Union.

RESIDENT ASSISTANT MEDICAL OFFICER (Male).

The Guardians invite applications for the above position at the WALTON INSTITUTION, RICE LANE, LIVERPOOL, to take duty from October 1st, at a salary after the rate of £200 per annum, together with rations, apartments, etc.

Candidates must be single, fully qualified, and registered.

Appointment will be for a period of one year in the first instance, subject to one month's notice to terminate on either side at any time, and to extension for a further period of twelve months at the option of the Guardians.

Applications to be sent, stating age, qualifications, etc., with copies of three recent testimonials, to the undersigned not later than first post on Tuesday, September 3rd.

Union Offices, Brougham Terrace, Liverpool. August 12th, 1929. G. O. HOLLOWAY, Clerk to the Guardians.

Royal Northern Hospital, Holloway, N.7.

BOROUGH OF ISLINGTON TUBERCULOSIS DISPENSARY (NORTH).

Applications are invited for the appointment of TUBERCULOSIS OFFICER (Non-Resident) in the above Dispensary, vacant on Oct. 31st.

Candidates must possess a registered British qualification, and have had previous experience in the treatment of Tuberculosis.

The appointment is a whole-time one with a salary at the rate of £750 per annum. Particulars with regard to duties and the submission of testimonials, etc., may be obtained from the undersigned, to whom applications should be sent not later than September 7th.

GILBERT G. PANTER, Secretary.

Medical Officer and Public VACCINATOR (male), duly registered, wanted for the ISLAND OF SANDAY, ORKNEY, to commence duties on October 16th, or near this date. Salary from the Parish Councils £150. The Medical Officer, now resigned, holds [illegible] (the Lighthouse Com- [illegible] value of £10, and [illegible] and Islands Board. [illegible] Population of Island 1,400. There is a modern dwelling house, offices, and garden, for which an annual rent of £10 is charged. The Island is well provided with good public roads. Sealed applications, with testimonials, marked "Medical," to R. F. MUIR, Clerk to the Parish Councils of Sanday, on or before September 7th.

North Lonsdale Hospital, BARROW-IN-FURNESS.

Applications for a HOUSE SURGEON are invited from fully qualified male practitioners experienced in the administration of Anæsthetics. Salary £150 per annum, with board, residence, and laundry. Applications, stating age, qualifications, and experience, and accompanied by copies of three recent testimonials, to be sent to the Secretary so as to reach him not later than August 26th

The Royal Infirmary, SUNDERLAND. (290 Beds.)

Wanted, HOUSE PHYSICIAN (male). Salary £140 per annum, with board, residence, and laundry.

Applications, stating age, qualifications, and accompanied by copies of testimonials, to be sent to the undersigned.

S. C. FRYERS, House Governor & Secretary.

Tipton Urban District Council.

MEDICAL OFFICER OF HEALTH.

The above Council invite applications for the position of Medical Officer of Health and School Medical Officer for the Urban District of Tipton.

Applicants must be legally qualified and duly registered medical practitioners and hold a Diploma in Sanitary Science, Public Health, or State Medicine.

The salary will be at the rate of £800 per annum, payable monthly.

The officer appointed will be required to reside in the District of Tipton and to devote the whole of his time to the duties of the office, and he shall not engage in private practice. He will be responsible for carrying out the duties imposed by various Acts of Parliament relating to Public Health, Maternity and Child Welfare, Education, Housing, and Infectious Diseases, together with all regulations and orders from time to time issued by the Ministry of Health or Board of Education thereunder and such other duties as may be from time to time assigned to him.

The appointment is to be held in accordance with the provisions of the Public Health (Officers) Act, 1921, and otherwise in accordance with the Sanitary Officers Order, 1926.

The officer appointed may terminate his appointment by three months' notice at any time.

Applications, on forms to be obtained from the undersigned, together with copies of three recent testimonials, to be sent to me not later than September 7th, endorsed "Medical Officer."

Canvassing will disqualify.

Public Offices, Owen Street, Tipton. August, 1929. KENNETH W. MADIN, Clerk to the Council.

The National Hospital for DISEASES OF THE HEART, Westmoreland Street, London, W.1.

Applications are invited for the post of OUT-PATIENT MEDICAL OFFICER (non-resident, male). The appointment is for a period of six months from October 1st, but may be renewed for a further period not exceeding six months. Salary at the rate of £125 per annum.

[illegible] be duly registered [illegible] not be expected to [illegible]ical Staff, but should [illegible] with copies of three [illegible] undersigned at the Hospital not later than Monday, September 9th.

The Out-patient Medical Officer will be required to assist the Honorary Medical Staff on five afternoons weekly, or four afternoons and one morning as may be arranged.

ROBERT G. E. WHITNEY, Secretary.

Manchester Royal Infirmary.

CLINICAL ASSISTANT (Either sex). For Surgical Out-patients.

The Board of Management of the Manchester Royal Infirmary invite applications for the above appointment which is now vacant. Applicants must be registered and hold a Medical and Surgical qualification.

The appointment (non-resident) is for six months, subject to the provisions of the By-laws as to notice, etc. Salary £35 for the period of six months.

Applications, stating age and testimonials, should be addressed to the Chairman of the Medical Board not later than August 21st.

By Order, FRANK G. HAZELL, Gen. Supt. & Sec.

August 12th, 1929.

Royal Victoria and West Hants HOSPITAL, BOURNEMOUTH.

SECOND HOUSE SURGEON (male, British nationality) required to commence duty immediately. Salary £120 per annum, with board, lodging, and washing. The appointment is tenable for six months, and candidates must be registered according to the provisions of the Medical Act. Applications, stating place of birth, with copies of three testimonials, to be sent immediately to the undersigned. Women and married men are ineligible.

GORDON M. SAUL, Secretary.

August 13th, 1929.

Burton-on-Trent General INFIRMARY.

HOUSE SURGEON.

The Committee require the services of a duly qualified Second Resident House Surgeon (male). Salary £150, with board, residence, and laundry. Duties to commence as soon as possible.

Applications, with copies of testimonials, to be sent to the undersigned.

The Infirmary, Burton-on-Trent. E. W. THORNLEY, Secretary.

APPOINTMENTS—Important Notice.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

(a) British Islands.

Town or District.	Town or District.	Town or District.
CONTRACT PRACTICE.	**CONTRACT PRACTICE** *(Contd.).*	**PUBLIC HEALTH** *(continued).*
EBBW VALE, MON. *(Workmen's Medical Society.)*	NEATH AND DISTRICT. *(Medical Aid Association.)*	GLASGOW EDUCATION AUTHORITY. *(Male Assistant Medical Officer.)*
GILFACH GOCH, GLAMORGAN. *(Workmen's Medical Scheme.)*	OAKDALE, MON. *(Medical Officer for Medical Aid Association.)*	SOUTH SHIELDS COUNTY BOROUGH. *(Assistant Medical Officer.)*
LLWYNYPIA, CLYDACH VALE PENYGRAIG, GLAMORGAN. *(Workmen's Medical Scheme.)*	OGMORE VALLEY, GLAMORGAN. *(Wyndham Colliery Medical Aid Society.)* *(Workmen's Medical Scheme.)*	YORKSHIRE NORTH RIDING COUNTY COUNCIL EDUCATION COMMITTEE. *(Assistant School Medical Officer.)*
MARDY, GLAMORGAN. *(Workmen's Medical Scheme.)*	**PUBLIC HEALTH.**	YORKSHIRE WEST RIDING COUNTY COUNCIL. *(School Medical Inspector.)*
	CORNWALL EDUCATION COMMITTEE. *(Assistant School Medical Officer—Female.)*	

(b) Colonial Medical Service.—

WINDWARD ISLANDS MEDICAL SERVICE. (Grenada with Carriacou, St. Vincent and St. Lucia.)

(c) Overseas.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.
NEW SOUTH WALES. *(All Friendly Society Appointments.)*	Dr. R. H. TODD (Hon. Sec., New South Wales Branch), B.M.A. Building, 30-34, Elizabeth St., Sydney, N.S.W.	VICTORIA. *(All Institute or Medical Dispensaries.)*	Dr. FRANK DAVIES (Hon. Sec., Victorian Branch), British Medical Association, Medical Society Hall, East Melbourne, Victoria.	WESTERN AUSTRALIA. *(Contract and Lodge Practice.)*	Hon. Sec., Western Australian Branch, British Medical Association, No. 6, Bank of N.S.W. Chambers, St. George's Terr., Perth, Western Australia.
QUEENSLAND. *(Brisbane Associated Friendly Societies Institute.)*	Dr. E. S. MEYERS (Hon. Sec., Queensland Branch), British Medical Association, Adelaide St., Brisbane.	WELLINGTON, NEW ZEALAND. *(Contract Practice Appointments.)*	Dr. G. F. V. ANSON (Hon. Sec., New Zealand Branch), British Medical Association, P.O. Box 156, Wellington, New Zealand.		

Address: B.M.A. House, Tavistock Square, W.C.1.
August 14th, 1929.

By Order of the Council of the British Medical Association.
ALFRED COX, Medical Secretary.

Swindon and North Wilts
VICTORIA HOSPITAL, SWINDON.

APPOINTMENT OF HONORARY AURAL SURGEON.

The Committee invite applications for the post as Honorary Surgeon to the Ear, Nose, and Throat Dept., in succession to the late Mr. Kenneth Lees.

Candidates should be Fellows of the Royal College of Surgeons.

Applications, together with full particulars of qualifications, experience, and posts held, should be forwarded to the Secretary at the Hospital, from whom any further particulars relating to the appointment may be obtained.

Bracebridge Mental Hospital,
LINCOLN.

THIRD ASSISTANT MEDICAL OFFICER (male) required. Commencing salary £350 per annum, with furnished apartments, board, washing, and attendance, valued for superannuation purposes at £100 per annum. Candidates must be duly qualified, registered, and unmarried. Previous Mental Hospital experience not essential. The appointment is subject to the provisions of the Asylum Officers Superannuation Act, 1909. Applications, stating age and qualifications, together with copies of three recent testimonials, to reach the Medical Superintendent on or before August 26th.

Birkenhead General Hospital.
(156 Beds.)

Applications are invited for the post of CASUALTY SURGEON (male). Salary £100, with board and residence. To take up duties beginning of August.

Applications, stating qualifications, experience, and nationality, with three copies of recent testimonials, to be sent to the Secretary-Supt. as early as possible.

The Jessop Hospital for Women,
SHEFFIELD.

GYNÆCOLOGICAL AND MATERNITY DEPTS. (145 Beds.)

The Board of Management invite applications for the post of SENIOR RESIDENT OFFICER (male).

The appointment is for one year, and the salary is at the rate of £250 per annum, with board, residence, and laundry.

The duties include charge of the Maternity Department, and general supervision of the Gynæcological Department.

Applications, stating age and experience, with copies of recent testimonials, should be forwarded immediately to the undersigned.

H. B. SHELSWELL, Secretary.

The Royal Portsmouth Hospital,
PORTSMOUTH.
(Five Resident Medical Officers.)

CASUALTY OFFICER, male (qualified), required to commence on September 1st. Salary at the rate of £100 per annum, with board, etc. Six months' appointment. Eligible on completion of term for appointment to other resident posts.

Application, stating age, nationality, etc., and copies of three recent testimonials, to be sent to the undersigned on or before August 22nd, from whom all particulars can be obtained.

B. WAGSTAFF, Secretary.

The Royal Waterloo Hospital
FOR CHILDREN AND WOMEN, Waterloo Road, S.E.1.

There is a vacancy for Two Part-time Male CLINICAL ASSISTANTS (unpaid) in the X-ray Department of the above Hospital. Applications, with copies of testimonials, should be sent to the Secretary at the Hospital not later than August 20th.

Royal Devon & Exeter Hospital,
EXETER. (225 Beds.)

ASSISTANT HOUSE SURGEON (Male).

Applications are invited for the post of Assistant House Surgeon at this Hospital, now vacant. The appointment is for six months, but candidates are eligible for re-election.

Salary at the rate of £100 per annum, with board, apartments, and washing.

Applications, giving particulars as to age and qualifications, together with copies of three recent testimonials, should be sent to the undersigned as soon as possible.

By Order of the Committee,
S. S. COLE,
July 29th, 1929. Secretary & Manager.

Kettering and District General
HOSPITAL. (32 Beds.)

Applications are invited for the post of JUNIOR HOUSE SURGEON. Salary £100 p.a., with board, residence, and washing. Candidates must be fully qualified and registered.

The appointment is for six months, but candidates will be eligible for re-election.

Applications, stating age, nationality, and [illegible] copies of three [illegible] nt immediately to

Royal Eye Hospital,
St. George's Circus, S.E.1.

Applications are invited for the following appointments at the above Hospital for a period of one year from October 1st:

12 SALARIED REFRACTIONISTS.
12 CLINICAL ASSISTANTS.

[illegible] imonials, to [illegible] ove Hospital be [illegible] or [illegible] Secretary.

ASSISTANCIES.

Wanted on September 1st, ASSISTANT, with view to early Partnership, for a mixed Practice in growing Midland Town. Receipts over £4,000. One-third share to commence with, one-half share in 5 years. [illegible] scope for [illegible] itable man.—[illegible] Sq., W.C.1.

Wanted, September, Indoor Protestant ASSISTANT for general Practice near Newcastle-on-Tyne. Salary £300 per annum. Usual bond. Photograph.—Add., No. 5003, B.M.A. House, Tavistock Sq., W.C.1.

Wanted.—October 1st, outdoor ASSISTANT, single, to take charge of a Branch in a Colliery Practice, in Glamorganshire. Salary £400 p.a., with rooms, attendance, etc.—Address, No. 5038, B.M.A. House, Tavistock Square, W.C.1.

Wanted this month if possible, single young ASSISTANT for Sheffield. Suit recently qualified man. Live at Branch. £350, with rooms, attendance, and half night fees. — Address, No. 5008, B.M.A. House, Tavistock Square, W.C.1.

Wanted, for Liverpool, in September, male, indoor ASSISTANT, unmarried. Private and panel Practice. Salary commencing £300 per annum.—Address, with photo, stating age, nationality, experience, etc., No. 5028, B.M.A. House, Tavistock Sq., W.C.1.

Wanted, for Manchester, in September, indoor ASSISTANT, male, unmarried; ex Resident preferred, for panel and private Practice. Dispenser kept. Usual bond.—Address, stating age, religion, nationality, and references, No. 5014, B.M.A. House, Tavistock Square, W.C.1.

Wanted shortly, outdoor AssistANT, British, Protestant, in semi-rural panel and mixed private Practice, Midlands. Motor [illegible] Usual bond. Photo and [illegible] — Address, No. 5002, [illegible] Square, W.C.1.

Wanted immediately, Assistant, English or Scottish, full charge Branch, view early Partnership. Cheshire Country Practice; cottage hospital; young man with some experience. Adequate salary. Full particulars.—Address, No. 5037, B.M.A. House, Tavistock Square, W.C.1.

Wanted immediately. — Male indoor ASSISTANT. Mixed Practice in Yorkshire. With or without experience, although latter preferred. Salary according to experience, £250 upwards. For particulars.—No. 5025, B.M.A. House, Tavistock Sq., W.C.1.

Wanted, October, outdoor male ASSISTANT, country town in the Midlands, no colliery; ex H.S., Cambridge or Lond. man [illegible] Salary £450 to suitable man. Photo. House [illegible]

W[illegible] male, for general Practice near Manchester. View early Partnership. Must possess capital. Salary £500 p.a. State full particulars.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Wanted. — Indoor Assistant, Colliery Practice, Glamorgan, male, British. Salary £300 for reliable man. Good opportunity for anæsthetics and surgical experience at local Hospital. State age, refs.—No. 5005, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — Assistant, outdoor, male, to take charge of Branch Surgery. Pembs. Coast, country district. Motor-cyclist. Work light.—Address, No. 5013, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistant, married or single. Refractions. Small panel. No clubs. Motor car. Usual bond. Six guineas weekly (indoor). State age, height, experience, and enclose photo.—Address, No. 5032, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistant, male, Industrial Practice near Manchester. Panel 2,000. Protestant, single. View early share and succession. Refs., photo., and capital available.—Address, No. 5018, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistant, London area; salary £300; furnished rooms, electric light, and coal. Usual bond.—Address, with full particulars, No. 4413, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—A whole-time AssistANT, board and lodgings found. Must be keen. Salary £4 14s. 6d. per week.—Add., No. 4835, B.M.A. House, Tavistock Sq., W.C.1.

Assistant wanted, permanent, for Yorkshire mixed Practice; young, keen, pref. married (small furnished house provided); energetic; thoroughly reliable and exper. G.P.; ex resident, good accouch. and anæsth. British; good appearance; sound health. Usual bond. Adequate remuneration (wage and commission basis) for live man. partics., photo., and copy tests., in first instance. —No. 5051, B.M.A. House, Tavistock Sq., W.C.1.

Assistants and Locum Tenens wanted immediately. Good salaries offered. —BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Assistantship wanted in October by married man, aged 32, interested in Surgery. Public School man, London Hospital trained; keen, experienced, and reliable. Has held Hospital appointments.—Address, No. 5019, B.M.A. House, Tavistock Square, W.C.1.

Assistant-pupil wanted (lady), at once. X-ray and Medical Electricity. Practical and scientific tuition. Premium for training. Salary after first year.—Apply, 34, Devonshire Street, London, W.1.

M. B., Ch.B.Edin., ex H.S. and H.P., six years' experience general practice, aged 39, married, desires ASSISTANTSHIP with prospects. Abstainer, reliable.—No. 5034, B.M.A. House, Tavistock Sq., W.C.1.

Ophthalmic Assistant or Partner with clinical and operating ability wanted in large Ophthalmic Practice; capital preferable.—Address, No. 5054, B.M.A. House, Tavistock Square, W.C.1.

X-Rays and Electro-therapeutics. —Wanted in first-rate West End Practice, ASSISTANT (with view to Partnership), preferably a gentleman holding Hospital appointment.—Apply, Mr. A. V. STOREY, 12, Stratford Place, W.1.

MEDICAL POSTS, DISPENSERS, etc.

Wanted. — Fully qualified DOCTOR for service in the Tropics. Preferably ex House Surgeon or Physician. Agreement for three years. Salary £850, £900, £950. Renewable on higher terms. Free furnished quarters and first-class passage provided. Candidates must be unmarried. Ladies not eligible. — Address, with copies of testimonials (not returnable), No. 5036, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—An Assistant Medical OFFICER for work in IRAQ. Not over 30 years of age and unmarried. Good prospects for energetic young Doctor. Further particulars on application. — Apply, by letter only, IRAQ PETROLEUM COMPANY, LTD., King William Street House, Arthur Street, London, E.C.4.

A Lady Dispenser-Bookkeeper supplied immediately on request, qualified and with practical experience in private practice and dispensary work, also trained in Bacteriological Laboratories of the LONDON COLLEGE OF PHARMACY FOR WOMEN. Preparation for Examinations.—Write, wire, or 'phone (Park 0969), Secretary, 7, Westbourne Park Road, W.2.

Dispensers supplied to Doctors at short notice, without fee. Qualified and exper. in priv. and panel prac. Perm. and part-time Bookkeeper-Dispensers, Secretary-Dispensers, Nurse-Dispensers, and Chauffeuse-Dispensers.—Write, wire, or 'phone Central 3679, THE RELIANCE BUREAU FOR DISPENSERS, 87, Holborn Viaduct House, 12, Holb. Viad. E.C.1.

Doctors requiring qualified Dispensers, Nurse Dispensers, Secretary Dispensers or Chauffeuse Dispensers, are invited to write, wire, or 'phone Gerrard 2699, THE DISPENSERS' BUREAU, 145, Shaftesbury Avenue, London, W.C.2.

Locum Dispenser.—Lady [illegible] cr. Secretary. 13 years' and Locum work, free [illegible] ossible permanency or [illegible] ences. —Address, No. [illegible] ock Square, W.C.1.

Nurse requires post as ASS STANT to RADIOLOGIST, or doctor doing X-ray and M.E. work, London area. Two years' experience. Radiologist's testimonial.—19, St. James Road, Upper Tooting, S.W.17.

Medical Man (expert), retired, active, aged 50, desires important POST, administrative, secretarial, managerial, or otherwise, in large well-established business house in London area only. Possesses capital. —No. 5004, B.M.A. House, Tavistock Sq., W.C.1.

The Royal Army Medical Corps ASSOCIATION. — If you require men trained in all branches of hospital work.—Dispensers (capable of undertaking returns, clerical work, etc., connected with Ministry of Health), Clerks, Laboratory Assistants, general hospital duties, Porters, Caretakers, etc.—Apply, Secretary, 76, Claverton Street, S.W.1.

Typewriting.—Expert undertakes Theses, Testimonials, etc. Numerous letters of appreciation from Doctors.—Write or 'Phone: BEATRICE RADFORD, 27, Buckland Crescent, Swiss Cottage, London, N.W.3. Primrose Hill 0803.

LOCUMS.

FOR LOCUM TENENS APPLY TO Mr. PERCIVAL TURNER, Ltd. The oldest and only Agent who for 40 years has supplied substitutes at short notice without fee to principals. 4, ADAM ST., Strand, London, W.C.2. Teleg.: "Epsomian, Lond." 'Phone: Gerrard 0399

Wanted immediately, Locum (male, unmarried), in Cornwall for four weeks. £8 8s. per week. Must be experienced. Able to drive car. Particulars.—Address, No. 5024, B.M.A. House, Tavistock Square, W.C.1.

Coloured M.B., Ch.B.(Edin.), requires LOCUM or ASSISTANTSHIP. High testimonials. Experienced in private practice; also qualified dispensing chemist.—Address, No. 5030. B.M.A. House, Tavistock Square, W.C.1.

Locums. — Experienced and reliable Doctor, had own practice, desires further LOCUMS from August 10th: Terms from 6 gns. p.w. London pref. If country, where car and driver available. Good references.—"MEDICUS," 24, Colville Rd., Bayswater, W.

Locum Tenens and Assistants required.—For further particulars, apply to Messrs. R. SUMNER & Co., Ltd., Manufacturing Chemists, 40, Hanover Street, Liverpool.

Locum wanted for 3 or 4 weeks from about end of August, who can drive car, or bring his own, in a nice easy country practice in Sussex.—Address No. 5012, B.M.A. House, Tavistock Square, W.C.1.

Woman Locum wanted; from Saturday, August 31st, until September 14th. Country town. Must bring own car or cycle. Light work. £4 weekly and expenses.—Address, No. 5016, B.M.A. House, Tavistock Square, W.C.1.

HOLIDAY LOCUMS.

THE MEDICAL AGENCY has pleasure in announcing that lists are now being prepared for Locum engagements for the forthcoming Holiday Season. Principals requiring a RELIABLE SUBSTITUTE are advised to make early application.—Address, W. H. GRANT, The Medical Agency, Watergate House, Adelphi, W.C.1. Tel.: Gerrard 8954 and Riverside 1254 (night calls).

PARTNERSHIPS.

Wanted immediately, Third PARTNER (English or Scotch) for Branch in Country Practice, Cheshire. Share about £900 gross at 1½ years' purchase. Part cash, the rest by yearly instalments. Rent £40. Cottage Hospital. Preliminary assistantship four months. Adequate salary.—Address, No. 5006, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—Partner in sound old-established mixed Practice in prosperous industrial district within 15 miles Manchester. Cash receipts £4,500. Large panel. One-third to one-half share for disposal, 1½ years' pur.—No. 4831, B.M.A. House, Tavistock Sq., W.C.1.

Wanted.—Partner to succeed old-established general practice in favourite inland health [illegible] Little midwifery. [illegible] M.A. House,

C[illegible] — Old-estab. PRACTICE. Cash receipts 1923, nearly £4,000. Premium—1/4 share—1½ years' purchase (to include book debts).—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Bradford, Yorks.—Partnership in old-established PRACTICE doing over £3,000 yearly. Good house garden, garage, £50 per annum. Panel 2,050. Price (quarter share to commence) 2 years purchase. Share guaranteed or first 2 years.—MANCHESTER MEDICAL AND SCHOLASTIC ASSOCIATION, 6, Brown Street.

Eastern Counties.—Partnership is offered in an old-established good-class non-panel Practice. Receipts over £4,400 p.a. This is an excellent opportunity for a young experienced man, preferably single, of good address and personality. Premium for 1/4th share, with view to larger share, at 2 years' pur.—Apply to THE MEDICAL AGENCY, Watergate House, York Buildings, Adelphi, W.C.2.

Home Counties.—Third Partner required for Practice in good residential country district. Patients include large number of well-to-do families. Excellent social and sporting amenities. Receipts show steady increase. One-quarter share worth about £1,000 per annum net (£1,250 gross) would be offered at 2 years' gross purchase. Later an opportunity will occur to buy up to one-third share, and eventually a half, as senior partner hopes to retire in few years.
Preliminary six to twelve months' trial suggested.
Only those suitable for a Practice of this class, and with necessary funds need apply.
Address, No. 5001, B.M.A. House, Tavistock Square, W.C.1.

M.B., Ch.B.Edin., wishes PARTNERSHIP, with scope for surgery (if possible). Three years' Hospital experience as H.P., H.S. (general and special), and R.S.O.; also experience in midwifery and G.P.; æt. 28. Capital available.—Address, No. 5011, B.M.A. House, Tavistock Square, W.C.1.

Partnership or Assistantship, with Partnership in three months, wanted by Glasgow M.B., Ch.B., D.P.H., in good middle-class Practice near London. Pref. country or nice town. Moderate sized house with garden, to rent. Capital avail.—No.5029, B.M.A. House, Tavistock Sq., W.C.1.

Partnership. — Doctor about to open Branch Surgery requires PARTNER. Practice commenced by advertiser 6 mths. ago; 12 miles West End Lond. Aver. cash receipts since inception £13 p.w.; £20 p.w. during last few weeks. 2/5 share for sale, part can remain. —No. 5052, B.M.A. House, Tavistock Sq., W.C.1.

Partnership. — Manchester. Opportunity arises for well-qualified gentleman to acquire share value £1,000 p.a. in sound non-dispensing middle-class practice. Small panel. House available. Two years' purchase, part deferred. Testimonials required.—No. 5055, B.M.A. House, Tavistock Sq., W.C.1.

PRACTICES.

Wanted by M.Ch., Practice or PARTNERSHIP, preferably latter, in *Kent, Surrey, or London suburb. Share worth* £2,000 up required. Advertiser has extensive experience of general practice, and has been on the Honorary Surgical Staff of a General *Hospital for eight years.—Address, No. 4602,* B.M.A. House, Tavistock Square, W.C.1.

Wanted by M.B., M.R.C.S., D.O.M.S. (Yorkshireman), PRACTICE or ASSISTANTSHIP, with view to early succession in Leeds or Bradford.—Address, No. 5010, B.M.A. House, Tavistock Square, W.C.1.

Wanted by M.B., panel and private PRACTICE in London. Income about £1,500 p.a. Ample cash available.—Address, No. 5033, B.M.A. House, Tavistock Square, W.C.1.

Wanted to Purchase.—Medical PRACTICE or PARTNERSHIP with succession, in Country Town within 80 miles of London, or on South or South-East Coast. Necessary capital available. Doctor advertising. —No. 5053, B.M.A. House, Tavistock Sq., W.C.1.

Wanted.—We have innumerable applicants for sound investments in all districts, incomes from £600 to £4,000, with and without panel. Correspondence invited from prospective Vendors. — THE MEDICAL AGENCY (W. H. Grant), Watergate House, 15, York Buildings, Adelphi, W.C.2.

Cash Transaction. — Wanted, PRACTICE (with or without panel) in good residential London Suburb. *Income* £1,000 to £2,000. Good house, garden, garage; also cash. Strict confidence. — Address, No. 4854, B.M.A. House, Tavistock Square, W.C.1.

For Sale.—General Practice, five miles from Blackpool. Growing population; last year 1,500 odd booked. Excellent house and garden. Suit a good energetic man. —Address, No. 4806, B.M.A. House, Tavistock Square, W.C.1.

For Sale.—Eastern suburban PRACTICE, 8 miles from City, £2,300. Panel 1,650. Corner house, 5 bedrooms. Separate surgery entrance, garage, garden. Premium £3,750. Freehold £1,550. Cash only; very easily worked.—BM/VDXA.

For Disposal.—Nucleus [illegible] Receipts [illegible] 5009.

Good Manchester Suburb.-Well- established private and panel PRACTICE, receipts £500. Good house. Garden. Excellent education, sports. One year's purchase £1,400, including house, drugs, book debts, etc. £550 can remain on mortgage on house.—Address, No. 5017, B.M.A. House, Tavistock Sq., W.C.1.

Lake District.—Old-established PRACTICE. Cash receipts 1928, £1,398. Panel 700. Good detached house to rent at £60 p.a., containing 3 entertain., 9 bedrooms, garage, and large garden. Premium £2,000, part by arrangement. — BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

For Disposal.—A good Practice is not always to be had directly, but Mr. PERCIVAL TURNER can generally offer applicants something suitable. Nearly all the best Practices are sold by him without being advertised. Inform. free on applic.—4, Adam St., W.C.2.

Lancs Town.—Old-established PRACTICE for disposal. Average cash receipts over £2,300. Panel 2,500. Excellent house and garden; two garages. Price 1½ years' purchase for cash. Good introduction.—Address, No. 5021, B.M.A. House, Tavistock Square, W.C.1.

Lancs Town.—Half Share in ex- cellent PRACTICE. Gross cash receipts £2,400. Panel 1,900. Good house to rent. Premium 1½ years' purchase.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

London. — Working and middle-class cash PRACTICE. Receipts last year over £530. Panel 250 increasing. Translerable appointment. Thickly populated district. Great scope. £550 to include lease, drugs, etc.— No. 5031, B.M.A. House, Tavistock Square, W.C.1.

Lancashire Town. — Old-estab. PRACTICE, held by Medical Woman. Cash receipts £2,275. Panel 1,450. Good house, 4 bedrooms. Rent £60 p.a. Premium 1½ years' purchase.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Lock-up Cash Practice for Sale, Camberwell. Receipts average £1,100 per annum. Expenses under £100. No rent. Price £1,600 in instalments, or £1,500 cash.— Address, No. 5023, B.M.A. House, Tavistock Square, W.C.1.

Lancashire Town. — Non-panel PRACTICE. Cash receipts last year, £1,508. Fees 7/6 upwards. Purchaser must be capable of doing major surgery. Good house to rent at £60 p.a. Two reception and four bedrooms. Premium £1,200.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Liverpool.-Good Nucleus private PRACTICE and panel, good position, main road, over £300 cash receipts. Ground floor flat, with garage, and use of large garden. Price for goodwill £450, to include complete waiting room, and surgery furniture, and fittings, drugs, instruments, etc. (value £200). —No. 5057, B.M.A. House, Tavistock Sq., W.C.1.

Lancashire Coast Resort. — Old- established PRACTICE. Average cash receipts £1,100. Panel 550. Scope. Modern house (freehold) for sale, containing 2 reception rooms, 5 bedrooms, garage, and garden. Premium—Practice—1½ years' purchase. — BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Manchester.-Residential Suburb. —Good-class PRACTICE. Average cash receipts £1,606. Excellent corner house for sale. Three reception, 8 bedrooms. Garden and garage. Premium—Practice—1½ years' purchase. —BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Oxford Graduate seeks Practice or PARTNERSHIP in Italy. — Address, No. 5056, B.M.A. House, Tavistock Sq., W.C.1.

Mental Hospital.—For Disposal, an old-established PRIVATE HOME, returning over £1,000 a year profit, fully licensed. —Further particulars will be given to those interested in such work on application to Mr. PERCIVAL TURNER, 4 & 5, Adam Street, London, W.C.2.

Manchester. — Industrial Prac- TICE. Cash receipts 1928, £968. Panel over 900. Ample scope. House in main road, 3 bedrooms. Rent £75 p.a. on lease. Premium 1½ years' purchase (to include fittings, etc., *worth £400).*—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Medical Practice for Sale, North of England; old-established general Practice; net profit over £1,000 per annum; very desirable district; house, garage, and garden; Practice and house, £3,000. — Apply, MURRAY LAWSON & MACDONALD, W.S., 10, Great Stuart Street, Edinburgh.

Manchester.-Old-estab. Practice. Average cash receipts £2,523. Panel 1,021. Prominent house, 6 bedrooms. Garden and garage. Premium 1½ years' purchase. A preliminary partnership might be arranged.— BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Middlesex. — Delightful developing part. Very old-established PRACTICE, receipts £1,100 p.a., panel 1,100. Nice house, garden, etc. rent £130 on lease. Vendor selling through ill health. Premium £1,650.—Apply, PEACOCK & HADLEY, Ltd., 19, Craven Street, Strand, W.C.2.

Manchester. — Lock-up SURGERY in congested area, rent 15/- weekly. Receipts about £500, increasing, and with much scope. Panel 550. Price £250 to quick buyer.—MANCHESTER MEDICAL AND SCHOLASTIC ASSOCIATION, 6, Brown Street.

Manchester. — Good-class Prac- TICE (non-panel) *in first-rate residential* suburb. Average cash receipts £2,206 p.a. Fees 5/- to 21/-. Excellent house to rent on lease. Premium 1½ years' purchase.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Manchester.—Good working- class PRACTICE. Receipts £500. Panel 750. *Nice house,* rent £44, branch 21/- weekly. Excellent scope. Price, 1 years' purchase or near offer.—MANCHESTER MEDICAL AND SCHOLASTIC ASSOCIATION, 6, Brown Street.

Medical Woman.—Practice for sale, near Northern town. £600 p.a. Panel 700. Premium 1½ years' purchase. Desirable district. Scope for development. Good house and garage also for sale. Partnership considered.— No. 5020, B.M.A. House, Tavistock Square, W.C.1.

Near Chester.—Practice. Cash receipts 1928, £600. Panel 440. Scope. Nice modern house to rent, 2 entert., 3 bedrooms, garden, and garage. Premium £650 cash (to include surgery, furniture, and drugs). — BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Near Liverpool. — Nucleus. — Cash receipts last year, £226. Panel 330. Scope. Good house, 4 bedrooms, 3 reception rooms, garage, and garden. Premium—Practice and house—£1,150.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

North Wales Coast. — Medical Woman's PRACTICE. Cash receipts last year £280. Panel 164. Premium £350, part by arrangement.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Open-Air Sanatorium. — For Disposal, well established, ideal situation, up-to-date premises in Pine Wooded district. Receipts increasing yearly. Now about £3,500 a year at good fees. A share or whole can be purchased. No premium for goodwill. Total value of property about £16,000. A large part can remain.—Apply, No. 8531, PERCIVAL TURNER Ltd., 4, Adam Street, W.C.2.

Woman Doctor has Nucleus for sale in S.W. district. Increasing panel. Good small house to be rented. Price £250.— Address, No. 5026, B.M.A. House, Tavistock Square, W.C.1.

Yorkshire University City.— Panel about 1,700, and private PRACTICE, average income over £1,500. Premium £2,200. Vendor retiring from general practice through illness. Excellent scope for energetic man. House to rent. Immediate disposal desirable. Purchaser must have necessary capital. — Address, No. 5015, B.M.A. House, Tavistock Square, W.C.1.

To Purchasers. — Do not buy without expert assistance. With 40 yrs.' experience Mr. PERCIVAL TURNER can advise in all cases. Terms free on application to 4, Adam St., Strand, W.C.2. Telephone: Gerrard 0399. Telegrams: "Epsomian, London."

£175 for 1/2 share in new Surgery (non-panel) within 15 mins. from West End. Excellent living accommodation. Enormous scope for energetic person to work up panel and specialised treatm'ts. —No. 5035, B.M.A. House, Tavistock Sq., W.C.1.

HOUSES, CONSULTING ROOMS.

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ELLIOTT, SON & BOYTON

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SPECIALISTS IN PROFESSIONAL HOUSES AND CONSULTING ROOMS in Harley Street and leading Medical Positions.

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IDEAL FOR NURSING OR MENTAL HOME.

A Double-fronted Detached RESIDENCE in a choice healthy Northern Suburb of London, about 15 mins. drive West End. Accommodation: 3 reception rooms, 6 bedrooms, and ample domestic offices. Stands in beautiful secluded old-world grounds of about 1 acre. Price £5,500 freehold.—E. C. LLOYD, 18, Manor Parade, Church End, Finchley, N.3.

Bournemouth. — On the main Christchurch Road, in a position much favoured by the medical community. To be sold, a very attractive HOUSE, which has been modernized and is very suitable for a Doctor's residence. Seven bedrooms, bathroom, 3 reception rooms.—Further particulars from FOX & SONS, Estate Agents, Bournemouth.

Consulting Rooms to Let: Harley Street and district. Whole or part-time. Lists sent on application.—ELGOOD & Co., 10, Henrietta Street, Cavendish Square, W.1. Mayfair 5659.

Consulting Room, Wimpole Street.—Large beautiful ground floor room furnished, four half days a week with plate, 120 guineas per annum.—BM/BOLA, London, W.C.2.

Doctor and Dentist needed, fast growing district N.W. Attractive detached HOUSE, main road, large garden, or surgery and conveniences as desired. 'Phone Owner 2832 Wembley, or write 142, Preston Road, Wembley, Middlesex.

For Sale, with possession.—The attractive property known as "The Views," Ewelme, Oxon, situate on high ground, and containing 8 bedrooms, bathroom, 3 reception rooms, usual offices. Pleasure grounds and paddock nearly 2 acres. Price £900.

Full particulars of FRANKLIN & GALE, Estate Agents, Wallingford.

Leitz Travelling Microscope, with coarse and fine adjustment, substage condenser, double nosepiece. Objectives 2, 4, 6, and 1/12 Oil Immersion. Eyepieces No. 3 and 5. New condition, in mahogany cabinet. £25 or near offer.—Dr. POWELL, Trafalgar House, Watton-at-Stone, Hertford.

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Consult GRIMALDI'S before buying your next Car, whether NEW or SECOND-HAND. AGENTS for all LEADING MAKES 100 GUARANTEED USED CARS always in stock. SPECIAL DEFERRED TERMS FOR DOCTORS financed entirely by ourselves. Strictest privacy ensured.—ERNEST GRIMALDI, Ltd., 88, Gt. Portland St., W.1. Museum 3931.

Second-hand X-ray and Electro- MEDICAL APPARATUS for disposal, including Couches, Screening Stands, etc. Low prices accepted for clearance purposes.—A. E. DEAN & Co., Leigh Place, Brooke Street, Holborn, London, E.C.1.

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MEMBERS OF THE MEDICAL PROFESSION

Can secure Perfect Fitting and Distinctive Clothes of Exceptional value. FINEST QUALITY MATERIALS. *BEST WORKMANSHIP ONLY.*

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JACKET & VEST (in black or grey), £5 5s.
SOLID FANCY WORSTED TROUSERS. £2 2s.

THE Ideal Suit for Professional or Business wear

TWEED SUITS [illegible]
SOLID WORSTE [illegible]
DINNER SUITS [illegible]
PLUS FOUR SUI[illegible]

THE IDEAL Suit for ALL Sporting Purposes.
GOLD MEDAL RIDING BREECHES ... from £2 2s.
RIDING HABITS fr. £10 10s. COSTUMES fr. £6 6s.

UNSOLICITED APPRECIATION.

"I strongly advise all medical men who wish to have satisfaction to patronize Harry Hall Ltd., as all the clothes I have had from them during 30 years have been perfect in Fit, Cut, and Finish." (Signed) S.J.A., M.A., M.B., F.R.C.P.S.

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Supply Instruments, Dressings, Attaché Cases, etc.

Let us quote for your requirements.
Showroom: 97, Swinderby Road, Wembley.

APPOINTMENTS.—Contd.

Bolingbroke Hospital
Wandsworth Common, S.W.11.

HOUSE SURGEON (male) required. The appointment is for six months, commencing on September 1st next. Salary £120 per annum, with board, residence, and laundry.

Candidates must be fully qualified and registered. Applications, stating age, qualifications, and experience, with copies of not more than three testimonials, should be sent to the undersigned on or before August 21st.

W. S. RANDOLPH BISS, Secretary-Supt.

Longton Hospital.

Applications are invited for the post of HOUSE SURGEON to the above Hospital.

Salary £120 per annum, with board, residence, and laundry, plus certain fees.

Applications, with copies of three recent testimonials, should reach me the undersigned not later than August 23rd, addressed to the Chairman of Directors, Longton Hospital, Stoke-on-Trent, Staffs.

By Order of the Board of Management,
W. HOLFORD, Secretary.

The General Hospital,
BIRMINGHAM.

Applications are invited for the following Resident appointment from September 15th:

HOUSE PHYSICIAN. Salary £70 p.a.

Applications, giving full details of qualifications and accompanied by testimonials (if desired) should reach the undersigned by August 31st.

A. H. LEANEY, House Governor.

Peace Memorial Hospital,
WATFORD, HERTS.

A RESIDENT MEDICAL OFFICER (male). £150 per annum. Applications [illegible] months, eligible for [illegible] stating age and [illegible] three recent testimonials, should be received not later than August 27th by the Secretary. Duties to commence about September 10th. No canvassing permitted.

The Royal Infirmary, Sheffield.

The Weekly Board [illegible] applications for the [illegible] and OPHTHALMIC

The appointment 31st next, but the o[illegible] for re-election, or f[illegible] House appointments.

The salary attached to the post is £80 per annum, with board and residence.

Applications, with copies of testimonials, to be sent to the undersigned immediately.

JNO. W. BARNES, F.C.I.S.,
Board Room. General Superintendent
August 7th, 1929. & Secretary.

Whitehaven and West Cumberland Hospital, Whitehaven.
(90 Beds.)

Wanted, JUNIOR HOUSE SURGEON (male). Salary £100 per annum, including board, residence, and laundry. Twelve months' appointment. After six months as Junior an opportunity is given of becoming Senior for the second six months at the rate of £150 per annum.

Applications, stating age, nationality, etc., together with copies of three testimonials, to be sent to the Secretary, endorsed "House Surgeon," not later than Tuesday, August 20th.

R. HIGGINS, Secretary.

General Hospital, Gt. Yarmouth.
(72 Beds.)

Applications are invited for the post of SENIOR HOUSE SURGEON. Salary £150 per annum, with board, residence, and laundry. Duties to commence at once. Candidates (male and unmarried) must be fully qualified and registered.

Applications, stating age, nationality, and qualifications, together with copies of three recent testimonials, to be sent immediately to the undersigned.

T. H. G. GARTLAND, Secretary.

New Sussex Hospital for Women and Children,
WINDLESHAM ROAD, BRIGHTON.

Applications are invited from fully qualified medical women for

(1) HONORARY SURGEON for [illegible] afternoons in each month.
(2) HONORARY ANÆSTHETIST for Tuesday mornings.

Applications, with copies of testimonials, to be sent to the Secretary before August 28th.

General Hospital, Nottingham.
(377 Beds.)

An ASSISTANT RESIDENT CASUALTY OFFICER (male) required at the above Institution. Candidates are desired to send applications, stating age, qualifications, and experience, together with copies of testimonials, to the undersigned, with an intimation as to when they can commence duty, if appointed.

The appointment is for six months. Salary at the rate of £150 a year, with board, residence, and laundry.

PETER M. MACCOLL,
House Governor & Secretary.

General Hospital, Nottingham.

Wanted, a HOUSE PHYSICIAN. Appointment for six months. Salary at the rate of £150 a year, with board, residence, and laundry. Applications, stating age, qualifications, and experience, together with copies of testimonials, to be sent to the undersigned, not later than the 26th inst., with an intimation as to when they can commence duty, if appointed.

PETER M. MACCOLL,
House Governor & Secretary.

Royal Hampshire County Hospital, Winchester.

RESIDENT HOUSE SURGEON, male, required as soon as possible. Must be of British nationality. Salary £150 per annum, board, lodging, and attendance provided. Candidates must be duly qualified and registered.

Applications, stating age, and enclosing copies of recent testimonials, should be sent to the undersigned as soon as possible.

HERBERT MASLEN, Secretary.

Dundee Royal Infirmary.

HONORARY ASSISTANT PHYSICIAN FOR DISEASES OF CHILDREN.

The Directors invite applications, accompanied by 20 copies of three recent testimonials; these must be lodged with the Secretary *on or before September 7th.*

CAVENDISH NURSES (Male and Female)

Head Office: 54, BEAUMONT ST., LONDON, W.1 (late 43, New Cavendish St., London, W.1.)

A very convenient form of telephone message pad sent free on application to the Secretary.

Branches: MANCHESTER: 176, Oxford Road. GLASGOW: 28, Windsor Terrace. DUBLIN: 23, Upper Baggot Street.

TELEGRAMS: Tactear, London. Surgical, Glasgow. TELEPHONES: London, 1277 Welbeck. Glasgow, 477 Douglas.
Tactear, Manchester. Tactear, Dublin. Manchester, 3152 Ardwick. Dublin, 531 Ballsbridge.

Superior trained Nurses for Medical, Surgical, Mental, Dipsomania, Travelling and all cases. Nurses reside on the premises, and are always ready for urgent calls Day and Night. Skilled Masseuses, Masseurs, and good Valet attendants supplied.

Terms from £3 3s. Apply to the Secretary or Lady Supt.

West London Hospital,
Hammersmith Rd., W.6. (225 Beds.)

Required, One NON-RESIDENT HOUSE OFFICER for Children's Department for six months from October 1st next, subject to one month's notice on either side. Applicants may be male or female, must be unmarried, and the appointment may be renewable for a further period up to 12 months. Hours 9 to 5.30 (approx.). Salary at the rate of £5 5s. weekly, with lunch daily. Candidates must be registered under the Medical Act. The holder must have had a resident appointment at a Children's Hospital or in the Children's Department of a General Hospital. Applications and copies of testimonials (in quadruplicate) (which must be made on printed forms obtained from me) must reach me not later than first post on Friday, September 13th. Selected candidates will be required to call upon such Members of the Medical Staff as directed, to be in attendance at a Meeting of the Medical Council on Friday, September 20th, at 4 p.m., and the House Committee Meeting at 4.45 p.m. the same day, when the appointments will be made.

H. A. MADGE, Secretary.

West London Hospital,
Hammersmith Rd., W.6. (225 Beds.)

Applications are invited for the post of RESIDENT ASSISTANT SURGEON from October 1st next. Salary at the rate of £200 per annum, with board, lodgings, and laundry allowance. The appointment will be for one year terminable by one month's notice on either side, and subject to annual re-election, may be extended to not more than three years. (Candidates must be duly qualified medical practitioners, and if is desirable that they should hold the F.R.C.S. (England) Diploma. Applications, accompanied by copies of testimonials, must reach me not later than first post on Friday, September 13th. Candidates must attend a Meeting of the Medical Council on Friday, September 20th, at 4 p.m., and prior to that date call upon and send copies of application and testimonials to each member thereof. They must not canvass Members of the Board, but, if notified, must attend a Meeting of the Board at 5 p.m. on Tuesday, September 24th, when the election will be made.

H. A. MADGE, Secretary.

West London Hospital,
Hammersmith Rd., W.6. (225 Beds.)

Required, One HOUSE PHYSICIAN, Two HOUSE SURGEONS, and One AURAL and OPHTHALMIC HOUSE SURGEON, and RESIDENT ASSISTANT CASUALTY OFFICER (males) for six months from October 1st next, subject to one month's notice on either side. Salary at the rate of £100 per annum, with board, lodging, and washing allowance. Candidates must be registered under the Medical Act. Applications and copies of testimonials (in quadruplicate) (which must be made on printed forms obtained from me), must reach me not later than first post on Friday, September 13th. Selected candidates will be required to call upon such Members of the Medical Staff as directed, to be in attendance at a Meeting of the Medical Council on Friday, September 20th, at 4 p.m., and the House Committee Meeting at 4.45 p.m. the same day, when the appointments will be made.

H. A. MADGE, Secretary.

Leicester Royal Infirmary.
(400 Beds.)

RESIDENT MEDICAL OFFICERS.

PRELIMINARY NOTICE.

VACANCIES are expected on October 1st for HOUSE SURGEONS, One HOUSE PHYSICIAN, and One CASUALTY OFFICER. Salaries at the rate of £125 per annum. Applicants must have held a Resident Hospital post, or had similar experience of Hospital work. Election about the middle of September. Applications should be made to the undersigned by Monday, September 2nd.

HARRY JOHNSON,
August 12th, 1929. House Gov. & Sec.

Swansea Hospital.
(316 Beds.)

Experienced RADIOGRAPHER wanted, male or female, capable of taking charge X-ray Department. Must hold M.S.R. Salary £4 4s. to £5 5s. per week, according to experience. If lady appointed, board and residence may be provided, in which case salary will be modified accordingly.

Applications, stating age, qualifications, and experience, together with copies of three recent testimonials, to be forwarded to the undersigned.

O. C. HOWELLS, Secretary.

London Temperance Hospital,
Hampstead Road, N.W.1.

Applications are invited for the post of CASUALTY OFFICER, which will become vacant on or about September 16th.

The appointment will be for a period of six months, at a salary of £120 per annum. Ceteris paribus, preference will be given to abstainers, and to those who have held resident post.

Candidates must submit applications, stating qualifications, age, etc., with copies of not more than three testimonials, by Saturday, August 31st, addressed to the Secretary.

Hull Royal Infirmary.
(272 Beds.)

Applications are invited for the post of SECOND HOUSE SURGEON (male), vacant August 31st. The appointment will be for six months in the first instance and will be terminable by one month's notice on either side.

Salary at the rate of £150 per annum, with board, residence, and laundry.

Applications should reach the undersigned on or before Tuesday, August 20th.

R. J. CARLESS,
August 2nd, 1929. House Governor.

Hull Royal Infirmary.
(272 Beds.)

Applications are invited for the post of CASUALTY HOUSE SURGEON (male).

The appointment will be for six months in the first instance and will be terminable by one month's notice on either side.

Salary at the rate of £130 per annum, including residence, board, and laundry.

Applications should be sent to the undersigned.

R. J. CARLESS,
August 12th, 1929. House Governor.

Newcastle-upon-Tyne City
MENTAL HOSPITAL,
GOSFORTH, NEWCASTLE-UPON-TYNE.

Wanted early in October, JUNIOR ASSISTANT MEDICAL OFFICER (male). Preference will be given to candidates with experience in Bacteriology and Laboratory technique. Salary £350, rising to £400 on obtaining the Diploma of Psychiatry, with board, furnished apartments, and laundry, subject to deductions under the Asylums Officers Superannuation Act, 1909.

Form of application may be obtained from the Medical Superintendent.

Rotherham Hospital.

Wanted, HOUSE PHYSICIAN (male), qualified. Salary £180 p.a., with board, lodgings, and laundry, to have charge of Out-patients, administer Anæsthetics, and assist Honorary Physician.

Applications, with copies of recent testimonials, to be sent to the Secretary, G. W. ROBERTS, 8, Moorgate Street, Rotherham.

The St. Helens Hospital,
LANCASHIRE.

Wanted, a fully qualified man as RESIDENT MEDICAL OFFICER, to commence duties on September 15th. Salary £250 per annum, together with board and laundry.

Apply, with three recent testimonials, to the Secretary, The St. Helens Hospital, St. Helens.

Applications to be received not later than August 28th.

Seamen's Hospital Society.

FOR SAILORS,
Treatment of
Tuberculosis.

Application invited for the post of ASSISTANT MEDICAL OFFICER. Commencing salary at the rate of £200 per annum, with quarters and board. The appointment is for six months in the first instance. There is no accommodation for a married man. Some pathological experience will be considered an advantage. Application, with copies of three recent testimonials, to be sent in by September 3rd to the undersigned.

R. E. V. BAX,
Greenwich, August 12th, 1929. Secretary.

East London Hospital for
CHILDREN AND DISPENSARY FOR WOMEN, Shadwell, E.1.

Applications are invited for the resident posts of HOUSE SURGEON and HOUSE PHYSICIAN (male). The appointments are for six months.

Salary at the rate of £125 per annum, with board, residence, and laundry provided. Applications, together with testimonials, should be sent to the undersigned not later than August 24th.

W. M. WILCOX, Secretary.

N.B.—Residents at this Hospital are eligible for the reciprocity scheme with Barnes Hospital, St. Louis, U.S.A.

Royal South Hants and
SOUTHAMPTON HOSPITAL,
SOUTHAMPTON.

Applications are invited for the posts of JUNIOR HOUSE SURGEON, salary £130; CASUALTY OFFICER, salary £120; with rooms, board, and laundry. Six months' engagement. Candidates, who must be male and unmarried, should apply at once to the undersigned, stating age, and enclosing copies of testimonials.

By Order,
HY. TRUSSON,
August 16th, 1929. Secretary.

Ilford Emergency Hospital,
to be extended as a General Hospital to serve a wide area on the Eastern Outskirts of London, and renamed
KING GEORGE HOSPITAL.

Applications are invited for the post of HON. AURAL SURGEON.

Fellows of a Royal
obtain further par-
gned. Applications,
should be received
not later than the first post on August 22nd.

G. AUSTIN HEPWORTH, Secretary.

Montagu Hospital, Mexborough.

Applications are invited for the position of
ove Hospital. The
be required to at-
afternoons weekly.
ience, should be for-
so as to be received
not later than Wednesday, August 28th.

DONALD WILSON, Secretary.

Weston-super-Mare General
HOSPITAL. (60 Beds in use.)

HOUSE SURGEON.

The Committee require the services of a duly qualified Resident House Surgeon (male). Salary £130, with board, residence, and laundry. Duties to commence September 1st. Application, with copies of testimonials, to be sent to the undersigned.

LESLIE J. FURSLAND, Secretary.

Lowestoft and North Suffolk
HOSPITAL.

HOUSE SURGEON (male) required. Salary £150 per annum, with board, residence, and laundry. Applications, with copies of three recent testimonials, to the Honorary Medical Superintendent.

Coventry and Warwickshire HOSPITAL.

There being a vacancy on the staff for an HONORARY ANÆSTHETIST, applications are invited for the post.

Candidates must be duly qualified practitioners.

The appointment will be made for one year subject to reappointment annually.

Candidates shall be resident in the City of Coventry or within six miles radius thereof, or shall take up their residence within that radius within six months from date of appointment.

Canvassing, either directly or indirectly, will be deemed a disqualification.

Application, with original testimonials and registration certificates, must reach the undersigned on or before August 31st.

Candidates will in due course receive notice of their eligibility or otherwise from the Secretary, and after receipt of such notice eligible candidates are at liberty to send through the post printed copies of their application and testimonials, to the Members of the Board of Management of the Hospital, a list of whose names and addresses will be furnished by the Secretary. No such application or copies of testimonials shall be sent until receipt of such notification from the Secretary.

By Order of the Committee,
(Miss) R. HOOPER,
Secretary.

August 15th, 1929.

Surrey County Sanatorium, MILFORD, SURREY. (300 Beds.)

Applications are invited from qualified and registered practitioners for the post of SECOND ASSISTANT MEDICAL OFFICER at this Sanatorium.

Salary at the rate of £400 per annum, plus board, lodging, and laundry, valued at £100 per annum for purposes of superannuation.

The appointment is subject to the Local Government and Other Officers Superannuation Act, 1922, and to the standing orders of the County Council.

Forms of application may be obtained from the Medical Superintendent, and when completed they should be sent to the County Medical Officer of Health, 5, Grove Crescent, Kingston-upon-Thames, not later than August 28th, together with copies of not more than three testimonials.

West Bromwich and District GENERAL HOSPITAL. (130 Beds.)

Applications are invited for the posts of
HOUSE SURGEON;
HOUSE PHYSICIAN;
CASUALTY HOUSE SURGEON.

Candidates (males) must be doubly qualified and unmarried. Salary, in each case, at the rate of £200 per annum, with board, residence, and laundry.

The appointments are for six months and the candidates will be required to take up their duties on October 1st next.

Applications, stating age and qualifications, with copies of three recent testimonials, should be sent to the undersigned on or before the 22nd instant.

By Order,
Edward St., West Bromwich. FRANK J. HANCOCK, Secretary & Supt.

Cardiff City Mental Hospital, WHITCHURCH, near CARDIFF.

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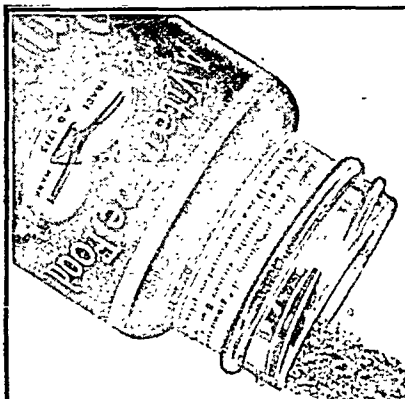

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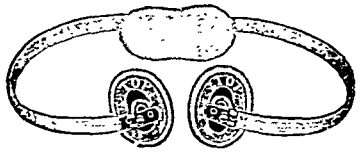

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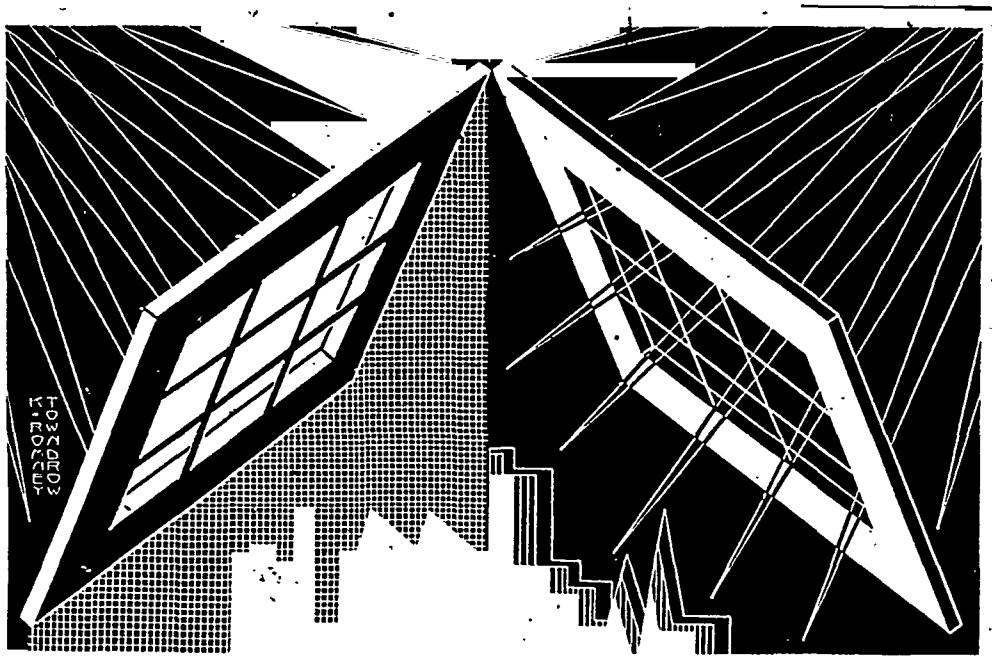

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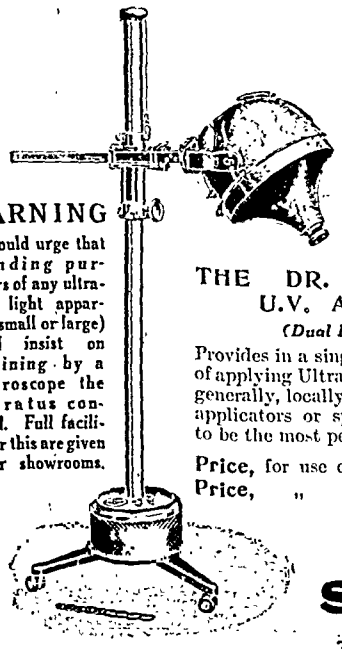

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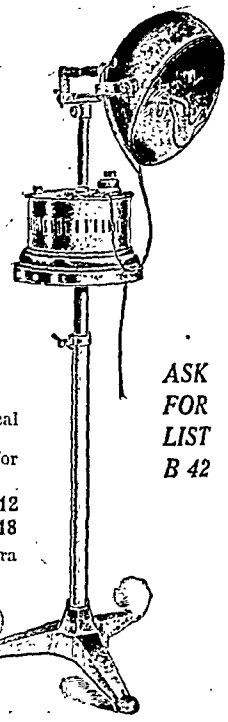

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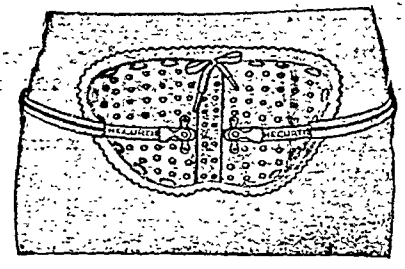

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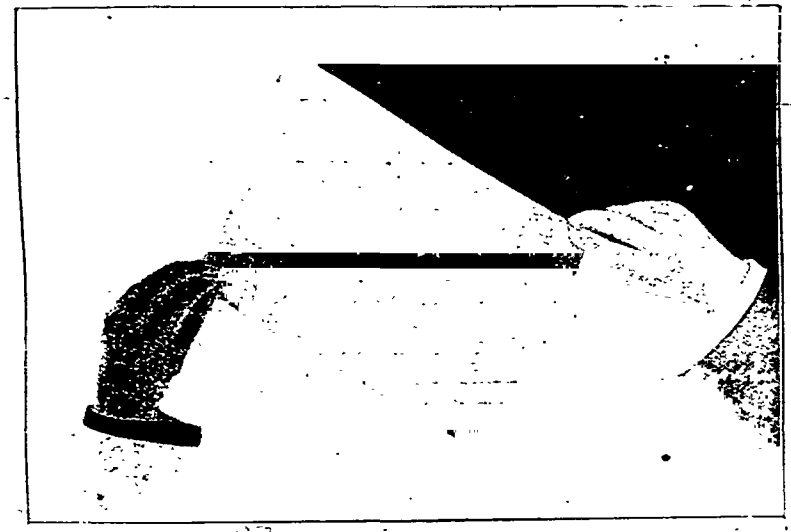

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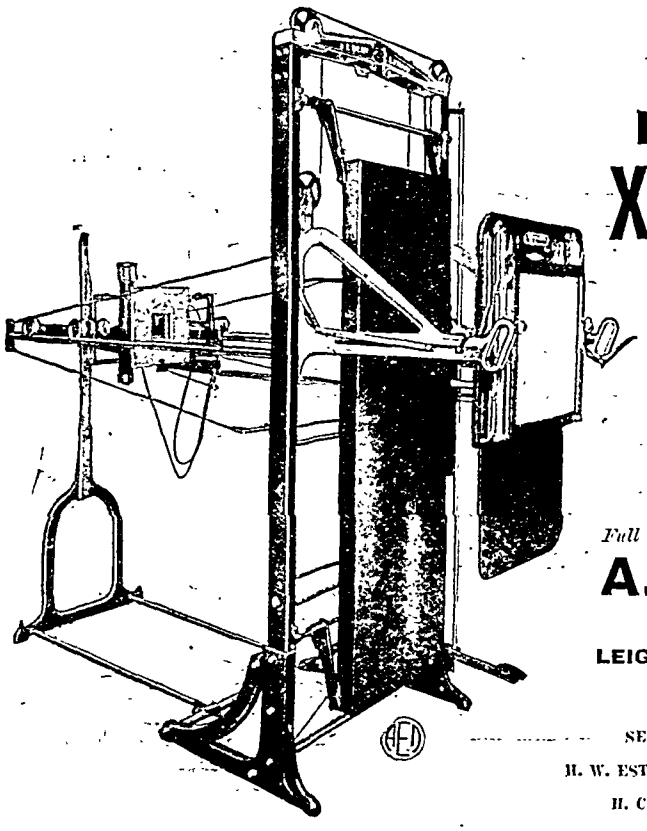

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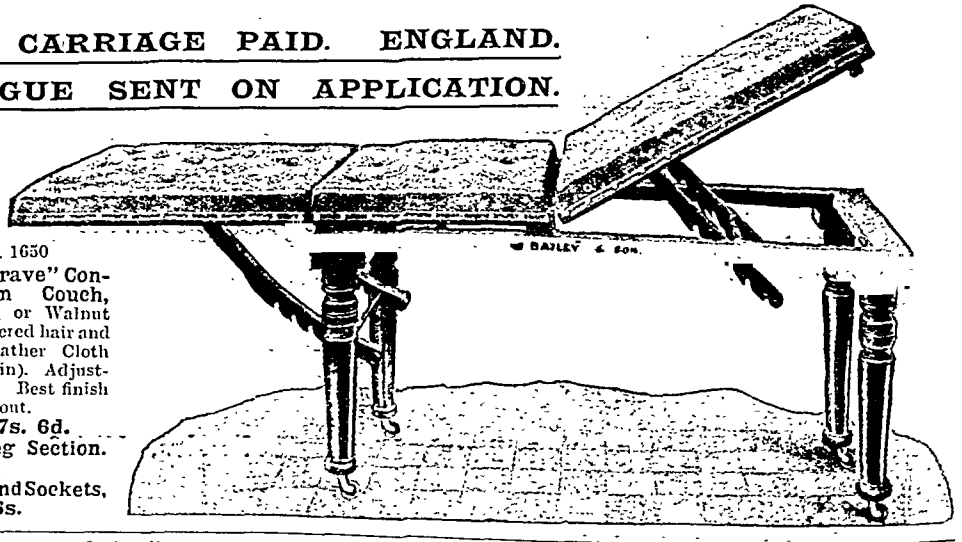

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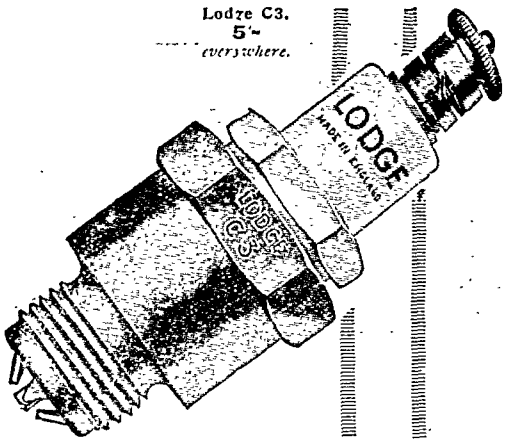

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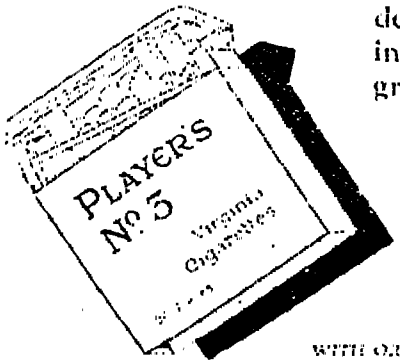

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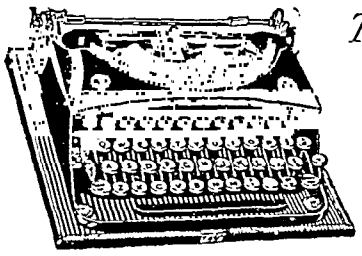

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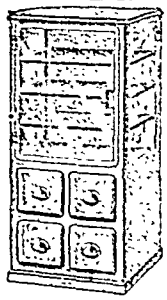

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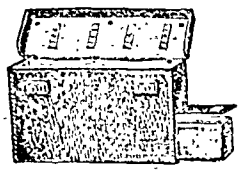

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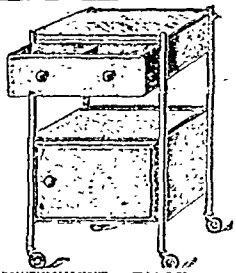

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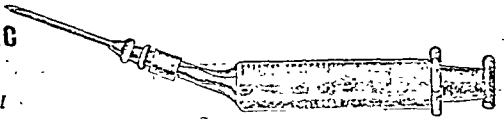

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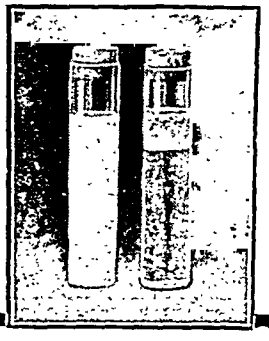

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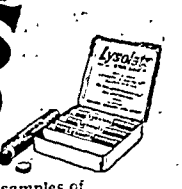

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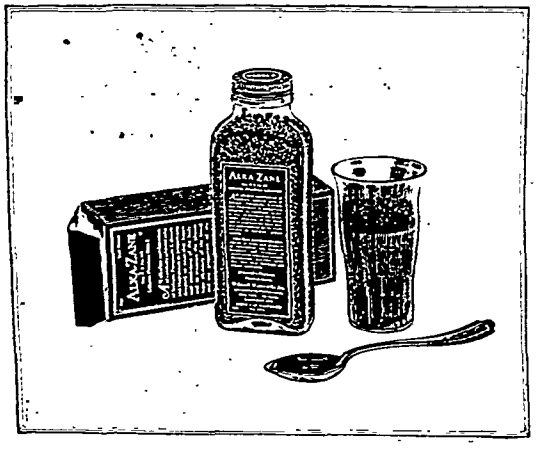

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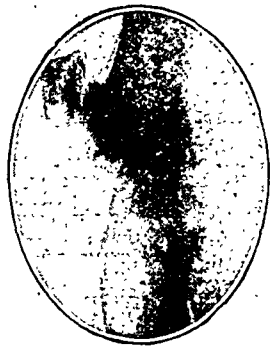

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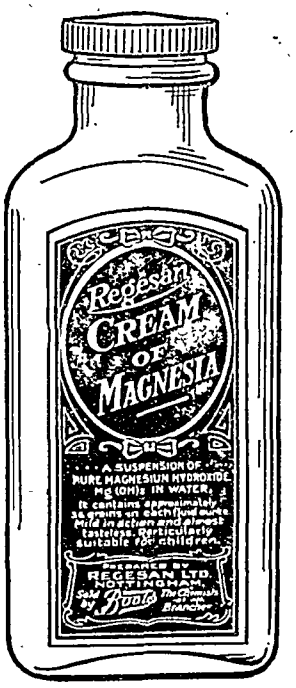

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REMOVAL OF GOITRE.

Typical Case.

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Diagnosis: Toxic colloid goitre.

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—Extract from PRACTICAL LOCAL ANÆSTHESIA (Farr).

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PACKED IN A BLUE TIN

Cow & Gate Milk Food

PACKED IN A BLUE TIN

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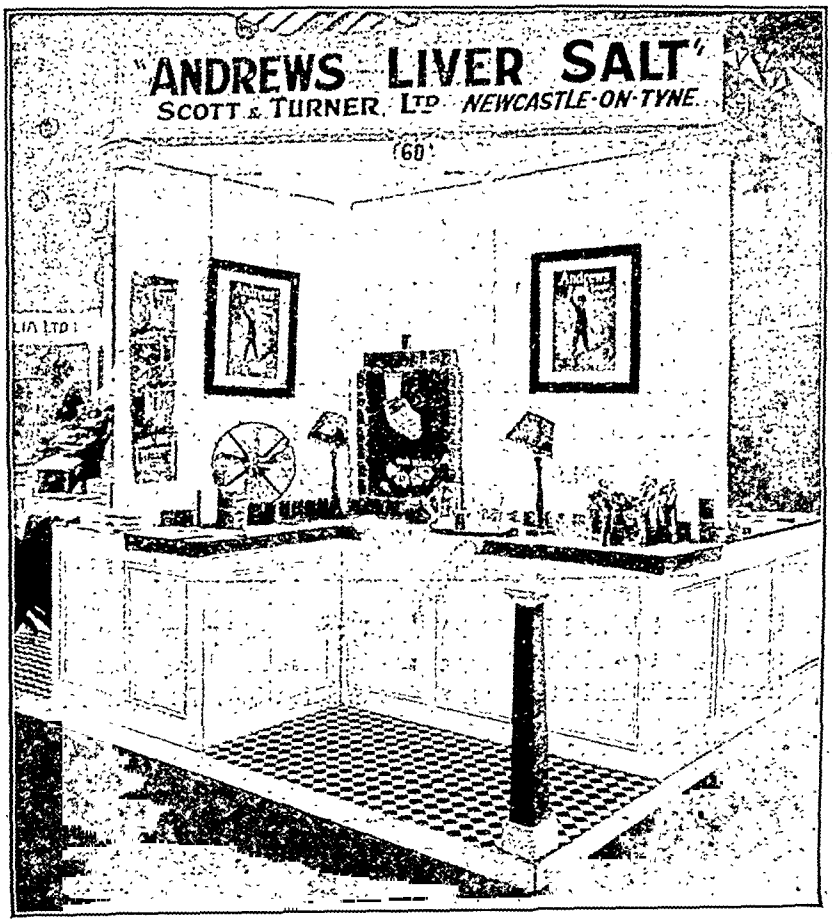

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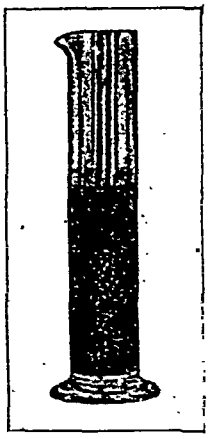

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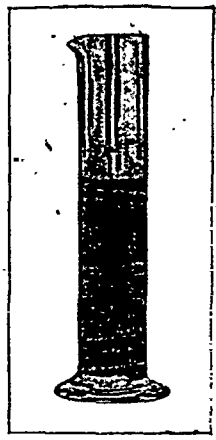
In tins at 2/1, 4/- and 7/6.



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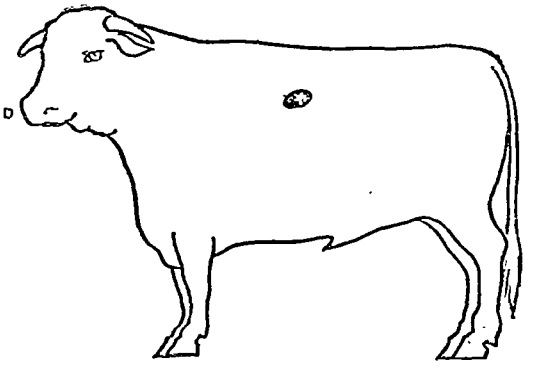

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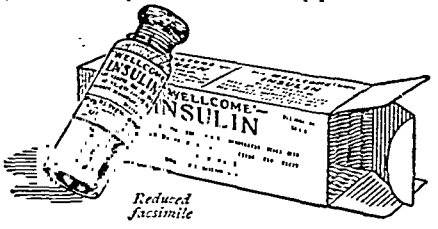

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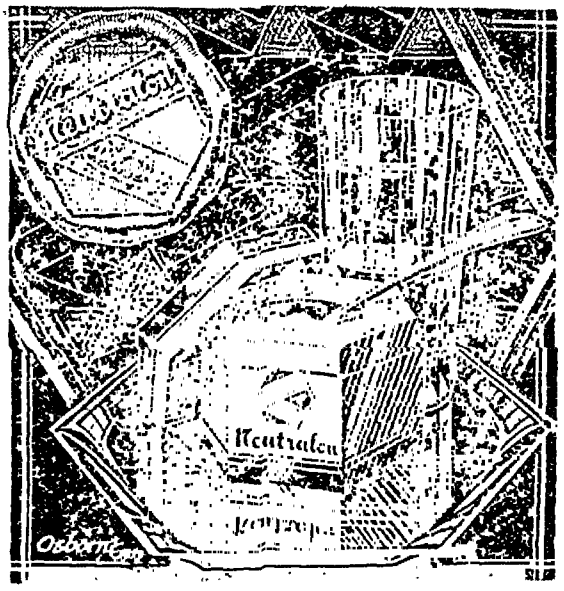

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It decomposes very quickly in the stomach, leaving sufficient acid for the normal functioning of the digestive processes and for asepsis of the small intestine. In ulceration 'Neutralon' forms a protective coating on the affected surfaces. It causes no irritation and no hyperacid reaction.

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Remarks ON APICAL AND SUBAPICAL TUBERCULOSIS.*

BY

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PATHOLOGIC anatomists and clinicians have known for many years that the number of people with tuberculous lesions in the lungs is much higher than that of those suffering and dying from actual tuberculous disease. Apical tuberculosis—active, quiescent, completely cicatrized, or calcified—is a banal incidental finding at necropsies of persons who have succumbed to any other disease, and who during life have either not known at all that they had lung trouble or considered their pulmonary symptoms of little if any significance. Of the 60 to 90 per cent. of tuberculous foci observed in routine necropsies, 30 to 60 per cent. are found to have been "obsolete." In other words, it appears that a large proportion of tuberculous lesions of the lungs heal spontaneously. This confirms the common observation of clinicians, who often find unequivocal symptoms and signs of apical lesions, yet the patients are getting along fairly well with or without treatment. These are facts known to all who have given this subject thoughtful attention in their routine work in sanatoriums, in dispensaries, and in private practice, and may be considered clinical platitudes.

Our great problem has been to differentiate these benign cases from the numerous others that are progressive and require treatment, be it climatic, institutional, or operative. Heretofore we held to the dictum—or should I say dogma?—that when there are changes in the resonance and breath sounds, perhaps also some adventitious sounds, over the region of the lung above the second or first rib, the patient is tuberculous; if there are also such constitutional symptoms as cough, loss of weight, fever, haemoptosis, etc., there is no doubt that there is an active lesion which must be cared for in accordance with the principles of modern phthisiotherapy. On the other hand, if the signs indicate a lesion lower than the apex, the chances of its being tuberculous are remote; at any rate, considerable circumspection must be exercised before pronouncing the patient tuberculous.

During the first years of wide application of the Roentgen rays in the diagnosis of pulmonary pathology these diagnostic principles appeared to have been confirmed. But with the more universal use of the Roentgen rays there has taken place during the past five years a radical change in our views of the early localization and evolution of tuberculous lesions in the lungs. It has been observed that in a decidedly noteworthy proportion of active and progressive cases the first lesions—those responsible for the initial symptoms of the disease—are located below the clavicle, while the apices remain free from pathological changes for some time. This is what some writers have called the "new doctrine" of subclavicular localization of fresh and active tuberculosis. Further research has confirmed the traditional teaching that apical lesions are very common, more common than those located below the clavicle, but they are, in the vast majority of cases, sclerotic in nature and display no tendency to cause symptoms of phthisis, which are disabling and lead to a fatal issue. In fact, it appears that these apical lesions are the ones that are so often found at necropsies of patients who died from other causes, and who during life had not suffered from disease of the lungs.

This "new doctrine" of subclavicular localization of tuberculous lesions is quite old when one considers the work of several British pathologists and clinicians. In his Goulstonian Lectures of 1882 on "Pulmonary Cavities," William Ewart[1] is very explicit in his description of the "so-called apex lesion," which he found much below the apex of the lung in many cases:

"In the later stages of pulmonary consumption, it must be conceded, the vomica commonly extends to the summit of the lung. It is habitual, however, even at this stage, to find the cavity lateral rather than median in its axis; and I may state at once that the extension of a cavity to the periphery is mainly a matter of time. We cannot, therefore, with safety draw a conclusion from the size and position of the late cavity as to the size and situation of the earlier disease. Clinical observation supplies us with valuable evidence in our endeavour to settle the question. *A careful diagnosis will not fail to convince us that the early consolidations are more commonly seated in the subclavicular region than at the apex.* The same fact is often capable of direct demonstration, when at the time of death one of the lungs is as yet but slightly affected. I do not wish to underrate the clinical value of an examination of the supraclavicular space. This is undoubtedly a position in which the signs of the disease are very early perceptible; but I have not encountered breaking down in this situation with as much frequency as in the inner or in the outer subclavicular region." (Italics mine.)

Sir James Kingston Fowler[2] is another British physician who was well acquainted with the subclavicular localization of early tuberculous lesions before Central European clinicians and roentgenologists described them in detail. He emphasizes that:

"the extreme apex of the lung is not often the site of the primary lesion. . . . *It is situated from an inch to an inch and a half below the summit of the lung, and rather nearer to its posterior and external borders.* . . . A second and less usual site of the primary affection of the apex corresponds to the chest wall within the first and second interspaces below the outer third of the clavicle. The lines of extension are usually downwards, so that after a time an oval area of lung is involved, occupying the outer part of the upper lobe. *It is possibly true that the spread of the disease is more rapid when the primary lesion occupies this site.* The lesions in the advanced stages—induration and cavities—are formed by the coalescence and extension of these primary foci." (Italics mine.)

Subsequently Birch-Hirschfeld,[3] Schmorl,[4] Aschoff,[5] and other pathological anatomists showed that the initial lesion of pulmonary tuberculosis is not usually found in the real apex of the lung but lower down.

But these anatomical and clinical observations were neglected for many years, merely because the physical signs of tuberculosis in its earliest stage, if decisive at all, point to the lesion being localized in the apex. It remained for the Roentgen rays to clear up this point. Dr. Harry Wessler[6] of New York seems to have been the first to describe opacities on the Roentgen picture which are "the earliest evidences of the disease," and which "are less often found in what is clinically known as the apex than in the infraclavicular region. Furthermore, the axillary half of the lung is more apt to be involved in the beginning than the mesial half." Then came Dr. Herbert Assmann[7] of Leipzig, who showed that these early lesions in active and progressive tuberculosis of the lung can only exceptionally be demonstrated by physical signs, but are usually found on the Roentgen picture to be located below the clavicle. Since Assmann's paper there have appeared many others—for example, those of Romberg,[8] Lydtin,[9] Redeker,[10] Baemeister,[11] Fishberg,[12] H. V. Morlock,[13] and many others—tending to confirm these observations.

APICAL LESIONS.

It must be emphasized at the onset that the vast majority of tuberculous lesions are found in the apex of the lung, and they remain circumscribed to that region. This point is best shown at necropsies in persons who succumbed to causes other than tuberculosis. Nearly all lesions in the lung which had cicatrized, remained inactive, and gave no trouble during the life of the individual are in the apices. One may also discover them during thorough and careful physical examination of chests of persons who have had no constitutional symptoms of phthisis. These lesions are very often discovered clinically and with the aid of the Roentgen rays during the course of the periodical examinations of the healthy, which are becoming the vogue

* Made in opening a discussion in the Section of Tuberculosis at the Annual Meeting of the British Medical Association, held at Manchester, July, 1929.

in the United States. In patients with extrathoracic tuberculous lesions, as of the skin, the kidneys, the adnexa, the bones, joints, or glands, and who are very often referred for chest examination, the lesions are almost invariably found in the apex, as may be evident from the changes in resonance, breath sounds, and perhaps some adventitious sounds discovered over that region. But it is noteworthy that such patients hardly ever suffer from significant pulmonary symptoms. Their troubles are those of the extrathoracic lesions. In most of these cases, if death ensues because of the tuberculous infection, it results from acute pneumonic phthisis, or more commonly miliary tuberculosis. Similar apical lesions are found in many persons without extrathoracic tuberculosis. They suffer from frequent "colds"; at times they have subfebrile reactions lasting a few days or weeks. They are rather slim, though now and then we meet some who are more or less obese, especially those who have pulmonary emphysema in addition to the apical lesions. They may spit blood, even copious haemorrhages may occur, and tubercle bacilli may be demonstrated in the sputum. Apical retraction is perhaps evident on inspection of the thorax, and the changes elicited by auscultation and percussion are those described as typical of early tuberculosis. But with or without any therapeutic intervention they are doing well, as a rule. They live indefinitely unless carried off by some intercurrent disease. They are diagnosed as tuberculous by ultra-cautious physicians, and they supply the clinical material for any "cure" which happens to be introduced at the time, proving the efficacy of the particular remedy or method of treatment. They also supply the "early" and the "curable" cases considered ideally suitable for sanatorium treatment. These lesions are apparently the residua of childhood infection which had become obsolete, only to be discovered when a physical examination of the chest is made for any reason.

During recent years there has appeared evidence to the effect that lesions limited to the apex of the lung only exceptionally develop into active and progressive tuberculosis which requires treatment, and which is the cause of death in about 10 per cent. of civilized humanity. Statistics collated by Bräuning,[14] Lydtin,[9] Redeker,[10] Kayser-Petersen,[15] and others tend to show that only about 7 per cent. of these persons with apical lesions develop active and progressive tuberculosis or die from this disease. From figures given later on it will be seen that while these findings are more favourable than our own, yet it must be acknowledged that the outlook in real apical tuberculosis is good in the large majority of cases.

That there is a type of pulmonary tuberculosis which runs a benign course has been known for a long time. We speak of "abortive tuberculosis," which presents symptoms and signs of the disease, even tubercle bacilli in the sputum, but the patient recovers quickly with or without treatment. In many cases this is the end of the trouble, but in others the symptoms recur at irregular intervals, the patient being considered either as "subject to colds," or as tuberculous, depending on the skill in physical diagnosis of the physician or the employment of the Roentgen rays. This group, which is not inconsiderable, is usually made up of persons with tuberculous lesions limited to the apical region. It also makes up the large contingent of "repeaters" at sanatoriums; patients admitted with minimal lesions, kept for a few months, and discharged with the disease arrested or cured, to be readmitted within a comparatively short time, again as incipient cases, to be shortly discharged for the same reasons as on previous admissions. It is remarkable that they nearly always remain "incipients." I have cases at Bedford Hills Sanatorium and at the Montefiore Hospital that have been in these and in other institutions five and even more times, and the lesions, limited to the apices, are found to be of the same character and extent at each admission. We meet bearers of these apical lesions in droves at health resorts which accommodate well-to-do consumptives, who feel that they must stay at the sanatorium for life, and claim that as soon as they return home they have a relapse. They nearly all have apical lesions, if any at all, which never spread, and show no symptoms of progression. Some French authors have spoken of them as recurrent apical pleurisy, while German physicians, notably Krönig, described them as "collapse induration," altogether of non-tuberculous origin and occurring mainly in mouth-breathers. With a view to differentiating them from progressive phthisis Neisser[16] spoke of these apical cases as "tuberculosoid." What had not been emphasized until recently, however, is the fact that these lesions are limited to the apex, and remain so limited indefinitely.

Correlating these cases with the fact that nearly everybody has been infected with tubercle bacilli during early life, it would appear that they originate in the primary infection which took place during childhood, and, because of the strong resistance of the individual concerned, the lesion cicatrized. In some instances we may note that the lesion became calcified. As a rule they do not require prolonged and costly treatment; there is no reason for banishing them to distant climes. It is only phthisiophobia that urges them to remain away from home for years, as is the case with many in sanatoriums and health resorts. They are easily diagnosed by the physical signs, which are those described in textbooks and monographs as pathognomonic of "incipient" tuberculosis, and with the aid of the Roentgen rays, which show clearly shrinkage of one or both apices. In some cases of fibroid phthisis of the emphysematous type, or those showing the stigmata of diffuse tuberculous fibrosis, there are physical and Roentgen signs of apical lesions, unilateral or bilateral. They live on for years in comparative comfort. I have had under my care some who have thus continued at their avocations for over twenty years. It is probably true that in nearly all such cases the onset is very insidious, but inasmuch as the usual reasons for their seeking medical advice are transient acute or subacute episodes, the onset is at times put down as more or less sudden. As has already been mentioned, many are discovered during a routine examination, but more often as a result of some intercurrent non-specific respiratory infection, influenza, or "grippe." Real exacerbations of the tuberculous lesions, which occur now and then, are usually short-lived; recovery is rapid, and a change of environment for a few weeks works magically. One thing is to be mentioned: these cases are the backbone of the favourable sanatorium statistics. Without these apical cases, the results of sanatorium treatment in climatic resorts would not make as good a showing as they do.

SUBAPICAL LESIONS.

Pulmonary tuberculosis of more serious prognostic significance generally begins differently, has a relatively abrupt onset, and the lesion is located below the clavicle in the vast majority of cases. A patient, who has no history of previous pulmonary complaints, who had not been "subject to colds," begins to feel tired at the least exertion, coughs, has night sweats, and, in some instances, expectorates blood. Physical examination of the chest does not reveal signs which would clinch the diagnosis of a localized lesion in the lung. There may be impairment of resonance, perhaps some prolongation of the expiratory murmur in the region of the second or third interspace, or the interscapular space, but this is not sufficient to make a diagnosis of a localized lesion. For this reason valuable time may be lost unless microscopic examination of the sputum reveals tubercle bacilli, or the Roentgen examination discloses a soft, cloudy patch, isolated in the midst of apparently healthy lung tissue, just below the clavicle and often toward the axillary portion of the lung. The nature of the patch is broncho-pneumonic, of the type seen in primary tuberculosis in children, or in tuberculous pneumonia in adults. In most cases it is found on a level with the second or third interspace, but it may be located lower down, even in the lower lobe. It may be small, the size of a cherry, or larger, involving the greater part of the upper lobe. The apical region appears free from pathological changes. The shadow may be distinct and clear-cut, but in most cases it has an irregular outline. Inasmuch as softening of the caseous material may take place rapidly, the formation of excavations occurs at times very soon, and we may find at the first Roentgen examination signs of an isolated cavity surrounded by a thin shell in the midst of unaltered lung.

These early lesions occur mainly in young persons and adolescents, though I have met with many in persons over 45 years of age. The age incidence of subapical lesions as compared with apical is shown in the appended table which Dr. Arnold Shamaskin and I compiled from an examination of radiograms of 1,000 patients admitted to Bedford Hills Sanatorium within the past five years. Of these, in only 167 cases could the location of the first lesion be determined with a certain degree of exactitude.

TABLE I.—*Age Incidence of Apical and Subapical Lesions.*

Age.	Subapical lesions.		Apical lesions.	
	Number.	Per cent.	Number.	Per cent.
Under 20 years	56	35.7	8	13.5
20 to 25 ,, ...	29	27.1	14	23 3
25 to 35 ,, ...	30	28.9	19	31.7
35 to 45 ,, ...	9	8.4	12	20 0
45 and over	3	2.8	7	11.7

It will be noted that over 60 per cent. of subapical lesions manifest themselves in persons under 25 years of age, as against 36 per cent. of apical lesions. On the other hand, the percentages are 11 and 32 respectively in persons over 35 years of age. In our daily practice we meet with these subapical cases more often in individuals under 25 years who feel out of sorts, but in whom careful physical exploration of the chest reveals nothing definite. Unless a good radiogram is taken, or tubercle bacilli are found in the sputum, the patient is apt to be treated for neurasthenia, bronchitis, "gastritis," or any other minor ailment. It is only after the lesion has spread upward, involving the summit of the lung, and physical signs are easily elicited, that the diagnosis of tuberculosis is made. It is for this reason, perhaps more than any other, that these subapical lesions formerly eluded us. It also appears that chronic phthisis without any definite physical signs, often described by authors of former generations, also pulmonary haemorrhages in persons without signs of lung lesions, were often manifestations of subapical lesions.

It is a peculiar fact that the first cases of subapical tuberculosis reported were mainly in individuals who had been exposed to contact infection with tubercle bacilli to a greater degree than the average person—such as medical students, bacteriologists, physicians in hospitals and sanatoriums, nurses, relatives of patients with active tuberculosis, etc. Hence the conclusion was drawn that they are the result of recent exogenous superinfection. The fact that the *x*-ray appearance of the lesion is not unlike the kind seen in children in whom the infection is undoubtedly primary seemed to confirm this view. But further observation has shown that many more cases are discovered in individuals who had not been unduly exposed to potential sources of infection. Moreover, in the vast majority of our cases we find sufficient evidence of earlier tuberculous infection, and only rarely are the regional lymph glands found to be enlarged, which would be the case in primary, exogenous entry of the virus. This sort of lesion is also encountered in patients with old extrathoracic tuberculosis.

It is well known that persons unduly exposed to tuberculous infection are just the ones who, when feeling out of sorts, will utilize modern methods of diagnosis earlier than others. Physicians, nurses, and relatives of patients with active tuberculous lesions will have their sputum examined, and *x*-ray films made, as soon as they cough or lose in weight; and for this reason these lesions, which can only be discovered very early, are found more often in this class of people.

The nature of these early lesions has been the subject of considerable discussion. Anatomic and radiographic studies of tuberculous lesions of this type in children and in adults show clearly that they are broncho-pneumonic. The recently emphasized fact that they often undergo involution—that is, are absorbed, leaving hardly any trace—is interesting, even though it has been known for a long time that tuberculous lesions are very often absorbed. On the other hand, some authors speak of them as perifocal inflammatory processes, only the centre of which is tuberculous and is surrounded by a large area in which an allergic reaction has so increased the density of the lung, particularly by a process of exudation, that the characteristic radiographic appearance is produced. According to this conception the tuberculous lesion is rather small, and when the perifocal anatomically non-specific exudate is absorbed hardly any traces may be left as far as the *x*-ray picture shows. Unfortunately there is little actual anatomic evidence that such is the actual course of events. Nevertheless there is a great deal in favour of this view when we recall other allergic reactions in the tuberculous. Thus injections of excessive doses of tuberculin produce the well-known focal reaction because of tissue allergy, which generally disappears sooner or later. After pulmonary haemorrhages also we often observe such phenomena in tuberculous lungs; they can be readily followed by any method of examination, physical or radiographic—the spread of the lesion being temporary and disappearing soon after the haemorrhage ceases.

PROGNOSIS.

It has already been mentioned that the prognosis in apical lesions is more favourable than in the subapical. Those with lesions limited to the apices last much longer, and may continue at their avocations for many years. This point is well shown in Table II.

TABLE II.—*Duration of the Disease.*

Age.	Subapical lesions.		Apical lesions.	
	Number.	Per cent.	Number.	Per cent.
Under 1 year	28	25.2	8	13.3
1 to 3 years	48	43.9	12	20.0
3 to 5 ,, ...	20	18.7	9	15 0
5 to 10 ,, ...	9	8.4	12	20.0
10 and over	2	1.8	19	31.7

Among the patients at the Bedford Hills Sanatorium less than 2 per cent. with subapical lesions had been sick for ten years or more, as against 32 per cent. of those with apical lesions; over five years, the percentages are 10 and 52 respectively. The main contingent of progressive cases, leading to serious illness and ultimately to a fatal issue, is derived from the subapical group.

We have found that patients with apical lesions have generally mild, and but rarely severe, brief exacerbations of symptoms at irregular intervals, while prolonged, continuous, or remittent febrile reactions are uncommon. In fact, the enormous number of patients in sanatoriums that run an afebrile course with slight febrile episodes which abate soon are mainly those with lesions limited to the apices. Among our patients at the Bedford Hills Sanatorium we found that 70 per cent. of those with apical lesions ran an afebrile course, while of those with subclavicular lesions only 42 per cent. were afebrile. Blood-spitting, on the other hand, is about as common in one group as in the other, but this refers only to streaked sputum or mild haemoptysis. Copious haemorrhages are more common in patients with subclavicular lesions. The following table illustrates this point:

TABLE III.—*Incidence of Pulmonary Haemorrhage.*

Haemoptysis.	Apical lesions.		Subclavicular lesions.	
	Number.	Per cent.	Number.	Per cent.
None	28	46.7	42	39.2
Streaked sputum	15	25.0	33	21.6
Copious haemorrhages ...	17	28.3	42	39.2

EVOLUTION OF THE SUBCLAVICULAR LESION.

The progress of the subclavicular lesion can be followed only with the aid of serial radiograms. The lesion may remain unaltered for weeks and months. With the improvement in the general condition involution may take place and the infiltration is absorbed, leaving merely linear markings denoting fibrosis. In other cases signs of thickened interlobar pleura remain. In rare instances calcification of the lesion takes place and there remain sharply demarcated, homogeneous spots immediately below or above the clavicle. The patient may remain well indefinitely. The number that terminate thus is much larger than is generally appreciated.

In active and progressive cases the lesion usually extends upward, involving the summit of the lung, and there results the common variety of chronic phthisis in any of its protean forms. It is then that it can be easily diagnosed by the physical signs, and for this reason the really early lesions were generally overlooked prior to the universal application of the Roentgen rays for diagnosis. In some patients the infiltration extends both upward and downward, so that an entire lobe is involved in a short time, at times a whole lung. The clinical picture is then that of acute pneumonic phthisis. I have seen cases of this type which ran their complete course within a few weeks.

In a large proportion of cases the lesion caseates, softens, is expectorated, and finally leaves an excavation. These *early cavities* may form quickly, within a few weeks after the first symptoms of the disease appear, and in fact even before one has any suspicion that he is dealing with tuberculosis. I meet with such cavities now and then in patients who had felt out of sorts for one or two weeks only. As a rule, these cavities are not revealed by physical signs; only the Roentgen rays disclose them. They have certain characteristics which differentiate them from excavations formed later in the disease. They appear on the radiogram as spherical or oval in shape, isolated in the midst of apparently healthy lung tissue, surrounded by a sharply demarcated border consisting of a thin or moderately thick wall; in exceptional cases a shifting fluid-level may be noted at the most dependent part. It is noteworthy that the area within the walls of the cavity may exhibit lung markings not unlike those in the remainder of the lung, thus demonstrating the integrity of the parenchyma in front of or behind the excavation.

These early cavities are usually located below the clavicle, though at times we find them in any part of the lung, even in the lower lobe. They may be multiple and coalesce to form the well-known honeycomb picture. Cavities formed later in the course of disease have thick walls, which are surrounded by infiltrated lung tissue, while around the early cavities the surrounding lung is apparently healthy. In many instances of late cavitation we find the lobe in which they are located completely obscured by a shadow in the midst of which there is brightness of variable degree. It is also noteworthy that in late cavities the mediastinal organs and also the trachea are, as a rule, drawn toward the affected side, owing to shrinkage of the lung, which is not common in cases with early excavations.

In exceptional instances these early cavities heal, as has been observed by all those who have taken serial radiograms of tuberculous patients. The circular shadow disappears, leaving linear markings pathognomonic of fibrosis or at times no visible trace at all. In fact, some authors have for this reason spoken of these "annular shadows" as representing pleural adhesions, localized pneumothoraces, etc., and not at all as excavations of the parenchyma. But more careful studies have shown conclusively that, with but extremely rare exceptions, they are cavities even though they heal.

In many cases of these subclavicular infiltrations the lesion spreads along the lymphatics so that on the radiogram there are dots and spots running from the original lesions outward and downward. In still others caseating areas suddenly appear in other parts of the same or the contralateral lung. Now and then we meet with a case in which numerous isolated lesions of various sizes appear in one or both lungs simultaneously. The main characteristic of these lesions is that they develop quickly, and do not proceed by the direct continuous extension of the original lesion. An extensive lesion means, as a rule, coalescence of several of these infiltrations. As each new infiltration appears there is an exacerbation in the symptoms.

THERAPEUTIC INDICATIONS.

The differentiation of apical from subapical lesions is of immense therapeutic importance. To begin with, the prophylaxis of clinical tuberculosis is narrowed down mainly to the latter group. Among our patients at Bedford Hills Sanatorium we found that "open" tuberculosis"—that is, the type of case in which there is expectoration of sputum containing demonstrable tubercle bacilli—is uncommon in the apical group. Tubercle bacilli were found in the sputum of 66.4 per cent. of patients with subclavicular lesions, as against only 15 per cent. with apical lesions. It is thus clear that strict isolation, the backbone of tuberculosis prevention, is not indicated in some 85 per cent. of apical cases. And prophylaxis is considered one of the main reasons for institutional treatment of tuberculosis.

It appears, further, that prolonged and costly treatment is unnecessary in the vast majority of apical cases. We have shown that they remain in good condition indefinitely, and only rarely develop active and progressive phthisis. The finding of signs of apical condensation, such as impairment of resonance, prolonged expiratory murmur, or even some adventitious sounds limited to the apical region in a patient with symptoms of a common cold, or "grippe," and radiographic confirmation that the changes are limited to the apical region, does not invariably mean urgency of climatic, institutional, or operative treatment. We may most often look to an early recovery after a few weeks' rest; perhaps a change of environment for a month or so will be effective in restoring the patient to health. Indeed, from my observations in sanatoriums in various countries it appears that a large proportion of patients with these apical lesions could be discharged with benefit to themselves, the institutions, and the communities which are charged with their care.

It is different with patients having subclavicular lesions. While many recover within a short time under any form of treatment, a large proportion are in need of careful attention. They have the symptoms of acute, subacute, or chronic phthisis which urgently requires treatment. Many are benefited by rest, at home or in institutions, but others require artificial pneumothorax. The latter should be induced early, before the formation of pleural adhesions which are responsible for so many failures in collapse therapy. Induced early, when the filtration is still limited and circumscribed within the parenchyma, we usually find a free pleural cavity, so that it is feasible to collapse the entire or the greater part of the affected lung.

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HILUS TUBERCULOSIS AS AN IMPORTANT CAUSATIVE FACTOR IN PULMONARY TUBERCULOSIS IN ADULTS.

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THE term "hilus tuberculosis" is used for convenience, and in a comprehensive sense, to include tuberculosis of all or any of the different groups of bronchial glands. An almost universal distribution of tuberculous infection in the human subject has been found by so many observers that it is now accepted as a proved fact. The present investigation has been carried out with a view to determining how far it is possible to diagnose tuberculous infection from clinical signs and symptoms only, and whether there is any direct connexion between such infection and pulmonary tuberculosis. The period of observation extended over ten years, and involved the examination of over 20,000 children between the ages of 5 and 14, and the re-examination at intervals of three to six months of all those showing definite evidence of departure from the normal. The first thing that impresses itself on the observer who has examined even a few hundred healthy chests is that there is no fixed normal. The normal varies within fairly wide limits, and a long apprenticeship is required to establish confidence in deciding which cases fall within the normal and which are definitely outside it.

The mass of evidence obtained, often apparently very contradictory, was very perplexing during the earlier period of the investigation, but slowly the accumulated evidence of years tuned the mind to a more or less definite line of thought, which appears to offer a reasonable explanation for all the varying phases and stages of the infection. The physical examination followed the usual lines, and does not require to be given in detail. It is advisable, however, to emphasize the necessity of using the very lightest percussion if the finer shades of dullness are to be successfully determined. Tidal percussion should always be mapped out, although, at the apices, it was found to be less valuable in children than in adults, and the same may be said of Krönig's sign. The "reflex bands of dullness" (Clive Riviere) afford a most reliable sign of invasion of the lung parenchyma. They are not always easy to make out, but when present are very significant. They were repeatedly looked for in children, but very seldom found, probably because definite invasion of the lung parenchyma in children is relatively rare. Granular breathing is highly suggestive of tuberculous infection, and can sometimes be heard over a whole lung; but it does not necessarily mean that the tubercle bacilli have invaded the lung tissue.

The process of weeding out all cases showing evidence of tuberculous infection, and the exclusion from school of the worst cases for suitable periods, was productive of much good. This is shown by the following comparative figures:

Years.	Tuberculous infection.
1913	15.4 per cent.
1914	14.9 ,,
1920	9.1 ,,
1921	7.2 ,,
1922	4.8 ,,
1923	4.6 ,,

The period 1914–20 covers the war period, when the work was entirely suspended.

A careful survey of the teeth, tonsils, and cervical glands was made, and pathological evidence of parasternal and paravertebral glands looked for. An attempt was made to correlate the condition found with evidence of tuberculous infection; also what, if any, connexion existed between physical signs of enlarged bronchial glands, and the distance down the spine to which definite tracheal breathing extended. The following table shows the percentage of children, out of a total of 1,918 examined, who were found to be defective in each of the eight conditions stated:

	A.	B.
1. Teeth	27.7	13.3
2. Tonsils	8.0	4.3
3. Adenoids	4.7	2.0
4. Nose (chronic catarrh)	22.2	14.3
5. Cervical glands	90.7	45.5
6. Family history of phthisis	20.1	7.8
7. Defective nutrition	50.7	26.8
8. Deformities of chest	4.0	0.9

A refers to cases of tuberculous infection; B refers to all cases.

These figures seem to show a definite connexion between septic conditions of the nasopharynx and the prevalence of tuberculous infection. The age incidence worked out at 33 per cent. at 6 years; 46 per cent. at 9 years; and 21 per cent. at 13 years.

Although a well-marked case of hilus tuberculosis is easy to detect, the less well-defined cases are difficult. The following may be regarded as a typical well-defined case:

A boy, aged 9 years, was on examination found to be pale and flabby, but fairly well nourished; he gave a history of frequent colds, and of cough and lassitude for a prolonged period. Over the chest and neck, particularly on the right side, there were numerous prominent veins; the right supraclavicular glands were palpable and the right paravertebral dullness was definitely increased. At the apex of the right upper lobe expiration was greatly prolonged, and there was blowing respiration over the right interscapular region, with tracheal breathing extending to the sixth dorsal spine.

The following case is also of interest:

A girl, aged 13 years, was examined because she had persistent cough, was very short of breath, and did not feel well. Physically she was of the large flabby type so often associated with tuberculosis. Examination revealed numerous fine crepitations all over both lungs; the heart was normal. A bad prognosis was given, but in three months the lungs showed no abnormality.

There was no other case in the series quite like this one, but a fair number showed signs confined to one side, with weak breath sounds and definitely diminished tidal percussion and expansion, suggesting pressure by enlarged bronchial glands. Granular breathing was a fairly common accompaniment.

An attempt, involving the special examination of 300 children, was made to gauge the diagnostic value of tracheal breathing. Four groups were taken, as follows: A, no evidence of tuberculous infection; B, slight but definite changes at an apex; C, definite physical signs at an apex; D, definite areas of localized crepitations.

Distance heard.	A.	B.	C.	D.
7th cervical or 1st dorsal	80	58	27.4	26.6
2nd dorsal to 3rd dorsal	12	24	26.0	20.0
4th dorsal to 7th dorsal	8	18	46.6	53.4

Experience shows that tracheal breathing does not commonly extend beyond the first dorsal vertebra in strictly normal cases, and this observation supports the view that it is heard more frequently beyond the first dorsal vertebra in infected cases.

Many of the children showed physical signs which in an adult would be regarded as definite evidence of pulmonary tuberculosis, yet their history, and often the final examination, entirely belied that assumption. The condition would remain, year after year, with little or no change, and the child might, and not unfrequently did, enjoy good health. In some cases all the physical signs entirely disappeared. It was not uncommon to find, on routine examination, the following signs at an apex: retraction, delayed movement, impaired resonance, broncho-vesicular breathing, and increased vocal resonance. In addition, cough and lassitude were complained of, and even a family history of pulmonary tuberculosis was obtained. In such circumstances it is difficult to divorce the mind from the opinion that there is definite tuberculous invasion of the lung parenchyma, yet numerous such cases have been observed for years, during which, in many cases, the children enjoyed reasonably good health, and finally left school with the physical signs more or less unchanged. At first it was assumed that the physical signs indicated a healed lesion, and they were regarded seriously; but as years went on that explanation, although very tempting, simply would not fit the cases. If a healed lesion of such dimensions existed, then some evidence of destruction of lung

tissue and its replacement by fibrous tissue would remain, but in quite a number of cases all the physical signs entirely disappeared, including the retraction. Such a history does not suggest a healed lesion, and the clinical picture was not in conformity with a simple apical collapse.

A girl, aged 6 years, was examined and the physical signs were retraction, impaired resonance, and broncho-vesicular breathing at the apex of the right upper lobe; she had also palpable cervical glands, increased paravertebral dullness, spinal telangiectasis, and tracheal breathing to the seventh dorsal vertebra. In six months there was no retraction and no dullness. After a further six months the physical signs were reduced to weak inspiration and prolonged expiration and tracheal breathing to the fifth dorsal vertebra. Six months later the lungs were normal and tracheal breathing was heard only to the first dorsal vertebra.

Here we have definite physical signs at an apex, accompanied by definite signs of glandular enlargement, and both clearing up simultaneously.

The examination of a boy, aged 6 years, revealed the following signs: impaired resonance and broncho-vesicular breathing at the apex of the right upper lobe; also dullness, cavernous breathing, bronchophony, and numerous crepitations in the right axilla. After an interval of seven years the signs at the right apex were unchanged, but modified at the right axilla. The left axilla now showed marked bronchial breathing and numerous crepitations. One year later the only signs were impaired resonance and broncho-vesicular breathing in the left axilla. At the first examination the symptoms were cough, lassitude, cold night sweats, and slight staining after coughing. The cough persisted throughout, but the other symptoms were less evident. The cervical glands were much enlarged and tracheal breathing extended to the sixth dorsal vertebra. The patient was a typical street arab, received the minimum of parental care, and was up at 7.30 every morning delivering milk. If there was definite invasion of the lung parenchyma it is difficult to believe that he would have improved, as he certainly did, in spite of such adverse conditions.

Another case is that of a girl, aged 9, who was under observation for one year as a case of hilus tuberculosis. She suddenly became ill, and on examination revealed the usual right apical signs, greatly aggravated. A pneumonic patch was suspected, but the advent of a measles rash made the position clear. Within a week the apical signs returned to their original condition; the aggravation was evidently due to an acute infection of already infected glands.

Another type of case which caused difficulty was that of the child in whom was found an area of localized crepitations. This consisted of small patches of lung area, always in the lower or middle lobe, where crepitations could be heard. The crepitations were very fine, almost consonating, and heard at the end of inspiration only; they were very persistent under all conditions. The respiratory sounds were generally weak, owing to the modifying influence of the fluid in the air cells, and impaired resonance was found over the larger patches. Almost every such child was obviously below par, had a persistent cough, and complained of lassitude; important confirmatory evidence was volunteered by the teachers that such children were educationally backward and often absent from school. The localized patches of crepitations persisted for months, sometimes for years, but they generally cleared up without leaving any permanent evidence. Poor health accompanied the crepitations, but improvement always followed the clearing up of the local conditions.

Some Illustrative Cases.

Case 1.—The patient, a boy aged 8, gave a history of recent symptoms of pleurisy with cough and lassitude for a month. There were a considerable number of crepitations in the left lower lobe. Six months later the crepitations were still present, tidal percussion was definitely lessened, and impaired resonance and prolonged expiration were found at the apex of the right upper lobe. The left supraclavicular glands were palpable and there was definitely increased paravertebral dullness. An examination in ten months showed no abnormality. His weight increased by 12½ lb. in eighteen months.

Case 2.—A girl, aged 11, had an extensive patch of crepitations in the right axilla, which persisted for three years, but ultimately cleared up without leaving any permanent evidence. Her weight increased by 31 lb. during the period.

Case 3.—A boy, aged 13, had bronchial asthma accompanied by weak breath sounds over the whole of the left lower lobe, as well as retraction of lung and diminished tidal percussion. There was weak inspiration at the apex of the right upper lobe down to the third rib, and tracheal breathing to the sixth dorsal vertebra. The increase of weight in two years was 14 lb.

Case 4.—A boy, aged 12, had numerous crepitations in the left axilla between the sixth and eighth ribs, extending from the nipple line to the posterior axillary line. Tidal percussion was diminished. At the apex of the right upper lobe there were retraction, impaired resonance, weak inspiration, and prolonged expiration. The cervical glands were much enlarged and the patient had a persistent cough. At the end of one year the signs at the right apex remained, but the other signs had cleared up.

These cases demonstrate the persistence of the local crepitations over a number of years, accompanied by evidence of pressure by enlarged bronchial glands. All showed a steady, but somewhat irregular increase in weight, and in none was there any sound justification for believing that the lung parenchyma was invaded by tubercle bacilli. All the signs and symptoms are more reasonably explained as being secondary to pressure by enlarged bronchial glands, the crepitations being probably due to interference with the free circulation by infected broncho-pulmonary glands.

The apical signs were found at the right apex only in 62 per cent. of cases, the left only in 6 per cent., and in both in 32 per cent. On the other hand, the localized crepitations were found in the left lower lobe in 58 per cent. of cases, and in the right in 42 per cent. Cough and/or lassitude were present in 87 per cent., nutrition was below normal in 83 per cent., and at 13 years of age the average weight was 10 lb. below the average.

It might be argued that such conditions may be true for children, but are not likely to be found in adults. A year's duty in the Ministry of National Service, when many thousands of adults of all classes of society were examined, afforded an excellent opportunity to test this point. As deputy commissioner in charge of a large industrial area I personally examined all cases showing definite evidence of departure from the normal, and found that the conditions at the apices of the upper lobes, and the localized crepitations in the lower lobes, closely resembled those so familiar in children. A similar opportunity for repeated examinations was not available, but the broad fact remains that such cases were by no means uncommon, and occurred in men who were presumably well and carrying out their ordinary duties. In private practice one frequently finds cases which show physical signs and symptoms highly suggestive of definite pulmonary tuberculosis, without the infection having passed beyond the bronchial gland barrier; and that when invasion of the pulmonary parenchyma does occur it is not infrequently due to the rupture of infected bronchial gland contents into a bronchial tube.

Reports of Cases.

Case 1.—The first case is that of a lady in whom the presence of tuberculous bronchial glands was diagnosed two years prior to an acute exacerbation. She complained of great shortness of breath, violent and persistent cough, and great lassitude. There was no sputum. The physical signs at the apex of the right upper lobe were slight retraction and delayed movement, impaired resonance, broncho-vesicular breathing, but no adventitious sounds. The physical signs varied from time to time, but the symptoms persisted. During the exacerbation she developed an evening temperature; numerous crepitations were heard in the right infraclavicular region, and the other physical signs were aggravated. In spite of these very suggestive signs, I formed the opinion that there was no invasion of the lung parenchyma. A month's rest in bed brought the patient back to her original condition. She was afterwards examined by a leading authority on tuberculosis, who reported that "the right apex was becoming aggressive," and advised her to winter abroad. This she did, and was examined there by another specialist in tuberculosis, who, after an *x*-ray examination, agreed that the infection was confined to the bronchial glands, there being no evidence of pulmonary tuberculosis.

Case 2.—A boy, aged 17, was under observation as a case of hilus tuberculosis for one year. A sudden acute illness developed, and examination revealed impaired resonance and broncho-vesicular breathing at the apices of both upper lobes, particularly the right; also blowing, respiration in the interscapular regions, and tracheal breathing to the sixth dorsal vertebra, but no adventitious sounds. The pulse rate was 120, respiration rate 30, and the temperature 102° F. or more in the evening, 99° F. in the morning. He had cold night sweats, a very violent cough (no sputum), and the clear bright eyes of tuberculous toxæmia. His condition was very grave for several weeks, and, although an assurance was given that the lungs were free at the moment, there was definite risk of acute pulmonary tuberculosis. Gradually the whole condition quietened down without showing any evidence of pulmonary invasion, and he has enjoyed good health for over two years, working long hours every day.

Case 3.—A girl, aged 14, in whom hilus tuberculosis had been diagnosed three years prior to her illness, suddenly developed what was supposed to be a cold; two days later, however, examination showed absolute dullness over the whole left lower

lobe, with bronchial breathing, bronchophony, and patches of crepitations irregularly scattered throughout the lung. The evening temperature was 100° F., morning temperature 99⅘ F. or normal; the pulse rate 80, and respiration rate 21. The patient had severe cough (no sputum), cold night sweats, and the clear bright eyes of tuberculous toxaemia. She remained seriously ill for a month, but in two months she was convalescent, and in three months the affected lung showed no abnormality.

Cases 2 and 3 are in marked contrast. In Case 2 there was acute tuberculosis of the bronchial glands only, and every evidence of acute toxaemia. In Case 3 the toxaemia was obviously less, although the lung was extensively involved. This would seem to suggest that in Case 2 there was a definite acute tuberculous infection, whereas in Case 3 the condition was probably caused by an enlarged and adherent tuberculous gland suddenly opening into a bronchial tube, distributing its contents, largely consisting of caseous material with a minimum of tubercle bacilli, into the corresponding lung. This would account for the much more favourable prognosis in the so-called "acute pneumonic phthisis," as compared with the more deadly "broncho-pneumonic" type, in which there is diffuse and profuse infection, probably from acutely inflamed glands, either by an extensive retrogressive spread, or by the passing of large numbers of virulent tubercle bacilli into the blood stream.

Case 4.—A male, aged 37, was under observation for two years suffering from periodic attacks of bronchial asthma, with violent and persistent cough and great lassitude. Repeated examinations revealed crepitations over large areas of the lungs, sometimes in one situation, sometimes in another, and occasionally almost entirely absent. No definite clinical signs of enlarged bronchial glands or of tuberculous invasion of the lung parenchyma were present. There was an old history of pleurisy; the sputum was negative. The patient was suddenly taken acutely ill, and a large consolidation was found at the apex of the right upper lobe, extending to the third rib, and tubercle bacilli were found in large numbers in the sputum. In view of the fact that the lung parenchyma showed no previous evidence of *tuberculous invasion*, old or new, it is hardly likely that a large consolidation, extending to the third rib, could have occurred in such a brief period, except by a sudden mass infection from such a source as an infected gland.

Case 5.—A male, aged 47, gave a history of persistent cough and lassitude for one year prior to his illness; repeated examinations of the lungs were negative. It is of interest to note that the "reflex areas of dullness" were absent. He was suddenly taken ill with influenza-like symptoms, but a physical examination showed, at the apex of the left upper lobe, delayed movement, impaired resonance down to the third rib, broncho-vesicular breathing, and fine crepitations over the whole affected area. The evening temperature was 100° F., morning temperature 99° F. or normal, and the pulse rate 90 to 100. Although absent before, the reflex areas of dullness were now most obviously present, and the sputum was positive. In three months he was sent to a sanatorium, and the *x*-ray report was as follows: "There is definite infiltration about the left middle zone and at the left apex. Probably, too, the right upper lobe can be looked upon as slightly abnormal. But on the whole the chest seems to be but moderately slightly involved with tuberculosis."

The usual explanation of this sort of case is that an old lesion has been suddenly lighted up by an attack of influenza. In the first place, there was no old lesion, and, secondly, there was no influenza. The symptoms could, and there is every reason to believe that in this case they did, arise from the shock of a sudden invasion of the lung parenchyma. This would quite obviously give rise to influenza-like symptoms. On the other hand, a sudden invasion from a bronchial gland would account more satisfactorily for all the details of the case, including the preceding persistent dry cough and the large area so quickly affected. The patient's splendid recovery with the minimum of physical signs remaining also seems to support this view. The final sanatorium report was: "His physical signs—never very well marked since admission—are less than ever."

Since writing the above I have again had this patient under treatment. On April 26th, just over one year since his first illness, he complained of cough, did not feel well, and had a temperature. Examination was completely negative. Four days later there was a sudden invasion of the whole left lower lobe, very similar to that of Case 3. This relapse gives further support to the original diagnosis.

No attempt is made to discuss the controversial question of path of infection, but merely to state clinical facts, as observed over the long period of fifteen years.

Conclusions.

1. Hilus tuberculosis can be demonstrated clinically in a relatively large percentage of children.
2. In spite of much clinical evidence suggesting pulmonary tuberculosis in children actual invasion of the lung parenchyma is relatively rare.
3. The natural tendency in all cases is towards a cure, although in many cases physical signs will remain which, *in adult life, will be regarded as old healed lesions.*
4. Pressure from enlarged bronchial glands can be demonstrated clinically; it has the effect either of restricting the free flow of air into a lung or of interfering with the free circulation of blood in the lungs, and giving rise to localized areas of oedema, rarely to general pulmonary oedema.
5. Rupture of adherent caseous glands into a bronchial tube is a not uncommon cause of pulmonary tuberculosis.

The diminished death rate from pulmonary tuberculosis is probably due mainly to the lessened risk of infection from "open cases" in the homes, and to the more prompt recognition of early cases. It is unlikely that a further appreciable decrease will occur unless a serious attempt is made to deal with the large number of potential cases *before*, not *after*, the lung parenchyma has been invaded by the dreaded tubercle bacilli.

TONSILS AND ADENOIDS: THEIR MEDICAL AND SURGICAL ASPECTS.*

BY

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Introduction.

The subject of "tonsils and adenoids," which has been chosen for discussion to-day, might well be described as a "best-seller," for there is no medical topic which the laity of these islands discuss with more frequency, more verve, and more ignorance than this, not excepting appendicitis itself; while professional *opinion*, always with us in a small trickle, sometimes attains the level of a flood, as witnessed by the spate of letters in the *British Medical Journal* early this year. The subject may be said to have reached its apotheosis with the publication of Irwin Moore's monumental work last year.

For the purposes of this discussion I shall confine my remarks to those conditions produced by chronic sepsis and hyperplasia of these lymphoid masses—that is, to the clinical and pathological conditions generally meant when a patient is said to be suffering from "adenoids and tonsils." Acute conditions and such rarities as calculi of the tonsils will not come within my purview. The palatine tonsils and the third or pharyngeal tonsil, commonly referred to as adenoids, form part of Waldeyer's ring—that group of lymphadenoid tissue in the naso-pharynx and pharynx which surrounds the entrance to the respiratory and alimentary passages.

The function of the tonsils is still *sub judice*; various theories have from time to time been put forward, but it would seem most reasonable to regard them as organs for the defence of the respiratory and digestive tracts during the early years of childhood. As StClair Thomson succinctly puts it:

"The ages in which they are most in evidence, their situation, their structure, the recognized emigration of lymphocytes through their epithelium, their frequent enlargement with an infectious process, the frequency with which, when their resistance is overcome, they appear to be starting-points for infection, their lasting hypertrophy after prolonged or repeated infections, experimental observations which show that they serve as ports of entry for infection and their normal involution at puberty, all appear to confirm this view."

* Read in opening a discussion in the Section of Diseases of Children at the Annual Meeting of the British Medical Association, Manchester, 1929.

When a tonsil becomes chronically hypertrophied or diseased it loses its defensive powers and comes to resemble a choked filter. This is borne out by the greater frequency with which children possessing these hypertrophies contract infectious diseases and the severity of the ear and throat complications in such cases.

It will now be convenient to discuss the question of adenoids and tonsils separately.

ADENOIDS.

When Luschka's tonsil, as the third or pharyngeal tonsil is sometimes called, becomes hypertrophied and gives rise to definite symptoms, adenoids or adenoid vegetations are said to be present.

The precise cause of this hypertrophy is at present unknown, but it may be stated that in most cases it is due to a lowered vital resistance and an exciting or local cause, such as catarrhal attacks or infectious fevers. William Meyer of Copenhagen, in 1868, was the first to recognize this very common affection of childhood. So widespread is it that no climate or race seems exempt, the negro being perhaps the least affected; but there is no doubt that adenoids are more frequent in damp temperate climates like our own; indeed, Osler has stated that there are more mouth-breathers to the acre in England than in any other country. They are most common between the ages of 3 and 14 years, but may be present at birth, and not infrequently produce symptoms during the first year of life, especially among the poorer classes. This is a fact that I should like to emphasize, and to which I first called attention in a paper in the *Lancet* in 1922. The main symptoms produced in the first year of life are nasal obstruction and discharge. The mother complains that the child has to fight for breath, and takes the breast or bottle with difficulty, as the nasal obstruction prevents the infant from breathing and suckling at the same time. If this obstruction is not removed spoon feeding has to be resorted to, otherwise death from inanition takes place. Such infants are liable to convulsions and vomiting. At the Royal Manchester Children's Hospital I operate on between 30 and 40 of these cases every year, with excellent results, many of the infants being only a few weeks old. I have, indeed, operated as early as the third week. In these cases no anaesthetic is required, and this practically eliminates all risk from the operation. Infants stand the operation remarkably well, and are often enjoying a feed within an hour afterwards.

Symptoms.

Symptoms of adenoids in older children vary within wide limits, depending upon the degree of hypertrophy or sepsis present and the capacity and form of the nasopharynx. They may be classified into the following groups.

1. *Nasal Obstruction, often accompanied by a Mucopurulent or Purulent Discharge.*—I have already referred to these symptoms in the infant. In older children, from 3 years onwards, the classical picture is often met with—open mouth, rabbit teeth, receding chin, pinched alae nasi, high arched palate, noisy respiration, snoring at night, vacant expression, the so-called adenoid facies, etc. It must always be remembered that adenoids can be present causing such marked secondary symptoms—for example, aural—that operation is urgently called for, and yet all the above classical symptoms of nasal obstruction may be absent.

2. *Secondary Affections.*—The most common and most important secondary affection is aural, with consequent deafness, suppuration, and possible sequelae. It is no exaggeration to say that 90 per cent. of cases of deafness in children are due to adenoids. So-called "glandular fever"—recurring febrile attacks with swelling and tenderness in the glands of the neck—is due to local infection of the adenoid tissue of Waldeyer's ring, most commonly the pharyngeal tonsil. Other secondary affections are: chronic cervical adenitis (affecting the glands of the posterior triangle of the neck), defective pulmonary expansion, chronic bronchitis, and gastro-intestinal catarrh.

3. *Reflex Neuroses.*—A long list of these could be compiled, but I will give you only those of which I am sure from personal experience: enuresis, night terrors, and twitchings are frequently benefited by the removal of adenoids. In asthma adenoids should always be removed if present, but they form merely a contributory factor in the disease. The same may be said about chorea, laryngismus stridulus, stammering, and convulsions.

4. *Constitutional Changes.*—These may be physical or mental. The physical include high arched palate, projecting teeth, retracted chest, and pigeon-breast; while among the mental changes are those producing the aprosexia of Guye.

Diagnosis.

The diagnosis of adenoids is usually quite easy. In older children posterior rhinoscopy will reveal the growth in many cases. In younger children, and in those cases in which posterior rhinoscopy is impossible, it may be necessary to palpate the nasopharynx with the index finger; but this is a very disagreeable procedure for the patient, and should only be resorted to when really necessary.

If there are evidences of nasal obstruction in a child, and the examination of the nose and pharynx does not explain it, the presence of adenoids can be assumed as a rule. The other conditions which may simulate adenoids are a naso-antral polypus and a nasopharyngeal fibroma in its early stage.

In infants, when adenoids are strongly suspected, after excluding syphilis, it is my practice to introduce a small cage curette into the nasopharynx, without general anaesthesia. If adenoids are present they are removed. If the nasopharynx is free no harm is done. It must be borne in mind that in the Mongol type of idiot nasal obstruction is frequently present with but a trifling amount of adenoids. As these patients are bad subjects for an operation, I usually leave them alone, unless a very strong case is presented.

Treatment.

If adenoid vegetations are present in sufficient bulk, or are sufficiently septic, to cause any of the cardinal symptoms referred to, in my opinion only one form of treatment at present exists—that is, surgical removal. All palliative treatment is useless, and some forms, such as nose drill, worse than useless.

The best instrument to employ, and one that is used by the majority of surgeons, is StClair Thomson's cage curette, by means of which the adenoid mass is removed in one entire piece. Any lateral prolongations which may not have been included in the sweep of the cage curette are planed down with a simple Gottstein's instrument. The La Force adenotome is much used in America and on the Continent, and has a warm advocate in this country in Dr. Pearce Sturm. I have given this instrument a fair trial, but in my hands it has not proved satisfactory. A point to keep in mind is that the cutting blade of the cage curette should have a sharp edge.

As regards haemorrhage after the removal of adenoids: immediate bleeding is usually very brisk, but as a rule ceases within a few minutes; freely bathing the face and forehead in cold water greatly assists in diminishing this. If the bleeding persists search should be made, under good illumination, for a tag of lymphoid tissue which may have been left behind. This is the most common cause of immediate excessive haemorrhage. Should the bleeding still persist after the removal of a tag, or should no tag be present, a swab of suitable size should be squeezed out of liquid hydrogen peroxide and introduced into the nasopharynx by StClair Thomson's forceps and pressure made for a few minutes. This, in my experience, together with the administration of haemoplastin, is invariably successful, except in the case of a genuine bleeder. Since Dr. Lowndes Yates published his interesting investigations in regard to the relationship of blood-clotting time and the acidity of blood and urine, it has been my practice to give all my patients a course of sodium bicarbonate before operation.

True secondary haemorrhage is rare. I have had two cases in my own practice. One was a hospital patient who had been operated upon and returned home. Her own doctor telephoned to me on the fifth day to say that he had been summoned in the middle of the night for nose-bleeding, and had plugged the nasopharynx and nose. She was readmitted to hospital, but no further bleeding occurred. The other was a very marasmic infant of under 2 months,

who was so badly obstructed that nourishment was taken with the greatest difficulty. This infant was under the care of my colleague Dr. Heywood. On the fourth day after operation attacks of vomiting with blood in the vomit occurred, and death soon supervened. I did not see the patient myself, but death was attributed to secondary haemorrhage from the nasopharynx.

One other fatality from post-operative haemorrhage I have had, making two in all, and I have operated upon well over 12,000 cases. In this case death occurred about eleven hours after operation. I was not notified of the boy's condition until about forty minutes before death took place, and when I reached him he was moribund.

The results following removal of adenoids in suitable cases, especially in cases of nasal obstruction or aural symptoms, can only be described as extremely good. I think that there is no other surgical operation in which results are more promptly beneficial and of such far-reaching effect upon the health of the patient.

Do adenoids recur? The answer is Yes, in a small percentage of cases. Irwin Moore says that statistics show that, if thoroughly removed, there is a tendency to recur in about 10 per cent. of cases. Many cases of so-called recurrence are really cases of inefficient removal, but after these have been allowed for there still remains about 10 per cent. in which recurrences will occur in spite of the most efficient removal. Not only have I seen such recurrences in my own practice, but also some in the practice of well-known colleagues in different parts of the country.

Tonsils.

The indications for tonsillectomy may be set forth as follows:

1. Any interference, night or day, with respiration or with speech.

2. Chronic enlargement of the cervical glands. This may be due to chronic sepsis of the tonsils or to tubercle. The incidence of tubercle in tonsils which have the clinical appearance merely of chronic hypertrophy and inflammation has been studied at various times by different observers with results varying from 0.3 to 9 per cent. Scarff and Whitby give this incidence as 3 per cent.

The question sometimes arises: Should the tonsils be enucleated first and the glands dissected out afterwards, or vice versa? In all cases in which it is possible it seems to me that the tonsils should be dealt with first and the original focus thus removed; but whenever the glands show signs of softening they should be dealt with first, thus making sure of a good scar in the neck; for, as you well know, it sometimes happens that directly after enucleation of septic tonsils, the neck glands break down or suppurate.

3. Recurrent sore throats due to frequent attacks of tonsillar inflammation or peritonsillar abscess.

4. Systemic infections attributable to a *focus in the tonsil*, such as rheumatism, irritable hearts, chronic ill health, and occasionally a rare toxaemia, such as that of the labyrinth.

5. Chronic lacunar tonsillitis, or "cheesy" collections in the supratonsillar fossa or between the tonsil and the pillars. These give rise to foul breath, a bad taste in the mouth, and pharyngeal irritation. This latter condition sometimes produces persistent fits of paroxysmal coughing.

6. In diphtheria "carriers" when the infection is persistent. These cases have not been common in my experience, but I have enucleated tonsils on at least three occasions when positive swabs had been returned for some months after the original infection, in each case with satisfactory results.

Diagnosis of Septic Tonsils.

And now as regards the diagnosis of chronic sepsis in the tonsils. The first point to mark is that the size of a tonsil is no guide to its septicity; indeed, small tonsils are often the worst offenders. It is often difficult to decide whether a given tonsil is really septic, and not infrequently the clinical signs are meagre.

The tonsil should be squeezed by pressing against the anterior faucial pillar with the end of a tongue depressor, so as to force out the contents of the crypts. Pus is sometimes made evident by this means. The anterior pillar of the fauces should be pulled forward with a blunt hook and the supratonsillar fossa examined by the same means. Cheesy secretions may thus be discovered. The tonsillar glands in the neck at the angle of the jaw should always be searched for, and frequently will be found. Chevalier Jackson and Davy-Smith have called attention to the presence of a narrow vertical red line of congestion, occupying, and limited to, the anterior surface of the entire length of the anterior faucial pillar. They have found this to be an important and distinguishing feature of a focal streptococcal infection. My own experience confirms this view.

Recently much work has been done on the tonsil puncture method of investigation, but of this I have little experience. The method promises to be useful in certain cases as a help in diagnosis, but my personal preference is always for a diagnosis on clinical grounds if possible. In those cases in which positive clinical signs of tonsillar sepsis may be doubtful and yet a definite condition due to focal infection, such as rheumatism, irritable heart, etc., is present, it is my practice to operate, after trying to eliminate all other possible foci, such as dental, nasal, etc.

Before leaving this part of the subject there is just one other point to consider. Many, indeed I think most, throat surgeons advocate the removal of tonsils as a routine measure in all cases in which an operation for the removal of adenoids is to be performed. This I do not quite agree with. It is true that in the great majority of such cases the tonsils are definitely diseased, or at least suspicious; but there remain a certain number in which, while the adenoids are causing definite symptoms, none can be attributable to the tonsils, and these bodies themselves present a perfectly innocent appearance—for example, cases of aural disease due to adenoids in which the tonsils are small, healthy-looking, and causing no symptoms. In such cases I remove the adenoids alone, for if the tonsils are not diseased we must presume, in the light of present knowledge, that they subserve a useful function, at any rate in childhood.

Tonsillectomy.

We now come to the operation of tonsillectomy, or the total enucleation of the tonsil in its capsule. Two methods are in use: (1) by means of the guillotine; (2) by dissection.

The method of dissection was popularized in this country by Waugh in 1909, and for a few years he had many ardent followers, but at the present time I would say that the majority of laryngologists prefer the guillotine, at any rate for routine cases. Personally, I am quite convinced that the guillotine method, in expert hands, is the safest, being, as a rule, a much shorter operation, and it is equally efficient. Moreover, more cases can be dealt with in a given time. As performed by many of its advocates the dissection operation requires a degree of anaesthesia so profound that it cannot be free from anxiety, and in some cases in which the operator also believes in ligaturing every bleeding point a very considerable period of time may be taken. This at once places the operation as a major instead of a minor one as regards risk. I am also quite sure that the ultimate results of the dissection method are no better than those of the guillotine. In efficient hands complete enucleation can be accomplished by either method and the result will be the same. In inefficient hands both methods may result in failure. Again, both the efficient guillotinist and the efficient dissector will occasionally have an imperfect result, as I have observed, not only in cases of my own, but in those of my colleagues in this and other towns.

Briefly, the case for the guillotine may be stated as an efficient removal of tonsils by a simple, short operation, entailing less risk, less discomfort, and a shorter convalescence than does the dissection method. The type of guillotine used is a matter of personal choice. Heath's is my fancy, and just recently I have tried the Popper-Heath modification with every satisfaction, the serrated portion of the inner ring margin of the head effectively anchoring the tonsil. Others prefer the scissor-handled O'Malley or Ballinger, and of late the crushing instrument of La Force has produced warm advocates.

The main contention of La Force is that the operation is rendered nearly bloodless in the majority of cases, but

there is, of course, no guarantee that both late primary and secondary haemorrhages may not follow its use. Macnab states that after a considerable experience of this instrument both primary and secondary haemorrhages were more frequent than with the single-bladed instrument, and others have also discarded its use after a fair trial. My own view is that it is not nearly so precise or efficient an instrument to manipulate, and that in the vast majority of my own cases I find little difficulty in confining haemorrhage to a minimum. In those cases in which haemorrhage is really troublesome it is very questionable whether a crushing instrument would be of help.

The dissection operation is now reserved by most laryngologists for special cases in which enucleation by the guillotine may seem to present difficulties, but I venture to say that the more one uses the guillotine, and the more expert one becomes, the less does one dissect.

Haemorrhage.

Bleeding is brisk for thirty to sixty seconds, but usually ceases spontaneously if the patient's neck and face are freely bathed in cold water. If this does not suffice, pressure should be applied to the tonsil bed for a minute or two by means of a swab on a holder, and if in three or four minutes bleeding is still free a swab squeezed out of hydrogen peroxide should be applied and pressure maintained for a further few minutes. In the vast majority of cases this will suffice, but in a few (about 1/2 per cent.) further pressure with a swab squeezed out of adrenaline will be needed, at the same time haemoplastin being given subcutaneously.

Beyond this I have had to go on only four occasions. Twice I have ligated a refractory artery of unusual size, situated in both cases at the upper pole of the tonsil bed, and twice I have left pressure forceps on the bleeding point for two or three hours after operation. Some laryngologists advocate the ligature of all bleeding points at every operation. This is a tedious business and considerably lengthens the time of the operation; moreover, it is not an infallible method of stopping haemorrhage, as ligatures have been known to slip, with subsequent severe haemorrhage after the surgeon has left. Many ingenious instruments have been invented for suturing together the pillars of the fauces in cases of severe haemorrhage. It is not a method which appeals to me, and I have never come across a case requiring such drastic treatment.

The surgeon may be called upon to deal with haemorrhage, more or less severe, a few hours after operation. In those cases the tonsil bed is filled with a large clot under which bleeding is taking place. After clearing away the clot, pressure, with the help of hydrogen peroxide or adrenaline, and the hypodermic administration of haemoplastin, has, in my experience, always been effectual in stopping it.

Fatalities.

I have operated on well over 12,000 cases of adenoids and tonsils with two fatalities. These cases, due to post-operative haemorrhage after the removal of adenoids, I have already referred to.

In the records of the Royal Manchester Children's Hospital for the last sixteen years—that is, the period during which I have been on the staff—I can only find a further three deaths following this operation. One patient died from the effects of post-operative haemorrhage, one from tuberculous meningitis. Neither of these cases did I personally see. The third died from sepsis after being operated upon by a medical officer at the out-patient department. A fourth case in which death might possibly be attributed to the operation was that of a mentally defective child at the Children's Hospital. This child, seemingly perfectly fit in every way, collapsed suddenly and died from heart failure three days after operation. A history of diphtheria some two or three months previously was elicited. So that in a period of sixteen years, 1913-28, there was a total of five, or at most six, fatalities following the operation for tonsils and adenoids at the Royal Manchester Children's Hospital. During this period over 27,000 such operations were performed.

As to the ultimate results of the operation I have no figures of my own to give.

In general terms it may be said that if the tonsils are efficiently enucleated the results, as regards the indications for operation I have enumerated, with the exception of chronic enlargement of cervical glands and systemic infections, are excellent, the condition being cured in nearly 100 per cent. of cases. In those cases in which a cure is not obtained it will be found that tonsillar tissue has been left behind.

MATERNAL MORTALITY.*

BY

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DURING the year 1928 there were 676 maternal deaths in Scotland, representing a rate of 7 per 1,000 births, as compared with an average of 6.4 for the preceding ten years. Of these 676 deaths, 234, or 2.4 per 1,000 births, were ascribed to puerperal sepsis.

A preliminary basis for the discussion on maternal mortality may conveniently be found in the conclusions arrived at from the special investigation into a total of 252 maternal deaths occurring in Aberdeen (1928) during the ten years 1918-27—namely:

1. The analysis of the records of maternal deaths in Aberdeen over a period of ten years, as obtained by means of a special system of inquiry, has not revealed any definite relationship between environmental conditions and puerperal mortality. Thus, in turn, puerperal mortality in relation to cleanliness of house, size of house, crowdedness of house, and to congested areas, has been examined, and no significant association of any of these conditions with puerperal mortality has been ascertained.

2. Similarly, the influence on maternal mortality of more personal factors, such as age of the mother, illegitimacy, occupation of the mother, habits of the mother, health of the mother before and during pregnancy, stillbirths and syphilis, and sequence of pregnancies, has been examined, with results that confirm generally existing views as to the influence of these various factors on maternal mortality.

3. The comparative maternal death rates from all causes and for the separate causes of death in the practices of doctor, midwife, district, and institution have been analysed, the factor of selection being eliminated by transferring the case back to the original doctor or midwife in charge of the case, and it has been found that the death rate per 1,000 maternity cases is 2.8 in the practice of midwives, 6.9 in the practice of doctors, and 14.9 in in-patient institutional practice.

4. The evidence indicates that, in so far as midwife cases are concerned, the application of midwifery forceps has no prejudicial effect on the mother.

5. Statistical evidence has been obtained of the reduction in maternal mortality which accrues from the provision of ante-natal services.

6. There is reason to believe that the high incidence of puerperal sepsis in maternity institutions in Aberdeen is due to contagion.

7. The view is advanced that the higher incidence of puerperal sepsis in the practice of doctors as contrasted with that of midwives is also due to contagion, being dependent in considerable part on a streptococcal carrier condition in doctors.

8. It has been shown conclusively that the *Streptococcus haemolyticus* plays by far the most important part in the causation of puerperal sepsis.

9. It has again been demonstrated that the same type of haemolytic streptococcus can on occasion produce puerperal fever, scarlet fever, erysipelas, and pyogenic infections.

10. The evidence goes to show that an expansion and improvement of ante-natal services will result in an important reduction in maternal mortality.

11. The evidence supports the view that the development of a new midwifery organization in which midwives conduct all normal deliveries, and in which doctors provide the ante-natal services and deal with obstetrical complications, will result in a significant reduction in puerperal mortality.

12. It has been shown that if the risk of contagion in maternity hospitals is to be restricted, then the number of patients and their spacing in the wards must be rigorously controlled.

* The opening paper of a discussion in the Section of Public Health at the Annual Meeting of the British Medical Association, Manchester, 1929.

13. So far as the specific prophylaxis of puerperal fever is concerned, it has been shown that while the exotoxins of the streptococci causing puerperal sepsis can be neutralized by any monovalent streptococcal antitoxin, the destruction of the organisms is only likely to be secured by the production of a type (serological) specific antibacterial serum.

Prevention.

The thesis is submitted, therefore, that in so far as the prevention of maternal mortality is concerned, and within the limits of our present knowledge, a significant reduction in maternal mortality would be immediately attained by (*a*) an extension of adequate ante-natal services, and (*b*) the institution of a new midwife-doctor combination as above defined (paragraph 11).

Diagnosis.

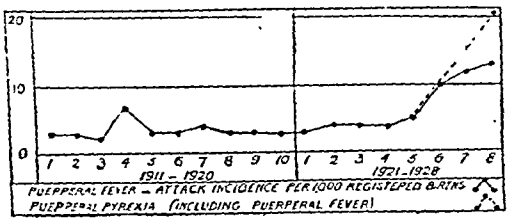
With reference to the bacteriological diagnosis of puerperal fever, confusion has resulted from the wealth of bacteriological data relating to the complexity of the flora of the genital tract (1928). It is admitted that there is a great variety of organisms in the genital tract at the time of the puerperium, and that puerperal sepsis is not necessarily associated with streptococcal infection. The point that matters, however, is that the serious forms of puerperal sepsis, and certainly some 90 per cent. of the deaths from sepsis, are due to infection with haemolytic streptococci. If serious morbidity and death from puerperal sepsis is to be countered, therefore, the essential is to concentrate on the haemolytic streptococcus.

Treatment.

Prevention and treatment cannot properly be considered separately, since adequate ante-natal treatment prevents maternal deaths in general, and since the early treatment of puerperal sepsis involves isolation and the prevention of further cases of sepsis by contagion.

In so far as treatment may lead to the prevention of serious morbidity and mortality from sepsis, the first essential is early recognition of the infection, and to this end puerperal pyrexia has been made notifiable in England, and is in process of being made notifiable in Scotland. Up to the present time the vast mass of cases of puerperal fever receive comprehensive treatment only when the disease is so advanced that the prospect of recovery is remote.

In this connexion the advantages of the notification of puerperal pyrexia can be seen from the following chart, wherein the figures of pyrexia notifications have been analysed and those attributable to sepsis added to the puerperal fever notifications.



The chart shows that during the four years 1925-28, during which pyrexia has been notifiable, the elicited incidence of puerperal fever has increased from an average of 3 per 1,000 births prior to 1925 to 12 per 1,000 births in 1928. It will generally be conceded that such increasingly early diagnosis of puerperal sepsis is bound to have a profound effect on the efficacy of treatment. From the clinical point of view the valuable results obtained by Remington Hobbs (1927) with reference to glycerin drainage of the uterus are noted.

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A MODIFICATION OF LAGRANGE'S OPERATION.*

BY

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Fifteen years ago, at the historical meeting of the British Medical Association in Aberdeen, it was my privilege to see a very interesting specimen, shown by Mr. Hill Griffith, of an eye that had been excised on account of late infection following trephining by Elliot's method. The details of that case are to be found in the *Journal* of the Association (1914, vol. ii, p. 389). They left a rather profound impression on my mind. Here was a perfectly good operation—and, after all, no fistulization operation has found greater favour with the ophthalmological world than has Elliot's—performed by a perfectly good operator, and yet it was followed by late infection that necessitated removal of the eyeball. In those days I was not in a position to do any operations for glaucoma on the living human subject, but when, a few years later, my opportunity occurred, it struck me that, after all, it was not so surprising that late infection should occur in cases of corneo-scleral trephining, because the membranous covering of the fistula must essentially be rather tenuous and flimsy if that fistula be situated at the corneo-scleral margin. Obviously, therefore, a fistulization operation, to be reasonably safeguarded against late infection, must provide for a membranous covering in the region of the fistula sufficiently thick and impermeable by micro-organisms or their toxins to prevent the occurrence of an iritis, or at any rate of a septic irido-cyclitis. Now I should like to state at the outset that it is not my intention to criticize Elliot's operation for glaucoma, nor yet to describe a new operation for that disease. Most ophthalmologists are conversant with all the operative procedures for glaucoma (and their number is legion), and have had successful results with any or all of them. The methods of Young, Holth, Herbert, Heine, Bentzen, and others have been described elsewhere, and have found, no doubt, their staunch adherents. I merely desire to describe a modification of an operation advocated by one of the greatest protagonists of sclerectomy—namely, Lagrange—which seems to me easier to perform than the operation he describes, and to yield results quite as successful as those which he claims.

Every ophthalmologist knows well the procedure of Lagrange's operation for glaucoma. Those who were present at the Oxford Ophthalmological Congress of 1927 listened with rapt attention to his address and never doubted his statement that "we have never seen late infection." The only drawback to his operation is the technical difficulty of its performance. Whitehead of Leeds alludes to this in his contribution to the discussion on the results of operative treatment of glaucoma. Besides, it will surely be conceded that the size of the scleral wound which Lagrange employed is out of all proportion to the needs of the case. As many other operators have shown, a sufficient piece of sclera can be excised from the lip of a wound made with a small keratome and the trauma to the scleral envelope correspondingly diminished.

The modification of the operation which I beg to submit is as follows:

Conjunctiva and subconjunctival tissue are grasped with forceps at a point 6 or 7 mm. above the limbus, and divided with straight-pointed scissors. The capsule of Tenon, if prolonged as far forward as this, should be divided likewise in order to secure the thickest possible covering for the fistulous track. This composite sheet of tissue, composed of the three layers named, is then cut with the scissors by means of a curved incision running concentrically with the limbus (more or less as in Elliot's operation), the total length of this incision being about 1.5 or 2 cm. It is then reflected downwards in the direction of the limbus by easy dissection until we get to within 1.5 or 2 mm. distance of the corneo-scleral margin, when the scissors are laid down. The flap should not be grasped by forceps, but simply kept out of the way by

* A paper read in the Section of Ophthalmology at the Annual Meeting of the British Medical Association, Manchester, 1929.

means of moist cotton-wool swabs. A Took's corneal-splitting knife should then be taken, and with it a groove cut in between the layers of the scleral substance itself at a distance of 2 to 2.5 mm. from the limbus. It is neither necessary nor advisable to cut deeply with this splitter, but merely enough to make a small furrow running parallel with the limbus (corresponding to that between finger and a closely pared nail). Into this furrow a keratome is inserted and pushed downwards into the anterior chamber in much the same way as Heine does in his operation of cyclo-dialysis, except that the incision should be about 3 or even 4 mm. from end to end. The keratome should then be withdrawn as rapidly as possible. If this is done with sufficient speed very little aqueous is lost. The anterior lip of the scleral wound can now easily be gripped with Elliot's disc forceps and a small piece exsected (like the paring of a finger-nail) by means of de Weckers's scissors. By this time very probably a small portion of the iris, close to its root, has prolapsed into the wound, and this is excised, a strictly peripheral iridectomy being aimed at. If the operator has been successful in his efforts thus far he will have lost little aqueous and still have an uncollapsed anterior chamber. He should then gently stroke the conjunctival flap upwards, and by gently pressing on the corneal surface of the limbus in the region of the iridectomy with a spatula he can cause the whole iris to resume its normal relationships, excepting only for the peripheral iridectomy. The conjunctival flap is then secured with one stitch. Should the iris not have prolapsed of its own accord, then its periphery should be gently withdrawn with iris forceps and a pinhole iridectomy performed. In this case more aqueous will undoubtedly be lost, but it should still be possible to complete the operation without causing complete collapse of the anterior chamber. If the iridectomy is a purely peripheral one there should be no necessity to poke an iris repositor into the wound, with consequent increase in the loss of aqueous, as the iris can practically always be caused to resume its proper position in the way indicated above—namely, by stroking the *surface* of the limbus and adjoining cornea with a spatula in the region of the iridectomy.

I am not so foolish as to claim that this operation is unattended by drawbacks. Chief amongst these is that, seeing the episcleral tissues are cut right down to the substance of the sclera itself and then stripped off this membrane, episcleral vessels, sometimes of relatively considerable size, are almost certain to be severed, and may cause troublesome bleeding. They can, however, be picked up with fine (toothed) conjunctival forceps and the haemorrhage stopped by torsion of the proximal end of the vessel.

In other respects, I have found this operation no more difficult and not more frequently attended by complications in the performance than is Elliot's, and it is less "tricky" and demands less skill in its execution than does Lagrange's. The advantages I claim for it are, roughly, as follows.

1. It is possible to do this operation with the minimum disturbance of the intraocular structures and the minimum risk of intraocular haemorrhage. Cases of acute or congestive glaucoma with shallow anterior chamber should be treated beforehand with myotics and Duke-Elder's method of administering hypertonic saline intravenously. The operation can then, say a week later, be performed as on an uninflamed eye.

2. In a large proportion of cases it is possible to do the operation without causing the anterior chamber to collapse completely. The valve-like nature of the fistula (as opposed to the rigid circular foramen obtained by trephining) is of great assistance in this respect. The advantages of maintaining a sufficient depth of aqueous fluid between the cornea on the one side and the iris and lens on the other need not be stressed here, because they are sufficiently obvious to any operator of experience. But I may say that restoration of the anterior chamber to its normal depth follows, on the average, in from forty-eight to seventy-two hours.

3. The thickness of the membranous covering of the fistula is a more efficient safeguard against late infection than it is possible to secure in cases of corneo-scleral trephining, because in the latter operation little more than conjunctiva *per se* covers the fistula, whereas, in the operation I have described, the fistulous track is covered by conjunctiva, subconjunctival tissue, and Tenon's capsule. The fistulous orifice, moreover, is situated not at the corneo-scleral margin, but at a distance of 2 mm. or even more from it. That the protection from late infection is efficient, I have, in my own mind, little doubt. One of my cases, with very free filtration, had the misfortune to develop an attack of acute diplo-bacillary conjunctivitis about six months after operation. This attack passed off without being followed by any sign of iris irritation whatsoever (as observed with the slit-lamp, etc.).

4. Should, for any reason, a fibrosis ensue on this operation (as indeed may follow on any form of sclerectomy), a repetition of the operation may be performed without detriment. I have performed the operation successfully, and without difficulty, in a case in which a wide iridectomy had already been done for glaucoma, with insufficient results in the long run. A larger piece of sclera will, of course, have to be excised, but the previous history of the case will guide one in this respect.

In conclusion, I may perhaps be permitted to refer to a case in which this oper[illegible]ith other methods, was followed by

A married woman, aged 56, was seen by me in consultation with her medical attendant on the afternoon of March 14th, 1929. The presence of acute glaucoma in both eyes had already been diagnosed by her doctor, and the vision in the better eye (the left one) was no better than perception of hand movements, whilst that in the other eye was bare perception of light. She was admitted to the Eye and Ear Hospital, Bradford, a few hours later, and drops containing eserine 1 per cent., pilocarpine 2 per cent., and dionine 5 per cent. were instilled half-hourly, and, some five hours after I first saw her, 30 c.cm. of 30 per cent. aqueous solution of sodium chloride were administered intravenously according to the method of Duke-Elder. Next day the pupils were pin-point, and the patient was able to distinguish people at her bedside with her better eye, although the vision of the worse one (the right) was barely improved. Three days later the fields were, with a 5 mm. test object, as charted, and the vision of the right eye had improved to 6/60, and that of the left eye to 6/9. On March 21st the operation I have described was performed on the left eye, and on March 29th the patient was discharged from hospital, as she wanted to get home before her right eye was operated on. On April 17th she was readmitted to hospital, and the next day the right eye was operated on in the manner I have described. On May 11th the fields were, with a 5 mm. test object, as charted, and

V.R. with $-4\bigcirc -0.5 \downarrow 90°$ equalled 6/18;
V.L. with $-0.5 \downarrow 90°$ equalled 6/6.

ACUTE INTESTINAL OBSTRUCTION.

BY

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IN presenting for publication a review of 130 cases of intestinal obstruction which have been operated on by me, it is fitting that I should acknowledge the courteously given permission to make use of cases which I operated on whilst acting as surgical registrar to Sir Hugh Rigby, Mr. James Sherren, Mr. Russell Howard, Mr. Hugh Lett, Mr. A. J. Walton, Mr. Robert Milne, Mr. H. S. Souttar, Mr. E. C. Lindsay, Mr. W. S. Perrin, and Mr. G. E. Nelgan, all of the surgical staff of the London Hospital.

Surgical lectures and papers on the subject frequently end on a wailing note, as though the summit of knowledge and of technique had been achieved. It is suggested that the existing high mortality is all due to late diagnosis, and that the technique of treatment had reached finality. With this generalized conclusion we venture to disagree. As surgeons it is absurd for us to ask that all our work should be easy child's play. When we are still ignorant of so important a subject as the nature of toxaemia in obstruction it is presumption to assume that the technique of treatment is final. No one who has seen much of intestinal obstruction can fail to be impressed with the fact that some of the most desperate cases survive whilst some apparently trivial cases die. In the former it would seem that by a happy chance appropriate measures were taken, and in the latter that over-confidence led to the omission of some such measure as intestinal drainage, which may be called for as an afterthought in less timely circumstances than at the primary intervention. The cases reviewed are consecutive, and it has not been the practice to refuse operation to any patient who was not actually moribund. No patient who was refused operation lived more than two hours.

It is apparent that the comparatively low mortality in external hernia may be justly attributed to the ease with

which diagnosis is made. It is also probable that the propinquity of low intestinal coils to the usual hernial orifices, more particularly when the right side is involved, makes low obstruction likely, and means a later onset of the

	Cases.	Died.	Mortality per cent.
Strangulated external hernia	57	6	10 4
Obstruction to small intestine by adhesions, bands, foreign bodies, internal hernia, etc.	30	8	27 0
Intus-susception	20	6	30 0
Carcinoma of large bowel	20	6	30.0
Volvulus of large bowel	3	2	66 6
Total	130	28	21 5

toxaemia.[1] Twenty-three were cases of inguinal hernia, of which 3 died; 25 were femoral, with 2 deaths; and 9 were umbilical, with 1 death.

Of this group of cases, 8 demanded measures to deal with damaged bowel. In one case infolding of the damaged area was possible. In another, a two-stage resection of small intestine was successfully borne, and in 6 cases immediate resection and anastomosis was done; of these 5 died. This high mortality was, in our opinion, due to over-conservative resections, and to a failure at the outset to appreciate the need for intestinal drainage when resections of obstructed intestine were done. Of the 49 cases in which gut was deemed to be viable, one died.

The 30 cases of small intestine obstruction show 8 deaths. The series of cases shows a very marked improvement in results since two modifications in technique were adopted—spinal anaesthesia with neocain, and the addition of a jejunostomy in all cases where distension was extreme, or in which vomiting was a marked feature. At about the time that these measures were adopted greater emphasis on the need for saline administration was also made, and it is possible that this has played an important part. Before the change 18 cases included 7 deaths; since it, 10 cases included one death, in a patient so ill that a jejunostomy alone was attempted.

Twenty-two cases of large gut carcinoma are included; of these, 10 were situated in the sigmoid region, and 6 of these were operable growths. The practice has been to do a laparotomy under spinal anaesthesia; if the growth is operable caecostomy is done, and an attempt is made to resect the growth some ten days later. The "blind caecostomy" has not been done for the following reasons: (1) because a volvulus or strangulation is not likely to be benefited thereby; (2) because an inoperable growth will demand a more satisfactory permanent operation than a caecostomy can ever prove. The caecostomy is always made with a one-third to a one-half inch rubber tube inserted in just the same way as is a tube in the Senn gastrostomy. It has always closed spontaneously when the tube is removed. Usually there is no leakage at all.

Of these 6 operable cases, 5 have withstood the second stage of the operation successfully. One died of a pulmonary embolus the day before the second stage was to be done. In addition, one patient with carcinoma of the rectum was subsequently resected, and is now alive and well, eighteen months after the operation.

Twenty cases of intussusception have been treated; of these, a sausage-shaped tumour was palpable before the administration of an anaesthetic in 18, and in all 20 it was palpable under the anaesthetic. There have been 6 deaths. The average duration of operation for cases which did not need resection was twelve and a half minutes. Three cases were irreducible, and were resected: all three patients died, aged 4, 6, and 5 months. The remaining 3 deaths were due to (1) shock following a second operation for eventration; (2) shock in a baby of 7 months, in whom reduction had been extremely difficult; (3) an unexplained death, a week after operation, in a baby of 20 months, who had had a lax intussusception, which permitted the passage of some faeces, for 120 hours; reduction was so easy that operation took but seven minutes, and convalescence appeared to be normal until the morning of death.

Three cases of volvulus were treated; two were of the sigmoid about its base, one of the transverse and ascending colon about an axis formed by a long mesentery to the ascending colon, and aided by adhesion of the omentum to an abdominal scar. The latter patient recovered after untwisting and fixation of the colon. The two sigmoid cases died, one survived excision of the gangrenous loop with the insertion of Paul's tubes into the divided ends; three weeks later he developed small gut obstruction from adhesions, from which he died. The other died unexpectedly after the untwisting of a volvulus of a few hours' duration.

In addition to the above cases, two cases of enterospasm are mentioned, though not included in the statistics. Both simulated, and in fact were, cases of acute small gut obstruction. Both were explored under spinal anaesthesia, which, in these cases, did not at once relax the spasm. Both recovered.

Diagnosis of Intestinal Obstruction.

Intestinal obstruction being a symptom common to many pathological derangements, its diagnosis should rest upon the answer to a simple question. Certain volumes find their way into the intestinal lumen—namely, ingested food, fluids, and gases, *plus* fluids and gases which are poured into the lumen as glandular secretions and from the processes of fermentation. Healthy life demands that these volumes should leave the intestine at as great a rate as they enter. Some leave by being absorbed—for example, water, salts, nutriment. Others, faeces and gases, must be passed from the body.

The common teaching that the signs of obstruction include vomiting and absolute constipation passes over many serious cases of obstruction. The answer to the question, Is the intestine dealing adequately with its fluid content? implies a diagnosis between the absence or presence of obstruction. Failure to appreciate the fact that intestinal obstruction is consistent with the passage of some flatus and faeces leads to dangerous delays. Unless this fact is appreciated, the use of the diagnostic enema becomes a danger.

An illustrative parallel may be found in the diagnosis of retention of urine. It would be as accurate to state that a patient has no urinary obstruction because he has overflow incontinence as to claim that the passage of a small stool or of flatus negatived the diagnosis of obstruction. If the value of the trial enema is to benefit the patient its result must be measured by immediate improvement in all the signs and symptoms which have led to the suspicion of organic obstruction, and not, as is so frequently done at present, by an optimistic nurse's "good result."

Difficulties in the diagnosis of intestinal obstruction arise very infrequently when the cause is dramatic, as it is in volvulus, hernial strangulation, carcinoma, etc. They arise most frequently in patients recovering from peritonitis, from operations, and suffering from gall-stone ileus. We have found help in recalling that bands of adhesion firm enough to obstruct the intestine mechanically take some days to form. Distension and vomiting early in convalescence may justly be attributed to peritonitis or to internal hernia. After the fifth day they are probably due to bands of adhesions.

Anaesthesia.

General anaesthesia has special dangers in these cases. One mouthful of inspired vomit may readily seal the patient's fate, so that if general anaesthesia is to be employed passage of a stomach tube is an essential feature of the preparation for operation.

Spinal anaesthesia may be regarded as rather more dangerous than ether in ordinary cases. In obstruction the facilities that it grants to both patient and surgeon more than counterbalance its disadvantages. The relaxed abdominal wall, with the ease in exploration and suture which it gives, and the absence of the risk of aspiration of vomit, are advantages which directly benefit the patient. We are firmly convinced that the risk of spinal anaesthesia in intestinal obstruction is far less than that of inhalation anaesthesia of any kind.

The performance of caecostomy and of jejunostomy in obstructed patients is one of the questions in the surgery of intestinal obstruction which are still very much to the

fore. These two simple operations possess the common advantage that they relieve the obstruction. Another advantage which they possess is that they may be done under infiltration anaesthesia painlessly and with facility, and that an already poisoned patient is not submitted to the risks of a larger procedure, a narcotic drug, or the severe fall of blood pressure which is the occasional danger of spinal anaesthesia. In passing, we may remark that drugs such as strychnine, caffeine, and more recently ephedrine, do much to combat this fall. The disadvantage which is again common to both is that conditions endangering the vitality of a loop of gut cannot be benefited. A strangulation, a volvulus, an intussusception, or a Richter's hernia cannot always be diagnosed before operation. Jejunostomy is valuable in small intestine obstruction: first, as a method applicable in desperately ill patients, who will stand nothing more; secondly, and chiefly, as a supplement in all cases with severe distension. It is made with a catheter (No. 12), and, provided that it is infolded in the wall of the gut by the Witzel method, and also that the catheter is passed through a washer of omentum, it will close spontaneously when the catheter is withdrawn.

Help is given by the character of the peritoneal fluid. We have found that in every case of obstruction which we have explored peritoneal fluid is present to excess. In every case in which the vitality of a loop of gut within the abdomen was compromised this fluid has been blood-stained. If, then, in attempting a "blind caecostomy" or a "blind jejunostomy" the peritoneal fluid is bloody, it should act as a warning that exploration on a wider basis is imperative. It is probable that in strangulation of an internal hernia the blood-stained fluid will be found in the sac, and not free in the peritoneal cavity. This type of case will defeat the object of the "blind jejunostomy."

We may state that, so far, we practise spinal anaesthesia and a wide exploration as routine methods, reserving jejunostomy alone for the desperately ill, and as an adjuvant to the primary operation. Caecostomy alone is reserved for the obstruction whose site and nature and operability may be regarded as known. This narrows the field for "blind caecostomy" very considerably.

TOXAEMIA IN OBSTRUCTION.

It is sometimes assumed that all cases of intestinal obstruction exhibit well-marked toxaemia; this is rather far from being the fact. It is rare for a case of a large gut obstruction which is not associated with interference with the blood supply of a portion of intestine to show any evidence of toxaemia.[2] The majority of cases where there is obstruction in the lower reaches of the small intestine do not exhibit toxaemia until distension has reached the upper coils of intestine; or, in other words, the onset of regurgitant vomiting and of evidence of toxaemia are usually coincident. A clinical exception to this is that nearly all cases of strangulation of intestine exhibit toxaemia in disproportion to the degree to which the upper reaches of intestine are distended. On the clinical side it seems clear that toxaemia as a cause of death from obstruction does not enter into the picture until distension and vomiting have made their appearance; or in cases where there is a closed loop of intestine with interference with its blood supply. Amplifying this fact somewhat, the toxaemia, whatever it may be, depends on (1) high jejunal obstruction and distension, (2) a closed loop *plus* damage to mucosal blood supply. It is possible to have clinically a closed loop without interference with blood supply, and with no toxaemia, and, in fact, no serious symptoms. Serious symptoms will appear with the damage to the blood supply; but if the coil is low down in the small intestine toxaemia may not make its appearance.

The literature bearing on the cause of death in intestinal obstruction has become formidable in bulk and diverse in theory. It cannot be said that all the factors in obstruction are adequately explained by any of the theories which have hitherto been put forward. The following theories may be regarded as being seriously entertained at the present time:

1. That the phenomena in the toxaemia of intestinal obstruction are due to dehydration or to shock.[10]

2. (*a*) That toxaemia requires the presence of bacteria (the experimental work of Dragstedt and others). (*b*) The higher in the gut the more intense the toxaemia (Whipple and McQuarrie, Wilkie, and others). (*c*) That in addition to the appearance of bacteria some other factor which can be produced by damage to the blood supply is essential (Dragstedt, Moorhead, and others). It must be recalled in this connexion that the simple fact of intestinal distension of itself produces a congested condition of the mucosa which is sufficient to activate or liberate the toxin. Some observers working on different animals have found it difficult to show the appearance of toxaemia at all, and the degree of toxicity of intestinal contents appears to vary very greatly with the methods which are used to free it from bacteria (Wilkie).

3. That death is due to peritoneal infection. This theory has been widely held, and was at one time largely believed in by myself. It appears quite clear, in the light of the work of others, that the facts are against it as a constant factor in death from obstruction.

4. Liver and renal damage (McQuarrie and Whipple). It is undoubtedly proved that liver function and renal function are diminished in intestinal obstruction. The cause of their diminution remains unproved.

5. Anaerobic toxaemia theory.[7] It cannot be said that this theory explains all the facts. It has been shown that anaerobic bacteria are present in the intestine and are increased in obstruction. It is also a fact that they are present in the intestine of healthy persons. A similarity—not very striking—has been shown between the more extreme cases of intestinal obstruction and cases of gas gangrene; it may well be that death in all its guises wears much the same look.

This theory does not explain the fact that low intestinal obstruction may exhibit no evidence of toxaemia. Since the bacillus of Welch flourishes most in the lower ileum one would expect, if this theory is to be accepted, that the worst cases of toxaemia would be those in which a closed loop of lower ileum existed. The experimental work of Wilkie and of Dragstedt established the fact that lower ileal closed loops are compatible with prolonged good health. A case under my care existed for over a year in good health with a closed distended loop of lower ileum.

It is quite true that enthusiastic clinical reports on the treatment of intestinal obstruction with serum are received. It is unfortunately true that any new treatment is heralded with enthusiastic clinical reports, and it is only after some years that its true value may be assessed.

It has recently been shown[8] that intestinal obstruction is associated with a drop in the normal amount of chlorides in the blood, and that this drop commences to become steep with the onset of vomiting and the consequent loss of hydrochloric acid. Though the beneficial effect of the administration of saline has been known for years, the reason for its marked effect has not hitherto been so plausibly put forward. With the many theories that have been put forward, and the very large amount of experimental and clinical research into this subject, it is difficult to avoid the conclusion that the whole truth of this matter does not yet lie before us. It seems to be established that high intestinal obstruction is associated with virulent toxaemia. It seems also to be firmly established that chloride starvation exercises a marked effect on the patient's well-being, and it seems quite clear that the prevention of high intestinal distension by means of prompt surgical relief of the obstruction, and the use of high jejunostomy combined with the forced administration of hypertonic chloride solutions, as both pre-operative treatment and post-operative, are the chief measures which may be expected to lower the mortality.

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IMPACTION OF SWALLOWED FOREIGN BODIES.

BY

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THE two following cases seem worthy of record on account of the remarkable history in each case.

CASE I.

On December 19th, 1928, a mother brought to hospital her baby, aged 3 weeks, saying that she thought the infant might have swallowed a safety-pin. On being questioned she stated that the day previously, while she was undressing the baby, which was on her knee, she dropped a safety-pin out of her own mouth, and failed to find it either in her own or the child's clothing. Suspecting that it had been swallowed she gave the baby a dose of castor oil, "to make sure," and put it to bed.

When seen, the baby appeared to be perfectly fit, but the resident decided to *x*-ray the child, and there was the open safety-pin, lodged in the œsophagus, with the point upwards, at the level of the manubrium sterni.

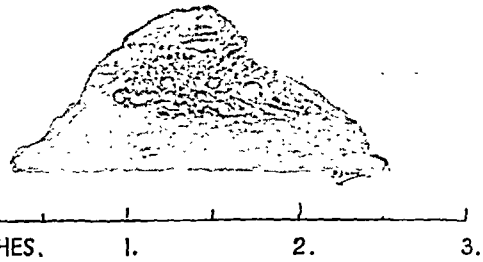
A few hours later I passed the smallest œsophageal tube that I had, under general anæsthesia, freed the impacted point of the safety-pin with Brüning's forceps, and removed it quite easily. It proved to be one of the gilt variety, measuring three-quarters of an inch from tip to bottom of hinge. The baby was perfectly fit, and was discharged a few days later.

In view of the extraordinary (in fact incredible) nature of the history, I interviewed the mother a week later, and questioned her. I felt convinced that I should elicit from her the fact that the pin had been sucked down by the baby, either from the mother's lips or fingers. I felt that no baby would swallow such an object, if dropped into its mouth when crying or yawning, for when feeding its mouth is practically closed. Also, why the dose of castor oil, unless the mother *knew* that the pin had gone down? However, I failed to shake her story, and was ultimately forced to believe her.

The second case was even more remarkable.

CASE II.

A man, aged 44, a factory worker, was admitted to hospital on December 31st, 1928; he was said to be suffering from tonsillitis.



He was treated for some days, and a note was made that his appetite was fair. He complained of a little pain in the throat and some difficulty in swallowing. He admitted that he could drink fluids, and on January 4th he ate bread-and-butter easily.

On January 9th he was sent to me with a request to look at his larynx. On doing so I saw a normal larynx, but above it a linear object. I asked him what he had been swallowing, and he denied that he had swallowed anything at all. I told him he had something there, and forthwith digitally removed a large bone (see illustration). The patient was as surprised as I was.

On going into the history I ascertained that on December 22nd (a Saturday night) he had had some soup, and felt abdominal pain after it. He was disinclined for food, and on Boxing Day he tried to vomit, and felt a sharp pain in his throat. I taxed him with being drunk on December 22nd, but he strenuously denied it, although he admitted that on that day, and on December 25th, he had had four pints of beer at most.

The bone measured 2¼ by 1 inch, and varied in thickness from 1/4 to 1/24 inch. It was wedge-shaped, and had been cut with a butcher's saw. It lay transversely in the pharynx, with the narrow edge upwards, impacted by its two "points," behind the epiglottis, and its thin edge lying upwards. It could only be seen from the mouth by means of a mirror.

My explanation of the case is that, in spite of his denial, he was drunk on December 22nd and swallowed the bone in the soup, and it went down sideways and lodged in the œsophagus, probably at the cardiac end. It was vomited up on December 26th, and lodged in the pharynx in its long axis. Being too drunk to know that it had gone down, he never suspected its presence when it returned. Consequently, neither he nor anyone else looked for it, and it was only by accident that I found it. Certainly it is remarkable that it should have been there for eighteen days.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

GRANULOMA INGUINALE RESEMBLING A PRIMARY CHANCRE.

THE following case is of interest since it shows how a disease rarely seen in this country may simulate and be mistaken for a common one.

A ship's steward, aged 30, developed a small papule on the glans four days after exposure to venereal infection in Brazil. This rapidly became an ulcer of about the size of a sixpence. After this ulcer had been present about six weeks the patient returned to England, where, *in spite of a negative Wassermann reaction and failure to find spironemes in the sore, a course of* antisyphilitic treatment was commenced. Eight intravenous injections of neokharsivan (total 4.5 grams) and eight intramuscular injections of bismuth metal (total 1.6 grams) had been given before the patient was seen by me.

The ulcer was still present, and apparently in its original condition, since it conformed with the original description: "punched-out, undermined edges, bleeds easily." The base of the ulcer was covered with healthy-looking granulations, scrapings from which contained numerous mononuclear leucocytes and also many bacilli showing bipolar characters with Leishman's stain. Many mononuclears were packed with these bacilli. There was apparently at no time any marked inguinal adenitis.

Treatment with antimony by the intravenous route was decided on. After the first injection of 0.3 gram of stibosan (von Heyden 471) the ulcer began to heal, and after five injections (total 1.5 grams), given on alternate days, the ulcer was completely epithelialized.

This case I believe to be one of granuloma inguinale in its early stage. The lesion was of small size, and the typical spreading condition involving the scrotum and inguinal regions, which, as Manson-Bahr points out, may take years to develop, was not present. The diagnosis, therefore, was not easy on clinical grounds, but is supported by the following points:

1. It was contracted in Brazil.
2. It was of three months' duration, and hence unlikely to be a chancre.
3. It showed no response to antisyphilitic treatment.
4. Scrapings showed intracellular bipolar bacilli.
5. The Wassermann reaction was negative six weeks after the sore first appeared and before any antisyphilitic treatment was given.
6. It healed rapidly on treatment with antimony.

It is important to remember the possibility of such a condition amongst seamen presenting themselves for treatment after arrival from foreign ports.

I am indebted to Mr. R. Stopford Taylor, D.S.O., F.R.C.S.Ed., for permission to record this case.

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THE PLANTAR RESPONSE IN HYPOGLYCAEMIA.

IN view of Dr. D'Arcy Hart and Dr. Hilda Bond's article (May 18th, p. 895), the following case-history may be found of interest, bearing out as it does their finding that in hypoglycæmia the plantar response becomes extensor.

The patient, aged 21, was found, on admission to the Royal Chest Hospital, on June 8th, to be suffering from severe diabetes, his urine being loaded with sugar and acetone bodies, of which latter his breath smelled strongly. Treatment with insulin was therefore started at once, combined with a diet of 25 calories per kilo on Lawrence's low ration scheme. The insulin had to be increased till, on June 15th, he received no less than 120 units, but as he was sugar-free, the next day the dose was reduced to 80 units. Sugar reappeared in the evening, so on June 17th he was given 40 units before breakfast and 40 before lunch.

That morning he complained of pins and needles in his toes, but examination revealed no abnormality save a general weakness of muscular power. In the evening, however, definite hypoglycaemic symptoms arose. He could be roused only with difficulty, and spoke as if drunk. There was no sugar in the urine, and only a slight trace of acetone bodies. The knee-jerks were present as before, but the plantars were now definitely extensor. He was able to take sugar by the mouth, and so was restored to normal consciousness.

On June 18th he had 40 units before a two-line breakfast, and some six hours later he noticed a return of the premonitory symptoms. The knee-jerks were found to be brisk and the plantars still extensor. The administration of lunch put an end to the symptoms. On June 19th, on a reduced insulin dosage, he had no hypoglycaemic symptoms. The knee-jerks were now decidedly exaggerated, and he had developed ankle-clonus, but the plantars were no longer definitely extensor. On the following day examination of his nervous system revealed no abnormality.

As Drs. D'Arcy Hart and Bond only had the opportunity of observing two cases it has been thought worth while recounting this case fully. For though the precise moments at which the change took place were not ascertained, the fact remains that the plantar response, which was normal before and after the attack of hypoglycaemia, was extensor while it lasted, thus confirming what may come to be regarded as a useful clinical sign in the diagnosis of this condition.

I should like to express my thanks to Dr. A. W. Stott for permission to publish this case.

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ARTERIO-VENOUS ANEURYSM FOLLOWING AMPUTATION.

THE following case seems of sufficient interest to merit publication.

An unmarried woman, aged 27, was admitted to hospital on April 5th last. Twenty-one years previously she had had amputation performed through the upper third of the left thigh, for sarcoma of the femur.

On examination a large multilocular pulsating swelling was seen occupying the whole of the old stump, the circumference of which was about twice that of the other thigh. On auscultation a continuous blowing systolic murmur was audible; there was also a soft blowing systolic murmur at the apex of the heart.

On May 15th an operation for ligature of the femoral vessels was undertaken by Mr. Harries, to whom I am much indebted for his permission and help in publishing this case. On exposure of the femoral vessels a distinct thrill was felt in the femoral vein, transmitted by the artery. The femoral artery was first tied; the thrill in the corresponding vein then disappeared, as also did the blowing systolic murmur at the apex of the heart. Finally, the vein also was tied. Clotting took place soon after operation, and the patient was discharged a fortnight later.

I have never read of a similar case, and can only assume that communication was somehow established between artery and vein, giving rise to the above condition.

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MECKEL'S DIVERTICULUM IN AN INTUSSUSCEPTION.

THE case described below seems of sufficient interest to warrant publication.

On June 23rd Dr. F. E. Daniel sent in a boy, aged 18 months, with a provisional diagnosis of intussusception. The illness began at 10 a.m. When seen in the afternoon he was vomiting and collapsed. There was no blood in the rectum, but a mass could be felt on the right side of the abdomen. There was no rigidity.

At 4 p.m., assisted by Dr. Rutherford Bayne, I opened the abdomen and delivered the mass. It involved the caecum, part of which was invaginated. This was easily reduced, leaving about 1 foot of ileum entering the lower end of the ileum. Reduction was a simple matter till we came to the final nodule, which was found to consist of a completely inverted Meckel's diverticulum about 2½ inches long, the final inch of which could not be reduced. It was clamped and removed. The diverticulum was oedematous and nearly gangrenous, and had apparently been the apex of the intussusceptum. Several tuberculous glands were noticed in the mesentery. After removal the inversion of the diverticulum was reduced with considerable difficulty. The boy recovered.

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British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

WORCESTERSHIRE AND HEREFORDSHIRE BRANCH.

DR. T. E. HINCKS, in delivering his valedictory address as president of the Worcestershire and Herefordshire Branch of the British Medical Association, chose as his subject his thirty years' experience of maternity practice in a rural district.

Rural Midwifery Practice.

He thought that the subject would interest, and possibly prove of some practical value to, his medical confreres, many of whom were men with experience gained in hospital and large town practices. At the present time aspersions on the general practitioner were made by men high in the profession who spoke from statistics, without a first-hand knowledge of facts. Doubtless the politician with the country's interest at heart could mitigate the difficulties that continually arose; but he should first see that a properly qualified midwife was available in all rural districts, without taxing the philanthropy of the few. Secondly, he should see that maternity wards existed in every hospital, with accommodation in proportion to the population.

The conditions of practice in Dr. Hincks's area had altered very materially for the better of late years. Until fifteen years ago most places were reached in gig or on horseback, and the doctor's armamentarium usually consisted of a pair of forceps shoved in his riding breeches pocket, a bottle of chloroform, and another of ergot. To-day the midwifery bag with its sterilizer weighed exactly 2 st. On one occasion Dr. Hincks was called to a case up in the hills, and being met on the road by the husband gave him the bag to carry one mile, with a steep gradient all the way. Coming back the man said, "Doctor, have I to carry this bag every time my wife has a baby?" "Yes, my friend." "Damn, then, there'll never be another." In former days there was not a single qualified midwife residing in the district. Even to-day in a great part of his practice in Herefordshire there was not a qualified maternity nurse available. But in Radnorshire, which was the most sparsely populated county and the most difficult of access in England and Wales, every district was supplied with a nurse working under a district nursing association, each being subsidized by a grant of £50 or more by the county council. There was, of course, much prejudice to be overcome against district nurses. Washing was objected to; soiled garments and sheets could not be changed lest the patient should catch cold; and, of course, old Mrs. Gamp did the household work while her patient was confined to bed. In those days the doctor acted as nurse, and Dr. Hincks attributed a lot of success in early days to his father's insistence on always washing the patient, and changing nightdress and sheets of every case before leaving the house. Many ignorant customs, however, still survived. Thus it occurred even now that on arriving at a house with the baby born, the cord was found attached by string to the leg of the patient; and frequently the patient's fingers were tied round with wool to prevent haemorrhage.

Going through his books of the last thirty years, Dr. Hincks had found records of 1,575 cases, and had classified these in three decades. Of cases seen in the first and second stages of labour, 822, or 52 per cent., were normal deliveries; 698, or 44 per cent., were forceps cases. In the first decade forceps cases amounted to 45 per cent.; in the second decade they fell to 39 per cent., and rose in the third decade to 48 per cent. In the early days, when there were no nurses, cars, or telephones, the doctor was often sent for too soon. He could not go home and run out again easily, and had to choose between quickly terminating labour and getting home, or tolerating the chafing impatience of the patient and her friends. He frequently resorted to the unnecessary use of forceps. The fall to 39 per cent. in the second decade could be accounted for by

the advent of motor cars. Having left instructions to be sent for when the membrane ruptured, he had returned to find the baby born, and only the clearing up to be done. The rise in the third decade to 48 per cent. was undoubtedly due to the district nurse, who dealt with the majority of cases, and only sent in those of prolonged or difficult labour, and, worse still, of post-partum haemorrhage or adherent placenta. Eleven cases of internal version, done in cases of shoulder and transverse presentation, called for no special comment, except one case in which spontaneous delivery occurred before his arrival. The operation of craniotomy was rarely required nowadays, because pre-natal examination was insisted on in all first cases. In one case up in the hills, where forceps failed to deliver an impacted head, perforation was done with a pair of cutting-out scissors.

Caesarean section had been used in nine cases. Seven of these were for uniformly small pelvis in primiparae. Two of them were patients in labour who had not previously been seen. The other two cases were rather interesting. One was a case of a soft tumour, an ovarian cyst, projecting in front of the head. Forceps were applied, but of course failed. The patient was promptly removed by car to Hereford, where Caesarean section was performed. The second was a multipara. On examination no signs of an os could be found, though she had been in labour for many hours. She was anaesthetized, and on introducing the hand into the vagina a partially dilated cervix could just be felt, pointed upwards and backwards towards the abdomen. Dr. Hincks suddenly remembered that this was a woman he had sent to Cardiff for operation for prolapsed uterus. She came back, and, as vaginal operation was unsuccessful, he sent her to a Birmingham surgeon, who did ventral fixation, and returned her with a note that "prolapse would never recur." It did not, but Dr. Hincks sent her into Hereford, and a successful Caesarean section was performed. All these four patients had been taken twenty miles by car into hospital after labour had started. In one case forceps had actually been applied. All the Caesarean sections, both mother and child, did well; and looking back over craniotomies and difficult forceps deliveries, resulting frequently in the death of the child, Dr. Hincks felt that had pre-natal examinations been regularly carried out many more Caesarean sections or induced labours at the eighth month would have been done. Instead of blaming the general practitioner for excessive maternal mortality, those in authority should direct their energies to establishing a maternity ward in Hereford General Hospital, thus doing something to lessen the risks of complicated cases of labour, and decreasing the subsequent morbidity of mothers.

Breech presentations, 28 in number, were 2 per cent. of the total cases. One unfortunate case occurred recently in a primipara, aged 33. Three weeks before labour she was examined. The measurements were 9½ in., 10½ in., and 8 in., but a breech presentation was discovered; it was decided to let the case take its natural course. Twelve hours after labour commenced the cervix was fully dilated, but the breech had not engaged. Under chloroform, with great difficulty owing to narrowness of the brim, a leg was brought down and the breech delivered, but there was absolute failure to get the head through. Eventually forceps were applied to the after-coming head, which, with the greatest difficulty, was delivered. The patient was two hours under an anaesthetic. The placenta came away normally, but the woman was suffering severely from shock, with a pulse of 140. She vomited black material immediately after recovering consciousness, and vomited persistently during the next four days; the pulse rate came down to 100, and the temperature was normal. On the fifth day she became unconscious, with rapid respiration. She died, probably from cerebral, and possibly pulmonary, embolism. Breech presentations, Dr. Hincks thought, were often due to some pelvic abnormality; in future he would always regard them with suspicion, and in a primipara with small pelvis would consider inducing premature labour or performing Caesarean section.

Dr. Hincks described two cases of puerperal eclampsia. A woman walked into his surgery, seven and a half months pregnant, with oedema of her legs, and a high degree of albuminuria. She was ordered to bed and given a saline purge. The following morning she had a fit. She became comatose, with continually recurring fits. The cervix was rapidly dilated and the uterus emptied, but she never regained consciousness and died a few hours later. In the second case the patient was having repeated convulsive seizures, and was comatose. She was brought down one and a half miles on a canvas stretcher to a car, and rushed into Hereford. Labour pains set in on the journey, and she was delivered with forceps shortly after arrival at hospital. The mother and infant did well. Dr. Hincks had records of only two complete cases of placenta praevia. One was treated by turning and bringing a leg down. This at once stopped the haemorrhage, which had been very severe. The other case ended disastrously. The patient was found pulseless from extreme haemorrhage. She had been in labour some hours, an arm was protruding, the pains were intense, and the shoulder was fixed in the pelvis. With the greatest difficulty the placenta was separated and the child turned; but in doing so the lower uterine segment was ruptured, being no doubt thinned out dangerously after so many hours of severe uterine contractions. The patient died four hours later. Six per cent. of the patients had retained and adherent placentas. Of these, 41 cases were accompanied with post-partum haemorrhage, but there was scarcely any haemorrhage in the remaining 60. It appeared that there was little or no haemorrhage with the completely adherent variety, but the partially adherent form bled freely, especially when accompanied by uterine inertia, as also did retained placentas with uterine inertia. Dr. Hincks was of opinion that, since the introduction of pituitrin, post-partum haemorrhage from uterine inertia could be practically eliminated. In the first decade, before pituitrin was used, his record showed 52 cases of post-partum haemorrhage—30 of these due to uterine inertia (5.5 per cent. of all the cases); in the last decade 12 (2.2 per cent. of all cases), and of these 10 occurred in cases in which the child was born before his arrival. Puerperal fever occurred in 26 cases, approximately 1.6 per cent. of the total; 10 of these followed the use of forceps, 1 internal version, 5 adherent placenta, and 10 were absolutely normal cases of labour in which there was no intervention at all. Two of these cases proved fatal. The total maternal mortality in Dr. Hincks's cases was 10, equivalent to 0.6 per cent. of the patients attended: ruptured uterus 2, puerperal fever 2, haemorrhage 2, syncope 2, coma following puerperal eclampsia 1, and thrombosis 1. Of the two deaths from ruptured uterus, that due to uterine tumour might have been averted by Caesarean section. The second due to placenta praevia—severe ante-partum haemorrhage and finally ruptured uterus caused by turning in an impacted shoulder case—was inevitable in anyone's hands. In the first case of death from haemorrhage the patient was found pulseless, suffering from severe ante-partum haemorrhage, due to partial placenta praevia. The midwife was drunk in a corner of the room, and had refused to send for medical aid, though repeatedly asked by the patient's friends to do so. Delivery with forceps failed, but was rapidly accomplished after perforating the child's head. The woman died within two hours from the result of ante-partum haemorrhage. In the second case the woman was dead on arrival owing to adherent placenta and post-partum haemorrhage. Her life had previously been saved on two occasions from the same complications. The first patient who died of syncope was always a delicate, anaemic woman. On arrival she was found collapsed and pulseless; there was a history of breech presentation and prolonged delivery. The placenta was expressed by hand. There was no haemorrhage. She died from shock two hours later. The other patient was an alcoholic who expired a few minutes after the easiest forceps delivery. These cases, and the death due to puerperal eclampsia and coma, were inevitable. The case of thrombosis after extremely difficult delivery might have been saved by Caesarean section or induced labour at the eighth month. The two cases of death from puerperal fever followed, in one instance, removal of an adherent placenta and profuse post-partum

haemorrhage, in the other a simple forceps delivery. So that of these ten deaths, six were inevitable, two could have been saved by Caesarean section, and two puerperal cases might, Dr. Hincks said, have cast a reflection on himself.

In concluding his address Dr. Hincks protested once more against men who were sitting on office stools perusing statistics, knowing nothing first-hand of the facts, and yet writing scathingly of the rural general practitioners and blaming them for a high rural maternal mortality. It was not the general practitioner's fault that rural maternal mortality was high. It was extraordinarily low, when one considered the difficulties under which the work was done.

Reviews.

MOVABLE KIDNEY.

A SECOND edition of *Movable Kidney*,[1] by Mr. WILLIAM BILLINGTON, has recently been published. The first edition appeared nineteen years ago, and the present one is slightly enlarged, with several new plates. The controversy that at one time raged round nephropexy has in large part died down; since the first edition there has been a great change in our attitude towards surgical diseases of the kidney, and the subject has passed into the hands of the specialist. At the present time it is fair to say that the number of nephropexies has greatly diminished, and that only in a few chosen cases is the operation performed. If, after the lapse of twenty years, some surgical procedure for which high claims have been made has not become widely established, it is reasonable to assume that the original claims for it have not been made good. Mr. Billington puts his case well and fairly, and if the reader should become too enthusiastic the last well-reasoned chapter will act as a corrective.

The book opens with an excellent chapter on the anatomy of the normal kidney, and another on the mechanism by which he considers the loose kidney to occur. He points out that there are two distinct types, one in which there is dropping of the organ, chiefly found in women, and the other in which there is rotation of the lower pole inwards, mainly to be found in men. The succeeding chapters are concerned with the etiology and pathology of the condition, with a chapter devoted to visceroptosis and nephroptosis, the author pointing out that in general visceroptosis nephropexy is inadvisable. In the section on pathology the inferences drawn in the paragraphs on the renal vessels and the renal nerves will not meet with agreement from every reader. There follows, after pathology, a chapter on diagnosis, and in this the importance of examining the patient in the upright position and on the side is rightly stressed. The author also appeals for better pyelograms to be taken with the patient standing. Two new plates are introduced showing pyelograms in the same patient, one taken while the patient is lying down and the other with the patient standing, illustrating the dropping of the kidney. A further series which showed the patient before operation and some time after would have been instructive. Four chapters on the symptoms produced by movable kidney then follow; these might have been interposed before the chapter on diagnosis.

In the treatment of the condition the use of belts is discussed, and dismissed except in the case of nephroptosis in association with visceroptosis. The treatment favoured is nephropexy, and the author describes his technique very clearly with the help of good diagrams. The last part of the book deals with the author's results. He has had an extensive experience, 1,500 cases in twenty-five years, and in a large number of these the double operation has been performed. Nephropexy without some other operation, chiefly appendicectomy, was performed in 12.6 per cent. of cases, and in assessing the end-results this has to be taken into consideration. An analysis of his cases and results by Professor Kaufmann is given.

[1] *Movable Kidney.* By William Billington, M.S.Lond., Ch.M Birm., F.R.C.S.Eng. Second edition. London: Cassell and Co., Ltd. 1929. (Demy 8vo, pp. ix + 177, 7 figures, 14 plates. 12s. 6d. net.)

BALNEOTHERAPY.

MANY practitioners throughout the country are frequently called upon to advise their patients as to the best type of spa for their particular malady; to tell them what exactly are the advantages of the spa selected; and, in these days of intelligent interest in the physiological effects of treatment, how the treatment is supposed to act. There are also a far larger number of patients who want to know whether a certain kind of spa treatment cannot be given in or near their own homes. The test of the value of any book on this subject is whether the answers to questions such as the foregoing can be found quickly, and, when found, whether the directions and statements are clear and accurate. It is in this way that Dr. MATTHEW RAY'S book *On Prescribing Physical Treatment*[2] has been tested again and again, and we find that questions such as "What are the baths employed in treating fibrositis?" and "What is the nature of the treatment at Nauheim?" are answered fully and clearly. Again, the instructions for giving such treatments as abdominal hot packs are simple, definite, and could be carried out by any practitioner with confidence. This method of dealing with the subject is useful, as baths, mud packs, and many other physical treatments would be utilized far more freely if the effects and technique of their application were more readily available.

Dr. Ray's book therefore fills a much-needed gap, and it should be close to the desk of the continually increasing number of doctors who look more and more to physical methods of treatment for their results. With the advent to London of a central clinic for rheumatic diseases, modelled on the lines of the best Continental ones, it is probable that a second edition will be required at an early date. When this is being prepared we hope that, even at the expense of some repetition, the paragraphs on therapeutic indications will be self-contained and not refer the reader back to some previous page. There is one strange omission from the index, which includes spas from Aachen to Woodhall Spa, and that is Bath—mother of all spas. Apart from this the book may be recommended as a valuable work of reference, and not too expensive, for use in much the same way as the *Materia Medica* of Hale-White, which has been used by generations of medical men.

DISEASES OF THE THYROID GLAND.

DR. A. E. HERTZLER has prepared an enlarged and more copiously illustrated edition of his monograph on *Diseases of the Thyroid Gland*,[3] whose first edition was favourably noticed in our issue of March 3rd, 1923. The work contains information derived from thirty years' experience in what Dr. Hertzler modestly calls a small country hospital, devoted almost exclusively to the study, treatment, and after-treatment of goitre patients; if, then, some of the conclusions and suggestions are a little heterodox, they have at least the merit of being based entirely on long and patient personal observation. The author's main contention is the unity of the conditions known as colloid goitre, non-toxic adenoma, toxic adenoma, and frank hyperthyroidism. He produces evidence that the activity of the interstitial cells of the gland is associated with a definite clinical type of thyroid intoxication. Treatment is very fully studied, with special reference to the indications for surgical treatment. Indeed, the writer goes so far as to say that the ameliorative effects of radiotherapy are mainly due to the urbane and persuasive manner of the "*x*-ray man." Apart from formal descriptions of symptomatology and etiology, the book contains long and valuable chapters on pathological anatomy and surgical technique. The former is abundantly illustrated by excellent photomicrographs, and the latter by new clear drawings. There is a special chapter by Dr. Victor Chesky devoted to the hospital management of goitre patients. The book is written primarily for surgeons, but the pathologist and

[2] *On Prescribing Physical Treatment.* By Matthew B. Ray, D.S.O., M.D.Ed. London: W. Heinemann (Medical Books) Ltd. 1929. (Demy 8vo, pp. ix + 174, illustrated. 10s. 6d. net.)

[3] *Diseases of the Thyroid Gland.* By A. E. Hertzler, M.D. Second edition. London: H. Kimpton. 1929. (Sup. roy. 8vo, pp. 286; 159 figures. 32s. net.)

physician will find much in it of interest and value. It is beautifully printed, and, notwithstanding certain crudities of expression, very readable.

In his monograph on the pathological foundations of the treatment of thyroid disorders[4] Professor HOLST of Oslo gives a survey of the biochemical disturbances in various goitrous diseases, with special reference to frank hypo- and hyper-thyroidism. The normal and abnormal metabolism of iodine and the place of iodine in therapy is very fully discussed. There is a long chapter on the surgical management of hyperthyroidism, and a full description of post-operative technique. The conclusions are fortified by a substantial mass of clinical data showing the relative places of iodine therapy and surgical treatment in a large number of patients. The volume is copiously illustrated with attractive diagrams and charts, and is furnished with a bibliography, which is, however, far from complete.

OLD MASTERPIECES IN SURGERY.

DR. ALFRED BROWN has done a useful piece of propaganda for the history of medicine by collecting and reissuing under the title of *Old Masterpieces in Surgery*[5] the articles he contributed to the *Journal of Surgery, Gynecology and Obstetrics* during the years 1924, 1925, 1926, and 1927. The busy doctor has not hitherto been greatly interested in the history of his profession. After a long day, and with the prospect of an interrupted night, he has been more inclined to read his newspaper or take down a detective novel than to turn to the more serious works of Freind, Garrison, or Charles Singer. The *Old Masterpieces of Surgery* should alter all this, for Dr. Brown has acted like the schoolmasters spoken of by Horace, who

> "pueris dant crustula blandi
> Doctores elementa velint ut discere prima"

(give cakes to their boys to wheedle them into learning the alphabet). He has written a series of slight articles and has illustrated them beautifully, so that those who read his book will soon fall in love with the subject and will desire to pursue it further. Indeed, there is evidence that medical history is already being more seriously studied in the United States than in Great Britain. The *Annals of Medical History* and *Medical Life* are entirely devoted to the subject and never lack interesting articles, whilst in this country there are no periodicals dealing exclusively with such history.

The articles written by Dr. Alfred Brown range from Soranus, who flourished A.D. 100, to Cheselden, surgeon to St. Thomas's Hospital, who died in 1752. They are for the most part accurate, though he repeats the fable that the school of Salerno was founded by a Jew, an Arab, a Greek, and a Roman, and believes Trotula to have been a real woman with a corporeal existence. He states, too, that Vicary wrote the *Englishman's Treasure*, though it is well known that Vicary's work is merely a transcript which he made and somewhat condensed from a manuscript written many years earlier. He gives valuable advice to his readers in the foreword when he tells them to study the prefaces to the old books on medicine and surgery, for "the author there comes into the most intimate contact with the reader and unburdens his soul, giving, in some instances, his object in writing the book and sometimes the circumstances under which it was written." For these reasons the prefaces are now often more valuable and interesting than the text.

At first sight it is somewhat surprising that the work should be published at Omaha, which is not generally associated with literary enterprise. A little reflection shows that it is largely due to the energy and public spirit of Dr. and Mrs. Le Roy Crummer, who have made a priceless collection of old medical manuscripts and books which they have generously allowed Dr. Alfred Brown to use. It is to be hoped that a second series of articles on similar lines will be issued, for as yet no American surgeon has been included, and there are many worthy of commemoration. When this is done it might be as well to add a note at the end of each article saying where more detailed information can be obtained. The Lakeside Press at Chicago is to be congratulated on the volume; the paper, printing, illustrations, and format generally are beyond reproach, with the result that the volume may be described as sumptuous.

GYNAECOLOGY AND OBSTETRICS IN THE TROPICS.

DR. GREEN-ARMYTAGE'S two small works on *Tropical Gynaecology*[6] and *Tropical Midwifery*[7] have been revised and brought up to date in a manner upon which the author is to be congratulated. In the form of bright, terse, clinical lectures these books allow the pleasant perusal of important detail, while they hammer home the essentials. Controversial subjects, when unavoidable, are fairly set forth in their several aspects, along with a definite expression of personal preference. This, from an author with such immense experience, gives the books real value, just as their style imparts real pleasure. We would have liked to see more evidence of a proof-reader's skill, for printer's errors are over-plentiful, especially with regard to type faults; and words like "mental massage" (p. 70) and "repone" (p. 92) in the volume on gynaecology look odd. Such minor flaws, however, cannot spoil the intrinsic worth of these books, both text and figures conveying an astonishing amount of information compressed into delightfully small compass.

HISTOPATHOLOGY OF THE MIDDLE EAR.

THE study of the histopathology of the ear has always presented such difficulties that it has been followed less widely than in most regions of the body. There is not only the difficulty of obtaining suitable pathological material, but the task of making sections of the temporal bone requires great expenditure of time and patience in addition to a profound knowledge of anatomy and of pathological technique. It has by no means been neglected, but has been necessarily confined to a few select investigators. *Les Otites Moyennes*,[8] by GEORGES PORTMANN and KARL KISTLER, consists chiefly of a number of excellent reproductions of microscopic preparations showing the pathological processes which occur in the middle ear. The authors think that the ideas and researches of Bezold have been neglected in France, and seek to confirm them. In this country they have long received recognition and acknowledgement in all important textbooks, so that the necessity for such a book would be less evident outside France. The authors, however, present their subject pictorially in a highly instructive manner, the main thesis being the overwhelming importance of cholesteatomatous formations in chronic aural suppuration. The literary output of Professor Portmann must exceed by far that of any of his contemporaries, and the text which surrounds these admirable illustrations shows signs of hasty compilation. The source of the illustrations is not clearly indicated, and there are no references to authors whose works are freely quoted. Such an admirable collection of pathological material deserves to have had more literary care expended upon it. The book should be useful at the beginning of a serious study of diseases of the ear, when a sound pathological knowledge should form the basis for clinical work.

EPILEPSY.

THERE must be few reviewers who would not confess to some heaviness of heart on taking up a new book upon epilepsy. One knows from long experience exactly what one will find. The historical introduction, with an allusion [illegible] the excellent clinical account of aura,

[4] *Die Pathogenetischen Grundlagen der Thyreotoxikosetherapie.* Von Johan Holst. Oslo: J. Dybwad. 1928. (7 × 10½, pp. 176, 45 figures.)

[5] *Old Masterpieces in Surgery.* By Alfred Brown, M.D. Privately printed, edition limited to 500 copies. To be obtained from the author at 1618, Medical Arts Building, Omaha, Nebraska; price 8 dollars net. (8 × 10½, pp. xviii + 263; illustrated.)

[6] *Tropical Gynaecology.* By V. B. Green-Armytage, [illegible]. Bombay: Thacker, Spink and Co. (1915), Ltd. Calcutta and Simla: Thacker, Spink and Co. (1915), Ltd. 1929. (7½ × 5, pp. 212; 77 figures, 8 plates. 70 rs.)

[7] *Tropical Midwifery.* By V. B. Green-Armytage, [illegible]. Bombay: Thacker, Spink and Co. (1915), Ltd. Calcutta and Simla: Thacker, Spink and Co. (1915), Ltd. 1929. (7½ × 5, pp. 212; 77 figures, 8 plates. 70 rs.)

[8] *Les Otites Moyennes.* Par Georges Portmann et Karl Kistler. Paris: Masson et Cie. 1929. (6½ × 9½, pp. 212; 77 figures, 8 plates. 70 fr.)

chapter in which every possible metabolic investigation will be impartially recorded; the speculations as to the cause of the attack, inhibition versus excitation, vascular spasm versus neural explosion—can there be any reader, one wonders, who does not by now know all this by heart? Dr. OTTO CROUZON'S book *Le Syndrome Epilepsie*[9] provides for the French medical profession a review of the state of our ignorance about epilepsy which is comparable with the volume recently produced by Dr. Stanley Cobb and Dr. Lennox in English. Following the French neurological tradition, Dr. Crouzon devotes more space to clinical features and to treatment and less to neurophysiology than the American authors. His book can be recommended as an excellent monograph in which all aspects of the subject are discussed with judgement and thoroughness.

NOTES ON BOOKS.

DR. HARRY L. ALEXANDER'S little book *Bronchial Asthma: its Diagnosis and Treatment*[10] contains a good review of the whole subject. In the chapter on the pathological findings some interesting original observations are recorded, the author having had the very unusual experience of attending three cases in which death occurred during an attack. The changes observed were most marked in bronchioles of 5 mm. diameter, and were absent or slight in those less than 2 mm. The epithelium, which contained unusually numerous and large goblet cells, was thrown into deep folds. The subepithelial layer was hyperaemic and infiltrated with lymphocytes and eosinophile cells, which also surrounded and even invaded some of the muscle fibres. The muscular coat was thickened, in part owing to persistent spasm and in part to liver hypertrophy. Some of the smallest bronchioles shared in the dilatation of the alveoli caused by the obstruction above. The price of the book (10s. 6d.) seems excessive, as it consists of only 171 small pages.

The fourth bimonthly number of the *Annals of Medical History*[11] contains nine articles, in addition to the extremely interesting editorial on Sir Christopher Wren, whose portrait forms the frontispiece, and the discriminating book reviews. Dr. E. Robert Wiese sets out the fine character and achievements of Baron D. J. Larrey (1766–1842), who was one of the few men who dared to contradict Napoleon, and one of the fewer still from whom Napoleon would brook opposition; apparently entirely devoid of fear, he was self-reliant without self-assertion. His handsome features adorn the cover of this number. In his account of Charles Edward Isaac (1811–1860) as a forgotten American kidney physiologist, Dr. R. E. Bieter pleads that his name should be added to those of his two contemporaries, Bowman and Ludwig, to make up a great triumvirate in renal physiology. In a study of epilepsy in the light of history Dr. E. H. Pirkner discusses the evidence of this disease in a number of distinguished characters, such as Julius Caesar, Mahomet, King Saul, St. Paul, Dostoievsky, Flaubert, and Napoleon. Dr. J. L. Miller dwells on the diseases of ancient times, and particularly with those of Egypt. Dr. Joseph Walsh, in an article on the date of Galen's birth, suggests that a centenary commemoration might be held on September 22nd, 1930. Dr. R. L. Pitfield writes with affection of Lamb, whom Thackeray called "Saint Charles," and entitles his article "A pitiful, rickety, gasping, staggering, stuttering Tomfool," the venomous words of Thomas Carlyle about the author of *Elia*. A number of extracts from the notebook of Edward Jenner are reproduced by Dr. Le Roy Crummer. In reminiscences from the early days of the Pennsylvania Hospital Dr. E. A. Strecker points out that, as it was opened in 1752 for the care of the insane, it is the cradle of American psychiatry. In a brief note on medical philately Lieut.-Colonel Fielding Garrison mentions that the first medical men's portraits to appear on postage stamps were those of military surgeons: Kaczkowski, surgeon-general of the Polish Army in 1831, appeared on Polish stamps in 1927, and Surgeon-General W. C. Gorgas on a recent issue of the Republic of Panama.

A new edition of the Catalogue of Lewis's Medical and Scientific Circulating Library, revised to the end of 1927, has been published.[12] Part I is a complete list of books available to subscribers, arranged alphabetically under the authors' names; each entry gives the size of the volume, its price, and the date of the edition. Part II is a classified index of subjects with the names of authors who have written upon them. A new feature of this index is the addition of many authors' initials to facilitate reference to the body of the catalogue. The year of publication of each book is also given to save the time of readers wishing to know of the most recent works. Another improvement in Part II is the addition of a word or two to each entry, giving a hint of the nature and scope of the book. We think that Messrs. H. K. Lewis and Co. deserve the thanks of their clients for providing a catalogue which is also a serviceable index to the current literature of medicine and the allied sciences.

In their book on the hypophysis[13] Messrs. PENAU, BLANCHARD, and SIMONNET have brought together a great amount of information culled from a study of the extensive literature dealing with the activities of that ductless gland. The volume is divided into two parts, which treat of the anterior and posterior lobes respectively. In each case it is the chemical and physiological actions of the various preparations of these lobes that are studied, and the deductions to be drawn from the evidence presented are offered both skilfully and fairly to the reader. The text is clearly arranged, and is written with a notable brevity. The book should be in the hands of all chemists, physiological workers, and medical men who are interested in the study of the hypophysis.

[9] *Le Syndrome Epilepsie.* Par Dr. O. Crouzon. Bibliothèque des Grands Syndromes. Paris: G. Doin et Cie. 1929. (6½ × 9½, pp. 264. 55 fr.)

[10] *Bronchial Asthma: its Diagnosis and Treatment.* By Harry L. Alexander, A.B., M.D. Minor Monograph Series. London: Baillière, Tindall and Cox. 1929. (5½ × 8½, pp. viii + 171; 8 figures. 10s. 6d. net.)

[11] *Annals of Medical History.* New Series, Vol. I, No. 4, July, 1929. Whole No. 44, edited by Francis R. Packard, M.D. New York: Paul B. Hoeber, Inc.: London: Baillière, Tindall and Cox. 1929. (Imp. 8vo, pp. 363–488; illustrated. Subscription in Great Britain, 45s. per volume of six numbers.)

[12] *Catalogue of Lewis's Medical and Scientific Circulating Library.* New edition, revised to the end of 1927. London: H. K. Lewis and Co., Ltd. 1928. (15s. net; to subscribers 7s. 6d. net.)

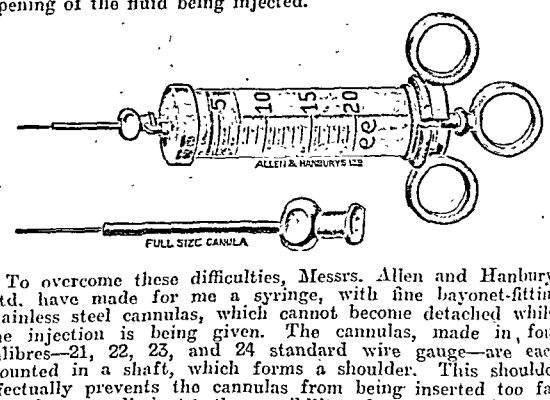
[13] *Les Problèmes Biologiques.* XII, Le Problème des Glandes à Sécretion Interne, Penau, L. Blanchard, H. Simonnet. Paris: de France. 1929. (6 × 9¼, pp. viii + 249;

PREPARATIONS AND APPLIANCES.

A VASOTOMY SYRINGE.

MR. J. F. PEART, F.R.C.S.I. (London, W.), writes:

In making an injection into the vas when doing a vasotomy two matters of primary importance in connexion with the cannula used are: first, that its point be so constructed as to avoid damaging the inner lining membrane of the tube; and, secondly, that the calibre should so fit the lumen of the vas as to prevent, if possible, any leakage out of the vasotomy opening of the fluid being injected.



To overcome these difficulties, Messrs. Allen and Hanburys Ltd. have made for me a syringe, with fine bayonet-fitting stainless steel cannulas, which cannot become detached whilst the injection is being given. The cannulas, made in four calibres—21, 22, 23, and 24 standard wire gauge—are each mounted in a shaft, which forms a shoulder. This shoulder effectually prevents the cannulas from being inserted too far into the vas, eliminates the possibility of puncturing it lower down, and occludes the remainder of the vasotomy opening.

X-RAY INTENSIFYING SCREENS.

We have received a pamphlet from Philips Lamps Limited (145 Charing Cross Road, W.C.) describing their intensifying and fluorescent screens for supplementing the photographic action of x rays. The point is made that while a high accelerating factor is claimed for most screens on the market, the value is usually calculated by exposures made with "hard" radiation, with which the best radiographic definition may not be obtained; but that with the screens manufactured by this firm the exposures can be reduced when "soft" radiation—that is, of comparatively low penetration—is used, as in chest or kidney work.

MOULDING MATERIAL FOR CASTS.

Messrs. Apotela, Ltd. (65, Moorgate Street, E.C.2), have put on the market a hydrocolloidal moulding material called "negocoll," which, applied by brush or by hand, may be used for preparing casts of any kind of object, or of the dead or living body. The manufacturers claim that the substance is clean and simple in use, aseptic, and practically indestructible; and that objects to be copied may be faithfully and accurately reproduced without any special preparation. Two other of the firm's products—"hominit" and "celerit"—are used to make the positive from the negocoll cast.

British Medical Journal.

SATURDAY, AUGUST 24TH, 1929.

THE CAMPAIGN AGAINST RHEUMATISM.

THE gravity of the problem of rheumatism was first brought home to the public and the medical profession by a report of the British Ministry of Health, published in 1923. This report disclosed the great prevalence of rheumatic diseases among industrial workers, and the almost immeasurable suffering, disablement, and economic loss which they entail. Since that date similar conditions of widespread rheumatic invalidity have been reported in various parts of northern Europe, although it seems probable that in England some types of arthritis are more severe than in other countries. Some attempts have already been made to grapple with the problem, and in one of these attempts England and Holland have led the way. Further inquiries were instituted in 1925 by the International Society of Medical Hydrology, and a small international committee on rheumatism was formed, with its headquarters in Amsterdam. The time seemed ripe for a serious concerted effort. National committees were presently established in England, Holland, Germany, Austria, and other countries. All these committees, including the original International Committee, have now given place to independent organizations, representing not only the medical profession as a whole, but public health authorities and industrial and other public bodies in the various countries which are concerned with the health, welfare, and industrial capacity of the great mass of workers.

The movement progresses with somewhat unequal steps in the different countries. The central group, now known as the International League against Rheumatism (*Ligue Internationale contre le Rhumatisme*), of which the chairman is an Englishman and the honorary secretary is a Dutchman, is engaged in making known the widely scattered work and arranging periodical conferences between competent authorities and serious workers in all countries. The next discussion held by the League will take place at Budapest in October. Some of the national associations or societies for combating rheumatism have become the recognized machinery for dealing with a serious national question. A strong representative committee is at work in America, and in Germany and Holland the Governments have made financial grants. But in dealing with a problem having so many aspects—medical, social, and economic—it is necessary to combine the experience of many nations. International co-operation and co-ordination must complete the work of the national groups. It will be recalled that in England the Ministry of Health has foreshadowed three types of institutions for the investigation and treatment of rheumatic diseases: the arthritis unit for in-patients, which should be devoted mainly to research; the centre for physical treatment in the town, mainly for early cases and after-care and clinical investigation, carried on in co-operation with the hospitals and spas; and, lastly, a development of the spa hospital. This programme has been further elaborated in the report on arthritis by Dr. Alison Glover, published in May of last year.[1] For a programme of such magnitude it seems clear that only a well-arranged system of team work can meet the case. Many varieties of disease are in question, affecting vast numbers of people. On the one hand are problems of causation and pathology; on the other hand the practical problem of devising and directing on a large scale a systematic preventive and curative treatment. With these must be combined many necessary studies—of methods and of the effects of weather and climate, of housing and occupation, upon the persons under treatment.

It would be ungenerous not to acknowledge that much good work has already been done in this country by isolated workers, especially at the spas. We are reminded in a paper by Dr. Fortescue Fox, of which we publish a summary in another column (p. 358), that some of the English mineral water hospitals are already arthritis units in the making. They are, unfortunately, occupied for the most part with the later stages of disease. But in spite of this drawback the therapeutic results of the spa hospitals will stand comparison with those obtained under any other form of treatment. They are, moreover, thoroughly imbued with the spirit of research. The new organization, known as the National Campaign against Rheumatic Diseases, is designed to give expression and direction to this movement in England. In its "Statement of Policy"[2] the council founded itself upon the serious invalidity and economic loss occasioned by rheumatism. Research and treatment, it says, are inadequate, and the remedial measures which are known to be beneficial are available only for a small minority of sufferers. The objects of the campaign are comprehensive. They embrace: education of medical and public opinion, of the patients and their families, and of employers of labour; research, under a variety of headings; extended facilities for treatment in hospitals, clinics, and spas; standard records and classifications; and, lastly, the collection and distribution of data. If even a part of this wide field is to be covered, clear thinking will be needed, a precise division of labour, the enlistment of all serious workers who are at present engaged throughout the country in the investigation and treatment of rheumatism, a co-ordination of purpose and method, and, above all, a pervading motive force. An organization may be an empty shell, or it may become the framework of a living spirit.

To encourage and support individual work, to organize the most necessary and fruitful investigations, to make the best knowledge and skill everywhere available in treatment, are purposes which deserve and require most generous material and moral support from the Government and from private individuals. Many questions will naturally come before the council of the campaign in considering how these objects may be compassed. How can the necessary research, both clinical and in the laboratory, be best organized and allocated? Time and effort must not be wasted in blind alleys, in vain repetitions, in ignorance of previous findings. Is it proposed to set up a co-ordinating nerve centre or bureau of research? The statement of policy recommends several lines of investigation into the causes of rheumatism. Of these, some, such as the bacteriological, biochemical, radiological, and comparative pathological, are modes of research that are usually carried on in hospitals with beds and laboratories. Another series of perhaps equally important lines of investigation are enumerated: the clinical examination of cases; clinical research into the various types of disease; study of the occupational, climatic, and geographical incidence of rheumatism, and of the action and comparative

[1] See *British Medical Journal*, May 26th, 1923, p. 934.

[2] See *British Medical Journal*, July 6th, 1929, p. 36.

efficacy of various methods of preventive and curative treatment. Here, again, a little clear thinking may prevent a useless overlapping of function between different types of institutions. According to the statement of policy, the new clinics or centres for physical treatment will carry on their work in liaison with research laboratories. It is clear that the elucidation of the problem of rheumatism demands many forms of inquiry, some perhaps unfamiliar, and that, with wise allocation, the arthritis units and spa hospitals, the large general hospitals with their laboratories, and the clinics with their mass of early cases, will all have ample opportunity for much-needed and differing lines of investigation.

But, after all, the insured population are asking for treatment, and the many who suffer from rheumatism are entitled to the same measures of relief or cure which more fortunate persons enjoy or which have been found advantageous in the medical practice of other countries. All speed to research! but the machinery of treatment cannot stand still until research has been completed. Apart from the long-established and beneficent work of the spas, the first real step to cope with this problem has been taken by the British Red Cross Society. At its clinic in Regent's Park, London, which will be opened in a few weeks, a great many industrial workers, rheumatic sufferers in the towns, will be enabled to receive physical treatment in the early stages of disease near their homes and after working hours. The founders of this clinic have adopted for their principle *Solvitur ambulando*. For example, they hold that it is an integral part of the work of this pioneer demonstration clinic to scrutinize the action of the physical remedies that are employed, whether alone or in combination, with a view to determining their optimum use in the various stages of rheumatic disease. In the paper already referred to, Dr. Fortescue Fox advances his belief that what he describes as the bath complex (heat and moisture and movement) will be found to be the "master treatment" of rheumatism. Whatever views may be held by others as to the relative value of the various forms of physical treatment, many medical men will agree with him that the traditional faith of mankind is worthy of some respect, and that treatment by appropriate baths has often proved of the highest value in rheumatic cases. We are glad to note that the principal feature of the new clinic is to be a comprehensive installation [illegible] upon modern lines. At present for this mode of treatment are lacking in London. Under wise direction it should prove a therapeutic asset of no small value.

In the appeal of the British Red Cross Society for funds to establish the clinic, and in the statements made in our columns and in the public press, the intention was made clear that this first institution in the metropolis should serve as a model of scientific investigation and treatment. Want of experience and skill in its administration has been the bane of physical treatment, especially in rheumatic cases. For this reason the originators of the scheme proposed that all treatment should be given by a medical director and a staff having expert knowledge of physical methods of treatment. Similarly, instruments of precision and standard records should replace less exact procedures of examination. Among other proper subsidiary purposes, the clinic should serve as a centre for diagnosis, for teaching, and for training. To use the words of the original London Clinic Committee, "it is anticipated that young practitioners and attendants will be trained for undertaking similar work elsewhere." It is, moreover, stated that the clinic is not designed for the insured classes alone, but for the mass of men and women suffering from rheumatic affections who are able and willing to pay a reasonable fee for treatment. The position which it should occupy, with reference to existing institutions, is described in the statement that it will be conducted in a spirit of co-operation with the voluntary hospitals and the spas. Many cases must be referred to the hospitals for special treatment, and, on the other hand, it is proposed that hospitals which do not possess facilities for hydrotherapy should have the opportunity of availing themselves of the service of the clinic.[1]

The establishment of this institution, and indeed the widespread interest in the problem of rheumatism, owe much to the insight and public spirit of some of the foremost representatives of industry in England. They, after all, are best acquainted with the needs of the people that it is primarily designed to serve. It is the expression of a medico-social movement, which has sprung up from the co-operation of medicine and industry, and will be carried to success with the support and good will of all the interests involved.

UNDIAGNOSED TUBERCULOSIS.

During the last twenty years attention has been focused on the importance of the "carrier" as a source of public danger. While acute diseases—as, for instance, diphtheria, enteric, and encephalitis—raise more interest and alarm among the general public, and place a more insistent problem before the profession, than do the chronic diseases, such as tuberculosis, syphilis, or rheumatism, the economic wastage from these latter is by far the more important. The exact position of infectivity in relation to adult tuberculosis is still a matter of opinion and controversy, but, on whichever side he stands, no one can deny the importance of either the massive dose to the adult or the liability to infection of the exposed child. For this reason the "carrier" or undiagnosed consumptive should be regarded as a factor of no mean importance in the problem of the incidence of tuberculosis in the individual or in the community. The tubercle bacillus is seldom met with save in the bodies and in the excreta of the tuberculous, but this is largely because it is not often looked for. Public health regulations are more concerned with the adulteration of our food and drink supply by organic or inorganic poisons than by bacterial ones. The exact vehicle for the spread of the tubercle bacillus may be unknown, but Calmette's suggestion that the human body, wherever infected, may excrete the bacilli via the bile and the large intestine is pregnant with possibility, and (menacing as it does, like enteric, our uncooked food and drink supply) is worth investigation. Coupling this with the further suggestion that the tubercle bacillus may assume a non-acid-fast and hitherto unrecognized form, both within and without the body, grave possibilities of danger from the undiagnosed consumptive may be imagined.

Dr. Fishberg, in his address to the British Medical Association at Manchester (printed at page 331), has crystallized our past and current conceptions of chronic pulmonary tuberculosis into apical and subapical types, and his accurate clinical delineation of the apical type as a mild, chronic, and often unrecognized condition affords us at once a plentiful "carrier" supply,

[1] See Memorandum, *British Medical Journal*, November 12th, 1927, p. 893.

whether we look on sputum as the excretory vehicle or whether we incline to believe in the stealthier method envisaged by Calmette. Opie and McPhedran have shown that apical infiltration is not an uncommon finding in symptomless children exposed to gross tuberculosis in the working-class home; it seems to be an alternative primary childhood lesion differing intrinsically from Ghon's primary focus with its corresponding involvement of the tracheo-bronchial glands. Presumably, therefore, Fishberg's apical types may have their origin in early life, and thus may have a longer "carrier" career than is commonly supposed. It can well be argued that such "carriers" are a far greater danger to the public health than the frankly recognized consumptive. The majority of those who have been diagnosed and notified spend some period of their lives in tuberculosis institutions where the importance of personal hygiene in its relation to the spread of infection is taught. That they all benefit by or follow out their teaching is not so certain, but even if they do not, close personal contact with them is avoided by those who know them. They are marked; and the stigma often brings to them a burden additional to that of their chronic disease. Although recovered in health, and sorely needing their steady wage to maintain that health, they find their work no longer open to them. The employer, suddenly solicitous, cannot allow such a leper to mix with his workpeople. Many of our Government departments even require a certificate of tubercle-free sputum before reinstatement. Such regulations are scarcely logical; they take no account of the possibility that the infection may have occurred during employment, or that the greater danger may be that of employing apparently healthy unsuspected carriers. The conception of infectivity without ill health is not yet commonly embraced where tuberculosis is concerned. It is not to be suggested that the unsuspecting "carrier" should be ferreted out and branded also—that would be adding hardship to hardship. The victimization is illogical. It would be interesting to know how many of those who will not re-employ a consumptive worker make the slightest effort to inquire into the tubercle-infective potentialities of those who minister to, or are in close personal contact with, themselves or their children. They do not do it; it is not a practical necessity; nor is it a practical necessity to victimize the notified consumptive. Not to re-employ the consumptive may be quite logical and just upon other grounds, but not on the grounds of his infectivity to fellow workers, save where the working conditions are so insanitary that they are a danger in themselves.

It is still an open question whether the prevention of tuberculosis should be attempted by the control of infection or by the immunization and prophylactic handling of the infected. The real laws of the infectivity of tuberculosis have yet to be worked out before this problem can have even a hypothetical solution. But when it is realized that for the urban working-class child population the incidence of infection is between 90 and 100 per cent. by the age of 15, and that American post-mortem figures show an incidence of pulmonary lesions of nearly 100 per cent. by the age of 21, the universality of infection must be admitted and realized. (It would be a better thing for our national health if this was more widely realized by the general public.) If infection is universal—and yet only a fraction of the population actually suffer or die from the disease—it must follow that the ordinary infection is relatively unimportant, and that either massive infection or some other factor must be the determining agent. But people apparently do enter adult working life infected and probably harbouring living bacilli; as such they are potential consumptives. It would seem, then, that a closer study of tuberculosis in the child, combined with a "following up" in adult life, would put us in a position to classify the different degrees of intensity of infection and of extent of lesion that are found at adolescence and puberty, and to determine what risk there was for any given degree of infection, in any given circumstance, to develop into frank consumption. From this knowledge it would be but a step to the organization of a real preventive treatment, to which probably no disease is more amenable than tuberculosis. How apposite are the words of Dr. Savage in his book[1]: "Too often we seem content to succour the damaged traveller along life's road by tending his hurts with food and sun and maintaining him at an inn . . . until he is sufficiently recovered to hobble away, but never taking adequate measures to police the road from Jerusalem to Jericho. The Samaritan has his welcome place in the scheme, but the preventive force is an urgent need."

We publish elsewhere (at page 335) a paper on hilus tuberculosis by Dr. Gair Johnston, dealing with the examination of no fewer than 20,000 children; and Lissant Cox and "others"[2] publish figures relating to the same subject with an experience of 1,500 children. It is from works such as these—and they are being contributed from every country—that we shall get the basic facts, and from them we may build a scheme, not, perhaps, to prevent infection, but to harness it and to make it harmless.

RAY LANKESTER.

By the death of Sir E. Ray Lankester the world has lost one of its great men. He was the Samuel Johnson of modern science. He was big in body and in mind, brimful of humanity, and knew how to enjoy the best life had to give. He assumed leadership in his youth and, by strength of courage, a forceful personality, and soundness of judgement, maintained a dominating ascendancy almost to the end, which came, on August 15th, in his eighty-third year. He was intolerant of restraint, and the unsleeping enemy of sham and pretence. The effects of his life's work were not confined within the bounds of science, but overflowed and permeated the great tide of public thought beyond.

The career of Ray Lankester compels us to realize how greatly the face of medicine has changed and is changing. He taught medical students, and yet, although the son of a medical man, he himself was not trained for medicine. When he became a graduate of Oxford in 1870, at the age of 23, biology was growing into an independent kingdom. Up till then men who wished to devote themselves to comparative anatomy, zoology, botany, or other accessory subjects such as physiology, found it necessary to enter them by a medical portal and seek for a post in connexion with a medical school. By 1870 biological knowledge had so grown, and the training for all research into the processes of life had become so technical, that the leaders of the time—particularly Huxley—advised promising young men to take courage in both hands, cut themselves free from the skirts of medicine, and devote themselves whole-heartedly to their chosen branch—be it zoology or physiology. Hence we find Ray Lankester, on leaving Oxford, going to the

[1] *The Prevention of Human Tuberculosis of Bovine Origin.* By W. G. Savage. Macmillan and Co. 1929.
[2] *Tubercle*, vol. x, No. xi.

Zoological Station at Naples in place of entering a medical school in London. At the age of 27, when under the old dispensation he might have expected to have his name on a brass plate in Harley Street and hold a lectureship at a medical school, he found himself professor of zoology at University College, London—a stepping stone to the Linacre chair of comparative anatomy at Oxford, whither he went in 1890 at the age of 43. Two years later he was recalled to London to succeed Sir William Flower as director of the Natural History Museum, South Kensington. His predecessors there, Owen and Flower, had both entered zoology through the customary medical portal. At South Kensington he remained until 1907, when, having reached the age of 60 and the very height of his ability and fame, he was relieved of office in order that official wheels might run along undisturbed in their well-worn ruts. No power on earth, save death, could "retire" Ray Lankester. For twenty years he broke the bread of science to English-speaking people, and in this role he had no equal. He had ranged the whole realm of life; his methods were exact and his observation sure; he knew at first hand the smallest forms of life as well as the largest; he was never the slave of his facts; his mind moved easily over great fields of living things, perceiving the interrelationship of one to the other, and the whole to the great problems of human civilization.

From his youth upwards Ray Lankester was under the spell of Huxley; he was by far the greatest of Huxley's disciples. No one perceived the extent and power of his youthful abilities better than did Huxley; and no one realized more accurately the rocks on which such great abilities might become wrecked. When, in his earlier years, Ray Lankester sought to serve the British Association as a secretary, Huxley's remark to him was: "Lankester, a secretary to the British Association has to suffer fools gladly; I have observed that you gladly make fools suffer." Ray Lankester acted on this principle all through life. He was appointed to the chair of natural history in Edinburgh; he accepted it, occupied it for a fortnight, and then flung the gift at the heads of the givers. He quarrelled at Oxford; he was obstreperous at South Kensington; he had an unpleasant passage with the police in Piccadilly. He was marked out by his ability and accomplishments to occupy the presidential chair at the Royal Society; but his colleagues feared what might happen to the routine machinery of the society were he to become its president. He had the impatience of an autocrat, but it was an honest impatience. Having satisfied himself that a certain change would conduce to the advancement of knowledge and of liberty, he could not believe that the opposition of his opponents was due to anything else but wilful obstinacy, and that only sledge-hammer methods could remove the obstruction. No one could wield the sledge-hammer with more effect than Ray Lankester; and yet in the midst of apparent victory he suffered defeat.

Ray Lankester's greatest character was his fearless courage. No matter how unpalatable a truth might be, once he had persuaded himself that it was well founded no self-interest came between him and its open proclamation. He refused faith as a guide, and strove in all things to follow the dictates of reason. He inquired into the manifestations of spiritualism, and found that the "facts" on which its verdicts were based were such as could not pass muster in any scientific inquiry. Perhaps no finer example of his courage could be cited than his championship of the discoveries of Mr. J. Reid Moir of Ipswich. In 1910 Mr. Reid Moir was seeking to convince men of science that the rosto-carinate flints which he had found under the "red-crag" of Suffolk had been fashioned by human hands. Geologist [illegible] archaeologists looked on with [illegible]ticism until Ray Lankester [illegible] the evidence at first hand, convinced himself that Mr. Reid Moir was right, and immediately set about to vindicate his claims, and persisted until he won a hearing for the youthful discoverer.

When Ray Lankester began his career zoology was believed to have suffered in the servitude of medicine. John Hunter had made zoology an appanage of medicine by seeking in it clues to function. Then came in succession Cuvier, Owen, and Huxley, who made zoology a study of form and initiated the period of morphology—a functionless zoology. At the height of this period Ray Lankester began his career, and became the most eminent morphologist of his time. If morphology provided no profitable food for medical men, that was their look-out rather than his. And yet he was proud that zoology could serve in the progress of medicine; he was ever ready to cite the important contributions his friend Metchnikoff had made to practical medicine. He lived to see the younger and more daring recruits to zoology abandon the field of morphology and devote themselves to the study of living processes—processes of development, nutrition, growth, and reproduction. It was not given to Ray Lankester to open the portal that led to a great field of new knowledge, but there is scarcely a compartment of zoological knowledge that has not been extended and improved by his visit to it. He was the last of the great morphologists, and, although the methods and aims of zoology may alter, yet his work can never pass out of date, because it is founded on the rock of truth.

POSSIBLE DANGERS OF COD-LIVER OIL.

THE fact that the administration of cod-liver oil is by no means an invariably safe proceeding is becoming increasingly clear, and on two previous occasions (1928, vol. i, p. 639, and 1929, vol. i, p. 165) we have commented on the nature of the risk. The investigation of this highly important subject has for the most part been reported in *Acta Paediatrica*, and a recent number of this periodical[1] is almost entirely devoted to a study of the problem from several points of view. P. Henriksen, after an extensive survey of the results on the body cells of vitamin A given either in excess or in deficient quantity, comes to the conclusion that general cell degeneration throughout the body may be produced by large doses. In his experiments on young rats doses of over 1.4 grams of cod-liver oil per kilogram of body weight caused such degeneration. He strongly criticizes certain previous workers, however, and especially Agduhr, for suggesting that cod-liver oil may be dangerously poisonous to the heart, and may even lay the foundation of future heart disease. Agduhr replies to these criticisms in the same number of the periodical, pointing out that he was himself considerably puzzled by the lesions found in the hearts of certain experimental animals which were given toxic doses of cod-liver oil; in order to take the matter a step further he has studied, in conjunction with Dr. N. Stenström, the appearance of the electrocardiogram in heart lesions produced by cod-liver oil treatment. From the outset of these experiments it was necessary to determine the appearance of the normal electrocardiogram of white mice and also what variations in the rhythm of the heart might occur quite apart from cod-liver oil intoxication. It was ascertained that after

[1] *Acta Paediatrica*, June 12th, 1929, vol. viii.

the animal has passed the first period of growth, lasting for about the first month of life, the electrocardiogram remains practically constant during the period of life covered by the experiments. At first, as a result of studying some seventy mice, it was proved that even highly pronounced morphological heart injuries could be present without the electrocardiogram showing any obvious changes from what at this time could be regarded as the normal. When animals were followed more exactly over a longer period of time certain definite changes were observed, especially in the ventricular part of the electrocardiogram, which altered its features so consistently that the experimenters were able to recognize it as "a typical cod-liver oil electrocardiogram." In addition, the auriculo-ventricular conduction time was prolonged in animals treated with cod-liver oil, in many instances to a pathological degree. The exact mechanism of these disturbances of the cardiac contraction appears to be uncertain, but there is a definite correlation with the morphological changes observed in the cardiac muscle. In less than one year mice showed alterations in the electrocardiogram with doses of even such small amounts as 1/7 c.cm. of cod-liver oil per kilogram of body weight daily. This would correspond bulk for bulk with approximately 25 minims of cod-liver oil daily for a 12-months-old infant, but the whole question of differences of susceptibility has to be taken into account. C. W. Herlitz, I. Jundell, and F. Wahlgren contribute yet another paper on this subject, with reference to the harm done—more especially to the heart—by the antirachitic substance. They conducted a series of extensive and elaborate experiments on animals, and showed that doses of this substance, quite comparable with those employed in clinical medicine for children, could produce considerable degenerative changes in the cardiac muscle. They feel very strongly that the public should be warned about the danger attending the indiscriminate use of cod-liver oil and also of various forms of irradiated milk. Taking the three papers here considered as a whole there still seems to be some difference of opinion as to the effects of cod-liver oil in ordinary therapeutic doses, but the subject is of sufficient importance, and the present evidence is suggestive enough, to warrant a more intensive study, so that a definite answer may be given to the question—can cod-liver oil do harm?

SAFETY AND HEALTH IN COTTON SPINNING MILLS.

FOLLOWING a recommendation of the 1911 Departmental Committee on Accidents, representatives of employers and employees in the cotton spinning industry met representatives of the Factory Department in conference, and, by July, 1912, had agreed upon a series of safety measures against accidents. These were duly embodied in regulations which admittedly have been very successful in diminishing both the incidence and severity of such accidents. The passing of time has, however, brought to light the fact that not all the precautionary measures are proof against the carelessness and perverseness of the human element, or are sufficiently rigid in themselves. As a result the conferences were reinstituted at the end of 1926, and their chairman, Mr. E. F. May, a superintending inspector of factories, has now issued a report.[1] The agreements do not, in all cases, carry out the excellent preliminary suggestions put forward by the chairman, but they convey a general impression of a useful tightening up of the loose elements so far as safety is concerned. There are, however, two outstanding amendments which should prove of great value; one compelling a definite signal from the spinner to the cleaner before the latter enters the danger zone between the movable carriage and the fixed part of the mule, and forbidding restarting before his reappearance, the other being the formation of a joint standing committee to consider from time to time the desirability of amending any of the regulations. Mule spinners, who work with their feet bare, are very subject to slight splinter wounds which rapidly become septic, but, as the operatives object to slippers and the employers cannot afford maple floors or composition coverings, the only remedy suggested is the providing of readily accessible iodine, forceps, and sterilized dressings, and of "a person instructed in their proper use." This is a confession that no preventive measures against the primary injury can be recommended, which makes us inclined to think that the inexpensive slipper might have had more encouragement. Canvas shoes with hempen soles do not slip, and have made headway when provided and pushed by a welfare department. Apart from the general weakness of the recommendation we note that nothing is said as to how the person in charge is to get the essential instruction for dealing with splinters. It would be quite easy to get the necessary help from the certifying surgeon, who is frequently reporting on first-aid equipment in cases of sepsis and poisonings, and is regularly visiting the mills, but apparently there was no thought of this safeguard. The really comfortable way in which temperature is dealt with by just readopting the 1912 standard calls for some comment. Card rooms and ring spinning rooms, grouped together for some reason that is not obvious, are allowed a maximum of 80° F. and a minimum of 60°, mule rooms are allowed a maximum of 95° and a minimum of 70°; artificial heating is to be cut off when a maximum is reached, but a maximum may be exceeded during hot weather. This is, obviously a rule-of-thumb scale and, so far as spinning rooms are concerned, makes no pretence of dealing with the real problem. One illustration will readily justify this criticism. In cotton spinning as well as in weaving, a certain amount of relative humidity is a necessity, and to maintain the correct percentage with a rising dry bulb temperature there must necessarily be a corresponding rise in the wet bulb temperature. In fine-spinning rooms, where temperature and humidity can be accurately regulated, the best results are gained at a relative humidity round about 45; but to maintain even this reasonable percentage a dry bulb temperature of 95° would mean the wet bulb temperature rising to 80°. Now a recent report of a departmental committee on artificial humidity in cotton weaving told us that "a wet bulb temperature of 75° is a critical point in regard to the injurious effect of the atmosphere on the human body, but that the discomfort and decline in productive efficiency make themselves felt before that temperture is reached," and as a direct consequence of that dictum the 1929 weaving regulations insist that artificial humidification must cease when the wet bulb temperature exceeds 72.5°. There are other points needing consideration, but the one brought out should be sufficient to convince the trade that it would be a wise step to set the new committee functioning by instructing it to make a thorough investigation into the significance of high wet bulb temperatures in spinning rooms. The members will find plenty of useful information in the temperature and humidity section of Dearden's Milroy Lectures.[2]

ANNUAL REPORT OF THE MINISTRY OF HEALTH.

ONLY a man of the most catholic taste or one loving detail for its own sake could be expected on first acquaintance to traverse the pages of the annual reports of the Ministry of Health without pause and without bewilderment. The ramifications of the system—or systems—of administration under the control of the Ministry are so extensive and so

[1] Home Office Report on Conferences between Employers, Operatives, and Inspectors Concerning Fencing of Machinery, Prevention of Accidents, First Aid, and Temperature in Cotton Spinning Mills. By Eliot F. May. London: H.M. Stationery Office, or through any bookseller. 1929. 3d net.

[2] W. F. Dearden: Health Hazards in the Cotton Industry. *British Medical Journal*, March 12th, 1927.

diverse that it is exceedingly difficult to form any clear picture of its activities or to choose any outstanding feature in the tale of its labours. In the year ended March 31st, 1929, covered in the most recent report,[1] the most notable event in the history of the Ministry was the passage of the Local Government Act, 1929, which, as the report reminds us, is a logical development of the policy instituted in 1919 in the Act which established the Ministry itself, and which marked the beginning of an effort to co-ordinate the health services of the country into one comprehensive and economical system. The report under review is divided on the conventional plan into five sections, devoted respectively to public health, local government and local finance, administration of the Poor Law and old age pensions, national health insurance and contributory pensions, and the activities of the Welsh Board of Health. In the section given to public health it is stated that further progress has been made in the development of the tuberculosis service by local authorities, notably in the number of beds provided by such bodies in their own institutions for the treatment of the disease. Progress has also been made in the provision of facilities for orthopaedic treatment and for actinotherapy. The attention of local authorities has been directed to the experimental work of the National Association for the Prevention of Tuberculosis at Burrow Hill, Surrey, where youths between 14 and 19 are being furnished with technical instruction while undergoing treatment for tuberculosis. In discussing the notification of tuberculosis, emphasis is laid on the need for caution in accepting statistics relating to the incidence of tuberculosis owing to the fact that the accuracy of the notification registers is open to question. It appears that in certain areas the registers, through insufficient care in revision, are inflated with cases which for various reasons should have been removed. Deaths from tuberculosis show a further decline, the mortality rates of 755 and 173 per million population from pulmonary and non-pulmonary tuberculosis respectively for 1928 being the lowest ever recorded in this country. Details are given of the steps taken to combat maternal mortality, and, although no comparative figures are given, the report states that the numbers of local authorities making special arrangements for the institutional treatment of puerperal fever and puerperal pyrexia, for the services of specialists for consultation, and for skilled nursing show "a material advance." The number of infant welfare centres has also increased, and while there is little actual change noted in the extent of the provision for complicated cases of confinement, several notable additions to this type of hospital accommodation are being made. A section of some interest to insurance medical practitioners explains the policy and procedure of the Ministry in relation to the vexed question of excessive prescribing; in the course of the year money was recovered from practitioners on this account in only 21 cases, the aggregate amount so recovered being about £370. In view of the fact that there are about 14,300 doctors in England in insurance practice, and that over £2,000,000 was expended in the year on drugs and appliances, there seems ground for suggesting that much more has been heard of "excessive prescribing" than the facts of the position justify. Many other points of similar character to those mentioned emerge on study of the report, but it cannot be regarded as a satisfying type of document. The various sections are concerned for the most part with administrative and financial questions, the medical cream of the year's work being presented in the report issued separately by the Chief Medical Officer, while the main vital statistical returns are issued by the Registrar-General. Consequently the report of the Ministry itself comprises chiefly a collection of information on points of detail—invaluable for reference but uninspiring in the mass. No effort is made to present even a brief rounded sketch or summary of the Ministry's main achievements, and in view of the importance of the subject, and of the need for the education of all sections of the public and the lay press regarding the complex system of health administration, this must be regarded as a matter for some regret.

[1] Tenth Annual Report of the Ministry of Health, 1928-29. (Cmd. 3362.) London: H.M. Stationery Office, or through any bookseller. 4s. net.

FLICKER AND VISION.

THE report of a new piece of research work by Messrs. Lythgoe and Tansley has been issued by the Medical Research Council.[1] It deals with the adaptation of the eye, and its relation to the critical frequency of flicker. A knowledge of the behaviour of the eye in different states of its adaptation is obviously of great importance for all occupations involving vision at low illuminations, and within recent years it has become recognized that adaptation may also play a prominent part in the performance of visual tasks at higher illuminations, since it is then controlled chiefly by the characters of the surrounding field of vision. In this new work the variations in the critical frequency of flicker under different states of adaptation of the eye have been studied. It has been recognized from very early times that the sensation produced by a visual stimulus persists after the stimulus itself has come to an end, and this persistence of vision was used by Aristotle in his explanation of dreams. D'Arcy measured the rate at which a burning stick had to be whirled round before it would give the impression of a continuous circle of light. The modern method of measurement is a refinement of this test. A disc with sectors cut out is rotated in front of a source of light until flicker gives way to a sense of continuous light. The values of the critical frequency of flicker depend on the intensity of the light used; the brighter the light the faster must be the revolutions, and this gives a measure of the different values of the light. It was found that at low illuminations the critical frequency rises slowly with increase of illumination. At higher illuminations the critical frequency measured by the fovea rises much more rapidly, so that it is higher than for the periphery, and the reverse for low illuminations. The influence of surrounds was also investigated. One of the authors had noted that when in a train among the snowfields in Switzerland the flicker of the electric lamps was very noticeable on a bright day with the sunlit snowfields in view, whereas during the passage through a lengthy tunnel the flicker was inappreciable. In these tests it was possible to differentiate the reactions of the rods and cones of the retina. In the course of their experiments they were able to demonstrate that one of their subjects was night-blind. On the Archangel front during the war night-blindness among the troops was a common occurrence. The condition yielded to treatment with cod-liver oil, which contains vitamin A. On inquiry it was ascertained that their laboratory worker, who gave reactions of night-blindness, ate practically no butter or fresh vegetables, and drank no milk or cream.

[1] Privy Council. Medical Research Council. Reports of the Committee upon the Physiology of Vision. V. The Adaptation of the Eye; Its Relation to the Critical Frequency of Flicker. By R. J. Lythgoe, M.A., B.Ch., and K. Tansley, B.Sc. London: H.M. Stationery Office. 1929. (Pp. 72. Price 2s. 6d. net.)

THE PRIMARY F.R.C.S. EXAMINATION IN CANADA.

A PRIMARY examination in anatomy and physiology for the Fellowship of the Royal College of Surgeons of England was held at Toronto on August 6th and the following days, this being the first occasion on which this examination has been held out of England. It was conducted by Professors William Wright, W. E. Le Gros Clark, C. Lovatt Evans, and John Mellanby, who were sent out from England for

the express purpose, with Professors J. P. McMurrich and C. H. Best of Toronto University as assessors. Sir Holburt Waring also attended as visitor on behalf of the English College. Twenty-three candidates presented themselves for examination, and nine were successful. The Canadian Medical Association was responsible for the arrangements, and much of the success of this new departure was due to Dr. Alexander Primrose, dean of the Medical Faculty of the University of Toronto, and Dr. T. C. Routley, general secretary of the Canadian Medical Association, who took an active part in bringing about this attempt to offer to Canadian medical practitioners greater facilities for obtaining the F.R.C.S.Eng. There is a strong desire in Canada for closer association between the medical profession in the Dominion and in this country, and much interest has been taken in Canada and the United States in the undertaking. The examiners were received by the Governor-General at Quebec and by the Prime Minister at Ottawa, who expressed sympathetic interest in their mission. The Final Examinations for the Fellowship will be conducted only in England, but the opportunity of passing the primary examination in Canada should make two visits to this country unnecessary, and so, it is hoped, bring the F.R.C.S.Eng. within the reach of a larger number of Canadians than has hitherto been the case.

MEMORIAL TO PROFESSOR WIDAL.

WE have received from Sir Almroth Wright a copy of a letter addressed to him by Drs. Fernand Bezançon, André Lemierre, Pierre Abrami, Marcel Brulé, Edouard Joltrain, and Louis Pasteur Vallery-Radot, inviting his co-operation in a memorial to Professor Fernand Widal, who died on January 14th last. The letter announced the setting up of a committee for the purpose of placing medallion portraits of Professor Widal in the Paris Faculty of Medicine and the Hôpital Cochin, and of publishing a collected edition of his works. A number of his colleagues in other countries having stated their desire to associate themselves with this project, the signatories expressed the hope that Sir Almroth Wright would take the initiative in making the proposed memorial known to those in this country who have had personal association with Professor Widal and cherish his memory. Contributions to the fund may be sent to the *Lancet* Office, 423, Strand, W.C.2, addressed "Widal Memorial, c/o the Editor, the *Lancet*."

THE EDUCATIONAL NUMBER, 1929.

OUR next issue, dated August 31st, will be the annual Educational Number of the *British Medical Journal*. Its contents, as in previous years, will include a full account of the requirements of the General Medical Council and of the universities and other licensing bodies in Great Britain and Ireland, as well as information about the opportunities offered by the various medical schools and other teaching institutions, and the fees charged by each. The details given have been revised and brought up to date by the authorities concerned. These sections, the object of which is to furnish a handy guide to intending students of medicine, are supplemented by articles intended for newly qualified practitioners on such matters as post-graduation study, the public health services, tropical medicine, psychological medicine, and the various special diplomas. In the sections dealing with the public services will be found a concise account of the present terms and conditions of service in the R.N.M.S., the R.A.M.C., the I.M.S., and the R.A.F.M.S., which the Representative Body of the British Medical Association has decided are satisfactory and such as can be commended to the notice of the younger members of our profession. The opening articles for this year's Educational Number will be an address on "Medical Education and Licensure in the United States of America," by Sir Norman Walker, Direct Representative for Scotland on the General Medical Council; and the introductory paper on "The Place of Human Physiology in the Training of Medical Students," read by Professor Francis R. Fraser to the Section of Physiology and Biochemistry at the Annual Meeting of the British Medical Association in Manchester.

ULTRA-VIOLET PUBLICITY.

WE published last week a paper by Dr. A. Eidinow on "The effect of radiation on resistance of rabbits to infection with virulent staphylococci." This paper had been *strongly commended to our notice by Professor Leonard Hill*, in whose laboratory at the National Institute for Medical Research the author had conducted the investigation. No one outside this office, except Professor Hill and Dr. Eidinow, had been informed that it was provisionally accepted. On the afternoon of August 14th, while going to press, we learnt with surprise that the night edition of the *Evening Standard* of that date had an article on its front page, under the headings "Fighting Deadly Bacteria. Remarkable Claim by Two Scientists. Ultra-Violet Rays and Blood Poisoning," which stated that details would be published shortly of exhaustive experiments carried out by Professor Hill and Dr. Eidinow of the National Institute for Medical Research. On the same evening the British Broadcasting Corporation issued an announcement from 2LO to the effect that the results of certain experiments by Professor Hill and Dr. Eidinow on the use of ultra-violet rays in blood poisoning would be published shortly in the *British Medical Journal*. This announcement, it need scarcely be said, was not authorized by us, and we have impressed upon those most immediately concerned that it is their duty to trace the leakage. Professor Leonard Hill, we understand, is abroad, and is probably not aware of these occurrences.

THE Board of Control (England and Wales) has issued a report by Surgeon Rear-Admiral E. T. Meagher, R.N. (ret.), on the treatment of general paralysis by induced malaria. It embodies a study of over 1,500 cases, and the evidence collected is considered to justify the conclusion that beneficial results are obtained in this way which are specifically attributable to the treatment. The report is a long one, dealing in detail with numerous cases; we hope to discuss its findings in a later issue. It is published by H.M. Stationery Office at the price of 2s.

WE publish in the *Supplement* this week the full text of the annual report for 1928-29 of the Insurance Acts Committee.

COMMENTING on Sir Donald MacAlister's approaching retirement from the principalship of the University of Glasgow, *Nature* of August 17th says: "Sir Donald's resignation brings to an end a principalship the success of which is probably unprecedented in the annals of Scottish universities. During the past twenty-one years the University of Glasgow has made remarkable progress, due mainly to the principal's genius in administration. He soon introduced great improvements in the business of the university, and has unquestionably made it a far more efficient and competent organization. Before he took office there had been frequent friction between the University Court and Senate: but his capacity as chairman of the court, and the full confidence of the teaching staff in his judgement, insight, and statesmanship, have allowed the court without opposition steadily to increase its control of the university."

THE TREATMENT OF RHEUMATISM BY BATHS.

THE *Archives of Medical Hydrology* for the current month (August) contain a number of papers and reports bearing on the treatment of chronic rheumatic diseases. By this term the authors signify all those forms of arthritis, myositis, fibrositis, and their congeners which appear to be the peculiar liability of those who live in cold, damp climates. Among the more important papers reviewed are those presented at the recent meeting at Aachen of the German Society for Combating Rheumatism and Professor H. Strauss's work on "Rheumatism and chill."

Principles of Thermal Treatment.

The application of physical remedies to diseases which have a climatic element in their causation is an attractive conception. For many years Dr. Fortescue Fox has been an exponent of this idea, and the rheumatic diseases are here cited as a strong case in point. His suggestive paper on "The value of baths in rheumatism" is the fruit of long experience in the sphere of hydrology. Dr. Fox discusses the operation of uncompensated cold in the development of rheumatism, and expresses his conviction that stimulation of the skin by heat, moisture, and movement in baths is by far the most effectual form of physical treatment in the protean forms of this disease. He is far from decrying the influence of other causes, extrinsic and intrinsic, in the development of rheumatism. The infective factor is, for example, clearly present in a proportion of cases; but Pasteur long ago showed how easily exposure to cold might make infection operative.

The argument is an interesting one. The functional disturbances which occur in the early stages of rheumatic illness are precisely those which are observed to follow exposure in individuals sensitive to cold.

> "The circulation of the blood is withdrawn to the vital organs, and the temperature falls, first at the exposed surface and afterwards in the deep parts. . . . Failure of the normal reaction to cold lowers the temperature of the body and prevents the movement which in its turn would generate heat. . . . The various rheumatic diseases met with in cold climates may be described, functionally, as a failure of movement due to a deficiency of heat, and anatomically as lesions of the apparatus of movement. . . . The reactions of uncompensated cold are nothing more nor less than the functional disturbances which accompany the development of rheumatic disease."

From this position Dr. Fox goes on to consider some of the effects in the tissues and organs which can be produced by stimulation of the skin. The reactions produced by the "bath complex" (heat, moisture, and movement), in their nature and in their distribution, are just those which the physician seeks to obtain in order to relieve the symptoms and the associated disorders of function which distinguish the development of rheumatism. Cutaneous stimulation by heat, more especially in rheumatic cases, carries in its train a series of increments: increase of all the functions of the skin itself, of the circulation of the blood and lymph, of metabolism, of elimination (detoxication), of involution and resorption of exudations and deposits, and of the nutrition of wasted muscles. With all this increase of functions, symptoms are at the same time diminished—chill, pain, tension, swelling, stiffness, and immobility. And these effects of baths are precisely the reverse of the effects of uncompensated cold.

But much will depend on the degree and duration and spacing of the doses given. It is also important for the effectual treatment of rheumatism that repeated thermal impressions should be supported and made continuous by a thermal environment. The effect of heat must not be immediately annulled, as so often happens, either under the mistaken idea that it is well to "cool off" after the bath, or from accidental exposure to cold in the bath establishment or hospital. This want of understanding of thermal treatment has, more often than not, vitiated its use in rheumatic diseases. A thermal environment is a necessary part in the treatment of rheumatism: the artificial climate of the bath itself should be reinforced by an atmosphere of a certain character in the building in which the treatment is given. Properly heated establishments, whether they be physical clinics or hospitals, are a *sine qua non* in the treatment of rheumatism in cold countries." Dr. Fox notes the remarkable benefit obtained in cases of arthritis by mud baths given at a spa in a hot climate. The action of the hot mud becomes day by day cumulative and even permanent in its effects, when it is reinforced by a suitable thermal environment in which the possibility of chill and even of cooling is prevented. On the other hand, it is unfortunately a common experience that the same modes of treatment, and indeed baths of any kind, given in cold climates are often disappointing, and may be injurious. The Romans got over this difficulty in Britain and Gaul by warming the pavement of their *thermae*, which produced an "artificial climate" for the bathers.

Organization of Bath Clinics.

If such general considerations be accepted, the next step is to suggest the principles which ought to govern the systematic thermal treatment of rheumatism. The British Red Cross Society has now nearly completed a central demonstration clinic in London, in which the main feature will be a comprehensive equipment of medical baths. With this are included accessory forms of physical treatment by light and electrical currents. This central clinic should provide an opportunity for investigations that are much needed at the present time. The various modes of bath treatment which have been employed in different countries for many years have yielded encouraging results. It is very desirable that all these modes of treatment should be precisely studied by modern methods. The reactions which they produce in different types of rheumatism ought to be observed and recorded accurately *pari passu* with this analysis of treatment goes the investigation of large numbers of cases in the earliest stages of disease, and especially of those functional disturbances which precede organic changes in many at least of these cases.

The clinic in London for the physical treatment of rheumatism is new in its purposes and scope, and the medico-social conception which it embodies is necessarily an experimental one. Such an institution does not exist in England, nor has it any Continental prototype. Much will depend on the lines that are laid down for its constitution, and on the programme which it sets out to accomplish.

Since it is obviously impossible, on financial and social grounds, to send the mass of industrial workers suffering from rheumatism away from their homes and work for treatment at the spas, proposals are being made for setting up town clinics in various centres in England where they may obtain the treatment they require, if necessary after working hours. Dr. Fox suggests that this need can best be met by providing throughout the country a well-tested and approved system of *bath clinics* for out-patients, in specially warmed buildings, with adjuvant forms of physical treatment, under experienced and skilful administration. Many forms of baths can be used with advantage in the successive stages of rheumatic disease. "*In the earliest* stages, the period of functional disturbance, baths are *preventive*; in the protracted sub-inflammatory stages, baths are *curative*; in the later post-inflammatory stages, baths are *palliative*."

Dr. Fortescue Fox concludes his paper with a description of four distinctive methods of bath treatment, which in his judgement are of sufficient value to justify the erection of a clinic or clinics for each of them. These are: (*a*) *Manipulation pools* and baths, with preparatory radiant heat or hot air; (*b*) *mud baths*—half-baths and packs—with galvanism; (*c*) *vapour baths*, with light, friction, and switchings, especially for early and preventive use; (*d*) *salt baths*, with manipulation. The British low-pressure manipulation douche and a proper selection of local baths should be provided at all clinics for rheumatism. But in setting up bath clinics in the towns no attempt should be made to install in one place all the methods which are employed in other places. "The best results in rheumatic cases are often obtained by a few methods, wisely employed."

In outlining such a policy it must be emphasized that, in the interests of the patients themselves and upon scientific grounds, these several procedures should be worked out by competent hydrologists. For—no less than with the modern technique of treatment by electricity, light, and radium—medical baths have proved themselves a specialty, requiring long training and skill in their use.

NATIONAL HEALTH INSURANCE IN SOUTH AFRICA.

In an article in the *British Medical Journal* of April 21st last year (p. 673), published as one of the results of the official visit of the Chairman of Council to South Africa, we pointed out that the medical profession of the Union, as indeed the whole of the British Medical Association, is vitally concerned with the development of proposals relating to the establishment of a national health insurance system in that country. The Parliamentary Commission appointed by the Governor-General in February, 1926, to examine and report upon old age pensions, and on an insurance system against the risks of sickness, accident, premature death, invalidity, and maternity, issued in April, 1927, its report with regard to the former part of its reference, and has now published a second report dealing with the latter part.[1] It is a document of great importance, and should be studied in detail by all members of the medical profession in South Africa, and by all those who are concerned with the national health insurance system in Great Britain and with schemes for social insurance in general. It contains chapters on insurance against accidents (employers' liability) and on invalidity and old age pensions in continuance of proposals made in the former report, but further reference to these matters need not be made here. In the main part of the report concerned with sickness insurance there are not merely the outlines of a scheme of national insurance with recommendations referring thereto, but many interesting and valuable notes on health insurance schemes in Great Britain, Germany, and other countries.

In the article in the *Journal* to which we have referred it was made clear "that conditions in South Africa differ radically from those in Great Britain, or indeed in any other country which has adopted a scheme of national health insurance, and that therefore no existing scheme could be applied without fundamental alterations." Certain questions were raised with regard to such fundamental points, and some suggestions were made for dealing with them. It is interesting to note that with regard to most of these the proposals now put forward by the Commission are on the lines there indicated. We referred to "certain regions as in the unsettled or pioneer stage and therefore outside practicable medical provision." The Commission is of opinion that a scheme of health insurance in such areas is impracticable, and recommends "the provision of a partially trained native medical service to provide the necessary medical attention in the native areas of the Union." We further expressed the opinion that "other regions in which the scattered population and the great distances which a doctor must travel to render service make insurance actuarily impossible might be provided for apart from the insurance scheme, but simultaneously therewith, by some form of subsidy somewhat on the lines of the Highlands and Islands arrangements in Scotland." The Commission expresses the same view, and recommends that in such rural areas steps should be taken to "extend the scope of the service by district surgeons and the provision of an increased number of tours" by such surgeons. It believes, justly, that this service is "considerably in advance of the arrangements made in many other countries where the same problem exists," and prints in an appendix the Highlands and Islands scheme, which, it states, "possesses features which are also to be found in the scheme of district surgeons," and which, with slight modification, might well be adopted in extending that scheme.

In our previous article we expressed the opinion that it would be impossible to exclude the "coloured people" from insurance, and highly undesirable to exclude the natives in industrial areas, and said: "It seems probable that the question of colour will be avoided by giving special consideration to the position of low wage-earners, including not merely natives and coloured people, but many of the class known as 'poor whites,' preponderantly low-class Dutch." The Commission says: "It would be undesirable to make any distinction on the grounds of colour in an insurance scheme. We are of opinion that employers of persons earning less than £35 per annum in insurance areas and who do not satisfy the authority that they are making adequate provision for hospital and medical treatment of such employees should be required to pay the whole contribution to the insurance fund, and in the case of persons in higher groups the greater part of the contributions" according to scale, the proviso extending to those earning not more than £60 per annum. This scheme, as we suggested should be the case, will "allow of the continuation of some existing provisions for medical and other benefits already working satisfactorily in connexion with railways and some mines."

The actual scheme of sickness insurance proposed follows, in the main, the lines of that established in Great Britain. There are, however, a few very important differences which must be considered, apart from those involved in what has already been noted. As regards the persons to be insured, employees engaged in agriculture in insurance areas will be excluded, and "employees earning over £400 per annum will be excluded without differentiation between manual and non-manual labourers." In Great Britain, it will be remembered, the income limit is £250 a year, and this applies to non-manual workers only. There is a case for a higher limit than £250 in South Africa, but, unless opinion has recently changed, the medical profession there has always declared that a limit of £400 is much too high. If some such limit as £6, or at most £7, a week is preferable, the profession should come to a speedy decision and should take active steps to secure its acceptance. The application of an income limit to the whole insured population, however employed, is extremely interesting. It has been demanded by the British Medical Association for Great Britain, but has always been declared to be administratively impossible; yet it still appears to be both logically and socially right. If the experiment be made in South Africa, and if it be successful, it will be of great value.

Another important difference between the proposed scheme and that now in operation in Great Britain is that (apart from low wage-earners) the contributions and the sick pay are not uniform, but are graduated according to wage groups, and, in the case of sick pay, to the number of dependants (wife, and children under 16 years of age, not exceeding four). In calculating these groups it is stipulated that "wages shall not be confined to substantive salaries or wages, but shall include all local and other subsistence allowances, cost of free quarters and board, and any other items in cash or in kind which may legitimately be included as part of the real earnings." Moreover, the definition of sickness is to be "inability to do his ordinary work by reason of the abnormal state of an insured's bodily or mental health, provided the insured complies with the doctor's orders or other instructions relating to his conduct while ill, and that the sickness was not caused by his own wilful misconduct"; and "an insured woman will be entitled to sick pay if she has to go off work owing to pregnancy; the maternity benefit is given in substitution of the sick benefit for the confinement and for a period of fourteen days subsequent thereto." Difficult as is the position with regard to the certification of "incapacity" under the scheme in Great Britain, it may be suggested that difficulties are not likely to be less under the proposed definition and conditions in South Africa. This is another point on which the profession in the Union might well make up its mind and offer guidance to the authorities. Correspondingly, the amount of maternity benefit varies in accordance with wage groups; but it is provided, contrary to the custom in Great Britain, that "in the case of a married insured woman whose husband is also insured, only one benefit will be payable on each confinement."

With regard to medical benefit, this will include "(*a*) ordinary medical benefit, for the insured, his wife, and

[1] Union of South Africa. Second Report of the Commission on Old Age Pensions and National Insurance. Government Printer, Pretoria. 7s. 6d.

dependent children under age 16, but no specialist treatment; (b) medical attendance during pregnancy of an insured woman or the wife of an insured man, but not for the confinement or for an illness during the period of fourteen days subsequent thereto; (c) medicines and curative appliances for the insured, his wife, and dependent children under age 16," but "an insured woman will be entitled to medical benefit in respect of her dependent children under age 16, but not in respect of a husband." Thus from the beginning, dependants of insured persons are to be included in the scheme; but, disappointingly, there is to be no provision for consultant or specialist service. In this connexion it may be noted, too, that there is no provision whereby additional benefits, such as dental and ophthalmic treatment, may be given, though it is remarked that "the time may come when it will be necessary for the people in South Africa to give serious attention to these points."

With regard to the provision of drugs and medical and surgical appliances, an important suggestion is made which, though differing from the practice in Great Britain, agrees with that of some European countries. In its summary of recommendations the Commission merely says that "any scheme which includes drugs and medicines as part of its medical benefit must make provision in its regulations for the control of excessive prescribing and unnecessary consumption of drugs," but in the body of the report it goes further and says: "The evidence as regards the increasing consumption of drugs when they are provided free is of such a convincing nature that we have no hesitation in recommending that on every occasion on which an insured person is supplied with drugs provision should be made whereby he would be called upon to make some contribution towards the cost of the drugs supplied." South African experience, indeed, seems to indicate that its people have an even greater liking for "a bottle of medicine" than those of other countries. Though general statistics are wanting or unreliable, yet "in one society the cost of drugs and medical appliances for the insured and his dependants was 20s. 1d. per member, or 6s. 8d. per recipient per annum. In another, which only paid a proportion of the bills, the cost to the society over six years ranged from 24s. to 41s. 6d. per member, or from 7s. 4d. to 13s. per recipient per annum"!

The cost of medical benefit for the purposes of the report (including, of course, the cost of medicines and appliances) is taken as 25s. per annum per family. The corresponding cost as prescribed by the Acts in Great Britain is a maximum of 13s. per insured person. This latter amount includes the cost of mileage and a portion, though a small one, of the cost of administration. It has been found very difficult in practice to keep within the maximum. There seems, in the report, to be some uncertainty as regards the cost of administering medical benefit. Under that specific heading the Commission says: "The fund should be debited with the cost of administration"; but elsewhere it says: "We recommend that the cost of administration of the insurance scheme should be borne by the State." The latter appears to have been of the nature of an afterthought or a final decision; clearly the administration of medical benefit should not be an exception to the general arrangements. In the matter of method or area of administration, this is not proposed to be through societies, but by a territorial system. Here, in connexion with the cost and administration of medical benefit, is clearly matter for thought and negotiation. The Commission recognizes this, and it is for the profession, again, at once to come to decisions and to open discussion with the Government or appropriate department of State.

A surprising feature of the proposed scheme is that in addition to these usual benefits—sickness, maternity, medical—there is included as an integral part of the scheme a funeral benefit. This is to be payable on the death of an insured person, his wife, or dependent child under the age of 16, and the amount of payment suggested is "about twenty times the daily basic wage calculated on the basic wage of the class in which the insured is placed for purposes of contribution." This would appear to be an unfortunate recommendation, unnecessarily loading and complicating the scheme, and it is difficult to understand why it is made. The only indication of a reason seems to be "the need for meeting a very great desire of the poorer classes," while all the statements of the Commission beyond this indicate that it is an illogical and irrelevant feature of a scheme for sickness insurance.

With regard to the matter of consultation with the medical profession in South Africa, the Commission mentions that it has on several occasions discussed with the Federal Council of the Medical Association of South Africa (British Medical Association) such subjects as medical benefits, services, and contract; and that it had the advantage of evidence from Dr. Brackenbury as to the working of the system in Great Britain. The Commissioners are evidently somewhat disappointed that they have not been able to obtain certain definite decisions from the Federal Council prior to making their report, and, as we have indicated, it is not unreasonable to expect some such decisions at an early date. Indeed, it is entirely to the interest of the profession that they should be made. It may be well to quote in full the paragraphs of the report in which the Commission refers to this need:

"We have on several occasions discussed medical contracts or some phase of this subject with representatives of the medical profession. We have so far not received the final and considered opinion of the medical profession on the subject, but it is not necessary for us to wait for this before reporting that we consider it is possible to formulate and work a scheme successfully in certain areas in South Africa. Such a scheme as we have suggested could be worked successfully, either by a system of panel doctors or by medical men engaged at fixed salaries. We consider that the medical profession should be interested in the scheme at the earliest possible stage, so that advantage might be taken of their wishes and experience in the promulgation and development of the scheme. Before the time arrives for Parliament to pronounce finally on the nature of the medical contracts we hope the profession will have been able to furnish the Government with their considered opinion on this and probably some of the other cognate points in which they are interested.

"Before a bill to provide a scheme of insurance against sickness is drafted we consider that a provisional agreement should be entered into with the medical and pharmaceutical professions, setting out the terms on which medical service and drugs will be supplied, so that Parliament might have before it the principal conditions under which the scheme is to be worked.

"In the course of these negotiations consideration should be given to the question of whether it would be advisable to insert a clause providing for means to eliminate unnecessary demands upon the time of the doctor and calls for trivial illnesses. If the insured persons have the right to enlist the services of the doctor for every trifling illness, the administrators of the scheme will have to recognize that this will take up so much of the doctor's time that he will be able to attend to a much smaller number of patients than would be the case if some form of restriction is adopted. The reduction of the number of patients on the doctor's list means, of course, that a much higher payment per head must be made, and that again involves higher contributions."

There is one further matter which all those who are interested in the immense development of social services in this country and their effect on such questions as migration within the Empire will be glad to see in the report of the Commission. It is that of reciprocal arrangements with regard to such services between different countries.

"In any bill that is drafted to deal with insurance against sickness we think provision should be made whereby, with the authority of the Minister, the administrators of such a scheme in South Africa may make reciprocal arrangements with the authorities administering similar schemes in other countries, by which periods of insurance, contributions paid, and residence in one country shall be treated as if they had been periods of insurance, contributions paid, and residence in that other country, and provision should also be made for the making of the necessary financial arrangements."

In concluding this notice of a report of very great value, interest, and importance to the medical profession, and to political and social students and workers, we may say with confidence that the British Medical Association, both in Great Britain and in South Africa, will wish to thank the chairman and members of the Commission, and will desire especially to associate themselves with the Commission in its acknowledgement and appreciation of the services of Mr. J. Collie, the distinguished civil servant who was the secretary of the Commission and is now the Commissioner of Pensions in the Union.

Ireland.

Obstetrics and Gynaecology in Dublin.

As in previous years, the greater part of the August issue of the *Irish Journal of Medical Science*, which is the official journal of the Academy of Medicine in Ireland, is devoted to the annual reports of the three great Dublin maternity institutions—namely, the Rotunda Hospital, the Coombe Hospital, and the National Maternity Hospital. The report of the Rotunda Hospital, which covers the twelve months ending October 31st, 1928, was published in May, and reference to it appeared in these columns on June 8th (p. 1053), when mention was made of the "record" low percentage morbidity rate which had been reached during the year under review. The valuable statistical details which this report contains are now made available for closer study. A melancholy interest attaches to the Coombe Hospital report for 1928, in that it was prepared by the late Master, Dr. Louis Cassidy, who died on October 27th; an obituary notice appeared in the *British Medical Journal* of November 10th (p. 783). In Dr. Cassidy's last report of this hospital he enumerated various clinical abnormalities which occurred in its practice during the year under review, and mentioned that the usual treatment adopted in the seven cases of uterine inertia encountered was to give one drachm of chloral hydrate in four ounces of milk per rectum. Six hours later the patient received 2 c.cm. of pituitary extract, divided into eight doses at twenty-minute intervals. If this had no effect, 0.5 c.cm. of thymophysin and 10 grains of quinine bihydrochloride were injected intramuscularly after a further two hours. It is added that in the occasional case in which the membranes are intact, or after the death of the infant, morphine is given in large doses. Ovarian residue was tried, but proved disappointing. In cases failing to respond to this treatment, even when repeated, Cæsarean section was performed if the foetus was in good condition and delivery by any other means appeared impossible. In conjunction with Dr. R. Stumpf, Dr. Cassidy supplied, as an appendix to his report, a note on the *x*-ray treatment of non-malignant cases in gynaecology. An attempt was made to determine whether it was possible to stimulate the functional activity of cells when dormant or absent, and also the degree of cure of inflammatory lesions which *x* rays could achieve. It is stated that in many instances the application of *x* rays to granulating surfaces promoted rapid healing; details are given of the apparatus and technique employed. Benefit was derived by this means in cases of dysmenorrhœa; splenic radiation cured menorrhagia and metrorrhagia in a large percentage of cases. In non-tuberculous inflammation of the adnexa and parametrium the effect of small doses of *x* rays was striking in some instances, the pain disappearing, the temperature falling, and the sleep and appetite improving. Success is also reported in cases of tuberculosis of the peritoneum and adnexa. Temporary sterilization ensued in six cases as an undesired effect, but normal menstruation returned in all the patients within two years. The third report—that of the National Maternity Hospital—is shorter than the other two, but of equal interest as regards clinical notes. The practical value of these three reports from the clinical and therapeutic points of view is very high. Also included in the August number of the *Irish Journal of Medical Science* are clinical notes on three cases—namely, incomplete rupture of the uterus, carcino-sarcoma of the ovary, and procidentia complicated by rectal prolapse in a nullipara.

Hospital Treatment in Northern Ireland.

The Ministry of Home Affairs in a letter to the Coleraine board of guardians states that the Ministry has had before it, in the minutes of proceedings of the board on July 20th, the notice regarding two proposals to send certain patients to the Coleraine Cottage Hospital; with reference to these proposals it points out that it has been decided that a board of guardians has no legal authority to send patients to an outside hospital, and pay for their maintenance therein, unless such patients are bona-fide inmates of the workhouse, having been sent there on account of destitution. It is added that if the accommodation in Coleraine Union Infirmary is insufficient or unsuitable for the treatment of poor people residing in the union, it is the duty of the board to make such improvements as will enable it to provide the necessary treatment. As, however, this is a matter which will take considerable time, and it is essential that the persons now requiring treatment should not be prevented from receiving it, the Ministry suggests that the rural district council should make use of its powers under Section 155 of the Public Health (Ireland) Act, 1878, and undertake the responsibility for maintaining these patients in the Cottage Hospital. In this connexion the Ministry points out that the council can only pay for maintenance and medical expenses, and not travelling expenses. In suggesting this course the Ministry states that it has in mind the urgent need of treatment for the persons referred by the dispensary medical officer, and does not wish it to be thought that the provision of medical treatment is a normal function of a rural district council. It is undesirable that there should be several bodies exercising similar functions, and with regard to medical treatment the Ministry considers that the board of guardians is at present the body primarily responsible. The clerk said the Ministry's interpretation of the law was that the guardians could not pay for the maintenance of dispensary patients at the Cottage Hospital. The rural council could come to an agreement with the hospital for the maintenance and treatment of dispensary patients. At a subsequent meeting of the council it was decided to inform the Ministry that the council was quite willing to conform with the Ministry's suggestion if the Coleraine Borough Council and Portstewart Urban Council came into line.

Public Health in Kildare.

Dr. J. A. Harbison, medical officer of health for the County Kildare, in the course of his first annual report, states that school medical inspection has been successfully inaugurated; the antituberculosis and infant welfare schemes have been revised and improved. A scheme of inspection of midwives has been instituted so as to ensure the best possible skill and attention being given. Sanitary inspection has been put on a more regular basis, and arrangements have been made for the collection of vital statistics. The adoption of the Notification of Births Act is mentioned as a forward step; further progress will be made, and Dr. Harbison looks forward to having a few more milestones on the road of progress before the next annual report is due. Kildare is an inland county with an area of 418,644 acres; the population at the 1926 census was 58,028. The county is divided into nineteen dispensary districts, each with a part-time medical officer, appointed under the Medical Charities Act to look after the sick poor of the district; this officer is also given at the time of his appointment the post of part-time medical officer of health for the district. The part-time system of sanitary inspection by officials without previous training, and with very meagre salaries, has not been found satisfactory in the scheme of co-ordination, and it is hoped, as a sufficient number of these part-time posts fall vacant, to replace them with a whole-time appointment. In this county, where the county medical officer of health is charged with duties under the Acts dealing with infectious diseases, maternity and infant welfare scheme, school medical inspection, inspection of midwives, and many other duties, there is not sufficient time to devote to the strict supervision of these part-time sanitary officers scattered over the county. Sanitary conditions on the whole in the county cannot be accounted as satisfactory. In Kildare town and in Naas efforts are being made to induce owners of houses adjacent to the sewers provided by the local authority to put in water-closets and connect them with the public sewers. Dr. Harbison remarks that where public authorities provide sewage systems for their communities with a view to reducing the possibilities of disease in that community, they have a right to demand that use shall be made of them for the community's sake. In those places where conservancy systems are tolerated constant enforcement of the Public Health Act is necessary.

Scotland.

Laboratory of the Royal College of Physicians of Edinburgh.

In the annual report for 1928 of the laboratory of the Royal College of Physicians of Edinburgh, the curator (Sir Robert Philip) remarks that the year has maintained the excellent record of the past in respect of the number and quality of workers and the results of their investigations. The researches of some of the workers have been signally recognized. Dr. W. O. Kermack has received from the Royal Society of Edinburgh the Makdougall-Brisbane Prize for the period 1926 to 1928 for his contributions to chemistry which were published in the society's *Proceedings* and elsewhere; Dr. C. G. Lambie has received from the Royal College of Physicians of Edinburgh the Lister Fellowship for the period 1926 to 1928 for his work on carbohydrate metabolism; William Blackie, laboratory assistant, has been awarded a Junior Greenfield Prize for histological work by the council of the Pathological and Bacteriological Laboratory Assistants' Association.

Researches in Progress and Completed.

Twenty-three investigators have been exploring pathological, bacteriological, chemical, physiological, and statistical problems. The series of experimental studies with a view to the standardization of tuberculin, initiated by the curator in concert with Professor T. J. Mackie, to which reference was made in the report for 1927, has been completed. Parallel observations were conducted by Dr. Donald Stewart on human beings and by Dr. R. S. Bogbie on guinea-pigs, the resulting figures being examined statistically by the superintendent (Lieut.-Colonel A. G. McKendrick, I.M.S. ret.) and Dr. Kermack in order to obtain the figure most likely to represent the true strength of an unknown tuberculin in terms of the standard. With the aid of a grant from the Medical Research Council, Drs. Lambie, Kermack, and Lieut.-Colonel W. F. Harvey have been engaged in investigating experimentally the action of parathyroid hormone on the structure of bone. A preliminary note of their results, which confirm those of Bauer, Aub, and Albright, was published in *Nature* (1929, vol. cxiii, p. 348). Aided by a grant from the council of the British Empire Cancer Campaign, Mrs. Dawson has commenced an investigation into the pathology of the breast, using the material from about four hundred cases specially selected and prepared by her husband, the late Dr. J. W. Dawson, over a period of seven years. A research on pneumonia in childhood, largely pathological, and based on the study of large paraffin sections of whole lungs, by Drs. C. McNeil, A. R. Macgregor, and W. A. Alexander, has been in progress for some time, and a series of papers on this subject is appearing in the *Archives of Disease in Childhood*. The bacteriological investigation of a considerable number of the cases was undertaken by Lieut.-Colonel W. Glen Liston, who is of opinion that Pfeiffer's bacillus is all-important in relation to acute broncho-pneumonia in children. An attempt was made during the recent epidemic to estimate the prophylactic value of vaccination against influenza; in all, 700 persons were inoculated. The results obtained are better than those obtained by McCoy and Meyer, but not so good as those of Duval and Harris. Dr. J. S. Fraser has continued his studies on the pathology of the ear. These include a study of the pathological anatomy of labyrinthitis; an examination of the histological conditions in two cases of leukaemic deafness; and a study of microtia and congenital atresia of the external acoustic meatus, which, in collaboration with Mr. G. D. D. Davis, he described at the Otological Section of the Royal Society of Medicine. As the result of the examination of tissues collected from fifty cases, Dr. J. P. Stewart has completed a study of the development and pneumatization of the mastoid process, together with the pathological, bacteriological, and chemical features of acute mastoiditis. Dr. G. H. Percival has been engaged in the study of biopsy material from various types of skin disease, in particular of the pathology of vesicle formation, and of idiopathic atrophy. Considerable progress has been made by Lieut.-Colonel Harvey and Mrs. T. D. Hamilton in the setting up of a "cabinet gallery of tumours," the preparation of the collection having involved an attempt at the logical classification of neoplasms in general. Researches on chemotherapy include work on the synthesis of compounds which might possibly possess antimalarial action, by Dr. Kermack, Dr. R. H. Slater (Carnegie Fellow), and Mr. T. F. Smith, who has a grant from the Department of Scientific and Industrial Research. Various experiments have been performed by Dr. Kermack and Mr. W. Leeper with a view to elaborating a simple method for the estimation of pepsin in stomach contents. Dr. D. N. Nicholson has been engaged in an inquiry into the presence of reducing substances in saliva. The results of a considerable amount of work on ultimate carbohydrate metabolism by Drs. Kermack, Lambie, and Slater have been submitted to the *Biochemical Journal* for publication. The data relating to 500 cerebro-spinal fluids which have been examined by the colloidal gold and colloidal gum benzoin reactions have been collected and discussed by Drs. Kermack and C. I. B. Voge. The work of Dr. Kermack and Mr. Spragg on the physical properties of Wassermann antigens, described in last year's report, has been continued and extended. Other short sections of the report deal with work on the precipitating action and capillary electric effects of benz-carboline derivatives; studies on the theory of sedimentation; studies in epidemiology; and a statistical inquiry regarding asthma. A list of nine papers published from the laboratory during the year is given.

The generous financial assistance again given by the Carnegie Trustees in connexion with the research department is gratefully acknowledged by the curator. In the reporting department the resources of the laboratory have been more heavily taxed than in any previous year, 14,316 reports having been issued. The number ten years ago was 4,312. Of the total during the year, 3,059 reports were histological, 2,280 chemical, and 8,977 bacteriological.

Dundee Doctors in the Sixteenth Century.

At a meeting of the Forfarshire Medical Association held recently at University College, Dundee, Dr. R. C. Buist read a paper on Dundee doctors in the sixteenth century. Dr. Buist said that in addition to a small group of Dundee doctors such as James Watson, Dr. Michael Durham, and Sir Hugh Herries, who had been in service with the Stuart kings or otherwise out of the burgh, there were over a score of men who as barber-surgeons, surgeons, or physicians could be traced in the Dundee records. By parentage and intermarriage they were closely associated with the mercantile and landed classes, and their relatives were found also in the Church and law. Several of them entered into the official life of the community as councillors, and many of them added much general commercial activity to their professional service or even occasionally became ordinary merchants. Records of the burgh courts showed many features of professional life in the co-operation of practitioners, arbitration as to disputed fees, payment of fees partly in kind and the custom of having fees assessed, agreed upon, and guaranteed at the beginning of attendance, the guarantor being, if necessary, compelled to pay. In some instances practitioners were ordained by the court to complete a cure, and in one case a surgeon was assoilzied in an action for negligence where the patient was taken to the Edinburgh surgeons after the Dundee surgeon had closed his attendance.

Relics of Robert the Bruce.

The late Professor D. Noël Paton, professor of physiology in the University of Glasgow, had in his possession a considerable portion of the famous collection of antiquities which belonged to his grandfather, Mr. Joseph Paton, who resided at Wooer's Alley Cottage, Dunfermline. Amongst these were certain relics of King Robert the Bruce, which it is proposed should be handed over to the kirk-session of Dunfermline Abbey. One of the relics is a portion of the skeleton of King Robert—namely, the metatarsal bone of the great toe. Dr. Gregory of Edinburgh, who superintended the reinterment of the remains after their discovery in 1818, gives the following interesting if whimsical

account of how this somewhat gruesome relic came to be preserved: "I took —— with me over to Dunfermline to assist at the resurrection. On our return to the inn at the Queensferry, he convinced me that he had not returned empty-handed by producing a metatarsal bone of King Robert, very little decayed. This he declared that he did not steal, but he must have received it knowing it to be stolen. However, as it was impossible by that time to restore it to its rightful owner, it remains with —— till King Robert claims it, and in the meantime I have put it carefully in a glass phial with a ground-glass stopper, and an explicit memorandum telling whose bone it is, and when it was stolen." Dr. Gregory does not disclose the name of the perpetrator of this outrage, but the phial, with its content, subsequently found a place in the collection of Joseph Paton at Dunfermline.

Edinburgh Deaf and Dumb Institution.

At the annual meeting and presentation of prizes in connexion with the Edinburgh Royal Institution for the Education of Deaf and Dumb Children, which has been in existence for 120 years, Dr. Logan Turner, consulting surgeon to the Edinburgh Royal Infirmary, in moving the reappointment of the directors and officials, remarked that it was a matter of common observation that the adult deaf person received little sympathy from those with whom he came in contact, but the deaf child always aroused deepest sympathy. He questioned whether the medical profession was doing all it might do to assist the child who was born deaf or who had acquired deafness before it had obtained the gift of speech. Were the teachers in an institution such as that receiving all the help they deserved to have? The difficulty was that the medical profession required a more accurate knowledge of the influences of deafness in the child, and the effects which these influences produced upon the organ of hearing. If the teachers could utilize knowledge of the causes and degrees of deafness it might be very serviceable to the child. Dr. Logan Turner suggested that there should be greater segregation of the completely deaf and the partially deaf.

England and Wales.

Health of the City of London.

THE square mile of the City of London—it is almost exactly a square mile within a matter of twenty acres—differs from all other urban areas in the conditions it presents to the public health administrator. It has the resident population of a small country town, but a day population equal to the total number of people who live in such cities as Leeds and Sheffield. It is one of the most ancient of towns, with its history preserved in the very configuration of its streets and lanes, and at the same time it is a hive of modern industry, with more than a thousand factories, with great markets through which food is distributed to vast populations, and with thoroughfares in which the traffic problem takes on its most crucial aspect. It has far and away the lowest birth rate of any town in the kingdom. The number of little Cockneys added to the population last year was only 82. A much larger number of births were registered in the City, but not of children belonging to residents. Similarly, although 665 persons died within the City boundaries, only 140 were citizens. The annual report of the medical officer of health, Dr. W. M. Willoughby, who was appointed in the middle of the year under review, following the retirement of Dr. W. J. Howarth, contains much curious information. The reader will learn that 464 out of 1,148 City buildings inspected were found to be infested with rats, mostly the black rat, a climbing animal, who outnumbers the brown rat in the City by three to one. One firm of rat-catchers caught 25,748 rats during 1928 by methods less pleasant to read about than those of the pied piper. More regret will be felt at the partial extermination of the City pigeons: 2,000 of the birds which have fluttered around the porticoes of St. Paul's and the Guildhall were captured and killed during the year. The bulk of the report is concerned with London markets—Smithfield, Billingsgate, and Leadenhall—and the measures taken to ensure purity of food supply. Samples of the milk arriving at Liverpool Street Station from country farms have been examined, and the City bacteriologist reports that the milk is remarkably clean as compared with what it was ten years ago. None of the 48 samples collected could be described as dirty, though 17 had a trace of dirt in the shape of a few black specks in the sediment. Four of the specimens contained tubercle bacilli, the other 44 were free. The total quantity of meat which passed through Smithfield central markets approached half a million tons, 72 per cent. of it from abroad, the greater part from Argentina. Dr. Willoughby reports that tuberculosis continues to be the most important disease in home-killed meat, and there is shown to be a considerable increase in the amount of tuberculous beef and pork surrendered in the markets. Surrenders and seizures of unsound food products in 1928 make rather impressive figures—908,000 lb. of beef; 354,000 of mutton, 107,000 of pork, 4,900 tins of milk, 3,000 tins of meat, 26,000 heads of furred and 53,000 of feathered game, 1,400 lb. of fish, only 56 lb. of butter, and not a single egg! For diseased conditions as distinct from unsoundness, 65,000 lb. of beef, 636,000 of mutton, and 220,000 of pork were seized or surrendered. At the riverside wharves 108 tons of food, mostly fruit and vegetables, were condemned. The cases of infectious disease in the City, formerly ravaged by plague, were principally 23 of diphtheria and 25 of scarlet fever. There were no cases of small-pox. On the register of notifications on the last day of the year there were 45 patients with pulmonary and 49 with non-pulmonary tuberculosis. With regard to the City atmosphere, a daily observation all the year round is made at noon at the Guildhall. The amount of impurity varies from half a milligram to five milligrams per cubic metre of air, the latter amount being recorded when there is fog. As another little sidelight on City conditions, it is reported that, during excavations for building at the corner of Seething Lane and Crutched Friars, human remains representing from 150 to 200 bodies were discovered, not presenting indications of orderly interment. They were given decent reburial at the City of London cemetery at Ilford.

Sewer Emanations and Public Health.

The commissioners appointed to inquire into the recent Holborn explosion recommended that any structure forming an underground cavity should be adequately and continuously ventilated. The proceedings at that inquiry led to some doubts being raised as to the adequacy of the ventilation of London sewers, for which the London County Council is responsible, and the reopening of the sewer ventilators wherever such a course seemed advisable was authorized. Unfortunately, the opening of these ventilators coincided with a period of drought, and the lack of rain sufficient to ensure proper flushing led to many complaints of smells from the sewers and a demand for the closing of the ventilators. Investigations at 325 open ventilators were made, and as a consequence 250 were closed, but, of course, the closing of any ventilator tends to increase the intensity of the emanations at the neighbouring openings. In a report on the subject the main drainage committee of the London County Council states that the matter of sewer ventilation is of great complexity, and has occupied expert opinion for eighty years. The ventilation of sewers has always been regarded as essential, both from the point of view of safeguarding the lives of the workers and the safety of the sewers themselves. Probably no scheme of ventilation can be considered satisfactory from all points of view, but in the opinion of the Council's advisers there is nothing to equal ventilation at ground level by manholes at proper intervals, though ventilating columns may be of value in special cases. A large section of the public, however, accepts it as a fact that sewer air is severely injurious to health and gives rise to fevers and the like. When the question was comprehensively investigated by the London County Council fifteen years ago the opinion of the experts who were consulted was that sewer air had no power of taking up bacteria from the sewage with which it was in contact, and that the micro-organisms in sewer air are related to those in the air outside, and not

to those of the sewage. Moreover, the main drainage committee points out, sewer ventilation has been in operation for an indefinite period, and apparently no outbreak of disease has resulted therefrom, while the men working in sewers, and in closest contact with sewer air, have an excellent record of health. It is difficult, the committee concludes, to accept the suggestion that serious health considerations are involved, though it is admitted that during the drought there was a measure of public inconvenience in certain localities. The difficulty is to reconcile popular opinion with the measures necessary for the safety of the sewers and the sewer men.

Liverpool Open-air Hospital for Children.

In his report for 1928, as senior medical officer of the Liverpool Open-air Hospital for Children, Leasowe, Dr. T. Hartley Martin deals briefly with the results of the use of artificial light in the new light department recently completed. All cases, he says, do well clinically on general irradiation with the exception of cases of disease of the spine, hip, and knee, complicated by sinus formation and albuminuria. Certain cases of tuberculous peritonitis of the miliary tubercle type, also, do not do well in young children. In cases of dactylitis, and disease of the carpus, metacarpus, tarsus, and metatarsus, there is marked improvement; while the results in the treatment of tuberculous adenitis after curettage by local irradiation with the mercury vapour lamp are startling. Researches by Dr. J. C. McFarland suggest that the failure of advanced cases of joint disease to react favourably is due to acidosis. In acidosis there is an inefficiency of the excretory function of the liver; and the inefficiency, Dr. McFarland thinks, is increased by light treatment. The records of the hospital show that about 85 per cent. of the tuberculous patients were discharged with the disease quiescent, and from 80 to 90 per cent. of these have remained so.

Freedom of Shaftesbury conferred on Sir Thomas Horder.

Sir Thomas Horder, Bt., who was born at Shaftesbury, Dorset, received on August 15th the freedom of this ancient borough; he lived there for only the first year of his life, his family then moving to Swindon, which, until lately, was regarded as his birthplace. Replying to the toast of his health at a luncheon given by the Mayor and Corporation of Shaftesbury, Sir Thomas Horder remarked that by a curious coincidence the first time he returned to the town for a consultation he was conducted to the house in which he was born in order to see a patient who was then residing there. The freedom of the borough was presented in the Guildhall, and Sir Thomas Horder, in expressing his thanks, commented on the influence which a birthplace might have on a man's character and success in the world. In this respect, he thought, some importance might be attached to maternal impressions as regards their influence on the unborn child. He believed that Shaftesbury, with its beautiful situation, had undoubtedly exercised a beneficial effect upon his life. He would, therefore, always value the privilege of being made a freeman of his native town.

General Lying-in Hospital, Lambeth.

The General Lying-in Hospital, Lambeth, which was founded in the year 1765, was incorporated by Royal Charter in 1830, when the present buildings were erected. For some time the accommodation has been quite inadequate, and it has been found necessary to contemplate a considerable extension. A fund opened for this purpose has already reached £18,000, but a further £22,000 is still urgently required; as previously mentioned in our columns, the premises must be rebuilt by 1930, according to the terms of the lease. In the annual report of this institution for 1928 it is stated that during that year 1,043 in-patients and 1,336 out-patients were treated, these figures representing increases of 36 and 93 respectively over those of the previous year. The total cost of each in-patient was £8 5s. 4d., and of each out-patient £1 0s. 3d. The patients contribute towards the cost of maintenance whenever this is possible, but necessitous cases are treated free. Ante-natal clinics are held daily at the hospital and its branches at Southwark and Camberwell, the attendances exceeding 12,000 annually; the children are supervised at the infant welfare centre until they reach the age of 5. It is also mentioned in the report that the maternal mortality rate for the ten years 1919 to 1928 was 1.6 per 1,000. For many years the in-patient treatment of the hospital has been associated with a training school for midwives and monthly nurses. During recent years the field for training has been considerably extended by including the out-patient department; a home for midwives and nurses has been provided in a separate building opposite to the hospital. Post-graduate instruction for midwives is also a feature of the work of the General Lying-in Hospital, and the sixteenth annual "week" was held last May. Lectures and demonstrations were then given, and visits were paid to other hospitals and maternity centres.

India.

The Pasteur Institute at Kasauli.

THE twenty-seventh annual report of the Pasteur Institute of India at Kasauli calls attention to the decrease in donations and contributions from all sources, except from the Government of India, during the twelve months ending June 30th, 1928. Treatment centres have now been established at Lahore, Rawalpindi, and Allahabad, as previously mentioned in the *Journal*, and consequently there has been a gradual decrease in the number of patients coming to Kasauli; against this, however, must be set the financial enrichment resulting from the increased sales of vaccines. Commenting on the position, Major R. H. Malone, I.M.S., who was one of the directors of the Institute during the year, remarks that no great economy can be made in the administration of the Institute without loss of efficiency; if the present sources of income cannot be further exploited, new sources must be brought into being. The first alternative is not considered practicable by him in view of the fluctuating but diminishing contributions from provincial Governments during the past ten years, and the fact that, as the novelty of an institution passes off, voluntary contributions gradually decline. On the other hand, there seems to him to be little doubt that the proceeds from the sales of vaccine might be substantially increased. A suggestion made ten years ago, and revived in 1927 by Lieut.-Colonel J. Cunningham, I.M.S., director of the Institute during the greater part of the time covered by the report, is that treatment might be charged on a *per capita* basis. Instead of appealing continually for contributions and donations, a fixed charge would be made for each course of treatment on an estimate calculated to cover the running expenses of the Institute. It is mentioned that such a scheme has been in operation at the Pasteur Institute in Bombay since its opening in 1922, and that it has proved to be satisfactory. The vaccine employed at the Kasauli Institute has been of two types—namely, the 1 per cent. carbolized vaccine used since 1912, and vaccines prepared by the new etherized method, which were tried in the most severely bitten cases. The death rate at Kasauli and the three other centres is lower than in the previous year. This is attributed to the greater efficacy of the etherized vaccine which is being used at Kasauli, and, in the case of the other centres, to the actual and relative decrease in the number of patients suffering from the most severe types of bite, the greater majority of such cases having been sent to Kasauli to receive injections with the new vaccines. No more treatment centres were opened elsewhere during the year, since the policy of the Institute in this respect will depend on the results of the investigation into the value of the etherized vaccine. This particular inquiry has been continued throughout the year under review, under the direction of Lieut.-Colonel Cunningham, the entire cost having been borne by a grant from the Indian Research Fund Association; a report will be published in due course. Various scientific papers by members of the staff have been published during the year in connexion with this study, which is being continued. Major Malone calls attention to the interesting point that the death rate of bitten

persons who come from the United Provinces is twice as great as that of those from the Punjab. There is no evidence that rabies is more prevalent in one province than in the other, and the number of patients is about equal in each case, the Institute being equally accessible to both provinces. He thinks that the people of the Punjab in general may be better acquainted with the danger attending such bites, and more convinced of the value of anti-rabic treatment, or less willing to take risks, than the people of the United Provinces. He suggests that the question will probably well repay further investigation.

South Travancore Medical Mission.

A vivid picture of the distress caused by a cholera epidemic and of the efforts made to cope with it is given in the annual report of the South Travancore Medical Mission for 1928. This Mission, which was founded ninety years ago, in connexion with the London Missionary Society, now owns fourteen hospitals and three dispensaries, as well as leper asylums for men and women, and the present report contains numerous details of special interest. A much-needed nursing home for Europeans was established at Neyyour in 1928, and the fees thus derived will assist the general work of the medical mission. Towards the end of 1927 the branch hospital at Santhapuram was destroyed by a storm, but during 1928 it was rebuilt on a more extensive scale, and is now in full working order; a considerable sum of money for its rebuilding has been obtained locally, and is an indication of the popularity it had won. Another branch hospital has just been completed at Kalyapuram on the main central road of Travancore. A large number of maternity cases are conducted by the mission staff in the villages near the hospitals, and in this way improved sanitary conditions are being introduced into many homes. The report contains photographs of some of the more unusual clinical conditions met with, including one case of very extensive fibrocystic disease of the jaw, and another of elephantiasis complicating a foot injury. Duodenal ulcer is said to be the commonest of all surgical diseases encountered, but the limited number of beds and attendants restricts the number of patients dealt with to about 230 annually. The opinion is expressed that this form of ulceration is a deficiency disease, partly due to the prevalent tapioca diet, and partly to the very hot curries containing inadequate quantities of vitamins, but popular with the local inhabitants. Seven out of every eight cases of duodenal ulcer, however, came from a small area of Travancore where fish is the chief vitamin-supplying article of diet. An inquiry into the etiology of this condition is in progress with the close co-operation of Colonel McCarrison at Coonoor. In most cases the shorter operation of gastro-enterostomy is preferred to the Billroth II method. Cancer of the jaw is also common; it has been found inadvisable to remove the teeth before an operation, owing to the frequency with which implantation growths occur in the tooth sockets. Laryngotomy is almost invariably used for mouth operations, and to this is attributed the fact that patients rarely develop pneumonia subsequently. Comment is made on the great change that has followed the introduction of hydnocarpus oil into the treatment of leprosy after many disappointing experiments with other forms of treatment. The preparation now used is pure crude hydnocarpus oil, to which is added 4 per cent. of creosote. The treatment of all associated diseases such as syphilis is conducted energetically, and attention is paid to the provision of good food and adequate exercise.

Public Health Work in Villages.

In the annual report of the Hygiene Publicity Bureau of the United Provinces for the year 1928, the assistant director of public health, Dr. A. Souza, describes a scheme for introducing improved health measures into isolated villages in India, which was first tried in the Lucknow district with very encouraging results and has subsequently been extended considerably. Special attention was paid to persuading villagers to store manure heaps outside their dwellings. Boys and elderly men were trained systematically to give first aid in accidents, to promote the maintenance of cleanliness in the houses and streets, to assist in securing more regular registration of births and deaths, and to distribute the medical remedies supplied by the dispensaries. Efforts are being made to establish small dispensaries in such villages on a co-operative basis, subscribers being given medicines at cost price, while non-subscribers are charged a little extra, the profits being handed over to the subscribers. The function of such dispensaries is to give first aid, to treat ordinary ailments, and to work in conjunction with the permanent district dispensary in the event of there being an outbreak of some serious disease. Many people in these villages do not know where to apply for help in a case of serious illness, and such information is now being broadcast by the smaller village dispensaries. As regards sanitation, attention is at present being directed particularly to the four chief infectious diseases of the United Provinces—namely, cholera, plague, malaria, and small-pox. Public interest is also being stimulated in matters pertaining to child welfare, school hygiene, and vital statistics. Circulars in connexion with the administration of this scheme for village dispensaries and public health education have been prepared and circulated in many districts in the United Provinces. It is believed that a valuable system is being developed which will help eventually to prevent the spread of diseases such as plague or cholera.

Correspondence.

METHAEMOGLOBINAEMIA.

SIR,—I was much interested to read in your issue of June 15th (p. 1070) that an authority of the standing of Professor J. S. Haldane considers methaemoglobinaemia to have been a possible cause of the "heliotrope cyanosis" met with as a very fatal complication of influenza during the pandemic of 1918.

That this possibility had been envisaged, and indeed excluded, in some cases of the condition may be gathered by a perusal of the following extract from an authoritative source:

"For a long time the nature and causation of this peculiar heliotrope cyanosis was obscure. It was certainly not due to circulatory or cardiac failure, for the condition of the heart and pulse remained strikingly good. At one time it was thought there might be some peculiar chemical change in the blood leading to the formation of methaemoglobin or even sulphaemoglobin, but repeated spectroscopic examination showed no abnormal blood pigment to be present . . ." (*Official History of the War.* Medical Services: Diseases of the War. Vol. i, pp. 181–182.)

Thus it would appear that methaemoglobinaemia was not the cause of the condition in those cases of heliotrope cyanosis in which spectroscopic tests of the blood were carried out.

In the section on cyanosis in French's *Index of Differential Diagnosis*, fourth edition, appears the following:

"Methaemoglobinaemia and sulphaemoglobinaemia are diseases which have been grouped together under the term *enterogenous cyanosis*. Both are exceedingly rare. The tint of the skin by itself suggests the diagnosis, being altogether different from that of ordinary cyanosis, and yet not to be mistaken for pigmentary affections such as Addison's disease, argyria, ochronosis, or haemochromatosis. There is no polycythaemia. The diagnosis is established by spectroscopic examination of the patient's blood. . . . Some cases arise without any obvious external cause, and are to be distinguished from those in which the blood changes are directly attributable to the effect of taking chlorate of potash, aniline derivatives, acetanilide, phenacetin, phenazone, and possibly other drugs. Some remarkable cases have occurred as the result of using brown boots polished with a preparation containing oil of mirbane, nitrobenzol, or nitrobenzene."

French thus distinguishes an endogenous or enterogenous variety of the condition, exceedingly rare, and unconnected with the taking of drugs or other external agents, and an exogenous form due to the ingestion or inhalation of certain drugs or poisons mostly of the aniline groups.

I believe, although spectroscopic tests are lacking, that I have seen recently an example of "enterogenous cyanosis" in a patient desperately ill with typhoid fever. Certainly in this case the cyanosis was of a violet or heliotrope colour, quite unlike that usually associated with cardiac embarrassment or ordinary anoxaemia, nor was the heart apparently unduly distressed. Foremost amongst the "exogenous" group mentioned by Dr. French, although not specifically included in his list, must be placed the new German synthetic quinoline derivative plasmoquine

(alkylamino-6-methoxyquinoline), which is receiving at the present time an extensive trial in the treatment of malaria in South America, India, and other endemic centres of the disease.

Unfortunately, toxic manifestations are all too commonly seen in patients undergoing treatment with plasmoquine, by far the commonest of which are cyanosis and abdominal pain; in fact, a certain degree of cyanosis, most marked in the lips, is almost the rule in patients under treatment with plasmoquine, and, although *per se* unassociated with any particular discomfort or immediate danger, constitutes a most valuable danger signal of intolerance to the drug, which should, in the opinion of most clinicians, immediately on its appearance, be withheld for a few days. This cyanosis has been shown by numerous observers to be due to partial conversion of the oxyhaemoglobin of the blood into methaemoglobin.

Thus Fischer and Weise (1927) found that methaemoglobinaemia could always be detected in 25 out of 26 patients a few days after the commencement of treatment, and they found, further, that the degree of methaemoglobin in the blood depended more on the degree of anaemia of the patient than the dosage of plasmoquine. (With this latter conclusion we cannot agree, for in our small series it was found that toxic symptoms—amongst others, cyanosis—were much more common in the case of patients under treatment with comparatively large daily doses of the drug (0.1 gram) than when a smaller daily dose (0.04 gram) was used.) The above two observers also concluded that it was the alkylamino group which was the cause of the methaemoglobinaemia, as in the case of acetanilide and phenacetin poisoning.

In our series the above two toxic symptoms of cyanosis and abdominal pain appeared with some regularity between the sixth and the tenth day of treatment, and, whilst comparatively common, as stated above, in patients receiving 0.1 gram daily (10 out of 17 cases), were also met with, although in a smaller proportion (7 out of 36), in those who received the much smaller dose of 0.04 gram daily; this suggests that personal idiosyncrasy to the drug is marked in certain cases, and it has even been suggested (Sinton and others) that racial susceptibility may play a part, the Northern European being apparently specially intolerant to any but the smallest doses.

That even susceptible individuals, if not too thoroughly poisoned by plasmoquine, may develop tolerance to its toxic manifestations is suggested by the following striking fact. If the drug be stopped directly cyanosis is noted or abdominal pain complained of, for one to three days, its readministration to complete the full course of twenty-one days, after this short break, has, in our series, been unattended, in all but a minority of cases, by any recurrence of toxic symptoms.

Unfortunately, cyanosis, at least in its early stages, is almost impossible to detect clinically in dark-skinned races, and in these we must be guided either by daily spectroscopic tests of the blood—a somewhat laborious proceeding and usually impossible in the field—or by the onset of the equally common and important early manifestation of abdominal pain, a symptom which must *never* be disregarded in patients undergoing plasmoquine medication.

A further interesting point arises. It is reasonable to predict that the fatal complication of heliotrope cyanosis will occur in future pandemics of influenza under similar conditions of "mass exhaustion" as it has occurred in the past, and is even now probably seen in isolated cases. If Professor Haldane's theory as to its causation, in spite of evidence to the contrary, be correct, we must be very wary in treating so-called "clinical malaria," which may turn out to be influenza, with a drug like plasmoquine, thus possibly adding an exogenous to an already developing endogenous methaemoglobinaemia. In any case I consider it safer, in view of the toxic nature of the drug, to reserve plasmoquine for the treatment of cases in which malarial parasites have actually been demonstrated in the blood, and in which other factors than malaria, either causative or contributory, can be reasonably excluded, reserving our old ally, quinine, for the treatment of "clinical" malaria and other cases of doubtful etiology.—I am, etc.,

S. SMITH,
Major, R.A.M.C.

Murree, India, July 17th.

TREATMENT OF PLACENTA PRAEVIA.

SIR,—The letter from Dr. D. C. Macdonald in your issue of August 10th (p. 278) requires an answer.

I have been to many discussions in different parts of the world, and I do not think I have ever been to one of greater value to the profession at large than that on placenta praevia, on July 25th, at the British Medical Association Meeting in Manchester. The number of speakers was great, and every aspect of the subject was amicably discussed. The meeting was ably conducted by an excellent chairman, who requested repeatedly that those who wished to speak should hand in their names. Why did not Dr. Macdonald do so? There was no "wrangle" about the pros and cons of Caesarean section, but obviously it was necessary to discuss them pretty fully at the present juncture.

While the *absolute* diagnosis of placenta praevia can only be made on vaginal examination, I always advise that, once ante-partum haemorrhage occurs, the case should be sent into hospital *without* vaginal examination being made. If the case is being treated at home, it is conducted as if it were in hospital.

Dr. Macdonald seems to have been particularly fortunate with ovarian residue. After a prolonged trial in a large number of cases, we were forced to discard it because of the absence of results.

Finally, Sir, I cannot end this letter without warning Dr. Macdonald to avoid applying forceps through an os "three parts dilated," especially in placenta praevia: he is courting disaster.—I am, etc.,

BETHEL SOLOMONS.
Master, Rotunda Hospital.

Dublin, Aug. 13th.

PREVENTION OF TUBERCULOSIS OF BOVINE ORIGIN.

SIR,—Some important conclusions emerge from the discussions reported from the Sections of Diseases of Children, Tuberculosis, and Public Health, at the recent Annual Meeting of the British Medical Association.

1. That the elimination of tuberculous animals from dairy herds is impracticable. (Savage, *Journal*, August 3rd, p. 203.)
2. That in spite of recent preventive measures (13,800 cows were slaughtered in 1928), there is still a widespread infection of the milk supply with tubercle bacilli in some areas. (McNeil, *Journal*, August 3rd, p. 194.)
3. That such infection, rather than decreasing, is slightly increasing. (McNeil. Kay Menzies.)

Answers to questions in Parliament have indicated:

4. That probably nearly 2,000 infants die of bovine tuberculosis each year, and that several millions sterling are expended annually in the treatment, convalescence, and after-care of the survivors.

It would appear that the strictly logical method of stamping out the source of bovine tuberculosis in cattle is likely to prove economically impossible, involving as it does frequent inspections and the slaughter of many animals. Moreover, the grade A and certified milks are priced far beyond the pockets of the poorer classes, who suffer from the maximum incidence of the disease.

The practical deduction must be that the problem of prevention must be approached from a different angle. All milk supplied to infants and young children should be sterilized. At present this is accomplished by two methods: pasteurization; and drying. One process exposes the milk to heat for at least thirty minutes; the other, at any rate the roller process of drying milk, takes only three seconds. The advantages of the short exposure are that very little damage, if any, is done to the vitamin C or to the soluble calcium, both of which have been shown to suffer from the prolonged method of pasteurization (Daniels and Stearn).

If a national policy is to be adopted for the prophylaxis of bovine tuberculosis, it is time that the expensive and unpractical method of attempting to eliminate tuberculosis in cattle was shelved. But before adopting the measure of employing sterilized milks, care should be taken to select a process of sterilization which involves the least damage to the essential elements of the foodstuff. It

would be disastrous if, in avoiding the Scylla of bovine tuberculosis, shipwreck should happen after all on the Charybdis of scurvy and rickets.—I am, etc.,

Bristol, Aug. 11th. FRANK BODMAN, M.B., M.R.C.S.

ULCER-CANCER OF THE STOMACH.

SIR,—In a leading article in the *Journal* of August 3rd (p. 209) there is a reference to my observations on the frequency of ulcer-cancer of the stomach, but the figure quoted, 6 per cent. of cases of cancer showing microscopic evidence of previous ulceration, is incorrect. My most conservative estimate in this connexion was between 15 and 16 per cent. (vide the *Proceedings* of the Cancer Congress, London, 1928). It was approximately 6 per cent. of excised ulcers which showed evidence of commencing malignancy—a very different matter.—I am, etc.,

Sligachan, Skye, Aug. 10th. M. J. STEWART.

"ACTIVATED" FLUORESCEIN IN THE TREATMENT OF CANCER.

SIR,—Much more evidence—theoretical, experimental, and clinical—seems to me to be needed before a new "cure for cancer" can be accepted in "activated" fluorescein. All substances "fluoresce" or give off "characteristic" radiations when bombarded with x or gamma rays, in a series corresponding with their atomic numbers; these rays are very "soft"—that is, they penetrate only a millimetre or so of water or tissue. That any substance has yet been found to be useful in "intensifying" treatment (as an "intensifying" screen intensifies diagnostic rays) remains to be proved, though many substances have been tested with this aim (copper, silver, arsenic, iodine, lead, potassium, etc.).

There are so many points open to question in the article published in the *British Medical Journal* of August 10th (p. 233) that I for one remain sceptical as to sodium fluorescein being to any practical degree the much-hoped-for treatment "intensifier." Dr. Mottram's experiments *in vitro* with sarcoma tissue are of interest, but his results, so far as they go, cannot be carried over to tumours in the patient with rapidly changing body fluids.

One surely might have expected some more definite physical, experimental, and clinical proofs that "these rays . . . exhibit a potent lethal action on malignant cells"—more, that is, than any other ionizing rays produced in the tissues—and that "the actual rays which are employed to kill the cancer cells are neither x rays nor radium rays, but a totally different ray, the nature of which is not quite certain, but is most probably a ray near the ultra-violet line of the spectrum" (Dr. Claude Gouldesbrough, *Daily Mail*, August 15th). But we have no such proofs afforded us. On the contrary, we have a number of confused and apparently erroneous statements. May I refer to a few?

1. What proof is there that fluorescein gives off specially strong secondary radiations (as with light rays) with only medium treatment x rays and the very hard gamma radium rays—not fluorescing with soft or very hard x rays?
2. If the "fluorescein rays" were all-important, and the x rays and radium rays were comparatively inactive, why was such a large dose of x rays given as a three-pastille dose (half-distance scale)? The statements that a "mild dosage" was given, a "three-quarters pastille" dose (skin scale), must lead many to think that only small x-ray doses were needed, whereas full erythema doses were given, and repeated three times at weekly intervals—in all, very large x-ray doses.
3. How is this to be reconciled with statements that the use of the fluorescein reduces the quantity of radium required?
4. Details of the eight cases of "apparent recovery" would be interesting; the "clinical details" refer chiefly to the first case treated, for which I see two explanations alternative to that adopted: it is impossible to irradiate equally a convex area 7 by 5 inches from a tube in one position, and newer or more actively growing parts of a tumour often respond more quickly to irradiation than the older areas.
5. All the conclusions (*a*) to (*e*) follow equally well from adequate irradiation treatment apart from fluorescein.

The healing of ulcers may perhaps to a slight degree be accelerated by simultaneous treatment with fluorescein, brilliant green, or other substances; and any substance so used may be heralded as a "new ray" used in cancer treatment. But to deny the efficacy of three full erythema x-ray doses within three weeks, and repeated, with "four to six months' continuous treatment," and then to claim that the results depend on a new "unknown ray" (and even when this ray is localized in the skin painted over a large tumour), seems to me to belong more to the realm of magic than to that of scientific treatment.—I am, etc.,

London, Aug. 17th. J. H. DOUGLAS WEBSTER.

POST-VACCINAL ENCEPHALITIS.

SIR,—In the *British Medical Journal* for August 17th (p. 324), Dr. Poston raises the question of an epizootic encephalitis amongst rabbits. It is an interesting fact that in May, 1918—that is to say, when the epidemic encephalitis of that year was abating and the great influenza epidemic that commenced formally in the June was brewing up—an account was given in the *Globe*, by Mr. Edmund Hallett of Hendon, of an "epidemic amongst rabbits" which had cost him then recently the loss of many young rabbits. Mr. Hallett inclined to the "belief that some form of paralysis attacks the head of the animal."

It is to be hoped that the atmosphere of prejudice which in 1918 attended and surrounded the discussion of so many subjects may gradually become as much clearer in medicine as in other spheres, and that the relation between epidemics and epizootics of influenza and encephalitis will be seen sanely and whole.—I am, etc.,

London, W.1, Aug. 17th. F. G. CROOKSHANK.

PHYSIOLOGICAL STUDY OF ASTHMA.

SIR,—It is a matter for regret that Dr. Eric Holmes, in his letter in your issue of August 18th (p. 324), does not mention what he considers is the true explanation of the asthmatic paroxysm instead of merely affirming that there were no grounds at present for the views I had advanced and explained in my letter of July 27th, as though my arguments were not worth answering.

But Dr. Holmes tells us that Drs. Brodie and Dixon "were dealing, not with clinical asthma, but with an experimental condition which resembled it very closely indeed. They would probably not deny, in theory, the possibility of rhythmical contraction and dilatation playing a part in the clinical condition . . . quite satisfactorily accounted for by other and directly observable factors." Now the essence of my one criticism is that the laboratory conditions were so different from the conditions of a patient in asthma that, however correct the interpretation of the experimental factors, as such, these factors do not apply to the clinical conditions, and do not satisfactorily account for the clinical conditions.

The view I hold is not "the possibility of rhythmical contraction and dilatation playing a part" only in the clinical condition, but that they alone quite satisfactorily account for the clinical condition, while continuous bronchial spasm cannot do so.

It is just thirty years since I put forward my clinical interpretation of the respiratory phenomena in an asthmatic paroxysm, and after Dr. Holmes's letter I was glad to read afresh the original contribution of Drs. Brodie and Dixon published four years later, but still find no sufficient grounds for altering my views after an inspection of the tracings. As Professor Dixon is still away from home in South Africa, I may be forgiven if I prefer to await his return to meet any argument he may do me the honour to advance against my interpretation of the clinical factors at issue.—I am, etc.,

Bristol, Aug. 19th. PATRICK WATSON-WILLIAMS.

CARE OF THE UNMARRIED MOTHER.

SIR,—I was much interested in Dr. R. A. Gibbons's plea for the unmarried mother (August 10th, p. 276). In York there is a sheltering home run by the district branch of the Diocesan Association for Preventive and Rescue Work. There are many maternity cases among the women and girls admitted to this home. Each is given ante-natal care until the time for her confinement approaches. Meanwhile arrangements have been made for her admission

to a maternity hospital, as the home is not equipped to undertake midwifery. Many have gone to St. Faith's Hospital, Leeds, others to the Diocesan Maternity Home in Hull, and others to the York Maternity Hospital or York Infirmary. Many return afterwards to the sheltering home, mother and child being looked after and cared for for some months. The sisters, whose work is beyond praise, are Church Army trained. The home is supported by voluntary contributions, and receives a grant from the Ministry of Health, through the corporation. I have records of ante-natal examinations in 150 cases, and as far as I know none of these mothers died in childbirth.

If the time ever came when an infants' home were attached to this sheltering home, it would be a beneficent work, because when the time comes for the mother to go out to work and the child to the care of a foster mother, things do not always go so well for the child. I presume this home is only one of many others run on the same lines, so that the "rarity of Christian charity" is not so great as some might think.—I am, etc.,

York, Aug. 14th. N. KEMP.

THE ADMINISTRATION OF SEDATIVES BY MIDWIVES.

SIR,—In reference to Dame Louise McIlroy's address, published in your issue of August 10th (p. 231), I am sure that many practitioners must feel that all primigravidae should have a sedative or an anaesthetic—or both. Yet the district nurses refrain from sending for medical aid because they fear censure from the county council, which seems to regard each call for medical advice as an admission of inefficiency. The unfortunate primigravida may struggle for hours, even rotating an occipito-posterior presentation, but so long as the perineum can be kept intact she becomes, we presume, in the eyes of the council, "one up to the nurse." This state of affairs is most unfair to the patients and also to the nurses, and one can only hope that Dame Louise McIlroy's words may somehow or other filter through into the council chamber itself.—I am, etc.,

Whitchurch, Aylesbury, Aug. 14th. J. C. RYDER RICHARDSON.

FEES FOR ATTENDANCE ON DIFFICULT LABOUR.

SIR,—Dr. Rhys Paton's letter in the *Journal* of August 3rd (p. 223) raises the vexed question as to whether the fees for attendance at the request of a midwife are adequate and proportional to the services rendered. I think it is a matter which the British Medical Association should reopen with the Ministry of Health, with a view to raising the fee by at least one guinea for attendance on a confinement.

It would appear, however, that your correspondent had not made himself familiar with the Ministry Circular No. 358 of December 20th, 1922, where it would have been apparent that the maximum fee allowable was governed by Sections No. 1 and 2; he would then have been saved the trouble of sending a bill of such magnitude to the authorities, who, however much they may have valued the services rendered, would have been unable to satisfy the auditors of the Ministry to whom we, as ratepayers, are indebted.

As the case was a midwife's case one presupposes that the Caesarean section was not performed in the patient's house, but was done in some suitable institution to which Dr. Paton is attached; one would like to know whether any question of fee for this service would have arisen if the patient herself had been responsible for the account; in other words, was the operation not performed in a voluntary hospital where no question of fee could arise, unless the institution possessed pay-beds?—I am, etc.,

Dudley, Aug. 6th. ALFRED W. WESTON.

CHARLES CLAY AND OVARIOTOMY.

SIR,—In the report of my opening remarks as president at the first session of the Section of Obstetrics and Gynaecology at the Manchester Annual Meeting, published in the *Journal* of August 3rd (p. 192), I am recorded as having claimed that "Charles Clay was the first surgeon to perform ovariotomy." This is an obvious error, and no doubt arose through the necessary condensation of the reports. What I said was, that "Charles Clay was the first to perform the operation frequently, that it was he who raised it from a disastrous experiment to a well-recognized surgical procedure, and that the term 'ovariotomy' was coined by Sir. J. Y. Simpson for Clay's operation. Moreover, much of the credit which was given to Spencer Wells by right belonged to Clay, as he was regularly and frequently performing this operation fifteen years before Spencer Wells did his first ovariotomy." I believe the other part of the statement to be correct, that "Charles Clay was the first surgeon to perform hysterectomy for fibroids."—I am, etc.,

Manchester, Aug. 14th. WILLIAM FLETCHER SHAW.

TONSILS AND ADENOIDS IN HOSPITAL PRACTICE.

SIR,—In the discussion on tonsils and adenoids in the Section of Diseases of Children (*British Medical Journal*, August 17th, p. 303), Dr. Scott Stevenson is reported to have said that the present method of removing tonsils and adenoids in the out-patient department of hospitals was a disgrace to British surgery. The meeting unanimously adopted a resolution condemning the practice and urging that children should be kept as in-patients under observation for forty-eight hours. With this resolution I agree most heartily, as will anyone who has anything to do with a nose, throat, and ear department.

The practice of treating tonsils and adenoid operations in the out-patient department has arisen from lack of accommodation of hospital beds, and we all agree that a great deal more accommodation is urgently required. But if we cease operating on these cases as out-patients pending the provision of beds our waiting lists are going to mount to unmanageable figures. And what is going to be the inevitable result? The very conditions for which we are advocating the urgent removal of tonsils and adenoids as a means of prevention are not going to be prevented. How many cases of otorrhoea are going to become chronic beyond hope of clearing up while on the waiting list? How many cases on the waiting list are going to develop acute mastoiditis from adenoids? How many glands in the neck are going to become definitely tuberculous? How many cases of diphtheria, acute tonsillitis, acute rheumatism, etc., are going to arise?

It is my practice, because of the non-existence of in-patient beds for these cases, to attempt to tackle all the children who present themselves for operation within a week of being seen in the out-patient department. Of course, it means a great amount of work in the week; but, so far, I have not had cause to regret it, and I certainly think it is preferable to admitting children for mastoid operations who are already on the waiting list for tonsils and adenoids. So long as the totally inadequate in-patient provision for these cases remains, there is something to be said for treating them as out-patients if only from the preventive aspect.—I am, etc.,

Hull, August 19th. R. R. SIMPSON.

THYROID AND MANGANESE TREATMENT.

SIR,—In the *Journal* of July 6th (p. 33) Dr. Langwill asks for reports of the results of the above treatment. I have given it an extensive trial in cases of chronic rheumatism and also in pneumonia.

The chronic rheumatic cases comprised all types—articular and non-articular. All the patients were thoroughly examined, and septic foci, when found, received appropriate treatment. A diet rich in vitamins was employed and carbohydrates were restricted; the state of suboxidation was combated by means of thyroid and manganese therapy. Various subsidiary measures—anodyne applications, massage, radiant heat, diathermy, ultra-violet rays, etc.—were employed in some of the cases for the relief of pain or the restoration of function.

The conclusions which one might draw from my series of cases are as follows: (1) Treatment evolved on the foregoing lines is of definite benefit to rheumatic patients. (2) While all credit cannot be given to the thyroid and manganese therapy, in view of the other measures employed, there is no doubt that in such cases it is of great value. It is more potent when employed as rectal injections of the permanganate solution with the oral administration of the thyroid substance; administered thus or orally in

cachets, the beneficial effect is more marked where a definite septic focus is found and treated. (3) There is little or no beneficial effect in cases of osteo-arthritis.

Since reviewing my series of cases I have treated many more, and have not found it necessary to change my opinion. After three to four weeks' treatment, say, in a case of rheumatoid arthritis, the patient has a renewed sense of well-being, and the increased range of movement and decrease of pain are remarkable. The earlier the treatment is employed, of course, the better, but it is really astonishing how many old bedridden cases improve and become able to move about and attend to themselves.

The anxiety usually attendant on the treatment of cases of pneumonia has, in my experience, been greatly reduced by the employment of the thyroid and manganese treatment. In three or four days from the commencement of the treatment, as a rule, the temperature, pulse, and respirations are normal; the lung is still consolidated and the sputum rusty, but the patient is feeling well and wondering what all the fuss is about. One patient, however, I remember, was delirious for two days after his temperature became normal. The treatment seems to be equally efficacious in lobar and broncho-pneumonia, and in adults and children. Some parents find it difficult to believe that their children are suffering from the much dreaded "pneumonia."—I am, etc.,

Milngavie, Glasgow, Aug. 11th. R. J. LESLIE FRASER, M.D.

THE NOISE NUISANCE.

SIR,—Adverting to your paragraph in the *Journal* of August 10th (p. 267), and to the drafting of the bill promoted by the Edinburgh Corporation, why should it be necessary to bring "within the meaning of the Public Health Acts" this requirement, that the noise shall be "dangerous or injurious to health"? Such a definition would assuredly enable many an offender to ride off with the easy avoidance which seems to have served Mr. Neville Chamberlain.

It is now forty years since I ceased to serve as a medical officer of health or to take part in public health administration, and, in the absence of any work of reference, I can only trust to a rusty memory. But my impression is that our forerunners did not hamper themselves thus when they framed such measures as the Town Police Clauses, under which emerged notices—still to be seen—for the prohibition of "street music" and other noises. The first three lines of the 33rd section of the Edinburgh Bill, as quoted in the *Journal*, seem to be excellently worded.

The scientific measurement of noise nuisance may be attainable when we arrive at the State of Laputa and our coats are cut by trigonometry. Until then, perhaps, we must be content to judge limits by their merits, as is done daily in our courts. At any rate, the point, if not already taken into account, may be worth consideration.—I am, etc.,

ARTHUR DOWNES, M.D.

Varengeville-sur-Mer, France, Aug. 11th.

Obituary.

WILLIAM EWART, M.D., F.R.C.P.,

Senior Consulting Physician, St. George's Hospital.

MANY St. George's men, now long established in practice, will feel that one of the last links with their student days has been broken by the death, on August 11th, in St. Mary's Hospital, of William Ewart, after some years of increasing disability.

He was born in London on December 26th, 1848, and educated at the University of Paris, where he took the degree of Bac. ès Lett., and medically at St. George's Hospital, entering the Medical School in 1869. The fifth volume of the *St. George's Hospital Reports* contains "Notes taken in a German Feld-Lazarette by W. Ewart, Esq. (student of the hospital)," showing that in September, 1870, during the Franco-Prussian war, he was at Mouzon working in a wool factory crowded with looms and wounded; he described how he performed Carden's amputation through the knee-joint, and stated that the application universally used for the wounds was carbolic acid, though "a dressing of camphorated wine, or alcohol and water, was sometimes substituted when the granulations assumed a spongy, flabby character." He added that in most instances the German surgeons showed great reluctance to operate; "they were always anxious to give unaided Nature her last chance, by which they often seemed to deprive the patient of his." Qualifying in 1871 at the College of Surgeons of England and obtaining the licence of the Royal College of Physicians of London in the following year, he was house-physician at St. George's Hospital, and then, on October 1st, 1873, entered at Gonville and Caius College, Cambridge, where he was a scholar from 1875 to 1880, and took a first class in physiology in the Natural Sciences Tripos of 1876. During part of this period—namely, from November, 1875, to December, 1876—he was house-physician at Addenbrooke's Hospital, being succeeded by Sir James Kingston Fowler. The Thruston Prize at Caius was awarded to him in 1880. After taking his degree he returned to St. George's Hospital and held a number of teaching appointments in the Medical School and the curatorship of the museum, which carried with it the performance of all the post-mortem examinations. At this time he became assistant physician at the Hospital for Consumption and Diseases of the Chest, Brompton, where he was also pathologist. In 1882 he proceeded to the degree of M.D. at Cambridge, and was successful against the late Sir Isambard Owen in a contest for the assistant physiciancy at St. George's Hospital, and accordingly resigned his appointments at the Brompton Hospital, as at that time it was not considered right to hold any other hospital appointment that occupied the afternoons. Five years later, on Christmas Day, 1887, he became full physician, and held this for the statutory period of twenty years, becoming consulting physician in 1907, the year in which he gave the introductory address at the hospital, on October 1st, "Res medica, res publica; the profession, its future work and wage." He was for years physician to the Belgrave Hospital for Children, and attached to several other hospitals as a consultant. At the Royal College of Physicians he became a member in 1874, three years before he took the M.B., and was elected a Fellow in 1881, giving the Goulstonian lectures in the following year on "Pulmonary cavities, their origin, growth, and repair." He was an examiner in medicine (1894–97), a councillor (1901–3), and a most constant attendant and not infrequent speaker at the College comitias.

Ewart was an indefatigable clinician, his ward visits being extremely conscientious and made with the greatest regularity; it was, perhaps, not without a hint of humour that he occasionally extended his round to the surgical wards to study the medical cases there. In his younger days he worked much at morbid anatomy and its clinical correlations, as is shown by his Goulstonian lectures and his atlas on the *Anatomy of the Bronchi and Pulmonary Blood Vessels* (1889). In this connexion it may be mentioned that in the Section of Tuberculosis at the recent meeting of the British Medical Association at Manchester, Dr. Maurice Fishberg, in opening the discussion on apical and subapical tuberculosis of the lungs, paid a tribute to Ewart's pioneer work in 1882, showing that "the so-called apical lesion" is much below the apex in many cases. A little later, turning his attention to the heart and pericardium, he spent much time in making flimsy tracings of the chest, and brought out a number of small books: *Cardiac Outlines* (1892), *How to Feel the Pulse and What to Feel in it* (1892), *Symptoms and Physical Signs* (1892), and *Heart Studies, chiefly Clinical* (1894). An expert in percussion and auscultation, some of his diagnoses were wonderfully accurate. On other subjects he wrote widely, such as *Gout and Goutiness* (1894), on bronchitis and bronchiectasis in both editions of Allbutt's *System of Medicine*, and a number of climatological reports on the southern counties of England in the two volumes of *The Climates and Baths of Great Britain*, brought out by a committee of the Royal Medical and Chirurgical Society in 1895. At the meetings of medical societies he was a frequent speaker, and was at one time president of the Chelsea Clinical Society. He examined at the Universities of Cambridge and Durham, and took the

ad eundum degree of M.D. at Durham in 1895. In 1908-9 he was chairman of the Westminster Division of the British Medical Association.

Mentally he showed considerable originality, and was prolific in hypotheses, especially about treatment—for example, of bronchiectasis, leukaemia, renal dropsy, and enteric fever. Thoroughly in earnest, he had a vein of distinct eccentricity, which with some disregard of practical details may explain why his early promise was never fulfilled, and he was, in spite of incessant application, denied popular success as a consultant. With courtesy of a kind now old-fashioned, he was a sensitive soul, but nearly always preserved an unruffled aspect where others might well have shown annoyance. Though once engaged, he never married, and led a somewhat solitary life; thus, especially in his later years when sadly crippled by rheumatism, he became a very pathetic figure. He was a devout Roman Catholic, and outside his profession his chief interests were musical. Since 1900 he had been a member of the Athenaeum, where for some years he had spent most of his time. H. R.

We are indebted to Sir WILLIAM H. BENNETT for the following appreciation:

The death of William Ewart will have aroused in the minds of a generation of St. George's men feelings of deep and affectionate regret, mingled with recollections of many pleasant hours spent with him in the wards of this hospital. Indefatigable in his work, he was an enthusiastic teacher, sparing neither time nor trouble in conveying the essence of his knowledge and experience to those who were ready to learn. An afternoon spent with him in the wards afforded a liberal education in intensive clinical investigation and diagnosis. The obvious, however clear, was not sufficient for him; he was always searching for something beyond with a persistence and attention to detail which, to those unaccustomed to his methods, seemed remarkable. Not content with methods of treatment and diagnosis as he found them, he was unending in his efforts to find something better with an eagerness which was irresistible. By nature an optimist, he approached every problem with a cheery confidence which was as stimulating as it was helpful. The large amount of time devoted to the hospital work which he loved so well, to the serious exclusion of outside interests, militated somewhat against his achieving the degree of popular success in the practice of a consulting physician to which, by his high attainments, he was entitled, and which, in ordinary circumstances, he surely would have attained. The name of William Ewart will be ever held in grateful memory by all St. George's men.

Dr. GEORGE NICOL HENRY, who died after two days' illness, on July 23rd, in his 68th year, was born in Banffshire, and graduated M.B., C.M.Aberdeen, with honours, in 1885. After holding the posts of medical officer at the County Asylum, Prestwich, he commenced practice in Kennington, S.E., forty years ago. For thirty-six years he was surgeon to New Scotland Yard and the "L" Division of the Metropolitan police. He was vaccinator and surgeon at Peel House in connexion with police recruits, but relinquished these appointments two years ago on reaching the age limit. For twenty years he was *medical officer to the Licensed Victuallers' School, up to* the time of its removal to the country. Dr. Henry was a member of the British Medical Association and also of the Medico-Legal Society and the Metropolitan Police Surgeons' Association. He leaves a widow, a daughter, and four sons, the eldest of whom is in the medical profession.

The following well-known medical men have recently died: Dr. GUSTAVE HUMBERT, professor of medicine at Geneva, aged 54; Dr. LOUIS LEJEUNE, professor of radiology and electrotherapy at Liège; Dr. GUINON, an eminent Paris physician and officer of the Legion of Honour; Dr. BENNO CREDÉ, a Dresden surgeon, aged 80; Dr. PICHLER, who was for many years editor of the *Wiener Klinische Wochenschrift*; and Dr. GEORG KASSNER, professor of pharmaceutical chemistry at Münster.

Medico-Legal.

FEES OF MEDICAL WITNESSES.

THE litigant's right to ensure the attendance of a medical witness by serving him with a subpoena together with conduct money was strongly emphasized by Judge Gwynne-James at Bath County Court on August 15th, when he fined Dr. Malone of the resident medical staff at the Royal United Hospital two guineas for failing to answer a subpoena to attend and produce the medical record of a person who had been a patient at the hospital.

Dr. Malone told the judge he had not appreciated what a subpoena meant. His honour proceeded to define the position of a medical man when subpoenaed to give evidence, and gave two instances of medical men refusing to give evidence in his court on behalf of their patients unless they were paid a special fee. One had demanded a special fee of twenty guineas. Such a demand, as the judge pointed out, is of no avail, and cannot be enforced. All a litigant has to do is to serve a medical man with a subpoena, together with proper conduct money, which is in the nature of travelling expenses to and from the court, and an extra payment of one guinea, "which may, in an exceptional case, be increased not beyond five guineas." The medical witness had no right to demand a special fee. If he did not obey the subpoena he committed contempt of court, and was liable to a fine, and even to imprisonment, if it were shown that he was openly flouting the authority of the court.

The *Daily Telegraph*, on August 17th, published reports of interviews with Dr. G. C. Anderson, deputy medical secretary of the British Medical Association, and Sir Bernard Spilsbury, who is constantly appearing as an expert witness in civil and criminal courts. Dr. Anderson referred to the protest sometimes made by medical witnesses before they are sworn that they have not yet received a fee for attendance. Such a protest is always advisable. It may be the effective cause of the exercise of the court's discretion to allow a witness a fee of from one to five guineas. As Sir Bernard Spilsbury pointed out, if a doctor fails to come to an agreement regarding a fee before he goes into the witness-box, he will be obliged to accept such fee as the court may allow.

A clear distinction, however, should be made between the position of the medical witness who is giving evidence as a witness of fact—an example being a medical practitioner giving evidence as to the condition of a patient he has been attending professionally—and the medical witness who is giving the court the benefit of his opinion as a medical expert upon a certain set of facts already before the court.

A subpoena is issued to compel the attendance of witnesses without whose assistance the material facts of a case cannot be presented to the court. Such a remedy ensures that justice shall be done. A subpoena ought never to be issued to compel an expert to give evidence as to his opinion upon a certain set of facts which have already been given in evidence by other witnesses. Such expert witness is, of course, entitled to a special fee, the amount being a matter of arrangement between him and the litigant who desires to call him.

STATUS OF AN UNREGISTERED PRACTITIONER.

THE London Sessions Bench, on August 10th, allowed the appeal of Lieut.-Colonel John William Kynaston against an order made under the Probation of Offenders Act, 1907, by Mr. H. L. Cancellor, at Marlborough Street Police Court, dismissing an information by the Royal College of Surgeons of England for wilfully and falsely using the title of "M.R.C.S. Eng.," implying that he was registered under the Medical Act, 1858.

Lieut.-Colonel Kynaston obtained the diplomas of M.R.C.S. and L.R.C.P. in 1885, but his name was removed from the *Medical Register* penally in 1922 in circumstances set forth in the police court and High Court proceedings, reported in this column on August 10th, 1929 (p. 281).

Lieut.-Colonel Kynaston's contention was that the use of the letters "M.R.C.S." after his name implied that he was a properly qualified medical man, and did not imply that he was registered under the Medical Act. It was common ground that Lieut.-Colonel Kynaston could continue to practise medicine, though he was not now on the *Medical Register*.

The chairman (Mr. Wilberforce), in allowing the appeal, said the Bench was agreed that Lieut.-Colonel Kynaston obtained the diploma of M.R.C.S. subject to the conditions laid down by the body which granted it, and, just as the

Royal College of Surgeons were able to give it, so they were able to take it away. But the question for the Court was, whether Lieut.-Colonel Kynaston's conduct in continuing to use the title "M.R.C.S." was wilful or false within the meaning of Section 40 of the Medical Act, 1858, and the court was of opinion that such a matter should have been tested in a civil and not a criminal court.

The order was thereupon set aside, but no costs were allowed.

THE NEW VACCINATION ORDER.

THE Ministry of Health has issued this week to boards of guardians a circular, No. 1025*a*, with reference to a new Order (Statutory Rules and Orders, 1929, No. 640) which the Minister has made under the Vaccination Acts. The purpose of the Order, which will come into force on October 1st, is to give effect to the first four recommendations printed at page 201 of the report of the Committee on Vaccination presided over by Sir Humphry Rolleston (Cmd. 3148. H.M. Stationery Office, 1928. 7s. net.) An account of the findings of the Rolleston Committee appeared in the *British Medical Journal* of August 11th, 1928 (p. 266), and further reference to them was made in our issue of June 29th, 1929 (p. 1174). The recommendations dealt with in the new Vaccination Order are as follows:

(1) In place of the officially advocated four insertions, trial should be made of vaccination and revaccination in one insertion with a minimum of trauma, and that multiple scarification and (or) cross-hatching be deprecated.

(2) Primary vaccination should be performed in infancy, between the ages of 2 and 6 months as at present, and revaccination be offered at the time when a child enters school (6 to 7 years), and again on leaving (14 to 16 years).

(3) Vaccination in multiple insertions should be available for such persons as desire to obtain the maximum protection against small-pox obtainable at one operation.

(4) In public vaccination parents should be informed that if, in consequence of vaccination, a child requires medical attention, it is the duty of the public vaccinator concerned to provide such attention without cost to the parents.

In the new Order effect is given to recommendations (1) and (3) by altering the present instructions to public vaccinators and the forms of vaccination contract. In future a public vaccinator should vaccinate or revaccinate in one insertion only, unless it is desired to obtain additional protection against small-pox at one operation, when the number of insertions may be increased up to four. The aim should be to obtain successful vaccination with the minimum of injury to the tissues, and in no circumstances must the vaccinated areas be cross-scarified or cross-hatched. In compliance with recommendation (4) changes are made in the Form of Notice of the requirement of vaccination given by registrars of births and deaths, in order that parents or guardians may be informed that, if vaccination is performed by a public vaccinator, it will be his duty to attend and prescribe such treatment as is necessary without charge to the parent or guardian, if in his opinion the child needs medical treatment in consequence of the vaccination. A new paragraph has also been added to the Form giving effect to recommendation (2), and authority is given to a public vaccinator to revaccinate any person who applies to him without reference to the period which has elapsed since the last vaccination.

The circular draws attention to the remarks of the Rolleston Committee, at page 200 of its report, on the occurrence of cases of "post-vaccinal nervous disease." The committee pointed out that, however seldom such cases might occur, they were of serious import, and could not fail to have an effect on vaccination both in its administrative and in its purely medical aspects. But the report also pointed to the extreme rarity of such manifestations, particularly after revaccination and after primary vaccination in early infancy, and the committee concluded that early infancy remains the time of choice for primary vaccination. The Minister recognizes that "post-vaccinal nervous disease," both in this country and abroad, has occurred mainly in children of school age or adolescents who had never previously been vaccinated, and that this fact emphasizes the desirability of securing the successful vaccination of infants. Where this has not been attained, the question which arises is whether it is advisable to vaccinate children of school age or adolescents. The Minister is of opinion that, in the present state of knowledge, and so long as the small-pox prevalent in this country retains its present mild character, it is not generally expedient to press for the vaccination of persons of these ages who have not previously been vaccinated, unless they have been in personal contact with a case of small-pox or directly exposed to small-pox infection.

Copies of the new Vaccination Order, with its two schedules of instructions, and of the Ministry's circular, will be furnished to all public vaccinators.

Universities and Colleges.

UNIVERSITY OF LONDON.

AN ordinary convocation will be held on Tuesday, October 8th, at 5.30 p.m., to fill the vacancy in the Chancellorship caused by the death of the late Earl of Rosebery.

ST. THOMAS'S HOSPITAL MEDICAL SCHOOL.

The following scholarships have been awarded during 1929–30:

University Scholarship (£100): John Bishop Harman. Entrance Science Scholarships (£150 and £60): (1) C. J. Cobbe; (2) S. H. Alavi and R. M. R. Belsey. William Tite Scholarship (£25): H. R. B. Norman.

The Services.

TERRITORIAL DECORATION.

THE King has conferred the Territorial Decoration upon the following officers of the R.A.M.C.(T.F.): Majors P. E. Barber (ret.), G. H. H. Waylen, M.C., W. George, M.C., and A. H. Fullerton and Captain J. B. McGovern (ret.).

Medical News.

THE annual dinner of past and present students of St. Mary's Hospital will be held at the Trocadero Restaurant, W., on Friday, October 4th, at 7 o'clock, with Sir John F. H. Broadbent, Bt., in the chair.

As will be seen from our advertisement pages the Royal College of Physicians of London invites applications for the office of Milroy Lecturer for 1931. The course, which consists of three lectures, will be delivered on Tuesdays and Thursdays in February or March, 1931. A copy of Dr. Milroy's "Suggestions" on the subject of his bequest, and information as to the emolument, may be obtained from the Registrar, Dr. Raymond Crawfurd, to whom applications must be sent by September 30th.

THE Fellowship of Medicine announces that the Brompton Hospital will hold an all-day course in diseases of the chest from September 9th to 14th; facilities will be given for attending the practice of the various departments of the hospital, and the instruction will include lectures and demonstrations. A course at the Infants Hospital from September 9th to 22nd is intended particularly for those engaged in infant welfare work; visits will be paid to other centres in addition to clinics held at the hospital. From September 10th to October 5th a course of lecture-demonstrations in psychological medicine will be given at the Bethlem Royal Hospital on Tuesday and Saturday mornings. There will be an intensive course of instruction in medicine, surgery, and the specialties at the Westminster Hospital, open to men only, from September 16th to 28th; the daily sessions will continue from 10.30 a.m. until 5.30 p.m. The Prince of Wales's Hospital and the North Middlesex Hospital will hold a course in medical and surgical gastro-enterology from September 30th to October 4th. The Metropolitan Hospital will conduct its first course under the auspices of the Fellowship in medicine, surgery, and the specialties from October 21st to November 2nd. The Fellowship has arranged a second evening course for the M.R.C.P. examination consisting of sixteen lectures; these will be delivered on Tuesdays and Fridays at the House of the Medical Society, 11, Chandos Street, Cavendish Square, from October 15th to December 6th. Detailed syllabuses of the above courses, and information regarding the general course arranged by the Fellowship in connexion with its associated hospitals, also copies of its *Journal*, are obtainable from the Secretary of the Fellowship, 1, Wimpole Street, W.1.

A NEW course of post-graduate lectures will be given in the Manchester Royal Infirmary on Tuesdays and Fridays from September 24th to December 10th. The Friday lectures will be especially devoted to the explanation of recent scientific work and to other problems of interest. The lectures are free, and full particulars can be obtained from the secretary for the post-graduate lectures at the infirmary.

No. 55 of the Ministry of Health's Reports on Public Health and Medical Subjects is published to-day. It is a report by Dame Janet Campbell, M.D., on the English part of the international inquiry into infant mortality instituted by the Health Organization of the League of Nations. The investigation was carried out in four selected districts in this country in 1927–28—namely, Sunderland and parts of Staffordshire, where infant mortality was relatively high, and in Croydon and Oxfordshire, where it was relatively low. Copies of this report, which we hope to comment upon in an early issue, may be obtained from H.M. Stationery Office, price 1s.

ESTERS of morphine and their respective salts, and any preparations, admixture, and extract containing any of the said esters, are in future to be subject to Part III of the Dangerous Drugs Act.

LORD EBBISHAM (Lord Mayor of London, 1926-27) has become the treasurer of Dr. Barnardo's Homes in succession to the late Mr. Howard Williams.

Dr. L. MEREDITH DAVIES, medical officer of health for Northamptonshire, has been appointed medical officer of health for Devon.

LISTS of medical practitioners serving as members of local authorities or their subsidiary bodies in Great Britain have been published in our columns during recent months. We learn that Dr. J. F. O'Meara has been a member of the Town Council of Walsall for many years and is now an alderman; he has served on the Health Committee and Child Welfare Committee throughout his membership of the Town Council.

ACCORDING to Professor Roffo, the Argentine authority on cancer, the increase of cancer in Buenos Aires is shown by the fact that in 1890 there were only 308 deaths registered as due to that cause, a proportion of 18.76 for every 1,000 deaths, as compared with 2,179 deaths from cancer in 1928, or 81.5 per 1,000 deaths.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to ***The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.***

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The ***TELEPHONE NUMBERS*** of the British Medical Association and the *British Medical Journal* are *MUSEUM 9861, 9862, 9863,* and *9864* (internal exchange, four lines).

The ***TELEGRAPHIC ADDRESSES*** are:
EDITOR of the *British Medical Journal, Aitiology Westcent, London.*
FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*
MEDICAL SECRETARY, *Medisecra Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone 24361 Edinburgh).

QUERIES AND ANSWERS.

"PERMANENT WAVES."

"L." inquires if there is any disadvantage to the hair from the hairdressing procedure of "permanent waving," and whether the waving can stand the ordinary amount of brushing and occasional washing. It is stated that the effect lasts six or eight months.

BLISTERING WITH SCARLET-RED.

DR. W. L. PEACOCK (Uganda Medical Service) writes: In reply to "R. V." (August 17th, p. 330), I suggest that the cause was a dispenser's error, and that biniodide of mercury was supplied, since this is both scarlet and blistering.

TREATMENT OF SEVERE HEADACHE WITHOUT PHYSICAL SIGNS.

DR. BLANCHE A. M. HENDERSON (West Hartlepool) writes: Perhaps "M. B." would like to try the following. At the onset of the headache let the patient lie in a hot bath for ten or fifteen minutes; perfumed bath ammonia may be added with advantage. Then the patient should take one tablet of veramon, followed by hot tea. Repeat this four-hourly as required. Some *patients do better on aspirin, grains 15,* also followed by either tea or hot water. "T. H. H.'s" patient might improve on a long course of bromide, conveniently given in the preparation sedobrol. Such patients enjoy this treatment.

INCOME TAX.

Deduction for Rent, Light, Coal, etc.

"W. C. A." inquires what is the usual proportion allowed for income tax purposes of such general charges as "rent (or annual value), rates, light, coal, repairs, servants, etc."

*** By law the proportion is within the discretion of the commissioners responsible for the assessment, and must not exceed two-thirds unless in a particular case "the commissioners are of opinion that having regard to all the circumstances some greater sum ought to be deducted." Putting aside for the moment the question of servants' wages, general charges varying with the size of the premises are frequently dealt with on the basis of half-and-half, or, where the rent includes some special element of site value for professional purposes, two-thirds to the practice and one-third to the domestic side. Some aid to testing the reasonableness of a proposed basis is to see what amount it will leave as a domestic charge. It should be borne in mind that the ground floor is the most valuable part of the premises, and that the garage should be covered by the professional portion of the total charge. The proportion for servants' wages varies very much with individual circumstances. The fact that a waiting-maid must be kept does not justify charging the whole of her expenses to the practice if in fact an appreciable part of her time is spent in private household work.

Expenses Incurred by Assistant.

"ASSISTANT" uses a car and motor cycle for professional purposes; the car is his, but he did not buy it.

*** Assuming that he is required to find his own means of locomotion, in which case the salary, etc., received and assessed will presumably be higher than it otherwise would have been, "Assistant" is entitled to deduct out-of-pocket expenses for garaging, running, and maintaining the car and cycle, and also an allowance at, say, 20 per cent., for depreciation. That allowance should be calculated at the value of the car as at the commencement of the financial year for which the claim is made. Licence and insurance expenses can be deducted, but if the car or cycle are used for private as well as for professional purposes some deduction will have to be made from the total claim in respect of the former use.

Earnings of Assistant.

"J. H. B. L." acted as house surgeon without salary from April to October, 1928, and as assistant in general practice from that time to April, 1929. He earned £136 in that period, and has been assessed at £50 gross for the financial year 1928-29. Is that correct?

*** No. The assessment seems to have been made without knowledge of the change in the nature of the employment, and accordingly based on the earnings of the previous year (1927-28). The correct gross liability on the above facts is £136.

LETTERS, NOTES, ETC.

INFECTION IN PUBLIC BATHS.

"M.R.C.S." writes: With reference to the article by Drs. Daggett and Cove-Smith on the dangers of infection in public baths (August 17th, p. 296) and their recommendation that "those persons with colds, septic nasal conditions, . . . should not be allowed in public baths without leave from an aural surgeon," I am wondering how this should apply in the case of people with gonococcal infections. I have recently had a most distressing case of a girl, aged 11 years, with a vulvo-vaginitis of undoubted gonococcal origin. The only source of contamination could be traced to a recent visit to the public baths. She used her own towel and costume, so I suppose she must have sat down on a seat while dressing or undressing.

SCOLIOSIS.

MR. PAUL BERNARD ROTH (London, W.) writes: In the review of Dr. Steindler's book (August 10th, p. 264) you say of scoliosis that "in its slighter unprogressive form it is of no clinical importance whatever and is easily dealt with." This statement astounds me; it is contrary to all my experience. When a slight case is met with for the first time no one can tell that it is not going to develop into a severe case, and it is of the utmost clinical importance to recognize this and start treatment at once. On the other hand, when a severe case is met with one knows that it began as a slight case, and if diagnosed in time could have been prevented from getting any worse.

*** Our reviewer writes: I said that the unprogressive form was easily dealt with: I did not say that it needed no treatment. I had also in my mind the hundreds of cases diagnosed as scoliosis in school inspections by specialists such as Schulthers, which are for the most part untreated and suffer no ill results. Hoffa gave 2,553 scoliotics out of 8,000 children recorded by various observers.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 34, 35, 38, 39, 40, and 41 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 38 and 39.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page *136*.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

158. Non-tuberculous Conditions simulating Pulmonary Tuberculosis.

A. DUDAN (*Rev. Méd. de la Suisse Romande*, June 25th, 1929, p. 377) deprecates the number of patients erroneously labelled tuberculous. He insists that not only bacteriological, but *x*-ray examinations, should be made in every case to confirm a diagnosis arrived at in the course of routine examination. He considers also that the advice of an expert oto-rhino-laryngologist should be sought whenever there is any affection of the upper air passages; he cites instances of patients suffering from various affections of these passages who were wrongly diagnosed as tuberculous. In support of his contention he quotes Rist's statistical investigation of the sixth French army at Compiègne in 1916, in which it is shown that 192 men were diagnosed as tuberculous, but after thorough examination only 53 of these were proved to be the subjects of active, latent, or cured tuberculosis. Again, in 1918, of 342 patients so diagnosed in Paris no more than 37 had actually contracted the disease. Among 1,000 cases examined in 1919–20 at the Léon-Bourgeois anti-tuberculous dispensary at Paris only 330 were tuberculous. More recently the author examined 70 Swiss soldiers who were suspected of tuberculosis, and found that 23 showed evidence of active, latent, or cured disease, whereas 47 cases had an inflammatory condition of the respiratory passages, the majority of which were due to acute or chronic morbid conditions of the rhino-pharynx. Dudan concludes his article by remarking that not only is much misery—mental, economical, and social—caused by a false diagnosis of tuberculosis, but also that many patients who are suffering from a more benign affection are not cured because it passes unrecognized.

159. Statistics of Peptic Ulceration.

E. S. EMERY and R. T. MONROE (*Arch. Int. Med.*, June, 1929, p. 846) have studied 556 cases of peptic ulcer over a period of thirteen years, and summarized their findings. Of 407 patients who were admitted to medical wards, 155 were eventually transferred to the surgical side for operation; 149 other patients were admitted direct to the surgical wards. The duration of observation varied from six months to thirteen years, with an average of just over four years. The number of cases with ulcer entering the medical service was 1.85 per cent. of the total number of admissions, which agrees approximately with the experiences of other observers; the average age in years at which symptoms were first noticed was 35.9 for males and 37.8 for females. No connexion between the condition and occupations involving exertion was noted, and no definite hereditary tendency appeared to exist. Hyperacidity was present in 50 per cent. of the cases, and there was only one case of achlorhydria, which presented no symptoms, the diagnosis depending only on the *x*-ray findings, while in 36 cases (7 per cent.) the *x* rays showed no evidence of ulcer. Haemorrhage occurred in 194 (34.8 per cent.) of the cases, being fatal in 8, and after the first two years of symptoms the proportion fell to 23 per cent. After an average observation period of four years about 60 per cent. of the patients were found to be relieved by treatment, of which the strict Sippy method was the best medically, and gastro-enterostomy with plication of the pylorus the best surgically. While surgery seemed to be more effective, the results were worse than in those treated medically. The authors conclude that cure is rare, the present methods of treatment being only palliative; the advantages and disadvantages of the different methods must be carefully considered, the best results depending upon a wise choice for each individual case.

160. Nervous Complications of Influenza.

J. HALLÉ (*Bull. et Mém. Soc. Méd. des Hôp. de Paris*, May 20th, 1929, p. 618) records a familial epidemic of influenza in which the father and three of the five children showed well-marked nervous symptoms. The father's attack began with intense headache which persisted several days, and severe pain in the epigastrium which lasted three days and was not accompanied by diarrhoea, vomiting, or distension. This solar syndrome was accompanied by a horizontal nystagmus, which continued for a few days and then disappeared. There were no other cerebral or meningeal signs. The eldest daughter, aged 6, showed almost the same abdominal symptoms as her father, suggestive of peritonitis, which subsided in two days. The eldest boy, aged 15, had sialorrhoea which lasted for three days; and the youngest boy, aged 12, developed a transient psychosis during which he spoke incoherently and failed to recognize his parents. J. Comby described cases of convulsive influenza—that is, cases in which convulsions occurred at the onset or during the course of the disease, as well as transient and permanent psychoses giving rise to dementia and more or less extensive spastic paralysis.

161. Etiology of Rheumatic Fever and Tonsillitis.

J. T. CLARKE (*Brit. Journ. Child. Dis.*, April–June, 1929, p. 99) maintains that the geographical distribution of rheumatic fever and of *Ceratophyllus fasciatus*, the common rat-flea of northern temperate climates, is so similar as to make it seem possible that the insect is in some way connected with the etiology of the disease. The similarities are not only those of geographical and local distribution, but also of temperature and humidity, temperature being the most important. According to Clarke, rheumatic fever does not enter through those conditions of the throat which seem to be caused by overcrowding and bad ventilation, but there may be an association with the inflamed throats which are caused by the access of drain and sewer gas to houses. Defects in sanitation may admit not only drain gas into dwellings, but the rat with its flea as well, while the fact that the disease may occur without an inflamed throat suggests that it is the flea, and not the gas, which causes rheumatic fever.

162. Tracheo-bronchial Diphtheria.

N. T. WELFORD (*Amer. Journ. Dis. Child.*, May, 1929, p. 944), who records twenty-four cases in patients aged from 1 to 10 years, states that the malignant form of diphtheria which involves the trachea and bronchi has received rather scanty attention in medical literature. There are two types of cases: in one the membrane is formed in the smaller bronchi and extends upwards into the trachea, and in the other the membrane is formed above and spreads downwards into the bronchi. The most distinctive features of tracheo-bronchial diphtheria are severe toxaemia, marked intercostal and epigastric recession, in contrast with the recession of the suprasternal, supraclavicular, and infraclavicular spaces in laryngeal diphtheria, retention of voice, suppression of breath sounds, and hyper-resonance due to extensive emphysema or to distension of the lung with air which is unable to escape. Necropsies, which were performed in twenty-two of Welford's cases, showed that atelectasis caused by membranous obstruction was frequent. Treatment consists in the administration of large doses of antitoxin, and bronchoscopy with aspiration before the onset of myocardial failure.

Surgery.

163. The Small Deep Graft.

J. S. DAVIS (*Annals of Surgery*, June, 1929, p. 902) distinguishes between the small deep graft and Reverdin grafts, and advocates the use of the former, which include the full thickness of the skin at its centre; they should be round or irregularly oval in shape, and range between 0.4 and 0.5 cm. in diameter, tapering off toward the edges, where they are quite thin. Small deep grafts should preferably be taken from the upper anterior surface of the thigh, and may be placed on a fresh wound or on a granulating surface, which should be clean, firm, rose-pink in colour, and not exuberant. This surface is prepared the day preceding grafting by covering it, after cleansing, with a thick flat pad of gauze saturated with salt solution. Immediately before operation the wound is washed with ether and then salt solution. Before grafting the surface of the wound must be dry but not glazed. The grafts are cut under local anaesthesia, a piece of epidermis being picked up on an intestinal needle and raised so that a little cone is formed. This is cut through with a sharp scalpel, the grafts being cut in vertical rows running upwards across the area marked out, and transferred at once to the raw surface on the granulations. There should be a narrow rim of undisturbed epithelium left between the pits made by cutting the grafts. After two or three rows of grafts have been applied a strip of rubber protective about 2.5 cm. wide, in which V-shaped slits have been cut, is placed over the grafts and pressed downwards firmly. Silver foil dressing covered with a flat gauze dressing is the most satisfactory for the area from which the grafts

have been cut, and should be left undisturbed for about two weeks. Grafts which are on a granulating surface should have dressings changed after forty-eight hours; those on a fresh wound may be left for a week, but after the first dressing the grafted area should be dressed every day, at first with protective strips and then with bland ointment or 8 per cent. scarlet-red ointment to stimulate growth. Compresses of gauze saturated with salt solution may be used after the grafts have become firmly attached, and when the newly formed epithelium from the grafts and the wound edges has fused, stearate of zinc powder and exposure to the air are helpful. Three weeks after healing gentle massage should be started and be continued until the grafted area slides easily over the underlying tissues.

164. Results of Artificial Pneumothorax Treatment.

L. B. SMITH (*Tidsskr. f. d. Norske Laegefor.*, June 1st, 1929, p. 532) records the results achieved at the public sanatorium, Laudeskogen, in Norway, with artificial pneumothorax treatment between 1917 and 1926. During this ten-year period 3,035 patients were admitted, of whom 270 were considered to be suitable for this treatment. Fifteen patients already had an artificial pneumothorax when admitted; with the addition of these, the proportion of patients selected for this treatment was 9.2 per cent. of the total. Only in 3 of these 235 patients could no tubercle bacilli be found in the sputum. Cavities were found in 185 cases. In 141 cases extensive pleural adhesions prevented the induction of a pneumothorax, and in 10 other cases the pleural pocket was so small that the injections had to be discontinued. Among the patients in whom an adequate collapse of the lung was achieved there were 49 who were febrile at the beginning of the treatment; 35 of them became afebrile after the pneumothorax had been induced. Of the 134 patients in whom a pneumothorax was successfully induced, 105, or 78.4 per cent., were discharged fully or partly fit for work, whereas this was the case with only 88 of the 151 patients (58.3 per cent.) in whom pneumothorax could not be induced. The difference between these two classes was still greater when the fate of the patients was investigated in 1928, when every patient was traced. In 11 cases among those in which a pneumothorax had been successfully induced a thoracoplastic operation had subsequently been performed. Among the remaining 123 there were as many as 67, or 54.5 per cent., who were still fully or partly fit for work. On the other hand, among the 151 patients in whom a pneumothorax could not be induced there were 23 who subsequently underwent a thoracoplastic operation. After the subtraction of these cases there remained 128 patients, only 25 of whom (19.5 per cent.) were still fully or partly fit for work in 1928. In 72 of the 134 patients (53.7 per cent.) the pneumothorax was complicated by a pleural effusion, but only in two cases did an empyema develop; in 83.3 per cent. of the pleural effusions this complication ensued within six months of the induction of the pneumothorax.

165. Cysts of the Common Bile Duct.

L. DI NATALE (*Arch. Ital. di Chir.*, May, 1929, p. 553), who records an illustrative case in a man, aged 47, who died twenty-eight hours after operation, states that cysts of the common bile duct are very rare, only 70 having been recorded. They are most frequently met with in females, and between the ages of 15 and 20. The oldest patient was one aged 47, reported by Wagner, while Heiliger saw one in a foetus. Most authorities regard the cysts as due to a congenital teratological disturbance. The cystic process may affect the upper or middle part of the common bile duct and extend to the hepatic duct, or, in rare instances, to the cystic duct. The lower part of the bile duct does not take part in the process. The most frequent symptoms are intermittent jaundice, a palpable tumour in the right hypochondrium, closely connected with the liver and presenting signs of fluctuation, and pain which is usually colicky, less often continuous. The condition must be distinguished from empyema or hydrops of the gall-bladder, hydatid or simple cysts of the liver, and pancreatic or mesenteric cysts. The diagnosis has only once been made (by Nougebauer) before operation. Treatment, which is entirely surgical, consists in establishing an anastomosis between the cyst and the stomach.

166. Treatment of Varicose Ulcers.

H. H. TROUT (*Arch. of Surg.*, June, 1929, p. 2280) describes a method of treatment of ulcers due to varicose veins and lymphatic blockage which was successful in 25 cases out of 28; in the only unsuccessful one an epithelioma developed at the site of the skin grafts and the patient refused radium treatment. All the other patients were relieved from pain, the ulcers were completely healed, the swelling of the leg was greatly reduced, and the patients were enabled to return to their various occupations. In each instance the symptoms were more or less similar—swelling of the feet and legs below and around the ulcer, which exuded a thin, serous, odoriferous, pale yellow fluid. The ulcers usually started on the inner and lower side of the leg and spread until they became "saddle shaped," and sometimes encircled the leg. Trout remarks that the method of operation must vary according to the type of varicose vein, but in every case the saphenous vein must be tied off close to its entrance to the femoral vein before the veins in the leg are attacked. The operation advocated for extensive or multiple ulcers is the method used by Kondoleon in his treatment for elephantiasis, with wide excision of the ulcer and the employment of total thickness skin grafts when possible. The clinical results indicate a regeneration of the lymph channels or a rapid establishment of a collateral lymphatic circulation. Periarterial sympathectomy was tried in two cases, but did not result in the healing or sterilization of the ulcer.

Therapeutics.

167. The Therapeutics of Biliary Lithiasis.

C. DREYFUS (*Paris Méd.*, May 18th, 1929, p. 496) mentions that nowadays gall-stones are found more frequently by modern clinical methods, and that a certain number of troubles, hitherto of obscure origin, may be attributable to them. Only a small proportion of people with gall-stones suffer from them, and treatment is only required in these cases. In the acute attack of biliary colic the author advocates hypodermic injections of morphine combined with atropine, but mentions Laewen's method of injecting 10 c.cm. of novocain-adrenaline on the right side of the ninth and tenth dorsal vertebrae. After the pain has subsided a purgative should be given to prevent biliary and intestinal stasis; castor oil and sodium and magnesium sulphates, but not calomel, are recommended. Views regarding the diet treatment have in recent years undergone some modification, since it has been shown that hypercholesterinaemia is not followed by the deposition of cholesterin in the gall-badder. Fats cause fairly strong evacuation of the gall-bladder, and fats of low melting point, such as cream, butter, and olive oil, may be useful in moderate quantities. The beginning of many cases of cholelithiasis during the war has been attributed to a diet poor in fats. Diet should be especially directed to assure the regular functioning of the intestinal canal. Drug treatment must aim at avoiding further colic attacks and at preventing the formation of calculi. The idea of dissolving stones *in situ* is still of hypothetical interest, and it is probably impossible to disinfect effectively the biliary passages. The questions of medical drainage by cholagogues and Einhorn's tube are discussed. Magnesium sulphate and peptone are excellent cholagogues, and are said to be as efficacious when taken together by the mouth as when administered by the tube. To avoid undue optimism in treatment by medicine Kehr's aphorism is quoted, "Morphine and purgatives are the medicines to employ in the treatment of gall-stones; everything else can only do harm." The author adds that there is a tendency now to operate in an earlier stage of the disease, before permanent and extensive harm has been done to the liver and biliary apparatus. Mortality figures are smaller in the lower age groups. In nearly all gall-stone cases the wall of the gall-bladder is found to be infected, so cholecystectomy is cited as the operation of choice. Exploration of the bile ducts, and drainage when infected, must be performed. To avoid post-operative complications, the daily administration of insulin is advocated before operation.

168. Intravenous Injections of Adrenaline in Cardio-vascular Collapse.

H. E. PEARSE, jun. (*Journ. Amer. Med. Assoc.*, April 13th, 1929, p. 1263), reports two cases in which epinephrine—the standardized adrenaline product of the *U.S. Pharmacopoeia*—was injected with marked success in cases of cardio-vascular collapse. On one occasion an operation was being conducted for prostatic hypertrophy in a patient with arterio-sclerosis and hypertension, and in the other instance cystoscopy was in progress under caudal anaesthesia. In both cases the possibility of saving the patient's life appeared to be poor, and the recovery was so dramatic that the author concludes that this method of resuscitation is worthy of being borne in mind, even though it may be seldom required. The first patient had previously received three doses of epinephrine, each of 5 minims, subcutaneously, without any benefit, but a subsequent intravenous injection of 5 minims brought about an immediate rise in blood pressure, the patient quickly becoming conscious. In the second case also subcutaneous injections of epinephrine had proved ineffective, but 4 minims

given intravenously brought about a rapid and high increase in the blood pressure. The author considers that 5 minims is the maximum dose that should be given intravenously at any one time.

169. Treatment of Ophthalmia Neonatorum.

As a prophylaxis against gonorrhoeal ophthalmia in infants W. G. RICKER (*New England Journ. of Med.*, May 23rd, 1929, p. 1101) maintains that the proper cleansing of the region of the eyes at the right time is more essential even than the instillation of silver nitrate. At the moment of birth, and before the cord is tied, the child's head should be dried to avoid entrance of any of the fluids from the birth canal into the eyes. The face should then be carefully cleansed, especially the region of the eyes; it is well to sponge the eyelids and upper portion of the face with alcohol. Extreme care should be taken not to open the eyelids until the skin of both upper and lower lids is completely free of any maternal secretions. The lids may then be carefully separated, and any material adhering to the lashes should be carefully sponged away. As an additional precaution one or two drops of 1 per cent. silver nitrate solution may be instilled into each conjunctival sac. An important procedure, should ophthalmia develop, is to free the cornea of pus. The pus should be removed at frequent intervals, as often as every ten or fifteen minutes in aggravated cases. The lids should be opened, even if this should involve the cutting of the outer canthus, so as to allow the pus to escape. At the same time the eye or eyes should be freely irrigated with boric acid or normal saline solution. Ricker has treated several cases by this method alone without the use of any form of silver or any other medication, and in no case was there any loss of vision.

Anaesthetics.

170. Precautionary Methods in General Anaesthesia.

J. C. WADMORE (*New Zealand Med. Journ.*, April, 1929, p. 108) discusses the various steps that should be taken to render general anaesthesia a safe procedure, and emphasizes the value of frequent employment of the sphygmomanometer, since the pulse pressure constitutes the most helpful single indication of a safe operative risk. The tone of the heart muscle and vascular system must be estimated before an operation, and also the quality and volume of the patient's blood. In the first place, there should be no undue dyspnoea after moderate exertion; the effect of posture on the action of the heart affords a useful indication of its condition. Blomfield's test, in which patients are made to hold their breath for thirty seconds, is recommended, and the warning is given that myocardial degeneration and profound anaemia are equally dangerous, whether gas or an ordinary anaesthetic is used. Wadmore mentions the value of preliminary hypodermic injections of morphine and scopolamine in the case of alcoholics and very nervous patients with tachycardia. Morphine must, however, be avoided in low blood pressure cases; *in high blood pressure it should always be associated with scopolamine. He prefers the open ether method*, using eight layers of gauze, or chloroform or a chloroform-ether mixture on lint. A condensing towel is essential with open ether, but with mixtures it is risky in adults, and highly dangerous in the case of children. It should not be used at all with chloroform, except possibly by an experienced man to control a noisy alcoholic. Rigidity of the patient is often due to anoxaemia, which can be combated by inhalations of oxygen. Open ether continued during a long operation tends to lower the body temperature dangerously, and in high concentration has an irritant effect. In cranial surgery the anaesthetist must remember the danger of the cessation of respiration when the skull is trephined; this may also occur during a laminectomy. Wadmore comments on various other dangers, including the association of valvular disease of the heart with auricular fibrillation, cardio-sclerosis, and the hyperadrenalinaemia associated with the menopause, when chloroform is contraindicated. He concludes that a still closer co-operation between the surgeon and anaesthetist is desirable; that the choice of anaesthetic needs more exact consideration than is generally given; and that anaesthesia should cease to be an "adventure" for the patient or anaesthetist.

171. Paravertebral Anaesthesia in Urology.

As the result of 1,000 operations on the kidney and ureter, H. B. HERMANN and E. DÓZSA (*Surg., Gynecol. and Obstet.*, March, 1929, p. 375) advocate the use of paravertebral anaesthesia in urological operations. The disadvantages of inhalation, splanchnic, or spinal anaesthesia are not encountered; the method is said to be absolutely safe; the technique is uncomplicated and easily performed; and there are no contra-indications to its use, such as a high or low blood pressure, poor renal function, cardiac lesions, or pulmonary involvement. Three necessary factors for success with this method are: the co-operation of the patient, a good anaesthetic, and proper technique. As the confidence of the patient is of paramount importance, persons of low mentality and highly neurotic and apprehensive patients are not proper subjects for this method. The evening before operation the patient is given 8 grains of veronal to ensure sleep, and half an hour before the operation 1/3 grain of morphine is injected. Novocain is the anaesthetic of choice, and the solution may be prepared from tablets, each containing 0.125 gram of novocain and 0.000125 gram of adrenaline. The requisite strength of 1 per cent. of novocain is obtained by dissolving eight tablets in 100 c.cm. of physiological salt solution. This solution must be freshly prepared before each operation and sterilized by boiling. The adrenaline, by constricting the blood vessels, causes a slow absorption of the novocain, the effect of which is thus more intensive and lasting; the anaesthesia lasts for *two hours. In order to obtain a good anaesthesia in renal and ureteral operations*, the eighth to the twelfth dorsal nerves—that is, the last five intercostal and the first lumbar—should be blocked. If work on the lower part of the ureter is necessary, the second and third lumbar nerves should also be anaesthetized. The technique is fully described. In renal operations 150 c.cm. of the anaesthetic is used; when the ureter is laid free, or in patients with very thick abdominal walls, an additional 50 c.cm. is requisite. No toxic symptoms have been noted following the use of this large amount, and no untoward effects, such as post-operative haemorrhage, have resulted from the adrenaline. The injection of novocain into the pedicle and surrounding peritoneum, or light ether anaesthesia during the tying of the renal artery and vein, has not been found necessary. Slight transient symptoms, such as cardiac palpitation, dizziness, and vomiting, may occur in nervous patients. These have been ascribed to the cerebral effects of the novocain, but the pre-operative administration of morphine may be partly responsible for them.

172. Post-anaesthetic Acetonuria.

N. GARBER (*Zentralbl. f. Chir.*, May 18th, 1929, p. 1224) *has inquired into the presence of acetonuria in 300 cases* before and after surgical operation. He finds that it is attributable to a combination of injurious agents. Disturbance is caused by the operation itself, and especially by severe operations on the pancreas, rectum, gall-bladder, or in cases of disease associated with a general cachectic state. Acetonuria is favoured by inadequate dietetic preparation for the operation, and especially by chloroform narcosis. There is said to be also a constitutional predisposition to its occurrence in women, in asthenic patients, and those suffering from disease of the pancreas. Garber considers the condition to be a primary carbohydrate acidosis caused by the *direct action of the narcotic on the oxidizing processes of* metabolism; *a further action of the narcotic is a glycogen* impoverishment of the body which, if severe, induces a secondary acidosis by disturbing the combustion of fat. Acetonuria is a sign of hyperacidity of the body. In the author's series it was observed after operation in 59.5 per cent. of the cases. In 26 instances the condition was treated by injecting intracutaneously 300 to 700 grams of a 5 per cent. glucose solution, together with rectal injections of soda. With the disappearance of the acetone the general condition of the patient improves. If acetone is detected before the operation, glucose injections are given until the acetone has disappeared. After the operation the glucose treatment is started on the second or third day, and the clinical progress of the case is much favoured.

Obstetrics and Gynaecology.

173. Value of Mercurochrome in Caesarean Section.

H. W. MAYES (*Amer. Journ. Obstet. and Gynecol.*, May, 1929, p. 645) points out that the high morbidity and mortality following Caesarean section is not wholly due to the operation itself; puerperal infection accounts for nearly one-half of the deaths after this procedure. In a previous paper the author has shown the benefits from the use of a 4 per cent. solution of mercurochrome as a vaginal antiseptic during labour and delivery, and now compares the results in two series of cases of Caesarean section, in one of which the drug was thus employed. In 218 Caesarean sections with mercurochrome the morbidity was 42.2 per cent. and the mortality 3.2 per cent., with only one death from sepsis. In 120 cases without this drug the morbidity was 57.6 per cent. and the mortality 6.7 per cent., with four deaths from sepsis. In the mercurochrome series the parity of the mother had very little effect on morbidity, and the abdominal wound healed

by primary union in all but 8.2 per cent. Without mercurochrome the morbidity was 20.4 per cent. greater in primiparae, and 12.5 per cent. of the abdominal wounds were infected. Mayes believes that the use of mercurochrome as a vaginal antiseptic during labour adds greatly to the mother's safety in the event of Caesarean section becoming necessary; that the patient is not potentially infected, even though previous attempts at delivery have been made; and that low Caesarean section is of little or no advantage over the classic operation. The technique of this method, which includes careful preparation of the peri ieum and surrounding area, is described.

174. Lipiodol in the Diagnosis of Sterility.

R. IMBERT (*Paris Méd.*, May 25th, 1929, p. 515) draws attention to a recent article by Ledoux-Lebard and Claude Béclère in which they maintain that the tube is blocked if lip odol fails to pass into the peritoneal cavity when the cervix is efficiently plugged and a pressure of 30 cm. of mercury maintained for several minutes. They hold, further, that this fact has been proved not only by experiment, but by tests performed on the specimens subsequent to surgical removal. Imbert, who disagrees with this view, reports the case of a patient who complained of pain in the right iliac fossa, of long duration, and of such severity as to interfere with her daily work. Vaginal examination showed a slightly enlarged and pathological ovary on the right side. Lipiodol was injected into the uterus, after the manner of Cotte, using a pressure of 30 cm. of mercury; *x*-ray photographs, taken immediately and twenty-four hours later, showed quite definitely an obstruction at the infundibulum on the right side, the left tube being patent for the whole of its length. Moreover, there were no opaque seeds shown on the right side, although they were undoubtedly present on the left. A right tubal obstruction, situated at the infundibulum, was diagnosed, and the appendages on the right side were removed. Following the operation the author, to test the accuracy of the radiographic findings, injected water into the tubal lumen through the divided isthmic portion, and found that this water passed not only along the length of the tube, but through the fimbriated extremity, at a low pressure. He suggests that this apparent impermeability of the tube may have been due to a spasm or to the viscosity of the lipiodol.

175. Repeated Infections in Pregnancy.

H. MAGOS (*Bruxelles-Médical*, May 26th, 1929, p. 865) publishes an account of a state of grave infection occurring during two successive pregnancies in the same patient. The condition of the patient was such that on both occasions a differential diagnosis between the pre-eclamptic state and acute yellow atrophy of the liver was impossible. At the eighth month she had intense headache and oedema of the legs, with diminished urine. The dominating symptom was frequent vomiting of blood-stained bile and melaena. The blood pressure was high. On the first occasion albumin was present, but not on the second. Red blood cells were found in the urine each time. There was slight jaundice, but no fits and no coma. Spontaneous delivery of a live child occurred at eight and a half months in the first pregnancy; the infant was extremely thin and feeble, and had suffered from the effects of the toxaemia, but it lived. The second pregnancy was closely observed throughout, and the patient was carefully dieted, but at the eighth month exactly the same symptoms supervened, with the exception of albuminuria. Induction was considered necessary in the interests of the mother, and the infant was stillborn. Afebrile phlebitis followed both deliveries, but otherwise the patient's recovery was without incident, and she resumed her normal life.

Pathology.

176. The Effect of Anaphylaxis on the Course of Infection.

C. G. BULL and C. M. MCKEE (*Amer. Journ. of Hygiene*, May, 1929, p. 665) find that the intranasal inoculation of 0.1 c.cm. of an eighteen-hour blood-broth culture of a virulent pneumococcus strain produces in the rabbit a general infection attended by a marked rise in temperature and a positive blood culture. Such rabbits become hypersensitive to pneumococcal autolysates—prepared by allowing a heavy suspension of pneumococci from eighteen-hour blood-agar plates to autolyse in 0.5 per cent. phenolized saline for three or four days at incubator temperature. The intradermal inoculation of 0.2 c.cm. of autolysate gives rise to a local reaction, commencing four to six hours after inoculation, reaching its height in twenty-four to forty-eight hours, and showing signs of retrogression at seventy-two hours. The milder reactions are characterized by redness and oedema, but in the severer types necrosis occurs. The hypersensitiveness may also be demonstrated by the intravenous injection of autolysate. The injection of 0.3 to 0.6 c.cm. by this route results in acute anaphylactic shock, with death in a minute or two. Experiments showed that the hypersensitive state developed about forty-eight hours after the primary pneumococcal infection; it apparently reached its height shortly after recovery from the infection, and persisted for at least four months. It was found possible to produce hypersensitiveness by frequent intravenous inoculations of killed pneumococci, but the degree of hypersensitiveness attained by this method was apparently much inferior to that following actual infection. A very important observation was made on the relationship between local anaphylactic shock and the infection of the tissues with other organisms. It was found that if, after a rabbit had recovered from a pneumococcal infection, *Past. lepiseptica*—an organism that sometimes gives rise to sniffles, pneumonia, and septicaemia—was instilled into the nose, no sign of disease developed. But if, a few days later, 0.2 c.cm. of pneumococcal autolysate was injected intranasally so as to produce a local shock, the rabbits became ill and died in a few hours to a few days from *Past. lepiseptica* infection. It would appear that the occurrence of local shock interferes with the resistance of the tissues, and allows a latent infection to become active.

177. The Toxicity of Bile.

A CONDITION of intense shock follows the escape of bile into the peritoneum, and, though the clinical pictures of this condition and of obstructive jaundice are entirely unlike, bile is the underlying etiological factor in each. It would seem that in obstructive jaundice the bile in the blood stream may be detoxicated or, owing to depression of liver function, all the normal elements of the bile may not escape into the circulation. As the result of animal experiments, King and Stewart concluded that the toxicity of bile was due to the pigment. After its injection into dogs they observed a rise in the blood calcium, and believed that the calcium combined with the pigment, rendering it non-toxic, and that the delayed coagulation time in obstructive jaundice was due to the calcium being combined and leaving none available for the process of coagulation. Walters, and Lee and Vincent, have emphasized the importance of calcium administration to shorten the coagulation time in this disease. W. C. EMERSON (*Journ. Lab. and Clin. Med.*, May, 1929, p. 714) has made a number of experiments to determine whether calcium has a true protective effect against the toxicity of bile; if this were demonstrated, the intravenous administration of a soluble calcium salt would be indicated in all cases of suspected bile peritonitis. These experiments showed that calcium chloride has no such protective effect, and therefore would not be beneficial in fulminating bile peritonitis. They also suggest that in obstructive jaundice the calcium is not combined with the toxic element of the bile but with some other constituent, possibly the protein, and that its beneficial action is limited to its effect on the coagulation time of the blood.

178. An Agar-Method for the Isolation of Water Spirochaetes.

J. ADAMSKI (*Zentralbl. f. Bakt.*, June 28th, 1929, p. 476) has devised a method for the isolation of *Leptospira biflexa*, which he considers to be very much superior to the current practice involving the use of filter candles. The method depends essentially on the greater motility of spirochaetes in a viscous medium, as compared with that of bacteria and spirilla. Thus it is found that, in a medium containing about 1.2 to 1.5 per cent. agar, spirochaetes are able to penetrate into the depth of the medium, whereas bacteria remain confined to the surface. In practice the author prepares a medium of the following composition. A 1.2 to 1.5 per cent. watery suspension of agar is mixed with 0.25 per cent. of human faeces; the mixture is steamed, filtered, adjusted to a *p*H of 7 to 7.2, and sterilized by autoclaving for fifteen minutes at 120° C. The medium is poured into Petri dishes, in a layer 1 to 1.5 cm. high. When the surface is fairly dry, the plate is inoculated in the centre with tap-slime or other material containing the spirochaetes, and incubated at room temperature, bottom downwards, for eight to fifteen days. Examination of the agar taken from beneath the surface reveals the presence of spirochaetes, which can then be transferred to a suitable medium, such as Noguchi's serum agar. If the water used for inoculating contains very few spirochaetes, it is desirable to practise preliminary enrichment by Hindle's method. By this means the author has been able to cultivate leptospirae from practically every specimen of water examined. The method is said to be of value likewise in the isolation of *Trep. buccalis* and other mouth spirochaetes.

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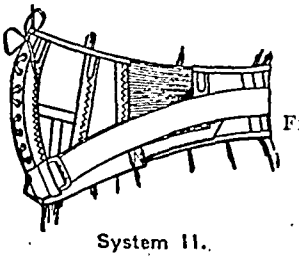

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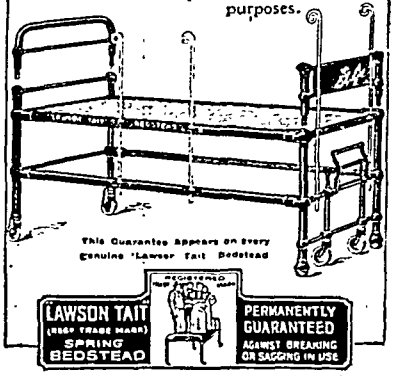

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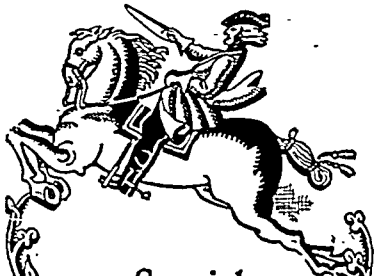

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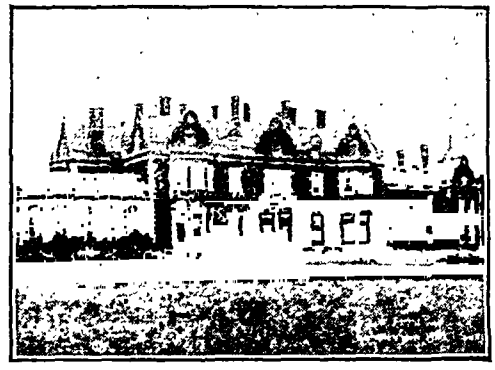

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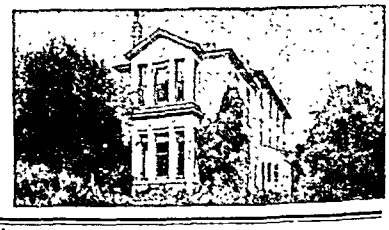

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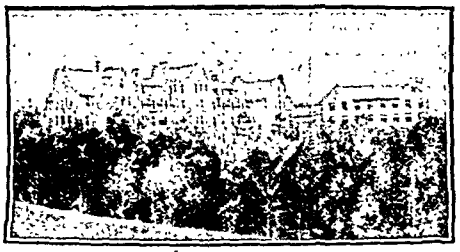

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The Council of the Royal College of Physicians are prepared to receive applications for the office of MILROY LECTURER for 1931.

Applications must be addressed to the Registrar, Royal College of Physicians, Pall Mall East, on or before September 30th, 1929, and should contain a statement of the division of the subject selected by the candidate.

The Course consists of three Lectures.

The Lectures are to be given on Tuesdays and Thursdays in February or March, 1931.

A copy of Dr. Milroy's "Suggestions" on the subject of his bequest, and information as to the emolument, may be obtained from RAYMOND CRAWFURD, M.D., Registrar.
August, 1929.

The University of Liverpool.

The Council invites applications for the post of LECTURER (ungraded) in the DEPARTMENT OF PATHOLOGY. Salary £600 per annum.

The duties of the Lecturer will begin, and the appointment date, from October 1st.

The appointment is a whole-time one, and the Lecturer will be required to comply with the conditions of the "Federated Superannuation System for Universities."

Four typewritten applications, together with three references, and (if the candidate so desires) copies of testimonials, to be forwarded, not later than Monday, September 2nd, to the Registrar.

Further enquiries should be addressed to the George Holt Professor of Pathology.
EDWARD CAREY, Registrar.

University College Hospital,

Gower Street, W.C.1.

Applications are invited for the post of ASSISTANT RADIOLOGIST. Candidates should have had previous Hospital experience. Duties require attendance on four half-days a week. Salary £200 per annum.

Applications, accompanied by two recent testimonials, should reach the Secretary by noon on Thursday, September 5th.

Chester Royal Infirmary.

(211 Beds)

Wanted, HOUSE SURGEON (male) to the Ear, Nose, and Throat Department and Casualty Officer, to commence duties September 18th. Salary £120 per annum, with board, lodging, and washing. Candidates must be doubly qualified and registered. Applications, stating age, and accompanied by copies of testimonials, to be sent to the undersigned not later than September 5th.

J. ROWSE MITCHELL,
August 14th, 1929 Secretary.

Cornelia & East Dorset Hospital,

POOLE (102 Beds)

Applications are invited for the post of HOUSE SURGEON (male). Salary £150 p.a., with usual emoluments. Duties to commence October 1st (six months).

Applications, with copies of recent testimonials, to be delivered at the Hospital by September 4th.

E. S. FOLEY, Secretary.

The Government of Bengal invite

applications for an appointment as a PROFESSOR OF PHYSIOLOGY at the PRESIDENCY COLLEGE, CALCUTTA.

Candidates must possess a good Honours Degree in Science or Medicine and should have specialised in Physiology. They should have undergone a recognized course in practical Zoology and Human Anatomy, possess experience as a lecturer or demonstrator, and preferably have published some original work in Physiology. Age should not be less than 30 nor more than 40 years.

Agreement for five years in the first instance. Pay at the rate of Rs.1,000, rising by annual increments of Rs.50 to Rs.1,200 a calendar month, the first increment taking effect at age 41, plus Overseas pay (for an officer of non-Asiatic domicile) of £35 a month. (Approx. sterling equivalent per annum of Rs.1,000: £900; Rs.1,200: £1,080.) Provident Fund, House allowance. Free first-class passages to and from India, and free first-class return passage to England on leave once during period of agreement. Strict medical examination. Selected candidate will be required to join the appointment at the beginning of March, 1930.

Further particulars and forms of application may be obtained upon request by postcard to the Secretary to the High Commissioner for India, General Department, 42, Grosvenor Gardens, London, S.W.1. Last date for receipt of applications, October 31st.

City and County of Kingston-UPON-HULL.

APPOINTMENT OF MEDICAL OFFICER OF HEALTH.

The Corporation of Kingston-upon-Hull invite applications for the position of Medical Officer of Health of the City at a salary of £1,500 per annum, rising by annual increments of £50 to £1,750 per annum.

The gentleman appointed will be required to act as School Medical Officer for the City, and Port Medical Officer and Medical Inspector of Aliens for the Hull and Goole Port Sanitary Authority. He will be required to devote his whole time to the duties of the offices to which he is appointed and will not be allowed to engage in private practice, and all emoluments out of public moneys, which may be payable to or received by him, will have to be paid to the Corporation. He will be required to reside in the City and contribute to the Corporation's Superannuation Fund.

Particulars of duties and a form on which application should be made, may be obtained from the Town Clerk.

Applications, endorsed "Medical Officer of Health," addressed to the Town Clerk, Guildhall, Hull, must be delivered at the Town Clerk's Office, Hull, not later than September 7th.

Guildhall, J. R. HOWARD ROBERTS, Town Clerk.
Hull.
August 12th, 1929.

Board of Guardians,

ST. MARYLEBONE.
St. Marylebone Hospital, Ladbroke Grove, W.10.

A THIRD ASSISTANT MEDICAL OFFICER (Male) required.

The Hospital (Poor Law Infirmary) has 732 beds, contains a wide range of clinical material, both acute and chronic, at all ages, and has a Consulting Staff of 13 members.

A previous Hospital appointment a necessity. Quiet quarters, garden, with hard and grass tennis courts. Salary £300 per annum, with board, lodging, and washing. Apply, in writing, with full particulars, to the Clerk to the Board, Administrative Offices, Northumberland Street, W.1. Interview with Medical Superintendent at the Hospital by appointment only. Telephone No. Park 4534.

Applications, accompanied by copies of testimonials, to be delivered at the undermentioned address on or before September 12th.

By Order,
Administrative Offices, Northumberland St., Marylebone, W.1. EDWARD A. FRITH, Clerk to the Guardians.
August, 1929.

City of Bradford.

MUNICIPAL GENERAL HOSPITAL, ST. LUKE'S.

HOUSE PHYSICIANS and HOUSE SURGEONS required. Salary in each case £200 per annum, with board and lodgings.

These appointments are for six months, renewable for a further period of six months.

Application forms may be obtained from the Medical Officer of Health, Town Hall, Bradford, and should be returned to him not later than August 31st.

Town Hall, N. L. FLEMING, Town Clerk.
Bradford.
August 12th, 1929.

Tipton Urban District Council.

MEDICAL OFFICER OF HEALTH.

The above Council invite applications for the position of Medical Officer of Health and School Medical Officer for the Urban District of Tipton.

Applicants must be legally qualified and duly registered medical practitioners and hold a Diploma in Sanitary Science, Public Health, or State Medicine.

The salary will be at the rate of £800 per annum, payable monthly.

The officer appointed will be required to reside in the District of Tipton and to devote the whole of his time to the duties of the office, and he shall not engage in private practice. He will be responsible for carrying out the duties imposed by various Acts of Parliament relating to Public Health, Maternity and Child Welfare, Education, Housing, and Infectious Diseases, together with all regulations and orders from time to time issued by the Ministry of Health or Board of Education thereunder and such other duties as may be from time to time assigned to him.

The appointment is to be held in accordance with the provisions of the Public Health (Officers) Act, 1921, and otherwise in accordance with the Sanitary Officers Order, 1926.

The officer appointed may terminate his appointment by three months' notice at any time.

Applications, on forms to be obtained from the undersigned, together with copies of three recent testimonials, to be sent to me not later than September 7th, endorsed "Medical Officer."

Canvassing will disqualify.

Owen Street, KENNETH W. MADIN, Clerk to the Council.
Tipton.
August, 1929.

City of Sheffield.

ASSISTANT TUBERCULOSIS OFFICER (Male).

Applications are invited for the post of Assistant Tuberculosis Officer.

Salary £600 per annum, rising to £650 by annual increments of £25. Applicants must have been graduated in Medicine and Surgery for not less than three years, and have held a Resident Hospital appointment for not less than six months.

Possession of a Diploma in Public Health, although not essential, will be considered an advantage.

Applications, stating age, qualifications, and experience, together with copies of three recent testimonials, to be sent on or before September 4th to the undersigned.

Town Hall, T. E. WYNNE,
Sheffield. Medical Officer of Health.

Lanarkshire Joint Committee on VENEREAL DISEASES.

VENEREAL DISEASES OFFICER.

Wanted, a duly qualified Venereal Diseases Officer, who must be a qualified medical practitioner with special experience in the treatment of Venereal Diseases. Salary £750 per annum, with an allowance of £100 per annum to cover travelling expenses. Clerical assistance and office accommodation provided. Copies of the conditions and regulations pertaining to the appointment and any other information may be obtained from the Subscriber, with whom applications must be lodged not later than Aug. 27th.

District Offices, W. E. WHYTE,
Hamilton. Clerk to the Joint
August 8th, 1929. Committee.

Joint Committee for Medical SERVICES FOR THE COUNTY OF PERTH.

TEMPORARY ASSISTANT MEDICAL OFFICER OF HEALTH AND ASSISTANT SCHOOL MEDICAL OFFICER (Male).

Applications are invited for the above post. Applicants should state age, qualifications, previous experience and date on which they could take up duty. The appointment will last for not more than one year and will be on the basis of one or two months' notice as arranged.

The salary will be at the rate of £500 per annum.

Applications, with one copy of three recent testimonials, should be sent immediately to Dr. D. J. McLEISH, Principal Medical Officer, County of Perth, County Buildings, Perth.

Liverpool and District Hospital FOR DISEASES OF THE HEART.

HOUSE PHYSICIAN wanted at the above Hospital for six months from October 1st. Salary at the rate of 50 guineas per annum, board, rooms, and laundry.

Apply to the Secretary, Miss LEWIS, 14, Cook Street, Liverpool.

APPOINTMENTS—Important Notice.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

(a) British Islands.

Town or District.	Town or District.	Town or District.
CONTRACT PRACTICE.	**CONTRACT PRACTICE** *(Contd.).*	**PUBLIC HEALTH** *(continued).*
EBBW VALE, MON. *(Workmen's Medical Society.)*	NEATH AND DISTRICT. *(Medical Aid Association.)*	GLASGOW EDUCATION AUTHORITY. *(Male Assistant Medical Officer.)*
GILFACH GOCH, GLAMORGAN. *(Workmen's Medical Scheme.)*	OAKDALE, MON. *(Medical Officer for Medical Aid Association.)*	SOUTH SHIELDS COUNTY BOROUGH. *(Assistant Medical Officer.)*
LLWYNYPIA, CLYDACH VALE PENYGRAIG, GLAMORGAN. *(Workmen's Medical Scheme.)*	OGMORE VALLEY, GLAMORGAN. *(Wyndham Colliery Medical Aid Society.)* *(Workmen's Medical Scheme.)*	YORKSHIRE NORTH RIDING COUNTY COUNCIL EDUCATION COMMITTEE. *(Assistant School Medical Officer.)*
MARDY, GLAMORGAN. *(Workmen's Medical Scheme.)*	**PUBLIC HEALTH.**	YORKSHIRE WEST RIDING COUNTY COUNCIL. *(School Medical Inspector.)*
	CORNWALL EDUCATION COMMITTEE. *(Assistant School Medical Officer—Female.)*	

(b) Colonial Medical Service.—

WINDWARD ISLANDS MEDICAL SERVICE. (Grenada with Carriacou, St. Vincent and St. Lucia.)

(c) Overseas.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.
NEW SOUTH WALES. *(All Friendly Society Appointments.)*	Dr. R. H. TODD (Hon Sec., New South Wales Branch), B.M.A. Building, 30-34, Elizabeth St., Sydney, N.S.W.	VICTORIA. *(All Institute or Medical Dispensaries.)*	Dr. FRANK DAVIES (Hon. Sec., Victorian Branch), British Medical Association, Medical Society Hall, East Melbourne, Victoria.	WESTERN AUSTRALIA. *(Contract and Lodge Practices.)*	Hon. Sec., Western Australian Branch, British Medical Association, No. 6, Bank of N.S.W. Chambers, St. George's Terr., Perth, Western Australia.
QUEENSLAND. *(Brisbane Associated Friendly Societies Institute.)*	The Hon. Sec., Queensland Branch, British Medical Association, B.M.A. Building, Adelaide St., Brisbane.	WELLINGTON, NEW ZEALAND. *(Contract Practice Appointments.)*	Dr. G. F. V. AKSON (Hon. Sec., New Zealand Branch), British Medical Association, P.O. Box 156, Wellington, New Zealand.		

Address: B.M.A. House, Tavistock Square, W.C.1. By Order of the Council of the British Medical Association.
August 21st, 1929. ALFRED COX, Medical Secretary.

Royal Northern Hospital, Holloway, N.7.

BOROUGH OF ISLINGTON TUBERCULOSIS DISPENSARY (NORTH).

Applications are invited for the appointment of TUBERCULOSIS OFFICER (Non-Resident) in the above Dispensary, vacant on Oct. 31st.

Candidates must possess a registered British qualification, and have had previous experience in the treatment of Tuberculosis.

The appointment is a whole-time one with a salary at the rate of £750 per annum. Particulars with regard to duties and the submission of testimonials, etc., may be obtained from the undersigned, to whom applications should be sent not later than September 7th.

GILBERT G. PANTER, Secretary.

Medical Officer and Public

VACCINATOR (male), duly registered, wanted for the ISLAND OF SANDAY, ORKNEY, to commence duties on October 16th, or near this date. Salary from the Parish Councils £150. The Medical Officer, now resigned, holds an appointment from the Lighthouse Commissioners of the annual value of £10, and grant from the Highlands and Islands Board. Insured panel over 100. Population of Island 1,400. There is a modern dwelling house, offices, and garden, for which an annual rent of £10 is charged. The Island is well provided with good public roads. Sealed applications, with testimonials, marked "Medical," to R. F. MUIR, Clerk to the Parish Councils of Sanday, on or before September 7th.

Lowestoft and North Suffolk HOSPITAL.

HOUSE SURGEON (male) required. Salary £150 per annum, with board, residence, and laundry. Applications, with copies of three recent testimonials, to the Honorary Medical Superintendent.

The Royal Infirmary, Sheffield.

The Weekly Board of Management invite applications for the post of JUNIOR AURAL and OPHTHALMIC HOUSE SURGEON.

The appointment will terminate on December 31st next, but the officer selected will be eligible for re-election, or for one of the twelve other House appointments.

The salary attached to the post is £80 per annum, with board and residence.

Applications, with copies of testimonials, to be sent to the undersigned immediately.

JNO. W. BARNES, F.C.I.S., Board Room, General Superintendent & Secretary.
August 7th, 1929.

General Hospital, Nottingham.

(377 Beds.)

An ASSISTANT RESIDENT CASUALTY OFFICER (male) required at the above Institution. Candidates are desired to send applications, stating age, qualifications, and experience, together with copies of testimonials, to the undersigned, with an intimation as to when they can commence duty, if appointed.

The appointment is for six months. Salary at the rate of £150 a year, with board, residence, and laundry.

PETER M. MACCOLL, House Governor & Secretary.

General Hospital, Nottingham.

Wanted, a HOUSE PHYSICIAN. Appointment for six months. Salary at the rate of £150 a year, with board, residence, and laundry. Applications, stating age, qualifications, and experience, together with copies of testimonials, to be sent to the undersigned, not later than the 26th inst., with an intimation as to when they can commence duty, if appointed.

PETER M. MACCOLL, House Governor & Secretary.

Freemason's Hospital and NURSING HOME, 237, Fulham Road, Chelsea, S.W.3.

The post of RESIDENT MEDICAL OFFICER (male) will be vacant on October 1st. Salary at the rate of £250 per annum, with board, residence, and laundry. The appointment is for six months. Candidates must be registered and must have held Resident appointments at a General Hospital.

The Institution (47 beds) is for paying patients of both sexes of moderate means unable to afford ordinary nursing home treatment, etc.

Applications, stating full particulars, to be sent on or before September 13th next to the Honorary Secretaries, from whom further information may be obtained.

London Temperance Hospital, Hampstead Road, N.W.1.

Applications are invited for the post of CASUALTY OFFICER, which will become vacant on or about September 16th.

The appointment will be for a period of six months, at a salary of £120 per annum. Ceteris paribus, preference will be given to abstainers, and to those who have held resident post.

Candidates must submit applications, stating qualifications, age, etc., with copies of not more than three testimonials, by Saturday, August 31st, addressed to the Secretary.

Peace Memorial Hospital, WATFORD, HERTS.

A RESIDENT MEDICAL OFFICER (male). £150 pe months, eligible stating age and st three recent ved not later than August 27th by the Secretary. Duties to commence about September 10th. No canvassing permitted.

British Medical Journal,
BRITISH MEDICAL ASSOCIATION HOUSE,
TAVISTOCK SQ., LONDON, W.C.1.
T/A: ARTICULATE, WESTCENT, LONDON.
Tel.: MUSEUM 9861 (4 lines).

SMALL ADVERTISEMENT RATES.

Up to Six Lines (32 Words) 9s.
Each Additional Line, 1s. 6d.
(Address included.)

Sixpence should be added if replies to a box number are to be posted.

All advertisements must be received not later than first post Tuesday previous to date of publication.

ASSISTANCIES.

Wanted September 1st, indoor ASSISTANT (male), in Colliery Practice in South Wales. Dispenser kept. Salary £300 p.a.—Address, with testimonials, stating age and nationality, No. 5204, B.M.A. House, Tavistock Square, W.C.1.

Wanted September, for Kent, ASSISTANT (British), male, single, under 40, commencing salary £300 and commissions, with rooms and attendance. Usual bond. Full particulars.—Address, No. 5127, B.M.A. House, Tavistock Square, W.C.1.

Wanted, September, Indoor Protestant ASSISTANT for general Practice near Newcastle-on-Tyne. Salary £300 per annum. Usual bond. Photograph.—Add., No. 5003, B.M.A. House, Tavistock Sq., W.C.1.

Wanted.—October 1st, outdoor ASSISTANT, single, to take charge of a Branch in a Colliery Practice, in Glamorganshire. Salary £400 p.a., with rooms, attendance, etc.—Address, No. 5038, B.M.A. House, Tavistock Square, W.C.1.

Wanted, October, outdoor male ASSISTANT, country town in the Midlands, no colliery; ex H.S., Cambridge or Lond. man preferred. Salary £450 to suitable man. Photo., testimonials.—Address, No. 4802, B.M.A. House, Tavistock Square, W.C.1.

Wanted immediately, Assistant (indoor), male, unmarried, for good mixed Practice in Bradford, with view to Partnership. Age 25—30. Ex H.S. preferred. Keen worker and of good address. Good salary to suitable man. Dispenser kept. Particulars.—No. 5209, B.M.A. House, Tavistock Sq., W.C.1.

Wanted immediately, London, S.E., indoor ASSISTANT, young, unmarried. £300 p.a. State age, nationality, qualifications, refs.—Address, No. 5111, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—Assistant for middle-class and surgical Practice near Manchester. Good salary and future Partnership offered to experienced and suitable man. House to rent, or rooms available.—Address, No. 5203, B.M.A. House, Tavistock Sq., W.C.1.

Wanted.-Experienced Assistant, permanent, outdoor, to help run large Branch Surgery, with or without view to succession. £400 per annum, plus allowance for car or motor cycle, to begin. Good prospects for hard worker.—Address, No 5107, B.M.A House, Tavistock Square, W.C.1

Wanted. — Indoor Assistant, Colliery Practice, Glamorgan, male, British. Salary £300 for reliable man. Good opportunity for anæsthetics and surgical experience at local Hospital. State age, refs.—No 5005, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — Indoor Assistant, young, male, Scotch or English, Protestant, for private and panel Practice. Salary £300, with experience. View or without view. University Town.—Address, No. 5132, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistant, outdoor, male, to take charge of Branch Surgery. Pembs. Coast, country district. Motor-cyclist. Work light.—Address, No. 5013, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistant, male, Industrial Practice near Manchester. Panel 2,000. Protestant, single. View early share and succession. Refs., photo., and capital available.—Address, No. 5018, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistant, married or single. Refractions. Small panel. No clubs. Motor car. Usual bond. Six guineas weekly (indoor). State age, height, experience, and enclose photo.—Address, No. 5225, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistant, London area; salary £300; furnished rooms, electric light, and coal. Usual bond.—Address, with full particulars, No. 4413, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—Indoor male Assistant for panel and private Practice in North of England. Salary £275.—Address, No. 5121, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistant, indoor, male, for September 1st. Industrial area, East London. Ex H.S. or H.P. preferred. Salary £300 p.a., plus commission on mids. Car will be provided. — Address, No. 5211, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistant, indoor, Manchester suburban area. Work light. £264 p.a. Usual bond. Send age, height, photo. if possible.—Address, No. 5110, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Outdoor Assistant, early September. Colliery district South Wales. Salary £375 per annum.—Address, No. 5201, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Young unmarried ASSISTANT for London. Salary £300, furnished rooms and attendance. Usual bond. —Address, No. 5222, B.M.A. House, Tavistock Square, W.C.1.

Wanted, a capable Lady Assistant for Private and N.H.I. Practice in a suburb of a Yorkshire City. Commencing salary £250 per annum, all found. State age and experience. Scotch or Irish preferred.—No. 5126, B.M.A. House, Tavistock Sq., W.C.1.

Wanted, young married Assistant, with view succession, to manage cash and panel Branch Practice in Midland industrial town. Good prospects. Commencing salary £450, with house.—Address, No. 5135, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Young male unmarried ASSISTANT, indoor, for Industrial Practice near Oldham. Photograph. Usual bond. Salary £300.—Address, No. 5158, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistant in private and panel Practice near Manchester, with view to Partnership. Salary £300 per annum to commence, with unfurnished house. Full particulars. — Address, No. 5207, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—A whole-time Assistant, board and lodgings found. Must be keen. Salary £4 14s. 6d. per week.—Add., No. 4835, B.M.A. House, Tavistock Sq., W.C.1.

Assistant, indoor, male, mixed Practice in Lancashire, about 1/3 panel. Dispenser-Bookkeeper kept. £350 to start. Usual bond. Partnership possible. Ex Res. or with experience preferred. Photo., etc.—Add., No. 5105, B.M.A. House, Tavistock Sq., W.C.1.

Assistants and Locum Tenens wanted immediately. Good salaries offered. —BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Assistantship wanted in October by married man, aged 32, interested in Surgery. Public School man, London Hospital trained; keen, experienced, and reliable. Has held Hospital appointments.—Address, No. 5019, B.M.A. House, Tavistock Square, W.C.1.

Assistantship wanted for the end of September by M.R.C.S., L.R.C.P., woman; two years' experience in private and panel work. Used to sole charge. Can be interviewed in London. — Address, No. 5137, B.M.A. House, Tavistock Square, W.C.1.

Assistantship, with or without view, wanted by M.B., Ch.B., æt. 39, single, abstainer, Protestant, height 5 ft. 6 ins. Own car. Free September 14th. Panel Practice near London preferred. — Address, No. 5123, B.M.A. House, Tavistock Square, W.C.1.

Assistantship wanted with definite view, by M.B., Ch.B., Scotch; ex H.S., R.S.O., etc.; 18 months' G.P. exper.; well received; aged 27; single; Protestant. Scope for E.M.T. work desirable.—Address, No. 5116, B.M.A. House, Tavistock Square, W.C.1.

Assistantship wanted, whole or part-time, in London, by highly recommended man, specializing.—Address, No. 5206, B.M.A. House, Tavistock Square, W.C.1.

Elderly Practitioner requires outdoor ASSISTANT; good-class Country Practice, panel, private, and dispensing. Work very light, ample time for reading. W. of Eng. Must be British. Photo., ultimate Part'ship poss. —No. 5118, B.M.A. House, Tavistock Sq., W.C.1.

London, S.W. — Assistant to commence Branch, view Partnership. Some experience and knowledge Ophthalmology advantageous. Salary £250 indoors. State all particulars.—Address, No. 5112, B.M.A. House, Tavistock Square, W.C.1.

Middle-aged Doctor wants ASSISTANTSHIP; experienced all classes of Practice; good accoucheur; energetic, reliable, English, presentable, well received. Highest refs. Would manage or open Branch.—No. 5120, B.M.A. House, Tavistock Sq., W.C.1.

Newcastle-on-Tyne. — Wanted middle of October or November 1st, indoor ASSISTANT (English or Scotch), in young Practice rapidly increasing; little night work; ex H.S. or H.P. preferred. Experience mids. and panel essential. Good salary for first-class man. Usual bond. — Address, No. 5108, B.M.A. House, Tavistock Square, W.C.1.

Scottish M.B., Ch.B., requires ASSISTANCY or PARTNERSHIP. First-class appearance; exceptionally well received; ex H.S. and H.P.; æt. 25, unmarried. Keen. London or Glasgow preferred. — Address, No. 5115, B.M.A. House, Tavistock Square, W.C.1.

West London. — Woman wants PART-TIME ASSISTANT. Rooms available with Church worker next door. Panel and private. Teaching given and salary. Cyclist preferred. Partnership considered.—Address, No. 5219, B.M.A. House, Tavistock Sq., W.C.1.

MEDICAL POSTS, DISPENSERS, etc.

Wanted. — Fully qualified DOCTOR for service in the Tropics. Preferably ex House Surgeon or Physician. Agreement for three years. Salary £850, £900, £950. Renewable on higher terms. Free furnished quarters and first-class passage provided. Candidates must be unmarried. Ladies not eligible. — Address, with copies of testimonials (not returnable), No. 5036, B.M.A. House, Tavistock Square, W.C.1.

Wanted immediately, post as SURGICAL Practice. references. St., W.1.

A Lady Dispenser-Bookkeeper supplied immediately on request, qualified and with practical experience in private practice and dispensary work, also trained in Bacteriological Laboratories of the LONDON COLLEGE OF PHARMACY FOR WOMEN. Preparation for Examinations.—Write, wire, or 'phone (Park 0969), Secretary, 7, Westbourne Park Road, W 2.

Assistant-pupil wanted (lady), at once. X-ray and Medical Electricity. Practical and scientific tuition. Premium for training. Salary after first year.—Apply, 34, Devonshire Street, London, W.1.

Dispensers supplied to Doctors at short notice, without fee. Qualified and exper. in priv. and panel prac. Perm. and part-time Bookkeeper-Dispensers, Secretary-Dispensers, Nurse-Dispensers, and Chauffeuse-Dispensers —Write, wire, or 'phone Central 3679, THE RELIANCE BUREAU FOR DISPENSERS, 87, Holborn Viaduct House, 12, Holb. Vind. E.C.1.

Dispenser, Lady; Hall; 3 years' full experience, including clerical work with general practitioner, requires POST in North London. Good references.—"Colmore," Alverstone Avenue, East Barnet.

Doctors requiring qualified Dispensers, Nurse Dispensers, Secretary Dispensers or Chauffeuse Dispensers, are invited to write, wire, or 'phone Gerrard 2699, THE DISPENSERS' BUREAU, 145, Shaftesbury Avenue, London, W.C.2.

Energetic Medical Man, highest qualifications; many years' exp'n en best practice; barrister-at-law, retired, desires WORK. Suitable appointment wanted. Par. n r-ship (non-panel) considered. Address, No. 5133, B.M.A. House, Tavistock Square, W.C.1.

India.—Medical Officer, in full sympathy with Medical Missionary work, required in January for Missionary Hospital. Abstainer. Special opportunities for surgery. Five years' agreement. Return passage, salary, and furnished quarters. — Apply, C.M.O., 5, Warriter-ville Road, N.19.

Medical Man (expert), retired, active, aged 50, desires important POST, administrative, secretarial, managerial, or otherwise, in large well-established business house in London area only. Possesses capital. —No. 5004, B.M.A. House, Tavistock Sq., W.C.1.

Position required shortly by D ctor, aged 35. Sound knowledge of pro-fession—general surgery, midwifery, private and panel. Would take charge or help in practice, with scope. Preferably in South of England. Extensive hospital experience. Excellen test-monials.—Address, No. 5125, B.M.A. House, Tavistock Square, W.C.1.

Part-time Pathologist (London) required from September 9th to 20th.—Address, No. 5103, B.M.A. House, Tavistock Square, W.C.1.

Typewriting.—Expert undertakes Theses, Testimonials, etc. Numerous letters of appreciation from Doctors.—Write or 'Phone: BEATRICE RADFORD, 27, Buckland Crescent, Swiss Cottage, London, N.W.3. Primrose Hill 0805.

Young Lady requires post as SECRETARY-CHAUFFEUSE to doctor. Some experience. Running repairs. Good references.—Address, No. 5212, B.M.A. House, Tavistock Square W.C.1.

LOCUMS.

HOLIDAY LOCUMS.

THE MEDICAL AGENCY has pleasure in announcing that lists are now being prepared for Locum engagements for the forthcoming Holiday Season. Principals requiring a RELIABLE SUBSTITUTE are advised to make early application.—Address, W. H. GRANT, The Medical Agency, Watergate House, Adelphi, W.C.1. Tel.: Gerrard 8954 and Riverside 1254 (night calls).

Wanted.—Lady Locum, London, panel and private, September 2nd, for two weeks. Five guineas week and hospitality.—Address, No. 5102, B.M.A. House, Tavistock Square, W.C.1.

Hospitality Locum required in very easy Country Practice, three weeks; end of September. Exceptionally interesting district. Able to drive car.—Address, No. 5115, B.M.A. House, Tavistock Square, W.C.1.

Hospitality Locum Tenency required for Doctor, wife, 2 children. Fortnight in September. Will bring own car. Agencies please answer. — Address, No 5122, B.M.A. House Tavistock Square, W.C.1.

Locum wanted, 2 weeks, end August, man or woman. Beautiful country, Dorsetshire. Work nominal. If man, hospitality to wife (with reduced fee) not objected to.—Address No. 5202, B.M.A. House, Tavistock Square W.C.1

Locums. — Experienced and reliable Doctor, had own practice, desires further LOCUMS. Now free. Terms from 6 gns. p.w. London pref. If country, where car and driver available. Good references.—"MEDICUS," 24, Colville Rd., Bayswater, W.

Lady Locum wanted during Assistant's holiday, from September 16th to 26th.—Apply, by letter only, to Dr. WOOD, 49, Lordship Lane, Wood Green, N.22.

Lady Locum wanted for first fortnight in September. £5 5s. weekly. —Address, 242, Lodge Road, Birmingham.

FOR LOCUM TENENS APPLY TO Mr. PERCIVAL TURNER, Ltd. The oldest and only Agent who for 40 years has supplied substitutes at short notice without fee to principals. 4, ADAM ST., Strand, London, W.C.2. Teleg.: "Epsomian, Lond." 'Phone: Gerrard 0399

M.R.C.S., L.R.C.P., Colonial Indian, recently qualified, total abstainer, desires LOCUM or ASSISTANTSHIP.—Address, No. 5119, B.M.A. House, Tavistock Square, W.C.1.

M.B., Ch.B., well experienced in panel and private, ex H.S. and H.P., requires LOCUM. Free now. — Address, No. 5101, B.M.A. House, Tavistock Sq., W.C.1.

Residence, with every comfort, in favourite Country district offered without salary, to retired Practitioner with no fees, in EXCHANGE for taking occasional CHARGE of small Practice during absence.—Address, No. 5114, B.M.A. House, Tavistock Square, W.C.1.

Retired Practitioner would take LOCUM TENENCY. Disengaged till mid. September. Light work only. Own car if required. 10 guineas a week; car extra. — NIGHTINGALE, Nevill Holt, Market Harborough.

PARTNERSHIPS.

Cheshire.—Partnership. — Old-estab. PRACTICE. Cash receipts 1928, nearly £4,000. Premium—1/4 share—1½ years' purchase (to include book debts).—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Eastern Counties.—Partnership is offered in an old-established good-class non-panel Practice. Receipts over £4,400 p.a. This is an excellent opportunity for a young experienced man, preferably single, of good address and personality. Premium for 1/4th share, with view to larger share, at 2 years' pur.—Apply to THE MEDICAL AGENCY, Watergate House, York Buildings, Adelphi, W.C.2.

Home Counties.—Third Partner required for Practice in good residential country district. Patients include large number of well-to-do families. Excellent social and sporting amenities. Receipts show steady increase. One-quarter share worth about £1,000 per annum net (£1,250 gross) would be offered at 2 years' gross purchase. Later an opportunity will occur to buy up to one-third share, and eventually a half, as senior partner hopes to retire in few years.

Preliminary six to twelve months' trial suggested.

Only those suitable for a Practice of this class, and with necessary funds need apply. Address, No. 5001, B.M.A. House, Tavistock Square, W.C.1.

Lancs Town.—Half Share in excellent PRACTICE. Gross cash receipts £2,400. Panel 1,900. Good house to rent. Premium 1½ years' purchase.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

South Devon. — A 4/9ths share (yielding about £1,100 p.a.) is for disposal in a very old-established unopposed PARTNERSHIP situated in delightful country between Exeter and the sea. Exceptional educational facilities and sport of every kind. Panel 1,400, little midwifery. Convenient house, with gas, electricity, and water laid on, can be rented on lease.—Mr. C. S. MOORES, Incorporated Accountant, 15, Bedford Circus, Exeter.

Surgeon.—Will those seeking as Surgical PARTNER an F.R.C.S.Eng., aged 40, married, extensive experience good-class G.P., communicate No. 5109, B.M.A. House, Tavistock Square, W.C.1.

PRACTICES.

Wanted.—We have innumerable applicants for sound investments in all districts, incomes from £600 to £4,000, with and without panel. Correspondence invited from prospective Vendors. — THE MEDICAL AGENCY (W. H. Grant), Watergate House, 15, York Buildings, Adelphi, W.C.2.

Wanted by experienced Practitioner, PRACTICE or PARTNERSHIP succession, about £2,000, including substantial panel. Preferably London suburb. Cash available. — Address, No. 5218, B.M.A. House, Tavistock Square, W.C.1.

Wanted by M.B., M.R.C.S., D.O.M.S. (Yorkshireman), PRACTICE or ASSISTANTSHIP, with view to early succession in Leeds or Bradford.—Address, No. 5010, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—Practice, must be good panel. Income £1,000–£1,500 per annum. House to rent.—Address, No. 5128, B.M.A. House, Tavistock Square, W.C.

A Client desires to purchase well-established PRACTICE in good residential town. Bath or Cheltenham preferred. Income not under £1,800. Midwifery and panel minimum or nil.—Replies to Messrs. HUMPHRYS, SYMONDS & SPENCER, 34, Bridge Street, Hereford.

Cornwall. — Death Vacancy. — Old-estab. PRACTICE. Receipts average £1,600 a year, fair panel. Large house and grounds. Locum in charge. Offers invited.—Apply, PEACOCK & HADLEY, Ltd., 19, Craven Street, Strand, W.C.2.

Death Vacancy. — Unopposed Country PRACTICE, near Manchester. Cash receipts over £2,000 p.a. Panel 1,800. House probably to rent. Garage and garden. Premium 1 year's purchase.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

For Sale.—Panel of over 800 and part of non-dispensing private PRACTICE, with long introduction in favourite all year round seaside resort within easy reach of London. On past figures income should be £700 at least, for first year. Premium £1,400 cash. House at moderate rent in good residential neighbourhood; 16 years' lease to run. Fixtures and fittings at valuation. — Address, No. 5104, B.M.A. House, Tavistock Sq., W.C.1.

For Sale. — Branch Surgery in Lancashire Town, was main surgery over 40 years. Full panel, middle, and working-class. Average, at Branch, last three years £3,000. Preliminary assistantship if desired. 1½ years' premium.—Address, No. 5106, B.M.A. House, Tavistock Square, W.C.1.

For Sale.—General Practice, five miles from Blackpool. Growing population; last year 1,500 odd booked. Excellent house and garden. Suit a good energetic man. —Address, No. 4806, B.M.A. House, Tavistock Square, W.C.1.

For Disposal.—A good Practice is not always to be had directly, but Mr. PERCIVAL TURNER can generally offer applicants something suitable. Nearly all the best Practices are sold by him without being advertised. Inform. free on applic.—4, Adam St., W.C.2.

Good Manchester Suburb.—Well-established private and panel PRACTICE, receipts £500. Good house. Garden. Excellent education, sports. One year's purchase £1,400, including house, drugs, book debts, etc. £550 can remain on mortgage on house.—Address, No. 5017, B.M.A. House, Tavistock Sq., W.C.1.

London, N.W.—Nucleus. General PRACTICE for sale. Lock-up Surgery. Panel 230; reasonable premium.—Address, No. 5136, B.M.A. House, Tavistock Square, W.C.1.

London, E., main road.— Good class cash PRACTICE, about £600 p.a. Small electr man. Best 5117, B.M.A.

London Suburb. — Increasing cash and panel PRACTICE. Income £450. Panel 500. Compact house. Moderate rent, on lease. Premium £650, to include drugs and complete furnishings of surg. and waiting room. —No. 5215, B.M.A. House, Tavistock Sq., W.C.1.

London, S.E. (10 mins. Charing Cross).—Old-established PRACTICE. Receipts £1,000 a year. Panel nearly 800. Good house, rent £80, several years' lease to run. Premium £1,600.—Apply, PEACOCK & HADLEY, Ltd., 19, Craven Street, Strand, W.C.2.

London.—Working and middle-class cash PRACTICE, last year £550, including panel. Corner surgery site, living accommodation if desired. Excell. opportunity, dense pop. Reasonable inclusive offer accepted. —No. 5217, B.M.A. House, Tavistock Sq., W.C.1.

Lancashire Town. — Old-estab. PRACTICE. Average cash receipts £3,000 p.a. Panel over 2,600. Small house to rent. Premium 1½ years' purchase.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Leeds. — For Sale, retiring Doctor's PRACTICE, nice district. Income £400 p.a., panel 240. Good house. Low expenses. Moderate premium.—Address, No. 5221, B.M.A. House, Tavistock Sq., W.C.1.

Lancashire Town. — Old-estab. PRACTICE, held by Medical Woman. Cash receipts £2,275. Panel 1,450. Good house, 4 bedrooms. Rent £60 p.a. Premium 1½ years' purchase.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Lancs Town. — Old-established. Good house, rent £65; Branch, £26. Receipts £870; much scope. Transferable appointment £100. Panel 1,000. Price £1,200, part deferred. — MANCHESTER MEDICAL & SCHOLASTIC ASSOCIATION, 6, Brown Street.

Medical Practice for Sale, North of England; old-established general Practice; net profit over £1,000 per annum; very desirable district; house, garage, and garden; Practice and house, £3,000. — Apply, MURRAY LAWSON & MACDONALD, W.S., 10, Great Stuart Street, Edinburgh.

Manchester. — Good-class Practice (non-panel) in first-rate residential suburb. Average cash receipts £2,206 p.a. Fees 5/- to 21/-. Excellent house to rent on lease. Premium 1½ years' purchase.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Middlesex.—Delightful developing part. Very old-estab. PRACTICE. Receipts £1,100 p.a., panel 1,100. Nice house, garden, etc., rent £130 on lease. Vendor selling through ill health. Premium £1,650.—Apply, PEACOCK & HADLEY, Ltd., 19, Craven Street, Strand, W.C.2.

Midland University Town.—Old-established cash and panel PRACTICE for sale. Income £1,350 approx. Growing panel over 1,300, good scope for increase. Medium-sized house to rent. Premium £2,200 cash.—No. 5134, B.M.A. House, Tavistock Sq., W.C.1.

North Wales Coast. — Medical Woman's PRACTICE. Cash receipts last year £280. Panel 164. Premium £350, part by arrangement.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Old-established Mental Home near London, with Nucleus of permanent Patients, for DISPOSAL on favourable terms.—Address, No. 5224, B.M.A. House, Tavistock Square, W.C.1.

Oxford Graduate seeks Practice or PARTNERSHIP in Italy. — Address, No. 5056, B.M.A. House, Tavistock Sq., W.C.1.

Orkney.—Well-established, very pretty district. Good house, large garden, garage; rent £12. Receipts £650. Panel £120, much scope. Price £400, including small car, cycle, and drugs. — MANCHESTER MEDICAL & SCHOLASTIC ASSOCIATION, 6, Brown Street.

Ophthalmic Practice for sale. Excellent prospects for man with £2 000 to invest.—Address, No. 52.0, B.M.A. House, Tavistock Square, W.C.1.

Pleasantly situated country working-class NUCLEUS, mostly cash. Large population, one owned by Doctors. Price £50. One hour London. No car required by energetic man. House to rent. Exchange for salaried post.—No. 5139, B.M.A. House, Tavistock Square, W.C.1.

Practice for Sale (near Wanstead) residential district, main road; good house and garden; surgery; side entrance. Receipts £600, panel 380 or an Assistant about 30 entertained, with view. Male or female.—No. 5129, B.M.A. House, Tavistock Square, W.C.1.

Small old-established PRACTICE for Sale. Good business locality. Good introduction from present holder, who is retiring.—Address, No. 5130, B.M.A. House, Tavistock Square, W.C.1.

Shropshire.—Unopposed Country PRACTICE. Cash receipts £1,500 p.a. Panel 550. House to rent, 5 bedrooms, 2 entertaining rooms, garage, and garden. Premium £1,500, part by arrangement.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

To Purchasers. — Do not buy without expert assistance. With 40 yrs.' experience Mr. PERCIVAL TURNER can advise in all cases. Terms free on application to 4, Adam St., Strand, W.C.2. Telephone: Gerrard 0399. Telegrams: "Epsomian, London."

Woman's Nucleus, receipts last year £180, panel 140, London area, excellent scope. Price £180, to include surgery furniture and fittings. — Address, No. 5213, B.M.A. House, Tavistock Square, W.C.1.

Woman's Medical Practice for sale. Desirable Scottish Coast Town. Growing private and panel practice. House 6 rooms. Premium to include house, £800. — Address, No. 5205, B.M.A. House, Tavistock Square, W.C.1.

HOUSES, CONSULTING ROOMS.

Consulting Room, Wimpole St., large beautiful ground floor room furnished, four half days a week, with plate. 120 gns. per annum. — BM/BOL4, London, W.C.2.

Consulting Rooms to let, Harley Street and district. Whole or part time. Lists sent on application.—ELGOOD & Co., 10 Henrietta Street, Cavendish Square, W.1. Mayfair 5059.

Corner House, with large garage. Suitable for Doctor or Dentist, in the best part of Ilford. Price £1,000. Seen by appointment at any time.—61, Kensington Gardens, Cranbrook Park, Ilford.

Gloucester Place, Portman Sq., W.1.—Large CONSULTING ROOM to Let, use of waiting room, attendance, telephone, light, etc. Ground floor.—Address, No. 5220, B.M.A. House, Tavistock Square, W.C.1.

House to Let in a busy main road only 20 minutes from West End. Suitable for a DENTIST. Two large rooms on ground floor, and six bedrooms, bathroom, etc. Rent, for 3 years' agreement, £150 yearly.—Write, BM/BEWL, London.

Morden.—Excellent opportunity for Doctor. Substantial RESIDENCE on large estate without medical practitioner. Perfect order. Built 19 years. Central position. Eight bed and dressing, 2 bath., oak-panelled lounge, dining room, ample domestic offices. Cent. heating. Attract. gard. £2,850 freehold.—LEONARD DAVEY & HART, Upper Green, Mitcham.

Suit Medical Man desirous of practising in Mayfair, TWO ROOMS near Berkeley Sq., and use of Waiting Room, etc., in Dental Surgeon's flat. State if willing to give anæsthetics.—Address, No. 5214, B.M.A. House, Tavistock Square, W.C.1.

To Let in Devonshire Street, splendid SUITE of TWO ROOMS suitable for Doctor or Dentist; also part-time consulting room, use of waiting room, etc., from £40 per annum.—Address, No. 5124, B.M.A. House, Tavistock Square, W.C.1.

To Let, London S.E., main road, BRANCH SURGERY, waiting room, five rooms, w.c., bathroom. Room for car. Lease 14 years, must be taken. No premium. Also suit Dental or Ophthalmic Surgeon. Address, No. 5216, B.M.A. House, Tavistock Square, W.C.1.

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British Medical Journal.—Practitioner, changing his residence, has complete SETS OF JOURNALS since 1885, which he has no room for. If required, address No. 5208. B.M.A. House, Tavistock Square, W.C.1.

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Upright Screening Stand (X ray); steel pillars and supports, bright parts nickel plated; ball bearings to all moving portions. Cost £125. Perfect condition. Price £10, owing to removal.—Address, No. 5131, B.M.A. House, Tavistock Square, W.C.1.

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JACKET & VEST (in black or grey), £5 5s.
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APPOINTMENTS.—Contd.

City of Birmingham Education COMMITTEE.

ASSISTANT SCHOOL MEDICAL OFFICER (Male).

Applications are invited for the appointment of Male Assistant School Medical Officer, to begin duty on November 1st. Remuneration for a candidate, with suitable experience and qualifications, £600 per annum; £10 per annum travelling expenses.

Forms of application should be returned not later than Wednesday, September 4th. Further information may be obtained from the undersigned. Communications should be endorsed "Assistant School Medical Officer."

Canvassing will disqualify.

Education Office, Council House, Margaret Street, Birmingham. August 20th, 1929.

P. D. INNES, Chief Education Officer.

Scarborough Hospital and DISPENSARY. (70 Beds.)

Wanted, November 1st, Two HOUSE SURGEONS (male or female). Duties include Home Visiting. Salary £126 per annum, with board, residence, etc. Appointment for six months.

Applications, stating age, with copies of testimonials and essential particulars, to be sent to the undersigned by September 10th, from whom further particulars may be obtained.

J. DOUGLAS MUNBY, Hon. Secretary.

Rotherham Hospital.

Wanted, HOUSE PHYSICIAN (male), qualified. Salary £180 p.a., with board, lodgings, and laundry, to have charge of Out-patients, administer Anæsthetics, and assist Honorary Physician.

Applications, with copies of recent testimonials, to be sent to the Secretary, G. W. ROBERTS, 8, Moorgate Street, Rotherham.

The Kidderminster and District GENERAL HOSPITAL. (120 Beds.)

HOUSE SURGEON required immediately. Salary £150 per annum, with residence, board, and washing. Candidates must be unmarried, and should state nationality.

Applications, with not more than three testimonials, to be sent to the Assistant Secretary, Miss S. SMITH, South Cliff, Kidderminster.

Coventry and Warwickshire HOSPITAL.

There being a vacancy on the staff for an HONORARY ANÆSTHETIST, applications are invited for the post.

Candidates must be duly qualified practitioners.

The appointment will be made for one year subject to reappointment annually.

Candidates shall be resident in the City of Coventry or within six miles radius thereof, or shall take up their residence within that radius within six months from date of appointment.

Canvassing, either directly or indirectly, will be deemed a disqualification.

Applications, with original testimonials and registration certificates, must reach the undersigned on or before August 31st.

Candidates will in due course receive notice of their eligibility or otherwise from the Secretary, and after receipt of such notice eligible candidates are at liberty to send through the post printed copies of their application and testimonials, to the Members of the Board of Management of the Hospital, a list of whose names and addresses will be furnished by the Secretary. No such application or copies of testimonials shall be sent until receipt of such notification from the Secretary.

By Order of the Committee,
(Miss) R. HOOPER.
August 15th, 1929. Secretary.

General Hospital, Gt. Yarmouth.

Required, a SECRETARY who must have had previous Hospital experience, to take up duties on October 1st, or as soon as possible after that date.

Applicants must be experienced organisers, conversant with the Contributory Fund Schemes, capable of promoting appeals for funds and have a knowldge of the revised uniform system of accounts.

Commencing salary £300 per annum, with house, rent, rates, water, and electric light free.

Applications, stating age and experience, with copies of three recent testimonials, should be addressed to the Chairman of the Selection Committee, General Hospital, Great Yarmouth, not later than September 9th, 1929.

General Hospital, Gt. Yarmouth.
(72 Beds.)

Applications are invited for the post of SENIOR HOUSE SURGEON. Salary £150 per *annum, with board, residence, and laundry.* Duties to commence at once. Candidates (male and unmarried) must be fully qualified and registered.

Applications, stating age, nationality, and qualifications, together with copies of three recent testimonials, to be sent immediately to the undersigned.

T. H. G. GARTLAND, Secretary.

St. Vincent's Orthopædic HOSPITAL, EASTCOTE, MIDDLESEX. (140 Beds.)

Applications are invited for the post of Male RESIDENT MEDICAL OFFICER (unmarried). Candidates must be registered under the Medical Acts. The appointment is for six months in the first instance, but the holder may be reappointed for a further period. Salary is at the rate of £150 per annum, with board and lodging.

Applications, with copies of testimonials, should reach the Corresponding Manager, Miss AUDREY FITZHERBERT, St. Vincent's Orthopædic Hospital, Eastcote, near Pinner, Middlesex, on or before September 14th.

Hull Royal Infirmary.
(272 Beds.)

Applications are invited for the post of CASUALTY HOUSE SURGEON (male).

The appointment will be for six months in the first instance and will be terminable by one month's notice on either side.

Salary at the rate of £130 per annum, including residence, board, and laundry.

Applications should be sent to the undersigned.

R. J. CARLESS,
August 12th, 1929. House Governor.

Hull Royal Infirmary.
(272 Beds.)

Applications are invited for the post of ASSISTANT HOUSE PHYSICIAN (male), vacant September 12th. The appointment will be for six months in the first instance and will be terminable by one month's notice on either side.

Salary at the rate of £130 per annum, with residence, board, and laundry.

Applications to reach the undersigned not later than September 3rd.

R. J. CARLESS,
August 19th, 1929. House Governor.

Torbay Hospital, Torquay.
(146 Beds.)

HOUSE PHYSICIAN wanted for September 15th. Salary £175 per annum, with board, residence, and laundry. Candidates must be *fully qualified, registered, and unmarried.*

Applications, stating age, nationality, qualifications, and experience, must be received by the undersigned on or before Tuesday, September 3rd next, with copies of not more than three recent testimonials.

E. L. GRIST,
August 19th, 1929. Secretary.

Torbay Hospital, Torquay.

Notice is hereby given, in accordance with Rule 8, that the Court of Governors will meet on September 25th next to elect an HONORARY PHYSICIAN.

Candidates are required to be registered under the Medical Act.

Applications (sixteen copies), accompanied by sixteen copies of not more than three testimonials, should be sent to the undersigned not later than Wednesday, September 18th next.

E. L. GRIST,
August 17th, 1929. Secretary.

The Hospital for Sick Children, NEWCASTLE-UPON-TYNE. (92 Beds.)

Applications are invited for a JUNIOR HOUSE SURGEON (male or female), non-resident, for a period of six months, as from October 1st. Salary at the rate of £100 per annum. Applications, stating age and qualifications, with copies of testimonials, to be sent to the Secretary, Mr. NEIL BRODIE, 18, City Road, Newcastle, on or before September 6th.

The Hospital for Sick Children, NEWCASTLE-UPON-TYNE. (92 Beds.)

Applications are invited for a RESIDENT HOUSE PHYSICIAN (male or female) for a period of six months, as from October 1st. Salary at the rate of £95 per annum, together with board, residence, and laundry. Applications, *stating age and qualifications*, with copies of testimonials, to be sent to the Secretary, Mr. NEIL BRODIE, 18, City Road, Newcastle, on or before September 6th.

The Hospital for Sick Children, NEWCASTLE-UPON-TYNE. (92 Beds.)

Applications are invited for a RESIDENT *SENIOR HOUSE SURGEON (male or female)* for a period of six months, as from October 1st. Salary at the rate of £95 per annum, together with board, residence, and laundry. Applications, stating age and qualifications, with copies of testimonials, to be sent to the Secretary, Mr. NEIL BRODIE, 18, City Road, Newcastle, on or before September 6th.

Shropshire Orthopædic Hospital AND AGNES HUNT SURGICAL HOME, OSWESTRY.

HOUSE SURGEON (male) required. Appointment for one year. Salary £200 per annum, with board, residence, laundry, and four weeks' holiday.

Applications, stating age, with copies of three recent testimonials, should be received by the Secretary-Superintendent, Shropshire Orthopædic Hospital, Oswestry, not later than first post on August 29th.

The Hospital for Women, Soho Square, W.1.

Applications from fully qualified men and women are invited for the post of *RESIDENT* MEDICAL OFFICER for a period of six months commencing October 1st next. The salary is at the rate of £100 per annum, with board, residence, and laundry. Applications and testimonials must reach the undersigned, from whom further information can be obtained, by Friday, September 13th.

J. P. HEMING, Secretary.

Stirling Royal Infirmary.
(146 Beds.)

Applications are invited for the post of JUNIOR HOUSE SURGEON (male) for six months. Commencing duties almost immediately. At the end of six months he may be appointed to the post of Senior Resident

Salary at the rate of £120 per annum, with board, residence, and laundry.

Applications, stating age and qualifications, with copies of testimonials, to be sent to the Secretary, Royal Infirmary, Stirling.

West Norfolk & Lynn Hospital.

SENIOR and JUNIOR HOUSE SURGEONS will be required on October 1st next. Salary £150 and £100 respectively.

Manor Hospital, Walsall.

A JUNIOR RESIDENT ASSISTANT MEDICAL OFFICER.

The Guardians of the Walsall Union invite applications *from duly qualified ladies* or gentlemen for the appointment of Junior Resident Assistant Medical Officer, at Manor Hospital, Walsall.

The appointment will be for a period of six months, renewable at the option of the Guardians, and the salary will be at the rate of £150 per annum, together with the usual residential emoluments.

The person appointed will be required to act under the general direction of the Medical Officer, from whom particulars of the appointment may be obtained.

Applications, stating age, professional qualifications, and experience, accompanied by not more than three copies of recent testimonials, should be sent to the undersigned at once.

Union Offices, C. S. FOTHERGILL,
29, Leicester Street, Clerk to the
Walsall. Guardians.
August 23rd, 1929.

The Royal Infirmary, Sheffield.
(500 Beds.)

OPEN APPOINTMENT.

Wanted for the Ophthalmic Department, a CLINICAL ASSISTANT, male or female. There are in the Institution 69 Ophthalmic Beds and a large Out-patient Department, which is open daily, except Saturday.

Applications, stating age and giving particulars of qualifications and previous experience, should be submitted forthwith to the undersigned.

Board Room. JNO. W. BARNES, *F.C.I.S.*,
August 15th, 1929. Gen. Supt. & Sec.

Applications are invited for the post of JUNIO... RESIDENT MEDICAL OFFICER, WAY ... & GALLOWAY Institution, which ... one of the premie ... otland, and offers ... gaining experienc ... profession. Period of engagement twelve months from October 1st. Salary £100 per annum.

Applications, with *testimonials*, to be forwarded to the Treasurer, Dumfries & Galloway Royal Infirmary, 84, Irish Street, Dumfries, by *September 2nd.*

Birkenhead & Wirral Children's HOSPITAL, WOODCHURCH ROAD, BIRKENHEAD.

HOUSE SURGEON.

The Board invite applications for the post of House Surgeon (female) for a period of six months *from October 1st. Honorarium* at the rate of £100 per annum, with board, residence, and laundry. Applications, together with copies of testimonials, should be addressed to the Secretary at the Hospital not later than September 2nd.

London Jewish Hospital, Stepney Green, E.1.
(General Hospital, 108 Beds.)

CASUALTY OFFICER required (male or female). Applications should be sent immediately to the Secretary, accompanied by copies of three recent testimonials. Salary at the rate of £150 per annum, with luncheon and tea. Appointment for three months from September 1st. The holder will be required to attend the Out-patient Department daily (*Monday to Friday*) at 9 a.m.

Bristol Royal Infirmary.

Applications are invited for the post of HOUSE PHYSICIAN to the Cancer Research Department for the six months commencing September 1st. Salary at the rate of £60 per annum, with board, apartments, and laundry.

Candidates, who must be duly qualified, to send in their applications, stating age, together with copies of not more than three testimonials, to the undersigned.

ELLIS C. SMITH, F.C.I.S.,
Secretary & House Governor.

Worcester General Infirmary.

SENIOR and JUNIOR RESIDENT MEDICAL OFFICERS wanted. Applications from gentlemen are invited, stating age, qualifications, experience, and whether married or single, with copies of recent testimonials (not more than ... August 29th. Salary £180 ... inclusive ... ing.

... D, Secretary.

CAVENDISH NURSES (Male and Female)

Head Office: 54, BEAUMONT ST., LONDON, W.1 (late 43, New Cavendish St., London, W.1.)

A very convenient form of telephone message pad sent free on application to the Secretary.

Branches: MANCHESTER: 176, *Oxford Road.* *GLASGOW:* 28, *Windsor Terrace.* *DUBLIN:* 23, *Upper Baggot Street.*

TELEGRAMS: Tactear, London. Surgical, Glasgow. Tactear, Manchester. Tactear, Dublin.

TELEPHONES: London, 1277 Welbeck, Glasgow, 477 Douglas. Manchester, 3152 Ardwick. Dublin, 531 Ballsbridge.

Superior trained Nurses for Medical, Surgical, Mental, Dipsomania, Travelling and all cases. Nurses reside on the premises, and are always ready for urgent calls Day and Night. Skilled Masseuses, Masseurs, and good Valet attendants supplied.

Terms from £3 3s. *Apply to the Secretary or Lady Supt.*

Hospital of St. Cross, Rugby.
(114 Beds.)

Applications are invited for the posts of SENIOR and JUNIOR RESIDENT MEDICAL OFFICERS (males).

Candidates must be registered medical practitioners, and must be prepared to begin duties on October 1st. Salary for the Senior post at the rate of £150 a year, Junior at the rate of £100 a year, with board and residence in the Hospital.

Candidates are requested to state whether they are prepared to accept the post of Junior if not selected for the Senior office.

The appointments are for a period of six months only, at the end of that time the Junior will be eligible to apply for the Senior post, which then becomes vacant.

This Hospital is recognized by the University of London for the purposes of the M.D. and M.S.

Applications, stating age and qualifications, with copies of three recent testimonials, should be received by me not later than Saturday, September 7th.

CAPTAIN W. COCKBURN,
August 16th, 1929. Supt. & Secretary.

Radcliffe Infirmary and County
HOSPITAL, OXFORD.

RESIDENT MEDICAL POSTS.

Applications are invited for the following posts, which will become vacant on October 1st:

Three HOUSE SURGEONS,
HOUSE PHYSICIAN;
OBSTETRIC HOUSE PHYSICIAN.

Appointments for six months, with salaries at the rate of £120 per annum, with board, etc.

Candidates must be male and qualified.

Applications, with four copies of three testimonials, to be sent to the undersigned on or before September 9th.

A. G. E. SANCTUARY, Administrator.

Kent County Ophthalmic and
AURAL HOSPITAL, MAIDSTONE.
(72 Beds.)

Applications are invited for the post of AURAL HOUSE SURGEON (male), which becomes vacant shortly. Candidates must be duly qualified and registered medical practitioners, single, and of British birth and nationality. The appointment will be for six months. Salary at the rate of £200 per annum, with board, residence, and washing.

Applications, stating age, together with copies of not more than three testimonials, should be sent to the undersigned without delay.

JOHN W. STRICKLAND, Secretary.

The Prince of Wales's General
HOSPITAL, Tottenham, N.15.

Applications are invited for the post of HONORARY ANÆSTHETIST, to attend on Friday afternoons. The appointment is for one year, and subject to re-election. Honorarium of £20 per annum.

Applications, stating age, qualifications, and accompanied by copies of three recent testimonials, must be sent in by the first post on Monday, September 2nd next, to—

FREDK. W. DREWETT, Director.

The Weir Hospital,
Grove Road, Balham, S.W.12

SENIOR and JUNIOR RESIDENT MEDICAL OFFICERS (male, unmarried) required at the *end of September. Candidates must be fully* qualified and duly registered.

Salary £200 and £150 respectively, with board, residence, and laundry. Applications, with copies of testimonials, to be sent to the Secretary, from whom further information may be obtained.

The Mount Vernon Hospital,
NORTHWOOD, MIDDLESEX.

HOUSE SURGEON required for duty in Casualty wards. Appointment for six months. Salary at the rate of £200 per annum.

Applications to be addressed to W. J. MORTON, Secretary, Offices 7, Fitzroy Square, W.1.

Evelina Hospital for Children,
Southwark, S.E.1.

The Committee of Management requires a HOUSE SURGEON (male) for seven months, from September 12th (during first three months duty in Casualty and Out-patient Department). Salary £120 per annum, with board and residence. Candidates, duly registered, to send applications, giving age, qualifications (with dates), and copies of four testimonials, to the undersigned at the Hospital, before Sept. 3rd. Applicants will be informed if they will be interviewed by the Medical Committee. Selected candidates must attend Committee of Management. Date of meeting will be notified by undersigned, from whom rules and other particulars relating to the post must be obtained.

By Order of the Committee of Management,
H. C. S. SMITH,
August 20th, 1929. Secretary-Supt.

West Riding Mental Hospital,
WAKEFIELD.

Vacancy for JUNIOR ASSISTANT MEDICAL OFFICER (male). Post-graduate Medical or Surgical experience essential. Experience of Mental work not necessary. Junior officers who decide to specialize in Mental Diseases receive complete training for the Diploma in Psychological Medicine of the University of Leeds, and on gaining this are eligible for promotion to Senior rank (with married man's privileges). Salary £400, rising by £25 per annum to £500 (and on promotion to £800), together with apartments, board, washing, and attendance. Pensionable under the Asylum Officers' Superannuation Act, 1909.

Applications to be sent immediately to the Medical Director.

The Loughborough and District
GENERAL HOSPITAL AND DISPENSARY.

Wanted, to commence duties on September 21st, RESIDENT HOUSE SURGEON (female and unmarried) possessing a Medical and Surgical registered qualification. Practical experience in the administration of anæsthetics is required. Salary £125, with apartments, board, and laundry. All applications, stating age, etc., with copies of testimonials, to be sent to me at once.

9, Leicester Rd., FRANK H. TOONE,

L
(400 Beds.)

RESIDENT MEDICAL OFFICERS.

Vacancies are expected on October 1st for HOUSE [illegible] HYSICIAN, and On [illegible]aries at the rate of [illegible] must have held a [illegible]ad similar experie[illegible]n about the middle of September. Applications should be made to the undersigned by Monday, Sept. 2nd.

HARRY JOHNSON,
August 19th, 1929. House Gov. & Sec.

Kettering and District General
HOSPITAL. (82 Beds.)

Applications are invited for the post of JUNIOR HOUSE SURGEON. Salary £100 p.a., with board, residence, and washing. Candidates must be fully qualified and registered.

The appointment is for six months, but candidates will be eligible for re-election.

Applications, stating age, nationality, and qualifications, together with copies of three recent testimonials, to be sent immediately to the Secretary-Superintendent.

Roxburgh District Mental
HOSPITAL, MELROSE.

ASSISTANT MEDICAL OFFICER (male) wanted. Salary commences at the rate of £300 per annum, with board, lodging, and laundry. The whole subject to the provisions of the Superannuation Acts of 1909. Apply, with copies of two recent testimonials, to the Medical Superintendent.

Cheltenham General and Eye
HOSPITALS.

The Board of Management invite applications for the post of HOUSE SURGEON (male, unmarried) at the Eye, Ear, Throat and Nose Branch.

Candidates must be fully qualified.

Experience in this particular class of work desirable.

Salary £200 p.a., with board, residence, and laundry.

Applications, with copies of testimonials, to be sent in sealed envelopes marked "House Surgeon" to the undersigned not later than the 31st instant.

J. CUMMING SMITH, F.C.I.S.,
General Hospital, Secretary.
Cheltenham. August 16th, 1929.

St. Peter's Hospital for Stone,
etc.,
Henrietta Street, Covent Garden, W.C.2.

Applications for appointment as HOUSE SURGEON are invited from male candidates with previous experience in a similar office at a General Hospital. The salary offered is at the rate of £75 per annum, with board, lodging, and laundry.

At the expiration of his term of office, which is for six months from October 1st, the House Surgeon, subject to the recommendation of the Medical Staff, is appointed Resident Surgical Officer for a further period of six months.

Applications, accompanied by copies of testimonials, will be received by the undersigned not later than first post on Friday, Sept. 6th.

BEECHEY ROGERS, Secretary.

Royal Devon & Exeter Hospital,
EXETER. (225 Beds.)

ASSISTANT HOUSE SURGEON (Male).

Applications are invited for the post of Assistant House Surgeon at this Hospital, now vacant. The appointment is for six months, but candidates are eligible for re-election.

Salary at the rate of £100 per annum, with board, apartments, and washing.

Applications, giving particulars as to age and qualifications, together with copies of three recent testimonials, should be sent to the undersigned as soon as possible.

By Order of the Committee,
S. S. COLE,
July 29th, 1929. Secretary & Manager.

Bury Infirmary.
(General Hospital of 150 Beds.)

Wanted on October 1st, a THIRD HOUSE SURGEON (male), with experience in the administration of anæsthetics. The appointment is for a period of six months, at a salary at the rate of £150 per annum, with board, residence, and washing. Applications, endorsed "Third House Surgeon," stating age and nationality, with copies of three recent testimonials, to be sent in not later than August 31st addressed to the Honorary Secretary, H. MOSCROP ROBINSON, 4, Manchester Road, Bury, Lancashire.

Ancoats Hospital, Manchester.

HOUSE SURGEON required to commence duty on October 1st, for a period of six months. Salary at the rate of £100 per annum, with board, apartments, laundry, etc. Applications, stating age, qualifications, experience (if any), with copies of three recent testimonials, to be forwarded to the undersigned on or before September 5th.

By Order of the Board,
HERBERT J. DAFFORNE,
Gen. Supt. & Secretary.

Birkenhead General Hospital.
(156 Beds.)

Applications are invited for the post of CASUALTY SURGEON (gentleman). Salary £100, with board and residence, to take up duties immediately.

Applications, stating qualifications, experience, and nationality, with three copies of recent testimonials, to be sent to the Secretary-Superintendent as early as possible.

Royal Manchester Children's HOSPITAL.

OUT-PATIENTS' DEPARTMENT, GARTSIDE STREET, MANCHESTER.

Wanted, for the Out-patients' Department, Two ASSISTANT MEDICAL OFFICERS, non-resident, salary £150 per annum, who will be appointed for six months.

Candidates must be doubly qualified and on the *Medical Register*. Particulars of the duties can be obtained from the Secretary. The hours of duty are from 9 a.m. till 1 p.m., or until the work of the Dispensary is finished. Patients' attendances number 94,000 per annum. Duties to commence October 1st.

Applications, stating age, and accompanied by copies of not more than three testimonials, to be sent to the undersigned not later than September 4th.

Canvassing, directly or indirectly, may disqualify.

By Order,
W. M. HUMPHRY,
Secretary.

August 19th, 1929.

Royal Manchester Children's HOSPITAL, PENDLEBURY, Near MANCHESTER. (190 Beds.)

Wanted, a RESIDENT MEDICAL OFFICER, and a RESIDENT SURGICAL OFFICER. Salary £125 per annum, who will be appointed for six *months*.

Candidates must be unmarried, doubly qualified, and duly registered. Previous Hospital experience essential.

Applications, stating age, and accompanied by copies of not more than three testimonials, to be sent to the undersigned not later than September 4th. Duties to commence October 1st.

Canvassing, directly or indirectly, may disqualify.

By Order,
W. M. HUMPHRY,
Secretary.

August 19th, 1929.

Seamen's Hospital Society.

KING GEORGE'S SANATORIUM FOR SAILORS, LIPHOOK, HANTS, for the Treatment of Pulmonary and Non-Pulmonary Tuberculosis.

Application invited for the post of ASSISTANT MEDICAL OFFICER. Commencing salary at the rate of £200 per annum, with quarters and board. The appointment is for six months in the first instance. There is no accommodation for a married man. Some pathological experience will be considered an advantage. Application, with copies of three recent testimonials, to be sent in by September 3rd to the undersigned.

R. E. V. BAX,
Secretary.

Greenwich.
August 12th, 1929.

Seamen's Hospital Society, Greenwich, S.E.10.

The Committee invite candidates for appointment of Two HOUSE PHYSICIANS at the HOSPITAL FOR TROPICAL DISEASES, Endsleigh Gardens, W.C. Candidates must be male, doubly qualified and registered. The elected candidates will be required to take up duty on October 1st. Salary at the rate of £150 per annum, with board, residence, and washing. The appointment will be for six months.

Applications, stating age, together with copies of not more than three recent testimonials, to be sent in on or before September 11th to the undersigned, from whom further particulars can be obtained.

By Order,
R. E. V. BAX,
Secretary.

Greenwich.
August 19th, 1929.

Royal National Orthopædic HOSPITAL, COUNTRY BRANCH, BROCKLEY HILL, STANMORE, MIDDLESEX.

Applications are invited for the post of HOUSE SURGEON. Salary £150 per annum, with board, quarters, and laundry. The appointment is for six months from October 1st, renewable for a further period of six months on the recommendation of the Medical Board. Applications, with copies of testimonials, should be addressed to the Secretary, 234, Great Portland Street, W.1, not later than September 13th.

Royal National Orthopædic HOSPITAL, 234, Gt. Portland Street, W.1.

Applications are invited for the post of HOUSE SURGEON. Salary £150 per annum, with board, quarters, and laundry. The appointment is for six months from October 1st, renewable for a further period of six months on the recommendation of the Medical Board. Applications, with copies of testimonials, should reach the Secretary not later than Sept. 13th.

HAROLD GRIFFITHS & Co.
MEDICAL AGENTS,
Tredegar Chambers, Queen's Square, Newport, Mon.

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FOR SALE.

GLAMORGAN.—Panel (910) and Contract PRACTICE about £1,200 p.a. Good modern house, with surgery and garage. Rent £80 p.a., or would sell. Easily worked. Premium £1,250, payable by instalments.

MONMOUTHSHIRE.—Small old-established Town PRACTICE about £400 p.a. Scope for increase by energetic man as Incumbent *refuses mids. and night work. Would consider* Partnership on basis of guarantee present income during lifetime of Vendor.

MONMOUTHSHIRE.—Third Share PARTNERSHIP of good panel and private Practice of £3,000, near good Town. House available. One-half share in 3 years. Premium 1½ years' purchase.

LONDON.—NUCLEUS £250 p.a. Panel 100. Good house £1 per week. Good centre and scope for increase. Premium £250.

WANTED.—Panel and Private PRACTICE or PARTNERSHIP, not industrial, about £2,000 p.a. Cash available.

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PEACOCK & HADLEY Ltd.,
MEDICAL TRANSFER AGENCY,
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This old-established Agency negotiates the Sale of PRACTICES and PARTNERSHIPS on reasonable terms, which can be obtained on application. No charge unless sale be effected. LOCUM TENENS and ASSISTANTS supplied free of charge to principals.

West London Hospital, Hammersmith Rd., W.6. (225 Beds.)

Applications are invited for the post of RESIDENT ASSISTANT SURGEON from October 1st next. Salary at the rate of £200 per annum, with board, lodgings, and laundry allowance. The appointment will be for one year terminable by one month's notice on either side, and subject to annual re-election, may be extended to not more than three years. (Candidates must be duly qualified medical practitioners, and it is desirable that they should hold the F.R.C.S. (England) Diploma. Applications, accompanied by copies of testimonials, must reach me not later than first post on Friday, September 13th. Candidates must attend a Meeting of the Medical Council on Friday, September 20th, at 4 p.m., and prior to that date call upon and send copies of application and testimonials to each member thereof. They must not canvass Members of the Board, but, if notified, must attend a Meeting of the Board at 5 p.m. on Tuesday, September 24th, when the election will be made.

H. A. MADGE, Secretary.

West London Hospital, Hammersmith Rd., W.6. (225 Beds.)

Required, One HOUSE PHYSICIAN, Two HOUSE SURGEONS, and One AURAL and OPHTHALMIC HOUSE SURGEON, and RESIDENT ASSISTANT CASUALTY OFFICER (males) for six months from October 1st next, subject to one month's notice on either side. Salary at the rate of £100 per annum, with board, lodging, and washing allowance. Candidates must be registered under the Medical Act. Applications and copies of testimonials (in quadruplicate) (which must be made on printed forms obtained from me), must reach me not later than first post on Friday, September 13th. Selected candidates will be required to call upon such Members of the Medical Staff as directed, to be in attendance at a Meeting of the Medical Council on Friday, September 20th, at 4 p.m., and the House Committee Meeting at 4.45 p.m. the same day, when the appointments will be made.

H. A. MADGE, Secretary.

Royal South Hants and SOUTHAMPTON HOSPITAL, SOUTHAMPTON.

Applications are invited for the posts of JUNIOR HOUSE SURGEON, salary £130; CASUALTY OFFICER, salary £120; with rooms, board, and laundry. Six months' engagement. Candidates, who must be male and unmarried, should apply at once to the undersigned, stating age, and enclosing copies of testimonials.

By Order,
HY. TRUSSON,
Secretary.

August 16th, 1929.

THE OLDEST AND LEADING MEDICAL AGENT

PERCIVAL TURNER, LTD.
(Established 50 years.)
4 & 5, ADAM ST., STRAND, W.C.2.

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Terms post free on application.

Yorks. — Average £1,800 p.a. Panel over 1,000. Visits 3/6 up. No mids. House, 5 bed., etc.—No. 8533.

Cornwall. — About £850 p.a., increasing. Small panel. Visits 4/- to 21/-. House, 6 bed., etc., and good garden.—No. 8529.

Staffs. — About £1,300 p.a. Panel 1,300. Fees 5/-. House, 5 bed, etc., to rent. Premium £1,000 cash.—No. 8527.

Lancs Coast.—£2,000 p.a. Mid. and upper-class panel over 800. Visits 7/-. Mids. 3 to 4 gns. Good house to rent.—No. 8525.

Wilts.—Death Vacancy.—Ear, Nose, and Throat PRACTICE. About £800 p.a. Fees 2 gns. Two days per week only.—No. 8524.

West Yorks. — About £7,200. 1/4 share. Panel about 8,000. Not much midwifery. Visits 4/6 up. House (4 bed., etc.) to rent.—No. 8522.

N. Wales Borders.—£4,000 p.a. 1/3 or 2/3 share. Panel 3,800. Appts. worth £1,600 p.a. Visits 5/- up. About 50 mids. at £2 2s. House (4 bed., etc.) to rent or buy.—No. 8519.

Northern Suburb.—About £700 p.a. Small panel, ample scope for increase. Visits from 5/-. Good house, 4 bed., etc.—No. 8518.

Home Counties.—Death Vacancy. About £760 p.a. Mids. 2 gns. Panel 516. Visits up to 10/-. Good house and large garden to rent.—No. 8516.

Home Counties. — £3,600 p.a. 1/3 or 2/3 share. Panel over 2,000. Mids. from 2 gns. Visits 3/6—10/6. Good house and garden.—No. 8514.

Yorks.—Over £3,000 p.a. 1/4 share, good scope for increase. Panel over 2,000. Mids. 2—5 gns. Med. house to rent or buy.—No. 8510.

Lancs.—£4,000 p.a., increasing. Panel over 2,600. Visits 2/6—7/-. Mids. 2—5 gns. Suitable for two. Two houses, rent or buy.—No. 8509.

London, South. — About £800 p.a. Residential. Panel and appts. about £500 p.a. Good house and large garden. Prem.—house and Practice—£3,000.—No. 8507.

Sussex Coast.—About £1,400 p.a. Good-class, non-panel, non-dispensing. Appt. £35. Visits 5/- to 15/-. Large house to rent.—No. 8476.

N.E. Coast.—Nearly £1,200 p.a. and chance of sev. appts. Fees 3/6 to 5/-. Panel 600. Compact PRACTICE. Good house, garden and garage, etc.—No. 8498.

Home County.—Over £700 p.a. Small residential town within 25 miles, South. Panel 462. Good fees. Large well-built house and garden.—No. 8494.

Cornwall. — Share £1,000 p.a. General mixed Practice. Panel nearly 2,400. House, 5 bed., etc., low rent.—No. 8493.

Berkshire. — About £700 p.a. General mixed Country PRACTICE. Panel about £287 p.a. Few mids. Fees 2/6—7/6. Excellent house and garden.—No. 8490.

Lancs.—1/3 or 1/2 share of over £2,400 after prelim. assistancy. Panel £500. Mixed class. Good house, with 4 bed., 2 attics, etc.—No. 8454.

Bucks.—About £2,800 p.a. 1/2 share. Appts. £200 p.a. Panel over 1,900. Visits 3/6—10/6. Mids. 2—5 gns. House, 4 bed., to rent. Prem. 1½ yrs.—No 8483.

Suffolk.—Over £1,000 p.a., unop. Old-estab. Panel 530. Appts. £50 p.a. Usual fees. Good house, large gard.—No. 8479.

Kent.—Country Practice. About £1,000 p.a. Panel about 400. Appts. over £50 p.a. Visits 3/6 to 10/6. House, 5 bed., etc. Extensive grounds.—No. 8408.

SPECIAL NOTICE.

FINANCIAL ASSISTANCE to enable purchasers to obtain Practices and Partnerships can be afforded to approved applicants. Full particulars on application to Mr. Percival Turner.

British Medical Bureau

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The Association has long been favourably known to the members of the Medical Profession as a thoroughly trustworthy and successful Agency for the transaction of every description of Medical, Scholastic and Accountancy business, and the BRITISH MEDICAL ASSOCIATION has every confidence in recommending its members to consult Mr. A. V. STOREY, the General Manager, in all transactions requiring the services of a Medical Agent.

Members of the British Medical Association may take advantage of a reduced scale of charges applicable to them.

Practices and Partnerships for Disposal. Full particulars sent free.

1 MIDLANDS. — Practice averaging over £1,850 p.a. in small Industrial Town with pretty country all round. Panel 1,380. Double-fronted house (7 bedrooms) for sale. Good scope. Premium £2,500.

2 MIDLANDS. — Partnership in sound old-established Practice in first-rate residential town. Small panel. Suitable house (4 bedrooms, etc.) to rent. Incoming Partner should be aged between 27 and 35, and well qualified. Share worth about £1,000 p.a. at 2 years' purchase.

3 MIDDLESEX.—Partnership in sound Practice of between £3,000 and £4,000 p.a. in town within easy distance of London. Panel over 2,000. Share worth about £1,000 p.a. at 2 years' purchase after preliminary assistantship.

4 KENT AND SUSSEX BORDER.—Country PRACTICE, nearly £1,150, in beautiful district. Panel about 400. Large house (6/7 bedrooms), with charming garden, etc., for sale. Sport. Premium £1,625.

5 LONDON, W.—Good middle-class Practice of £840 in outlying residential suburb. No panel and practically no midwifery. House (4 bedrooms) and fair-sized garden to rent. Premium £1,100.

6 WEST OF ENGLAND.—Country Practice of £950 p.a. Panel 400. Very little midwifery and night work. House, with 4 bedrooms, garden, and garage, for sale. Good society. Premium 1½ years' purchase.

7 LONDON, N.—Sound easily worked PRACTICE over £2,500 p.a. in residential district. Small panel and few midwiferies. Good house (5 bed and dressing rooms), with large garden, to be sold. Premium for Practice 1½ years' purchase.

8 MIDDLESEX. — Rapidly increasing PRACTICE doing about £600 in new developing district. Small panel. Very convenient house (5 bedrooms) for sale. Great scope. Premium £900.

9 MIDLANDS. — Partnership (after preliminary assistantship) in good mixed Practice worth £4,000 p.a. in country town. Panel 3,600. House to rent. Hospital and scope for surgery. Partner should be keen on his work and have held H.S. and H.P. appointments. One-third share at 2 years' purchase.

10 NORTH OF ENGLAND.—Partnership in non-dispensing Practice about £6,000 p.a. in first-rate Country Town. Small panel. Very good house (6 bedrooms) to be sold or let. Premium one-fifth or two-fifths share 2 years' purchase.

11 LONDON, N.W.—Partnership in Practice over £3,000 p.a. No panel. One-third share at 2 years' purchase. Incoming Partner must be English.

12 SURREY.—Partnership in good middle-class and increasing Practice over £2,100 p.a. in developing residential district. Panel 1,140. House (3 bedrooms) for sale. Premium one-third share 2 years' purchase.

13 WEST OF ENGLAND.—Practice in first-rate town. Receipts past 12 months £1,450. Panel 500. House, with 6 bedrooms, to rent. Premium £2,000.

14 CARMARTHENSHIRE.—Practice of over £930 p.a. derived from contract work and panel, in pretty village. Modern bungalow residence (3 bedrooms), with separate surgery, standing in 1¼ acres of ground. Premium—Practice and house—£2,500, part on mortgage if desired.

15 LANCASHIRE. — Practice of £1,500 in rapidly growing district within a few miles of popular resort. Panel over 200. Very nice compact house (4 bedrooms), with beautiful garden and orchard, for sale. Prem.—Practice—£1,500.

16 LONDON, N.W.—Partnership in increasing middle and working-class Practice £2,550. Panel about 1,500. Excellent flat (2 bedrooms) at moderate rent. Premium one-third share £1,700, part by instalment.

17 MIDLANDS.—Partnership in sound well-established Practice over £4,000 p.a. in flourishing town. Panel 2,800. House, with 4 bedrooms, to rent. One-fifth share at 2 years' purchase. Partner should be experienced in Surgery.

18 LANCASHIRE.—Partnership in Practice averaging £2,100 p.a. in an industrial district. Panel over 1,500. One-third share at 1½ years' purchase after prelim. assistantship.

19 N. WALES.—Country Practice averaging nearly £450 p.a. in agricultural district. Small panel. Good house (4 bedrooms), with 9½ acres of meadow land, for sale. Hunting, shooting, etc. Premium £450.

20 EASTERN CITY. — Assistantship with view to Partnership in non-dispensing Practice Rs.4,500 a month. After assistantship six months at Rs.700 a month, all found. Third share would be sold at 1½ years' purchase. Applicant must be F.R.C.S.

21 N.E. COAST. — Seaside Town. — Practice £1,180 p.a. Panel 600. House (5 bedrooms), with every modern convenience. Rent about £65 p.a. Premium £1,300.

22 CHESHIRE. — Partnership in industrial and middle-class non-dispensing Practice £3,900 p.a., in close proximity to good town. Panel 3,230. One-fourth share at 1½ years' purchase.

23 SHEFFIELD.—Practice about £800 (including two appointments £155). No panel and no dispensing. Convenient house (6 bedrooms) for sale or to rent. Prem. £800.

24 CARMARTHENSHIRE. — Steadily increasing PRACTICE of £800 in small country town. Panel 645. Small house (3 bedrooms, etc.) to rent. Premium 1½ years' pur.

25 DEATH VACANCY.—Cathedral City N. of England.—Receipts about £1,100. Visits 5/- to 7/6. House in commanding position (3 sitting rooms, 5 bedrooms).

26 ESSEX.—PARTNERSHIP. — Sound old-established Practice. Receipts £3,600. Panel 2,250. Visits 5/6 to 10/6. Excellent house and garden for sale or to rent. Premium 2 years' purchase (part by instalments).

27 DURHAM. — Well-established Practice £1,169 p.a., including appointments worth about £500 and panel 1,050. House contains 7 rooms, surgery, and waiting room, with separate entrance, to be sold or let. Premium 1½ years' purchase.

28 DEATH VACANCY.—BUCKS.—Practice about £750 p.a. Panel 516. Visits 2/6 to 7/6. Good detached house (2 reception, 3 bedrooms, etc.). Rent £72 p.a.

29 LONDON, S.E.—Good Residential Suburb. PARTNERSHIP in very old-established non-dispensing Practice over £3,700 p.a. Visits 5/- to 10/6. Midwifery £5 5s. to £10 10s. Good house (5 bedrooms, etc.). Price, long leasehold, £1,500. Premium one-half share 2 years' purchase.

30 SOUTH OF ENGLAND.—Partnership in sound old-established Practice. Beautifully situated country town. Small nice house available. Rent £47 p.a. Preference Oxford or Cambridge Graduate. Premium 2 years' purchase for share about £1,000 p.a.

31 N. WALES (SEASIDE RESORT).—Well-established PRACTICE £600 p.a. in nice residential town. Panel 245. House (7 bedrooms, etc.). Premium, house and Practice, only £2,300.

32 HEREFORDSHIRE.—Practice over £1,000 p.a. Panel 240. Good town. Cottage Hospital. House (4 bedrooms, etc.). Price £1,500. Premium for Practice 1½ years' pur.

33 PRIVATE ASYLUM.—Partnership.—Exceptional opportunity for suitably qualified Medical Man (age 30—33) in first-rate establishment. Preliminary assistantship 12 months. Capital required about £4,000.

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Practices and Partnerships for Disposal (continued).

34 NORFOLK. — Old-established unopposed Country PRACTICE over £2,450 p.a. Panel 1,800. Visits 6/- to 10/6. Good house (6 bedrooms); freehold £1,000. Premium 1½ years' purchase.

35 S.W. OF ENGLAND. — Non-dispensing PRACTICE £1,730 p.a. in Cathedral City. No panel. House (6 bedrooms) in best quarter. Hospital. Premium 1½ years' purchase.

36 SOUTH COAST.—Favourite Health Resort. —Small old-established PRACTICE, £300 to £350 p.a. Capable of great increase. Excellent house (5 to 6 bedrooms) in unique position. Garage and large garden. Freehold £2,000. Premium for Practice £500.

37 LONDON, E. — Cash and Panel Practice about £680 p.a. Panel 800. Visits 3/6 to 5/-. No midwifery. Shop-fronted house. Freehold about £600.

38 SOUTH MIDLANDS. — Well-established Country PRACTICE about £1,500 in first-rate Hunting centre. Panel 733. House (6 bedrooms) with every modern convenience in grounds (2 acres), on lease. Cottage Hospital. Premium 1½ years' purchase.

39 N.E. COAST.—Partnership in sound Practice in rapidly growing and attractive seaside town. Panel about 700. Suitable house available. Share of about £1,400 for disposal at 2 years' purchase. Partner aged about 30 and well qualified, who has held resident Hospital appointments.

40 BUCKS.—Small Country Practice over £300 p.a. Panel 250. Very attractive house (8 bedrooms), with fine garden, garage, etc., for sale. Premium—Practice—£300.

41 SOUTH AFRICA.—Well-established PRACTICE £1,350 p.a. in small town in Orange Free State. Ten-roomed house in centre of town to rent. Premium £750.

42 YORKSHIRE (W.R.).—Partner required in better working-class Practice in good district of large city. Panel over 2,000. Seven-roomed house, with garage, to be sold or let. Great scope. Share worth over £750 p.a. at 2 years' pur.

43 WEST OF ENGLAND.—Partnership in Practice over £3,000 p.a. (£1,000 from panel and appointments) in Residential and part. Agricultural District. House available. Very good Cottage Hospital. One-fourth or one-third share at 2 years' purchase.

44 SOUTH COAST.—Seaside Resort. Non-dispensing PRACTICE about £550 p.a. Small panel. House (5 bedrooms) to let. Scope for increase. Premium £800.

45 SOUTH COAST.—Non-dispensing Practice averaging £1,352 p.a. in favourite Watering Place. No panel. House at nominal rent. Scope. Premium 1½ years' purchase.

46 LONDON, E.—Partnership in exceptionally old-established Practice averaging over £3,500 p.a. Good fees and appointments. Two-fifths share for disposal at 1½ years' purchase, or one-third could be purchased at first, part by instalments. Small house may be bought or rented at a moderate figure.

47 SOUTH AFRICA.—Old-established PRACTICE. Receipts last year £1,816. Travelling and midwifery light. Climate ideal—no tropical diseases (altitude nearly 5,000 ft.). Delightful residence (5 bedrooms), in perfect order, with 2 acres grounds. Excellent scope. Local Hospital. Premium £1,200, with option to purchase house.

48 YORKSHIRE (N.R.).—Practice of about £1,000 in small Country Town. Panel 430. House (5 bedrooms) to be let or sold. Sport. Scope. Premium £1,250.

49 S.E. COAST. — Non-dispensing Practice averaging nearly £1,850 in Health Resort. No panel. Detached house (7 bed and dressing rooms) and good garden, to be sold or let. Premium 1½ years' purchase.

50 SOUTH OF ENGLAND.—Partnership in Practice £2,250 p.a. in beautifully situated Country Town within 100 miles of London. Panel under 1,000. Suitable accommodation. Share, worth about £900 p.a., at 2 years' purchase.

51 SOUTH AFRICA.—Old-established PRACTICE in one of the pleasantest towns, with beautiful climate, in the Cape Province. Receipts average £2,900 p.a. House (4 bedrooms) to rent. Purchaser should be able to do major surgery. Knowledge of Dutch unnecessary. Premium £2,250.

52 WEST OF ENGLAND.—Partnership in non-dispensing Practice over £5,100 p.a. in first-rate town. Small select panel. House (6 bedrooms) to rent. Partner should be an Obstetrician, and there is scope for gynæcology. Premium five-twelfths share 2 years' purchase.

53 SOUTH OF ENGLAND.—Seaport Town. PRACTICE doing £800 p.a., including appointments over £225 p.a., and panel nearly 1,000. Good house (6 bedrooms) to be sold or let. Premium 1½ years' purchase.

54 CARDIFF. — Non-dispensing Practice averaging £1,543 p.a. Small panel. Pleasantly situated house (5 bedrooms). Premium £2,000.

55 S.W. OF ENGLAND.—Partnership in an old-established Practice of £5,000 p.a. in one of the chief towns. Panel 2,397. House (5 bed and dressing rooms) to rent. One-fifth share 2 years' purchase.

56 SOUTH MIDLANDS. — Partnership in Country Practice of £6,300 p.a. in residential and agricultural district. Panel over 2,200. Suitable house for sale. Hospital. Partner should be 28 to 30 and have held House appointment. Premium one-fifth share £2,510.

57 LONDON, N.—Partnership in well-estab. middle-class Practice, nearly £2,750 p.a., in pleasant outlying suburb. Panel about 800. Suitable accommodation to rent. Premium one-third share 2 years' purchase.

58 YORKSHIRE (W.R.). — Practice averaging nearly £1,350 p.a. in manufacturing town. Panel 995. Detached house (4 bedrooms) for sale. Premium £2,000.

59 SOUTH OF ENGLAND.—Partnership in non-dispensing Practice £4,200 p.a. in attractive watering-place. Panel about 1,500. Incoming Partner must be F.R.C.S.Eng. or Edin., or M.D.Lond., Oxon., or Camb. One-fourth share at 2 years' purchase. (Preliminary assistantship.)

60 ITALY.—Season (March to October) PRACTICE in famous city. Receipts average £563 p.a. No midwifery or night work. Up-to-date Hospital. Premium £563.

61 BUCKS.—Practice about £800 in small country town. Panel 741. Nice detached house (4 bedrooms), garden and garage, to rent. Premium £1,200.

62 KENT. — Practice averaging £1,030 p.a. (appts. and panel over £300) in beautiful country district. Convenient house (6 bedrooms) for sale. Premium, Practice, £1,600.

63 N.W. COAST. — Partnership in Practice over £3,000 in first-rate residential seaside town. Panel 450. Suitable house to rent. One-half share for sale (one-third first year) at 1½ years' purchase.

64 EAST ANGLIA.—Country Practice about £1,470 p.a., easy reach of important town. Panel about 1,000. Nice house (10 bed and dressing rooms), with electric light, etc., for sale. Premium 1½ years' purchase.

65 N. GLOUCESTERSHIRE. — Country PRACTICE in delightful part. Cash receipts £560. Panel 450. Modern house (6 bed and dressing rooms), with garden 1 acre, for sale. Premium—Practice—£750.

66 MIDLANDS. — Partnership in old-estab. Practice (entirely Skin work) in first-rate town. Earnings about £2,200 p.a. Suitable house for sale or rent. Premium one-third share 2 years' purchase.

67 EAST COAST — Partnership in Practice £2,800 p.a. in popular watering-place. No panel. House to rent. One-third share at 2 years' purchase. Partner must have some knowledge of Ear, Nose, and Throat work.

68 YORKSHIRE (W.R.). — Partnership in Practice about £2,600 in one of the chief towns. Panel over 900. Partner should be a Protestant. One-third share at 1½ years' purchase after preliminary assistantship.

69 S.W. of ENGLAND.—Partnership in Practice about £3,000 in market town. Panel 1,100/1,200. Detached house (5 bed and dressing rooms), in 3/4 acre garden, for sale. Premium one-half share 2 years' purchase.

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WEST COUNTRY.—Old-established Country PRACTICE. Receipts approx. £2,000 p.a. No panel. Good house, with garden, for sale. Suitable to well-qualified man experienced in good-class Practice. Premium 1½ years' purchase.

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MIDLANDS.—PARTNERSHIP in good-class non-panel G.P. Receipts £3,000 p.a. Appointments £500. Premium 2 years' purchase for 1/4th share, with view to larger share and ultimate succession. Suitable to well-qualified man, experienced, aged 28 to 35 years.

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HANTS.—Small Country G.P. Receipts £500. Panel 300. Excellent scope for young experienced man. House to rent at £75 p.a. Premium £500.

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LONDON, E.—PARTNERSHIP in old-established industrial and mixed-class Practice. Receipts average £3,550. Panel 1,000. Fees 3/6 up. Premium for 1/3rd share, with view to larger share, £1,775, cash.

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2. WITHIN 50 MILES OF LONDON.—Well-established and increasing PRACTICE situated in small country town in very pretty district. Income last year over £800, including panel of over 500, and appts. worth about £60. Visits 3/6 to 21/-, medicine extra. Exceptionally nice house can be bought, or purchaser can choose his own place of residence. Good school for boys. Premium 1½ years' purchase.
3. PARTNERSHIP.—WITHIN 35 MILES OF LONDON, and within a few miles of the coast, a one-third share is for disposal in a very sound old-established Practice, producing last year over £3,600, and this year at the rate of over £4,000 p.a. Panel of 2,250. Fees 2 6 to 10/6. Good house, with 2 reception, 4 bedrooms, and professional rooms. Large garden. Garage. Premium £2,400, £1,800 down and balance by arrangement.
4. WITHIN FIFTEEN MILES OF OXFORD. — Very old-established Country PRACTICE producing about £1,000 per annum, including about £550 from panel and appts. Patients comprise all classes. No resident opposition. Fees 2/6 to 10/6. Good house, with 2 reception, 4 bedrooms, separate entrance to professional rooms, etc. Nice garden, with tennis lawn. Rent on lease £70 p.a. Prem. £1,500.
5. SOMERSET.—COUNTRY PRACTICE, within a few miles of the Coast. Old-established mixed general Practice, producing about £930 p.a., including panel and appts. worth nearly £600. Fees from 2/6 to 7/6. Good house, with separate entrance to professional rooms. Rent £58 p.a. Social facilities and schools. Premium £1,400.
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7. SHROPSHIRE.—Unopposed Country PRACTICE, in pretty district, producing this year at the rate of about £1,400, including panel of 550 and appts worth £65. Visits 3 6 to 7/6, with medicine and mileage extra. Midwifery from 3 gns. About 20 cases. Suitable house, with modern conveniences, and containing 3 reception, 5 bedrooms, etc Electric light. Garden. Garage. Rent on lease £100 p.a. Good sport and schools. Premium £1,500.
8. YORKS.—LARGE TOWN.—Old-established mainly working-class PRACTICE. Income £1,250. Panel of over 1,400. Fees 2/6 to 5/-. Well-situated house, with good garden. Price £1,500. Prem. £1,800.
9. KENT COAST.—FAVOURITE RESORT.—Old-established non-panel, non-dispensing PRACTICE. Income £1,900. Fees 5/- to 10/6. Little midwifery. Large centrally situated house, with nice garden. Rent on lease £175. Good sport and schools, and social attractions. Premium 1½ years' purchase.
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11. BRISTOL.—PARTNERSHIP.—A half share in an old-estab. and increasing mixed general Practice. Income for last year about £2,050, including panel of 2,400. Fees 2/6 to 10/-. Low expenses. Good house, with nice garden. Electric light. Garage. Rent on lease £80 p.a. Premium £2,000.
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14. HANTS.—COUNTRY PRACTICE, at present producing about £480 p.a., but offering large scope. Panel of 280. Fees 3/6 to 10/6. Mid. from 3 gns. Convenient house, with 2 reception, 5 bedrooms, etc. Garden and garage. Can be rented on lease at £75 p.a. Premium £800, part by arrangement.
15. LONDON, N.W.—Old-established mixed-class PRACTICE, averaging £2,000 p.a., including panel of about 1,500. Fees 2/6 to 10/6. Midwifery 3 to 15 gns. (about 50 cases yearly). Six-roomed house, with bathroom, kitchen, etc. Garage. Rent on lease £85 p.a.
16. PARTNERSHIP.—YORKS.—Suburb of large Town.—A share representing £750 p.a. (which will be guaranteed by Vendor for first 2 years) is offered in a well-established Practice producing about £3,000 p.a., offering large scope, and having a panel of over 2,000. Seven-roomed house available in nice district, with garden and garage. Can be rented; or bought for £750. Premium 2 years' purchase.
17. LIVERPOOL.—Centrally situated old-established PRACTICE. Income about £1,500. Panel of over 2,500, worked from Branch Surgery. Visits and medicine from 3/6 to 7/6. Little midwifery. Large corner house, with garden and garage. Recently redecorated. Electric light and new hot water system throughout. Price, freehold, £2,000. Large scope for increase. Premium 1½ years' purchase.
18. GLOS.—LARGE TOWN.—PARTNERSHIP.—A half share of an old-established good-class non-dispensing Practice, owing to retirement through ill health of senior partner. Income about £5,000, with small select panel. Fees 5/- to 10/6. Purchaser should be about 40, married, and keen on midwifery. Good house available at low rental. Premium 2 years' purchase, part by instalments.
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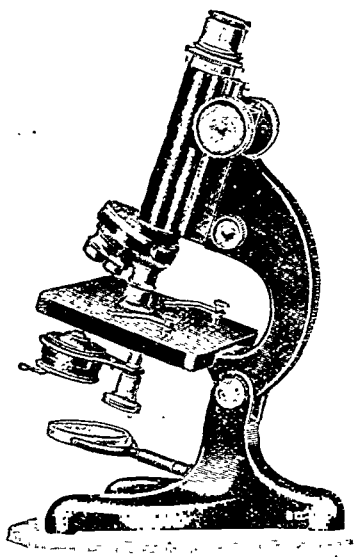

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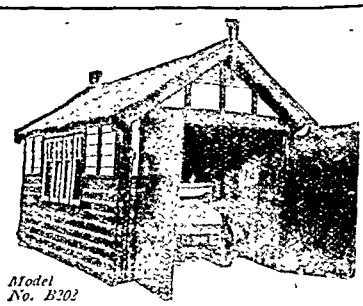

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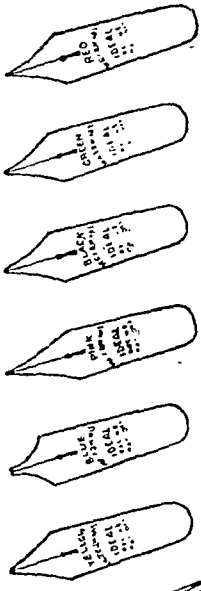

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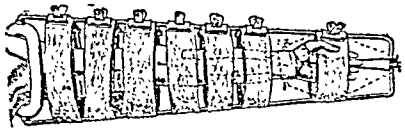

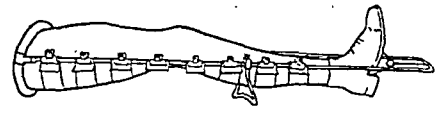

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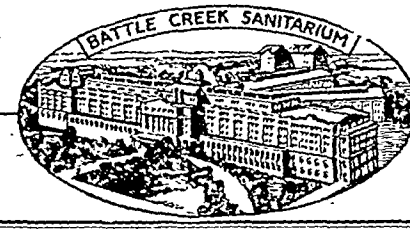

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In all the various forms of loss of nerve power Mist. Damianæ Co. (Hewlett's) is a powerful remedy, relieving the exhaustion and conferring renewed capacity for mental and physical endurance.

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(Vide Report: Institute of Hygiene, Feb. 1927)

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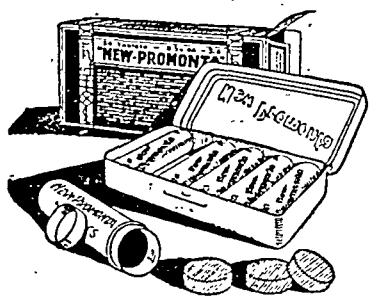

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Important Conclusions

The question as to what form of bread provides the essential Vitamin B most completely and economically has now been settled by independent experiments.

It is shown that in 100 g. dried bread the content of Vitamin B in milling products and yeast is:

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HOVIS Germ Bread	2,600

That the presence of the Vitamin is essential actively to promote health in adults and sturdy growth in children, is generally accepted from continued observation.
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You obtain—as demonstrated by series of experiments by independent investigators—a greater active nutritive value from HOVIS than from any other cereal.

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in

DISEASES OF THE NERVOUS SYSTEM

A generation ago the origin of diseases of the nervous system presented for the most part a tangle of insoluble medical problems. The scientific worker of to-day, however, has so far cleared a way through the jungle as to make its ultimate conquest a certainty. In disorders of the nervous, as of other bodily systems, the overwhelming part played by toxæmic agencies has become generally recognised.

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Supplies the organism with those indispensable mineral elements:

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Over Half a Century of Clinical Experience has established its reputation as

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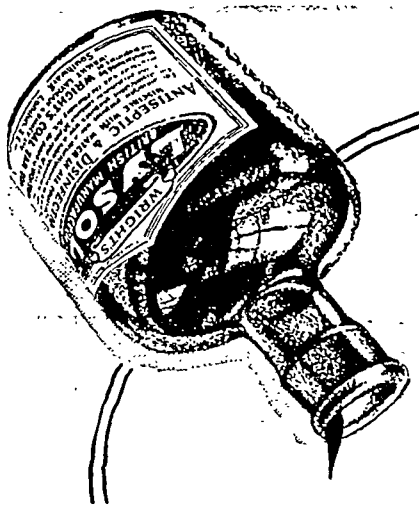

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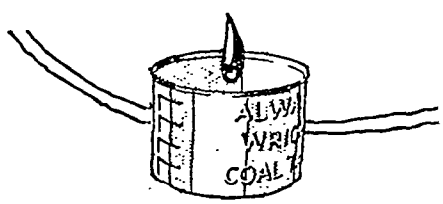
Wright's Lysol is the product of a firm that has specialized in disinfectants for over sixty years. Its reputation is just as unimpeachable as that of the famous Wright's Coal Tar Soap — and for the same reason — *constant purity.*



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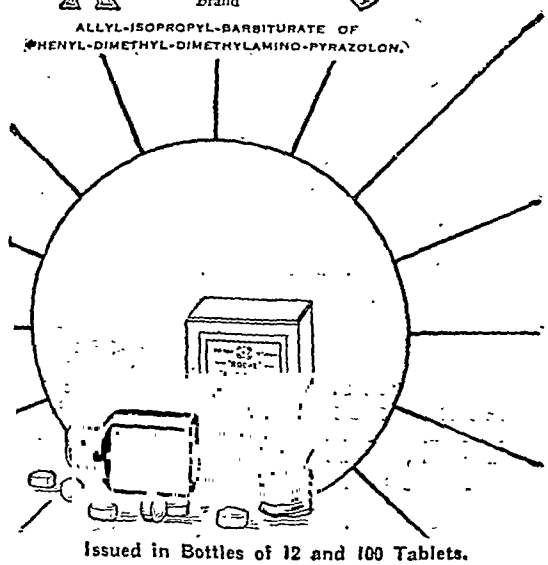

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Vitamalt assists the normal metabolic processes, promoting sound health, normal development of bone and tissue, and correct deposition of calcium.
Vitamalt is regularly prescribed by members of the medical profession to counteract disorders which arise as a direct result of deficiency of these important accessory food factors.

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Hypopepsia and apepsia—Dyspepsia arising from disturbance of neuro-motility.
Intermittent pyloric stenosis, not of organic origin.
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The diabetes of fat people. Arthritic obesity. Uricæmia and gout. Rheumatic gout.

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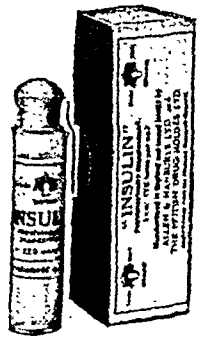

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CONDITIONS dependent upon infection of the urinary tract by *B. coli* are by no means uncommon, and present varying degrees of severity, from serious suppurative lesions of the kidney to mild bacilluria of little importance.

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Kerol Capsules

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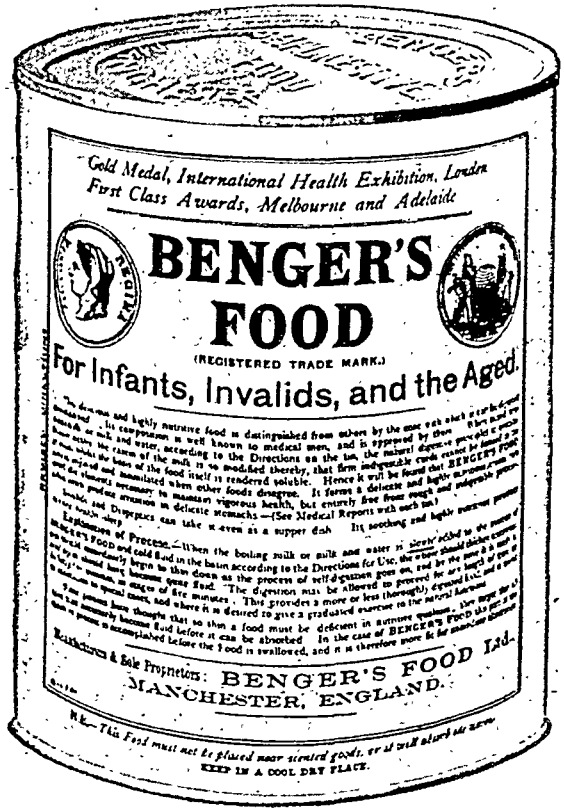

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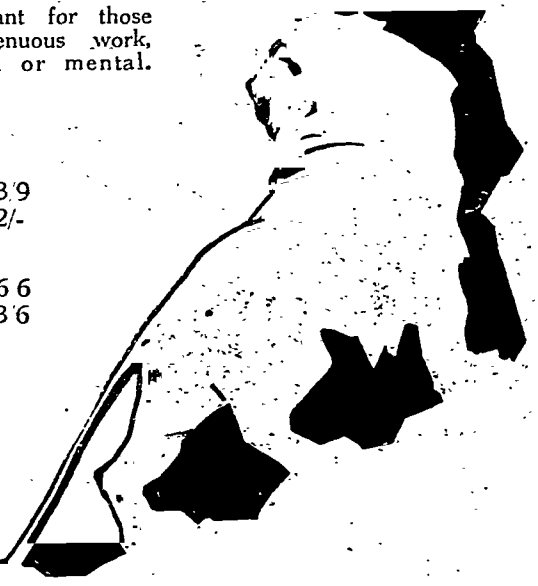

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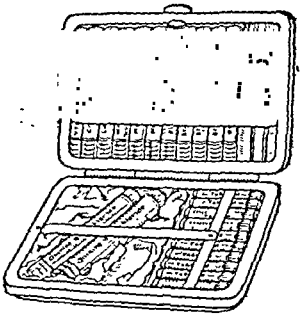

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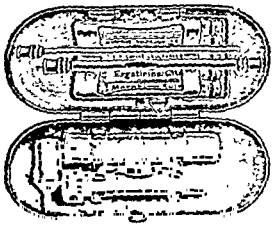
Aluminium ... ... 27/0 each



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No. 40 (*"The Mussel Shell"*).—Contains an 'Agla' Aseptic Hypodermic Syringe, finger-grip, two steel needles, one exploring needle and five tubes of 'Tabloid' Hypodermic products.

Nickel-plated Metal, complete with soft leather cover, 20/0 each

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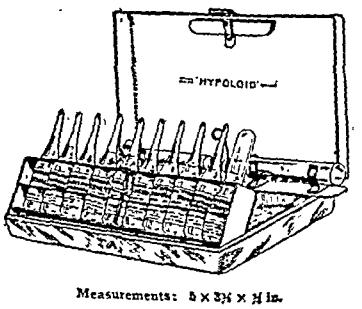
Nickel-plated Metal ... 27/6 each



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British Medical Journal.

THE JOURNAL OF THE BRITISH MEDICAL ASSOCIATION.

LONDON: SATURDAY, AUGUST 31ST, 1929.

EDUCATIONAL NUMBER. SESSION 1929-30.

An Address

ON

MEDICAL EDUCATION AND LICENSURE IN THE UNITED STATES OF AMERICA.*

BY

SIR NORMAN WALKER, M.D., LL.D.,

DIRECT REPRESENTATIVE FOR SCOTLAND ON THE GENERAL MEDICAL COUNCIL.

My acquaintance with American medical education goes back a long way. When, after graduating in 1884, I proceeded to Vienna for post-graduate study, I made the acquaintance of quite a number of the 250 American graduates who were then studying there. There were 50 graduates of British schools, and it would be incorrect to say that we formed a high opinion of medical education in America from contact with some American colleagues in the practical classes. After five years, spent partly as a resident physician, and partly in general practice in Cumberland, I had, in 1890, my first opportunity of visiting the States, when I accompanied my father on a three months' tour. We landed in New York, made our way slowly across country to San Francisco by one route, and returned by another to Quebec, where we embarked for home. My father's interests were, of course, in the theological colleges, and, while he visited Princeton and Yale, I devoted much of my time to the medical schools in Boston, New York, Baltimore, Philadelphia, Chicago, Sioux City, Denver, San Francisco, Toronto, and Montreal. I look back over long years with a very lively sense of appreciation of the kindness of our American colleagues to a young man still well under 30. I made many friendships, most of them, alas! now broken by death. The closest was with Osler, whose guest I was in Baltimore, and with whom I maintained cordial relations to the end. It is something of a memory to me that it was to my ward that Osler paid his last visit to any hospital, less than a week before his death. Then, in 1906, when the British Medical Association held its Annual Meeting in Toronto, I again crossed the Atlantic, and, on the way home, spent a few days with my friend James C. Johnstone in New York, and got a pretty thorough insight into the workings of Cornell. My next visit was in 1920, when, on the invitation of the Carnegie Foundation, I accompanied Sir Humphry Rolleston, Sir Holburt Waring, and Drs. Des Maret and Roussy on a real American tour (of three weeks' duration) of selected universities in New York, Washington, New Orleans, St. Louis, Minneapolis, Chicago, Cleveland, Cincinnati, Ann Arbor, Boston, Philadelphia, and Baltimore. In spring of last year, on the invitation of the Council of Medical Education and Hospitals, a branch of the American Medical Association, I attended their annual conference, and took part in their debates. I may thus claim, I think, to have had rather exceptional opportunities of observing the development of medical education over more than forty years, and, being thoroughly convinced of the importance of the two great English-speaking nations understanding each other better, I feel it my duty to do what little I can to help towards this end. I accept to the full the following quotation from the *Chicago Daily News* (March, 1929): "Good relations between England and the U.S.A. depend on an informed, an impartial, and a critical public opinion."

* Delivered in Glasgow (Sir Donald MacAlister in the chair) and in Aberdeen (Professor Low, Dean of the Faculty of Medicine, in the chair).

BEGINNINGS OF MEDICINE IN THE U.S.A.

It is not possible to realize the present situation without knowing something of the development of medicine in the United States, and I am much indebted to an article by Professor Waite of Western Reserve University, Cleveland, on "The beginnings of medicine in the United States," for the material on which to frame this brief sketch.

The earliest doctors in the States, of course, had their education in Europe, and were graduates of well-known universities, but, as the supply of them was insufficient, the apprenticeship system, then in vogue in this country, was soon introduced. The apprentice was usually bound for seven years, on the mutual understanding that he was to serve his master, and his master was to teach him. When he had served his apprenticeship his teacher gave him a certificate of service and proficiency. This could be registered in a Court of Record, and its owner then became a legally qualified practitioner. Judgement of the proficiency of the apprentices rested solely with the teachers, and, so long as these latter were educated, competent, and appreciated their responsibility, the method worked well enough. Until 1765 there were no medical schools in the Colonies, and, as the number of qualified medical men immigrating bore less and less proportion to the population, the proportion of the apprentice type of doctor increased. Many of these had little proficiency either as scholars or teachers, and the training through apprenticeship steadily deteriorated. The seven-year term was shortened, and the quality of the training depreciated. "By the middle of the eighteenth century American medicine was decadent, a fact which was strikingly apparent in the medical service of the French and Indian war" (Waite). As early as 1735 medical societies began to appear, but these were local and transitory. In 1766 a State Medical Society was organized in New Jersey, and, in 1772, legislation was secured requiring examination and licensure by two judges of the Supreme Court, "with such assistance as they might call." In 1781 the Massachusetts Medical Society was incorporated; its charter empowered it "to examine all candidates for the practice of Physic and Surgery . . . respecting their skill in their profession . . . if found skilled in their profession, and fitted for the practice of it, they shall receive the approbation of the

Society in letters testimonial." The first licence was granted in 1782, the year in which Harvard Medical School was founded. Only the pupils of Fellows and Honorary Members of the Society were admitted to examination, and, in 1789, three years was prescribed as the minimum period of study, and there were enumerated among the studies necessary: Greek, Latin, the principles of geometry, and experimental philosophy. Other New England States followed, and an interesting feature of many of their charters was that they were obliged to describe and point out "such medical instruction or education as they shall judge requisite for the practice of physic and surgery." In other words, they laid down a course of study.

These State societies were, in a way, not unlike the chartered bodies of this country—the Colleges of Physicians and Surgeons, and the Society of Apothecaries. Like the colleges, they were particular about the persons whom they appointed to their governing boards, and they were equally particular about the qualifications of the candidates. They "vetted" the preceptors, and often refused to examine a candidate whose master was not, in their judgement, competent. This delegation of licensure to medical societies was extended and subdivided, so that, in some States, the licence was usually only valid within the political subdivision represented. When a licensee went elsewhere he had to procure a new licence.

About 1825 homœopathy and other sects began to appear; these formed their own medical societies, and, in some States, secured licensing privileges. In their zeal for propaganda it was charged that they lessened the requirements as to length of study under a preceptor, and were content with subscription to the tenets of their sect. The existence of these multiple sectarian medical societies aroused anxiety in the public mind, and, about 1835, legislation began to appear, taking the function of licensure away from the medical societies and placing it under a State Board of Medical Examiners appointed by the Governor. In some States the Governor's choice was restricted to a list of nominations by the medical societies. In many States the statutes stipulated that the Board should contain representatives of each of the several sects, but that no one sect should be in the majority. In their early days the State Boards accepted university degrees as sufficient grounds for licence, but the apprentices were examined; indeed, in comparatively recent years a few States admitted to their State Board examinations almost anybody. But the degree of M.D. was generally the accepted condition, and a definite commercial value came to be associated with it. And so things went on. In many centres the seriousness of the position was recognized, and excellent work was done in the endeavour to improve matters. But the time was not ripe; the necessity for reform had not yet been appreciated by either the public or the profession—things had got to get worse before they got better.

About 1880 came the orgy of organization of proprietary medical schools. In that year there were about 100 so-called medical schools. In 1890 there were 133, in 1900 there were 160, and the peak figure of 166 was reached in 1904. As at this date there were in the rest of the world 174, 47.5 of the total was obviously over-adequate, even for America.

It would be unfair to suggest that all the small medical schools were commercial undertakings. Not a few of them were bona-fide efforts of groups of doctors eager to do their share in the matter of medical education. But their means were insufficient; they could not equip laboratories as they needed to be equipped; they lacked, some of them, any hospital opportunities, and many of them, to their credit, committed suicide in the general interest.

These schools had apparently no difficulty in procuring State charters of incorporation. It is not an easy matter, in this country, to obtain a charter for the foundation of a university, but in those days, in America, the procedure seems to have been simplicity itself. Any State could, and apparently did, grant a charter to almost any group of applicants. There was no supervision of medical studies, and some of the chartered medical schools granted the degree of M.D. after a ludicrously short curriculum. Two sessions could be put into one year. But we must not be too superior. We did the same thing in my student days, when two summer sessions counted for a winter one, and the nominal four years could be done in a little over three years. Under these conditions an amazing number of schools were established. There are records of no fewer than 447, but fortunately they did not all exist at one time, and the careers of many were very brief. As an instance that it is still easy to procure a charter, I take these facts from an official publication of the American Medical Association, February 15th, 1928: "The American Medical University is the successor of the Kansas City College, which was shown to be involved in a diploma mill scandal 1923–25, and its charter was revoked on June 23rd, 1926. The successor got a new charter, and started on its new career on August 9th, 1926."

It then became necessary to repeat the procedure of a century earlier, when medical societies were forced to examine the certified pupils of careless and incompetent preceptors, as a precaution against inefficient training. In the last decades of the nineteenth century, as a precaution against the inefficiency of weak schools, all medical school graduates, as well as those educated under preceptors, were compelled to take the examinations of the State Board of Licensure, and automatic licensure on the diploma was terminated.

The examination of the State Boards was a formidable thing, on paper. It comprised all the subjects of the medical curriculum, and involved some three days spent in answering written papers on these, and was therefore, theoretically, a very severe ordeal. There was no clinical examination. A, to us, curious regulation provided that no examiner on a State Board should be a teacher. The object of this regulation was to prevent a professor in a proprietary school deriving pecuniary advantage from his position of examiner. It is necessary at this stage, in order to make the position clear, to point out the root differences between American methods and ours.

In this country there are twenty-three licensing bodies, whose degrees or diplomas confer on their holder the right of entry to the *Medical Register*. These twenty-three bodies carry out their work under the supervision of the General Medical Council, whose duty it is to certify to the Privy Council that the degrees and diplomas issued are conferred after a course of study and examinations which ensure that their holders have a "sufficient" knowledge of medicine, surgery, and midwifery to enable them to practise medicine "efficiently." The Council gathers the information to enable it to pronounce on the efficiency of the study and examinations by requiring regular returns from all the bodies annually, and by an organized system of inspection and visitation, which is more or less continuously going on. In case of misunderstanding on the other side, it is advisable to be a little more explicit. Of the twenty-three licensing bodies, eight—the three Colleges of Physicians, the Colleges of Surgeons of England and Edinburgh, the Faculty of Physicians and Surgeons of Glasgow, and the Society of Apothecaries and the Apothecaries' Hall, Dublin—are only examining bodies, and do not officially control schools of medicine. The Royal College of Surgeons in Ireland does. On the other hand, there fall to be added the twelve medical schools attached to London hospitals, the three extramural schools in Edinburgh and Glasgow, University College, Dundee (St. Andrews University), and the University Colleges of Cork and Galway (National University), making a total of thirty-three medical schools. As the population of the two countries is about 2.6 to 1, we seem to be almost equally supplied with medical schools.

In the United States quite another system is in operation. There are to-day eighty medical colleges (ten of these only give the first two years of instruction) in the U.S.A., and the degree of none of them carries with it any right to practise or of admission to any official medical register. There is no General Medical Council, and the laws regulating medical practice may vary from State to State. The doctrine of State rights requires every State to lay down its own conditions and regulations for the practice of medicine (or the healing art). Each State has at least one medical licensing board, and, in theory, every-

examination. You will notice that I said at least one medical board, and here lies one of the great differences in medical practice in the two countries. In this country there is no prohibition of medical practice by the unqualified, though there is in the branches of midwifery, dentistry, and venereal diseases. In all the United States there are strict laws prohibiting practice by those who are not somehow officially licensed. There are some who wish we had similar laws in this country, and at one time I was disposed to share that view. A larger experience has shaken that disposition. If, in this country, any crank wishes to practise his own theories, he is free to do so at his own risk, and those who employ him do so at theirs. All the law does is to provide a list—the *Medical Register*—of those who are qualified practitioners. And yet I do not believe there is any country in the world which contains a less proportion of irregular practitioners than ours.

Let us see how the other plan works: I take for the purpose the State of Connecticut, an old-established Eastern State. My information is that there are at least six (probably seven) separate boards of examiners whose licence enables the individual to practise medicine in some form. The Regular (formerly incorrectly called Allopath) Board, the Homœopathic Board, the Eclectic Board, the Osteopathic Board, and separate boards for chiropractic, naturopathy, and drugless healing. It is to be noted that the only branch of medicine—if one may call it so—which can be practised by anyone, anywhere, without any licence, is Christian Science. Each licensee must, in theory, restrict himself to the methods of his sect—for example, a drugless healer who is proved to have made use of any active drug is liable to fine or imprisonment. The index to the *Bulletin* of the Federation of State Boards contains pages of records of such convictions.

I have it on excellent authority that it may be taken that, throughout the States generally, there is one such irregular practitioner to every five regular ones. The education of many of the irregular practitioners leaves much to be desired, and several States, concerned about the situation, have endeavoured to correct it by the introduction of what is called a Basic Science Law, which requires every applicant who desires to practise any branch of the "healing art" to pass an examination in anatomy, physiology, pathology, bacteriology, and diagnosis, after satisfying the Basic Science Board that they have had an education of some sort in these subjects; physics, chemistry, and biology are not covered by the requirements of the examination. Pharmacology is never included, because of homœopathic, chiropractic, drugless healing, and other such doctrines. The aim of the Basic Science Law is to ensure some common standard of knowledge of the underlying medical sciences, common to all branches of the healing art, and they are proposed mostly for States which have several boards of examiners. They are also intended to keep hopelessly irregular practitioners out.

The Basic Science Laws are not looked on with favour by the earnest medical reformers; they give permanent and legal recognition to sub-standard cults, and they impose an undue extra burden on the graduates of Class A schools, who have already passed their examinations in these subjects, and who form 96 per cent. of the successful candidates at State Board examinations. They tend to wreck the working system of reciprocity which existed between many States, and it is a little curious that the free trade—using the word in its ordinary sense—which exists between all the States of the Union, and makes them the largest free trade area in the world, is conspicuously absent in medicine.

It is, however, interesting to learn that the number of cult schools grows steadily less. This is shown in the following table, which gives the numbers of certain such schools in 1920 and 1927 respectively.

	In 1920.	In 1927.
Schools of osteopathy	13	8
Schools of chiropractic	79	40
Schools of naturopathy	20	12

The number of students in the schools of chiropractic has declined notably in the last five or six years.

The Federation of State Boards has recently performed a remarkably courageous action: the Board has done admirable service in the past by prescribing a rather cast-iron curriculum, which has served its day and generation. In the spring of this year it decided to discontinue prescription of a curriculum, and to turn the responsibility of this over to the medical schools, to whom it properly belongs. The standard will be under the direction of the Association of American Medical Colleges, all the members of which are Class A schools.

Early in this century there came a stirring. It is not for me to distribute bouquets; obviously, many minds were thinking in the same direction, and the movement was general. The active spirits of the American Medical Association, of the Association of American Medical Colleges, and of the Federation of State Medical Boards were all thinking hard, and seeking a solution of their problems. They were sapping and mining for an advance.

REFORM.

In 1907 the Council of Medical Education of the American Medical Association made its first official inspection of all the (then 160) medical schools in the U.S.A. The report presented in that year is very interesting reading. It was made by Dr. A. Dean Bevan, and the contrast between it and the corresponding report which I had the pleasure of hearing from the lips of the same man in February, 1928, was quite arresting. It is not given to many reformers to see their labours so fruitfully fulfilled. Dr. Bevan has this year resigned the post, and passed on his chairmanship to Dr. Ray Lyman Wilbur, president of Stanford University. That the choice is a good one is surely emphasized by the fact that President Hoover has appointed Dr. Wilbur Secretary of the Interior in his Cabinet. The Council has been further fortunate in having had as its secretary since 1907 Dr. N. P. Colwell, who can and does answer any question on medical education in the States by return of post or by telegram. A third to whom I am likewise much indebted is Dr. Walter L. Bierring, Hon. M.R.C.P.Ed., who has filled, during all these strenuous years, the important positions of secretary and treasurer of the Federation of State Boards, and editor of the Federation *Bulletin*. It gives me great pleasure to have this opportunity of publicly expressing my indebtedness to these friends.

Continuing my metaphor, it may, I think, justly be said that the blasting powder and the detonator were supplied by Flexner's famous report—*Bulletin* No. 4 of the Carnegie Foundation for the Advancement of Teaching, published in 1910. It gave a mercilessly candid report of the condition of the 140 medical schools then existing in the U.S.A., of which the following will serve as a sample:

"*Entrance Requirement:* Nominal.

"*Attendance:* 9, of which 7 are from x.

"*Teaching Staff:* 27, of whom 26 are professors.

"*Resources Available for Maintenance:* Fees amounting to 1,060 dollars (estimated). £210.

"*Laboratory Facilities:* The School occupies a few neglected rooms on the second floor of a fifty-foot frame building. Its so-called equipment is dirty and disorderly beyond description. Its outfit in Anatomy consists of a small box of bones, and the dried-up fragments of a single cadaver. A few bottles of reagents constitute the Chemical Laboratory. A cold and rusty incubator, a single microscope, and a few unlabelled wet specimens, etc., form the so-called equipment for Pathology and Bacteriology.

"*Clinical Facilities:* There is no dispensary and no access to the County Hospital.

"The School is a disgrace to the State whose laws permit its existence."

And yet the degree conferred was legally as useful as that of Harvard.

GRADING.

The American Medical Association.

It is difficult for us, used for seventy years to our own statutory General Council of Medical Education and Registration, to realize all that has been done in the U.S.A. by a purely voluntary association. It could not have been done in this country. Now and again, with us, a daring journalist publishes statements which he knows may be the subject of legal proceedings. The American Medical Association seems to be doing this all the time, and one can only surmise that the laws of libel in our two

countries are not the same. Listen to this from a speech by Dr. Bevan:

"I remember as well as though it were yesterday, although it was twenty-two years ago, that, when I presented these tables, I said: 'It is evident from a study of the medical schools of this country, and their work, that there are four especially rotten spots which are responsible for most of the bad medical instruction. They are: Illinois with fifteen medical schools, Maryland with eight medical schools, Kentucky with seven medical schools, Tennessee with ten medical schools.'"

In 1906 the American Medical Association took the matter seriously in hand, and in 1907 issued its first list of the existing 160 medical schools, graded alphabetically.

The method of grading took into consideration the following ten points:

1. Showing of graduates before State Board examinations.
2. Requirements and enforcement of satisfactory preliminary education.
3. Character and extent of college curriculum.
4. Medical school buildings.
5. Laboratory facilities and instruction.
6. Dispensary facilities and instruction.
7. Hospital facilities and instruction.
8. Extent to which the first two years are officered by men devoting entire time to teaching, and evidences of original research work.
9. Extent to which the school is conducted for the profit of the Faculty, directly or indirectly, rather than teaching.
10. Libraries, museums, charts, etc.

For each of these ten marks were allotted.

Class A schools, "in good standing," comprised those whose marks were 90–100; Class B, 80–90; C, 70–80; D and E, 50–70; and F, 50 and below.

Classes A, B, and C, totalling 81, obtained over 70 per cent., and were recommended to the State Boards as being "up to standard." Classes D and E, totalling 47, were informed that certain improvements might bring them up to the 70 mark. Class F (32) was apparently beyond redemption. The effects were soon apparent. In 1910 the numbers had dropped from 162 to 131, in 1915 to 96, in 1920 to 85, and in 1925 to 80, at which the figure remains to-day. In 1913 there were graduates from Class A schools numbering 2,539, from Class B schools numbering 1,050, and from Class C schools numbering 392. In 1927 the corresponding figures were 3,798, 117, and 120; and in 1928 they were 4,091, 96, and 75. There are now seventy-two schools in Class A, three in Class B, and five in Class C, but these last are no longer given general recognition by the American Medical Association.

The Council of Medical Education and Hospitals appoints inspectors to "visit" each of these schools, and, on their report, grades the schools annually. A Class A school may, for example, be warned that, unless this or that improvement is made in its arrangements before the next inspection, it will be put in Class B, while a Class B school may be given the hope that, if certain improvements are made, it may mean promotion. The system works very smoothly, and degradation is, to-day, rare.

Before I leave the subject of inspection, the following quotation from Dr. Bevan's address, which I had the pleasure of listening to in February last in Chicago, will be of interest, as showing the spirit in which inspection is offered and taken.

"When we began our first inspection there were seven medical colleges in Louisville, Ky. I received a letter from one of my good friends in Louisville one day, telling me not to come to Louisville, because all the medical schools had agreed not to allow themselves to be inspected by the Council. I wired at once that Dr. Colwell and I were leaving for Louisville that night, and desired to inspect the schools the next day. With true Southern hospitality, they received us, and gave us every opportunity to inspect their schools. They gave us a luncheon at the Pendennis Club. We discussed the subject of consolidating all the medical schools in Louisville into one strong school, which might then secure the united support of the medical profession and the citizens of Louisville, and secure the use of the Louisville Hospital as a hospital for teaching and research; this was finally agreed to and finally carried into effect, so that, to-day, Louisville has a single school much stronger than any of its predecessors, and enjoys the benefit of excellent clinical material. The same story was repeated in many cities of the country."

I think you will agree that the following quotation from an address delivered in October, 1928, by William Lowe Bryan, president of Indiana University, is more trenchant than my modest criticisms.

"An extreme illustration of this, as you know, is to be found in the history of medical education within the past twenty-five years. Something more than twenty-five years ago you saw scores of fraudulent schools, and other scores of schools unforgivably weak, and unable to give proper training for medical practice. You saw the central duty of bringing medical science at its best to the people through rightly trained physicians. You went to war. You inspected schools with relentless thoroughness. You published the worst you found there without mercy. You agreed upon ironclad prescriptions. And then you made lists. The lists did the work. Your black list killed the weak and the fraudulent schools by the score. Within an astonishingly short time you have wrought a revolution in medical education in America, great, and, as we believe, necessary and inevitable."

American educational methods differ so much from ours that it is well to give a brief account of them. There seems to be a general opinion that, take it all round, our primary and secondary school education is rather better than that of the United States; whether, as some assert, this is influenced by the lesser proportion of male teachers in America must be a matter of opinion. The same system of inspection and grading by bodies, not all of which have official authority, extends to the schools, and only candidates from "approved" schools are accepted by the colleges. The requirements of the medical schools have steadily risen. Only a few years ago one year of "college" training sufficed for entry to Grade A medical schools, but for long there had been a movement towards a wider general education. Johns Hopkins began as far back as 1893. Its directors gripped the principle that an adequate general education was the only sure foundation for a sound medical education, and they limited their admissions to those candidates who had had two years of college education. Harvard followed in 1900, Western Reserve in 1901, Rush in 1903, and California in 1905. Then the rate quickened up, and now a two years' college course is a condition of entry to all Class A schools, while a three years' college course, which usually means a degree in arts or science, is a condition of entrance to fourteen medical schools. One of them requires four. This takes our thoughts back to the days when many Scottish students took the old three or four years' course for the M.A. before commencing to study medicine.

At college the student studies biology, chemistry, physics, English, another language (French or German), and mathematics. Some colleges include psychology and sociology in the course.

The next thing a student has to do is to gain admission to a medical school. Most of the American schools now limit their entry to the number that they are satisfied they can efficiently teach. For example, the Western Reserve (Cleveland) medical school had more than a thousand applications in 1927; only 122 were accepted. Of these, 55 held either the B.A. or B.Sc. degree, and one was a Ph.D.

Some staggering figures are given as to the number of applicants, but, like all statistics, these have to be carefully analysed. Knowing the difficulties of gaining admission, the astute applicant does not confine his application to one school. It is apparently common to apply to five or six; one applicant is reported to have put in forty applications—all unsuccessful! This difficulty of admission makes some anxious lest the supply of doctors should become insufficient; but when the figures are analysed—and analysis of figures is a strong point in America—it is seen that the number of rejections is not so very serious. In the academic year 1927–28 23,590 applications were received by the eighty medical schools. Lest you should find this statement incredible, I hasten to add that these applications were made by only 11,282 individuals. Of these, in round figures, 6,500 were accepted (96 per cent. by Class A schools) and 4,500 refused. As some were accepted by more than one of the schools to which they had applied, the actual number of students commencing the study of medicine was materially less than the acceptance figure of 6,500. In 1928–29 the figures were: applications 29,166, applicants 12,537, accepted 7,014, refused 5,523. In 1928 there were 1,363 students registered in England,

Scotland, and Ireland. A table appended to the report of the Education Committee of the General Medical Council for 1928 shows that about a quarter of the practitioners registered in 1927 had not been registered as students, and, assuming a similar proportion of our existing students are not registered, we should arrive at a figure of nearly 1,700. There are, therefore, three and three-quarter times as many entrants in the United States as in this country, and the population is roughly 2.6 to 1.

Having obtained admission to the medical department of a university, the student, under the name of "Freshman," commences the study of medicine proper with anatomy and physiology. As a "Sophomore" he continues these studies in his second year, and, in addition, commences the study of bacteriology, pathology, and pharmacology—the laboratory subjects. It is the general rule that, during these two years, the student does no clinical work, but a tendency (described as infiltration) to introduce this earlier is growing, and short courses, very well organized, are established to relate these fundamental subjects to medicine and surgery. Other schools are extending the laboratory courses into the third and fourth years. Some regard the early approach to clinical work with misgiving. "It is becoming more difficult to secure instructors who have the proper idea as to medical education. Many do not appreciate the relative importance of their special subjects, nor the reasons why these have been included in the curriculum."

In his third year, under the designation of "Junior," the student usually begins clinical work, and this and the next year are devoted to a very highly organized—possibly too highly organized—scheme of study.

Here I digress to say something about the examination system of the American universities. Our students might receive, at first with jubilation, the news that there are in America no professional examinations like ours, where a stranger sits on the other side of the table with their professor, and there is even a chance of a "visitor" from the General Medical Council dropping in to listen. But let them not be too envious. Americans aim at something quite different from our system: an elaborate system of card indexing keeps the student's work constantly under the eye of his teacher; class examinations are frequent, and a final or terminal examination is held by the professor and his staff at the end of each year. Not much patience is shown with the slacker, and there are no "chronics" in up-to-date American universities. If a student's work has not been satisfactory he receives a warning, and if his work in the subsequent term does not show marked improvement he is "honourably dismissed." In the old days, when there were 160 odd schools available, this was perhaps not a very serious matter, as he could go to another school. But now that nearly all the schools are Grade A, and all practise this same plan, and as the intercommunication between universities regarding students is carried to the "nth" degree, it has become a very serious matter to be dismissed. There is some apprehension lest a few of those students who have recently applied for admission to British universities may be of this category.

The examinations are thus intra-university affairs, and the system of having an external examiner, which is general in this country, is not in evidence in the United States. One reason for this is that a degree carries with it no right of registration, as we call it in this country, or licensure, as it is called in the States. The candidate who desires to practise in a particular State has to make application to the State Medical Board, the only body which can give him the right to practise. These make their own conditions, and there is a growing tendency—a rapidly growing tendency—to require that each applicant for admission to the State examination must have not only a degree from an approved university, but evidence of having served for one year as an "intern." The "intern" year is an interesting recent development in American medical education. The credit for introducing it belongs to the State of Pennsylvania, whose State Medical Board made it a condition of licence in 1909. The University of Minnesota made it a condition of graduation in 1910. Eleven colleges now require it before they confer their degree, and fourteen States make it a condition of licensure.

We are, of course, familiar with the fact that most of our graduates realize the value of a period of residence in a hospital, and the competition for these posts is keen. But it is commonly urged that it would be impossible to introduce the American plan in this country owing to the relatively small number of such posts. Similar arguments were, I have no doubt, advanced in America, but the experiment was made, and it is now recorded that, of the graduates of last year, about 95 per cent. had held posts as "interns." It is not only that there is a large number of hospitals in America, but they, too, fall under the grading system. A special committee of the American Medical Association grades the hospitals, and as one of the conditions required for the upper grades is that there must be a definite proportion of "interns," this apparent difficulty melts away. The post is not quite the same as that of our house-physicians or surgeons, but generally that of an assistant house-physician or surgeon, or a resident clinical clerk, while some universities accept a year's work in a laboratory as equivalent. That there is room in this country for more residents, and, not least, in our smaller hospitals, hardly requires argument, and I for one should like to see the benefit reaped by the American hospitals, and the American public, who are thereby provided with better trained doctors, extended in this country. Adding all these requirements together, it will be seen that the average American doctor has to go through a seven years' curriculum: two in a college doing the pre-medical subjects, four in a medical school, and one as a resident in a hospital. It is little wonder that his age on graduation is about 27.

This prolonged curriculum is giving rise to some apprehension that it may discourage suitable candidates from studying medicine, and there is considerable uneasiness lest the desire to improve medical education should lead in a direction which may not be in the public interest. There are apprehensions that the improved and prolonged education now demanded may bring the supply of doctors below the public demand for medical service—especially in rural areas. It is true that, in the States, as in other industrial countries, the move from country to town affects also the doctors, and that many villages, which used to have a resident doctor, no longer have one. But there are compensations: the telephone, the motor car, and the excellent roads so increasingly numerous, bring doctor and patient nearer together; ten miles in a buggy is much more than twenty-five miles in a car, and the telephone, by taking the place of the messenger, cuts a big slice off the time the doctor takes to reach the patient. And if, added to these advantages, the doctor is more capable, better trained than his predecessor, surely the advantages of the changes outweigh the disadvantages. This uneasiness is voiced by one of the best known and most respected of American teachers, William J. Mayo, who, in an article entitled "The aim and ideals of the American Medical Association" (*Proceedings of the Mayo Clinic*, July 11th, 1928), directs attention to the fact that the average age of graduation in medicine in the U.S.A. is around twenty-seven years, and that consequently many bright men are being drawn into other professions. He makes some flattering comparisons with the graduates of Edinburgh, where the average age at graduation is about three years less, and he makes two suggestions which I give in his own words:

> "I do not advocate a letting down of standards in our medical schools, but I am convinced that one year of time could be saved in our grammar schools, and a year could be saved in our medical schools by the Four Quarter System. That children in the growing age have three months' vacation in the summer is no reason that young men and women, at the height of their physical vigour, in a world on a twelve-months' working basis, should have three months' vacation."

Under the Four Quarter System the work of any three consecutive quarters constitutes a college year. This would not be permissible under the laws of seventeen States, including New York and Pennsylvania, but the opinion is expressed in the *Federation Bulletin* that, eventually, all

State laws may be so modified as to permit medical students to save this year of valuable time, if they are physically and educationally fit to do so. This is surely significant of a trend in this direction.

In some schools classes go on continuously, a procedure which is facilitated by the very large staffs attached to all the departments. A student can thus put in the requisite number of terms in three years. It is not a method which commends itself to me. I do think, and I have often said, that the holidays which our senior students get are too long, but to expect a man to work at high pressure for three years, with only a month off in each, seems a severe tax on his physique, mental and bodily. Further, I think all experienced teachers will agree that the longer the period over which a subject is studied, the more likely is it to make a lasting mark upon the student's mind. I think, however, we might very well consider the American plan, in so far as it makes teaching, and particularly hospital teaching, available all the year round. It seems to an outsider that it is the strictness of entry, an excellent thing in many ways, which is responsible for the length of the American curriculum. The most recent modification of the Four Quarter System is more merciful. Under it each calendar year is divided into four terms of eleven weeks each, thus leaving eight weeks in the year for vacation.

The National Board.

Even the most superficial student of American politics must make himself acquainted with the democratic doctrine of State rights. In certain matters—and the practice of medicine is one of these—every State is a sovereign authority, and can make any laws it likes. For example: a practitioner licensed to practise in New York is acting illegally if he practises (without a New Jersey licence) in New Jersey, just across the river, and so all over the country. A would-be practitioner must be licensed by the Board of the State in which he wishes to practise.

The drawbacks were recognized and deplored, but the very idea of Federal interference is abhorrent to the State right diehard. Between some States there was established a plan of reciprocity under which each recognized the other's licence; but there was no general arrangement, and some States sternly maintained that it was the duty of each State to satisfy *itself* of the fitness of a medical practitioner to treat *its citizens*. And I have described to you the pretty job they made of it. As the population of the States grew, as communications multiplied, and as the American is more migratory in his habits than any other race, the inconveniences were more and more realized, but the solution was long delayed for America. In 1915 the late Dr. W. L. Rodman of Philadelphia, then President of the American Medical Association, launched the movement which culminated in the establishment of "The National Board of Medical Examiners of the United States," one of the most interesting recent developments in connexion with medicine in the States. The fact that the State Board examinations only give practice rights within their own boundaries, the fact that teachers of any medical subject were specifically excluded from membership of the examining boards, and the fact that candidates were examined (in perhaps three days) in every branch of medicine, directed the attention of those who were looking for improvements to a possible better way. The Board began its operations in 1916 with the purpose of establishing "a standard, qualifying examination, which could be safely accepted by all State Boards of Medical Licensure as an adequate qualification." It was chartered in 1922, under the laws of the District of Columbia. It is an unofficial body, and yet has a semi-official aspect, for the Surgeons-General of the three public services—Public Health, Army, and Navy—not only are members, but each carries with him to the Board an assessor. Among the other fifteen members of the Board, who are chosen by a method of co-option, there are at present two professors of medicine, two of surgery, and two of obstetrics, and one each of biological chemistry, physiology, and pathology. The remaining members are connected either with a university or with the Federation of State Medical Boards.

When Sir Humphry Rolleston, Sir Holburt Waring, and I visited this examination in Philadelphia in 1920, the old traditions of the State Licensing Board examination still lingered, and candidates were examined, in less than a week, in all the subjects of the medical curriculum. Partly, we like to think, owing to our friendly criticism, a better method now exists. The student who has successfully completed the first two years of work in a Class A medical school may then sit for Part 1 of the examination, which includes anatomy, physiology, physiological chemistry, general pathology, bacteriology, and materia medica and pharmacology. Part 2 of the examination, which consists of medicine, surgery, obstetrics, and medical jurisprudence, is taken at the end of the fourth year; and Part 3, clinical medicine and its branches, clinical surgery and its branches, obstetrics and gynaecology, and public health, is taken after the candidate has rendered satisfactory service as "intern" for one year in an accepted hospital or laboratory. The Board holds examinations for Parts 1 and 2 simultaneously in all Class A schools of the United States, provided five candidates are forthcoming, and the examination in Part 3 is held in eighteen different medical centres, so selected as to be reasonably accessible to all candidates. The figure laid down as the pass mark in these examinations is, to our ideas, placed fantastically high at 75 per cent. of the marks of each part of the examination, and a mark below 60 per cent. in any one subject involves failure. Having had the good fortune to be present on one occasion when the marks were considered, I can testify to the care with which they are estimated. And every examiner knows that it does not matter very much what numerical figure is put on the pass mark.

The fees for admission to the examinations seem to be based on Old rather than on New World standards: the registration fee is $5, the fee for Part 1 $10, for Part 2 $15, and for Part 3, which carries with it the diploma, $45, making a total of $75—about £15 15s.

So successfully has the plan been received that the National Board's certificate is now recognized by the licensing authorities of thirty-seven States and Territories, and the medical boards of most of the remaining plan to recognize the National Board as soon as their laws can be suitably amended. The Board's certificate is accepted by the U.S. Army and U.S. Public Health Services as the scientific qualification for admission to the medical corps of each of these services. Admission to the Navy is determined by an annual competitive examination. The diploma is becoming increasingly popular in the States. In 1922 only 20 passed; in the year 1927, 450 passed Part 1, 315 Part 2, and 270 Part 3, and obtained the diploma.

This recognition is not confined to the United States: diplomates of the National Board are admitted to the final examinations of the English Conjoint and the Scottish Triple Qualification Boards, and, in return, the National Board admits to Part 3, its final examination, the diplomates of these boards. It is interesting to learn that the Spanish authorities now admit diplomates of the National Board directly to their revalidating examination.

The privilege of admission to the final examination is not at present directly available to our university graduates. There is, however, a way round for those of them who may desire to practise in the States. The three Scottish medical corporations, when they combined to give the triple qualification, surrendered all claims for the recognition of their single licences as admitting to the *Medical Register*. They retained, however, their right to confer them on any suitable candidate whose name was already on the *Medical Register*. Thus, one of your graduates who desires to practise in the United States will be well advised to add to the letters M.B., Ch.B., the L.R.C.P., L.R.C.S., or L.R.F.P.S.

The advantages enjoyed by the diplomates of the National Board have stimulated other forms of effort to achieve the same end. When there were 167 schools, each its own judge of its own merits, the State Boards already mentioned examined everyone who desired to practise within their confines. Now that the standing of all the regular medical schools can be easily ascertained, a practitioner who is a graduate of a good school, and is licensed in his own State, can get a licence in a second State by having his credentials "endorsed" by the second State, without examination. For the man who is satisfied with

one move—and most of us are—this endorsement suffices; to the more restless spirits, and there are a good many of them in America, the roving commission of the National Board, which runs in thirty-seven States, makes a stronger appeal.

This seems an appropriate place at which to quote from the address of Dr. Platter, President of the Federation of State Boards, delivered in February of this year.

"Legislation is an American disease. Our greatest fault lies in strenuous efforts for new legislation, which is supposed to work automatically to relieve or cure a bad situation.

"I have an opinion that we are at the parting of the ways; either we must present a united front with a carefully considered and thought-out programme for general enforcement, or . . . we should quit deluding ourselves and fooling the public and profession, and embrace the British system of licensure. For the present, I prefer to be enrolled in the first group; we should have a Medical Practice Act Model capable of universal adoption . . . it will take perhaps five years to determine the results to be obtained by such procedure. If, at the end of that time, substantial progress has not been made, then I should unhesitatingly recommend that we busy ourselves with the improvement in medical education, and endeavour to have legal recognition given only to those holding proper educational qualifications, and permit the unprepared, the fakir, and the charlatan to practise to their heart's content, restricting them only in that they will have no legal recognition. These are the problems which I believe concern us. I offer you two solutions. The first is in line with the duties imposed upon us when laws creating Boards of Licensure were enacted, and may be characterized as the American 'ideal.' The second closely follows the British system, and may be characterized as 'practical.'"

Not the least difficult part of an address such as this is its conclusion. I have given you a rapid survey of the position in the United States, and from it you can appreciate the differences in methods. Last year, in Chicago, it was suggested to me that I might draw a comparison between the methods of our two countries. I declined then, and I do not propose to do it now. In February, 1928, I described our methods to an American audience and left it to draw its own conclusions; to-day I have endeavoured, to the best of my ability, to describe them to you, and I commend them to your very careful study. There is much that is good in the methods of both countries, and each can learn much from each other. There are some who think that our American friends are too fond of experiments, and suggest that they too often pull up the seedlings to see how they are getting on. Well, perhaps it is true that the Americans, as a nation, are more ready to make experiments than those of older civilizations, but, after all, this is the privilege of youth, and the less adventurous may derive much benefit from the ventures of the more daring. Co-ordination, co-operation, unification, simplification, rationalization, are the slogans of industry to-day, and they have undoubtedly influenced the reform of medical education in the States. There is a freedom in, and there are opportunities for, discussion which are less frequent here. Every year those interested meet in Chicago for three days to exchange views and discuss new proposals. One evening last February I had the pleasure and interest of dining with the deans of twenty-three medical schools, who had come from all over the States, and Canada. I commend the example to our deans.

When, a few minutes ago, I made a passing reference to the prophet Ezekiel, I was conscious that some of you might scent something of a fallacy. I refer the doubters to their Bibles. In the valley of Ezekiel's vision the bones were very many, like the American schools of medicine in 1900, and they were, metaphorically, very dry. Following Ezekiel's first prophecy, which may be compared with the various reports, there came a noise and a shaking, and the bones came together bone to bone, and then the sinews attached themselves to their proper origins and insertions; later, the flesh came upon them; and last, the skin covered them. "But there was no breath in them." An unfriendly critic might overdo that point, and say that the American schools are too uniform, show too much evidence of mass production, and are too mechanical. But Ezekiel had a second prophecy: he prophesied unto the wind, *and the breath came into them.* There is ample evidence to-day that the breath of freedom is stirring in American medical schools. They are striving for the freedom to try, each in its own way, other methods, some of them new, and some of them old. It will stimulate a healthy upward competition among their schools, all or almost all of them to-day excellent, towards yet higher levels.

THE PLACE OF HUMAN PHYSIOLOGY IN THE TRAINING OF MEDICAL STUDENTS.*

BY

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THE MEANING OF HUMAN PHYSIOLOGY.

In a lecture delivered before the Harvey Society in New York in 1916 Professor J. S. Haldane of Oxford said: "Medicine needs a new physiology which will teach what health really means, and how it maintains itself under the ordinarily varying conditions of the environment." It would be difficult to frame a better explanation than this of what is meant by human physiology; and the selection of this subject for discussion indicates that a serious attempt has been made to provide such a new physiology.

For half a century before that date physiology had been progressing actively, stimulated by the desire to account for activities of living organs in terms of physics and chemistry. Great strides were made in demonstrating the functions of organs, in determining the mechanism of their action, and in analysing the mechanism in terms of physics and chemistry. These advances in what may be termed "analytical physiology" were the result of experiments on isolated animal organs, by means of which the variables could be eliminated and causal factors studied under carefully controlled conditions. Their effect was to indicate the possible functions of an organ and the causes of its activities. The probable functions of human organs and the probable causes of the activities of these organs in the living body were then deduced. To take a few simple examples: the capacity of such an organ as a salivary gland to secrete a juice of importance in digestion was demonstrated, the conditions of its blood supply necessary for successful secretion were defined, stimuli capable of causing this secretion were discovered, and it was shown that these acted through the nervous system. It was inferred from observations in the human being that the human salivary glands secreted their juices in response to similar stimuli and for a like purpose. The contractions of muscles were shown to be the result of certain stimuli conducted to the muscles by nerves, the physical and chemical phenomena coincident with the activities of the muscles and nerves were seen to be essential, the energy requirements of these experiments were quantitated, and their sources defined. The order of events in the beat of the heart was elucidated, and the dependence of each event on those preceding was demonstrated. The paths of excretion of the waste products were discovered. The characters of the blood, and the variations found in healthy individuals, were defined.

The new phase in thought and in investigation in physiology turns on the meaning and implications of "normal." The human body is exposed to the ever-varying conditions of the environment, and is constantly adjusting itself to them. So long as it maintains its

* Read in opening a discussion in the Section of Physiology and Biochemistry at the Annual Meeting of the British Medical Association, Manchester, 1929.

efficiency under these varying conditions and adjustments it is considered to be in health and to be normal. Health and normality are not therefore strictly definable, but indicate a wide range of bodily activity. Within this range no single organ maintains a fixed and rigid condition, but is constantly active to maintain its part in the functioning whole and constantly altering its activities in co-operation with the other organs of the body in response to the ever-changing conditions imposed from without by the environment. Certain features of the body seem to be relatively constant within the limits of health, while others show more variability. The body temperature, the hydrogen-ion concentration and salt concentration of the blood are relatively fixed. The frequency of the heart beat, the respiratory activity, and the composition of the urine vary to a much greater extent. The older physiology told us little of how in the ever-changing conditions of human life these relative constants are maintained, and of how the various organs of the body co-operate to effect this. It told us much of the possibilities of the organs to act in this way, and how these activities can be brought into play. It has given the clues for the newer physiology, for human physiology, for the study of the human body in health; and so for the recognition of the points at which these adjustments may fail. When they fail, inefficiency results and symptoms appear. As an example of this conception I should like to quote an experiment that brought home to me the range of adjustment compatible with health and the ultimate appearance of symptoms under excessive stress.

We had the opportunity of making careful observations on a healthy man of the effects of the administration of an acid in the form of ammonium chloride. By increased breathing, by increased urinary output, and at the expense of a lowering of the carbon dioxide carrying power of the blood, adjustment was at first successful in maintaining apparently healthy conditions. With an increase in the dose of ammonium chloride, however, the adjustments failed to maintain efficiency, and symptoms appeared. The increased breathing became such that dyspnoea resulted, the frequent micturition and the thirst became a burden, and nervous irritability and restlessness appeared. At the same time the carbon dioxide carrying power of the blood dropped below the limits of the accepted normal, the hydrogen-ion concentration became definitely altered, and the rise of haemoglobin indicated definite loss of water beyond the limits usual in health. No observations were made on the circulation and the digestive system, but I have no doubt that they also shared in the general adjustment and ultimate derangement, every organ and system of the body doing its best to co-operate in reducing to a minimum the effect of this simple, though artificially produced, alteration in the conditions of life.

In the last ten years much progress has been made in extending the knowledge of the physiology of the living body. There have been valuable advances in the physiology of respiration, of the circulation, of renal secretion, of the nervous system, of general metabolism, and in the chemistry of the blood, and there has been important advance in the knowledge of how each system depends for its successful functioning on the others, and of the ways in which disturbances in one system react on the others.

THE NEED FOR INSTRUCTION IN HUMAN PHYSIOLOGY.

That there is now sufficient knowledge of human physiology to enable instruction to be given to medical students needs no further discussion, and many simple experiments suitable for practical class work in human physiology have been devised.* I believe that there can be no doubt in the minds of any that it is desirable that such instruction should be given and such practical work carried out as part of the training of medical men. In the practice of his profession the medical man must decide first of all in what manner and to what extent the functions and structures of the body and its organs are disturbed, in what particulars the adjustments for maintaining health have failed. He must then decide what external factor has caused this departure from the healthy state. If possible he must remove it, but more frequently he can only aid the body in its attempts at adjustment, and by so aiding it enable it to return to the state of co-operative functioning and efficiency that is called health. Surely, then, it is of the utmost importance that he should understand the means of adjustment that have failed, in order that he may co-operate with them in the therapeutic measures he employs.

If textbooks are any indication, the practice of medicine has so far consisted to a large extent in the recognition that certain groupings of symptoms or syndromes are indicative of certain disease processes, which must then be treated according to certain methods that have been found effective. We know, of course, that the textbooks of medicine do not reflect fairly the best practice of medicine, but they do probably indicate the prevalent methods of practice. The conclusion must be that in the practice of medicine the individual patient is not studied as carefully as he might be, and that there is too great a tendency to try to fit his signs and symptoms into one or other of the labelled syndromes or clinical pictures, and to treat accordingly. The need for the study of each individual patient was demonstrated in the war. The shock or loss of blood that resulted from a wound was frequently so great that the normal mechanisms for maintaining life were not sufficient unless help was forthcoming. The medical men did not know these normal mechanisms, nor how to help them; the physiologists did not know either; and much new work had to be done before they were able to devise effective methods of treatment. The changes consequent on gassing found most medical men and physiologists in a similar position of having to investigate along the lines of human physiology before deciding on the treatment to be adopted.

In several medical schools, to my knowledge, instruction in human physiology is given, and I have no doubt that it is so in all schools, while many are endeavouring to give it to an increasing extent. That it should enter into the training of every medical student is probably conceded, but I find that it is the almost unanimous opinion of clinical teachers that the student is not properly equipped in knowledge of physiology when he commences his clinical studies. This complaint from clinicians was readily understandable when the instruction was based on experimental work on isolated animal organs, for it is human physiology that is required at the bedside, and clinicians have always acquired some, if rather scrappy, knowledge of this from their observations on the countless experiments performed by Nature on the patients in their wards, and have learned to seek for an understanding of physiology somewhat different from that provided for the student in the preclinical years. There should have been less ground for complaint recently, and I think there has been since human physiology has been included in the courses of instruction that the student receives before entering on his clinical years.

Place in the Curriculum.

What is the best time for this instruction to be given? It would appear rational that the student should be as fully equipped as possible in the knowledge of the structure and functions of the healthy body before commencing the clinical years in which he studies patients, individuals who are inefficient because the processes of adaptation and adjustment have not been adequate. But the question is not solved so easily. It is difficult to present the methods by which health is maintained, and their limitations, without instancing the ways in which the methods may fail, and it is still more difficult for the student to grasp their importance without the appreciation of the results of their failure. A similar difficulty is seen in the teaching of anatomy, and the failure to solve this difficulty may be one of the reasons why physiology is so often laid aside by the student when he enters the wards. Human physiology must surely be taught while the student is working in the wards, and observing for himself the examples of how ill health is brought about. At present in many schools a combination of these two methods is in operation. The simpler conceptions are presented in the preclinical years, so that the student may appreciate what is meant by the physiology of the human being and have a few examples of the processes of adjustment in greater detail, and the applications of these conceptions are then observed by him

* See *Human Physiology*, by Douglas and Priestley, Oxford, 1924.

under the guidance of a clinician. Unfortunately in most instances the clinical teacher is unable to keep abreast with the advances in physiology, and is quite incapable of guiding the student along the lines that his preclinical training has opened up and prepared. This is, of course, not always the case; but it is so common that it is necessary to supplement the clinical teaching with courses of lectures in clinical applied physiology in the final years. Such lectures are useful, but are far from ideal, since they suggest that the subject cannot be dealt with at the bedside or is something other than an essential part of the practice of medicine.

By whom should the Instruction be given?

There are large gaps in our knowledge of human physiology, and the subject is so incomplete by itself that it cannot be separated from animal physiology and the physiology of organs. It is not a good educational instrument if so separated. It is therefore not advisable to alter to any great extent the courses of physiology as at present constituted, for the purpose of the preclinical years is not only to give instruction in what is to be of practical value, but also to train the mind in the meaning of biological actions and reactions, in the appreciation of accuracy, in the value of quantitation, and in the meaning of controlled observations. The courses in physiology are given at a critical period in the training of a medical man, and their educational value is of more importance in his career than any detailed facts that may be presented to him, even if perchance these can be retained in his memory for subsequent use. It is advisable, therefore, that human physiology should be taught in the preclinical years only so far as it can be fitted into a subject that must be regarded primarily as an instrument for an education in science. It is advisable, however, that every opportunity should be taken by the teacher in physiology to indicate the human or clinical applications of his science.

The head of the department of physiology in every medical school should be so eminent in his subject that it is impossible for him to have devoted much time to the careful observation of diseased persons. To recognize with clarity in any patient the points at which the intricate web of adjustments has failed is a matter of great difficulty, even for skilled clinical observers of extensive experience, so that it is obviously impossible to expect the successful physiologist to do this except in the very limited number of symptoms that have been satisfactorily investigated in human subjects. The clinician, on the other hand, can have but a hazy knowledge of the adjustments that have broken down, but he can indicate the symptoms that result from the failure and the way in which their breakdown causes inefficiency, and he can also, with the help of the pathologist, indicate the factors of interference from without that have proved too great for the individual, and perhaps also how the restoration to a healthy state may be brought about. For example, the physiologist can instruct the student in the parts played by the heart, the vasomotor system, and the respiration in the maintenance of a circulation adequate to the needs of the body; he can guide him in observations on how the rate of beating of the heart alters with exertion; and he can demonstrate Starling's law of the heart on a heart-lung preparation. On entering the wards the student meets with cases of heart failure which he recognizes by the dyspnoea, cyanosis, and oedema, and he sees that they recover with rest and perhaps digitalis and diuretics. There is no apparent connexion between his physiological training and the clinical skill of the physician whose practice he studies, and he allows physiology to slip out of thought and memory.

If the physiologist could have given point to his instruction by examples of patients who have adapted and adjusted, in spite of a damaged heart, so that economic efficiency can be maintained—some with an altered distribution of blood that gives rise to recognizable signs on physical examination of the heart, lungs, or liver, others with clearly defined capacities limited by pain on exertion—and by examples of the more advanced forms of congestive failure that follow later, the student would see the importance of the physiological adjustments and not forget them. If the physician would trace in the history of his patient the gradual breakdown of the physiological adjustments with the successive appearance of the signs and symptoms so that the student could appreciate where and how the adjustments had failed, the student would see in every patient a wonderful problem in treatment and appreciate just how far his patient can be restored to health and to what extent the symptoms and signs are indicative of permanent and progressing damage, and he would understand how the practice of medicine depends on human physiology. Instead of forgetting what he had learned, he would study it afresh that he might understand the practice of medicine. Similar examples could be cited in the practice of surgery.

At present, then, this subject, which is so important in the training of a medical man, cannot be taught satisfactorily by the physiologist alone, and probably never will be taught satisfactorily by clinicians alone, but should be presented by both, so that its full value, for both educational and utilitarian purposes, may be obtained—not by the two separately, but by the close co-operation of each.

THE NEED FOR INVESTIGATIONS.

Investigations in human physiology at the medical schools are desirable, not only for their obvious value in increasing knowledge, but also because any subject of instruction becomes dry and lifeless unless the teachers are also investigators.

The arguments for co-operation by physiologist and clinician apply even more clearly when the need for investigations in human physiology is considered. It is the clinician who sees the experiments that Nature performs; he alone can have the necessary experience to relate cause and effect and eliminate the accidental and coincident, and he alone has the skill to recognize many of the signs and symptoms of altered structure or function. But he knows little of the methods of investigation, and he has not sufficient knowledge to utilize the clues provided by the enormous amount of animal experimentation that has been performed already. The history of the development of knowledge in such subjects—to take a few obvious examples—as carbohydrate metabolism, internal secretions, cerebral localization, the control of the peripheral circulation, calcium metabolism and its relation to bone formation and to tetany, points in the same direction, since in none of these subjects could the present state of knowledge have been reached unless the physiologist had helped the clinician and the clinician the physiologist. Not only, then, for the teaching of human physiology, but also for the encouragement of investigations in human physiology, it is important to have co-operation between the physiologist and the clinician. The introduction to the report of the Medical Research Committee for 1918 contains the following:

> "It has often been pointed out that in England the work of the physiologist has been too divorced from practical medicine, and that the British school of physiology, which by the admission of other nations stands second to none elsewhere, has not been brought in this country into due contribution to the work of the physician and surgeon. No doubt this is true, and mainly perhaps because of the defects in our systems of medical education, which have allowed the physiologist to remain too much in academic retreat and the clinician too far from the laboratory and its methods."

In the ten years since that was written far too little has been done to correct the fault, but the time has not been wasted if it has resulted in the general acceptance of the truth of the contention.

CO-OPERATION BY PHYSIOLOGIST AND CLINICIAN.

How this co-operation can best be brought about must depend largely on the local conditions at each medical school. It is rare in this country to find a department of physiology that is not in a different building from the wards, and not separated from the wards by such a distance that some degree of determination is required before a member of the staff of one department will visit the other. In the newer medical schools in the United States an attempt to overcome this drawback is being made by designing school and hospital together, the department of physiology being above or below the wards, or else on the same level as the medical wards and in direct connexion

with them. Contiguity may help, but cannot solve the difficulty. The appointment of young clinicians as demonstrators in the department of physiology during the period of their graduate training must surely result in time in the clinicians of the teaching school being appreciative of the importance of human physiology in the teaching of the practice of medicine, but it cannot ensure that they will have the time to keep in touch with the advances in physiology, nor that they will be able to investigate problems in human physiology. Even if the staffs of the clinical departments include men who are free from the necessity of devoting their time primarily to practice outside the hospital, and who have facilities for investigations in laboratories in association with the wards and under the guidance of experienced clinicians, the work is not as fruitful as it might be unless the help and guidance of an experienced physiologist are available. Undoubtedly much may be done by the appointment of young clinicians to posts in the department of physiology and by the appointment to clinical posts of men trained in physiology, or by the appointment of the same men to half-time posts in each department. The successful teaching of human physiology and the successful investigation of problems in human physiology must in the long run, however, depend on co-operation by the heads of the clinical departments with the head of the department of physiology, and if this is obtained the desired attitude on the part of the junior members of their staffs is certain to follow. Such co-operation can be obtained only if the clinician is free from the necessity of earning the major part of his income outside the medical school and hospital, and if for the physiologist the burden of teaching and administration that in most schools exhausts his time and energies is made lighter.

POINTS FOR DISCUSSION.

There is little need for discussion on the meaning of human physiology, and on its importance in the training of medical students. There is much need for the exchange of views on the time in the curriculum at which it should be taught, and on the most suitable person or persons to teach it. It is most important, I believe, at this time that there should be discussion as to the practical steps to be taken so that human physiology may be efficiently taught and so that investigations in human physiology may be encouraged under conditions conducive to their successful outcome and to the increase of knowledge.

The Profession of Medicine.

INTRODUCTORY.

THE main purpose of this Educational Number of the *British Medical Journal* is to give prospective students and their parents full information about the steps that must be taken and the studies that must be pursued in order to become a registered medical practitioner. It is intended also to serve as a kind of guidebook for those wishing to know what a medical career has to offer, and for others who, having already chosen medicine as their life-work, or having entered upon it, are uncertain about the line of work for which they are best suited. As in past years, this introductory article gives an opportunity to review some aspects and tendencies of medical study and practice, in order to put the situation as we see it before those who think of devoting themselves to medicine, and thus help them to gauge their fitness for the calling and the prospects it holds out.

Intending students will find in the pages that follow an account of the course of training required of them, the places where it can be obtained, and the universities and other licensing bodies which test the knowledge gained and confer degrees or diplomas entitling successful candidates to become legally qualified medical practitioners. Sections are included also on post-graduate medical study, on the higher qualifications, both general and special, and on the many and varied spheres of professional work open to registered medical men and women at home and abroad. The details given are founded for the most part on official information, and are arranged along the customary lines.

GROUNDWORK OF MEDICAL STUDY.

The aim of a medical school should be to teach, not only the essentials of medicine, but also the right principles and methods of adding to knowledge after qualification. Such teaching, to be effective, presupposes a good general education. Next in importance is a good scientific education—a thorough grounding in the basic principles of science. Upon these the student of ordinary intelligence and industry can build up an adequate technical equipment for the practice of his profession. Medicine is an art founded on science, from which it follows that a real training is needed in science and the scientific spirit. An unfortunate tendency of the present system of teaching the preliminary subjects is to produce a temporary "cram" knowledge which is quickly forgotten after the particular examination is passed. This is not how the basic sciences should be studied. These sciences interlock with each other and with the later subjects, and, properly approached, they give a drilling in exact methods, in precise manipulations, and in vigorous reasoning which will bear immediate fruit in the clinical part of the curriculum and prove of benefit throughout professional life. A sound training in medicine seeks to raise on scientific principles a firm edifice of practical knowledge and skill. Students who hold fast to this idea will regard "cram work" as a weakness in the foundations, and therefore as a hidden danger to the superstructure. Chemistry, physics, and elementary biology prepare the way for anatomy and physiology, and so for medicine and surgery and obstetrics. Changes in the details of the curriculum are needed from time to time, but all authorities are agreed that these preliminary and intermediate sciences form the only appropriate introduction to the study of clinical medicine. The great John Hunter "studied anatomy and physiology to get help in diagnosing and treating his patients. He studied dead things to understand the living, and observed living things to understand the dead. A knowledge of how this body is made and how it works must provide the basis for all the more practical subjects of medicine."

PORTALS OF THE PROFESSION.

The obvious goal of every student is the entry of his name in the *Medical Register*, which is the official statutory list of qualified medical practitioners kept by the General Medical Council. Those who are not acquainted with the system of medical teaching and examination in these islands, and with the history of our professional institutions, may well feel bewildered at the number and variety of ways in which admission can be obtained to the *Register*. They will see in the table of contents to this Educational Number that there are no fewer than twenty-seven bodies—eighteen universities and nine corporations—which either separately or jointly issue registrable qualifications; and the number of teaching institutions is even larger. Nevertheless, although we have no single State examination in medicine—no "one portal system," as it has been termed—the medical courses of the various universities and schools in Great Britain and Ireland run on parallel lines, and the obligatory curriculum is much the same for all students. As, however, the individual teaching and examining bodies

have different standards and requirements, the choice should be made early, so that a definite plan may be followed.

If possible the decision to study for a university degree in medicine should be made by the time a boy or girl is 15. A matriculation examination or its equivalent should be attempted without delay, and the parent should ensure that the special requirements of the medical faculty of the selected university are fulfilled. As soon as this examination is disposed of work should be begun at school in the subjects of the First M.B. Few house-masters at public schools seem to be adequately informed about medical requirements under the revised curriculum, and it is doubtful if all schools are fully competent to meet the varying requirements of different authorities. It therefore behoves parents to make inquiries on their own account in order that valuable time may not be wasted during the last year or two at school. This applies to all prospective medical students, but with special force to those seeking degrees at Oxford or Cambridge and desirous of getting the best out of the university. (See note on Public Schools and Medical Students, p. 388.)

All who wish to enter the profession must comply with certain conditions. These are regulated by the General Medical Council, which is a statutory body set up under the Medical Acts; a summary of its functions and requirements is given at page 389. Many changes have lately been made in the medical and pre-medical curriculum, and this section, as well as the article on Professional Study and Examination, should be studied with care. It is the business of the General Medical Council, so far as possible, to see that a suitable kind of training and the requisite degree of knowledge are secured to the student, and it is the business of the medical schools and examining bodies to give the training and test the knowledge in accordance with the requirements of that Council. Every student, after passing examinations in the subjects of general education and in the preliminary sciences of chemistry and physics, must take a course of training at a recognized medical school, covering a period of at least five years, but usually extended to six years or more.

Examination of candidates as to their fitness to practise medicine, surgery, and obstetrics is left to the licensing bodies, which are of two kinds—the universities, and certain medical corporations in England, Scotland, and Ireland. The requirements of these licensing bodies are summarized elsewhere under separate headings. One of the functions of the General Medical Council, besides that of keeping the *Medical Register* and maintaining discipline within the profession, is to make sure that the tests at each stage do not fall below a certain standard, and that the students examined have undergone prescribed courses at approved institutions. Successful candidates eventually receive either degrees, in the case of a university, or diplomas or licences, in the case of a corporation; these qualifications entitle them to claim insertion of their names in the *Medical Register*. Every student, as soon as he obtains his qualification to practise, should at once register; otherwise he cannot hold a public medical appointment, or sign any certificate required from a legally qualified practitioner (such as a death certificate), or recover professional fees in a court of law.

Holders of diplomas and licences once made up the great majority of all medical men, especially in England and Wales. But universities have greatly multiplied during the present century, and so many practitioners are now graduates in medicine that a student at the threshold of his career will do well to consider the advantages of possessing a degree, though it may be desirable to take also a diploma or licence. The medical degrees (M.B., M.D., etc.) granted by the universities in Great Britain and Ireland are mentioned among the particulars about each university printed in later sections.

COST OF MEDICAL EDUCATION.

For the ordinary student the cost of medical education resolves itself into the cost of the training at medical school and hospital, and the cost of living during the five or six years of the curriculum. The expenses under these two main headings vary considerably. Besides differences in the charges made for instruction, there are differences in examination fees, as well as in the fees for certificates of qualification, and those who seek the higher degrees and diplomas must expect to pay more for the additional courses and tests and certificates. Again, not all students, however industrious, have the knack of imparting what they know to an examiner, and every setback due to failure in the examination room or to illness means added expenses. School and examination fees, together with the cost of board, lodging, clothes, and recreation, form the largest items of expenditure, and to these must be added the money spent on books, microscope, instruments, and so forth.

Since professional education must in any case continue for five years at least (a period exceeded by the vast majority), and since the cost of living varies much in different parts of the country, while personal expenditure varies still more, it can only be said in a general way that anyone who thinks of entering the profession should be prepared for an outlay of at least £1,500. Something between two-thirds and three-quarters of the whole amount would probably be spent on maintenance, and the rest in fees, etc., for tuition and examination. The fees charged by the different schools and licensing bodies are stated in the paragraphs relating to each on other pages of this issue. In making an estimate of the probable outlay, the many helps available nowadays for the reduction of expense should not be ignored. At nearly all the medical schools more scholarships and money prizes are offered now than in the past; at the Scottish universities bursaries are numerous; and the Carnegie Trust (whose regulations are summarized at page 400) gives pecuniary help to many Scottish students. The main thing to bear in mind is that, as compared with other professions, the period of training in medicine is long, and for most students expensive. Further guidance on this matter will be found in a memorandum,[1] drawn up by the Registrar of the General Medical Council, on the procedure to be followed in order to enter the profession. This pamphlet gives much useful information, including a comparative table of the cost of study and examination at the various institutions.

Since medical students are not commonly the sons or daughters of wealthy parents, it is usual, before setting out upon this long and exacting course of study, to weigh, not only the cost, but also the prospects. An overcrowded curriculum would be hard to face if all that could be discerned at the end of it were an overcrowded profession. Without forgetting the adage "there is always room at the top," the youth and the girl of to-day, when reckoning up their chances in any calling, will wish to know the probable numbers of their competitors for the work that is waiting to be done.

THE NUMBERS OF MEDICAL STUDENTS.

The following brief survey should be read with the notes and tables printed at page 387 on the numbers of registered students and practitioners. More new students mean more new doctors five or six years later, though, as the chart shows, there is in normal times a fairly constant wastage.

At the close of the last century the annual entry of medical students in Great Britain and Ireland had been on the average about 1,800, and then for the next thirteen

[1] *Memorandum on the Procedure to be Adopted by those who desire to enter the Profession of Medicine, with Notes on Costs and Prospects.* General Medical Council, 44, Hallam Street, Portland Place, W.1. Price 1s. post free.

years it stood at about 1,400. During the war period, although many students left to serve with the forces, the entries grew steadily larger, so that in 1918 they were 2,253, and in the following year, when demobilization was in active progress, they were 3,420. After 1919 the numbers rapidly fell, but since 1923 they have remained at a fairly steady level rather below the immediate pre-war average. In 1924 the entries were 1,043; in 1925, 1,070; in 1926, 1,260; in 1927, 1,214; and last year, 1,363.

The smaller numbers of students since 1922 are an advantage, because the excessive entries during the post-war inflation period, if it had gone on long enough, must have led to overstocking of the profession. In the past decade the numbers of new practitioners registering each year have greatly exceeded the usual pre-war figure of eleven hundred or so. The large additions to the profession in recent years brought the total number of names in the *Medical Register* up to 54,252 at the end of 1928. This is upwards of ten thousand more than the figure for 1918, almost exactly fourteen thousand more than that for 1908, and nearly twenty thousand more than that for 1898. There has been no corresponding increase of growth of population in the British Isles during the same decennial periods, and the ratio of doctors to inhabitants is therefore much higher now than ever before. It is true that the scope of medical practice has widened considerably in the meanwhile, and many fresh openings for professional work have followed advances in diagnostic, curative, and preventive methods, and the rapid development of administrative medicine. But there must be bounds to the legitimate medical needs of the community. The new regulations of the General Medical Council, though drawn up for another purpose, have tended to keep the entries of students within manageable limits, and so to maintain a balance between supply and demand.

On the whole, it may be said that, for those of good average intelligence and physique who are not afraid of work, the prospect in medicine to-day is quite favourable. The medical profession of this country is not overstocked. Its numbers are still badly distributed, though perhaps not quite so much so as at the beginning of the century.

AFTER REGISTRATION: CHOICE OF A CAREER.

The student, having passed all his tests and placed his name on the *Medical Register*, assumes the privileges and responsibilities that go with legal qualification. But after registration there is usually a period of transition between pupilage and established practice. This time may be put to the greatest advantage by serving as house-physician, house-surgeon, or casualty officer in a hospital, by working as assistant or locumtenent in private practice, or by seeing something of the world as a ship surgeon. As a preliminary to practice of whatever kind, nothing is so valuable as a year or more spent in junior hospital appointments, and all who can afford the time should look upon them as a most profitable investment.

If his mind is not made up already, the young practitioner has now to consider in which branch of the profession he can put his abilities to the best use. The choice is very wide. Among the great variety of paths open are general practice in town or country; Government service at home or abroad, including, of course, the medical branches of the Navy and Army and Air Force, and the I.M.S.; public health appointments and other administrative or official posts; institutional work, such as that of the municipal hospital, the mental hospital, and the sanatorium; and special work in scientific research and teaching, or in one of the many subdivisions of clinical medicine and surgery. Most of these careers are discussed in some detail in the later sections of this Educational Number, but a few words may be said here about general practice and the work of a consultant or specialist.

Further information and advice on such matters will be found in the *Handbook for Recently Qualified Medical Practitioners*, published by the British Medical Association.[1] This comprises articles on openings for members of the profession; on practical aspects of medical work; on registration and the privileges of practitioners; on practice under the Insurance Acts; on post-graduation study and special diplomas; and on societies undertaking individual medical defence. The section dealing with practical aspects of medical work embodies much sound advice on professional conduct in general, on common medico-legal difficulties, and on the relations between doctor and patient and one doctor and another.

GENERAL PRACTICE.

General medical practice has hitherto been, and still is, the destination of the great bulk of students. It is estimated that three-quarters at least of those who pass out of the medical schools become "family doctors" sooner or later. The work is onerous and the pay too often inadequate; but it is a full life rich in human interest, and many of the very best students, now as formerly, choose general practice as a career.

This field of professional life is usually entered in one of three ways. The newcomer may take a house, put up a plate, and wait for work to come to him; he may buy the goodwill of a practice rendered vacant by retirement or death; or he may become a partner in an established firm. The first is more risky than the second, and the second than the third. A well-managed partnership of three or more has this advantage over single-handed practice, that it allows each partner leisure for recreation and for keeping up with the progress of medicine. Success in private practice demands a great deal of knowledge beyond that gained at the medical schools, and hence a man is more likely to be accepted as a partner, or to do well on his own account, if he has already some experience as an assistant or deputy. A good many general practitioners, therefore, begin their work as assistants, and of these few find cause to regret the time spent in learning the ropes under the eye of an experienced senior. As the circumstances of general practice vary much from place to place, it is usually best to serve this "post-graduate apprenticeship" under conditions resembling those to be met later.

The general practitioner is sometimes slightingly referred to as one who has been driven by circumstances into a position which demands so much knowledge of many things that it is almost impossible for him to be up to date and thoroughly well informed on any one subject. It is beyond human power for the man in general practice to be a specialist in every department of medicine, but his outlook on disease is, in many respects, more comprehensive than that of the man whose whole life is devoted to perfecting himself in the technique and minutiae of one subject to which he gives all his energy and time. Both types of workers are necessary in these days, but it is becoming more and more fashionable for well-to-do patients to seek the opinion of so-called specialists, no matter what the ailment may be. To balance this extravagance of specialism, it is well that the public should be reminded that human organs are not parcelled out into so many pigeon-holes to be dealt with separately, but that they each form an integral part of a great and complex mechanism, any part of which going wrong inevitably throws the whole machinery out of gear. The good general practitioner possesses powers of perspective in disease that are denied to the specialist, and he must in the nature of things remain not only the most useful and encyclopaedic working unit of our profession, but also the member of it to whom, at least in the first instance, the public, in their

[1] *Handbook for Recently Qualified Medical Practitioners.* British Medical Association, Tavistock Square, W.C.1. (3s. 6d. net; post free 3s. 9d.)

own interest, should apply for relief to their ailments. The opportunities he has of seeing his patients repeatedly for minor disorders as well as for serious illnesses; the knowledge he acquires of their idiosyncrasies, their family history, habits of life, and social circumstances; his experience of the disease tendencies to which they have been born; and a hundred other details which are learnt only after long and confidential intercourse with his clients, make the general practitioner, of all medical men, the most important. His daily task is to lay the foundations of diagnosis, prognosis, and treatment. It has been said with truth that general practice is the most fruitful field for the study of the natural history of disease in the living body.

The value of the work done by the family medical attendant is better appreciated now than in the past, and it is more fully recognized that an efficient medical service must be based upon the skill and devotion of a body of general practitioners familiar with the aims and methods of preventive medicine. The doctor of to-day takes a wide view of his duty towards the environment and the habits of his clientele; unlike the doctor of yesterday, his time is not wholly spent in treating developed disease in individuals. As knowledge accumulates he will come more and more to study early disturbances of function and the maintenance of bodily and mental health in varying conditions of life and work. While this is all to the good, it cannot be denied that encroachments on private medical practice are perpetually being made under the auspices of the State or of the municipality or of voluntary bodies. If such inroads threatened only the material interests of the individual doctor they might have to be endured, but in the long run many of them must react against the public interest also. Another trial arises from the multiplication of official requirements and administrative checks imposed by public authorities. Apart from the clerical drudgery thus put upon him, these new demands tend to cramp the doctor's independence of judgement and action and to divert his mind from purely medical duties.

The national system of compulsory health insurance, now more than seventeen years old, has had a profound influence on general medical practice in this country, so much so that it is already difficult to call up a clear picture of what the conditions were like in working-class practices less than a generation ago. The Insurance Acts provide domiciliary medical attendance for nearly fifteen million persons, and more than 17,000 members of our profession undertake responsibility for the medical care of this vast section of the community. Thus the bulk of the general practitioners of the country now give, in large or small measure, medical attendance and treatment under a system embracing almost the whole working population. These practitioners, by placing their names on the panel (or medical list) signify their assent to the terms of service set out in the Medical Benefit Regulations and other relevant provisions. It would have been strange indeed if a measure so far-reaching and so complex had not brought about great changes in general practice, with some detriment to the freedom of the individual doctor. On the other hand, the panel system admittedly gives a better service than was provided under the old "club" arrangements, though it is by no means as complete or as effective as it might be made. Some of its worst faults have been removed through the efforts of the Insurance Acts Committee of the British Medical Association, which represents the interests of the insurance practitioners in all negotiations with the Ministry of Health. As yet, the national health insurance scheme does not include the dependants of wage-earners. What will happen if its scope is widened in this and other directions? Among students of present tendencies and probable future developments there are some who see in all these the oncoming of a complete State-controlled medical service.

CONSULTANT AND SPECIALIST PRACTICE.

The term "consulting practice" may be said to comprise in ordinary usage the work of the general physician (or "internist," as he is called abroad), that of the general surgical consultant or operating surgeon, and that of the gynaecologist and obstetrician. These are the three large divisions of consulting practice, as distinct from general practice, which, though they imply some restriction, yet call for a wide range of activity and outlook, in contrast with the smaller ambit of a "specialty" in the narrow sense. Of these main divisions the third is obviously the most limited, but on several grounds it can claim to rank as something larger and more comprehensive than the other specialties. It is impossible, however, to draw a sharp line between consulting practice and specialist practice. Most general consultants, whether medical or surgical, are specialists in some branch of their practice, and most specialists are consultants in the sense that their work largely comes to them through the recommendation of general practitioners, with whom they act (or should act) in a consultative capacity. In any case, whoever holds himself out as one or the other, or both, must be assumed to have knowledge and skill above the ordinary.

Whether his specialty be large or small, the specialist should possess, as a background to his expert attainments, a broad knowledge of medicine and surgery. Intensive study is required of him, and he should look on hospital posts, especially teaching posts, as a vital part of his higher education. For him, as for practitioners of all branches, success will depend in the long run, not only on mental gifts, special experience, and capacity for hard work, but on the possession of those qualities which inspire confidence both in patients and in colleagues. Moreover, since he can scarcely hope at first to pay his way by consulting work or by the exercise of a specialty, he must either have private sources of income or be prepared, by teaching or in other ways, to make ends meet. If while in preparation for his life-work he can undertake some piece of research bearing upon his clinical studies, this is most advisable, and every opportunity should be seized of paying visits to foreign clinics. Competition in this branch of practice is very keen, as anyone can prove by counting the name-plates on the doors in the Harley Street area of London, or in corresponding parts of other large cities. Expenses are heavy, and the young consultant or specialist may have to go through a long time of training and waiting before he makes an income; but on the other hand success, when it comes, is liberally rewarded.

A comparatively new feature of medical life, especially in the larger industrial towns of the North of England, is the growing number of "general practitioner specialists," who combine ordinary panel practice with much surgical or other special work in well-equipped local hospitals which admit patients in different categories according to their means. Though the fees are small compared with those earned by operating surgeons and specialists in London, the work is by no means unremunerative, and it adds a great deal to the interest of the daily round.

Additional degrees and diplomas are important factors in securing election to the visiting staff of a large hospital, and a few remarks about them may be made here. Beyond the qualifications, such as Bachelor or Licentiate, which admit to the *Medical Register*, most of the licensing bodies bestow higher titles, such as Doctor, Master, or Fellow, after further tests. A considerable number of those who have graduated M.B. at a university, including many general practitioners, proceed later to the doctorate, and an M.D. degree is certainly advantageous to anyone in consulting medical practice. When applying for the post of physician to a hospital it is always useful, and may be obligatory, to hold also the Membership of one of the three

Royal Colleges of Physicians, according to the part of the British Isles in which the hospital is situated. So, too, the Fellowship of one of the three Royal Colleges of Surgeons should be obtained by those seeking surgical appointments, and the degree of Master of Surgery is an added distinction. There are also diplomas in a growing number of special branches of work—such as public health, tropical medicine, ophthalmology, laryngology, radiology, tuberculosis, psychological medicine, and midwifery—which are superfluous for most practitioners, but may be useful or even indispensable for those who intend to devote themselves to one or other of these subjects. Information about the special diplomas open to qualified practitioners, and about higher degrees, will be found in other parts of this issue.

FINANCIAL AND SOCIAL ASPECTS.

"It is a reasonable and proper question for anyone entering on a medical career to ask, What return may I expect from my work? Not less reasonable and proper is it that such an inquiry should include an examination of the financial prospect. The struggle for existence is imposed on most of us, and even a larger success of this order implies no unworthy ambition. Medicine professes no prospect of a ready and great fortune, but to diligence and thoroughness it guarantees at least a modest competence; if the making of money is the principal aim, the searcher had better turn elsewhere."[1]

The pecuniary disadvantages of medicine are the long and costly training, the time of waiting after qualification before the practitioner can count upon an adequate income, and the heavy working expenses in proportion to gross earnings. On the other hand, it affords a fairly certain means of livelihood, with unrivalled opportunities for exercise of the intellect in the service of others. The counterpart of the briefless barrister is practically unknown in our profession. But while no doctor who is willing and able to work need starve, it should be clearly grasped by all who think of adopting it as a career that medicine is a path to fortune only for the few. The distinguishing feature of a liberal profession in contrast with a trade is that it is followed more for the general good than for individual profit. Whatever the branch of work chosen, it is rare for a doctor to become what a business man would consider even moderately rich by the practice of his profession. Yet, if medicine, from the financial point of view, offers to most men little more than the means of livelihood, in its social and cultural aspects the outlook is far brighter. The practitioner's lot is unlike that of many whose business gives little scope to the higher faculties of the mind, for he lives in, and by, the exercise of his intellectual powers. Moreover, the culture which in past centuries belonged to the physician alone has spread into all ranks of the profession. The steady improvement in the education, general as well as technical, of the practitioner has added much to his influence with the public, and has been a large factor in raising his social status during the seventy years that have passed since the General Medical Council was constituted under the first Medical Act. The doctor of to-day holds an excellent position among his neighbours, and is the friend and confidant of many of his patients. Many men go further, and take a leading part in the public life of their district. There are conspicuous instances of the good work in this direction that has been accomplished during an arduous professional career. A proof of the all-round value of a medical training is the way in which it fits men for leadership.

PROFESSIONAL ORGANIZATION.

It is a sound rule of conduct that the new practitioner should associate himself as cordially as possible with his colleagues. The spirit of comradeship, which adds so much to the value and happiness of undergraduate study, should be preserved, both for its own sake and because no doctor, whatever the nature of his work, can safely stand aside from his fellows. Individuals and isolated groups of practitioners are always handicapped when they try to defend their interests against organized bodies, whether these are Government departments, local authorities, or bodies of workmen. In the ordinary way of practice the individual doctor is well able to deal with the individual patient and the patient's friends, but he cannot engage successfully in single combat with outside organizations. But apart from such motives of self-interest, every one of us owes a duty to our profession, and the doctor who holds aloof fails in that duty. Medical men and women must therefore band themselves together, and the first step after graduation should be to become an active member of the British Medical Association. Besides having behind him the machinery and the influence of a world-wide professional body, a young practitioner will find in the meetings of his local Division, and in the Annual Meetings of the Association, many opportunities for keeping abreast of new work in medicine and for friendly intercourse with colleagues. Another thing that no new graduate should fail to do is to join one of the professional societies which for a small yearly sum undertake individual legal defence of their members. It is folly to put this off, even for a day. The need for protection may arise out of the first case attended in hospital or in private practice.

The British Medical Association was founded in 1832 to promote the medical sciences and to maintain the honour and interests of the profession; a brief note on its constitution and activities will be found at page 442. The Association, with Branches throughout the British Empire and a membership of nearly 35,000, is the only body that can act for the profession as a whole and speak in its name. The record of ninety-seven years' work shows that vocational organization, wisely directed, can combine service for its members with service for the public; but much still remains to be done in both ways. Every medical man and woman should try to take a share in some at least of the various movements, scientific or social or political, with which the Association has identified itself.

[1] C. O. Hawthorne. *Short Essays on Medical Topics.* London: John Bale, Sons and Danielsson. 1923.

PROFESSIONAL STUDY AND EXAMINATION.

THE MEDICAL CURRICULUM TO-DAY.

IN 1922 the General Medical Council prescribed a readjustment of the medical curriculum, to come into force at the beginning of the following year. The scheme adopted was in effect a compromise between several "schools of thought" which had been debating the matter for fifteen years or more. In this readjustment, among other things, increased emphasis was placed upon sufficient opportunity being afforded for the study, both theoretical and clinical, of those subjects which are now so essential in connexion with the treatment centres of a local authority, such as ophthalmology, venereal diseases, orthopaedics, ante-natal conditions, and infant welfare. Our article printed at page 389 on the functions and requirements of the General Medical Council includes the text of the resolutions and recommendations of the Council which have applied since the beginning of 1923. We summarize below the leading features of the revised scheme of professional study and examination, and indicate the importance attached by the Council to the preventive aspects of medicine. The first qualifying examinations based upon this readjusted curriculum were held last year.

The minimum age for registration as a medical student is now 17 years. There has been no formal lengthening of the medical curriculum under the revised scheme, but in practice it has been added to by transferring to preliminary study and examination the subjects of elementary physics and chemistry in their purely scientific aspects.

Thus, in addition to passing a preliminary examination in general education, an examination (written, oral, and practical) in the elements of physics and chemistry is required by the General Medical Council before the admission of a name to the Students' Register. In the applications of these two subjects to the professional courses —as in biophysics, biochemistry, and pharmacological chemistry—appropriate instruction is to continue throughout the curriculum, and is to be tested by examination, so that the student shall no longer be able to put behind him as past and done with the knowledge which he acquired as a preliminary. If he has had no facilities at school or otherwise for obtaining what is necessary for the preliminary or pre-registration examination in chemistry and physics, then he can come for it to the university or medical school, but study for this will not count as part of the medical curriculum. In elementary biology comparatively few secondary schools are equipped for tuition, but the General Medical Council has suggested an arrangement for utilizing the work of such schools as are qualified for the purpose. The examination in elementary biology will not be "pre-curriculum," but the instruction may be so, and a licensing body can allow students who so desire to sit for the examination immediately after matriculation. Here again, however, it is the wish of the Council that the applications of biology to medicine, surgery, and midwifery shall continue to receive adequate attention throughout the courses.

A Block System of Study.

Besides the resolutions of the General Medical Council in regard to professional education and examination printed elsewhere at page 391 a series of additional resolutions was adopted in 1922, as follows:

(*a*) That throughout the whole period of study the attention of the student should be directed by his teachers to the importance of the preventive aspects of medicine;

(*b*) That each licensing body should make adequate arrangements for the effective correlation of the several subjects of study throughout its curriculum;

(*c*) That the teaching of anatomy and physiology should include as a regular part of the courses the demonstration on the living human body of structure and function;

(*d*) That the curriculum should be so arranged that a minimum period of three years shall in every case be available for study after the completion by the student of the Professional Examinations in anatomy and physiology held at the close of the second year;

(*e*) That the curriculum should be so framed as to afford sufficient opportunities for the study, during the last three years of the course, of physics, chemistry, biology, anatomy, and physiology in their practical application to Medicine, Surgery, and Midwifery, and that the student's knowledge of these applications should be subject to test in the Final Examination;

(*f*) That before the student is admitted to his clinical appointments he should have received practical instruction in clinical methods and in the recognition and interpretation of physical signs;

(*g*) That instruction should be given, in the courses of Forensic Medicine and Public Health or otherwise, on the duties which devolve upon practitioners in their relation to the State, and on the generally recognized rules of medical ethics. Attention should be called to all *Notices* on these subjects issued by the General Medical Council.

The Council, it will be noted, attaches great importance to the reservation of sufficient time for the later subjects of study, free from all worries about passing the examinations of the earlier parts. To that end it recommends what is practically a block system. A minimum of three years should be available, not merely after the courses of anatomy and physiology have been taken, but after the examinations in these subjects have been passed.

Examination Reform.

Another notable feature is that in assessing marks in the several examinations account may be taken of "duly attested records of the work done by the candidate throughout his course of study" in the subject. This is an effort to meet the long felt difficulty that a man's mental agility, or the want of it, counts far too much in the examination room. The difficulty is real, but the remedy is not easy, and the Council has been wise in the cautious approach it makes towards a solution. Where, as in the examinations for the various conjoint diplomas, a student will only by chance come before his own teacher as an examiner, absolute impartiality in the attested records will be necessary. On the other hand, at the universities, where the teacher is almost always one of the examiners, no personal like or dislike of a student must influence the report of the internal to the external examiner. The class records should, of course, be available, but the scheme will put a serious ethical obligation on all concerned, and the Council will doubtless watch its operation with keen and critical interest.

Training in Preventive Medicine.

The first of the resolutions quoted above should be borne in mind by every teacher throughout the whole curriculum, and not merely in the clinical subjects. All the earlier subjects—physics, chemistry, biology, physiology, anatomy, and, of course, pathology, bacteriology, and therapeutics also—afford opportunities from the very beginning for instilling into the mind of the student the necessity for his keeping constantly in view, in all the advice and treatment he may give throughout his professional life, the primary importance of promoting the general health of those who entrust themselves to his care, and of preventing trivial ailments from developing into definite disease.

NUMBERS OF THE MEDICAL PROFESSION.

A Review of Fifty Years.

In order to present a general view of the numerical strength of the medical profession during the past half-century we have extracted from the records and set down below in parallel columns the total number of names in the *Medical Register* on December 31st of each year, and the numbers added annually by registration between 1879 and 1928.

Numerical State of the "Medical Register."

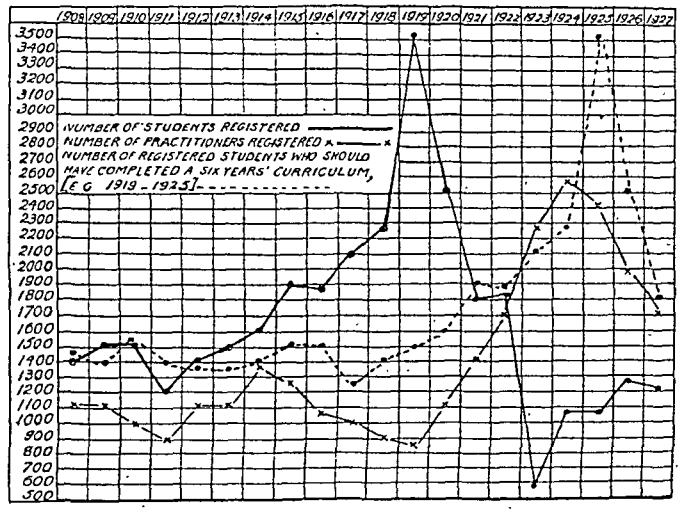
Year	Names added in Year	Total No. on Dec. 31	Year.	Names added in Year.	Total No on Dec. 31
1879 ...	996 ...	22,516	1904 ...	1,168 ...	38,492
1880 ...	1,123 ...	22,936	1905 ...	1,240 ...	39,060
1881 ...	1,063 ...	23,275	1906 ...	1,197 ...	39,529
1882 ...	1,171 ...	23,801	1907 ...	1,221 ...	39,827
1883 ...	1,304 ...	24,517	1908 ...	1,137 ...	40,257
1884 ...	1,388 ...	25,321	1909 ...	1,143 ...	39,818
1885 ...	1,377 ...	25,993	1910 ...	1,062 ...	40,483
1886 ...	1,431 ...	26,452	1911 ...	1,042 ...	40,913
1887 ...	1,531 ...	27,246	1912 ...	1,157 ...	41,439
1888 ...	1,184 ...	27,939	1913 ...	1,168 ...	41,910
1889 ..	1,305 ..	28,318	1914 ...	1,433 ...	42,378
1890 ..	1,266 ...	29,163	1915 ...	1,526 ...	43,225
1891 ..	1,345 ...	29,555	1916 ...	1,202 ...	43,481
1892 ...	1,513 ...	30,590	1917 ...	1,134 ..	43,819
1893 ...	1,579 .	31,644	1918 ...	1,077 ...	43,926
1894 ...	1,426 ...	32,637	1919 ..	1,322 ...	44,510
1895 .	1,446 ...	33,601	1920 ...	1,457 ..	44,761
1896 ...	1,385 ...	34,478	1921 ...	1,760 ...	45,409
1897 ...	1,230 ...	34,642	1922 ...	1,983 ...	46,476
1898 ...	1,210 ...	35,057	1923 ..	2,482 ...	48,140
1899 ...	1,351 ..	35,836	1924 ...	2,796 ...	50,035
1900 ...	1,345 ...	36,355	1925 ...	2,570 ..	51,738
1901 ...	1,318 .	36,912	1926 ...	2,120 ...	52,614
1902 ...	1,275 .	37,232	1927 ..	1,941 ...	53,769
1903 ..	1,233 .	37,878	1928 ..	1,656 ...	54,252

The varying proportion of registered medical practitioners to population during the period under review is shown in the following table. This sets out the total population of the British Isles at each decennial census since 1881, and the number of names on the *Register* in the same year; also the corresponding totals for the mid-census year 1926.

Proportion of Practitioners to Population.

Year.	Registered Practitioners.	Population, British Isles.
1881	23,275	35,241,482
1891	29,555	38,104,975
1901	33,912	41,976,827
1911	40,913	45,370,530
1921	45,408	47,146,506
1926	52,514	48,190,000

These figures show a steady increase in the ratio of doctors to population, which was accelerated during the years immediately following the war. The number of registered practitioners at the end of 1921 was nearly double the number at the end of 1881, but the population of Great Britain and Ireland within that period of forty years only increased by about 34 per cent. There is now considerably more than one name in the *Medical Register* to every thousand of population. In the United States of America it is estimated that there is one medical practitioner to every 753 people. Next to the United States the British Isles appear to have the highest proportion of practitioners to population. Austria has approximately one doctor to every 900 inhabitants; Switzerland 1 to 1,135; Denmark 1 to 1,200; Germany 1 to 1,320; Hungary 1 to 1,480; and Czechoslovakia 1 to 1,970.



Numbers of medical students and practitioners, 1908 to 1927.

REGISTRATION OF STUDENTS AND PRACTITIONERS.

The relation between the numbers of new students and those of newly qualified practitioners during recent years is shown in the accompanying chart, reproduced from the report of the Finance Committee of the General Medical Council for 1928.

The figures for the registration of practitioners year by year apply only to those whose names were entered on the British list, entries in the colonial and foreign lists of the *Medical Register* being excluded; hence the slight discrepancy between the totals indicated in this chart and those given in our tables printed above. The chart brings out in a striking way the difference between the number of registered students who should have completed a six years' curriculum in a given year and the number of newly qualified practitioners who in fact registered in that year. In 1919, following the armistice, there was an enormous entry of students; but a considerable proportion dropped out of the running year by year, and in 1925 the number of those who qualified fell short of expectations by nearly 1,000. Since then the two figures have approached each other again, and it is reasonable to suppose that the pre-war relationship between them will be resumed. Some further remarks on the numbers of medical students in recent years will be found in our introductory article on the profession of medicine.

PUBLIC SCHOOLS AND MEDICAL STUDENTS.

[FROM A CORRESPONDENT.]

ANYONE who has to meet large numbers of parents of public school boys who are destined to take up medicine must hear frequent complaints about a boy being "let down by his public school." A boy is suddenly removed from school and rushed to a crammer to be prepared for some subject necessary for a particular preliminary examination which has been inadvertently omitted from his school curriculum. This is usually due to the ignorance of the parent, and often, it must be admitted, of a medical parent.

The fact is that the demands of different schools and universities are not identical. Some university teachers find that their students come with inadequate preparation in the ancillary sciences, and are of opinion that a year's teaching by university methods can do as much as two years at school. Others think that on general grounds it is better to get the students a little later and to avoid the trouble of arranging pre-registration courses at a university. This difference of opinion is reflected in the lack of uniformity of demands on the candidate for registration. In a few years the present experiments will presumably have brought some conclusive results. Either the standard of "pre-registration" teaching in secondary schools and public schools will be improved, or the universities will have taken up the work at an earlier stage. At the present time, however, it is imperative that parents should realize the difficulties and themselves take on the responsibility of making a serious decision which may save a year's time and expense. The following steps seem to be essential.

If possible the decision to study for a university degree in medicine should be made by the time a boy or girl is 15. The parent, having decided upon the university, should discover what are the essential subjects for matriculation in the *medical* faculty of that particular university and arrange with the housemaster that these subjects shall be taken in the School Leaving Certificate Examination or its equivalent. When this examination has been passed with the necessary "credits," as it should be, at the age of 16, the parent should then discover what pre-registration examinations are required by the faculty of the university, and, after consultation with the housemaster and other inquiries, decide whether the school in question can teach these subjects efficiently, so as to ensure a reasonable chance of a boy passing the necessary examination in due time.

It can be assumed that the public schools wish to retain their scholars till they pass the pre-registration examinations, and that they are at the present time doing all they can to fit themselves for the new duties. It cannot, however, be assumed that each school can prepare students for the particular demands of each medical faculty; still less can it be assumed that each housemaster is fully aware of the different subjects and standards required by the many different authorities. On the other hand, it cannot be too strongly emphasized that any parent of a prospective medical student must make careful inquiries and take an intelligent interest in the school curriculum for two or three years before his son or daughter is to enter a university. The non-medical parent may perhaps require to be informed that the General Medical Council's demands before registration are not identical with those of the universities before matriculation.

THE GENERAL MEDICAL COUNCIL.

THE General Medical Council was established by the Medical Act, 1858, in order "that persons requiring medical aid should be enabled to distinguish qualified from unqualified practitioners." It consists of eighteen members appointed by the Universities in the United Kingdom having medical faculties; of nine members appointed by the Medical Corporations, such as the Royal Colleges of Physicians and Surgeons; of five members appointed by His Majesty in Council; and of six members directly elected by members of the profession as a whole—a total of thirty-eight. To these are added three dentists who are members of the Dental Board, and are appointed for dental business. Although the eighteen members appointed by the Universities and the five members appointed by His Majesty in Council may all be laymen, only one layman has so far been appointed and that was by the Privy Council in 1926.

The Council's offices are at 44, Hallam Street, Portland Place, London, W.1, and it has Branch Offices at 12, Queen Street, Edinburgh, and 35, Dawson Street, Dublin.

The Council exists for the protection of the public and not of the profession. Its principal functions are three. First, to keep the *Medical Register*; second, to see that the name of no person is entered thereon as qualified unless he has had an adequate professional education, and to remove therefrom the names of qualified persons who are no longer entitled to public confidence; and third, to provide for the publication of the *British Pharmacopœia*. It is the appearance of a name upon the *Medical Register*, and not the possession of a degree or diploma, that constitutes a person a duly or legally qualified practitioner of medicine.

The Council has no power to make rules in regard to the medical curriculum or examination, but it can pass resolutions and make recommendations relating thereto, and, if any of these were ignored by the licensing bodies, it would be open to the Council to make representations to the Privy Council, which, if it thought fit, might order that the qualifications obtained from such bodies should not be registrable.

The name of any medical practitioner who has been convicted of felony or misdemeanour, or who is proved before the Council itself to have been guilty of "infamous conduct in a professional respect," may be erased from the *Medical Register*.

The Medical Acts prohibit attempts being made to impose restriction as to any theory of medicine or surgery, and, once a practitioner has been trained and tested in the knowledge essential for public safety, he may adopt any "theory" of medicine or surgery in which he honestly believes. The Medical Acts do not prohibit the practice of medicine by unregistered persons, but if they "wilfully and falsely" assume any title implying registration they are liable to prosecution. In this respect the Medical Acts differ from the Midwives and the Dentists Acts, which entirely preclude the practice of midwifery or dentistry by unregistered persons. Unregistered medical practitioners, however, are under certain disabilities, for they cannot recover charges for medical or surgical attendance, etc., in a court of law; they cannot hold an appointment as a medical officer in the Military or Naval Services, or on ships; they cannot give any valid certificate which is required by any Act from a medical practitioner—for example, certificate of death; and they cannot obtain dangerous drugs or attend cases of venereal disease.

An account of the recommendations that the Council has drawn up in respect of the education of medical students here follows.

REGISTRATION OF MEDICAL STUDENTS.

The Council recommends that every intending student of medicine should be registered as such at one of its three offices, whose addresses are given on page 390.

Candidates must produce evidence (*a*) that they have attained the age of 17 years; (*b*) that they have passed an examination in general education which is accepted for matriculation or entrance to the Faculties of Arts or Pure Science in a university in the United Kingdom; and in addition thereto that they have passed an examination in elementary chemistry and elementary physics conducted or recognized by one of the licensing bodies.

Application for registration should be addressed to the Registrar for the division of the United Kingdom in which the applicant is residing—England and Wales, or Scotland, or Ireland. It must be made on a special form, which can be obtained from one of the offices of the General Medical Council itself or from one of the various licensing bodies and medical schools.

The regulations with regard to registration apply equally to medical and dental students, with the exception that, in the case of the latter, pupilage with a registered dental practitioner may be regarded as a commencement of professional study, and that applications for registration should be addressed to the London office only.

PROFESSIONAL EDUCATION.

The rule is that it is only from the date which appears against his name in the *Students Register* that the medical student's career officially begins; thereafter five years at least must pass before he can present himself for the final examination for any diploma which entitles its lawful possessor to registration as a qualified medical practitioner under the Medical Acts; but to meet the circumstances brought about by the dates at which sessions of the medical schools begin and end, the close of the fifth year may be reckoned as occurring at the expiration of fifty-seven months from the date of registration. In any case, the period of five years must be one of bona-fide study; and in every course the following subjects should be included:

(i) Elements of General Biology, including an introduction to Embryology. This course, if the licensing bodies permit, may be taken before registration, and the examination may be passed immediately after registration.
(ii) Chemistry, Physics, and Biology in their application to Medicine.
(iii) Human Anatomy and Physiology, including Histology, Elements of Embryology, Biochemistry, and Biophysics.
(iv) Elementary Bacteriology, prior to regular clinical appointments.
(v) Pathology, general, special, and clinical, and Morbid Anatomy.
(vi) Pharmacology and Materia Medica, to be taken concurrently with clinical instruction.
(vii) Forensic Medicine, Hygiene, and Public Health.
(viii) Medicine, including Applied Anatomy and Physiology, Clinical Pathology and Therapeutics, Children's Diseases, Acute Infectious Diseases, Tuberculosis, Mental Diseases, Skin Diseases, and Vaccination.
(ix) Surgery, including Applied Anatomy and Physiology and Clinical Pathology, Anæsthetics, Diseases of the Eye, Ear, Throat, and Nose, Radiology, Venereal Diseases, and Orthopædics.
(x) Midwifery and Diseases of Women, including ante-natal conditions and infant hygiene.

The Council recommends that during the last three of the five academic years clinical subjects shall be studied.

The first two years must be passed at a university, or at a school of medicine recognized by any of the licensing bodies enumerated in the schedule to the Medical Act of 1858, and the remainder must be devoted to clinical work at any public hospital or dispensary at home or abroad which is recognized by a licensing body.

SPECIAL CONSIDERATIONS.

The requirements of the General Medical Council in respect of the education of those who desire to enter the medical profession have now been given in outline, but before leaving this part of the subject the steps which the aspirant should take may be rehearsed in their due order:

(1) Pass an examination in arts;
(2) Pass an examination conducted or recognized by a licensing body in elementary physics and elementary chemistry;
(3) Having attained the age of 17, enter himself at a university or at a medical school recognized by one of the licensing bodies;
(4) Obtain registration as a medical student;
(5) Study for a minimum of five years certain prescribed subjects;
(6) Meanwhile pass sundry intermediate examinations; and at the end of the fifth year pass a "qualifying examination" which will entitle him to receive from a licensing body a legal authority to practise.

The Minimum Period.—It must be remembered that the period of five years is a minimum; more is often required even by the man of good abilities and reasonable industry,

and some of the universities prescribe a longer period. Besides these qualities a student, to obtain a registrable qualification in the minimum period of five years, or fifty-seven months, must have a considerable amount of good luck; in other words, he must keep in good health through every term, and never fail at a single examination. Thus, for instance, before presenting himself for any examination he must be "signed up" for the subjects covered by that examination; this means that his teachers have to certify that he has diligently attended the required number of lectures or classes in the subjects in question. If, however, the student happens to be ill during the term when such lectures or classes are taking place he may miss enough of them to make it impossible for him to be signed up. Then, again, should he fail to satisfy the examiners at some examination, he cannot present himself for re-examination for at least three months. This generally entails further consequences, because, apart from the student's success at the next stage in his career being imperilled by the need for restudying the subjects in which he has failed, the Examining Boards usually insist upon a definite interval elapsing between one examination and the next. Further, many Boards have refused to recognize lectures and classes which have been attended before the student has passed the requisite examination in earlier subjects, and the Council now recommends that the professional examinations in anatomy and physiology be passed before the minimum period of three years' subsequent study be entered on; in other words, no clinical study should count as such until these examinations have been successfully completed. Failure at an examination may thus not only mean deferment of the date of examinations, but deferment of the beginning of the student's study of certain subjects. It is thus exceedingly easy for a student to fail to qualify in five years, and, as a fact, the majority of students take longer.

In speaking of the minimum period, it is to be remembered also that that time is only sufficient to gain a registrable qualification, such as a Bachelorship of Medicine or Surgery or the diplomas of the Royal Colleges. Those who wish to take a higher qualification—for instance, the F.R.C.S.Eng.—must prolong their work for another year or more. So, too, must in some cases those who desire to convert their Bachelorship into a Doctorate. This may entail further formal examination, but at some universities the M.D. is obtainable on presentation of a thesis when the Bachelor has attained a certain age and has practised for a certain number of years. However, a student's career proper may be considered, perhaps, to have ended when he obtains his first registrable qualification, for while preparing himself for any further tests he can, and usually does, hold some junior appointment which more or less covers his expenses.

MEMORANDUM ON STUDENTS' REGISTRATION.

The following memorandum has been drawn up by the Registrar of the General Medical Council as to the procedure for those who desire to be registered as medical or dental students.

The requirements for the registration of medical and dental students are the same, and every intending student should, in his own interest, register as soon as he commences his professional curriculum.

A recognized examination in general education must first be passed. If the student intends to obtain a university degree, he should apply to the university he selects for information as to its matriculation requirements in arts or pure science, or as to any examinations which may be accepted in fulfilment thereof. If the student intends to obtain a qualification from one of the licensing corporations (these are the Conjoint Boards in England, Scotland, and Ireland, the Society of Apothecaries of London, and the Apothecaries' Hall of Dublin), any of the examinations indicated below will be accepted. The subjects required are: (1) English, (2) Mathematics (elementary), (3) a language other than English, and (4) a fourth subject as required by the regulations of the particular examination, to be chosen from the following—namely, History, Geography, Physical Science, Natural Science, Latin, Greek, Hebrew, French, German, or other language accepted by a university for matriculation.

The requirements of the preliminary examination in general education being satisfied, it is then necessary for the student to pass a further or pre-registration examination (theoretical and practical) in elementary chemistry and elementary physics, which is conducted or recognized by one of the licensing bodies—that is, a university or licensing corporation. These subjects must be passed *in addition* to those included in the preliminary examination—for example, chemistry taken as one of the four required subjects in the preliminary examination cannot also count as one of the subjects of the pre-registration examination. These subjects may be studied at a university or medical school, or at a secondary school or other institution recognized by the body whose pre-registration examination it is intended to take. The student should, in every case, write beforehand to the body whose qualification he desires to obtain (a list will be found below) for information in regard to its requirements for this examination.

These two examinations (in general education and in physics and chemistry) having been passed and the student having attained the age of 17 years, he should apply to one of the universities or one of the medical schools for admission to its course of medical study. When medical study has been begun, he should apply to the Dean of the school, or to the Registrar of one of the branches of the General Medical Council, for a form of application for registration as a student, and should have it completed and sent in to one of the Branch Councils as soon as possible. There is no fee for this registration. The medical curriculum will extend for at least five years, and the dental curriculum for at least four years, from the date of registration as a student.

A student who has, before registration, studied the subject of elementary biology at an institution recognized by one of the licensing bodies may, if the body sees fit, be admitted to the professional examination in this subject immediately after his registration as a student. For information in regard to this he should apply to the body whose medical qualification he seeks.

A dental student may commence his curriculum, if he so desires, as a pupil in dental mechanics of a registered dental practitioner; but study at a dental school is to be preferred. If, however, he is apprenticed to a dental practitioner, he will have to devote twice as much time to instruction in dental mechanics as he would if he had taken this subject in a school. This will have the effect of lengthening the curriculum. In any case a student can only obtain a concession of twelve months out of the four years' curriculum.

The addresses of the Branch Registrars are:

General Medical Council, 44, Hallam Street, Portland Place London, W.1.
Scottish Branch Council, 12, Queen Street, Edinburgh.
Irish Branch Council, 35, Dawson Street, Dublin.

Examining Bodies in Preliminary Education.

The following is a list of the officials of the examining bodies in preliminary education, with the names of the examinations in parentheses.

Registrar, Queen's University of Belfast, Belfast. (Matriculation.)
Registrar, The University, Bristol. (Matriculation, School Certificate, or Higher School Certificate.)
Assistant Registrary, The University, Cambridge. (Previous.)
Secretary, Cambridge Local Examinations, Syndicate Buildings, Cambridge. (School or Higher School Certificate.)
Medical Registrar, University of Dublin School of Physic, Dublin. (Junior Freshman, Special Preliminary, Junior Exhibition, or Examination for first, second, third, or fourth year in Arts.)
Registrar, University of Durham College of Medicine, Newcastle-on-Tyne. (School or Higher School Certificate.)
Registrar, Irish Conjoint Board, Royal College of Surgeons, Dublin.

reland, Dublin. (Matriculation.)
Department of Education, 1, Hume
Examination or Leaving Certificate.)
Education, Belfast. (Senior Grade

ity of London, South Kensington, General, or Higher School Certificate.)
Secretary, Northern Universities Joint Matriculation Board, 315, Oxford Road, Manchester. (Matriculation, School, or Higher School Certificate.)
Registrar, University Registry, Oxford. (Responsions.)
Secretary, Oxford and Cambridge Schools Examination Board, Schools [illegible] College, Oxford. (School or Higher

University Press, Oxford. (School

Bloomsbury Square, London, W.C.2

Secretary, Educational Institute of Scotland, 47, Moray Place, Edinburgh. (Preliminary Medical Certificate.)
[illegible] partment, 14, Queen Street, Edinburgh.

Entrance Board, 61, North Street, St. Andrews. (Scottish Universities Entrance Examination.)
Registrar, University of Wales, Cathays Park, Cardiff. (Matriculation.)
Clerk, Central Welsh Board, Cardiff. (School or Higher School Certificate.)

[*Note*.—School Certificates other than "Higher" must show "Credits" in each of the prescribed subjects.]

Licensing Bodies.

The following is a list of the officials of licensing bodies and their addresses:

Secretary, English Conjoint Board, 8, Queen Square, Bloomsbury, W.C.1.
Clerk, Society of Apothecaries, Blackfriars, E.C.4.
Dean, Department of Medicine, Oxford.
Registrary, The University, Cambridge.
Registrar, University of Durham College of Medicine, Newcastle-on-Tyne
Principal Officer, University of London, South Kensington, S.W.7.
Registrar, Victoria University, Manchester.
Registrar, The University, Birmingham.
Registrar, The University, Liverpool.
Registrar, The University, Leeds.

Registrar, The University, Sheffield.
Registrar, The University, Bristol.
Registrar, University of Wales, Cathays Park, Cardiff.
Secretary, Scottish Conjoint Board, 49, Lauriston Place, Edinburgh.
Dean of the Faculty of Medicine, The University, Edinburgh.
Registrar, The University, Glasgow.
Registrar, Royal Faculty of Physicians and Surgeons, Glasgow (*Dental*)
Secretary of the Medical Faculty, The University, Aberdeen
Secretary, The University, St. Andrews.
Secretary, Irish Conjoint Board, Royal College of Surgeons, Dublin
Registrar, Apothecaries' Hall of Ireland, 95, Merrion Square, Dublin.
Medical Registrar, The University, Trinity College, Dublin.
Registrar, National University of Ireland, University College, Dublin.
Registrar, Queen's University, Belfast.

Medical Schools.

The following is a list of medical schools (other than universities) and their officials:

Registrar, College of Medicine, Newcastle-on-Tyne
Dean of the Medical College, St. Bartholomew's Hospital, London, E.C.1
Dean of the Medical School, Charing Cross Hospital, W.C.2.
Dean of the Medical School, St. George's Hospital, S.W.1
Dean of the Medical School, Guy's Hospital, S.E.1
Dean of the Medical School, King's College, Strand, W.C.2.
Dean of the Medical School, King's College Hospital, S.E.5
Dean of the Medical College, London Hospital, E.1.
Dean of the Medical School, St. Mary's Hospital, W.2
Dean of the Medical School, Middlesex Hospital, W.1
Dean of the Medical School, St. Thomas's Hospital, S.E.1
Dean of the Medical School, University College Hospital, W.C.1.
Dean of the Medical School, Westminster Hospital, S.W.1
Dean of the School of Medicine for Women, 8, Hunter Street, W.C.1.
*Registrar, University College, Aberystwyth.
*Registrar, University College, Bangor.
*Registrar, University College, Cardiff.
Dean of the Medical School, Welsh National School of Medicine, Cardiff.
Dean of the Medical School, University College, Swansea
Dean of the Medical School, University College, Dundee.
Dean, School of Medicine of the Royal Colleges, Surgeons' Hall, Edinburgh.
Dean, St. Mungo's College, Glasgow
Dean, Anderson's College of Medicine, Glasgow.
Mistress, Queen Margaret College, Glasgow.
Registrar, University College, Cork.
Registrar, University College, Dublin.
Secretary, School of Medicine, Royal College of Surgeons, Dublin.
Registrar, University College, Galway.
* First year only.

Professional Examination.

The Council's Recommendations.

The following recommendations of the General Medical Council in regard to professional examinations for medical and surgical qualifications were adopted in May, 1922:

1. In order to secure due continuity and sequence in medical study, two or more professional examinations in the earlier subjects should be held antecedently to the Final Examination in medicine, surgery, and midwifery.

2. Three years at least should intervene between the date of passing the professional examination in anatomy and physiology and that of admission to the Final Examination in medicine, surgery, and midwifery.

3. A candidate remitted in any subject of a professional examination should, before he is readmitted to examination therein, be required to produce satisfactory evidence that he has, during the interval of remission, pursued the study of the subject in which he was rejected. Candidates who obtain less than 30 per cent. of the marks in any subject should be remitted for a longer period than three months.

4. In all the professional examinations sufficient time should be assigned to practical work, in order to test the thoroughness of the candidate's knowledge and to encourage practical methods of study.

5. Candidates in all their examination work should be carefully supervised.

6. Two examiners should always participate in the oral examination of a candidate, except in subordinate parts of practical examinations.

7. In all written examinations the questions in each subject should be submitted for the approval of all the examiners in that subject.

8. In all written examinations an average of at least half an hour should be allowed for a candidate to answer each question.

9. It is desirable that examiners, and in particular those for the Final Examination in medicine, surgery, and midwifery, should be appointed or re-elected for at least three consecutive years.

10. Whatever may be the system of marking, the percentage for a pass in each subject should not be less than 50.

11. In the regulations for the several examinations it should be provided that examiners, in assessing marks, be empowered to take into account the duly attested records of the work done by the candidate throughout his course of study in the subject of the examination.

12. The Final Examination in medicine, surgery, and midwifery, with the exception of the clinical and practical examination in midwifery and gynaecology, must not be passed before the close of the fifth academic year of medical study.

13. The three portions of the Final Examination in medicine, surgery, and midwifery should not be further subdivided into sections which may be entered for or passed separately.

14. Compensation in respect of marks as between the three different portions of the Final or Qualifying Examination—namely, medicine, surgery, and midwifery—is contrary to the intention of the Medical Act (1886).

15. The Final Examination should include clinical and practical examinations in midwifery and gynaecology.

16. The clinical examination in medicine, surgery, and midwifery should be held in properly equipped hospitals or examination halls well provided with suitable patients.

17. In the examinations in clinical medicine at least one hour, and in clinical surgery at least half an hour, should be allowed to the candidate for the examination of, and report on, his principal case.

18. In medicine, in surgery, and in midwifery, no candidate should be allowed to pass who fails to obtain 50 per cent. of the aggregate marks assigned to the whole examination; or who fails to obtain 50 per cent. of the marks assigned to the clinical examination; or who fails to obtain 40 per cent. of the aggregate of the marks assigned to the written and oral examination. In midwifery, where a clinical examination is not held, the duly attested records of the work done by the candidate in clinical midwifery must be presented to the examiners for assessment in the Final Examination; and no candidate should be allowed to pass who fails to obtain 50 per cent. of the aggregate marks assigned to clinical and practical midwifery and gynaecology.

19. The Final Examination should include the examination of secretions, the testing of urine, clinical microscopy, and prescription writing, and there should always be an oral examination in medicine, surgery, and midwifery, which should include an examination on pathological specimens.

20. At the Final Examination each candidate should be submitted to a practical and oral examination in pathology (macroscopic and microscopic), unless this has been included in a professional examination preceding the Final Examination.

21. Whatever be the method of entry for the Final Examination all candidates should be required to complete the three portions of the Final Examination within a period of nineteen months.

This section of the Educational Number would be incomplete without brief mention of the memorandum, drawn up by the Registrar of the General Medical Council, on the procedure to be adopted by those who desire to enter the profession of medicine, to which reference is made in the introductory article at page 383. This pamphlet (price 1s. post free) sets out in plain language the information for which the Registrar is often asked by prospective medical students or their guardians.

The English Universities.

There are eleven universities in England and Wales, and some account of each of them follows. They all have now fully developed medical faculties. Until recently the only exception was the University of Wales, whose constituent colleges are those of Aberystwyth, Bangor, Cardiff, and Swansea. This university grants the degrees of M.B., B.Ch., and provision is now made at the Welsh National School of Medicine at Cardiff for instruction in all the subjects of the medical curriculum.

UNIVERSITY OF OXFORD.

The professional degrees conferred by this university are those of Bachelor of Medicine (B.M.), Bachelor of Surgery (B.Ch.), Doctor of Medicine (D.M.), and Master of Surgery (M.Ch.). It also grants a diploma in public health and a diploma in ophthalmology. On receiving the B.M. the candidate in entitled to registration by the General Medical Council. In favourable circumstances this degree and the B.Ch. may be obtained in six or seven years from matriculation. Before receiving either, the candidate must have taken a degree in arts (B.A.), for which three years' residence within the university is necessary. This, however, does not necessarily mean deferment of professional study for that period, for the subjects chosen for the arts course may be to a great extent the same as those in which examinations would in any case have to be passed for the medical degree, and the courses are dovetailed together.

In accordance with a statute which came into force on October 7th, 1920, women may be matriculated and admitted to degrees in the university. The statute is retrospective under certain conditions. Before matriculation a woman must have been admitted as a member of one of the

five societies of women students (Lady Margaret Hall, Somerville College, St. Hugh's College, St. Hilda's Hall, or the Society of Oxford Home Students). Women members of the university are admitted to all degrees, except those in divinity, under the same conditions as those laid down for men in regard to examinations, courses of study, and fees, and under corresponding conditions as to residence at the university. Among the university diplomas open to women are those in anthropology, ophthalmology, and public health.

There are numerous avenues to the B.A. degree, but that which constitutes the *normal* course for medical students, as being the most closely related to their medical studies, is the following: By passing Responsions (or one of the examinations which are accepted as equivalent), the Scripture examination, some of the preliminary examinations in the Natural Science School,[1] in the first public examination; and one of the final honour examinations in the Final Honour School of Natural Science—physiology being that usually taken.

Responsions and the preliminary examinations in natural science may be passed before a candidate is a member of the university[2]; a final honour school may be taken at the end of the third or fourth academical year—that is, within nine or twelve terms respectively; the preliminary examinations of the Natural Science School may be taken as soon as Responsions has been passed or exemption obtained.

PROFESSIONAL DEGREES.

To obtain the B.M., B.Ch. degrees the candidate must first pass in four of the subjects of the preliminary examination of the Natural Science School—namely, physics, chemistry, zoology, and botany.

He then has two further examinations to pass—the First B.M. and the Second B.M. These take place twice a year, the first on the Thursday, the second on the Wednesday, of the eighth week of Michaelmas and Trinity terms. Every candidate at the first B.M. is examined in human anatomy, in physiology, and in organic chemistry, but is excused from physiology if he has obtained a first or second class in the Honour School of Physiology, and from organic chemistry if he has satisfied the examiners in Part I of the Honour School of Chemistry. Once he has passed this examination he can, on production of certain certificates, be examined as soon as he pleases in pathology, forensic medicine and hygiene, materia medica, and pharmacology (subjects of the second examination), but cannot present himself for the remaining subjects—medicine, surgery, and midwifery—until the eighteenth term from the day of his matriculation *unless he be already a registered medical practitioner*, and not until a period of at least thirty-three months has elapsed from the date of his passing the first examination, and he must pass in all the three subjects at one and the same time.

Before admission to the Second B.M. examination the student must produce certificates of instruction from a medical school recognized by the university, of having acted as clinical clerk and dresser, each for six months, and as post-mortem clerk for three months, of attendance on labours, of instruction in infectious and mental diseases and ophthalmology, and of proficiency in vaccination and the administration of anaesthetics,[3] and of three academic years of hospital attendance. He must also produce certificates of attendance in laboratory courses in pathology, bacteriology, and pharmacology, either in Oxford or in a recognized medical school.

D.M. AND M.CH. DEGREES.

A Bachelor of Medicine who wishes to proceed to the D.M. must have entered his thirtieth term and must present a dissertation for approval by the appointed examiners on a subject previously approved by the Regius Professor of Medicine. If a candidate for the M.Ch. he must have entered his twenty-first term and must pass an examination, which is held in June.

[1] The four subjects of the medical preliminary examinations are four of the subjects in the natural science preliminary, and can be commenced directly after passing Responsions.

[2] Membership is constituted by Matriculation and by becoming either a member of a College or a Hall or a non-collegiate student.

[3] For the certificates that will be required from candidates amenable to the new Regulations of the General Medical Council, see *Examination Statutes*, Clarendon Press, Oxford, 1925 edition.

D.P.H. AND D.O.

Examinations for the diploma in public health have been suspended until further notice; that for the diploma in ophthalmology is held annually in March.

TEACHING.

The several colleges provide their undergraduate members with tutors for all examinations up to the B.A. degree. In addition, the university provides certain courses of instruction, including lectures, demonstrations, and practical work, which cover all the subjects of the Preliminary Examination and First B.M., and those of the Final Examination.

SCHOLARSHIPS.

Most colleges grant scholarships open to intending medical students of the maximum value of £100 a year, tenable for four years, in natural science, chemistry, physics, and biology. Exhibitions of varying value are also awarded in these subjects. At two colleges (University and Pembroke) there are medical entrance scholarships of £100 a year. Particulars can be obtained on application to the college tutors. Scholarships for women are also offered by the various women's colleges, from the principals of whom details of the examinations may be obtained. A Radcliffe Travelling Fellowship of £300 a year, tenable for two years, is conferred annually; candidates must have taken the B.M. degree. A Schorstein Research Fellowship of £200 a year for two years is awarded biennially. The Fellow must engage in research in one of the Medical Departments of the University. A George Herbert Hunt Travelling Scholarship of about £100 is awarded biennially to enable a young medical graduate to spend three months abroad in medical study. A Philip Walker Studentship in Pathology of £200 a year, tenable for two years, is awarded biennially for the encouragement of research in pathology, as also are the Rolleston Memorial Prize and the Radcliffe Prize (£50), for research in natural science (including pathology), and the three Theodore Williams Scholarships in Anatomy, Physiology, and Pathology, of the value of £50 each, tenable for two years. A Radcliffe Scholarship in Pharmacology of £50 for one year, open to the University, is awarded annually by the Master and Fellows of University College. A Burney Yeo King's College Hospital Scholarship of £80 is awarded annually.

FEES.

An annual fee of £4 10s. is paid to the university for the first four years, being reduced to £1 when the B.A. has been taken. For the degree the fees are: the B.A., £7 10s.; the B.M. and B.Ch., £14; the D.M., £25; the M.Ch., £12. College fees, varying in amount, are paid for the first four years of membership and in taking degrees. Tuition fees vary from £21 to £30. The minimum annual cost of living during the three university terms may be regarded as not less than £200, or for women not less than £140.

For further information application may be made to Dr. E. W. Ainley Walker, Dean of the School of Medicine, University of Oxford.

UNIVERSITY OF CAMBRIDGE.

THE professional degrees given by this university are those of Bachelor of Medicine (M.B.) and Bachelor of Surgery (B.Chir.), each of which entitles the possessor to admission to the *Register* by the General Medical Council, and the higher degrees of Doctor of Medicine and Master of Surgery. It also grants diplomas in tropical medicine and hygiene, in public health, in hygiene, and in medical radiology and electrology to medical practitioners, not necessarily graduates of the university. Information regarding these diplomas will be found in later sections under the headings Tropical Medicine, Public Health, and Radiology. A candidate for the M.B., B.Chir. degrees need not possess a degree in arts; it is sufficient if he has passed the Previous examination or some other examination accepted by the university as its equivalent. Most students, however, are advised to take the B.A. degree, preferably by obtaining honours in the Natural Science Tripos at the end of their third year. The attainment of a sufficient standard in certain subjects in this Tripos will secure exemption from the corresponding tests in the First and Second M.B. examinations in the case of students who take up medical study late in their university career. Members of Girton College and Newnham College are admitted to the M.B. examinations.

PROFESSIONAL EXAMINATIONS.

To obtain the M.B. degree the candidate must pass three examinations and keep an Act. The B.Chir. degree (which is a registrable qualification) may be obtained after passing all three examinations.

First M.B.—This comprises (1) general and inorganic chemistry, (2) mechanics, (3) physics, (4) elementary

biology. The parts may be taken together or separately. In either case the candidate, before admission to examination, must have passed or been exempted from the Previous examination. Certain exemptions from the First M.B. Examination are allowed: the regulations may be obtained from the Registrary. The examination is held three times in the year.

Second M.B.—This examination comprises: Part I, organic chemistry; Part II, human anatomy and physiology; Part III, elementary pharmacology, including pharmaceutical chemistry and the elements of general pathology. No student is admitted to the first part of the Second Examination until he has passed the first part of the First Examination. No student is admitted to the second part of the Second Examination until he has passed all parts of the First Examination. No student shall be admitted to the third part of the Second Examination until he has passed the first and second parts of the Second Examination. The candidate must present certificates of study in the subjects of the second and third parts. The examinations for Part I are held in October, December, and June, and for Part II in December and June; that for Part III in October and April.

Third M.B.—This is divided into two parts, to neither of which the candidate is admitted until he has passed the examinations previously mentioned. A candidate for the first part, which deals with the principles and practice of surgery (including special pathology) and midwifery and diseases peculiar to women, must have completed five years of medical study and be signed up in these subjects and have completed two years and a half of hospital practice. Before admission to the second part the candidate must have completed five years of medical study, and be duly signed up in all subjects and have completed three years of hospital practice. The examination is in the principles and practice of physic (including diseases of children, mental diseases, and medical jurisprudence), pathology (including hygiene and preventive medicine), and pharmacology (including therapeutics and toxicology). The Third M.B. examinations are held twice a year—in June and December.

Act for the M.B.—Before receiving his M.B. degree a candidate who has passed the Third M.B. examinations has to write a thesis. This he reads in public on an assigned day, and is then questioned concerning it and other subjects of medicine by the Regius Professor of Physic. If approved at this test he is then certified as having "kept the Act" satisfactorily, and in due course receives his degree. Medical degrees may be taken in absence by those living abroad, the candidate sending to the Registrary a dissertation, which is laid before the Degree Committee.

The Higher Degrees.

The M.D. degree may be taken by a Bachelor of Medicine of three years' standing (and a Master of Arts of four years' standing who has completed the course required for M.B.) after writing a thesis approved by the M.D. Degree Committee, and keeping a further Act, at which he reads his thesis and is examined thereon. Previously to the Act being kept a topic taken from the general subject of his thesis (whether it be physiology, pathology, pharmacology, practice of medicine, State medicine, or the history of medicine) is submitted to the candidate, on which he is required to write an extempore essay.

A candidate for the M.Chir. degree who is an M.A. may be admitted to the examination after he has become legally qualified to practise surgery. Other candidates may be admitted when two years have elapsed after they have passed the Third M.B. Examination. The examination comprises pathology, surgery, surgical anatomy, and surgical operations. The tests are partly in writing, partly oral, and partly practical: they include the writing of an extempore essay. The examination is held in June and December.

Fees.

In addition to college fees, tutorial fees, and the expense of living, the following examination fees are payable: First M.B., £5 5s.; Second M.B., £6 6s.; Third M.B., £10 10s. For schedules referring to the examinations, lists of schools recognized by the university, and other information, application should be made to the University Registrary, Cambridge.

UNIVERSITY OF LONDON.

Under the regulations of the University of London the degrees obtainable in the Faculty of Medicine are those of Bachelor of Medicine and Surgery, Master of Surgery in four branches, Doctor of Medicine in six different branches, Bachelor of Dental Surgery, and Bachelor of Pharmacy. The university has its own matriculation examination, and this is of so peculiar a kind that candidates should obtain and carefully study the booklets relating to it. The matriculation examination is open to any person, of either sex, who has attained the age of 16. It is held in January, June, and September, and lasts four days; the first two take place both in London and in certain provincial centres; the September examination is held in London only.

In no circumstances is a degree granted to anyone in less than three years after the date at which he passed the matriculation examination or obtained registration in some other way; and, unless they are already registered medical practitioners of a certain age and standing, all medical students must pass not less than five and a half years in professional study subsequent to matriculation, of which the last three years must be spent at a school of advanced medical studies.

Professional Examinations.

M.B., B.S.—There are three examinations, the last two being subdivided. They are held twice a year.

The First Examination (held in July and December) covers inorganic chemistry, general biology, and physics, there being two papers, a practical test, and a possible oral test in each subject. The names of successful candidates are placed in alphabetical order with a note as to any subject in which a candidate has distinguished himself or herself.

The Second Examination is held in March and July. Part I cannot be passed within six months of the passing of the First Examination. It covers organic chemistry, the candidate's knowledge being tested as in the earlier examination. Candidates for Part II must have passed the First Examination at least eighteen months previously, besides having completed Part I of the Second Examination. The subjects are anatomy, physiology, and pharmacology, the tests being written, oral, and practical. Candidates who fail in one subject may sit for re-examination in that subject alone if the examiners think fit.

No candidate is admitted to the Third M.B., B.S. Examination within three academic years from the date of his completing the Second Examination. The subjects are medicine (including mental diseases), pathology, forensic medicine and hygiene, surgery, and obstetrics and gynaecology. They may be divided into two groups, one comprising medicine, pathology, forensic medicine, and hygiene, and the other surgery and obstetrics and gynaecology. Either group may be taken first at the option of the candidate, or the groups may be taken together. Only candidates who show a competent knowledge of all the subjects comprising a group are passed. There is no separate examination held for honours, but the names of successful candidates are divided into an honours list and a pass list, and a university medal may be awarded the candidate who has most distinguished himself in the whole examination.

The Higher Degrees.

M.D.—An examination for the M.D. is held twice yearly—in December and July. Every candidate must have passed the examination for the M.B., B.S., unless he became M.B. before May, 1904. He may present himself for examination in any one of the following branches: (1) medicine, (2) pathology, (3) mental diseases and psychology, (4) midwifery and diseases of women, (5) State medicine, (6) tropical medicine, and, if he wishes, may pass also in another branch at a subsequent examination.

The period that must elapse between acquiring the M.B. and sitting for the M.D. in any branch varies between one and two years, according to the nature of the candidate's previous work, and in all cases evidence must be afforded of special study of the subject chosen; both written and practical examinations must be passed, though exemption can be obtained from the former in exceptional circumstances. In each branch the scheme of examination is

the same: two papers on its special subject, a paper on an allied subject—for example, medicine in the case of branch (4), pathology in branch (1)—an essay on one of two suggested topics connected with the special subject, and a clinical or other practical test. In any branch of the M.D. Examination a gold medal of the value of £20 may be awarded.

M.S.—The regulations with regard to the Mastership in Surgery are of a corresponding kind, but there are four branches in which it may be obtained—general surgery, dental surgery, ophthalmology, and laryngology, otology, and rhinology.

FEES.

For Matriculation: 2½ guineas for each entry. First Examination: 6 guineas for each entry to the whole examination. For re-examination in one subject the fee is 2 guineas. Second Examination, Part I: 3 guineas for the first and each subsequent entry. Second Examination, Part II: 9 guineas for each entry to the whole examination. For re-examination in one subject the fee is 4 guineas. M.B., B.S. Examination: 12 guineas for each entry to the whole examination, and 6 guineas for examination or re-examination in either group. M.D. and M.S. Examinations: 20 *guineas, and 10 guineas on re-examination.*

Inquiries should be addressed to the Academic Registrar, the University of London, South Kensington, S.W.7.

UNIVERSITY OF BIRMINGHAM.

THIS university confers medical and surgical degrees—namely, M.B., Ch.B., M.D., and Ch.M.—and also diplomas and degrees in State Medicine and dentistry. The M.B., Ch.B. candidate may also combine with the earlier part of his medical curriculum courses leading to the ordinary B.Sc. degree in anatomy and physiology. The degree of B.Sc. with honours in one of these subjects requires an extra year. The full course of study for the degrees of M.B., Ch.B. extends over six years. The Senate has power to accept courses of study and examinations passed at other recognized universities as exempting from the examinations in physics, chemistry, biology, and organic chemistry. In the case of such students at least three years must be spent in attendance upon classes at the university. A degree of Ph.D. is also conferred for research study in medicine under special regulations. Candidates must be graduates in medicine of a recognized university.

Students entering the Medical Faculty for the M.B., Ch.B. degrees must have passed—

(1) Either (*a*) the matriculation examination of the Joint Board of the Universities of Manchester, Liverpool, Leeds, Sheffield, and Birmingham; or (*b*) some other examination recognized as equivalent to the matriculation. Candidates for medical degrees are required to have passed in English literature and mathematics, and are recommended to take Latin and a science subject—chemistry or physics—at the matriculation examination. The matriculation examination of the Joint Board is held in July and September. The regulations and the list of examinations accepted in lieu thereof will be sent on application to the Secretary to the Board, *Joint Matriculation Board, 315, Oxford Road,* Manchester.

(2) A recognized pre-registration examination in the subjects of chemistry and physics—for example, the higher school certificate of the Joint Matriculation Board; or a candidate may attend first-year courses in the university, October to June, taking chemistry and physics, and biology.

For and after the session 1929–30 the passing of an examination in elementary biology will be compulsory before a student reading for the M.B., Ch.B. Birmingham, or for any medical or dental degree or diploma in which an examination has to be passed in this subject, can enter the Faculty of Medicine.

PROFESSIONAL EXAMINATIONS.

The candidate for the M.B., Ch.B. degrees has five examinations to pass. In the Second (Part II) and Final examinations the candidate must pass in all the prescribed subjects or undergo the whole examination again.

The First M.B. deals with physics, chemistry, and biology. The Second M.B. (Part I) deals with organic chemistry. The Second M.B. (Part II) deals with anatomy and physiology, and the student must pass in both simultaneously. The Third M.B. deals with pathology and bacteriology. The Fourth M.B. takes place at the end of the fifth year, the subjects being forensic medicine, toxicology, public health, and pharmacology and therapeutics.

Final M.B.—This comprises medicine, surgery, midwifery and diseases of women, ophthalmology, and mental diseases. The candidate, in addition to more ordinary certificates, must be prepared with a certificate of having acted as a post-mortem clerk for three months, and received special instruction in anaesthetics and clinical instruction in diseases peculiar to women, asylum ward work, ophthalmology, children's diseases, venereal diseases, ear and throat and skin diseases, etc. In respect to ophthalmology he must show that he has learnt refraction work. He also has to present to the examiners at the time of his examination a short written commentary on a gynaecological subject or case investigated during the period of gynaecological clerking, and certificates drawn up by himself regarding four actual cases of lunacy and notes on two others.

M.D.—An ordinary candidate for this degree must be a M.B., Ch.B. of not less than one year's standing. He presents an original thesis for approval, and then passes a general examination in the principles and practice of medicine. From the latter the Board of Examiners may exempt a candidate whose thesis is of exceptional merit. The regulations respecting the Ch.M. are of the same general character. Subject to certain requirements as to special research or other post-graduate study, graduates of other universities may obtain the M.D. and Ch.M. in the same way as holders of the Birmingham M.B., Ch.B.

FEES.

The fee for Matriculation is £2 (payable to Joint Matriculation Board); £2 10s. for Pre-Medical Examination (if taken in university), and £2 10s. for each of the first four Professional Examinations; M.B., Ch.B. degree fee, £10; M.D. and Ch.M. Examinations, £12 10s. each. For further particulars application should be made to the Dean of the Medical Faculty, University of Birmingham.

UNIVERSITY OF BRISTOL.

IN the Faculty of Medicine the following degrees are conferred: Bachelor of Medicine and Bachelor of Surgery (M.B. and Ch.B.), Doctor of Medicine (M.D.), Master of Surgery (Ch.M.), Bachelor of Dental Surgery (B.D.S.), and Master of Dental Surgery (M.D.S.). There are also the following diplomas: diploma in public health (D.P.H.), diploma in dental surgery (L.D.S.), and diploma in veterinary State medicine. All candidates for degrees in medicine, surgery, and dentistry are required to reach matriculation standard in the school certificate examination, or to pass such examination as may be regarded as equivalent by the Senate. All courses, degrees, and diplomas are open to men and women alike.

Conjoined Degrees of Bachelor of Medicine and Bachelor of Surgery.—Candidates must be not less than 21 years of age and have pursued the courses prescribed by university regulations during not less than five years after passing the first examination in chemistry and physics, of which three shall have been spent in the university, and two of these three subsequent to passing the second examination. All candidates for the degrees of M.B., Ch.B. are required to satisfy the examiners in the several subjects of three examinations.

The First Examination.—The subjects of examination are: chemistry (inorganic), physics, and biology, the courses pursued being those for the time being approved for the intermediate part of the B.Sc. curriculum. This part of the curriculum shall extend over one year. (Candidates who have passed the higher school certificate approved by the Board of Education in these subjects will not be required to sit for the First Examination and will be regarded as having completed one year of study.)

The Second Examination.—The subjects of examination are: organic chemistry and elementary anatomy (Part I) and advanced anatomy and physiology (Part II).

The Final Examination.—The subjects of examination are: materia medica and pharmacy, pharmacology and therapeutics, general pathology, morbid anatomy, and bacteriology (Part I); special pathology, forensic medicine, toxicology, and public health, obstetrics (including

diseases of women), surgery (systematic, clinical, practical, and operative, including ophthalmology and oto-rhino-laryngology), medicine (systematic, clinical, and practical, including mental diseases) (Part II). The subjects included in Part II may be taken in two groups—namely, Group I: surgery and obstetrics; Group II: medicine, public health, special pathology, forensic medicine, and toxicology. Candidates may pass Parts I and II together or separately, and the two groups of Part II may likewise be taken together or separately, but no student can obtain honours who elects to take the two groups of Part II separately. *Forensic medicine and toxicology may be taken either with* Part I or with Group II of Part II.

Degree of Doctor of Medicine.—Candidates must be Bachelors of the university of not less than two years' standing as such, and may elect either (1) to pass an examination in general medicine, or (2) to pass an examination in State medicine, or (3) to present a dissertation. The candidate who elects to pass the examination in State medicine must hold a diploma in public health of some university or college, and the candidate who elects to present a dissertation may be examined in the subject thereof.

Degree of Master of Surgery.—Candidates shall be Bachelors of not less than two years' standing as such, during which period they shall have attended the surgical practice of an institution approved for the purpose. They shall pass an examination in surgical anatomy, pathology, and bacteriology, and operative, clinical, and general surgery, and present to the university a dissertation on some subject of surgery. The degree may be taken also in general surgery, and a special subject—for example, oto-rhino-laryngology, ophthalmology, and gynaecology.

Diploma in Public Health.—Candidates must be at least 23 years of age, be fully registered medical practitioners of not less than two years' standing as such, and have passed the examination prescribed by regulation. The examination is divided into two parts.

UNIVERSITY OF DURHAM.

To its own undergraduates, who may be of either sex, this university grants the degrees of Bachelor of Medicine and Bachelor of Surgery (M.B., B.S.), and Doctor of Medicine (M.D.), Master of Surgery and Doctor of Surgery (M.S. and D.Ch.), Bachelor of Hygiene, Doctor of Hygiene, and Bachelor of Dental Surgery and Master of Dental Surgery (B.D.S. and M.D.S.); it also grants diplomas in public health, psychiatry, and dental surgery. The university accepts the Durham University school certificate examination (if a sufficient standard is obtained in certain specified subjects) for matriculation purposes, but also accepts the tests of a considerable number of other educational bodies as a full or partial equivalent. A list may be obtained on application. In addition to satisfying the matriculation requirements of the university, every student must (1) pass a pre-registration examination in physics and inorganic chemistry conducted or recognized by the university, and (2) be registered on the books of the General Medical Council. To become a graduate, however, at the university it is not necessary to pass the major portion of the five years' curriculum within its precincts. It is sufficient if, before he presents himself for his final examination, the candidate has spent at least one year in study at the University of Durham College of Medicine, Newcastle-on-Tyne, including the practice of the Royal Victoria Infirmary in the same city. The earlier examinations may be passed while the student works elsewhere.

PROFESSIONAL EXAMINATIONS.

There are four professional examinations for the M.B., B.S. degrees. The First, Second, and Third examinations are held in March and June, and the Final Examination in June and December. The first deals with biology and organic chemistry; the second with anatomy and physiology; the third with pathology, bacteriology, materia medica, pharmacology, general principles of therapeutics, and pharmacy, medical jurisprudence, and public health. At the Final M.B., B.S. the candidate is examined in medicine and clinical medicine; surgery and clinical surgery; midwifery and diseases of women and children; clinical and practical midwifery and gynaecology; and clinically in psychological medicine, diseases of the throat, nose and ear, diseases of the skin, diseases of the eye, and diseases of children.

M.D.—A Bachelor of Medicine who wishes to proceed to this higher degree must be of at least two years' standing, and must comply with the regulations printed in the Calendar of the College of Medicine. If the candidate is not an M.B. of the university, he must be a practitioner of fifteen years' standing, 40 years of age, and submit to special tests. (See under Degrees for Practitioners, p. 438.)

M.S.—Candidates for this degree must have been engaged in practice for at least two years subsequent to becoming M.B., B.S. Durham. They are submitted to an examination which covers the whole range of surgical knowledge.

D.Ch.—The university grants also the degree of Doctor of Surgery. Candidates for this degree must be registered medical practitioners, not less than 24 years of age. They must devote three years, subsequent to obtaining a registrable qualification, to the study of surgery and ancillary subjects; one at least of the three years must be spent in the university. The candidate must submit to the professor of surgery the course of study he proposes to follow, and this course must be approved by the Board of Faculty of Medicine.

One year must be devoted mainly to work in the departments of anatomy, physiology, pathology, and bacteriology, and the candidate must submit evidence of having so worked. Not less than six months of another year must be spent as a resident surgeon in a recognized teaching hospital, and the rest of the year in the study of surgery in a recognized medical centre. Not less than six months of one of the three years must be spent in surgical study abroad.

Degree of Bachelor of Hygiene and the D.P.H.

No candidate is admitted to the final examination for the degree of B.Hy. unless he is a Bachelor of Medicine and Surgery, of not less than two years' standing, of a recognized university whose degrees are registrable on the books of the General Medical Council of the United Kingdom.

No candidate is admitted to the final examination for the D.P.H. unless he is a registered medical practitioner of not less than two years' standing.

The course of study for the B.Hy. and D.P.H. extends over a period of not less than twelve calendar months subsequent to the attainment of a qualification registrable by the General Medical Council of the United Kingdom. Candidates for the B.Hy. must attend this course at the University of Durham; candidates for the D.P.H. may attend it at the University of Durham or at any medical school or institution which is recognized by the university.

The examination for the diploma or degree consists of Part I and Part II, each of which extends over not less than two days, and is conducted by examiners specially qualified. A candidate must pass in all the subjects of Part I before being admitted to examination for Part II. In Part I, and also in Part II, a candidate must pass in all the specified subjects at one time.

The [illegible] for Part I is practical, written, and oral, and includes [illegible] bacteriology and parasitology (includ[illegible] chemistry and physics; and meteor[illegible] relation to public health. Candidates are not admitted to examination for Part I until after they have completed the prescribed courses of instruction in the subjects thereof.

The examination for Part II includes the following subjects: hygiene and sanitation (including sanitary construction); epidemiology and infectious diseases; sanitary law and vital statistics; public health administration. The examination is written and oral, and includes practical examinations in infectious diseases; food inspection, inspection of premises—dwellings, factories, workshops, schools, etc. Candidates are not admitted to examination for Part II until after they have completed the prescribed courses of instruction in the subjects thereof.

Doctor of Hygiene.

Candidates for the degree of Doctor of Hygiene must be Bachelors of Hygiene of the university of two years' standing, and are required to satisfy the examiners that they have conducted original research in the subject of public health.

Diploma in Psychiatry.

Candidates must be registered medical practitioners, and, unless qualified before January 1st, 1911, must have attended, subsequent to passing their qualifying examinations, courses of instruction in: (*a*) anatomy; (*b*) physiology; (*c*) pathology; (*d*) bacteriology; (*e*) psychology and experimental psychology; (*f*) clinical neurology; (*g*) psychiatry; (*h*) clinical psychiatry, [illegible] physiology; (2) psychiatry [illegible] themselves f[illegible]y.

Licence and Degrees in Dental Surgery.

L.D.S.—Every dental student must, at the commencement of his studentship, be registered in the manner and under the conditions prescribed for medical students.

The First Examination consists of three parts, which may be passed separately: Part 1, organic chemistry; Part 2, biology; Part 3, theoretical dental mechanics, dental metallurgy (theoretical and practical). Second Examination: Anatomy, physiology (including biochemistry and biophysics), dental anatomy, and dental histology. Third Examination: Pathology and bacteriology, practical dental mechanics, dental materia medica and therapeutics. Final Examination: Medicine, surgery, dental surgery and pathology, orthodontics, operative dental surgery and dental prosthetics, and anaesthetics.

A candidate before presenting himself for examination is required to furnish certificates of instruction in the required subjects, attended after registration as a dental student at recognized colleges or medical schools.

Degree of Bachelor of Dental Surgery.—1.—Students taking their complete course of instruction in the university must pass the same matriculation tests as medical students, and the same pre-registration examination in inorganic chemistry and physics. After registration students must spend five years in the university. They must attend the practice of the Newcastle-upon-Tyne Dental Hospital for not less than two and a half years; six months of this time must be devoted to the study of the higher branches of dental science. There are four examinations. The subjects of the examinations are as follows: *First:* Biology, organic chemistry, and dental mechanics and metallurgy. *Second:* Anatomy, physiology, dental anatomy, and histology. *Third:* Pathology and bacteriology, dental materia medica and therapeutics, and practical and dental mechanics. *Final:* Medicine, surgery, dental surgery and pathology, orthodontics and operative dental surgery. In this subject knowledge of a much higher standard, and more advanced practical work, are required than for the Licence in Dental Surgery.

2. Candidates obtaining a Licence in Dental Surgery of a [illegible] study for at least one year in the [illegible] year they must (*a*) attend a course of [illegible] and bacteriology, and (*b*) spend at [illegible] Newcastle-upon-Tyne Dental Hospital in the study and practice of the higher branches of dental science. They must also pass the third and final examinations for the degree of Bachelor of Dental Surgery.

Degree of Master of Dental Surgery.—Every candidate for this degree must be a Bachelor of Dental Surgery of the university of not less than two years' standing, and present an essay embodying original work and research in some subject connected with dentistry. He must also perform to the satisfaction of the examiners a piece of special dental work demanding a high degree of skill and experience.

The examinations are held concurrently with the medical examinations.

The practical examinations in dentistry are conducted at the Newcastle-upon-Tyne Dental Hospital.

FEES.

The following fees are payable: Matriculation, £2; Examinations, First, Second, and Third M.B., B.S., each £5; Final M.B., B.S., £15; M.D. and M.S., each £5; B.Hy., D.P.H., and D.Psy. each £10 10s., and D.Hy. and D.Ch. each £20; First, Second, and Third L.D.S., each £3 10s., and Final L.D.S. £5; First, Second, and Third B.D.S., each £5, Final B.D.S. £8; and M.D.S. £5. For degrees and diplomas: M.B., B.S., B.Hy., and B.D.S., each £6 6s. *plus* the sum of 10s. if it is the initial degree taken in the university; M.S. and M.D.S., each £6 6s.; M.D., D.Ch., and D.Hy., each £10; D.P.H., D.Psy., and L.D.S., each £3.

Further information may be obtained from the Dean of the College, University of Durham College of Medicine, Newcastle-on-Tyne.

UNIVERSITY OF LEEDS.

THE degrees granted in the Medical Faculty of this university are Bachelor of Medicine, Bachelor of Surgery (M.B. and Ch.B.), and Bachelor of Dental Surgery (B.Ch.D.), Doctor of Medicine (M.D.), Master of Surgery (Ch.M.), and Master of Dental Surgery (M.Ch.D.). It also gives diplomas in public health, in psychological medicine, in dental surgery, and in nursing.

Candidates for the M.B. must have attended courses of instruction approved by the university for not less than five years, two at least of such years having been passed in the university, at least one year being subsequent to the date of passing the first examination. They must also have matriculated by satisfying the examiners in:

I. *Either* English Composition and English Literature, *or* English Composition and History.

II. *Either* Mathematics *or* Latin.

III. } *Three* other subjects not already taken under I and II above,
IV. } chosen from the following list:

(1) English literature; (2) History; (3) Geography; (4) Greek; (5) Latin; (6) French; (7) German; (8) Some one other language approved by the Board; (9) Mathematics; (10) Mechanics; (11) Physics; (12) Chemistry; (13) General experimental science; (14) Natural history; (15) Botany.

Provided that (*a*) candidates who take Mathematics under II above must include one of the subjects 4—8; (*b*) candidates who take Latin under II above must include one of the subjects 9—15. In all cases Mathematics is a compulsory subject for admission to the Faculty of Medicine.

Exemption from the examination may be granted to applicants holding certificates of having passed examinations of a standard deemed by the Matriculation Board to be at least equal to the Board's examination.

PROFESSIONAL EXAMINATIONS.

The examinations for the M.B., Ch.B. number three. The first deals with (1) physics and chemistry, (2) biology. In each subject laboratory work is included, but the two parts can be taken separately. For neither can the candidate present himself until after matriculation and a period of approved work in the respective subjects.

The Second Examination.—The Second Examination consists of: Part I, organic chemistry; Part II, materia medica and practical pharmacy; Part III, anatomy and physiology. Candidates will be allowed to pass any parts separately.

The Final Examination.—The Final Examination consists of: Part I, pharmacology and pathology and bacteriology; Part II, medicine, surgery, obstetrics, gynaecology, and clinical pathology; Part III, forensic medicine, public health, and therapeutics. Part I may be taken at the end of the second clinical year, and must be passed before Parts II and III are taken. Parts II and III may be taken at the end of the third clinical year but not before the completion of the fifth year of medical study. If taken separately Part II must be passed before Part III.

M.D.—Candidates for this degree must be bachelors of medicine and bachelors of surgery of the university, and subsequently to having graduated must have completed two years of hospital practice or special study approved by the university; or four years in the practice of their profession in one or other of its various branches; six months' hospital practice or special study to count as the equivalent of one year's ordinary practice. Any subject except surgery of the medical curriculum may be chosen for the examination, but a thesis, the title of which must previously receive the approval of the Board of the Faculty of Medicine, may be submitted, and if it is adjudged to be of exceptional merit the candidate may be exempted from further examination.

Ch.M.—The candidate for this degree must have been admitted to the M.B., Ch.B. of the university not less than a year previously, and during that time must have held for at least six months a surgical appointment in a public institution affording full opportunity for the study of practical surgery. He must also have attended certain courses, including one on ophthalmology and one on bacteriology; he is then examined on the subject of surgery in all its branches.

FEES.

The Matriculation fee is £2, and on readmission £1 10s. For each of the other examinations £6 and £6 on readmission; Ch.M. £10 and same on readmission; M.D. £10. On conferment of the degree of Ch.M. £5 is payable, and £5 for the M.D. degree.

UNIVERSITY OF LIVERPOOL.

THIS university, besides granting degrees in medicine (M.B. and M.D.) and in surgery (Ch.B., M.Ch.Orth., and Ch.M.) gives degrees in dental surgery (B.D.S. and M.D.S.), a degree in hygiene (M.H.), and degrees in veterinary science (B.V.Sc., M.V.Sc., and D.V.Sc.). Diplomas are awarded in dental surgery (L.D.S.), tropical medicine (D.T.M.), tropical hygiene (D.T.H.), public health (D.P.H.), veterinary hygiene (D.V.H.), and medical radiology and electrology (D.M.R.E.). The degree of Doctor of Philosophy (Ph.D.) may also be taken in the Faculty of Medicine.

MATRICULATION.

The matriculation examination is governed by the Joint Matriculation Board, 315, Oxford Road, Manchester, which accepts, under certain conditions, the tests of several other bodies as its equivalent. Candidates will be required to

have included mathematics among the subjects in which they have passed at such examination.

It should be particularly noted that important alterations in regard to matriculation requirements and the first year's courses of study will come into operation in October, 1929. Particulars may be obtained on application to the Dean.

PROFESSIONAL EXAMINATIONS.

Candidates for the M.B., Ch.B. degrees have three examinations to pass, the first including (1) chemistry, (2) biology (zoology and botany), (3) physics, (4) special chemistry.

Second M.B.—This test covers (*a*) (1) anatomy, (2) physiology, including physiological chemistry and histology; and (*b*) (3) elementary bacteriology, (4) clinical chemistry, (5) general pathology. Candidates may present themselves in (*a*) and (*b*) separately.

Final M.B.—The subjects of the Final Examination are: (*a*) (1) special pathology and morbid anatomy, (2) forensic medicine and toxicology, (3) public health, (4) pharmacology and general therapeutics; (*b*) (5) obstetrics and diseases of women, (6) surgery—systematic, clinical, operative, and practical—including ophthalmology, (7) medicine—systematic and clinical—including therapeutics, mental diseases, and diseases of children. Candidates may take Parts (*a*) and (*b*) separately, but Part (*b*) may not be taken until five years of study have been completed.

M.D.—May be conferred on graduates (M.B., Ch.B. Liverpool) (*a*) on candidates of two years' standing who present a thesis acceptable to the Faculty, together with, if candidate desires, copies of published original papers upon medical science—oral examination on subject of thesis; (*b*) on candidates of five years' standing by examination.

Ch.M.—May be conferred on graduates (M.B., Ch.B. Liverpool) after examination. Other information concerning the diplomas of this university and its medical school will be found on page 413.

FELLOWSHIPS, SCHOLARSHIPS, AND EXHIBITIONS.

The university awards Fellowships annually to students of distinguished merit, as follows:

(1) John Rankin Fellowships in Anatomy; two, each of the value of £120, tenable for two years. (2) Ethel Boyce Fellowship in Gynaecology, value £100 and tenable for one year, open to fully qualified medical students of either sex. (3) John W. Garrett International Fellowship in Bacteriology, value £100 and tenable for one year. (4) Robert Gee Fellowship in Human Anatomy, value £100 and tenable for one year. (5) Holt Fellowships in Physiology and Pathology, two in number, value £150 each and tenable for one year. (6) Johnston Colonial Fellowship in Biochemistry, value £100 and tenable for one year. (7) Thelwall Thomas Fellowship in Surgical Pathology, value £150 and tenable for one year. (8) Lady Jones Fellowship in Orthopaedic Surgery, one, value £200, offered every two years.

There are, in addition, scholarships and exhibitions open to medical students.

VICTORIA UNIVERSITY OF MANCHESTER.

THIS university grants the four ordinary degrees in medicine and surgery—M.B. and Ch.B. and M.D. and Ch.M.; a degree and diploma in dental surgery; a diploma in public health; a certificate in factory and in school hygiene; a diploma in psychological medicine; and a diploma in bacteriology. Candidates for degrees must pass the special matriculation examination prescribed by the Faculty of Medicine (or some equivalent examination accepted in lieu thereof; see the prospectus of the Joint Matriculation Board), and study at the university itself for at least two years of the six years' curriculum, subsequent to the passing of the First M.B. Examination. The matriculation examination comprises (1) Latin, (2) mathematics, (3) the English language, its literature and history, (4) mechanics, (5) one subject at choice as approved by the Joint Board. It is held in July and September.

PROFESSIONAL EXAMINATIONS.

M.B., Ch.B.—There are four examinations for this degree. They must be passed in proper order, and before admission to them the candidate must be duly certified as having attended in the subjects involved. The First M.B. is divided into Part 1, chemistry and physics; Part 2, biology—(*a*) botany, (*b*) zoology. The parts may be taken separately or together. At the Second M.B. the candidate is examined in anatomy (including histology) and physiology; at the third in pathology, bacteriology, and pharmacology (including materia medica and practical pharmacy). The Final Examination, under new regulations, is divided into two parts, which may be taken separately. Part I consists of (*a*) forensic medicine and toxicology, and (*b*) hygiene and preventive medicine. Part II consists of (*a*) medicine, including dermatology, diseases of children, and mental diseases; (*b*) surgery, surgical pathology, and diseases of the eye and of the ear, nose, and throat; (*c*) obstetrics and gynaecology.

M.D.—A candidate for this degree must be a Bachelor of Medicine of at least one year's standing. He has a choice between presenting an original dissertation or undergoing a written (as well as practical and clinical) examination in medicine, and a written and practical examination in pathology, and one other subject selected by himself.

Ch.M.—A candidate must have held, since becoming Ch.B., and for not less than twelve months, a post in a public institution affording opportunity for the study of the branch of surgery in which examination is desired. The examination in Branch I comprises the general field of surgery; Branch II, obstetrics and gynaecology; Branch III, ophthalmology; Branch IV, otology, laryngology, and rhinology.

B.Sc. and M.Sc.—The ordinary degree of B.Sc. in the Schools of Anatomy and Physiology may be obtained by students in medicine who in their third year of study for the degree of M.B., Ch.B. complete the additional courses in these subjects prescribed for this degree. Candidates for the Honours degree of B.Sc. in anatomy or physiology who are students in medicine are required to attend courses in advanced anatomy and physiology for four terms after passing the Second Examination for the degrees of M.B., Ch.B. Graduates in science of this university, of not less than one year's standing from the date of their graduation as Bachelors, may proceed to the degree of M.Sc. by the presentation of an approved thesis on some subject coming within the scope of the Faculty of Science.

FEES.

The following examination fees are payable: Matriculation, £2; on readmission, £2. Each M.B. examination, £8 8s.; on readmission, £3 3s. M.D., including the conferring of the degree, £15 15s. Ch.M., £10 for the examination and £10 10s. for conferment of degree. Application for further information should be addressed to the Dean of the Medical School.

UNIVERSITY OF SHEFFIELD.

THE degrees of this university (M.B., Ch.B., M.D. and Ch.M., B.D.S., and M.D.S.), and the diploma of licentiate in dental surgery, are open to candidates of either sex. Candidates for a degree must have matriculated in the university or have passed such other examination as may be recognized for this purpose, and have passed the further examination in chemistry and physics.

PROFESSIONAL EXAMINATIONS.

A candidate for the degrees of M.B., Ch.B. must produce certificates that he will have attained the age of 22 years by the day of graduation; that he has pursued the courses of study required by the university regulations during not less than five years subsequent to the date of his matriculation or exemption from matriculation, and the passing of the further examination in chemistry and physics, three of such years at least having been passed in the university, one at least being subsequent to the passing of the First Examination. The following examinations must be passed in due order.

First Examination.—The subjects are chemistry, physics, and biology. Candidates who have passed the Intermediate Examination of the Faculty of Pure Science in any or all of the subjects of the First M.B. Examination will, on payment of the fee for the latter examination, be deemed to have passed it when they have passed in such subjects as they did not take for the Intermediate B.Sc. Examination. Candidates on presenting themselves for this examination are required to furnish certificates of having attended for not less than one year approved courses of instruction, after matriculation, and the passing of the further examination

in physics and chemistry, in (1) chemistry, inorganic and organic; (ii) physics; (iii) biology.

Second Examination.—The subjects are anatomy and physiology. The candidate must have completed the second year of professional study, must have passed the First Examination, and must have attended (1) courses on anatomy, including lectures and practical anatomy, during one year; (2) courses on physiology, including lectures and practical physiology, during one year.

Third Examination.—The subjects are pathology and pharmacology, anatomy, and physiology. Candidates must have completed the Lent term of the fourth year of medical study and the requisite courses in these subjects, including post-mortem clerkship for three months.

Final Examination.—The subjects are: Part I, forensic medicine and public health; Part II, medicine (including mental diseases and diseases of children), surgery, obstetrics (including gynaecology). Candidates for Part I must have completed Michaelmas term of the fifth year of study; candidates for Part II must have completed the fifth year of study.

M.D.—Candidates for the degree of Doctor of Medicine must have passed the examination for the degrees of M.B., Ch.B. at least one year previously, must present a thesis embodying observations in some subject approved by the Professor of Medicine, and must pass an examination in the principles and practice of medicine.

Ch.M.—Candidates for the degree of Master of Surgery must have passed the examination for the degrees of M.B., Ch.B. at least one year previously, and must, since taking the degrees of M.B., Ch.B., have held for not less than six months a surgical appointment in a public hospital or other public institution affording full opportunity for the study of practical surgery. The subjects of examination are systematic, clinical, and operative surgery, surgical anatomy, surgical pathology, and bacteriology.

Other information concerning this university will be found in the section devoted to Provincial Medical Schools.

UNIVERSITY OF WALES.

THE Charter and statutes of the University of Wales provide *inter alia* for a Faculty of Medicine and for the granting of the following degrees: Bachelor in Medicine (M.B.), Bachelor in Surgery (B.Ch.), Master in Surgery (M.Ch.), and Doctor in Medicine (M.D.).

A candidate for the M.B., B.Ch. is required to pursue a course of study of not less than six academic years subsequent to matriculation in the university, and of these years at least three must have been passed in one of the constituent colleges of the university. These are the University College of Wales, Aberystwyth; University College of North Wales, Bangor; University College of South Wales and Monmouthshire, Cardiff; and University College of Swansea. He must also hold an arts or science degree of the University of Wales, or of some other university approved for this purpose. Certain of the courses of study pursued for a B.Sc. or a B.A. degree may be counted as courses required for the degrees in the Medical Faculty.

The courses for the M.B., B.Ch. are divided into two sections, of which the first includes the preliminary subjects —physics, chemistry, botany, zoology; and the ancillary subjects—organic chemistry, human anatomy, and physiology. Study of the preliminary subjects and of organic chemistry must extend over at least one academic year; study of physiology and anatomy must extend over at least two academic years; the first section of the course must occupy not less than three years. The second section includes courses in pathology, bacteriology, pharmacology, hygiene and forensic medicine, medicine, surgery, and obstetrics and gynaecology, and cannot be commenced, except in the case of pharmacology, until the examinations relating to the preliminary and ancillary courses have been passed. Examinations in all the subjects are held in June of each year, and in medicine, surgery, obstetrics, and gynaecology in December also.

The university also offers courses of study in public health and in tuberculosis. Candidates for the diploma in public health (D.P.H.) and for the tuberculous diseases diploma (T.D.D.) must possess a medical qualification registrable for practice in Great Britain and Ireland, and must have completed courses of study as prescribed by the regulations either at the Welsh National School of Medicine, Cardiff, or at another institution approved by the university.

WELSH NATIONAL SCHOOL OF MEDICINE.

Students can complete the whole of their curriculum in the Welsh National School of Medicine, which is an integral part of the University College of South Wales and Monmouthshire, and qualify for the degrees of M.B., Ch.B. in the university.

Further information may be obtained from the Registrar, the University Registry, Cathays Park, Cardiff.

English Medical Corporations.

THERE are in England three medical corporations which grant licences to practise—the Royal College of Physicians of London, the Royal College of Surgeons of England, and the Society of Apothecaries of London. The first two combine for certain purposes to form what is known as the Conjoint Board in England. Details concerning this body, its component Colleges, and the third licensing body here follow.

THE CONJOINT BOARD.

THIS body—the Examining Board in England—deals with the qualifications of all candidates for the Licence of the Royal College of Physicians of London and for the Membership of the Royal College of Surgeons of England. It prescribes for them certain periods of study, and recommends those who pass the required examinations for the Licence and for the diploma of Member respectively. The successful candidate is then entitled to register as L.R.C.P.Lond., M.R.C.S.Eng. It performs the same task in connexion [illegible] blic health, tropical diseases, ophthalmic [illegible] y, psychological medicine, and laryngology and otology—jointly issued by the two Colleges in question. Under the present regulations every candidate for the L.R.C.P. and M.R.C.S. must (1) complete five years of professional study after passing a recognized preliminary examination and a recognized pre-medical examination in chemistry and physics; (2) comply with the regulations, which may be had from the Secretary, Examination Hall, Queen Square, London, W.C.1; and (3) pass the two professional examinations of which particulars appear below. The old regulations for the Conjoint diploma, of which an account was given in the Educational Number of the *British Medical Journal* for 1922, still apply to students who passed their preliminary examination in general education before January 1st, 1923.

PRESENT REGULATIONS FOR THE CONJOINT DIPLOMA.

The following is an outline of the present regulations for the L.R.C.P.Lond. and M.R.C.S.Eng. The full regulations and synopses and forms of certificate may be obtained from the Secretary.

PRE-MEDICAL EXAMINATION.

Students are required to pass a pre-medical examination in [illegible] ducted by the Conjoint Examining Board [illegible] years' curriculum of professional study [illegible] recognized by the Board—namely, the examination in chemistry and physics for the degree in Medicine of any university recognized by the Board, the higher school certificates of Oxford and Cambridge Universities and the Oxford and Cambridge Schools Examination Board, the higher certificates of London, Bristol, Durham [illegible] Matriculation Board of the Northern [illegible] Welsh Board higher certificate or the [illegible] in chemistry and physics conducted by [illegible] bodies whose degrees or diplomas are registrable on the *Medical Register*.

A candidate must enter for chemistry and physics together, and he will not be allowed to pass in one without obtaining at the same time at least half the number of marks required to pass in the other subject. He will be admitted to the examination on producing evidence of having passed the required preliminary education.

[illegible] partly written, partly oral, and partly [illegible] rejected in one or both subjects of the [illegible] admitted to re-examination until after the lapse of a period of not less than three months.

Professional Examinations.

There are two professional examinations, called the First and Final Examinations. The courses of study for the First Examination may be commenced before the pre-medical examination in chemistry and physics or some equivalent examination has been passed provided three terms of study of anatomy and physiology are completed after passing such examination.

First Professional Examination.—The subjects of this are: Section I, (*a*) Anatomy, including histology and embryology; (*b*) physiology, including biochemistry. Section II, Pharmacology, practical pharmacy, and materia medica. A candidate must have attended at a recognized Medical School courses of instruction in anatomy, including embryology, during five terms, in the course of which he must dissect the whole body, courses of instruction in physiology, including general biology, biochemistry, and biophysics during five terms, courses of instruction in pharmacology, practical pharmacy, and materia medica. A candidate may present himself for the two sections together or separately, but he must take parts (*a*) and (*b*) of Section I together until he has passed in one or both parts, but a candidate will not be allowed to pass in one part unless he obtains at the same time at least half the number of marks required to pass in the other part. Section II of the examination may be passed at any time before the candidate enters for the Final Professional Examination. A candidate who produces satisfactory evidence of having passed an examination in the subjects of Section I or of either part of Section I and of Section II in the examination for the degree in Medicine conducted at a university recognized by the Board will be exempted from further examination in such subject or subjects.

Final Professional Examination.—The subjects of this are: Section I, Pathology (including morbid anatomy, morbid histology, and clinical pathology) and bacteriology. Section II, Part I, Medicine, including medical anatomy, forensic medicine, and public health; Part II, Surgery, including surgical anatomy and the use of surgical appliances; Part III, Midwifery and gynaecology. The examination is partly written, partly practical, partly clinical, and partly oral. A candidate may take Sections I and II and the three parts of Section II of the Final Examination separately, or may take the whole examination together. He will be required to produce the certificates prescribed by the regulations before being admitted to the respective parts of the examination. A candidate who produces evidence of having passed an examination for a degree in Medicine in the subjects of pathology and bacteriology at a university recognized by the Board is exempted from Section I.

Fees.

The fee for the *Pre-Medical Examination* is three guineas, for re-examination in Chemistry two guineas, and for re-examination in Physics one guinea. The fee for the *First Professional Examination* is ten guineas, for re-examination after rejection in Section I six guineas, for re-examination after rejection in either part of Section I three guineas, for re-examination after rejection in Section II three guineas. The fee for admission to Section I of the *Final Professional Examination* is four guineas, for admission to Section II, Part I, ten guineas, Part II ten guineas, Part III six guineas; and the re-examination fees are respectively three guineas, six guineas, and four guineas.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

This College has three grades—its Licentiates, its Members, and its Fellows. The Licence is now only issued through the Conjoint Board. The Membership is only granted to those who have obtained the Licence, or to those who are registered practitioners and graduates of a recognized university; in any case they must be persons over 23 years of age. Candidates are examined in pathology and the practice of physic, partly in writing and partly viva voce; they are also examined in Latin, Greek, French, and German. The languages are not compulsory, but credit is given to those who show a knowledge of them. The fee for the Membership is £42, or in the case of a Licentiate £21. There is a fee of £10 10s., payable before entrance to the examination, which in the case of successful candidates is reckoned as part of the Membership fee. The body of Fellows is maintained by election from among the Members.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

This College has two grades—Members and Fellows. The Members are admitted as stated in the section dealing with the Conjoint Board. The Fellowship is granted after examination to persons at least 25 years of age who have been engaged in professional studies for six years. There are two examinations for the Fellowship—the first in anatomy and physiology, which may be passed after the third winter session; the second, chiefly directed to surgery, which may be passed after six years of professional study. Candidates must pass the Final Examination of the Examining Board in England and be admitted Members of the College before admission to the Second Examination for the Fellowship, except in the case of graduates in medicine and surgery of not less than four years' standing of universities recognized by the College for the purpose, who are required to attend for one year the surgical practice of a general hospital recognized by the College after obtaining their degrees, which must be registrable in this country.

Fees.—At First Examination, £8 8s.; for re-examination, £5 5s. At Second Examination, £12 12s. Admission fee £10 10s. for members, £31 10s. for non-members.

SOCIETY OF APOTHECARIES OF LONDON.

This body confers a registrable diploma in medicine, surgery, and midwifery, now known as the L.M.S.S.A. (Licentiate in Medicine and Surgery of the Society of Apothecaries), on those successful at the following examinations:

Pre-medical Examination.—Chemistry and chemical physics.

Primary Examination.—This includes anatomy, physiology, and histology, and materia medica and pharmacy. Candidates will be excused any or all the subjects of the Primary Examination on producing evidence that they have passed equivalent examinations before an examining body recognized by the Society. Candidates referred in anatomy will be required to produce evidence of further work in the dissecting room before being admitted to re-examination.

Final Examination.—This is divided into three parts. Part I includes clinical surgery, the principles and practice of surgery, surgical pathology, operative manipulation, surgical anatomy, instruments and appliances. Part II includes clinical medicine; (*a*) the principles and practice of medicine (including therapeutics, pharmacy, and prescriptions), pathology, and morbid histology; (*b*) forensic medicine, hygiene, theory and practice of vaccination, and mental diseases. Part III includes midwifery, gynaecology, and diseases of newborn children, obstetric instruments and appliances.

The fee for the Primary Examination is £5 5s.; for the Final, £15 15s. The regulations and synopses relating to the several examinations, and other information, may be obtained from the Secretary, Court of Examiners, Apothecaries' Hall, Blackfriars, E.C.4.

Mastery of Midwifery.

The Society has recently instituted a Mastery of Midwifery, and issues a diploma under this title denoting the possession of specialized knowledge of ante-natal care, midwifery, and child welfare. The examinations take place in May and November, and candidates are required to submit certificates, etc., fourteen days before date of examination. It is intended to impose a severe test so as to ensure a high standard of professional knowledge, but the diploma will not be registrable under the Medical Acts. Admission is open to all who have been for not less than a year in possession of a registrable medical qualification, and who have had certain prescribed experience at recognized institutions concerned with obstetrics, ante-natal work, and child welfare work. Special conditions apply, until 1932, to practitioners of ten years' standing. The entrance fee for the examination is £10 10s., and a further fee of £10 10s. is payable by successful candidates before admission to the Mastery. Copies of the regulations may be obtained from the secretary at the address given in the preceding paragraph.

The Scottish Universities.

There are in Scotland four universities, each possessing a Faculty of Medicine, and having the right to confer degrees which admit the holder to the *Medical Register*. In essential points the regulations in their medical faculties for undergraduates are much alike, so that a general account can be given of all of them together.

The universities are those of Edinburgh, Glasgow, Aberdeen, and St. Andrews. The provision each of the cities in which these universities are situated makes for the education of medical students will be found in the section on Medical Schools in Scotland; here it need merely be said that degrees in medicine from Scotland as a whole have always enjoyed a high repute.

The degrees granted in medicine and surgery to candidates of either sex are four in number—Bachelor of Medicine (M.B.), Bachelor of Surgery (Ch.B.), Doctor of Medicine (M.D.), Master of Surgery (Ch.M.). The two former are not obtainable one apart from the other. Besides these degrees a diploma in tropical medicine and hygiene is obtainable from the University of Edinburgh, as also diplomas in psychiatry, public health, and radiology. As for public health, registrable degrees in this subject are granted by the University of Glasgow, while diplomas in public health may be obtained from the universities of St. Andrews and Aberdeen.

The conditions for admission of graduating students of medicine are the same as those in the Faculties of Arts or Science (for degrees in pure science). Prospective medical students are also required to pass a pre-registration examination in chemistry and physics.

Professional Education.

The regulations comply in all respects with the requirements and recommendations of the General Medical Council, and, in addition, necessitate definite study for stated periods of diseases of children, of the larynx, ear, and nose, of the skin, of ophthalmology, and of mental diseases. In respect of the various courses certificates must be obtained showing that the student has not only attended regularly, but has duly performed the work of the class. Out of the necessary five years of medical study, not less than two must be spent at the university whose degrees the student hopes to obtain, and the balance at any place officially recognized for such purpose. In each academic year there are two sessions—one lasting from the beginning of October to the middle of March, and the other from the middle of April to the beginning of July.

Professional Examinations.

The distinctive feature of the Scottish curriculum is that though nominally there are only four examinations, each of these may be, and habitually is, split up by the student into sections. Hence, a student may complete some stage of his career during the course of nearly every session. Thus, by the end of the first winter session the student may pass in zoology and chemistry. At the end of the first summer session he can finish with botany and physics, and with anatomy and physiology at the end of the second. Pathology and materia medica he will pass at the end of the third year, and so on, until the final examination in midwifery, surgery, and medicine, and the corresponding clinical subjects, at the end of the fifth year of study. At each examination the candidate may pass "with distinction," and a record is kept of the merit displayed, so that when the time comes for the candidate to graduate, one who has done well throughout can be declared as graduating with honours. A further point in the system is that the student's own teachers commonly take some part in his examination.

Of the four examinations, the first deals with physics, botany, zoology, and chemistry; the second with anatomy and physiology; the third with materia medica and pathology; the fourth with medicine and surgery (clinical and systematic), midwifery, clinical midwifery, and clinical gynaecology, and forensic medicine and public health. The first three examinations are held three times a year; the final twice a year.

Exemption from the first professional examination can be obtained by candidates who have passed an arts, science, or medical degree examination in its subjects at any recognized university. When a candidate presents himself for an examination in several of its parts, but is not successful in all of them, he is credited at the next examination with those subjects in which he has already been approved.

The Higher Degrees.

It is open to those who are already M.B., Ch.B. to proceed either to the M.D. or the Ch.M. A candidate for the former must have been engaged for not less than one year in work in the medical wards of a hospital, or in scientific research in a recognized laboratory, or in the Naval or Military Medical Service, or have been at least two years in general practice, and he must be 24 years of age. He has to write a thesis on any subject not exclusively surgical, and is examined in clinical medicine and in some one or other of its special departments. The regulations for candidates for the Ch.M. are of a corresponding character, a period of surgical work in a hospital or elsewhere being substituted for medical work, and the thesis being on a surgical rather than a medical subject. He is examined in surgical anatomy, clinical surgery, operative surgery, and in some of the special departments of surgery.

Fees.

It is estimated that the class, examination, and other fees for the M.B., Ch.B. come altogether to about £256, the separate examination fees included in this calculation being as follows:

	£	s.	d.
First Professional	9	9	0
Second Professional...	7	7	0
Third Professional	6	6	0
Final	11	11	0

Re-entry in any subject in which the candidate has failed entails a fresh payment of £1 1s. Candidates for the M.D. and Ch.M. pay £21, and on re-entry £5 5s.

More detailed information with regard to the University of Edinburgh can be obtained from the *Medical Programme*, price 6d., which is published by Mr. Thin, 55, South Bridge, Edinburgh, or on application to the Dean of the Faculty of Medicine. Similar information about Glasgow should be sought from the Assistant Clerk, Matriculation Office, Glasgow. With regard to Aberdeen, application may be made to the Secretary of the Medical Faculty, Marischal College. In respect of St. Andrews information can be obtained either from the Secretary of the University, or, alternatively, the Secretary of the United College, St. Andrews, or the Secretary of University College, Dundee, these being the two constituent colleges of the University of St. Andrews.

Finally, it should be mentioned that in connexion with all the Scottish universities there are valuable bursaries and scholarships, some information as to which will be found in the article on Medical Schools.

The Carnegie Trust.

The following is a summary of the regulations made by the Carnegie Trust for the Universities of Scotland for assistance in the payment of class fees in the universities and extra-mural colleges of Scotland.

Applicants must be over 17 years of age; they must be of Scottish birth or extraction, or have attended for two years, after the age of 14, at a school or institution under inspection of the Scottish Education [illegible]nts so qualified who have been pupils of sch[illegible]h Education Department will be eligible for [illegible]ent of class fees if they have obtained the [illegible]he Department, provided that it bears evide[illegible] education as is required by the universities [illegible] curricula, or that it has been supplemented [illegible] in the Scottish Universities Preliminary or other examination as will satisfy the above requirement of the universities. Where applicants have not been pupils of schools under the Scottish Education Department, or where other good ground for not having obtained the leaving certificate can be shown, the Executive Committee has power to accept instead what it deems equivalent evidence of attainments.

Applicants in the Faculties of Arts and Science must have had their course of study for each academic year approved by the University Adviser of Studies, and they must have passed the graduation examinations belonging to the previous stage of their curriculum before becoming eligible for assistance in the payment of fees of classes belonging to a further stage. Beneficiaries must submit to the Executive Committee at the end of each session particulars as to their attendance and work, any distinctions gained, and any graduation examinations passed.

The annual allowance towards payment of class fees offered to beneficiaries by the Trust in the Faculty of Medicine is £19 for four years, in all £76. Any unexpended part of a grant will be carried forward to the succeeding year. In combinations of Faculties the allowances available for beneficiaries are: Arts and Medicine—two Arts grants of £8 and four Medicine grants of £19, in all £92; Science and Medicine—two Science grants of £17 and four Medicine grants of £19, in all £110.

Applicants, in writing for application forms, must name the university and faculty in which they intend to study, and state whether they have previously obtained the benefits of the Trust. Applications must be lodged not later than October 25th for the winter session, or May 10th for the summer session. Payments are made by means of fee coupons, and fees already paid are not refunded.

The Scottish Corporations.

THERE are three medical corporations in Scotland—the Royal College of Physicians of Edinburgh, the Royal College of Surgeons of Edinburgh, and the Royal Faculty of Physicians and Surgeons of Glasgow. Their licences can be *separately obtained only by persons who are already in* possession of a recognized qualification—in surgery in the case of the College of Physicians, and in medicine in the case of the College of Surgeons and the Faculty of Physicians and Surgeons of Glasgow. All others must submit to the examinations held by the Conjoint Board, which the three corporations have combined to form. Details concerning this Board and its component colleges follow. The conditions on which their higher qualifications are granted will be found set forth separately in connexion with each corporation.

THE CONJOINT BOARD IN SCOTLAND.

THIS body has charge of all questions connected with candidates for the Conjoint Licences of the Royal College of Physicians of Edinburgh, the Royal College of Surgeons of Edinburgh, and the Royal Faculty of Physicians and Surgeons of Glasgow. Those finally approved by it are entitled to registration and to the initials denoting the Licences of the three bodies concerned—namely, L.R.C.P.Ed., L.R.C.S.Ed. and L.R.F.P.S.Glas. The Board requires all candidates to comply with the regulations of the General Medical Council. It has an arts examination of its own, but is prepared to accept in its place any of the other educational tests approved by the General Medical Council. All candidates must obtain registration with the General Medical Council.

Professional Curriculum for Candidates registered as Medical Students after January 1st, 1923.

Subsequent to registration as a medical student, the candidate must pass not less than five years in medical study, each comprising a winter and a summer session. The Board does not insist that candidates shall pursue their study at any particular place, and is prepared to accept certificates of having attended the necessary courses from any recognized medical school.

Its examinations are four in number, each of them being held four times every year, and these will fall to be held three times in Edinburgh and once in Glasgow during the next period: it is open to candidates to present themselves for examination at either place. The first examination deals with general biology, systematic and practical; the second with anatomy, embryology, physiology, biochemistry and biophysics; the third with pathology (including bacteriology and morbid anatomy) and pharmacology, theoretical and practical; and the final with (1) medicine, including therapeutics, applied anatomy and physiology, and clinical pathology, with practical medicine; (2) surgery, including applied anatomy and physiology, clinical pathology, and practical surgery; (3) midwifery and diseases of women, clinical obstetrics and gynaecology, with practical midwifery; and (4) medical jurisprudence and public health. All candidates for the Final Examination must complete portions (1) (2) and (3), which must be taken together, within a period of nineteen months.

These examinations must be passed in due order, and before admission to any of them the candidate must supply certificates showing that he has completed the due periods of study of their subjects. He can present himself in any single subject of the first three examinations. As regards the Final Examination, a candidate can present himself in medical jurisprudence and hygiene at any time after completion of the third examination and of his study of these subjects: but in medicine, surgery, and midwifery he cannot present himself until the completion of five years' study, and he must take them all simultaneously. A candidate who takes up several subjects of an examination or the whole of the subjects at one time, but fails in some of them, is credited at the next examination with those subjects in which he has been approved.

Part or entire exemption from the first three examinations may be granted to those who have already passed before other bodies examinations deemed by the Board equivalent to its own, but all candidates for the Conjoint Licence must sit for the Final Examination, and at no examination can a candidate present himself within three months of his rejection by some other licensing body.

FEES.

It is estimated that the total cost of lectures and fees for the Conjoint Licence is about £170. The separate examination fees are as follows: First, Second, and Third Professional, £5 each; Final £15. On re-entry for any of the first three examinations £3, and on re-entry for the Final, £5. If the re-entry is only in one or two subjects of the First, Second, or Third Examination the fees are smaller.

Information concerning this Board should be sought either from Mr. David Thomson, 49, George Square, Edinburgh, or from Mr. Walter Hurst, Faculty Hall, 242, St. Vincent Street, Glasgow.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.

THIS College has three grades—Licentiateship, Membership, and Fellowship—all of which are open to men and women. The regulations applying to candidates for the Licentiateship have already been generally indicated. If desirous of receiving it apart from those of the other two corporations they must be duly registered medical practitioners. Candidates will be required to pass an examination corresponding to the medical part of the Final Examination of the Conjoint Board, and conditioned in the same way, and also an examination in materia medica. The fee for examination is 15 guineas, a special examination being obtainable on due cause being shown, and on payment of 5 guineas extra. Ordinary examinations take *place monthly on the first Wednesday and Thursday, except* in September and October.

Candidates for the Membership must be either Licentiates of a British or Irish College of Physicians, or alternatively graduates of medicine of a university, approved by the Council, and in either case not less than 24 years of age. Candidates are examined in medicine and therapeutics, also on one or more departments of medicine specially professed, and approved by the Council, in which a high standard of proficiency will be expected. The fee to be paid by a candidate for the Membership is £36 15s. The examination is held quarterly, and application for admission to it must be made a month previous to its date.

For the Fellowship the candidate must have been a Member of the College for at least three years, and, if accepted, pay *fees, including £25 stamp duty, amounting* altogether to £64 18s. Further details can be obtained on application to the Secretary of the College.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

THIS College has two grades—its Licence and its Fellowship. Licentiates may be of either sex, and for the Fellowship women are eligible also.

Licence.

As an original qualification the Licence is only granted after fulfilment of the regulations of the Scottish Conjoint Board, but as an additional qualification it can be obtained by those already possessed of a registrable or equivalent qualification in medicine. In this case the candidate has to pass a written, oral, and clinical examination in surgery and surgical anatomy, and may be asked to operate on the dead body.

The fee is £15 15s., of which £10 10s. is returned to unsuccessful candidates. On due cause being shown, a special examination may be granted, the fee being £20, of which £10 is returned to a candidate if he is not approved.

Fellowship.

Candidates for the Fellowship must be not less than 25 years of age, and have been in the practice or study of their profession subsequent to registration for at least two years, and must hold either a surgical degree from a university recognized for that purpose by the College, or a registrable diploma obtained as the result of an examination which includes surgery as well as medicine and midwifery. Candidates are examined in (*a*) the principles and practice of surgery, including surgical anatomy, (*b*) clinical surgery, and (*c*) one optional subject, which they may choose from among the following: surgical pathology and operative surgery, ophthalmology, laryngology, otology and rhinology, gynaecology, obstetric surgery, anatomy, and dental surgery and pathology. The examination is written, oral, and clinical or practical. A candidate who desires to be examined must give one month's notice. After having passed the examination he must lodge with the Clerk to the College a petition asking that his name be placed before the College for election as a Fellow. This petition must be signed by two Fellows, as proposer and seconder, who should be sufficiently acquainted with the candidate to vouch that he is in every way a suitable candidate for the Fellowship. It is desirable that either the proposer or the seconder should be resident in Edinburgh. *Candidates are not allowed to appear more than three times at the examinations.*

Licentiates of the college pay £40, and others £50. For further information application should be made to the Clerk of the College, Mr. David Thomson, 49, George Square, Edinburgh, from whom a copy of the *Laws Relating to the Fellowship by Examination* may be obtained.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.

This body possesses two classes—Licentiates and Fellows. The regulations applying to the former correspond with those respecting candidates for the Licence of the Royal College of Surgeons of Edinburgh. Candidates for the single Licence are examined in surgery (including clinical surgery and surgical anatomy). The fee is £15 15s. and examinations are held quarterly. Candidates for the Fellowship must be qualified medical men of not less than two years' standing and 24 years of age. Candidates approved at this examination are then eligible for election as Fellows. The Faculty can also elect four Fellows annually without previously submitting them to examination, provided they "have highly distinguished themselves in medical science or practice." They must be of not less than ten years' standing and 40 years of age.

The fee for the Fellowship is £50. Further information can be obtained from Mr. Walter Hurst, Faculty Hall, 242, St. Vincent Street, Glasgow.

Irish Universities and Corporations.

MEDICAL REGISTRATION IN THE IRISH FREE STATE.

The Medical Practitioners Act, 1927 (Irish Free State), provides for the establishment of a Medical Registration Council for the Irish Free State. The main functions of the Council will be (1) to keep a register of medical practitioners who may desire to practise permanently or temporarily in the Irish Free State, and (2) to exercise disciplinary power with regard to all medical practitioners who are on the register and engaged in practice in the Irish Free State. The first schedule of the Act contains the agreement between Great Britain, the Irish Free State, and Northern Ireland. This agreement provides for the nomination of a member of the General Medical Council, formerly made for Ireland by His Majesty on the advice of the Privy Council, to be made henceforth by His Majesty in Council on the recommendation of the Governor of Northern Ireland. The nominations of members of the General Medical Council by universities and medical corporations in Ireland and the election of a member of the General Medical Council by registered medical practitioners in Ireland will be in all respects the same as heretofore. The constitution of the General Medical Council and of the several Branch Councils as formerly existing under the Medical Acts, and the powers of holding qualifying examinations and granting diplomas for the purpose of registration in the general *Register* formerly vested in certain universities and medical corporations in Ireland, are not affected by the establishment of the Irish Free State or of Northern Ireland, and for the purpose of the preparation and keeping of the general *Register* the General Medical Council and the Branch Council for Ireland shall have the same powers and jurisdictions under the Medical Acts as they exercised formerly. The agreement provides also that any person who is or shall be registered in the general *Register* shall be entitled on the payment of a prescribed fee to be registered in the *Irish Free State Register*, but this fee will not be payable by any person who, on the date of the establishment of the *Irish Free State Medical Register*, is registered on the general *Register*. Then follow provisions with regard to the erasure from the *Register* of the name of a person on account of misconduct.

The *Irish Free State Medical Register* was established on May 26th, 1928, this being the date appointed by the Medical Registration Council. The *Register* on establishment contained the names of every medical practitioner who was registered in the general *Medical Register* immediately before May 26th, 1928, and who either was then resident in the Free State, according to his address as stated in the general *Register*, or was living outside the Free State and applied to the Council within one month before May 26th, 1928, to be registered. No fee for registration was charged in such cases.

For registration in the *Irish Free State Register* subsequent to its establishment a fee is required, together with a prescribed form of application. A person is eligible for registration if he is at the time of application registered in the general *Medical Register*, or if he possesses the requisite qualifying diploma granted by colleges or bodies in the Free State as set out in the Act. Application for further information may be made to the Registrar, Medical Registration Council, Room 123, Custom House, Dublin.

THE IRISH UNIVERSITIES.

There are three universities in Ireland, each with a medical faculty. These are, in the Irish Free State, the University of Dublin (usually known as Trinity College, Dublin), and the National University of Ireland; and, in Northern Ireland, the Queen's University of Belfast.

UNIVERSITY OF DUBLIN: TRINITY COLLEGE.

This university grants two degrees in medicine (M.B. and M.D.), two in surgery (B.Ch. and M.Ch.), two in midwifery (B.A.O. and M.A.O.), and a post-graduate diploma in public health. It also grants post-graduate diplomas in gynaecology and obstetrics, for which nine months' study is required, and in psychological medicine, for which twelve months' study is required. The degrees are granted to those who, having passed the professional examination, have also graduated in arts.

Professional Examinations.

A candidate for the Final Examination for the M.B., B.Ch., and B.A.O. degrees must be a matriculated student of at least five years' standing. The examinations which students must pass are the Preliminary Scientific, the Intermediate Medical, and the Final. Before admission to any of these examinations students must have completed the courses of study in the subjects involved.

Preliminary Scientific.—This covers (*a*) chemistry, (*b*) physics, (*c*) botany and zoology; the three divisions may be taken together or at different times.

Intermediate Medical.—This is divided into two parts: (*a*) anatomy, physiology, organic chemistry, and histology; (*b*) applied anatomy and applied physiology. The two parts may be taken separately or together.

Final Examination.—Part I: Hygiene and medical jurisprudence, pathology and bacteriology, materia medica and

therapeutics. Part II: (*a*) Midwifery and gynaecology; (*b*) medicine and mental diseases; (*c*) surgery in all branches, including clinical ophthalmology. The three sections of Part II may be taken separately or together. In either case the full curriculum must have been completed, and the Final Examination cannot be completed before the end of the fifth year.

M.D.—The candidate must have passed all the qualifying examinations in medicine, surgery, and midwifery, and have taken, or have been qualified to take, the degree of B.A. three years previously. He must send in a thesis for approval. Subsequently the Regius Professor of Physic and an assessor will discuss with him questions connected with the thesis, and also examine him viva voce on other medical subjects of a more general nature.

M.Ch.—The candidate must be a B.Ch. of not less than three years' standing and have been engaged in practice for two years.

M.A.O.—The candidate must be a B.A.O. of not less than two years' standing and must produce satisfactory evidence of having been engaged for two years in the study of obstetric science. The examination is specially directed to obstetrics and practical gynaecology.

Further information regarding courses of instruction, etc., may be obtained from the Registrar of the School of Physic, Trinity College, Dublin.

QUEEN'S UNIVERSITY, BELFAST.

THE degrees granted by the Medical Faculty of this university are as follows: Bachelor of Medicine (M.B.), Bachelor of Surgery (B.Ch.), Bachelor of Obstetrics (B.A.O.), Doctor of Medicine (M.D.), Master of Surgery (M.Ch.), Master of Obstetrics (M.A.O.). The university also confers a diploma in public health. The first three degrees mentioned serve as a qualification for admission to the *Medical Register*, and are not granted separately. In addition to matriculating and passing his professional examinations, a candidate for these degrees must have passed three of the regulation five years as a student at the Belfast School of Medicine. Degrees in dental surgery (B.D.S. and M.D.S.) are conferred by the university, and also a diploma in dental surgery (L.D.S.).

PROFESSIONAL EXAMINATIONS.

The examinations for the M.B., B.Ch., B.A.O. are four in number. The first deals with: (1) inorganic, organic, and practical chemistry, (2) experimental and practical physics, (3) botany and practical botany, (4) zoology and practical zoology. It is divided into two parts, of which botany and zoology form one. The Second Examination covers anatomy and physiology (both theoretical and practical), and may be taken at the end of the second year of the student's career. The Third Examination includes: (1) pathology and practical pathology, (2) materia medica, pharmacology, and therapeutics, (3) medical jurisprudence, and (4) hygiene. To be valid a certificate in regard to the study of the subjects of this examination must show that the work has been done after the Second Examination has been passed.

The Final Examination includes: (1) medicine, (2) surgery, (3) midwifery, (4) ophthalmology and otology. The student must pass in all subjects at once at the end of his fifth year, or he may divide the examination into two parts—namely, (1) systematic, (2) clinical, practical, and oral. The first part may be taken at the end of the fourth year, but for the second part the candidate may not present himself until the end of his fifth year, but students invariably take both parts at the end of their course. No certificate in regard to the study of the subjects of this examination will be valid unless the work was done subsequent to passing in all the subjects of the Second Examination.

THE HIGHER DEGREES.

Candidate for the degree of Doctor of Medicine must be graduates in medicine of at least three years' standing, unless they hold also a degree of the university in arts or science, in which case a standing of two academic years will suffice. Moreover, candidates must be able to show that the interval has been passed in the pursuit of such courses of study or practical work as may be prescribed. The degree may be conferred either (*a*) after a formal examination, or (*b*) in recognition of the merits of a thesis or of some piece of original study or research carried out by the candidate, followed by an oral or other examination in its subject. When an ordinary examination is imposed it will include (1) a written paper on the principles and practice of medicine, (2) a commentary on a selected clinical case, (3) a clinical and viva voce examination, and (4) a written paper and clinical or practical and viva voce examination on a subject chosen from the following list: (*a*) human anatomy, including embryology; (*b*) physiology, (*c*) pathology, (*d*) pharmacology and therapeutics, (*e*) sanitary science and public health, (*f*) forensic medicine and toxicology, (*g*) mental diseases. The regulations for the degrees of M.Ch. and M.A.O. are of the same general nature.

NATIONAL UNIVERSITY OF IRELAND.

THE National University of Ireland carries on most of its educational work through three constituent colleges—one in Dublin, one in Cork, and one in Galway. Each of these provides a full medical curriculum, and all candidates for the medical degrees of the university must pass three of their five years of study at one or other of them. These years do not count except after matriculation or recognition as a student of the Medical Faculty obtained in some other fashion. The candidates at each constituent college are examined by the university, and a common standard of education is secured by all courses of instruction and the regulations concerning them having to be approved by the Senate, after considering report thereon from the Board of Studies of the university. In addition to the ordinary degrees in medicine and surgery, the university grants those of Bachelor and Master of Obstetrics, Bachelor and Doctor of Science in Public Health, and Bachelor and Master in Dental Surgery, as well as Diplomas in Public Health, in Mental Diseases, and in Tropical Medicine and Hygiene.

Application for other information may be made to the Registrar, National University of Ireland, 49, Merrion Square, Dublin, C.17.

THE IRISH CORPORATIONS.

THERE are, in the Irish Free State, three licensing bodies other than the Medical Faculties of the universities: and in Dublin, just as in London, there is a Royal College of Physicians of Ireland, a Royal College of Surgeons in Ireland, and an Apothecaries' Hall. In Dublin, as in London and in Edinburgh, the two Colleges have formed an examining Conjoint Board, which is responsible for the recommendation of candidates to the two bodies for their respective licences. The Apothecaries' Hall of Ireland, like the Apothecaries' Society of London, gives its licence separately.

THE CONJOINT BOARD IN IRELAND.

THIS body requires of candidates either the passage of its own preliminary examination in the subjects of general education or proof that the candidate has passed one of the tests accepted by the General Medical Council as well as passing in the pre-registration examinations in chemistry and physics and biology.

PROFESSIONAL EXAMINATIONS.

There are three professional examinations, the first of which cannot be passed earlier than the end of the second winter session, nor the final before the conclusion of full five years of medical study. Before being admitted to any of them the candidate must show that he has studied the different subjects in practice and theory for the requisite periods, certificates to this effect being accepted from the authorities of most of the recognized medical schools at home and abroad. The first examination deals with (*a*) anatomy, and (*b*) physiology and histology. The second examination deals with (*a*) pathology, (*b*) materia medica, pharmacy, and therapeutics and ophthalmology, and may be taken separately.

Final Examination.—This is divided into three divisions, which cannot be completed until at least five years have passed in medical studies other than those for the pre-registration examinations, and five years at least since the beginning of the curriculum. The divisions are: (*a*) medicine, including fevers, mental diseases, and diseases of children; (*b*) surgery, including operative surgery; (*c*) midwifery, including diseases of women and newborn children, and the theory and practice of vaccination.

Fees.—Preliminary Examination, £2 2s. Re-examination, £2 2s. Pre-Registration Examination, £3 3s. Re-examination in Chemistry, £2 2s.; in Physics, £1 1s. First Professional Examination, £26 5s.; Second, £15 15s.; Final, £6 6s. Re-examination fee is £2 2s. for each division.

Diploma in Psychological Medicine.

There are two examinations in connexion with this diploma: Part I consists of (*a*) anatomy and physiology of the nervous system, (*b*) psychology. Part II—(*a*) neurology, including clinical and pathological neurology; (*b*) psychological medicine, including its legal relationships.

Fees.—£6 6s. for each part.

Further information can be obtained from Mr. Alfred Miller, Secretary of the Committee of Management, Royal College of Surgeons, St. Stephen's Green, Dublin.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND AND ROYAL COLLEGE OF SURGEONS IN IRELAND.

The Diploma in Public Health.

Every candidate for the Diploma in Public Health must observe the following rules:

Rule 1. A period of not less than two years shall elapse between the attainment by a candidate of a registrable qualification in Medicine, Surgery, and Midwifery and his admission to the Final Examination for a Diploma in Public Health.

Rule 2. The curriculum for the Diploma in Public Health shall extend over a period of not less than twelve calendar months subsequent to the attainment of a registrable qualification.

Rule 3. Every candidate shall produce evidence of having attended, during a period of not less than five months, at an institution approved by the Licensing Body granting the Diploma, practical instruction in—

(*a*) Bacteriology and Parasitology (including Medical Entomology), especially in their relation to diseases of man, and to those diseases of the lower animals which are transmissible to man;
(*b*) Chemistry and Physics in relation to Public Health;
(*c*) Meteorology and Climatology in relation to Public Health.

At least 180 hours must be devoted to Course (*a*), of which not less than 150 hours shall be work.
At least 90 hours must be of which not less than 70 hours shall be work.
At least 10 hours must

Rule 4. Every candidate shall produce evidence of having received, during not less than 80 hours, at an institution or from teachers approved by the Licensing Body granting the Diploma, instruction in the following subjects:

(*a*) The Principles of Public Health and Sanitation (30);
(*b*) Epidemiology and Vital Statistics (20);
(*c*) Sanitary Law and Administration (including Public Medical Services) (20);
(*d*) Sanitary Construction and Planning (10).

[The numbers indicate the normal proportion of time to be given to each subject.]

Rule 5. Every candidate shall produce evidence that he has attended for three months on the clinical practice of a recognized Hospital for Infectious Diseases, and has received therein instruction in the methods of administration. At least thirty daily attendances of not less than two hours in each week shall be required.

Rule 6. Every candidate shall produce evidence that he has, during a period of not less than six months, been engaged in acquiring a practical knowledge of the duties, routine and special, of Public Health Administration under the supervision of a Medical Officer of Health, who shall certify that the candidate has received, from this Officer or other competent Medical Officer, during not less than three hours on each of sixty working days, practical instruction in these duties, and also those relating to:

(*a*) Maternity and Child Welfare Service;
(*b*) Health Service for Children of School Age;
(*c*) Venereal Diseases Service;
(*d*) Tuberculosis Service;
(*e*) Industrial Hygiene;
(*f*) Inspection and Control of Food, including meat and milk.

Certificates of having received the prescribed instruction in Public Health Administration must be given by a Medical Officer of Health who devotes his whole time to Public Health work; or by the Medical Officer of Health of a Sanitary Area having a population of not less than 50,000, or in Ireland the Medical Superintendent Officer of Health of a County or County Borough having a population of not less than 50,000.

Rule 7. The examination for the Diploma shall be divided into two parts, Part I and Part II.

Rule 8. The examination for Part I shall include the following subjects:

Bacteriology and Parasitology (including Medical Entomology);
Chemistry and Physics, and Meteorology and Climatology, in relation to Public Health.

Rule 9. The examination for Part II shall include the following subjects:

Hygiene and Sanitation (including Sanitary Construction);
Epidemiology and Infectious Diseases;
Sanitary Law and Vital Statistics;
Public Health Administration.

The examination shall be written and oral, and shall include practical examinations in Infectious Diseases; Food inspection; Inspection of Premises—dwellings, factories, workshops, schools, etc.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND.

Those whose names already appear on the *Medical Register* can obtain the separate Licence in Medicine of this College and its Licence in Midwifery. In either case an examination has to be passed in the subjects indicated, questions on midwifery, hygiene, and jurisprudence being included in the examination for the Licence in Medicine. For the Licence in Midwifery practitioners of over five years' standing are exempted from examination by printed questions. The other grades of the College are Members and Fellows. The former are admitted after an examination which is open to all university graduates in medicine and Licentiates in medicine of the Royal College of Physicians, and deals with the general subjects of medicine. Fellows are selected, by vote, from among the Members of the College.

Fees.—For the Licence in Medicine, 15 guineas; Special Examination, £21. For the Licence in Midwifery, 8 guineas; Special Examination, 16 guineas. For the Membership, 20 guineas to a Licentiate of the College, 35 guineas to others; a special examination costs 10 guineas extra. The Fellowship, £35, in addition to stamp duty, £25.

Information as to special examinations and other matters can be obtained from the Registrar, the Royal College of Physicians, Kildare Street, Dublin.

ROYAL COLLEGE OF SURGEONS IN IRELAND.

This body, besides granting a Licence in Surgery, admits those possessed of registrable surgical qualifications to its Fellowship under certain conditions. Its Licence is usually granted conjointly with that of the College of Physicians, but it is given separately to holders of a registrable qualification in medicine, provided the College is satisfied that adequate courses of study have been pursued, and provided its own provisional examination is passed. This examination is held on its behalf by the Conjoint Board, and is identical with the ordinary surgical portion of the examinations imposed by that body.

The Fellowship.—Candidates for the Fellowship must pass two examinations, of which the first is in anatomy (including dissections), physiology, and histology; and the second in surgery (including surgical anatomy) and pathology. Both examinations are partly written, partly practical, and partly viva voce; while the final examination includes the performance of operations. All subjects of either examination must be passed at one time, and in neither can a candidate be admitted who has been rejected in any of its subjects by any other licensing body within three months. Candidates are not admitted to the Primary Examination except on evidence that they have already passed an examination in anatomy, physiology, and histology, held by some university or other body whose degrees or licences entitle the holder to admission to the *Medical Register*; if, however, the candidate's name is on the Colonial or Foreign List in the *Medical Register*, at the discretion of the Council. Candidates for the Final Examination must be over 25 years of age, produce a certificate of general good conduct signed by two or more Fellows of the College, and, if successful, must make a declaration before admission to the effect that they do not conduct dispensing practices, and will not do so as long as they are Fellows.

Fees.—Candidates for the Licence pay 5 guineas for examination, which sum, if they pass, is counted as part of the fee payable on admission to the Licence, this being 25 guineas. Candidates for the Fellowship pay 5 guineas for each examination, the total of 10 guineas being reckoned as part of the fee payable on admission to the Fellowship. That fee is 25 guineas in the case of those who are already Licentiates, and 40 guineas in the case of others.

APOTHECARIES' HALL OF IRELAND.

A DIPLOMA is granted by this Hall which entitles the holder to be registered as a practitioner of medicine, surgery, and midwifery, and confers also the privileges of an apothecary. Women candidates are eligible.

Fees.—Primary Examination (Parts I and II), £21; Final Examination, £21. Subjects of examination: Primary, Part I, Anatomy and Physiology. Primary, Part II, Materia Medica, including Pharmacy; Medical Jurisprudence and Hygiene; Pathology. Final Examination: Medicine, Surgery, and Midwifery. Candidates must

enter for and pass at the one time in Anatomy and Physiology. They are at liberty to enter for the subjects of the Final Examination at separate times, but the Final Examination cannot be completed until a period of three years has elapsed from the date of passing Primary Examination, Part II.

Application for other information should be made to the Registrar, 95, Merrion Square, Dublin.

MEDICAL SCHOOLS AND COLLEGES.

LONDON.

INFORMATION as to the fees at each of the various metropolitan medical schools, and the scholarships, prizes, and junior appointments which they offer, will be found in the following pages. The courses they provide are fundamentally the same, and in all of them the arrangements made are such as to meet the requirements of students of every class—of those who are aiming at the diplomas of the English Conjoint Board or the Apothecaries' Society, not less than of those who have London or other university degrees in view. At all, too, special facilities are offered to students who have commenced their professional education at Oxford or Cambridge, and are seeking the medical degrees of those universities.

CHARING CROSS HOSPITAL.

THIS school, with its hospital, is situated in the centre of London, and is easily accessible. Primary and intermediate students attend lectures and practical work at King's College. The final studies are taken in the school and hospital, where systematic lectures, demonstrations, and tutorial classes are arranged to cover all the subjects necessary for the qualifying examinations. Departments are also available for the other final subjects of bacteriology, clinical pathology, biochemistry, materia medica, public health, operative surgery, and for research work. An Institute of Pathology, with a whole-time staff of scientific workers and fully equipped laboratories, has been established in the school. Students receive their training in preventive medicine, pathology, and bacteriology here, and are encouraged to undertake research.

A number of scholarships and exhibitions are awarded to university and other students, particulars of which can be obtained from the Dean.

Fees.—The fees are as follows: Entrance, Primary and Intermediate, 10 guineas; Final, 8 guineas. Annual, 38 guineas.

Further information may be obtained on application to the Dean of the Medical School, Charing Cross Hospital, London, W.C.2.

GUY'S HOSPITAL.

THE hospital contains 646 beds in constant occupation. Twenty-five beds are set apart for diseases of the eye, and 42 for the most urgent and interesting medical cases, which form the subjects of the weekly clinical lectures. There are special wards of 49 beds for the reception of cases of diseases of women and for cases of difficult labour. Beds are also allotted to the throat and ear departments, the departments of orthopaedics, neurology, and dermatology, the department for the treatment of diseases of the genito-urinary system, and the children's department; there are also some special beds for the treatment of syphilis.

The residential college fronts the east gate of the hospital, providing accommodation for resident students. This contains a dining hall, reading rooms, a library of general literature, and a gymnasium for the use of the residents and of the members of the Clubs Union. The athletic ground at Honor Oak Park is reached from the hospital in fifteen minutes. The Gordon Museum of Pathology, the Wills Library, the departments of chemistry, physics, pathology, and pharmacology, and the school buildings in general, afford opportunities for a liberal education and for research, and provide the full curriculum for all medical degrees and diplomas. New departments of anatomy, physics, and biology have recently been completed. They are equipped on the most modern lines, and provide ample accommodation for teaching and research. Special classes are held for the First and Second examinations for medical degrees of the University of London, for the pre-medical examination, and for the First and Final F.R.C.S.Eng. Examinations. Special teaching is provided to meet the requirements of the Universities of London, Oxford, and Cambridge in general pathology and pharmacology.

Appointments.—All appointments are made according to the merits of the candidates, as determined by a committee of the medical staff. Sixteen out-patient officers, eight house-physicians, twenty assistant house-surgeons, eight house-surgeons, two ophthalmic house-surgeons, two genito-urinary house-surgeons, two house-physicians (children's department), two house-physicians (dermatological and neurological), and nine resident obstetric assistants are appointed annually. The house-physicians and house-surgeons, obstetric residents, ophthalmic house-surgeons, and genito-urinary house-surgeons hold office for six months each, and receive free board and lodging in the college. Every student is provided with rooms and commons in the hospital during the period of his "take in" as senior dresser. In addition to the clerkships and dresserships in the medical and surgical wards, students are appointed to the posts of clinical assistant dresser, or clerk in the special departments of ophthalmology, laryngology, gynaecology, diseases of children, diseases of the nervous system, dermatology, otology, actinotherapeutics, anaesthetics, dentistry, orthopaedics, vaccine, tuberculosis, fractures, and genito-urinary and venereal disease; clinical assistantships in the various special departments are open to post-graduates.

Scholarships, Prizes, etc.—The following scholarships in Arts and Science are awarded. A. Open Junior Scholarships: (1) An Arts Scholarship of the value of £100, (2) a Science Scholarship of the value of £100; these are awarded annually in June or July. (3) A War Memorial Scholarship of the value of £200, awarded alternately in Arts and Science. This scholarship is open every other year; the next award will be made in June or July, 1930 (in Science). B. Confined Scholarship in Science. A Junior Science Scholarship of the value of £100 is offered for competition annually in June or July to candidates who have attended the preliminary science classes at this school. Candidates for these scholarships (male students only) must be under 20 years of age on August 1st of the year of the competition. C. Open Senior Science Scholarships: (1) A War Memorial Scholarship of the value of £100, (2) an Open Scholarship of the value of £80; both of these are awarded annually in September. Full particulars as to the scholarships may be obtained from the Dean of the Medical School. Junior prizes for general proficiency, £20, £15, £10; Hilton Prize for dissection, £5; Michael Harris Prize for anatomy, £10; Sands-Cox Scholarship for physiology, £15 for three years; Wooldridge Memorial Prize for physiology, £10; Beaney Prize for pathology, £34; Treasurer's Gold Medal in medicine, Treasurer's Gold Medal in surgery, and the Golding-Bird Gold Medal and Scholarship for bacteriology (£20), are awarded annually after competitive examination. The Gull Studentship in pathology, of the value of £250 per annum, the Beaney Scholarship in materia medica, of the annual value of about £50, and the Anderson Demonstratorship in clinical chemistry, value £175 per annum, are awarded without examination to enable research to be carried on in these subjects. An Arthur Durham Travelling Scholarship of £100 is awarded triennially. The Griffiths Demonstratorship in Pathology of the value of £320 per annum, and the Hilda and Ronald Poulton Fellowship, value £150 per annum, are awarded without examination.

An annual composition fee is paid by all students until a registrable qualification is obtained. Further information may be obtained from the Dean of the Medical School, Guy's Hospital, London Bridge, S.E.1.

KING'S COLLEGE HOSPITAL.

THE medical school of this hospital, which is situated at Denmark Hill, deals with the Final Examination subjects of the medical curriculum. The hospital was opened in 1913, and is one of the most modern and best equipped in England. The number of attendances in the casualty and out-patient departments during the year 1928 amounted to 285,348. In the education at the hospital a special feature has always been the individual attention given to each student. The studies are co-ordinated under the direction of senior members of the honorary staff, assisted by medical, surgical, obstetric, and pathological tutors. There are special departments for diseases of women and children, nervous diseases, ophthalmology, otology, laryngology and rhinology, dermatology, radiology, and physical treatment. The laboratory and pathological department are specially noteworthy.

Appointments.—Sixteen resident medical and surgical officers are appointed half-yearly, as well as dressers and clerks in the wards, out-patient departments, post-mortem rooms, and special departments. Each of the special

departments has several clinical assistants. There are three registrars and four tutors, all of whom receive salaries. The Clubs and Societies Union combines athletics, music, and other societies connected with the school, and provides also a common room.

Scholarships, etc.—At entrance: Science Scholarship, £50. At commencement of Final Studies: Anatomy and Physiology Scholarship, £50; Pathology Scholarship, £75; two Raymond Gooch Scholarships, each £60 a year for two years; two Burney Yeo Scholarships, each £80 (for Oxford and Cambridge students); Seaman Scholarships, £50 a year up to five years; Epsom College Scholarship, £50; Senior Scholarship, £40; Todd Prize, Tanner Prize, Class Prizes and Medals.

Fees.—The composition fee is 93 guineas if paid in one sum. Entrance fee of 10 guineas includes membership of the Clubs and Societies Union.

New Dental School.—This school was opened in October, 1923, and provides complete courses for dental degrees and diplomas. The director of dental studies is Dr. A. Livingston, M.B., Ch.B., M.D.S., L.D.S.

The calendar of the school can be obtained on application to the Dean, H. Willoughby Lyle, M.D., F.R.C.S., or to the Secretary of the Medical School, S. C. Ranner, M.A., King's College Hospital, Denmark Hill, S.E.5.

THE LONDON HOSPITAL.

THIS hospital, with its medical college and dental school, is situated in the Mile End Road, E.1. The hospital contains 839 beds, which are in constant use. During 1928, 14,698 patients passed through the wards and 96,928 out-patients received treatment. Of the latter number, 40,582 received treatment in the departments for diseases of the ear, nose, throat, eye, skin, and teeth, and in the pediatric, orthopaedic, venereal, radiological, electro- and physico-therapeutical, and inoculation departments. The number of major operations which were performed amounted to 7,649.

The hospital presents, therefore, a large field for clinical instruction, and in its wards and out-patient and special departments exceptional opportunities are afforded for acquiring an extensive and practical experience of all phases of disease.

A clinical unit in medicine, under the charge of a whole-time director, assisted by an assistant director, two assistants, and two house-physicians, provides for the more elaborate methods of diagnosis and treatment, and takes a leading part in the initiation and co-ordination of medical research. To each medical and surgical firm throughout the hospital there is attached a first assistant, who is responsible for instructing the clerks or dressers of the firm in elementary medicine and surgery, and who assists the honorary members of the firm in the preparation of their demonstrations. In the department of obstetrics and gynaecology there are two assistants and two resident accoucheurs. Special courses of lectures and demonstrations are arranged in medicine and surgery and in their ancillary subjects. Opportunities for research are provided under the supervision of the staff.

All the departments are modern and adapted for the teaching of all subjects in the various curricula. Special courses of instruction are held in preparation for the examinations of the University of London, for the Fellowship of the Royal College of Surgeons, and for the Membership of the Royal College of Physicians. Special entries can be made for the medical and surgical practice of the hospital. Two resident hostels are provided for the convenience of students. Recent additions to hospital and college buildings include a laboratory for the manufacture of certain preparations of radium. The athletic ground, of over thirteen acres, is at Higham's Park, and is open to all members of the Clubs Union.

Appointments.—The salaried appointments open to past students of the hospital are those of assistants to the medical unit; first assistants to the medical and surgical firms; obstetric registrar; assistants to the department of obstetrics and gynaecology; medical, surgical, and obstetric tutors; clinical assistants in the medical, surgical, ophthalmic, aural, light and skin, orthopaedic, and electrical departments, and in the Institute of Pathology. There are appointed annually 4 resident accoucheurs, 14 resident house-physicians and 22 resident house-surgeons, 14 resident receiving-room officers, 8 resident emergency officers, 8 clinical assistants to the medical out-patient department, and 16 clinical assistants to the surgical out-patient department, also paid and unpaid clinical assistants in the various special departments. In addition, there are numerous assistantships, clerkships, and dresserships in the departments of medicine, surgery, gynaecology, and obstetrics.

Scholarships and Prizes.—The following is a list of scholarships and prizes:—At entrance: Price Scholarship in science, £100. Two open scholarships, each of the value of £100. Scholarships open to students of Oxford and Cambridge Universities: (1) £100, anatomy and physiology; (2) £100, pathology. Entrance Scholarship in science, £50; Epsom Scholarship, "free medical education." After entrance: Buxton Prize in anatomy and physiology, £40; Lefheby Prizes in organic chemistry and chemical pathology, £25; Prizes in clinical medicine, surgery, and obstetrics and gynaecology, £20 each; Duckworth Nelson Prize in practical medicine and surgery, £10; Hutchinson Prize in clinical surgery, £60; Treves Prize in clinical surgery, £15; Sutton Prize in pathology, £20; K. E. D. Payne Research Scholarship in pathology, £20; Sir Andrew Clark Prize in clinical medicine and pathology, £14; T. A. M. Ross (prox. acc.) Prize in clinical medicine and pathology, £10 10s.; Anderson Prizes in elementary clinical medicine, £20; Dressers' Prizes, £20; Practical Anatomy Prizes, £10; Arnold-Thompson Prize in medical and surgical diseases of children, £15; Liddle Prize, £120; Francis Farmer Scholarship in dental surgery, £25; Harold Fink Prize in dental surgery, £8 8s. The "London" Prizes in dental surgery and pathology, £5 5s., and in dental prosthesis, £5 5s. Seven class examination prizes, each of the value of £3 3s., are offered for competition at the end of the courses of lectures in the dental curricula. Funds to the value of over £113,000 permit of financial assistance being given to students and graduates engaged in medical research.

Fees.—Entrance fee, 20 or 15 guineas, according to examinations passed; annual fee, 40 guineas.

Full information may be obtained from the Dean at the London Hospital Medical College, Mile End, E.1.

THE MIDDLESEX HOSPITAL.

THE school and hospital are in Mortimer Street, W.1, close to Oxford Circus, Goodge Street, and Great Portland Street stations. There are a gymnasium, common rooms, and restaurant within the hospital precincts, and an athletic ground within easy reach. The hospital contains over 450 beds, including a wing containing 92 beds for patients suffering from cancer. There are special wards for maternity and gynaecological cases, for mental cases, for cases of venereal disease, and for diseases of children and of the skin and eye.

The medical school, which includes the Bland-Sutton Institute of Pathology, the S. A. Courtauld Institute of Biochemistry, and the Barnato-Joel Laboratories, is completely equipped for teaching the entire medical curriculum, including the pre-medical subjects, chemistry, physics, and biology. The Bland-Sutton Institute, under the charge of the Professor of Pathology, contains large pathological and public health laboratories, and smaller rooms for original investigation as well as a pathological and anatomical museum. Bacteriological, chemical, and microscopical examinations of material from the wards, operating theatres, and out-patient departments are carried out in the laboratories, and senior students are eligible for clerkships in connexion with this work. Junior assistants in the pathological and bacteriological laboratories are elected annually from recently qualified students. Every facility is given for original research. The Biochemical Institute is under the charge of the Professor of Biochemistry, and contains teaching and research laboratories in addition to those devoted to the routine clinical work of the hospital. The Barnato-Joel Laboratories offer unrivalled opportunities for the study of cancer in both its clinical and pathological aspects.

Appointments.—Twenty-five resident appointments are open annually for competition among students of the hospital. The officers reside and board in the residential college free of expense. Two casualty medical and two casualty surgical officers, and two resident officers to the special departments, are appointed annually. Eight house-surgeons are appointed every year at intervals of two months, after examination; six house-physicians are also appointed annually at similar intervals. An obstetric and gynaecological house-surgeon is appointed every six months. Ten registrars are appointed annually. In the out-patient departments the appointments are: clerk and dresser to the physicians and surgeons to out-patients;

clerk in the departments for diseases of the skin and nervous diseases; dressers to the department for diseases of women, to the ophthalmic surgeon, to the throat and ear department, and to the dental surgeon. Extern midwifery clerks and post-mortem clerks are also appointed. The appointments are so arranged that every student may, during his course, hold all the out-patient and in-patient clerkships and dresserships. Students must have held an out-patient clerkship and dresserships before holding in-patient clerkships or dresserships. Non-resident qualified clinical assistants are appointed in the medical, surgical, skin, neurological, ophthalmic, throat and ear, odontological, children's, and electro-therapeutic out-patient departments.

Scholarships.—There are two Entrance Scholarships, value £100 each. Two annual Entrance Scholarships, of the value of £90 and £60 respectively, are open to students of the universities of Oxford and Cambridge who have completed the curriculum for, or passed the examinations in, anatomy and physiology. Students joining the school in the previous April are eligible. The Freer Lucas Scholarship is annually awarded on the nomination of the headmaster to a pupil of Epsom College who has passed the first examination for medical degrees (Preliminary Scientific Examination). There is also a scholarship, value £50, awarded annually to *students from New Zealand. In addition to the Entrance Scholarships*, there are numerous other valuable scholarships, prizes, and exhibitions open to students of the hospital, including the Brodrip Scholarships, value £60 and £40; Lyell Gold Medal and Scholarship, value £55 5s.; Freeman Scholarship, value £30; John Murray Gold Medal and Scholarship, value £25; Hetley Clinical Prize, value £25; Leopold Hudson Prize, value 11 guineas; and the Second Year's Exhibition, value 10 guineas.

The rebuilding of the hospital is being carried out without the loss of a single bed, or any disorganization of its clinics.

Fees.—(*a*) Pre-medical students: For one year or less, £21. (*b*) Students who have completed the Preliminary Science course: Entrance fee, 25 guineas, payable on joining the medical school; five annual fees of £45. The annual fee for further attendance at the medical school, if a registrable qualification has not been obtained, is £23. (*c*) Oxford and Cambridge and other students who have completed the Intermediate course: entrance fee, 15 guineas; three annual fees of £45; further annual fees as above. *These fees are inclusive and cover the cost of instruction in vaccination, fevers, etc., and also the subscription to the amalgamated clubs and hospital journal.*

Further information may be obtained from the *Dean or the School Secretary.*

St. Bartholomew's Hospital.

This institution fills one side of Smithfield and Giltspur Street, covering the greater part of a large island of ground separated practically from all other buildings; it is on the edge of the City, and easily reached from all parts of London. The hospital contains 757 beds. Extensive buildings, opened in July, 1907, occupy part of the ground acquired from the old Bluecoat School, and these materially enhance the attractions of the hospital as a place of medical study. The medical school buildings, including the library, the museum, and the chemical, biological, and anatomical departments, have now at their side a very large building, which includes club rooms for the Students' Union, a writing room, luncheon and dining halls, new quarters for the resident staff, and an out-patient department and accommodation for special departments of such large size as to be unsurpassed by any hospital in the kingdom. During the year 1909 a second block of new buildings was completed. These form the pathological department, and include, in addition to an extensive post-mortem room, large and well-equipped laboratories for clinical pathology, pathological histology, bacteriology, and chemical pathology, altogether forming the most complete pathological department in the country. A further large block in Giltspur Street was acquired in 1923, and has been equipped by the construction of new lecture theatres and extensive laboratories for physics, chemical physiology, experimental physiology, histology, and pharmacology. The new block of surgical wards and operation theatres, with accommodation for 250 patients, will be opened for use early in January, 1930. The Students' Union owns grounds of some ten acres in extent for recreative purposes at Winchmore Hill, which is easily accessible from the hospital.

Special classes are held for students preparing for the Preliminary Scientific and other examinations, for the M.B., M.D. of the Universities of Oxford, Cambridge, and London, and for the higher surgical degrees at the same universities, including the M.Ch.Oxon., M.Chir.Cantab., M.S.Lond., and F.R.C.S.Eng.

Clinical Units.—Special clinical units have been established in medicine and surgery, each under the charge of a professor and director, who devotes the whole of his time to the purpose of hospital practice, teaching, and research. In each unit there are an assistant director and four assistants, for whom special laboratory accommodation has been provided by a gift from the Sir William Dunn Trustees. The appointments of clerks and dressers are open to all students in these departments, and arrangements are made for all students to study in these units during a part of their clinical course.

Appointments.—Clinical clerks to the physicians and to the physician-accoucheur, and dressers to the surgeons and in the casualty department, are chosen from the students; clerks and dressers are also selected from the students to attend in the out-patient rooms, in the special departments (ophthalmic, orthopaedic, gynaecological, children's, laryngological, anal, dermatological, venereal, electrical, and dental), and in the post-mortem room. Chief assistants and clinical assistants are selected from qualified men appointed yearly to help in the general medical, surgical, and in special departments. Ten house-physicians and *ten house-surgeons are appointed annually. During their* first six months of office they act as "junior" house-physicians and house-surgeons, and receive a salary of £80 a year. During their second six months they become "senior" house-physicians and house-surgeons, and are provided with rooms by the hospital authorities, and receive a salary of £80 a year. A resident midwifery assistant, an ophthalmic house-surgeon, a house-surgeon to the skin and venereal department, and a house-surgeon for diseases of the throat, nose, and ear are appointed every six months, and are provided with rooms and receive a salary of £80 a year. Three resident administrators of anaesthetics are appointed—the senior for one year at a salary of £150, and two juniors for six months with a salary at the rate of £60 per annum—and all are provided with board and rooms. An extern midwifery assistant is appointed every three months, and receives a salary of £60 a year.

Scholarships.—Four Entrance Scholarships are annually awarded after examinations held in September. The subjects of examination and conditions of eligibility for these scholarships are: (1) One scholarship, value £75, in not fewer than two and not more than three of the following subjects: chemistry, physics, botany, zoology, physiology, pathology, and anatomy, limited to students under 25 years of age who have not entered on the medical or surgical practice of any London medical school. (2) One scholarship, value £100, in not fewer than three of the following subjects: chemistry, physics, botany, zoology, and physiology, limited to students under 21 years of age who have not entered on the medical or surgical practice of any London medical school. (3) An entrance scholarship in arts, of the value of £100, in mathematics; Latin or Greek, or French or German; a second language or chemistry or physics. (4) The Jefferson Exhibition in the same subjects as No. 3—of the value of £50. Candidates for Nos. 3 and 4 must be under 19 years of age. The total value of the scholarships and prizes is over £1,200 annually.

Further information and a handbook can be obtained on application to the Dean of the Medical College, St. Bartholomew's Hospital, E.C.1.

St. George's Hospital.

This school is at Hyde Park Corner, and is carried on in connexion with St. George's Hospital, an institution having a service of 436 beds, of which 100 are at the convalescent hospital at Wimbledon. It provides for the instruction of its students in the preliminary and intermediate subjects of the curriculum at the teaching centre of London University established at King's College. The school at Hyde Park Corner is devoted entirely to the teaching of clinical subjects, great attention being paid by the members of the staff to individual teaching. A number of special courses are given, in which the requirements of university and all other examinations receive careful attention.

The St. George's Hospital Club consists of an amalgamation club, with smoking and luncheon rooms on the hospital premises, and other students' clubs, with an athletic ground at Wimbledon. Students have the advantage of a well-filled library of medical and scientific books. A register of accredited apartments and a list of medical men and others willing to receive St. George's men as boarders may be seen on application to the Dean.

Appointments.—Two house-physicians, two house-surgeons, and two casualty officers are appointed every two months. The house officers reside and board in the hospital

free of expense. The casualty officers are non-resident, and receive salaries at the rate of £100 per annum. After the student has held a house appointment, the following are, among others, open to him: assistant resident physician at £250 per annum; assistant resident surgeon at £250 per annum; medical officer to the Atkinson Morley Convalescent Hospital at £300 per annum; medical registrarship at £200 per annum; surgical registrarship at £200 per annum; medical officer to the biochemical department at £100 per annum; assistant curatorship of the museum, £100 per annum; obstetric assistantship, resident, at £50 per annum; the post of resident anaesthetist at £100 per annum; the posts (three) of junior anaesthetist, each at £30 per annum.

Scholarships.—The following Entrance Scholarships and Exhibitions in anatomy and physiology and in general pathology are awarded in July to candidates who have passed the second M.B.London or corresponding examination; Senior William Brown Exhibition of the value of £120; Senior Scholarship of the value of 90 guineas; Junior William Brown Exhibition of the value of £80; Junior Scholarship of the value of £70; Devitt-Pendlebury Scholarship of the value of £50; and Exhibitions, each of the value of £40 and up to six in number. Other prizes to the value of £200 are awarded annually to the students of the hospital.

Fees.—First year (First M.B. or pre-medical course), £36 15s.; second and third years, £42 each. For the course of clinical study, in the fourth and subsequent years, entrance fee, £10 10s.; annual composition fee, £42. No entrance fee is payable by St. George's students who have studied at King's College.

Further information may be obtained from the Dean of the Medical School.

St. Mary's Hospital.

THIS hospital and medical school are situated close to Paddington Station (G.W.R.), having on one side a poor district of 500,000 persons, and on the other side the residential district of Kensington and Bayswater. The hospital contains 348 beds, and extensions recently completed have provided two new operating theatres. By a scheme of affiliation, for teaching purposes, of several neighbouring hospitals, the teaching facilities extend over 1,000 beds. By arrangement with the Lock Hospital, students take the courses of instruction in venereal diseases there. The athletic ground (ten acres) is situated at Wembley, and can be reached in twenty minutes by a constant service of trains.

Clinical Facilities.—Clinical units in medicine and surgery were established in 1920, and have now been formally recognized by the University Grants Committee, St. Mary's being one of the six medical schools in London which enjoy this privilege. In addition to the lying-in beds at St. Mary's, every student attends a short course at Queen Charlotte's Maternity Hospital (which is situated near to St. Mary's) before holding a post on the maternity district of the hospital.

Institute of Pathology and Research.—Students specially interested in pathology and bacteriology have singular advantages at St. Mary's. The Institute comprises seven special departments, the whole being under the personal direction of Sir Almroth Wright, F.R.S. Research scholarships of £200 each are awarded annually to students working in the departments of the Institute; and research beds are provided. Clerkships in pathology and bacteriology and chemical pathology, lasting for a period of three months, are open to students of the fifth year, and enable them to carry out the pathological and bacteriological investigations of the wards, and learn the necessary technique under supervision. Seventy-two of these posts are available annually. Numerous appointments are open to newly qualified members of the medical school, including ten salaried posts, with salaries varying from £200 to £750 per annum.

Complete Curriculum.—The medical school provides complete courses of instruction, and students can join at once on passing a preliminary examination in arts. Terms begin in October, January, and April.

Entrance Scholarships.—Two Entrance Scholarships of £210 each and one of £26 5s. are awarded annually in July by nomination on the lines of the Rhodes Scholarships. The Geraldine Harmsworth Scholarship (£200) and one or more University Scholarships of £200 are awarded annually in July.

Fees.—Composition fees for entire curriculum (6 years), £205 in one sum, or £215 by five annual instalments. Composition fee for clinical curriculum (3 years), 95 guineas in one sum, or 100 guineas by two annual instalments. As an alternative, students may pay an annual fee of 40 guineas, with an entrance fee.

St. Thomas's Hospital.

THIS school and hospital are situated in Lambeth, on the south bank of the Thames, facing the Houses of Parliament, and form one of the well-known architectural features of London.

The school buildings, which are separated from the hospital by a quadrangle, comprise lecture theatres, laboratories, and classrooms well adapted for the modern teaching of large bodies of students in the subjects of the medical curriculum. A splendid library and reading room and a complete museum are open to all students from 9 a.m. to 5 p.m., on Saturdays to 1 p.m. St. Thomas's House, the new Students' Club recently opened, comprises spacious dining and club rooms, etc., and provides accommodation for some sixty resident students. The terrace affords facilities for exercise and recreation. The sports ground, more than nine acres in extent, is at Chiswick. It can be reached in forty minutes from the hospital; it is admirably adapted for football, cricket, lawn tennis, and athletic sports.

The hospital proper contains 644 beds. In addition to the ordinary provisions of a great hospital there are connected with the out-patient department physicians' and surgeons' rooms provided with ample sitting accommodation, so that students are enabled to follow closely the practice and teaching of the out-patient staff. There is a full complement of special departments, and connected with the hospital a special tuberculosis department gives opportunity for instruction of students. There is a clinical theatre, centrally situated, so as to facilitate the illustration of lectures by patients from the wards and out-patient room; it is arranged also for lantern demonstrations. A clinical unit in medicine has been established. The maternity ward, containing 21 beds, gives students full facilities for maternity training, under supervision, within the precincts of the hospital. This obviates any necessity for supplementary instruction elsewhere, and fully prepares the student for the extern maternity practice of the hospital district. The revised regulations of the examining bodies can thus be fully complied with.

Appointments.—All hospital appointments are open to students without charge. A resident assistant physician and a resident assistant surgeon at £225 each per annum, and a resident anaesthetist at £200 per annum, are appointed annually. Three hospital registrars—one medical and two surgical—at an annual salary of £250 each, rising by £25 to £300, are appointed yearly. The tenure of these offices may be renewed for a term not exceeding three years. A pathological registrar to the department of obstetrics and gynaecology (at an annual salary of £250), an ophthalmic registrar (at an annual salary of £200), and an orthopaedic registrar (unpaid) are appointed yearly. Ten resident casualty officers and anaesthetists (including two senior) are appointed every six months. Seven house-physicians (including two obstetric house-physicians and one house-physician to the department of diseases of children) and nine house-surgeons (including two ophthalmic house-surgeons, one orthopaedic house-surgeon, and two house-surgeons to the ear, nose, and throat department) are appointed every six months. Thirty-six or more clinical assistants in the special departments are appointed every three months, and hold office for six months if recommended for re-election. Clinical clerkships and dresserships to the in-patient and out-patient departments are available to the number of 400 each year.

Scholarships.—There are five Entrance Scholarships: two in arts, giving one year's free tuition; one of £150 and one of £60, in chemistry, physics, and biology, for students who have not received instruction in anatomy or physiology; one of £100 in any two of the following subjects: anatomy, physiology, chemistry, or pathology, for students who have completed their examinations in anatomy and physiology for a medical degree in any of the universities of the United Kingdom or the Colonies, and have not entered as clinical students in any London medical school. The money value and subjects of examination of the remainder are as follows: (*a*) William Tite Scholarship for second-year students, £25; (*b*) and (*c*) Musgrove Scholarship or (alternately) Peacock Scholarship, each for third-year students and tenable for two years, £35 each; (*d*) Mead Medal, medicine, pathology, and hygiene; (*e*) Wainwright Prize, medicine; (*f*) Toller Prize, medicine; (*g*) Cheselden Medal, surgery and anatomy; (*h*) Clutton Memorial Medal in clinical surgery, biennial; (*i*) Beaney Scholarship, £50 biennially, surgery and surgical pathology; (*j*) Solly Medal and Prize, biennially, reports of cases; (*k*) Sutton Sams

Prize, biennially, reports of cases; (*l*) Bristowe Medal, pathology and morbid anatomy; (*m*) Hadden Prize, pathology and morbid anatomy; (*n*) Grainger Testimonial Prize, £31 10s., anatomy and physiology; (*o*) Louis Jenner Research Scholarship, tenable for two years, £60 annually, pathology; (*p*) School Council Research Scholarship, £250 per annum; (*q*) John and Temple Research Scholarship, value £450 per annum (children).

Fees.—The annual fees are: For each year of study, £50. These fees cover all tutorial classes, but do not include instruction in infectious fevers, pharmacy, and vaccination. A limited number of qualified practitioners are permitted to attend the hospital practice on terms which may be ascertained from the Medical Secretary.

Special courses of instruction are given for various examinations, and a register of lodgings is kept at the school. Further information may be obtained from the Medical Secretary of the School, St. Thomas's Hospital, Albert Embankment, S.E.1.

University College Hospital.

The school, which forms part of the corporation of University College Hospital, is in immediate proximity to the hospital in University Street, and opposite University College. It comprises departments of medicine, surgery, midwifery and gynaecology, pathology including morbid anatomy, chemical pathology, biochemistry and bacteriology, cardiography, forensic medicine, mental physiology and mental diseases, dental surgery, practical pharmacy, and other departments for the study of special diseases, such as those of the eye, skin, ear and throat, venereal diseases, and for instruction in anaesthetics, electro-therapeutics, and skiagraphy. The hospital and school have acquired the National Dental Hospital and College as their dental departments, thus providing every facility for the study of dental subjects. The Royal Ear Hospital has also been amalgamated as the Ear, Nose, and Throat Department, and a new hospital for in- and out-patients, close to University College Hospital, is completed.

The school thus provides the final course of study for the degrees of the Universities of Oxford, Cambridge, London, Durham, and other British universities, and for the diplomas of the Royal Colleges of Physicians and Surgeons in medicine and in dental surgery, and the Licence of the Society of Apothecaries. Special bacteriological classes are also held in preparation for the various diplomas in public health. Each department is also equipped for more advanced work, and provides facilities for research.

Clinical units in medicine, surgery, and obstetric medicine are now in operation. The whole-time directors of the units are concerned with the organization of the teaching generally, but the honorary staff is responsible for the largest share of the teaching in the wards and out-patient department of the hospital.

The new buildings of the obstetric hospital of 74 beds (rendered possible by the Rockefeller benefaction), the new Residents' House (with accommodation for 33 residents and students), the extension of the Nurses' Home, and the new research laboratories for the Medical School, are now finished and in full occupation.

Appointments.—The qualified appointments, in addition to a number of posts as house-physicians and house-surgeons and obstetric assistants, include the appointments of resident medical officer, medical registrars, surgical registrar, obstetric officer, Harker Smith radium registrar, ophthalmic registrar, casualty medical officers, casualty surgical officers, assistants in ear, nose and throat, skin and venereal diseases departments, and house anaesthetists.

Scholarships.—The following scholarships and prizes are open to competition: Two Entrance Exhibitions of 112 guineas each, awarded after a competitive examination in any two of the following subjects: anatomy, physiology, or general pathology; Radcliffe Crocker Travelling Scholarship in dermatology for one year, value about £280; the Graham Scholarship in pathology of a sum not exceeding £400 per annum; Leslie Pearce Gould Research Scholarship in surgery for one year, value about £200; the Atkinson Morley Scholarship of £45 a year for three years, awarded after examination in the theory and practice of surgery; the Atchison Scholarship of £55 a year for two years for general proficiency in medical studies; the Magrath Clinical Scholarship, value about £150; the Filliter Exhi[illegible] £30; the Percival Alleyn Prize for the [illegible] by research, value about £75; the Gral [illegible] arch work; four Fellows Medals in clinical medicine; Liston Medals in clinical surgery; the Bruce Medal in pathology and surgery; two Tuke Medals in pathology; and the Erichsen Prize for practical surgery.

Fees.—The fee for the full course of final studies at the school is 112 guineas if paid in one sum, or 115 guineas if paid in two instalments. Fees for vaccination, fevers, and pharmacy not included.

Particulars of general and special courses can be obtained on application to the Dean of the Medical School, University College Hospital, University Street, W.C.1.

Westminster Hospital.

The school, with its hospital situate in Broad Sanctuary, opposite Westminster Abbey, provides for the education of its students in the preliminary and intermediate subjects of the University of London at King's College. The rest of the work is done in the school buildings near the hospital. The number of in-patients averages 3,500 and out-patients upwards of 30,000 annually, and the hospital and school afford ample facilities for instruction in all branches of medicine and surgery.

Appointments.—A medical and surgical registrar are appointed annually, each with a salary of £150, and an obstetric registrar with a salary of £50. A senior resident and casualty officer, salary £104 per annum and board, appointed for six months, may be extended for a further period of six months. Three house-physicians, three house-surgeons, three assistant house-physicians, three assistant house-surgeons, and a resident obstetric assistant are appointed after examination, and are provided with rooms, commons, and salary of £52 per annum, except the assistant house-physicians and the assistant house-surgeons, who are provided with commons only. The assistant house-physicians, after three months' service, become house-physicians for a further period of six months, and the assistant house-surgeons, after three months' service, become house-surgeons for a further period of six months. Two house-anaesthetists are appointed for three months, non-resident, salary £50 per annum. Clinical assistants to the assistant physicians and assistant surgeons, and to the officers in charge of special departments, are appointed from among the qualified students. Every student must perform the duties of out-patient dresser for three months, and afterwards hold the office of in-patient dresser for three months. He is also required to serve two terms of three months each as medical clinical clerk to the in-patient physician and one term as gynaecological clinical clerk. Two pathological clerks are appointed every three months to assist in the post-mortem room. No student is eligible as an in-patient dresser or clinical clerk until he has passed the Second Examination of the Conjoint Board, or an equivalent examination. Clerks and dressers in the special departments of hospital practice are periodically appointed. So far as vacancies permit, students of other hospitals are admitted to in-patients' dresserships or clerkships.

The governors of the hospital have now completed the extensive improvements and alterations to the hospital, which render it a still more efficient teaching institution, with an increased number of beds.

The athletic ground is situated at Tooting, and can be reached in twenty minutes from the hospital.

Scholarships.—The following open scholarships are offered for competition during the year 1929-30: In the winter session two scholarships in anatomy and physiology, £75 each. In the spring two scholarships in anatomy and physiology, £75 each. A certain number of scholarships have been allotted to universities of England, Wales, and the Colonies, and to public schools. These scholarships are awarded entirely on the nomination of the Principal of the university or school.

Fees.—The annual composition fee is £40. An entrance fee of 10 guineas is payable by all students—namely, primary and intermediate students, £10 10s.; students entering for the final subjects, £8 8s. These fees include subscriptions for membership of the Clubs Union.

Further information and a prospectus can be obtained on application to the Dean at the Westminster Hospital, Westminster, S.W.1.

London (Royal Free Hospital) School of Medicine for Women.

The school is situated at 8, Hunter Street, Brunswick Square, W.C.1, close to the Royal Free Hospital. It is, like all the other London schools which have so far been mentioned, one of the constituent schools of London University. The laboratories are extensive and well lighted, and are fully equipped for the examination courses of and are fully equipped for the examination courses of the University of London and the Royal Colleges of

Physicians and Surgeons. Research laboratories are attached to all departments. A large, well-equipped library, common room, Union Room, and refectory are provided for the use of students. Resident accommodation for 78 students is provided in students' chambers attached to the school.

The Royal Free Hospital, Gray's Inn Road, W.C.1, has 268 beds, all of which are available for clinical instruction. A new block contains the obstetrical and gynaecological unit, which controls 68 beds. A large maternity district is served from the unit with a separate maternity hostel in the Essex Road, Islington. There are separate departments for diseases of the eye, ear, and skin, children and infant welfare, venereal diseases, orthopaedic surgery, massage, light, electrical and x-ray work, dentistry, and casualty. The instruction given covers the full curriculum for the M.B., B.S. degrees of the University of London, including first medical courses. Students attend the practice of one of the fever hospitals of the Metropolitan Asylums Board and receive special instruction in lunacy at Horton Mental Hospital, Epsom; they are also admitted to the practice of a number of special hospitals, and hold clerkships and dresserships at the Elizabeth Garrett Anderson Hospital, the Cancer Hospital, Hospital for Sick Children, Great Ormond Street, the National Hospital for Nervous Diseases, the South London Hospital, and the Royal Ophthalmic Hospital. The work of the school includes preparation for the Primary Fellowship examination, and also for the Medical School and general hospital course for dental students.

Appointments.—Qualified students of the school can obtain appointments as house-physicians and house-surgeons, obstetric assistants, surgical, gynaecological, and medical registrars, assistant pathologists, assistant anaesthetists, medical electrician, skiagrapher, and clinical assistants and demonstrators in various subjects.

Scholarships.—The Isabel Thorne Entrance Scholarship, value £30, the St. Dunstan's Medical Exhibition, value £60 a year for three years, which may be extended to five years, the Alfred Langton Scholarship of £50 a year for two years, the Flora Murray Bursary of £50, and the Mabel Sharman-Crawford Scholarship, value £20 a year for four years, are offered for competition in each year. The Sir Owen Roberts Memorial Scholarship of the value of £75 a year for four years, the Mrs. George M. Smith Scholarship of the value of £50 a year for three years, which may be extended to five years, the Dr. Margaret Todd Scholarship of the value of £37 10s. a year for four years, and the Sarah Holborn Scholarship of the value of £20 a year for three years, which may be extended to five years, are awarded in alternate years. The School Jubilee Bursary of £50 a year for three years is offered every third year. The Bostock Scholarship, value £90 a year for two or four years, is awarded by the Reid Trustees on the result of an examination held in May by the University of London every fourth year. The holder of the scholarship must enter the London School of Medicine for Women. The Lieutenant Edmund Lewis and Lieutenant Alan Lewis Memorial Scholarship, of the value of £25 a year for four years, is awarded every fourth year. The John Byron Bursary of £20 a year for two years, the Julia Ann Hornblower Cock Prize of £60, the Helen Prideaux Prize of £60, the Mabel Webb Research Scholarship of £30 for two years, the Fanny Butler Scholarship of £16 a year for four years, together with many other scholarships and prizes, are offered on sundry conditions. The Dr. Edith Pechey-Phipson Post-Graduate Scholarship of £100 is awarded annually. Altogether the school offers annually £1,350 in scholarships. Various missionary societies also offer scholarships on certain conditions, and assist women who wish to go to India and other countries as medical missionaries.

Fees.—Courses for the University of London degrees and the diplomas of the Conjoint Board in England, and other qualifications: £50 per annum throughout the course.

The Students' Union exists to promote corporate action of the students on matters of common interest, to promote and maintain athletic and other clubs, and to issue a school magazine. All students are required to become members of the Union. The students' sports ground, which consists of a freehold property of seven and a half acres, is situated at Sudbury.

Further information can be obtained from the Warden and Secretary.

King's College.

In the Faculty of Medical Science instruction is given in the preliminary and intermediate subjects of the first and second examinations leading to the degree of M.B., B.S. of the University of London, of the corresponding examinations of other universities, and of the Conjoint Examining Board of the Royal Colleges of Physicians and Surgeons. The courses are open to women students on the same terms as to men.

Regular students who have completed their preliminary and intermediate examinations proceed to a hospital to pursue their studies for the final examinations. Special courses in anatomy and physiology are held in preparation for the primary examinations for the Fellowship of the Royal College of Surgeons.

A course for the degree of the University of London and for the diploma of the Royal College of Surgeons in dental surgery is given in conjunction with King's College Hospital Medical School.

Scholarships.—The entrance scholarships are: (1) Two Warneford Scholarships, each £30 for four years; subjects—selected from mathematics, classics, divinity, and science. (2) One Sambrooke Scholarship of £30 for three years; subjects of examination selected from mathematics, classics, and science. The holders of the preceding awards must proceed to King's College Hospital. (3) Worsley, £100, paid in five annual instalments. (4) Rabbeth Scholarships, value £30 and £15, in July, for the best student of the first year. (5) Second year's scholarship, value £20, for the best student of the second year. (6) Daniell Scholarship, £40, awarded on the results of the University Honours Examination. (7) The Layton and Berridge Studentships, each £150 per annum, and (8) numerous prizes.

Full information as to admission, fees, and scholarships can be obtained from the Dean of the Faculty of Medical Science, King's College, Strand, W.C.2.

University College.

This institution, one of the principal component parts of the University of London, possesses a Faculty of Medical Sciences whose work covers all the subjects included in the group commonly known as the preliminary medical sciences—namely, physics, chemistry, botany, and zoology; and also the intermediate medical sciences—namely, anatomy (including embryology and histology), physiology, biochemistry, and pharmacology. The new anatomy building, provided by the munificent gift of the Rockefeller Foundation of New York, was opened on May 31st, 1923, by His Majesty the King. This building forms part of the block which includes physiology and pharmacology. Research work is undertaken in all the above-named departments. The College undertakes the education of students in all the subjects mentioned, leaving them free to complete their education in the strictly professional subjects—medicine, surgery, and the like—at any one of the recognized schools of advanced medical studies. The work is somewhat differently arranged, according to whether the student has in view the degrees of the University of London or the diplomas of the Royal Colleges. In either case the whole work to be done is divided into courses devised to meet the requirements of different examinations, and students can join the College for any of them. Women students are admitted to all courses on the same terms as men. The general arrangements for the benefit of students include membership of the Union Society or the Women's Union Society with the College gymnasium and the athletic grounds. There is also a collegiate residence for about fifty-five men students at Ealing and for about seventy women students at Byng Place, Gordon Square.

Scholarships.—The scholarships and exhibitions obtainable include the Bucknill Scholarship, value 160 guineas, in chemistry, physics, botany, and zoology (the successful student must complete his work at University College Hospital Medical School), two entrance exhibitions in the same subjects, each of the value of 55 guineas, a Faculty of Medical Sciences Entrance Scholarship, value £30 a year, for three years; and the Bayliss-Starling Memorial Scholarship (physiology and/or biochemistry), £120.

Fees.—The fees for the courses covering the work of the First Examination for medical degrees of the University of London, and in both parts of the Second Examination, amount to 115 guineas. The fees for the courses covering the corresponding examinations held by the Conjoint Board in England also amount to 115 guineas. These fees may be divided into payments for the different courses which it may be desired to take out, but do not cover tuition for more than a stated period.

A handbook specially relating to this faculty may be obtained on application to the Secretary of University College, Gower Street, London, W.C.1.

THE PROVINCES.

There are in England and Wales, not counting London, ten medical schools, each supplying instructions in the full medical curriculum. Accounts of them here follow. In several cases information is appended about hospitals other than those directly connected with the school in question; such hospitals, officially and unofficially, play a part in the

education which the students of the school receive, and in any case serve as places of additional or post-graduate study.

Oxford and Cambridge.

At both Oxford and Cambridge there are medical schools which furnish unsurpassed opportunities for obtaining a good knowledge of the preliminary sciences and of anatomy, physiology, and pathology. The laboratories are excellently furnished, and the teaching staffs most distinguished. Both schools provide a full medical curriculum, and there is no essential reason why the student should not complete his career at either of them; but this is not commonly done, and is never, in the ordinary way, advised by the university medical authorities. The local hospitals—the Radcliffe Infirmary at Oxford and Addenbrooke's Hospital at Cambridge—though well equipped, are comparatively small. Students are therefore encouraged, as soon as they have completed the earlier examinations and taken a degree in arts, to join one of the London medical schools, and thus spend the time of their preparation for the final examinations in a city where the opportunities for gaining clinical knowledge are greater and more varied. A considerable proportion of Oxford and Cambridge medical students take the London Conjoint diplomas before graduating in medicine and surgery at their own university. The experience gained by holding resident hospital appointments is naturally of much advantage when sitting for the Final M.B. examination and when engaged in composing a thesis.

Birmingham.

The school in this city is carried on by the Medical Faculty of the University of Birmingham, its students having an adequate number of good laboratories, classrooms, and other necessaries devoted to their use by the university. The clinical work is done at the General and Queen's Hospitals, which are amalgamated for the purpose. Together they have upwards of 600 beds for medical, surgical, and special cases, with an array of special departments of all kinds, including one for lying-in women. Clinical instruction is given in the wards and out-patient and special departments daily, and formal clinical lectures are delivered weekly throughout the winter and summer sessions. Special tutorial classes are also held alike for the degrees of Birmingham and some other universities and for the diplomas of corporations.

Appointments.—The large number of appointments open to past or other students includes the following:—At the General Hospital: surgical registrar, £200 a year; one resident medical officer, salary £155 a year; one resident surgical officer, salary £180 a year; one assistant resident surgical officer, salary £100 a year; one resident pathologist, salary £70 a year; two visiting anaesthetists, salary £50 a year; one resident anaesthetist, salary £70 a year; four house-surgeons, office tenable for nine months, £70 a year; one house-surgeon to the gynaecological and one to the special departments, each tenable for six months, £70 a year; four house-physicians, post tenable for six months, £70 a year. At the Queen's Hospital: one medical registrar and one surgical registrar, non-resident, tenable for three years, renewable, salary £100 per annum; three house-physicians, three house-surgeons, and one obstetric and ophthalmic house-surgeon, tenable for six months, salary £70 per annum, with board, lodging, and washing; one casualty house-surgeon, tenable for three months, salary £70 per annum, with board, lodging, and washing. At the Maternity Hospital: three house-surgeons, salary £50 a year. At the City Workhouse and Workhouse Infirmary: five resident medical officers. At the Birmingham General and Branch Dispensaries: twelve resident surgeons. At the Birmingham Mental Hospitals: five assistant medical officers. At the City Fever Hospitals: three assistant medical officers. At the Children's Hospital: one resident surgical officer, one resident medical officer. At the Birmingham and Midland Eye Hospital: four resident surgeons. At the Orthopaedic and Spinal Hospital: two clinical assistants (non-resident). At the Ear and Throat Hospital: one house-surgeon, £70 a year; four clinical assistants (non-resident). Four non-resident Poor Law appointments are in the gift of the Board of Guardians.

Scholarships.—There are numerous money and other awards for students of sufficient merit, among them being the following: The Walter Myers Travelling Studentship of £300, offered each alternate year for research work and tenable abroad; the Sands-Cox Scholarship of £42 (an entrance scholarship in the Faculty of Medicine, awarded on higher school certificate examination of the Joint Matriculation Board (July)); four Queen's Scholarships of £10 10s. each, awarded annually at the second (Part II), third, fourth, and final university examinations respectively; one or more Sydenham Scholarships, allotted on entrance to students who are the sons of deceased medical men; the Ingleby Scholarships (two) of £10 for proficiency in midwifery and diseases of women; the Arthur Foxwell Memorial Gold Medal (clinical medicine); the Sampson Gamgee Memorial Medal for surgery (Final M.B.); and the Peter Thompson Prize in anatomy (value about £6) for students in their third university year. There is also a scholarship of £46 17s. 6d. for students proceeding to a degree in dental surgery. University Clinical Board Prizes are awarded annually as follows: Senior Medical Prize, Gold Medal; Senior Surgical Prize, Gold Medal; Midwifery Prize, Gold Medal; Junior Medical Prize, Silver Medal; Junior Surgical Prize, Silver Medal.

Fees.—The composition fee for university classes is £106 5s. This covers all the work required for the degrees of Birmingham and some other universities, and for the ordinary qualifications of licensing corporations, but not the additional courses required for the Fellowship of the Royal College of Surgeons of England, the diploma and degrees of the university in State medicine, and some other special work. The total cost for the six years' curriculum, including hospital and examination fees, is estimated at £201 4s. 6d.

Other information should be sought from the Dean of the Medical Faculty, University, Edmund Street, Birmingham.

Bristol.

The school is carried on by the Faculty of Medicine of the university, and provides full instruction for all its degrees and for the diploma in dental surgery.

Clinical Instruction.—The allied hospitals (Bristol Royal Infirmary and Bristol General Hospital) have between them 663 beds and extensive out-patient departments, special clinics for diseases of women and children, and those of the eye, throat, and ear, in addition to large and well-equipped departments for dental work and large out-door maternity departments. At each of these institutions there are well-arranged pathological museums, post-mortem rooms, and laboratories for morbid anatomy. There are also laboratories for work in clinical pathology, bacteriology, and cytology, in which special instruction is given in these subjects. Departments are provided and well equipped for x-ray work, both for diagnosis and treatment, for electro-cardiography, and for the various forms of electrical treatment, including high-frequency currents, electric baths, Finsen light treatment, and massage. The students of the school also attend the practice of the Royal Hospital for Sick Children and Women, containing 100 beds, and that of the Bristol Eye Hospital, with 40 beds. In addition, by the kind permission of the Bristol Board of Guardians, students may attend the clinical practice at Southmead Hospital, which has 556 beds. The total number of beds available for clinical instruction is therefore 1,359.

Appointments.—(1) Undergraduate: Medical clerkships, surgical dresserships, also ophthalmic, obstetric, pathological, dermatological, ear, nose, and throat clerkships, are tenable at the Bristol Royal Infirmary and the Bristol General Hospital. In these institutions the dressers reside in rotation free of charge. (2) Post-graduate: At the Bristol Royal Infirmary: four house-surgeons, one casualty house-surgeon, two house-physicians, one house-physician for cancer research wards, one resident obstetric officer, one ophthalmic and gynaecological house-surgeon, one ear, nose, and throat house-surgeon, one assistant to the senior resident medical officer, who also acts as house-surgeon and house-surgeon to the skin department, and one dental house-surgeon. All these appointments are for six months. Salary in each case at the rate of £60 per annum, with board, apartments, and laundry, except the casualty house-surgeon, who receives £80 per annum. From the resident medical officers a senior resident medical officer is appointed at a salary of £200 per annum. At the Bristol General Hospital: senior resident medical officer, £250 per annum; casualty house-surgeon, £80 per annum; two house-physicians, £80 per annum; two house-surgeons, £80 per annum; resident obstetric officer, £80 per annum; house-surgeon to special departments, £80 per annum; dental

house-surgeon (non-resident), £300 per annum. All these appointments are for six months, except that of senior resident medical officer, which is for two years.

Scholarships.—The following are among the scholarships and other awards open to students of the school: The Ashworth Hallett Scholarship, value £40, open to women only; two Martyn Memorial Pathological Scholarships of £10 each; the Tibbits Memorial Prize, value 7 guineas, for proficiency in practical surgery; the Committee's Gold and Silver Medals, for fifth-year students for general proficiency; the Augustin Prichard Prize, value about 6 guineas, for proficiency in anatomy; the Henry Clark Prize, value 11 guineas, for proficiency in gynaecology; the Crosby Leonard Prize, value 6 guineas, for proficiency in surgery; the Suple Surgical Prize, a gold medal and 7 guineas; the Suple Medical Prize, a gold medal and 7 guineas; the Henry Marshall Prize, value £12, for dressers; the H. M. Clarke Scholarship, value £15, for proficiency in surgery; the Sanders Scholarship, value £22 10s., for general proficiency; the Barrett-Roué Scholarship for proficiency in diseases of the nose, throat, and ear, or skin, value £17; Lady Haberfield Scholarship, value about 25 guineas; Phyllis Siepman Prize for proficiency in diseases of children, value £25. Bristol City Senior Scholarships and the Senior Scholarships offered by the counties of Gloucestershire, Somerset, Wilts, Devon, etc., are tenable in the university.

Some of the Fellowships awarded by the Colston Research Society for research in the university are allotted to the Faculty of Medicine.

A Beaverbrook Fellowship tenable for three years is open to all members of the university holding a medical qualification.

Fees.—The fee for all the courses required for the medical curriculum, including hospital practice, is 205 guineas, paid by annual instalments.

Further information as to scholarships, curricula, and fees can be obtained from the Dean of the Faculty of Medicine, or the Registrar of the University, Bristol.

UNIVERSITY OF DURHAM COLLEGE OF MEDICINE.

THIS, the Medical School of the Faculty of Medicine of the University of Durham, is in the neighbouring city, Newcastle-upon-Tyne. Its classes and lectures are arranged to meet the requirements of the university in all the degrees which the latter grants, and also those of the other examining bodies. The students do their work in the preliminary sciences at Armstrong College, also part of the university. Hospital practice is carried out at the Royal Victoria Infirmary, a general hospital containing more than 550 beds, where there are facilities for the study of the various special subjects. Students do their practical midwifery at the Princess Mary Maternity Hospital, which contains 90 beds, is thoroughly up to date, and has an annual indoor and outdoor attendance on 3,000 cases. In the Heath wing of the school itself there is a gymnasium and a set of rooms for the separate use of the students. A new bacteriological department has been erected adjacent to Armstrong College.

Post-Graduate Instruction.—A comprehensive series of post-graduate courses has been arranged to enable practitioners to take advantage of the facilities for laboratory work and clinical study which are afforded by the College, the Royal Victoria Infirmary, and other associated hospitals, and in order to meet the varied requirements of practitioners there are general and special courses in the winter and summer session as well as an intensive course in the summer vacation.

Students' Union.—A Students' Union has been erected and furnished at a cost of over £40,000, and is in daily use. Separate accommodation (non-residential) is provided for men and women students.

Appointments.—Pathological assistants, and assistants in the eye department, throat and ear department, and department for skin diseases, are elected periodically. Clinical clerks and dressers are appointed every three months.

Scholarships.—University of Durham Entrance Scholarship, £25 a year for four years; Pears Entrance Scholarship, £40 a year for three years (awarded every third year); Heath Entrance Scholarship (from Kepier Grammar School), £60 (renewable); Province of Durham Masonic (Entrance) Scholarship, £60 (renewable); Heath Scholarship for surgery, £200, available every second year; Rutherford Morison Surgical Scholarship, £180, available every third year.

The following scholarships are tenable for one year—namely, Tulloch Scholarship for elementary biology and organic chemistry, £20. Dickinson Scholarship for medicine, surgery, midwifery, and pathology, Gold Medal and £20; Charlton Scholarship for medicine, £25; Gibb Scholarship for pathology, £28; Luke Armstrong Scholarship for comparative pathology, £25; Stephen Scott Scholarship for surgery, £40; Philipson Scholarships for highest marks in Final M.B., B.S. Examination, two of £18 each; Goyder Memorial Scholarship for clinical medicine and clinical surgery, interest on £325; Gibson Prize for midwifery and diseases of women and children, £10; Turnbull Prize and Silver Medal for surface anatomy; Outterson Wood Prize for psychological medicine, £10; and Sewell Memorial Prize and Silver Medal for clinical pathology. At the end of each session a prize of books is awarded in each of the regular classes.

Fees.—The composition fee for lectures at the college is £140. Composition fee for hospital practice, £46, *plus* £2 2s. yearly for three years, payable to the Committee of the Royal Victoria Infirmary. Other information should be sought from the Dean of the College, University of Durham College of Medicine, Newcastle-upon-Tyne.

LEEDS.

THE School of Medicine—which is open to both male and female students—in this city forms the teaching centre of the Medical Faculty of the University of Leeds, and is situated in immediate proximity to the General Infirmary, where students sufficiently advanced receive their clinical instruction. The buildings were opened in 1894, and contain excellent dissecting rooms, well-arranged laboratories for physiology, pathology, and bacteriology, three lecture theatres, and several similar classrooms. In addition, there are a library and reading room and museums of pathology and anatomy. The comfort of the students is secured by means of common rooms and a refectory. Extensions of the medical school buildings are at present in course of erection, and an Institute of Pathology is to be built in the near future on an immediately adjacent site. The General Infirmary has 632 beds, and includes gynaecological and ophthalmic wards, special children's wards, and a large out-patient department. The Ida and Robert Arthington Semi-convalescent Hospitals, Cookridge, attached to the infirmary, have 88 beds. The West Riding Mental Hospital at Wakefield is available for the study of mental diseases. Students can, in addition, attend the practice of the Leeds Public Dispensary, the Hospital for Women and Children, and the Leeds Maternity Hospital.

Appointments.—Physicians' clerks and surgical dressers are appointed every six months; clerks in the children's department, orthopaedic dressers, ophthalmic and aural dressers, gynaecological ward clerks, maternity clerks, assistant physicians' clerk, dermatological clerks, assistant surgeons' dressers, dressers in the casualty rooms, junior and senior post-mortem clerks, laboratory assistants and dressers in the venereal clinic every three months. After graduation a considerable number of resident and other appointments become available in the Leeds General Infirmary; Leeds Public Dispensary, Hospital for Women and Children, West Riding Mental Hospital, etc., occupying periods of from six to twelve months at rates varying from £20 to £150 per annum.

Scholarships.—The university awards annually a scholarship in the form of a free admission to the lectures and classes given in the university, which are covered by the composition fee. The university also awards a scholarship on the results of the first examination, of the value of £68, in the form of a free admission to the clinical teaching of the infirmary.

Fees.—It is estimated by the authorities that the approximate cost of medical education to a student in this university is £324, *plus*, of course, the expenses of living during the five and a half years covered by the curriculum. The composition fee for the course for the first, second, and third examinations, and for the clinical work at the infirmary, is £237. The composition and clinical fee for those who have passed the second examination is £150.

Further information can be obtained from the Academic Subdean or Clinical Subdean, School of Medicine, Leeds.

LIVERPOOL.

THE Medical School of this city is part of the university, and, owing to the enlightened liberality of several men of wealth, is exceptionally well provided with special laboratories, as well as with ordinary spacious and well-equipped classrooms and laboratories for the instruction of students proceeding to medical degrees and diplomas in special and ordinary subjects. All the laboratory and other rooms are situated close to one another and intercommunicate, together forming large blocks of buildings. The work of students throughout all stages of their career is arranged upon very satisfactory lines, and the teaching hospitals, of which a list is given below, have amalgamated to form the clinical school of the university.

Appointments.—The nature of the appointments open to past and other students at this school will be gathered from the account which follows of the hospitals forming its clinical department.

Scholarships.—The awards made each year to successful students total over £1,500. They include the following: Two Holt Fellowships, one in pathology, the other in physiology; a Robert Gee Fellowship in anatomy; two John Rankin Fellowships in anatomy; a John W. Garrett International Fellowship in bacteriology; a Johnston Colonial Fellowship in biochemistry; an Ethel Boyce Fellowship in gynaecology; and a Thelwall Thomas Fellowship in surgical pathology; one Lady Jones Fellowship in orthopaedic surgery (value of Fellowships: one at £200, three at £150, two at £120, four at £100); a University Scholarship of £50, awarded on the results of the Final M.B. (Part A) Examinations; a Ridgway Research Scholarship (£100); a Scholarship in mechanical dentistry of £20; two Lyon Jones Scholarships, of the annual value of £21 each for two years, one for the junior and the other for the senior students; the Derby Exhibition of £15; the Clinical School Exhibition of £15; the Owen T. Williams Prize; the Torr Gold Medal in anatomy; John Rankin Exhibition in practical anatomy, £25; the George Holt Medal in physiology; the Kanthack Medal in pathology; Mitchell Banks Medal in anatomy; the Robert Gee Prize of £5 5s. in children's diseases; Mary Birrell Davies Memorial Scholarship (women), £60 per annum for four years; Robert Gee Entrance Scholarship (men), value of £42 10s. per annum for four years; Dental Operating Prizes (four); Orthodontia Prizes (two); Samuels Memorial Scholarships, three at £20 each; one Thomas H. Bickerton Prize in anatomy; Dr. N. E. Robert Prize in zymotic diseases; Ash's Prize in dental surgery, value £2 2s.; Gilmour Medal; and other entrance scholarships. In addition, a number of gold and silver medals have recently been instituted in the following subjects: pharmacology, surgery, forensic medicine and toxicology, public health, medicine, obstetrics and gynaecology, orthopaedic surgery, and laryngology and otology.

Fees.—Information as to the fees for the courses of instruction provided by the schools should be sought from the Dean of the Medical Faculty.

The Clinical School.

As many as nine hospitals have combined to form the clinical school of the university, these being: The Royal Infirmary, the David Lewis Northern Hospital, the Royal Southern Hospital, the Stanley Hospital, the Royal Liverpool Children's Hospital, the Hospital for Women (with the Samaritan Hospital), the Liverpool Maternity Hospital, the Eye and Ear Infirmary, and St. Paul's Eye Hospital. Between them they provide over 1,500 beds.

MANCHESTER.

THE staff of the Medical School in this city constitutes the Medical Faculty of the Victoria University, all the arrangements for the instruction of students, both in their earlier and their later studies, being of an elaborate nature. The clinical work of the undergraduates is done chiefly in connexion with the Royal Infirmary, an institution which itself contains 614 beds, and has associated with it a large convalescent home (132 beds) and a Central Branch Hospital (54 beds). The courses in mental diseases are partly taken in the County Mental Hospitals at Prestwich and Macclesfield. Instruction in practical gynaecology and midwifery is given at the Royal Infirmary and the St. Mary's Hospitals.

Appointments.—The following are among the appointments open to past and present students of this school in connexion with its arrangements for clinical tuition: Two surgical registrars, at £150 per annum; two pathological registrars, at £100 and £50 per annum; one medical registrar, at £150 per annum; a cardiographic registrar, at £150 per annum; a surgical tutor, at £30 per annum; a director of the clinical laboratory, at £400 per annum, and two assistants, at £350 and £300; three assistant medical officers and three assistant surgical officers, each at £35 per annum; assistant surgical officers, aural department, at £35 per annum; seven anaesthetists, from £75 to £125 per annum each; one resident medical officer, one year, £200 per annum; one resident surgical officer, one year, £200 per annum; three resident medical officers for Central Branch, one at £200 and two at £100 per annum; one assistant resident surgical officer, £150 per annum; one resident medical officer at the Convalescent Hospital at Cheadle, £250 per annum; two assistant medical officers to radiological department, £150 and £105 per annum; medical officer, physio-therapeutic department, £150 per annum; assistant surgical officer, gynaecological department, £35 per annum; assistant to the dermatologist, £20 per annum; and three assistant surgical officers for Central Branch, £75 per annum; ten senior and ten junior house-surgeons and ten house-physicians, appointed during the year for periods of six months, at a salary of £50 for the first six months, and £100 for the second six months. Resident officers are appointed to the gynaecological, the eye, and the ear and throat departments every three months. Clinical clerks and surgical dressers are appointed to the various departments of the hospital every three months. Non-resident clinical assistantships for qualified medical women, tenable for six months, at an honorarium of £35.

Entrance and other Scholarships.—The following are among the scholarships obtainable by students of the school: Rogers and Seaton Scholarships in Arts (in alternate years), £40 per annum, tenable for two years. Three Hulme Scholarships, tenable for three years, of £35, one being awarded annually for proficiency in subjects of general education. Two James Gaskill Scholarships of £35, tenable for two years, one being awarded annually for proficiency in the branches of mechanics and chemistry. A Dora Muir Scholarship, £30 per annum, tenable for three years, and open to the competition of women students only. This is awarded triennially. Sir J. P. Kay-Shuttleworth Scholarship, £30 per annum, tenable for three years, awarded triennially, open to the competition of scholars from Sedbergh School, Giggleswick School, and Burnley Grammar School; subjects—mathematics, chemistry, and mechanics. Dreschfeld Memorial Scholarship, value £20, tenable for two years and awarded triennially on the result of the Entrance Examination. John Russell Medical Entrance Scholarship, awarded annually, value £45. Two Dauntesey Junior Medical Scholarships, value £50 each, tenable for one year, for candidates who have not commenced the second year of study leading to a medical qualification; subjects—zoology, botany, and chemistry. One Dauntesey Senior Medical Scholarship, £50 for one year, awarded on results of Second M.B. Examination. Two Entrance Scholarships in medicine, value 160 guineas, awarded annually for proficiency in arts or science respectively. Tom Jones Exhibition in anatomy, £25, offered annually. A Robert Platt Physiological Scholarship of £90, tenable for one year. A Leech Fellowship of £100 for original research after graduation. Graduate Prize in medicine, £5, annually. A Graduate Research Scholarship in medicine, value £70, tenable for one year, awarded annually for proficiency shown at Final M.B. Examination, open to Graduate Prizemen. A Dumville Surgical Prize, value £15, awarded annually at graduation. The Tom Jones Memorial Surgical Fellowship, value £105, tenable for one year, usually awarded annually. The Turner Medical Prizes, value 10 guineas each, awarded annually for proficiency in certain subjects of the Final M.B., Ch.B. Examination. The John Henry Agnew Prize of £30, awarded annually for proficiency in the diseases of children. The Ashby Memorial Scholarship, tenable for one year (£100), for research in the diseases of children; offered triennially. Sidney Renshaw Prize in [illegible]lly (£15). Wild Prize in pharmacolog[illegible]w Fellowship in diseases of chil[illegible] Eliza Marple Holt Post-Gradu[illegible] Women, £60 for one year, offere[illegible] 1 regulations of the Dickinson [illegible] (2) for pathology, (3) Research Scholarship in surgery, and (4) Travelling Scholarship in medicine—may be obtained from the Secretary to the Trustees. The Morrison Watson Fellowship for research in anatomy is offered annually, value £150; also the Sheridan Delepine Fellowship in preventive medicine, value £300, is offered biennially. The Sam Gamble Scholarships—the trustees are prepared to award four scholarships of not less than £40 per annum, tenable for not more than four years, to women students who have passed the First M.B. Examination; the conditions can be obtained from the Registrar. The Knight Prize of £50 for original research in the psychological factors in the causation of mental disorder—open to holders of the Diploma in Psychological Medicine or medical practitioners who have been registered in the university as candidates for that diploma.

Fees.—The composition fee for the university course in medicine is 110 guineas, payable in four instalments of 27½ guineas, but this sum does not include the fee to cover the work required for the First M.B. Examination. This is £42, payable in one sum. Hospital fees are additional, and usually amount to about 77 guineas.

A prospectus and further information about the school and scholarships may be obtained from the Registrar.

Clinical Work.—The Royal Eye Hospital, the Hospital for Diseases of the Skin, the Manchester Northern Hospital for Women and Children, the well-known Hospitals for Children at Pendlebury, and St. Mary's Hospitals for Women and Children, the Manchester Hospital for Diseases of the Ear, Monsall Fever Hospital, the Christie Cancer Hospital, the Hospital for Consumption and Diseases of the Throat and Chest, the Ancoats Hospital, and the Salford Royal Hospital, all make arrangements for the instruction of students.

SHEFFIELD.

In this city the Medical School is one of the departments of the university, being conducted and controlled by its Medical Faculty, and occupying practically the entire north wing of the quadrangle of the university buildings overlooking Weston Park. The laboratories and lecture rooms

connected with the subjects of the first and second examinations—namely, chemistry, physics, biology, anatomy, and physiology—are, both as regards structural arrangement and scientific equipment, on the most modern and complete lines.

For students of pathology and bacteriology there are laboratories replete with everything necessary for the most advanced work, and a large pathological museum, which is open daily. In addition, there is a large library and reading room. There are a number of recreation, athletic, and other societies, all under the management of an annually elected students' representative council, and large and comfortable common rooms for both men and women students. There are also two student unions—one for men and one for women students. In the university buildings there is a refectory open to all students of the school, and a university journal is published each term. The ordinary clinical work of the school is done at the Royal Infirmary and Royal Hospital, which have amalgamated for the purpose of clinical instruction, and provide over 800 beds for medical, surgical, and special cases, including diseases of the eye.

In addition, the Royal Infirmary has special departments for the treatment of diseases of the skin and ear, with beds assigned to them; whilst at the Royal Hospital there are special out-patient departments for diseases of the throat, ear, skin, orthopaedics, and mental diseases. The medical and surgical staffs attend daily, and give clinical instruction in the wards and out-patient rooms. Clinical lectures in medicine and surgery are given weekly. Instruction in the practical administration of anaesthetics is given at either institution by the anaesthetists, and the post-mortem examinations at both institutions are in charge of the Professor of Pathology, and afford ample material for study of this subject. Students are able to attend the practice of the Jessop Hospital for Diseases of Women and the Hospital for Sick Children, while special courses on fever are given at the City Fever Hospital, and on mental diseases at the South Yorkshire Mental Hospital.

Appointments.—The following appointments are open to all students who have passed their examinations in anatomy and physiology: (1) casualty dresserships, (2) surgical dresserships, (3) medical clerkships, (4) pathological clerkships, (5) ophthalmic clerkships, (6) clerk to the skin department, etc. These appointments are made for three months, commencing on the first day of October, January, April, and July.

Scholarships.—Entrance Medical Scholarship, value about £190, open to both sexes. Six Edgar Allen Scholarships of £125 a year for three years may be held by students taking the degree course in medicine. Two Town Trustees' Scholarships, each of the value of £50 a year, tenable for three years, for boys or girls under the age of 19 years who have been educated in a Sheffield secondary school for a period not less than two years immediately preceding the examination. Four Town Trustees' Scholarships, value £50 a year, for boys or girls under 19 years of age educated in any school in Sheffield, secondary or otherwise. Town Trustees' Fellowship, value £75, tenable for one year. Mechanics' Institute Fellowship, value £50 (with remission of fees), tenable for one year, and renewable for a second year. The Frederick Clifford Scholarship, value about £50, tenable for two years. Kaye Scholarship, for proficiency in anatomy and physiology. Gold and bronze medals are also awarded for proficiency in various subjects.

Fees.—Students in the Faculty taking their complete medical course in the university pay an inclusive composition fee of £33 for each of the five years. The composition fees for the dental courses are as follows: for B.D.S., first and third years, £75; second, fourth, and fifth years, £25; for L.D.S., first and second years, £75; third and fourth years, £25. The fees for special courses taken separately can be ascertained by inquiry of the Dean.

UNIVERSITY COLLEGE OF SOUTH WALES AND MONMOUTHSHIRE.

THE WELSH NATIONAL SCHOOL OF MEDICINE.

THE next session opens on October 1st. All classes are open to both men and women students. Particulars relating to the admission of students as from October 1st, 1929, can be obtained on application to the Dean of the Faculty of Medicine, or to the Secretary, Welsh National School of Medicine, Newport Road, Cardiff.

The following is a list of heads of departments: Physics, Professor H. R. Robinson; chemistry, Professor W. J. Jones; zoology, Professor W. M. Tattersall; botany, Professor R. C. McLean; anatomy, Professor C. McLaren West; physiology, Professor T. Graham Brown; materia medica and pharmacology, Dr. W. Mitchell Stevens; pathology and bacteriology, Dr. J. B. Duguid; medicine, Professor A. M. Kennedy; surgery, Professor A. W. Sheen; obstetrics and gynaecology, Professor Sir Ewen J. Maclean; preventive medicine, Professor Edgar L. Collis; tuberculosis, Professor S. Lyle Cummins.

SCOTLAND.

As will be gathered from the following paragraphs, the facilities for acquiring a medical education in Scotland are very ample, whether the student be proceeding to a university degree or to a diploma. To the descriptions of the different Scottish medical centres is in some cases added an account of hospitals which either play an official part in the education given to students as yet unqualified, or offer valuable opportunities for post-graduation work.

ABERDEEN.

THE school is conducted by the Faculty of Medicine. This comprises thirteen chairs, from which instruction is given in all the main branches of medical science—namely, botany, zoology, physics (ordinary and preparatory), chemistry (ordinary and preparatory), anatomy, physiology, materia medica, pathology, bacteriology, forensic medicine, surgery, medicine, and midwifery. Courses of instruction in public health and infectious diseases, tropical medicine, medical ethics, tuberculosis, and clinical methods are conducted by lecturers appointed by the University Court. Special opportunities for practical instruction are afforded in the laboratories and museums attached to the departments.

Clinical instruction is obtained in the Royal Infirmary (accommodating 370 patients), the Royal Mental Hospital (900 patients), the Sick Children's Hospital (132 patients), the City Fever Hospital (350 patients), the General Dispensary, Maternity, and Vaccine Institution (10,000 out-patients annually), and the Ophthalmic Institution (3,000 patients annually). Courses of practical instruction are given in diseases of children at the Sick Children's Hospital; in fevers at the City Fever Hospital; in mental diseases at the Royal Mental Hospital; in diseases of the ear, nose, and throat at the Infirmary and Dispensary; in diseases of the eye at the Infirmary and Eye Institution; in venereal diseases and diseases of the skin at the Royal Infirmary.

The degrees granted in medicine are: Doctor of Medicine (M.D.), Master of Surgery (Ch.M.), Bachelor of Medicine and Bachelor of Surgery (M.B., Ch.B.). A diploma in public health is conferred after examination on graduates in medicine of any university of the United Kingdom.

The degree of Ph.D. is also granted in this faculty.

Bursaries, scholarships, and fellowships, to the number of fifty, and of the annual value of £1,200, may be held by students of medicine in this university. They range from £8 to £150 per annum, and are tenable in most cases for two or three years. The winter session begins on October 7th, 1929; the summer session on April 21st, 1930.

Fees.—An inclusive fee of 126 guineas is payable for instruction within the university, and the fee for the degrees of M.B., Ch.B. is 33 guineas. The total cost, including hospital fees, class and matriculation fees, and degree fees, is about £242.

EDINBURGH.

THERE are two Schools of Medicine: the School of the University, and the School of Medicine of the Royal Colleges of Physicians and Surgeons of Edinburgh.

THE UNIVERSITY SCHOOL.—This school, in addition to other resources of the university, has the following means of affording practical instruction: Royal Botanic Garden, Herbarium, and Museum; zoological laboratory and museum of science and art; physical laboratory; chemical laboratories; dissecting room, bone room, and anatomical museum; physiological laboratory; medical jurisprudence laboratories; John Usher Institute of Public Health; materia medica museum and laboratory; post-mortem department of the Royal Infirmary and University Pathological and Bacteriological Laboratory; tutorial classes of practice of physic,

of clinical medicine, and clinical surgery, surgery and midwifery; and the practice of certain other hospitals.

Fees.—The sessional fee for chemistry, anatomy lectures, physiology, pathology, materia medica, surgery, medicine, and midwifery is £6 6s. each. Physics, botany, zoology, forensic medicine, and public health, £5 5s. Practical zoology, practical anatomy (summer), morbid anatomy, practical materia medica, mental diseases, practical pathology, clinical midwifery, and medical entomology and parasitology, £4 4s. Experimental physiology, diseases of tropical climates, practical botany, histology, operative surgery, clinical surgery (per term), clinical medicine (per term), and experimental pharmacology, £3 3s. Practical anatomy (winter), £6 16s. 6d. Practical chemistry, £4 14s. 6d. Regional anatomy, chemical physiology, sur[illegible] infectious diseases, £1 11s. 6d. Tuberculosis [illegible] iseases of the eye, diseases of the larynx, [illegible] of the skin, and venereal diseases, £2 12s. 6d. Advanced bacteriology, £7 17s. 6d. Clinical gynaecology and applied anatomy, £2 2s.

Scholarships.—There are many funds for the assistance of students by means of bursaries, scholarships, exhibitions, and money awards from the beginning to the end of their undergraduate career. In addition, there are funds which help those who have taken a first degree in medicine and surgery to continue at work as research students. The value of these awards, and the conditions attaching to them, are so varied that those interested should consult the prospectus of the school itself. No other university is in a better, even if as good, position to smooth the financial path of earnest students.

THE SCHOOL OF MEDICINE OF THE ROYAL COLLEGES.—This school is composed of lecturers licensed by the Royal College of Physicians and the Royal College of Surgeons, and also recognized by the university through their *licentia docendi*; for the sake of convenience they lecture in separate buildings near to the Royal Infirmary, but form a single corporate body governed by a board consisting of five members elected by the lecturers in the school. This board, with the assistance of the standing committees of the school, supervises the whole management and especially the maintenance of the efficiency and discipline of the school. The different buildings at present utilized for the purposes of lecturing are the following: (1) Surgeons' Hall, Nicolson Street; (2) New School, Bristo Street; (3) Nicolson Square; (4) Marshall Street; and other places. The teaching is similar to that of the Scottish universities, and the students receive similar certificates at the close of each session. The courses on the special subjects not included in the curriculum of the Examining Boards are also conducted by teachers specially qualified in each branch, and have for the last quarter of a century formed a special feature of the school. The fees payable for class and other instruction, and including the sums payable on admission to the examination of the Conjoint Board for the triple qualification, amount to about £180. The Calendar, giving full information regarding classes and fees, can be obtained (price 6d.) on application to the Dean of the School, Surgeons' Hall, Edinburgh.

WOMEN STUDENTS IN EDINBURGH.—Until the close of the summer session of 1916 women students intending to proceed to graduation in the University of Edinburgh, as well as those entering for the triple qualification of the Royal Colleges of Edinburgh and Glasgow, received their training in the Edinburgh School of Medicine for Women. Now women students study under the same conditions as men, and may obtain either the university degree or the diploma of the Royal Colleges. In the university systematic lectures are given to them by the professors in the ordinary classes, which are therefore mixed. In clinical medicine and clinical surgery, however, while the lectures are attended by mixed classes, the women students are restricted to the wards of one charge. The particular wards are changed every six months, each of the physicians and surgeons to the infirmary taking the women students in rotation. With few exceptions, prizes, scholarships, bursaries, and similar distinctions are open to women under the same conditions as for men. The women students also have the same privileges as in the past have been given to the men of attending a certain proportion of the extra-mural classes taught by the lecturers of the School of Medicine of the Royal Colleges. Most of the students' societies are open to women, with the exception of the University Union and the Royal Medical Society. Their place is taken by the Women Students' Union and the Women's Medical Society. There is also a Women's Athletic Club, with playing fields gifted to it by the university. The membership of the Royal College of Physicians and Fellowships of the two Royal Colleges are also open to women. Information on matters connected with women's studies may be obtained from the Adviser of Women Students, The University, Edinburgh.

GLASGOW.

THE UNIVERSITY SCHOOL FOR MEN.—The whole course of study required for graduation (M.B., Ch.B.) at the University of Glasgow can be taken here. Besides ample provision for lectures there is practical and clinical work at the hospitals, and practical courses are conducted in the laboratories of the following departments: pathology, public health, pharmacology, physiology, surgery, anatomy, chemistry, zoology, physics, and botany; the Botanic Garden and the Hunterian Museum (Pathology) are also open to students. Well-equipped new buildings have been provided for botany, zoology, practical anatomy, and operative surgery, as well as for pathology; the very large additions made a number of years ago to the chemical laboratory render it one of the most extensive in Scotland. The classrooms and laboratories for the departments of physics, physiology, pharmacology, materia medica, medical jurisprudence, and public health are also of recent erection, and are elaborately equipped. Four additional chairs of medicine, surgery, obstetrics, and pathology have been recently established, the professors being specially attached to the Royal Infirmary; and a number of university lectureships in clinical medicine, clinical surgery, venereal diseases, laryngology, dermatology, otology, psychological medicine, tuberculosis, pathological biochemistry, and electrical diagnosis and treatment have been founded there. Other chairs have been founded at the university in bacteriology, organic chemistry, physiological chemistry, applied physics, public health, and pediatrics. There are also lectureships on the surgical and medical diseases of children and on electrical diagnosis and therapeutics. The university, in short, has made great and successful efforts to extend and improve the accommodation of the medical departments, to strengthen the teaching staff, and to encourage post-graduation and research work. A diploma in public health is now also granted. Three very extensive general hospitals in the city afford exceptional opportunities for clinical instruction—namely, the Western Infirmary (600 beds), near the university, to which the Regius Professors are attached; the Royal Infirmary (688 beds); and the Victoria Infirmary (380 beds); while the Royal Mental Hospital, Gartnavel (500 beds), the Royal Hospital for Sick Children (275 beds), the Royal Maternity and Women's Hospital (114 beds), the Glasgow Eye Infirmary (100 beds), the Ophthalmic Institution (35 beds), the fever hospitals at Belvidere (680 beds) and Ruchill (540 beds), and other institutions afford facilities for the practical study of special branches. The large general hospitals of the parish council are now also available for clinical instruction in medicine and surgery. Information regarding post-graduate study will be found at page 423.

Bursaries.—Bursaries confined to the Medical Faculty amount in annual value to about £1,000, while bursaries in any faculty, amounting to about the same annual sum, may be held by students of medicine, a number of both sets being open to women. Several valuable scholarships may be held by medical students who have graduated in arts.

The following bursaries are open for competition to students entering on their first session of attendance in the Faculty of Medicine: Davidson Bursary, annual value £40, tenable for four years, for students who propose before entering the Faculty of Medicine to take the degree of B.Sc. in pure science, including in their curricula anatomy and physiology. Highland Society (Glasgow) Bursaries, annual value £25 each, tenable for five years, for students of Highland descent, open to women; two bursaries vacant each year. Logan Bursary, annual value £25, tenable for four years, open to women. Robina Eckford MacBrayne Scholarship, annual value £50, tenable for three years. Marshall Bursary, annual value £24, tenable for four years. Merchants' House Bursary, annual value £35, tenable for four years, open to women. John Oliphant Bursary, annual value £35, tenable for six years. James A. Paterson Bursaries, three each year of the annual value of £35, £25, and £15 respectively, each tenable for four years; students entering their second session are also eligible; open to women; examination in mathematics and natural philosophy.

Candidates for the aforementioned bursaries must take the university general bursary competition which is held each year in the month of June.

In addition, the following bursaries, scholarships, and prizes are open to students prosecuting their studies in the Faculty of

Medicine: Arbroath Bursary, annual value £40, tenable for four years, is awarded by the Senate, on the recommendation of the Faculty of Medicine, to the student who is of the highest merit among the candidates as shown by their class records and their performances in the First and Second Professional Examinations. Arthur Bursary, annual value £20, tenable for three years, awarded to the *woman* student who takes the highest place among the Queen Margaret College candidates at the First Professional Examination. Mary Allan Bell Bursaries (five), annual value £50 each, tenable for three or four years, for students who have gone through the curriculum in arts; special examination, tenable also in theology or law. Brisbane Bursary, annual value £50, tenable for four years; candidates must be under 22 years of age, and must have taken the degree of M.A. William Gardiner Bursary, annual value £18, tenable for two years, awarded on results of the First and Second Professional Examinations in the subjects of physiology, chemistry, and physics. Dr. Thomas Gibson Bursary, annual value £50, tenable for four years; open to medical students entering on their second winter who are preparing for service as medical missionaries. Johnston Bursaries (two), annual value £25 each, tenable for three years, for eminence in the work and examinations of the first and second years of the curriculum. Lorimer Bursaries (six), value £20 each, tenable for one year, are awarded to the best students in each of the following classes: botany, zoology, physics, chemistry, anatomy, physiology. Macfarlane Bursary, annual value £40, tenable for three years, for students who have attended the first session of their professional study in the university; examination in elementary anatomy, elementary chemistry, and botany. Mackintosh Bursary, value £31, tenable for one year, open to medical students of either sex who have attended one of the courses of lectures on insanity; examination in that subject. John Monteith Bursary, annual value £21, tenable for two years, is awarded annually to the student who gains the highest number of marks in the subjects of anatomy and physiology at the professional examinations held during the previous year. Rainy Bursary, annual value £50, tenable for two years, for students entering on their third session of medical study; awarded to the candidate whose aggregate of marks in the subjects of anatomy and physiology of the Second Professional Examination, and in chemistry, botany, and zoology of the First Professional Examination, is the highest. A. and B. Stewart Bursaries, annual value £50 each, tenable for three years, for students who have gone through the arts curriculum; there is a special examination. Walton Bursary, annual value £40, tenable for four years; the Earl of Sandwich has the right of appointing to the bursary one of two students nominated by the Senate. Weir Bursary, value £25, tenable for one year, awarded on the results of the Second and Third Professional Examinations. Barbour Scholarship in anatomy or physiology, annual value £250, tenable for two years. Joseph Coats Memorial Scholarship, value £85, tenable for one year, for research in pathology. Faulds Fellowship, annual value £250, tenable for three years, for medical research. Foulis Memorial Scholarship in pathology, value £50. Four McCunn Medical Research Scholarships, value £200 each, tenable for one year. Perman Memorial Scholarship, value £50, tenable for one year, for research in pathology. The Junior Arnott Prize of about £15; the senior Arnott Prize of £25. Three Bellahouston Gold Medals. The Brunton Memorial Prize of about £20. The Macewen Medal in surgery. The Captain H. S. Ranken V.C. Memorial Prize of £4 10s. The Straits Settlements Gold Medal. The West of Scotland R.A.M.C. Memorial Prize of about £15.

The Carnegie Trust for the Universities of Scotland is empowered to pay the whole or part of the university ordinary class fees of students of Scottish birth or extraction, under conditions given in the *University Calendar*, and summarized at page 400 of this issue. Scholarships and Fellowships are offered by the Carnegie Trust in science and medicine for post-graduation study.

Fees.—The matriculation fee for each year is £2 2s. In most cases the fee for each university class is £6 6s., but in some cases it is £4 4s. For hospital attendance at the Western Infirmary students pay £12 12s. for a perpetual ticket, or £1 11s. 6d. for a single term ticket, with an additional fee of £5 5s. for each winter and £2 12s. 6d. per term for each clinical course. The fees are the same at the Royal Infirmary. The university fees for the four professional examinations total £34 13s. For the whole curriculum the fees for matriculation, class attendance, hospital attendance, and professional examinations amount to about £250.

For further information apply to the Registrar, Glasgow University.

QUEEN MARGARET COLLEGE.—In this, the Women's Medical School of the University of Glasgow, the courses of study, degrees, regulations, fees, etc., are the same as for men. Women students have their own buildings, with classrooms, reading rooms, library, etc. They are taught in some classes apart from male students, in others together with them, but in either case have all the rights and privileges of university students. Their clinical studies are taken in the Royal Infirmary, the Western Infirmary, and the Victoria Infirmary; also *inter alia* in the Royal Hospital for Sick Children, the Glasgow Ear Hospital, the Royal Asylum, Gartnavel, Hawkhead Asylum, the Ophthalmic Institution, the City of Glasgow Fever Hospitals, Belvidere and Ruchill, and the Glasgow Royal Maternity and Women's Hospital.

Scholarships.—The Arthur Scholarship, annual value £20, tenable for three years. Open to competition by medical students of first year at the First Professional Examination in October, 1931. This scholarship is restricted to women medical students.

Full information can be obtained from the Mistress, Queen Margaret College, Glasgow.

Board for Students.—University houses of residence for women students, Queen Margaret Hall and Robertson Hall, are situated near the college. The cost of board and residence is from 32s. 6d. to 42s. a week, according to accommodation. Applications to be made to the Wardens. Another hostel near the college is South Park House, Ann Street, belonging to the Student Christian Movement, and open to women students of all colleges in Glasgow. Cost of board is from 32s. to 35s. weekly. Applications to be made to the Warden.

ST. MUNGO'S COLLEGE.—This is the Medical School of the Royal Infirmary, which is the largest general hospital in Glasgow. The Infirmary is situated in Cathedral Square, Castle Street, and has car communication with every part of the city. St. Mungo's College is in the Infirmary grounds, and affords full courses in all the subjects of the medical curriculum, and in all the medical subjects of the dental curriculum.

The Infirmary has (including the ophthalmic department) over 700 beds. There are special beds and wards for diseases of women, of the throat, nose, and ear, venereal diseases, burns, and septic cases. In the out-patient department in 1927 over 66,000 patients were treated. In addition to the large medical and surgical departments, there are departments for special diseases—namely, diseases of women, of the throat and nose, of the ear, of the eye, of the skin, and of the teeth. There is also a fully equipped electrical pavilion, with the latest and most improved apparatus for diagnosis and treatment.

Appointments.—Five house-physicians and eleven house-surgeons, who must be fully qualified, are appointed every six months, and board in the hospital free of charge. Clerks and dressers are appointed by the physicians and surgeons. As many cases of acute diseases and accidents of a varied character are received, these appointments are very valuable.

Fees.—The average class fee is £3 3s. for summer classes and £4 4s. for winter classes. The fees for all the lectures, practical classes, and hospital attendance necessary for candidates for the diplomas of the English or Scottish Colleges of Physicians and Surgeons amount to about £120. The classes are open to male and female students.

A syllabus of classes can be obtained on application to the Secretary to the Medical Faculty, St. Mungo's College, 86, Castle Street.

THE ANDERSON COLLEGE OF MEDICINE.—This school provides education in all subjects of the curriculum for both medical and dental students. The school buildings are situated in Dumbarton Road, immediately to the west of the University and Western Infirmary. The hospital practice and clinical lectures are provided in the Western or Royal Infirmary; pathology in the Western or Royal Infirmary; vaccination and dispensary practice in the Western or Royal Infirmary Dispensary. These classes are recognized by all the licensing corporations in the United Kingdom, also by the Universities of London, Durham, Glasgow, and Edinburgh (the latter two under certain conditions stated in the school Calendar). The courses (lectures and laboratory) in public health are recognized by the Scottish Licensing Board, the Universities of Oxford, Cambridge, and London, and the London and Irish Colleges.

Fees.—The fees for the lectures and practical work required by ordinary students range between 2 and 6 guineas a session. In the Public Health Department the fee for a six months' course is £14 14s. The Carnegie Trust pays the fees of students at Anderson College on conditions regarding which particulars may be obtained from the Secretary, Carnegie Trust Offices, Edinburgh.

A Calendar will be sent on receipt of a postcard by the Secretary to the Medical Faculty, the Anderson College of Medicine, Glasgow, W., who will forward any further information which may be desired.

The Royal Samaritan Hospital for Women, Glasgow, with 160 beds, offers facilities for clinical instruction in the diseases peculiar to women. A university lectureship, the

Royal Samaritan Lectureship in gynaecology, is associated with the hospital. The lecturer is Dr. David Shannon. Particulars may be obtained from Mr. T. Mason Macquaker, M.A., Secretary, 149, St. Vincent Street, Glasgow.

St. Andrews and Dundee.

The medical departments in these two teaching centres cater specially for students proceeding to the degrees of the University of St. Andrews, but admit other students as well. In the former city the United College provides education in all subjects for the first two years. In Dundee, University College provides for the needs of students from the beginning to the end of the five years' curriculum. Its buildings are modern, and contain fully equipped laboratories. The clinical work of the school is facilitated by various institutions. The class fees are from £6 6s. to £5 12s. 6d. for systematic classes, and from £4 14s. 6d. to £4 4s. for practical classes. The hospital ticket is £1 8s. for three months, £4 4s. a year, or perpetual, £13 6s. 8d. in one sum. The inclusive or composition fee for the curriculum is £182. In connexion with both institutions there are bursaries and scholarships of considerable value, which are awarded after competitive examination. Information as to these can be obtained from the Secretary of the University of St. Andrews. Information regarding the clinical facilities may be obtained from the Dean of the Medical Faculty, Medical School, Dundee.

Clinical Work.

Good opportunities for clinical work are afforded by the Dundee Royal Infirmary, the instruction given thereat being recognized for purposes of graduation by all the Scottish universities, the University of Cambridge, the University of London, the National University of Ireland, and by the Royal Colleges of England and Scotland.

IRELAND.

There is a choice of six schools for those pursuing their medical studies in Ireland. For clinical instruction the choice is equally wide and varied, though the hospitals themselves are comparatively small. Some account of the schools follows.

Dublin.

School of Physic.

This school is in Trinity College, Dublin, and is carried on under the joint auspices of the University of Dublin and of the Royal College of Physicians of Ireland, the King's professors of institutes of medicine (physiology), practice of medicine, materia medica, and midwifery being appointed by the latter. Clinical instruction is given at Sir Patrick Dun's Hospital, and some twelve other metropolitan hospitals and asylums are recognized by the Board of Trinity College. The courses of instruction are open to all medical students, whether they belong to the university or not.

The Schools of Surgery.

These are schools carried on in Dublin under the supervision and control of the Council of the Royal College of Surgeons. They are formed of the college's own school, combined with two famous old medical schools—Carmichael and Ledwich; they are attached to the college by charter. The buildings contain spacious dissecting rooms, special pathological, bacteriological, public health, chemical, and pharmaceutical laboratories. Advantage can be taken of the lectures and instruction afforded by students otherwise unconnected with the college.

Prizes.—Among the prizes annually awarded are: The Barker Anatomical Prize (£26 5s.); the Carmichael Scholarship (£15); the Mayne Scholarship (£8); the Gold Medal in surgery; the Stoney Memorial Gold Medal in anatomy; the H. Macnaughton Jones Gold Medal for midwifery and gynaecology; the Captain Massey Miles Memorial Prize; class prizes, accompanied by silver medals, will also be given in each subject. At intervals a prize of £150 is awarded, called the R. Dancer Purefoy Memorial.

A prospectus can be obtained post free on application to the Registrar, Royal College of Surgeons, Dublin.

University College, Dublin.

This is one of the constituent colleges of the National University of Ireland. The arrangements for the teaching of medical students from beginning to end of the curriculum are adequate. Applications for information may be addressed to the Secretary and Bursar, University College, Dublin.

Clinical Teaching in Dublin.

There are numerous well-arranged hospitals in and around the city, and almost all of these are recognized for teaching purposes by the Conjoint Board of Ireland, the University of Dublin, the National University of Ireland, and by like bodies elsewhere in the British Isles. Among them are the Mater Misericordiae Hospital, with 345 beds; Dr. Steevens's Hospital at Kingsbridge, with 150; Meath Hospital and County Dublin Infirmary, with 160; Mercer's Hospital, with 120; the Royal City of Dublin Hospital, with 124; the Adelaide Hospital, with 160; the Royal Victoria Eye and Ear Hospital, with 100 beds; Sir Patrick Dun's Hospital, which has a direct connexion with the School of Physic, and the combined institutions formed by the Hardwicke Fever Hospital, the Richmond Surgical Hospital, and the Whitworth Medical Hospital, with an aggregate of 330 beds.

As for the famous Dublin medical institution known as the Rotunda Hospital, this practically consists of two distinct hospitals, and is believed to be the largest combined maternity and gynaecological hospital in the British Isles. It receives nearly 3,000 patients every year, and, apart from ordinary out-patient work of a gynaecological order, annually attends some 2,000 women in their own homes during their confinement. There are ante-natal and paediatric departments as well as a thoroughly equipped pathological laboratory, and *x*-ray apparatus. It possesses residential quarters for students, and, taken as a whole, offers exceptional opportunities for study both to ordinary students and to medical graduates of any nationality.

Two other important obstetric and gynaecological hospitals in Dublin are the Coombe Lying-in Hospital and the National Maternity Hospital. During the year ending December 31st, 1927, the number of cases dealt with in the Coombe Lying-in Hospital were as follows: intern maternity department, total admissions 1,042; intern maternity department, total deliveries 950; extern maternity department, total cases treated 1,494; gynaecological department, number of operations 462.

At the National Maternity Hospital, Holles Street, Dublin, during the year ending March 31st, 1929, there were admitted to the maternity department 997 patients, and to the gynaecological department 394; 811 calls were received in the extern obstetrical service; 961 patients were delivered in the hospital and 631 in their homes; 383 operations were performed.

The practice of these hospitals is attended by large numbers of students, post-graduates, and nurses.

Belfast.

The Medical School is part of the Faculty of Medicine of Queen's University, Belfast, and provides a complete medical curriculum for all purposes. The laboratories in connexion with the departments of bacteriology, biochemistry, biology, chemistry, physiology, pathology, anatomy, physics, and materia medica are all excellent, and there is a students' union which gives students the advantages of dining rooms, reading rooms, a library, and various recreation rooms. Women are eligible as students. Clinical instruction is given at the Royal Victoria Hospital, which was rebuilt a few years ago and has 300 beds, and the Mater Infirmorum Hospital, which has 150 beds. Other hospitals open to the students of the university are: the Maternity Hospital, the Ulster Hospital for Women and Children, the Hospital for Sick Children, the Ophthalmic Hospital; the Benn Ulster Eye, Ear and Throat Hospital; the Union Infirmary and Fever Hospital; the Fever Hospital, Purdysburn; the District Lunatic Asylum, the Samaritan Hospital, Forster Green Hospital for Diseases of the Chest, and the Belfast Hospital for Skin Diseases.

Scholarships.—(1) Eight, of the value of £40 each, are assigned as Entrance Scholarships in the Faculties of Arts, Science, and Medicine, tenable for one year; (2) fourteen Professional Scholarships, value from £15 to £40 each; (3) one Hutchinson Stewart Scholarship, £12, in mental diseases; (4) one Mackay Wilson Travelling Scholarship, £100, awarded triennially; (5) Isabella Tod Memorial Scholarship, tenable for three years, awarded triennially to a woman student; (6) Magrath Clinical Scholarship, awarded annually, value about £112; (7) two Musgrave Studentships of £200 in physiology and pathology. There is also a post-graduate research fund, open to all graduates of not more than three years' standing. Gold medals are awarded at the M.D. examination.

Fees.—The cost of the curriculum intended for students proceeding to the degrees of the Queen's University of Belfast is, approximately, £200. This includes examination fees and a perpetual ticket for attendance at the Royal Victoria Hospital or the Mater Infirmorum Hospital, and fees for the special hospitals. The course for the Conjoint Board costs about the same amount.

The Regulations of the Medical Faculty, containing full information, can be obtained on application to the Secretary, Queen's University, Belfast, price 4d.

University College, Cork.

This institution, formerly known as Queen's College, Cork, is one of the constituent colleges of the National University. It holds examinations for all the faculties of that university, in addition to continuing the work which it has hitherto performed—namely, that of providing education adapted to the needs of medical students at all stages of their career. Its first aim is to fit students for the degrees of the National University, but students proceeding for the examinations of the Conjoint Board of England, Scotland, or Ireland, the Society of Apothecaries of London, or the Apothecaries' Hall of Ireland, or London University, can arrange the courses of lectures which they attend, and the order in which they attend them, to meet the requirements of those bodies. Certificates of attendance at the college courses are also accepted by the University of Cambridge. Clinical instruction is given at the North and South Infirmaries (each 100 beds) and at the Cork Union Hospital (1,200 beds). Students can also attend the Mercy Hospital (130 beds), the County and City of Cork Lying-in Hospital, the Hospital for Diseases of Women and Children, the Fever Hospital, the Ophthalmic and Aural Hospital, and the Eglinton Lunatic Asylum. The session extends from October to June.

There is a Dental School in which the degree of Bachelor of Dental Surgery of the National University of Ireland can be obtained. There is a large well-equipped dental hospital in connexion with the school.

Scholarships.—About £3,000 is available annually for scholarships in the college. Particulars as to each of them can be obtained on application to the Registrar.

Fees.—The fees for the lectures and hospital attendances required by the National University of Ireland course, including examination fees, come to about £170.

Further information can be found in the Calendar or obtained on application to the Registrar.

University College, Galway.

This institution is one of the constituent colleges of the National University of Ireland, and includes Faculties of Art, Science, Law, Celtic, Engineering, Commerce, and Medicine. The college buildings are well lighted and well ventilated, and contain dissecting rooms, an anatomical theatre, and laboratories for the study of physiology, chemistry, physics, and other departments of medical science. For pathology and chemistry new laboratories are now provided. It has good grounds surrounding it, and there are many arrangements, such as a library, a college union, and an athletic union, for the benefit of those belonging to the Medical Faculty, as well as for students in other departments of the college. The clinical teaching, which is recognized as qualifying not only for the degrees of the National University, but for those of the London University and the diplomas of the various colleges in the three kingdoms, is carried on at the Galway Central Hospital and the Galway Tuberculosis Hospital. The Galway Central Hospital is a general hospital, and at the two hospitals students have ample opportunities of studying zymotic and chronic diseases. The Central Hospital has a special ward for diseases of children. Each year the governing body offers about £2,500, and the County Councils of Connaught offer about £3,500, in scholarships. These scholarships are tenable in any faculty. Additional information regarding these scholarships can be obtained on application to the Registrar, and to the Secretaries of the Connaught County Councils.

CLINICAL HOSPITALS IN ENGLAND.

Many hospitals in Great Britain and Ireland, though not connected with any medical school, open their doors either to those who have yet to be qualified, to those who are doing post-graduation work, or to both. The facilities they offer for gaining practical clinical experience are very great, and should not be overlooked. Their honorary staffs commonly make a point of giving such instruction as opportunity offers, and at those situated in the larger towns there are often appointments as clinical assistants to be obtained. In addition, they all have to offer, at shorter or longer intervals, appointments for resident medical officers, house-physicians, and house-surgeons. These are usually paid offices, which may be held for periods varying from six months to a year, or even longer. Some of those situated in the great medical centres in the provinces, and in Scotland and Ireland, have already been mentioned in speaking of the medical schools in these localities; but it should be added that there are many other provincial hospitals where admirable work is done, and at which much valuable experience can be gained by both senior and junior students, and by those already qualified. Cases in point are the Royal Infirmary, Bradford; the Royal Sussex County Hospital, Brighton; the Royal United Hospital, Bath; the Kent and Canterbury Hospital; the Derbyshire Royal Infirmary; South Devon and East Cornwall Hospital, Plymouth; the Royal Albert Hospital and Eye Hospital, Devonport; the Royal Devon and Exeter Hospital; the West of England Eye Infirmary, Exeter; the Gloucestershire Royal Infirmary and Eye Institution; the Royal Infirmary, Leicester; the County Hospital, Lincoln; the General Hospital, Northampton; the Norfolk and Norwich Hospital; the General Hospital, Nottingham; the Royal Portsmouth Hospital; the Royal Berks Hospital, Reading; the Royal South Hants and Southampton Hospital; the Staffordshire General Infirmary, Stafford; the North Staffordshire Infirmary at Hartshill; the Royal Hants County Hospital, Winchester; the Wolverhampton and Staffordshire General Hospital; the County Hospital, York; and the Coventry and Warwickshire Hospital.

London Clinical Hospitals.

As for the hospitals in the metropolis, so many of these take a share in the giving of clinical instruction that it is worth while to classify them.

Children's Hospitals.—There are at least seven of these, the leader among them being the Hospital for Sick Children, Great Ormond Street, which has 268 beds. There are also the East London Hospital for Children, Shadwell, with 136; the Queen's Hospital for Children, Bethnal Green, with 134; the Victoria Hospital for Children, Chelsea, with 130; the Belgrave Hospital for Children, which has a considerable out-patient department, and in-patient accommodation for 74 children; the Paddington Green Children's Hospital; and the Evelina Hospital for Sick Children, Southwark Bridge Road, with 76 beds. The largest and the oldest of the hospitals for both women and children is the Royal Waterloo Hospital for Children and Women, Waterloo Road, S.E.1.

Hospitals for Women.—Queen Charlotte's Maternity Hospital, Marylebone Road, with 75 beds and a residential college for medical students and [illegible] the teaching of midwifery. The City [illegible] al, City Road, with 71 beds, also adm[illegible] aduates to its practice. The Samarit[illegible] ylebone Road, admits qualified pract[illegible] to both the in-patient and out-patient departments; demonstrations are given daily in both departments, the fees—payable in advance—being £3 3s. for three months; full particulars may be obtained from the secretary. In addition may be mentioned the Hospital for Women, Soho Square, whose teaching is confined to post-graduates in limited numbers; the Chelsea Hospital for Women, Arthur Street, Chelsea; and the Elizabeth Garrett Anderson Hospital for Women in Euston Road, the latter being in the nature of a general hospital so far as concerns the class of case treated.

Eye Hospitals.—The largest of these is the Royal London Ophthalmic Hospital (Moorfields), City Road, E.C.1, 138 beds; 2,438 in-patients, 51,841 out-patients in 1927. At this hospital two complete courses of instruction are given during the year—October to February, and March to July—comprising the following subjects: (1) anatomy (including histology and embryology), (2) physiology, (3) optics (including physiological optics), (4) refraction

classes, (5) methods of examination and use of the ophthalmoscope, (6) pathology and bacteriology, (7) ophthalmic medicine and surgery, (8) ophthalmoscopic conditions, (9) operative surgery, (10) practical pathology, (11) practical bacteriology, (12) radiology, (13) physiotherapy (including ultra-violet light, diathermy, and ionization), (14) slit-lamp microscopy. A fee of 31 guineas will admit the holder once to all the lectures and classes, except those on physiotherapy and slit-lamp microscopy. The fee for a perpetual ticket to attend the practice of the hospital is £5 5s.; for three or six months, £3 3s.; for two months, £2 2s.; for one month, £1 1s. Registered medical practitioners and medical students are eligible, under certain conditions, for the posts of chief clinical assistant, clinical assistant, and junior assistant. There are also a number of salaried posts, an annual Clinical Research Scholarship of £50, and a biennial Gifford Edmonds Prize of £100. Clinical work begins each morning at 9 and operations at 10 o'clock. The course of instruction is specially adapted to meet the requirements of those reading for the D.O.M.S. and similar diplomas and degrees in ophthalmology. Further particulars may be obtained from the Dean of the Medical School. Other eye hospitals are the Royal Westminster Ophthalmic Hospital, lately rebuilt on a new site in Broad Street, High Holborn, and containing 84 beds; the Royal Eye Hospital, Southwark, and the Central London Ophthalmic Hospital, Judd Street, W.C.1, each with about 40 beds; and the Western Ophthalmic Hospital with 18 beds.

Fever Hospitals.—The Metropolitan Asylums Board has under its control a good many institutions in and around London for the treatment of the more serious zymotic disorders; it makes special arrangements for the instruction of students in this subject, and grants certificates at the end of the courses. Detailed information should be sought from the Clerk to the Board, Victoria Embankment, E.C.4.

Chest Hospitals.—The largest of these is the Brompton Hospital for Consumption, which has 333 beds and a large sanatorium at Frimley with 150 beds. There is also the City of London Hospital for Diseases of the Chest, Victoria Park, with 185 beds, and the Royal Hospital for Diseases of the Chest, City Road, with 85 beds, now amalgamated with the Royal Northern Hospital, Holloway Road.

Nose, Throat, and Ear Hospitals.—The institutions which confine their work to disorders of the throat, nose, and ear all make special arrangements for the benefit of senior and post-graduate students. They are the Metropolitan Ear, Nose, and Throat Hospital, Fitzroy Square; the Royal Ear Hospital, Dean Street; the Central London Throat, Nose, and Ear Hospital, Gray's Inn Road; and the Hospital for Diseases of the Throat, Golden Square—the last, which possesses 75 beds, being the largest of the four institutions.

Miscellaneous Special Hospitals.—Among these are the Bethlem Royal Hospital, St. George's Road, S.E.1, which (like the Maudsley Hospital) confines its work to the treatment of mental diseases, and includes a department for nervous and early mental disorders; the Royal National Orthopaedic Hospital, Great Portland Street; St. Peter's Hospital for Stone and Urinary Diseases, Henrietta Street, Covent Garden; St. Mark's Hospital, City Road, which devotes itself to the treatment of diseases of the rectum, including cancer and fistula; the National Hospital for Diseases of the Heart in Westmoreland Street, W.1; St. John's Hospital for Diseases of the Skin in Leicester Square; the Hospital for Diseases of the Skin, Stamford Street, Blackfriars; the National Hospital, Queen Square, W.C.1, an institution possessing 200 beds for neurological cases and a world-wide reputation; and the West End Hospital for Nervous Diseases, 73, Welbeck Street, W.1.

Detailed information as to the teaching arrangements of all these institutions may be obtained on application to their secretaries.

WOMEN IN MEDICINE.

The regulations of the General Medical Council and of the various universities and colleges set out in previous sections apply to women as to men.

Examinations.

Women are admitted to all the medical examinations of the following qualifying bodies: all the universities of Great Britain and Ireland; the Royal College of Physicians of London; the Royal College of Surgeons of England; the Society of Apothecaries of London, and the Conjoint Boards in Scotland and in Ireland. In addition, women are eligible for election as Fellows of the Royal College of Physicians of London and the Royal College of Physicians of Edinburgh.

Medical Education.

The general tendency during the years since the war has been to admit women to train in medicine at the same schools and under very much the same conditions as men. In this country at the present time co-education is the general rule. The schools of the London hospitals have, however, so far shown themselves more conservative in this respect than the rest of the country.

In England the colleges connected with the universities of Birmingham, Bristol, Cardiff, Leeds, Liverpool, Manchester, Newcastle, and Sheffield admit women students as well as men, whilst in Scotland the universities of Aberdeen, St. Andrews, Edinburgh, and Glasgow also admit women. In Ireland all universities and colleges are open to them.

In London several of the old-established hospitals opened their doors to women students during the war, but have now reverted to their previous status of schools for men only. This is an unsatisfactory state of affairs, which it appears can only be temporary, no unsatisfactory results of co-education having been brought forward by any of the schools so closing their doors to women.

At the present time the only co-education hospital in London is that of University College—the number of women entrants is restricted to twelve a year, but these twelve (making between thirty-six and forty-eight training at any one time for the three to four years' clinical course) are given excellent opportunities whilst students, and also, in fair proportion, are given opportunities of post-graduate experience as *residents*—house-surgeons, house-physicians, and obstetrical assistants.

Number of Women Medical Students.

Returns made to the University Grants Committee at the end of 1928 showed that the total number of full-time women medical students attending university institutions in England, Scotland, and Wales during the past five years were:

	1923-24.	1924-25.	1925-26.	1926-27.	1927-28.
England	1,375	1,197	1,059	930	862
Wales	35	32	30	32	30
Scotland	610	431	313	274	254
Total	2,020	1,660	1,402	1,236	1,146

The London (Royal Free Hospital) School of Medicine for Women.

The London (Royal Free Hospital) School was started for the training of women in medicine in the days before there were any co-education facilities for them, and it still remains by far the largest school for women. In addition to the clinical work at the Royal Free Hospital, arrangements are made for students of the school to obtain clinical instruction at the National Hospital for Nervous Diseases, Queen Square; the Royal London Ophthalmic Hospital, Moorfields; the Great Ormond Street Hospital for Children; the Elizabeth Garrett Anderson Hospital; the South London Hospital for Women; and the Cancer Hospital. Its importance for women in medicine can hardly be overestimated, not merely because it was the pioneer which made the way possible, but also because it is still the only general hospital in Britain which offers all its post-graduate appointments, higher and lower, to open competition by women as well as men, thus giving unique opportunity of gaining experience. Not only are all the resident appointments at the Royal Free Hospital, of which there are twenty-seven yearly, eligible for women, but, in addition, higher posts may be obtained in all the various branches of a general hospital, from those of registrar and anaesthetist to those of visiting physician or surgeon and those in charge of special departments. There is a special unit in gynaecology under a woman professor, and entirely staffed by medical women. This policy has so far not been fully adopted in its entirety by any other hospital, and it may be of interest to note in this connexion that the Royal Free Hospital has many women on its general committee and weekly board of management.

Openings for Medical Women.

There are at the present time the names of over three thousand medical women on the *Medical Register*. Owing to the artificially stimulated demand for women to enter medicine during the latter part of the war, there was, for a short time, a greater number of women qualifying

than could be readily absorbed in the various branches of medical work. This was, however, purely transitory, and the demand now is approximately as great as the supply. There is an increasing demand by the public for the services of women doctors in all branches of medicine, and statistics show that the number of those who make good is as high, if not somewhat higher, than that of their men colleagues.

Openings at Home.

House Appointments.—The valuable post-graduate experience obtained in these posts is eagerly sought by both men and women, and it is therefore only to be expected that the increase in the number available to women should be gradual. In addition to the Royal Free Hospital, where by far the greatest number are available, the co-education hospitals show an increasing tendency to admit their women graduates in due proportion to these posts, and in addition women are appointed as residents in many of the non-teaching general hospitals, hospitals for women and children, sanatoriums, infirmaries, fever hospitals, and asylums.

General Practice.—There are good openings as assistants or, better still, as assistants with a view to admission as partners in general practice. Medical women also do very well when starting in new districts; and there is considerable scope for them in midwifery work.

Specialist and Consulting Practice.—This naturally only becomes possible as hospitals admit women as physicians on their honorary staffs; in this respect the Elizabeth Garrett Anderson Hospital and the South London Hospital for Women have rendered invaluable service to women in medicine. As has been mentioned, the Royal Free Hospital also has a considerable number of women on the staff, whilst in the provinces women are making satisfactory progress in this direction. To mention a few—at Bath, Bristol, Edinburgh, Glasgow, Hereford, Liverpool, and Manchester—there are women on the honorary visiting staffs of general hospitals and special hospitals as general physicians, surgeons, gynaecologists, orthopaedic surgeons, children's specialists, and infants' specialists. It is interesting to note that there are already women in successful practice as consulting physicians, surgeons, gynaecologists, ophthalmologists, ear, nose, and throat specialists, urologists, dermatologists, anaesthetists, tuberculosis specialists, venereal disease specialists, x-ray and light treatment specialists, psychologists, specialists in orthopaedic work, children's diseases, bacteriology and pathology, and spa treatment, etc. Research work also provides interesting openings, as, for example, in dealing with the special problems concerning cancer, nutrition, puerperal morbidity and mortality, statistical work, etc., and for some of these research scholarships and grants are available.

Teaching Posts.—Women hold professorships and lectureships at various universities.

Industrial Medicine.—In this branch there is much interesting work available, and it is undergoing considerable development at the present time. Several women already hold such posts.

Administrative Work.—A certain number of these important posts are admirably filled by medical women. The chief medical officer for maternity and child welfare is a medical woman, and has a staff of medical women to assist her.

The Public Health Service.—This service provides numerous openings for medical women. It has many departments, and its rapid growth in recent years has provided much interesting work in preventive medicine. For maternity and child welfare work women have been found to be peculiarly suited; but, by a curious economic limitation, married women, who would appear to be the most suitable of all, are, by many public authorities, excluded from service. This exclusion not only prevents married women from taking part in this work, but also prevents many of the best women from specializing in this branch of medicine, as it is obviously uneconomic to specialize in a branch of public service from which one may be excluded in a few years.

Medical Inspection, etc.—Under the Board of Education there are women serving as medical advisers and school medical inspectors. The London County Council and other important councils in the country have medical women on their permanent medical staffs, both in the senior and junior grades. The London County Council has two of its senior medical women appointed to serve as district medical inspectors. In addition, they have a large number of women medical inspectors of school children, and also women are serving as experts in the departments dealing with mental deficiency, tuberculosis, and venereal disease. Some medical women also serve as examiners of the candidates entering the public services, as, for example, the civil service. The services of medical women are extensively enlisted by public authorities in dealing with employees of their own sex. In several instances women serve as assistant medical officers to prisons, and in one instance at least a woman has recently been appointed as the medical officer for the police women of a large city. The services of medical women are also enlisted as lecturers and examiners on first aid, home nursing, health, and infant care.

Pay and Status.

It is interesting to note that medical women, backed by the powerful assistance of the British Medical Association, have been on the whole successful in resisting the attempt to accept a lower salary for the same work as their men colleagues, thereby not only greatly benefiting themselves, but also maintaining the standard for the whole profession. They realize that ever since the admission of women to the medical profession exactly the same sacrifices for principle have been made by their predecessors as are now demanded from them. With the inauguration of the School Medical Service in 1908, and later when maternity and child welfare posts were created, persistent efforts were made by local authorities to pay their assistant medical officers below the minimum arranged by the representatives of the public authorities and the British Medical Association, and to secure women at a lower rate than men. With rare exceptions these efforts were a failure. Women realize as clearly as men that lowered pay invariably implies a lowered status and prestige, and that the woman who stamps herself as belonging to an inferior grade of doctor cannot complain if she is taken at her own valuation, and that a minimum always tends to become a maximum. Attempts to evade the scale and split the ranks of the profession by offering a post to a man at the agreed rate and a similar post to a woman slightly below that rate are particularly to be deprecated. Where the rule of equal pay for equal work is violated there is no limit to the extent to which women may be exploited and sweated.

Openings Abroad.

Colonial Office.—To those to whom overseas service appeals it offers the possibility of useful, interesting, and adequately paid work. At present there are only posts for women in Malaya and West Africa, and the work is almost entirely hospital and maternity and child welfare work; there have been one or two specialist appointments, such as bacteriologists, and more may follow. Women have, so far, only been appointed to the lower grade posts, but their pay is the same as that of the men in similar grades. When placed on the permanent staff they are eligible for pension.

Egypt.—Several posts are held under the education authority, chiefly in school medical inspection.

India.—See note on the Women's Medical Service for India on opposite page.

Mission Field.—Missionary societies offer employment to medical women, chiefly in India, China, and the Near East.

Public Activities.

Medical women have always shown considerable interest in medico-political affairs, and take an active part in the work of the British Medical Association, and with the various other societies dealing with medicine as it affects the community in general. With this end in view they also have a Medical Women's Federation, which enables them to voice a collective expression of opinion. This might otherwise be difficult to ascertain, as women are so widely scattered, both as regards their geographical

distribution and their varied activities. This collective opinion of medical women has been found of great assistance by the British Medical Association and other allied societies, with which it works in cordial co-operation and by whom it is frequently approached, both for information and also as a convenient means of approaching medical women as a whole.

It may be added, with regard to contributions to medical literature, that this is a branch of work in which women are more and more taking their share, and scientific and other works are frequently published by them.

WOMEN'S MEDICAL SERVICE FOR INDIA.

This service is open to properly qualified medical women of British or Indian nationality who desire to carry on work in India. It was founded in 1913 by the Countess of Dufferin's Fund; the committee is granted a subsidy of Rs.3,70,000 by the Government of India for this purpose.

Medical women proceeding to India to join the Women's Medical Service receive a sufficient sum for a first-class passage to India. On landing they are posted to one of the larger women's hospitals to gain Indian experience and to learn the language. During this period (from six months to two years) private practice is not allowed. For a further period they are appointed to act temporarily for medical women on furlough, during which time private practice is allowed. They are then definitely appointed to the charge of hospitals.

Private practice is always allowed after the first two years, provided it does not interfere with official duties. The only exception is in administrative posts, when an allowance in lieu of practice is given. The amount obtained by practice varies according to the station, but in most cases it forms a fair addition to the salary, varying from £150 to £1,000 a year. Excellent opportunities for surgery—especially gynaecological—are found in the Women's Medical Service. The prevalence of osteomalacia in some parts of the country leads to the necessity for frequent Caesarean section, while uterine fibroids, ovarian tumours, and diseased tubes swell the number of abdominal operations. The number of large operations performed will vary with the surgical reputation of the medical woman, but in some cases it is considerable.

To those who are not keen surgeons opportunities are likely to open in the future in connexion with maternity and child welfare. The high infant mortality and the suffering of women in childbirth owing to the ignorance of the untrained hereditary midwives provide a great field for such workers. Medical women with administrative ability are also needed for the inspection of women's hospitals and other medical institutions.

Years of Service.	Rates of Pay per mensem.	Annual Salary.
1-3	Rs. 450	£360
4-6	Rs. 500	£400
7-9	Rs. 550	£440
10-12	Rs. 600	£480
13-15	Rs. 650	£520
16-18	Rs. 700	£560
19-21	Rs. 750	£600
22-24	Rs. 800	£640
Over 24	Rs. 850	£680

Furnished quarters are provided, also an overseas allowance of Rs.100 per annum, the rupee value being taken at 1s. 4d.

The above rates of pay are not so high as in the Indian Medical Service. The fact, however, that furnished quarters are provided (these are not provided in the Indian Medical Service) represents an additional Rs.150 per mensem. It must be remembered, too, that the official duties of the members of the Women's Medical Service are lighter than those of the Indian Medical Service, who, while in civil employ, in addition to work in the Civil Hospital, have charge of the medico-legal work of the district, give much gratuitous attendance, and form a reserve to be drawn on in time of war.

The cost of living in India is much higher than formerly, but even now it is possible to live more cheaply than in England for the same measure of comfort. The cost of all goods brought from Europe is very high, but the cost of country produce is much less than in Europe. Meat, poultry, milk, eggs, etc., are sold at about half the price now demanded in England. It should be possible for a medical woman (with house provided) to meet actual household expenses for about Rs.200 per mensem, leaving the remainder of her salary for dress and personal expenses. To this must be added the necessary saving to meet additional expenses for furlough and leave spent in the hills.

One month's privilege leave on full pay is granted each year. Furlough on half-pay at the rate of two months for every year of service is granted after every three years.

Study leave on furlough pay and lodging allowance at the rate of 12s. per day may be granted to the extent of twelve months in the total service.

There is a Provident Fund to which members of the service contribute 10 per cent. of their pay. The service contributes another 10 per cent., which accumulates at interest and is repaid on retirement.

Admission to the service is made by selection. Candidates in the United Kingdom should apply to the Honorary Secretary, U.K. Branch of the Countess of Dufferin's Fund, c.o. Major-General Sir Leonard Rogers, F.R.S., India Office, Whitehall, S.W.1.

POST-GRADUATE STUDY.

Notwithstanding the large and varied amount of material available, post-graduate study in London suffers from several disabilities. In the first place, teaching centres are widely scattered, and it is not easy for the student to obtain all that he requires under one roof, or even in the same district. Secondly, no definite post-graduate school exists at which the post-graduate can obtain directions for a course to suit his needs. Thirdly, there is no recognized hostel or meeting place to which the student can resort for social purposes. Each of these needs, it is true, can be obtained on a small scale at several institutions in London; but it is unlikely that what may be called the post-graduate habit will be developed until a centre for post-graduate medical education has been established.

Post-graduate students may be divided into general practitioners desirous of refresher courses to bring their general knowledge up to date; those who wish for instruction in special subjects with a view to obtaining one of the special diplomas, or of preparing for examination for promotion in one or other of the services, or—if already general practitioners—of adding some form of specialism to their work; and finally, visitors from the Dominions or abroad anxious to study the methods of British experts. The general practitioner may find a refresher course at the hospital at which he was trained, held during a vacation, and designed specially to bring his knowledge up to date; or he may approach the Fellowship of Medicine, which was amalgamated with the Post-Graduate Medical Association in 1919, and has an office generously placed at its disposal by the Royal Society of Medicine at 1, Wimpole Street, W.1. At this office a list of hospitals, special and general, to which post-graduates may resort, with or without fee, is kept, and the names of the teachers at each hospital are available. Definite courses of study at individual hospitals are also organized by the Fellowship. The West London Hospital at Hammersmith, and the Prince of Wales's General Hospital at Tottenham, have for many years had post-graduate colleges attached to them, thus overcoming, to the extent of their resources, the disabilities mentioned above. Courses of lectures and instruction are given at many special hospitals, such as the National Hospital, Queen Square, the National Orthopaedic Hospital, and certain eye, skin, and fever hospitals; and in the London School of Hygiene and Tropical Medicine, Keppel Street, Gower Street, recently opened, it will now be possible to obtain under one roof instruction in all branches of preventive medicine. The work of the school has been arranged in the following divisions, each in charge of a director and staff: public health, including a section devoted to the physiology of hygiene, whose activities will bear closely upon industrial problems; epidemiology and vital statistics; bacteriology and immunology; biochemistry, including a department for chemistry as applied to hygiene; medical zoology, embracing the departments of protozoology, helminthology, and entomology; and, finally, tropical medicine and hygiene, of which Dr. Andrew Balfour has charge, and which embraces the all-important clinical work in diseases of the tropics, for which facilities are afforded by the Hospital for Tropical Diseases in Gordon Street close by.

In the provinces the Universities of Oxford, Cambridge, Birmingham, Bristol, Liverpool, Manchester, and Sheffield have organized courses. Edinburgh receives graduates from many schools in the Dominions as well as in this country. In Glasgow and Aberdeen courses are available; and in relation with the University of St. Andrews courses are given by the staff of the James Mackenzie Institute for Clinical Research. At many of these centres the teaching is provided by way of whole-time intensive courses, by part-time courses, or by means of clinical assistantships. The Joint Tuberculosis Council has provided nomadic courses in its own special subject.

For the visitor from the Dominions or abroad very little special provision is made; but he will be able to supplement information from private sources by applying to the Fellowship of Medicine, and he will find no difficulty in obtaining entry to special hospitals, many of which provide post-graduate courses during the year. The visitor, however, will be disappointed if he hopes to find in this country anything like the cohesion and concentration in post-graduate education that is displayed in such a centre as Vienna. But in the absence of any comprehensive co-ordinating schemes, opportunities are fairly numerous and varied for the would-be student who troubles to seek out the course which he requires. Short particulars about post-graduation study in Great Britain and Ireland are given in Section VI of the *Handbook for Recently Qualified Practitioners* published by the British Medical Association (price 3s. 6d.).

Fellowship of Medicine and Post-Graduate Medical Association.

The Fellowship of Medicine has arranged regular courses in general medicine and surgery, including special departments, each lasting two weeks; the fee for each course is 3 to 5 guineas. Courses in diseases of the chest, children, ante-natal, heart, nervous system, throat, nose, and ear; dermatology; electrotherapy; gynaecology; proctology; psychological medicine; tropical medicine; urology; and venereal diseases are given from time to time at the special hospitals in association with the Fellowship of Medicine. The Fellowship "General Course" Programme contains a diary of the arrangements available for post-graduates in various general and special hospitals in London. The list for the immediate future special courses includes a two weeks' course in general medicine and surgery, from September 16th to 28th, at the Westminster Hospital; in diseases of the chest, at the Brompton Hospital, from September 9th to 14th; in diseases of infants, at the Infants Hospital, from September 9th to 21st; and in psychological medicine, at the Bethlem Royal Hospital, from September 10th to October 5th. The offices of the Fellowship are, by kind permission of the Royal Society of Medicine, at No. 1, Wimpole Street, W.1 (telephone, Mayfair 2236). The secretary is in attendance daily from 10 a.m. to 5 p.m., excepting Saturday. The annual subscription for membership of the Fellowship of Medicine and Post-Graduate Medical Association has been fixed at a minimum of 10s., which includes the subscription to the *Post-Graduate Medical Journal*.

The Fellowship arranges, during the autumn and winter sessions, a series of lectures. Special clinical demonstrations in medicine and in surgery are arranged also weekly from October onwards. Syllabuses will be sent regularly on application.

West London Post-Graduate College.

The work of this institution is carried on at the West London Hospital, the first in London to devote its clinical material solely to the instruction of qualified medical men. The college started in 1895; it is provided with lecture, reading, writing, and class rooms, and accommodation of all sorts for the convenience of post-graduate students. The work of the college is eminently suitable for men in general practice and officers in the services who wish to revive their general clinical knowledge.

As for ward work, the students accompany the senior staff on their visits to the wards at 2.30 p.m. daily, and also go round with the resident medical officers in the morning. Out-patient work begins at 2 p.m. This department is large, and affords ample facilities for post-graduates to see and examine patients. There are the usual special departments. Post-graduates are appointed to act as clinical assistants for three or six months, no charge being made. Special practical classes are held in medicine, general practical surgery, gastro-intestinal surgery, medical and surgical diseases of children, analysis of blood and urine, cystoscopy, venereal diseases, tropical diseases, retinoscopy, ophthalmic operative surgery, and, when material is available, in operative surgery. The size of the classes is limited. A special clinic for the treatment of venereal diseases (male and female) is held every evening (Saturdays included) at 5.30. Graduates are admitted to the work of the clinic free, and certificates of satisfactory attendance and work are given.

Operations take place at 2 p.m. daily, the surgeons often availing themselves of the assistance of the graduates, and in any case making arrangements so that they can readily see what is going on. The anaesthetists give instruction in the administration of anaesthetics, including spinal analgesia, on the operating days, students being allowed to administer them under supervision, while special classes are held in each session. The pathological laboratory is in charge of a pathologist, who attends every day.

Demonstrations are ordinarily given in the morning by the assistant physicians and surgeons, and by the medical and surgical registrars.

Fees.—Hospital practice, including all ordinary demonstrations and lectures, £1 1s. for one week, £4 4s. for one month, £7 7s. for two months, £9 9s. for three months, £15 15s. for six months, £23 12s. 6d. for one year, and £45 for a life ticket. Instruction in the administration of anaesthetics is given at the rate of £3 3s. a month.

The certificates of the school are recognized by the Admiralty, the War Office, the Colonial Office, the India Office, and the University of London (for higher degrees). A prospectus can be obtained on application to the Dean.

North-East London Post-Graduate College.

The headquarters of this post-graduate school are situated at the Prince of Wales's General Hospital, Tottenham, N.15, in the midst of this densely populated North London district. It contains 200 beds, and is within a few minutes' walk of South Tottenham Station on the London Midland and Scottish Railway, and Seven Sisters and Tottenham Hale Stations on the London and North-Eastern Railway. It is readily accessible by electric tram from Finsbury Park and Hackney, and from Dalston, Edmonton, and other parts of North London. The North Middlesex Hospital, Edmonton, N.18, with upwards of 1,000 beds, has, under a recent arrangement, taken part in the clinical teaching.

The college is in association with the Fellowship of Medicine and Post-Graduate Medical Association, and is recognized by the Admiralty and India Office for the purpose of study leave, and by the University of London as a place for advanced study for the M.D. and M.S. degrees; the course of practical teaching of bacteriology is approved by the University of Cambridge for its Diploma in Public Health, and there are ample arrangements for the convenience of men who are thus working, or who, being in active practice, are desirous of getting themselves into touch with modern methods. The hospital as a whole affords excellent facilities for qualified medical practitioners who wish to take part for a time in active general hospital work, or to obtain special instruction in the several branches of medicine and surgery, since it is open to them to study diseases of the eye, ear, throat, nose, skin, fevers, children's diseases, psychological medicine, dental surgery, radiography, the application of electricity in disease, and the administration of anaesthetics. Throughout the sessions, into which the year's work is divided, clinics, lectures, and demonstrations are given by members of the teaching staff. Operations are performed every afternoon of the week except Saturday. Special vacation or intensive courses are held at intervals through-

out the year, each lasting two weeks, clinical instruction being arranged for each hour of each day.

Fees.—Two guineas for three months' attendance in any one department, which may be begun at any time; a fee of 5 guineas admits to the whole practice of the hospital for a similar term (one month 2 guineas, and one year 10 guineas), and a perpetual ticket for the practice of the hospital may be obtained for 15 guineas.

The winter session will be opened about the middle of September as regards clinical teaching.

Additional information can be obtained from the Dean of the Post-Graduate College, at the Prince of Wales's Hospital.

Manchester Post-Graduate Courses.

The Faculty of Medicine of the University of Manchester has arranged courses in preparation for the diplomas in psychological medicine, in public health, bacteriology, and veterinary State medicine. There are classes also for certificates in factory and school hygiene and in venereal diseases. The Faculty of Medicine has also instituted courses to meet the requirements of graduates desiring to refresh their knowledge or to pursue further their studies in various special branches. The arrangements are in the hands of a committee consisting of certain members of the faculty, of representatives of hospitals, and of the medical officer of health for Manchester. Full particulars can be obtained from the Dean of the Medical School, the University, Manchester. Intensive courses will be given as follows during 1928–29: (*a*) in medicine and surgery, September 23rd to 27th; (*b*) in fractures, October 7th to 11th; (*c*) in oto-laryngology, March 3rd to 7th. Part-time courses in certain subjects have also been arranged, including diseases of the eye, diseases of the skin, and in bacteriology and immunity. A limited number of clinical assistantships are offered in the medical, surgical, and special departments of the Manchester Royal Infirmary, the Ancoats Hospital, and certain special hospitals for one, two, or three months, or longer.

Courses for Medical Graduates at Bristol.

The University of Bristol provides courses of post-graduate study for practitioners. Details of set courses at the Royal Infirmary and General Hospital are announced locally. In addition, practitioners may become clinical assistants in medicine, surgery, or special subjects for periods of a month or more.

Daily Post-Graduate Study.—For those who are able to devote several hours each day to hospital practice the university offers special facilities for post-graduate work. Qualified medical practitioners may be appointed as clinical assistants for a period of one or more months. They may act as assistants, if times permit, in more than one department and in any of the hospitals during their period of study. They will be entitled to the use of the clinical laboratories and medical library, and have the right to attend in all departments, including operations, post-graduate and ordinary clinical demonstrations, and post-mortem examinations.

All inquiries and applications for admission should be addressed to the Director of Post-Graduate Studies (Clinical Section), Pathological Department, University of Bristol, who can be seen on any day by appointment at the Pathological Department.

Newcastle-on-Tyne.

For the year 1929–30 the following post-graduate courses have been arranged by the College of Medicine, Newcastle-on-Tyne (University of Durham):

1. General courses in clinical medicine, surgery, and pathology at the Royal Victoria Infirmary, meeting once weekly for ten weeks. One course will be held from October to December, and one from April to June.

2. Special courses of clinical instruction meeting once weekly for ten weeks in the following subjects: gynaecology, diseases of the eye, diseases of the throat, nose, and ear, diseases of the skin, venereal diseases, neurology.

Special courses in midwifery will be held at the Princess Mary Maternity Hospital.

3. An intensive course of fourteen days' duration in the early part of the summer vacation, 1930.

4. In addition to the regular post-graduate courses practitioners may attend the ordinary medical and surgical practice of the Royal Victoria Infirmary, and also at the Princess Mary Maternity Hospital, for specified periods.

Edinburgh Post-Graduate Courses.

In connexion with the University and Royal Colleges post-graduate courses are arranged every year, from about the middle of July to about the middle of September, comprising: (*a*) a course in obstetrics, gynaecology, and diseases of children, generally held from about the middle of July; (*b*) a general practitioners' course; (*c*) a general surgical course. Courses (*b*) and (*c*) extended for four weeks from August 12th to September 7th. Similar courses are held each year.

The course in obstetrics, gynaecology, and diseases of children comprises instruction in clinical midwifery and clinical gynaecology, obstetrics and gynaecological pathology, diseases of children, child welfare, and ante-natal clinics, etc.

The general practitioners' course includes lecture-demonstrations, and, where possible, practical instruction on medical anatomy, medical sideroom work, examination of the blood, *x*-ray and electrical therapy, morbid anatomy, and post-mortem examination; clinical instruction in medicine, surgery, gynaecology, diseases of children, diseases of the skin, and infectious diseases; and special instruction in the diseases and methods of examination of the nervous, circulatory respiratory, alimentary, and renal systems, and in diseases of the ductless glands. The general surgical course includes lecture-demonstrations on surgical anatomy, surgical pathology, and surgical *x*-ray diagnosis; clinical instruction in surgery at the Royal Infirmary and Royal Hospital for Sick Children; clinical instruction in venereal diseases; surgical out-patients, surgical and gynaecological operations, and special instruction in abdominal and genito-urinary and other branches of surgery.

A series of special lectures, open to all graduates, is delivered on subjects of general medical and surgical interest, including recent advances in treatment. Among the special courses also arranged are: examination of the blood, vaccine therapy, medical chemistry, diseases of the ear, nose, and throat, radiology, ophthalmoscopy, and venereal diseases.

Particulars regarding the courses, dates of commencing, fees, etc., may be had on application to the Honorary Secretary, Post-Graduate Courses in Medicine, University New Buildings, Edinburgh.

Post-Graduate Medical Teaching in Glasgow.

Organized post-graduate medical teaching is available in Glasgow under the auspices of the Post-Graduate Medical Association. This association represents practically all the teaching institutions in Glasgow and the various teachers giving post-graduate instruction, and its business is managed by a board elected periodically by them. The chairman of the board is Principal Sir Donald MacAlister, Bt. During the winter months special courses in various subjects are conducted, and from November till May there is a series of weekly demonstrations specially designed for local practitioners. Clinical courses are carried out during the summer months, and arrangements have also been made whereby a limited number of graduates may become attached to wards or out-patient departments nominally as clinical assistants for definite periods throughout the year. As such they work under the direct supervision of the physician or surgeon in charge, and carry out such detailed investigations as directed.

A general medical and surgical course is held each year during the last two weeks of August and the first two weeks of September, which is arranged to include most of the subjects of interest to the general practitioner. This year the course is being conducted from August 19th to September 13th. The forenoons are occupied with general medicine and surgical diagnosis and minor surgery, in the Victoria Infirmary and in the Western Infirmary. In the afternoons special subjects are dealt with in the special hospitals and in the special departments of the general hospitals, two subjects being considered most afternoons.

Further information may be had on application to Dr. James Carslaw, Secretary, Post-Graduate Medical Association, 9, Woodside Terrace, Glasgow, C.3.

AUSTRALIAN AND NEW ZEALAND MEDICAL ASSOCIATION.

The Australian and New Zealand Medical Association gives information and advice to medical visitors from the Commonwealth and Dominions with regard especially to attendance at special clinics, post-graduate work, and facilities for preparing for examinations such as the M.R.C.P., F.R.C.S., etc., and also as to house appointments and clinical assistantships in London and the provinces. Information will also be given as to lodgings, sports, and social opportunities. Two dinners are held annually. All medical graduates or undergraduates born in Australia or New Zealand and resident in or visiting England are eligible to become members. The fee is one payment of 5s. Further information can be obtained from the joint honorary secretaries, Mr. E. T. C. Milligan, F.R.C.S., 86, Harley Street, W., and Mr. Philip J. Jory, F.R.C.S., 26, Queen Anne Street, W.

TROPICAL MEDICINE.

THERE are large and important schools of Tropical Medicine in London and Liverpool, and several universities and other examining bodies have instituted diplomas or degrees in the subject. The Colonial Office now expects all nominees for the Colonial Medical Service to pass through one or other of the two schools mentioned before their appointments are confirmed, and commercial firms engaged in tropical enterprise commonly demand from medical applicants for employment corresponding evidence of special knowledge. Information with regard to these schools and diplomas and degrees is given in the paragraphs printed below. Further particulars will be found in the *Guide to Regulations, Courses, and Qualifications in Public Health and Tropical Medicine and Hygiene*, compiled by Dr. Andrew Balfour, Director of the London School of Hygiene and Tropical Medicine, and published by the British Medical Association (price 3s.). This useful handbook contains, among other matter, a list of the teaching centres and examining bodies, with the qualifications obtainable from them. The University of London alone gives a degree (M.D.) in Tropical Medicine, and this, being an "internal degree," can only be taken by students who are medical graduates of that university. Diplomas in Tropical Medicine or Hygiene are granted by the universities of Cambridge, Edinburgh, and Liverpool, and by the Conjoint Board of the Royal College of Physicians of London and the Royal College of Surgeons of England.

DIPLOMAS AND DEGREES.

LONDON UNIVERSITY.—Tropical medicine is one of the six branches in which the M.D. degree may be obtained. The regulations relating to the curriculum and examination correspond to those applying to the other branches.

THE EXAMINING BOARD IN ENGLAND.—This body grants a diploma in tropical medicine and hygiene to candidates after an examination held in the months of February and July. Candidates must present evidence of having attended, subsequently to obtaining a registrable qualification in medicine, surgery, and midwifery, (1) practical instruction in pathology, protozoology, helminthology, entomology, bacteriology, and hygiene in relation to tropical medicine, in an institution recognized for this purpose, during not less than five months; (2) the clinical practice of a hospital recognized for the study of tropical diseases during not less than five months. These conditions may be modified in the case of candidates who have had practical experience in tropical countries. The fee for admission to the examination is £9 9s. The Board also grants diplomas in public health, in psychological medicine, in ophthalmic medicine and surgery, and in laryngology and otology. Candidates must hold a medical qualification registrable in the United Kingdom, or be graduates in medicine of a recognized Indian, Colonial, or foreign university. Particulars and conditions of admission to these examinations, fees, etc., may be obtained from the Secretary of the Examining Board, Examination Hall, Queen Square, London, W.C.1.

UNIVERSITY OF LIVERPOOL.—A diploma in tropical medicine is given by this university to students who have attended the courses provided by the Liverpool School of Tropical Medicine and have passed the examination held twice yearly by the university examiners. The subjects of examination are (*a*) tropical pathology and parasitology; (*b*) entomology; (*c*) tropical medicine, including etiology, symptoms, diagnosis, and treatment of tropical diseases. Fee for the course, £21. A diploma in tropical hygiene (D.T.H.), open to the holders of the D.T.M., has recently been established. The subjects of examination are tropical hygiene (including sanitary engineering, vital statistics and epidemiology, and applied parasitology and entomology); practical sanitation, bacteriology, chemistry (including meteorology and climatology). Fee for the course, £10 10s. Further information can be obtained from the Dean of the Faculty of Medicine, University of Liverpool.

UNIVERSITY OF CAMBRIDGE.—This university grants a diploma in tropical medicine and hygiene to any person whose name has been on the *Medical Register* for not less than a year, provided that he passes the examinations of the university in this subject. Candidates for Part I are examined in the same subjects as candidates for Part I for the diploma in public health. Before admission to Part II, the subjects for which are medicine, surgery, and hygiene in their relation to tropical diseases, candidates must have passed Part I. An examination for Part I is held in April and for Part II in July. The fee for each part of the examination is 10 guineas. Application for further information should be made to Mr. J. E. Purvis, Public Health Chemical Laboratory, Medical School, Cambridge.

UNIVERSITY OF EDINBURGH.—Candidates for the diploma in tropical medicine and hygiene granted by the University of Edinburgh must be graduates in medicine and surgery of that university, or hold corresponding registrable degrees or qualifications of some other licensing body. The course of instruction extends over two terms, and may be taken either from October to March or from April to June and January to March. The examinations are written, oral, and practical, and are held at the end of the courses. Candidates are required on the first occasion of presenting themselves for examination to appear for all the subjects. Those who fail to pass the entire examination within a period of twelve months after first appearance are required to reappear for all the subjects. The university is included in the list of institutions whose courses of instruction in tropical medicine may be taken by officers on appointment to the Colonial Medical Services or during study leave. Full particulars can be obtained from the Dean of the Faculty of Medicine, Edinburgh.

SCHOOLS.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE (UNIVERSITY OF LONDON).

The courses of study in all branches of the work of the school will commence in the autumn in the new premises in Keppel Street (Gower Street), the gift of the Rockefeller Foundation, which has excellent laboratories and research rooms, a fine lecture theatre and class rooms, library, and museum.

The courses of study in tropical medicine and hygiene which have hitherto been given at Endsleigh Gardens will be given in the new building. There are two courses in the year, each lasting twenty weeks, inclusive of examinations. The dates for the commencement of the next courses are September 30th, 1929, and February 3rd, 1930. The course covers the work required for the D.T.M and H. (England) and part of that required for the M.D. in tropical medicine of the University of London.

The first course of study for the diploma in public health will commence on September 30th and will extend over a period of twelve calendar months. It is arranged in compliance with the requirements of the General Medical Council, and students taking the course will be able,

should they so desire, to proceed to the new academic diploma in public health of London University. The curriculum has been planned on very practical lines, and includes, in addition to work with medical officers of health in two selected areas, a large number of visits to places of public health interest. A series of 5 o'clock lectures will be given by eminent authorities on special subjects, and these lectures will be open to members of the medical profession as well as to students of the school. The London County Council, the City of London, and various other bodies have placed their resources at the disposal of the school for teaching purposes.

The special course of study for the diploma in bacteriology covers a period of one academic year beginning in October, and special three-monthly courses commencing after the Christmas vacation will be given in epidemiology and vital statistics.

The University of Edinburgh.

A course of instruction for the diploma, comprising a primary and a second course is given during the autumn and spring terms (October to March), and includes tropical hygiene, bacteriology, entomology, and parasitology, diseases of tropical climates (systematic and clinical), tuberculosis, and venereal diseases. The primary course alone is also given during the summer term, April to June. The university is included in the list of institutions whose courses of instruction in tropical medicine may be taken by officers on appointment to the Colonial Medical Services or during study leave. Full particulars can be obtained from the Dean of the Faculty of Medicine.

Liverpool School of Tropical Medicine.

This school is affiliated with the University of Liverpool. The university now grants diplomas in tropical medicine (D.T.M.) and in tropical hygiene (D.T.H.).

Two full courses of instruction, each lasting about eleven weeks, are given every year for the D.T.M., commencing respectively September 30th (autumn term) and January 6th (Lent term); and two courses for the D.T.H., beginning on January 13th and April 23rd (summer term). The D.T.H. can only be taken by those who have obtained the D.T.M. Students who do not desire to take the diploma examinations held by the University at the end of each term are given a certificate if attendance has been satisfactory.

Fees.—(1) For the D.T.M. course, 20 guineas; for the D.T.H. course, 10 guineas. (2) For the diploma examinations, 5 guineas. An extra charge of one guinea is made for the use of a microscope if required.

The laboratories of the school adjoin the university and the tropical ward of the Royal Infirmary. The dimensions of the building are 162 feet in maximum length by 84 feet in width. In addition to the basement, in which are accommodated the photographic department and large storage rooms, there are four floors. The ground floor has: (1) lecture theatre, with accommodation for about seventy students; (2) library; (3) a spacious museum with preparation room adjoining. The first floor has twelve rooms, in which are housed the departments of tropical medicine and entomology. The second floor has the main class laboratory, 69 feet by 58 feet, excellently lighted; and three other rooms, devoted to the department of parasitology. The third floor has a large research laboratory and two research rooms. On the roof is an insectorium, a mosquito-proof house, and other accommodation.

Since its foundation the school has dispatched to the tropics thirty-two scientific expeditions, many of the workers having been taken from among its students. The work done by the staff has been published in twenty-one special memoirs—in the *Annals of Tropical Medicine and Parasitology*, issued by the school, and in numerous articles in the scientific press.

The school has also two laboratories in the tropics: the Manáos Research Laboratory in Brazil; and the Sir Alfred Lewis Jones Tropical Laboratory in Sierra Leone, which was opened on January 10th, 1922, and is staffed by the school. Further information may be obtained from the Honorary Dean, School of Tropical Medicine, Pembroke Place, Liverpool.

PSYCHOLOGICAL MEDICINE.

It cannot be impressed too strongly upon the medical student that a knowledge of mental disorder is just as essential as a knowledge of the other forms of disease which he will be called upon to treat in the routine of general practice. It must be understood that by the term "mental disorder" is not only meant those severe forms which are to be found in mental hospitals, but the term also includes mental defectives of all grades, nervous, difficult, and backward children; the mild and often unrecognized psychoses; and also the various types of psychoneurosis. Such disorders provide the general practitioner with a large proportion of his most difficult cases, and he will find a good knowledge of mental disorder invaluable in his work. Apart from general practice, the student who proposes to take up a career in the prison service or, still more importantly, the school medical service, will find a knowledge of psychological medicine an almost essential part of his equipment.

Instruction.

Though at the present time the instruction given to the student is far from adequate to supply the knowledge of mental disorder requisite for the needs of the general practitioner, the facilities for the study of psychological medicine in the general hospitals are now much greater than in former years. Thus many of the teaching hospitals have out-patient departments for the treatment of mental cases, and in some of these hospitals special lectures are given on psychopathology. These facilities need not be utilized by the student, however, and the compulsory part of the curriculum is generally confined to formal lectures and a few attendances at some mental hospital. Here the student is apt to see mainly the terminal states of mental disease, and he is also apt to gain the impression that mental disorder is necessarily related to segregation and custody. We would therefore impress upon him the importance of attending the out-patient department for mental disorders, where he will be able to observe the mild and early cases such as he will hereafter meet with in general practice.

A scheme is now in actual operation at the Middlesex Hospital in which a small number of mental cases are treated in the hospital as in-patients. This is an important move from the teaching point of view, because the student will gain true insight into the relation between mental disorder and medicine as a whole, and he will realize that it is a form of illness to be studied with other diseases and to be treated along similar lines.

In London post-graduate courses of instruction of a comprehensive kind are given at the Maudsley Hospital and at Bethlem Hospital; and at the National Hospital, Queen Square, courses are arranged to meet the requirements for the diploma in psychological medicine in regard to nervous diseases. Courses in mental deficiency are arranged by the University of London. There are also post-graduate courses at the Universities of Glasgow, Cambridge, Edinburgh, Birmingham, Leeds, Manchester, Durham, and elsewhere.

Diplomas.

Those who are taking up psychiatry as a career will find it desirable to obtain a diploma in psychological medicine. Such a diploma is not at present compulsory for a permanent position on the staff of all mental hospitals, but it will probably become so in course of time, just as it is now essential to obtain the D.P.H. if a career in public health is contemplated. Psychiatry is one of the branches of medicine which candidates for the M.D. degree of the Universities of London and Edinburgh can take up, and, in addition, diplomas in psychological medicine (D.P.M.), to which reference has been made, can be obtained from the Universities of Cambridge, London, Edinburgh, Durham, Leeds, Manchester, Dublin, and the National University of Ireland, and from the Conjoint Board in England. The Royal Medico-Psychological Association of Great Britain and Ireland also grants certificates of proficiency after examination, and encourages the study of psychiatry by the offer of prizes for original and research work.

The requirements for a diploma differ to some extent in the various universities and colleges, but the following model scheme suggested by the Royal Medico-Psychological Association, and already adopted by the Royal College of Physicians of Ireland, will give an indication of the scope of the examination for a diploma.

Model Scheme for a Diploma in Psychological Medicine.

1. The candidate must be already a registered medical practitioner.

2. The candidate may present himself for examination on the subjects detailed under Part I of the curriculum (see para. 4) immediately he has concluded the prescribed courses of instruction, or can produce such other evidence of diligent study of the subjects to be examined upon as may be demanded. Part I must be passed save by special permission at least three months prior to entering for examination on Part II of the curriculum.

3. The candidate may not present himself for examination on the subjects detailed under Part II of the curriculum (see para. 4) until he has been a registered medical practitioner for not less than two years. He must, subsequently to qualification, have been in the practice of an approved mental hospital for not less than two years, or have attended for six months at a hospital, mental or general, for clinical instruction in psychological medicine, and subsequently held a resident appointment at an approved mental institution or mental wards of a general hospital for not less than six months. In both cases he must produce a certificate from a recognized source that he can apply his theoretical knowledge, and has practical acquaintance with, and is well and adequately versed in, the current clinical methods of examination and treatment of nervous and mental disorders. In the case of mental deficiency the certificate should include a practical knowledge of the various intelligence tests and other methods of ascertaining the degree of mental defect. He must also produce evidence of having attended, subsequently to qualification, courses of lectures, demonstrations or other evidence of diligent study of the subjects upon which he presents himself for Part II of the examination, as may be demanded.

4. Curriculum: Part I—(*a*) Anatomy, histology and physiology of the nervous system, including the autonomic system, anatomy and physiology of the endocrine glands, chemistry and cytology of the cerebro-spinal fluid. (*b*) Psychology, systematic and experimental. Part II—(*a*) Morbid anatomy, histology and pathology of the systems mentioned under Part I, (*a*) post-mortem and laboratory technique; (*b*) neurology and clinical neurology; (*c*) psychiatry (including the psychoneuroses), clinical psychiatry and the medico-legal relationships of mental disorders and mental deficiency. In addition, the candidate for Part II will need to show special knowledge of any one subject, to be selected by him from the subjects comprising Part I or Part II, or may choose to be examined in any one of the following subjects: (*d*) Mental deficiency and the mental disorders of childhood and adolescence, and the duties of school medical officers in relation thereto. (*e*) Bacteriology as applied to mental and nervous disease. (*f*) Psychopathology and psychotherapy. (*g*) The principles of diet, vitamins, and basal metabolism, and their application. (*h*) Eugenics and vital statistics. (*i*) Criminology and the jurisprudence of criminal responsibility.

5. The diploma, by request, may be endorsed that special knowledge has been shown in the subject selected.

6. It is suggested that any compulsory attendance at lectures or demonstrations and clinical courses should be limited to the subjects detailed for Part II, and that the course for Part I or Part II should not exceed eight weeks.

Mental Hospital Appointments.

Those who take up psychiatry as a career work as medical officers of public or private mental hospitals or similar institutions. Except in the larger institutions, such as those under the control of the London County Council, where a number of the medical officers are allowed to live out if married, the medical staff are resident officers, having board, lodging, etc., either in the hospital itself or a residence in the grounds. Junior assistant medical officers receive about £300 to £400 per annum, and senior assistant medical officers about £500 to £700, in both cases with board, lodging, laundry, etc., in addition; if married, the board, etc., is commuted for cash. As the mental hospitals are under local control the salaries vary much in different asylums. Medical superintendents, whose pay commonly ranges between £800 and £1,500 per annum, are provided with a house in the grounds of the hospital, and draw various allowances.

Since the passing of the Asylum Officers Superannuation Act of 1909, all officers and others of the established staff of a public (county or borough asylum) mental hospital may retire at the age of 55 on a pension varying from one-half to two-thirds of the value of their pay and emoluments, or one-fiftieth for every year served, paying as contribution 5 per cent. of the value of their appointments annually. This very favourable prospect may not appeal to junior practitioners joining the services, but will eventually prove to be a valuable asset.

Prospects in the Public Service.

Appointments to the public mental hospitals are made by the visiting committees, and in most cases only the junior posts are open to those who have not had previous experience in psychiatry. Since the public mental hospital service is a local and, except indirectly, not an imperial one, the promotion tends to be slow and uncertain; and the higher positions are not always advertised and thus thrown open to competition. For this and other reasons mental hospital work has undoubtedly not been in favour with newly qualified men in years past, but the general conditions of service have tended to show a progressive improvement, and will in all probability continue to do so in the future.

Both the British Medical Association and the Royal Medico-Psychological Association are working separately and together to improve present conditions of service, and have, for example, already removed the "celibacy" objection to the service. The salaries have also been considerably increased, especially in the junior ranks, and contrast favourably with those which were paid before the war. During the last few years considerable progress has been made in the conditions under which the insane are treated. The mental hospitals are developing an atmosphere approximating more closely to that of the general hospitals. As a result of these developments the mental hospital service is becoming more attractive, and now affords greater opportunities for the medical graduate who proposes to specialize in psychiatry.

While routine, administrative, and clerical work bulk largely in mental hospital duties, as they do in other public medical services, there is ample material, time, and scope for purely medical work and research—difficult as the subject may be—in psychiatry as one of the branches of medicine open to young graduates. Most mental hospitals are now equipped with efficient clinical laboratories; moreover, those who wish to undertake research are afforded every opportunity of doing so in the pathological department of the Maudsley Hospital and also in various other centres in England and Scotland. A change in the lunacy law, in which power was given to local authorities to make provision for the treatment of early and acute cases of mental disorder without certification, would do much to make psychiatric work more attractive to medical men. If this alteration in the law were made, hospitals, either in the precincts or the grounds of the county or borough mental hospitals, or in adjacent towns, would be erected in the course of time, or wards in general hospitals might be utilized for the same purpose. Such clinics would render appointments in mental hospitals more attractive because the work would be entirely free from the custodial aspects of mental disorder, and attention could be given by the physician to purely medical problems without irksome legal restrictions.

MAUDSLEY HOSPITAL, DENMARK HILL.

A course of instruction for the Diploma in Psychological Medicine is given annually at the Maudsley Hospital from January to May inclusive, the details of the last course being as follows. The course consisted of two parts. In the first part lectures on the anatomy of the nervous system were given by Professor Elliot Smith, with practical instruction by Mr. C. Geary. A course of lectures on the physiology of the nervous system, with demonstrations in physiological psychology, was given by Dr. F. Golla, a series of lectures and demonstrations on the biochemical aspects of mental disorders, and laboratory methods, by Captain S. A. Mann, and on theoretical and practical psychology by Dr. Henry Devine. For the second part of the course lectures on morbid psychology and psychiatry were given by Dr. Mapother, on the neuroses by Dr. Bernard Hart, on therapeutics by Dr. Petrie, on general pathology by Dr. Golla and Mr. C. Geary, and on pathological chemistry by Captain Mann. Dr. Bond lectured on the legal relationships of insanity, Dr. Shrubsall on mental deficiency, and Dr. East on criminal insanity. Dr. Golla and Dr. Walshe gave instruction on clinical neurology, and Mr. Foster Moore on eye changes as applied to psychiatry. The fee for the whole course (Part I and Part II) was 15 guineas, or for either part separately 10 guineas; for one single

series of lectures in Part I the fee was 4 guineas, and in Part II 2 guineas. Inquiries as to lectures, etc., should be addressed to the Director of the Central Pathological Laboratory, Maudsley Hospital, Denmark Hill, S.E.5.

BETHLEM ROYAL HOSPITAL.

A course will be held at Bethlem Royal Hospital, commencing on September 24th, of lectures and practical instruction for the Diploma in Psychological Medicine. It is proposed in future to give two courses each year—an autumn session of intensive character, commencing in September and completed in early December, and a spring session, commencing in the middle of January and completed in the middle of April. Each course consists of two parts: Part A includes lectures and demonstrations on the anatomy, histology, and physiology of the nervous system, with lectures on psychology and demonstrations in experimental psychology: Part B comprises lectures and clinical demonstrations in psychology, including lectures and demonstrations in the morbid anatomy of the nervous system, a series of lectures, with clinical demonstrations, on different branches of psychological medicine, and lectures, with clinical demonstrations, on mental deficiency. Entrants for the course who pay a composition fee of 15 guineas may, if due notice is given, attend either Part A or Part B of one course and postpone the other part until the next session. An entrant who wishes to attend one part only pays a fee of 10 guineas. An entrant who takes the complete course can attend the general clinical practice of the hospital on payment of 5 guineas for six months, or 10 guineas for one year, but an entrant who does not take either part of the course and desires to attend the clinical practice of the hospital must pay a fee of 5 guineas for each three months of attendance. To enable post-graduates to obtain special experience in this branch of medicine clinical assistants are appointed from time to time. Further particulars may be obtained from the Physician-superintendent, Bethlem Royal Hospital, S.E.1.

NATIONAL HOSPITAL, QUEEN SQUARE.

Post-graduate courses which fulfil the requirements of the regulations for the Diploma in Psychological Medicine in regard to instruction in nervous diseases are held at the National Hospital, Queen Square, Bloomsbury, W.C.1, thrice annually, usually during February to March, May to June, and October to November. Lectures on the anatomy, physiology, and pathology of the nervous system and various clinical lectures are delivered and demonstrations are given. Out-patient clinics are held at the hospital on the afternoons of Mondays, Tuesdays, Wednesdays, Thursdays, and Fridays. An inclusive fee of 10 guineas is charged for the whole course, but any part of the course can be taken separately at a special fee. A special arrangement is made for those unable to attend the whole course, and for details applications should be made to the dean of the medical school. Fees are payable to the secretary of the hospital on entering for the course.

TAVISTOCK SQUARE CLINIC FOR FUNCTIONAL NERVOUS DISORDERS.

Courses in the theory and practice of modern psychotherapy are held at this clinic about twice a year. Each course lasts a fortnight, and consists of about twenty lectures and ten seminars. These courses are intended for general practitioners interested in the subject and as an introduction for those who mean to specialize. They are open to senior students of medicine as well as to graduates. The subjects dealt with include the various schools of analytical psychology, treatment by persuasion and suggestion, differential diagnosis, and physical factors. Syllabus and particulars of dates and fees may be obtained from the Honorary Lecture Secretary at 51, Tavistock Square, London, W.C.1. Clinical assistantships are from time to time available for graduates who have attended such a course. The director of the clinic is Dr. H. Crichton Miller, the deputy director Dr. J. R. Rees, and there is a large children's department.

THE PUBLIC HEALTH MEDICAL SERVICES.

THE central authority to secure the adoption, effective carrying out, and co-ordination of measures conducive to the health of the people, and to promote research work and the proper training of persons for health services, is the Ministry of Health.

For the purpose of local public health administration the whole of England and Wales is divided into counties, county boroughs, boroughs, and urban and rural sanitary districts. The administrative County of London, exclusive of the City of London, is divided into twenty-eight metropolitan boroughs.

The public health medical services for Great Britain embrace between three and four thousand medical men and women who give whole-time services, and, in addition, a large number who give part-time services. The medical officers appointed for these services may be either medical officers of the Ministry of Health for England and of the corresponding Boards of Health for Scotland and Wales; or —and these form the large majority—they may be medical officers appointed by the many local public health authorities. These latter appointments include: medical officers of health, tuberculosis medical officers, maternity and child welfare medical officers, venereal diseases medical officers, and school medical officers—who must be regarded as working in the health interests of the school child. By the larger public health authorities assistant medical officers are also appointed, and these posts often serve as stepping-stones to the higher offices as vacancies, which are required to be advertised, occur.

A scale of remuneration for services has been recommended, quite recently, by a conference of representatives of the British Medical Association, the Society of Medical Officers of Health, and of the local authorities. The scale, if approved by all the parties, will be valid for the period of five years from April 1st, 1930. It provides a minimum commencing salary for a whole-time medical officer of health in a place of 50,000 population or under of £800: 75,000 population, £900; 100,000, £1,000; rising to £1,800 where the population exceeds 750,000. These amounts are somewhat less in counties and other rural areas and in the smaller municipal boroughs. The scale for medical superintendents of institutions other than mental hospitals varies from £750 minimum commencing salary for 150 beds or under to £1,100 for hospitals with more than 750 beds. The minimum for resident medical officers in hospitals, sanatoriums, and other institutions without responsibility for the work of other medical officers is £350, with board, lodging, laundry, and attendance, and this rises to £450; departmental officers to begin at £500, rising to £700, senior medical officers in full charge of services or departments officers, £750 to £1,000 to begin with, according to responsibility and scope.

THE MEDICAL SERVICES OF THE CENTRAL AUTHORITY.

For England, the medical work of the Ministry of Health has been organized under the control of a Chief Medical Officer. It is subdivided into seven sections, with a senior medical officer at the head of each, and about a hundred medical officers, of whom about half are regional and deputy regional medical officers employed for certain duties under the Health Insurance Acts. Briefly, the sections deal with environmental hygiene, epidemiology, and international health; maternity and child welfare; tuberculosis and venereal diseases; the supervision of the food supplies; sanitary administration in relation to infectious diseases; national health insurance; and the school medical service. Vacancies in the staff are advertised from time to time in the medical journals, and appointments are made by the Minister on the recommendations of a Selection Committee. They are Civil Service appointments, subject to the usual conditions as to pension, holidays, etc. Medical officers are also employed by the Welsh Board of Health (Cardiff) and the Department of Health for Scotland (Edinburgh).

MEDICAL OFFICERS OF HEALTH.

The duties of the medical officer of health are to inform himself upon all influences affecting, or threatening to affect, injuriously the public health within his district; to advise his sanitary authority upon all matters relating to health, and to perform all the duties imposed upon him by statutes, by-laws, and regulations. He must prepare and submit to his local authority special and annual reports; give immediate information to the Ministry of Health of any serious outbreak of disease; and, subject to the instruction of his sanitary authority, he shall direct or superintend the work of sanitary inspection.

By the Sanitary Officers Order, 1926, no person is qualified to be hereafter appointed or reappointed as a medical officer of health of any district or combination of districts unless, in addition to the qualifications prescribed by any statute, he is also either registered in the *Medical Register* as the holder of a Diploma in Public Health, Sanitary Science, or State Medicine, or has had not less than three years' previous experience of the duties of a medical officer of health.

The Public Health (Officers) Act, 1921, which was promoted by the British Medical Association, provides that a whole-time medical officer of health of a county borough or urban and rural district in England and Wales, a part of whose salary is contributed by the Exchequer, shall not be appointed for a limited period, and shall not be removed from his office except by or with the consent of the Minister of Health. A similar security of tenure also applies to the medical officers of health of county councils and of London boroughs.

Under the Sanitary Officers Order, 1926, a medical officer of health who does not devote his whole time to the duties of his office, but a portion of whose salary is obtained from Exchequer grant, may be appointed without limit of time; in which case he cannot be removed from office without the consent of the Minister. If he is appointed for a specified term, say one year, he continues to hold office from year to year unless the Minister consents to his removal. Where the electing body pays the whole of the salary of a medical officer of health he may be dismissed from office without reference to the Minister of Health.

A considerable number of authorities have now adopted the Local Government and Other Officers Superannuation Act, 1922. Under this Act if an officer is incapacitated by ill health after ten years of service, or if he has reached 65 years of age, he is entitled to superannuation on the following scale: after ten years' service, 10/60 of the average salary which he received during the last five years of employment; after eleven years, 11/60, and so on up to a maximum of 40/60 after forty years or more of service. This Act, however, remains permissive, and it fails to make due allowance, in computing service for purposes of superannuation, for the more advanced age, as compared with other officers, at which the medical officer of health can enter the public service. In these two respects the position reached falls short of that for which the British Medical Association has been working for some years.

In Scotland the position is different in some respects. The central authority is the Board of Health, with a staff of medical officers for health insurance work. Under the Public Health (Scotland) Act, 1897, no one can be appointed as medical officer of health for any area unless he possesses the Diploma in Public Health. No medical officer can be removed from office except with the sanction of the Board of Health. A "proper" salary must be paid, and the local authority may not bring about the resignation of the officer by indirect means, such as reducing the salary or attaching new conditions to the appointment. The Act says nothing about superannuation or the age of retirement.

SCHOOL MEDICAL OFFICERS.

School medical officers are appointed by local education authorities. Primarily their duty is to detect among the children attending the public elementary schools any physical or mental defect which may retard education, and to inform their parents of its existence. Most approved schemes of medical inspection include arrangements which facilitate the task of parents in obtaining for their children the necessary treatment, check the results of this treatment, and keep each defective child under skilled observation both at home and at school until it has passed altogether out of the education authorities' hands. Indeed, it is now the practice for the education authorities themselves to provide for certain ameliorative work, notably the prescription of glasses where necessary, dental treatment, the removal of adenoids and tonsils, and treatment in connexion with certain diseases of the skin, and some physical and mental defects. The general effect of all schemes alike is to make the inspection imposed by law of benefit, not merely to the individual child, but to the community at large, by preventing the development of conditions which lead to the existence of a large proportion of inefficient citizens among the adult population. The work is so related to that of medical officers of health that, as a rule, the senior school medical officer fills both appointments, his work, when necessary, being supplemented by that of whole- or part-time assistants. A Diploma in Public Health is almost always required of those entering the school medical service.

In Scotland, while the statutory authority for the work of the school medical service is different, the scheme of work is broadly the same.

TUBERCULOSIS MEDICAL OFFICERS.

A tuberculosis medical officer is a whole-time officer with special training and experience in tuberculosis work, and of a suitable age and attainments to command general confidence. In England and Wales such officers are appointed by county councils and county borough councils, and their duties are to carry out the work of diagnosis of tuberculosis, to advise as to treatment, and to take charge of the work of tuberculosis dispensaries and sanatoriums where these are in operation. The work under tuberculosis schemes is co-ordinated with the general public health work of local authorities, and so the medical officer of health is often appointed as the chief tuberculosis officer when a special tuberculosis officer is on the staff of the local authority. The arrangements in Scotland are very similar.

MATERNITY AND CHILD WELFARE MEDICAL OFFICERS.

Any public health local authority, however small, may make arrangements for maternity and child welfare work within its area, although very generally the smaller local authorities are provided for in county council schemes. For the schemes of the smaller local authorities the services of a part-time medical officer are obtained when the medical officer of health does not himself undertake the duties; but for the larger schemes special whole-time appointments are made. The maternity and child welfare medical officer is responsible for the work at the centres provided and for directing the home visitations; and the whole of these activities is closely co-ordinated with the other branches of public health work directed by the medical officer of health.

Much of this work was commenced in different parts of the country by voluntary organizations; some of it still remains in their hands, and is only loosely linked up with the public health local authority; but the tendency is for the whole of it to be undertaken by the local authorities. A large number of women medical officers have been appointed to these posts during recent years.

VENEREAL DISEASES OFFICERS.

Schemes for the diagnosis and treatment of venereal diseases are provided and administered by county councils and county borough councils. In some cases the officer is on the whole-time public health staff, and in others he is a part-time official. Special knowledge and practical experience in the treatment of venereal diseases are essential. The officer appointed for either whole-time or part-time service works at one or more clinics, and also gives instructions and assistance in the treatment of venereal diseases to general practitioners, who are allowed to attend the clinics.

REMUNERATION IN THE PUBLIC HEALTH SERVICE.

In order to ensure that public health authorities may obtain skilled and highly trained medical officers it is essential that such officers should receive salaries commensurate with their attainments, bearing a reasonable relationship to the time and money expended in fitting them for their important and responsible duties, and comparing well with the income which might be secured in other lines of medical work. With this end in view the British Medical Association and the Society of Medical Officers of Health prepared a scale of minimum commencing salaries for whole-time public health medical officers.

The scale, which was put into operation in 1925, has been attended with a large measure of success, and obtains in England, Northern Ireland, and in Scotland (with modifications). The salaries laid down in this scale are briefly as follows:

Resident medical officers at hospitals, sanatoriums, etc., without responsibility for the work of other medical officers: £350 a year, *plus* emoluments.

Medical officers employed in departments, working under a senior medical officer and without responsibility for the work of other medical officers: £600 a year.

Senior medical officers (not medical officers of health) in charge of services or departments: £750 to £1,100, according to responsibility and scope of department.

Deputy or chief assistant medical officers (hospitals, sanatoriums, etc.): a salary equal to 60 per cent. of the salary of the medical superintendent or senior medical officer in charge.

Medical officers of health: the salaries are graded according to population, from £800 to £1,800.

During the past year there has been a series of conferences between representatives of the Associations of Local Authorities and the British Medical Association under the chairmanship of Lord Askwith, and an agreement was arrived at which will materially modify the above scale in several important particulars, the chief being that in all the main categories except that of the medical officer of health arrangements are made for regular increments rising to a maximum. This scale was published in the *Supplement* of July 27th (p. 71), was ratified by the Representative Body of the British Medical Association at Manchester, and now awaits ratification at the hands of the Associations of Local Authorities. If and when so ratified it will come into force on April 1st, 1930, and holds good for five years, at the end of which time notice may be given by any of the contracting bodies to terminate it or to modify it. In the meantime, the old scale will be used by the British Medical Association, subject to such adaptations as may seem equitable in the circumstances.

During the last twelve months 95.3 per cent. of the whole-time public health appointments have been made at salaries in accordance with the scale.

For the right class of practitioner with leanings in the direction of public health work the service offers a successful career, but it must always be remembered that there are comparatively few posts which carry the higher salaries.

THE REGULATIONS FOR THE DIPLOMA IN PUBLIC HEALTH.

The Examination.

By the most recent Regulations or Rules of the General Medical Council, which came into force on January 1st, 1924, the examination for the D.P.H. is divided into two parts, and no candidate is allowed to sit for the final part of the examination until two years have elapsed since a registrable qualification was obtained. The object of this two years' interval is "to provide opportunity for candidates for the Diploma or Degree in Sanitary Science, Public Health, or State Medicine to pass from the state of pupilage to that of responsible practitioners, to give mature consideration to the obligations and duties involved in the work of the Public Health Service, and to acquire direct experience of medical work in a responsible capacity either in practice or in hospital or laboratory appointments."

The examination is both written and oral, and must include a practical examination in bacteriology and chemistry (Part I), and in infectious diseases, food inspection, inspection of premises, dwellings, factories, workshops, schools, etc. (Part II).

Any candidate from the Dominions who possesses qualifications registrable in this country is eligible as a candidate for the examination, given that he has received such a course of training as that defined by the Regulations, at an institution which is approved by the General Medical Council.

The Curriculum for the Diploma in Public Health.

The curriculum must extend over a period of twelve months, and a candidate is admitted to either part of the examination after he has completed the prescribed courses of instruction in the subjects thereof. At least five months must be given to practical laboratory instruction in an institution approved by the licensing body, in the subjects:

(1) Bacteriology and parasitology, including entomology, especially in relation to diseases of man and to those diseases transmissible to man from the lower animals (180 hours of such instruction is required).

(2) Chemistry and physics in relation to public health (90 hours of such instruction is required).

(3) Meteorology and climatology (10 hours of such instruction is required).

Therefore at least 280 hours of practical instruction, extending over a period of at least five months, is demanded before a candidate is eligible for Part I of the examination.

For a candidate to become eligible for Part II of the examination he must first receive instruction in:

(1) Principles of public health and sanitation (for approximately 30 hours).

(2) Epidemiology and vital statistics (approximately 20 hours).

(3) Sanitary law and administration, including public medical services (approximately 20 hours).

(4) Sanitary construction and planning (approximately 10 hours).

(5) Every candidate must also have made thirty attendances, of not less than two hours in each week of a three-months' period, at the clinical practice of a recognized hospital for infectious diseases; and he must have received instruction in methods of administration.

(6) Every candidate must produce evidence that he has, during a period of not less than six months, been engaged in acquiring a practical knowledge of the duties, routine and special, of public health administration under the supervision of a medical officer of health, who shall certify that the candidate has received, from this officer or other competent medical officer, during not less than three hours on each of sixty working days, practical instruction in these duties, and those relating to:

(*a*) Maternity and child welfare service;
(*b*) Health service for children of school age;
(*c*) Venereal diseases service;
(*d*) Tuberculosis service;
(*e*) Industrial hygiene;
(*f*) Inspection and control of food, including meat and milk.

Certificates of having received the prescribed instruction in public health administration must be given by a medical officer of health who devotes his whole time to public health work; or by the medical officer of health of a sanitary area having a population of not less than 50,000; or in Ireland by the medical superintendent officer of health of a county or county borough having a population of not less than 50,000.

TRAINING AND EXAMINING CENTRES FOR PUBLIC HEALTH QUALIFICATIONS.

Degrees in Sanitary Science are conferred, in England, by the Universities of London, Durham, Liverpool, and Birmingham; in Scotland, by the Universities of Glasgow and Edinburgh; and in Ireland, by the University Colleges of Dublin and Cork. In most cases these degrees are conferred only upon medical graduates of the universities granting them.

Whereas for the Diploma of Public Health the requirements of the General Medical Council are strictly conformed to, these requirements are extended, as a rule, as to both the period and the scope of special studies demanded, before Degrees in Sanitary Science are granted.

Almost all the universities of Great Britain and Ireland grant a D.P.H. and provide for the necessary training. The English and Scottish Conjoint Boards and the Irish Colleges also grant these diplomas.

From September of this year the post-graduate teaching and training in public health, in London, will be provided mainly at one centre—the London School of Hygiene and Tropical Medicine (University of London); the only

other training centre which will continue to offer such facilities being the Royal Institute of Public Health.

The course of study for the D.P.H., as provided by the London School of Hygiene and Tropical Medicine, covers a period of twelve calendar months, and is so designed that students wishing to do so can proceed to a new academic diploma instituted by the University of London. The School will undertake research work in preventive medicine, and members of the public health services will have a common room placed at their disposal, and will be privileged to attend staff and special lectures.

The Royal Naval Medical College and the Royal Army Medical College provide courses of training to the medical officers of these two services.

Degrees and Diplomas in Public Health are registrable qualifications, but not so those in Tropical Medicine and Hygiene.

Qualifications in Tropical Medicine and Hygiene.

The University of London grants a degree (M.D. in Tropical Medicine) to their medical graduates, and the course of training required must extend over at least one academic year.

Diplomas in Tropical Medicine and Hygiene are granted, in England, by the Universities of Cambridge and Liverpool, and by the English Conjoint Board; and, in Scotland, by the University of Edinburgh. Among the institutions which provide qualifying courses are the London School of Hygiene and Tropical Medicine, the Liverpool School of Tropical Medicine, and the Royal Army Medical College. In the last-mentioned institution the training provided is restricted to army medical officers. The training period for these diplomas is about six months. Graduates of medicine and surgery of recognized universities whose degrees are not registrable in this country may enter for the examination of the English Conjoint Board, and the conditions of study may be modified on the grounds of previous work in the tropics or of original investigations undertaken.

The Colonial Office has decreed recently that the holder of a D.T.M. and H., or of a D.T.H., is eligible for appointment as a medical officer of health in places and districts other than those with large populations. In the latter cases a D.P.H. is required.

Those wishing for the details of syllabus of study, fees, date of commencement of the training courses, and the dates of examinations, etc., of any particular training course or examining body, will find these fully and clearly set out, with notes and comments, in the *Guide to the Regulations, Courses and Examinations for Qualifications in Public Health and Tropical Medicine and Hygiene in Great Britain and Ireland*, which has been prepared recently by Dr. Andrew Balfour, C.B., C.M.G., D.P.H., and published by the British Medical Association (Tavistock Square, W.C.1). The price is 3s. net.

The University of Manchester has a well-equipped department of bacteriology and preventive medicine, where candidates preparing for the examinations of the various university and examining boards for the Diploma in Public Health can obtain instruction. It also prepares candidates for the Diploma in Bacteriology and in Veterinary State Medicine, granted by the university, and for its Certificates in Factory Hygiene and School Hygiene. Full particulars can be obtained from the Dean of the Medical School, the University, Manchester.

The University of Edinburgh grants a Diploma in Public Health. The course, which extends over a period of twelve calendar months, can be commenced in October only, and provision is made by the university for instruction in all the subjects. Candidates for the diploma must be graduates in medicine and surgery of the University of Edinburgh, or must hold corresponding degrees or registrable medical qualifications, which must be registered before a candidate is admitted to examination. The course for the diploma is divided into two parts, for each of which examinations are held twice annually—*in* March and July for Part I, and in October and March for Part II. In each part the candidate must pass in all the specified subjects at one examination. Admission to the examinations is contingent upon the candidate having complied with the following conditions:

PART I.—(*a*) Completion, subsequent to obtaining a registrable medical qualification, of the course of instruction prescribed for Part I.

PART II.—(*b*) Completion, subsequent to obtaining a registrable medical qualification, of the course of instruction prescribed for Part II. (*c*) A lapse of two years after obtaining a registrable medical qualification. (*d*) Previous passage of examination in all subjects of Part I.

Further particulars can be obtained from the Dean of the Faculty of Medicine, Edinburgh.

THE NAVY, ARMY, AIR FORCE, AND INDIAN MEDICAL SERVICES.

THE rates of pay and conditions of service for the Royal Naval Medical Service, the Royal Army Medical Corps, the Royal Air Force Medical Service, and the Indian Medical Service are considered by the British Medical Association to be satisfactory. In point of fact, the present conditions of service, more particularly in the case of the R.A.M.C. and I.M.S., are largely the result of the action of the Association. In fulfilment of the desire of the Association to assist in recruiting these services we publish below full particulars.

There still appears to be considerable difficulty in getting a sufficient number of young medical officers to enter any of these services, and the Association desires to point out that in its opinion the prospects in them are both financially and professionally good, and that there is no reason why young men recently qualified should not enter them. In the case of the R.A.M.C. the prospects of rapid promotion are particularly good, owing to the prolonged shortage of candidates since the war. Another important point should be noted—namely, the concession, in the case of the R.N.M.S., R.A.M.C., and R.A.F.M.S., by which a newly qualified medical man can hold a hospital appointment for one year before entering the services, counting it as a year of service towards promotion and retirement.

ROYAL NAVAL MEDICAL SERVICE.

A CAREER as a medical officer in the Royal Navy offers very definite attractions. In the large naval hospitals the medical, surgical, and specialist work is of a very high standard. The work is exacting, and it is the aim of the Admiralty to arrange appointments as far as possible so that medical officers have an opportunity of alternating their work not only at home and abroad, but also ashore and afloat.

To give naval surgeons opportunities for professional work has always been a very definite policy of the Admiralty, and within the last year or so this matter has received still further attention. The general and specialist courses have been increased so that, as far as possible, every officer shall have a course of instruction of not less than four months' duration every four years. The number of specialists allowed is now sixty, and the specialist allowance is 5s. a day. The establishment of Surgeon Captains has been increased to twenty, and every recent improvement has been made towards giving increased opportunities of advancement and accelerated promotion to the best men.

Examinations for direct entry into the Medical Service are at present in abeyance. Entries are made by means of the short-service scheme.

General Conditions of the Short-service Scheme.

A candidate must be registered, must be under 30 years of age, and must be recommended by the dean of his school; if, however, the candidate *intends to* apply for transfer to the permanent list, he must have been under 28 years of age at the time of his entry. He must be a British subject of pure European descent. *Unmarried candidates will* be preferred. A candidate will be interviewed by the Medical Director-General R.N., and will undergo a physical examination. If considered eligible by the Medical Director-General his name will be *submitted* to the Board of Admiralty, and he may be appointed "surgeon lieutenant for short service." A candidate must engage for three years, with the option of continuing for a further period of twelve months if his services are still required. The present rate

of pay is £1 4s. 10d. a day or £453 4s. 2d. a year, with the same allowances as are payable to permanent officers of their rank. Lodging money at the rate of £80 a year is usually allowed when employed on shore, without quarters in the United Kingdom, and £56 10s. a year in lieu of rations when not victualled in kind. Medical officers entering the Navy will be eligible, at the discretion of the Admiralty, to have their seniority antedated up to a limit of one year if they have held previously a resident appointment in a civil hospital for not less than this period. Such an appointment must be one recognized by the Admiralty for this purpose, and must not have terminated more than six months before entry into the service. On joining an allowance of £50 for uniform is made.

An officer engaged for three years is entitled to receive two months' notice of his services being no longer required. A gratuity of £8 6s. 8d. will be payable to officers for each completed month of service on completion of their period of service, or to any who are invalided for causes not within their own control before the completion of the prescribed period.

Transfer to Permanent Service.

A short-service surgeon lieutenant, after six months' service, may be considered, on application to the Secretary of the Admiralty, for transfer to the permanent service, and would be permitted to count his seniority from the date of entry for short service for purposes of promotion, increment of full pay, and for retired pay; but for purposes of retiring gratuity on the permanent officers' scale his service will reckon only from the date of transfer to the permanent list.

Officers entered for short service who are eligible for the grant of increased seniority in respect of time served in civil hospital appointments will only be allowed the antedate of seniority if they apply to transfer to the permanent list within eighteen months of their date of entry.

Courses of instruction in clinical medicine, surgery, and allied subjects are normally provided once in every four years for all officers below the rank of Surgeon Captain, and on completion of the courses officers will be appointed to a large naval hospital unless and until they receive appointments elsewhere. Courses in connexion with civil hospitals in London or other teaching centres are also arranged at intervals for those selected to hold specialist appointments. In addition, opportunities are given for medical officers to take post-graduate courses prior to sitting for the higher examinations.

Rates of Pay.

The current rates of full pay and retired pay are set out below. They represent a deduction of 6 per cent. from the standard rates which were fixed in 1920, when the cost of living was high; 20 per cent. of the standard rate is regarded as variable as the cost of living rises or falls. The next revision will be on July 1st, 1930.

Full Pay.

	Current Rate per annum. £ s. d.
Surgeon Lieutenant on entry	410 12 6
After 3 years	498 16 8
(Surgeon Lieutenants usually receive promotion after 6 years' service.)	
Surgeon Lieutenant Commander on promotion ...	599 4 2
After 3 years	635 14 2
(Surgeon Lieutenant Commanders usually receive promotion after 12 years' total service.)	
Surgeon Commander on promotion	772 11 8
After 3 years	839 10 0
After 6 years	909 9 2
After 9 years	976 7 6
Surgeon Captain on promotion (promotion is by selection)	1,115 5 10
After 3 years	1,201 9 2
After 6 years	1,286 12 6
Surgeon Rear-Admiral (promotion is by selection)	1,780 13 4
Medical Director-General (Surgeon Vice-Admiral)...	2,350 0 0

There are also allowances which form a substantial addition to the rates of pay. There are sixty specialist appointments open to medical officers. They comprise specialist posts in medicine, surgery, diseases of the eye, ear, nose, and throat, radiology, hygiene, etc., and an allowance at the rate of 5s. a day is payable to holders of them.

Medical officers in charge of naval hospitals and sick quarters receive charge pay on the following scale:

Surgeon Rear-Admirals and Surgeon Captains ...	10s. a day.
Surgeon Commanders	5s. a day.

Maximum Retired Pay.

(Approximate current rates.)

	£	Age for compulsory retirement.
Surgeon Vice-Admiral	1,123	On vacating office.
Surgeon Rear-Admiral	950	 60
Surgeon Captain	846	 55
Surgeon Commander	564	 50
Surgeon Lieutenant Commander and Surgeon Lieutenant	423	 45

Thus an officer who is not promoted above the rank of Surgeon Commander would be compulsorily retired at the age of 50.

Gratuities on Retirement.

The following gratuities are payable if an officer of the permanent list is permitted to retire voluntarily:

	£
After 4 years' full-pay service...	500
„ 8 „ „ „	1,000
„ 12 „ „ „	1,500
„ 16 „ „ „	2,250

Surgeon Lieutenants for short service, transferred to the permanent list, will only be allowed to retire with a gratuity after four years' full-pay service from the date of such transfer.

Further Particulars.

Full particulars and a form of declaration can be obtained from the Medical Director-General, Admiralty, Queen Anne's Chambers, Tothill Street, London, S.W.1.

ARMY MEDICAL SERVICE.

ENTRANCE to the Royal Army Medical Corps, either by competitive examination or by selection, as decided by the Army Council, will take place half-yearly, in January and July. The examinations in medicine and surgery are entirely of a clinical and practical character, partly written and partly oral. The regulations for admission, giving full details, can be obtained from the Under Secretary of State (A.M.D.1), War Office, Whitehall, London, S.W.1. A personal interview with a representative of the Director-General, Army Medical Services, is readily obtainable. The rates of pay and allowances are good; the opportunities of post-graduate study are generous, and the work is varied, responsible, and interesting. The gratuities after certain periods of service enable an officer, should he so desire, to leave the service with a capital sum large enough to go a long way towards re-establishing himself in civil life, and, further, the knowledge of the world and the comradeship of his fellow officers that he has gained in the army will be of no small value to him.

New entrants, who must be 22 and not over 28 years of age, are commissioned in the rank of lieutenant, and the first six months of service are spent on probation, during which time they undergo, in addition to their military training at the Royal Army Medical Corps School of Instruction at Aldershot, a probationary course at the Royal Army Medical College in London in hygiene, pathology, tropical medicine, military surgery, organization of military hospitals, and principles governing medical charge of troops. At the end of this course, and after qualifying at the necessary examinations, their commissions are confirmed and they take their places in seniority according to the total marks obtained at all examinations up to that date. Officers' Training Corps service with possession of certificate "A" or "B" (medical) carry a definite value in marks in this total.

An entrant who is holding or about to hold at the time of the entrance examination a resident house appointment at an approved civil hospital may be seconded while holding such an appointment up to a maximum period of twelve months. A candidate who has held such an appointment within six months of entry may be granted an antedate up to twelve months in respect of the period the appointment was held. This secondment and antedate counts in all respects as commissioned service, except that pay will not be issued for that period.

After a total period of one year's service at home, the young officer goes abroad, probably to India, for his first tour of foreign service. Here he gains his first practical experience of tropical disease and tropical hygiene. His tour abroad lasts five years, with probably six months' leave home during that time. On returning home the R.A.M.C. officer has the opportunity to decide whether he will remain in the corps or accept the gratuity of £1,000 after seven years' service and try his fortune in civil life. If he elects to remain, he will, between his eighth and twelfth year of service, undergo a course of post-graduate study at the Royal Army Medical College and the London hospitals of five months' duration, followed by a course of study of a special subject selected by himself provided he has shown special aptitude in the post-graduate course or during his previous service. During this period of study he remains on full pay and the fees of the courses are paid by the State. When qualified in his special subject the officer is eligible for a specialist appointment. The total number of these appointments is 104 and the additional rate of pay 4s. 8d. a day. After this post-graduate course the officer probably proceeds abroad again and promotion to major rapidly ensues, and from that time onward he receives regular successive increases of pay and is eligible for additional and charge pay as well. The directorates of hygiene and pathology and the appointment of two serving officers as consultants in medicine and surgery have been instituted, and have proved a marked success. All these appointments are of the rank of colonel or major-general, and were devised to permit specially selected officers to rise through all ranks to that of major-general on the strength of their professional or purely scientific work.

Under these conditions the possibilities for good workers are very great in the Royal Army Medical Corps. There

is scope for original research in tropical disease, in preventive medicine, and in bacteriology, as well as in the large clinical field open to the specialist in medicine, surgery, or gynaecology, in venereal disease, and in ophthalmology. Child welfare is also undertaken systematically by officers of the Royal Army Medical Corps. At the same time, instruction in administration is continuous. There are also many appointments carrying administrative responsibility to those officers who display capacity for this duty.

Promotion.

Promotion takes place automatically to captain after three and a half years' and to major after twelve years' service, provided the officer is qualified and recommended for promotion. Promotion to the higher ranks is by selection from those senior in the rank below, but special promotion by brevet or otherwise is open to officers of the Royal Army Medical Corps.

Pay and Allowances.

The rates of pay and allowances are given in the accompanying table (see below). In addition, an officer at home in charge of a hospital receives charge pay, the daily amounts being from 2s. 6d. to 10s., according to the number of beds. There are other appointments for which charge pay is given from 5s. to 10s. daily.

Retirement and Retired Pay.

Retired pay will consist of two parts: (*a*) a service element based on the officer's total service; (*b*) a rank element for the substantive rank from which the officer retires. An officer with less than twenty complete years' service will not be eligible for retired pay on voluntary retirement. The scale, subject to the reduction of 6 per cent. referred to below is, for the service element, £15 a year for each completed year of service as a medical officer. For the rank element the scale is as follows:

Substantive Rank from which Retired.	After Completing 1 Year's Service in the Rank.	After Completing each Additional Year's Service.	Maximum Rank Element.
	£	£	£
Major	12	12	120
Lieutenant-Colonel	150	30	240
Colonel	290	50	390
Major-General	440	50	540
Lieutenant-General... ...	590	50	690

The retired pay of an officer retiring with less than one complete year's service in the rank from which he retires will be assessed as though he had retired from the rank below.

The maximum standard rates of retired pay are as follows:

Captain and Subaltern	£300
Major	£450
Lieutenant-Colonel	£600
Colonel	£800
Major-General	£1,000
Lieutenant-General	£1,200

The above rates are those laid down in the Pay Warrant. They have been reduced by 6 per cent. as from July 1st, 1927. Further revision may take place triennially to an extent not exceeding 20 per cent., according to variation in the cost of living.

Officers with seven and less than twenty years' service as medical officers may be permitted to retire with a gratuity in accordance with the following scale:

After 7 years' service as a medical officer	£1,000
After 15 years' service as a medical officer	£2,800
After 18 years' service as a medical officer	£3,500

Seconded Service.

An officer may be permitted to accept employment in the Foreign or Colonial Offices; when so seconded he is not eligible for pay or allowances from army funds, but his service continues to reckon towards promotion and, under certain conditions, towards increase of pay, pension, or gratuity.

Service on the West Coast of Africa.

Officers for service in West Africa are usually taken from a list of volunteers for such service. An officer at present receives, while actually serving in West Africa (which service may include ordinary leave not exceeding sixty-one days in a year, and any time spent at Madeira or the Canary Islands on sick leave), additional pay at the following daily rates: lieutenant-colonel 12s., major 9s., captain 7s. 6d., lieutenant 6s. Service on the West Coast of Africa also counts double towards voluntary retirement and the service element of retired pay under certain conditions, and also entitles to leave at home of one day for every two days' service after twelve months' continuous service on the coast. Continuous service includes the ordinary sixty-one days' leave and any time spent in Madeira or the Canary Islands on sick leave for this purpose.

THE ARMY DENTAL CORPS.

The corps is administered by the Director-General, Army Medical Services. It is a joint service for the Army and Royal Air Force, and the personnel is required to serve under either force and be interchangeable. The regulations for admission to the Army Dental Corps should be obtained from the Under Secretary of State, War Office.

Pay and Allowances at Home.

Rank.	Pay per Diem.*	Rations.†	Servant.	Married.			Unmarried.		Total per annum.	
				Lodging.	Fuel and Light (Average).	Furniture Allowance.	Lodging.	Fuel and Light (Average).	Married.	Unmarried.
	£ s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	£ s. d.	£ s. d.
Lieutenant	1 0 8	1 7	2 0	3 6	1 5	2 0	2 3	1 2	569 0 0	505 0 0
Captain	1 5 4	1 7	2 0	4 6	3 0	2 0	3 0	1 8	701 0 0	613 0 0
Captain after 8 years' commissioned service	1 8 2	1 7	2 0	4 6	3 0	2 0	3 0	1 8	753 0 0	665 0 0
Captain after 10 years' commissioned service	1 10 6	1 7	2 0	4 6	3 0	2 0	3 0	1 8	795 0 0	707 0 0
Major	1 15 4	1 7	2 0	4 6	3 0	2 0	4 0	2 3	884 0 0	824 0 0
Major after 15 years' commissioned service	2 0 0	1 7	2 0	4 6	3 0	2 0	4 0	2 3	969 0 0	909 0 0
Major after 18 years' commissioned service	2 2 4	1 7	2 0	4 6	3 0	2 0	4 0	2 3	1011 0 0	952 0 0
Major after 20 years' commissioned service	2 7 0	1 7	2 0	4 6	3 0	2 0	4 0	2 3	1097 0 0	1037 0 0
Lieutenant-Colonel	2 14 0	1 7	2 0	4 6	3 0	2 0	4 6	2 3	1224 0 0	1174 0 0
Lieutenant-Colonel after 3 years' commissioned service as such	2 18 10	1 7	2 0	4 6	3 0	2 0	4 6	2 3	1312 0 0	1252 0 0
Colonel	3 5 10	1 7	2 0	5 6	4 1	2 0	5 6	2 8	1476 0 0	1415 0 0
Major-General	4 9 4	1 7	4 0	11 0	5 1	2 0	11 0	3 8	2062 0 0	1493 0 0

* Pay Warrant rates less 6 per cent from July 1st, 1927. The Pay Warrant rates are subject to revision to an extent not exceeding 20 per cent., according to variation in the cost of living. The next revision may take place with effect from July 1st, 1930.

† Rates of Allowances vary from time to time.

Rates of Pay for Officers Serving in India.

Rank.	Rates of Pay per Month.					
	Unmarried.			Married.			
	Pay of Rank.	Unmarried Rates of Lodging Allowance.	Total.	Pay of Rank.	Married Rates of Lodging Allowance.	Marriage Allowance.	Total.
	Rupees.	Rupees.	Rupees.	Rupees.	Rupees.	Rupees.	Rupees.
Lieutenant	625	25	650	625	50	65	*740
Captain	755	45	800	755	90	100	*945
Captain after 8 years' service	850	45	905	860	90	100	1050
Captain after 10 years' service	930	45	975	930	90	100	1120
Major	1070	55	1125	1070	110	90	1270
Major after 15 years' service	1170	55	1225	1170	110	90	1370
Major after 18 years' service	1320	55	1375	1320	110	90	1520
Major after 20 years' service	1420	55	1475	1420	110	90	1620
Lieutenant-Colonel	1575	75	1650	1575	150	75	1800
Lieutenant-Colonel after 3 years' service	1750	75	1825	1750	150	75	1975

* Married rate of pay is not admissible to officers whose age is under 30.

ROYAL AIR FORCE MEDICAL SERVICE.

THE Air Council attaches great importance to attracting into the R.A.F.M.S. the best type of medical man, since on the capacity of the medical service depends in a peculiar degree the safety and efficiency of the Royal Air Force. The duties of these medical officers include, not only the prevention and treatment of those ordinary diseases to which the personnel of any fighting service are liable, but the special study of the mental and physical stresses imposed on the airman in diverse circumstances and climates—a new branch of medicine which still provides considerable scope for research.

As promotion to the higher ranks of the service is by selection from officers who are eligible by reason of length of service, and as a certain proportion of the higher ranks will be reserved for purely professional as opposed to administrative appointments, it will be seen that there are excellent prospects for the young medical officer who exhibits ability and energy in professional work as well as for those who develop a talent for administration. Duties will, as a matter of course, give him flying experience as a passenger, which is necessary for the proper study of the medical problems of aviation and for gaining first-hand knowledge of the conditions under which his comrades serve.

Commissions.

The establishment will consist partly of permanent and partly of short-service officers.

An officer will, on first entry, be granted a short-service commission for a period of three years on the active list (which may be extended to five years at the discretion of the Air Council, if the officer so wishes, on the recommendation of the Director of Medical Services) and of four years in the Reserve of Air Force Officers. Selections for permanent commissions will be made from officers holding short-service commissions, and those who are not selected will be transferred to the Reserve at the expiration of their period of service on the active list. For those entrants who desire it, the prospect of obtaining a permanent commission is approximately an even one.

Arrangements are in force under which an officer granted a short-service commission who has previously held a resident appointment in a recognized civil hospital may, subject to certain conditions as to the length of the appointment and the interval between its termination and date of commission, be granted an antedate of the commission equal to the period of the appointment up to a maximum of one year.

A similar arrangement obtains as regards a recognized hospital appointment which is held or about to be held at the date when the short-service commission is granted.

An officer who has been seconded or whose commission has been antedated as above will be required to serve for a minimum period of three years on the active list from the date of joining for actual R.A.F. duty.

Officers who have been selected for permanent commissions may be permitted to attend, for a period not exceeding nine months, a post-graduate course in general medicine and surgery, tropical and preventive medicine, and other special subjects. Such permission may be granted at any time when the exigencies of the service permit during the first sixteen years of service, and when attending these courses officers will receive full pay and allowances.

New entrants into the R.A.F.M.S. will be commissioned as Flying Officers (Medical), and will be eligible for promotion to the rank of Flight Lieutenant (Medical) after two years' service. Officers selected for permanent commissions will normally be promoted to the rank of Squadron Leader after ten years' total service. Accelerated promotion may be granted in a limited number of cases to officers who show exceptional ability after the completion of eight years' service. Promotion within establishment to the rank of Wing Commander will be by selection at any period after sixteen years' total service, and to that of Group Captain by selection at any period after twenty-two years' service.

There will be no competitive examination on entry; candidates must be under 28 years of age, be British subjects, the sons of British subjects, and of pure European descent, and will be interviewed by a Selection Board at the Air Ministry, London, presided over by the Director of Medical Services, Royal Air Force, before acceptance, and will be required to pass a medical examination.

On appointment entrants will undergo an initial course, during which they will be given instruction in the special medical aspects of aviation; the organization and administration of the Royal Air Force; and the general and special duties to be performed by officers in the Medical Branch.

Uniform Allowance.

An allowance of £50 towards the cost of uniform is made on joining to candidates who have not had previous commissioned service in H.M. Forces.

Pay and Allowances.

The emoluments of medical officers of the Royal Air Force are given in outline on page 420. The standard rates of pay and retired pay were drawn up on the basis of the high cost of living in 1919, and 20 per cent. of each of the standard rates is detachable and subject to alteration, either upwards or downwards, as the cost of living rises or falls. Under this provision the current rates now in force represent a reduction of approximately 6 per cent. on the standard rates. The next revision will take effect from July 1st, 1930, and subsequent revisions will be made at intervals of three years.

Retired Pay.

The minimum period of service qualifying for retirement on retired pay is twenty years. Standard rates of retired pay are as follows:

Air Officers.—Air Vice-Marshal, £790 to £1,010 per annum; Air Commodore, £650 to £950 per annum.

RETIRED PAY (PERMANENT OFFICERS).

Officers Below Air Rank.

Age on Retirement.	Standard Yearly Rate of Retired Pay.	Years of Service.	Addition for each Extra Year of Service.*	Deduction for each Deficient Year of Service.*
	£		£	£
40	300	17	15	15
41	337	17	15	15
42	375	18	15	15
43	412	18	15	15
44	450	19	15	15
45	487	19	15	15
46	525	20	15	15
47	562	20	15	15
48	600	21	15	15
49	637	21	15	15
50	675	22	15	15
51	697	22	22	15
52	720	23	22	15
53	742	23	22	15
54	765	24	22	15
55	790	24	22	15

* Limited to five years.

The maximum standard rates of retired pay and the compulsory retiring ages for the several ranks are :

Rank.	Yearly Rate of Retired Pay.	Compulsory Retiring Age.
	£	
Air Vice-Marshal	1,010	60
Air Commodore	950	57
Group Captain	900	55
Wing Commander	600	51
Squadron Leader .	500	48

Gratuities.

A permanent officer allowed to retire before having qualified for retired pay may be granted a gratuity provided he has not less than ten years' commissioned service—namely, £1,500 if he has ten but less than fifteen years' commissioned service; £2,500 after fifteen or more than fifteen years'.

Short-service officers will be eligible on passing to the Reserve for gratuities on the following scale : £100 for each of the first two complete years of service, £150 for each of the third and fourth complete years, and £200 for the fifth complete year; that is, for three years' service on the active list £350; for five years' £700.

These gratuities will not be payable to officers granted permanent commissions, but their service on a short-service commission will count towards retired pay.

Further particulars may be obtained on application to the Secretary, Air Ministry (D.M.S.), Adastral House, Kingsway, W.C.2.

INDIAN MEDICAL SERVICE.

IN May, 1928, the Secretary of State for India issued a communiqué announcing the terms on which the Indian Medical Service would in future be constituted. The communiqué was to the effect:

(i) That the I.M.S. constituted on the same broad lines as at present will be retained primarily to meet the needs of the Indian Army, the Local Governments being required to employ a stated number of I.M.S. officers in order to maintain the necessary minimum war reserve and to provide for European medical attendance for European officers of the I.C.S. and their families.

(ii) That the total number of I.M.S. officers required for civil employment is calculated at 302, of which 212 will be Europeans and 90 Indians.

(iii) That there will be 237 posts for these officers after allowing for leave and study reserve, 178 of which will be in the provinces and 59 under the Government of India.

These posts will be filled as follows:

Under Provincial Governments: 178 posts, of which 112 must be held by European officers, the remaining 66 to be open to Europeans or Indians.

Under Government of India: 59 posts, of which 28 will be open to Europeans or Indians, the remaining 31 being open to Europeans only.

(iv) That the medical requirements of European members of the Superior Civil Services are based on data which will change from year to year as the proportion of European to Indian officers gradually diminishes, and will be subject, therefore, to periodical revision.

(v) That certain rules will come into force as an integral portion of the scheme. These rules deal with the question of employment on the military and civil side, and provide *inter alia* that liability to serve on either the military or civil side will be a definite condition of service for all future entrants to the Service.

The civil appointments which are reserved for officers of the I.M.S. are scheduled in the communiqué.

European candidates for admission to the I.M.S. must be British subjects under 32 years of age, and must be registered under the Medical Acts in Great Britain and Northern Ireland. A gratuity of £1,000 on retirement after six years' service, or £2,500 after twelve years' service, together with free return passages, is offered.

Royal Air Force Medical Branch: Rates of Pay and Allowances.

Rank.	Pay.* Daily Rates. Standard.	Pay.* Daily Rates. Current.	Pay.* Per Annum (Current Rates).	Cash Allowances at Home Rates in lieu of Quarters, Rations, and Servant, if not available in kind (per annum).† Married.	Cash Allowances at Home Rates in lieu of Quarters, Rations, and Servant, if not available in kind (per annum).† Unmarried.	Pay plus Allowances (per annum). Married.	Pay plus Allowances (per annum). Unmarried.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Flying Officer	1 4 0	1 2 6	410 12 6	155 2 6	141 8 9	565 15 0	552 1 3
Flight Lieutenant	1 6 0	1 4 6	447 2 6	202 5 5	159 13 9	649 7 11	606 16 3
Ditto, after 2 years as such	1 8 0	1 6 4	480 11 8	202 5 5	159 13 9	682 17 1	640 5 5
Ditto, after 4 years as such	1 10 0	1 8 2	514 0 10	202 5 5	159 13 9	716 6 3	673 14 7
Squadron Leader	1 14 0	1 12 0	584 0 0	202 5 5	170 6 8	786 5 5	754 6 8
Ditto, after 2 years as such	1 18 0	1 15 8	650 18 4	202 5 5	170 6 8	853 3 9	821 5 0
Ditto, after 4 years as such .. .	2 0 0	1 17 8	687 8 4	202 5 5	170 6 8	889 13 9	857 15 0
Ditto, after 6 years as such	2 4 0	2 1 4	754 6 8	202 5 5	170 6 8	955 12 1	924 13 4
Ditto, after 8 years as such . .	2 8 0	2 5 2	824 5 10	202 5 5	170 6 8	1025 11 3	994 12 6
Ditto, after 10 years as such . .	2 10 0	2 7 0	857 15 0	202 5 5	170 6 8	1060 0 5	1028 1 8
Wing Commander	2 15 0	2 11 8	942 18 4	202 5 5	180 19 7	1145 3 9	1123 17 11
Ditto, after 2 years as such	2 17 0	2 13 6	976 7 6	202 5 5	180 19 7	1178 12 11	1157 7 1
Ditto, after 4 years as such	3 3 0	2 19 2	1079 15 10	202 5 5	180 19 7	1282 1 3	1260 15 5
Group Captain	3 10 0	3 5 10	1201 9 2	273 6 3	252 9 2	1479 15 5	1453 18 4
Air Commodore	4 0 0	3 15 2	1371 15 10	333 1 3	307 4 2	1704 17 1	1679 0 0
Air Vice-Marshal	5 0 0	4 14 0	1715 10 0	393 9 2	371 1 8	2113 19 2	2086 11 8

* Except for periods of service under Indian administration. For such periods officers receive pay and allowances at rates and subject to conditions authorized from time to time by the Government of India.

† These allowances are issued only when accommodation, fuel and light, rations and personal attendance are not available in kind. Normally provision in kind is available for junior officers. "Married" rates of allowances are payable only to married officers who have reached the age of 30 or the rank of squadron leader. A colonial allowance is granted in certain commands abroad.

The rates and general scheme of allowances are liable to revision as circumstances may require.

The Indian Medical Service offers wide opportunities of medical experience, including clinical, preventive, specialist, and research work. At the beginning of his career an officer is employed on the military side, which has medical charge of the Indian Army. Promotion is on a time scale up to the rank of Lieutenant-Colonel, and by selection to the ranks of Colonel and Major-General. After two years' Indian service an officer may apply for transfer to the civil side, from which appointments are made to Civil Surgeoncies, which are established at the principal civil centres to provide for the medical needs of civil officials and for general medical administrative purposes; to specialist (for example, public health and bacteriological) services; to research posts; and to professorships at the Medical Schools.

The monthly rates of pay for European officers in the Service who have a "non-Asiatic" domicile are as follows:

Rank.	Service in Rank.	Basic Pay.	Overseas Pay.	Year of Total Service.
1	2	3	4	5
		Rs.	Rs.	
Lieutenant		500	150	1st
			150	2nd
			150	3rd
Captain ...	(i) During first 3 years' service as Captain	650	150	4th
			£15	5th
			£15	6th
	(ii) With more than 3 and less than 6½ years' service as Captain	750	£25	7th
			£25	8th
			£25	9th
	(iii) With more than 6 years' service as Captain	850	£25	10th
			£25	11th
			£30	12th
Major ...	(i) During first 3 years' service as Major	950		
	(ii) With more than 3 and less than 6 years' service as Major	1100		
	(iii) With more than 6 years' service as Major	1250		
Lieut.-Col.	(i) Until completion of 23 years' total service	1500	£30	13th and over
	(ii) During 24th and 25th years' total service	1600		
	(iii) After completion of 25 years' total service	1700		
	(iv) When selected for increased pay	1850		

Extras.—In addition to the above rates various allowances are admissible for a large number of special appointments on both the military and the civil side which may be held by members of the Indian Medical Service. Special high rates of pay are also attached to the numerous administrative appointments open to officers in both branches of the Service.

Officers on appointment will receive an outfit allowance of £50.

With the exception of Administrative Officers, military or civil, and officers holding certain special appointments, officers are not debarred from taking private practice, so long as it does not interfere with their proper duties.

The rates of pension are as follows.

	Per annum.
	£
After 17 years' service for pension	400
,, 18 ,, ,, ,, ...	430
,, 19 ,, ,, ,, ...	460
,, 20 ,, ,, ,, ...	500
,, 21 ,, ,, ,, ...	540
,, 22 ,, ,, ,, ...	580
,, 23 ,, ,, ,, ...	620
,, 24 ,, ,, ,, ...	660
,, 25 ,, ,, ,, ...	700
,, 26 ,, ,, ,, ...	750
,, 27 ,, ,, ,, ...	800

These rates are subject to alteration on account of a rise or fall in the cost of living as compared with the year 1919 to an extent not exceeding 20 per cent. in all, the revision being undertaken triennally with effect from July 1st, 1927. A reduction of 4½ per cent. has been made on this account from the amounts shown.

There are additional pensions ranging from £65 to £350 per annum for officers who have held administrative appointments.

An officer on appointment is provided with a free passage to India. The wives and families of officers who are married prior to the date of the officers' embarkation on first appointment will also be provided with free passage to India, subject to the payment of messing charges.

Officers and their families are also eligible for passage concessions under which they are granted a certain number of return passages home at Government expense during their service.

Officers are required to undergo courses of instruction at the Royal Army Medical College, and at Aldershot, lasting approximately six months, prior to their embarkation for India on first appointment.

Further particulars may be obtained from the Under Secretary of State for India, Military Department, India Office, London, S.W.1.

PRISON MEDICAL SERVICE.

CANDIDATES for the prison medical staff are approved by the Secretary of State for the Home Office on the recommendation of the Prison Commissioners. The Chairman of the Board is Mr. A. Maxwell, C.B. Application for employment may be made to the Board on a special form, which can be obtained from the Secretary, Prison Commission, Home Office, London, S.W.1.

In the smaller prisons the medical officer is usually a local practitioner, but in the larger the members of the medical staff are required to devote their whole time to the service. In the case of those required to give their whole time to the service the appointment in the first instance is to the post of medical officer Class II, and from the seniors of this rank the medical officers Class I are selected as vacancies occur.

In February, 1923, the then Home Secretary appointed a committee to report on what changes, if any, should be made in the remuneration or other conditions of service of officers at the prisons and Borstal institutions in England and Scotland and at Broadmoor Criminal Lunatic Asylum. Evidence was given on behalf of the British Medical Association by the Medical Secretary, who pointed out that the salary offered to Class II medical officers—namely, a basic salary of £300 rising by annual increments—was, even when the allowances and bonus were reckoned in, less than the £500 a year the Association looked upon as the minimum commencing salary which should be given to a whole-time medical man holding such a responsible office. Following the report of the committee, which was issued in November, 1923, the salaries of whole-time prison medical officers were increased to: Medical officer Class II, £350, rising by annual increments of £20 to £600; medical officer Class I, £650, rising by annual increments of £25 to £800. Unfurnished quarters are provided, or an allowance in lieu is made. The civil service bonus is paid on the salary. There are 15 medical officers Class II, 12 medical officers Class I, and 23 part-time medical officers.

The service is a small one, and therefore vacancies are comparatively rare and promotion is very slow.

POOR LAW MEDICAL SERVICES.

A NUMBER of whole-time appointments exist under the various Poor Law authorities in Great Britain, certain of which, notably in the metropolis and the chief provincial cities, maintain large well-equipped hospitals organized under purely medical administration. Posts are available to medical practitioners as superintendents and assistant officers in hospitals and infirmaries, and as resident officers in other institutions, such as poorhouses, workhouses, etc. Conditions and salaries show considerable variation; salaries for resident assistant medical officers in Poor Law infirmaries usually range from £200 to £450 a year, with full board, the duties being much the same as, but as a whole more responsible than, those of a house-physician or house-surgeon in a general hospital. Medical superintendents are paid from £600 to £1,600 a year, with house, light, coal, laundry, etc., and in some cases the first assistant is termed deputy medical superintendent and receives £450 to £750 a year, with similar emoluments. This service, therefore, offers openings for young practitioners and the prospect of a reasonable degree of progress for those who may choose to make it their career, with security of tenure, and provision for superannuation. It should be added that the attractiveness or otherwise of any particular post is affected considerably by the policy adopted by the authority under whose jurisdiction it falls. In the more advanced areas there is a high degree of differentiation in treatment between the sick and mentally affected, and the purely pauper class (between the hospital and the workhouse); the tendency in such areas has been to develop the hospital services on lines approximating to those ruling in the voluntary hospitals. In the smaller unions, however, lay control, through the administration by a workhouse master of the whole organization, has been

preserved, and medical appointments in such circumstances are less attractive. A considerable change in administrative conditions in the Poor Law in England and Wales has been effected by the passing of the Local Government Act, 1929, which from April 1st, 1930, abolishes the old boards of guardians, and transfers their functions to the county councils and county borough councils. This should result in greater uniformity in conditions, and probably in a higher degree of specialization in Poor Law work, particularly on the medical side, and a closer assimilation to other public health services. In addition to the full-time appointments of the character mentioned, the Poor Law service offers numerous part-time posts, such as those of district medical officer, parish medical officer, public vaccinator, etc., which are practically all held by general practitioners.

MEDICAL PRACTICE IN BRITISH DOMINIONS AND FOREIGN COUNTRIES.

MEDICAL Acts have now been passed in almost all places forming part of the British Empire beyond the seas, and registers of duly qualified practitioners are consequently maintained. To these registers medical men educated in the United Kingdom are generally admissible merely on payment of a registration fee, providing they produce evidence that they are of good repute and are either registered or eligible for registration in the United Kingdom, as the local requirement may be. The only exception to this statement that need be made relates to the Dominion of Canada. Each of its provinces acts in medical matters as an independent State. The result has been that reciprocity of practice has in the past been established between this country and all the provinces of Canada except British Columbia, where certain obstacles were never overcome. It has, however, to be recorded that reciprocity with Saskatchewan, New Brunswick, Ontario, and Quebec has recently been brought to an end by those provinces. We would advise any medical man proposing to practise in Canada first to communicate with the Provincial Registrar, stating what degrees or diplomas he holds, and asking for information as to the precise steps he must take in order to obtain admission to the Provincial Register. The Licence of the Dominion Council, which can only be obtained after examination, entitles its holder to practise in any of the provinces of Canada, though in regard to Quebec there is a proviso that "he must have been registered in the province five years prior to the application for the recognition of the Dominion Licence." In order to sit for the examination for the Dominion Licence, it is necessary to obtain a licence from one of the provinces, but this can be obtained from one of those with whom reciprocity has been established.

Italy and Japan are the only two foreign States with which complete medical reciprocity has been established, though there are other countries which grant a limited recognition to British qualifications. Generally speaking, in Continental countries (with the exception of the kingdom of Italy) a British medical man desiring to exercise his profession therein must pass practically the same examinations as those imposed on natives of the country. The same observation applies to all foreign States in the South American continent. Each of the United States of North America has its own laws and regulations governing medical practice; and all of them require the holder of a British qualification to submit to an examination. A number of the States, including New York, Illinois, Michigan, and Indiana require naturalization.

A pamphlet showing the conditions under which medical and dental practitioners legally qualified in their own country may practise abroad can be obtained from the office of the General Medical Council, 44, Hallam Street, Portland Place, London, W.1, price 2s. 6d., or 2s. 9d. post free in the United Kingdom. Practitioners who think of going abroad to practise will find therein much useful information, including the name of the official in each country to whom requests for further particulars should be addressed. A new edition was published this year.

MEDICAL APPOINTMENTS IN THE COLONIES AND MANDATED TERRITORIES.

MEDICAL appointments in the self-governing Dominions and the territories under their control, and in Southern Rhodesia and Malta, are made by the Governments concerned, and are not in general open to candidates in the United Kingdom. In Ceylon, Mauritius, Jamaica, Barbados, the Bahamas, and Bermuda vacancies are practically always filled by the appointment of qualified local candidates or, in the case of some of the higher posts, by transfer from other colonies. Appointments to the medical services of the remaining colonies and other territories under the administrative direction of the Colonial Office are made by the Secretary of State for the Colonies in this country. Such appointments are to a given colony or group of colonies, for there is no unified service directly administered from the Colonial Office. It follows that conditions of service and superannuation are in the main determined by the economic resources and general public health policy of the individual colony and its local government, and vary almost as widely as do conditions of climate. Moreover, the extent of the control exercised by the Colonial Office varies according to the constitutional status of the particular colony, and the detailed information available centrally is not always complete. The intending candidate, therefore, should make comprehensive inquiries as to local conditions, and particularly as to facilities for private practice where this is included in the terms of appointment. He will also do well to supplement official information by reference to the Medical Secretary at the Central Office of the British Medical Association (Tavistock Square, London, W.C.1), where reports obtained from time to time from the local Branches are available. This is the more necessary because facilities for transfer from the Medical Service of one colony to that of another are as yet practically non-existent, except in connexion with specialist and senior appointments. This sets strict limits upon the opportunities for promotion.

To those physically and mentally suited to the climatic and social conditions peculiar to the various colonies the Colonial Medical Services should, and in some cases do, offer a field of professional activity rich in interest and in opportunity for pioneer work. The scope for research is wide, and facilities for its prosecution are beginning, however tardily, to be provided. In this connexion a committee was appointed in 1927 whose function it is to advise the Secretary of State and the Medical Research Council upon the initiation and promotion of medical research in the interests of the Colonial Empire; upon the recruitment and conditions of service of the necessary personnel; and upon the management and allocation of any funds available for these purposes. An increased number of specialist posts is becoming available in the larger services, and the general policy is to fill them by promotion of suitably qualified junior officers. The potentialities of sanitation are beginning to be appreciated by local administrations, and the post-war economic stringency to which the delay of essential reform was usually attributed is giving place to more favourable conditions. There are also signs of increasing parliamentary and departmental interest in the development of a sound health policy, amongst which the insertion in this year's Colonial Development Act of a clause specifying the promotion of public health as one of the objects of the measure to be kept prominently in view in connexion with schemes of colonial development is significant. The Act as originally drafted was said to cover this amongst other objects, but it was made clear in the course of debate that the House would not be satisfied without specific reference to public health.

The outlook for the Colonial Medical Service is thus in the main a hopeful one, and especially so in the larger and better organized branches. It is unfortunate that this cannot be said of all of the smaller services. These are in some cases still hampered by conditions which make efficiency unattainable. At the worst they are starved of material resources in the name of economy, understaffed and underpaid, with inadequate facilities for study leave,

and at the mercy of an administration in which the nominal head of the Service has no effective voice. Hence the urgent necessity remains for making careful and sufficient inquiry as to the position in any given Service before accepting appointment.

The medical services recruited in this country by the Secretary of State for the Colonies include those of West Africa, East Africa, Malaya, Hong-Kong, the West Indies, Fiji and the Western Pacific territories, and Palestine, besides a number of smaller services offering individually one or two appointments at an inadequate remuneration and with no prospect of promotion. In addition, certain medical appointments in the service of the Government of Iraq are filled with the concurrence and normally upon the recommendation of the Secretary of State.

In the Fiji Medical Service, although the basic salary of district medical officers (£500, by £25 to £725) is below the £600 minimum recommended as adequate by the British Medical Association, this fact is offset by the concession of allowances of from £175 to £275 in five of the districts, the value of private practice in the remaining seven being estimated at from £100 to £600 a year.

The services in the West Indies and some of the smaller colonies have not yet conceded the £600 minimum commencing salary, and whilst facilities for remunerative private practice, general conditions of service, and a relatively low cost of living must in some instances be taken into consideration, these compensations are by no means universal. The services in the Leeward and Windward Islands are in a condition which requires special notice by way of warning.

In general, candidates for these services must be between the ages of 23 and 35, although these limits are not for the moment absolute. Appointments are, subject to a varying period of probation, for the most part classed as permanent and pensionable, but there are some appointments by agreement for a specified limited term of service. There is no entrance examination, but practitioners selected for appointment must obtain a certificate of physical fitness from one of the consulting physicians to the Colonial Office. Post-graduate experience in hospital appointments is desirable, and in some cases special allowances are conceded to the holders of a D.P.H. Successful candidates are normally required to undergo an approved course of instruction in tropical medicine, the fees for their tuition being defrayed by the Government and an allowance being paid during their instruction. Officers accepting employment under the Government of Iraq are required to enter into an agreement to serve that Government for a definite period of three, five, ten, or fifteen years. These posts are not pensionable, and officers serving for a term longer than three years are required to contribute one-twelfth of their pay to a provident fund, to which the Government of Iraq makes a contribution equal to one-sixth of their pay.

The bulk of the appointments made by the Secretary of State in this country are to the West African Medical Staff, the East African Medical Service, and the Medical Services in Malaya. These are the strongest individual services numerically, and therefore offer more frequent vacancies, better prospects of promotion, and better chances of specialist appointments than the smaller services.

West African Medical Staff.

This is amongst the best organized and best paid of the Colonial Services. The territories covered by the service include Nigeria, the Gold Coast, Sierra Leone, and the Gambia. Climatic conditions vary considerably over this area, but they are in general admittedly trying. This fact is at present recognized by the provision of more frequent leave periods than are usual elsewhere.

The rate of pay for a medical officer is £660 on appointment, rising by annual increments to £960, together with a seniority allowance of £72 a year after reaching £720. There is a considerable number of specialist and administrative posts carrying relatively high salaries, varying from £1,300, with duty allowance of £260, to £1,800, with duty allowance of £360. All appointments in the staff are pensionable. Officers may retire voluntarily on reaching 50 years of age, and may be called upon to retire at 55. Pensions are calculated at the rate of 1/480th of the officer's pensionable emoluments (salary and house allowance) in respect of each complete month of service. Alternatively a gratuity and reduced pension may be granted, if desired, under certain conditions. Gratuities of £1,000 or £1,250 may be drawn on retirement after nine or twelve years' service. Members of the West African Medical Staff are not usually permitted to take their wives or young children to the West Coast until they have acquired experience of the conditions of life and have obtained the sanction of the Governor. In the case of young children this is only exceptionally given.

African Medical Officers.

Membership of the West African Medical Staff is limited to British subjects of European parentage, but a number of Government appointments for African medical officers exist in the West African Colonies. These appointments carry salary on the scale £500–£25–£600, and there is a higher scale £600–£30–£720. In addition, in Nigeria and the Gold Coast, arrangements have been made for the employment of a few young African medical men temporarily on the hospital staffs, with a view to appointment to the Government service later, if suitable. In such cases a salary of £400 a year is paid.

East African Medical Service.

This service includes Kenya, Uganda, Tanganyika Territory, Nyasaland, Zanzibar, and British Somaliland. In East Africa there is very wide scope for clinical work, both medical and surgical, as well as for research and for preventive medicine and sanitation. The service as a whole is fully alive to its responsibilities and opportunities; individual initiative is encouraged, and the career of a medical officer depends, not on seniority alone, but to a large extent on his own capability. As a rule it is preferable that medical officers on first appointment should not be married, although in all but a few stations conditions allow a medical officer's wife to accompany him. The service includes a medical and a sanitary division. The former is open to those holding ordinary medical and surgical qualifications, post-graduate experience in a hospital appointment being an advantage; posts in the sanitary division will as far as possible be filled by those holding a Diploma in Public Health or a Diploma in Tropical Medicine and Hygiene. Climatic conditions vary considerably. In a considerable part of Kenya they approximate more to the temperate than the tropical zone; but there are some areas in the East African Dependencies where conditions more closely resemble those in West Africa. The rate of pay for a medical officer is from £600 on appointment, rising by annual increments of £30 to £840, and thereafter, subject to an efficiency bar at this point, by £40 to £920. Holders of the D.P.H. receive a special concession of two increments on appointment, thus reaching the maximum of the grade two years earlier than they would otherwise do. Private practice may be permitted in certain circumstances, but there is no right to it even in stations where opportunities may exist.

As in the case of the West African Medical Staff, a candidate can only apply for appointment to the East African Medical Service in general and is liable to transfer between the several dependencies, but he may express his preference for any particular colony, and his wishes will, we are informed, be met as far as possible. As a rule, transfer only takes place on promotion or at an officer's own request. The gratuities available on retirement after nine or twelve years' service are similar to those for the West African Medical Staff. Officers may elect or may be required to retire on pension on reaching the age of 50 years. Pensions are calculated at the rate of 1/480th of emoluments (including value of free quarters) for each completed month of service.

Medical Services in Malaya.

These services cover the Straits Settlements, the Federated Malay States, and some of the unfederated States. The commencing salary of 500 dollars a month, *plus* a temporary allowance of 10 per cent. for single and 20 per cent. for married officers, is generally considered adequate. A non-pensionable allowance of 100 dollars a month is paid to officers holding the D.P.H.

The climate of Malaya is, for the tropics, very healthy. It varies little during the year. The mean maximum and minimum temperatures are 86.8° and 74.3° F. In some parts there are no marked rainy and dry seasons, the

rainfall being evenly distributed throughout the year. In others there are a couple of dry months and a couple of exceptionally rainy months in the year. The average rainfall is about 100 inches a year, and vegetation is always green. People who lead regular, active lives have no difficulty in keeping in good health. European children do well in Malaya up to the age of about 6. Numerous hill bungalows are available already for rest and change, and a large Malayan hill station is about to be constructed at a height of over 5,000 feet at Cameron's Plateau, on the Perak-Pahang boundary.

The professional duties of a medical officer may include medical, surgical, medico-legal, and public health work. His administrative work comprises hospital administration, diets, returns, and financial work, and includes the inspection of smaller hospitals and dispensaries. Clerical work is reduced to the smallest possible amount. An endeavour is made to consider an officer's own bent when posting him for duty. Districts vary in size and a certain amount of travelling will be necessary. The white population in each district varies. The district hospitals hold from 50 to 300 beds. There is a staff of locally recruited medical men, mostly trained at the Singapore College of Medicine. Asiatic dressers and trained hospital assistants are employed in hospitals and dispensaries. In addition to European sisters, there is a large local nursing staff. All hospital equipment is supplied by Government, including instruments. At both the Institute for Medical Research in Kuala Lumpur, Federated Malay States, and the King Edward VII College of Medicine, Singapore, there are opportunities for research as well as for routine investigations. Promising officers may be stationed at the Institute for short periods if they can be spared from other duties. In addition to the full-time professional posts at the College of Medicine, several of the medical staff in Singapore hold part-time lectureships.

It may fairly be said that the Malayan Medical Services now offer considerable scope for suitable candidates. There is relatively to other services a large number of special appointments available in surgery, radiology, public health, and pathology, and to those seeking a career in teaching the professorships at the College of Medicine, Singapore, offer an additional attraction.

SUDAN MEDICAL SERVICE.

This service is a department of the Sudan Government, and includes a number of Syrian medical officers and a number of assistant medical officers who are natives of the Sudan. The British medical inspectors are from the outset senior to all other medical officers. The service offers ample opportunities for specialization and for research, as well as for general medical and surgical work.

The climate varies, but is not in general unfavourable, though hot. In the northern desert the nights are cool, even in the summer; in the central there is a rainy season of about four months, during which large areas become malarious. The southern area is more tropical in character, and mosquito-protected houses, nets, and protective quinine are essential during the greater part of the year, though the winter months are cool and pleasant. It is not considered desirable for medical inspectors to be accompanied by their wives until they have gained some knowledge of the language and the general conditions of life.

The commencing pay of a medical inspector is £E.720. On confirmation of appointment and success in the requisite examinations in Arabic the salary is increased by periodic increments to £E.1,200. There are four senior administrative posts carrying higher salaries. There is a compulsory contribution of 5 per cent. of pay towards pension, which, for a medical inspector, amounts, after twenty years' service, to £E.500 a year.

OFFICIAL SOURCES OF INFORMATION.

All inquiries in connexion with medical appointments in the self-governing Dominions and their dependencies should be addressed to the High Commissioners or Agents-General for the Dominions. Intending applicants are also recommended to consult the *Dominions Office and Colonial Office List*, which may be seen at the Colonial Office Library or at the Library of the British Medical Association if not otherwise available, and the Professional Handbook, Part III (price 4d.) issued by the Overseas Settlement Department, Colonial Office, Caxton House, Tothill Street, London, S.W.1.

The position in Egypt is at present uncertain; questions as to the possibility of any medical appointments becoming available under the Egyptian Government should be addressed to the Director-General, Public Health Department, Cairo.

Inquiries as to vacancies and conditions in the Sudan Medical Service should be addressed in the first instance to Dr. Hodson, 24, Welbeck Street, London, W.1.

All inquiries in connexion with Colonial medical appointments made by the Secretary of State for the Colonies, or such vacancies as may occur in Iraq or Palestine, should be addressed to the Private Secretary (Appointments), Colonial Office, 2, Richmond Terrace, Whitehall, London, S.W.1.

There remain a number of medical appointments made by mining companies and other commercial undertakings in various parts of the tropics. Much caution should be exercised in accepting such posts, and the form of contract should be subjected to very careful scrutiny. Advice in this connexion should always be sought from the Medical Secretary of the British Medical Association, British Medical Association House, Tavistock Square, London, W.C.1.

DEGREES FOR PRACTITIONERS.

AT one time it was the almost universal custom for medical students educated in London and aiming at general practice not to seek a university degree, and as that custom still prevails to a considerable extent a large proportion of medical men in England possess diplomas or licences to practise but not degrees in medicine. This is a fact which they sometimes find reason to regret, and to such practitioners the following paragraphs may be of interest. It should be noted that the M.D.Brux. diploma, if obtained subsequently to June, 1886, is not registrable, and that the University of Brussels no longer holds special examinations for foreign medical practitioners.

UNIVERSITY OF DURHAM.

The degree of M.D. is granted by the University of Durham to registered practitioners of not less than fifteen years' standing, who have been qualified and in practice for that period, upon the following conditions, *without residence*: The candidate must be 40 years of age, and must produce a certificate of moral character from three registered medical practitioners. Should he not have passed an examination in arts previous to the professional examination in virtue of which his name was placed on the *Register*, he is examined in classics and mathematics: if otherwise, he is required to translate into English passages from any one of the following Latin authors: Caesar, *De Bello Gallico* (first three books); Virgil, *Aeneid* (first three books); or Celsus (first three books). Natives of India or the British Colonies are placed on the same footing as natives of Great Britain, and must be registered on the books of the General Medical Council of the United Kingdom.

Professional Examination.—The candidate must pass an examination in the following subjects: (i) Principles and practice of medicine, including psychological medicine, hygiene, and therapeutics; (ii) principles and practice of surgery; (iii) midwifery and diseases of women and children; (iv) pathology, medical and surgical; (v) anatomy, medical and surgical; (vi) medical jurisprudence and toxicology. Candidates are examined by means of written papers, clinically, and viva voce at the College of Medicine, Northumberland Road, Newcastle, and in the Royal Victoria Infirmary. The classical part of the examination may be taken separately from the professional on payment of a portion (£10 10s.) of the full fee.

The examinations are held twice a year, in June and December. Notice, accompanied by the fee and certificates, must be sent to the Secretary of Examinations, at the University of Durham College of Medicine, Newcastle-on-Tyne, at least twenty-eight days before the commencement of the examination.

Fees.—The inclusive fee for both professional and classical parts of the examination, together with the degree fee, is 50 guineas; if a candidate fail to pass, 20 guineas are retained, but if he present himself again 40 guineas only are required.

THE SWISS UNIVERSITIES.

The Universities of Lausanne and Bern have arrangements which permit British practitioners to proceed to the M.D. degree, but this alone does not confer the right to practise in Switzerland, for which the possession of the State or Federal Diploma is necessary. Neither degree nor diploma is registrable in this country.

At Lausanne the British practitioner has to produce (1) a certificate of matriculation in a British university, or of having passed a preliminary examination recognized by the General Medical Council for the purposes of registration as a medical student; (2) a certificate of a degree or diploma qualifying for practice in the United Kingdom and the certificate of registration as a medical practitioner in the United Kingdom. He must then undergo a viva voce examination in three subjects of the final medical examination. Next he must present a thesis for the doctorate, prepared and completed in one of the Lausanne clinics under the direction of one of the professors of the Faculty of Medicine. Residence for a semester (October to March or April to July) is obligatory. The fees are: on matriculation 20 francs; on inscription for the viva voce examination 50 francs; on presentation of thesis 200 francs; for diploma and graduation 25 francs; for courses of lectures and laboratory instruction 80 francs; the printing of the thesis costs from £7 to £12. Applications for admission should be made to the Dean of the Medical Faculty, l'ecole de Médecine, Place de l'Ours, Lausanne. Dr. C. A. H. Franklin (56, Southborough Road, Bickley, Kent), honorary secretary of the Lausanne Medical Graduates, will supply further information.

SPECIAL DIPLOMAS.

INFORMATION about the regulations for the various Diplomas in Tropical Medicine, in Psychological Medicine, and in Public Health is given in the appropriate sections of this Educational Number at pp. 424, 425, 427. Further details in regard to the D.P.H. and the D.T.M. will be found in *Dr. Andrew Balfour's Guide to the Regulations, Courses, and Examinations for Qualifications in Public Health and Tropical Medicine*, published by the British Medical Association, Tavistock Square, W.C.1, at the price of 3s.

It should perhaps be noted here that of the various diplomas in special subjects granted by licensing bodies only those in Public Health and Sanitary Science and State Medicine are at present admissible for entry in the official *Medical Register*, though other special diplomas may, of course, be included among the particulars of qualifications set out in the *Medical Directory*.

As stated at page 398, a Diploma in Tuberculous Diseases is granted by the University of Wales to qualified medical practitioners: new regulations for this diploma will come into force in 1930.

DIPLOMAS IN MEDICAL RADIOLOGY.

Diplomas in Medical Radiology are granted by the Universities of Cambridge, Edinburgh, and Liverpool.

The Cambridge Diploma.—A Diploma in Medical Radiology and Electrology is granted by the University of Cambridge. The primary object is to provide adequate training in a branch of medical work which is becoming increasingly important and difficult, and which is outside the ordinary medical curriculum. The diploma is open only to those who hold a medical qualification approved by the Diploma Committee. Under the new regulations, which came into operation in October, 1928, the course has been extended from six to nine months. The first three months (October to December), which may be spent either in Cambridge or in London, are occupied with lectures and practical work in physics and electrotechnics, together with an introductory course in medical radiology and electrology. The work for the second three months (January to March) can be done in London only, and comprises lectures and clinical instruction in radiology and electrology given by lecturers appointed by the Educational Committee of the British Institute of Radiology, together with clinical experience in the radiological department of a hospital recognized for that purpose by the Diploma Committee. During the last three months a candidate is required to hold a clinical clerkship, or other similar appointment, in the radiological department of a recognized hospital. Hospitals at a number of provincial centres, as well as in London, have been recognized by the Committee for this purpose. In exceptional circumstances exemption from this regulation may be granted by the Committee. The examination for Part I (physics and electrotechnics) is normally taken at the end of the first three months, and the examination for Part II at the end of six months. At the conclusion of the nine months' course a candidate is required to present a thesis composed by himself. This thesis is to be in the form of a critical report, with notes upon six cases, either in radiology or electrology or in both these subjects, and must illustrate various methods of diagnosis or treatment. The course for 1929–30 begins on October 1st. Examinations for Part I will begin on January 8th and April 14th, 1930, and for Part II on April 15th and July 16th, 1930. Further particulars of the courses and examinations can be obtained from the Secretary for the Diploma, G. Stead, M.A., Cavendish Laboratory, Cambridge, or from Dr. A. E. Barclay, Radiological Department, Medical Schools, Cambridge, or from the Director, British Institute of Radiology, 32, Welbeck Street, London, W.1.

The Edinburgh Diploma.—Candidates for the diploma must be graduates in medicine and surgery of the University of Edinburgh, or hold corresponding registrable degrees or qualification from some other licensing body. Candidates are not admitted to the examination for the diploma until after the lapse of not less than one year from obtaining a registrable qualification, which qualification must be registered before admission to the examination. The course of study begins in October and extends over a period of not less than three terms. The examination, which is written, oral, and practical, is in two parts: (*a*) physics, and (*b*) radiology. The examination is held twice yearly—namely, July and October. Full particulars may be obtained from the Dean of the Faculty of Medicine. In this connexion it may be noted that radiology can now be taken as the special subject in the examination for Membership of the Royal College of Physicians of Edinburgh. Several candidates have already taken radiology as their special subject; it means that an honours standard has to be attained.

The Liverpool Diploma.—The University of Liverpool grants a Diploma in Medical Radiology and Electrology. Candidates before admission to the examination for the diploma must possess a registrable qualification approved by the university in medicine and surgery, and must have attended courses of instruction in (*a*) physics (two terms); (*b*) (i) radiology and (ii) electrology, during the six months in the *x*-ray and electro-therapeutic departments of a hospital or hospitals. An examination is held in March each year, the subjects being (*a*) physics, (*b*) radiology and electrology. Examination in either part may be taken separately. Fees: tuition, £24 5s.; examination and diploma, £6 5s. These courses commence during the first week in October. Application should be made to the Dean, Faculty of Medicine, the University of Liverpool.

DIPLOMA IN LARYNGOLOGY AND OTOLOGY.

The Conjoint Examining Board in England (Examination Hall, Queen Square, London, W.C.1) grants a Diploma in Laryngology and Otology (D.L.O.) after an examination held in June and December. The examination comprises two parts: Part I, on the anatomy, embryology, and physiology of the ear, nose, pharynx, larynx, trachea and bronchi, and oesophagus; Part II, on the recognition and use of special instruments and appliances, and the medicine, surgery, and pathology of these regions. Candidates may enter for Part I at any time after a registrable qualification in medicine, surgery, and midwifery has been obtained. Candidates may enter for Part II on completion of one year of special study of diseases of the ear, nose, pharynx, and larynx, after a registrable qualification has been obtained, provided that Part I has been previously passed, and on production of certain certificates. The conditions of study may be modified at the discretion of the Committee of Management in special cases. The fee for admission or readmission to each part is six guineas.

DIPLOMA IN OPHTHALMIC MEDICINE AND SURGERY.

A special Diploma in Ophthalmic Medicine and Surgery is granted by the University of Oxford and by the Conjoint Examining Board in England.

University of Oxford.—For the Diploma in Ophthalmology (D.O) attendance on a twelve months' course of

clinical ophthalmology in hospitals or institutions recognized for the purpose by the Board of the Faculty of Medicine, and on a course of instruction in Oxford lasting two months, is obligatory. Candidates must have their names on the *Medical Register* of the United Kingdom, unless, being Bachelors or Doctors of Medicine of universities outside the United Kingdom, they have obtained special permission from the Board of the Faculty of Medicine.

The Conjoint Board.—The Diploma in Ophthalmic Medicine and Surgery of the Conjoint Examining Board of the Royal College of Physicians of London and Royal College of Surgeons of England is issued after completion of an examination held in two parts—in January and July. The examination in each case is partly written, partly oral, partly clinical or practical. Part I comprises anatomy and embryology of the visual apparatus, physiology of vision, elementary optics; Part II comprises optical defects of the eye, ophthalmic medicine and surgery, pathology with special reference to medical and surgical ophthalmology. Candidates may enter for Part I at any time after a registrable qualification in medicine, surgery, and midwifery has been obtained. Candidates may enter for Part II on completion of one year of special study of ophthalmology after a registrable qualification has been obtained, provided that Part I has been previously passed, and on production of certain certificates. The conditions of study may be modified at the discretion of the Committee of Management in special cases. The fee for admission or readmission to each part is six guineas.

MEDICAL MISSIONARIES.

MISSIONARY societies are in constant need of qualified men and women to fill vacancies as they occur in their hospitals, and also to enable them to take advantage of fresh openings. To those suitably endowed the mission field offers unique opportunities for interesting work, and the development of native medical schools, as training institutions in connexion with some of the larger mission hospitals, affords excellent scope for valuable work to medical men and women who are qualified to teach. It is not usually expected that medical missionaries should take a position such as would otherwise be occupied by an ordained clergyman or minister, but it is essential that they should be prepared to exert their influence in any hospital to which they may be sent so that a Christian atmosphere may be maintained and the work of evangelization be carried on through the ministry of healing.

As for scientific and other qualifications for the work, medical missionaries, in addition to being physically capable of sustaining a life which makes a great demand upon their strength, should be thoroughly well-trained physicians and surgeons. It is very desirable that they should have held a resident appointment at a general hospital, and have a good knowledge of practical surgery, gynaecology, tropical medicine, and the treatment of eye diseases. Useful information can be obtained from the secretaries of the various Missionary Societies, or from Thomas B. Adam, Honorary Secretary, Medical Advisory Board on Medical Missions to the Conference of Missionary Societies in Great Britain and Ireland, The Crossways, 45, Kenton Road, Harrow, Middlesex, or 19, Furnival Street, E.C.4.

Dental Surgery.

UNTIL the passing of the Dentists Act, 1921, the profession of dentistry in this country was regulated by enactments corresponding very closely with those relating to the practice of medicine—that is to say, there was no direct prohibition of the act of practice; and the Dentists Act of 1878 gave the same degree of protection to legally qualified and registered dentists as was accorded to registered medical practitioners—namely, the reservation of the use of certain titles. This Act provided also (1) that no person should take or use the name or title of "dentist" (either alone or in combination with any other word or words) or of "dental practitioner," or any other name, title, or description expressed in words or by letters implying that he was specially qualified to practise dentistry, unless he was registered, under a penalty of £20; and (2) that an unregistered person could not recover any fee or charge in respect of any dental operation, attendance, or advice. But, in the case of the practice of medicine by unqualified and unregistered persons, certain deterrent factors came into play—such as the inability to give a death certificate—and these did not operate to the same extent in the case of dentistry: hence, unqualified practice was far more prevalent in dentistry than in medicine, and increased after a decision of the House of Lords placing a narrow interpretation upon the words "specially qualified to practise dentistry," by defining the word "qualified" as not referring to competence but to the possession of a recognized diploma.

THE DENTISTS ACT, 1921.

This unsatisfactory position was remedied by the passing into law of the Dentists Act, 1921; its provisions are based largely on the recommendations of a departmental committee appointed in 1917 by the Privy Council "to investigate the extent and gravity of the evils connected with the practice of dentistry and dental surgery by persons not qualified under the Dentists Act." Since November 30th, 1922, no person has been permitted by law to practise or hold himself out, whether directly or by implication, as practising or as being prepared to practise dentistry unless he is on the *Dentists Register* provided for by the Dentists Act, 1878. The practice of dentistry is defined as including "the performance of any such operation and the giving of any such treatment, advice, or attendance, as is usually performed or given by dentists," and the performing of any operation or the giving of any "treatment, advice, or attendance on or to any person as preparatory to or for the purpose of or in connexion with the fitting, insertion, or fixing of artificial teeth." The maximum penalty incurred by an unregistered dentist is £100 for each offence. There are, however, certain important exceptions to the requirement of registration. A registered medical practitioner may practise dentistry without being on the *Dentists Register*, and a registered pharmaceutical chemist or chemist and druggist may extract a tooth where the case is urgent and where no doctor or dentist is available, but the operation must be performed without any kind of anaesthetic; further, any person may carry out minor dental work in a public dental service under the personal supervision of a registered dentist provided it is in accordance with conditions approved by the Minister of Health after consultation with the Dental Board.

Certain persons other than those qualified by examination were entitled to be registered under the new Act. They had to be of good personal character and 23 years of age before July 28th, 1921 (the commencement of the Act), and to have been engaged for five of the seven years preceding that date as their principal means of livelihood in the practice of dentistry in the British Isles, or have been admitted to membership of the Incorporated Dental Society not less than one year before the commencement of the Act. The passing of "the prescribed examination in dentistry" within two years of the commencement of the Act was considered as equivalent to practising for five years, and a registered pharmaceutical chemist or a chemist and druggist who immediately before the commencement of the Act had a substantial practice as a dentist, including all dental operations, was treated as though he had practised for five years. A dental mechanic who for the five years had been carrying on his work as such and has secured the entry of his name on the list of candidates for examination can be registered, provided within ten years of the commencement of the Act he passes the prescribed examination. The Board, however, has no power now to consider any further applications under this Act.

Dentistry may be carried on by a corporate body provided the majority of the directors and all the operating staff are registered dentists, and that no business other than dentistry or only some business ancillary to dentistry is carried on by the company. Companies carrying on the business of dentistry at the present time are permitted to continue to do so with certain restrictions, provided that the name of the company as well as the names of the directors have been entered in a list kept by the Registrar for that purpose. Every director or manager of a company convicted of an offence under the Act will be held to be guilty of the offence unless he proves that the offence was committed without his knowledge, and the court may, in addition to a fine, order that the name of any director convicted shall be removed from the list of directors aforesaid.

A subsequent Act passed in 1923 made provision for the registration of persons who were 21 in November, 1921, who had served during the late war in His Majesty's Forces, and were on that

date engaged as their principal means of livelihood in the practice of dentistry in the British Isles. The Board, however, has no power now to consider any further applications under this Act.

The Dental Board.

On the establishment of the Dental Board in 1921 certain powers and duties of the General Medical Council were transferred to it, including the duty of erasing from the *Dentists Register* any entry which has been incorrectly or fraudulently made. An inquiry into the case of a person alleged to be liable to have his name erased from the *Register* is made by the Board, which reports its findings to the General Medical Council, the order directing the erasure being made by the Council. A name erased from the *Register* can only be restored by the Council upon a report made by the Board. An appeal to the High Court may be made by any person aggrieved either by refusal of the Board to register his name or by the removal of his name from the *Register*. The administrative expenses of the Board are defrayed from the registration fees and annual retention fees, but any surplus may be allocated to purposes connected with dental education and research or to any public purpose connected with dentistry. The office of the Dental Board is at 44, Hallam Street, London, W.1.

Dental Education and Examination.

The preliminary examination in arts is the same for medical and dental students, and the early stages of their education embrace much the same subjects[1]; and, as the dental student is required to obtain a knowledge of the broad principles of medicine and surgery, it is necessary for him to pursue some portion of his studies at a medical school as well as at a special dental school, the latter not undertaking the teaching of these subjects. Registration as a dental student is not in all cases compulsory, though it is to be advised as convenient as affording proof of the commencement of professional education, and it is required by most of the licensing bodies, all of whom insist upon a curriculum covering four academic years.

Degrees in dentistry are granted by the Universities of Bristol, Dublin, Durham, Leeds, Liverpool, London, Sheffield, Queen's University, Belfast, and the National University of Ireland, as will be found stated in the articles on these universities. Licences in dentistry entitling the holder to be registered on the *Dentists Register* are granted by the Universities of Birmingham, Bristol, Durham, Leeds, and Belfast, and by the Royal Colleges of Surgeons of England, of Edinburgh, and of Ireland, and by the Royal Faculty of Physicians and Surgeons of Glasgow.

Recognized dental schools are numerous. In London there are those connected with the Royal Dental Hospital, Leicester Square; the National Dental Hospital (now the University College Hospital Dental School), Great Portland Street; Guy's Hospital; King's College Hospital; and the London Hospital. In the provinces there are the Birmingham Dental Hospital; the Royal Infirmary and the General Hospital, Bristol; the Dental Hospital, and the Public Dispensary, Leeds; the Dental Hospital, Liverpool; the Dental Hospital, Manchester; the Dental Hospital and School, Newcastle-on-Tyne; the Royal Hospital, Sheffield. In Scotland there are the Dental Hospital, Dundee; the Incorporated Dental Hospital and School, Edinburgh; and the Incorporated Dental Hospital, Glasgow; and in Ireland, the Incorporated Dental Hospital of Ireland and the Royal College of Surgeons in Ireland.

All who think of becoming dentists may be advised to study a Memorandum, lately drawn up for their guidance by the Registrar of the Dental Board, setting out in convenient form and in untechnical language information for which request is frequently made to the Board.[2] It will be seen from this pamphlet that in order to assist suitable students the Dental Board has instituted a system of bursaries to pay the fees of those who have not the financial means to qualify, and in some cases maintenance is given as well.

Recommendations of the General Medical Council.

The Dentists Act still leaves to the General Medical Council the duty of controlling the course of study and examinations required for dental qualifications.

The following recommendations as to the course of study and examinations to be required of candidates for degrees or licences in dentistry or dental surgery were adopted by the Council on May 27th, 1922.

Preliminary Examination and Registration.

1. That every dental student shall, at the commencement of his studentship, be registered in the manner and under the conditions prescribed for medical students.

2. That before registration in the *Dental Students Register* every applicant shall be required to have passed, in addition to the examination in general education, which shall be the same as that required for medical students, an examination in Elementary Physics and Elementary Chemistry, conducted or recognized by one of the licensing bodies, which shall also be the same as that required for medical students.

3. That before registration as a dental student every applicant shall produce evidence that he has attained the age of 17 years.

Professional Study.

4. That every candidate for a degree or licence in dentistry or dental surgery shall be required before admission to the final or qualifying examination to produce certificates showing:

(i) That he is at least 21 years of age.

(ii) That he has been registered as a dental student.

(iii) That he has, subsequently to the date of registration as a dental student, been engaged in professional study for at least four years, of which three years at least shall be spent at a school or schools recognized for professional study by one of the licensing bodies.

(iv) That, subsequently to the date of registration as a dental student, he has attended at a recognized medical school courses of instruction, which shall be the same as those required for medical students, in the following subjects: (*a*) Chemistry, and (*b*) Physics, in their application to medicine; (*c*) Elementary Biology. That he has attended at a recognized medical school courses of instruction in the following subjects: (*d*) Human Anatomy (with dissections and demonstrations) for three academic terms. (*e*) Physiology (with laboratory instruction, including Practical Histology) for two academic terms; (*f*) General Pathology (including Bacteriology) for two academic terms; (*g*) Medicine for two academic terms; (*h*) Surgery for two academic terms; (*i*) the practice of a recognized general hospital or hospitals of not less than eighty beds, with certified instruction in Clinical Medicine and Clinical Surgery, for four academic terms.

(v) That he has attended at a recognized dental school courses of instruction in the following special subjects: (*a*) Dental Anatomy and Physiology, human and comparative. The course should comprise a minimum of twenty meetings of the class. (*b*) Practical Dental Histology and Morbid Histology. The course should comprise a minimum of sixteen meetings of the class. (*c*) Dental Pathology and Surgery. The course should comprise a minimum of twenty meetings of the class. (*d*) Dental Materia Medica and Therapeutics. The course should comprise a minimum of sixteen meetings of the class. (*e*) Dental Metallurgy (with practical work and demonstrations). The course should comprise a minimum of twenty meetings of the class. (*f*) Dental Mechanics (with practical work and demonstrations). The course should comprise a minimum of twenty meetings and twenty demonstrations. (*g*) A course of instruction in the use of Anaesthetics, general and local, employed in dental practice. (*h*) A course of instruction in Radiology as applied to dentistry.

(vi) That he has for at least twenty-four calendar months attended, during the ordinary academic terms, the practice of a recognized dental hospital or of the recognized dental department of a general hospital.

(vii) That he has received for not less than twenty-four calendar months, or for 2,000 hours, practical instruction in dental mechanics.

Professional Examinations.

5. That the examination for a degree or licence in dentistry or dental surgery shall be partly written, partly oral, and partly practical, and shall include the following subjects: (*a*) [illegible] and Biology, in their bearing on Medicine and [illegible]atomy and Physiology. (*c*) General Pathology [illegible] (*d*) Medicine and Surgery. (*e*) Dental Anatomy [illegible] Pathology, Dental Surgery (including Orthodontics), Medica and Therapeutics, and Dental Mechanics and Dental Metallurgy. (*f*) Practical Examination in Dental Surgery. (*g*) Practical Examination in Dental Mechanics and Metallurgy. (*h*) Anaesthetics, general and local, employed in dental practice.

6. That the prescribed subjects of examination may be combined or distributed at the discretion of the licensing bodies, and may be taken at two or more successive stages during the course of professional study; provided that no candidate shall be admitted to any final examination in dental surgery and dental mechanics until he shall have completed the required four years' course of study.

[1] See the Registrar's Memorandum on Students' Registration printed in the article on the General Medical Council at page 390.

[2] *Memorandum by the Registrar on the Procedure to be Adopted by Those who Desire to Enter the Profession of Dentistry, with Notes on Costs and Prospects.* 1929. Dental Board of the United Kingdom, 44, Hallam Street, W.1. Price 1s. post free.

ACKNOWLEDGEMENT.

The detailed information published in this Educational Number of the *British Medical Journal* for the benefit of intending students of medicine and newly qualified practitioners has been revised throughout with the co-operation of the deans and secretaries of the medical schools and kindred institutions and of officials in the several public services, to all of whom we wish to acknowledge our indebtedness.

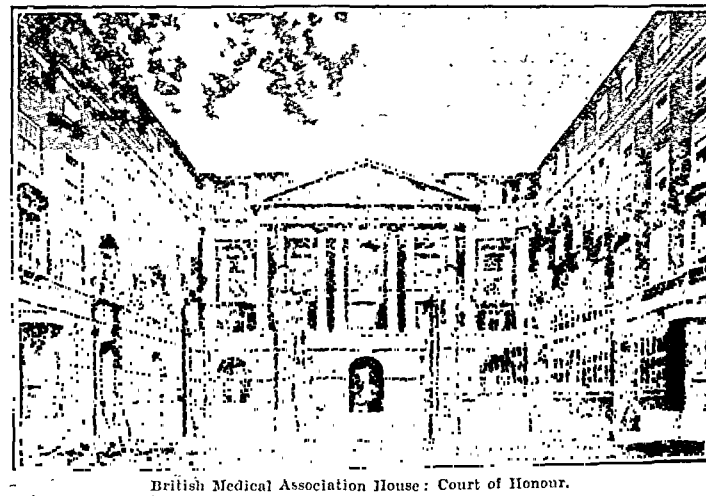
MEMBERSHIP of the Guild of St. Luke is open to all students and practitioners of medicine—both men and women—who are members of the Church of England, the clergy of which are eligible as clerical associates. The Guild was started in London, by a few medical students, over sixty years ago, and there are also now in London a Women's Ward and a Students' Branch, as well as a Midland Counties Ward and a Cambridge Ward. The Chapter of the Guild meets in each month of the academic year, and a festival service is held annually at St. Luke's tide, either at St. Paul's or Westminster Abbey. This year the service will be at the Abbey. Particulars of the objects and activities of the Guild and forms of application for membership can be obtained from the Secretary of the Guild of St. Luke, King's College, Strand, W.C.2.

[*The present issue being the Annual Educational Number, much current material is held over, and neither the "Supplement," nor the "Epitome of Current Medical Literature" is published this week.*]

The British Medical Association:

ITS AIMS, WORK, AND CONSTITUTION.

THE British Medical Association, as stated in our introductory article on the Profession of Medicine, was founded in 1832 to promote the medical and allied sciences, to maintain the honour and interests of the profession, and to foster a feeling of friendship among its members. To attain these objects it holds periodical meetings for the discussion both of medical and scientific subjects and of professional affairs; it publishes the *British Medical Journal*; it maintains a reference and lending library; it has instituted lectures, and scholarships and grants for research. It thus concerns itself with every side of medical work—science, clinical medicine, public health, and the material interests of professional life. The British Medical Association, with a membership now of nearly 35,000, is the oldest, largest, and most powerful British organization devoted to the welfare of the medical profession. It has recently acquired a fine building in Tavistock Square, London, for its headquarters, providing ample accommodation for immediate needs and space for future developments. These premises, designed by Sir Edwin Lutyens, R.A., were formally opened in 1925 by His Majesty the King, Patron of the Association; and the beautiful wrought-iron gates erected as a memorial to the 574 members who fell in the war, by which the main quadrangle is completed, were dedicated on that occasion by the Archbishop of Canterbury. The need for larger accommodation had become insistent owing to the remarkable growth in the central work of the Association during recent years, which had far outstripped the capacity of the premises in the Strand. Further extensions to the building in Tavistock Square are now in progress.



British Medical Association House: Court of Honour.

Constitution and Administration.

The Association has Branches and Divisions throughout Great Britain and Ireland, and also in the Dominions, Colonies, and Dependencies. The Divisions are arranged territorially, and number, in all, 351. For certain purposes of administration or of scientific and clinical work, the Divisions are combined into 96 Branches. Members of Divisions elect representatives on the Branch Councils and also a member or members of the Representative Body, which is the governing body of the Association and determines its policy.

The Council is the executive of the Association. It is elected partly by the Divisions and Branches and partly by the Representative Body, and includes representatives of the Navy, Air Force, Army, and Indian Medical Services elected by the Representative Body. The Representative Body and Council elect standing committees to take charge of different subjects. Among these may be mentioned the Science, Medico-Political, Ethical, Hospitals, Public Health, and Naval and Military Committees. There are Committees also for the Dominions, Scotland, Ireland, and Wales; and for the working machinery of the Association, such as the Organization, Finance, and Journal Committees. The Insurance Acts Committee, elected partly by the Association and partly by insurance medical practitioners, is financed by the Association; it is the recognized executive and mouthpiece of the insurance practitioners of Great Britain.

Privileges of Members.

A member of the Association has the right—

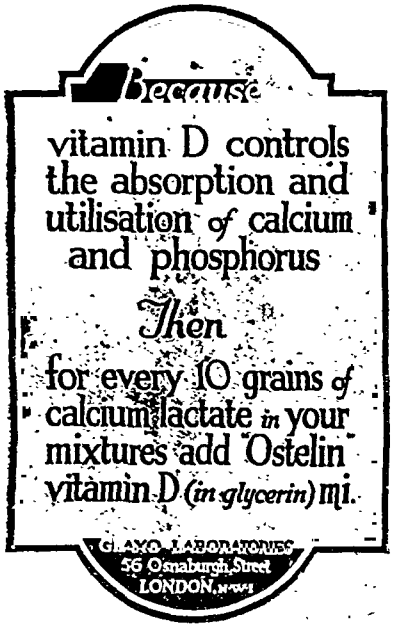
1. To attend the annual and other general meetings of the Association and the meetings of the Division and Branch to which he or she belongs.
2. To take part by personal vote (or in some Divisions by voting paper) in the election of the representative of his or her Division in the Representative Body, and also in the election of members of the Council.
3. To receive by post the *British Medical Journal*, published weekly, which gives a full record, with commentary, of progress in clinical and scientific medicine and of medico-political affairs throughout the British Empire.
4. To receive the help and advice of the central office in any professional difficulty.
5. To use the Library as a reading room, and to borrow current medical or scientific books on payment of postage. Besides modern works and periodical medical literature—foreign as well as English—the library contains many books of historic interest.

The full benefits of the Association can only be secured by the co-operation of large numbers of the medical profession; for the greater the membership and the funds the more efficient and influential the organization. The Association during the past ninety-seven years has been the direct means of benefiting every class of medical men and medical women. In asking for new members it looks not only to the older practitioners but also and especially to those recently qualified. To these a generous concession is made as regards subscription, and there is a special claim to their recognition of the work of the Association in improving the conditions under which they may hold appointments in the public services or in civil life. The Association's work for the Services is well known. It feels a special responsibility towards those members of the profession who by reason of their position are precluded from taking common action, and recent events have proved again its capacity to further their interests.

Subscriptions and Applications for Membership.

The ordinary subscription to the British Medical Association is 3 guineas a year for members resident in the British Isles, but this is subject to various exceptions. Thus, newly qualified practitioners elected within two years of registration pay half this sum up to the end of the fourth year after registration; medical officers on the active list of the R.N., R.A.F., R.A.M.C. (Regular), and I.M.S. pay 2 guineas; concessions are made also to members (in the British Isles) of forty years' standing, to members of ten years' standing who have retired from practice, to medical married couples residing together, and to whole-time teachers and research workers. The ordinary subscription for members living abroad is 1½ guineas, but some Branches have special local subscriptions. A member elected after June 30th pays half the subscription for that year.

All duly qualified British medical practitioners are eligible for election. Full particulars can be obtained from the Medical Secretary, British Medical Association House, Tavistock Square, London, W.C.1; the Scottish Medical Secretary, 7, Drumsheugh Gardens, Edinburgh; or the Irish Medical Secretary, 16, South Frederick Street, Dublin.



The
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preparations

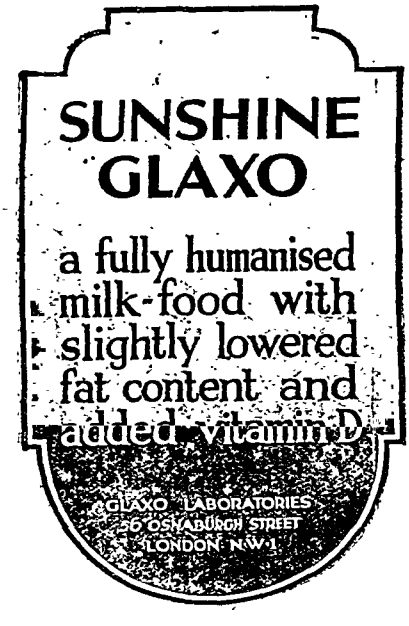
OSTELIN LIQUID	*Ostelin in drop doses and for incorporating in aqueous mixtures.*
OSTELIN TABLETS	*("Tab. Ostelin Co.") Ostelin with vitamin D calcium glycerophosphate.*
OSTOMALT	*("Ext. Malti c Ostelin Co.") Ostelin with Malt Extract and orange juice, and calcium glycerophosphate.*
OSTELIN VITAMIN EMULSION	*("Emuls. Ostelin Co.") An emulsion of Ostelin vitamin D in vegetable oil with calcium glycerophosphate.*
ELIXIR OSTELIN	*For dispensing purposes.*
OSTELIN AMPOULES	*For intramuscular injection.*
OSNOL NASAL SPRAY	*A solution of vitamin D in paraffin.*

OSTELIN with PARATHYROID TABLETS ("Tab. Ostelin c Parathyroid Co.")

"Vitamin D: a review of present-day practice."

This interesting book will be sent to any doctor on request.

SUNSHINE GLAXO (Humanised Glaxo with added Ostelin Vitamin D). This new food represents a great advance in infant dietetics. It contains a physiologically correct proportion of added Vitamin D (Ostelin), and clinical trials have shown that it overcomes previous difficulties of artificial feeding, e.g., constipation, lack of tonicity, and excretion of soapy stools due to excess fat. It can be prescribed in pregnancy and lactation with special advantage to mother and child.



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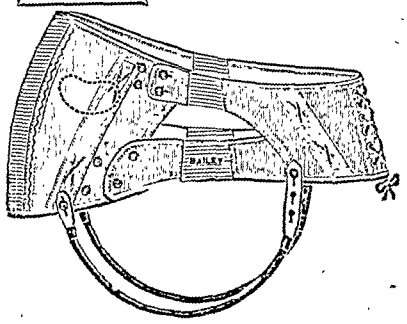
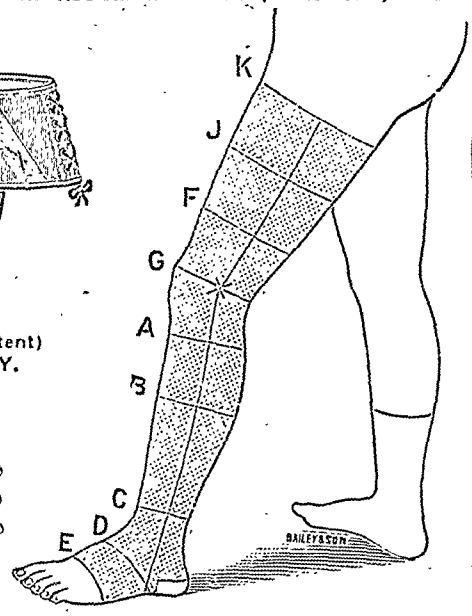


No. 5a BELT (Bailey's Patent)
FOR FLOATING KIDNEY.



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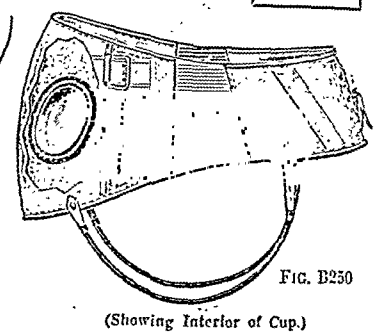
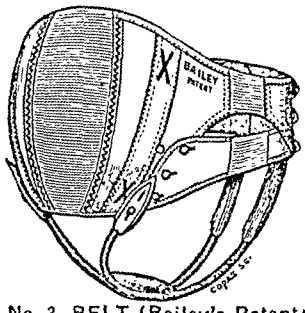


FIG. B250
(Showing Interior of Cup.)
SPECIAL BELT FOR AFTER COLOSTOMY.



No. 3. BELT (Bailey's Patent)
for PROLAPSUS UTERI.

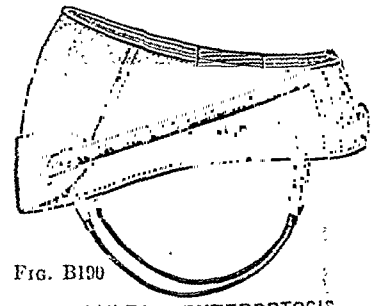


FIG. B190
BELT FOR ENTEROPTOSIS.

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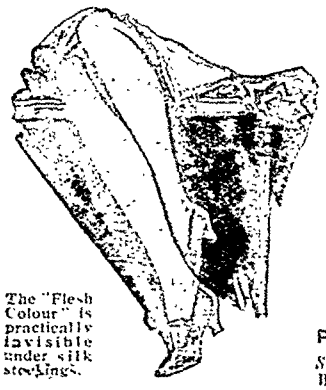

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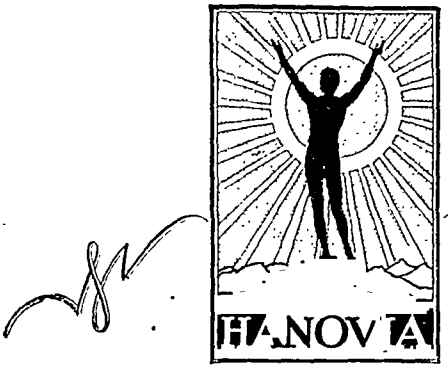

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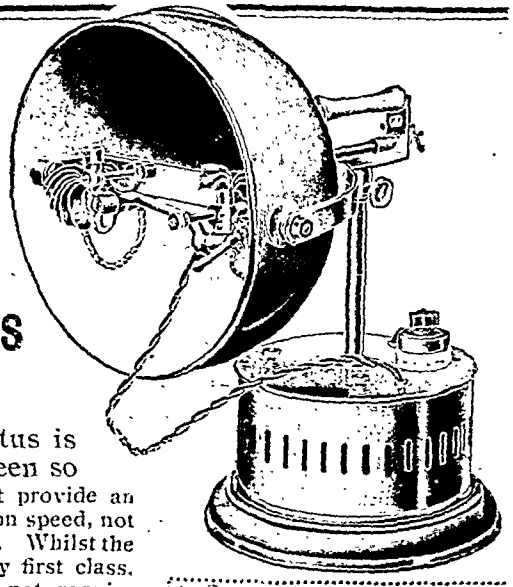

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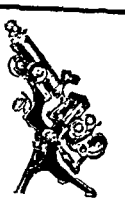

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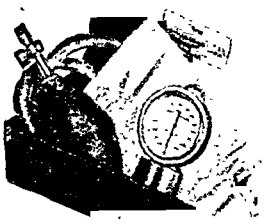

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FOR THE UPPER AND MIDDLE CLASSES ONLY.

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Medical Superintendent: DANIEL F. RAMBAUT, M.A., M.D.

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This is a Reception Hospital in detached grounds, with a separate entrance, to which patients and voluntary boarders can be admitted. It is equipped with all the apparatus for the most modern treatment of Mental and Nervous Disorders. It contains special departments for hydrotherapy by various methods, including Turkish and Russian baths, the prolonged immersion bath, Vichy Douche, Scotch Douche, Electrical baths, Plombières treatment, etc. There is an Operating Theatre, a Dental Surgery, an X-ray Room, an Ultra-violet Apparatus, and a Department for Diathermy and High Frequency treatment. It also contains Laboratories for biochemical, bacteriological, and pathological research.

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Two miles from the Main Hospital there are several branch establishments and villas situated in a park and farm of 650 acres. Milk, meat, fruit, an [illegible] to the Hospital from the farm, gardens, and orchards of Moulton is a feature of this branch, and patients are given every facility in farming, gardening, and fruit-growing.

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For terms and further particulars apply to the Medical Superintendent (Telephone No. 56. Northampton), who can be seen in London by appointment.

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Private Nursing Home for Neurasthenia and allied Functional Nervous Disorders, for general Convalescent Cases, and those requiring Electrical Treatment.

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Dr. Douglas-Morris can be seen by appointment in London.

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Telegrams: Exeter 2642. *Telephone*: Exeter 2642.

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The patients are carefully graded, and accommodation provides for the separate treatment of early recoverable and convalescent patients.

Voluntary and certified patients are received for treatment.

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A Private Mental Hospital for the Treatment and Care of Mental and Nervous Disorders.

Now removed to:

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A modern country house, 12 miles from Marble Arch, in beautiful secluded grounds.

Fees are from 10 guineas a week.

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BARNWOOD HOUSE,
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A REGISTERED HOSPITAL for the CARE and TREATMENT of LADIES and GENTLEMEN suffering from NERVOUS and MENTAL DISORDERS. Within two miles of the G.W. Railway and L. M. & S. Railway Stations at Gloucester, the Hospital is easily accessible by rail from London and all parts of the United Kingdom. It is beautifully situated at the foot of the Cotswold Hills, and stands in its own grounds of over 280 acres. Voluntary boarders of both sexes are also received for treatment.

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For particulars as to terms, etc., apply to—
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Telephone: No. 7 Barnwood.

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Treasurer: Sir LIONEL FAUDEL-PHILLIPS, Bart.
PHYSICIAN-SUPERINTENDENT: J. G. PORTER PHILLIPS, M.D., F.R.C.P. Assisted by Physicians, a Pathologist, and a staff of Visiting Consultants.
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A Private Hospital for the Care and Treatment of those of both sexes suffering from MENTAL DISORDERS.

Extensive grounds. Detached Villas. Chapel. Garden and dairy produce from own farm. Terms very moderate.

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Telegrams: "Psycholia, London." Telephone: Rodney 4731—4732.

FOR THE TREATMENT OF MENTAL DISORDERS.

Completely detached Villas for mild cases, with private suites if desired. Voluntary Patients received. Twenty acres of grounds. Hard and Grass Tennis Courts, Croquet, Squash Racquets, and all indoor Amusements, including Wireless and other Concerts. Occupational Therapy. Daily services in the Chapel.
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A PRIVATE HOME for the treatment of patients of both sexes suffering from Mental Illnesses.
Conveniently situated four miles from Charing Cross. Easy of access from all parts.
Six acres of ground, highly situated, facing Finsbury Park.
Voluntary Boarders received without certificates. Private suites. Convalescent Home, Kearsney Court, Dover.
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NEAR BASINGSTOKE, HANTS.
Private Hospital for Mental Diseases

A modern building situated in a healthy district, easily accessible by rail and road. Patients taken at from three guineas per week.

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General Manager of Wells and Baths.

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I am,
Yours truly,
F. J. C. BROOME,
Spa Manager.

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A few VACANCIES for Nerve, Paralysis, and Senile Patients. Fully qualified staff. Terms moderate. Tel. 1443. Convenient to all stations. *Doctors' references can be had.*

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Adjoining Brine Baths. 250 rooms. Extensive grounds. Golf, tennis, mixed bathing. Lock-up Garages and cars for hire.

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Beautifully situated 600 feet above sea-level. Facing south, completely sheltered from north and east. 21 miles from Edinburgh.
All modern Baths, Douches, Massage, and Electrical Treatment. Ultra-Violet Radiation. Physician — [illegible]
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Courts, Badminton, Croquet Lawn, Golf Course.
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Unsurpassed situation, 600 ft. above sea level, high sunshine record, own farm. Resident Medical Officer. Male cases only.

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Special preferential arrangements for a few private cases at 4 guineas.

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Every kind of Bath. Plombière Lavage.
Every kind of Massage. Ultra-violet Light.
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Carlsbad and Vichy Waters, etc.
High Frequency. Electric Lift.
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A Private Home for the care and treatment of a limited number of ladies mentally afflicted. Climate healthy and bracing.
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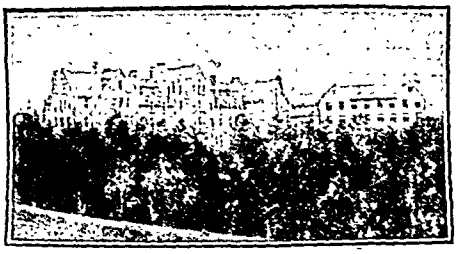

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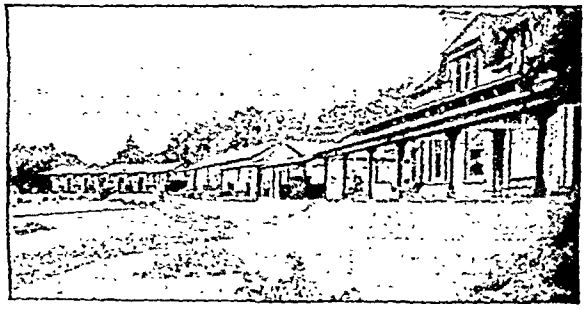
Full particulars and Prospectus on application to the Secretary.

Inclusive Terms: SEVEN GUINEAS A WEEK.

THE COTSWOLD SANATORIUM



Specially built in 1898 on the Cotswold Hills, seven miles from Cheltenham, for the treatment of Pulmonary and all other forms of Tuberculosis on Nordrach lines. Aspect S.S.W., sheltered from North and East, elevation 800 feet. Pure bracing air. Special Treatment by artificial Pneumothorax (X-ray controlled), Tuberculins, and Ultra-Violet Rays is available, when necessary, without extra charge. X-ray plant. Electric light. Radiators, hot and cold basins, and Wireless in all rooms.

Full day and night Nursing Staff.

Resident Physicians: ARTHUR H. HOFFMAN, M.D., and G. A. HOFFMAN, M.B.

Apply: The Secretary, The Cotswold Sanatorium, Cranham, Gloucester.

Telephone: 41 WITCOMBE. *Telegrams*: "HOFFMAN, BIRDLIP."

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Established 1900 for the treatment of Tuberculosis. Miles of carefully graduated walks through pine-clad hills, with sea and mountain views. Modern treatment, including SANOCRYSIN, ARTIFICIAL PNEUMOTHORAX, etc. X-ray plant, electric light, central heating, wireless. Full day and night nursing staff. On L.M.S. Main Line to Holyhead, 4¼ hours from London. Resident Physicians: Dennison Pickering, M.D.(Cantab.), F. W. Godbey, M.D., D.P.H.; Matron: Miss N. Rennardson, S.R.N.

For particulars apply to the Secretary, Pendyffryn Hall, Penmaenmawr, N. Wales. ('Phone, 20.)

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RINGWOOD, NEW FOREST, HANTS.

Established 1898 for the treatment of Tuberculosis. Radiators and Electric Light throughout. Hot and cold water and shower bath in nearly all rooms. Powerful X-ray Plant. Ultra-violet Rays. Full Nursing Staff. All forms of treatment available. Farm of 120 acres, including 40 acres of wood. Herd of Tuberculin-tested Guernsey cows kept. Resident Physicians—Arthur de W. Snowden, M.D., B.Ch.(Cantab.), A. G. E. Wilcock, M.R.C.S., L.R.C.P., Colin Cassidy, M.B., B.Ch.(Cantab.).

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Patients are received for open-air, inoculation, or operative treatment. There are X-ray and ultra-violet ray installations. Full nursing staff. The Sanatorium stands in gardens and private grounds of 65 acres, at an elevation of 862 feet above sea-level, surrounded by woods and moorland. The patients' rooms are heated by hot-water pipes and electrically lighted.

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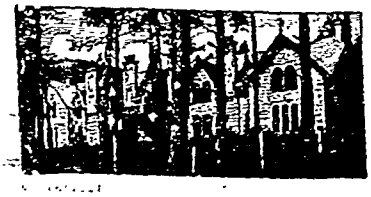
For full particulars apply to *The Secretary*, Nordrach-upon-Mendip, Blagdon, Bristol. *Telegrams*: Nordrach, Blagdon. *Telephone*: Blagdon 23



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W.2.

(University of London.)

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The Annual Dinner of Past and Present Students will be held on Friday, October 4th, at the Trocadero Restaurant, Sir JOHN F. H. BROADBENT, Bart., in the chair.

EXCEPTIONAL SITUATION.	The Hospital is adjacent to a large poor district on the one side, and near to Kensington Gardens and one of the best residential districts in London on the other side, thus providing for the Student the unusual possibility of living in close touch with his work.
ATHLETIC GROUND.	A new Ground (10 acres) is now in use at Wembley, and can be reached in 20 minutes from the Hospital. A pavilion has been erected at a cost of £3,000.
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INSTITUTE OF PATHOLOGY.	The Institute of Pathology and Research is under the personal direction of Sir Almroth Wright, F.R.S., and includes seven departments. Students receive special training in Pathology, Bacteriology, and Chemical Pathology by means of clerkships in these subjects tenable for a period of 3 months, 72 of these posts being available in each year.
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RESEARCH SCHOLARSHIPS.	*Research Scholarships of the value of £200 per annum each* are awarded annually for the purpose of enabling newly qualified students to undertake research under the Director of one of the departments included in the Institute of Pathology.
APPOINTMENTS AFTER QUALIFICATION.	Numerous appointments are open to newly qualified members of the Medical School. Six House Physicians (6 months), Eight House Surgeons (6 months), and Four Resident Obstetric Officers (6 months), are appointed annually. Two Resident Anæsthetists (6 months), £150 per annum, Four Casualty House Surgeons (6 months), £100 per annum, with board and residence. Medical Registrar and Surgical Registrar £200 per annum, with partial board. In addition to the above, Five Assistants to the Medical and Surgical units are appointed from time to time, with salaries ranging from £400 to £750 p.a.

C. M. WILSON (*M.C.*), M.D., F.R.C.P., Dean.

The Illustrated Prospectus of the Medical School may be obtained on application to the Secretary.

CENTRAL LONDON OPHTHALMIC HOSPITAL,

JUDD ST., ST. PANCRAS, W.C.1.

CLASSES OF INSTRUCTION are open to both Men and Women Students, and can be arranged in conformity with the requirements of the Conjoint Board for the Diploma in Ophthalmic Medicine and Surgery, and with the University of London for the Degree of M.S. in Ophthalmology.

This Hospital makes a speciality of Clinical Instruction in Ophthalmology, and Lectures and Demonstrations are held in various subjects of general ophthalmological interest.

A series of Clinical Demonstrations are held at 5 p.m., on the first Tuesday of every month, and Students of Medicine and Medical Practitioners are admitted without fee.

The post of Clinical Assistant is open to Men and Women Students.

For further particulars apply to the Dean of the School.

CITY OF LONDON MATERNITY HOSPITAL,

CITY ROAD, E.C.1.

MIDWIFERY TRAINING SCHOOL.

MEDICAL STUDENTS admitted to Hospital practice, with operative Midwifery, and Obstetrical complications.

PUPILS TRAINED as Midwives and Monthly Nurses in accordance with C.M.B. regulations.

PRIVATE WARDS for paying patients.

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TAUNTON.

A PUBLIC SCHOOL FOR BOYS.

Boys are regularly prepared for the First M.B. Examination, University Scholarships in Chemistry, Biology, etc.

Special facilities are offered for the teaching of Chemistry, Physics, Botany, and Zoology.

New Science Buildings, containing seven laboratories, two lecture rooms, science library, store rooms, etc., opened in September, 1925. Prospectus from Head Master.

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Qualified Medical Women are admitted to **The Mothers' Hospital of the Salvation Army, Lower Clapton Road, E.5** for practical fortnightly Courses in Midwifery. These include delivery of normal cases, attendances at all abnormal cases, operations, ward rounds of visiting staff, V.D. clinics, and antenatal clinics. For further particulars, fees, etc., apply to the Secretary.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE.

(University of London.)

Tropical Medicine and Hygiene.

The School provides two courses yearly, each of 20 weeks. The next courses commence on September 30th, 1929, and February 3rd, 1930.

Diploma in Public Health.

The course of study in *Public Health*, covering a period of 12 calendar months, commences on September 30th, 1929, and is so designed that students wishing to do so can proceed to the new academic dilpoma instituted by the University of London.

The inclusive fee of 50 guineas will cover the cost, not only of the ordinary lectures and demonstrations, but also of the necessary practical work in public health departments and instruction in infectious diseases, etc.

Diploma in Bacteriology.

The course of study, covering one academic year, commences in October.

Special advanced courses of study in various branches of Medicine and Science are given by the Professors and other teachers on the staff of the School.

Applications for information as to the above courses and other special advanced courses of study should be addressed to the Secretary, Keppel Street (Gower Street), London, W.C.1.

Medical and Dental Students.

Special Classes for Pre-Medical and Dental Exams., Matric., and Prelims.
Chemistry, Physics, and Biology Labs.
MANCHESTER TUTORIAL COLLEGE,
327, Oxford Road, Manchester.

LONDON HOMŒOPATHIC HOSPITAL,

(Incorporated by Royal Charter)

Great Ormond Street and Queen Square, W.C.1.

Education Facilities for Graduates and Senior Students of Medicine.

WINTER SESSION, 1929-30.

HONYMAN-GILLESPIE LECTURESHIP. 21st Year.

A Course of [illegible]
MEDICA[illegible]
CLINICAL[illegible]
CHARLE[illegible]
Consulting Physician to the London Homœopathic Hospital, at the Hospital, on

Mondays and Thursdays, October to December, 1929, at 5 o'clock - beginning on Monday, October 14th, and ending Monday, December 16th.

On the first Thursday of the month the hour will be 3.30 p.m.

THE COMPTON-BURNETT LECTURES.

A Course of Ten Lectures on HOMŒOPATHIC PHILOSOPHY AND PRESCRIBING, as illustrated from the writings of the Organon and Modern Developments therefrom, will be given by JOHN WEIR, C.V.O., M.B., Ch.B.Glasg., Physician to the London Homœopathic Hospital, on

Fridays, at 5 p.m., October to December, 1929—beginning October 11th and ending December 13th.

AN INTRODUCTORY LECTURE TO THE WHOLE EDUCATION COURSE will be delivered at the Hospital on Thursday, October 10th, 1929, at 5 p.m.,
By THOMAS MILLER NEATBY, M.A., M.D., B.C.Cantab.

All Medical Men and Women are invited to this Lecture.

TUTORIAL CLASS.

A class for individual study of the Materia Medica by the Repertory and References to Patients will be conducted by DOUGLAS M. BORLAND, M.B., Ch.B.Glasg., Physician to the London Homœopathic Hospital, on

Fridays, October to December, 1929, at 6.15 p.m.

THE SIR HENRY TYLER SCHOLARSHIP COMMITTEE

also offer SCHOLARSHIPS of £20 for Medical Men in the Provinces desirous of taking a Post-Graduate Course at the London Homœopathic Hospital during the Ten Compton-Burnett Lectures.—Apply to Secretary, London Homœopathic Hospital, Great Ormond Street, Bloomsbury, W.C.

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All information as to Fees and Scholarships may be obtained on application to the Dean of the Education Course, London Homœopathic Hospital, W.C.

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(UNIVERS[illegible]

COURSES OF [illegible]
three months)
Medicine commence on October 1st and January 7th, and for the Diploma in Tropical Hygiene on January 12th and April 26th. (Candidates for the D.T.H. must possess the D.T.M. of this University.)

For particulars apply to the Hon. Dean, Liverpool School of Tropical Medicine, Pembroke Place, Liverpool.

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FACULTY OF MEDICAL SCIENCE.

COMPLETE COURSES OF STUDY ARE PROVIDED FOR THE PRELIMINARY AND INTERMEDIATE EXAMINATIONS OF:

(1) The University of London.
(2) The Conjoint Examining Board of the Royal Colleges of Physicians and Surgeons; and also for
(3) The Degree in Dental Surgery (B.D.S.).
(4) The Primary Fellowship Examination of the Royal College of Surgeons.
(5) The First Professional Examination for the Licence in Dental Surgery of the Royal College of Surgeons.

The College, without in any way lengthening the duration of the Course, offers, like Oxford and Cambridge, the advantages of a broad University Education to Medical Students before they proceed with the purely clinical subjects.

Valuable Scholarships and Prizes are awarded on the results of examinations held annually.

The hostel for men students (King's College Hall, Champion Hill, S.E.5) is close to the hospital, and contains accommodation for 80 students. The hostel for women students is at 58, Queensborough Terrace, Bayswater.

For detailed prospectus of the Medical and Dental Courses and for further information apply to the Dean, Prof. R. J. S. McDOWALL, D.Sc., M.B., Ch.B., F.R.C.P.(Edin.), or to

S. T. SHOVELTON, M.A.,
Strand, W.C.2. Secretary.

THE LONDON HOSPITAL MEDICAL COLLEGE.

(University of London.)

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[illegible] authorities of King's College in [illegible] idents attend at that College for [illegible] and Intermediate subjects.

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HOUSE OFFICE may be held for four, eight, or twelve months. A Student of ordinary ability should have an excellent chance of obtaining House Office and afterwards one of the following Paid appointments for a short time. Resident Assistant Physician, £250; Resident Assistant Surgeon, £250; Medical Registrar, £200; Surgical Registrar, £200; Assistant Curator of the Museum, £100; Resident Anæsthetist, £100; Resident Obstetric Assistant, £50.

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Entrance Fee, £10 10s. 0d. Annual Composition Fee, which covers all courses, lectures, etc., in the Hospital and School, £42. Annual Club Subscription, £3 3s. 0d.

The Winter Session will begin on October 1st, but *students can enter at any time.*

Further information may be obtained from the Dean of the Medical School.

A. FEILING, M.D., F.R.C.P.,
Dean.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL

(UNIVERSITY OF LONDON).

Dean: H. WILLOUGHBY LYLE, M.D., B.S.Lond., F.R.C.S., J.P.

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The MEDICAL SCHOOL Buildings, like those of the Hospital, are up to date and exceptionally fine. The Laboratory and Pathological Department and the Post-mortem Room are especially noteworthy.

In the Education at the Hospital a special feature has always been the individual attention given to each Student, and each subject is taught by its own specialist. There is ample opportunity for any Student who wishes to specialize in a subject to continue his studies with the help of Junior Staff appointments. With a view to ensuring better co-ordination of studies, the teaching of each of the subjects of Medicine, Surgery, and Gynæcology has been placed in charge of a member of the Senior Honorary Staff, assisted by Medical, Surgical, and Obstetric Tutors. Attached to the Gynæcological Department is a Maternity Ward, through which Students can qualify for the requirements in that subject of all the Examining Bodies.

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For Particulars, Calendar of the School, and Appointments to see the School and Hospital, application should be made to the Secretary, S. C. Ranner, M.A.Cantab., King's College Hospital Medical School, Denmark Hill, London, S.E.5.

Charing Cross Hospital Medical School

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With which is affiliated **The Royal Westminster Ophthalmic Hospital.**

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Fees 38 guineas per annum.

For Prospectus and full information apply personally or by letter to the Dean:

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(University of London)

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The course of study, covering one academic year, commences in October.

Special advanced courses of study in various branches of Medicine and Science are given by the Professors and other teachers on the staff of the School.

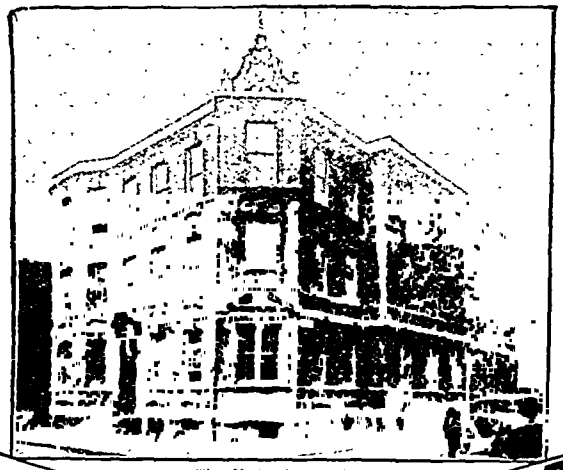
Applications for information as to the above courses and other special advanced courses of study, should be addressed to the Secretary, Keppel Street (Gower Street), London, W.C.1.

Westminster Hospital Medical School

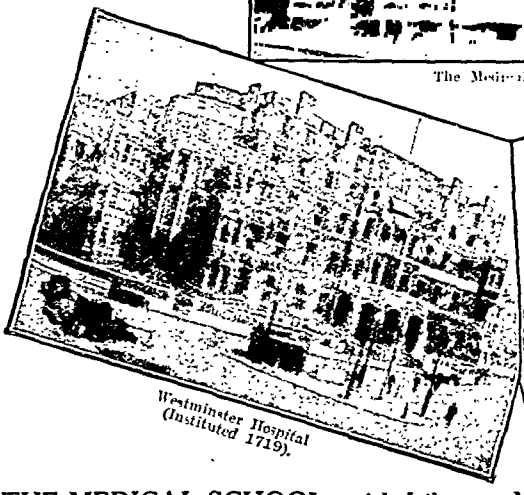
(University of London)

WINTER SESSION COMMENCES OCTOBER 1.

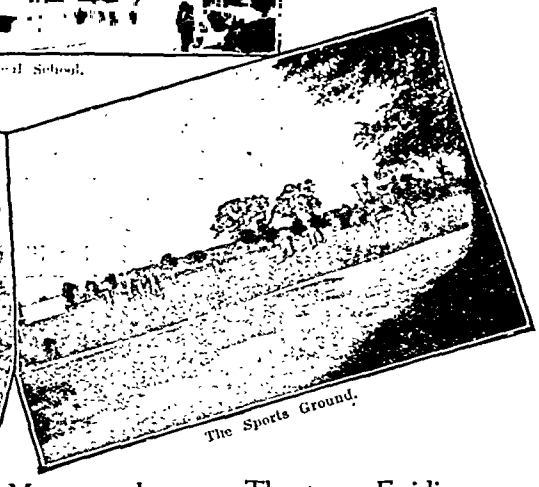
CENTRALLY SITUATED (OPPOSITE WESTMINSTER ABBEY)



The Medical School.



Westminster Hospital (Instituted 1719).



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Mondays and Wednesdays at 5 p.m. October to March.

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Mondays at 5 p.m.

Orthodontics.—BERTRAM B. SAMUEL, L.D.S.Eng.
Thursdays at 5 p.m. May to July.

Dental Mechanics.—B. MENDELSON, L.D.S.Eng.
Wednesdays at 5 p.m. January to March.

Dental Materia Medica.—H. DAVIS, Ph.C.
Tuesdays and Fridays at 2 p.m. May to July.

Bacteriology of the Mouth.—Sir KENNETH GOADBY, K.B.E., D.P.H.Camb., L.R.C.P., M.R.C.S., L.D.S.Eng. Wednesdays at 2 p.m. January to March.

General Pathology.—Prof. A. E. BOYCOTT, M.A., D.M., F.R.S.
Mondays, Wednesdays, Thursdays, and Fridays at 12 noon. May.

Practical Pathology.—H. D. WRIGHT, M.D., D.Sc.
Mondays, Tuesdays, Thursdays, and Fridays at 2 p.m. May.

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Wednesdays at 5 p.m. May to July.

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Alternate Tuesdays at 5 p.m. January to March.

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Thursdays at 5 p.m. July.

The WINTER SESSION Commences TUESDAY, OCTOBER 1st, 1929.

This Hospital and School, situated in the centre of a large population, and within a few minutes of University College Hospital, has recently been reorganized and equipped on the highest standard of modern requirements, and is admirably adapted for the teaching of students in every branch of the Science and Art of Dental Surgery. The mechanical laboratory, conservation room, and X-rays department are replete with all the latest approved appliances.

Students (men and women) enter as students of University College Hospital, and attend classes in anatomy and physiology at University College, adjacent to University College Hospital.

Each student serves as a dresser in the extraction, anæsthetic, conservation, and X-rays departments, which provides him with the opportunity of observing and actually carrying out the methods of work in all branches.

Four house surgeons are appointed half yearly.

The Calendar, containing full information as to lectures, fees, prizes, etc., may be had on application to the Sub-Dean of Dental Students, who attends the University College Hospital Medical School, University Street, Gower Street, W.C.1, on Wednesdays, at 9.30 a.m.

LONDON HOSPITAL MEDICAL COLLEGE & DENTAL SCHOOL.

THE WINTER SESSION will Open on Tuesday, October 1st.

The Hospital is the largest in England. There are 839 beds in constant use. Last year: number of in-patients 14,698; new out-patients, 96,928; attendances, 555,762; new dental patients, 5,857; major operations, 7,649.

The MEDICAL COLLEGE and DENTAL SCHOOL are essentially modern, with large laboratories equipped with the latest and the most approved appliances. The STAFF is so large as to permit of individual attention being paid to all Students.

MEDICAL UNIT.—A Clinical Unit in Medicine, under the charge of a whole-time Director, provides for the more elaborate methods of diagnosis and treatment, and takes a leading part in the initiation and co-ordination of medical research.

RESEARCH FUNDS to the value of over £113,000 permit of financial assistance being given to Students and Graduates engaged in Medical Research.

SCHOLARSHIPS and PRIZES to the value of £1,158 are awarded annually, including four Open Entrance Scholarships to the value of £350, and two Entrance Scholarships open to students of the Universities of Oxford and Cambridge to the value of £200.

APPOINTMENTS.—Over 160 Appointments are made annually from Students of the College recently qualified.

SPECIAL COURSES are held for all the University Examinations, for the Primary and Final Fellowship Examinations of the Royal College of Surgeons, and for the Membership Examination of the Royal College of Physicians.

HOSPITAL PRACTICE.—Exceptional opportunities are offered to qualified Practitioners wishing to attend the General Practice or the Practice of a Special Department of the Hospital.

A Clubs' Union, an Athletic Ground of over 13 acres, and a *Students' Hostel*, promote the recreation, health, and comfort of the Students.

For Prospectus and Particulars apply to the Dean (Professor WILLIAM WRIGHT, M.B., D.Sc., F.R.C.S.), who will be pleased to make arrangements for anyone wishing to see the Medical College and Dental School.

MILE END, E.

GUY'S HOSPITAL MEDICAL & DENTAL SCHOOLS.

(UNIVERSITY OF LONDON.)

THE HOSPITAL, which contains 646 Beds, is situated one minute's walk from London Bridge Railway Stations.
SPECIAL CLASSES are held in CHEMISTRY, PHYSICS, and BIOLOGY for the First M.B. Examination of the University of London and for the Pre-Medical Examination for the "Conjoint" and L.D.S. Diplomas.
THE WINTER SESSION will start on TUESDAY, OCTOBER 1st, 1929.

ENTRANCE SCHOLARSHIPS.—MEDICAL SCHOOL.

The following Entrance Scholarships are awarded annually in the month of June:—

A.—Open Junior Scholarships.—1. An ARTS SCHOLARSHIP of the value of £100. 2. A SCIENCE SCHOLARSHIP of the value of £100. 3. A WAR MEMORIAL SCHOLARSHIP of the value of £200, awarded alternately in Arts and Science. This Scholarship is open every other year; the next award will be made in 1930 in Science.

B.—Confined Scholarship in Science.—A JUNIOR SCIENCE SCHOLARSHIP of the value of £100 is offered for competition to Candidates who have attended the Preliminary Science Classes at this School.

The following Entrance Scholarships are awarded annually in the month of September:—

C.—Open Senior Science Scholarships.—1. A WAR MEMORIAL SCHOLARSHIP of the value of £100. 2. An OPEN SCHOLARSHIP of the value of £80. Subjects: Candidates will be examined in two of the following Subjects, at their option: (1) Anatomy; (2) Physiology; (3) Organic Chemistry and Pharmacology; (4) General Pathology.

THE DENTAL SCHOOL

Offers Two O[illegible] year:—1. A WAR MEMORIAL SCHOLARSHIP IN ARTS of the annual value of £40 for four years. 2. A [illegible] alue of £40 per annum for not more than four years.
Numerous Pr[illegible] open for competition during the period of Studentship.
For further[illegible] containing information as to the Course of Study advised, the Residential College, &c., application [illegible] by letter to *The Dean, Guy's Hospital Medical School, London Bridge, S.E.1.*

UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL.

TELEPHONE—
MUSEUM 7026
and 7027.

(UNIVERSITY OF LONDON).

UNIVERSITY STREET, GOWER STREET, W.C.1.

MEDICAL AND SURGICAL STAFF.

Consulting Physicians—Sir THOMAS BARLOW, Bart., K.C.V.O., M.D., D.Sc., D.C.L., F.R.S., F.R.C.P., Sir JOHN ROSE BRADFORD, K.C.M.G., C.B., C.B.E., M.D., D.Sc., D.C.L., F.R.C.P., F.R.S., Dr. H. R. SPENCER, F.R.C.P., Sir GEORGE BLACKER, C.B.E., M.D., F.R.C.P., F.R.C.S.

Physicians—Dr. H. BATTY SHAW, F.R.C.P., Dr. F. J. POYNTON, F.R.C.P., Dr. C. BOLTON, C.B.E., D.Sc., F.R.C.P., F.R.S., Prof. T. R. ELLIOTT, C.B.E., D.S.O., M.D., F.R.C.P., F.R.S., Sir T. LEWIS, C.B.E., D.Sc., M.D., F.R.C.P., F.R.S., Dr. J. W. McNEE, D.S.O., F.R.C.P.

Physician to the Neurological Department—Dr. F. M. R. WALSHE, O.B.E., D.Sc., F.R.C.P.

Physician to Skin Department—Dr. A. M. H. GRAY, C.B.E., F.R.C.P., F.R.C.S.

Physicians for Mental Diseases—Dr. B. HART, F.R.C.P., Dr. A. F. TREDGOLD, F.R.C.P.

Physician for Children's Diseases—Dr. F. J. PEARSON, F.R.C.P.

Consulting Surgeons—Mr. BILTON POLLARD, B.S., F.R.C.S., Mr. RAYMOND JOHNSON, O.B.E., B.S., F.R.C.S., Mr. PERCY FLEMMING, B.S., F.R.C.S., Mr. H. MORRISTON DAVIES, M.S., F.R.C.S., Mr. S. SPOKES, M.R.C.S., L.D.S. (Dental), Mr. RICHARD LAKE, F.R.C.S., Mr. A. E. RELPH, M.R.C.S., L.R.C.P. (Dental).

Surgeons—Mr. WILFRED TROTTER, M.S., F.R.C.S., Mr. GWYNNE WILLIAMS, M.S., F.R.C.S., Prof. C. C. CHOYCE, C.M.G., C.B.E., B.Sc., F.R.C.S., Mr. E. K. MARTIN, M.S., F.R.C.S., Mr. JULIAN TAYLOR, M.S., F.R.C.S.

Ophthalmic Surgeons—Sir J. H. PARSONS, C.B.E., D.Sc., B.S., F.R.C.S., F.R.S., Mr. HUMPHREY NEAME, F.R.C.S.

Obstetric Surgeons—Mr. CLIFFORD WHITE, F.R.C.P., F.R.C.S., Prof. F. J. BROWNE, F.R.C.S.Ed.

Diseases of the Ear and Throat—Mr. HERBERT TILLEY, B.S., F.R.C.S., Mr. G. SECCOMBE HETT, B.S., F.R.C.S., Mr. E. A. PETERS, F.R.C.S., Mr. H. A. KISCH, B.S., F.R.C.S., Mr. J. F. O'MALLEY, F.R.C.S.

Dental Surgeons—Mr. H. J. RELPH, M.R.C.S., L.R.C.P., L.D.S., Mr. A. B. G. UNDERWOOD, M.B., B.S., L.D.S.

Radiologist—Dr. R. W. A. SALMOND, O.B.E., Ch.M.

Consulting Anæsthetists—Dr. DUDLEY W. BUXTON, M.R.C.P., Dr. A. B. KINGSFORD.

Anæsthetists—Dr. H. J. SHIRLEY, C.M.G., F.R.C.S., Dr. F. S. ROOD, Dr. C. W. MORRIS, Dr. S. HUTCHINSON, Dr. H. N. WEBBER.

Pathology—Prof. A. E. BOYCOTT, M.A., D.M., LL.D., F.R.C.P., F.R.S.

Bacteriology—Dr. F. H. TEALE, B.Sc., F.R.C.P., Dr. H. D. WRIGHT, B.A., Ch.B., F.R.C.P.E., Dr. D. EMBLETON.

Clinical Pathology—Dr. G. W. GOODHART, M.A., B.Ch.

Morbid Anatomy—Mr. W. G. BARNARD, M.R.C.S., L.R.C.P.

Chemical Pathology—C. R. HARINGTON, M.A., Ph.D.

THE WINTER SESSION will commence on OCTOBER 1st, 1929.

THE SCHOOL IS FOR FINAL STUDIES only.

STUDENTS are prepared for the degrees of the Universities of:
OXFORD, CAMBRIDGE, LONDON, and DURHAM, and for the Diplomas of other qualifying bodies.

CLINICAL UNITS in MEDICINE, SURGERY, and OBSTETRIC MEDICINE are now in operation.—The whole-time Directors of the Units are concerned with the organization of the teaching generally, but the honorary staff are responsible for the largest share of the teaching in the wards and Out-patient Department of the Hospital. The new Obstetric Hospital is now finished and in full occupation.

Director of the Medical Unit—Prof. T. R. ELLIOTT. Assistants—Mr. W. H. CRAIB, Dr. C. J. FULLER, Mr. H. A. HARRIS, Mr. A. M. RICHARDS, Mr. E. A. BLAKE-PRITCHARD, Mr. J. D. PROCTOR.

Director of the Surgical Unit—Prof. C. C. CHOYCE. Assistants — Mr. A. J. GARDHAM, Mr. F. J. F. BARRINGTON, Mr. R. S. PILCHER.

Director of the Obstetric Unit—Prof. F. J. BROWNE. Assistants—Dr. L. H. W. WILLIAMS, Mr. N. L. WHITE, Miss G. H. DODDS.

DENTAL STUDENTS can obtain a complete curriculum at University College, and at University College Hospital Dental School (The National Dental Hospital, Great Portland Street). This Hospital has recently been reorganized and equipped on the highest standard of modern requirements, and is admirably adapted for the teaching of Students in every branch of the science and art of Dental Surgery.

FEES.—For the Final Course: 112 guineas if paid in one sum, or 115 guineas paid in two instalments of 70 and 45 guineas.

APPOINTMENTS.—Forty-seven appointments are open during the year to students, and paid appointments to the annual value of over £2,000.

SCHOLARSHIPS, EXHIBITIONS, and PRIZES, of the value of over £1,000, are awarded annually. Amongst the most important are:

GRAHAM SCHOLARSHIP in Pathology, £300 per annum.

LESLIE PEARCE GOULD SCHOLARSHIP, awarded every two years, about £200.

RADCLIFFE CROCKER TRAVELLING SCHOLARSHIP in Dermatology, awarded every five years, about [£280.

MAGRATH SCHOLARSHIP in Clinical Medicine, about £150.

PERCIVAL ALLEYN PRIZE, about £75.

ATCHISON SCHOLARSHIP, about £55 per annum; tenable for two years.

ATKINSON MORLEY SCHOLARSHIP, £45 per annum; tenable for three years.

BUCKNILL SCHOLARSHIP entitles the holder to the Intermediate Medical Course at University College, and for the Final Course at the Medical School.

GOLDSMID EXHIBITIONS. Two Exhibitions, the subjects of the Examination being any two of the following subjects: Anatomy, Physiology, General Pathology, awarded annually towards the end of the Summer Session, and entitle to course for Final Medical Examination.

All further information and Prospectus can be obtained from the Secretary, and the Dean can be interviewed at any time by appointment.

Dean—A. M. H. GRAY, C.B.E., M.D., F.R.C.P., F.R.C.S.

Vice-Dean—GWYNNE WILLIAMS, M.S., F.R.C.S.

Sub-Dean for Dental Students—J. L. DUDLEY BUXTON, L.M.S.S.A., L.D.S. Secretary—R. SLOLEY.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART

WESTMORELAND STREET, W.1.

The Clinical Practice of the Hospital in the Out-patient Department and the Wards is open to Post-Graduates. Fees: One Month £2 2s.; Three Months £5 5s.

Under-Graduates who have completed their fourth year are admitted to the Practice of the Hospital at specially reduced fees.

Special Courses of two weeks' duration are held in January, July, and October. Fee £7 7s.

Further particulars may be obtained on application to the Dean or the Secretary at the Hospital.

WEST END HOSPITAL FOR NERVOUS DISEASES.

OUT-PATIENT DEPARTMENT, WELBECK STREET, W.1.

IN-PATIENT DEPARTMENT, GLOUCESTER GATE, REGENT'S PARK, N.W.1.

Recognized by the University of London.

Courses of SPECIAL CLINICAL DEMONSTRATIONS on selected cases, as advertised, are given in March-April and November-December.

The general practice of the hospital is conducted daily (Saturdays excepted).

The Savill Prize (value £15) and medal is offered biennially for the best thesis on a neurological subject submitted by Post-Graduates who have attended the hospital practice on not less than 10 occasions.

A limited number of appointments as Hon. Clinical Assistants are open to Post-Graduates.

For particulars of the above apply to C. WORSTER-DROUGHT, M.D., M.R.C.P., Dean, or to the Secretary of the Hospital at 73, Welbeck Street, W.1.

THE

METROPOLITAN EAR, NOSE, & THROAT HOSPITAL

(1838) (INCORPORATED),

FITZROY SQUARE, LONDON, W.1.

FACILITIES FOR CLINICAL WORK are afforded to Medical Practitioners and Students. Fee for one month, 3 Guineas; for three months, 5 Guineas.

PRACTICAL DEMONSTRATIONS are given daily (Saturdays excepted), at 3 p.m., in the manipulation of instruments used in the Diagnosis and Treatment of Diseases of the Ear, Nose, and Throat.

CLINICAL ASSISTANTS are appointed as vacancies occur, and have responsible duties.

Further particulars may be obtained from the Secretary.

L. L. PHILLIPS.

BETHLEM ROYAL HOSPITAL,

Lambeth Road, S.E.1.

A COURSE of LECTURES and PRACTICAL INSTRUCTION

FOR THE

DIPLOMA IN PSYCHOLOGICAL MEDICINE

(OF THE UNIVERSITIES OF LONDON, CAMBRIDGE, DURHAM, &c., AND THE CONJOINT BOARD).

WILL BE GIVEN at the above Hospital, commencing SEPTEMBER 24th, 1929.

For Syllabus and further particulars apply to the Physician-Superintendent.

UNIVERSITY OF LONDON

OPHTHALMIC HOSPITAL MEDICAL SCHOOL.

ROYAL LONDON OPHTHALMIC HOSPITAL

(Moorfields Eye Hospital), CITY ROAD, E.C.1.

Qualified Medical Practitioners and Registered Medical Students may enter on the Practice of the Royal London Ophthalmic Hospital (Moorfields) at any time, and are, on certain conditions, eligible for appointment as Chief Clinical Assistant, Clinical Assistant and Junior Assistant.

Courses of Instruction, extending over a period of five months, begin in OCTOBER and MARCH.

1. Practical Refraction Classes.
2. Methods of examination and use of the ophthalmoscope.
3. Lectures every afternoon on the following subjects: (*a*) Anatomy, including Embryology and Normal Histology; (*b*) Physiology; (*c*) Optics, including Physiological Optics; (*d*) Pathology and Bacteriology; (*e*) Ophthalmic Medicine and Surgery, consisting of: Medical Ophthalmology, External Diseases of the Eye, Motor Anomalies and Squint, Diseases of the Retina and Optic Nerve, Diseases of the Uveal Tract.
4. Ophthalmoscopic Conditions: a practical class with demonstrations each week at 5 p.m.
5. Clinical Lectures.
6. Occasional Lectures on subjects allied to Ophthalmology.
7. Operative Surgery. In these classes the usual operations are performed by the student upon pigs' eyes.
8. Practical Pathology. A course of demonstrations on the normal and morbid histology of the eye is given by the pathologist in the laboratory.
9. Practical Bacteriology.
10. Classes in Radiography.
11. Physico-therapy (Ultra-violet Light, Diathermy, etc.).
12. Slit-lamp Microscopy.

FEES.—A composition fee of 31 guineas will admit Students once to all the lectures and classes (except the classes on Physico-Therapy, and Slit-lamp Microscopy, and the examination fee).

DIPLOMA IN OPHTHALMIC MEDICINE & SURGERY & OTHER DEGREES IN OPHTHALMOLOGY.

The above complete curriculum is specially designed to meet the requirements of candidates entering for these examinations.

Fees for the Practice of the Hospital:

Perpetual	£5 5 0	Two months	£2 2 0
Three to six months	£3 3 0	One month	£1 1 0

Clinical work begins at 9 a.m. daily. Operations are performed between 10 a.m. and 1 p.m.

For further particulars apply to the SECRETARY to the Medical School at the Royal London Ophthalmic Hospital, City Road, E.C.1; or to the Dean, CHARLES GOULDEN, O.B.E., M.D., M.Ch., F.R.C.S.

ST. THOMAS'S HOSPITAL MEDICAL SCHOOL

(UNIVERSITY OF LONDON).

THE WINTER SESSION BEGINS on MONDAY, OCTOBER 7th, 1929.

SITE.—The Hospital occupies the finest open site in London, facing the River and the Houses of Parliament.

SCIENCE, ANATOMY, AND PHYSIOLOGY.—Classes and Lectures in all Elementary and Intermediate subjects provide complete instruction for the University and the Conjoint Board Examinations.

CLINICAL WORK.—The facilities for Clinical work are second to none in London. Clerks and Dressers, who work under the immediate supervision of the Staff, are appointed every three months in all General and Special Departments of the Hospital.

SPECIAL DEPARTMENTS.—The Special Departments in the Hospital provide Clinical Instruction in all Special subjects.

In connection with the DEPARTMENT OF OBSTETRICS AND GYNÆCOLOGY all Students attend the practice of the MATERNITY WARD before proceeding to work in the district.

THE PRIMARY F.R.C.S. CLASSES will commence on Monday, September 9th.

THE FINAL F.R.C.S. COURSE will commence September 30th (provisional).

ENTRANCE SCHOLARSHIPS.—Two in Arts, free course for first year of Study. Two in Science (Pre. Sci. Standard) £150 and £60. One for University Students (Anatomy, Physiology, Pathology, Applied Chemistry, any two subjects) £100.

ST. THOMAS'S HOUSE.—A residential Club for Students has recently been opened, providing accommodation for some 60 resident Students, and including spacious Club rooms, etc. The SPORTS GROUND is within easy reach of the Hospital.

ANNUAL FEE.—£50 for each Year of Study. The Annual Fee covers the cost of all Lectures, Classes, etc., except the following: Vaccination, £1 11s. 6d.; Pharmacy, £3 3s. 0d.; "Fevers," £3 3s. 0d.

AMALGAMATED CLUBS: Entrance Fee £2 2s. 0d.; Annual Subscription £5 5s. 0d.

Full particulars may be had by application to:

R. J. C. THOMPSON, C.M.G., D.S.O., M.D.Durh., M.R.C.P.Lond.,
Medical Secretary to the School, St. Thomas's Hospital, Lambeth Palace Road, S.E.1.

Professor L. S. DUDGEON, C.M.G., C.B.E., F.R.C.P.Lond., Dean.

THE LONDON SCHOOL OF DERMATOLOGY

St. John's Hospital for Diseases of the Skin, Leicester Square, W.C.2

THE CHESTERFIELD LECTURES, constituting a systematic Course in Dermatology, will be given at 5 p.m. on Tuesdays and Thursdays from October to March.

SYLLABUS—WINTER SESSION—1929-30.

1929.		Subject.	Lecturer.
Oct. 3	Thurs.	Introductory	Dr. J. H. Stowers.
,, 8	Tues.	Anatomy and Physiology of the Skin	Dr. W. N. Goldsmith.
,, 10	Thurs.	Morphology and Histopathology of Elementary Lesions	Dr. J. M. H. MacLeod.
,, 15	Tues.	Bacteriology and Mycology...	Dr. H. W. Barber.
,, 17	Thurs.	Pathology Demonstration ...	Dr. H. G. Burford.
,, 22	Tues.	Immunity and Anaphylaxis	Dr. H. W. Barber.
,, 24	Thurs.	Principles of Treatment ...	Dr. W. Griffith.
,, 29	Tues.	Principles of Treatment. Local.	Dr. K. Sibley.
Nov. 5	Tues.	Diseases due to Animal Parasites	Dr. H. MacCormac.
,, 7	Thurs.	Occupational Dermatitis ...	Dr. W. J. O'Donovan.
,, 12	Tues.	Nævi	Dr. Wilfrid Fox.
,, 14	Thurs.	Pathology Demonstration ...	Dr. H. G. Burford.
,, 19	Tues.	Leprosy	Dr. J. A. Drake.
,, 21	Thurs.	Tuberculosis Cutis (1) ...	Dr. A. Whitfield.
,, 26	Tues.	Tuberculosis Cutis (2) ...	Dr. A. Whitfield.
,, 28	Thurs.	Acne. Rosacea	Dr. H. Haldin-Davis.
Dec. 3	Tues.	Cutaneous Syphilis (1) ...	Dr. A. C. Roxburgh.
,, 5	Thurs	Cutaneous Syphilis (2) ...	Dr. A. C. Roxburgh.
,, 10	Tues.	Erythemato-squamous Eruptions	Dr. S. E. Dore.
,, 12	Thurs.	Pigmentation of the Skin ...	Dr. W. N. Goldsmith.

1930.		Subject.	Lecturer.
Jan. 9	Thurs.	Lichen Planus	Dr. W. N. Goldsmith.
,, 14	Tues.	Eruptions due to Physical Agents	Dr. A. C. Roxburgh.
,, 16	Thurs.	Ringworm Infections ...	Dr. J. M. H. MacLeod.
,, 21	Tues.	Erythema Multiforme ...	Dr. J. E. M. Wigley.
,, 23	Thurs.	Pathology Demonstration ...	Dr. H. G. Burford.
,, 28	Tues.	Exfoliative Dermatitis ...	Dr. W. J. O'Donovan.
,, 30	Thurs.	Pruritis. Prurigo. Lichenification	Dr. H. Haldin-Davis.
Feb. 4	Tues.	Affections of the Hair and Hair Follicles	Dr. S. E. Dore.
,, 6	Thurs.	Xanthoma. Herpes	Dr. A. M. H. Gray.
,, 11	Tues.	Ulcus Molle	Dr. E. Graham Little.
,, 13	Thurs.	Lupus Erythematosus ...	Dr. J. E. M. Wigley.
,, 18	Tues.	Staphylococcal Infections ...	Dr. G. B. Dowling.
,, 20	Thurs.	Pathology Demonstration ...	Dr. I. Muende.
,, 25	Tues.	Seborrhœa. Seborrhœic Dermatitis	Dr. G. B. Dowling.
,, 27	Thurs.	Electrotherapeutics	Dr. K. Sibley.
Mar. 4	Tues.	Eczema (1)	Dr. W. Griffith.
,, 6	Thurs.	Eczema (2)	Dr. W. Griffith.
,, 11	Tues.	Leukæmia Cutis. Mycosis Fungoides	Dr. J. E. M. Wigley.
,, 13	Thurs.	Pemphigus & Allied Eruptions	Dr. J. E. M. Wigley.
,, 18	Tues.	Mycotic Diseases	Dr. G. B. Dowling.
,, 20	Thurs.	Pathology Demonstration ...	Dr. I. Muende.

the required standard is reached.

CLINICS.—Instruction will be given daily in the Out-Patient Department, as follows:

Monday, 2 p.m. ...	Dr. Griffith.	Wednesday, 2 p.m. ...	Dr. Dowling.	Friday, 2 p.m. ...	Dr. Roxburgh
6 p.m. ...	Dr. Dore.	6 p.m. ...	Dr. Wigley.	6 p.m. ...	Dr. Dowling.
Tuesday, 2 p.m. ...	Dr. Goldsmith.	Thursday, 2 p.m. ...	Dr. Sibley.	Saturday, 2 p.m. ...	The Medical Registrar.
6 p.m. ...	Dr. Wigley.	6 p.m. ...	Dr. Goldsmith.		

LABORATORY.—Arrangements can be made for Classes, individual instruction or for research work. For particulars and fees apply to the Dean.

FEES.—For Hospital Practice, including Lectures, One Guinea per month; six months, Five Guineas. *Registered Medical Students may attend the Lectures free on signing their names and giving the name of their Hospital.*

Medical Practitioners will be welcomed as occasional visitors on presentation of their cards.

For further particulars apply to the Dean.

J. E. M. WIGLEY, M.B., Dean.

ST. BARTHOLOMEW'S HOSPITAL AND COLLEGE

(UNIVERSITY OF LONDON)

WINTER SESSION BEGINS OCTOBER 1ST, 1929.

THE HOSPITAL has 757 Beds and the MEDICAL COLLEGE contains large Lecture Rooms and Laboratories, as well as a Museum and a Library.

Every Special Branch of Medicine and Surgery has a Department.

ENTRANCE SCHOLARSHIPS.

Four Entrance Scholarships are awarded in September, of the aggregate value of £325. Other Scholarships and Prizes amount to about £875 annually.

PRELIMINARY SCIENCES.

Biology, Chemistry, and Physics are fully taught in the Laboratories apportioned to these subjects.

HOSPITAL APPOINTMENTS.

Forty House Physicians and House Surgeons are appointed annually from those Students who have passed their final qualifying examination.

Five hundred and sixty Ward Clerkships and Dresserships are open annually to Students before qualification.

STUDENTS' UNION.

The Union possesses a Club Ground of ten acres within easy reach of the Hospital.

HIGHER EXAMINATIONS.

Special Classes are held for M.D., F.R.C.S., etc.

For further particulars apply, personally or by letter, to—

THE DEAN OF THE MEDICAL COLLEGE, St. Bartholomew's Hospital, London, E.C.1.

THE UNIVERSITY OF LIVERPOOL.

FACULTY OF MEDICINE.

THE MEDICAL SCHOOL provides complete courses of instruction for the Examinations of the University of Liverpool, and also meets the requirements of other Universities and Examining Bodies in the United Kingdom.

Other Schools of the Faculty are:—The School of Dental Surgery, the School of Hygiene, the School of Tropical Medicine, and the School of Veterinary Science.

DEGREES AND DIPLOMAS IN THE FACULTY OF MEDICINE.

Bachelor of Medicine & Bachelor of Surgery	M.B., Ch.B.	Master of Veterinary Science	M.V.Sc.
Doctor of Medicine	M.D.	Doctor of Veterinary Science	D.V.Sc.
Master of Surgery	Ch.M.	Doctorate in Philosophy	Ph.D.
Master of Hygiene	M.H.	Licence in Dental Surgery	L.D.S.
Master of Orthopædic Surgery	M.Ch.Orth.	Diploma in Public Health	D.P.H.
Bachelor of Dental Surgery	B.D.S.	Diploma in Tropical Medicine	D.T.M.
Master of Dental Surgery	M.D.S.	Diploma in Tropical Hygiene	D.T.H.
Bachelor of Veterinary Science	B.V.Sc.	Diploma in Veterinary Hygiene	D.V.H.
		Diploma in Medical Radiology & Electrology	D.M.R.E.

Valuable Fellowships, Scholarships, and Prizes are offered for competition each year.

THE CLINICAL SCHOOL consists of FOUR GENERAL HOSPITALS: The Royal Infirmary, the Royal Southern Hospital, the David Lewis Northern Hospital, and the Stanley Hospital; and of FIVE SPECIAL HOSPITALS: The Eye and Ear Infirmary, the Hospital for Women (including the Samaritan Hospital), the Royal Liverpool Children's Hospital, the Liverpool Maternity Hospital, and the St. Paul's Eye Hospital.

These Hospitals contain in all about 1,500 Beds.

The organization of these Hospitals to form one teaching Institution provides the Medical Student and Medical Practitioner with a field for clinical education and study which is unrivalled in extent in the United Kingdom.

Infectious Diseases are studied in the Local and District Hospitals, and Mental Diseases at the County Mental Hospital, Rainhill.

For information on all matters concerning the curriculum application should be made to the Dean of the Faculty of Medicine, the University of Liverpool.

W. J. DILLING, Dean.

UNIVERSITY OF MANCHESTER.

FACULTY OF MEDICINE.

The WINTER SESSION commences on OCTOBER 3rd.

The Laboratories and Museums afford every facility to Students and Graduates for Practical Instruction, as well as for Original Research.

SCOPE OF INSTRUCTION.

Complete Courses of Instruction are offered for the Examinations of the University of Manchester, and also for the Examinations of other Examining Bodies in the United Kingdom. Post-Graduate Courses are held in preparation for the Diploma in Psychological Medicine (Manch.), the Certificate in Venereal Diseases, and in various branches of Medicine and Surgery. In the Dental Department Complete Courses are given preparing for the Degrees and Diploma in Dentistry granted by the University, as well as for the Diploma of the Royal College of Surgeons of England, and other Dental Diplomas. The Public Health Laboratories are situated at a short distance from the University; the fullest opportunities are offered to Graduates and others in preparation for the Diplomas in Bacteriology, in Public Health, and in Veterinary State Medicine, and for Special Certificates in School Hygiene and Factory Hygiene. Particulars may be obtained from the Dean of the Medical School.

OPPORTUNITIES FOR CLINICAL STUDY.—ROYAL INFIRMARY AND OTHER HOSPITALS.

The Clinical Instruction is given in the new Royal Infirmary, opened in 1909 on a site near to the Medical School. It is provided with every modern requirement for the treatment of the sick and the investigation of disease. Instruction in Special Subjects is given in other Hospitals associated with the University. A large number of beds in the General and in the Special Hospitals are available, thus affording unrivalled opportunities for Clinical Study.

1. The Manchester Royal Infirmary	614 beds	6. Fever Hospital for Infectious Diseases	600 beds
2. The St. Mary's Hospitals for Women and Children	216 beds	7. Special Hospitals for Diseases of the Ear, Throat and Chest, Skin, and the Christie Cancer Hospital	252 beds
3. Manchester Children's Hospital	190 beds	8. Dental Hospital of Manchester	
4. Manchester Royal Eye Hospital	148 beds	9. Ancoats Hospital	136 beds
5. Manchester Northern Hospital for Women and Children	73 beds	10. Salford Royal Hospital	263 beds

HOSPITAL APPOINTMENTS.

In consequence of the large number of Hospitals associated with, or in the vicinity of, the University, exceptional opportunities are offered to Graduates to obtain Resident Hospital Appointments.

SCHOLARSHIPS, EXHIBITIONS, AND PRIZES.

Two Open Entrance Scholarships for Graduates, each of the value of 160 guineas, are offered yearly in July. In addition, the Dreschfeld Scholarship of £30 per annum, the John Russell Medical Entrance Scholarship of £45 per annum, and other Entrance Scholarships of the value of £30 to £40 a year for two or three years, are also tenable in the Medical Faculty.

Fellowships, Scholarships, etc., are also offered for competition to Students of the Faculty.

RESIDENCE FOR UNDERGRADUATES.

There are Halls of Residence both for Men and for Women Students. A list of registered lodgings can be obtained. Prospectuses will be forwarded on application to the Registrar.

MANCHESTER UNIVERSITY MEDICAL SCHOOL.

POST-GRADUATE COURSES in MEDICINE and SURGERY.

The following arrangements have been made for Post-Graduate teaching in Manchester during 1929-30:

1. INTENSIVE COURSES:
   - (a) In Medicine and Surgery (Salford Royal Hospital), September 23rd to 27th inclusive. Fee £3 3s.
   - (b) In Fractures (Ancoats Hospital), October 7th to 11th inclusive. Fee £3 3s.
   - (c) In Oto-Laryngology (Ancoats Hospital), March 3rd to 8th inclusive. Fee £3 3s.
2. PART-TIME COURSES:
   - (a) In Diseases of the Eye, Tuesdays and Thursdays, October 8th to November 14th, at 5 p.m. Fee £3 3s.
   - (b) In Diseases of the Skin, Tuesdays and Fridays, February 4th to March 14th, at 5 p.m. Fee £3 3s.
   - (c) In Bacteriology and Immunity, Wednesdays and Fridays, University terms, Michaelmas and Lent, from 3 to 6 p.m. Fee £10 10s.
3. A POST-GRADUATE DAY (Ancoats Hospital). Every Thursday during University terms, 10 a.m. to 5.30 p.m., commencing October 10th. Lectures, Demonstrations, and Practical work. No fee.
4. CLINICAL ASSISTANTSHIPS: Fee £4 4s. per month.

Syllabus and other information may be had on application to the Dean of the Medical School.

UNIVERSITY OF DURHAM COLLEGE OF MEDICINE, NEWCASTLE-UPON-TYNE.

The Degrees in Medicine, Surgery, Hygiene, and Dentistry, the Diploma in Public Health, the Diploma in Psychiatry, and the Licence in Dental Surgery of the University of Durham are open to men and women.

The WINTER SESSION, 1929-30, will be commenced on WEDNESDAY, OCTOBER 2nd.

Students can complete, at the University of Durham College of Medicine, Newcastle-upon-Tyne, the entire course of professional study required for the above degrees, diplomas, and licence; also for the Examinations of the Royal Colleges of Physicians and Surgeons and other Examining Bodies.

Hospital practice is carried out at the Royal Victoria Infirmary, a general hospital containing more than 550 beds, and there are facilities for the study of the various special subjects. General and Special Post-Graduate Courses are held.

Practical Midwifery can be studied at the Princess Mary Maternity Hospital, which contains 90 beds, with an annual indoor and outdoor attendance on 3,000 cases. Lectures are given on Psychological Medicine in the College of Medicine, and clinical instruction at the Mental Hospital, Newcastle. Special Courses of Instruction in Outdoor Sanitary Practice and in the Hospital for Infectious Diseases are given by the City Medical Officer of Health.

Particulars may be obtained from the DEAN of the College.

ROYAL COLLEGE of PHYSICIANS of EDINBURGH ROYAL COLLEGE of SURGEONS of EDINBURGH ROYAL FACULTY of PHYSICIANS and SURGEONS of GLASGOW.

COPIES OF REGULATIONS for the TRIPLE QUALIFICATION (L.R.C.P.E., L.R.C.S.E., and L.R.F.P. & S.G.), and the DIPLOMA IN PUBLIC HEALTH, containing Dates of Professional Examinations for the year 1929-30, Curriculum etc., may be had on application to Mr. DAVID THOMSON, 49, George Square, Edinburgh, or to Mr. WALTER BURNS, 242, St. Vincent Street, Glasgow, Inspectors and Treasurers at Edinburgh and Glasgow respectively.

ST. MUNGO'S COLLEGE, GLASGOW.

THE MEDICAL SCHOOL OF THE GLASGOW ROYAL INFIRMARY.

SESSION 1929-30.

The WINTER SESSION will be opened on MONDAY, OCTOBER 14th, 1929.

LECTURES AND DEMONSTRATIONS.

*Elementary Physics, 4 p.m., 4 days weekly.—Prof. Cameron, B.Sc.
*Practical Chemistry, one day per week.—Prof. Alex R. Steven, B.Sc., F.I.C.
*Chemistry, 9 a.m.—Prof. Alex R. Steven, B.Sc., F.I.C.
Zoology (including practical class).
*Senior Anatomy, 11 a.m., Junior Anatomy, 3 p.m., Practical Anatomy, 9 a.m. to 5 p.m.—Prof. James Batttersby, F.R.C.S.(Eng.), F.R.F.P.S.G.
*Surgery, 11 a.m., Operative Surgery, 4 p.m.—Prof. John A. C. Macewen, M.B., C.M., B.Sc., F.R.F.P.S.G.
Physiology, 12 noon.—Prof. Faulds, M.B., C.M., F.R.F.P.S.G.
Clinical Surgery, 9 a.m.—The Surgeons of the Glasgow Royal Infirmary.
*Midwifery, 2 p.m.—Prof. R. A. Lennie, M.B., Ch.B., F.R.F.P.S.G.
*Practice of Medicine, 12 noon.—Prof. John Henderson, M.D., F.R.F.P.S.G.
*Clinical Medicine, 9 a.m.—The Physicians of the Glasgow Royal Infirmary.
Materia Medica, 1 p.m., or as arranged.—Prof. Crawford, M.D., F.R.F.P.S.G.
*Pathology, 3 p.m.—Pathologist to Royal Infirmary.
*Ophthalmology, 3 p.m., Tuesdays and Fridays, or as may be arranged.—Professor Barrie, M.B., Ch.B., F.R.F.P.S.G.
*Diseases of the Throat, Nose, and Ear, 11 a.m.—Prof. James Harper, M.A., M.B., Ch.B., F.R.F.P.S.G.
Diseases of the Skin, twice weekly as may be arranged.—Prof. George Harvey, M.B., Ch.B.
*Gynæcology, 12 noon.—Prof. R. A. Lennie, M.B., Ch.B., F.R.F.P.S.G.
Hospital and Dispensary, daily, 2 p.m.

The fees for all the Lectures, including Hospital attendance necessary for candidates for the diplomas of the English or Scotch Colleges of Physicians and Surgeons, amount to about £100.

Students who have fulfilled the conditions of the Carnegie Trust as regards Scottish birth or extraction and Preliminary Examination are eligible for the benefits of this Trust during the whole course of their studies at St. Mungo's College.

The Syllabus of the Medical Curriculum, giving particulars of the classes, fees, etc., may be had gratis on application to the Secretary of the Medical Faculty, 86, Castle Street, Glasgow, or from

THOMAS B. FERGUSON, Secretary.
97, West Regent Street, Glasgow.

*These classes qualify for graduation in Medicine in the University of Glasgow.

UNIVERSITY of EDINBURGH.

DIPLOMA IN RADIOLOGY.

COURSES OF INSTRUCTION for the Diploma in Radiology will commence in the beginning of October, 1929.

As the number of candidates is limited, early application is essential.

Particulars may be obtained from the Dean of the Faculty of Medicine.

W. A. FLEMING,
Secretary to the University.

UNIVERSITY OF OXFORD.

DIPLOMA IN OPHTHALMOLOGY.

The next EXAMINATION begins on MARCH 17th, 1930. The two months' COURSE OF INSTRUCTION starts on JANUARY 20th, 1930.

For further information apply to—

P. H. ADAMS,
6, Holywell, Oxford. Margaret Ogilvie Reader in Ophthalmology.

UNIVERSITY OF CAMBRIDGE

Diplomas in (a) PUBLIC HEALTH, (b) HYGIENE (for foreign graduates), (c) TROPICAL HYGIENE.

in the Subjects of the October 9th, 1929 obtained from Mr. J. E. Chemical Laboratory, ge.

Royal College of Physicians OF EDINBURGH.

The EXAMINATIONS for the LICENCE of the College (as a single qualification) for the ensuing year will be held on the *First Wednesday* and the following days of every month (except September and October).

Candidates for the LICENCE (as a single qualification) must send their names to the Secretary one week before the date of the Examination at which they propose to appear.

The EXAMINATIONS for the MEMBERSHIP of the College are held on the *Second Tuesday* and the following days of *January, April, July,* and *October.*

Candidates for the MEMBERSHIP must submit their applications and testimonials to the Secretary one month before the date at which they wish to appear for Examination.

For the Regulations in regard to the various qualifications granted by the College, and all other information, application may be made to the Secretary.

STAMMERING, SPEECH DEFECTS.

BEHNKE METHOD. Estab. 1882. Cases, non-resident, treated at 39, Earl's Court Square, S.W.5, and in residence, in the Summer holidays, at Miss BEHNKE'S house on the Chiltern

"Pre-eminent success in the education and treatment ... defects."—"Times."
"Lance ..."
a perfect

STAMMERING, CLEFT PALATE SPEECH, LISPING: ... of Miss BEHNKE, 39, Earl's Court Sq., S.W.5.

THE UNIVERSITY OF LEEDS

FACULTY OF MEDICINE

SCHOOL of MEDICINE and THE GENERAL INFIRMARY at LEEDS

The First Term begins on **October 1st, 1929.**

The degrees of M.B., Ch.B., Ch.M. and M.D. are conferred, and diplomas in Public Health and Psychological Medicine are granted by the University.

The systematic Classes and Lectures are held in the School of Medicine of the University while the Clinical instruction is given in the General Infirmary. The combined courses of study are arranged to meet the University Regulations in the first instance, but they also afford every opportunity for students preparing for the examinations of any licensing body.

The instruction in the subjects for the First Examination is given in the Department of Science of the University.

The Composition Fee for the Academic Courses and Clinical instruction is £237.

For further particulars application should be made:—

Regarding instruction given at the University to
The Academic Sub-Dean,
School of Medicine,
Leeds.

Regarding instruction given at the Infirmary to
The Clinical Sub-Dean,
General Infirmary,
Leeds.

THE UNIVERSITY OF LEEDS

SCHOOL OF DENTISTRY

The First Term begins on **October 1st, 1929.**

The degrees of B.Ch.D. and M.Ch.D., as well as a diploma, L.D.S., are conferred by the University.

The systematic Classes and Lectures are held in the School of Medicine and School of Dentistry of the University, while the clinical instruction is given in the Leeds General Infirmary and School of Dentistry. The combined courses of study are arranged to meet the University Regulations in the first instance, but they also afford every opportunity for study to students preparing for any of the dental examinations.

Intending students can enter as pupils in the Dental School and can obtain instruction in the preliminary scientific subjects in the Department of Science of the University.

For further particulars application should be made:—

Regarding instruction given at the University to
The Academic Sub-Dean,
School of Medicine,
Leeds.

Regarding clinical instruction
The Warden,
School of Dentistry, Leeds.

THE UNIVERSITY OF SHEFFIELD.

Vice-Chancellor: Sir HENRY HADOW, C.B.E., M.A., D.Mus., LL.D.

FACULTY OF MEDICINE.

Dean: Professor J. S. C. DOUGLAS, M.A., D.M., B.Ch., M.Sc.

The University grants Degrees in Medicine (M.B., Ch.B., M.D., Ch.M.), and in Dental Surgery (B.D.S., M.D.S.). It also grants a Diploma in Dental Surgery (L.D.S.). These are all open to men and women on equal terms.

The session 1929-1930 begins on October 2nd.

Lectures and laboratory courses are given in the University, whilst clinical instruction is provided in the general and special Hospitals in the City.

Although the teaching is primarily directed towards the requirements of the University the instruction amply covers those of other examining bodies.

A number of resident hospital appointments are open to qualified students of the school.

Halls of Residence.—There are four Halls of Residence, one for men students and three for women students.

Scholarships.—A number of Entrance Scholarships are open to students wishing to enter the Faculty of Medicine. There are also post-graduate scholarships.

A prospectus of the School containing all necessary details, and also particulars of scholarships, may be obtained free from— W. M. GIBBONS, Registrar.

UNIVERSITY OF BRISTOL.

FACULTY OF MEDICINE.

Autumn Term commences 4th October, 1929.

The University grants the degrees of Bachelor of Medicine and Surgery (M.B., Ch.B.), Master of Surgery (Ch.M.), Doctor of Philosophy (Ph.D.), Doctor of Medicine (M.D.), Bachelor of Dental Surgery (B.D.S.), and Master of Dental Surgery (M.D.S.), as well as diplomas in Public Health (D.P.H.) and Dental Surgery (L.D.S.).

The lectures and laboratory courses which are given in the University, although primarily designed for the degrees and diplomas of the University, are equally adapted to those of other Universities and Examining Boards, and students preparing for such external degrees and diplomas have equal attention paid to them.

Hospital Practice and Clinical Instruction are provided in the Hospitals and Asylum of the City, associated with the University for this purpose, and students have exceptional opportunities of studying the practice of Medicine from a large variety of cases.

Women are admitted to all classes, and attend them with men. The Halls of Residence for Men and for Women Students are situated in Clifton, near the University.

INCLUSIVE FEES—

For the M.B., Ch.B., curriculum ...	205 guineas.
For the B.D.S. curriculum, including Mechanical Laboratory	215 ,,
Do. excluding Mechanical Laboratory	155 ,,
For the L.D.S. curriculum, including Mechanical Laboratory	200 ,,
Do. excluding Mechanical Laboratory	140 ,,
For Mechanical Laboratory alone ...	60 ,,

For additional particulars apply to Professor Edward Fawcett, M.D., F.R.S., Dean.

THE MIDDLESEX HOSPITAL MEDICAL SCHOOL, W.1.

(University of London.)

The Winter Session opens on October 1st.

Students wishing to enter the Medical School should apply for admission as early as possible.

The Medical School is fully equipped for teaching the entire M.B., B.S., and Conjoint curriculum, including the PRE-MEDICAL EXAMINATION IN CHEMISTRY AND PHYSICS.

VALUE OF SCHOLARSHIPS AWARDED ANNUALLY EXCEEDS £1,000.

Research Funds of over £25,000.

Parents and Guardians desiring information and advice with regard to the Medical Curriculum should write to the Dean or to the School Secretary.

The rebuilt West Wing of the Hospital, representing the latest advances in Hospital construction, will be opened this year.

LONDON (Royal Free Hospital) SCHOOL of MEDICINE for WOMEN.

(UNIVERSITY OF LONDON.)

8, Hunter Street, Brunswick Square, W.C.1.

Full COURSES are arranged for the M.B., B.S. Degrees of the University of London, and for the Diplomas of the Royal Colleges of Physicians and Surgeons (including Pre-Medical Course).

Special Classes for the Primary Fellowship Examination.

Arrangements for Dental Students in conjunction with the Royal Dental Hospital.

Clinical Instruction is given at the Royal Free Hospital, and also at the National Cancer, Great Ormond Street Children's, Elizabeth [illegible] London, and Royal [illegible] and Prizes are [illegible] alue of £1,450. begin on MONDAY, SEPTEMBER 30th, 1929.

Prospectus and information as to Scholarships, residence in the School, Chambers, etc., from the Warden and Sec., Miss L. M. BROOKS.

FLORENCE E. BARRETT, C.B.E., M.S., M.D., Dean.

THE ROYAL DENTAL HOSPITAL OF LONDON SCHOOL OF DENTAL SURGERY

(University of London),

Leicester Square, London, W.C.

SESSIONS COMMENCE MAY AND OCTOBER.

Students are admitted for the curriculum for the B.D.S. Degree and the L.D.S. Diploma.

PRE-MEDICAL EXAMINATION.

Classes in Chemistry and Physics are held during the Winter and Summer Sessions, and are open to Students who have not commenced their professional study.

DENTAL MECHANICS.

Pupils may join at the commencement of either the May or October Sessions for the training in Dental Mechanics specified in the curriculum.

HOSPITAL PRACTICE.

The School is thoroughly equipped. The Clinic of the Hospital is unrivalled.

POST-GRADUATE INSTRUCTION.

Classes can be arranged for Post-Graduate instruction in all branches of Dental Surgery.

Write for further particulars and School Calendar to the DEAN as above.

Royal College of Physicians of London.

The next ordinary PROFESSIONAL EXAMINATION for the MEMBERSHIP will commence on Wednesday, October 16th, 1929.

Candidates are required to give twenty-one days' notice in writing to the Registrar of the College, to whom all certificates and testimonials required by the By-laws must be sent at the same time.

Candidates who propose to submit published work under the Regulations now in force should apply in writing to the Registrar, *without delay*, for detailed instructions as to the procedure they should follow.

Pall Mall East, S.W.1. RAYMOND CRAWFURD, M.D., Registrar.

F.R.C.S.(Edin.)

CLASSES, [illegible] with Museum and Anatomical [illegible] Exam., will commence [illegible] work at any time. [illegible] WHITTAKER, F.R.C.S., Surgeons Hall, Edinburgh.

DIPLOMA IN PUBLIC HEALTH, &c.

THE ROYAL INSTITUTE OF PUBLIC HEALTH.

Patron:
HIS MAJESTY KING GEORGE V.

Principal: Colonel Sir WILLIAM SMITH, M.D., D.Sc., LL.D., F.R.S.Ed., Barrister-at-Law.

Director of Bacteriological Laboratories: E. GOODWIN RAWLINSON, M.D., D.P.H.Oxon.; Assistant Director: BASIL N. V. BAILEY, M.B., D.T.M. & H.

Director of Chemical Laboratories: ALAN WEST STEWART, D.Sc., A.I.C., Public Analyst for the County of Berks, Oxford, Paddington, etc.; Assistant Director: E. H. BUNCE, A.I.C.

Lecturers on Public Health, etc.: ALBERT E. THOMAS, M.A., M.D.Oxon., D.P.H.Oxon., Barrister-at-Law, Medical Officer of Health for the Borough of Finsbury; CECIL W. HUTT, M.A., M.D.Camb., D.P.H.Oxon, Medical Officer of Health for the Borough of Holborn, Examiner for the D.P.H., Conjoint Board of Physicians and Surgeons, London; GEOFFREY E. OATES, M.D.Lond. (State Medicine), D.P.H.Camb., Barrister-at-Law, Medical Officer of Health for the Borough of Paddington.

The Course of Instruction can be commenced at any time.

The Principal will be pleased to interview intending candidates for the purpose of advice.

Further particulars can be obtained from the Secretary, 37, Russell Square, W.C.1.

Telephone: MUSEUM 0766.

UNIVERSITY OF LONDON.

WILLIAM JULIUS MICKLE FELLOWSHIP.

Applications are invited for the William Julius Mickle Fellowship, which is of the value of at least £200, and is awarded by the Senate to the man or woman who, being resident in London and a graduate of the University, has in the opinion of the Senate done most to advance Medical Art or Science during the preceding five years. Applications must be made before October 1st. Further particulars can be obtained from the Academic Registrar, University of London, South Kensington, S.W.7.

UNIVERSITY COLLEGE, DUBLIN,
MEDICAL SCHOOL.

SESSION 1929-30.

WINTER SESSION—Lectures commence on October 11th; Introductory Course on October 4th.

PROFESSORS AND LECTURERS.

Anatomy.
Professor—EDWARD PATRICK McLOUGHLIN, B.A., M.B., B.Ch., B.A.O.

Physiology.
Professor—JAMES M. O'CONNOR, B.A., M.D.

Zoology.
Professor—J. BAYLEY BUTLER, M.A., M.B., B.Ch., B.A.O.

Botany.
Professor—JOSEPH DOYLE, B.A., D.Sc.

Chemistry.
Professor—HUGH RYAN, M.A., D.Sc.
Lecturers—JOSEPH ALGAR, B.A., D.Sc., JOHN KEANE, M.Sc., Ph.D.

Physics.
Professor—JOHN J. NOLAN, M.A., D.Sc.
Lecturers—JOHN J. DOWLING, M.A., F.INST.P., PATRICK J. NOLAN, M.Sc., Ph.D.

Pathology and Bacteriology.
Professor—THOMAS T. O'FARRELL, F.R.C.S.I., D.P.H.
Lecturer in Special Pathology—W. M. CROFTON, B.A., M.D.

Public Health and Bacteriology.
Professor—WILLIAM D. O'KELLY, B.A., M.D., D.P.H.

Medicine.
Professor of Medicine—HENRY F. MOORE, M.D., D.Sc.
Professor of Systemic Medicine—JAMES N. MEENAN, M.B., B.Ch., B.A.O., D.P.H.

Surgery.
Professor of Surgery—HENRY L. BARNIVILLE, B.A., M.D., M.Ch.
Professor of Systemic Surgery—HENRY S. MEADE, F.R.C.S.I.

Midwifery and Gynæcology.
Professor—ROBERT P. FARNAN, M.B., B.Ch., B.A.O.
Lecturer (Obstetrics)—JAMES J. O'KELLY, B.A., M.B., B.Ch., M.A.O.
Lecturer (Gynæcology)—REGINALD WHITE, F.R.C.S.I.

Faculty of Medicine.
Materia Medica and Therapeutics.
Professor—MAURICE R. J. HAYES, F.R.C.S.I.

Ophthalmology.
Professor—LOUIS WERNER, B.A., M.B., F.R.C.S.I.

Medical Jurisprudence.
Acting Lecturer—J. N. MEENAN, M.B., B.Ch., B.A.O., D.P.H.

Dental Surgery.
Professor—E. SHERIDAN, M.D.S., F.R.C.S.I., L.D.S.

Dental Mechanics.
Professor—J. J. POTTER, M.D.S., L.D.S.

Orthodontia.
Lecturer—LAURENCE FLANAGAN, B.D.S., M.B., B.Ch.

All Scholarship Examinations in Medicine will be held on October 1st.

Introductory Course.—Particular attention is paid to beginners, for whom a special Introductory Course is delivered at the commencement of the Winter Session, beginning on October 4th.

Regulations for Courses of Study for Degrees, and General Regulations containing information as to Scholarships, etc., may be obtained from the REGISTRAR, Medical School, Cecelia Street, Dublin.

ROTUNDA HOSPITAL, DUBLIN.

THE HOSPITAL contains 127 beds. Upwards of 2,000 maternity cases and 1,000 gynæcological patients are treated during the year. Besides the Hospital there is an extern Maternity Department with over 2,000 cases. The routine for Students consists of attendance at the Morning Lectures on Midwifery and Gynæcology, examination of patients in the Gynæcological Department, attendance at operations and all abnormal labours in the Hospital Wards and conduction of labour cases in the intern and extern departments; the Ante-Natal Clinic, the Infants' Ward and Dispensary, and Pathological Laboratory are available also. An X-Ray department is attached to the Hospital.

Qualified Students are allowed to assist at the major and perform some minor gynæcological operations.

The Hospital Courses are always going on during the year, and Students can join at any time. The Class is limited, therefore it is advisable to register in advance. Board and lodging can be obtained in the Hospital.

Extra classes in gynæcological diagnosis and operative midwifery are conducted by the Assistants to the Master.

Fees, one month, £6 6s.; months other than the first, £4 4s.; three months, £12 12s.; L.M. Course, £21.

The L.M. certificate is given to qualified practitioners on examination after six months' attendance at the Hospital.

Full particulars from Bethel Solomons, M.D., Master, Rotunda Hospital.

UNIVERSITY OF DUBLIN
SCHOOL OF PHYSIC.
TRINITY COLLEGE.

The WINTER SESSION will begin on October 1st, 1929.

All information regarding Courses for the Medical and Dental Degrees, for the Diploma in Public Health, for the Diploma in Gynæcology and Obstetrics, and for the Diploma in Psychological Medicine may be obtained on application to the Registrar, School of Physic, Trinity College, Dublin.

University College of South
WALES AND MONMOUTHSHIRE.

THE WELSH NATIONAL SCHOOL OF MEDICINE.

The next Session opens on OCTOBER 1st. The Courses of Instruction are open to both Men and Women Students, and qualify for the Degrees in *Medicine and Surgery of the University of* Wales, and for the Degrees and Diplomas of other examining bodies. Hospital instruction is given at the Cardiff Royal Infirmary, at the City Lodge Hospital, and at other recognized institutions. Full facilities are available for every branch of study.

Medical Practitioners wishing to prepare for the Diploma in Public Health or for the Tuberculous Diseases Diploma of the University of Wales, can attend complete Courses of Instruction in the School.

Prospectuses can be obtained on application to the Dean of the Faculty of Medicine, or to the Secretary, Welsh National School of Medicine, Newport Road, Cardiff.

UNIVERSITY OF ST. ANDREWS.

(SCOTLAND)

Chancellor: The Rt. Hon. STANLEY BALDWIN, M.P., P.C., LL.D.
Rector: Sir WILFRED THOMASON GRENFELL, K.C.M.G., M.D., F.R.C.S.
Vice-Chancellor and Principal: Sir JAMES COLQUHOUN IRVINE, C.B.E., D.Sc., LL.D., Sc.D., F.R.S.

FACULTY OF MEDICINE.

Dean: Professor FRANCIS JAMES CHARTERIS, M.D.

The University confers the following DEGREES AND DIPLOMAS: M.B., Ch.B., M.D., Ch.M., Ph.D., D.P.H., L.D.S. (all open to men or women).

SESSION 1929-30 opens October 3rd, 1929. The whole curriculum may be taken at Dundee, or the first two years may be taken in St. Andrews, the remaining three in Dundee.

CLINICAL INSTRUCTION at Dundee Royal Infirmary, Dundee Dental Hospital, and other Medical and Surgical Institutions in Dundee.

BURSARY (Scholarship) Competitions. June annually. Entries due May 7th.

BURSARIES FOR MEDICAL STUDENTS.—At St. Andrews: Taylour Thomson (for women), 1 of £40 and 1 of £30 for 5 years; Malcolm (for men and women), £40 for 5 years, vacant annually. At Dundee: Hepburn (for men or women), £25 for one year, vacant annually.

BURSARIES FOR WHICH MEDICAL STUDENTS ARE ELIGIBLE.—At St. Andrews: About 14 Bursaries ranging in value from £50 to £10, tenable for 3 or 4 years (6 for men or women, 7 for men only, 1 for women only), vacant annually. At Dundee: About 7 Bursaries from £40 to £25, for 3 years, and 1 Bursary of £25 for 1 year (for men or women), vacant annually.

RESIDENTIAL ENTRANCE SCHOLARSHIPS FOR MEN.—Five or six of £100 competed for annually in June. Medical students are eligible.

FEES for complete M.B., Ch.B. Course, exclusive of Examination Fees, Hospital Fees, etc., £182.

PRELIMINARY EXAMINATION.—September and March. Entries due August 12th and February 11th.

PRE-REGISTRATION EXAMINATION (Physics and Chemistry).—September, December, and June. Entries due August 31st, November 6th, May 6th.

RESIDENCE HALLS for Men and Women at St. Andrews; for Women at Dundee.

Provision made for POST-GRADUATE STUDY AND RESEARCH.

Full information may be got from the Secretary of the University, 71, North Street, St. Andrews, or the Dean of the Faculty of Medicine, Westlands, St. Andrews.

Royal Infirmary, Edinburgh.

In this Hospital (with 1,006 beds) Clinical Instruction is given by the Honorary Staff of Physicians and Surgeons to Male and Female Students. Special Instruction is given in the Medical Department on the Diseases of Women, Physical Diagnosis, Diseases of the Skin, and Radiology; and in the Surgical Department on Diseases of the Eye, the Ear, and the Larynx, and in Dental Surgery. Separate Wards are devoted to Venereal Diseases, Diseases of Women, and Diseases of the Eye, the Ear and Throat, and the Skin; also to cases of Incidental Delirium or Insanity. Post-mortem Examinations are conducted in the Anatomical Theatre by the Pathologist, who also gives Practical Instruction in Pathological Anatomy and Histology.

MEDICAL AND SURGICAL OFFICERS.

MEDICAL DEPARTMENT.

Consulting Physicians—Dr. Alexander James, Sir Byrom Bramwell, LL.D., Emer. Prof. William Russell, LL.D., Dr. R. A. Fleming, LL.D., Emer. Prof. G. Lovell Gulland, C.M.G., LL.D.

Physician—Dr. Robert [illegible] culosis.

Physician—M. Rob[illegible] burgh.

Physician—[illegible] Climates—Col. E. D. W. Greig, Lecturer on Diseases of Tropical Climates, Edinburgh University.

Physicians—Dr. Chalmers Watson, Prof. Edwin Bramwell, Dr. Edwin Matthew, Prof. W. T. Ritchie, O.B.E., Dr. John Eason, Prof. Murray Lyon, Dr. John D. Comrie, Dr. Alex. Goodall.

Assistant Physicians—Dr. G. D. Mathewson, Dr. Fergus Hewat, Dr. H. L. Watson-Wemyss, Dr. C. G. Lambie, M.C., Dr. W. D. D. Small, Dr. Andrew Rutherford, Dr. W. A. Alexander, Dr. Stanley Davidson.

SURGICAL DEPARTMENT.

Consulting Surgeons—Dr. C. W. MacGillivray, Sir Montagu Cotterill, C.M.G., Mr. C. W. Cathcart, C.B.E., Sir David Wallace, K.B.E., C.M.G., D.L., Mr. John W. Dowden, Mr. Alexander Miles, LL.D., Emer. Prof. Sir Harold J. Stiles, K.B.E., LL.D., Mr. A. A. Scot Skirving, C.M.G.

Surgeons—Mr. George Chiene, Mr. W. J. Stuart, Mr. J. W. Struthers, Prof. D. P. D. Wilkie, O.B.E., Mr. Henry Wade, C.M.G., D.S.O., Prof. J. Fraser, M.C., Mr. J. M. Graham.

Assistant Surgeons—Mr. A. Pirie Watson, O.B.E., Mr. F. E. Jardine, Mr. W. Q. Wood, Mr. J. J. M. Shaw, M.C., Mr. Walter Mercer, Mr. W. A. Cochrane, Mr. K. Paterson Brown, Mr. R. Leslie Stewart, Mr. T. McW. Millar.

[illegible]ARTMENT.
[illegible] P. Watson, Dr. Fordyce.

ROYAL INFIRMARY, EDINBURGH—continued.

Gynæcologists—Prof. R. W. Johnstone, C.B.E., Dr. H. S. Davidson, O.B.E., Dr. J. Young, D.S.O.

Assistant Gynæcologists—Dr. W. F. T. Haultain, O.B.E., M.C., Dr. Douglas Miller, Dr. E. Chalmers Fahmy.

DEPARTMENT FOR DISEASES OF THE SKIN.

Consulting Physician—Sir Norman Walker, LL.D.

Physicians—Dr. Fred. Gardiner, Dr. R. Cranston Low.

Assistant Physicians—Dr. Robert Aitken, Dr G. H. Percival.

OPHTHALMIC DEPARTMENT.

Consulting Surgeons—Sir George A. Berry, LL.D., M.P., Dr. George Mackay, Dr. W. G. Sym, Dr. J. V. Paterson.

Surgeons—Dr. A. H. H. Sinclair, Dr. H. M. Traquair.

Assistant Surgeons—Dr. E. H. Cameron, Dr. C. W. Graham.

EAR, NOSE, AND THROAT DEPARTMENT.

Consulting Surgeons—Dr. P. McBride, Dr. R. McKenzie Johnston, Dr. M. Farquharson, Dr. A. Logan Turner, LL.D.

Surgeons—Dr. John S. Fraser, Mr. J. D. Lithgow.

Assistant Surgeons—Dr. W. T. Gardiner, M.C., Dr. G. Ewait Martin.

VENEREAL DISEASES DEPARTMENT.

Clinical Medical Officer—Mr. David Lees, D.S.O.

Assistant Clinical Medical Officer—Mr. R. C. L. Batchelor.

DENTAL DEPARTMENT.

Consulting Surgeons—Mr. William Guy, Mr. J. H. Gibbs.

Surgeons—Mr. D. L. G. Radford, Mr. R. C. Scott Dow, Mr. F. G. Gibbs, Mr. Jas. Morham, Mr. H. M. Sturrock, Mr. D. S. Middleton.

[illegible]ARTMENT.
W. Hope Fowler,
J. M. Woodburn Morrison.

Senior Assistant Medical Officer—Dr. J. Grant Allan.

Junior Assistant Medical Officer—Dr. A. J. W. Allen.

PATHOLOGICAL DEPARTMENT.

Pathologist—Professor Lorrain Smith.

Senior Assistant Pathologist—Dr. James Davidson.

Assistant Pathologists—Dr. W. G. Millar, Dr. R. Carmichal, Dr. C. F. W. Illingworth, Dr. T. R. R. Todd.

[illegible]ST.
[illegible]an.
J. T. [illegible]. Selby.

SUPERINTENDENT.

Col. G. St. C. Thom, C.B., C.M.G., C.B.E., M.B., C.M.

ROYAL INFIRMARY, EDINBURGH—continued.

APPOINTMENTS.

No fees are charged for any Medical or Surgical Appointments in this Hospital, which are as follows:

1. Resident Physicians and Surgeons, who must be registered as legally qualified Practitioners, are from time to time appointed by the Managers on the recommendation of the Physicians and Surgeons. The holders of these offices live in the house free of charge. The appointment is for six months, but may be renewed at the end of that period by special

Physicians and Sur[illegible]
[illegible]istants, who must be
[illegible]ified Practitioners, are
[illegible]rs on the recommenda-
[illegible]d Surgeons. The ap-
[illegible] terms as that of the
Surgeons,'
are appointed by the
These appointments
are open to all Students and Junior Practitioners holding Hospital Tickets.

Assistants in the Pathological Department are appointed by the Pathologist.

WILLIAM S. CAW, O.B.E., J.P.,
Treasurer and Clerk.

Royal (Dick) Veterinary COLLEGE, EDINBURGH.

PRINCIPAL: O. CHARNOCK BRADLEY, M.D., D.Sc., M.R.C.V.S.

107th SESSION commences in OCTOBER.

COURSES OF INSTRUCTION QUALIFY FOR M.R.C.V.S. and B.Sc.Edin.

COLLEGE CALENDAR, WITH FULL PARTICULARS OF EXAMINATIONS, BURSARIES, etc., may be obtained from—

A. C. DOULL, C.A., Secretary.

(Incorporated 1505.)

Royal College of Surgeons of EDINBURGH.

COPIES OF REGULATIONS for the FELLOWSHIP [illegible] DIPLOMA, and [illegible]y, containing [illegible]d on application to—

49, George Square, Edinburgh. DAVID THOMSON, Clerk of the College.

F.R.C.S.(Edin.).

Prep. Classes and Museum Demons. for next Fellowship Exam. will commence shortly. Correspondence course for Jany. and later exams should begin now. Parties, Mr. H. O. Ornis, F.R.C.S., at Surgeons' Hall, Edinburgh.

UNIVERSITY OF EDINBURGH.

Principal—Sir J. ALFRED EWING, K.C.B., M.A., D.Sc., LL.D., F.R.S.

The WINTER SESSION, 1929-30, opens on October 8th (2nd, 3rd, 4th and 5th years), on October 15th (1st year), and closes on March 21st.
The SUMMER SESSION, 1930, opens on April 22nd and closes on July 4th.

FACULTY OF MEDICINE.

Dean—Professor J. LORRAIN SMITH, M.A., M.D., LL.D., F.R.S.

The Faculty embraces 18 Professors and 80 Lecturers, and attached to these there are about 40 Assistants and Demonstrators. Instruction is given in all the main branches of Medical Science, viz. :—

PROFESSORS.

Chemistry—George Barger, D.Sc., F.R.S.
Zoology—J. H. Ashworth, D.Sc., F.R.S.
Botany—Wm. Wright Smith, M.A., F.R.S.
Anatomy—Arthur Robinson, M.D.
[illegible]-Schafer, LL.D., F.R.S.
[illegible] Clark, *M.C.*, M.D., F.R.C.P.
[illegible]ith, M.D., LL.D., F.R.S.
[illegible]s Mackie, M.D.
[illegible] A. Smith, M.D., D.P.H.
Public Health—Percy Samuel Lelean, C.B., C.M.G., F.R.C.S.
Medicine—W. T. Ritchie, M.D.
Surgery—D. P. D. Wilkie, M.D., Ch.M.
Midwifer[illegible] Johnstone, M.A., M.D.
Clinical [illegible]
Clinical [illegible], M.D., W. T. Ritchie, M.D., and D. Murray Lyon, M.D.
Tuberculosis—Sir Robert W. Philip, M.D.
Therapeutics—David Murray Lyon, M.D.
Psychiatry—George M. Robertson, M.D.

LECTURERS.

Anatomy—E. B. Jamieson, M.D.
Applied Anatomy—F. E. Jardine, M.B.
Histology—May L. Cameron, M.A., B.Sc., M.B.
Biochemistry—W. W. Taylor, D.Sc.
Biophysics—H. Dryerre, Ph.D.
Physiology of the Nervous System—A. Ninian Bruce, M.D., D.Sc.
Experimental Pharmacology—(Vacant).
Materia Medica—C. M. Scott, M.B., Ph.D.
Pathology—Theodore Rettie, D.Sc., W. G. Millar, M.B.
Morbid Anatomy—J. Davidson, M.B.
Bacteriology—D. G. S. McLachlan, M.B.
Physics—G. A. Carse, M.A., D.Sc.
Chemistry—Edgar Stedman, B.Sc., Ph.D.
Tropical Diseases—Lt.-Col. E. D. W. Greig, C.I.E., M.D.
Medical Entomology and Parasitology—J. H. Ashworth, D.Sc., F.R.S., A. E. Cameron, M.A., D.Sc.
Tropical Hygiene—J. du P. Langrishe, D.S.O., M.B., B.Ch. (conjointly with Professor).
Sanitary Administration—William Robertson, M.D.
Clinical Instruction in Infectious Fevers—Alexander James, M.D., W. T. Benson, M.D.
History of Medicine—J. D. Comrie, M.A., B.Sc., M.D.
Surgical Pathology—K. Paterson Brown, M.B.
Venereal Diseases—David Lees, D.S.O., M.B.
Psychology—J. Drever, M.A., B.Sc., D.Phil.
Radiology—J. M. Woodburn Morison, M.D., D.M.R.E.
Neuro-Pathology—F. E. Reynolds, M.B.
Psychiatry—William McAlister, M.B.
Clinical Experimental Methods—(Vacant).
Clinical Midwifery—R. W. Johnstone, M.D., James Young, M.D., H. S. Davidson, M.B., Douglas Miller, M.D., W. F. T. Haultain, M.B., E. C. Fahmy, M.B., John Sturrock, M.B., Clifford Kennedy, M.B.
Clinical Instruction in Diseases of Children—Charles McNeil, M.D., N. S. Carmichael, M.B., Ch.B., L. H. F. Thatcher, M.D., Gertrude Herzfeld, M.B., and Norman Dott, M.B.

CLINICAL TEACHING STAFF, ROYAL INFIRMARY.

Clinical Surgery—Geo. L. Chiene, M.B., W. J. Stuart, M.B., J. W. Struthers, M.B., D. P. D. Wilkie, M.D., Ch.M., Henry Wade, M.D., John Fraser, M.D., Ch.M., J. M. Graham, Ch.M.
Clinical Medicine—D. Chalmers Watson, M.D., Edwin Bramwell, M.D., Edwin Matthew, M.D., W. T. Ritchie, M.D., John Eason, M.D., D. Murray Lyon, M.D., J. D. Comrie, M.D., Alex. Goodall, M.D.
Clinical Gynæcology—R. W. Johnstone, M.D., William Fordyce, M.D., H. S. Davidson, M.B., James Young, M.D., W. F. T. Haultain, M.B., Douglas Miller, M.D., E. C. Fahmy, M.B.
Diseases of the Larynx, Ear, and Nose—John S. Fraser, M.B., J. D. Lithgow, M.B., W. T. Gardiner, M.B., G. Ewart Martin, M.B.
Diseases of the Skin—Fredk. Gardiner, M.D., R. Cranston Low, M.D., Robert Aitken, M.D., G. H. Percival, M.B., Ph.D.
Diseases of the Eye—A. H. H. Sinclair, M.D., H. M. Traquair, M.D., E. H. Cameron, M.B., C. W. Graham, M.B.

Practical Instruction is afforded, under the superintendence of the Professors, in Laboratories with the necessary appliances, and in Tutorial and Practical Classes connected with the above Chairs, and opportunities are afforded to Students to extend their practical knowledge and engage in original research.

Opportunities for Hospital Practice are afforded at the Royal Infirmary, the Hospital for Sick Children, Maternity Hospital, the City Fever Hospital, and the Royal Edinburgh Hospital for Mental Disorders. Upwards of 2,760 beds are available for the Clinical Instruction of Students of the University.

Four Degrees in Medicine and Surgery are conferred by the University of Edinburgh, viz., Bachelor of Medicine (M.B.), Bachelor of Surgery (Ch.B.), Doctor of Medicine (M.D.), and Master of Surgery (Ch.M.).

The minimum Class Fees for M.B. and Ch.B., including Hospital Fee (£12), amount to about £260, and the Matriculation and Examination Fees to £47 5s. 6d. An additional Fee of £21 is payable by those who proceed to M.D., and £21 by those who proceed to Ch.M.

The annual value of the Bursaries, Prizes, Scholarships, and Fellowships in the Faculty of Medicine amounts to about £3,600, and that of the other Bursaries, etc., tenable by Students of Medicine, amounts to about £1,820.

[illegible]TION.—Courses of instruction are given for the University Diplomas in Public Health, Tropical Medicine and [illegible] Radiology. These Diplomas are open to approved registered practitioners as well as to graduates in Medicine and [illegible] The University also takes part in the Courses given under the auspices of the Edinburgh Post-Graduate Cou[illegible]partments of the Faculty of Medicine, provision is made for research by students of graduate standing. In the University laboratories facilities will be provided for candidates for the Degree of Ph.D. whose applications to engage in research have been accepted by the Senatus.

A Syllabus and further information as to Matriculation, the Curricula of Study for Degrees, etc., may be obtained from the Dean of the Faculty of Medicine; and for Degrees in the Faculties of Arts, Science, Divinity, Law, and Music, from the Deans of these Faculties, or from the Secretary; and full details are given in the University Calendar, published by James Thin, 55, South Bridge, Edinburgh. Price, by post, 6s.

July, 1929. By authority of the Senatus, W. A. FLEMING, Secretary.

SCHOOL OF MEDICINE

OF

THE ROYAL COLLEGES, EDINBURGH.

(Founded 1505)

WINTER SESSION, 1929-30.

Opens 1st October.

The Lectures qualify for the English and Scottish Universities and other Medical Examining Boards.

One-half of the Qualifying Classes required for graduation in the University of Edinburgh may be attended in this School.

The School offers a large choice of Teachers upon the various subjects comprised in the Medical Curriculum.

The Calendar of the School, giving all necessary information regarding Classes, Fees, and Examinations, will be published on September 2nd; a copy may be obtained (price 6d.) on application to the DEAN OF THE SCHOOL, Surgeons' Hall, Edinburgh.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL
(UNIVERSITY OF LONDON),

ADVANCED MEDICINE.

A Course in Clinical Medicine, Pathology, *Morbid Histology, and Biochemistry, suitable* for M.D. and M.R.C.P. Examinations, will be given for six weeks, commencing October 29th.

ADVANCED SURGERY.

A Course suitable for M.S and F.R.C.S. Examinations, lasting nine weeks, will commence on September 3rd.

Further particulars may be obtained on application to the Dean (H. WILLOUGHBY LYLE, M.D., F.R.C.S.), King's College Hospital Medical School, Denmark Hill, S.E 5

The University of Liverpool.

The Council invites applications for the post of LECTURER (ungraded) in the DEPARTMENT OF PATHOLOGY. Salary £600 per annum.

The duties of the Lecturer will begin, and the appointment date, from October 1st.

The appointment is a whole-time one, and the Lecturer will be required to comply with the conditions of the "Federated Superannuation System for Universities."

Four typewritten applications, together with three references, and (if the candidate so desires) copies of testimonials, to be forwarded, not later than Monday, September 2nd, to the Registrar.

Further enquiries should be addressed to the George Holt Professor of Pathology.

EDWARD CAREY, Registrar.

The Services of a Missionary-

hearted MEDICAL OFFICER (Church of England) are required for the JANE FURSE MEMORIAL HOSPITAL, SEKUKUNILAND, TRANSVAAL, at £360 a year and a house, with some furniture in it. Subject to the approval of the Minister of Public Health, the successful applicant would be appointed District Surgeon for Sekukuniland, at a salary of £300 a year, making a total salary of £600 a year and a house.

Applications should be sent to the Ven. G. H. CAMERON, South African Office, Church House, Westminster.

The Otago Hospital Board.

UNIVERSITY OF OTAGO AND DUNEDIN HOSPITAL, NEW ZEALAND.

The post of RESIDENT MEDICAL OFFICER (Senior) will be vacant in December next.

Candidates must hold a Degree in Medicine of a British University; must have been qualified for three years and have held Resident Hospital appointments for at least one year.

The successful candidate will be required to act as Medical Tutor under the direction of the Professors of Medicine and as Superintending House Physician and Medical Registrar.

Salary for the position to be at the rate of £500 per annum, with board and residence.

Full details may be obtained on application to the High Commissioner for New Zealand, Strand, W.C.2.

Otago Hospital Board, Dunedin, New Zealand. JOHN JACOBS, Secretary.
August 23rd, 1929.

City of Sheffield.

ASSISTANT TUBERCULOSIS OFFICER (Male).

Applications are invited for the post of Assistant Tuberculosis Officer.

Salary £600 per annum, rising to £650 by annual increments of £25. Applicants must have been graduated in Medicine and Surgery for not less than three years, and have held a Resident Hospital appointment for not less than six months.

Possession of a Diploma in Public Health, although not essential, will be considered an advantage

Applications, stating age, qualifications, and experience, together with copies of three recent testimonials, to be sent on or before September 4th to the undersigned.

Town Hall, Sheffield. F. E. WYNNE, *Medical Officer of Health.*

Ancoats Hospital, Manchester.

HOUSE SURGEON required to commence duty on October 1st, for a period of six months. Salary at the rate of £100 per annum, with board, apartments, laundry, etc. Applications, stating age, qualifications, experience (if any), with copies of three recent testimonials, to be forwarded to the undersigned on or before September 6th.

By Order of the Board,
HERBERT J. DAFFORNE,
Gen. Supt. & Secretary.

County Council of Middlesex.

ASSISTANT COUNTY MEDICAL OFFICER OF HEALTH.

The County Council of Middlesex invites applications for the appointment of an Assistant County Medical Officer of Health. Salary £750 per annum, rising by annual increments of £50 to a maximum of £1,000 per annum (no bonus), together with reasonable out-of-pocket travelling expenses.

Candidates must be registered medical practitioners, *and must also be registered in the Medical Register* as the holder of a Diploma in Sanitary Science, Public Health, or State Medicine, under Section 21 of the Medical Act, 1886.

Candidates must have held resident appointment at a Hospital and also have had practical experience in Public Health administration.

The officer appointed will have to carry out, under the supervision and control of the County Medical Officer, such duties as may be required of him. He will devote his whole time to the County service, and will not be allowed to hold any other appointments or engage in private practice.

The successful candidate will be required to contribute to the County Council's Superannuation Fund and to pass such medical examination as the County Council may direct. The appointment will be during the pleasure of the Council and subject to three months' notice on either side.

Applications, stating (1) age, (2) qualifications, and (3) experience, together with copies of not more than three recent testimonials, must be received not later than September 14th. No special application forms are provided.

Canvassing, directly or indirectly, will be a disqualification.

ERNEST S. W. HART,
Middlesex Guildhall, Westminster, S.W.1. *Clerk of the County* Council.
August 22nd, 1929.

Somerset County Council.

ASSISTANT COUNTY MEDICAL OFFICER OF HEALTH AND ASSISTANT SCHOOL MEDICAL OFFICER.

Candidates must have had previous experience of the general administration of a Public Health Department, of School Medical Inspection work and its Administration and of Mental Deficiency work. They must possess a Diploma in Public Health.

Experience in the treatment of Venereal Diseases under modern methods is also necessary.

The person appointed must devote the whole of his time to the duties of the office. He will act under the control and direction of the County Medical Officer of Health and will carry out such duties as the County Council may assign to him from time to time.

The salary will be at the rate of £720 per annum, rising by annual increments of £25 to a maximum of £840.

The appointment will be made subject to the provisions of the Local Government and Other Officers Superannuation Act, 1922. Office and travelling expenses will be provided. Particulars as to the terms of the appointment, duties, qualifications, etc., may be obtained from the undersigned.

Applications, stating age, qualifications, and *previous experience, together with copies of not* more than three recent testimonials, to be forwarded to me not later than September 14th.

Personal canvassing will be a disqualification.

County Health Dept., Boulevard, Weston-super-Mare. W. G. SAVAGE, County Medical Officer of Health.

Leeds Maternity Hospital.

The Board of Management invite applications for the post of HONORARY OBSTETRIC SURGEON. Applications, in writing, giving full details of qualifications and experience, should be addressed to the Chairman, Leeds Maternity Hospital, Hyde Terrace, Leeds, marked "Private," on or before Monday, Sept. 16th.

The rules of the Hospital stipulate that every candidate for the office of Honorary Medical Officer shall be a registered practitioner, and shall hold a degree of Doctor of Medicine or Master of Surgery of one of the Universities of the United Kingdom or Free State of Ireland, or shall be a Fellow or Member of the Royal College of Physicians of London, or a Fellow of the Royal College of Surgeons of England.

S. W. BARNES,
August 22nd, 1929. Secretary.

Liverpool and District Hospital
FOR DISEASES OF THE HEART.

HOUSE PHYSICIAN wanted at the above Hospital for six months from October 1st. Salary at the rate of 50 guineas per annum, board, rooms, and laundry.

Apply to the Secretary, Miss LEWIS, 14, Cook Street, Liverpool.

City of Manchester.

MONSALL HOSPITAL FOR INFECTIOUS DISEASES. (600 Beds.)

APPOINTMENT OF JUNIOR MEDICAL OFFICER

The Public Health Committee invites applications from qualified medical men for the position of Junior Medical Officer at Monsall Hospital.

Every applicant must be a registered medical practitioner and unmarried.

Preference will be given to applicants who have held Resident Surgical and Medical posts in a General Hospital.

The candidate appointed will be required to assist in the teaching of the nursing staff and to reside at the Hospital.

Salary £350 per annum, with board, residence, and laundry in addition. No bonus.

The appointment will be made in the first instance for a period of twelve months, renewable at the expiration of that period.

Every application, stating fully the training, qualifications, and experience of the candidate, and his age, with copies of three recent testimonials, and endorsed on the envelope "Junior Medical Officer, Monsall Hospital," must be addressed to the Medical Officer of Health, Civic Buildings, 1, Mount Street, Manchester, only, and not to members of the Committee or Council, and must be received by him not later than Saturday, September 14th.

The candidate appointed will be required to devote the whole of his time to the duties of the position, to pass a medical examination, to contribute to the Corporation Superannuation Fund, and to execute the Deed of Service.

Canvassing in any form, oral or written, direct or indirect, is prohibited.

Town Hall, Manchester. F. E. WARBRECK HOWELL, Town Clerk.
August 23rd, 1929.

Board of Guardians,
ST. MARYLEBONE.

St. Marylebone Hospital, Ladbroke Grove, W.10.

A THIRD ASSISTANT MEDICAL OFFICER (Male) required.

The Hospital (Poor Law Infirmary) has 732 beds, contains a wide range of clinical material, both acute and chronic, at all ages, and has a Consulting Staff of 13 members.

A previous Hospital appointment a *necessity.* Quiet quarters, garden, with hard and grass tennis courts. Salary £300 per annum, with board, lodging, and washing. Apply, in writing, *with full particulars, to the Clerk* to the Board, Administrative Offices, Northumberland Street, W.1. Interview with Medical Superintendent at the Hospital by appointment only. Telephone No. Park 4534.

Applications, accompanied by copies of testimonials, to be delivered at the undermentioned address on or before September 12th.

By Order,
Administrative Offices, Northumberland St., Marylebone, W.1. EDWARD A. FRITH, Clerk to the Guardians.
August, 1929.

West Derby Union.

RESIDENT ASSISTANT MEDICAL OFFICER (Male).

The Guardians invite applications for the above position at the WALTON INSTITUTION, RICE LANE, LIVERPOOL, to take duty from October 1st, at a salary after the rate of £200 per annum, together with rations, apartments, etc.

Candidates must be single, fully qualified, and *registered.*

Appointment will be for a period of one year in the first instance, subject to one month's notice to terminate on either side at any time, and to extension for a further period of twelve months at the option of the Guardians.

Applications to be sent, stating age, qualifications, etc., with copies of *three recent* testimonials, to the undersigned not later than *first post on Tuesday, September* 3rd.

Union Offices, Brougham Terrace, Liverpool. G. O. HOLLOWAY, Clerk to the Guardians.
August 12th, 1929.

Hull Royal Infirmary.
(272 Beds.)

Applications are invited *for the post* of ASSISTANT HOUSE PHYSICIAN (male), vacant September 12th. The appointment will be for six months in the first instance and will be *terminable by one month's notice* on either side. Salary at the rate of £130 per annum, with residence, board, and laundry.

Applications to reach the undersigned not later than September 3rd.

R. J. CARLESS,
August 19th, 1929. House Governor.

Hospital of St. Cross, Rugby.
(114 Beds.)

Applications are invited for the posts of SENIOR and JUNIOR RESIDENT MEDICAL OFFICERS (*males*).

Candidates must be registered medical practitioners, and must be prepared to begin duties on October 1st. Salary for the Senior post at the rate of £150 a year, Junior at the rate of £100 a year, with board and residence in the Hospital.

Candidates are requested to state whether they are prepared to accept the post of Junior if not selected for the Senior office.

The appointments are for a period of six months only, at the end of that time the Junior will be eligible to apply for the Senior post, which then becomes vacant.

This Hospital is recognized by the University of London for the purposes of the M.D. and M.S.

Applications, stating age and qualifications, with copies of three recent testimonials, should be received by me not later than Saturday, September 7th.

CAPTAIN W. COCKBURN,
August 16th, 1929. Supt. & Secretary.

Addenbrooke's Hospital,
CAMBRIDGE.

Applications are invited for the following posts:

(*a*) RESIDENT ANÆSTHETIST;
(*b*) HOUSE PHYSICIAN;
(*c*) HOUSE SURGEON.

Each appointment will be for six months from *October 1st, but is terminable* at any time by one month's written notice on either side. The appointment of the Resident Anæsthetist *may* be renewed for a further period fo six months if desired.

The salary of the Resident Anæsthetist is at the rate of £180 per annum, and of the House Physician and House Surgeon at the rate of £150 per annum in each case, with board, *residence*, and laundry.

Candidates (male) who must be unmarried and duly registered are requested to *forward their* applications, stating age, qualifications, etc., together with copies of not more than four recent testimonials, to the undersigned on or before Monday, September 16th.

W. H. HEAD, Secretary-Supt.

Royal Devon & Exeter Hospital,
EXETER. (225 Beds.)

HOUSE PHYSICIAN.
ASSISTANT HOUSE SURGEON.

Applications are invited from either sex for these posts shortly becoming vacant at this Hospital. The appointments are for six months, but candidates are eligible for re-election.

Salaries: House Physician £130 per annum; Assistant House Surgeon £120 per *annum*, with board, apartments, and washing.

Applications, giving particulars as to age and qualifications, together with copies of recent testimonials, should be sent to the undersigned as soon as possible.

S. S. COLE.
August 23rd, 1929. Secretary & Manager.

Kent County Ophthalmic and
AURAL HOSPITAL, MAIDSTONE.
(72 Beds.)

Applications are invited for the post of AURAL HOUSE SURGEON (male), which becomes vacant shortly. Candidates must be *duly qualified and registered* medical practitioners, single, and of British birth and nationality. The appointment will be for *six months*. Salary at the rate of £200 per annum, with board, residence, and washing.

Applications, stating age, together with copies of not more than three testimonials, should be sent to the undersigned without delay.

JOHN W. STRICKLAND, Secretary.

Bristol Royal Infirmary.

Applications are invited for the post of HOUSE PHYSICIAN to the Cancer Research Department for the six months commencing September 1st. Salary at the rate of £60 per annum, with board, apartments, and laundry.

Candidates, who must be duly qualified, to send in their applications, stating age, together with copies of not more than three testimonials, to the undersigned.

ELLIS C. SMITH, F.C.I.S.,
Secretary & House Governor.

Bradford Children's Hospital.

Male HOUSE SURGEON and Male HOUSE PHYSICIAN wanted immediately, *fully* qualified. Salary £120 each, with board, residence, and laundry.

Applications, stating age, with recent testimonials, *not* later than September 6th, to—

J. W. LONGLEY, Secretary.

Manfield Orthopædic Hospital,
NORTHAMPTON. (128 Beds.)

Applications are invited for the following appointments:

SENIOR RESIDENT MEDICAL OFFICER. Salary commencing £200 per annum, with board, residence, and laundry. Candidates must have held resident appointment in a General Hospital for at least one year, and previous experience in orthopædics and knowledge of X-ray will be an advantage.

JUNIOR RESIDENT MEDICAL OFFICER. Salary £150 per annum, with board, residence, *and laundry. Candidates must have* had experience in the administration of anæsthetics.

Further particulars may be obtained from the Secretary-Superintendent, to whom applications, giving age and qualifications, together with copies of recent testimonials, should be sent not later than *September 10th*.

H. G. LEWIS, Secretary-Supt.

The National Hospital for
DISEASES OF THE HEART,
Westmoreland Street, London, W.1.

Applications are invited for the post of OUT-PATIENT MEDICAL OFFICER (non-resident, male). The appointment is for a period of six months from October 1st, but may be renewed for a further period not exceeding six months. Salary at the rate of £125 per annum.

Candidates, who must be duly registered medical practitioners, will not be expected to *call on the Honorary Medical Staff, but should* send their applications, with copies of three recent testimonials, to the undersigned at the Hospital not later than Monday, September 9th.

The Out-patient Medical Officer will be required to assist the Honorary Medical Staff on five afternoons weekly, or four afternoons and one *morning as may be arranged*.

ROBERT G. E. WHITNEY, Secretary.

Notts County Mental Hospital,
RADCLIFFE-ON-TRENT.

The Committee of Visitors invite applications for the position of JUNIOR ASSISTANT MEDICAL OFFICER from gentlemen duly registered *under the Medical Acts*.

Salary will be after the rate of £350 per annum, rising £20 per annum to maximum of £450 per annum, together with full residential allowances, valued for superannuation purposes at £109 4s. per annum.

The appointment is subject to the Asylums Officers Superannuation Act, 1909, and will also be subject to one month's notice on either side.

Application forms, which must be returned not later than September 14th, may be obtained from the Clerk to the Committee, Mr. J. F. GELL.

North Middlesex Hospital,
Edmonton, N.18.

Applications are invited for PART-TIME ANÆSTHETIST at above Hospital to attend Tuesday, Wedne[illegible] Candidates are the Medical Director, stating [illegible] experience. *No canvassing. Age not* over 45 years. Remuneration: two and a half guineas per session of three hours.

Papworth Village Settlement,
near CAMBRIDGE, for the Treatment of all forms of Tuberculosis.

Applications are invited for the post of *HOUSE PHYSICIAN. Applicants should* be male and single. The appointment is for six months, with prospects of advancement to a higher position on the staff. Salary £100 to £200 per annum, according to previous experience, with board, lodging, and laundry.

Apply to Medical Director, Papworth Hall, *Cambridge*.

Royal Hospital, Richmond,
SURREY.

JUNIOR HOUSE SURGEON (male) required, to take up duties on September 4th. Salary £100 per *annum, together with board*, residence, and laundry. Candidates must be fully qualified, registered, and single. Applications, stating age, experience, and copies of recent testimonials, should be addressed and sent to the undersigned not later than September 7th.

RICHARD ALLEN, Secretary.

Manchester Royal Eye Hospital.

JUNIOR HOUSE SURGEON required. Salary £120 per annum, with residence, board, etc. Applications (with copies of testimonials), endorsed "House Surgeon," to be addressed to the Chairman of the Board of Management not later than September 14th.

H. R. NORTH, Secretary.

Walsall General Hospital.
(Supported by Voluntary Contributions.)

The Committee invite applications (from men) for the post of RESIDENT SURGICAL OFFICER. *Salary £200 per annum.*

Candidates, who must be registered under the Medical Acts, must have had previous surgical experience and produce three recent testimonials.

The appointment will be for six months from October 1st.

The Hospital *contains* 100 beds and is equipped in all special departments.

Applications must be received by the undersigned not later than the first post Tuesday, September 17th.

WALTER FRANCOMBE,
August 23rd, 1929. Secretary.

Royal Northern Hospital,
Holloway, N.7.

BOROUGH OF ISLINGTON TUBERCULOSIS DISPENSARY (NORTH).

Applications are invited for the appointment of TUBERCULOSIS OFFICER (Non-Resident) *in the above Dispensary, vacant on Oct. 31st.*

Candidates must possess a registered British qualification, and have had previous experience in the treatment of Tuberculosis.

The appointment is a whole-time one with a salary at the rate of £750 per annum. Particulars with regard to duties and the sub*mission of testimonials*, etc., *may be obtained* from the undersigned, to whom applications *should be sent not later than September 7th.*

GILBERT G. PANTER, Secretary.

Royal Northern Hospital,
Holloway, London, N.

Applications are invited for the following posts:

HOUSE PHYSICIAN for nine months (six months House Physician and three months Casualty Officer) from October 15th.

OBSTETRIC HOUSE SURGEON for six months from October 15th.

Salary in each case at the rate of £70 per *annum, with board*, residence, and laundry.

Applications, with copies of testimonials, *should be sent by September 7th* to the undersigned, from whom forms of applications and rules can be obtained.

GILBERT G. PANTER, Secretary.

St. Bartholomew's Hospital,
ROCHESTER. (126 Beds.)

The House and Finance Committee invite *applications for the post of* HOUSE PHYSICIAN, vacant on September 14th.

Candidates *must be unmarried, qualified, and* registered medical men. The appointment is for six months and the salary is at the rate of £175 per annum, with board, residence, and laundry. The officer appointed will have charge of the Medical beds. Some knowledge of Ophthalmic work is desirable.

Applications, stating age, qualifications, and experience, accompanied by copies of three *recent testimonials, to be sent to the Secretary* not later than September 9th.

Swansea Hospital.
(316 Beds.)

SENIOR RESIDENT OFFICER wanted, gentleman, single, experienced. Duties to include that of House Surgeon to the Honorary *Gynæcologist*.

Salary £300 per annum, rising by annual *increments of £50 to £500 per annum, with* board, residence, and laundry.

Applications, stating age, nationality, qualifications, and experience, together with copies of three recent testimonials, to be forwarded to the *undersigned*.

O. C. HOWELLS, Secretary.

Swansea Hospital.
(316 Beds.)

HOUSE SURGEON wanted, gentleman, single. Salary £150 per annum, with board, residence, and laundry.

Applications, stating age, nationality, qualifications, and experience, together with copies of three recent testimonials, to be forwarded to the undersigned.

O. C. HOWELLS, Secretary.

Royal Liverpool Babies'
HOSPITAL.

Required on October 1st, RESIDENT MEDICAL OFFICER, for the above Hospital. The appointment to be for a period of six months. Salary at the rate of £90 per annum. Applications, with copies of testimonials, to be sent to the Chairman of the Hospital, c/o Child Welfare Association, 9, Copperas Hill, Liverpool, at or *before* twelve noon on Saturday, Sept. 14th.

The Royal Sea Bathing Hospital
FOR SURGICAL TUBERCULOSIS, MARGATE.

HOUSE SURGEON REQUIRED.

A Male House Surgeon is required to take up duty on October 1st next. The salary is at the rate of £100 per annum, with board, residence, attendance, and laundry.

Candidates for the post must be legally qualified and registered. The appointment is for six months.

There are 300 beds for adults and children, which afford special opportunities for the study of surgical tuberculosis.

Applications, stating age and previous appointments, with copies of three testimonials, should be sent to the Secretary, R.S.B.H. Offices, 15, York Buildings, Adelphi, London, W.C.2.

Central London Throat Nose, and
EAR HOSPITAL, Gray's Inn Road, W.C.1.

CHIEF CLINICAL ASSISTANTS.

There are vacancies for Two Chief Clinical Assistants. The appointments are honorary and tenable for one year, subject to re-election.

Attendance is required at two Clinics each week to assist the Surgeons in seeing the patients.

Applications, accompanied by copies of not more than three recent testimonials, should be sent to the undersigned on or before Sept. 9th.

JOHN H. YOUNG, Secretary-Supt.

Northampton General Hospital.

There will be vacancies on October 1st next, for One HOUSE PHYSICIAN, One HOUSE SURGEON, and One ASSISTANT HOUSE SURGEON. British nationality. Salary £150 per annum, with board, residence, and laundry.

The successful candidates will be appointed for a period of six months and will be eligible for re-election for a further period.

Candidates must be duly qualified and registered.

Applications, stating age, sex, qualifications, etc., with copies of testimonials, to reach the undersigned not later than September 11th.

H. ST. JOHN WOOD,
August 26th, 1929. Secretary-Supt.

Royal Buckinghamshire Hospital,
AYLESBURY.

Applications are invited for the post of RESIDENT MEDICAL OFFICER (male) for six months. To commence duty about September 30th. Salary £180 per annum, with board, residence, and laundry. Candidates must be fully qualified and registered.

Applications, stating age, qualifications, and experience, with copies of not more than three testimonials, should be sent to the undersigned at once.

M. W. BROWN, Secretary.

Scunthorpe and District War
MEMORIAL HOSPITAL.
(Surgical and Medical—66 Beds.)

RESIDENT HOUSE SURGEON (male, unmarried) wanted to take up duties. Salary £250 per annum, with board, residence, and laundry. Applications, with three recent testimonials (copies), stating age, qualifications, experience, and nationality, must reach the undersigned, endorsed "House Surgeon," not later than September 14th.

ARTHUR E. MAW, Secretary.

Bootle Borough Hospital
(General. 100 Beds.)
DERBY ROAD, BOOTLE.

Applications are invited from medical men for the post of JUNIOR MEDICAL OFFICER for the period ending March 31st, 1930. Salary at the rate of £125 per annum, with board, residence, and laundry.

Duties to commence October 1st. Applications, stating age and qualifications, with copies of testimonials, to be sent to the undersigned at once.

J. A. BEARDSALL, Secretary-Supt.

Bootle Borough Hospital,
DERBY ROAD, BOOTLE.

APPOINTMENT OF HONORARY LARYNGOLOGIST AND AURIST.

Applications are invited for the above vacancy. Candidates are requested to send particulars of their qualifications and experience, accompanied by testimonials, to the undersigned, not later than September 13th.

J. A. BEARDSALL, Secretary Supt.

Leicester Royal Infirmary.
(400 Beds.)

HOUSE SURGEONS, HOUSE PHYSICIANS, and CASUALTY OFFICER.

Vacancies are expected on October 1st for HOUSE SURGEONS, Two HOUSE PHYSICIANS, and One CASUALTY OFFICER. Salaries at the rate of £125 per annum. Applicants must have held a Resident Hospital post, or had similar experience of Hospital work. Election about the middle of September. Applications should be made to the undersigned by Monday, Sept. 2nd.

HARRY JOHNSON,
August 26th, 1929. House Gov. & Sec.

The London Lock Hospital,
91, Dean Street, W.1.

The Board of Management invite applications for the post of HOUSE SURGEON at the Male Lock Hospital. Candidates must be doubly qualified and duly registered. Salary at the rate of £200 per annum, with furnished flat, full board and laundry. The appointment to be for six months. Duties to commence October 10th. Applications, enclosing copies (only) of three recent testimonials, to be sent to the undersigned at the Male Lock Hospital, 91, Dean Street, W., on or before September 23rd.

By Order of the Board,
H. J. EASON, Secretary.

The Royal Albert Hospital and
EYE INFIRMARY, DEVONPORT.

A vacancy for an ASSISTANT HOUSE SURGEON (unmarried) exists. Applicants must be duly registered and the appointment will be for six months.

Salary £80 p.a., with board, apartments, and laundry free.

Applications, accompanied by copies of not more than three testimonials, should reach the undersigned not later than Friday, Sept. 6th.

By Order of the Committee,
FRANK ROWE.
August 26th, 1929. Secretary.

Royal West Sussex Hospital,
CHICHESTER.

The Board of Management invite applications for the post of JUNIOR HOUSE SURGEON (male) as from October 1st. Salary £150 per annum, with board, residence, and laundry.

Applications, stating age, with three recent testimonials, should reach the undersigned not later than September 7th. Particulars as to duties will be forwarded to candidates on receipt of their applications.

There is a probability of succession to the post of Senior House Surgeon within an unusually short period.

HERBERT S. AYLMORE, Secretary.

Royal Alexandra Hospital for
SICK CHILDREN,
BRIGHTON. (100 Beds.)

HOUSE SURGEON (male) required for six months' appointment from September 29th. Salary at the rate of £100 per annum, with board, lodging, and laundry.

Applications must be made in writing and accompanied by testimonials, and should be sent to A. F. GRAVES, Secretary, not later than Thursday, September 12th.

A. F. GRAVES,
August 21st, 1929. Secretary.

Weston-super-Mare General
HOSPITAL (60 Beds in use).

HOUSE SURGEON.

The Committee require the services of a duly qualified Resident House Surgeon (male). Salary £130, with board, residence, and laundry. Duties to commence immediately. Application, with copies of testimonials, to be sent to the undersigned.

LESLIE J. FURSLAND, Secretary.

Rotherham Hospital.

Wanted, HOUSE PHYSICIAN (male), qualified. Salary £180 p.a., with board, lodgings, and laundry, to have charge of Out-patients, administer Anæsthetics, and assist Honorary Physician.

Applications, with copies of recent testimonials, to be sent to the Secretary, G. W. ROBERTS, 8, Moorgate Street, Rotherham.

Lowestoft and North Suffolk
HOSPITAL.

HOUSE SURGEON (male) required. Salary £150 per annum, with board, residence, and laundry. Applications, with copies of three recent testimonials, to the Honorary Medical Superintendent.

West Riding Mental Hospital,
WAKEFIELD.

Vacancy for JUNIOR ASSISTANT MEDICAL OFFICER (male). Post-graduate Medical or Surgical experience essential. Experience of Mental work not necessary. Junior officers who decide to specialize in Mental Diseases receive complete training for the Diploma in Psychological Medicine of the University of Leeds, and on gaining this are eligible for promotion to Senior rank (with married man's privileges). Salary £400, rising by £25 per annum to £500 (and on promotion to £800), together with apartments, board, washing, and attendance. Pensionable under the Asylum Officers' Superannuation Act, 1909.

Applications to be sent immediately to the Medical Director.

Medical Officer and Public
VACCINATOR (male), duly registered, wanted for the ISLAND OF SANDAY, ORKNEY, to commence duties on October 16th, or near this date. Salary from the Parish Councils £150. The Medical Officer, now resigned, holds an appointment from the Lighthouse Commissioners of the annual value of £10, and grant from the Highlands and Islands Board Insured panel over 100. Population of Island 1,400. There is a modern dwelling house, offices, and garden, for which an annual rent of £10 is charged. The Island is well provided with good public roads. Sealed applications, with testimonials, marked "Medical," to R. T. MUIR, Clerk to the Parish Councils of Sanday, on or before September 7th.

Queen Charlotte's Maternity
HOSPITAL, Marylebone Road, N.W.1.

ASSISTANT RESIDENT MEDICAL OFFICER (male) required to commence duty on October 1st. Applicants must be registered. Appointment for three months. On completion of this appointment the selected candidate will be expected to proceed to the post of Senior Resident Medical Officer (for three months) on the recommendation of the Medical Staff. Salary of the Assistant Resident Medical Officer is at the rate of £80 per annum, and of the Senior Resident Medical Officer £100 per annum, with board, residence, and washing allowance (4/- weekly). Applications, with copies (not originals) of not more than three testimonials, will be received by the Secretary up to September 10th.

ARTHUR WATTS, Secretary.

Queen Charlotte's Maternity
HOSPITAL, Marylebone Road, N.W.1.

DISTRICT RESIDENT MEDICAL OFFICER October 1st. Applicants must be registered. The (male or female) required to commence duty on appointment is for six months. The salary is at the rate of £80 per annum, with board, residence, and washing allowance (4/- weekly) Applications, with copies (not originals) of not more than three testimonials, should be sent to the Secretary by September 10th.

Canvassing is prohibited.

ARTHUR WATTS, Secretary.

Birmingham and Midland Eye
HOSPITAL, Church Street, BIRMINGHAM.

HOUSE SURGEON required at the above Hospital. Salary £110 per annum.

Applications, together with copies of not more than three testimonials, should be sent to the undersigned not later than Monday, September 16th. Some previous Ophthalmic experience desirable.

C. A. MASON,
August 30th, 1929. Gen. Supt.

Jenny Lind Hospital for Children,
NORWICH.

Applications are invited for the post of RESIDENT MEDICAL OFFICER. Salary £120 per annum, with board, residence, and laundry. Candidates (male), who must possess registered qualifications, should forward applications, stating age, nationality, etc., together with copies of testimonials, to the undersigned, as soon as possible.

FRANK INCH,
August 30th, 1929. Secretary.

Kettering and District General
HOSPITAL. (82 Beds.)

Applications are invited for the post of JUNIOR HOUSE SURGEON. Salary £100 p.a., with board, residence, and washing. Candidates must be fully qualified and registered.

The appointment is for six months, but candidates will be eligible for re-election

Applications, stating age, nationality, and qualifications, together with copies of three recent testimonials, to be sent immediately to the Secretary-Superintendent.

APPOINTMENTS—Important Notice.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

(a) British Islands.

Town or District.	Town or District.	Town or District
CONTRACT PRACTICE.	**CONTRACT PRACTICE** *(Contd.)*	**PUBLIC HEALTH** (continued).
EBBW VALE, MON. *(Workmen's Medical Society)*	NEATH AND DISTRICT. *(Medical Aid Association.)*	GLASGOW EDUCATION AUTHORITY. *(Male Assistant Medical Officer.)*
GILFACH GOCH, GLAMORGAN. *(Workmen's Medical Scheme.)*	OAKDALE, MON. *(Medical Officer for Medical Aid Association)*	SOUTH SHIELDS COUNTY BOROUGH. *(Assistant Medical Officer.)*
LLWYNYPIA, CLYDACH VALE PENYGRAIG, GLAMORGAN. *(Workmen's Medical Scheme.)*	OGMORE VALLEY, GLAMORGAN. *(Wyndham Colliery Medical Aid Society.)* *(Workmen's Medical Scheme.)*	YORKSHIRE NORTH RIDING COUNTY COUNCIL EDUCATION COMMITTEE *(Assistant School Medical Officer.)*
MARDY, GLAMORGAN. *(Workmen's Medical Scheme.)*	**PUBLIC HEALTH.**	YORKSHIRE WEST RIDING COUNTY COUNCIL. *(School Medical Inspector.)*
	CORNWALL EDUCATION COMMITTEE. *(Assistant School Medical Officer—Female.)*	

(b) Colonial Medical Service.— WINDWARD ISLANDS MEDICAL SERVICE. (Grenada with Carriacou, St. Vincent and St. Lucia.)

(c) Overseas.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.
NEW SOUTH WALES. *(All Friendly Society Appointments.)*	Dr. R. H. TODD (Hon Sec., New South Wales Branch), B.M.A. Building, 30-34, Elizabeth St., Sydney, N.S.W.	VICTORIA. *(All Institute or Medical Dispensaries.)*	Dr. FRANK DAVIES (Hon Sec., Victorian Branch), British Medical Association, Medical Society Hall, East Melbourne, Victoria.	WESTERN AUSTRALIA. *(Contract and Lodge Practices.)*	Hon. Sec., Western Australian Branch, British Medical Association, No. 6, Bank of N.S.W. Chambers, St. George's Terr., Perth, Western Australia.
QUEENSLAND. *(Brisbane Associated Friendly Societies Institute.)*	The Hon. Sec., Queensland Branch, British Medical Association, B.M.A. Building, Adelaide St., Brisbane.	WELLINGTON, NEW ZEALAND. *(Contract Practice Appointments.)*	Dr. G. F. V. ANSON (Hon. Sec., New Zealand Branch), British Medical Association, P.O. Box 156, Wellington, New Zealand.		

Address: B.M.A. House, Tavistock Square, W.C.1. By Order of the Council of the British Medical Association.
August 28th, 1929. ALFRED COX, Medical Secretary.

SCALE OF CHARGES FOR ADVERTISEMENTS.

	£ s. d.		£ s. d.
Whole page	20 0 0	Half single column	3 15 0
Half page	10 0 0	Six lines and under	9 0
Whole single column (three columns to page)	7 10 0	For each additional line ...	1 6

An average line in column contains six words. Births, Marriages, Deaths, 9s. per insertion.

Advertisements should be delivered, addressed to the Financial Secretary and Business Manager, B.M.A. House, Tavistock Square, W.C.1, not later than first post on Tuesday preceding publication.

British Medical Journal,
BRITISH MEDICAL ASSOCIATION HOUSE,
TAVISTOCK SQ., LONDON, W.C.1.
T/A: ARTICULATE, WESTCENT, LONDON.
Tel.: MUSEUM 9861 (4 lines).

SMALL ADVERTISEMENT RATES.

Up to Six Lines (32 Words) 9s.
Each Additional Line, 1s. 6d.
(Address included.)

Sixpence should be added if replies to a box number are to be posted.

All advertisements must be received not later than first post Tuesday previous to date of publication.

ASSISTANCIES.

Wanted for Coast Hospital Town (South Africa), well-qualified ASSISTANT (preferably Fellowship), with view Partnership; salary beginning £850—£1,000 according qualifications. Good-class English general and surgical Practice; sports, educational, and climatic advantages. State nationality, etc., enclosing testimonials and personal references.—Apply, "MEDICUS," Box 1474, Capetown.

Wanted by October 1st, outdoor ASSISTANT, male, in good-class Practice, non-panel and non-dispensing, near London, with view to Partnership. Ex resident and with some G.P. experience preferred. Salary £400, with unfurnished house.—Address, No. 5321, B.M.A. House, Tavistock Square, W.C.1.

Wanted, October 1st, male indoor ASSISTANT for Practice in Midland town, British, young, reliable. Usual bond. Salary £250—£300, with board, according experience.—Address, No. 5334, B.M.A. House, Tavistock Square, W.C.1.

Wanted September, Assistant in Industrial Practice in Manchester. £400 per annum and house. Prospects of Partnership. Full particulars. — Address, No. 5335, B.M.A. House, Tavistock Square, W.C.1.

Wanted.-Experienced Assistant, permanent, for General and Surgical Practice near Manchester. Good salary and future Partnership offered to hard worker. House or rooms available.—Address, No. 5311, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistant, outdoor, male, to take charge of Branch Surgery, Pembs. Coast, country district. Motor-cyclist. Work light.—Address, No. 5013, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistant, London area; salary £300; furnished rooms, electric light, and coal. Usual bond.—Address, with full particulars, No. 4413, B.M.A House, Tavistock Square, W.C.1.

Wanted. — Outdoor Assistant, in good-class mixed Practice, Somerset. British Ultimate view. Part-time help would suit as work very light. Ample time for study. —Address, No 5332, B.M.A House, Tavistock Square, W.C.1.

Wanted. — Indoor Assistant, in a Colliery Practice, Glamorgan Salary £330 p.a. for reliable man. Work light. Dispenser kept.—Address, references, etc., No 5426, B.M.A. House, Tavistock Square, W.C.1.

Wanted, young married Assistant, with view succession, to manage cash and panel Branch Practice in Midland industrial town. Good prospects. Commencing salary £450, with house.—Address, No. 5135, B.M.A. House, Tavistock Square, W.C.1.

Assistantship, with or without view, wanted by M.B., Ch.B., æt. 39, single, abstainer, Protestant, height 5 ft. 6 ins. Own car. Free September 14th. Panel Practice near London preferred. — Address, No. 5123, B.M.A. House, Tavistock Square, W.C.1.

Assistantship wanted, with definite early view, by young Irish M.B. Six years' G.P. experience. Keen on midwifery. Single, well received. — Address, No. 5310, B.M.A. House, Tavistock Square, W.C.1.

Assistantship in or near London wanted by single Irishman, 26 years, R.C.; 3½ years' qualified; ex ship's surgeon; at present in panel Practice. Free in reasonable time. —Address, No. 5324, B.M.A. House, Tavistock Square, W.C.1.

Assistants and Locum Tenens wanted immediately. Good salaries offered. —BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Progressive experienced G.P. seeks well-qualified keen WOMAN ASSISTANT for good G.P. training and 2—3 years' post, outdoor, near Manchester. Pref. own car.—Address, No. 5322, B.M.A. House, Tavistock Square, W.C.1.

Woman M.D., B.Ch., B.A.O., requires PART-TIME ASSISTANTSHIP in London during September. Experienced in Panel and Private Practice. Excellent references. — Address, No. 5306, B.M.A. House, Tavistock Square, W.C.1.

MEDICAL POSTS, DISPENSERS, etc.

Wanted. — Fully qualified DOCTOR for service in the *Tropics*. Preferably ex House Surgeon or Physician. Agreement for three years. Salary £850, £900, £950. Renewable on higher terms. Free furnished quarters and first-class passage provided. Candidates must be unmarried. Ladies not eligible. — Address, with copies of testimonials (not returnable), No. 5036, B.M.A. House, Tavistock Square, W.C.1.

Wanted, young Doctor, with Diploma or experience in Tropical Medicine, supervise group Rubber Estates in MALAYA. Terms: 3 years' agreement; salary equivalent £1,050, rising to £1,190 per annum, plus 10 per cent. to Provident Fund. Car allowance, passages self and wife, furnished house, six months' leave at end on full pay.—Write, giving qualifications, to "R.T.," 64, Cannon Street, London, E.C.4.

Wanted. — Male Doctor for Surgery only. Hours: 9 to 11; 6 to 9. North London. Outdoor. No Sunday. Please state essential particulars.—Address, No. 5313, B.M.A. House, Tavistock Square, W.C.1.

Wanted, a Lady Dispenser-BOOKKEEPER. Practice in Metropolitan area on the Thames. Post open on last week of September. Salary £150 p.a. Fortnight's holiday. One-half day a week. No Sunday work. To find own rooms. Need not live in district. Must be quick and keen. References required. — Address, No. 5312, B.M.A. House, Tavistock Square, W.C.1.

A Lady Dispenser-Bookkeeper supplied immediately on request, qualified and with practical experience in private practice and dispensary work, also trained in Bacteriological Laboratories of the LONDON COLLEGE OF PHARMACY FOR WOMEN. Preparation for Examinations.—Write, wire, or 'phone (Park 0959), Secretary, 7, Westbourne Park Road, W.2.

Commercial Accountant, wide *experience secretarial* work, book-keeping, and accounts, desires ENGAGEMENT. Thoroughly trustworthy, excellent references.—Address, "Accountant," WM. PORTEOUS & Co., Advertising Agents, Glasgow.

Dispensers supplied to Doctors at short notice, without fee. Qualified and exper. in priv. and panel prac. Perm. and part-time Bookkeeper-Dispensers, Secretary-Dispensers, Nurse-Dispensers, and Chauffeuse-Dispensers.—Write, wire, or 'phone Central 3679, THE RELIANCE BUREAU FOR DISPENSERS, 87, Holborn Viaduct House, 12, Holb. Viad. E.C.1.

Doctor, British European, wanted for Group of Estates in MALAYA. Age 27—35. Preference to candidates who have done *a course of Tropical Medicine*, or had previous Tropical experience. Four years' agreement at $800 per month, rising annually by $50 per month, followed by 8 months' leave on full pay. ($1 Straits = 2/4 English.) *Bungalow* and heavy furniture, car, and all running costs free. First-class passage out and home. To leave England early October.—Address, No. 5303, B.M.A. House, Tavistock Sq., W.C.1.

Doctors requiring qualified Dispensers, Nurse Dispensers, Secretary Dispensers or Chauffeuse Dispensers, are invited to write, wire, or 'phone Gerrard 2699, THE DISPENSERS' BUREAU, 145, Shaftesbury Avenue, London, W.C.2.

Dispenser, Lady; Hall; 3 years' full experience, including clerical work with general practitioner, requires POST in North London. Good references.—"Colmore," Alverstone Avenue, East Barnet.

Dispenser - Bookkeeper, male (42), desires POST. Thoroughly experienced panel and private. Highest references.—"DISPENSER," 16, Birr Street, Shipley, Yorks.

Experienced Graduate desires EMPLOYMENT in London with two afternoons free to attend Ophthalmic Hospital in or outdoor.—Address, No. 5304, B.M.A. House, Tavistock Square, W.C.1.

Liverpool or Chester. — Wanted, PART-TIME WORK evenings or week-ends, by Doctor doing Post-graduate Course at Liverpool University; 6 years' experience General Practice. — Address, No. 5309, B.M.A. House, Tavistock Square, W.C.1.

Part-time Woman *Medical Officer* required for Maternity and Child Welfare Clinics. Two sessions weekly (Tuesday and Thursday afternoons), one of the sessions being for ante-natal work. Remuneration 1½ guineas per session. Previous experience essential. Applications, stating experience, and accompanied by copies of testimonials, to be sent to *Town Clerk; Town Hall, Fulham, S.W.6*, not later than Monday, September 9th.

Part-time work, mornings, or afternoons, or both, wanted by Woman M.B., D.P.H.; experienced G.P. and Children. London area.—Address, No. 5308, B.M.A. House, Tavistock Square, W.C.1.

Responsibility sought in London by *Doctor's Daughter, utterly trustworthy*, good organizer, tactful; 4 years' hotel exper.; also *running Doctor's house, with mental patients*. Economical housekeeper. Night duty considered.—Address, No. 5301, B.M.A. House, Tavistock Square, W.C.1.

Secretary - Receptionist, gentlewoman, fully trained nurse, desires daily post, full or part-time. Wide experience, excellent testimonials. All secretarial duties.—Write "E.M.S.W.," 276, Portland Road, Woodside, S.E.25.

Typewriting.—Expert undertakes Theses, Testimonials, etc. Numerous letters of appreciation from Doctors.—Write or 'Phone: BEATRICE RADFORD, 27, Buckland Crescent, Swiss Cottage, London, N.W.3. Primrose Hill 0805.

The Charterhouse Typewriting BUREAU, 18-21, Charterhouse Sq., E.C.1.—Typewriting, Duplicating, and Translations of all descriptions. Medical work a specialty. Testimonials typed and returned same day. Very moderate terms. Clerkenwell 6672.

LOCUMS.

HOLIDAY LOCUMS.

THE MEDICAL AGENCY has pleasure in announcing that lists are now being prepared for Locum engagements for the forthcoming Holiday Season. Principals requiring a RELIABLE SUBSTITUTE are advised to make early application.—Address, W. H. GRANT, The Medical Agency, Watergate House, Adelphi, W.C.1. Tel.: Gerrard 8954 and Riverside 1254 (night calls).

A retired Practitioner is willing to act as LOCUM TENENS for 7 guineas a week and return fares. Must be a Country Practice. Could take an engagement for any length. — Address, No. 5305, B.M.A. House, Tavistock Square, W.C.1.

Hospitality Locum Tenency required for Doctor, wife, 2 children, Fortnight in September. Will bring own car. Agencies please answer. — Address, No. 5122, B.M.A. House, Tavistock Square, W.C.1.

Lady Doctor, young, very well received, loyal, accustome l sole charge, seeks LOCUM or ASSISTANCY. Free September 12th. Now in Yorkshire. Will go anywhere.—Address, No. 5329, B.M.A. House, Tavistock Square, W.C.1.

Locum wanted, September 2nd to September 16th, London E. Small Practice. Very light work, no midwifery. Suit lady. — Address, No. 5314, B.M.A. House, Tavistock Square, W.C.1.

Reliable Locum, disengaged for 10 days from September 4th, desires ENGAGEMENT. Home counties preferred.—Address, No. 5319. B.M.A. House, Tavistock Square, W.C.1.

Retired Medical Man, aged 62, married, would do LOCUM around London or in the country.—Address, No. 5307, B.M.A. House, Tavistock Square, W.C.1.

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PARTNERSHIPS.

Wanted by M.D., M.R.C.P. London, PARTNERSHIP in good-class Practice in Hospital town, with a view to getting on Hospital staff. Advertiser would prefer Surgical colleague.—Address, No. 5317, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Partner Assistant, with small capital to work up new Surgery in London area. Excellent living accommodation. Enormous scope.—Address, No. 5333, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—Junior male PARTNER, British. With view old established panel and private Practice in sporting county. Good opportunity, plenty of scope. Receipts last year £1,230.—Address, No. 5330, B.M.A. House, Tavistock Square, W.C.1.

Cheshire. — Partnership. — Old-estab. PRACTICE. Cash receipts 1928, nearly £4,000. Panel 3,230. Premium 1/4 share—1½ yrs.' purchase (to include book debts). —BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Eastern Counties.—Partnership is offered in an old-established good-class non-panel Practice. Receipts over £4,400 p.a. This is an excellent opportunity for a young experienced man, preferably single, of good address and personality. Premium for 1/4th share, with view to larger share, at 2 years' pur.—Apply to THE MEDICAL AGENCY, Watergate House, York Buildings, Adelphi, W.C.2.

Lancs. Town.—Half Share £1,800 (excl. book debts); panel over 1,900. Premium £1,350 (no fee for book debts or stock). Any investig.; good reasons for selling; any introduction given; good house to rent at first.—No. 5323, B.M.A. House, Tavistock Square, W.C.1.

London, S.W. — One-fifth Share of mixed PRACTICE, £500 minimum. Panel over 3,000. Knowledge Ophthalmology an advantage. Preliminary assistantship. Two years' purchase. — Address, No. 5425, B.M.A. House, Tavistock.

Lancashire Town.—Partnership. Half share in old-estab. Practice. Average cash receipts £3,000. Panel 2,516. Excellent house for sale, 5 bedrooms, garage, and garden. Price £1,000. Premium—Practice—1½ years' purchase.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Partnership following Locum TENENCY offered to good Eye Specialist under favourable conditions in a large seaport in South Africa.—Address, No. 5328, B.M.A. House, Tavistock Square, W.C.1.

PRACTICES.

Wanted, Practice (or NUCLEUS). £300 to £1,000 p.a.; outskirts of London and high ground preferred. House, 4 bedrooms at least: if possible to rent. Partnership considered. Locality and particulars confidentially. —No. 5331, B.M.A. House, Tavistock Sq., W.C.1.

Wanted.—We have innumerable applicants for sound investments in all districts, incomes from £600 to £4,000, with and without panel. Correspondence invited from prospective Vendors. — THE MEDICAL AGENCY (W. H. Grant), Watergate House, 15, York Buildings, Adelphi, W.C.2.

Cheshire Town.—Nr. Manchester. Cash receipts £500. Scope. Panel 700. Good house in prominent position, 6 bedrooms, 3 reception rooms. Garage. Premium—Practice, house, drugs, etc., £1,400, part on mortgage.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Death Vacancy. — Unopposed Country PRACTICE, near Manchester. Cash receipts over £2,000 p.a. Panel 1,300. House probably to rent. Garage and garden. Premium 1 year's purchase.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Edinburgh General Practice for Sale. Established 2½ years ago by young man now taking up appointment. Panel 380. Income £600 p.a. Rooms to rent.—PATON & FINDLAY, 177, Bruntsfield Place, Edinburgh.

For Sale.—Panel of over 800 and part of non-dispensing private PRACTICE, with long introduction in favourite all year round seaside resort within easy reach of London. On past figures income should be £700 at least, for first year. Premium £1,400 cash. House at moderate rent in good residential neighbourhood; 16 years' lease to run. Fixtures and fittings at valuation. — Address, No. 5104, B.M.A. House, Tavistock Sq., W.C.1.

For Sale.—Branch Practice, including 700 (seven hundred) panel in industrial area near Glasgow. Catholic. Preliminary assistantship if desired. For particulars. — Address, No. 5318, B.M.A. House, Tavistock Square, W.C.1.

For Disposal.—Old-estab. Lancs Town, average receipts £4,100 p.a. Panel 2,650. Good house, 6 bedrooms, on sale or rent. Near seaside, schools, sports, garage. Vendor going abroad. Premium 1½ years' purchase. Part deferred.—Address, No. 5320, B.M.A. House, Tavistock Square, W.C.1.

For Disposal.—A good Practice is not always to be had directly, but Mr. PERCIVAL TURNER can generally offer applicants something suitable. Nearly all the best Practices are sold by him without being advertised. Inform. free on applic.—4, Adam St., W.C.2.

Ideal Centre.—Young Doctor.— Write "L.T.," 26, Cromwell Street, Gloucester.

Lancashire Town. — Old-estab. PRACTICE. Average cash receipts £3,000 p.a. Panel over 2,600. Small house to rent. Premium 1½ years' purchase.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

London Suburb. — Splendid op- portunity for acquiring PRACTICE yielding £850 p.a. Charming flat, suitable for young man, rent £100. No rates or taxes.—Address, No. 5336, B.M.A. House, Tavistock Sq., W.C.1.

Lancashire Town. — Woman Doctor's PRACTICE. Cash receipts £2,243. Panel 1,450. Good house, 4 bedrooms, rent £60 p.a. Premium £3,000 (to include book debts, drugs, etc.). — BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Lock-up Cash Practice for Sale, Camberwell. Receipts average £1,100 per annum. Expenses under £100. No rent. Price £1,600 instalments, or £1,500 cash. — Address, No. 5315, B.M.A. House, Tavistock Square, W.C.1.

Lancashire Town. — Non-panel PRACTICE. Cash receipts last year £1,508. Fees 7/6 upwards. Purchaser must be capable of doing major surgery. Good house to rent at £60 p.a., 2 reception and 4 bedrooms. Premium £1,200.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

London. N.W.—Nucleus general practice. Panel 230 increasing. Small premium. Vendor giving up Practice.—Address, No. 5326, B.M.A. House, Tavistock Square, W.C.1.

Lancashire Coast Resort. — Old-estab. PRACTICE. Average cash receipts £1,100. Panel 550. Scope. Modern house (freehold) for sale, containing 2 reception rooms, 5 bedrooms. Garage and garden. Premium—Practice—1½ years' purchase.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Lancashire Town. — Old-estab. PRACTICE. Cash receipts £970. Panel 1,150. Scope. Good house to rent at £70 p.a. Premium £800.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Midlands.—Mixed-class PRACTICE for Sale in small town; considerably decreased owing to illness. Panel 400. Receipts £400. Good scope. Premium £500. —Address, No. 5316, B.M.A. House, Tavistock Square, W.C.1.

Manchester.—Good working-class PRACTICE. Receipts £500. Panel 750. Nice house, rent £44. branch 21/- weekly. Excellent scope. Price 1 years' purchase or near offer. — MANCHESTER MEDICAL AND SCHOLASTIC ASSOCIATION, 6, Brown Street.

Manchester.-Residential Suburb. Good-class PRACTICE. Average cash receipts £1,506. Excellent corner house for sale, 3 reception, 8 bedrooms. Garden and garage. Premium—Practice—1½ years' purchase. —BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Midland University Town.—Old- established Cash and Panel PRACTICE for sale. Income £1,350 approx. Growing panel approaching 1,400. Medium-sized house to rent. Accountant's certified report available. Premium £2,000 cash.—Address, No. 5134, B.M.A. House, Tavistock Square, W.C.1.

Medical Practice.—Doctor wishes to acquire City PRACTICE; Glasgow or Edinburgh preferred but not essential; income £1,500 to £2,000.—ROBERT FLEMING, S.S.C., 21, Hill Street, Edinburgh.

Manchester. — Good-class Prac- TICE (non-panel) in first-rate residential suburb. Average cash receipts £2,206 p.a. Fees 5/- to 21/-. Excellent house to rent on lease. Premium 1½ years' purchase.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Midlands.—Old-established PRACTICE averaging £650 a year (£350 from panel). Expenses extremely light. Family worked. Suit male or female. Doct radvertising. £950 for quick sale.—Address, No. 5325, B.M.A. House, Tavistock Square, W.C.1.

Medical Practice for Sale in Central Highlands. Appointments £50; panel 120; income small, but scope for increase. —Apply, No. 8539, c/o PERCIVAL TURNER, Ltd., 4, Adam Street, Adelphi, Strand, W.C.2.

North Wales Coast. — Medical Woman's PRACTICE. Cash receipts last year £300. Panel 164. Premium £350, part by arrangement.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Near Chester.—Practice. Cash receipts 1928, £600. Panel 440. Scope. Nice modern house to rent, 2 entr., 3 bedrooms. Garden and garage. Premium £650 cash. (to include surgery furniture and drugs).—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Near Liverpool.—Nucleus. Cash receipts last year £2267. Panel 330. Scope. Good house, 4 bedrooms, 3 reception rooms. Garage and garden. Premium—Practice and house—£1,150.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Oldham.—Old-established PRACTICE, carried on by late Dr. R. W. Pickering, at 161, Rochdale Road, Oldham, together with freehold dwelling house, surgery, etc.—Apply, MELLOR & JACKSON, Solicitors, 8, Church Lane, Oldham.

Pretty Country District, Lancs.—Very nice house, garden, garage. Receipts £500, excellent scope. Panel 300. Appointments £150. Price 1½ years' purchase. House also for sale. Golf, tennis.—MANCHESTER MED. & SCHOLASTIC ASSOCIATION, 6, Brown Street.

Pleasant Midland City.—Practice of £500, panel and private. Ample scope for energetic man. House to rent, separate surgery, garage, electric light. Centrally situated. — Address, No. 5327, B.M.A. House, Tavistock Square, W.C.1.

Shropshire.—Unopposed Country PRACTICE. Cash receipts £1,500 p.a. Panel 550. House to rent, 5 bedrooms, 2 entertaining rooms, garage, and garden. Premium £1,500, part by arrangement.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

To Purchasers. — Do not buy without expert assistance. With 40 yrs.' experience Mr. PERCIVAL TURNER can advise in all cases. Terms free on application to 4, Adam St., Strand, W.C.2. Telephone: Gerrard 0399. Telegrams: "Epsomian, London."

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Consulting Rooms to be Let, Harley Street and district, whole or part-time. Lists sent on application.—ELGOOD & Co., 10, Henrietta Street, Cavendish Square, W.1. Mayfair 5659.

Excellent opportunity.—Dentist, long established, with very large Practice in popular South-West Coast (seaside resort), is desirous of LETTING PART of own HOUSE to Medical Practitioner. Big facilities for acquiring a busy Practice.—Address, No. 5302, B.M.A. House, Tavistock Square, W.C.1.

High-class Professional Suite HOUSE off Harley Street, fully furnished and equipped. Suit Doctor or Dentist seeking free accommodation and augment income by £1,000 p.a. Principals only.—"H.D.T.," 195, Oxford Street, W.1.

To Let in Devonshire Street, splendid SUITE of TWO ROOMS suitable for Doctor or Dentist; also part-time consulting room, use of waiting room, etc., from £40 per annum.—Address, No. 5124, B.M.A. House, Tavistock Square, W.C.1.

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APPOINTMENTS.—Contd.

Royal South Hants and SOUTHAMPTON HOSPITAL, SOUTHAMPTON.

Applications are invited for the posts of JUNIOR HOUSE SURGEON, salary £130; CASUALTY OFFICER, salary £120; with rooms, board, and laundry. Six months' engagement, commencing October 1st. Candidates, who must be male and unmarried, should apply at once to the undersigned, stating age, and enclosing copies of testimonials.

By Order,
HY. TRUSSON, Secretary.

The Weir Hospital, Grove Road, Balham, S.W.12.

SENIOR and JUNIOR RESIDENT MEDICAL OFFICERS (male, unmarried) required at the end of September. Candidates must be fully qualified and duly registered.

Salary £200 and £150 respectively, with board, residence, and laundry. Applications, with copies of testimonials, to be sent to the Secretary, from whom further information may be obtained.

Liverpool & Samaritan Hospital FOR WOMEN.

HOUSE SURGEON wanted for six months from October 1st. Salary at rate of £100 per annum. *Applications, with testimonials,* to be addressed to the undersigned before September 7th.

J. ST. GEORGE WILSON,
315, Rodney Street, Liverpool. Hon. Sec., Medical Board

St. Paul's Eye Hospital, OLDHALL STREET, LIVERPOOL.

Applications are invited for the post of HOUSE SURGEON, to this Hospital. Salary £100 per annum. Applications, with copies of testimonials, should be sent to the Secretary, at the Hospital, on or before September 7th.

Two House Surgeons (males) required for AYR COUNTY HOSPITAL, for six or twelve months, both commencing on April 1st next. Salaries at the rate of £150 per annum, with board and residence. Applications, with two copies of testimonials, to be lodged with the Secretary, 2, Barns Street, Ayr, not later than September 9th, at 11 a.m.

Peace Memorial Hospital, WATFORD, HERTS.

LOCUM TENENT wanted from September 10th to October 16th. Reply, stating experience and other essential particulars, to the Secretary.

St. James' Hospital.

Applications are invited from male members of the medical profession for the filling of a vacancy in the staff of HOUSE PHYSICIANS and SURGEONS at the above Hospital. Applicants must be fully qualified and registered. The Hospital is one of 1,126 beds, with special departments for Radiology, Pathology, Midwifery, and Diseases of Children. There are, in addition, 320 beds in separate Mental Wards. The staff consists of a Medical Superintendent, a Resident Medical Staff of six, a Pathologist, a Radiologist, and Visiting Physicians and Surgeons.

The successful applicant will be required to act as House Physician and Surgeon under the Medical Superintendent and the Visiting Staff, and to perform such other duties as the Medical Superintendent may direct. The term of appointment is limited to two years.

Salary £200 per annum, with board, apartments, and attendance, subject to deductions under the Poor Law Officers Superannuation Act, 1896.

Applications, stating qualifications, and giving particulars of present and prior occupations, together with copies of three recent testimonials, must be received by me not later than 10 a.m. on Friday, September 6th, endorsed "House Physician and Surgeon."

Selected candidates will receive due notice to attend.

Poor Law Offices, 11, South Parade, Leeds. JAMES H. FORD, Clerk to the Guardians.
August 27th, 1929.

The Royal Eye and Ear Hospital, BRADFORD.

Applications are invited for the post of JUNIOR HOUSE SURGEON (male).

Salary £120, with board, residence, and laundry.

Applications, stating qualifications, age, etc., with copies of recent testimonials, to be forwarded to the undersigned on or before September 10th.

F. BRIGGS, Secretary-Supt.

Royal Liverpool Children's HOSPITAL.

The Committee invite applications for the posts of RESIDENT HOUSE PHYSICIAN and HOUSE SURGEON, at the CITY BRANCH, Myrtle Street, which will be vacant on October 1st next. The appointments will be for a period of six months. Salary in each case at the rate of £60 per annum. Applications should be sent, with copies of recent testimonials, to the Secretary, Royal Liverpool Children's Hospital, Myrtle Street, Liverpool, on or before Friday, September 6th.

Seamen's Hospital Society, Greenwich, S.E.10.

The Committee invite candidates for appointment of Two HOUSE PHYSICIANS at the HOSPITAL FOR TROPICAL DISEASES, Endsleigh Gardens, W.C. Candidates must be male, doubly qualified and registered. The elected candidates will be required to take up duty on October 1st. Salary at the rate of £150 per annum, with board, residence, and washing. The appointment will be for six months.

Applications, stating age, together with copies of not more than three recent testimonials, to be sent in on or before September 11th to the undersigned, from whom further particulars can be obtained.

By Order,
Greenwich. R. E. V. BAX,
August 19th, 1929. Secretary.

Seamen's Hospital Society, Greenwich, S.E.

MEDICAL OFFICER required at the ALBERT DOCK HOSPITAL, Connaught Road, E.16, for six months from October 1st. Salary £110 per annum, and a proportion of fees, with board, residence, and washing.

Applications, with copies of three testimonials, to be sent in by September 18th to the undersigned.

Greenwich. R. E. V. BAX,
August 26th, 1929. Secretary.

Seamen's Hospital, Greenwich.

HOUSE PHYSICIAN and HOUSE SURGEON required at DREADNOUGHT HOSPITAL, Greenwich, for six months from October 1st. Salary £110 per annum, and a proportion of fees, with board, residence, and washing. Candidates must be male.

Applications, with copies of three testimonials, to be sent in by September 18th to the undersigned.

Greenwich. R. E. V. BAX,
August 26th, 1929. Secretary.

CAVENDISH NURSES (Male and Female)

Head Office: 54, BEAUMONT ST., LONDON, W.1 (late 43, New Cavendish St., London, W.1.)

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Superior trained Nurses for Medical, Surgical, Mental, Dipsomania, Travelling and all cases. Nurses reside on the premises, and are always ready for urgent calls Day and Night. Skilled Masseuses, Masseurs, and good Valet attendants supplied.

Terms from £3 3s. *Apply to the Secretary or Lady Supt.*

West London Hospital,
Hammersmith Rd., W.6. (225 Beds.)

Applications are invited for the post of RESIDENT ASSISTANT SURGEON from October 1st next. Salary at the rate of £200 per annum, with board, lodgings, and laundry allowance. The appointment will be for one year terminable by one month's notice on either side, and subject to annual re-election, may be extended to not more than three years. Candidates must be duly qualified medical practitioners, and it is desirable that they should hold the F.R.C.S. (England) Diploma. Applications, accompanied by copies of testimonials, must reach me not later than first post on Friday, September 13th. Candidates must attend a Meeting of the Medical Council on Friday, September 20th, at 4 p.m., and prior to that date call upon and send copies of application and testimonials to each member thereof. They must not canvass Members of the Board, but, if notified, must attend a Meeting of the Board at 5 p.m. on Tuesday, September 24th, when the election will be made.

H. A. MADGE, Secretary.

West London Hospital,
Hammersmith Rd., W.6. (225 Beds.)

Required, One HOUSE PHYSICIAN, Two HOUSE SURGEONS, and One AURAL and OPHTHALMIC HOUSE SURGEON, and RESIDENT ASSISTANT CASUALTY OFFICER (males) for six months from October 1st next, subject to one month's notice on either side. Salary at the rate of £100 per annum, with board, lodging, and washing allowance. Candidates must be registered under the Medical Act. Applications and copies of testimonials (in quadruplicate) (which must be made on printed forms obtained from me), must reach me not later than first post on Friday, September 13th. Selected candidates will be required to call upon such Members of the Medical Staff as directed, to be in attendance at a Meeting of the Medical Council on Friday, September 20th, at 4 p.m., and the House Committee Meeting at 4.45 p.m. the same day, when the appointments will be made.

H. A. MADGE, Secretary.

St. Peter's Hospital for Stone, etc.,
Henrietta Street, Covent Garden, W.C.2.

Applications for appointment as HOUSE SURGEON are invited from male candidates with previous experience in a similar office at a General Hospital. The salary offered is at the rate of £75 per annum, with board, lodging, and laundry.

At the expiration of his term of office, which is for six months from October 1st, the House Surgeon, subject to the recommendation of the Medical Staff, is appointed Resident Surgical Officer for a further period of six months.

Applications, accompanied by copies of testimonials, will be received by the undersigned not later than first post on Friday, Sept. 6th.

BEECHEY ROGERS, Secretary.

St. Vincent's Orthopædic
HOSPITAL,
EASTCOTE, MIDDLESEX. (140 Beds.)

Applications are invited for the post of Male RESIDENT MEDICAL OFFICER (unmarried). Candidates must be registered under the Medical Acts. The appointment is for six months in the first instance, but the holder may be reappointed for a further period. Salary is at the rate of £150 per annum, with board and lodging.

Applications, with copies of testimonials, should reach the Corresponding Manager, Miss AUDREY FITZHERBERT, St. Vincent's Orthopædic Hospital, Eastcote, near Pinner, Middlesex, on or before September 14th.

Birkenhead General Hospital.
(156 Beds.)

Applications are invited for the post of CASUALTY SURGEON (gentleman). Salary £100, with board and residence, to take [illegible]

[illegible] not to the Secretary-Superintendent as early as possible.

Royal Manchester Children's
HOSPITAL.

OUT-PATIENTS' DEPARTMENT,
GARTSIDE STREET, MANCHESTER.

Wanted, for the Out-patients' Department, Two ASSISTANT MEDICAL OFFICERS, non-resident, salary £150 per annum, who will be appointed for six months.

Candidates must be doubly qualified and on the *Medical Register*. Particulars of the duties can be obtained from the Secretary. The hours of duty are from 9 a.m. till 1 p.m., or until the work of the Dispensary is finished. Patients' attendances number 94,000 per annum. Duties to commence October 1st.

Applications, stating age, and accompanied by copies of not more than three testimonials, to be sent to the undersigned not later than September 4th.

Canvassing, directly or indirectly, may disqualify.

By Order,
W. M. HUMPHRY,
August 19th, 1929. Secretary.

Royal Manchester Children's
HOSPITAL, PENDLEBURY,
Near MANCHESTER. (190 Beds.)

Wanted, a RESIDENT MEDICAL OFFICER, and a RESIDENT SURGICAL OFFICER. Salary £125 per annum, who will be appointed for six months.

Candidates must be unmarried, doubly qualified, and duly registered. Previous Hospital experience essential.

Applications, stating age, and accompanied by copies of not more than three testimonials, to be sent to the undersigned not later than September 4th. Duties to commence October 1st.

Canvassing, directly or indirectly, may disqualify.

By Order,
W. M. HUMPHRY,
August 19th, 1929. Secretary.

Radcliffe Infirmary and County
HOSPITAL, OXFORD.

RESIDENT MEDICAL POSTS.

Applications are invited for the following posts, which will become vacant on October 1st:

Three HOUSE SURGEONS;
HOUSE PHYSICIAN;
OBSTETRIC HOUSE PHYSICIAN.

Appointments for six months, with salaries at the rate of £120 per annum, with board, etc.

Candidates must be male and qualified.

Applications, with four copies of three testimonials, to be sent to the undersigned on or before September 9th.

A. G. E. SANCTUARY, Administrator.

General Hospital, Gt. Yarmouth.

Required, a SECRETARY who must have had previous Hospital experience, to take up duties on October 1st, or as soon as possible after that date.

Applicants must be experienced organisers, conversant with the Contributory Fund Schemes, capable of promoting appeals for funds and have a knowledge of the revised uniform system of accounts.

Commencing salary £300 per annum, with house, rent, rates, water, and electric light free.

Applications, stating age and experience, with copies of three recent testimonials, should be addressed to the Chairman of the Selection Committee, General Hospital, Great Yarmouth, not later than September 9th, 1929.

General Hospital, Gt. Yarmouth.
(72 Beds.)

Applications are invited for the post of SENIOR HOUSE SURGEON. Salary £150 per annum, with board, residence, and laundry. Duties to commence at once. Candidates (male and unmarried) must be fully qualified and registered.

Applications, stating age, nationality, and qualifications, together with copies of three recent testimonials, to be sent immediately to the undersigned.

T. H. G. GAUNTLAND, Secretary.

Manor Hospital, Walsall.

A JUNIOR RESIDENT ASSISTANT MEDICAL OFFICER.

The Guardians of the Walsall Union invite applications from duly qualified ladies or gentlemen for the appointment of Junior Resident Assistant Medical Officer, at Manor Hospital, Walsall.

The appointment will be for a period of six months, renewable at the option of the Guardians, and the salary will be at the rate of £150 per annum, together with the usual residential emoluments.

The person appointed will be required to act under the general direction of the Medical Officer, from whom particulars of the appointment may be obtained.

Applications, stating age, professional qualifications, and experience, accompanied by not more than three copies of recent testimonials, should be sent to the undersigned at once.

Union Offices, 29, Leicester Street, Walsall. C. S. FOTHERGILL, Clerk to the Guardians.

August 23rd, 1929.

Freemason's Hospital and
NURSING HOME,
237, Fulham Road, Chelsea, S.W.3.

The post of RESIDENT MEDICAL OFFICER (male) will be vacant on October 1st. Salary at the rate of £250 per annum, with board, residence, and laundry. The appointment is for six months. Candidates must be registered and must have held Resident appointments at a General Hospital.

The Institution (47 beds) is for paying patients of both sexes of moderate means unable to afford ordinary nursing home treatment, etc.

Applications, stating full particulars, to be sent on or before September 13th next to the Honorary Secretaries, from whom further information may be obtained.

Scarborough Hospital and
DISPENSARY. (70 Beds.)

Wanted, November 1st, Two HOUSE SURGEONS (male or female). Duties include Home Visiting. Salary £126 per annum, with board, residence, etc. Appointment for six months.

Applications, stating age, with copies of testimonials and essential particulars, to be sent to the undersigned by September 10th, from whom further particulars may be obtained.

J. DOUGLAS MUNBY,
Hon. Secretary.

Royal National Orthopædic
HOSPITAL,
COUNTRY BRANCH, BROCKLEY HILL,
STANMORE, MIDDLESEX.

Applications are invited for the post of HOUSE SURGEON. Salary £150 per annum, with board, quarters, and laundry. The appointment is for six months from October 1st, renewable for a further period of six months on the recommendation of the Medical Board. Applications, with copies of testimonials, should be addressed to the Secretary, 234, Great Portland Street, W.1, not later than September 13th.

Royal National Orthopædic
HOSPITAL,
234, Gt. Portland Street, W.1.

Applications are invited for the post of HOUSE SURGEON. Salary £150 per annum, with board, quarters, and laundry. The appointment is for six months from October 1st, renewable for a further period of six months on the recommendation of the Medical Board. Applications, with copies of testimonials, should reach the Secretary not later than Sept. 13th.

Roxburgh District Mental
HOSPITAL, MELROSE.

ASSISTANT MEDICAL OFFICER (male) wanted. Salary commences at the rate of £500 per annum, with board, lodging, and laundry. The whole subject to the provisions of the Superannuation Act of 1909. Apply, with copies of two recent testimonials, to the Medical Superintendent

All Saints', Hospital (for Genito-URINARY DISEASES).

In-patient Dept.: 91, Finchley Road, N.W.8.
Out-patient Dept. and Secretary's Office: 49/55, Vauxhall Bridge Road, S.W.1.

Two HOUSE SURGEONS (male) required on October 1st, as under:

(1) JUNIOR HOUSE SURGEON (non-resident) for period of three months, at the expiration of which he will, subject to the approval of the Board, be appointed to the post of Resident Senior House Surgeon for a further period of three months. Salary for both periods at the rate of £150 per annum, with board and laundry in addition in the resident post.

(2) ASSISTANT HOUSE SURGEON (non-resident) for period of three months at salary of £100 per annum, followed by a period of three months as Junior House Surgeon (non-resident) at £150 per annum, and three months as Resident Senior House Surgeon at £150 per annum, promotion in each case being subject to the approval of the Board. The resident post includes board and laundry.

The duties of the Assistant and Junior House Surgeons consist of attendance at the Out-patient Department every afternoon and three evenings weekly.

Applications, stating age, experience, and qualifications, and enclosing copies of recent testimonials, should reach me not later than September 12th.

D. H. EADE, Secretary.

Whitehaven and West Cumberland Hospital, Whitehaven.

(90 Beds.)

Wanted, JUNIOR HOUSE SURGEON (male) Salary £100 per annum, including board, residence, and laundry. Twelve months' appointment. After six months as Junior an opportunity is given of becoming Senior for the second six months at the rate of £150 per annum.

Applications, stating age, nationality, etc., together with copies of three testimonials, to be sent to the Secretary, endorsed "House Surgeon," not later than Tuesday, Sept. 10th.

R. HIGGINS, Secretary.

Newcastle-upon-Tyne City Mental Hospital, Gosforth, Newcastle-upon-Tyne.

Wanted early in October, JUNIOR ASSISTANT MEDICAL OFFICER (male). Preference will be given to candidates with experience in Bacteriology and Laboratory technique. Salary £350, rising to £400 on obtaining the Diploma of Psychiatry, with board, furnished apartments, and laundry, subject to deductions under the Asylums Officers Superannuation Act, 1909.

Form of application may be obtained from the Medical Superintendent.

Royal Victoria and West Hants Hospital, Bournemouth.

SECOND HOUSE SURGEON (male, British nationality) required to commence duty immediately. Salary £120 per annum, with board, lodging, and washing. The appointment is tenable for six months, and candidates must be registered according to the provisions of the Medical Act. Applications, stating place of birth, with copies of three testimonials, to be sent immediately to the undersigned. Women and married men are ineligible.

GORDON M. SAUL,
August 26th, 1929. Secretary.

Bolingbroke Hospital, Wandsworth Common, S.W.11.

HOUSE SURGEON (male) required. The appointment is for six months, commencing on October 1st next. Salary £120 per annum, with board, residence, and laundry.

Candidates must be fully qualified and registered.

Applications, stating age, qualifications, and experience, with copies of not more than three testimonials, should be sent to the undersigned, on or before September 14th.

W. S. RANDOLPH BISS, Secretary-Supt.

Chester Royal Infirmary.

(211 Beds.)

Wanted: HOUSE SURGEON (male) to the Ear, Nose, and Throat Department and Casualty Officer, to commence duties September 18th. Salary £120 per annum, with board, lodging and washing. Candidates must be doubly qualified and registered. Applications, stating age, and accompanied by copies of testimonials, to be sent to the undersigned not later than September 5th.

J. ROWSE MITCHELL,
August 14th, 1929. Secretary.

PROSPECTIVE PURCHASERS

OF PRACTICES

and those seeking

PARTNERSHIPS

should consult

The

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or its Northern Branch at

33, Cross Street, Manchester,

or its Newcastle Branch at

7, Windsor Place, Newcastle-on-Tyne.

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W. J. HICKS, *Secretary.*

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Private Nursing Staff Department

Trained Nurses for Mental and Nervous Cases can be had immediately

Apply to Lady Superintendent,
19, Nottingham Place, London, W.1.
Telephone: Mayfair 5420.

Northern Branch.—Apply, Lady Superintendent 57, Clarendon Rd., Leeds. 'Phone: Leeds 26165

The Prince of Wales's General Hospital, Tottenham, N.15.

Applications are invited for the post of HONORARY ANÆSTHETIST, to attend on Friday afternoons. The appointment is for one year, and subject to re-election. Honorarium of £20 per annum.

Applications, stating age, qualifications, and accompanied by copies of three recent testimonials, must be sent in by the first post on Monday, September 2nd next, to—

FREDK. W. DREWETT, Director.

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N. W. Suburb. — £700—£800 p.a. Death Vacancy. Small panel. Mids. 3½ gns. Visits from 5/-. Nice house and garden.—No. 8535.

Yorks. — Average £1,800 p.a. Panel over 1,000. Visits 3/6 up. No mids. House, 5 bed., etc.—No. 8533.

Cornwall. — About £850 p.a., increasing. Small panel. Visits 4/- to 21/-. House, 6 bed., etc., and good garden.—No. 8529.

Staffs. — About £1,300 p.a. Panel 1,300. Fees 5/-. House, 5 bed., etc., to rent. Premium £1,000 cash.—No 8527.

Lancs Coast.—£2,000 p.a. Mid. and upper-class panel over 800. Visits 7/-. Mids. 3 to 4 gns. Good house to rent.—No. 8525.

Wilts.—Death Vacancy.—Ear, Nose, and Throat PRACTICE. About £800 p.a. Fees 2 gns. Two days per week only.—No. 8524.

West Yorks. — About £7,200. 1/4 share. Panel about 8,000. Not much midwifery. Visits 4/6 up. House (4 bed., etc.) to rent.—No. 8522.

N. Wales Borders.—£4,000 p.a. 1/3 or 2/3 share. Panel 3,800. Appts. worth £1,600 p.a. Visits 5/- up. About 50 mids. at £2 2s. House (4 bed., etc.) to rent or buy.—No. 8519.

Home Counties.—Death Vacancy. —About £760 p.a. Mids. 2 gns. Panel 516. Visits up to 10/-. Good house and large garden to rent.—No. 8516.

Yorks.—Over £3,000 p.a. 1/4 share, good scope for increase. Panel over 2,000. Mids. 2—5 gns. Med. house to rent or buy.—No. 8510.

Lancs.—£4,000 p.a., increasing. Panel over 2,600. Visits 2/6—7/-. Mids. 2—5 gns. Suitable for two. Two houses, rent or buy.—No. 8509.

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N.E. Coast.—Nearly £1,200 p.a. and chance of sev. appts. Fees 3/6 to 5/-. Panel 600. Compact PRACTICE. Good house, garden and garage, etc.—No. 8498.

Home County.—Over £700 p.a. Small residential town within 25 miles, South. Panel 462. Good fees. Large well-built house and garden.—No. 8494.

Cornwall. — Share £1,000 p.a. General mixed Practice. Panel nearly 2,400. House, 5 bed., etc., low rent.—No. 8493.

Berkshire. — About £700 p.a. General mixed Country PRACTICE. Panel about £287 p.a. Few mids. Fees 2/6—7/6. Excellent house and garden.—No. 8490.

Lancs.—1/3 or 1/2 share of over £2,400 after prelim. assistancy. Panel £500. Mixed class. Good house, with 4 bed., 2 attics, etc.—No. 8454.

Bucks.—About £2,800 p.a. 1/2 share. Appts. £200 p.a. Panel over 1,900. Visits 3/6—10/6. Mids. 2—5 gns. House, 4 bed., to rent. Prem. 1½ yrs.—No 8485.

Suffolk.—Over £1,000 p.a., unop. Old-estab. Panel 530. Appts. £50 p.a. Usual fees. Good house, large gard.—No. 8479.

Kent.—Country Practice. About £1,000 p.a. Panel about 400. Appts over £50 p.a. Visits 3/6 to 10/6. House 5 bed., etc. Extensive grounds.—No. 8408.

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MIDDLESEX.—Well-established rapidly increasing PRACTICE. Receipts over £750. Panel over 250. House for sale or to rent. Prem. £850.

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BUCKS.—DEATH VACANCY in Country Practice. Receipts £700. Panel 500. House to rent. Premium 1 year's purchase.

WILTS.—PARTNERSHIP in mixed country and small town Practice. Receipts £2,250. Cottage Hospital. Premium for 2/5ths share 2 years purchase. Suitable for experienced man keen on surgery.

LONDON, W.1.—NUCLEUS G.P. (Lock-up Surgery) held on lease. Rent £70 p.a. Suitable for one keen on Anæsthetics and V.D. work. Premium £70.

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SURREY.—Within 20 miles of London. NUCLEUS Practice situated in rapidly developing good-class residential locality. Receipts £600. Panel 300. House to rent. Premium 1½ years' purchase.

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BEDS.—Re-established growing Country PRACTICE. Receipts £600, increasing. Small panel. House, with good garden, to rent at £80 p.a. Premium £700 or near offer.

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LONDON, N.—NUCLEUS PRACTICE in working-class district. Receipts at the rate of £260 p.a. Panel 150, increasing. Accommodation to rent. Premium £300.

MIDLANDS.—*X-Ray PRACTICE situated in large town. Excellent corner* house for sale or to rent. Receipts over £1,200. Two appointments; prospects of others. Premium for practice and full appliances £1,250, payable part down, balance by instalments. Excellent scope for experienced man.

WEST COUNTRY.—Old-established Country PRACTICE. Receipts approx. £2,000 p.a. No panel. Good house, with garden, for sale. Suitable to well-qualified man experienced in good-class Practice. Premium 1½ years' purchase.

SOUTH-WEST COAST — tablished good-class rural G.P., with lent house to rent. Surgery, X-ray, over £4,000 p.a. Panel approx. 1,0 an keen on surgery. Premium for half share 2 years' purchase.

MIDLANDS.—PARTNERSHIP in good-class non-panel G.P. Receipts over £3,000 p.a. Appointments £500. Premium 2 years' purchase for 1/4th share, with view to larger share and ultimate succession. Suitable to well-qualified man, experienced, aged 28 to 35 years.

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4. LONDON, S.E.—Mixed-class Cash and Panel PRACTICE. Receipts about £1,200 per annum. Nice house, rent £90, long lease. Vendor going abroad. Premium £2,000.
5. LONDON, N.—Old-established mixed PRACTICE. Average receipts £700 a year, fair panel. Very nice house for sale. Premium for Practice £1,200. Vendor going abroad.
6. LONDON, S.W.—(Near Clapham Common).—Small but well-established PRACTICE. Receipts last year £300, including panel nearly 120. Rent of premises 25/- weekly. Premium £500. Good scope.
7. LONDON, S.E.—Well-established PRACTICE. Receipts average nearly £1,100 p.a. Panel fair. Corner house, with good living accommodation. Rent £104, 17½ years' lease. Moderate premium for quick sale. Excellent scope.
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3. N.W. MIDLANDS (COUNTY TOWN).—Well-established PRACTICE. Receipts £1,450, and increasing. Panel approx. 510, and ample scope for increase. Good fees. House to rent. Garage and garden.
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7. SOMERSET.—PARTNERSHIP (Half Share) in well-estab. unop. Country Practice. Receipts £3,040, and increasing. Panel about 1,200. Good modern house, garden, garage.
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4 DEATH VACANCY.—Surrey.—Practice of between £250/300 p.a. in residential district easy distance of London. Small panel. Specially built corner residence (4 bedrooms), with nearly half acre of garden, for sale.

5 LONDON, W.—Partnership in good middle and upper class (non-dispensing) Practice. No panel. Applicant should be aged about 30 and have held several Hospital appointments. Share of £1,000 (or more) at 2 years' purchase after preliminary assistantship.

6 SURREY.—Sound rapidly increasing PRACTICE in suburban district under 10 miles. Receipts last year £2,500. Panel 750. Small house for sale. Premium—Practice—£4,000.

7 NORTH OF ENGLAND. — Practice about £600 p.a. in Inland Spa. Panel over 500. Well-situated house (6 bedrooms) to rent. Premium £1,200.

8 ITALY. — Partnership in old-established Practice averaging £2,000 p.a. Half share 2 years' purchase.

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10 LIVERPOOL. — Increasing Practice of nearly £1,500 Panel 560. House (4 bedrooms), garage and garden, for sale. Golf near by. Premium £1,650.

11 SOUTH OF ENGLAND. — Partnership in Country Town Practice of nearly £2,300 p.a. Small panel. Well-built house (6 bedrooms) to rent. Premium one-half share 1½ years' purchase.

12 SOUTH COAST.—Non-dispensing Practice of about £1,900 in residential town. No panel. Choice of house.

13 MIDLANDS. — Practice averaging over £1 850 p.a. in small Industrial Town with pretty country all round Panel 1,380. Double fronted house (7 bedrooms) for sale. Good scope. Premium £2,500.

14 MIDLANDS. — Partnership in sound old-established Practice in first-rate residential town. Small panel. Suitable house (4 bedrooms, etc.) to rent. Incoming Partner should be aged between 27 and 35, and well qualified. Share worth about £1,000 p.a. at 2 years' purchase.

15 MIDDLESEX.—Partnership in sound Practice of between £3,000 and £4,000 p.a. in town within easy distance of London. Panel over 2,000. Share worth about £1,000 p.a. at 2 years' purchase after preliminary assistantship.

16 KENT AND SUSSEX BORDER.—Country PRACTICE, nearly £1,150, in beautiful district. Panel about 400. Large house (6/7 bedrooms), with charming garden, etc., for sale. Sport. Premium £1,625.

17 LONDON, W.—Good middle-class Practice of £840 in outlying residential suburb. No panel and practically no midwifery. House (4 bedrooms) and fair-sized garden to rent. Premium £1,100.

18 S.W. OF ENGLAND. — Country Practice of £950 p.a. Panel 400. Very little midwifery and night work. House, with 4 bedrooms, garden, and garage, for sale. Good society. Premium 1½ years' purchase.

19 LONDON, N.—Sound easily worked PRACTICE over £2,500 p.a. in residential district. Small panel and few midwiferies Good house (5 bed and dressing rooms), with large garden, to be sold. Premium for Practice 1½ years' purchase.

20 MIDDLESEX. — Rapidly increasing PRACTICE doing about £600 in new developing district. Small panel. Very convenient house (3 bedrooms) for sale. Great scope. Premium £900.

21 MIDLANDS. — Partnership (after preliminary assistantship) in good mixed Practice worth £4,000 p.a. in country town. Panel 3,600 House to rent. Hospital and scope for surgery. Partner should be keen on his work and have held H.S. and H.P appointments One-third share at 2 years' purchase.

22 NORTH OF ENGLAND.—Partnership in non-dispensing Practice about £6,000 p.a. in first-rate Country Town. Small panel. Very good house (6 bedrooms) to be sold or let. Premium one-fifth or two-fifths share 2 years' purchase.

23 SURREY.—Partnership in good middle-class and increasing Practice over £2,100 p.a. in developing residential district. Panel 1,140. House (3 bedrooms) for sale. Premium one-third share 2 years' purchase.

24 WEST OF ENGLAND.—Practice in first-rate town. Receipts past 12 months £1,450. Panel 500. House, with 6 bedrooms, to rent. Premium £2,000.

25 CARMARTHENSHIRE.—Practice of over £950 p.a. derived from contract work and panel, in pretty village. Modern bungalow residence (3 bedrooms), with separate surgery, standing in 1¼ acres of ground. Premium—Practice and house—£2,500, part on mortgage if desired.

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Practices and Partnerships for Disposal (continued).

26 LANCASHIRE. — Practice of £1,500 in rapidly growing district within a few miles of popular resort. Panel over 200. Very nice compact house (4 bedrooms), with beautiful garden and orchard, for sale. Prem.—Practice—£1,500.

27 LONDON, N.W.—Partnership in increasing middle and working-class Practice £2,550. Panel about 1,500. Excellent flat (2 bedrooms) at moderate rent. Premium one-third share £1,700, part by instalment.

28 MIDLANDS.—Partnership in sound well-established Practice over £4,000 p.a. in flourishing town. Panel 2,800. House, with 4 bedrooms, to rent. One-fifth share at 2 years' purchase. Partner should be experienced in Surgery.

29 LANCASHIRE.—Partnership in Practice averaging £2,100 p.a. in an industrial district. Panel over 1,500. One-third share at 1½ years' purchase after prelim. assistantship.

30 N. WALES.—Country Practice averaging nearly £450 p.a. in agricultural district. Small panel. Good house (4 bedrooms), with 9½ acres of meadow land, for sale. Hunting, shooting, etc. Premium £450.

31 EASTERN CITY. — Assistantship with view to Partnership in non-dispensing Practice Rs.4,500 a month. After assistantship six months at Rs.700 a month, all found. Third share would be sold at 1½ years' purchase. Applicant must be F.R.C.S.

32 SHEFFIELD.—Practice about £800 (including two appointments £155). No panel and no dispensing. Convenient house (6 bedrooms) for sale or to rent. Prem. £800.

33 CARMARTHENSHIRE. — Steadily increasing PRACTICE of £800 in small country town. Panel 645. Small house (3 bedrooms, etc.) to rent. Premium 1½ years' pur.

34 DEATH VACANCY.—Cathedral City N. of England.—Receipts about £1,100. Visits 5/- to 7/6. House in commanding position (5 sitting rooms, 5 bedrooms).

35 DURHAM. — Well-established Practice £1,169 p.a., including appointments worth about £500 and panel 1,050. House contains 7 rooms, surgery, and waiting room, with separate entrance, to be sold or let. Premium 1½ years' purchase.

36 DEATH VACANCY.—BUCKS.—Practice about £750 p.a. Panel 516. Visits 2/6 to 7/6. Good detached house (2 reception, 3 bedrooms, etc.). Rent £72 p.a.

37 SOUTH OF ENGLAND.—Partnership in sound old-established Practice. Beautifully situated country town. Small nice house available. Rent £47 p.a. Preference Oxford or Cambridge Graduate. Premium 2 years' purchase for share about £1,000 p.a.

38 N. WALES (SEASIDE RESORT).—Well-established PRACTICE £600 p.a. in nice residential town. Panel 245. House (7 bedrooms, etc.). Premium, house and Practice, only £2,300.

39 HEREFORDSHIRE.—Practice over £1,000 p.a. Panel 240. Good town. Cottage Hospital. House (4 bedrooms, etc.). Price £1,500. Premium for Practice 1½ years' pur.

40 NORFOLK. — Old-established unopposed Country PRACTICE over £2,450 p.a. Panel 1,800. Visits 6/- to 10/6. Good house (6 bedrooms); freehold £1,000. Premium 1½ years' purchase.

41 S.W. OF ENGLAND. — Non-dispensing PRACTICE £1,730 p.a. in Cathedral City. No panel. House (6 bedrooms) in best quarter. Hospital. Premium 1½ years' purchase.

42 SOUTH COAST.—Favourite Health Resort. —Small old-established PRACTICE, £300 to £350 p.a. Capable of great increase. Excellent house (5 to 6 bedrooms) in unique position. Garage and large garden. Freehold £2,000. Premium for Practice £500.

43 LONDON, E. — Cash and Panel Practice about £680 p.a. Panel 800. Visits 3/6 to 5/-. No midwifery. Shop fronted house. Freehold about £600.

44 SOUTH MIDLANDS. — Well-established Country PRACTICE about £1,500 in first-rate Hunting centre. Panel 735. House (6 bedrooms) with every modern convenience in grounds (2 acres), on lease. Cottage Hospital. Premium 1½ years' purchase.

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46 BUCKS.—Small Country Practice over £300 p.a. Panel 250. Very attractive house (8 bedrooms), with fine garden, garage, etc., for sale. Premium—Practice—£300.

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48 YORKSHIRE (W.R.).—Partner required in better working-class Practice in good district of large city. Panel over 2,000. Seven-roomed house, with garden, to be sold or let. Great scope. Share worth over £750 p.a. at 2 years' pur.

49 WEST OF ENGLAND.—Partnership in Practice over £3,000 p.a. (£1,000 from panel and appointments) in Residential and partly Agricultural District. House available. Very good Cottage Hospital. One-fourth or one-third share at 2 years' purchase.

50 SOUTH COAST.—Seaside Resort. Non-dispensing PRACTICE about £550 p.a. Small panel. House (5 bedrooms) to let. Scope for increase. Premium £800.

51 SOUTH COAST.—Non-dispensing Practice averaging £1,332 p.a. in favourite Watering Place. No panel. House at nominal rent. Scope. Premium 1½ years' purchase.

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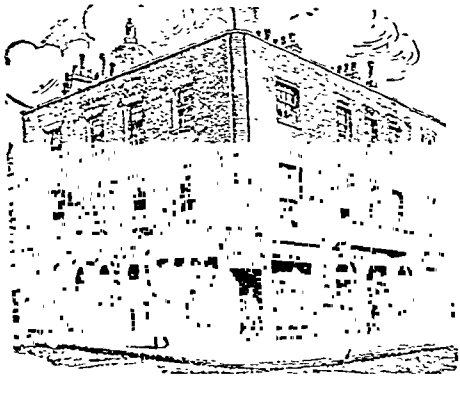

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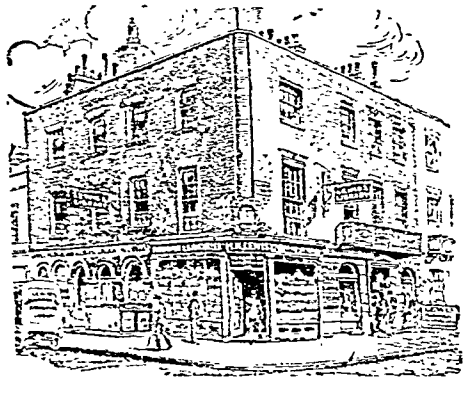

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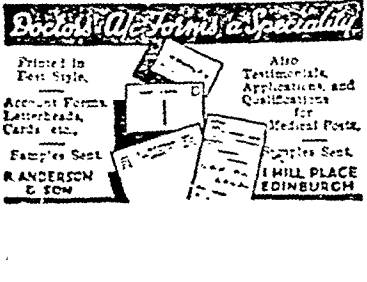

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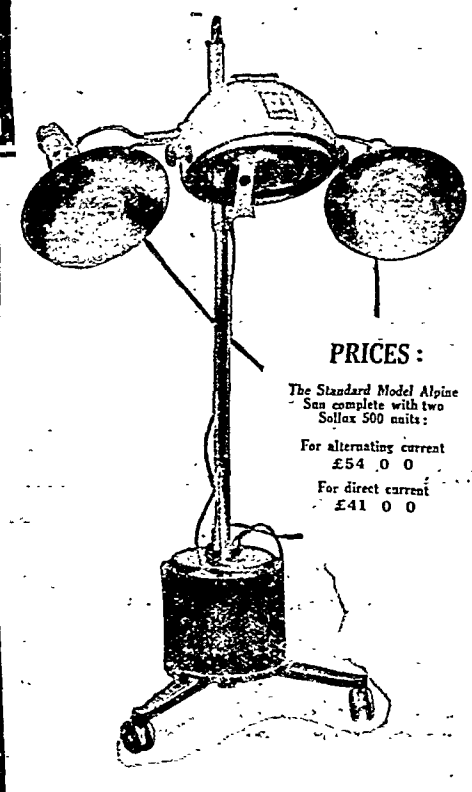

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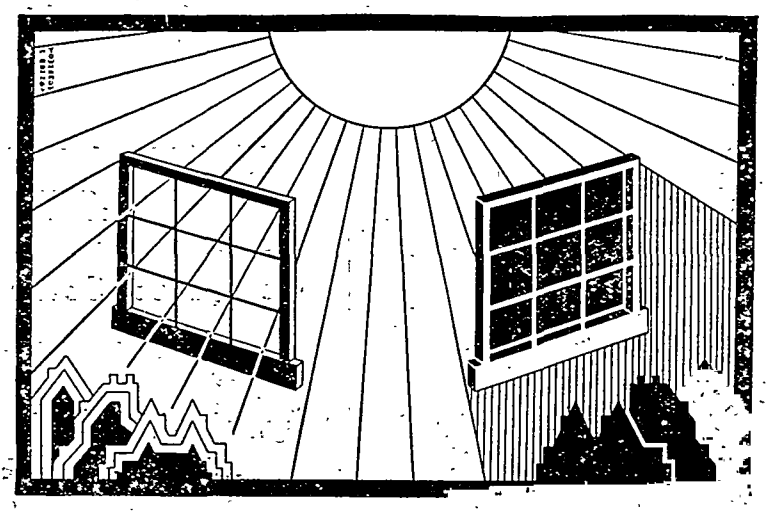

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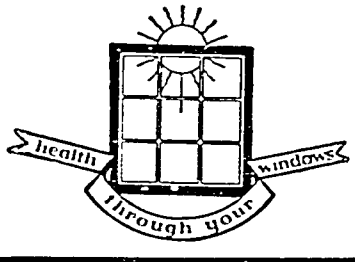

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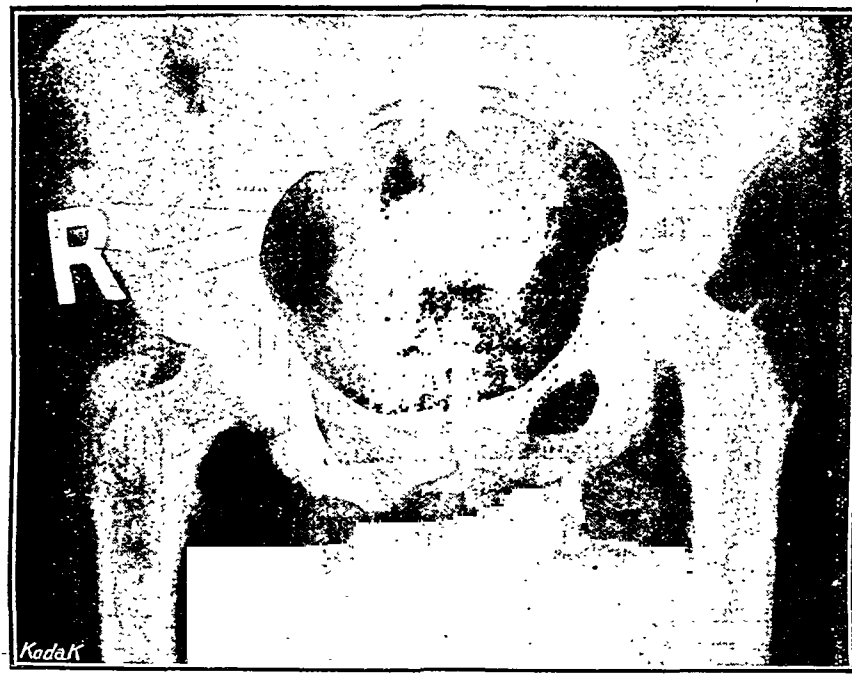

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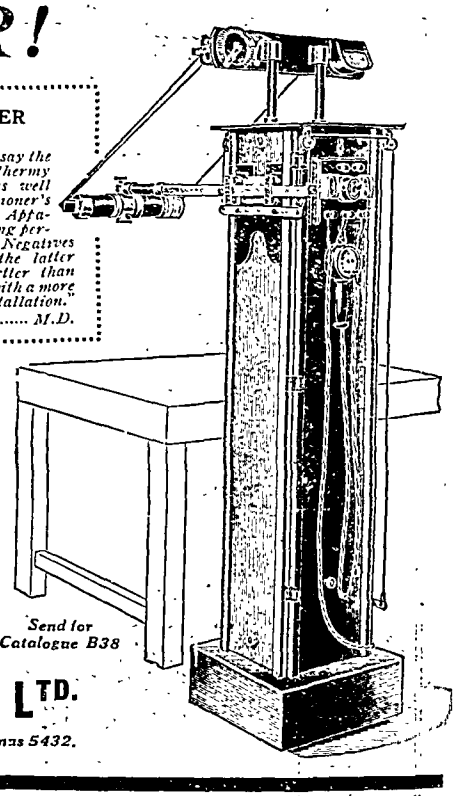

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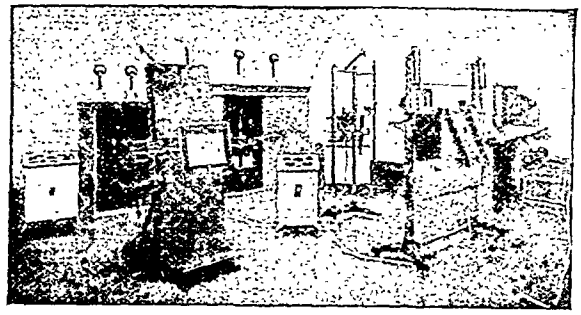

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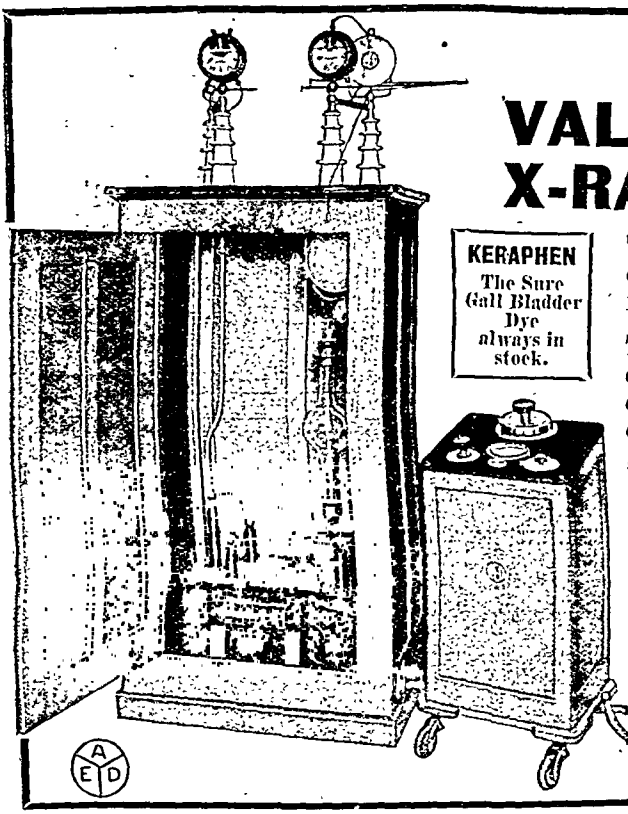

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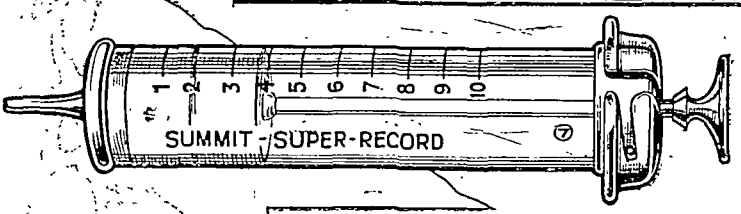

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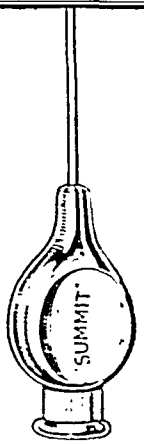

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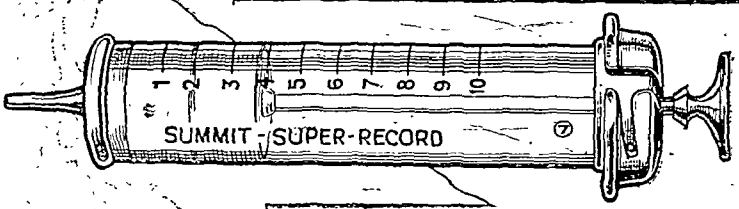

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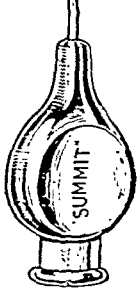

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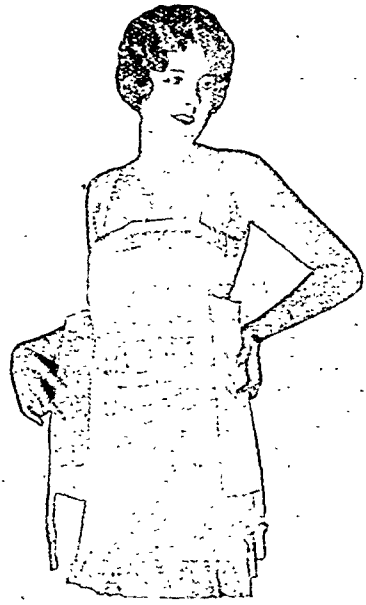

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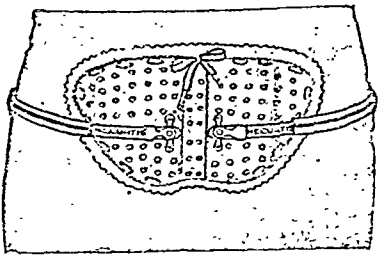

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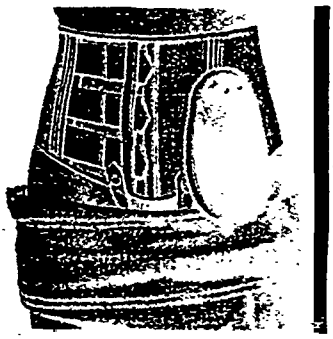

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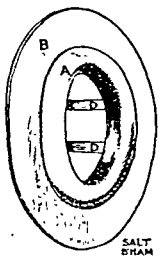

FIG. 1

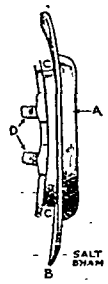

FIG. 2

FIGURES 1 and 2.

A. Solid rubber pad fitting next body.
B. Flange to prevent belt becoming soiled.
C. Groove over which aperture in bag is stretched.
D. Curved bars to hold bag open.

FIG 3

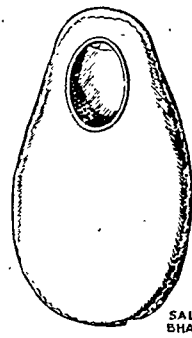

FIG. 4

Figure 3 shows end view of India Rubber receiver with (Fig. 4) bag attached.

Figure 5 shows receiver on belt, bag being on outer side of belt.

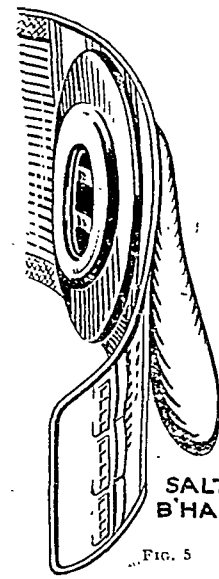

FIG. 5

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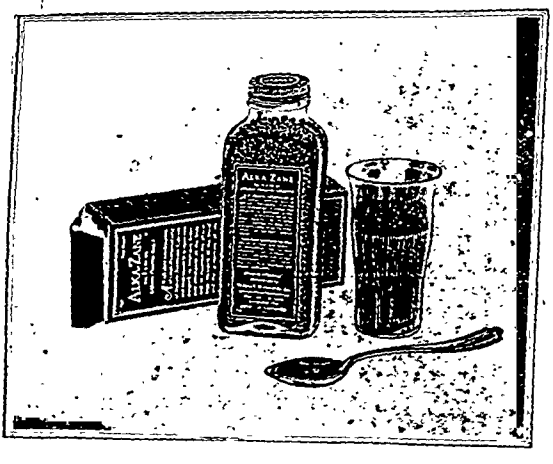

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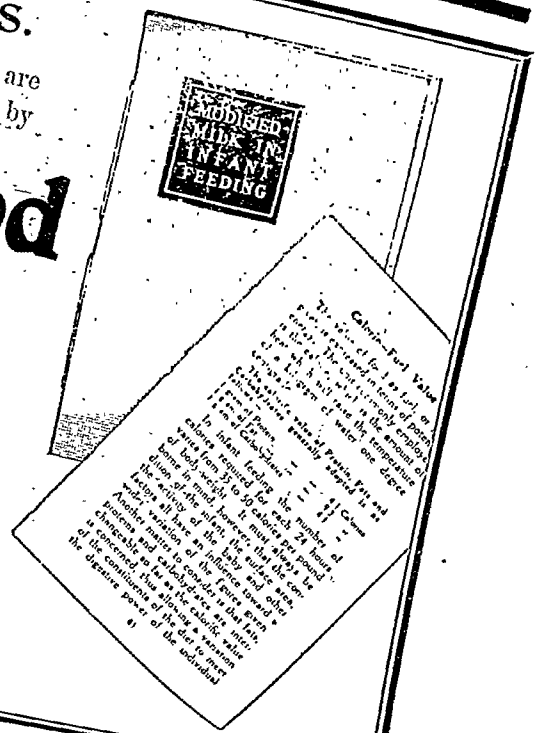

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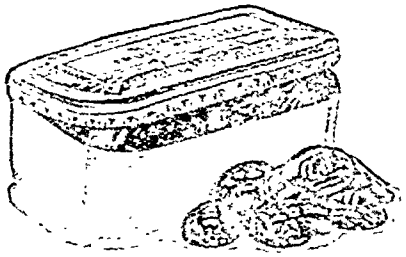

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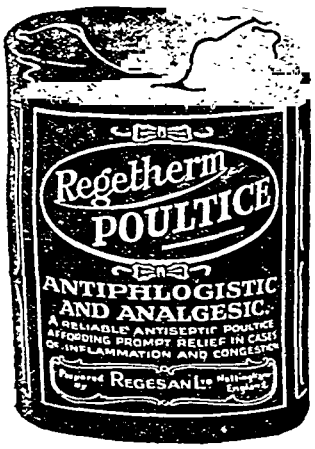

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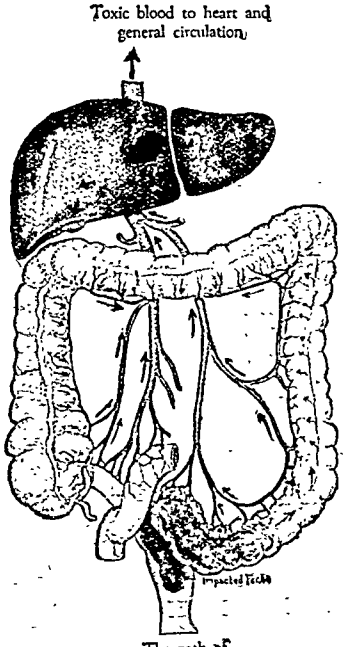

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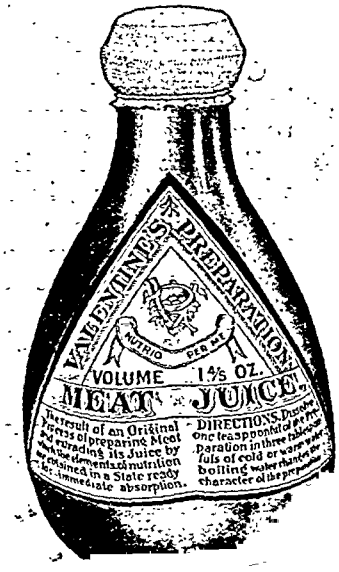

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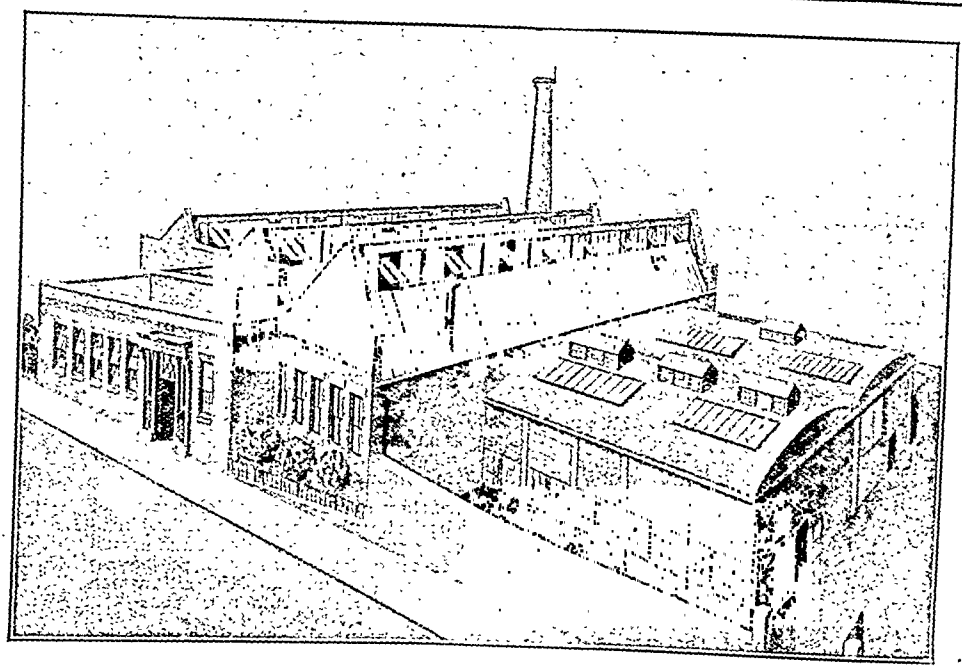

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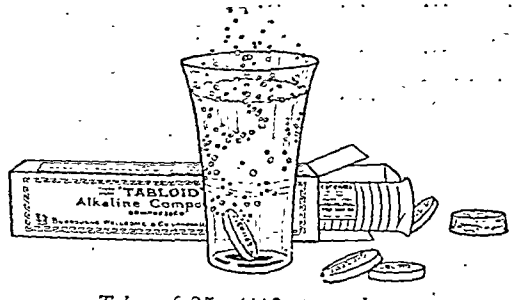

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A Paper
ON
THE DISTRIBUTION AND NATURE OF FOOD POISONING.*

BY
JOHN CRUICKSHANK, M.D.,
PROFESSOR OF BACTERIOLOGY, MARISCHAL COLLEGE, ABERDEEN.

THE subject of bacterial food poisoning presents many features of interest to bacteriologists and practitioners. The sporadic nature of the outbreaks, the dramatic onset of symptoms, and the frequent difficulty of tracing the cause make an unusual appeal to the medical mind. As an additional interest the outbreaks are described in glaring outlines in the daily press, through the medium of which the knowledge of the outbreak is frequently first disseminated. The character of the outbreaks, particularly in their unexpectedness both in time and locality, presents difficulty to the examining bacteriologists, and prevents that continuity of research which is so essential in the investigation of obscure disease. Cases are frequently scattered over a large area, and correlation of the results is correspondingly difficult. Except for the work of a few men, systematic investigations of the etiology of these cases has not been carried out, and as a result the subject presents many unsettled problems.

In opening this discussion I cannot attempt a complete review of the subject, and must content myself with the examination of certain aspects only. To my knowledge there is no new work of special importance to communicate, and it is to be hoped that in the discussion which follows some new information may be given which will throw light on the problems.

It is impossible to approach the subject without an appreciation of the work which has been carried out by Dr. Savage, whose painstaking collection and analysis of outbreaks in this country has added to our knowledge, and whose views, particularly with regard to etiology, will probably serve as the nucleus of this discussion. His interest in the subject and his researches have served to focus the attention of workers in this and other countries upon the whole field of bacterial food poisoning, and constant reference to his work is unavoidable in the course of this paper.

The characteristic features of bacterial food poisoning are the sudden onset of sickness, vomiting, severe diarrhoea, abdominal pain, and pyrexia. The interval between the taking of the infected food and the onset of symptoms is short, varying from two to thirty-six hours. In the majority of cases the severe symptoms persist only for a short time, and within twenty-four hours the patient suffers only from exhaustion. Pyrexia is of short duration, may be absent, and subsides with the severity of the alimentary condition. It is of interest to note that even when the diarrhoea is very severe blood and mucus are rarely found in the stools—a feature of interest in distinguishing these cases from severe dysentery. The extremely short incubation period in some cases has suggested that the symptoms result from the presence of preformed toxins, as it is not in accord with general experience to believe that the viable organisms in the food which is ingested can themselves proliferate within the alimentary canal in sufficient numbers to produce severe reactions in such a short time. In certain outbreaks there is clear evidence that the suspected food has been subjected to such exposure to heat as would ensure the death of all vegetative forms of bacteria. As the signs and symptoms which have occurred in these cases are very similar to those in which live organisms have been demonstrated it has been suggested that heat-resistant toxins are present. This aspect of the subject has recently attracted much attention, and has been examined by experimental work on animals.

Since 1888, when Gärtner described the organism which bears his name as the causative agent in an outbreak of food poisoning, the attention of observers has been concentrated upon the demonstration of this or related organisms in cases of food poisoning associated with the classical symptoms of enteritis. With the development of bacteriological methods and the institution of more intensive examination of such cases, a group of organisms possessing similar morphological and similar, or closely related, biochemical characters has been described of which some members have been concerned in the causation of food poisoning in man or with severe enteritis in animals. The close relationship of these to the paratyphoid organisms has been repeatedly emphasized, and highly technical procedures have been developed in the attempt to differentiate the various members of the group. The general term "paratyphoid-enteritidis" has been applied to this group, although certain workers prefer to use the term "salmonella group," after the hog-cholera organism described by Salmon and Smith. The organism most frequently found is not Gärtner's bacillus, but *B. aertrycke*, an organism very closely allied to *B. paratyphosus* B, and only distinguishable from it by the test of absorption of agglutinins. Since the relationship of this organism to food poisoning has been established its presence in animals closely associated with man has been demonstrated, and the discussion of human food poisoning is closely bound up with the studies of the occurrence of this and related organisms in the intestines of rats, mice, pigs, sheep, and cows.

It may be said that the list of food-poisoning organisms is constantly being extended, largely because of the extension of bacteriological methods of examination to the question of the antigenic structure of bacteria. These methods have proved fruitful in the separation of types hitherto indistinguishable, but have in many ways made the problem of food poisoning more difficult. The work of Sir Frederick Andrewes on the subject of specific and group phases as applied to agglutination reactions, and the great development of cross-agglutination and absorption tests, has not resulted in simplification of the subject, and has made it very difficult for the routine bacteriologist to identify clearly the strain of organism which he may have isolated from a particular outbreak.

Food poisoning has occurred in many countries, and in the general study of these outbreaks it is necessary to take into account the habits of the people as regards food and the general standard of sanitation of the country, particularly with regard to the slaughter of animals and the preparation of food for the table. An important feature of most outbreaks is the apparent soundness of the suspected article, which neither in colour, appearance, nor taste may have seemed to be different from the sound article. This factor has operated adversely in the subsequent examination of the cause of many outbreaks, as it is difficult to secure samples of the suspected food, which has all been consumed. In these cases, unless an organism of the salmonella group can be isolated from the patient's vomit or stools, the cause of the outbreak may remain obscure, although indirect evidence of suggestive character may be obtained by methods such as the examination of the blood of convalescents for the presence of agglutinins for the salmonella group. A very puzzling feature of some outbreaks is the small number of individuals affected, although the infected material—for example, the carcass of an animal—has been widely distributed through a community. In the attempt to explain these outbreaks it has been necessary to suppose either that individual factors of susceptibility play an important part or that the infecting organisms have gained entrance to certain portions of meat through the medium of mice or rats. According to Savage, human carriers, who are so important in the spread of enteric diseases, are not to be regarded as playing an important part in infection, but the possibility cannot be excluded.

A wide variety of foodstuffs has been found to be connected with the outbreaks: tinned meat, salmon, sardines, milk, meat, sausages, pork, mutton, and made-up foods of various kinds. The possibility of infection from eggs has been raised in connexion with a recent case, and Doyle has shown that severe diarrhoea in chickens and ducks may result from infections with *B. aertrycke*. Of these articles the only one which seems to offer conditions suitable for growth of salmonella organisms is milk, and there is

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* Read in opening a discussion in the Section of Pathology and Bacteriology at the Annual Meeting of the British Medical Association, Manchester, 1929.

evidence that where milk is the vehicle the outbreaks are widespread and severe in character. In the case of beef, mutton, and pork, suspicion frequently falls upon the animal from which the meat has come, which during life may have been the subject of salmonella infection. The way in which tinned foods such as salmon and sardines become infected is not clear. I am not aware that fish suffer from salmonella infections, and it is necessary to suppose that in the preparation of these foodstuffs, previous to "processing," infection has resulted in the case of individual tins from some unknown source, and that considerable growth of the organisms has occurred with the development of "toxins" which are resistant to subsequent heating.

I have much difficulty in following the chain of reasoning which has been presented as a probable explanation in many outbreaks. It is easy to understand infection of the human subject with living organisms, even though few in numbers, but when these are apparently absent and the outbreak is attributed to heat-resistant poisons an interval for proliferation of the organism and production of sufficent toxin must be postulated. In many of the outbreaks there is no evidence that these conditions are present. It is inconceivable that a few dead organisms in a sample of food can be held responsible for the pronounced symptoms of food poisoning. Experimental work with regard to the ability of salmonellas to grow in various types of foodstuffs at the temperatures at which these are kept would throw light on this aspect of the subject. When the interval between the taking of the food and the onset of symptoms is very short the presence of preformed toxins is suggested as the cause, whereas in the cases with longer incubation period the symptoms are referable to the development in the alimentary canal of viable organisms. It is supposed that both preformed toxin and live organisms may, under certain conditions, be present, and that the symptoms produced by toxins alone may be as severe as those produced by the development of living organisms.

With regard to infection from the meat of animals which have been the subject of salmonella infection during life there is no evidence that their muscular tissues are so heavily infected that after cooking the few organisms present in a small amount of meat could evoke the severe manifestations which occur in food poisoning. It is the opinion of various veterinary workers that the most likely source of infection at the slaughterhouse is from the soiling of meat with intestinal contents. If this is correct, the degree of infection—that is to say the numbers of organisms transferred from an infected animal to other meat—must be extremely small. If we accept the view of Savage that heat-stable poisons from the salmonellas are the cause of these outbreaks, we must suppose that the organisms have developed in large numbers between the death of the animal and exposure to cooking.

The relatively infrequent finding of Gärtner and *B. suipestifer* types is an important feature in the study of these outbreaks, since these types of salmonella appear to be the most frequent exciting agents of disease in cows and pigs. The occurrence of *B. aertrycke* types in the diseases of food animals is extremely uncommon, yet the *B. aertrycke* type is the most common finding in human outbreaks. In the 100 outbreaks recorded by Savage and Bruce White the presence of living *B. aertrycke* was demonstrated in 16 outbreaks, *B. suipestifer* (types Reading and Derby) in 2, and Gärtner only in 1. Many of the outbreaks were investigated in very incomplete fashion, but the absence of living organisms in such a large number of cases would suggest that other causes than salmonella infection should be kept in mind. Unless we suppose that infection of food animals with *B. aertrycke* is more common than has hitherto been shown to be the case infection of the food must have resulted either from human carriers or from contact with animals of the vermin class, particularly mice.

The view strongly advocated by Savage that salmonella infections account for all the cases of food poisoning, with the exception of the few in which chemical poisoning can be shown to be the cause, has led to the concentration of investigation upon the discovery of this group of organisms, with the result that other possible bacterial causes may be missed. In most of the recorded cases there is inadequate data regarding the bacteria present in the food, and in the examination of the stools the presence or absence of salmonella group organisms only has been considered. In the case of dysentery, for example, it has been necessary in recent years to admit to the group of pathogenic organisms the Sonne type of dysentery bacillus, whereas formerly only Flexner and Shiga types were considered in relation to the disease; and it cannot be said that the list of pathogenic organisms in acute disturbances of the alimentary canal is closed when so many cases of diarrhoea, particularly in children, give negative results by the accepted methods of bacteriological investigation.

I would urge strongly a great extension of the bacteriological methods which are employed in the investigation of material which is suspected of connexion with food-poisoning outbreaks and in the examination of dejecta from the sufferers. The close resemblance of the outbreaks in respect to clinical symptoms and signs suggests a single causative agent, but these are not infrequently present in gastro-enteritis from other causes. Savage and others have drawn attention to the importance of existing morbid conditions in determining a fatal issue, and it is worthy of consideration whether other factors may not influence the incidence rate in food-poisoning outbreaks. For example, it has been suggested that the action of chemical reagents used in pickling, such as potassium nitrate, may favour infection by the production of nitrites in the intestine. It is not unlikely that in many individuals the organisms fail to find a lodgement upon the intestinal mucosa, and little or no lesion results, although the intestinal contents contain the infecting organism.

It is remarkable how few cases in any outbreak are attended by a fatal issue, and pathological data from post-mortem examinations are correspondingly meagre. The clinical symptoms point to the upper intestinal tract as the area most affected, and this is in accordance with the findings at necropsy. The severe vomiting and purging must remove much of the unabsorbed toxic material within the alimentary canal, and the rapid recovery in many cases is presumably the beneficial result of these excretory processes. It would be expected that the cases presenting evidence of infection with living organisms would show more prolonged symptoms than in those in which only toxins are present, but in most cases recovery occurs rapidly, and evidence of invasion of the blood stream by organisms is seldom obtained. Nevertheless, the development of agglutinins to salmonella organisms is frequently reported, even in cases in which toxins only are supposed to have been present. As it is the general experience of bacteriologists that it is extremely difficult to produce antibodies in the blood of animals by administering organisms by the alimentary tract, and is only partially successful when enormous doses are given, and frequently only after starvation or in association with the feeding of agents which interfere with normal digestion, this finding of agglutinins in the blood of food-poisoning cases is the more remarkable and worthy of fuller investigation on experimental lines.

The production of agglutinins in the blood is a common occurrence after the "parenteral" injection of living or dead bacteria into the tissues of animals, but their development after a single administration by the mouth seems extremely unlikely. The presence of agglutinins in the blood of cases harbouring viable organisms is to be expected, since the organisms have the power to penetrate the mucosa and enter the deeper tissues. Their presence in the blood seems to me to be an argument against the view that only preformed toxins have been present in the offending food, and to suggest the presence of living organisms, although these may not have been detected in the course of the investigation of the outbreak. Savage and Bruce White, however, record the development of agglutinins in rabbits as a result of feeding boiled cultures of *B. aertrycke*, and Geiger and Meyer after feeding filtrates to mice and to a *Macacus rhesus* monkey. The development of agglutinins in rabbits after repeated injections of extracts of suspected meat in which no living salmonellas could be found has also been used by Savage and Bruce White, and recently also by Pryer, as a means

of demonstrating the nature of the food poisoning. The agglutinating titre of the serums which they have obtained in this way is so low and obtained with such difficulty that the test may be regarded as of little value. The possibility that such injections may merely stimulate the mechanism of agglutinin formation developed in response to a previous natural salmonella infection has apparently not been considered. There is also a lack of important control experiments—namely, the injection of similar extracts made from sound meat into rabbits of the same batch as those under experiment.

Much of the interest in the subject of food poisoning lies in the question of the production of heat-resistant poisons by organisms of the salmonella group. Gärtner in 1888, in his original studies, described the occurrence of lesions in mice after feeding meat previously infected with *B. enteritidis* and cooked for one hour. Of recent years Savage has maintained that *B. aertrycke* possesses potent heat-resistant toxins, and that these are capable of absorption in the stomach and upper intestine of man, giving rise to the phenomena of food poisoning, and that the explanation of many of the outbreaks is to be found in this property. Savage and Bruce White produced experimental results in animals which they believe support this opinion. The enormous numbers of organisms which they used in these feeding experiments produced only slight lesions in experimental animals, and it is impossible to believe that any portion of meat producing meat poisoning in man could contain such numbers. Experimental animals do not appear to be highly susceptible to feeding with salmonella cultures which have been killed by boiling or steaming, and unless we suppose that man is extremely susceptible to small amounts of such toxins these experiments fail to convince.

Other workers have also endeavoured to establish the existence of heat-resistant toxins by animal experiments. Bahr and Dyssegaard, in a recent paper, have investigated a great variety of strains of paratyphoid-Gärtner organisms isolated from a variety of sources, and were able to show that heat-resistant toxins were produced which were capable of producing severe lesions in rabbits, dogs, guinea-pigs, and monkeys, when these were injected into the tissues, but that no effect was produced by feeding even large doses by the mouth. These workers differ from Savage and Bruce White in finding that there was no relation between virulence and toxicity. Dack, Carry, and Hannon, using heat-killed cultures and filtrates of five strains of *B. aertrycke* and four strains of *B. enteritidis*, reported entirely negative results when these were fed to men on an empty stomach, and that no agglutinins had developed in the serum ten days after feeding. The preparations used by these observers were highly toxic to rabbits on intravenous injection. Young cultures of a few hours' incubation were more toxic than older cultures, whereas Bahr and Dyssegaard were of opinion that old cultures (seven to sixteen days) were most toxic. Inconclusive experiments are also reported by Branham, Robey, and Day.

On the other hand, Geiger and Meyer describe the production of a potent toxin with a particular strain of *B. aertrycke* after three to four days' incubation at 37° C. This poison was present in heated whole cultures and in filtrates, and acted by feeding as well as by parenteral injection in white mice. A special medium containing a large amount of protein was used for the cultures. The symptoms occurred within three hours, and death resulted in six to twenty-four hours. Post mortem the duodenal loop was deeply congested and moist, the stomach distended with bile and blood-streaked mucus, and petechia or small erosions were present. The spleen was enlarged, and in some cases the pleural cavities contained blood-tinged fluid. They express the opinion that these post-mortem appearances are pathognomonic for experimental food poisoning in mice. A successful experiment was also obtained with a dose of 10 c.cm. administered to a *Macacus rhesus* monkey, which developed agglutinins to a dilution of 1 in 640 two weeks after feeding. Rabbits, guinea-pigs, and cats usually presented very transitory symptoms. It would appear that mice are the most suitable animals for this type of experiment, but it is remarkable that such difficulties should be encountered in producing toxic manifestations in animals which are frequently the subjects of natural infection with bacterial invasion of the tissues, whereas in man toxic symptoms are prominent and invasion of the tissues rarely found. It is obvious that a comparison of virulence based on the respective weights of the animals concerned is impossible, and that extreme susceptibility of the human species to the action of these toxins must be invoked in order to explain the phenomena.

It would seem a retrograde step to suggest that the difference between the experimental observations in laboratory animals and the results in man may be due to the nature of the medium in which the organisms are growing, as this would raise afresh the question of toxic substances of chemical character. It is, however, worthy of note that many of the food-poisoning outbreaks in man have been associated with tinned foods in which prolonged action of organisms may occur, and that in most of these cases no viable organisms of the salmonella group have been isolated. It is a question for consideration whether in the special circumstances existing in tinned foods these, or other, organisms, may cause the production of toxic substances which have not been obtained in artificial cultures. As the majority of laboratory animals appear to be relatively insusceptible, the experiments, particularly feeding experiments with the suspected meat, should be extended to the monkey, since Geiger and Meyer have reported a successful experiment in this animal with cultures made in a medium of high protein content.

The clinical aspect of food poisoning also presents some interesting material for speculation and investigation. As a result of a survey of epidemics of paratyphoid fever in man Savage and Bruce White have come to the conclusion that the typical signs and symptoms of food poisoning are always absent in this disease. While this is true in most outbreaks, cases are recorded in some outbreaks in which acute symptoms, diarrhoea, sickness, and abdominal pain have occurred immediately after ingestion of the infected food. The number of such cases is small, but I cannot agree with Savage and Bruce White that they may be dismissed as unimportant. For example, in the outbreak of paratyphoid fever recorded by Hamburger and Rosenthal 14 cases with symptoms of acute gastro-enteritis occurred in an outbreak affecting 65 people. Nine of these cases showed pyrexia with general toxic symptoms and intestinal catarrh, and 5 had diarrhoea with slight abdominal disturbance. In some of the cases showing typical enteric fever at a later stage slight pyrexia and vague abdominal signs were present within a few hours of infection, followed by a period of intermission before blood infection and characteristic typhoid infection declared themselves. Hamburger and Rosenthal express the opinion that the cases of gastro-enteritis were those in which little or no infection of the lymphatic tissues occurred, with resulting absence of blood infection.

In other epidemics also a few of such anomalous cases have occurred, and it is open to question whether a rigid separation of food poisoning from paratyphoid fever is justifiable on clinical grounds. Owing to early development of symptoms such cases are apt to make a powerful impression on the clinician, who finds later that enteric fever has apparently been grafted on a food-poisoning outbreak. The pathogenicity of *B. suipestifer* strains for man is generally regarded as low, since it is seldom recorded as the cause of human infections, although Scott has recently reported the occurrence of *B. suipestifer* (Group 2) in a number of outbreaks of food poisoning. On the other hand, cases with signs and symptoms of enteric fever attended by fatal issues have also resulted from infection with organisms of the *B. suipestifer* group, as in the cases recorded by Duncan and recently by Bauer and McClintock. We thus have organisms of closely related type producing symptoms of acute food poisoning, and, exceptionally, prolonged pyrexia of enteric type.

From many points of view the outbreak of food poisoning due to *B. aertrycke* recorded by Perry and Tidy is important. It embraced a large number of cases among our troops in France, and was very thoroughly examined. Although there was no direct proof, the authors were of

way, are not so entirely to blame as one might think. They say what they are taught. When we are told by our own profession that the question of a man's sanity or insanity is one for trial in a law court, just as is the question of his drunkenness or sobriety, I am inclined to feel not only that we shall never get our problem solved, but also that we do not deserve to.

As things are, however, there is no alternative to certification if the voluntary boarder who has become non-volitional is to remain. One practical difficulty immediately presents itself. The patient is certifiable; his relatives wish him to remain where he is, and are content that he be certified. Is it fair to proceed with this and retain him as a certified patient? A majority of the public tell you it is not, and though they might possibly condone it in a non-volitional case, they regard it as a gross breach of faith in the case of a patient who wishes to leave. The patient has to give twenty-four hours' notice of his intended departure, and, although it is perfectly legal, it seems distinctly unfair to use this period in trying to obtain authority to keep a patient who only came upon the condition that he might go when he liked. That, at least, is the way the public look at it, and on the whole I am disposed to agree, although this view ignores the medical aspect and the probability that certification is the best possible thing for the patient in the circumstances. Many mental hospitals go the length of refusing to keep as certified those who have been with them as voluntary boarders, and there is something in this as a gesture, though it is hard to see what principle is involved. Still, it is certainly better than the solemn farce of taking a patient round the town in a cab to two different doctors and a magistrate and bringing him back certified rather than have it said that he was certified on the premises.

It will be convenient at this stage to consider to what extent the voluntary boarder system, with all its drawbacks, is used by the public. It is used to a large and constantly increasing extent. The proportion of voluntary boarders in different hospitals varies somewhat, often in accordance with the tradition of the hospital and the outlook of the superintendent. I have not access at the moment to all the latest figures, but the two hospitals with any considerable admission rate which generally lead the way in this respect are the Bethlem Hospital in London and The Retreat, York. In the latter hospital over 69 per cent. of the admissions in 1928 were voluntary boarders, and I have no doubt that other hospitals had very comparable figures. Now, when seven out of every ten admissions to a hospital for mental diseases which does not pick and choose its cases, but takes everything that comes along, are upon a voluntary basis, there are only two possible conclusions: either certification is largely unnecessary or else it is so distasteful to the public that they will shun and avoid it by every means in their power.

Of course, the process of certification should not be necessary, but it will remain so until we have provided a more satisfactory alternative, and, in particular, until we have solved the problem of the non-volitional case. That it is utterly distasteful to both the lay and medical public there is not the slightest doubt, and it will not surprise me if between them they bring about the practical close of the era of the certified patient in a very short time, quite independently of any change in the law. What the effect of new legislation may be, if and when it comes, I do not know. What I do know is that a large majority of the public regard avoidance of certification as the first and greatest consideration in mental illness. This is, in many ways, a great pity. There is much to be said in favour of certification in many cases, even under the existing law, and most of the public horror of it is the result of ignorance and prejudice. A very able and experienced physician asked me recently why it was that a patient suffering from small-pox or scarlet fever is duly certified and deprived of his liberty as a matter of course without any special legal intervention, public outcry, or social stigma, when the very reverse was the case if it was a question of mental illness. At present we must leave that very pertinent question unanswered, and simply accept the fact that it is so.

People who are resolved to avoid certification of their relatives at all costs will naturally consult physicians who can be relied upon not to advise it, whatever the nature of the case may be. This demand has, of course, been met by a supply of able and devoted ladies and gentlemen with every qualification to be of assistance except a practical training in, and experience of, clinical psychiatry. With their feet firmly—almost ostentatiously—planted on the solid and respectable rock of neurology on the one side, or psychology on the other, they can reach almost incredible distances into the troubled sea of nervous and mental disorder without getting their feet noticeably wet.

Three rather sad things are largely traceable to their activities. First, if the case becomes so acute or so obviously psychotic that mental hospital care becomes urgently necessary, the relatives are almost inevitably given the impression that the case is hopeless, that treatment has failed, and that all that remains is for the patient to be "put away," the mysterious and awful doom of "lunacy" having fallen upon him. Secondly, and arising out of the above, the most fantastically absurd and untrue ideas with regard to mental disorder, certification, and mental hospitals are of necessity absorbed by the public and perpetuated amongst them. Finally, and most serious of all, many patients are deprived—from the best motives—of what would be the ideal treatment for them.

The public horror is not merely of certification *per se*: it is even more of what they call the "asylum atmosphere." They could perhaps stand their relative being certified, but what they cannot bear is the thought of him "associating with lunatics." This is so well recognized that we need not go into it at length, though one is tempted to do so. On the very day I wrote these words I saw a patient sitting alone, silent, unoccupied, slowly dementing, and "tenderly neglected" in a comfortable room in a privately owned mental hospital because her relatives have insisted that she shall not in any circumstances "associate with lunatics." Much of the agony—there is no other word—through which the relatives of patients pass in this matter is the result of ignorance and prejudice alone. There are few things of which I should less like to feel guilty than of having—for any reason—done anything to perpetuate that ignorance or foster that prejudice.

This dread of "asylums," as apart from the mere process of certification, is, of course, what affects the intending voluntary boarder, though to a much less degree, strangely enough, than it does the relatives of the certified patient. The point I must go on to make, however, is that in either case a certain amount of this dread of "asylum atmosphere" is to some little extent well founded, though the public are far from realizing the real nature of the trouble. It is the old question of "grading" which is at the bottom of it all. The extraordinary variety in the symptoms and needs of the patients admitted to a mental hospital of any size, along with the constant dead weight of irrecoverable chronic cases, present a problem which needs—among many other things—almost unlimited space, staff, and money for its solution. Only those familiar with mental hospital work can appreciate the difficulties of the situation which is made the excuse for criticisms which are often peculiarly irritating, fallacious, and unjust. For some years I have been convinced that this difficulty is being met in the wrong way—namely, by keeping mild cases away from the mental hospital, which, with all its drawbacks, is, as I have said, infinitely the best place for them. It is more than that—it is the only place where they can obtain the understanding management, the expert treatment, and, above all, the skilled nursing care, which are their greatest needs.

I have long thought that we should begin at the other end, and remove to completely separate and independent branches of the mental hospital the chronic, unpleasant, and noisy cases. It would need more than two separate establishments to do the thing ideally, and of course the branches, though entirely separate, would have to be near enough for quick and easy interchange of patients. To my great delight a scheme of the kind is actually in preparation in London just now, the pioneers being the governors of St. Luke's Hospital. When completed, the reorganized St. Luke's will consist of three separate establishments, one in London and two near it—one of them for quiet, recent, co-operating patients; the second for

noisy and troublesome acute cases and irrecoverable chronic ones; and the third for convalescents. Best of all, there is a fourth branch, in some ways the main and central one—namely, an out-patient department and a ward for in-patients at a great general hospital, the Middlesex.

I mention this scheme not to discuss it, but to show what can be and is being done in the face of quite extraordinary difficulties. I am glad to think that it is one of the registered hospitals which has taken the lead in this way, and I hope that under its enlightened and far-seeing head, Dr. Gilmour, the new St. Luke's will have the success which it deserves.

I have felt the responsibility and the difficulty of preparing this paper very keenly. I have left unsaid a great deal that might well have been included in our subject, but the whole matter is such a far-reaching one that if discussion is to be fruitful we must limit its range.

I have therefore—here and there with reluctance—touched upon the points which seem to me most to need frank and courageous discussion. And I want our discussion to be fruitful. There is so much to do, and there are so many difficulties in the way. But it is to the general body of the profession that we may fairly look for help. There could be no better outlet for the organized activity of the profession and of this Association than a combined effort to bring just a little more science, a little broader humanity, a little more practical good sense, into our dealings with sufferers from the saddest of all human ills.

THE X-RAY TREATMENT OF WOUNDS.*

BY

PROFESSOR DR. LEOPOLD FREUND,

VIENNA.

IT is the experience of many of the older radiologists that the healing, not only of carcinomatous, sarcomatous, actinomycotic, venereal, tuberculous, and other ulcers, but also of old, neglected, sluggish, or badly healing wounds, can be hastened by the influence of x rays. This agrees with the experience of those authors who used the sun's rays, or powerful sources of artificial light, for the same purpose. It was the observation of the effect of light on an old wound, the result of a stab with a knife, which induced our distinguished colleague, Dr. Bernhard of St. Moritz, to introduce the sun's rays as a healing factor into therapy in the year 1902.

It is difficult to decide whether this beneficial influence is due to the stimulating effect of small doses of x rays on the functions and growth of the cells, or whether it is to be traced back to the elimination by x rays of an antagonistic factor which delays cicatrization. In my opinion, which is also shared by Professor Arzt and Dr. Fuhs, the question whether the increase in proliferation is caused by direct or indirect stimulation of the activity of the cells is of less importance, for all practical purposes, than the fact that undoubtedly small doses of x rays have a stimulating effect on badly healing wounds.

But it is not this subject, interesting and of practical importance though it certainly is, to which I wish to direct your consideration. I desire to solicit your interest for one particular indication for x rays, which would appear to be little appreciated in your country—the x-ray treatment of fresh and open wounds. As long ago as 1898 I noticed the beneficial influence of x rays on keloids and bad scars. In a later histological experiment on a very large keloidal scar, I observed that the hyperplasia of the connective tissue arose from the numerous young round cells and spindle cells clustered round the blood vessels. The idea at once occurred to me that it might be possible to prevent the formation of keloid by exposing to the destroying influence of x rays those groups of cells which, on account of their youth, are particularly sensitive. Since then, after complete excision of tumours in a number of people who showed a tendency to keloid formation, instead of stitching up the wounds or covering them with skin grafts, I administered small doses of x rays to the open wounds, the bleeding of which had been stopped *lege artis*. The x-ray dose was administered immediately and repeated on several successive days; without exception very good results were obtained. As a consequence I did not hesitate to employ this method in other pathological conditions for which I considered it suitable; in this work I have enjoyed the valued collaboration of Professor H. Salzer.

The following conditions were treated: circumscribed patches of lupus vulgaris, epitheliomata, rodent ulcers, keloids, and pigmented naevi.

This method offers various advantages over other methods of treatment of lupus vulgaris and malignant new growths. When such pathological masses of tissue are excised the x rays do not have to destroy these tissues, a task which they cannot accomplish as quickly as a knife. Masses of tissue of varying thicknesses are removed, which would otherwise weaken the rays by absorbing them on their way to the base of the lesion. Thus the x-raying of the open wound after operation renders the operation more effective. If some traces of the disease are left in the wound, they will be attacked more intensively than when the wound is stitched up. If, in spite of excision and subsequent treatment with x rays, some remaining trace of the disease gives rise to a circumscribed recurrence, this may be removed easily and quickly by the same method. The thin delicate soft scar offers only a slight resistance to the breaking through of the new growth to the outside. This constitutes a very important advantage over large wounds which have been stitched or grafted. Such wounds often become so hard, thick, and oedematous that they offer insuperable obstacles to the breaking through of the infiltration which is growing beneath them, and which consequently takes the line of least resistance and spreads beneath the scar. In other words, a thick scar encourages the propagation of the disease in the body of the patient.

As the cosmetic results are excellent, the resulting scars being not inferior to those obtained with Finsen light, we used this method in a large pigmented naevus, in which excision with subsequent stitching or Thiersch grafting, would certainly not have given such a good cosmetic result as that which we obtained.

The method offers, in addition, in lupus vulgaris and malignant processes, the great advantage of shortening considerably the duration of treatment, especially that of the required x-ray treatment. For instance, in lupus vulgaris it dispenses with the frequent application of x rays, which would be necessary if the lesion were not previously excised, and we have all had experience of the dangers which may result from continued x-ray treatment. By using my method a patch of lupus vulgaris the size of the palm of the hand can be fully healed in six to eight weeks.

The application of this method has its limits, depending upon the localization and extent of the lesion; within these limits there still remains a wide scope for fruitful work.

Wounds in situations where the skin remains stretched are the most suitable for this kind of treatment. Near joints or folds, where the edges of the wounds approach one another whilst in movement, the resulting scars are only satisfactory if movement is eliminated by a firm bandage during the period of healing. Even a very extensive wound following excision is not an obstacle to the formation of a good scar. For instance, I saw a circular wound with a diameter of 10 cm. over the great trochanter, which resulted in a perfect scar. According to my experience the duration of healing of wounds after x rays is certainly not longer than it would be without x rays.

As a result of an experiment on an animal which I performed with Dr. Peach of Manchester during her stay in Vienna, we found that a fresh wound x-rayed with our therapeutic dose was healed a little earlier than an un-x-rayed wound of exactly the same area and depth, symmetrically situated in the same animal. This observation was recently confirmed by a communication from H. Suichi Fukase of the Holzknecht Laboratory.[1]

Herr Glocker found that wounds healed more slowly after x rays; probably this was due to the dosage given.[2] The dose which we usually apply is a little higher than an

* A paper given by invitation at the Annual Meeting of the British Medical Association in Manchester, July, 1929.

epilation dose, about 6 to 7 H. We distribute it over six or seven sittings, which take place at intervals of two to three days. It would appear that unfiltered rays of 6 to 7 H. hardness are more efficient than strongly filtered hard rays.

We may note in passing that Popoff and Teskoff, experimenting on the hastening of the regeneration of wounds, found that $MgCl_2$ was especially efficient, particularly at intervals of one to two days.[3]

Cases where the lesion is situated in folds or angles of the skin are not suitable for this method—for example, at the upper end of the naso-labial folds, near the alae of the nose, in the angle behind the lobes of the ears, and similar situations. After the excision of such a lesion a cavernous wound results, the inner surface of which cannot be reached in its entire extent by the *x* rays. Very extensive lesions are also unsuitable.

Herr Franz Freund recommends the previous *x*-raying of wounds (*loco citato*), because, in his opinion, the beneficial effects of *x* rays on fresh wounds is due to the fact that they hinder inflammation and the development of the exudation of leucocytes. But I cannot see that this proposal would improve my method, because I consider it a somewhat doubtful procedure to operate on an area of the skin which has been *x*-rayed shortly beforehand, as such a skin sometimes reacts to every form of trauma with an *x*-ray dermatitis. Further, I do not consider it reasonable previously to *x*-ray a portion of skin which is to be immediately excised.

Bearing on this point the communication of Richard Sparmanns is noteworthy.[4] He states that in Malays, who have a very strong tendency to excessive hyperplasia of the connective tissue, and who are liable to keloid formation, the prophylactic *x*-raying of the area before the operation, or *x*-raying immediately after the removal of the stitches (that is, where the open wound is not *x*-rayed), is very often useless.

In conclusion, I thank you for the honour which your Association has done me by its kind invitation, and I am very sorry that it is impossible for me personally to be present. I am very grateful to my eminent colleague and old friend, Dr. Lancashire, for delivering this paper in my absence.

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THE CAUSES AND TREATMENT OF PERSISTENT NASAL CATARRH, PARTICULARLY IN CHILDREN.*

BY

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THE term "nasal catarrh" has of late years become a popular expression covering a large variety of pathological processes. It differs from that other popular disease "a cold in the head" in being chronic, although to be sure nasal catarrh may start with a cold in the head, and its course [illegible] ated by recurrent bouts of the same [illegible] this into medical phraseology we may say that a cold in the head is an acute rhinitis, and nasal catarrh a chronic rhinitis, both being characterized by a discharge of mucus or muco-pus from the nose, and by inflammatory swelling of the turbinals, particularly of the inferior, leading to nasal obstruction. In the acute disease the symptoms are more severe, and the headache, malaise, and muscular languor betoken the presence of toxaemia. It is, besides, an infectious disease; at least in certain circumstances it behaves as such. (Paroxysmal rhinorrhoea is, of course, out of bounds in the present discussion. It is not nasal catarrh, although popularly it goes by that name.)

Rhinitis, whether acute or chronic, is due to an infection of the nasal mucosa. But when we ask by what micro-organism it is induced we are presented with an embarrassment of riches, since almost any of the *pyogenes* may be present, alone or in company. But inasmuch as the pneumococcus is the most constant, it is natural to infer that that organism is probably the pioneer of the invaders. The fact, however, that during the early hours of an acute catarrh the nasal secretion contains but few bacteria of any kind has led to the surmise that the first onslaught is made by an ultramicroscopic organism, and that those usually found present are secondary infections.

From the clinical, as distinct from the bacteriological, point of view, we may divide our cases into two groups: first, those in which the catarrh can be traced to a local cause or focus; and secondly, those in which no such local cause can be detected.

The chief local causes in children are, first and foremost, adenoids, with or without hypertrophied inferior turbinals and tonsils, and, secondly, nasal sinus suppuration. In adults the same local causes exist, although with a different relative frequency, sinus suppuration being more, and adenoids less, common than in children, while, in addition, deviations of the nasal septum lead on to nasal catarrh frequently in adults and seldom in children.

Our discussion refers particularly to nasal catarrh in children, and at once the mind turns to the all-important if well-worn subject of adenoids.

What is the relationship between nasal catarrh and adenoids? Are they both expressions of one and the same infection? Or does the one induce the other? And, if so, which is the primary? Here we find ourselves up against the old but still unsolved problem of the cause of adenoids. In endeavouring to find a way out of this maze of questions all we have to guide us, as far as I know, is clinical observation. Bacteriology is silent, and experimental pathology is not very helpful. But let us see what we can gather from our observation of the disease.

First of all, I have been informed by Dr. Alice Vance Knox, who has a large experience of welfare work, that nasal catarrh is one of the earliest of life's maladies, appearing quite frequently in infants only a fortnight old; and the same observation has been made by R. C. Clarke, who remarks also that the nasal catarrh is always associated in infants with bronchial catarrh. Now it is well known that lymphoid tissue can be demonstrated in the nasopharynx at birth, but it is rarely bulky enough to require removal until months, and more often years, later. This seems to indicate that the catarrhal infection of the nose precedes the pathological hypertrophy of the lymphoid masses.

It will be remembered also how Dr. P. Watson-Williams has suggested that adenoids are due to chronic bacterial infection of the nose. In criticism of this view we sometimes hear it said that lymphoid hypertrophy as a reaction to sepsis is a novel, hitherto unknown phenomenon. But it is by no means novel or unknown. What is the nature of the enlarged cervical glands that accompany chronic hypertrophy of the pharyngeal tonsils? The members of the whole group of enlarged lymphoid aggregations—adenoids, tonsils, and lymphatic glands—are quite obviously related to each other and to some low form of chronic sepsis, located in themselves no doubt. But from what primary source did it emanate if not from the nose? Thus, according to this view, adenoids is merely an incident in the course of chronic rhinitis.

But, attractive though this explanation may be, it does not account for all the phenomena. If chronic nasal sepsis can in this way induce hypertrophy of the nasopharyngeal tonsil, why are not adenoids also produced in adults with chronic nasal catarrh? We cannot answer this question except by assuming that there is no lymphoid tissue to undergo hypertrophy in the nasopharynx of adults—and that is not the case.

In children adenoids sometimes recur after they have been quite efficiently removed. Their cause must therefore be persisting. Again, is it chronic rhinitis? But once more, what is the explanation of their non-recurrence in adults after removal?

* Read in opening a discussion in the Section of Oto-Rhino-Laryngology at the Annual Meeting of the British Medical Association, Manchester, 1929.

As we all know, however, recurrence of adenoids in children after removal is not common, and their removal is usually followed by cure of the nasal catarrh. Probably, however, this does not mean that the adenoids had been responsible for the nasal disease, but merely that both of these disturbances had been initiated by a common infection, which the bodily resistance, heightened by the improved health that follows the operation, is able to throw off completely and permanently. What interests us to-day, however, is the exceptional happening—the persistence of nasal catarrh after removal of adenoids. This disappointment we have all experienced, when, in spite of a complete clearance of the nasopharynx, the little patient still keeps on "catching cold" at frequent intervals.

Nay! Quite often nowadays we see acute suppuration of the middle ear with mastoiditis in children who have had their adenoids removed, and whose nasopharynx is smooth. I have sometimes wondered whether, in such cases, the nasopharynx is not rather too smooth and hard, lined as it is with scar tissue; whether, that is to say, when operating for adenoids, we are not sometimes a little too thorough in our curetting. To substitute scar tissue for mucous membrane is scarcely an improvement upon Nature. This consideration has always seemed to me to be one of the points in favour of the sliding adenotome.

To return to our main theme. When nasal catarrh persists after adenoids, and perhaps also tonsils, have been removed, there are, in children, two further possible causes, which may, of course, be combined—namely, enlarged posterior ends of the inferior turbinals, and nasal sinus suppuration.

With regard to the former, the late Mark Hovell used to insist upon removing "posterior ends" at all adenoid operations. Without going quite as far as that, perhaps, we should nevertheless always examine for them at the operation, and then if they are much enlarged they should certainly be got rid of. If they are only slightly swollen they may be left, as they will probably subside with the general improvement in local conditions. If they do not shrink, however, they maintain the symptoms of nasal catarrh, giving rise to obstruction of a peculiarly variable character.

Sinusitis we have long known to be one of the common causes of nasal catarrh in adults, but it is only within the last few years that its importance in children has come to be realized. It is, of course, much less frequent in childhood—at least it is less frequently discovered. It also runs a more acute course in early life. The sinuses in childhood are relatively small; some of them—the sphenoidals, for example—amounting to little more than tiny cells, while the frontals do not begin to develop until the seventh year. So it is the ethmoids and maxillary antra that are of most importance in children, and they are frequently, if transiently, affected during colds in the head. If the surgeon makes a practice of washing out the maxillary antra in children with mastoid suppuration, as Watson-Williams advises, he will be surprised at the frequency with which he will find pus in the washings. In these conditions a single washing-out is usually sufficient to cure the nasal infection, and the ear infection also benefits.

In the ordinary way, and apart from ear complications, chronic nasal catarrh in children, adenoids and posterior ends having been excluded, should lead to an examination of the ethmoidal region and of the maxillary antra. In so doing we must remember that neither transillumination nor *x*-ray examination are of much value in childhood; negative findings, at all events, should always be doubted. For the antra, proof-puncture under general anaesthesia is alone reliable, the needle being inserted close above and not below the inferior turbinal, as the floor of the antrum is relatively high in early life. If simple lavage fails to cure the antrum suppuration, a nasal antrostomy opening may be made with a small burr or rasp. Operation through the canine fossa, however, is not recommended prior to the eruption of the permanent teeth.

One question in connexion with nasal catarrh and sinusitis in children I should like to hear your opinion upon, and that is: Is it possible that obstinate sinusitis and polypus formation in young adults is a development of nasal trouble, apart from adenoids, that begins in childhood?

The last local abnormality causing nasal catarrh I shall allude to is deviation of the nasal septum, a source of trouble much less common in children than in adults. We do meet with it, however, from time to time, as a result of a traumatism, and the surgeon may have to decide whether to operate at the risk of stunting the growth of the nose. In such a case the general condition of the paient must be the deciding factor. If the nasal obstruction and catarrh are interfering with the child's normal development, the risk should be accepted and the operation performed. I am sure I do not need to remind you that the septum operation in a child entails a peculiarly difficult and delicate manipulation. But if the septal deformity is not obviously interfering with nasal breathing the operation should be postponed until after puberty.

In adults nasal catarrh, with its consequent hypertrophies, is frequently enough the result of septal deviation, and will be materially benefited by the submucous resection and by removal of obstructing redundancies. But the operation should be strictly limited to cases which obviously require it, for I fear that there is a tendency among some rhinologists to perform submucous resection rather too readily.

Such are the local causes of nasal catarrh particularly in children, together with some of the means at our disposal for dealing with them. It may happen, however—indeed it frequently does happen—that, even after all the measures for eradicating the trouble have been adopted, the case fails to respond; the "colds" keep on recurring; and the nasal catarrh, though perhaps milder, does not entirely disappear. Or, to take the other possibility, the patient may manifest no sign of any local abnormality whatever to account for his catarrhal symptoms—apart, perhaps, from the turgescence of his turbinals, which is, of course, more likely to be the effect than the cause of his trouble. And what are we to do then?

The point is that, while a septic focus such as adenoids or an infected sinus—themselves by the way the product frequently of acute catarrh—will favour the persistence or the frequent recurrence of the catarrhal infection, clinical experience teaches us that there are people, both young and old, who, without any discoverable abnormality whatever, are nevertheless peculiarly susceptible to this infection, and what we are interested in is how to reduce or abolish this susceptibility. And the interest is one we share with mankind in general, for what we are about to discuss now is the prevention of that universal plague known as a cold in the head; acute coryza; acute epidemic catarrh.

The first question to be answered is: Is the practically universal belief that acute nasal catarrh is due to cold, to chilling of the body surface, right or wrong?

In the first flush of bacteriological enthusiasm, most of us—I plead guilty myself to the charge—denied that this was anything but a superstition, and we pointed triumphantly to the plain evidence of infection from one person to another. But longer experience, observation, and cogitation have modified our opinion to this extent—that we have regard now to the soil as well as to the seed; and so we no longer contemptuously reject the belief that exposure to cold, particularly in the case of sedentary, indoor people, will predispose to and often actually precipitate an attack.

The process of inception, however, is not quite simple. Apparently what happens is that most of us pass through an acute attack every six months or thereabouts—that is to say, we acquire an immunity that keeps the infection at bay for about six months. If we are able to lead a healthy life and are not exposed to extremes of temperature or fatigue we go the full period. But when we are nearing the limit of our period of resistance, exposure to cold—a wetting, falling asleep in a draught, a bitter east wind—is sufficient to push us over the edge, so to speak.

Moreover, there are among us people who "catch cold" more frequently than their neighbours. Most of them, but not all, will be found to have one or other of the septic foci mentioned above. Whether or no, the suggestion may be advanced that these people are "carriers" of the virus, and very prone to auto-infection and to the heightening in virulence of the infective agent to such a degree that during the acute stage it can pass from one person to another. Thus the general population, the majority of whom are presumably not themselves carriers, is periodically exposed to infection from a large number of centres simultaneously. Indeed, the well-known appearance of a pandemic in England every spring and autumn can best be explained by the concurrence of attacks in carriers susceptible of meteorological influences, and transmitted by them to a populace whose resistance is low.

To put the matter in a nutshell, a susceptible person or child—often a sufferer from chronic nasal catarrh—develops acute catarrh spontaneously, and proceeds to infect his healthy neighbours; and exposure, fatigue, malnutrition, like any debilitating circumstance, favour the onset of the disease, both in the susceptible and in the more resistant, but they are not indispensable factors in the causation.

The treatment of nasal catarrh, of the chronic as well as of the acute variety, is dictated by our views upon its etiology. You and I, as rhinologists, deal with local causes, as outlined above, sometimes with success, sometimes not. Secondly, bacteriologists, convinced of the evil wrought by bacteria, seek to maintain the patient's resistance at a high level by the administration of vaccines, with, I am afraid, not invariable success. Sometimes a course of vaccines will be followed by a year of freedom from acute attacks. At other times an acute attack will set in a week or two after the course of vaccines is concluded. Nevertheless, a course of vaccines twice a year in susceptible people is a simple, harmless procedure, which every now and then is followed by a prolonged intermission. Let us, however, again utter the warning that not even the most potent vaccine will remove nasal polypi. In other words, always look out for and remove local causes as a preliminary.

But at the same time as the specialists are trying their luck, the general physician, the general practitioner, and the general public as well, are all equally busy with their methods of treatment, with the result that the patient is subjected to a bewildering shower of remedies, all of them successful, for a cold in the head gets well of its own accord until the next time. There is, indeed, no practical method of preventing this contagious disease, and there is no specific cure. All we can do is to remove, when possible, all local sources of sepsis and irritation, and to build up and maintain a high resistance against the coryza-producing virus, whatever it may be, by sensible hygienic measures, both personal and communal.

In this connexion we ought perhaps, in our capacity as rhinological experts, to express some sort of opinion upon certain therapeutic counsels that have, of recent times, become very prevalent, if not very popular.

In the first place, we are often advised, if we wish to keep ourselves free from infection, to sniff every day various chemical solutions up the nose. By the way, I am not acquainted with any rhinologist who follows this ritual himself. Perhaps for the very good reason that it is probably quite ineffective and certainly not free from danger. I have known an acute otitis media result from this insult to the upper air passages.

Again, we have to encounter the cold-water, open-air crank, who puts down all the ills that flesh is heir to, and specifically nasal catarrh, to living and working indoors. But this is the twentieth century. Few of us can afford to revert to savagery, and, if we did, how long could we keep it up here in England without developing an acute antrum? Yet these exuberant Bohemians, not content with their own virulently ascetic practices, inflict them also upon their children; and you will see their long and skinny daughters, with red-rimmed eyes and weeping noses, sent out to face a Kingsley's nor'-easter, nude and purple from the ankles to the nates. No one will ever persuade me that that regimen is either safe or sensible—or even decent.

As a matter of fact, this hardening process is not modern. It is very ancient, having been in vogue for something like 2,000 years to our knowledge. Listen to the orations of Aristides—not Aristides the Just, I may say.

"His health," he tells us, "was bad about the time of the winter solstice. It was a stormy day. The god ordered him to rub himself over with mud, and run three times round the Temple. It was a north wind and keen frost. He did as Asklepios ordered, then bathed at the well, and felt fine. . . . But—a companion who imitated him had a paralytic spasm and could scarcely be restored to heat."

Is it asking too much of them to beseech our open-air faddists as they are strong to be merciful, remembering that most of us are but a feeble folk, who, after exposure to rigorous cold, do not experience a warm vasomotor reaction, but, like the companion of Aristides, fall therefrom into a "paralytic spasm," and can "scarcely be restored to heat."

Finally, there are those who go to the opposite extreme, and, wrapping garment after garment around themselves and their children until they have as many coats as an onion, live in a continual bath of perspiration. Rendering themselves thus sensitive to every breath of air they fear a draught as they should the devil, and no wonder, for a current of fresh air is to such people, with their soppy skins and flabby circulation, a real source of discomfort and even at times of danger.

After all, we all know quite well the golden rule of health in these matters. Let us seek the *via media*, and expose our system to extremes of no kind, neither over-coddling nor overtaxing our bodies. By that means we shall obtain the best results—save, to be sure, in the daily press, for this kind of advice is much too quiet and sensible to furnish our journalists and our journalistic medical geniuses with the excitable headings their souls hanker after.

THE INCIDENCE OF TUBERCULOUS INFECTION IN THE MILK SUPPLIES OF SCOTTISH CITIES.

BY

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For a number of years attention has been directed to the danger of the milk supply as a potential source of infection of the population with bovine tuberculosis. The report of the Royal Commission on Tuberculosis drew attention to the need for adequate control of the milk supply by local health authorities, and since the issue of that report considerable improvements have been effected, both by legislation and by voluntary efforts on the part of individual milk producers. The increased control of city milk supplies by more frequent periodical tests, the Tuberculosis Order (by which local authorities have the power to inspect all cows which are giving milk for public consumption, and to order the slaughter of those which are either excreting tubercle bacilli in their milk or are in an advanced stage of the disease), and the voluntary establishment of tuberculin-tested herds by individual owners, all tend towards ensuring a decreased incidence of infection in the milk supplied to the large centres of population.

During the last few months considerable attention has been devoted in the public press and elsewhere to the potential danger of the milk supply, and somewhat indiscriminate statements have been made as to the actual extent of the tuberculous infection of milk. Unfortunately no collected data of the present position with regard to infection appears to be available, and, in order to fill this gap in our collected knowledge, an attempt has been made to put together such relevant information as is available with regard to the milk supply of Scotland.

An examination of the older literature reveals the following series of figures, most of which were obtained prior to 1914.

TABLE I.

Locality.	Authority.	Percentage of Infected Milk.
London	Medical officer of health	9.9
Manchester	Delépine	8.7
Edinburgh	Miller and Mitchell	16 to 20
New York	Grund and Wilcox	11.5
Philadelphia	Campbell	13.8*
Four cities, U.S.A.	Lochead	8.3
General results, U.S.A. ...	Lochead	6.7 to 19.5

*13.8 per cent. sold as raw milk; 8.3 per cent. sold as pasteurized milk.

These figures, while showing considerable divergence from one another, all point to the very considerable infection of the city milk supplies examined by these various authorities.

In the present survey an analysis has been made of the infection of the milk supplies of Edinburgh, Glasgow, and Aberdeen, as evidenced by the data available in the reports of the medical officers of health of these cities, and by personal inquiry from the officials.*

It should be emphasized here that the figures quoted refer only to samples of *raw* milk. Actually a considerable proportion of the milk supply—in Glasgow as much as 80 per cent.—is pasteurized before delivery to the consumer, and the risk of infection will be very considerably reduced. Further reference to this point will be made later.

Tuberculous Infection of City Milk Supplies.

In collecting the figures from the various reports, only those which referred to infection as determined by biological (inoculation) tests were included, since microscopic tests are at best only a very rough guide to the presence of tubercle bacilli.

In the first instance the collection of data was limited to the infection of samples of mixed milk received from country sources. It was at once found that the year-to-year variations were so great as to nullify entirely any direct yearly comparisons between the different cities, owing to the comparatively small number of samples tested each year. For instance, the results for Edinburgh for each of ten successive years were found to be 8.5, 9.3, 9.9, 11.6, 2.2. 5.3, 14.0, 8.1, 10.9, and 5.7 per cent. It was therefore found necessary to take an average of the results over an extended number of years, and in this way it was possible to obtain figures which were of definite significance. These figures are summarized in Table II.

TABLE II.—*Tuberculous Infection of City Milk Supplies.*
(Samples of mixed (raw) milk taken from bulk on arrival by transport from country sources.)

City.	Years.	No. of Samples Examined.	No. of Samples Infected.	Percentage of Samples Infected.
Edinburgh ...	1918-1927	795	67	8.5
Glasgow	1921-1927	1,083	28	2.6
Aberdeen ...	1922-1927	1,205	66	5.5

It will be seen that the difference between the percentage of infected samples in each of the three cities—Edinburgh, Glasgow, and Aberdeen—is most striking. The question was at once raised as to how far the results obtained during the periods examined were true indications of the average infection of the whole of the milk supply of each city. Further information was therefore sought in order to determine (*a*) how far the results at each centre agreed with those obtained in previous years, and (*b*) how far the possible variations in the technique of the test at each centre might render the results incomparable.

*No other Scottish cities have sufficient data for comparison.

With regard to the first point the following facts were ascertained. The Edinburgh results agree fairly well with those previously obtained in this city by other workers; they are, in fact, on the whole lower than those previously published. For the years 1905 to 1914 the percentage of infected samples in the Aberdeen supply was 5.9, a total of 289 samples being examined during this period. This percentage agrees closely with that shown in Table II. The number of tests carried out at Glasgow since 1908 has been considerable, and a summary of the tests is given in Table III. The results of these tests show good agreement among themselves. It would be expected that the lowest incidence of infection would be found in the samples from individual cows (mostly taken in attempting to trace cows responsible for the infection of mixed milk samples), that the milk of cows with udder disease would show a higher percentage of infection, and that the highest figures would be obtained from mixed milk samples, where the milk of a number of cows is bulked. The collected results shown in Table III bear out these points. Further, the general results of the tests are of the same order, and the two mixed milk results (3 per cent. and 2.6 per cent. respectively) show good agreement.

It appears, therefore, that at all three centres there is sufficient evidence to show that the results represent a true average of the normal infection of each city's milk supply.

TABLE III.—*Glasgow Milk Supply.*

Details of Samples.	Years.	No. of Samples Examined.	No. of Samples Infected.	Percentage of Samples Infected.
Samples from cows with disease of the udder	1903-13 1921-27	3,384 2,173	84 32	2.5 1.5
Samples from cows supplying hospitals	1908-13 1921-26	413 3,014	5 17	1.2 0.56
Mixed milk supplied to hospitals	1921-26	923	28	3.0
Mixed milk of city (see Table II)	1921-27	1,083	28	2.6

We have therefore to turn to the second point—namely, to ascertain whether the variations in the results can be attributed to differences in technique in testing the milk samples. By the courtesy of the officials concerned I have been provided with the details of the technique used at each centre, and these details have been tabulated in Table IV.

TABLE IV.—*Details of Biological Tests.*

City.	Biological Tests.	Percentage of Milk Samples Infected.
Glasgow ...	Single guinea-pig inoculation. 1 c.cm. or more sediment inoculated subcutaneously.* Guinea-pig killed at three weeks.	2.6
Aberdeen ...	Si C of milk inoculated. Guinea-pig retained if necessary for eight weeks.	5.5
Edinburgh	half the from the cream layer) inoculated into each guinea-pig subcutaneously. First guinea-pig killed at four weeks; second kept up to eight weeks if necessary.	8.5

*Sediment obtained by allowing milk to settle for twenty-four hours in lon lower layer: quantity of milk varial of milk quoted in these tests refer:

It will be seen from this table that the tests vary at each centre, and that the employment of duplicate guinea-pigs and of a long period between inoculation and post-mortem examination coincides with the highest apparent incidence of infection. It might be assumed from this fact

that the lower incidence of infection of the milk supplies of Aberdeen and Glasgow indicates that, at these centres, the technique is not sufficiently sensitive to demonstrate infection in a number of tuberculous samples. The use of antiformin at Aberdeen, and of a short period between inoculation and post-mortem examination at Glasgow, might account for the variations in the results. On the other hand, there are certain facts which might be urged against such an assumption. At each centre it is usually found possible, by biological test of milk samples, to locate the individual cow which is causing infection of a given milk supply, and this would appear to provide a check on the reliability of the methods employed.* Again, the figure given for the percentage infection of milk from individual cows supplying hospitals (0.56) agrees closely with that obtained from post-mortem examinations of dairy cows at slaughterhouses, where approximately 0.5 per cent. are found to have infected (tuberculous) udders. Further, the discrepancy between the Edinburgh and Glasgow results is so great that the three-week test at the latter centre would have to be assumed to miss more than two-thirds of those samples which would have been found positive by the use of a four- to eight-week test used at the former centre—an assumption whose justification might be doubted.†

If, however, it is assumed that the tests at each centre are strictly comparable, we are faced with a quite extraordinary difference in the incidence of infected milk in the various country districts from which the city supplies are drawn. Such a difference may actually exist, but the criticisms of the tests at the individual centres prevent any definite conclusion being reached.

The outstanding fact brought out in this short discussion is therefore the need for the adoption of a uniform test at each centre. It is only by the standardization of technique that results can be obtained which will be directly comparable and beyond criticism.

The Incidence of Abdominal Tuberculosis.

It is an established fact that a considerable proportion of cases of abdominal tuberculosis is due to infection of bovine origin, and it is assumed that such infection is, in a number of cases, caused by the consumption of tuberculous milk. If tuberculous milk is, in fact, a frequent cause of infection, we should expect that the differences in the incidence of tuberculous milk in each of the three cities referred to above would be reflected in the mortality from abdominal tuberculosis.

An analysis of the number of deaths occurring as a result of abdominal tuberculosis in the cities has revealed the following results.

TABLE V.—*Mortality from Abdominal Tuberculosis.*

City.	Years.	Average No. of Deaths per Million of Population.	City.	Years.	Average No. of Deaths per Million of Population.
Edinburgh	1911-20	120	Edinburgh	1921-27	88
Glasgow ..	1911-18	171	Glasgow ...	1919-27	91
Aberdeen	1913-20	133	Aberdeen	1921-27	92

From these results it appears that while there was a slight variation in the death rate between the cities during the earlier years, the death rates for all four cities during the last eight or nine years have been practically identical, although these were the years during which large variations were found in the incidence of infection of the city milk supplies.

Infection of the population by the consumption of tuberculous milk is obviously more likely to affect the infant population most heavily; it has been estimated that 50 per cent. of the cases of abdominal tuberculosis in children under 5 years of age is of bovine origin, and is to a great extent due to infection of the milk supply. A check was therefore made of the deaths of abdominal tuberculosis in children under the age of 5 years, since this should give a more accurate estimate of milk-borne infection. There was again found to be no considerable difference between the death rates in the two cities, the figures being as follows:

Edinburgh (1921-27)	...	37 deaths per annum per million population.
Glasgow (1921-27) ...	...	31 deaths per annum per million population.

The attempted correlation between the incidence of tuberculous milk and the mortality from abdominal tuberculosis in the cities investigated is, however, complicated by the fact that a considerable portion of the milk supply is pasteurized before delivery to the consumer; and while recent work indicates that pasteurization is not an absolute safeguard against tuberculosis, it very greatly reduces the risk of infection.

If the occurrence of abdominal tuberculosis provides an indication of the relative cleanliness of the milk supply, it appears that the occurrence of living tubercle bacilli in the milk as delivered to the public (that is, after pasteurization or other treatment) is the same for each of the three cities investigated.

The Value of Tuberculin-tested Herds.

The figures which formed the basis of the first section of this paper referred to the incidence of infection in the general milk supply received from country sources. The percentage of infected samples was shown to be variable, but in every case it was significant from the point of view of the possible transmission of bovine tuberculosis to man. In the second section reference was made to the value of pasteurization in decreasing the risk of infection, but it was stated that pasteurization could not be considered an absolute safeguard against tuberculosis.

The movement for the establishment of tuberculin-tested herds was based on the assumption that dairy herds which had been cleared of tuberculosis, and which were subsequently tested at intervals in order to ensure the early elimination of any new reacters, would provide the consumer with a guaranteed tubercle-free milk. The criticism has been made that even these precautions do not give an absolute guarantee of freedom from infection, on the grounds that the interval between periodical tests (usually six months) may permit a cow to develop tuberculosis and possibly therefore to excrete tubercle bacilli in the milk. Such a criticism is *a priori* hardly valid in view of the general recognition that infection of the udder takes place only in the later stages of the disease. Certain results obtained at Glasgow provide, however, a remarkable practical demonstration of the value of tuberculin-tested herds in ensuring the production of tubercle-free milk.

During the years 1909 to 1914 the city hospitals were supplied with milk which was obtained from herds under the strict supervision of the veterinary officer. The herds were not regularly tested with tuberculin, but careful examination of the animals was made periodically and any suspicious animals were at once re-tested with tuberculin. As a result the periodical testing of the milk from these herds *revealed only one infected sample during these five years.*

From 1921 to 1926 the hospitals were supplied with milk from untested herds, and, out of 923 samples examined, 28 (or 3 per cent.) were found to be infected.

During the years 1927 and 1928 the hospitals were supplied with milk from tuberculin-tested herds, and, *out of 550 samples examined, not one sample was found to be infected.* This is the more striking as the quantity of milk tested is relatively large, amounting to approximately half an ounce for every gallon of milk supplied to the hospitals.

These figures effectively demonstrate the entire freedom from infection of milk from tuberculin-tested herds, and illustrate the unique value of such milk from the point of view of public health.

* In this connexion, however, it should be noted that the methods of testing mixed milk (that is, milk from a number of cows) and of milk from an individual cow are not necessarily comparable. In the latter infection is generally heavy, and a short period between inoculation and post-mortem examination may be sufficient to reveal infection; in the former the infection is considerably diluted and a longer period is undoubtedly necessary.

† By the courtesy of Mr. A. Gofton, F.R.C.V.S., I have been provided with the details of the tests carried out at Edinburgh during the last five years. Out of a total of 38 positive samples, 28 (or nearly 75 per cent.) have been diagnosed by post-mortem examination at the end of four weeks. The remaining 10 positive samples required periods averaging about six and a half weeks for diagnosis.

THE RADIUM CLIMACTERIC.

BY

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In the menorrhagia of middle life radium has proved of so much value that if malignancy and fibroid disease are carefully excluded, radium can be safely recommended.

In this department we have, during the last four and a half years, treated 89 patients suffering from severe uterine haemorrhage. The average age has been 47 years, and the average duration of severe haemorrhage has been two years. Each case has been carefully followed up every three months, and our reports to date show that 73 patients report quite free from symptoms, 2 have been lost sight of, one failed to receive any benefit from the treatment, and 13 have been treated too recently to report. The one failure proved, on operation, to have a large submucous fibroid, which was not detected at the routine examination prior to treatment.

All patients who were sent here for treatment were in a condition of chronic invalidism, often very anaemic, sometimes blanched, and all obviously in a poor state of health. The routine treatment has been one application of radium to the interior of the uterus lasting twenty-four hours: radium element, 50 mg. in platinum tube (wall thickness 1 mm.), enclosed in rubber tube (wall thickness 1 mm.); total dose 1,200 mg. hours. As the uterine applicator is only the diameter of a No. 6 Hegar's dilator, an anaesthetic is seldom required. In no case has any untoward symptom developed. In a few patients transient sickness or headache has occurred; these symptoms cease directly the radium is withdrawn.

In order to ascertain whether the climacteric induced by radium treatment differs in any way from the normal "change of life," I have recently issued a circular questionary to 44 patients who were treated up to 1928. The answers given by the patients are shown in the following tables.

Cessation of Haemorrhage.

Question 1: How soon after the treatment did the bleeding completely cease? elicited the following replies:

	Cases.
At once	20
After one week	1
After three weeks	1
After four weeks	15
After six weeks	1
After eight weeks	4
After six months	1
After seven months	1

With reference to the last two cases I made special inquiries.

The patient who was not symptom-free for six months stated that the bleeding ceased seven days after treatment. She then went a very long tiring railway journey and had a return of bleeding which lasted fourteen days. One month later she had a bleeding, slight in amount, which lasted twenty-four hours. She noticed a pale pink watery discharge, which did not cease till six months after treatment.

The patient who was not symptom-free for seven months was treated in March, 1926. She reported regularly that she was free from any bleeding until November, 1926. She then had a return of bleeding, not severe. I gave a second radium treatment, and she has had no sign of haemorrhage since. This was the only patient who had two treatments.

In a few instances patients have written to say that they have been alarmed because free bleeding occurred after the treatment. In no case has this haemorrhage been as severe as the bleeding present before treatment. In these menorrhagic cases it is impossible to determine when the true menstrual period is present, or due to occur, as the haemorrhage is so irregular and often so prolonged.

If we could choose the time for treatment I think our results would be even better. I warn every patient that one or more bleedings will occur after treatment, but that the haemorrhage will eventually cease entirely.

Frequency of Bleeding.

Question 2 was: How often did bleeding occur after treatment? The replies showed that—

	Cases.
No bleeding occurred after treatment in	20
One bleeding occurred in	17
Two bleedings occurred in	7

Pain.

An investigation as to the presence of pain before and after treatment gave the following information.

	Cases.
Patients who had *no* pain before treatment	24
Patients who had pain before treatment	20
Patients reporting absence of pain after treatment	15
Patients reporting pain still present but less	4
Patients reporting no improvement of pain	1

Disturbance of Micturition.

The number of patients who suffered from painful or frequent micturition, and their condition after treatment, was as follows:

	Cases.
Before treatment	4
Condition improved	3
Not improved	1

Climacteric Symptoms.

The usual climacteric symptoms of hot flushes, headaches, nervous symptoms, stiffness, or indefinite joint pains were investigated.

	Cases.
No complaints were reported in	14
Hot flushes were noted in	29
Headaches in	25
Stiffness or indefinite joint pains	13

(Rheumatism is so prevalent in New Zealand that the complaint of stiffness and vague joint pains is very common among middle-aged people of either sex.)

After very careful inquiry among women who are passing through the normal change of life I can find no evidence that the climacteric induced by radium treatment differs in any way, except in rapidity, from the normal period of disturbance experienced by middle-aged women.

Three younger patients, suffering from tuberculosis of the lungs, were sent for treatment on account of severe and intractable uterine haemorrhage. One patient reports that she does not suffer from severe bleeding any more, but has returned to normal monthly loss. One patient reports that the bleeding has ceased, but she has had two attacks of severe nose-bleeding. One patient reports that haemorrhage has ceased, but chronic leucorrhoea is present.

I have been asked several times to treat young women suffering from severe haemorrhage accompanied by much pain at the monthly periods. I am reluctant to treat young adults, but agreed to give treatment in two cases where the patients' health was being undermined by the severe haemorrhage, and neurasthenia was threatened by the patient's dread of the monthly ordeal. I gave one-third of the routine dose (50 mg. for eight hours), and both patients have reported that the monthly periods are normal and free from excessive pain.

A number of cases of menorrhagia in which a fibroid tumour was present have been sent for treatment. I have always urged these patients to submit to operation, but in six cases I agreed to give treatment because the patient was unable to undergo surgical treatment. In three cases the relief was remarkable, haemorrhage ceasing and other symptoms being relieved. In one case in which a fibroid tumour reaching to within one fingerbreadth of the umbilicus was present, and flooding was present at time of treatment, the haemorrhage ceased within a few days, and when I re-examined the patient six months later I could only detect a small movable uterus and was unable to find the large fibroid tumour I had noted six months before. My last two cases are too recent to report.

I think that with increased experience in the use of radium many cases of intractable uterine haemorrhage will not be allowed to wait until chronic invalidism occurs, but will receive prompt relief from this new ally of our profession.

THE ADRENALINE PACK IN THE TREATMENT OF GLAUCOMA.

Its Value in Temporarily Reducing the Intraocular Pressure.

BY

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In the last decade a large amount of experimental work and clinical investigation has centred round the non-operative treatment of glaucoma. The mass of published material reveals one method which not only has a very practical value, but also raises points of great theoretical interest. We refer to the use of the adrenaline pack. Of the newer non-operative aids to treatment in this condition three stand out prominently: first, the instillation of the "glaucosans" advocated by Hamburger; secondly, the intravenous injection of hypertonic sodium chloride solution (30 per cent.) as described by Duke-Elder; and thirdly, the employment of a pledget of cotton-wool soaked in adrenaline and placed in the superior fornix of the conjunctiva, originally advocated by Gradle, and subsequently reported on favourably by S. R. Gifford and others.

During 1928–29 we pursued a clinical study of over a hundred cases of primary glaucoma from different points of view, but chiefly with the idea of exploring non-operative methods of treatment. The analysis of the series has not yet been published and will take time. Meantime, we consider that it may be of interest to indicate briefly our experience of the three methods referred to, and illustrate by charts some interesting features of the adrenaline pack.

With regard to the first, after a number of observations on the effect of glaucosan drops and amino-glaucosan, we are inclined to agree in the main with the somewhat unfavourable conclusions arrived at by Duke-Elder and Law in their recent article in the *British Medical Journal* of March 30th (p. 590). Of the two, we found that amino-glaucosan, although inconstant in its action, was preferable. It is, however, more troublesome both for the doctor and the patient, and in our hands less frequently of value than the adrenaline pack.

The intravenous injection of hypertonic salines we have only found of service as an emergency measure in acute intractable glaucomas as a preliminary procedure to an emergency iridectomy. However useful, therefore, in a large hospital in occasional cases, it is unsuited for purposes of general utility.

The third method, on the other hand, has proved such a simple and expeditious aid to treatment that we wish to express ourselves in support of those who have favoured its use. We would, however, like to make it perfectly clear that in our experience the best single non-operative method of treatment is the efficient instillation of eserine, that no combination of non-operative methods of which we are aware obviates eventual operative treatment by decompression, and that of such operative procedures we prefer trephining in the majority of cases. It is in chronic primary glaucoma that we have found the adrenaline pack of greatest use. In such cases it may frequently be expected to act as a powerful adjunct to ordinary non-operative treatment. We do not suggest that it gives constant results, but it will sometimes reduce the tension where intensive eserine treatment in combination with other measures fails, and sometimes in a most dramatic manner. It also proves of the greatest value in controlling the tension prior to operation. Usually the first effect of the pack on the glaucomatous eye is to raise the tension. This preliminary rise takes place in the first eight hours; soon a fall sets in, which brings the tension below its original level inside twenty-four hours. The fall tends to continue, and may not reach its maximum till the third day, or possibly later. The preliminary rise may not occur, especially in moderate tensions, or it may be greatly diminished or even prevented by the frequent instillation of eserine, 1/2 per cent., before and after the pack. The fall is temporary, and may in certain cases be small and of short duration. We have known it to fail altogether or to be well marked, but succeeded by a rise in a few hours. Sometimes after several apparently good responses the tension settles down at a higher level than before the treatment was instituted. In moderate cases the fall can be prolonged by the use of eserine. The pack may be used, therefore, to give eserine a start, as it were, and allow it to exert its maximum effect. When the tension starts rising again, in spite of miotics, massage, etc., there appears to be no reason why the pack should not be

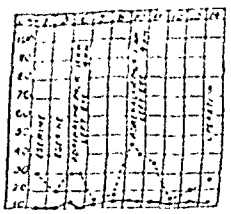

CHART 1.

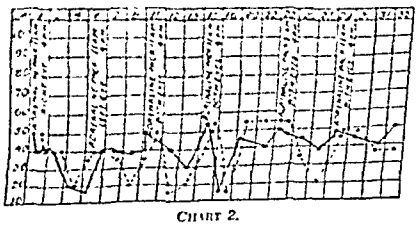

CHART 2.

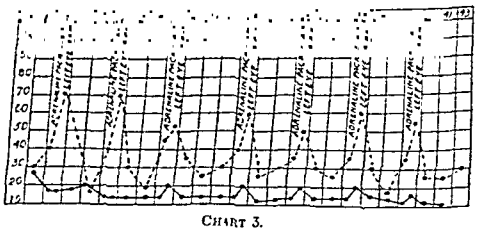

CHART 3.

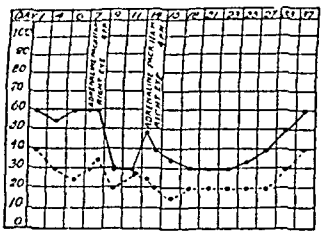

CHART 4.

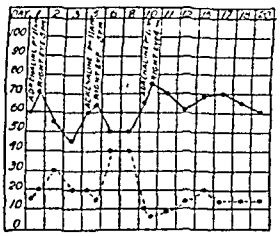

CHART 5.

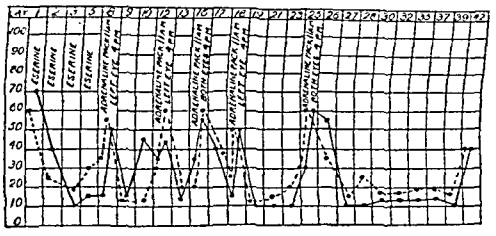

CHART 6.

CHART 1.—Man, aged 75. Primary glaucoma, chronic non-congestive; *posterior segment* [illegible] continuous line [illegible] h of the charts the [illegible] to the left eye.

CHART 2.—Wo[illegible] chamber norma[illegible] gestive. *Anterior*

CHART 3.—Woman, aged 60. Glaucoma, chronic congestive; posterior segment type; shallow anterior chamber. Continuous eserine, left eye, throughout.

CHART 4.—Man, aged 60. Glaucoma, primary simple. Anterior chamber normal. *Cupping each eye. Continuous eserine treatment.*

CHART 5.—Man, aged 55. Glaucoma, primary chronic congestive; posterior segment type; shallow anterior chamber

CHART 6.—Woman, aged 35. Glaucoma, chronic congestive; posterior segment type; shallow anterior chamber. Continuous eserine treatment throughout.

repeated. We have effectively repeated this procedure five and six times at short intervals. Up to now we have chiefly used the method in cases where the ordinary non-operative treatment was practically ineffective and in which we desired to get the eye into a more favourable state for operation. It is not our object in this communication to do more than draw attention to the frequently favourable results of the adrenaline pack on the tension in glaucoma of moderate extent. At the same time, we would like to show some effects of considerable theoretical interest in connexion with its use in very high tension cases.

The Method.

The eye is anaesthetized by two or three instillations of 2 per cent. holocaine. The tension is taken with an instrument (we usually use a Bailliart's tonometer) if it is desired to make accurate chart records. If we wish to try and obviate the initial rise of tension due to the adrenaline it is desirable to give eserine frequently before and after the pack—say, six instillations in the hour before, and six half-hourly instillations after. A small flattened pledget of wool is soaked in ordinary adrenaline chloride solution (1 in 1,000, P., D. and Co.), and whilst the patient looks down and the lid is elevated with a retractor, it is laid in the superior fornix and the eye closed. It is left there for five minutes. Should eserine not be used in conjunction with the adrenaline the tension is more likely to rise, but even with marked rises we have not seen an untoward result; there has always been a fall again the following day. In the ordinary case of primary glaucoma the reactions are moderate, and may be slight and hard to demonstrate with the tonometer, although the fall is usually definite. In badly damaged eyes with excessive tensions, however, more startling effects may be obtained, some of which are quite contrary to what might be expected, and more interesting in view of the fact that the vascular tunic in such eyes is markedly atrophic. A few selected charts will better illustrate various responses to the adrenaline pack.

Chart 1.—A case of moderate tension in which there was no rise immediately after the pack on the first occasion and actually a fall on the second. Eserine was freely instilled as described above, before and after the pack. Operation was undertaken before the fall due to the second pack had passed. Eserine alone at first reduced the tension, but it rose on the sixth day.

Chart 2 shows the effect of numerous packs in a case where there was high tension in both eyes. The first pack in the right eye acted well on both, but the second pack, given in the left eye, did not reduce the tension in the right. Thereafter packs were given on both sides. The last packs were not very effective.

Chart 3 shows marked rises immediately after the packs in an eye of moderate tension. The value of the pack in such a case would appear to be doubtful. Small corresponding rises are shown in the untreated eye, which was apparently normal.

Chart 4 shows a marked late fall of tension due to the adrenaline pack without an immediate rise. The tension in the other eye, which did not get adrenaline, shows corresponding variations of tension. The fall due to the pack (in spite of eserine) is not well maintained after the first pack. It is of somewhat longer duration after the second. The patient was eventually treated by operation.

Chart 5 shows the effect of the pack on an eye of very high tension. The rises immediately following the pack are small: the falls are comparatively small and of short duration. A curious feature is the effect on the opposite eye, where the tension behaves in a converse manner to that in the treated eye.

Chart 6 shows the effect of eserine and the adrenaline pack with corresponding falls in the untreated eye. Eventually, after a number of badly sustained falls, a low-level tension of longer duration was obtained.

THE ACETIC ANHYDRIDE TEST OF THE SPINAL FLUID.

BY

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J. G. Greenfield and E. A. Carmichael have investigated the value of the acetic anhydride test. The reaction was found to be positive in 15 out of 16 cases of dementia paralytica, and a positive reaction might also occur in secondary neurosyphilis; cases of cerebral degeneration were said to give a weak reaction. Greenfield and Carmichael suggested that the reaction might be due to an increased cholesterol content of the spinal fluid.

I have investigated the acetic anhydride test in 88 cases, and give here my first impression on its value. When the investigation could not be undertaken at once we always kept the fluid in the ice-chest, but never waited more than twenty-four hours. One cubic centimetre of fluid is measured in a test tube, and 0.3 c.cm. of acetic anhydride is added; it is then shaken so as to produce an emulsion, and then, drop by drop, 0.8 c.cm. of pure sulphuric acid is introduced. As we often proved, it is of the utmost importance to add the sulphuric acid very slowly; a negative fluid may give a positive result if the sulphuric acid is run in too quickly. In the case of a positive reaction a lilac tint of varying shades appears, but in my opinion is not so fleeting as the authors describe it.

The numeration of the cells of the cerebro-spinal fluid was made with the Nageotte's counting chamber, and the quantity of albumin estimated with the Sicard and Cantaloube process (precipitation by trichloracetic acid); the globulins were detected by the Nonne-Apelt and the Pandy tests. The following are the results in a few diseases.

General Paralysis of the Insane (10 cases).—No relation was found between a positive Wassermann reaction and a positive acetic anhydride reaction, and no association between it and the presence of globulins. In the four negative cases the number of cells per cubic millimetre was always below 3, and the albumin below 0.035 per cent. The acetic anhydride test was strongly positive in two cases, and positive in four patients; in all these cases the cell count was more than 20 cells per cubic millimetre.

Tabes (5 cases).—None of the cases we investigated had more than 5 cells per cubic millimetre in the spinal fluid, and all gave a negative test.

Meningitis (15 cases).—In 6 cases of tuberculous meningitis we had 4 positive reactions and 2 negative; of these last cases one contained 37 cells per cubic millimetre and the other 15 cells, with an albumin content of 0.044 and 0.025 per cent. In three of the positive cases the diagnosis was confirmed by a post-mortem examination. In one case of staphylococcal meningitis of unknown origin (the patient was comatose when admitted to the hospital), with thrombosis of the cavernous sinus, there was a strongly positive acetic anhydride reaction, the spinal fluid being almost pure pus. In two other cases of meningitis there were positive reactions; in one of these an abscess of the temporal lobe was found at the necropsy, but no organism could be found, and the origin remained unknown. In these three cases the albumin was as high as 2.0 per litre, and the cells were innumerable.

Syphilitic Meningitis and Cerebral Lues.—A negative test was obtained in an old-standing case, treated when the cerebro-spinal fluid was normal; in two other cases the test was doubtful. Cytological examination of the spinal fluid revealed 6 and 16 cells per cubic millimetre; 0.025 to 0.035 per cent. of albumin was present, and the Wassermann reaction was positive. In the other cases the test was strongly positive; the meningeal reaction was also positive, there being 80 to 310 cells per cubic millimetre.

Congenital Syphilis.—Two cases, with a negative fluid and a negative test.

Meningeal Haemorrhage (4 cases).—Negative test in all; the spinal fluid contained blood.

Cerebral Degeneration (10 cases).—We could only investigate the anhydride acetic test in 10 cases; the number of cells was never above the usual figure, and the quantity of albumin was always normal. In seven patients in whom degeneration was marked there was a positive or a subpositive reaction.

Cerebral Tumours.—The test was always negative; none of our cases had more than 3 cells per cubic millimetre.

Epidemic Encephalitis (5 cases).—The reaction was always negative, although the number of cells was three times above the normal (up to 27).

Zona.—Three cases, always negative results, and slight meningeal reaction.

Poliomyelitis.—Two cases, each reacting slightly positively.

Various Cases.—In 20 other cases there were 9 of meningism (fracture of the skull, headache, neurasthenia, hysteria). In 5 a weakly positive reaction was found, although there was no question of cerebral degeneration or of syphilis. In all these cases the spinal fluid and the results of the clinical examination were completely normal.

If we except the cases with a slight positive reaction we only get a positive test in general paralysis, in meningitis, and in cerebral degeneration. There is a certain relation between the number of cells per cubic millimetre and a positive reaction; the nature of the cells seems to have

no definite significance, fluids with lymphocytes giving a positive reaction as well as fluids with polymorphonuclears.

We estimated the cholesterol content of the spinal fluid in 15 cases, but the quantities found were even smaller in cases with a positive acetic anhydride test. The addition of cholesterol does not transform a negative test into a positive one. We do not think it is possible to find the explanation of the acetic anhydride test in the presence of cholesterol.

Is the acetic anhydride test to be correlated with the presence of cholin? Kinnier Wilson found cholin present in cases with degeneration of the central nervous system. Guggenheim and Loeffler found also an increased quantity of cholin in the spinal fluid of syphilitic patients (cerebro-spinal syphilis, tabes). We are not able to answer that question, since the quantity of spinal fluid at our disposal was never sufficient to allow us to determine the presence of that substance; but Kaufmann, working on large amounts of spinal fluid, has demonstrated that normal and pathological fluids contain traces of a base which is certainly not cholin (betain?).

We think the positive acetic anhydride test depends on the presence of a substance (cerebroside) secreted or due to the cytolysis of the leucocytes or of the nervous tissues. A drop of sterile pus added to a negative spinal fluid gives a positive test (pyosin). An emulsion in normal saline of liver, spleen, and brain gives a strong positive reaction, especially the liver, which is well known to contain a large quantity of lipoids. With glycocoll and lecithin the acetic anhydride test remained negative.

We are still in doubt as to the exact cause of the positive acetic anhydride test, which is due, in our opinion, to a cerebroside of the type of pyosin.

If we except the cases with a strong cytological reaction, we found a positive test in general paralysis and cerebral degeneration, and we suggest that the acetic anhydride test might be used as an argument in the differential diagnosis between cerebral degeneration and haemorrhage into the brain, or at least to detect a disintegration of the central nervous system. The acetic test is only of value in the absence of any meningeal reaction of the spinal fluid.

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Memoranda:
MEDICAL, SURGICAL, OBSTETRICAL.

ABDOMINAL TORSION OF THE OMENTUM.

THE following very interesting case of abdominal torsion of the omentum occurred in my general practice early this year.

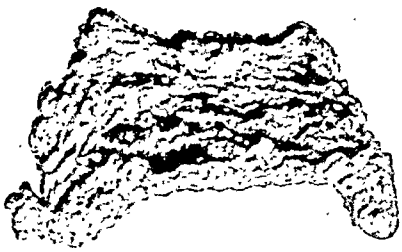
The patient, a man aged 39, was admitted to the Dunfermline and West Fife Hospital on February 22nd with the following history.

For the past six months he had had abdominal symptoms, and three months before his admission *x*-ray examination suggested the diagnosis of duodenal ulcer. A month later he had an attack of pain in the right hypochondrium, accompanied by a rise of temperature; the attack lasted four days. Since then he has had two similar attacks, which were treated by his doctor as acute appendicitis. On February 20th he was seized with severe epigastric pain and vomiting. About six hours after its onset the pain shifted to the right hypochondrium, and remained there till his admission to hospital on February 22nd. Before admission he had been given an enema with good result, but without effect on the pain. On examination, the patient, a fat, flabby man, was seen to be suffering acutely; his tongue was clean and moist, his temperature 101° F., and his pulse rate 108. The abdomen was distended, immobile, and rigid and tender all over; the maximum tenderness was in the right iliac fossa. The percussion note was tympanitic throughout, and the liver dullness was diminished. The signs suggested either ruptured appendix or ruptured duodenal ulcer.

Operation.—The abdomen was opened by a two-inch midline incision above the pubis, and a suction tube was inserted into the abdominal cavity; no fluid was encountered, nor was there any in the pelvis. An incision was then made along the outer side of the right rectus. The caecum was very distended, but the appendix was normal; the transverse colon, too, was greatly distended, but no colonic obstruction could be discovered. The appendix was removed, and the incision then extended upwards. The gall-bladder was normal, but a "doughy" mass, lying high up in the right hypochondrium, was delivered without difficulty. It was of a dark plum colour, and consisted of the great omentum twisted on itself six times. The omentum was removed proximally to the twist, and though the abdomen was further palpated for obstruction of the colon none could be found. The duodenum was palpated, but not seen. On account of the intense distension and thinning of the caecum a No. 12 catheter was inserted into it by Senn's method and brought out through a stab wound in the right iliac fossa.

The patient made an uninterrupted recovery, and was discharged on March 7th.

The removed omentum measured 7 in. by 3 in. Its pedicle consisted of six twists, of which four could be undone easily. The omental veins were greatly distended.



The following are interesting features in this case.

1. A true primary torsion of the omentum appears to have been present; there was no hernia, the appendix was normal, and there were no adhesions.

2. The previous attacks of right-sided abdominal pain with temperature might have been due to an inflammatory state of the omentum preceding the torsion, and a similar explanation might be advanced for the symptoms of duodenal ulcer.

3. The absence of blood-stained fluid in the peritoneal cavity is noteworthy. In the *British Journal of Surgery* of April, 1925 (p. 738), Mr. Ernest Cowell stated that "a rush of blood-stained fluid on opening the abdomen" should remind one of the possibility of omental torsion. The marked distension of the colon, a form of reflex ileus due to irritation of the splanchnic nerves involved in the torsion, has, so far as I know, not been described in other cases.

I am indebted to Mr. Peter Christie of Dunfermline for the photograph.

J. M. BLACK, M.B., Ch.B., F.R.C.S.Ed.,
Honorary Surgeon, Dunfermline and West Fife Hospital.

GRAVITATIONAL MASSAGE.

THE patient, a medical man aged 74, has suffered from severe dyspeptic symptoms continuously for two years, and before that intermittently. Till May this year he had a very poor appetite, and taking food caused considerable pain. He had lost weight markedly, looked sickly, suffered from depression, and had been obliged to give up work. He attributed his condition to previous overfeeding. For some years he had lost the power of vomiting; even when he felt the subjective symptoms of sea-sickness vomiting did not occur. Early in May I became aware that a mass was retained in his sagging stomach. Abdominal massage produced no relief, and it seemed that failure to shift the mass was due to the fact that it was retained by gravitation. Treatment by gravitational massage was therefore tried, and attended by immediate success.

The method adopted was as follows. The patient lay in bed on his back, resting his feet on an article of furniture 3 feet higher than the surface on which he was lying. By flexing his knees and working his head nearer the article of furniture he was able to place his trunk in an almost vertical position, with the result that his stomach changed its position in relation to the pylorus. On performing abdominal massage I at once felt the lump slip down, apparently into the duodenum, and the patient was conscious of immediate relief. Since the regular adoption of this treatment all acute pain has ceased, and the dyspeptic symptoms—as, for example, aversion to food, bad taste in the mouth, mental depression, and sleeplessness—have subsided. The patient's healthy colour, bodily vigour, and normal weight have returned.

Shrewsbury. A. G. MACKENZIE, M.D

Reports of Societies.

PROGRESS IN OBSTETRICS.

AT the seventy-first annual meeting of the Forfarshire Medical Association, which was held at Edzell on June 19th, Professor J. A. KYNOCH delivered his presidential address on recent changes in obstetrics.

Professor *Kynoch* said that the institution of pre-maternity care was the greatest achievement of the obstetric art within the past twenty years. The recognition of midwifery as a branch of preventive medicine was thoroughly justified in view of the immense amount of ill health that could be prevented by ante-natal supervision and the proper conduct of labour. One of the most important single objects of ante-natal examination was the detection of disproportion between the head and the pelvis. The more scientific and reasoned management of malposition of the vertex was one of the most valuable improvements in obstetric practice. Early diagnosis of any existing complication, and the introduction of artificial rotation, had entirely superseded extraction by brute force. Among the unsolved problems of obstetrics none was of greater importance than that of the toxaemias of pregnancy. Within recent years the majority of investigators had pointed to the placenta as the most probable source of the poison; while the lowered incidence of eclampsia during the war years in Continental clinics, as the result of a diet poor in proteids, suggested that the dietetic factor was of the first importance in its development. Nowadays treatment was largely directed to the alimentary canal and to the elimination of toxins, rather than to the obstetrical condition itself. These conservative measures had in great part replaced the more active measures aiming at the rapid termination of pregnancy. Ante-natal care enabled timely treatment to be given, and in this condition has so reduced maternal mortality that if it had done nothing else it would have justified itself. This was one of the many proofs of the urgent need of more ante-natal beds in all maternity hospitals. Information about the haemorrhages of pregnancy had much increased in recent years, but there were still a number of cases that could not be explained on the toxaemic theory; as yet there was no well-balanced explanation to fit them all. The most striking innovation in the treatment of haemorrhages in the later months of pregnancy had been Caesarean section; but many authorities now held that the abolition of shock was of greater urgency than the employment of remedies for the arrest of haemorrhage. The treatment of placenta praevia was also rapidly changing, and Caesarean section to save the child was the latest innovation. Another great advance had been in the treatment of the slightly contracted pelvis; it was now recognized that the high forceps operation must be rigidly avoided. Most gratifying results were obtained by watchful ante-natal care, with timely induction of labour or a justifiable Caesarean section. The induction of labour at or about full time was much more common than it used to be, and the administration of drugs for this purpose had largely replaced operative methods. The practitioner who recognized the need for a timely induction often did a far finer thing than the operating obstetrician who performed a brilliant Caesarean section. Obstetricians could not congratulate themselves on any very marked improvement in the incidence of puerperal fever; the present tendency was for public health authorities to treat puerperal septic cases in fever hospitals, but Professor Kynoch doubted whether this procedure would be helpful in combating puerperal sepsis. He was convinced that the best means to reduce the incidence of puerperal fever was increased and more practical training of midwives and students in a maternity hospital. This, together with closer co-operation between the obstetrician and the laboratory specialist, would enable progress to be made in understanding and solving the cause and cure of puerperal sepsis. The speaker believed that ante-natal care would revolutionize midwifery in the near future; its aim was to ensure the delivery of a living healthy child. But ante-natal care alone was not enough for the mother; the importance of post-natal care was now being recognized, and in that sphere would lie the great advance of the next ten years.

Reviews.

THE ART OF OBSTETRICS.

IT is good to see that there is still a demand for such an old and almost classic work as *Herman's Difficult Labour*,[1] despite the many new, larger, and elaborately illustrated treatises on obstetrics. Those who know the late Dr. Herman's book realize that it is in a class by itself, and that the absolute clarity of its advice, expressed as it always is in crisp and dogmatic sentences, is of very special help in the class of cases which he describes. Mr. CARLTON OLDFIELD, who edited the sixth edition in 1920, has now brought out the seventh edition, and has done the work admirably. A number of additions have naturally been necessary, the most important of which are short chapters on the mitigation of pain in labour, and the prevention of puerperal sepsis. The section on eclampsia has been largely rewritten, and the treatment by the administration of morphine and by lavage of the colon and stomach (what is often known as the Dublin method of treatment) is described in detail. The book is so well known that it seems superfluous to review it beyond this mere statement of the principal additions which have been required in the new edition. These have succeeded in bringing the book up to date in all essential particulars, and it can be most cordially recommended to such practitioners of the present generation as are not already familiar with it, as well as to students, and especially house-surgeons.

The previous editions of Mr. COMYNS BERKELEY'S handbook of elementary obstetrics[2] are so well known to midwives that a description of the volume is unnecessary. The seventh edition has been revised throughout, and room has been found for additional material by omitting the chapters on elementary physiology. The practical instructions in the book are excellent; it is obvious that great care has been taken to make all the details of technique as simple and precise as possible, and the principles upon which these instructions are based are very clearly presented. To the pupil midwife, therefore, this book will continue to appeal, since she will follow easily in its pages the reasons for all the steps which she is taught to take in the care of her patients. The language is everywhere simple, and the author has assumed no more than a very elementary knowledge of physiology on the part of his readers. This has in previous editions made it popular with nurses and pupil midwives, but it is doubtful whether the author's hope that the new and enlarged edition will appeal to obstetric dressers as well as to nurses will be realized. The definition of gonorrhoea as "due to infection by one of the lowest forms of vegetable life, the gonococcus," is not likely to appeal to the average medical student. The book has in the past rightly been the *vade-mecum* of a large number of candidates for the Central Midwives Board examination, and the new edition cannot fail to carry on the work of its predecessors.

INJURIES OF BONES AND JOINTS.

Imperative Traumatic Surgery[3] is the title chosen by Dr. C. R. G. FORRESTER of Chicago for a treatise upon his own methods of dealing with fractures and dislocations and injuries of peripheral nerves. The author describes himself as one who for twenty-six years has confined his attention to traumatic surgery. The title is scarcely a happy one; the ground covered is practically limited to that which the orthopaedic surgeon claims as his own particular province; injuries to soft parts are only referred to incidentally. The many varieties of trauma which may be met with in injuries involving the abdomen are not mentioned at all, so that the rather sweeping title is apt

[1] *Herman's Difficult Labour.* Seventh edition, revised by Carlton Oldfield, M.D.Lond., F.R.C.S.Eng., F.R.C.P.Lond. London: Cassell and Co., Ltd. 1929. (Cr. 8vo, pp xiii + 560, 197 figures, 8 plates. 16s. net.)

[2] *A Handbook of Midwifery, for Midwives, Maternity Nurses, and Obstetric Dressers.* By Comyns Berkeley, M.C., M.D., F.R.C.P., M.R.C.S. Seventh edition. London: Cassell and Co., Ltd. 1929. (Fcap. 8vo, pp. xii + 575; 62 figures, 1 plate. 8s. net.)

[3] *Imperative Traumatic Surgery.* By C. R. G. Forrester, M.D., F.A.C.S. New York: P. B. Hoeber, Inc.; London: W. Heinemann (Medical Books) Ltd. 1929. (6 × 9¼ pp. xxix + 464; 538 figures. 42s. net.)

to be misleading. Apart from this blemish, the book contains much excellent advice on the diagnosis, and particularly the prognosis, of the injuries of bones and joints. The author has evidently made a special study of these from the point of view of their bearing upon workmen's compensation. His attitude generally towards this very important subsection of surgery is marked by a noteworthy sense of fairness to the patient, and in indicating the probable period of incapacity which may ensue after any given injury his estimates are generous rather than erring in the opposite direction.

Dr. Forrester freely acknowledges his debt to Sir Robert Jones, with whom he worked for two years during the world war, and of whose methods he is a whole-hearted admirer. His teaching as regards all the more common forms of fractures and dislocations follow strictly orthodox lines. No startling novel methods are described; the author's plea is for meticulous care and attention to every detail, both in the reduction of deformities and in the after-treatment. Dr. Forrester is not an advocate of very early massage in the case of any injuries in the neighbourhood of joints. His case sheets, of which he gives many illustrations, are an object-lesson in that careful attention to detail which makes so much for success in this branch of surgery, and they bear mute witness to the rather haphazard methods still so general even in most of the teaching centres in this country.

The great value of this book is that it is founded entirely on the very wide personal experience of the author, who only describes the procedures which he has tried out thoroughly for himself. The illustrations are numerous and excellent, the line drawings and diagrams showing the steps of operations being particularly clear.

CLINICAL ENDOCRINOLOGY.

Endocrine Disorders,[4] by Professor HANS CURSCHMANN of Rostock is a compact and agreeable volume intended to present to the physician something on the one hand newer and fuller than what is usually found in formal textbooks of medicine and physiology, and, on the other hand, something shorter, more dogmatic, and more easily digestible than the usual monographs on endocrinology, which are so often full of bewilderingly complicated and contradictory detail. The book is essentially clinical and practical. There are pithy sections on allied subjects, such as infantilism, obesity, and homosexuality, in addition to clear descriptions of the chief glandular disturbances. The chapters on gonadal dysfunctions are particularly valuable, and in these the author has had the co-operation of Dr. FRANZ PRANGE.

Naturally a book of this size does not contain anything startingly new. It is the manner of presentation which constitutes the chief attraction. There are, however, a few deviations from the normal in the volume, such as considerable emphasis on "chronic benign hypothyroidism" and the re-introduction of the term "acromikria" to describe the syndrome of atrophy of the extremities with genital atrophy and diabetes insipidus. Most of the literary and therapeutic references are to mid-European workers, and the author has evidently drawn freely from Falta. Short notes on anatomy, physiology, and histology precede each clinical description, but these are kept down to the minimum. The most interesting chapter is the one on pluriglandular insufficiency. This contains another plea for the recognition of the clinical type originally described by Claude and Gougerot and awkwardly called "pernicious thyro-testiculo-pituitary-subadrenal insufficiency." This syndrome includes cachexia, oedema, loss of hair, debility, impotence, pigmentation, and mental disorder. The prognosis is very bad, except in those cases of syphilitic origin. The syndrome is subject to slight variations, but it must be distinguished from multiple glandular disorders, which are sequential to a disorder in one of the series. It is almost identical with Falta's "primary multiple glandular sclerosis" and Noorden's "genito-sclerodermatic degeneration."

The book is well printed and concisely arranged. The illustrations are numerous and new. There is no trace of the identity of the translator, whose prose is lucid and attractive.

TOXIC SEQUELS OF SPECIFIC THERAPY.

THE increasing use of specific remedies, which are given in doses up to the limit of tolerance, has caused more and more attention to be paid to the undesirable side-actions that occasionally complicate the use of such remedies, and in particular the use of the organic arsenicals. Most writers have been content with the argument *post hoc, propter hoc*, and hence the textbooks contain formidable catalogues of toxic effects which the various drugs are accused of producing. This ever-increasing list of possible dangers adds considerably to the difficulties of specific therapeutics. Critical studies of the toxic effects described have already shown that in some cases, at any rate, the drug is accused wrongly. For example, it is agreed that jaundice following the use of organic arsenicals is in many cases due to the disease, and may be relieved rather than aggravated by the drug. Another striking fact is that a comparison of the toxic effects stated to be produced by specific remedies shows in many cases remarkable resemblance between the effects attributed to drugs of a widely different nature. This curious similarity is explained in a simple and brilliant manner by Dr. G. MILIAN in his book *Le Biotropisme*.[5] His general conception is that the introduction of a specific remedy may exalt the vitality and virulence of organisms existing in a latent form in the patient. He quotes various simple and undoubted actions of this nature—for example, he records cases in which salvarsan administration was followed by the awakening of furunculosis, or by the development of acute malaria without a fresh infection having occurred.

The most important and interesting group which Dr. Milian describes is termed by him "ninth day fever." He shows that the administration of a considerable variety of drugs is followed in certain cases by a similar syndrome. On the ninth day after the first injection there is a mild fever, which lasts a few days and is accompanied by a morbilliform erythema. In other cases the ninth day fever is accompanied by a scarlatiniform rash. The author is careful to emphasize the point that, apart from these ninth day fevers with rash, there are also vesiculo-oedematous eruptions which are direct effects of arsenical poisoning. The ninth day fevers he believes, however, to be due, not to arsenical poisoning, but to the awakening of a latent infection left behind by a previous attack of measles or of scarlet fever. This theory is of considerable practical importance because, if it is correct, then the occurrence of a ninth day fever is not a contraindication to the continuance of the arsenical treatment.

Dr. Milian has collected a large amount of evidence in support of his theory, which undoubtedly goes far to explain many puzzling facts regarding some of the toxic effects observed to follow the use of specific remedies.

ESSENTIALS OF PHYSIOLOGY.

PROFESSOR PONDER'S *Essentials of General Physiology*[6] has been written for the use of American college students who are beginning the study of general physiology equipped with some knowledge of biology, chemistry, and physics. The first 200 pages deal with subjects such as surface tension, colloids, diffusion, electrolytic dissociation, and enzymes, that at first sight pertain more to physics or chemistry than to physiology; the rest of the book may be described as more purely physiological in nature. The author writes clearly, and has not overburdened his text with facts; the illustrations are satisfactory. It may

[4] *Endocrine Disorders*. By Professor Hans Curschmann. With an introduction by Franz Prange. Oxford Medical Publications. London: Milford, Oxford University Press. 1929. (Demy 8vo, pp. viii + 188; 46 figures. 12s. 6d. net.)

[5] *Le Biotropisme*. Par Dr. G. Milian. Paris: J. B. Baillière et Fils. 1929. (6 × 9½, pp. 263; 16 figures).

[6] *Essentials of General Physiology*. By Eric Ponder, M.D., D.Sc. London: Longmans, Green and Co. 1929. (5¼ × 8¼, pp. vii + 497; 150 figures. 15s. net.)

well strike the reader that such a book as this would be best described as an "introduction to general physiology," rather than as an exposition of its "essentials." It may be commended to the attention of those for whom it has been written.

The sixth edition of *Essentials of Physiology*[7] by the late Professors BAINBRIDGE and MENZIES, edited by Professor HARTRIDGE, sets out to supply the medical student with the fundamental facts and principles of physiology in such a way as to enable him to satisfy his examiners in a pass examination. It is accordingly a highly condensed work, and the fact that six editions have been called for since the first edition appeared in 1914 may be taken to prove its excellence. Professor Hartridge has effected a deal of rearrangement of the contents, and has added a number of new chapters and an admirable index. The text is clearly written and full of facts, and the illustrations (nearly 200 in number) are well chosen. But few misprints are to be found, although the words anaerobic and aerobic are misspelt on page 35; a special word of praise may be given to the publishers for the excellent turn-out of the volume. It may be very warmly commended to the attention of medical students revising their physiology.

TREATMENT OF SNAKE BITE.

MR. F. W. FITZSIMONS of Port Elizabeth Museum has spent a lifetime in the study of poisonous snakes, and he has condensed a remarkable amount of information into a small volume of seventy pages, entitled *Snakes and the Treatment of Snake Bite*.[8] He gives a semi-popular description of snakes, snake bites, and snake venoms, and the text is supplemented by a remarkable series of photographs presumably taken in his snake park at Port Elizabeth. The description of the treatment of snake bite is, however, the largest and most important section of the volume. The author says that there is no other book extant on approved methods of treating snake bite, and the need for such a description is best indicated by the fact that the world mortality from snake bite is estimated at about 100,000 per annum. He describes clearly, with full illustrations, the treatment of snake bite by incision, tourniquet, and potassium permanganate, supplemented by serum and saline infusions. One of the most interesting and amusing chapters in this little book is the one which deals with alleged cures for snake bite.

NOTES ON BOOKS.

WE have received a revised edition of the well-known *Introductory Lectures on Psycho-Analysis*.[9] This work is the authorized English translation of a course of twenty-eight lectures delivered by Professor SIGMUND FREUD at the University of Vienna. It does not differ materially from the first edition, which was reviewed in our issue of March 24th, 1923 (p. 516). The subject-matter is divided into three parts: the first deals with the psycho-pathology of everyday life; the second with dreams; and the third with the general theory of the neuroses. These topics were selected by the author as being the most fitted for an introductory course. Written in an easy and attractive conversational style, the book holds the attention of the reader throughout. It will, no doubt, continue to maintain its position as the best general introduction to psycho-analytic theory.

DR. LÉON-KINDBERG'S little book on abscess of the lung[10] gives an excellent account of a pulmonary lesion that seems to be increasing in frequency. A century or so ago Laennec described pulmonary abscesses as very rare, whereas in 1918 Marchand found 72 cases in 222 post-mortem examinations of influenza patients. The author describes the etiology, pathology, symptoms, diagnosis, and treatment of the various forms of abscess found in the lungs, and adds a number of outline diagrams taken from *x*-ray pictures. The book ends with a short bibliography, mainly from French sources, for the years 1926-23; and it may be recommended to the attention of all specialists in diseases of the lungs. It would be improved by the addition of a table of contents and an index.

MR. WARREN R. DAWSON'S little work on *The Custom of Couvade*,[11] or fictitious lying-in of the husband in connexion with childbirth, is divided into six chapters. In the first, which is introductory, the author shows that the custom can be traced back to the time of Theseus, who instituted the ceremony in commemoration of the fatal labour of Ariadne. The succeeding chapters deal with the geographical distribution of the custom in Europe, Asia, the islands of the Indian Ocean, and in America, and the last is devoted to a discussion of its significance. Mr. Dawson shows that the recorded localities in which couvade has been practised correspond in a remarkable degree with those associated with megalithic monuments and with customs connected with the heliolithic culture-complex, of which the other characteristic customs are sun-worship, mummification, ear piercing, tattooing, and cranial deformation. He discusses the various more or less fantastic theories proposed to account for the couvade, and, while admitting that a belief in an intimate relationship between father and child may be the true explanation, comes to the conclusion that we are in the dark as to the original motive of this curious custom. An appendix contains additional material that had become available to the author after the book had been written, and is arranged as addenda to the preceding chapters. A bibliography of 185 references is appended. The work will appeal to all who are interested in anthropology and folk-lore.

[7] *Bainbridge and Menzies's Essentials of Physiology.* Sixth edition, edited and revised by H. Hartridge, M.A., M.D., Sc.D., F.R.S. London and New York: Longmans, Green and Co. 1929. (Demy 8vo, pp. xii + 497; 192 figures. 14s. net.)

[8] *Snakes and the Treatment of Snake Bite.* By F. W. Fitzsimons, assisted by V. F. M. Fitzsimons, M.Sc. Wynberg, C.P.: The Specialty Press of South Africa, Ltd. 1929. (Cr. 8vo, pp. 70; illustrated. 5s. 6d. net.)

[9] *Introductory Lectures on Psycho-Analysis.* By Professor Sigmund Freud, M.D., LL.D. Authorized English edition translated by Joan Riviere. With a preface by Ernest Jones, M.D. New edition. London: G. Allen and Unwin, Ltd. 1929. (Demy 8vo, pp. 395. 16s. net.)

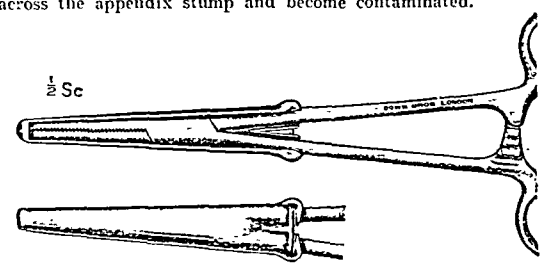
[10] *Les Abcès du Poumon.* Par Michel Léon-Kindberg. Paris: Masson et Cie. 1928. (5½ × 7½, pp. 134; 21 figures. 14 fr.)

[11] *The Custom of Couvade.* By Warren R. Dawson, F.R.S.E. Manchester: Manchester University Press. 1929. (Demy 8vo, pp. ix + 118; 1 plate. 7s. 6d. net.)

PREPARATIONS AND APPLIANCES.

AN APPENDIX SHIELD.

MR. A. ERNEST SAWDAY, F.R.C.S.Ed. (honorary surgeon, Derbyshire Hospital for Sick Children), writes: The details of technique in the removal of the appendix, particularly the unperforated or "clean" appendix, vary considerably in the hands of different surgeons. The majority of surgeons prefer to insert the purse-string before dividing and removing the appendix, thereby reducing to a minimum the chance of contamination of the peritoneal cavity. Others make a practice of removing the appendix before inserting the purse-string; this makes matters simpler, since the offending organ has not to be held up out of the way, but has the grave disadvantage that it is impossible to be sure that the suture will not fall across the appendix stump and become contaminated.



This danger can be obviated by fitting a shield or sheath over the blades of the Mayo-Ochsner forceps, grasping the stump of the appendix immediately the latter has been removed. Rowlands and Turner state that it is unnecessary to ligature the stump of the appendix, provided it is crushed by a strong forceps for some moments before being covered over by the purse-string.

The steps of the operation would then be as follows: The meso-appendix is ligatured and divided right down to the base of the appendix. The appendix is then grasped at its base by a Mayo-Ochsner forceps, which is closed tightly. A second forceps is placed on the distal side of the first, and as near to it as possible. The two forceps are then laid side by side on a piece of gauze and the appendix divided between them, close to the first forceps. The appendix is removed, the piece of gauze thrown away, and the stump of the appendix lightly touched with a swab, which is thereupon thrown away. The appendix shield is now clipped over the blades of the Mayo-Ochsner forceps on the appendix stump. The purse-string suture is inserted, the shield and forceps removed and laid aside, and the operation concluded in the usual way. If for any reason the base of the appendix is divided before the meso-appendix two shields may be used. The device has been made for me by Messrs. Down Bros., 20 and 23, St. Thomas's Street, London, S.E.1.

THE STATE OF THE PUBLIC HEALTH.

SIR GEORGE NEWMAN'S REPORT FOR 1928.

[FIRST NOTICE.]

THE annual report of the Chief Medical Officer of the Ministry of Health for the year 1928* has now been published. Sir George Newman begins it by defining four basic principles which must be fulfilled before sound foundations can be laid for a national system of preventive medicine. These principles are: the ascertainment and accurate registration of the obtainable data; the establishment of some standards of health and physiology to constitute a base line; an advancing knowledge of the nature of disease, including the social factors which increase or reduce it, and the means of its treatment and prevention; and, fourthly, concerted national activity. He remarks that the medical ideal may not always be socially practicable; proof of its validity is essential if it is to be widely adopted. Its acceptance is dependent upon the assent of the people; its application calls for the expenditure of public money; and the administration must be implemented by the representatives of the people, both centrally and locally. Although the art of medicine cannot control the State, its truths are now available in Statecraft; they have to be accepted and used wisely, since the survival and capacity of a people depend on its health.

Population, Deaths, and Births.

In 1928 the population of England and Wales was 39,482,000, an increase of 182,000 on that of 1927. For more than a generation, owing to the declining death rates, the proportion of children has been decreasing, and that of persons past the prime of life has been increasing. In 1901 11.4 per cent. of the inhabitants of England and Wales were children under the age of 5, and 10.6 per cent. were persons over the age of 55. By 1911 the figure for children fell to 10.7 per cent., while that for persons beyond the prime of life had increased to 11.6 per cent. The war resulted in a fall in respect of the figure for children, the number at the census of 1921 descending to 8.8 per cent., while the figure for those over the age of 55 rose to 13.7 per cent. The Registrar-General's estimate of population in 1928 records a figure of 8.1 per cent. for children under 5, and of 15.8 per cent. for persons over 55, women outnumbering men by more than half a million. Sir George Newman remarks that there is no reasonable doubt that this change in proportion will continue, and that by the middle of the century persons of late middle and old age will be more than twice as numerous as children under 5. The mortality rate will, consequently, become higher, and the picture of a stationary population is almost within sight. The number of deaths of infants under the age of 1 year in 1928 was 42,960, as compared with 45,610 in 1927, 76,552 in 1920, and 94,579 in 1910. These figures indicate the enormous saving of life effected year by year by the reduction of infant mortality. This fall has been most rapid during the first year of life, and there is a lag in the curve for the next few years, implying the need for more attention to be paid to the pre-school child.

Maternity and Child Welfare.

Sir George Newman comments on the increased development during the past year of interest in problems of maternal welfare among all classes of the community. The puerperal mortality rate was 4.42, the highest recorded since the revised classification came into use in 1911. The static position of this rate, it is suggested, may be to some extent more apparent than real; it may be due partly to the diminishing birth rate, with the consequent increase in first pregnancies as compared with later births, and partly to more accurate recording of the cause of death and its association with childbirth. Of the 2,920 maternal deaths, puerperal sepsis is stated as the cause in 1,184 (1.79 per 1,000 births registered). Next in order of frequency come the toxaemic conditions, including albuminuria, uraemia, and nephritis, with 557 deaths; puerperal haemorrhage, with 331 deaths; and other accidents of childbirth with 331 deaths also.

Passing to a consideration of the development of more adequate maternity services and ante-natal clinics, he publishes a memorandum which was prepared by the Maternal Mortality Committee in June, 1929, and deals in detail with the organization and conduct of these clinics. The following figures are given as regards maternity homes and hospitals in England in April, 1929. There were seventy-nine voluntary institutions, with a total of 1,521 beds; municipal institutions numbered seventy-three, with 959 beds; thus there was a total of 152 institutions with 2,480 beds. It is agreed that a shortage of maternity beds exists, both for normal and complicated cases, and particularly for the proper treatment of puerperal sepsis; but Sir George Newman dissents from the view that the solution of maternity problems lies in a vast increase in the maternity beds, mainly in large hospitals, though he would welcome a considerable expansion of maternity accommodation. While remarking that most small grant-aided maternity homes have admirable records and give eminently satisfactory results, he records brief accounts of three outbreaks of puerperal fever to serve as a warning of the risks which are constantly threatening every maternity institution. He draws attention to the point that the nursing or medical attendants of maternity patients may act unwittingly as carriers of infection by harbouring haemolytic streptococci in the nasopharynx, and adds that in certain instances the infection has unquestionably been introduced or spread by this means. He emphasizes the point that, in the event of infection occurring in a maternity institution, it is most important that the throats and noses of all who come into contact with the patients should be examined bacteriologically, and any carriers be isolated and appropriately treated. Sir George Newman hopes that, since under the Local Government Act many hospitals will pass for the first time into the control of public health authorities, this will not only enable additional beds to be provided, but that larger and better equipped maternity units may be formed, which will be either directly or indirectly in association with general hospitals. There will still be a place for small local maternity homes, especially in county areas, though it is desirable that these should be definitely linked up with the larger units. The Chief Medical Officer mentions also the need for better obstetrical teaching for medical students, and, secondly, of encouraging practitioners to equip themselves specially for the practice of midwifery. He refers to two committees appointed by the Minister during 1928. One of these, of which Sir Robert Bolam was chairman, was particularly concerned with the training of midwives and the conditions of their employment; it has now completed its work, and its report may soon be available. The second committee, with Sir George Newman as its chairman, was established to survey the whole field of obstetrical practice from various standpoints, and to make suggestions from time to time based on the findings of special investigations. Three subcommittees—clinical, public health, and research—were formed. The first specific duty undertaken was to advise upon the inquiry which is proceeding into the causation of maternal deaths. It is stated that the response made to the request for information has been very encouraging up to date, despite the considerable amount of time and trouble that has been entailed on all concerned.

Infant welfare centres increased by ninety-one during the year 1928–29. New regulations governing the appointment of health visitors came into force in April, 1928, and some difficulty has been experienced in filling vacancies, particularly in areas where the conditions of service are difficult or unsatisfactory. The number of students has increased, but local authorities are asked to do all they can to encourage more candidates to come forward. An inquiry into the health of pre-school children began in 1924, and nearly 2,000 case sheets await examination.

The Insurance Medical Service.

In 1928 the number of insured persons entitled to medical benefit in England and Wales was 14,814,000, considerably more than one-third of the total population. The

* *On the State of the Public Health.* Annual Report of the Chief Medical Officer of the Ministry of Health for the year 1928. London, H.M. Stationery Office. 3s. net.

number of insurance practitioners in that year was 15,276, and the average number of insured persons on a practitioner's list was 930. There were 9,688 chemists' shops supplying medicines and appliances to insured persons as part of medical benefit, and the number of prescriptions dispensed was 54,455,557. Exclusive of administrative expenses the cost of medical benefit amounted to £9,073,080, of which approximately £6,831,300 was expended in the remuneration of doctors, and £2,241,780 in the provision of medicines and appliances.

From the beginning of 1928 an advisory committee came into force to deal with cases of alleged negligence in the treatment of patients. An officer of the department, who is appointed to hear an appeal in such a case, is associated in the inquiry with a practitioner selected by the Minister from a panel of insurance practitioners nominated by the Insurance Acts Committee of the British Medical Association. In only forty-two out of 299 complaints against practitioners investigated in 1928 by the Medical Service Subcommittee did the Minister decide to withhold remuneration from the practitioner. There were, in addition, eight cases in which remuneration was withheld from practitioners who had failed to keep their medical records, and five cases in which similar action was taken in respect of failure to furnish the regional medical officer with information required. Sir George Newman gives an account of the procedure of investigating insurance prescribing when it is thought to be excessive. The average cost of each prescription fell from 8.4d. in 1927 to 8.31d. in 1928. This follows a long period in which costs due to the frequency of issue of prescriptions, and also those due to the expense per prescription, had risen steadily, though a definite tendency to reduction in the total cost of prescriptions was actually noticed for the first time in 1927. The total expense of the prescriptions issued in 1928 was nearly £20,000 less than it would have been if the cost per prescription had remained as in 1927. Sir George Newman attributes the saving entirely, or almost entirely, to the growing determination of many insurance practitioners to avoid extravagance in prescribing. He thinks that there is reason to believe that this change has been due mainly to the action taken to invoke the co-operation of practitioners, principally by means of interviews which have been arranged with them by regional medical officers in the last four years. It may be recalled that the Insurance Acts Committee was authorized by the conference of local medical and panel committees in October, 1927, to undertake, in consultation with panel committees throughout the country, the compilation of a single formulary which would give due attention to considerations of economy, as well as to other requisite features. Sir George Newman remarks that the results of the labour of the Insurance Acts Committee in this matter are now in the hands of the panel committees, and that if the formulary is adopted by them a considerable saving in the cost of drugs may be anticipated.

Facilities have been provided for some time for practitioners in isolated rural areas to receive post-graduate instruction. In 1928 an attempt was made to extend the field covered by this work, and four additional insurance committees were invited to prepare a scheme. The result, however, was rather disappointing, the total number of practitioners actually receiving instruction being 89, as compared with 100 in the previous year. During 1929 additional efforts are being made to increase the number of practitioners attending the courses. The number of cases referred for examination by the regional medical staff was 372,324 in 1928; this compares with 314,140 in the previous year. In 1926 the number of cases was 380,487, but this large increase was chiefly due to the coal stoppage and cannot be considered, therefore, as a comparable figure.

Operation of the New Local Government Act.

As was only to be expected, Sir George Newman devotes considerable attention to the changes that will occur with the coming into force of the Local Government Act on April 1st, 1930, when the powers and duties of boards of guardians will be transferred to county and county borough councils. He introduces his comments with a historical description to show how the new Act derives its origin from the evolution of local government since the Reform Act of 1832 paved the way to reforming the Poor Law in 1834, and the municipalities in the following year. He points out, in considering the medical issues raised by the new Act, that the remedies provide for defects in the existing structure; they comprise the removal of overlapping as regards the Poor Law and the public health; the more or less complete unification of the public health services, both environmental and personal; and the substitution of a consolidated grant for the old system of multiple grants in aid. After discussing the re-organization and co-ordination of functions, both medical and semi-medical, he puts forward various suggestions how the medical work hitherto carried on by the boards of guardians may be taken over without undue difficulty by the county and county borough councils. The new programme of the medical officer of health is defined, and it is emphasized that the fullest advantage should be taken of the opportunity afforded by the Act for effectively co-ordinating all institutions in the different areas which are concerned with medical or surgical treatment, as well as stimulating active co-operation between public and voluntary authorities and their respective officers. Attention is devoted to the special problems raised by smaller areas. Finally, Sir George Newman recalls the statement in the interim report of the Consultative Committee on Medical and Allied Subjects (1920) that preventive and curative medicine must be closely co-ordinated in any scheme of medical services, being brought also within the sphere of the general practitioner. He concludes: "For the first time in the history of the public health service the medical officer of health has a direct and ample opportunity for closely and effectually co-ordinating in his area all the varied medical services of the State."

(To be concluded.)

INFANT MORTALITY.

THE ENGLISH SECTION OF AN INTERNATIONAL INQUIRY.

AT the instigation of the Health Committee of the League of Nations, it was agreed "that an inquiry should be held into infant mortality in selected districts in the different countries concerned, that this inquiry should be commenced in 1927, should cover a period of twelve months, and should relate to infant deaths which occur during this period, special attention being paid to deaths during the first weeks of life." Subsequently it was decided that for this purpose in each country there should be selected two rural and two urban districts, comparable from the point of view of population and birth rates, one having a high and the other a low infant death rate; and it was afterwards also agreed that stillbirths as well as infant deaths should be included in the investigation. Reports have now been prepared in the countries participating in the inquiry, and the Health Committee of the League of Nations proposes to issue a general report summarizing the findings. Meanwhile, national reports may be made, and that relating to England is now published as by Dame Janet Campbell, with statistical notes by Dr. P. L. McKinlay.[1]

The report relates to the period from March 1st, 1927, to February 29th, 1928, and the areas selected were: urban, Sunderland and Croydon; rural, (parts of) Staffordshire and Oxfordshire; the former in each case having a high infant mortality rate and the latter in each case a low mortality. The primary object of the inquiry was to ascertain as exactly as possible the cause of death of each infant during the prescribed period, and the second object was to state in the light of the results obtained what, if any, steps could be taken to reduce still further the infant mortality rate. The first part of the report gives a general description of the selected districts—not, we fear, a very attractive one—and has more particular regard to their sanitary conditions, their housing, their milk and food supply, and

[1] *Infant Mortality.* By Dame Janet Campbell, D.B.E., M.D., M.S. Reports on Public Health and Medical Subjects, No. 55. London: H.M. Stationery Office. 1929. Price 1s. net.

their public health administration. These particulars will be, in the main, familiar to English readers of the report, and it is satisfactory to note, from the point of view of international reputation, that though the housing conditions are in some instances not what they should be, sanitation, dietary, administration, education, and general intelligence are all good. The second part of the report consists of Dr. McKinlay's statistical analysis of the results of the inquiry, especially relating infant mortality to the order of birth of the infant, to housing conditions, to the economic status of the parents, and to the age of the mother. The third part considers the general causes of stillbirths and infant mortality, and the fourth part gives some general findings and suggestions. There are two appendices: the first consists of the internationally agreed inquiry form and nomenclature, and the second enumerates and briefly summarizes the various English Acts of Parliament affecting the welfare of mothers and young children.

On the whole, it may be said that the general results of the inquiry are interesting but meagre. The findings are confirmatory of previous results of English experience. No new or striking conclusions emerge. Some of these confirmations are quite definite and valuable; but though the report itself admits these facts and the need for caution in any deductions, there yet seems a tendency, though perhaps not a very marked one, to strain after findings and to stretch conclusions to a degree that is not always to be justified without qualification. The statistical chapter is not very easy to follow in all its details unless the reader is an expert statistician. It may be that to such an expert the matter is elementary, but it might easily have been made more possible for him who runs to read. It would have been worth while to have assumed a greater degree of ignorance on the part of the average reader. For instance, it is not everyone who knows, or who can easily discover, what is meant by the values of χ^2 and P; and, although on page 49 a quite clear explanation is given as to the five social classes into which occupations are divided, tabular and other statements with regard to these classes are made ten pages earlier without any explanation. Presumably publications of this kind are intended to be seriously used by a fairly wide circle of interested persons, and some trouble should be taken to treat with due tenderness technical ignorance in respect of some parts of the exposition or the argument. Factors which should make for caution in the findings are the relative smallness of the numbers involved, the absence of adequate controls, the difficulties and possible consequent errors of diagnosis, the impossibility of exact definition of the various social classes, and conceivable fallacies in certain testing criteria. As an example of what is meant by the last of these, we may instance what are called "average housing conditions." From the point of view of health it would not appear to matter whether a group of four or five persons inhabit a house containing ten rooms or one containing twenty—that is, beyond a certain number of rooms per person the existence of an extra number may be regarded as irrelevant for this purpose. But they all appear to be reckoned in the "average number of rooms per person," so that when this average is taken as the standard, and it is said that certain causes of death prevail in houses 25 per cent. above the standard, and certain other causes in houses representing only 89 per cent. of the standard, it is quite likely that the true relative incidence is by no means so disproportionate.

It is recognized that in all countries the four main causes of infantile mortality (including stillbirth) are gastro-intestinal disorders, respiratory diseases, difficulties and injuries during birth, and certain ill-defined conditions such as prematurity, malformation, atrophy, debility, and so forth. It is clear that the first two of these main causes will result in the death of the child subsequent to the first few days of its life, and that the last two causes will operate very largely in causing stillbirth or death within the first day or two after delivery. There are thus two separate problems to be investigated. They are, in the main, quite distinct problems, and there would appear to be no advantage in combining into one whole the facts relevant to each, either for theoretical or for practical purposes. The former problem—that concerned with the mortality of infants more than a few days old, mainly from irritation of the respiratory or the gastro-intestinal mucous membranes—covers a very hopeful field of preventive medicine. The latter problem, as to one part—that concerned with the death of the foetus or newly born infant from causes which are inherent in the stock—can be satisfactorily dealt with only by means of eugenic measures for which mankind is not yet prepared, though as to its remaining part—the treatment of difficult labour—there is a more encouraging prospect. It is perhaps a little unfortunate that the inquiry now under consideration was not, among other things, specifically directed to ascertaining what proportion of stillbirths or neo-natal deaths might properly be attributed to stock defects. This proportion, whatever it may be, will affect very little the mortality rate of the older infants, and it is therefore not surprising that, while between 1900 and 1927 the total infant death rate fell from 154 to 70 per 1,000 births, there has been comparatively little decline in the death rate during the first month of life. The two fields do not offer comparable possibilities, and this should be recognized.

Nevertheless, there is still room for some definite improvement in both fields, and it is well that certain definite facts, conclusions, and suggestions should be emphasized by this report. In the first place, as to nutrition at birth (as evidenced by weight at any rate), differences of ante-natal environment have but little effect. So far as the nutritional state is concerned, the foetus suffers no adverse effect from bad environmental conditions acting on the mother. This is a fact of far-reaching importance, and should be weighed along with the parallel fact, now established, that similar bad environmental conditions do not prevent normal labour being conducted, with due care, as successfully in every respect as in those which are better. Again, as regards birth order, it is found that the risk of death is least in the second and third born infants, that the first born are subject to a somewhat higher mortality, mainly owing to difficult labour and birth injury, but that, with this exception, the risk of death among infants increases in serial order of birth. It seems to follow, and is a fact, that infants born into small families have a much lower mortality than those born into larger families. On the other hand, the age of the mother is apparently a factor of negligible importance in determining the rates of infant mortality, except that the death rate from ante-partum haemorrhage increases steadily with advancing age, and premature birth has the highest rate in young and old mothers. Further, ante-natal and first-day deaths tend to be relatively more frequent in the better social classes and to decline with descent in the social scale. This is true with regard to congenital malformations, difficult labour, and birth injury, and other less definite causes of death; and this fact may be very important in relation to eugenics, though it is unfortunate that the stock defect and the birth injury causes have not been more definitely separated. On the other hand, infant mortality from syphilis and from respiratory conditions is highest among families on the lowest economic level, and declines steadily with improving social status.

Turning now to the actual main causes of stillbirths and neo-natal deaths, they may be placed in four groups. First is the group comprised of those foetuses or infants who, owing either to germinal defect or developmental error, are simply born in a condition which does not allow of existence in the new environment. In the presence of this group we are now helpless, and shall probably remain so with regard to many of them even should revolutionary ideas with regard to the breeding of human stock come to prevail. Next is the group of deaths due to maternal toxaemia, including syphilis. Earlier detection and treatment of this disease in the mother would, of course, lead to reduction in congenital syphilis and in stillbirth or infant death from this cause. A third group is that in which fatality to the infant is caused by placenta praevia, ante-partum haemorrhage from some other cause, and by any other real accident during pregnancy. These deaths, again, it is almost impossible to foresee or to prevent. The fourth group is that associated with some difficulty or delay in labour. It is reasonable to expect that, either by more

careful ante-natal attention or by more skilful delivery, a large proportion of infant deaths in this group might be prevented. The two conditions stressed in the report are prolonged labour and breech presentation. In regard to the former it is said: "It seems probable that the danger of prolonged labour to the foetus is not sufficiently well recognized, and that patients in whom the labour is likely to be unduly lengthy, whether on account of uterine inertia or some other cause, should be sent to hospital more frequently and at an earlier stage than is always done at present." It may be doubted whether hospital is always the remedy indicated. One cause of foetal injury—namely, premature extraction of the head by forceps through imperfectly dilated maternal passages—is certainly becoming less frequent, whether in hospital or in private practice. With regard to breech presentation, it seems likely that the recognition of this condition during pregnancy and the attempt to remedy it by version are not sufficiently common, and that this is true alike at ante-natal clinics and in private practice. The former are certainly, in common experience, not a whit more alert or successful than the latter, though whether everyone will endorse the statement that "external version in competent hands seldom fails" may be doubtful. It is suggested also that "the methods of delivery commonly used for breech presentations are in need of reconsideration," and that a breech delivery should never be regarded as a normal case, and thus within the province of an unaided midwife. It will be remembered that an uncomplicated breech presentation is at present not regarded, under the rules of the Central Midwives Board, as an "emergency" requiring medical aid. We have no doubt that an alteration in the direction indicated would be beneficial.

As has been said, the two important causes of later infant deaths are respiratory diseases and gastro-enteritis. It is somewhat surprising that in the section of the report relating to these conditions no mention is made of smoke abatement as a preventive measure. There are those who consider that the vast improvement in this respect during the present century has been one factor, quite as powerful as the influence of infant welfare centres, which has been very largely responsible for the reduction in the infant mortality rate during that period. In any case, the means of further improvement evidently include those mentioned in the report—namely, more efficient mothering, earlier medical attention, skilled home nursing, and an increase in special hospital accommodation for those infants who are unable to be dealt with at home. The methods indicated for securing these essentials are the better education and training of the mother, the extension of the national health insurance system to the dependants of insured persons, the extension of nursing arrangements now made by local authorities to cover non-epidemic seasons and all types of gastro-intestinal disease, and the setting apart of special hospitals or wards under the recent Local Government Act.

The remarks of Dame Janet Campbell in the last section of the report upon the purpose and management of ante-natal clinics and of infant welfare centres, and upon the need for a national maternity service, are worth careful and serious attention. They indicate the proper place of these things in national public health arrangements. Ante-natal clinics in particular "have a limited function only," and are there "in order to bridge over a difficult period." There are slight indications that Dame Janet Campbell tends to underrate the efficiency of her profession. No doubt there are some members of hospital staffs who are not so expert or skilful as they are supposed to be, and some private practitioners who do not keep themselves as professionally well informed as they should, and who share defects of character with the rest of humanity; but the level of medical education, keenness, and efficiency in the spheres of practice under review is now undoubtedly high. Such statements as that knowledge of infant hygiene and children's diseases "does not penetrate ordinary medical practice with the rapidity or thoroughness which might be desirable: nor is it a question in which the medical student is expected to take great interest"; or as that on page 98 under the heading "Hospital beds," and that on page 104 in the first paragraph under the heading "The confinement," are of doubtful accuracy and value. The summary of suggestions to responsible authorities is wise, useful, and practical, and it may be noted that the "well-organized maternity service available for every woman who cannot afford to provide adequate facilities for herself," which Dame Janet Campbell desires, would be provided by the scheme for such a service approved by the Representative Body of the British Medical Association in July last, and published in the *Journal*, in draft form, in the Supplementary Report of Council (*Supplement*, June 29th, p. 258), and subsequently as a document of the Association.

MALARIAL THERAPY IN GENERAL PARALYSIS.

REPORT BY THE BOARD OF CONTROL.

As was recorded in our issue of August 24th (p. 357), a report by Surgeon Rear-Admiral E. T. Meagher, R.N.(ret.), on general paralysis and its treatment by induced malaria has been issued by the Board of Control.[1] This document is of very considerable practical importance, containing not only a record of the results which have followed the use of this form of treatment in England and Wales, but also an account of malarial therapy as practised in certain Continental clinics.

General Paralysis Historically Considered.

Sir Hubert Bond, a Commissioner of the Board of Control, contributes an interesting historical preface, which comprises a note on the stages by which general paralysis came to be recognized as a clinical entity, the additions made to knowledge about it between 1822 and 1922, and, finally, a brief review of the dramatic change in prognosis since the introduction in the last-named year of Professor Wagner-Jauregg's treatment of the condition by induced malaria. For the depicting of the early part of this period full use is made of the very valuable paper on the discovery of general paralysis, read by Professor G. M. Robertson in 1922, during his year as president of the Royal Medico-Psychological Association, and published in the *Journal of Mental Science* in the following January. The three outstanding figures mentioned in this connexion are those of John Haslam (1798); Esquirol, a pupil of Pinel; and A. L. J. Bayle, the last of whom did so much to identify the disease that, after his death, his name was attached to it in France. Sir Hubert Bond brings out the salient points in the development of knowledge of this disease until 1917–19, when Professor Wagner-Jauregg, head of the psychiatric clinic in the University of Vienna, introduced malarial therapy. Sir Hubert Bond ends his preface with a commendation of the present report. He points out that the prime object of the investigations which led to it was to ascertain in cases of general paralysis treated by induced malaria to what extent, if any, life was prolonged, and what mental or bodily improvement occurred. He deals with some objections and criticisms raised against malarial therapy, and concludes by endorsing a statement in the report that the key to the treatment of general paralysis found by Wagner-Jauregg needs but little fashioning to make it entirely serviceable.

A Review of Cases Treated.

Admiral Meagher begins his survey of the results of cases treated by malarial therapy in county and county borough mental hospitals since this procedure was introduced into England in 1922 by Dr. R. M. Clark and his colleagues at Whittingham. Following this example, eleven mental hospitals recorded the employment of malarial treatment in 1923, twenty-one in 1924, thirty-two in 1925, and thirty-three in 1926 and 1927. As some five years have now elapsed since an appreciable number of the first cases were dealt with, the Commissioners felt that the time had come to review the treatment and its results. Ever since its inception the Board had preserved lists of the patients so treated, and the present inquiry started with an attempt to obtain up-to-date information about their

[1] Board of Control (England and Wales). General Paralysis and its Treatment by Induced Malaria. Report by Surgeon Rear-Admiral E. T. Meagher, R.N.(ret.). London: H.M. Stationery Office. 1929. Price 2s. net.

present physical and mental condition. Admiral Meagher visited many ex-patients who had been discharged from hospitals.

To obtain a standard of comparison the returns of 624 cases of general paralysis (501 males, 123 females) admitted to fifty-five hospitals in 1923, and not subjected to malarial therapy, were used as controls. This particular year was selected because it corresponded with that in which treatment by induced malaria began in some of the hospitals. The results were as follows: 240 (60 per cent.) had died, 52 (8 per cent.) were still in hospital, and 12 (2 per cent.) had been discharged. Examination of these discharged cases indicated that remissions of more than transient duration were decidedly rare; complete recovery was not noted in a single instance. Similarly, of 549 cases admitted to mental hospitals in 1921, 456 (83 per cent.) were dead at the end of 1927, 65 were still in hospital, and 23 had been discharged and were still alive. Combining these results the percentages for general paralysis patients untreated by malarial therapy are as follows: deaths, 86.6; now in hospital, 10.0; discharged, 3.4. Temporary improvement (remissions) occurred in perhaps 2 or 3 per cent., but there was no case of complete recovery.

Sharply contrasting with these figures are those furnished by the patients who were treated by malarial therapy in 1922 and the following years. Eight were so dealt with at Whittingham in 1922; three of these patients are still in hospital and show no mental or physical change; three have died; but two, who have been discharged, are described as being well now and in full employment. Combining these figures with those for 1923 the results are: total cases treated 152; now dead 71; now in hospital 45; now discharged 36. Thus the percentage of those still alive is 53, as compared with 10 per cent. of those untreated with malaria; of the 45 cases in hospital (30 per cent.) it is stated that 14 patients show mental improvement, and in 7 of these there is a physical gain also; in 13 there is no change in the mental state, though 5 have improved physically; and in 18 cases, in 2 of whom there was physical improvement, mental degeneration has occurred. Of the 36 patients discharged, 6 could not be traced, having left the country or having moved to some other town in search of work. There were 17 males at work and earning wages; 3 males were capable of work, but were unemployed; 3 females were carrying on housework capably; 2 patients were unfit for full work, but were able to do occasional work; and the remaining 5 patients showed signs of dementia and degenerative changes which are considered to be slowly progressing.

In 1924 the number of hospitals employing this treatment increased to twenty-two. The figures representing the results of patients treated in this year, and whose condition was investigated at the end of 1927, are: total treated 286; now dead 120; now in hospital 94; now discharged 72. Thus 166, or 58 per cent. of the patients, are still living; this contrasts sharply with the 17 per cent. of those untreated by malaria who were admitted to other mental hospitals in 1924. Of the 94 cases treated in hospitals 34 showed mental improvement, and in all save 4 of these physical improvement also; 36 were unchanged mentally, but 16 had improved physically, while 2 had deteriorated; 24 had degenerated mentally, and usually physically also. Of the 72 discharged patients, 54 were classed as "recovered" and 18 as "relieved," but it is pointed out that these terms cannot be applied strictly in view of the fact that there is no recognized standard of classification adopted by all the different hospitals concerned. Definite information was obtained about 67 of these patients, and it was found that 39 were at work as wage earners, 5 others were temporarily unemployed, 10 were engaged in their ordinary household duties, 4 were undertaking part-time work, and 4 others were prevented from working by some physical disability or other cause unconnected with general paralysis. Five patients showed progressive mental and physical degeneration, and their working capacity is therefore not considered.

Summary of Results.

Surgeon Rear-Admiral Meagher gives next a critical study of the results in the 438 patients treated by malarial therapy before the end of 1924. Of these it was found that 43.6 per cent. had died at the time of reviewing, 31.7 per cent. were in hospital, and 24.7 per cent. had been discharged. Thus 56 of the total number of cases reviewed were still alive, and this may be contrasted with the 14 per cent. of untreated cases admitted to hospital in 1923 and 1924.

Two possible fallacies are considered, of which the first was the question of correct diagnosis. It is concluded that, assuming that the diagnosis can be legitimately based on physical and mental signs, together with examination of the cerebro-spinal fluid, there appears to be no disparity as regards diagnosis in the treated group to give it an advantage over the untreated cases on this score. A second possible source of error suggested was that the treated cases were to some extent selected, the more gravely ill patients not receiving malarial therapy. It is admitted that there is undoubtedly some force in this contention, but statistics are cited to show that if the 438 patients untreated by malaria who had lived longest are selected for investigation only 157 would now be alive, whereas actually 247 of the treated cases have survived. It appears, therefore, to be established that the malarial treatment of general paralysis is calculated to extend life.

The discharges figure of 108 (24.7 per cent.) for those treated by malaria contrasts similarly with the 40 (or 3.4 per cent.) for cases not so treated, and there appears to be very good evidence that real and permanent benefit follows this treatment. Undue optimism on the part of those who practise malarial therapy cannot, moreover, be justly alleged, since it is established that fewer of the patients discharged after malarial treatment died, or sought readmission to hospital, within a period sufficiently long to allow a definite opinion to be formed as to the permanence of the improvement. Of these 180 discharged patients, 77 were able to follow their usual occupation; 10 were mentally well, but fit for little or no work; 10 were mentally unfit for employment; and in 11 the present state was not ascertained. Full details are given with regard to these patients.

Result of Five Years of Malarial Therapy.

Similar reviews of cases treated in 1925, 1926, and the first half of 1927 are given at length, and the figures compare closely with those already determined. Summing up the results of five years' malarial treatment, the total number of patients dealt with was 1,597; of these, 541 (33.9 per cent.) were dead, 652 (40.8 per cent.) were in hospital, and 404 (25.3 per cent.) had been discharged. The average age of these patients on admission was 41, the youngest being 13 and the oldest 70. Twelve cases of juvenile general paralysis are included; it appears that these patients only reached hospital when the disease had made considerable progress and their condition had passed beyond repair. Admiral Meagher contends that it should not, therefore, be deduced that malarial therapy is necessarily useless in the juvenile form of the disease, but may be very effective in early cases.

It appears to have been definitely established that malarial treatment increases the length of life, renders existence more natural, and produces improvement in the physical condition and mental state. In several instances complete recovery seemed to have been achieved, and the treatment offers more promise of success than any other form that has been given extended trial. It is admitted, however, that malarial treatment needs reinforcing, and in this connexion tryparsamide is mentioned, either given before, during, or after inoculation. A short note is added on the way in which malaria acts as a therapeutic procedure, the blood circulation being increased and the whole body being subjected to a kind of "spring cleaning." The dramatic improvement which sometimes occurs suggests also that malaria may possibly possess a specific action antagonizing those spirochaetes which by nature, developmental stage, or age have been effective in causing general paralysis.

Malarial Therapy Abroad.

Interesting accounts are given of malarial therapy on the Continent, with special reference, naturally, to the Wagner-Jauregg clinic in Vienna, which was visited for the purpose of preparing this part of the report, the information being obtained directly from Professor Wagner-Jauregg himself. The countries visited were: Austria, France, Germany, Holland, Belgium, and Czechoslovakia, and it is estimated that about 10,000 cases have been treated in England and Wales and these Continental countries; details of modifications in the procedure encountered are given in each instance.

The report ends with a short but useful bibliography. It is a document which should be in the hands of all who are concerned in any way with the treatment of general paralysis.

British Medical Journal.

SATURDAY, SEPTEMBER 7TH, 1929.

VOLUNTARY BOARDERS.

THE present position of the voluntary boarder is a matter of considerable practical importance, not only to the psychiatrist, but also to the general practitioner; it formed the subject of an interesting and instructive discussion in the Section of Neurology and Psychological Medicine at the Annual Meeting at Manchester. The opening paper, which was read by Dr. Henry Yellowlees, is published at page 446, and, together with the summaries of the remarks of subsequent speakers which appeared in our issue of August 17th (p. 303), merits close attention. To those who are only familiar with the present practice it may come as a surprise to learn that the privilege of entering a mental hospital as a voluntary boarder was originally restricted to those who had previously been patients under certificates, and to relatives of patients who wished to board in the hospital. When it was proposed to abolish these restrictions the Lunacy Commissioners raised many objections to any changes being made, the chief two being that any extension of the privilege would diminish the accommodation for certified patients, and that it would encourage evasion of the law because certifiable persons would avoid certification by entering as voluntary boarders. Even at present, according to the general opinion, the law, strictly interpreted, would prevent any certifiable person from becoming a voluntary boarder, or would not permit him to remain one after he had become certifiable. Although in practice the law is more liberally interpreted, nevertheless the legal difficulty exists, and is liable, therefore, to give rise to anxious problems. In Scotland the question whether the voluntary boarder is of sound or of unsound mind does not arise. Only one condition need be fulfilled for becoming a voluntary boarder in Scotland—namely, a written application expressing a desire to submit to treatment.

The discussion made it evident that some psychiatrists are of opinion that it should be made permissible to treat as voluntary boarders a number of patients who can at present only remain in mental hospitals on a certified basis. The kind of case especially considered was that of the voluntary patient who, exhibiting a change in his symptoms, becomes non-volitional or incapable of expressing his willingness or unwillingness to remain under treatment. In Scotland it is legal for such a patient to remain on as a voluntary boarder. Professor George M. Robertson states that there is only one condition that normally puts an end to the status of a voluntary patient, and that is when the patient himself gives notice of his desire to leave. The onus of taking action to terminate the voluntary status is placed on the patient himself, and the procedure has to be initiated by a definite and unmistakable signal. In England the general practice is to insist upon the certification of a voluntary boarder who becomes non-volitional, though Dr. E. Mapother contends that there is nothing in the law to prevent continued treatment as voluntary boarders of either certifiable or non-volitional patients.

Though some psychiatrists may feel that the voluntary boarder principle should be wider in its applications, the existing law as at present interpreted has been highly beneficial to all concerned. The patient himself is happy to know that he is not being detained under a legal order, but being treated at his own desire. The practitioner is relieved of the feeling, which certification is liable to engender, that he is in part responsible for a procedure which may subsequently place his patient at a serious social disadvantage. As matters are at present it is possible for the practitioner, when confronted with a patient who clearly requires treatment in a private or registered mental hospital, to consider, not so much whether his patient can be certified, but rather whether he need be certified. Dr. Yellowlees states that 69 per cent. of the admissions to The Retreat, York, in 1928 were voluntary boarders, and Professor Robertson points out that at the present time 60 per cent. of the private patients entering mental hospitals in Scotland do so as voluntary boarders. It is certain that a considerable proportion of these patients cannot be said to have deprived certifiable cases of accommodation, since many, no doubt, are patients who would themselves have had to be certified if the voluntary principle had not been admitted. Experience has shown that the psychotic patient, exhibiting, it may be, delusions of various kinds, is not necessarily lacking in a sense of illness. A lively social sense, a keen intelligence, and a definite wish to submit to treatment often exist in combination with psychotic manifestations. Finally, voluntary boarders give an atmosphere of freedom in a mental hospital which cannot be obtained in those institutions in which their admission is not permissible. These voluntary patients cannot fail to act as a stimulus to the medical and nursing staff; their presence, indeed, in the hospital must necessarily ensure a high standard of treatment.

Since voluntary admission has grown into such favour and to such proportions as to amount to a revolution in practice with regard to mental diseases, it is clearly desirable that those patients who would obtain treatment in rate-aided institutions should also be able to do so on a voluntary basis. At present the law does not admit of voluntary admissions in England to the rate-aided mental hospitals, except in the case of the City of London Mental Hospital. In Scotland there is no legal barrier to the voluntary admission of poor patients, and several parishes have agreed to allow suitable patients to reside as voluntary boarders in the district mental hospitals. The Commissioners of the General Board of Control for Scotland have taken a very sympathetic attitude to this problem. They pointed out in a report a few years ago that if pauper patients as well as private patients were permitted to enter mental hospitals voluntarily by a rearrangement of the lunacy grant, the certification of patients, which is not necessary for medical purposes, would fall from the present level of about 100 per cent. to 60 per cent., or even less, of the patients admitted to asylums. Certification would then clearly fall into its proper place as a social and legal necessity. It is quite understandable that the Legislature should be reluctant to relax laws intended to protect the persons and estates of those who are unable to care for themselves and their affairs, but fortunately the introduction of the voluntary boarder principle has enabled progressive movements to develop, whereby experience has been gained of the extent to which relaxation of the law can safely be permitted. The experience gained at the Maudsley Hospital has been particularly valuable, for there it has been found possible to treat on a

voluntary basis mentally disordered patients of all types. The present time would seem to be peculiarly opportune for increasing the number of clinics similar in aim and type to the Maudsley Hospital. In taking over the Poor Law infirmaries and reorganizing the municipal health service, it is much to be hoped that the county councils will bear in mind the pressing needs of those who are threatened with a mental breakdown. In these institutions it is highly desirable to set apart special wards for the treatment of mental cases on modern lines, and any developments in this direction will be watched with interest and appreciation. In the Memorandum of Evidence given on behalf of the British Medical Association before the Royal Commission on Lunacy and Mental Disorder[1] emphasis was laid on the serious need of more flexibility in arrangements for dealing with the mentally unsound. The development of psychiatric clinics in municipal hospitals would do much to solve the problem of the medical practitioner in dealing with the acute and early stages of mental disorder. Briefly, such clinics would afford that "flexibility in arrangements" which is eminently desirable. To apply the voluntary boarder principle to patients entering public mental hospitals would meet a need, but this would not obviate the perhaps still greater necessity for the creation of clinics of the kind suggested above.

THE CONTROL OF ENTERIC FEVER.

HE would be a very hardened pessimist who could study the history of typhoid fever in England without satisfaction. In 1869 the rate of mortality from this disease was 390 per million; in 1929 it is not likely to exceed 9 per million (the rate in 1926 and in 1927). Even since 1911 the rate has fallen to less than one-seventh of that recorded eighteen years ago. A recent Epidemiological Report of the Health Section of the League of Nations[2] presents a valuable comparative survey of the prevalence of, and mortality attributable to, the typhoid group in all countries supplying data. If we scrutinize the table setting out rates of mortality—the least dangerous index for international comparisons—and take the most recent year for which numerous comparisons are possible—namely, 1927—our national self-satisfaction is not in danger of a shock. In 1927 the rate in England and Wales was 9 per million; only three States had better figures—Sweden with a rate of 7 per million, Denmark and New Zealand with rates of 8 per million. In 1926 only Scotland had a lower rate than England and Wales; in 1925 England and Wales had the lowest rate in the table. In the registration area of the United States the rate of mortality is usually five to six times that of England and Wales. In France the rate is about four times ours. The strongest contrast—restricting ourselves to the Great Powers—is with Italy, where in 1925 (the last year recorded and the one with the lowest rate) typhoid fevers were 18.7 times as deadly as in England and Wales. The rate in Italy is, on the whole, a little worse than that of Japan and a little better than that of Spain.

That typhoid fever has been brought under and kept under, so far as the civil population is concerned, mainly by attention to quite simple sanitary precautions, is suggested not only by English history but by the figures of this table. In 1919 the rate of mortality in Germany was higher than in France—63 against 57 per million. In Germany it has continuously and rapidly fallen: in 1927 it was only 11 per million, 17 per million the year before. In France, in 1926, the rate was still 54 per million. It does not need much Continental experience to convince the Englishman that the local sanitary authorities of lands of, broadly speaking, Germanic culture are much more alive to what we conceive to be their duties than those of France. Indeed, the success achieved in this country and in Germany has been the result of steadily (perhaps, some may say, stupidly) practising simple, but very expensive, practical rules. Most of the etiological doctrines of Simon and his contemporaries may have been wrong in detail. In Germany to-day a furious battle is being waged between adherents of the Koch and of the Pettenkofer schools of epidemiology. But the rules of practice deduced from the principle that typhoid is a "filth" disease—that to guard against it one must insist upon clean water supplies in the first place, clean foods of all kinds in the next place, and, finally, that we must cultivate habits of personal cleanliness in the matter of eating and drinking—have been vigorously enforced here and in Germany by "localists" and "contagionists" alike. The result we see.

The League of Nations report contains some valuable statistics of seasonal incidence. It is of interest to note that the summer-autumn maximum is followed in some countries by another maximum in mid-winter. Usually the winter maximum is lower, but not invariably, and the suggestion is made that this phenomenon is worthy of special investigation. The report also contains summaries of the findings in three recent epidemics: that at Lyons in November-December, 1928, the Hertfordshire outbreak in 1927, and the epidemic at Rostoff on the Don in 1926. The first and last of these were traced to water contamination; the Hertfordshire outbreak was probably due to milk contamination. The very unequal sex incidence of typhoid in the Lyons outbreak has been thought to be due to the greater proportion of males recently inoculated against the enteric fevers. The data are very incomplete: although there were 2,430 cases of typhoid, particulars respecting 174 men and 275 women only are available, and no information at all as to the proportions inoculated. The authors are wisely cautious in drawing conclusions, and remark that "it is interesting, however, to note the larger number of women over 50 years of age amongst the cases, as the vaccinated men of this age may be assumed not to have been revaccinated and to be no longer immune." At Rostoff the origin of the epidemic was the breaking of a pipe conducting water from a sterile subterranean spring through grossly contaminated soil. The number of cases was at least 2,935 (1,625 of these in males). Vaccination was offered, but only 12,231 out of a population of 300,000 accepted it. However, 90 per cent. of the army were so treated. The report does not mention the number of soldiers exposed to risk, but says that of the 30 attacked 19 had been vaccinated; of the vaccinated attacked, most fell ill from fifteen to thirty days after the inoculation.

This essay contains much interesting information, and, as we said at the beginning, puts our own country in a favourable light. Quite recent experience, such as that of Bolton-on-Dearne, warns us that we can never afford to relax our precautions, that even now all public water supplies are not free from danger. National history and international comparison prove that our methods are good.

[1] *Supplement*, January 17th, 1925.
[2] Rapport Epidémiologique Mensuel de la Section d'Hygiène du Secretariat. Geneva: League of Nations. No. 126 (May 15th, 1929). Annual subscription, 18s.; single copies, 1s. 6d.

SALT DEPLETION BY SWEATING.

AT the summer meeting of the Institution of Mining Engineers, held at Nottingham, a report—one of a series dealing with atmospheric conditions in hot and deep mines—was received on the salts lost by perspiration caused by high air temperatures. In the absence of Dr. J. S. Haldane the report was presented by one of his collaborators, Mr. W. Hancock, Ph.D., who had spent many hours in the large experimental chamber of the Mining Research Laboratory at the University of Birmingham conducting experiments upon himself. Mr. Hancock stated that acute attacks of cramp were well known to occur among miners and others engaged in hard work in hot places when they drank water freely. Hard muscular work and the drinking of water to quench thirst were the two conditions which appeared to determine such attacks. It was clear that if a man was perspiring freely, and at the same time replacing the lost fluid by drinking water, there would be a tendency for the percentage of chloride in the blood plasma and in the whole body to fall (since much chloride might be lost in the sweat), with a corresponding tendency to a fall in the osmotic pressure of the blood plasma. In the ordinary way this tendency was countered by the action of the kidneys, which excreted excess of water while retaining the chloride; but during hard muscular work the kidneys were thrown almost out of action owing to the diversion of blood supply to the muscles, whereupon the body was left defenceless against the effects of loss of chloride. In addition to this violent and painful cramp, a group of milder symptoms might result, such as depression and fatigue, when the supply of sodium chloride to the body was insufficient to meet the greatly increased loss due to much sweating. The experiments were concerned with the nature of the loss of chloride by the skin under various conditions, and the proportion of sodium to potassium salts. It appeared to the investigators that a sharp distinction must be drawn between two kinds of loss of water from the skin—namely, the evaporation of water which had permeated through the general surface of the skin, and the evaporation or trickling down of sweat secreted by the sweat glands. In the first kind of loss the skin apparently behaved as a semi-permeable membrane—permeable slowly by water, but practically impermeable by inorganic salts, such as the sodium chloride or bicarbonate of the blood plasma. In the second kind of loss—namely, by secretion of sweat—the glands produced a secretion of more or less specific composition, strongly hypotonic in comparison with blood plasma, but removing possibly large amounts of sodium chloride from the body. The first kind of loss depended largely upon the factors which determined the rate of evaporation from the unmoistened skin, and probably also upon the blood supply to the skin; the second kind of loss depended entirely on the activity of the sweat glands. When the rate of loss of water was small the loss was due entirely to the first of these causes, and the small percentage of chloride lost simultaneously seemed to be derived from the epidermis or from sebaceous secretion. The potassium lost in these conditions was far in excess of the sodium which would be needed with it to combine with all the chlorine present. As the loss of water became greater, an increased proportion of the loss was due to true sweating, and the proportion of chloride in the water lost tended to increase, while the proportion of loss of potassium chloride to sodium chloride fell gradually. True sweat, uncontaminated by salts derived from epidermis and sebaceous glands, eventually came to contain about nine times as much sodium chloride as potassium chloride. The percentage of chloride in true sweat, while it increased markedly with the duration of sweating, increased also, though to a much less extent, with abundance in the supply of either sodium or potassium chloride to the body, or as a consequence of reducing the supply of water. The increase in chloride percentage seemed to be due mainly to fatigue of the glands, and for the same reason sweat was produced less and less readily as the sweating continued. The percentage of chloride in sweat, which was always much below that in the blood plasma, was reduced only slightly if water in abundance was drunk or if the supply of chloride to the body was reduced. Therefore, if much water was drunk, with the kidneys out of action as during hard work, acute rise in the diffusion pressure of water might easily be produced, with the characteristic symptoms. Mr. Hancock concluded with the statement that sweat was, roughly speaking, a secretion of more or less specific and markedly hypotonic composition, containing much less chloride than did blood plasma, only about 8 per cent. of the chlorine being united with potassium. No other salts appeared to be present except in traces, although urea had been found in very definitely higher concentration than in the blood plasma. The sweat glands seemed incapable, beyond a very limited extent, of producing sweat which, like urine, varied in composition according as water and other constituents were superabundant in blood plasma or the reverse; their function was to regulate loss of heat from the body or communication of heat to it, and only to a minor degree did they regulate the composition of the blood. As regards prevention of symptoms due to excessive removal of chloride by sweating, all that was needed was a sufficient supply of sodium chloride. By eating red herrings or highly salted bacon, coal miners usually prevented the occurrence of these symptoms, and if stokers in hot climates at sea would add about one-tenth of sea water to the water which they drank during work—just as the coal miner added about 1/4 per cent. to his water or tea—or would eat plenty of salt meat or fish, they could also prevent the symptoms. In some discussion on the report a Birmingham mining engineer stated that during long shifts in the pit at high temperatures, when dealing with pit fires, he had found that abstinence from water produced a curious irritation of the skin, and on drinking copiously he withstood the conditions much better. On the other hand, the president of the Institution, Professor Henry Louis, said that in the tropics he had made it a rule never to drink except at meal times, and when surveying in the jungles of the Malay Peninsula, where the conditions were both hot and moist, he had kept quite well, whereas a companion, who drank freely whenever he felt inclined, collapsed within three days and had to return.

REORGANIZATION OF THE GREEK PUBLIC HEALTH SERVICE.

THE Greek Government appealed last year to the League of Nations for assistance in setting up an improved health service throughout the country, and a deputation subsequently visited certain districts selected by the Greek Under Secretary of State for Health. The situation in Macedonia received special study, and a series of recommendations was eventually presented to the Greek Government, which has accepted them. They provide for the establishment of a unified health service to co-ordinate various public health functions and institutions now scattered through a number of State departments. The existing organization is held to be entirely unsatisfactory, and a new basis has therefore to be devised, so as to protect the service from political influences and to place it under the control of a permanent chief director responsible to the Prime Minister's office. The staff, it is added, should consist of men fully trained in modern methods of hygiene and the prevention of disease, these public health officers being required to give whole-time service and receiving adequate pay. Proposals are made for the setting up of a modern school of hygiene and for training selected Greek medical officers by interchange with those

of other countries, and by individual study tours arranged through the Health Organization of the League. As a first step a training centre is to be established in Athens, with three expert instructors in general hygiene and preventive medicine, malaria prevention, and sanitary engineering. It is stated that the Greek Government proposes to invite experts from other countries to fill these three professorial chairs. The technical services are to be built up, with the help of the training centre, in certain selected areas in Greece, whence the system will be extended later to the rest of the country. The report explains how a permanent Hellenic health service may be built up with the school of hygiene and the new technical services as a foundation, and describes the transitional steps by which it is hoped to have the organization in working order by about 1933. M. Venizelos, in accepting the recommendations, requested the Health Organization of the League to place at the disposal of his Government all its technical facilities, including its technical commissions, in order to ensure complete co-operation in the subsequent development of the plan. The Greek Government has agreed to the increased cost involved, which, when the scheme is in full operation, will amount to about one-third more than the present health budget. Special recommendations are made with regard to hospitals; the prevention of malaria and tuberculosis; labour conditions and social insurance; and a quarantine service. The necessity is emphasized of establishing a special committee to study Greek sanitary legislation, in order to codify the existing laws and render them easier of comprehension and enforcement.

THE VETERINARY CONGRESS.

THE annual congress of the National Veterinary Medical Association of Great Britain and Ireland has been held at Ayr this week under the presidency of Dr. O. Charnock Bradley. Dr. Bradley, who is principal of the Royal (Dick) Veterinary College, Edinburgh, was president of the British Medical Association's Section of Comparative Medicine at the Annual Meeting at Edinburgh in 1927. A considerable number of papers were presented to the congress, of which those dealing with "Foot-and-mouth disease" and with "Mineral requirements of farm animals" were of particular interest to medical men. The first of these papers was read before the Section of Veterinary State Medicine by Mr. J. O. Powley of the Ministry of Agriculture. Foot-and-mouth disease has been present, on and off, in this country since 1839, when the first authentic cases were recognized in Norfolk. In recent years there have been many severe outbreaks, and a considerable amount of scientific information has been accumulated. This has been considered at some length in these columns, and need not be again referred to in detail. Mr. Powley discussed the symptoms as seen in the various domestic animals, and considered the possibility of the natural occurrence of the disease in wild animals. He is inclined to suspect the rat in this respect, although admitting that this is still unproven. The old belief that the virus was easily destroyed has now been abandoned. It has been proved to live indefinitely in the cold in 50 per cent. glycerin, for a month in hay and soil under field conditions—an American case in which it lived for over a year—and for over [illegible] bone marrow. In ordinary hay and [illegible] as long as five months, and when one [illegible] has been transmitted experi- [illegible] one in ten million the [illegible] The modes of entry of [illegible] Ingested, [illegible] inoculated, [illegible] imported [illegible] and rabbits [illegible] by the [illegible]

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[1] *Supple*
[2] Rapport
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subscription, 18s.; single copies, 1s. 6d.

means whereby outbreaks are caused. Many explanations have been sought to account for the increased number of outbreaks in recent years in Britain: Mr. Powley considers that these are due mainly to the considerable amount of disease in Europe and South America, combined with the greatly increased facilities for trade. The increased knowledge as to the viability of the virus suggests also that many outbreaks, once considered primary and due to outside sources, may well be secondary and due to infections from other localities in Britain. Dr. Orr of the Rowett Institute contributed a paper on the mineral requirements of farm animals. In recent years, he pointed out, the importance of diet and disease had been increasingly recognized, and it was now definitely established that certain diseases were produced, not by the action of a toxic agent, but by the absence of some essential food constituent. Classical diets were concerned mainly with starch values and protein ratios, the actual mineral requirements being largely left to chance. Of these minerals, the most important are calcium and phosphorus. About 2 per cent. of the body weight of a bullock and about 1 per cent. of a pig consists of calcium, while the percentage of phosphorus is only slightly less. A cow producing four gallons of milk a day requires about one ounce of lime and one and one-third ounces of phosphoric acid to do this, while a hen requires an ounce and a quarter of lime for every 200 eggs laid. The problem, however, requires more than a mere knowledge of the weights of minerals necessary for production. Wear and tear have to be compensated for, while the assimilation of the salts in the diet is not complete, and an animal to which has been fed a large amount of minerals may still show symptoms of deficiencies in the tissues. Vitamins and ultra-violet light are two of the factors influencing this assimilation, as also do the nature of the diet, method of preparation, ratios of calcium and phosphorus to each other as well as to the other constituents, and so on. Many of these factors are still little understood. A deficiency of these minerals leads to decreased rate of growth, imperfect formation of bone, nervous symptoms, and generally impaired health in the young; and low production of milk, unthrifty condition, and lower breeding capacity in the adults. Pigs on a calcium-deficient diet develop symptoms closely resembling tetany in children; and in animals, as in man, a diet deficient in calcium results in a reduction of blood calcium. The evidence at present available to support the hypothesis that a deficiency of calcium or phosphorus in the blood leads to a decreased resistance to certain diseases—such as tuberculosis and the pneumonias—is still too meagre to enable very definite conclusions to be drawn; but it is sufficient to stimulate further work and to present a field of investigation of enormous importance in both human and veterinary preventive medicine.

"SNAKE-BITE CURES."

ONE of the most abiding quarrels in the world is that between the rule-of-thumb man who relies on what he believes to be common sense, and the scientific worker who aims at obtaining evidence supported by adequate controls. The latter has been the butt of the wits since Swift described the Isle of Laputa, but it is not always realized how ludicrous may be the results arrived at by the aid of practical common sense when this works, as it usually does, without the embarrassment of any controls. The history of snake-bite cures given by Mr. Fitzsimons in a small book reviewed elsewhere is a case in point. A priori one might expect that it would be a matter of exceptional ease to determine whether a particular remedy does or does not benefit snake bites. The poisonous snakes are well known, the bite leaves a visible lesion; moreover, domestic animals as well as man are frequently bitten, and

therefore it is easy to experiment in methods of treatment. Mr. Fitzsimons gives a list of twenty-one separate "cures," all of which have found wide support amongst the natives or white farmers in South Africa: all of these have been exhaustively tested at the Port Elizabeth Snake Park, and have in every case proved to be of no curative value. Alcohol, in particular, has an established reputation in all five continents as a remedy for snake bite, but Mr. Fitzsimons goes so far as to assert not only that it is useless, but that in many cases it is actively harmful, and he believes that death is often caused by overdosing with alcohol in cases where the patient might otherwise have recovered. Another "cure" was found to consist of ammonia coloured slightly with opium, and yet this proprietary remedy had maintained a reputation in the Cape Province for eighty years. The history of snake-bite cures affords a clear-cut example of the fact that more knowledge can be gained by a few carefully controlled experiments than can be acquired by centuries of practical common-sense clinical experience without the aid of controls. The reason for the absurd results arrived at in this case by the latter method is that the general horror inspired by snake bites has caused their danger to be exaggerated. According to Mr. Fitzsimons, the majority of South African snakes are venomous only in a slight degree, and the really dangerous ones form a minority. Moreover, a bite from one of these highly venomous snakes is not necessarily fatal, for often the snake fails to inject its victim with a lethal dose of venom. Everyone who is bitten by a snake expects a rapid death, but in fact only a proportion of bites are dangerous. Consequently every variety of "snake-bite cure" has, for a time at least, acquired a brilliant reputation.

A SINGLE DIAGNOSTIC CLINIC IN A GENERAL HOSPITAL.

IN the fifteenth annual report, for 1928, of the Peter Bent Brigham Hospital, Boston, Mass., the physician-in-chief, Professor H. A. Christian, speaking with the experience of a chief of a hospital medical service for twenty years, touches on some points in medical education and the organization of the work of the resident staff of the hospital, and then returns to a discussion of a scheme, which he advocated in his report of 1926, for "a single diagnostic clinic," such as is carried on at the Mayo Clinic. With some modification of the existing arrangements it would, he thought, be easy to carry out nearly all the diagnostic work on ambulatory patients before they were admitted to the wards, and that this would be advantageous in saving time and shortening the patients' stay in the hospital. In this scheme there would not be the usual subdivision into medical, surgical, neurological, orthopaedic, and other services, and after diagnosis by this organization the patients would at once receive the indicated treatment by the individual or group especially skilled in that form of therapeutics. The adoption of this plan would in all probability result in the entire abandonment of the division of the hospital into medical and surgical wards, though certain wards might be set aside for special forms of treatment and for post-operative care. In the following year's report his colleague Professor Harvey Cushing, the surgeon-in-chief, commented in a friendly spirit on this proposition to "Mayo-ize" the clinic, and anticipated that, if it were adopted, the hospital would become increasingly surgical, for even at that time the surgeon was called five times as often to the medical wards as the physician was summoned in consultation to the surgical wards. In his reply Professor Christian now points out that physicians, like Jacobaeus of Stockholm and Brauer of Hamburg, who do their own surgery, and his colleague Professor Cushing, who is "a highly developed combination of surgeon, neurologist, ophthalmologist, and pathologist," have greatly contributed to the advance of knowledge, and further that their work emphasizes the artificial nature of separation of the healing art, for indeed they do not recognize any delimiting lines between medicine and surgery. This protest against the conventional distinction in hospitals recalls Sir Clifford Allbutt's address on "The Historical Relations of Medicine and Surgery to the End of the Sixteenth Century," delivered at St. Louis in 1904, in which he insisted that surgery was nothing more than an alternative method of treatment, and that "physic was sterile in proportion to its divorce from surgery." After instancing the example of the gynaecologists, who had rightly assumed control of the female pelvis, he went on "in cerebral surgery, for instance, is it not absurd for one institution to deny, let us say, to Sir William Gowers and Professor Ferrier a liberty which by another institution is granted, let us say, to Professors Horsley and Macewen."

"ULTRA-VIOLET PUBLICITY."

WITH reference to our annotation under this heading in the *British Medical Journal* of August 24th (p. 357), we have received a letter from Dr. A. Eidinow stating that neither Professor Leonard Hill nor he has ever approached the *Evening Standard*, the British Broadcasting Corporation, or any other newspaper, and that they cannot trace the leakage of information. In confirmation of his statement Dr. Eidinow enclosed a copy of a letter from the news editor of the *Evening Standard*, in answer to an inquiry by him, stating that "the information which we published concerning your work in the *Evening Standard* was not obtained from you." We have also received a letter from the Controller of the British Broadcasting Corporation regretting any inconvenience that may have been caused by their announcement on August 14th, and disclaiming any intention of discourtesy. He states that the "news" bulletin broadcast each evening is prepared and supplied by Messrs. Reuters, and that "the particular news item in question was supplied to Reuters, we believe, by the Press Association, and accepted by them in the usual way."

THE KING has re-nominated Sir George Newman to be a member of the General Medical Council for five years from October 9th, 1929.

THE KING has granted Dr. L. N. Robinson, C.B.E., president of the Egyptian Medical Commission in Paris, leave to wear the Insignia of the Third Class of the Order of the Nile, which has been conferred on him by the King of Egypt in recognition of valuable services rendered by him.

LIEUT.-COLONEL C. T. SAMMAN, R.A.M.C., Master of the Society of Apothecaries of London during the past year, was re-elected, on August 20th, Master for the coming year. This is the first time for very many years that a Master has been re-elected.

WE regret to announce the death, on September 1st, of Sir John Campbell, senior surgeon to the Samaritan Hospital for Women, Belfast, and consulting surgeon to the Belfast Maternity Hospital. We hope to publish an obituary notice in an early issue.

Canada.

Dr. Alexander D. Blackader.

A PARAGRAPH in the *British Medical Journal* of August 3rd (p. 215) announced that the Council of the Canadian Medical Association was establishing a Blackader lecture in diseases of children, in appreciation of the services rendered by Dr. Alexander Dougall Blackader, who has lately resigned the editorship of the *Canadian Medical Association Journal*, and as a mark of recognition of his eighty-second birthday. Dr. Blackader graduated M.A., M.D., and C.M. at McGill in 1871, and fifty years later his university conferred on him the honorary degree of LL.D. Part of his early medical studies were pursued in London at St. Thomas's Hospital, and after holding resident posts at Great Ormond Street and the Brompton Hospital he obtained the diploma of M.R.C.S.Eng. in 1876. He was lecturer in paediatrics at McGill University for thirty-eight years, professor of pharmacology and therapeutics for thirty years, and physician to the Montreal General Hospital for twenty-seven years. It is peculiarly fitting that his life-long interest in diseases of childhood should be commemorated by a lecture to be delivered once in every three years by some distinguished paediatrician. The Canadian Medical Association has now paid Dr. Blackader a further compliment by appointing him editor emeritus of its *Journal*, which he conducted for so many years. His successor in the editorship is Dr. A. G. Nicholls.

The Health of Winnipeg.

The holding of the Annual Meeting of the British Medical Association in Winnipeg next year gives a heightened interest to the health conditions of this Canadian city. From Dr. A. J. Douglas's annual report it appears that in 1928 the incidence of typhoid fever was low, eighteen cases occurring with two deaths among a population of 202,377; only ten of the cases originated within the city. A certain number of cases of food poisoning occurred, but they were obviously due to infection with an organism of the salmonella group or a similar organism, and caused no serious after-effects. A considerable proportion of the pike caught in the adjacent lakes are infested with the cysts of *Dibothriocephalus latus*, the pathogenicity of which was established by giving them to dogs and the subsequent recovery of the mature worm; the parasite is, however, easily killed by cooking. Only five cases were admitted into the Winnipeg General Hospital during 1927; the sufferers are usually women, who, it is thought, acquire the parasite by tasting the uncooked spiced fish to ascertain the flavour. The consumption of fruit seems to be free from any danger connected with arsenical spraying. Energetic steps involving considerable expense to the Federal Government and the dairymen are taken to secure the absence of tubercle bacilli from raw milk, which constitutes 40 per cent. of the milk consumed in the city. Under the Municipal Tuberculosis Order the herds of all the dairies licensed to sell raw milk direct to the consumers are submitted to the tuberculin test administered by Federal veterinary inspectors; all reactors are removed from the herd and slaughtered, and compensation paid to the owner. In the report regret is expressed that all the milk supplied to the city is not pasteurized. Small-pox prevailed to a limited extent, but was of the mild type; twenty cases were recorded with no deaths. The outstanding event of the year, however, from the health point of view, was the outbreak of acute anterior poliomyelitis, which started in July and reached its height in August and the first fortnight of September, gradually dying down in October; 225 cases occurred with fifteen deaths; fifteen secondary cases occurred in twelve homes.[1] Satisfactory sanitary conditions were present in a surprisingly high proportion of the homes affected, and a district largely inhabited by people of foreign birth and extraction, living under poor sanitary conditions escaped scot-free. Arrangements were made for early diagnosis and serum treatment: the routine procedure for diagnosis included an examination of the cerebro-spinal fluid; serum was obtained from persons who had had an attack of poliomyelitis; only at first was difficulty experienced in getting enough serum. This service functioned twenty-four hours a day from the middle of August until the end of October.

Considering the health of the city as a whole, the death rate during 1928 was surprisingly low when compared with European rates; the gross death rate was 8.92. During 1927 however, it was even lower, 8.29, the corresponding death rates for London being 12.1; it is possible, however, that some of this difference is accounted for by a larger proportion of older persons in London. The infantile mortality rate in Winnipeg was 63.4 in 1928 and 61.2 in 1927 (in London they were 67 and 59 respectively). The policy of the city is to recommend mothers to engage a doctor rather than a midwife for the confinement; there is no supervision over or regulations governing either trained or untrained midwives in Manitoba, and it is feared that encouragement of midwives might lead to unskilled and untrained women taking up the work. In 1918 19.8 per cent. of the births were attended by midwives; in 1928 only 2.9 per cent. Three-quarters of the births took place in hospitals and maternity homes in 1928. The crude puerperal (maternity) mortality rate in 1928 was 5.1 per 1,000 live births, 0.3 per cent. less than the average for the past five years; for London the corresponding figure in 1928 is 3.09. The outstanding difficulty in the infant welfare work of the city is to persuade expectant mothers to undergo examination, or at any rate to have an early consultation with their doctors.

Winnipeg has its housing and smoke problems. The housing problem is not acute; the population is no longer increasing rapidly—since 1918 the increase has been only 10 per cent. Although no houses are being built to rent, the amount of building (all done by private enterprise) is adequate to provide for the increase of the population; there are even some vacant houses and vacant suites (flats). The chief concern of the health department is the occupation of 3,000 one-family dwellings by several families. Some at least of these families so housed are evidently very poor; they live in one room, and in some cases do not own even the cheap furniture in the room. The health department advocates introduction of sanitary legislation governing such dwellings comparable with the by-laws relating to houses let in lodgings which have so long been in force in London. A start has been made with zoning; a zoning by-law has been passed which is, however, largely permissive, and will require to be supplemented by by-laws creating and setting apart the residential, commercial, and industrial districts contemplated and defined as regards use by the zoning by-law. No change will be required in the use of property the purpose of which is already established at the time of the creation of the zone.

[1] See "Poliomyelitis in Manitoba," *British Medical Journal*, July 13th, 1929, p. 62.

England and Wales.

Care of Mental Defectives.

THE executive committee of the London Association for Mental Welfare, in response to an invitation by the London County Council to put forward suggestions, under the Mental Deficiency Act, 1927, for the extension of the existing provision for training and supervision of defectives, drew up a scheme which is outlined in the association's report for 1928. The committee acted on the principle that the problem might be most hopefully approached by the continued training of those who had already attended an occupation centre up to the age of 16, and suggested, therefore, that two more such centres—making ten in all—could usefully be added and the facilities for "guides" increased. It proposed, further, that classes for needlework, dressmaking, and cookery should be held for elder girls and young women, and that for boys aged 16 to 18 craft centres should be established, where woodwork and simple industries could be taught. Provisional approval of the scheme, and of an immediate suggestion that two classes of the above-mentioned type should be opened in the coming year, was received from the London County Council, and the committee has been invited to submit

financial estimates for carrying them out. In connexion with its work for the London County Council the committee, during the period under review, dealt with 2,564 cases under statutory supervision, a slight increase on last year's figure. It notes with satisfaction that provision for the institutional care of 253 more patients will probably be available during the coming year. Under the committee's care have been 192 patients "on licence" from institutions, 146 of these having been released from the institution for a trial period; so far eleven of this total have been discharged from supervision, and twenty have been recalled to the institutions. There seems, suggests the committee, ground for hope that prolonged training and discipline at institutions does render certain patients of steady character fit to live usefully and profitably in the outside world. This view is borne out by the fact that, at the end of 1928, 77 of the older patients remaining "on licence" were in regular work. A great advance has been in the admission of occupation centre children to many of the benefits of medical inspection and treatment enjoyed by the London County Council elementary and special school children. This change took place in September, since when doctors and nurses have visited all the centres and prescribed treatment. That the children at the centres can now be taken out together and trusted to behave reasonably marks, the committee feels, a definite advance in their development of a community sense. During the year, of 789 children who left special schools, 415 were the subject of inquiry into home circumstances with a view to notification under the Mental Deficiency Acts. The extended power given to local authorities in 1927 to place such children under statutory supervision was exercised in 130 cases. The number of children at school-leaving age who were placed in employment was 802, the highest on record; 156 were placed in skilled, 287 in semi-skilled, and 359 in unskilled occupations. A grant is given by the Board of Control to help the association to carry on activities for the benefit of voluntary cases, and 1,018 in this category were dealt with during the year. This number represents a considerable increase on those of previous years, the association having recently extended the scope of its work to include the care of the mentally unstable patient as well as the definitely defective. Nearly all the 2,751 cases on the association's books during the year have been visited recently, and the information given by the district committees testifies to the value of this method of investigation. Unfortunately the funds of the association do not at present allow of the further retention of the special officer engaged in connexion with these duties, but the committee earnestly hopes that later on it may be in a financial position to undertake them again.

Queen Charlotte's Maternity Hospital.

The increasing strain on the accommodation in Queen Charlotte's Maternity Hospital has rendered extension of the institution urgently necessary, and for some time it was thought that suitable enlargement of the buildings could be provided on the present site. This proved, however, to be impossible, and it was accordingly decided that the hospital should be removed to a new site in Hammersmith. Some account of the proposed transference was given in these columns on February 2nd (p. 220) and on March 30th (p. 627). Work on the new building has now begun, and Princess Mary has consented to lay the foundation stone on November 4th. It is hoped that patients may be received early next year. The hospital when completed will contain 358 beds; it will comprise an isolation block, with thirty beds for the reception of cases of puerperal sepsis; nurseries to accommodate thirty infants; labour wards, pre-natal beds, administration offices, an out-patient department, a students' college, and a nurses' home. In addition there will be a block containing accommodation for eighty paying patients, each of whom will have a separate room at a fee far less than would be charged in a private nursing home. The plans of the new building have been drawn up by Mr. E. Stanley Hall, who has been appointed architect by the committee of management of the hospital. In the annual report of the hospital for 1928, statistical details are given illustrating the urgent need of additional beds. It was thought that the capacity of the hospital had been reached in 1927, when 2,170 patients were admitted, but last year the number rose to 2,375, and, even so, many hundreds of applicants had to be rejected owing to lack of accommodation. The married women patients numbered 1,952, and single women with their first child 423. It is remarked in the report that the contrast between the "booked" and "emergency" cases is most striking, as in previous years. Among the 2,161 booked cases during 1928 there were only four deaths, a rate of 1.8 per thousand; whereas of the 211 patients admitted as emergency cases fifteen died, the corresponding rate being 71 per thousand. These latter patients were almost always sent into the hospital, at very short notice, owing to their being critically ill and often moribund, while the booked cases were patients who had been receiving care and treatment in the ante-natal department of the hospital for many weeks before their confinement. The importance of this ante-natal care is also notable as regards the children, for, while the infantile death rate in emergency cases was 85.3 per thousand births, it was only 14 per thousand in the booked cases. The hospital midwives attended 1,638 patients in their own homes in the districts of Marylebone, Paddington, Kensington, and Kilburn; this compares with a figure of 1,598 in 1927. For the second year in succession there was no maternal death among these patients, and of the 1,634 infants born alive only fifteen died later, a rate of 9.3 per thousand. All the booked in-patients and the district out-patients attend the ante-natal department at the hospital or at the Kensington District Home; the number of patients so supervised last year was 5,804, and their attendances totalled 15,563. These departments are open to patients other than those who are to be admitted to the wards, or to be attended by the hospital staff in their own homes; increasing use is being made of them by medical practitioners and midwives. The number of attendances at the infant consultation centre continues to grow, and last year reached 4,546, as compared with 4,288 in 1927. A special fund is being raised to enable any patient who so desires to have an anaesthetic during her confinement.

Antidiphtheria Immunization in Holborn.

In the annual report of the medical officer of health for the metropolitan borough of Holborn for the year 1928, a strong plea is voiced for the wider employment of the Schick test and immunization against diphtheria, based on the successful work which has been carried on in this borough since 1922. Routine inquiries are invariably made as to the effect of the testing and inoculation on each individual, and it is reported that no disturbance caused was other than negligible. Toxoid antitoxin was employed in order to avoid the risk of improperly made toxin antitoxin. Tables are given showing the results of the Schick tests during the seven years, and also the effects of diphtheria immunization. Dr. Hutt remarks that, owing to the increased confidence of the public in this procedure, it is no longer found necessary to test children under the age of 5, and immunization is at once performed. Of 619 children who were retested seventy were found to be still Schick positive after three inoculations with toxoid antitoxin, and eleven after flocculated toxin antitoxin; the latter has been discontinued for the time being. Up to the end of 1928 only eight cases of diphtheria had occurred in children who had been found positive to the Schick test, and had been treated with three immunizing injections. Dr. Hutt insists that an attempt should be made to immunize all infants as soon as possible after they reach the age of six months; half the number of deaths from diphtheria occur before school age. He adds that in this country immunization on these lines has proved its worth as a means of preventing diphtheria in hospital nurses, and in stamping out the infection in institutions where the disease has been present for a considerable time and has given rise to case after case. Dr. Hutt also calls attention to the danger resulting in the uncontrolled sale of chlorodyne, several preparations of which are on the market and are easily obtainable. He remarks that, since morphine in this form can be bought easily and taken in sufficiently large doses by the general public so as to endanger life, drastic regulations should be made for its use.

Scotland.

Quarterly Vital Statistics of Scotland.

DURING the second quarter of the year 1929 the Scottish birth rate was 20 per thousand; this compares with a rate of 17.2 in England and Wales during the same period. The death rate was 13 per thousand, which is 8.9 less than that of the previous quarter, during which there was a considerable epidemic of influenza; the corresponding rate in England and Wales was 12.1 per thousand. Deaths from violent causes included 145 attributed to accidents with motor vehicles, which number is 16 more than in the previous quarter and 27 more than in the second quarter of last year. The infantile mortality rate was 76 per thousand births, as against 128 in the first quarter of the year; in England and Wales the infantile mortality rate was 62 for the quarter ending June 30th.

New Home for Cripple Children in Edinburgh.

Challenger Lodge, a fine old mansion house, overlooking the Firth of Forth, at Boswall Road, Granton, has been acquired by the Edinburgh Cripple and Invalid Children's Aid Society, the cost of purchase having been covered by an anonymous gift. The house, which was formerly the residence of the late Sir John Murray, the eminent geographer and naturalist, of the *Challenger* expedition fame, and which has served recently as a home for some fifty children of ex-service men under the United Services Fund, is beautifully situated in spacious grounds, and is well adapted for the purpose to which it is to be put. Entry to it will mark a notable expansion of ameliorative endeavour on the part of the society, which for over a quarter of a century has worked unobtrusively and efficiently to advance the claims of the cripple child in Edinburgh and district. The management of the residential home is only one of its activities; another is to supervise and to find employment for cripples who have spent some time in the home, and have left to try to make their own way in the world.

Montrose Royal Asylum.

In his report for the year ending May 14th Dr. C. J. Shaw, superintendent of the Royal Asylum of Montrose, states that the number of patients on the register at the end of the statistical year was 745, exclusive of 44 voluntary boarders; of the total, 240 were private patients. There were 162 admissions during the year; 95 patients were discharged, and 88 died. Twenty-nine were readmissions; two of these had been absent for over twenty-five years. Dr. Shaw regrets that no definite provision has been made in the Local Government (Scotland) Act for the admission of voluntary pauper patients, but hopes that all the new authorities set up under the Act will follow the enlightened policy of many of their predecessors, so that the practice becomes general. Recent additions and alterations included the erection of a new laundry, replacement of the old method of heating the hospital by a modern hot-water circulation, renewal of the cooking appliances, installation of a high-speed electric generator, and the construction of a new reservoir. Under the scheme instituted by the Carnegie United Kingdom Trust, a branch of the county library had been installed in the hospital; a large and varied assortment of books was provided and regularly renewed. A profit of over £900 had been made on the farm and garden during the year.

Control of Dangerous Mental Defectives.

In the course of a speech thanking the corporation of Glasgow for the hospitality shown to Lord Mackay and himself during the recent sitting of the High Court of Justiciary in the city, the Lord Justice Clerk (Lord Alness) raised the question of whether the existing machinery was adequate in preventing dangerous mental defectives being at large in the community. His lordship remarked that he was led to raise the point by the impression left on his mind by one of the two murder charges tried before the court on that occasion. The accused, who was found to be of unsound mind and unfit to plead, had apparently been going about the world in that mental state since his discharge from an institution some considerable time previously, with the result that he shot a young woman dead and attempted also to shoot a man. The case, to his lordship's mind, disclosed a rather disquieting state of affairs, and he suggested that the whole matter of the control and segregation of mental defectives required further investigation and consideration by the appropriate authorities, with a view to seeing whether some machinery could not be devised which might tend to prevent the recurrence of such deplorable accidents.

Ireland.

Proposed Village Settlement for Dublin.

A PROPOSAL is under consideration for the establishment of a village settlement in connexion with Peamount Sanatorium, Dublin, and, consequently, a large audience listened with keen interest recently to a lantern lecture in this sanatorium by Dr. P. C. Varrier-Jones, who is director of the Papworth Village Settlement in England. Sir Conway Dwyer, M.D., presided. Dr. Varrier-Jones said that his objective was the lifting up in the social scale of those suffering from tuberculosis, and who were slipping downwards. When he was a tuberculosis officer he saw many men and women stricken down with the disease; he used to examine them and send them to sanatoriums. They came back after three or six months very much better; their coughs had disappeared, and they had gained weight. But then the question arose about their occupation. A few had sympathetic employers, who were willing to take them back and give them an opportunity of going on with their work. The light, open-air job was a myth, and every medical practitioner who recommended such employment for a consumptive knew that it was useless for him unless he was content with light wages at the end of the week. They had to decide what they could do with the great number of people of that kind, and the suggestion he had to make would not, perhaps, be a national remedy. But, as regards the individual, they had to find a solution that would raise him up and make him a healthy, self-supporting citizen. Tuberculosis was essentially an economic problem. The man who had a good balance in the bank, and could go to Africa or South America, or elsewhere, was not faced with the severe economic difficulty which faced the working man when he returned from an institution. Could they make it possible for the ordinary individual to have a little bank balance after his treatment? The answer was that it could be done if that man was enabled to earn his living in sheltered institutions. The pace at which people had to work at present in industry was too great. It was an age of machinery, and men had to work to keep pace with machinery. It was necessary to reduce that pace, so that the damaged lung could function in the damaged body. When they put a man in a position to earn his money without injury to the damaged organ they were lifting him up. The man was faced with two enormous adverse factors at present—namely, the employer and the fellow worker. A consumptive could earn his own wage, but he could not earn enough to cover the overhead charges which were necessary to keep the whole business going. If an environment could be created so that the overhead charges could be paid by somebody else the consumptive could earn his own living, have his own house, and be a free man. If his family grew up free from disease, then the vicious circle had been cut as it never had been cut before. Village settlements had been started in Germany, Holland, France, and New South Wales, and they were coming into existence in the United States. Dr. Varrier-Jones expressed the hope that Ireland would take up the project with enthusiasm. He then showed a large number of lantern slides of the Papworth Village Settlement, illustrating the houses for the residents, carpenters' shops, cabinet-making factories, handbag factories, and printing shops. He added that men

and women were being employed there under ideal conditions, and the products of their labour were sold to firms in London and elsewhere. Trade union wages were paid, and the inhabitants of this model village lived healthy, prosperous, and happy lives. Sir Conway Dwyer conveyed the thanks of the audience to the lecturer. It is announced that a committee has been formed to perpetuate the memory of Sir William Thompson, M.D., and that the memorial would take the form of a settlement in connexion with the Peamount Sanatorium.

Wexford County Health Board.

At a recent meeting of the Wexford County Health Board a letter was read from Dr. E. Connolly on behalf of the Wexford Poor Law medical officers. Dr. Connolly stated that he had been instructed to inform the board that the doctors were determined not to accept a fee less than £6 6s. for temporary duty. With regard to substitutes, he added, a doctor going on leave was bound by the regulations to nominate his substitute; it was not clear, therefore, how the employment of a doctor other than his nominee entered into the case. After discussion the board decided to fix the weekly remuneration at five guineas. A letter was also read from the Department of Local Government and Public Health stating that the board had decided not to provide accommodation for married cases of maternity at the County Hospital, and with reference thereto it was the Minister's view that accommodation at the hospital for this class was absolutely necessary and should be provided. The Department pointed out that the former operating theatre in the old workhouse infirmary would make an ideal ward for the purpose, and that there were also wards on either side of it which could, with very little expenditure, be rendered quite suitable for accommodating the patients. In these circumstances the board was requested to provide the accommodation in question, but after discussion it was decided to postpone the question for twelve months.

Correspondence.

THE PROBLEM OF THE UNFIT.

SIR,—Your reference to this subject on August 17th (p. 318) comes very opportunely. Without entering into any detailed comment on the article by Dr. K. B. Aikman to which it refers, I think there is no doubt as to the accuracy of his main thesis: and this, with the consequences which inevitably follow, cannot be too widely known.

The essential fact is that for the past two generations the nation has been breeding relatively more and more from its dregs and less from its cream. In other words, the steady fall in the birth rate which has taken place during this time has not involved all sections of society to the same extent. It has been, relatively, considerably greater among the more intellectual, capable, and socially efficient members of the community than it has among the intellectual dullards, the least capable, and the social inefficients. It needed little prevision on the part of those who were aware of this fact for them to realize that it could only have one *result—namely*, a gradual deterioration of the nation's fitness and efficiency. As a matter of fact, the danger of this has been pointed out in previous years by many persons, and I have myself drawn attention to it on numerous occasions during the past twenty-five years. But the process of deterioration has been so gradual as to be practically imperceptible during the lifetime of any individual, and this, together with the lack of any sufficient statistical evidence, has caused these warnings to pass unheeded and to be merely voices crying in the wilderness.

During the past few years, however, evidence has gradually accumulated showing that what was foretold is actually happening. Thus, statistics derived from the medical inspection of school children show that at least one-sixth of the children of school age are so physically or mentally defective or diseased as to be unable to derive reasonable benefit from the ordinary form of education which the State provides. Further, that there are no fewer than 600,000 backward children in the country, and that these add 50,000 recruits to our industrial army every year who are not only unprepared, by mental retardation, to meet effectually the demands of full life, but who furnish society with the bulk of its inefficient adults—criminals, paupers, mendicants, and unemployables. National health insurance statistics show that in one year—that is, 1923—the amount of sickness in England and Wales was equivalent to the total loss of 20½ million weeks' work. This was sufficiently serious; but in the year 1927 the amount of this sickness equalled a loss of over 26½ million weeks' work. The examination of approximately 2½ million men of military age during the year 1918, who were considered to be a fair sample of the manhood of the country, showed that only one-third could be regarded as perfectly fit and healthy. Lastly, the recent investigations made by Dr. Lewis for the Joint Mental Deficiency Committee show that, whereas in 1906 the number of mental defectives as ascertained by the Royal Commission was 4.6 per 1,000 population, corresponding to a total of 150,000 in England and Wales, in 1926 they amounted to at least 8 per 1,000, equivalent to a total of 314,000. No doubt some of this increase is due to a more complete ascertainment, but it is impossible to resist the conclusion that the proportion of mental defectives to the general population is greater than it was a generation ago.

In view of these figures, derived from such widely different sources, but all pointing to the same conclusion, it is not unreasonable—indeed, it is surely of vital importance—to ask how it comes about that after fifty years of modern preventive medicine, after the expenditure of many million pounds upon health services, and after the undoubted improvements which have been effected in feeding, housing, conditions of work, and environment generally, all the indications point to a deterioration rather than to an improvement in the mental and physical health of the nation. The answer seems to me to be plain. These qualities are the resultant of two factors—namely, inheritance and environment. In the past our efforts have been directed solely towards the latter, and we have paid absolutely no attention to the question of inborn qualities, *in spite of the fact that these are probably of far more* importance. In other words, notwithstanding our alleged advances in scientific outlook and method, we have been, and still are, quite content to treat symptoms as they arise, and to ignore the disease of which they are merely the manifestation. Personally, I am convinced that so long as we are satisfied to adopt this partial and illogical attitude, so-called "preventive" medicine will do no more than continue to lop off a few dead and dying branches from the tree of life. It will certainly fail to improve the vigour of that tree, and to prevent its deterioration. There is, therefore, at the present day urgent need for an inquiry into the inborn factors which are responsible for ill health and inefficiency, together with the means by which their origin and transmission may be prevented.

It is clear, however, that an investigation of such a complex matter will be far more likely to be successful if it is restricted to some definite and important disease. Such a condition exists in disease of mind. It is now recognized that mental disease, and particularly mental defect, is not only in itself of extreme social importance, but that it stands in very close relation to many other forms of physical and social inefficiency. It may, indeed, be said to constitute an indicator of such inefficiency. For these reasons it is a pre-eminently suitable subject for such an inquiry, and I have no doubt that a full investigation of the causes of, and methods of preventing, mental disease and defect would not only throw important light upon this particular subject, but would also add greatly to our knowledge of the genesis and prevention of disease in general. Since it is to our profession that the health of the nation, both present and future, is entrusted, and the country rightly looks to it for guidance on such matters, it seems to me to be plainly our duty to draw public attention to this question, and to urge upon the Government the need for such an inquiry. I may add that quite recently the Central Association for Mental Welfare and the Royal Medico-Psychological Association have forwarded to the

Government resolutions pressing for such an investigation. But the matter is too large and too serious to be left to special societies; it is one which should receive the support of the whole medical profession.—I am, etc.,

London, W.1, Aug 26th. A. F. TREDGOLD.

ANTE-NATAL CLINICS.

SIR,—The leading article on this subject on August 17th (p. 315) will attract widespread attention. The warning given to the profession that it may lose control of obstetrics is timely, as the ultimate possibilities of these centres have not been fully appreciated by the doctors in whose districts they have been established. Properly run, ante-natal centres have more than a propaganda value, certainly in industrial areas. In a paper published in your columns on April 13th (p. 691) I suggested that in such areas centres should be placed at the disposal of doctors for the examination of their patients, and where the routine supervision (urine testing and so on) would be carried out for them by the nurse in charge. The present method of running centres has three obvious defects.

1. Many centres are mixed up with "*mothercraft*" and child welfare. The clear-cut entity of ante-natal care, as understood in hospital and private practice, is apt to be lost in the confusion.

2. In many instances there is *no justification* for the officer in charge to come into a district and see patients who will be under the care of the local doctors or midwives. These last should send their cases to be seen by the doctors who will be called in by them in cases of emergency. The position is aggravated if the officer in question, as is frequently the case, has little or no obstetric experience. Even a specialist so employed should not be doing the routine work of doctors, but should be acting in a consultative capacity.

3. The public are led to believe that ante-natal care is a discovery, and something about which their own doctors know nothing. They, and the midwives, tend to short-circuit the local doctors, which will be to the ultimate detriment of obstetrics.

Realizing these points, my colleagues Professor Ranken Lyle and Mr. Harvey Evers and I have agreed on a policy which we hope to see in actual operation in two areas in the near future, and which appears to us to be the soundest method to adopt in the development of these clinics.

In the areas in question there will be a centre at which, at monthly intervals, one or other of us will attend for consultative purposes, but at the outset to start the centre. The local doctors have been approached, and those who wish to take part will have their names, with their days and hours of attendance, notified at the centres. Their attendance will be in couples on days during the week following our monthly visit, but later will almost certainly be at weekly intervals.

Routine cases seen by us will be referred to their own doctors on their days of attendance, and midwives' patients will be encouraged to see the doctors who would have been called in if necessary. The doctors in attendance at the centre will be able to send cases on which they wish to have a second opinion to us on our day of attendance. In these areas the local authorities are arranging to provide expert assistance in ante-, intra-, and post-partum problems for those patients who cannot afford a private consultation. There is also to be a close association between the clinic and the Princess Mary Maternity Hospital. Special post-graduate instruction in ante-natal care is being arranged by the medical school authorities for those doctors who wish to have a refresher course.

Such centres will have a propaganda value, but it is a vital part of our policy that the raising of the standard of obstetrics in this country can only be effected by strengthening the position and giving every possible assistance to those members of the profession who have to bear the brunt of this highly responsible and often most arduous work.—I am, etc.,

Newcastle-upon-Tyne, Aug. 26th. E. FARQUHAR MURRAY.

THE NEW VACCINATION ORDER.

SIR,—The Ministry of Health's circular to which attention was called on August 24th (p. 371) was issued with a view to lessening the occurrence of "post-vaccinal nervous disease," and is now in the hands of public vaccinators. The general idea seems to be not to make the vaccination too successful; to propose one linear insertion instead of four scraped surfaces. Timid mothers have often asked me whether one or at most two places would not be enough. To them I reply: "If you use the same amount of lymph in one place only, the reaction at that place will be more than if it is spread over four places. Would you sooner have four pimples or one big boil? Again, one or two places may not take, but out of four probably one or two will take. It may save doing it all over again." This argument usually overcomes the mother's objections. Now the Ministry is adopting the attitude of the timid young mother. It seems to me a halting attitude; if vaccination is desirable it should be made as effective as possible.

Importance is attached to the production of a minimum of trauma. Infants seldom develop enlarged axillary glands, but adolescents do so in a larger proportion, whether primary or revaccination is performed. I have always considered this as due to the impossibility of sterilizing the adult skin without sterilizing the lymph. We know that during a long operation the deeper layers of epidermis working to the surface are found not to be sterile. The enlarged glands seem to denote the circulation of some material, septic in nature, other than the filter-passing bodies in lymph. The circulation of this may activate the meningeal germs which have been lying quiescent, perhaps in adenoid tissue in some part of the body. The amount of trauma induced by cross-hatching seems to me unimportant in the sterile skin of infants.

On the financial side further duties are imposed on the public vaccinator, but nothing is said of increased remuneration. At present the fee I am entitled to for vaccinating at my house is 2s. 6d. for two visits—1s. 3d. a visit for incurring very considerable responsibility. The scandal of public vaccinators not being regarded as servants of the Ministry—and therefore not being pensionable—remains.—I am, etc.,

Bournemouth, Aug. 25th. GEORGE MAHOMED, Public Vaccinator.

SIR,—With reference to the new Vaccination Order, the most successful vaccinations I ever witnessed were performed by a former colleague of mine, the late Arthur Caesar, who was public vaccinator for the Eastern District of Mile End Old Town. With the lower part of the cutting edge of a broad spear-headed lancet, held almost flat to the skin, by a gentle incising movement he slightly lifted the epidermis, forming, as it were, a valve shutting in the lymph. He never scratched with the point, scarcely drew blood, was nearly always successful, and very little inflammation followed the operation.—I am, etc.,

Teddington, Aug. 27th. FREDERICK WILLIAM ALEXANDER, Late Public Vaccinator, Western District, Hamlet of Mile End Old Town; formerly M.O.H., Metropolitan Borough of Poplar.

ACUTE ANTERIOR POLIOMYELITIS.

SIR,—Mr. Whitchurch Howell's letter on the above subject on August 17th (p. 323) is opportune in view of the increased prevalence of acute cases of the disease at this time of the year. Ignorance of the vital necessity of efficient early treatment of the paralysed muscles is, however, so general that I wish Mr. Howell had given more detailed information about the steps to be taken. The services of an orthopaedist are not everywhere available, and the practitioner is apt, moreover, on meeting with an acute case, to turn for advice to medical rather than to orthopaedic writings. In books on orthopaedics the necessity for splintage of the affected parts so as to rest the paralysed muscles from the moment of onset, and the positive danger of massage and electrical treatment in the early stage, are emphasized; but in medical works the

practitioner finds either no mention of local treatment at this stage or vague advice as to massage and "electricity." The general treatment advised—hexamine by the mouth and convalescent serum intramuscularly or intrathecally—is still more or less experimental. The results of serum treatment are encouraging, but serum appears to be chiefly valuable in the pre-paralytic stage, and, except in epidemics, is not likely to be available. Efficient local treatment is, therefore, at present the first consideration.

Except in cases with severe fever, in which some delay is justifiable, local treatment should commence as soon as the paralysis is manifested. Massage, and active, passive, and electrically stimulated movements at this stage are painful and harmful, rather than beneficial. Treatment consists, therefore, of rest and prevention of stretching of the paralysed muscles and prevention of deformity. These objects are attained by splintage, the principle of which is relaxation of the paralysed muscles. When a single muscle or group is affected the position of fixation is that in which the muscle or group is fully relaxed: thus in paralysis of the anterior tibial group the foot is fully dorsiflexed. If antagonists or all the muscles around a joint are affected the joint is fixed in the "neutral" position, or else in that position which protects the most important group of muscles. Thus the foot is dorsiflexed to a right angle; the knee extended but not hyperextended; the hip in neutral rotation, slightly abducted and extended but not hyperextended; the spine straight and hyperextended; the shoulder abducted to a right angle and externally rotated; the elbow flexed to 90 degrees; the forearm supinated; the wrist dorsiflexed; and the fingers straight. The position is best maintained by plaster-of-Paris, applied with the aid of an anaesthetic if necessary. In the absence of facilities for application of plaster, recourse may be made to splints of metal or other material. Plaster has the advantages of imposing absolute immobility and of needing little attention.

Immobilization should continue for two months. So long a period as this may not be necessary in every case, but it is a good general rule in view of the danger of too early movement. There is no risk of ankylosis of joints or hopeless atrophy of muscles. At the end of two months the plaster should be removed, and the parts examined clinically and by faradic and galvanic stimulation to determine the extent of the residual paralysis. Not infrequently there is a surprising amount of recovery. Active movements, massage, faradic and galvanic stimulation, and other measures aiming at the return of power and improvement of the nutrition of the affected parts may now be commenced. Splintage should be continued, and apparatus to prevent deformity and protect the recovering muscles may need to be ordered. By this time, however, arrangements will probably have been made for expert attention to the case. My purpose here is merely to describe the immediate local treatment of an acute case, and to emphasize its importance.—I am, etc.,

Bournemouth, Aug. 24th. N. ROSS SMITH, F.R.C.S.

TONSILS AND ADENOIDS IN HOSPITAL PRACTICE.

SIR,—The necessarily condensed report of the discussion, and consequent telescoping of two of my sentences, has given Dr. R. R. Simpson (August 24th, p. 368) a somewhat erroneous impression of what I said at the meeting of the Section of Diseases of Children at Manchester. It is one of the glories of British surgery that the poorest hospital patient has resources placed freely at his disposal which can be obtained by comparatively few private patients, and that at great expense. The team work during the recent illness of the King has evoked the admiration and, indeed, the envy of the world; but every doctor in this country knows that a team almost equal in numbers and in skill is available at most general hospitals for the poorest patient.

What I called at Manchester "a disgrace to British surgery" is the fact that there is to-day one operation—the removal of tonsils and adenoids in children—in which hospital patients are treated very much worse than private patients. I confess that when I was formerly in charge of an out-patient clinic for tonsil and adenoid operations it used to lie heavily on my conscience that those children on whom I had operated would be sent back in an hour or two to their poor and often crowded homes, usually on an omnibus. It is true that only young children were operated upon; they were inspected before they left the hospital; next day they were visited by a nurse; and it is also true that serious complications were rare; nevertheless, our private patients are treated very differently. I used to salve my conscience, as Dr. Simpson does, by reminding myself that the operations were necessary, beds were not available, and that it was probably better to treat them in this way than not at all.

I insisted at Manchester that the time had now come when we surgeons, who have the duty of performing these operations, ought to compel hospital authorities and local authorities, who require the operations to be done, to provide proper accommodation for these children. That accommodation need not be elaborate: the children require comparatively little in the way of food or nursing, but they do require beds, or a least couches, to lie upon, and a roof to lie under, for a minimum of forty-eight hours. The resolution which I drafted and which was unanimously adopted at Manchester expresses this sufficiently plainly; but similar resolutions have been passed before without much effect.

I regret all the more, therefore, that Dr. Simpson should argue in favour of the present state of affairs. My whole point is that if he and others similarly situated will insist that these operations on children should no longer be treated as out-patient operations, the hospital and local authorities must provide the proper accommodation. In the old tonsillotomy days (before 1910) it did not matter so much, for tonsillotomy was not much worse than a tooth extraction; and the institution of these out-patient clinics dates from this period. But the modern operative procedure of complete enucleation of the tonsils and removal of adenoids is a very different affair, and I think that surgeons in charge of hospital and school clinics should present a united front on the matter.—I am, etc.,

London, W., Aug. 25th. R. SCOTT STEVENSON.

PREVENTION OF TUBERCULOSIS OF BOVINE ORIGIN.

SIR,—In the *Journal* of August 24th (p. 366) Dr. Frank Bodman makes the following statements.

"1. That the elimination of tuberculous animals from dairy herds is impracticable.

"2. That in spite of recent preventive measures (13,800 cows were slaughtered in 1928), there is still a widespread infection of the milk supply with tubercle bacilli in some areas.

"3. That such infection, rather than decreasing, is slightly increasing.

"4. That probably nearly 2,000 infants die of bovine tuberculosis each year, and that several millions sterling are expended annually in the treatment, convalescence, and after-care of the survivors."

At a meeting of the Guildford Division of the British Medical Association in 1927, Dr. Nathan Raw stated that in several large American towns all milk was pasteurized. In these towns bovine tuberculosis was unknown, and, in order to teach the students at the medical schools, cases of bovine tuberculosis had to be imported from the parts of the country where the milk was still not pasteurized.

In 1898, my father, at that time principal medical officer of the Local Government Board, when delivering the Harben Lectures before the Royal Institute of Public Health on the "administrative control of tuberculosis," stated: "I cannot take upon myself the responsibility, when speaking of the relation of milk to human tuberculosis, to pass over in silence a means of absolute and certain prevention which every householder has at his or her own disposal—I refer to the boiling, sterilizing, or 'pasteurizing' of milk."

The Royal Commission in 1890 reported as follows: "The most deadly tuberculous material can be rendered absolutely innocuous, in so far as any spreading of infective disease is concerned, by the action of a temperature at which water boils." "It is sufficient to state that boiling

for an instant even renders the tubercle bacillus absolutely innocuous."

Yet the years go by, and the general practitioner is constantly faced with the toll of disease and death caused by bovine tuberculosis. Is it surprising that we medical men wonder why action is not taken by the Ministry of Health to stop this deplorable condition of affairs? One cannot help saying with the late King Edward, "If preventable, why not prevented?" Is it possible that we think more of vitamins than of the health and life of the children?—I am, etc.,

London, W., Aug. 26th. RICHARD THORNE THORNE.

X-RAY DEPARTMENT DANGERS.

SIR,—In your issue of August 17th (p. 317) there is a reference to the danger of valve tubes of *x*-ray apparatus themselves emitting *x* rays, as though this were a new fact. I believe I was the first to mention this danger in vol. 3, p. 126, of my *Theory and Practice of Radiology* quite eighteen months ago, before any valve *x*-ray apparatus was manufactured in England, and when using the first example of this apparatus installed in England for private practice.

The emission of *x* rays by such an apparatus shows that it is being operated without adequate knowledge of thermionic valve theory, since, if the filament has an adequate electron emission, the voltage drop across the valve tube is only about 1,000 volts or less, and much less than that which can excite any *x* rays able to pass through the glass envelope. It is only when the valve tube is wrongly operated at too low a filament value that, space charge being decreased, the electrons are able to obtain sufficient velocities (owing to the larger voltage drop) to excite penetrating *x* rays, and in this case not only is the valve tube at fault, but the *x*-ray tube itself is then affected, as the available applied voltage is then less than by correct operation. That such effects can occur by misuse is another argument to show the mere possession of an *x*-ray apparatus does not constitute a radiologist.

Your suggestion that the valve apparatus should be placed in a separate room immediately robs this type of machine of its only advantage—namely, noiselessness. While valve apparatus looks pretty and is at present the mode, it has no advantage, other than noiselessness, over the older mechanical rectifier, which is simpler to operate, more reliable, and cheaper to maintain, has no expensive valves, and gives a more efficient spectral emission of *x* rays. The mechanical rectifier, if placed in a separate room, has all the benefits of noiselessness, and, copying German installations, I did this in England at the East London Hospital some years ago.

I would take this opportunity to point out a danger in the *x*-ray department which has not yet been appreciated by the protection committees. At a fairly large hospital recently built near London, I am informed that the most conspicuous *x*-ray feature is the lead-lined walls, floors, and roofs. This hospital's installation has, I believe, complied with all the National Physical Laboratory's requirements. It has, however, apparently not been recognized that, in the event of fire, molten lead is very disconcerting, to say the least. If lead were the only protective material there would be some excuse for its use, but since Kampe and Lorey introduced barium sulphate as an *x*-ray building material, Barclay has used barium plaster with success at Manchester, and I have introduced it as concrete with steel reinforcement for large structures at the East London Hospital. Still more recently it was employed at Edinburgh. With protective power dependent on mass, barium cement is about £6 per ton as compared to sheet lead at £60 to £80 per ton. At Victoria Park the architect's estimate for lining the *x*-ray room with lead at £300 to £400 (based on the recently built hospital already mentioned) was, at my suggestion, reduced to an outlay of perhaps £30 to £40 by use of barium plaster. With this plaster there is no danger of metallic short circuit of higher tension leads and possible injury or of static effects due to condenser action of sheet lead; while, in case of fire, the material is incombustible, whereas lead is rendered molten and very dangerous.—I am, etc.,

Forest Gate, E., Aug. 18th. BERNARD LEGGETT.

TROPICAL DIETARIES.

SIR,—I have been making some investigations into the subject of tropical dietaries, and wish to gain as much information as possible with regard to the following points:

1. What is considered an optimum calorie value for various classes of labour in the tropics?
2. The proportion of proteins, carbohydrates, and fats in such a dietary.
3. The analysis of local foodstuffs.
4. The vitamin content of dietaries in use, especially with regard to vitamins A and D.
5. The presence, if any, of diseases due to avitaminosis among peoples on the dietaries named.

I should be grateful for any information you or your readers can give me on these lines with regard to dietaries in use in hospitals and prisons in their territory.—I am, etc.,

J. NEIL LEITCH,
Government Pathologist, Sierra Leone, West Africa.

Freetown, Aug. 6th.

MEDICAL WOMEN AND THE BOARD OF CONTROL.

SIR,—It may be of interest to the members of the British Medical Association who have read the recent correspondence in your columns under the heading "Medical Women and the Board of Control" (August 10th and 17th) to know that this subject is one on which the Medical Women's Federation holds definite views, and on which it has made an official pronouncement. The following is a brief summary of the evidence which was submitted on behalf of the Federation to the Royal Commission on Lunacy in January, 1925.

"The Medical Women's Federation submitted that at least one of the members of the Board of Control should be a fully qualified medical woman with previous experience in the care and treatment of mental disease. The advantages from the point of view of the patient, the public, and the Board of Control were summarized, and the fact emphasized that there is a greater number of females than males amongst mental cases, and that for this reason the opportunity of consulting a medical woman should be provided. It is not the question of providing medical women for all the women patients, but of having one available on the Board of Control to advise on those special cases which constantly occur amongst women of all ages under its jurisdiction.

"There is undoubtedly a demand by the relatives of the insane for a medical woman's advice, more particularly in cases of puberty and adolescence and at the climacteric.

"Other departments of the Ministry of Health have accepted the principle that medical women are desirable, and it is felt that there is at least as great a necessity among patients suffering from all forms of mental diseases. The fact that there are already two women Commissioners does not affect the point at issue.

"The desire is to have a woman as well qualified as her male colleague, appointed to sit on the board, in addition to any and all of its present members. Even if more than one medical woman were appointed, there would not be an undue representation of women on the Board."

—I am, etc.,

VIOLET KELYNACK,
Medical Secretary, Medical Women's Federation.

London, W.1, Aug. 26th.

FEES FOR ATTENDANCE ON DIFFICULT LABOUR.

SIR,—May I point out some of the anomalies in fees allowed to practitioners sent for by midwives? If the doctor is present at the crucial moment of parturition two guineas are allowed, and another guinea if he can get a second doctor to give a slight anaesthetic. He is entitled to this fee even if he does not pay another visit. For the combined services of arresting post-partum haemorrhage, suturing the perineum, and attendance on the mother for sepsis and the child for ophthalmia, dermatitis, etc., for the first ten days one guinea only is allowed, even though he may have to pay two or three visits a day. If there was no haemorrhage or ruptured perineum to attend to in the beginning, then a fee of 5s. a visit, or 10s. at night, is allowed for any slight ailment of mother or child, and for ten days a minimum fee of £2 10s. can be claimed for a daily visit. I fail to see the logic of this scale of fees.—I am, etc.,

M. P. K. MENON, M.B.

London, N.9, Aug. 23th.

Obituary.

FLETCHER BEACH, M.B., F.R.C.P.,

Consulting Physician, Society for Promoting the Welfare of the Feeble-minded.

WE regret to record the death, on August 18th, at the ripe age of 84, of Dr. Fletcher Beach, consulting physician to the West End Hospital for Nervous Diseases.

Fletcher Beach was born at Bridport, Dorset, on March 9th, 1845, and from Dorchester Grammar School went to study medicine at King's College, London. After obtaining the diploma of M.R.C.S. in 1868, he graduated M.B.Lond. in 1874, and was elected F.R.C.P.Lond. in 1880. Having held several hospital appointments, he was attracted to the study of mental science, and became resident assistant physician to the Bethlem Royal Hospital. Subsequently he was appointed by the Metropolitan Asylums Board to be medical superintendent of its schools for imbecile children at Darenth, which he organized, after a visit to the principal institutions for mental defectives in the United States in 1876. Dr. Beach retained this post for about twenty years, and on his retirement took up consulting practice in London, when he was appointed physician to out-patients at the West End Hospital for Nervous Diseases and physician to the Chalfont Colony for Epileptics. In 1895 he was promoted full physician to the West End Hospital for Nervous Diseases, and senior physician in 1906. When in 1907 he resigned for reasons of health he was elected consulting physician to the hospital, an appointment which he held till the time of his death. He did valuable work as consultant to the National Association for the Feeble-minded, and took a prominent part in the various philanthropic efforts for making suitable provision for mental defectives, which culminated in the passing of the Mental Deficiency Act of 1913. Dr. Beach had previously been a member of the committee of experts, appointed on the motion of the late Dr. Francis in the Section of Psychology of the Annual Meeting of the British Medical Association in Glasgow in 1888, for the scientific study of the mental and physical condition of childhood, which did much to enlist public interest in the need for special instruction and the medical inspection of children in elementary schools. In 1874 he joined the Medico-Psychological Association and took an active part in its proceedings, serving as secretary of its Parliamentary Committee for ten years and as general secretary from 1889 to 1896; he was president of the society in 1900. He was also a corresponding member of the Société de Psychiatrie de Paris and an associate member of the Société de Médicale Psychologique de Paris. On his retirement Fletcher Beach went to live at Coulsdon, Surrey, and in 1914, notwithstanding his advanced age, he joined the staff of the Cane Hill Mental Hospital, Coulsdon, where he worked for the duration of the war.

Dr. Fletcher Beach became a member of the British Medical Association in 1882, and was a frequent attendant at the Branch and Annual General Meetings. He was secretary and vice-president respectively of the Section of Psychology in 1892 and 1894, when the Association held its Annual Meetings at Nottingham and Bristol. He was also a member of the Parliamentary Bills Committee and of the Lunacy Subcommittee thereof. He was president of the Thames Valley Branch in 1901–2. He was often to be seen at the meetings of the International Medical Congress, and possessed a large circle of American and Continental medical friends, who appreciated his geniality and kindness of heart. To his love of foreign travel he added a zest for Alpine climbing, an activity which occupied much of his leisure in his earlier days. He was a frequent contributor to our columns in the past. Among his many published writings may be mentioned a succinct treatise on the *Treatment and Education of Mentally Feeble Children* (1895), articles on the pathology and treatment of idiocy and imbecility in Hack Tuke's *Dictionary of Psychological Medicine* (1892), and on the whole subject of idiocy and imbecility, jointly with the late Dr. G. E. Shuttleworth, in Allbutt and Rolleston's *System of Medicine* (1910). He also contributed an article on cretinism to the second edition of Quain's *Dictionary of Medicine*. Numerous papers from his pen have appeared in the *Journal of Mental Science*.

Dr. Beach was twice married. His only son served in the Dardanelles and Palestine campaigns, and was awarded the D.S.O., but succumbed to influenza when recovering from a severe wound sustained in action.

DR. RAPHAEL BELILIOS, who died on June 19th at Shanghai, in his fifty-sixth year, received his medical education at Edinburgh, where he graduated M.B., Ch.B. in 1901; he obtained the diploma F.R.C.S.Ed. in 1903, and proceeded M.D. with honours in 1905, shortly afterwards gaining the diploma of the London School of Tropical Medicine. After a brief period of practice at Muswell Hill, during which he was also engaged in the study of ophthalmology, he went out to Hong-Kong, where he soon built up a large general practice, and was appointed lecturer and examiner in anatomy and physiology in the Hong-Kong School of Medicine. In 1912, having decided to devote himself entirely to ophthalmic surgery, he moved to Shanghai; he was appointed lecturer, and later professor of ophthalmology, in the St. John's University of Shanghai, and ophthalmic surgeon to St. Luke's Hospital. When the British Defence Force arrived at Shanghai in 1927 he was appointed its consulting ophthalmologist, and his work earned the high esteem of his army medical colleagues. At the time of his death he was recognized as one of the leading authorities on diseases of the eye in the Far East. He was a member of the British Medical Association. Dr. Belilios is survived by his wife. In the course of an appreciatory reference, Dr. B. H. S. Aylward, port health officer, Shanghai, writes: The most lovable trait of Raphael Belilios was his boyish enthusiasm, which he retained to the end of his life. He was also the most generous of men, always ready to help a fellow being without criticizing him. It was difficult for him to say a bad word about anybody; if he could not say a good word he preferred to say nothing. I was with him as a student, and he was certainly one of the best of his year. He seemed to relish examinations, and was never satisfied unless he headed the list. On the rare occasions I met him after we were students together at Edinburgh and before he had left England, I made a practice of using him as an encyclopaedia of medicine and surgery; he would often from memory tell me the number of a page in a book where I could find what I wanted, as well as give me the information itself. In Raphael Belilios we have lost a most generous gentleman and a brilliant colleague.

WE regret to report the death of Dr. P. C. WOOLLATT, who was killed in a motor accident while touring in Brittany. Percy Charles Woollatt received his medical education at the London Hospital, Edinburgh, Brussels, and Vienna. He obtained the diplomas M.R.C.S., L.R.C.P. in 1905, graduated M.D.Brussels in 1910, and five years later became F.R.C.S.Ed. The greater part of his professional life until 1920 was spent in Persia, where he held an appointment in connexion with the Indo-European Telegraph Department at Shiraz; in consequence of his outstanding surgical skill he became, early in his career, medical superintendent of the Indian Government Hospital in that town. He was also surgeon to the Imperial Hospital, Teheran. His surgical ability secured for him great popularity, which served him well when the Bolshevist invasion necessitated the withdrawal of English residents in Persia. During the war he held a commission as surgeon in the Royal Navy, and he was also surgeon to the South Persian Rifles while that force existed. In 1920 his health compelled him to retire from his Persian appointments, and he returned to England and carried on a consulting practice in London. His skill in diagnosis and operation won him the high esteem of his colleagues and patients; a certain bluntness of manner failed to conceal a very warm-hearted disposition. He was a member of the British Medical Association.

DR. JAMES DOUGLAS WRIGHT, who recently died after a short illness at the age of 44, received his medical education in Glasgow, and obtained the diplomas L.R.C.P., L.R.C.S. Ed. and the L.R.F.P.S.Glas. in 1912. During the war he held a commission as captain in the Royal Army Medical Corps, and served in France. He then engaged in post-graduate work, and obtained the F.R.F.P.S.Glas. in 1921. He subsequently practised at Wembley Park, where he earned considerable reputation as a physician and for midwifery. A colleague writes: The late Dr. D. Wright was one of the old school of practitioners, who took an immense interest in the welfare of their patients. He was always endeavouring to keep himself thoroughly conversant with modern work, while his wide experience gained for him a reputation in the neighbourhood of Wembley Park. His quiet, kindly manner made him loved and respected, both by his patients and colleagues.

DR. THOMAS WILLIAM BUCKLEY, who died on August 8th, aged 70, received his medical education at St. Thomas's Hospital and Owens College; he obtained the diploma L.S.A. in 1882 and the M.R.C.S.Eng. in 1883, graduating M.D.Durham in 1900. He acted for a time as assistant to his uncle, Dr. Thomas Morton, and was assistant house-surgeon at the Staffordshire County Infirmary and surgeon on one of the vessels of the Ocean Steamship Company. While holding the last appointment he made his only written contribution to medical literature: "Novel method of delivery at sea" (*British Medical Journal*, 1885, vol. ii, p. 344). In 1888 he bought a practice at Thrapston, Northants, and in partnership with the late Dr. J. W. Gainer worked over a huge rural district for twenty years. He was the local medical officer of health, and a J.P. for Northamptonshire. On the outbreak of war he immediately volunteered for service abroad. Refused at first on account of age, he received a commission in 1915, and was sent to a military hospital at Shoreham. Promoted major later in 1915, he acted for a year as assistant commandant and officer commanding the R.A.M.C. detachment at Princess Christian Military Hospital, Englefield Green. In 1916 he was appointed to No. 2 Special Medical Board, Caxton Hall, ultimately becoming its president. The work was very heavy, involving visits of inspection to hospitals in and around London and many hours of writing reports, as well as the routine work of the board. He was not demobilized till 1919, and never fully recovered from the strain of those years. He spent the rest of his life very quietly in the little village of Clopton, a few miles from the centre of his practice, happy with his books and the interests of country life. Very modest about his own attainments, which were considerable, he had a keen sense of humour, and could tell many interesting stories of his experiences. He leaves a widow, a son, and two daughters, one of the latter being in the medical profession.

DR. REGINALD POMFRET WYLDE, who died on August 17th after a short illness, was born in 1879. He received his medical education at Manchester, and obtained the diploma L.M.S.S.A.Lond. in 1910. He had conducted a medical practice in Hollingworth, Cheshire, for the last nineteen years, during four of which he assisted his late uncle, Dr. Pomfret, to whose practice he succeeded. Dr. Wylde held the appointments of medical officer of health of Hollingworth and medical officer and public vaccinator for the eighth division of the Ashton-under-Lyne Union. His funeral service on August 19th was held at Tintwistle parish church; it was attended by members of the public bodies with which he had been associated, and by his medical colleagues, by whom he was held in high esteem. Dr. Wylde was a member of the Glossop Division of the Lancashire and Cheshire Branch of the British Medical Association.

The following well-known foreign medical men have recently died: Professor DOMINIK PUPOVAC, an eminent Vienna surgeon, of relapsing pneumonia; Professor CARLO FRANCIONI, director of the paediatric clinic of Bologna; Dr. LEVY-DORN, one of the pioneers of roentgenology in Germany, and until recently director of the Roentgen Institute of the [illegible]; Dr. PAUL SOBOTKA, a Prague dermatologist; Dr. CHARLES MOREU, member of the Académie de Médecine, professor at the Collège de France, and grand officer of the Légion of Honour; Geheimrat OTTO BINSWANGER, formerly professor of neurology at Jena; Professor P. FLECHSIG, the Leipzig psychiatrist, aged 82; Dr. JOSEF SZABO, professor of neurology and psychiatry at Szeged (Hungary); Professor CARL HUETER of Marburg University, aged 68; Dr. HENRI REYNÈS, professor at the medical school of Marseilles; and Dr. NAFIZ PASHA, emeritus professor at Constantinople, the oldest physician in Turkey, and author of the first Turkish textbook on general pathology, aged 91.

THE LATE SIR THOMAS SMARTT.

SURGEON CAPTAIN H. B. BEATTY, R.N.(ret.), writes: In the *Journal* of June 22nd (p. 1138) its South African correspondent, writing appreciatively of the late Sir Thomas Smartt, remarks that it was very difficult to imagine what induced him to take up farming in the arid area around Britstown, and that his contribution to the development of South Africa as a scientific farmer is by some considered to be as valuable as his statesmanship. The explanation is, I think, afforded in a letter written by him to me, now forty years ago, when I was serving in a gunboat on the Cape and West Coast of Africa station. In this letter he invited me to pay him a visit at his home in the Karoo country (an invitation which unfortunately I was unable to accept). He stated that his fees were mostly received in the form of livestock, as the Boer farmers possessed very little actual money. Struck by the advantage that would accrue to him by improving the breed of sheep, he was then procuring, as a beginning, a couple of merino rams from Australia (or Tasmania). He was also corresponding with Australia concerning irrigation systems, a larger and more equable water supply being necessary for successful farming and stock raising in both countries. His actions in the circumstances, more or less forced on him thus early in his life in South Africa, showed the same breadth of outlook that characterized him in his subsequent distinguished career.

Universities and Colleges.

SOCIETY OF APOTHECARIES OF LONDON.

THE following candidates have passed in the subjects indicated:

SUR[illegible] Bhattacharyya, A. Clark, [illegible]es, J. E. Moody, C. Partha[illegible]s.

MID[illegible] Kapur, N. H. Kettlewell, W. McDermott, R. Norris, E. J. O'Loughlin, A. W. Tam.

FORENSIC MEDICINE.—K. C. Bhattacharyya, W. T. Ellis, B. L. Fishout, W. M. Hamer, J. M. Lees, C. A. Munro, E. J. O'Loughlin, S. Ramadas.

MIDWIFERY.—J. Britanischski, R. Gilmore, W. St. A. Hendricks, C. Hortop, J. M. Lees, A. R. Madden, A. Somerville, F. A. Yarde.

The diploma of the Society has been granted to Messrs. B. L. Fishout, N. H. Kettlewell, H. H. Lakin, J. M. Lees, C. Partharsarthe, and A. W. Tam.

Medical News.

SIR JOSIAH STAMP, G.B.E., will deliver the thirteenth Norman Kerr Memorial Lecture before the Society for the Study of Inebriety, on October 8th, at 4 p.m., in the Great Hall of the House of the British Medical Association, his subject being "Alcohol as an economic factor." Each member and associate is free to introduce visitors.

AT the tenth annual lecture conference of the Industrial Welfare Society, which will be held in Oxford from September 13th to 17th, Dame Louise McIlroy will read a paper on the health of women in industry, and Dr. D. A. Coles will discuss health problems in industry.

THE winter session at the Middlesex Hospital Medical School will open on Tuesday, October 1st, when an introductory address, entitled "Life's endless chain," will be delivered at the Queen's Hall, at 3 p.m., by Dr. E. A. Cockayne, after which the prizes and medals gained by students and nurses will be distributed by Mr. S. A. Courtauld. The annual dinner will be held on the evening of the same day at 7.30 p.m., at the Savoy Hotel, when the chair will be taken by Mr. A. E. Webb-Johnson, C.B.E.

A POST-GRADUATE course in methods of examination and diagnosis will be held at the Central London Throat, Nose and Ear Hospital, Gray's Inn Road, W.C.1, on the following afternoons at 1.30: September 23rd, the ear; 25th, the nose; 30th, hearing-tests; October 2nd, the sinuses; 7th, the mouth [illegible]

THE Fellowship of Medicine announces that an all-day course in diseases of the chest will be held at the Brompton Hospital from September 9th to 14th. From September 9th to 22nd there will be a course in diseases of infants at the Infants Hospital. A series of lecture-demonstrations in psychological medicine will be given at the Bethlem Hospital from September 10th to October 5th, on Tuesday and Saturday mornings at 11 a.m. An intensive course in medicine, surgery, and the specialties will be held at the Westminster Hospital from September 16th to 28th, during the mornings and afternoons, open to men only. There will be a cor 'he Prince of Wales's General the North Middlesex Hospital 30th to October 4th. Courses in October include: cardiology at the National Heart Hospital, October 7th to 18th; ophthalmology at the Central London Ophthalmic Hospital, October 7th to November 2nd; tropical medicine at the London School of Tropical Medicine, on Tuesdays and Thursdays from October 8th to 31st; gynaecology at the Chelsea Hospital, October 14th to 26th; diseases of children at the Great Ormond Street Hospital, October 14th to 26th; and diseases of the throat, nose, and ear, at the Central London Throat Hospital from October 14th to November 2nd. The Metropolitan Hospital will hold its first course under the auspices of the Fellowship from October 21st to November 2nd; it will comprise intensive instruction in medicine, surgery, and the specialties, and will be planned particularly for panel practitioners and others. In view of the success of the first M.R.C.P. course arranged by the Fellowship it is proposed to hold another course from October 15th to December 6th; the lectures will be delivered on Tuesdays and Fridays at 8.30 o'clock in the lecture hall of the Medical Society of London, 11, Chandos Street, Cavendish Square, W.1. Detailed syllabuses of the above courses, information regarding the general course arranged by the Fellowship in connection with its associated hospitals, and copies of the Fellowship *Journal* are obtainable from the Secretary of the Fellowship, I, Wimpole Street, W.1.

THE Medical Research Council has received from Mrs. Odo Cross a sum of £40,000 as the endowment of a trust for the establishment of research fellowships in the study of tuberculosis, to be known as the "Dorothy Temple Cross Research Fellowship Fund."

A CONGRESS will be held at Evian-les-Bains on September 14th and 15th, under the presidency of Professor Carnot of Paris. Lectures will be given by Professors Villaret and Lemierre of Paris, Professor Roch of Geneva, Professor Pic of Lyons, and Dr. Halls Dally of London. The congress will be followed by an excursion to Chamonix from September 16th to 18th. Further information can be obtained from the general secretary, Mlle Machuré, Rue de Londres 21, Paris.

THE Garrick Theatre production of *The Lady with a Lamp*—a play with Florence Nightingale as the central figure—is being taken to the principal suburban and provincial theatres before visiting the Dominions overseas.

THE official report of the fifth International Congress of Military Medicine and Pharmacy, which was held in the House of the British Medical Association in May, has now been supplied to those who took part in the proceedings. It contains reprints of the photographs of the members and delegates which were taken on that occasion; some of the papers read are reproduced, and summaries are given of the remainder.

WE are informed that the Deshell Laboratories Limited has changed its name, and is now to be known as the Petrolagar Laboratories Limited. There has been no change in ownership or management.

THE sum of 100,000 francs has been presented by M. Guy Amerongen to the French League against Cancer, with a view to encouraging research into the question whether preserved foods or chemicals have any influence in producing malignant disease. A prize is to be offered each year for an essay on this subject, which must be sent in before October 1st. An international scientific committee has been appointed, Mr. Sampson Handley being the British representative. Further information may be obtained from the League, 2 Avenue Marceau, Paris VIII^{e}.

THE seventh volume of the Guide to Current Official Statistics of the United Kingdom, which has just been published, affords a systematic survey of the statistics appearing in all official publications issued in 1928. Furthermore, in relation to each publication the Guide gives an account of the nature of the statistics therein found, their mode of analysis, and the time and place to which they relate. It is printed and published by H.M. Stationery Office, and costs 1s.

DR. RECASENS, professor of gynaecology and dean of the faculty of medicine, has been elected president of the Academy of Medicine of Madrid and of the Spanish Gynaecological Society.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to ***The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.***

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The ***TELEPHONE NUMBERS*** of the British Medical Association and the *British Medical Journal* are *MUSEUM 9861, 9862, 9863,* and *9864* (internal exchange, four lines).

The ***TELEGRAPHIC ADDRESSES*** are:
EDITOR of the *British Medical Journal, Aitiology Westcent, London.*
FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*
MEDICAL SECRETARY, *Mediscen Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone 24361 Edinburgh).

QUERIES AND ANSWERS.

TREATMENT OF MYASTHENIA GRAVIS.

"F. H." asks for suggestions for the treatment of myasthenia gravis in a woman aged 23. Periods of rest, ranging from three weeks to two months, have been tried without permanent benefit. Pituitrin injections, thyroid and parathyroid extracts, calcium, and mild tonics have all been tried without much result. After rest in bed her leg muscles improve, but her swallowing ability and the upper extremity muscles do not.

SPECIFIC GRAVITY OF THE BODY.

DR. W. JOBERNS (Wolverhampton) asks for the following data about the male and female body, and that of the young child: (1) the specific gravity of the body as a whole; (2) the specific gravity of the head; (3) the specific gravity of bone; and (4) the weight of the head. He also wishes to know what weight a swimmer, whether male or female, can support without being submerged.

INFECTION IN PUBLIC BATHS.

DR. HUGH DONOVAN (Birmingham) writes: In the consideration of nasal and aural disease resulting from bathing in city baths, the hypotonic action of water on the nasal mucosa does not seem to have been sufficiently stressed. There are obviously two factors in the production of these diseased conditions—trauma and infection. In my own case I am impressed with the fact that I am very likely to get a recrudescence of chronic nasal infection when I bathe in fresh water. Is it a practical possibility to fill public swimming baths with normal saline in place of plain water?

A SUITABLE EUROPEAN RESORT FOR AN ALBUMINURIC PATIENT.

"J. B. D." asks for suggestions as to a suitable neighbourhood in south Europe where a native of India, who is about to retire at the age of 55 from the Government service in that country, may settle down. During his period of service he led a very strenuous life, at times in the hottest places in the Bombay Presidency. For the last three years albuminuria has been present, ranging from a trace to about 0.25 per cent. or more. The blood pressure, estimated about a year ago, was not above the normal for his age. He is otherwise in good health, moderate in habits, and very active. "J. B. D." asks if the albuminuria is likely to increase if the patient begins his residence even somewhere in the south of Europe in winter for the first time. Would it be more advisable for him to settle in some place in India where the climate is more equable all the year round? If there is no contraindication to his living in Europe, "J. B. D." would be glad to have the names of suitable places.

STERILE MILK INJECTIONS.

DR. JOHN DONALD (Glasgow) writes: Can you tell me whether there is danger in giving intramuscular injections of sterile milk for such conditions as chronic suppurative otitis media?

*** An article by Dr. Hassan Bey Shaheen, aural surgeon, Kasr-el-Aini Hospital, on the treatment of chronic otitis media by subcutaneous or intramuscular injections of sterile milk, appeared in our issue of April 6th at page 643.

RATIO OF HOSPITAL BEDS TO LOCAL POPULATION.

"INQUIRER" asks for information as to the number of hospital beds which it is advisable to provide for a given population.

*** In the final report (1928) of the Voluntary Hospitals Commission it is stated that at the time of the 1924 survey the ratio of beds to population was 1.33 per 1,000. This ratio was

based upon a figure of accommodation which, in the opinion of the Commission, was 10,000 beds short of what was reasonably necessary. If this deficiency had not existed the ratio of beds to population would have been 1.6 per 1,000, and the Commission thought that this represented the rate at which the hospitals should expand to keep pace with the growth of population.

TREATMENT OF A STRAINED LEG.

MR. PAUL BERNARD ROTH (London, W.1) writes: In reply to the question of "V. S." on July 27th (p. 171), I think it probable that he ruptured his tendo Achillis right across. Even with a large gap in this tendon the foot can function fairly well because there is a strong sheath which escapes rupture. Until, however, the parts are brought together and sutured the patient can never have a strong foot.

PRURITUS AFTER MUMPS.

DR. F. S. D. HOGG (Rickmansworth) writes: I would suggest that Captain Greenway should try calcium lactate gr. xv three times a day just before or after meals; I have found this most effective in generalized pruritus. A few months ago I had an attack of this trouble myself. One 12 oz. bottle cured the itching, but I took occasional doses of the drug for several weeks. A little syrup aurantii or infusion of gentian covers the slight taste of the calcium, which should be dispensed in very hot water, so as to obtain a solution free from sediment.

INCOME TAX.

Adjustment on Retirement.

"V. F. F." bought a half share in his practice as from May 1st, 1925. For the year to April 5th, 1926, he was assessed for half the average profits of the practice for the then previous three years, calculated on the basis of cash receipts. Accounts were not sent out that year until September, 1925, which resulted in his cash receipts for his first year being less than the amount assessed on him. He was told that he could not claim any relief, but that he would obtain the corresponding benefit when he retired. This will be as from September 30th of this year, but he is informed that the law has changed, and that for the last period his profits will have to be calculated with some regard to the amount of debts outstanding at September 30th.

*** In the first place "V. F. F." could have made a claim, when he first entered the practice, to have the profits computed on the basis of bookings *plus* increase (or *minus* decrease) in the value of the outstanding debts. Possibly this was not what he then sought. If it was, and if the authorities misled him by informing him that that adjustment could not be made, he has at least a special claim to sympathetic consideration of his case now. But it is not yet quite clear how the authorities propose to deal with the final half-year. If the proposal is to add to the cash bookings the value of the debts outstanding at September 30th, 1925, but *to deduct* the corresponding value as at April 5th, 1925, probably little harm will be done. That is, in fact, the correct method of ascertaining the gross earnings for that half-year, and the deduction of the April debts will probably compensate him for the previous inclusion of his predecessor's cash receipts in the computation for 1925-26.

Temporary Residence in England.

"AUSTRALIAN" arrived in England from Australia on May 9th and left for the Continent on May 28th. He returned to England on July 6th, and expects to leave England for Australia on December 28th. We assume that he maintained no residence in this country before he came in May or in the interval—May 28th to July 6th.

*** He will become liable as resident, though not ordinarily resident, if he spends six months of the financial year commencing April 5th, 1929, in this country. If he carries out his intentions he will be in this country for 195 days—that is, he will have fulfilled the condition of liability. In that case he will be liable to declare as his income—for assessment in so far as it has not paid United Kingdom income tax by deduction—any profits or gains derived in this country, whether from work or investments, and any remittances made to him out of income abroad.

Motor Car Transactions.

"C. M. B." bought his first car in 1921 for £410; he sold it in 1925 for £70 and bought a second car for £175; this was sold in 1928 for £20, when he bought his third car (second-hand) for £250. What sum can he claim "as expenses on the replacements."

*** In our view in such a case as this regard should be had to the maximum expenditure as setting the standard, and that renewal cost is allowable until that amount is exceeded. On that basis the expense chargeable to the year 1928 is the amount of out-of-pocket cost—that is, £250–£20=£230. We suggest that if the inspector of taxes takes the view that the third car was an improvement over the second one, and therefore that only £175–£20=£155 is allowable, then "C. M. B." might point out that, in fact, his claim is one for obsolescence allowance, and that the difference between them—namely, £230–£155=£75—should become the basis of a depreciation allowance for 1929-30 and future years. If that can be agreed the real difference between the two methods may be ignored.

LETTERS, NOTES, ETC.

RELIEF OF PAIN.

DR. HERBERT CARDIN (London, S.W.1) writes: Some years ago I was awakened by an excruciating attack of pain due to diaphragmatic pleurisy. After about four hours of agony I inhaled the contents of two capsules of amyl nitrite; in half a minute I had lost every vestige of pain, and never had even the slightest recurrence. Two pints of foul-smelling pus were removed from my chest some eight weeks afterwards; I had healed and was well five weeks after the operation. Ever since I have given amyl nitrite for pleuritic pain. I have only treated three patients thus, but the results have been so gratifying that I think the method is worthy of trial by doctors. The proper treatment of painful conditions is so important that I would also mention that during the last thirty years I have treated all burns and scalds, in the first instance, with ice or ice-water or tap-water; by this means the pain of even a very severe scald vanishes, and after about four hours does not return. When the pain has completely gone the usual greasy dressings are appreciated by the patient. Those who have had a previous experience of burns and scalds, and been subjected to the dreadful carron oil treatment, have all told me that they would never again have anything but the ice or cold water procedure. The only thing a badly scalded or burnt person needs at once is removal of the excruciating pain; morphine affords partial relief, but cold water or ice applied to the burnt surface cures completely all pain and greatly reduces the amount of shock. A few nights ago a woman burnt her hands very badly while using petrol in a basin to clean her shoes, with the gas fire alight in the room. I at once plunged her hands into cold water until ice arrived; five hours afterwards she was able to take them out of the ice-water totally free from pain, and she has had no pain since. During the time the burnt surface is in cold water there is no pain, but if it is taken out too soon the pain returns. It was the indignation of the fire brigade officials at my use of cold water, rather than their first-aid box of tricks, that made me realize that the first-aid treatment of burns is about as bad as it can be.

HILAR TUBERCULOSIS.

DR. H. G. CALWELL (Belfast) writes: I regret to find that in Dr. D. J. Gair Johnston's article on August 24th (p. 335), and in a leading article in the same issue, the term "hilus tuberculosis" is used. The Latin word is "hilum," which is neuter, and therefore has no part "hilus." I have seen the same error in at least one well-known textbook of medicine, and I hope that it will be corrected before it is perpetuated. Why not speak of "hilar tuberculosis."

THE LIGHTER SIDE OF GENERAL PRACTICE.

SPURRED, it appears, by the lighter vein of some of the contributions to the last page of the *British Medical Journal*, Dr. DOUGLAS MACKAY—who states that he always reads the *Journal* backwards—is writing a series of articles on "The lighter side of general practice" for the *Caledonian Medical Journal*. The victim in one of his stories must indeed have had a sense of humour if he was able to see the lighter side of the situation. He was called on a dark, wet winter's night to a distant cottage on an unapproachable hillside. On asking what the trouble was, he was told that the daughter had been in bed since she was 5 years old with a tuberculous spine, and that the previous doctor had said that she must be watched carefully when she reached the age of 21. "This is her twenty-first birthday, and as she was born at a quarter to two in the morning, we thought you had better see her"! There was more satisfaction to be derived from a patient of Dr. Mackay who had swallowed a penny which had stuck in his gullet. When the coin-catcher was introduced the patient retched violently, and brought up 2s. 8d. (a half-crown and two pennies). His face was a study: he knew about the penny, but the two-and-sevenpence came as a surprise to him. Dr. Mackay garnishes his article with many quoted howlers and malapropisms, from which we learn that *pax in bello* means "freed [illegible]"; that the "Synod of Whitby (A.D. 664) [illegible] shape the tonsil on the priest's head [illegible] at "panel doctors are different from ordinary doctors—they are paid!"

A DISCLAIMER.

DR. W. E. GYE (*The National Institute for Medical Research*) writes: In a Sunday newspaper of August 25th a paragraph appeared concerning my work on cancer; this was repeated in a daily paper on the following day. I wish to disclaim all responsibility for the statements contained in the paragraphs.

CORRECTION.

PROFESSOR R. W. JOHNSTONE calls attention to an error in the report in the *Journal* of August 17th (p. 300) of his contribution to the discussion on surgical tendencies in modern midwifery, held at the Annual Meeting in Manchester. The word "hysterectomy" is three times used instead of "hysterotomy," and this error makes a serious difference in the meaning.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 42, 43, 44, 45, 48, 49, 50, and 51 of our advertisement columns, and advertisements as to partnerships, as [illegible] 47. [illegible] advertisement [illegible] co[illegible]

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

179. Nerve Complications of Erysipelas.

F. DERRUX and R. GALLÈGUE (*Gaz. des Hôp.*, June 26th, 1929, p. 933) state that, apart from restlessness and more or less violent delirium, which are fairly frequent, nerve complications in erysipelas are exceptional. They have been classified under the headings of meningitis, encephalitis and myelitis, and neuritis and polyneuritis. Only 9 cases of meningitis in erysipelas in which the diagnosis has been confirmed are on record bacteriologically. They are of three kinds. The first and most frequent (6 cases) is that caused by the *Streptococcus erysipelatosus*; the second is due to association of the pneumococcus and streptococcus (2 cases), and the third to the pneumococcus alone (1 case). A few cases of encephalitis have been recorded, but none of these has been confirmed by necropsy. Only two cases of myelitis have been published, in one of which the diagnosis was confirmed by necropsy. A few cases of paralysis of the third and seventh cranial nerves have been recorded, but optic neuritis and atrophy, of which the authors have collected 27 cases, are relatively frequent; 82 per cent. of the cases of optic atrophy ended in permanent blindness. Most of the cases of optic neuritis and optic atrophy have been observed in facial erysipelas, and are the result of the local spread of the infection to the periorbital tissue. Cases of optic neuritis from septicaemia without a local inflammatory stage are very rare. The authors remark that very few cases of polyneuritis attributed to erysipelas can withstand criticism. The rarity of nervous complications in erysipelas accords with the results of experiments on animals, which show that the streptococcus and its toxins have little affinity for the nervous system.

180. Endocarditis in Enteric Fever.

R. SLIT (*Thèse de Paris*, 1929, No. 175), who records eleven illustrative cases in patients aged from 5 to 47 years, states that endocarditis is a very rare complication of enteric fever. It may be due to *B. typhosus* or *B. paratyphosus* A, B, or C, but is most frequently the result of secondary infection. The endocarditis appears in two distinct anatomical and clinical forms—namely, a single benign endocarditis, or as a malignant ulcero-vegetative form. The auscultatory signs are very slight, and the endocarditis remains latent. The dulling of the valvular sounds is difficult to distinguish from that caused by weakness of the myocardial contraction, while murmurs due to changes in the valves are hard to differentiate from functional bruits. It is the rule to meet with signs of cardiac enfeeblement, tachycardia, and an irregular temperature. Death frequently occurs in the acute stage, while in other cases chronic lesions develop.

181. The Occurrence of Glycaemia in Acute Pulmonary Disease.

IN view of the statement that healthy lung tissue has a glycolytic property similar to that of the pancreas, and that in asphyxia there is hyperglycaemia, F. CASTELLOTTI (*Biochem. e. Terapia Sperimentale*, July 31st, 1929, p. 317) has estimated in patients suffering from broncho-pneumonia, pneumonia, and bronchitis the titre of the blood sugar during the course of the illness. The curves showed an early rise in blood sugar, which continued gradually with the extension of the morbid process, attaining a maximum corresponding with the crisis of the illness, and slowly declining to the normal or below it in the stage of resolution. To a patient with bilateral broncho-pneumonia 50 grams of glucose in 100 c.cm. of water was administered by the mouth. The blood sugar curve showed a rapid rise from 1.95 to 2.58 per thousand after thirty minutes, and to 2.75 per thousand after an hour; it fell during the second hour to 2.17 per thousand, and returned after the third hour to slightly below the glycaemic level at starting. Of the ten cases of acute pulmonary disease reported by the author, the blood sugar was raised in every case; in the majority there was no glycosuria.

182. Syphilitic Gastric Linitis.

G. CAUSSADE and G. LEVEN (*Bull. Soc. de Thér.*, June 12th, 1929, p. 146), who record an illustrative case, emphasize the fact that the possibility of gastric syphilis is not sufficiently often considered before undertaking an operation or making a diagnosis of carcinoma of the stomach. The present case was that of a woman who, when 20 years old, contracted syphilis, for which she did not receive a sufficiently long or energetic treatment. At the age of 40 she began to suffer from violent gastric attacks, but without other signs of tabes, and at 47 she had a very profuse haemoptysis. During the next ten years her weight gradually diminished without vomiting, and she had fetid diarrhoea and glycosuria. Death from haemoptysis ensued at the age of 57. The necropsy revealed a trilocular stomach, extensive retroperitonitis, and sclerosis of the pancreas, while microscopical examination showed arteritis of the syphilitic type in the stomach, pancreas, and lung, with aneurysmal dilatations of the vessels in the lungs and stomach. The glycosuria, diarrhoea, and loss of flesh in the absence of vomiting were apparently due to lesions in the pancreas.

183. Sero-fibrinous Pleurisy in Scarlet Fever.

J. SABRAZES and J. J. DUBARRY (*Gaz. hebd. Sci. Méd. de Bordeaux*, June 2nd, 1929, pp. 338 and 373), who record two illustrative cases in women, both aged 32, state that non-tuberculous sero-fibrinous pleurisy in scarlet fever is more frequent in the child than in the adult, being encountered in 1 per 1,000 cases at most in adults and in 5 per 1,000 cases at least in children. In both the authors' cases the effusion occurred in convalescence. Unlike the cell count of tuberculous pleurisy, the cytological formula showed only a small number of lymphocytes. There were about 65 per cent. polymorphonuclear neutrophils, and 30 per cent. large mononuclear elements. As in all complications of scarlet fever, a streptococcus was present. The onset was not insidious, but was accompanied by rise of temperature and diminution of the amount of urine passed. The effusion in each case was of short duration, absorption taking place in eight to ten days. Subsequent *x*-ray examination of the chest in both instances showed no indication of pulmonary tuberculosis.

Surgery.

184. Volvulus of the Small Intestine.

P. BERTRAND and C. CLAVEL (*Lyon Chir.*, May-June, 1929, p. 351) describe a case of volvulus of the small intestine on its mesenteric axis, which occurred in a man, aged 50, who had had a right inguinal hernia for several years. This had not previously caused any troublesome symptoms until the patient experienced a sudden intense abdominal pain accompanied by vomiting and painful tension in the region of the hernia, which was not at this time reducible. On the following day the patient succeeded in reducing it himself, and the pain subsided for a short while, but subsequently the temperature and pulse rate rose rapidly, the whole abdomen became painful, and the faeces contained blood. An operation revealed uniform distension of the small intestine with a complete volvulus and much ascitic fluid in the peritoneum; the mesentery was oedematous and white. The intestine was untwisted, an ileostomy performed, the septic fluid mopped out, and the incision was closed, a large tube being left in. Saline injections were given every four hours, but peristalsis was not re-established and the ileostomy remained dry; vomiting continued incessantly, and the patient died two days later of acute intestinal obstruction. The case was an unusual one in that the principal lesion consisted in the volvulus of the whole of the small intestine on its mesenteric axis from the duodeno-jejunal flexure to the end of the ileum without the involvement of the caecum.

185. Malignant Epithelial Tumours of the Neck.

J. E. MCWHORTER (*Annals of Surgery*, July, 1929, p. 1) emphasizes the difficulty of making a clinical diagnosis in the case of malignant epithelial tumours of unknown origin located in the neck; the usual diagnosis is either Hodgkin's disease, or lymphosarcoma, or sometimes a parotid tumour, or a tuberculous lymph node. Out of 24 cases reviewed 18 patients were men and 6 women, the average age in the former being 50 and in the latter 45. The average duration of symptoms was less than four months, with an extreme variation in one case of two years and in another of one week. Some of the patients showed a bilateral involvement with a ratio of 6 to 18; in a unilateral involvement the left side predominated by 13 to 5. In most cases the tumours arose round the angle of the lower jaw, and in only three cases was there any definite signs of a primary site elsewhere in the body; it is therefore supposed that a certain percentage of these neoplasms arise primarily in the neck from some small epithelial rest. There are no symptoms until the tumour is large enough to be felt; pain occurs in about

50 per cent. of cases and is then severe. Respiratory distress and dysphagia are present when the growth is diffusely infiltrating, and absent when it is circumscribed. The tumour, which is usually in the region of the great jugular lymph node, was generally large, being either smooth or lobulated and of firm, dense consistency, attached as a rule to the deeper structures and only rarely to the skin. When the growth involved both the deep and superficial structures the skin over the surface was red, swollen, and tender, suggesting an abscess rather than malignancy; tenderness may or may not be present. The prognosis is bad, and treatment by excision or radiation seems equally unsatisfactory. The majority of tumours being deep-seated, diffusely invasive, and intimately connected with the great vessels of the neck, require great technical skill if an operation is performed; recurrence is usually rapid and fatal. In a few instances, where the tumour is rather small and encapsulated or circumscribed, it may be a primary growth; excision is then the treatment of choice. In other cases excision would appear to stimulate growth, and radiation is preferable. In nearly every case, however, the tumour when first seen was inoperable.

183. Cholecystectomy.

S. H. MENTZER and J. H. WOOLSEY (*Surg., Gynecol. and Obstet.*, July, 1929, p. 76) discuss recent modifications in the technique of cholecystectomy. It is pointed out that, since the case of all biliary surgery depends upon adequate exposure, the ideal incision must be of sufficient size to admit the assistant's whole hand for retraction and allow space for handling the gall-bladder with modern instruments under direct vision, which may be satisfactorily attained by an ordinary right rectus incision 14 cm. in length. Variations in the duct and vascular arrangements render it imperative that these should be identified accurately, which only an adequate exposure can accomplish, so that the cystic duct can be traced to its junction with the efferent duct. In order to safeguard against leakage the omental edges may be stitched over the stump of the cystic duct after double ligation with the transfixation duct suture to ensure permanent closure. It was found to be possible to close the abdomen without drainage in about 70 per cent. of the cases, but when drainage is necessary this is better through a high stab wound than through the operation incision, thereby offering a better chance for primary closure. Nitrous oxide-oxygen or ethylene anaesthesia in preference to ether is an important consideration when non-drainage is aimed at, since under ether anaesthesia the bile flow is retarded and the finer bile channels may be severed without being recognized, whereas under the nitrous oxide-oxygen or ethylene anaesthesia the activity of the liver is not retarded, and consequently any severed bile ducts can be detected and ligated before closure. It sometimes happens also that upon recovery from ether anaesthesia a biliary peritonitis results as soon as the liver begins to function again.

187. Haemolytic Streptococcus Gangrene.

F. L. MELENEY (*Journ. Amer. Med. Assoc.*, June 15th, 1929, p. 2009), who records two illustrative cases in adults, maintains that haemolytic streptococcus gangrene is a distinct clinical entity, which may occur at any age in either sex. It usually appears in the extremities, but may attack any part of the body. The most important clinical features are the rapid development, profound prostration, and the dusky hue of the skin, with or without blisters or bullae, and usually appearing on the third, fourth, or fifth day. It is distinguished from erysipelas by the fact that the margin is not raised, and usually is not clearly defined. Dark blisters, bullae, and duskiness of the skin usually appear early. The condition differs from ordinary streptococcal cellulitis by the greater rapidity of development, by the rarity of lymphangitis and lymphadenitis, and by the early appearance of the dusky skin or bullae. Treatment consists in long free incision of the skin down to the deep fascia.

188. Surgical Treatment of Angina Pectoris.

S. P. FEDOROFF (*Zentralbl. f. Chir.*, June 1st, 1929, p. 1602), after noting the results obtained by resection of the cervical sympathetic in cases of angina pectoris, and which are stated by Hesse, Fontain, and others to give complete cure in 60 per cent. of the cases, and a mortality after the operation of 13 per cent., concludes that most of these patients have not been under observation for sufficient length of time, and suggests that at least four years should be allowed before claiming complete cure. The author gives notes of a characteristic case in which, under hedonal, the depressor nerve on the left side of the neck was cut, the lower half of the upper sympathetic ganglion was excised, and the branch of the descending hypoglossal divided. Soon after the operation the pain and breathlessness ceased. For more than four years the patient reported himself from time to time as perfectly healthy. This example leads the author to the belief that the operation on the cervical sympathetic is to be regarded not merely as a temporary but as a lasting benefit in cases of angina pectoris.

Therapeutics.

189. Medicinal Therapy of Duodenal or Gastric Ulcer.

J. L. ROUMAILLAC (*Journ. de Méd. de Bordeaux et du Sud-Ouest*, May 20th, 1929, p. 411) describes a medicinal treatment of duodenal or gastric ulcer, based on the discovery of what he terms "physiological duodenal regurgitation." Jarno's recent researches have shown that deficiency or arrest of duodenal regurgitation favours the production of gastro-duodenal ulceration, and he believes that the regurgitation of alkaline bile and mucus into the stomach protects the gastric mucous membrane from auto-digestion. The diminution of the percentage of cholesterin in the blood is especially due to diminution or arrest of regurgitation of bile from the duodenum into the stomach. The syndrome of hypocholesterinaemia, diminished or absent duodenal regurgitation, and of hyperacidity, is usually characteristic of chronicity of the lesions, or is a sign of recurrence of ulceration. Ox-bile has been prescribed therapentically for many centuries, but its employment in gastric or duodenal ulcer is much more modern. On account of the hypocholesterinaemia, one investigator has added to the alkaline bile a large quantity of cholic acid; he prescribed the oral administration of compressed tablets composed of desiccated ox-bile and glycocholic acid and extract of sage, of each 10 cg., with an excipient. It is stated that this preparation has given most satisfactory results. Roumaillac describes his own personal experience of this treatment, which he has found more efficacious than any other. A surgeon had diagnosed his condition as a severe gastropathy, combined with plastic periduodenitis involving the ampulla and pancreas. An operation was not advised as the general condition was very poor. Roumaillac now prescribes these tablets for dyspepsia and nausea or vomiting due to excess of fatty or highly flavoured food, or when these symptoms follow mental overexertion. Several other writers have found that they give satisfactory results in essential hyperacidity, and in gastric or duodenal ulcer. Improvement persists after discontinuance of the treatment, which renders unnecessary the prescription of severe and protracted dietetic treatment.

190. Quinidine Sulphate in Auricular Fibrillation.

L. WOLFF and P. D. WHITE (*Arch. Int. Med.*, May, 1929, p. 653) report a clinical study of the action of quinidine sulphate in 62 cases of permanent auricular fibrillation, 8 cases of permanent auricular flutter, 29 cases of paroxysmal auricular fibrillation, 2 of paroxysmal auricular flutter, and a small group of cases with paroxysmal tachycardia and premature beats. A review of a series of 75 additional cases of permanent auricular fibrillation and flutter similarly treated and recorded in 1923 is also included. (See *Epitome*, 1923, vol. i, para. 425.) The authors report that, in the series of 70 cases of permanent auricular fibrillation and flutter, normal rhythm was restored in 65.7 per cent. In 7 cases permanent auricular fibrillation in an apparently normal heart was terminated by quinidine; the authors remark that these patients are the most satisfactory to treat, the next most responsive group being that of patients with rheumatic heart disease who are under the age of 41. In the hyperthyroid group the response is somewhat better than in patients with hypertensive and arterio-sclerotic heart disease. In the case of abnormal hearts the response to quinidine treatment is surprisingly good when the fibrillation has lasted less than a month; beyond this point the duration is of little importance. In rheumatic heart disease quinidine is more effective in patients under the age of 40, but the presence of recent congestive failure reduces the probability of success. Factors contributing to failure are: insufficient quinidine dosage, intercurrent infections, and, possibly, alcoholism. The authors think that it is highly desirable to give full therapeutic doses of digitalis to all patients as a matter of routine before starting quinidine; no harm has been observed from the combined use of these two drugs. They conclude that quinidine is valuable in preventing and terminating paroxysmal auricular fibrillation, and that it is effective also in some cases of paroxysmal tachycardia and premature beats. In auricular flutter, however, digitalis is probably the more effective, and also in occasional cases of paroxysmal auricular fibrillation and paroxysmal tachycardia. Following up the cases treated in previous years has led the authors to

believe that this restored normal rhythm is permanent in a significant number of patients. Although there is no definite evidence that such normal rhythm prolongs life or reduces mortality, they think it is clearly evident that the health of the patient is promoted.

191. Malarial Therapy in General Paralysis.

J. LÉPINE, L. BOURRAT, H. CHRISTY, and E. LARRIVÉ (*Journ. de Méd. de Lyon*, June 20th, 1929, p. 397) believe that malarial therapy constitutes the surest method of obtaining remissions and practical cures in general paralysis, and record the results in 80 cases so treated. Among these there were only 9 (a little over 11 per cent.) deaths that could be ascribed to the treatment. However, greater benefit can be obtained by combining injections of a pentavalent arsenical preparation such as stovarsol or tryparsamide with the malaria inoculation. The results depend essentially on the earliness of diagnosis and treatment, which should be instituted on the appearance of the first mental troubles without waiting for the dysarthria and more marked symptoms to develop. When the disease has become established the chances of success are greatly lessened. Malarial therapy is contraindicated in certain conditions. Patients with the depressing and debilitating forms of the disease, and those in whom it develops sudden exacerbations, tolerate the treatment badly; it should also not be given to the very elderly or when there are concomitant organic affections, especially tuberculosis, diabetes, and nephritis. The aortitis so frequently encountered is not a contraindication. Alcoholic patients must be freed from this poison before beginning treatment. Various complications have been noted during the course of malarial inoculation—namely, intestinal obstruction; pleural, pericardial, and peritoneal effusions; icterus; and oedemas. In order to lessen the malarial paroxysms two injections of 0.5 gram of quinine urethane are efficacious, while an injection of 0.15 gram of novarsenobenzol will usually convert the daily into the better tolerated tertiary type. The authors believe that early treatment and its lessened duration, the reduction of the number of paroxysms to eight or ten, and greater experience of the method will result in still better success than has been reported yet.

192. Serum Treatment of Cerebro-spinal Meningitis.

E. L. BENJAMIN (*Arch. of Ped.*, April, 1929, p. 252) records four illustrative cases in children aged from 6 to 12 years, in whom there was no history of exposure to infection and the onset was sudden. He mentions that in spite of difference of opinion as regards the amount and site of injection of serum the best results are obtained by early intensive treatment combined with intravenous and intramuscular injections. In a series of nine cases seven were cured by this procedure. The prognostic value of sugar in the cerebro-spinal fluid was shown by the improvement which occurred on its reappearance. Benjamin urges that cistern puncture should be resorted to more frequently, as it is not attended with any great danger to the patient when properly performed.

Disease in Childhood.

193. Fractures of the Femur in Children.

H. E. CONWELL (*Journ. of Bone and Joint Surg.*, July, 1929, p. 593) reports the results of treating 85 cases of acute fractures of the shaft of the femur in children. The main forms of treatment are: (1) plaster cast; (2) plaster cast and extension (adhesive, callipers, or Steinmann pin); and (3) suspension and extension. Good results have been obtained with each form of treatment, but the last is the most popular, and has several variations, such as Buck's extension; skeletal traction in the horizontal or perpendicular position; suspension and extension of one or both thighs in a perpendicular elevation with adhesive traction to the skin; extension of one or both thighs in a horizontal or perpendicular position with the help of Thomas or Hodgen splints, or the Bradford frame. Treatment by open reduction is usually unnecessary, and should be the last resort. Better results of plaster cast treatment are obtained in very young children, while in older children the use of plaster casts with extension are more successful; a summary of the cases shows, however, that up to the age of 10 or 11 the best results of all ensue in those treated by suspension and extension. Physical and radiological examinations should first be made and immediate reduction with the aid of a fluoroscope be done, unnecessary manipulation being avoided. Frequent applications of physiotherapy treatment are recommended to help the conservation of the muscle and the motion of the joints, thus preventing grave deformities and permanent disabilities. Good alignment is of the first importance—then bone approximation. Compensatory lengthening and correction of poor alignment does occur in children under the age of 8. The suspension and extension method is the most comfortable dressing; it facilitates daily examinations, frequent checking with x rays, dressings in compound wounds, and makes easy the application of radiant heat, hot baths, and active and passive motion. These measures shorten convalescence and give better functional results.

194. Streptococcal Septicaemia in Infants.

FONTAYNE, MILLET, and VERHOOGEN (*Journ. de Méd. de Paris*, July 4th, 1929, p. 572), who record two fatal cases, state that streptococcal septicaemia in infants is a formidable and fairly frequent occurrence, the clinical diagnosis of which is not easy, especially at the onset and in certain very acute forms. As in the septicaemias of the adult a blood culture should be taken under favourable conditions. In infants this is only possible by puncture of the superior longitudinal sinus through the anterior fontanelle. The authors' first patient was a female infant, aged 5 months, who developed a streptococcal infection of a septico-pyaemic type which lasted for three months. During this period numerous streptococcal foci appeared, first in the cervical lymphatic glands, then in the skin and subcutaneous tissue, and lastly in the form of broncho-pneumonia, pulmonary abscesses, and ulcerative endocarditis. The second case occurred in a male infant, aged 4 weeks, in whom the disease lasted only six days, and was characterized by streptococcal infection of the skin, subcutaneous tissue, lungs, and meninges. In neither instance could the portal of entry of infection be discovered.

195. Diarrhoea and Vomiting in Infants.

M. MAIZETS and CATHERINE B. MCARTHUR (*Quart. Journ. Med.*, July, 1929, p. 581) investigated the significance of acidaemia and alkalaemia in the diarrhoea and vomiting of infants during an epidemic of acute gastro-enteritis by determining before treatment commenced the degree of acidosis and its response to sodium bicarbonate. The *p*H and bicarbonate content of the plasma were measured as well as, in many cases, the chloride, urea, and phosphate content. In order to ascertain whether the presence or absence of acidosis could be inferred from the examination of the urine its *p*H, titratable acidity, the ammonia-combined acid, and urea were estimated, as well as the presence or absence of acetone bodies and the content of chloride and phosphate. An acidaemia was found to be present in most cases of infantile diarrhoea and vomiting, but there may be an alkalaemia in some in which the reduction in the osmotic pressure of the blood may be so great that a retention of base occurs leading to the excretion of an acid urine. Acidosis is probably absent if the urine is neutral or alkaline, or the ammonia coefficient is below 8 per cent., or the ammonia-combined acid is less than twice as great as the titratable acid; in such circumstances if the chloride is persistently absent from urines of average concentration extra sodium chloride should be administered, while it is probably unsafe to give alkali. Acidosis is not necessarily present if the urine is acid, the ammonia coefficient is above 8 per cent., and the ratio of ammonia-combined acid to titratable acid is greater than 2.5. The prognosis of a case cannot be gauged from the level of the plasma bicarbonate, since it was found that certain patients with great depletion of the alkali reserve of the blood rapidly improved, while in some of the very severe cases the plasma bicarbonate was only moderately lowered.

196. Intestinal Toxaemic Deafness in Children.

M. YEARSLEY (*Brit. Journ. Child. Dis.*, April-June, 1929, p. 116), who records three illustrative cases in boys, aged from 7 to 8½ years, states that there are certain cases of deafness in children in which the functional reactions point to an internal ear condition. Enlarged tonsils and adenoids may be present, but their removal does no good. Inspired by McDonagh's recent work on chronic intestinal intoxication Yearsley has repeatedly found that there are catarrhal conditions of the upper air passages, with and without accompanying middle-ear complications, which refuse to clear up until the primary intestinal toxaemia has been treated by diet, colon lavage, and vaccines in place of the present perfunctory prescriptions of one or more proprietary purgatives. He also maintains that oto-sclerosis is primarily a toxaemia affecting the cortical cells of the auditory area, the changes in the labyrinthine capsule being probably of a trophic nature. In each of the six cases of oto-sclerosis which he found among 1,521 cases of educational deafness, chronic intestinal intoxication was present, as it was also in their mothers. During the last three years he has found septic tonsils and carious teeth so often associated with chronic intestinal intoxication that he has come to the conclusion that the latter is the primary focus, and the first two merely secondary.

Obstetrics and Gynaecology.

197. Kraurosis Vulvae.

W. P. GRAVES and G. VAN S. SMITH (*Journ. Amer. Med. Assoc.*, April, 1929, p. 1244) adopt the term "kraurosis vulvae" as a name to comprise the changes which may occur at the vulva and which tend towards malignancy. In an account of the history of this condition, the authors mention some of the earlier cases recorded. Breisky, who was the first to apply the name kraurosis, on account of the tissue retraction, also described the condition now termed leucoplakia, but looked upon it as a form of kraurosis. The relation of kraurosis to leucoplakia is discussed by the present authors, who remark that opinion is divided as to whether the diseases are separate entities or phases of the one process. Berkeley and Bonney regard them as distinct diseases; Jayle holds the view that leucoplakia is the secondary change in the primary disease, kraurosis; while Syàsz looks on kraurosis as the end-result of leucoplakia. The authors believe the two conditions to be stages of the one process. Accordingly they recommend that kraurosis should be the generic title of the whole disease, which, they say, may begin as an irritative vulvitis, marked by pruritus, and passing in the course of time to the superficial epidermal changes characteristic of leucoplakia, while the deeper changes result in the retraction typical of kraurosis. G. van S. Smith has formed the opinion that the only real histological difference between leucoplakia and kraurosis is a greater activity of the squamous epithelial layer in the former. He believes that leucoplakia may precede or follow kraurosis; and that carcinoma vulvae is most commonly preceded by "leucokraurotic" change. He thinks, moreover, that there is a greater tendency for carcinoma to develop on a leucoplakic base than on a kraurotic one. In considering the treatment, pruritus in the early stages may be dealt with according to its cause by establishing proper genital drainage, by warning against sexual abuse, and by the application of hydrous wool fat. When the changes of kraurosis or leucoplakia are present, removal of the diseased area by a partial or complete vulvectomy is required. Treatment by irradiation is condemned.

198. Suprarenal Tissue in the Broad Ligament.

R. PETIT (*La Gynécologie*, May, 1929, p. 257) discusses the occurrence of metastatic deposits of suprarenal tissue in the broad ligament. Embryological development explains the facility with which isolated portions of suprarenal tissue may be found near the genital organs. Petit quotes the figures of R. May, who discovered ten such instances in forty necropsies. Since it is impossible to diagnose these small tumours clinically the author has made a practice of carefully searching for them in the course of laparotomies; he found five in 175 cases, and adds that they generally occur on the posterior surface of the broad ligament at a variable distance between the horn of the uterus and the ovary. They are about as large as peas, but one had become the size of a large cherry. They are rounded, firm, and covered by peritoneum. The colour is particularly characteristic, being a sulphur yellow. Microscopically these islets of tissue show the typical structure of the suprarenal gland. It is known that this structure is capable of becoming malignant; the author therefore considers it advisable to examine the broad ligament in all laparotomies and to extirpate any small tumour which may be found. Discussing the question whether these isolated patches of suprarenal tissue might serve any useful purpose the author states that in his own cases no ill effects followed their removal, even after a long time.

199. Radium Treatment of Fibroids.

F. A. CLELAND (*Amer. Journ. Obstet. and Gynecol.*, April, 1929, p. 503) records his observations on 200 cases treated by radium, 98 of which were diagnosed as fibrosis uteri and the rest as fibroids. Two-thirds of the patients were between 38 and 50 years of age, and only 15 of the fibrosis uteri cases and 13 of the others were under 38. Of all cases which required treatment, 25 per cent. were fibrosis uteri cases, for which radium is the safest and most economical treatment, and 75 per cent. were fibroids; of these, only about one-third were suitable for radiation, surgical treatment being required in the rest. Radium is contraindicated in the following cases: (1) fibroids larger in size than a three and a half months' pregnant uterus; (2) fibroids causing pressure symptoms, such as frequent micturition, difficulty in defaecation, or unilateral oedema of the leg; (3) adnexal disease or ovarian tumour; (4) symptoms suggesting degeneration of the fibroid; (5) subperitoneal fibroids; (6) in cases where the diagnosis is uncertain; (7) in young women where myomectomy is preferable to radiation; and (8) the coexistence of another pathological abdominal condition requiring treatment.

Pathology.

200. The Complement-fixation Reaction in Rabies.

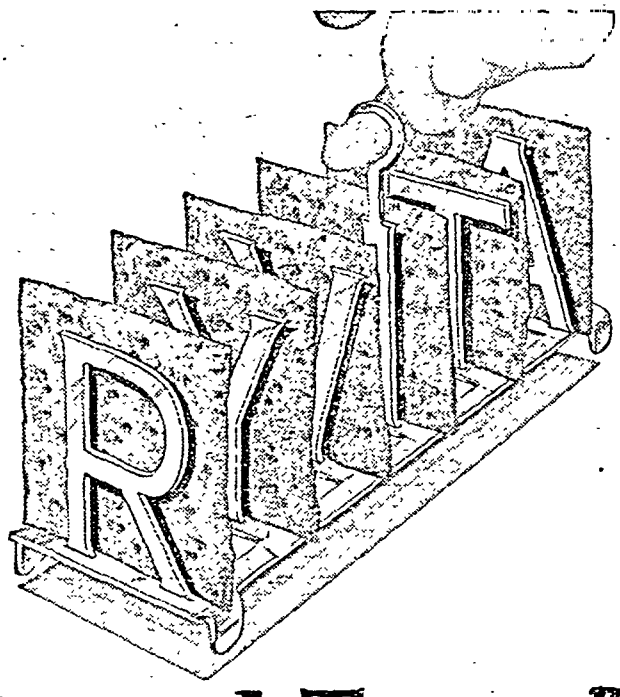
A. C. MARIE and A. URBAIN (*C. R. Soc. de Biologie*, June 21st, 1929, p. 561) have examined the serum of a rabbit immunized against rabies for the presence of sensitizing antibodies. The serum, after filtration through a Chamberland L3 candle, was found to neutralize ten times its volume of a 1 in 100 suspension of fixed virus, whereas normal serum was unable to neutralize even one volume. Precipitins were demonstrated by mixing the serum with a 1 in 100 suspension of virus, which had been filtered through paper. To show the presence of complement-fixing antibodies two antigens were used. The first, a cocto-antigen, was prepared by grinding up a rabic brain in ten times its volume of saline, heating to 100° C. for half an hour, centrifuging, and removing the supernatant fluid; the second was prepared by grinding up the finely pulverized brain in nine volumes of saline, leaving overnight in the ice-chest, and pipetting off the supernatant fluid. Using the cocto-antigen it was found that, though 10 units of complement were fixed in the presence of a rabic serum from an animal immunized against rabies, the same result was obtained with a suspension of a normal or a herpetic brain. On the other hand, using the unheated antigen, a specific reaction was obtained; the rabic brain in the presence of an antirabic serum fixed 150 units, and in the presence of normal rabbit serum only 15 units; a herpetic or a normal brain in the presence of an antirabic serum fixed 30 units, and in the presence of a normal serum 15 units. It would therefore appear that an antirabic serum contains neutralizing antibodies, precipitins, and complement-fixing antibodies—the latter being demonstrable by a fresh but not by a heated antigen.

201. The Value of Vegetable Extracts in Culture Media.

L. THOMPSON (*Journ. Bact.*, May, 1929, p. 379) prepared aqueous extracts of potato, carrot, radish, spinach, and ox heart. When freshly prepared the various extracts seemed to be about equal in growth-promoting power, but certain ones, especially the spinach and ox heart extracts, turned acid on standing, and a precipitate was formed, after which their value was greatly decreased. Similarly, autoclaving at 20 lb. pressure for 15 minutes precipitated the protein in some of the extracts, and correspondingly diminished their value. The most satisfactory extract was found to be that from potatoes. The addition of as little as 0.01 c.cm. of this extract to 6 c.cm. of plain broth enabled the growth of streptococci to occur. Both the protein and the non-protein nitrogen fractions served to stimulate growth, but not in so marked a degree as the whole extract. No correlation was found between the amount of reducing sugar in the extracts and their power to stimulate growth. Thus extract of ox heart, which contained only 0.04 per cent. of sugar, was slightly superior to carrot extract, which contained more than twenty times that amount. It would appear, therefore, that the substance responsible for promoting growth is associated with the nitrogen fraction of the extract. In the author's opinion it is probably a food substance proper rather than an accessory food substance or vitamin.

202. The Nature of Bacterial Resistance to the Bacteriophage.

F. M. BURNET (*Journ. Path. and Bact.*, July, 1929, p. 349) prepared from the normal smooth and rough forms of *Bact. sanguinarium* variants resistant to one phage type. Four strains were then available: smooth-susceptible, smooth-resistant, rough-susceptible, and rough-resistant. Immune serums were prepared from each of these strains by inoculating rabbits. Cross-absorption experiments showed that the two smooth strains were identical serologically, and that the two rough strains likewise were indistinguishable. The power of the four strains to absorb phage was then tested. Three strains of phage were used: one active against the smooth parent strain, one active against the rough parent strain, and one active against both smooth and rough parent strains. The results showed that while the parent strains were able to absorb the particular strain of phage to which they were sensitive, the variant resistant strains were unable to do so. It would appear from these experiments (1) that no antigenic difference can be detected between the parent susceptible form and the variant resistant form, and (2) that with the development of resistance the ability to absorb the phage involved is lost. Burnet, in previous papers, has assumed that the element in the bacterium which is capable of absorbing phage is identical with the heat-stable somatic O antigen. In view of the results recorded in the present paper this assumption must either be abandoned or modified by the further assumption that changes can be detected by phage absorption which cannot be detected by agglutinin absorption.



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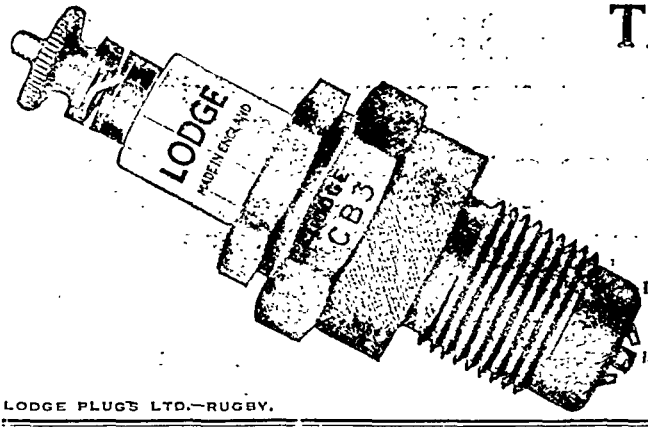

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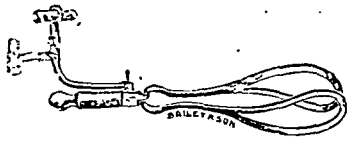

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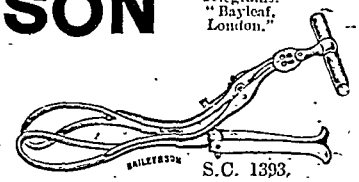

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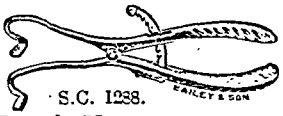

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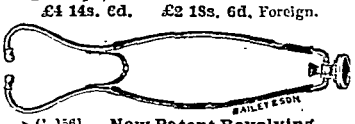

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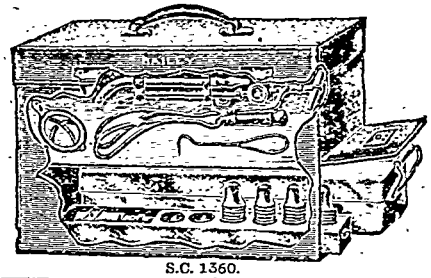

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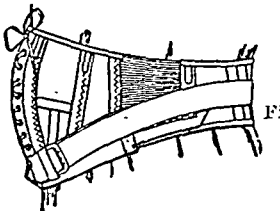

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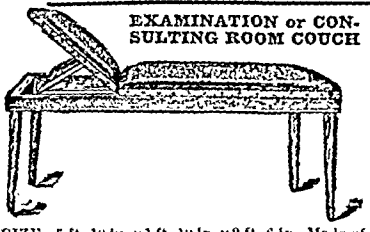

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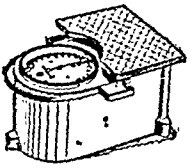

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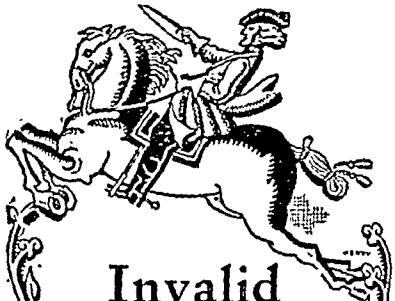

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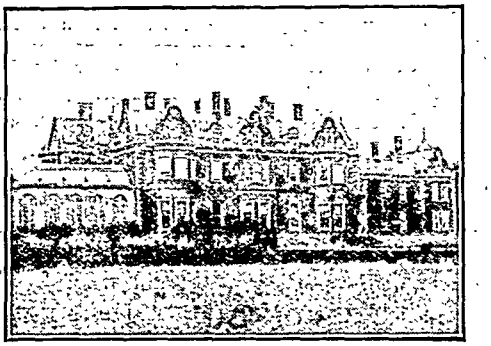

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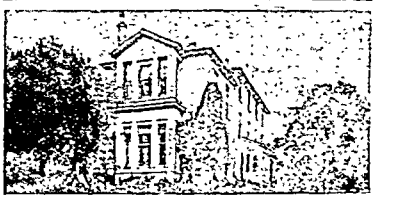

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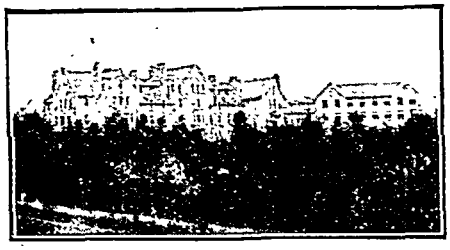

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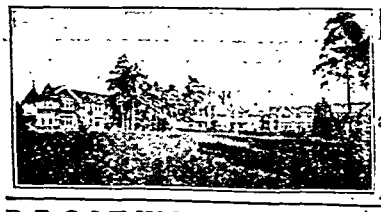

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CLINICAL UNITS IN MEDICINE AND SURGERY.—Certain members of the medical and surgical staff devote their whole time to teaching and research.

Nearly 1,000 beds *available for teaching*, additional clinical material being provided by affiliation to an Infirmary and other Institutions.

ENTRANCE AND RESEARCH SCHOLARSHIPS to the value of £1,400 are awarded annually.

APPOINTMENTS, varying in value up to £750 per annum, open to students after qualification.

For further particulars and illustrated prospectus apply to the School Secretary.

C. M. WILSON (M.C.), M.D., F.R.C.P., Dean.

CITY OF LONDON MATERNITY HOSPITAL,

CITY ROAD, E.C.1.

MIDWIFERY TRAINING SCHOOL.

MEDICAL STUDENTS admitted to Hospital practice, with operative Midwifery, and Obstetrical complications.

PUPILS TRAINED as Midwives and Monthly Nurses in accordance with C.M.B. regulations.

PRIVATE WARDS for paying patients.

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A PUBLIC SCHOOL FOR BOYS.

Boys are regularly prepared for the First M.B. Examination, University Scholarships in Chemistry, Biology, etc.

Special facilities are offered for the teaching of Chemistry, Physics, Botany, and Zoology.

New Science Buildings, containing seven laboratories, two lecture rooms, science library, store rooms, etc., opened in September, 1925.

Prospectus from Head Master.

UNIVERSITY OF CAMBRIDGE

Diplomas in (*a*) PUBLIC HEALTH, (*b*) HYGIENE (for foreign graduates), (*c*) TROPICAL MEDICINE AND HYGIENE.

Courses of Instruction in the Subjects of the Examinations commence October 9th, 1929.

Full particulars to be obtained from Mr. J. E. PURVIS, Public Health Chemical Laboratory, *Medical School, Cambridge.*

Westminster Medical School Hospital (University of London)

NEXT TERM COMMENCES OCTOBER 1st.

Valuable Entrance Scholarships are awarded annually. Hospital Centrally Situated (opposite Westminster Abbey) Extensive Sports Ground. Fees £40 per annum. Entrance Fee 10 guineas.

The Dean or Sub-Dean will be pleased to arrange for intending students and parents to inspect the Hospital and Medical School at any time. Only male students are admitted.

A Prospectus and full particulars may be obtained on application to the Dean: Dr. A. S. WOODWARK, C.M.G., C.B.E., M.D., F.R.C.P., Westminster Hospital Medical School, Caxton Street, S.W.1. *Telephone:* VICTORIA 0765.

Rytap

ROYAL WESTMINSTER OPHTHALMIC HOSPITAL MEDICAL SCHOOL.

(FOUNDED 1816.)

Telephone: REGENT 1457. BROAD STREET, HOLBORN, W.C.2. (Near British Museum Station.)

The Hospital has just been re-built and has accommodation for 71 patients in general wards, and, in addition, has fourteen private rooms for paying patients. The new building has been specially designed for clinical teaching and post-graduate study.
Classes for the D.O.M.S. Examination are held thrice yearly in January, April, and October.
Out-patients are seen daily at 1 o'clock. Operations are performed at 3 p.m.
Qualified medical practitioners and registered students may join at any time. For particulars apply to the Dean or Secretary at the Hospital.

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Are you preparing for any Medical or Surgical Examination?
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THE SECRETARY,
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19, Welbeck Street, Cavendish Square, London, W.1. Telephone: LANGHAM 1166.

Sir,—Please send me a copy of your "Guide to Medical Examinations" by return.

Name .....

Address.....

Examination in which interested.....

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Preparation for Medical Preliminary, and Chemistry, Physics, Anatomy, Physiology, and final subjects for the Conjoint Board; M.B.(Cantab., etc); also D.P.M., D.O.M.S., D.T.M. & H., D.L.O., L.M.S.S.A., etc. Numerous successes.

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Medical Prospectus gratis along with list of Tutors, etc., on application to the Principal, Mr. E. S. WEYMOUTH, M.A., 17, Red Lion Sq., London, W.C.1. (Telephone: HOLBORN 6313.)

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SKILLED COACHING, GUIDANCE, and ADVICE
From Specialist Tutors, in conformity with the Regulations of the various Universities. Apply for particulars and free booklet, "Hints on Writing a Thesis for the M.D. Degree," to the SECRETARY, Medical Correspondence College, 19, Welbeck Street, London, W.1.

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A TUTORIAL CLASS, with Museum Demonstrations, for the next Examination will commence [illegible] desired.—
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Resident and non-resident pupils. Full particulars upon request.—Mr. A. C. SCHNELLE, 119, Bedford Court Mansions, London, W.C.1. Estab. 1905. Telephone: Museum 3665.

THE MEDICAL AND DENTAL DEFENCE UNION OF SCOTLAND, LIMITED.

Secretaries and Registered Office: Millar, Thomson & Dunlop, C.A., 113, St. Vincent Street, Glasgow.

ANNUAL SUBSCRIPTION £1. ENTRANCE FEE 10/-.

No entrance fee to those joining within 12 months of obtaining qualification. Benefits include defence of claims for alleged negligence in professional work, including indemnity of £2,500 and costs, and advice on professional difficulties.

Particulars and forms of application can be obtained from the Secretaries at the above address.

THE
LONDON HOSPITAL MEDICAL COLLEGE.
(University of London.)

ADVANCED MEDICINE.

A Course of Post-Graduate Instruction in Advanced Medicine suitable for candidates preparing for the M.D., M.R.C.P. Examinations will begin on Monday, October 14th.

The Course will comprise the examination of selected cases in the Wards, Ward Demonstrations, and instruction in Applied Physiology, Morbid Anatomy, Clinical Pathology, and Pathological Chemistry.

Further particulars may be obtained on application to the Dean, Professor WILLIAM WRIGHT, M.B., D.Sc., F.R.C.S., London Hospital Medical College, Mile End, E.

LONDON SCHOOL OF CLINICAL MEDICINE.

SEAMEN'S HOSPITAL, GREENWICH.

A Course will be held at the above, commencing on October 14th, in SURGICAL PATHOLOGY (fee £6 6s.) and OPERATIVE SURGERY (fee £6 6s.). Fee for both sections £10 10s. Those wishing to join the class should communicate with the Dean.

Greenwich, August 30th, 1929.

THE POLYTECHNIC, REGENT STREET, W.1. SCHOOL OF CHEMISTRY.

Day and Evening Courses in CHEMISTRY and PHYSICS for the PRE-MEDICAL EXAMINATION of the CONJOINT BOARD.

New term now commencing.

Fee to London Students—Evening £2 2s. per term; Day £8 8s. per term.

Early application should be made to the Director of Education.

A REALLY GOOD SCHOOL FOR GIRLS. REASONABLE INCLUSIVE FEES.

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Tytherington Hall, nr. Macclesfield.

Sound Education. Upper and Lower Schools. Preparation, when desired, for all University Entrance Examinations. Particulars from Sec.

Special Terms to Medical Men.

The Otago Hospital Board.

UNIVERSITY OF OTAGO AND DUNEDIN HOSPITAL, NEW ZEALAND.

The post of RESIDENT MEDICAL OFFICER (Senior) will be vacant in December next.

Candidates must hold a Degree in Medicine of a British University; must have been qualified for three years and have held Resident Hospital appointments for at least one year.

The successful candidate will be required to act as Medical Tutor under the direction of the Professors of *Medicine and as Superintending* House Physician and Medical Registrar.

Salary for the position to be at the rate of £500 per annum, with board and residence.

Full details may be obtained on application to the High Commissioner for New Zealand, Strand, W.C.2.

Otago Hospital Board, Dunedin, New Zealand. JOHN JACOBS, Secretary.

August 23rd, 1929.

F.R.C.S.(Edin.)

CLASSES, with Museum and Anatomical Demonstrations, for next Exam., will commence shortly. Correspondence work at any time. Particulars from CHAS. WHITTAKER, F.R.C.S., Surgeons' Hall, Edinburgh.

Coaching for M.D. degree

required by Doctor, 10 miles from Marble Arch, at own house once or twice weekly.—Address, No. 5587, B.M.A. House, Tavistock Square, W.C.1.

Indian Research Fund ASSOCIATION.

Wanted, a trained BACTERIOLOGIST with known qualifications as a research worker to undertake research upon Cholera problems in the laboratory and field under the Indian *Research Fund Association. Appointment* will be made on the basis of three yearly contract subject to one year's probation. Salary Rs 1,500 per mensem, rising by Rs.100 increments to Rs.1,700 in last year of contract (equivalent at present rate of exchange to £1,340 to £1,520 p.a.) with usual departmental travelling allowance and halting allowance; salary to start from date of landing in India. Free passages out and home, first-class B.P. & O. or equivalent, at termination of contract or period of employment. Return passage also paid if first year's probation not satisfactory. Usual service conditions regarding leave, i.e., one month's leave with full pay after eleven months' service or equivalent proportion, cumulative; with usual casual leave not exceeding 15 days in the year.

Suitable man would have every prospect of renewing agreement or obtaining suitable equivalent employment.

Apply, stating qualifications and experience, with copies of relevant testimonials, to the Secretary, Indian Research Fund Association, Simla, India, from whom any further information as to *qualifications most desired or on other* points can be obtained.

Indian Research Fund ASSOCIATION.

Wanted for service with the Malaria Survey of India, a competent *RESEARCH WORKER*, medical qualifications preferred capable of undertaking independent enquiries on Malaria in the field and in the laboratory. Appointment will be made on basis of three yearly contract subject to one year's probation. Salary Rs.1,500 per mensem, rising by Rs.100 annual increments to Rs.1,700 in last year of contract (equivalent at present rate of exchange to about £1,340—£1,520 per annum), with usual departmental travelling allowance and halting allowance. Salary to start from date of landing in India. Free passages out and home, first-class B.P. & O. or equivalent, at termination of contract or period of employment; return passage also paid if first year's probation not satisfactory. Usual service conditions regarding leave, i.e., one month's leave with full pay *after eleven months' service or equivalent pro*portion, cumulative; with usual casual leave not exceeding 15 days in the year.

Suitable man would have every prospect of renewing agreement, or obtaining suitable equivalent employment.

Apply, stating qualifications and experience, with copies of relevant testimonials, to the Secretary, Indian Research Fund Association, Simla, India, from whom any further information as to qualifications most desired or on other points can be obtained.

The Milroy Lectures on State MEDICINE AND PUBLIC HEALTH.

The Council of the Royal College of Physicians are prepared to receive applications for the office of MILROY LECTURER for 1931.

Applications must be addressed to the Registrar, Royal College of Physicians, Pall Mall East, on or before September 30th, 1929, and should contain [illegible] on of the subject selected:

The Course [illegible]

The Lectures are to be given on Tuesdays and Thursdays in February or March, 1931.

A copy of Dr. Milroy's "Suggestions" on the subject of his bequest, and information as to the emolument, may be obtained from *RAYMOND CRAWFURD, M.D., Registrar.*

August, 1929.

All Saints' Hospital (For Genito-URINARY DISEASES).

49/55, Vauxhall Bridge Road, S.W.1.

DEMONSTRATIONS IN CYSTOSCOPY are held on:

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Special classes and tuition by arrangement.

County Council of Middlesex.

ASSISTANT COUNTY MEDICAL OFFICER OF HEALTH.

The County Council of Middlesex invites applications for the appointment of an Assistant *County Medical Officer of Health.* Salary £750 per annum, rising by annual increments of £50 to a maximum of £1,000 per annum (no bonus), together with reasonable out-of-pocket travelling expenses.

Candidates must be registered medical practitioners, and must also be registered in the *Medical Register* as the holder of a Diploma in Sanitary Science, Public Health, or State Medicine, under Section 21 of the Medical Act, 1886.

*Candidates must have held resident appoint*ment at a Hospital and also have had practical experience in Public Health administration.

The officer appointed will have to carry out, under the supervision and control of the County Medical Officer, such duties as may be required of him. He will devote his whole time to the County service, and will not be allowed to hold any other appointments or engage in private practice.

The successful candidate will be required to contribute to the County Council's Superannuation Fund and to pass such medical examination as the County Council may direct. The appointment will be during the pleasure of the Council and subject to three months' notice on either side.

Applications, stating (1) age, (2) qualifications, and (3) experience, together with copies of not more than three recent testimonials, must be received not later than September 14th. No special application forms are provided.

Canvassing, directly or indirectly, will be a disqualification.

ERNEST S. W. HART, Clerk of the County Council.

Middlesex Guildhall, Westminster, S.W.1.

August 22nd, 1929.

City of London Maternity HOSPITAL, City Road, E.C.1.

Applications are invited from fully qualified male candidates for the post of ASSISTANT RESIDENT MEDICAL OFFICER vacant October 1st. Three months' appointment at £80 p.a., *with board, lodging, and laundry.* If satisfactory the appointee becomes Senior after 3rd month at £100 p.a. Twenty copies of applications and of three recent testimonials should reach the undersigned by September *21st.*

RALPH B. CANNINGS, *Secretary.*

Manchester Royal Infirmary and UNIVERSITY OF MANCHESTER.

THE DICKINSON RESEARCH SCHOLARSHIPS.

The Trustees offer Scholarships under the conditions of the Dickinson Trust for part or *whole-time research work* to promote medical knowledge

The Scholarships are of the value of £75 or more per annum and are tenable for one year.

The Scholarships are open to Graduates of a University, who have received their full course of instruction in Medicine, Surgery, and Pathology at the University of Manchester and the Manchester Royal Infirmary. The scholars shall undertake and carry out some special research work, the nature of which they shall suggest but which must receive the approval of the Trustees.

For further information apply to the undersigned to whom six copies of application must *be sent not later than* September 28th.

Manchester Royal Infirmary. FRANK G. HAZELL, Secretary to the Trustees.

September 2nd, 1929.

General Hospital, Nottingham

A HOUSE PHYSICIAN is required at the above Institution. Candidates are desired to make application at once stating age, qualifications, and experience, with copies of testimonials, to the undersigned. *The appointment* is for six months. Salary at the rate of £150 a year, with board, residence, and laundry.

PETER M. MACCOLL, House Governor & *Secretary.*

COLONIAL MEDICAL SERVICES.

VACANCIES exist at present for MEDICAL OFFICERS in:—

(a) West African Medical Staff.
(b) The Malayan Medical Service.
(c) The East African Medical Service.
(d) The Northern Rhodesian Medical Service.

QUALIFICATIONS.

Applicants must be British subjects of European parentage and between 22 and 35 years of age. They must possess a double qualification and be on the British Medical Register. Preference will be given to candidates who have held hospital or public health appointments, or who have special knowledge of anæsthetics, radiology, surgery, medicine, ophthalmology, gynæcology and midwifery, diseases of the ear, nose, and throat, venereal diseases, etc.

COURSES OF STUDY.

Selected candidates will normally be required to take a special course of study in tropical medicine and hygiene, commencing on September 30th, either at the London School of Hygiene and Tropical Medicine or at the Liverpool School of Tropical Medicine, or at the University of Edinburgh, before taking up their appointments. Tuition fees will be paid and an allowance granted by Government subject to certain conditions. Completed forms of application must, therefore, reach the Private Secretary (Appointments), Colonial Office, 2, Richmond Terrace, Whitehall, London, S.W.1, from whom further particulars and forms of application may be obtained, not later than September 16th.

One or two selected candidates may be required to proceed overseas without attending a preliminary course of study.

GOVERNMENT OF IRAQ.

VACANCY for a MEDICAL OFFICER.

A vacancy at present exists for a Medical Officer in Iraq.

Qualifications.	Candidates, who should be British subjects of pure European origin, must be Fellows of one of the Royal Colleges of Surgeons, and preferably have special knowledge of gynæcology and anatomy.
Salary.	Rs.1,500/- per mensem, rising by annual increments of Rs.75/- per mensem to Rs.1,800/- per mensem, and thereafter by annual increments of Rs.100/- per mensem to Rs.2,300/- per mensem. (One rupee is equivalent to 1s 6d. sterling).
Terms of appointment.	The appointment will be on agreement for 5 years, the first year being probationary. The post is non-pensionable, but the selected officer contributes one month's salary and Government two months' salary each year towards a Provident Fund. At the end of his service the officer receives the accumulated sum, together with accrued interest.
Private Practice.	Consulting practice will be allowed but not private practice.
Passages.	Subject to the usual conditions, free first-class passages will be granted on appointment, and on termination of appointment. Free passages on leave from and to Iraq are provided once during the period of contract.
Leave.	Leave is granted at the rate of one day's leave for every five days of effective service in Iraq.

Further particulars and forms of application may be obtained, on application in writing, from the Private Secretary (Appointments), Colonial Office, 2, Richmond Terrace, Whitehall, London, S.W.1.

COMPLETED APPLICATIONS MUST BE RECEIVED BY THE PRIVATE SECRETARY NOT LATER THAN WEDNESDAY, THE 18th OF SEPTEMBER, 1929

District Infirmary,
ASHTON-UNDER-LYNE.

(General Hospital, 200 Beds, mainly Surgical.) Wanted, a Male HOUSE SURGEON, preferably with experience of Eye work. Six months' appointment. Salary at the rate of £150 per annum, with board, residence, and laundry.

The Resident Staff comprises a Resident Surgical Officer and three House Surgeons.

Applications, with testimonials, to be sent at once to the undersigned.

FRANK OLIVER,
Sept. 2nd, 1929. Gen. Supt. & Secretary.

Haywood Hospital, Burslem.

Wanted, RESIDENT MEDICAL OFFICER (female, unmarried) at once. Salary £175 per annum, with board and residence. Must be fully qualified. Applications, stating age and experience, together with copies of three recent testimonials, to be sent to me not later than September 11th.

F. C. POWELL, F.C.I.S.,
Public Offices, Secretary.
Price Street, Burslem.

Liverpool & Samaritan Hospital
FOR WOMEN.

HOUSE SURGEON wanted for six months from October 1st. Salary at rate of £100 per annum. Applications, with testimonials, to be addressed to the undersigned before September 7th.

J. ST. GEORGE WILSON,
313, Rodney Street, Hon. Sec.,
Liverpool. Medical Board.

The Kidderminster and District
GENERAL HOSPITAL. (120 Beds.)

HOUSE SURGEON required (male or female). Salary £150 per annum, with residence, board, and washing. Applications, with not more than three testimonials, to be sent to the Assistant Secretary, Miss S. SMITH, South Cliff, Kidderminster.

Two House Surgeons (males)
required for AYR COUNTY HOSPITAL, for six or twelve months, both commencing on October 1st next. Salaries at the rate of £150 per annum, with board and residence. Applications, with two copies of testimonials, to be lodged with the Secretary, 2, Barns Street, Ayr, not later than September 9th, at 11 a.m.

Miller General Hospital,
Greenwich Road, S.E.10.
(151 Beds. 17 Special Departments.)

HOUSE PHYSICIAN (male and unmarried) required. There are four other Residents. Salary at the rate of £125 per annum, with board, residence, and laundry. The appointment is for six months from October 1st next. Applications, stating age, nationality, qualifications, and experience, accompanied by copies of three recent testimonials, to be sent to the Secretary.

September 2nd, 1929.

Papworth Village Settlement,
near CAMBRIDGE, for the Treatment of all forms of Tuberculosis.

Applications are invited for the post of HOUSE PHYSICIAN. Applicants should be male and single. The appointment is for six months with prospects of advancement to a higher position on the staff. Salary £100 to £200 per annum, according to previous experience, with board, lodging, and laundry.

Apply to Medical Director, Papworth Hall, Cambridge.

British Medical Journal,
BRITISH MEDICAL ASSOCIATION HOUSE,
TAVISTOCK SQ., LONDON, W.C.1.
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Each Additional Line, 1s. 6d.
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All advertisements must be received not later than first post Tuesday previous to date of publication.

ASSISTANCIES.

Wanted, October 1st, or sooner, indoor ASSISTANT, male Scot preferred, in mixed Practice in Midlands; pleasant suburb of industrial area, close to large Hospital. Good principal on staff c ac cording to, ex able man. Usual A. House, Tavistock Square, W.C.1.

Wanted at once for a Country Practice in the Midlands, outdoor male ASSISTANT, age 30 to 32. *Must hold the* M.B. Cambridge or London. Hospital experience essential, and some knowledge of private practice. *Salary £500 a year,* with furnished rooms or unfurnished house. Testimonials, photo.—Address, No. 5508, B.M.A. House, Tavistock Square, W.C.1.

Wanted, Part-time ASSISTANTSHIP, permanent or temporary, two or three half days per week, by experienced medical man, English, 35, senior hospital posts and exp. G.P., anæsthetics, surgery, V.D., &c. *London trained. London or near.*—Address, No. 5520, B.M.A. House, Tavistock Square, W.C.1.

Wanted, Part-time Assistant with vi City. Ample classes for M qualifications, Photo and ref rences.—Address, No. 5507, B.M.A. House, Tavistock Square, W.C.1.

Wanted, September 23rd, outdoor ASSISTANT, with view, in Lancs Town private and panel Practice. Salary £500. Hard-working and keen on midwifery preferred. Please send past experience in full, but not photograph or original testimonials.—Address, No. 5580, B.M.A. House, Tavistock Sq., W.C.1.

Wanted.—Assistantship, outdoor, with or without prospects; preferably panel, by practitioner, aged 45. Reliable active, experienced.—Address, No. 5531, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—Assistantship, preferably with prospects, æt. 28, M.B., three years' experience in London. Single, free in October. Christian doctor preferred. State terms. —Address, No. 5530, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—Indoor Assistant (male) in Colliery Practice in South Wales. Dispenser kept. Salary £300 p.a. Enclose references, stating age and nationality. — Address, No 5532 B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistant for Lancashire Town Practice, English or Scot; abstainer. Usual bond. Furniture, coal, elec. light, attendance, provided, all midwifery fees, and salary £360 per year. State clinical laboratory experience. Refs. Testimonials.—No. 5598, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — Indoor Male Assistant in busy East London Practice. Salary net £286, gross £350, with extras, p.a. *State experience,* height, and photo. Period at least one year. Must be energetic.—Address, No. 5597, B.M.A. House, Tavistock Sq., W.C.1.

Wanted in Westminster, part-time outdoor ASSISTANT, week-ends only (Friday evening to Sunday mid-day). Salary 2 guineas, work nominal. Suit Post-graduate. — Address, No. 5584, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—Part-time ASSISTANTSHIP in London, immediately, by M.R.C.S., L.R.C.P., 2½ years hospital experience. Studying for higher exam.—Address, No. 5586, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—Young Edinburgh or Glasgow Graduate as ASSISTANT, view early Partnership, in Country PRACTICE, West of England. Hospital and general practice experience desirable. Capital essential.—Address, No. 5578, B.M.A. House, Tavistock Sq., W.C.1.

Wanted.—Indoor Assistant, young, male, Scotch or English, Protestant, for private and panel Practice. Salary £300, with experience. View or without view. University Town. — Address, No. 5528, B.M.A. House, Tavistock Square, W.C.1.

Wanted by M.D., F.R.C.S. Ed., aged 28, ASSISTANTSHIP or PARTNERSHIP in good-class practice, preferably in Hospital town. Experience major surgery; expert knowledge V.D. — Address, No. 5527, B.M.A. House, Tavistock Square, W.C.1.

Wanted immediately, ASSISTANT (male), manage Branch, country, near London. Salary £350, and £50 transport allowance and furnished rooms at present. Excel. prospects. First-class refs. or interview essen.—No. 5526, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — Indoor Assistant, Colliery Practice, Glamorgan. Work light. Good salary for reliable man. Good opport. for anæs., etc., at local Hosp. Newly *qualified man would suit.—Address, with refs.,* No. 5593, B.M.A. House, Tavistock Sq., W.C.1.

Wanted immediately, Assistant, outdoor; mixed Practice in Yorkshire; useful experience in every branch of private practice. Salary £250—£350 according to exp. already attained.—Address, giving all parties., No. 5595, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — Assistant, young, male, unmarried, for general Practice, Newcastle-on-Tyne. Salary £350 p.a., with furnished rooms and attendance. Commission on mids. — Address, No. 5512, B.M.A. House, Tavistock Square, W.C.1.

Wanted, October 1st, male Indoor ASSISTANT, young, unmarried. Panel and private practice Yorkshire. Suitable for newly qualified man. Salary to commence, £250.—Address, No. 5510, B.M.A. House, Tavistock Square, W.C.1.

Wanted, October 1st, male in-door ASSISTANT for Practice in Midland town, British, young, reliable. Usual bond. Salary £250—£300, with board, according experience.—Address, No. 5334, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistant, outdoor, *male, to take charge of Branch Surgery,* Pembs. Coast, country district. Motor-cyclist. Work light.—Address, No. 5013, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistant, London area; salary £300; furnished rooms, electric light, and coal. Usual bond.—Address, with full particulars, No. 4413; B.M.A. House, Tavistock Square, W.C.1.

Wanted.—October 1st, outdoor ASSISTANT, single, to take charge of a Branch in a Colliery Practice, in Glamorganshire. Salary £400 p.a., with rooms, attendance, etc.—Address, No. 5594, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Male Assistant for panel and private Practice in North of England. Salary £250, all found. Refs., photo., and full particulars.—Address, No. 5501, B.M.A. House, Tavistock Square, W.C.1.

Wanted at once, Assistant, male, outdoor, for North London. £350 per annum, with furnished rooms. Age 30 or under. — Address, No. 5600, B.M.A. House, Tavistock Square, W.C.1.

Assistantship, Partnership, or LOCUM desired by M.B., single, æt. 28 years. Six years' experience Hospital and G.P. Free in one week.—Address, No. 5505, B.M.A. House, Tavistock Square, W.C.1.

Assistantship, with or without view, wanted by Woman F.R.C.S.(Edin.), M.B.; 3 *years' resident hospital* appointments, and G.P., private, panel, dispensing. Own car. —Address, No. 5513, B.M.A. House, Tavistock Square, W.C.1.

Assistantship, Indoor, *London, part-time* for board only without pay, wanted now by ex H.S. (Eye and Ear) reading for special diplomas. Aged 27, panel experience.—Address, No. 5523, B.M.A. House, Tavistock Square, W.C.1.

Assistantship wanted in October by married man, aged 32, interested in Surgery. Public School man, London Hospital trained; keen, experienced, and reliable. Has held Hospital appointments.—Address, No. 5575, B.M.A. House, Tavistock Square, W.C.1.

Assistantship wanted by M.R.C.S., L.R.C.P., woman. Two years' experience in private and panel practice. Used to sole charge. Can be interviewed in London.—Address, No. 5536, B.M.A. House, Tavistock Square, W.C.1.

Assistants and Locum Tenens wanted immediately. Good salaries offered. —BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

A Varsity Man, with experience, desires an ASSISTANTSHIP shortly, with view to Partnership later in good Country Town *Practice in England, which can provide adequate* salary. Preferably with another Varsity Man under 40. Enquiries in confidence.—Address, No. 5502, B.M.A. House, Tavistock Sq., W.C.1.

Lady, well-qualified, and experi-*enced panel and general Practice, desires* ASSISTANTSHIP, preferably London, and outdoor, or would take charge of Branch Surgery. —Address, No. 5503, B.M.A. House, Tavistock Square, W.C.1.

London (or within 25 miles radius).—London trained man, aged 35, married, seeks ASSISTANCY, with view to purchase. Two years' experience all branches. —BM/MHE4, London, W.C.1.

Ophthalmic Assistant, preferably. Lady Doctor, to live in, wanted by Ophthalmic Surgeon, who is willing to coach in her work a partly trained applicant otherwise *suitable on personal grounds; pleasant district.* —No. 5514, B.M.A. House, Tavistock Sq., W.C.1.

Scotland.—Wanted, *October,* ASSI), in good-class J.P. and H.S., Address, No. 5537, B.M.A. House, Tavistock Square, W.C.1.

MEDICAL POSTS, DISPENSERS, etc.

Wanted. — Fully qualified DOCTOR for service in the Tropics. Preferably ex House Surgeon or Physician. Agreement for three years. Salary £850, £900, £950. Renewable on higher terms. Free *furnished quarters and first-class passage* provided. Candidates must be unmarried. Ladies not eligible. — Address, with copies of testimonials (not returnable), No. 5036, B.M.A. House, Tavistock Square, W.C.1.

Wanted, Glamorganshire, Lady Doctor or male, just qualified. *State* essential particulars.—Address, No. 5596, B.M.A. House, Tavistock Square, W.C.1.

A Lady Dispenser-Bookkeeper supplied immediately on request, qualified *and with practical experience* in private practice and dispensary work, also trained in Bacteriological LONDON COLLEGE OF paration for 'phone (Park Park Road, W.2.

Dispenser-book-keeper (lady) seeks position immediately. 9 years' experience. *Suit one doctor. North Lincolns* or Yorkshire preferred.—Address, No. 5538, B.M.A. House, Tavistock Square W.C.1.

Dispensers supplied to Doctors at short notice, without fee. Qualified and exper. in priv. and panel prac. Perm. and part-time Bookkeeper-Dispensers, Secretary-Dispensers, Nurse-Dispensers, and Chauffeuse-Dispensers.—Write, wire, or 'phone Central 3679. *THE RELIANCE BUREAU FOR DISPENSERS,* 87, Holborn Viaduct House, 12, Holb. Viad. E.C.1.

Doctor, British European, wanted for Group of Estates in MALAYA. Age 27—35. Preference to candidates who have done a course of Tropical Medicine, or had previous Tropical experience. Four years' agreement at $800 per month, rising annually by $50 per month, followed by 8 months' leave on full pay. ($1 Straits = 2/4 English.) Bungalow and heavy furniture, car, and all running costs free. First-class passage out and home. To leave England early October.—Add., No. 5303, B.M.A. House, Tavistock Sq., W.C.1.

Doctors requiring qualified Dispensers, Nurse Dispensers, Secretary Dispensers or Chauffeuse Dispensers, are invited to write, wire, or 'phone Gerrard 2699, THE DISPENSERS' BUREAU, 145, Shaftesbury Avenue, London, W.C.2.

Lady Dispenser Book-keeper, Hall qualification, desires permanent POST with Doctor or Institution. Free Sept. 16th. Experience in hospital and private practice. Small salary accepted.—Address, No. 5539, B.M.A. House, Tavistock Square, W.C.1.

Lady dispenser, book-keeper, secretary, 13 years' experience general practice, at liberty now for locum or permanent post. Excellent references.—Address, No. 5535, B.M.A. House, Tavistock Square, W.C.1.

M.B., experienced in general practice, desires POST, full or part-time. London area preferred. Terms five guineas.—Address, No. 5590, B.M.A. House, Tavistock Square, W.C.1.

Owner-Driver would Drive DOCTOR, two or more days a week as required. Comfortable closed car. Rates moderate.—WARD, 29, Dalebury Road, S.W.17. 'Phone: Battersea 1682.

Part-time work, mornings, or afternoons, or both, wanted by Woman M.B., D.P.H.; experienced G.P. and Children. London area.—Address, No. 5308, B.M.A. House, Tavistock Square, W.C.1.

Responsible Position sought by a Doctor's Widow (young). Trustworthy, good organizer, tactful. Could run house and act as receptionist. Town or country.—Address, No. 5524, B.M.A. House, Tavistock Square, W.C.1.

Typewriting.—Expert undertakes Theses, Testimonials, etc. Numerous letters of appreciation from Doctors.—Write or 'Phone: BEATRICE RADFORD, 27, Buckland Crescent, Swiss Cottage, London, N.W.3. Primrose Hill 0803.

University Graduate desires part-time POST. Evening Surgeries. Ex R.M.O., H.S., and H.P. Experienced panel and private practice. — Address, No. 5517, B.M.A. House, Tavistock Square, W.C.1.

LOCUMS.

FOR LOCUM TENENS APPLY TO Mr. PERCIVAL TURNER, Ltd. The oldest and only Agent who for 40 years has supplied substitutes at short notice without fee to principals. 4, ADAM ST., Strand, London, W.C.2. Teleg.: "Epsomian, Lond." 'Phone: Temple Bar 9011.

Wanted.—Locums by M.R.C.S., L.R.C.P., large exper. G.P., panel and private. Reliable, active, well received. Also Assistantship, pref. in London. Free now.—Address No. 5516, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Locum or Assistantship by Woman M.B., B.Ch., four years' experience private and panel. Used to sole charge. Well recommended; æt. 27 years. State salary.—Address, No. 5572, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Locum, end of September. Pleasant country. Work light. Must drive car.—Address, No. 5506, B.M.A. House, Tavistock Square, W.C.1.

Locum Tenens and Assistants required, preferably those living within easy distance of Liverpool. *For further particulars* please apply to Messrs. R. SUMNER & Co., LTD., Manufacturing Chemists, 40, Hanover Street, Liverpool.

HOLIDAY LOCUMS.

THE MEDICAL AGENCY has pleasure in announcing that lists are now being prepared for Locum engagements for the forthcoming Holiday Season. Principals requiring a RELIABLE SUBSTITUTE are advised to make early application.—Address, W. H. GRANT, The Medical Agency, Watergate House, Adelphi, W.C.1. *Tel.*: Gerrard 8954 and Riverside 1254 (night calls).

PARTNERSHIPS.

Wanted, by very experienced and highly commended medical man, 35. English, married, own car, *PARTNERSHIP, or* Assistantship with definite view to *Partnership.* Preferably large panel, where share could be bought by easy payments, or other suitable.—Address, No. 5519, B.M.A. House, Tavistock Square, W.C.1.

Wanted by M.D., M.R.C.P. London, PARTNERSHIP in good-class *Practice in Hospital town, with a view to* getting on Hospital staff. Advertiser would prefer Surgical colleague.—Address, No. 5317, B.M.A. House, Tavistock Square, W.C.1.

Doctor, 43 years, would like to [illegible] view to [illegible] capital. Tavistock Square, W.C.1.

Lancashire Town.—Partnership. Half share in old-estab. Practice. Average cash receipts £3,000. Panel 2,516. Excellent house for sale, 5 bedrooms, garage, and garden. Price £1,000. Premium—Practice—1½ years' purchase.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Lucrative Partnership in Panel Practice required by M.D. Irishman, aged 31 years; 8 years qualified; thoroughly experienced in all branches. Capital.—Address, No. 5592, B.M.A. House, Tavistock Square, W.C.1.

Ophthalmic. — Partnership in old-estab. practice in populous residential district, worked in connection with West End branch, but residence in the district is essential. 1½ years' purchase. Succession easy.—Address, *No. 5591 B.M.A House, Tavistock Square, W.C.1.*

Partnership or Practice within 40 *miles of London* wanted by experienced, up-to-date G.P. of 40. Public School education. Accustomed to best-class practice. Cash available.—Address, No. 5511, B.M.A. House, Tavistock Square, W.C.1.

Partnership. — Doctor about to open Branch Surgery requires PARTNER. 2/5 share of Practice for sale at 2 years' pur. Estab. 7½ months. Cash receipts over £400. Aver. cash receipts during last 5 weeks over £20 p.w. £300 down, balance easy payments. Ten miles from Piccadilly, London. — Address, No. 5583, B.M.A. House, Tavistock Square, W.C.1.

Woman M.B., B.S., D.L.O., requires PARTNERSHIP, general Practice; 3 years' Hospital appointments. Good experience in Ear, Nose, and Throat work, and in panel and private Practice.—Address, No. 5573, B.M.A. House, Tavistock Square, W.C.1.

PRACTICES.

Wanted.—We have innumerable applicants for sound investments in all districts, incomes from £600 to £4,000, with and without panel. Correspondence invited from prospective Vendors. — THE MEDICAL AGENCY (W. H. Grant), Watergate House, 15, York Buildings, Adelphi, W.C.2.

Wanted.—Small cash and panel look-up PRACTICE in London area, [illegible] by competent man [illegible] 5585, B.M.A. House, [illegible] W.C.1.

Wanted.—Panel and Cash Practice or PARTNERSHIP, with view to early succession. Town or Country. Small house. — Address, No. 5577, B.M.A. House, Tavistock Square, W.C.1.

Croydon, in good residential district.—PRACTICE, at present doing £400 per annum, with exceptional prospects for large and speedy increase. Fine corner house and garden, freehold. Price Practice £550. House £2,750.—No. 5534, B.M.A. House, Tavistock Square, W.C.1.

Death Vacancy. — Unopposed Country PRACTICE, near Manchester. Cash receipts over £2,000 p.a. *Panel 1,300.* House probably to rent. Garage and garden. Premium 1 year's purchase.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

A Client desires to purchase well-established PRACTICE in good residential *town. Bath or Cheltenham preferred. Income not* under £1,800. Midwifery and panel minimum or nil.—Replies to Messrs. HUMPHRYS, SYMONDS & SPENCER, 34, Bridge Street, Hereford.

A favourable opportunity (on proposed retiral of Woman Doctor) occurs to acquire a first-class *PRACTICE* in Glasgow. A residence excellently equipped for consulting, and situated in the best professional area, would *form part of the sale.—Further particulars may* be had from WILSON, STIRLING & COMPANY, C.A., 93, West George Street, Glasgow.

Cheshire Town.—Nr. Manchester. Cash receipts £500. Scope. Panel 700. Good house in prominent position, 6 bedrooms, 3 reception rooms. Garage. Premium—Practice, *house, drugs, etc., £1,400, part on mortgage.*—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Essex.—Death Vacancy.—Third Share of an old-established middle-class Practice. Total receipts of which average £2,800 a year. Medium-sized house available, rent £80. *Premium* 2 years' purchase for third share vacancy through death of one of the partners. —Apply, PEACOCK & HADLEY, Ltd., 19, Craven *Street, Strand, W.C.2.*

For *Disposal.*—A good Practice is not always to be had directly, but Mr. PERCIVAL TURNER can generally offer applicants something suitable. Nearly all the best Practices are sold by him without being advertised. Inform. free on applic.—4, Adam St., W.C.2.

For Disposal.—Old-estab. Lancs Town, average receipts £4,100 p.a. *Panel 2,650. Good house, 6 bedrooms,* on sale or rent. Near seaside, schools, sports, garage. Vendor going abroad. Premium 1½ years' purchase. Part deferred.—Address, No. 5579, B.M.A. House, Tavistock Square, W.C.1.

For Sale, working-class PRACTICE, manufacturing town near Manchester. Old-estab. Average gross cash receipts £2,500. Private and panel 2,900. Good house to lease or buy. Prem. one and a half year purchase.—*No 5533, B.M.A. House, Tavistock Square, W.C.1.*

For Sale.—Panel of over 800 and part of non-dispensing private *PRACTICE*, with long introduction in favourite all year round seaside resort within easy reach of *London. On past figures income should be* £700 at least, for first year. Premium £1,400 cash. House at moderate rent in good residential neighbourhood; 16 years' lease to run. Fixtures and fittings at valuation. — Address, No. 5104, B.M.A. House, Tavistock Sq., W.C.1.

For Sale. — High-class Ray *Therapy* PRACTICE, Midlothian, Scotland. Fully furnished treatment room. Equipment incl Lamps, Air-cooled Mercury Vapour, Water-cooled Kromayer, Sollux Luminous Heat, Tungsten Carbon Arc, also H.F. and Ozone Generators, *all necessary furniture, office equip.* —No. 5504, B.M.A. House, Tavistock Sq., W.C.1.

For Sale.—Branch Practice, including 700 (seven hundred) panel in industrial area near Glasgow. Catholic. Preliminary assistantship if desired. For particulars. — Address, No. 5318, B.M.A. House, Tavistock Square, W.C.1.

Hospital Residents and others.—Excell. OPENING for *PRACTICE* in very rapidly increas. suburb (Birmingham). Middle-class and superior artisan. No immed. oppos. Pleasant Bungalow, small garden. Near golf links. One sitting, 2 other rooms, lobby (as wait. room), bath (h. & c.). All mod. req. Site for garage. Owner travelling. Mod. rent, furn. Catering by caretaker. Option of pur. on lease. —No. 5571, B.M.A. House, Tavistock Sq., W.C.1.

Lancashire Town. — Woman Doctor's PRACTICE. Cash receipts £2,243. Panel 1,450. Good house, 4 bedrooms, rent £60 p.a. Premium £3,000 (to include book debts, drugs, etc.). — BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Lancashire Town. — Old-estab. PRACTICE. Cash receipts £970. Panel 1,150. Scope. Good house to rent at £70 p.a. Premium £800.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

London, E. — Small but well-established working-class PRACTICE. Receipts now £200 a year, panel 70. Has done *much more. Excellent scope. Would suit lady* or gentleman. Premium £250. Flat available over surgery *premises.* — Apply, PEACOCK & HADLEY, Ltd., 19, Craven Street, Strand, W.C.2.

Lancs Town.—Excellent non-panel PRACTICE, Owner leaving to specialize in distant city. Nice house, garage; rent £60, on lease. Average receipts £1,200, last year over £1,500. Much scope. Price £1,200.—MANCHESTER MEDICAL & SCHOLASTIC ASSOCIATION, 6, Brown St.

Lancashire Town. — Old-estab. PRACTICE. Average cash receipts £3,000 p.a. Panel over 2,600. Small house to rent. Premium 1½ years' purchase.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Lancashire Town. — Half Share in excellent Practice. Cash receipts £1,800. Panel 1,900. Good house (4 bedrooms) to rent. *Premium £1,350.*—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

London, S.E. (10 mins. Charing Cross).—Old-established PRACTICE. Receipts £1,000 a year. Panel nearly 800. Good *house, rent £80, several years' lease to run.* Premium £1,600.—Apply, PEACOCK & HADLEY, Ltd., 19, Craven Street, Strand, W.C.2.

London Suburb.—Increasing cash and panel PRACTICE. Income £450. Panel 300. Compact house. Moderate rent, on lease. Premium £850, to include drugs and complete furnishings of surg. and waiting room. —No. 5522, B.M.A. House, Tavistock Sq., W.C.1.

London Suburb. — Splendid opportunity for acquiring PRACTICE yielding £850 p.a. Charming flat, suitable for young man, rent £100. No rates or taxes.—Address, No. 5336, B.M.A. House, Tavistock Sq., W.C.1.

London, N.W. — Mixed-class PRACTICE. Receipts stated to be £8 to £10 per week cash, and small panel just started. Surgery rent 12/- per week. Vendor has to undergo operation and will accept £150 for immediate sale. Suit lady or gentleman.—Apply, PEACOCK & HADLEY, Ltd., 19, Craven Street, Strand, W.C.2.

Manchester.-Old-estab. Practice. *Average cash receipts £1,200. Panel* 1,264. Good house to rent, containing 3 bedrooms, 2 reception rooms. Premium £1,800.—*BRITISH MEDICAL BUREAU, 33, Cross Street,* Manchester.

Manchester. — Practice, populous district. Nice semi-detached house, gard., garage, £60. Receipts about £1,400. *Panel nearly 1,000. Transferable appts. £200.* Price 1½ years' purchase or near offer, part deferred. —MANCHESTER MED. & SCHOL. ASSN. 6, Brown St.

Manchester. — Good-class Practice (non-panel) in first-rate residential suburb. Average cash receipts £2,206 p.a. Fees 5/- to 21/-. Excellent house to rent on lease. Premium 1½ years' purchase.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Manchester Suburb. — Old-established. Nice corner house, large gardens, garage. Receipts over £2,000. Panel 1,500. Price 2 years' purchase, or practice, house, and ground, £6,000; good part deferred. — MAN. MEDICAL & SCHOLASTIC ASSOCIATION, 6, Brown St.

Manchester. — Good Nucleus.—*Cash receipts £450. Panel 760.* House to rent. Premium, best cash offer.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Medical Practice for Sale in Central Highlands. Appointments £50; panel 120; *income small, but scope for increase.* —Apply, No. 8539, c/o PERCIVAL TURNER, Ltd., 4, Adam Street, Adelphi, Strand, W.C.2.

Oldham.—Old-established Practice, carried on by late Dr. R. W. Pickering, at 161, Rochdale Road, Oldham, together with freehold dwelling house, surgery, etc.—Apply, MELLOR & JACKSON, Solicitors, 8, Church Lane, Oldham.

Oxford.—Wanted, Practice in or near for cash premium, income not less than £1,400, preferably larger; large panel essential. Partnership introduction would be considered. Full partics. treated in strict confid. —No. 5515, B.M.A. House, Tavistock Sq., W.C.1.

Practice and Appointment. Total £1,200; British Colony; lovely hill climate; suit married man with short experience. Free house, living cheap. Games an asset. Small premium. Vacant April.—Address, No. 5525, B.M.A. House, Tavistock Square, W.C.1.

Scotland, University Town.—[illegible] PRACTICE or £1,500 upwards.—Address, [illegible] House, Tavistock Square, W.C.1.

Shropshire.—Unopposed Country *PRACTICE. Cash receipts £1,500 p.a.* Panel 550. House to rent, 5 bedrooms, 2 entertaining rooms, garage, and garden. Premium £1,500, part by *arrangement.*—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

To Purchasers. — Do not buy without expert assistance. With 40 yrs.' experience Mr. PERCIVAL TURNER can advise in *all cases. Terms free on application to 4, Adam* St., Strand, W.C.2. Telephone: Temple Bar 9011. Telegrams: "Epsomian, London."

Wilts. — Two-fifths share worth £900 p.a. for immediate disposal. Fair panel. Mixed Country and small Town Practice. House available. Premium 2 years' purchase.—Apply, PEACOCK & HADLEY, Ltd., 19, Craven Street, Strand, W.C.2.

Within 20 miles of London. A sound mixed-class PRACTICE with *charming old house and garden to rent.* M.D., F.R.C.S. wishing to retire early Spring, seeks possible purchaser.—Address, No. 5588, B.M.A. House, Tavistock Square, W.C.1.

Woman's Nucleus, receipts last year £180, panel 140, London area, *excellent scope. Price £180, to include surgery* furniture and fittings. — Address, No. 5576, B.M.A. House, *Tavistock Square*, W.C.1.

MISCELLANEOUS SALES, etc.

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The Proprietors of British PATENT No. 267007 are prepared to SELL the patent or to license British Manufacturers to work thereunder. It relates to containers for surgical suture material.—Address, BOULT, WADE & TENNANT, 112, Hatton Garden, London, E.C.1.

HOUSES, CONSULTING ROOMS.

Attractive Basement Flat, neigh-bourhood of Wigmore St., unfurnished or furnished, large reception room, 1 bedroom, bathroom, and w.c., small kitchenette, courtyard for garden.—Box B.42, SCRIPPS'S, South Molton Street, W.1

Consulting Rooms to be Let: Harley Street and district. Whole or part time. Lists sent on application.—ELLIOTT & Co., 10, Henrietta Street, Cavendish Square, W.1. Mayfair 5659.

Fine Consulting Room in Portland Place, with small Residential Flat, to be let at a moderate inclusive rent.—Apply to SAMUEL B. CLARK & SONS, 16B, New Cavendish Street, Portland Place, W.1.

Gloucester Place, Portman [illegible] to Let, [illegible] etc., five [illegible] No. 552

Hospitality offered to Doctor, R.C. *preferred, wishing to do post-graduate* study. Seven miles Glasgow. Light evening work in return.—Address, No. 5509, B.M.A. House, Tavistock Square, W.C.1.

House to Let in Weymouth Street, *Portland Place end, for long or short* period, with two reception rooms, three bedrooms, furnished. Ten guineas weekly. Immediate possession. Exceptional opportunity.—Address, No. 5581, B.M.A. House, Tavistock Square, W.C.1.

Medical or Dental.—FURNISHED ROOMS to Let, Charing Cross district, Glasgow.—Apply to DONALD, BINNIE & Co., Writers, 221, West George Street, Glasgow.

To Let in Devonshire Street, splendid SUITE of TWO ROOMS suitable for Doctor or Dentist; also part-time consulting room, use of waiting room, etc., from £40 per annum.—Address, No. 5582, B.M.A. House, Tavistock Square, W.C.1.

APPOINTMENTS.—Contd.

Bristol General Hospital.

The Committee invites applications for the *post of HOUSE SURGEON to the Special De*partments.

The appointment is for five months *from September 1st, and the successful candidate* will be required therefore to commence duties as soon as possible. Salary will be at the rate of £60 per annum, with board, residence, etc., provided in the Hospital.

Candidates must be registered under the Medical Acts and produce testimonials of good personal character and ability and must have recent experience in the administration of Anæsthetics.

Forms of application, etc., to be obtained from the Secretary, must be returned completed with copies of testimonials, addressed to the undersigned on or before Saturday, September 14th, from whom further particulars may be obtained.

THOMAS W. GREGG, Secretary.

Princess Louise Kensington HOSPITAL FOR CHILDREN, North Kensington. *(42 Beds pending completion.)*

Applications are invited for the post of [illegible] must be and it is the D.M.R.E. *Camb. At least one attendance* weekly will be necessary. Please obtain further particulars from the Secretary, Princess Louise Kensington Hospital for Children, St. Quintin Avenue, W.10, before sending formal application, which should be received by Monday, September 23rd.

East London Hospital for CHILDREN AND DISPENSARY FOR *WOMEN, Shadwell*, E.1.

Applications are invited for the Resident post *of Whole-time* CASUALTY OFFICER (male).

The appointment is from October 1st for six months. Salary at the rate of £125 per *annum*, with board, residence, and laundry provided.

Applications, together with testimonials, should be sent to the undersigned *not later* than September 21st.

W. M. WILCOX, Secretary.

N.B.—Residents at this Hospital are eligible as candidates for the reciprocity scheme with Barnes Hospital, St. Louis, U.S.A.

Liverpool Stanley Hospital.

Wanted for October 1st, One MALE HOUSE PHYSICIAN and One MALE HOUSE SURGEON. Engagement for a period of six months. Salary at the rate of £100 per annum, with board, laundry, etc.

Candidates must be on the *Medical Register*, and applications, with copies of three recent *testimonials, should be lodged* with the undersigned on or before September 14th.

E. W. OSBORN, Secretary.

Birmingham and Midland Eye HOSPITAL, Church Street, BIRMINGHAM.

HOUSE SURGEON required at the above Hospital. Salary £110 per annum.

Applications, together with copies of not more than three testimonials, should be sent to the undersigned not later than Monday, September 16th. Some previous Ophthalmic experience desirable.

C. A. MASON, Gen. Supt.

August 30th, 1929.

Carnarvonshire and Anglesey INFIRMARY, BANGOR.

HOUSE SURGEON (male) wanted. Must be fully qualified. Salary £200 per annum, with *residence, board, and laundry.* Duties to com[illegible] stating age, nationa[illegible] copies of three recent [illegible] Secretary not later th[illegible]

Manchester Union.

ASSISTANT MEDICAL OFFICER.

The Guardians of the Manchester Union invite applications from medical practitioners, who have had previous resident hospital experience, for

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SPITALS
(1,150
OSBURY,

MANCHESTER:
JUNIOR RESIDENT ASSISTANT MEDICAL OFFICER at the CRUMPSALL INFIRMARY (1,300 beds) and INSTITUTION (1,600 beds), including 600 beds for Mental Patients, CRESCENT ROAD, CRUMPSALL, MANCHESTER.

The Hospitals and the Infirmary are recognized Training Schools for Nurses and are equipped with all modern hospital requirements.

The appointments are entirely separate and the salary for each will be at the rate of £275 per annum, with rations and furnished apartments, subject to the usual deductions under the Poor Law Officers Superannuation Act, 1896.

The successful candidates will be required to commence duty on October 1st.

Applications, endorsed "Medical Appointment," stating at which establishment—Withington or Crumpsall—an appointment is desired, accompanied by not less than three testimonials, must reach me not later than Wednesday, September 11th proximo.

Candidates desiring to apply for more than one appointment must send in a separate application in respect of each Hospital.

By Order,
Union Offices, All Saints, Manchester. F. W. GREENHALGH, Clerk to the Guardians.
August 29th, 1929.

North Middlesex Hospital,

EDMONTON, N.18.

SECOND ASSISTANT SURGEON (male) required for General and Obstetric Surgery. Age not over 45 years. Candidates must have held senior posts with surgical experience, and be able to deal with all surgical and obstetrical emergencies. The appointment is a whole-time one, and the gentleman appointed will be resident, and must be unmarried. The work will include wards, theatre, and alternate 24 hours Emergency Duty. Candidates are expected to hold a University Degree in Surgery and should be or become a Fellow of a Royal College of S riting, stating age, rticulars of exper to be sent to the S above address. Salary £500 per annum, with board and lodging. No personal interviews at present.

Blackburn and East Lancashire

ROYAL INFIRMARY.

RESIDENT HOUSE PHYSICIAN (male) required at a salary of £150 per annum, with board, residence, laundry, etc. In addition to Medical Wards, to be attached to Eye, Ear, Nose, and Throat Department. To commence duties on October 1st.

FOURTH HOUSE SURGEON (male) also required at a salary of £130 per annum, with board, residence, laundry, etc.

The Hospital contains 240 beds, with X-ray, Massage, V.D., Eye, Ear, Nose, and Throat Departments, Pathological Laboratory, etc. There is no outside work.

Applications, with copies of testimonials, stating age, nationality, experience, etc., to be sent at once to the undersigned.

Royal Infirmary, Blackburn. NATHAN A. SMITH, Gen. Supt. & Secretary.

East Ham Memorial Hospital,

Shrewsbury Road, E.7. (100 Beds.)

This Hospital was opened on January 1st and is now in full working order. Applications are invited for the appointment of RESIDENT MEDICAL OFFICER for six months commencing October 1st, with a salary at the rate of £200 per annum, and board, residence, and laundry. Applications, stating age, experience, and full particulars should be sent, with copies of testimonials, as soon as possible, and not later than September 19th, to the undersigned, from whom any further information may be obtained.

J. F. MORTON, Secretary.

The Bristol Royal Hospital for

SICK CHILDREN AND WOMEN,
St. Michael's Hill.

Applications are invited from gentlemen for the position of HOUSE PHYSICIAN. Salary £125 per annum, with board, rooms, attendance, and laundry.

Applicants should state age, qualifications, and experience, and send testimonials, not later than Monday, September 16th, addressed to the Secretary.

September 7th, 1929.

Royal Chest Hospital,

City Road, E.C.1.
(Royal Northern Group of Hospitals.)

Applications are invited for the following posts vacant on November 1st:

OUT-PATIENT MEDICAL OFFICER (part-time). The appointment is for six months with eligibility for re-election. Salary at the rate of £100 per annum, with luncheon provided. The officer appointed must be a registered medical practitioner and will be required to attend at the Hospital each morning from 10 a.m. till 1 p.m.

RESIDENT MEDICAL OFFICER. The appointment is for six months, when re-election is required. Salary at the rate of £150 per annum, with board, residence, and laundry.

HOUSE PHYSICIAN. The appointment is for six months. Salary at the rate of £100 per annum, with board, residence, and laundry.

Applications, with copies of testimonials, should be sent on or before September 23rd to the undersigned, from whom forms of application, rules, and further particulars can be obtained.

Royal Northern Hospital, N.7. GILBERT G. PANTER, Secretary.

Cheltenham General and Eye

HOSPITALS.

The Board of Management invite applications for the post of HOUSE SURGEON (male, unmarried) at the Eye, Ear, Throat, and Nose Branch.

Candidates must be fully qualified.

Experience in this particular class of work desirable.

Salary £200 p.a., with board, residence, and laundry.

Applications, with copies of testimonials, to be sent in sealed envelopes marked "House Surgeon—Eye," to the undersigned not later than the 14th instant.

J. CUMMING SMITH, F.C.I.S., Secretary.
General Hospital, Cheltenham. September 2nd, 1929.

Cheltenham General and Eye

HOSPITALS.

The Board of Management invite applications for the post of HOUSE SURGEON (male) at the General Hospital.

Candidates must be unmarried, and have a registered qualification in Medicine and Surgery.

Salary £200 p.a., with board, lodging, and laundry.

Applications, with copies of testimonials, to be sent in sealed envelopes marked "House Surgeon," to the undersigned not later than the 14th instant.

J. CUMMING SMITH, F.C.I.S., Secretary.
General Hospital, Cheltenham. September 2nd, 1929.

Princess Alice Memorial

HOSPITAL, EASTBOURNE. (91 Beds.)

Applications are invited for the post of JUNIOR HOUSE SURGEON (male) rising to SENIOR after three months subject to satisfactory performance of duties. Candidates must be unmarried, fully qualified, and registered. The appointment is for six months commencing October 1st. Salary at the rate of £100 per annum as Junior and £125 as Senior, together with board, lodging, and laundry. Applications, stating age and qualifications, and accompanied by copies of not more than three recent testimonials (one of which must be from Medical School), should reach the Secretary not later than September 19th.

Hospital for Women at Leeds.

Notice is hereby given that the Special Election Committee will proceed to the election of an HONORARY SURGEON (Gynæcological and Obstetrical) on October 24th. Information as to the duties and necessary qualifications for the office will be supplied on reference to the Secretary. All applications should be addressed to the Chairman, at the Hospital, and be marked "Private," and should be received on or before October 1st.

By Order,
GEORGE BLACKWELL, Secretary.
Leeds.
September 2nd, 1929.

Stockton and Thornaby Hospital,

STOCKTON-ON-TEES. (140 Beds.)

Applications are invited for the post of JUNIOR RESIDENT MEDICAL OFFICER (male). Salary £150, with residence, board, and laundry. Candidates for the above post must be double qualified and unmarried, and are required to commence duties on October 1st.

Application, stating age, nationality, and experience, together with copies of three recent testimonials, to be sent to the undersigned as early as possible.

J. WILKINSON, Secretary.

The Hospital for Sick Children,

Great Ormond Street, London, W.C.1.

An ASSISTANT PATHOLOGIST and RESEARCH FELLOW is required in the Pathological Department on October 3rd.

Gentlemen are invited to send in their applications, addressed to the Secretary, accompanied by copies of not more than three testimonials given specially for the purpose, before 12 o'clock, on Monday, September 30th.

The appointment is whole-time and is non-resident.

The appointment is made for one year, but the successful candidate will be eligible for reappointment.

Salary £450 per annum and allowance for substitute for annual holiday, 24 guineas.

The Assistant Pathologist and Research Fellow will devote half his time to the routine bacteriological and serological work of the Hospital, and the other half to the carrying out of Research work, primarily in connection with Rheumatism. Preference will therefore be given to candidates who have shown their aptitude for Research by their previous experience or publications.

Candidates must be registered medical men, and be prepared to take up the duties on October 3rd.

All candidates must be in attendance to appear before the Joint Committee, if required, at their meeting on Wednesday, October 2nd, at 4.45 p.m.

Forms of application, copy of the rules and details of the duties of the appointment, will be supplied on application to the Secretary.

By Order of the Board of Management,
JAMES McKAY, Secretary.
September, 1929.

The Hospital for Sick Children,

Great Ormond Street, London, W.C.1.

A HOUSE SURGEON and a HOUSE PHYSICIAN are required on October 4th and 14th respectively.

Gentlemen are invited to send in their applications, addressed to the Secretary, before 12 o'clock, on Monday, September 30th, with copies of not more than three testimonials given specially for the purpose, and also evidence of their having held a responsible Hospital appointment.

The appointments are made for six months. Salaries at the rate of £100 per annum, laundry allowance £5, board and residence in the Hospital.

Candidates must be unmarried and possess a legal qualification to practise.

All candidates must be in attendance to appear before the Joint Committee, if required, at their meeting on Wednesday, October 2nd, at 4.45 p.m. precisely.

Forms of application and copies of the Rules may be obtained from the Secretary.

By Order of the Board of Management,
JAMES McKAY, Secretary.
September, 1929.

Royal United Hospital, Bath.

Wanted, on October 1st, a HOUSE SURGEON. Salary £150 per annum.

The appointment will be for not less than six months, and candidates must be male, unmarried, and of British nationality.

Applications, with three recent testimonials, must be addressed to the Secretary not later than the 14th inst.

J. M. SHEPPARD, F.C.I.S., Secretary.

Bury Infirmary.

(A General Hospital of 150 Beds.)

Wanted, in October, JUNIOR HOUSE SURGEON (male). Duties will include the administration of anæsthetics, as well as attendance in the casualty, ophthalmic, ear, nose, and throat, and other special departments. The appointment is for a period of six months, at a salary at the rate of £150 per annum, with board, residence, and washing. Applications, endorsed "House Surgeon," stating age and nationality, with copies of three testimonials, to be sent to the Honorary Secretary, H. MCSCROP ROBINSON, 4, Manchester Road, Bury, Lancashire.

Queen Charlotte's Maternity

HOSPITAL.
(Formerly Queen Charlotte's Lying-in Hospital.)
Marylebone Road, N.W.1.

RESIDENT ANÆSTHETIST required to commence duty on or about October 1st.

Applicants must be registered. Appointment for six months. Salary at the rate of £80 per annum, with board, residence, and washing allowance (4/- weekly).

Copies (not originals) of not more than three testimonials, will be received by the Secretary up to September 21st.

ARTHUR WATTS, Secretary.

CAVENDISH NURSES (Male and Female)

Head Office: 54, BEAUMONT ST., LONDON, W.1 (late 43, New Cavendish St., London, W.1.)

A very convenient form of telephone message pad sent free on application to the Secretary.

Branches: *MANCHESTER*: 176, *Oxford Road.* *GLASGOW*: 28, *Windsor Terrace.* *DUBLIN*: 23, *Upper Baggot Street.*

TELEGRAMS: TELEPHONES:

Tactear, London. Surgical, Glasgow. London, 1277 Welbeck. Glasgow, 477 Douglas.

Tactear, Manchester. Tactear, Dublin. Manchester, 3152 Ardwick. Dublin, 531 Ballsbridge.

Superior trained Nurses for Medical, Surgical, Mental, Dipsomania, Travelling and all cases. Nurses reside on the premises, and are always ready for urgent calls Day and Night. Skilled Masseuses, Masseurs, and good Valet attendants supplied.

Terms from £3 3s. *Apply to the Secretary or Lady Supt.*

West London Hospital,
Hammersmith Rd., W.6. (225 Beds.)

Applications are invited for the post of RESIDENT ASSISTANT SURGEON from October 1st next. Salary at the rate of £200 per annum, with board, lodgings, and laundry allowance. The appointment will be for one year terminable by one month's notice on either side, and subject to annual re-election, may be extended to not more than three years. (Candidates must be duly qualified medical practitioners, and it is desirable that they should hold the F.R.C.S. (England) Diploma. Applications, accompanied by copies of testimonials, must reach me not later than first post on Friday, September 13th. Candidates must attend a Meeting of the Medical Council on Friday, September 20th, at 4 p.m., and prior to that date call upon and send copies of application and testimonials to each member thereof. They must not canvass Members of the Board, but, *if notified, must attend a* Meeting of the Board at 5 p.m. on Tuesday, September 24th, when the election will be made.

H. A. MADGE, Secretary.

West London Hospital,
Hammersmith Rd., W.6. (225 Beds.)

Required, One HOUSE PHYSICIAN, Two HOUSE SURGEONS, and One AURAL and OPHTHALMIC HOUSE SURGEON, and RESIDENT ASSISTANT CASUALTY OFFICER (males) for six months from October 1st next, subject to one month's notice on either side. Salary at the rate of £100 per annum, with board, lodging, and washing allowance. Candidates must be registered under the Medical Act. Applications and copies of testimonials (in quadruplicate) (which must be made on printed forms obtained from me), must reach me not later than first post on Friday, September 13th. Selected candidates will be required to call upon such Members of the Medical Staff as directed, to be in attendance at a Meeting of the Medical Council on Friday, September 20th, at 4 p.m., and the House Committee Meeting at 4.45 p.m. the same day, when the appointments will be made.

H. A. MADGE, Secretary.

Walsall General Hospital.
(Supported by Voluntary Contributions.)

The *Committee invite applications* (from men) for the post of RESIDENT SURGICAL OFFICER. Salary £200 per annum.

Candidates, who must be registered under the Medical Acts, must have had previous surgical experience and produce three recent testimonials.

The appointment will be for six months from *October 1st.*

The Hospital contains 100 beds and is equipped in all special departments.

Applications must be received by the undersigned not later than the first post Tuesday, September 17th.

WALTER FRANCOMBE,
August 23rd, 1929. Secretary.

Seamen's Hospital Society,
Greenwich, S.E.

MEDICAL OFFICER required at the ALBERT DOCK HOSPITAL, Connaught Road, E.16, for six months from October 1st. Salary £110 per annum, and a proportion of fees, with board, residence, and washing.

Applications, with copies of three testimonials, to be sent in by September 18th to the *undersigned.*

Greenwich. R. E. V. BAX,
August 26th, 1929. Secretary.

Seamen's Hospital, Greenwich.

HOUSE PHYSICIAN and *HOUSE SURGEON* required at DREADNOUGHT HOSPITAL, Greenwich, for six months from October 1st. *Salary £110 per annum, and a proportion of* fees, with board, residence, and washing. Candidates must be male.

Applications, with copies of three testimonials, to be sent in by September 18th to the undersigned.

Greenwich. R. E. V. BAX,
August 26th, 1929. Secretary.

The Royal Sea Bathing Hospital
FOR SURGICAL TUBERCULOSIS,
MARGATE.

HOUSE SURGEON REQUIRED.

A Male House Surgeon is required to take up duty on October 1st next. The salary is at the rate of £100 per annum, with board, residence, attendance, and laundry.

Candidates for the post must be legally qualified and registered. The appointment is for six months.

There are 300 beds for adults and children, which afford special opportunities for the study of surgical tuberculosis.

Applications, stating age and previous appointments, with copies of three testimonials, should be sent to the Secretary, R.S.B.H. Offices, 15, York Buildings, Adelphi, London, W.C.2.

Freemason's Hospital and
NURSING HOME,
237, Fulham Road, Chelsea, S.W.3.

The post of RESIDENT MEDICAL OFFICER (male) will be vacant on October 1st. Salary at the rate of £250 per annum, with board, *residence, and laundry. The appointment* is for six months. Candidates must be registered and must have held Resident appointments at a General Hospital.

The Institution (47 beds) is for paying patients of both sexes of moderate means unable to afford ordinary nursing home treatment, etc.

Applications, stating full particulars, to be sent on or before September 13th next to the Honorary Secretaries, from whom further information may be obtained.

The London Lock Hospital,
91, Dean Street, W.1.

The Board of Management invite applications for the post of HOUSE SURGEON at the Male Lock Hospital. Candidates must be doubly qualified and duly registered. Salary at the rate of £200 per annum, with furnished flat, full board and laundry. The appointment to be for six months. *Duties to commence October 10th.*

[illegible] copies (only) of three nt to the undersigned
" 91, Dean Street, W.,
on or before September 23rd.

By Order of the Board,
H. J. EASON, Secretary.

General Hospital, Gt. Yarmouth.
(72 Beds.)

Applications are invited for the post of SENIOR HOUSE SURGEON. Salary £150 per annum, with board, residence, and laundry. *Duties to commence* at once. *Candidates* (male and unmarried) must be fully qualified and registered.

Applications, stating *age, nationality,* and qualifications, together with copies of three recent testimonials, to be sent immediately to the undersigned.

T. H. G. GARTLAND, Secretary.

Royal National Orthopædic
HOSPITAL,
COUNTRY BRANCH, BROCKLEY HILL, STANMORE, MIDDLESEX.

Applications are invited for the post of HOUSE SURGEON. Salary £150 per annum, with board, quarters, and laundry. *The appointment* is for six months from October 1st, renewable for a further period of six months on the recommendation of the Medical Board. Applications, with copies of testimonials, should be addresssed to the Secretary, 234, Great Portland Street, W.1, not later than September 13th.

Royal National Orthopædic
HOSPITAL,
234, Gt. Portland Street, W.1.

Applications are invited for the post of HOUSE SURGEON. Salary £150 per annum, with board, quarters, and laundry. The appointment is for six months from October 1st, renewable for a further period of six months on the recommendation of the Medical Board. Applications, with copies of testimonials, should reach the Secretary not later than Sept. 13th.

Northampton General Hospital.

There will be vacancies on October 1st next, for One *HOUSE PHYSICIAN,* One HOUSE SURGEON, and One ASSISTANT HOUSE SURGEON. British nationality. Salary £150 per annum, with board, residence, and laundry.

The successful candidates will be appointed for a period of six months and will be eligible for re-election for a further period.

Candidates must be duly qualified and registered.

Applications, stating age, sex, qualifications, etc., with copies of testimonials, to reach the undersigned not later than September 11th.

H. ST. JOHN WOOD,
August 26th, 1929. Secretary-Supt.

Notts County Mental Hospital,
RADCLIFFE-ON-TRENT.

The Committee of Visitors invite applications for the position of *JUNIOR ASSISTANT* MEDICAL OFFICER from gentlemen duly registered under the Medical Acts.

Salary will be after the rate of £350 per annum, rising £20 per annum to maximum of £450 per annum, together with full residential *allowances,* valued for *superannuation* purposes at £109 4s. per annum.

The appointment is subject to the Asylums *Officers Superannuation Act,* 1909, and will also be subject to one month's notice on either side.

Application forms, which must be returned not later than September 14th, may be obtained from the Clerk to the Committee, Mr. J. F. GELL.

Central London Throat Nose, and
EAR HOSPITAL,
Gray's Inn Road, W.C.1.

CHIEF CLINICAL ASSISTANTS.

There are vacancies for Two Chief Clinical Assistants. The appointments are honorary and tenable for one year, subject to re-election.

Attendance is required at two Clinics each week to assist the Surgeons in seeing the patients.

Applications, accompanied by copies of not more than three recent testimonials, should be sent to the undersigned on or before Sept. 9th.

JOHN H. YOUNG, Secretary-Supt.

Kettering and District General
HOSPITAL. (82 Beds.)

Applications are invited for the post of JUNIOR HOUSE SURGEON. Salary £100 p.a., with board, residence, and washing. Candidates must be fully qualified and registered.

The appointment is for six months, but candidates will be eligible for re-election.

Applications, stating age, *nationality,* and qualifications, together with copies of three recent testimonials, to be sent immediately to *the Secretary-Superintendent.*

The Royal Eye and Ear Hospital,
BRADFORD.

Applications are invited for the post of JUNIOR HOUSE SURGEON (male).

Salary £120, with board, residence, and laundry.

Applications, stating qualifications, age, etc., with copies of recent testimonials, to be forwarded to the undersigned on or *before* September 10th.

F. BRIGGS, Secretary-Supt.

Rotherham Hospital.

Wanted, HOUSE PHYSICIAN (male), qualified. Salary £180 p.a., with board, lodgings, and laundry, to have charge of Out-patients, administer Anæsthetics, and assist *Honorary* Physician.

Applications, with copies of recent testimonials, to be sent to the *Secretary,* G. W. ROBERTS, 8, Moorgate Street, Rotherham.

Lowestoft and North Suffolk
HOSPITAL.

HOUSE SURGEON (male) required. Salary £150 per annum, with board, residence, and laundry. Applications, with copies of three *recent testimonials, to the Honorary Medical Superintendent.*

The Children's Hospital, BIRMINGHAM.

ASSISTANT RADIOLOGIST.

The Committee of Management invite applications for the above appointment.

Applicants must be registered and hold a Medical and Surgical qualification.

The honorarium attached to the post is £50 per annum.

The successful candidate will be required to attend daily (except Saturday) from 2.0 to 3.30 p.m. His duties will be to assist the Radiologist and to supervise the work in the Massage and Electro-therapeutical Department.

three years, with for a further three honorarium ceases, me a full Member

of the Honorary Staff.

Applications, stating age and qualifications, together with copies of testimonials, to be sent to the undersigned by September 28th.

By Order,
HAROLD F. SHRIMPTON,
August 31st, 1929. House Governor & Sec.

The Children's Hospital, BIRMINGHAM.

PATHOLOGIST AND MEDICAL REGISTRAR.

The Committee of Management invite applications for the above appointment.

Applications must be registered and Members of the Royal College of Physicians.

The appointment (non-resident) is for twelve months, renewable annually.

Salary is at the rate of £400 per annum.

The successful candidate will be required to attend the Hospital from 9.30 to 4.0 p.m. (Saturdays 12.0 noon).

Applications, stating age and qualifications, together with copies of testimonials, to be sent to the undersigned by September 28th.

By Order,
HAROLD F. SHRIMPTON,
August 31st, 1929. House Governor & Sec.

The Loughborough and District GENERAL HOSPITAL AND DISPENSARY.

Wanted, to commence duties on September 21st, RESIDENT HOUSE SURGEON (female and unmarried) possessing a Medical and Surgical registered qualification. Practical experience in the administration of anæsthetics is required. Salary £125, with apartments, board, and laundry. All applications, stating age, etc., with copies of testimonials, to be sent to me at once.

9, Leicester Rd., Loughborough. FRANK H. TOONE, Secretary.
August 30th, 1929.

Kent County Ophthalmic and AURAL HOSPITAL, MAIDSTONE. (72 Beds.)

Applications are invited for the post of AURAL HOUSE SURGEON (male), which becomes vacant shortly. Candidates must be duly qualified and registered medical practitioners, single, and of British birth and nationality. The appointment will be for six months. Salary at the rate of £200 per annum, with board, residence, and washing.

Applications, stating age, together with copies of not more than three testimonials, should be sent to the undersigned without delay.

JOHN W. STRICKLAND, Secretary.

Peterborough and District MEMORIAL HOSPITAL. (154 Beds.)

Applications are invited from fully qualified male practitioners for the post of RESIDENT HOUSE SURGEON.

The appointment will be for a period of six months. Salary £150 per annum, with board, residence, and laundry.

Applications, stating age, qualifications, and experience, with copies of recent testimonials, to be sent to the undersigned by Sept. 12th.

FRANK A. C. TAYLOR,
Secretary-Superintendent.

Ear and Throat Hospital, BIRMINGHAM.

THIRD HOUSE SURGEON wanted (non-resident). Must be qualified and with clinical experience. Appointment for six months. Salary at the rate of £150 per annum, with lunch on five week-days, with an allowance of £50 per annum in lieu of full board and lodging. Duties to commence October 1st.

Applications and testimonials to be forwarded on or before September 17th to the undersigned.

August, 1929. S. G. GREW, Secretary.

Manchester Royal Infirmary.

SECOND SURGICAL REGISTRAR.

The Board of Management of the Manchester Royal Infirmary invite applications for the above appointment, which becomes vacant on October 1st.

Applicants must be registered and hold a Medical and Surgical qualifications, and are required to devote the hours of 10 a.m. to 1 p.m. (Sundays excepted) to the duties of the post.

The appointment (non-resident) is for one year, renewable for a further period of one year, subject to the provisions of the By-laws as to notice, etc. Salary £150 per annum.

Applications, stating age, should be addressed to the Chairman of the Medical Board not later than September 14th.

By Order,
FRANK G. HAZELL,
August 30th, 1929. Gen. Supt. & Sec.

Manchester Royal Infirmary.

JUNIOR ASSISTANT MEDICAL OFFICER IN RADIOLOGICAL DEPARTMENT.

The Board of Management of the Manchester Royal Infirmary invite applications for the above appointment. Applicants must be registered and hold a Medical and Surgical qualification.

The appointment (non-resident) is for twelve months, renewable for a further period of twelve months, subject to the provisions of the By-laws as to notice. Salary is at the rate of £250 per annum. Applicants must state age, and send twelve copies of their application and testimonials, to the undersigned by 9 a.m. on Wednesday, September 18th.

By Order,
FRANK G. HAZELL,
August 30th, 1929. Gen. Supt. & Sec.

Salford Royal Hospital. (263 Beds.)

Applications are invited for the following vacancies, which will occur in the Resident Medical Staff (male) on the 30th instant:

HOUSE SURGEON (attached to the Orthopædic Department). Salary at the rate of £125 per annum.

HOUSE SURGEON. Salary at the rate of £125 per annum.

CASUALTY HOUSE SURGEON. Salary at the rate of £125 per annum.

The appointments are for a period of six months, with board and residence.

Candidates must be registered under the Medical Acts.

Forms of application, which may be obtained from the undersigned, must be delivered without delay.

By Order of the Board,
Salford Royal Hospital, Manchester. GEORGE RUDDLE, Gen. Supt. & Secretary.
September 2nd, 1929.

The King Edward VII Welsh NATIONAL MEMORIAL ASSOCIATION.

Applications are invited from duly registered medical practitioners (male) for the post of SENIOR ASSISTANT MEDICAL OFFICER at the SOUTH WALES SANATORIUM, TALGARTH, BRECONSHIRE (304 beds for male pulmonary cases). Salary £350 per annum, plus maintenance, rising by annual increments of £25 to £400 per annum, plus maintenance.

Applications, stating age, qualifications, and previous experience, together with copies of three recent testimonials, should reach the undersigned not later than September 23rd.

Memorial Offices, Westgate Street, Cardiff. D. A. POWELL, Principal Medical Officer.

General Hospital, Nottingham. (377 Beds.)

A SECOND CASUALTY OFFICER (male) required at the above Institution. Candidates are desired to send applications, stating age, qualifications, and experience, together with copies of testimonials, to the undersigned, with an intimation as to when they can commence duty, if appointed.

The appointment is for six months. Salary at the rate of £150 a year, with board, residence, and laundry.

PETER M. MACCOLL,
House Governor & Secretary.

Peace Memorial Hospital, WATFORD, HERTS.

A RESIDENT MEDICAL OFFICER (male or female) £150 per annum. Appointment for six months, eligible for re-election. Applications, stating age and qualifications, with at least three recent testimonials, should be sent to the Secretary. Duties to commence about September 10th. No canvassing permitted.

THE OLDEST AND LEADING MEDICAL AGENT

PERCIVAL TURNER,

(Established 50 years.) LTD.
4 & 5, ADAM ST., STRAND, W.C.2.
Telegrams: "EPSOMIAN, LONDON."
Telephone: TEMPLE BAR 9011.

Terms post free on application.

Wilts.—£2,250 p.a. Country Town. Panel 1,000. Surgical scope. Choice of houses. Premium £1,800 for 2/5 share.—No. 8541.

Lancs. — Average £1,590 p.a. 1/2 share for sale. Panel £300 p.a. House, 4 bed., etc., to rent. Premium only £1,200.—No. 8517.

Salop.—Average £1,300 p.a. Country Town. Small panel. Fees 7/6 to 10/6. Mids. 4 to 7 gns. House, 6 beds., etc. Nice garden to rent.—No. 8532.

Dorset. — Average £2,300 p.a. 1/2 share for sale. Good appts. Small panel. House, 6 bed., etc., and garden, to rent. —No. 8537.

Liverpool.—£1,300 p.a. Visits 3/6 to 5/-. Mids. 3 to 4 gns. Panel 560. House, 4 bed., etc., and garden.—No. 8536.

N. W. Suburb. — £700—£800 p.a. Death Vacancy. Small panel. Mids. 3½ gns. Visits from 5/-. Nice house and garden.—No. 8535.

Yorks. — Average £1,800 p.a. Panel over 1,000. Visits 3/6 up. No mids. House, 5 bed., etc.—No. 8533.

Cornwall. — About £850 p.a., increasing. Small panel. Visits 4½ to 21/-. House, 6 bed., etc., and good garden.—No. 8529.

Staffs. — About £1,300 p.a. Panel 1,500. Fees 5/-. House, 5 bed., etc., to rent. Premium £1,000 cash.—No. 8527.

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10 DEATH VACANCY.—Surrey.—Practice of between £250/300 p.a. in residential district easy distance of London. Small panel. Specially built *corner residence (4 bed*rooms), with nearly half acre of garden, for sale.

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16 LIVERPOOL. — Increasing Practice of nearly £1,300. Panel 560. House (4 bedrooms), garage and garden, for sale. Golf near by. Premium £1,650.

17 SOUTH OF ENGLAND. — Partnership in *Country Town Practice of nearly* £2,300 p.a. Small panel. Well-built house (6 bedrooms) to rent. Premium one-half share 1½ years' purchase.

18 SOUTH COAST.—Non-dispensing Practice of about £1,900 in residential town. No panel. Choice of house.

19 MIDLANDS. — Practice averaging over £1,850 p.a. in small Industrial Town with pretty country all round. Panel 1,380. Double-fronted house (7 bedrooms) for sale. Good scope. Premium £2,500.

20 MIDDLESEX.—*Partnership in sound* Practice of between £3,000 and £4,000 p.a. in town within easy distance of London. Panel over 2,000. Share worth about £1,000 p.a. at 2 years' purchase after preliminary assistantship.

21 KENT AND SUSSEX BORDER.—Country PRACTICE, nearly £1,150, in beautiful district. Panel about 400. Large house (6/7 bedrooms), with charming garden, etc., for sale. Sport. Premium £1,625.

22 LONDON, W.—Good middle-class Practice of £840 in outlying residential suburb. No panel and practically no midwifery. House (4 bedrooms) and fair-sized garden to rent. Premium £1,100.

23 S.W. OF ENGLAND. — Country Practice of £950 p.a. Panel 400. Very little midwifery and night work. House, with 4 bedrooms, garden, and garage, for sale. *Good* society. Premium 1½ years' purchase.

24 LONDON, N.—Sound easily worked PRACTICE over £2,500 p.a. in residential district. Small panel and *few midwiferies.* Good house (5 bed and dressing rooms), with large garden, to be sold. Premium for Practice 1½ years' purchase.

25 MIDDLESEX. — Rapidly increasing PRACTICE doing about £600 in new developing district. Small panel. Very convenient house (3 bedrooms) for sale. Great scope. *Premium £900.*

26 MIDLANDS. — Partnership (after *preliminary assistantship*) in good *mixed Practice* worth £4,000 p.a. in country town. Panel 3,600. House to rent. Hospital and scope for surgery. Partner should be keen on his work and have held H.S. and H.P. appointments. *One-third share at 2 years'* purchase.

27 NORTH OF ENGLAND.—Partnership in non-dispensing Practice about *£6,000 p.a. in first-rate* Country Town. Small panel. Very good house (6 bedrooms) to be sold or let. Premium one-fifth or two-fifths share 2 years' purchase.

28 WEST OF ENGLAND.—Practice in first-rate town. Receipts past 12 months £1,450. Panel 500. House, *with 6 bedrooms, to rent. Premium £2,000.*

29 CARMARTHENSHIRE.—Practice of over £930 p.a. *derived from contract work and panel, in pretty village.* Modern bungalow residence (3 bedrooms), with separate surgery, standing in 1½ acres of ground. Premium—Practice and house—£2,500, part on mortgage if desired.

30 LANCASHIRE. — Practice of £1,500 in rapidly growing district within a few miles of popular *resort.* Panel over 200. Very nice compact house (4 bedrooms), with beautiful garden and orchard, for sale. Prem.—Practice—£1,500.

31 LONDON, N.W.—Partnership in increasing middle and working-class Practice £2,550. Panel about 1,500. Excellent flat (2 bedrooms) at moderate rent. Premium one-third share £1,700, part by instalment.

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Practices and Partnerships for Disposal (continued).

32 MIDLANDS.—Partnership in sound well-established Practice over £4,000 p.a. in flourishing town. Panel 2,800. House, with 4 bedrooms, to rent. One-fifth share at 2 years' purchase. Partner should be experienced in Surgery.

33 LANCASHIRE.—Partnership in Practice averaging £2,100 p.a. in an industrial district. Panel over 1,500. One-third share at 1½ years' purchase after prelim. assistantship.

34 N. WALES.—Country Practice averaging nearly £450 p.a. in agricultural district. Small panel. Good house (4 bedrooms), with 9½ acres of meadow land, for sale. Hunting, shooting, etc. Premium £450.

35 EASTERN CITY. — Assistantship with view to Partnership in non-dispensing Practice Rs.4,500 a month. After assistantship six months at Rs.700 a month, all found. Third share would be sold at 1½ years' purchase. Applicant must be F.R.C.S.

36 SHEFFIELD.—Practice about £800 (including two appointments £155). No panel and no dispensing. Convenient house (6 bedrooms) for sale or to rent. Prem. £800.

37 CARMARTHENSHIRE. — Steadily increasing PRACTICE of £800 in small country town. Panel 645. Small house (3 bedrooms, etc.) to rent. Premium 1½ years' pur.

38 DEATH VACANCY.—Cathedral City N. of England.—Receipts about £1,100. Visits 5/- to 7/6. House in commanding position (3 sitting rooms, 5 bedrooms).

39 DURHAM. — Well-established Practice £1,169 p.a., including appointments worth about £500 and panel 1,050. House contains 7 rooms, surgery, and waiting room, with separate entrance, to be sold or let. Premium 1½ years' purchase.

40 DEATH VACANCY.—BUCKS.—Practice about £750 p.a. Panel 516. Visits 2/6 to 7/6. Good detached house (2 reception, 3 bedrooms, etc.). Rent £72 p.a.

41 SOUTH OF ENGLAND.—Partnership in sound old-established Practice. Beautifully situated country town. Small nice house available. Rent £47 p.a. Preference Oxford or Cambridge Graduate. *Premium 2 years' purchase for share about* £1,000 p.a.

42 N. WALES (SEASIDE RESORT).—Well-established PRACTICE £600 p.a. in nice residential town. Panel 245. House (7 bedrooms, etc.). Premium, house and Practice, only £2,300.

43 HEREFORDSHIRE.—Practice over £1,000 p.a. Panel 240. Good town. Cottage Hospital. House (4 bedrooms, etc.). Price £1,500. Premium for Practice 1½ years' pur.

44 NORFOLK. — Old-established unopposed Country PRACTICE over £2,450 p.a. Panel 1,800. Visits 6/- to 10/6. Good house (6 bedrooms); freehold £1,000. Premium 1½ years' purchase.

45 S.W. OF ENGLAND. — Non-dispensing PRACTICE £1,750 p.a. in Cathedral City. No panel. House (6 bedrooms) in best quarter. Hospital. Premium 1½ years' purchase.

46 SOUTH COAST.—Favourite Health Resort.—Small old-established PRACTICE, £300 to £350 p.a. Capable of great increase. Excellent house (*5 to 6 bedrooms*) in unique position. Garage and large garden. Freehold £2,000. Premium for Practice £500.

47 LONDON, E. — Cash and Panel Practice about £680 p.a. Panel 800. Visits 3/6 to 5/-. No midwifery. Shop-fronted house. Freehold about £600.

48 SOUTH MIDLANDS. — Well-established Country PRACTICE about £1,500 in first-rate Hunting centre. Panel 733. House (6 bedrooms) with every modern convenience in grounds (2 acres), on lease. Cottage Hospital. Prem. £1,750.

49 N.E. COAST.—Partnership in sound Practice in rapidly growing and attractive seaside town. Panel about 700. Suitable house available. Share of about £1,400 for disposal at 2 years' purchase. Partner aged about 30 and well qualified, who has held resident Hospital appointments.

50 SOUTH AFRICA.—Well-established PRACTICE £1,350 p.a. in small town in Orange Free State. Ten-roomed house in centre of town to rent. Premium £750.

51 YORKSHIRE (W.R.).—Partner required *in better working-class Practice in good district of large city.* Panel over 2,000. Seven-roomed house, with garden, to be sold or let. Great scope. Share worth over £750 p.a. at 2 years' pur.

52 WEST OF ENGLAND.—Partnership in Practice over £3,000 p.a. (£1,000 from panel and appointments) in Residential and partly Agricultural District. House available. Very good Cottage Hospital. One-fourth or one-third share at 2 years' purchase.

53 SOUTH COAST.—Seaside Resort. Non-dispensing PRACTICE about £550 p.a. Small panel. House (5 bedrooms) to let. Scope for increase. Premium £800.

54 SOUTH COAST.—Non-dispensing Practice averaging £1,332 p.a. in favourite Watering Place. No panel. *House at nominal rent. Scope. Premium* 1½ years' purchase.

55 LONDON, E.—Partnership in exceptionally old-established Practice averaging over £3,500 p.a. Good fees and appointments. Two-fifths share for disposal at 1½ years' purchase, or one-third could be purchased at first, part by instalments. Small house may be bought or rented at a moderate figure.

56 YORKSHIRE (N.R.).—Practice of about £1,000 in small Country Town. Panel 430. House (5 bedrooms) to be let or sold. Sport. Scope. Premium £1,250.

57 S.E. COAST. — Non-dispensing Practice averaging nearly £1,850 in Health Resort. No panel. Detached house (7 bed and dressing rooms) and good garden, to be sold or let. Premium 1½ years' purchase.

58 WEST OF ENGLAND.—Partnership in non-dispensing Practice over £5,100 p.a. in first-rate town. Small select panel. House (6 bedrooms) to rent. Partner should be an Obstetrician, and there is scope for gynæcology. Premium five-twelfths share 2 years' purchase.

59 S.W. OF ENGLAND.—Partnership in an old-established Practice of £5,000 p.a. in one of the chief towns. Panel 2,397. House (5 bed and dressing rooms) to rent. One-fifth share 2 years' purchase.

60 SOUTH OF ENGLAND.—Partnership in *non-dispensing* Practice £4,200 p.a. in attractive watering place. Panel about 1,500. Incoming Partner must be F.R.C.S.Eng. or Edin., or M.D.Lond., Oxon., or Camb. One-fourth share at 2 years' purchase. (Preliminary assistantship.)

61 BUCKS.—Practice about £800 in small country town. Panel 741. Nice detached house (4 bedrooms), garden and garage, to rent. Premium £1,200.

62 KENT. — Practice averaging £1,030 p.a. (appts. and panel over £300) in beautiful country district. Convenient house (6 bedrooms) for sale. Premium, Practice, £1,500.

63 EAST ANGLIA.—Country Practice about £1,470 p.a., easy reach of important town. Panel about 1,000. Nice house (10 bed and dressing rooms), *with electric light*, etc., for sale. Premium 1½ years' purchase.

64 N. GLOUCESTERSHIRE. — Country PRACTICE in delightful part. Cash receipts £550. Panel 450. Modern house (6 bed and dressing rooms), with garden 1 acre, for sale. Premium—Practice—£750.

65 EAST COAST. — Partnership in Practice £2,800 p.a. in popular watering-place. No panel. House to rent. One-third share at 2 years' purchase. Partner must have some knowledge of Ear, Nose, and Throat work.

66 YORKSHIRE (W.R.). — Partnership in Practice about £2,600 in one of the chief towns. Panel over 900. Partner should be a Protestant. One-third share at 1½ years' purchase after preliminary assistantship.

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7. NORTH WALES COAST. — *Well-established* middle-class PRACTICE. Receipts average £1,745 p.a. Panel 713. Good modern house to rent. Garage and garden.
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4. CARDIFF.—Old-established better-class non-dispensing worth last year about £1,400. Panel of 450. Fees from 5/- to 21/-. Very little midwifery. Good house in best part of the city. Can be rented on lease. Premium £2,000.
5. ESSEX.—Rapidly developing outlying suburb, within ten miles of the Bank.—Well-established and increasing PRACTICE. Income last year £2,274. Panel of 1,646. Fees 2/6 upwards. Very little midwifery, but large scope. Very good corner house, in excellent repair, with 2 reception, 5 bedrooms, separate professional rooms, etc. Electric light. Garden. Garage. Price for freehold £1,550. Prem. £3,600.
6. LONDON, WEST.—Good-class general PRACTICE, held by Vendor for the past 25 years. Gross cash receipts for past three years average £1,682. Fees 10/6 to 2 guineas. Only a few midwifery cases at from 10 to 20 guineas. Good house, with 3 public and 6 bedrooms, etc. Electric light. Garden. Garage. Rent on lease £150. Premium £2,750.
7. SOUTH-WEST OF ENGLAND.—GOOD HOSPITAL TOWN.—PARTNERSHIP.—A one-half share in a very old-established mixed-class Practice is for disposal owing to the retirement of the Junior Partner. Gross cash receipts average £2,500 p.a., including good appts. Small panel. Low expenses. Commodious house, with garden and garage. Rent £70 p.a. Vendor on staff of Hospital, and scope for surgery. Premium 2 years' purchase.
8. PARTNERSHIP.—WILTS.—*A two-fifths share, with increase up to one-half later*, is offered in a good mixed Practice situated in a pleasant town, with country surroundings. Income from share £900 p.a. Good scope for increase, particularly in surgery and midwifery. Cottage Hospital. Premium 2 years' purchase.
9. WITHIN 50 MILES OF LONDON.—Well-established and increasing PRACTICE situated in small country town in very pretty district. Income last year over £800, including panel of over 500, and appts. worth about £60. Visits 5/6 to 21/-, medicine extra. Exceptionally nice house can be bought, or smaller house available, which can be rented at £50 p.a. Good schools for boys. Premium 1½ years' purchase. Good scope for increase.
10. PARTNERSHIP.—WITHIN 35 MILES OF LONDON, and within a few miles of the coast, a one-third share is for disposal in a very sound old-established Practice, producing last year over £3,600, and this year at the rate of over £4,000 p.a. Panel of 2,250. Fees 2/6 to 10/6. Good house, with 2 reception, 4 bedrooms, and professional rooms. Large garden. Garage. Premium £2,400, £1,800 down and balance by arrangement.
11. WITHIN FIFTEEN MILES OF OXFORD. — Very old-established Country PRACTICE producing about £1,000 per annum, including about £550 from panel and appts. Patients comprise all classes. No resident opposition. Fees 2/6 to 10/6. Good house, with 2 reception, 4 bedrooms, separate entrance to professional rooms, etc. Nice garden, with tennis lawn. Rent on lease £70 p.a. Prem £1,500.
12. BORDERS OF WARWICK AND OXON. — Old-established Country PRACTICE, in attractive district near two good towns. Average income for past three years £1,157, including panel of 580 and appts. worth over £100. Fees 2/6 to 21/-. Good house, with 2 sitting, 4 bedrooms, etc. Separate entrance to surgery. Garden. Garage. Price for freehold £1,250. Hunting, golf, and schools within reach. Premium 1½ years' purchase.
13. SHROPSHIRE.—Unopposed Country PRACTICE, in pretty district, producing this year at the rate of about £1,400, including panel of 550, and appts. worth £65. Visits 5/6 to 7/6, with medicine and mileage extra. Midwifery from 3 gns. About 20 cases. Suitable house, with modern conveniences, and containing 3 reception, 5 bedrooms, etc. Electric light. Garden. Garage. Rent on lease £100 p.a. Good sport and schools. Premium £1,500.
14. SOMERSET.—COUNTRY PRACTICE, within a few miles of the Coast. Old-established mixed general Practice, producing about £930 p.a., including panel and appts. worth nearly £600. Fees from 2/6 to 7/6. Good house, with separate entrance to professional rooms. Rent £58 p.a. Social facilities and schools. Premium £1,400.
15. YORKS.—LARGE TOWN.—Old-established mainly working-class PRACTICE. Income £1,250. Panel of over 1,400. Fees 2/6 to 5/-. Well-situated house, with good garden. Price £1,500. Prem. £1,800.
16. NEAR EPPING FOREST.—Well-established and rapidly increasing mainly middle-class PRACTICE. Income for the present year at the rate of £1,200. Panel of 730, with good scope. Fees 3/-, 5/-, etc. *Excellent house, not overlooked, with ample accommodation and good* garden. Garage. Price for freehold, to include all fittings and fixtures, £2,500. Premium £1,800.
17. SUSSEX.—VILLAGE PRACTICE in delightful surroundings, at present producing over £1,150 p.a., but capable of considerable increase. Fees from 5/6 upwards. Exceptionally charming residence standing in 2½ acres of well laid out garden, and containing lounge hall, 2 reception, 7 bedrooms (3 fitted with h. and c. water basins), dressing room with fitted bath, and other usual offices. Central heating. Electric light. Garage for 2 or 3 cars. Price for freehold £4,300. Premium £1,700.
18. SOUTH-WEST OF —PARTNERSHIP.— A half share is for non-panel, general, and surgical Practi years over £5,000 p.a. Good house, with 2 reception, 6 bedrooms, etc. Premium 2 years' purchase. Purchaser should hold the F.R.C.S.
19. HANTS.—COUNTRY PRACTICE, at present producing about £480 p.a., but offering large scope. Panel of 280. Fees 5/6 to 10/6. Mid. from 3 gns. Convenient house, with 2 reception, 5 bedrooms, etc. Garden and garage. Can be rented on lease at £75 p.a. Premium £800, part by arrangement.
20. NORTH-WEST LONDON.—Within easy reach of Charing Cross.—Old-established mixed-class PRACTICE averaging over £2,000 p.a., including panel of about 1,400. Fees 2/6 to 10/6. Midwifery 3 to 15 gns. Six-roomed house, with bathroom, kitchen, etc. Rent on lease £85. Surgery premises (part let off) rented at £75 p.a. Could be worked as "lock-up." Premium 1½ years' purchase.
21. SOMERSET.—Increasing PRACTICE, situated in very pretty district. Income last year over £900, with good scope. Panel of nearly 400, and appts. worth about £260. Fees 2/6 to 15/-. Not much midwifery from 7 to 15 gns. Good house, with 2 reception, 5 bedrooms, etc. Garden. Price for freehold £1,275, part on mortgage. Excellent sport. Schools. Premium 1½ years' purchase.
22. LIVERPOOL.—Centrally situated old-established PRACTICE. Income about £1,500. Panel of over 2,500, worked from Branch Surgery. Visits and medicine from 3/6 to 7/6. Little midwifery. Large corner house, with garden and garage. Recently redecorated. Electric light and new hot water system throughout. Price, freehold, £2,000. Large scope for increase. Premium 1½ years' purchase.
23. GLOS.—LARGE TOWN.—PARTNERSHIP.—A half share of an old-established good-class non-dispensing Practice, owing to retirement through ill health of senior partner. Income about £5,000, with small select panel. Fees 5/- to 10/6. Purchaser should be about 40, married, and keen on midwifery. Good house available at low rental. Premium 2 years' purchase, part by instalments.
24. YORKS.—COAST TOWN.—Middle and working-class PRACTICE, averaging, for the last three years, over £1,800 p.a. Panel of 1,000. Fees 2/6 to 10/6. Little midwifery, but scope for this Convenient house, with 2 reception, 5 bedrooms, etc. Small garden. Rent on lease £80 p.a. Premium 1½ years' purchase. £1,500
25. KENT.—COAST TOWN.—In a rapidly developing middle and working-class d ICE, producing this year at the rate of 0. Fees from 5/-. Good freehold house, for Practice and house £2,000.
26. NEAR osed Country PRACTICE, held by Vendor 10 years, and situated in an attractive district within easy reach of two good towns. Cash receipts for 1928 £656, and this year at rate of £700. Panel of over 500. Fees 2/6 to 12/6. Large house with 6 bedrooms, etc., and an acre of garden and paddock. Price for freehold £1,200. Premium £900.
27. CHANNEL ISLANDS.—Old-established better and middle-class PRACTICE. Income about £1,000, but has been much more. Fees 5/- to 21/-. Little midwifery. Large well-situated house freehold. Excellent schools and sport. Good hospital. Practice very easily worked. Price for house and Practice £4,000.
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29. NEAR CARDIFF.—Village PRACTICE, in pleasant district. Average income for past three years £2,346. Panel of 1,817. Fees from 2/6. Not much midwifery. House contains 3 sitting, 4 bedrooms, and dressing room, etc. Separate professional rooms. Garage. Electric light and gas. Price for leasehold £1,100. Premium 1½ years' purchase, payable £1,000 down and balance by instalments.

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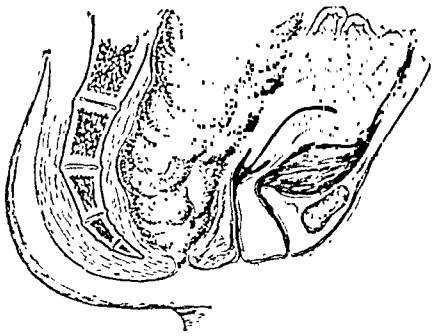

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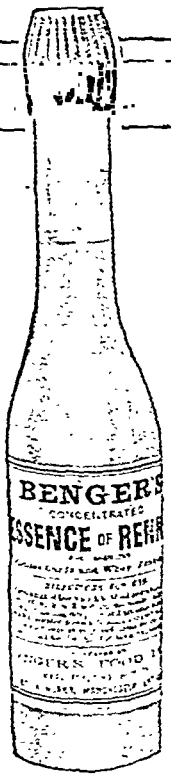

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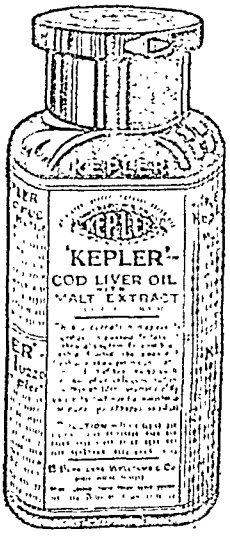

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SCULPTURED FIGURE BELONGING TO THE TIME OF THE EARLIEST INDIAN EMPIRE.—For at least 1000 years before the time which we can illustrate by actual archæological monuments of contemporary date, there had existed in India a well-developed and prosperous civilisation. This we know from the vast literature represented by the Vedas, the great epic poems, the Mahabharata and the Ramayana, books of law and other writings. From these, we learn that, in building and consolidating the empire, war was looked upon as a necessity, though, later, as we know, Asoka renounced war. We can recover from ancient Indian literature many ideals which are often claimed as modern; for instance, the ideal of kingship; a king should "first subdue himself, and then seek to subdue his foes. How should a king who has not been able to conquer his own self be able to conquer his foes?" In his coronation oath the king swore to "consider always as God whatever is law and whatever is in accordance with ethics, and whatever is not opposed to policy; I will act according to that and will never act arbitrarily." Not literature alone, but the developed state of the arts, as evidenced by figures such as the one here reproduced, certifies to a long history of civilisation and of settled government in the land to which it belongs.

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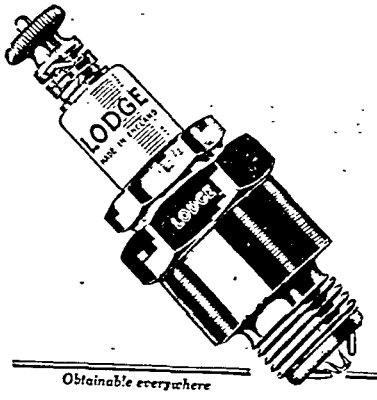

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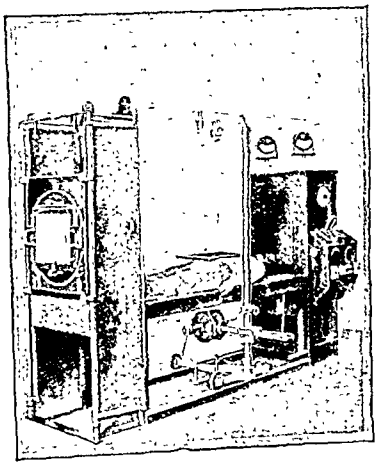

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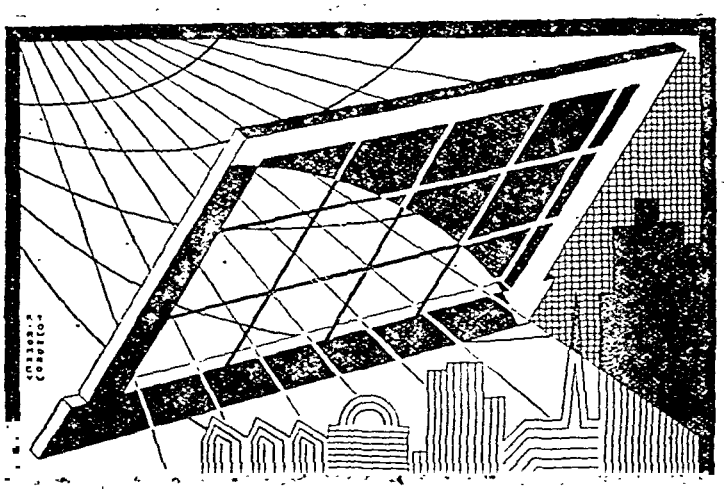

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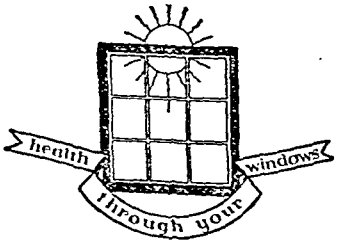

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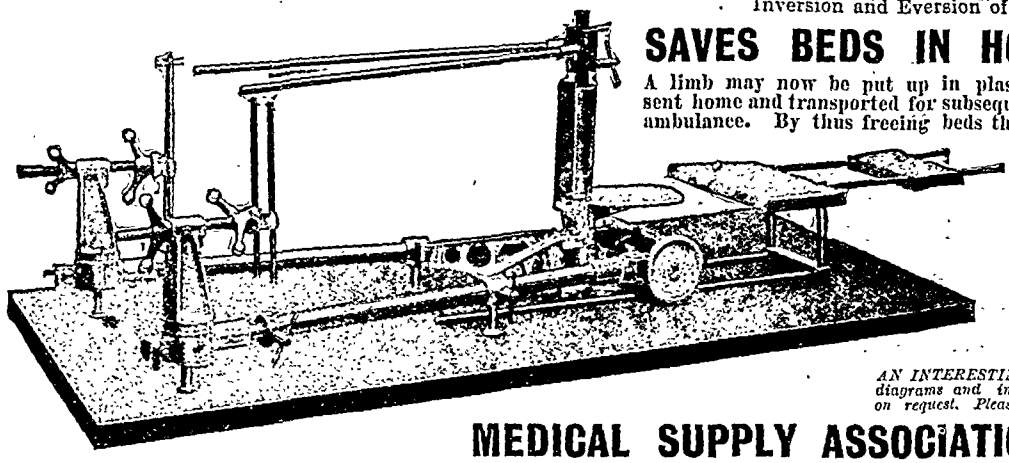

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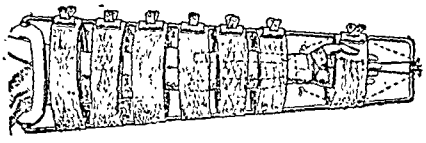

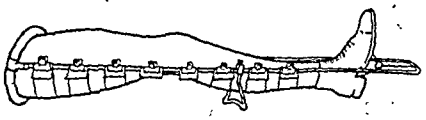

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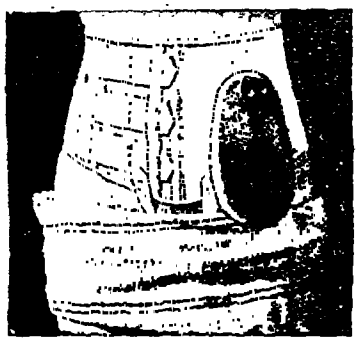

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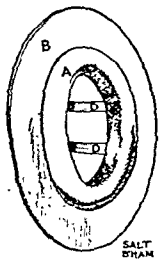

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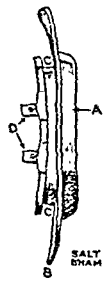

FIG. 2

FIGURES 1 and 2.

A. Solid rubber pad fitting next body.

B. Flange to prevent belt becoming soiled.

C. Groove over which aperture in bag is stretched.

D. Curved bars to hold bag open.

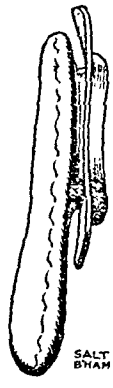

FIG. 3

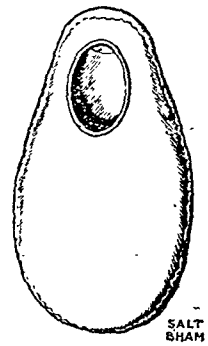

FIG. 4

Figure 3 shows end view of India Rubber receiver with (Fig. 4) bag attached.

Figure 5 shows receiver on belt, bag being on outer side of belt.

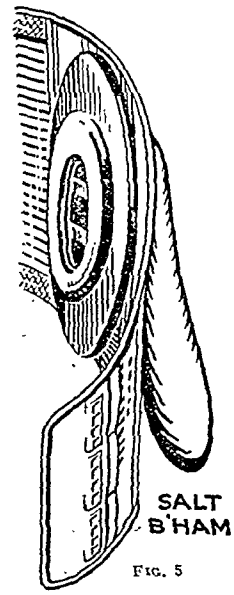

FIG. 5

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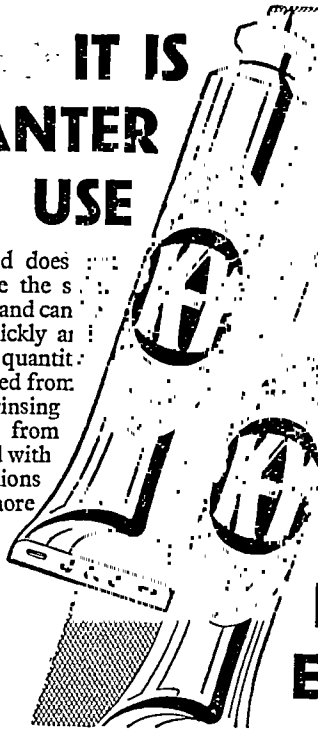

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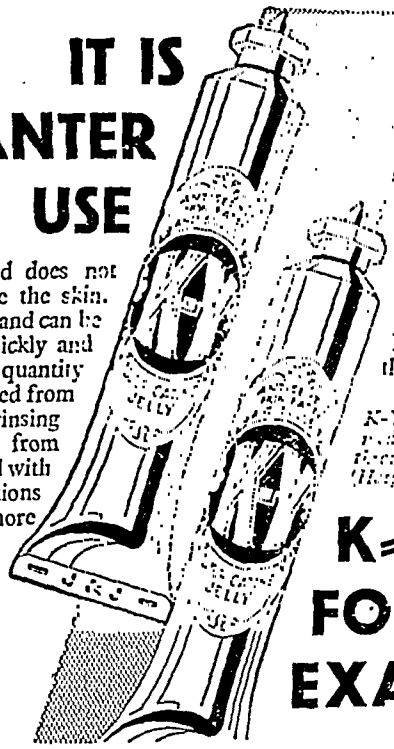

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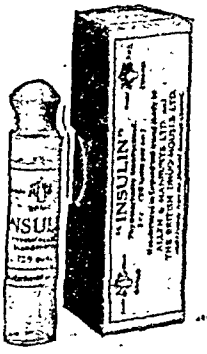

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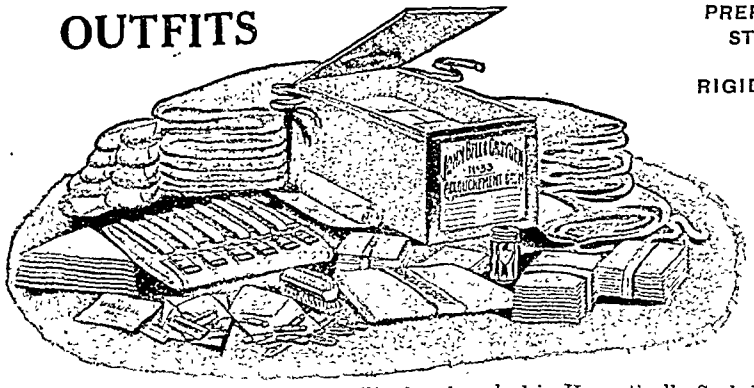

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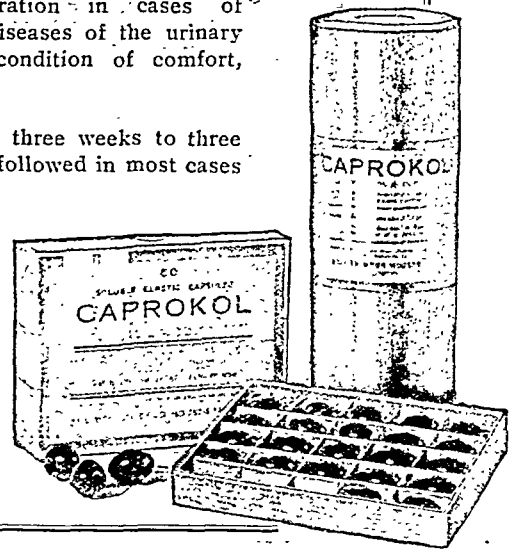

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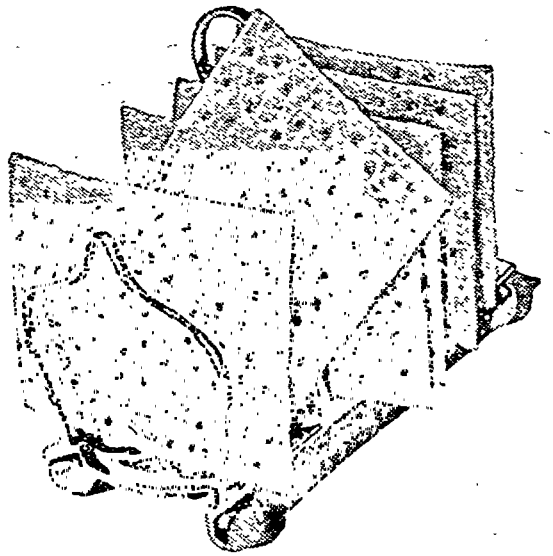

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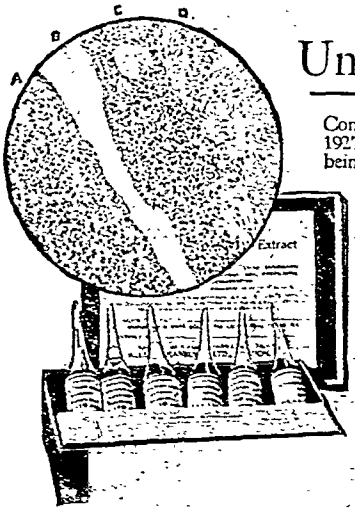

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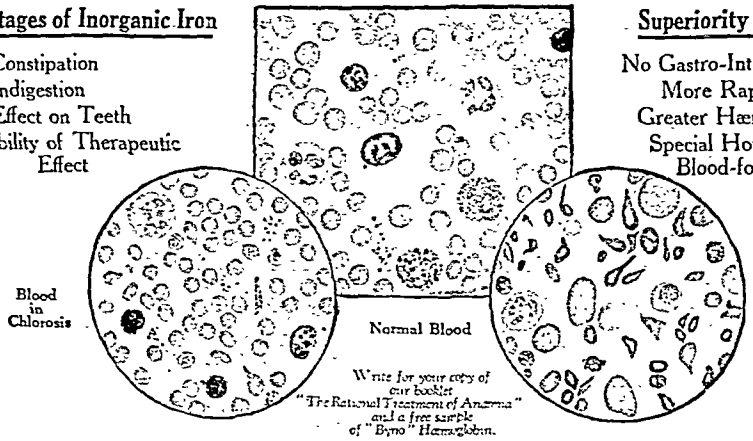

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Observations ON DIAGNOSTIC AND OTHER ERRORS IN QUESTIONS OF VENEREAL DISEASE.*

BY

L. W. HARRISON, D.S.O., M.B., CH.B., F.R.C.P.ED.,
DIRECTOR, VENEREAL DISEASES DEPARTMENT, ST. THOMAS'S HOSPITAL.

THE subject of this paper was suggested to me by a run of such cases as the following.

A man of good position asked me to examine him for gonorrhoea. He said that a year previously he had contracted gonorrhoea, which had cleared up completely without any complication. About three months before I saw him he had married, after passing careful tests by a conscientious specialist. A month after marriage his wife developed a Bartholinian abscess, and on the strength of this the husband was told that he had infected his wife with gonorrhoea. You can imagine his distress. I examined him three times and failed to find any evidence of disease in his urethra or adnexa. A complement fixation test for a gonococcal infection carried out by Dr. Osmond gave a completely negative reaction, and I had no hesitation in saying that he was not suffering from gonorrhoea. On my advice, his wife was seen by Dr. Margaret Rorke, who reported that she could find absolutely no sign of gonorrhoea, and that the bacteriological tests strongly suggested a *B. coli* infection as the cause of the Bartholinian abscess.

You will realize that there were the makings of a marriage wreck in this history, and all from the assumption that a Bartholinian abscess spells gonorrhoea, from failure to make bacteriological tests of the abscess pus, or to examine other parts of the genito-urinary passages for confirmation of the suspicion.

In the course of a few years a specialist in venereal diseases meets a respectable number of cases in which mistakes in diagnosis have been made through failure to take even a little trouble over examination of the patient, and the consequences are often so distressing to the patient, so full of possibilities for wreckage of domestic happiness, that I thought it would not be a bad thing to make some of them the subject of a contribution to the proceedings of this Section. Fearing lest I should omit mention of some important errors, I asked my colleagues in the St. Thomas's Hospital Venereal Diseases Department to give me the benefit of their experiences in this matter, and I am indebted to them for some which I should probably have overlooked.

In questions of gonorrhoea it may sound surprising, but ordinary balanitis is sometimes diagnosed as gonorrhoea. I remember a case in which the mother of a boy at a public school was requested to remove him because the school doctor said he had gonorrhoea. He had simple balanitis. Dislike of examining the penis at close quarters must account for numbers of cases commonly seen in which a syphilitic chancre at the meatus or within the fossa navicularis has been diagnosed as gonorrhoea. It is quite a common thing to see cases of tertiary syphilis in which the patient denies any history of a sore, but admits gonorrhoea. I cannot help thinking that in a number of these, in which the patient says that the discharge was only slight and rather watery, the trouble was due to an intra-urethral chancre. The omission of a microscopical examination leads to many cases of urethritis which are due to chemical causes, to constitutional disturbance, or to infection with diphtheroids, staphylococci, streptococci, *B. coli*, or organisms other than gonococci, being treated as gonorrhoea with potassium permanganate irrigations or with one of the fifty-odd preparations of silver which have been put on the market for this complaint. Sometimes a microscopical examination has been made, but only a simple stain has been employed, and a few streptococci inside pus cells have been diagnosed as gonococci. Sometimes a so-called Gram's stain has been used, but the violet has been dissolved out of Gram-positive cocci by prolonged application of methylated spirit, and the process of conversion of Gram-positive cocci into seemingly Gram-negative ones has been completed by a prolonged application of such a stain as carbol-fuchsin.

On the female side vaginal discharges due to a multitude of causes other than gonococcal are commonly diagnosed as gonorrhoea. On the other hand, I have known scores of cases in which a woman who has clearly infected a patient has gone to a practitioner and been passed as free from gonorrhoea on the strength of one naked-eye examination, or at most a single microscopical test. It has been forgotten that a cervical canal may be swarming with gonococci without a pus cell being present, or that gonococci may only intermittently come to the surface of the cervical canal, and that not one but many examinations are necessary to exclude gonorrhoea in a woman.

I have seen a number of cases in which the sudden appearance of a urethral discharge, due to the breaking open of a prostatic abscess which has formed quietly, has been diagnosed as gonorrhoea solely on the appearance of the discharge, or on badly stained microscopical specimens. Most of the cases have been in married men who, for one reason or another, had for some time suspended sexual intercourse. I imagine that their prostates had for years been secreting pus, but sexual intercourse had kept the foci draining. The micro-organisms have been in different cases staphylococci, *B. coli*, *B. lactis aerogenes*, *B. pyocyaneus*, *B. proteus*, and others, but not gonococci. One would think that in such a case common sense would dictate a microscopical examination of the pus; and, if the patient is married, as he often is, one might think it not a bad idea to make an inquiry as to the wife's condition before thrusting the patient into hell with a diagnosis of gonorrhoea. It may be worth mention here that a non-gonococcal prostatitis can cause symptoms which simulate typhoid, and I have known of some cases being treated for this disease even after the abscess has burst.

Epididymitis, especially if accompanied by a urethral discharge, seems often to write the word gonorrhoea in the practitioner's mind to the exclusion of every other possible diagnosis—for example, an infection with *B. coli*, or even *B. tuberculosis*. Yet only a few more minutes spent over the examination would serve to avoid the error if the case is not gonococcal. I have known some cases of right-sided gonococcal epididymitis diagnosed as appendicitis. The patient suddenly had an acute pain in his right iliac fossa, his temperature went up to 103° or 104° F., and perhaps he vomited. But his right rectus was not rigid, he did not look like an appendix case, and pressure on his cord as it crossed the ischio-pubic ramus caused very severe pain. By these signs, when I was in charge of a very large number of in-patients suffering from gonorrhoea, I saved quite a number of innocent appendices from removal and had none of general peritonitis.

In cases of arthritis, iritis, and similar troubles often classed as gonorrhoeal, microscopical and cultural tests often fail to discover the gonococcus, and the complement fixation test with a gonococcal antigen is negative. On the other hand, my colleagues and I have seen a fair number of cases of gonococcal arthritis soaked with salicylates, or with potassium iodide, gonorrhoea not having been thought of, or having been excluded on the score of naked-eye examinations.

I owe much to the help of the microscope, to the culture tube *containing a properly made medium*, and to the complement fixation test. Properly used they save one from many pitfalls. They do not dispense with ordinary clinical tests, but to deny oneself their help is to walk blindfolded.

Turning now to cases of chronic gonorrhoea, I think the number of innocent prostates and seminal vesicles which have been massaged for trouble which a careful examination would have localized in the anterior urethra must be many thousands. Sometimes it is because in the textbook it says that prostatic massage will often clear up a chronic case of gonorrhoea, and so, without further examination, the prostate is massaged. Sometimes a specimen of prostatic secretion is examined, but it has flowed along a urethra cleansed only partially with a stream of urine, not previously washed down by irrigation as it should be, and so the prostatic secretion contaminated with pus picked up in the urethra has been found to be pathological,

* Made in opening a discussion in the Section of Venereal Diseases at the Annual Meeting of the British Medical Association, Manchester, 1929.

Omission of a urethroscopical examination leads often enough to months of treatment which a touch with a cautery point on one discharging follicle would clear up in a few days. Sometimes I have destroyed a small paraurethral canal and so ended a chronic urethritis which has kept a patient miserable for years.

Chronic urethritis is notoriously difficult to clear up, but I am certain that, if more pains were taken to examine and no method of examination omitted—microscopically, cultural, complement fixation, naked-eye inspection both outside and inside, as well as palpation with fingers and through the medium of instruments—much unhappiness of patients would be avoided. And a patient with a chronic urethritis is generally an unhappy man, far more so than one with a chronic catarrh of the nose or bronchi, and it is important to cure his urethritis even though it may not be physically of any moment.

In questions of syphilitic infection, I would mention first the pernicious practice of commencing the treatment of early cases on mere suspicion—to give the patient the benefit of the doubt as is often said. Those who commence treatment on such principles without having verified the diagnosis by bacteriological methods cannot have much imagination of the effect of a diagnosis of syphilis on the patient's mind. Every syphilologist must have seen numbers of cases in which the patient gave a history of a genital sore which was not examined microscopically, and on the strength perhaps of what was called a weakly positive reaction, or even without any blood test at all, treatment was commenced. The history has left one with a very considerable doubt as to the correctness of the diagnosis, but in most cases one has not dared now to suspend the treatment because the negative reactions might be due to the treatment already given, even though this has been trivial. In some cases, however, I have been so convinced that the original diagnosis was wrong that I have suspended treatment. The reactions have remained negative, but the patient has not been freed of anxiety about his future; he has continued to be tested regularly, and when he has married, if one of his babies has snuffled a little, had a rash of any description, or any ailment whatever, he has worried over the possibility that I was wrong and that he had after all transmitted the disease to his offspring. The pitiable condition of his mind is due to the fault of the original man who commenced treatment to give him the benefit of the doubt. There need be no doubt. With bacteriological aids properly employed the diagnosis of an early case can be made with certainty, and, as a rule, rapidly. Promptitude in commencing the treatment of an early case is certainly important, but I am sure that it is not so important as certainty of diagnosis.

I have mentioned diagnosis on the strength of a serum reaction which is called "weakly positive." In the *Journal of the American Medical Association*, 1926 (vol. 87, p. 1351), there appeared an article by J. H. Mitchell entitled "Menace of the slightly positive Wassermann reaction," with which I am entirely in sympathy. The author related cases in which a false diagnosis of syphilis had been made on the flimsy evidence of a weakly positive Wassermann reaction alone, or in conjunction with some non-specific dermatosis having a superficial resemblance to syphilis, such as pityriasis rosea or lichen ruber planus. The result had been the firm establishment of that intractable disease syphilophobia. Sometimes marriage engagements had been broken, and at others divorce proceedings been instituted, in consequence of a dishonest or an ill-trained practitioner founding a diagnosis of syphilis on such a reaction. I am sure that every syphilologist of standing could relate similar cases, and I am convinced that the term "weakly positive" should never be applied to any reaction which is weaker than the pathologist's standard for a diagnosis of syphilis. I have always maintained that, for reactions which the pathologist considers insufficiently strong for a diagnosis of syphilis, the term "doubtful" should be employed, and if I got a report that a specimen gave a "weakly positive reaction," I should ask the pathologist if he meant by it such a reaction as is given only by syphilitic serums or one given sometimes by non-syphilitic.

A false diagnosis of syphilis is sometimes based on a single positive reaction with clinical signs which are only faintly suspicious. As an example I have in mind a patient I once saw who had been diagnosed as syphilitic on the strength of an ulcer on the lip and a single positive reaction. No *Sp. pallida* had been found in the secretion from the ulcer, there was no adenitis, and the whole history made a diagnosis of syphilis only the faintest possibility. The patient had attempted suicide after being told he was suffering from syphilis. Another specimen of serum was sent to be tested in the same laboratory and this time was reported as negative. I have always taught that, if a report that a serum reaction is positive is not supported by the clinical data, another specimen of blood should be sent. It is no disparagement of the care taken in laboratories to prevent errors to say that every now and again one will occur; specimens may be confused, a dose of complement may be omitted from a standard tube, a piece of cigarette ash may fall into a standard tube, or a number of other little things may happen which result in a normal serum being reported as positive. Such accidents do not happen once in a thousand tests, but, when they do happen, be sure it will be the specimen in which it is most important that no mistake should be made. If I have the least doubt of a result, I have another specimen tested.

As a good example of a mistake which can happen from jumping to conclusions from a naked-eye examination the following was related to me by my colleague Dr. Anwyl Davies. A person was sent to him with a diagnosis of primary sore on the penis and a secondary rash on the abdomen. Examination showed an oval ulcer on the glans penis with a tender inguinal gland. There was an erythematous rash on the abdomen below the umbilicus, and the combination might easily have been mistaken for syphilis. A prolonged search failed to discover *Sp. pallida* in the secretions, and close questioning revealed that in treating honeycombs with a chemical called "beemol," used to prevent Isle of Wight disease, some had dripped on to his waistcoat and passed through this to his skin. The subsequent history proved this to be the correct explanation of the lesions.

The mention of chemicals reminds one that a very fair imitation of a primary sore can be produced by self-applied caustic stick, and a burn of a lip by a cigarette has been diagnosed as a mucous patch. I once spent an afternoon on a medical board cleansing the record of an officer who had been diagnosed as syphilitic and had protested. The diagnosis had rested on what was said to be a mucous patch on the posterior pharyngeal wall. There was absolutely no evidence of syphilis, but there was a narrow stream of mucus stealing down the middle of the posterior pharyngeal wall, and with only a little book-learning for guidance one might have said it was a snail-track ulcer. Of other conditions in the throat Vincent's angina and diphtheria are, of course, common sources of error.

Scabietic runs on the glans penis are quite commonly diagnosed as primary chancres, especially if they have become a little crusted, and, on the other hand, a cervical chancre on the cervix is sometimes diagnosed as a gonorrhoeal erosion.

Warty conditions about the genitals are a great source of error. Numbers of cases of syphilitic condyloma have been treated for weeks with an ointment suitable for haemorrhoids. Sometimes the patient has not even been examined, and the ointment has been prescribed on the patient's request for "something for piles." On the other hand, many warty conditions have been diagnosed as syphilitic because presumably they were warts, and syphilitic condylomata are warts. In most of these cases, apart from the fact that a careful examination is usually sufficient to distinguish a syphilitic condition from a non-syphilitic, a microscopical examination of the serum from any early syphilitic lesion will usually settle the matter.

Perhaps a less serious error is to diagnose every syphilitic lesion on the genitals as a primary ulcer. It may be awkward then if the patient relates a history of syphilis a few years old and, the lesion being really a gumma, the serum reactions stubbornly remain positive.

Extragenital chancres are commonly overlooked. I have known of a tonsil which was the seat of a chancre being enucleated and the same patient being sent later to a fever

hospital for German measles, the true diagnosis being reached only when the eruption did not clear up in the time usual for measles. Chancres of a terminal phalanx are usually diagnosed as whitlow until a rash appears. The worst error of this kind I ever saw was in a medical officer who was looking after syphilis cases during the war. He allowed his finger to be treated for whitlow, and his tonsils to be cauterized for ulcers, and then went peacefully to hospital for measles. It dawned on him that he had accidentally contracted syphilis, when the measles rash was succeeded by a profuse papular syphilide.

The error of excluding syphilis may be made from the absence of any history of a primary sore. A rather remarkable case of this kind was a nurse who pricked her finger in cleaning up after an operation. She dipped the finger in antiseptic, and no sore appeared, as I have known to happen after the application of an antiseptic in other cases. An axillary adenitis appeared on the side of the pricked finger, and it was diagnosed as tuberculous. Subsequently a general, rather painful adenopathy appeared, and she was treated with ultra-violet rays about three months after the accident. The application of the rays was followed by a rash, which was said to be due to an overdose, but a significant thing was a discoloration of the neck, which appeared at the same time, and was easily recognizable fifteen months later, when we first saw her, as a syphilitic leucodermia. This dated *the infection. Naturally, all other sources of infection* were excluded by careful examination.

A common mistake is to assume that in a patient with positive serum reactions all abnormalities are themselves syphilitic.

An unusual case was one in which a patient came to me with a history that he had been treated for secondary lesions between the toes. He had previously suffered from a gumma on the chest wall, but the peculiarity of secondary lesions succeeding tertiary did not seem to have struck his medical adviser. He had received a course of treatment, but the lesions remained unaffected, so the patient thought he was not being properly treated. A little examination showed that the trouble was due to trauma, and from one of the sores between the toes I picked out a small spicule, which I could not understand until the patient told me he used a loofah in cleansing his feet.

Tertiary syphilis of the tongue has led to many epitheliomata there being overlooked, and I would caution against being misled by a temporary improvement following administration of arsenobenzene preparations in these cases. The tendency to regard all lesions on the genitals as venereal in origin sometimes leads to an epithelioma of the penis being diagnosed as gumma.

Gummata of the testicle have fairly often been removed under a diagnosis of new growth. In one case which I remember I feel sure that the practitioner and also the pathologist were misled by the blameless life of the patient, and it was not until many months later, when an undoubted gumma occurred elsewhere, that the blood was tested.

I think the tendency in nervous diseases is to think of syphilis and in cardio-vascular disease to forget it. At least quite a number of cases of nervous disease due to causes other than syphilis have been sent to me for treatment, and I have seen a fair number of cases of syphilitic myocarditis in which I wished my predecessors had thought of syphilis earlier and left me with less of a wreck to treat.

In questions of treatment it is always a source of wonder to me that there are so many people who give only partial treatment if there has been a doubt about the diagnosis. They would probably agree at once that a thing cannot both be and not be, but yet they act as if it could.

In patients under antisyphilitic treatment failure to diagnose certain skin rashes as due to arsenic and continuance of the treatment has led to most tragic results; so much so that one would emphasize with all one's strength the advice to take serious notice of any dermatosis in a patient undergoing arsenobenzene treatment, however trivial the skin affection may seem. One should consider most seriously whether or not this is arsenical, and decide on continuance of this form of treatment only on firm conviction that it is not. Otherwise the result may be a dermatitis from which the patient may die, or recover only after a long and trying illness. I ought to mention here that bismuth sometimes causes a troublesome dermatitis, though it is very uncommonly so acute as can be one due to arsenobenzene.

I have thus attempted to set out some of the commoner errors in diagnosis in questions of venereal disease. The subject could be expanded to far greater length, but even if space would permit of this the result would only emphasize still more the principle that, in venereal diseases as in others, one must look for and gather all the evidence which will bear on the diagnosis. And, having gathered the evidence, one must sift it with judgement and common sense. If this discussion leads to some reduction in the wretched victims of wrong diagnoses—the poor devils who go through life under the shadow of an anxiety for which there is no real reason—it will have done some good.

THE PRESENT POSITION OF SILICOSIS IN INDUSTRY IN BRITAIN.*

BY

E. L. MIDDLETON, M.D., D.P.H.,

H.M. MEDICAL INSPECTOR OF FACTORIES.

DURING the last two decades the subject of silicosis has become increasingly popular as a topic for contributions to medical literature, and the treatment of the subject has been undertaken from so many different angles that it seems to be an act of supererogation to return to this topic at the present time. There are, however, one or two aspects of the subject which I have felt should be brought directly to the notice of the medical profession, and these are concerned with (1) the occurrence of the disease in the various industries throughout this country; (2) the manifestations of the disease as it presents itself to medical practitioners; and (3) the legislation which has been brought into being within recent years.

For the purposes of this paper I will assume a general knowledge of the etiology, symptomatology, and pathology of the disease, but those who have made a special study of the subject will pardon me if I review briefly a few points on this aspect of the subject.

ETIOLOGY.

Silicosis is produced by the inhalation of particles of silica breathed in with the atmospheric air in the course of a person's employment. In silicosis, properly so-called, the silica is in the form of free dioxide of silicon (SiO_2), in the form of quartz, flint, chert, etc. The particles to produce the disease must be inhaled into the ultimate pulmonary tissue—that is to say, into the alveoli—and must therefore be of a degree of minuteness which will permit of their free passage in the mid-current of the air through the upper respiratory passages and the finest bronchial tubes. Many of the particles return with the expired air, but a proportion of them will adhere to the alveolar walls, as well as to the walls of the bronchi. In the latter case particles are caught in the mucus and removed by the action of the cilia. Those particles which fall on the walls of the alveoli are taken up by phagocytes, which move towards the lymph channels and interspaces in an effort to remove the silica. Where the amount of dust is small the action of the phagocytes is likely to be effective, but where it is great this action is imperfect, the phagocytes, overloaded with dust, becoming detained in their progress. The silica acts on the cells so that they lose their motile power. The result is aggregation of these cells in the lymphatic channels, especially the perivascular and peribronchial lymphatics. A deposit of these cells produces a reaction in the surrounding tissue; fibroblasts are produced which change ultimately into fibrous tissue, and so long as the action of the silica proceeds the formation of fibrous tissue continues, from a centre towards an extending periphery. The fibrous tissue undergoes condensation and contraction, and, pulling on the remaining lung tissue, produces distortion with loss of function. It seems likely that blood vessels are obliterated by compression from the perivascular fibrosis before the corresponding bronchi are obliterated, and I have thought that this might explain the absence of cyanosis in chronic forms of silicosis, in

* The opening paper of a discussion in the Section of Occupational Diseases at the Annual Meeting of the British Medical Association, Manchester, 1929.

contradistinction from respiratory diseases of a more acute type, in which the vessels remain patent after the corresponding area of lung tissue has ceased to carry out its aerating function.

PATHOLOGY.

The pathological characters of a silicotic lung vary according to the progress of the disease. When this is of a very chronic type there are apt to be large areas of dense tissue, extremely hard and black on section, and showing no remnant of lung tissue. These areas may be two or three inches in extent, especially about the upper or middle zones of the lungs, and they are associated with extensive pleural thickening and adhesions. The remaining lung tissue between the nodules or solid masses of fibrous tissue is usually in an extremely emphysematous state. In such lungs it is common to find small foci of tuberculosis embedded in the dense fibrous tissue. These may show excavation or cavitation, but in some cases this is the only macroscopic manifestation of the disease. In other cases tuberculosis of the usual ulcerative progressive type is found, and this may be the ultimate cause of death. In still other cases no massive fibrotic areas are found, but throughout the whole of both lungs nodules are present, varying in size from one or two millimetres to about a centimetre in diameter. On the pleural surface the nodules are represented by minute elevations, like sago grains, covered with a whitish layer owing to the thickened pleura. They feel shotty to the touch and are intensely hard. Where the lungs are so free from pleural adhesions that they can be removed from the chest cavity, these nodules on the outer surface of the pleura present an almost characteristic appearance. In fatal cases of this diffuse discrete type of nodular silicosis, where tuberculosis has not supervened and proved to be the cause of death, there are usually found areas of broncho-pneumonia and congestion. There seems no reason to doubt that silicosis may prove fatal without the intervention of tuberculosis.

Microscopic examination of lung sections shows the nodules to be formed in a characteristically whorled arrangement of the fibrous tissue. The oldest tissue is at the centre of the nodule, and often shows a laminated structure with pigmented particles between the fibres. When the particles or masses are large enough—that is, about 5μ—they can be demonstrated by polarized light. Lymphatic glands from the roots of the lungs are enlarged, intensely hard, and on section are black and show fibrous tissue change, and the presence of pigmented particles on microscopic examination.

SYMPTOMATOLOGY.

The inhalation of silica dust is not usually accompanied by evidences of irritation. When free from other dusts of an irritating kind, silica may be inhaled by the workers without any suspicion that they are exposed to dangerous dust, and, indeed, this fact accounts for some of the indifference shown by workers in neglecting reasonable precautions to protect themselves from the risk of inhaling silica dust, and it likewise prevents an employer from suspecting that danger is being incurred by the workers. With regard to symptoms, we must now distinguish between what we might call the chronic form of the disease and the acute form of the disease, but in describing these it must be understood that there is no hard-and-fast line between the two types of cases, so far as we know at present. This is a matter on which light is badly needed. The chronic form is by far the more common. The first symptom is usually dyspnoea, and this may be noticed any time from about five years to forty years or longer after the commencement of the time of exposure. In the production of this symptom two well-known characters of silicosis are important. The first is the cumulative action of silica—that is, each successive dose of silica produces a summation of effects in the anatomical changes of the lung. The second is the latent period which is necessary for those changes to take place. This means that exposure to silica dust is not followed by symptoms immediately, but after a lapse of time, varying from, say, two years to forty years or more, during which fibrous tissue is formed and the function of the lung is interfered with, the symptoms begin to appear. It means also that when a period of exposure to silica dust has occurred these anatomical changes will proceed even though the subject is removed from further inhalation of silica dust. These two facts together are of the first importance in the prognosis of silicosis and in its control. If it be possible to detect the disease at such an early stage that the amount of silica dust already acting on the lung is less than that necessary to produce disability even when the whole of the latent period is passed, it would be possible, by periodic examinations, to remove from the risk persons with this degree of involvement, so that the disease would never develop to a disabling extent. One of the problems remaining to be solved is just that. Is the disease recognizable at a stage when removal from exposure to silica dust will not be followed by disablement? An important factor in this, of course, will be the intensity of exposure—that is, the concentration of dust in the atmosphere. If the dust cloud be dense, a large amount of silica may be inhaled into the lung before the anatomical changes are produced, and in such a way as to render extensive and severe anatomical changes inevitable.

Apart from dyspnoea, other symptoms are those of any respiratory disease, and they depend on the character and degree of secondary infection and the changes resulting in the lung tissue, the bronchi, and the upper respiratory passages. There is one possible exception to this, and that is in what we have called the "acute form" of silicosis. A few such cases have been noted recently. The onset of symptoms occurred from two and a half to four years after first exposure to inhalation of the dust, and, commencing with dyspnoea, there was rapid development of general constitutional disturbance, with pyrexia and acute illness lasting over a few weeks and terminating in death. In these cases cyanosis was a definite well-marked physical sign, and the whole picture of the illness closely resembled that of miliary tuberculosis. It is possible that the presence of an alkali mixed with the silica dust had something to do with the course of the disease in these cases.

DIAGNOSIS.

Three groups of facts must be available to make a diagnosis of silicosis which can be regarded as satisfactory and final. First, the employment history. Silicosis does not occur without exposure to the inhalation of silica dust. It is necessary that the employment history should be exhaustively studied and that no period of employment should be allowed to escape notice, because a comparatively brief period of exposure may be the only determining factor in a case of silicosis, provided that the latent period is accounted for subsequently.

A clinical examination of the patient can never be dispensed with. The symptoms and course of the disease, as stated by the patient or his relatives, are of the utmost value in making a diagnosis. The clinical examination by inspection of the chest, percussion, and auscultation is never so devoid of result as some of the writings on the subject would lead one to believe. The more one studies the subject the more one is inclined to regard the physical signs as being not only detectable but important, especially in prognosis.

In the radiological examination the technique has now become a science in itself, and so many medical men in the tuberculosis service have made themselves masters of this technique that I leave the subject to be dealt with by those who have modern practical experience. The pulmonary radiograph requires different methods from that employed in connexion with other applications of x rays. The test of a good x-ray film lies in the film itself, and provided that it complies with a certain high standard of technical excellence, the interpretation may safely be left to anyone who has an intimate knowledge of the disease and the appearances which the radiograph provides.

PROGNOSIS.

Prognosis depends on (1) the amount of dust inhaled, (2) the period of time over which this acts, (3) the occurrence of infective processes—tuberculous and non-tuberculous. If diagnosis can be made at such an early stage in the disease that sufficient silica has not been inhaled to produce irreparable damage, and so much damage has not been done as to produce disability, then it seems that the disease can be arrested. I know of no curative procedures

other than those to control secondary infections. When symptoms have become established and the patient is still exposed to the inhalation of dust, it seems inevitable that the condition should progress. This has been the uniform experience. The longer the period of exposure before symptoms have developed, that is, the more chronic the type of the disease, the slower will be its progress, and a period of several years may elapse without any appreciable advance being made in the course of the disease, even when partial disablement has resulted. Even in advanced cases, when dyspnœa is severe, a patient may carry on his work, especially work of a skilled and partially sedentary nature, until within a few days of death. In such extremely chronic cases death usually results from broncho-pneumonia or congestion of the lungs—it may be following influenza.

NOMENCLATURE.

Considering the wide distribution of silica in nature—55 per cent. of the earth's crust consists of free or combined silica—and the many uses to which it is put in industry, it is not surprising that the disease which we have under discussion should be widespread. I will briefly attempt to indicate the main industries in which silica is used in such a way that it may be inhaled by the workers and give rise to silicosis. Before entering on this, however, I would like to say a word on the nomenclature of this subject. Legislation has been brought into force within the last ten years in this country to provide compensation for silicosis, and in that legislation the term "silicosis" is restricted to the disease produced by the inhalation of silica dust. It is necessary, therefore, to restrict the application of the term "silicosis" to the disease condition produced by the inhalation of silica dust (SiO_2)—that is, free silica. This does not mean that the silica must be unmixed with other dusts, but it must occur chemically free, as it does, for example, in quartz, flint, chert, quartzose sands and sandstones, granite, and many rocks and deposits in which quartz or silica in another form is found in substantial proportion. There is a tendency to apply the term "silicosis" to fibrosis of the lung produced by various kinds of dust, and there is a danger that it will be assumed, because fibrosis of the lung is produced by the inhalation of dust, that that dust contains silica in some form or other. It seems to me that this is an entirely wrong method of proceeding. Fibrosis of the lung due to the inhalation of dust should be regarded as such, and the dust producing it should be referred to specially.

The word for fibrosis of the lung produced by dust happens to be "pneumonoconiosis," and I feel that one reason why this is not used as much as it ought to be is because of its unwieldy size, and I am going to suggest that the word "coniosis" be used in the same sense, indicating fibrosis of the lung produced by dust. Seeing that there is no other system than the respiratory system which is essentially effected by dust, *qua* dust, the abbreviated term may be allowed to pass as a complete synonym of the word "pneumonoconiosis." I would suggest, further, that to obviate the necessity for coining new words by putting "osis" on the end of every conceivable substance which may produce fibrosis of the lungs, it would appear to be more accurate to describe the condition as coniosis due to the inhalation of such and such a dust. This is almost essential when we consider that dusts are not inhaled in a chemically pure condition, that in some dusts, indeed, the chemical composition is not clearly known—they are mixtures; and above all, that in the course of his employment history one individual may have been exposed to the inhalation of several kinds of dust, each of which is capable of producing fibrosis, and he may at length suffer from a condition due to the cumulative effects of the inhalation of those dusts, and the resulting disease condition could not be represented by a single term signifying one substance.

INDUSTRIES IN WHICH SILICOSIS OCCURS.

Refractories Industries.—First amongst the industries in which silicosis is produced should be mentioned the refractories industries. This group of processes employs some 2,000 to 3,000 persons in this country, and is concerned with the manufacture of ganister and silica bricks for use in metallurgical and other furnaces to resist high temperatures. For this purpose the bricks contain a high proportion of silica, sometimes considerably over 90 per cent. In defining this industry for purposes of compensation under the Compensation Act a restricting term was used, in which the expression "containing 80 per cent. of silica" is used, and by some this has been interpreted as an indication at which a danger line exists for the production of silicosis—in other words, that anything containing over 80 per cent. of silica will produce silicosis and that anything under 80 per cent. will not produce it. This conception is entirely wrong, as the term was used to define the silica-brick industry from the fire-brick industry, and was one of convenience for administration only. The refractories industries were brought by scheme under the Workmen's Compensation (Silicosis) Act in 1919, and by an amending Act certain special medical provisions have been made whereby a specialist medical board carries out periodic medical examinations and examinations for certificates for compensation of all the persons employed. The members of the board are whole-time medical men, with their administrative centre in Sheffield, which is the geographical centre of the industry. The medical board is on lines similar to that of the medical bureau in the goldfields of South Africa. Apart from the administrative value of such a medical board, the members of the present board, Dr. C. L. Sutherland and Dr. S. Bryson, have contributed valuable investigations to the subject of silicosis in industry since their appointment in 1925.

Sandstone Industry.—The sandstone quarrying and dressing industry represents perhaps the most widespread of all silicosis-producing industries. The sandstones include for this purpose the quartzose and quartzite rocks. It must be within the personal knowledge and experience of every one of you that the stonemason working on such rocks inhales almost continuously at his work minute quantities of the dust, and a stonemason's "phthisis" is well known in districts of the country in which sandstone is used as building material. At the present time machining processes are taking the place of much hand work, and as water and mechanical methods of dust suppression can be used, there is likely to be a diminution in the incidence of silicosis. It is still difficult, however, to protect the stonemason who dresses the stone with chisel and mallet. There has been introduced recently a device for the removal of dust from pneumatic hand tools for dressing stone, which is eminently effective. The sandstone quarrying and dressing of sandstone in quarries has now been brought under the provisions of the Workmen's Compensation Act by a scheme of compensation on the same lines as that for the refractories industries.

Granite Industry.—Allied to sandstone quarrying and dressing is the quarrying and dressing of granite. Granite is an igneous rock which consists essentially of quartz, felspar, and mica. In some native granites of this country they occur in about equal proportions. In many igneous rocks, however, the proportion of quartz is much less, or it may be even absent. A study of mortality records indicates that respiratory disease has been produced amongst granite workers to such an extent as to lead inevitably to the conclusion that the dust from granite was an important factor. This is particularly the case in the United States of America, and to a less extent in this country. The subject, however, is complicated because of the varying composition of the rock dealt with. A medical inquiry into the incidence of silicosis amongst granite workers is being conducted jointly by the Home Office and Mines Department at the present time.

Slate Industry.—Reference might also be made to the subject of slate quarrying and dressing. In 1927 reference was made by Dr. Wade of the Welsh Board of Health in a special report on the mortality rate from tuberculosis of the lungs in a slate quarrying and dressing district in North Wales. A medical inquiry was undertaken by the Mines Department, in which clinical and radiological examinations were made of a number of workers in that district. As a result of the inquiry there appeared to be evidence of the production of fibrosis of the lungs, but the occurrence of actual disability within the ordinary working

lifetime of workers was not so clearly shown. It is possible that in this, as in other forms of fibrosis of the lung, tuberculosis may occur frequently and be the cause of death, while the underlying condition of fibrosis may not be easily recognized.

Grinding of Metals.—"Grinders' rot" is a name associated with the Sheffield trades and the manufacture of cutlery and edge tools, where steel implements are ground on wheels of sandstone. This industry has been notoriously associated with the production of silicosis, and especially the combined disease of silicosis with tuberculosis. The death rate in past years was appalling. One has only to consult the literature of the middle of last century to learn how this industry exacted its toll of the lives of those who took part in it. The grinding of metals is also done as a process in engineering and metal working generally throughout the country. The sandstone wheel or grindstone, while still being used to some extent in many of the processes, is being largely replaced by manufactured wheels of abrasives such as carborundum. One effect of this replacement will be the removal of silica dust from the atmosphere and the more easy control of the abrasive dust by the use of water and mechanical exhaust draught. Dry grinding on sandstone wheels is still carried out in certain industries as in the manufacture of textile machinery, but nowadays localized exhaust draught for the removal of dust is so effective that it is a comparatively safe process. The most serious process in this industry is what is known as "racing" the grindstone—that is to say, the truing up of the face of the grindstone when it is first brought into use by the grinder. Formerly, no attempt was made to control the dust, and in the short time necessary to "race" the stone the operator could inhale enormous quantities of dust. These heavy pollutions of the atmosphere, even over such short periods, were enough to produce severe silicosis after the latent period, even without the continuous exposure at the grinding wheel itself. Recent devices have been introduced for removing the dust at this process of racing a grindstone, and with this improvement, combined with the extensive replacement of the grindstone by artificial abrasive wheels, we may look for a reduction at least in the number of cases of silicosis amongst metal grinders. A scheme of compensation has been made for metal grinders under the Workmen's Compensation Act. This scheme is on different lines from those for the refractories and sandstone industries in that it applies substantially the procedure under the Workmen's Compensation Act in regard to scheduled diseases. It provides for payment of benefits only in cases of total disablement and death.

Sandblasting.—Allied to the grinding of metals is the process of sandblasting of metals. This is carried on at metal works, and consists in playing a jet of sand under high pressure against a metal surface to produce certain effects. In some cases the worker is confined in a small room, and he is then protected by a close-fitting helmet with an air feed, much as in the case of a diver under water. In other instances the operator passes his hands into a cabinet, the dust being prevented from escaping from the cabinet by means of air suction. In spite of these precautions and a genuine attempt to maintain the plant in good order, cases of silicosis amongst sandblasters are being met with to-day. It is a process which is becoming more extensively used in industry, and it is a matter for serious consideration whether a substitute, such as iron or steel grit, could not be used to replace the siliceous grit as the abrading material. Sandblasting is also used in the etching of glass.

Pottery Manufacture.—Where does the potter get his silicosis or "potters' asthma"? In the manufacture of earthenware the body of the ware consists of an admixture of clays and ground flint. In the manufacture of china the body contains no ground flint, but ground flint is used to embed the articles of ware while they are being fired in the oven, and also for dusting the surfaces on which the ware may be put when in its wet state. In the case of earthenware, therefore, particles of the body which fall about the benches and floors become dry and are crushed and give off dust which contains free flint. In the case of china, in the process of bedding the china in ground flint and of removing the ground flint after firing, the workers are liable to inhale dust containing flint and thus to contract silicosis. How far the other dusts to which workers are exposed in the manufacture of pottery increase or retard the action of the flint in producing silicosis we cannot say. This is another field in which research is needed. We know that silicosis does occur both amongst earthenware makers and amongst china makers, and in none of the processes in which there is exposure to dust is there absolute freedom of the workers from the risk of contracting silicosis. A scheme of compensation, known as the Various Industries (Silicosis) Scheme, 1929, covers certain workers in potteries, as well as workers in certain other industries and processes laid down in the scheme. These include practically all processes not covered by other compensation schemes where substantial exposure to silica dust occurs.

Crushing and Grinding of Silica, and Industries in which Ground Silica is used.—Ground silica is used in many industries. The silica used is commonly quartz crystal or a highly siliceous quartzite rock. This material is ground fine by machinery, usually dry, and with precautions as to the removal of dust by localized exhaust ventilation. The ground material is placed in sacks and sold in this form. Similar material is also imported into the country from the Continent. Ground silica is used for the manufacture of scouring powders for domestic use, when it is mixed with dry soap powder or alkali or other material, and filled into cartons or packets. It was in this industry that some recent cases of an acute type of silicosis occurred. The evolution of dust is controlled in these processes by the use of mechanical methods of handling, enclosure of machinery, and the use of localized exhaust draught to remove dust or to prevent it from entering into the air of the workroom. Ground silica is used in the manufacture of certain vitreous enamels. It has been used also as a filler in the furniture industry, in the manufacture of insulating materials, and in foundry use. Besides the finely ground silica, flint is sometimes crushed and used in the form of grit for poultry. This crushing process is also accompanied by the evolution of dust, and must be controlled by enclosure of the machinery and removal of the dust by exhaust draught.

Tin-mining in Cornwall has been recognized for many years as an industry with a high mortality rate from tuberculosis, and it has been shown that this was associated with the presence of silicosis. The tin ore occurs in a highly siliceous rock, and in former times drilling of this rock produced much dust, but nowadays drilling is done through hollow steel and with a water feed. Besides the dust in tin-mining itself, a factor in producing this high incidence of silicosis and tuberculosis in the past was the practice amongst tin-miners of working for a time in the gold mines of South Africa, where in former times the amount of silica in the atmosphere was very high and the incidence of silicosis was correspondingly great. Undoubtedly tin-mining in Cornwall can produce silicosis in persons who have not worked outside of this country.

Coal-mining.—Silicosis has been shown to occur amongst workers underground in coal mines. Those affected are the men employed on hard headings, cutting through stone to reach the coal seam. In some cases in which silicosis has occurred the employment on this work has been comparatively short, and it would seem to be the case that once enough silica has been inhaled to produce the nucleus of fibrosis, the resulting inhalation of coal dust into a lung in which the lymphatic drainage has been disorganized has the effect of increasing the fibrosis and producing disability. It seems likely that this type of silicosis is what was classically known as "anthracosis" in the past. We are now aware, however, that coal dust, without any evident exposure to silica dust, may produce a condition in the lungs which radiographically resembles the appearances produced by silicosis.

METHODS FOR DETERMINING THE CONCENTRATION OF DUST IN THE ATMOSPHERE.

A factor of great importance in the production of silicosis is that concerned with the physical properties of the silica, *and especially with the fine state of division.* In sections of a silicotic lung the particles of silica found are, with few exceptions, under 5μ, and a very high percentage of those are under 2μ, the average size of particles being about 1μ. *From what has been said of the etiology of the* disease it is obvious that a fine state of division of silica is necessary to ensure its reaching the ultimate pulmonary tissue. Particles under 2μ in diameter are not visible to the *naked eye in the atmosphere unless present in such* density as to produce cloud effects, and unless particles of this size are associated with the presence of larger particles, or aggregates, which are visible as dust to the naked eye, *it is obvious that the visual appearance of an atmo*sphere is no criterion of its freedom from a dangerous state of dustiness. In investigating the conditions which give rise to silicosis it is necessary to introduce methods for the determination of the concentration of dust in the atmosphere, and several methods of investigating this have been brought into use. The commoner methods may be divided into two classes, depending on the ultimate method of estimation: they are the gravimetric method, and the numerical or counting method.

In the gravimetric method a large measured volume of air is passed through a filtering medium which retains the particulate matter. This is weighed by suitable means and the result calculated in terms of milligrams per cubic metre of air. It is evident that in this method particles of all sizes capable of floating in the atmosphere will be collected, and will be included in the resulting weight, and it follows that the larger particles, which have no pathological significance since they cannot enter the lung tissues, will be represented in the resulting weight in a far higher ratio than the minute particles, which are really injurious, although these are usually infinitely more numerous. The method, therefore, is suitable only for comparing atmospheric conditions as to dust content where the physical state of the dust relative to size is comparable.

The numerical method consists in the collection of the particulate matter from a small sample of air in such a way that it can be examined under the microscope, the particles measured and counted, and, by calculation, the number of particles in a unit volume of air determined. The advantage of this method is that it collects only the comparatively small particles, and by measuring and counting the particles an accurate estimate can be made of the concentration of injurious particles of dust at breathing level in the atmosphere. The drawbacks of the method are, first, only a small and momentary sample can be taken, and this may not be representative where conditions vary widely from time to time; and secondly, the presence in the atmosphere of soot and extraneous matter, which are liable to obscure the particles under investigation and to render counting somewhat difficult.

Both of these methods have been in frequent use in the Factory Department, and in the numerical method of counting Owens's dust-counter has been used. When one is able to estimate concentration of dust in an atmosphere the question arises, Is it possible to establish a standard of air purity within which there is no risk of injury to health? I may say at once that such a standard has not been suggested in this country. To provide such a standard would have certain advantages in that preventive measures for the suppression of dust could be standardized and, by periodic examinations of the atmosphere, such preventive measures could be controlled. The arguments against setting up a standard are, however, strong. In the first place, intensity of air dustiness varies widely, even from moment to moment, in the same process carried on in the same place, and when regard is had to the vast number of processes materially different in character and carried on under widely different conditions, it must be admitted that the factors influencing the results of tests taken in a brief period of time are so great that conclusions drawn from such results are as likely to mislead as to guide. In the second place, it is not known how much silica must be inhaled before the disease is developed. In other words, there is no criterion of air dustiness which we can safely regard as indicating freedom from risk of producing the disease. Each of the various factors has its own weight. The concentration of dust in the atmosphere: the period of time over which exposure takes place; the intermittency of the process; and possibly also the presence of other dusts in the atmosphere, which may have either a restraining or an accelerating effect on the action of the silica itself.

Research is needed before such a criterion can be established. This must include: (1) collection of data regarding the incidence and production of silicosis in the various industries in which it occurs; (2) a study of the influence of other dusts and any modifying circumstances affecting the inhalation of the dust; and (3) the results of preventive measures for the suppression of the dust. These data can only be collected and made effective use of by the concerted action of all those whose work brings them into touch with the sufferers from the disease, and co-operation with the central body whose function it is to investigate and to ameliorate or suppress the conditions under which the disease occurs.

SOME NOTES ON THE BIOPHYSICS OF SILICA AND THE ETIOLOGY OF SILICOSIS.*

BY

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AMONGST the main questions awaiting answers at the *present time regarding silicosis* would appear to be the following:

1. How is the characteristic fibrosis of the lungs which follows the inhalation of fine silica dust, and which is termed "*silicosis,*" *produced?*
2. Are there any factors, apart from prevention of dust inhalation, which hasten, retard, or otherwise modify the development of the condition?
3. Is the fibrosis of the lungs which we speak of as "silicosis" produced by substances other than silica?

In attempting to answer these questions I would suggest that it will help if we review briefly some facts regarding the biophysical behaviour of silica and its use in therapeutics—facts which seem to have a bearing on the points at issue, and not to have received hitherto the attention which their importance merits.

In the *Journal of Biological Chemistry* for November, 1928, Earl J. King published the following table[1] giving the silica content of certain organs of the guinea-pig, rabbit, and dog, and of normal and silicotic lungs in man:

Organ.	Animal.	Mg. of Silica per gram of Organ.		Total in Organ.
		Dry.	Fresh.	
Normal lung	Guinea-pig	0.78	0.12	0.5
,, ...	Rabbit	2.02	0.30	2.53
,, ,, ...	Dog	2.05	0.32	60 72
,, ,, ...	Man	1.40		
Silicotic lung	Man	123.55		
Normal kidney	Rabbit	1.97	0.25	2 95
,, ...	Dog	1.12	0.21	7.23
Normal liver	Rabbit	1.70	0.32	10.50
,, ,,	Dog	1.33	0 34	7. 71
Normal spleen	Dog	0.65	0.16	

One would like to see these figures checked by those of other observers, but, as will be seen later, the evidence of the presence of silica in normal organs is convincing.

The remarkable similarity of the figures for the silica content of the organs of the rabbit, a herbivorous rodent,

* Read in the Section of Occupational Diseases of the Annual Meeting of the British Medical Association, Manchester, 1929.

and of the dog, a carnivore, as shown in the table, is striking. The food of the rabbit, as we shall see presently, contains much more silica than that of the dog. The similarity suggests that the silica content of the organs is independent of the food, and that there is a normal figure for the silica content of animal tissues, differing in the various organs.

The questions may be asked: (1) Does the silica in these tissues subserve a purpose, and, if so, what is it? (2) In what chemical or physical state does the silica exist in the tissues?

To find answers for these questions we need survey a very wide range—nothing less, in fact, than the whole field of biology. In the lowest and least differentiated forms of life we find silica in abundance. The siliceous ectodermal covering—if indeed the term "ectoderm" can be applied to the "skin" of a unicellular organism—of the diatoms forms the great mass of "kieselguhr" which covers great areas of the ocean bed. The diatoms are unicellular algae, whose metabolism is "photosynthetic"—that is to say, they build up their life from air, water, salts, and sunshine. They form the "floating sea meadows," as Sir John Murray called them, which are the basis of all pelagic animal life. If "all flesh is grass," all fish is diatom. It is not a little suggestive that the two basal foods of land and sea animals should be so rich in silica.

In passing, it may be noted that the photosynthetic power of the diatom does not appear to be interfered with by its siliceous coat. Is this Nature's anticipation of quartz glass? There is a resemblance in some respects between the "ectodermal" coat which forms on the surface of the diatom and the envelope which forms round the "micellae" of certain emulsoids—as, for example, in the case of certain kinds of rubber latex—which may be worth bearing in mind.

In the silico-flagellates and the radiolaria we find siliceous deposit within the cell. In one beautiful radiolarian, "Actinomma," there are three concentric siliceous spheres—one in the extracapsular protoplasm, one in the intracapsular protoplasm, and one in the nucleus—joined by radiating siliceous spines.

As we climb up the ladder of plant life we find silica in large quantity in many pteridophytes, such as the equisetums. So great is the silica content of some of the Equisetaceae that the dried plant, made up in little bundles, is sold in Holland and other marshy countries as a scouring material for cleaning kitchen utensils. So far no cases of silicosis have been reported in connexion with this material. As we are all aware, the same cannot be said concerning certain siliceous scouring materials which are manufactured commercially.

Passing on to the spermatophytes, we find silica in abundance. In the Gramineae, for example, the stems and knots of the bamboos, reeds, and cereals, and the hard cutting edges of the coarser grasses, are strengthened with silica, which also largely accounts for the ash of wheat bran, where it abounds in the flaky scales of the fruit coat of the wheat. It may yet be discovered that one of the advantages which brown bread has over white is that it contains more silica.

If we come over to the animal kingdom we find in the siliceous sponges—for there are calcareous sponges also—elaborate skeletons of silica laid down by cells, said to be ectodermal in origin, known as "scleroblasts." The silica is deposited within these cells, round a central organic "thread," and a thin covering of scleroblastic protoplasm is said to cover each spicule, like the "velvet" round a stag's horn, until the full size is attained.[2] After the scleroblast dies the spicule of silica is extruded. The silica in the spicule is opaline, and appears to be laid down in "mesomorphic" or "liquid crystal" formation—that is to say, the molecules are probably arranged in lamellar or concentric formation round the central organic "thread."

It is worth noting that the flints which form beds in our English chalk have been proved in many cases to contain the remains of diatom shells and of siliceous sponges,[3] the opaline silica having been metamorphosed by heat, pressure, etc., into cryptocrystalline flint. Here we have a siliceous homology to the formation of carboniferous limestone.

Among the higher vertebrates, perhaps the greatest concentration of silica is to be found in the quills and feathers of some birds, which contain as much as 40 per cent. of silica by weight.[4]

Further light is thrown on the presence and function of silica in tissues by the more recent work of some German and French investigators. Kobert[5] and Schulz[6] showed, in 1898, that all connective tissues in the body are exceptionally rich in silica. This they found applies especially to the newly formed scar tissue laid down in the healing of pulmonary tuberculosis by "fibrosis." According to Gonnermann,[7] the highest silica concentration in the mammalian organism occurs in embryonic connective tissues. It is high in sinews, tendons, and muscles; fibrin has a special affinity for it; and it is present in milk in considerable quantities—up to 28 mg. per litre—while the iron content, for example, rarely exceeds 1 mg. per litre. In this connexion it is not without interest that one of the most successful of the newer infant foods contains silica in its published formula. Richmond,[8] as well as Bleyer and Callman,[9] confirm Gonnermann regarding the presence of silica in milk.

We may now turn to the more recent developments of the use of silica as a therapeutic agent.

In 1898 Kobert[10] and Schulz[10] were able to show by animal experiments that, with increased silica supply, storage of silica occurred in the lungs. Schulz's work was continued to 1912, and was followed up by Rossle in 1914. This latter experimentalist demonstrated the beneficial effect of silica supply on the healing processes of animals infected with tuberculosis. Kuhn,[10] basing his therapy on the findings of these observers, and upon the work of Zickgraf, Siegfried, Hellwig, and others on the production of leucocytosis by silica supply, introduced his silica treatment of tuberculosis, and published his first series of clinical results in 1920. A further series was published by F. Junker in 1927.[11]

One of the difficulties of silica therapy is the method of administration. Kuhn used a "tea mixture" made from herb galeops, equisetum, and polygonum,[11] which mixture contains silica in the form of alkaline silicates. He later introduced the method of inhalation of atomized water containing colloidal silica sol,[10] which had proved so successful in the treatment of asthma at Mont-Dore, France.

There are grave objections to the "tea mixtures." In the first place, the dose of silica cannot be accurately regulated. Again, all the "teas" are strongly alkaline, and their administration leads to the symptoms of digestive disorder usually associated with the prolonged administration of alkalis. Furthermore, the plant teas contain vegetable alkaloids and other extractives, some of which may be definitely poisonous, as, for example, in the tea made from the equisetum. It is well known that cows and horses fed on "bottom" hay containing a large amount of the equisetum or "horsetail" are sometimes fatally poisoned, the symptoms of poisoning being of the nervous or paralytic type. This poisoning is now attributed by veterinary authorities to an alkaloid called "equisetine." The poisoning has nothing to do with the silica content of the equisetum.

Other siliceous liquids and soluble or miscible substances have, therefore, now replaced "teas" in silica therapy—as, for example, siliceous natural mineral waters such as those of Glashager and Mont-Dore; various colloidal silica solutions, such as those sold under the names of "silistrin," "siliquid," "guasil," "collisil," etc.; the so-called "vegetable silicic acids," said to be "polysilicates of completely unknown constitution and in some cases very labile character" (Zickgraf), such as "mutosan," which contains chlorophyll in addition to silica[10]; and combinations or mixtures of silica with animal or milk albumins, such as "silicasin," which is said to consist of casein 96 per cent., sodium metasilicate 4 per cent., and which forms with water a colloidal solution which is neutral or slightly acid, and thus avoids the evil effects which follow the prolonged administration of alkaline solutions.

According to Zickgraf,[10] silica therapy in pulmonary tuberculosis leads to a fibrous cicatrization of the tuberculous lesions in every way superior to what we know as

calcification by lime salts. He regards the deposition of lime as a sign of degeneration of the tissues rather than as a reparative process. "Lung stones" analysed by him were found to contain silicic acid as well as the preponderating calcareous mass. The evil effects of "demineralization," according to this author, are due rather to a lack of silica than to a lack of calcium. Robin, a French authority, is of the same opinion. According to Rossle and Kahle, cattle and pigs fed on roots which contain little or no silica, as on the German "root crop estates" (Rübengütern), suffer severely from tuberculosis. The disease has been eradicated by the administration of mineral powders containing silicic acid.

According to Gonnermann and Helwig,[10] the administration of silicic acid by the mouth is followed by leucocytosis of very high degree, and Zickgraf maintains that there are two definite physiological actions: (*a*) a fibroplastic action, and (*b*) a leucocytic action.

Kuhn and Zimmer[10] used intravenous injections of silicic acid in arterio-sclerosis, "stenocarditis," and arthritis deformans, and suggested its use in bronchial asthma and diabetes. Zimmer pointed out the danger of overdosing, especially when the intravenous or intramuscular route was used, when symptoms of shock and undesirable secondary reactions of an anaphylactic type were likely to occur. This is not surprising when we consider the effects of intravenous injections of silica hydrosol by Gye and Kettle on rabbits in this country.[12]

The above résumé of some of the literature regarding the place of silica in animal and plant physiology and in therapeutics is, I would submit, conclusive as regards showing that silica is a normal constituent of the human body, and that it is in no proper sense of the word a poisonous substance. Its main function would appear to lie in the strengthening of connective and ectodermal tissues, and in helping in the production of firm scar tissue in healing wounds. In order to function it must enter into the intimate structure of certain cells. In what form does the silica exist in the cell?

Gonnermann, as we have seen, thinks that the silica is present in the form of an organic compound, and Robert wrote, in 1918, that "silicic acid, in a so far incompletely understood organic combination, is a normal constituent not only of all connective tissue, but of all epithelial tissues of the human and animal body." But Mr. J. B. S. Haldane informs me that the only organic combinations of silica described so far, in the case of living organisms, are cholesterol silicate in birds' feathers, and polysaccharide (? cellulose) silicate in plant cell walls. These contain very little silica, which is apparently in a fixed and inert condition, and they appear to be rather the end-products of silica metabolism than active reagents.

When silica is required for skeletal structures it is, to all appearances, laid down as a clear opaline silica, either within the cell, as in radiolaria and sponges, or in the cell wall, as in diatoms and plant cells. Both these methods of deposition strongly suggest that the silica in the cell, before its deposition, exists as a phase of a colloidal system, and not either in true molecular solution or in chemical combination. The silica present in milk is also considered to be in the colloidal state. The modern conception of the colloidal nature of protoplasm, and of the cell as a poly-phase colloidal system, fits in with this conclusion. There seems to be little doubt that the chemistry of the interactions of substances in homogeneous solution can be applied to cellular phenomena only to a limited extent,[13] and that we are much more likely to get some insight into the principles underlying cell metabolism and growth by approaching the subject along the avenue of colloidal physical chemistry than by expecting to find life confining its activities within the bonds of stoichiometric ratios.

It may be asked whether a correlation can be established between the physiological and therapeutical actions of silica, as instanced above, and pulmonary silicosis. The answer would appear to be in the affirmative. According to most clinical observers, a pulmonary fibrosis precedes true silicosis. In the report on the occurrence of silicosis among sandstone workers by Drs. Sutherland and Bryson,[11] published this year, it is seen that "fibrosis of the lungs was diagnosed by clinical examination at an earlier period of employment than that at which silicosis was diagnosed by radiological examination." This was also found to be the case in a similar inquiry into the pottery industry in 1926. This stage would correspond to the condition produced in animals by Kobert and Schulz as long ago as 1898, when they showed that increased silica supply led to storage of silica in the lungs, with consequent increase in the density of the fibrous tissue.[14] From this point of view silicosis is a condition of gross overproduction of fibrous tissue in the lung, which may be due either to the action of comparatively inert silica over a very long time, as in gritstone masons, or to the action of very active silica in a comparatively short time, as in the case of the packers of siliceous scouring powders.

More than a year ago A. T. Green and myself[15] advanced a hypothesis that pulmonary silicosis was brought about by the colloidal activity of fresh silica hydrosol derived from the hydration of quartz dust in the lungs, and not by any poisoning of the cell protoplasm by soluble silica. To some this distinction between a chemical poisoning and a physical adsorption seemed to be rather of academic than of practical interest. To my mind this distinction seems to be of fundamental and practical importance. Let me offer two reasons.

The first is because I believe that the key to certain problems in physiology, pathology, and medicine which are at present baffling us will eventually be found by the study of the physico-chemical or colloidal reactivities of the living cell. Already many specific "tests," reactions, immunizations, and methods of "chemotherapy" are known to be of the nature of "surface" reactions, involving possibly a change in the orientation of the molecule, but not in its composition. Typical examples are the Wassermann test, the suspension stability test, anaphylaxis and its local manifestations, such as asthma. What of that mysterious change in the vital behaviour of a cell which occurs when the cell takes on malignant growth? We know that the prolonged application of such substances as mineral oil, bitumen, tar, and tar-bearing material such as soot, to the skin, particularly if the skin is injured by chronic irritation, will eventually bring about a change in the growth of the subjacent cell from a normal to a malignant form. We also know that if we bring a hydrophobe substance of great surface activity, such as mineral oils or tar, into surface contact with a complex hydrophile polyphase colloidal system such as we believe an active living cell to be, we shall upset the equilibrium of that system. Can we correlate the two phenomena?

My second reason is more directly concerned with the subject of this paper. It is that the colloidal theory of silicosis affords an explanation of the inhibitory or the delaying influence which certain substances, and the accelerative effect which certain other substances, appear to exercise on the development of silicosis, which influences are otherwise inexplicable. The substances which, so far, are believed to delay or inhibit the production of silicosis are carbon and clay. The substances which appear to accelerate the production of silicosis are the alkalis and alkaline soaps.

The evidence in the cases of carbon and clay is partly experimental and partly clinical. It has been fully discussed elsewhere.[16] The evidence in the case of the alkalis and soaps, so far as it is known to me, is as follows. The most rapidly developing cases of silicosis in the literature have been reported in packers of siliceous scouring powders.[17] These powders consist mainly of strongly alkaline dried soap made up with finely ground silica. These products are sometimes described as "abrasive soaps." There seems to be little doubt that the term "adsorbent soap" would be more accurate. All soaps are, of course, to some extent adsorptive in their action. But there is little doubt that the special efficiency of these silica soaps is mainly due, not to abrasive action, but to the adsorptive power of the freshly made silica hydrosol, which comes into existence almost instantaneously when the powders are wetted with water, and which adsorbs the greases, oils, etc., in the well-known selective way for which colloidal silica is rapidly coming into use commercially—for example, the removal or recovery of hydrocarbons, the refining of benzol,

and in the form of silica flour as the best of all bases for adsorbent toilet powders.

The three cases of fatal silicosis reported by Dr. Lennane, Sir Bernard Spilsbury, and Dr. Macdonald, which occurred in girls employed in packing these powders, were beyond all comparison more rapid in their development than any cases of silicosis previously reported. The girls were aged 17, 19, and 23 years at the time of death. These cases had not been published when Mr. Green and I wrote our paper. The confirmatory evidence which they afford in favour of the colloidal theory of silicosis is so strong that it appears to put the correctness of the theory almost beyond doubt, for the combination of alkali and silica in fine subdivision only requires wetting for the immediate production of active silica hydrosol. The solution so formed is not a true solution of a definite chemical individual compound, but is a variable system of sodium oxide, silica, and water, in which, according to Weisser, the ratio of Na_2O to SiO_2 may vary from 1 : 1 to 1 : 4, and the uncombined silica is in the hydrosol state.[18] Hence the colloidal activity of the silica begins immediately the dust has reached the lungs, instead of awaiting the slow hydration of the quartz particles in the pulmonary tissue by the very faintly alkaline tissue juices, as in the case of gritstone masons, quartz crushers, ganister miners, and so on.

The belief that the quartz dust particles are slowly hydrated into silica sol in the lungs is founded mainly upon the experimental work of Gye and Kettle.[12] The latter showed that such hydration occurred when powdered silica was buried in the tissues of guinea-pigs. With a view to comparing this observation with a laboratory test in vitro Mr. Joseph Race, biochemist to the Devonshire Hospital, Buxton, put up a number of substances containing silica (in one case—namely, asbestos—combined silica) in a modified Ringer's solution for eight months. He then decanted off and filtered the fluid, and estimated quantitatively the silica which had been dissolved out. The Ringer's fluid was made up as follows:

Sodium chloride	0.650 per cent.
Potassium chloride	0.014 ,,
Calcium chloride	0.012 ,,
Sodium bicarbonate	0.020 ,,
Monosodium phosphate	0.001 ,,

The reaction was adjusted to give *p*H 7.35 at 38° C. Here are his results:

Material.	Silica found in solution.*
Workshop dust from a silica sand brickworks ...	24
Powdered Yorkshire ganister	28
Commercial asbestos	28
Silicic acid	52
Derbyshire millstone grit (powdered)	52
,, ,, black chert (powdered) ...	55
,, ,, pocket silica sand	60

* Parts per million.

Mr. Race's investigation was done in 1928, and he would naturally wish his figures checked against the work of others before drawing deductions from them. It would be of some interest to note if a slight increase in the alkalinity of the fluid leads to an increase in the dissolved silica. But we may take it that Mr. Race has shown that the slow solution or hydration of silica dust in the lung can be paralleled in vitro with Ringer's fluid.

Among the substances which yielded soluble silica to the Ringer's fluid was asbestos, which is, chemically, a magnesium silicate with sometimes the addition of calcium and a little iron to its molecule. Mr. Race's experiment strongly suggests that "asbestosis" is a true silicosis. A further suggestion is that the "club-moss" growths or bodies found on microscopic examination of the lungs in cases of asbestosis are osmotic silica artefacts, corresponding in type to the "growing plants" of the well-known "silica garden," and are due, like these latter, to surface-tension phenomena limiting the diffusion of the dissolved iron or other salts.

The above constitutes my attempt to answer the questions set at the beginning of this paper. I would beg to sum up as follows.

1. Silicosis is a result of the local action of hydrated silica upon the pulmonary tissue. This action is of a physico-chemical nature, and the speed of its development, other things being equal, depends upon the rapidity with which fresh silica hydrosol is formed and brought into contact with pulmonary tissue.

2. Substances which favour the formation of silica hydrosol from silica, when added to the silica dust, accelerate the development of silicosis—for example, the alkalis. Substances which retard or prevent the formation of hydrosol from silica, or which coagulate the hydrosol when formed, retard or prevent silicosis—for example, carbon, coal dust, clays, and probably many other substances.

3. The action of silica in producing the nodular pulmonary fibrosis which we term "silicosis" has not been paralleled so far by any non-siliceous substance.

4. Silica is a normal constituent of plant and animal cells; its presence seems essential in certain tissues, and its absence from the food of the organism disastrous.

5. The study of the role of silica in biology suggests that many of the processes of cell metabolism belong to the realm of colloidal physics.

6. Some characteristic cellular phenomena are explained most simply by regarding the living cell as a polyphase colloidal system.

7. Silica has a place in therapeutics comparable to that of lime.

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METHODS FOR THE REDUCTION OF HUMAN TUBERCULOSIS OF BOVINE ORIGIN.*

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THE subject is so large that to cover it adequately it will be necessary for me to deal with parts of it by bald statements of ascertained facts, without giving in detail the evidence upon which these facts and estimates are based. I do so the more readily because this evidence is now obtainable without trouble in my recently published book, *The Prevention of Human Tuberculosis of Bovine Origin*.

THE AMOUNT OF HUMAN TUBERCULOSIS OF BOVINE ORIGIN.

The following table, from the work of a number of English pathologists (F. Griffith, Eastwood, and particularly A. S. Griffith), represents findings up to the end of 1927, as kindly summarized for me by Dr. A. S. Griffith. This represents English results, and the findings from Scottish cases give rather a higher percentage of bovine cases.

Cobbett, using the figures of the Registrar-General for 1915, arrived at the figure of 6 per cent. of all human tuberculosis deaths as of bovine origin. With the 1927 figures my calculations give rather over 5 per cent. bovine. This gives about 1,960 calculated deaths in 1927 as due to the bovine tubercle bacillus in man, the majority of deaths being in children.

* Read in opening a discussion in the Section of Public Health at the Annual Meeting of the British Medical Association, Manchester, 1929.

TABLE.

Variety of Tuberculosis.	No. of Cases	Children under 5 Years.		Children 5-15 Years.		Cases 15 Years. and Over.	
		Human.	Bovine.	Human.	Bovine.	Human	Bovine.
Cervical Glands...	112	3	16	28	25	31	9
Lupus	176	23	36	48	51	15	3
Scrofuloderma ...	54	7	6	17	10	13	1
Bone and joint ...	511	60	24	277	65	81	4
Genito-urinary ..	23	—	—	2	1	17	3
Pulmonary ...	202	—	—	10	0	190	2
Meningeal... ...	30	2	1	11	7	9	0
Post-mortem cases*	181	72	31	49	8	23	3
Totals	1,289	167	114	442	167	379	25
169 of the 181 Post-mortem Cases Classified as Regards Portals of Entry.							
Alimentary entry	40	4	27	2	5	1	1
Respiratory ...	98	46	1	32	0	19	0
Double portal ...	25	15	0	10	0	—	—
Uncertain... ...	6	2	0	3	0	1	0

* A series of unselected post-mortem tuberculosis cases. Five were cases of mixed infection and are entered twice—that is, as both human and bovine. These are 2 in 0-5 years, 1 in 5-15 years, and 2 in 15 years and over.

A study of the death returns shows, as we know, a marked decline in the death rate from tuberculosis. When we consider respiratory and non-respiratory deaths separately, the decline in the latter group is considerably more in evidence. For example, if we take 1912 as a standard year, respiratory tuberculosis deaths have declined by 22.6 per cent., non-respiratory tuberculous deaths by 48.3 per cent. It is reasonable to deduce a decline in bovine tuberculous infections greater than in tuberculous infections due to the human tubercle bacillus.

Probably not more than 2,000, or possibly 2,300, deaths from human tuberculosis each year are now due to the bovine tubercle bacillus, but we do not know how many infections occur not resulting in death.

THE EXTENT OF BOVINE TUBERCULOSIS.

Since the infections under consideration are entirely derived from tuberculous animals, and, for practical purposes, almost all from the consumption of milk or milk products containing tubercle bacilli, it is unscientific to consider their prevention, or even the reduction of this type of human tuberculosis, without having regard to the extent of tuberculosis in bovines and particularly in cows. Certain particulars may be more or less dogmatically stated. A large proportion of cows are infected with the bovine tubercle bacillus and give a positive reaction to tuberculin. The percentage varies widely in different areas, and is particularly influenced by the age constitution of the herd. Taking the country as a whole, veterinary data indicate that about 40 per cent. are affected.

The great majority of these cows are non-infectious to other animals or to the milk supply, and never become infectious. Others progress and become "open" cases—that is, they shed out tubercle bacilli into their surroundings. There are no reliable statistics as to the percentage of these "open" cases at any one time throughout the herds of Great Britain. A detailed study of the results of routine veterinary inspection of cows in particular areas suggests that cows which can be clinically diagnosed as suffering from tuberculosis are from 0.4 to 0.6 per cent. of the whole. These are all "open" cases, and to these have to be added cows shedding out tubercle bacilli, but unrecognizable by clinical means. At the most we can put the total percentage of "open" cases in herds of cows as not more than 1 per cent., probably less. This is considerably lower than figures often suggested, and is much lower than percentages recorded, for example, in Germany. From the human standpoint the most important type of "open" tuberculosis is that disease affecting the udder, and here a study of detailed inspections suggests 0.3 per cent. as a maximum, and in some areas considerably less.

REDUCTION METHODS NOW IN USE.

Theoretically we might consider separately those measures the aim of which is to reduce bovine tuberculosis, and those the object of which is to reduce the risk of human infection from milk containing tubercle bacilli. The two problems are so interrelated that it is impracticable to consider them apart. We can group the different procedures as follows:

1. *The Elimination of All Tuberculous Cattle.*

By this is meant the testing of all animals with tuberculin and the destruction of those giving a positive reaction, the so-called "reactors." Apart from the fact that a great many of these animals are not infectious and never will become infectious, their wholesale destruction is entirely impracticable. It can be successfully done in small areas —for example, in the Channel Islands. It is also the official plan in the United States of America, and in 1927 as many as 207,830 tuberculous cattle were slaughtered. It is possible in the United States because their percentage of reactors averages 3.3, and in different years only fluctuated between 2.9 and 4.9. It is impracticable in England, with more than ten times as high a percentage of reactors.

2. *Building up Herds Free from Tuberculosis by Selection.*

By making use of the simple procedure advocated by Professor Bang this is theoretically easy. There are, however, many administrative difficulties, and the building up of tuberculosis-free herds along these lines has never been much utilized in this country, and even in Denmark, its original home, its use seems to be declining. This method deserves more employment than it receives. In England the same principle has been followed, but along different lines, and in designated milks we can follow the production of tuberculosis-free herds. Two of the types of these designated milks—that is, Grade A (tuberculin tested), and Certified Milk—are from herds entirely free from tuberculosis, and they are able to advertise this fact.

Their growth has been of the slowest, and after six years' working there were only 152 "Certified" Milk and 207 Grade A (tuberculin tested) producers at the end of September, 1928. This, of course, is an entirely insignificant proportion of producers. In Somerset, with at least 7,300 producers, there were only eleven producers of these two types of milk at the end of 1928. As a practical solution of our problem these two types of milk can be neglected. Apart from these designated herds there are a good many herds the owners of which maintain them free from tuberculosis by careful selection, repeated testing, etc.

3. *The Elimination of Particular Classes of Tuberculous Cows.*

On theoretical grounds it is a sound policy to eliminate all infectious cows and so reduce both the spread of infection to bovines and the risks of tubercle bacilli in the milk supply. This is the aim of two separate procedures—the Tuberculosis Order, 1925, and routine veterinary inspection of dairy cattle. Under the Tuberculosis Order three types of bovines have to be reported, and, if the diagnosis is confirmed, destroyed, compensation being payable. For practical purposes these types correspond to "open" cases of tuberculosis. If these animals were all reported, or could all be reported, so soon as they became "open" cases, and if the disinfection and other steps in the Order were efficiently carried out, it is evident that this procedure could be an efficient weapon to reduce bovine tuberculosis and to protect the milk supply. In fact, however, partly from administrative defects, but mainly from scientific difficulties which are only removable to a limited extent, these desirable objects are not being attained. For example, these "open" cases are only being notified and destroyed so long after they have become infectious that most of the harm they are capable of doing has been done before they are destroyed. The finding of these cases

is not being followed up by a systematic examination of the other animals. Of particular importance from the human standpoint, cases of tuberculosis of the udder are not being detected, or are only reported when the disease is advanced and the milk supply has been affected for long periods before detection.

A scheme of systematic veterinary inspection of dairy cattle is legally in force in Scotland, is permissive in England, and is being carried out in a few areas. The scheme is being stressed by most members of the veterinary profession as the one urgent method by which to tackle these problems. It is an advance on the methods in the Tuberculosis Order, in that under the Order the cow-owner is instructed to report conditions which he has not the knowledge to detect, so that only the advanced cases are reported. Under this scheme the expert will go to the cowsheds and himself detect these infectious animals, so that theoretically the elimination of "open" cases will be prompt, thorough, and complete.

Unfortunately there are serious difficulties in the way of obtaining these theoretical results. The first is the inability of even the ablest veterinary inspector to detect these infectious animals in their early stages. Also these pathological conditions may advance in the cow with considerable rapidity, so that fairly frequent inspection is necessary. Financial and staff considerations limit severely the frequency of inspection. The wider the interval between the inspections the greater the number of animals which in the meanwhile will have developed open lesions and be a source of infection before their recognition. Dairy herds are unstable combinations, and additions and abstractions from the herds are constantly taking place. Veterinary inspection at its best under practical conditions can only hope to remove the comparatively gross cases of infective animals.

This raises the supremely important point as to the susceptibility of the cow to tuberculous infections. I emphasize its importance because in my opinion the administrative validity of any scheme of veterinary inspection of cows turns upon this question. In man there is evidence of some reliability that removal of cases of advanced tuberculosis diminishes the intensity of infection amongst contacts. With the physiologically overworked cow, subjected to the heavy strain of frequent calf-rearing, and so often kept under grossly insanitary conditions, the same may not be true. Put quite simply, routine veterinary inspection of our cattle will remove gross cases of tuberculosis, but will not remove all sources of infection. Will the removal of such infectious sources as it can effect play any decisive part in reducing the amount of bovine tuberculosis? The figures that we have from places where routine inspection has been in vogue for years do not show any such reduction.

Clearly this procedure can only reduce very partially, not remove, the risk of tubercle bacilli in the milk supply, and for that degree of reduction alone it is not worth the heavy expense entailed. I calculate the cost of a reasonably adequate system of veterinary inspection as rather over £300,000 a year, while it would press heavily in individual areas—for example, in Somerset it would cost about £13,500 a year.

I consider that this procedure must stand or fall on its merits as a means of reducing *bovine* tuberculosis. If it can be shown to accomplish this, and so reduce tuberculosis in bovines year by year to manageable proportions, it is a true preventive measure and thoroughly worth the price. I suggest to my veterinary friends that the onus is on them to demonstrate its ability to reduce bovine tuberculosis. Up to the present they do not even consider this point, for at the important discussions in June, 1928, at the World's Dairy Congress, not a single one of the distinguished veterinary surgeons discussing this matter paid the slightest attention to this problem, although it was discussed from almost every other angle.

4. *Measures Directly Aimed at Reducing the Amount of Tubercle Bacilli in Milk.*

These are of two kinds—bacteriological milk examinations and heat treatment of the milk. Although extensively employed and of considerable utility the value of bacteriological examinations is almost entirely educational; they do nothing effective to protect the milk supply of any particular community. Take, for example, any town or city, it is only possible to bacteriologically test a quite insignificant proportion of the milk supply. When tubercle bacilli are detected it is feasible in something like 60 per cent. of the cases to find an infective animal and eliminate her. Clearly that amounts to nothing as regards protection of the milk supply. It is a system of spot sampling, such as we use for chemical milk testing. Spot sampling for chemical purity is effective, because a proved deficiency constitutes a statutory offence and fear of publicity and a penalty is the deterrent. When tuberculosis is found there is no penalty, but, on the contrary, public money is freely spent to provide free veterinary assistance and additional bacteriological examinations, while compensation is paid when the tuberculous cow is detected.

Pasteurization of the milk supply is along an entirely different line. In effect it assumes that none of our existing measures give us adequate protection from the risk of consuming tuberculous milk, and the only way we can achieve that protection is by heat treatment to eliminate the risk of their presence. It is impossible for me, in my limited time, to cover the large question of pasteurization. All I wish to say is that I am prepared to agree that, as carried out in the laboratory, pasteurization will very largely eliminate the dangers of tuberculous milk. Between laboratory results and a practical efficient working system there is a wide gulf, which, however, can be bridged. I do not think its opponents have demonstrated that, when efficiently performed, it does any material damage to any known nutritional qualities of milk, but there remains the possibility that it may destroy other valuable properties at present unknown. There are very considerable objections to a compulsory system of pasteurization on other grounds related to the various problems of clean milk, and if we have to adopt it as the best available method of protection from tuberculous milk I should regard it as a confession of failure, and the acceptance of a second best procedure, only to be adopted with very adequate precautions.

5. *Immunization of Cows against Tuberculosis.*

Theoretically practical, this method still remains experimental. Calmette's B.C.G. vaccine is on trial and should be very fully tested, but later results are not very favourable. It is a short cut to a solution of this difficult problem, and we can only hope it will not share the failure of all other short cuts for the treatment of tuberculosis.

Suggestions as to Lines of Reduction to Adopt.

In the above account I have aimed at a summary of the rather bewildering number of remedies advocated, or utilized, to deal with this complicated problem. We can say at once that all methods specifically aimed at preventing tubercle bacilli from gaining access to milk are only palliatives, and not true preventive measures, in that they do nothing to reduce the need for their continuance by reducing bovine tuberculosis. Admittedly the operation of such measures as the Tuberculosis Order, or a scheme of veterinary inspection of cows, will effect some reduction in the risk of tuberculous milk. Administratively the question is whether this reduction is worth the price to be paid for it if such measures do not also effectively reduce tuberculosis in bovines. If we could be sure of two things—that is, that the risk of all *gross* infection with tubercle bacilli is removed by these measures and that only gross human infection matters—there would be a great deal to be said for their utility, but, as has been shown, they do not remove all gross infection or anything like it, while our pathologists are not in a position to assure us that moderate infections by way of the tonsils, etc., are negligible.

I consider that the value of these measures really turns upon their efficiency as agents for the reduction of bovine tuberculosis. Taking the long view, I suggest that the real problem is one of the reduction of bovine tuberculosis. Tuberculosis in dairy cattle has never received adequate consideration on broad preventive lines, but has been dealt with by the application of special procedures of limited scope, which fail, and, in my opinion, must fail,

because they are not part of a broad comprehensive scheme. Abundant illustrations might be given, but taking the latest of the remedies advanced—the routine veterinary inspection of dairy cattle—it is advocated as a thing worth introducing by itself, or to protect the milk supply, and never with a realization of the need to fit it into a wide comprehensive scheme. By itself I regard it as not worth doing, but it occupies quite a different place as part of a comprehensive attack on bovine tuberculosis.

As part of such a comprehensive scheme certain changes seem to me to be essential requirements. One is a radical alteration in the environmental conditions of the cow. There seems no reason that the agriculturists have advanced why the usual practice of keeping cows all the winter in insanitary cowsheds should not largely give place to their living under much more open-air conditions, the sheds possibly being used for milking or housing under exceptionally severe conditions.

A second step is the development of adequate measures to prevent or at least limit the spread of infection. The partial abolition of the cowshed will materially reduce risks of infection, but, in addition, more direct measures are necessary. One is a more active educational campaign. A second is to place part of the onus of preventing infection upon the cow-keeper. Since a material part of the cost of bovine tuberculosis now falls upon the central and local public health authorities, it is but logical they should have some powers to limit their expenditure by insisting that cow-owners should exercise due precautions to prevent infection. Cow-keepers who, by wilful failure to take due precautions, add to the nation's bill for tuberculosis should be penalized.

Problems of feeding and other factors affecting tuberculosis in cows all merit careful consideration in any well-thought-out programme.

Into such a scheme can profitably be fitted immunization experiments, the formation of tuberculin-free herds, the operation of a modified Tuberculosis Order, the routine veterinary inspection of cows, etc. Veterinary inspection of cows would be most valuable as part of such a scheme and might be made a most helpful procedure.

It will be noted that in any such scheme I give a prominent place to the active co-operation of the cow-owner, and regard that as essential. Any comprehensive attack on bovine tuberculosis is ultimately for the benefit of the farmer and the stock-owner. The present measures, in use or advocated, whereby a great deal of public money is spent on an attempt to diminish bovine tuberculosis without insisting on his active co-operation, are not only illogical but, in my opinion, likely to effect comparatively little. Considerable financial assistance to the farmer is necessary, since the difficulties of eradication are so considerable, and no one who appreciates these difficulties would wish to reduce the assistance or belittle its need. At the same time it is logical to ask that, as some return for that assistance, there should be a very active co-operation on the part of the stock-owner.

While such a scheme has as its primary aim and object the reduction of bovine tuberculosis, *incidentally* it would do a great deal to reduce the dangers of milk being infected with tubercle bacilli. This particularly applies to certain parts of it, such as routine veterinary inspection of dairy cattle, if bacteriology is adequately utilized in connexion with such inspection.

If the agricultural community decides that it is not prepared to co-operate actively (for that is what it amounts to) in the measures of the State and of local authorities to reduce the incidence of bovine tuberculosis; that, while willing to receive rate-aided assistance, tuberculosis is not of sufficient moment to agriculture to warrant the considerable disturbances to existing practice which are required, then another line of procedure is necessary. In that event I do not think it worth while, for the small measure of reduction of human tuberculosis which will accrue, to continue these partial measures, such as the Tuberculosis Order, an inadequate system of veterinary inspection, or occasional milk sampling for the tubercle bacillus. The extent of their success is not likely to be commensurate with their cost—at least, as regards the human side of the problem. It is better for those concerned with the human infection side to face their own problem in their own way: to leave bovine tuberculosis to those concerned with animal diseases, and to protect the milk supply by an efficient and adequately controlled system of pasteurization. It is a confession of failure, the second best instead of the best. It has extensive drawbacks, and cannot be advocated without combination with other procedures, the aim of which is to minimize these drawbacks as far as possible.

In view of these drawbacks and other inherent objections to pasteurization, I greatly prefer the adoption of the preventive measures indicated to deal with bovine tuberculosis, but if these are not attainable, pasteurization seems less of an evil than the present tinkering procedures. Pasteurization will give a more effective protection to the milk supply than any incomplete scheme under existing conditions.

A CLINICAL STUDY OF ACUTE RHEUMATISM.

BASED ON WORK AT THE RHEUMATISM SUPERVISORY CENTRE, ROYAL BOROUGH OF KENSINGTON.

BY

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JUVENILE rheumatism is a disease characterized by its protean manifestations, its tendency to relapses, and its proneness to attack the heart. The aim of a rheumatism supervisory centre would be, were it possible, the prevention of rheumatic disease of the heart. Unfortunately the physician's hands are tied by ignorance of the exact cause of rheumatism, by possessing no specific remedy for its cure, and by having no sure or ready means for protecting the heart from its attacks. It has been said that the prevention of rheumatic heart disease can only be attained when rheumatism itself can be prevented, and, while we are not able, with our present knowledge, to prevent either rheumatism or rheumatic involvement of the heart, yet there is good reason to believe that relapses may be avoided by the employment of certain preventive measures. Put briefly, these measures consist in providing for the rheumatic child management and surroundings as near the ideal as possible, remembering that he cannot be neglected without risking exacerbations.[1] When the heart is already affected careful supervision may do much to enable the child to attain a degree of physical fitness sufficient to enable a return to a normal occupation. Thus the primary object of a rheumatism supervisory centre is twofold: the prevention of relapses and the after-care of those children whose hearts are already involved. In the latter group of children these two objects are inseparable; the best guarantee that a damaged heart will make a satisfactory recovery being to ensure that no further bouts of rheumatism occur, maintaining during the healing stage of rheumatic heart disease a careful supervision of all physical exertion.

With these principles in mind we decided that the functions of the rheumatism supervisory centre† should be: first, to make use of all the measures available for preventing relapses in rheumatic children, and, secondly, to supervise the after-care of children already the victims of rheumatic heart disease. Not directly related to either of these functions, but rather in the hope of adding something, however little it might be, to the knowledge of rheumatism, we have, by keeping careful records of the cases, been investigating juvenile rheumatism along clinical lines.

Prevention of Relapses.

The lines on which recurrences of rheumatism may best be prevented are: (1) correction of unsuitable environmental conditions; (2) attention to general health; (3)

* Working with a grant from the Medical Research Council.

† Established in connexion with the rheumatism scheme of the Royal Borough of Kensington.

treatment of diseased tonsils; (4) education of the parent in the correct management of the rheumatic child. The correction of faulty home conditions being for the most part impossible, removal of the child from its home environment to more suitable surroundings is a measure on which much reliance is placed by us and by all other workers in the field of juvenile rheumatism. But while our main attack on faulty environment has been the provision of convalescent treatment for the mild cases, and, for the severe ones, the use of certain residential institutions, let it not be forgotten that this method of temporary removal is chosen because it is the line of least resistance, and not because it appears to us to be economically sound. Apart from this temporary removal to better surroundings, something is being attempted to improve the surroundings and management of these children when they return to their homes in Kensington. The Invalid Children's Aid Association visits the homes of all rheumatic children, giving instruction and advice to the mothers. In many cases housing defects are remedied through the activities of the public health department.

Work of the Centre.

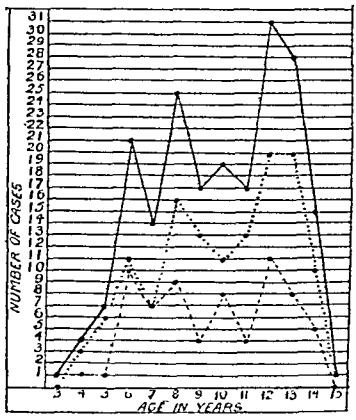
In dealing with each rheumatic child there is an important practical point for the physician to decide—namely, whether the disease is in an *active* or a *quiescent* stage. No arbitrary definition of activity has been adopted by us, each case being judged on its merits, but we have frequently experienced difficulty in deciding whether a case is to be regarded as active or not. *Active* rheumatism requires thorough and sustained treatment, and we regard it as the duty of the centre to see that proper treatment is carried out. Where the family are in a position to call in a private doctor this is the course which is recommended; otherwise the patients have been admitted to various hospitals. When the disease is found to be *quiescent* it has been our practice to re-examine the child at appropriate intervals, appointments being arranged at the centre for this purpose. Many of the quiescent cases, and certain cases of subacute rheumatism without cardiac involvement, benefit considerably by short periods of convalescence in the country or at the seaside. For some of the older children who suffer from relapsing rheumatism, or in whom there has been sufficient cardiac damage to render them unsuited to the rough and tumble of an ordinary London County Council school, we have found the special schools for physically defective children to be invaluable.

Allocation of Cases to the Rheumatic Group.

The following observations are based on a statistical study of the first 200 patients attending at the centre. In our series we have included only children in whom we were satisfied that rheumatism was, or had been, present. The difficulty in diagnosing the milder grades of rheumatism was experienced by us, as by others, and each of our cases had to be considered on its merits. There was seldom much difficulty in the diagnosis of chorea; occasionally at the first visit a mild case might be puzzling, though subsequent observations always enabled us to make a definite diagnosis. Four cases of habit spasm had to be excluded; it is of interest that all these had been notified as suffering from chorea. We came across cases of habit spasm among the rheumatic children, though not more commonly than among the ordinary out-patients of a children's hospital, and we did not regard this disorder as a symptom of rheumatism or as being related to it. Erythema nodosum was excluded because, in our opinion, this disease is not a rheumatic manifestation; others excluded were such widely differing conditions as traumatic synovitis, flat-foot, vasomotor disturbances, cyclical vomiting, and hypothyroidism. Some cases of aches and pains in the limbs were excluded, either because they had occurred on only one occasion or because the symptoms could be adequately explained on other grounds. On the other hand, we included patients in whom limb pains recurred persistently for weeks and months if no explanation other than rheumatism was forthcoming, even though no other rheumatic manifestation might be present. No doubt there are cases in our series which some would be disinclined to regard as rheumatism. Often in cases where the diagnosis presented difficulty, help was subsequently obtained by our finding a slightly dilated heart, or a systolic bruit, or by the patient developing an obvious rheumatic exacerbation. The rest of the cases include children with more than one manifestation of rheumatism, or with one definite manifestation such as chorea or mitral stenosis. In accepting patients in whom the physical signs were the chief or only evidence of rheumatism every effort was made to exclude congenital morbus cordis.

Age and Sex.

The rheumatic scheme of the Royal Borough of Kensington concerns itself only with children under the age of 16 years. The youngest child in the series was aged 3 years and the oldest 15 years. The ages of the rheumatic



Continuous line = sexes combined. Dotted line = females only. Broken line = males only.

children when they first presented themselves at the centre are shown in the accompanying graph.

It will be seen that the highest age peak occurs at 12 years, with lesser peaks at 6 and 8. When the sexes are plotted separately it is seen that at all ages the females preponderate (131 to 69), but the males contribute relatively more in the age group 5 to 8 and relatively less in that of 11 to 13 years.

Cardiac Involvement.

Examination of the hearts of the 200 children in the series, repeated as often as they attended the centre, showed that 35 (17.5 per cent.) had definite rheumatic heart disease; the hearts of 6 of these children appeared to get worse during the period they were under observation; one has died of malignant endocarditis. No heart in this group was observed to get appreciably better, and the majority remained unaltered. The period of observation, however—three to eighteen months—was short. In 108 (54 per cent.) of the children the heart was normal when they first presented themselves, but in 4 of these the heart subsequently became involved; a fifth child developed acute pericarditis, which cleared up, and six months later (when the child was last examined) had left no trace of heart disease. The remaining 57 children (28.5 per cent.) were placed in the category of "doubtful hearts." For the most part the physical signs in this group were those of slight or moderate dilatation, reduplication of the second mitral sound, premature systoles, and simple tachycardia—abnormal physical signs which might later disappear without leaving any trace. Subsequent observations showed that 12 patients in this group had improved and one had got worse.

The State of the Heart and Tonsillectomy.

A study of the relation between the state of the heart and tonsillectomy yielded the following data. In 115 patients who had never been subjected to tonsillectomy the heart was normal in 64, doubtful in 29, and diseased in 22. In 40 subjected to complete tonsillectomy the heart was

normal in 23, doubtful in 10, and diseased in 7. In 45 who had had incomplete tonsillectomy the heart was normal in 21, doubtful in 18, and diseased in 6. These data give no indication of the relation between the date of tonsillectomy and that of cardiac involvement; indeed, the date of the first attack on the heart can seldom be obtained with any degree of accuracy, and frequently it is quite unknown. With such a high proportion of doubtful hearts we did not feel justified in drawing conclusions from the data before us, especially as the throat operations might have been performed either before or after the cardiac damage had taken place. Leaving doubtful hearts out of account, it seems that the ratio of diseased hearts to healthy hearts in each of the three groups is approximately the same, a slight difference in favour of the operated groups being too small to be significant. One important fact may, however, be gleaned from the figures; of 85 tonsillectomized children no fewer than 45 (53 per cent.) had suffered incomplete removal of the tonsils. Now unless it be argued that incomplete removal of tonsils predisposes towards rheumatism, the results in this series, as far as the completeness of tonsillectomy is concerned, may be taken as representative of those obtained in various London institutions. Other workers have drawn attention to the high proportion of failures in tonsillectomy, and we do not propose to deal further with this question than to remark that the guillotine operation can be relied upon to give uniformly satisfactory results only in skilled and practised hands.

Onset of Rheumatism and Date of Tonsillectomy.

The relation between tonsillectomy and rheumatism in our series was further studied by ascertaining the time relation between the onset of rheumatism and the date of tonsillectomy in the group of 85 tonsillectomized children. The data are tabulated below.

TABLE I.	Cases.
Rheumatism began before tonsillectomy	40
Rheumatism began after a complete tonsillectomy	10
Rheumatism began after an incomplete tonsillectomy	27
Doubtful. The history did not clearly indicate whether rheumatism preceded or followed tonsillectomy	8
	85

Though the cases are few in number it would appear that, as compared with the children with tonsillar remnants, the tonsillectomized children have a relatively small liability to contract rheumatic infection.

Rheumatism following Tonsillectomy.

Dr. Reginald Miller[2] has suggested that although tonsillectomy does not prevent rheumatism, it modifies its virulence, making the appearance of heart disease uncommon in tonsillectomized children. The figures just cited show that in our series there were 37 children in whom rheumatism began after partial or complete tonsillectomy. We analysed the rheumatic manifestations occurring in these children, and the figures we obtained lend support to Dr. Miller's view.

TABLE II.—*Tonsillectomy before Onset of Rheumatism.*

	Complete.	Incomplete.
Pains only	5	14
Chorea only	1	0
Pains and chorea	2	1
Pains and/or chorea with heart disease	2	12
	10	27

It is significant that in our series of 200 rheumatic children—of whom 40 had been subjected to complete and 45 to incomplete tonsillectomy—only two children could be shown to have developed heart disease after complete tonsillectomy.

Dental Caries and Constipation.

Observations on the presence of dental caries were made in 154 cases; of these, no carious teeth were present in 97; one carious tooth each in 29; two carious teeth each in 9; three or more carious teeth each in 19. For comparison we may refer to Dr. Livingston's report[3] on the Michael Faraday School (Walworth). In 1927 he found that only 21.5 per cent. of the children were completely free from dental caries. The figures of the School Medical Service[4] showed that among 2,213,721 children inspected the incidence of dental disease was 63.9 per cent. We have formed the opinion that the teeth of the rheumatic children in our series compare favourably with those of children seen in the out-patient departments of children's hospitals. Other workers on rheumatism have arrived at a similar conclusion, and there seems to be no evidence of an association between rheumatism and dental caries.

The rheumatic child has been described as a constipated child. With a view to clearing our minds on this subject we took notes of 152 cases, and found that constipation was relatively infrequent, occurring in only 17 children (11 per cent.).

Cardiac Irregularities.

All the cardiac irregularities noted fell into one or other of two groups: (1) sinus arrhythmia; (2) premature beats.

Sinus Arrhythmia.—The observations on sinus arrhythmia were made with the patient in the prone position. The effect of deep breathing on the arrhythmia was always noted before the presence or absence of sinus arrhythmia was recorded; 87 children were examined, sinus arrhythmia being present in 66 (76 per cent.) and absent in 21 (24 per cent.). Of those in whom sinus arrhythmia was present, 16 (24.2 per cent.) were classified as cases of active rheumatism, while of those in whom it was absent 10 (47.6 per cent.) were so classified. Sinus arrhythmia may be present or absent in children with active or quiescent rheumatism, just as it may be present or absent in healthy children. Our observations suggest, however, that though marked sinus arrhythmia is the rule in chorea (always classified as active rheumatism in our series) it is more often absent in the active rheumatic cases than in the quiescent ones. Active rheumatism is usually associated with a rise of pulse rate, and the fact that tachycardia tends to banish sinus arrhythmia probably accounts for its relative infrequency in active rheumatism. The presence of exaggerated sinus arrhythmia in the rapid heart of chorea is interesting; it may be connected in some way with the sympathetic and vagal disturbances of the condition.

Premature Beats.—Although we were on the look-out for this irregularity we found it in only 3 cases (1.5 per cent.). Extra-systoles are uncommon in the hearts of rheumatic children; in the normal child they are even more rare. We regard them as an indication of inflammatory (or possibly toxic) involvement of the myocardium. Details of the three cases are as follows:

Case 1.—A girl, aged 13, was seen in a first attack of chorea, and admitted to Princess Louise Hospital for Children. Pain had occurred in various joints for two weeks before admission. When the patient was first examined premature beats were occurring frequently and considerably upsetting the cardiac rhythm; a well-marked sinus arrhythmia further complicated the rhythm. During her stay of two months in hospital premature beats were usually to be heard, and were not banished when she held her breath. On her discharge to a convalescent home a localized mitral systolic bruit was to be heard. After eight months the extra-systoles and the systolic bruit were still present.

Case 2.—A boy, aged 11, had developed rheumatism at the age of 6, and chorea at 9½. At the first examination there was no evidence of heart disease, but later extra-systoles were usually to be heard. He has been observed for a period of fifteen months and extra-systoles are still occurring. No other manifestation of cardiac involvement has appeared, but rheumatic pains continue.

Case 3.—A girl, aged 7½, developed rheumatism at the age of 4 years. When first examined she had a gross cardiac irregularity, due to frequent extra-systoles. There was a mitral systolic bruit. An electro-cardiogram confirmed the clinical findings, and showed that the premature beats were arising in the auricle. After three months' observation coupled beating, due to extra-systoles, was heard. Two weeks later this observation was repeated. Some five months later the following was recorded: "Frequent premature beats—often coupled beating for about twenty beats at a time. Premature beats present when breath is held in full inspiration." After a total observation period of over sixteen months the extra-systoles are still occurring and the mitral murmur persists.

Rheumatic Tachycardia.—A high pulse rate is the rule in active rheumatic infection; some rheumatic children, however, show a degree of tachycardia which is out of

proportion to the severity of their affection, and fall into a clinical group called "rheumatic tachycardia." There were 6 (3 per cent.) such cases in our series. Their characteristic symptom is sustained rapidity of the heart, which is not affected to any extent by treatment, whether this be rest in the prone position, sedatives, salicylates, or digitalis. It is possible that the tachycardia is less an indication of myocardial involvement than of a derangement of the nervous control of the sino-auricular node, for we have been surprised at the unexpectedly benign course of these cases, and, unless there is evidence of valvular or myocardial damage apart from the tachycardia, we take an optimistic view about them. Subsequent damage to the valves has not occurred in our cases during the period they have been under our care, but further observation will be maintained.

Incidence of Exanthemata.

There was a history of the various exanthemata in approximately the expected proportion of the children. Measles, the most frequent, had occurred in 88 per cent. of 189 children; diphtheria (16 per cent. of 190), and scarlet fever (15 per cent. of 189) were the least frequent. A history of rheumatism beginning after attacks of measles, diphtheria, and scarlet fever was obtained in various cases, and though it is possible that in a disease as common as rheumatism coincidence may be a sufficient explanation, the debilitating effect of the exanthemata must not be overlooked.

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THE SURGERY OF ACCESS TO THE PLEURAL CAVITY.

WITH ILLUSTRATIVE CASES.

BY

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THE three cases in this paper are reported in order to show that the pleural cavity of one side may be freely opened with impunity under the ordinary arrangements of general anaesthesia. The opening made is large enough to see and feel the whole of the contents easily. This is not a new observation; I learned the lesson in the war whilst removing shrapnel and bullets from the lung. Those patients were all young men, and it was usually possible to reflect and subsequently replace a rib. Two of the patients whose cases are reported here were over 60; their ribs were brittle and were removed, as they fractured during the process of elevation. I was not sure what would be the effect on the circulation and respiration of widely opening the pleura at this age; apparently this was no more disturbing than in the younger men, and that is to say nothing beyond a little quickening of both pulse and respiration, which gave rise to no anxiety whatever. There were no adhesions to separate, and so no bleeding, and there was no infection. It was a combination of these two things in the war cases which sometimes caused the development of an empyema, for the foreign body was almost always infected in some degree, and adhesions were cohesions and extensive.

Surgery has still to find its legitimate place in dealing with conditions in the chest. Widely opening the pleura in the presence of a suppurative lesion in the lung is often made difficult by adhesions, and must of necessity put the patient to the grave risk of an empyema. In some degree in such an operation as lobectomy—for example, in carcinoma of the lung—the same risk is run by infection from the bronchi. At the best it is only rarely, and then in specially selected cases, that this line of treatment is possible, though experience may show us that the present limitations may be exceeded. However, it is as a means of access for radium applications that I wish particularly to use these three cases as illustrations. It may happen from time to time that a radium needle inserted for carcinoma of the breast will work through into the chest, as happened in the third of these three cases, and it is comforting to know that it may be recovered without any undue risk to the patient; but the radium applications to which I particularly want to allude are in cases of primary carcinoma within the chest, and especially of the lung.

I have seen no reports of any work being done on these lines, but it seems to me well worth giving the method a trial when the opportunity arises. The large opening in the pleura with its attendant complete collapse of the lung—so dreaded in the past—would be a great advantage, for it would enable the growth to be palpated with ease, and the access afforded would allow of the application of the radium needles with precision. Adhesions, if present in this disease, are not particularly baffling, and so the separation of them would be unlikely to be attended with troublesome haemorrhage, and the risk of infection would only be that of any other "clean" operation. It is up to the physicians, who see these cases, to take the initiative; a reasonable proposition of this kind should be welcomed by them, for the mortality at present is 100 per cent.

CASE I.

The patient was a man, aged 65. A lump had been noticed on the chest wall of the right side for six months. During this time it had steadily increased in size. There was no pain. He was seen by me in April, 1928, when the tumour was about the size of a duck's egg and fixed to the sixth rib in the anterior axillary line. The tumour was hard, rather elastic, and nodular. No abnormal signs were detected in the chest. A diagnosis of chondromyxosarcoma was made. On April 18th, 1928, the tumour was exposed and found fixed to the sixth rib; this bone was divided an inch beyond the growth at both ends, and it was then found that there was a mass projecting into the pleural cavity, covered with pleura, of course, but intimately adherent to it. The mass of growth on the inner side of the chest wall was slightly larger than the part projecting beneath the skin. The pleura was opened and the adherent part cut away with the growth. On opening the pleura the lung collapsed at once and completely, but this did not appear to inconvenience the patient in the least. After removing the piece of rib with the growth and adherent pleura a hole in the pleura was left through which one's hand could pass easily, and it was found impossible to close the gap except by drawing together the split pectoral muscles.

The patient made a perfectly smooth recovery, and within a week the lung appeared to be fully expanded. Sixteen months later the patient does not present any evidence of local recurrence.

Microscopic examination of the tumour proved it to be a chondromyxosarcoma of very malignant aspect, showing numerous mitotic figures and great irregularity of cell structure.

CASE II.

A woman, aged 63, who had had her right breast removed for carcinoma—verified by histology—noticed, five years later, a small nodule over the sterno-clavicular joint region, which gradually increased in size. There was very little pain. She was seen by me in May, 1928. There was a hard, ill-defined tumour at the inner end of the first intercostal space on the right side; this was obviously a recurrence, and was firmly fixed to the bone. There was no cough or other sign to suggest intrathoracic extension.

On May 6th, 1928, I removed a part of the clavicle and the inner ends of the first and second ribs, together with the growth, which was adherent to the pleura; extending outwards from the adherent part a few plaques of hard growth were seen reaching away to about one inch beyond the point of adhesion. The pleural cavity was opened and the involved pleura removed with the rest of the growth. The lung collapsed, causing no obvious inconvenience to the patient, and she made an uninterrupted recovery. There was no evidence of recurrence a year later. Histologically the tumour was proved to be carcinoma.

CASE III.

A woman, aged 46, was admitted to hospital recently with carcinoma of the left breast, which was treated with radium needles. One of these, which had been inserted into the third intercostal space, worked through into the pleural cavity, and could not be recovered by the use of a pair of forceps. She was not a patient of mine, but I was asked to help to recover the needle. Under the *x* rays it was seen to move with the lung, under the inner end of the third rib, and could be touched with the forceps but not held. After some considerable time spent in these efforts I decided that the only way to extract the needle was to open the chest. This was done, the lung of course collapsing, and with it the needle, which was found to have fallen into the costo-phrenic sulcus, and was picked up from there by the fingers after inserting my hand into the pleural cavity. The

patient was not inconvenienced during the operation, but suffered from cyanosis and dyspnoea for a day or two afterwards. However, she made a perfect recovery and the lung was fully expanded by the end of a week.

The principles of the technique of the operation were the same in the three cases; minor differences consisted in the removal of different ribs according to the one to which the growth adhered.

In performing the operation as a means of access to the pleural cavity it was found in the war cases most convenient to reflect the fourth rib; this seemed to give the most direct approach to the pleural cavity as a whole. An incision is made in the axis of this rib, the pectoral muscles split, and the rib reflected subperiosteally. In older patients it seems wiser to remove the rib. The pleura is divided in the same direction as the skin incision and to such an extent that the hand may be passed into the chest. If a rib spreader be inserted and opened widely the whole of the pleural cavity can be easily inspected. The most difficult part of the operation is the closure of the pleural membrane. This tears rather easily, and owing to the rigid structures overlying it will not pull together as the peritoneum does. Fortunately it does not seem to matter very much if a close approximation is not effected. Some slight temporary surgical emphysema sometimes follows, but by no means always. If the rib has been reflected it is stitched back into place by passing one or more sutures through the cartilaginous end into the cartilaginous piece left at the sternum, for the division should be made when possible through the cartilage in the first place. The muscles are drawn together with sutures, and finally the skin wound closed; no drainage is necessary unless there has been much bleeding and some risk of infection. In these circumstances it was found in the war cases that *it was much better to drain from the back* after completely closing the wound in front.

The anaesthetic used was ether in every case, given by the ordinary method of inhalation; any contrivance used to prevent the lung from collapsing would be a disadvantage, and the ordinary method seems to be quite safe.

THE RHEUMATIC TYPE.

BY

N. GRAY HILL, *M.C.*, M.B., B.S., D.P.H.,

AND

MARY ALLAN, M.A.

THE belief that a certain type of individual is particularly susceptible to certain diseases was at one time widely held, and, although this view is not generally accepted at the present day, references to the rheumatic type of child are still far from uncommon. It is believed by many that fair children, those having red, sandy, or auburn hair, are especially prone to develop rheumatic fever. Shrubsall examined 133 rheumatic patients, and, taking the colour of the hair as a criterion, found that 75.19 per cent. of these cases came under the heading of fair and 24.81 per cent. dark. Llewellyn and others have supported this theory, but have not given such exact figures. Shrubsall compared his findings with those of Beddoe, who examined 6,000 Londoners, of whom 58.4 per cent. were fair and 41.6 per cent. dark, and with his own records of patients suffering from non-rheumatic diseases, and his conclusions were that "the blonde traits are associated with acute rheumatism, heart disease, and tonsillitis."

For the purpose of comparison the characteristics of 562 rheumatic children, patients at either Queen Mary's Hospital, Carshalton, or the Downs Hospital, Sutton, have been recorded and are set out in Table I, together with Shrubsall's and Beddoe's findings. To make the investigation still more complete similar records have been kept relating to 536 other patients at Queen Mary's Hospital, all London children of the same age group as the rheumatics, but admitted on account of various orthopaedic and other non-rheumatic conditions.

TABLE I.—*Comparison of Rheumatic and Control Cases: Colour of the Hair (expressed as Percentages).*

	Fair Hair.			Dark Hair.		Total Fair.	Total Dark.
	Red.	Fair.	Light Brown	Dark Brown.	Black.		
Rheumatic cases:							
Shrubsall's 133 cases ...	21.05	21.05	33.09	23.31	1.5	75.19	24.81
Q.M.H. & D.H. 562 cases	6.4	15.9	27.9	48.6	0.18	51.2	48.78
Controls:							
Beddoe's 6,000	4.4	12.1	41.6	37.4	4.4	58.4	41.6
Q.M.H. 536	3.1	20.2	43.1	33.6	—	66.4	33.6

In this table it will be seen that there is no very significant difference between the findings for the two control groups and those for the rheumatic cases at Queen Mary's and the Downs Hospitals, but there is a very marked difference between these latter and those for Shrubsall's cases. This difference is brought out in a more striking manner in Table II.

In Table II the cases from Queen Mary's and the Downs Hospitals have been subdivided into the distribution adopted by Shrubsall, and it shows that while out of his 133 cases 47 had either red or fair hair and blue or light-coloured eyes, among our 562 cases there are only 60 in this category.

The theory has also been advanced that a large proportion of rheumatic children are non-pigmenters, and that unusual dryness of the skin is commonly met with among them. It is difficult to record in any simple table the various types of skin or degrees of pigmentation obtained, but the rheumatic patients at Carshalton are exposed to natural sunlight during the summer, and many of them have artificial heliotherapy during the darker months, and they seem to respond to it very much as do the other patients. All degrees of pigmentation are obtained and non-pigmenters are met with, but there seems to be no constant deviation from the ordinary response to light among the rheumatics. In a certain number of cases the skin has been found to be dry, but this condition is not more commonly met with among the rheumatic than among the non-rheumatic patients.

Conclusion.

A general survey of the patients or a special investigation of any particular characteristics leads to the conclusion that there is no type that can fairly be described as the rheumatic type of child.

LITERATURE.

Beddoe: *Races of Britain.*
Shrubsall, F. C.: *St. Bartholomew's Hospital Reports*, 1903, vol. 39, p. 63.
Llewellyn, J. Ll.: *Proc. Roy. Soc. Med.*, vol. xix, 1926, p. 1.
Layton, F. J.: *Birmingham Med. Review*, October, 1927.
Ray, Matthew B.: *Journ. State Med.*, vol. 34, 1926, p. 641.

TABLE II.—*Rheumatic Cases: Colour of the Hair and Eyes (Actual Numbers).*

Hair:	Red.				Fair.				Light Brown.				Dark Brown.				Black.			
Eyes:	L.	N.	D	Total	L.	N.	D.	Total	L.	N.	D.	Total.	L.	N.	D.	Total	L.	N.	D.	Total.
Shrubsall's 133 cases	22	2	4	28	25	1	2	28	21	4	16	41	7	4	20	31	2	0	0	2
Q.M.H. & D.H. 562 cases ...	17	15	4	36	43	47	5	95	62	70	25	157	53	123	97	273	0	1	0	1

L = The light-coloured eye. N = The neutral eye. D = The dark eye.

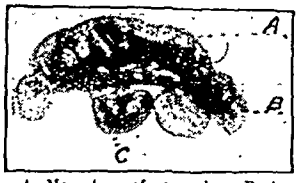
Memoranda:
MEDICAL, SURGICAL, OBSTETRICAL.

STRANGULATED POLYPUS OF THE VERMIFORM APPENDIX.

FREQUENT as are the causes which lead us to explore the region of the right iliac fossa, yet one more cause which I recently chanced to meet may prove of some interest. The features of the case are these.

A married woman, well nourished, aged 51, was admitted to hospital as a case of acute abdomen. The history of the illness was short. For forty-eight hours she had felt ill. Several times she had vomited, and for some twelve hours prior to admission pain had been present in the right iliac fossa. The pain had steadily become worse, so that, when seen, she felt she wanted to lie perfectly still to minimize the risk of increasing it. The temperature was 98.4° F., and pulse 72. The bowels had acted regularly. Her face bore a pained expression, but the tongue was moist and clean.

On examining the abdomen it was found to move freely with respiration. No marked guarding or congestion of the abdominal wall was noted over the appendix area. Pressure over McBurney's point elicited acute local tenderness. The urine was examined; it contained nothing to lead one to suspect any lesion in the urinary tract. Examination per vaginam was negative.



A, Mesentery of appendix. B, Appendix. C, Strangulated polypus.

The unusual sequence of events in the history, the lack of any systemic disturbance, and the famine of findings to the palpating hand made immediate operation seem unnecessary.

The following morning the patient was again seen. She still felt sick, but had not vomited since the previous evening. An enema had produced a good result. Fresh features in the case, however, were now present: the pulse had risen to 92, with a normal temperature; the tongue, though still clean, was dry. In the right iliac fossa deep tenderness could still be elicited, and there was now a fullness in that region and dullness to percussion. *Operation was the immediate decision.*

The abdomen being opened by a Battle's incision, it was noticed that the omentum had descended around the caecum, and a considerable effusion of peritoneal fluid had taken place. The omentum was displaced, exposing caecum and appendix. At first sight the appendix appeared quite healthy, but on turning it up into the wound it was seen to have three fibro-fatty polypi attached to its free border. The largest of these, as seen in the photograph, had become twisted three times upon its pedicle, was of a dark blue colour, and was verging on gangrene.

Appendicectomy was performed and the abdomen closed. No symptoms have since been present.

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CONGENITAL DIAPHRAGMATIC HERNIA.

IN view of the rarity of this condition I think that the following clinical and pathological details of a case of right-sided congenital diaphragmatic hernia are worthy of being recorded.

A woman gave birth to her second child after a normal vertex delivery; labour was three weeks premature. The infant was cyanosed, and this condition persisted, although respiration established itself immediately. The cry was fairly strong at first, but became gradually weaker, and soon ceased. The infant died one hour later.

Post-mortem examination revealed a large deficiency in the diaphragm on the right side. The spleen and stomach were in their normal positions, but the duodenum passed up into the right pleural cavity; this contained also small intestine, caecum, appendix, and the first part of the colon, which passed down through the diaphragm to become continuous with a normally situated descending colon. The liver consisted of two portions: a larger one below the diaphragm, and a smaller portion, which included the gall-bladder, above it; the two were connected by fibrous tissue and by a band of liver tissue. The mediastinum was displaced to the left. The right lung was rudimentary, each lobe measuring no more than [illegible] of an inch in any direction. The left lung was [illegible] lobes were flattened between the chest [illegible] and the anterior border scarcely reached to the [illegible] line. Both lungs had expanded, and the lung tissue was pink and of normal consistency. The right lung was not cut, but portions of the left lung floated in water. No Tardieu's spots were found on the pleurae or pericardium. A further abnormality was the presence of both testicles in the abdomen.

Crowthorne, Berks. E. F. CHAPMAN, M.D.

Reviews.

RECENT WORK ON PHTHISIS.

METHODS of treatment change so quickly that such publications as the Recent Advances Series are invaluable to the general practitioner, too busy, as he usually is, for post-graduate study. The publishers are to be congratulated on their latest addition to this series, *Recent Advances in Pulmonary Tuberculosis*[1] by Dr. L. S. T. BURRELL.

The author has kept the real object of such a book clearly before him, and has not wasted his space on elementary considerations or textbook features. Indeed, it would seem that he has felt a lack of space (if he has not, his readers will), and that, excellent though his condensation is, there is much more that he could teach. It is to be hoped that when this valuable book appears in its second edition it will be twice the size. The introductory chapter on phthisiogenesis is in itself an excellent monograph. The author's views are largely based on Krause's teaching, and here we find the researcher's hypotheses adapted by the practising physician to his principles of treatment. The policies of prevention of infection as against immunization in prophylaxis are pithily discussed in the next chapter. In the chapter on diagnosis which follows there is an excellent section on the use of tuberculin, a practical method which is sadly neglected in this country in the diagnosis and study of tuberculosis in childhood. Radiology, the perfection of which is one of our most important recent advances, is very properly given a chapter to itself. Prognosis, so important in pulmonary tuberculosis, and so difficult to the practitioner whose experience is limited, is dealt with next, and it is here that the reader will undoubtedly ask for more.

The rest of the book (rather more than half) describes modern methods of treatment. A work of this size cannot, and is not intended to, teach in detail how these various treatments are carried out, but rather to suggest what treatments are possible, and the types of case for which each is suitable. In this part special features have been made of sanocrysin and artificial pneumothorax treatment. The book contains some very good *x*-ray illustrations, and short bibliographies are appended to each chapter. The pleasant style and good print make it so easily read that there is no excuse for its absence from the bookshelves of even the busiest general practitioner.

OPHTHALMOLOGY.

THE issue of a second edition of Mr. DUKE-ELDER's book on *Recent Advances in Ophthalmology*[2] within eighteen months of the first appearance of the work is a certain indication that it has met a need, and it justifies the commendatory review that we gave the first edition. In the new edition there has been included some 370 new references, and to keep the book within its original limits earlier references have been omitted. The chief new inclusions deal with Adrian's work on optic nerve currents, Mann's work on the embryology of the vitreous body, and radiological investigations of the lacrymal passages which has been greatly advanced by the use of lipiodol. There is a good account of the work published in 1928 by Ploman, Engel, and Knutson on the physiology of the process of the conduction of tears, and matter that has long been in dispute and now may be taken as settled. Mr. Duke-Elder has set himself a high standard, and the second edition fully maintains it.

The book on *Squint*,[3] by Mr. CLAUD WORTH, the first edition of which was published in 1903, has now reached its sixth edition. The book has therefore secured a place for itself

[1] *Recent Advances in Pulmonary Tuberculosis.* By L. S. T. Burrell, M.D.Cantab., F.R.C.P.Lond. London: J. and A. Churchill. 1929. (5½ × 8½, pp. 217; 17 figures, 32 plates. 12s. 6d. net.)
[2] *Recent Advances in Ophthalmology.* By W. Stewart Duke-Elder, M.D., F.R.C.S., etc. Second edition. London: J. and A. Churchill. 1929. (5½ × 8½, pp. xviii + 405; 110 figures, 4 plates. 12s. 6d.)
[3] *Squint: Its Causes, Pathology, and Treatment.* By Claud Worth, F.R.C.S. Sixth edition. London: Baillière, Tindall and Cox. 1929. (Demy 8vo, pp. ix + 246; 42 figures. 10s. 6d. net.)

and become recognized as having a definite value in the consideration of that most interesting and perplexing disorder of the eyes which gives the name to the book. There have been no fundamental changes in successive editions, though the matter has been added to from time to time, and improvements in the technique of treatment have been duly noted. The main service of this book has lain in the fact that it was an intensely personal production; it represented the practice and achievements of one man who had devoted almost the whole of his professional interest to the investigation and treatment of this one disorder, and with a success that has been enviable. We have no doubt that the lesson stressed by Worth, that the amblyopia of the squinting eye was a defect of negligence, has been so learned that it can never be forgotten.

A second edition of the German textbook on ophthalmology[1] written by Dr. A. BRÜCKNER and Dr. W. MEISNER has now appeared. It is larger, more complete, and more luxuriously published than the first, which was written soon after the war. The book is intended for the student and the general medical practitioner, but, judged by the standards of this country, it is a somewhat large and portentous volume to cater for these classes. Theoretical subjects are dealt with in considerable detail, and on the whole are more adequately treated than purely clinical matters. It may seem strange, for example, that extremely important clinical conditions, such as retinitis in association with arterio-sclerosis and diabetes, are very cursorily treated. The slit-lamp, also, is disposed of in one paragraph only. The pathological aspects of the various clinical conditions receive an adequate amount of attention. The illustrations are good, although it is disappointing to find that the common practice is still retained to some extent of copying from the old classical drawings and transcribing not only their undoubted excellencies, but also their mistakes: an example of this is seen in the insertion of the levator palpebrae superioris in Fig. 12. On the whole, however, the book is sound and its teaching good; it is up to date and well published, and should take a prominent place in German ophthalmological literature.

SERUM DIAGNOSIS BY COMPLEMENT-FIXATION.

IN *Serum Diagnosis by Complement-Fixation*[2] Professor J. A. KOLMER takes a broad view of his subject. Though by far the greater part of the book is devoted to syphilis, it includes also short sections on complement-fixation as applied to a large variety of other subjects, notably tuberculosis, gonorrhoea, echinococcus disease, and numerous other bacterial, protozoal, and metazoal diseases, as well as for the detection of meat and milk adulteration and the identification of blood and seminal stains.

The author's plan—after dealing with the principles of the reaction—has been to take each reagent separately and explain its nature and action in detail in the light of his own experiments. Considerable attention is paid to antibody, antigen, and complement; on the other hand, haemolysin is somewhat briefly considered, which is unfortunate, as its importance is only too commonly underestimated. Anti-complementary action is very fully considered; possibly its importance is greater with the author's long fixation technique than with the short fixation employed by most workers. The author's own test is described with great minuteness of detail, and stress is very properly laid on the necessity of strict adherence to the technique described in order to obtain the best possible results. The test is a somewhat laborious one, and the technique none too simple, but it appears to possess the two principal desiderata—a high degree of sensitiveness with almost absolute specificity. The section dealing with specificity is particularly good. The author definitely disposes of the bogy of "false positives," yaws being the only disease besides syphilis which gives a positive reaction with his test. Such diseases as scarlet fever, typhoid, tuberculosis, malaria, and the long list of others to be found in almost every textbook on the subject are definitely ruled out; nor is the author able to confirm the statement that alcohol may temporarily convert a positive reaction to negative. The sections devoted to complement-fixation in the diagnosis of other diseases and for other purposes are rather curtailed, and consist of short references to the literature, together with some account of the author's own experience. It might have been better to have devoted a separate volume to these, seeing that the book runs to nearly six hundred pages, whilst only four of these deal with the subject of complement-fixation in gonorrhoea.

Professor Kolmer's experience of complement-fixation must be immense, and in his latest book he has given a masterly and lucid survey of its principles and technique, no detail being too small for consideration. This work will be appreciated most by serologists, but if clinicians who undertake the diagnosis and treatment of syphilis would study its contents with care they would gain a clear idea of what the Wassermann reaction means, what is its value, and what are its limitations. The book is well produced and the printing and paper are excellent; italics are used to bring out points of special importance, and the illustrations are remarkably clear. The bibliography, given at the end of each chapter, is more than adequate, though British authors have been rather neglected. Both author and publishers are to be congratulated on the production of a really valuable addition to the already voluminous literature on the subject.

BASAL METABOLISM.

PROFESSOR MARCEL LABBÉ and Dr. H. STÉVENIN in their textbook on basal metabolism[6] give a good summary of modern knowledge of this subject in a volume of moderate size. The authors have the advantage of a first-hand acquaintance with their subject, and in many cases quote results from their own experiments. One particularly interesting feature of the book is that the authors discuss at some length the factors determining the basal metabolism of the normal subject, and give a reasoned account of the theories regarding the relations that have been shown to exist between basal metabolism and body weight, body surface, external temperature, and nutrition. The significance of these relations is still obscure, but unless they are taken into account it is difficult to estimate the meaning of the variations in basal metabolism observed in disease. The greater part of the book is devoted to basal metabolism in disease, and a particularly full account is given of the variations of basal metabolism in thyroid disorders. The variations of basal metabolism in other endocrine disorders and in numerous forms of disease are also discussed. The last chapter contains an account of the various forms of apparatus used in the determination of basal metabolism. The volume concludes with thirty-five pages of useful tables of constants.

VERTEBRATE ZOOLOGY.

DR. G. R. DE BEER'S *Vertebrate Zoology*[7] forms one of the series of textbooks of animal biology that is being edited by Professor JULIAN HUXLEY. The word "zoology" to most medical men probably recalls somewhat vague and confused memories of such things as the appendages of the crayfish and the skull bones of the frog. A perusal of this book will show them, however, that changes are taking place in this subject. The editor, in an introduction, points out that morphology is only one branch of zoology, and that indeed morphology cannot be understood unless studied in relation to genetics and physiology. He also points out how necessary it is to avoid stupefying the student by making him learn masses of detail. The textbook is composed along these lines of thought. A series of

[1] *Grundriss der* [illegible] Professor Dr. W. [illegible] Thieme. 1929. (6½ [illegible] essor Dr. A. Brückner und [illegible]rte Auflage. Leipzig: G. [illegible]gures. 9 plates. M.25.)

[2] *Serum Diagnosis* [illegible] M.D., Dr.P.H., etc. [illegible], Limited and Cox. 1929. (6 × 9¼, pp. xix + 583; 65 figures. 31s. 6d. net.)

[6] *Le Métabolisme Basal.* Par Marcel Labbé et H. Stévenin. Paris: Masson et Cie. 1929. (6½ × 9¼, pp. 344; 31 figures. 40 fr.)

[7] *Vertebrate Zoology.* By G. R. de Beer, D.Sc., F.L.S. With an introduction by Julian S. Huxley, M.A. London: Sidgwick and Jackson, Ltd. 1929. (Demy 8vo, pp. xx + 536; 184 figures. 15s. net.)

type species of vertebrates are described in Part I. The next part deals with four embryological types, and the comparative zoology of each system of the body is described in Part III. This last is the longest part of the book. Part IV is headed "Evolutionary morphology," and in it are discussed the mode of evolution of the various classes of vertebrates. In the last chapter the author discusses such problems as the homology of organs in vertebrates, convergence of evolution, and the distinction between primitive and specialized types. The appearance of this textbook is of particular interest, as it is a sign of the change of outlook that is taking place among teachers of zoology.

NOTES ON BOOKS.

DR. EDWARD GLOVER is responsible for a monograph on *The Technique of Psycho-Analysis*,[8] which is unquestionably the most comprehensive and detailed account of the mode of therapy with which it is concerned that has hitherto been written. Its subject-matter is classified under the following headings: the analytic situation; the opening phase; defence-resistance; counter-transference and resistance; the transference-neurosis; terminal phases; "active" therapy; and analytical crisis and exceptional cases. Dr. Glover explains that the difficulties of analytic technique are twofold: those relating to the patient and those relating to the analyst himself—a difficulty that can only be obviated by analysis of the analyst. We should imagine that those who intend to apply analytic treatment would find this work an indispensable part of their equipment.

The seventh edition of the textbook on experimental bacteriology and infectious diseases[9] by Professors W. KOLLE and H. HETSCH of Frankfort, which has appeared more than six years after the last, consists of two volumes containing seventy-two lectures, of which the first twelve are introductory, while the remainder are devoted to the consideration of the various infectious diseases. The work has been carefully revised throughout. In order to find room for the fresh acquisitions to knowledge without unduly increasing the size of the volume, the lectures on the microscope and the doctrine of disinfection have been omitted, as well as the chapters on animal parasites, such as ankylostomiasis, trichinosis, filariasis, and bilharziasis. The new matter is represented by lectures on bacteriophagy, tularaemia, and scarlet fever. Encephalitis epidemica now receives special consideration in a lecture which also treats of related processes in man and animals, including the herpes virus. The work as a whole has been thoroughly revised and brought up to date, and many new illustrations have taken the place of those in the previous edition. The well-deserved popularity of this book, which appeals alike to pathologists, clinicians, and epidemiologists, is attested not only by its having reached the seventh edition, but also by its having been translated into French, Spanish, Italian, and Russian.

Sir JOHN O'CONOR was a brilliant and versatile Irishman who went to Buenos Aires early in his medical career, and for nearly forty years was connected with the British Hospital in that city. The posthumous publication of his *Reflections and Operations*[10] is prefaced with a foreword by Mr. Herbert J. Paterson, who calls sympathetic attention to Sir John O'Conor's enthusiasm for drainage in sepsis and for the complete immobilization of fractures. With the author's belief in the value of alcohol Mr. Paterson naturally does not agree, and he protests mildly against such statements as: "Universal total abstention would tend in a comparatively short cycle of time to depopulate the earth"; and "Teetotalism is a frequent cause of arterio-sclerosis." Many of the short essays which form this volume were contributed to various British medical journals. The style is vigorous, but homely; the matter occasionally stimulating, but generally not very important. As a record of the observations and opinions on surgical subjects of a man who had an enormous and varied experience in almost every branch of the art the book has its value.

A small handbook[11] by various French authors has been prepared describing the French spas of Evian, Mont-Dore, La Bourboule, Aix-les-Bains, Néris, Cauterets, Biarritz, Aix, Vichy, Royat, Bagnoles de l'Orne, Chatel-Guyon, and Vittel. In each case the special value of the local mineral water is indicated, and an account is given of the various clinical indications for its use. The practical details supplied as regards local amenities will be appreciated by general practitioners, who can obtain the handbook, which is supplied without charge, on application to the Manager, Federation of the Health Resorts of France, 1, Gordon Square, W.C.1.

The little work entitled *Alcohol and Human Life*,[12] by Dr. COURTENAY C. WEEKS, is, as its subtitle states, partly a revision of certain facts and figures in the last edition of *Alcohol and the Human Body*, by the late Sir Victor Horsley and the late Dr. Mary Sturge and others. The book deals with the use of alcohol in medical treatment, the effects of alcohol on the nervous system, the skin, the liver and kidney, blood and circulation and the duration of life; as well as the influence of alcohol on national life.

[8] *The Technique of Psycho-Analysis.* By Edward Glover, M.D. Supplement No. 3 to the *International Journal of Psycho-Analysis.* London: Baillière, Tindall and Cox. 1928. (7 × 10¼, pp. 141. 6s. net.)

[9] *Die experimentelle Bakteriologie und die Infektionskrankheiten, mit besonderer Berucksichtigu[illegible]* Von Dr. W. Kolle und Dr. H. Hetsch. Siebente [illegible] roy. 8vo, Bd. i, und Wien: Urban und [illegible] Auflage. Berlin pp. viii + 554, 54 plates, 75 figures; Bd. ii, pp. iv + 565, 64 plates, 120 figures. Bd. i and Bd. ii, M.60.)

[10] *Reflections and Operations.* By Sir John O'Conor, K.B.E., M.A., M.D.Dub.Univ. Edited by Beatrice and May O'Conor. London: Baillière, Tindall and Cox. 1929. (Demy 8vo, pp. xxxvii + 361; 5 plates. 21s. net.)

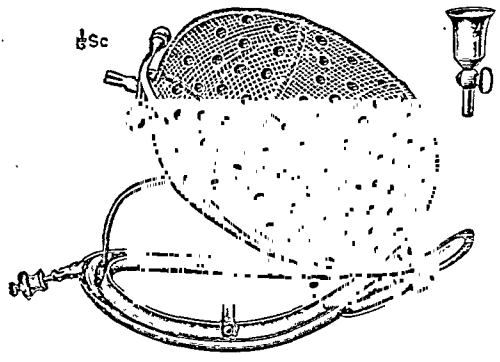
[11] *Some French Spas.* London: Federation of the Health Resorts of France, 1, Gordon Square, W.C.1. 1929. (5 × 7, pp. 176.)

[12] *Alcohol and Human Life.* By Courtenay C. Weeks, M.R.C.S., L.R.C.P. With foreword by Sir Thomas Barlow, Bt., F.R.C.P., M.D., F.R.S. London: H. K. Lewis and Co., Ltd. 1929. (Cr. 8vo, pp. xi + 201; 5 figures. 3s. 6d. net.)

PREPARATIONS AND APPLIANCES.

AN ETHER INHALER.

DR. G. A. METCALFE (Bedford) writes: May I introduce an ether inhaler which I have found to be efficient in practice and economical in use? It has for its basis the principle of a vapour space, which is obtained by superimposing an outer wire gauze cage on a Schimmelbusch face-piece. The gauze is perforated at short intervals, and when in use is covered with one or two layers of lint held in position by a spring. The outer cage, when clipped down, holds the face-piece lint in position, and ether is introduced by a small funnel through the perforations in the gauze. A feed pipe is fixed near one end of the face-piece, through which oxygen or oxygen and ether vapour can be introduced under the mask. The cage is



so constructed that it can be completely removed, and the mask used as an ordinary Schimmelbusch by fixing a wire retaining ring in its place.

When in use anaesthesia can be maintained either by blowing a slow stream of oxygen through ether into the mask through the feed pipe, the proportions of ether and oxygen being ideally maintained by such an apparatus as Mennell's bottle and by-pass, or by gently dripping ether through the gauze by the funnel. In all cases it is advantageous to use oxygen while maintaining anaesthesia. By adding an extra layer of lint to the cage, or by covering with a layer of gamgee, the anaesthesia can be deepened at will.

The advantages given by the inhaler are: (1) ease and uniformity of anaesthesia; (2) clear view of the face during anaesthesia; (3) extraordinary economy in use. I would like to thank Dr. Z. Mennell, senior visiting anaesthetist, and Dr. G. Edwards, senior resident anaesthetist, of St. Thomas's Hospital, for testing the inhaler and for their very helpful suggestions. The mask is made by Messrs. Down Bros., Ltd., St. Thomas's Street, London, S.E.1.

HIGH-TENSION TRANSFORMER UNITS.

Newton and Wright, Ltd. (471–3, Hornsey Road, N.), forward us a booklet containing a brief description of their standard transformer units for radiology up to a tension rating of 150 kilovolts. Such transformer units, with some arrangement for rectifying the high-tension current, form the basis of practically all modern *x*-ray plants of any size. Broadly speaking, a high-tension rectifier can be either mechanical or thermionic (the latter depending upon the action of a hot cathode valve). The booklet contains particulars of both kinds of plants—namely, the well-known Snook machine with mechanical rectification, and the mono-valve and tetra-valve outfits with hot cathode rectifiers.

SCARLET FEVER, DIPHTHERIA, AND ENTERIC FEVER.

A CLINICAL-STATISTICAL STUDY.

THE correlation and interpretation of clinical statistics gathered from various sources is subject to such possibilities of error, owing in part to the variation in the nature of the populations from which the material is drawn, in part to inevitable differences in the standards of classification adopted by various observers, that special value attaches to the clinical-statistical study of scarlet fever, diphtheria, and enteric fever which has recently been made by Dr. E. W. Goodall, Professor M. Greenwood, and Mr. W. T. Russell from data derived from a single source.[1] The case records having been compiled throughout under the supervision of Dr. E. W. Goodall, who personally examined all but a few of the patients, Professor Greenwood and Mr. Russell were able to deal with data free from many of the discrepancies which could hardly be avoided in records collected on a less uniform basis. The scope of the inquiry includes all the patients suffering from the diseases in question admitted to the Eastern Fever Hospital of the Metropolitan Asylums Board during the period 1895 to 1914, and covers 21,280 cases of scarlet fever, 15,239 cases of diphtheria, and 2,434 cases of enteric fever, all corrected for errors of diagnosis. From this material information has been gathered on the age distribution of these diseases, their seasonal distribution (with the associated question of the influence of school closure upon their prevalence), their fatality, and variations in form and complications.

SCARLET FEVER AND DIPHTHERIA.

Seasonal Distribution.

In the opinion of the authors of the report, the most interesting point brought out by a study of the records is that while in the incidence both of scarlet fever and diphtheria the seasonal variation is large, the amplitude of the excursions decidedly increased in the more recent period of scarlet fever, the difference between the seasons of its maximal and minimal incidence being greater in 1905–14 than in 1895–1905. A similar change has not affected diphtheria. Speculating on this contrast the authors suggest that the incidence from day to day or from week to week of an infectious disease may depend on two sets of factors, one largely independent of social organization, the other amenable to control. The seasonal factors, in which may be included changes of temperature, and biological changes in the proportion of susceptibles so far as these are determined by seasonal variations of human fertility, are, as a whole, persistent, though some—for instance, insect prevalence—may be modified by human action. On the other hand, such factors as overcrowding, lack of sanitary supervision, and so forth, which operate more or less uniformly throughout the year, are subject to control; it would follow that the more important the second group of factors the greater its tendency to swamp the seasonal variations with a large steady quota of infections. An accentuation of the seasonal swing may, therefore, from a sanitary point of view, be regarded as a favourable sign.

The authors find that while the data for scarlet fever do not suggest that school closure produces any disturbance of seasonal rhythm, the sharply contrasting trends of the graphs for children of school age and for adults obtained from the diphtheria data do suggest that school contact is a more important environmental factor of diphtheria than of scarlet fever. They are careful, however, to add that they do not set up conclusions derived from their own relatively small collection of data in opposition to those obtained from the notification statistics of the whole County of London.

The graver, septic, form of scarlet fever appears to be less sensitive than the milder form to the uncontrollable seasonal variations. In the diphtheria series the forms studied varied in proportional frequency with season, but the maximum and minimum did not occur at the same time of the year. The incidence of the croup-laryngeal form tends to a maximum in the spring; the maximum of seasonal fatality, however, occurs in the winter. With respect to complications, their tendency in scarlet fever is to be relatively more frequent in the first six months of the year—that is, in the period when the rate of mortality is highest. The most serious complication of diphtheria—paralysis—however, tends to be more prevalent in the second half of the year, while its mortality appears to be highest in the first half, the period of greatest prevalence of otitis and of the croup and laryngeal forms of the disease.

Age Distribution and Secular Trend.

The data show that in scarlet fever the septic form diminishes in relative frequency from the third year of life. In diphtheria the rhinorrhoeal form decreases with age in a geometrical progression, while the croup and laryngeal form descends from a maximum in the second year of life. The data are valuable in confirming the conclusion that two of the most serious complications of scarlet fever—otitis and nephritis—are becoming less frequent, as also is otitis as a complication of diphtheria. Though paralysis in diphtheria has not decreased regularly, each quinquennium subsequent to 1900–4 shows a fall.

ENTERIC FEVER.

Age and Seasonal Incidence.

Study of the data shows that the modal or most frequent age at which the enteric patients were admitted to hospital was 13.61 years, the mode having tended to shift to later ages in the last two quinquenniums; the proportion of cases with complications—namely, 48.5 per cent. of the total—did not vary appreciably in each of the four quinquenniums. The age incidence of the complicated cases was 2.637 years greater than that of the uncomplicated cases—namely, 21.713 ± 0.231 years, as compared with 19.076 ± 0.209 years. This difference, in the view of the authors, is statistically significant, and is greater in degree than can be accounted for by mere chance. They calculate that the odds are more than 70,000 to 1 against the occurrence of two such divergent distributions if they were random samples from the same population.

The seasonal incidence of the admissions corresponded with that observed for the notifications throughout England and Wales; the maximum frequency was in September, but complicated cases occurred relatively more frequently in the first half of the year.

Complications and Fatalities.

Females showed a greater tendency than males to contract complications, 51.7 per cent. having been thus affected, as compared with 45.8 per cent. of males. The relative position, however, is reversed in the case fatality, which was 16.42 per cent. among males and only 12.82 per cent. among females. The proportional frequencies of the chief complications in enteric, as shown in the data under consideration, are 11.18 per cent. for relapse, 6.94 per cent. for haemorrhage, and 4.40 per cent. for perforation; the case rates for these complications increase with age. The lesser complications, such as otitis and secondary rash, appear to have a higher incidence at the earlier periods of life, while the rates for pneumonia and abscess show very little variation with age. During the whole period the fatality among enteric patients was 14.79 per 100 admissions. During 1895–99 the fatality ratio was 18 per cent.; it dropped to 12.7 per cent., its minimal value, during the quinquennium 1905–9, and in the final period increased to 15.6 per cent.

CONCLUSION.

The authors are careful to point out that as their data refer to patients not drawn wholly from one district, and to a period during which public resort to institutional treatment has undergone change, they cannot throw light upon the real incidence of the diseases under survey, and that even the statistics of fatality have to be interpreted with great caution. The analyses of the forms and complications of the disease, however, are of unusual value, and the Medical Research Council believes that these will be of special interest to clinical epidemiologists.

[1] *Scarlet Fever, Diphtheria, and Enteric Fever, 1895–1914: A Clinical-Statistical Study.* By E. W. Goodall, M. Greenwood, and W. T. Russell. Medical Research Council. Special Report Series, No. 137. H.M. Stationery Office. Price 2s. net.

British Medical Journal.

SATURDAY, SEPTEMBER 14TH, 1929.

SILICOSIS IN RELATION TO INDUSTRY.

A GOOD example of the pathological change brought about by dust inhalation was contributed by Dr. P. Heffernan, tuberculosis officer in Derbyshire, in a paper which he read before the Section of Occupational Diseases at the Annual Meeting of the British Medical Association at Manchester; the paper is published in this issue at page 489. According to King's table, which is cited by Dr. Heffernan, a normal lung contains 1.40 mg. of silica per gram of the organ, and a silicotic one 123.55 mg.; silica is thus a normal constituent of the human body, and in no sense a poisonous substance. In order to operate actively it must enter into the intimate structure of the cell, and Heffernan regards the resulting fibrosis as being of a physico-chemical nature, due to the local action of hydrated silica upon the pulmonary tissue. There is some evidence, moreover, that certain substances —alkalis for instance—favour the formation of silica hydrosol from silica, accelerating the fibrotic development; others—for example, coal dust and clays—retard or inhibit this process. In this way an explanation is afforded of the very few cases observed of so-called "acute" silicosis (developing within two or three years of constant exposure, and then following a rapid course) from inhalation of a mixture of silica dust and strongly alkaline dried soap. In a similar way the absence of disabling silicosis among coal miners and fireclay workers can be explained. Gye and Kettle's experiments have led to the belief that the inhaled silica particles undergo slow hydration into silica sol. One might go further and say, the more soluble the form of silica becomes (hydrated, amorphous, crystalline) the more readily will it set up fibrosis.

All observers in South Africa and in this country are now agreed, as Dr. E. L. Middleton states in his paper, published to-day at page 485, that the phagocytes, when overloaded with the dust, lose their motile power, collect in the lymphatic channels, and lead to a reaction, with formation of fibroblasts, in the surrounding tissues. Here in this colloidal reactivity of the cell we are in the presence, as Heffernan suggests, of something analogous to the mysterious change in the vital behaviour of a cell when it takes on malignant growth.

These theoretical considerations, though interesting, do not give much assistance in solving the practical problem how to control the malady. The more widely radiological examinations are made of the lungs of workmen, in no matter what dusty occupation—coal miners, millers, cement workers—the more generally is some fibrosis found to be present in all. Only exceptionally, however, as in the case of the absorption of asbestos dust, is the process likely to develop so as to interfere with the normal working capacity and with life. Some standard, therefore, of what constitutes an injurious amount of silica dust is demanded, or legislation will become punitive on some quite harmless industries. Thus Middleton says: "Where the amount of dust is small the action of the phagocytes is likely to be effective, but where it is great . . ." What dosage is indicated by "small" and "great" in this connexion? If the meaning of "small" were known, would it be correct to go on to say, as he does, "each successive dose of silica produces a summation of effects"? Then, again, would it be fair to say, "a comparatively brief period of exposure may be the only determining factor"? What, in minutes, hours, or days per week, per month, or year, is intended by "a comparatively brief period"? "Intermittency of the process" is another expression used in summing up the reasons for and against a standardization of air purity by a gravimetric process or enumeration of the particles; the arguments against such a standardization are, by Middleton, considered strong, but they are by no means convincing to us. A standard has been accepted in respect of the amount of lead in milligrams per 10 cubic metres of air; Dr. Ronald Lane showed in another paper read that adherence to this makes the occurrence of poisoning highly improbable. Mavrogordato has placed on record figures of silica dust at different stages of the improvements in the workings of the Rand mines, and such a control is in constant operation in them to-day.

We emphasize these points because apparently the Government has taken the unusual course of legislating first and postponing inquiry to a later date, as in the "Various Industries (Silicosis) Scheme, 1929." The insurance companies also have a considerable interest in the matter of compensation for the silicosis risk. Where exposure—as in the refractories industries, the grinding industries, sandstone industry, and pottery industry—is day in and day out, they rightly demand a premium far higher than for any other disease scheduled under the Workmen's Compensation Act—5 per cent. on the wages bill. Now every industrial employer, such as the paint and varnish manufacturer, who has a sack of crushed silica in his store room, from which he extracts once a week enough to make a paste with spirit and add to his other ingredients in order to give them the necessary "bite," becomes involved, and may have to abandon the use of the material or pay 5 per cent. on his wages bill for an absolutely negligible risk. For meting out justice standardization seems urgently called for.

The problem of silicosis in South Africa is now different from ours; the stages we have to traverse have there been passed. Dr. Irvine, in the report on the work of the Miners' Phthisis Medical Bureau for the year ended July 31st, 1928, describes the position *qua* simple silicosis as enormously improved since 1916, the date of the inauguration of the Medical Bureau. This improvement has been achieved through initial and periodic medical examinations, the application of exhaust ventilation, and watering. Water, however, while allaying coarse dust, is not equally efficacious in coping with the invisible dangerous variety. This very fine dust, the particles being of the order of under 2 μ, should, he says, be treated as a gas and be dealt with by ventilation. The excessive use of water is disadvantageous, moreover, facilitating the entry of the tubercle bacillus, and this constitutes the main problem in that country to-day.

THE NATURE OF RACE PREJUDICE.

Is race prejudice an acquired or an inborn element in man's mentality? Until now the majority of anthropologists have held that it is inborn and is necessary for the maintenance of racial purity. Another school of anthropologists is making its voice heard; Dr. Franz Boas, Professor of Anthropology in Columbia University, has recently expounded the views of this later school.[1] Seeing that for the greater part of his life he has professed anthropology in the city of New York, Dr. Boas ought to know something of the manifestations which are evoked when diverse races meet and mingle. He is of opinion that the clash which attends the contact of races is the result of acquired prejudices which are grafted on children by parents, teachers, and politicians, and that the sooner such behavioural manifestations as patriotism, national spirit, and race consciousness—especially that superior form entertained by Nordic anthropologists—are swept away, the better will it be for the peace of the world and the future welfare of mankind. These are opinions which have been held and promulgated these ten years past by that brilliant English man of letters Mr. H. G. Wells.

Anthropology has ceased to be a speculative study in the United States of America and has passed into realms of practical politics. Since the war enactments have particularly favoured immigrants from the north and west of Europe; the peoples from the south and east of that continent are handicapped; all the other racial products of the world—save white men—are barred. American legislators have thus adopted the tenets of the " purity school " of anthropologists and seek to make the population of the United States as Nordic as may now be possible. Dr. Boas, who was born and educated in South Germany, and has the advantage of viewing the peoples of the world with a denationalized detachment, looks upon the discrimination made by the immigration laws of the United States as based on an anthropological error. He does not believe in the inequality of human races. What he does believe is that in every race of mankind there is an extreme range of mental and bodily qualities; that the top third of one race —be it white, yellow, or black—is much the same as the top third of another race; and that what the United States should have done was to skim the top third of mankind, irrespective of colour, and in this way improve its native stock.

Such teaching concerns us all—particularly medical men, who are by calling students of human nature. Could men and women constituted as they now are become willing participators in racial intermarriage? If so, would it be to the ultimate advantage of mankind to endeavour to break down racial and national frontiers and by free intermingling cover the earth with a uniform carpet of humanity? Dr. Boas is of opinion that the advantages would be very great. The racial problems of the United States, of South Africa, of India, of every Government and continent of the world would disappear. There would be no need to maintain armies and fleets; nothing would remain to defend or to conquer; a universal police would alone suffice. It is quite true that with the progress of civilization national units have become ever larger; it seems possible that the ultimate unit might become world-wide. And yet there is something in man's nature which rebels against big national units. After the war there was a sudden relapse in favour of small nationalities. Nor are we certain that racial uniformitism would end strife; we cannot hope for a greater racial uniformity than now prevails in those parts of China where warfare has been endemic for years. Nor do the instances of hybridization which Dr. Boas cites from Brazil, Mexico, and Haiti strike us as particularly successful experiments. Racial uniformitism, even if it could be maintained, has only advantages of the most doubtful kind to offer the world.

Is, then, race antagonism so deeply ingrained in human nature that it cannot be uprooted? Dr. Boas admits that race consciousness is so charged with feeling and passion among the white men and women of the United States that a rational and cool consideration of his proposals is not possible at the present time. He believes, however, that he could eradicate race prejudice from any child if he caught the child young enough. He emphasizes the fact that the negro appears to be destitute of any inborn antagonism to white men and women. He rightly points out that there is no sex antagonism between men and women of the most diverse races—which he can prove by citing many instances. He is of opinion that if race antagonism was organically ingrained it would become manifest first as a sexual aversion. Herein students of human psychology will recognize an error; sex reactions are manifestations of individuals, whereas race reaction comes into operation only when men and women act as members of a crowd, tribe, or community. The early English settlers in America set up communities: they had their wives and children with them. Race antagonism became manifest in the community, and purity of blood was upheld. The Spanish conquerors left their wives and children at home; there was no community in which race feeling could become manifest. The result was hybridization. It is only when we probe into the evolution of human races that we perceive the part played by the feelings evoked by racial contact. We then see that racial differentiation, with the evolution of the highest forms of humanity, could never have come about unless race consciousness had been, and remains, an organic factor in man's mental outfit.

[1] *Anthropology and Modern Life.* London: George Allen and Unwin, Ltd. (Pp. 236. 10s. net.)

CONTROLLING RHEUMATISM IN KENSINGTON.

UNDER the Kensington (Acute Rheumatism) Regulations, 1927, acute rheumatism was made a notifiable disease in that borough for three years from October 1st, 1927. The regulations define acute rheumatism as denoting the following conditions occurring separately or together in a child under the age of 16 years: rheumatic pains and arthritis, if accompanied by a rise of temperature, rheumatic chorea, and rheumatic carditis. The results of the first year's working of this scheme of notification, with the investigation and supervision that resulted, are given in a special report[1] by Dr. James Fenton, the medical officer of health, and the consulting physician, Dr. R. C. Lightwood. During the period under review 159 cases of acute rheumatism were notified, and careful checking of these cases seems to suggest that even under the clear terms of the definition quoted above an error of 10 per cent. may easily arise, and this must be borne in mind in all statistics concerned with juvenile rheumatism. Cases notified were investigated as regards environmental conditions by health visitors, and certain interesting results appear from this investigation. The percentage of rheumatic cases coming from damp houses was just under 40, a figure which is lower than that for the British Medical Association's series of cases reported by Dr.

[1] First Annual Report on the Rheumatic Scheme of the Royal Borough of Kensington.

Reginald Miller, and rather more than the figures obtained in the Medical Research Council's report. The correspondence between the area from which the rheumatism notifications came and the "flood" areas of certain parts of the borough was not, however, by any means a close one, and it is suggested that dampness of the site is not the important factor unless the housing is in some way defective, or, alternatively, that the general social and hygienic conditions are just as important as the dampness itself or even of greater importance. For another possible explanation of the distribution of cases within the borough the rat-infested areas were investigated, and here again a certain slight degree of correspondence was found. But a point of further interest, which illustrates the difficulty of drawing hard-and-fast conclusions without complete knowledge of the problem, is that the rat-infested areas correspond more or less to the railway lines within the borough, and, further, the railway lines frequently follow the beds of old streams, bringing the position round to dampness again as a possible source of danger. It is concluded in a summary of the report that notification in itself must not be regarded as a therapeutic measure, but that the rheumatism supervisory centre is to be looked upon as the keystone in the structure of any local rheumatism scheme. Drs. R. C. Lightwood and M. L. Davies, in a paper which we publish this week at page 495, give some account of the clinical aspects of the work at the Kensington Rheumatism Supervisory Centre supplementing the report mentioned above. They emphasize that the main aim of such a centre is "to make use of all the measures available for preventing relapses in rheumatic children, and, secondly, to supervise the after-care of children already the victims of rheumatic heart disease." The difficulty of diagnosing mild grades of rheumatism was experienced by these workers as by others, and, especially with regard to "growing pains," they appear to have steered a careful middle course, including "patients in whom limb pains occurred persistently for weeks and months if no explanation other than rheumatism was forthcoming." The statistical study they present of 200 cases passing through the supervisory centre brings out many points of extreme interest. One side-light which possibly has some bearing on the relationship between tonsillectomy and rheumatism is revealed in the remarkable analysis of the 85 children out of the 200 in whom an operation for tonsillectomy had been performed. Of these 53 per cent. had suffered incomplete removal of the tonsils, and it would be an interesting study to try and ascertain whether this failure was due to any particular type of operation. This, however, is, as we have said, merely a side-light. The main facts with regard to rheumatism within the borough of Kensington have been well brought out and represent an important contribution to the study of the rheumatic problem. The experiment of notification has the sanction of the Ministry of Health, and the results of the three years experimental period will be studied with great interest. The first year's work indicates quite clearly the usefulness of the scheme when it is intelligently worked.

FROM PYORRHOEA TO MALARIA.

IN 1924 a proprietary preparation of the name of "aseplene" was advertised to the public of this country as "the only known cure for pyorrhoea of the gums." Its claims were described as based upon the experience of four and a half years' use in treatment at the Aseplene Clinic in Bedford Street, Strand, and grateful patients were said to "hail from all quarters of the world—India, South Africa, Rhodesia, etc." Either the name of this preparation has been applied to another proprietary remedy or, in process of time or of transit overseas, it would seem to have revealed new qualities calculated to recommend it for use in the tropics. Aseplene now appears in Malaya as a remedy for malaria. We learn from the supplement to the *Federated Malay States Government Gazette* for June 21st last that at a meeting of the Malaria Advisory Board the acting director of the Institute for Medical Research, F.M.S., reported that a supply of this drug obtained from the agents was used according to the printed directions for the treatment of ten cases of malaria. "The drug had no effect on temperature, the parasites increased in number, enlarged spleens became larger, and haemoglobin decreased. Rigors occurred after five days' treatment. He considered aseplene useless as a preventive or cure for malaria." The Board recorded its opinion that, having regard to the experiments made, aseplene was unsuitable for the treatment of malaria. The Government of the Federated Malay States is being approached with a view to finding means of preventing the advertisement and sale of such drugs in Malaya.

PROTECTION OF HOSPITALS FROM FIRE.

THE modern hospital architect, in planning his buildings, takes careful account of the structural devices by which the spread of fire may be limited, and makes increasing use of fire-resisting materials. His predecessor, however, according to Dr. Gilbert Burnet, chief surgeon to the National Fire Brigades Association,[1] has in many instances bequeathed dangerous hazards to patients, staffs, and firemen. The design of a hospital, he holds, should be determined as much by the fire brigade chief as by the architect; indeed, in his view, the local fire chief is the only person qualified by skill and training to undertake the responsibility of preventing and extinguishing outbreaks of fire in hospitals. He deprecates the practice of placing the dispensary in the basement, maintaining that all spirits in bulk and all compressed gases in cylinders should be treated with the same respect and care as petrol, and kept in a well-ventilated cool room, away from the main building. Special precautions are needed in storing new scientific products in premises some of which were designed many years ago. In this connexion the increasing use of ethylene in modern anaesthesia has introduced a new fire hazard into the hospital; the vapour mixed with oxygen from any source is liable to explode the moment it is brought into contact with a hot cautery or a static spark. Similar dangers accrue from other mixtures, and it follows, therefore, that only cylinders containing the same kind of gas should be stored in the one compartment; all cylinders should be prominently labelled, and, as a further guide to their contents, painted in distinctive colours. The only cylinders to be allowed in the electro-therapeutic rooms are those containing nitrous oxide and carbon dioxide: these rooms should never be used for operations under ether, ethyl chloride, or ethylene anaesthesia, and their installation should be regularly inspected by an expert engineer. The special dangers that may arise from an imperfect system of storing x-ray films were only too painfully brought home to us all by the recent disaster at the Clinic Hospital, Cleveland, Ohio. In Dr. Burnet's view, the X-Ray and Radium Protection Committee—whose preliminary recommendations were the subject of comment in our issue of June 15th (p. 1089)—should, before further developing its proposals, establish contact with, and obtain advice from, the Fire Protection Committee. The risk of fire lies not so much in the few odd films left in the film-viewing room as in the storage of films in bulk, and it is therefore imperative that all hospitals should keep their used and unused films in a separate building, and draw from them only their immediate requirements. In operating

[1] The Fire Peril in Hospitals. *Fire*, July, 1929, p. 43.

theatres, whose atmosphere is liable to be charged with explosive anaesthetic vapours, probably the greatest source of danger is the static electrical spark generated from the highly polished fittings and surfaces. At present the best safeguard is to maintain in the theatre an atmospheric humidity of 60, but Dr. Burnet suggests that more desirable would be some system of "earthing" the theatre appliances by which the danger might be overcome even in a dry atmosphere. It is not generally realized that a faulty switch in the lighting circuit may be as great a hazard in the operating theatre as a naked flame. The fire brigade chief, according to Dr. Burnet, would not only make sure that all switches were spark-proof; he would advocate the enclosure of all lamp sockets in spark-proof shades, and protect the hospital against risks from electric radiators, electric bells, and telephone indicators.

HEALTH OF THE NAVY.

THE Admiralty is again to be congratulated on its continued effort to publish its annual statistical reports on the health of the navy with less delay than has been the case in recent years. The present volume[1] appears considerably less than a year after the issue of its predecessor, and it is to be hoped that the improvement in this respect will be maintained so that the interest of these records may not be dulled by the lapse of time. The incidence of disease in 1927 was 479.05 per 1,000, a decrease in comparison with the past five years' average, but an increase compared with 1926; this rise was chiefly due to a preponderance of influenza and diseases of the respiratory system. The average number of men sick daily was 1,916.09, a ratio of 20.55 per 1,000. The most frequent causes of sickness were injuries (7,350 cases), catarrh (6,393 cases), acute gonorrhoea (3,978), tonsillitis (2,908), and influenza (2,562). The number of persons finally invalided was 1,267, a ratio of 13.8 per 1,000; in 37 cases this was due to refusal of operative treatment. The chief causes of invaliding were errors of refraction (234 cases), diseases of the ear (199), and pulmonary tuberculosis (159). Among the more interesting cases recorded are blackwater fever, Henoch's purpura, Banti's disease, osteomalacia, and Yangtze fever (fatal). The number of deaths was 201, a ratio of 2.15 per 1,000. The chief causes of death were drowning (27), injuries (25), and pulmonary tuberculosis (20). There were seven cases of suicide. Over 12,000 vaccinations and revaccinations were performed during the year, and only one case of small-pox (in China) is recorded. The typhoid and paratyphoid fevers accounted for 18 cases with 2 deaths; pneumococcal infection of the lungs for 211 cases with 13 deaths; and pulmonary tuberculosis for 151 cases with 20 deaths. The last of these diseases showed a decrease in incidence, the African station having the highest case ratio and the East Indies station the lowest. As usual, the ships' cooks, marines, sick berth staff, and supply staff—those chiefly working between decks—provide the highest ratio, and from the smaller ships, such as submarine depot ships, submarines, and destroyers, came the largest number of cases per 1,000 of complement. Strangely enough, training establishments take second place in this list. Venereal diseases appreciably decreased. In addition to the 3,978 cases of gonorrhoea there were 436 fresh cases of syphilis and 927 of chancroid. Calomel cream and mercuric iodide soap are provided in the form of anti-venereal outfits. Dental treatment has been further extended, particularly in regard to appliance work, due to the larger number of dental officers. The returns show that 95 per cent. of newly entered personnel were in need of dental attention, and the number of those requiring extensive treatment has risen from 19 per cent. to 26 per cent. During the year all boys at the boys' training establishments and all band boys and bugler boys at the Royal Marine School of Music were re-examined and rendered dentally fit. A considerable amount of research work has been carried out at the Royal Naval Medical School, Greenwich. Among the subjects dealt with were the purification and regeneration of air in submarines, the purification of swimming-bath water, an improved method of analysing oxygen for therapeutic purposes, and the prevention of mould formation in tobacco. All members of the Royal Marine Battalion (982 officers and men) serving in China were given Professor Besredka's bilivaccin tablets—one tablet before breakfast on three successive mornings—as a prophylactic measure against bacillary dysentery. During nearly ten months' service in China only 7 cases occurred—4 bacillary, 2 amoebic, and 1 not specified. It is a matter for conjecture whether these very satisfactory figures were due to the bilivaccin or to general sanitary precautions. Eight cases of beri-beri, with 3 invalidings and 2 deaths, occurred in one sloop on service in the Persian Gulf. Two points of interest are recorded in this connexion: the sick berth rating who attended the patients contracted the disease, and only teetotallers were affected. It is presumed that the local beer contained the necessary vitamins.

[1] Statistical Report of the Health of the Navy for the Year 1927. London: H.M. Stationery Office, 1929. 5s. net.

HORNER'S SYNDROME OF PARALYSIS OF THE CERVICAL SYMPATHETIC.

THE names of two Horners are connected with the eye: William Edmonds Horner (1793–1853) of Philadelphia discovered the tensor tarsi muscle of the lacrymal apparatus, and Johann Friedrich Horner (1831–1886), a Swiss ophthalmologist, described in 1869 the symptom-complex variously known as the Claude Bernard-Horner syndrome (in France), Budge's phenomenon (among physiologists), and more correctly Horner's syndrome. Its clinical picture consists in endophthalmos, or a sunken and soft state of the eyeball; narrowing of the palpebral fissure; drooping of the upper eyelid and slight elevation of the lower; contraction of the pupil; and certain anomalies in the vasomotor and sudorific activities of the neck and face. It is seen in traumatic lesions of the cervical spine, tumours of the spinal cord, and many other conditions. Dr. J. F. Fulton, formerly working under Professor Harvey Cushing at the Peter Brent Brigham Hospital, Boston, and now of Magdalen College, Oxford, in a critical paper entitled "Horner and the syndrome of paralysis of the cervical sympathetic,"[1] has drawn an interesting picture of Horner, has translated his brief paper on "A form of ptosis," and given a summary of the history of physiological investigations on the relation of the cervical sympathetic chain to the eye. This last is an appropriate and useful commentary, since Horner omitted all reference to the data then established by experimental physiology, such as those in 1727 of the French surgeon François-Pourfour du Petit (1664–1741), William Cruikshank (1795), Dupuy d'Alfort (1816), John Reid (1839), Biffi (1834), Ruete (1847), and J. L. Budge (1851) of Grieswald, A. Waller (1851), and Claude Bernard in 1852. Considering the knowledge of the sympathetic control of the eye proved by experimental physiology, it is surprising that clinical correlation was not forthcoming until Horner's paper in 1869. The nearest approach to so doing was made by E. S. Hare (1812–1838), house-surgeon at the Staffordshire General Hospital, in a paper published in the month that he died of typhus fever, and recording a case of hard tumour involving all the vessels and nerves on the left side of the neck. Considerably after Horner's modest account appeared, the late Sir Jonathan Hutchinson described cases of the kind due to gross injuries of the brachial plexus.

[1] Fulton, J. F.: *Arch. Surg.*, Chicago, 1929, xviii, 2025–2029.

THE EFFECT OF GAMMA IRRADIATION ON CELL DIVISION.

CONTINUING their well-known work on cell division in tissue cultures *in vitro*, Drs. R. G. Canti and F. G. Spear[1] have conducted experiments with a view to determining the rates of falling off and the subsequent return of mitosis in such cultures when exposed to the gamma rays of radium. In each series of determinations the selected intensity and duration of exposure was kept constant; the tissue used was obtained from the choroid and sclerotic of the chick embryo. Four series of determinations were made with different durations of exposures for each series—namely, 1½ minutes, 2½ minutes, 9 minutes, and half an hour. The subsequent determinations in each series were made at various intervals of time up to nine hours after irradiation had ceased. It was found that irradiation for 1½ minutes caused no significant reduction in the number of cells in mitosis during the subsequent three hours. When, however, the exposure was continued for 2½ minutes the number of cells in mitosis rapidly diminished until a minimum of 40 per cent. was reached in 80 minutes. After this time the number increased; the normal was regained in about two and three-quarter hours, but the increase continued until the end of the fourth hour, when the number of cells in mitosis was the maximum—namely, 160 per cent. of the normal. The number then progressively diminished, the normal being reached during the sixth hour, after which it remained constant. Irradiation for 9 minutes produced a greater initial fall—namely, to 27 per cent. of the normal in approximately eighty minutes. The number then rose to the normal as before, but reached a maximum of only 128 per cent., after which it again fell to the normal. After irradiation for half an hour it was found that mitosis had almost ceased after the next two hours, and that, although the number of cells in mitosis subsequently rose, it never attained more than 70 per cent. of the normal. The drop in the number of cells in mitosis was shown to be due to the fact that, while cells already in mitosis at the time of irradiation continue to divide in an apparently normal fashion, other cells do not enter into mitosis. The authors suggest that the return of mitosis may be due to the renewed activity of those cells which were about to go into mitosis, but were inhibited. They add that the following factors may be concerned in the great excess over the normal which was evident in the 2½-minute series: the number of cells entering mitosis per unit of time may be increased; or the time occupied by the process of mitosis may be increased; or there may be a combination of both of these. It would appear that, in long exposures, one or more of these factors is still acting, but that more permanent damage has been done to the cells, which, in the 30-minute exposure series, prevents mitosis from reaching the normal level again.

[1] *Proceedings of the Royal Society*, B, vol. cv, 1929.

THE SCIENTIFIC STUDY OF SEX PROBLEMS.

THE World League for Sexual Reform, which opened its third international congress in London on September 8th, has expressed its general aim in a resolution appealing to legislatures, the press, and the peoples of all countries to create a new legal and social attitude towards the sexual life of men and women, based on knowledge which has been acquired from the scientific investigation of sexual biology and psychology. It is perhaps inevitable that an organization which is frankly reformist in aim should include among the proposals it advocates some, at any rate, for which, in the present state of our knowledge, the scientific sanctions are not yet clearly established. It does not follow that such proposals are undesirable or unworthy of the sympathetic attention of enlightened men and women; but no one who has studied the specific aims of the league, as opposed merely to its general aim, can fail to observe that some of them, at any rate, are based on the uncertain foundation of sentiment rather than on the firm rock of science. Thus, the second among what are termed the ten "planks of the league's platform" is "the liberation of marriage (and especially divorce) from the present Church and State tyranny." It is not clear, even if the existence of such tyranny is conceded, why science should ally itself with one of the victims more firmly than with the other—why, in fact, divorce should be accorded a preferential treatment denied to marriage. A similar unaccountable discrimination is expressed in the sixth of the ten "planks," which enjoins "a rational attitude towards sexually abnormal persons, and especially towards homosexuals, both male and female." It is difficult to believe that the supporters of the league really wish society to adopt towards persons who, though sexually abnormal, are not homosexual, an attitude less rational than it is asked to adopt towards those whose abnormality consists of homosexuality; it may indeed be hoped that in this matter, as in the matter of marriage and divorce, the World League's views, whether one agrees with them or not, are more consistent than would appear from the way in which they have been expressed. It may be suggested that should the league decide to redraft the manifesto embodying its ideals and proposals it would do well to call to its help one or two of the many eminent men of letters whom it counts among its supporters. As might be expected, some of the problems discussed at the present congress—for example, birth control, abortion, sterilization, and the prevention of venereal disease—directly concern members of the medical profession; others—those relating to marriage, divorce, and prostitution, for example—concern them only indirectly, no more and no less than they concern other individuals who are mindful of the future development of our civilization. It is difficult, perhaps undesirable, to attempt to make a hard-and-fast demarcation between the subjects in the first category and those in the second. No consideration of the problems of birth control, sterilization, and abortion, for example, is complete which fails to take notice, not only of their medical, but also of their ethical and sociological aspects. The doctor, by virtue of his special training, is more qualified than others to judge of the medical grounds for the adoption of these expedients, and to work out the technical problems involved in their application; in relation to their social consequences his judgement has no more value than that of any other equally enlightened citizen. It may likewise be suggested that the problems of marriage and divorce, though they are mainly sociological and ethical, have also physiological and psychological aspects which no doctor may assume to lie wholly outside his province. It is clear from a study of the congress programme that its organizers have been fully alive to the danger of segregating the various subjects under consideration into the arbitrarily defined categories of medicine, sociology, ethics, and so forth. Medical men and women have contributed papers on the problems of marriage and divorce; lay persons have discussed various aspects of birth control, sterilization, and abortion. The congress will remain in session until September 14th. From some of the papers which have already been read it is clear that, whatever view may be held of its reformist aims, the World League for Sexual Reform is endeavouring on the whole to consider the difficult problems with which it is specially concerned in a scientific and commendably dispassionate spirit.

As we go to press we learn with regret that Mr. Charles Alexander Morton, emeritus professor of surgery in the University of Bristol, died at Zürich on September 7th, while on holiday. We hope to publish an obituary notice in an early issue.

THE POWER OF PERSONALITY.*

BY

SIR ARCHIBALD GARROD, K.C.M.G.,
D.M., LL.D., F.R.S.

TEN years ago, on the eve of Sir William Osler's seventieth birthday, there forgathered at the house of the Royal Society of Medicine a number of his pupils, friends, and colleagues, to present to him a "Festschrift"—two volumes of essays and papers written by them in his honour—a form of tribute rare in this country although not uncommon on the Continent. The occasion was marked by a charming speech by the late Sir Clifford Allbutt, his opposite number at Cambridge, and by Osler's no less felicitous reply. We who were present at that gathering little thought that the man whom we had met together to honour had less than six more months to live.

Even during Osler's lifetime a volume of excerpts culled from his writings by Dr. Camac, and entitled "Counsels and Ideals," had had so large a sale that four impressions had been exhausted, and a new edition, which has since appeared, was called for. Again, it has been my privilege to address an Osler Society in Oxford, and now the Osler Club in London; and I believe that such societies, founded to perpetuate his tradition and ideals, are not confined to this side of the Atlantic. If we ask to what we are to ascribe these so personal tributes, and a tradition held in so great honour, all who knew Osler will attribute them, without hesitation, to his outstanding personality.

The fact that, as I am told, few if any of the younger members of this club ever saw Osler in the flesh, or heard his voice, shows that the influence and tradition of such a personality outlives its possessor, and is capable of being transmitted in his writings and those of others. The prophet Elijah and Alfred the Great are still vivid realities, and, like them, Shakespeare is immortal. What, then, do we mean when we speak of the personality of a man or woman? Turning to the great Oxford Dictionary I find the following definition of the term, in the sense in which I am using it: "That quality, or assemblage of qualities, which makes a person what he is, as distinct from other persons—distinct personal or individual character, especially when of a marked or notable kind." Obviously, in this sense, every human being has his personality. Each one of us differs from his fellows, not only in bodily structure and the proteins which enter into his composition, but apart from, or rather in consequence of, such individualities, men differ from their fellows still more obviously in mental outlook, character, and ability.

Amidst the great crowd of ordinary people, all different but none outstanding, we distinguish some individuals of unusual mental or moral stature, or personality, who owe their distinction less to any single quality than to an *assemblage* of such, as the dictionary suggests. These are the ferment folk who get things done. Surely it is hardly necessary to emphasize the part which such personality has played in the story of human progress, in the history of civilization. It assumes various aspects: is manifested in the orator who sways a crowd; in the poet who voices the soul of a people; in the musician who, like Rouget de Lisle, produces a tune which sets history working; in great warriors, such as Hannibal and Napoleon, who have made and led unconquerable armies; in great discoverers and thinkers who have changed the outlook of the human race. Yet it is not the same thing as genius. The brilliant discoverer, artist, or writer may lack personality; whereas men of far lesser gifts may, in virtue of their personalities, be leaders of men, and may be, as it were, surrounded by magnetic fields. I, at least, believe that individual stimulus and effort have played the largest part in history, and that progress is more often due to men of great personality than to the collective shove of multitudes of ordinary men.

Yet it must be remembered that each one of us has his personality, for good or ill; each one influences his fellows far more than he usually realizes, and the movements of a crowd are the sum of those of its individual members, not merely of the cogs or teeth of a machine. There is no level at which personality begins, no sharp line between Socrates, Julius Caesar, and the tramp upon the high road, only a series of imperceptible gradations. Happily for us, we do not recognize the repercussions of our personalities as we walk through life, nor the extent to which even the most insignificant of us influences his neighbours. Did we do so we should be tempted to take refuge in a Trappist monastery.

People of outstanding personality, the ferment folk, differ widely amongst themselves, and various factors go to their making. Ability, I take it, they must possess, and wisdom; the gift of expression, a clear brain, a ready tongue. A sense of humour, one of Nature's choicest gifts, can hardly be dispensed with, and, among the essentials also, human sympathy and interest in the work and aims of others.

Each one of us, when he casts his thoughts backwards over his own life, recalls a few people who have influenced him powerfully either for good or evil; but it is upon the former that our memory likes to dwell. We recall the schoolmaster who awakened our interest in what has been our life's work; he who by a word of encouragement spoken in good season helped to give us confidence, and showed us that one person at least believed that there was something in us. Another may have succeeded in interesting us in subjects for which we had no aptitude—classics perhaps—and who seems to walk beside us when we tread the streets of Athens or of Rome. No doubt as we grow older these people tend to grow in stature in our memory, but they undoubtedly possessed striking personality, and sowed a grain of mustard seed which has produced a tree. Any man who teaches others cannot be a really good teacher unless he exerts some such influence; the lecturer must interest himself as well as his hearers. Probably each one of the elders of us has been told, by some former pupil, that he has never forgotten something which we said many years ago. We hope that he will recall one of our choice but forgotten aphorisms, but it usually turns out to be a platitude to which he has clung so long.

Apart from its personal magnetism, a striking personality may be reflected and, so to speak, crystallized by a great writer or biographer. How else is it that we so clearly recognize that which distinguishes Elijah from Elisha, and Queen Elizabeth from King Henry VII. Plato has been able to hand down to all time his own mental picture of the personality of Socrates, and Boswell reflects for us that of Samuel Johnson.

Personality in Medicine.

But I want to confine my remarks to our own field of work, to medicine and the sciences upon which it rests, and to consider how men of outstanding personality have influenced, and will influence, the progress of our science and art. It seems to me that my subject falls under three main heads, but that the categories overlap, and one man may come into several of the groups.

First let me speak of the men of "light and leading" who, like the Pied Piper of Hamelin, pipe a tune which others cannot but follow. Human sympathy and unselfishness are their chief weapons, and they promote in every way the brotherhood of their profession. Behind them their colleagues fall into line, in associations, societies, and less formal comings together; and around them they gather a group of disciples, who, going forth into the world, carry on their traditions and broadcast their teaching. A man may be a great teacher and yet be devoid of this power, and it may be wholly wanting in a great investigator.

Osler's outstanding personality was of this kind. In any international gathering he would draw around him friends from many nations; he did more than any of his contemporaries to promote the brotherhood of medicine. He was no detractor from his fellows, and was unwilling to listen to detraction—his power of turning the conversation away from such talk was celebrated. Many a younger man has gained encouragement from a postcard or telegram, which arrived opportunely, from wherever Osler

* An address delivered at the annual meeting of the Osler Club, on July 12th, 1929.

might be, to give a pat on the back to an aspiring author, or to congratulate the recipient of some distinction or step of promotion. His praise or encouragement was bestowed in delicate touches, not in gross daubs; and no one knew better how to convey the apt word of sympathy. He was eminently a man who liked to be liked.

Yet I am far from wanting to do him the injustice of drawing a picture of perfection. Aristides was not popular, nor, I suspect, was he the possessor of a great personality. Osler was very human, and his weaknesses added to his attraction. His very unwillingness to say "No" sometimes got him into trouble, as when he signed leaflets both for and against the abolition of compulsory Greek. His humour was impish, and at times mischievous; and his *alter ego*, Egerton Y. Davis (who was no other than Osler in impish mood), had many of the characteristics of Til Eulenspiegel. So troublesome did he become to his inventor that he had to be drowned in the Lachine Rapids in 1884, and his body was never recovered; but, oddly enough, he occasionally signed a note in the Oxford days, and once a "fake" examination paper. I am afraid the collected writings of Egerton Y. Davis have not been republished, but some are included in the catalogue of the library. On one occasion Osler spoke of himself as the possessor of a wild and wagging tongue which often got him into trouble, and we recall "Too old at forty."

His personality permeates his writings, and especially those lectures and addresses from which Dr. Camac's quoted passages are chiefly derived. *The Autocrat at the Breakfast Table* is included in Osler's medical student's library, and there is no little affinity in the personalities of the two men—Osler and Oliver Wendell Holmes—the same happy turn of phrase, the same broad humanity. We have known men who were as good teachers and as great physicians as Osler, and some equally learned in the standpoint of ancient medicine—men with Hippocratic minds—but who, for lack of that subtle quality which we call charm, and which is one of the manifestations of personality, could never have sounded that happy note which the children of Hamelin could not but follow.

I do not propose to dwell on the part played by the personality of the medical man in his relations with his patients. It is no less potent, but is much less far-reaching The sympathetic touch, the cheery word, which must not imply a too sanguine optimism; the tactful conveyance of unwelcome truths, and an underlying sympathy with, and understanding of, his fellow man, gain him an influence over his patient which may turn the scale in a critical time. Without such qualities a man with equal knowledge and no less skill may be comparatively powerless to help.

The Clinical Teacher.

There is no one whose personality exerts more influence than does that of the teacher. That is true of medicine as of any other branch of study, and in that kind of clinical teaching which originated in this country, and is still carried out in the English schools, the opportunities for personal influence are specially great. The daily meeting, at the bedsides of the patients, of the teacher and his small band of pupils who share in the work of the clinic, brings teacher and taught into peculiarly close contact, much closer than that of a lecturer and his audience.

This feature of English clinical teaching has been the outcome of a gradual development. Our ancient universities, Oxford and Cambridge, which were the only English universities down to the thirties of the last century, have possessed Regius Professors of Medicine, or Physic, since the reign of Henry VIII, but no hospitals existed in those towns before the eighteenth century. Their professors expounded the writings of Hippocrates and Galen, but could impart no practical teaching in their subject. For such teaching their pupils had to go elsewhere—to Padua at first, as the great school of anatomy, and later to Leyden, where medicine was first taught at the bedside by university professors—or else acquired their experience as apprentices to practitioners. Later they found their way to Edinburgh, which a century ago was undoubtedly the first medical school of these islands, or "walked" the London hospitals for a time. When at length hospitals were founded, first at Cambridge and afterwards in Oxford, there were teachers ready to teach in them, but the habit of going afield for such studies had become firmly established, and has been maintained.

Into almost all our modern English universities, on the other hand, a pre-existent medical school has been incorporated. In none of our universities has a medical school been initiated *de novo*, having attached to it a new hospital, free from the many restraints of vested interests to hamper in the choice of a staff. In this city the early medical students were apprenticed to the surgeons or apothecaries of the hospitals, and the clerks and dressers of to-day are the lineal descendants of those apprentices. Even in my own student days at St. Bartholomew's the dressers had to pay extra fees to the surgeons for whom they dressed, but not to the physicians for whom they clerked—a survival of the apprenticeship fees. A century ago there were many surgical students at the London hospitals, but students of medicine were few, being for the most part graduates of Oxford or Cambridge, or Edinburgh graduates who aspired to practise as physicians. As the number of clinical pupils increased some provision had to be made for teaching them other than clinical subjects. Lecturers, who were almost always members of the hospital staffs, were appointed in anatomy, chemistry, and, later, physiology, but the same lecturer often dealt with several subjects. So the private schools of anatomy gradually died out, and there grew up a number of medical schools, each attached to a large hospital. When University College was founded each professor dealt with only one subject in his lectures, but otherwise the original system was continued.

In Continental countries, on the other hand, the teaching of medical subjects has been in the hands of the universities, and was, and is, imparted by university professors, who are heads of clinics embracing wards and laboratories, and served by assistants who are often highly trained men. Until comparatively recently the German medical student had little direct contact with patients, save in the professors' demonstrations, until his examinations were passed, and had no part in the care and treatment of them in the wards. In this country, on the other hand, until comparatively recent years, the majority of our students had not the advantage of university training.

Under either system the personality of the teacher counts for much, for each student is, to some extent, a fellow-worker with his chief, and his work is shaped by his teacher's views. He learns from him how to approach a case, how to observe essential points, and can watch his treatment and its effects. He learns, too, courtesy to, and consideration for, the patient. It is not only the *art* of medicine which he learns. Remember that medical men in active practice built up the medical sciences, and, indeed, that they have played very large parts in the advancement of the sciences in general.

One need only recall such men as William Gilbert, President of the Royal College of Physicians, and father of magnetic science; Thomas Young, one of the greatest men of science which this country has produced, who played a large part alike in the foundation of the undulatory theory of light and in the deciphering of the Egyptian hieroglyphics. There is a memorial tablet on the house in which he lived and practised in Welbeck Street. Until recently the great advances in medicine were made by men in practice. Think of Bright and Addison and William Jenner. What a stimulating experience it must have been to clerk for Addison, or to have been his house-physician, for he was a great teacher as well as an investigator, and beloved by his pupils, as one may learn from Sir William Hale-White's memoir of him in the *Guy's Hospital Reports*. Nor is the race of such workers extinct. In the daily intercourse of the wards there is a constant passage of ideas from teacher to pupil, and indeed from pupil to teacher, in addition to what may be called the atmosphere of the hospital, that floating mass of knowledge, not to be found in textbooks, which reflects the collective experience of generations of teachers and learners. It differs from school to school, and those who work in special hospitals most fully recognize its importance.

On the other hand, the professor in a German university can exert a profound influence upon the students who attend his clinic, upon his assistants, and upon those who come from outside to work with him in the clinic. The daily clinical lecture is usually illustrated in every possible way which may add to its efficiency, whether by the cinematograph or by a cracked pot. The assistants who are charged with the preparations may have many hours of strenuous work in getting ready for the next morning's clinic.

From among the assistants are chosen the future professors of that or other universities. It is clear that special qualities are needed by the heads of such clinics, whether they be whole-time men, like the heads of our units in London, or, like most Continental professors, not debarred from practice, and usually with private wards under their care. They should be inspiring teachers, should be imbued with the investigator's spirit, should know their subject thoroughly, and should be versed alike in the clinical methods and those of the laboratory, which are of so great value in medicine. Anyone who believes that clinical observation is played out, and that there is no science of clinical medicine, is out of place at the head of a clinic.

I have dwelt at some length upon the power of personality in clinical teaching, because it seems to most of us who knew him that Osler's greatest achievement was the conception and establishment of the medical clinic at Johns Hopkins. There he was given a free hand, a new hospital with no established traditions to be broken through, and no existing staff to be replaced. He had, too, the inestimable advantage of the backing and advice of exceptional colleagues, such as Welsh, Halsted, and Kelly. He followed no definite model, but took what seemed to him best in the English and Continental systems, and, above all, made sure that students and teachers alike should take their respective shares in the work of the clinic and care of the patients. The assistants whom he trained have spread the light widely, and I think I need not fear contradiction if I say that from Osler's clinic at Johns Hopkins there has gone forth an influence which has transformed medical education in the United States and in Canada, and has had repercussions upon this side of the Atlantic also.

As you know well, there are widely different methods of bedside teaching, even in a single medical school. There is a method which has a strong appeal to many students, and which may be called the tabulation method. Its appeal is like that of the cram-book, and it calls for no personality in the teacher. I remember going round once with a distinguished physician, long since dead, who had a considerable reputation as a teacher. At the bedside of a patient admitted for haematemesis the clinical clerks were questioned as to the causes of that morbid event, and twenty-eight causes in all were elicited, ending with swallowed knives and forks. In that way it is possible to become acquainted with many facts, but not to know them. Nothing could be further removed from Osler's method. When a case was under discussion in his clinic, not only were the signs and symptoms noted and the diagnosis discussed, but also the history of our knowledge of the malady, and even some points in the life of the man who first described it. If the case were one of typhoid fever, some of the students would be set tasks to be carried out before the next meeting of the class: one to look up Jenner's original papers on the differentiation of the malady, another to compare the symptoms observed with those recorded on a table of such cases seen in the clinic during the year. Osler held unwaveringly to the conviction that clinical medicine must rest upon a solid basis of morbid anatomy, and that the older as well as the most modern diagnostic methods should be applied wherever possible; and he looked upon the medicine of to-day against a background of its history.

He was so deeply interested in the subjects of which he spoke that his students could not escape the infection of his enthusiasm. All the time he was noting any unfamiliar congeries of signs, and from time to time there came from his pen descriptions of unrecognized, or partly recognized, syndromes—polycythaemia with enlarged spleen, hereditary telangiectases with haemorrhages, the visceral complications of the erythema group, and the like. Moreover, through his textbook and other writings he taught and communicated his enthusiasm to thousands who never heard his voice. Yet, withal, he was not a great man of science, nor, I would venture to suggest, one of the greatest of physicians; but because of the appeal of his personality, and the ferment influence which he exerted, his is one of the greatest figures of Anglo-Saxon medicine, and the medicine of to-day is much greater because of him. Unquestionably he was a great leader, a great teacher, and had a great belief in his fellow men.

Personality in Research.

There is yet another aspect of my subject, which I have left to the last, by no means because it is unimportant, but rather because of its immense importance. The great investigator may plough a lonely furrow, and have little personal contact with his fellow men, and yet his writings and the results which he obtains, his discoveries, may change the whole course of human thought. There are other investigators who gather around them, as a magnet does iron filings, men who draw inspiration from them, to whom they suggest lines of research, and whom they restrain from wasting their efforts by exploring blind alleys; this last a very important function. These *men* are the born professors. In these days, when the word research has degenerated to the level of jargon, we need to remember that it is not every man's *métier*. There are men of high attainments, excellent teachers perhaps, *who are what Osler called transmitters, not creators, nor* even transmuters, to use another of his terms. In another class are those who, although they do not tend to embark upon investigation on their own initiative, are well fitted to carry out original work under guidance. Men of that class are more fully utilized on the Continent than in our country, and they contribute largely to the scientific output of Continental clinics. Such a man occasionally figures as joint author of a classical monograph, but may never again appear in the *Index Medicus*. Such men far outnumber the primary investigators, but they do not readily find places in our medical scheme. We do not need to fuss about the primary investigator, he cannot help trying to find out; but his output will be greatly increased if he be given opportunities of stimulating and training a group of secondary workers. Team work calls for someone to drive the team, otherwise it tends to become herd work.

Whether, given the opportunity, a man shall become a successful professor depends largely upon his personality; on his power of infecting others with his own enthusiasm; his reactions to his fellow men and theirs to him. For research work calls for perseverance in face of discouragement; equanimity when weeks or months of patient work leads to nothing, insight to interpret results, ingenuity in devising methods, knowledge, and judgement. In the words of Ecclesiasticus, it is only when Wisdom has walked with him in crooked ways, and has tormented him with her discipline, that she returns unto the investigator the straight way, and shows him her secrets. The arduous nature of the path adds to the pleasure of discovery. Probably there is no greater pleasure open to man than that derived from the discovery of some new fact, even a very little one; or from the finding of the key which unlocks some unexplored chamber in the house of knowledge, and the finder delights to show his find to kindred minds which share his enthusiasm.

I am conscious of the fact that this discourse of mine has no moral. It would be useless for me to exhort you to do your best to acquire outstanding personality—such a thing cometh not by seeking; the assemblage of qualities which constitute it are inborn, inherent in the chromosomes from which its possessor springs. Many ancestors have contributed stones to the building. To one is owing the mental ability and clearness of vision, to another the gift of speech or writing, to another the sympathetic outlook, to yet another the sense of humour. All the ingredients need to be judiciously mixed and well balanced

if a great personality is to emerge. It is judicious blending which produces the best results.

Yet is there not a moral after all? For each one of us has his personality such as it is, and it behoves him to make the best of it. It is within our power to control, to some extent, the factors of our personality, or at least to keep in the background those which please us least. But yet it is not by concentrating our attention upon our own qualities that we shall learn to lead our fellow men.

THE STATE OF THE PUBLIC HEALTH.

SIR GEORGE NEWMAN'S REPORT FOR 1928.

[SECOND (CONCLUDING) NOTICE.]

General Epidemiology.

DURING the year under review the outstanding epidemiological events in England and Wales have been the continued prevalence of small-pox, an unusually large number of scarlet fever notifications, and, during the winter of 1928–29, the most extensive epidemic of influenza since 1918–19. While the number of cases of small-pox was 2,367 less than in 1927 (12,420 as against 14,787), the number of deaths rose from 47 to 53. The usual relation between the vaccinal condition of the patients and the incidence of small-pox has been maintained, a table compiled from information supplied by medical officers of health and others showing that only five vaccinated persons and no fewer than 532 unvaccinated under 15 years of age contracted the disease. Even in the prevailing mild form of small-pox cases of greater severity have occasionally been encountered, characterized by pronounced prodromal symptoms—pains, vomiting, marked pyrexia, prostration, and delirium. The notifications of scarlet fever cases amounted to 102,611, as compared with 84,450 during 1927; the number of deaths registered, on the other hand, was only 580, as compared with 579 in the previous year. Since 1924 the incidence of diphtheria has risen steadily from 41,980 notified cases to 61,134. During the year there were 3,191 deaths from this cause, representing a case mortality of 5.2 per cent.; for scarlet fever the parallel figure is 0.56. Measles, next to whooping-cough the most fatal infectious disease of childhood, accounted for 4,302 deaths; deaths from whooping-cough, however, showed a decline, being 2,976, as against 3,681 in 1927. The figures for the enteric fevers differ little from those of last year. Sir George Newman points out that while gross sanitary defects are becoming less and less responsible for the spread of these diseases, special danger now lurks in the fact that modern methods of wholesale distribution of milk and foodstuffs make it extremely difficult to trace the distributing agents of the infection. In general, there has been a decline in the incidence of the infectious diseases which attack the nervous system. Notifications of acute poliomyelitis decreased from 801 to 452, though the number of deaths registered—namely, 112—remained the same. Similarly, there has been a decline both in the number of case notifications and of registered deaths in respect of encephalitis lethargica; and the cerebro-spinal fever notifications, notwithstanding their rise towards the end of the 1928–29 winter, show, in the Chief Medical Officer's view, no cause for disquietude. With regard to the nervous complications following vaccinia, Sir George Newman points out that it is not correct to assume that these may never follow primary vaccination of infancy; it is, however, true to say that the larger proportion of cases of post-vaccinal nervous disease seem to have occurred after primary vaccination of older children.

Gradually more precise information is being accumulated about the value of various methods of immunization against diphtheria, scarlet fever, and measles. Experience has strengthened belief in the value of toxoid-antitoxin in the prophylaxis of diphtheria, but has tended to show that better results are obtained if an interval of two or three weeks is allowed between the injections. Scarlet fever antitoxin appears to reduce the tendency to complications, and consequently to shorten the average duration of stay in hospital. Active immunization with toxin has proved effective in protecting staffs of hospitals, but the number of doses required makes its general adoption impracticable. Serums prepared from organisms alleged to be responsible for the causation of measles have proved valueless in the prevention or treatment of the disease. Intramuscular injection of 3 to 5 c.cm. of convalescent serum, however, if made before the sixth day after exposure to infection, will almost invariably confer complete protection for about three weeks; given later it usually modifies the attack, and thus has the advantage of establishing permanent immunity at comparatively small risk. The Chief Medical Officer expresses the hope that more use will be made of convalescent serum, and that local authorities who are able to collect a supply will make it available for young children at home as well as in institutions. Collection, he points out, is merely a matter of administration, only a few adult donors being required to meet the needs of a small community.

Influenza.

Having surveyed briefly the occurrences of influenza in England and Wales subsequent to the great pandemic of 1918–19, Sir George Newman proceeds to describe the epidemic of 1928–29, and recalls the interesting fact that, as the prevalence of respiratory disease during the last months of 1928 was low, and there was no indication of an increased incidence of epidemic nervous diseases, there was little to suggest the approach of epidemic influenza. On the other hand, disquieting news from America made it desirable in the first week of January to draw the attention of local authorities to the possibility of an outbreak of more than usual magnitude. The situation completely changed about the middle of January, 1929, and from then to the end of March an epidemic prevailed more serious than any experienced since that of 1918–19. The increase in mortality returns, gradual during December and early January, became abrupt at the end of the latter month, but thereafter, week by week, the disease gained ground until early in March the maximum weekly mortality of 2,183 was reached; from this date the prevalence of the disease declined rapidly and the fall in the death returns was progressive and uninterrupted. In the first week of December, 1928, the death rate from influenza per 1,000 of population stood at 0.16; by the last week of February it had risen to 5.78. In London, which suffered less than other towns, the maximum reached was 5.35. The Midlands sustained the brunt of the epidemic, their influenza death rate in the first week of March being 9.67 per 1,000; in the North, attacked less severely, the climax was 6.26 per 1,000. Wales escaped most lightly of all, with the maximum death rate of 2.74. The climax of the epidemic was not reached at the same time in all parts of the country; nor did the disease always develop coincidently in neighbouring large towns. From figures supplied by the Registrar-General it would seem that the epidemic moved in two main waves, one extending northwards from Greater London, and an earlier one proceeding southwards from Glasgow. Generally speaking, the chief mortality affected those of 65 and over.

Having described the clinical manifestations of influenza of recent years, including those of the 1928–29 epidemic—noting incidentally that the severity and clinical characters of the disease differed in various regions of the country, and that lobar pneumonia occurred with unusual frequency in London—Sir George Newman proceeds to discuss the occurrence of rashes in influenza, pointing out that as it is not always appreciated that these may appear—their description, indeed, being omitted from many textbooks in medicine—their presence may give rise to errors of diagnosis. He suggests that during an epidemic the general practitioner should bear in mind the possibility of such rashes, and consult with the medical officer of health on any doubtful case.

Influenza being a disease spread by personal contact and droplet infection, it might appear that its prevention could be attained by the administrative enforcement of strict isolation. In fact, the epidemiological problem is not that of a disease like plague or small-pox, where the isolation of the infected is equivalent to a separation of the diseased from the healthy. Not only is the causal organism of influenza not definitely established, but no

criterion is available for differentiating the mild case of respiratory catarrh from one of influenza. Furthermore, the subjects of a mild attack are able to continue their ordinary vocations, and it is possible also that there may be healthy carriers of the influenza virus. Even if the attempt to enforce isolation were made, many sources of infection would still slip through the administrative net and maintain an epidemic. Sir George Newman, after some critical commentary on various preventive measures which have been proposed, comes down heavily on the side of common sense and simplicity, and offers as his chief counsel the need, when influenza is prevalent, to invite the public to obey the ordinary rules of personal hygiene. "Persons who practise the rules of health," he concludes, "keep themselves fit, and take all possible care to avoid 'droplet' infection from mouth or nose, are likely to preserve resisting powers which, if they do not carry them unscathed throughout the epidemic, will moderate the intensity of their symptoms and the liability to pulmonary complications if the disease is eventually contracted."

Tuberculosis.

Though notification of tuberculosis is admittedly becoming more effective, Sir George Newman has, as in previous years, to deplore the fact that notifications are far from complete, and that frequently they are made too late to enable effective help to be given to the sufferers. In 1928, out of 77,881 total fresh cases coming to the knowledge of the health authorities, information was not received until after the death of the patient with regard to no fewer than 4,252, a figure which represents 11.6 per cent. of the total deaths from tuberculosis. It will be recalled that, in commenting on the slight increase in deaths from tuberculosis in 1927, the Chief Medical Officer suggested that it would be found not to affect seriously the steady downward trend of the death rate. The figures for 1928 confirm his view, the deaths both from pulmonary and non-pulmonary tuberculosis being not only lower than in 1927, but lower than in any previous year. Since 1911 the gross death rate from pulmonary tuberculosis in males has fallen from 1,233 per million to 879, in females from 900 to 641; even more striking is the reduction in non-pulmonary tuberculosis, the male death rate having fallen from 436 to 188, and the female from 378 to 159. These are impressive figures, and one cannot but agree with the Chief Medical Officer that they afford encouragement in proceeding with developments of the various measures to combat this disease. Just now the moment to consider such developments is particularly opportune, as under the Local Government Act of 1929 local authorities have the opportunity of revising and enlarging their tuberculosis schemes. Under the Act medical officers of local authorities will have to consider how the institutions taken over from Poor Law authorities can be used to the best advantage, and to what extent hospital provision needs to be supplemented. It is suggested that the tuberculosis dispensaries might perhaps be suitably worked in the same premises as the out-patient departments which many local authorities will no doubt provide in connexion with the hospitals in their charge, and that in some areas these out-patient departments may become general health centres for the various services provided by the local authority.

Since the publication of last year's annual report a considerable amount of work has been done on the subject of immunization by B.C.G., Professor Calmette having presented a lengthy statement at an international conference held at Paris in October, 1928. Difficulties in the investigation of B.C.G. are the comparative smallness of the number of cases studied, the lack of adequate control observations, the uncertainty whether its administration may not even give rise to the disease against which protection is desired, and the disharmony between the experimental findings of different workers. Sir George Newman concludes that in this country the question must be regarded as still *sub judice*, and that in so serious a matter as the administration of a living vaccine to human beings confirmatory investigations are necessarily required.

Cancer.

In the year under review there was again an increase in the recorded mortality rate from cancer, the total number of deaths certified as due to this cause being 56,253, giving a rate of 1,425 per million persons living. Having considered some of the problems relating to the proportional frequency of cancer in different sites of the body, and of the so-called "latent" period of cancer, the Chief Medical Officer proceeds to detail the findings of the Departmental Committee, of which terms of reference were "to consider available information with regard to the causation, prevalence, and treatment of cancer, and to advise as to the best method of utilizing the resources of the Ministry for the study and investigation of these problems." He concludes this section of the report with an analysis of the principles of radium therapy in cancer, and discusses certain considerations—most of which have become familiar to those who have followed the recent literature of the subject—which should be taken into account in deciding the future developments of radiotherapy in this country. In brief, the guiding principles appear to be the need to keep radium in action as constantly as possible; to maintain it in different quantities in containers of various sizes and shapes; to bring to suitable centres, staffed by surgical and radiological specialists, an adequate supply of patients; to train attendants for skilled service and in measures for their own protection; and to ensure from the beginning of treatment the fullest co-operation between the radiotherapist and the surgeon in charge of the case.

General Considerations.

The remainder of the report embodies sections on venereal disease; the relation of food to health and disease; the work of the Ministry's pathological laboratory; and such varied subjects as acute rheumatism, undulant fever, accommodation for the sick at public schools, swimming baths hygiene, rural water supplies, artificial light treatment, port sanitary control, international health, and so forth. Of special interest are the survey of the working of various rheumatism supervisory centres, the discussion on the relation between undulant fever and contagious abortion, and the report on the health of the population in mining areas, which has already been summarized and discussed in our columns on March 2nd (p. 415). A few minor textual errors appear in the report, the data in corresponding with those given in the tables. Taking it as a whole, however, the report throughout is admirably written and permeated with an idealism which is all the more inspiring because there is nothing Utopian about it. Sir George Newman moves his readers to wake up and dream!

Belgium.

[FROM AN OCCASIONAL CORRESPONDENT.]

Children and Cinema Performances.

More and more it is becoming evident that the cinema has an evil influence on the education of children, and Dr. Rouvroy, the medical superintendent of an institution for abnormal children, who has been able to investigate the effects of cinematograph performances on three types of children—namely, the abnormal, the subnormal, and the highly strung—has called attention in the *Revue Internationale de l'Enfance* to the danger in this connexion. The results are said to be worse than those brought about by harmful books or pictures, and no real value can, he thinks, be attached to the operation of a censorship or the imposition of an age limit. Even the best films for adults contain scenes of violence and crime; they may be of a highly suggestive type, and they have an intense effect on the sensitive mind of the child. In particular, films of the propaganda kind tend to advertise the vice they are supposed to condemn. Moreover, the intensity with which the child's attention is gripped by the film story is a cause of fatigue. Thus, a performance lasting two hours, including ten two-minute intervals, involves an expenditure of 20 per cent. of the physical energy—twice that involved in the ordinary school day; the effect is still greater in the case of less healthy or nervous children. The stereotyped gestures of the actors make a remarkably deep impression on the subconsciousness of the

spectator; a whole category of physically and mentally subnormal children (often considerably under the age specified in the regulations) are affected by such gestures, and reproduce them automatically in moments of strain. Moreover, Dr. Rouvroy remarks, subnormal children are more numerous than is generally thought.

The Campaign against Diphtheria.

In the province of Luxembourg Drs. Lomry and Duble have undertaken an extensive study of the periods before and after the introduction of inoculation against diphtheria. They conclude that the practice of treating "carriers," which before the employment of inoculation was the principal line of anti-diphtherial prophylaxis, and which retained this distinction during the time when toxin-antitoxin was being used, has now become a secondary and accessory measure of hardly any value since the discovery of anatoxin. Although its utility has not yet completely vanished, inasmuch as inoculation is still not general, the search for bacillary carriers will be limited to the contacts of the patients in their homes and schools, and the active treatment of such persons will be confined to those in whom direct examination has revealed the presence of bacilli in large numbers. The two investigators add that the toxin-antitoxin preparations ought to be entirely abandoned, because they are essentially dangerous; they should be replaced by inoculation with Ramon's antitoxin, which is highly effective and quite devoid of risk. The administration of anatoxin, they add, should become as general in schools as is vaccination against small-pox, and as common in the home as anti-typhoid inoculation.

An Association of Belgian Surgeons.

An association has just come into being which has as its first objective the defence of the professional interests of surgeons; the president is Dr. de Beule. It appears as a "Union professionnelle reconnue," the legal details of which have been drafted by a provisional committee, to federate those surgeons who are more particularly concerned with matters of social insurance, as, for example, the presidents of the professional associations dealing with accidents in industry, and specialists in urology, ophthalmology, oto-rhino-laryngology, and gynaecology. As soon as the necessary constitution and rules have been drawn up a second general meeting will be held to elect members of the governing committee and to authorize the regulations.

Beer and Cancer.

In a Belgian journal associated with the brewing industry there is published an intriguing study of the influence of beer on cancer. The question was recently asked at the Congress of the General Federation of Brewers whether beer could in any definite way protect against this disease. This suggestion was based upon the fact that cancer never appeared among the causes of death of young employees in the brewing industry. Support was given to this view by Dr. Ducamp, head of the public health department in Lille, after he had verified the statistics of the last ten years. An investigation is actually in progress throughout France with a view to establishing the accuracy of the hypothesis. The congress voted in favour of a similar inquiry being undertaken in Belgium. Certain Belgian manufacturers who are well known, not only for their efficiency, but also for the scientific care which characterizes their work, think that the fact is certainly established in respect of the unfiltered beers—that is to say, those which still contain certain ferments.

Industrial Diseases.

A catalogue of those diseases which are to be classed as industrial has just been issued by a Royal decree. The first clause in this list deals with the various forms of poisoning due to lead, its alloys, and mixtures containing it, and with any direct sequels of such poisoning. The industrial processes thus concerned are as follows: the handling of minerals of which lead is a component, including the lead dusts in factories dealing with zinc; processes entailing the employment of zinc and lead; the production of amalgams of these two metals; lead rolling; the extraction of silver from argentiferous lead ores; the manufacture of articles composed of lead or its alloys, and their manipulation; the preparation of lead compounds; the construction and repair of accumulators; the production and use of lead-containing enamels; polishing processes entailing the employment of lead filings or putties; operations involving the manufacture or handling of glazes, gums, and pigments containing lead; and all preparations which are liable to give off plumberiferous dusts or gases. The second clause relates to poisoning due to mercury, including its amalgams and compounds, and with the direct sequels of such interference with health. This clause affects industries necessitating the handling of minerals containing this metal; the preparation of mercury compounds; the manufacture of certain kinds of measures and laboratory apparatus; processes involved in hat making and the use of felts; fire glazing; the construction of mercury vacuum pumps and of explosives containing this metal; and the general manipulation of mercury and its amalgams. The third clause deals with anthrax resulting from the handling of animals which may transmit this infection.

England and Wales.

Malarial Treatment of General Paralysis of the Insane.

IN his report for the year 1928 Dr. R. Eager, medical superintendent of the Devon Mental Hospital, records the results obtained in the malarial treatment of 15 patients—13 male and 2 female—suffering from general paralysis of the insane. Of the 15 patients, 7 were infected directly by mosquitos supplied by the Ministry of Health, and 8 with blood from patients already under treatment; 3 patients became well enough to be discharged to their homes, 2 improved mentally and physically but not sufficiently to justify their discharge, 2 showed physical but not much mental improvement, 4 remained very much as they were, and 4 died. One of the patients died before the treatment had been completed, and at the post-mortem examination his heart was found to be in a state of fatty degeneration. Of those who improved under the treatment one patient, after the treatment had been completed, sustained a severe abscess in the thigh, which was followed by an attack of acute pneumonia; notwithstanding the supervention of an empyema which had to be drained, he made a good recovery. Dr. Eager states that since 1925 30 male and 4 female patients suffering from general paralysis of the insane have received systematic malarial treatment at the Devon Mental Hospital. Of these patients 7 (all males) have been discharged and so far have not returned. They have been re-examined periodically at intervals of about six months at the clinic in Exeter, and all of them, when last seen, were well. Up to the present, attention has been concentrated exclusively on the malarial treatment, the additional administration of arsenical preparations having been deliberately withheld in order to allow of a just estimation of the value of the malarial treatment alone. In 1925, when the treatment was first started, it was withheld from three patients, who were then used as controls. One of these patients is dead, one is bedridden, and the third appears to be suffering from cerebral syphilis rather than from a typical general paralysis. Dr. Eager believes that the results so far obtained by him and his colleagues in the malarial treatment of general paralysis justify them in going on with it, especially in view of the fact that in the past all cases of this disease ended fatally. He now proposes to treat one group of patients with malaria only, and one with a combination of malaria and an arsenical preparation, and to compare the results. In this connexion it is interesting to note that, as was pointed out by Dr. T. Saxty Good at a discussion under the auspices of the Royal Medico-Psychological Association, experience suggests that, while patients with general paralysis are treated more safely by malaria than by anti-syphilitic injections, after malarial treatment has been completed these injections might produce a cure.

Order of St. John of Jerusalem: Priory for Wales.

Sir Herbert D. W. Lewis, K.B.E., Commissioner for Wales of the Order of the Hospital of St. John of Jerusalem, in his annual report for the year 1928, gives an interesting account of the steady progress made by the Welsh priory during that period. This priory is primarily the Welsh national ambulance organization, and its work may be divided into two sections—the educational and the practical. So far as educational work is concerned, Sir Herbert points out that the number of people receiving instruction in first aid, home nursing, and allied subjects has increased from over 3,000 in the year 1921 to nearly 12,000 in 1928; facilities are provided in every county for the public to receive this training, and it is impossible to overestimate the value of such work as this in the fight against disease. On the practical side, similar progress has been made, and the brigade in Wales has now nearly 9,000 members, all of them voluntary workers receiving neither payment nor reward for their time and services; in 1920 the brigade personnel numbered 5,000. The members provide their own equipment, and very often replenish their haversacks with ambulance dressings at their own expense. The usual forms of public duty include the attendance of uniformed members at various public functions, such as sports meetings, performances at theatres and cinemas, and all occasions where crowds are likely to assemble; patrol duty is undertaken at seaside promenades, and on the main roads throughout the country at holiday times and week-ends. Wales is also contributing its quota to the Royal Naval Auxiliary Sick Berth Reserve and to the Military Hospitals Reserve, both of which are supplementary to the regular medical services of the Crown forces. Details are given of the extensive motor ambulance transport service set up by the priory, and also of a particularly useful form of charitable work—the provision of medical comforts depots. There are thirty-five of these, from which the public may obtain on loan, at nominal charges, medical requisites, invalid equipment, and comforts for the sick-room. The report summarizes many other branches of voluntary work in which the priory is engaged, and a description is added of the activities of the county centres and sub-districts during the year. The record throughout is one of sustained progress, and the only regret expressed is that further extension of the priory's work is hampered at present by lack of funds.

The Park Hospital, Davyhulme.

The Park Hospital, Davyhulme, situated about six miles south-east of Manchester, was officially opened by Princess Mary in June. The buildings are grouped on either side of a main corridor 220 yards long, running east and west. On the southern side of the main corridor are the ward blocks, running north and south, also a part of the administration block. North of the main corridor are the children's ward, the maternity block, the main kitchen, the laundry, workshop, and boilerhouse. The twelve main wards are arranged in six blocks, each with a ground floor and first floor; each ward has accommodation for thirty-one patients. The main section of the ward has twenty-four beds, of which six are placed in cubicles, and there are also seven beds for private patients. There is one ward of three beds, and two wards with two beds each. On the south side of each main ward are spacious verandahs overlooking the extensive hospital grounds, about thirty acres in extent, and containing flower beds, ornamental shrubs, and trees. The maternity ward unit is arranged as two sections two stories high, each section containing wards with a smaller number of beds and all the necessary rooms and equipment. The children's ward consists of a left and a right wing, each with eighteen cots, the central portion accommodating a kitchen and other sanitary annexes. One wing is divided into sections by glass partitions. The nurses' home is separate from the main building, and has accommodation for 120 nurses; it overlooks the Davyhulme golf course. There are three fully equipped operating theatres situated on the northern side of the main corridor, each being opposite its appropriate ward. The pathology section and the dispensary are on the ground floor, off the main corridor. The x-ray and electro-medical department is most compact and of the most recent type. The isolation block, situated on the eastern side of the main building, is detached, and has accommodation for twelve patients. All the structure stands on a huge reinforced concrete raft. The expense of building the hospital was considerably less than average, the cost of the whole establishment and its equipment being roughly at the rate of £650 per bed.

Manchester Babies' Hospital.

An interesting analysis of the admissions of patients to the Manchester Babies' Hospital, their ages, duration of stay in hospital, condition on discharge, or cause of death, appears in the fifteenth annual report of this institution for the year ending March 31st, 1929. Admissions were fewer than in 1927—381 as against 430—a decline which is explained by the fact that the introduction of measles into the hospital necessitated the closure of certain wards; others had to be closed pending the carrying out in them of redecoration and structural alterations. The demand for the treatment of patients over 1 year old, particularly those suffering from rickets, bronchopneumonia, enlarged glands, asthenia, and general debility, is constantly increasing. A further increase is in the number of premature children treated during each year, the figure for each year from 1924 to 1928 inclusive being, 5, 16, 18, 23, and 37; of those admitted in 1928 twelve died, six within forty-eight hours of admission. The medical officers emphasize the importance of moving these infants only with proper transport, and, whenever possible, of delaying their removal until they are a few days old. During the period under review 34 children were discharged *in statu quo*, some on the ground that they were unsuitable for treatment, others owing to infection in the ward; 263 were discharged improved or cured; 19 were transferred to other hospitals; and 54 died. The percentage mortality was 14.59. Most important among the causes of death were prematurity (12), acute dyspepsia (9), chronic dyspepsia (6), and pneumonia (5). It has been decided to immunize all infants whose parents are willing, in order to help public authorities to deal with the danger of diphtheria at school age.

Scotland.

Laboratory of the Scottish Asylums' Pathological Scheme.

INCORPORATED in the annual report for 1928 of the Scottish Asylums' Pathological Scheme is a statement by Dr. F. E. Reynolds, superintendent of the laboratory, on the work that has been carried out in his own department. During the spring and summer terms of the year under review Dr. Reynolds gave his usual course of lectures on neuropathology at the University of Edinburgh, being associated with Dr. David Orr, who lectured on the anatomy of the central nervous system, and Dr. Slater, who dealt with various general pathological subjects and diseases, of which he had made a special study. The combined course attracted and retained an average daily attendance of about thirty-five students, of whom ten were candidates for the University's diploma of psychiatry. By the sympathetic help and co-operation of the professor of clinical medicine (Professor Edwin Bramwell), an advance has been made towards the realization of Dr. Reynolds's aim to establish a school of neuropathology in Edinburgh. In association with Dr. Logan Turner, Dr. Reynolds has continued his investigations into the paths of infection of the central nervous system, and with Dr. Slater he has studied further cases of grass disease in horses; the results of these and other studies in which he has been engaged are being published in medical journals. The routine work which was undertaken on behalf of various mental hospitals included fifteen bacteriological examinations, 113 examinations for the Wassermann reaction and ten for Widal's reaction, thirty examinations of the cerebrospinal fluid, and nine histological examinations. During the year Dr. Reynolds, on the invitation of the medical superintendents, personally visited a number of mental hospitals, and advised on their pathological work. The laboratory has been promised several financial grants for the ensuing year.

Furunculosis in Salmon.

The Secretary of State for Scotland and the Minister of Agriculture and Fisheries have appointed a committee to investigate the origin, causes, and dissemination of furunculosis and similar infectious diseases among salmon, trout, and other freshwater fish in England and Scotland, and to conduct experiments with a view to ascertaining methods of combating the diseases. The committee includes Professor T. J. Mackie, department of bacteriology, Edinburgh University (chairman); Professor J. A. Arkwright, Dr. T. E. Pryce-Tannatt, and Dr. J. C. Mottram. Since the first outbreak in the south-west of England this disease has chiefly affected salmon and trout, although grayling and, to a less extent, coarse freshwater fish have also fallen victims. During 1928 the disease, which is highly infectious, appeared in several rivers in which it had not been previously observed. The investigation has shown that the physical appearance of fish with furunculosis is by no means constant, less than half of the salmon examined showing the boil-like lesions typical of the disease. The condition of the viscera is also variable, and the only certain means of diagnosis is the isolation of *Bacillus salmonicidus*, the organism of infection. A most important point that has been established is that apparently healthy fish may act as "carriers." There is no danger of infection to mankind through eating affected fish. The work of inquiry is being continued during the present year, and, owing to the uncertainty of diagnosis, it is very desirable that the investigators should have the opportunity of examining all fish which died in suspicious circumstances.

Maternity Service.

In view of the recent discussion at the Representative Meeting on a national maternity service scheme, it is of interest to note that in the agenda for the seventeenth annual conference of the Scottish Association of Insurance Committees, to be held in Ayr on September 27th and 28th, there is a motion by Ross and Cromarty County Insurance Committee to the effect that medical benefit ought to be extended to provide that in all maternity cases there should be: (1) efficient ante-natal examination; (2) sufficient equipment for the prospective mother; (3) efficient nursing, the financial position of the patient being no bar to this being obtainable; (4) adequate medical aid, this being determined, in the majority of cases, in anticipation of actual labour as the result of ante-natal examination; and (5) the keeping of accurate records—ante-natal, natal, and post-natal—in every case in which benefit was received from funds forthcoming under national health insurance regulations.

Benefits of Co-ordination of Nursing Services.

Opening a bazaar, on September 5th, for the benefit of the funds of the Inverness and District Queen's Nursing Association, the Duchess of Atholl emphasized the need for more nurses, especially in the remote parts of the Highlands. A great deal remained to be done in the direction of co-ordination of district nursing associations, and of linking up the town and rural services. In her own county of Perthshire, as a result of a federation system which had been introduced some ten years ago, their nursing work was on quite a new footing of stability and efficiency; they were having the great joy now of being told that all the child welfare work was beginning to show its result in the improved health of the children entering school. In Inverness that same spirit of co-operation between the burgh and rural areas was evident. The Duchess of Richmond and Gordon, who performed the opening ceremony on the second day, spoke warmly on the unselfish nature of the work which the members of the Queen's Nursing Association were doing.

Dunoon Convalescent Homes.

At the annual meeting in Glasgow, on September 2nd, of the Dunoon Convalescent Homes, over which Lord Blythswood presided, it was stated that in the last sixty years 220,000 persons had had the benefit of residence there. During the past year 13,640 weeks' residence had been given to patients, and the average weekly cost per head for food for these, as well as for the staff, was 8s. 6d.; the gross cost for each inmate was 18s. 6d. weekly, and the annual cost for each fully occupied bed was £39 11s. The ordinary income of £12,865 exceeded the ordinary expenditure by about £100, but extraordinary expenditure, entailed mainly in securing a new boiler, had necessitated the withdrawal of £1,000 from the capital fund. Various speakers commented upon the efficiency and economy with which the homes were managed.

Correspondence.

THE PLANTAR RESPONSE IN HYPOGLYCAEMIA.

SIR,—The reports published by Dr. D'Arcy Hart and Dr. Hilda Bond (*British Medical Journal*, May 18th, p. 895) and by Dr. J. L. Newman (ibid., August 24th, p. 345) relative to the character of the plantar responses in insulin coma and in diabetic coma may reasonably claim careful attention, inasmuch as they profess to provide a sharp and confident diagnostic distinction between the one form of coma and the other. The basis for this claim is provided by two statements which are proposed as statements of fact—one that in insulin coma the plantar responses may be extensor, and the other that in diabetic coma an extensor response "apparently never occurs." There follows the inevitable conclusion—obviously of high diagnostic moment—that, given a clinical debate on an individual case between insulin coma on the one hand and diabetic coma on the other, the detection of an extensor response promptly settles the issue in favour of hypoglycaemia, and announces, of course, the appropriate line of treatment. The argument thus stated would be quite beyond challenge had it been possible in the second proposition to write "never" instead of "apparently never." No doubt many cases of diabetic coma, as these come under observation in practice, do not include the presence of an extensor response, but personally I can hardly allow the universal negative, seeing that I have myself described two cases with extensor responses, one being confirmed by post-mortem examination (*British Medical Journal*, September 12th, 1925, p. 477). This experience has its parallel in the coma due to opium poisoning. To judge from many reports and general statements, coma due to opium is not associated with an extensor response; yet there are on record at least three examples to the contrary, and each of these rests on the authority of an independent observer (*Lancet*, February 14th, 1925, p. 360). Hence, without in the least degree undervaluing the contributions made by your correspondents, I suggest that before accepting the diagnostic rule now proposed as an absolute guide we should await the collection of further experiences, and should in the meantime follow the example of careful observation and record set by your correspondents and be exact in noting the condition of the plantar responses—and this, too, at more than one examination—in all cases of coma, whatever be their origin.

So far back as 1911 I presented evidence which seemed to me to justify the proposal that coma *per se* is one of the conditions competent to make possible the extensor response. In recent years many and varied forms of poisoning have been accompanied by this response, and this experience may be held to support my proposal. For while the poisons concerned differ widely in their chemical and pharmacological relations, they have one property in common—namely, the ability to produce coma; it would be difficult to find any other quality common to every member of the group. That coma depending on hypoglycaemia produced by insulin may be accompanied by an extensor response may therefore be presented as in strict accord with the nature of things, and the observation that the response may vary in different phases of the individual case is equally free from the element of surprise. Both of these possibilities are realized in other poisonings, and such experiences all have the further interest that they multiply the occasions which show that toxic influences, as well as convulsive seizures and structural changes, are capable of establishing in the nervous system the conditions that render possible the extensor response. Even if the rule suggested by your correspondents cannot be accepted as absolute, further recorded experiences may perhaps show

such a numerical preponderance of the extensor response *in insulin coma as to make the observation of* helpful importance. And with something short of completeness we need not be acutely disappointed, for Nature, as exhibited in the field of clinical medicine, does not often provide the sharply defined and unyielding line of separation necessary for the ready and rapid sorting of cases into mutually exclusive *pigeon-holes*.—I am, etc.,

C. O. HAWTHORNE.

London, W.1, Sept. 7th.

SIR,—In his note on the subject in the *British Medical Journal* of August 24th (p. 345), Dr. J. L. Newman suggests that the occurrence of the extensor type of plantar reflex during an attack of hypoglycaemia "may come to be regarded as a useful clinical sign in the diagnosis of this condition."

The question arises, Is there any evidence that a plantar reflex of extensor type is more frequently present during hypoglycaemic coma than during coma due to various toxic causes—for instance, hyoscine, veronal, uraemia? It even seems probable that in some individuals (adults as well as children) an extensor plantar response may be obtained during very deep normal sleep (cf. C. O. Hawthorne, "On the occurrence of a bilateral extensor response in states of unconsciousness," *Polyclinic*, October, 1914). It has been obtained during a narcoleptic attack (Kinnier Wilson).—I am, etc.,

London, W.1, Aug. 25th. F. PARKES WEBER.

ANTE-NATAL CLINICS.

SIR,—In common with my colleagues here I was much interested in your leading article on ante-natal clinics on August 17th (p. 315), and in your comment on the Ministry of Health's Memorandum 145/M.C.W.

The reasons for the failure of ante-natal work, if indeed it has failed, to effect any reduction in the maternal mortality rate during the ten years that have elapsed since the passing of the Maternity and Child Welfare Act, are not far to seek. Pre-natal supervision is an adjunct to, and not a substitute for, good obstetrics. "Ante-natal care is successful chiefly where those responsible for it are responsible for the rest of the maternity work, natal and post-natal." The tendency to separate the critical period of pregnancy from labour and the puerperium is bound to have undesirable results. These are commonplaces—as are also the repeated appeals for close co-operation between the various units of a maternity service. Let us have co-operation by all means; but let us first have a midwifery service, and let us build on sound, common-sense lines. In the opinion of all interested in obstetrics the key to the situation is the ante-natal period, which, for this very reason, should be controlled by medical men in the active practice of obstetrics. The Ministry's memorandum rightly suggests "that they [the midwives] should be urged to send their cases to a doctor or a clinic for ante-natal examination at least twice during pregnancy." This, in my opinion, is one of the most salutary expressions in the memorandum, in so far as it indicates the vital importance of the doctor in the ante-natal period.

But surely the time has come for some practical policy to be framed whereby the practitioner shall become a recognized active participant in these ante-natal clinic schemes. Surely the difficulties from an administrative point of view are not insuperable. I have personally organized and supervised many ante-natal clinics, and in consequence would be the last to decry their value and usefulness. At the same time I am the first to perceive their unfortunate tendencies and possibilities. Despite the most punctilious care on the part of the medical officer, patients attend without their doctor's knowledge. Midwives gradually tend to send their patients direct to the clinic, and to short-circuit the practitioner who is likely to be called in to assist in the case of intra- and post-partum complications. It is a matter of the utmost difficulty to avoid overlapping and misunderstandings.

Scattered throughout the country there are now a large number of young practitioners keen and competent to participate in a well-organized maternity service (the word is used in its widest sense and does not imply a State service). These men are trained in the science as well as in the art of obstetrics, and it is quite illogical that their services should not be available to the expectant mother. It is equally illogical that the whole-time official should be in charge of such a critical phase of midwifery—or that the specialist should be dissipating his energies in the routine examination of normal cases. I am quite sure that those consultants who are at present in charge of clinics regard themselves purely as original organizers, and will be glad to hand over their routine work into the only proper hands—those of the general practitioner who is likely to be called in to attend at labour or puerperium. We will then be able to retire into our proper place as consultants in the major obstetrical problems.

I think that the letter from my colleague Dr. E. Farquhar Murray, on September 7th (p. 476), explains very clearly the scheme which we have in view for this area, and which we expect to see in operation in two of our districts in the near future. Other areas would do well to consider some similar scheme.—I am, etc.,

H. HARVEY EVERS,
Honorary Assistant Obstetrician, Princess Mary Maternity Hospital, Newcastle-upon-Tyne.

September 8th.

TREATMENT OF PLACENTA PRAEVIA.

SIR,—With reference to my letter published in the *Journal* of August 10th (p. 278), in which I alluded to the fact that I have been using ovarian extract as a routine in my midwifery cases, I should like to inform inquirers that the solution I employ is "ovarian residue without corpus luteum"; this is supplied in 1 c.cm. ampoules, and is injected deeply into the muscles of the gluteal or the pectoral region. I am indebted to Dr. W. R. Addis of Manchester for his suggesting the use of ovarian extract to me, and I employ it in every case to which I am called early in labour.

The average time taken for complete dilatation of the os in my cases is one and a half to two hours, and one injection is almost invariably sufficient. Uterine contractions increase rapidly in force and in frequency without much, if any, increase in actual pain. The perineum dilates easily, and the last stage is comparatively painless. I always, however, give chloroform and complete the delivery with forceps, because in this way I have control of the delivery and can give the perineum time to dilate. Malpresentations, such as the occipito-posterior, can be corrected with the greatest of ease.

The exhibition of pituitrin or ergot is rarely necessary because of the absence of exhaustion and of the sustained action of the ovarian extract on the musculature of the uterus. The shortness of the labour and the strong tonic effect of the extract give the patient a marked feeling of well-being throughout the puerperium. The milk supply is increased, and, for a day or two, the distension may be troublesome until the adjustment of supply and demand takes place. The physiological action, according to Dr. Addis—and I am convinced that he is right—is a direct one on the uterine muscle, producing tonic contractions of the body and relaxation of the lower uterine segment and of the birth canal.

The application of this remedy to cases of placenta praevia is simple, and no harm can possibly accrue. The blood is already charged with ovarian hormone, and the addition of a supercharge intramuscularly is only assisting nature. Even if one has to resort to the usual procedure of hurrying the case to hospital or nursing home thirty miles away, a single injection of ovarian extract will enhance the patient's chances of reaching the journey's end at least alive.

In the issue of the *Journal* dated August 24th (p. 366) there is a reply to my letter from Dr. Bethel Solomons. The answer to his first question is, that as little attention would have been paid to any remarks made by me, and no full report would have appeared, I elected to bide my time and write a considered article to the *Journal*. The report of the proceedings of the Section and my letter appeared in the same issue, and anyone can count the number of times the words "Caesarean section" occur. I am glad to see

Dr. Solomons has qualified his remarks about the diagnosis, and I thank him for the italics.

I may have been fortunate in my use of ovarian residue, but at least I have not put the blind eye to the telescope. If in Dr. Solomons's practice "results have been absent," there must have been something lacking, either in the material he used or in his powers of observation. The painless contractions of the uterus in an induced case would deceive an observant man, as they frequently deceive the woman herself, and it is difficult to persuade her that she is actually in labour. This is probably due to the small amount of chloretone present in each ampoule.

One of my induced cases was a multipara, aged 42, who had had two previous confinements, both of which, she informed me, were very difficult, and her second child was stillborn. She went over her time with the third, and I decided to induce labour. I gave her six injections during the night at intervals of two hours, and left her at 8 a.m. She was then having strong but absolutely painless contractions. I warned her to remain indoors till I returned. "But, doctor," she said, "I promised to go out to tea to-day!" and in spite of my warning she did so. At 5.30 her hatless husband bounded up my steps, and I followed him to his house. The patient told me she had her first indication that she was in labour while she was having tea, and hurried home. She had had six or eight pains before I arrived; when I examined her the head was on the perineum, and all I had to do was to give her a whiff of chloroform and lift the head over the perineum with forceps. The child was of normal size and there was no laceration, though she had had to be stitched, she informed me, after both her other confinements.

Dr. Solomons's last paragraph is quite uncalled for. If he reads my letter again he will see that I have stated my reason for applying forceps when I did. If I had had more faith in, or experience with, my remedy at that time—nearly three years ago—I should have given further injections of ovarian residue and waited. I have had nearly twenty years of experience of midwifery in general practice, and I was trained in a good school. I may say that I have received complimentary letters from doctors in all parts of the country; many have said they have learned nothing to help them from the report of the Section in the *Journal*.—I am, etc.,

D. C. MACDONALD, M.B.

Manchester, Aug. 26th.

CARE OF THE UNMARRIED MOTHER.

SIR,—I missed your issue containing Dr. R. A. Gibbons's plea for the unmarried mother, but was fortunate enough to see the letter on the same subject in your issue of August 24th (p. 367).

It may interest your readers to know that Queen Charlotte's Maternity Hospital was established in 1739 by a few charitable people for the express purpose of succouring unmarried mothers, the neglect of whom, in those days, frequently resulted in attempts at suicide and infanticide. Although the present-day Queen Charlotte's Hospital has enormously outgrown the institution of nearly 200 years ago, it still offers an asylum to unmarried mothers with their first child, and last year 423 such cases were received out of a total number of 2,375 in-patients. Formerly a distinction was made in the wards between the married and the unmarried women, probably due to a prejudice which was inexcusable in view of the original foundation of the charity. I am glad, however, to say that such a distinction is no longer made, and that no one is aware of the status of a patient except those immediately responsible for the reception of the case. Many an unmarried woman has testified to her gratitude for the treatment at Queen Charlotte's Hospital by a letter or an even more concrete token after leaving the institution.

It is, perhaps, a sign of retrogression that the proportion of unmarried women to married women patients has increased in the last two years, although it may be dangerous to deduce this from the bare figures without taking into account circumstances which do not permit themselves to be expressed by statistics.

In view of the plans to build a new Queen Charlotte's Hospital at Hammersmith on a far larger scale, where eventually a total of 358 beds will include accommodation for at least 200 non-paying patients, it will be realized that this very old charity will have additional opportunities for carrying on its sympathetic work for the unmarried mother.—I am, etc.,

DIGBY C. H. D'AVIGDOR,
Assistant Organizer, Queen Charlotte's National Mother-Saving Campaign.

London, N.W.1, Aug. 23th.

THE NEW VACCINATION ORDER.

SIR,—With reference to the above Order, I cordially agree with the letters of Dr. G. Mahomed of Bournemouth and Dr. F. W. Alexander of Teddington in the *British Medical Journal* of September 7th (p. 476). In the days gone by we have had statistics of outbreaks of small-pox showing that four vaccination marks gave the best protection against that disease; and now the new Order says one mark is to be used—surely a very weak-kneed idea. It would be better to abolish vaccination altogether than to play with efficiency.

I consider cross-hatching with a needle must cause a large amount of trauma and a clumsy way of introducing the vaccine. I started as a public vaccinator in the days of arm-to-arm vaccination, and saw the great benefit when the Government lymph was standardized and sterilization came to the front. I would suggest that the blade of the lancet, not the point, should be the only method used, tightening the skin of the arm with thumb and finger, dropping the edge of the lancet lightly on the skin so as to produce four little red lines without drawing blood, and applying the vaccine before releasing the stretched skin.

As to vaccination producing encephalitis lethargica, why does it not produce it in the infant? Surely this is only another instance of an irritant stirring up a latent disease, as, for example, in the case of eczema, which occasionally follows vaccination in a patient who is the offspring of gouty parents.

Vaccination is an art, and needs care and attention to details.—I am, etc.,

A. Z. C. CRESSY,
Public Vaccinator.

Wallington, Surrey, Sept. 9th.

RACIAL INCIDENCE IN DISEASE.

SIR,—A remark ascribed to Dr. T. A. Goodfellow, speaking on tonsils and adenoids at the Annual Meeting of the British Medical Association, is that there is a greater frequency of adenoids among Jewish children (see *Journal*, August 17th, p. 302).

It is rather surprising how widespread the tendency is to ascribe all sorts of immunities and predispositions to Jews. This is all the more remarkable since most of such statements are quite incapable of proof, for, barring Holland, vital and mortality statistics are not available for the Jews of Western Europe nor for those of the United States. All statements of such a character are therefore based on clinical impressions, but, unfortunately, clinical impressions are not necessarily satisfactory evidence for such wide-reaching generalization.

On the matter raised by Dr. Goodfellow, my personal experience differs from his. I see large numbers of East End children with tonsils and adenoids, including many Jewish children at the London Jewish Hospital, and non-Jewish children at such large centres as the Plaistow Children's Hospital, and at Guy's Hospital; from my experience, I should not have thought there was any greater frequency of this affection in Jewish children. Granting even that more Jewish children with tonsil and adenoids are brought for treatment it does not follow that the condition is in reality more frequent among them: the generally recognized greater maternal care among Jews may very well account for any apparent greater incidence that Dr. Goodfellow may have observed.

The object of this letter is to draw attention to the fact that all the available evidence seems to point to there being very little of a racial basis for any disease. Many diseases have at one time or another been described as being specially common or specially rare among Jews. In a recent symposium Sir Humphry Rolleston and others

discussed the subject of some diseases of the Jewish race (see *Journal*, July 13th, p. 51), and it would appear that the more "Jewish diseases" are investigated, the less "Jewishness" there is left in them. The Jews, constituting a fairly pure race spread over widely different backgrounds, form excellent material for the study of the respective importance of the racial and the environmental factors in diseases, but this is all the more reason for taking very great care to substantiate any impressions as to the prevalence of particular conditions among them.—I am, etc.,

London, W.1, Aug. 22nd. M. SOURASKY.

THE TREATMENT OF RHEUMATISM BY BATHS.

SIR,—In the interesting articles on the above subject which appeared in the *British Medical Journal* of August 24th there are statements which call for comment. On page 352 it is stated that "Dr. Fortescue Fox advances his belief that what he describes as the bath complex (heat and moisture and movement) will be found to be the 'master treatment' of rheumatism"; and, on page 358, that Dr. Fox "expresses his conviction that stimulation of the skin by heat, moisture, and movement in baths is by far the most effectual form of physical treatment in the protean forms of this disease." On a recent visit to the headquarters in Amsterdam of the International League against Rheumatism, Dr. Van Breemen showed us the apparatus employed there in the physical treatment of rheumatism. Of this, 52 per cent. consisted of radiant heat apparatus (34 appliances); 21 per cent. of ultra-violet ray apparatus (14 lamps); 6 per cent. of hydro-electric baths; 4.5 per cent. of diathermy apparatus; 3 per cent. of Scotch douches; and 3 per cent. of vapour baths.

Attention has been drawn to the action of water baths in improving the circulation of the skin and in raising its temperature, which is often habitually lowered in rheumatic disorders. Correctly administered ultra-violet treatment will, however, produce this effect more efficiently and for much more prolonged periods, and it is easy also to induce an intense local hyperaemia in the affected joints or other tissues.

On page 348 occurs a reference to "the advent to London of a central clinic for rheumatic diseases, modelled on the lines of the best Continental ones," and on page 358, "Such an institution does not exist in England, nor has it any Continental prototype." Anyone who has visited the large number of very efficient *Krankenkassen* institutes in Germany realizes that this last statement is hardly correct.—I am, etc.,

London, W.1, Aug. 25th. W. KERR RUSSELL.

MATERNAL MORTALITY.

SIR,—According to Dr. Parlane Kinloch (August 24th, p. 340), normal midwifery is to be taken out of the doctor's hands.

Apparently dirt, overcrowding, poverty, and bad health do not favour puerperal sepsis, and the use of forceps makes no difference, but what apparently does lead to sepsis is a modern maternity hospital and a trained staff. So the old teaching was wrong, and auto-infection was made the scapegoat, while the matter was taken, as they would say in Aberdeen, "to avizandum."

At last the culprit has been found. It is the general practitioner; not because he does not wash his hands, and not because he does not use lysol, or uses forceps, but because he is a "carrier" of the *Streptococcus haemolyticus*. The remedy, then, is to supplant general practitioners by midwives; but we are not told who will supplant the midwives when they too, in due course, become "carriers"! This suggestion reminds one of the remark in *Punch* that there is one law for the rich and one for the poor, but three thousand for the rest of us, whose liberties are already gone.

Because 234 women out of five million people in Scotland die in one year from puerperal sepsis, a whole population is to be browbeaten and a profession turned upside down. No one would welcome the new suggestion more than the average doctor, who suffers more anxiety and later and longer hours for less money in midwifery than in any other branch of his work; but the public would not have it.

It is said, however, that the anxiety is not a numerical one, but is on account of the belief that puerperal deaths are avoidable. It is likely that they are so, in the sense that deaths from accident, tuberculosis, and so forth are avoidable, *and in the sense that pregnancies are*; but it is also likely that, like births out of wedlock, these deaths will occur so long as there persist the innumerable environmental influences making for ill health, and the personal actions making for ill conduct.

How can *Streptococcus haemolyticus* or any other germ be the sole cause of disease? And what is a carrier? He appears to be one in whom a bacteriologist has had the bad luck to find a germ which ought in all decency to have caused a disease, but which did not do so. And what of the new system? A woman does not call in a doctor for her confinement in order to prevent sepsis; she calls him in to be ready for emergencies and to alleviate pain. It is high time something was done to educate doctors on this latter point, but however feeble their efforts may be at present in this direction they would immediately cease under the ministrations of midwives.

If ordinary practitioners are "carriers," why not collect a body of public obstetricians—qualified practitioners who would do nothing else? The profits obtained from this service could then be used to develop a national system of post-graduate study (including payment of locumtenents during a course). Only in this way could we prevent general practice from being the last resort of the specialist, the semi-retired, and the lazy.—I am, etc.,

Argyll, Aug. 25th. TOM ROBERTSON.

SALT DEPLETION BY SWEATING.

SIR,—The discoveries of Dr. Haldane and his collaborators about the efficacy of salt in preventing the ill effects of excessive sweating, to which attention is called in the *British Medical Journal* of September 7th (p. 469), are very useful outside industrial conditions. Many of us are familiar with the tired, stale feeling which is present the day after any unusual exercise in the summer—a long walk, a good deal of tennis, etc. Since hearing of Dr. Haldane's work I have tried the effect of salt in these circumstances, and I feel sure, after my experience last year and this, that it is effective in preventing these unpleasant symptoms. Ordinarily I have added two or three saltspoonfuls of salt to my evening meal. If one is very tired it is, of course, best not to eat anything till next day; in that case it is most convenient to put a good spoonful of salt in the mouth and wash it down with plenty of water. I hope others will try the method; they will, I think, find themselves much more lively next day.—I am, etc.,

London, W.C.1, Sept. 6th. A. E. BOYCOTT.

THYROID AND MANGANESE TREATMENT.

SIR,—With reference to the letters of Dr. Laugwill on July 6th (p. 33), and of Dr. Leslie Fraser on August 24th (p. 369), regarding the results of this treatment, the following extracts may be of interest. They serve to show the biochemical basis of this form of therapy, which was in the first place introduced empirically.

The first extract is from the *Acta Pathologica et Microbiologica Scandinavica*, vol. i, fasc. 4, March 17th, 1925, and is from the report of L. E. Walbum on the therapeutic experiments with metal salts. He found that small manganese injections increased the capacity of the organism to neutralize the various endotoxins with which he experimented—namely, those of the tubercle bacillus, the pneumococcus, the streptococcus, and the staphylococcus—and raised the power of the body to form antibodies.

G. M. Findlay, in the *British Journal of Experimental Pathology*, 1924, vol. 92, and Hurst, in the *Journal of Pathology and Bacteriology*, 1928, xxxi, 306, found that fair doses of manganese gave rise to hepatic cirrhosis in rabbits, guinea-pigs, and rats, with necrosis at the periphery of the lobules. This cirrhosing effect was enhanced by the repeated intravenous injection of living *B. coli*.

The authors performed control experiments with chloroform and phenyl-hydrazine, which caused a central degeneration and very little cirrhosis.

These experiments go to prove that manganese in small doses is stored in the liver and helps in some way in the formation of antitoxin. Walbum found that in larger doses manganese stimulated the growth of bacteria in the body rather than exercising its beneficial effect in increasing the body's resistance. The question of dosage is, therefore, very important; it is clear that if good results are to be obtained it is necessary to follow exactly the technique of this treatment, in which the correct dosage, etc., have been worked out by Dr. Herbert Nott. —I am, etc.,

L. SHILLITO, M.B., B.Ch.Cantab.

West Runton, Norfolk, Aug 27th.

REMUNERATION OF MEDICAL WITNESSES.

SIR,—The recent controversy in the press regarding the fees allowable by courts of law to medical witnesses prompts me to put before you my own recent experience.

At the request of the police I gave evidence before a metropolitan police magistrate on behalf of the prosecution in a criminal charge. The case was of such gravity that the police magistrate remanded the prisoner to the Central Criminal Court. I was detained at the court from 11 a.m. until 1.15 p.m., and gave what was presumably expert evidence, since it was based upon the consideration of facts of a professional nature. For this period of detention, and in remuneration for this special aid in the cause of justice, the fee allowed was 15s. Accompanying the postal order for this amount was a note stating that "no inquiry respecting the amount now sent, which is the amount ordered by the magistrate sitting at the court where the case was heard, can be answered." The amount is, apparently, "governed by a scale approved by the Secretary of State."

I venture to suggest, having regard to the amount of training required to make the expert, and the undoubted value of his evidence in legal proceedings, that the fee is utterly inadequate, and that, considered in relation to the apparent cost of legal expert evidence, the fee under consideration becomes a subject of jest.—I am, etc.,

ERICHSEN S. PAGE, M.B., B.Ch.Cantab.,
London, W.9, Aug. 24th. F.R.C.S.Eng.

The Services.

DEATHS IN THE SERVICES.

Lieut.-Colonel Winfred Kelsey Beaman, D.S.O., R.A.M.C. (ret.), died at Durban, Natal, on May 9th, aged 46. He was born on November 7th, 1882, and was educated at Charing Cross Hospital, where he gained the Huxley scholarship in 1901, and the Governors' gold medal for clinical work in 1906. He took the M.R.C.S. and L.R.C.P.Lond. in 1906, and, after his retirement from the service, the M.R.C.P.Lond. in 1923. After filling the posts of house-surgeon at Charing Cross Hospital and resident medical officer of the Kent County Sanatorium at Lenham, he entered the R.A.M.C. as lieutenant on January 29th, 1907, gaining the Parkes memorial medal at the R.A.M.C. College. He became major after twelve years' service, went on half-pay on October 9th, 1922, and retired with an honorary step of rank in the following year. After his retirement he filled the positions of honorary physician to the Ministry of Pensions Mount Pleasant Hospital, Chepstow, honorary physician to the Pontypool and District Hospital, and honorary consulting physician to the Chepstow and District Hospital and to the Victoria Cottage Hospital, Abergavenny. He served throughout the recent great war, when he was twice mentioned in dispatches—in the *London Gazette* of January 1st, 1916, and January 4th, 1917—and gained the D.S.O.

Captain Henry Anthony de Lom, R.A.M.C. (ret.), died in London on April 12th, aged 73. He was born on June 6th, 1855, at Stratford, Essex, educated at *Toronto* and at St. Thomas's, and took the M.R.C.S. and *L.R.C.P.London in 1881*. He entered the army as surgeon on August 4th, 1883, was placed on half-pay, on account of ill health, on September 28th, 1894, and retired five years later. He served in the Sudan in the Nile expedition of 1885, receiving the Egyptian medal with a clasp and the Khedive's bronze star.

Obituary.

SIR SEYMOUR JOHN SHARKEY, M.D., F.R.C.P.,

Consulting Physician to St. Thomas's Hospital.

WITH deep regret we have to record the death, on September 6th, after a short illness, of Sir Seymour Sharkey, at the age of 82.

Seymour John Sharkey was born at St. Peter's, Jersey, on July 10th, 1847, being the third son of Edmund Patrick Sharkey, M.D., of Trinity College, Dublin, who practised at Ballinasloe, Ireland. He was educated at Christ's Hospital, and in 1865 entered Jesus College, Oxford, with an open classical scholarship. After taking a second class in classical moderations, he won a first class in the natural science finals, and in 1873 was awarded the Radcliffe Travelling Fellowship. In accordance with the conditions of the fellowship he spent the greater part of the next three years in scientific work at Berlin, Paris, and Vienna. Before closing this summary of Sharkey's Oxford career it may be of interest to refer to an incident which also found mention in an obituary notice of Sir Ray Lankester published in *Nature* on August 24th. Sharkey and Lankester were the two winning candidates for a fellowship at Oxford, Huxley being the examiner. Twice Huxley sent back the papers of these two candidates, saying that it was impossible to choose between them, and when the choice was finally made in favour of Lankester it was on the ground that the subject he had taken was the better suited for the purpose.

As soon as he was free to do so, Sharkey entered the medical school of St. Thomas's Hospital, in the service of which he was to spend the greater part of his life. He graduated M.B.Oxon. in 1875, and four years later obtained the diploma M.R.C.P. In 1885 he became F.R.C.P., and proceeded M.D. in 1888. Having held various resident posts he was appointed assistant physician in November, 1879, became full physician in November, 1890, and consulting physician on his retirement in June, 1910.

Sharkey very quickly made a great reputation as a teacher, first in the out-patient room and then in the wards. Murchison, who was acknowledged to be one of the greatest teachers of the day, was still in charge of beds, and it was always said that he was the model upon whom Sharkey based his method. At all events Sharkey had a remarkable power of attracting men of every grade of intellect. His visits to the wards were always attended by a large crowd of students, who discovered the round to be not only highly instructive but a very good afternoon's entertainment at each other's expense, the fun being that nobody knew who would be the next victim of the teacher's mordant wit. Sharkey's style of teaching by the Socratic method was certainly of a very challenging kind, and unless one was prepared for hard knocks it was better to stay away. But all this was only by-play. Through it all ran a continuous stream of the very best clinical teaching, based on constant and accurate observation of the patient. A clinical clerk was once given a case for examination and diagnosis. He reported to Sharkey that it was mitral stenosis. "Well, Mr. Martin," said Sharkey in his best hectoring way, "tell me why I don't believe that it is a case of mitral stenosis." "No doubt because I say it is," replied the clerk, and both he and the teacher joined in the general laugh. Sharkey never forgot a portly house-physician of his who said that his six months' office had cost him two stone in weight.

During Sharkey's early days at St. Thomas's the late Professor Osler was settled in London, and for several months constantly accompanied him on his visits to the wards. Years afterwards Osler was distributing the prizes in the medical school, with Sharkey sitting on the platform near him. In the course of his speech Osler leaned over and put his hand on Sharkey's shoulder, saying, "This is the man who taught me all the medicine I know." It was a graceful gesture worthy of both.

As a physician Sharkey was also in the first class, a position largely due to the fact that he practised the habit of intensive observation, which he was never tired of inculcating into his pupils. Moreover, he made constant use

of the best auxiliaries to medicine which were available at that time. For many years he conducted post-mortem examinations on two days of each week, and those were the days when all pathology was included in the post-mortem room and the microscope. Surgery was just then coming into its own, and in his surgical colleague and lifelong friend H. H. Clutton he had a co-operator worthy of him. Those two men represented for the St. Thomas's world of that date the advancing edge of scientific medicine and surgery.

Sharkey was interested in every branch of medicine, but more particularly in that which included the functional disorders of the nervous system. He was one of the first men in this country to adopt the Weir Mitchell form of treatment, and did so with great success. At the Royal College of Physicians Sharkey delivered the Goulstonian Lectures in 1886 and the Bradshaw Lecture in 1906. He was also examiner from 1893 to 1897, councillor from 1902 to 1904, and censor from 1908 to 1912.

In private practice Sharkey did not attain to the measure of success that he deserved. The fact that he was constantly called in by his colleagues to advise as to themselves, their wives, and families shows that any deficiency in a more remunerative form of practice was not due to any failure to arouse confidence. And yet his old pupils were both numerous and prosperous. They were still devoted to their old teacher, and used to speak of him in terms of warmest affection. On the occasion of his retirement from the active staff in 1910 they organized a dinner in his honour; it was attended by over one hundred, and was a brilliant success. And yet they did not call him in to see their patients, at all events not on a scale commensurate with his abilities or their debt to him. The explanation which is accepted by those who should know is that they were afraid that Sharkey would treat them with the scant respect which was stimulating, and even enjoyable, when practised in the ward with other students as their fellow victims, but would be very disquieting in the presence of adoring private patients.

Even St. Thomas's days had to come to an end, and in 1910 Sharkey, though still in the prime of health and vigour, had to retire from the active staff and became consulting physician. Fortunately, about two years later he was appointed medical referee to the Treasury, and this gave ample scope for his best energies. In this capacity he stood as final arbiter in any dispute involving medical questions between the Government and its employees. Not very long after his appointment the war broke out, and, as it continued, the call for the referee's services was increased manyfold. Sharkey rose to the emergency, as anyone who knew his ability and courage could have foretold. At one time the question was raised on the part of the trade unions concerned whether they should not claim to have a representative as well as the Government; but such was the impression produced by Sharkey's spirit of justice that the matter was dropped, and the Treasury medical referee from that time has continued to represent both the Government as employer and the workman as employee. This post was held by Sharkey till July, 1923, and then had to be vacated with regret on both sides on account of technical limitations of age. This marked the end of his professional career.

Throughout his life Sharkey was devoted to open-air sports, and had a natural facility for them. Dry-fly fishing was his chief recreation for the greater part, and for many years his spare time was spent in company with his old friend Sir George Savage at his cottage on the Test. Golf was added in the course of time. He had no special interest either in music or the pictorial arts, but he was a keen lover of beauty. Friends and grateful patients were aware of this, and his room was always full of the flowers they had sent him. Fortunately he enjoyed magnificent health, and he has been heard to boast of not knowing what it was to feel tired. He gave the impression of exuberant vitality, and was a most exhilarating companion. Only during the last year or two did he show signs of advancing age, and when the final breakdown came it was mercifully short.

No apology is offered for what may be put down to St. Thomas's egotism in this sketch, for it could not be otherwise. It only expresses the fact that Sharkey gave his whole life to the place. He was attached to no other hospital, and to this one he gave his all—and that was good indeed. His devotion had its reward in the universal affection with which he was regarded by colleagues and pupils alike.

H. G. T.

A memorial service was held in the chapel of St. Thomas's Hospital on Monday, September 9th, at noon; it was attended by a large company, which included representatives of the Royal College of Physicians, of the Treasury, and of St. Thomas's Hospital. The Rev. J. Anderson Davies, Assistant Hospitaller, officiated. The funeral took place at Kensal Green on the same day and at the same hour.

SIR JOHN CAMPBELL, M.D., M.CH., F.R.C.S.,

Senior Surgeon to the Samaritan Hospital for Women, Belfast, and *Consulting Surgeon to the Belfast* Maternity Hospital.

SIR JOHN CAMPBELL, whose death at his residence at Craigavad, County Down, on August 31st, we announced last week, was one of the most famous and distinguished surgeons in Ireland. He had been in failing health for some time, after leading a very active life in which he never spared himself, resembling in this respect his brother, Robert Campbell, surgeon to the Royal Victoria Hospital, Belfast, who died in 1920.

John Campbell was born in 1860, at Templepatrick, County Antrim; his ancestors came originally from Ayrshire, but had been associated with Ulster since the "Plantation" in the time of James I. He received his early education at the Royal Belfast Academical Institution, from which he passed to Queen's College, Belfast, and graduated B.A. in 1883, winning the senior scholarship in natural history. In the following year he proceeded M.A., with first-class honours, in the then new Royal University of Ireland; three years later he graduated M.D., M.Ch., M.A.O. He continued his medical studies in the London Hospital, and in the Rotunda Hospital, Dublin, and afterwards visited Paris, Vienna, Munich, Heidelberg, and Bonn. He obtained the diploma M.R.C.S. in 1888, and the F.R.C.S., by examination, in 1891. He acted for some time as locumtenent for the professor of natural history in Belfast, and was a demonstrator in anatomy in the medical school under the late Professor Redfern in 1888. He was appointed assistant surgeon to the Belfast Hospital for Sick Children in 1891; at the close of the following year he was elected surgeon to the Samaritan Hospital for Women, and, later, assistant in the Belfast Maternity Hospital. From this time he devoted himself entirely to the obstetrical and gynaecological branches of medicine, becoming widely known and respected for his clinical ability, his skill in organization, and his breadth of vision. He contributed many articles to medical journals, and wrote a book entitled *Obstetrics and Gynaecology: A Textbook of Treatment*, which was originally intended to form one of a series of three. His brother, the late Mr. Robert Campbell, was commissioned to write the volume relating to surgical treatment, and Dr. W. Calwell that on medical treatment.

In stimulating the progress of Irish university education John Campbell played a prominent part. He was president of the Royal University Graduates Association, and for some time a member of the senate of the University, on the dissolution of which he received the honorary degree of LL.D. Later he was elected chairman of convocation of the Queen's University, Belfast. He was president of the Ulster Medical Society in 1902 and 1903. He rendered great services to the British Medical Association, and was a member of Council from 1899 to 1900; he was one of the honorary secretaries of the Section of Obstetrics and Diseases of Women at the Annual Meeting at Edinburgh in 1898; a vice-president of the Section of Obstetrics and Gynaecology at the Meeting at Oxford in 1904; and president of that Section when the Association met at Belfast in 1909. During the war he was the senior surgeon of the British Red Cross Hospital at Wimereux. He represented the Queen's University in the Parliament of Northern Ireland until the dissolution a few months

ago, when he retired. He received the honour of knighthood in 1925.

We are indebted to Dr. W. CALWELL for the following appreciation:

It would be difficult to estimate the usefulness of such a full and varied career. Sir John Campbell raised gynaecology to a scientific and advanced position in Ulster. His skill and success as an operating surgeon in these branches were fully realized by the community, and for a very long time he was an acknowledged leading consultant. Although in later years he withdrew from full active work, yet both the general public and the medical profession were always eager to have his aid and advice in determining the correct lines of treatment. In 1902 he married Miss E. F. Fitzsimon of Tralee, by whom he had three sons; of these two are living. Deep and widespread sympathy is felt for the family.

We regret to record the death, at the age of 83, of Dr. JAMES ALFRED HARRIS, which took place on September 7th, at his home at Chorley, Lancashire. James Alfred Harris, having received his medical education at Edinburgh, obtained the diploma M.R.C.S.Eng. in 1869; he graduated M.B.Lond. in 1870, and proceeded M.D. in 1874. A year later, having held appointments as house-surgeon to the Northern Hospital, Liverpool, resident medical officer to the Mill Road Hospital, Everton, and resident physician to the Royal Infirmary, Edinburgh, he started private practice in Chorley, where, in the course of a long career, he became consulting medical officer of health for Chorley borough and rural district, honorary consulting surgeon to Rawcliffe Hospital, and a justice of the peace for County Lancaster. He was a member of the British Medical Association. We are indebted to Sir James Barr for the following appreciation: When I was appointed junior house-surgeon to the Northern Hospital, Liverpool, Dr. Harris had been promoted to the senior appointment on the resignation of Dr. David John Hamilton, who had obtained the Astley Cooper prize, and afterwards became professor of pathology in Aberdeen University. Dr. Harris, who was about four years my senior in the profession, and I at once became warm friends, and now an unbroken friendship of slightly over fifty-five years has been severed. Although Harris studied in Edinburgh, he graduated at the London University, the degrees of which were then not very numerous. He was justly proud of his London degrees, but sometimes I thought that they handicapped him, in much the same way as they have affected others, in making him rest satisfied with past achievements. However, as it turned out, they were much to his advantage in his future career, for he had no bent for research work, and in private practice they at once gave him a status which otherwise he might not have so rapidly attained. In 1875 Dr. Harris had an opportunity of succeeding to a large practice at Chorley, owing to the serious illness of the incumbent. I then thought that he was sacrificing future prospects for present advantages. However, it turned out otherwise. He was an earnest student, knew his work well, and kept himself well abreast of modern advances in medicine. His genial manner and high standard of professional probity endeared him to his patients and professional brethren. He took much interest in public health matters, and was part-time medical officer of health for nearly fifty years to Chorley borough and Chorley rural district. Although he was not a contributor to medical journals, his reports as medical officer of health were models of perspicacity. The last time I saw Dr. Harris was in the early twenties, when I was taking part in a war memorial ceremony at Chorley. My wife and I had lunch with him and Mrs. Harris. He was then preoccupied with his favourite subjects of Hebrew, Greek, and Latin. He continued at work till 1924, when he had a very serious illness, after which he retired from practice and from his medical appointments. He always took a keen interest in the British Medical Association, though he never held any very important appointments, and he kept clear of the turmoil in Lancashire over the Midwives Act and the National Health Insurance Act. He will long be remembered by those who knew him as a genial, upright, and intellectual member of the medical profession. He had a very happy married life, and leaves a widow, but no family.

The death occurred at his residence in Edinburgh, on August 30th, at the age of 70, of the Rev. WILLIAM MENZIES ALEXANDER, M.D., professor of apologetics and pastoral theology in the Free Church College, Edinburgh. Dr. Alexander was educated in Glasgow, and, after graduating B.Sc. in 1885, was appointed professor of biology and chemistry in the Wilson College, Bombay. In 1888 he graduated M.B., C.M.Glasgow, and was appointed assistant to Professor Napier. He obtained the degree of B.D. and was ordained in 1889, and proceeded M.D. in 1891. He went back to Bombay for a period, was repeatedly examiner to the Technical College and the University there, and was elected a Fellow of the University in 1894. His hearing having become impaired through illness, he returned from India, and was successively lecturer in the Free Church College, Glasgow, and in the United Free College, Aberdeen. Dr. Alexander was elected professor in the reconstituted Free Church College in 1904, and the highest honour of the Church—the moderatorship of the general assembly—was conferred on him in 1911. He obtained the degree of D.Sc. in 1919, and the honorary degree of D.D. was conferred upon him in 1927 by the University of Edinburgh. In addition to his educational work, which was very highly valued, Dr. Alexander was the author of numerous books and papers on scientific, social, medical, religious, and theological subjects. His deafness, although latterly great, was borne with commendable patience, and he cultivated to the last his powers of assimilation, the most recent events of public life being invariably turned to illustrative use in his lectures. During the last assembly Dr. Alexander was presented by the ministers of the Church, most of whom had been his students, with an address of congratulation on the completion of twenty-five years' service as professor in the Free Church College.

Dr. WALTER ERICHSEN POWELL, who died after an operation, at the early age of 34, on August 31st, received his medical education at Charing Cross Hospital, where he obtained the diplomas M.R.C.S., L.R.C.P. in 1917. He was then appointed temporary surgeon in the Royal Navy, and served in the "Q" boats, chiefly in the Mediterranean, up to the end of the war, when he joined his father in practice in Brighton, and became anaesthetist at the Brighton Infirmary and at the Dental Hospital, and deputy anaesthetist at the Throat and Ear Hospital. He was the joint author of an article in the *Journal of Anatomy and Physiology*, entitled "A case of manifestation of occipital vertebra, and fusion of the atlas with the occipital bone." Dr. Powell was a popular member of the British Medical Association, and also of the Brighton and Sussex Medical and Chirurgical Society. His funeral on September 3rd was attended by every section of the medical profession locally, representatives of hospitals, the British Medical Association, and the public bodies of the town, and a large circle of friends. A colleague writes: Dr. Powell was a most kind and generous doctor, beloved by the poor and by all his colleagues. It was said of him that he was unable to do a dirty trick to anyone, and his hobby seems to have been helping lame dogs over stiles.

The following well-known foreign medical men have recently died: Professor RUDOLF BALINT, professor of internal medicine and director of the first medical clinic at Budapest, aged 55; Dr. CHARLES JEAN JULIAN DÉPERET, dean of the faculty of sciences of Lyons and member of the Institut de France; Dr. WILHELM ELLENBERGER, professor of physiology and anatomy at Dresden; Professor JONAS WAERN, professor of the surgery of children at Stockholm; Dr. FRANÇOIS BENOÎT of Liège, formerly president of the Belgian Society of Ophthalmology; Dr. PAUL SALMON of the Institut Pasteur, Paris; Dr. JOHN PHILLIPS, in the recent disaster at the Cleveland Clinic Hospital, where he was director of medicine, aged 50; and Dr. BENJAMIN KNOX RACHFORD of Cincinnati, author of a work on diseases of children, aged 71.

Medical News.

LORD GORELL, C.B.E., M.C., will preside at the opening of the centenary session at King's College Hospital Medical School, Denmark Hill, S.E., on Wednesday, October 2nd; Sir Gregory Foster, Vice-Chancellor of the University of London, will deliver the introductory address at 2.30 p.m. The annual dinner will be held the same day at 7.30 p.m., at the Connaught Rooms, the chair being taken by Dr. H. Willoughby Eyle, dean of the Medical School.

BY arrangement with Imperial Airways, Ltd., a specially conducted visit to the air port of London will take place on September 21st, at 2.30 p.m., the proceeds being given to King Edward's Hospital Fund for London. The party will assemble at Charing Cross Underground Station, Victoria Embankment, and will be conducted by private omnibus to Croydon. Tickets, price 7s. 6d., can be obtained from the Secretary, King Edward's Hospital Fund for London, 7, Walbrook, E.C.4. For an additional charge of 10s. 6d. visitors will be given an opportunity of taking short flights in small aeroplanes provided by the Surrey Flying Services.

THE seventy-fourth annual exhibition of the Royal Photographic Society of Great Britain will be held from September 14th till October 12th at the premises of the society, 35, Russell Square, W.C.1. The exhibition will be formally opened on the evening of September 13th by the Lord Mayor of London.

THE Fellowship of Medicine announces that there will be a special whole-day post-graduate course for men only in medicine, surgery, and the specialties, at the Westminster Hospital from September 16th to 28th. There are in progress at present an afternoon course in diseases of infants at the Infants Hospital, Vincent Square; a course in psychological medicine on Tuesday and Saturday mornings, at 11 o'clock, at the Bethlem Royal Hospital. A whole-day course in gastro-enterology will be held at the Prince of Wales's Hospital, Tottenham, from September 30th to October 4th. In October there will be courses in ophthalmology, tropical medicine, gynaecology, diseases of children, and diseases of the throat, nose, and ear; a whole-day course in medicine, surgery, and the specialties at the Metropolitan Hospital, Kingsland Road, and an evening M.R.C.P. course. Detailed syllabuses and information about post-graduate work in London may be obtained from the Secretary of the Fellowship, 1, Wimpole Street, W.1.

DURING the sixth annual meeting of the International Society of Medical Hydrology, to be held at Budapest from October 13th to 18th, medical discussions will take place on the 14th and 15th on the action of hypertonic waters and the use of baths and waters in cardio-vascular affections. A meeting of the Ligue Internationale contre le Rheumatisme will be held on the 16th for discussing the relation between acute and chronic rheumatism in the various countries, and the haematology and serology of rheumatism. Excursions will be made to the "Bitter Water" springs, bathing establishments, Lake Balaton, etc. At the conclusion of the meeting the party are invited to view the hospitals and clinics at Vienna and the establishments at Baden. Special reductions in cost are offered to members of the society and their friends. The English party will leave London on Friday, October 11th. A few vacancies are available for medical men or women interested in hydrology. Full particulars will be given on application, as soon as possible, to the Honorary Secretary, International Society of Medical Hydrology, 139, Marylebone Road, London, N.W.1.

ON the occasion of its annual congress, the Chartered Society of Massage and Medical Gymnastics will hold a dinner at the Café Royal on Wednesday, October 16th, at 7.45 p.m.

ON September 5th, at a largely attended meeting held in the English Congregational Church, Caerphilly, Dr. T. W. Thomas was presented by the public of Caerphilly with a portrait of himself to mark its appreciation of his services during forty years of practice in the district. Dr. Thomas has been for many years a keen member of the British Medical Association: he was vice-chairman of the Cardiff Division for the year 1925-26 and chairman for the two years 1926-28. He was also a member of the general executive when the Association met in Cardiff in 1928.

A CONGRESS of the International League against Rheumatism will be held at Budapest from October 13th to 19th, and in Vienna from October 19th to 20th. The following subjects will be discussed: the medical and social significance of chronic and acute articular rheumatism in different countries, and the importance of examination of the serum and blood in rheumatic diseases.

A POST-GRADUATE course of lectures and demonstrations in practical paediatrics, including instruction in the examination of children, clinical pathology, and radiology, will be held from November 4th to 16th at the Clinique Médicale Infantile of the University of Lyons. The fee for the course will be 200 francs, and further particulars may be obtained from the Secretariat de la Faculté de Médecine, 18, Quai Claude-Bernard, Lyon, to whom application must be made not later than October 25th.

A POST-GRADUATE course in cutaneous and venereal diseases will be held at the Madrid faculty of medicine, under the direction of Professor J. S. Conisa, in November. Further information can be obtained from Dr. Gay, Españoleto 22, Madrid.

THE British Social Hygiene Council has issued in pamphlet form a statement of the services it is able to place at the disposal of local authorities in furtherance of their schemes for combating venereal disease. The council estimates that to maintain its present machinery for supplying literature, films, public exhibitions, lectures, van campaigns, and expert assistance in the organization of health and social hygiene weeks, it will require at least £10,000 per annum, and points out that unless the local authorities continue to pay from their block grants an amount equivalent to that hitherto paid direct to the council by the Minister of Health, it will find it impossible any longer to render these services.

THE Vocal Therapy Society was founded in 1918 to promote the physical and mental health of invalid ex-service men, through speech, song, and efficient breathing, and to form hospital and other ex-service singers into choirs called the "King's Services Choirs." Five choirs are now at work, and the society in its report for the year 1928 states that during the year three concerts were given—two at the Chelsea Polytechnic Institute and one at the Star and Garter Home at Richmond. *It is to the society's credit that through its* efforts many men invalided in the war—shell-shock cases with speech defects and even aphonia—have been completely cured; and, though some of them may retain slight hesitation in speech, they are now able to talk to their fellow men and work at their old trades. The secretary is Miss K. S. Malden, 27, Grosvenor Place, S.W.1.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to ***The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.***

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Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The ***TELEPHONE NUMBERS*** of the British Medical Association and the *British Medical Journal* are *MUSEUM 9861, 9862, 9863,* and *9864* (internal exchange, four lines).

The ***TELEGRAPHIC ADDRESSES*** are:
EDITOR of the *British Medical Journal*, *Aitiology Westcent, London.*
FINANCIAL SECRETARY AND BUSINESS MANAGER (*Advertisements, etc.*), *Articulate Westcent, London.*
MEDICAL SECRETARY, *Medisecra Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone 24361 Edinburgh).

QUERIES AND ANSWERS.

DR. GRIFFITH EVANS (Caernarvon) writes: Can any reader please refer me to the memoir written by one of the leaders of the profession in the last generation wherein he stated that the one great mistake of his life was not to recognize syphilis when he saw it?

BOYS' SCHOOLS IN SWITZERLAND.

DR. F. DAVIDSON (Hull) asks for help in finding a boarding school in a high altitude in Switzerland for a boy, aged 13, who is suffering from asthma, caused by a slight fibrosis of the lung after bronchitis. The condition is definitely not tuberculous, and it is thought that the patient requires a higher altitude than the tuberculous stations.

TREATMENT OF MENORRHAGIA.

"PERSISTING" would be grateful for advice in the following case: A young [illegible] healthy, came under treatment for [illegible] which had prevented any [illegible] etc. A curettement, followed by a course [illegible] effected a temporary cure. Three [illegible] recurred, and has become persistent.

tried: calcium lactate, a preparation of placenta and mammary glands, ergot, sistomensin, ergotinin, styptol, lodal chloride, infundin, haemoplastin. Some of these have effected a slight improvement; recently she has relapsed. Operative intervention is not welcomed.

STERILE MILK INJECTIONS.

DR. J. THOMPSON (Devizes) writes: In reply to Dr. Donald's inquiry on September 7th (p. 481) about sterile milk injections for chronic suppurative otitis media, I may say that, in my experience, the method is of distinct value in acute cases, but when the infection has become really chronic it does not seem to achieve the desired result. For early cases, however, and by early cases I mean those which have been going on for a month at most, it has been most successful—in fact, one might almost call it a specific method of treatment. The condition of the external auditory canal requires the greatest attention first, and I have the ear syringed every three or four hours with 1 in 5,000 lysol solution, followed by careful drying with sterile wool on wooden probes. This is done for two days, and then 1 inject into the buttock 3 c.cm. sterile milk, brought to the boil twice in a flask. A reactionary temperature occurring then is evidence of a leucocytosis having been established, and the ear becomes dry in about two days. After the injection has been given, the syringing is stopped, and only dry mopping with dressed sterile probes is necessary. For the more chronic cases zinc ionization, after careful and complete cleansing of the canal, has given me a certain number of cures, but everything depends on the size of the perforation being large enough to ensure the zinc solution actually reaching the middle ear, and also the whole of the infected mucous membrane.

INCOME TAX.

Erection of New Professional Buildings.

"A. M.'s" surgery and consulting rooms were part of his dwelling house; he is providing new accommodation by building at the back of his house, with a garage in substitution for a dilapidated wooden one. Can he claim any allowance for this expenditure?

*** No; it represents capital outlay on improvements. If the garage were partially reconstructed some allowance could perhaps be obtained as equivalent to expenditure on repairs.

Proportion of Rent, etc.

"J. H. F." has been allowed one-third of his total expenditure on rent and rates and electricity, and desires advice as to whether he should appeal for a larger allowance.

*** The premises consist of a two-story house and garage. Taking the annual value of the ground floor to be about twice that of the other floor (of which a part is unused), and seeing that about half the ground floor is used for professional purposes, the proportion of one-third would be correct on the basis that it does not cover anything for the garage or servants' accommodation—both these portions of the premises have some reference to professional purposes. On the whole, we consider one-third too little, and that the true proportion lies somewhere between one-third and one-half. With regard to electricity the point is more difficult. In view of the fact that an electric cooker is used, and remembering that private consumption of light extends usually to a later hour than professional consumption, we cannot advise an appeal against the one-third basis.

LETTERS, NOTES, ETC.

HISTORY OF THE I.M.S.

R. SOCRATES NORONHA (Bombay) writes: In your issue of June 29th, at page 1184, there is a description of the annual London dinner of the Indian Medical Service held at the Trocadero Restaurant, with Lieut.-Colonel D. G. Crawford in the chair. In the course of his speech Colonel Crawford is reported to have related, among other historical facts, the following: "And the Indian Medical Service started, one strong! For defence they had a handful of Goanese peons. That small body of merchants and writers had grown into the great Civil Service of India, that half company of Goanese peons had expanded into the Indian army, the finest army in the world." I wish to draw your attention to the fact that the Goanese come from Goa—a Portuguese territory in India—and that both because of their nationality as well as choice of professions they could not have been and are not soldiers of the Indian army, which is mainly composed of Marathas, Rajputs, Punjabis, and Gurkhas.

*** We have referred Dr. Noronha's letter to Colonel Crawford, who makes the following comment:

The early garrisons of Bombay and Calcutta were chiefly composed of *Topazes*, men of mixed Portuguese and Indian descent, the latter the Indian strain, greatly predominating. Fryer in his *Travels* (p. 65) says that the garrison of Bombay in 1673 consisted of 300 Europeans and 400 Topazes; and it is probable that the small defensive force at Surat, half a century earlier, was similarly composed. Though the Indian army at the present time is recruited chiefly from Sikhs, Punjabi Musalmans, Pathans, Dogras, Rajputs, Gurkhas, and Marathas, it is certain that none of the first six races were serving the Company as soldiers in the seventeenth century, though there may have been some Marathas. Long before the English visited India the Portuguese had traded and more or less settled all round the coast. Their descendants, the class who served as Topazes, are still numerous both in Calcutta and Bombay, and in Bengal at least are usually called Goanese, though, no doubt, the majority of them never saw Goa. That city, of course, is the headquarters of what is now the chief, almost the only, possession of Portugal in India, and never belonged to Britain. Bombay, as is well known, was itself once a Portuguese possession, and was given to England as the dowry of Catharine of Braganza, Queen of Charles II, and handed over by the King to the Company.

PHYSIOLOGY AND CLINICAL MEDICINE.

DR. JAMES M. MCQUEEN (Halesowen, Birmingham), in the course of a letter on Professor Fraser's paper "The place of human physiology in the training of medical students" (August 31st, p. 369), writes: Professor Fraser's main thesis is based on the assumption that the physiologists and the clinicians are of necessity confined in separate watertight compartments. Certainly, if memory were the chief faculty of the human brain, the task of mastering the contents of large treatises on physiology and on clinical medicine would be too great for any one individual. The real truth, however, is that the human brain has a supreme capacity of ignoring both kinds of treatises, except when they are required for some specific purpose. The general practitioner who is interested, for example, in the subject of shock, can read in the literature all that the clinicians and the physiologists have to say about it. It is, however, open to him to think that a gap exists in our knowledge of the circulation in the liver during shock and to devise experiments to settle his curiosity. I suggest that as long as he can read a book and get out of it what he wants, and can recognize when his mental curiosity is not satisfied, then he can be both a physiologist and a clinician combined. The present need is not to train a new race of human-physiology tutors to lay more memory burdens on unfortunate undergraduates, but to teach the medical student how to read books and, when he is dissatisfied with current explanations, to make investigations for himself. Let the clinical teacher in the ward follow his curiosity over unanswered questions in physiology in company with his pupils; he will then find that both he and they can quite easily become physiologists, and that the so-called gap ceases to exist. It is the spirit of inquiry that requires to be taught, and that spirit is the same in physiology as in all other sciences.

HERPES ZOSTER AND VARICELLA.

DR. E. HERZBERG (London, N.W.11) writes: A man, aged 63, developed a very severe attack of herpes-zoster trigeminus, and on the fourth day of his illness a rash appeared over the whole of his body. It was an obvious attack of chicken-pox. Inquiries elicited the fact that about a fortnight earlier he had been visiting a nephew who had at that time a severe attack of chicken-pox. I have not heard of any other cases of simultaneous appearance of herpes and varicella.

DR. C. H. SEDGWICK (Weedon) writes: A married woman, aged 30, consulted me on August 9th for a severe attack of herpes zoster affecting the inner side of the left arm and the left side of the chest. I warned her that possibly in two weeks' time her child, aged 7 years, might develop varicella, which would be an unfortunate sequel, as the family had arranged to go to the seaside on August 24th. On August 23rd this child was brought to me with varicella, the rash having appeared that afternoon.

DR. J. WALLACE (Weston-super-Mare) writes: At the request of Dr. Leonard Hill of this town I saw a case of concurrent varicella and herpes zoster, and he has given me permission to report it. The case presented two features of interest: (1) the simultaneous onset of the two eruptions, and (2) the rare simultaneous occurrence of the herpes on both sides of the body; for that reason it appears to be worth recording. A less remarkable point was the age of the patient, who was 42. Two of the man's children had chicken-pox, and at the end of a fortnight he came home from work feeling ill and suffering considerable pain, with a burning sensation over the back and side. When I saw him on the third day he had developed a chicken-pox rash of moderate severity and three patches of herpes—one under the angle of the left scapula (seventh spinal nerve), and two on the right side (tenth spinal nerve); each patch was rather larger than the face of an old-fashioned watch. These patches were still painful and burning, while the rest of the rash gave no special annoyance. The temperature the first day had been 103° F. In recent years much has been written for and against an etiological connexion between zoster and varicella. The weight of argument seems against it, and such a case as the above seems to add weight to the negative view, since it is comparable with cases of concurrent measles and chicken-pox, or measles and shingles, to which conditions, so far as I know, no one has attributed any etiological relationship.

CORRECTION.

OUR attention has been drawn to an error in the spelling of certain products which should have been attributed to the Energen Foods Co., Ltd.; not energin, as in the account of the Annual Exhibition in our issue of August 24th (p. 133).

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 40, 41, 42, 43, 44, 45, 48, 49, and 50 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 46 and 47.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 143.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

203. Acute Febrile Coronary Angina.

IN a detailed study of acute febrile coronary angina, based on 34 personal cases, C. LIAN (*Paris Méd.*, July 27th, 1929, p. 86) describes the electrocardiographic signs in this disease. The characteristic departures from the normal may wholly or in great part disappear in the course of a few weeks or months; they are not of a morphological but solely of an evolutive order. Probably an absolutely normal electrocardiograph is not seen in acute febrile coronary angina, and, taken in conjunction with the clinical symptoms, these graphs are of great diagnostic importance. In three post-mortem examinations, lesions of obliterating coronary arteritis, due to a myocardial infarct, were found, and Lian's conception of this disease is that it is a syndrome comprising many forms of increasing gravity, corresponding to an attack of obliterating coronary arteritis with ischaemia or infarct of the myocardium, the infarct always being myocardio-pericardiac, cardiogastric, or infectious. The fever is due to autotoxic or infectious reactions which result from a cardiac inflammatory process. Acute coronary angina must be distinguished from that occurring in three other conditions: acute cardio-vascular states such as endocarditis and aortitis; sudden, acute cardiac dilatation; and vesicular crises, as, for example, hepatic colic. Cure is not rare in the myocardio-pericardial type, and is the rule in the myocardial and incomplete forms; only in cardio-gastric and infectious cases is the termination generally fatal. Grave prognostic factors are a stationary febrile curve, progressive diminution of arterial pressure, and persistence or accentuation of atypical ventricular electrocardiograms. Treatment should be directed to diminishing the myocardial ischaemia, to combating cardiac syncope, and to alleviating the pain. For the first of these, sodium citrate (by the mouth), benzyl benzoate, or papaverine is advised. Transthoracic precordial diathermy has been beneficial in some cases. As cardiac stimulants Lian uses digitalis by the mouth or by intramuscular injections, combined with subcutaneous injections of camphorated oil or coramine. In cases with intense dyspnoea and falling arterial pressure, intravenous injections of ouabain (1/8 mg. first, then 1/4 mg.) may be cautiously given. To alleviate the pains opiate injections are necessary. The patient should remain in bed, and later in his room for several weeks, and subsequently lead a life exempt from all effort. Lian advises that radiotherapy should only be given when the acute stage has passed, and only in cases in which an angina of effort remains as a sequel.

204. Streptococcal Carriers and Scarlet Fever.

E. A. LANE and EDITH A. BECKLER (*New England Journ. Med.*, June 20th, 1929, p. 1283), from comparative observations on children attending schools in districts where scarlet fever had been prevalent and children with no such history of exposure, came to the conclusion that there was no justification for regarding the presence of haemolytic streptococci in throat swabs as a reason for exclusion from school. Haemolytic streptococci were found to be fairly common among all groups of children, and of quite uniform prevalence in the months of February and March, when the experiments were made. According to the authors, until a sufficiently precise technique is available to identify the scarlet fever organism, and be sufficiently simple for general application, the control of scarlet fever must continue without the aid of throat cultures.

205. Intermittent Hydrarthrosis in Undulant Fever.

B. M. BAKER, jun. (*Arch. Int. Med.*, July, 1929, p. 128), records a case of undulant fever presenting the clinical syndrome of intermittent hydrarthrosis. A man, aged 47, complained of swelling of both knees which lasted about three days and then subsided, this sequence of events recurring in cycles of seven days with gradually increasing stiffness and difficulty in walking. Organisms of the *Brucella melitensis* group were repeatedly isolated from the blood and fluid in the knee-joints, and specific agglutinins appeared after the administration of an autogenous vaccine. Amelioration of the sub-[illegible] temporary alteration in the [illegible] appearance of the signs and [illegible] ease followed the administration of *Br. melitensis* vaccine and serum from a patient who had recovered from undulant fever. The author remarks that a differential diagnosis cannot be based solely on agglutination reactions in this case, since there were no agglutinins in the patient's serum during the period in which *Brucella melitensis* was being recovered from the blood and urine. The author concludes that the intermittent hydrarthrosis was part of a general infection by this organism, and suggests that infection by a member of this group may be the cause of the clinical syndrome—intermittent hydrarthrosis—in others, an association which has not before been recognized.

206. Chronic Meningitis.

W. R. GRAVES, ANNA D. DULANEY, and I. D. MICHELSON (*Journ. Amer. Med. Assoc.*, June 8th, 1929, p. 1923) report the thirteenth case of chronic meningococcaemia to be described in American literature. The remarkable features of this case, which occurred in a man aged 38, were the persistence of positive blood cultures for a period of five months, without any parallelism between the patient's general condition and recovery of the organism from the blood stream, and the absence of endocarditis or any other demonstrable focus of infection. The case belonged to the group of chronic meningococcaemias with late metastasis in meninges. The intermittent type of fever was present, but the periodicity was not regular, the rise occurring every day, or every second or third day. Serum treatment played only a minor part in the patient's recovery, as he received an unusually large amount of serum (380 c.cm. of polyvalent antimeningococcal serum intraspinally and 292 c.cm. intravenously), as well as 12 c.cm. of autogenous vaccine, without apparent benefit. The prognosis of chronic meningococcaemias is extremely favourable. Only three of the thirteen cases ended fatally, two patients dying from endocarditis and one from terminal meningitis.

Surgery.

207. Transplantation of the Ureter.

THOUGH the consensus of opinion among surgeons favours the non-operative treatment for bladder cancer, C. M. MCKENNA (*Surg., Gynecol. and Obstet.*, August, 1929, p. 174) is of the opinion that ureteral implantation is destined to become more popular in early cancer cases. He agrees with Coffey that this operation should not be used in the late cancer stage, because metastasis, hydro-ureter, and poor renal function are likely to follow. He also believes that the rectum is not so satisfactory a field for implantation as is the large bowel higher up. A study was made to determine the results as to kidney function, pathology, and bacteriology following ureteral implantation, and experiments were performed on fourteen dogs and one human subject, the Coffey technique being employed in each case. The results have led McKenna to the conclusion that this technique is the method of choice, and he urges a more extensive study of it with regard to kidney function, pathology, and bacteriology. In the treatment of bladder cancer, implantation of the ureter into the large bowel should be practised; this operation is the one of choice for exstrophy of the bladder. It is more important [illegible] velopment of a hydronephrosis than [illegible] nfection. The danger of hydronephros [illegible] by a change in the technique with reference to the muscularis and mucosa of the bowel. In the dog experiments the muscle at the site of the implantation was invaginated to permit healing to take place without impingement of the muscle of the bowel upon the ureter. Also a larger incision was made in the mucosa, and a suture inserted at the site of the introduction of the ureter into the bowel lumen to prevent pinching of the ureter by the mucosa.

208. Obliteration of the Hernial Sac.

J. S. K. HALL (*Med. Journ. and Record*, July 17, 1929, p. 61) records experimental and clinical investigations of the eradication of hernia by injections with the method originated in 1927 by Piña Mestre of Barcelona, who found in more than 8,000 cases that almost without exception the canal became closed and the hernia eradicated in from ten to fifteen days. The procedure is described as harmless and easy to carry out. The solution used was a combination of the alcoholic tinctures of catechu, monesia, krameria, dog-rose, and bilberry; all of [illegible] stimulating and astringe[illegible] [illegible]riments on animals it ap[illegible] dation and t[illegible] barrier effec[illegible] tion of the [illegible]

chosen as the site of injection, and around this, or into the inguinal canal, 5 c.cm. of the solution are injected daily for from six to fifteen days. After the second or third treatment the site of the injection becomes tender, and shows evidence of a reaction the severity of which varies in different cases. The formation of plastic tissue quickly suffices to prevent protrusion of the bowel, and within the next few days the orifice is obliterated. The treatment is said to be applicable to all types of hernia, and also in children and infants, its only contraindications being irreducibility of the hernia and haemophilia. Only 1 per cent. of recurrences has been reported, and Hall urges a thorough trial of the procedure in view of his own favourable experience.

209. Tumours of the Lung.

P. GELLEIN (*Norsk Mag. f. Laegevid.*, May, 1929, p. 473, and June, 1929, p. 569) records his observations on 39 tumours of the lung treated in two Norwegian hospitals during the period 1913-28. In only one instance was the tumour benign; in all the rest its malignancy was proved by necropsy (33 cases) or its clinical course (5 cases). Microscopical examination of 33 cases showed that 22 were carcinomata and 11 sarcomata. Of the carcinomata, 12 were primary, 8 secondary, and 2 uncertain; of the sarcomata, 3 were primary, 5 secondary, and 3 uncertain. The predominance of primary carcinoma is explained by the fact that only those tumours which gave rise to pronounced clinical symptoms were considered. The view that carcinomata had a predilection for the right lung was not confirmed by the present series, since among the 12 carcinomata 7 were in the left lung and only 2 in the right, while in 3 the localization was uncertain. The great majority (16) of the carcinomata occurred in women, partly owing to the presence of secondary tumours; apart from that 9 were in women and 3 in men. These figures are in opposition to almost all previous statistics, according to which primary carcinoma of the lung is much commoner in men than in women. The average age of the patients with pulmonary carcinoma was 60.9 years. The statistics of sarcoma were too small to justify any conclusion. The increase of carcinoma of the lung, to which almost all writers have drawn attention, is illustrated in the present series by the fact that during the period 1923–28 there were 9 cases among 19,672 patients, as compared with only 2 among 20,379 patients in the period 1916–22. No light was thrown on the etiology of the disease by the author's cases.

210. Carcinomatous Abscess of the Lung.

WHILE pulmonary excavations are most commonly due to tuberculosis or to abscess or gangrene of various etiology, neoplastic disease may be a cause, and M. FISHBERG and E. H. RUBIN (*Amer. Journ. Med. Sci.*, July, 1929, p. 20) report fifteen cases of primary cancer of the lung in which clinically and at necropsy cavities were found. About one-third of pulmonary neoplasms break down, leaving a cavity after the necrotic tissue is eliminated. The size of these cavities varies; some are quite small, others as large as a big orange, while in rare cases an entire lobe may be destroyed. The gross appearance of the necrotic tumour may resemble fibrocaseous phthisis, and the surrounding tissue usually presents an inflammatory area. Towards the periphery emphysematous lung tissue may be observed, but more frequently, owing to occlusion of the supplying bronchus, atelectasis of the alveoli is encountered. Concomitant active tuberculous lesions may be found, while fibrotic changes of the apical pleura due to old tuberculosis is very common. Metastasis to other organs is as frequent as in cancer without excavation. Cavity formation occurs mostly in primary tumours, and is uncommon in metastatic growths. Excavation of a pulmonary neoplasm may be the result of purely mechanical factors; the tumour, increasing rapidly, outgrows its blood supply, and anaemic necrosis of the central part ensues, the necrotic tissue being eliminated through the communicating bronchus. In such cases, however, this is usually the result [illegible] pyogenic organisms, spirochaetes, or [illegible] can be excluded by the absence of tubercle bacilli and the fetor of the sputum in cancer. Extensive tuberculosis of the lung is very rarely unilateral; in primary cancer this is the rule. Severe pain, and especially hyperaesthesia of the thorax, is not common in tuberculosis, while in malignancy it occurs in 90 per cent. of the cases. Dyspnoea, an early symptom of cancer, is not usual in tuberculosis. A flat note on percussion of the apex and down the side to the base is rare in tuberculosis, but the rule in cancer. The differential diagnosis of malignant abscess from those due to other causes is very difficult. The age of the patients, and the fact that in many cases of pulmonary abscess some cause, such as tonsillectomy or teeth extraction, is usually found, are diagnostic points. In all cases of apparently primary abscess of the lung of recent onset in elderly individuals the possibility of a broken-down neoplasm should be considered.

Therapeutics.

211. Localized Vaccine Therapy.

P. POINCLOUX (*Presse Méd.*, July 17th, 1929, p. 925) claims to have obtained striking results in vaccine treatment by a regional method of injecting the vaccine into the port of entry of the infecting organism—that is, the tissue by which it first entered the body. Thus, in gonorrhoeal arthritis, injections are not made into and around the joint, but into the walls of the urethral orifice, and, in otitis media, into the walls of the orifice of the Eustachian tube. Gonorrhoeal infections in the male are treated as just stated, and in the female by injections into Skene's glands. In *B. coli* infections injections are made into the mucosa of the colon with the aid of a proctoscope. Regional vaccine therapy is employed also in staphylococcal infections; thus in mammitis the vaccine is injected into the nipple. In cases of infection by multiple microbes, injections of one of these are first made, followed by injections of the other. In giving the injections a syringe graduated in tenths of a cubic centimetre, local anaesthesia with stovaine, and fine needles 5 to 6 mm. long are used, but these vary with the site treated. The initial dose of gonorrhoeal vaccine is 0.25 c.cm., which is increased by the same amount at each treatment. The initial dose of *B. coli* vaccine is 0.5 c.cm. A rise in temperature and malaise are noted after the first two injections. The reactions after injections of *B. coli* are less marked but more persistent than after gonococcal ones. Poincloux reports great success following this method in 185 cases of various infections, some of which are described in detail.

212. Sanocrysin in Tuberculosis.

K. SECHER (*Nordisk Medisinsk Tidsskrift*, June 1st, 1929, p. 342) gives a statistical analysis of his cases of tuberculosis treated with sanocrysin since November, 1923; with few exceptions, the seat of the tuberculosis was the lungs. Among the 191 patients who were cured, there were 53 in whom the disease was slight, and 41 in whom the disease was severe. There were also 70 cases of pleurisy, and 14 of glandular tuberculosis. Among the cured were also 13 children under the age of 15; the seat of the disease is not mentioned in these cases. In a second group, classified as improved, there were 68 patients; in 55 of these the disease was severe, and in 6 very severe. In the same group there were 3 cases of pleurisy, and 4 cases in children the seat of whose tuberculosis is not stated. In a third group, classed as unchanged or worse, there were 63 patients, in all of whom the disease was very severe; this class of case is said to be unsuited for sanocrysin treatment. The author criticizes the timid procedure of those whose maximum dosage is only 20 or 25 cg. He recommends a dosage carefully adapted to the needs of each patient, with due reference to the nature and extent of the disease, the weight of the patient, and his reaction to the previous injection; The interval between the injections must also depend on the behaviour of each case. With these reservations, the author recommends an initial dose of 50 cg., or about 1 cg. per kilo of body weight. The second dose is 75 cg. or 1 gram. The same dose is given at the third injection, and the intervals between these three first injections are two clear days. Later, each interval is five to six days. The injections are continued until no reaction is provoked, five or six injections being given as a rule. The average dose was 1.67 cg. per kilo of body weight. The author supports his advocacy of this treatment by references to the experimental work of Madsen and Mörch at the Serum Institute in Copenhagen.

213. Sulphur in Respiratory Affections.

DEALING principally with sulphur spring waters, LANGÉNIEUX (*Journ. de Méd. et de Chir.*, July 25th, 1929, p. 514) states that since olden times sulphur has been employed in respiratory affections as an antiseptic and especially as an expectorant. Sulphur has both a local and general action, and in affections of the upper respiratory tract produces markedly beneficial effects. Its antiseptic action rapidly dries up suppurations and converts a purulent into a mucous catarrh, which finally disappears. Its action on the pulmonary circulation increases leucocytosis, the respiratory exchanges, and the vitality of the mucosa. Sulphur furnishes to the mucus the requisite sulphur element and tones the mucosa, thus rendering it less liable to further attacks. It also exerts a beneficial general action on the system, which aids in the amelioration and cure of respiratory diseases. This medicament is indicated in all affections of the upper respiratory tract, such as rhinitis, pharyngitis, tonsillitis, and laryngitis. It is of marked benefit in chronic bronchitis, especially in the forms associated with cardiac and renal diseases, diabetes, gout, and syphilis. Asthma, however, does not respond to its administration, unless bronchitis is a predominant symptom.

Langénieux claims that the use of sulphur and sulphur water in respiratory disorders is particularly indicated in lethargic, lymphatic subjects; in neuro-arthritic, rheumatic, and gouty cases it should be combined with arsenical waters.

214. Serum Treatment of Malignant Pustule.

PARIS (*Presse Méd.*, July 24th, 1929, p. 959) believes that the dangers attending anthrax infection have been greatly lessened since the introduction of serum therapy, and reports a case of anthrax septicaemia in which striking results were obtained by the use of anti-anthrax serum. Large doses were employed, the initial one being 100 c.cm. This was increased to 230 c.cm.; the doses were then gradually decreased as improvement ensued. In all, the patient received 1,100 c.cm. of the serum, and, in order to prevent possible accidents, 3 grams of calcium chloride were administered daily. Anti-anthrax serum is said to be neither bactericidal nor antitoxic, and its mode of action is unknown. According to van Beneden it contains a sensitizing substance which, in the presence of a specific antigen, deviates the alexine: it activates phagocytosis, and, both *in vivo* and *in vitro*, is agglutinating and precipitating. In preventive doses it increases the resistance of guinea-pigs to anthrax; death is delayed, or is caused only by the injection of a dose larger than the minimum lethal one.

Laryngology and Otology.

215. Mastoid Syphilis.

Y. FRANCHINI (*Rev. oto-neuro-oftalmol. y de cir. neurol.*, April, 1929, p. 160), who records an illustrative case, states that syphilis may attack the mastoid process like any other organ or system in two ways—namely, either by creating a favourable soil for the pathogenic organisms by weakening systematic resistance, preventing the repair or cicatrization of other lesions, or by producing specific lesions locally. The former mode of attack is much the most frequent, as it is very common to meet with cases in which specific treatment by modifying the soil has a favourable action on the cicatrization of mastoid wounds and fistulae. Franchini's patient was a man, aged 32, the subject of inherited syphilis, who had had a mastoid operation three years previously and still had a mastoid fistula. Rapid recovery followed seven injections of mercury cyanide as the only treatment.

216. The Nose and Throat in Asthma.

F. M. RACKEMANN and H. G. TOBEY (*Arch. of Oto-Laryngol.*, June, 1929, p. 612) review the literature and discuss the present views of the significance of foci of infection in the nose, throat, and teeth in the causation of asthma. They divide asthma into the extrinsic form caused by some foreign substance, and the intrinsic, where no such factor is present. Of the asthma patients seeking relief at the authors' clinics 28 per cent. had had previous operations on the nose or throat irrespective of the intrinsic or extrinsic origin of the condition; 44 per cent. of asthma patients were found to have foci of infection in the nose, throat, or teeth. The authors recommend the radical treatment of all such foci, but have obtained permanent relief from asthma in only 5 per cent. of these cases. In spite of the poor prognosis they claim that proper treatment of the nose and throat is of real importance, and that there is no doubt that drainage of infected sinuses or removal of polypi has resulted in considerable general improvement of a large number of asthma patients. The authors explain the apparent absence of etiological significance of the infective foci in the nose in a large number of asthma patients by the suggestion that the sinus conditions and the polypi are part of the fundamental pathological changes that occur in asthma. They investigated fully two cases of sinus infection in asthma, and found that the sinus contents were bacteriologically sterile, but contained large numbers of broken-down eosinophil cells; these cells have also been found in nasal polypi of asthma patients.

217. Treatment of Oto-sclerosis.

ACCORDING to R. WOODS (*Journ. Laryngol. and Otol.*, June, 1929, p. 372) oto-sclerosis is the result of a chronic infection involving the joint surrounding the foot of the stapes. His method of treatment is based upon the principle underlying all cases of chronic inflammation—namely, the production of a suitable degree of acute local inflammation which can be strictly regulated, in order to avoid causing severe pain or any destructive effect on very delicate tissues. Intratympanic injections of liquor iodi (*B.P.*), diluted to one-tenth its strength, are recommended. These can be given almost painlessly behind the malleus with an instrument made by fitting a rubber teat, filled with the solution from a pipette, over a long needle, to the point of which a needle as fine as possible is soldered. Immediately after injection the vessels of the drum dilate; the pain develops to its maximum in about a minute and then slowly abates, disappearing altogether in a quarter of an hour. Injections are not made more often than once a fortnight, in order that the effects of the previous one may be allowed to pass off. From his experience with the above method, and also with radium emanations, the author's impression is that the former is most useful in early cases and the latter in old-standing ones. With the injections the improvement in hearing is often very great in the early cases, but in those of long standing but little good results. The difficulty of getting cases in their earliest stages arises because the onset is so insidious that patients are unaware of anything serious until tests show that deafness is well established.

Obstetrics and Gynaecology.

218. Obstetrical and Gynaecological Risks.

DISCUSSING obstetrical and gynaecological operative risks, R. PETERSON (*Journ. Amer. Med. Assoc.*, June 8th, 1929, p. 1907) states that an estimation of these is based on two factors: the nature of the operation, and the condition of the patient. Hence a most searching investigation must be made of the general condition of the patient. Two cases are instanced of simple operations in which the post-mortem examinations on patients of apparently normal physical condition revealed fatty degeneration of the heart. A good risk is defined as one in which the general condition of the patient is excellent and in which the local condition calls for an operative procedure which can be performed reasonably quickly without undue loss of blood. Such a patient will recover, and a fatality is attributable to operative inexperience or errors in technique. A poor risk is one in which an operation must be performed but the patient's chance of survival is not good or even fair. This class of risk includes patients with serious disease of the heart, lungs, or kidneys; those suffering from sudden or continued loss of blood; and those with long-continued suppuration, with absorption from cancerous disease, or septic absorption from any source whatever. Fair risks lie between these two classes, and any deviation may not necessarily change a good into a poor risk but only into a fair one. Organic disease of the heart or kidneys, while not precludir [illegible] nge the risk from good to fair, and [illegible] hether other than surgical treatment [illegible] as much and be far safer.

219. Local Anaesthesia in First and Second Stage Labour.

CITING Mackenzie's definition of referred pain, and Weiss and Davis's demonstration that this pain could be abolished by anaesthetizing the skin and so preventing any peripheral impulses from entering the hypersensitive centre in the cord, D. ROSE (*New England Journ. Med.*, July 18th, 1929, p. 117) states that, in labour, the contractions of the uterus set up repeated stimuli which cause the cord centres supplying this organ to become hyper-irritable. The normal or non-exaggerated skin impulses entering these irritable centres are recorded by the brain as pain arising in those skin areas. By accurately determining and infiltrating these areas with novocain, the perception of referred pain can be destroyed. Experimentally Rose has found that during the uterine contractions associated with labour pain is very definitely and clearly referred to three areas, and that this can be controlled by the intradermal injection of a sterile 2 per cent. solution of novocain. The important points are intradermal injection and the proper lines of infiltration; subcutaneous injection is of little or no value. Pain referred to the back is the least effectively relieved by novocain, due to reference from the dilating cervix and to pressure on the sacral plexus by the descending parts. Infiltration, therefore, gives only incomplete relief. The procedure is described, and tables are given of the results obtained in the first stage of 100 cases of labour and in the second stage of 80 cases. It is said to be applicable wherever inhalation narcosis is unsuitable; the contraindications are essentially only two: idiosyncrasy to the drug and a highly neurotic, intractable patient. Pantopon in combination with intradermal infiltration definitely prolongs the analgesia and has greater effect on the back pain. Rose asserts that this method, which is simple and safe, produces decided relief and absence of pain during first stage labour, and is decidedly valuable during the second stage. The analgesia has an average duration of three hours. Intradermal infiltration has no harmful effects on the foetus and mother as contrasted with other methods, and may be used in place of, or as an adjunct to, gas-oxygen inhalation during second stage labour. With proper asepsis and technique it is not harmful or dangerous [illegible]

220. Extra-peritoneal High Caesarean Section.

DESPITE the general agreement as to the advantages of cervical Caesarean section, B. J. KOUWER (*Gynécol. et Obstet.*, June, 1929, p. 418) favours the classical high method, and in the course of 216 operations has met with no case of actual or threatened rupture of the uterine cicatrix in subsequent pregnancies. The methods of several authorities are mentioned, and it is pointed out that by these sufficient protection is not given to the peritoneal cavity before opening the uterus. Kouwer advocates a modification of Lestocquoy's method. A large median incision is made in the abdominal wall, so that the umbilicus lies between its upper third and lower two-thirds. The peritoneum of the abdominal wall and the uterine serous membrane are then united by two rows of sutures, preferably of silk, the first being placed 2 or 2.5 cm. and the second 1 or 1.5 cm. from the free edges of the incision. The uterus then presents as an oval, 18 cm. long and 12 cm. wide. This method of suturing guarantees an absolute occlusion of the abdominal cavity, and takes only ten minutes to perform. The uterus is then incised in the long axis of the oval, the infant and placenta extracted, the cavity washed out with an antiseptic solution, and the uterine incision sutured. According to the conditions encountered, the abdominal incision is either partially closed or left entirely open. The method of further treatment varies with each case. Whatever the result of the operation may be, Kouwer always performs a subsequent laparotomy after complete involution of the genital organs has taken place in order to correct the artificial fixation of the uterus and, if necessary, of the uterine cicatrix. This operation, nine cases of which are reported, is said to be indicated in all cases in which the classical and cervical methods are considered too dangerous in view of infection, and, therefore, only embryotomy or Porro's operation remains.

Pathology.

221. Histology of Skin in Scarlet Fever.

N. KRITCH, A. PACHINE, and P. SIDOROW (*Arch. de méd. des enf.*, June, 1929, p. 313), record their observations on the skin of 109 cases of scarlet fever made during an epidemic at Moscow in the period 1924–27. During the eruptive period the epidermis shows certain changes as the result of the scarlatinal virus; the epithelial cells undergo a necrobiotic degeneration, causing an arrest of the physiological action of the skin, while the dermis presents an enormous vascular dilatation without any other sign of acute inflammation. After the eruption has faded there is a progressive development of the morbid process, and the degenerated cells of the epidermis become gradually transformed into a parakeratinized layer. In the dermis the accumulation of toxins gives rise to degeneration of the elastic fibres, and frequently to an infiltration of leucocytes round the vessels. Finally the parakeratinized epidermis becomes detached, and the skin presents a delicate pink colour. The epidermis now shows a few layers of young [illegible] while the degeneration of the elastic [illegible]tic infiltration in the dermis still per[illegible] the skin is very susceptible to extern[illegible]. These cutaneous lesions not only g[illegible] insufficiency of the skin, but also facilitate an accumulation of toxins, as the skin is deprived of its normal excretory power. In cases of severe scarlet fever, the lesions of the sweat glands may entail the arrest of their functions; the kidneys consequently become overtaxed, and in their turn undergo important changes.

222. Cancer and Magnesium Deficiency.

P. DELBET (*Bull. de l'Acad. de Med.*, July 2nd, 1929, p. 4) points out that, from its action on the nervous, digestive, and other systems, magnesium is evidently necessary for the human organism, and that this salt is deficient in certain of the present-day foods, such as bread. As it has been shown that magnesium possesses [illegible] advances the hypothesis th[illegible] may in part be due to a [illegible] Lamarre has proved that the coarser salt in common use twenty to thirty years ago contained 1.7 per cent. of magnesium, while the refined varieties now employed contain only 0.35 to 0.45 per cent.—an annual diminution for each person of 40 to 50 grams. Breteau has noted that coarse flour contains 62 mg. of magnesium per 100 grams, and the fine flour used in baking only 8 to 11 mg., while the discarded bran contains 70 to 116 mg. Perhaps a greater cause of magnesium [illegible]gress of agriculture. All plants contain [illegible] utilized for the synthesis of chlorophyll [illegible] So each harvest depletes the soil of this salt; a crop of sugar beet, for instance, removing about 90 lb. per acre. Moreover, this loss is not replenished by the use of magnesium fertilizers as other deficiencies are by the employment of nitrites and potassium. Delbet states that all cerebral work causes an elimination of magnesium by the kidneys; he considers that the stress of modern life causes a greater consumption of the salt by the nervous system than formerly, and, therefore, that an addition of magnesium to the food is advisable, especially for those of middle age. If these different causes of magnesium deficiency were eliminated, he maintains that the incidence of cancer would be notably diminished. A. KOTZAREFF, J. DE MORSIER, and A. MORIN (ibid., p. 11) confirm Delbet's deductions as to the effect of magnesium on cancer cells, and record the results of experiments on white mice engrafted with cancer. About half of these were given, every morning, a 4 per cent. solution of the salt with their food. It was found that this modified the evolution of the graft, but to a lesser degree than when injected subcutaneously. Intratumoral necrosis, with great liquid infiltration of the whole tumour and sometimes cystic formation, was very marked in the magnesium mice. Though not influencing the survival of the latter, it clearly prolonged life when given to mice that already had tumours.

223. The Hench-Aldrich Method of determining Blood Urea.

E. C. WHITE and H. C. RICKER (*Journ. Amer. Med. Assoc.*, April 20th, 1929, p. 1324) draw attention to the advantages of the Hench-Aldrich method for determining blood urea. The method, described two years ago (*Arch. Int. Med.*, October, 1926), is based on the mercury combining power of blood. The principle is the same as in the determination of salivary urea, and the method is said to be particularly useful in certain conditions, such as coma or dryness of the mouth, in which it is inconvenient or impossible to obtain the amount of saliva necessary to estimate the salivary index. The advantages of the Hench-Aldrich over the urease method are its rapidity and simplicity, and tests have proved that in no case was a clinical error made by its use. The original workers noted that their method gave high results in conditions of leukaemia and polycythaemia, and White and Ricker have found that in dogs fed on liver the results were much higher than those obtained by the urease method. Hench and Aldrich corrected this discrepancy in cases of leukaemia and polycythaemia by using plasma or serum and not whole blood, and by employing a different constant; this should probably be done also in cases of liver dieting. These clinical and experimental exceptions do not interfere with the general use of the method.

224. Experimental Herpes and Immunity.

S. NICOLAU and MME L. KOPCIOWSKA (*C. R. Soc. de Biologie*, June 7th, 1929, p. 334) immunized a number of rabbits against the herpes virus, and tested them by subdural inoculation of active virus. The immunized animals proved resistant, while control animals died in five or six days. Seven weeks after the last test the immune rabbits were again inoculated intracerebrally with herpes virus, there being eight control rabbits. One hour, 2, 6, 24, 48, 72, and 96 hours after inoculation an animal of each batch was killed; a suspension was made of its brain and inoculated subdurally into two normal rabbits. It was found that in the control rabbits the virus was uniformly demonstrable, whereas in the immunized rabbits it was impossible to demonstrate its presence more than two hours after inoculation. The authors consider that in the immune animals the virus is rapidly neutralized by the nervous tissues independently of the action of humoral antibodies. Histological examination showed that in immune animals the reaction reached its maximum within 24 hours, and that after this time degeneration of the polymorphonuclear cells was obvious.

225. The Widal and the Complement Fixation Tests in Typhoid Fever.

D. HERDERSCHÉE (*Nederl. Tijdschr. v. Geneesk.*, April 6th, 1929, p. 1708) has conducted comparative observations on the Widal and the complement fixation tests in a series of cases of typhoid and paratyphoid B fever with the following results. During the first fortnight the complement fixation reaction was positive in 11 and negative in 45 cases, while the Widal reaction was positive in 43 and negative in 20. In the later stages the fixation reaction was positive in 38 and negative in 31, and the Widal reaction was positive in 48 and negative in 25. The author's conclusions are as follows. The Widal test, especially when repeated, is of greater value than the complement fixation test in the diagnosis of typhoid fever. When a patient with a history suggestive of typhoid fever does not come under treatment until a later stage of the disease it is advisable to perform the complement fixation test at the same time as the Widal test.

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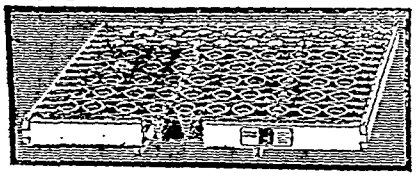

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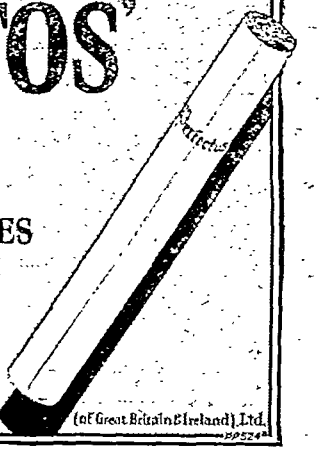

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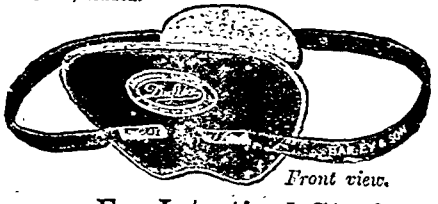
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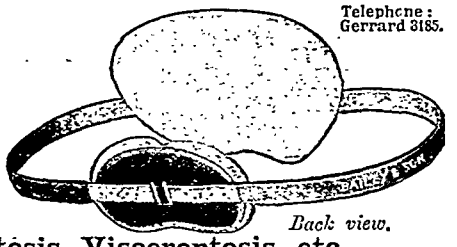
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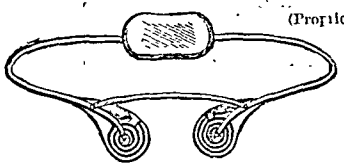

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A first-class Country Mansion adapted for the reception of a limited number of Ladies and Gentlemen mentally afflicted.
Large gardens, deer park, private golf links, fishing. Grounds extend to over 200 acres.
Voluntary Boarders accepted.
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Near BEDFORD. (Phone 3417)
FOR MENTAL AND NERVOUS CASES.
Physicians: DAVID AND CEDRIC W. BOWER.
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PRIVATE PATIENTS are received at a weekly charge of TWO GUINEAS and upwards.
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CHURCH ROAD NURSING HOME, CARDIFF.
A few VACANCIES for Nerve, Paralysis, and Senile Patients. Fully qualified staff. Terms moderate. Tel. 1443. Convenient to all stations.
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RENDLESHAM HALL

(Postal Address)—WOODBRIDGE, SUFFOLK.

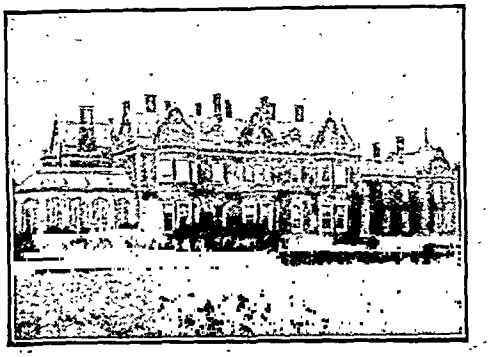
Rendlesham Hall, which is open to receive patients, is essentially a Sanatorium. Its daily life and routine are that of an ordinary comfortable holiday or health resort, or of a large country house. Each patient has all the privileges of a guest consistent with the prescribed medical treatment.

Rendlesham Hall has 45 bedrooms, and about 450 acres of gardens and park. It has also a private nine-hole golf course, tennis and croquet lawns, and bowling green.

Illustrated Booklet, giving particulars as to terms, etc., can be had on application to the

RESIDENT MEDICAL SUPERINTENDENT.

Telegrams and Telephone: Wickham Market 16.



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as carried on for the last twenty years, is available. Booklet and particulars from the Resident Medical Superintendent.

Telephone: RAVENSBOURNE 0648. *Telegrams:* NOROTORIUM, BECKENHAM.

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ALCOHOLISM, DRUG HABIT, AND NEURASTHENIA.

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A small comfortable Home charmingly situated in secluded gardens overlooking Torbay. Ladies and Gentlemen treated with a view to a rapid and permanent cure by modern methods, which give excellent results. Ample amusement, billiards, wireless, golf, tennis, etc. Good train service (3½ hours London). Moderate inclusive terms. Prospectus, report, etc., from—Stanford Park, M.B., CH.B., Res. Med. Supt., Bay Mount, Paignton.

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Successful VOLUNTARY HOME for Women Inebriates.

Terms 4 guineas weekly.

Apply Matron.

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A PRIVATE HOME for the care and treatment of persons with mental and nervous disorders. Voluntary Boarders received in the Villas. Large Mansion on outskirts of Bath, with 20 acres of grounds (see *Medical Directory*, page 2134).

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ALCOHOLISM, OTHER DRUG HABITS, AND TROPICAL AILMENTS

THE HARE NURSING HOME

As founded and established by the late Dr. FRANCIS HARE, for 20 years Med. Supt. of The Norwood Sanatorium, and author of "Alcoholism," etc.; for the treatment of ALCOHOLISM, other Drug Habits, Insomnia, Neurasthenia, Functional Nervous Disorders, TROPICAL Ailments, etc.

"THE OLD HILL HOUSE," CHISLEHURST, KENT.

Terms moderate. Quiet and pleasant situation. *Ladies and gentlemen admitted for treatment.* For Prospectus, etc., write or 'phone: WALTER E. MASTERS, M.D., M.R.C.S., D.P.H., Barrister-at-Law (Resident Medical Superintendent). *'Phone:* Chislehurst 451. *Telegrams:* "Masters," Chislehurst.

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R.M.O., 2, Wilbury Road, HOVE.

ST. ANDREW'S HOSPITAL
FOR MENTAL DISORDERS,
NORTHAMPTON

FOR THE UPPER AND MIDDLE CLASSES ONLY.

President: THE MOST HON. THE MARQUESS OF EXETER, C.M.G., A.D.C.

Medical Superintendent: DANIEL F. RAMBAUT, M.A., M.D.

This registered Hospital is situated in 120 acres of park and pleasure grounds. Voluntary Boarders, persons suffering from incipient nervous and mental disorders, as well as certified patients of both sexes, are received for treatment. Careful clinical, biochemical, bacteriological, and pathological examinations. Private rooms with special nurses, male or female, in the Hospital or in one of the numerous villas in the grounds of the various branches can be provided.

WANTAGE HOUSE.

This is a Reception Hospital in detached grounds, with a separate entrance, to which patients and voluntary boarders can be admitted. It is equipped with all the apparatus for the most modern treatment of Mental and Nervous Disorders. It contains special departments for hydrotherapy by various methods, including Turkish and Russian baths, the prolonged immersion bath, Vichy Douche, Scotch Douche, Electrical baths, Plombières treatment, etc. There is an Operating Theatre, a Dental Surgery, an X-ray Room, an Ultra-violet Apparatus, and a Department for Diathermy and High Frequency treatment. It also contains Laboratories for biochemical, bacteriological, and pathological research.

MOULTON PARK.

Two miles from the Main Hospital there are several branch establishments and villas situated in a park and farm of 650 acres. Milk, meat, fruit, and vegetables are supplied to the Hospital from the farm, gardens, and orchards of Moulton Park. Occupation therapy is a feature of this branch, and patients are given every facility for occupying themselves in farming, gardening, and fruit-growing.

BRYN-Y-NEUADD HALL.

The Seaside house of St. Andrew's Hospital is beautifully situated in a Park of 330 acres, at *Llanfairfechan, amidst the finest scenery in North Wales. On the North-West side of the* Estate a mile of sea coast forms the boundary. Voluntary Boarders or Patients may visit this branch for a short seaside change or for longer periods. The Hospital has its own private bathing house on the seashore. There is trout-fishing in the park.

At all the branches of the Hospital there are cricket grounds, football and hockey grounds, lawn tennis courts (grass and hard courts), croquet grounds, golf courses, and bowling greens. Ladies and gentlemen have their own gardens, and facilities are provided for handicrafts, such as carpentry, etc.

For terms and further particulars apply to the Medical Superintendent (Telephone No. 56, Northampton), who can be seen in London by appointment.

THE COPPICE, NOTTINGHAM.
HOSPITAL FOR MENTAL DISEASES.

This Institution is exclusively for the reception of a limited number of **Private Patients** of both sexes of the **Upper and Middle Classes** at moderate rates of payment. It is beautifully situated in its own grounds on an eminence a short distance from Nottingham, and from its singularly healthy position and comfortable arrangements affords every facility for the relief and cure of those mentally afflicted. Voluntary Boarders received without Certificates.

For terms, etc., apply to the Medical Superintendent.

COURT HALL, KENTON, EXETER,
SOUTH DEVON.

For the care and treatment of Ladies suffering from Mental Diseases. Limited to eight patients. Telephone: Starcross 19.

CLIFFDEN, TEIGNMOUTH, in connection with Court Hall, for early and convalescent cases. Cliffden is a large well-appointed house, with lovely views of the South Devon Coast. It is beautifully situated in grounds of 19 acres. The gardens are very attractive, and there is a private road to the beach.

Resident Physicians: BERTHA M. MULES, M.D., B.S.; ANNIE S. MULES, M.R.C.S., L.R.C.P.

Telephone: *Teignmouth* 289.

HAYDOCK LODGE,
NEWTON-LE-WILLOWS, LANCASHIRE.

'Phone: 11 Ashton-in-Makerfield.

For the reception and treatment of PRIVATE PATIENTS of both sexes of the UPPER AND MIDDLE CLASSES either voluntarily or under Certificate. Patients are classified in separate buildings according to their mental condition.

Situated in park and grounds of 400 acres [illegible] in which patients are encouraged to occupy [illegible] door recreation. For terms, prospectus, etc., a[illegible]

NEURASTHENIA
BELVOIR NURSING HOME, ASTON-ON-TRENT, DERBY.

Private Nursing Home for Neurasthenia and allied Functional Nervous Disorders, for general Convalescent Cases, and those requiring Electrical Treatment.

The Home, a Georgian mansion, 14 miles from Nottingham and 6 miles from Derby, is for both sexes. In addition to the methods of general medicine, Psycho-Therapeutic treatment is used extensively in suitable cases. Certificate cases are not received. Electrical Treatment, Radiant Heat, X-ray, Ultra-violet Light, and Massage is available in the Nursing Home. Billiards, tennis, etc. Fees from 5 to 12 guineas per week. For further particulars apply to—Dr. E. H. DOUGLAS-MORRIS, ASTON, DERBY. *Telephone*: Shardlow 16.

Dr. Douglas-Morris can be seen by appointment in London.

WONFORD HOUSE HOSPITAL,
EXETER, DEVON.

Telegrams: Exeter 2542. *Telephone*: Exeter 2542.

A registered Hospital for the treatment of patients of both sexes suffering from Nervous and Mental Disorders, situated in beautiful country within a mile and a half of the City of Exeter.

Hard and grass Tennis Courts, Croquet Lawn, Cricket Field, and all indoor amusements, Dancing, Concerts, Wireless, Billiards, Badminton. Occupational treatment.

The patients are carefully graded, and accommodation provides for the separate treatment of early recoverable and convalescent patients.

Voluntary and certified patients are received for treatment.

A prospectus and full particulars can be obtained from the Medical Superintendent.

CHISWICK HOUSE.

A Private Mental Hospital for the Treatment and Care of Mental and Nervous Disorders.

Now removed to:

CHISWICK HOUSE,
PINNER,
MIDDLESEX.

Telephone: PINNER 234.

A modern country house, 12 miles from Marble Arch, in beautiful secluded grounds.

Fees are from 10 guineas a week.

Voluntary Patients received for treatment.

DOUGLAS MACAULAY, M.D., D.P.M.

BARNWOOD HOUSE,
GLOUCESTER.

A REGISTERED HOSPITAL for the CARE and TREATMENT of LADIES and GENTLEMEN suffering from NERVOUS and MENTAL DISORDERS. Within two miles of the G.W. Railway and L. M. & S. Railway Stations at Gloucester, the Hospital is easily accessible by rail from London and all parts of the United Kingdom. It is beautifully situated at the foot of the Cotswold Hills, and stands in its own grounds of over 280 acres. Voluntary boarders of both sexes are also received for treatment.

Special accommodation for Lady Voluntary Boarders is also provided at the MANOR HOUSE, which has its own private grounds and is entirely separate from the main Hospital.

For particulars as to terms, etc., apply to—ARTHUR TOWNSEND, M.D., Resident Supt. Telephone: No. 7 Barnwood.

Preston Deanery Hall,
Northampton.
(3½ miles from L.M.S. Station.)

This DIETETIC ESTABLISHMENT is equipped for the complete investigation and treatment of patients on rational lines. Own X-ray and Laboratory Biochemical investigation is made a special feature.

Resident Biochemist, Masseurs and Masseuses, Hydro- and Electro-therapeutics, Fasting on Scientific Principles. The staff are specially qualified to deal with the errors of Metabolism, and provision is made for the treatment of Tropical Diseases.

Further particulars from the Secretary, Preston Deanery Hall, Northampton.
Tel.: Hardingstone 6.

THE MOAT HOUSE,
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Established 1816. For the TREATMENT of a few LADIES suffering from NERVOUS and MENTAL DISORDERS. Voluntary patients received. For terms apply to Proprietor and Licensee: Dr. LOWSON. Tel.: 108 Tamworth.

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For the treatment of Ladies and Gentlemen mentally afflicted. Voluntary Boarders received. Situated 1,200 ft. above sea-level, facing S.: 14 acres of grounds.—For terms, apply to the Resident Medical Superintendent, W. W. HORTON, M.D. Nat. Tel. 130.

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The first Private Hospital in the United Kingdom to be fully provided with a whole-time specially qualified Staff of Doctors, Analytical Chemists, Bacteriologists, Radiologists, Nurses, Dietists, Masseurs, and Masseuses, and a full equipment of Laboratories, X-rays, Electrocardiograph, Artificial Sunlight, and Medical Baths.

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The climate is mild and the neighbourhood beautiful. Apply: The Secretary,
Telegrams: Castle, Ruthin. Telephone: 66, Ruthin. Ruthin Castle, North Wales.

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NEAR BASINGSTOKE, HANTS.
Private Hospital for Mental Diseases

A modern building situated in a healthy district, easily accessible by rail and road. Patients taken at from three guineas per week.

Apply to Medical Superintendent. Telephone: 157 BASINGSTOKE

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A Private Hospital for the Care and Treatment of those of both sexes suffering from MENTAL DISORDERS.

Extensive grounds. Detached Villas. Chapel. Garden and dairy produce from own farm. Terms very moderate.

CONVALESCENT HOME at BOURNEMOUTH standing in 9 acres of ornamental grounds, with tennis courts, etc., which Patients or Boarders may visit by arrangement, for long or short periods.

Illustrated Brochure on application to the Medical Superintendent, The Old Manor, Salisbury. Telephone 51.

PECKHAM HOUSE, 112, Peckham Road, London, S.E.15.

Telegrams: "Alleviated, London." Telephone: Rodney 4741—4742.

The above House, which was established in 1826, is an Institution for the care and treatment of persons suffering from mental diseases and nervous disorders. Both certified patients and voluntary boarders are received. Separate houses for treatment and accommodation of special cases adjoin the Institution. There is a seaside branch, Kearsney Court, near Dover, to which patients may be sent for treatment or on holiday. Motor and carriage exercise is provided as required. Patients can avail themselves of a course of physical drill. Tennis courts. Entertainments, dances, and indoor amusements held throughout the year.

Illustrated prospectus and further particulars can be obtained from the Medical Superintendent.

NORTHUMBERLAND HOUSE,
GREEN LANES, FINSBURY PARK, N.4.

Telegrams: "SUBSIDIARY, LONDON." *Telephone*: NORTH 0888.

A PRIVATE HOME for the treatment of patients of both sexes suffering from Mental Illnesses.
Conveniently situated four miles from Charing Cross. Easy of access from all parts.
Six acres of ground, highly situated, facing Finsbury Park.
Voluntary Boarders received without certificates. Private suites. Convalescent Home, Kearsney Court, Dover.
For further particulars, apply to the MEDICAL SUPERINTENDENT.

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Telegrams: "Psycholia, London." Telephone: Rodney 4731—4732.

FOR THE TREATMENT OF MENTAL DISORDERS.

Completely detached Villas for mild cases, with private suites if desired. Voluntary Patients received. Twenty acres of grounds. Hard and Grass Tennis Courts, Croquet, Squash Racquets, and all indoor Amusements, including Wireless and other Concerts. Occupational Therapy. Daily services in the Chapel.

Senior Physician: Dr. HUBERT J. NORMAN; assisted by three Medical Officers, also resident. An illustrated Prospectus, giving full particulars and terms, may be obtained upon application to the Secretary.

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BETHLEM ROYAL HOSPITAL, LAMBETH ROAD, S.E.1.

(For the reception and treatment of cases of nervous and mental disease.) Tel.: Reliance 2182.

President: Colonel and Alderman Sir CHARLES CHEERS WAKEFIELD, Bart., C.B.E.
Treasurer: Sir LIONEL FAUDEL-PHILLIPS, Bart.
PHYSICIAN-SUPERINTENDENT: J. G. PORTER PHILLIPS, M.D., F.R.C.P. Assisted by Physicians, a Pathologist, and a staff of Visiting Consultants.

Patients of the EDUCATED CLASSES, IN A PRESUMABLY CURABLE treatment of eligible cases VOLUNTARY OR UNCERTIFIED patients are WEEKLY TOWARDS THE COST OF MAINTENANCE MAY BE RECEIVED modern principles. In connection with this Hospital there is a Convale
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for admission. With a view to the early) CAN CONTRIBUTE THREE GUINEAS Treatment is carried out on the most hills at Witley.

A London Area Hydropathic Institution

Resident Physician: **Dr. McCLEMENTS, M.R.C.S., L.R.C.P.**

... in beautiful grounds of 200 acres and has a most modern medical, and surgical equipment: *Electric Bath, High ... ionization, Diathermy, Nauheim Bath, Sitz Bath, Photo-therapy, Electric Light Bath, Bergonié Chair, Artificial Sunlight, Massage, X-ray, etc.*

THE STANBOROUGHS offers special facilities for treating sufferers from Rheumatism, Digestive Disorders, and Nervous Complaints, etc. Maternity Cases. Private nurses are sent out any distance by arrangement. Write for Prospectus.

The Stanboroughs, Watford, Herts (Phone: Watford 1751 [3 lines])

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Established 1900 for the treatment of Tuberculosis. Miles of carefully graduated walks through pine-clad hills, with sea and mountain views. Modern treatment, including SANOCRYSIN, ARTIFICIAL PNEUMOTHORAX, etc. X-ray plant, electric light, central heating, wireless. Full day and night nursing staff. On L.M.S. Main Line to Holyhead, 4½ hours from London. Resident Physicians: Dennison Pickering, M.D.(Cantab.), F. W. Godbey, M.D., D.P.H.; Matron: Miss N. Rennardson, S.R.N.

For particulars apply to the Secretary, Pendyffryn Hall, Penmaenmawr, N. Wales. ('Phone, 20.)

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FOR CHILDREN

BROADSTAIRS.

For the Early & Preventive Treatment of Disease & Convalescence after Illness.

The Hospital is intended for the children of Members of the Institution of Civil Engineers, the children of architects, artists, authors, clergymen, members of the medical, legal, and other professions, members of scientific societies, officers of the Navy, Army, and Royal Air Force, officers of the Merchant Navy, schoolmasters and university professors.

Accommodation is provided for 50 Boys between the ages of 4 and 12 years, and 50 Girls between the ages of 4 and 14 years. In special cases the age limits may be raised to 14 for Boys, and 16 for Girls.

Fee 21/- per week, or as may be arranged, and travelling expenses.

Particulars can be obtained from the Secretary:—

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Unrivalled suites of Baths for Ladies and Gentlemen, including Turkish and Russian Baths, Aix and Vichy Douches, Massage and Plombières Treatment, an Electric Installation for Baths and other Medical purposes, Dowsing Radiant Heat, D'Arsonval High Frequency, Diathermy, Nauheim Baths, etc. Special provision for invalids. Milk from our farm. Large Winter Garden. Night Attendance. Rooms well ventilated and all bedrooms warmed in Winter. A large Staff (upwards of 60) of trained Male and Female Nurses, Masseurs, and Attendants.

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famous for its natural Brine Baths, which will cure Rheumatism and Allied Ailments.

RAVEN HOTEL or PARK HOTEL

famous for their comfort and hospitable service to each and every one of their guests.

Adjoining Brine Baths. 230 rooms. Extensive grounds. Golf, tennis, mixed bathing. Lock-up Garages and cars for hire.

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A Private Home for the care and treatment of a limited number of ladies mentally afflicted. Climate healthy and bracing. Medical Superintendent: Dr. McCLINTOCK.

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Beautifully situated 600 feet above sea-level. Facing south, completely sheltered from north and east. 21 miles from Edinburgh. All modern Baths, Douches, Massage, and Electrical Treatment ... iation. Plays IDEAL Electric Light ... Lift, three Billiard Tables, Ball Room, Winter Garden, Swimming Bath, Hard and Grass Tennis Courts, Badminton, Croquet Lawn, Golf Course. Prospectus from Manager. 'Phone: Peebles 2.

Mental Patients (not certifiable). VACANCIES for TWO, either sex, in an ideal private Country HOME near London. Physician and Nursing Sister in residence. Moderate terms, many amenities.—Write, Box 821, ALDRIDGE'S ADVERTISING SERVICE, 34, Paternoster Row, E.C.4.

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Unsurpassed situation, 600 ft. above sea-level, high sunshine record, own farm. Resident Medical Officer. Male cases only.

Inclusive weekly terms 50/-.

Special preferential arrangements for a few private cases at 4 guineas.

Artificial Pneumothorax, etc.

BOURNEMOUTH HYDRO,

with Vita-glass Sun-lounge and Marine Balcony on the South Coast.
Every kind of Bath. Plombière Lavage.
Every kind of Massage. Ultra-violet Light.
Every kind of Electricity. Diathermy.
Every kind of Diet.
Carlsbad and Vichy Waters, etc.
High Frequency. Electric Lift.
Prospectus from Secretary. *Tels.* 341.
Resident Physician: W. JOHNSON SMYTH, M.D.

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(an entirely British Sanatorium), DAVOS (GRISONS), SWITZERLAND. Terms from £5 a week. Medical Supt.: BERNARD HUDSON, M.D.(Cantab.), M.R.C.P., Swiss Federal Diploma.

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HOME FOR CHILDREN and YOUNG PEOPLE, delicate or predisposed to Tuberculosis, in English Doctor's House, near Davos, Switzerland. Terms from £5 5s. p.w.—Apply, Dr. BERNARD HUDSON, Victoria, Davos, Switzerland.

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Tel. & Telegrams: "Haynes, Brentwood, 45."

Littleton Hall, Brentwood, Essex.

Large grounds, 400 ft. above sea. HOME for Ladies Mentally afflicted. Voluntary Boarders received. Stations: Brentwood and Shenfield 1 mile. Liverp'l St. 26 min.—Apply, Dr. HAYNES.

Luxurious Suite available in HOME of Trained Nurse for Invalid, Mental or otherwise. Home comforts. Delightful house and grounds, garage. Outskirts London. Highest references. — Address, No. 5676, B.M.A. House, Tavistock Square, W.C.1.

Delightful Home for slight Mental, Chronic, or Elderly Patients, with Trained Nurse. Home comforts, every care. Lovely house and grounds, S. London. From 6 gns. — Address, No. 5677, B.M.A. House, Tavistock Square, W.C.1.

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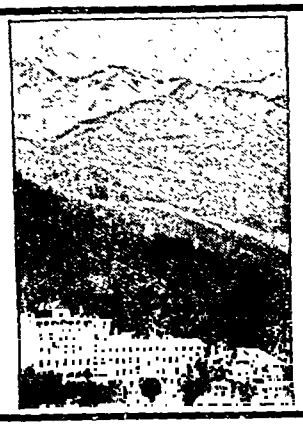
Lady wishes to receive in her comfortable PRIVATE HOUSE at Putney, slightly Mental or Senile PATIENT. Every care. Doctor's reference. Excellent cuisine.—Address, No. 5668, B.M.A. House, Tavistock Sq., W.C.1.



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SUNNIEST HEALTH RESORT IN THE ALPS.

For the treatment of all forms of lung diseases.
Special Department for surgical cases.

NEW MANAGEMENT.

Medical equipment completed and brought up to date.

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Full day and night staff of ENGLISH and Swiss trained nursing SISTERS

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MURTLE DEESIDE ABERDEENSHIRE.

Medical Director: David Lawson, M.D., F.R.S.E.

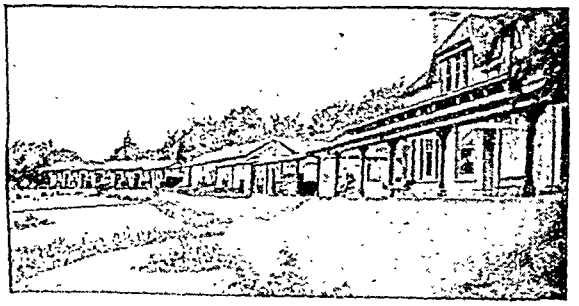
FULLY EQUIPPED WITH EVERY MODERN APPLIANCE FOR THE DIAGNOSIS AND TREATMENT OF ALL FORMS OF TUBERCULOSIS & ALLIED DISEASES.

Physician Superintendent - J. M. JOHNSTON, M.B., D.P.H., etc.

Full particulars and Prospectus on application to the Secretary.

Inclusive Terms: SEVEN GUINEAS A WEEK.

THE COTSWOLD SANATORIUM



Specially built in 1898 on the Cotswold Hills, seven miles from Cheltenham, for the treatment of Pulmonary and all other forms of Tuberculosis on Nordrach lines. Aspect S.S.W., sheltered from North and East, elevation 800 feet. Pure bracing air. Special Treatment by artificial Pneumothorax (X-ray controlled), Tuberculins, and Ultra-Violet Rays is available, when necessary, without extra charge. X-ray plant. Electric light. Radiators, hot and cold basins, and Wireless in all rooms.

Full day and night Nursing Staff.

Resident Physicians: ARTHUR H. HOFFMAN, M.D., and G. A. HOFFMAN, M.B.

Apply: The Secretary, The Cotswold Sanatorium, Cranham, Gloucester.

Telephone: 41 WITCOMBE. *Telegrams:* "HOFFMAN, BIRDLIP."

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This Sanatorium is established for the treatment of TUBERCULOSIS of the LUNGS and the PLEURAL CAVITIES. It is situated in the midst of a large area of park-land at a height of 450 feet above sea-level, on the south-west slopes of mountains rising to over 1,800 feet, which protect it from north and east winds and provide many miles of graduated walks with magnificent views. Average rainfall 29.57 per annum. Full day and night nursing staffs. X-ray plant. Every facility for Artificial Pneumothorax, and for operations on the chest. Electric lighting. Central heating. Home farm. Clean milk from T.T. Herd. For particulars apply to Med. Supt., H. Morriston Davies, M.D., M.Ch.Cantab., F.R.C.S., Llanbedr Hall, Ruthin, N. Wales.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE.

(University of London.)

Tropical Medicine and Hygiene.

The School provides two courses yearly, each of 20 weeks. The next courses commence on September 30th, 1929, and February 3rd, 1930.

Diploma in Public Health.

The course of study in Public Health, covering a period of 12 calendar months, commences on September 30th, 1929, and is so designed that students wishing to do so can proceed to the new academic dilpoma instituted by the University of London.

The inclusive fee of 50 guineas will cover the cost, not only of the ordinary lectures and demonstrations, but also of the necessary practical work in public health departments and instruction in infectious diseases, etc.

Diploma in Bacteriology.

The course of study, covering one academic year, commences in October.

Special advanced courses of study in various branches of Medicine and Science are given by the Professors and other teachers on the staff of the School.

Applications for information as to the above courses and other special advanced courses of study should be addressed to the Secretary, Keppel Street (Gower Street), London, W.C.1.

ST. MARY'S HOSPITAL MEDICAL SCHOOL, W.2.

(University of London.)

The WINTER SESSION will begin on TUESDAY, OCTOBER 1st, 1929.

The Medical School provides courses in Preliminary, Intermediate, and Final Subjects, and Students

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For further particulars and illustrated prospectus apply to the School Secretary.

C. M. WILSON (M.C.), M.D., F.R.C.P., Dean.

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THE MIDDLESEX HOSPITAL MEDICAL SCHOOL, W.1.

(University of London.)

The Winter Session opens on October 1st.

Students wishing to enter the Medical School should apply for admission as early as possible.

The Medical School is fully equipped for teaching the entire M.B., B.S., and Conjoint curriculum, including the PRE-MEDICAL EXAMINATION IN CHEMISTRY AND PHYSICS.

VALUE OF SCHOLARSHIPS AWARDED ANNUALLY EXCEEDS £1,000.

Research Funds of over £25,000.

Parents and Guardians desiring information and advice with regard to the Medical Curriculum should write to the Dean or to the School Secretary.

The rebuilt West Wing of the Hospital, representing the latest advances in Hospital construction, will be opened this year.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL.

(University of London.)
DENMARK HILL, S.E.5.

OPENING OF WINTER SESSION, October 2nd, 1929.

Introductory Address at 2.30 p.m. by Sir GREGORY FOSTER, Ph.D., Vice-Chancellor of the University of London; Lord GORELL, C.B.E., M.C., Chairman of the Committee of Management, will preside.

The Past and Present Students' Dinner will be held the same evening at 7 for 7.30, at the Connaught Rooms, Great Queen Street, Kingsway, W.C.2. (The Secretaries to the Dinner Committee are Dr. ERNEST PLAYFAIR and Dr. G. DE BEC TURTLE).

The Calendar of the School, including that of the School of Dental Surgery, giving information as to Prizes, Entrance and other Scholarships, etc., may be obtained on application to the Dean, H. WILLOUGHBY LYLE, M.D.Lond., F.R.C.S., J.P., or to S. C. RANNER, M.A.Cantab., the Secretary of the Medical School.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL

(UNIVERSITY OF LONDON),

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Further particulars may be obtained on application to the Dean (H. WILLOUGHBY LYLE, M.D., F.R.C.S.), King's College Hospital Medical School, Denmark Hill, S.E.5

LONDON SCHOOL OF CLINICAL MEDICINE.

SEAMEN'S HOSPITAL, GREENWICH.

A Course will be held at the above, commencing on October 14th, in SURGICAL PATHOLOGY (fee £6 6s.) and OPERATIVE SURGERY (fee £6 6s.). Fee for both sections £10 10s. Those wishing to join the class should communicate with the Dean.

Greenwich, August 30th, 1929.

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Zoology and Comparative Anatomy.—D. M. S. WATSON, M.Sc., F.R.S., Jodrell Professor.

The SESSION 1929-30 will begin on MONDAY, OCTOBER 7th, 1929.

COURSES OF INSTRUCTION are arranged for the First Medical and the Second Medical Examinations of the University, as well as for the corresponding Examinations of the Examining Board of the Royal Colleges of Physicians and Surgeons and of other Licensing Bodies.

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Applications are invited for the William Julius Mickle Fellowship, which is of the value of at least £200, and is awarded by the Senate to the man or woman who, being resident in London and a graduate of the University, has in the opinion of the Senate done most to advance Medical Art or Science during the preceding five years. Applications must be made before October 1st. Further particulars can be obtained from the Academic Registrar, University of London, South Kensington, S.W.7.

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For detailed prospectus of the Medical and Dental Courses and for further information apply to the Dean, Prof. R. J. S. MCDOWALL, D.Sc., M.B., Ch.B., F.R.C.P.(Edin.), or to

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The Committee of the School of Physic, Trinity College, invite applications for a Montgomery Lecturer, for the year 1930, who may be recommended by them to the Board of Trinity College. The person nominated must be a recent graduate of a recognized Irish School of Medicine and must undertake to prosecute study or research for a period of not less than six months in such place as the Board may approve and must, during his year of office, give an account of his research in a public lecture or lectures. The remuneration will be £150. Candidates must send their applications to the Registrar of the School of Physic not later than November 1st (1929), and must state therein the work they propose to undertake and the place where they propose to carry it out. Applications should be accompanied by a statement of the applicant's qualifications and by a reprint of any published work.

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Qualified Medical Women are admitted to
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Applications are invited for the appointment of a PART-TIME OCULIST. Remuneration will be at the rate of £2 12s. 6d. per session and there will be two sessions weekly.

Applications, stating qualifications and experience, to be sent to the undersigned not later than Friday, September 20th.

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The Course will comprise the examination of selected cases in the Wards, Ward Demonstrations, and instruction in Applied Physiology, Morbid Anatomy, Clinical Pathology, and Pathological Chemistry.

Further particulars may be obtained on application to the Dean, Professor WILLIAM WRIGHT, M.B., D.Sc., F.R.C.S., London Hospital Medical College, Mile End, E.

County Borough of Barrow-in-FURNESS.

ASSISTANT MEDICAL OFFICER OF HEALTH AND ASSISTANT TUBERCULOSIS OFFICER.

Applications are invited for the above appointment at an inclusive salary of £600 per annum.

Candidates must be fully qualified and registered medical practitioners, with experience in the diagnosis and treatment of Tuberculosis. The successful candidate will be required to devote the whole of his time to the duties of the office, to assist in the general administrative work of the Department, and in the Medical Inspection of School Children, and will be under the direction of the Medical Officer of Health.

Particulars of the duties may be obtained on application to the Medical Officer of Health, Town Hall, Barrow-in-Furness.

Applications, stating age, experience, and qualifications, and endorsed "Assistant Medical Officer," and accompanied by copies of not more than three recent testimonials, must be received at my office not later than Saturday, September 28th.

Canvassing, either directly or indirectly, will be deemed a disqualification.

Preference will be given to candidates possessing the D.P.H.

W. A. CHISLETT, Town Clerk.

Town Hall, Barrow-in-Furness. September 5th, 1929.

County Borough and Port of GRIMSBY.

APPOINTMENT OF PART-TIME CLINICAL TUBERCULOSIS OFFICER AND ASSISTANT MEDICAL OFFICER OF HEALTH.

Applications are invited from fully qualified and registered medical men not over 45 years of age for the above post.

Candidates must have had previous Dispensary and Sanatorium experience and have held a Resident post in a general Hospital. They must also possess the D.P.H. and be able to use Ultra-violet and X-ray apparatus. Experience in surgical tuberculosis will be deemed to be an additional qualification.

The appointment is subject to the approval of the Ministry of Health. Salary £750 per annum.

The selected candidate will be required to assist the Medical Officer of Health in his routine duties when not engaged in tuberculosis work.

Form of application and conditions of appointment can be obtained from the undersigned, and should be accompanied by three recent testimonials, to reach me not later than September 30th.

JOHN W. JACKSON, Town Clerk.

Town Clerk's Office, 170, Victoria Street, Grimsby.

County Borough of Barnsley.

ASSISTANT TUBERCULOSIS OFFICER AND RESIDENT MEDICAL OFFICER.

Applications are invited for the post of Assistant Tuberculosis Officer for the Borough and Resident Medical Officer and Superintendent of the Mount Vernon Sanatorium.

Applicants must have held a resident appointment in a General Hospital.

Salary £450 per annum, rising by £25 per annum to £600, with board and residence.

Particulars of duties and form of application may be obtained from the undersigned, to whom applications, accompanied by copies of three recent testimonials, should be sent not later than September 17th.

A. D. MASON, Town Clerk.

Town Clerk's Office, Barnsley.
September 2nd, 1929.

INDIAN MEDICAL SERVICE

Recruitment of European Officers.

Applications are invited from medical men for permanent commissions in H.M.'s Indian Medical Service. The terms offered include a gratuity of £1,000 on retirement after six years' service, or £2,500 after 12 years' service, together with free return passages, for those who no longer desire to remain in the Service. In other respects the terms will be as detailed below.

Candidates must be British subjects under 32 years of age at the time of application, and must be registered under the Medical Acts in force in Great Britain and Northern Ireland.

CAREERS.

The Indian Medical Service offers wide opportunities of medical experience, including clinical, preventive, specialist, and research work. At the beginning of his career an officer is employed on the military side, which has medical charge of the Indian Army. Promotion is on a time scale up to the rank of Lieutenant-Colonel, and by selection to the ranks of Colonel and Major-General. An officer may apply after two years' Indian service for transfer to the civil side, from which appointments are made to Civil Surgeoncies, which are established at the principal civil centres to provide for the medical needs of civil officials and for general medical administrative purposes; to specialist (for example, public health and bacteriological) services; to research posts; and to professorships at the Medical Schools.

PAY.

The monthly rates of pay for European officers in the Service who have a "non-Asiatic" domicile are as follows:

Rank.	Service in Rank.	Basic Pay.	Overseas Pay.	Year of Total Service.
1	2	3	4	5
		Rs.	Rs.	
Lieut.		500	150	1st
			150	2nd
			150	3rd
Capt.	(i) During first 3 years' service as Captain	650	150	4th
			£15	5th
			£15	6th
	(ii) With more than 3 and less than 6 yrs.' service as Captain	750	£25	7th
			£25	8th
			£25	9th
	(iii) With more than 6 years' service as Captain	850	£25	10th
			£25	11th
			£30	12th
Major	(i) During first 3 years' service as Major	950		
	(ii) With more than 3 and less than 6 years' service as Major	1100		
	(iii) With more than 6 years' service as Major	1250		
Lieut.-Col.	(i) Until completion of 23 years' total service	1500	£30	13th and over
	(ii) During 24th and 25th years' service	1600		
	(iii) After completion of 25 years' total service	1700		
	(iv) When selected for increased pay	1850		

EXTRAS.—In addition to the above rates various allowances are admissible for a large number of special appointments on both the military and the civil side which may be held by members of the Indian Medical Service. Special high rates of pay are also attached to the numerous administrative appointments open to officers in both branches of the Service.

WAR SERVICE CONCESSIONS.

Any service rendered by an officer during the war as a medical or combatant officer, or in a position usually filled by an officer, may be counted as service for increments of pay, promotion, retirement and retired pay, but not for gratuity.

One half of any service in the ranks during the war may be counted as service for retirement and retired pay only.

OUTFIT ALLOWANCE.

Officers on appointment will receive an outfit allowance of £50.

PRIVATE PRACTICE.

With the exception of Administrative Officers, military or civil, and officers holding certain special appointments, officers are not debarred from taking private practice, so long as it does not interfere with their proper duties.

PENSIONS.

The rates of pension are as follows:

	Per annum.
	£
After 17 years' service for pension	400
„ 18 „ „ „	430
„ 19 „ „ „	460
„ 20 „ „ „	500
„ 21 „ „ „	540
„ 22 „ „ „	580
„ 23 „ „ „	620
„ 24 „ „ „	660
„ 25 „ „ „	700
„ 26 „ „ „	750
„ 27 „ „ „	800

These rates are subject to alteration on account of a rise or fall in the cost of living as compared with the year 1919 to an extent not exceeding 20 per cent. in all, the revision being undertaken triennially. With effect from July 1st, 1927, a reduction of 4½ per cent. has been made on this account from the amounts shown.

There are additional pensions ranging from £65 to £350 per annum for officers who have held administrative appointments.

PASSAGES.

An officer on appointment is provided with a free passage to India. The wives and families of officers who are married prior to the date of the officers' embarkation on first appointment will also be provided with free passage to India, subject to the payment of messing charges.

Officers and their families are also eligible for passage concessions under which they are granted a certain number of return passages home at Government expense during their service.

INSTRUCTION PRIOR TO EMBARKATION.

Officers are required to undergo courses of instruction at the Royal Army Medical College and at Aldershot, lasting approximately six months, prior to their embarkation for India on first appointment.

Full details regarding these appointments and forms of application may be obtained from the Under-Secretary of State for India, Military Department, India Office, London, S.W.1. Applications should be submitted as soon as possible. The Selection Committee will meet early in October to make nominations, and the selected candidates will be required to attend a course of instruction commencing on the 23rd October, 1929.

Indian Research Fund ASSOCIATION.

Wanted, a trained BACTERIOLOGIST with known qualifications as a research worker to undertake research upon Cholera problems in the laboratory and field under the Indian Research Fund Association. Appointment will be made on the basis of three yearly contract subject to one year's probation. Salary Rs.1,500 per mensem, rising by Rs.100 increments to Rs.1,700 in last year of contract (equivalent at present rate of exchange to £1,340 to £1,520 p.a.) with usual departmental travelling allowance and halting allowance; salary to start from date of landing in India. Free passages out and home, first-class B.P. & O. or equivalent, at termination of contract or period of employment. Return passage also paid if first year's probation not satisfactory. Usual service conditions regarding leave, i.e., one month's leave with full pay after eleven months' service or equivalent proportion, cumulative; with usual casual leave not exceeding 15 days in the year.

Suitable man would have every prospect of renewing agreement or obtaining suitable equivalent employment.

Apply, stating qualifications and experience, with copies of relevant testimonials, to the Secretary, Indian Research Fund Association, Simla, India, from whom any further information as to qualifications most desired or on other points can be obtained.

Indian Research Fund ASSOCIATION.

Wanted for service with the Malaria Survey of India, a competent RESEARCH WORKER, medical qualifications preferred capable of undertaking independent enquiries on Malaria in the field and in the laboratory. Appointment will be made on basis of three yearly contract subject to one year's probation. Salary Rs.1,500 per mensem, rising by Rs.100 annual increments to Rs.1,700 in last year of contract (equivalent at present rate of exchange to about £1,340—£1,520 per annum), with usual departmental travelling allowance and halting allowance. Salary to start from date of landing in India. Free passages out and home, first-class B.P. & O. or equivalent, at termination of contract or period of employment; return passage also paid if first year's probation not satisfactory. Usual service conditions regarding leave, i.e., one month's leave with full pay after eleven months' service or equivalent proportion, cumulative; with usual casual leave not exceeding 15 days in the year.

Suitable man would have every prospect of renewing agreement, or obtaining suitable equivalent employment.

Apply, stating qualifications and experience, with copies of relevant testimonials, to the Secretary, Indian Research Fund Association, Simla, India, from whom any further information as to qualifications most desired or on other points can be obtained.

The Otago Hospital Board.

UNIVERSITY OF OTAGO AND DUNEDIN HOSPITAL, NEW ZEALAND.

The post of RESIDENT MEDICAL OFFICER (Senior) will be vacant in December next.

Candidates must hold a Degree in Medicine of a British University; must have been qualified for three years and have held Resident [illegible] at least one year.

[illegible] will be required to [illegible] the direction of the [illegible] as Superintending [illegible] ical Registrar.

Salary for the position to be at the rate of £500 per annum, with board and residence.

Full details may be obtained on application to the High Commissioner for New Zealand, Strand, W.C.2.

Otago Hospital Board, Dunedin, New Zealand. JOHN JACOBS, Secretary.

August 23rd, 1929.

Cardiff Royal Infirmary.

Applications are invited for the undermentioned posts:

GYNÆCOLOGICAL HOUSE SURGEON.

OPHTHALMIC HOUSE SURGEON. (Must have knowledge of refractions.)

Appointments are for six months, commencing October 20th.

Salary at the rate of £50 for Gynæcological House Surgeon, and £75 for Ophthalmic House Surgeon, with board and lodging.

Application forms can be had from the undersigned and should be returned with copies of three recent testimonials on or before September 30th.

R. ARMSTRONG, Medical Supt.

Sept. 10th, 1929.

Borough of Swindon.

ASSISTANT TO THE MEDICAL OFFICER OF HEALTH.

The Corporation of Swindon invite applications from fully qualified medical men for the position of Assistant to the Medical Officer of Health. The principal duties will be the Medical Inspection and Treatment of School Children, and the work of Maternity and Child Welfare. Applicants not to be over 40 years of age.

The commencing salary will be £600 per annum.

The person appointed will be required to devote the whole of his time to the duties of the office, and to act under the supervision of the Medical Officer of Health.

The applicant selected for the appointment will be required to pass a medical examination and (if appointed) to contribute to the fund established under the Local Government and Other Officers Superannuation Act, 1922.

It is desirable that intending applicants should possess a Diploma in Public Health, or be in a position to obtain the same at an early date.

Excellent opportunities present themselves for gaining experience in the working of a modern Public Health Department, together with facilities for pathological research. The appointment will be terminable by three months' notice on either side.

Copies of definition of duties and forms of applications may be obtained from the Medical Officer of Health, 61, Eastcott Hill, Swindon.

Applications (upon the prescribed forms), endorsed "Assistant Medical Officer," should reach the undersigned not later than Saturday, the 21st instant.

Town Hall, Swindon. W. H. BENTLEY, Town Clerk.

September 5th, 1929.

West Middlesex Hospital, ISLEWORTH.

APPOINTMENT OF RESIDENT ASSISTANT MEDICAL SUPERINTENDENT.

The Guardians invite applications for the appointment of Resident Assistant Medical Superintendent and Assistant Medical Officer of their Warkworth House Institution and Scattered Homes, which are adjacent, from medical practitioners with previous experience in major surgery and of administration in similar Institutions.

Commencing inclusive salary £450 per annum, rising, upon approved service, on October 1st, 1930, and thereafter, annually by £50, to £600 per annum, together with residential emoluments valued for superannuation purposes at £90 per annum. All fees received are to be repaid to the Guardians.

Applications, upon forms to be obtained by forwarding a stamped addressed foolscap envelope, are to be returned to the undersigned before 10 a.m. on Tuesday, Sept. 24th.

Toolands House, 34, Twickenham Road, Isleworth, Middx. F. E. HARMSWORTH, Clerk to the Guardians

September 10th, 1929.

Whitehaven and West Cumberland Hospital, WHITEHAVEN.

(90 Beds.)

Wanted, JUNIOR HOUSE SURGEON (male). Salary £100 per annum, including board, residence, and laundry. Twelve months' appointment. After six months as Junior an opportunity is given of becoming Senior for the second six months at the rate of £150 per annum.

Applications, stating age, nationality, etc., together with copies of three testimonials, to be sent to the Secretary, endorsed "House Surgeon," not later than Tuesday, Sept. 10th.

R. HIGGINS, Secretary.

District Infirmary, ASHTON-UNDER-LYNE.

(General Hospital, 200 Beds, mainly Surgical.)

Wanted, a Male HOUSE SURGEON, preferably with experience of Eye work. Six months' appointment. Salary at the rate of £150 per annum, with board, residence, and laundry.

The Resident Staff comprises a Resident Surgical Officer and three House Surgeons.

Applications, with testimonials, to be sent at once to the undersigned.

FRANK OLIVER, Sept. 2nd, 1929. Gen. Supt. & Secretary.

Cumberland Infirmary, Carlisle.

HOUSE PHYSICIAN (male), required October 1st. Six months' appointment. Previous experience desirable. Salary at rate of £155 per annum, board, residence, etc. Applications, stating age, with copies of four testimonials, must be received by the undersigned by first post on Saturday, September 21st.

J. G. HOWITT, Secretary.

Northamptonshire.

MEDICAL OFFICER OF HEALTH AND SCHOOL MEDICAL OFFICER.

The Northamptonshire County Council invite applications for the appointment of Medical Officer of Health and School Medical Officer for the Administrative County of Northampton.

Applicants must be legally qualified and duly registered medical practitioners, and hold a Diploma in Sanitary Science, Public Health, or State Medicine. They must also have had previous experience in Public Health administration under a local government authority.

The salary will be at the rate of £1,100 per annum, payable monthly, together with offices, staff, stationery, and such allowances for travelling and other necessary out-of-pocket expenses as the County Council shall from time to time approve. A periodical review of salaries is made by the County Council and suitable increments of salary will be given for proved ability and satisfactory service.

The salary will be subject to a deduction of 5 per cent. per annum for superannuation in accordance with the provisions of the Local Government and Other Officers Superannuation Act, 1922, which the County Council have adopted.

The candidate appointed will be required to pass a medical examination.

The officer appointed must reside at a place to be approved by the County Council and devote the whole of his time to the service of the Council and Education Committee; he will be responsible for the carrying out of the Public Health work now developing upon or which may hereafter devolve upon the County Council or its Committees.

The appointment is to be held subject to the provisions of the Sanitary Officers Order, 1926; and is determinable (subject to the provisions of Section 68(5) of the Housing, Town Planning, etc., Act, 1909), upon three months' notice on either side.

Further particulars, if required, may be obtained on application to the undersigned.

Applications, endorsed "Medical Officer," with not more than three recent testimonials, giving full particulars of the training, qualifications, experience, and age of the applicant, should reach the undersigned on or before Sept. 27th.

Applications and testimonials for the use of members of the Public Health, etc., Committee must be printed or typewritten, and not less than thirty copies should be supplied for this purpose.

Canvassing will disqualify.

H. A. MILLINGTON, County Hall, Northampton. Clerk to the County Council.

Middlesbrough Union.

HOLGATE HOSPITAL.

APPOINTMENT OF LADY CLERK.

The Guardians of the Middlesbrough Union invite applications for the appointment of Medical Superintendent's Lady Clerk at their Holgate Hospital, Linthorpe, Middlesbrough.

Salary £3 per week, with dinner and tea daily. Applicants must be competent shorthand typists and it will be an advantage if candidates are conversant with medical terms and the office routine of a Hospital.

Applications in candidate's own handwriting, stating age, previous experience and any special qualifications for the post, and accompanied by copies of three recent testimonials, should be sent so as to be received by me not later than Saturday, October 5th.

Poor Law Offices, Municipal Buildings, Middlesbrough. H. BILSON, Clerk to the Guardians.

September 6th, 1929.

Borough of Keighley.

APPOINTMENT OF MEDICAL OFFICER OF HEALTH AND SCHOOL MEDICAL OFFICER.

Applications are invited from duly qualified male persons, not exceeding 40 years of age, for the above appointment, at a commencing salary of £800 per annum.

The appointment will be made subject to the provisions of the Public Health (Officers) Act, 1921, and the Sanitary Officers Order, 1926, to the Superannuation Scheme adopted by the Council, and to the passing of a medical examination.

The officer appointed will be required to devote the whole of his time to the duties of the office.

Applications, on forms to be obtained from the undersigned, marked "Medical Officer," and accompanied by copies of three recent testimonials, must be delivered not later than September 25th.

Town Hall, Keighley. S. WALKER, Town Clerk.

September 2nd, 1929.

Metropolitan Borough of LEWISHAM.

ASSISTANT MEDICAL OFFICER OF HEALTH AND MATERNITY AND CHILD WELFARE MEDICAL OFFICER.

The Lewisham Borough Council invite applications from duly qualified medical men for the appointment of Assistant Medical Officer of Health and Maternity and Child Welfare Medical Officer.

The salary will be at the rate of £650 per annum inclusive, rising by annual increments of £25 to £750 per annum inclusive.

The person appointed will be required to give whole-time to the duties of the office, and will be under the administrative control and supervision of the Medical Officer of Health. He will be required to live within the Borough.

The appointment is subject to the approval of the Ministry of Health and to the provisions of the Local Government and Other Officers Superannuation Act, 1922, and also subject to three months' notice on either side to terminate the same.

Preference will be given to candidates (a) who have special experience in Maternity and Child Welfare work, and (b) those holding, in addition to other qualifications, a Diploma in Public Health.

Selected candidates will be required to undergo a medical examination.

Applications for the appointment, accompanied by copies of not more than three recent testimonials, must be made on forms to be obtained from the undersigned, and should be received here not later than 4 p.m. on Monday, September 30th.

Canvassing, directly or indirectly, is prohibited, and will disqualify.

Lewisham Town Hall, Catford, S.E.6. JOHN W. SHUTER, Town Clerk.

September 7th, 1929.

City of Manchester.

PUBLIC HEALTH DEPARTMENT.

BAGULEY SANATORIUM (333 Beds).

APPOINTMENT OF ASSISTANT MEDICAL OFFICER.

Applications are invited from qualified medical men for the position of Assistant Medical Officer.

Every applicant must be a registered medical practitioner, under 40 years of age and unmarried.

Preference will be given to applicants with previous Hospital experience; some experience of bacteriology or radiology is desirable.

Salary £350 per annum, with board, residence, and laundry in addition.

The appointment is made in the first instance for a period of twelve months, renewable at the expiration of that period.

Every application, stating fully the training, qualifications, and experience of the candidate, and his age, with copies of three recent testimonials, and endorsed on the envelope "Medical Officer, Baguley Sanatorium," must be addressed to the Medical Officer of Health, Civic Buildings, 1, Mount Street, Manchester, only, and not to members of the Committee or Council, and must reach him not later than Monda[illegible]

The [illegible] required to pass [illegible] devote the whole [illegible] f the office, to cor[illegible] Superannuation F[illegible] of Service.

Canvassing in any form, oral or written, direct or indirect, is prohibited.

By Order,

Town Hall, Manchester. F. E. WARBRECK HOWELL, Town Clerk.

August 29th, 1929.

Jenny Lind Hospital for Children NORWICH.

Applications are invited for the post of RESIDENT MEDICAL OFFICER. Salary £120 per annum, with board, residence, and laundry. Candidates (male), who must possess registered qualifications, should forward applications, stating age, nationality, etc., together with copies of testimonials, to the undersigned, as soon as possible.

FRANK INCH, Secretary.

August 30th, 1929.

Kettering and District General HOSPITAL. (82 Beds.)

Applications are invited for the post of JUNIOR HOUSE SURGEON. Salary £100 p.a., with board, residence, and washing. Candidates must be fully qualified and registered.

The appointment is for six months, but candidates will be eligible for re-election.

Applications, stating age, nationality, and qualifications, together with copies of three recent testimonials, to be sent immediately to the Secretary-Superintendent.

Sculcoates Union, EAST YORKSHIRE.

RESIDENT ASSISTANT MEDICAL OFFICER (Female).

The Guardians invite applications from qualified persons for the full-time appointment of Resident Assistant Medical Officer at the Institution Infirmary, Beverley Road, Hull.

Having regard to the Local Government Act, 1929, the appointment will be made for the period expiring March 31st, 1930.

Applications will be considered from persons between and including ages of 25 and 40 years only.

The number of sick inmates is about 300.

The salary will be at the rate of £300 per annum (no bonus) and board and other usual allowances (valued at £150 per annum) will be provided. There will be no fees in addition to the salary.

The Infirmary is not under separate administration. The staff comprises a Medical Officer, a Visiting Surgeon, a Superintendent Nurse, and 65 other Nurses.

Particuars of the duties will be sent on request.

Applications, setting out qualifications, dates of registration, experience, etc., together with copies of three recent testimonials, must be sent so as to be received by me not later than 10 a.m. on Monday, the 23rd instant.

Selected candidates will receive notice when and where to attend.

12, Harley St., Hull. W. BARROW, Clerk to the Guardians.

September 4th, 1929.

City of Coventry.

MEDICAL OFFICER OF HEALTH.

The Coventry City Council invite applications from qualified practitioners in Medicine, Surgery, and Midwifery, who are also holders of a Diploma in Public Health, for the position of Medical Officer of Health of the City.

A form of application (upon which full particulars are given of the conditions of appointment and the duties of the office) may be obtained from the undersigned, and all applications must be made on the prescribed form.

Age must not exceed 40. The salary will be an inclusive salary on Grade A of the Council's scale, commencing at £1,225 and rising to £1,500 in the manner stated in the conditions of appointment. The post will be a designated post under the Local Government and Other Officers Superannuation Act, 1922.

Applications must reach the undersigned not later than Saturday, October 5th.

Canvassing, direct or indirect, will be regarded as a disqualification.

Council House, Coventry. FREDERICK SMITH, Town Clerk.

September 10th, 1929.

Royal Westminster Ophthalmic HOSPITAL, Broad Street, Holborn, W.C.2.

Required for November 1st for six months:

FIRST HOUSE SURGEON (male). Salary at the rate of £100 per annum, with share of fees for private room cases, which possibly may double his salary.

SECOND HOUSE SURGEON. (male). Salary at the rate of £80 per annum.

With board, residence, and laundry.

NOTE.—Candidates must be duly qualified medical practitioners, registered in this country, and must have had experience in Ophthalmology. Applications, in which should be stated whether the candidate is prepared to accept the Second House Surgeon appointment, accompanied by copies of testimonials, are to be sent to the Secretary on or before October 5th.

Torbay Hospital, Torquay. (146 Beds.)

HOUSE SURGEON wanted for September 27th. Salary £175 per annum, with board, residence, and laundry. Candidates must be fully qualified, registered, and unmarried.

Applications, stating age, nationality, qualifications, and experience, must be received by the undersigned on or before Thursday, September 19th next, with copies of not more than three recent testimonials.

E. L. GRIST, Secretary.

September 9th, 1929.

King's College Hospital.

Applications are invited by [illegible] for CLINICAL [illegible] departments, a[illegible] Obstetric Regi[illegible] given to form[illegible] Hospital Medical School.

Particulars of the above may be obtained from the House Governor, King's College Hospital, Denmark Hill, S.E.5.

Evelina Hospital for Children, Southwark, S.E.1.

The Committee of Management requires a HOUSE SURGEON (male) from October 1st to April 12th, 1930 (during first two months duty in Casualty and Out-patient Department). Salary £120 per annum, with board and residence. Candidates, duly registered, to send applications, giving age, qualifications (with dates), and copies of four testimonials, to the undersigned at the Hospital, before Sept. 24th. Applicants will be informed if they will be interviewed by the Medical Committee. Selected candidates must attend Committee of Management. Date of meeting will be notified by undersigned, from whom rules and other particulars relating to the post must be obtained.

By Order of the Committee of Management,

H. C. S. SMITH, Secretary-Supt.

Sept. 10th, 1929.

Princess Louise Kensington HOSPITAL FOR CHILDREN, North Kensington. (42 Beds pending completion.)

Applications are invited for the post of HON. RADIOLOGIST. Candidates must be registered medical practitioners, and it is desirable that they should hold the D.M.R.E. Camb. At least one attendance weekly will be necessary. Please obtain further particulars from the Secretary, Princess Louise Kensington Hospital for Children, St. Quintin Avenue, W.10, before sending formal application, which should be received by Monday, September 23rd.

Worcester General Infirmary. (132 Beds.)

JUNIOR RESIDENT MEDICAL OFFICER wanted. Applications from gentlemen are invited stating age, whether married or single, qualifications, experience, with copies of recent testimonials (not more than four) to be received not later than September 21st. Salary at the rate of £120 per annum, inclusive with board, residence, and laundry.

The successful candidate will be required to take up duties not later than October 10th.

P. N. GLASS, B.Sc. (Vict.), General Secretary.

Peterborough and District MEMORIAL HOSPITAL. (154 Beds.)

Applications are invited from fully qualified male practitioners for the post of RESIDENT HOUSE PHYSICIAN.

The appointment will be for a period of six months. Salary £120 per annum, with board, residence, and laundry.

Applications, stating age, qualifications, and experience, with copies of recent testimonials, to be sent to the undersigned by Sept. 18th.

FRANK A. C. TAYLOR, Secretary-Superintendent.

Newcastle-upon-Tyne City MENTAL HOSPITAL, GOSFORTH, NEWCASTLE-UPON-TYNE.

Wanted early in October, JUNIOR ASSISTANT MEDICAL OFFICER (male). Salary £350, rising to £400 on [illegible] Diploma of Psychiatry [illegible] apartments, and laund[illegible] under the Asylums C[illegible]t, 1909. Form of [illegible]ed from the Medical Superintendent.

Rotherham Hospital.

Wanted, HOUSE PHYSICIAN (male), qualified. Salary £180 p.a., with board, lodgings, and laundry, to have charge of Out-patients, administer Anæsthetics, and assist Honorary Physician.

Applications, with copies of recent testimonials, to be sent to the Secretary, G. W. ROBERTS, 8, Moorgate Street, Rotherham.

Norfolk and Norwich Hospital, NORWICH.

HOUSE SURGEON required, to take up duties on November 1st next. Salary £120, with board, residence, and laundry. Candidates (male), who must possess registered qualifications, should forward applications, stating age, nationality, etc., together with copies of testimonials, to the Secretary not later than September 26th.

Royal Surrey County Hospital, GUILDFORD. (125 Beds.)

Wanted, HOUSE SURGEON. Salary £150 per annum, with board, residence, and laundry.

Applications, stating essential particulars, with copies of testimonials, to be sent to the Hon. Secretary.

Hospital of St. Cross, Rugby.
(114 Beds.)

Applications are invited for the posts of SENIOR and JUNIOR RESIDENT MEDICAL OFFICERS (males).

Candidates must be registered medical practitioners, and must be prepared to begin duties on October 1st. Salary for the Senior post at the rate of £150 per year, Junior at the rate of £100 per year, with board and residence in the Hospital.

Candidates are requested to state whether they are prepared to accept the post of Junior if not selected for the Senior office.

The appointments are for a period of six months only, at the end of that time the Junior will be eligible to apply for the Senior post, which then becomes vacant.

This Hospital is recognized by the University of London for the purposes of the M.D. and M.S.

Applications, stating age and qualifications, with copies of three recent testimonials, should be received by me not later than Tuesday, September 24th.

CAPTAIN W. COCKBURN,
Sept. 10th, 1929. Supt. & Secretary.

Bristol City and County Mental HOSPITAL.

SECOND ASSISTANT MEDICAL OFFICER.

Applications are invited from unmarried gentlemen, duly qualified and registered, and *not over 35 years of age, for the above post.* Salary commencing at £500, rising by two annual increments of £25 to £550 per annum, with board, apartments, laundry, and attendance. £50 in addition if possessing a Diploma in Psychological Medicine. Fully equipped laboratory with trained assistant for research and clinical pathology. Previous experience essential. The appointment is subject to the Asylum Officers Superannuation Act, 1909. Application forms, which should be obtained from the Medical Superintendent, should reach him at the Mental Hospital, Fishponds, Bristol, completed with copies of three testimonials, by Monday, *September 30th.*

JOSIAH GREEN,
The Council House, Clerk to the Visiting
Bristol. *Committee.*
Sept. 13th, 1929.

Bristol City and County Mental HOSPITAL.

THIRD ASSISTANT MEDICAL OFFICER.

Applications are invited from unmarried gentlemen, duly qualified and registered, and not over 35 years of age, for the above post. Salary commencing at £350, rising by four annual increments of £25 to £450 per annum, with board, apartments, laundry, and attendance. £50 in addition for Diploma in Psychological medicine. Fully equipped laboratory and trained assistant for research and clinical pathology. Previous experience is not essential. The appointment is subject to the Asylum Officers Superannuation Act, 1909. Application forms, which should be obtained from the Medical Superintendent, should reach him at the Mental Hospital, Fishponds, Bristol, completed, with copies of three testimonials, by Monday, September 30th.

JOSIAH GREEN,
The Council House, Clerk to the Visiting
Bristol Committee.
Sept. 13th, 1929.

London Temperance Hospital,
Hampstead Road, N.W.1.

Applications are invited for the post of RESIDENT MEDICAL OFFICER.

The appointment will be for a period of six months at a salary of £175 per annum, and will date as from October 11th.

Cæteris paribus, preference will be given to abstainers and to those who have held resident posts.

Candidates must submit applications, *stating* qualifications, age, etc., with copies of *not more* than three testimonials, by Thursday, October 3rd, addressed to the Secretary.

Royal Victoria and West Hants HOSPITAL, BOURNEMOUTH.

Two HOUSE SURGEONS (male, British nationality) required to commence duty immediately. Salary £120 per annum, with board, lodging, *and washing.* The appointment is tenable for six months, and candidates must be registered according to the provisions of the Medical Act. *Applications, stating place of birth,* with copies of three testimonials, to be sent immediately to the undersigned. Women and married men are ineligible.

GORDON M. SAUL,
September 3rd, 1929. Secretary.

The Prince of Wales's General HOSPITAL, Tottenham, N.15.

The following Resident posts will be vacant *on November 1st next:*

SENIOR HOUSE PHYSICIAN, SENIOR HOUSE SURGEON and SPECIAL HOUSE SURGEON. Salaries at the rate of £120 per annum.

JUNIOR HOUSE *PHYSICIAN* and Two JUNIOR HOUSE *SURGEONS. Salaries* at the rate of £90 per annum.

Board, residence, and laundry.

Appointment held for *six months, but holders* are eligible for reappointment for a further term.

Candidates (male) must be fully *qualified and* registered, and applications (on prescribed form), together with copies of *three recent* testimonials, should be sent to me on or before the first post on Tuesday, October 1st.

FREDK. W. DREWETT,
September 9th, 1929. Director.

Nottingham Children's Hospital.

Applications are invited for the post of *RESIDENT HOUSE PHYSICIAN* (woman). Candidates must have held a *Resident hospital* appointment. Experience in the administration of anæsthetics essential. The salary will be at the rate of £150 per annum, with apartments, board, and laundry. The appointment will be for six months, and the duties will commence as from November 1st.

Applications, together with testimonials, and *stating age, qualifications,* and experience, to be sent to F. PRAGNELL, the Honorary Secretary, 1, King John's Chambers, Bridlesmith Gate, Nottingham, by September 23rd. Selected candidates will be required to attend at the Hospital for a personal interview on October 1*st, when* the appointment will be made.

North Riding Infirmary,
MIDDLESBROUGH.
(General Hospital. 150 Beds.)

JUNIOR HOUSE SURGEON (gentleman) wanted to take up duties October 1st. Salary £125 per annum, with board, residence, and laundry. Six months' appointment. This appointment is for a Third House Surgeon who will be eligible for advancement. Applications, with three recent testimonials (copies), stating age, qualifications, experience, and nationality should reach the undersigned not later than September 21st.

CHARLES POSTGATE,
Sept. 9th, 1929. *Secretary-Supt.*

Applications are invited for the

post of RESIDENT MEDICAL OFFICER, JUNIOR (male), at the Dumfries & Galloway Royal Infirmary. The Institution, which contains over 100 beds, is one of the premier Provincial Hospitals in Scotland, and offers exceptional opportunities of gaining experience in all branches of the profession. Period of engagement, one year. Salary £100 p.a.

Applications, with testimonials, to be forwarded to the Treasurer, Dumfries & Galloway Royal Infirmary, 84, Irish Street, Dumfries, by September 30th.

General Hospital, Gt. Yarmouth.
(72 Beds.)

Applications are invited for the post of SENIOR HOUSE SURGEON. Salary £150 per annum, with board, residence, and laundry. Duties to commence at once. Candidates (male and unmarried) must be fully qualified and registered.

Applications, stating age, nationality, and qualifications, together with copies of three recent testimonials, to be sent immediately to the undersigned.

T. H. G. GARTLAND, Secretary.

Manchester Babies' Hospital,
Burnage Lane, LEVENSHULME.

Applications are invited for the post of JUNIOR RESIDENT MEDICAL OFFICER. Appointment is for six months from November 1st. Salary at the rate of £50 per annum, with laundry. Only candidates with previous Hospital experience need only.

Applications, together with copies of testimonials, should be sent to the undersigned and marked "J.R.M.O.," by Thursday, Sept. 26th.

ANGELA LOPEZ, Secretary.

Swansea Hospital.
(316 Beds.)

HOUSE SURGEON wanted, gentleman, single Salary £150 per annum, with board, residence, and laundry.

Applications, stating age, nationality, qualifications, and experience, together with copies of three recent testimonials, to be forwarded to the undersigned.

O. C. HOWELLS, Secretary.

Seamen's Hospital Society.

The Committee of Management invite applications for the appointment of SURGEON with charge of *In-patients* at the ALBERT DOCK [illegible] ld, E. The elected [illegible] for 12 months and [illegible] n. [illegible] ows of the Royal [illegible] land, or Masters of [illegible] in the United Kingdom.

Applications to be sent in on or before October 15th to the *undersigned, from* whom further particulars can be obtained.

By Order,
Greenwich. R. E. V. BAX,
Sept. 9th, 1929. Secretary.

Seamen's Hospital Society,
Greenwich, S.E.

[illegible] uired *at the* ALBERT [illegible] ught *Road, E.16,* for [illegible] 1st. Salary £110 per [illegible] *of fees, with* board, residence, and washing.

Applications, with copies of three testimonials, to be sent in by September 18th to the *undersigned.*

Greenwich. R. E. V. BAX,
August 26th, 1929. Secretary.

Seamen's Hospital, Greenwich.

HOUSE PHYSICIAN and HOUSE SURGEON required at DREADNOUGHT HOSPITAL, Greenwich, for six months from October 1st. Salary £110 per annum, and a proportion of fees, with board, residence, and *washing.* Candidates must be male.

Applications, with copies of three testimonials, to be sent in by September 18th to the *undersigned.*

Greenwich. R. E. V. BAX,
August 26th, 1929. Secretary.

Stockton and Thornaby Hospital,
STOCKTON-ON-TEES. (140 Beds.)

Applications are invited for the post of *JUNIOR RESIDENT MEDICAL OFFICER* (male). Salary £150, with residence, board, and laundry. *Candidates* for the above post must be *doubly qualified* and unmarried, and are required to commence duties on October 1st.

Application, stating age, nationality, and experience, together with copies of three recent testimonials, to be sent to the undersigned as early as possible.

J. WILKINSON, *Secretary.*

Cyprus Mines *Corporation,*
SKOURIOTISSA, NICOSIA, CYPRUS.

Wanted for PI [illegible] RU'S, newly qualifie [illegible] as ASSISTANT to [illegible] onths agreement. First-class passage paid out and home. Salary £25 per month, with right of private practice in spare time, worth probably about £10 per month. Write, giving full particulars of schooling, training, and experience, together with three medical and three private references, "J.S.," c/o STREETS, 6, Gracechurch Street, E.C.3.

Chelmsford and Essex Hospital.

RESIDENT MEDICAL OFFICER.

Applications are invited for the post of Resident Medical Officer. The appointment is for six to twelve months. Salary £150 per annum, with board and residence.

Applications, with copies of three testimonials, to be sent to the undersigned, London Road, Chelmsford, on or before Saturday, September 21st.

R. G. MORRISH, Secretary.

The Royal Eye and Ear Hospital,
BRADFORD.

Applications are invited for the post of JUNIOR HOUSE SURGEON (male).

Salary £120, with board, residence, and laundry.

Applications, stating qualifications, age, etc., with copies of recent testimonials, to be forwarded to the undersigned.

F. BRIGGS, Secretary-Supt.

The Crossley Maternity Hospital,
ANCOATS, MANCHESTER.

Applications are invited from Medical Women for the post of HALF-TIME RESIDENT MEDICAL OFFICER. Vacancy October 1st. Salary £50 per annum, with board, residence, and laundry. Appointment for six months.

Applications, with testimonials, to be sent to the Superintendent.

APPOINTMENTS—Important Notice.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

(a) British Islands.

Town or District.	Town or District.	Town or District.
CONTRACT PRACTICE.	**CONTRACT PRACTICE** *(Contd.)*.	**PUBLIC HEALTH** *(continued)*.
EBBW VALE, MON. *(Workmen's Medical Society.)*	NEATH AND DISTRICT. *(Medical Aid Association.)*	GLASGOW EDUCATION AUTHORITY. *(Male Assistant Medical Officer.)*
GILFACH GOCH, GLAMORGAN. *(Workmen's Medical Scheme.)*	OAKDALE, MON. *(Medical Officer for Medical Aid Association.)*	YORKSHIRE NORTH RIDING COUNTY COUNCIL EDUCATION COMMITTEE. *(Assistant School Medical Officer.)*
LLWYNYPIA, CLYDACH VALE PENYGRAIG, GLAMORGAN. *(Workmen's Medical Scheme.)*	OGMORE VALLEY, GLAMORGAN. *(Wyndham Colliery Medical Aid Society.)* *(Workmen's Medical Scheme.)*	YORKSHIRE WEST RIDING COUNTY COUNCIL. *(School Medical Inspector.)*
MARDY, GLAMORGAN. *(Workmen's Medical Scheme.)*	**PUBLIC HEALTH.**	
	CORNWALL EDUCATION COMMITTEE. *(Assistant School Medical Officer—Female.)*	

(b) Colonial Medical Service.—

WINDWARD ISLANDS MEDICAL SERVICE. (Grenada with Carriacou, St. Vincent and St. Lucia.)

(c) Overseas.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.
NEW SOUTH WALES. *(All Friendly Society Appointments.)*	Dr. R. H. TODD (Hon. Sec., New South Wales Branch), B.M.A. Building, 30-34, Elizabeth St., Sydney, N.S.W.	VICTORIA. *(All Institute or Medical Dispensaries.)*	Dr. FRANK DAVIES (Hon. Sec., Victorian Branch), British Medical Association, Medical Society Hall, East Melbourne, Victoria.	WESTERN AUSTRALIA. *(Contract and Lodge Practices.)*	Hon. Sec., Western Australian Branch, British Medical Association, No. 6, Bank of N.S.W. Chambers, St. George's Terr., Perth, Western Australia.
QUEENSLAND. *(Brisbane Associated Friendly Societies Institute.)*	The Hon. Sec., Queensland Branch, British Medical Association, B.M.A. Building, Adelaide St., Brisbane.	WELLINGTON, NEW ZEALAND. *(Contract Practice Appointments.)*	Dr. G. F. V. ANSON (Hon. Sec., New Zealand Branch), British Medical Association, P.O. Box 156, Wellington, New Zealand.		

Address: B.M.A. House, Tavistock Square, W.C.1. September 11th, 1929.

By Order of the Council of the British Medical Association.
ALFRED COX, Medical Secretary.

West Norfolk & Lynn Hospital.

Applications are invited for the post of SENIOR HOUSE SURGEON, male, at the above Hospital. Previous experience important. The Hospital has about 70 surgical beds and over 1,000 operations are performed in each year. Appointment to commence on or about October 1st and to be for six months in the first place.

Applications, with copies of not more than three testimonials, should be forwarded to the House Governor not later than September 18th.

There is also a vacancy for a JUNIOR HOUSE SURGEON, male, who will have charge of the ophthalmic and medical beds and also act as Resident Anæsthetist and Casualty Officer. Applications by September 18th.

Salaries £150 and £100 respectively.

North Ormesby Hospital,
MIDDLESBROUGH. (140 Beds.)

HOUSE PHYSICIAN required early in October. Male and unmarried. Salary £115 per annum, with board, residence, and laundry.

There are three Residents, and the successful candidate will be eligible for the post of House Surgeon in due course.

Applications, stating age, qualifications, previous experience (if any), with copies of three recent testimonials, to be sent to the undersigned not later than Thursday, September 19th.

GEORGE WATTS, Secretary-Supt.

Birkenhead General Hospital.
(156 Beds.)

Applications are invited for the post of CASUALTY SURGEON (gentleman). Salary £100, with board and residence, to take up duties immediately.

Applications, stating qualifications, experience, and nationality, with three copies of recent testimonials, to be sent to the Secretary-Superintendent as early as possible.

Royal Chest Hospital,
City Road, E.C.1.
(Royal Northern Group of Hospitals.)

Applications are invited for the following posts vacant on November 1st:

[illegible] OFFICER (part-[illegible] for six months [illegible]. Salary at [illegible] with Luncheon [illegible] must be a [illegible] and will be required to attend at the Hospital each morning from 10 a.m. till 1 p.m.

RESIDENT MEDICAL OFFICER. The appointment is for six months, when re-election is required. Salary at the rate of £150 per annum, with board, residence, and laundry.

HOUSE PHYSICIAN. The appointment is for six months. Salary at the rate of £100 per annum, with board, residence, and laundry.

Applications, with copies of testimonials, should be sent on or before September 23rd to the undersigned, from whom forms of application, rules, and further particulars can be obtained.

Royal Northern Hospital, N.7. GILBERT G. PANTER, Secretary.

Royal West Sussex Hospital,
CHICHESTER. (Estab. 1826.)

The Board of Management invite applications for the post of JUNIOR HOUSE SURGEON (male) as from October 1st. Salary £150 per annum, with board, residence, and laundry.

Applications, stating age, with three recent testimonials, should reach the undersigned without delay.

Particulars as to duties will be forwarded to candidates on receipt of their applications.

There is a probability of succession to the post of Senior House Surgeon within an unusually short period.

HERBERT S. AYLMORE, Secretary.

East London Hospital for
CHILDREN AND DISPENSARY FOR WOMEN, Shadwell, E.1.

Applications are invited for the Resident post of Whole-time CASUALTY OFFICER (male).

The appointment is from October 1st for six months. Salary at the rate of £125 per annum, with board, residence, and laundry provided.

Applications, together with testimonials, should be sent to the undersigned not later than September 21st.

W. M. WILCOX, Secretary.

N.B.—Residents at this Hospital are eligible as candidates for the reciprocity scheme with Barnes Hospital, St. Louis, U.S.A.

South London Hospital for
WOMEN,
South Side, Clapham Common, S.W.4.

The Board of Management invite applications from fully qualified medical women for the undermentioned appointments:

HOUSE PHYSICIAN; HOUSE SURGEONS (Three). Each for a period of six months from November 1st.

Salary at the rate of £50 per annum, with board, residence, and laundry. Candidates are expected to call on Members of the Hon. Medical Staff (particulars to be obtained from the Secretary) before Saturday, September 28th, by which date applications and copies of testimonials, must reach the Secretary at the Hospital.

St. Paul's Eye Hospital,
OLDHALL STREET, LIVERPOOL.

Applications are invited for the post of HOUSE SURGEON to this Hospital. Salary £120 per annum. Applications, with copies of testimonials, should be sent to the Secretary, at the Hospital, on or before September 21st.

Austin Six, 16h.p., Special Coupé Body, list price £425. Run under 600 miles, condition absolutely as new, comfortable, sliding front seats, two occasional seats and roomy dickey reached from inside. Will sacrifice for £375.—Reply, FERRIS-SCOTT, B.M.A. House, Tavistock Square, London, W.C.1.

ASSISTANCIES.

Wanted. — Assistant (outdoor) male, October 15th or before, English or Scotch. Pleasant agricultural country Practice, West of England, all classes. Work light and time for study or sport. Able to drive car. £250 to £300, according to experience, and everything found. Advancement later considered. Usual bond. — Address, No. 5669, B.M.A. House, Tavistock Square, W.C.1.

Wanted, October 1st, or sooner, Indoor ASSISTANT, male. Scot preferred, in mixed Practice in Midlands; pleasant suburb of industrial area, close to large Hospital. Good opportunity for study or sport; principal on staff of two Hospitals; £250 to £300 according to experience. Prospects for suitable man. Usual bond.—Address, No. 5518, B.M.A. House, Tavistock Square, W.C.1.

Wanted, Part-time Assistant [illegible] University City. attending classes State age, qualifications, experience, and essential particulars. Photo and references.—Address, No. 5507, B.M.A. House, Tavistock Square, W.C.1.

Wanted, October 1st, Assistant for private and panel Practice, Scottish Midlands. Some experience essential; references required. Furnished rooms, garage, transport allowance. Further particulars on application. —No. 5682, B.M.A. House, Tavistock Sq., W.C.1.

Wanted, for not later than October 1st, Indoor ASSISTANT for panel and private Practice in Midlands. Applicant must be a male and unmarried. Commencing salary £250 p.a.—Address, No. 5708, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistant, October, male, Protestant, Scotch Graduate if available; experienced minor surgery, midwifery, anæsthetics; Colliery district, South Wales. Dispenser kept. Sign bond. £400 p.a. Use of car. Temperate.—Address, refs., age, etc., No. 5661, B.M.A. House, Tavistock Sq., W.C.1.

Wanted, permanent Assistant, outdoor; Yorks mixed Practice. Thor. exp., healthy, energ. Young Eng. or Scotsman. Good appearance. Usual bond. Exc. prospects. Salary and comm. worth £500 to £700 p.a. Fullest partics., refs., and copy testimonials.—No. 5663, B.M.A. House, Tavistock Sq., W.C.1.

Wanted immediately, Assistant, (male), manage Branch, country, near London. Salary £350, and £50 transport allowance and furnished rooms at present. Ex. prospects. First-class refs. or interview essen.— No. 5717, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — Assistant, indoor, male, East London; ex H.S. or H.P. preferred, but not essential. Salary £300 p.a., plus commission on mids. Car will be provided. —Address, No. 5709, B.M.A. House, Tavistock Square, W.C.1.

Wanted, qualified Assistant single, British, Protestant; experienced minor surgery, mids., anæsthetics. Liberal salary reliable applicant. Sign bond: Interview desirable if arranged.—Address, No. 5681, B.M.A. House, Tavistock Square, W.C.1.

Wanted, a young indoor Assistant for mixed Practice in Northumberland Colliery district and near Newcastle-on-Tyne. Salary £275 p.a. State age, nationality. Send any further particulars, and photo.—Add., No. 5670, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — Indoor Assistant, immediately, Scotch or English, Protestant. Good salary to experienced man, under 30 years, with prospects. Testimonials and photo. Private and panel.—Address, No. 5710, B.M.A. House, Tavistock Square, W.C.1.

Wanted, immediately, indoor ASSISTANT (male); would suit newly qualified man. Initial salary £250.—Address, with references, No. 5652, B.M.A. House, Tavistock Square, W.C.1.

Wanted at once for a Country Practice in the Midlands, outdoor male ASSISTANT, age 30 to 32. Must hold the M.B., Cambridge or London. Hospital experience essential, and some knowledge of private practice. Salary £500 a year, with furn. rooms o- [illegible] N

W ASSISTANT for Country Practice. Salary £400 and commission. House and car found. —Address, No. 5659, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Indoor Male Assist- ANT in busy East London Practice. Salary net £286, gross £350, with extras, p.a. State experience, height, and photo. Period at least one year. Must be energetic.—Address, No. 5597, B.M.A. House, Tavistock Sq., W.C.1.

Wanted, outdoor Assistant for light post, with time for reading, in Somerset, view to ultimate Partnership. Good class, mixed Practice. British. Photo. if possible. — Address, No. 5782, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—Young Edinburgh or Glasgow Graduate as ASSISTANT, view early Partnership, in Country PRACTICE, West of England. Hospital and general practice experience desirable. Capital essential.—Address, No. 5578, B.M.A. House, Tavistock Sq., W.C.1.

Wanted, October 1st, male in- door ASSISTANT for Practice in Midland town, British, young, reliable. Usual bond. Salary £250—£300, with board, according experience.—Address, No. 5334, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistant, outdoor, male, to take charge of Branch Surgery. Pembs. Coast, country district. Motor-cyclist. Work light.—Address, No. 5013, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistant for Indus- trial Practice near Manchester. Married man preferred. House available, unfurnished. Salary £400, rising by £50. Full details.— Address, No. 5658, B.M.A. House, Tavistock Square, W.C.1.

Wanted, an Assistantship by Woman Doctor, in or near London or Edinburgh, outdoor preferred. Six years' exp. general practice; own car; would consider Partnership with woman later; free end of Oct. —No. 5655, B.M.A. House, Tavistock Sq., W.C.1.

Wanted by Woman M.B., B.Ch., ASSISTANTSHIP at end of September. One year's experience in large panel and private Practice. Excellent references.— Address, No. 5704, B.M.A. House, Tavistock Square, W.C.1.

Wanted by M.D., F.R.C.S. [illegible] or PART- ferably in ry; expert , B.M.A. House, Tavistock Square, W.C.1.

Assistant, indoor, male, mixed Practice in Lancashire, about 1/3 panel. Dispenser-Bookkeeper kept. £350 to start. Usual bond. Partnership possible. Ex Res. or with experience preferred. Photo., etc.—Add., No. 5785, B.M.A. House, Tavistock Sq., W.C.1.

Assistant wanted, recently quali- fied, with view, able to raise some capital (amount to be stated). Nice district near large town. Salary £250, plus rooms and attendance. —Address, No. 5722, B.M.A. House, Tavistock Square, W.C.1.

Assistant, indoor, male, Protestant, wanted for October, North-West district, panel and private. Dispenser kept. — Address, stating essential particulars, No. 5678, B.M.A. House, Tavistock Sq., W.C.1.

Assistantship wanted in October by married man, aged 32, interested in Surgery. Public School man, London Hospital trained; keen, experienced, and reliable. Has held Hospital appointments.—Address, No. 5575, B.M.A. House, Tavistock Square, W.C.1.

Assistantship, with view early Partnership wanted by Glasgow M.B., Ch.B., D.P.H., æt. 29. Five years' Hospital and G.P. experience. Near London. Surrey or Kent preferred.—Address, No. 5671, B.M.A. House, Tavistock Square, W.C.1.

Assistant required, London, October 1st. Experience of panel Practice essential. — Address, No. 5685, B.M.A. House, Tavistock Square, W.C.1.

Assistants and Locum Tenens wanted immediately. Good salaries offered. —BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

A Varsity Man, with experience, desires an ASSISTANTSHIP shortly, with view to Partnership later in good Country Town Practice in England, which can provide adequate salary. Preferably with another Varsity Man under 40. Enquiries in confidence.—Address, No. 5502, B.M.A. House, Tavistock Sq., W.C.1.

Indian Doctor wants Assist- ANTSHIP or LOCUM, M.B., B.S., English Univ. Over one year's exp. G.P., ex. H.P. Good anæsthetist. Energetic. Good references. Free now.—Address, No. 5783, B.M.A. House, Tavistock Square, W.C.1.

London (or within 25 miles radius).—London trained man, aged 35, married, seeks ASSISTANCY, with view to purchase. Two years' experience all branches. —BM/MHE4, London, W.C.1.

Lady Assistant wanted for general Practice near Manchester. Must be experienced. State full particulars.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Part-time Assistant required for Practice in Central London. Eminently suitable for retired gentleman or one doing Post-graduate work. — Address, stating all relevant particulars, No. 5665, B.M.A. House, Tavistock Square, W.C.1.

Part-time indoor Assistant wanted (British) for Country, within easy access of University Town. Opportunities for Post-graduate work. Public School or University man preferred. — Address, No. 5683, B.M.A. House, Tavistock Square, W.C.1.

Public School Man desires ASSISTANTSHIP, Country or Country Town. Age 38, married; ex H.P., Royal Infirmary, Edinburgh; ex Captain (temporary) R.A.M.C. Exceptional references.—Address, No. 5660, B.M.A. House, Tavistock Square, W.C.1.

MEDICAL POSTS, DISPENSERS, etc.

Wanted.--Fully qualified Doctor for service in the Tropics. Ophthalmic experience essential. Agreement for three years. Salary £850, £900, £950. Renewable on higher terms. Free furnished quarters and first-class passage provided. Candidates must be unmarried. Ladies not eligible.—Address, with copies of testimonials (not returnable), No. 5719, B.M.A. House, Tavistock Sq., W.C.1.

A Lady Dispenser-Bookkeeper [illegible] supplic [illegible] fied and with practice and Bacteriologica. COLLEGE OF paration for 'phone (Park Park Road, W.4.

Ceylon.--Wanted, May 1st, 1930, a fully qualified GENERAL PRACTITIONER (Resident) for the European Community in a large Tea Planting district up country. Good climate. There is no practice to purchase. Furnished house and fuel free. Guaranteed retaining fee in addition to fees. Approximate income £1,100 per annum. Passage found. —Address, No. 5718, B.M.A. House, Tavistock Square, W.C.1.

Doctor, British European, wanted for Group of Estates in MALAYA. Age 27—35. Preference to candidates who have done a course of Tropical Medicine, or had previous Tropical experience. Four years' agreement at $800 per month, rising annually by $50 per month, followed by 8 months' leave on full pay. ($1 Straits = 2/4 English.) Bungalow and heavy furniture, car, and all running costs free. First-class passage out and home. To leave England early October.—Add., No. 5303, B.M.A. House, Tavistock Sq., W.C.1.

Dispensers supplied to Doctors at short notice, without fee. Qualified and exper. in priv. and panel prac. Perm. and part-time Bookkeeper-Dispensers, Secretary-Dispensers, Nurse-Dispensers, and Chauffeuse-Dispensers.—Write, wire, or 'phone Central 3679, THE RELIANCE BUREAU FOR DISPENSERS, 87, Holborn Viaduct House, 12, Holb. Viad. E.C.1.

Doctor's Widow (aged 40), competent, trustworthy, business exper., seeks post as SECRETARY, HOUSEKEEPER, or MATRON. Has good exper. in running a medical household. Accust. to interv. and capable of keeping books; also a competent housekeeper.—No. 5713, B.M.A. House, Tavistock Sq., W.C.1.

Doctors requiring qualified Dispensers, Nurse Dispensers, Secretary Dispensers or Chauffeuse Dispensers, are invited to write, wire, or 'phone Gerrard 2699, THE DISPENSERS' BUREAU, 145, Shaftesbury Avenue, London, W.C.2.

Medical Superintendent (married) wanted for Private Asylum. Thoroughly experienced, Asylum trained man to take full control and management. Wife capable of assisting an advantage. Pensioned Asylum Supt. might suit. Good opening for the right man. Salary and commission, with residence, board, and service. State fully, qualifications, experience, age, family, etc., in strictest confidence. — Address, No. 5680, B.M.A. House, Tavistock Square, W.C.1.

M.B., B.S., experienced in G.P., Surgery, and Anæsthetics, requires PART-TIME OCCUPATION, in or near Manchester, from beginning of October. — Address, No. 5687, B.M.A. House, Tavistock Square, W.C.1.

Pathological and Bacteriological LABORATORY ASSISTANTS ASSOCIATION.—Pathologists and Bacteriologists requiring SKILLED CERTIFICATED LABORATORY ASSISTANTS are invited to communicate with H. GOODING, Hon. Sec., "Moelfre," 10, Holbeck Grove, Victoria Park, Manchester. No fees.

THE SERVICES OF A MEDICAL MAN EXPERIENCED IN THE MANUFACTURE OF THERAPEUTIC SERA AND ALLIED PRODUCTS, are required to control the production of, and undertake research into, these products, at Evans' Biological Institute, Runcorn, Cheshire. Every facility is available for the carrying out of such work in congenial surroundings with new and up to-date buildings and equipment. The post is a permanent one and carries adequate remuneration.

Applications, giving full particulars, accompanied by copies of three testimonials, should be addressed to the Chairman of Directors, EVANS SONS LESCHER & WEBB, Ltd., 56, Hanover St., Liverpool.

The Royal Army Medical Corps ASSOCIATION. — If you require men trained in all branches of hospital work.—Dispensers (capable of undertaking returns, clerical work, etc., connected with Ministry of Health), Clerks, Laboratory Assistants, general hospital duties, Porters, Caretakers, etc.—Apply, Secretary, 76, Claverton Street, S.W.1.

Typewriting.—Expert undertakes Theses, Testimonials, etc. Numerous letters of appreciation from Doctors.—Write or 'Phone: BEATRICE RADFORD, 27, Buckland Crescent, Swiss Cottage, London, N.W.3. Primrose Hill 0803.

Woman Dispenser - Bookkeeper (12 years' experience), desires POST in general practice near or in London end of October, or later.—Address, No. 5705, B.M.A. House, Tavistock Square, W.C.1.

Woman Doctor required PART-TIME South London. Scottish or English Protestant. Suit post-graduate.—Address, No. 5784, B.M.A. House, Tavistock Square, W.C.1.

Young Lady (27), seeks POST with Doctor. Can give Sunlight Ray Treatment, cook, and manage house. Five years' reference.—Address, No. 5714, B.M.A. House, Tavistock Square, W.C.1.

LOCUMS.

FOR LOCUM TENENS APPLY TO Mr. PERCIVAL TURNER, Ltd. The oldest and only Agent who for 40 years has supplied substitutes at short notice without fee to principals. 4, ADAM ST., Strand, London, W.C.2. Teleg.: "Epsomian, Lond." 'Phone: Temple Bar 9011.

Locum desires Engagement in or outdoor; free October; an exper. G.P., obstet., dispensary. M.R.C.S., L.R.C.P.Lond., ex H.S., English, abstainer. Refs., motorist. Fees £6 6s. p.w. and expenses return Bristol.—Add., "Doctor," 12, Caledonian Place, Clifton, Bristol.

HOLIDAY LOCUMS.

THE MEDICAL AGENCY has pleasure in announcing that lists are now being prepared for Locum engagements for the forthcoming Holiday Season. Principals requiring a RELIABLE SUBSTITUTE are advised to make early W. H. GRANT, The House, Adelphi, W.C. 1 Riverside 1254 (night calls).

Locum wanted, country,

PARTNERSHIPS.

Wanted immediately, PART[illegible] to London. thirds share a [illegible] ing house on lease or purch. Scope. Cap. essent.—No. 5706, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—Third Partner in old-established Practice in Home Counties. Good-class residential district. Married, Cambridge M.B. preferred. Share about £900, increase later.—Address, No. 5675, B.M.A. House, Tavistock Square, W.C.1.

Lancs Town.—Half Share in old-estab. PRACTICE. Average cash receipts £3,000. Panel 2,516. Good house, 5 bedrooms; garage and garden. Rent £60 p.a. Premium 1½ years' purchase.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

London, S.W.—Share worth £500 in mixed PRACTICE. Panel over 3,000. Scope for improvement. Two years' purchase. — Address, No. 5716, B.M.A. House, Tavistock Square, W.C.1.

Ophthalmic. — Partnership in old-estab. practice in populous residential district, worked in connection with West End branch, but residence in the district is essential. 1½ years' purchase. Succession easy.—Address, No. 5591, B.M.A. House, Tavistock Square, W.C.1.

Partnership. — One-Third SHARE of £4,200 in good coast town, S.W. England. Hospital, 50 beds. Choice of houses. Two other partners. Panel 1,700. 1½ years' purchase. — Address, No. 5701, B.M.A. House, Tavistock Square, W.C.1.

Partnership. — Experienced, very energetic Graduate, qualified 1924, bachelor, desires Partnership, Nov. or Dec. Acct. 34. 4½ years present assistancy. Keen mids. Asst'n ner. Accust. sole charge. 1½ yrs.' purchase. No agent's.—No. 5684, B.M.A. House, Tavistock Square, W.C.1.

PRACTICES.

Wanted.—Mixed General PRACTICE or PARTNERSHIP succession, about £2,000, including substantial panel. London suburb preferred. Ample capital available. Details in confidence to No. 5707, B.M.A. House, Tavistock Square, W.C.1.

Wanted by M.B.—Private [illegible]

Wanted.—Practice or Partnership in good country town or suburb, by active man with long teaching Hospital experience. Premium on terms.—Address, No. 5702, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Practice, income £1,000 to £2,000 p.a.; 1½ years' purchase cash; 2 years (if good panel). Good house, garden, garage, essential; buy or rent; London suburb preferred. Strict confidence.—No. 5553, B.M.A. House, Tavistock Sq., W.C.1.

Wanted.—We have innumerable applicants for sound investments in all districts, incomes from £600 to £4,000, with and without panel. Correspondence invited from prospective Vendors. — THE MEDICAL AGENCY (W. H. Grant), Watergate House, 15, York Buildings, Adelphi, W.C.2.

Branch Surgery for Sale, main road, S.E. Unlimited scope for development, good house, lease arranged. Large waiting room and surgery, garage. Pleasant middle-class district near two large L.C.C. Estates.—No. 5657, B.M.A. House, Tavistock Sq., W.C.1.

Death Vacancy, Seaside Town.—Excellent surgical opportunities. First-class house available. — Address, No. 5720, B.M.A. House, Tavistock Square, W.C.1.

For Disposal.—A good Practice is not always to be had directly, but Mr. PERCIVAL TURNER can generally offer applicants something suitable. Nearly all the best Practices are sold by him without being advertised. Inform. free on applic.—4, Adam St., W.C.2.

For Sale, South Midlands.—Increasing PRACTICE, in small town. Over £800 per annum. Panel 743. Pre-war house to rent or purchase. Nice garden. Garage. Vendor waiting to take up district partnership. Premium £1,200. Offer considered for quick sale.—Address, No. 5686, B.M.A. House, Tavistock Square, W.C.1.

For Sale.—Good industrial PRACTICE. [illegible] Panel 1,900. House [illegible] purchase.—Address, [illegible] Tavistock Sqare, W.C.1.

For Sale, working-class PR[illegible] Manchest[illegible] £2,500. [illegible] lease or bu[illegible] No. 5662.

For Sale.—Large Yorkshire City, sound General PRACTICE. Gross receipts £1,750. Panel 1,800. House.—Address, No. 5721, B.M.A. House, Tavistock Square, W.C.1.

Good Manchester suburb.—Panel and Private PRACTICE. Receipts £500. Good house to rent or buy. Garden. Excellent education, sports, etc. One year's purchase.—Address, No. 5673, B.M.A. House, Tavistock Square, W.C.1.

London Suburb.—Increasing cash and panel PRACTICE. Income £450. Panel 300. Compact house. Moderate rent, on lease. Premium £850, to include drugs and complete furnishings of surg. and waiting room. —No. 5711, B.M.A. House, Tavistock Sq., W.C.1.

Lancashire Town. — Woman Doctor's PRACTICE. Cash receipts £2,243. Panel 1,450. Good house, 4 bedrooms, rent £60 p.a. Premium £3,000 (to include book debts, drugs, etc.). — BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Lancashire Town. — Old-estab. PRACTICE. Cash receipts £970. Panel 1,150. Scope. Good house to rent at £70 p.a. Premium £800.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Manchester.-Old-estab. Practice. Average cash receipts £1,200. Panel 1,264. Good house to rent, containing 3 bedrooms, 2 reception rooms. Premium £1,800.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Medical Practice in industrial East Coast Town (panel and private) for sale, with option to purchase and take over dwelling-house (with garage), and contents, including surgical instruments, library, etc.—Further particulars from GRAY, ROBERTSON & Co., Solicitors, 1, Albert Square, Dundee, with whom offers will fall to be lodged.

Manchester. — Nucleus. Cash receipts £600. Panel 200. Good house, 5 bedrooms. Rent £60 p.a. Premium £500 or near offer. — BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Medical Practice for disposal in small Midland Town; excellent opening; easy terms. — Apply, A. J. CASH & SONS, Solicitors, Derby.

Manchester. — Good-class PRACTICE (non-panel) in first-rate residential suburb. Average cash receipts £2,206 p.a. Fees 5/- to 21/-. Excellent house to rent on lease. Premium 1½ years' purchase.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

North Wales Coast. — Medical Woman's PRACTICE, equally suitable for man. Cash receipts last year £300. Panel 164. Premium £350, part by arrangement.—BRITISH MEDICAL BUREAU, 33, Cross St., Manchester.

Near Chester.—Practice. Cash receipts 1928, £600. Panel 440. Scope. Nice modern house to rent, 2 entert., 3 bedrooms; garden and garage. Premium £650 cash (to include Surgery furniture and drugs). —BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Near Liverpool.--Nucleus.--Cash receipts last year, £226. Panel 330. Scope. Good house, 4 bedrooms, 3 reception rooms; garage and garden. Premium—Practice and house—£1,150.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Orkney.—Well-established, very pretty district. Good house, large garden, garage; rent £12. Receipts £650. Panel £120, much scope. Price £400, including small car, cycle, and drugs. — MANCHESTER MEDICAL & SCHOLASTIC ASSOCIATION, 6, Brown Street.

Practice and Appointment. Total £1,200. British Colony; lovely hill climate; suit married man with short experience. Free house, living cheap. Games an asset. Small premium Vacant April —Address, No. 5525, B.M.A. House, Tavistock Square, W.C.1.

Pretty Country District, Lancs. —Very nice house, garden, garage. Receipts £500, excellent scope. Panel 300. Appointments £150. Price 1½ years' purchase. House also for sale. Golf, tennis.—MANCHESTER MED. & SCHOLASTIC ASSOC., 6, Brown Street.

Scotland, University Town.—Wanted, good-class non-panel PRACTICE or PARTNERSHIP. Income £1,500 upwards.—Address, No 5599, B.M.A. House, Tavistock Square, W.C.1.

Shropshire.—Unopposed Country PRACTICE. Cash receipts £1,500 p.a. Panel 550. House to rent, 5 bedrooms, 2 entertaining rooms, garage, and garden. Premium £1,500, part by arrangement.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

To Purchasers. — Do not buy without expert assistance. With 40 yrs.' experience Mr. PERCIVAL TURNER can advise in all cases. Terms free on application to 4, Adam St., Strand, W.C.2. Telephone: Temple Bar 9011. Telegrams: "Epsomian, London."

£850 Practice wanted, Now. Well-estab'ished. panel 600. outskirts of or near large Southern town; 5/6 bedrooms, separate surgery entrance, garage; garden essential. Fees, hours, price, reason for disposal.—ROCHE, Dunselma, Cheltenham.

HOUSES, CONSULTING ROOMS.

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(H. H. Holt, H. E. Allpress, H. C. Rowe),

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Estate Agents, Auctioneers, and Surveyors,

are the BEST LOCAL AGENTS for HOUSES and CONSULTING ROOMS in the Harley, Wimpole, Queen Anne, and other Streets in the Cavendish Square district. Valuations for all purposes.

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Surveyors, Auctioneers, and Estate Agents.

10, WIGMORE STREET,
CAVENDISH SQUARE, W.1.

SPECIALISTS IN PROFESSIONAL HOUSES AND CONSULTING ROOMS.

in Harley Street and leading Medical Positions.

Telephone: *Langham 3927 and 3928.*

Wanted. — Consulting Room, with use waiting room and telephone for 2 hours, four afternoons a week, in West End, Knightsbridge or Piccadilly areas preferred.—Address, No. 5654, B.M.A. House, Tavistock Square, W.C.1.

Wanted, use of Consulting ROOM in HARLEY STREET for one Saturday per month; name plate essential; suitable [illegible] must be moderate [illegible] Street.—Address, [illegible] ock Square, W.C.1.

Wanted in Doctor's house [illegible] dental surgeon, a small FURNISHED ROOM [illegible] etc., in [illegible] tice.—. Square, W.C.1.

Consulting Rooms to be Let: Harley Street and district. Whole or part time. Lists sent on application.—ELGOOD & Co., 10, Henrietta Street, Cavendish Square, W.1. Mayfair 5618.

TO BE SOLD AS A GOING CONCERN.

Established Maternity Home in Market Town in Midlands. Charming house, with 4 reception rooms, 7 bedrooms (10 beds), complete offices, attractive grounds of 1½ acres. Co's gas, water, and main drainage. Central heating, first-class order throughout. Price to include freehold and all furniture and fittings £4,600.

Apply, JAMES STYLES & WHITLOCK, Estate Offices, Rugby.

For Sale.—£550 only (£100 down). Good new modern HOUSE. Large garden. Main London road. No doctor within miles.—Address, No. 5688, B.M.A. House, Tavistock Square, W.C.1.

For Sale.—£1,475, Forest Hill. Charming position, CORNER RESIDENCE, ideal for doctor's house. 6 bed., 3 rec., [illegible] t. possession. Sq .W.C.1.

HOUSE.

Kingston & Surbiton (between). —Charming detached modern HOUSE, suitable professional purposes, hall, vestibule, and waiting room, 2 large rec., 5 bed., bath, domestic offices, nice garden, and side entrance. Elec. light. Excellent repair. Lease 52 years. £950. Now vacant.—COX & MARTIN, Fife [illegible]

L[illegible] fitted, [illegible]ng, large airy, ground floor Laboratory. Size 20 × 15 × 12; convertible into X-ray or Treatment room, with large communicating Consulting Room. Immediate poss. in Park Crescent (Portland Place End).—Address, No. 5656, B.M.A. House, Tavistock Square, W.C.1.

Large Ground Floor Consulting ROOM to let in Devonshire Place, W.1. Door plate, attendance, waiting room, etc. Also bedroom and breakfast if desired.—Address, No. 5651, B.M.A. House, Tavistock Square, W.C.1.

Piccadilly. — Consulting Rooms in Dental Surgeon's office. Exceptionally well equipped and furnished, fitted for Ophthalmic and Sunlight work. Receptionist, service, light, telephone, all inclusive £12 per month.—No. 5689, B.M.A. House, Tavistock Sq., W.C.1.

To Let in Devonshire Street, splendid SUITE of TWO ROOMS suitable for Doctor or Dentist; also part-time consulting room, use of waiting room, etc., from £40 per annum.—Address, No. 5582, B.M.A. House, Tavistock Square, W.C.1.

To Let, Two communicating [illegible] ground floor consist

To Let.—Queen Anne Street, W.1. Part-time CONSULTING ROOM, use waiting room, etc., from £40 per annum.—Address, No. 5712, B.M.A. House, Tavistock Square, W.C.1.

85, Gloucester Place, Portman Square, W.1.—Large consulting room, waiting room, attendance, &c.—'Phone, Welbeck 8402 or address, Dr. TURNER, 11, Gloucester Road, Regent's Park, N.W.1.

MISCELLANEOUS SALES, etc.

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HARDY & HARDY

TAXATION CONSULTANTS.

49, Chancery Lane, London, W.C.2.

2 mins. from their late offices in High Holborn. Phone: Holborn 6659. Write for Tax Guide, Free.

Consult GRIMALDI'S before buying your next Car, whether NEW or SECOND-HAND. AGENTS for all LEADING MAKES [illegible] always [illegible] FOR D[illegible] Strictes [illegible] Ltd., 8[illegible]

Second [illegible] MEDICAL APPARATUS for disposal, including Couches, Screening Stands, etc. Low prices accepted for clearance purposes.—A. E. DEAN & Co., Leigh Place, Brooke Street, Holborn, London, E.C.1.

X-Ray.—Wanted, Combined COUCH and STAND.—Write particulars Address, No. 5781, B.M.A. House, Tavistock Square, W.C.1.

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MEMBERS OF THE MEDICAL PROFESSION

Can secure Perfect Fitting and Distinctive Clothes of Exceptional value. FINEST QUALITY MATERIALS. *BEST WORKMANSHIP ONLY.*

SPECIAL OFFER.

JACKET & VEST (in black or grey), £5 5s.
SOLID FANCY WORSTED TROUSERS, £2 2s.

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TWEED SUITS & OVERCOATS to measure from 5[illegible] 6d

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Medical Surgical Sundries Ltd.

Supply Instruments, Dressings, Attaché Cases, etc.

30,000,000 Tablets. Write for Price List.

Showroom: 97, Swinderby Road, Wembley.

APPOINTMENTS.—Contd.

Queen's Hospital for Children, Hackney Road, London, E.2.

CASUALTY OFFICER required on November 26th. A six months' appointment. Salary £100 a year, with board, residence, and washing. Preference given to candidates who have previously held Resident appointments. Applications must be made on forms to be obtained from the Secretary, and must be sent in, with copies of not more than four testimonials, on or before October 30th.

T. GLENTON-KERR,
September 9th, 1929. Secretary.

Queen's Hospital for Children, Hackney Road, London, E.2.

[illegible] uired on December 1st. [illegible] Salary £100 a year, [illegible] washing. Preference given to candidates who have previously held Resident appointments.

Applications must be made on forms to be obtained from the Secretary, and must be sent in, with not more than four testimonials, on or before October 30th.

T. GLENTON-KERR,
September 9th, 1929. Secretary.

The Royal Albert Hospital and EYE INFIRMARY, DEVONPORT.

A vacancy for an ASSISTANT HOUSE SURGEON (unmarried) exists. Applicants must be duly registered and the appointment will be for six months.

Salary £80 p.a., with board, apartments, and laundry free.

Applications, accompanied by copies of not more than three testimonials, should reach the undersigned not later than Friday, Sept. 20th.

By Order of the Committee,
FRANK ROWE,
Sept. 9th, 1929. Secretary.

British Hospital, Port Said.

ASSISTANT MEDICAL OFFICER.

Resident Assistant Medical Officer required immediately. Salary £350 per annum, rising £400. Free quarters, board and laundry provided, also first saloon passages out and home. Candidates should be young and unmarried. Some experience V.D. routine, bacteriological work, and anæsthetics an advantage. Applications, in writing, with recent testimonials, to the Secretary, British Hospital, Port Said, 19, Berkeley Street, London, W.1.

CAVENDISH NURSES (Male and Female)

Head Office: 54, BEAUMONT ST., LONDON, W.1 (late 43, New Cavendish St., London, W.1.)

A very convenient form of telephone message pad sent free on application to the Secretary.

Branches: *MANCHESTER*: 176, *Oxford Road.* *GLASGOW*: 28, *Windsor Terrace.* *DUBLIN*: 23, *Upper Baggot Street.*

TELEGRAMS: Tactear, London. Surgical, Glasgow. Tactear, Manchester. Tactear, Dublin.

TELEPHONES: London, 1277 Welbeck. Glasgow, 477 Douglas. Manchester, 3152 Ardwick. Dublin, 531 Ballsbridge.

Superior trained Nurses for Medical, Surgical, Mental, Dipsomania, Travelling and all cases. Nurses reside on the premises, and are always ready for urgent calls Day and Night. Skilled Masseuses, Masseurs, and good Valet attendants supplied.

Terms from £3 3s. *Apply to the Secretary or Lady Supt.*

London Jewish Hospital,

Stepney Green, E.1. (108 Beds.)

The Council of Management invite applications for the following posts:

HONORARY ASSISTANT SURGEON IN THE GYNÆCOLOGICAL DEPARTMENT, with charge of Out-patients. Candidates must be Fellows of the Royal College of Surgeons of England, Edinburgh, or Ireland, or Masters of Surgery of London University.

HONORARY

HONORARY

OF THE

MENT, w

Department at least twice a week.

Candidates desiring to make applications for any of the above posts must send twenty copies of the applications, with copies of three recent *testimonials, to the Secretary* at the Hospital before Friday, October 4th.

Freemasons Hospital and NURSING HOME,

237, Fulham Road, Chelsea, S.W.3.

The post of RESIDENT MEDICAL OFFICER (male) will be vacant on October 1st. Salary at the rate of £250 per annum, with board, residence, and laundry. The appointment is for six months. Candidates must be registered and must have held Resident appointments at a General Hospital.

The Institution (47 beds) is for paying patients of both sexes of moderate means unable to afford ordinary nursing home treatment, etc.

Applications, stating full particulars, to be sent on or before September 20th next to the Honorary Secretaries, from whom further information may be obtained.

Dorset County Hospital.

APPOINTMENT OF HOUSE SURGEON.

The Committee of Management are open to receive applications for the position of House Surgeon to take up his duties on or about October 1st.

Every candidate for the office of House Surgeon must be unmarried and possess a registered qualification to practise Medicine and Surgery from some recognized Body in Great Britain or Ireland. Salary £120 per annum, with board and lodging. The appointment is for a period of not less than six months. All applications, accompanied by three recent copies of testimonials, should be sent to the Secretary, Dorset County Hospital, on or before Sept. 16th.

Candidates must be of British nationality.

The Royal Dental Hospital of LONDON, 32, Leicester Square, W.C.2.

There is a vacancy for an HONORARY ANÆSTHETIST who will be required to attend on Friday afternoons from 2 to 3 p.m. The present Honorary Assistant Anæsthetists are eligible for the post, and in the event of one of them being elected the resulting vacancy for an Honorary Assistant Anæsthetist will be filled from amongst those applicants willing to take the junior appointment. Applications, accompanied by three testimonials, stating age and experience, should be sent in not later than September 23rd, to the Secretary.

Birmingham and Midland and EAR AND THROAT HOSPITAL, BIRMINGHAM. (65 Beds.)

Applications are invited for the appointment of Assistant Surgical Officer. Honorarium £200 per annum. The officer is appointed for twelve months, and is eligible for re-election. He shall confine his practice to the speciality of the Hospital. Full particulars may be obtained on application to the undersigned. Applications to be sent in not later than September 21st.

S. G. GREW,
September, 1929. Secretary.

Applications are invited for the post of JUNIOR HOUSE SURGEON. Salary £125 per annum. Duties to commence as early as possible. Applications, with testimonials, to be sent to the Secretary, BUCHANAN HOSPITAL, St. Leonards-on-Sea, at once.

The Royal Sea Bathing Hospital FOR SURGICAL TUBERCULOSIS, MARGATE.

HOUSE SURGEON REQUIRED.

A Male House Surgeon is required to take up duty on October 1st next. The salary is at the rate of £100 per annum, with board, residence, attendance, and laundry.

Candidates for the post must be legally qualified and registered. The appointment is for six months.

There are 300 beds for adults and children, which afford special opportunities for the study of surgical tuberculosis.

Applications, stating age and previous appointments, with copies of three testimonials, should be sent to the Secretary, R.S.B.H. Offices, 15, York Buildings, Adelphi, London, W.C.2.

Tunbridge Wells and Counties GENERAL HOSPITAL.

Wanted, HOUSE SURGEON (male). Candidates must be unmarried and duly qualified in Medicine and Surgery. (Two Residents). Vacant October 1st. May be required to lecture to the Nursing Staff.

In-patients number over 1,400 yearly. Out-patients 6,000, with 50,000 attendances.

Salary £160 per annum, with board, residence, etc., in the Hospital.

This Hospital is approved by the University of London for the purposes of the M.D. and M.S. Examinations.

Applications, stating qualifications, with certificate of registration and copies of testimonials, should be sent to the undersigned by first post September 18th.

J. J. WEBB, Secretary.

The London Lock Hospital, 91, Dean Street, W.1.

The Board of Management invite applications for the post of HOUSE SURGEON at the Male Lock Hospital. Candidates must be doubly qualified and duly registered. Salary at the rate of £200 per annum, with furnished flat, full board and laundry. The appointment to be for six months. Duties to commence October 10th. Applications, enclosing copies (only) of three recent testimonials, to be sent to the undersigned at the Male Lock Hospital, 91, Dean Street, W., on or before September 23rd.

By Order of the Board,
H. J. EASON, Secretary.

The Gloucestershire Royal INFIRMARY AND EYE INSTITUTION, GLOUCESTER. (153 Beds.)

The General Committee invite applications for the post of HONORARY EAR, NOSE, AND THROAT SURGEON.

Candidates must be duly registered practitioners.

Applications, stating age, qualifications, experience, etc., accompanied by testimonials, should be forwarded to the Secretary on or before Wednesday, October 9th.

F. J. SYMONS,
September 5th, 1929. Secretary.

Bangour Mental Hospital, WEST LOTHIAN.

Vacancy for unmarried man as SECOND ASSISTANT MEDICAL OFFICER. Experience of mental work not necessary, but Post-Graduate Medical or Surgical experience a recommendation. Salary £350 per annum, rising to £400 after 12 months' satisfactory service, together with apartments, board, laundry, and attendance. Appointment pensionable under the Asylums Officers Superannuation Act, 1909.

Applications to be addressed to the Medical Superintendent, Bangour Village, West Lothian.

Carnarvonshire and Anglesey INFIRMARY, BANGOR.

HOUSE SURGEON (male) wanted. Must be fully qualified. Salary £200 per annum, with residence, board, and laundry. Duties to commence November 1st. Applications, stating age, nationality, and experience, with copies of three recent testimonials, to reach the Secretary not later than September 20th.

The King Edward VII Welsh NATIONAL MEMORIAL ASSOCIATION.

Applications are invited from duly registered medical practitioners (male) for the post of SENIOR ASSISTANT MEDICAL OFFICER at the SOUTH WALES SANATORIUM, TALGARTH, BRECONSHIRE (304 beds for male pulmonary cases). Salary £350 per annum, plus maintenance, rising by annual increments of £25 to £400 per annum, plus maintenance.

Applications, stating age, qualifications, and previous experience, together with copies of three recent testimonials, should reach the undersigned not later than September 23rd.

Memorial Offices, Westgate Street, Cardiff. D. A. POWELL, Principal Medical Officer.

Parish of St. John, Hampstead.

The Guardians of the above Parish require a JUNIOR RESIDENT ASSISTANT MEDICAL OFFICER at their New End Hospital to start duties as soon as possible. Appointment six months, renewable at option of the Guardians. Salary £200 per annum, with board, lodging, and washing. Further particulars can be obtained from the Medical Superintendent. Applications to be sent to my office on or before 10 a.m. Thursday, September 26th.

H. WESTBURY PRESTON,
Guardians' Offices, New End, Hampstead, N.W.3. Clerk to the Guardians.

Addenbrooke's Hospital, CAMBRIDGE.

Applications are invited for the post of HOUSE SURGEON to the Special Departments. The appointment will be for six months from October 10th, but is terminable at an earlier date by one month's written notice on either side. Salary at the rate of £130 per annum, with board, residence, and laundry. Candidates (male), who must be unmarried and duly registered, are requested to forward their applications, stating age, qualifications, etc., together with copies of not more than four testimonials, to the undersigned on or before Thursday, September 26th.

W. H. HEAD, Secretary-Supt.

Hull Royal Infirmary. (272 Beds.)

Applications are invited for the post of ASSISTANT HOUSE PHYSICIAN (male), at present vacant. The appointment will be for six months in the first instance and will be terminable by one month's notice on either side.

Salary at the rate of £130 per annum, with residence, board, and laundry.

Applications should be addressed to the undersigned.

R. J. CARLESS,
September 5th, 1929. House Governor.

Ear and Throat Hospital, BIRMINGHAM.

THIRD HOUSE SURGEON wanted (non-resident). Must be qualified and with clinical experience. Appointment for six months. Salary at the rate of £150 per annum, with lunch on five week-days, with an allowance of £50 per annum in lieu of full board and lodging. Duties to commence October 1st.

Applications and testimonials to be forwarded on or before September 17th to the undersigned.

S. G. GREW,
August, 1929. Secretary.

East Ham Memorial Hospital, Shrewsbury Road, E.7. (100 Beds.)

This Hospital was opened on January 1st and is now in full working order. Applications are invited fo RESIDENT MEDICAL mmencing October 1s of £200 per annum laundry. Applicatio and full particular s of testimonials, as soon as possible, and not later than September 19th, to the undersigned, from whom any further information may be obtained.

J. F. MORTON, Secretary.

All Saints' Hospital (for Genito-URINARY DISEASES).

In-patient Dept.: 91, Finchley Road, N.W.8.
Out-patient Dept. & Secretary's Office: 49/55, Vauxhall Bridge Road, S.W.1.

Two HOUSE SURGEONS (male) required on *October 1st, as under*:

(1) JUNIOR HOUSE SURGEON (Non-resident) *for period of three months, at the expiration* of which he will, subject to the approval of the Board, be appointed to the post of Resident Senior House Surgeon for a further period of three months. Salary for both periods at the rate of £150 per annum, with board and laundry in addition in the resident post.

(2) ASSISTANT HOUSE SURGEON (Non-resident) for period of three months at salary of £100 per annum, followed by a period of three months as Junior House Surgeon (non-resident) at £150 per annum, and three months as Resident Senior House Surgeon at £150 per annum, promotion in each case being subject to the approval of the Board. The resident post includes board and laundry.

The duties of the Assistant and Junior House Surgeons consist of attendance at the Out-patient Department every afternoon and three evenings weekly.

Applications, stating age, experience, and qualifications, and enclosing copies of recent testimonials, should reach me not later than September 19th.

D. H. EADE, Secretary.

Salford Royal Hospital.
(263 Beds.)

Applications are invited for the following vacancies, which will occur in the Resident Medical Staff (male) on the 30th instant:

HOUSE SURGEON (attached to the Orthopædic Department). Salary at the rate of £125 per annum.

HOUSE SURGEON. Salary at the rate of £125 per annum.

CASUALTY HOUSE SURGEON. Salary at the rate of £125 per annum.

The appointments are for a period of six months, with board and residence.

Candidates must be registered under the Medical Acts.

Forms of application, which may be obtained from the undersigned, must be delivered without delay.

By Order of the Board,
GEORGE RUDDLE,
Gen. Supt. & Secretary.
Salford Royal Hospital, Manchester.
September 9th, 1929.

Blackburn and East Lancashire
ROYAL INFIRMARY.

RESIDENT HOUSE PHYSICIAN (male) required at a salary of £150 per annum, with board, residence, laundry, etc. In addition to Medical Wards, to be attached to Eye, Ear, Nose, and Throat Department. *To commence duties on* October 1st.

FOURTH HOUSE SURGEON (male) also required at a salary of £130 per annum, with board, residence, laundry, etc.

The Hospital contains 240 beds, with X-ray, Massage, *V.D., Eye, Ear, Nose, and Throat Departments*, Pathological Laboratory, etc. There is no outside work.

Applications, with copies of testimonials, stating age, nationality, experience, etc., to be *sent at once to the undersigned.*

NATHAN A. SMITH,
Gen. Supt. & Secretary.
Royal Infirmary, Blackburn.

General *Hospital, Nottingham.*
(377 Beds.)

A SECOND CASUALTY OFFICER (male) required at the above Institution. Candidates are *desired to send* applications, stating age, qualifications, and experience, together with copies of *testimonials*, to the undersigned, with an intimation as to when they can commence duty, if appointed.

The appointment is for six months. Salary at the rate of £150 a year, with board, residence, and laundry.

PETER M. MACCOLL,
House Governor & Secretary.

General Hospital, Nottingham.

A HOUSE PHYSICIAN is required at the above Institution. Candidates are desired to make *application at once stating* age, qualifications, *and experience, with copies of testimonials*, to the *undersigned*. The *appointment* is for six months. Salary at the rate of £150 a year, with board, residence, and laundry.

PETER M. MACCOLL,
House Governor & Secretary.

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Northern Branch.—Apply, Lady Superintendent 67, Clarendon Rd., Leeds. 'Phone: Leeds 26165.

The Hospital for Sick Children,
Great Ormond Street, London, W.C.1.

An ASSISTANT PATHOLOGIST and RESEARCH FELLOW is required in the Pathological Department on October 3rd.

Gentlemen are invited to send in their applications, addressed to the Secretary, accompanied by copies of not more than three testimonials given specially for the purpose, before 12 o'clock, on Monday, September 30th.

The appointment is whole-time and is non-resident.

The appointment is made for one year, but the successful candidate will be eligible for reappointment.

Salary £450 per annum and allowance for substitute for annual holiday, 24 guineas.

The Assistant Pathologist and Research Fellow will devote half his time to the routine bacteriological and serological work of the Hospital, and the other half to the carrying out of Research work, primarily in connection with Rheumatism. Preference will therefore be given to candidates who have shown their aptitude for Research by their previous experience or publications.

Candidates must be registered medical men, and be prepared to take up the duties on October 3rd.

All candidates must be in attendance to appear before the Joint Committee, if required, at their meeting on Wednesday, October 2nd, at 4.45 p.m.

Forms of application, copy of the rules and details of the duties of the appointment, will be supplied on application to the Secretary.

By Order of the Board of Management,
JAMES MCKAY,
Secretary.
September, 1929.

The *Hospital for Sick Children,*
Great Ormond Street, London, W.C.1.

A HOUSE SURGEON and a HOUSE PHYSICIAN are required on *October 4th and 14th* respectively.

Gentlemen are invited to send in their applications, addressed to the Secretary, before 12 o'clock, on *Monday, September 30th*, with copies of not more than three testimonials given specially for the purpose, and *also evidence of* their having held a responsible Hospital appointment.

The appointments are made for six months. Salaries at the rate of £100 per annum, laundry allowance £5, board and residence in the Hospital.

Candidates must be unmarried and possess a legal qualification to practise.

All candidates must be in *attendance to* appear before the Joint Committee, if required, at their meeting on Wednesday, October 2nd, *at 4.45 p.m. precisely.*

Forms of application and copies of the Rules may be obtained from the Secretary.

By Order of the Board of Management,
JAMES MCKAY,
Secretary.
September, 1929.

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Lancs. — Average £1,590 p.a. 1/2 share for sale. Panel £800 p.a. House, 4 bed., etc., to rent. Premium only £1,200.—No. 8517.

Salop. — Average £1,300 p.a. Country Town. Small panel. Fees 7/6 to 10/6. Mids. 4 to 7 gns. House, 6 beds., etc. Nice garden to rent.—No. 8532.

Dorset. — Average £2,300 p.a. 1/2 share for sale. Good appts. Small panel. House, 6 bed., etc., and garden, to rent. —No. 8537.

Liverpool.—£1,300 p.a. Visits 3/6 to 5/-. Mids. 3 to 4 gns. Panel 560. House, 4 bed., etc., and garden.—No. 8536.

Yorks. — Average £1,800 p.a. Panel over 1,000. Visits 3/6 up. No mids. House, 5 bed., etc.—No. 8533.

Cornwall. — About £850 p.a., increasing. Small panel. Visits 4/- to 21/-. House, 6 bed., etc., and good garden.—No. 8529.

Staffs. — About £1,300 p.a. Panel 1,300. Fees 5/-. House, 5 bed., etc., to rent. Premium £1,000 cash.—No. 8527.

Lancs Coast.—£2,000 p.a. Mid. and upper-class panel over 800. Visits 7/-. Mids. 3—4 gns. Good house to rent.—No. 8525.

West Yorks. — About £7,200. 1/4 share. Panel about 8,000. Not much midwifery. Visits 4/6 up. House (4 bed., etc.) to rent.—No. 8522.

N. Wales Borders.—£4,000 p.a. 1/3 or 2/3 share. Panel 3,800. Appts worth £1,600 p.a. Visits 5/- up. About 50 mids. at £2 2s. House (4 bed., etc.) to rent or buy.—No. 8519.

Home Counties.—Death Vacancy. —About £760 p.a. Mids. 2 gns. Panel 516. Visits up to 10/-. Good house and large garden to rent.—No. 8516.

Yorks.—Over £3,000 p.a. 1/4 share, good scope for increase. Panel over 2,000. Mids. 2—5 gns. Med. house to rent or buy.—No. 8510.

Lancs.—£4,000 p.a., increasing. Panel over 2,600. Visits 2/6—7/-. Mids. 2—5 gns. Suitable for two. Two houses, rent or buy.—No. 8509.

Sussex Coast.—About £1,400 p.a. Good-class, non-panel, non-dispensing. Appt. £35. Visits 5/- to 15/-. Large house to rent.—No. 8476.

Home County.—Over £700 p.a. Small residential town within 25 miles, South. Panel 462. Good fees. Large well-built house and garden.—No. 8494.

Cornwall. — Share £1,000 p.a. General mixed Practice. Panel nearly 2,400. House, 5 bed., etc., low rent.—No. 8493.

Berkshire. — About £700 p.a. General mixed Country PRACTICE. Panel about £287 p.a. Few mids. Fees 12/6—7/6. Excellent house and garden.—No. 8490.

Lancs.—1/3 or 1/2 share of Over £2,400 after prelim. assistancy. Panel £500. Mixed class. Good house, with 4 bed., 2 attics, etc.—No. 8454.

Bucks.—About £2,800 p.a. 1/2 share. Appts. £200 p.a. Panel over 1,900. Visits 3/6—10/6. Mids. 2—5 gns. House, 4 bed., to rent. Prem. 1½ yrs.—No. 8483.

Kent.—Country Practice. About £1,000 p.a. Panel about 400. Appts. over £50 p.a. Visits 3/6 to 10/6. House, 5 bed., etc. Extensive grounds.—No. 8408.

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EASTERN COUNTIES.—PARTNERSHIP in good-class Practice. Receipts over £4,400 p.a. No panel. Hospital. Premium for 1/4th share, with view to larger share, 2 years' purchase. Suitable to young experienced man, preferably single and on the medical side.

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LANCS.—Large Town.—PARTNERSHIP in mixed-class Practice. Receipts £1,900. Panel 1,900. Good house to rent or for sale. Premium for half share 1½ years' purchase.

MIDDLESEX.—Well-established rapidly increasing PRACTICE. Receipts over £750. Panel over 250. House for sale or to rent. Prem. £850.

DEVON.—PARTNERSHIP in Market Town. Receipts £1,500 p.a. Panel 640. Share worth £600 p.a. is offered now, with view to larger share later at £1,200.

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SURREY.—Within 20 miles of London. NUCLEUS Practice situated in rapidly developing good-class residential locality. Receipts £600. Panel 300. House to rent. Premium 1½ years' purchase.

LONDON, S.E.—Working-class G.P., with Branch Surgery. Receipts over £600 p.a. Panel 765. Premium for house and practice £2,200.

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MIDLANDS.—X-Ray PRACTICE situated in large town. Excellent corner house for sale or to rent. Receipts over £1,200. Two appointments; prospects of others. Premium for practice and full appliances £1,250, payable part down, balance by instalments. Excellent scope for experienced man.

SOUTH-WEST COAST.—PARTNERSHIP in well-established good-class rural G.P., with Nursing Home attached. Excellent house to rent. Surgery, X-ray, and Electro-therapy. Receipts over £4,000 p.a. Panel approx. 1,000. Suitable to well-qualified man keen on surgery. Premium for half share 2 years' purchase.

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6. KENT.—Well-known seaside resort.—Well-established PRACTICE. Receipts average £700 a year, panel 400. Immediate sale essential, small reasonable offer accepted. Nice flat available.
7. LONDON, S.E.—Well-established PRACTICE. Receipts average nearly £1,100 p.a. Panel fair. Corner house, with good living accommodation. Rent £104, 17½ years' lease. Moderate premium for quick sale. Excellent scope.
8. Near NEWCASTLE-ON-TYNE. — Old-estab. mixed PRACTICE. Receipts £750. Panel 700. Good house on lease. Opposition weak. Capable much extension. Prem. moderate.
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5. PRACTICE. Receipts average £1,270 p.a. Panel 1,113. Good house, garden, garage.
6. [illegible].—Panel and er £600 p.a. rent or can re.
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8.).—PARTNER- average over nteed). Panel ation (corner

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1 DEATH VACANCY. — *Surrey.—Practice* about £1,700 p.a. in residential town. Panel 840. Excellent *house (7 bedrooms), with beautiful garden for sale or rent.*

2 SOUTH COAST. — Practice worth about £1,500 p.a. in first-class residential seaside place. Small panel. *Detached house (6 bedrooms), with garage and garden to be sold.* Moderate premium for Practice.

3 ESSEX. — Rapidly increasing Practice of *nearly £1,200 in residential district under 10 miles from London.* Panel 747. Fine imposing and centrally situated house to be sold. Premium—Practice—£1,800.

4 YORKSHIRE (E.R.). — Old-established Town and Country PRACTICE £2,750, within easy distance of *important* town. Panel 1,750 to [illegible] use (9 rooms and bath). Great scope. [illegible] house— £4,850, *or, assistantship with* vie[illegible] share entertained.

5 SOUTH OF ENGLAND.—*Partnership in* Practice of over £6,700 p.a. in pleasant residential neighbourhood close to good Town. *One-sixth share at first at 2 years' purchase.* Purchasers should have held H.P. appointment at one of the London Hospitals.

6 EAST ANGLIA.—Partnership in Country Town Practice averaging £1,600 p.a. Panel about 700. Picturesque old-fashioned *house (8 bedrooms), with electric light,* etc., to rent. Premium one-half share 2 years' purchase.

7 LONDON, N.—*Partnership in* well-estab. middle-class Practice, nearly £2,750 p.a., in pleasant outlying suburb. Panel about 800. Suitable accommodation to rent. Premium one-third share 2 years' purchase.

8 YORKSHIRE (W.R.). — Partnership in Practice averaging £1,400 p.a. in country district close to large town. *Opposition* weak. Plenty of scope for increase. One-half share at 1½ years' purchase.

9 BUCKS.—Practice about £800 in small *country town.* Panel 741. Nice detached house (4 bedrooms), garden and garage, *to rent.* Premium £1,200.

10 SOUTH OF ENGLAND. — Assistant required (with view to Partnership) in steadily increasing Practice £2,770 in attractive town within 90 miles of London. Panel 1,770. Applicant must be English or Scotch (about 28 to 30), who must have held House appointments. *One-third share at 2* years' purchase to suitable man after assistantship.

11 BRITISH EAST AFRICA. — Assistant required (with view to *Partnership*) in *General* and X-ray and Electro-therapeutic Practice. Assistant must hold the F.R.C.S., and experience in X-ray would be advantageous. Share of about £1,200 p.a. offered to *suitable man* after preliminary assistantship.

12 SOUTH AFRICA.—Old-established PRACTICE. Receipts last year £1,816. Travelling and midwifery light. Climate ideal—no tropical diseases (altitude nearly 5,000 ft.). *Delightful residence (5 bedrooms),* in perfect order, with 2 acres grounds. Excellent scope. Local Hospital. Premium £1,200, with option to purchase house.

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14 CARDIFF. — Non-dispensing Practice *averaging £1,543 p.a. Small panel. Pleasantly situated house* (5 bedrooms) to be sold or let. Premium £2,000.

15 MIDLANDS.—Practice averaging £1,680 *p.a. in important city.* Panel 1,560. *Specially built house (4* bed and dressing rooms) to be sold. Scope for increase. Price £2,250.

16 HOME COUNTIES.—Partnership in Practice £2,800 p.a. in good town about 30 miles from London. *Small* panel. Convenient house (5 bedrooms) to be sold or let. University and Public School man who has held appointments preferred. One-third share at 2 yrs.' purchase after preliminary assistantship.

17 LONDON, S.E.—Increasing Practice averaging about £800 p.a. in populous district close to the City. Panel 800. House (3 bedrooms) to rent. Premium 1½ years purchase.

18 PRIVATE ASYLUM.—Partnership.—Exceptional opportunity for suitably qualified *Medical* Man (age 30—33) in first-rate establishment. Preliminary assistantship 12 months. Capital required about £4,000.

19 SOUTH OF ENGLAND.—Partnership in Practice £2,250 p.a. in beautifully situated Country Town within *100 miles of London. Panel under 1,000. Suitable accommoda*tion. Share, worth about £900 p.a., at 2 years' purchase.

20 SOUTH OF ENGLAND.—Seaport Town. PRACTICE of about £750 p.a., including appointments over £225 p.a., and panel nearly 1,000. *Good house (6 bedrooms)* to be sold or let. Premium 1½ years' purchase.

21 DEATH VACANCY.—Surrey.—Practice of between £250/300 p.a. in residential district easy distance of London. Small panel. Specially built corner residence (4 bedrooms), with nearly half acre of garden, for sale.

22 LONDON, W.—Partnership in good middle and upper class (non-dispensing) Practice. *No panel. Applicant* should be aged about 30 and have held several *Hospital appoint*ments. Share of £1,000 (or more) at 2 years' purchase after *preliminary assistantship.*

23 SURREY.—Sound rapidly increasing PRACTICE in suburban district under 10 miles. Receipts last year £2,500. Panel 750. Small house for sale. Premium—Practice—£4,000.

24 NORTH OF ENGLAND. — Practice about £600 p.a. in Inland Spa. Panel over 500. Well-situated house (6 bedrooms) to rent. *Premium £1,000.*

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Practices and Partnerships for Disposal (continued).

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26 LIVERPOOL. — Increasing Practice of nearly £1,300. Panel 560. House (4 bedrooms), garage and garden, for sale. Golf near by. Premium £1,650.

27 SOUTH OF ENGLAND. — Partnership in Country Town Practice of nearly £2,300 p.a. Small panel. Well-built house (6 bedrooms) to rent. Premium one-half share 1½ years' purchase.

28 SOUTH COAST.—Non-dispensing Practice of about £1,900 in residential town. No panel. Choice of house.

29 MIDLANDS. — Practice averaging over £1,850 p.a. in small Industrial Town with pretty country all round. Panel 1,380. Double-fronted house (7 bedrooms) for sale. Good scope. Premium £2,500.

30 MIDDLESEX.—Partnership in sound Practice of between £3,000 and £4,000 p.a. in town within easy distance of London. Panel over 2,000. Share worth about £1,000 p.a. at 2 years' purchase after preliminary assistantship.

31 KENT AND SUSSEX BORDER.—Country PRACTICE, nearly £1,150, in beautiful district. Panel about 400. Large house (6/7 bedrooms), with charming garden, etc., for sale. Sport. Premium £1,625.

32 LONDON, W.—Good middle-class Practice of £840 in outlying residential suburb. No panel and practically no midwifery. House (4 bedrooms) and fair-sized garden to rent. Premium £1,100.

33 S.W. OF ENGLAND. — Country Practice of £950 p.a. Panel 400. Very little midwifery and night work. House, with 4 bedrooms, garden, and garage, for sale. Good society. Premium 1½ years' purchase.

34 LONDON, N.—Sound easily worked PRACTICE over £2,500 p.a. in residential district. Small panel and few midwiferies. Good house (5 bed and dressing rooms), with large garden, to be sold. Premium for Practice 1½ years' purchase.

35 MIDDLESEX. — Rapidly increasing PRACTICE doing about £600 in new developing district. Small panel. Very convenient house (3 bedrooms) for sale. Great scope. Premium £900.

36 NORTH OF ENGLAND.—Partnership in non-dispensing Practice about £6,000 p.a. in first-rate Country Town. Small panel. Very good house (6 bedrooms) to be sold or let. Premium one-fifth or two-fifths share 2 years' purchase.

37 WEST OF ENGLAND.—Practice in first-rate town. Receipts past 12 months £1,450. Panel 500. House, with 6 bedrooms, to rent. Premium £2,000.

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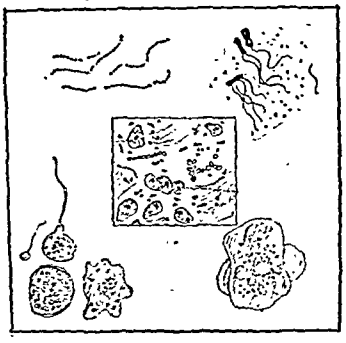

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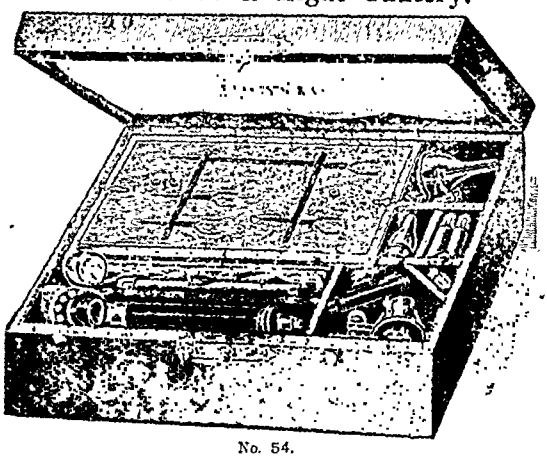

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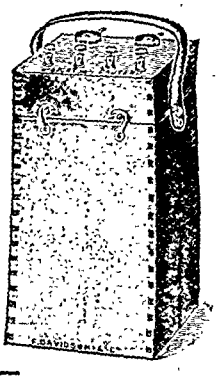

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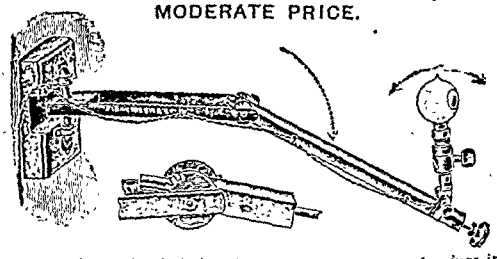

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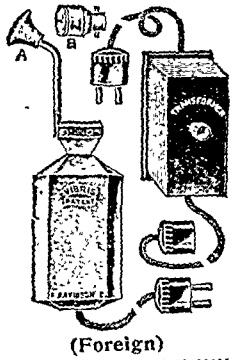

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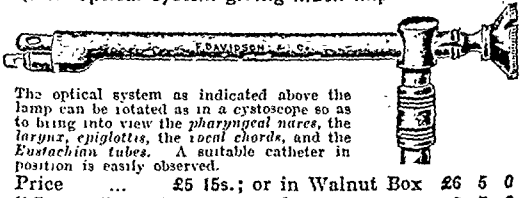

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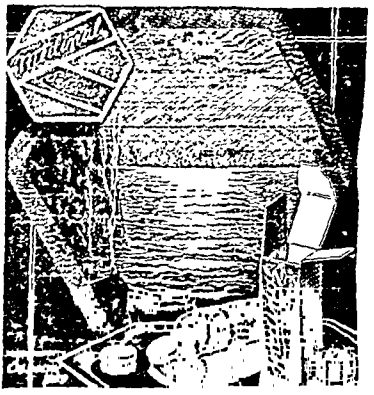

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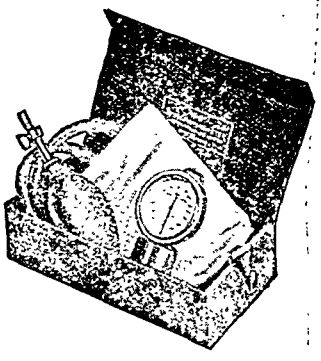

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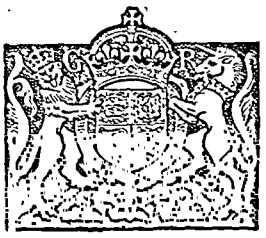

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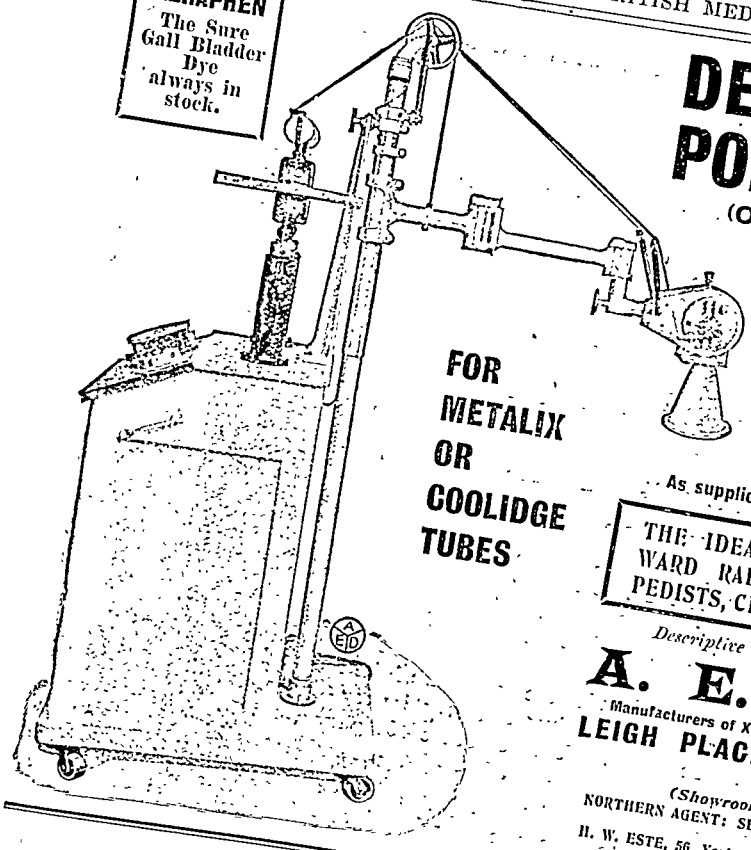

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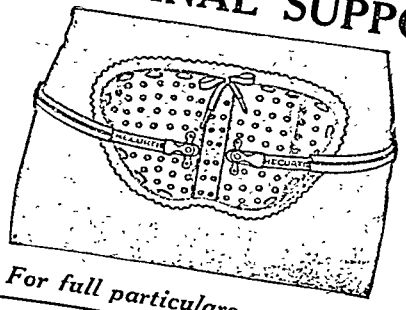

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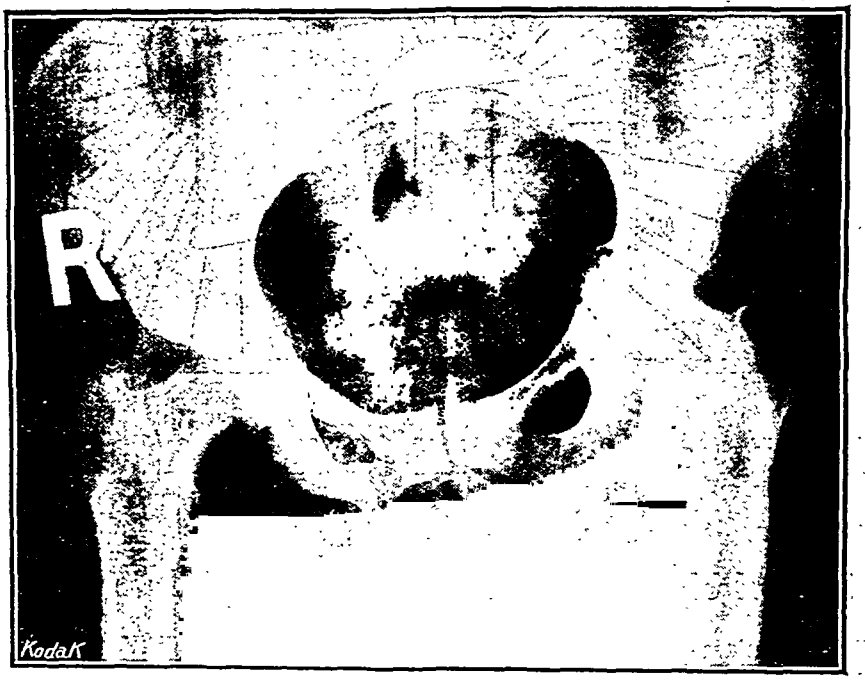

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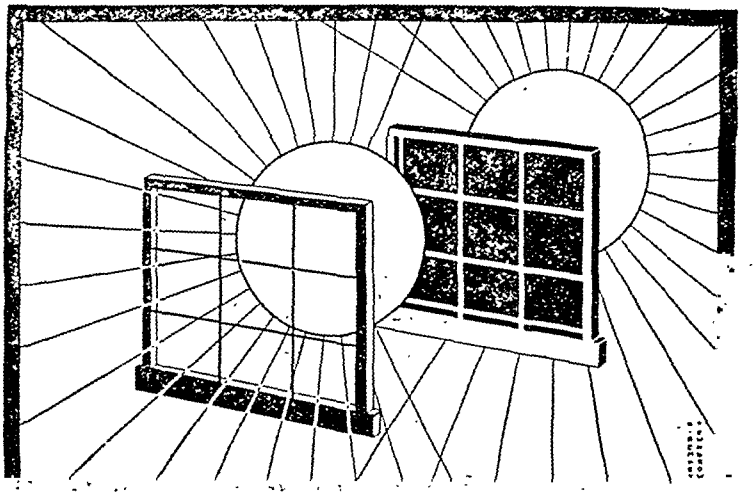

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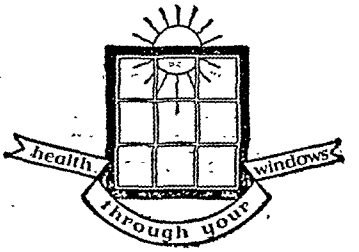

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V. 222

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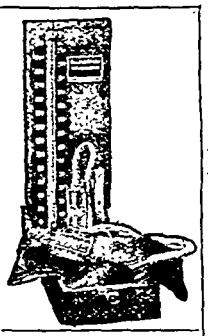

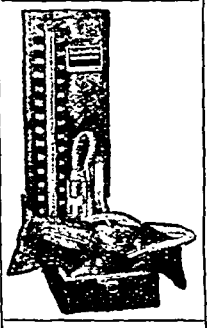

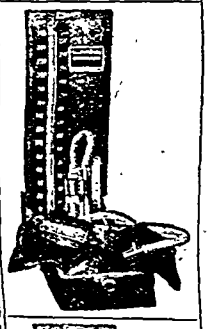

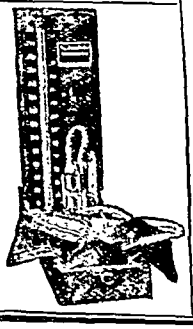

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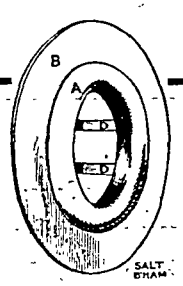

FIG. 1

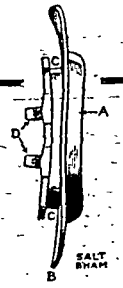

FIG. 2

FIGURES 1 and 2.

A. Solid rubber pad fitting next body.

B. Flange to prevent belt becoming soiled.

C. Groove over which aperture in bag is stretched.

D. Curved bars to hold bag open.

FIG. 3

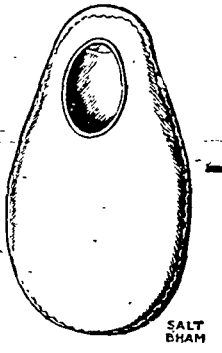

FIG. 4

Figure 3 shows end view of India Rubber receiver with (Fig. 4) bag attached.

Figure 5 shows receiver on belt, bag being on outer side of belt.

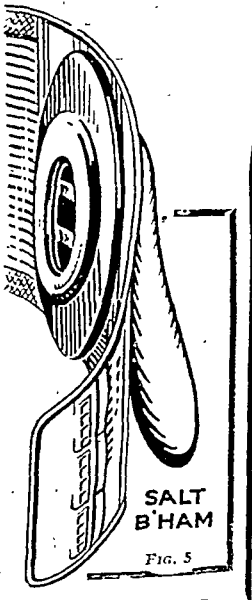

FIG. 5

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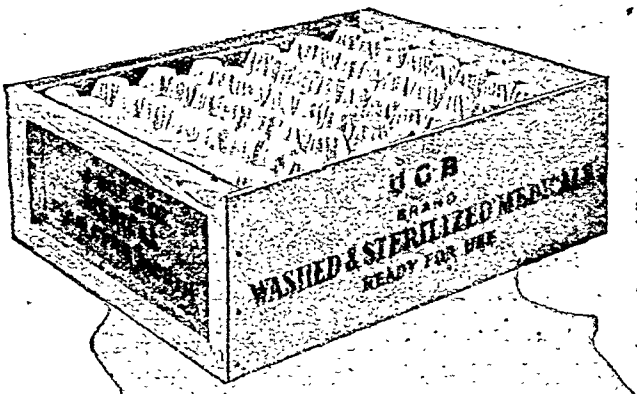

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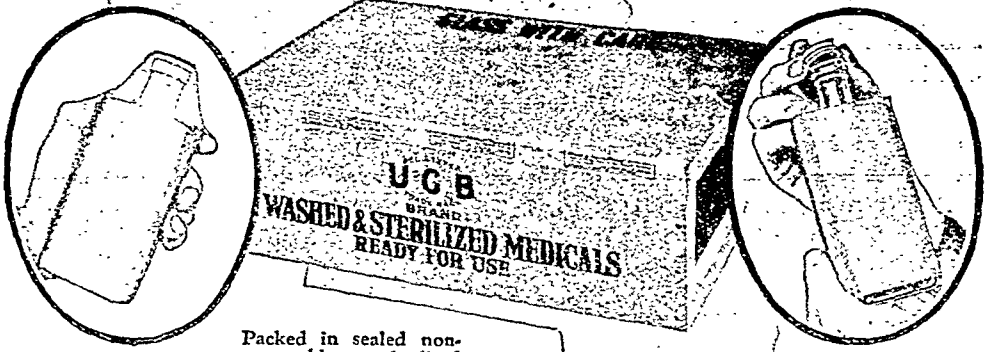

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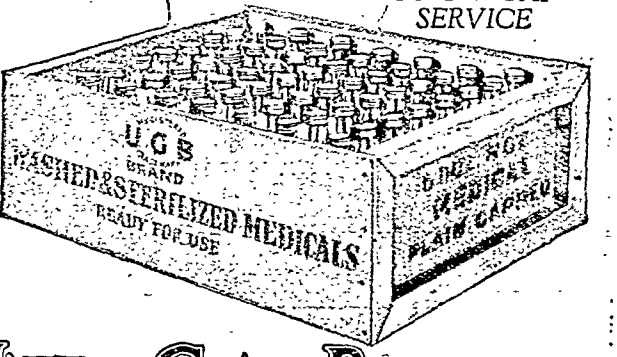

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NOTE.—This case is mentioned to illustrate certain points. The child's mother was a widow without funds. The child came to the surgery during usual hours on a busy afternoon. The necessity for preparing him for General Anæsthesia as well as the necessity for employing an anæsthetist or sending the child to the hospital, the amount of time required in order to carry out the necessary treatment were factors which entered into the handling of the case. Under the plan mentioned above an assistant anæsthetized the arm, the surgeon reduced the fracture, and the assistant then applied the necessary dressing. The total expenditure of time by the surgeon was less than five minutes. Furthermore, the child left the surgery travelling on his own power. From an economic standpoint the use of Local Anæsthesia in such a case presents many advantages.

—Extract from PRACTICAL LOCAL ANÆSTHESIA (Farr).

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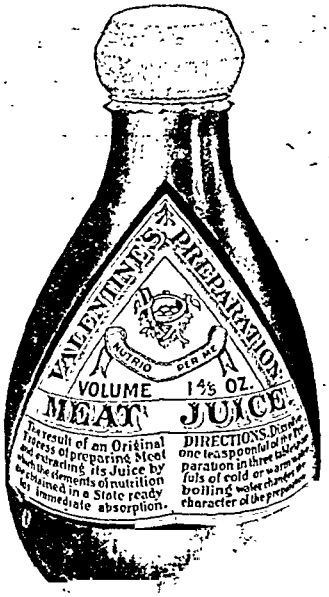

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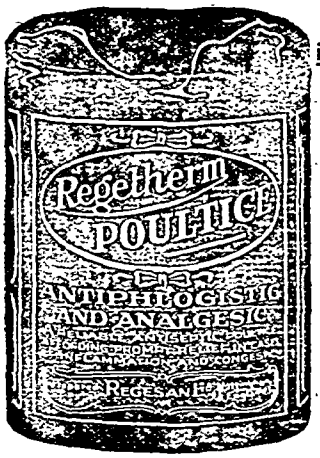

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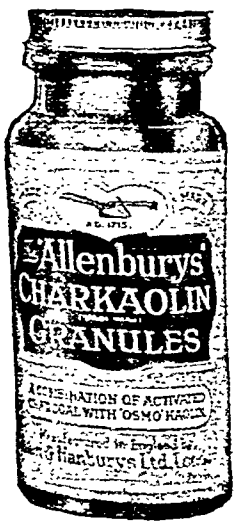

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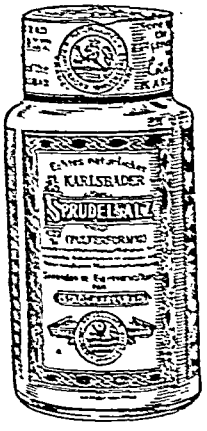

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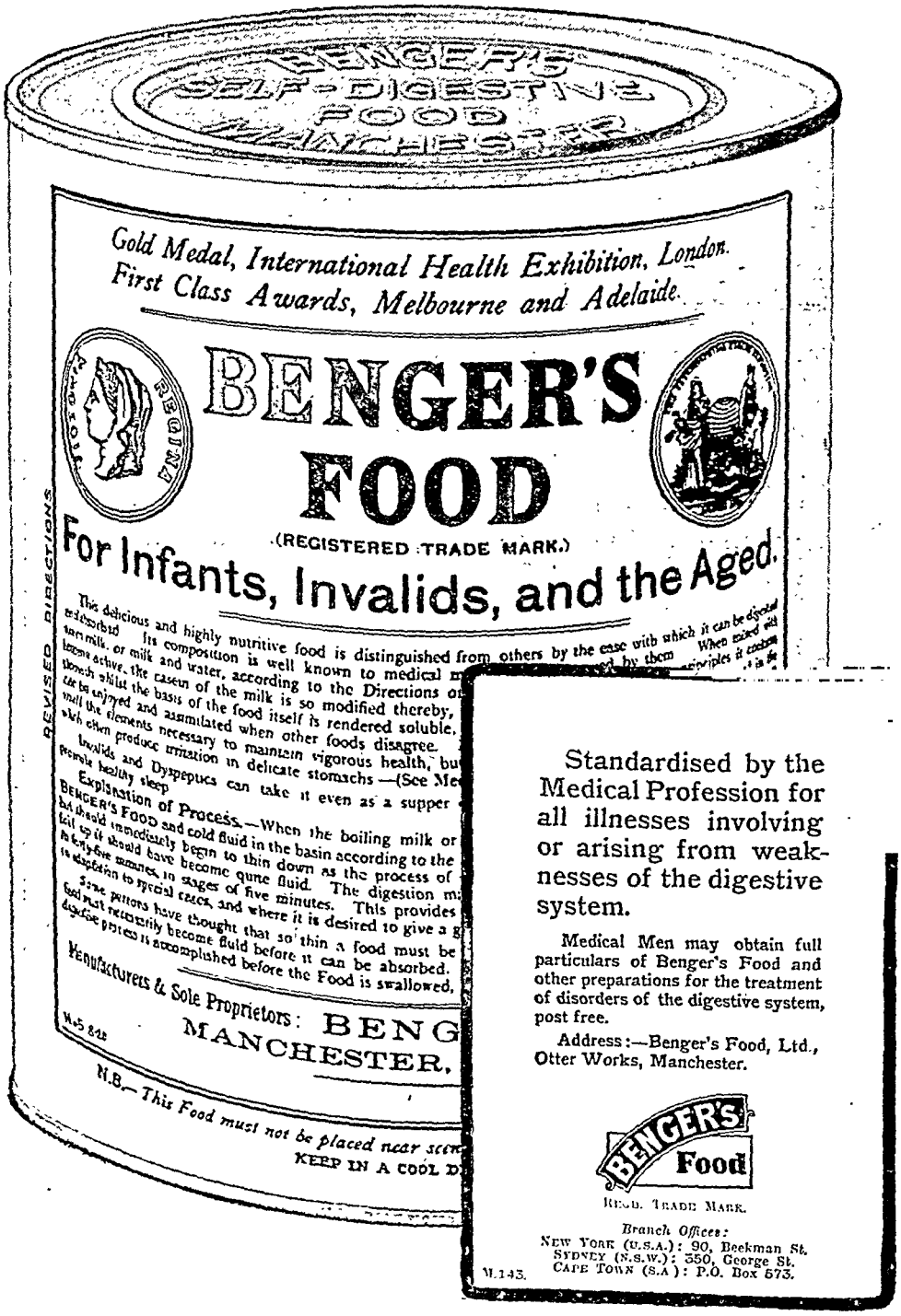
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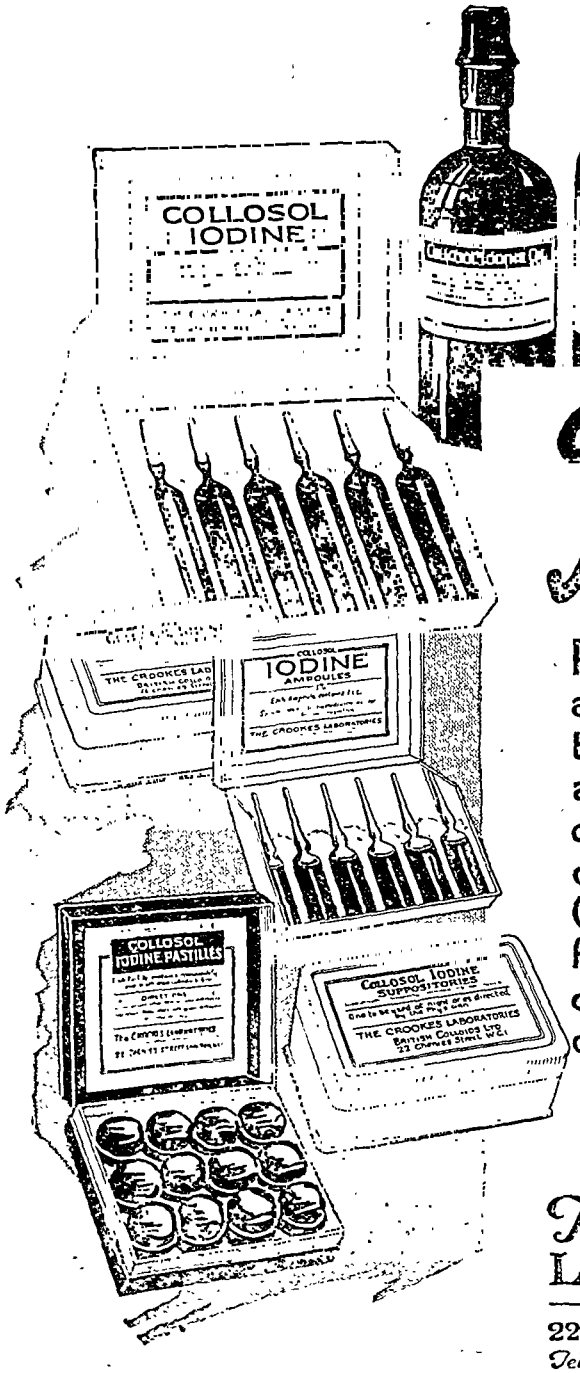

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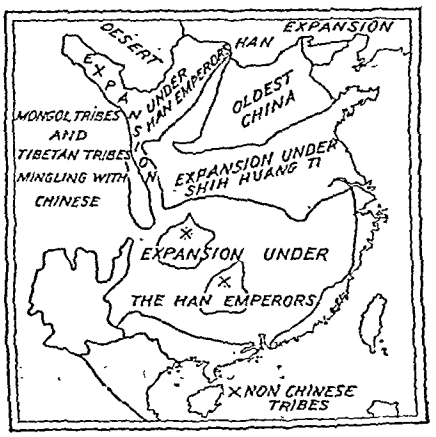

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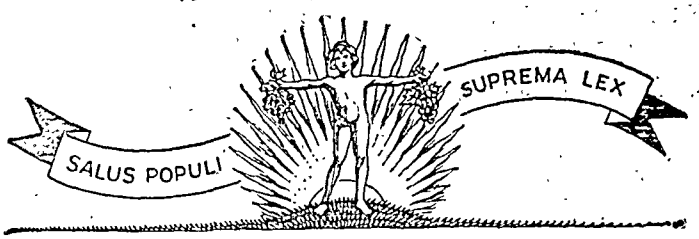

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Remarks
ON
THE SYMPTOMS AND DIAGNOSIS OF PLACENTA PRAEVIA:
WITH A NOTE ON THE USE OF SUBMAMMARY SALINE.*

BY
BETHEL SOLOMONS, M.D., F.R.C.P.I., M.R.I.A.,
MASTER, ROTUNDA HOSPITAL.

THE task which has been set me to open a discussion on the symptoms and diagnosis of placenta praevia is indeed a difficult one, for the treatment depends so much on diagnosis that it is nearly as impossible to divorce these two aspects of the subject as it is to separate the Ghost from the play of *Hamlet*, or, at the present juncture, the Gaelic language from Ireland. In spite of this, the effort will be made, and if occasionally a casual remark is let fall on the subject of treatment when it is necessary during the course of the discussion on diagnosis, those who realize the difficulties of the situation will excuse; those who do not, will not notice.

NOMENCLATURE.

It is absolutely indispensable in a consideration of this subject that the nomenclature should be made very clear. It has been the custom in some textbooks to group various haemorrhages in the fourth, fifth, and sixth months under this term, and as the condition of praevia then has a very different significance from that of the true condition, it seems necessary to lay down the law that "when bleeding in the last three months of pregnancy is caused by the separation of a placenta situated either wholly or in part in the lower uterine segment, the condition is known as unavoidable haemorrhage, and the placenta is termed a placenta praevia." It seems necessary further to define accurately these last three months, and to state that the condition can only occur from the twenty-eighth week, which is the first possible period when the child *may* be deemed viable. Any haemorrhage from the formation of the placenta until the twenty-eighth week must be grouped under "miscarriage." The terms "unavoidable" and "praevia" are satisfactory in that they convey the fact that haemorrhage is "unavoidable" because of the position of the placenta, which is ("praevia") before the presenting part.

The varieties of location must *next be considered*, for often it is on this important fact that treatment depends.

We speak of: (1) Central or total placenta praevia—where the placenta covers the internal os completely; when the whole of the palpable lower segment is covered by it and when its margin cannot be reached by the finger. (2) Partial—where the internal os is partially covered—that is, there is a definite space between the margin of the placenta and the rim of the os. (3) Lateral—where the edge can be felt just above the internal os in the lower uterine segment, but the os is not covered. The term "marginal" should be removed from the literature, as we believe that the above nomenclature gives the best idea of the conditions present with a view to treatment.

It was suggested by a correspondent in a recent issue of the *British Medical Journal* that the last two should be grouped as one. This would be a very retrograde step. The practitioner must differentiate the partial from the lateral varieties. He must know that if placenta is palpable over the internal os, it may not be a total praevia. He must realize that if there is bleeding suggestive of praevia, it may be a low insertion high up—that is, a lateral insertion. Finally, a lateral insertion may not demonstrate its presence until the cervix is nearly fully dilated, while the partial shows itself long before this.

The cause of the haemorrhage and the reasons for detachment of the placenta go hand-in-hand.

1. The most likely reason for separation is that the painless contractions of Braxton Hicks, which continue during the whole pregnancy, cause a passive dilatation of a lower segment which is softer and more dilatable than normal; during the later months of pregnancy the placenta does not expand with it and must therefore become detached.

2. Disease of the placenta may occasionally be a causal factor from faulty adherence, and it is a well-known fact that the placenta may be diseased.

3. The capsular development of the placenta may prevent the attachment being as firm as usual.

Hand-in-hand with these theories are: (1) the opened placental site sinuses pouring out blood after separation; (2) *haemorrhage occurring from the circular sinus* and the intervillous spaces of the placenta.

These are the most plausible of the many theories suggested.

HISTORICAL.

There has been much discussion as to the accurate knowledge of the discovery of placenta praevia, but there seems to be little doubt that Paul Portal, in 1685, was about a hundred years in advance of other obstetricians, and was the first not only to diagnose the condition, but to be aware of its importance and dangers. He mentions in his *Pratique des Accouchements* six cases of uterine haemorrhage from the os uteri. Although treatment does not come within the scope of this communication, it is of interest to note that Portal opened the cervix and delivered. Needless to say, he had many fatal cases. Among others from whose work a knowledge has been gradually evolved are Levret and Rigby, while De Graaf, in his *De Mulierum Organis* in the seventeenth century, says, "The site of the placenta in the uterus has been described by various writers in various situations." Evidently many of these obstetricians knew that the placenta could be attached to places other than the fundus, but no practical inference was deduced. This applies particularly to Mauricean, *who punctured the membranes* and left the case to Nature for the first time. Puzos did likewise. Rigby of Notts, already mentioned, gives a very definite differential diagnosis. In fact, to Rigby must be assigned the honour of being the first to suggest a nomenclature and to make differential diagnosis between accidental and unavoidable haemorrhage, even though earlier he seemed to think that sometimes the haemorrhage arose from the vagina. Among other writers who must be mentioned in connexion with the historical aspect of the subject the names of Giffard, Roederer, and, last but not least, Smellie, cannot be omitted.

ETIOLOGY.

The most valuable factor in considering etiology is to determine if the knowledge will assist in diagnosis or prevention. The following theories must be mentioned.

1. The basal implantation theory. That the ovum after fertilization is inserted in the lower uterine segment. The placenta is basal and the clinical result is a central placenta praevia.

2. The capsularis implantation theory. That the placenta is developed in connexion with the decidua capsularis as well as with the decidua basalis. This variety determines a lateral or partial placenta.

3. Defective vascularity of the decidua may make it necessary for the placenta to spread over a large area for nourishment.

4. Inflammatory or atrophic changes may be explained in a similar manner.

5. The placenta membranacea may invade the lower segment because of its size.

These are the theories which are really worth considering, and they bear out the one great theory that there is some fault in the endometrium—a true endometritis or else a hyperplastic condition, and that this may account for the abnormality. We have several times in our practice curetted the uterus two months after the occurrence of placenta praevia and have obtained the above findings. Following the growth of healthy endometrium confinements have been normal. In other words, in the basal theory the ovum seeks healthy endometrium; in the capsularis theory the ovum must spread. There is no need to explain further the other possibilities. While we are not at all wholesale advocates of the curette, we believe it to be entirely indicated two months after a placenta praevia

* Made in opening a discussion in the Section of Obstetrics and Gynaecology at the Annual Meeting of the British Medical Association; Manchester, 1929.

labour when the uterus has regained its pre-pregnancy tone, and that by so doing placenta praevia in future pregnancies will be avoided.

THE DANGERS OF PLACENTA PRAEVIA.

These, according to world statistics, are great for the mother and very great for the child. The mother may die from collapse following on haemorrhage, from which, if she recovers, she is so desanguinated that sepsis of a fatal nature may occur. Sepsis may also occur because of the low position of the placental sinuses. It is scarcely necessary to mention that sequelae such as menorrhagia, tendency to abort, and sterility are numerous. In addition, rupture of the cervix because of its sodden condition is said to be common.

The foetal mortality is enormous. Prematurity with a 50 per cent. death rate in the first month is the rule, and this fact must be carefully borne in mind when dealing with diagnosis with a view to treatment. Death during its passage through the birth canal is common for the infant because of interference with its oxygen supply through the placenta, or else from prolapse of the cord.

The possibility of the occurrence of placenta praevia is made very evident when it is stated that in a search of the records of the Rotunda Hospital it was found that there were 326 cases among 60,130 deliveries—that is, an incidence of 1 in 183. This incidence makes very apparent the necessity for knowledge of the subject by every general practitioner. Among these cases there were 19 deaths, a death incidence of 1 in 17. This mortality rate is far too high, and with improved technique in diagnosis and treatment I am able to report a series of 55 consecutive cases since the commencement of my Mastership without mortality. Most of the babies were premature and only 12 were born alive; 2 died before leaving the hospital, so that the prognosis for the infant is extremely bad. These statistics show clearly the necessity for deep thought when deciding on treatment of a given case.

DIAGNOSIS AND DIFFERENTIAL DIAGNOSIS.

The occurrence of placenta praevia may be suspected in pregnancy by the history of haemorrhages at various times. A perusal of the case sheets of the hospital reveals in many instances a history of haemorrhage occurring at intervals varying from the fourth month onwards. This point may be of value, for placenta praevia may be suspected, and the patient should be kept at rest, when it may be found possible to carry her on in her pregnancy until the child is well viable.

A history of previous abortions or miscarriages is sometimes elicited, but this history has been obtained so seldom that it has but slight, if any, significance. It has been suggested that, as the patient is usually multiparous, something might be elicited from the previous labours; no such facts could be made out. On the contrary, with the exception of abortions, the previous labours had, as a rule, been without incident. Repeat toxaemias are common; placenta praevia seldom occurs more than once in a woman's life. We have little or nothing to warn us of the possibility of placenta praevia. In its silence lies danger. How, then, can we diagnose the condition? The first symptom to which our attention is drawn is fresh haemorrhage accompanied by clots. This is a most important point in diagnosis; the bleeding is extremely insidious in its onset: it may occur in sleep; it may happen while the patient is sitting talking to her friends; it may be slight and may recur, or the first haemorrhage may be so severe as to cause marked constitutional symptoms, even to the extent of a fatal issue. We have met with patients whose pulse was 80 and strong one moment, and who soon after were pulseless. The bleedings are entirely unaccompanied by pain. This severe type speaks for itself and tells us the diagnosis; the patient who has recurrent attacks of slight haemorrhage is more difficult, but her case must be diagnosed as soon as possible, for a slight first haemorrhage does not mean that the next will not kill her. In fact, generally speaking, definite diagnosis is essential; a "wait and see" policy may mean a fatal result. The infant is usually premature to some extent. A study of the records revealed the fact that there was no special week more favoured than another. At any period from twenty-eight to forty weeks the haemorrhage may commence.

Following the haemorrhage, two pints of submammary saline are given under the breasts. As this takes place during the diagnosis it must be mentioned here, even though it is a part (and a most important part) of the treatment. All practitioners should carry in their maternity bag apparatus for giving submammary saline; it is the most practical method of making up for the blood lost—in the hands of the ordinary general practitioner—and it is entirely effective. Since I have adopted this prophylactic saline method at the Rotunda I have not lost a single case. People may speak of blood transfusion and venous medication, but in the emergency practice of the general practitioner a combination is necessary which is simple, safe, and effective. Once the saline is started, its administration should, if possible, be left to an assistant. At the Rotunda the saline is prepared as follows: One pint of water is boiled with two teaspoonfuls of salt; this is kept in stock solution. When required one pint of boiling water is added; this gives the correct strength and approximately the correct temperature (about 100° F.). In practice the proprietary soloids of salt may be used. The abdomen is examined and the following facts are found: (1) that the uterus is soft and painless; (2) that the presenting part is high and unfixed, and gives the definite impression that it is sitting on something; (3) a uterine souffle is heard in the region of the hypogastrium. Some authorities have suggested that the diagnosis is now made: painless bleeding, prematurity, soft painless uterus, high presenting part, uterine souffle, clotted blood. We do not subscribe to this dictum. These cardinal facts suggest the abnormality; they do not make the diagnosis definite. We hold that the only way to make a definite diagnosis is to examine the patient by the vagina. Before making this examination the doctor should have decided on his next step, for he can at any rate have made a provisional diagnosis; the vaginal examination may cause haemorrhage, and it may be necessary to treat the case immediately the vaginal examination is concluded. In placenta praevia, more than in any other condition, must a vaginal examination be made under extreme aseptic precautions. Sepsis is more than possible, but the danger of missing the diagnosis without vaginal examination is greater than the danger of sepsis. If the cervix is closed, the low implantation may be suspected by a bogginess in one or all of the fornices. If the os is open, the placenta itself is felt. It is indeed simple to diagnose the placenta; we advise our students to familiarize themselves with the touch of a normal placenta, when the diagnosis of a praevia is simple.

An examination of the urine should be made in all instances; it will probably be found to be normal. Toxaemia is seldom an accompaniment of placenta praevia, although as an exceptional circumstance it may be so. This exception must be specially stressed; when present, it is most common in the primigravida, and the case will be a typical placenta praevia with toxaemic symptoms.

Differential Diagnosis.

There are many differential points in diagnosis when a woman bleeds in the last three months of pregnancy:

1. Accidental haemorrhage.
2. Excessive show.
3. Varicose veins in some part of the tract—for example, vulva, vagina, cervix.
4. Haemorrhoids.
5. Carcinoma of the cervix.
6. Polypus.
7. Erosion of the cervix.

In addition it may be necessary, on examining the abdomen and finding the "high head," to diagnose from: disproportion; and, on vaginal examination, from hydrocephalus, anencephalus, vasa praevia, and cervical varix.

Most of these are soon cleared up. An excessive show may always be confused with any variety of ante-partum haemorrhage; its diagnosis is made by the speedy cessation of the haemorrhage, accompanied by the absence of physical signs of placenta praevia. Varicose veins of the vulva or vagina will readily be seen; the same applies to the bleeding from haemorrhoids. Occasionally an erosion of the cervix or a polypus may bring about symptoms suggestive of placenta praevia, but the erosion and polypus are

visible through a speculum. Carcinoma of the cervix will be accompanied by history and physical signs. Occasionally one meets in a primigravida a condition of "high head" which is suggestive of disproportion. The commencement of the cardinal symptoms of placenta praevia suggests this abnormality, but a careful examination must be made to confirm the diagnosis. We have had a case lately at the Rotunda where the placenta acted as a mechanical cause of delay in labour, and this was perfectly evident at the Caesarean section operation which was indicated later. It is only necessary to draw attention to this differential point in diagnosis, and to remember that occasionally the two may occur together.

Hydrocephalus must be mentioned, for the enormously *separated fontanelles* may give the impression of a cervix with placenta protruding through. In addition the height of the head when felt by the abdomen may give a wrong impression. Anencephalus may simulate anything. Vasa praevia may suggest placenta praevia, but it is unimportant.

The condition which is most frequently mistaken for placenta praevia is accidental haemorrhage, and since the treatment for each of these conditions is very different, and as the treatment for the one is entirely unsuitable for the other, the importance of making a correct diagnosis is obvious. It is well at this stage to consider the various factors in making a diagnosis between the two.

(*a*) *Parity.* Placenta praevia is more common in the multipara than in the primigravida, but it is found in the primigravida. Accidental haemorrhage is always found in the multiparous patient.

(*b*) *Toxaemic symptoms* are nearly always present in accidental haemorrhage, and they are usually absent in placenta praevia. In spite of this assertion it is necessary to give a warning: accidental haemorrhage *may* occur without toxaemia, and severe toxaemia accompanied by placenta praevia may arise. During the past year a patient who was being carefully observed during her pregnancy developed albuminuria near the end. She was admitted to hospital, and efforts were made to overcome the toxaemia. The albuminuria never disappeared, and a week before term all symptoms of placenta praevia were present. We were dealing with a hugely fat primiparous patient with albuminuria, a one-finger cervix, and central placenta praevia. For this rare combination of circumstances there was only one treatment—Caesarean section. In this exceptional case the diagnosis was difficult. It was made without vaginal examination, and confirmed by a vaginal examination immediately before operation.

(*c*) *Period of pregnancy.* Accidental haemorrhage varies. Placenta praevia more commonly occurs as a premature birth.

(*d*) *Pains* are a usual accompaniment of accidental haemorrhage; they are always absent in placenta praevia.

(*e*) The *abdomen* is tense, and the presenting part is fixed in accidental haemorrhage; while in placenta praevia there is a flaccid abdomen with malpresentation or non-fixation of the presenting part.

(*f*) The *foetus* is dead in the majority of cases of accidental haemorrhage; it is alive at the commencement of labour in placenta praevia.

(*g*) The *haemorrhage* which occurs in accidental haemorrhage is continuous and is blood-stained serum; it has been squeezed out of the uterus like the juice from an orange. The haemorrhage in placenta praevia is fresh clotted blood, which may come in gushes and varies in amount.

Finally, in discussing differential diagnosis we must refer to a type of case occasionally encountered and already mentioned. A woman who is eight months pregnant suddenly pours blood, becomes collapsed, with imperceptible pulse and other accompanying symptoms. Does one waste time in diagnosis? No, for it is nearly certain. She is immediately given treatment for collapse, while pledgets of cotton-wool are boiled in a saucepan; these are used to stop the haemorrhage, and the absolute diagnosis is made later when the collapse symptoms have disappeared, and therefore when the patient is ready for active treatment.

Prognosis and Dangers.

The prognosis where a case has been correctly diagnosed and treated is excellent; in fact, we feel we may borrow an apt aphorism on another subject, and say "our patient should not die from placenta praevia."

There are dangers, both immediate and remote. Death from collapse following haemorrhage is possible. Death from sepsis from manipulations, low implantation, and diminished vitality must be feared. Anaemia may last for some time, and the patient should be allowed to recover thoroughly from a placenta praevia confinement before embarking on another pregnancy. Contrary to the experience of others, neither adherent placenta nor post-partum haemorrhage has been found common with our patients.

To our mind, the prognosis depends on diagnostic ability with choice and technique of treatment. Treatment does not come within the scope of this communication.

Summary.

1. It is difficult to separate diagnosis from treatment.
2. Nomenclature, both with regard to period of pregnancy and situation of placenta, is considered.
3. Rigby of Notts should be given priority in making a diagnosis between placenta praevia and accidental haemorrhage.
4. A pathological condition of the endometrium is a fruitful cause of placenta praevia. Curettage should be done before the next pregnancy.
5. The incidence of placenta praevia in 60,000 deliveries was 1 in 183, while the mortality was 1 in 17. There has been no mortality at the Rotunda Hospital in the last 55 cases.
6. Although there are others, accidental haemorrhage is the important condition to diagnose from placenta praevia. The methods of doing so are given.
7. Prophylactic submammary saline is an essential part of treatment during the diagnosis.
8. Toxaemia is not a usual accompaniment of placenta praevia; an exceptional case where it occurred is mentioned.

We shall conclude by saying that the whole paper might have been summed up in a few words as follows: That the symptoms and diagnosis of placenta praevia might be written down—an absolutely painless clotted haemorrhage, insidious in nature, some time in the last three months of pregnancy. It seemed necessary, however, to refer to some salient points in order to remind ourselves and the world that women may be saved by a careful and exhaustive diagnosis which leads to correct treatment and a satisfactory result.

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THE TREATMENT OF PLACENTA PRAEVIA.*

BY

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In considering the treatment of placenta praevia we should [illegible] common ground regarding the definition of the condition, as in well-known textbooks describing the three forms—central, lateral, and marginal, according to the position of the placenta in relation to the lower uterine segment—there is a difference in the nomenclature of the marginal and lateral varieties: the position of the placenta described by Fothergill as marginal is termed lateral by Fairbairn.

I have always used the term "lateral" for the condition in which the os is approached or partly covered by the placenta, and "marginal" when only the margin of the placenta extends into the lower uterine segment. It is often difficult when there is a history of slight haemorrhage at, say, the sixth or seventh month, followed by perhaps another slight haemorrhage within several weeks, to decide whether to temporize in the hope that the child may have a favourable chance, or whether to empty the uterus

* Read in a discussion in the Section of Obstetrics and Gynaecology at the Annual Meeting of the British Medical Association, Manchester, 1929.

immediately. Since the child in these cases is usually born prematurely, even when there has been no intervention, and the proportion of stillbirths is very high, the treatment adopted should be that which gives the best maternal results; if there is a history of severe haemorrhage or recurring slight haemorrhage, the uterus should be evacuated when the mother is in good condition, so that probably severe post-partum haemorrhage, sepsis, pulmonary embolism, or other complications, might be avoided. The natural inclination is to temporize when the haemorrhage is not severe, and I, like others, was inclined to do this until I had the experience in several instances of being summoned urgently to a patient whom I had been watching for some time, to find her collapsed from sudden and severe haemorrhage.

I have taken the treatment and results of 562 cases treated during the last ten years (1919 to 1928 inclusive) at St. Mary's Hospital, Manchester; if I had omitted the last year (1928) the results would have shown a much lower maternal mortality. It is very necessary to consider a large number of cases, as in this series there was a sequence of 147 in 1925–6–7 with only one death. Of the 562, 19.2 per cent. were primiparae, and the multiparae had an average number of 4.9 children. The methods of treatment adopted were as follows.

Rupture of the Membranes.—This was carried out in 126 cases, with a maternal mortality of 3 (2.3 per cent.), and 45 per cent. of the children were stillborn. This treatment was used in the less severe cases of haemorrhage, especially when the os was slightly dilated; in the majority of these cases the placenta was marginal.

Natural Forces.—In 76 cases no active treatment was adopted, as the haemorrhage was either slight or ceased after admission to hospital, or there were marked uterine contractions; there were two maternal deaths (2.6 per cent.); stillbirths 30 per cent. The deaths were due to phthisis and mitral disease, and not to placenta praevia.

Version.—This was performed in 273 cases, with a maternal mortality of 21 (7.6 per cent.), and 81 per cent. of the children were stillborn. External version was performed in 28 cases, with a maternal mortality of 1 (3.5 per cent.). Internal version was performed in 228 cases, with a maternal mortality of 17 (7.4 per cent.); after a leg had been brought down the labour was allowed to terminate naturally. Internal version and immediate extraction was performed in 17 cases, with a maternal mortality of 3 (17.6 per cent.); one of these patients had been delivered by version before admission, and was sent into hospital on account of a ruptured uterus, which was immediately packed; she recovered.

As we see, version in one form or other was the most common form of treatment, and has in the past been most popular, as it may be carried out by anyone with moderate obstetrical knowledge and skill, but the foetal mortality is always appalling. These results show, as has so often been shown, that version with immediate extraction gives bad results—the maternal mortality in this series reaching 17.6 per cent.—since the cervix tears so readily, especially in delivering the arms and the aftercoming head, causing post-partum haemorrhage and leading to sepsis.

Breech.—There were 21 cases of breech presentation, in which a leg was brought down and labour left to terminate naturally; in this series there were no maternal deaths.

Caesarean Section.—Classical Caesarean section was performed on 33 patients. Of these, 18 were primiparae of an average age of 27 years, and most of them were in the last two weeks of pregnancy; there were 2 deaths, giving a maternal mortality of 6 per cent.; the stillbirths were 13 per cent. One of the deaths occurred in a case complicated by contracted pelvis, and the other was a severe cardiac patient, seven months pregnant, who was too ill for a general anaesthetic, so a spinal anaesthetic was administered.

Induction.—Fifteen cases were treated by induction, either in the form of a Taylor's or Champetier de Ribes's bag or by packing. In this series there were no deaths, but the stillbirths were 70 per cent.

Vulsellum; Continuous Weight.—In 11 cases the treatment, as suggested by Willett,[1] of fixing an instrument to the foetal scalp and attaching a small weight was adopted; of these the maternal mortality was *nil* and the stillbirths were 27 per cent.; it was found that a vulsellum with about 1½ lb. attached gave the best results, as a heavier weight produced injury to the scalp, whereas this weight did not produce any serious injury, and yet ended labour within a few hours.

TABLE I.—*Showing Maternal and Foetal Mortality.*

	No. of Cases.	Maternal Deaths.		Stillbirths. Per cent.
		No.	Per cent.	
Membranes ruptured	126	3	2.3	45
Natural forces	76	2	2.6	30
Version	273	21	7.6	81
External version	28	1	3.5	—
Internal version	228	17	7.4	—
Internal version and extraction	17	3	17.6	—
Breech	21	0	—	—
Caesarean section	33	2	6.0	13
Induction	15	0	—	70
Weighted vulsellum	11	0	—	27
Forceps	7	0	—	—

Although perfectly aware that I am venturing on dangerous ground, owing to the abuse of Caesarean section in the past, yet I do think that this operation might be employed a little more frequently, especially for those at or near full term with a centrally situated placenta and the os almost closed, and in elderly primiparae; of the two deaths in this series of 33 Caesarean sections, one occurred owing to severe cardiac complications when a spinal anaesthetic was employed, the cardiac condition being too bad for a general anaesthetic; the maternal mortality in Caesarean section is as low as, or lower than, in other methods, such as version, and the percentage of living children is very much greater than in version.

Frey[2] has given the results of Walthard's Clinic at Zürich, where for many years all cases of placenta praevia which required operative treatment were delivered by Caesarean section; in a series of 79 cases the maternal mortality was 1.2 per cent. Kolthauer[3] has shown that in the Women's Clinic at Bremen, of 67 cases treated by different methods the maternal mortality was 11.9 per cent. and the child mortality 61.2 per cent.; after this series Caesarean section was used in the subsequent 29 cases, resulting in a maternal mortality of 6.9 per cent. and a child mortality of 17.3 per cent. I notice that from the reports of the Edinburgh Royal Maternity and Simpson Memorial Hospital this operation is coming more into favour and is yielding very good results.

Maternal Mortality.

Of the 562 cases, 28 terminated in the death of the mother—a mortality of 4.9 per cent.; in over 60 per cent. of these fatal cases the placenta was centrally situated; 15 per cent. had been treated at home for haemorrhage, in some cases even for weeks, so that they were in a very weak condition when admitted to hospital. This shows how important it is that every woman suffering from haemorrhage during pregnancy, however slight, should be admitted immediately to a nursing home or hospital where she can be under constant supervision.

In the fatal cases the treatment was as follows.

Version	21
Membranes ruptured	3
Natural forces	2
Caesarean section	2

TABLE II.—*Causes of Death.*

Puerperal sepsis	6
Post-partum haemorrhage	5
Cardiac complications	2
Phthisis	1
Pulmonary embolism	1
Moribund on admission and died undelivered	7

Other deaths were due to the condition of collapse produced by the ante-partum haemorrhage.

In the *Rotunda Hospital Reports*[1] 1918-27 (nine years) there were 124 cases, with a mortality of 7.3 per cent. Hitschmann[2] gives the following figures: Döderlein 19 per cent., Kernig 18.2 per cent., Mende 15 per cent., Lefebre 19.3 per cent., and Charlaies 15.5 per cent.

Summary.

1. Placenta praevia is one of the most dangerous complications of childbirth.

2. Haemorrhage is a prominent feature, and often there is a history of previous recurring haemorrhage.

3. Since haemorrhage, shock, and sepsis are the commonest causes of death, it is better to empty the uterus soon when the patient is in good condition, rather than attempt to temporize.

4. Central placentä praevia has the greatest maternal and foetal mortality, and there is scope for a slightly higher proportion of Caesarean sections in this type of case, especially when the foetus is alive and near full term.

5. Of the children, 75 per cent. were premature, so that the foetal mortality was high, no matter what treatment was adopted.

6. Careful ante-natal supervision should reduce considerably both maternal and foetal mortality.

7. Experience of Willett's treatment was limited, but it has given good results when used.

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OPERATIVE TREATMENT IN TUBERCULOSIS OF THE LARGER JOINTS.*

BY

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PART I.

SCOPE.

OUR subject is of the utmost importance to all who have to deal with "surgical tuberculosis," and is therefore bound to raise questions of great interest to the practitioner as well as to the orthopaedic surgeon. I appreciate very much the honour of opening the discussion. First I sought guidance on the interpretation of the term "larger" joints, and was told that the hip, knee, ankle, shoulder, elbow, and sacro-iliac joints were inside and the spine outside the term.

Then I noted that we are limited to operations "in the treatment of tuberculosis," and I would suggest that while diagnostic operations are so intimately concerned with treatment that they can rightly be reviewed in passing, operations for the correction of deformities left by tuberculosis, or operations designed to restore movement to fixed and soundly healed joints, must be excluded. We have today, therefore, no concern with operations other than those helpful in the treatment of unhealed tuberculosis. Surgery may be required for the *complication* of pyogenic infection, but I think that is another story, to be mentioned rather than discussed here, for we shall have fully enough to do if we concentrate on uncomplicated tuberculosis.

We are now at a critical time—conservative treatment in open-air hospitals has become well accredited, for its immediate *results* are known to be good. We must be careful lest we allow good "results" to become bad "end-results." So-called "results" merely represent an interim report in the hospital records. Our main concern, and the true test of our work, is the end-result—the lasting health and activity of the patient, or the reverse. Alan D. Smith and W. H. Watters, writing in the *Journal of the American Medical Association* for January 21st, 1928, give the following figures:

"1. Of 208 patients treated for tuberculosis of the hip at the Country Branch of the New York Orthopaedic Dispensary and Hospital from 1904 to 1921, forty-six, or 22 per cent., were found to have wrong diagnoses. We believe that such mistakes are inevitable unless the diagnosis is established by aspiration and guinea-pig inoculation, or by exploratory operation.

"2. Thirty-six patients, or 24 per cent. of 150 cases, followed for three years or more, died, the majority from tuberculosis.

"3. Seventy-one cases, or 47 per cent., still were active when last examined.

"4. Forty-one cases, 27 per cent., were quiescent with little or no motion and with some degree of deformity.

"5. Only two patients were free from symptoms and had a useful range of motion."

There is no reason to suppose that these figures are representative. For "end-results" depend on several factors which vary in different countries and different clinics. "End-results" depend partly on (1) the type and (2) the period of treatment in hospital, and partly on the environmental care afterwards. At the Wingfield Orthopaedic Hospital, Oxford, we have been able to take such care of the environment of our patients after they leave hospital, and to see them so regularly, and to admit them again promptly if necessary, that I think we can, in the great majority of cases, achieve healing, both of the joint and of the lymphatic tuberculosis. But as regards both phases of the infection we have had failures, and it is from the failures that we have most to learn.

Now we cannot afford to allow open air and rest to become discredited; they are fundamental needs, and cannot be replaced. Therefore we must learn to make our end-results come into line with our results. And here we make contact with our subject; for surgery has a big part to play in the stabilization of results. Big but limited. It is to discuss that part, its limits and its importance, its successes, its difficulties, and its failures, that we are met.

REVIEW OF SURGICAL TUBERCULOSIS.

With added experience we must again face the question, "When, if ever, is surgical tuberculosis properly surgical?" But before we begin to answer it, it is well to look squarely at the disease we are fighting and to review critically the parts that can be played by various operative (and non-operative) methods in its treatment.

Now I said in a paper read at the Provincial Meeting of the Tuberculosis Society at Cambridge on April 11th, 1924:

"Tuberculous disease of a joint or a bone is serious enough, but it is a weed with a very deep root; you may pluck the head, but the root will not come with it. A bone focus is a proof of established tuberculous infection of the body; but even this is not all, for the new focus is tangible evidence that the invasion of the body is advancing."

I feel now that the metaphor was partially misleading, for I have become convinced that the seeds of dissemination lie in the root of the disease and not in its flower. No doubt then, as now, I was preaching to the converted, but it is well to reassert this basic truth over and over again until the whole profession absorbs it. The family doctor knows the true facts, the orthopaedic surgeon is learning them, but in the general hospitals, with the relatively early discharge of patients which is necessary, the slow evolution of surgical tuberculosis cannot be watched.

On the other hand, the experience of surgical tuberculosis one gets on the staff of a hospital such as the Wingfield has all the makings of a scientific experiment on a large scale; for one sees the cases in our scattered out-patient departments before their hospital period, and lives surrounded by them, and in touch with them even after their discharge. It is a living and lasting experiment, and one learns more and more as the years pass. The experiment is characterized not only by the large number of cases, but by their unlimited variety in age, type, and environment. I am being led to a conception of the disease which has points that may be new and are, I think, valuable. Certainly they concern intimately to-day's subject.

In the second part of this paper I hope to give some of the findings of the experiment. For my present purpose I must anticipate them and pick out one striking point. In most of the patients in whom new lesions occurred, not as a result of the original bacillary shower, but at a later stage—that is, during or after hospital treatment—the joint lesion has at the time of the new development been removed or arrested, and in the latter there have been no signs of activity or reactivity in the joint lesion preceding or at the time of the development of the new lesion. This is a clear indication that the bacillaemic

* Read in opening a discussion in the Section of Orthopaedics at the Annual Meeting of the British Medical Association, Manchester, 1929.

shower can, and usually does, come from somewhere other than the joint lesion. The question comes to one's mind: *Does a bacillaemic shower ever arise from a joint lesion—and indeed can it do so?—or is it always the result of lymphatic tuberculosis?* Bacillaemic showers are proved to be a frequent occurrence in experimental animal tuberculosis; by analogy they occur in man. How can bacilli get into the blood? Only through lymph channels or direct into veins (arteries, of course, are readier to give than to receive).

Now tubercle bacilli in bone and joint foci are found in two places: (1) with ease and in considerable numbers in caseous debris; and (2) in small numbers and often with great difficulty in the granuloma, and generally in the centre of infiltrated and more or less necrotic areas quite out of touch with any lymph channel or blood vessel.

It appears impracticable for the tubercle bacilli in a chronic granuloma to pass by any channel into the blood stream. Probably only in very active fungating and extending lesions do tubercle bacilli ever reach the blood stream from a lesion developing from a bone or joint focus, and, if they ever do, probably very rarely and in very small numbers.

Now in our work activity occurs only at an early stage or in very rare cases of patients who offer no effective resistance to tuberculosis. Those of us who have done an early arthropsy and a subsequent excision know how quickly and to what a remarkable degree the early hot active inflammation is subdued. It is clear that the bacilli in the later stage cannot reach the blood directly, but it is just possible that they might reach the lymph channels, the regional glands, and eventually the blood. Apparently they do not, for the regional lymph glands to which the joint drains are never secondarily enlarged. Besides, granulation tissue is Nature's method of corking all channels (blood and lymph) against bacterial invasion. In a septic wound we feel safe from septicaemic penetration of bacteria when granulations cover the raw surface.

Do the bacilli, then, come only from the lymphatic tuberculosis?

First, we know already that bone and joint foci are metastatic from the glands—are the result of a shower from the glands—that alone is a proof of lymphatic responsibility.

Secondly, the lymph glands are filters, in the course of the current which flows ever toward the blood stream.

Thirdly, when the mediastinal and retroperitoneal glands are tuberculous the debris does not find its way to the surface of the body. Altogether it seems evident that debris rich in tubercle bacilli is carried along with the natural flow through the lymph vessels and the thoracic duct into the blood stream.

Tuberculosis of the glands appears, then, to be the great, if not the sole, source of tubercle bacillaemia. Bone and joint lesions, on the other hand, are secondary or metastatic lesions, and they appear to be "end" lesions, closed, "blind," or "static," and in themselves only dangerous as sources of toxaemia, or by their direct extension, or infections; not as potential mothers of further metastatic lesions.

Unfortunately the lymphatic lesion is out of reach, out of sight, and too often out of mind; and an active unarrested focus in a gland left after the joint lesion has healed is, I believe, a far greater danger to the patient than an unarrested focus in a joint.

THE FIELD FOR SURGERY.

Operation can remove the joint focus, or result in a synostosis which protects it from strain, but the operations we are discussing cannot have any direct bearing on the deep-seated glands. Patients in whom the tuberculosis has been carried from glands to a large joint suffer danger to the joint itself, and danger to life. To save the joint perfectly intact means exceedingly early provisional diagnosis and immediate treatment, and sufficient long-continued general treatment. In most such cases a certain diagnosis cannot at the present day be made, and they cannot appear as definitely tuberculous in statistics. (Nevertheless the patient so treated is glad of the free use of his joint.) In other cases where the lesion is extra-articular (for example, neck of femur) the joint can often be saved from infection sufficiently heavy as to overcome the joint's resistance.

Now for the dangers to life:

Danger No. 1.—Persistent joint disease, with long-continued toxaemia, secondary infection, lardaceous disease, and only a very gradual and long-delayed danger to life.

Danger No. 2.—Persistent lymphatic disease with frequent bacillary showers, and a constant danger of new metastatic lesions, including meningitis and miliary tuberculosis. The sword of Damocles—a much more threatening danger.

Our operations concern Danger No. 1. Either we remove the lesion by excision or amputation, or we promote and protect its healing by extra-articular arthrodesis. These operations do not save the joint, for they fix it; nor the patient's life, for the glands remain a potent source of danger. This may seem to belittle the importance of surgery. Not so. It is true that we must depend on general treatment to heal the glands, but it is not true that we can rely on an equal healing of the joint. For to the joint the vastly important factor of mechanical strain is added. And it is essential that the profession should recognize that without operation we cannot bring about a *safe and permanent cure* of most major tuberculous joint lesions in adolescents and adults. This may seem a statement directly contrary to the wonderful "results" obtained by all our open-air hospitals. So it is. But not to the true end-results. The "results" of such hospital treatment appear delightful, but the "end-results" can be very disheartening. A granulomatous lesion which at the end of hospital treatment was sound to Thomas's tests repeated week by week will often prove unsound to the wear and tear of the subsequent years.

From the mass of cases which come to us we can distinguish two very different types:

1. Patients in whom the joint lesion is still grumbling, though the gland focus has apparently long ago healed. These are cases in which the general resistance is sufficient for healing (and the glands have healed), but this important factor of mechanical strain persistently prevents the lesion from healing. In such the problem does seem a local one, and its complete solution may well lie in operation, whether radical, or, when radical operation is impracticable or appears unnecessary, extra-articular arthrodesis. This group mainly concerns adolescents or adults with long histories.

2. A larger group of patients in whom the joint lesion is a sign of lowered general resistance to tuberculosis. These are cases with short histories, multiple lesions, recurrences, or new lesions. In such cases operation is *not yet* indicated. The lesion is almost certainly bacillaemic, and everything must give way to physical rest and metabolic activation. Many cases fall between these two groups.

General treatment requires time, so does post-operative fixation. Naturally one wants the sentences to run concurrently so far as possible. Probably general treatment should always be given a start—in adults of some months, and in children of some years. It is possible that one should always wait until one has a number of negative results from blood culture *in vitro* or by guinea-pig inoculation. The value of such tests is a point which is now under investigation at the Wingfield Hospital. Certainly showers of bacilli should have ceased to issue from the lymphatic system into the blood before the patient is allowed to pass from good to poor environment. Whether one should wait to operate until such a stage is reached depends on several variables. Partly it depends upon whether the operation is radical or conservative, also on the general trend of the patient's health, time, and circumstances.

The view has been expressed that a major lesion—for example, a tuberculous epididymis—should not be removed because its value as a source of tuberculin is thereby lost, and the specific reaction of the whole body to tuberculosis is thus lessened. It is, I suppose, a matter of the optimum dosage in each case. My own view is that the smaller and the less active the lesion in the patient, the quicker and sounder he heals under the best environment. And I would suggest that with the metastatic source of toxaemia gone there is more than enough left to promote reaction: for the source of the bacillaemic showers remains. I think the argument for retaining the metastatic lesion is based on misleading figures in which comparison is made between

cases treated radically, and for that (illogical) reason sent out sooner, and those treated without operation. The longer period of general treatment necessitated by the retention of the metastatic focus would naturally lead in a significant proportion of cases to more advanced healing of the primary focus. The same length of general treatment *after* removal of the lesion would, in my opinion, be likely to prove even more effective. Comparisons can only be fair when an equal period of general treatment has been given to both groups.

I would suggest, then, that the first and fundamental principle is to provide general conservative environmental treatment good enough, and for long enough, to heal the lymphatic tuberculosis; that the first indication of such healing is the total disappearance, to clinical and possibly to laboratory tests, of signs and symptoms of bacillaemia; and that general treatment should be prolonged for at least a year after this indication has been reached.

Then I would say that operation is often also a fundamental need to remove a focus that is causing persistent harmful toxaemia, that is unlikely to heal at all, or at least not sufficiently soundly and strongly as to stand safely the mechanical strains to which it will be subjected. Sound healing of a joint is not enough. The tissues of which it is composed must also be sufficiently thick and stout and strong, and must connect surfaces suitably adapted. Where that is impossible without operation the surgeon must be prepared to strengthen the foundations or buttress the building, or do both.

The part the surgeon can play in the treatment of tuberculous joints is:

1. To remove a tuberculous focus metastatic in origin, and a potent source of toxaemia.
2. To buttress or rebuild a part of the skeleton which cannot otherwise safely carry the strains it will have to bear.

He operates at a time so chosen as:

1. To interfere least with the improvement of his patient's vitality—indeed, in some middle-aged or old patients radical measures are necessary in order to make that improvement possible.
2. To supply him with materials which will answer his needs (this applies to buttress building).

Radical operations may have to be done comparatively early (to save life and limb in the middle-aged or old); extra-articular arthrodesis is best done later.

A Conception of Bone and Joint Tuberculosis.

A truly balanced view of lymphatic and metastatic tuberculosis is the only sound foundation of our discussion. I put forward the following conception of bone and joint tuberculosis, in two statements, with the reasons that have led me to these conclusions.

A.—Lymphatic tuberculosis is *open* to the blood—that is, it is *bacillaemic*.

I. Tuberculous glands lead to bacillaemic showers. This is clear because:

1. Metastases occur when glands are the only pre-existing lesion.
2. It is clearly the glands and not the joint lesion that have caused new lesions in those of my cases in which the joint lesion has been previously excised or amputated.

II. Bacillaemia in active tuberculosis is frequent. This is probable:

1. On the analogy with the proved occurrence of this in animal experiments.
2. Because tubercles of different ages can be demonstrated post mortem.
3. Because of the clinical experience that trauma is associated with bone tuberculosis, and the explanation lying in the coincidence of local lowered resistance with a bacillary shower.

III. Glands are likely to cause bacillaemia. Because:

1. If they break down internally the debris would follow the natural flow through the lymph channels into the thoracic duct and so into the blood stream.
2. It seems likely that this is a common way of disposal of the debris of mediastinal and retroperitoneal lymphatic tuberculosis. Certainly an unpleasant idea, but in a sense reassuring as to the powers of our blood and vascular tissues.

B.—Bone and joint tuberculosis is *closed* to the blood—that is, it is merely *toxaemic*.

I. In granulomata tubercle bacilli are only found at the centre, and far from any vascular channel. The bacilli are found in caseous material, in pus, in giant cells, and at the very core of densely infiltrated areas.

II. The bacilli appear far out of contact with lymph channels (unless the granuloma is split open by force). Further, it is my experience that one *never finds the regional glands to which a tuberculous bone or joint drains enlarged or showing any signs of infection with tuberculosis*. This in itself goes far to prove the closed nature of these lesions.

III. In my experience of very prolonged cases where the mechanical factor seems to have kept a joint grumbling long after the general disease has been healed, new metastatic lesions do not occur despite activity of the joint disease, nor after radical treatment followed by only short general treatment.

If these statements present a truly balanced view of the disease with which we have to deal the indications and the scope for surgery can be examined clearly and reasonably assessed.

PART II.

General Indications for Operation.

In order to give subsequent speakers something to bite upon I am stating very briefly my own views as to the general indications for operation.

For Diagnosis.

Arthropsy is indicated when the diagnosis cannot otherwise be made.

Time.—At the earliest moment, for in doubtful cases good diagnostic material is not easily come by; and the better and longer the treatment the more the granuloma retires into its shell.

For Treatment.

(*a*) *Adults.*

Indication.—Radical operation is the rule.

Time.—As soon as the patient's general condition is on the mend.

Type.—Excision and arthrodesis.

Exceptions.—(1) For sacro-iliac only extra-articular arthrodesis.* (2) For the hip add also extra-articular buttressing. (3) For the ankle, astragalectomy or amputation. (4) When amputation is indicated—for example, many cases of tuberculous hip, knee, or ankle, over middle age.

(*b*) *Children.*

Indication.—Whenever sufficient damage has been done to the joint to make movement incompatible with permanent safety from relapse (or mechanical arthritis).

Exceptions.—Those cases in which there is little granulomatous tissue and in which the surfaces are well adapted.

Time.—After more than one year of treatment, when recalcification is shown on radiograms, and only when the patient is, or becomes, over 10 years of age.

Type.

Sacro-iliac.—Extra-articular reinforcement (Verrall).

Hip.—Ordinarily extra-articular arthrodesis, but when the granulomatous tissue is massive and likely to prevent effective extra-articular arthrodesis (either by leading to absorption of the graft or by giving no firm fulcrum to aid the graft in bearing strain), excision should be added.

Knee.—Restricted excision and arthrodesis. The knee is very slow to heal and very liable to recrudescence, therefore often requires arthrodesis. It is an accessible joint with good big surfaces. Its drawback is the proximity of the two growth discs; therefore the excision must be superficial, and long grafts are quite unsuitable. Further, unless the limb is well protected during the years of growth distortion is likely from the application of strains quite different from those which the metaphyseal bone is prepared to expect.

Ankle.—An individual problem. I think unsettled, except that where the lesion appears to be confined to the astragalus it should be removed. I have had few cases in children, and all these have been treated conservatively.

Shoulder.—Excision and arthrodesis.

Elbow.—Operation not indicated.

In addition: Drainage operations for pyogenic infection of tuberculous joints are sometimes required. For the hip I use a method of transverse incision and wide transverse exsection

* I use a double Verrall graft. There are ... of Smith Petersen's method in tuberculosis, (1) graft in the midst of the infected joint, (2) ... sarily composed of decalcified bone, and (3) ... its recolonization on the intoxicated cells of ...

of muscles, with suture of the skin edges deep down close to the joint; and with most satisfactory results. This I described in *The Robert Jones Birthday Volume*.

PART III.

RESULTS OF OPERATION.

With regard to results I think it will be most helpful if I briefly summarize my experiences.

DIAGNOSIS.

*Arthropsy.**—Certain bacteriological or histological diagnosis is most needed in those very early cases, clinically synovial, which otherwise cannot be identified with certainty. Unfortunately in my experience we have had a number of such cases in which in the specimen of synovia removed tubercle bacilli have not been found either by a prolonged microscopic search or by inoculating a guinea-pig; in these the histological diagnosis has often been non-committal.

TREATMENT.

Hip.

Adults.—I have recently published my views and experiences of hip operations.† In general, I would say that the difficulties lie less in the technique than in the human materials. Operations which are most satisfactory in cases where the morbid anatomy is similar but non-tuberculous often fail where the bones are decalcified and devitalized by tuberculosis. This is particularly true of grafting operations. At present I feel that the solution lies in early radical excision and late grafting. And in certain types and older ages I think amputation is indicated.

Children.—Of those treated by excision and arthrodesis none have been done long enough for a final report. I am finding it sometimes necessary as a result of much granulomatous tissue, but always as part of, or preliminary to, extra-articular arthrodesis. In those treated by extra-articular arthrodesis I have had about an equal number of satisfactory results and of failures, from absorption at the middle of the graft, due to the non-recolonization of the graft, or failure in obtaining a firm hold at one or other end. There have been no cases of sepsis, sinus formation, or sequestration. The graft has to pass close to the granuloma, and is therefore liable to become infected itself, or to fail to take hold or thicken on account of lack of initiative shown by the devitalized bone cells of the neighbourhood. The difficulties in obtaining a really effective arthrodesis may be great, but the indications are at least correspondingly strong. The hip shares with the knee an increasing notoriety for grumbling persistence and recrudescence, and has long possessed a unique name for deformation, insidious and malign. It adducts and flexes, and nothing but synostosis will stop it.

Knee.

Adults.—Local result uniformly good. End result: new lesions in other parts of the body have developed in several cases. That is to be put down to failure in general treatment. For severe septic infection of tuberculosis of the knee in adults I believe in amputation, not excision. On one occasion such a knee was excised by another surgeon—widespread sepsis, pyaemia, late amputation, and death followed.

Children.—None operated on. I have recently seen a girl of 19 whose knee had been excised in 1921. She has 7 inches of shortening! The lower epiphysis of the femur had been damaged by the surgeon and growth had ceased. I am still keeping the tuberculous knees of children in callipers, but I have become convinced that excision in children older than 10 with much articular damage may well prove right.

Ankle.

Adults.—Mainly treated by conservative measures. Operations only two astragalectomies, one of these done elsewhere. The local results have been good, but only two cases have been treated, one by Mr. Joyce at the Wingfield Orthopaedic Hospital, the other elsewhere.

Children.—None operated on.

Shoulder.

Adults.—I have only excised one tuberculous shoulder. The local result was excellent, but a year later generalized tuberculosis developed and the patient died.

Children.—None operated on.

Elbow.

Adults.—I have excised only one. The local result was good, but bony ankylosis has been delayed.

In Part II I made my suggestions definite—to invite criticism, and brief—to invite fuller and better statement. Further, I would add the warning that generalizations such as these are only general guides, and cannot be applied to any single patient, for each needs personal consideration.

* On this subject see an article on joint disease by R. K. Ghormley in *The Journal of Bone and Joint Surgery*, vol. viii, No. 4, October, 1926.

† *The Robert Jones Birthday Volume*, p. 347.

THREE HUNDRED CASES OF TUBERCULOSIS OF THE HIP-JOINT:

THEIR LATE END-RESULTS, AFTER AN AVERAGE PERIOD OF SIX YEARS AND NINE MONTHS.

BY

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USUALLY the accumulation of statistics gathered from clinical data is of little value. Nevertheless, there are times in the life of a surgeon when he is impelled to review the end-results of the treatment he has employed, hoping to encourage himself by finding that his efforts have met with success, and also wishing, by examining his failures, to find their cause and so, if possible, improve his future patients' chances.

It is with these ends in view that the study of the first 300 cases of tuberculosis of the hip-joint treated in the King Edward VII Hospital, Sheffield, has been undertaken; only those cases are included which have been re-examined personally by the author at least two years after, and an average period of six years and nine months after discharge from the hospital.

Girdlestone[1] has written: "The diagnosis of tuberculous hip disease rests on probabilities until either destruction has advanced to such a degree as makes the radiogram evidential, or abscess formation renders a conclusive test possible in the finding of tubercle bacilli."

The first difficulty, then, was to be sure of the diagnosis; in many cases tuberculosis of the hip was confirmed by radiographic or bacteriological means. This eliminated three of the other common conditions which may be mistaken for it—namely, pseudo-coxalgia, coxa vara, and infection with pyogenic organisms (usually the staphylococcus). The remaining common type of arthritis of the hip-joint is the so-called "transient arthritis," which is due to toxins from a local focus of inflammation. It is impossible to be sure in all cases that patients with apparently early tuberculosis of the hip are not in reality suffering from this affection, and it is almost certain that some patients with this condition have been included, especially in the group of cases in which recovery was complete. However, every effort has been made to eliminate such patients by excluding all those in which the symptoms disappeared permanently with one month's treatment. Apart from taking care that the above conditions were observed, no selection of cases has been made.

THE TREATMENT EMPLOYED.

The usual methods for improving the general health of the patients were used, and included nursing in the open air, real and artificial heliotherapy, and a generous but simple diet containing abundance of foods with high vitamin A and D content.

The local lesions were dealt with by those conservative methods of treatment first used so successfully in this country by Sir Henry Gauvain, together with various modifications on the lines advocated by Sir Robert Jones, Girdlestone, and others. Briefly the methods employed may be described as follows.

1. *Acute Stage with Active Progressive Disease.*

The principles underlying treatment at this stage are immobilization in bed, with traction to counteract muscle spasm. The ordinary weight-extension with pulley, the Pyrford frame described by Perkins,[2] and other forms of fixed extension were used in the treatment of the patients under discussion, according to the degree of activity of the disease and amount of deformity. Traction was maintained in one of these ways until the spasm of the muscles had disappeared and until deformity had been corrected as far as possible.

2. *Transition Stage.*

After deciding by clinical and radiographic examination whether a movable or a fixed joint would be the probable end-result, one of two different forms of treatment was adopted. In the former instance weight-extension was

continued for a period of three to six months; the patients were then allowed to lie in bed without retentive apparatus, and if movement continued to increase or was not diminished were considered to have passed into the convalescent stage. If, on the other hand, ankylosis or imperfect mobility were probable, the hip was fixed in plaster-of-Paris until as complete ankylosis as possible had taken place. In this connexion it is important to note that a double hip plaster, with a long spica on the affected and a short one on the sound limb, should be used: if this be not done there is a tendency for the pelvis to tilt even in a well-applied plaster, with subsequent adduction deformity. This will be referred to again later. If the adduction and flexion of the limb could not be corrected during the first stage, recently it has been my practice to apply the plaster under an anaesthetic, when the deformity was easily corrected, in most instances without the application of any force.

Experience is the only guide as to when it is safe to allow the patient up with crutches and patten, and also as to when he may be permitted to replace the complete fixation of plaster by the less marked protection afforded by celluloid or other splints.

3. *Convalescent Stage.*

Patients were usually discharged from hospital at the beginning of this stage, and usually went home wearing a celluloid hip spica like those made at Alton,[3] and using crutches and patten. They were examined at intervals as appeared necessary. After a period varying from six to eighteen months the splint was discarded, and later still the patten and then the crutches were given up.

Results.

The results obtained fall into four groups.

1. Those patients in whom there was a perfect functional result, with an almost completely full range of movement, no shortening, and no sign of disease.
2. Patients with quiescent disease, which was apparently arrested, but who, through shortening or fixation of the limb, were left with a certain amount of deformity and disability.
3. Patients in whom the disease became active again.
4. Patients who died or became worse in spite of treatment.

1. *Patients with no sign of disease:*

Number	167
Examined after discharge from hospital ...	65.5 months*
Average duration of hospital treatment ...	367 days
Average period with splints after discharge	10.8 months
Number working at present	40

*Average.

2. *Patients with arrested disease but some disability:*

Number	97
Examined after discharge (average period)...	85 months
Average duration hospital treatment... ...	708 days
Average period with splints after discharge	46 months
Number working at present	29

The amount of disability in these patients may be gauged as follows:

Limping badly	44
Shortening of over 1 inch	47
Some adduction	41
Some abduction	33

It was, of course, the "adducted hips" which limped most, and it is thought that if the precautions (1) of fixing both hips in plaster, (2) of correcting adduction under an anaesthetic and then applying plaster, as suggested above, be more often taken, this deformity, with its consequent limp, will not be found so frequently.

3. *Patients with recurrence of disease:*

Number	28
Recurrence occurred after discharge ...	52.8 months
Recurrence while still using splint, etc. ...	20
Average duration hospital treatment... ...	531 days
No sign of fresh recurrence after average of two years from second discharge	14

4. *Deaths and hopeless cases:*

Number	13

References.

[1] Girdlestone, G. R.: *The Diagnosis and Treatment of Tuberculosis of the Hip* (Oxford Medical Publications).

[2] Perkins, G.: *The Diagnosis, Treatment, and End-results of Tuberculous Disease of the Hip-joint* (Oxford Medical Publications).

[3] Gauvain, Sir H. J.: The Use of Celluloid in the Treatment of Tuberculous Disease of the Spine, *British Medical Journal*, June 7th, 1913.

A NOTE ON TUMOURS OF ENDOCRINE GLANDS.*

BY

F. PARKES WEBER, M.D., F.R.C.P.

It is becoming more and more probable that a neoplasm (benignant—or malignant, of the nature of a sarcoma or carcinoma) may arise from any kind of living cell in the body, at any immature or mature stage of its development, if the necessary (but only partly known or surmised) conditions are present. The cells of the neoplasm morphologically and metabolically may more or less resemble—and apparently endeavour to continue the functional activities of—the normal cells from which they have originated. A sarcoma derived from the mature or immature elements of striped muscle may betray its origin by the striation of some of its cells or fibres, just as an extrahepatic metastasis from a primary carcinoma of liver cells may signify its hepatic glandular descent by the secretion of bile. The presence of bile in some primary hepatic carcinomata seems to have been first described by Perls, in his manual of general pathology in 1877.[2] Analogous observations in regard to other adeno-carcinomata are now too numerous to mention here.[3] No theory regarding benignant or malignant neoplasms can hold good unless it recognizes the above considerations. Apparent exceptions are probably due to insufficient knowledge. Even the various cells of the blood-forming tissues can be the site of neoplastic formation.

But for illustration and confirmation of these points a study of the primary tumours of the endocrine cells of the various endocrine glands is especially interesting. In the short time at my disposal I can do little more than allude to some of them. An important point of distinction between endocrine tumours (that is to say, primary tumours of the endocrine cells of ductless glands) and primary tumours of the secreting cells of the duct glands is that in the former their secretions (as those of the normal endocrine cells from which the tumours arise) are freely absorbed into and distributed by the general circulation.

Before proceeding further I would draw attention to the following points: (1) Although the hormonic effect of an endocrine tumour may, perhaps, be qualitatively not exactly identical with that of the corresponding endocrine gland of a normal individual, nevertheless, on the whole (especially before the tumour cells have become too much altered by malignant change), it may be regarded as the "magnified" hormonic effect (and therefore may even serve to shed light on the normal hormonic functions) of the endocrine gland in question. (2) The hormonic activities of certain endocrine tumours need a youthful body (one still capable of further growth and bodily development) fully to manifest themselves. (3) When one bears in mind that an affection of one endocrine gland must almost necessarily cause reaction in others, it does not seem surprising that the clinical picture in cases of endocrine tumours may sometimes be obscured by pluriglandular symptoms. Macrosomia (precocious bodily growth) or [illegible] syndrome of abnormally large bod[illegible] is to say, precocious sexual and gene[illegible] may be caused by endocrine tumours of the suprarenal cortex, of the anterior lobe of the pituitary gland, of the pineal gland possibly, of the interstitial cells of the testis, and likewise by some ovarian tumours.[4] Active enlargement of the male mamma, as I have elsewhere pointed out, may be excited by, or result from, endocrine tumours or other disturbances of various endocrine organs.[5] (4) Non-endocrine tumours arising in, or in the neighbourhood of, endocrine glands, by pressure, destruction, or stimulation (increased blood supply), may cause endocrine symptoms. (5) Some

[1] A paper read in the Section of Medicine at the Annual Meeting of the British Medical Association, Manchester, 1929.

[2] M. Perls. *Lehrbuch d. allg. Pathologie*, p. 482. Stuttgart, 1877. Teil i.

[3] For a short review of such observations see F. Parkes Weber, Endocrine Tumours, *Proc. Roy. Soc. Med.*, Section of Medicine, 1929, xxii, p. 9, commencing remarks.

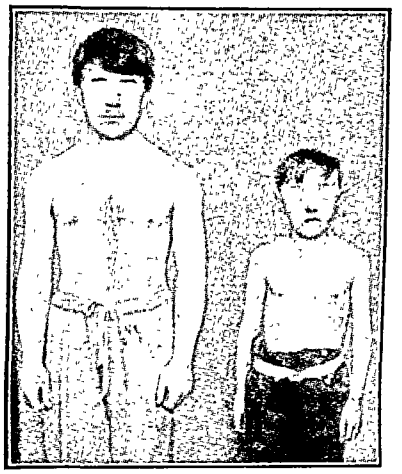
[4] F. Parkes Weber: Loc. cit., p. 20.

[5] For references see F. Parkes Weber, loc. cit., pp. 16, 17.

endocrine tumours may represent an adenomatous form of compensatory (or attempted compensatory) hyperplasia analogous to nodular hyperplasia and adenoma formation in a cirrhotic liver. (6) The signs and symptoms of an endocrine tumour doubtless differ somewhat according to the individual "soil" of the patient (age and potentiality for growth, sex, other constitutional factors), and even according to individual "local soils" of different parts of his body.[6]

Tumours of the Endocrine Cells of the Suprarenal Cortex.—I place these first, because, especially since the well-known publication of Bulloch and Sequeira (1905), they are the endocrine tumours which have probably attracted the most clinical and pathological attention, but further investigation and observation, both pathological and clinical, are needed in regard to them—as, indeed, in regard to all kinds of suprarenal primary tumours. In typical cases their presence can be suspected—before any tumour can be felt—by certain striking symptoms varying with the sex and the age of the affected individual: female virilism or (when the tumour arises in early foetal life) pseudo-hermaphroditism, "precocious" obesity, hypertrichosis (hirsuties), cutaneous "striae," alteration in texture, vascularity, and sometimes in pigmentation of the skin. In adult females the clinical signs may be limited to amenorrhoea or irregular menstruation[7] and possibly adiposity, with cutaneous pigmentation. In a woman, aged 36 years, not only was there facial hairiness with coarseness of skin, but the pilo-sebaceous development progressed to the commencement of seborrhoeic baldness of the ordinary middle-age male type.[8] The blood pressure may be more or less raised, as in primary tumours of the chromaffinic cells (to which I shall allude further on), but this may sometimes have been due to associated arterio-sclerosis or contracted kidneys. In boys there may be "male virilism," with precocious obesity or excessive muscular development.

Dr. Sacchi's patient at the age of 10 years (fifteen days after the operation).



Mr. R. P. Rowland's patient at the age of 9 years, with a normal boy of the same age.

Two points to be remembered are that more or less similar symptoms may be present in the absence of a definite suprarenal cortical tumour, and that the results of operation have been often unsatisfactory, owing to death resulting directly from the operation[9] or to recurrence of the malignant tumour.[10] To what extent deep x-ray and radium treatment can be of use in such cases remains to be seen.

In some cases it is possible that the remaining suprarenal gland, if not actually hypoplastic, is at least functionally insufficient just after the gland containing the endocrine tumour has been removed. What would happen, I wonder, if one of the rare insulin-producing pancreatic tumours, which I shall refer to further on, could be suddenly removed? Surely the patient would become dangerously hyperglycaemic if not at once *treated by insulin injection.*

Tumours of the Chromaffinic Cells of the Suprarenal Medulla.—Some of these rare cases have been clinically characterized by remarkable paroxysmal attacks of high blood pressure, or by signs suggestive of contracted kidneys *together with diabetes mellitus, the high blood pressure* being apparently due to the secretion of adrenaline by the tumour cells.[11]

Endocrine Tumours of the Pituitary Gland.—Besides the eosinophil-cell tumours of the anterior lobe that give rise to acromegaly, it seems that basophil-cell tumours may sometimes exert an endocrine effect—namely, in regard to sexual development. I am indebted to Professor Arthur Ellis for references to papers by Evans and Simpson and others bearing on this subject.[12] In the case of the woman, aged 28 years, with complicated endocrine symptoms, whose case I described in 1926, amongst other post-mortem findings was a minute basophil-cell adenoma in the anterior lobe of the pituitary gland.[13]

Endocrine (Primary Insular) Tumours of the Pancreas.—In my recent paper (1929) on endocrine tumours at the Royal Society of Medicine I gave abstracts of the three first cases (all American) probably of this nature. They were clinically characterized by spontaneous hypoglycaemic attacks.[14]

Endocrine Tumours of the Thyroid Gland.—Von Eiselsberg's classical observation of 1894 should be specially referred to, owing to its important position in the history of the study of endocrine tumours. The patient was a woman, aged 38 years in 1886, *when Billroth excised her* enlarged thyroid gland. The operation was followed by myxoedema. Subsequently a tumour appeared in the upper part of the sternum, and as it increased in size the myxoedema disappeared. In 1892 the sternal tumour, which was then as large as a fist and appeared to be malignant, was removed by von Eiselsberg and was found to contain colloid material, as a thyroid tumour does. The woman recovered from the operation, but the myxoedematous symptoms recurred in the same order as after the original thyroidectomy operation, and they persisted.[15]

Endocrine Tumours of the Testis and the Ovary.—Precocious sexual and general bodily development have long been known to be sometimes associated with a tumour of the testis or the ovary. Probably the most remarkable case of the kind was that published by Ercole Sacchi of Genoa, in 1895. The patient was a boy, aged 9½ years, in whom excision of the large left testis, which contained a carcinoma-like tumour, was gradually followed by disappearance of the signs of precocity; his beard dropped off and mentally he became more childlike.[16]

[6] F. Parkes Weber: Asymmetry and Unilateralism in General Disturbances of Growth, *Med. Press*, London, 1927, clxxv, p. 244; see also Weber and Atkinson, *Brit. Journ. Derm. and Syph.*, 1928, xl, p. 451.

[7] See the recent case of suprarenal cortical adenoma successfully removed from a woman aged 48 years, recorded by J. B. Hicks, *New England Medical Journal*, Boston, 1928, cxcix, p. 1140.

[8] C. G. Murray and G. S. Simpson: *Lancet*, London, 1927, ii, p. 745, and 1929, i, p. 856. The signs of virilism disappeared after operative removal of the tumour (in November, 1926), and the scalp hair began to grow again. Unfortunately there was soon recurrence of the tumour with return of the cutaneous signs, and death occurred in November, 1928. H. W. Barker, who correctly diagnosed the case in 1926 (chiefly owing to the pilo-sebaceous changes), referred to it in his Lettsomian Lectures of 1929.

[9] See the recent case reported by Langeron, Dechert, and Danes, *Bull. et Mém. de la Soc. Méd. des Hôp. de Paris*, 1929, Series 3, xlv, p. 456. The patient, a woman, aged 20 years, died suddenly forty hours after the operation. There was no post-mortem examination.

[10] Cf. the case of Murray and Simpson, *loc. cit.*

[11] For literature containing references to other accounts of such cases see Oppenheimer and Fishberg, *Arch. Int. Med.*, Chicago, 1924, xxxiv, p. 631; Biehl and Wichels, *Virchow's Archiv*, Berlin, 1925, ccl vii, pp. 182–201; Oberling and Jung, *Bull. et Mém. de la Soc. Méd. des Hôp. de Paris*, Series 3, li, p. 366; Wichels and Biehl, *Münch. med. Woch.*, 1928, lxxv, p. 656; Langeron and Delcour, *Arch. des mal. du cœur*, etc., Paris, 1928, xxi, p. 13; Lobfac, *Les Tumeurs des Capsules Surrénales*, Lyons, 1928; Langeron and Lobfac, *Presse Méd.*, Paris, 1928, xxxvi, p. 1153; Vaquez, Douzelot, and Gerandel, ibid., 1929, xxxvii, p. 169.

[12] H. M. Evans and M. E. Simpson: *Journ. Amer. Med. Assoc.*, 1928, xci, p. 1337.

[13] F. Parkes Weber: *Brit. Journ. Derm. and Syph.*, 1926, xxxviii, p. 1.

[14] Wilder, Allan, Power, and Robertson, *Journ. Amer. Med. Assoc.*, 1927, lxxxix, p. 348; Thalhimer and Murphy, ibid., 1928, xci, p. 89; McClenahan and Norris, *Amer. Journ. Med. Sci.*, 1929, clxxvii, p. 93.

[15] Von Eiselsberg: *Langenbeck's Arch. f. Klin. Chir.*, Berlin, 1894, xlviii, p. 339. Cf. S. G. Shattock's earlier paper bearing on a similar subject, *Trans. Path. Soc. Lond.*, 1888, xxxix, p. 339.

[16] E. Sacchi: *Ric. Sperim. di Fren. e di Med. Leg.*, Reggio, 1895, xxi, p. 149, with excellent plates. For reference to cases somewhat analogous to Sacchi's case see Hahban, *Zeitschr. f. Konstitutionslehre*, Munich and Berlin, 1925, xi, p. 299 (cases of Moreau, etc.).

The testicular and ovarian tumours associated with macrogenitosomia have, after microscopical examination, been described under various names, but in Mr. R. P. Rowlands's recent case of macrogenitosomia in a boy, aged 9 years, the tumour which he successfully excised was regarded by Professor Adrian Stokes and Dr. G. W. Nicholson as having arisen from the interstitial cells of the testis.[1]

SOME ACUTE NASAL AND AURAL CONDITIONS SEEN IN GENERAL PRACTICE.*

BY

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IT is becoming increasingly recognized by the profession that acute nasal sinus infection is much more common than many of us have imagined. Cases of influenza that failed to respond to treatment as quickly as they should, and in which the headache and temperature persisted in a most unaccountable fashion, must be familiar to us all. There is no doubt in my mind that in many of these cases the continuance of the symptoms was due to infection in one or more of the nasal sinuses. I shall cite a case in illustration.

A cook went to bed on February 12th with all the symptoms of severe influenza: headache, backache, a temperature of 104° F., general malaise, slight sore throat, and some cough. In spite of skilled treatment the temperature and headache remained a marked feature until February 26th, when her doctor asked me to see her.

The initial temperature had dropped on the second day of the illness, but since then she had persistently run a temperature of 99° to 102° F. The headache was described as "being all over the head," but I elicited the fact that it was felt more in the front than in the back of the head. Examination revealed a considerable quantity of muco-pus in both nostrils, and slight tenderness in the canine fossa on each side. The antra were dull on transillumination, and a diagnosis of suppuration within them was readily made. The usual conservative treatment of inhalations and sprays was tried for three days, but, the condition not improving, the patient was admitted to hospital and, under a general anaesthetic, both antra were opened and drained intranasally. They contained thick pus from which a streptococcus was cultivated. The patient made an uninterrupted recovery.

In considering the nasal accessory sinuses it is necessary to recall that the ostia of them all are extremely small, and that those of the anterior group of cells—namely, the frontal sinuses, the anterior ethmoid cells, and the maxillary antra—open into the nose beneath the middle turbinate bone. Any infection, therefore, of the nasal mucous membrane which causes engorgement of the middle turbinate bone and of the lips of the ostia may lead to the retention of inflammatory products within the sinuses. Should infection have reached the interior—and there is no doubt that in even the common "cold" it usually does—the result will be an ill-defined headache with more or less temperature, depending on the virulence of the infecting organism and the sinus involved.

THE DIAGNOSIS OF ACUTE SINUSITIS.

Usually the sinuses infected are those of the anterior group, and most commonly the maxillary antra and the frontal sinuses.

Acute Frontal Sinusitis.

The most striking feature of frontal sinus suppuration is the pain, which has a definite periodicity. For some reason not satisfactorily explained it starts about 10 or 11 o'clock in the morning and gets progressively worse until it reaches its height about lunch time, after which it subsides, only to start again the following day at the same time. A pain of this type affecting the region of the frontal sinus is absolutely pathognomonic of infection within the sinus. It never keeps the patient awake at night, and if he complains that he cannot sleep for pain it is certain that the condition has either progressed to an osteomyelitis of the frontal bone, in which case a history of the typical pain would be obtained, or that it is due to some other cause not associated with the frontal sinus.

Tenderness over the sinus is a useful diagnostic sign, but care must be exercised not to press on the supra-orbital and supra-trochlear nerves, which are tender to pressure in all of us. When only one of the frontal sinuses is suspected, it is helpful to exert the same amount of pressure with an index finger over each sinus simultaneously, and ask the patient which is the more tender. It is much more reliable than pressing on the suspected sinus only, pain and tenderness being purely relative. Tenderness over the floor of the sinus—that is, over the area just above the inner canthus—is usually very pronounced, and is, in my experience, a more reliable sign than tenderness over the anterior wall. Discomfort on looking to one or other side is common, and is due to the fact that the pulley of the superior oblique muscle is attached to the periosteum of the floor of the sinus. Temperature is a very variable symptom; it may be absent or it may be as high as 105°. Generally a lower temperature—99° to 102°—is to be expected, but this depends on the virulence of the infecting organism. Oedema of the upper eyelid is not seen until late in the disease, and should not be allowed to develop if the patient is seen in the early stages. Photophobia is not uncommon, but is also usually a late symptom.

It is interesting to note that most of the cases of chronic sinus infection, which are the result of a previous acute infection, give a history of influenza some years previously, accompanied or followed by severe frontal headache which was treated as "neuralgia." In neuralgia, however, the pain is confined to the area supplied by the nerve involved. It has no definite periodicity like the pain of frontal sinusitis; moreover, the nerve itself is actually tender on pressure, whereas in frontal sinus infection it is the bone that is tender.

Another cause of acute frontal headache is acute maxillary antrum suppuration. In this condition the pain is frequently referred to the forehead, but it lacks the periodicity of true frontal sinusitis pain, and, unlike it, often keeps the patient awake at night.

The intranasal signs of frontal suppuration are seldom characteristic, but usually some injection of the affected side can be made out, especially of the middle turbinate bone. Frequently the septum is deflected to the diseased side and, by preventing free drainage, may act as a contributory cause. When pus is seen, it is either under the middle turbinate and farther forward than in the case of antral suppuration, or it is in the olfactory cleft—that is, between the septum and the middle turbinate bone. Often no pus is seen unless the patient is examined towards the evening, after the pain has passed off.

Transillumination as an aid to the diagnosis of acute frontal sinus suppuration is not of great value. The sinuses vary very much in size. In some patients the sinus of one side may be large and the other small or even absent, and it is difficult to be certain whether the failure to illuminate is due to a small sinus or to the retention of inflammatory products within a large one. A radiogram, however, is of the greatest help, and should always be obtained if operation is contemplated; it shows what manner of sinus is being dealt with. The most useful view, in my opinion, is the "nose-chin"—that is, one taken with the patient's nose and chin resting on the plate.

In the surgical treatment of frontal sinus suppuration I would stress the need of doing as little as possible. There is seldom any reason to open the sinus externally; more often than not all that is required is the removal of the anterior end of the middle turbinate bone. We are endeavouring to combat what is generally a virulent infection, and our aim should be to limit it rather than to spread it by opening up fresh bone and other tissues. If the cause of the retention of secretions is a small fronto-nasal duct, and not an enlarged middle turbinate, it can be quite sufficiently enlarged intranasally with a rasp.

[1] By the kind permission of Mr. Rowlands I was able to give illustrations of his case (which had not previously been published) in my paper on Endocrine Tumours, *Proc. Roy. Soc. Med.*, Section of Medicine, 1929, xvii, p. 15.

* A paper read before the Norfolk Branch of the British Medical Association.

Acute Antral Suppuration.

The ostium being situated some distance above the most dependent part of the cavity, drainage of the antrum is inadequate, and stagnation of infected secretions is more likely to take place than in any of the other nasal sinuses. We would therefore expect suppuration within the antrum to be relatively common, as indeed it is.

Most of the acute antral cases that I see are sent to me by dental surgeons. The history is nearly always the same: the patient has had a "cold" or an attack of influenza associated with pain in the cheek, which he attributes to defective teeth and which the doctor has advised he should have extracted. Sometimes the dental surgeon has reported that there are no teeth likely to be the cause of the pain, but more often he has extracted one or more teeth, and when relief has not been forthcoming has passed the patient on to me. I am sure that if we keep the possibility of antral infection in our minds, we shall be less frequently "caught out." As in the case of many other diseases, we have only to realize its relative frequency to be on the look out for it and diagnose it when we see it.

The symptoms are generally as follows: The patient has a "cold" associated with nasal obstruction and discharge, slight malaise, ill-defined headache, and a rise of a few degrees in temperature. A feeling of distension, or pressure, in one or both maxillae is practically always present, and is due at the beginning of the illness more to swelling and hyperaemia of the maxillary mucosa than to the internal pressure of pent-up secretion. As the disease progresses, the feeling of distension, which is increased by the act of stooping or coughing, is replaced by neuralgic pain commonly referred to the teeth of the upper jaw, but frequently to the supra-orbital region of the same side. Killian goes so far as to say "the site of predilection is the supra-orbital area." My experience does not wholly confirm his view, but pain in this site is very common, and many frontal sinuses have been opened needlessly through overlooking this fact. Sometimes there is no actual pain in the upper jaw, but an uncomfortable sensation as if one tooth was loose, or longer than its fellows.

If the maxillary ostium is completely occluded and the infection a virulent one, swelling of the cheek with oedema of the lower eyelid is observed, and great tenderness accompanies pressure on the facial wall of the sinus. In these circumstances absence of nasal discharge is common, but congestion and obstruction in the corresponding nostril is always present, and the sense of smell is either diminished or lost.

On examination one finds an intensely injected nasal mucosa and enlarged turbinates; muco-pus may be seen issuing from beneath the middle turbinate bone, but this may not be possible until the mucous membrane has been constricted with adrenaline or cocaine. The postural test, which consists of inclination of the head forwards and downwards, so that the ostium is the most dependent part of the sinus, may help, but this test is more useful in chronic cases.

Pressure over the anterior wall of the canine fossa will always produce discomfort, and it is most important to compare the two sides by pressing on them simultaneously. Transillumination is of great value and should be practised whenever antral suppuration is suspected; it can be done quite well with one of the small "fountain pen" flash lamps which many of us now carry. Darken the room as far as possible, and make a tent to cover the patient's head and your own; insert the lamp in the mouth, taking care that the upper denture, if present, is removed. The normal light area immediately below the orbit will be absent if the antrum is infected. A good radiogram is useful to confirm the diagnosis, and when the pain is referred to the supra-orbital area it is an essential to exclude frontal sinus suppuration.

Acute Ethmoiditis.

Acute infection within the anterior ethmoid cells is probably very common, but is seldom diagnosed unless complications arise. It is difficult to enumerate the precise symptomatology, for the reason that the condition is seldom met with alone, but in association with infection of some of the other nasal sinuses, or as a complication of acute coryza. Headache is a constant symptom, and is referred to the region between or behind the eyes, and is aggravated by movement of the eyeball. Tenderness can often be elicited by digital pressure below the inner canthus. (In frontal sinus suppuration the tenderness is above the canthus.) Radiography is valuable, but as the condition usually clears up without undue delay, it is seldom called for.

Acute Sphenoidal Suppuration.

Acute sphenoidal suppuration is a condition of considerable interest to the rhinologist, if not to the general practitioner, for it is a very definite entity and by no means rare, although little or nothing is said about it in any of the textbooks. Briefly, the symptoms are headache and raised temperature. The headache is of a particularly distressing kind, and is deep-seated and intense. Usually it is referred to the occiput, but sometimes to the parietal or temporal region. The patient gets no rest from it, either by night or day, and often screams out unless a sedative is given. The condition is sometimes mistaken for meningitis, and in many cases, unless appropriately treated, it undoubtedly progresses to meningitis. A physical sign that is not easily explained is proptosis of the upper eyelid on the affected side.

TREATMENT OF ACUTE SINUSITIS.

It is a mistake to imagine that most of these cases require surgical intervention; if properly treated in the first place, very few of them will.

Confinement to bed, or at least to a warm room, is most desirable. A dose of calomel should be given, and, the essence of the treatment being to reduce the engorgement of the mucous membrane, smoking and the consumption of alcohol, which increase it, should be forbidden. Heat, either in the form of fomentations or as radiant heat, is most comforting, especially in frontal sinusitis.

Intranasally, inhalations of steam impregnated with menthol are useful, especially when given in the form of an alcoholic solution. Half a teaspoonful, or a little more, of a 15 per cent. solution should be put in a quart jug, the water being at a temperature of 140° to 150° F., and the inhalation continued for ten minutes and repeated every four or five hours. A nasal douche should not be used during the early stages; the patient should be encouraged to blow his nose, though he must take care not to do it so violently as to cause the infection to spread up the Eustachian tube to the middle ear. There is no objection to a warm alkaline spray used in a coarse atomizer, and it is comforting to the patient. Aspirin, phenazone, bromide, and Dover's powder are all useful in relieving the pain.

If in spite of this treatment the symptoms persist for two or three days, it is probable that some slight surgical intervention is necessary. The failure may be due to a deflected septum or an enlarged anterior end of the middle turbinate, which will have to be removed under a general anaesthetic. The earlier diagnosis of sinus suppuration has greatly simplified the operative treatment, and it is now seldom necessary to resort to the mutilating operations of a generation ago. There is no reason to open an antrum through the buccal cavity, or the frontal sinus externally; they can both be satisfactorily dealt with by intranasal surgery.

ACUTE AURAL CONDITIONS.

The only common acute aural conditions I propose to discuss are acute middle-ear suppuration and acute mastoid disease. I operated on a great many acute mastoids during the recent epidemic of influenza, and what struck me most was the fact that whereas a few years ago it was common to see the old textbook picture of the auricle pushed downwards and forwards, I saw only three or four cases presenting this symptom. The earlier diagnosis of acute mastoiditis, which is often by no means easy, reflects the greatest credit on the care and vigilance of the general practitioner.

Acute Otitis Media.

Acute otitis media is generally an ascending infection, characterized by a sense of fullness going on to actual and very acute pain in the ear. The pain is worse at night and may render sleep impossible. Warm olive oil or, better still, glycerinum acidi carbolici (5 per cent.) may relieve it; if not, I cannot too strongly stress the necessity for an early paracentesis. Many cases of mastoiditis are the result of delay in carrying out this operation, and I am quite certain that we are never justified in waiting for days, as we used to, until the drumhead gives way. After all, paracentesis is a very simple procedure. Anyone, given a good light, an aural speculum, and a myringotome, can do it while the patient is under gas or ethyl chloride. The relief from pain is often instantaneous, the risk of mastoiditis reduced at least by half, and the hearing is less likely to be impaired than if the drum were allowed to rupture on its own. It is better to open a drum unnecessarily than to let the case drift on to mastoiditis.

Assuming the patient has had paracentesis performed, or that the drum has given way, and the ear is discharging freely, how are we to know that all is going well and that the mastoid is not becoming infected? A decision is not always made easily, and there is no one infallible symptom to look for, though mastoid tenderness is significant. Unfortunately some mastoid tenderness is usually present in otitis media. The mastoid antrum being a direct backward extension of the middle ear, pus practically always finds its way into it; but that does not constitute mastoiditis, though it explains why patients with marked mastoid tenderness frequently get completely well in a few days. The tenderness associated with suppuration in the mastoid antrum, as distinct from the tenderness of mastoiditis, is situated over Macewen's triangle—that is, the area above and behind the meatus, and not at the tip of the mastoid process. If, then, it is found that the area of tenderness is extending towards the tip, and the patient's constitutional symptoms are becoming worse, it is safe to assume that the case is going on to mastoiditis. It should be remembered that it is rare for an adult patient to have a temperature of over 100° F. in mastoiditis, and a high temperature is not to be waited for, as it usually means some intracranial complication.

In testing for tenderness it is most important to compare the two sides, and, in a case of suspected suppuration within both mastoids, to compare one mastoid at a time with any other part of the skull. This is done by exerting equal pressure with the index fingers, and, by varying the degree of pressure, it is possible to get a very fair estimate of the degree of tenderness. In carrying out the test do not ask, "Does that hurt?" Rather say, "That does not hurt, does it?" and unless the tenderness is real the patient will agree with you. It is also helpful to watch the patient's face while carrying out the test, as you will often see an uncontrollable frown when you press on a tender area. Pain is a very helpful sign. The pain of otitis media usually passes off soon after the discharge is established. If it persists and robs the patient of a night's rest in spite of free discharge, he is probably developing mastoiditis. The arrest, or diminution, of the discharge followed by increased tenderness is another significant sign, and should suggest the possibility of spreading infection.

Briefly, then, the return of pain in spite of a free discharge, extension of tenderness towards the tip of the mastoid process, and increase in temperature and malaise, may be taken as indications that mastoid infection is taking place. The usual symptoms and physical signs may vary slightly according to the age of the patient.

Mastoid Abscess.

One sometimes meets with a mastoid abscess in a child under 12 months old. Generally the first sign noticed is a swelling behind the ear. The child may have been fretful for some days and its condition attributed to teething. The discharge from the ear is probably ascribed to the same cause, and it may not be until the swelling appears that the mother seeks advice. The constitutional symptoms are usually slight, and I have seen cases where the house-surgeon has incised the swelling, in the belief that it was merely a post-auricular abscess secondary to a breaking down gland. I always tell my house-surgeons that post-auricular abscesses in children, with or without discharging ears, are mastoid abscesses and the result of extensive bone disease. That may not be strictly correct, but I have yet to see the case in which it is not.

Mastoid suppuration in the aged also presents certain difficulties. Oedema is practically never seen, as the bone is too sclerosed, and tenderness has to be carefully looked for to be found; very often it is confined to one small area. The patient will complain of deep-seated boring pain that robs him of sleep, and, as often as not, the only other evidence of ear trouble will be a profuse discharge from the meatus. The temperature will not be more than 99° or 100° F. at most. The amount of discharge is usually suggestive. The cavity of the middle ear is small and the secreting powers of the lining membrane accordingly are limited; if, then, the discharge is copious, it must be coming from somewhere else, and most likely from a diseased mastoid bone.

In the last few months I have seen several cases of mastoid abscess in which the drum was intact and normal. They were interesting because, otorrhoea being absent, mastoid disease was not suspected. They all gave a history of having had severe earache, which had improved but never completely disappeared. The explanation was evidently that the Eustachian tube was fairly patent and the drum tough. The middle ear and mastoid antrum had emptied themselves through the Eustachian tube, but some residual infection had persisted in the mastoid bone and gone on to abscess formation. Most of the patients were elderly adults, and one of them gave a six months' history, during which she had been labelled "neurotic." She had marked mastoid tenderness and at the time of operation a large perisinous abscess was found. The absence of discharge coupled with the normal drumhead entirely misled her doctor. In this connexion it is useful to remember that there are many causes of mastoid pain not associated with ear disease, but there are very few causes of mastoid tenderness other than the existence of disease within the mastoid bone.

TREATMENT OF MASTOIDITIS.

The classical operation is, of course, the Schwartze, and the ultimate results leave nothing to be desired. Until a few years ago the custom was to leave the wound open and to pack the cavity with gauze. This meant a daily—and painful—dressing for the patients, and the discomfort was often such that they remembered it to the end of their days. Just after the war the practice of rubbing bipp into the cavity and completely suturing it, was tried with more or less success. Unfortunately, although it robbed the operation of the terror of a very painful dressing, quite half of the wounds completely broke down.

A modification, and the method at present generally used, is lightly to pack the cavity with gauze, stitch up the upper two-thirds of the wound and leave it for four or five days. The packing can then be removed without causing much discomfort, but the patient may find its presence distinctly painful. To overcome this disadvantage I have used a piece of rubber tissue in place of gauze. It slips out painlessly and the results have been very satisfactory. Recently one of my hospital sisters noticed that, with the rubber tissue as a packing, one had frequently, on the third or fourth day, to take out one or two of the stitches at the upper part of the wound owing to pus having collected under them. She suggested that this could be prevented by stitching up the wound completely and securely, and passing a small rubber tube with lateral holes, from the extreme upper end of the wound through the cavity and out at the lower end. The tube should be made of rather rigid rubber to prevent its collapsing, and have a total calibre of not more than that of a slate pencil. It is left in for three or four days, during which the mastoid cavity is syringed daily through it from above downwards, and if the discharge is free, the tube is retained a day or two longer.

The cases treated in this manner have, without exception, done remarkably well. In none of them has the wound broken down, and in all of them the convalescence has been considerably shortened. Frequently the wound is soundly healed, all discharge has ceased, and the patient is out of hospital on the tenth or eleventh day. Compared with the old laborious daily packing, which often had to be done for anything up to two months, it is an advance of the greatest importance.

INOPERABLE CARCINOMA OF CERVIX TREATED BY RADIUM TRANSPERITONEALLY.

A REPORT OF THREE CASES.

BY

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THE following record of three cases of carcinoma of the cervix treated by radium intravaginally and transperitoneally is based on the notes published in the annual Harker Smith radium report of University College Hospital, and for permission to use this report I am indebted to the hospital Radium Committee. The patients concerned were all under the care of Sir George Blacker, who operated in each case.

CASE I.

The patient, A. B., aged 49, was admitted on April 21st, 1925, with a moderately advanced cervical carcinoma infiltrating the anterior vaginal wall. Microscopical examination showed the growth to be squamous carcinoma.

On April 24th the abdomen was opened, and four tubes, each containing 10 mg. of radium sulphate, screened by 0.3 mm. of platinum, were embedded in the left utero-sacral fold, in the base of the left broad ligament, higher up and further out in the left broad ligament, and in the base of the right broad ligament respectively. Each tube was tethered by phosphor-bronze wire, the distal ends of the four wires being brought out of the wound through a rubber drainage tube. At the end of ten hours the four needles were extracted by traction on the wires, the drainage tube was removed, and the hole closed by tying a through-and-through suture which had been placed in position at the time of the operation.

On May 6th, the wound having healed by primary union, and the patient having made a good recovery from the effects of the operation, 100 mg. of radium sulphate were inserted in the cervical canal, and 100 mg. placed transversely across the vaginal vault, each being screened by 0.5 mm. of platinum and 2 mm. of rubber. The radium salt was left *in situ* for twenty hours, making a total application of 2,800 milligram hours of element.*

On July 10th the patient was readmitted to hospital; she had been well, gained 4 lb. in weight, and had a good appetite. There was no bleeding, but a slight yellowish discharge. Her bowels were regular. The cervix had been replaced by a depressed area about the size of a sixpenny-piece, consisting of red granular tissue which bled on examination. Radium treatment was administered as follows: one tube containing 50 mg. of radium sulphate, screened with 0.5 mm. of platinum and 2 mm. of rubber, was placed into the cervical canal; one tube containing 100 mg. of radium sulphate, similarly screened, was placed transversely across the vaginal vault. The tubes were kept *in situ* for twenty-four hours, involving the application of 2,520 milligram hours of element.

On September 22nd the patient was once more admitted to hospital; she was very well, had a good appetite, had increased in weight, there was no bleeding, and very little discharge. Hot flushes were troublesome. On examination the vagina was found to be shortened and its upper part conical. The vaginal cervix had disappeared and the uterus was fairly mobile; both utero-sacral ligaments were palpable but not thickened or shortened. The abdominal scar was sound; there was no evidence of growth on inspection or palpation.

In November, 1927, the patient complained of pain in the leg and arm; *x*-ray examination showed the presence of osteo-arthritis. No evidence of growth was found on vaginal examination; on rectal examination both utero-sacral ligaments were found to be indurated, though no definite mass was palpable. The mucous membrane of the rectum felt normal, and the fact that the patient was passing clots of blood with her motions was attributed to the possible presence of a radium burn of the rectum.

In May, 1928, nothing abnormal was found on abdominal examination, but the vagina was occluded by adhesive vaginitis. The utero-sacral folds were slightly thickened, but there was no clinical evidence of growth. In March, 1929—nearly four years after the beginning of treatment—the patient was alive and well.

CASE II.

The patient, A. C., aged 52, was admitted on September 7th, 1925, complaining that for four months she had had a watery, and occasionally blood-stained, discharge from the vagina. She had no pain and the bowel and bladder functions were normal. She had had three children (no miscarriages), the last pregnancy having occurred eleven years and the menopause two years before the onset of symptoms. On examination the cervix was found to be enlarged and torn on the left side; posteriorly it was partially destroyed by a friable growth which bled readily. The vagina was not actually invaded, but the cellular tissue on the left side was somewhat thickened and the uterus slightly fixed. Microscopical examination showed the growth to be a squamous carcinoma.

On September 11th, and again on September 14th, acetone was applied for ten minutes, and an operation was performed on September 16th. The original intention was to carry out Wertheim's extended hysterectomy, but this idea was abandoned when it was found that the growth had invaded the peritoneum from the right posterior part of the cervix, causing partial obliteration of the pouch of Douglas, and was just beginning to invade the rectum. Furthermore, the uterus was tethered on the right side by a definite invasion of the broad ligament. The ovarian vessels and round ligaments were tied and, by a technique similar to that used in Case i, five tubes, each of 10 mg. of radium sulphate, screened by 0.3 mm. of platinum, were embedded as follows: one tube in the near end of the base of the right broad ligament; one tube further out between the right broad and utero-sacral ligaments; one tube in the mid-line of the cervix just below the internal os; one tube behind the cervix, half an inch to the left of the mid-line; one tube in the base of the left broad ligament. The tubes were allowed to remain in position for ten hours, the total dose being 350 milligram hours of element. After the operation the patient had an uneventful convalescence, and on October 2nd, and again on October 6th, acetone was applied.

On October 9th radium treatment was resumed. A tube containing 100 mg. of radium sulphate, screened with 0.5 mm. of platinum and 2 mm. of rubber, was placed in the cervical canal, and one containing 50 mg. of radium sulphate, similarly screened, in the right posterior fornix. Both tubes were retained for thirty hours, giving a total dose of 3,150 milligram hours of element.

On June 9th, 1926, there was an extensive papillary recurrence projecting from the cervix; the mass was breaking down, was friable, and it bled on manipulation. The lateral fornices were not involved; the left utero-sacral ligament was normal; but there was marked thickening in the right utero-sacral ligament. An application of 3,100 milligram hours of element was made per vaginam. On July 13th the cervix was largely atrophied and no cervical growth could be detected. The posterior fornix was obliterated, the cellular tissue on the left side was normal, but there was a definite mass in the right utero-sacral ligament.

On November 14th the only abnormal physical sign revealed by abdominal examination was an enlarged and readily palpable right kidney. The cervix was atrophied and flush with the vaginal vault, and there was induration in the right fornix. Rectal examination revealed a large, hard, fixed mass on the right side of the pelvic wall; it was not attached to the rectal mucous membrane. Both utero-sacral ligaments, especially the right, were infiltrated and fixed to the pelvic wall. On November 18th similar conditions were found, and in December, 1928, three years after the beginning of treatment, the patient died.

CASE III.

The patient, F. O., aged 53, was admitted on October 28th, 1925. Examination revealed an ulcer with a thick everted edge and a friable surface, which bled readily on manipulation, replacing the cervix. The uterus was fairly mobile. The left broad and utero-sacral ligaments were to some extent invaded, not the right. There was early extension to the vagina.

On October 30th a tube of radium sulphate, screened with 0.5 mm. of platinum and 2 mm. of rubber, was inserted into the cervical canal, and one of radium sulphate, similarly screened, into the posterior fornix. The tubes were retained for twenty-four hours, giving a total dose of 2,520 milligram hours of element.

On November 13th the abdomen was opened, but the conditions were found unsuitable for treatment by Wertheim's operation. With a technique similar to that used in Case i, five tubes, each of 10 mg. of radium sulphate, screened by 0.3 mm. of platinum, were embedded as follows: three tubes behind the cervix, one median, and one at the extreme lateral margin of each side, a tube in the left utero-sacral fold 1½ inches from the

* To convert radium sulphate to element it is necessary to multiply by the coefficient 0.7.

cervix, and another 1 inch from the cervix. All five tubes were removed at the end of ten hours, making a total application of 350 milligram hours of element.

A section taken for examination was of interest, for though in many places it showed ordinary squamous carcinoma, in several areas the cervical glands were normal, and columnar epithelium of some of these appeared to merge into the squamous growth. The suggested explanation was that trabeculae of the squamous carcinoma had tended to grow down the cervical glands and gradually to replace the normal epithelium; such trabeculae had in consequence obtained a central lumen.

After the operation the patient's progress was uneventful. On February 2nd, 1926, examination showed that the upper end of the vagina was scarred and the cervix somewhat enlarged; the mucosa was intact. There was a diffuse thickening of the cellular tissue on the left side of the pelvis, due either to the presence of growth or to fibrosis. An application of 1,256 milligram hours of radium sulphate was made per vaginam. On August 24th, 1926, examination showed the presence of a hard fixed mass in the pouch of Douglas; the patient was given lead treatment at the Cancer Hospital, but she died shortly after, having survived fifteen months since the beginning of treatment.

SUMMARY.

Case i was alive and clinically free from disease four years after treatment; Case ii died three years, and Case iii fifteen months, after treatment. Curiously enough, the disease in Case i was more advanced than in the other two. For purposes of comparison I may mention that at University College Hospital during the past six years 14 patients with operable cervical carcinoma were treated by radium alone, and of these 7 are dead; 7 patients are alive, 1 five and a half, 1 four and a half, 1 four, and 4 three and a half years after the first radium treatment. The average period of survival among the patients who died was twenty months.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

A CASE OF GLANDULAR FEVER.

THE following clinical details of a case diagnosed eventually as glandular fever seem to be worth recording.

A married woman, aged 48, on January 1st, noticed vague pains about the neck; this fact was not mentioned until later. During the night of January 2nd she had most violent pains over the base of the right lung, and general abdominal pain. There was no sickness, the bowels were not open, and there was no abdominal rigidity; the temperature was 100° and the pulse rate 105. The breath sounds at the right base were diminished, but there was no cough. The next day her condition was much about the same, the temperature and pulse being unchanged.

On January 4th pains in the neck developed and the glands of the right side of the neck became slightly enlarged. The temperature was 100.8° and the pulse 106, morning and evening. On the next day the glands on both sides of the neck were tender and enlarged; the temperature had risen to 101° and the pulse to 110, morning and evening. During the next twenty-four hours the glands of the neck became rather smaller and slightly less tender; the temperature was 100.6° and the pulse 100.

On January 7th the glands in the neck were decreasing in size, but she complained of pains in the sternum and slight tenderness in the axilla; the glands in the groin were tender and a little enlarged. The temperature was 98.6° and pulse 100. The breath sounds at the right base still remained rather weaker than at the left. By the next day the glands in the groin were tender and enlarged; there were pains in the lumbar region, tender and slightly enlarged axillary glands, and tenderness of the epitrochlear glands. The pain over the sternum was better. The temperature was 99° and the pulse 88. On January 9th there was still slight tenderness of the glands in the groins, neck, axilla, popliteal glands, and the epitrochlear glands; the temperature was 99° and the pulse 78. There was slight cough, but the heart and lungs appeared normal, and the general condition was improving. On the following day she developed a cold, and there were signs of bronchitis. The axillary and epitrochlear glands were still tender and slightly enlarged, and there were pains in the lumbar region; the temperature was 99.4° and the pulse 88. During the next twenty-four hours the axillary glands remained tender, and there were still signs of bronchitis. The temperature was 99.2° and the pulse 80.

On January 12th she was practically clear of any pain or tenderness, but still complained of the "cold." The temperature was 98.2° and the pulse 74. Two days later the chest was clear and the "cold" better, but she still complained of vague pains in the axilla and groins. The temperature was 98.4° and the pulse 74. She was allowed to get up for a short period. On January 16th the patient felt very much better except for general weakness. The temperature was 98° and the pulse 80. She eventually made a complete recovery, although convalescence was rather prolonged.

The case was of interest in the early stages when the diagnosis of pneumonia seemed possible, although the absence of cough was against it. Later the existence of some abdominal condition was suggested. The signs in the chest in the early stage were probably due to the enlargement and pressure of bronchial glands, and the abdominal pains would suggest that the mesenteric and retroperitoneal glands were also involved.

This was the first case I had seen, and, so far as I know, no other case had occurred in Leicestershire at that time. During this period and afterwards I was unable to discover any mild case that might be mistaken for the condition, and possibly go unrecognized.

Coalville, Leicester. A. M. W. SEGERDAL.

DIABETIC GANGRENE OF FACE.

THIS case of diabetes, in which gangrene developed in an unusual site, was considered of sufficient interest to make a brief note accompanying a photograph.

The condition was resistant to treatment, and ran a fatal course of seven days, mercifully without severe pain. At the time of onset the patient was receiving insulin and dietetic treatment on usual lines. The first thing noted was a hyperaemic area immediately under the right orbit, which spread, similarly to erysipelas, from that centre; the eyelids swelled up and occluded the eye, which became proptosed with orbital cellulitis. The other eye became similarly affected, while the skin changed to patchy, moist, black sloughs. A photograph, unfortunately, does not clearly show necrosed tissue. Coincident with the local condition, sugar and acetone reappeared in the urine.

I am indebted to Dr. Aveling, physician in charge of the case, for permission to publish this note, and to Miss Houghton, sister in the *x*-ray department, for the photograph.

G. PRATT BROOKS, M.R.C.S., L.R.C.P.,
Acting Resident Medical Officer, Watford and District Peace Memorial Hospital.

TREATMENT OF FILARIASIS BANCROFTI.

WITH the hope that this communication will be seen by practitioners living in places where cases of filariasis bancrofti occur, I am sending you some notes about a patient treated here recently with weekly injections of moogrol in 1 c.cm. doses.

A man, aged 40, had been known to me for years as a healthy, hardworking washerman. He came to my dispensary one morning and showed me a much enlarged leg, which he said he had had for two months. In his night blood I found numerous *Filaria bancrofti*, and the question then came up how to treat him. I was aware that my friends had given novarsenobenzol and numerous other drugs with only partial relief, so decided not to try any of these.

So far as I knew, no patients had been given moogrol or other drugs of the chaulmoogra group, so I decided to try it. At the end of the first week the man returned and said that he felt better; the leg did not look so tense. He has now had six injections; he is able to get back to work, and he walks much better. Measurements show that the calf is losing between one-half and one-quarter of an inch in circumference per week. The blood has not been examined again.

We see very few fresh cases of this condition here, but, for the most part, old chronic cases in which little hope can be given.

My great wish is that others may try this treatment in places where there are a greater number of cases than we have here.

Swatow, China. C. H. BRANGWIN.

Reviews.

OSTEOMYELITIS AND COMPOUND FRACTURES.

THE treatment of acute osteomyelitis was discussed at length at a meeting of the Orthopaedic Section of the Royal Society of Medicine early in 1928, and we reviewed that discussion in a leading article on March 17th. But no allusion to the method of treating the disease advocated by Dr. H. WINNETT ORR of Nebraska was made in that discussion or in that article, and it is doubtful whether Dr. Orr's papers contributed to periodicals in America had then attracted any notice in this country. He has now published an account of his method as applied not only to osteomyelitis, but also to compound fractures, with a discussion of the treatment of suppurating wounds and compound fractures in the late war, and a criticism of the treatment pursued in such cases in America in recent years. His book[1] contains clinical histories of numerous cases treated by himself and others, and its appearance challenges study and comment, and, in view of the results recorded, should lead surgeons to reconsider their methods of treatment, for if Dr. Orr and his disciples are in the right, considerable changes in post-operative technique are called for. It is indeed somewhat startling to read of case after case of acute as well as chronic osteomyelitis operated upon by free incision, removal of sequestra, and "saucerization" of the cavity, then packed and covered with vaseline gauze, and not dressed for several weeks, to be found healed and the gauze pad extruded on the occasion of the first dressing.

Like all other competent surgeons, Dr. Orr insists on the paramount importance of early diagnosis in osteomyelitis and prompt operative treatment. Shortly stated, his principles are the following:

> "First, immediate adequate drainage at whatever stage the osteomyelitis is encountered; second, the maintenance at rest of inflamed parts by the application of a plaster-of-Paris cast, aided, if necessary, by ice-tongs or other methods of skeletal fixation; third, wide open drainage by means of a sterile vaseline pack; fourth, primary asepsis or antisepsis, avoiding the use of irritating antiseptics in the wound; fifth, post-operative care, emphasizing rest without *antiseptic dressings*, which usually increase and complicate infection; and sixth, the maintenance of all injured parts, bones, and soft parts in their correct anatomic position during the entire period of healing."

By "antiseptic dressings" (italicized by the author) is meant, as the context shows, change of dressings as in the daily toilet of an open wound. Dr. Orr has based these principles, he says, on Hunter, Hilton, and Lister. The healing of Lister's first case of treatment of compound fracture under a scab of carbolic acid and blood clot is, he thinks, analogous to healing under the vaseline pad. Septic bones and soft parts cannot be made aseptic with chemicals, the frequent renewal of which leads, like movement of parts, to light up old or add fresh infection. Dr. Orr is a skilful and experienced orthopaedic surgeon, and there is no doubt that with his technique he is able, by intrinsic fixation and extension within a plaster-of-Paris cast, to fix the parts almost absolutely. The method of dry and infrequent dressings was advocated and practised many years ago by Sampson Gamgee of Birmingham and by F. Esmarch of Kiel, but probably neither of those pioneer surgeons would have dared to seal up a bone cavity containing septic material as Dr. Orr does. The proof of the pudding must be in the eating.

The second part of the book is devoted to the study of the treatment of compound fractures on similar principles to those outlined above, excluding, of course, the free exposure and excision of bone. Dr. Orr complains that general surgeons in war and in peace time are apt to pay too much attention to the wound and to neglect the fracture. He relies more upon plaster-of-Paris for fixation than upon splints, although he appreciates the value of Thomas's splints. His methods are well described in this book. It appears that there is one drawback to the Orr method, and that is the putrefaction of the discharge in the vaseline-gauze dressing, a discharge which sometimes oozes out of the end of the plaster cast. Such an "odor" (or, as we would say, a stench) is likely to be very disquieting to the surgeon accustomed to modern surgical dressings, and particularly annoying to the patient and his friends, but Dr. Orr does not allow himself to be disturbed by it, and prefers not to change the dressing, however putrid it may seem, as long as the temperature chart remains satisfactory.

[1] *Osteomyelitis and Compound Fractures and other Infected Wounds.* By H. Winnett Orr, M.D., F.A.C.S. London: H. Kimpton. 1929. (6 × 9¼, pp. 268; 54 figures. 21s. net.)

MATERNAL MORTALITY AND A NATIONAL MATERNITY SERVICE.

IN view of the British Medical Association's memorandum outlining a national maternity service scheme for England and Wales, published as an appendix to the Supplementary Report of the Council in our *Supplement* of June 29th (p. 258), a recent work on *The Causes and Prevention of Maternal Mortality*,[2] by Dr. HENRY JELLETT, is worthy of study and consideration at the present time, when this subject is so much under discussion.

Dr. Jellett is always fearless, and holds decided views, but he has sound foundations on which to carry them in his wide obstetric experience as a former Master of the Rotunda and teacher in the Dublin School, and afterwards as consulting obstetrician to the Department of Health in the New Zealand Government. Except that he makes more of the place occupied by the maternity nurse who is not a midwife, his ideal service, as outlined in this book, follows closely on the lines of the memorandum, though he puts the case in a different, but very characteristic, way. He argues that 85 per cent. of women would pass through pregnancy and deliver themselves safely with the assistance of a midwife only, and for those 85 medical assistance would but increase the danger of infection. The remaining 15 per cent. would suffer materially from the absence of medical aid, and possibly 5 of these 15 might die from the lack of it. Though impossible to group patients into those for whom medical aid is unnecessary, advisable, or essential, he concludes that if the women have adequate preliminary medical examination, and those adjudged normal are left to the midwife with a general practitioner on call in case of need, and an obstetric specialist on call at the request of the practitioner, the basis for an ideal midwifery service is obtained. The argument for a midwifery service of this nature is strengthened by statistics from this country and from other countries with a service of well-trained midwives. The Dutch maternity work is explained in full detail and with approbation.

In discussing the causes and prevention of maternal mortality, a variant on the commoner "extrinsic" and "intrinsic" causes is introduced by the use of the terms "personal" and "impersonal," which require much explanation and illustration to make the author's meaning clear. They are intended to convey an entirely different impression from that of the older terms, in that a "personal" cause is one that might be prevented by human endeavour, whereas the "impersonal" causes are not, and therefore, with progress in medicine in general and obstetrics in particular, many of the "impersonal" causes will in time become "personal." Dr. Jellett includes under impersonal causes those in which the circumstances of the patient during her pregnancy or labour are such as to make it, "humanly speaking," impossible to obtain adequate assistance for her, or to avoid infection. In this way he raises an interesting discussion, since these "impersonal" causes are extended even to the length of including bad training of the practitioner by those responsible for his early education. He does not, however, attempt to show how the "personal" factor, in making inadequate use of opportunities during training, is excluded.

Dr. Jellett's work is full of interesting points, often put forward in a brusque, but always striking, way, and will fulfil a useful purpose. The text of his sermon may be found in his introductory chapter. It reads: "We create hospitals which make interference with normal labour easy, and we neglect the essentials which make interference safe, and the teaching which makes it unnecessary."

[2] *The Causes and Prevention of Maternal Mortality.* By Henry Jellett, M.D.Dublin Univ., F.R.C.P.I. Churchill's Empire Series. London: J. and A. Churchill. 1929. (Demy 8vo, pp. vii + 300. 15s.).

ELECTRO-THERAPEUTIC TECHNIQUE.

ACCORDING to the emphatic statements made in the preface, Dr. F. B. GRANGER's book entitled *Physical Therapeutic Technic*[3] is intended "for the physician who has installed a limited equipment" and "has not been written for the specialist in physical therapy." The author therefore deals in his opening chapter with electro-physics briefly and in a non-technical manner; it is a pity, however, that his chapter on the physiological effects produced by electricity, which immediately follows, is reduced to less than two pages. If the general practitioner proposes to install in his consulting room apparatus for, say, ionization, medical diathermy, and ultra-violet light, he wants accurate and full instruction on the type of physiological response these currents will produce. Then, when a case is under review, he can advise the use of these physical means of treatment, confident in the knowledge that the normal physiological reaction to their application will be of the kind to help his patient.

The tendency of recent books on electro-therapeutics to reproduce manufacturers' blocks of apparatus leads to the inclusion of figures that fail to fulfil the true purpose of an illustration. For instance, on page 45, a "galvano-faradic plate" instrument is shown in such a position that little besides the stand of the machine can be seen. On the next page is the exact opposite of this type of illustration; here is an excellent photographic reproduction of the testing electrode Dr. Granger recommends, from which every detail can be seen. Again, on page 107 and page 108 are three beautiful illustrations of the method of preparing "a safety-pin connector," the steps of making this simple and ingenious contrivance being so clearly set out that any practitioner could immediately make this small adjunct to treatment. When, however, we turn to the illustrations of technique in diathermy there is an unnecessary amount of the assistant and patient and apparatus shown; while the detail of the method of application, which should be the essential feature, occupies in consequence so small a portion of the picture that an otherwise valuable illustration becomes of little help.

In the index of diseases practically no mention whatever is made of any original worker in Europe; for instance, Dr. Axel Reyn's and Sir Henry Gauvain's advances on the pioneer work of Finsen in the treatment of lupus and tuberculosis find no mention, and the equally important original work of Drs. Cumberbatch and Robinson in this country on the effects of diathermy in gonococcal conditions is dismissed as follows: "Corbus, of Chicago, has reported good results with the use of diathermy in this condition. At most clinics, however, the results have not been as satisfactory." There is one feature, however, of particular merit in this book, which has evidently been carefully revised for this purpose, and that is that the author is careful to recommend small currents and to warn the reader as to the contra-indications to further treatment.

Taken as a whole the book will give to the general practitioner the personal recommendations and experience of a doctor who has had more than a quarter of a century's practice in his subject. It is a pity that it has two common but unpleasant features of books printed in America: first, it is extremely heavy for its size, and secondly, a steady but continuous unpleasant aroma comes from the open page (not the cover). These perhaps are small points, but none the less important.

THE SUPRARENAL GLANDS.

A VALUABLE but rather dogmatic account of the suprarenal glands and chromaffin organs[4] constitutes the third volume of the treatise on endocrinology by Professors M. LUCIEN and J. PARISOT and Dr. G. RICHARD, all present or past members of the Nancy School of Medicine.

The authors have produced a large volume; moreover, it is very well turned out as regards print, paper, and illustrations, and its price—in welcome and striking contrast to the prices charged for German medical works of a comparable nature—is very moderate, being only 100 francs. Within its scope the work includes the normal anatomy, histology, and physiology of the suprarenal glands and the anatomy and pathology of suprarenal disorders. The first part, dealing with the anatomy and histology of the suprarenals, is comprehensive and well illustrated. The second part is devoted to a description of the physiology of the suprarenals, and contains adequate accounts of the effects of ablation of the suprarenals, the pharmacological action of adrenaline, and the cholesterin content of the suprarenal cortex. The third part is more important and also more controversial, for there the authors discuss the available evidence about the physiological functions of the suprarenal cortex and medulla. The function of the suprarenal medulla has been a matter of keen dispute during the last two decades. The problem is important because all views of the part played by adrenal insufficiency in pathological conditions depend very largely upon an underlying theory about the functions of the medulla in the normal body. The authors' account of these problems is interesting, but somewhat one-sided.

Fortunately there is no need for any writer on endocrinology to attempt a full bibliography of his subject; the third volume of Biedl's monumental work already provides more references than anyone could read in a lifetime. Selected references, such as are provided by the authors of the volume under review, should, however, be fair samples of existing evidence. In reading the third part, certain striking omissions in the letterpress led us to analyse the appended bibliography. There are 205 references: 110 French, 31 German, 28 American, 18 Spanish, and 18 from other nationalities. Moreover, half of the 90 foreign references are to work that is more than ten years old. These figures indicate pretty well the value of this section of the book. It gives a fair account of the classical work on the subject, and a good account of the recent French work, some of which has been very brilliant; but it deals inadequately with the great mass of work in connexion with this problem in recent years in other countries.

The fourth part is devoted chiefly to the pathological anatomy of diseases and tumours of the suprarenals; the fifth part, which is well illustrated, describes the suprarenal syndromes, including such conditions as Addison's disease, suprarenal hirsutism, etc. The sixth and last part is very much the shortest, for it deals with the therapy of suprarenal disorders, and unfortunately there is little that can be said on this subject.

THE SCIENCE OF NUTRITION.

WE have great pleasure in welcoming the appearance of a fourth edition of Professor GRAHAM LUSK's classical work *The Elements of the Science of Nutrition*.[5] When the author completed the third edition twelve years ago he announced his intention of not writing another. Fortunately the wishes of his friends have prevailed upon him to reconsider his decision, although he now announces that this is the final edition. Perusal of the volume explains the author's reluctance to provide many editions, for it is evident that the whole work has been very thoroughly revised, and that much of it has been completely rewritten.

The science of nutrition began with the quantitative study of the fuel value of foods, but during the last twenty years increasing attention has been devoted to the qualitative aspect of nutrition, and the study of the minimal requirements of essential constituents such as inorganic salts and vitamins. The attention of the author is centred chiefly on the quantitative aspects of nutrition, and only one chapter is devoted to vitamin and the biological value of various proteins. The work forms an exhaustive summary of the knowledge regarding the quantitative aspects of nutrition. Moreover, it is written in a clear and easy style, and its pages are enlivened here and there by the author's opinion regarding social and political problems.

[3] *Physical Therapeutic Technic*. By Frank Butler Granger, A.B., M.D., With a foreword by William D. McFee, M.D. Philadelphia and London: W. B. Saunders Company. 1929. (6 × 9¼, pp. 417; 155 figures. 20s. net.)

[4] *Traité d'Endocrinologie: Glandes Surrénales et Organes Chromaffines*. Par M. Lucien, J. Parisot, et G. Richard. Paris: G. Doin et Cie. 1929. (7 × 9¾, pp. 710; 104 figures. 100 fr.)

[5] *The Elements of the Science of Nutrition*. By Graham Lusk, Ph.D., Sc.D., LL.D., F.R.S.Ed. Fourth edition, reset. Philadelphia and London: W. B. Saunders Company. 1928. (6 × 9¼, pp. 844; 46 figures. 32s. 6d. net.)

As we have remarked, attention has been focused recently more on the qualitative than on the quantitative problems of nutrition. The enormous importance of the latter aspect of the science is, however, very clearly shown in some telling sentences with which Professor Lusk concludes his work.

"The annual value of food used by the people of the United States is at least $12,000,000,000. This is taken with little knowledge of what food really is. It has been thought by workers in the laboratory that it would be of great importance in times of poverty and distress to associate the calorie value of food with cost in dollars and cents. In the third edition of this book much was said upon this subject which need not here be repeated. Since that writing we have passed through a great crisis. It was a group of men within the Royal Society of London whose policy saved their country in 1917-18. Through the acceptance and support of that policy by the Interallied Scientific Food Commission the allied population of 225,000,000 individuals was maintained in good nutritive condition. . . .

"To build one battleship requires one thousand times more money than that useful nutrition laboratory spends in a year. As enlightenment grows, let us hope for fewer battleships and better supported laboratories. For in the words of Alonzo Taylor, 'The future social organization will be the product of the land, the population, the development of the arts and sciences, and the standard of living.'"

The last sentence is a quotation from Charles Richet, who wrote on his seventy-fifth birthday:

"Science, Patrie, Humanité, Justice—ce sont de grands mots et de grandes idées aussi; elles peuvent paraître démodées, mais je les chéris aujourd'hui et je les vénère comme au temps de ma lointaine jeunesse. Car ce sont les étoiles étincelantes vers lesquelles nous devons tous deriger notre course."

NOTES ON BOOKS.

THE fifth edition of Dr. HEITZMANN'S *Urinary Analysis and Diagnosis*[6] is a revision of the fourth edition published in 1921, and contains at the end a chapter on the functional efficiency of the kidneys by Professor Dannreuther. Two-thirds of the volume are devoted to the microscopical examination and diagnosis of urinary sediments, and this part of the book is illustrated with over 100 plates of drawings of the sedimentary objects, under the high magnification of 500 diameters in most cases, drawn by the author from specimens in his own possession. Dr. Heitzmann is convinced that textbooks pay insufficient attention to the possibilities of diagnosis by the examination of urinary deposits under the microscope, and endeavours to correct this faulty view in his book. The illustrations are excellent, and the volume is well turned out; it may be recommended to medical men and students anxious for help in the interpretation of urinary sediments and abnormalities.

Pharmaceutical Therapeutics,[7] by Dr. E. V. LYNN, is a textbook of pharmacology and toxicology written specially for students of pharmacy. It contains a short description of the pharmacopoeial drugs, together with an account of their chief pharmacological actions and their mode of employment in disease. A medical student would find this book quite a useful summary for revision purposes; its value to pharmaceutical students is, however, open to question. The author repudiates the suggestion that his book will tend to encourage "counter prescribing" by pharmacists, and claims that the pharmacist cannot fulfil his duties intelligently unless he has an accurate, even if incomplete, knowledge of the purposes intended in a prescription. He quotes the suggestion of a committee on the pharmaceutical curriculum that it is desirable that he may be aware of the dangers associated with ignorant or pathology, and is therefore unacquainted with the nature of the functions of the body in health and disease, can he never-theless understand how these functions are modified by drug treatment? The medical curriculum is based on the assumption that this is impossible. If we admit that a pharmaceutical student who has not studied the sciences upon which medicine is based can profitably study medical treatment, we thereby admit that the greater portion of the medical curriculum is superfluous. We are of the opinion that rational treatment must be based on a comprehension of the functions of the body, and therefore consider that the author of this book is mistaken in his belief that he can impart an elementary knowledge of therapeutics to persons who have not studied the basic sciences of medicine.

The fifth edition of *Artificial Sunlight and its Therapeutic Uses*,[8] by Dr. F. HOWARD HUMPHRIS, has now appeared. The previous edition was reviewed in our columns on August 11th, 1923 (p. 260). The author has taken the opportunity of introducing descriptions of the latest types of apparatus, and of revising the advances made in other respects. The new edition will increase the popularity of a useful handbook.

Colonel STEPHENSON'S translation of the *Zoological Section of the Nuzhatu-L-Qulúb*[9] offers the reader a popular educator in zoology as that science was understood in Persia some six hundred years ago by its compiler, the historian Mustaufi. It will be of interest to the student of zoological history because it gives a clear view of the poor quality of zoological science in the Mohammedan East in mediaeval times. The serious zoologist, on the other hand, will find it a disappointment, as it abounds, in statements lacking proof—thus, on page 59, it is asserted of the frog that "if its tongue be laid on the heart of a sleeping woman, she will tell whatever she may have done."

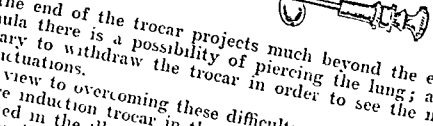
[6] *Artificial Sunlight and its Therapeutic Uses*. By Francis Howard Humphris, M.D.Brux., F.R.C.P.Ed., M.R.C.S.Eng., L.R.C.P.Lond., etc. Fifth edition. London: Oxford Medical Publications, Oxford University Press. 1929. (Demy 8vo, pp. xxi + 349; 31 figures. 10s. 6d. net.)

[7] *The Zoological Section of the Nuzhatu-L-Qulúb of Hamdullāh Al-Mustaufi Al-Qazwīnī*. Edited, translated, and annotated by Lieut.-Colonel J. Stephenson, C.I.E., M.B., D.Sc., F.R.C.S., I.M.S.(ret.). Oriental Translation Fund, New Series, Vol. xxx. London: The Royal Asiatic Society. 1928. (Demy 8vo, pp. xix + 93.)

PREPARATIONS AND APPLIANCES.

A Pneumothorax Induction Trocar and Cannula.

DRS. A. I. GRANVILLE MCLAUGHLIN and A. J. DIX-PERKIN (Tuberculosis Department, St. Thomas's Hospital, London) write: In the induction of pneumothorax with the Riviere trocar and cannula, it is necessary to push the instrument down as far as the parietal pleura, withdraw the trocar, and then push the blunt cannula through the membrane into the potential pleural space. This method is advocated in order to avoid damage to the underlying lung. In practice we have found it unsatisfactory, because considerable pressure is requred to push the cannula through the membrane; the parietal pleura tends to be stripped off the ribs, and there is a possibility of damage to the pleura and subsequent pleural shock. Further, if the pleura is not sufficiently anaesthetized the procedure causes a considerable degree of pain. We have found that the best way to use the Riviere induction needle is to penetrate the parietal pleura with the sharp trocar, which is then withdrawn. If the end of the cannula is in the pleural space the manometer shows wide negative respiratory fluctuations. If not, the trocar has to be reinserted and further search for the pleural space ensues. The disadvantages of this method are



that if the end of the trocar projects much beyond the end of the cannula there is a possibility of piercing the lung; and it is necessary to withdraw the trocar in order to see the manometric fluctuations.

With a view to overcoming these difficulties we have modified the Riviere induction trocar in the following particulars, which are indicated in the illustration. (1) The point of the trocar is made to project as little as possible beyond the end of the cannula. (2) The trocar is grooved from its point to where the shaft is narrowed. The narrowing of the shaft is continued to the point opposite the cannula's side projection, to which is attached the rubber tubing going to the manometer and the air reservoir. (3) The cannula does not have the lateral aperture which is a feature of the Riviere needle. The result of these modifications is that there is a continuous air space from the point of the needle to the manometer. Manometric fluctuations are set up as soon as the point of the needle enters the pleural space. The very short point of the needle practically precludes the possibility of damage to the lung. If necessary, air can be injected without withdrawing the trocar. The abolition of the lateral aperture does away with the possibility of air being injected at the same time into the tissues of the chest wall.

The instrument has been made for us by Messrs. Down Bros., St. Thomas's Street, London, S.E.1.

[6] *Urinary Analysis and Diagnosis*. By Louis Heitzmann, M.D. Tyith, revised edition. London: Baillière, Tindall and Cox. 1929 (6¼ × 9¼, pp. xxi + 366; 131 figures. 25s. 6d. net.)

[7] *Pharmaceutical Therapeutics, with Pharmacology, Posology, and Toxicology*. By Eldin V. Lynn, Ph.D. London: McGraw-Hill Publishing Company, Ltd. 1929 (5½ × 8½, pp. x + 431. 20s. net.)

MEETING OF THE BRITISH ASSOCIATION IN JOHANNESBURG.

[FROM OUR CORRESPONDENT IN PRETORIA.]

By Wednesday, July 31st, all the members of the British Association for the Advancement of Science who were attending the meeting in South Africa had reached Johannesburg, and that night the inaugural meeting of the British and South African Associations was held at the City Hall. Mr. J. H. Hofmeyr, Vice-Chancellor of the University of the Witwatersrand, had already welcomed the visitors at Capetown as president of the South African Association. That night he welcomed them to Johannesburg, the centre of the busiest scientific and technical life of the Union of South Africa, a city which, he said, owed most to science, but which had not been remiss in requiting the favours she had received from the hands of science. The scientists of Johannesburg were proud of its industries, proud of its medical research, and proud of the achievement of its youthful university. South Africa was a thinly populated land, where the challenge to scientific work was urgent; workers had to carry on their activities in comparative isolation, and without the facilities for intercourse with which the older countries were so richly endowed. Chiefly they felt the want of such facilities with fellow workers in the scientific field. The opportunities provided by the present visit were therefore inestimable.

Minerals and Sociological Problems.

In his presidential address, which was entitled "The international relationship of minerals," Sir Thomas Holland surveyed the distribution of minerals throughout the world. He made the attractive suggestion that a world control of mineral output by the British Empire and America was practicable, and might be used to prevent future wars. As minerals were essential to the conduct of modern war, the world's peace would be most firmly secured by an addition to the Kellogg Pact whereby the export of minerals to belligerent nations would be prohibited. Only the United States and the British Empire possessed mineral resources sufficient to maintain a war for any length of time. The discussion of local mineralogical problems has naturally attracted most attention here. Hard-headed Johannesburg quickly recovered from its surprise at finding its visitors practical scientists, and not detached, absent-minded dreamers whose researches and discussions would do no more than contribute, perhaps, to the solving of world problems which might arise a century hence. Thus Professor J. S. Haldane proffered suggestions for making gold mining possible at really great depths, where the rock, and hence the atmospheric temperatures, reached body heat; these proposals excited interest throughout the length of the Witwatersrand. The discussions relating to the great gold-mining industry, with its economic, biological, and geological problems, must be given first place, but the groups of papers dealing with such important matters as native education and agriculture will undoubtedly considerably affect local measures and procedures for many a year.

Group Administration of the Gold Mines.

The organization of the thirty-three gold mines of the Witwatersrand into half a dozen corporations, with the greater resulting efficiency, was expounded by Mr. John Martin, chairman of the Transvaal Chamber of Mines, before the Economic Section. It was adequately proved that this system of group control was based upon a correct conception and an effective application of sound principles of industrial management and administration. Very great benefits had accrued to the mining industries in the Transvaal by this system, which had been brought into being by sheer necessity. The largest of these corporations or groups controlled fourteen of the mines. Among the many services that the group system performed was the organization of medical services. The largest group had a centralized health department under highly qualified professional direction, to which was entrusted the business of supervising, assisting, and co-ordinating medical and hygienic practice in the mines and in the native compounds. Mr. Martin further outlined the centralization of the mines as represented by the Transvaal Chamber of Mines and the two co-operative corporations allied with it, which undertook all the recruiting and provision of native labour for the mines—one from British South Africa, the other from Portuguese Africa. Very few of the gold mines of the Witwatersrand could exist except upon the basis of the bulk of the physical labour being performed by natives, who throughout the gold-mining industry were employed in relation to white employees in the ratio of about nine to one. The conditions of employment for natives in the industry—taking wages, food, accommodation, and medical attention into consideration—represented outstandingly the best standard in South Africa under which native workers were employed in large numbers. The recruiting corporations had an enormous field to cover in arranging for a regular and adequate flow of labour. The natives, before being engaged at their homes, were medically examined; the terms of their engagement were embodied in a contract which was explained to them by the magistrate of the district; and transport from remote parts had frequently to be provided. On arrival at Johannesburg the natives were accommodated at and passed through the great central compound—a compound which had received over 1,250,000 natives in the last ten years—and after all matters concerning passes and passports and further medical examination had been attended to they were sent to the mines for which they had chosen to work, or to which, with their consent, they had been allotted. Further arrangements were also made for repatriation to their homes when their periods of service had expired. While the natives were in employment their interests received organized attention; if they became ill they received the best hospital and medical treatment. The hospital accommodation for natives on the gold mines—provided by the mines themselves—consisted of fourteen separate hospitals with some 2,400 beds. An enormous organization had been built up for dealing with compensation for injuries to employees; more than a million and a quarter sterling had been paid out by the corporations to white workers since the Workmen's Compensation Act came into force in 1915.

Dr. G. C. Allen voiced the interest aroused in the visiting economists by Mr. Martin's paper, because while the immediate subject was local the principle was world-wide. South Africa seemed to be a particularly genial field for combinations. The gold industry had succeeded in securing economies in production costs which in practice were so seldom secured. The idea of the group organization was not confined to the Rand, but was a general tendency in most of the countries of the world, but in practice combinations of this type had been less successful in England than was apparently the case here.

Professor Clay remarked that the difference in the position on the Rand and in England could be gauged by the fact that while in the gold mines a contribution of 6s. a shift could be made for miners' phthisis funds, it took the coal industry all its time to pay a little more than 6s. a shift in wages.

The Hygiene of Deep Mining.

Gold mining is now being carried out on the Rand at depths exceeding 7,000 feet. Mining a low-grade ore with profit at these great depths not only raises great engineering difficulties, but with present hygienic methods is becoming almost impossible. Hitherto silicosis preventive measures underground have consisted largely in laying of the dust by wet methods of mining. This results in a virtually saturated underground atmosphere. At great depths the high temperature, combined with a saturated atmosphere, prevents cooling of the body, rendering muscular effort without grave danger impossible. It is evident, therefore, that if mining is to be carried out at still greater depths some other method of silicosis prevention will have to be devised. It was to this problem that Dr. Haldane's paper entitled "The avoidance of silicosis with dry methods of working" made valuable contribution. His animal experiments suggested that it would be possible to work by dry methods, if such precautions were taken that the larger quantity of silica dust which would then be inhaled was mixed with another kind of dust possessing the property of neutralizing the ill effects of the

silica. Thus the quartz in shale dust with 60 per cent. of total silica did not produce phthisis. Shafts, inclines, and open levels should be kept dry and stone-dusted with the added dust; suitable apparatus for applying the dust was already available. Drills should be provided with efficient dust-collecting arrangements, so that the men could not inhale the unmixed dust. Lastly, all blasting should be so arranged that a sufficient quantity of the diluting dust passed into the air, and was scattered over surrounding surfaces, with each shot. In this way stopes and drives would be kept dusted with the diluent dust, and any dust present in the air would be neutralized.

Professor Haldane's paper was discussed at a joint meeting of the physiology and engineering sections. Dr. A. J. Orenstein, superintendent of sanitation, Rand Mines, Ltd., pointed out that work in temperatures which would ordinarily be considered moderate caused physiological strain, which not infrequently resulted in heat stroke if the air was near saturation point. The majority of cases of heat stroke occurred, however, among newly engaged labourers, showing that acclimatization was an important factor. It was now the practice to put new labourers for the first week or two in relatively cool places, gradually acclimatizing them to work in the hotter places. Dr. H. Pirow, Government mining engineer, sounded a note of warning regarding the suggestion that the dangerous silica dust might be dealt with by dry methods. It would be deplorable if this suggestion were wrongly interpreted to mean that the extensive use of water could be restricted before some definite and practical method were put in its place.

Archæological Investigations.

Miss Caton Thompson (leader of the research party of the British Association which had been sent to Rhodesia in advance to study the Great Zimbabwe and other ruins) would appear to have disposed finally of the fascinating theory, popularized by Rider Haggard, that South Africa was the source of King Solomon's gold. Having studied the ruins it was inconceivable to her how a theory of Semitic or civilized origin could ever have been foisted on a credulous world. Every detail in the haphazard building, every detail in the plan, every detail in the contents, apart from imports, appeared to her to be typically African Bantu. It was also inconceivable to her how a theory of antiquity in the sense of Oriental archæology could ever have been formulated by observant people. The structure of the buildings was such that not one stone would be standing on another in a period reckoned in millennia and not in centuries. Her respect for and interest in the Rhodesian ruins was enormously strengthened thereby. Instead of being a degenerate offshoot of a higher Oriental civilization, best studied in its homeland, they had, she believed, a vigorous native civilization, unsuspected by all but a few students, showing national organization of a high kind, originality, and amazing industry. It was a subject worthy of all the research South Africa could give to it; South African students should be bred with the purpose of pursuing it.

Honorary Degrees.

The University of the Witwatersrand conferred honorary doctorates on seven of the visiting scientists. The recipients included Sir Thomas Holland, president of the British Association, and Professors J. S. Haldane, J. C. Myres, and D'Arcy Thompson. The capping ceremony was performed by Mr. J. H. Hofmeyr, Vice-Chancellor of the University, who referred briefly to the ten years' work of one of the youngest universities in the world. Southward the University looked over the line of mine dumps; northward across miles of rolling veld. "Not least of the tasks of this University," he said, "is to bring into conjunction mining and agriculture, Rand and Platteland, English-speaking town dwellers and Dutch-speaking country dwellers, the resources of established industry, and the opportunities of the land remaining yet to be possessed. And in respect of that task also it can point to an achievement of increasing significance." He recalled the time, ten years ago, when the University site was "a bare, windswept hillside, a disused stone quarry." They were met within the theatre of these great buildings to inscribe upon the roll of the University of the Witwatersrand some of the greatest names in the world of learning. Surely they could have wished for no better consummation of their ten years' work than that they should be honoured by the entrance into the fellowship of the University of men such as Eddington and Haldane, Holland and Molengraaff, Myres and Parsons, and D'Arcy Thompson.

THE SCIENTIFIC STUDY OF SEX PROBLEMS.

INTERNATIONAL CONGRESS OF THE WORLD LEAGUE FOR SEXUAL REFORM.

THE third International Congress of the World League for Sexual Reform, to which reference was made in last week's issue (p. 508), remained in session from September 8th to 14th. Sanitätsrat Dr. MAGNUS HIRSCHFELD (Berlin) presided. The organizers of the congress tried as far as possible to group together papers dealing generally with the same subjects, and sessions were devoted accordingly to the discussion of marriage and divorce; venereal disease and prostitution; birth control, sterilization, and abortion: sex and the censorship; sex education; and the treatment of sexual disorders. The following report of the proceedings is only a brief summary of a few of the papers of medical interest which were read in the various discussions.

The Premarital Consultation

Dr. A. STONE (Medical Officer to the Venereal Division, Department of Health, New York City) contributed to the discussion bearing on marriage and divorce a paper on premarital consultation. Many of the difficulties of conjugal life, he said, had their inception in physical or mental maladjustments, not a few of which could be prevented by timely medical care. An important step to this end would be a premarital examination for every man and woman, and many countries and States had already enacted laws making such examinations compulsory. The approach, however, had hitherto been only from the eugenic standpoint, the motive being to prevent the transmission of hereditary diseases. Dr. Stone suggested that this procedure involved too limited a conception of the function of premarital examination, which, in his view, should deal not merely with the racial factors of marriage, but with those of its aspects which affected the well-being of the individual couple. The object of the physician should be to seek out potential maladjustments, to suggest preventive measures, and to instruct the couple in a rational hygiene of their sexual life. For this purpose the physician should inquire into the patient's family and personal history, with particular reference to the sexual history; make a general physical examination, paying special attention to the reproductive organs; examine the seminal fluid so as to exclude azoospermia; and, in the female, look for conditions which, if uncorrected, might lead to dyspareunia. Furthermore, it was important to determine the condition of the uterus and adnexa, having special regard to the possible presence of an infantile uterus, fibroids, displacements, or other abnormalities which might be significant in relation to the fertility of the individual. A Wassermann test should be made in the case of every person applying for premarital examination.

Venereal Disease.

Discussing the prevention of venereal disease, Dr. WANSEY BAYLY asserted that immediate self-disinfection had been proved conclusively to be an effective preventive measure; indeed, in 1919, representatives of the Admiralty and War Office had agreed that the ultimate elimination of venereal disease depended not on treatment after infection, but on prophylaxis after exposure. Venereal diseases, says Dr. Bayly, would long ago have become only a memory, or at worst a pathological curiosity, in civilized countries if the bulk of thought about this infection had not become enmeshed in the all-powerful sexual taboo. Much mischief had been done by misguided persons who, under the pretext of protecting the public against quacks, succeeded in inserting in the Venereal Diseases Act, 1917, a clause whereby it was made an indictable offence to expose prophylactics for sale, or to include with prophylactics sold over the counter directions for their use. Even more fantastic was an organization which in its early publications permitted the recommendation of a very mild, and therefore ineffective, prophylactic, but forbade the recommendation of permanganate solution, which happened to be effective.

Birth Control.

The discussion on birth control was opened by Dr. MARIE STOPES, who reminded the congress that she and her husband had founded the first birth control clinic in the British Empire. When the clinic was first opened only 1.7 per cent. of the women who attended had abnormalities of the genital tract; this proportion steadily increased, rising in the second year to 15 per cent., then to 39 per cent., and recently to 44 per cent. of all patients. She attributed this extraordinary change to the fact that during the early years the spread of knowledge brought about by the work of the clinics, and by the increasing availability of literature on the subject, had rapidly exhausted the supply of normal women requiring information, leaving a preponderance of women with abnormalities. Dr. C. V. DRYSDALE, president of the Malthusian League, summarized the chief advantages of contraception as (1) improvement of the economic status of the family and nation without depriving the married of sex union; (2) reduction of strain on women brought about by too frequent childbearing; (3) opportunity for better care and education of each child; (4) opportunity for limiting reproduction of defective types; and (5) increasing facility for early marriage, and thus elimination of much sex repression and temptation to sexual irregularities. Against these advantages he set (1) the possible injurious effects of contraceptives to men and women; (2) the possible decay of parental feeling, or, alternatively, an excessive coddling of small families; (3) increase of promiscuity through removal of fear of consequences. Dr. Drysdale cited a great deal of statistical evidence tending to show that the frequently expressed fear of physiological danger attending the practice of contraception was without foundation. For over half a century, he said, there had been a declining birth rate, yet almost every year the Registrar-General reported that the death rate was the lowest ever recorded. The correspondence between the decline of the death rate and that of the birth rate was one of the most striking phenomena of our time. Dr. ERNST GRÄFENBERG (Berlin) described his intrauterine contraceptive appliance, which, he was careful to point out, was not, as were certain rightly condemned appliances, placed within the cervix, but within the cavity of the uterine body itself. There was thus, except at the moment when the appliance was inserted or removed, no danger of ascending infection of the genital tract. The advantages of the method were these: it could be applied only by a physician, and its application remained always within his control; once the appliance, a ring of silver wire, was inserted in the corpus uteri it could remain *in situ* for a year, or even longer. Moreover, said Dr. Gräfenberg, the method was reliable, not injurious, and not attended by the aesthetic disadvantages involved in the use of every other contraceptive device. Contraindications were few in number, and included inflammations of the genital tract, menorrhagia, and submucous fibroids. The speaker added that this method had been extensively, and successfully, used in Germany. It represented what might prove to be a most important advance in the technique of contraception, and as such it merited, he thought, the fullest investigation. Dr. HANS LEHFELDT (Berlin) said that the qualities to be desired in a contraceptive were reliability, innocuousness, cheapness, unobtrusiveness, and simplicity. He condemned the production of temporary sterility by means of x rays on the grounds that the method was unreliable and likely to bring about a premature climacteric. Moreover, it was sometimes responsible for the production of congenitally abnormal children. On similar grounds he suggested that at present contraceptives based on the use of spermatoxins were to be condemned. After considering Gräfenberg's method, which he suggested had the disadvantage that removal of the silver wire was sometimes difficult, he analysed the various contraceptive procedures involving the use of cervical caps and occlusive pessaries. He criticized the former on the ground that, however easily adjusted, they were liable to be dislodged during coitus; and of the latter he preferred a Dutch pessary, used in conjunction with a non-greasy jelly so constituted as not to interfere with the normal chemistry of the genital secretions. The ideal contraceptive, he claimed, had yet to be discovered. Dr. NORMAN HAIRE said that during the past ten years he had taught contraceptive technique to over 7,000 persons, many of whom had remained under his observation. Until recently he had believed that the only method to be highly recommended was that which involved the use of a rubber occlusive pessary associated with a lactic acid jelly. His investigation of Gräfenberg's method had convinced him, however, that for certain patients it was quite as valuable as the combined method, and, indeed, for some patients it was more valuable. The silver ring, he said, could easily be introduced by any medical practitioner; the patient might feel slight discomfort at the moment of its introduction, but not afterwards.

Sterilization.

In the discussion of this subject Dr. HAIRE said that public opinion should be educated so that as far as possible unfit people might voluntarily submit themselves to sterilization. Persons who persisted in exercising their procreative powers to the detriment of society and the race should be the subjects of compulsive legislation. Dr. M. D. EDER held, on the contrary, that those who had the most knowledge of this matter—for example, some members of the Mental Deficiency Committee—were not very sanguine about extinguishing inherited defect by way of sterilization. Defective children born of defective parents did not form a large proportion of defectives existing. The distinction between heredity and environment was not so sharply defined as many persons liked to imagine. The factors of inheritance were indeed extremely complex, and biologists were very far from having obtained results which could with certainty be applied to man. Social reformers must not hurry on their experiments on the large scale when science could offer them no guidance. Biologically speaking, sterilization would not appreciably lessen the number of the feeble-minded, though it might reduce the production of individuals with talent or genius. Suggesting a psycho-analytical interpretation of what he called this enthusiasm to sterilize, Dr. Eder said that there were in man primitive filicidal impulses which, though held in check, were not abrogated. These impulses were being sublimated into the promotion of legislation for the sterilization of other people's children. He urged on the conference the need for vigilance and activity to prevent further restrictions on liberty and to remove many restrictions already existing; to press for investigation rather than imprisonment, and for freedom rather than restriction. Let mankind grow, he concluded, even if it makes mistakes.

Abortion.

Dr. A. GENS (Russia), in his contribution to the discussion on abortion, said that the Soviet Government was fully alive to the evil resulting to the community from the practice of secret abortion. It combated this evil by conducting propaganda against abortion among the masses, and envisaged its disappearance as the principles taught by the Society for the Protection of Motherhood and Infants became more widely spread. The people's commissariats of public health and justice, holding that repressive measures would fail to achieve the protection of women from ignorant charlatans, had decreed the following: (1) abortion might be performed free in the Soviet hospitals; (2) nobody but a doctor was entitled to perform the operation; (3) midwives guilty of procuring abortion were to be deprived of their right to practise and criminally prosecuted before a people's court; (4) a doctor who procured abortion for remuneration by way of private practice was to be criminally prosecuted before a people's court. Dr. HAIRE suggested that there was no moral objection to abortion in itself; whether an abortion was justifiable or not depended on the circumstances of the individual case. He did not think that abortion was to be recommended lightly and without the most serious consideration; it involved interruption of a physiological cycle, and could not be without unfavourable effect on the woman's health. It was simply a question of which in the individual case was the more harmful—the abortion or the continuation of the pregnancy. The law which forbade abortion had to be obeyed, but it would be an advantage if the law were changed. Dr. EDER was of opinion that the legislative code of some Scandinavian countries might be adopted, whereby at the woman's request abortion could be performed during the first three months of fœtal life. Such operations should not take place without the sanction of two medical men and the concurrence of the medical officer of health. He reminded the congress, however, that so much was obscure in the psychological attitude of men and women towards their desire or fear of parenthood that adequate safeguards would have to be imposed to prevent abortion from being too lightly undertaken.

British Medical Journal.

SATURDAY, SEPTEMBER 21ST, 1929.

SURGICAL TUBERCULOSIS.

THE first discussion in the Section of Orthopaedics at the Annual Meeting of the British Medical Association at Manchester was concerned with the indications for operative treatment in tuberculosis of the larger joints and the results which follow. This topic was particularly well chosen, for it is clear that the time has come when an effort should be made, so far as imperfect data may permit, to draw up some sort of a balance sheet of the present position as regards the cure or relief of tuberculous joint diseases by the methods which have come into vogue and been practised all over the country since the beginning of the century. In the latter part of the last century general surgeons were attempting to cure tuberculous joints by radical operations such as excision; they paid little attention to any but the localized manifestations of disease, and with the hospital accommodation then at their disposal were unable to treat the constitutional condition effectively. The small band of orthopaedic surgeons, however, were accustomed to treat tuberculous disease of the large joints of the lower extremity on the principles of Hilton and Thomas by means of rest and fixation, being content if in the end they obtained fibrous ankylosis in a useful position. When, in later years, these methods were associated with open-air and sunlight treatment, both in Europe and in America, much better results followed, and most surgeons accepted the new teaching. Of late, owing to the widespread adoption of the methods advocated by Sir Robert Jones and the Central Committee for the Cure of Cripples, which include clinics for after-care scattered about the country, it has become possible to ascertain what becomes of the "cured" tuberculous joint after discharge from hospital, and some searchings of heart have followed on inquiries. A distinguished French surgeon—Dr. Calvé of Berck-sur-Mer—has said of these cases, rather cynically, "When the disease is cured, then the troubles begin." Although such a sweeping generalization must be taken with a good deal of salt, there is enough truth in it to make us lay it to heart as an antidote to excessive optimism.

Some surgeons, and among them the opener of the discussion, who has been one of the most successful followers of the most modern methods, have been able to keep in touch with patients after discharge from hospital, and to formulate some definite statements as to ultimate results, or at least of results up to six years after discharge from hospital. At the outset it is necessary to state that tuberculosis of a joint in an adult is a far less hopeful and more fatal disease than this condition in a child, and that such cases are seldom satisfactorily treated by conservative methods. What was said in the discussion at Manchester, and the comments now to be made, must be taken as referring to children and young adolescents. Moreover, since the hip-joint is so often the seat of disease, and its integrity is so important, it may fairly be assumed that many, or even most, speakers and writers have this joint in mind when they generalize on the subject.

Mr. Girdlestone stated in *The Robert Jones Birthday Volume* (p. 369) that in children conservative treatment of the hip often led to free movement. Mr. C. Lee Pattison, in his paper which is printed in this issue at page 532, deals with 300 cases; he claims in an analysis 167 cases as showing an almost perfect functional result with an almost completely full range of movement, no shortening, and no sign of disease, when examined after (on an average) the lapse of 65.5 months since discharge. He thinks, however, that among these 167 cases there may be some of transient arthritis which have been labelled tuberculous in error. Even so, these are very remarkable records, for when we come to survey American experience we find a startling contradiction. Drs. Smith and Watters (quoted by Mr. Girdlestone from the *Journal of the American Medical Association* for January 21st, 1928) can only record two cases out of 208 which "were free from symptoms and had a useful range of motion"—and even these are not stated to have *normal* mobility. Dr. F. C. Kidner of Detroit, in a paper read before the Section of Orthopaedic Surgery at the seventy-ninth annual session of the American Medical Association in June, 1928, asserted his belief that this disease was never cured with useful motion when cartilage or bone was involved; he thinks the question of the existence of a type of tuberculosis of the hip which involves only the synovia and does get well is still open to discussion. He holds that it is only possible to explain the contradictory results in America and Europe on the hypothesis of a difference of the virulence of the infection on the two sides of the Atlantic. From these facts we must conclude that more light on the subject is required, and that until a longer and wider experience is available it is unsafe to draw conclusions.

Mr. Girdlestone, whose paper on operative treatment in tuberculosis will be found at page 529 of this issue, defined the part the surgeon could play in the treatment of tuberculous joints, and the time which he should choose for doing so. When unable to secure free movement the surgeon should try to procure firm bony ankylosis or an extra-articular arthrodesis. It is somewhat remarkable that one with such a long experience of the conservative treatment of hip disease at the Wingfield Orthopaedic Hospital should be constrained by his experience and an open mind to write: "At present I feel that the solution lies in early radical excision and late grafting. And in certain types and older ages I think amputation is indicated." Sir William de Courcy Wheeler, who followed Mr. Girdlestone in opening the discussion, brought to the debate the experience and judgement of a distinguished general surgeon. Perhaps his saying that the pendulum of the surgical clock swings erratically, and its hands often move backwards, may be taken as a valuable reminder that we should look backward as well as forward when trying to make progress in any department of surgery. Mr. Girdlestone remarked that we could not afford to allow open air and rest to become discredited. To this it might be rejoined, with Sir Robert Jones, that it is homage, and not allegiance, that should be paid to any method of treatment. Dogma should have no place in surgery, and if it should be shown (which seems most unlikely) that open air and rest were no longer needed in treatment, then it would become necessary to discredit them. The officers of the Section are therefore to be congratulated on their selection of this important subject for the first sitting at Manchester; gratitude is due also to those who made valuable contributions to the debate. Free and frequent discussion of abundant facts can alone cause sound methods of treatment to evolve, to endure only until better are found.

THE DECLINE IN THE ART OF PRESCRIBING.

TO-DAY, as in all former times, the impulse of sick humanity is to seek relief from pain and discomfort in medication of one kind or another. While, however, advances in biochemistry and pharmacology are making available to the practising physician a multiplicity of drugs more effective than any used in the past for the alleviation of pain and cure of disease; while, moreover, it is becoming increasingly possible to administer drugs not merely empirically, but scientifically, with due regard to their uses and limitations, the art of prescribing appears to be undergoing a steady decline. The old gibe, that the doctor puts drugs of whose action he knows little into a body of which he knows less, has lost much of its sting. Yet, paradoxically enough, skill in the administration of medicaments is in danger of passing just at a time when science has brought to the physician's aid drugs of known composition and proved efficacy.

While the value of certain specific remedies is not disputed, there has been a tendency in some quarters to cast doubt on the efficacy of drugs in the treatment of common and minor ailments. In so far as such scepticism has discouraged penny-in-the-slot medication it has been all to the good. But these minor maladies mean much to the patient, and he not unnaturally expects his doctor to apply every available method for their relief. The practitioner who has studied the art of prescribing, who possesses a thorough knowledge of the properties and actions of everyday drugs, who puts no trust in routine formulae but writes his prescriptions to meet the requirements of each individual patient, may, indeed, in the treatment of such maladies, achieve successes as dramatic as any that are attained by the use of specific remedies. An austere disbelief in drugs can be carried too far for the patient's comfort and well-being. Let us by all means welcome the shifting of emphasis away from the "bottle of physic," and towards diet and regimen; but let us not mistake ignorance of how and when to order well-tried remedies for therapeutic enlightenment. Drugs have as great a value to-day as ever—greater, indeed, by reason of the more accurate knowledge which pharmacological research and clinical study have given us regarding their mode of action and their efficacy in varying circumstances. But a good drug is worse than useless if ill chosen and ill administered. It may not be out of place to recall a story told by Dr. Haythorne in one of his *Medical Essays*. "'Drugs, I suppose, are no use,' once remarked a distinguished surgeon in consultation with an equally distinguished physician. 'Not the slightest,' was the somewhat unexpected reply, 'unless you know how to use them.' There is in this incident a moral that ought not to be lost by the superior person who professes to have 'no faith in drugs.'"

The decline in the art of prescribing may to some extent be explained by failure on the part of the medical schools and of the various examining bodies to give due weight to the importance of the subject. Another factor is the widespread habit of relying on the stock prescriptions set out in formularies. Noteworthy also is the growing tendency to substitute for the skilled and rational use of therapeutic agents the administration of powerful drugs in compressed form, and of proprietary preparations. It cannot be denied that a considerable number of such drugs and blends of drugs have their uses, but they have a twofold danger: not only is the busy practitioner tempted to prescribe them almost by rule of thumb, but the ready facility with which so many of them may be obtained by the public is in large measure accountable for the increasing practice of self-medication. Members of the public who on their own responsibility take such drugs for the relief of pain do so without realizing that the same symptom may be due to many different causes, and that removal of the cause of the pain is far more important than removal of the pain itself. This practice is the more to be deplored since it frequently deters the sufferer from seeking medical advice until the morbid condition underlying his pain or discomfort has become well established, and for that reason more difficult to cure. Still more to be regretted is the fact that proprietary preparations are too often ordered by medical practitioners with little personal experience of their value and possible dangers, and in some cases with little or no knowledge of their composition.

The factors which make for success in prescribing may be classified as follows: (1) an intimate knowledge of the therapeutic uses of drugs and of their doses; (2) avoidance of incompatibility; (3) the administration of nauseous drugs in a palatable form. The practitioner need not employ a large number of drugs; more important is it that he should know the action, uses, and doses of those he does prescribe. New remedies may certainly be tried, but caution must be exercised before old and proved drugs are abandoned for new ones. It may be admitted that incompatibility of ingredients could be avoided entirely by prescribing a single drug, but combining a drug with others possessing a similar mode of action often adds greatly to its efficacy. Students and practitioners who need practical guidance on this matter, in its chemical, physical, and pharmacological aspects, will find what they want in Dr. Thomas Stephenson's little book on incompatibility, of which a new and revised edition has just appeared.[1] Finally, it is to the prescriber's discredit if he orders a drug or combination of drugs in an unpalatable form. Patients nauseated by repulsive mixtures have been induced to take refuge in proprietary products, which in general are elegantly compounded. It is not our present purpose to discuss the pharmaceutical problems which may confront the practitioner, but we may end by recalling that in the *British Pharmaceutical Codex* he has a reference volume likely to prove of much value in maintaining his prescribing at a high level.

LONDON WATER, 1928.

In his annual report on metropolitan water for 1928[2] Sir Alexander Houston presents an interesting survey of the Thames as a source of water supply, reviewing at the same time its topographical interests and historical associations. The area of the watershed is 5,405 square miles; the average velocity of the river at Teddington is 1½ miles per hour. The maximum natural recorded daily flow is 20,236 million gallons, and the corresponding minimum figure is 155 million gallons. The average daily extraction for waterworks purposes is 152 million gallons. Though the Thames is contaminated by charges of sewage, many of which are of substantial quantity, the pollution as the river flows on is continually being diluted with pure underground water from the gravel and chalk, so that an automatic purification

[1] *Incompatibility in Prescriptions and how to avoid it.* With a Dictionary of Incompatibilities. By Thomas Stephenson, D.Sc., F.R.S.Ed. Edinburgh: "The Prescriber" Offices, 6, South Charlotte Street. 1929. 4s. 6d. net.

[2] Metropolitan Water Board. Twenty-third Annual Report on the Results of the Chemi[illegible]ation of the London Waters for the Tw[illegible]31st, 1928. By Sir Alexander Houston. Metropolitan Water Board. London: P[illegible]. 1s.

takes place, especially in summer, when many pollutions from the surface are unable to reach the river direct, and the ground water constituent predominates in consequence. The purity of the gravel and chalk water has been confirmed by examination. The gravel water at Sunbury, when systematically tested in 1925, showed *B. coli* absent from 100 c.cm. in more than 50 per cent. of samples. Chalk waters were examined in 1928 from eighteen points, mostly springs, in the watershed up to the head springs of the Windrush, with the result that in eight samples *B. coli* was absent from 100 c.cm., while all the rest compared most favourably with the ordinary water of the Thames. Reference is made to the practical importance of maintaining a high standard of purity in the prefiltration waters, the bacteriological summaries of which are tabulated for the year. It is shown that the percentage improvement in the quality of Thames water produced by storage alone, as measured by the presence or absence of *B. coli* in samples, was from one hundred- to one thousand-fold. Derived as they are from the great bodies of water contained in the various storage reservoirs, samples of stored water are more broadly significant than those taken, for example, from a filter, the integrity of which is subject to modification from hour to hour, and satisfactory bacteriological findings regarding them may be taken to imply a high degree of safety, from the epidemiological point of view, for the water as a whole. The results of the Barn Elms experiment, in which roughing filters without coagulant precede sand filters worked at higher speeds than normal, are brought down to the end of 1928. The final product is practically as good as that obtained by ordinary slow sand filtration. There has been comparative freedom from trouble due to algae or suspended material, and an increase in the output of water per acre of filtration area, allowing for the space covered by the roughing filters, per unit of time. In connexion with the action of frost and floods, which interfere with filtration and storage, it was found possible to supplement inadequate purification by filters by sterilizing large volumes of filtered water by means of emergency chlorination plant at little cost. In May and June the filtered water of the Stoke Newington works was found to be relatively unsatisfactory, and chlorination was decided on. Laboratory tests having demonstrated that the quality of the water was such that chlorination affected its taste, dechlorination was first attempted by the use of permanganate. Complaints were received of a brown colour produced in the water by the permanganate. The course then adopted was to add ammonia first and chlorinate thereafter; this plan was entirely successful. Reference is made to a vast concourse of seagulls which visited the Barn Elms reservoirs. These reservoirs, though in the metropolis, lie in a most secluded spot bounded by the river, some waste land, and the grounds of the Ranelagh Club. Seen on a day in January, the birds were swimming so close together that the whole stretch of water seemed covered with snow. They were ultimately scared off by gunfire repeated on a number of evenings. The contamination resulting from the presence of the birds was such that *B. coli* was found in 1 c.cm. of water. It was thought advisable to employ chlorination, after which *B. coli* was absent from 100 c.cm. The usual objection to the fouling of drinking water by birds is that it obscures the bacteriological picture, rendering it impossible to detect contamination by sewage, should such be present. The author raises the question whether the presence of gulls may not constitute a danger in itself, and cites the work of an observer who claims to have isolated *B. typhosus* from their excreta. Examinations made of the excreta of gulls frequenting the works of the Metropolitan Water Board gave uniformly negative results. In the emergency described the chlorination of the water was a wise precaution.

THE LEAGUE ASSEMBLY.

PEACEMAKING, like war, has its casualties, writes our correspondent from Geneva, and if the tenth Assembly of the League of Nations continues as it has begun, in torrid weather, and under conditions of overcrowding which have to be experienced to be believed, it will leave its mark on the health of the delegates. Little wonder that Dr. Stresemann has thought it well to bring with him from Berlin, not only his chef, but his medical adviser. The German Foreign Minister, who has the appearance of a very sick man, fortifies himself at intervals from some decoction in a glass in front of him as he listens patiently to interminable orations. The chief restorative, however, for all concerned would be a breath of fresh air. The assembly hall from which the delegates address the world at large would be, perhaps, a passable parliament house for a seventh-rate principality, but when it is called upon to accommodate the elect of more than fifty nations—there are three more than usual this year, Bolivia, Honduras, and Peru having returned to the League after a period of virtual severance—it can almost be described as a death-trap. The moral and spiritual atmosphere may be everything to be desired, but the physical atmosphere assails the senses in warm, even nauseating, billows. A very pretty system of ventilation—a sort of pop-gun arrangement—has been installed, and has every recommendation except adequacy. The crude resort of the Anglo-Saxon would be to open the windows, or, rather, the skylights, but this would disturb the delicate balance of the ingenious ventilating system, and so the frying-pan conditions remain unabated. On Saturday several intending orators, owing to sheer exhaustion, withdrew their names, and the delegates went in a mass to Ariana Park, on the outskirts of Geneva, where the foundation stone of the new building of the League was laid. In this fine park there will presently rise a dignified home for the League (which has hitherto made shift in a hotel) far exceeding in dimensions and grandeur the Peace Palace at The Hague. The site chosen is slightly east of the International Labour Office, itself a noble building, and from its high ground a series of terraces will lead down to the shores of the lake at a point where a perfect view of Mont Blanc and other of the Savoy Alps is obtainable. The sum voted for the site and buildings is £800,000. The British Government is interesting itself in the acoustics of the new assembly hall, and has offered to bear the expense of a series of experiments, to be carried out by the Department of Scientific and Industrial Research. One of the technical members of the building committee, accompanied by two of the five architects responsible for the structure, is to visit London in order to continue the study of this important question in consultation with British experts. Apart from the usual series of speeches addressed to the world at large by the representatives of different countries, very little real business was transacted during the first week of the Assembly. One matter taken up was the report of the International Institute of Intellectual Co-operation in Paris, to which nineteen countries now make an annual subsidy. The League Committee has adopted a rather ambitious programme, but its immediate objectives are the establishment of inter-university relations, the equivalence of diplomas, the co-ordination of bibliographies, and the preservation of classical works in the lesser-known languages. A list of holiday courses at European universities has been prepared, arrangements have been made for interchanges of visits of university staffs, and preparations are in hand for an international congress of publishers. The ever-widening work of the Health Organization has yet to be passed in review, but already several delegates, especially from South American countries and from India, have spoken in high praise of this side of the League's activities.

OCULAR ADAPTATION TO DARKNESS.

IT might be thought that the phenomenon of the adaptation of the eye to darkness was a subject of purely academic interest, of considerable theoretical importance to the physiologist, but little to the man in the street. The artificial conditions under which we live, however, are bringing, one after another, many of these so-called academic studies to the forefront of practical politics; and such common practices as motoring, or even flying, by night have made it of capital importance to study the ability of the eye to discern objects in low intensities of illumination. Moreover, there are many cognate questions of equal interest, such as the rate of visual recovery after the relative blinding following an exposure to a bright light for a short interval in darkness. It is well known that in passing from light into darkness vision appears to be completely lost; it then gradually returns, until, after a considerable length of time, details of objects can be made out with surprising accuracy. This process is known as "dark adaptation," and is due to an increase in the sensitivity of the retina. The final sensitivity of the dark-adapted eye is many times its actual value at the onset of the process; the rate at which this takes place and the degree of efficiency that is ultimately reached vary very much as regards individuals, but adaptation to the new conditions is accomplished to a great extent within the first few minutes, although the changes continue for a period averaging half an hour or more. The phenomenon not only affects white light, but is also evident in the discrimination of colours. At first, on being plunged into darkness, there is a definite "colourless interval," during which coloured lights of low intensity are seen achromatically, and the colour only becomes apparent when the intensity of the light is increased. As would be expected, visual acuity falls very considerably in the dark-adapted eye, and there is a considerable difference with regard to the degree of visibility of various colours. It is noteworthy, for instance, and it is of practical importance, that the minimal visual acuity for a red light is much less than for a white light. Different parts of the retina react differently. In poor illumination indirect vision appreciates small objects of low brightness more readily than direct vision, for in the dark-adapted eye the fovea itself is relatively insensitive: the most sensitive area is that immediately surrounding the macula. This may be verified in a rough-and-ready way by looking at the stars on a clear night, when a small star may be observed slightly to one side of the direct line of vision, but when the gaze is turned directly upon it it apparently disappears. It seems that this variation depends upon a difference in the functioning of the rods and cones, and, in so far as acuity of vision in the dark is concerned, the rods are the more efficient organs of the two. Upon this subject a considerable amount of interesting and extremely valuable labour has been expended, and a copious literature has accumulated, but most of it has been published through channels of very different kinds in many countries. The result is that much information of importance for the elucidation of the practical problems of to-day is only accessible with difficulty, and is frequently set out in a form in which it is difficult for investigators to appreciate. The Committee on the Physiology of Vision of the Medical Research Council has performed a real service in gathering together this scattered literature, correlating it, and presenting it in a form[1] wherein all that is of note is ready to hand for the guidance of further work. Miss Dorothy Adams, who compiled this review of the literature, is to be congratulated on the thoroughness with which she has done her work. Within the compass of 114 pages she has annotated and correlated the results of approximately 900 papers, a feat which is rendered more commendable in view of the clarity and unbiased presentation of the subject. It is admitted that the report forms somewhat difficult reading, but this is readily forgivable when one remembers the wealth of information that it contains and the difficult nature of the subject. All aspects of the question are included: perception and visual acuity; the factors causing individual variations; vision in relation to the stimulus; subjective characteristics; variations in pathological conditions; adaptation in animals; the more academic questions of the changes (structural, chemical, and electrical) which accompany the process; and the theories which from time to time have been put forward to explain it.

[1] Reports of the Committee upon the Physiology of Vision. II. Dark Adaptation (a Review of the Literature). By Dorothy Adams. Special Report Series, No. 127. H.M. Stationery Office.

SCHOOL MEDICAL INSPECTION IN NEW YORK.

DR. SHIRLEY W. WYNNE, commissioner of health for New York City, recently called a meeting of the presidents of the five county medical societies to lay before them a plan providing for a complete medical examination of each child registering for school in September. He said that approximately 50,000 children enter school for the first time at the beginning of every term in September and February. In accordance with Section 200 of the sanitary code of the city every child must produce, at the time of its enrolment at school, a doctor's certificate showing that a complete examination has been made in order to discover and correct any physical defects. Dr. Wynne explained that until such time as the medical practitioners of New York showed themselves unwilling to engage actively in preventive medicine, he was opposed to the department of health expending city funds for work which the people were able and willing to have done by their family doctors. Of the children examined last February, 38 per cent. showed some form of physical defect. Of these, 25 per cent. had defective teeth, 16 per cent. had enlarged or diseased tonsils, 14 per cent. were undernourished, 13 per cent. suffered from defective nasal breathing, 10 per cent. had defective vision, over 1 per cent. had some form of heart disease, while another 1 per cent. had defective hearing, or orthopaedic or nervous defects. The commissioner's scheme includes the sending of a letter to each parent who registers a child, calling attention to the law and urging that the child should be taken to the family doctor for examination before going to school. In the case of children whose parents are too poor to pay for the services of a doctor, medical inspectors of the Health Department will make the examinations in the schools. "But I urge parents," said the commissioner after the conference, "to go to their family physicians wherever possible. We believe that the family doctor is the one to perform this medical examination." A special effort will also be made to see that all children who enter school for the first time are immunized against diphtheria.

INFECTIOUS DISEASE AND MENTAL BREAKDOWN.

THE relationship of acute infectious diseases to mental disorder is again discussed in the annual report of the chief medical officer of the City of Birmingham Mental Hospital. Dr. T. C. Graves drew attention last year to the association of influenza with the onset of mental disorder, and distinguished two main divisions of cases—an "immediate" and a "delayed" group. In the former the onset of mental trouble was closely related to the attack of influenza; in the latter the relationship was less obvious, and some time had elapsed between the occurrence of the influenzal attack and the development of mental symptoms, during which interval the patient was fairly well and even able to work, or perhaps was experiencing vague and indefinite symptoms without being

acutely ill bodily or mentally. In his present report, which deals with the year 1928, he adds further corroboration of his previous findings. The recent severe epidemic of influenza was responsible for many immediate cases, especially amongst persons of advanced years, in whom delirium and severe cardio-vascular intoxication were the prominent features. Among the "delayed" cases, careful examination of the case histories, coupled with the findings on investigation, left little room for doubt that, even when patients appeared to have been relatively well in the interval, a connexion did exist between the influenzal infection and the mental breakdown. In these "delayed" cases, in Dr Graves's opinion, areas of unresolved infection persist after the acute infective process has subsided, and develop their own peculiar activities after a period of apparent latency. It is interesting to note that Dr. Graves has also collected a group of cases in which septic disease processes could be traced back to other types of acute infective processes, such as scarlet fever, measles, and pneumococcal and other infections. He expresses the hope, therefore, that the new serotherapy for scarlet fever may be a possible preventive of mental disorder in later life. In this connexion he refers to the observation of Sir William Gowers that epilepsy may be a sequel of scarlet fever, measles, and typhoid fever in that order of frequency, and that more cases were consecutive to scarlet fever (apart from the influence of nephritis) than to all the other acute diseases put together.

THE INTERNATIONAL CONFERENCE ON TUBERCULOSIS IN ROME.

THE somewhat belated report of the sixth conference of the International Union against Tuberculosis,[1] held in Rome in September, 1928, was published in August. Three main questions were debated: the first, a biological one, was concerned with the filterable elements of the tuberculous virus, and the discussion was opened by Professor Calmette of Paris. The second question was clinical—the diagnosis of infantile tuberculosis. The social question dealt with the organization of antituberculosis measures in rural districts. The opening paper in this section was delivered by Dr. William Brand of London. Further discussions ensued on Carlo Forlanini and artificial pneumothorax, on the surgical treatment of pulmonary tuberculosis, and on compulsory insurance against tuberculosis in Italy. Signor Mussolini, under a law of October, 1927, is in process of collecting a fund of 300 million lire per annum, by means of a compulsory insurance contribution of 35 lire per head, towards an antituberculosis compaign. The fund is to be controlled by the National Social Insurance Office, which will house patients in hospitals and post-sanatorium establishments. It is not clear from the address of the Hon. Alessandro Martelli, Minister of National Economy, whether the patients are to be retained in the post-sanatorium establishments for the rest of their days, but he does remark that "the poorer classes are unfortunately prejudiced in these matters," and "it will be necessary to create a new spirit in these circles." It would appear that Professor Brauer of Hamburg did not submit his conclusions on the surgical treatment of pulmonary tuberculosis to an expert in the English tongue; hence the cryptic sentence: "for the indication and investigation of collapsion therapy is the cognizance of the lung-volumina of the patient of great importance." The papers are conveniently reproduced in the report in three languages—English, French, and Italian. The discussions were carried on by representatives of cities as wide apart as Saranac Lake and Tokio. Sixteen English representatives were present at the conference, but, excepting Dr. William Brand, the only one recorded as speaking was Sir Robert Philip, who briefly affirmed his view that "the correct interpretation of tuberculous infection in childhood afforded the key to the ultimate eradication of tuberculosis."

[1] *Actes du Congrès de l'Union Internationale contre la Tuberculose.* Rome: Comitato Nazionale Italiano Lotta per la Lotta contro la Tuberculosi.

DANGEROUS DRUGS ACTS.

WE have received from the Home Secretary an intimation that by Order in Council made under Section 8 (2) of the Dangerous Drugs Act, 1920, Part III of that Act—which provides for the control of morphine, heroin, and cocaine—has been applied to the esters of morphine, their respective salts, and to any preparation, admixture, and extract containing them. The effect of the Order is that these drugs may not be imported into or exported from the United Kingdom and Northern Ireland without a licence issued by the Secretary of State under the Dangerous Drugs Act; as regards internal control, the Consolidated Dangerous Drugs Regulations, 1928, apply to them. With the exception of diacetylmorphine (heroin), however, the esters of morphine are not manufactured, nor, as far as is known, are they to be found in commerce in this country. They form a group of the derivatives of morphine which have, if improperly used, ill effects similar to those of morphine and from which morphine can be regenerated. There is no recognized use at present of the esters of morphine (with the exception of diacetylmorphine) in medicine, and until recently there was no manufacture of them; but it has been discovered that illicit traffickers on the Continent have had recourse to these compounds for the purpose of evading the restrictions of the International Conventions and the national laws based on the Conventions, and that large quantities of the esters were being manufactured in some countries. For this purpose the League of Nations has therefore recommended the inclusion of the esters of morphine among the drugs to which the International Opium Convention applies, and in accordance with this recommendation the provisions of the Dangerous Drugs Act have been extended to them. The esters of morphine do not include and should not be confused with the ethers of morphine—for example, methylmorphine (codeine), ethylmorphine (dionin)—to which the Dangerous Drugs Acts do not apply.

LIEUT.-GENERAL H. B. FAWCUS, C.B., C.M.G., D.S.O., K.H.P., has been appointed Director-General, Army Medical Services, War Office.

THE report of the departmental committee of the Ministry of Health on the training and employment of midwives was issued on Tuesday evening, September 17th. Sir Robert Bolam was chairman of this committee, and it was instructed to consider the working of the Midwives Acts, 1902 to 1926, with particular reference to the training of midwives (including its relation to the education of medical students in midwifery), and the conditions under which midwives are employed. We propose to make further reference to this report in a later issue.

IT will be recalled (*British Medical Journal*, March 23rd, p. 562) that the Medical Research Council, in its report for 1927-28, called attention to the results of certain investigations which had been conducted by Dr. Dora Colebrook on the physiological and therapeutic effects attributed to ultra-violet light. A full account of these investigations, which included experimental studies on ultra-violet irradiation of school children and irradiation treatment of varicose ulcers, has now been published by H.M. Stationery Office in the Medical Research Council's Special Report Series. A detailed notice of this report will be published next week.

Nova et Vetera.

DR. JOHN MOORE, 1730–1802.

WE were recently shown a print of an etching with a rather curious history. It was taken from a plate which was reported to have been dug up in the neighbourhood of London, and had then been cleaned up and freed from certain blemishes by Mr. W. M. Harris of Kendal. The subject represented is the head of a man of middle age with bushy eyebrows and an aquiline nose. The plate is inscribed "John Moore, M.D.," but bears no name of an artist, only "Published as the Act directs Nov. 24, 1804."

The library of the Royal Society of Medicine possesses a copy of the same etching, also without the artist's name, as well as four other prints from portraits of Dr. John Moore. In the Print Room of the British Museum there are five prints; among these the anonymous etching is not to be found. These five prints are after portraits by George Dance, R.A., the original drawing of which is in the National Portrait Gallery, by Samuel Drummond, A.R.A., Sir Thomas Lawrence, P.R.A., Gavin Hamilton, and "Cochrane of Rome." Besides these there is in the British Museum library a stipple engraving as frontispiece to "Mooriana," "Engraved by Hopwood from an original Drawing," which latter, according to the *Dictionary of National Biography*, is by W. Lock. There is a copy of the anonymous etching in the library of the Royal College of Surgeons of England.

DR. JOHN MOORE.

A person of whom no fewer than seven portraits are extant must have been of considerable note in his day, and one naturally asks how it was that he became so well known. The *Dictionary of National Biography* and librarians and students of literature tell us that he was the author of *Zeluco*, a novel which had a great vogue in its day, and forms volumes xxxiv and xxxv of Mrs. Barbauld's British Novelists. He was also the father of Lieut.-General Sir John Moore, the reformer of the training of the British infantry, who fell in the hour of victory at Corunna in 1809.

John Moore, like many another successful person, was the son of a minister. He was born at Stirling in 1730. He studied at Glasgow University, and at the age of 17 received a warrant as surgeon's mate in the army, and served in Flanders. As is well known, at this time it was customary to license young men after a short apprenticeship and an easy examination to serve in the navy and army as surgeons' mates. Those so licensed who afterwards returned to civil life often sought no other qualification. Not so John Moore; leaving the army on the conclusion of peace, he studied in London and Paris, at which latter place he was patronized by the British Ambassador, the Duke of Albemarle, and appointed surgeon to his household. On returning to Scotland he was for some years engaged in practice, and obtained the degree of Doctor of Physic of Glasgow University. When about 40 years of age the whole bent of his future activities was determined by his introduction to the family of the Duchess of Hamilton. Her elder son, the seventh duke, died of consumption at the age of 15 under Moore's care, and he was entrusted with the care of the next son—who succeeded to the title—on a five years' Continental tour. Two books were the outcome of this tour: *A View of Society and Manners in France, Switzerland, and Germany*, published in 1779, and *A View of Society and Manners in Italy*, published in 1787. Each work was in two volumes. To them succeeded in 1789 Moore's most famous but now unread book, *Zeluco: Various Views of Human Nature taken from Life and Manners, Foreign and Domestic*. The travels are still readable, for they contain shrewd observations on places and people, and include interviews with Voltaire and Frederick the Great; but the novel can only be called stilted and dull. It deals with the life of a thoroughly bad young man who ends by dying in agony from a penetrating wound of the abdomen. The humour in it falls flat on the modern reader, and the tragedy is melodramatic. Yet in the first quarter of the last century it was very popular. Mrs. Barbauld described it as "one of the most entertaining we possess, from the real knowledge of the world which it displays and the humour and spirit of the dialogue," and Byron is said to have meant to model *Childe Harold* on its hero. Moore went to France again with another invalid, Lord Lauderdale, in 1792, and was in Paris at the time of the taking of the Tuileries and the September massacres, of some of which doings he was an eye-witness. On his return to England he published a most interesting account of this visit and tour in a journal in two volumes, which was quoted by Carlyle.

As the evidence of one who was on the spot, if not an actual eye-witness, of all the tragic events of those months, this journal is still of interest. In 1797 he published a memoir of his friend and patient, Smollett. His other works, including a popular one called *Medical Sketches*, are none of them of interest. He died in 1802, and a year later selections from his various works were edited by the Rev. F. Prevost and F. Blagdon, Esq., as "Mooriana" in two duodecimo volumes, with a frontispiece portrait already mentioned. His works, in seven volumes, with a memoir by Robert Anderson, were published in 1820, with a frontispiece portrait from the painting by Gavin Hamilton.

It is evident that Dr. John Moore was a person of very widespread fame in the England and Scotland of his day, and his reputation endured for a considerable time after his death. Yet nowadays his famous novel is only remembered by students of the history of British fiction, and his name is more likely to survive as that of the subject of the brush and pencil of Lawrence, Dance, and Drummond than as that of a popular author, or even as the father of the creator of the British light infantry.

MUIRHEAD LITTLE.

RADIUM TREATMENT OF MALIGNANT AND NON-MALIGNANT DISEASES.

A NEW ZEALAND REPORT.

A DIFFICULTY in assessing the relative value of surgery and irradiation in the treatment of uterine cancer has lain in the fact that the cases subjected to the two forms of treatment have not been strictly comparable in type. An unduly favourable impression of the value of a treatment may be obtained by confining its application to specially selected cases; a treatment may be unjustly condemned if those who apply it are obliged to take indiscriminately whatever cases they can get. Special interest, therefore, attaches itself to the results obtained in the radium and deep therapy department of Christchurch Hospital, New Zealand, where no selection of cases was made and where radium treatment was given to patients whose disease was in an advanced, inoperable state, and for whom the most that could be hoped was the relief of pain.

Dr. P. Clennell Fenwick, the officer in charge of the department, in his report[1] for the year ending March 31st, 1929, states that of 48 patients treated between 1925 and 1929, 26 were alive at the end of the period covered by the report. The patients who died survived irradiation for periods varying from three to thirty months. Of those alive, one patient reported "well" forty-one months after treatment; 18 were well at the end of periods varying from three to forty months; 1 was ill at the end of thirty months; 1 in "poor health" at the end of twenty-four months, and 1 at the end of ten months; 4 cases were too recent to report.

Cancer of the Uterine Body.

Of 10 patients treated with radium between 1924 and 1928 for cancer of the uterine body recurring after operation 5 are still alive, 2 have survived fifty-three months, 2 for thirty six months, and 1 for thirteen months. During the period 1925 to 1928 6 patients suffering from this condition were subjected to operative treatment, preceded, however, by irradiation; all of them are alive to-day, the period since treatment varying from five to forty-eight months. Of 5 patients treated with radium only, 3 are alive to-day—one after thirty-three months, one after twelve months, and one after seven months. Dr. Fenwick, in the treatment of cases of uterine cancer, strongly recommends, in addition to the use of radium, the application of a full course of deep x rays; this, he believes, may be effective in destroying any wandering cancer cells.

Treatment of Menorrhagia.

Radium has proved to be remarkably effective in the treatment of patients suffering from menorrhagia. *Fifty milligrams* of radium element enclosed in a platinum tube of 1 mm. wall thickness and surrounded by rubber tubing 1 mm. thick, is applied for twenty-four hours to the interior of the uterus. Every care is taken to exclude the presence of malignant disease or fibroid tumour. Of 84 patients thus treated since 1924, 73 are free from bleeding, 2 have been lost sight of, 8 are too recent to report on, and 1 was found to have a submucous fibroid tumour, which was later treated by operation. In the majority of cases the bleeding disappeared at once; the longest interval between treatment and amelioration of symptoms was seven months. Of 20 patients who had pain before treatment, 15 reported complete relief, 4 partial relief, and 1 no improvement. In a letter which he contributed to our columns on March 9th (p. 473), Dr. Fenwick expressed the view that the extraordinary success of radium treatment in the uterine haemorrhage of middle life was due to the action of the gamma rays upon the ovarian tissue, causing a practical spaying. Inquiry into their after-history showed that all the patients treated experienced hot flushes, sweating, headaches, and other menopausal symptoms. In the report under review he is able to state that he could find no evidence that the radium-induced climacteric differs in any way from the normal, except, of course, in its rapidity.

Treatment of Uterine Fibroids.

The use of radium in the treatment of fibroid tumours of the uterus was restricted to cases in which the patient was physically unable to undergo operation or definitely refused it. In each case the dosage was 50 milligrams of radium element applied to the interior of the uterus for twenty-four hours. Six cases have been treated; in 2 the haemorrhage has ceased and the patients are in good health; 1 patient, after reporting herself in good health, has been lost sight of; in 1 patient a uterine tumour which reached to within one fingerbreadth of the umbilicus disappeared in six months, and 2 cases have been treated too recently to report on.

Carcinoma of the Breast.

Two cases of inoperable carcinoma of the breast, treated with radium only, were apparently well at the end of the period covered by the report, six months after the treatment. Of 10 cases in which cancer of the breast recurring after operation was treated with radium 3 died, 2 were alive but very ill, and 5 were lost sight of. During the period 1924 to 1929, 14 cases were treated with prophylactic doses of x rays after the operation; only 1 of these is dead, the remainder having survived for periods varying from three to fifty-four months since the operation. It is, says Dr. Fenwick, impossible for any surgeon to know whether the scope of his operation has been wide enough to include every focus of disease, and the x rays are applied in the hope of destroying any cancer cells that may have escaped removal. Patients with carcinomatous ulceration of the chest wall have been relieved by the application of soft x rays.

Growths of the Mouth and Larynx.

During the period 1924 to 1929, 88 patients have been treated for ulceration and growths on the lip. Pathological examinations were not carried out, Dr. Fenwick holding that removal of portions of tissue for section may hasten the spread of the disease to the submaxillary glands. The cases, however, had every symptom of malignancy, and he classifies them as clinical, not positive, cancer. No case was treated that had signs of glands under the chin. Treatment has been carried out by applying flat plaques of radium inside and outside the lip, to obtain cross-fire into the growth, and by placing a heavy radium pack under the chin to act prophylactically on the submaxillary region. All actual growths were treated with buried needles. Of the cases treated, 49 were discharged free of symptoms, 34 have been lost sight of, and 5 are still under treatment.

The only cases of cancer of the larynx sent to the department were those in which glands in the neck had already appeared; these cases were treated with deep therapy, and although no cure has been obtained progress of the disease has been temporarily arrested. One case of papillomata of the larynx in a young boy was treated by placing a 50-milligram tube in the middle of the growths by way of a tracheotomy opening. After seven applications of two hours each the papillomata on the right side of the larynx disappeared and those on the left side were seen to be diminishing.

Cancer of the Skin.

Considerable success has been obtained in the radium treatment of rodent ulcer. In every case in which there has been reasonable doubt as to the diagnosis Dr. Fenwick, though greatly averse to the proceeding, has taken a section for pathological report. He believes that when the ulcer is close to the eye there is danger of opening vascular channels and permitting the escape of cancer cells, and prefers to base his diagnosis on the history, absence of pain, absence of smell, absence of glandular enlargement, and the appearance of the ulcer when all crust has been cleaned away with benzine. So far radium has been applied to 117 cases, none of which had previously been subjected to surgical or any other form of treatment; 112 of these were discharged with no trace of ulceration. Of 5 patients in whom the condition recurred, 3 were healed by further treatment, 1 died, and 1 was transferred to a surgeon for wide excision of the ulcerated area. Special difficulty is found in the treatment of rodent ulcer recurring after previous treatment by surgery, caustics, x rays, or snow. According to Dr. Fenwick, such treatment destroys the trophic nerve supply to the ulcerated area, and causes the tissues to lose their radium-sensitiveness. Of 36 such cases treated with radium, 31 appear to have been cured; one of the patients died in a sanatorium, one died with metastasis, and three were finally subjected to surgical treatment. The average number of radium applications required was three, but some patients needed more than three.

Epitheliomata of the skin present therapeutic problems entirely different from those of rodent ulcer. A specimen for section is taken whenever possible; to deal with the almost certain involvement of the neighbouring glands treatment is applied not only to the growth, but to the area supplied by its lymphatics. The department has found the only effective treatment to be the burial of needles containing 5 or 10 mg. of radium element in the substance and around the margin of the growth; 40 cases were treated during the year under review, and all reacted satisfactorily. It is as yet too early to report on end-results.

Radium has proved a highly effective remedy for naevi and angiomata. The best and quickest results are obtained in young patients, 103 out of 115 treated being symptom-free. Two adults have been treated, but without improvement.

[1] Annual Report of the Radium and Deep Therapy Department, Christchurch Hospital, New Zealand, 1928-29.

India.

Ophthalmic Treatment in Madras.

HOSPITAL reports, especially those which are concerned mainly with statistics, can be very dreary reading, and it is therefore with great pleasure that attention is directed to the annual report for 1928 of the Government Ophthalmic Hospital in Madras. The medical superintendent, Lieut.-Colonel R. E. Wright, C.I.E., I.M.S., has taken full advantage of his opportunity to provide a really interesting critical account of the operative and therapeutic procedures which he employs, and his statistics indicate that the experience on which his opinions are based is very considerable. After a timely tilt against those who, with but little knowledge or even genuine interest, propound dogmatically their views on cataract extraction as though this was the only important ophthalmic condition in India, he proceeds to discuss the changes which have been gradually made in the technique of cataract extraction in the Madras Hospital during the last ten years; the chief of these relate to methods of controlling the patient and eyeball at the time of operation and subsequently, and of dealing with immature cataract. Nearly all the patients in that institution are subjected to novocain blocking of the seventh nerve, or the ciliary ganglion, or the circumorbital muscles, or by local infiltration of the levators. Control after the operation is effected at present by suture, but Colonel Wright anticipates that some more simple device will eventually be found practicable. Where individual nursing is not available in the post-operative stages, the quieting of very restless patients is effected by drugs. Although a few years ago Colonel Kirkpatrick had suggested the use of bridge flaps, the procedure was not adopted in the Madras Hospital until early in 1928, in view of the difficulty in controlling globe movements and the exceptional liability of the patients to conjunctival haemorrhage. Although it is admitted that a bridge flap is not so efficient as suturing or clipping, still it affords a quick method of maintaining the edges of the wound in apposition, and thus reduces post-operative complications. Various kinds of bridge flaps have been tried; the formation of a central button-hole has now been given up in view of the loss of time involved. It is not so much the actual cutting of the bridge which takes the time as the delivery of the lens afterwards; this must of necessity be more slowly and carefully undertaken than when a cornéo-scleral section or simple flap operation has been performed. The cortical matter, moreover, does not come away so cleanly; although mixed with blood-clot, it can be efficiently dealt with by the irrigator. South Indian hospital patients are more liable to bleed when the sclera or conjunctiva is cut than is the case with patients elsewhere; Colonel Wright attributes this to the vascular degeneration to which the bulk of elderly patients in Madras appear to be subject. Many of them, indeed, show a vascular state which may be included under the term "arterio-sclerosis decrescens." Moreover, they do not react so well to adrenaline as do European patients. The iridectomy adopted is nearly always of the peripheral button-hole type. The vitreous loss rate for all types of cataract and all operators is low—namely, 1.87 per cent., and for a straightforward capsulotomy 0.75 per cent. The iris prolapse rate has considerably diminished; this is attributed to the use of a bridge flap. For all operators and all cataracts the figure was 1.39 per cent.; for straightforward capsulotomy 1.16 per cent. During the year under review a clinical investigation of most of the primary glaucoma cases was instituted, and has been continued into 1929 with a view to testing various methods of non-operative treatment. The large number of 2,392 refraction cases was dealt with, which represents an increase over previous years. After subjective testing nearly every patient was freely examined under a mydriatic; muscle balance examinations and power tests were extensively used, as was the ophthalmometer when considered necessary. The patients were required to return for a post-mydriatic instillation. In view of the increased time now devoted to the teaching of refraction and field work, it has been decided to double the size of the refraction room so as to allow six medical practitioners to conduct the routine testing instead of three as at present. Colonel Wright's report includes also practical clinical details of a number of interesting cases, including two of angiomatosis retinae. A considerable amount of time was expended during 1928 on investigations *in connexion with an epidemic of superficial punctate* keratitis which became apparent in May and continued into the new year. Clinical teaching was given to undergraduates and post-graduates, and special training was arranged for Government medical officers, civil assistant surgeons, and others.

Small-pox in Bengal.

In his report for the year 1923 Dr. C. A. Bentley, Director of Public Health for the Province of Bengal, foretold a specially severe recrudescence of small-pox which might, indeed, be expected to reach pandemic form in 1930–33. Since 1900 small-pox deaths in the province have been steadily increasing, and an epidemic which commenced in 1924 with over 10,000 cases is still continuing. The mortality has been rising regularly year by year, and now in the annual report on vaccination in Bengal for the year 1927–28 Dr. M. E. Sufi, assistant director of public health in charge of vaccination and vital statistics, states that it has already reached the figure of 39,700. The situation, therefore, calls for serious attention, and intensive campaigns of mass revaccination in every part of the province are advocated. It is thought that the present epidemic may be the forerunner of the apprehended pandemic and may subsequently merge into it. To meet the emergency a request has been submitted to the local government for adequate funds to be allotted in the public health budget for the ensuing year to enable local authorities to conduct intensive campaigns of mass revaccination under the supervision of the Public Health Department. All such local bodies have been asked to do their utmost to put the public health organization of the province on the best possible footing, and to extend vaccination and revaccination as widely as possible. Intensive campaigns have been started in various districts, and the Government staffs have been instructed in many places to help the local authorities in these activities. Dr. Sufi publishes statistics which indicate that primary vaccination without revaccination has never been able to control an epidemic of small-pox. He thinks that until quite recently the greater attention paid to it has caused the value of revaccination to be overlooked to a great extent. Arrangements are also being made for obtaining a large supply of vaccine for the threatened emergency.

Relief of Blindness in India.

In a communication which has been addressed to the Viceroy on behalf of the All-India Blind Relief Association it is estimated that there are between one and one and a half million blind persons in India. The census reports give a lower figure than this, dealing only with the totally blind, and it is not denied that large numbers of partly and completely blind persons are not included in these estimates, since they take no steps to obtain treatment and so do not come under observation. With a view to dealing with these people, blind relief associations have been formed in various places since 1919 when the first, after a brief life in the Ratnigiri district, succumbed. Others were started later on a more satisfactory footing, and the All-India Blind Relief Association was created to affiliate them and to improve and extend this form of relief. Very useful work has been performed by these local associations and the central body. Thus in Bijapur in 1918 there were seven ophthalmic operations, and 3,420 cases were treated medically; in 1920, when the All-India Association started work, there were 465 operations and 7,820 cases treated medically; in 1927 the number of operations had risen to 1,866, and in 1928 the cases treated medically to 29,000. Bijapur has an organization of trained village field workers who hunt up new patients, sending the more serious cases into hospital; they also inspect infants for the first ten days after

birth with a view to *detecting ophthalmia neonatorum*. In Sind the All-India Association has employed in the past medical officers to tour through the villages, camp at suitable spots, and conduct ophthalmic treatment. Financial difficulties have, however, hindered the work here as elsewhere, and only one of these medical officers is at present so employed. The cost of carrying on this scheme in Bijapur with a population of 800,000 was about 16,000 rupees in 1927. A grant is received from the Bombay Government, but more financial support is urgently needed here as in other places. An appeal has therefore been made by the Central Association to the Viceroy for a share in the money which will be collected in connexion with the All-India Thanksgiving Fund.

Canada.

[FROM OUR CORRESPONDENT IN MONTREAL.]

University Appointments.

DR. W. W. CHIPMAN has tendered his resignation to the board of governors of McGill University; he has been a member of the teaching staff since 1900. He was appointed professor of gynaecology in 1910, and two years later was professor of obstetrics and gynaecology. His professional attainments are well known, and his brilliant qualities in teaching fully realized in his own university, where his retirement will be keenly felt. His successor has not yet been appointed. The position of professor of surgery in the Faculty of Medicine of the University of Toronto, which became vacant on the death of the late Dr. C. L. Starr last December, has been filled by the appointment of Dr. W. E. Gallie. Dr. Gallie's influence on the progress of orthopaedic surgery has been long recognized. He delivered the Hunterian Oration in 1924, under the title of "The transplantation of the fibrous tissues in the repair of anatomical defects."

Dalhousie University.

The Dalhousie Medical School in Halifax has this year celebrated the sixtieth anniversary of its founding. The occasion was marked by important functions and by the issue of a special issue of the *Nova Scotia Medical Bulletin*, containing much interesting and valuable historical material in connexion with the teaching of medicine in Eastern Canada. Coincident with this anniversary was the seventy-fifth annual meeting of the Medical Society of Nova Scotia, which retains a vigour that shows no sign of declining. The medical school is a later development of a university which was founded one hundred and ten years ago with the aid of customs money collected by Great Britain in the State of Massachusetts during the war of 1812, a fact which was referred to by the Hon. William Phillips, United States Minister to Canada, on the occasion of his receiving the LL.D. at Dalhousie this year.

Practitioners and Public Health Associations.

It is inevitable that the general practitioner should find grievances from time to time in the overlapping of the activities of various public health associations and his own work. The Toronto Academy of Medicine has formed a committee to deal with complaints and difficulties of this nature, and a good deal of very useful work has been done. Complaints by private practitioners regarding the activities of the Department of Public Health have been taken up, and in most cases satisfactorily disposed of. Particularly in the matter of the care of the pre-school child by various welfare councils, care is being taken to see that the rights of the general practitioner are not infringed. On the other hand, it is being pointed out to the practitioner that a certain degree of co-operation with these bodies is necessary. In the Western Provinces, however, particularly in Alberta, there is still a good deal of the action of the Provincial Govern- municipal travelling clinics, and, more in salaried practitioners to work in the sparsely settled outlying districts. Three women doctors have lately arrived from Great Britain under this scheme, the Government being responsible for their salaries, the district for housing accommodation, and the family of the patient for local transportation. The Government states that it must provide for the medical needs of these far-flung regions, but medical practitioners assert that the reason for the falling-off of the number of men who take up country practice is the continued interference of the Government with their opportunities of obtaining an adequate income. Some see the shadow of State medicine in the situation, others recognize that there are regions in which the medical attention available is very scanty—it may even be non-existent—and something must be done to meet the deficiency. Even those who realize that great spaces have to be reckoned with are impressed when they actually travel through the West and meet the men who are carrying on the work of general practice. Even to attend the medical society meetings, which are becoming so keenly supported, largely as a result of the travelling lecture teams sent out by the Canadian Medical Association, men will often motor fifty or sixty miles. At one of these meetings recently I met men who had come ninety and seventy miles respectively.

Chiropractors in Alberta.

The chiropractors in Alberta are trying to remove the restrictions imposed on them by the Chiropractic Act. This Act requires that all applicants should pass an examination in the basic subjects, the examining board to be composed of two chiropractors, two doctors from the staff of the Alberta University, and a layman to act as chairman. Up to the present no one has passed the examinations.

England and Wales.

Health Measures in Birmingham.

THE complexity of modern civilization is particularly obvious in the larger cities, and, consequently, the preservation in good health of the great aggregations of population in such communities can be no simple matter. Direct attacks on disease have to be associated with the direct promotion of health, but the value of indirect attacks on disease must not be overlooked, and this is one of the main contentions in the annual report for 1928 of the medical officer of health for the city of Birmingham. Dr. H. P. Newsholme calls attention in the maternity and child welfare section of his report to the deaths from pneumonia in children under the age of 5. It is shown that these occurred mainly in the poorer houses, and that the children picked out by the disease were those subject to recurrent catarrh in families where the parents in an unusually high proportion showed conditions of chronic ill health. Dr. Newsholme emphasizes the significance of the implication that an indirect attack on the disease may be effective in that the improvement, on the one hand, of the environmental conditions implied in the alterations to housing, to general sanitation, and to scavenging, and the improvement, on the other hand, of the personal health of the child under the child welfare scheme, and of the parent under the national health insurance scheme, will remove conditions which at present encourage the prevalence of the disease. These conclusions followed a careful inquiry, under medical direction, which was made into 255 cases of death from pneumonia in these children. The largest age group of cases was that comprising infants between 6 and 12 months old (31 per cent.); the next highest was the group of children between the ages of 1 and 2 years (25 per cent.); and the third the group aged from 1 to 6 months (21 per cent.). The increased resistance to pulmonary tuberculosis as the child began to grow up was shown by the fact that, in the group of children between 2 and 5 years old the mortality from pneumonia was only 15 per cent., so that it is clear that the most dangerous age period for pneumonia is from 1 to 14 months. The increasing percentage of ailing children among the older groups with a high percentage for recurring pneumonia and bronchitis appears to emphasize the probability of infection at a very early age, and its continuance with quiescent

periods until a fatal attack supervenes or the child is restored to health. Dr. Newsholme comments on the importance in this connexion of defective diet, which was discovered in a high percentage of the cases; he also urges the provision of better facilities for convalescence. The population of Birmingham is nearly a million, but the death rate—10.9 per 1,000—is lower than the average (11.7) for England and Wales. Pulmonary tuberculosis was the greatest cause of death between the ages of 20 and 25, after which the mortality from heart disease assumed a marked predominance, though cancer played a large part. Respiratory diseases generally, and diseases of the nervous system, became of increasing importance with advancing years. Dr. Newsholme therefore discusses the problem of atmospheric pollution. He states that Birmingham is a city with over 1,100 factory chimneys, about one-third of these being connected with metallurgical furnaces. From ten to thirty-five tons of sooty deposit fall monthly in different areas of the city per square mile, and these figures indicate that a considerable reduction in the amount of soot in the atmosphere can yet be made. The number of canal boats registered at Birmingham is steadily increasing, and it is found that canal-boat life is very good for the health, though it has the disadvantage of interfering with the education of children. The canal-boat people are characterized as being well nourished, hardy, and self-respecting. Dr. Newsholme illustrates by graphs the satisfactory progressive diminution in the annual death rate from tuberculosis, the figure of 150 in 1901 having fallen to about 80 in 1928. Ophthalmia neonatorum is on the increase in the city, for reasons which are not at present obvious. The training course for health visitors opened jointly by the University of Birmingham and the Public Health Committee in the autumn of 1927 was established on a more permanent basis early in 1928, and has proved most successful in promoting the supply of properly trained health visitors, both for Birmingham and for neighbouring areas taking part in the scheme. By-laws for houses let in lodgings have also been redrafted in order to increase the powers for dealing with this very difficult and generally unsatisfactory class of dwelling; the revised by-laws did not come into effect during the year under review. Child welfare centres are increasing in number, and it is hoped that more will soon be obtained.

Post-Graduate Teaching in Manchester.

As in previous years, post-graduate lectures and demonstrations on medical and surgical subjects will be given at the Manchester Royal Infirmary during the winter and spring sessions, on Tuesday afternoons at 4.15. The course will be opened on September 24th by Mr. J. P. Buckley, who will discuss some points relating to the etiology and treatment of appendicitis. On October 1st Mr. F. C. Wrigley will lecture on acute suppurative otitis media, and on the following Tuesday Mr. H. H. Rayner will deal with the position of surgery in the treatment of gastro-duodenal ulceration. Lectures on special subjects will be given on Fridays, beginning on September 27th, when Dr. Catherine Chisholm will discuss the treatment and development of the premature and immature infant. On the following Friday Dr. R. Prosser White will speak on some problems in occupational dermatitis, and on October 11th Mr. C. W. W. Surridge, the city coroner, will consider the relation of the medical profession with coroners. These lectures on Tuesdays and Fridays will continue into December, and there will be a resumption of the Tuesday series next March. On Wednesday, November 27th, Dr. Comyns Berkeley will deliver the Lloyd Roberts Lecture at St. Mary's Hospital, Whitworth Street, W.; his subject will be the teaching of obstetrics and gynaecology. Further information about these courses may be obtained from Dr. E. Bosdin Leech, the Royal Infirmary, Manchester. A series of post-graduate lectures and demonstrations will also be given at Ancoats Hospital during the Michaelmas term, on Thursday afternoons at 4.15. Dr. W. J. S. Reid will open the course on October 17th with a lecture on the haemorrhagic diathesis, and will deal with pernicious anaemia on the following Thursday. Dr. Arnold Renshaw will discuss the significance of the cytological changes in the blood on October 31st, and Professor J. B. S. Stopford will speak on spinal tumours on November 7th. Other lectures and demonstrations will follow in November and December. On each Thursday during the Lent term a "post-graduate day" of clinical teaching will be arranged by the honorary staff of Ancoats Hospital as a part of the post-graduate scheme of the University of Manchester. The programme will be posted in the medical school and in the entrance hall of the hospital a week in advance. Particulars of the special courses in connexion with the University scheme are to be found in the University post-graduate syllabus. Inquiries may be addressed to Mr. Harry Platt, M.S., F.R.C.S., 26, John Street, Manchester. All these lectures and demonstrations at the Royal Infirmary and Ancoats Hospital are free to medical graduates and senior students; announcements of each in turn will be inserted in the "Diary" of the *British Medical Journal* in the issue of the preceding week.

Research in Dairying.

The National Institute for Research in Dairying, associated with the University of Reading, was founded by the Board of Agriculture as part of the scheme of research formulated under the Development and Road Improvement Fund Act of 1909. In its report for the year 1928 attention is drawn to the fact that the number of producers and distributors of graded milk has increased, and that dairymen are gradually adopting the method of payment for milk according to its standard of cleanliness. According to the report all the official samples of Grade A (tuberculin-tested milk) sent to London by one group of farmers were found to be within the standard on delivery to the consumer at every examination made during 1928. A similar gratifying report was presented by the medical officer of health for Cardiff, and the Institute claims that these facts demonstrate the progress that is resulting from the organized study of the problems of the milk industry which has been conducted during the past fifteen or sixteen years. The experiments on the nitrogenous manuring of pasture land, which were begun by the Institute in 1925, are being continued, and have demonstrated the influence of nitrogenous manure on the number of days upon which it is possible to graze the cows and upon the amount of the milk yield. The study of different methods of butter-fat testing appears to show "that sampling and testing at each visit of the milk recorder, associated with weighing of the milk yield at each milking to ensure that representative yields are sampled, and a method of calculating the average which takes into account the variation in yield and fat at each milking and as the lactation period advances, gives an average fat percentage of definite reliability in the great majority of instances." The report of the chemical department deals with the influence of calcium in the soil, upon its content in some plants, and the possible relation of its amount in the food to the incidence of milk fever. Other work done on calcium has included a study of its effect upon cheese making and the possible influence of heating milk in altering the ratio of diffusible and indiffusible calcium. On behalf of the Empire Marketing Board an investigation has been made of fishiness in butter, which has been shown to be probably due to the same cause as oiliness in milk—namely, the presence of traces of copper. The bacteriological department has studied various faults in the industry—for example, coco-nut flavour and red spot in cheese; it is thought that the results of these studies are likely to be of far-reaching importance. Further interesting investigations have concerned the various factors which influence the presence or absence of "blueing" in Stilton cheese, and the variations in the ripening of cheese which may be found to occur when it is prepared either from clean milk or from ordinary milk. In order that the work of the Institute may develop further the staff believes that a physiologist should be appointed to study the problems of milk secretion and the effects of the constitution of milk upon its food value and upon the making of dairy products. Further, the need is emphasized of obtaining increased accommodation on the farm, additional buildings, and a more numerous staff, in order that large-scale experiments in dairying may be undertaken. These developments necessarily involve increased expenditure, and in view of

the fact that there is little prospect of assistance from Government sources the committee holds that steps should be taken to create an endowment fund which will lighten the financial difficulties from which the Institute must continue to suffer so long as conditions remain as they are at present.

Ireland.

Rockefeller Foundation Fellowships in Dublin.

In 1928 the trustees of the Rockefeller Foundation sanctioned a scheme for the establishment of three research fellowships in connexion with the School of Physic, Trinity College, Dublin. In accordance with the details of the scheme a fellowship in bacteriology and public health became vacant on October 1st, 1928, and the appointment was filled on that date. Another fellowship in biochemistry commences on October 1st next, and has now been filled by the appointment by the Board of Trinity College, Dublin, of Dr. Arthur Geoffrey Thompson, who had a brilliant career as an undergraduate in Trinity College Medical School. His distinctions include a first-class moderatorship in natural science, the FitzPatrick medical scholarship, the John Malleb Purser medal in anatomy and physiology, and a medical travelling prize. Immediately after qualification Dr. Thompson was appointed pathologist to Jervis Street Hospital. The duties of the fellowship to which he has now been appointed include the teaching of clinical biochemistry in the Medical School of the University of Dublin, as well as the prosecution of research work in that subject.

Salaries of Medical Officers in County Mayo.

At a recent meeting of the Mayo Board of Health, Drs. Moran, Ryan, O'Boyle, and McNulty attended in connexion with the suggested increase of the dispensary doctors' salaries. The secretary read a letter from the Local Government Department acknowledging receipt of the Board's letter of June 8th, from which the Minister observed that the Board agreed to adopt the scale of salaries suggested by him. The letter pointed out that the medical inspection of school children called for a highly specialized knowledge and experience, and it was essential for the observance of uniformity and proper co-ordination of arrangements that standard methods of inspection and remedy should be applied throughout the country. While the Minister was satisfied that the functions of the school medical officer could not be efficiently discharged by the dispensary medical officers, he recognized that when the public services of the country were fully organized the scope of their duties would be increased to some extent, and he was accordingly prepared to approve the dispensary medical officers being paid in accordance with the scale of salaries which was before the Board on June 8th. The letter of the Mayo Board of Health referred to by the Department for Local Government and Public Health was as follows: "The Board are agreeable to adopt the scale of salaries suggested, on the understanding that the different dispensary medical officers take over the duties of school medical inspection in their respective districts. The dispensary medical officers are willing to take on those extra duties in respect of the extra remuneration which they would receive under the suggested scale. I have been directed by the Board to inquire if the school medical inspection may be legally allocated to the dispensary medical officers in the county, or if the Minister would be prepared to accord his consent to such proposal." The Health Board unanimously adhered to their former decision as defined in their letter.

Conditions of Appointment of Nurses in Hospitals.

The Minister for Local Government and Public Health (Irish Free State) instructed Dr. Boyd Barrett, a medical inspector, to report on the circumstances connected with the suspension from duty of Nurse Bridget Hynes, who was appointed nurse in the Cavan County Hospital by the Local Appointments Commissioners on June 25th. Arising out of the medical inspector's report the Minister removed the suspension of the nurse, and directed that she should resume duty. Dr. Boyd Barrett, in the course of his report, stated that the whole situation appeared to have had its origin in a misunderstanding on her arrival at the hospital, when she informed the matron that she had received no notification from the local authority. In response to a telegram received at Enniskymon, the nurse proceeded to Cavan to take up duty. In the previous month she had been instructed by the Local Appointments Commissioners that she had been recommended for the Cavan Hospital, but it was added that as the appointment was a matter for the local authority no action should be taken until after she had been invited to take up the appointment. On arrival at the hospital the nurse stated to the matron that she had received no notification from the Board of Health (the wire received being signed "Surgical Hospital, Cavan"). In making this statement she was not only justified, but was acting according to written instructions. It appears that the matron was annoyed by a new nurse seeking official confirmation of her order. The nurse was then told that she might see the secretary of the Board of Health if she wished, and that she was to go on night duty at once. Dr. Barrett added that it was obvious that the subsequent unfortunate events were conditioned by the misunderstanding. The matron had no conception of the precise and emphatic terms of the letter of appointment; not being cognizant of these terms, the query of a new nurse apparently questioning the authority of the matron was to her objectionable. The matron had held her post for many years, and she had been accustomed to sending messages to successful candidates to fill vacancies on the staff; never before had her authority been doubted or confirmation of her instructions sought. On the other hand, the nurse, in this instance, was entirely justified in asking for notification from the local authority; she had, in fact, travelled some hundred miles at her own risk to help the hospital staff. Dr. Barrett emphasized this misunderstanding, because he believed that the ill feeling thus created was a cause of much of the trouble that subsequently ensued, and it was a misunderstanding in which it was impossible to apportion any blame. It had now been cleared up, and these officers should for the future work in harmony in the interests of the sick poor. The Minister expressed the hope that the Board would, without delay, take into consideration, in consultation with the medical officer and the matron, the question of improving the condition of the nurse, both as regards accommodation and hours of freedom from duty.

Correspondence.

POST-VACCINAL ENCEPHALITIS.

SIR,—The Rolleston Committee on Vaccination, in dealing with post-vaccinal encephalitis, has demanded further time for the completion of its investigation and the analysis of the complicated data with which it is confronted. In the meantime, the Ministry of Health in its new Order (*British Medical Journal*, August 24th, p. 371) has tried to avert the calamity that would result from an outbreak of small-pox in an unvaccinated population by authorizing certain of the recommendations of the Rolleston Committee. The recommendations as to the optimum age for vaccination are founded on data which are open to criticism, but being officially accepted they will hereafter hamper action should a small-pox epidemic be threatened. The well-founded belief that effectiveness of vaccination against small-pox is proportionate to scar area has been cast aside, on the assumption that the danger from any harmful agent which may be associated with the variola vaccine proper would be diminished with a diminution in the area of implantation.

On page 152 of the Committee's report it is stated that the Government Lymph Establishment was the source of supply in 18 out of 25 cases of post-vaccinal encephalitis which occurred in this country; but it is rightly pointed out that this source of supply cannot be specially inculpated, in view of the fact that 60 per cent. of the total vaccinations are performed by public vaccinators. It is

then explained that "17 different 'series' of vaccine were used for the vaccination of these 18 cases; one 'series' was therefore used for 2 cases. Each 'series' is a product of the vaccination of a single calf with lymph derived from another animal, generally a rabbit, but occasionally a calf. In these 17 series the lymph was derived from the cutaneous vaccination of calves with rabbit stock."

Orders by the Local Government Board required that the calf used for the production of vaccine should be slaughtered, and, if it were proved unhealthy, that the lymph should not be used. These orders were in force for many years before the rabbit was included in the scheme of cultivation; in recent rulings the rabbit is not specifically mentioned, but is covered by a wider term, "animal." In the second schedule of Statutory Rules and Orders, No. 486 of 1927, Therapeutic Substances, Section (B), para. 3, it is demanded that a "thorough post-mortem examination of the carcass shall be made by a qualified expert. A complete record of each such examination should be kept." The Rolleston Committee, however, does not state in its report whether it has examined the records relating to rabbits. In view of the hypothesis that post-vaccinal encephalitis in the human subject is "fortuitous," and of the fact that rabbits may survive for a long time after their intracerebral inoculation by means of brain material from fatal cases (Report of the Committee on Vaccination, p. 193), the value of such post-mortem records would be increased if they included the number and the medical history of rabbits which died after admission and before undergoing vaccination previous and subsequent to 1902—the date when their use was officially recognized. Fortunately, all the facts at present available about neurotropic diseases of rabbits have been summarized by Dr. Tom Hare in his valuable contribution to the discussion on encephalo-myelitis of man and animals in the Section of Comparative Medicine of the Royal Society of Medicine in March of this year. These facts show that the use of rabbits for the cultivation of vaccine involves a possible risk, yet one which long experience has shown need not be taken.

Professor McIntosh, a member of the Andrewes Committee, held that the connexion between vaccine lymph and post-vaccinal encephalitis had not been definitely excluded. The Rolleston Committee has not neglected his view, but there is nothing to show that it has tried to ascertain the action of *vaccine lymph* on the nervous system. The lymph used by the Committee had presumably been modified by passage through the rabbit as well as the calf; in short, it has not experimented with true vaccine lymph, but with *leporine vaccine*. Yet the Committee appears to have felt that the hypothesis whereby the occurrence of post-vaccinal encephalitis has been attributed to the existence of some "*unknown factor*" in *persons undergoing* vaccination—just at a time when fortuitously they were incubating one or other of the neurotropic diseases—was much weakened by the findings of Professors Turnbull and McIntosh, supported by Dr. J. R. Perdrau, to the effect that histologically post-vaccinal encephalitis could be "sharply differentiated" from neurotropic diseases likely to be thus encountered. Thus, on page 193 of the report one reads that: "The results, though occasionally suggestive, have not conclusively demonstrated the presence of a virus possessing any uniform specific pathogenicity for the rabbit. It must be remembered that in work of this kind the pitfalls and consequent fallacies are numerous."

Although the occurrence of consecutive cases of encephalitis following the use of lymph from the same source has been established, and might therefore at first sight seem to locate the source of mischief, it must be remembered that further use of the same lymph in hundreds of cases has produced no ill effects. It is presumably on this account that hypotheses of "latency" and of the "unknown factor" have been evolved.

There is no need for such hypotheses. One of us has recorded experimental evidence to the effect that though vaccine lymph which has been contaminated with a harmful agent may, by a judicious selection of normal vesicles, appear to be absolutely normal after its transmission for several generations in the calf, yet in later generations one or more vesicles of the total mass may be shown to contain the harmful agent. This experimental evidence,* coupled with the fact that neurotropic diseases may occur fortuitously in individual rabbits in which the incubation period may be longer than the five days' quarantine demanded in the Statutory Order above quoted, may serve to explain the occurrence of so-called "fortuitous" post-vaccinal encephalitis in the human subject.

So far as one may judge from the records, encephalitis occurred in this country subsequent to the use of leporine lymph. The fact that true vaccine was issued by the Army Vaccine Institute from 1880 to 1910 without disturbing accidents in two million cases should suffice to show that vaccine lymph in itself can be tolerated by subjects of vaccination at all ages. Lymph issued by the Army Vaccine Institute was used not only on men in the army and navy, but also on women and children, and in each case a report was officially required. Before, therefore, Professor McIntosh's view is rejected, vaccine lymph that has never passed through the rabbit should be tested on animals in order to discover whether its use is in any way connected with post-vaccinal encephalitis. Meanwhile, we repeat our suggestion that, as a necessary preliminary to a final verdict, the issue of any form of leporine lymph, whether manufactured at home or imported from abroad, should at once be abandoned in favour of an historically proved unmixed stock of variola vaccine.—We are, etc.,

MYER COPLANS.
W. G. KING.
W. J. R. SIMPSON.

Ross Institute and Hospital for Tropical Diseases, Putney Heath, S.W.15, Sept. 10th.

TONSILS AND ADENOIDS IN HOSPITAL PRACTICE.

SIR,—I wish to express my complete agreement with Mr. Scott Stevenson when, at Manchester, he stigmatized as "a disgrace to British surgery the fact that there is to-day one operation—the removal of tonsils and adenoids in children—in which hospital patients are treated very much worse than private patients." It is some years since the Laryngological Section of the Royal Society of Medicine drew up recommendations which the council adopted and sent to every hospital known to undertake a regular service for these operations; these recommendations were very similar to those unanimously adopted at Manchester. (See *Proc. Roy. Soc. Med.*, 1929, xiii, Section of Laryngology, p. 29.)

There is reason to believe that the mortality rate and the incidence of severe complications is definitely higher where these repeatedly recommended precautions are still neglected, and a heavy responsibility attaches to those who do not press on the authorities under whom they serve the imperative need for these precautions being observed.

It is deplorable to gather that clinics still exist where children are submitted to operation, and, within a few hours, are sent home without adequate provision for after-care, or even precautions against their immediate contact with others suffering from infectious disease.—I am, etc.,

PATRICK WATSON-WILLIAMS.

Bristol, Sept. 7th.

SIR,—I regret that Dr. Scott Stevenson (September 7th, p. 477) should look upon my letter (August 24th, p. 368) as arguing in favour of the performance of tonsil and adenoid operations in the out-patient department. The last sentence of my letter reads, "So long as the totally inadequate in-patient provision for these cases remains, there is something to be said for treating them as out-patients, if only from the preventive aspect."

The question remains, How can we obtain sufficient in-patient accommodation, and that quickly? Until now the individual insistence of the surgeon in charge that these cases should be treated as in-patients has been as a voice crying in the wilderness. In addition, as Dr. Scott Stevenson says, similar resolutions have been passed before without much effect. Might I suggest, therefore, that since Dr. Scott Stevenson moved the resolution, he should

* An exemplification, in practice, of the persistence of a harmful contamination of vaccine lymph is reported on the authority of recognized experts in the *Farmers' Bulletin* (U.S. Department of Agriculture, 1908, No. 347, p. 379).

take it a step further and, with the co-operation of the Section of Diseases of Children, he should bring the resolution to the notice of the hospital and school authorities and ask for their views on the matter? Backed by the unanimity of the Section, I feel sure it would carry considerable weight with these bodies, and something might be done about it. Left as it is, it will go the way of previous resolutions.

It is an excellent chance for the Section of Diseases of Children to put an end to the present state of affairs.—I am, etc.,

Hull, Sept. 9th. R. R. SIMPSON.

SIR,—The resolution passed by the Section of Diseases of Children at the Annual Meeting of the British Medical Association (see *Journal*, August 17th, p. 303), that children should be admitted to hospital beds for forty-eight hours after operation, is a very sound one.

At the Bolingbroke Hospital, Wandsworth Common, some twenty children have been so treated every week for over a year, and the arrangement is highly satisfactory in every way. This step was taken owing to representations made by Mr. E. A. Peters to the medical committee, and was approved by the general committee also. It is not so unpractical as it may seem, because one bed can, if necessary, serve for three such patients during the week. An allocation of ten cots or beds will thus serve for thirty patients a week.—I am, etc.,

London, W.1, Sept. 6th. H. MORTIMER WHARRY.

THE HISTORY OF CLEIDOTOMY.

SIR,—Some thirty-four years ago, at a British Medical Association Branch meeting, I read a short paper in which I recommended simple division of the clavicles as a means of facilitating delivery in certain cases of impaction of the trunk of the foetus. The paper was published in the *British Medical Journal* on April 13th, 1895 (p. 808). Seven weeks later Professor Phänomenoff of Kazan published in the *Centralblatt für Gynäkologie* (June 1st, 1895) a paper on the same subject, and gave the name "cleidotomy" to the operation. He did not mention my earlier publication, an omission to which I at once called attention in a letter published in the *British Medical Journal* of July 13th, 1895 (p. 113), in which I cited the *Centralblatt*, and stated that I had taught and practised the operation since the year 1888. A great deal has been written on this little operation without any reference to my communication in your columns. A notable exception is the valuable paper on cleidotomy by the late Dr. J. W. Ballantyne, published in the *Transactions of the Edinburgh Obstetrical Society* (vol. xxvi, p. 24, 1901). Ballantyne gave full credit to my paper, and wrote, "The contribution of Dr. H. R. Spencer marks a new departure."

A recent number of the *Zentralblatt* (No. 17, 1929) contains a paper on cleidotomy by Jankelewitsch, with a bibliography at the end of twenty-nine publications, but no reference to Ballantyne's important review. This was followed in No. 34 of the same journal (p. 2144) by a historical review of the operation by Wille as a reply to Jankelewitsch's paper. Wille mentions the name of Ballantyne in the text, but does not give the reference, and has evidently not read Ballantyne's communication; for if he had done so he would have seen my name mentioned therein, and would have avoided an error in correcting his German confrere and purporting to give the history of the operation, by attributing to Phänomenoff an operation previously devised, practised, and published by myself. There is nothing new about Phänomenoff's communication except the name cleidotomy; nor is the division of the clavicles, as a part of other destructive operations on the foetus, a modern invention, having been described in the sixth century by Actius, who had taken the operation from Philumenos, as mentioned in my address to the Obstetrical Society in 1907. Fornari[1] in 1377 published an account of the operation under the title "clavicotomia"; his operation was combined with embryotomy. Silberstein[2] in 1882 divided the clavicles after he had performed embryotomy for an impacted foetus not permitting embryulcia. His case would have been more easily treated by the second method mentioned in my paper. Von Herff,[3] who in 1897 claimed that he had performed cleidotomy before 1895, gives particulars of the operation—namely, he perforated the chest of an anencephalic child and "in the easiest way, by separating the blades, broke the upper two ribs, together with one clavicle." This was clearly no case of simple cleidotomy.

As one interested in the history of medicine, which owes so much to the genius and industry of German writers, I take this opportunity of pointing out that it suffers somewhat from the apparent reluctance—or is it tardiness?—of German authors to publish, in their extensive bibliographies, references to the work of non-German writers. Thus my contribution to the above subject does not appear in Fasbender's great History of Midwifery, published in 1906; but one might not unreasonably expect writers in the *Zentralblatt* to be acquainted with it after thirty-four years.—I am, etc.,

London, W.1, Sept. 12th. HERBERT R. SPENCER.

[1] Fornari: *Il Morgagni*, 1877, p. 855, and 1879, p. 426.
[2] Silberstein: *Wien. med. Woch.*, 1882, p. 914.

"ACTIVATED" FLUORESCEIN IN CANCER TREATMENT.

SIR,—Will you permit me to add a few remarks which it was intended should appear as a footnote to the article on the treatment of cancer by fluorescein activated by radiations in the *British Medical Journal* of August 10th (p. 233).

Four photographs were given showing the rapid changes which took place in a large ulcerating carcinoma of the breast when subjected to this method of treatment. The omission was the fact that the radiological work in this case was carried out by Dr. G. Vilvandré. The technique used by him varied considerably from that used by Dr. Gouldesbrough for the other cases referred to in the article, but, as the photographs show, it was eminently satisfactory for the purpose; apart from the ultimate condition of the case. Variations in technique and the limits within which the destruction of cancerous tissue is possible, can be more fully dealt with when further results are to hand. Until quite recently, bad results and good results, thought to be due to differences in the *x*-ray apparatus employed, have, no doubt, really depended upon the form of the fluorescein used.

In closing I wish to apologize to Dr. Vilvandré for the omission of his name; as I explained to him personally, the decision to include the photographs was only made two days before Dr. Copeman sailed for South Africa, and the proofs were returned without the footnote.—I am, etc.,

London, W.1, Sept. 16th. FRANK COKE.

THE RHEUMATIC TYPE.

SIR,—The article by Drs. Gray Hill and Mary Allan in the *British Medical Journal* of September 14th (p. 499) on the rheumatic type once again raises the question of whether certain types of children are more susceptible to rheumatism than others.

In spite of the fact that the rheumatic diathesis is frequently mentioned, there are widespread differences in the descriptions given by writers of the physical traits which make the diathesis recognizable. Three main examples are to be found in the textbooks, all differing from each other: (1) the child is a blond with blue eyes, delicate skin, and pink cheeks; (2) the child is a brunette, the eyes and hair are dark, the eyelashes long, the skin white, the complexion good, the sclerotics are bluish, and the teeth, especially the middle upper incisors, are massive; (3) the child is freckled and has red hair.

The first example is the description of a typical Nordic child, and the second of a Mediterranean child. The third is of a type not so commonly seen as the others, except in certain localities. The first or Nordic type is described in the textbooks of Garrod, Butler, Thursfield and Paterson, and of Bernard Myers, among others; the second, or Mediterranean type, in Robert Hutchison's volume of lectures on diseases of children; and the third, or red-headed type, is mentioned by Still.

[3] Von Herff: *Arch. f. Gynäk.*, 1897, 53, pp. 542-546.

London school children may be grouped roughly into four types: the Nordic, the Mediterranean, those that appear a mixture of the two with sometimes an Alpine element, and, finally, a small dump-heap of unclassifiable ones. Those that lie between the Nordic on the one hand and the Mediterranean on the other are for the most part fair-haired, but with brown eyes. The child with black hair and blue eyes is rare, and since only six were seen in the collection of the following figures they have not been classified. The red-headed children are also omitted as representing a special case: it may be mentioned that the majority of the latter had a rheumatic history.

Five hundred and five children of school age were seen during a period of three months as casualty patients. They had the following distribution: blue eyes and fair hair 289, brown eyes and fair hair 145, and brown eyes and dark hair 71.

Excluding the colour of hair and eyes by which they have been thus grouped, the features of the diathesis described by Robert Hutchison were present in the following percentages:

Mediterranean type	95.8 per cent.
Intermediate type	86.2 ,,
Nordic type	29.5 ,,

Again excluding eye and hair colour, the total number with the features of this diathesis present was 276 as against 227 without.

The percentage of those giving a history of any rheumatic phenomena was:

Nordic type	29.0 per cent.
Intermediate type	38.6 ,,
Mediterranean type	39.8 ,,

A similar history in connexion with Robert Hutchison's diathesis was given in the following proportion: positive histories were present in 41.7 per cent. of cases with such a diathesis, and in 22.5 per cent. of those without it.

Damp houses, as usual, figured more commonly in the history of the rheumatic cases than the others, but this environment was present in an almost equal percentage of cases in all three of the types of children, and thus does not affect the figures given.

The following conclusions may be drawn:

1. The Nordic child is less commonly affected than the intermediate or Mediterranean child.

2. The diathesis described in this letter accurately fits in with the Mediterranean child, is less commonly seen in the intermediate child, and is more commonly absent in the Nordic child. Rheumatism is more common in the first and second types than in the third.

3. Children with the traits of this diathesis are more commonly affected with rheumatic manifestations than those which do not show them.—I am, etc.,

J. C. HAWKSLEY, M.B.

London, N 19, Sept. 13th.

THE ANAEMIA OF PREGNANCY.

SIR,—In an article entitled "Indian motherhood" in the *Journal* of July 13th (p. 63), my work on the subject is quoted, and I write to advocate caution before accepting the following statements made regarding anaemia of pregnancy.

1. "If it [recovery] takes place after delivery it is complete." It is notoriously almost impossible to keep in touch with Indian patients after discharge from hospital, and they form the vast bulk of the sufferers from this disease. Improvement once begun in these women is so gratifying that one is apt to form opinions on insufficient data, no follow-up figures having yet been published to prove them.

The need for caution in this connexion is illustrated by the case of a married Anglo-Indian woman who was admitted to the Eden Hospital last October, suffering from severe anaemia of pregnancy; she gave birth to premature twins, and was profoundly ill for weeks. Her blood count on October 11th was as follows: total red cells 1,320,000 per c.mm., haemoglobin 25 per cent., total white cells 7,812 per c.mm. The differential count showed: polymorphs 45 per cent., lymphocytes 51 per cent., large lymphocytes 2 per cent., eosinophils 2 per cent. A few normoblasts, anisocytes, poikilocytes, and polychromatophils were present. No malarial parasites were seen.

I was fortunate enough to have another opportunity of obtaining a subsequent report on February 27th, 1929, on which date she had vastly improved, and said she was perfectly fit. This report was as follows: Total red cells 3,750,000 per c.mm., haemoglobin 50 per cent., total white cells 3,750 per c.mm. The differential count showed: polymorphs 50 per cent., lymphocytes 36 per cent., large lymphocytes 1 per cent., eosinophils 13 per cent. No abnormal cells were seen.

In this case, therefore, the blood had not been restored to the normal after four and a half months, although apparent recovery had occurred and the patient felt very well. She was not seen subsequently, although she was advised to come to the hospital every month for further observation.

2. "Liver treatment has caused immediate and rapid improvement." I have tried both liver treatment and blood transfusions during the past year at the Eden Hospital, but I was unable to form an accurate opinion as to their value because the patients miscarried soon after admission to hospital, as they usually do. Since rapid improvement follows after delivery (if the patient survives it) without any special treatment, it was not possible to attribute the improvement dogmatically to the liver treatment or the blood transfusion, although, presumably, they are of great assistance.—I am, etc.,

S. A. MCSWINEY, M.B., F.R.C.S.I., Major I.M.S.

Calcutta, August 1st.

CO-OPERATION BETWEEN PRIVATE PRACTITIONERS AND HOSPITALS.

SIR,—There is a very serious hiatus in the treatment of our hospital patients to which I think attention ought to be directed without delay.

When a general practitioner sends a patient with a note to the out-patient department of a hospital he practically always receives a letter in reply from the out-patient physician or surgeon. But when that same patient, having been admitted to the hospital for operation or other special treatment, is discharged, to come again under his own care, no accompanying letter is sent—except sometimes when the specialist happens to be a personal friend. This rule applies invariably to Poor Law hospitals and to all the large voluntary hospitals, so far as I know them. It is often so difficult to get information that I now always enclose a stamped envelope for reply, and, even so, I have occasionally had to apply twice.

It is perfectly obvious that this state of affairs is undesirable. Doctors should know if their patients' gall-bladders have been removed or merely drained; if they have been sent home with one kidney or two; or what other possible surgical procedures have been carried out, otherwise they have to rely upon "what the nurse told auntie."

I suggest that on every hospital case-sheet there should be entered the name and address of the patient's own doctor (or potential doctor); and that he should be written to as a matter of routine immediately the patient leaves hospital—whether he has sent clinical notes or not. Alternatively—as was done in the army—the patient should be given a medical card showing the diagnosis, course of the disease, operation or other treatment, and (where advisable) suggested after-treatment. If it is desired that the patient should attend hospital subsequently as an out-patient, this instruction should be given only through the patient's own doctor.

Although I am writing this chiefly in the interest of the patient, there is no doubt that the adoption of my suggestions would tend to increase the efficiency of the general practitioner, who would be stimulated to send up better clinical notes with his patients, it would lessen the congestion in the out-patient departments, and last—but perhaps not least—it would certainly be beneficial to the private practice of the respective specialists.—I am, etc.,

W. M. PENNY.

Sydenham, Sept 8th.

ORAL ADMINISTRATION OF PITUITARY GLAND.

SIR,—Since my letter on the above subject on March 2nd (p. 418) I have received a number of inquiries concerning the effect of oral administration of the gland in low blood pressure, and therefore append a further note.

The physician mentioned in Case 5 has suffered from low blood pressure all his life, and, from adolescence to middle age, from severe attacks of migraine also. When the systolic pressure fell from 105–108 mm. to below 100 he felt giddy, weak, and dyspnoeic, and had difficulty in mental concentration and memorizing. Mental and physical effort became difficult or impossible; a bad night's sleep, great physical effort, or worry frequently brought on symptoms. Clinically, no abnormality could be determined in the heart or blood vessels, and the electro-cardiographic and x-ray examinations were entirely negative.

Two months ago, after a rather severe attack of influenza, he was invited to stay with friends for a week-end. He did not yet feel quite himself, but was able to keep going until he helped his host to move a zoological specimen weighing about six pounds from one shelf to another. Although in the fifties, he still retains much of the strength which he possessed as an athlete over thirty years ago; yet in the comparatively trivial effort thus involved, he felt at once so weak that he could hardly hold up his head, and every step became a distinct exertion. His pulse was 58 and very feeble, and his systolic blood pressure was just under 100.

He received 1 grain of pituitary whole gland an hour later; in two hours from that time his pulse was 72 and easily felt, and the blood pressure 122-78-44. He then felt so fit and well that he could walk fast without any effort whatever. The marked change was extraordinary.

He has had several similar experiences, and pituitary administration has never failed to help him. Twice when he fainted, following great physical effort, no pituitary treatment was available, and there seems no doubt that had it been given to him in time he would not have fainted. At present he takes 1/2 grain of pituitary whole gland (siccum) once daily, and feels fitter and better than he has ever felt previously, walking and working without any distress or symptoms of any kind.

The important points are: There is no question that in this case small doses of pituitary whole gland given by the mouth keep the blood pressure raised in a case of congenital low blood pressure, so that life has become a joy and no longer more or less a burdoin. The whole gland preparation is used because the posterior lobe alone is rather expensive. The gland thus taken evidently supplies a deficiency in the patient's pituitary secretion. This suggests that whatever other secretion or substance in the body helps to maintain the normal blood pressure, that of the pituitary gland plays a most important part, and, further, that it acts efficaciously when given by the mouth. On the other hand, are we to look on cases of high blood pressure not due to organic changes in the kidney, etc., as the result of increased secretion in the responsible lobe of the pituitary gland? Many questions and possibilities are thus opened up.—I am, etc.,

London, W.1, Aug 31st. BERNARD MYERS.

PREVENTION OF TUBERCULOSIS OF BOVINE ORIGIN.

SIR,—At the Annual Meeting of the British Medical Association at Manchester Dr. F. H. Morison, in discussing the reduction of human tuberculosis of bovine origin (Section of Public Health, July 24th), stated that "the grading of milk has been a total failure. Certified milk has been found highly infected with tubercle." I have endeavoured, without success, to obtain the facts upon which this statement was made. As, however, to my knowledge certain medical practitioners have informed licensed milk distributors that, as a result of this statement, they can no longer recommend certified or Grade A (tuberculin tested) milk as being free from tubercle, I would like to state that, in my opinion, at the present time all dairy farms licensed by the Ministry of Health to produce certified or Grade A (tuberculin tested) milk do supply milk free from tubercle. As to the total failure of graded milk, I would point out that while in 1918 there were 18 producers and 4 distributors, in September, 1928, there were 807 producers and 3,025 distributors.

For certified or Grade A (tuberculin tested) milk to contain tubercle bacilli there must be either an inefficient tuberculin test, or what amounts to almost criminal collusion between the veterinary surgeon and the certified milk producer, which is ridiculous. It is almost impossible on a dairy farm that has been licensed by the Ministry of Health, only after thorough inspection of its hygienic buildings and surroundings, for a cow to become so infected with tuberculosis that within six months it could excrete tubercle bacilli in its milk; especially is this true now that the double intradermal test has proved so reliable that the very earliest infection is at once detected. The Certified and Grade A (Tuberculin Tested) Milk Producers' Association has for the last three years urged "that a standard of preparation and/or potency of veterinary tuberculin for diagnostic purposes be laid down, and that its sale and use be restricted to veterinary and medical practitioners." This would still further heighten the efficiency of the test, but fortunately the double intradermal test is proof against previous injections of tuberculin given by dishonest individuals.

I am still sure that the great majority of the profession do not yet realize the enormous advance that has occurred on licensed dairy farms and the high standards of hygiene and cleanliness which are kept up all the year round. They are not freak farms, and once tuberculosis has been eradicated it is not difficult, with ordinary common-sense precautions, to keep them free from this infection. The paper on the incidence of tuberculous infection in the milk supplies of Scottish cities, by Dr. Norman C. Wright (September 7th, p. 452), is a complete vindication of tuberculin-tested herds, and must reassure all those who have had any doubt on the subject. Surely his statement that "during the years 1927 and 1928 the hospitals were supplied with milk from tuberculin-tested herds, and, out *of 550 samples examined, not one sample was found to be infected*," is sufficient indication of the value of tuberculin testing in Scotland. In this country a series of examinations for tubercle in milk from tuberculin-tested herds (delivered in London) has been made since Christmas, and is still continuing, but up to date not a single infected sample has been found.

Many owners of tuberculin-tested herds feel very sore with doctors for not helping them to spread the knowledge that a pure raw milk supply is available. The demand is steadily increasing, but not as rapidly as it should; if hospitals in this country would only lead the way the general public would soon follow.—I am, etc.,

Reading, Sept. 7th. C. MADDOCK, M.D., Honorary Secretary, The Certified and Grade A (Tuberculin Tested) Milk Producers' Association.

THE NATURE OF RACE PREJUDICE.

SIR,—The conclusions to which Dr. Boas has arrived, and to which you direct attention in your interesting leading article (September 14th, p. 505), have long been held and expressed by biologists in the United States. For instance, Dr. Raymond Pearl, of the Johns Hopkins University, wrote: "I can find no manner of bitter feeling or even of regret that the pure English-Scotch-Welsh stock of the original settlers will eventually not be the dominant element in the complex of American germ-plasms that it has been in the past, though personally I am of that stock, and am, for three centuries, an American. . . . The kind of people who will survive and run the affairs of the country . . . will, I think, not be Englishmen, or Slavs, or Jews, or Italians, but *Americans*. . . . I think they will be just as gentle, as high-minded, as clever, as honourable, and as independent as any people on the face of the earth" (The Vitality of the Peoples of America, *American Journal of Hygiene*, 1921, vol. 1, p. 592).—I am, etc.,

London, W.1, Sept 14th. M. D. EDER.

Obituary.

FREDERICK FOORD CAIGER, M.D., F.R.C.P.,

Emeritus Physician to St. Thomas's Hospital; late Chief Medical Officer, Infectious Hospitals Service, Metropolitan Asylums Board.

DR. F. F. CAIGER, whose death was announced last week, was born in London in 1860. He entered St. Thomas's Hospital as a medical student in 1878, and obtained the diplomas M.R.C.S. in 1882 and the L.R.C.P. in the following year, when he also graduated M.B., B.S.Lond. In 1886 he proceeded M.D.; in 1891 he became M.R.C.P., and was elected F.R.C.P. in 1900. Caiger was a very distinguished student, and during this period he obtained various honours, both in his medical school and at the University, the chief being the Mead medal at the former and the gold medal at the B.S. examination in the latter. He filled all the important resident posts at the hospital, and some indication of his future interests became evident when he obtained the D.P.H.Cantab. in 1888. He served on the council of the College from 1918 to 1920, and was Bradshaw Lecturer in 1904, taking as his subject the treatment of typhoid fever. To the end of his days he never lost touch with St. Thomas's Hospital, and frequently and lovingly responded to its calls upon his special experience. In 1921 he was accorded the signal and well-deserved honour of being elected an emeritus physician; he then, and ever afterwards, regarded that distinction as the highest and most gratifying of his career.

After a voyage to the East as surgeon in one of the P. and O. liners, he entered the service of the Metropolitan Asylums Board in October, 1887, as an assistant medical officer at the Northern Hospital, Winchmore Hill, which was being opened as a convalescent hospital for scarlet fever patients; he served in that and the North-Western Hospital till 1890, when he was appointed medical superintendent of the South-Western Hospital at Stockwell, where he remained, with two intervals of several months each, till he retired on reaching the age limit in October, 1926. The intervals were those in which he was entrusted by the Board with the equipping, staffing, and opening of the Fountain and the Grove Hospitals, the former in 1893, the latter in 1899. The opening of the Fountain Hospital was a notable achievement on the part of all concerned, and especially of the architect, the contractors, and the medical superintendent. Accommodation for fever cases was most urgently required. The hospital was described at the time as a "temporary building," but though wood constituted a large part of the materials used for its building it was, in fact, very substantially constructed, and is still, after thirty-six years' constant occupation, in use, though now as an institution for mentally deficient children. At its opening it contained accommodation for 466 patients and 124 staff; yet it was erected, equipped, and ready for use in sixty-eight days.

In August, 1921, the tragic death of Dr. H. E. Cuff left vacant the post of principal medical officer to the Metropolitan Asylums Board. The conditions of the office were somewhat altered, and Caiger, while remaining in charge at Stockwell, was appointed chief medical officer in the Infectious Hospitals Service, and a year later chairman of the Scientific Advisory Committee of medical experts, which was set up after the death of Sir G. Sims Woodhead, the Board's bacteriological expert. The former of the two posts is one which requires the possession of much tact and discretion on the part of its holder, since he may in the course of his duties be called upon to review the judgement of one or other of his colleagues, or to advise a course of action which is not altogether in accordance with their views. It speaks much for Caiger's possession of the necessary qualifications that his relations with his colleagues were always of the most friendly nature, a remark which is also true of his relations with the Board and its various committees. Under his guidance the wheels of administration ever ran smoothly. For thirty-six years he was lecturer on infectious diseases at the South-Western Hospital, and for some time also at the Royal Army Medical College. The writer of this notice has heard medical practitioners who had been students under Caiger express the highest appreciation of the value of the instruction he imparted. He always took the keenest interest in the welfare of his staff, to promote which he would not spare himself in the least. He was one of the founders of the Fever Nurses' Association, of which he was at one time president, and till his death honorary treasurer. He was a delegate of the Association on the Central Committee for the State Registration of Nurses, which did so much to bring about the Nurses' Registration Act of 1919.

In 1900 he served on a committee of the Royal College of Physicians, appointed to consider the vexed question of "return cases" of scarlet fever, and in 1904 he was selected as a member of the important committee instituted by the Army Council to report upon the value of antityphoid inoculation. After the war he rendered valuable service as a member of the governing body and executive committee of the Enham Village Centre for the treatment and training of disabled ex-service men. Nor was he idle after his retirement, for he undertook consultative work, especially in connexion with institutions, and acted as examiner for the diploma of nursing of the University of London. He was not a voluminous writer; he was, indeed, especially during later years, too much immersed in his official duties to do much writing. But he contributed a considerable number of excellent articles on infectious diseases to standard textbooks and medical journals; one of his best was his account of scarlet fever in Allbutt and Rolleston's *System of Medicine*. He was the first to draw attention to the not infrequent concurrence of more than one infectious disease in the same patient, in a paper read before the Epidemiological Society in 1894. He frequently brought his sound critical abilities and valuable knowledge to discussions at the Royal Society of Medicine, the Society of Medical Officers of Health, and the British Medical Association, of which he had been a member for many years.

During his youth Dr. Caiger took an active interest in outdoor sports; in late years he confined himself to golf, of which he was no mean player, but he enjoyed an occasional jaunt after trout with a fly-rod. He was also fond of travel. He was of striking appearance, being tall and of fair complexion, spare but muscular, and well set up, and always well groomed. Of a kind, lively, and genial disposition he made friends wherever he went,

amongst children as well as adults. He was much more ready to see the good than the ill in those with whom he had dealings; it saddened him to censure a subordinate official, and only reluctantly would he reject a nurse at an examination. Nevertheless, his varied administrative offices were carried out with strict impartiality and firmness, and a strong sense of duty to those whose officer he was. He is mourned and will be greatly missed by a wide circle of friends, outside the medical profession as well as within it.

In 1895 he married Miss Madeline Orr, the daughter of Alexander Orr, a landed proprietor in Australia. They received an irreparable blow when their only child, Stewart, was killed whilst serving with the Royal Artillery in France in 1916. Mrs. Caiger survives her husband.

In the course of an address at the funeral service, on September 10th, the Rev. G. D. B. Poole, chaplain to the South-Western Hospital, said: We are met together at the grave of one whom we shall remember, not only as a skilled doctor, but also as a true, loyal-hearted friend. Frederick Foord Caiger became chief medical officer of the fever hospitals under the Metropolitan Asylums Board, and for thirty-six years, till his retirement in 1926, he was medical superintendent of the South-Western Hospital, where throughout the long period of years all the staff owed a great debt to the friendship and interest which he so freely gave. He was a doctor to his finger tips and devoted to his profession, and he maintained its highest and most honourable traditions. But on this occasion it is not mainly as the skilled doctor that we think of him, but as the true and loyal-hearted friend. He had a great capacity for friendship, and the friends he won he retained. Proud though he was of his profession he did not allow the doctor to obscure the man. He was the life and soul of tennis parties and other social events arranged in connexion with his hospital. The tall, well-set-up figure was familiar to all, and if Caiger was not there things seemed somewhat to flag. It would be hard to overrate the influence of his interest and friendship on the lives of many doctors, nurses, and others with whom he came into contact. He gave himself freely, and they came to regard his friendship as one of the most valued things in life. He was reserved, with a characteristic English reserve. This was clearly manifest in the case of the great grief which marked the latter years of his life, when his only son was killed in the war. Those who knew him best were conscious that he was never the same after that; there was an indefinable atmosphere of sadness about the man. But outwardly things went on just as before; there was still the same devotion to his work, the same rigid attention to detail, the same unsparing giving of himself; but all the time this grief was there, none the less real because it lay so deep. So we commend his soul to God, and we lay his body in the earth, with grateful memories of a "physician rightly much beloved" and a brave, loyal-hearted gentleman whom it is a privilege to have known.

[The photograph reproduced is by Elliott and Fry.]

We regret to record the death, in his forty-sixth year, of Dr. WILLIAM ALEXANDER WATSON, which took place in Norwich on August 21st. Son of Dr. Henry Watson, William Alexander Watson was born in Norwich, and received his medical education at Mareschal College, Aberdeen, where he graduated M.B., Ch.B. in 1908. Having been house-physician and house-surgeon to the Norfolk and Norwich Hospital, he was appointed honorary surgeon to the Jenny Lind Infirmary, honorary physician to the Scots Society of St. Andrew, Norwich, and surgeon to the Norwich City Football Club, of which he was an enthusiastic supporter. During the war he saw active service in East Africa, and on his return to Norwich he joined Dr. Philip Murphy in an extensive private practice, becoming one of the best known and most highly esteemed practitioners in the city. He was an active member of the Norfolk and Norwich Panel Committees, and a member of the British Medical Association. William Watson was an ardent golfer, and by his death the Royal Norwich Golf Club loses one of its most popular members. He is survived by his widow and two children.

Dr. DAVID NICOL ANTON, who died on August 30th, received his medical education at Dundee; he graduated M.B., Ch.B. at St. Andrews University in 1912. During the war Dr. Anton held the commission of captain in the R.A.M.C., and served in Mesopotamia. He subsequently engaged in general practice in Lochee, Dundee. He was a member of the British Medical Association.

Dr. ARCHIBALD MASON, who died, after a very short illness, at his residence, Portland Road, Kilmarnock, on September 1st, had visited patients so recently as two days before his death. He received his medical education at Glasgow, where he graduated M.B., C.M. in 1896, and proceeded M.D. three years subsequently. He obtained the diploma D.P.H. of the Royal Colleges of Physicians and Surgeons of Edinburgh and Glasgow in 1903. Dr. Mason began to practise in Kilmarnock about twenty-five years ago, and he held several public appointments. He was medical officer to Kilmarnock parish council, surgeon to the burgh police, and visiting physician to Kairnshill Sanatorium. He was in his fifty-sixth year, and was unmarried.

Dr. WILLIAM JOHN PEACOCKE, who died on September 10th at Warrington, in his sixty-seventh year, was a native of Kilrush, County Clare, and had practised in Warrington for forty-two years. He received his medical education in Galway and Dublin, obtaining the diploma L.R.C.S.I. in 1885 and the L.R.C.P.I. and L.M. in the following year. He was medical officer and public vaccinator for the No. 1 District, Warrington Union, and medical officer to the Padgate Cottage Homes. He was one of the oldest members of the British Medical Association in the Division, to which he was very loyal. He took a keen interest in sport, and was a foundation member of the Warrington Golf Club; he was a fine player, and won the Balfour Cup and several captain's medals. The funeral, on September 12th, was attended by the mayor, and a large number of his friends and professional brethren. A colleague writes: A distinctive personality has passed from Warrington and district, and Dr. Peacocke will be missed for many a long day.

The following well-known foreign medical men have recently died: Geh. Med.-Rat Professor FRIEDRICH AHLFELD, formerly professor of obstetrics and gynaecology at Marburg, aged 86; Dr. FRANCESCO CARUSO, professor of clinical obstetrics at Catania; Dr. LEOPOLD PULVERMACHER, a Berlin dermatologist; Dr. ARTHUR SOLOMON LOEVENHART, professor of pharmacology and toxicology at the University of Wisconsin Medical School; Dr. JOHN ALEXANDER WITHERSPOON, professor of clinical medicine at the Vanderbilt University Medical School, and formerly president of the American Medical Association, aged 64; Dr. CHARLES E. DE M. SAJOUS of Philadelphia, professor of endocrinology in the University of Pennsylvania, aged 76; Dr. DUCROQUET, surgeon to the Hôpital Rothschild, Paris; and Dr. HERMANN WIELAND, professor of pharmacology at Heidelberg, aged 44.

The Services.

DEATHS IN THE SERVICES.

Deputy Inspector General Charles William Buchanan-Hamilton, R.N. (ret.), died at Southsea on July 13th. He was a nephew of James Buchanan, President of the United States before Lincoln, and at first intended to enter the Church, but changed his mind and adopted the medical profession, studying in the Royal College of Surgeons School in Dublin, and taking the L.R.C.S.I. and L.R.C.P.Ed. in 1873. He entered the navy as surgeon on June 4th, 1878, reached the rank of fleet surgeon on July 15th, 1894, and retired, with an honorary step as deputy inspector general, on July 26th, 1907. In the Egyptian war of 1882 he served in H.M.S. *Beacon*, and took part in the bombardment of Alexandria, the seizure of the Suez Canal and of Port Said, Suez and Ismailia, receiving the medal with a clasp and the Khedive's bronze star. In the

Sudan campaign of 1884 he served as surgeon of the Royal Marine battalion, of the Royal Victoria Hospital at Suakin, and of H.M.S. *Sphinx*, gaining a clasp to the Egyptian medal. In the Burma war of 1885 he served as surgeon to the Naval Brigade, and was present at the occupation of Mandalay, receiving the medal with a clasp. He qualified as interpreter in Hindustani and Persian. His last appointment before retirement was fleet surgeon of Sheerness gunnery school and dockyard.

Surgeon Commander Devonshire Penrose Hawkes Pearson, R.N. (ret.), died at Rowland's Castle on July 22nd. He was the younger son of Mr. John Pearson of Mountcross, County Cork, and was educated at University College, Cork, taking the L.R.C.P. and S.I. in 1912. Entering the navy as surgeon on April 11th, 1913, he reached the rank of surgeon commander in 1925, and retired on May 16th, 1928. During the first year of the war he served on H.M.S. *Antrim* in the Grand Fleet; in January, 1916, he was sent on special duty to the Mediterranean; and in June, 1918, was appointed senior medical officer on a new cruiser, H.M.S. *Danaë*. For some time prior to his retirement he was serving at the naval barracks in Portsmouth.

Colonel Thomas John Rashleigh Lucas, C.B., Army Medical Service (ret.), died in London on July 23rd. He was born at Bandon, Cork, on April 7th, 1858, was educated at Trinity College, Dublin, where he graduated as M.B. and Ch.B. in 1880, and entered the A.M.D. as surgeon on February 5th, 1881. He attained the rank of colonel on January 2nd, 1910, and retired on January 2nd, 1914, being subsequently re-employed during the great war, from August 5th, 1914. On January 29th, 1906, he was appointed commandant of the depot of the R.A.M.C. at Aldershot, and held that post till his promotion to colonel. He served in the Egyptian war of 1882, when he was present at the action of Kassassin and the battle of Tel-el-Kebir, was mentioned in dispatches, and received the medal with a clasp and the Khedive's bronze star; in the Sudan campaign of 1884 he was present at the battles of Teb and Tamai, mentioned in dispatches in the *London Gazette* of May 6th, 1884, and received two clasps; in the Nile campaign of 1884-85, with the camel bearer company, he saw action at Abu Klea and Metemmeh, receiving two clasps; and he served in the Frontier Field Force in 1885-86. He also served in Burma in 1892-93, in operations in the Northern Chin Hills, being mentioned in dispatches in G.G.O. No. 733 of 1893, and receiving the Indian Frontier medal with a clasp. In the South African war of 1899-1902 he was in charge of No. 4 General Hospital, took part in the relief of Ladysmith, and served in operations in Natal in 1899 and 1900; he was mentioned in dispatches in the *London Gazette* of February 8th, 1901 (Sir R. Buller's dispatches of March 30th and November 9th, 1900), and of September 10th, 1901, received the Queen's medal with one clasp, and the King's medal with two clasps, and also the C.B.

TESTIMONIAL TO SIR RONALD ROSS.

FIFTH LIST OF CONTRIBUTORS.

On May 11th we published a letter announcing that a fund, called the Ross Award Fund, was being started in order to give some recognition to Sir Ronald Ross for his discoveries on the mode by which *malaria is carried, and for his lifelong* efforts regarding the prevention of that disease. The letter stated that donations should be sent to Lloyds Bank, Ltd., 110, High Street, Putney, S.W.15, cheques to be crossed "Ross Award Fund a/c." The names of those who had contributed to the Fund up to May 17th were printed in our issue of June 8th (p. 1065); a second list of donors appeared on July 13th (p. 76); a third list on July 20th (p. 129); and a fourth on August 17th (p. 328). We now print a further list of those whose donations, amounting to £1,247 14s. 6d., were received between July 13th and August 10th. The total amount of the Fund on August 10th was £7,585 13s. 7d., which included £2,000 contributed by readers of the *Straits Times*, Singapore. The list published below does not include anonymous contributors or contributors whose initials only have been supplied.

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Medical News.

THE thirteenth Norman Kerr Memorial Lecture will be delivered by Sir Josiah Stamp, G.B.E., in the Great Hall of the House of the British Medical Association on October 8th, at 4 p.m., the subject being "Alcohol as an economic factor."

THE new session of the Medical Society of London will commence on Monday, October 14th, when the annual general meeting will take place at 8 p.m.; at 8.30 p.m. Mr. Donald Armour, C.M.G., will deliver his presidential address, entitled "Some of Lettsom's Contemporaries." On October 28th, at 8.30 p.m., a discussion on radium therapy will be introduced by Mr. A. E. Hayward Pinch and Professor Sydney Russ. A discussion on the relative value of the different methods of diagnosis in gastric disease will be opened by Dr. J. A. Ryle, Dr. Harrison Orton, and Professor E. C. Dodds at the meeting on November 11th, and a clinical evening will be held on November 25th. Mr. Wilfred Trotter will introduce a discussion on the treatment of head injuries on December 9th. The Lettsomian lectures on the enlarged prostate and prostatectomy will be delivered by Sir J. W. Thomson Walker on February 17th and 26th and March 5th, 1930; and Sir Arthur Keith, F.R.S., will deliver the annual oration on May 12th, 1930, his subject being "Modern medicine and evolution."

THE annual prize distribution of St. George's Hospital Medical School will take place in the Board Room of the Hospital on Tuesday, October 1st, at 3 p.m., when the inaugural address, entitled "Doctor and Patient," will be delivered by Dr. E. I. Spriggs. The annual dinner will be held at the Hyde Park Hotel, Knightsbridge, on the same day, at 7.15 for 7.45 p.m. The chair will be taken by Mr. D. Cotes-Preedy, K.C.

THE new session of the London (Royal Free Hospital) School of Medicine for Women will be held on Tuesday, October 1st, at 3 p.m., when the prizes for the last session will be presented and an address will be delivered by Dr. Janc Walker, her subject being "The return of woman to medicine."

A COURSE of six lectures on the place of psychology in general nursing will be given at the Tavistock Square Clinic, 51, Tavistock Square, W.C.1, on Thursdays, at 6.30 p.m., beginning October 3rd. The subjects to be dealt with are: the mind of the patient; the mind of the nurse; psychological methods available in nursing; psychological help in linked symptoms of body and mind; nursing of obvious nervous illnesses in general hospital; and illustrative cases from the nursing point of view. The fee for the course is 10s. 6d. for non-transferable tickets; 15s. for transferable tickets; and single tickets at 3s. 6d. will be issued if accommodation permits. These tickets must be obtained in advance from the honorary lecture secretary of the Tavistock Clinic.

THE Fellowship of Medicine announces that an all-day course in gastro-enterology will be held at the Prince of Wales's Hospital, Tottenham, from September 30th to October 4th. In October the following courses will be held: an all-day course in cardiology at the National Heart Hospital from October 7th to 19th (strictly limited to 20); an afternoon course in ophthalmology at the Central London Ophthalmic Hospital from October 7th to November 2nd; a course in tropical medicine at the London School of Tropical Medicine on Tuesday and Thursday afternoons from October 8th to 31st; gynaecology at the Chelsea Hospital for Women from October 14th to 26th; a morning course in diseases of children at the Great Ormond Street Hospital from October 14th to 26th; a whole-day course in diseases of the throat, nose, and ear at the Central London Throat, Nose and Ear Hospital from October 14th to November 2nd, comprising a clinical course and a practical operative class; and a whole-day course in medicine, surgery, and the specialties at the Metropolitan Hospital, Kingsland Road, from October 21st to November 2nd. There will also be an M.R.C.P. evening course of lectures on Tuesdays and Fridays at 8.30 p.m. from October 15th to December 6th. Copies of all syllabuses and information on all post-graduate work are obtainable from the secretary of the Fellowship, 1, Wimpole Street, W.1.

A COURSE of lectures on the problems of personal and public health will be delivered in the lecture hall of the Royal Institute of Public Health on Wednesdays, at 4 p.m., from October 16th to December 18th inclusive, the subjects being: the health and conditions of work of medical students; broadcasting and health; the asthma problem; the possibilities and limitations of radium treatment; the influence of pathology upon maternal welfare; the early diagnosis and treatment of malignant disease; some aspects of the tuberculosis problem; dress in relation to health and disease; speed as a psycho-physiological factor in the life of to-day; and industry in relation to personal and public health. The Harben Lectures of the Royal Institute will be delivered also in the lecture hall on Fridays, October 18th and 25th, and November 1st, at 5 p.m., by Dr. R. A. Peters, professor of biochemistry in the University of Oxford, whose subject will be co-ordinative biochemistry of the cell and tissues. The annual congress of the Institute in 1930 will be held in Portsmouth, from June 4th to 9th inclusive. Further particulars of the congress and the lectures can be obtained from the Honorary Secretaries of the Royal Institute of Public Health, 37, Russell Square, W.C.1.

A COURSE of lecture-demonstrations on children's diseases will be given at the Royal Northern Hospital from October 14th to 22nd, daily at 2.30 p.m., Saturday and Sunday excepted. Fee for the course, one guinea. For further particulars apply to the dean of the hospital.

THE autumn session of training courses at the Royal Sanitary Institute for examinations for sanitary, food, and smoke inspectors, the associateship of the Institute, and of sanitary science generally, commences on September 30th. Syllabuses of the lectures are obtainable from the secretary of the Institute, 90, Buckingham Palace Road, S.W.1.

A CONGRESS of the Chartered Society of Massage and Medical Gymnastics will be held at the House of the British Medical Association from October 15th to 19th inclusive. Reduced railway rates are in force for members of the society who wish to attend the congress for the whole or any part of the period. In addition to lectures and demonstrations on various subjects, lantern lectures will be given at the Central Hall, Westminster. The first annual dinner of the society will take place at the Café Royal, Regent Street, on Wednesday, October 16th, at 7.45 p.m. The annual general meeting of the society will be held on October 19th, at 2.30 p.m. Further information may be obtained from the secretary at the offices of the society, 157, Great Portland Street, W.1.

A VACANCY has arisen at Epsom College for a Salomons entrance scholarship of £50 a year. Candidates must have been over the age of 11 and under 14 on January 1st, 1928; they must be the sons of legally qualified medical practitioners either living or deceased; they must show an adequate standard of education for their age; and their financial condition must be such as to make it difficult or impossible to obtain education at the college without the help of the scholarship. Forms of application may be obtained from the secretary of Epsom College, 49, Bedford Square, W.C.1, and when filled up must be returned before September 30th.

THE William H. Welch Medical Library at Baltimore will be formally opened on Thursday, October 17th, under the presidency of Mr. J. S. Ames. Professor Harvey Cushing of Harvard University will deliver an address, and in the afternoon there will be a conference on medical libraries. On the following day the Department of the History of Medicine of the Johns Hopkins University will be inaugurated by Professor W. H. Welch, and an address will be given by Professor Karl Sudhoff of the University of Leipzig. The afternoon will be devoted to a conference on the history of medicine, at the end of which the Harvey tercentenary film will be exhibited.

THE possible extension to India of the activities of the People's League of Health was discussed at conferences of the League on July 22nd and 29th. Dr. J. L. Pinto, Assistant Director of Public Health in Bombay, and Dr. Kathleen Vaughan, late superintendent of the State Hospital for Women in Kashmir, stated their agreement with the view expressed in 1924 by the late Major-General J. B. Smith, then Medical Adviser to the Secretary of State for India, that a society in India similar to the People's League of Health in Great Britain would be of the greatest service. After full discussion it was concluded that if a branch of the League was to be established it must be through, and become part of, the machinery already in operation in India.

DR. DUDLEY T. BIRT, senior medical officer, West African Medical Staff, Sierra Leone, has been appointed a member of the executive committee of the Gambia and an official member of the Legislative Council of that colony.

THE annual congress of German roentgenologists and radiologists will be held at Prague on October 26th and 27th, when the following subjects will be discussed:—(1) Treatment: (a) biological dosage in roentgenotherapy, introduced by Professor Hohlfeder of Frankfort [illegible] acute and subacute inflammations of testis, and prostate), introduced [illegible] (2) Cranial diagnosis: (a) roentgen diagnosis of diseases of the child's skull, introduced by Professor Schüller of Vienna; (b) roentgenology of the ear, introduced by Dr. Ernst Mayer of Vienna. Further information can be obtained from Dr. Walter Altschul, Vladislava 17, Prague.

THE thirteenth Italian Congress of Paediatrics will be held at Turin under the presidency of Professor G. B. Allaria from September 23rd to 26th, when the following subjects will be discussed: rickets, introduced by Zamorani and Auricchio; congenital heart disease, introduced by Zibordi and Fornara; and open-air schools, introduced by Gismondi.

THE evidence given on May 2nd on behalf of the Ministry of Health, and from April 18th to July 11th on behalf of associations of local authorities and local government officers, before the Royal Commission on Local Government, has just been published, and may be obtained at H.M. Stationery Office. The price of the volume is 4s. 6d. net.

AN international medical tour is being arranged by Dr. Friedrich Barach of Vienna to leave Trieste on December 12th and visit medical institutions in Greece, Egypt, and India. Inquiries should be addressed to the Aerztliche Auslands-Studienreisen, Biberstrasse 11, Vienna 1.

DR. F. J. WALDO, who conducted an inquiry into the Victoria Embankment fire on June 6th, has made the following recommendations to the Home Secretary and the Lord Mayor. He suggests that there should be a public Government inquiry into the problems concerned with such subways, with special reference to the occurrence of explosions and fires. He thinks the terms of the London County Council Subway Act of 1893 should be amended, since at present it is obligatory to lay down coal-gas mains in pipe subways together with electric cables. He advises the immediate removal or replacement of inflammable gutta-percha insulated cables by a better method of insulation. All dormant cables should be removed from the subway, and all the subways should be permanently wired for lighting according to the rules of the Institute of Electrical Engineers, thus eliminating the need for any portable illuminating appliances.

A FULL report of the conference on mental welfare held at the Central Hall, Westminster, on April 25th and 26th, has been published in book form, price 3s. 6d. The volume can be obtained from Miss Evelyn Fox, honorary secretary of the Central Association for Mental Welfare, 24, Buckingham Palace Road, S.W.1. We printed a report of the proceedings in our issue of May 4th (p. 817).

THE Water Pollution Research Board of the Department of Scientific and Industrial Research publishes periodically in typescript a summary of current literature bearing on water supplies, sewage, trade waste waters, river pollution, and allied subjects. The issue dated August, 1929, may be consulted by members in the Library of the British Medical Association.

WE are informed that A. Fleming and Co., Government contractors, 39, Victoria Street, London, S.W.1, have generously offered to present a large part of their surplus stock to hospitals, infirmaries, cripples' homes, and similar institutions making sufficiently early application. The offer includes wooden arm splints (Clarke's pattern); iron dorsiflexed wrist splints; iron humerus and leg splints; wooden back of leg and thigh splints, hinged at the knee; arm extension splints; extension apparatus of the Guy's pattern; and iron bed cradles (Lawrence's pattern). It is stated that all the articles, though slightly shop-soiled, are quite new and in a serviceable condition. They will be packed free of charge, but dispatched carriage forward. Institutions interested are asked to apply for a complete and illustrated list of the stock available for disposal in this way.

THE *Liverpool Medico-Chirurgical Journal*, which was suspended in 1916, has now been revived, and will be delivered free twice a year, in July and January, to all ordinary members of the Liverpool Medical Institution. It is also obtainable from Messrs. H. K. Lewis and Co., Ltd., of 136, Gower Street, W.C.2, at the price of 2s. 6d. The July issue contains the presidental address by Dr. John Hay, which was devoted to William Harvey. Dr. C. O. Stallybrass contributes an article on acquired immunity in human communities, and Mr. R. Watson Jones one on the treatment of fractures by intramedullary pegging. Other clinical articles include notes on some haemorrhagic conditions, by Dr. W. Howel Evans; the diagnosis of chronic myocarditis, by Dr. I. Harris; some observations on the effect of lead on the tissues, by Dr. M. Datnow; the treatment of varicose veins by injection, by Dr. Stuart McAusland; and vision and vocation, by Dr. C. Alston Hughes. An account of the transactions of the Liverpool Medical Institution and book reviews complete an interesting issue of a journal, the reappearance of which we welcome with congratulation.

PROFESSOR LEPOUTRE of the Lille medical faculty has been presented with the Golden Cross of Merit of Poland.

SANITÄTSRAT DR. PRINZING, director of German medical statistics, has recently celebrated his seventieth birthday.

PROFESSOR J. WAGNER-JAUREGG has been elected an honorary member of the Vienna Academy of Sciences.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to ***The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.***

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The ***TELEPHONE NUMBERS*** of the British Medical Association and the *British Medical Journal* are *MUSEUM 9861, 9862, 9863, and 9864* (internal exchange, four lines).

The ***TELEGRAPHIC ADDRESSES*** are:
EDITOR of the *British Medical Journal, Aitiology Westcent, London.*
FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*
MEDICAL SECRETARY, *Mediocera Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone 24361 Edinburgh).

QUERIES AND ANSWERS.

RELIEF OF PAIN IN OSTEITIS DEFORMANS.

DR. W. M. M. JACKSON (*Folkestone*) asks for advice in the treatment of a man, aged 64, who has osteitis deformans, and is seriously disturbed at night by pain in the shin. The pain comes on after he has been in bed for about an hour, and persists more or less all night. Ultra-violet rays and thyroid extract have been tried without much success. Dr. Jackson would welcome suggestions as to how relief may be obtained, and whether any British or foreign spa treats this condition.

INCOME TAX.

Expenses of Post-Graduate Course.

"R. H. A." inquires whether the expenses incurred in taking a post-graduate course can be treated as deductible for income tax purposes.

*** No; they are analogous to capital outlay, inasmuch as they constitute expenditure to improve earning capacity over a future period.

Basis for Calculating First Year's Earnings.

"CANSTIAN" recently bought a practice, also purchasing the outstanding book debts. On what basis should he return the first year's earnings?

*** The most convenient course will be to adhere to the cash basis as regards receipts, bringing into the account not only his own fees, but also the sums taken in respect of the purchased debts, and in the circumstances the inspector of taxes may not object to that being done. But the correct basis is to exclude receipts from the purchased debts and to calculate his gross income at (1) the cash received for his own work, *plus* (2) the value of the outstanding debts due for such work at the end of his first year.

Allowances Shared with Taxpayer's Wife.

"CRENOS" sends particulars of his own and his wife's income, explaining that they are separately assessed on their own request, and inquiring whether the allowances in his case appear to be correctly calculated.

*** So far as we can check the figures from the material supplied the allowances seem to have been correctly divided, provided that the approximate figure given for the wife's income represents the net amount after deduction of tax. It has to be borne in mind that fluctuations in the wife's income will affect the ratio between her income and his own, and therefore the amount of the allowances made to him. The annuity ranks as income of the year in which it is received, and therefore affects the year 1927-28 if—as we gather from the figures—it was purchased in that year.

Motor Car Replacement and Depreciation.

"F. C. B. G." had a car which had cost £315 and sold it for £55 in September, 1927, buying a new car for £334. The loss on sale—that is, £260—was allowed as a professional expense of the year 1927, but as the assessment for 1928-29 was based on a three years' average, only one-third of that amount actually went to reduce his liability. He also cl
the new car for the period Sept
deduction for the year 1928; this

*** There is a sharp distinction between the deduction of replacement cost as one of the professional expenses of the year

in which it was incurred and the depreciation allowance, the latter being a specific deduction from the profits as calculated for assessment, whether on a three years' average or any other basis. It follows that no depreciation claim could be made for the particular period, September to December, 1927. Any allowance due would have to be claimed as for the financial year 1928-29 and onwards. There is, however, a rule laid down in one of the leading cases that "renewals" and "depreciation" cannot be allowed on the same assessment, and that bars out the depreciation claim for 1928-29 in the circumstances. Consequently our correspondent must forgo that allowance for 1928-29, but can claim it for the following years, and in the long run it need make no difference, provided that he claims "obsolescence" when he replaces his present car, because only the amount of the depreciation actually is then taken into consideration. The fact that the change over from the three years' average deprived him of two-thirds of the effective replacement allowance does not give any ground for relief.

LETTERS, NOTES, ETC.

RELIEF OF PAIN.

DR. ELIZABETH MUDIE (Glasgow) writes: I was most interested by Dr. Herbert Cardin's note on the relief of pain (September 7th, p. 482), and am very grateful for the hint about amyl nitrite. Perhaps my own first-aid treatment of burns and scalds will be of interest, also known to me for 30 years. Raw potatoes are cut in halves and finely scraped; the pulp thus obtained is laid upon the painful area, just as a thick poultice. This treatment can be repeated in an hour if the pain persists, but one good application is usually sufficient. Whenever I myself get a painful burn from whatever cause I find that five minutes' exposure of it at five inches from a quartz mercury lamp takes away all the pain. This discovery was made in the first instance quite by accident. I had to attend a patient immediately after scalding my wrist badly with boiling oil. When the patient left my pain had gone. Since then my staff have always resorted to the lamp for relief in accidents of this kind.

DAMPNESS IN DWELLINGS.

DR. F. G. CAWSTON (Durban) writes: When considering the prevention of dampness in dwellings further attention should be paid to artificial methods, whereby ventilation is secured by means of an inlet at each corner and an outlet at the summit of corrugated iron roofs. The free ventilation thus obtained not only helps to prevent dampness, but is of great value in overcoming the inconvenience caused throughout the tropics by the constant accumulation of hot air in contact with metal exposed to the tropical sun. Climatic conditions often favour the use of iron roofs in preference to tiled ones, in spite of the coolness of the latter, but their use is often detrimental to the storage of medicines and food. The various devices at present in evidence are quite inadequate to insure sufficient ventilation of roofs, even as a supplement to adventitious draughts.

THE FATE OF A NEEDLE IN THE BODY.

DR. J. R. BEAGLEY (Thatcham, Berks) writes: A female patient came to me in June, 1928, having run a broken rusty needle into her right breast. I sent her to hospital, but the needle was not found, and she was told to return if it gave rise to trouble. Since that time she had had a series of boils involving both upper and lower limbs, face, and chest. Her latest "boil" was of linear shape, and was situated at a spot about half-way down the right forearm. I incised this, and withdrew the rusty needle, fifteen months after its entry into the patient's breast.

OPEN-AIR SCHOOLS IN FRANCE.

THE value of open-air schools is emphasized by Dr. P. F. Amaud-Delille, who contributes an illustrated article to the *Paris Méd.cal* for August 3rd. He contends that such schools should no longer be reserved for the delicate, since all children benefit from fresh air and sunshine. The ideal arrangement, according to him, is for the class-rooms to be open to the south-east, with windows preferably permeable to the ultra-violet rays. Radiators by the windows will be necessary during cold weather. The time-table recommended for residential schools as, *mutatis mutandis*, for day schools, is as follows: 7.30 or 8 a.m., half an hour's exercises in the open air, followed by breakfast; one hour's class-work; *half an hour for play*; *another hour's work*; half an hour of organized games, and, if time permits, another period of study. At 11.30 a.m. a hot shower-bath is given, and is followed by a cold one. At noon dinner occupies 30 to 40 minutes, 20 minutes being allowed for play. From 1 to 2 p.m. the children sleep in the open air; the next hour is devoted to breathing exercises and games in the open air. From 3 to 4 a class is held, and tea is taken at 4 p.m. Free play follows from 5 to 6.30, and then a class for half an hour, with supper at 8 p.m. The children sleep with windows wide open or, preferably, on balconies roofed over but open at the sides. The minimum of clothing is worn all day. Generally the body and limbs are bare, but in the winter more clothing may be put on. Dr. Amaud-Delille states that the improvement in physique and in morale is remarkable after a period of three to four months at such a school. A flabby, doleful boy with round shoulders, winged scapulae, and protuberant abdomen becomes a bronzed, firm-fleshed, erect, active, cheery individual.

DRUGS AND INSANITY IN EGYPT.

IN his report for 1927 on the Government mental hospitals of Egypt (Government Press, Búlâq, Cairo, 1929) the Director of Lunacy makes the following observations under the heading "Drugs and Insanity": "About 100 cases have been admitted *during the last year whose mental derangement was considered* to be due entirely to drugs, and drugs alone; this number does not include by any means all those cases who took drugs and aggravated an already existing insanity or mental defect. I am, however, of the opinion that there are very few entirely normal persons who take drugs to the extent of upsetting their mental equilibrium, and that the mass of drug addicts are made up of weak-minded persons, degenerates, and mildly insane, and that their addiction to drugs in the beginning is either due to their inability to say 'No' amongst bad associates, or it is an effort on their part to improve their recognized inferiority. For their immediately destructive properties cocaine and heroin head the list, but it would be difficult to determine any one drug as being less harmful than another when their remote effects are considered. For instance, hasheesh and other drugs or gland extracts taken as aphrodisiacs account for very few cases in an acute stage, but who can tell their ultimate action on a normally failing sexual power? I have noted several cases lately which have been difficult to classify amongst the ordinary forms of insanity, and they had been taking reputed aphrodisiacs in large quantities; they resemble superficially, in many of their aspects, cases of general paralysis of the insane."

THE N.S.P.C.C.

THE National Society for the Prevention of Cruelty to Children has now 2,355 centres of activity, spends about £134,000 a year, and deals with some 40,000 cases. In its report of the work of the forty-fifth year of its existence a statement by the medical officer, Dr. L. D. Saunders, is included. From this it appears that parents and others approach the society for advice as to methods of cure for ailing children; that persuasion is undertaken in the case of children observed by inspectors to need treatment, especially in orthopaedic cases; that ambulances are used for conveying patients to hospital; and that after-care and assistance are given in cases where they are needed. Thus the health of a number of children is always under the charge of the society. The report emphasizes the view that it is better that a child should continue to live in its own home; but instances are recorded in which the brutality of parents compelled the removal of children to better surroundings. It is noted that last year the proportion of cases of ill-treatment reported by the general public—64.2 per cent.—was the highest on record.

A HYGIENIC LECTURE BOARD.

A [illegible] Square, Manchester). This board consists essentially of rollers, by means of which fresh surfaces of white paper can be exposed in a frame. Black or coloured crayons are used for writing on the paper against a wooden background, and as one surface is used up it can be rolled upwards, downwards, or from side to side, as may be required. Special diagrams or other matter can be printed and attached to the paper when necessary. At the completion of a lecture the illustrations on the board can be rolled up and be preserved until required again. The lecture board can be illuminated by means of an electric bulb or reflector, and a simple spring brake mechanism keeps the paper taut. The whole apparatus can be fixed to the wall or placed on the usual easel. The value of this invention from the hygienic and also the labour-saving point of view is obvious.

GOLDEN SQUARE THROAT, NOSE AND EAR HOSPITAL.

MR. F. P. CARROLL, secretary-superintendent of this institution, writes: In the *British Medical Journal* of August 31st (p. 419) this hospital is mentioned among the institutions dealing with disorders of the throat, nose, and ear. May I, however, point out that we have recently opened a number of private rooms for patients making a payment towards the cost of their treatment and maintenance, and that the number of beds in the hospital is now 95, not 75, as stated in the *Journal*. Incidentally, I may mention that the hospital has now been incorporated, and that its new title is the Golden Square Throat, Nose and Ear Hospital

APPOINTMENT OF TUBERCULOSIS MEDICAL OFFICERS IN WALES.

DR. D. A. POWELL (Principal Medical Officer, King Edward VII National Memorial Association, Cardiff) writes: In the Educational Number of the *Journal* (August 31st, p. 428) it was stated that "in England and Wales such [tuberculosis] officers are appointed by [illegible] igh councils," etc. May I draw [illegible] Wales tuberculosis work is carri[illegible], under the aegis of the Welsh [illegible] upon which the seventeen co[illegible] resented, and that the appointment of tuberculosis officers, etc., is vested in the Memorial Association?

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 46, 47, 48, 49, 50, 51, 54, 55, and 56 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 52, 53, and 54.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 151.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

226. Food Allergy.

CITING the views of various authorities as to the possibilities of inducing anaphylaxis by alimentary ingestion, A. STERLING (*Med. Journ. and Record*, June 5th, 1929, p. 612) reports four cases in evidence of this. The symptoms of sensitization to food substances may be gastro-intestinal, respiratory, cutaneous, ophthalmic, or genito-urinary. Gastro-intestinal symptoms may be local, such as swelling of the lips and tongue, or general, such as vomiting, abdominal pain, and diarrhoea. The most important respiratory symptoms are nasal obstruction and hydrorrhoea, with or without attacks of sneezing, and bronchial asthma. The chief cutaneous symptoms are pruritus, urticaria, eczema, angio-neurotic oedema, and erythema; these disturbances may be local or general. Attacks of scleritis and conjunctivitis, and such genito-urinary symptoms as bladder pain, have also been reported. In diagnosis two methods may be used—namely, elimination and cutaneous or intracutaneous tests. It is necessary to ascertain if the sensitivity is due to the handling of foods, or to eating raw or cooked foods. A positive reaction alone is not sufficient evidence of food allergy; food proteins which give such a reaction must be proved to produce the disease. Treatment consists either in eliminating the offending foods from the diet, or in desensitization. The latter may be accomplished by supplying gradually increasing amounts of the obnoxious proteins until the patient develops a certain tolerance, the initial dose being so small that no symptoms occur. Capsules containing powdered food proteins may be given, commencing with a dose of less than 10 mg. three times a day. The problems of food allergy are very intricate, and a careful history and special study of the food intake should be made. In cases of infantile eczema, asthma, and gastro-intestinal disturbances, milk should be removed, temporarily at least, from the diet. The infant should be tested for reaction to foods eaten by the mother, in addition to the general routine testing for such causes as pollen.

227. The Ventricular Rate in Auricular Fibrillation.

E. P. BOAS (*Amer. Heart Journ.*, June, 1929, p. 489) has investigated the changes of ventricular rate in fibrillating hearts over periods of fourteen to twenty-four hours by means of his cardiotachometer, which records and counts the ventricular systoles electrically. He prefaces his results with a summary of our knowledge concerning the mechanism of ventricular slowing in fibrillation; this, whether it is produced reflexly by pressure on the vagus or by the administration of digitalis, must be a result of increased resistance in the conducting system brought about by alterations in activity of the vagus and accelerator inosculations at the auriculo-ventricular node. The author has shown by the cardiotachometer that the ventricular rate is very variable in fibrillation, accelerating with the least emotion or exertion and falling during rest and sleep. These responses are greater than those occurring with normal rhythm, and are observed in many patients even after digitalization. Patients with auricular fibrillation are classified into two groups: the first are highly strung and nervous subjects whose ventricular rates tend to be rapid and who require quantities of digitalis in excess of those indicated by body weight to keep their ventricular action slow and stable; the second group comprises those patients whose rhythms, though irregular, are stable, who do not show an exaggerated response to physical and emotional stimuli, and who are readily controlled by normal digitalis therapy. The essential difference between these two classes of patients is in the vagus-accelerator mechanism, which is hyper-irritable in the first group; this explains the better results obtained when sedatives are administered to such patients in addition to digitalis.

228. Immunization against Diphtheria.

IN 1923 Ramon described a preparation of diphtheria toxin modified by the addition of 3 to 4 per cent. of commercial formaldehyde, followed by incubation at 38° to 40° C. for four to six weeks; he recommended three doses: an initial one of 0.5 c.cm., followed in three weeks by a second of 1 c.cm., and, fifteen days later, by the third dose of 1 to 1.5 c.cm. This preparation is known as diphtheria anatoxin (Ramon) or diphtheria toxoid. G. F. DICK and GLADYS H. DICK (*Journ. Amer. Med. Assoc.*, June 8th, 1929, p. 1901) found that diphtheria toxoid, as prepared by Ramon and given in the doses recommended, immunized 94 of 100 suspected persons to the point of a negative Schick test, while five doses of toxin-antitoxin mixtures immunized 82 out of 100 individuals. They therefore conclude that diphtheria toxoid is a better immunizing agent than the toxin-antitoxin mixture, and may be safely employed in immunizing adults. An extra skin test to detect sensitization to the bacterial proteins in diphtheria toxoid is not necessary. If there is a marked pseudo reaction in the Schick test or a history of diphtheria, it is advisable to give preliminary doses of from 0.1 to 0.25 c.cm. of toxoid. Care should be taken that in the broth employed in producing the toxoid there is not an excessive amount of protein. As it does not contain any foreign serum in the form of antitoxin, the toxoid does not sensitize to horse or other serum.

229. Staphylococcal Septicaemia.

J. ROSENFELD (*Thèse de Paris*, 1929, No. 90) states that all authorities are agreed as to the gravity of staphylococcal infection, almost all forms of which except the hyperacute may give rise to a variety of secondary localization of which endocarditis is by far the most serious, while cutaneous and osseous sequels are most frequent and characteristic. The diagnosis is readily made when there is an obvious portal of entry, but in its absence is difficult unless secondary localizations appear. In such cases the diagnosis can only be made by blood culture, and even then the possibility of contamination must be excluded and the examination be carried out under rigorously aseptic conditions. One of the most serious localizations of staphylococcal septicaemia is involvement of the meninges, as, apart from a case recently seen by the author in a woman aged 30, no recovery has ever been recorded. This fortunately rare sequel may appear at a very late stage of the disease or be apparently a primary affection without any visible portal of entry. Clinically, it assumes the form of cerebro-spinal meningitis, from which it can only be distinguished by bacteriological examination. As a general rule the organism is *Staphylococcus aureus*, though *S. albus* has also been found. The course of the disease is usually rapidly fatal. In exceptional cases it assumes a subacute form, and various localizations may appear and a cachexia develop. Recovery, however, may ensue, as in the author's case, in which the development of spondylitis appeared to limit the infection. In staphylococcal septicaemia, and particularly its meningeal form, active treatment is necessary. In the author's case a cure was effected by a lysat vaccine given daily, first intravenously and then subcutaneously, accompanied by protein therapy (fixation abscess and injection of milk) and chemotherapy. Other measures may also be adopted, especially the intravenous injection of trypaflavine, bacteriophage treatment, and immune transfusion.

230. Etiology of Pulmonary Abscess.

J. HARKAVY (*Arch. Int. Med.*, June, 1929, p. 767) discusses the pathogenesis of abscess of the lung caused by aspiration, and its possible relation to abscess of the lung following tonsillectomy. Both experimentally and clinically experience seems to show that while embolic abscesses may occur they are exceptional; aspiration appears to be the more probable mode of production of lung suppuration following operations on the upper respiratory tract. Through the bronchoscope 27 dogs received 0.5 c.cm. of mixed cultures of bacteria obtained from the sputum of patients suffering from abscesses of the lung following tonsillectomy. Three of these dogs developed abscesses with cavities, in one pulmonary suppuration followed, and a fifth showed a healed suppurative process in the lower left lobe. Aschner reports having found bronchiectatic suppuration, extrabronchial abscess, and suppurative pneumonitis in lungs examined from two to five years after tonsillectomy. Assuming that the results in dogs may be considered as comparable with those occurring in man, Harkavy suggests that aspiration of infectious material from the upper respiratory tract may give rise to pneumonitis followed by necrosis and cavity formation, either becoming healed or persisting with the formation of secondary bronchiectasis.

231. Accidental Infection with Syphilis.

G. MESTCHERSKY and J. OLESSOFF (*Urol. and Cutan. Rev.*, June, 1929, p. 382), who record five illustrative cases, state that over 600 instances have been reported of physicians who have acquired syphilitic lesions in the course of dealing

with patients suffering from the disease. While the general practitioner is often infected in this manner, the list of those so infected in order of frequency is as follows: (1) obstetricians; (2) gynaecologists; (3) surgeons; and (4) syphilologists. Syphilologists come last on the list because, as Fournier points out, they are the most careful. Apart from many inevitable accidents, the acquisition of syphilis by physicians is mainly due to ignorance or the lack of proper precautions. The author recommends that the following preventive steps should be taken: (1) The physician should endeavour to become thoroughly acquainted with all the external manifestations of syphilis. (2) Rubber gloves should be worn in all manipulations, especially during obstetrical or gynaecological examinations. (3) In examining the mouth, larynx, and pharynx, especially in children, the physician should protect the examining hand and cover his face with a mask. (4) The patient should be carefully examined for any signs of syphilis before surgical operations. (5) The physician should always bear in mind the possibility of syphilitic infection in the course of his professional duties.

232. Tuberculous Pleurisy and Thrombopenia.

L. PATERNI (*Il Policlinico*, Sez. Prat., May 6th, 1929, p. 621) reports a case of tuberculous pleurisy associated with purpura and diminution of platelets. A child, aged 12, suffered from cough and fever with slight pleural effusion, epistaxis, and purpura which was generally distributed. By paracentesis 200 c.cm. of blood-stained fluid was removed, and eventually absorption took place. Coagulation of the blood started after twenty minutes, and was complete in half an hour; the serum did not separate until twenty-four hours, and the ligature test was strongly positive. There was no family history of tuberculosis, but the author believes that this was clearly a tuberculous pleurisy, and draws attention to the comparative frequency of purpura in the early stages of tuberculosis. The platelets were markedly reduced during the illness, but when the child left the hospital they had returned towards the normal.

233. Spontaneous Subarachnoid Haemorrhage.

O. ROMCKE and H. J. USTVEDT (*Norsk Mag. f. Laegevid.*, June, 1929, p. 441) record 27 cases of this condition in patients aged from 12 to 73, who were treated in the Ulleval Hospital at Oslo during the period 1918 to 1928. The diagnosis was either made by lumbar puncture or was not established until the necropsy. Seventeen patients recovered and ten died. Among the rarer symptoms observed was glycosuria, which was seen in five cases. In one instance it was associated with acidosis, although no further signs of diabetes developed, and the amount of blood sugar remained normal after administration of glucose. Transient massive albuminuria was observed as well as hypertonus and transient polyuria. In one instance death followed immediately after lumbar puncture, and in two others death occurred spontaneously from respiratory paralysis.

Surgery.

234. Association of Active Tuberculosis and Cancer.

E. P. K. FENGER and C. K. PETTER (*Minnesota Med.*, May, 1929, p. 271), who a year ago reported two cases of associated cancer and active tuberculosis, now publish six more cases, and state that they have found records of many others. They remark that although the general opinion is that this association is rare, there is no proof of antagonism between the two conditions; on the other hand, it cannot be shown that one disease favours the development of the other, with the one exception of lupus, which does increase the tendency to occurrence of epithelioma. Age incidence is an important factor in rendering infrequent the coexistence of tuberculosis and cancer. Tuberculosis is found usually in early and middle life; the majority of deaths (10 to 90 per cent.) from this disease occur before the fiftieth year, while the average age at death from cancer is 60. Another reason for this relatively rare association is that the organs most frequently attacked by cancer—namely, the breast, uterus, prostate, mouth, lower lip, oesophagus, and stomach—are seldom infected with tuberculosis. The authors suggest that pathologists when looking for one lesion tend to overlook another; for instance, enlarged lymph nodes in the vicinity of a carcinoma may be regarded as metastatic until examination of sections shows that they are tuberculous. The authors' series of eight cases is as follows: (1) carcinoma of maxilla and pulmonary tuberculosis; (2) epithelioma of both cheeks and pulmonary tuberculosis; (3) carcinoma of a bronchus and pulmonary tuberculosis; (4) adeno-carcinoma of breast and pulmonary tuberculosis; (5) basal-cell carcinoma of cheek and tuberculosis of fascia over chest wall; (6) melano-sarcoma of intestine and pulmonary tuberculosis; (7) adeno-carcinoma of sigmoid and pulmonary tuberculosis; (8) adeno-carcinoma of stomach and pulmonary tuberculosis. This last case falls into the group of combined lesions in the same organ. Sections of the gastric adeno-carcinoma showed also very definite tuberculosis. Other writers have recorded 61 cases of the combined lesion in the same organ. These cases are exclusive of 173 reported cases of coexistent lupus and cancer. The present authors conclude that (1) cancer and tuberculosis may occur in the same patient and, less frequently, in the same organ; (2) lupus is the only form of tuberculosis which predisposes to epithelioma; (3) cancer definitely develops at the site of chronic irritation, and tuberculous scar tissue appears to favour neoplastic growth, as it is the site of irritation and also of weakened resistance; (4) the two lesions might coexist more often were it not that organs frequently invaded by one are not attacked by the other; the average age incidence of cancer occurs after the large percentage of patients with tuberculosis have died. It has been suggested that tuberculosis, producing necrosis and connective tissue proliferation, favours the implantation of metastatic tumour cells. This is certainly true in pulmonary lesions, but in gastro-intestinal cases the sequence of events is doubtful.

235. Treatment of Varicose Veins.

H. O. MCPHEETERS (*Surg., Gynecol. and Obstet.*, June, 1929, p. 819) compares the advantages of the injection and operative methods of treating varicose veins in the lower extremities. Since the blood flow, especially in the larger varices, is stationary or reversed, obliteration of the dilated varices with their reverse flow must be aimed at. Although there is the theoretical possibility of emboli developing, this is found to be extremely rare clinically; such results of technical error as sloughs and periphlebitis can be entirely avoided, and a perfect result can be obtained if the injection method is continued until all the veins have been obliterated. The mortality rate from pulmonary embolus following the operative method is 0.53 per cent., as compared with 0.00754 per cent. after the injection treatment, or approximately seventy times greater. The non-fatal cases of pulmonary emboli are almost negligible after the injection treatment as compared with their frequent occurrence after operation. The advantages of the injection treatment are that general anaesthesia is not required and that there is no necessity to stay in bed; while operation cases require an average of 15.1 days in hospital and of 34.8 days away from work, under the injection method no hospitalization is needed and patients can continue their daily routine. Recurrence after thorough injection treatment is much rarer than after operation because the sclerosing fluid can spread through collateral superficial veins which could not be easily excised. The statistical data of the operative results were obtained through a questionary sent to a thousand prominent American surgeons; those bearing upon the injection treatment are derived from the author's series of 53,000 previously published cases.

236. Agranulocytosis, with Recovery.

W. B. BLANTON (*Journ. Amer. Med. Assoc.*, June 22nd, 1929, p. 2039) states that agranulocytosis is an uncommon condition, although more than fifty cases have been reported since Schultz first described it in 1922. Its principal manifestations are a bleeding ulcer of the mouth with a membrane simulating diphtheria, enlargement of the liver and spleen, occasional swelling of the inguinal lymphatic glands, ecchymosis, and herpes. The blood count shows a marked leucopenia, often less than 1,000 cells being present. The polymorphonuclears are affected, their number falling to 1 or 2 per cent. More than 90 per cent. of the cases were fatal. Blanton records a case, in a man aged 60, in which recovery ensued, although the white cells numbered only 1,000 and the polymorphonuclears were only 4 per cent.

237. Congenital Hypertrophic Pyloric Stenosis.

E. PERRIN (*Lyon Chir.*, March–April, 1929, p. 204) reports a case of hypertrophic stenosis of the pylorus in an infant, which was successfully treated by the operation of Frédet. Out of five cases so treated two patients made a good recovery, but three died within forty-eight hours of the operation, two apparently from shock, since necropsy revealed no other cause, and the third from haemorrhage from the incision in the pyloric tumour. To avoid this danger Perrin emphasizes the importance of a very careful haemostasis being made. He prefers to under-run the bleeding points with a suture, it being essential that no such points should be neglected. The wounding of the mucous membrane is easily avoided if the muscular fibres are carefully separated with a blunt dissector; the incision must not be deep. The operation need not occupy more than ten

minutes or a quarter of an hour, and is very simple, the death of the three patients being attributed in a large degree to the fact that surgical intervention was not sought early enough, and the infants were, owing to delay, in a poor condition to stand the shock of an operation. It is pointed out, however, that, as congenital stenosis of the pylorus may recover spontaneously, care must be taken not to operate too soon.

238. Arthritis of the Hip-joint in Enteric Fever.

RACHEL KESSEL (*Thèse de Paris*, 1929, No. 148) states that osteo-arthritis is a rare complication of enteric fever, as she has been able to collect only eighteen cases, one of which came under her own observation. In every instance in which bacteriological examination was made *B. typhosus* was the causal organism, except in her own case, which was due to *B. paratyphosus* B. The clinical signs are the same as those of ordinary acute arthritis. The complication usually occurs in the fourth week of the disease. In only one instance was there formation of pus in which the typhoid bacillus was found. The prognosis is favourable, as none of the 18 cases proved fatal, as compared with a mortality of 30 to 50 per cent. in ordinary acute osteo-arthritis of the hip. Care should be taken to prevent the occurrence of dislocation, by the early application of a plaster apparatus, which should not be allowed to remain on longer than six weeks or two months, so as to avoid ankylosis.

Therapeutics.

239. The Action of Digitalis in Complete Heart-block.

S. P. SCHWARTZ (*Amer. Heart Journ.*, April, 1929, p. 408) finds that the utility of digitalis in cases of complete heart-block has not been fully determined. While some authors have described successes, others found that digitalis produced grave or even fatal arrhythmia. Hence competent observers have advised that digitalis should be avoided in any case with bradycardia. Such over-caution, Schwartz thinks, may deprive a patient with complete heart-block of the only remedy that will relieve distress when heart failure occurs. The discrepancy between these views appears to centre on the question whether digitalis relieves by increasing muscular contraction, or by augmenting the automatic ventricular rate. Some hold that acceleration of the slow idio-ventricular rate is a desirable therapeutic result. Others claim that a clinical improvement in cases of complete heart-block, with decompensation, occurs only after an increase of the idio-ventricular rate has been obtained. Schwartz has observed eight patients during the last two years who had complete heart-block and signs of heart failure, and who were treated with tincture of digitalis. He concludes that the ventricular rate is increased appreciably only after administration of very large doses of digitalis; in two instances increase in the ventricular rate was accompanied by dyspnœa and syncope, but these symptoms disappeared when the dominant idio-ventricular rate and rhythm were restored. In two of these patients digitalis initiated transient auricular fibrillation. The author reviews three cases recorded by other observers, and describes three of his own cases in detail. His conclusions are as follows. (1) Digitalis in therapeutic doses may greatly benefit patients with complete heart-block and heart failure. In these cases the improvement is due to the direct action of digitalis on the heart muscle and not to an acceleration of the automatic ventricular beat. (2) In three patients with complete heart-block the ventricular rate was increased appreciably only after administration of very large doses of digitalis. (3) The increase of the ventricular rate in complete heart-block during the administration of digitalis is a toxic symptom, and indicates the necessity for the complete cessation of digitalis administration. (4) Transient auricular fibrillation is another symptom of digitalis intoxication in complete heart-block. (5) Since it is difficult to appreciate the various types of toxic rhythms that occur in complete heart-block during digitalis treatment, it is advisable to prescribe the drug in such cases under careful control by cardiography.

240. Saline Irrigations in Gonorrhœa.

IMPRESSED by Almroth Wright's saline treatment of war wounds, and fearing that astringents such as potassium permanganate might close the mouths of crypts in the urethra and shut off infected areas from contact with the irrigating solution, L. B. CLARKE (*Journ. Roy. Army Med. Corps*, June, 1929, p. 436) has tried 1 per cent. saline solution, and contrasts it with 1 in 10,000 permanganate, to which, he states, nearly every worker has returned for routine treatment. His cases, occurring in Burma, were nearly always severe. In fourteen months he had records of 60 cases, half treated with permanganate, and the 30 cases in which simple saline solution was used. All the patients were kept in bed for fourteen days, and had plenty of barley water, while purgatives and alkaline mixtures were administered equally to both groups. Thirty acute cases were cured under saline in 1,321 days, and two relapses in this group in 57 days. Thirty quite similar cases under permanganate required 1,828 days for their cure, and 8 relapses in this group needed 476 days. The balance in favour of saline treatment was 17 days for each acute case (or 31 days if relapses are included), while the individual cost of treatment with cooking salt was 1s. 6d. Though the numbers treated were few, Clarke concludes that such saline solution is excellent for posterior irrigation, showing many advantages over a 1 in 10,000 solution of potassium permanganate.

241. Transfusions of Unmodified Blood.

A. W. BLAIN (*Annals of Surgery*, June, 1929, p. 917) gives his views on the value of blood transfusions as observed in 3,000 cases. He considers that it has appreciably reduced post-operative mortality and morbidity, and made a successful operation possible in otherwise inoperable cases. In cases of secondary anæmia, deranged metabolism, and unstable biochemical equilibrium, one or more blood transfusions before an operation wholly or partially restore the proper physiological balance. In cases of ruptured tubal pregnancy, in infection with anæmia, in cases of haemolytic streptococcal septicæmia and in secondary anæmia, blood transfusion has been of great advantage. Transfusions for sudden and severe haemorrhage should be given as soon as possible, and the amount of blood be approximately equivalent to the loss. The blood should not be modified in any way, no anti-coagulant being used; citrated blood is not equal in value to whole blood. The blood should not be exposed to the air. Blain considers the Brines apparatus to be the most satisfactory, only about five minutes being necessary for the actual transfusion. The donor and patient should be in the same group when more than 1,000 c.cm. of blood are to be transfused, but in about a third of the cases under review they were not in the same group. Fewer and less severe reactions have followed transfusion from Group 4 to Group 2 than in any other combination. The commonest reason for transfusion was a red blood count of less than 3½ millions before operation. Universal donors can be safely used.

242. Potassium Permanganate in the Treatment of Pneumonia.

J. L. CHESTER (*Ann. Int. Med.*, May, 1929) reports a series of cases of influenza, lobar pneumonia, and broncho-pneumonia treated by potassium permanganate administered as retained enemas. He believes that the infections were cut short, the symptoms rapidly abolished, and the death rate lowered to a marked extent by this method. In his first series of cases Chester gave 3 to 5 ounces of a standardized solution at intervals of three or four hours, for a period of six to ten days. In twenty other cases of pneumonia of a severe type and complicated by chronic heart disease, syphilis, or chronic alcoholism, ten were treated by other methods with fatal results; the remaining ten, who received potassium permanganate, gave 50 per cent. recoveries. Chester refers to the literature on the subject, with special reference to the articles of Nott (*Journal*, March 7th, 1925, p. 443) and Roche (*Journal*, March 12th, 1927, p. 459). Chester urges the importance of further investigation of what appears to be a most promising form of treatment.

243. Suprarenal Cortical Extract in Addison's Disease.

J. M. ROGOFF and G. N. STEWART (*Journ. Amer. Med. Assoc.*, May 11th, 1929, p. 1569) report seven cases of Addison's disease and other less severe forms of suprarenal insufficiency which were treated successfully with an extract prepared from the cortex of the suprarenal gland. To distinguish the cortical hormone from that in the medullary product they use the term "interrenalin," which indicates its origin from the inter-renal tissue of the gland. They administered the preparation in capsules coated to resist gastric digestion, and expect to obtain even better results when more concentrated products can be prepared and investigations have determined the appropriate dosage and the best methods of administration. In animal experiments interrenalin was administered intravenously with good results. In one patient, a man aged 48, who had undoubted Addison's disease, with the usual symptoms, the administration of interrenalin brought about a rapid improvement in the strength and appetite which was associated with reduction of the vomiting. After seven months the nausea had completely disappeared, and the patient, who had previously been confined to bed, was able to sit up for as long as eight hours without being weary. He was subsequently able to walk about and the appetite continued good; moreover, the colour of the skin appeared to be getting lighter.

241. Ergotamine Tartrate in Urticaria.

SUCCESS obtained by the use of ergotamine in the treatment of a woman with Graves's disease, severe urticaria, and dermatographia encouraged BABALIAN (*Bull. Soc. Française de Derm. et de Syph.*, April, 1929, p. 402) to treat eleven cases of urticaria with the same drug. Rothlin showed that this alkaloid acted by paralysing the accelerator and inhibitory sympathetic fibres, and thus was antagonistic in action to adrenaline and ephedrine; it therefore seemed reasonable to try it in sympathoticotonic conditions. Of Babalian's eleven cases treated, four, of from two to six months' duration, were cured, two patients being young men with signs of mild hyperthyroidism and tachycardia, one a man with hyperthyroid signs and definite exophthalmos, and the fourth an elderly man with hypertension and aortic disease, who showed a fall in pulse rate on pressure being applied to the eyeball (positive oculo-cardiac reflex). With the exception of this last case all were clearly sympathoticotonic. In a fifth case cure was incomplete; a young woman who had had attacks of urticaria almost daily for three years did not benefit from ergotamine by the mouth. When daily injections of 1/4 mg. were given she showed some improvement, but they were discontinued because of the supposed risk, and the trouble recurred. Of the four failures, one was in a case of urticaria complicated by asthma; treatment caused exacerbation of the asthma, and was discontinued after eight days. In another patient a positive oculo-cardiac reflex was noted; in the third the urticaria was associated with calculous nephritis; and in the fourth it followed hysterectomy. In the two remaining cases clinical examination revealed no appreciable lesion. The dose of ergotamine tartrate was 2 to 3 mg. by the mouth daily, continued for two to three weeks; this dose was not followed in any case by headaches or painful cramps or nausea. Babalian adds that, excluding cases where bacteria or parasites form an irritative focus, urticaria is either of vagotonic or sympathoticotonic origin; the latter group alone might be expected to benefit from ergotamine. Cases showing a positive oculo-cardiac reflex were of the vagotonic group.

235. The Employment of Blister Serum in Infectious Diseases.

MODINOS (*Paris Méd.*, April 13th, 1929, p. 349) reports that for the last twenty-one years he has employed blister fluid in the treatment of various infectious diseases, such as typhoid and paratyphoid fevers, influenza, rheumatic fever, gonorrhœa, and typhus, with excellent results; his example has been followed by numerous French and Italian clinicians. He states that the advantages of blister fluid over blood serum are, *first, that it is easier to obtain, and secondly, that the bactericidal power of exudations rich in polymorphonuclear leucocytes is always superior to that of the corresponding blood serum*, the average number of leucocytes contained in the serous fluid of a blister being 50,000 per cubic millimetre, of which 70 per cent. are polymorphonuclears. The author's experience of the prophylactic value of blister fluid is limited to two diseases—*namely, measles and influenza, in which the* results have been excellent; but he suggests that blister fluid might be applied in the prophylaxis of other diseases as well, especially those supposed to be due to a filterable virus, as in severe epidemics of typhus and dengue.

246. The Therapeutic Value of Histamine.

S. KATZENELBOGEN (*Journ. Amer. Med. Assoc.*, April 13th, 1929, p. 1240) suggests that the administration of histamine may prove to be useful in two types of non-diabetic acidosis—as, for example, in post-operative acidosis, and in the acidosis which may occur in pregnancy and mental disorders, when the blood sugar level is normal. In view of the assumption that histamine increases the alkali reserve of the blood by draining off its acidity into the stomach, he thinks that the combination of this treatment with concomitant elimination of the hyperacidity of the gastric contents by lavage or neutralization with alkali is to be recommended. He describes some experimental studies in support of these conclusions.

237. Auto-haemotherapy in Gastric Ulcer.

M. CERF (*Bruxelles-Médical*, May, 1929, p. 827), after briefly referring to some of the many hypotheses put forward to explain the occurrence of gastric ulcer, draws attention to a form of protein therapy—namely, auto-haemotherapy—which he says he has found useful. The most marked effect of this treatment appeared to be the reduction of pain, and it is therefore especially recommended for cases in which pain is a prominent symptom, and where there is no marked alimentary stasis or serious distortion of the gastro-duodenal radiographic picture. It is held to be contraindicated when there is manifest deficiency in hepatic function.

Dermatology.

243. Pathogenesis and Treatment of Psoriasis.

PSORIASIS is characterized by abnormal keratinization. According to E. PULAY (*Deut. med. Woch.*, July 12th, 1929, p. 1175) disturbance of the cell chemistry, and particularly the ferment activity of the epidermal cells, prevents the normal disintegration of their nuclei. It has long been observed that psoriasis often tends to occur in families; for this reason, and because a case came to his notice of an individual in whose family several independent cases of diabetes and psoriasis were recorded and in whom the two were combined, Pulay considered it likely that some general disturbance of metabolism might be the cause of the disordered epidermal cell function. Investigating carbohydrate metabolism, he found hyperglycæmia in 50 per cent. and hypoglycæmia in only a few of his cases of psoriasis. Low sugar tolerance indicated a probably imperfect function of the pancreas. Though gout (implying disordered uric acid metabolism) and psoriasis are stated in the literature to be frequently associated, Pulay was unable to confirm this from his own cases. He emphasizes the importance of the metabolism of the inorganic ions of the blood as influencing the fermentative and physico-chemical behaviour of various cells (including those of the skin) directly and through the endocrine system. In 60 per cent. of his cases the blood calcium content was abnormal and in a large number the potassium content was increased. Though endocrine function has been extensively studied in psoriasis by numerous workers, and the thyroid and other glands have at different times been found deficient, no constant association between the disease and a particular type of endocrine constitution or abnormal function of any one gland has been established. Pulay has, however, reported that inadequate ferment (trypsin) secretion by the pancreas is comparatively common; he considers that this is one of the causes of the imperfect disintegration of keratinized cells found in psoriasis. When both the internal and external secretion of the pancreas are inadequate diabetes and psoriasis coexist, and in these cases the psoriasis also benefits from insulin. On these lines he suggests that the improvement which follows reduction in protein intake in some cases and carbohydrate intake in others may be explained. "Discussing various other lines of treatment, he emphasizes the point that, in addition to the usual local applications, various different endocrine and metabolic disturbances may have to be dealt with in different cases.

249. Monilia and Psoriasis.

M. WACHOWIAK, G. V. STRYKER, J. MARR, H. BOCK, and M. S. FLEISHER (*Arch. Derm. and Syph.*, May, 1929, p. 713), reporting their final investigations upon the occurrence of monilia in psoriasis and the possible relationship to the disease, are of opinion that such a relationship does exist, though further investigation is needed to place the matter beyond question. While the organism is present in the faeces in from 6 to 10 per cent. of normal persons the percentage may exceed 40 per cent. in those suffering from intestinal disturbances. Though rarely present in the skin of normal persons it may be found in certain types of dermatological conditions, and, though normally absent from the blood, monilia was present in a limited percentage of patients in whom it was considered to be related to the disease. Of 56 patients with psoriasis 86 per cent. showed the presence of monilia in the faeces; 17 per cent. in the blood, and 36 per cent. in skin scrapings. Experiments to ascertain whether psoriatic patients [illegible] to monilia showed that there was [illegible] nsitiveness than in [illegible] e disease. Although no specific [illegible] ganisms and the disease can be [illegible] the following positive facts are [illegible] tionship existing: (1) the frequent finding of monilia in the stools of persons suffering from psoriasis; (2) the presence of the organism in scrapings from the skin in a fair percentage of cases; (3) the continued desquamation resulting from the application of monilia to abraded surfaces in normal persons; (4) the marked clearing of lesions in certain cases of psoriasis following the injection of the vaccine; and (5) the "thinning and paling" of the lesions following such injections.

250. Lichen Planus.

J. R. DRIVER (*Arch. Derm. and Syph.*, April, 1929, p. 620) from a review of the literature and from a study of 17 cases of typical generalized and localized lichen planus recommends *x*-ray treatment of the spine in such cases. Seven patients were treated by the unfiltered method, six by the filtered method, and four by both methods because of a lack of response; 70.6 per cent. of the cases were favourably influenced, and 59 per cent. were completely cured, those with acute generalized lichen planus responding best. The

effect was more uncertain in the chronic conditions, and did not compare with the more constant benefit obtained by direct irradiation. The results in lichen planus of the mouth were also dubious, and the method is only advised, therefore, when other measures have failed. Driver considers that the filtered method gives more promise of success than the unfiltered; by giving smaller doses on two fields only and repeating it if necessary it is simpler and avoids the dangers that may arise from greater dosage over more surfaces. Especially indicated in the acute generalized type of the disease, *x*-ray treatment of the spine appears to be of definite value, and it can be recommended in all types which do not respond to other methods.

251. J. GOUIN and A. BIENVENUE (*Bull. Soc. Française de Derm. et de Syph.*, February, 1929, p. 96) report a case of generalized lichen planus in a child, aged 10, cured by one application of radiotherapy concentrated on the axilla. The interest of the case is said to lie in the fact that the rays were not directed to the nervous centres, spinal cord, or nerves, showing thus that it is not essential for these regions to be dealt with. The authors believe that in their case the application acted as "shock treatment"; they add that it does not exclude treatment directed to the nervous centres, but may be used as an alternative, as in the case of bismuth in syphilis.

Obstetrics and Gynaecology.

252. The Treatment of Leucorrhoea.

F. L. PAYNE (*Amer. Journ. Obstet. and Gynecol.*, June, 1929, p. 841) points out that in most cases of leucorrhoea the disease is of cervical origin. The operation of uterine curetting as a curative measure in this condition is therefore useless and dangerous, inasmuch as the cervical infection may be carried upwards to the uterine body and beyond. According to Payne, infection of the cervix in the nulliparous patient begins as an endocervicitis involving the lowest portion of the cervix. In the lacerated cervix the mucosa on the everted lips is at once exposed to organisms; mucosal hypertrophy with glandular enlargement and hyperactivity ensue, the normal discharge of mucus is increased, and leucorrhoea results. If the gland ducts become obstructed by mucus, Nabothian cysts are formed, while the mere presence of excessive secretion renders treatment by local application extremely unsatisfactory. In cases where the cervix is lacerated, repair must always be effected if the cure is to be lasting. Diathermy has been used with some success in treating cervicitis, particularly in the milder cases, while irradiation in the hands of Curtis of Chicago has proved extremely beneficial in selected cases. Results are given of 171 cases of cervicitis treated in Pennsylvania University Hospital; patients with superficial laceration, erosion, and uncomplicated cervicitis were treated by the cautery. Lacerations, either unilateral or bilateral, were repaired by trachelorrhaphy, while cases of multiple lacerations, hypertrophy, or extensive cervicitis were dealt with by a modified Sturmdorf operation, where, in view of the fact that the infection was usually limited to the lower cervix, the cervical tissue coned out did not stretch so far as the internal os. The results obtained in this series were very satisfactory. Cauterization gave 93 per cent. cures in 70 cases; trachelorrhaphy resulted in 96 per cent. successes in 24 cases; while in 77 instances the modified Sturmdorf operation gave 95 per cent. cures. The delay of cure was longest in those patients treated by cauterization, on account of tissue destruction with resultant sloughing.

253. Correction of Uterine Displacement.

SINCE from the standpoint of comparative anatomy the uterus is an abdominal and not a pelvic organ, R. CONDAMIN (*Lyon Medical*, May 19th, 1929, p. 609) concludes that the frequency of uterine prolapse and of allied subpathological conditions is due to this displacement. The uterine supports readily lose their toxicity. The assumption of the erect posture through the superadded weight of the abdominal organs he considers to be also an etiological factor. Any uterus which is lower than its physiological level, whatever the cause may be, will give rise to pain and functional or sympathetic troubles. The correction of such a condition implies the elevation of the uterus to its normal level and maintaining it there. Condamin advises a course of massage and suitable exercises to tone up the pelvic muscles and uterine ligaments. He then proceeds to pack the posterior fornix with tampons. Each succeeding tampon compresses and raises the previous one and at the same time distends the vagina. The surgeon's index and middle fingers then exert backward pressure on the column of tampons, the patient aiding by compressing the pelvis. This manœuvre may cause two or three tampons to sink down; these are then replaced. Intelligent patients are told to disinfect their hands and repeat this manœuvre two or three times a day, especially after defaecation. It is important that the last tampon should be well within the vagina and not between the labia, where it would cause discomfort. When completely hidden the tampons exert no pressure on the bladder or rectum, but only on the pouch of Douglas. The tampons can be kept in position for several days if impregnated with glycerin and an antiseptic. The sitting posture continually exerts pressure in the right direction when the tampons are in position. Condamin maintains that there is no elevation, however complex, that cannot be achieved by this procedure, which he terms "columnization," and backward pressure. He admits, however, that after such a course of treatment it may be advisable for a patient to have a well-fitting pessary.

254. Primary Carcinoma of the Fallopian Tube.

L. LE BALLE and R. PATAY (*Gynécol. et Obstét.*, April, 1929, p. 286) state that 129 cases of primary cancer of the Fallopian tube have been recorded; they add notes of two cases described by Douay, and report fully a personal case in which the anatomical findings appear to prove the development of carcinoma from malignant transformation of an intratubal papilloma. The smooth-walled tube, enlarged to the size of a walnut, and occluded at the abdominal ostium, when incised after removal at operation gave issue to an ivory-white cauliflower-like tumour, apparently considerably larger than the capacity of the tube as judged previously. Its insertion towards the abdominal extremity of the tube was 15 mm. long, and microscopic study demonstrated a transition from simple papilloma to carcinoma. The patient, a married nulligravida aged 44, had complained for seven months of abundant vaginal discharge, which at first was watery, but later became sticky and was occasionally tinged with blood. The authors state that primary cancer of the tube appears in two-thirds of the cases in women who still menstruate; in about 48 per cent. of cases it develops in the fourth decennium, and in about 30 per cent. in the fifth. At this age purulent salpingitis is as a rule quiescent, so that the appearance of an apyrexial tubal swelling, accompanied by serous or sero-mucous discharge, should awaken suspicion of a tubal carcinoma. This discharge, at first intermittent, but later persistent and intractable, though rarely mixed with blood, is the significant and early symptom of a tubal carcinoma, which for about six to eight months is entirely intratubal in evolution. If curetting and biopsy eliminate a carcinoma of the corpus uteri, the clinical diagnosis of primary cancer of the tube may be made with some confidence. When the growth is no longer intratubal the prognosis is extremely bad. Apart from one case of Vogt's in which the cure had lasted for seven years, the longest survivals after operation have been from sixteen to twenty-four months in some four or five cases. The present authors' patient appeared well sixteen months after her operation.

255. Metrostaxis without Gross Utero-adnexal Pathology.

W. SHAW (*Journ. Obstet. and Gynaecol. of the British Empire*, Spring, 1929, p. 1) discusses the pathological and clinical findings in a series of 200 cases of abnormal uterine bleeding in the absence of gross morbid defects. He points out that irregular uterine haemorrhage can seldom be attributed to acute or chronic endometritis; the acute variety has definite diagnostic signs, and the chronic form is a rarity and is associated with gross pelvic infections, puerperal sepsis, or necrosis of a malignant uterine neoplasm. For irregular bleeding in the absence of gross disease or endometritis Shaw recommends the term "metropathia," acknowledging at the same time that no recognition is thereby given to the association (causative in some cases) of many of the cases with morbid ovarian function. The 200 cases could be subdivided into the following main groups: (1) metropathia haemorrhagica of Schröder; (2) haemorrhage of the epi[illegible]menorrhoeal type; (3) [illegible]ypomenorrhoeal type; (4) haemorrhage [illegible]ype; (5) a group making about a quart[illegible] associated with endometritis, the rest of obscure causation. The second group was the largest (72 cases); the menstrual interval was reduced, usually to twenty-one or fourteen days; loss was excessive on each day of the period, and in the great majority duration of the bleeding was increased. It is concluded that in these cases the ovarian cycle is reduced in time. The patients were usually aged from 40 to 50; pelvic infection was absent and the uterus was symmetrically enlarged. The endometrium was not usually thickened, showed normal cyclical characters, but oedema and intense hyperaemia, especially of the middle zone, were almost constant. Only in seven cases of this group were the ovaries available, and five showed two corpora lutea of corresponding microscopical development. The first group numbered 53 cases, which

were characterized by a thickened, partly hyperplastic, polypoid endometrium with cystically dilated glands and areas of necrosis in the superficial and middle layers, but no typical premenstrual changes; the associated ovarian changes, which *Shaw regards as secondary, were of an* atrophic nature, but unilateral follicular cysts were invariably present, and a recent corpus luteum was almost always absent. The metrorrhagia cases (group 4) numbered eleven; curettings showed normal cyclical changes and enormous endometrial hyperaemia, and, except at the menstrual epoch, areas of disintegration were absent. In the two cases of this group in which the ovaries were obtained they were enlarged, hyperplastic, and hyperaemic.

256. Radium Treatment of Metastases after Hysterectomy for Malignant Disease.

P. BROCQ and H. RUBENS-DUVAL (*Bull. Soc. d'Obstét. et de Gynécol. de Paris*, April, 1929, p. 276) describe the case of a woman, aged 42, in whom Wertheim's operation was performed for carcinoma of the cervix. Four and a half years later a small, hard, red ulcerated nodule was found in the vault of the vagina. Tubes containing radium were applied for seven days, one in the substance of the metastasis and one outside it. The antecedent conditions became re-established, and have now remained so for more than six years. The nodule was not submitted to biopsy, which, it was thought, would have made radium-puncture less easy. A. SIREDY (ibid., p. 278) alludes to a patient who is now well five and a half years after radium treatment of a rapidly growing metastasis which appeared on the cervical stump four weeks after hysterectomy had been performed for chorion epithelioma of the uterus following hydatidiform mole. The patient, a woman aged 28, had had an emergency operation for perforation of the fundus uteri by the growth.

Pathology.

257. The Kahn Reaction in the Diagnosis of Syphilis.

MLLE E. SALAMON (*C. R. Soc. de Biologie*, May 31st, 1929, p. 286) has carried out a series of comparative investigations on 759 serums and 205 cerebro-spinal fluids, using the Kahn, Wassermann, and Meinicke tests. In the case of the serums there was complete agreement between the results in 92.7 per cent., and in the case of the spinal fluids in 90.7 per cent. In the discordant group there were thirty serums from patients who on clinical grounds were considered certainly to be suffering from syphilis; of these, 23 gave a positive Kahn reaction, 19 a positive Wassermann, and 20 a positive Meinicke reaction. In the same group there were twenty-five serums from patients who clinically were non-syphilitic; of these, two gave a positive Kahn reaction, 16 a positive Wassermann, and 14 a positive Meinicke reaction. In the discordant group there were 19 spinal fluids; of these, 15 gave a positive Kahn reaction, 17 a positive Wassermann, and 8 a positive Meinicke reaction. Of these fluids all but two were from patients considered certainly to be suffering from syphilis. It would appear, therefore, that the Kahn test is slightly more delicate than either of the other two in definitely syphilitic cases, but that in non-syphilitic cases it gives a much lower proportion of positive reactions. Nevertheless, as both the Wassermann and the Meinicke tests occasionally give positive results when the Kahn test is negative, the author concludes that in the diagnosis of syphilis it is advisable to employ all three tests in parallel.

253. Abortus Fever in Denmark.

M. KRISTENSEN and P. HOLM (*Centralbl. f. Bakt.*, May 28th, 1929, p. 281) between April, 1927, and December, 1928, examined 4,623 specimens of blood from different patients sent in for the Widal reaction; of these, 500 agglutinated *Brucella abortus* in the titre of 1 in 100 or over. In only 0.1 per cent. of about 1,000 control serums examined was the reaction positive to *Br. abortus*, and in these cases the titre *was comparatively low. Examination of a certain number* of patients over a considerable period of time showed that after an attack of undulant fe[illegible] titre gradually fell, till after a year it [illegible] n 100. A positive reaction in a titre of [illegible] atient suffering from clinically undulant fever may therefore be accepted as diagnostic of an active infection, and is not to be explained by the persistence of agglutinins from a previous infection. From 21 of 34 patients examined *Br. abortus* was recovered in pure culture. After a careful study of the properties of these organisms the authors concluded that they were indistinguishable from *abortus* strains isolated from cattle; but that they could be distinguished with a fair degree of certainty from *melitensis* strains, and from *abortus* strains of porcine origin. Epidemiological investigation of the 500 cases of *Br. abortus* fever showed that the disease was commoner in the country than in the town; it attacked most frequently males between 15 and 40 years of age, and had the highest incidence in agricultural workers, especially in those who came into close contact with cattle. It would appear that, though infection may occur by milk; *there is some other method, probably of greater importance;* the authors seem to consider that direct contact with infected animals may be responsible for many human cases. Notes were obtained of pregnancy occurring in three of the patients, and in each patient abortion occurred; in one case *Br. abortus* was recovered from the placenta. It would appear, therefore, that this organism may be responsible for cases of abortion in human beings as well as in cows.

259. Relation of Varicella to Herpes Zoster.

T. M. RIVERS and L. A. ELDRIDGE (*Journ. Exper. Med.*, June, 1929, p. 893) have compared the age incidence and the seasonal distribution of varicella and herpes zoster in New York for the thirteen years 1914-26. They find that varicella occurs chiefly in children under 10 years old, and has a very definite seasonal periodicity, the maximum incidence being from December to June. Herpes zoster, on the other hand, is commonest in the second to the sixth decade of life, and shows no marked seasonal fluctuations. In the authors' opinion this statistical evidence does not support the view that varicella and herpes zoster are caused by the same virus. In another paper (ibid., p. 907) certain experimental observations are recorded. It had previously been found that some species of monkey — *Cercopithecus sabaeus* and *Cerco. lalandi*—showed a limited susceptibility to varicella; that is to say, if the virus was injected into the testicles acidophilic nuclear inclusion bodies became demonstrable on the fifth or sixth day. The appearance of these inclusion bodies was regularly prevented by convalescent varicella serum. In the present series of experiments immune serum from herpes zoster patients was mixed with varicella virus and *inoculated into the testicles of monkeys. Three* experiments were performed, and in two of them the zoster serum failed to prevent the development of the inclusion bodies; in the third there was apparent neutralization of the virus. One of the negative results was rendered very striking by the fact that the serum of the zoster patient's sister, who had subsequently developed chicken-pox, neutralized the varicella virus completely. The authors conclude that in the majority of instances the etiological agents concerned with varicella and herpes zoster are not identical.

260. The Blood in Typhoid Fever.

J. SABRAZÈS and J. MONGIRET (*C. R. Soc. de Biologie*, May 13th, 1929, p. 49) from examination of the blood of eleven ordinary cases and five complicated cases of typhoid fever came to the following conclusions. In ordinary cases there is slight anaemia (an average of 4 million red cells per c.mm. and 80 per cent. haemoglobin) and a leucopenia of 3,000 to 4,000. The blood plates are slightly diminished. There is a *relative lymphocytosis* (40 to 50 per cent.), which lasts until convalescence. Numerous prolymphocytes may be seen. Contrary to what is often stated, the number of large monocytes and of their multilobular forms is little affected, but there is a slight increase in convalescence. The number of polymorphonuclear cells is usually lowered, and there is a well-marked shift to the left; 20 to 30 per cent. of the polymorphonuclears in the uncomplicated forms show basophil inclusion bodies. Eosinophils and mast cells are scanty or absent until convalescence. A large number of degenerated leucocytes may be found even in uncomplicated cases, and are due to plasmolysis, nucleolysis, pyknosis, and caryorrhexis. Türk's cells are also found, with a few histiocytic cells and even large endothelioid cells. Complications such as intestinal haemorrhage, peritonitis, parotitis, and otitis often give rise to leucocytosis and polymorphonuclears.

261. Filterable Forms of Typhoid Bacilli.

P. ARSONNEAU (*Thèse de Paris*, 1929, No. 103) states that the difficulty experienced by several observers, including *himself, in finding* typhoid bacilli in infected water suggests that in a large number of cases infection is effected not by the typhoid bacillus in usual form, but by filterable forms of this bacillus. The existence of these filterable forms is proved to-day, as they may be obtained in the laboratory, as well as in infected water and in the patients' stools. The author records two cases in which these *filterable forms were* found in the blood, and were detected by blood culture. The study of these blood cultures shows that the filterable forms give rise to a special septicaemia which occurs some time before the bacteriaemia. It appears to be a proved fact that when these forms after becoming bacilli are attacked by the bacteriophage they resume their filterable form and are so eliminated in the stools and reach the water again. In some cases these filterable forms do not evolve but give rise to slight constitutional disturbance presenting an ill-defined clinical picture.

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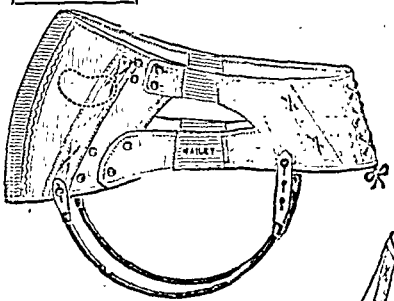


No. 4 BELT (Bailey's Patent)
FOR UMBILICAL HERNIA.

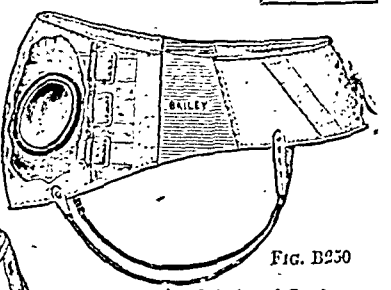
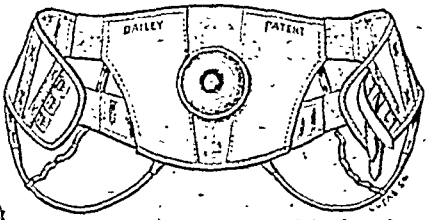


FIG. B250
(Showing Interior of Cup.)
SPECIAL BELT FOR AFTER COLOSTOMY.

No. 5a BELT (Bailey's Patent)
FOR FLOATING KIDNEY.



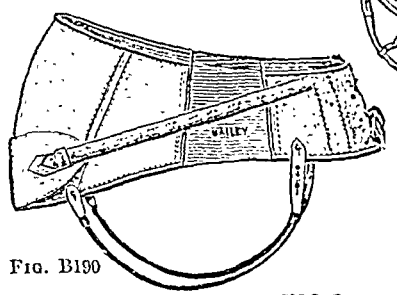


FIG. B190
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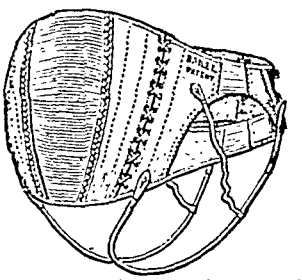

No. 2 BELT (Bailey's Patent)
FOR PREGNANCY.

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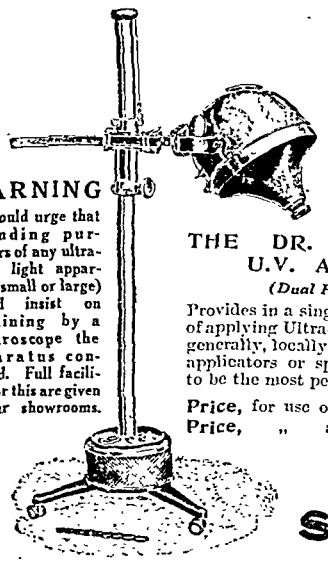

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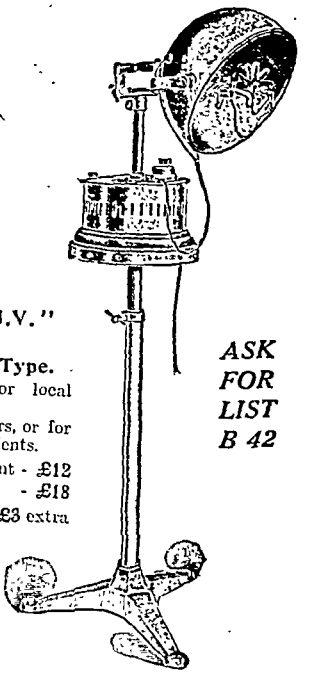

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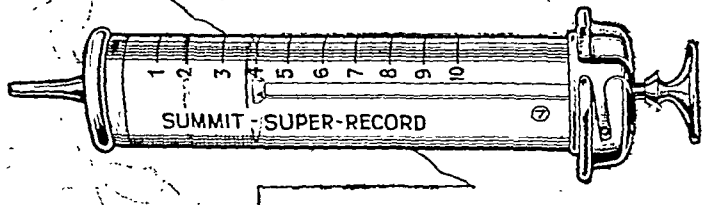

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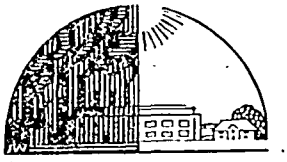

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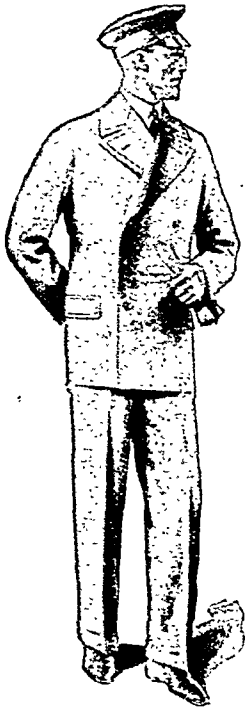

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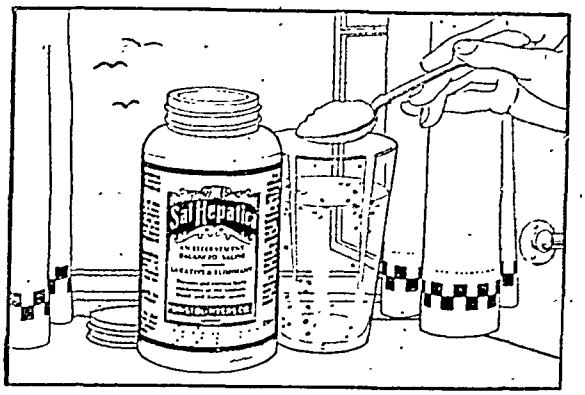

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*Liq. Æther Nitros. (Sp. Æther Nit. Substitute), 5 lb. @ 2/3 lb.
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Sod. Sulph. Feathery cryst., 7 lb. @ 3d. lb.
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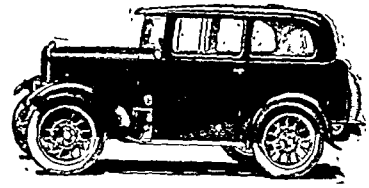

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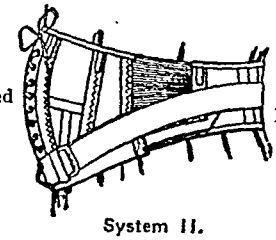

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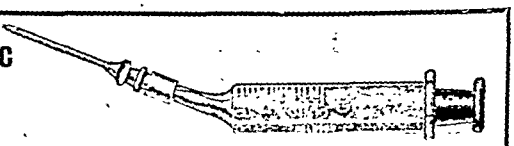

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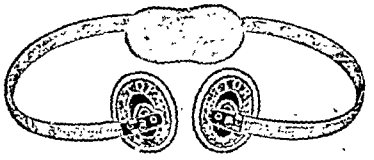

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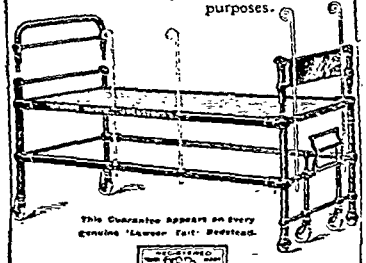

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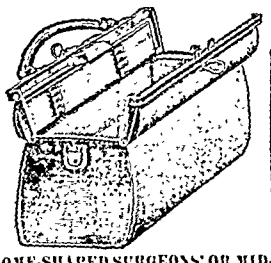

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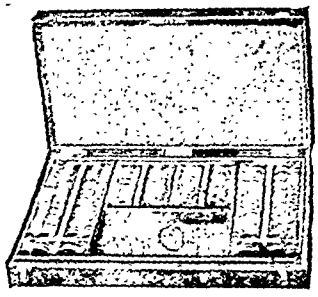

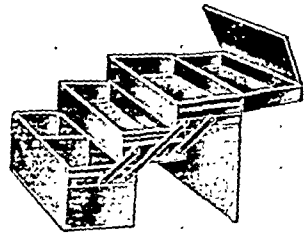

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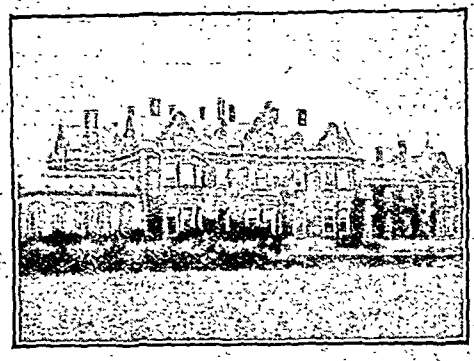

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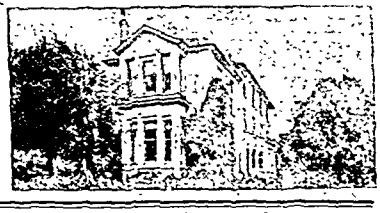

ALCOHOLISM, OTHER DRUG HABITS, AND TROPICAL AILMENTS

THE HARE NURSING HOME

As founded and established by the late Dr. FRANCIS HARE, for 20 years Med. Supt. of The Norwood Sanatorium, and author of "Alcoholism," etc.; for the treatment of ALCOHOLISM, other Drug Habits, Insomnia, Neurasthenia, Functional Nervous Disorders, TROPICAL Ailments, etc.

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'Phone: Chislehurst 451. *Telegrams*: "Masters," Chislehurst.

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The Church of England Temperance Society has its own COUNTRY MANSION where Treatment is given by its Resident Medical Superintendent. The Institution is not conducted for profit, and fees are moderate, with Grants-in-Aid in certain cases

Particulars from the General Secretary, 40, Marsham Street, S.W.1.

Bishopstone House, Bedford.

PRIVATE HOME for MENTALLY AFFLICTED LADIES. *Ten only received.* Apply, Medical Officer or Mrs. PEELE. *Telephone*: 2708.

INEBRIETY

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For the treatment of GENTLEMEN under the Act and privately. Estab. 1883 by an Association of prominent medical men and others for the study and *treatment of alcohol* and drug abuse. Large secluded grounds on the bank of the River Colne. Full-sized billiards, tennis, croquet, bowls. Golf (Moor Park, Sandy Lodge) close by. For particulars apply to—*F. S. D. HOGG, M.R.C.S., &c., Resident Medical Supt.* 'Telephone: 16 RICKMANSWORTH.

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CLAPHAM PARK, LONDON.

Situated in 3½ acres of secluded gardens

HOME FOR TWELVE MENTAL PATIENTS (LADIES).

Well-appointed private house. *Home comforts* and Trained Nursing Staff. Eminent Mental Specialist Visiting Physician.

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A first-class Country Mansion adapted for the reception of a limited number of Ladies and Gentlemen mentally afflicted.

Large gardens, deer park, private golf links, fishing. Grounds extend to over 200 acres.

Voluntary Boarders *accepted.*

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FOR MENTAL AND NERVOUS CASES.

Physicians: DAVID AND CEDRIC W. BOWER. *Ordinary Terms, Five Guineas per week.* (Including Separate Bedrooms where suitable.) Interviews in London by appointment.

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Successful VOLUNTARY HOME for Women Inebriates.

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PRIVATE PATIENTS are received at a weekly charge of TWO GUINEAS and upwards.

Voluntary BOARDERS can now be admitted.—Apply to the MED. SUPERINTENDENT.

ST. ANDREW'S HOSPITAL
FOR MENTAL DISORDERS,
NORTHAMPTON

FOR THE UPPER AND MIDDLE CLASSES ONLY.

President: THE MOST HON. THE MARQUESS OF EXETER, C.M.G., A.D.C.

Medical Superintendent: DANIEL F. RAMBAUT, M.A., M.D.

This registered Hospital is situated in 120 acres of park and pleasure grounds. Voluntary Boarders, persons suffering from incipient nervous and mental disorders, as well as certified patients of both sexes, are received for treatment. Careful clinical, biochemical, bacteriological, and pathological examinations. Private rooms with special nurses, male or female, in the Hospital or in one of the numerous villas in the grounds of the various branches can be provided.

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MOULTON PARK.

Two miles from the Main Hospital there are several branch establishments and villas situated in a park and farm of 650 acres. *Milk, meat, fruit, and vegetables are supplied* to the Hospital from the farm, gardens, and orchards of Moulton Park. Occupation therapy is a feature of this branch, and patients are given every facility for occupying themselves in farming, gardening, and fruit-growing.

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For terms and further particulars apply to the Medical Superintendent (Telephone No. 56, Northampton), who can be seen in London by appointment.

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Private Nursing Home for Neurasthenia and allied Functional Nervous Disorders, for general Convalescent Cases, and those requiring Electrical Treatment.

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Dr. Douglas Morris can be seen by appointment in London.

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NEWTON-LE-WILLOWS, LANCASHIRE.

'Phone: 11 Ashton-in-Makerfield.

For the reception and treatment of PRIVATE PATIENTS of both sexes of the UPPER AND MIDDLE CLASSES either *voluntarily or under Certificate. Patients are classified in separate* buildings according to their mental condition.

Situated in park and grounds of 400 acres. Self-supported by its own farm and gardens, in which patients are encouraged to occupy themselves. Every facility for indoor and outdoor recreation. For terms, prospectus, etc., apply MEDICAL SUPERINTENDENT.

THE COPPICE, NOTTINGHAM.
HOSPITAL FOR MENTAL DISEASES.

This Institution is exclusively for the reception of a limited number of Private Patients of both sexes of the Upper and Middle Classes at moderate rates of payment. It is beautifully situated in its own grounds on an eminence a short distance from Nottingham, and from its singularly healthy position and comfortable arrangements affords every facility for the relief and cure of those mentally afflicted. Voluntary Boarders received without Certificates.

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SOUTH DEVON.

For the care and treatment of Ladies suffering from Mental Diseases. Limited to eight patients. Telephone: Starcross 19.

CLIFFDEN, TEIGNMOUTH, in connection with Court Hall, for early and convalescent cases Cliffden is a large well-appointed house, with lovely views of the South Devon Coast. It is beautifully situated in grounds of 19 acres. The gardens are very attractive, and there is a private road to the beach.

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Telephone: *Teignmouth* 289.

MAUDSLEY HOSPITAL,
DENMARK HILL, S.E.5.

Telephone: RODNEY 4341.

A CLINIC instituted by the London County Council for Treatment of NERVOUS and CURABLE MENTAL DISORDER. Voluntary patients ONLY RECEIVED.

OUT-PATIENTS—2 *p.m.*: MEN—*Mondays* and Thursdays. WOMEN—Tuesdays and Fridays.
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Terms:

(*a*) **£5 a week, but in case of patients with a legal settlement in the County of London a less sum may be charged according to means.**
(*b*) **£6 6s. a week.**

Terms include (with rare exceptions) all forms of treatment, for which exceptional facilities exist—there being a staff of consultant specialists and the central laboratory of London County Mental Hospitals being attached to the hospital. *Inquiries of* EDWARD MAPOTHER, M.D., M.R.C.P., F.R.C.S., Medical Superintendent.

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EXETER, DEVON.

Telegrams: Exeter 2542. *Telephone*: Exeter 2642.

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Hard and grass Tennis Courts, Croquet Lawn, Cricket Field, and all indoor amusements, Dancing, Concerts, Wireless, Billiards, Badminton. Occupational treatment.

The patients are carefully graded, and accommodation provides for the separate treatment of early recoverable and convalescent patients.

Voluntary and certified patients are received for treatment.

A prospectus and full particulars can be obtained *from the Medical Superintendent.*

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A REGISTERED HOSPITAL for the CARE and TREATMENT of LADIES and GENTLEMEN suffering from NERVOUS and MENTAL DISORDERS. Within two miles of the G.W. Railway and L. M. & S. Railway Stations at Gloucester, the Hospital is easily accessible by rail from London and all parts of the United Kingdom. It is beautifully situated at the foot of the Cotswold Hills, and stands in its own grounds of over 280 acres. Voluntary boarders of both sexes are also received for treatment.

Special accommodation for Lady Voluntary Boarders is also provided at the MANOR HOUSE, which has its own private grounds and is entirely separate from the main Hospital.

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Telephone: No. 7 Barnwood.

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(3½ miles from L.M.S. Station.)

This DIETETIC ESTABLISHMENT is equipped for the complete investigation and treatment of patients on rational lines. Own X-ray and Laboratory Biochemical investigation is made a special feature.

Resident Biochemist, Masseurs and Masseuses, Hydro- and Electro-therapeutics, Fasting on Scientific Principles. The staff are specially qualified to deal with the errors of Metabolism, and provision is made for the treatment of Tropical Diseases.

Further particulars from the Secretary, Preston Deanery Hall, Northampton.
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Illustrated Brochure on application to the Medical Superintendent, The Old Manor, Salisbury. Telephone 51.

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Telegrams: "Psycholia, London." Telephone: Rodney 4731—4732.

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For further particulars, apply to the MEDICAL SUPERINTENDENT.

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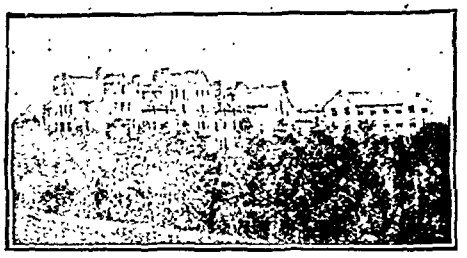

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For full particulars apply to *The Secretary*, Nordrach-upon-Mendip, Blagdon, Bristol. *Telegrams*: Nordrach, Blagdon. *Telephone*: Blagdon 23

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POST-GRADUATE LECTURES will be given by Members of the Honorary Staff and others, who have kindly promised to help, on MEDICAL, SURGICAL, and SPECIAL SUBJECTS each week on TUESDAYS and FRIDAYS, from Tuesday, September 24th, to Tuesday, December 10th. The Friday Lectures will be especially devoted to the explanation of recent scientific work and to other problems of interest. All Lectures to begin at 4.15 p.m., and are free. Details may be obtained from the Secretary for the Post-Graduate Lectures.

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The Secretary,
MEDICAL CORRESPONDENCE COLLEGE,
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Sir,—Please send me your "Guide to Medical Examinations" by return.

Name .....

Address .....

Examination in which interested .....

LONDON HOSPITAL MEDICAL COLLEGE AND DENTAL SCHOOL.

THE WINTER SESSION will open on TUESDAY, OCTOBER 1st.

THE HOSPITAL is the largest in England. There are 839 beds in constant use. Last year, In patients, 14,698; Out-patients 96,928 (attendances 555,762); Dental patients 5,857; Major operations, 7,649.

THE MEDICAL COLLEGE AND DENTAL SCHOOL are essentially modern, with large laboratories equipped with the latest and most approved appliances.

SCHOLARSHIPS AND PRIZES to the value of £1,158 are awarded annually, including four Open Entrance Scholarships to the value of £350, and two Entrance Scholarships open to students of the Universities of Oxford and Cambridge to the value of £200.

RESEARCH FUNDS of approximately £113,000 give unrivalled facilities for medical research.

APPOINTMENTS.—Over 160 appointments are made annually from Students of the College recently qualified.

SPECIAL COURSES are held for all the University Examinations for the Primary and Final Fellowship Examinations of the Royal College of Surgeons, and for the Membership Examinations of the Royal College of Physicians.

HOSPITAL PRACTICE.—Exceptional opportunities are offered to qualified Practitioners wishing to attend the General Practice or the Practice of a Special Department of the Hospital.

Club's Union, Athletic Ground of 13 acres, Students' Hostel, etc.

For prospectus and particulars, apply to the Dean (Professor WILLIAM WRIGHT, M.B., D.Sc., F.R.C.S.), who will be pleased to make arrangements for anyone wishing to see the Medical College and Dental School. Mile End, E.1.

LONDON SCHOOL OF DERMATOLOGY,

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN,

LEICESTER SQUARE, W.C.2.

Conducted by the Honorary Staff of the Hospital, together with the Physicians in charge of the Dermatological Departments of the London Teaching Hospitals. Lectures and Demonstrations every Tuesday and Thursday, at 5 p.m., from October to March, and four times weekly during May. Clinics daily at 2 p.m. and 6 p.m., Saturdays, 2 p.m. only. Pathological Laboratory for Instruction or Research Work.

For further particulars, fees, etc., apply to J. E. M. WIGLEY, M.B., Dean.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL

(UNIVERSITY OF LONDON),

ADVANCED MEDICINE.

A Course in Clinical Medicine, Pathology, Morbid Histology, and Biochemistry, suitable for M.D. and M.R.C.P. Examinations, will be given for six weeks, commencing October 29th.

Further particulars may be obtained on application to the Dean (H. WILLOUGHBY LYLE, M.D., F.R.C.S.), King's College Hospital Medical School, Denmark Hill, S.E.5

LIVERPOOL SCHOOL OF TROPICAL MEDICINE.

(UNIVERS
COURSES OF
(three months)
Medicine commence on October 1st and January 7th, and for the Diploma in Tropical Hygiene on January 12th and April 26th. (Candidates for the D.T.H. must possess the D.T.M. of this University.)

For particulars apply to the Hon. Dean, Liverpool School of Tropical Medicine, Pembroke Place, Liverpool

LONDON SCHOOL OF CLINICAL MEDICINE.

SEAMEN'S HOSPITAL, GREENWICH.

A Course will be held at the above, commencing on October 14th, in SURGICAL PATHOLOGY (fee £6 6s.) and OPERATIVE SURGERY (fee £6 6s.). Fee for both sections £10 10s. Those wishing to join the class should communicate with the Dean.

Greenwich, August 30th, 1929.

Preliminary Examinations.

The COLLEGE OF PRECEPTORS holds Preliminary Examinations for Medical and Dental Students in London and at Provincial Centres in March, June, September, and December. For Regulations, apply to the Secretary, College of Preceptors, Bloomsbury Square, London, W.C.1.

ST. MARY'S HOSPITAL MEDICAL SCHOOL, W.2.

(University of London.)

The WINTER SESSION will begin on TUESDAY, OCTOBER 1st, 1929.

The Medical School provides courses in Preliminary, Intermediate, and Final Subjects, and Students can

SITUATION.—Bet
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CLINICAL UNITS IN MEDICINE AND SURGERY.—Certain members of the medical and surgical staff devote their whole time to teaching and research.

Nearly 1,000 beds available for teaching, additional clinical material being provided by affiliation to an Infirmary and other Institutions.

ENTRANCE AND RESEARCH SCHOLARSHIPS to the value of £1,400 are awarded annually.

APPOINTMENTS, varying in value up to £750 per annum, open to students after qualification.

For further particulars and illustrated prospectus apply to the School Secretary.

C. M. WILSON (M.C.), M.B., F.R.C.P., Dean.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL.

(University of London.)
DENMARK HILL, S.E.5.

OPENING OF WINTER SESSION, October 2nd, 1929.

Introductory Address at 2.30 p.m. by Sir GREGORY FOSTER, Ph.D., Vice-Chancellor of the University of London; Lord GORELL, C.B.E., M.C., Chairman of the Committee of Management, will preside.

The Past and Present Students' Dinner will be held the same evening at 7 for 7.30, at the Connaught Rooms, Great Queen Street, Kingsway, W.C.2. (The Secretaries to the Dinner Committee are Dr. ERNEST PLAYFAIR and Dr. G. DI. BEC TURTLE).

The Calendar of the School, including that of the School of Dental Surgery, giving information as to Prizes, Entrance and other Scholarships, etc., may be obtained on application to the Dean, H. WILLOUGHBY LYLE, M.D.Lond., F.R.C.S., J.P., or to S. C. RANNER, M.A.Cantab., the Secretary of the Medical School.

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TAUNTON.

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Boys are regularly prepared for the First M.B. Examination, University Scholarships in Chemistry, Biology, etc.

Special facilities are offered for the teaching of Chemistry, Physics, Botany, and Zoology.

New Science Buildings, containing seven laboratories, two lecture rooms, science library, store rooms, etc., opened in September, 1925. Prospectus from Head Master.

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CITY ROAD, E.C.1.

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MEDICAL STUDENTS admitted to Hospital practice, with operative Midwifery, and Obstetrical complications.

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Resident and non-resident cases.

ERIC J. MIALL, A.L.C.M.,
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39, WELBECK STREET, LONDON, W.1.
Telephone No.: WELBECK 3238.

THE NORTH-EAST LONDON POST-GRADUATE COLLEGE.

The Prince of Wales's General Hospital, Tottenham, N.15, and the North Middlesex Hospital, Edmonton, N.18.

A ONE WEEK COURSE IN GASTRO-ENTEROLOGY will be held from September 30th to October 4th inclusive.

Enquiries and applications should be sent to the Dean at the Prince of Wales's General Hospital, or to the Secretary of the Fellowship of Medicine, 1, Wimpole Street, W.1.

M.D. THESIS

(Camb., Edin., Glasg., Durh., &c.)

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From Specialist Tutors, in conformity with the Regulations of the various Universities.

Apply for particulars and free booklet, "Hints on Writing a Thesis for the M.D. Degree," to the SECRETARY, Medical Correspondence College, 19, Welbeck Street, London, W.1.

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REASONABLE INCLUSIVE FEES.

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Sound Education. Upper and Lower Schools. Preparation, when desired, for all University Entrance Examinations. Particulars from Sec.

Special Terms to Medical Men.

Astley Cooper Studentship.

GUY'S HOSPITAL.

This Studentship, tenable at Guy's Hospital Medical School, is now vacant.

The Student, who is called the "Astley Cooper Assistant to the Curator of the Gordon Museum," will be elected in the first place for a period ending in July, 1930, but will then be eligible for re-election for three years.

Particulars regarding the Studentship can be obtained from the Secretary to the Astley Cooper Trustees, Medical School Office, Guy's Hospital, S.E.1, to whom applications for the post should be addressed on or before Oct. 7th.

County Borough and Port of GRIMSBY.

APPOINTMENT OF PART-TIME CLINICAL TUBERCULOSIS OFFICER AND ASSISTANT MEDICAL OFFICER OF HEALTH.

Applications are invited from fully qualified and registered medical men not over 45 years of age for the above post.

Candidates must have had previous Dispensary and Sanatorium experience and have held a Resident post in a general Hospital. They must also possess the D.P.H. and be able to use Ultra-violet and X-ray apparatus. Experience in surgical tuberculosis will be deemed to be an additional qualification.

The appointment is subject to the approval of the Ministry of Health. Salary £750 per annum.

The selected candidate will be required to assist the Medical Officer of Health in his routine duties when not engaged in tuberculosis work.

Form of application and conditions of appointment can be obtained from the undersigned, and should be accompanied by three recent testimonials, to reach me not later than September 30th.

Town Clerk's Office, JOHN W. JACKSON,
170, Victoria Street, Town Clerk.
Grimsby.

County of London.

The London County Council invites applications for appointment as EIGHTH ASSISTANT MEDICAL OFFICER (man or woman) in its Mental Hospitals Service. Candidates must be under 35 years of age and be registered to practise both in medicine and surgery in England. Salary £300 a year, rising by annual increments of £25 to £400 a year, plus fluctuating temporary additions, the present total commencing remuneration being approximately £423 a year. No emoluments. Charges made for board, lodging, etc. (at present £2 9s. weekly) if required to be resident. In the case of women marriage terminates contract of service. Candidate appointed will be pensionable under the Asylums Officers Superannuation Act, 1909. Form of application, on which full particulars are given, can be obtained from the Acting Chief Officer, Mental Hospitals Department, The County Hall, Westminster Bridge, S.E.1. Completed applications must be received by Tuesday, October 1st. Canvassing disqualifies.

MONTAGU H. COX,
Clerk of the London County Council.

INDIAN MEDICAL SERVICE

Recruitment of European Officers.

Applications are invited from medical men for permanent commissions in H.M.'s Indian Medical Service. The terms offered include a gratuity of £1,000 on retirement after six years' service, or £2,500 after 12 years' service, together with free return passages, for those who no longer desire to remain in the Service. In other respects the terms will be as detailed below.

Candidates must be British subjects under 32 years of age at the time of application, and must be registered under the Medical Acts in force in Great Britain and Northern Ireland.

CAREERS.

The Indian Medical Service offers wide opportunities of medical experience, including clinical, preventive, specialist, and research work. At the beginning of ihs career an officer is employed on the military side, which has medical charge of the Indian Army. Promotion is on a time scale up to the rank of Lieutenant-Colonel, and by selection to the ranks of Colonel and Major-General. An officer may apply after two years' Indian service for transfer to the civil side, from which appointments are made to Civil Surgeoncies, which are established at the principal civil centres to provide for the medical needs of civil officials and for general medical administrative purposes; to specialist (for example, public health and bacteriological) services; to research posts; and to professorships at the Medical Schools.

PAY.

The monthly rates of pay for European officers in the Service who have a "non-Asiatic" domicile are as follows:

Rank.	Service in Rank.	Basic Pay.	Overseas Pay.	Year of Total Service.
1	2	3	4	5
		Rs.	Rs.	
Lieut.		500	150	1st
			150	2nd
Capt.			150	3rd
	(i) During first 3 years' service as Captain	650	150	4th
			£15	5th
			£15	6th
	(ii) With more than 3 and less than 6 yrs.' service as Captain	750	£25	7th
			£25	8th
			£25	9th
	(iii) With more than 6 years' service as Captain	850	£25	10th
			£25	11th
			£30	12th
Major	(i) During first 3 years' service as Major	950		
	(ii) With more than 3 and less than 6 years' service as Major	1100		
	(iii) With more than 6 years' service as Major	1250		
Lieut.-Col.	(i) Until completion of 23 years' total service	1500	£30	13th and over
	(ii) During 24th and 25th years' service	1600		
	(iii) After completion of 25 years' total service	1700		
	(iv) When selected for increased pay	1850		

EXTRAS.—In addition to the above rates various allowances are admissible for a large number of special appointments on both the military and the civil side which may be held by members of the Indian Medical Service. Special high rates of pay are also attached to the numerous administrative appointments open to officers in both branches of the Service.

WAR SERVICE CONCESSIONS.

Any service rendered by an officer during the war as a medical or combatant officer, or in a position usually filled by an officer, may be counted as service for increments of pay, promotion, retirement and retired pay, but not for gratuity.

One half of any service in the ranks during the war may be counted as service for retirement and retired pay only.

OUTFIT ALLOWANCE.

Officers on appointment will receive an outfit allowance of £50.

PRIVATE PRACTICE.

With the exception of Administrative Officers, military or civil, and officers holding certain special appointments, officers are not debarred from taking private practice, so long as it does not interfere with their proper duties.

PENSIONS.

The rates of pension are as follows:

	Per annum.
	£
After 17 years' service for pension	400
,, 18 ,, ,, ,, ...	430
,, 19 ,, ,, ,, ...	460
,, 20 ,, ,, ,, ...	500
,, 21 ,, ,, ,, ...	540
,, 22 ,, ,, ,, ...	580
,, 23 ,, ,, ,, ...	620
,, 24 ,, ,, ,, ...	660
,, 25 ,, ,, ,, ...	700
,, 26 ,, ,, ,, ...	750
,, 27 ,, ,, ,, ...	800

These rates are subject to alteration on account of a rise or fall in the cost of living as compared with the year 1919 to an extent not exceeding 20 per cent. in all, the revision being undertaken triennially. With effect from July 1st, 1927, a reduction of 4½ per cent. has been made on this account from the amounts shown.

There are additional pensions ranging from £65 to £350 per annum for officers who have held administrative appointments.

PASSAGES.

An officer on appointment is provided with a free passage to India. The wives and families of officers who are married prior to the date of the officers' embarkation on first appointment will also be provided with free passage to India, subject to the payment of messing charges.

Officers and their families are also eligible for passage concessions under which they are granted a certain number of return passages home at Government expense during their service.

INSTRUCTION PRIOR TO EMBARKATION.

Officers are required to undergo courses of instruction at the Royal Army Medical College and at Aldershot, lasting approximately six months, prior to their embarkation for India on first appointment.

Full details regarding these appointments and forms of application may be obtained from the Under-Secretary of State for India, Military Department, India Office, London, S.W.1. Applications should be submitted as soon as possible. The Selection Committee will meet early in October to make nominations, and the selected candidates will be required to attend a course of instruction commencing on the 23rd October, 1929.

University of Cape Town.

APPOINTMENT OF ASSISTANT ANATOMIST.

Applications are invited for the post of Assistant Anatomist in the Department of Anatomy at the University of Cape Town.

Candidates must have a registrable medical qualification, and must have had experience of teaching anatomy. The appointment is a whole-time one, and the holder will be expected to take a responsible share in the teaching and to undertake research.

Salary.—£750 per annum, but for pension purposes it will be regarded as being on the scale £500—£25—£650.

Salary will be paid from February 1st, 1930, provided the Assistant has vacated his previous post on or before January 31st, 1930, and reports for duty on or before February 25th, otherwise salary will be paid from date of assumption of duty.

The appointment is for a period of three years in the first instance.

Passage Money.—£50 will be allowed for passage expenses, subject to a proportionate refund in the event of the Assistant terminating his agreement within three years of the date of the assumption of duty.

Duties.—To be assumed on March 1st, 1930.

Applications, stating age, professional qualifications and experience, together with copies of three recent testimonials (all in duplicate), should reach the Secretary, Office of the High Commissioner for the Union of South Africa, South Africa House, Trafalgar Square, W.C.2, from whom forms of application and further particulars may be obtained, not later than October 8th, 1929.

University of Sydney.

The Senate invites applications from gentlemen qualified to hold the BOSCH CHAIR OF SURGERY, the duties of which commence on March 1st, 1930. The salary is £2,500 per annum, without Superannuation rights. Applications (8 copies) should reach the undersigned by October 19th, 1929, but the University reserves to itself the right to invite any person to the Chair. A memorandum giving further particulars may be obtained on request.

The Senate invites applications from gentlemen qualified to hold the BOSCH CHAIR OF MEDICINE, the duties of which commence on March 1st, 1930. The salary is £2,500 per annum, without Superannuation rights. Applications (8 copies) should reach the undersigned by October 9th, 1929, but the University reserves to itself the right to invite any person to the Chair. A memorandum giving further particulars may be obtained on request.

The Senate invites applications from gentlemen qualified to hold the BOSCH CHAIR OF BACTERIOLOGY, the duties of which commence on March 1st, 1930. The salary is £1,100 per annum, subject to a deduction of 5 per cent. for the University Professorial Superannuation Scheme. Applications (8 copies) should reach the undersigned by October 19th, 1929. A memorandum giving further particulars may be obtained on request.

AGENT-GENERAL FOR NEW SOUTH WALES, LONDON.
Australia House, Strand, London, W.C.2.

Medical Department,

SUDAN GOVERNMENT.

A MEDICAL OFFICER is required immediately for the Sudan Medical Service. The candidate must be single and should be under 30 years of age, and he must have held a Resident appointment in a large General Hospital.

Pay commences at £E.730 a year, rising to £E.1,200 after thirteen years' service. On confirmation of his appointment, the selected candidate will be eligible for pensionable service.

Applications (in writing only), with copies of recent testimonials, should be made to Dr. HODSON, 24, Welbeck Street, W.1, from whom, and from the Secretaries or Deans of the principal Medical Schools, further particulars can be obtained.

City of London Hospital for DISEASES OF THE HEART AND LUNGS,

Victoria Park, E.2.
('Bus, tram, and rail, Cambridge Heath, L. & N.E. Railway.)

Applications for the post of HOUSE PHYSICIAN (male), with copies of recent testimonials, are invited to be sent to the undersigned by Monday, October 7th.

The appointment will be for six months from November 1st.

Salary at the rate of £100 per annum, with board, residence, and laundry provided.

GEORGE WATTS, Secretary.

Central Health Board,

FEDERATED MALAY STATES.

Applications are invited for Three MEDICAL OFFICERS for the Estate Service of the above Board. Candidates must be of pure British descent, between the ages of 25 and 35 years and must have held the post of House Physician and House Surgeon at a General Hospital. If they have not already taken a course at one of the recognized schools of Tropical Medicine, they will be required to do so before sailing, and an allowance is made for this purpose. Salary is at the rate of $700 per mensem for the first year equivalent to £980 a year, $750 per mensem for the second year equivalent to £1,050 a year, $800 per mensem for the third year equivalent to £1,120 a year. The first term of service being for three years. Free passages are granted to successful candidates and their wives, also their children under 10 years not exceeding the cost of a first-class passage, together with free furnished quarters and an allowance of $140 per mensem to cover the running costs, upkeep and depreciation of a car. ($1 equals 2s. 4d. sterling). At the end of the first term of three years' service, six months' full pay leave, exclusive of allowances, and free passages are granted. There is a provident fund in substitution of a pension fund. Candidates will be required to pass a medical examination before final selection. Further details of the Service will be given on application to the Agent, Malayan Information Agency, Malaya House, 57, Charing Cross, London, S.W.1.

Northamptonshire.

MEDICAL OFFICER OF HEALTH AND SCHOOL MEDICAL OFFICER.

The Northamptonshire County Council invite applications for the appointment of Medical Officer of Health and School Medical Officer for the Administrative County of Northampton.

Applicants must be legally qualified and duly registered medical practitioners, and hold a Diploma in Sanitary Science, Public Health, or State Medicine. They must also have had previous experience in Public Health administration under a local government authority.

The salary will be at the rate of £1,100 per annum, payable monthly, together with offices, staff, stationery, and such allowances for travelling and other necessary out-of-pocket expenses as the County Council shall from time to time approve. A periodical review of salaries is made by the County Council and suitable increments of salary will be given for proved ability and satisfactory service.

The salary will be subject to a deduction of 5 per cent. per annum for superannuation in accordance with the provisions of the Local Government and Other Officers Superannuation Act, 1922, which the County Council have adopted.

The candidate appointed will be required to pass a medical examination.

The officer appointed must reside at a place to be approved by the County Council and devote the whole of his time to the service of the Council and Education Committee; he will be responsible for the carrying out of the Public Health work now developing upon or which may hereafter devolve upon the County Council or its Committees.

The appointment is to be held subject to the provisions of the Sanitary Officers Order, 1926, and is determinable (subject to the provisions of Section 68(5) of the Housing, Town Planning, etc., Act, 1909), upon three months' notice on either side.

Further particulars, if required, may be obtained on application to the undersigned.

Applications, endorsed "Medical Officer," with not more than three recent testimonials, giving full particulars of the training, qualifications, experience, and age of the applicant, should reach the undersigned on or before Sept. 27th.

Applications and testimonials for the use of members of the Public Health, etc., Committee must be printed or typewritten, and not less than thirty copies should be supplied for this purpose.

Canvassing will disqualify.

H. A. MILLINGTON,
County Hall, Northampton. Clerk to the County Council

Parish of St. John, Hampstead.

The Guardians of the above Parish require a JUNIOR RESIDENT ASSISTANT MEDICAL OFFICER at their New End Hospital to start duties as soon as possible. Appointment six months, renewable at option of the Guardians. Salary £200 per annum, with board, lodging, and washing. Further particulars can be obtained from the Medical Superintendent. Applications to be sent to my office on or before 10 a.m. Thursday, September 26th.

H. WESTBURY PRESTON,
Guardians' Offices, New End, Hampstead, N.W.3. Clerk to the Guardians.

Glamorgan County Council.

APPOINTMENT OF MEDICAL OFFICER.

The Glamorgan Education Committee invite applications for the appointment of a Male Medical Officer. Applicants must have had at least three years' professional experience after qualification, and also hold a Diploma in Public Health. Special experience in Eye Diseases and Refraction work is essential, and experience in Orthopædic work would also be an advantage. Candidates must not be over 35 years of age.

The commencing annual salary will be £632 10s. less 5 per cent., and after three years will be increased to £641 5s., and thereafter by annual increments of £23 15s. to a maximum of £769.

Travelling and subsistence expenses will be paid according to scale.

The post is an established post under the County Superannuation Scheme, and for this purpose a deduction of 5 per cent. of the annual salary will be made, repayable with interest on retirement before pensionable age.

The person appointed will be required to give his whole time to the duties, under the control and supervision of the School Medical Officer, and to reside where directed by the Committee.

The appointment will be terminable by two months' notice on either side.

Applications for the appointment, stating age and qualifications, and accompanied by copies of not more than three recent testimonials, should be sent to the School Medical Officer, Dr. E. COLSTON WILLIAMS, County Hall, Cardiff, and should be received by him not later than the first post on the morning of October 2nd.

Canvassing, personal or otherwise, will be a disqualification.

Glamorgan County Hall, Cardiff. Sept. 14th, 1929. HENRY ROWLAND, Clerk of the County Council.

Metropolitan Borough of LEWISHAM.

ASSISTANT MEDICAL OFFICER OF HEALTH AND MATERNITY AND CHILD WELFARE MEDICAL OFFICER.

The Lewisham Borough Council invite applications from duly qualified medical men for the appointment of Assistant Medical Officer of Health and Maternity and Child Welfare Medical Officer.

The salary will be at the rate of £650 per annum inclusive, rising by annual increments of £25 to £750 per annum inclusive.

The person appointed will be required to give whole-time to the duties of the office, and will be under the administrative control and supervision of the Medical Officer of Health. He will be required to live within the Borough.

The appointment is subject to the approval of the Ministry of Health and to the provisions of the Local Government and Other Officers Superannuation Act, 1922, and also subject to three months' notice on either side to terminate the same.

Preference will be given to candidates (a) who have special experience in Maternity and Child Welfare work, and (b) those holding, in addition to other qualifications, a Diploma in Public Health.

Selected candidates will be required to undergo a medical examination.

Applications for the appointment, accompanied by copies of not more than three recent testimonials, must be made on forms to be obtained from the undersigned, and should be received here not later than 4 p.m. on Monday, September 30th.

Canvassing, directly or indirectly, is prohibited, and will disqualify.

Lewisham Town Hall, Catford, S.E.6. September 7th, 1929. JOHN W. SHUTER, Town Clerk.

City of Coventry.

MEDICAL OFFICER OF HEALTH.

The Coventry City Council invite applications from qualified practitioners in Medicine, Surgery, and Midwifery, who are also holders of a Diploma in Public Health, for the position of Medical Officer of Health of the City.

A form of application (upon which full particulars are given of the conditions of appointment and the duties of the office) may be obtained from the undersigned, and all applications must be made on the prescribed form.

Age must not exceed 40. The salary will be an inclusive salary on Grade A of the Council's scale, commencing at £1,225 and rising to £1,500 in the manner stated in the conditions of appointment. The post will be a designated post under the Local Government and Other Officers Superannuation Act, 1922.

Applications must reach the undersigned not later than Saturday, October 5th.

Canvassing, direct or indirect, will be regarded as a disqualification.

Council House, Coventry. FREDERICK SMITH, Town Clerk.
September 10th, 1929.

Birmingham Union.

SELLY OAK HOSPITAL.

RESIDENT PHYSICIAN (Male).

Applications are invited for the above post, giving age, full details of experience and qualifications and accompanied by copies of not more than three recent testimonials. Applications should be forwarded so as to reach the undersigned not later than Wednesday, October 9th.

Candidates must hold the degree of Doctor of Medicine of one of the Universities of the United Kingdom, or be a Fellow or a Member of the Royal College of Physicians of London or Edinburgh.

The Resident Medical Staff, including the Medical Superintendent, numbers eight.

The present Hospital accommodation consists of 540 beds for acute cases, divided into general medical, general surgical, gynæcological, obstetrical, and children's sections. Out-patient and Casualty Departments, as well as the following fully equipped special departments, are attached to the Hospital:—Pathological, X-ray, Electro-therapeutic, Massage, Ultra-violet ray.

The admissions and discharges for the year 1928 were 7,284 and 7,448 respectively.

The person appointed must devote the whole of his time to the duties of the office. He will act under the control and direction of the Medical Superintendent and will carry out such duties as may be assigned to him by such officer with the consent of the Guardians. Should occasion arise, the successful applicant must be prepared to assist at any of the other Institutions in the Union without additional remuneration.

The commencing salary will be fixed between £400 and £600, according to qualifications and experience. If fixed lower than the latter figure, the salary will rise to that figure by £50 annually, subject to satisfactory service. The Guardians' regulations provide that at the expiration of 12 months' satisfactory service additional allowances not exceeding in all £150 per annum are granted to the holders of certain prescribed degrees and/or diplomas.

Furnished quarters, rations, laundry, and attendance, will be provided. A deduction of 2 per cent. will be made from the salary and value of the emoluments under the provisions of the Poor Law Officers Superannuation Act, 1896.

Further particulars may be obtained, if desired, on application to the Medical Superintendent, R. P. S. KELMAN, Esq., M.B., F.R.C.S.(Eng. & Edin.).

Union Offices, Edmund Street, Birmingham. C. P. BEECH, Clerk to the Guardians.

Royal Devon & Exeter Hospital,

EXETER.

HONORARY PHYSICIAN.

Applications are invited for the post of Honorary Physician at this Hospital.

Candidates must be Fellows or Members of the Royal College of Physicians of London and Doctors of Medicine of one of the Universities of the United Kingdom and if appointed must practise as a Physician.

Particulars as to duties, etc., may be obtained from the undersigned.

Applications, together with certificates of birth and registration, original testimonials, with 35 copies, should be delivered to the undersigned not later than Saturday, October 26th.

Signed on behalf of the Committee,
S. S. COLE, Secretary.

N.B.—Canvassing of any member of the Standing Elective Committee is forbidden by the Rules of the Hospital.

North Ormesby Hospital,

MIDDLESBROUGH. (140 Beds.)

HOUSE PHYSICIAN required early in October. Male and unmarried. Salary £115 per annum, with board, residence, and laundry.

There are three Residents, and the successful candidate will be eligible for the post of House Surgeon in due course.

Applications, stating age, qualifications, previous experience (if any), with copies of three recent testimonials, to be sent to the undersigned as early as possible.

GEORGE WATTS, Secretary-Supt.

Royal United Hospital, Bath.

Wanted, on October 1st, a HOUSE SURGEON. Salary £150 per annum.

The appointment will be for not less than six months, and candidates must be male, unmarried, and of British nationality.

Applications, with three recent testimonials, must be addressed to the Secretary not later than the 28th inst.

J. M. SHEPPARD, F.C.I.S., Secretary.

County Borough of Barrow-in-Furness.

ASSISTANT MEDICAL OFFICER OF HEALTH AND ASSISTANT TUBERCULOSIS OFFICER.

Applications are invited for the above appointment at an inclusive salary of £600 per annum.

Candidates must be fully qualified and registered medical practitioners, with experience in the diagnosis and treatment of Tuberculosis. The successful candidate will be required to devote the whole of his time to the duties of the office, to assist in the general administrative work of the Department, and in the Medical Inspection of School Children, and will be under the direction of the Medical Officer of Health.

Particulars of the duties may be obtained on application to the Medical Officer of Health, Town Hall, Barrow-in-Furness.

Applications, stating age, experience, and qualifications, and endorsed "Assistant Medical Officer," and accompanied by copies of not more than three recent testimonials, must be received at my office not later than Saturday, September 28th.

Canvassing, either directly or indirectly, will be deemed a disqualification.

Preference will be given to candidates possessing the D.P.H.

Town Hall, Barrow-in-Furness. September 5th, 1929. W. A. CHISLETT, Town Clerk.

Manchester Union.

ASSISTANT MEDICAL OFFICER.

The Guardians of the Manchester Union invite applications from medical practitioners (male) who have had previous resident Hospital experience, for the appointment of Junior Resident Assistant Medical Officer at the Withington Hospitals (1,200 beds) and Institution (1,150 beds), Nell Lane, West Didsbury, Manchester.

The Hospitals are recognized Training Schools for nurses and are equipped with all modern hospital requirements.

The salary will be at the rate of £275 per annum, with rations and furnished apartments, subject to the usual deductions under the Poor Law Officers Superannuation Act, 1896.

The successful candidate will be required to commence duty as soon as possible after appointment.

Applications, endorsed "Medical Appointment, Withington," accompanied by not less than three testimonials, must reach me not later than Wednesday, September 25th instant.

By Order,
Union Offices, All Saints, Manchester. September 13th, 1929. F. W. GREENHALGH, Clerk to the Guardians.

Mildmay Mission Hospital,

Austin St., Bethnal Green, E.2.

Applications are invited for the post of JUNIOR RESIDENT MEDICAL OFFICER (male), which becomes vacant on Nov. 1st. Salary £100 per annum, with board, residence, and laundry. The appointment is for six months.

Candidates must be registered under the Medical Acts, and the Mildmay Council is anxious that they should be fully in sympathy with the religious work of the Hospital.

Applications, with copies of recent testimonials, should be sent to the Medical Superintendent before October 7th.

Mildmay Mission Hospital,

Austin St., Bethnal Green, E.2.

Applications are invited for the post of ASSISTANT CASUALTY OFFICER (female), which becomes vacant on Nov. 1st. The appointment is non-resident, and for six months. Salary £100 per annum.

Candidates must be registered under the Medical Acts, and the Mildmay Council is anxious that they should be fully in sympathy with the religious work of the Hospital.

Applications, with copies of recent testimonials, should be sent to the Medical Superintendent before October 7th.

Stockton and Thornaby Hospital,

STOCKTON-ON-TEES. (140 Beds.)

Applications are invited for the post of JUNIOR RESIDENT MEDICAL OFFICER (male). Salary £150, with residence, board, and laundry. Candidates for the above post must be doubly qualified and unmarried, and are required to commence duties on October 1st.

Application, stating age, nationality, and experience, together with copies of three recent testimonials, to be sent to the undersigned as early as possible.

J. WILKINSON, Secretary.

County Borough of Stockport.

CLINICAL TUBERCULOSIS OFFICER AND SENIOR ASSISTANT MEDICAL OFFICER OF HEALTH.

Applications are invited from duly qualified and registered medical men for the above appointment.

The possession of a degree or diploma in Public Health is essential, and preference will be given to candidates with experience in the diagnosis and treatment of Tuberculosis and Venereal Diseases.

The salary attached to the position will be £750 per annum, rising by annual increments of £25 to a maximum of £850 per annum (no bonus).

Forms of application and particulars of the duties, etc., of the office can be obtained by application to Dr. N. GENNIE, Medical Officer of Health, Town Hall, Stockport.

Applications, endorsed "Assistant Medical Officer of Health," should reach me not later than October 9th.

Town Clerk's Office, Town Hall, Stockport. Sept. 16th, 1929. ROBERT HYDE, Town Clerk.

West London Hospital,

Hammersmith, W.6.

An HONORARY REGISTRAR is required for the Throat, Nose, and Ear Department. The appointment is for one year from November 1st, and subject to annual re-election, may be extended for a period not longer than three years.

qualified registered

by copies of testimonials, must reach me not later than first post on Thursday, October 17th. Candidates must attend the Meeting of the Medical Council on Friday, October 18th at 4 p.m., and prior to that date call upon and send copies of application and testimonials to each Member thereof. They must not canvass Members of the Board, but nevertheless must send a copy of their application and testimonials to each Member thereof, and if notified be in attendance at a Meeting of the Board at 5 p.m. on Tuesday, October 22nd, when the appointment will be made.

H. A. MADGE, Secretary.

West London Hospital,

Hammersmith, W.6. (225 Beds.)

Required, One NON-RESIDENT HOUSE OFFICER (part-time) for Children's Department for six months from November 1st next, subject to one month's notice on either side. Applicants may be male or female. Salary at the rate of £150 per annum. Candidates must be registered under the Medical Act and have held a resident appointment at a Children's Hospital or in the Children's Department of a General Hospital.

Applications and copies of testimonials in quadruplicate (which must be made on printed forms obtained from me) must reach me not later than first post on Friday, October 11th. Selected candidates will be required to call upon such members of the Medical Staff as directed, to be in attendance at a Meeting of the Medical Council on Friday, October 18th, at 4 p.m. and the House Committee Meeting at 4.45 p.m. the same day when the appointment will be made.

H. A. MADGE, Secretary.

Cheltenham General and Eye Hospitals.

The Board of Management invite applications for the post of HOUSE SURGEON (male, unmarried) at the Eye, Ear, Throat, and Nose Branch.

Candidates must be fully qualified.

Experience in this particular class of work desirable.

Salary £200 p.a., with board, residence, and laundry.

Applications, with copies of testimonials, to be sent in sealed envelopes marked "House Surgeon—Eye," to the undersigned not later than the 28th instant.

J. CUMMING SMITH, F.C.I.S., General Hospital, Cheltenham. September 2nd, 1929. Secretary.

Manchester Ear Hospital,

GROSVENOR SQUARE, ALL SAINTS.

Non-resident HOUSE SURGEON required. Salary at the rate of £150 per annum, with partial board. Appointment for six months. Applications, with copies of four recent testimonials, to be forwarded not later than March 16th to Mr. REGINALD S. MILFORD (Hon. Sec., Manchester Ear Hospital), c/o Mr. W. J. ELLAM, 33, Brazennose Street, Manchester.

London Homœopathic Hospital,
(Incorporated by Royal Charter),
Great Ormond Street and Queen Square,
Bloomsbury, W.C.1.
(172 Beds.)

The Board of Management are prepared to receive applications for the following appointment:

SURGEON IN CHARGE OF THE MECHANO-THERAPY AND ORTHOPÆDIC DEPT.

The successful candidate must be, or become within a limited period, a Fellow of one of the Royal Colleges of Surgeons, and be, or become, a Member of the British Homœopathic Society.

Any candidate canvassing the Members of the Board, Medical Council, or Medical Committee are thereby disqualified.

Candidates may be required to attend a meeting of the Medical Committee.

Applications, stating age, with 35 copies of application and 35 copies of each testimonial, should be sent addressed to the Secretary, of whom further particulars may be obtained.

EDWARD A. ATTWOOD,
Sept., 1929. Secretary.

North Middlesex Hospital,
Silver Street, Edmonton, N.18.

Male RESIDENT MEDICAL OFFICER required. A well-qualified gentleman desirous of good hard work is required at this Hospital, with over 1,000 sick beds and Out-patient Department. As experience is very extensive, the candidate should have previously held a House appointment, and preference will be given to one with knowledge of routine of Hospital work. The appointment is a whole-time one, living in. Age not over 45 years. Salary £200 per annum, *subject to terms* stated on the application form. Applications, in writing, only to be made immediately on forms to be obtained from the Medical Superintendent and Surgical Director. No personal interview at present.

Princess Louise Kensington
HOSPITAL FOR CHILDREN,
North Kensington. (42 Beds.)

HOUSE PHYSICIAN (woman) required for six months from November 1st. During the first three months the House Surgeon will be Senior Resident, after which a new House Surgeon will be appointed and the House Physician becomes Senior. Salary at the rate of £75 per annum for the first three months, and at the rate of £100 for last three months, with board, residence, and laundry.

Applications, together with copies of three testimonials, must be submitted *on a form to be* obtained from the Secretary, Princess Louise Kensington Hospital for Children, St. Quintin Avenue, W.10, and must be sent in by Saturday, October 12th.

Royal Free Hospital,
Gray's Inn Road, W.C.1.

Applications are invited from duly qualified and registered medical men for the post of SENIOR RESIDENT MEDICAL OFFICER, vacant on December 1st, and tenable for one year. Salary £150 per annum, with board and residence. Intending candidates should submit applications, stating age and experience, accompanied by copies of three recent testimonials, to the undersigned on or before October 5th.

REGINALD R. GARRATT, Secretary.

Royal Free Hospital,
Gray's Inn Road, W.C.1.

Applications are invited from duly qualified medical women for the post of CASUALTY OFFICER. Previous experience as Hospital Resident essential. Salary £150 per annum. Intending candidates should submit applications stating age and accompanied by copies of three recent testimonials, to the undersigned before October 5th.

The appointment is tenable for six months from November 1st.

REGINALD R. GARRATT, Secretary.

Golden Square Throat, Nose, and
EAR HOSPITAL, London, W.1.

Applications are invited for the following posts:

1. HONORARY ANÆSTHETIST.
2. REGISTRAR.

Particulars may be obtained from the undersigned, by whom applications must be received on or before October 4th.

F. P. CARROLL, Secretary-Supt.

Golden Square Throat, Nose, and
EAR HOSPITAL, London, W.1.

Applications are invited for the post of REGISTRAR. Particulars of the duties may be obtained from the undersigned, by whom applications should be received on or before September 30th.

F. P. CARROLL, Secretary-Supt.

The Belgrave Hospital for
CHILDREN (Incorporated),
1, Clapham Road, S.W.9.

The Committee of Management invite applications for the post of HOUSE SURGEON and ASSISTANT HOUSE PHYSICIAN, which will become vacant on October 31st.

Applicants (men) must be fully qualified and registered. The appointments are for six months, with board, residence, and washing provided.

Salary at the rate of £100 per annum in each case.

Applications, with copies of testimonials, stating age, to be forwarded on or before Wednesday, October 2nd.

By Order,
THOS. CLAPHAM, Secretary.

The Loughborough and District
GENERAL HOSPITAL AND DISPENSARY.

Wanted, to commence duties at once, RESIDENT HOUSE SURGEON (female and unmarried) possessing a Medical and Surgical registered qualification. Practical experience in the administration of anæsthetics is required. Salary £125, with apartments, board, and laundry. All applications, stating age, etc., with copies of testimonials, to be sent to me at once.

9, Leicester Rd., Loughborough. FRANK H. TOONE, Secretary.
August 30th, 1929.

David Lewis Northern Hospital,
LIVERPOOL.

RESIDENT MEDICAL OFFICERS.

Applications are invited for the following:
One HOUSE SURGEON;
One HOUSE PHYSICIAN;
to commence duties from October 1st for a period of six months.

Salary at the rate of £100 per annum, with *full board.*

Applications and testimonials to be in the hands of the Secretary-Superintendent on or before September 23rd.

H. LEVEY.

Royal Victoria and West Hants
HOSPITAL, BOURNEMOUTH.
(POOLE ROAD BRANCH—68 Beds.)

HOUSE SURGEON (male, British nationality) required to commence duty second week in October. Salary £120 per annum, with board, lodging, and washing. The appointment is tenable for six months, and candidates must be registered according to the Medical Act. Applications, stating place of birth, with copies of three testimonials, to be sent immediately to the undersigned. Women and married men are ineligible.

GORDON M. SAUL,
Sept. 16th, 1929. Secretary.

The General Hospital,
BIRMINGHAM.

Applications are invited for the following resident appointments from October 15th.

RESIDENT ANÆSTHETISTS (Two). Salary £120 per annum.

HOUSE SURGEONS (Three). Salary £70 per annum.

Applications, giving full details of qualifications and accompanied by testimonials (if desired) should reach the undersigned by September 30th.

A. H. LEANEY, House Governor.

Queen Mary's Hospital for the
EAST END, E.15.

Applications are invited for the post of
l Department of

v copies of testi-
only, should be forwarded to the undersigned not later than September 27th.

The appointment carries with it an honorarium of £25 per annum, and attendance will be required on Monday mornings at 9.0 a.m.

RAPHAEL JACKSON (Major),
Secretary.

Royal Buckinghamshire Hospital
AYLESBURY.

Applications are invited for the post of RESIDENT MEDICAL OFFICER (male) for six months. To commence duty about September 30th, or as soon after as possible. Salary £180 per annum, with board, residence, and laundry. Candidates must be fully qualified and registered.

Applications, stating age, qualifications, and experience, with copies of not more than three testimonials, should be sent to the undersigned at once.

M. W. BROWN, Secretary.

The Gloucestershire Royal
INFIRMARY AND EYE INSTITUTION,
GLOUCESTER. (153 Beds.)

Applications are invited for the post of FIRST HOUSE SURGEON (male). Salary £135 per annum, with board, residence, and laundry.

The appointment is for six months, which may be extended for similar periods from time to time.

Applications, stating age, qualifications, and nationality, with copies of not less than three recent testimonials, to be sent to the undersigned not later than Wednesday, October 2nd. The appointed candidate will be required to enter upon his duties on October 19th.

F. J. SYMONS,
Sept. 16th, 1929. Secretary.

The Gloucestershire Royal
INFIRMARY AND EYE INSTITUTION,
GLOUCESTER. (153 Beds.)

The General Committee invite applications for the post of HONORARY EAR, NOSE, AND THROAT SURGEON.

Candidates must be duly registered practitioners.

Applications, stating age, qualifications, experience, etc., accompanied by testimonials, should be forwarded to the Secretary on or before Wednesday, October 9th.

F. J. SYMONS,
September 5th, 1929. Secretary.

Royal Sussex County Hospital,
BRIGHTON. (225 Beds.)

HOUSE PHYSICIAN (male) required immediately, with charge of beds. Salary £150 per annum, with board, residence, and laundry. Candidates must hold a Medical and Surgical qualification of the British Empire, and be duly registered under the Medical Acts. They must be unmarried, and when elected under 30 years of age. Applications, with copies of testimonials, should be sent at once to the undersigned.

L. L. W. LANCASTER-GAYE,
Secretary-Supt.

The Children's Hospital,
SUNDERLAND. (70 Beds.)

Wanted, beginning of November, Two RESIDENT MEDICAL OFFICERS (female). Candidates must possess double qualifications (registered). Salary £100 per annum, with board, residence, and laundry. The appointments are for six months. Applications, stating age, with copies of three recent testimonials, to be received by the undersigned not later than October 3rd.

S. C. FRYERS,
House Governor & Secretary.

Royal South Hants and
SOUTHAMPTON HOSPITAL,
SOUTHAMPTON.

Applications are invited for the post of CASUALTY OFFICER. Salary £120, with rooms, board, and laundry. Six months' engagement, commencing October 1st. Candidates, who must be male and unmarried, should apply at once to the undersigned, stating age, and enclosing copies of testimonials.

By Order,
HY. TRUSSON, Secretary.

Cornelia & East Dorset Hospital,
POOLE. (102 Beds.)

Applications are invited for the post of HOUSE SURGEON (male).

Salary £150 p.a., with usual emoluments.

Duties to commence October 1st, for six months (with option of extension for further six months).

Applications, with copies of recent testimonials, to be delivered at the Hospital at the earliest possible date.

E. S. FOLEY, Secretary.

Liverpool Stanley Hospital.

Wanted for October 1st, One Male HOUSE SURGEON, for a period of six months. Salary at the rate of £100 per annum, with board, laundry, etc.

Candidates must be on the *Medical Register*, and applications, with copies of three recent testimonials, should be lodged with the undersigned on or before September 25th.

E. W. OSBORN, Secretary.

Royal Southern Hospital,
LIVERPOOL.

Applications are invited for the post of MEDICAL TUTOR AND REGISTRAR, to commence duty on appointment. Applications and testimonials to be forwarded to the undersigned, from whom any further particulars as to duties may be obtained, on or before Saturday, September 28th.

ALLEN NALDRETT, Supt. & Sec.

APPOINTMENTS—Important Notice.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

(a) British Islands.

Town or District.	Town or District.	Town or District.
CONTRACT PRACTICE.	**CONTRACT PRACTICE** *(Contd.).*	**PUBLIC HEALTH** *(continued).*
EBBW VALE, MON. *(Workmen's Medical Society.)*	NEATH AND DISTRICT. *(Medical Aid Association.)*	GLASGOW EDUCATION AUTHORITY. *(Male Assistant Medical Officer.)*
GILFACH GOCH, GLAMORGAN. *(Workmen's Medical Scheme.)*	OAKDALE, MON. *(Medical Officer for Medical Aid Association.)*	YORKSHIRE NORTH RIDING COUNTY COUNCIL EDUCATION COMMITTEE. *(Assistant School Medical Officer.)*
LLWYNYPIA, CLYDACH VALE PENTGRAIG, GLAMORGAN. *(Workmen's Medical Scheme.)*	OGMORE VALLEY, GLAMORGAN. *(Wyndham Colliery Medical Aid Society.) (Workmen's Medical Scheme.)*	YORKSHIRE WEST RIDING COUNTY COUNCIL. *(School Medical Inspector.)*
MARDY, GLAMORGAN. *(Workmen's Medical Scheme.)*	**PUBLIC HEALTH.**	
	CORNWALL EDUCATION COMMITTEE. *(Assistant School Medical Officer—Female.)*	

(b) Colonial Medical Service.—

WINDWARD ISLANDS MEDICAL SERVICE. (Grenada with Carriacou, St. Vincent and St. Lucia.)

(c) Overseas.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.
NEW SOUTH WALES. *(All Friendly Society Appointments.)*	Dr. R. H. TODD (Hon. Sec., New South Wales Branch), B.M.A. Building, 30-34, Elizabeth St., Sydney, N.S.W.	**VICTORIA.** *(All Institute or Medical Dispensaries.)*	Dr. FRANK DAVIES (Hon. Sec., Victorian Branch), British Medical Association, Medical Society Hall, East Melbourne, Victoria.	**WESTERN AUSTRALIA.** *(Contract and Lodge Practices.)*	Hon. Sec., Western Australian Branch, British Medical Association, No. 6, Bank of N.S.W. Chambers, St. George's Terr., Perth, Western Australia.
QUEENSLAND. *(Brisbane Associated Friendly Societies Institute.)*	The Hon. Sec., Queensland Branch, British Medical Association, B.M.A. Building, Adelaide St., Brisbane.	**WELLINGTON, NEW ZEALAND.** *(Contract Practice Appointments.)*	Dr. G. F. V. ANSON (Hon. Sec., New Zealand Branch), British Medical Association, P.O. Box 156, Wellington, New Zealand.		

Address: B.M.A. House, Tavistock Square, W.C.1. September 18th, 1929.

By Order of the Council of the British Medical Association.
ALFRED COX, Medical Secretary

Bristol City and County Mental HOSPITAL.

SECOND ASSISTANT MEDICAL OFFICER.

Applications are invited from unmarried gentlemen, duly qualified and registered, and not over 35 years of age, for the above post. Salary commencing at £500, rising by two annual increments of £25 to £550 per annum, with board, apartments, laundry, and attendance. £50 in addition if possessing a Diploma in Psychological Medicine. Fully equipped laboratory with trained assistant for research and clinical pathology. Previous experience essential. The appointment is subject to the Asylum Officers Superannuation Act, 1909. Application forms, which should be obtained from the Medical Superintendent, should reach him at the Mental Hospital, Fishponds, Bristol, completed with copies of three testimonials, by Monday, September 30th.

The Council House, Bristol. Sept. 13th, 1929. JOSIAH GREEN, Clerk to the Visiting Committee.

The Royal Sea Bathing Hospital FOR SURGICAL TUBERCULOSIS, MARGATE.

HOUSE SURGEON REQUIRED.

A Male House Surgeon is required to take up duty on October 1st next. The salary is at the rate of £100 per annum, with board, residence, attendance, and laundry.

Candidates for the post must be legally qualified and registered. The appointment is for six months.

There are 300 beds for adults and children, which afford special opportunities for the study of surgical tuberculosis.

Applications, stating age and previous appointments, with copies of three testimonials, should be sent to the Secretary, R.S.B.H. Offices, 15, York Buildings, Adelphi, London, W.C.2.

Bristol City and County Mental HOSPITAL.

THIRD ASSISTANT MEDICAL OFFICER.

Applications are invited from unmarried gentlemen, duly qualified and registered, and not over 35 years of age, for the above post. Salary commencing at £350, rising by four annual increments of £25 to £450 per annum, with board, apartments, laundry, and attendance. £50 in addition for Diploma in Psychological Medicine. Fully equipped laboratory with trained assistant for research and clinical pathology. Previous experience is not essential. The appointment is subject to the Asylum Officers Superannuation Act, 1909. Application forms, which should be obtained from the Medical Superintendent, should reach him at the Mental Hospital, Fishponds, Bristol, completed, with copies of three testimonials, by Monday, September 30th.

The Council House, Bristol. Sept. 13th, 1929. JOSIAH GREEN, Clerk to the Visiting Committee.

Nottingham Children's Hospital.

Applications are invited for the post of RESIDENT HOUSE PHYSICIAN (woman). Candidates must have held a Resident hospital appointment. Experience in the administration of anæsthetics essential. The salary will be at the rate of £150 per annum, with apartments, board, and laundry. The appointment will be for six months, and the duties will commence as from November 1st.

Applications, together with testimonials, and stating age, qualifications, and experience, to be sent to F. PRAGNELL, the Honorary Secretary, 1, King John's Chambers, Bridlesmith Gate, Nottingham, by September 23rd. Selected candidates will be required to attend at the Hospital for a personal interview on October 1st, when the appointment will be made.

London Temperance Hospital, Hampstead Road, N.W.1.

the post of

period of six

annum, and

be given to abstainers and to those who have held resident posts.

Candidates must submit applications, stating qualifications, age, etc., with copies of not more than three testimonials, by Thursday, October 3rd, addressed to the Secretary.

The London Lock Hospital, 91, Dean Street, W.1.

The Board of Management invite applications for the post of HOUSE SURGEON at the Male Lock Hospital. Candidates must be doubly qualified and duly registered. Salary at the rate of £200 per annum, with furnished flat, full board and laundry. The appointment to be for six months. Duties to commence October 10th. Applications, enclosing copies (only) of three recent testimonials, to be sent to the undersigned at the Male Lock Hospital, 91, Dean Street, W., on or before September 23rd.

By Order of the Board,
H. J. EASON, Secretary.

Manchester Babies' Hospital, Burnage Lane, LEVENSHULME.

Applications are invited for the post of JUNIOR RESIDENT MEDICAL OFFICER. Appointment is for six months from November 1st. Salary at the rate of £50 per annum, with laundry. Only candidates with previous Hospital experience need apply.

Applications, together with copies of testimonials, should be sent to the undersigned and marked "J.R.M.O." by Thursday, Sept. 26th.

ANGELA LOPEZ, Secretary.

MOTOR CAR FOR SALE.

Austin Six, 16h.p., Special Coupé Body, 1st price £425. Run under 600 miles, condition absolutely as new, comfortable, sliding front seats, two occasional seats and roomy dickey reached from inside. Will sacrifice for £375.—Reply, FERRIS-SCOTT, B.M.A. House, Tavistock Square, London, W.C.1.

ASSISTANCIES.

Wanted. — Assistant, October, male, Protestant, Scotch Graduate if available; experienced minor surgery, midwifery, anæsthetics, Colliery district, South Wales. Dispenser kept. Sign bond. £400 p.a. Use of car. Temperate.—Address, refs., age, etc., No. 5661, B.M.A. House, Tavistock Sq., W.C.1.

Wanted October, outdoor Assistant, male (young) for private and panel Practice, 15 miles from London, by two Partners. Salary according to experience. Hospital and scope for surgery.—Address, No. 5809, B.M.A. House, Tavistock Square, W.C.1.

Wanted immediately, Assistant, male, ex H.S. or H.P. preferred or previous experience. Very good salary and surroundings for capable man. Provinces. Good references essential.—Apply, "MEDICUS," 125, St. George's Road, S.W.1.

Wanted immediately, Assistant, for London, N.1, male, young, outdoor. Private and panel. Commencing salary £350, furnished rooms, heat, and light. References.—Address, No. 5913, B.M.A. House, Tavistock Square, W.C.1.

Wanted, a young indoor Assistant for mixed Practice in Northumberland Colliery district and near Newcastle-on-Tyne. Salary £275 p.a. State age, nationality. Send any further particulars, and photo.—Add., No. 5670, B.M.A. House, Tavistock Sq., W.C.1.

Wanted, at once, outdoor ASSISTANT, married or single, in mixed private and panel Practice in Lancashire town. House available. Salary £350—£400. —Address, No. 5839, B.M.A. House, Tavistock Square, W.C.1.

Wanted, qualified Assistant (indoor, male), in Colliery Practice in Glamorgan. Dispenser kept. Salary £300 p.a. Send all essential particulars. — Address, No. 5935, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistant, outdoor, male, to take charge of Branch Surgery. Pembs. Coast, country district. Motor-cyclist. Work light.—Address, No. 5013, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistant, indoor, male. Salary £300 p.a. Must be a motor-cyclist.—Address, stating age, experience, photo, if possible, No. 5903, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—Assistant (lady), mixed country Practice, live in. Car found. One recently qualified requiring exper of gen. prac. would be suitable. Usual bond. References, age, and other essential particulars. — Address, No. 5908, B.M.A. House, Tavistock Square, W.C.1.

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Wanted. — Indoor Assistant, British, Colliery Practice, Glamorgan. Liberal salary for suitable man. Good opportunity for exper. in anæs., etc., at local hosp. Newly qual. man would suit.—Add., with refs., No. 5816, B.M.A. House, Tavistock Sq., W.C.1.

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Wanted. — Lady Assistant, outdoor, experienced in G.P. (panel and private), cyclist London suburb.—Address, stating essential particulars, No. 5815, B.M.A. House, Tavistock Square, W.C.1.

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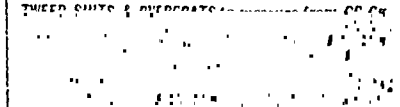

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Accommodation in Country Doctor's House, South, offered to retired Doctor (widower or bachelor) on very reasonable terms. Hunting and shooting. Object: society and occasional help.—Address, No. 5904, B.M.A. House, Tavistock Square, W.C.1.

Consulting Room to Let. — Two rooms of which one is fitted as Laboratory for Clinical Pathology. — Address, No. 6805, B.M.A. House, Tavistock Square, W.C.1.

First and Second Floors, over- looking square, suit private or profession, 2 rec., 3 bedrooms, bathroom, kitchen, central heating, newly decorated, reasonable inclusive rent. Also 2 large rooms on ground floor.—Apply, 1a, Duke St., Manchester Sq., W.1.

Kentish Town. — Large vacant SHOP, suitable for SURGERY, with vacant rooms at rear to be let or sold. Excellent opening for young practitioner.—Apply, OWNERS, 1, Greenland Street, Camden Town.

Piccadilly. — Consulting Rooms in Dental Surgeon's office. Exceptionally well equipped and furnished, fitted for Ophthalmic and Sunlight work. Receptionist, service, light, telephone, all inclusive £12 per month.—No. 5689, B.M.A. House, Tavistock Sq., W.C.1.

Piccadilly Circus (near).—First floor. Admirably suited for Dentist. Low inclusive rent.—Agents: ARTHUR GROVER & Co., 18, Charing Cross Road, W.C.2. Temple Bar 6028—9.

Quick Sale for £150.—New well-equipped SURGERY, about 15 minutes from West End. Freehold house (9 rooms), with basement and garage. £1 850.—Address, No. 5907, B.M.A. House, Tavistock Square, W.C.1.

Sussex Downs. — Beautiful old world COTTAGE RESIDENCE, vacant. Wealth of old oak. Magnificent views. Eight rooms, offices, indoor sanitation, telephone. Garage. London 40/50 miles.—OWNER, Rudale, Dee Banks, Chester.

To Let in Wimpole Street.—A good furnished ground floor CONSULTING ROOM. — Address, No 5915, B.M.A. House, Tavistock Square, W.C.1.

APPOINTMENTS.—Contd.

Bangour Mental Hospital, WEST LOTHIAN.

Vacancy for unmarried man as SECOND ASSISTANT MEDICAL OFFICER. Experience of mental work not necessary, but Post-Graduate Medical or Surgical experience a recommendation. Salary £350 per annum, rising to £400 after 12 months' satisfactory service, together with apartments, board, laundry, and attendance. Appointment pensionable under the Asylums Officers Superannuation Act, 1909.

Applications to be addressed to the Medical Superintendent, Bangour Village, West Lothian.

Aberystwyth Infirmary and CARDIGANSHIRE GENERAL HOSPITAL. (40 Beds.)

HOUSE SURGEON required (male). Salary £200 per annum, with board, residence, and laundry.

Candidates must be fully qualified and registered, and must be experienced anæsthetists; knowledge of X-ray a consideration.

Knowledge of Welsh desirable.

Applications, stating age and qualifications, together with three recent testimonials, to be sent by Monday, October 7th, to the Secretary, The Infirmary, Aberystwyth.

Bedford County Hospital.

ASSISTANT HOUSE SURGEON (male), fully qualified, unmarried, required for a term of not less than six months, commencing October 14th. Salary £130, with board, lodging, and laundry.

Applications, stating age, nationality, qualifications, together with three recent testimonials, to be sent to the Hon. Secretary, Medical Staff Committee, not later than Friday, September 27th. Selected candidates will be invited for an interview Wednesday, October 2nd.

Peterborough and District MEMORIAL HOSPITAL. (154 Beds.)

Applications are invited from fully qualified male practitioners for the post of RESIDENT HOUSE SURGEON.

The appointment will be for a period of six months. Salary £150 per annum, with board, residence, and laundry.

Applications, stating age, qualifications, and experience, with copies of recent testimonials, to be sent to the undersigned by Sept. 25th.

FRANK A. C. TAYLOR,
Secretary-Superintendent.

The Royal Gwent Hospital, NEWPORT, MON.

There is a vacancy for a JUNIOR RESIDENT MEDICAL OFFICER at the above Hospital. Salary at the rate of £125 per annum, with board, lodging, and laundry.

Applications, stating age and qualifications, with copies of three testimonials, to be sent to the undersigned.

Applications from ladies not entertained.

J. K. MILLWARD,
Sept. 16th, 1929. Secretary-Supt.

Swansea Hospital. (316 Beds.)

HOUSE SURGEON wanted, gentleman, single. Salary £150 per annum, with board, residence, and laundry.

Applications, stating age, nationality, qualifications, and experience, together with copies of three recent testimonials, to be forwarded to the undersigned.

O. C. HOWELLS, Secretary.

Birkenhead General Hospital. (156 Beds.)

Applications are invited for the post of CASUALTY SURGEON (gentleman). Salary £100, with board and residence, to take up duties immediately.

Applications, stating qualifications, experience, and nationality, with three copies of recent testimonials, to be sent to the Secretary-Superintendent as early as possible.

The Hartlepools Hospital. (100 Beds.)

JUNIOR HOUSE SURGEON (male) required. Must be fully qualified and registered. Salary £125 per annum, with board, residence, and laundry. Applications, accompanied by copies of not more than three recent testimonials, should reach the undersigned not later than September 30th

P. NEVILLE HART, Secretary.

CAVENDISH NURSES (Male and Female)

Head Office: 54, BEAUMONT ST., LONDON, W.1 (late 43, New Cavendish St., London, W.1.)

A very convenient form of telephone message pad sent free on application to the Secretary.

Branches: MANCHESTER: 176, *Oxford Road*. *GLASGOW*: 28, *Windsor Terrace*. *DUBLIN*: 23, *Upper Baggot Street*.

TELEGRAMS: TELEPHONES:

Tactear, London. Surgical, Glasgow. London, 1277 Welbeck. Glasgow, 477 Douglas.

Tactear, Manchester. Tactear, Dublin. Manchester, 3152 Ardwick. Dublin, 551 Ballsbridge.

Superior trained Nurses for Medical, Surgical, Mental, Dipsomania, Travelling and all cases. Nurses reside on the premises, and are always ready for urgent calls Day and Night. Skilled Masseuses, Masseurs, and good Valet attendants supplied.

Terms from £3 3s. *Apply to the Secretary or Lady Supt.*

The Hospital for Sick Children,
Great Ormond Street, London, W.C.1.

An ASSISTANT PATHOLOGIST and RESEARCH FELLOW is required in the Pathological Department on October 3rd.

Gentlemen are invited to send in their applications, addressed to the Secretary, accompanied by copies of not more than three testimonials given specially for the purpose, before 12 o'clock, on Monday, September 30th.

The appointment is whole-time and is non-resident.

The appointment is made for one year, but the successful candidate will be eligible for reappointment.

Salary £450 per annum and allowance for substitute for annual holiday, 24 guineas.

The Assistant Pathologist and Research Fellow will devote half his time to the routine bacteriological and serological work of the Hospital, and the other half to the carrying out of Research work, primarily in connection with Rheumatism. Preference will therefore be given to candidates who have shown their aptitude for Research by their previous experience or publications.

Candidates must be registered medical men, and be prepared to take up the duties on October 3rd.

All candidates must be in attendance to appear before the Joint Committee, if required, at their meeting on Wednesday, October 2nd, at 4.45 p.m.

Forms of application, copy of the rules and details of the duties of the appointment, will be supplied on application to the Secretary.

By Order of the Board of Management,
JAMES McKAY,
September, 1929. Secretary.

The Hospital for Sick Children,
Great Ormond Street, London, W.C.1.

A HOUSE SURGEON and a HOUSE PHYSICIAN are required on October 4th and 14th respectively.

Gentlemen are invited to send in their applications, addressed to the Secretary, before 12 o'clock, on Monday, September 30th, with copies of not more than three testimonials given specially for the purpose, and also evidence of their having held a responsible Hospital appointment.

The appointments are made for six months. Salaries at the rate of £100 per annum, laundry allowance £5, board and residence in the Hospital.

Candidates must be unmarried and possess a legal qualification to practise.

All candidates must be in attendance to appear before the Joint Committee, if required, at their meeting on Wednesday, October 2nd, at 4.45 p.m. precisely.

Forms of application and copies of the Rules may be obtained from the Secretary.

By Order of the Board of Management,
JAMES McKAY,
September, 1929. Secretary.

Queen's Hospital for Children,
Hackney Road, London, E.2.

CASUALTY OFFICER required on November 26th. A six months' appointment. Salary £100 a year, with board, residence, and washing. Preference given to candidates who have previously held Resident appointments. Applications must be made on forms to be obtained from the Secretary, and must be sent in, with copies of not more than four testimonials, on or before October 30th.

T. GLENTON-KERR,
September 9th, 1929. Secretary.

Queen's Hospital for Children,
Hackney Road, London, E.2.

HOUSE PHYSICIAN required on December 1st. Six months' appointment. Salary £100 a year, with board, residence, and washing. Preference given to candidates who have previously held Resident appointments.

Applications must be made on forms to be obtained from the Secretary, and must be sent in, with not more than four testimonials, on or before October 30th.

T. GLENTON-KERR,
September 9th, 1929. Secretary.

The Prince of Wales's General
HOSPITAL, Tottenham, N.15.

The following Resident posts will be vacant on November 1st next:

SENIOR HOUSE PHYSICIAN, SENIOR HOUSE SURGEON and SPECIAL HOUSE SURGEON. Salaries at the rate of £120 per annum.

JUNIOR HOUSE PHYSICIAN and Two JUNIOR HOUSE SURGEONS. Salaries at the rate of £90 per annum.

Board, residence, and laundry.

Appointment held for six months, but holders are eligible for reappointment for a further term.

Candidates (male) must be fully qualified and registered, and applications (on prescribed form), together with copies of three recent testimonials, should be sent to me on or before the first post on Tuesday, October 1st.

FREDK. W. DREWETT,
September 9th, 1929. Director.

Seamen's Hospital Society.

The Committee of Management invite applications for the *appointment of SURGEON* with charge of *In-patients* at the ALBERT DOCK HOSPITAL, *Connaught Road*, E. The elected *candidate* will be appointed for 12 months and will be eligible for re-election.

[illegible] ows of the Royal [illegible] land, or Masters of [illegible] in the United

Applications to be sent in *on or before October* 15th to the undersigned, *from whom further* particulars can be obtained.

By Order,
Greenwich. R. E. V. BAX,
Sept. 9th, 1929. Secretary.

Addenbrooke's Hospital,
CAMBRIDGE.

Applications are invited for the post of HOUSE SURGEON to the Special Departments. The appointment will be for *six months* from October 10th, but is terminable at *an earlier* date by one month's written notice on either side. Salary at the rate of £130 per annum, with board, residence, and laundry. Candidates (male), who must be unmarried and duly registered, are requested to forward their applications, stating age, qualifications, etc., *together* with copies of not more than four *testimonials*, to the undersigned on or before Thursday, September 26th.

W. H. HEAD, Secretary-Supt.

Hull Royal Infirmary.
(272 Beds.)

Applications are invited for the post of ASSISTANT HOUSE PHYSICIAN (male), at *present* vacant. The appointment will be for *six months* in the first instance and will be terminable by one month's notice on either *side*.

Salary at the rate of £130 per annum, with residence, board, and laundry.

Applications should be addressed to the undersigned.

R. J. CARLESS,
September 5th, 1929. House Governor.

Newcastle-upon-Tyne City
MENTAL HOSPITAL,
GOSFORTH, NEWCASTLE-UPON-TYNE.

Wanted early in October, JUNIOR ASSISTANT MEDICAL OFFICER (male). Salary £350, rising to £400 on obtaining the Diploma of Psychiatry, with board, furnished apartments, and laundry, subject to deductions under the Asylums Officers Superannuation Act, 1909.

Form of application may be obtained from the Medical Superintendent.

Norfolk and Norwich Hospital,
NORWICH.

HOUSE SURGEON *required*, to take up duties on November 1st *next*. Salary £120, with board, residence, and laundry. Candidates (male), who must possess *registered* qualifications, should forward applications, stating age, nationality, etc., together with copies of testimonials, to the Secretary not later than September 26th.

Evelina Hospital for Children,
Southwark, S.E.1.

The Committee of Management requires a HOUSE SURGEON (male) *from* October 1st to April 12th, 1930 (*during first two months* duty in Casualty and *Out-patient Department*). Salary £120 *per annum*, with board and residence. Candidates, duly *registered*, to send applications, *giving age, qualifications* (with dates), and *copies of four* testimonials, to the undersigned at the Hospital, before Sept. 24th. Applicants will be informed if they will be interviewed by the Medical Committee. Selected candidates must attend Committee of Management. Date of meeting will be notified by undersigned, *from* whom rules and other particulars relating to the post must be obtained.

By Order of the Committee of Management,
H. C. S. SMITH,
Sept. 16th, 1929. Secretary-Supt.

London Jewish Hospital,
Stepney Green, E.1. (108 Beds.)

The Council of Management invite applications *for the following posts*:

[illegible] GEON IN THE [illegible] TMENT; with [illegible] didates must be [illegible] of Surgeons of England, Edinburgh, or Ireland, or Masters of Surger[illegible]

HONORARY [illegible]

HONORARY [illegible] RGE OF THE [illegible] ART-MENT, who will be required to attend the Department at least twice a week.

Candidates desiring to make applications for any of the above posts must send twenty copies of the applications, with copies of three recent testimonials, to the Secretary at the Hospital before Friday, October 4th.

Merthyr General Hospital,
MERTHYR TYDFIL.

Applications are invited for the post of RESIDENT MEDICAL OFFICER at this Hospital (103 beds, mainly surgical) for a period of six months commencing *October* 1st. Salary at the [illegible] th board, rooms, [illegible] have had ex- [illegible] naesthetics. [illegible] d qualifications [illegible] ore than three recent testimonials, should be addressed, Hon. Sec., Honorary Medical Staff, not later than *September* 24th.

General Hospital, Gt. Yarmouth.
(72 Beds.)

Applications are invited for the post of SENIOR HOUSE SURGEON. Salary £150 per annum, with board, residence, and laundry. Duties to commence at once. Candidates (male and unmarried) must be fully qualified and registered.

Applications, stating age, nationality, and qualifications, *together* with copies of three recent testimonials, to be sent *immediately* to the undersigned.

T. H. G. GARTLAND, Secretary.

The Royal Eye and Ear Hospital,
BRADFORD.

Applications are invited for the post of JUNIOR HOUSE SURGEON (male).

Salary £120, with board, residence, and laundry.

Applications, stating qualifications, *age*, etc., *with* copies of recent testimonials, to be forwarded to the undersigned.

F. BRIGGS, Secretary-Supt.

Applications are invited for the
post of RESIDENT MEDICAL OFFICER, JUNIOR (male), at the Dumfries & Galloway Royal Infirmary. The Institution, which contains over 100 beds, is one of the premier Provincial Hospitals in Scotland, and offers exceptional opportunities of gaining experience in all branches of the profession. Period of engagement, one year. Salary £100 p.a.

Applications, with testimonials, to be forwarded to the Treasurer, Dumfries & Galloway Royal Infirmary, 84 Irish Street, Dumfries, by September 30th.

West Middlesex Hospital,
ISLEWORTH.

APPOINTMENT OF RESIDENT ASSISTANT MEDICAL SUPERINTENDENT.

The Guardians invite applications for the appointment of Resident Assistant Medical Superintendent and Assistant Medical Officer of their Warkworth House Institution and Scattered Homes, which are adjacent, from medical practitioners with previous experience in major surgery and of administration in similar Institutions.

Commencing inclusive salary £450 per annum, rising, upon approved service, on October 1st, 1930, and thereafter, annually by £50, to £600 per annum, together with residential emoluments valued for superannuation purposes at £90 per annum. All fees received are to be repaid to the Guardians.

Applications, upon forms to be obtained by forwarding a stamped addressed foolscap envelope, are to be returned to the undersigned before 10 a.m. on Tuesday, Sept. 24th.

Toolands House, 34, Twickenham Road, Isleworth, Middx. September 10th, 1929.

F. E. HARMSWORTH, Clerk to the Guardians.

Salford Royal Hospital.
(263 Beds.)

Applications are invited for the following vacancies, which will occur in the Resident Medical Staff (male) on the 30th Instant:

HOUSE SURGEON (attached to the Orthopædic Department). Salary at the rate of £125 *per annum*.

HOUSE SURGEON. Salary at the rate of £125 per annum.

CASUALTY HOUSE SURGEON. Salary at the rate of £125 per annum.

The appointments are for a period of six months, with board and residence.

Candidates must be registered under the Medical Acts.

Forms of application, which may be obtained from the undersigned, must be delivered without delay.

By Order of the Board,
Salford Royal Hospital, Manchester. September 16th, 1929.

GEORGE RUDDLE, Gen. Supt. & Secretary.

St. Mary Islington Infirmary,
Highgate Hill, N.19.

ASSISTANT MEDICAL OFFICER (male) required. Salary at the rate of £350 per annum, with residential allowances. Appointment is for six months. Candidates must be registered under the Medical Act, and the appointment is subject to the provisions of the Poor Law Officers Superannuation Acts. Applications, stating age, whether married or single, together with full particulars of qualifications and experience, accompanied by copies of three recent testimonials, to be received by the Medical Superintendent of the Infirmary not later than September 30th.

Blackburn and East Lancashire
ROYAL INFIRMARY.

FOURTH HOUSE SURGEON (male) required at a salary of £130 per annum, with board, residence, laundry, etc.

The Hospital contains 240 beds, with X-ray, Massage, V.D., Eye, Ear, Nose, and Throat Departments, Pathological Laboratory, etc. There is no outside work.

Applications, with copies of testimonials, stating age, nationality, experience, etc., to be sent at once to the undersigned.

Royal Infirmary, Blackburn. NATHAN A. SMITH, Gen. Supt. & Secretary.

Brighton and Hove Provident
DENTAL HOSPITAL (Incorporated), 27, Queen's Road, BRIGHTON.

A vacancy exists on the Honorary Staff for
o must be
ld send in
uber 28th,
: Hospital,

Assistant Secretary.

Hospital of St. John and St. Elizabeth,
60, Grove End Road, N.W.8.

Applications are invited for the post of RESIDENT HOUSE SURGEON (male). The appointment will be for six months from November 1st. Salary at the rate of £75 per annum, with full board. Applications, together with three testimonials, should reach the undersigned not later than October 1st.

F. DUDLEY HOBB, B.A., Secretary.
September, 1929

Telephone: WELBECK 2728.
Telegrams: "ASSISTIAMO, LONDON."

NURSES
MALE OR FEMALE.

TRAINED NURSES FOR MENTAL, MEDICAL, SURGICAL, AND FEVER CASES.

Nurses reside on the premises and are available for urgent calls Day or Night.

THE NURSES' ASSOCIATION
(In conjunction with the MALE NURSES' ASSOCIATION),
29, York St., Baker St., London, W.1.
Mrs. MILLICENT HICKS, *Supt.*
W. J. HICKS, *Secretary.*

ST. LUKE'S HOSPITAL.
FOR MENTAL DISORDERS.

Private Nursing Staff Department.

Trained Nurses for Mental and Nervous Cases can be had immediately.

Apply to Lady Superintendent, 19, Nottingham Place, London, W.1. Telephone: Mayfair 5420.

Northern Branch.—Apply, Lady Superintendent 57, Clarendon Rd., Leeds. 'Phone: Leeds 26165.

THE
NEW MENTAL NURSES CO-OPERATION,
139, Edgware Road, Marble Arch, W.

Specially trained Nurses for Mental and Nerve cases. (All Nurses are insured under the Employers Liability Act, 1906.) Apply the Supt.

Telegrams: "Psyconurse, Padd., Lond." *Telephone:* No. 6105 Padd.

King George V Sanatorium,
GODALMING, SURREY.

Applications are invited for the appointment of JUNIOR ASSISTANT MEDICAL OFFICER (male) at King George V Sanatorium, Godalming, Surrey (232 beds) for early cases (male adults) of pulmonary tuberculosis. There is no accommodation at the sanatorium for a married officer. There are two other Medical Officers on the staff. Previous tuberculosis experience is not essential. Preference will be given to candidates under 30 years of age. Salary £500 per annum.

The candidate appointed will be required to reside in the institution and pay for board, lodging, and washing at the rate fixed from time to time by the Board's Finance Committee. At present the rate is £150 per annum.

Application to be made not later than 10 a.m. on Wednesday, October 2nd, on form obtainable from the Clerk, Metropolitan Asylums Board, Victoria Embankment, London, E.C.4, by forwarding stamped addressed foolscap envelope.

ALLAN POWELL, Clerk to the Board.
Sept. 10th, 1929.

County Mental Hospital,
STAFFORD.

SECOND ASSISTANT MEDICAL OFFICER, male, single, required. Salary £600, rising by £25 per annum to £700; £50 per annum in addition if or when in possession of Diploma in Psychological Medicine. £150 per annum will be charged for furnished quarters, board, laundry, and attendance.

Every opportunity afforded for study and research, sero-diagnostic, etc., in well-equipped laboratory. Applications will be considered only from candidates with some experience of laboratory work.

onditions of Asylums
t, 1909.
qualifications, etc.,
cent testimonials, to
Superintendent.

Resident Medical Officer (male)
required at the NECHELLS BRANCH of the BIRMINGHAM GENERAL DISPENSARY. Salary £450 per annum, with comfortable quarters and attendance but not board. Consultations 9.30 a.m. and 2 to 4 p.m. No midwifery cases. Applications, stating qualifications and nationality, together with copies of three recent testimonials, to be sent to the Secretary, Birmingham General Dispensary, Steelhouse Lane, Birmingham.

THE OLDEST AND LEADING MEDICAL AGENT

PERCIVAL TURNER,
(Established 50 years.) LTD.
4 & 5, ADAM ST., STRAND, W.C.2.
Telegrams: "EPSOMIAN, LONDON."
Telephone: TEMPLE BAR 9011.

Terms post free on application.

Share worth £800 net in suburban Practice. Appts. £400 p.a. Panel over 3,000. Prelim. assistancy essential.—No. 8547.

Midlands (Industrial). — Over £1,500 p.a., with ample scope. Panel about 1,700. House to rent at £56.—No. 8546.

Essex Coast. — Urgent Sale. — About £700 p.a. Small panel. Good house and garden to rent in growing district. —No. 8544.

South Devon.—£2,400 p.a. Unopposed. 4/9 share for sale. Panel 1,400. Good house, 6 bed., etc., and gardens, to rent at £75 p.a.—No. 8543.

Wilts.—£2,250 p.a. Country Town. Panel 1,000. Surgical scope. Choice of houses. Premium £1,800 for 2/5 share.—No. 8541.

Lancs. — Average £1,590 p.a. 1/2 share for sale. Panel £800 p.a. House, 4 bed., etc., to rent. Premium only £1,200.—No. 8517.

Dorset. — Average £2,300 p.a. 1/2 share for sale. *Good appts.* Small panel. House, 6 bed., etc., and garden, to rent. —No. 8537.

Liverpool.—£1,300 p.a. *Visits* 3/6 to 5/-. Mids. 3 to 4 gns. Panel 560. House, 4 bed., etc., and garden.—No. 8536.

Yorks. — Average £1,800 p.a. Panel over 1,000. Visits 3/6 up. No mids. House, 5 bed., etc.—No. 8533.

Cornwall. — About £850 p.a., increasing. Small panel. Visits 4/- to 21/-. House, 6 bed., etc., and good garden.—No. 8529.

Staffs. — About £1,300 p.a. Panel 1,300. Fees 5/-. House, 5 bed., etc., to rent. Premium £1,000 cash.—No. 8527.

Lancs Coast.—£2,000 p.a. Mid. and upper-class panel over 800. Visits 7/-. Mids. 3—4 gns. Good house to rent.—No. 8525.

N. Wales Borders.—£4,000 p.a. 1/3 or 2/3 share. Panel 3,800. Appts. worth £1,600 p.a. Visits 5/- up. About 50 mids. at £2 2s. House (4 bed., etc.) to rent or buy.—No. 8519.

Home Counties.—Death Vacancy. —About £760 p.a. Mids. 2 gns. Panel 516. *Visits up to 10/-.* Good house and large garden to rent.—No. 8516.

Yorks.—Over £3,000 p.a. 1/4 share, good scope for increase. Panel over 2,000. Mids. 2—5 gns. Med. house to rent or buy.—No. 8510.

Lancs.—£4,000 p.a., increasing. Panel over 2,600. Visits 2/6—7/-. Mids. 2—5 gns. Suitable for two. Two houses, rent or buy.—No. 8509.

Sussex Coast.—About £1,400 p.a. Good-class, non-panel, non-dispensing. Appt. £35. Visits 5/- to 15/-. Large house to rent.—No. 8476.

Home County.—Over £700 p.a. Small residential town within 25 miles, South. Panel 462. Good fees. Large well-built house and garden.—No. 8494.

Cornwall. — Share £1,000 p.a. General mixed Practice. Panel nearly 2,400. House, 5 bed, etc., low rent.—No. 8493.

Lancs.—1/3 or 1/2 share of over £2,400 after prelim. assistancy. Panel £500. Mixed class. Good house, with 4 bed., 2 attics, etc.—No. 8454.

Bucks.—About £2,800 p.a. 1/2 share. Appts. £200 p.a. Panel over 1,900. Visits 3/6—10/6. Mids. 2—5 gns. House, 4 bed., to rent. Prem. 1½ yrs.—No 8483.

Kent.—Country Practice. About £1,000 p.a. Panel about 400. Appts. over £50 p.a. Visits 3/6 to 10/6. House, 5 bed., etc. Extensive grounds.—No. 8408.

SPECIAL NOTICE.

FINANCIAL ASSISTANCE to enable purchasers to obtain Practices and Partnerships can be afforded to approved applicants.

Full particulars on application to Mr. Percival Turner.

THE MEDICAL AGENCY

(ESTABLISHED BY J. A. REASIDE IN 1893)

WATERGATE HOUSE, 15, YORK BUILDINGS, ADELPHI, W.C.2.

Telephones: TEMPLE BAR 1054. RIVERSIDE 1254. *(Night Calls.)*

Telegrams: "REASIDE, TUBERCLE, WESTRAND, LONDON."

FOR SALE.

LIVERPOOL.—Well-established G.P. Receipts over £500 p.a. Panel 700. Medium-sized house to rent or for sale. Premium £750.

ESSEX.—PARTNERHIP in middle-class G.P., situated in growing residential locality. Receipts over £3,600 (increasing). Panel 2,250. House to rent or for sale. One-third (or larger) share at £2,400. £1,800 down and balance by arrangement.

YORKS.—PARTNERSHIP in middle- and working-class G.P. Receipts over £3,000 p.a. Panel over 2,000. House to rent. Premium for 1/4th share £1,500.

MIDLANDS.—Cash and panel PRACTICE situated in manufacturing town. Suitable accommodation available. Receipts £650. Panel 800. Premium £1,000, cash.

SHROPSHIRE.—NUCLEUS PRACTICE. Receipts approx. £350. Panel 380. House to rent at £35. Premium £475.

LONDON, E.—NUCLEUS G.P., situated in thickly-populated locality. Medium-sized house to rent. Receipts approx. £450 p.a. Panel 300. Premium 1½ years' purchase.

GLOS.—Well-established middle- and working-class PRACTICE. Medium-sized freehold house in own grounds. Receipts average £1,270 p.a. Panel 1,100. Fees 2/6 up. Premium for house and practice £2,700.

EASTERN COUNTIES.—PARTNERSHIP in rural G.P. Receipts over £2,200. Panel 1,500. Premium for 1/3rd share 2 years' purchase. Part down and balance by arrangement.

MIDDLESEX.—Semi-rural PRACTICE. Receipts £1,600, including income from panel. House for sale or to rent. Premium 1½ years' purchase.

KENT.—Coastal Town.—Old-established G.P. Receipts average over £1,450. Panel 1,350. House to rent. Premium 1½ years' purchase.

EASTERN COUNTIES.—PARTNERSHIP in good-class Practice. Receipts over £4,400 p.a. No panel. Hospital. Premium for 1/4th share, with view to larger share, 2 years' purchase. Suitable to young experienced man, preferably single and on the medical side.

HANTS.—Seaport.—Well-established mixed-class G.P. Good house, with garden, to rent or for sale. Receipts £800 p.a. Panel 900. Two appointments. Premium 1½ years' purchase.

LANCS.—Large Town.—PARTNERSHIP in mixed-class Practice. Receipts £1,900. Panel 1,900. Good house to rent or for sale. Premium for half share 1½ years' purchase.

BUCKS.—DEATH VACANCY in Country Practice. Receipts £700. Panel 500. House to rent. Premium 1 year's purchase.

WILTS.—PARTNERSHIP in mixed country and small town Practice. Receipts £2,250. Cottage Hospital. Premium for 2/5ths share 2 years' purchase. Suitable for experienced man keen on surgery.

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5. LONDON, W.—Middle-class, non-panel PRACTICE returning last year £1,137. Capable of expansion in more active hand. Fees 3/6 to 10/6. No midwifery. Suitable accommodation arranged. Vendor retiring.
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(FOUNDED 1880.)

12, Stratford Place, Oxford Street, W.1.

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2 LONDON, W.—Good middle-class Practice nearly £1,400 p.a in Western suburb. No panel, midwifery, or night work. Large detached double-fronted house in extensive grounds for sale. Scope for increase. Premium £1,500.

3 MIDDLESEX. — Practice of over £1,300 p.a. in residential district within 20 miles of London. Panel over 1,100. House (5 bedrooms), with very attractive garden, etc., to rent. Premium 1½ years' purchase.

4 SOUTH MIDLANDS.—Increasing Country PRACTICE averaging over £1,300 p.a. (£750 from panel and appointments) in pretty village. Convenient house (6 bed and dressing rooms), good garden and acre paddock to rent on lease. Sport. Premium £2,200.

5 EASTERN COUNTIES.—Practice averaging nearly £3,300 p.a. in seaport town. Panel 700. House (5 bedroms), large garden, for sale or rent. Scope. Premium 1½ years' purchase (or share up to one-half at 2 years' purchase).

6 HOME COUNTY.—Country Practice averaging nearly £1,100 p.a. in village under 15 miles from London (North). Panel 670. Old-fashioned roomy and comfortable house (6 bedrooms), large garden and garage to rent Good prospects for scope. Premium £1,650.

7 NORTH OF ENGLAND. — Ophthalmic PRACTICE over £1,300 p.a. in good town. Excellent introduction. Premium 1½ years' purchase.

8 MIDLANDS. — Country Practice about £1,000 p.a. in residential district and hunting centre. Panel 600/730. House, with 8 bedrooms, to rent. Premium £1,300.

9 DEATH VACANCY. — Surrey.—Practice about £1,700 p.a in residential town Panel 840. Excellent house (7 bedrooms), with beautiful garden for sale or rent.

10 SOUTH COAST. — Practice worth about £1,500 p.a. in first-class residential seaside place. Small panel. Detached house (6 bedrooms), with garage and garden to be sold. Moderate premium for Practice.

11 ESSEX. — Rapidly increasing Practice of nearly £1,200 in residential district under 10 miles from London. Panel 747. Fine imposing and centrally situated house to be sold. Premium—Practice—£1,800.

12 YORKSHIRE (E.R.). — Old-established Town and Country PRACTICE £2,750, within easy distance of important town. Panel 1,750 to 1,800. Well-situated house (9 rooms and bath). Great scope. Premium—Practice and house—£4,850, or, assistantship with view to purchasing one-third share entertained.

13 SOUTH OF ENGLAND.—Partnership in Practice of over £6,700 p.a. in pleasant residential neighbourhood close to good Town. One-sixth share at first at 2 years' purchase. Purchasers should have held H.P. appointment at one of the London Hospitals.

14 EAST ANGLIA.—Partnership in Country Town Practice averaging £1,600 p.a. Panel about 700. Picturesque old-fashioned house (8 bedrooms), with electric light, etc., to rent. Premium one-half share 2 years' purchase.

15 LONDON, N.—Partnership in well-estab. middle-class Practice, nearly £2,750 p.a., in pleasant outlying suburb. Panel about 800. Suitable accommodation to rent. Premium one-third share 2 years' purchase.

16 YORKSHIRE (W.R.). — Partnership in Practice averaging £1,400 p.a. in country district close to large town. Opposition weak. Plenty of scope for increase. One-half share at 1½ years' purchase.

17 BUCKS.—Practice about £800 in small country town. Panel 741. Nice detached house (4 bedrooms), garden and garage, to rent. Premium £1,050.

18 SOUTH OF ENGLAND. — Assistant required (with view to Partnership) in steadily increasing Practice £2,770 in attractive town within 90 miles of London. Panel 1,770. Applicant must be English or Scotch (about 28 to 30), who must have held House appointments. One-third share at 2 years' purchase to suitable man after preliminary assistantship.

19 BRITISH EAST AFRICA. — Assistant required (with view to Partnership) in General and X-ray and Electro-therapeutic Practice. Assistant must hold the F.R.C.S., and experience in X-ray would be advantageous. Share of about £1,200 p.a. offered to suitable man after preliminary assistantship.

20 SOUTH AFRICA.—Old-established PRACTICE. Receipts last year £1,816. Travelling and midwifery light. Climate ideal—no tropical diseases (altitude nearly 5,000 ft.). Delightful residence (5 bedrooms), in perfect order, with 2 acres grounds. Excellent scope. Local Hospital. Premium £1,200, with option to purchase house.

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Practices and Partnerships for Disposal (continued).

21 SOUTH AFRICA.—Old-established PRACTICE in one of the pleasantest towns, with beautiful climate, in the Cape Province. Receipts average £2,900 p.a. House (4 bedrooms) to rent. Purchaser should be able to do major surgery. Knowledge of Dutch unnecessary. Premium £2,250.

22 CARDIFF. — Non-dispensing Practice averaging £1,543 p.a. Small panel. Pleasantly situated house (5 bedrooms) to be sold or let. Premium £2,000.

23 MIDLANDS.—Practice averaging £1,680 p.a. in important city. Panel 1,560. Specially built house (4 bed and dressing rooms) to be sold. Scope for increase. Price £2,250.

24 HOME COUNTIES.—Partnership in Practice £2,800 p.a. in good town about 30 miles from London. Small panel. Convenient house (5 bedrooms) to be sold or let. University and Public School man who has held appointments preferred. One-third share at 2 yrs.' purchase after preliminary assistantship.

25 LONDON, S.E.—Increasing Practice averaging about £800 p.a. in populous district close to the City. Panel 800. House (5 bedrooms) to rent. Premium 1½ years purchase.

26 PRIVATE ASYLUM.—Partnership.—Exceptional opportunity for suitably qualified Medical Man (age 30—33) in first-rate establishment. Preliminary assistantship 12 months. Capital required about £4,000.

27 SOUTH OF ENGLAND.—Partnership in Practice £2,250 p.a. in beautifully situated Country Town within 100 miles of London. Panel under 1,000. Suitable accommodation. Share, worth about £900 p.a., at 2 years' purchase.

28 SOUTH OF ENGLAND.—Seaport Town. PRACTICE of about £750 p.a., including appointments over £225 p.a., and panel nearly 1,000. Good house (6 bedrooms) to be sold or let. Premium 1½ years' purchase.

29 DEATH VACANCY.—Surrey.—Practice of between £250/300 p.a. in residential district easy distance of London. Small panel. Specially built corner residence (4 bedrooms), with nearly half acre of garden, for sale.

30 LONDON, W.—Partnership in good middle and upper class (non-dispensing) Practice. No panel. Applicant should be aged about 30 and have held several Hospital appointments. Share of £1,000 (or more) at 2 years' purchase after preliminary assistantship.

31 SURREY.—Sound rapidly increasing PRACTICE in suburban district under 10 miles. Receipts last year £2,500. Panel 750. Small house for sale. Premium—Practice—£4,000.

32 NORTH OF ENGLAND. — Practice about £600 p.a. in Inland Spa. Panel over 500. Well-situated house (6 bedrooms) to rent. Premium £1,000.

33 LIVERPOOL. — Increasing Practice of nearly £1,300. Panel 560. House (4 bedrooms), garage and garden, for sale. Golf near by. Premium £1,650.

34 SOUTH OF ENGLAND. — Partnership in Country Town Practice of nearly £2,300 p.a. Small panel. Well-built house (6 bedrooms) to rent. Premium one-half share 1½ years' purchase.

35 SOUTH COAST.—Non-dispensing Practice of about £1,900 in residential town. No panel. Choice of house.

36 MIDLANDS. — Practice averaging over £1,850 p.a. in small Industrial Town with pretty country all round. Panel 1,380. Double-fronted house (7 bedrooms) for sale. Good scope. Premium £2,500.

37 MIDDLESEX.—Partnership in sound Practice of between £3,000 and £4,000 p.a. in town within easy distance of London. Panel over 2,000. Share worth about £1,000 p.a. at 2 years' purchase after preliminary assistantship.

38 KENT AND SUSSEX BORDER.—Country PRACTICE, nearly £1,150, in beautiful district. Panel about 400. Large house (6/7 bedrooms), with charming garden, etc., for sale. Sport. Premium £1,625.

39 LONDON, W.—Good middle-class Practice of £840 in outlying residential suburb. No panel and practically no midwifery. House (4 bedrooms) and fair-sized garden to rent. Premium £1,100.

40 S.W. OF ENGLAND. — Country Practice of £950 p.a. Panel 400. Very little midwifery and night work. House, with 4 bedrooms, garden, and garage, for sale. Good society. Premium 1½ years' purchase.

41 LONDON, N.—Sound easily worked PRACTICE over £2,500 p.a. in residential district. Small panel and few midwiferies. Good house (5 bed and dressing rooms), with large garden, to be sold. Premium for Practice 1½ years' purchase.

42 MIDDLESEX. — Rapidly increasing PRACTICE doing about £600 in new developing district. Small panel. Very convenient house (3 bedrooms) for sale. Great scope. Premium £900.

43 NORTH OF ENGLAND.—Partnership in non-dispensing Practice about £6,000 p.a. in first-rate Country Town. Small panel. Very good house (6 bedrooms) to be sold or let. Premium one-fifth or two-fifths share 2 years' purchase.

44 CARMARTHENSHIRE.—Practice of over £930 p.a. derived from contract work and panel, in pretty village. Modern bungalow residence (3 bedrooms), with separate surgery, standing in 1½ acres of ground. Premium—Practice and house—£2,500, part on mortgage if desired.

45 LANCASHIRE. — Practice of £1,500 in rapidly growing district within a few miles of popular resort. Panel over 200. Very nice compact house (4 bedrooms), with beautiful garden and orchard, for sale. Prem.—Practice—£1,500.

46 LONDON, N.W.—Partnership in increasing middle and working-class Practice £2,550. Panel about 1,500. Excellent flat (2 bedrooms) at moderate rent. Premium one-third share £1,700, part by instalment.

47 MIDLANDS.—Partnership in sound well-established Practice over £4,000 p.a. in flourishing town. Panel 2,800. House, with 4 bedrooms, to rent. One-fifth share at 2 years' purchase. Partner should be experienced in Surgery.

48 LANCASHIRE.—Partnership in Practice averaging £2,100 p.a. in an industrial district. Panel over 1,500. One-third share at 1½ years' purchase after prelim. assistantship.

49 N. WALES.—Country Practice averaging nearly £450 p.a. in agricultural district. Small panel. Good house (4 bedrooms), with 9½ acres of meadow land, for sale. Hunting, shooting, etc. Premium £450.

50 EASTERN CITY. — Assistantship with view to Partnership in non-dispensing Practice Rs.4,500 a month. After assistantship six months at Rs.700 a month, all found. Third share would be sold at 1½ years' purchase. Applicant must be F.R.C.S.

51 SHEFFIELD.—Practice about £800 (including two appointments £155). No panel and no dispensing. Convenient house (6 bedrooms) for sale or to rent. Prem. £800.

52 CARMARTHENSHIRE. — Steadily increasing PRACTICE of £800 in small country town. Panel 645. Small house (3 bedrooms, etc.) to rent. Premium 1½ years' pur.

53 DEATH VACANCY.—Cathedral City N. of England.—Receipts about £1,100. Visits 5/- to 7/6. House in commanding position (5 sitting rooms, 5 bedrooms).

54 DURHAM. — Well-established Practice £1,169 p.a., including appointments worth about £500 and panel 1,050. House contains 7 rooms, surgery, and waiting room, with separate entrance, to be sold or let. Premium 1½ years' purchase.

55 DEATH VACANCY.—BUCKS.—Practice about £750 p.a. Panel 516. Visits 2/6 to 7/6. Good detached house (2 reception, 3 bedrooms, etc.). Rent £72 p.a.

56 SOUTH OF ENGLAND.—Partnership in sound old-established Practice. Beautifully situated country town. Small nice house available. Rent £47 p.a. Preference Oxford or Cambridge Graduate. Premium 2 years' purchase for share about £1,000 p.a.

57 N. WALES (SEASIDE RESORT).—Well-established PRACTICE £600 p.a. in nice residential town. Panel 245. House (7 bedrooms, etc.). Premium, house and Practice, only £2,300.

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2. MIDLANDS.—In a clean thriving Hospital town (pop. 130,000), an old-established mixed-class PRACTICE worth last year £1,100, including panel producing over £400 p.a. and £150 from Public Medical Service. Large house, with ample accommodation, good garage, garden, etc. Vendor's leasehold having 31 years unexpired (ground rent £9 16s.). Price £1,500. Premium £1,650.
3. WILTS.—COUNTRY PRACTICE, on outskirts of large town. Well-established and producing for the immediate past year over £1,630, including panel of 1,390. Advice and medicine 3/6, visits 5/- upwards. Detached double-fronted house, with good garden. Garage. Rent on lease £60 p.a. Premium £2,400.
4. NEW ZEALAND (South Island).—In a delightful and popular seaside resort (pop.: town over 17,000 and country 5,000, greatly augmented by visitors) on main line, a well-estab. PRACTICE averaging £1,816 p.a. for the past 5 years, including about £175 from Lodges. Consultations fees 10/6. Mids. 4 to 10 gns. (75 cases p.a.). House is situated in excellent position and contains 14 rooms, with 1/2 an acre of garden, tennis court, etc. Can be leased. Excellent educational facilities. Sport of all kinds.
5. LONDON, EAST. — Very old-established mainly artisan PRACTICE. Present income about £750, but has been considerably more, and there is large scope. Panel of 360. Fees 3/6 to 5/-. Good house, with ample accommodation. Rent on lease £50 p.a. Premium 1½ years' purchase, half by instalments.
6. LONDON, S.W.—(Within easy reach of Charing Cross).—Very old-established middle-class non-panel PRACTICE averaging over £2,000 p.a. Fees 2/6 to 10/6. Mids. 3 to 10 gns. (about 12 cases). Commodious house, with 2 reception, 5 bedrooms, etc. Garden. Rent on lease £65. Premium £3,100.
7. LONDON, WEST.—Good-class general PRACTICE, held by Vendor for the past 25 years. Gross cash receipts for past three years average £1,682/-. Fees 10/6 to 2 guineas. Only a few midwifery cases at from 10 to 20 guineas. Good house, with 3 public and 6 bedrooms, etc. Electric light. Garden. Garage. Rent on lease £150. Premium £2,750.
8. HOME COUNTY.—Within 40 miles of London.—Good Country PRACTICE, established over 100 years, in very attractive district within 10 miles of favourite County Town. Patients include many county families. Income for immediate past year nearly £1,400, including about £120, and panel of 750, producing es from 2/- to 21/-. Little midwifery. reception, 5 bedrooms, etc. Good garden. at £80 p.a. Premium £2,200.
9. COAST TOWN.—PARTNERSHIP.—A one-third share is offered in a well-established Practice, having good surgical scope. Average gross cash receipts £4,200 p.a. Panel of about 1,800 and good appts. Very nice house available on rental, or smaller house or rooms could be taken. Hospital and prospect of appt. on staff. Premium £2,400.
10. PARTNERSHIP.—SOUTH-EAST COAST.—A one-third share (with increase later) is offered in a well-established non-dispensing Practice situated in a popular residential town and health resort. Receipts for past three years average over £3,000, with good scope. Fees from 5/- to 21/-. Very little mid. Attractive house, with 4 reception, 6 bedrooms, etc. Garden. Garage. Premium 2 years' purchase.
11. SOUTH-WEST OF ENGLAND.—SEAPORT TOWN.—PARTNERSHIP.—A one-sixth share is offered in a very old-estab. sound mixed-class Practice situated in residential outlying suburb. Average gross cash receipts for past three years over £6,700, including panel of 4,000, and appts. worth about £750. Excellent house, property of retiring partner, can be bought; or purchaser can select his own residence. Good sport and schools. Premium 2 years' purchase.
12. four-ninths share is offered in lelightful district within easy y. Average gross cash receipts 1,400 and appts. worth about midwifery at from 3 gns. Good etc. Electric light. Garden of t on lease £75 p.a. Premium
13. non-dispensing worth last year from 5/- to 21/-. Very little of the city. Can be rented on lease. Premium £2,000.
14. ESSEX.—Rapidly developing outlying suburb, within ten miles of the Bank.—Well-established and increasing PRACTICE. Income last year £2,274. Panel of 1,646. Fees 2/6 upwards. Very little midwifery, but large scope. Very good corner house, in excellent repair, with 2 reception, 5 bedrooms, separate professional rooms, etc. Electric light. Garden. Garage. Price for freehold £1,550. Prem. £3,600.
15. SOUTH-WEST OF ENGLAND.—GOOD HOSPITAL TOWN.—PARTNERSHIP.—A one-half share in a very old-established mixed-class Practice is for disposal owing to the retirement of the Junior Partner. Gross cash receipts average £2,300 p.a., including good appts. Small panel. Low expenses. Commodious house, with garden and garage. Rent £70 p.a. Vendor on staff of Hospital, and scope for surgery. Premium 2 years' purchase.
16. PARTNERSHIP.—WILTS.—A two-fifths share, with increase up to one-half later, is offered in a good mixed Practice situated in a pleasant town, with country surroundings. Income from share £900 p.a. Good scope for increase, particularly in surgery and midwifery. Cottage Hospital. Premium 2 years' purchase.
17. WITHIN 50 MILES OF LONDON.—Well-established and increasing PRACTICE situated in small country town in very pretty district. Income last year over £800, including panel of over 500, and appts. worth about £60. Visits 3/6 to 21/-, medicine extra. Exceptionally nice house can be bought, or smaller house available, which can be rented at £50 p.a. Good schools for boys. Premium 1½ years' purchase. Good scope for increase.
18. WITHIN FIFTEEN MILES OF OXFORD. — Very old-established Country PRACTICE producing about £1,000 per annum, including about £550 from panel and appts. Patients comprise all classes. No resident opposition. Fees 2/6 to 10/6. Good house, with 2 reception, 4 bedrooms, separate entrance to professional rooms, etc. Nice garden, with tennis lawn. Rent on lease £70 p.a. Prem. £1,500.
19. BORDERS OF WARWICK AND OXON. — Old-established Country PRACTICE, in attractive district near two good towns. Average income for past three years £1,157, including panel of 580 and appts. worth over £100. Fees 2/6 to 21/-. Good house, with 2 sitting, 4 bedrooms, etc. Separate entrance to surgery. Garden. Garage. Price for freehold £1,250. Hunting, golf, and schools within reach. Premium 1½ years' purchase.
20. SHROPSHIRE.—Unopposed Country PRACTICE, in pretty district, producing this year at the rate of about £1,400, including panel of 550, and appts. worth £65. Visits 3/6 to 7/6, with medicine and mileage extra. Midwifery from 3 gns. About 20 cases. Suitable house, with modern conveniences, and containing 3 reception, 5 bed rooms, etc. Electric light. Garden. Garage. Rent on lease £100 p.a. Good sport and schools. Premium £1,500.
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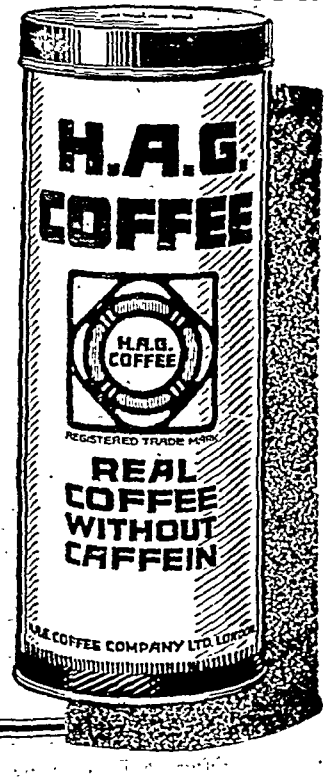

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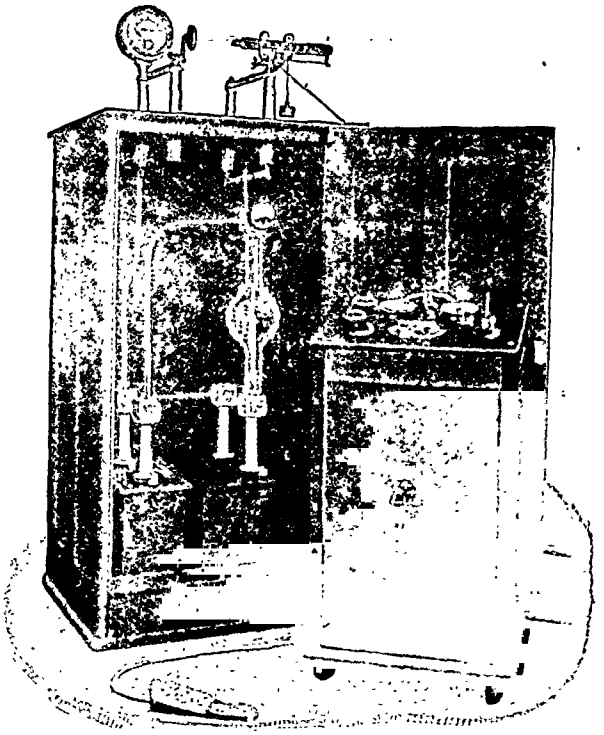

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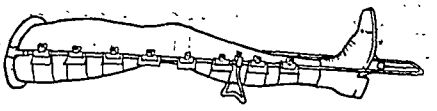

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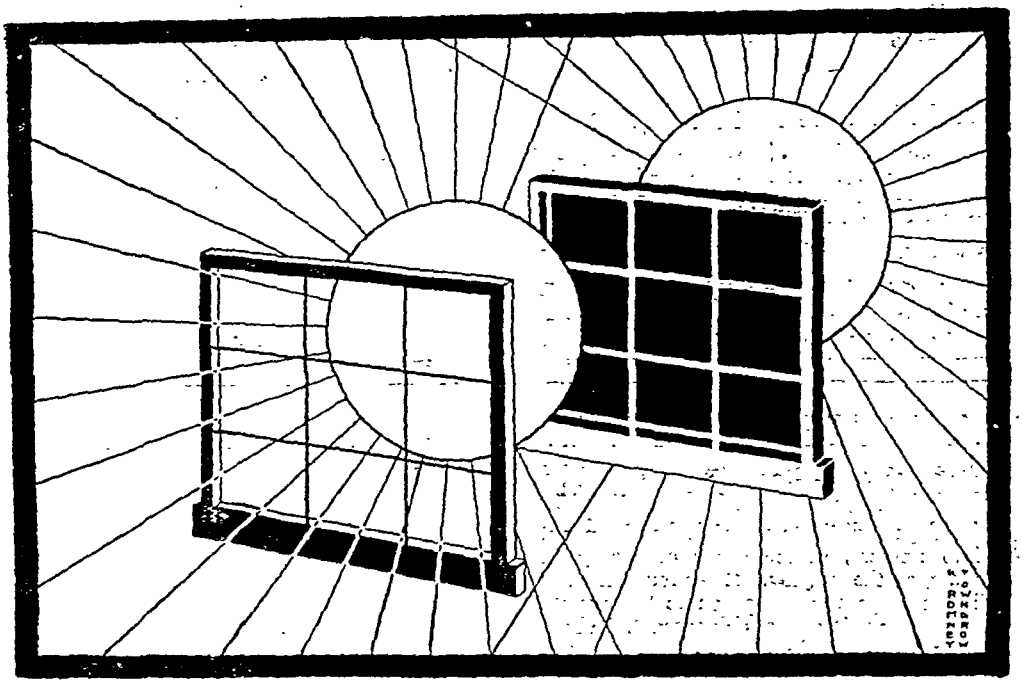

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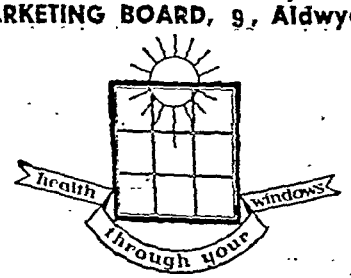

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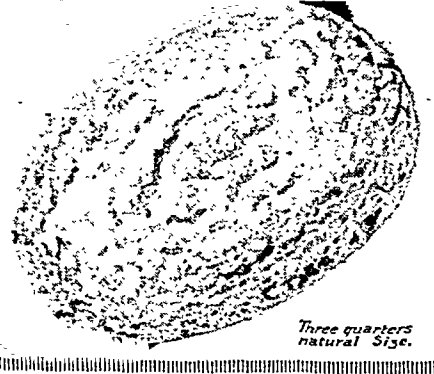

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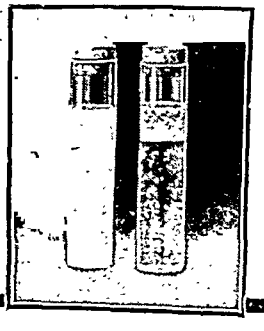

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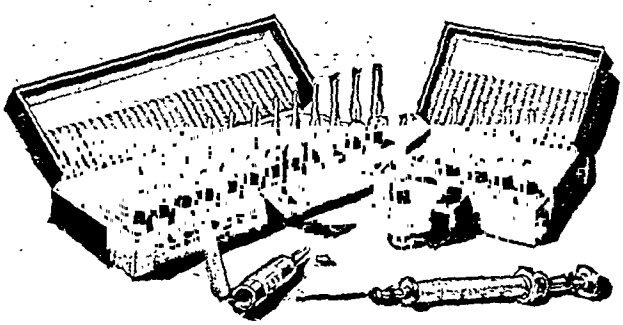

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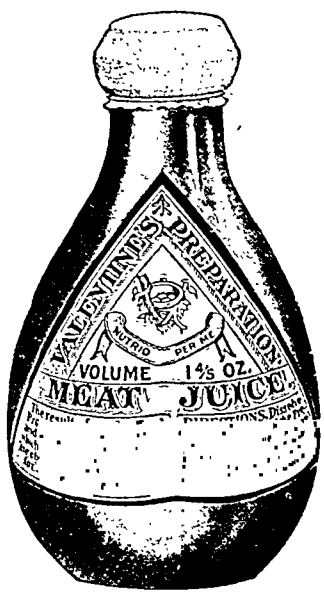

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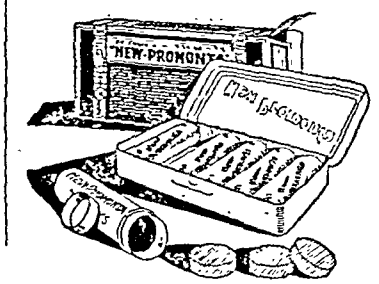

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Bemax is now established as the B vitamin food. Over 34,000 members of the medical profession in Great Britain alone are taking Bemax themselves or prescribing it for their patients, with excellent results. The diseases for which medical men are prescribing Bemax are Constipation, Intestinal Toxæmia, Debility, Neurasthenia, Rheumatism, Gastric disturbances, and all forms of skin disease. In fact, any ailment due to B-vitamin deficiency. If you have not tried Bemax, a free full-size tin will be sent you on receipt of your professional card.

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CREAM OF MAGNESIA with LIQUID PARAFFIN

(Contains 30% Liquid Paraffin).

A stable well-balanced combination containing 30% Liquid Paraffin held in suspension in a finely divided state. Its consistency is such that the tendency to leak exhibited by Liquid Paraffin is eliminated.

Regesan Cream of Magnesia with Liquid Paraffin provides suitable treatment for all digestive troubles with which constipation and hæmorrhoids are associated. It is certainly the ideal laxative during pregnancy and lactation, and most suitable for infants and children.

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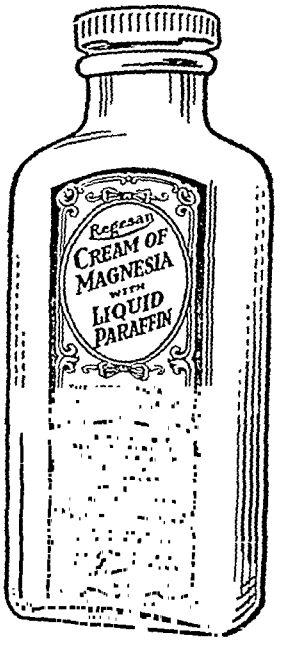

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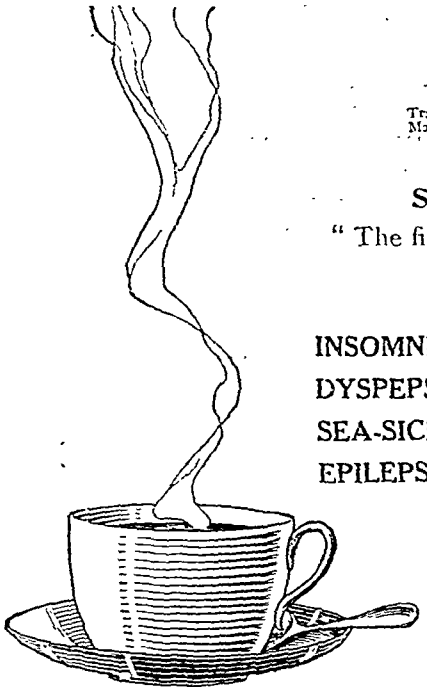

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SEDATIVE BOUILLON TABLETS

"The finest method of giving bromides ever invented."

INSOMNIA HYSTERIA
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SEA-SICKNESS, HAY-FEVER
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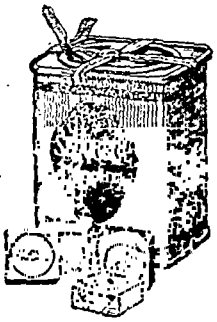

Tins of 10, 30, 100, and 500 tablets.

DOSE:—Two tablets in a cup of hot water.

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And the other State Springs of Vichy
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FERMENTATIVE DYSPEPSIA.

When the secretion is vitiated in quality, and the motricity of the stomach weakens, that organ dilates, and the gastric stagnation allows the micro-organisms of many ferments to develop. Quite a series of acids are then to be met with (butyric, lactic, acetic, etc.), which not only irritate the mucosa, but further, after their passage into the intestine, become absorbed by the lymphatics and swept into the circulation. Vichy-Celestins, by its slightly stimulating action, clears out the stomach, and this avoids stagnation and consequent fermentation. As, in addition to doing this, it modifies stomachal metabolism, the secretions return little by little to their normal physiological condition.

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Most nourishing Bread

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Following many experiments by various research workers it is shown that no bread contains so large a percentage of Vitamin B as HOVIS, or is such an active agent for healthy growth when forming the basis of the diet.

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HOVIS, even in small quantities, provides sufficient vitamin in a digestive form as no other bread does, and it is liked by all.

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HOVIS Bread consists of White Flour with the wheat germ incorporated. It is this which gives it its special value, since the germ is the part richest in the Vitamin.

The "brownness" of bread is not a measure of its vitamin content. HOVIS does not contain bran, and is easily digestible.

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White Bread	200
Wholemeal Bread	1,450
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The evidence is conclusive. For providing the maximum of nourishment economically no bread equals HOVIS.

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Biochemistry and Endocrinology prove beyond dispute that pregnant women are weakened in their defences against general disease and septic invasions.

A lowered resistance, often accentuated by the modified shock of parturition, makes PUERPERAL SEPSIS only too simple a matter in many cases, in spite of faultless obstetric technique.

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A Safe Intestinal Bactericide

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Such a product is now available in the form of Dimol, the effect of which can be readily estimated by the gradual disappearance from the urine of the toxins—tyramine, indican, skatol, etc.

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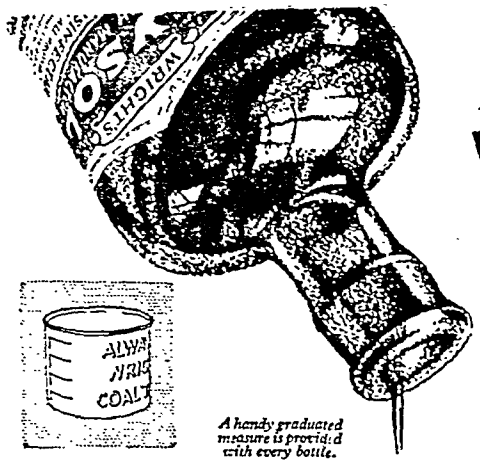

A handy graduated measure is provided with every bottle.

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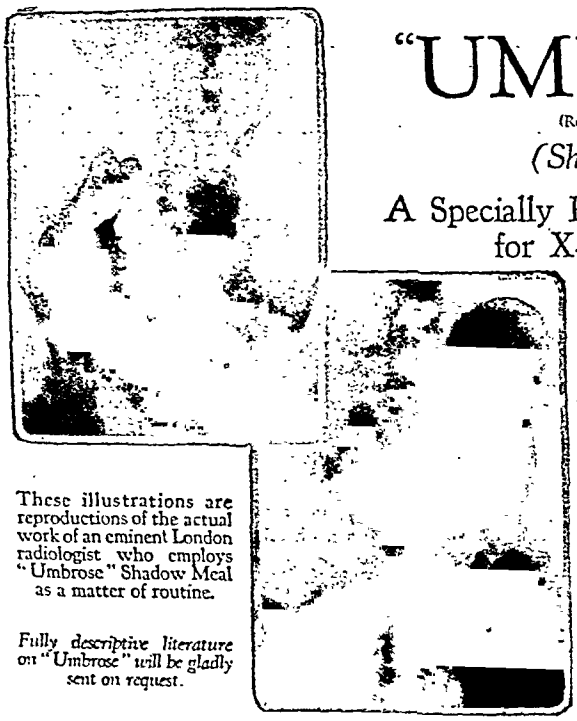
To tell them to ask for Lysol is not enough, for you know that there are Lysols available which are caustic and irritate the skin. Wright's Lysol is safe. It is British owned and British made — analytically controlled by the Rideal-Walker test which guarantees unvarying purity. It contains no free alkali, cannot injure delicate membranes and gives certain results. The medical profession has endorsed the use of Wright's Lysol for the past seven years. Your patients should know the safety that is in the name. *British Owned and British Made, by the makers of the famous Wright's Coal Tar Soap.*



These illustrations are reproductions of the actual work of an eminent London radiologist who employs "Umbrose" Shadow Meal as a matter of routine.

Fully descriptive literature on "Umbrose" will be gladly sent on request.

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A Specially Prepared Barium Meal for X-Ray Diagnosis

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THE KAYLENE TREATMENT

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Messrs. KAYLENE, LTD. April 17th, 1929.

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My last sample was used on a patient suffering from acute Ptomaine poisoning following a meal of shell fish (mussel) at 10.30 p.m. Symptoms first appeared at 12.30 a.m., and when I saw him at 3.0 a.m. he was vomiting blood and passing almost pure blood per rectum. He had commenced cramps and nervous twitchings which would shortly have gone on to tonic convulsions. He was very collapsed and had a weak pulse. I gave him only Kaylene in cold water, one drachm every quarter of an hour, from 3.0 until 8.0 a.m., when I felt it safe to leave him. For the next two days Kaylene was given every one to two hours, and was then followed by Kaylene-ol. No other medication of any sort was used, and he made an excellent recovery. This follows a somewhat similar case which I treated at the end of last year.

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Yours faithfully,

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(Prof. ALBERT ROBIN of PARIS)

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"The Standard Mineralizing Tonic"

—combines the nutritive action of the Chemical Foods Calcium, Sodium, Potassium, Iron, Manganese, and Phosphorus, with the dynamic properties of Quinine and Strychnine

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ALLERGIC CONDITIONS & PROTEIN SENSITISATION

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The substances which may sensitise are very varied (e.g., animal dandruff and hairs, plant pollens and hairs, animal and vegetable proteins of foods, bacteria and their products) and the reaction may take the form of epileptic attacks, fainting fits, skin eruptions, asthma, etc.

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For intestinal disinfection, use KEROL CAPSULES (keratin-coated); they contain 3 minims of Kerol. One to three capsules may be given three or four times a day after meals.

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Specially prepared for hypodermic or intramuscular injection. It is a valuable antiperiodic.
Particularly indicated in Lymphadenoma, Lymphatic Leukæmia, Secondary Anæmia following malaria, and where gastric conditions do not allow oral administration of iron.
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On the other hand, such drying processes—as 'C & G' process, in which the milk is held for a matter of a few seconds at a high temperature—have been shown to be free from the above disturbances, and the full nutritive and vitamin value of the original rich West Country milk is preserved intact.

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In Cremor Alkalinus "B" the Magnesia is reduced and the Bismuth increased, thus reducing the laxative effect.

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Sod. Bicarb.	2 parts
Mag. Carb.	4 parts
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In 8-oz. bottles for prescribing.
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The world-wide supremacy of Insulin "A.B." is due to this unequivocal purity no less than to its well-known potency and stability under all conditions.

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"The antiseptic has been proved to be perfectly safe for use in all the body cavities."

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For Nervous Sleeplessness in Children.

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Each tablet contains 2½ grains Sodio-Calcium Lactate with Parathyroid 1/20 gram.

These tablets have been found most valuable in the treatment of Hæmorrhage in cases so frequently found in Sanatoria, Tuberculosis Clinics, etc., and in the treatment of Strumous Children unable to extract nourishment from their food. They may be given every two or three hours.

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An excellent compound of Cascara, Rhubarb, Jalap, Podophyllin, &c., with ⅛ gr. Cocaine in each drachm. (Not under the Dangerous Drugs Act.)

An elegant and palatable general Aperient and Cholagogue, specially recommended in cases of so-called "Biliousness," Hepatitis, and Chronic Gastritis.

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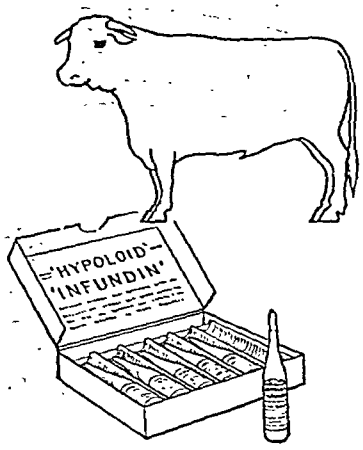

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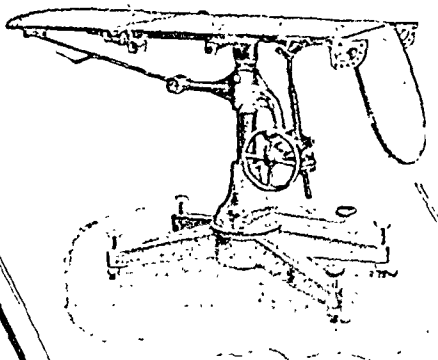

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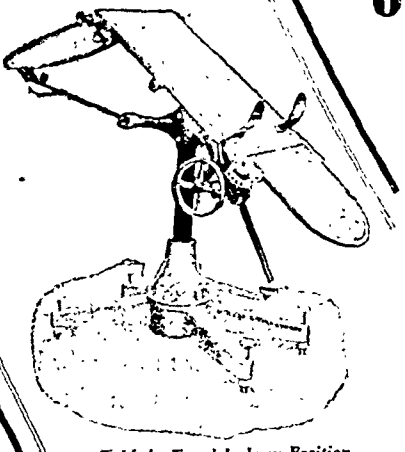

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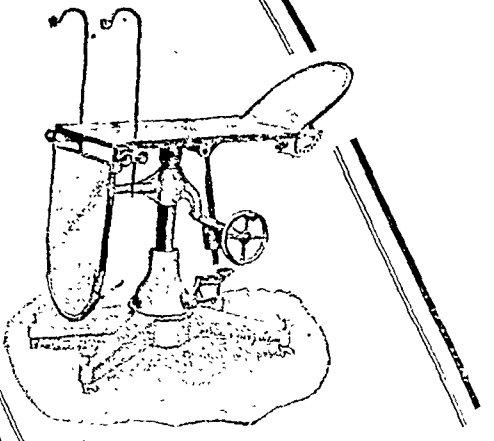

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Observations
ON
THE RELATION OF MALIGNANT DISEASE TO BENIGN TUMOURS OF THE INTESTINAL TRACT.*

BY
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THE subject of our discussion is not new, but it is one to which considerable attention has been devoted in recent years, and it may be useful if, at this time, we endeavour to bring together such facts as we may think we have ascertained in the course of our labours, and such speculations as may help to give a clue to our obscurities. In particular it is desirable to know to what extent we are in agreement on the main issues, and wherein individual experience differs.

In going over the data, anatomical and documentary, which I have accumulated on this subject during the last twenty years, I have been surprised at both its amount and its variety. Simple tumours of the alimentary tract, like so many other unobtrusive lesions, are found with considerable frequency when carefully looked for, and, while usually of little clinical importance *per se*, in a certain proportion of cases they are attended by the most serious consequences. It is with one of these consequences, the development of malignancy, that we are *concerned to-day*.

As opener of the discussion it will probably be most convenient if I pass in review the various kinds of simple tumours which occur in the alimentary tract, considering at the same time the incidence and nature of the malignant changes to which each is liable. Subsequent speakers can then extend and elaborate those aspects of the problem in which they are particularly interested. My own remarks will be based chiefly on my personal experience of human *material, but it is hoped that during the discussion* the comparative and experimental sides will not be neglected.

CONNECTIVE TISSUE TUMOURS.

Simple connective tissue tumours of the alimentary tract are of comparatively infrequent occurrence, the only two of any consequence being lipoma and leiomyoma. I have encountered only five examples of submucous lipoma of the stomach, all of them small and sessile, mere casual findings at necropsy. In another case there was a pedunculated lipoma the size of a hazel-nut at the junction of the first and second portions of the duodenum. It also was a casual finding; but tumours of this type elsewhere in the intestines may be the starting-point of intussusception. Subserous lipomas are more common. They really arise in the mesenteric adipose tissue, are not infrequently multiple, and seldom attain a large size. Lipomas in general rarely undergo malignant change, and I am not aware that any case of the kind has been reported in connexion with the intestinal tract. Leiomyomas are much more common and occur chiefly in the stomach and oesophagus. They are most frequently met with casually in the post-mortem room as small, flat, sessile, button-like growths, measuring up to one inch in diameter and projecting slightly from the mucosal surface. This is due to the fact that they usually originate in the inner layer of the muscular coat and naturally project in the line of least resistance. These tumours grow slowly, and very rarely attain a large size. Of twenty-two cases of leiomyoma of the stomach which I have encountered, the largest was no bigger than a walnut. It was rounded, lobulated, and semi-pedunculated. In the museum there is shown a leiomyoma of the ileum fully two inches in diameter which had caused obstruction and which was successfully removed at operation. The cut surface shows the characteristic whorling of these growths. As with uterine fibroids, alimentary tract leiomyomas occasionally become sarcomatous. In the uterus it may be possible to trace the sarcomatous change in one out of several fibroids present, but in the gut, where single tumours are the rule, considerable doubt may remain as to whether a spindle-cell leiomyosarcoma has originated in a simple myoma or has been malignant from the outset. In this connexion it may be mentioned that myosarcoma appears to be more frequent in the small intestine than in the stomach, whereas the reverse is the case with regard to myoma. Unstriped muscle tissue also enters into the composition of the so-called adenomyomas of the stomach and intestine, tumours which will be discussed later.

EPITHELIAL TUMOURS.

The simple epithelial tumours are undoubtedly the most important members of the group now under discussion, not only because they are dangerous in themselves as a cause of haemorrhage or obstruction or as the starting-point of intussusception, but also because they are with good reason suspect as precancerous lesions. In structure they are generally adenomatous, but a villous papilloma is also encountered, particularly in the rectum. Starting as small flat patches of glandular overgrowth, these tumours tend to become polypoidal at an early stage of their career, and in this form they may ultimately attain a considerable size, as much as one or two inches in diameter. They show a notable tendency to multiplicity, especially in the large intestine, and occasionally there may be several hundred present. The conversion of the tumour from a wholly sessile plaque to a pedunculated polypus is brought about chiefly by the muscular movements of the gut, aided, perhaps, by the action of gravity. The pedicle is often quite definitely composed, not of tumour tissue, but of pulled-out normal or much thinned mucosa—an important point in relation to the surgical treatment of solitary polyps. The muscularis mucosae is dragged inwards with the rest of the mucous membrane, and may show considerable increase in thickness. Its presence, unbreached by epithelium, is the best evidence that a polyp has not yet become malignant, although, as will be shown later, suspicious changes may already be visible in the mucosa. The fibrous tissue core of gastric polypi, on which Menetrier (1888) has laid stress as indicating a pre-existing gastritis, is probably rather a reactive thickening of the submucosa in response to the mechanical drag of the polyp. The relation of chronic gastritis to multiple polyps of the stomach—whence the term "gastritis polyposa"—has been emphasized by many writers, but it is difficult to account for solitary polypi in this way; yet the two lesions are indistinguishable microscopically, while chronic gastritis, without any suggestion of polyposis, is a common accompaniment of both ulcer and cancer of the stomach. In the colon the corresponding lesion, colitis polyposa, is sometimes familial. In its early stages Ewing (1928) finds that there is a diffuse and pronounced hypertrophy of the entire epithelial lining, which supports Versé's view that the sole element in the predisposition is the excessive reaction of the epithelium to irritants. Here again it is difficult to account for solitary polypi on an inflammatory hypothesis.

Relation of Adenoma to Carcinoma.

The connexion between simple adenomata of the intestine and carcinoma is now well established. Dukes (1925–26), who has investigated this question with great thoroughness, found that of 33 consecutive cases of carcinoma of the rectum and sigmoid operated on at St. Mark's Hospital no fewer than 25 showed the presence of adenomata. He considers that this figure—75 per cent.—is probably an underestimate, since only the surgical specimens were available for examination, and adenomata may have been present elsewhere in the intestine. I show in the museum several interesting examples of this association, including a case in which widespread polyposis was associated with two independent carcinomata, one in the rectum just above the anus, the other some ten inches higher up. As both Dr. Dukes and Dr. Susman are taking part in the discussion, I will leave them to deal in greater detail with this very important part of the subject.

So far as the stomach is concerned, opinion is hardening in the same direction. Cruveilhier (1835–42), who figures

* Made in opening a discussion in the Section of Pathology and Bacteriology at the Annual Meeting of the British Medical Association, Manchester, 1929.

a beautiful example of multiple gastric polypi in his great atlas, expresses the opinion that malignant degeneration of polypi ought to be frequent, and thinks it possible that many of the cancerous vegetations of the pylorus or its neighbourhood which are met with not infrequently may have originated in this way. The cancerous evolution of gastric polyadenoma has been especially emphasized by Menetrier (1888; Menetrier and Clunet, 1907), and in recent years a number of writers have expressed a similar opinion. Thus Brunn and Pearl (1926) collected 84 cases of diffuse polyposis of the stomach, of which 10 (12 per cent.) were malignant, while in Mills's (1922-23) series carcinoma at or near the pylorus was present in 4 out of 20 cases (20 per cent.).

My own experience of gastric polypi, now a considerable one, affords further evidence of the sinister significance of these ostensibly harmless growths. In the course of 11,000 necropsies performed at the Leeds General Infirmary during the last nineteen years (1910–28) there were 47 cases (0.43 per cent.) in which gastric polypi were present—namely, 27 with single polypi, 7 with two, 1 with three, and 2 with four, while in 10 cases there were numerous polypi. The same series of necropsies included 263 cases of carcinoma of the stomach. The association of the two lesions is shown in the following table.

Polypi and Cancer of Stomach.

	No. of cases with polypi.	No. associated with carcinoma.	Percentage of cases of polypi with carcinoma.
Single	27	6	22
Multiple	20	7	35
	—	—	—
	47	13	28

Looked at from the opposite standpoint, 13 out of 263 cases of carcinoma of the stomach (4.9 per cent.) were associated with polypi. This is approximately one-third the frequency (15.7 per cent.) with which, in my clinical series, carcinoma originated in relation to simple chronic ulcer. The contrast with Dukes's figure for carcinoma and polypi of the rectum and colon (75 per cent.) is remarkable.

In two other cases a single simple polypus of the stomach was associated with carcinoma of the colon. In three cases only was it possible to say with certainty that the carcinomatous change had originated in a polyp. In the others such an origin could not be excluded, although in certain of them the polypi were some little distance from the malignant growth. Six of our cases are shown in the museum. Two of these, which have already been published in abstract in the *Proceedings* of the Pathological Society of Great Britain and Ireland (Stewart, 1913–14, Gleave, 1923), are beautiful examples of multiple polyposis with carcinoma. A third case, which has been reproduced in the Atlas of Pathological Anatomy of the *British Journal of Surgery* (Fasciculus II, pp. 130–133), is of particular interest in that a large gastric polypus was found at operation together with a number of small sessile polypi. Partial gastrectomy was performed, from which the patient made a good recovery; but five weeks later she died rather suddenly and quite unexpectedly. At necropsy an unsuspected carcinoma at the cardia was disclosed, together with extensive secondary deposits in the liver and regional lymph glands.

Simple adenomatous polypi of the stomach, whether single or multiple, must therefore be accepted as a definitely precancerous lesion, but the available evidence goes to show that the association is much less intimate than in the case of the large intestine. In both sites one can occasionally trace the sequence of events with the microscope; more often this cannot be done. Usually malignancy develops at one point only, as in experimental tar cancer of the skin, but exceptions to this rule are not infrequent. Lockhart-Mummery and Dukes (1928) believe that with the progressive enlargement and dissemination of the malignant tumour there is accompanying retrogression of the hyperplastic changes and benign tumours surrounding the growth. Sometimes the pedicle of the polyp becomes so attenuated that the latter breaks off and is discharged per rectum (Ewing, loc. cit.).

Criteria of Early Malignancy in Gastro-intestinal Polypi.

It is not always possible to say definitely that a given polypoidal tumour of the stomach or intestine is malignant. The most important criterion is epithelial invasion of the muscularis mucosae, especially if this is associated with atypical cellular characters—cellular and nuclear heteromorphism, nuclear hyperchromatism, and the formation of solid epithelial masses or irregular acini. There is very little risk of confounding the obviously simple heterotopic tumours, deep in the wall of the gut, with malignant penetration. The chief difficulty arises in connexion with tumours where the muscularis mucosae has not been penetrated, but in which irregular cellular characters and de-differentiation of epithelium are present. These changes are frequent in both gastric and intestinal polypi, and while one cannot say that they certainly indicate the commencement of malignancy, they must be viewed with grave suspicion. In cases of this kind the examination of further sections from the same or another block will sometimes reveal early penetration of the muscularis mucosae.

ADENOMYOMA AND PANCREATIC HETEROTOPIA.

These closely related lesions occur in the stomach, duodenum, and small intestine, the former as something of a rarity, the latter with comparative frequency. In a consecutive series of 5,700 post-mortem examinations at Leeds there were 7 examples of adenomyoma and 22 of pancreatic heterotopia, distributed as follows:

	Adenomyoma.	Heterotopic pancreas.
Stomach	4	4
Duodenum	0	15
Small intestine	2	1
Meckel's diverticulum	1	2

A. L. Taylor and I have already described these formations in detail (Stewart and Taylor, 1925; Taylor, 1927), and it need only be said here that there is no evidence that either of them is specially liable to malignant transformation. Only three examples of pancreatic carcinoma arising in the stomach or intestine have been described (Herxheimer, 1913; Seidelin, 1912–13; and Nicholson, 1923), yet, as the above figures show, pancreatic heterotopia in these situations is of fairly frequent occurrence. I have no knowledge of a carcinoma arising in a pre-existing adenomyoma.

CARCINOID TUMOURS.

The carcinoid tumour of the appendix and small intestine, like rodent ulcer of the skin, occupies an intermediate position between the simple and the malignant tumours. It is locally infiltrative, very slowly growing, and, in the appendix, eminently amenable to surgical treatment. In rare instances dissemination to the regional lymph glands or even to the liver may occur. Taylor and I (1926), in a careful search of the literature, found only 18 published cases. This event, when it occurs, must be regarded as part of the natural history of the disease; there is no evidence that these tumours undergo a malignant metamorphosis of the kind we are considering to-day.

EXPERIMENTAL PATHOLOGY.

From the experimental side there is little to report directly bearing on this subject. Fibiger's (1913, 1914) classical experiments in the production of gastric carcinoma by feeding with *Gongylonema neoplasticum* may be mentioned, since the definite sequence of chronic inflammation, papillomatosis, and cancer was produced. These changes, however, are not strictly comparable with those occurring in man, inasmuch as they are confined in their origin to that portion of the stomach which is lined by squamous epithelium. Curiously enough, one of Fibiger's rats had a large pedunculated adenopapilloma of the colon, but as this was entirely free from parasites it was presumably an independent formation.

Bullock and Rohdenburg (1918) carried out a series of experiments in rats by introducing into the stomach mechanical and chemical irritants, the former consisting of celluloid balls covered with bristles and cork balls armed with pin-points, the latter of scharlach R and pine-tar,

either applied directly to the gastric epithelium or injected into the wall of the organ after gastrotomy. Extensive epithelial proliferative changes and even a certain amount of infiltration followed, but in no case did they succeed in producing a lesion which they were prepared to accept as carcinomatous. In the glandular region of the stomach the lesions resembled cystadenomata.

Ishibashi and Otani (1921) introduced 0.5 c.cm. of coal-tar into the submucosa of the stomach and intestine in rabbits, and two weeks later found in the stomach papillary adenomas, which, after fifty days, had shown no evidences of regression. In the intestine there was only a slight hyperplasia, with no sign of adenomatous proliferation.

Leitch (1923) injected tar per rectum in rabbits three times a week for over eight months without producing any evident tumour formation in the rectal mucosa, although in several cases papillomata formed on the skin outside the anus. Experiments in rats were equally unsuccessful.

Menetrier (1924; Menetrier and Derville, 1924), on the other hand, succeeded in producing an infiltrating squamous carcinoma of the cardiac end of the stomach of a rat by a series of tar injections into the left perirenal region followed by a series of oil of cade injections at the same site, the whole extending over a period of eleven months. Death followed the introduction of 3 or 4 drops of pure creosote. At necropsy a squamous carcinoma of the stomach was found in immediate relation to the injected tar, all of which, however, lay outside the gastric wall. The usual sequence of changes appeared to have taken place—inflammatory reaction, hyperplasia, papillomatosis, cancer.

Schabad (1926) administered tar by the mouth and per rectum to white mice, with negative results. In the stomach there resulted only thickening and keratosis of the mucosa; in the rectum, necrosis, inflammatory changes, and cicatrization. The changes in the perianal skin, however, were those of an epithelial new growth of cancroid type.

CONCLUSIONS.

1. An important and intimate relationship exists, both in the stomach and in the rectum and colon, between simple adenomatous polypi and carcinoma.

2. The evidence goes to show that an actual malignant metamorphosis takes place in the epithelium of one or more of the polyps, although the ultimate full development of malignancy is in most cases confined to a single focus.

3. As a local factor in the etiology of cancer, intestinal polypi occupy a most important position, much more so than their gastric congeners.

4. In cases in which a single polypus only is present simple removal of the tumour with its pedicle and base may be followed by cure, even after definite carcinomatous change has occurred. In cases of generalized polyposis only extensive operative procedures with a high mortality—gastrectomy, total or partial, or colectomy—are likely to be successful in preventing the onset or checking the spread of malignancy.

5. There is a certain amount of evidence to show that sarcomatous metamorphosis may occasionally occur in simple leiomyomatous tumours of the alimentary tract, just as in uterine fibroids.

6. There is no evidence that the simple heterotopic tumours of the stomach and intestines—adenomyoma, pancreatic heterotopia, Brunnerian adenoma—are specially liable to malignant change.

7. The so-called carcinoid tumours of the appendix and small intestine very rarely undergo metastasis to lymph glands or liver. This, when it occurs, is part of the natural history of these tumours (cf. rodent ulcer of the skin), and does not indicate anything in the nature of a new or superimposed malignancy.

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DIVERTICULITIS.*

BY

EDMUND I. SPRIGGS, M.D., F.R.C.P.,

SENIOR PHYSICIAN, RUTHIN CASTLE.

DIVERTICULITIS of the sigmoid colon has long been known to pathologists by various names, but until recent times was looked upon as a rare disease. We know now that it is not rare, but it still receives less space in the text-books than is given to disorders that are seldom met with and do much less harm.

It is just thirty years since a paper by Graser appeared, in 1898. This author, as far as I know, was the first to suggest that the frequency of inflammation of the peritoneum about the sigmoid colon is due to diverticula. He also made microscopic studies showing the frequency of diverticula in adults. In America, Fischer (1900), Beer (1904), Gordinier and Sampson (1906), and others published valuable studies. Special mention must be made of the paper of Mayo, Wilson, and Giffin which appeared in 1907. In this country Moynihan (1907) and Telling (1908) led the way. Dr. Telling's later paper, with Gruner, is a compendium of pre-*x*-ray studies, full of observation, reading, and reasoning. In France, the papers of Patel (1911) and of Bensaude, Cain, and Hillemand (1913) should be mentioned.

When *x* rays began to be applied to the study of diseases of the bowel a flood of new light was shed upon this as upon many other disorders. For more can be learned about the function and lumen of the bowel in a case of diverticulitis by a combined clinical and good *x*-ray examination than by a laparotomy or a post-mortem inspection. It soon appeared that whilst sigmoid diverticulitis was not infrequent, a precedent condition of the bowel in which diverticula were present along the colon, but not inflamed, was often found and was not associated with any clinical state that could be called diverticulitis. We had observed a series of these cases before 1920, and it was proposed to give them the name of diverticulosis. Soon afterwards my colleague O. A. Marxer, upon whose studies what I have to say from a radiological point of view is founded, detected a still earlier stage of the disorder, the pre-diverticular state.

There are, therefore, three main stages in the progress of the disease:

1. The pre-diverticular state } (diverticulosis).
2. The stage of formed diverticula } (diverticulosis).
3. The stage of inflamed diverticula, or diverticulitis.

We have many times observed each of these stages pass into the next. They may all be present at once at different parts of the bowel, or even in the same segment.

Although it is only the last stage which has surgical implications and is to be discussed to-day, yet something should be said about the earlier ones; indeed, they fall logically under the headings of the etiology and of the possible prevention of diverticulitis.

The pre-diverticular state was first described fully at the Clinical Society of this city in 1925. It had been briefly referred to in print by O. A. Marxer two years earlier, and was first recognized in 1920. The part of the bowel affected loses its normal segmentation and

* Read in opening a discussion in the Section of Surgery at the Annual Meeting of the British Medical Association, Manchester, 1929.

presents a more rigid outline with small convexities upon it. In two cases operated upon the surgeons reported the appearance of inflammation over a part of the bowel in this state. We have had the opportunity of examining such a piece of bowel after removal. The characteristic small corrugations can still be seen with x rays in the hardened specimen at the affected area, and not at other areas. I shall refer to the histology of this specimen.

We have observed the pre-diverticular state over ninety times, and in nearly all it was in association with forming diverticula. In over twenty cases we have been able to take pictures at long intervals and prove that pouches have appeared at the part of the gut which was formerly in this state. (Figs. 1 and 2.)

In many cases no symptoms are complained of at this stage, especially if only small areas of bowel are affected, as is usually the case, the inflammation appearing to creep slowly about the bowel wall. But when large areas are affected, as sometimes happens, then pain or burning discomfort is felt.

My colleague S. W. Patterson is working at the histology of the pre-diverticular state. It is hard to get suitable material, but I may say here that we have microscopic evidence, in addition to the radiological, that there is a pathological change in the bowel wall antecedent to the formation of pouches. In this we are supported by Sir Arthur Keith, as mentioned in the last annual report of the Royal College of Surgeons. A rarefying of the bowel muscle in diverticulous areas was described by Graser and by Schreiber, also by L. B. Wilson in 1911.

As mentioned above, any part of the circumference of the bowel may be affected. The pouches, however, tend to form where the blood and lymphatic vessels pierce the wall—that is, at the weakest part—and to appear on the peritoneal surface near to, but not at, the taenia. Sometimes the pre-diverticular state is followed by irritation of the bowel, giving on the film a coarser corrugated or concertina-like outline. This corresponds to the appearance described by Keith in 1910. It may persist for a long time—a year or more. We have sometimes called this condition the aftermath of the pre-diverticular state. Later there is seen flabby diverticulous bowel, without proper haustration. Keith's suggestion was that an irregular sustained muscular contraction preceded the formation of pouches, a conclusion to which our observations led us independently. He draws an analogy between it and auricular fibrillation of the heart muscle.

The second stage of formed diverticula is often discovered at radiological examinations; in 1,000 consecutive x-ray examinations at Ruthin Castle it was found in 10 per cent., in the Mayo Clinic x-ray department in 5 per cent., and in the post-mortem room in 7 per cent.[1] In all we have now observed 313 cases of diverticulosis in 3,100 consecutive x-ray examinations of the alimentary tract. To the naked eye the little pouches look, in the post-mortem room, like pea-shaped projections from the bowel; they may be contained in the appendices epiploicae or are covered with fat and not visible. In spite of this it must remain a surprise to those of us whose lot it has been to make numbers of post-mortem examinations that their frequently was not more fully recognized in pre-x-ray days. One reason doubtless is that, like the appendix, they shrink greatly after death. The pouches may be few or many, small or large. If, as is often the case, different sized pockets can be seen they are usually in groups, those of the same size being together. Their number can be estimated best by taking a photograph after the barium meal has left the lumen. The omission of this last film in routine examination has led to underestimation of the frequency of the disease.

FIG. 1.—Oblique view of a sigmoid flexure in the prediverticular state; some small diverticula can be seen on the upper border. Note the likeness of the affected part of the colon to the piece of small intestine shown in the upper part of the picture. (See Fig. 2.)

Large diverticula with wide necks look the worst, but are not. They are often associated with loose motions, and we ascribe their size to the frequent distension from easy filling and emptying. The contents may be discharged as pellets, which can be seen in the motions, or as fragments. When the latter contain barium the powdery track can sometimes be detected on the film taken after the lumen of the gut is otherwise empty.

Smaller pouches with narrow necks are less obvious but more harmful. The barium may not be able to fill them owing to the retention of food residues. We then see characteristic wineglass or crescentic shadows, the barium *occupying* the neck of the pouch and creeping partly round the retained matter. In such pockets the contents are liable to become dried up and form the stercoliths, which are believed to be a frequent starting-place of diverticulitis.

FIG. 2.—The same piece of intestine as in Fig. 1, after an interval of three and a half years, showing developed diverticulosis. Numerous diverticula are seen.

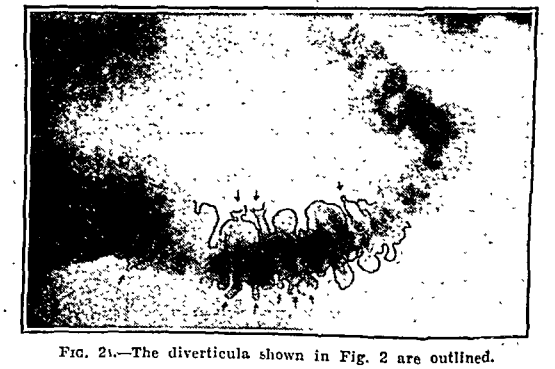

FIG. 2a.—The diverticula shown in Fig. 2 are outlined.

The microscopic features of the pouches are that in some the mucosa and submucosa are seen to penetrate the muscular coats of the bowel. In many, however, the muscle layers are also represented in the wall of the pouch.

The etiology of diverticulosis is not yet understood. The incidence in middle age points to the pouches being acquired and not congenital. We have also seen them repeatedly with x rays in a bowel which had shown none years before—that is, we have observed their development. They were formerly thought, and are still assumed by some, to be simple pulsion pouches formed as a result of internal

pressure at weak parts of the bowel wall. This cannot be gainsaid, but there is some other factor as well; for the diverticula often occur in groups, which, in a series of observations, can be seen to form at different parts of the bowel at successive times, and to be preceded by the pre-diverticular state above described. The appearance is that of an inflammation. It is, whether casually or causally, associated with infective foci in other parts of the body, especially of the teeth, and with some degree of spondylitis, usually lumbar.

Constipation has been regarded as a cause, and this is copied from paper to paper. But, as *Telling pointed out*, the disease is twice as common in men as in women, whereas men are less liable to constipation; and there was rather less *constipation*, as determined radiologically, in a hundred of our cases than in a hundred other patients of the same age and sex. We think it quite as likely that aperients are one cause, and that abnormally liquid faeces lying in the sigmoid flexure may, by bacterial or chemical damage, have to do with the frequency of the disease in that part of the gut. The benefit which follows an anti-constipation regime without irritant aperients will support either view. The not infrequent observation that a renewal of symptoms is associated with the accession of new disease, with fresh tiny diverticula, close to an indurated area of bowel, suggests an active bacterial process rather than mere weakness from the chemical damage of stasis.

Although diverticulosis may be quiescent, in about half the subjects symptoms are complained of, especially constipation, flatulence, and abdominal pains or discomforts. Less common symptoms are diarrhoea, or irregularity of the bowels, painful or frequent micturition, headache, malaise, and nausea. There is often a disposition to the lumbago associated with spondylitis.

Definition of Diverticulitis.

Strictly speaking, whenever any little pouch is the seat of inflammation, the patient is the subject of diverticulitis. But for clinical purposes we reserve the term for the stage at which inflammation arising from a diverticulum has spread to a considerable area of the wall of the bowel, involving most, if not all, of its thickness. This process often begins at the neck of a diverticulum with a narrow outlet, containing a stercolith. Some pouches show these characteristics at a very early stage, for we often see minute herniae with the appearance of lith-bearing diverticula. The inflammation, once started, thickens and contracts the haustrum, as shown in a former paper.[2] As this process extends the clinical, radiological, and pathological features become characteristic. The short description that follows is founded on a study of 71 cases of diverticulitis under my own care.

Clinical Features.

The clinical features of diverticulitis are those of a low form of inflammation in the large bowel, usually in the left lower quadrant of the abdomen, spreading to neighbouring structures. Abdominal discomfort, less often pain, not as a rule related to food, is situated about or below the navel, but especially in the left iliac fossa. It may be intermittent, with intervals of several weeks or longer. The pain can be severe, and is often accompanied by a feeling of ill health; it may take the form of a dragging sensation and backache. Flatulence and a feeling of distension are usually mentioned, and may be the only symptoms; an advanced state of diverticulitis may, indeed, be present with but little complaint; in several there was no pain. Constipation, irregularity of the bowels, diarrhoea, or a sense of incomplete evacuation is frequent. The increasing constriction leads slowly, usually very slowly, to obstruction.

In cases of implication of the bladder there may be frequent micturition, sometimes painful, after the bowels are opened; or a painless micturition may be followed by pain in the tumour. This symptom may be due to adhesion of the inflamed gut to the bladder, but it is complained of in cases in which radiological evidence of adhesion cannot be made out.

A sausage-shaped tumour, sometimes tender, but not always, can be felt in the left iliac fossa or below the brim of the pelvis, except in the very obese. It may become acutely inflamed, with pyrexia and vomiting. The tumour often varies, in earlier stages, in size and hardness. Diverticulitis sometimes occurs at other parts of the colon; a result of abscess will vary ent and site of the secondary per rectum, excluding that is not usual, the inflammatory lesion lying as a rule without the mucous membrane; the disease is, indeed, as it was formerly named, a peri-diverticulitis.

There appears to be a liability to lumbago, sciatica, and shingles.

Radiological Features.

The radiological features of diverticulitis are definite. With a barium meal or enema, typical rounded, oval, or crescentic shadows of the barium in the diverticula will usually, though not always, be recognized in the neighbourhood. They are not, however, the characteristic features: these are (1) the rounded or serrated inopaque intrusions into the barium-filled lumen due to swollen mucosal folds; or (2) spike or palisade-like projections of barium shadows from the lumen of the bowel, the wall of which is thickened from inflammatory exudation, and fixed. They represent deformed and contracted haustra. In this second form serial films, when superimposed, show no variation in the outline of the shadows, although there may be vigorous and irritable contractions of the bowel wall above and below, or even in the same segment of the gut opposite to the rigid area.

On closer observation, and with increasing experience, we find that when there is exacerbation of symptoms there is often a new attack of diverticulosis—that is, either the pre-diverticular state or minute pockets, or both, can be seen close to the old areas of disease, and may be accompanied by fresh swelling of the mucous membrane.

Pathological Features.

The pathological features are those of a chronic inflammation of the pelvic colon, arising at first from one or more diverticula, but now involving the coats of the gut, including, sooner or later, the peritoneal coat, and spreading to surrounding parts; especially to the bladder in men, but also, at times, to the small intestine, or abdominal wall; and, in women, to the uterus and ovary. Leucocytosis is frequent. In late stages small, or sometimes larger, abscesses form in the inflamed or septic area. Metastatic abscesses are unusual, but have been recorded. Ulceration of the mucous membrane is rare, whereas in cancer it is the rule. In time the chronic inflammation leads to fibrous thickening of the wall of the gut, cutting off the diverticula from their necks. In some cases at length the appearance is that of a scirrhous narrowing of the bowel with a wall half an inch to an inch thick.

Symptoms.

From a consideration of our cases it appears that symptoms are more likely to occur at the first and last stages of the disease. For example: a man of 64 had pain and discomfort in the left iliac fossa twenty-six years ago. His doctor remarked that it was like a left-sided appendicitis, but with rest and enemas the symptoms subsided and he was well for many years. Some four years ago intermittent discomfort and pain began in that region. On admission the thickened bowel could be felt in the left iliac fossa. It is likely that the first symptoms were those of the acute stage of an extensive pre-diverticular state such as we have observed in other patients, that the middle period of quiescence was that of the developed diverticula, whilst the third stage, with recurring symptoms, is shown to be due to new disease with fresh pockets arising on the old areas and with the inflamed mucosal folds of diverticulitis.

Diagnosis.

The diagnosis of diverticulitis is not difficult if the comparative frequency of the disease is kept in mind. The long history and well-being of the patient in the intervals of symptoms are characteristic. The absence of bleeding or mucus is against malignant disease, though their

presence does not prove it, for they may both occur in diverticulitis. Of late it has become common for the diagnosis to be suggested or made before admission, or before *x*-ray examination. It is, however, not infrequently found when it has not been suspected, as must always be the case when no symptoms have arisen.

In all chronic cases, except those which have gone on to abscess with severe constitutional symptoms, a competent *x*-ray examination, if obtainable, is essential, and establishes the diagnosis. The chief common errors are to diagnose diverticulitis because some diverticula are seen, and to miss diverticulitis because the piece of bowel affected is not brought into profile, often no easy matter among the coils of the sigmoid flexure. When a narrowing is present without the characteristic appearance of diverticulitis, the presence of diverticula near by, as shown by a barium meal or enema, makes it probable that the case is one of diverticulitis; but the possibility of cancer being also present is not excluded.

The sigmoidoscope usually gives negative information; it may show the under aspect of a stricture without the nodules which accompany a cancerous ring.

Other diseases to be thought of are tuberculous, syphilitic, and actinomycotic inflammations of the sigmoid, diseases arising from neighbouring parts, and left-sided appendicitis.

OBSTRUCTION.

An attack of diverticulitis with threatened obstruction may occur as a result of two conditions which differ widely in their ultimate gravity.

1. *Inflamed Mucosal Folds.*

This condition may be due to local inflammatory swelling of mucosal folds with little or no implication of the other layers of the bowel wall. The folds are, of course, transparent to the rays and give the appearance of rounded or serrated intrusions between the barium-filled haustra; they do not advance and recede, like the normal lining, with segmentation; but it will be seen on superimposing the tracings in a series of photographs that the bowel wall is mobile. This may be the only way in which these swollen folds can be distinguished from the more permanent inflammation which involves all the coats.

The first sign in these cases may occur from threatened obstruction due to inflammatory swelling of the folds. This was so in several of the cases here reviewed. A typical history is as follows. A man who has had for some time discomfort in the lower abdomen, associated often with defaecation, is seized with pain round the navel, distension, and nausea, the temperature rising to 101° or thereabouts. There may also be pain on micturition.

On examination a tender area is found in the distended abdomen, usually in the left iliac fossa, and sometimes the thickened bowel can be felt. There is desire to pass a stool, but the attempt fails. The clinical state is one of intestinal obstruction, but is not of the same severity as those forms of stoppage, such as strangulated hernia, in which the circulation through a part of the bowel is blocked.[3]

The importance of diagnosing this condition is that with careful douching or warm oil enemas the swelling will go down rapidly and relief is obtained. For example, a patient was threatened with obstruction nine years ago, but the symptoms yielded to enemas. Examination later showed diverticulosis and swollen mucosal folds in the descending colon, but not rigidity of the bowel wall. With a careful regime and periodic treatment there has been no recurrence.

It may be assumed that many cases of obstruction relieved by enemas, and some of those in which, after a colostomy, the parts have been restored with success, are in this group.

2. *Fibrous Constriction of Bowel Wall.*

A threatening of obstruction may be due to fibrous contraction of the whole bowel wall. In some cases the mucous membrane escapes inflammation. In most there is also swelling of the mucosa, but not in big folds, and the wall is rigid. The risk of obstruction is here much greater, though in this form also douching may give relief, which, with treatment, may continue over a long period.

When in this group the channel is becoming permanently too narrow chronic dilatation of the gut above the constriction may be observed.

PROGNOSIS.

The prognosis in diverticulitis depends upon how soon the disease is recognized and treated. So far as ten or twelve years' experience can teach, it appears probable that in all early and in most advanced cases the disease can be arrested and kept indefinitely in check by suitable treatment. In advanced disease with a too narrow lumen of the bowel, if the area is localized and surrounding organs are not implicated, resection may be practicable, with a prospect of complete relief. In others, if colostomy be done, the outlook for life is good, and in a few of these a further operation after much of the inflammation has subsided may restore the parts. If abscesses have formed and there are severe constitutional symptoms the outlook is grave.

TREATMENT.

The treatment of an early case of diverticulitis is the same as that of diverticulosis, and consists in keeping the body, the alimentary canal, and especially the mouth and the colon, as healthy and clean as possible. Any source of sepsis that can be reached must be removed. The diet should be simple and regular, with a good deal of fruit and vegetables, and little meat. A diet which is found useful is the following, but the preference and state of each person must be considered.

8 a.m.—Coffee and milk; one tablespoonful of milk sugar; wholemeal bread; butter; honey or marmalade.
1 p.m.—Fish (cooked any way); butter sauce; salad and dressing; compôte of fruit; cream; toast and butter.
4 p.m.—Coffee or weak tea, with milk or cream; marmalade; wholemeal bread (toasted if desired) and butter.
7.30 p.m.—Vegetable soup; some egg dish (poached, scrambled, or omelette) with vegetables or fruit—for instance, jam or jelly omelette or omelette aux fines herbes; cream cheese; wholemeal bread; butter.
10 p.m.—Half an ounce of paraffin in 2 ounces of warm milk.

Meat is given two or three times a week to begin with, but later added daily, if desired, provided that regular actions are established. The milk sugar is a pabulum for the *Bacillus acidophilus*, which is given as mentioned below.

If there is such a degree of inflammation of the mucous membrane as to make it undesirable to give fruit, greens, or wholemeal bread, an entirely non-irritating or bland diet of cereals, milk, with fish or meat, is needed, at all events for a time. For example:

Breakfast.—Bread-and-butter; jelly marmalade; coffee and milk.
Lunch.—A light meat dish or fish; potato; milk or steamed pudding or baked custard; fruit juice, apple or prune fool; toast; butter; cream; white cheese; digestive biscuits.
Tea.—Wholemeal bread and butter; spongecake; jelly; cream; tea.
Dinner.—Fish or egg dish; potato; baked custard or cold sweet; fruit juice or purée with cream; bread; butter; cheese; biscuits.

But such a diet does not help the bowel generally to do its own work and contract its muscular wall frequently. It is contractions which promote the health of the gut and prevent stagnation of faeces in the lumen and in the pockets. Even if only a little fruit purée and sieved greens can be borne they help to keep the bowels regular, aided by paraffin to grease the pouches and ensure that the motions are soft. Altering the flora of the gut by vegetable foods and *B. acidophilus* in milk also seems to do good. For the latter we use a freshly prepared culture in sterile milk of 200,000 bacilli to the cubic centimetre.

Attention to habit is especially important. The patient is told to take plenty of time, giving a little strain every third breath, but never to strain hard.

Many authorities advocate a regular aperient once or twice a week. My experience is that it is better to avoid, if possible, irritation by regular purges and to get the bowels working by the above-mentioned measures, reserving aperients for special needs. These may not arise if the patient has been helped by a period of daily observation and treatment.

The colon is washed out with normal saline every other day, for a time, but at low pressure, the funnel being not more than eighteen inches above the level of the anus. The fluid runs in just as well as, or often better than, at higher pressure, which may provoke spasm. In no case

should a diverticulous area be massaged. I have twice seen a quiescent area awakened into subacute and painful diverticulitis by a course of massage given in ignorance of the state with the object of curing constipation.

When diverticulitis is established the lavage is continued for longer, and in some cases permanently, at regular intervals. Enemas of 3 to 6 ounces of warm olive oil or liquid paraffin are sometimes useful, to be retained all night if possible. In some comparative tests we found that the saline washout was more effective in emptying barium out of the pouches than was the injection of warm paraffin. The salines on the whole are more likely than the paraffin to set up discomfort, and even lumbago pains, in those liable to them. Perhaps this is because they flush the diverticula more thoroughly and increase absorption or irritation for the time.

The general health must be maintained by regulation of work, exercise, and rest; and moderation in the use of tobacco. Alcohol is thought, as a rule, to be harmful in this as in other forms of irritability of bowel or bladder. Motoring is not well borne by many patients.

Results of Medical Treatment.

Repair after treatment of a *pre-diverticular bowel* is considerable, and our observations suggest that at this, its beginning, the disease can be arrested, or, at the least, its progress greatly retarded.

In the stage of *established diverticula*, since we have evidence that pouches empty their contents more readily after treatment—that is, paraffin, douching, and attention to general health—it may be concluded that stercolith formation is thereby retarded, if not prevented: also in most cases the symptoms disappear. It is probable that a transformation into larger pouches with wider necks may be induced.

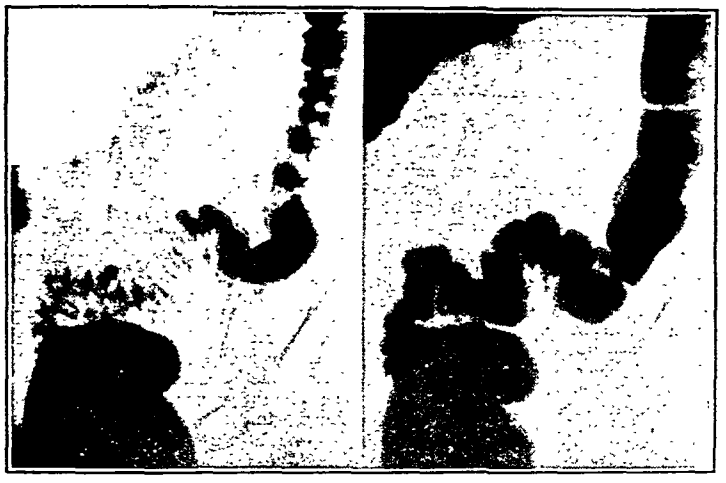

FIG. 3.—Showing the result of treatment. Subacute phase. On the left is a view of a piece of sigmoid in an inflamed state. There is new disease supervening on old. On the right is shown the same piece of bowel three months later, after steady treatment. The tumour could no longer be felt, the bowel having recovered to a comparatively normal state, with evidence of only slight induration.

In *subacute diverticulitis* it is remarkable how quickly the inflammation may subside with the above measures. The symptoms may be gone in a week. In the process of recovery the tenderness disappears and the tumour can be felt to become steadily less, and also more flexible when rolled very gently under the fingers. We have known a comparison of the radiograms after three weeks show that the lumen was restored almost to normal and the rigid area of bowel, as shown by serial films, much lessened. A more severe inflammation may yield to longer treatment (Fig. 3).

Operative Treatment.

Operation is needed, of course, for the accident of perforation of a pouch, which may occur, though uncommonly, at any stage after pouches are formed. At the end stage of diverticulitis, when obstruction, abscess, or fistula is present surgery is also often needed. As knowledge of the disease becomes wider these operations should be less frequent. In earlier cases most surgeons of experience recognize that operation often can and should be postponed or avoided by medical treatment (Moynihan,[1] Monsarrat[2]). But in some recent papers it is surprising to find that surgery is the only method of treatment advocated, an attitude which reveals a limited experience of the scope and pathology of the disease. But we are all in danger of taking too rosy a view of the method with which we are familiar. The standardization of work, in which one man uses one method and one tool all the time, may be good for output in manufactures, but until bodies and minds are standardized too it is bad for medicine and surgery.

Colostomy is sometimes needed for obstruction. When after this operation acute symptoms have subsided, the inflamed area usually gets steadily better and normal motions begin to be passed. After an interval it has been possible in certain cases to close the colostomy wound, the lower bowel resuming its function and with appropriate care remaining healthy. Operations suitable for dealing with fistula and septic complications will no doubt be described by those who follow me. We shall also discuss the pros and cons for an attempt being made at a radical cure by excising an area of bowel affected by diverticulitis. This operation should not be undertaken unless medical treatment as above described has been tried faithfully. If the symptoms are relieved entirely the treatment should be continued for several months, and progress estimated both by the clinical state and a barium enema. If the bowel is getting narrower, then operation should be considered before it becomes obstructed, with or without a preliminary or simultaneous caecostomy.

In a number of cases the disease is much localized, and these are favourable for excision, other things being equal. The situation of the lesion is of great importance. If the affected area is at the middle of the sigmoid loop there is often none too much room between it and the beginning of the rectum, even if the diverticulitic area shows a sharp margin between healthy and unhealthy bowel: but the margin is often far from sharp, and a second factor has then to be considered—namely, the state of the bowel above and below. In most cases there is diverticulosis of the neighbouring segments of bowel, especially above the lesion. Probably the existence of a few pouches does not prevent healthy healing, but if the disease is extensive and severe, it would, even if enough healthy bowel were found below the lesion, be necessary to excise a long piece above.

There is no justification for removing a piece of diverticulous bowel as such on the ground that it may become the seat of inflammatory changes, for, as above mentioned, it may not. Indeed, a man of 60 with multiple non-inflamed diverticula runs a greater risk of dying of other diseases than of diverticulitis. I trust that the removal of areas of bowel just because there is diverticulosis will not become a fashion like so many other fashions, both medical and surgical, which we have seen followed too far by the more active, if perhaps less thoughtful, of our profession in the last thirty years. I think of the overuse of many procedures, good in the right circumstances, but which, used unwisely, have done our credit much wrong.

I suggest that the following points are specially worthy of discussion: What are the difficulties of a differential diagnosis? How much evidence is there for regarding a non-diverticular and non-cancerous sigmoiditis as a separate disease? What is the best diet for chronic diverticulitis? Does the regular use of aperients do harm? How often is excision of a constricted area (*a*) practicable, (*b*) advisable? Have successful resections been done when the new junction has to be made at a

part of the bowel in which there are diverticula? Doubtless many others will arise.

Diverticulitis is a complaint that can be controlled if it is recognized early, though if allowed to take its course unchecked it becomes disabling and dangerous. It behoves us, therefore, as practitioners, to make ourselves as familiar as we can with the disease and especially with the early stages. It is hoped that such a discussion as that I have the honour to open now may do something more to forewarn and forearm the profession at large against its onset.

APPENDIX I.

At Ruthin Castle the colon had been observed with a barium meal or enema in 3,208 patients; 313 (roughly 10 per cent.) of these were the subjects of diverticulosis, and in 70 the disease had progressed to the stage of diverticulitis. Of these 70 patients, 54 were men and 16 women. The average age was 56; 21, rather less than one-third, of them were obese. There was an association of the disease with septic teeth, lumbar spondylitis, lumbago, sciatica, and apparently herpes of the nerves arising from the dorsal and first lumbar segments. Cancer was present in 4 cases—2 of the rectum and 2 of the sigmoid. This lent no particular support to the view that diverticulitis was a frequent cause of cancer.

Operations done on the advice of a physician at a convenient time were not dangerous. Of 5 so treated in this series there was no mortality, and the complaint was relieved in all. The heavy mortality quoted in the literature—12 to 25 per cent.—included those cases which had been unrecognized and untreated. Out of the 70 cases, 14 were now dead; 2 of these died from diverticulitis. One had vesical fistula and abscess; this patient had continued to take paraffin, but had omitted douching for three years. The other one died after a perforation. Twelve had died from other diseases. Fifty-two patients were known to have kept well as regards the bowel; of 5 there was no news.

Lantern slides were shown illustrating the development from diverticulosis to diverticulitis and results of treatment in diverticulitis.

APPENDIX II.

The nomenclature of this disease is cumbrous. I have consulted various authorities, including those who adhere to the B.N.A. nomenclature and those who do not. Whilst most condemn the terms we use and look for better ones, by others I am given to understand that the reform of medical terms is a domain where angels fear to tread. This angelic timidity is perhaps one reason which has led me to use all the old names. I may, however, mention that the Greek word σάκκος (Latin *saccus*) is, I am assured, as respectable etymologically as the word diverticulum, or more so. From it could be derived English words: sac, saccous or saccal, saccosis, saccitis, presaccal state. Dr. Cuthbert Morton pointed out to me that the use of these terms instead of diverticulum, diverticulous or diverticular, diverticulosis, diverticulitis, and prediverticular state would have saved nearly half a column in a recent article which occupied eleven columns of the *Lancet*.

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DIVERTICULITIS OF THE SIGMOID.*

BY

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IT is singularly fitting that diverticulitis of the colon should be chosen as a subject for discussion at this meeting. The longest memory cannot recall a time when Lancashire has not spoken with authority on surgery of the colon, for the county has given to the profession the late Mr. F. T. Paul and the present President of your Association.

Diverticula of the colon were first described by Cruveilhier in 1849. The staff of Guy's Hospital has played an important part in drawing attention to the significance of the condition, since in 1857 Habershon, a physician to that hospital, published the first account of diverticulitis in English, while in 1885 Arbuthnot Lane described a specimen of the lesion obtained post mortem. In 1858 Sidney Jones reported a striking case of acute diverticulitis which resulted in a fistulous connexion between the bladder and the sigmoid. However, attention was not generally attracted to diverticulitis of the sigmoid until 1898, when Graser emphasized the frequency and significance of the disease. The first comprehensive treatise embodying both etiology and classification was brought out by Beer in 1904. This has been followed by papers by Telling, Drummond, Mummery, Hartwell, Brewer, Rogers, Mailer, and others. In 1907 Moynihan's classical paper appeared on its mimicry of carcinoma of the colon, and this deservedly received much attention. In 1907 Wilson, Giffin, and I reported five cases in which a portion of the sigmoid was excised for obstructive diverticulitis with the formation of tumour; these were the first instances recorded in which an actual demonstration of the pathologic change in diverticulitis was made during the life of the patient.

There are two types of diverticula of the colon—the acquired and the true. In diverticula of the acquired type the mucous membrane of the intestine pouches through small openings in the musculature at weak points in the wall of the colon, such as holes for vessels or defects of muscle. Such diverticula often contain small hardened faecal masses. This type is the one concerned in diverticulosis, in contradistinction to true diverticula of the congenital, traction, or pulsion types, in which all the intestinal coats cover the sac. The sigmoid is always involved in diverticulosis. If the entire colon is affected there is a gradual increase in the frequency of the diverticula from right to left. The diagnosis of diverticulosis now rests securely on radiographic evidence.

Records at the Clinic show a total of 1,918 cases of diverticulosis. Robertson's observations on our post-mortem service show that more than 5 per cent. of persons over 40 years of age have diverticulosis, and his data approximate as to frequency those based on *x*-ray evidence. Thus, in the period from 1924 to 1928 inclusive, 26,699 *x*-ray examinations of the colon were made for general diagnostic purposes, and in 1,574 of these (5.89 per cent.) diverticula were present. Only 16 of these 1,574 patients were less than 40 years of age. Of our 1,918 recorded cases of diverticulosis, active diverticulitis was present in 653 at the time the patients were examined. Inasmuch as in the earlier period, prior to 1916, only the cases of diverticulitis were recognized and properly recorded, these figures are of no value in establishing the frequency with which diverticulosis gives rise to diverticulitis. Statistics of the later period give over 12 per cent. of cases of diverticulosis resulting in diverticulitis, but for obvious reasons this is probably an overestimate. A study of the relative incidence of diverticulosis in men and women in this group of cases showed that 64 per cent. of the patients were men, 36 per cent. were women. As constipation is more common in women, these figures would seem to show that it is not an important factor in the causation of diverticulosis. Nor can much significance be attached to obesity as an etiologic factor, inasmuch as the percentage of patients who were under weight was about the same as that of those who were over weight.

CLINICAL FEATURES.

With rare exceptions, the type of inflammation of diverticula which we speak of as diverticulitis is confined to the sigmoid. The inflammatory condition usually is limited to one or several diverticula, but a considerable length of the bowel may be obstructed and greatly thickened from oedema and adhesive inflammation; thus a well-marked tumour in the lower part of the abdomen to the left of the median line often, if not usually, forms during the acute stage. Cases of the disease may be classified clinically into four groups.

GROUP 1: *Self-limiting Diverticulitis and Peridiverticulitis.*—The symptoms of acute diverticulitis are pain in the region of the mass, which is usually palpable, a moderate degree of fever, and gaseous distension. As a rule these symptoms are not severe, and although the temperature may be elevated one or two degrees, the patients are often ambulatory after the first day or two, and the tumour usually disappears in the course of a few weeks.

GROUP 2: *Diverticulitis and Peridiverticulitis with Formation of Abscess resulting in Entero-intestinal, Entero-vesical, Entero-cutaneous, and other Fistulas.*—This group includes those cases in which infections (either localized peritonitis with formation of abscess, or the results of infectious processes which

* *Read* in a discussion in the Section of Surgery at the Annual Meeting of the British Medical Association, Manchester, 1929.

connect the diseased sigmoid with the neighbouring intestine, the bladder, or the skin) lead to the necessity for surgical intervention. Rarely an infected diverticulum in the terminal portion of the sigmoid may be the cause of an abscess resulting in an intractable fistula in the posterior anal region, as pointed out by C. H. Mayo.

GROUP 3: *Diverticulitis Complicated by Obstruction of the Bowel.*—In acute diverticulitis the obstruction is the result of infection and oedema. Chronic obstruction is due to hyperplasia, adhesions, and angulation (the hyperplastic stenosing type). The conditions are practically identical with those in Groups 1 and 2, but the additional factor of obstruction in these cases is so serious a feature that it seems best to classify them independently. It is surprising, however, when the entire mass is dissected out and the diseased bowel laid open to find so little actual obliteration of the lumen of the bowel, and, unlike cases of carcinoma of the sigmoid, the obstruction is rarely complete.

GROUP 4: *Carcinoma Developing on a Diverticulum.*—This group is of great interest. In rare cases the carcinoma may have such a definite relationship to the diverticulitis as to make it reasonable to assume that infection and irritation by hardened faecal masses in diverticula might have been the cause of chronic irritation and precancerous change. Until recently the only known fact of significance in the etiology of carcinoma was its relation to chronic irritation. To-day the question of individual susceptibility to carcinoma is beginning to attract scientific attention. The term "precancerous" is used to denote certain cell changes taking place in areas of chronic irritation, which would be typical of carcinoma if found in connexion with invasion of the tissues.

It has often been pointed out that carcinoma of the sigmoid may progress very slowly. Cases have been reported in which colostomy was performed for the relief of obstruction due to supposed carcinoma; the patients lived for a number of years, and died from carcinoma of the sigmoid, a fact which was taken to prove that the condition had been carcinoma from the beginning, and that the natural course of the disease had continued for eight or nine years. This inference is unwarranted. In the Clinic we have operated on several cases of this type, and on resection of the growth have found carcinoma developing in a sigmoid in which the results of an ancient deforming type of diverticulitis were present. In tracing the early histories of the patients it could be seen that the diverticulitis had been present from the beginning of the illness, and that the malignant change had been a more recent development.

In reviewing a series of specimens of sigmoid which had been resected for supposed carcinoma at the Clinic Wilson found that three, resected years ago, before all specimens were subjected as a routine to microscopic examination, showed diverticulitis and not carcinoma. The possible association of carcinoma with diverticulitis leads to the conclusion that when a tumour appearing to be diverticulitis, but without acute symptoms, is found in the sigmoid or colon, and especially if the tumefaction subsides only partially and then continues as a chronic mass causing more or less marked symptoms, carcinomatous change is to be suspected, but the relation between the two remains conjectural. Some idea of the relative frequency of the two conditions in the sigmoid may be obtained from our own figures. In the stated period we dealt with 653 cases of diverticulitis and 1,259 cases of carcinoma.

The distinction between diverticulosis and carcinoma of the sigmoid can usually be demonstrated by radiological methods. These methods will usually show also a carcinomatous change in a diverticulous area of the sigmoid, but if diverticulitis is present this diagnostic agent cannot be used so freely during the more acute stages of the process.

SURGICAL TREATMENT.

The treatment of diverticulitis of the sigmoid depends on many factors. In acute cases, especially if the patient is old, obese, and a poor risk for operative procedures, it should be tentative. In our series of 653 cases operation was performed for this condition in 26.18 per cent. If the infection goes on to the formation of abscess the pus should be evacuated, instead of waiting for its spontaneous discharge, as the latter course tends to lead to the formation of a fistula, with its attendant evils. If more radical treatment appears to be necessary to effect a cure, it can be postponed to a later and more favourable time. If acute obstruction results colostomy should be performed as close to the obstructed point as is convenient, so that at a subsequent operation the stenosed portion of the sigmoid and the colostomy opening may be excised simultaneously through the same incision, or, as advised by Stiles and by Burgess, caecostomy may be performed for temporary relief and the radical operation performed later if it becomes necessary. In other cases colostomy may be resorted to for temporary relief, and the opening in the colon closed later, if the infective process retrogresses spontaneously sufficiently to restore the lumen of the colon.

If the patient comes for relief of an internal fistula, especially one communicating with the bladder or with another part of the intestinal tract, a serious problem confronts the surgeon, the operative risk being proportionate to the number of internal fistulas and to their situation. I know of no more trying operations than some of this character. In several instances I have dissected out multiple entero-intestinal fistulas communicating with the bladder, and have carefully sutured the bladder and each intestinal opening; after several days leakage to the surface has followed the line of drainage, with temporary discharge of urine and faeces. However, these wounds have eventually healed. A very excellent technical step in such cases was first suggested, I believe, by C. H. Mayo. This consists in completely separating the involved sigmoid from adherent intestines and bladder, and, after suturing the fistulous openings, or resecting the diseased segment of bowel, in bringing the omentum into the operative field. An opening is made in the omentum through which the sutured portion of the sigmoid is brought to the peritoneal surface of the abdominal incision, where it is attached by a few sutures. The omentum is thus thrown between the defects in the colon, bladder, and adherent intestines, and if leakage occurs later a safe exit is provided.

CONSIDERATIONS ON THE ORIGIN OF ACQUIRED DIVERTICULA OF THE SIGMOID.

The romance of medicine lies in inductive philosophy, in which to-morrow is the great day. Yesterday furnishes the deductive philosophy, which acts as a compass to keep our directions true.

In mammals the testis is the primitive procreative organ, and because of its long heredity it is relatively free from disease; the ovary, secondary to the testis, is a more recent acquisition, which has not yet achieved the same resistance. So, too, the sigmoid, a convenient storage organ but of more recent development, has not yet achieved the stability of the primitive small intestine. The right half of the large intestine is derived from the midgut, and in the embryo has the same type of epithelium as the small intestine and carries on an absorptive function. The sigmoid is derived from the hindgut, and has relatively little absorptive function. By reverse peristalsis derivatives of the food end-products are returned for further elaboration and absorption until the faecal stage is reached.

Certain recent investigations by Alvarez and his colleagues have shown the influence of food products on mass. Among the various types of food which form a mass, such common articles of diet as potatoes and milk form a relatively large mass, whereas red meats induce a large amount of bacterial action. Three-fourths of the peoples of the world eat rice for carbohydrate, and more or less fish for protein. Rice not only has a high calorie content, but also it liquefies and forms only a very small mass; such articles of diet as fish also form a small mass. It would be interesting to know whether diverticulitis is as common in the rice and fish eating countries as it is in the potato and red meat eating countries.

To one who has watched through the fluoroscope the spastic colon struggling with a barium content, it is not difficult to understand how and why pits form in the areas of weak musculature of the colon and along perforations made by its blood vessels. Again, now that we are getting new light on the sympathetic nervous system, which acts as a brake on intestinal progress, we see a possible explanation of some of the phases of the development of diverticula. Learmonth and Markowitz have shown that after section of the inhibitory nerves to the colon of the dog, in certain cases, a barium meal may show appearances suggestive of early diverticulosis.

Speaking picturesquely, one notes various types of control over the vegetative functions—for example, the linking up of non-striated muscle with the nodal system and with the internal secretions so largely instrumental in carrying on gastro-intestinal functions. These controls are shown in the occurrence of intestinal peristalsis once or twice in each minute and intestinal contractions eighteen or twenty times in each minute, the latter movements serving as a motor pump to propel venous blood in the portal system to the liver. All of these forms of stimulation are linked with the sympathetic nervous system, and through the sympathetic ganglions with the central nervous system. Our knowledge of this interrelationship we owe to the fundamental work of Gaskell and Langley.

The work of Hunter and Royle has stimulated fresh surgical interest in the sympathetic nervous system. In this field Adson and his associates have been able to relieve megacolon, which so closely resembles the dilated oesophagus in cardiospasm, by removal of the lumbar sympathetic ganglions and their communicating branches. The operation effects its purpose probably by leaving the sacral sympathetic outflow, which is motor to the distal part of the colon, in sole control of this part of the bowel. Adson and his co-workers also have brought about marvellous relief in Raynaud's disease, in certain types of contraction of the blood vessels of the extremities leading to gangrene, and in certain types of arthritis, by removal of the appropriate sympathetic ganglions and their communicating branches.

SANOCRYSIN TREATMENT OF PULMONARY TUBERCULOSIS.*

BY

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SANOCRYSIN is an organic salt of gold, and was first used for the treatment of tuberculosis in man in 1923, after several series of experiments on animals by Professor Moellgaard. The exact action of sanocrysin on tubercle bacilli or tuberculous tissues is still a subject of controversy. It is now more than four years since this treatment was introduced into the British Isles, and it should be possible to form some estimate of its value. From the clinical point of view there are a number of questions which it is important to answer: (1) What are the dangers of sanocrysin treatment? (2) What is the correct dosage? (3) Has sanocrysin any value in the treatment of pulmonary tuberculosis? (4) What type of case is likely to benefit from the treatment?

In the following remarks an attempt will be made to answer these questions from the records of the 102 patients discharged from the Forster Green Hospital after sanocrysin treatment between 1925 and 1928. All these patients had tubercle bacilli in the sputum, and a high percentage of them were of the exudative type.

Professor Moellgaard's original experiments convinced him that sanocrysin was well tolerated by healthy mammals; rabbits, goats, calves, and monkeys were injected intravenously with 3 cg. per kilo of body weight without serious results. It had no injurious effects on the kidneys of healthy calves and rabbits in doses of 2 cg. per kilo of body weight, while larger doses in calves caused oedema of the epithelium of the tubuli contorti. Transient albuminuria (three to four days) sometimes followed the early injections, but by graduating the dose a tolerance could be produced. Symptoms, such as diarrhoea, loss of weight, and fever, did not appear after the injection of sanocrysin in healthy calves. The result of an injection of sanocrysin was quite different in a tuberculous calf. Often the animal died of shock in forty-eight hours, while severe albuminuria, haematuria, diarrhoea, and loss of weight occurred if the animal survived long enough for observation.

There has been much discussion on the interpretation of these reactions in tuberculous animals, which Professor Moellgaard attributed to auto-inoculation, resulting from the destruction of tubercle bacilli in the body by sanocrysin. He solved the difficulty of treating the calves by the use of a serum, and then produced some curative results in experimentally infected calves and also in naturally infected monkeys. So far as I know, the serum is not used now in conjunction with sanocrysin treatment in man. In proportion to body weight, the doses employed in these experiments were rather larger than any used now in the treatment of human tuberculosis; also the intervals between the doses were shorter. It is, however, most important to consider the body weight in each individual case, in order to avoid the danger of overdosage.

The elimination of sanocrysin is effected mainly through the kidney, and it has now been shown by McCluskey and Eichelberger that at least thirty days are required for all the gold to disappear from the urine. The same observers found that doses of 2 cg. per kilo of body weight had rather marked effects in normal dogs, causing vomiting, diarrhoea, and albuminuria. Studying mice, S. Kimosa found that the tolerance was raised by increasing the dose gradually. J. Frandsen found that sanocrysin was not injurious to the kidneys of normal rabbits.

To summarize our present knowledge of the toxicity of sanocrysin, it appears that the drug in a pure state is not injurious to healthy mammals in doses of 1 to 1.5 cg. per kilo of body weight. Tolerance is increased by graduated dosage, provided there is a sufficient interval between the doses. The kidneys are mainly responsible for its elimination, which takes place much more slowly than was first supposed. It is, moreover, much more liable to damage the tuberculous organism than the healthy one.

The question of dosage has occupied the attention of all who are employing sanocrysin. By decreasing the dosage too much one may fail to get positive results. On the other hand, the dosage which was originally employed in Denmark and the British Isles is undoubtedly excessive, and exposes the patient to grave risks. The original plan was to give half a gram and follow this by a gram two or three days later. If the patient survived these initial doses, one gram was given weekly five or six times. The great majority of deaths resulting from sanocrysin were associated with this high and intensive system of dosage.

On the other hand, many of the patients who were able to tolerate these high doses at short intervals made a remarkable improvement, and some have remained well for the past four years. Hyperpyrexia, intense focal reaction in the lungs, haematuria, albuminuria, anuria, and jaundice were among the symptoms which were liable to appear, usually after the second large dose of sanocrysin. In considering the question, it is important to remember two facts to which reference has already been made: (1) The complete elimination of sanocrysin from the body takes a long time. (2) By graduating the dose one is able to create a tolerance, and ultimately large doses may be injected without causing any severe symptoms. A system of graduated dosage has now been generally adopted, with lengthened intervals between doses.

In afebrile patients it is safe to begin with 0.25 gram, and to increase the dose by the same amount in arithmetical progression until 0.75 gram is reached, which dose may then be repeated four or five times. Usually this scale of dosage will be tolerated well by patients weighing from 8 to 10 st. With patients who are over 10 st. the final dose may be increased to 1 gram, and in very light or emaciated patients 0.5 gram should be regarded as a maximum dose. The interval between the early doses should be about a week, or longer if the symptoms of reaction have not subsided. The interval between the larger doses should be ten days, or even a fortnight. In the treatment of febrile patients one may begin with 0.05 or 0.1 gram, and increase the dose very slowly, if the injections appear to be doing good. Some patients are unable to tolerate sanocrysin, even in small doses, and in 16 per cent. of the cases in my series the treatment was abandoned when less than 2 grams of sanocrysin had been

* Read in opening a discussion in the Section of Tuberculosis at the Annual Meeting of the British Medical Association, Manchester, 1929.

administered. Five of these were very seriously ill, and treatment was stopped because of the progress of the disease, not on account of any reaction. The reasons for stopping treatment in the others were as follows:

Diarrhoea	7
Prolonged albuminuria	1
Focal reaction	1
Intercurrent tonsillitis	1
Fistula in ano...	1

Two of the patients underwent a full course of sanocrysin treatment subsequently, with satisfactory results.

There has been discussion as to whether it is advisable to give several courses of sanocrysin. No doubt others will deal with this point, but my experience of second or third courses is small. I have an impression that a second course should follow at a short interval, say a month or six weeks, and that if a second course is considered necessary exercise should be strictly limited between the two courses.

Complications.

Up to the end of 1928, 102 patients had been discharged from the Forster Green Hospital after sanocrysin treatment. Five patients were treated by the original method with large doses, and the remaining 97 patients were treated with graduated doses. By good fortune no serious accident occurred in the course of the treatment of the first 5 patients, but 3 of the 5 had diarrhoea, 3 had a scarlatiniform skin eruption, 4 had vomiting after the injections, and all of them showed a loss of weight during and after treatment, varying between 1½ and 16½ lb. In the 97 patients who were treated by graduated doses complications occurred less frequently. The following table illustrates the fact that complications have been less frequent in the later cases of the series.

	Cases 1-50.	Cases 51-102.	Total.
Marked febrile reaction	11	15	26
Slight febrile reaction	24	19	43
Prolonged febrile reaction	1	3	4
Albuminuria (transient)	15	11	26
Albuminuria (marked)	22	9	31
Vomiting	17	5	22
Diarrhoea	10	4	14
Loss of weight	21	15	35
Dermatitis	8	4	12
Neuritis	1	2	3
Stomatitis	13	2	15

There is little to add here to what has been written already about the complications. There was one case of persistent albuminuria, apparently due to permanent damage to the renal tissues. Stomatitis was noted in 15 patients, 13 of whom were males. Several of the cases were due to smoking, contrary to instructions.

The most serious complication which has arisen has been prolonged fever, with a spread of the disease in the lungs. This occurred four times in the series of 102 patients treated, and 3 of the patients died within a short time, the fourth making a good recovery after seven weeks of fever. This prolonged reaction has been noted also in 2 patients who are not included in this series, as they were still in hospital at the end of 1928. In the 2 latter cases the reaction has subsided, and there is now improvement. The 6 patients who showed these prolonged severe reactions were all "advanced" cases, according to the classification by signs and symptoms. They were all cavity cases, with considerable toxaemia, as shown by temperature and pulse rate. The reaction usually occurred towards the end of the course of injections, and in 4 of the cases it was probably due to a cumulative action of the sanocrysin. Of the other 2 cases, one, which recovered, developed a pleural effusion as a complication of artificial pneumothorax treatment after the second injection. The other, also an artificial pneumothorax case, had a rupture of the lung and died four weeks later.

It is obvious that the dangers and troublesome complications of sanocrysin treatment are not to be ignored. It would not be justifiable to continue such a treatment unless there was a definite probability of obtaining substantially better results than by conservative methods.

Beneficial Effects.

Where sanocrysin is well tolerated there are beneficial results, which follow in a high proportion of the patients. In the majority of the cases tubercle bacilli have disappeared from the sputum. Often, but less constantly, there has been a rapid clearing up of the *x*-ray picture, heavy cottony shadows being replaced by well-defined markings, and by signs of contraction of the diseased areas in the lungs. When these changes are marked the absence of bacilli from the sputum is likely to persist, but when the *x*-ray picture shows little improvement tubercle bacilli will reappear in the sputum. The changes in the *x*-ray picture which follow sanocrysin treatment have been described minutely by several Continental physicians, and the phrase "sanocrysin lung" has been coined to describe the shrunken fibroid lung often observed at the conclusion of a course of sanocrysin. This contraction of the lung is most likely to occur in cases where the disease is lobar in distribution, and in other exudative types of disease resolution may take place without radiological evidence of much fibroid change.

The effect on fever which has not yielded to prolonged rest in bed is often very marked, and after a few injections the temperature may become normal. This improvement is followed later by a diminution of the pulse and respiration rates.

The physical signs often show a rapid improvement. On auscultation it is found that the areas of moist crepitations have cleared up, being replaced by diminished breath sounds. If the improvement continues, harsh breathing and prolonged expiration become marked, and crepitations are not to be heard, even after cough.

Besides objective signs of improvement, there is a striking change in the aspect of the patient when the treatment is successful. The phthisical facies disappears, and the flabby chest muscles become rounded and firm. Lastly, so far as it is possible to judge in the short period of four years, patients treated with sanocrysin have a lower mortality rate than untreated patients.

All tubercle bacilli positive cases discharged from Forster Green Hospital from July 1st, 1925, to December 31st, 1928, were traced in the spring of 1929. These patients were classified in three groups, according to the severity of the symptoms on admission. In the moderate group 80 per cent. of those treated with sanocrysin are alive, and only 63 per cent. of those who did not have sanocrysin treatment. In the advanced group, 58 per cent. of the sanocrysin-treated cases are alive, as compared with 30 per cent. of untreated cases.

Results of Sanocrysin Treatment.

In considering the results I have included all cases in which the treatment was attempted. Of these, 19 were very seriously ill when treatment was begun, and 13 of these are dead, although marked temporary improvement occurred in 8 of them. Of the 6 surviving patients in this group, 2 had a spontaneous pneumothorax, complicated by a mixed infection, and 2 had artificial pneumothorax.

An attempt has been made to analyse the results in the remaining 83 cases. First they were divided into three groups as shown in the following table.

	Alive.	Dead
1. No evidence of cavity	21	3 = 12.5%
2. Radiological evidence only of cavity ...	29	6 = 17%
3. Clinical evidence of cavity	17	7 = 29%

The result was more remarkable when an attempt was made to classify the cases into "exudative" and "fibroid" groups, according to the *x*-ray picture.

	Exudative.		Fibroid.	
	Alive.	Dead.	Alive.	Dead.
No cavity	14	3	7	—
Cavity *x*-ray evidence only	18	5	11	1
Cavity clinically	7	7	10	—
Totals	39	15	28	1

There has thus been a heavy mortality in the exudative group, although many of them did well while under treatment. But I believe that the results in exudative cases could be improved on, if treatment were prolonged over a period of several months. Frequent *x*-ray examinations are necessary in such cases, and the patient should be kept at rest as long as any exudative foci can be seen on the *x*-ray film.

Possibly it may prove to be best to give several courses at short intervals. In any case, if active disease is present after sanocrysin treatment, artificial pneumothorax or phrenic avulsion should be considered, even if the temperature and pulse rate are normal. I think also that some exudative cases with cavitation should have a period of rest and tonic treatment before trying sanocrysin, which might be employed when the limit of improvement has been reached.

In the fibroid group, however, the results have been more satisfactory, as there has been only one death among 29 patients. It might be suspected that these patients would have done equally well without sanocrysin, but most of them had the treatment because they had failed to respond to routine measures. Of this group, 55 per cent. were discharged without tubercle bacilli in the sputum, as compared with 43 per cent. in the exudative group. Excluding 10 "cavity" cases, 72 per cent. of the fibroid cases were without tubercle bacilli on discharge.

Tuberculosis of the larynx was present in 8 cases of my series, and I do not think it contraindicates sanocrysin treatment, as the laryngeal condition usually improved, and 6 of the 8 cases are alive.

Cachexia, intestinal tuberculosis, and disease of the kidneys are contraindications.

It is often advantageous to combine sanocrysin and collapse therapy, especially in cases where there is widespread disease of one lung, with some active trouble in the better lung. If the case is acute, and the lung tissue is breaking down rapidly on one side, it will probably be necessary to collapse the worse lung immediately and try sanocrysin afterwards.

In another kind of case, when the patient has passed through the acute stage and shows some resistance, I have found it more satisfactory to give a long course of small doses of sanocrysin first, and to try artificial pneumothorax later.

When the disease is almost entirely unilateral, and collapse therapy is clearly indicated, I think sanocrysin should not be employed; later, if fresh foci of disease develop in the functioning lung, it may be of service. In my series 19 patients had artificial pneumothorax treatment, and satisfactory collapse was attained in 7, all of whom are alive at the time of writing. The collapse was only partial in 11 patients, and 5 of these are alive.

There are two types of pulmonary tubercle in which I think sanocrysin may be of value. One is the early exudative case in which the disease in the lungs is severe or widely spread, but in which there is some evidence of resistance. The other is the predominantly fibroid type of disease, when symptoms and tubercle in the sputum persist after several months of sanatorium treatment. In the exudative case I think it is important to begin sanocrysin treatment as soon as possible. In the fibroid case sanocrysin should be withheld until sanatorium treatment has had a trial.

When there is disease of long duration, combined with an exudative *x*-ray picture, sanocrysin treatment is not free from danger, but in such cases it may be possible to combine it successfully with artificial pneumothorax.

In judging the results, it should be remembered that the type of pulmonary tuberculosis seen in hospital patients in Ireland is commonly severe.

I have been encouraged to persevere with sanocrysin treatment by the opinions expressed by my colleagues in Belfast and elsewhere. Certainly it is not a cure for tuberculosis of the lungs, but it is a valuable aid to treatment, if used with caution and discrimination.

ASBESTOS DUST AND THE CURIOUS BODIES FOUND IN PULMONARY ASBESTOSIS.*

BY

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ASBESTOS was woven into cloth before the time of Herodotus 450 B.C., but the history of the industrial disease pulmonary asbestosis dates only from A.D. 1900.

In 1899 a man was admitted to Charing Cross Hospital under the care of the late Dr. H. Montague Murray. The patient was suffering from pulmonary fibrosis of obscure origin. He had worked for ten years in an asbestos factory, and his occupation was suspected as being the cause of death, which occurred in 1900. The case was not published, but Dr. Murray, in his evidence before the Departmental Committee on Industrial Diseases in 1906, referred to the presence of spicules of asbestos in sections of the lungs.

The next case, and the first published, was recorded in 1924. The clinical history and histological appearances have been the subjects of papers in the *British Medical Journal* (1924–27), and in the *Journal of the Royal Microscopical Society* (1927). The findings upon which the diagnosis of pulmonary asbestosis was made in that case, and the results of further work on the curious bodies that have been found in the lungs in all necropsies in the disease are the subjects of this paper.

Asbestos and Asbestos Dust.

Asbestos belongs to the pyroxene or hornblende group of minerals, and is classed with syenite, granite, and porphyry. I scarcely need remind you that the igneous rocks were originally silicate solutions—compounds of silicic acid with earthy bases. Under certain physico-chemical conditions hornblende and serpentine pass into fibrous varieties and are then given the technical name "asbestos."

The infinite varieties of asbestos differ in their chemical constitution and physical characters, but I propose to deal with one type only—chrysotile—the average composition of which is:

Silica	40.87 per cent.
Magnesia	41.50 ,,
Ferrous oxide	2.81 ,,
Alumina	0.90 ,,
Water	13.55 ,,

The iron content may be important. It will be interesting to see whether the effects of the iron-free dusts of some Italian, Arizona, Finland, and Chinese asbestos are the same as in chrysotile workers.

Microscopically, chrysotile fibre consists of colourless refractile translucent strands, but intermingled with the fibre are masses of black angular particles, brown particles of all shades from light yellowish-brown to deep golden brown, and particles the colour of sapphire blue. The dust generated during the process of manufacture consists of fragments of fibre and translucent spicules split off from it.

* A paper read in a discussion in the Section of Occupational Diseases at the Annual Meeting of the British Medical Association, Manchester, 1929.

These spicules are of varying lengths and thicknesses, some of them being beyond the limits of resolution and ultra-microscopic. The dust contains also the black, brown, and blue fragments seen in the raw asbestos. The colourless translucent particles and the brown and blue particles of the dust are refractile by polarized light. The black particles are biotite and magnetite, and do not transmit light. These iron-containing minerals are responsible for the varying percentages of iron in different specimens of asbestos, and, as would be expected, the dust containing the greater number of these black particles has the greater iron content. Microscopically, the finished woven article contains very few black particles, whereas the dust from the carding room is grey in appearance and contains them in abundance. The iron content of chrysotile, the finished article, and the dust is as follows:

Chrysotile: iron (as ferrous oxide) ...	2.81 per cent.
Finished article: iron (as ferrous oxide)	0.1 ,,
Dust from carding room: iron (as ferrous oxide)	18.4 ,,

In addition to the angular pieces a fine black granular dust is generated during the process of manufacture.

Asbestos Dust in the Lungs.

Sections of lung and the results of digestion of the lung with trypsin show an enormous amount of fine black granular dust, much of which is carbonaceous. In addition there are two striking features. The first is the almost complete absence of the very fine translucent spicules of fibre which make up the great proportion of asbestos dust in factories. This point will be referred to later. The second feature is the presence of large fragments varying in length from 10 to 360 microns. They are found in fibrotic and necrotic areas, singly and in groups. The particles are so large—masses of them are seen in some sections—that they must have occluded small bronchi and resulted in fibrosis of the surrounding area with, later, necrosis.

Comparing these large particles in the lung with those found in asbestos dust the close resemblance in sizes, shapes, and colours is apparent. There are the same black, blue, brown, and translucent fragments. In fact, it is easy to take each single particle from the lung and immediately find its brother in a slide made from the dust.

The question I had to answer with regard to the 1924 case was, "Did the deceased's occupation cause or contribute to her death?" Upon the foregoing evidence one answer only was possible.

The Curious Bodies found in Pulmonary Asbestosis.

In addition to the fine granular dust and larger fragments of asbestos, sections of the lungs show curious bodies, some of which are illustrated in Figs. 1–5. They are found in alveoli, bronchioles, fibrous and necrotic areas, and in phagocytes, in sections of both lungs. If a portion of lung be teased and extracted with water, or digested with trypsin, or, as Professor Stewart pointed out (1928), a smear is made from the cut surface of the fresh lung, these bodies are seen in myriads. The larger bodies measure from 20 to 100 microns or more in length, are of a golden brown colour, and some are shaped as seen in the illustrations. They may have single clubbed ends or appear as elongated dumb-bells, some as filaments, while others suggest a series of discs. Single coccal and spore-like forms, and aggregations of these, and streptococcal forms are not uncommon, and the colour varies in the smaller types from a very pale yellow to a yellowish-brown. The bodies do not stain with any of the aniline dyes, but, in chrysotile workers, give the Prussian blue reaction for iron in varying degrees of intensity. These curious bodies have been found in every necropsy in pulmonary asbestosis, and the problems we have to decide are, first, what the bodies are, and secondly, whether they are diagnostic of asbestosis. It would be unprofitable to retrace all the steps which led down the many by-lanes during the course of the work, but I might mention a few pertinent details of interest.

Professor Stewart suggested to me that a better method than simple extraction of the lungs with water or saline would be to digest portions with trypsin. During this process it was found that if the specific gravity was kept about 1070 the black dust and larger fragments of asbestos, as well as the partially digested lung tissue, sank to the bottom of the tube. By decanting the apparently clear supernatant liquid, centrifugalizing, neutralizing, and washing the deposit, the curious bodies could be obtained in a pure state. This was done, and sufficient material for *x*-ray examination obtained. The bodies were attached to a hair with gum and subjected to a seven hours' exposure by Professor Bragg's method. If the bodies were mineral the *x*-ray film would have shown a definite translatable atomic pattern. The films, however, did not do so, and we were then able to exclude the suggestion that the bodies were altered asbestos fibre. The result definitely pointed to the greater proportion of their composition being of non-mineral origin.

The bulk of the curious bodies is soluble in strong acids and alkalis, and if solution be observed under dark-ground

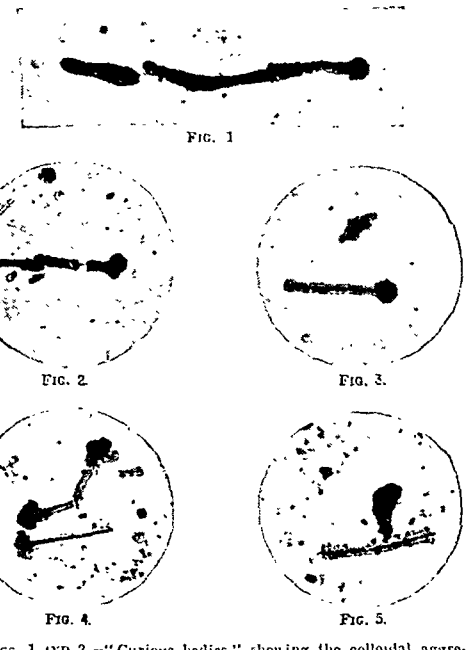

FIG. 1

FIG. 2

FIG. 3.

FIG. 4.

FIG. 5.

FIGS. 1 AND 2.—"Curious bodies" showing the colloidal aggregates separated, mechanically, from the slender filaments of asbestos fibre on which they are adsorbed. (× 400.)

FIGS. 3, 4, AND 5.—"Curious bodies," the nuclei of which consist of spicules of biotite. (× 400.)

(Photomicrographs by C. T. Hill and W. E. Cooke.)

illumination their bases are seen as extremely fine spicules, some of which, by transmitted light, would probably be invisible.

Under a dissecting microscope it is possible partially to fracture the larger bodies and to show a central fine core, as in Figs. 1 and 2.

I have mentioned that the greater portion of asbestos dust consists of slender translucent fibres. In sections and extracts of the lungs there is a remarkable paucity of these fine spicules. The end-results of digestion show the fine granular dust and the large black, blue, and brown particles, and what appear to be pieces of quartz. Relatively few fine spicules are found, but curious bodies of all descriptions are present in enormous numbers.

All these facts lead us to imagine the bodies to consist of central nuclei of asbestos spicules upon which colloidal aggregates of blood proteins, *plus*, possibly, soluble fractions of asbestos, and in the case of chrysotile workers an iron salt, have been adsorbed and moulded by currents in the bronchi and alveoli.

Occasionally biotite fragments into fine black spicules, and if our reasoning be correct, some at least of the millions of curious bodies should show a central core of this mineral. Figs. 3, 4, and 5 illustrate this condition, and are, I think, the final proof of our theory.

The method of formation would appear to be as follows. The fine spicules of asbestos cause, by mechanical action on the bronchioles and alveoli, either minute extravasations of whole blood, or serous exudates, which envelop them. Solution of any soluble fraction of asbestos takes place. The total amount of asbestos that is soluble must be extremely small, as proved by the *x*-ray pattern of the curious bodies, but in the case of chrysotile workers some solution is suggested by the free iron reaction. We must remember, however, that the Prussian blue reaction may be due to the iron of haemoglobin. Any surface in contact with a colloidal solution may act as an adsorbent, and in the present case the fine spicules must be considered to do so. Interaction between the soluble fraction of chrysotile and plasma proteins takes place, syneuresis occurs, and, with the loss of water, the adsorption is rendered irreversible. The adsorbent is permanently ensheathed with stable colloidal aggregates which become moulded into the familiar shapes by alveolar and bronchial currents.

Some support of this is adduced by the fact that micro-organisms adsorb colloidal material in the presence of blood serum and colloidal asbestos. Staphylococci so treated appear as large round yellowish-brown discs, and in the process their property of staining with aniline dyes has been lost. The organisms coalesce and form masses, and I think it probable that some of the coccal and spore forms of the curious bodies are similar organisms.

Finally, the answer to our second question must be found. Are the curious bodies diagnostic of pulmonary asbestosis? Asbestos is unique among the minerals in being fibrous, and the dust generated during the manufacturing process is also unique. As can be imagined from the formation of the curious bodies, there is no reason why any fine spicule of mineral should not have colloidal matter deposited around it and become moulded into a curious body. But, as no other mineral dust is fibrous, this occurrence must be so rare as to be negligible from a diagnostic point of view. The conditions which, apparently, must obtain for the formation of the curious bodies are the presence of plasma proteins and fine spicules of difficultly soluble material. These conditions are ideally found in asbestos workers, and for this reason I believe the curious bodies, if found in any numbers, are pathognomonic of pulmonary asbestosis.

I must express my gratitude to Dr. S. A. Henry and Dr. E. R. A. Merewether of the Home Office for their stimulating interest in the work, and for providing me with many specimens of asbestos, and to Mr. T. H. Byrom, F.I.C., and Mr. J. A. Darbyshire, M.Sc., for their invaluable assistance in the chemical and physical side of the work.

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CLINICAL ASPECTS OF PULMONARY ASBESTOSIS.*

BY

A. C. HADDOW, M.B., CH.B.,

LEEDS.

History.

DURING 1926 Dr. Ian M. D. Grieve, who was then with me in general practice at Leeds, drew my attention to the fact that several patients under our care of late with chest troubles were asbestos workers, and we agreed that they exhibited features sufficiently in common to justify investigation of what seemed an uncommon type of pneumonoconiosis. We accordingly examined every asbestos worker who came our way, some fifteen in all, and had most of these radiographed. Then, in March, 1927, a female patient with long-standing disease died in hospital, and Dr. Grieve attended the post-mortem examination. With Dr. A. L. Taylor he examined the sections of fibrosed lung, and found a remarkable condition which Professor Stewart recognized as similar to the case described by Dr. Cooke in 1924.

Sir Thomas Oliver came to see our cases, and he described the clinical findings before this Section of the *British Medical Association* at Edinburgh in 1927. The two patients he reported on (both women) have since died, one in March, 1928, and the other in February of this year. One male patient died in March, 1928, and it was the certification of this case as death from "broncho-pneumonia, secondary to chronic asbestos poisoning, causing pulmonary fibrosis," which brought about the publicity of a coroner's inquest and official recognition of this disease.

Fatal Cases.

Of these four fatal cases the average age at death was 41, and the average years actually spent in the factory were under twenty, all in asbestos mattress-making for most of the time. The male patient had worked until two days before death (on a light job), but the three others had been incapacitated for an average of two and a half years (three years and five months, two years and five months, and one year and ten months). Only in one of them had tubercle bacilli been found in the sputum. She was one of those reported by Sir Thomas Oliver, and at her own request no necropsy was held.

I cannot personally trace any other death of an asbestos worker in my practice except that of a woman who died of perforated gastric ulcer in Leeds Infirmary, and whose lungs were examined by Dr. A. L. Taylor, with positive findings, two years ago. No death had ever been traced to asbestos dust in Leeds until the present series, and the only asbestos workers recorded by the medical officer of health for Leeds as having died of phthisis were found to have worked at a gas-mantle factory where asbestos is not employed in any department. I know that many workers had drifted away from the asbestos factory because they believed it was unhealthy, whilst many women had ceased work to attend to their homes, and any fibrosis present would readily be overlooked in later years when death overtook them.

Advanced Cases.

In practice these workers do not call for much attendance until they reach the stage of total incapacity. Until then they are naturally more prone to chest troubles during the winter months, and are sometimes unfit for weeks at a time, but at the present moment I have only four cases under treatment. These are all permanently incapacitated. They are all women, and are fairly well at present, though they were very ill in February and March. Three of them have been away from work for eighteen months and the fourth for four and a half years. They were all in the mattress department. Their average age is 35, and their average of years spent in the factory is fourteen, dating back to their teens. They average three children apiece, which accounts for most of the time lost from work. The children are healthy enough.

Clinically, they all suffer from shortness of breath on exertion, have cough without expectoration, are lean, although not losing weight at present, and complain of anorexia with resulting weakness (for in Yorkshire one is only as strong as one's appetite). Pain is variable, and occurs from time to time with signs of localized pleurisy. Night sweats are absent, and there has been no haemoptysis. No tubercle bacilli have been found. Their hearts are normal, with a pulse rate approaching 90 at rest. The average full range of chest expansion is only one inch in the upper thorax and even less around the lower ribs. On percussion there is always some dullness at both bases, and usually over the lower lobes generally. The breath sounds are diminished over the same area, and the voice sounds are usually well conducted. The respiratory murmur in the upper lobes is broncho-vesicular. Friction sounds can be heard at the bases and sometimes in the flanks. Moist rales and crepitations are for the most part absent *now*, but were abundant at the bases during the winter. These exacerbations have a serious bearing on the cases, and it will be noted that all the deaths have occurred at the end of winter.

Onset of Symptoms.—It is very difficult to ascertain the date of onset of symptoms, but the patients generally believe it was after five years of work. Depending as it does on so many factors, it must be extremely variable.

* Read in the Section of Occupational Diseases at the Annual Meeting of the British Medical Association, Manchester, 1929.

Our earliest clinical diagnosis is also in the neighbourhood of five years of work.

X-ray Findings.—Excellent radiographs of these four advanced cases were taken for me by Dr. Rowden recently. Exposure was for two-fifths of a second. All the chests showed abnormal radiolucency and marked limitation of diaphragmatic movement. The radiographs show this translucency above the level of the ninth rib posteriorly and the fourth rib in front. Below that level, roughly, in all of them there is definite infiltration, particularly on the right side. The outline of the diaphragm tends to be irregular and flattened, and the root shadows to be enlarged in a downward direction. Without going into further detail, the picture is that of asbestosis. But the shadow of the fibrosed zone is in itself characteristic. It is devoid of radiations from the root shadow and presents an amorphous, flocculent appearance, in which small cavities are indicated in some of the cases. In estimating the respiratory handicap we must not forget that the bases extend below the shadow of the dome of the diaphragm.

Lung Puncture.—Another line of investigation, suggested by Dr. Henry, has been carried out—namely, lung puncture. Asbestosis bodies can be extracted from the patients' lungs during life by means of a hollow needle and syringe. I punctured all these four cases, and Professor Stewart has found "bodies" in two of them. We do not recommend it as a routine method of diagnosis. No tubercle bacilli were found in any of them.

Sputum.—Much preferable is the examination of sputum by the antiformin method, which Professor Stewart has applied with striking success, and the only difficulty is to get the sputum. This is often available in winter, and if the patient has a receptacle in readiness the sputum will turn up some time. Three of these cases yielded the "bodies" in sputum, and the fourth had no sputum but was positive on lung puncture.

Conclusions.

The following conclusions have been established:

1. That the inhalation of asbestos dust will "in the long run" produce a state of fibrosis, the distribution being peripheral and mainly basal, the right base becoming most advanced and the upper lobes tending to develop compensatory emphysema as first the diaphragmatic and gradually the entire pleural surfaces become obliterated.

2. That the disease is not as a rule complicated by tuberculosis.

3. That the disease is usually first recognized after more than five years' exposure, although systematic examinations might reveal it earlier.

4. That the condition is usually found first during an attack of influenza or winter cold, when exacerbations of the disease occur.

5. That even in the advanced cases there is marked abatement during the summer months.

6. That the onset of anorexia signalizes to the worker that work is no longer possible.

7. That the patient may then live for several years and continue to bear children, but becomes progressively weaker and more emaciated, more hopeless, sleepless, and exhausted, until an attack of broncho-pneumonia or bronchitis brings death at last.

8. Further, that asbestosis bodies can be found in the sputum, if any, in all advanced cases, as well as in most early cases.

9. That they can be demonstrated by lung puncture in advanced cases; but since no patient is likely to permit more than one puncture to be made a negative finding is inconclusive.

10. That radiography is of great value in diagnosis and in observing progress.

11. That the treatment of these cases, being purely palliative so far, calls for great patience and vigilance over several years, and much relief can be afforded.

12. Finally, that the disclosure of the danger arising from asbestos dust has brought home to the workers the need for observing the measures provided for their protection, and is bound to be salutary, although the mortality statistics will probably be swelled by the wider recognition of this disease.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

A METHOD OF EXAMINING THE SPUTUM FOR ASBESTOSIS BODIES.

HALF an ounce of so of sputum is added to an equal quantity of undiluted antiformin. This is gently agitated until the sputum is completely dissolved, after which it is diluted down with two or three ounces of water and allowed to stand in a large test tube for three or four hours. The bulk of the supernatant fluid having then been decanted, the remainder is centrifuged at a moderate speed for ten to fifteen minutes. The whole of the supernatant is now poured off, and the deposit transferred to an albuminized slide by means of a pipette. After thorough drying on a hot plate and final fixation over a bunsen, the film is very gently washed in water, dried, and mounted in Canada balsam. After a little experience the asbestosis bodies are readily picked up with the low power, and their true nature is then confirmed with the 1/6 inch or oil immersion lens. As a rule they are present in very small numbers, perhaps only one or two in a whole film. In the case of some of the older workers, however, numerous bodies, up to one or two per field in certain portions of the film, have been found. It is obviously necessary to cleanse thoroughly all glassware, etc., used in making these examinations, otherwise there is a risk of contamination of subsequent specimens.

The films can be treated with hydrochloric acid and potassium ferrocyanide to demonstrate the Prussian blue reaction given by the bodies.

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FOREIGN BODY IN THE LARYNX.

THE following case illustrates some of the difficulties of diagnosing the presence of a foreign body in the larynx, and the need, whatever the history may be, for making the most complete examination when this condition is suspected.

The patient, a waitress at a country hotel, consulted Dr. Frend of Hurstpierpoint on January 24th, stating that on the previous evening, as she got up from her chair, where she had been engaged in sewing, she felt a sudden pricking in the throat. After repeated questioning she admitted that she was in the habit of holding pins in her mouth, but stoutly denied that she had done so on this occasion. The meal which she had taken two hours previously contained nothing that could be impacted as a foreign body in the throat. Dr. Frend could see no abnormality in the larynx or pharynx, but with great difficulty he persuaded the patient to go to the Sussex Throat Hospital for further examination.

My examination by indirect laryngoscopy yielded negative findings, but as the patient still complained of the pricking sensation I asked Dr. Prowse to make an *x*-ray examination. I confess that I was surprised to see in the radiogram that a pin was lying, horizontally and in an antero-posterior plane, opposite the sixth cervical vertebra—that is, on a level with the entrance to the larynx. The laryngeal mirror had failed to reveal the presence of this pin, although the patient's larynx had presented no difficulty in examination. I decided to examine with the endoscope, and did so the same evening with the patient under general anaesthesia. I used Lynah's oesophageal spatula, and at once discovered a longitudinal tear about one inch in length on the posterior oesophageal wall. This discovery was soon followed by the sight of a pin-point abrasion on the posterior aspect of the right arytenoid. By making the necessary adjustment in the patient's position I brought the larynx into view, and was able to see the pin transfixed through the right arytenoid, with most of it lying free in the middle of the larynx. I grasped the pin with forceps and inserted the tube a little deeper; by this manœuvre I was able to draw the pin forward wholly into the tube and thus eliminate any possibility of damage to the tissues. The patient wrote on February 17th that she had suffered no soreness or hoarseness, and that she had not felt the least discomfort.

The following features of this case are of special interest: (1) The absence of symptoms, even of the wheezing respiration described by Chevalier Jackson. (2) The unusual position of the pin—foreign bodies in the larynx usually lie with the long axis in the sagittal plane. (3) The failure to see the pin by indirect laryngoscopy. One concludes that it must have been tucked under the aryteno-epiglottidean fold and brought into view as a result of

the relaxation following general anaesthesia. (4) The absence of any after-effects. It is possible that the classical symptoms—namely, hoarseness and soreness, with perhaps some dysphagia—are complained of only when the vocal cords have been the site of impaction. As, however, the arytenoid cartilages are attached to the intrinsic muscles of the larynx and partake freely in the movements of respiration, it is difficult to explain why the congestion following the trauma did not give rise to some sensory impressions. (5) The utter unreliability of the history and the need for the most complete examination of the patient.

It is also interesting to note that, owing to the conviction that the larynx contained no foreign body, one countenanced the use of general anaesthesia. It was fortunate that the pin was fixed, and the patient therefore escaped the possibility of further tragedy resulting from its descent still lower in the respiratory tract.

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SUBARACHNOID HAEMORRHAGE PROBABLY DUE TO RHEUMATIC INFECTION.

PROFESSOR ARTHUR J. HALL'S lecture on three cases of spontaneous subarachnoid haemorrhage, reported in the *British Medical Journal* of June 8th (p. 1025), and Dr. M. C. Andrews's note of a probable case of ruptured subarachnoid aneurysm, in the issue of June 15th (p. 1075), encourage me to report the following case.

A single woman, aged 27, with a previous history of rheumatic fever at 18 years of age and subsequent mitral endocarditis, and also of recurring attacks of bronchial asthma, was seen by her doctor (J. Bernstien) on May 6th, when she complained of pain and tenderness in the right iliac fossa. The temperature was 99° F. There was no rigidity, and the symptoms disappeared in twenty-four hours. Two days later she developed a follicular tonsillitis, accompanied by a typical erythema nodosum on the legs. On May 9th the erythema nodosum appeared on the forearms and broncho-pneumonia developed. The patient became very ill and entered on a "typhoid state," with distended abdomen, incontinence of urine and faeces, and a continuous type of temperature. On May 19th she became delirious and suffered from delusions. An examination at this point showed no head retraction, no Kernig's sign, the Widal reaction was negative, and a blood smear showed an increase in the polymorpholeucocytes. On June 1st she improved, and for two days became rational and the temperature became normal. On June 3rd the temperature again became irregular, and two or three rigors were noted daily. On June 8th I saw her with Dr. Bernstien and admitted her to the isolation hospital as a possible case of tuberculous meningitis.

On admission the patient was severely ill. She was in a state of unconsciousness from which she could be roused. Speech was confused and articulation difficult. The pupils were equal and reacted to light. There was no retraction of the head, Kernig's sign was negative, knee-jerks were present, there was no muscular rigidity, and incontinence of urine and faeces was complete. The temperature was 101.4° F., pulse 120 regular, low tension respiration 38.

An examination of the chest showed a few moist sounds over the whole chest and congestion at the bases. The heart was considerably enlarged and a mitral systolic murmur transmitted towards the axilla, together with a presystolic murmur, was heard. A catheter specimen showed the urine to be loaded with albumin. Lumbar puncture was performed on June 10th. The fluid was under considerable pressure and bright red in colour. The report of the pathologist (Public Health Laboratory, Manchester) was as follows: June 20th. "This specimen consisted of about 7 c.cm. of fluid with a heavy admixture of blood. The only possible examinations were bacteriological ones. Blood agar plates inoculated with the specimen produced a growth of *Streptococcus viridans*. Mice inoculated with the fluid and with the organisms obtained in culture remained healthy."

During the first week after admission the patient's state remained pretty much the same. The temperature ranged between 99° and 101° F., with the evening temperature generally higher. The pulse never dropped below 120, and the respirations below 40; catheter specimens showed less albumin.

On June 18th the condition began to improve. There were lucid intervals, and speech, although obscure by reason of feeble articulation, became at these times coherent. On June 19th the patient became completely conscious, but suffered much from depression and fits of weeping; the incontinence ceased and the albuminuria cleared up. The temperature became normal on June 21st, and the mental state improved. On June 24th the patient had an attack of synovitis in both knees, which cleared up on pressing the dose of sodium salicylate.

At the time of writing the patient is convalescent and mentally normal. She is suffering from disturbance of cardiac compensation which will seriously affect the prognosis.

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Reviews.

THE DOCTRINE OF OEDEMA.

THE clinical recognition of oedema as a manifestation of disease demands neither long experience nor special skill; of all symptoms it is one of the most obvious and most easily recognized. Yet it has formed the text of many studies and of numerous dissertations; and physiologists and pathologists and clinicians have in turn sought in various ways to explain the manner of its production. Dr. HERMAN ELWYN'S essay, entitled *Edema and its Treatment*,[1] is a recent contribution to this provocative topic, and it is certainly a contribution of much interest. Whether its conclusions will secure general assent remains to be seen, but the thesis is clearly stated, and is supported by arguments well marshalled and of scientific quality; and in the chapter devoted to treatment even the practitioner to whom theoretical debates make little or no appeal will find not a few practical suggestions.

Dr. Elwyn, for reasons duly stated, rejects the doctrine that oedema is caused either by increase in the capillary blood pressure or by reduction in the protein content of the blood plasma. In opposition to this physico-chemical explanation he sets up the view that oedema results from a disturbance of the physiological mechanism whose duty it is, in the interests of tissue welfare, to maintain at an approximately constant level the total water content of the body, and in particular the water content and volume of the blood. Included in this mechanism are, of course, the circulatory apparatus and the organs of elimination, while the muscles, the skin, and the connective tissues act as natural reservoirs from which water is absorbed into the blood as required; and the normal play and balance of the several parts is controlled by a centre in the midbrain. In this fashion the water movement both to and from the blood is so governed that the blood volume remains practically constant. Should, to take a single example, the urinary output for any reason be diminished, the tendency to a consequent increase in the blood volume is checked—through appropriate action in the nervous control—by diminished water movement from the tissues to the blood; and hence, assuming the intake of water to remain normal, water accumulates in the tissues, and when the saturation point is reached it becomes manifest as oedema.

Such is a very rough illustration of the thesis to the defence of which Dr. Elwyn brings a thorough knowledge of the physical, chemical, and physiological questions involved. He presents his case effectively and cultivates with success a happy faculty of summarizing the successive steps in his argument. His book is not for an occasional half-hour, but those who take it seriously will be repaid for their pains.

THE TREATMENT OF FRACTURES.

DR. LORENZ BÖHLER'S book on *The Treatment of Fractures*,[2] which has been translated into English, is a very practical guide. Dr. Böhler has had nineteen years' experience, including the charge of a fracture hospital during the world war, and his teaching is based on observations on more than ten thousand fractures *in vivo* and three hundred post-mortem examinations. That these observations have been well assimilated is immediately obvious to the reader. Dr. Böhler considers that the too frequent unsatisfactory results in the past have been due in part to anatomical misconceptions and in part to lack of organization and proper technique. He therefore describes in detail all the items and materials needed for the treatment of each kind of fracture, together with the help required by the surgeon. In some cases he frankly states that the necessary treatment can be carried out only in a properly equipped hospital with trained assistance. Most surgeons recommend those methods of treatment of

[1] *Edema and its Treatment.* By Herman Elwyn, M.D. New York: The Macmillan Company; London: Macmillan and Co., Ltd. (Demy 8vo, pp. viii + 182; 3 figures. 16s. 6d. net.)

[2] *The Treatment of Fractures.* By Lorenz Böhler, M.D. Authorized English translation by M. E. Steinberg, M.S., M.D. Vienna: W. Maudrich. 1929. (Sup. roy. 8vo, pp. x + 185; 231 figures. 21s.)

which they have had the greatest experience, and Dr. Böhler is no exception to this rule. These methods are skeletal traction by means of tongs or pins for reduction, non-padded plaster-of-Paris splints, applied directly to the skin, for retention, and, as aforesaid, early use of the limb in the retentive plaster splint.

Three fundamental rules for the treatment of fractures are set forth. "(1) The peripheral fragment must always be placed [sic] in the direction where the central one points. (2) Every fracture must be reduced by traction and countertraction. (3) After the reduction the fragments must be kept in the right position until firm union takes place." If the English of Dr. STEINBERG's translation is a little awkward, no one is likely to quarrel with the sense of these rules. For the treatment of some fractures Dr. Böhler uses strong arguments in favour of certain positions, which differ from those recommended by most authorities. Thus, for supracondyloid fractures of the humerus he condemns the usually recommended position and prefers one of pronation, because, he says, the pronators are also flexors of the elbow and should be relaxed to enable the fragments to be properly reduced. Shortening must be corrected by weight or screw extension, maintained until the retentive plaster cast has hardened; lateral displacement, if not corrected by extension, must be corrected by lateral pressure. As to immobilization in plaster, he lays stress on the following contention: "If we reduce exactly a broken joint and continuously hold it in a good position until union takes place, and at the same time allow the use of the fractured extremity, we obtain a movable joint, while on the other hand, if we apply massage and passive movements in the first days after the fracture, the joint becomes stiff."

In no cases does Dr. Böhler approve of the use of wires, plates, nails, or screws; and even for fractured patella he will not suture the bones, but pays particular attention to suturing of the torn fascia, tendon, and aponeurosis. He truly says that the patella is no more than a sesamoid bone, and that it is reunion of its tendon which is essential. When that is secured and the fractured bone-faces are cleared and brought together, bony union will follow. Apparently his experience of bone plating and nailing has been unfortunate, for there is no doubt that such methods are useful in suitable cases, and that the rarefying osteitis which is alleged to result from plating is more an accident than a usual sequel. The importance of anatomical restoration of the shape of the parts is insisted upon, especially when a joint is involved, and, to secure this, powerful screw appliances are employed to squeeze together displaced portions of bone, such as the condyles of the femur or the malleoli at the ankle.

With his carefully thought out technique and apparatus and his well-trained assistants Dr. Böhler has no doubt achieved great success in treatment. His book, nevertheless, is not a guide for the general practitioner, because many of his methods can only be successfully applied in well-equipped hospitals. To any hospital surgeon who is constantly treating fractures the book should be stimulating, for it challenges principles of treatment which are widely accepted. It is well illustrated, but the translation into English is not quite as idiomatic as might be desired.

TREATMENT OF HAEMORRHOIDS.

DR. J. F. MONTAGUE's book on the *Modern Treatment of Hemorrhoids*[3] is written primarily for the general practitioner and contains much that is commendable. The distinction between internal and external piles is clearly drawn, and in the chapters on signs, symptoms, and diagnosis the author thoroughly justifies the existence of the book by the stress he lays on the necessity for thorough examination of every case with rectal symptoms. This is a point which cannot be made too often. Treatment is considered under the heads of palliation, operation, injection, radium, and electrical methods; the author describes very well the ligature and cautery methods, and much useful detail is given in regard to preparation and after-treatment. We oppose the author's advocation of operative removal of ulcerated or gangrenous internal piles, which teaching we consider to be dangerous and liable to lead to post-operative ulceration; if an internal pile is septic or gangrenous Nature will generally effect a spontaneous cure if the patient is put to bed, with local application of moist antiseptic dressings. The method of treating bleeding piles by insertion of radon seeds is of interest. We are told that fibrosis and cessation of bleeding occur fairly constantly, but it would appear that, compared with carbolic injections or operation, the method does not promise to be of much practical use; also, it is well known that a troublesome proctitis is liable to follow the insertion of radium into the rectum. If this should happen in the course of treatment of a malignant tumour it would not cause much anxiety, but a proctitis following treatment of a simple vascular pile would be a regrettable complication. As regards injection treatment of piles, Dr. Montague uses a 10 per cent. solution of cresylic acid in glycerin and water, and only employs this method in cases of uncomplicated internal piles; this is the usual and the safe teaching. Precise instructions should have been given in a book of this sort as to where the selected solution should be injected and in what amounts; moreover, the diagrams illustrating his technique should certainly not be copied closely by anyone not acquainted with the method, or trouble would be likely to ensue from too low injection of the solution.

For further details regarding the injection treatment, Dr. MARION PRUITT's recent monograph[4] is available; here we find accurate information regarding suitable specula and average dosage, and, above all, we find insistence on injection of the selected solution well above the mucocutaneous junction. A somewhat startling feature is Dr. Pruitt's treatment of prolapsed piles of the third degree by carbolic injection. Provided that the sphincter is relaxed, the author considers it safe to inject the piles and to leave them prolapsed; the protruded mass takes three to eight days to recede, and the cases have apparently done well. Some selected case reports are given of piles of the various degrees treated by carbolic injection. The nine contraindications to the injection treatment which are set out in chapter 16 should be noted and observed by all who practise this method.

PRINCIPLES OF PATHOLOGY.

"IN offering to the medical world one more treatise on pathology, it would seem necessary, if not to make an apology, at least to give an explanation. We have a number of textbooks on the subject in the English language all of which give the current knowledge accurately and often with much detail." POWER and HALA's book on the *Principles of Pathology*[5] is prefaced with these apt remarks. They hold that most of the textbooks in use have rather the character of works of reference, and have not been written from the instructor's point of view; they contain, therefore, much that should properly be relegated to the encyclopaedias. For example, the authors consider that the natural history of insects, worms, and bacteria is no more a part of pathology than is the study of predatory animals, regarded as a possible cause of injury. They further consider that the study of pathology is greatly hampered by a superabundant, overlapping, and often misleading nomenclature; and, we may add, the Americans are particular sinners in this respect. The authors have kept these points in view in planning their work. A foreword contributed by Charles Norris of New York City states that the book is "individualistic and modern, giving due consideration to physiological and chemical pathology, a striking contrast to many of the German and English

[3] *The Modern Treatment of Hemorrhoids.* By Joseph Franklin Montague, M.D., F.A.C.S. Foreword by Harlow Brooks, M.D., F.A.C.P. Second edition, revised. London: J. B. Lippincott Company. 1929. (Med. 8vo, pp. ix + 238; 116 figures. 21s. net.)

[4] *Injection Treatment of Internal Hemorrhoids.* By Marion C. Pruitt, M.D., L.R.C.P.S.Ed., F.R.C.S.Ed., F.A.C.S. London: H. Kimpton. 1929. (Post 8vo, pp. 137; 9 figures. 12s. 6d. net.)

[5] *Principles of Pathology for Practitioners and Students.* By H. D'Arcy Power, M.D., F.R.P.S., and William W. Hala, M.D. New York and London: D. Appleton and Co. 1929. (6½ × 10, pp. xlix + 787; 228 figures. 42s. net.)

texts, which neglect to emphasize the importance of this aspect of the subject." The last observation appears to us to be singularly wide of the mark, if a clear distinction is recognized between pathology and pathological anatomy. He explains that the book is not addressed specially to expert pathologists, but the latter "are advised that many of the problems of pathology are presented in a new and novel form which must necessarily stimulate further research," and he recommends the book not only to the student and practitioner, but even to the layman. An appendix contains a good account of photographic technique in connexion with the illustration of works on pathological anatomy; one would have expected to find the figures in the body of the work approaching in some degree the standard there laid down.

SPEECH AND HEARING.

IN the University of Capetown there has been established a somewhat new and most laudable practice of giving to every student training as a school teacher systematic discipline, both in correct speech for himself and in the ways of securing it in pupils. A few of the students receive special training with a view to becoming speech experts themselves. In the pursuit of this work there was found a need for a handy book upon the anatomy and general physiology of the organs of speech. This want has been supplied by a little book entitled *A Short Course on the Mechanism of Voice and Speech*[6] written by Professor M. R. DRENNAN, professor of anatomy in the University. Professor Drennan has taken some share in the training of these student teachers, and the book covers all that has been found needful for the course of instruction. There is a simple and straightforward account of the anatomy of the organs involved in voice production, also a short chapter on elementary acoustics, on the anatomy of the ear, and on the nervous mechanism of speech and hearing. The little book is well done, and should prove useful to teachers and students. To each chapter is appended a bibliography of books of reference that may be usefully consulted for further information. The illustrations are numerous, but not altogether satisfactory. The frontispiece, giving half-tone photographic reproductions of the larynx, must be almost meaningless to the layman. Many of the others are diagrams of the blackboard type, which, though they are perfectly satisfactory in the classroom when the living teacher makes them live before the eyes of his hearers, are flat and lacking life when shown in cold printer's ink. The photograph of the internal ossicles of the ear, done from a large model, is clear and emphatic; this might well be taken as the desirable model for the other illustrations, provided always that there are pointers to each part described, and not merely references at the foot of the picture. There is a racy foreword by Professor F. Clarke, now professor of education of McGill University, and formerly dean of the faculty of education at Capetown University. He shows how necessary is training in diction in countries where there is a bilingual practice, otherwise painfully mongrel enunciations develop which are injurious to both languages.

A book of quite a different order comes to us from the Bell Telephone Laboratories, *Speech and Hearing*,[7] by HARVEY FLETCHER, acoustical research director of the laboratories. It is the record of work carried on for some fifteen years. The aim has been to get an accurate physical description and a measure of the mechanical operation of the human ears in such terms that these may be related directly to electrical and acoustical instruments; to test the keenness of the sound-discriminating sense and find what is the smallest distortion which the mind can perceive, and how it reacts to somewhat larger distortions. The direct purpose of these researches has been the increase of exact knowledge as to the requirements of speech in the telephone system, for it is recognized that there must be an evolution towards even greater perfection in those particular elements which are most important to intelligibility. Incidentally the work has been fruitful in other directions. Modern phonographic records are produced with an electrical transmitter which was developed in the early stages of these studies; and radio broadcasting has grown up round this same "microphone." This book is the most comprehensive and detailed piece of work of the kind we have seen, and it will no doubt be welcomed by all interested in these branches of investigation.

[6] *A Short Course on the Mechanism of Voice and Speech.* By M. R. Drennan, M.B., F.R.C.S.E., etc. Capetown: The Mercantile Press. 1929. (Cr. 8vo, pp. 67; 20 figures. 5s. 6d. net.)

[7] *Speech and Hearing.* By Harvey Fletcher, Ph.D. With an introduction by H. D. Arnold, Ph.D. London: Macmillan and Co., Ltd. 1929. (Med. 8vo, pp. xv + 331; 151 figures. 21s. net.)

NOTES ON BOOKS.

Your Eyes and their Care[8] is a little book by Dr. EDGAR S. THOMSON of New York, designed to give guidance to the laity on the care of their own and their children's eyes. The object is laudable, but we are not sure that it has been achieved. There is the usual sketchy anatomical review, then follow some useful hints on reading and the dangers of fatigue. Diseases are grouped under those affecting the developmental period and those of adult years, which is sound practice. But in the former ophthalmia neonatorum gets a bare three pages; we are told that the infection is "caused by the gonococcus of Neisser," and that it "is caused by infection from the mother at birth," but there is no plain statement that will warn the layman of the real origin and seriousness of the disease. Trachoma gets a couple of pages, and vernal catarrh (very rare in this country at any rate) gets a page and a half! We feel, in reading this book, that the author started with a full-sized textbook of ophthalmology before him, and proceeded to cut this down. If he had started with the minds of his readers in view he would have avoided many of his sections and their titles and the sketches of operative procedure, and concentrated upon those forms of instruction which appeal less to the curious than to the genuine seeker after knowledge.

Malaria Problems[9] is a collection of papers published by Dr. F. L. HOFFMAN during the last fourteen years. Dr. Hoffman is consulting statistician to the Prudential Insurance Company, and his papers provide a mass of interesting information regarding the prevalence of malaria throughout the world and the effects produced by antimalarial campaigns. The last paper in the volume, "Recent progress in malaria eradication," written in 1928, is a world survey of the incidence of malaria. The importance of this problem to the British Empire is indicated by the fact that out of thirty countries mentioned twenty are within the Empire. Unfortunately it is only in a few cases that the author is able to report any marked reduction in the incidence of malaria. He is of the general opinion that quinine prophylaxis is an inefficient method of combating this disease, and that the only effectual method is systematic drainage. The volume gives a mass of statistical information, which will be found very useful by those interested in the malaria problem.

A series of memoirs is being published for the Indian Research Fund Association as a supplement to the *Indian Journal of Medical Research*. The thirteenth of these research memoirs deals with *Puzzles and Fallacies in the Examination of Stained Films in the Tropics*,[10] and the joint authors are Lieut.-Colonel R. KNOWLES, I.M.S., professor of protozoology, Lieut.-Colonel HUGH W. ACTON, I.M.S., professor of pathology and bacteriology, and Assistant-Surgeon B. M. DAS GUPTA, assistant professor of protozoology, all of the Calcutta School of Tropical Medicine and Hygiene. This memoir is a particularly valuable exposure of the common errors which may be made in haematological and similar film investigations in tropical climates; it is well illustrated with coloured plates, and can be cordially commended to those who wish to make their technique as perfect as possible.

In *L'Oléothorax*[11] Dr. JACQUELINE FONTAINE has condensed much information about recent work on the intrapleural injection of oil as an alternative to artificial pneumothorax. She has had the advantage of working at sanatoriums where this new therapeutic method was extensively studied and used. The various oils appropriate for different cases and the technique to be adopted are carefully described, as well as mistakes to be avoided and complications that may arise. The type of case for which it is unsuitable is also indicated. Results of about 100 cases, and some skiagrams and diagrams, show what may be expected from oleothorax when it is applied in suitable conditions.

[8] *Your Eyes and their Care.* By Edgar S. Thomson, M.D. Appleton Popular Health Series. New York and London: Appleton and Co. 1929. (Cr. 8vo, pp. 175; illustrated. 5s. net.)

[9] *Malaria Problems.* By Frederick L. Hoffman, LL.D. Printed in U.S.A. by Prudential Press. (6 × 9, pp. 207.)

[10] Calcutta: Thacker, Spink and Co. June, 1929. Price 6s. 4d.

[11] *L'Oléothorax.* Par Jacqueline Fontaine. Préface du Dr. E. Rist. Paris: G. Doin. 1929. (6½ × 9½, pp. iii + 145; 8 plates. 30 fr.)

THERAPEUTIC EFFECTS OF ULTRA-VIOLET IRRADIATION.

AN EXPERIMENTAL STUDY.

THREE interesting documents appear together in the recently published report[1] of Dr. Dora Colebrook's investigations of some of the physiological and therapeutic effects attributed to ultra-violet light. First, there is a preface by the Medical Research Council presenting a carefully balanced and just estimate of what appears to be established about the therapeutic uses of ultra-violet light irradiation and what requires further investigation. Secondly, there is an account by Dr. Colebrook of her experimental study of the influence of ultra-violet radiation on the health and growth of school children; and thirdly, a summary, also by Dr. Colebrook, of her findings, with details of all the cases she studied, in an investigation of the effect of ultra-violet light on the healing of varicose ulcers. Both investigations derive scientific value from the fact that they involved the use of exact controls. Thus, a group of children as nearly as possible equivalent to the group receiving radiation from the naked arc lamp was treated simultaneously, and without knowledge of the difference, by exposure to the same arc deprived of its ultra-violet component by a glass screen. A further equivalent group was left without light treatment at all. In the second investigation the changes occurring in irradiated ulcers were compared with those in similar ulcers treated with Unna's paste dressing.

No one reading the reports can fail to be impressed by the great care that was taken to eliminate possible sources of error, to establish sound objective criteria whereby the value of the treatment might be accurately judged, and to sift and evaluate the evidence that finally presented itself. The results of both investigations have already been communicated (Annual Report of the Medical Research Council, 1927–1928), and, as is now well known, they were purely negative. In its prefatory remarks, however, the Council is careful to point out that, like all scientific evidence, Dr. Colebrook's results supply answers only to the precise questions which she chose to put.

> "The results of the Willesden experiment simply mean that the kind of light which Dr. Colebrook used, applied for the periods and at the intervals chosen, to children whose health is good enough for attendance at school, during the months when sunlight and especially its ultra-violet component are deficient, has no measurable effect on their health. It would be legitimate for anybody to criticize her report on the grounds that she used the wrong kinds of rays, applied them too long or too briefly, at intervals too long or too short; but only provided that he can produce valid evidence that some kind of radiation, applied under conditions attainable in the wholesale treatment of school children, has a beneficial effect demonstrable under conditions as critically controlled as those of Dr. Colebrook's experiment."

While, however, it may be admitted that scientifically it would be illegitimate to generalize the application of Dr. Colebrook's negative results, there can be little doubt that if other workers repeating her investigations obtain similar findings, then a case very difficult to refute would be established against the value of administering ultra-violet radiation to children under the conditions of her experiment. But scepticism, no less than any other attitude valuable in scientific investigation, has its limits. As long as there is a reasonable probability that a remedy may be causally related to benefit that has been known to follow its application, then the medical practitioner is justified in continuing to use it.

IRRADIATION OF SCHOOL CHILDREN.

The children studied were those attending a Willesden Council infant school. The average number on the register was 250, the ages ranged from 5 to 7 years, and the number of boys exceeded that of girls by about 4 per cent. The area from which the children were drawn was considered a suitable one in that the conditions were not bad enough to counteract any favourable effect resulting from the irradiation, while they fell short of a standard for which no added hygienic measures were desirable. The children were divided into three groups, two of which were irradiated, the one by a naked arc lamp, the other by a similar lamp from which all but the very longest ultra-violet rays were excluded by a window-glass screen: the third group received no irradiation at all. Records were kept of heights and weights, incidence and duration of colds and allied conditions, incidence of infectious fevers, occurrence of chilblains, progress in school work, and causes of absence. The inquiry lasted from the end of August, 1927, to the end of March, 1928, and thus included two school terms. During the period of inquiry the children were kept under close observation by the investigator (Dr. Dora Colebrook) and by a whole-time nurse, whose business was to carry out the treatment under Dr. Colebrook's supervision, to visit each classroom daily, to check the records of colds kept by the teachers, to investigate complaints of sickness, and to visit the homes in all cases of absence. The purpose of the inquiry was described to the school staff, and every precaution was taken to avoid the influence of contributory factors on the results. No attempt was made to induce the parents in any way to modify the mode of life or habits of the children.

Dr. Colebrook describes in considerable detail the room which was set apart for the treatment, the arrangements for regulating its ventilation and temperature, the lamps employed and their intensity, the method of screening, and the technique used in the irradiation. In estimating the dosage the standard aimed at was to give exposures of such intensity that an erythema reaction would be just avoided on the skin of a child of average sensibility, and, by slowly increasing the intensity of irradiation, to maintain that level throughout. Dosage was regulated in this way, not only with a view to keeping pace with such tolerance as is developed to light of even moderate intensity, but to obtain a comparison between the relative merits of smaller and larger doses.

In allotting the children to the three groups more were deliberately placed in the light groups than in the control group, because it was obvious that for one reason or another children would fall out of them before the end of the investigation, whereas so long as a control child remained in the school it remained a member of the group. Furthermore, it was felt that the treated groups were better controls for each other than the control group was for either: they shared certain general experiences which the untreated missed; they were withdrawn from their lessons for similar periods, exposed to the same changes of temperature, and some of them received extra baths at home in preparation for the undressing at school.

At the time of the first treatment there were 80 children in the unscreened lamp group, 90 in the screened lamp group, and 76 in the group of controls. By the end of the inquiry 101, 94, and 92 children had passed through each of these groups respectively. Throughout the period of the inquiry children entered and left the groups. The changes in personnel were slight, but in calculating the final results of the investigation Dr. Colebrook took every precaution to make the fullest allowance for the variations that occurred. It may be added that from the data presented in the report it is reasonable to assume that the children in the control group were a fair sample of the whole. For various reasons, mostly connected with deterioration of health, eighteen children were withdrawn from the unscreened and nineteen from the screened lamp group in the course of the investigation. In view of the ultimate results it is noteworthy that, while no child could leave the control group for health reasons, the average standard of health of the light groups tended to be raised by these withdrawals.

RESULTS OF THE INVESTIGATION.

Increase in Height.

The average height in each group was measured at the beginning and at the end of the period of investigation, and a table summarizing the results for each of the three groups is given in the report. The variability within each group is indicated in the table by the standard deviation and coefficient of variation; furthermore, the two light groups were classified into two subgroups in order to decide whether any distinction could be made between those receiving the full course of

[1] Medical Research Council. Special Report Series, No. 131. *Irradiation and Health: Two Experimental Studies.* By Dora Colebrook, M.M. Stationery Office. 1929. Price 1s. 6d.

treatment and those receiving the lesser amount. It is clear from the figures that there was no significant difference either between the subgroups in each group or between the main groups—in other words, no evidence could be derived from Dr. Colebrook's investigation that irradiation under the conditions of her experiments had any effect on the rate of stature increase in children.

Increase in Weight.

Weights were measured, correct to 0.1 kilogram, seven times during the whole period. When a child missed a weighing day *it was weighed on the first possible occasion after it.* The figures for the whole period show that there was no advantage to the light groups, there being only very small and insignificant differences favourable to the control children. The rate of growth of the light groups, however, contrasted in an interesting way with that of the group of controls. Whereas the general character of the control weight curve does not suggest any seasonal influence in the period of the investigation, the weight curves of the light group show for the unscreened groups periods of maximum increase from September to October and January to February, and for the screened group a similar increase from October to November and January to February. These two periods represent the time when the stimulating effect from the treatment might be most likely to show itself, and, if such an effect could reasonably be inferred from the curves in question, it would appear that the same influence was felt in both groups. In the weeks following these periods of maximum increase both groups made a relatively smaller gain, so that on the whole the balance was adjusted.

Liability to Colds.

The liability to colds in the three groups was compared: (*a*) by calculating the number of colds in each group per 100 child-weeks of exposure to risk; (*b*) by expressing the total number of days of duration of all colds as a *percentage of the* number of child-days of exposure. The exposure was estimated as the sum of the days of attendance at school and the days (school days) spent at home with a cold.

The figures for the light groups were based on the convention that a child belonged to them for six weeks after its last exposure, and in calculating the number of colds a cold was considered a new one on a certain day if there had been no record of it for six previous calendar days. The duration of colds for the whole period was estimated in two ways: (1) as "duration of cold-time," which was the ratio of the sum of the actual days of duration of all colds to the actual days of exposure, expressed as a percentage; and (2) "duration per cold," by which was meant the average duration of each cold with the proportion of school days in each spent at home and in school. Various sources of possible inaccuracy are mentioned in the report, and precautions are described whereby in the final calculations errors that might have arisen from them were avoided. From a study of the various charts and tables it is clear that neither in the figures for the whole period, nor in the monthly records, did the condition of the children of the unscreened group show any superiority over that of the screened or the control group. What little advantage there was in respect of number and duration of colds appeared in the two latter groups.

The figures, it must be emphasized, do not support a claim that the effect of the unscreened lamp was actually harmful. In order to investigate such a possibility the figures for each child for every week would have to be analysed separately and the probable error calculated. In view of the actual smallness of the differences observed and of the amount of unavoidable error, even when great care was used in the method of recording, such a procedure did not seem to be warranted. The monthly records show that a disparity between the groups —with the balance in favour of the control and screened lamp groups—tended to be greater in the early months of the investigation, when the intensity of irradiation was relatively low, than in the later months, when it was relatively high. Over-dosage, therefore, could not be held responsible for the failure of the ultra-violet irradiation to protect. On the other hand, the fact that by the time the investigation was ended a large proportion of the children were pigmented suggests that if irradiation is actually capable of increasing the resistance to colds then the dose was sufficient to elicit a positive result.

Infectious Fevers.

There was no evidence of protection against infectious fevers among the children of either lamp group. The figures of the attack rate were higher among the children of the unscreened group for both whooping-cough and measles; they were lowest for measles in the control group, and for whooping-cough in the screened group. The differences were too small to be significant.

Incidence of other Conditions.

During or immediately after the treatment period the incidence of various morbid conditions on each of the groups was as follows: in the unscreened lamp group, diphtheria (1 case), chicken-pox (2), tonsillitis (4), acute cervical adenitis (1); in the *screened lamp group*, scarlet fever (1), chicken-pox (4), tonsillitis (2), pneumonia (2), bronchitis (2), otitis media (3); in the control group, scarlet fever (1), chicken-pox (1), otitis media (3). In the control group a boy with a strong family history of tuberculosis was reported to have been certified as having phthisis. Mild cases of impetigo occurred in all groups; herpes labialis also was roughly equally distributed and of very common occurrence. Chilblains were observed in twenty-nine children only, their group distribution being in the unscreened group fourteen, in the screened group ten, and in the control group five. There was no appreciable difference between the three groups in the progress of their members in school work.

Subjective Impressions.

The subjective impressions of the medical officer were indefinite, her general impression being that where improvement in health occurred it appeared to be an individual rather than a group manifestation. Among the parents the balance of opinion was in favour of the unscreened group, and among the teachers in favour of *both lamp groups, the screened group* taking first place.

IRRADIATION OF VARICOSE ULCERS.

In many published reports of cases in which successful healing of varicose ulcers has been attributed to irradiation, reference has also been made to the importance of various forms of associated treatment—for example, adequate support to the circulation, or the simultaneous use of some dressing. With a view to ascertaining the exact part played by irradiation the present inquiry concerned itself with a comparison between ulcers treated with light, and covered with simple bandages, and a similar number treated with Unna's paste. The number of ulcers actually treated was eighty-four, but of these fourteen, which for one reason or another afforded no clear evidence of the extent to which the treatment contributed to their healing, were excluded from the analysis of results. Of the *remainder*, thirty-one ulcers were irradiated, twenty-five were treated with the paste dressings, and fourteen were treated with the dressings after an unsuccessful trial of irradiation. There was no selection of the cases.

Dr. Colebrook describes in some detail the technique of each of the treatments adopted and the method used for recording the size of the ulcers. The irradiated series received all degrees of dosage, but in every case the application was local. The milder doses were given twice or thrice weekly, the stronger doses at somewhat longer intervals. When progress was unsatisfactory treatment was suspended while the patient was kept under observation: where moderate doses failed the intensity of irradiation was increased. It is noteworthy, however, that the method approved by many actinotherapists of applying irradiation to the patient rather than to the ulcer was not adopted. From the figures in the various tables it seems clear that in the treatment of *ambulant patients* Unna's method gave decidedly better results than irradiation, no fewer than 76 per cent. having been cured by the former and none by the latter. In the treatment of bed cases the difference is far less marked, what evidence there is suggesting that rest, rather than the treatment, is the important factor contributing to healing. The suggestion that light itself played an unimportant part was supported by the following observations made in the irradiated series: (*a*) the behaviour of irradiated and non-irradiated areas or ulcers was similar; (*b*) in many cases progress was not maintained, or relapses occurred, and in these a continuation or a further course of similar treatment to the relapsed area was ineffective. It is noteworthy also that relief of symptoms, which was a marked feature of the cases treated by Unna's paste, was not obtained during light treatment.

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SATURDAY, SEPTEMBER 28TH, 1929.

DIVERTICULITIS OF THE COLON.

MANY of the advances in medical knowledge have had much the same history, the details varying indeed, but the main outlines being strikingly similar. Thus, a discovery, perhaps about a disease or a method of treatment, is made and recorded, but its importance may not be appreciated, either because the discoverer does not recognize its full implications, or his fellows are unwilling or unable to accept the new idea. There follows then a more or less prolonged period during which isolated cases or groups of cases are cited and published. The cases of the earlier part of this period tend to present the interesting features, those of the later part the unusual aspects of the subject; and among this casuistic literature certain papers stand out as throwing light—albeit somewhat distorted—upon the matter as a whole. In the next stage, by a happy generalization or by a careful compilation of observations, a sure foundation is found in the facts of physiology or pathology. When this has once been accepted the building of the superstructure is rapid; corners are rounded off, old and new observations are found to fit into appropriate places, and the conception is available for assimilation into medical knowledge and for use in medical practice. Some such story is that of the condition known, for want of a better term, as diverticulitis of the colon.

The fact of diverticula formation in the colon, though it has been known for a century or more, has not yet entered fully into the clinical consciousness of medical practitioners or been given that place in the textbooks which its frequency and importance merit. Already before the middle of the last century Rokitansky had described the characteristics of false or acquired diverticula of the intestinal tract, as distinct from the true or congenital diverticula such as Meckel's diverticulum, and his work was made available for English readers in the Sydenham Society's translation of 1849. According to Rokitansky the false or acquired diverticulum occurs as a lateral dilatation of the intestine, and is a hernia of the intestinal mucous membrane, resulting from the separation of the fibres of the muscular coat. False diverticula thus consist solely of mucous membrane and peritoneum. They occur at the duodenum and in the entire course of the small and large intestines. They are found in considerable numbers, more especially in the colon, as nipple-shaped appendages, which occasionally are grouped in bunches. Those in the colon retain faeces, which dry up and form stony concretions.

Diverticula are commonest in the colon, and during the next fifty or sixty years many cases of disease due to the presence or complications of diverticula or sacculi of the colon were reported. The sigmoid colon being most often affected, groups of cases were collected presenting symptoms of left-sided peritoneal or pelvic inflammation, or of a chronic stenosing hypertrophic inflammation mimicking cancer (Moynihan). Telling and Gruner in 1917 published a paper which fully set out the literature and knowledge of the subject up to that date. They [illegible] essential underlying pathological formation—in this large group of cases, and offered a sound and practical classification based on the pathological changes that may occur. The advances in x-ray knowledge and technique led to the discovery of diverticula at a time before inflammation had occurred—a pre-diverticulitis stage which Spriggs in 1920 proposed should be termed diverticulosis. Later work shows that a revision of our views on the frequency with which diverticula of the colon occur is necessary, since x-ray examinations have demonstrated them in 5 to 10 per cent. of persons over the age of 40. They have been found in 5 to 7 per cent. of necropsies when careful search has been made. They were overlooked formerly, even by experienced morbid anatomists, probably because they are small in size and usually embedded in fat or buried as a result of inflammatory changes taking place around them. These false diverticula of the colon can no longer be regarded as purely congenital. Occurring as they do so often in persons who are more than 40 years old, they can be observed with the help of x rays to have developed in portions of bowel previously healthy. In the colon they are found most frequently near the convexity of the gut; they are usually multiple, and occur in two rows. Their origin may be due to degenerative changes in the musculature of the bowel, in which the vessel holes and attachments of the fatty appendices epiploicae are already sites of lowered resistance. A more satisfactory explanation, however, is that slight inflammatory changes cause relaxation of the bowel wall, so that internal pressure produces small herniae of the mucous membrane through the weakened muscle.

The fact, then, of diverticula formation being accepted, the phenomena associated with it may be deduced from a consideration of the pathological possibilities. Infection may occur, of either acute or chronic nature. In the former case perforation and peritonitis may ensue, or a local abscess may develop and be complicated at times by fistula formation with neighbouring viscera. In chronic inflammation, or peridiverticulitis, thickening may give rise to stenosis or to the formation of a mass which simulates new growth. True cancer, moreover, may be associated with diverticulitis, being here, as elsewhere, probably related to the effects of chronic irritation. Consideration must also be given to the stage before inflammation occurs, when, though the condition is latent and symptoms are mostly absent, there is a potential danger. Any treatment of the matter should therefore embrace the medical or prophylactic aspect, as well as the surgical management of the complications that may arise.

The interest of the profession in this subject was shown by the large attendance of members at the meeting of the Surgical Section of the Annual Meeting of the British Medical Association which was recently held in Manchester. A report of the meeting was published in the *Journal* of August 3rd at page 189, and in the present issue the opening papers by Dr. E. I. Spriggs and Dr. William J. Mayo are printed in full. Dr. Spriggs (p. 569) dealt primarily with his own experiences of the medical treatment of the condition, and he emphasized the importance of the x-ray examination in the diagnosis both of diverticula and of the stage which the disease has reached. His method of treatment, which he described in full, consists of dieting, general hygiene, the administration of liquid paraffin, and the performance of gentle irrigation of the bowel. By this means a healthier condition of the colon is brought about, and complications may be prevented; the early stages of diverticulitis may be made to subside. Even obstructive symptoms, if they are due to the presence of an inflamed and oedematous mucosa, will yield to conservative treatment. The need for surgical intervention will thus

arise only in neglected cases of diverticulitis or in those in which inflammatory complications have caused fibrous stenosis or have involved the peritoneum or adjacent viscera. In addition to the stage of formed diverticula, Spriggs recognizes a pre-diverticular stage, discernible by x-ray examination, and has found histological evidence of pathological change in the bowel wall antecedent to the formation of the pouches. In this early stage the disease can be arrested by suitable medical treatment. Dr. Mayo's contribution (p. 574) naturally dealt more with the surgical aspects of diverticulitis, a stage reached by some 10 to 12 per cent. of cases of diverticulosis. He offered a classification according to the spread of the inflammatory reaction in and around the diverticulitic area, and described the symptoms peculiar to each group, with the appropriate treatment. He made special reference to cancer of the descending colon as a possible result of diverticulitis, and to the difficulties in the differential diagnosis of the two conditions. Carcinoma of the sigmoid was, in his experience, twice as common as diverticulitis.

The succeeding discussion revealed a considerable divergence of opinion as to the indications for surgical intervention in cases of diverticulitis. The majority of speakers reserved surgery for the treatment of its complications and emergencies. Mr. Lockhart-Mummery, however, urged that earlier operation would give better results in a disease which, once established, tends to be progressive and to lead to disaster. The discussion was conducted in a spirit of friendliness which is a good augury for the successful solution of the problems of treatment in this difficult and variable condition.

THE DIAGNOSIS OF ARSENIC POISONING.

THE poisonous properties of arsenic were known long before the Christian era, and its effects were described by Dioscorides as early as A.D. 40–90. It became the favourite drug of the professional poisoners who flourished in the fifteenth and sixteenth centuries. Tofana, for example, is stated to have poisoned by its means at least 600 people, including two Popes—Pius III and Clement XIV. She is supposed to have prepared her "Acquetta di Napoli" by rubbing arsenic into hog flesh and collecting the juice which dropped from the meat. A substance without colour, taste, or smell, which is unerring in its action, and which causes symptoms resembling those of natural disease, possesses most of the requisites of the ideal poison. If, in addition, it is difficult to detect, its appeal to the criminal must be almost irresistible. In earlier years arsenic had this last attribute also, but by the discovery of the Marsh test in 1836 it became of all poisons the most easily recognizable in minute quantities. In spite, however, of this test arsenic would still appear to rank as the most popular agent for homicidal purposes, and in practically all the *causes célèbres* of recent years it has been the poison used. Such cases have excited the public interest—for example, the Madeleine Smith, Maybrick, Seddon, Greenwood, Armstrong, Pace, and the recent Croydon cases—and have given arsenic priority as the most commonly used poison. It would, however, be rash to assume without further inquiry that this ill repute of arsenic is founded in fact, and it may well be asked whether arsenic may not have acquired its unenviable notoriety merely because of the ease with which it may be detected in small traces.

In the investigation of cases of death from arsenic poisoning the question of the time when the poison was given is usually of paramount importance. If the period which has elapsed between the ingestion of the drug and the death of the victim can be ascertained with any degree of certainty it may become one of the deciding factors in the elucidation of a case in which its administration for criminal purposes is suspected. In giving an opinion about this period medical men are guided to a considerable extent by the relative distribution of the poison along the alimentary canal, and by the relation between this amount and the quantity absorbed into such solid viscera as the liver and kidneys. There are, however, many variables to be considered in this connexion: for example, particles of arsenic given in powdered form may long remain closely adherent to the mucous membrane of the stomach, and the discovery of a quantity of arsenic in this organ and of comparatively little in the lower bowel may lead to an erroneous assumption about the time of ingestion. The function of the keratin tissues in the absorption of arsenic does not appear to have received the attention which it deserves, although on many occasions the metal has been detected in the hair, nails, and epidermis of persons poisoned by the drug. Whether or not there is a selective absorption of arsenic by the keratin tissues there is no doubt that the poison is to be found in the hair after even a single dose, and that it remains in this and other such tissues for a considerable time. If we can assume that the metal is absorbed by the growing cells of the hair papillae, and, being passed into the hair as it grows, remains in these avascular structures, there arises the possibility of acquiring more definite evidence about the time when the poison was given.

An investigation into the arsenic content of hair and its position in the hair fibre should thus be of value, and we welcome in this connexion an interesting contribution by Althausen and Gunther in the *Journal of the American Medical Association* of June 15th. These investigators report that the hair is one of the main channels for the elimination of arsenic from the body, and that in subacute and chronic cases the arsenic content of hair per unit of weight surpasses that of all other tissues. They also believe that hair retains the metal for longer periods than any other structure of the body. During their research they found that many hair restorers and soaps contained it in varying quantities—an observation which conveys a warning to those examining hair for this metal. It is mentioned also that arsenic cannot be demonstrated in the hair until five days after its administration. Though we do not necessarily agree with the whole of the conclusions of the two American investigators, their paper should prove an incentive to further research into this important subject.

INTERNATIONAL HEALTH SERVICES.

THE League of Nations proposes to spend on its health services next year the sum of 1,750,000 Swiss francs. Such is the estimate which was laid before the Budget Committee of the Assembly at Geneva last week. It is a small sum in comparison with what the work achieved by the Health Organization might be expected to cost, and, even so, only a little more than half of it represents the League's contribution, the remainder being a grant from the International Health Division of the Rockefeller Foundation. The League bears the expense of the salaries of its own health section, consisting of the medical director (who receives £2,120 a year) and a staff of twenty-eight persons. The Rockefeller Foundation makes itself responsible for a large part of the technical and research work of the organization, which involves the employment of a so-called

temporary staff, including the chief epidemiological officer and the official in charge of special investigations (each of whom receives annually about £1,500), together with fourteen others. A part of the grant of the Rockefeller Foundation is also expended on the liaison system between the various national health services, and on the maintenance of the Singapore intelligence bureau. This Eastern bureau, to which China, Japan, and other Eastern countries make contributions, is doing an increasingly useful work. The ports in weekly telegraphic communication with the bureau include all the important ones in oriental seas, except some in China, and progress is being made even in respect to these. During the past year the number of health administrations receiving the weekly bulletin from Singapore increased to twenty-nine. A large number of wireless stations now broadcast the weekly message in a special code for the benefit of shipping, and a summary of the message in "clear." Information concerning 160 ships having on board patients suffering from infectious diseases was received and transmitted last year. Between the regional bureau at Alexandria and the "base" at Singapore news is passed as to the movement of pilgrims and the occurrence of disease among them, as well as the precautionary measures taken before their departure, so that the bureau is in a position to give prompt advice to the health administrations concerned. Other activities directed from Singapore include the co-ordination of medical research work carried out in the Far East, with reference particularly to the study of oral vaccination against cholera and plague; the bureau also acts as an agent of liaison between the laboratories and institutes of the Orient. One of the features of the present Assembly at Geneva is the big effort made by the British delegation to place the staff of the secretariat of the League of Nations and the International Labour Office in a similar position to that of the British civil service. This may seem to be a domestic matter in comparison with the wide concerns of the League, but if the proposals are accepted they may bear very important fruit in the future. The proposals, which were expounded by Dr. Hugh Dalton, M.P., aim at giving the members of the staff as far as possible permanent employment on contracts of long duration, opening all the higher posts to promotion from the ranks (instead of, as at present, bringing in middle-aged persons from the diplomatic or technical services of various countries), establishing a system of recruitment whereby posts may in the long run be distributed equitably among the nationalities, and, finally, providing for adequate pensions. Dr. Dalton hopes that the new arrangements may succeed in attracting to the service of the League of Nations some of the very best young men and women from all the member States, for the service to be rendered to the cause of constructive peace should appeal to the ideals of the ablest of the younger generation. It should be added that in this field, as in others, the strong British delegation at this Assembly is setting the pace, and is recovering for Great Britain that initiative in League affairs which in recent years has seemed to be on the wane.

THE LEAGUE OF NATIONS AND DANGEROUS DRUGS.

Among the less prominent problems engaging the attention of the tenth Assembly of the League of Nations, recently in session at Geneva, was that of the traffic in opium and other dangerous drugs. The report of the work of the twelfth meeting of the Advisory Committee, held earlier in the year, came under review by one or more of the Assembly's Commissions, together with a memorandum thereon by the representative of Canada as rapporteur. Some reference to the recent work of the Advisory Committee on Opium appeared in the *Journal* on February 2nd (p. 213) and May 18th (p. 918). The Council of the League has had under consideration the organization of the Permanent Central Opium Board, but the precise relationship between this new body set up under the Geneva Convention of 1925 and the Advisory Committee, which has been at work for some years, does not appear to have been determined. The third meeting of the Board will be held next month, and presumably it will then be in a position to take over some of the work hitherto performed by the Advisory Committee. The rapporteur, in commenting on the report of the Advisory Committee, laments with them that half the number of States members of the League have failed to ratify the Geneva Convention of four years ago. Uncertainty prevails as to the extent and nature of the control of imports and exports of the scheduled drugs. Attention is called to the fact that two new drugs—namely, methylecgonine and benzoylecgonine—are subject to the requirements of the Convention. There is also remissness on the part of many States, including even some which are members of the Council, in furnishing reports in regard to production and distribution of opium, although these have been repeatedly asked for. Indeed, Persia and Turkey, two of the largest opium-producing countries, have vouchsafed no reports at all. Moreover, there was an unexplained discrepancy between the export statistics given by the Persian authorities and the amounts recorded by other Governments of imports derived from Persia. Attention is again drawn to the notorious case of illicit transactions by a Dutch firm, referred to in the *Journal* of February 2nd (p. 213). The names of this and three other firms concerned in the contraband commerce are published, and the case is stated to be "the most important and the most detailed one of the kind with which the Committee has had to deal, regarding the ways and manner in which the drugs are supplied to the international illicit traffic." The Committee has asked to be allowed to obtain facsimiles of telegrams sent in connexion with smuggling transactions, but the international guaranteed secrecy of telegrams may preclude the necessary sanction. The International Criminal Police Commission has applied for membership of the Advisory Committee, but, while it is held that the constitution of the Committee does not permit such membership, a representative will be invited to attend when questions of crime and police are under discussion.

THE NINTH INTERNATIONAL CONGRESS OF PSYCHOLOGY.

THIS highly successful congress was held at Yale University, New Haven, Connecticut, from September 1st to 7th, under the presidency of Dr. J. M. Cattell of New York. It was attended by some eleven hundred psychologists, including 122 foreign guests, who were entertained by the University free of charge, and lodged in the Harkness Memorial quadrangle, a modern Gothic building which is justly regarded as one of the triumphs of American architecture. In such a gathering it was only natural that medical subjects should occupy a comparatively small place, but throughout the congress there was plenty to interest the physician and psychiatrist. Perhaps the outstanding contribution was that of Dr. Lashley of Chicago, who, after the banquet of the congress on the evening of September 4th, delivered the presidential address of the American Psychological Association on "The basic neural mechanisms in behaviour." Dr. Lashley's work on the learning of rats, both in their natural state and after they have been subjected to various experimental lesions of the central nervous system, has a deservedly great reputation, and in this address he abandoned his previously somewhat rigid behaviouristic standpoint and demonstrated the capacity of the cortex to act as a whole, and the way in which the nervous system, of the rat at any rate, is capable of vicarious function. He held that any rigid explanation of the physiological correlation of behaviour must be wrong, and that although his own theory must be vague it was

a choice between ambiguity and error. From the medical point of view the other striking address was that of Professor Pavlov, whose lecture was delivered by him in Russian and translated *pari passu* by Dr. Anrep. He described the interaction of the cortical conditioned and subcortical unconditioned reflexes, pointing out that the latter can only be displayed as and when the cortex exhibits the power of minute response to stimuli; on the other hand, the unconditioned reflexes determine and modify the power of the cortex to respond at all. He stressed the fact that a few repetitions of a stimulus will cause inhibition of a cortical conditioned response; while in ordinary circumstances there is no limit to the number of responses of the unconditioned reflex which are possible in the decorticated animal, yet in the normal animal a deep inhibition of the cortex will affect the responses of the unconditioned subcortical reflexes. Further, the state of the subcortical unconditioned reflexes modifies the power of the cortex to respond. Pavlov cited as an example a dog which had grown so old and lethargic, and showed evidence of such rapid and extensive inhibition, that it had ceased to be a useful subject for the experimental study of conditioned reflexes. By means of a Voronoff operation, however, the endocrine balance, a function of subcortical activity, was modified, and for three months the reflexes were restored. A second Voronoff operation once more readjusted the endocrine balance, but the effect finally disappeared after a further period of three months. The official Russian film of Pavlov's work entitled "The mechanism of the brain"—a very clear popular demonstration of the experiments and conclusions of the Leningrad institution—was shown on the afternoon of September 5th. Papers of medical interest were presented in the Section of Abnormal and Clinical Psychology, under the chairmanship of Dr. Jastrow of New York. Dr. Bowman of Utrecht gave a valuable paper on the involution psychoses, while Dr. Grunbaum of Amsterdam showed a cinematograph film illustrating his paper on the apraxics. Both in this section and in others a few of the papers dealt with psycho-pathology and analytic methods, but their number was conspicuously less than has usually been the case at such gatherings in the past. Problems of child guidance, juvenile delinquency, and conduct disorders received a considerable amount of attention, and the products of the great volume of statistical research which has been undertaken all over America in this field were presented. These valuable data concerned the school medical service, adult and children's courts, and general mental hygiene, and were far more copious than any which have been accumulated in this country. It is evident, however, to those who are interested in the development of such work in Great Britain that the problems which have to be faced in the two countries are in many respects fundamentally different, and that in consequence neither the methods nor the conclusions of the American workers can be adopted here without considerable modification. At one of the sessions, for example, it was suggested that in all psychiatric clinics a psychologist—that is, a person who carries out various mental tests—should have equal responsibility with the physician in the diagnosis and treatment of the patients. This illustrated the tendency in American psychology, and perhaps in medicine generally, to overestimate the importance of tests, both physical and mental. These tests are chiefly carried out by women who, having obtained a university degree, expect and obtain employment in the various elaborately and expensively equipped laboratories. The tests are of unequal value, and, while many are very useful adjuvants, there seems a danger that those employing them may come to regard the patient more as an experimental animal than as a human being. It is to be hoped that, in this country at any rate, clinical acumen and clinical judgement will continue to occupy, not only a dominant, but a predominant, position in what our American colleagues would call the patient-doctor situation. Some interesting papers were presented on the effects of various drugs on the cortical activities of animals and on the behaviour of drug addicts, both in America and in the Orient, while both psycho-neurotic and psychotic reactions were considered in the section on maladjustments. Other papers of interest dealt with experiments in hypnosis and the significance of various mental symptoms. Even with such a full programme it was possible to visit the medical school and learn of the admirably equipped and extremely efficient health service which is organized for the undergraduates of the University. It is significant to note that under the auspices of the Commonwealth Fund a full service in mental hygiene is supported, so that there seems no reason why, at least at Yale, American youth should not maintain *mens sana in corpore sano*.

RAISED BLOOD COUNTS.

AN extraordinary wealth of knowledge, condensed and clearly presented, is contained in a small monograph entitled *Polycythaemia, Erythrocytosis and Erythraemia (Vaquez-Osler Syndrome)*,[1] by Dr. F. Parkes Weber and his colleague at the German Hospital, Dr. O. B. Bode. Like all Dr. Parkes Weber's writings, this work is admirably documented—six out of its thirty-four pages are occupied by references to literature—and thought-provoking. The authors describe the activity of the bone marrow in erythraemia as analogous to that in chronic myeloid leukaemia, especially in that rare form where the leukaemic white cells are of a more mature kind, more like polymorphonuclear neutrophil and eosinophil cells, than most of those in ordinary myeloid leukaemia. They also present an interesting summary of erythro-leukaemia, a condition sometimes called Blumenthal's disease, a combination of erythraemia and leukaemia, in which the leukaemic blood picture may supervene on erythraemia or vice versa, and they draw attention to cases of erythraemia which end in anaemia. With these latter cases may be compared those of Banti's syndrome, which, having a raised blood count, are entitled justifiably but paradoxically "anaemia splenica sine anaemia." The knowledge that cirrhosis is generally accompanied by some form of anaemia, occasionally by a grave form not attributable to gastro-intestinal haemorrhage, lends interest to the syndrome in which hepatic cirrhosis is associated with erythraemia, especially as the remarkable effects of liver treatment in pernicious anaemia would suggest that cirrhosis is not likely to cause polycythaemia. It is conceivable, as was suggested by Levi in regard to a case treated for eighteen months with phenylhydrazine, that the explanation for this exceptional combination may be that erythraemia can cause hepatic cirrhosis by providing in increased quantities the products of the destruction of red cells. On the other hand, as the authors point out, the toxic influence of phenylhydrazine on the liver cells must be taken into account. Gaisböck's polycythaemia, or the association of a raised blood pressure with a high red count, and, usually, the absence of splenic enlargement, has given rise to considerable discussion. The authors would separate this condition from erythraemia; they consider that polycythaemia is commoner than is usually thought in patients with hypertension—indeed, that it may, by diminishing to some extent the work of the heart, be beneficial in high blood pressure. In a section on treatment they consider the possibility that splenic substance by causing anaemia might exert a favourable effect in erythraemia. In view of the good results of splenectomy in chronic haemolytic (acholuric) jaundice, it may be

[1] *Polycythaemia, Erythrocytosis and Erythraemia (Vaquez-Osler Syndrome).* An Epitome based on Parkes Weber's Book of 1921 and the Recent Literature of the Subject. By Parkes Weber, M.D., F.R.C.P., and O. B. Bode, M.D. London: H. K. Lewis and Co. 1929. (3s.)

argued that hypersplenism—a term suggested by Dr. Parkes Weber for excessive functional activity of the spleen—would cause anaemia. A spleen diet, however, has so far been tried only in a few cases, and the results are not consistent. In one case of erythraemia thus treated by the authors there was actually a rise in the red blood count. It may be seriously questioned if splenic substance orally administered is likely to act in the same way as a living spleen in the body.

RAMÓN Y CAJAL.

IN a comprehensive essay-review, which in its manner recalls in some respects the *Critical and Historical Essays* of Macaulay, Lieut.-Colonel F. H. Garrison, librarian of the Surgeon-General's Office of the United States Army, has given a most interesting account of the life and work of Ramón y Cajal,[1] based on the second edition of the great Spanish histologist's biography. Born on May 1st, 1852, at Petilla, Santiago, Cajal was far from a model schoolboy. His teachers, it appears, did not approve his habit of ridiculing their pedantry and caricaturing them on the schoolroom walls; indeed, on one occasion he was committed to prison for his attacks on the scholastic profession. Among his aphorisms collected by Colonel Garrison the following bears on his early experiences: "Those who have not been a little wild in youth are in danger of being so in age, excepting always the mentally defective, the weak-willed, and the prematurely old." His father, who did not always manage him successfully, introduced him to osteology, even taking a hand in robbing ossuaries to secure the requisite material; and as a result Cajal now used his talent for drawing to such good purpose that his father was anxious to publish an anatomical atlas comprising his son's coloured sketches. Graduating in medicine during the early seventies, Cajal entered the Medical Corps of the Spanish Army, and served in Cuba. In 1878 he had a severe haemoptysis, and a year later, against everyone's advice and with the happiest results, he married. During the cholera epidemic of 1879 Cajal, then professor of anatomy at Valencia (an appointment he had received in the previous year), was the first in Spain to establish, by a staining method of his own, the causal relation between cholera and Koch's comma bacillus. His improvement of Golgi's chrome silver stain enabled him to carry out his classical work on the structure of the central nervous system; his findings, at first received with scepticism, soon carried conviction, and it was in tribute to his work that he was chosen to deliver the Croonian Lecture at the Royal Society in 1894, and was made the recipient of several great prizes, including a share with Golgi of the Nobel Prize in 1906. In the course of his academic life he realized his early ambition of founding a school of Spanish histologists, and when he retired in 1922 his laboratory became known as the Institute Cajal. As well as anatomist and artist, Ramón y Cajal was a philosopher and writer, and from his purely literary work Colonel Garrison quotes a number of aphorisms tinged with Latin pessimism, from among which we reproduce the following: "Let us look on men with systematized minds as on books; they are read if interesting, but no one argues with them."

LADY ALMONERS' REPORTS.

IT is a pity that the charming title "lady almoner" should be associated with institutions for which no better appellation than "social service departments" has been found. The phrase suggests an age of petrol pumps! With the work, however, of the lady almoner no fault can be found, and its value is well indicated by the reports of the departments at St. Thomas's Hospital and at the Royal London Ophthalmic Hospital for the year 1928. At St. Thomas's Hospital Miss A. E. Cummins, O.B.E., has now retired from her post, after twenty-five years as a pioneer lady almoner; her experienced advice and help have been instrumental in the creation of similar departments in other hospitals. Apart from inquiring into the circumstances of patients, to see how far help is needed to render hospital treatment of permanent benefit, and how far patients can help the hospital, these departments provide convalescent facilities, instruments, transport, and help which may range from a pair of curtains for a draughty bedroom to emigration of a whole family to a Dominion. The St. Thomas's Hospital almoner's report, which includes, as usual, an account of the activities financed by the Northcote Trust, gives details of many patients who have been helped in their difficulties. It is noted also that careful watch is to be kept on the effect of the new Local Government Act on the work of the department. The social service department at Moorfields Eye Hospital is of more recent origin, and was started in October, 1920. In her report Miss M. W. Edminson states that the extension of the Old Age Pension Act to insured persons over 65 has not proved an unmixed blessing, since, if a pensioner who still continues to work falls ill, he is no longer entitled to sickness benefit, but is only eligible for the much smaller allowance of 10s. a week. In the "follow-up" work of the department it has been found that there is a great decrease in the number of infants requiring care for ophthalmia neonatorum. This is attributed in part to the increased efficiency of midwives, and to general education in maternity and child welfare. In both reports an appeal is made for increased subscriptions to the Samaritan funds, the financial position of which is causing considerable anxiety.

ROYAL SOCIETY OF MEDICINE.

THE officers of the Royal Society of Medicine have decided to continue the holding of special discussions during the session 1929–30. The following subjects have been chosen for joint discussions between two or more Sections, the dates to be settled later and announced on the society's diary card: (1) causes of early abortion and sterility; (2) the position of radium in the treatment of gynaecological conditions; (3) the difficult child; (4) the therapeutic value of gold compounds—sanocrysin, etc.; (5) diseases of the pituitary body; (6) actinomycosis common to man and animals; (7) undulant fever common to man and animals; (8) tropical diseases arising from dietetic deficiency. The annual dinner of the society will be held at the May Fair Hotel on Thursday, November 21st, with the president, Lord Dawson of Penn, in the chair.

THE MEDICAL REGISTER: UNTRACEABLE PRACTITIONERS

WE publish in the *Supplement* this week (p. 155), at the request of the Registrar of the General Medical Council, a list of the names of those medical practitioners who have not replied to his inquiries as to the accuracy of their postal addresses. Any practitioner whose name is included in this list should communicate at once with the Registrar of the General Medical Council, 44, Hallam Street, Portland Place, London, W.1, or, in certain specified cases, with the Registrar of the Scottish Branch Council, 12, Queen Street, Edinburgh.

THE Schorstein Memorial Lecture will be delivered by Dr. Arthur F. Hurst, senior physician to Guy's Hospital, on Friday, November 8th, at 4.30 p.m., in the Bearsted Clinical Theatre of the London Hospital Medical College. His subject is "Precursors of carcinoma of the stomach." Members of the profession are invited to attend.

WE regret to announce the death, on September 22nd, of Dr. Ernest Glynn, formerly professor of pathology in the University of Liverpool. An obituary notice will appear in an early issue.

[1] Garrison, F. H.: *Bull. New York Acad. Med.*, 1929, Sec. Ser., v, 483–508.

TRAINING AND EMPLOYMENT OF MIDWIVES.

THE DEPARTMENTAL COMMITTEE'S REPORT.

IN May, 1928, Mr. Neville Chamberlain, as Minister of Health, appointed a departmental committee "to consider the working of the Midwives Acts, 1902 to 1926, with particular reference to the training of midwives (including its relation to the education of medical students in midwifery) and the conditions under which midwives are employed." Sir Robert Bolam was appointed the chairman of this committee, and the other members included six more members of the medical profession—a senior medical officer of the Ministry (Dame Janet Campbell), three members of the public health service (Drs. W. A. Daley, Eustace Hill, and F. N. Kay Menzies), an obstetric consultant (Dr. J. S. Fairbairn), and a general practitioner (Dr. J. W. Bone). The other members were Mr. A. B. Maclachlan, an officer of the Ministry, Lady Cynthia Colville, Mrs. Bruce Richmond, Miss Alice Gregory, Miss K. Stephenson, and Mrs. E. Barton. The report is signed by all the members, but a very important reservation is made jointly by Dr. Fairbairn and Mrs. Richmond. Apart from the substantial point of their reservation, which will be dealt with later, they complain of the conduct of the proceedings of the committee being such as not to have allowed adequate discussion and consideration of the point in question, and also (in their final paragraph) of the personnel of the committee itself. The propriety of these two criticisms appears to be open to question.

The report of the committee should be read in close connexion with the Memorandum of Evidence submitted by the British Medical Association (*Supplement*, April 20th, 1929, p. 122) and the Association's National Maternity Service Scheme (*Supplement*, June 29th, 1929, p. 258—slightly amended at the Representative Meeting, and published as an Association document).

The report opens with a short historical survey of the position prior to the passing of the Midwives Act, 1902, and of subsequent legislation and administration up to the passing of the corresponding Act of 1926. There are a few points, relatively minor, in regard to this legislation and administration which are still, from time to time, the subject of complaint or criticism by the medical profession. Some of them are mentioned in the Memorandum of Evidence submitted by the British Medical Association, and it may be as well to note the way in which these matters are dealt with by the departmental committee. It has been contended that the scale of fees payable to doctors called in by midwives is faulty in at least two respects—first, that the fee of two guineas for attendance at an abnormal confinement is too low, and secondly, that no fee is payable after the expiry of four weeks from the day of birth, even if the doctor is summoned by the midwife, by the use of the official form for this purpose. The committee recommends that the scale of fees should be reconsidered by the Minister in consultation with the local supervising authorities and the British Medical Association. Further, the doctor is statutorily required to submit his claim for such fees within a period of two months from the date on which he was called in. This is really a matter of small moment, but it no doubt causes a certain amount of inconvenience to some, and it has been stated that a period of three months would allow the rendering of the account to be a matter of routine instead of one which required special attention. The committee recommended that this alteration of time should be made. Again, there has been in a few counties some irritation in connexion with schemes under which an expectant mother can, in accordance with the Midwives Act, 1926, by prior payment of an agreed sum, insure against the liability for the payment of a doctor's fee. Such irritation as has been aroused has apparently been due rather to the circulars or administrative methods of the medical officers of health concerned than to the principle of an insurance arrangement. As the committee points out, the establishment of a national maternity scheme on proper lines would do away with the need for any such local provisions.

Two other points of a somewhat similar nature may be mentioned here. The delay in the payment of the cash maternity benefit to insured persons by approved societies is acknowledged to be sometimes considerable, and seriously disadvantageous to the mother. Not only does this result in very late payment of the midwife's fee or of the expenses of an institution in which the confinement has taken place, but it may prevent the securing at the proper time of that very extra comfort or nourishment which the benefit was designed to provide. The committee merely states that "it is obviously important that the appropriate fee should in every case be paid with expedition," and there is no evidence in the report of consideration of the British Medical Association's suggestion that, under due safeguard by medical certificate, half the amount of the benefit might be payable a short time prior to the confinement. This suggestion may still, however, be commended to attention. In its Memorandum of Evidence the Association further drew attention to the fact that, though the rules for midwives stated that "in calling in medical assistance the midwife shall send for the registered medical practitioner desired by the patient, or, if the patient cannot be consulted, by the responsible representative of her family," the spirit of this requirement is often evaded by midwives who, instead of giving the choice freely to the patient, induce her or her friends to send for some doctor favoured by the midwife herself. There is definite evidence of such practices, which naturally prevent in some cases that real collaboration between midwives and doctors which is absolutely essential in the public interest. The committee makes no reference to this matter, probably on the ground that no alteration of the rules is required, and that the remedy is to be sought rather in the direction of those who are in a position to influence the conduct of midwives, urging them to loyal observance. There is certainly need for such influence being exerted. With regard to actual alterations of the rules, the suggestions of the Association are practically endorsed *in toto*. It may not be amiss, however, to reiterate that among the stated examples of abnormality there should be included albumin in the urine, however slight, and breech presentation, even uncomplicated.

The main body of the report deals with three large matters: (1) the training and conditions of employment of midwives; (2) the composition and functions of the Central Midwives Board; (3) a national maternity service.

TRAINING IN RELATION TO CONDITIONS OF EMPLOYMENT.

The conditions of employment of midwives (including the remuneration that can be earned), and the training that should be required, are interdependent. No doubt the status of the calling has been raised during recent years, and its disadvantages somewhat diminished; but unless better financial prospects can be offered to women of suitable type and education, whether they practise as independent midwives or as members of the staff of nursing associations, maternity institutions, or local authorities, such women will not enter it, and it will be difficult to insist upon the full and adequate training that should be required or upon such tests of the result of that training as should be applied. It is true that "the midwife occupies an exceptionally responsible position in the life of the community compared with women employed in the allied branches of the nursing profession since she is directly answerable during the normal course of her everyday work for the lives of two patients, mother and child"; but the difficulties and disadvantages attaching to midwifery practice are set forth in the report with convincing eloquence. As regards earnings, the committee says: "We learn that the earnings of the independent midwife vary from £30 to £275 per annum, and that a large number of whole-time workers, excluding those who merely practise intermittently and derive their main income from other sources, earn only from £90 to £120 per annum. There is naturally a limited number who succeed in earning more: one stated in evidence that her income was approximately £350 a year. . . . In certain areas local authorities employ whole-time salaried midwives, and in others they pay fixed subsidies to certain midwives, while in a few cases they guarantee minimum

salaries to selected independent midwives. In the first group salaries range from £150 to £250 inclusive, *plus* civil service bonus. In the second group midwives are paid a fixed subsidy, in one case as low as £10 and in another case as high as £80 a year; under these arrangements the midwife retains her fees, but is not required to account for them. In the third group the guaranteed salary varies from £120 to £230 a year. The midwife in this group is allowed to keep her fees, but is required to account for them to the local authority." In these circumstances improvements in the requirements for training cannot be drastic or sudden, nor can those in the conditions of practice be other than gradual. The latter, it is indicated, are to be sought in a more extended and better organization of the work of nursing associations, including a superannuation scheme, the elimination of the uncertificated woman as a maternity nurse, especially in certain areas where custom and tradition make her influence unusually strong, the discouragement of casual and intermittent practice, and, above all, in the establishment of a national maternity service, which would allow of the employment of an increased number of midwives at more adequate rates of remuneration. With regard to such rates the report says, "We are of opinion that the fee of 30s. suggested in the Majority Report of the Royal Commission on National Health Insurance is quite inadequate, and we trust that it will be immediately possible to secure a sufficiently substantial increase in the earnings of the average midwife by the institution of a considerably larger fee." It may be remembered that the tentative fee taken for purposes of calculation in the scheme of the British Medical Association is 50s., and this on the supposition that about 110 cases a year can properly be undertaken. On this last point the committee expresses the opinion that the number "should not greatly exceed 100 cases per annum." The alterations suggested in training are mainly (1) the restriction of the age of entrants, fixed by reference to the time of commencing training, to the ages of 20 years to 40 years; (2) the institution of an entrance examination "of an elementary kind the syllabus and standard of which should be laid down by some central body, to ensure that the candidate is able to fill in [illegible] to understand weights and measures, [illegible] and to profit by the instruction that she will receive in the science of her future profession: for this purpose it would probably be sufficient if the examination were to be restricted to such subjects as reading, writing, spelling, and dictation, and simple arithmetic"; and "it is desirable that the examination, which should be held in all parts of the country, should be placed in the hands of the local education authorities"; (3) the institution of a clinical examination as part of the final test for certification; (4) a period of three months' compulsory post-examination experience, to be undertaken within six months of passing the examination, the midwife being responsible personally for the conduct of labour in not less than five cases during that period.

In connexion with the training of midwives several other matters, incidental but of considerable importance, are considered. The more important conclusions are (1) that there should be no minor course or test for women who propose to become not midwives but maternity nurses only; (2) that a prescribed examination for non-medical teachers of midwifery should be instituted; (3) that as regards the shortage of clinical material, "some restrictions upon the training of pupil midwives in hospitals attached to medical schools are necessary," and that "students in a medical school area should have preference in the apportionment of material, and that pupil midwives should be allowed to make use of such material only in so far as it is in excess of the needs of medical students"; (4) that facilities for post-certificate training should be encouraged and arranged for midwives at regular intervals by all local supervising authorities, and that the cost incurred, together with midwives' expenses and any expenditure that might be involved in the provision of a locumtenent should be borne by these authorities; and that such post-certificate training might be made obligatory upon those midwives whose practice is very small or intermittent.

Under the heading of "supervision of midwives" the committee notes that "the arrangements for inspection vary widely," and enumerates a number of these arrangements, many of them involving the use of health visitors as inspectors. With regard to this it says, "The employment of health visitors with little or no practical experience of midwifery for the purpose of inspecting midwives is wrong, both in conception and principle, and is strongly to be deprecated." It gives valid reasons for this expression of opinion, and recommends that "every new appointment to the post of chief inspector of midwives should be given to a medical officer who has had actual experience of obstetric practice and who is engaged in other work of a similar nature—for example, as an assistant medical officer for maternity and child welfare—" and that "subordinate posts for routine inspections should be filled, as and when vacancies arise, by midwives who hold the general nursing qualification and have gained experience in the actual practice of midwifery over a prolonged period."

THE COMPOSITION AND FUNCTIONS OF THE CENTRAL MIDWIVES BOARD.

The report proposes considerable changes both in the composition and in the functions of the Central Midwives Board. These functions may be said at present to be fourfold: (1) disciplinary and judicial; (2) the approval and inspection of training institutions and teachers; (3) the determining of the conditions of entry into the calling, and the course, length, and character of the training to be undergone; (4) the holding of a qualifying examination. With regard to the first of these it may be said briefly that the proposals of the committee would assimilate the powers and proceedings of the Board to those of the General Medical Council, with this addition: that it is recommended that the Board should have power to subpoena witnesses and to require evidence on oath and the production of documents. With regard to the fourth class of function, that of examination, it is stated that "there is much to be said for keeping it apart, both in personnel and association, from the judicial functioning of the Board. To this end provision should be made for the Board to appoint an Examination Board, which should be directly answerable to the Central Midwives Board for the conduct of its duties."

An acute and important difference of opinion arises in regard to the second and third of the classes of function as stated above. The majority of the committee propose that they shall be transferred, *en bloc*, to the Minister of Health, who should have the assistance of an Advisory Committee. They set out their recommendations thus:

Approval of Training Institutions and Teachers.

(58) That the existing arrangements for the approval and inspection of training institutions and teachers by the Central Midwives Board are unsatisfactory by reason of their extremely limited scope, and that the whole of this work should be placed in the hands of the Minister of Health, on whose behalf the majority of the institutions recognized as training schools by the Board are at present inspected by officers of his department, either in connexion with grants in aid of midwifery services or the training of midwives, or as part of the routine inspections of Poor Law institutions.

(59) That an Advisory Committee, consisting of persons appointed by the Minister of Health on the nomination of representative bodies (including the Central Midwives Board) should be formed to advise the Minister regarding matters coming within the scope of his inspecting and approving duties.

Course and Length of Training.

(60) That it is inadvisable that separate bodies should be responsible on the one hand for the approval and inspection of training institutions and teachers and on the other hand for laying down the training curriculum, and that the duty of formulating the course and length of training should also pass from the Central Midwives Board to the Minister of Health who, with the assistance of the Advisory Committee referred to in (59), would decide from time to time what alterations in the curriculum are necessary to meet changing conditions.

The argument leading up to these recommendations is contained in paragraphs 100 to 104 of the report, and these should be carefully considered. Dr. Fairbairn and Mrs.

Bruce Richmond dissent strongly from these conclusions, and their main case is set out in certain paragraphs of their joint reservation, thus:

"The determination of the duration and character of training, the approval of schools and teachers and the examination of candidates are not only all closely linked together, but form an integral part of the work of the Board, which formulates the rules under which the midwife works, determines the conditions under which she practises, adjudicates on charges of professional misconduct, and keeps and purges the roll. These functions are so interrelated that they should be retained in the hands of a single authority. The hearing of penal cases provides evidence of when and where alterations in rules are called for, and gives information as to deficiencies in the education and training of midwives. In conducting the examinations, the candidates' schedules sent up from training schools and reports by examiners reveal weaknesses that are not otherwise likely to be discovered. Thus the penal and examining duties are linked up with the curriculum and the approval of schools and teachers, and to leave the former where they are and hand over the latter to another body with some device for liaison between them must be inferior to a unified control. This proposal to break up work that has, in the experience of a generation, been welded into a compact whole, and the distribution of its parts between an attenuated Midwives Board and a department of the Ministry of Health, with an Advisory Committee at its back, makes a dual control (or triple if the Advisory Committee is more than a shadow) that is not likely to draw women into a profession already groaning under a weight of official supervision. . . .

"The committee in its report has expressed itself as anxious to raise the status of the midwife and to make her vocation a real profession that will attract women of better education than it has hitherto done, but its recommendations regarding the Midwives Board appear to be wholly inconsistent with that ideal. It is the general rule for all professions—medical, legal, and others—that they retain in their own hands the decision as to what is the proper training for and means of entry into them. The closely allied nursing profession affords the best analogy. Under the Nurses Registration Act, 1919, the General Nursing Council was constituted to play a part in the governance of the nursing profession corresponding to that of the Central Midwives Board in the midwifery profession, including 'regulating the conditions of admission to the register.' . . . The midwives should have control over their profession at least equivalent to that exercised by registered nurses over theirs, and it is scarcely disputable that a gradual increase in the elected representatives should be the aim, so that both, with some outside help from the medical profession and others, may ultimately be able, as other professions are, to determine conditions of training and entry and to maintain their own professional standards. Anything that lowers the status and prestige of the ultimate authority over them, anything that postpones the possibility of their obtaining the control over their profession that is granted to other professions, must cause deep and bitter resentment among midwives. . . . We would urge that no such momentous changes as those recommended in this report should be made without full and open discussion."

We feel bound to say that on the main point of principle we believe Dr. Fairbairn and Mrs. Richmond to be right. If the calling of the midwife is ever to be raised to the dignity of a profession, it is almost essential, at the very least it is eminently desirable in accordance with the traditions and methods of this country, that it should be preponderantly self-governing; if this be not so the sense of corporate responsibility is not developed, or is at any rate weakened. It is true that a midwives' profession must, in fact, be in some sense a subordinate profession in so far as it will be dependent upon the profession of medicine, and therefore an appropriate part in its governance must be assigned to, and exercised by, medical practitioners. There is undoubtedly some disadvantage in any separation of the last three of the functions of the Central Midwives Board as set out above. But the committee seems to have made out a case for the really practical point of transferring the inspection of training institutions and teachers to the Government department concerned. It is at least as logical to separate this function from the other two as to separate this and the third together from the duty of examination, and in fact both logic and experience seem to indicate that, if separation of function there is to be, it is here that it can be made with least ill effect. The committee, so far as its report is evidence, has really made no attempt to justify the transfer of the third set of functions from the Board to the Minister. Its desirability is not self-evident, yet in paragraph 104 and conclusion 60 it seems to be assumed that this is so, for not a single reason is given. As to the constitution of the Board, if the transfer of functions, as we hope, be not so drastic as that recommended in the report, the number of members would probably require to be a little larger than that *suggested by* the committee, but there is no reason why the method of appointment should be varied. The recommendation on this point is that the Board should be constituted as follows:

> (*a*) Three members elected by vote of the midwives on the roll who have given notice of their intention to practise during the year preceding the election.
>
> (*b*) Two members jointly nominated by the County Councils Association and the Association of Municipal Corporations, one of whom should be a medical officer of health and one a member of a local *supervising authority*.
>
> (*c*) Two members—registered medical practitioners—nominated by the British Medical Association, one of whom should be in general practice and one an *obstetric specialist*.
>
> (*d*) Two members nominated by the Minister of Health, one of whom should be a *mother who is neither* a certified midwife nor a registered medical practitioner.

Members of the Board might serve for a period of five years and be eligible for re-election or re-nomination, as the case may be.

A National Maternity Service.

That part of the report which deals with the need for a National Maternity Service scheme, with the principles on which it should be based, and with the chief details of the arrangements which it must necessarily embody, is exceedingly valuable and interesting. These features of the report, however, do not require any full description here, inasmuch as they are, in effect, almost identical with those of the scheme prepared by the British Medical Association, and published and commented upon so recently in the *Journal*. The Association's scheme is the more detailed both as to service and as to finance, and if any differences between it and the committee's scheme are to be sought they may perhaps be stated as follows. The latter suggests that when a woman engages a doctor as well as a midwife in a normal case, there shall be a State contribution towards her expenses, whereas the Association's scheme provides the woman as *part of the insurance* arrangement with what is *essential, and leaves her to* provide the rest privately. There would probably be little difference in the cost to the patient in the two cases, but we believe that the Association's method, partaking less of the nature of a dole, is preferable. Again, the committee's scheme enlarges the need for institutional provision, as it leaves to the woman the option of going into the institution for reasons of personal convenience as well as for medical necessity. Further, the committee believes that there may be some 70,000 cases of necessitous persons who will not be within the ambit of the insurance scheme, and who, therefore, must be dealt with on other, though analogous, lines. The Association prefers that some method should be found (and some such methods are indicated in its Memorandum) by which such cases could be brought within the service.

Miscellaneous Points.

One or two miscellaneous matters remain for mention. Certain paragraphs on ante-natal clinics are of interest.

84. Ante-natal clinics are becoming very popular in certain parts of the country. Two kinds of work go on there—the medical and the non-medical or social. The medical consists of examination by a doctor with a view to detecting abnormalities and making appropriate arrangements, generally by reference to a private doctor or a maternity hospital, to ensure that the confinement will be as safe as possible. The non-medical work consists of instruction in motherecraft, including the clothing and feeding of infants, the giving of hygienic hints on healthy living for expectant mothers, and following up the doctor's advice by, for example, the supply and application of bandages for varicose veins and the treatment of constipation. A number of women would, doubtless, prefer to attend these clinics for medical examination, despite the arrangement proposed in this report under which every expectant mother coming within the scope of the National Health Insurance Acts would have the services of a private doctor for ante-natal examination; and, subject to the consent of the doctor responsible for treating any emergency which might arise in the course of the confinement, there would seem to be no objection to the patient attending such a clinic, provided full co-operation of the clinic with the doctor were ensured.

85. In cases of this kind the medical portion of the ante-natal record form, to which reference is made in paragraph 46 and Appendix B, would be completed by the medical officer of the clinic, but care should be taken to ensure that both the midwife and the private doctor are acquainted fully with the information gained by the medical officer of the clinic regarding the health of each pregnant woman whom he or she examines. This end would best be achieved, so far as the midwife is concerned, if she were encouraged to accompany her patient to the clinic in order that she may be present when the medical examination is made. Such an arrangement would be of great value to her from an educational point of view. The midwife should be treated by the clinic staff as a professional colleague. If any private doctor has sufficient patients to warrant the holding of a special session, the local authority might allow him, on agreed terms, to have the use of the authority's clinic and nursing staff, so that he may see his patients there.

On the controversy as to whether midwives should be allowed to administer sedative drugs entirely on their own responsibility, the committee says: "There can be no absolute ban because of occasional emergencies when the services of a doctor are not available. At the same time, if the well-being of the mother be the prime consideration midwives cannot be regarded as persons fitted either by training or experience to be given complete freedom in the use of drugs. We feel bound to place on record that the midwife is not the person on whom, in the ordinary course, the responsibility for the administration of hypodermic injections—for example, of morphine or pituitrin—should lie." There is a recommendation "that steps should be taken to secure the notification to the appropriate medical officers of health of all cases of pemphigus neonatorum"; and an expression of opinion "that it would be in the public interest if some professional body would take upon itself the responsibility for issuing at an early date some pronouncement as to the advisability and place in labour not only of anaesthetics but also of analgesic and sedative drugs generally."

THE THIRTEENTH INTERNATIONAL PHYSIOLOGICAL CONGRESS AT BOSTON.

[FROM A SPECIAL CORRESPONDENT.]

THE thirteenth meeting of the International Physiological Congress possessed unique interest, in that it was the first of these congresses to be held in America, and the interest actually aroused is best indicated by the fact that it was attended by 1,400 persons, whereas the previous largest attendance—at the twelfth congress at Stockholm in 1926—had been only 650. These triennial congresses have maintained a remarkably high level of popularity for forty years, and their success has undoubtedly been due to the principles enunciated when the first congress was suggested by a group of English physiologists. These principles were that the purpose of the congress was for the international interchange of ideas, and that the communications should be as little formal and as fully demonstrative and experimental as possible. Twelve congresses have since been held in European towns, but three years ago it was agreed to accept the invitation of the Federation of American Societies for Experimental Biology and to hold the thirteenth congress in Boston. At that time the advisability of the new departure was doubted by many, but the optimists declared that an attendance of nearly 200 European physiologists might be expected. The actual attendance greatly exceeded all expectations, for there were about 700 foreign delegates, of whom more than 500 came from Europe. Indeed, the number of European delegates to Boston was actually greater than the corresponding number at the Stockholm congress in 1926.

A Well-organized Congress.

All those who have any acquaintance with congresses will realize at once the dire consequences that often ensue when attendance completely outruns all expectations. Therefore it is as well to say at once that the organization of the congress was an unqualified triumph. Everything ran as if by clockwork, and every day and at every turn the guests met fresh evidence of the meticulous care and forethought that had been exercised to ensure their comfort. The open-handed hospitality of the people of the United States is traditional, and the hospitality received exceeded expectation; but what still more impressed the guests was the enormous amount of work that must have been done in order to produce such perfect success in organization. The congress was favoured with excellent weather, but the general feeling was that no vagary of weather would have been able to upset the arrangements organized by our Boston hosts.

Thirty-five nationalities were represented at the congress, and among the delegates were many noted veterans, such as Ivan Petrovitch Pavlov, now in his eightieth year, Léon Fredericq, who was president of the second international congress at Liège in 1892, E. Gley of Paris, and Hans H. Meyer of Vienna. The especial value of international congresses is that they afford an opportunity for workers of different nationalities to establish personal contact, and the present congress fulfilled this purpose with striking success. For many members the congress commenced directly they left Europe, since no fewer than 370 physiologists crossed on one boat. Moreover, after the congress a large proportion of the European guests were entertained in Toronto and Montreal. The social side of the congress was therefore developed to an exceptional degree, thanks to the hospitality so freely offered in the United States and in Canada.

The Wide Field of Physiology.

The congress proper opened on Monday evening, August 12th, and the sessions continued during the ensuing four days. There were about 450 communications and 75 demonstrations. This large agenda was carried through by dividing the congress into six sections, and by limiting communications to ten minutes and discussions to five minutes. The number of the communications, although impressive, scarcely indicates the great mass of work reported upon, because the communications were mostly summaries, reduced to the briefest terms, of a large amount of work. Consequently it is impossible to do more than mention a few of the communications that appeared to have a special medical interest. Speaking generally, one may say that there were few sensational discoveries reported, but that the communications, *en masse*, gave evidence of a steady advance of physiological science over a wide front. In all sciences the nature of the progress made varies from decade to decade; there are periods during which pioneer work opens up great new fields of knowledge, whilst such periods of rapid advance are usually followed by periods of consolidation, during which the new territory is thoroughly explored and organized. Just at present physiology appears to be in the latter stage, and the general nature of most of the communications was the reporting of accurate information concerning fields of knowledge that had already been partially explored. Although work of this nature is not so sensational as advances in new fields of knowledge, yet its value for medical science is particularly great because physiological discoveries usually require to be thoroughly worked out before they can be applied in the treatment of disease.

Professor Krogh gave the opening address to the congress, and chose as his subject "The future of physiology." He pointed out that it was now beyond the power of any human being to keep in touch with the progress of physiology in all its branches, both on account of the overwhelming mass of the literature and also on account of the extreme diversity of the subjects with which the different branches were concerned. The list of communications delivered at the congress fully bore out the validity of these propositions. Their mass was double that of the last congress and treble that of the Edinburgh congress of 1923, and the increase in diversity was proportional to the increase in mass. The communications presented to the congress represented in fact an enormous mass of work, involving most of the branches of chemistry and physics, and touching on other sciences such as genetics and psychology. A considerable proportion of the communications dealt with biochemistry, and, in particular, there were interesting discussions on the vexed question of the chemical changes associated with muscular contraction. The solution of such fundamental problems is essential for the advance of physiology, but their importance to medicine

is indirect rather than direct. The advances reported in endocrinology and vitaminology have, however, a more direct interest for medicine. A very large amount of work has been done in recent years on the ovarian hormones, and advance is slowly being made in this difficult subject.

Advances in Endocrinology.

Doisy, Veler, and Thayer reported improved methods for isolating folliculin, which enabled them to isolate from the urine of pregnant women preparations, of which one rat unit weighed less than 0.001 milligram. McClendon and his co-workers investigated the clinical action of this hormone. They gave doses up to 4,000 mouse units, and found that these produced a rise in the metabolism of women, and could induce menstruation in women suffering from amenorrhœa of considerable duration. The preparation of active principles from the testis has proved a more difficult problem than the obtaining of active principles from the ovary. Koch, Moore, and Gallagher stated, however, that they had obtained a lipoid extract from bull testicles which, when injected into capons, caused a growth of comb, and when administered to castrated rats and guinea-pigs corrected several of the effects of castration. Voronoff also reported the effects of testicular grafts, and claimed that the effects of such grafting continued for five years. He showed histological sections which he claimed proved that the grafted cells survived for about three and a half years.

Important advances were also reported regarding knowledge of the functions of the anterior lobe of the pituitary gland. Cushing and Teel showed that at least two principles were present—the growth and the sex principle. Administration of the growth principle to dogs caused a pathological overgrowth, which resulted in peculiar deformities and at the same time caused hyperplasia of the thyroid and the adrenal cortex, together with amenorrhœa in females and testicular atrophy in males. The sex principle produced premature œstrus in rats and caused enlargement of the ovaries. This work confirms the opinion that the anterior lobe of the pituitary resembles the posterior in that both contain a number of separate active principles of great importance.

Koehler and Eichelberger described a method for separating from the suprarenal glands a new active principle. This substance, when administered to cases of myasthenia gravis, caused a rise in metabolic rate and a still greater rise in mechanical efficiency. Rogoff and Stewart also reported that they had obtained from the suprarenal cortex an active principle, which they named interrenalin, the administration of which caused a marked prolongation of life in suprarenalectomized animals. These reports indicate that slow but definite progress is being made in elucidating the important problems of the nature of the endocrine functions of the sex glands, the anterior pituitary, and the suprarenal cortex.

Vitamins: Irradiated Ergosterol.

Coward, Key, and Morgan reported the existence of a new growth-promoting vitamin, which is necessary for growth to maturity, but which is distinct from the six vitamins hitherto identified. The fact that excessive doses of cod-liver oil or of irradiated ergosterol can produce toxic effects has naturally led to extensive investigations on this important subject. Unfortunately the results reported are somewhat discrepant. Seel found that prolonged ultra-violet irradiation of ergosterol in alcoholic solution caused the production of definitely toxic substances. Agduhr found that cod-liver oil could produce toxic effects and that the therapeutic doses of cod-liver oil as recommended in several textbooks were capable of producing lesions in men and in animals. He concluded that the toxic effects were caused by the co-operation of several toxic substances contained in the oil. On the other hand, Bills and his co-workers found that it was possible to produce an irradiated ergosterol that was remarkably non-toxic, and that more than 4,000 times the therapeutic dose of such a preparation was required to produce a hypercalcification.

New Anæsthetics: Drug Addiction.

Various interesting advances in pharmacology were described. Lucas and Henderson reported on the anæsthetic properties of cyclopropane. This gas produced surgical anæsthesia in a concentration of 11 per cent. in oxygen, and appeared to combine a high anæsthetic power with low toxicity. Zerpas, Clowes, and co-workers described the use of sodium amytal (sodium-iso-amyl-ethyl-barbiturate) as an anæsthetic. They concluded that it was a very valuable anæsthetic for intravenous administration. It has been used successfully in more than a thousand human cases. The solution requires, however, to be prepared with very great care, as the salt is easily decomposed and then produces toxic effects.

The problem of the nature of drug addiction is one that has hitherto been neglected, and it is satisfactory to note that it is now being investigated systematically. Barbour and co-workers concluded that morphine habituation was associated with the dehydration of certain organs, and that sudden withdrawal resulted in a remarkable redistribution of water within the body. They suggested that these changes were the cause of the physical symptoms that follow morphine withdrawal. Schmidt and Livingston studied the production of morphine tolerance in dogs, and showed that prolonged administration of small doses produced little tolerance, but that a few large doses were sufficient to produce measurable tolerance.

Ganglionectomy for Arthritis.

One of the communications of greatest direct interest to clinical workers was the report by Rowntree and Adson on the effects of sympathetic ganglionectomy and ramisectomy in arthritis. These authors removed the lumbar sympathetic in an advanced case of arthritis deformans, and this resulted in immediate and complete cure of the arthritis in the lower extremities, a cure which has persisted for three years. The patient was so pleased with the results that she was glad to have a second operation performed two years later to relieve the upper extremities. The removal of the first and second dorsal ganglia and the cervico-dorsal ganglion resulted in an almost complete cure of the arthritis in the arms. The authors concluded that the arthritis was associated with excessive vaso-constriction that was relieved by excision of the sympathetic. They further concluded that the nervous system played a much greater part in the phenomena of arthritis than had hitherto been supposed.

Demonstrations.

One of the general principles governing the international physiological congress is that the communications should be as fully demonstrative and experimental as possible. In accordance with this tradition demonstrations were one of the outstanding features of interest in the congress. Rein showed a very ingenious method of estimating the rate of blood flow through any artery. Diathermy was applied across the artery and the differences in the temperatures above and below the diathermal current were measured. The amount of heat introduced was known, and hence the volume of blood passing could be calculated. E. R. Clark and Sandison showed a method for the study of capillaries in the normal mammal. A double-walled transparent chamber was introduced into a rabbit's ear, and this resulted in a thin chamber whose contents could be studied with the highest powers of the microscope. Downing and Hill showed thermopiles of extreme sensitivity, which were capable of measuring the heat production of nerve. Erlanger and Gasser showed an oscillograph with an amplification of 100,000, by means of which the details of the action currents of nerves could be studied.

Conditioned Reflexes.

An outstanding feature of the congress was the address delivered by Professor Pavlov on the last day, in which he discussed the part played by inhibition in the normal activity of the cerebral hemispheres. Pavlov considered that two roles of the inhibitory process could be distinguished. The first was the protection of the cortical cells from excessive cortical destruction caused by strong stimuli, and the second was the protection of these same cells from useless work. The question whether a single basis could be ascribed to these two roles was an important question still unsolved. According to Pavlov's theory sleep is a result of the spread of inhibition throughout the entire cortex of the brain. Various other communications on conditional reflexes were given, some of which supported Pavlov's theories of inhibition and sleep, whilst others were

opposed to these theories. It is interesting to note that an increasing number of workers are using the technique elaborated by Pavlov for the study of conditioned reflexes, in spite of the extreme difficulty of the method.

It has not been possible to mention more than a tithe of the papers of interest that were presented at the congress. As has been already remarked the outstanding feature of the meeting was the evidence that it provided of the very great amount of research work in physiology that is proceeding at present in all countries throughout the world.

Correspondence.

SURGICAL TUBERCULOSIS.

SIR,—I agree with your insistence in your leading article last week upon the necessity of distinguishing between the treatment of surgical tuberculosis in adults and in children. In the former prolonged periods of purely conservative methods are often utterly futile and sometimes disastrous.

I think Mr. Girdlestone has presented an exceedingly logical and helpful view of "surgical" tuberculosis. His persistent references to a primary focus—often unrecognized—are very timely. In adults this primary focus is generally, almost always, indeed, an intrathoracic one. It is for this reason that the advisability of general anaesthesia in operating on adults with surgical tuberculosis should always be pondered with the utmost care.

It was recognized by our fathers that amputation of a tuberculous joint often did a great deal of good to a co-existing phthisis. When we have exhausted the advantages of modern methods of treatment we are finding it still true to-day, and this operation should be undertaken more frequently in adults in cases where excision is not feasible.

Finally, may I just underline Mr. Girdlestone's reference to the lack of logic on the part of those who would discharge a patient sooner, merely on the ground of a radical operation having been performed, forgetting that all they have done has been with the object of enabling the patient to deal more successfully with his primary lesion.—I am, etc.,

Liverpool, Sept. 23rd. JOHN T. MORRISON.

ABDOMINAL SEPSIS AS A CAUSE OF EYE DISEASE.

SIR,—Dr. T. Harrison Butler's letter in the *Journal* of July 20th (p. 122) pointing out the gall-bladder as a source of infection in eye disease is of great interest. In Bengal a large proportion of cases of chronic cyclitis, episcleritis, primary and secondary glaucoma, choroiditis, and optic atrophy unyielding to local treatment are found associated with intestinal infections by protozoa and flagellates, and nearly always accompanied by a chronic colitis. In these cases the Wassermann reaction is negative, and the teeth, throat, and nasal sinuses are healthy. The addition of effective anti-amoebic therapy to the local treatment has procured, in many cases, relief, arrest, or cure of the ocular condition, suggesting a direct relation between the ocular disease and the effects of the intestinal parasitism. The relief which follows emetine treatment in cases of amoebic iritis is sufficient proof that it is traceable to the large intestine. The occurrence of abdominal discomfort with exacerbations of chronic ocular disease, such as irido-cyclitis and glaucoma suggests an intestinal origin in many of these cases. Corneal ulcers, episcleritis, and keratitis often occur in association with mixed infections in which trichomonas, giardia, and chilomastix predominate. The exudation accompanying chronic plastic iritis of protozoan association develops into a dense membrane, like a Jacksonian membrane, about the caecum and colon which is believed by many to arise from protozoan activity. Arrest of the cyclitic membrane is often caused by anti-amoebic treatment, proving, when no other focus of infection can be found, that its causation is intestinal. The establishment of an association between general disease and eye lesions is often more or less guess-work, when the particular organism has never been found in eye tissues. The benefit obtained from therapeutic tests, however, especially when the result is lasting, should make us less tardy in accepting the significance of such an association.

In ocular complications due to amoebiasis and other protozoal diseases of the caecum and colon, it may be possible that the path for the entrance into the blood stream of other micro-organisms, such as staphylococci and streptococci, is opened up by the lowering of the vitality of the patient and by the local infection, and that these bacteria settle in the uveal tract, and produce inflammation.—I am, etc.,

E. W. O'G. KIRWAN, F.R.C.S.I.,
Professor of Ophthalmology, Medical College, Bengal.

Calcutta, Aug. 29th.

THE PROBLEM OF THE UNFIT.

SIR,—Dr. A. F. Tredgold's admirable letter on this subject, which was published on September 7th (p. 475), points out and emphasizes the incompleteness of the present outlook of the public health services on the life and growth of the individuals comprising the nation. This outlook is concerned with the soil and not with the seed, and when one considers the crop that is being produced—vide Dr. Tredgold's *figures—there must be great uneasiness of soul* and a feeling that all is not well, in spite of declining mortality rates.

In my little book *Observations on Human Heredity* I have made the suggestion that the members of the public health services should consider the aspect of heredity as well as environment, and endeavour to investigate and record such hereditary diseases and abnormalities as present themselves in their daily work as school medical officers or medical officers of institutions or welfare centres. Dr. Tredgold's classic work on mental deficiency could serve as a guide, even if observations were not confined to this—the most important of all transmitted defects. As Dr. Tredgold points out, the profession cannot shelve its responsibility in this vital matter. There is no other body competent to undertake it; but simply because it is difficult, complex, even hazardous—from the point of view of rousing strong feelings—we cannot shun it and maintain our self-respect.

The public health service itself is beginning to move. At the lectures given to the public in this town during Health Week, 1927, there was an excellent lecture on inborn characters by the secretary to the Eugenics Education Society. How far the significance of the lecture was appreciated by the audience I cannot say; to me it showed itself as the beginning of a *reorientation* of the outlook of State medicine.

The Council and Divisions of the Association may not consider the time ripe to appoint a committee of inquiry on this problem, but the Association cannot stand aside altogether and let other professional bodies take the lead.—I am, etc.,

Warrington, Sept. 8th. J. S. MANSON.

SPLENECTOMY FOR SPLENOMEGALIC POLYCYTHAEMIA.

SIR,—It has been generally acknowledged that on *theoretical grounds*, and by the evidence of actual experience, splenectomy is contraindicated for the splenomegaly of true erythraemia ("Vaquez-Osler disease"). Nevertheless, one or two cases have been reported in which splenectomy appears to have done good, as in a case at the Mayo Clinic, recently referred to by Dr. A. F. Hurst in the discussion on the indications and results of splenectomy at the Royal Society of Medicine (*Proceedings*, 1929, xxii, Joint Discussion, No. 9, p. 163). There are, however, various classes of splenomegaly which may occasionally be accompanied by polycythaemia and may clinically simulate erythraemia (Weber and Bode, *Polycythaemia, Erythrocytosis, and Erythraemia*, London, 1929, p. 19)—for instance, cases which may be clinically classed as "Banti's disease or splenic anaemia without anaemia" (*anaemia splenica sine anaemia*). In some such cases splenectomy is probably a rational method of treatment, and apparent exceptions in regard to the result of splenectomy in erythraemia may be explained in that way.—I am, etc.,

F. PARKES WEBER.

London, W.1, Sept. 20th.

CO-OPERATION BETWEEN PRIVATE PRACTITIONERS AND HOSPITALS.

SIR,—Your correspondent Dr. W. M. Penny (September 21st, p. 559) is in error in thinking that the system by which the private medical practitioner is supplied with full details of the in-patient notes of his patient does not already exist. This system was introduced at the Royal Free Hospital about five years ago, and more recently the Cancer Hospital and the Miller General Hospital have both adopted it.

When a patient's case sheet is complete the resident writes the abstract, including the æ-ray and pathological reports. This is corrected, when necessary, by the appropriate registrar, and checked by the honorary medical officer concerned. Four copies are then made: one is sent to the private practitioner; one to the honorary officer for his own private notes; one is bound with the in-patient records; and the fourth attached to the out-patient notes.

This system has been found extremely satisfactory, and we have had many appreciative letters from the practitioners who have benefited from the information supplied.—I am, etc.,

London, W.1, Sept. 21st. CECIL A. JOLL.

SIR,—You have from time to time published in your columns letters critical or condemnatory of the voluntary hospitals' out-patient departments. Your correspondents have found reason to complain, now that their patients, if seen, have been returned without information, now that their interesting clinical material has been permanently appropriated, and that even their daily bread has been jeopardized as a consequence. With the authority of many years as assistant and full physician in London general hospitals, I have more than once been tempted to write in relation to these complaints. I have hitherto refrained, from a reluctance merely to retort and be unable to supply any constructive remedy. But Dr. W. M. Penny's letter in your last issue encourages a sympathetic response, and I hope I may be permitted to encroach on your valuable space.

I often wonder if all general practitioners realize the nature of the material which floods our out-patient departments. Whilst a comparatively small number of cases presenting diagnostic difficulty are sent up for an opinion, including special investigation, the majority are chronic sufferers, generally social misfits. Some are sent to hospital as a convenient dumping ground. In the majority of such cases they arrive without an introductory note of any kind; they have simply been told to go to hospital, an action equally discourteous to the hospital and the patient. An appeal to the almoner by a conscientious physician initiates a wearisome and profitless argument, so that the overworked doctor soon learns to shrug his shoulders and give up protesting. Other chronics arrive on their own account; they find it less expensive to obtain a considerable supply of medicine for a couple of shillings than to continue to attend their practitioners. Most unhappily, hospital boards are too much impressed by the advantage of numbers to sympathize with any suggestion for the drastic reduction of out-patients. At any rate, no out-patient physician is amused at the indictment of voluntarily adding to his burden by encouraging the continued attendance of any individual.

Utilizing the out-patient department (as, of course, it should be utilized) exclusively for consultative purposes, general practitioners very properly expect a report upon any patient sent for an opinion. I estimate that in the course of ten years I have returned patients with such opinions in nearly 2,000 instances. During those ten years I have received less than a dozen acknowledgements. I have long since ceased expecting any expressions of gratitude, and their absence in no way inhibits me from continuing what I believe to be a primary obligation of my office. But I cannot help reflecting that there is some excuse for those of my colleagues who are reproached for their epistolary deficiencies. After all, the patient sent to hospital for a consultation is entitled to precisely the same professional treatment as if he had been sent privately to the consultant's house. But when one recalls that a patient has been seen actually under far better clinical conditions than would have been possible in private, one might expect more evidence of appreciation than is generally forthcoming. We grant that the patient pays his way by providing clinical material from which the hospital physician derives his experience, and upon which he can teach. The consultant clearly pays his way; but the general practitioner, who is so often the complainant, ought to realize that he, too, is a party in the transaction. I am tolerant in remembering that the majority of doctors—all very good fellows—would rather be fined a guinea than write a letter; but in this respect consultants and practitioners are in the same boat. And when the general practitioner has given a mere oral direction to a patient to go to hospital and sends no introduction or preliminary information, and yet expresses resentment at receiving no report, I can only mildly expostulate that he expects too much.

Dr. Penny in the present instance exonerates the out-patient department, but complains that he is generally left in absolute ignorance of the treatment received by any of his patients admitted to the wards. As he very clearly points out, a proper co-ordination would be very much to the patient's advantage, would greatly assist his practitioner, and would even (indirectly) profit the consultant. The advantage of a report being automatically transmitted is obvious: the difficulty is to decide who is to be responsible for it. Dr. Penny is advocating no innovation. At one of the hospitals with which I am associated an attempt is being made to introduce such a system. The seniors on the staff treat the scheme and its enthusiasts with good-natured ridicule. They tell us that ever since there was a hospital there have been recrudescences of similar reforms. It is perfectly true, as Dr. Penny says, that only if the hospital consultant is a personal friend can he expect to receive direct information; and not always then, I should say. In the large majority of cases the consultant has no such association or intimate interest, and naturally sees no reason to make inquiries and ensure the transmission of information. Shall the resident be responsible? He will not willingly add the burden of gratuitous correspondence to his multifarious duties. Where there are registrars some automatic arrangement might be in force, and yet so far nothing seems to work. Dr. Penny's picture of the medical history sheet accompanying every patient, as in military practice, seems ideal. But what would happen if the form is lost by the patient? Has even so highly disciplined a nation as the Germans been able to adopt such a universal system of registration and indexing?

Here it is that the general practitioner should help. He should always (not sometimes) display his interest in his patient by writing for information. Dr. Penny may reply that on occasion he has written and received no reply. To this I would answer that it is then his duty to write to the physician or surgeon in charge and complain that he has received no reply. I personally—and I trust I speak for all my colleagues in similar position—would never hesitate most strictly to reprimand a resident in his omission to perform what is a fundamental obligation.

Does it not seem that making rules and regulations is less likely to produce the desired result than a determination for all concerned privately to undertake what is only to be expected among colleagues?—I am, etc.,

September 21st. A CONSULTING PHYSICIAN.

TONSIL AND ADENOID OPERATIONS IN HOSPITAL PRACTICE.

SIR,—Nothing in surgery or medicine permits of one dogmatic opinion. Your correspondents, if they are permitted by the hospital authorities to exercise their judgement—and, what is of more value, put it into effect at hospital—can conscientiously in one case send a child home on the same day of operation and in another case insist on admission to the wards.

In private practice all throat surgeons perform the majority of tonsil operations on children at the child's home. Under the following conditions I consider it a safe and reasonable procedure for children to be sent home on the same day.

1. If the child's home is suitable. This the lady almoner department can easily report on previously.

2. If, in addition, a suitable conveyance is supplied. A hospital ambulance should be at the disposal of these cases. I have witnessed parents bundling their child, fresh from operation that day at the hospital, into a crowded tramcar to take them home. It is revolting circumstances of this nature that drive critics to the extreme of "admit all cases of tonsil operations." A small provision of this nature in the way of adequate ambulance accommodation would go far to remove this blot on hospital administration.

3. Never perform tonsil operations on children as out-patients in inclement weather. I have on many occasions —to the disgust of the nursing staff and the children's parents—declined to operate when the weather conditions were unsuitable, and have sent all the patients home. The natural corollary to this, of course, is only to operate on out-patients during the summer. During the last two years I had the privilege of assisting Mr. E. A. Peters and Mr. Wharry at the Bolingbroke Hospital, and can support Mr. Wharry's contention that it does *not* want a large number of cots to cope with a large number of out-patients, providing the operating days are spaced properly.—I am, etc.,

London, W.1, Sept. 21st. N. ASHERSON.

SIR,—The Laryngological Section's resolutions as to precautions in tonsil and adenoid operations were published in the *Proceedings* of the Royal Society of Medicine, Section of Laryngology, for 1921–22 (vol. xv, p. 29)—not 1929, as it appears in my letter in the *Journal* of September 21st (p. 557). I apologize for this error, which is important as showing how many years have passed without those recommendations being uniformly enforced. One particular resolution in point reads thus:

"That all patients requiring operations for tonsils and adenoids should have in-patient institutional treatment, and that a stay of at least forty-eight hours should be insisted on, and a further stay if thought advisable by the medical officer in charge."

The subject was first raised by Mr. Douglas Drew in your issue of November 1st, 1919 (p. 577), and a lengthy correspondence in your columns followed the publication of an article by E. Watson-Williams on "The risks after operation for tonsils and adenoids in outdoor clinics" (*Journal*, December 11th, 1920, p. 887). Furthermore, we had the cordial support of your leading article on "Operations on tonsils and adenoids in outdoor clinics" (January 29th, 1921, p. 167), in which the whole subject was reviewed and the various methods discussed by which the necessary beds could be provided when voluntary hospitals could not find adequate accommodation.

It would appear needful for the Ministry of Health and educational authorities to insist that when children are referred by their medical officers for treatment the various clinics in which their children are submitted to operation should conform to the conditions authoritatively recommended as essential for safety where such operations are to be performed. It seems absurd to blame hospital committees if the medical profession complacently acquiesces in these abuses.—I am, etc.,

Bristol, Sept. 23rd. PATRICK WATSON-WILLIAMS.

SALT DEPLETION BY SWEATING.

SIR,—The correspondence on this subject raises once more the question of medical "fashions." Certainly a few years ago we were told how bad a thing sodium chloride was: in all cases of renal dropsy salt must be cut out of the dietary. Further than that, for the healthy, it was much better to take potassium chloride than sodium chloride, and I remember doctors saying that their salt cellars were now filled with the potash salt. Some years ago I read a paper on "sea water infiltration," and I ascribed the good it did in cases of neurasthenia to the replacement of the *calcium* chloride which, I thought, was low in cases of that complex. I also drew attention to the similarity in composition and proportion between sea water and Ringer's solution. I wrote to the late Professor Bayliss on some points connected with the potassium, sodium, and calcium salts, and he replied (March, 1919): "Sea water, as you say, has a proportion between its salts about the same as Ringer's solution, but it is much more concentrated. . . . There is some evidence that chlorides are essential to the normal functions of the nervous system, and it may be that this is the explanation of the effect of sea water in your cases. If so, it might be useful to give sodium chloride by the mouth in more than the usual quantities." Perhaps it may be that, after all, it is not the metal but the halogen that counts.—I am, etc.,

Bournemouth, Sept. 15th. GEORGE MAHOMED.

X-RAY DEPARTMENT DANGERS.

SIR,—In his letter on September 7th (p. 478) Dr. Bernard Leggett claims to have been the first to use valve-rectified *x*-ray apparatus in private practice "quite eighteen months ago, before any valve *x*-ray apparatus was manufactured in England." I wonder if he is correct in making this claim?

I installed a British-made four-valve transformer in 1926, and have been using it constantly since then. The maker (Schall) was, I think, of opinion that this was the first machine of this type "made in England." I soon discovered that, when using heavy currents with excessive "line drop" due to overloaded mains, one of the valve tubes emitted *x* rays; I admit that it was several months before we discovered the source of these rays and how they were produced.

Dr. Leggett mentions the absence of noise as the only advantage the valve apparatus has over that with mechanical rectification. He surely is forgetting the absence of moving parts, which eliminates attention to bearings and the possibility of the rectifier getting out of phase.—I am, etc.,

Glasgow, Sept. 9th. JAMES R. RIDDELL.

SIR,—It is evident from Dr. Leggett's letter that he has not read Dr. Finzi's article in the July issue of the *British Journal of Radiology*; if he will do so, he will realize that many of his remarks are uncalled for.

Dr. Finzi was one of our early workers; his experience of machines and his knowledge of their physics are probably second to none in this country. He has pointed out a real danger in the use of thermionic valves if the "backing-up" of current from the main is not sufficient to prevent a drop in the filament current when large and sudden draws are made; he also defines the remedy.

Dr. Leggett is quite right when he says that "the mere possession of an *x*-ray apparatus does not constitute a radiologist"; nor does a mere knowledge of physics. A very long experience is also necessary, with a sound knowledge of pathology, medicine, and surgery.—I am, etc.,

Leeds, Sept. 9th. LEO. A. ROWDEN.

REACTIONS FROM SERUM PEPTONE.

SIR,—From time to time medical men write to me to say that my serum peptone preparation, described in the *British Medical Journal* on June 1st (p. 990) in connexion with the treatment of asthma, has produced a reaction in their patients. Sometimes this reaction is considerable. Occasionally, in persons sensitive to peptone, the substance itself produces a reaction. Many medical practitioners think the reaction, even if mild, an unfavourable sign, but with this view I cannot agree. Certainly it is well to avoid a reaction at first, but if after eight to ten injections there is but little improvement, some reaction is desirable (99.5° to 100.5° F.), especially in adult and elderly persons. Several such mild reactions may greatly benefit the patient.

I may here say that it is not necessary to add the minute quantity of agar to the serum. Prepare the serum in this way: add to a four or six ounce glass tube half an ounce of glycerin, and revolve it in the corked tube all along. Then invert the tube and let the glycerin drain out for twenty minutes or so. The glycerin in the tube prevents the blood sticking to its sides in places, as sometimes occurs. Next day pipette off the clear serum into another tube, and add 24 grains of Armour's No. 2 peptone to an ounce. This is not peptone siccum. Shake up and incubate for two or three hours, when the peptone will be dissolved and the mixture clear. It is also alkaline.

Add 10 drops of chloroform to the ounce (4 drops= 1 minim). If a reaction follows the use of this serum peptone it will be much less than that caused by the agar serum; but a reaction may be produced if the peptone or serum peptone is not given sufficiently slowly. Mix 0.5 c.cm. serum peptone with some glycerin and water (4 minims), and inject intravenously very slowly. Increase by 3 minims each time; should a reaction occur too soon do not increase the dose next time. Go up to 2.5 or 3 c.cm. It is advisable always to begin with plain peptone intravenously, and give it a good trial before turning to serum peptone; eight weeks or longer may be required for such a trial. Some cases do all right on peptone, but, in a good many, other methods of treatment must be adopted; they were mostly mentioned in my paper in the *Journal*.—I am, etc.,

London, W.1, Sept. 10th. A. GUNN AULD, M.D.

TREATMENT OF SNAKE BITE.

SIR,—I was interested in the two articles on snake bite in the *Journal* of September 7th (pp. 461 and 470). I have been doing hospital work in India from 1892 until the end of last year, with several furloughs. Before the introduction of the permanganate treatment, besides incision and a continuous hot boric bath, I used hypodermic injections of strychnine, and in cases brought to hospital I had no chance of seeing the snake, which was always described as poisonous—a cobra or karait.

I was called down at 11 o'clock one night to a woman bitten on the thumb and who had only come a very short distance. After incision I injected 20 minims of liq. strychninae and repeated the dose after ten minutes as her pulse was still bad. After another ten minutes I gave a further injection of 10 minims, and thought, as I went up to bed, that if she had not been bitten by a really poisonous snake I might be called down for strychnine poisoning. The next morning, however, I found the woman quite well and happy. Some of the patients were carried in comatose, but every one I had recovered. As soon as antivenene was introduced I gave up the permanganate treatment and adopted that.

I think in many cases the snake may not have been a poisonous one, but the following incident made me cautious. A doctor whom I knew was consulted by a woman who said she had been bitten two hours before by a poisonous snake; as she showed no signs of any disturbance, no treatment was given, but when the doctor returned after visiting an outside case the woman was dead. So even when I was not sure that the snake was poisonous, I treated the patient as if it were, for Indians are quite capable of dying from fright.—I am, etc.,

London, S.E., Sept. 7th. J. M. C. GRAY.

Obituary.

JOHN MALLET PURSER, M.D., D.Sc., F.R.C.P.I.,

Late Regius Professor of Physic, Dublin University.

WE regret to record the death, in his ninetieth year, of Dr. J. M. Purser, formerly Regius Professor of Physic in the University of Dublin, which took place at his residence, Mespil House, Dublin, on September 18th.

John Mallet Purser was the son of Benjamin Purser; he was the brother of Dr. Louis C. Purser, who was vice-provost of Trinity College until his resignation a few years ago, and of Miss Sarah Purser, who is a well-known authority on stained glass in Ireland and on the Continent. At an early age John Purser entered Trinity College and graduated B.A. in 1860. During his Arts course he was a medical student in the Carmichael School of Medicine, which was subsequently absorbed by the Royal College of Surgeons, Ireland. In 1863 he obtained the licence of the Royal College of Surgeons, *and in 1865 he became a licentiate* of the Royal College of Physicians; nine years later he graduated M.D. in the University of Dublin.

In 1869 Dr. Purser was appointed professor of anatomy and physiology in the Carmichael College, and lecturer in ophthalmology in Dr. Steevens' Hospital. After acting for a short time as surgeon to the Royal City of Dublin Hospital he became its physician in 1871, and three years afterwards he was appointed professor of physiology in the medical school of Trinity College; as the result of this appointment he became visiting physician to Sir Patrick Dun's Hospital. Dr. Purser was elected a Fellow of the Royal College of Physicians, Ireland, in 1876, and held office as censor in 1885, and he was for many years an examiner in physiology and histology for the conjoint scheme of the Irish Royal Colleges. As a lecturer in the medical school of Trinity College he was considered to have few equals. It was Purser who first taught pathology in the medical school of Trinity College, and inaugurated a voluntary class in this subject without fees in the medical school. As a physician he acted as the pioneer of the newer therapeutical principles, and was among the few medical men at the time in Dublin who introduced really scientific methods in the treatment of disease. He resigned the professorship of physiology in 1901, and retired into private life. However, owing to the death in 1917 of Professor James Little, the appointment of regius professor in the medical school of Trinity College became vacant, and he was invited by the Board of the College to accept the appointment; this he did, and held the professorial chair until 1925, when he resigned owing to failing health. On his resignation as professor of physiology in 1901 the pupils of his classes decided to commemorate the term of his office; they founded the John Mallet Purser Medal, which is now awarded to the student who gains first place in physiology at the second M.B. examination.

The publications of Professor Purser were few, but his *Manual of Histology and Histological Methods* was much valued during his time; although now out of date and print it is still looked upon as a book of much merit. Apart from his work in the medical school Dr. Purser practised very little, but in difficult cases his opinion as a diagnostician was much sought after by the leading physicians of his time. Some years ago he gave £10,000 to be administered for the benefit of the school of physic and the schools of experimental and natural science in Dublin University. Dr. Purser never married; he travelled a great deal, and took a keen interest in different aspects of music.

CHARLES A. MORTON, O.B.E., F.R.C.S.,

Emeritus Professor of Surgery, University of Bristol; Consulting Surgeon, Bristol General Hospital.

MR. CHARLES ALEXANDER MORTON, whose death, while on holiday in Switzerland, was announced in a recent issue, retired from hospital practice in 1925, after having served for twenty-eight years as professor of surgery at University College, Bristol, and the University of Bristol, for twenty-seven years as surgeon to the Bristol General Hospital, and for twenty-five years as surgeon to the Bristol Children's Hospital. He was also consulting surgeon to the Cossham Memorial Hospital. Nearly the whole of his active professional life was thus closely associated with medical institutions in the city where he was born in 1860. His father, John Morton, was for many years superintending surgeon for the Madras Presidency in the East India Company's service.

From Clifton College Charles Morton went to St. Bartholomew's Hospital, where he had a distinguished student career, winning a Brackenbury medical scholarship and serving later as house-physician. He obtained the M.R.C.S. and L.R.C.P. diplomas in 1881, and later held resident appointments at the Stanley Hospital, Liverpool, the Cumberland Infirmary, the Manchester Children's Hospital at Pendlebury, and the Leicester Infirmary. He became F.R.C.S.Eng. in 1889, and shortly afterwards returned to Bristol, and on his appointment as surgical registrar began his long connexion with the General Hospital. In 1893 he was appointed assistant surgeon to that hospital, and four years later was elected to the professorship of surgery at University College, Bristol. The thoroughness and attention to detail for which Morton was noted as an operating surgeon were equally conspicuous in his work as a teacher in the wards and lecture theatre. For a large part of the war he served with the rank of major, R.A.M.C.(T.F.), as

surgeon to the Beaufort War Hospital, and in recognition of this work was created O.B.E. (military) in December, 1919. During his years of active practice Morton contributed many papers on surgical subjects to the *Lancet*, to the *Bristol Medico-Chirurgical Journal*, and to our own pages.

Morton's interest in hospital work and the problems of hospital administration did not cease when he relinquished his duties as hospital surgeon and teacher. He became a member of the Bristol Board of Guardians, and, as our correspondence columns have lately testified, he applied his mind with characteristic energy to the new situation which will arise under the Local Government Act of 1929, when Poor Law functions are transferred to county councils and county borough councils. In particular, he advocated the setting up of a special committee for each area to deal with all forms of the treatment of disease, and he was strongly of the opinion that, in order to bring the transferred Poor Law hospitals up to the standard of the voluntary hospitals, the relationship of the patients to a staff of specialists must be the same in those institutions as in the voluntary hospitals.

EDWARD PETRONELL MANBY, M.D., D.P.H.,

Medical Officer to the Ministry of Health.

WE regret to record the death of Dr. E. P. Manby, on September 20th, at his residence in Kensington.

Edward Petronell Manby was born in 1864, and received his medical education at Cambridge and Guy's Hospital. He obtained the diploma M.R.C.S. in 1886, and in the following year graduated M.B., B.Ch.Camb. He proceeded M.D. in 1891, and became D.P.H.Camb. three years subsequently. Among the appointments he held were those of resident medical officer to the Fountain Fever Hospital of the Metropolitan Asylums Board, assistant medical officer of health to the city of Liverpool, examiner in public health in the Universities of London, Liverpool, and Leeds, and, finally, medical officer at the Ministry of Health. For some years Dr. Manby was a member of the British Medical Association, and was honorary secretary of the Section of State Medicine at the Annual Meeting held at Ipswich in 1900. He was also a member of the Middle Temple.

We are indebted to Dr. F. N. KAY MENZIES, medical officer of health and school medical officer, London County Council, for the following appreciation:

The sudden death of Dr. E. P. Manby is an irreparable loss to the Poor Law medical service, especially of London. It is made doubly so by the fact that his old friend and colleague Dr. Meredith Richards was compelled to resign his position at the Ministry of Health in the spring of this year owing to serious illness. Manby and Meredith Richards knew more about Poor Law medical work than almost any other medical man in existence, and therefore the fact that they have both been lost to the service within the last few months is nothing less than a national misfortune, more especially in view of the coming into operation on April 1st next of the Local Government Act, 1929. At a time like this their wide and matured experience, wise discretion, and sound judgement would have been of incalculable assistance to all those medical officers of health who will shortly be called upon to undertake great and onerous responsibilities in connexion with the transfer of the Poor Law medical work to public health authorities. It would be quite impossible for me to give adequate expression to the deep debt of gratitude which I, personally, and, I am confident also, all the medical superintendents of the Poor Law infirmaries of London, feel was due from every one of us to Manby. It was my great good fortune to spend many weeks during the first six months of this year in visiting with him all such infirmaries and Poor Law institutions in London. His knowledge and experience of Poor Law medical problems in the metropolis was both profound and intimate, based as it was upon many years of close study and active work in connexion therewith. It is easy, therefore, for anyone to appreciate what an enormous help he was to me personally during these visits, and in the many conferences we had together. He was held in the highest possible esteem by all the medical superintendents of the London infirmaries, by whom his loss will be very deeply and sincerely regretted. His duties were often of a most difficult and trying nature, requiring immense tact, patience, and wisdom; everyone who knew him will agree that he exhibited these qualities to a superlative degree in all his work. He was always easily accessible, always ready to help, and could always be counted upon to give of his best in any direction which might be helpful to his colleagues. His loss, therefore, at this time of all times is a real disaster to everyone concerned with the Poor Law medical service, especially of London. The heartfelt sympathy of all his friends and colleagues will go out to Mrs. Manby and their only child, Jack, now at Westminster School.

We regret to record the death, in his eighty-fourth year, of Dr. W. R. SPEIRS, which took place on September 5th at his home in Ainsdale, near Southport. William Robert Speirs received his medical education at the University of Glasgow, where he graduated M.B. (with commendation) in 1867 and C.M. in 1870. In the old Royal Infirmary he served under Lister, and was his prizeman in clinical surgery. After occupying for some time posts as ship surgeon, Dr. Speirs settled in Haltwhistle, Northumberland, in which district he practised for over forty years. He was the first medical officer of health for the Haltwhistle Rural District Council, and held appointments as medical officer to the Gilsland Convalescent Home and as honorary medical officer to the Plenmellor Industrial School. He was an active worker on behalf of the St. John Ambulance Association. On his retirement he went to live in Ainsdale, where he soon identified himself with local affairs, becoming a member of the town council, a position which he occupied for thirteen years. So deeply were his services appreciated that he was offered the office of mayor of Southport, but owing to his advanced age he had to decline the honour. He is survived by three sons and four daughters.

We regret to record the death, at the early age of 32, of Dr. JOSEPH WOOD BALNAVES, which took place in Aberdeen on September 11th. He received his medical education at the University of Aberdeen, where he graduated M.B., Ch.B. in 1923. He held an appointment as honorary physician to the Tarporley and District War Memorial Hospital, and was a member of the British Medical Association and of the Chester County Panel. We have received the following appreciation from Dr. T. W. E. Moreton, with whom he was in general practice in Cheshire. "Joe" Balnaves, as everyone called him, was brought up in Aberdeen, but was a living contradiction of the alleged hardness of her sons. Generous in his life, he met death bravely after a happy and all too brief career. His athletic prowess was shown early at Aberdeen University, where in 1920 he gained a full "blue." During the war he held a commission in the Gordon Highlanders, and was wounded in France in 1916. A severe shrapnel wound of the leg kept him disabled till 1918. Twice he was on the operating table to have his leg amputated, but each time he was sent back in the hope that the limb might be saved. This hope was mercifully realized, and Balnaves, though dreadfully pulled down by septicaemia, was able to resume his studies at the university. He had a finely developed artistic sense, and in his small but growing library could be found the latest good work in prose and poetry; he was also an excellent amateur actor. Two years ago he married Miss Marion Macdonald Symons, who nursed him constantly since his final breakdown two months ago. An operation for carcinoma of the stomach, from which he recovered with marvellous rapidity, indicated, however, that his life was destined to be a short one. Going for his holidays at the beginning of July, he drove his car himself from Cheshire to Aberdeen, but a few days later he showed symptoms of a serious nature which developed in spite of all treatment, medical and surgical. Three years of pleasant association with him in partnership at Tarporley taught me something of his sterling qualities. What his future might have been none

can tell, but he had made his mark among his patients and friends. He was laid to rest at Allenvale Cemetery, Aberdeen, but we, his friends, will remember that, as William Penn wrote: "Tho' death be a dark passage, it leads to immortality, and that's recompense enough for the suffering of it."

We regret to record the death, in his eighty-first year, of Dr. LEWIS MARSHALL, which took place on September 12th at Cheltenham. Dr. Marshall received his medical education at Bristol and Aberdeen, qualifying M.R.C.S.Eng. in 1870 and L.S.A. in 1872; in 1871 he graduated M.B., C.M.Aberd. with honours, proceeding M.D. in 1874. Shortly after his graduation he proceeded to Nottingham, where he held an appointment as house-surgeon to the General Hospital; later he engaged in private practice as specialist in diseases of children, and in 1877 he was appointed honorary physician to the Nottingham Children's Hospital. In 1909 he became consulting physician to the hospital, and occupied this position till his retirement from practice about seven years ago. Lewis Marshall was an active member of the British Medical Association; in the course of his professional career he was president of the Midland Branch, and when the Association held its Annual Meeting at Nottingham in 1892 he was president of the Section of Diseases of Children. He had also held the position of president of the Nottingham Medico-Chirurgical Society. He is survived by a widow, one son, and two daughters.

We regret to record the death, in his fiftieth year, of Mr. ROBERT TOWNLEY SLINGER, which took place on September 10th. Robert Townley Slinger was born in Manchester, and received his medical education at Owens College. In 1903 he graduated M.B., Ch.B.Viet. with honours, and then held in turn appointments as senior resident medical officer to the Manchester Children's Hospital at Pendlebury, and house-surgeon and accident house-surgeon to the Royal Infirmary, Manchester. With the late Sir Victor Horsley he conducted an investigation of orientation in points of space by the muscular, arthrodial, and tactile senses of the upper limbs; a joint paper recording the results of this work appeared in *Brain* in 1906. In 1908 Slinger became a Fellow of the Royal College of Surgeons of England, and a year later he joined the late Mr. T. P. Gostling in partnership at Worcester. He was appointed honorary anaesthetist and surgical pathologist to the Worcester General Infirmary in 1910. During the great war he served in France as surgical specialist, but owing to the ill health of his partner he had to resign his commission in 1917 and return to civilian practice. In 1918 he was appointed honorary surgeon to the Worcester General Infirmary. Robert Slinger was a keen member of the British Medical Association, and for some time was a member of the Executive Committee of the Worcester Branch. He was a Freemason. One of his colleagues sends the following appreciation: The death of Mr. Slinger at the early age of 49, when he might have been expected to use his exceptional skill for many years longer, has left his professional brethren, his patients, and his many friends with a feeling of deep sorrow and an acute sense of personal loss. This loss is so great, not only on account of his ability as a surgeon, but of his personal charm and his high standard of honour, which he always maintained in his relations with his fellow practitioners. During his twenty years of practice at Worcester he had shown himself untiring in his efforts to relieve the sufferings of all classes of the community. He was a man whom everybody appreciated and many loved; a great number of his patients were his personal friends, to whom he was of unfailing help in all their troubles. Slinger was ever ready to help a sick colleague, not only in treating his ailment, but in looking after his patients. Seven years ago, and again five years ago, he had serious illnesses, which undoubtedly lowered his resistance to infection. It was the heavy work entailed by the influenza epidemic of last spring which caused his last illness and his death; for although he was far from well, his sense of duty made him work until he broke down. He is deeply mourned and sincerely missed by all who knew him.

The following well-known foreign medical men have recently died: Dr. EDOUARD LONG, professor of neurology at Genéva; Professor ARNDT, director of the University Skin Clinic of Berlin, aged 55; Professor C. O. GÜNTHER of Berlin, an authority on public health, aged 74; Dr. EUGÈNE DEVEZ of Mons, president of the International Association against Tuberculosis and of the National Belgian League for Combating Tuberculosis; Dr. SAMUEL WALTER KELLY, professor of children's diseases at the Cleveland College of Physicians and Surgeons from 1893 to 1910, and author of *Surgical Diseases of Children*, of which the third edition has just been published; and Dr. JARKOWSKI, an eminent neurologist of Warsaw.

Universities and Colleges.

UNIVERSITY OF LONDON.

UNIVERSITY COLLEGE.

THE session 1929-30 opens on Monday, October 7th. Students of the Faculty of Medical Sciences will be received by the Provost and Dean on that day as follows: First-year students, between 10 a.m. and 1 p.m.; students of later years between 2.15 and 4 p.m.

Public lectures that have been arranged for the first term include the Rickman Godlee Memorial Lecture, by Viscount Grey of Fallodon, on November 7th, at 5.30 p.m.; "Medicine in the days of Shakespeare," by Dr. Herbert Spencer, on November 25th, at 2 p.m.; four lectures on "Secretion of the digestive juices," by Dr. R. J. Brocklehurst, on October 14th, 21st, and 28th, and November 4th at 5 p.m.; and three lectures on "Chemical forces an[illegible] Professor K. Fajans of the University of [illegible] and 18th, at 5.30 p.m. Particulars of [illegible] may be had on application to the secretary, University College, London, W.C.1. A stamped addressed envelope should be enclosed.

The following elections in the Faculty of Medical Sciences of the College have been made: Buckuill Scholarship (160 guineas), K. C. Eden; First Exhibition (55 guineas), A. G. Hounslow; Bursary (£25 a year for two years), I. Doulach; Epsom Scholarships, C. C. H. Harvey and D. Joy.

[illegible]ised

[illegible]OSTIC. GUY'S HOSPITAL MEDICAL SCHOOL.

[illegible]his [illegible]g awards have been made:

THE following Scholarship (£100).—H. A. Treble.

War Memorial Scholarship (£80).—Divided between C. A. Clarke and S. M. Silverstone.

Open Senior Science [illegible]

[illegible] OF SURGEONS OF ENGLAND.

ROYAL COLLEGE OF S[illegible]strations.

Museum Demonstrations.—[illegible] specimens in the Museum [illegible]ge, Lincoln's Inn Fields, will be given in the theatre of the College by Sir Arthur Keith [illegible] W.C., at 5 p.m. on Fridays and Mondays, [illegible] ient and modern, on demonstrate specimens of trephining, ancestral, congenital and [illegible]ilities in the sacro-October 18th; dislocations of the hip-joint [illegible], Wakeley will acquired, on October 25th; and spinal deform[illegible]re the brain on [illegible] region, on November 1st. Mr. Cecil P. G[illegible] November 4th, demonstrate specimens illustrating tumours of [illegible] practitioners, October 21st, calculi on October 28th, and cysts on N[illegible]s.

The course is open to advanced students and medical p[illegible]

The Services.

ROYAL ARMY MEDICAL CORPS.

MAJOR-GENERAL SIR ALFRED P. BLENKINSOP, K.C.B., C.M.G. [illegible] has been appointed Colonel Commandant, Royal Army Medical Corps, in succession to Major-General Sir M. W. O'Keeffe, K.C.M.G., C.B.

DEATHS IN THE SERVICES

Lieut.-Colonel John Robert Mallins, O.B.E., J.P., R.A.M.C. (ret.), died in Queen Alexandra's Military Hospital, Millbank, on July 23rd, aged 69. He was born on July 6th, 1860, and educated at Trinity College, Dublin, where he graduated as B.A. in 1882, and subsequently as M.B. in 1895. Entering the army as surgeon on August 2nd, 1884, he became lieutenant-colonel after twenty years' service, and retired on December 14th, 1904. After retirement he was employed as medical officer of the Military Prison, Gosport, from 1906 to 1908. He served in the Sudan campaign of 1885-86 in the Egyptian Frontier Field Force, receiving the medal and the Khedive's bronze star; and in the South African war from 1899 to 1902, when he took part in the battle of Colenso, the relief of Ladysmith, and the action of Spion Kop, also in operations in Natal and in the Transvaal, was twice mentioned in dispatches—in the *London Gazette* of February 8th, 1901, and July 29th, 1902—and received the Queen's medal with three clasps and the King's medal with two clasps. He rejoined for service in the recent war of 1914-18, from August 8th, 1914, when he received the O.B.E.

Medical News.

AT the opening of the winter session of Guy's Hospital Medical School on October 1st, at 3 p.m., Sir Humphry Rolleston, Bt., will distribute the prizes and address the first meeting of the Physical Society on "Medical societies as an educational factor."

THE formal opening of the new session of the Birmingham University Faculty of Medicine will take place in the Medical Theatre on Tuesday, October 1st, at 4.30 p.m. Prizes will be presented to successful students by Sir E. Farquhar Buzzard, Bt., who will afterwards give an address on "Arrogance and ignorance in medicine."

AT the opening of the winter session of the University of Durham College of Medicine on Friday, October 11th, the Duke of Northumberland, Chancellor of the University, will deliver an address on some scientific theories and their foundations, at 4.15 p.m. A joint dinner with the University of Durham Medical Graduates' Association will be held on the same evening at the Central Station Hotel, Newcastle, at 7.30, when the Chancellor will be the guest; price of tickets 12s. 6d., exclusive of wine.

DR. F. N. KAY MENZIES, Medical Officer of Health, London County Council, will deliver the inaugural address at the opening of the winter session of Westminster Hospital Medical School on Tuesday, October 1st, at 3 p.m. The annual dinner will be held in the evening at 7.30, at Grosvenor House, Park Lane, W.1; Mr. Stanley Dodd, F.R.C.S., will be in the chair.

THE annual dinner of the Charing Cross Hospital Medical School will be held at Gatti's Restaurant, Strand, on Saturday, October 5th, at 7.30 p.m.; the chair will be taken by Dr. J. M. H. MacLeod. The prize distribution will take place at the hospital at 4.30 p.m. on the same day.

THE annual dinner of past and present students of University College Hospital will take place at the Hotel Cecil on Friday, October 25th, at 7.30 p.m., under the chairmanship of Dr. E. A. Barton.

THE seventeenth annual meeting of the National Association of Insurance Committees will be held at the Hearts of Oak Buildings, Euston Road, London, N.W., on October 3rd, 4th, and 5th. The agenda paper includes motions by the County of Worcester in regard to appeals to the Minister of Health under Medical Benefit Regulation No. 38; by Cheshire in regard to investigation of excessive prescribing and the administration of maternity services; and by Durham urging that insurance practitioners should be authorized to order or supply such trusses and other supports as they may consider necessary for insured persons. On the morning of Saturday, October 5th, addresses will be given by Dr. John Hall on "Health education" and by Sir William E. Hart on "Recent legislation affecting public health."

A SPECIAL meeting of representatives of the Middlesex, Kent, Essex, Hertford, and Surrey County Councils, convened by the Essex County Council, is being held this week in the Middlesex Guildhall, Westminster, to consider the problem of the dumping of London refuse. The extent of the problem and the inadequacy of the present methods of dealing with it were graphically indicated by Mr. J. C. Dawes in his *Report of an Investigation into the Public Cleansing Service in the Administrative County of London*, to which we drew attention in a leading article in our issue of April 20th (p. 734).

THE annual general meeting of the Smoke Abatement League of Great Britain will be held on October 4th at the Palace Hotel, Buxton, and on the following day a joint meeting will be held with the Coal Smoke Abatement Society for the purpose of inaugurating a new body to be formed by amalgamation of the Society and the League. Hitherto the former has worked chiefly in London, while the latter has confined its attention mainly to the provinces. It is believed that fusion of the two organizations will greatly strengthen the growing movement against smoke. The central offices of the new body will be in Manchester, and there will also be offices in London and Glasgow. One of its first steps will be the publication of a periodical entitled *Clean Air*, of which the first number will be issued in November at the time of the Smoke Abatement Exhibition in Manchester. All inquiries regarding the conference should be addressed to the Secretary of the Smoke Abatement League of Great Britain, 23, King Street, Manchester.

THE opening meeting of the new session of the St. Pancras Division of the British Medical Association will be held at B.M.A. House, Tavistock Square, W.C.1, on Tuesday, October 1st, at 9 p.m., when Dr. Eric Pritchard will give an address on infant feeding. In view of the importance of the subject to nurses, invitations have been extended to them to be present on the occasion. As will be seen from the list printed in the *Supplement* this week, an interesting programme has been arranged by the Division for the forthcoming session.

THE eighty-eighth session of the School of Pharmacy of the Pharmaceutical Society of Great Britain will open on Wednesday next, October 2nd, at 3 o'clock, when the Hanbury Gold Medal will be presented to Professor Henry Hurd Rusby, M.D., of New York, who will afterwards give the inaugural sessional address.

THE Fellowship of Medicine announces that an all-day course in gastro-enterology will be held at the Prince of Wales's General Hospital, Tottenham, N.15, from September 30th to October 4th. During October several special courses will be held: an all-day course in cardiology at the National Hospital for Diseases of the Heart, October 7th to 19th (strictly limited to twenty entries); an afternoon course in ophthalmology at the Central London Ophthalmic Hospital, October 7th to November 2nd; a course in tropical medicine at the London School of Tropical Medicine on Tuesday and Thursday afternoons from October 8th to 31st; gynaecology at the Chelsea Hospital for Women, October 14th to 25th; diseases of children at Great Ormond Street Hospital, October 14th to 26th, mornings only; a whole-day course in diseases of the throat, nose and ear at the Central London Throat, Nose and Ear Hospital, October 14th to November 2nd, comprising clinical, practical operative, and pathological classes; an intensive course in medicine, surgery, and the specialties at the Metropolitan Hospital from October 21st to November 2nd; and an M.R.C.P. evening course of lectures on Tuesdays and Fridays at 8.30 p.m., from October 15th to December 6th, at the Medical Society of London, 11, Chandos Street, W.1. Copies of all syllabuses and information regarding the general course of work at the associated hospitals can be obtained from the Secretary of the Fellowship, 1, Wimpole Street, London, W.1.

A THREE days' post-graduate course has been arranged at St. Mary's Hospital, Paddington, commencing on Friday, October 4th, at 11 a.m., when Professor F. S. Langmead will lecture on Graves's disease; at noon Dr. T. C. Hunt will deal with recent aids in diagnosis of some common diseases; Dr. Aleck W. Bourne will give a lantern lecture at 2.15 p.m. on the action of certain drugs on the uterus in labour; and at 3.15 p.m. Dr. A. Hope Gosse will give a lantern demonstration concerning diseases of the chest. On Saturday, October 5th, Mr. Duncan C. L. Fitzwilliams will lecture at 10 a.m. on the treatment of malignant disease by radium, with epidiascopic illustrations; at 11 a.m. Sir William Willcox will discuss catarrhal jaundice; at noon Robert Hutchison will give an account of the common dyspepsias of childhood; at 2.15 p.m. Dr. T. G. Stevens will speak on the retention of urine in women; and at 3.15 p.m. Dr. Albert Eidinow will describe clinical methods in light treatment. On Sunday, October 6th, at 10.15 a.m., Mr. R. M. Handfield-Jones will discuss the pitfalls in urological diagnosis; at 11 a.m. Dr. C. M. Wilson will lecture on diabetes; and at noon Mr. V. Zachary Cope will discuss abdominal pain. The meetings will be held in the library of the Medical School, with the exception of the lantern lectures, which will take place in the physiology theatre; they are open to all medical practitioners without fee.

UNDER the auspices of the North Kensington Women's Welfare Centre a conference of doctors in charge of birth control clinics was held on July 10th, for the purpose of interchanging annual reports and discussing various problems relating to the work of the clinics. The following resolution was carried unanimously: "This conference of medical men and women and of the medical officers of birth control clinics throughout the country considers that a regular examination with speculum is an essential before recommendation of a conception-control method; and urges the committees of such clinics to afford facilities to their medical officers to make this examination." At present such examination is carried out systematically at the North Kensington Women's Welfare Centre and, in certain cases, at most other clinics.

THE committee appointed by the Minister of Pensions to inquire into the administration of the Queen Alexandra Hospital, Cosham, Hampshire, held their second meeting on September 16th and afterwards inspected the hospital. They desire it to be known that they are willing to consider any statements relating to the administration of the hospital from patients, ex-patients, or others, and communications should be addressed to the secretary of the committee, Mr. R. Herbert, at 18, Great Smith Street, London, S.W.1.

THE Council of the Royal Institute of Public Health on September 19th completed the purchase of a vacant freehold island site on the north side of Queen Square, Holborn, W.C.1, for the purpose of erecting thereon the new premises of the Institute.

THE first congress of the Latin Society of Oto-rhino-laryngology will be held at Madrid on October 7th, under the presidency of Professor Tapia.

SEPTEMBER 2nd was the centenary of the birth of the celebrated Munich surgeon Johann Nepomuk von Nussbaum (1829–1890), who contributed largely to the introduction of Lister's antiseptic methods into Germany.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to ***The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.***

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The ***TELEPHONE NUMBERS*** of the British Medical Association and the *British Medical Journal* are *MUSEUM 9861,-9862, 9863*, and *9864* (internal exchange, four lines).

The ***TELEGRAPHIC ADDRESSES*** are:

EDITOR of the *British Medical Journal, Aitiology Westcent, London.*

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*

MEDICAL SECRETARY, *Mediscera Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone 24361 Edinburgh).

QUERIES AND ANSWERS.

ABDOMINAL SURGERY AT SEA.

"T. S. S.," a [illegible] to hear of the best book or [illegible] ould suit him in any emerge[illegible] igh seas. The first port of [illegible] there are very few ships [illegible] to relieve his mind somewhat he would like to have such a treatise by him.

PROLAPSE CAUSED BY DYSCHEZIA AFTER LABOUR.

DR. J. R. BAKER (Scunthorpe, Lincs) writes: I have recently had a case which has raised in my mind the question of dyschezia after labour being a common cause, if not the commonest, of rectocele and cystocele. This woman told me that on one occasion, four days after labour, she had great difficulty in defaecating, and that she strained for a full half-hour in her determination to get a passage. She said that she was certain that the discomfort and symptoms of a cystocele, which have had to be relieved by a ring, date from that half-hour of prolonged bearing down. If this is common, what is the best remedy? Instruction to refrain from so doing is the first, but the alternative is not always simple. What is the best aperient for use immediately after labour? The almost universal castor oil seems to me to be physiologically unsound and unnecessary, while liquid cascara sagrada and liquid paraffin are not always effective.

INCOME TAX.

Purchase of Instruments and Books.

"A. W. M. D." has been informed by the inspector of taxes that cost of purchasing instruments and books cannot be allowed unless incurred by way of replacement. But some of the income tax books which he has consulted appear to treat all purchases as allowable expenses.

*** The question is primarily governed by statute. The rules applying to Schedule D, as laid down in the Income Tax Act of 1918, prohibit the deduction of "any sum employed . . . as capital in such . . . profession," and it is undeniable that the cost of the original equipment or of improving, as distinct from maintaining, that equipment is an outlay of capital. The authorities which "A. W. M. D." has consulted have apparently assumed that this fundamental principle is understood, and the expenditure on instruments to which they refer must be that incurred in renewals and repairs. Presumably—though the question is not free from doubt—periodicals and books purchased merely to keep a practitioner's medical library up to date would be allowed; the point has not been contested in the courts, though in the case of Daphne v. Shaw, heard in 1926, a depreciation allowance was refused for a professional library.

Visitor to the United Kingdom.

"Cocoa" resides abroad and has no residence in the United Kingdom. He inquires as to his position if he visits this country for twelve months—five in one financial year and seven in the next. He derives no income from sources within the United Kingdom.

*** He will not be liable to income tax in respect of the year in which he spends less than six months in this country, but in respect of the second year he will be liable to account for tax on the amount of income received by him in that year. There is no six months' allowance in the second year, but he will be entitled to the usual "personal allowances."

LETTERS, NOTES, ETC.

TONSILLECTOMY AND OLD AGE.

MR. E. C. [illegible] F.R.C.S.Ed. [illegible] writes: At the British Medi[illegible]r, when Dr. F. C. Eve was [illegible]paratus, he mentioned old a[illegible] time ago I was called out to an old lady, 76 years of age, who was running an evening temperature with a fast pulse. [illegible] clinical evidence had shown this to be du[illegible]nder gas and oxygen anaesthesia we [illegible] the [illegible]ethod. She made an uninterrupted [illegible] up out of bed in three days. Whilst [illegible] hat operation is not feasible in every case of septic tonsils in old people, yet this case illustrates that age in itself is not necessarily a contraindication to tonsillectomy. By a coincidence I removed her great-grandson's tonsils and adenoids on the same day.

THE PHENOL CONTENT OF LYSOL.

THE products marketed as lysol and lysol solution differ so much in their phenol content that error is likely to arise if medical practitioners ordering them fail to specify exactly which they intend their patients to use. Only registered pharmacists are entitled to sell lysol, which, according to a decision given by Mr. Graham Campbell at Bow Street police court in 1925, must be standardized to contain approximately 50 per cent. of phenols. On the other hand, the product sold in some retail shops as lysol solution may contain no more than 3 per cent. of phenol and its homologues.

THE ART OF PRESCRIBING.

DR. F. L. SPALDING (Worcester), in the course of a letter, writes: Your timely leader on "The decline of the art of prescribing" will be greatly appreciated by general practitioners who are actively engaged in the treatment of minor maladies and diseases in the early stages, and who are really specialists in this department of the practice of medicine. Men who assert that drugs are of no use, and that the art of prescribing is useless, can never have intelligently studied the matter, probably through lack of requisite knowledge. This aspect of medicine is not adequately dealt with in medical schools to-day. Drugs, I believe, are of the utmost value in the treatment of the early phases of disease, apart from the relief of symptoms, which is so important to the patient. Your leader is of particular value, as it serves to emphasize the danger to which panel patients are subjected by the short-sighted policy of the Ministry of Health, which, by inflicting fines for so-called "excessive prescribing" (which often means that not enough stock mixtures have been prescribed), tends to encourage slackness in this matter.

TREATMENT OF THREADWORMS.

DR. GARRY SIMPSON (London) writes: I have found bismuth carbonate, as suggested by Loeper, a specific. For an adult three doses of 20 grains, at intervals of four hours, and for a child under 7 years of age 10 to 40 grains per dose. The treatment is simple and cure instantaneous.

DIAGNOSIS OF EYE CONDITIONS.

Corrigendum.

DR. G. W. KENDALL asks us to state that the drawings shown by him in illustration of his presidential address on this subject to the City Division of the Metropolitan Counties Branch (*Supplement*, September 14th, p. 141) were kindly lent by Professor Eyre. We take this opportunity of correcting a slip. Line 7, column 2, of our abstract should read *Hypopyon ulcer*, etc., the term *hypopyon* applying here to the sterile exudation found in the anterior chamber in association with corneal ulceration.

EPSOM COLLEGE: SALOMONS ENTRANCE SCHOLARSHIP.

AN error occurred in the notice of this scholarship on September 21st (page 564): the sentence should have read "candidates must have been over the age of 11 and under 14 on January 1st last." It is now announced that applications must reach the secretary of Epsom College (49, Bedford Square, W.C.1) by the morning of Tuesday, October 1st.

A WARNING.

MR. C. [illegible] to warn our readers against canv[illegible] printing. One in particular (he s[illegible] an [illegible] victims, and on no account should [illegible] of any goods ordered; most of my [illegible] "rooked" in sums up to £1 by one gentleman who tells a most plausible tale.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 44, 45, 46, 47, 48, 49, 52, 53, and 54 of our advertisement [illegible]rtnerships, assistantships, [illegible]

A short summ[illegible]rtisement columns appears in the *Supplement* at page *155*.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

262. The Causes of Resistance to Insulin Treatment.
H. F. ROOT (*New England Journ. Med.*, August 1st, 1929, p. 201) reports a case of haemochromatosis in which gradually increasing daily doses of insulin up to 1,680 units in twenty-four hours failed to prevent death in coma. The condition was due to progressive loss of function of the islands of Langerhans; the necropsy revealed destruction of cells in the liver, heart, and elsewhere, but it was most marked in the pancreas in which very little actual pancreatic tissue remained. Although great variations are sometimes observed in the amount of insulin required to reduce hyperglycaemia, so that the term "insulin resistance" seems justified, no instance of true uncomplicated diabetes in which insulin failed to reduce the sugar of the blood or urine has yet been noted. The cases so far observed showing relative resistance to insulin treatment may be classified in respect of the various originating causes as follows: (1) those due to destructive processes in the pancreas causing great limitation of the insulin-producing tissue, as in cancer, haemochromatosis, and acute pancreatitis; (2) those in which complicating diseases of other endocrine glands, notably the thyroid, the pituitary, or the adrenals, or acute infections stimulating such glands to overactivity, exist; (3) those due to complicating disturbance of the liver function, as in cirrhosis, chronic congestion, and syphilis; and (4) those due to disturbances of the function of the skin and muscles either from disease, poor development, or lack of tone. The probable existence in normal muscle of an enzyme which reacts with glucose only in the presence of insulin has been suggested.

263. Ketonuria in Relation to Health.
H. F. HÖST and V. BÜLOW-HANSEN, jun. (*Acta Med. Scand.*, July 2nd, 1929, p. 325), comment on the many divergent opinions regarding the relation of diet to ketonuria. Several authorities deny the possibility of calculating the degree of ketonuria resulting from changes in the composition of the diet. It is generally recognized that ketone bodies may be found in the urine of healthy persons on ordinary diet. The authors determined the degree of ketonuria in twelve diabetic patients on various diets, and also the percentage of ketones in twenty specimens of the total daily urine of fifteen non-diabetic patients taking ordinary diet, in order to ascertain the maximal normal ketonuria. They found appreciable quantities of ketones in almost all the specimens from healthy persons: the daily maximum being 0.3 to 0.4 gram. It is probable that a great increase of ketones in the blood is the main cause of diabetic coma, but it is not known whether a small persistent increase is also injurious. Neither insulin administration nor hyperglycaemia had any direct influence on ketonuria, but an acute febrile infection (angina) caused a great increase in the quantity of ketones. Eight diabetic patients were discharged with more or less increase of ketones (from 0.5 to 3 grams per diem). One was lost sight of; in two other cases the diabetes became worse. One discontinued his special diet; the other apparently did not. After two years the remaining five patients do not show any symptoms of aggravation of diabetes. This is considered by the authors to support the opinion that a small increase in ketonuria is not injurious.

264. Low Basal Metabolism following Thyrotoxicosis.
W. O. THOMPSON and PHEBE K. THOMPSON (*Amer. Journ. of Surg.*, July, 1929, p. 48) have made a study of 66 cases which showed a basal metabolic rate below *minus* 15 per cent. after treatment (surgical, *x*-ray, or iodine alone) for toxic goitre. Only 11 of these patients had signs and symptoms of myxoedema; in 3 the myxoedema was temporary and in 8 presumably permanent. It is considered significant that in one of the temporary cases the myxoedema was shown to be the result of the post-operative administration of iodine. Of the remaining 55 non-myxoedema patients, in 26 the low metabolism was temporary and in 21 permanent; in 8 the type could not be determined. It is shown that the temporary depressions of metabolism, unassociated with myxoedema, were probably due to two causes: a temporary thyroid deficiency, which, because of its short duration, was not detectable clinically; and a transient return to the normal metabolic level of the individual. Permanent low metabolism without myxoedema following thyrotoxicosis appeared in most instances to represent a return to a normal metabolic level, which was probably low even before the development of the disease. The interpretation of the degree of basal metabolic elevation is, therefore, directly affected by the level of the patient's normal metabolism. In most of the patients with myxoedema the basal metabolic rate was below *minus* 25 per cent. In all the patients whose low metabolism could be regarded as normal, the rate was above this figure.

265. The Tuberculin Reaction in Elderly Patients.
A. MÜLLER-DEHAM and HELENE JOKL (*Wien. Arch. f. Inn. Med.*, June 10th, 1929, p. 519) point out how senility affects the reaction to disease. Infections which normally produce violent inflammation, pain, and high temperature are often attended in elderly patients with none of these defence mechanisms. The authors thought that the case would be similar with the results of tuberculin tests, but they found that the reverse occurred. Of 300 patients, mostly over the age of 60, and excluding those who probably had tuberculosis, only 6 per cent. failed to react to Pirquet's test, and the local reactions were exceptionally strong. It was thought that the explanation might be that the senile skin reacted to all irritants more violently, but it was found that intracutaneous injections of saline, morphine, and adrenaline showed no marked differences in respect of the reactions which followed in young and old patients. The authors add that the phenomenon of increased sensitivity to tuberculin in the aged is not confined to the skin, but is a property of the whole organism. Thus in 88 senile patients the percentage who gave a general reaction, and also the intensity of this reaction (increased temperature and respiratory rate), were noticeably greater than in people taken at random.

266. Molluscum Contagiosum in Turkish Baths.
C. G. CROWLEY (*Med. Journ. Australia*, June 15th, 1929, p. 806), who records three illustrative cases, states that Malcolm Morris, Crocker, and Hutchinson drew attention to the association of Turkish baths and molluscum contagiosum in England. Molluscum contagiosum is very rarely encountered in Australia, so that the incidence of three cases in two days recently seen by Crowley at Melbourne is very unusual. In each case the patient had attended the same Turkish bath a week or so before the eruption appeared. The proprietor of the baths was accordingly warned of the necessity of boiling towels, mats, and similar material, and of treating the slabs with steam and disinfectant.

Surgery.

267. A Modified Abdominal Incision.
J. T. MASON (*Arch. of Surg.*, July, 1929, p. 129) describes an abdominal incision which gives greater exposure than any other, and is easy of closure. It is a combination of a longitudinal and a transverse incision, and allows the tension on the scar line to fall on both of the recti muscles instead of on one, the strain of abdominal pressure being exerted on the scar in three different places. For this latter reason the incision is designated a "three in one incision," because, while the abdomen is open, it is one continuous incision, but after closure the effect is that of three distinct suture lines. The incision is begun just to the *left* and below the ensiform cartilage, and is carried downward to the middle of the fascia covering the left rectus muscle. The incision is lengthened downwards along this muscle to within two-thirds of a centimetre of the umbilicus, when it is carried straight across the midline to the right rectus muscle and downward along that muscle for four-sixths of a centimetre. The anterior surface of the *left* rectus muscle is cleared of fat, and the fascia is cleared in the transverse and right rectus incisions. The fascia on the inner third of the left rectus is then split along the length of the incision, and a transverse incision made from one muscle to the other, the fascia on the inner third of the right rectus muscle then being opened. The muscles are rolled outward and the peritoneum is opened behind the *left* rectus muscle; a transverse incision through the peritoneum just above the umbilicus completes the incision, and gives ample exposure for any operation in the upper part of the abdomen. For closure the patient is placed in a flexed position, the transverse incision being closed before the peritoneum is sutured. This suture imbricates the upper and lower flaps securely with two or three mattress sutures; the peritoneum of the upper part of the wound is then closed separately, and the muscles are allowed to drop back into their sheaths, when

the aponeuroses are sutured in the usual manner. It is claimed that this incision lessens the number of post-operative hernias; only a few twigs of nerves need be severed, and no muscle fibres are cut.

268. Carcinoma of the Lung.

W. H. CROHN and B. WEBER (*Med. Klinik*, August 2nd, 1929, p. 1209) point out that whereas of late years the morbidity of tuberculosis has decreased, the frequency of deaths from carcinoma is much greater; this is partly explained by the assistance in diagnosis which is now rendered by *x* ray examination. The authors describe eleven cases of carcinoma of the lung which came under their observation last year; ten of these cases were in men. The ages of the patients ranged from 40 to 71, the mean being 50 years. In all these patients the pain was very variable, but generally slight. In one case in which the ribs were completely destroyed and could be cut like wax, the patient had but little pain and needed only small amounts of narcotic. The temperature assumed two distinct types: some patients were entirely free from fever until one or two days before death, when there was a sudden rise; others had intermittent or remittent fever, and just before death were free from fever. The authors remark that the fever is caused by a flooding of the body with toxin; while the body has strength to make antitoxin the appearance of the fever is delayed; it is always an unfavourable symptom. The toxin is cited as the probable cause of the general illness, presenting symptoms resembling those of the last influenza epidemic, especially stomach disturbances. The sputum in some cases was blood-stained, in others it showed nothing remarkable, and severe haemorrhage was rare. Secondary pleural exudation occurred in some cases, but this was never haemorrhagic. Dyspnoea was variable, but as a rule astonishingly slight. In most cases the growth commenced in the hilus of the lung. Metastases were sometimes absent, but in some cases were present in the liver. The authors urge the importance of early examination by *x* rays as an essential to diagnosis.

269. Tonsillitis and Appendicitis.

W. M. HUNT (*Amer. Journ. of Surg.*, June, 1929, p. 761) considers the question of the possible relationship between chronic tonsillitis and an inflamed appendix, and quotes a case in which the two conditions had occurred simultaneously. An apparent relationship exists between preceding disease of the respiratory tract and a following appendicitis, and also between acute rheumatism and appendicitis, and as tonsillitis frequently precedes rheumatism the etiological connexion of tonsillitis with appendicitis is apparent. Acute infections lower the resistance and serve as a primary source of infection in appendicitis, and it is probable that the localization in the appendix is due to this lowered resistance as well as to the development of a selective strain of the micro-organism. An analysis was made of 95 cases of appendicitis admitted to hospital, and 46 per cent. of cases were found to have an acute throat condition, and the more dangerous form of appendicitis occurred in cases in which the tonsils were present and which had a sore throat on admission. Out of 34 cases of acute and chronic tonsillitis and peritonsillar abscesses, 5 cases, or 14.5 per cent., showed tenderness in the right lower quadrant.

270. Post-operative Hyperpyrexia in the Infant.

R. BERTOIN (*Journ. de Méd. de Lyon*, July 20th, 1929, p. 467) discusses the syndrome of pallor and hyperpyrexia with a rapidly fatal termination, following on an operation on an infant, usually for an acute mastoiditis. The pathology is obscure. Acute necrosis of the medullary zone of one suprarenal was found at one post-mortem examination. There is some clinical evidence that adrenaline is of value as a prophylactic. The author reports the case of an infant, aged 11 months, whose left mastoid he curetted under ether anaesthesia. Fifteen hours later the temperature rose to 106°F. The child did not react to cold packing, or injections of adrenaline and of camphor, and, empirically, a lumbar puncture was performed. The fluid, though under tension, was clear and showed no abnormality on examination. The child's condition improved, but relapsed in a few hours. A lumbar puncture was again performed and the fluid was still found clear. Considerable improvement followed, and the infant subsequently made a good recovery. The author suggests that in this case there was increase of intracranial tension caused by a diffusion of toxins, or by the action of the sympathetic on the heart-regulating centre in the mes-encephalon. There have been described a marked dilatation of the lateral ventricles in one case, and intense congestion of the encephalon with internal and external hydrocephalus in two other cases. The author observes that lumbar puncture is obviously well worth trying in similar cases, and recommends that the pressure of the cerebro-spinal fluid should be recorded over a series.

Therapeutics.

271. Serum Therapy in Typhoid Fever.

A. RODET (*Paris Méd.*, July 27th, 1929, p. 81) discusses the use of the serum he has prepared; it is obtained from horses immunized intravenously with broth cultures of Eberth's bacillus. He insists on care being observed in its administration, and mentions the following points. The serum should be given as soon as possible; there is no contra-indication. The number of injections, the interval between them, and the doses should be adapted to the necessities of each case. An injection is held to be indicated forty-eight hours after the preceding one if there has been no definite fall of temperature, and after a longer period if the temperature, having fallen, rises again or is stationary. It is not advisable to give an injection if the temperature is falling. The number of injections is frequently three, fairly often two, sometimes one, but, if necessary, four or even five. In severe cases 25 to 30 c.cm. are necessary instead of the usual 20 c.cm.; succeeding doses should show a similar increase. Excessive dosage is inadvisable and may lead to accidents. This treatment, it is added, should be exclusive; there must not be associated with it any form of cold packing or douching. Infections of the paratyphoid B group often resist it, and so do mixed infections, common secondary organisms being the streptococcus, enterococcus, staphylococcus, *B. pyocyaneus*, and *B. perfringens*. The author suggests that, as the recent epidemic at Lyons was ascribed to a grossly contaminated water supply, the cases which did not react to his serum were probably those of mixed infections.

272. Prolonged Mercurial Treatment in Syphilis.

SPILLMANN (*Bull. Soc. Française de Derm. et de Syph.*, June, 1929, p. 541) has treated a large number of patients who had contracted syphilis thirty years or more previously, and who had never been given arsenic or bismuth. Many of these patients had married five or six years after infection, and have healthy children. Very many of them continue to come for further treatment once or twice a year, or at longer intervals. Some are treated by inunction, others have injections of soluble or insoluble preparations of mercury; the majority of the latter class receive injections of grey oil. Many of these patients have not experienced inconvenience from the disease, other than the necessity to submit to periodical courses of treatment. In a number of these cases recent serological tests were uniformly negative. Spillmann gives details of five typical cases; these patients had remained free from all clinical and serological symptoms of syphilis for many years, but the author admits that he cannot give complete statistics of successful and unsuccessful treatment. He holds that the old prolonged mercurial treatment has not been superseded by modern methods, and refers to the generally admitted fact that during the last decade there has been an increased percentage of grave cases of neuro-syphilis and of general paralysis occurring in young subjects treated during or since the war by means of arsenical preparations. He contrasts this with the good results obtained from mercurial treatment, applied strictly in conformity to Fournier's rules.

273. The Treatment of Oriental Sore.

ORIENTAL sore, cutaneous leishmaniasis, is an unsatisfactory ailment to treat, according to A. DOSTROWSKY (*Arch. für Schiffs- u. Tropen-Hygiene*, August, 1929, p. 417), who has seen 200 cases, and discusses 70 he has followed more closely. The sore tends to recover spontaneously in nine months or so, and since the effect of treatment is rarely rapid, it is difficult to be sure how far the result is due to Nature or art. Native patients think it best merely to tie a leaf over the sore; cases so treated have been known to recover, and the popular impression is that scientific treatment only delays healing. That the sore tends to heal ultimately suggests the gradual development of immunity, and Dostrowsky commends vaccine therapy, referring to the paper by R. Row on the treatment of this condition by a vaccine of *Leishmania tropica* (*Journal*, 1912, vol. i, p. 540). Of ten patients so treated, two recovered in two to three months; the remainder did not complete their courses. There was improvement after each dose, but several sterile abscesses occurred; it is hoped that a more perfect vaccine may be prepared. With salvarsan injections nine patients recovered in 45 to 90 days, but there were two failures, of which one (with 158 not yet ulcerated nodes) cleared up after ten tartar emetic injections. The other patient, a man aged 60, resisted salvarsan and *x*-ray treatment, being cured promptly with tartar emetic, after the condition had lasted two and a half years. Under intravenous tartar emetic treatment nineteen patients recovered after 90 days on the average, though the nausea and pain along the vein caused complaint. Under *x* rays thirty patients became well within 30 to 120 days, and

there was only one failure, but the scar left was more conspicuous than after salvarsan or antimony. Solid carbonic acid cured ten patients in 60 to 90 days, but it is painful and its use is awkward for the patient. Until a good vaccine is found Dostrowsky thinks x rays, if available, are the best, for, though expensive, they cause no pain; otherwise salvarsan, antimony, or carbonic acid snow is likely to give the best results.

Neurology and Psychology.

274. General Paralysis of the Insane.

STATING that general paralysis of the insane is much more prevalent than is considered, E. AUBRY (*Rev. Méd. de l'Est*, April 1st, 1929, p. 173) emphasizes the great importance of its early diagnosis and treatment. Diagnosis is often difficult, as the early symptoms are extremely varied. Purely somatic cases with a retention of intellect occur, as also do others in which mental troubles are almost the only symptoms. Certain forms commence brusquely with clear signs of agitation and convulsive crises; others begin with neurasthenic depression, while in cases of insidious onset the disease develops slowly for months or even years without marked symptoms. General paralysis is not a disease solely of ripe age, but may occur in very young as well as old persons. It appears at any stage of syphilis, though usually occurring between the eleventh and sixteenth years of the disease; it may be observed much earlier (the fourth year) or much later (twenty years after the appearance of the chancre). It is common in hereditary as well as in acquired syphilis. Aubry declares that certain occupations, especially those entailing loss of sleep or conducing to intemperance, predispose to general paralysis. As the classical symptoms are seen only when the paralysis is established, for early diagnosis recourse must be made to examinations of the blood and particularly of the cerebrospinal fluid. The presence in the latter of specific reactions, lymphocytosis, and hyperalbuminosis, together with the clinical symptoms, establishes the diagnosis. Cerebral syphilis is not incurable if treatment is begun early and continued for a long period, and especially if shock therapy, such as malaria, tuberculin, or that of Dmelcos, be added to the arsenical treatment. Aubry believes that lumbar puncture during the first years of syphilis is the most effective means of preventing the development of general paralysis. The supervision of patients and continuance of their treatment long after the time usually considered necessary are the only methods of protection against dangerous sequels. It is unwise to limit treatment to nervous localizations.

275. An Heredo-Familial Disease Resembling Disseminated Sclerosis.

F. R. FERGUSON and M. CRITCHLEY (*Brain*, July, 1929, p. 203) record a clinical study of a peculiar familial affection which does not conform to any particular well-defined clinical group. Two points are noteworthy in these cases, the first being the large number of individuals affected (13); they all belonged to one family, the affection involving at least two generations. The second point is that several members of the family have been diagnosed as suffering from disseminated sclerosis. As regards the remote ancestry, there had been an intermarriage of cousins two generations before the first known affected line. The disease apparently started in two brothers, though it appears that one, if not two, predecessors were similarly affected. Throughout this family the clinical picture is uniform, and any differences are of degree rather than of kind. The clinical manifestation in the affected members presented the following common features: age of onset of symptoms at 35 to 45; similarity in the nature and order of appearance of the symptoms; absence of remissions in the course of the disease; euphoria and emotional instability; ocular paresis, nystagmus, and at times optic atrophy; evidence of pyramidal disease; widespread sensory disturbance; certain extrapyramidal manifestations; articulatory defects, and disturbance of the sphincter control. There appears to be no obvious association between the age of onset and the duration or severity of the symptoms. The duration of the disease in the fatal cases was five years in two, and seven and ten in two others; in a fifth, death occurred from an intercurrent disease at the end of one year. Of those still living, symptoms have existed in one case for sixteen years, and in four others for ten years or more. A survey of this family shows at one end of the scale cases almost indistinguishable from Parkinson's disease, and at the other cases simulating disseminated sclerosis; while other patients show various combinations of the features of these two diseases. After discussing the various familial diseases to which this condition might belong, Ferguson and Critchley conclude that there are three diagnostic possibilities with regard to it: the cases may be examples of a new familial disorder; they may be atypical examples of an already described ataxia—as, for example, Marie's ataxia; or they may be associated with Raymond's unitary conception of the heredo-familial ataxias, and grouped with the disorders described by Friedreich and others. The cases are of value in illustrating how in one family different clinical pictures, resembling almost any known type of heredo-familial ataxia, may result from a variation in the relative affection of the different systems, all of which were affected in most cases to some degree. In the absence of pathological evidence—both in these cases and those recorded in literature—Ferguson and Critchley are unable to confirm their suggestion as to the possible unity of heredo-familial ataxias, but are probably justified in regarding them all as abiotrophies differing merely in anatomical incidence or in viability.

276. Rigidity of Olivary Origin.

REMARKING that the normal functions of the olivary bodies are little known, G. GUILLAIN, P. MATHIEU, and I. BERTRAND (*Ann. de Méd.*, May, 1929, p. 460) report a case in which rigidity followed lesions of these structures. The patient, after a sudden seizure, plainly showed bulbar symptoms with involvement of all the left cranial nerves from the fifth to the tenth. Some weeks previously the man had suffered from a short attack of unconsciousness with a slight, transient left hemiparesis, due probably to a small vascular protuberantial lesion. After ten months the bulbar troubles still persisted with difficulty of deglutition and phonation, paralysis of the superior pharyngeal constrictor, hypoaesthesia of the face, the external auditory canal, the soft palate, and of the pharynx on the left side. Gradually a generalized and symmetrical hypertonic rigidity of an intensity greater than that of post-encephalitic Parkinsonism developed. This was accompanied by katatony and regular, weak tremors of the upper limbs. Bradykinesia was also very marked. The patient eventually died owing to bronchopneumonia. At the necropsy no lesion of the cortex or central grey nuclei was noted. A left lateral bulbar softening was found which had destroyed the lower part of the olivary body and the lateral bundle of the bulb. This softening, which reached the restiform body, crossed all the roots of the mixed nerves. The right olivary body showed a marked sclerosis. The authors discuss very fully the connexion of the pathological with the clinical findings, and the relations of the olivary bodies to the cerebellum and central grey nuclei. They believe that symptoms of rigidity and hypertony can arise without any important lesion of the grey nuclei; that lesions of the olivary bodies can cause general rigidity, katatony, bradykinesia, and certain tremors similar to those seen in Parkinsonian syndromes; and that these bodies play a part in the reflex and tonic actions which regulate and assure the automatism of the erect posture.

Obstetrics and Gynaecology.

277. Treatment of Cervicitis and Endocervicitis.

WHILE mercurochrome has been recommended as an antiseptic in genito-urinary infections, F. HELVESTINE, jun., and F. A. FARMER (*Amer. Journ. of Obstet. and Gynecol.*, July, 1929, p. 68) maintain that, for the successful treatment of cervicitis and endocervicitis, the mere introduction of the solution into the cervical canal is insufficient, and that it should be carried to the base of the cervical glands where the infecting germs are harboured. In the method they advocate a 2 per cent. aqueous solution is injected into the tissue of the cervix on its four sides, and sometimes between these points. From 1/2 to 3/4 c.cm. is introduced at each treatment. A few drops of mercurochrome are passed into the tissues at each puncture, and the injection is continued as the needle is withdrawn; if this is done under too much pressure pain is caused. At subsequent treatments injections are made between the points used at previous treatments. The best results are obtained with five- to seven-day intervals between treatments. The results obtained in thirty cases of inflammation of the cervix are given. In no case was there evidence of sloughs, abscesses, or other untoward effects, and the pain caused by the injections is said to be negligible if the needle is kept out of the stroma. Results are obtained quickly and the number of treatments required varies directly with the extent of the disease present, ranging from five to fourteen. Cases of specific infection do not respond as readily as those of non-specific origin. F. M. ENDE (ibid., p. 72) believes that, from the good results obtained after destruction of the pathological endocervix by heat, this method should be employed in most cases. The results of cauterization and diathermy by the ordinary active and inactive electrode method are uncertain. Ende advocates the use of two active electrodes of such a size that they can lie in the cervical canal side by side, making contact with the mucous membrane from the internal to the external os.

This method eliminates all uncertainty, and the results obtained in 200 cases were most satisfactory. In diathermy by this technique it is not necessary to remove the mucus from the canal; its presence provides good electrical contact between electrode and tissue. The treatment is the least painful of all heat methods; healing is prompt when the diseased part is entirely eradicated. The resulting scar tissue is negligible, and is softer than after cauterization.

278. Chronic Posterior Parametritis.

IN this condition, which according to E. KEHRER (*Münch. med. Woch.*, May 17th and 24th, 1929, pp. 826 and 884) has received insufficient consideration from gynaecologists in the past, one or both utero-sacral ligaments are converted into thick, tense, tender, inelastic bands sometimes as thick as a pencil, the amount of connective tissue being much increased relative to the elastic fibres. The condition, though of frequent occurrence (according to L. Fraenkel it was present in 60 per cent. of his gynaecological cases), should be carefully distinguished from posterior perimetritis, from pelvic peritonitis, in which the floor of the pouch of Douglas is involved, and from nodular adenomyositis of this region. Kehrer discusses the various theories of etiology which have been put forward from time to time, and finds little evidence in favour of true inflammation, since a history of acute bacterial infection, puerperal or gonorrhoeal, or an abscess in the pouch of Douglas following a perforated appendix, is rare in these cases. He favours, however, and elaborates the suggestion first put forward by B. S. Schultze in 1876, and since disputed or ignored by numerous authors, that one of the most important factors in initiating the pathological changes in the utero-sacral ligaments described above is repeated trauma to the posterior parametrium during coitus. This may be due to an abnormally short vagina associated with a general hypoplasia of the female genital organs or to a low position of the utero-sacral ligaments of a retroverted or partially prolapsed uterus. The type of constipation in which the rectum is loaded with hard scybala will also push the utero-sacral ligaments downwards and forwards into a position in which they are more likely to be damaged. Other etiological factors on which Kehrer lays much stress are dyspareunia of psychical origin, and other causes such as masturbation and coitus interruptus, whereby the pelvic organs, including the parametrial tissues, are congested with blood and lymph, but the normal orgasm fails to occur in the female. The symptoms are backache and a feeling of pressure in the pelvis, which may be exacerbated by physical exertion, change in position, or defaecation, and sudden pain deep in the pelvis during coitus which must be distinguished from tenderness of the vaginal orifice. The author bases his treatment entirely on the above conception of etiology, and considers incision or excision of the tender ligaments physiologically unjustifiable. He claims good results from remedying intestinal and rectal stasis by diet, drugs, or enemata, and treatment of the dyspareunia by general advice rather than psycho-analytical methods; he suggests that the impact of the penis against the tender parametrial tissue through the posterior fornix should be prevented by placing a firm cushion, 1 to 2 cm. in size, on the symphysis pubis during intercourse.

279. Carcinoma of the Fundus of the Uterus.

L. J. STACY (*Surg., Gynecol. and Obstet.*, July, 1929, p. 43) points out that while carcinoma of the fundus of the uterus has been generally regarded as a disease of post-menopause life, recent studies indicate that it occurs fairly frequently in women under the age of 50. Thus, of 333 cases operated upon for this condition at the Mayo Clinic during a period of sixteen years, 35 (10.51 per cent.) were between 45 and 49, and 35 (10.51 per cent.) were below 45, the youngest being 19. Stacy remarks that a patient with a history of metrorrhagia or abnormal discharge should be thoroughly examined before treatment is instituted. If the cervix shows no evidence of disease, a diagnostic curettage with microscopic examination should be performed under anaesthesia, followed by hysterectomy while still under the anaesthetic if carcinomatous tissue is present. Hysterectomy even with or without previous curettage is advisable if the symptoms point definitely to malignancy. In this series of cases metrorrhagia was the most usual symptom and was the first to be noted in 63 66 per cent. Uterine myoma is three times more frequent in women with carcinoma of the fundus than in those without this condition, and there is a possibility of the symptoms being attributed to the myoma, thus leading to delay in making a correct diagnosis. The post-operative results were better than those following operation for malignancy in other commonly affected organs, 184 patients living more than five years (63.88 per cent.). The operative mortality for the series of 333 patients was 18 (5.4 per cent.), and the largest mortality from recurrences occurred during the first three years after operation.

Pathology.

280. The Relation of Bacteria to Chemically Induced Pneumonia.

A. R. KOONTZ and M. S. ALLEN (*Journ. Exper. Med.*, July 1st, 1929, p. 67) cite the contradictory opinions of various authorities as to whether the pneumonia resulting from inhalation of irritating substances is due purely to the chemical agents inhaled or to the action of bacteria, and record their study of the lungs of a number of dogs tested with different gases. No definite conclusion could be drawn from this study concerning the causal relation of bacteria in gassed lungs to the pneumonia present. The appearance of gassed lungs with pneumonia was very similar to those with pneumonia of known bacterial origin. In a few cases the type of pneumonia coincided with reported cases of chemically induced pneumonia, which is characterized by a preponderance of epithelial cells in the exudate. Gassed lungs show highly varying numbers of bacteria, which are not intracellular and are not present in large numbers in the majority of cases. Points against a causal relationship are: the early appearance of pneumonia after gassing; the occurrence of pneumonia with very small numbers of bacteria present; and the fact that very few bacteria are engulfed by leucocytes in gassed lungs, whereas large numbers are present in non-gassed pneumonias and are conspicuously intracellular. The points in favour of a causal relationship are: the presence of bacteria in any numbers; the picture of broncho-pneumonia presented is similar to broncho-pneumonia of known bacterial origin; and pneumonias characterized by large numbers of epithelial cells in the exudate (so-called "chemical" pneumonia) occur in animals that were never gassed or subjected to other irritating substances.

281. The Serological Affinity of Vibrion septique and Clostridium chauvoei.

M. WEINBERG, J. DAVESNE, M. MIHAILESCO, and C. SANCHEZ (*C. R. Soc. de Biologie*, July 17th, 1929, p. 907) have compared a number of strains of *V. septique* and *Cl. chauvoei* by the complement-fixation test. The antigens used were prepared from broth cultures which were centrifuged, and heated at 60°C. for one hour; in one series, however, the alcohol-ether method of Nicolle was used. The antiserums were prepared by the inoculation of rabbits with cultures that had been heated at 60° C. for one hour. In the first series of experiments it was found that each of fifty strains of *Cl. chauvoei* was able to fix complement in the presence of anti-*septique* serum, even when this was diluted 1 in 100. The amount of fixation that occurred was very nearly as great as when antigens of *V. septique* were employed. In a second series it was found that *V. septique* was able to fix complement in the presence of anti-*chauvoei* serum, even when this was diluted 1 in 100 or sometimes 1 in 200. A similar degree of fixation was given by *Cl. chauvoei* in the presence of its homologous serum. Antigens prepared from *Cl. histolyticum*, *Cl. oedematiens*, and *Cl. sporogenes* gave negative results, even with pure serum. *Cl. welchii* gave a positive reaction in the presence of the pure serum, but not when this was diluted 1 in 10. The authors conclude that it is impossible to distinguish *V. septique* and *Cl. chauvoei* by the complement-fixation test; but this reaction is specific, and enables a differentiation to be made between these two organisms and the other members of the spore-bearing anaerobes.

282. Immunization against Tuberculosis.

M. BECK (*Münch. med. Woch.*, June 28th, 1929, p. 1032) has protected [illegible] by virulent human tubercle [illegible] tubercle ointment, which was prepared from subcultures of originally highly virulent human tubercle types which had lost the power to cause tuberculosis, yet possessed in high degree an immunizing and healing action on tubercle-affected organs. A series of twenty-three guinea-pigs were inoculated subcutaneously with an emulsion of highly virulent human tubercle bacilli; three of these were regarded as controls. After tuberculosis had been established in all the animals, according to clinical and microscopical evidence, the remaining twenty animals received, during a period of several weeks, six to ten inunctions of the ointment into the previously shaven skin. The guinea-pigs were killed after various intervals of nine days to one month. Tubercle bacilli were detected in three instances, but in the remaining animals, many of which had enlarged glands, tubercle bacilli were not found. The three control animals not treated with inunctions survived a longer period, all being dead after seven months, and all showed presence of tuberculosis in the lungs, liver, and spleen.

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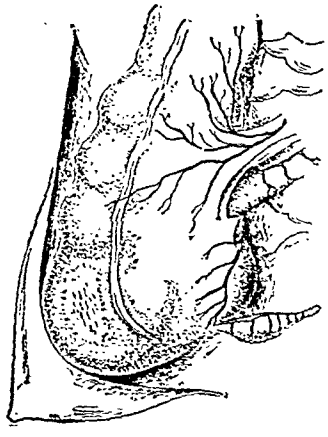

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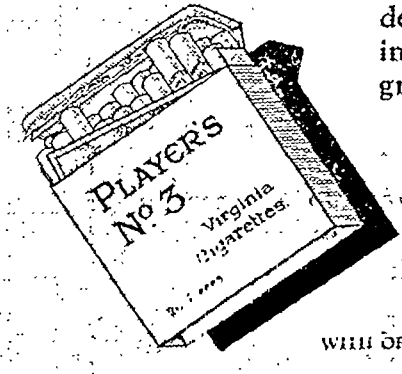

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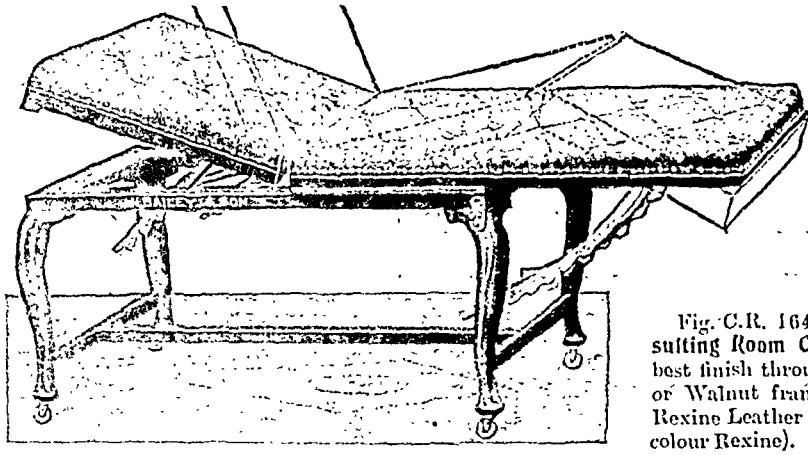

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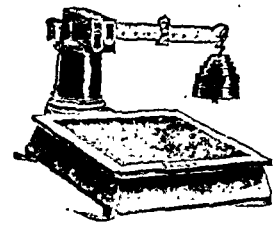

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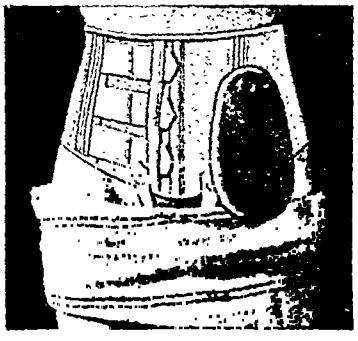

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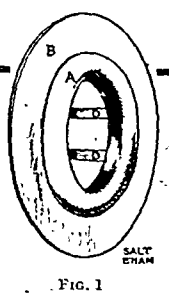

FIG. 1

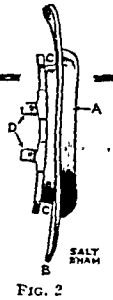

FIG. 2

FIGURES 1 and 2.

A. Solid rubber pad fitting next body.
B. Flange to prevent belt becoming soiled.
C. Groove over which aperture in bag is stretched.
D. Curved bars to hold bag open.

FIG 3

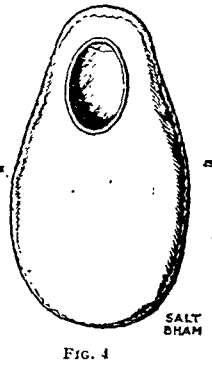

FIG. 4

Figure 3 shows end view of india-rubber receiver with (Fig. 4) bag attached.

Figure 5 shows receiver on belt, bag being on outer side of belt.

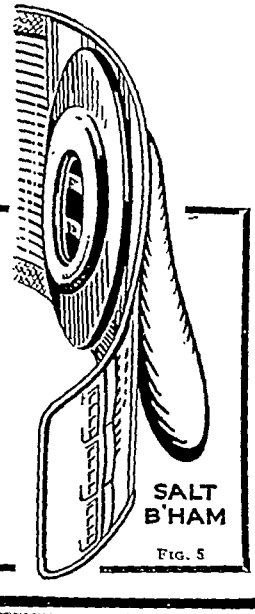

FIG. 5

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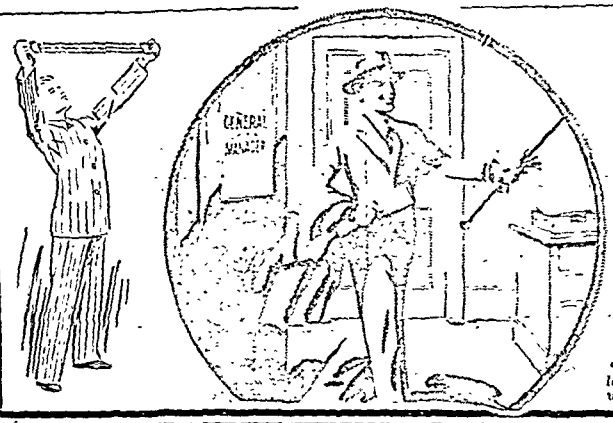

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This is a Reception Hospital in detached grounds, with a separate entrance, to which patients and voluntary boarders can be admitted. It is equipped with all the apparatus for the most modern treatment of Mental and Nervous Disorders. It contains special departments for hydrotherapy by various methods, including Turkish and Russian baths, the prolonged immersion bath, Vichy Douche, Scotch Douche, Electrical baths, Plombières treatment, etc. There is an Operating Theatre, a Dental Surgery, an X-ray Room, an Ultra-violet Apparatus, and a Department for Diathermy and High Frequency treatment. It also contains Laboratories for biochemical, bacteriological, and pathological research.

MOULTON PARK.

Two miles from the Main Hospital there are several branch establishments and villas situated in a park and farm of 650 acres. Milk, meat, fruit, and vegetables are supplied to the Hospital from the farm, gardens, and orchards of Moulton Park. Occupation therapy is a feature of this branch, and patients are given every facility for occupying themselves in farming, gardening, and fruit-growing.

BRYN-Y-NEUADD HALL.

The Seaside house of St. Andrew's Hospital is beautifully situated in a Park of 330 acres, at Llanfairfechan, amidst the finest scenery in North Wales. On the North-West side of the Estate a mile of sea coast forms the boundary. Voluntary Boarders or Patients may visit this branch for a short seaside change or for longer periods. The Hospital has its own private bathing house on the seashore. There is trout-fishing in the park.

At all the branches of the Hospital there are cricket grounds, football and hockey grounds, lawn tennis courts (grass and hard courts), croquet grounds, golf courses, and bowling greens. Ladies and gentlemen have their own gardens, and facilities are provided for handicrafts, such as carpentry, etc.

For terms and further particulars apply to the Medical Superintendent (Telephone No. 56, Northampton), who can be seen in London by appointment.

COURT HALL, KENTON, EXETER,
SOUTH DEVON.

For the care and treatment of Ladies suffering from Mental Diseases. Limited to eight patients. Telephone: Starcross 19.

CLIFFDEN, TEIGNMOUTH, in connection with Court Hall, for early and convalescent cases. Cliffden is a large well-appointed house, with lovely views of the South Devon Coast. It is beautifully situated in grounds of 19 acres. The gardens are very attractive, and there is a private road to the beach.

Resident Physicians: BERTHA M. MULES, M.D., B.S.; ANNIE S. MULES, M.R.C.S., L.R.C.P.
Telephone: *Teignmouth* 289.

THE COPPICE, NOTTINGHAM.
HOSPITAL FOR MENTAL DISEASES.

This Institution is exclusively for the reception of a limited number of Private Patients of both sexes of the Upper and Middle Classes at moderate rates of payment. It is beautifully situated in its own grounds on an eminence a short distance from Nottingham, and from its singularly healthy position and comfortable arrangements affords every facility for the relief and cure of those mentally afflicted. Voluntary Boarders received *without Certificates*.

For terms, etc., apply to the Medical Superintendent.

HAYDOCK LODGE,
NEWTON-LE-WILLOWS, LANCASHIRE.

'Phone: 11 Ashton-in-Makerfield.

For the reception and treatment of PRIVATE PATIENTS of both sexes of the UPPER AND MIDDLE CLASSES either voluntarily or under Certificate. Patients are classified in separate buildings according to their mental condition

Situated in park and grounds of 400 acres. Self-[illegible] and gardens, in which patients are encouraged to occupy [illegible] door and out-door recreation. For terms, prospectus, etc., a[illegible]

BELVOIR NURSING HOME,
ASTON-ON-TRENT, DERBY.
FUNCTIONAL NERVOUS DISORDERS & CHRONIC MEDICAL CASES.

The Home, a Georgian mansion, 14 miles from Nottingham and 6 miles from Derby, is for both sexes. In addition to the methods of general medicine, Psycho-Therapeutic treatment is used extensively in suitable cases. Certifiable cases are not received. Electrical Treatment, Radiant Heat, X-ray, and Ultra-violet Light is available in the Nursing Home. Billiards, tennis, etc. Fees from 5 to 12 guineas per week; for Chronic Medical Cases from 3 guineas a week. For further particulars apply to—

Dr. E. M. DOUGLAS-MORRIS, ASTON, DERBY. *Telephone*: Shardlow 16.

CHISWICK HOUSE.

A Private Mental Hospital for the Treatment and Care of Mental and Nervous Disorders.

Now removed to:

CHISWICK HOUSE,
PINNER,
MIDDLESEX.

Telephone: PINNER 234.

A modern country house, 12 miles from Marble Arch, in beautiful secluded grounds.

Fees are from 10 guineas a week.

Voluntary Patients received for treatment.

DOUGLAS MACAULAY, M.D., D.P.M.

WONFORD HOUSE HOSPITAL,
EXETER, DEVON.

Telegrams: Exeter 2542. *Telephone*: Exeter 2542.

A registered Hospital for the treatment of patients of both sexes suffering from Nervous and Mental Disorders, situated in beautiful country within a mile and a half of the City of Exeter.

Hard and grass Tennis Courts, Croquet Lawn, Cricket Field, and all indoor amusements, Dancing, Concerts, Wireless, Billiards, Badminton. Occupational treatment.

The patients are carefully graded, and accommodation provided for the separate treatment of early recoverable and convalescent patients.

Voluntary and certified patients are received for treatment.

A prospectus and full particulars can be obtained from the Medical Superintendent.

BARNWOOD HOUSE,
GLOUCESTER.

A REGISTERED HOSPITAL for the CARE and TREATMENT of LADIES and GENTLEMEN suffering from NERVOUS and MENTAL DISORDERS. Within two miles of the G.W. Railway and L. M. & S. Railway *Stations at Gloucester*, the Hospital is easily accessible by *rail from* London and all parts of the United Kingdom. It is beautifully situated at the foot of the Cotswold Hills, and stands in its own grounds of over 280 acres. Voluntary boarders of both sexes are also received for treatment.

Special accommodation for Lady Voluntary Boarders is also provided at the MANOR HOUSE, which has its own private grounds and is entirely separate from the main Hospital.

For particulars as to terms, etc., apply to—
ARTHUR TOWNSEND, M.D., Resident *Supt.*
Telephone: No. 7 Barnwood.

Preston Deanery Hall,
Northampton.
(3½ miles from L.M.S. Station.)

This DIETETIC ESTABLISHMENT is equipped for the complete investigation and treatment of patients on rational lines. Own X-ray and Laboratory Biochemical investigation is made a special feature.

Resident Biochemist, Masseurs and Masseuses, Hydro- and Electro-therapeutics, Fasting on Scientific Principles. The staff are specially qualified to deal with the errors of Metabolism, and provision is made for the treatment of Tropical Diseases.

Further particulars from the Secretary, Preston Deanery Hall, Northampton.
Tel.: Hardingstone 6.

THE MOAT HOUSE,
TAMWORTH, STAFFS.

Established 1816. For the TREATMENT of a few LADIES suffering from NERVOUS and MENTAL DISORDERS. Voluntary patients received. For terms apply to Proprietor and Licensee: Dr. LOWSON. Tel.: 108 Tamworth.

WYE HOUSE, BUXTON.

For the treatment of Ladies and Gentlemen mentally afflicted. Voluntary Boarders received. Situated 1,200 ft. above sea-level, facing S.; 14 acres of grounds.—For terms, apply to the Resident Medical Superintendent, W. W. HORTON, M.D. Nat. Tel. 150.

RUTHIN CASTLE

(FORMERLY DUFF HOUSE, BANFF.)

The first Private Hospital in the United Kingdom to be fully provided with a whole-time specially qualified Staff of Doctors, Analytical Chemists, Bacteriologists, Radiologists, Nurses, Dietists, Masseurs, and Masseuses, and a full equipment of Laboratories, X-rays, Electrocardiograph, Artificial Sunlight, and Medical Baths.

The Hospital is equipped for the diagnosis and treatment of any form of ill-health, except Mental and Infectious Diseases. The fees are inclusive.

The climate is mild and the neighbourhood beautiful. Apply: The Secretary,
Telegrams: Castle, Ruthin. Telephone: 66, Ruthin. Ruthin Castle, North Wales.

OXHEY GROVE,

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A NURSING HOME for BORDERLINE CASES of BOTH SEXES, twelve miles from Marble Arch.
Resident Medical Officer, male and female staff, visiting Pathologist. Fees 5 to 12 guineas.

Full particulars from the MEDICAL SUPERINTENDENT. *Telephone:* Hatch End 368.

ROOKSDOWN HOUSE,

NEAR BASINGSTOKE, HANTS.

Private Hospital for Mental Diseases

A modern building situated in a healthy district, easily accessible by rail and road. Patients taken at from three guineas per week.

Apply to Medical Superintendent. Telephone: 157 BASINGSTOKE

BETHLEM ROYAL HOSPITAL, LAMBETH ROAD, S.E.1.

(For the reception and treatment of cases of nervous and mental disease.) Tel.: Reliance 2182.

President: Colonel and Alderman Sir CHARLES CHEERS WAKEFIELD, Bart., C.B.E.
Treasurer: Sir LIONEL FAUDEL-PHILLIPS, Bart.

PHYSICIAN-SUPERINTENDENT: J. G. PORTER PHILLIPS, M.D., F.R.C.P. Assisted by Physicians, a Pathologist, and a staff of Visiting Consultants.

Patients of the EDUCATED CLASSES, IN A PRESUMABLY CURABLE CONDITION, are eligible for admission. With a view to the early treatment of eligible cases VOLUNTARY OR UNCERTIFIED patients are admitted. PATIENTS WHO CAN CONTRIBUTE THREE GUINEAS WEEKLY TOWARDS THE COST OF MAINTENANCE MAY BE RECEIVED AS VACANCIES ARISE. Treatment is carried out on the most modern principles. In connection with this Hospital there is a Convalescent Home on the Surrey hills at Witley.
For further particulars apply to the PHYSICIAN SUPERINTENDENT.

NORTHUMBERLAND HOUSE,

GREEN LANES, FINSBURY PARK, N.4.

Telegrams: "SUBSIDIARY, LONDON." *Telephone*: NORTH 0888.

A PRIVATE HOME for the [illegible]s of both sexes suffering from Mental Illnesses.
Conveniently situated four [illegible] Cross. Easy of access from all parts.
Six acres of ground, highly [illegible]ury Park.
Voluntary Boarders receive[illegible] Private suites. Convalescent Home, Kearsney Court, Dover.
For further particulars, apply to the MEDICAL SUPERINTENDENT.

CAMBERWELL HOUSE, 33, Peckham Road, London, S.E.5.

Telegrams: "Psycholia, London." Telephone: Rodney 4731—4732.

FOR THE TREATMENT OF MENTAL DISORDERS.

Completely detached Villas for mild cases, with private suites if desired. Voluntary Patients received. Twenty acres of grounds. Hard and Grass Tennis Courts, Croquet, Squash Racquets, and all indoor Amusements, including Wireless and other Concerts. Occupational Therapy. Daily services in the Chapel.
Senior Physician: Dr. HUBERT J. NORMAN; assisted by three Medical Officers, also resident. An illustrated Prospectus, giving full particulars and terms, may be obtained upon application to the Secretary.
HOVE VILLA, BRIGHTON. — A CONVALESCENT BRANCH OF THE ABOVE.

PECKHAM HOUSE, 112, Peckham Road, London, S.E.15.

Telegrams: "Alleviated, London." Telephone: Rodney 4741—4742.

The above House, which was established in 1826, is an Institution for the care and treatment of persons suffering from mental diseases and nervous disorders. Both certified patients and voluntary boarders are received. Separate houses for treatment and accommodation of special cases adjoin the Institution. There is a seaside branch, Kearsney Court, near Dover, to which patients may be sent for treatment or on holiday. Motor and carriage exercise is provided as required. Patients can avail themselves of a course of physical drill. Tennis courts. Entertainments, dances, and indoor amusements held throughout the year.
Illustrated prospectus and further particulars can be obtained from the Medical Superintendent.

THE RESIDENTIAL TREATMENT OF ALCOHOLISM & DRUG ADDICTION

RENDLESHAM HALL

(*Postal Address*)—WOODBRIDGE, SUFFOLK.

Rendlesham Hall, which is open to receive patients, is essentially a Sanatorium. Its daily life and routine are that of an ordinary comfortable holiday or health resort, or of a large country house. Each patient has all the privileges of a guest consistent with the prescribed medical treatment.

Rendlesham Hall has 45 bedrooms, and about 450 acres of gardens and park. It has also a private nine-hole golf course, tennis and croquet lawns, and bowling green.

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RESIDENT MEDICAL SUPERINTENDENT.

Telegrams and Telephone: Wickham Market 16.

RENDLESHAM HALL.

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as carried on for the last twenty years, is available. Booklet and particulars from the Resident Medical Superintendent.

Telephone: RAVENSBOURNE 0648. *Telegrams*: NOROTORIUM, BECKENHAM.

Proprietors: The Norwood Sanatorium, Limited.

ALCOHOLISM, DRUG HABIT, AND NEURASTHENIA.

BAY MOUNT, PAIGNTON.

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A small comfortable Home charmingly situated in secluded gardens overlooking Torbay. Ladies and Gentlemen treated with a view to a rapid and permanent cure by modern methods, which give excellent results. Ample amusement, billiards, wireless, golf, tennis, etc. Good train service (3½ hours London). Moderate inclusive terms. Prospectus, report, etc., from—Stanford Park, M.B., CH.B., Res. Med. Supt., Bay Mount, Paignton.

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As founded and established by the late Dr. FRANCIS HARE, for 20 years Med. Supt. of The Norwood Sanatorium, and author of "Alcoholism," etc.; for the treatment of ALCOHOLISM, other Drug Habits, Insomnia, Neurasthenia, Functional Nervous Disorders, TROPICAL Ailments, etc.

"THE OLD HILL HOUSE," CHISLEHURST, KENT.

Terms moderate. Quiet and pleasant situation. *Ladies and gentlemen admitted for treatment.* For Prospectus, etc., write or 'phone: WALTER E. MASTERS, M.D., M.R.C.S., D.P.H., Barrister-at-Law (Resident Medical Superintendent). *'Phone*: Chislehurst 451. *Telegrams*: "Masters," Chislehurst.

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The Church of England Temperance Society has its own COUNTRY MANSION where Treatment is given by its Resident Medical Superintendent. The Institution is not conducted for profit and fees are moderate, with Grants in-Aid in certain cases.

Particulars from the General Secretary, 40, Marsham Street, S.W.1.

NEURASTHENIA ALCOHOL DRUGS

R.M.O., 2, Wilbury Road, HOVE.

THE MORPHIA HABIT.

The Springfield method, selected for full description in the "Medical Annual," has been favourably noticed in medical papers throughout the world. Eighty per cent. of cases treated in the last four years are still well; average duration of treatment 30 days.

This special treatment was originated and is carried out in a general nursing home, the address of which is never advertised.

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INEBRIETY

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For the treatment of GENTLEMEN under the Act and privately. Estab. 1883 by an Association of prominent medical men and others for the study and treatment of alcohol and drug abuse. Large secluded grounds on the bank of the River Colne. Full-sized billiards, tennis, croquet, bowls. Golf (Moor Park, Sandy Lodge) close by. For particulars apply to—F. S. D. HOGG, *M.R.C.S., &c., Resident Medical Supt.* Telephone: 16 RICKMANSWORTH.

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For the care and treatment of a limited number of Ladies and Gentlemen suffering from NERVOUS or MENTAL *breakdown*. *Voluntary* Boarders received. Psycho-therapy in suitable cases if desired. Terms moderate. Apply, RESIDENT PHYSICIAN. Tel.: No. 8 Formby.

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Telephone: Clissold 1648.

PRIVATE HOSPITAL for Ladies and Gentlemen suffering from Mental and Nervous Disorders. The hospital is situated in nine acres of pleasure grounds. Both voluntary and patients under certificates received. For further particulars apply Dr. GERALD JOHNSTON and Dr. ERNEST ROLLINS, Resident Physicians.

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A PRIVATE HOME for the treatment of Gentlemen suffering from Mental or Nervous Illness, including the allied disorders of Alcoholism and the Drug Habit. All types of early Mental or Nervous cases are received, without certificates. Bracing Hill country. p. 2138.—Apply, Telephone: 10 P.O.

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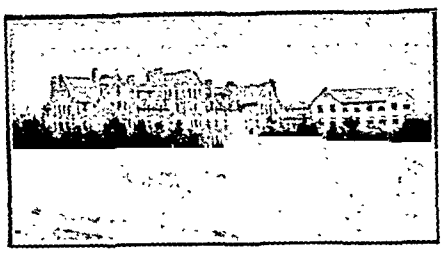
MURTLE DEESIDE ABERDEENSHIRE.



Medical Director: David Lawson, M.D., F.R.S.E.

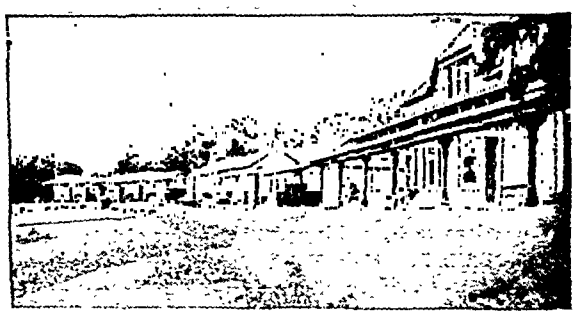
FULLY EQUIPPED WITH EVERY MODERN APPLIANCE FOR THE DIAGNOSIS AND TREATMENT OF ALL FORMS OF TUBERCULOSIS & ALLIED DISEASES.

Physician Superintendent - J. M. JOHNSTON, M.B., D.P.H., etc.

Full particulars and Prospectus on application to the Secretary.

Inclusive Terms: SEVEN GUINEAS A WEEK.

THE COTSWOLD SANATORIUM



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Full day and night Nursing Staff.

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Apply: The Secretary, The Cotswold Sanatorium, Cranham, Gloucester.

Telephone: 41 WITCOMBE. *Telegrams*: "HOFFMAN, BIRDLIP."

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Specially built for the treatment of Pulmonary and other forms of Tuberculosis. Aspect S.S.W., on a carefully chosen site. Pure bracing air. High sunshine record. Heliotherapy. Arc-light treatment. One mile from the coast. Electric light throughout. X-ray installation. Full day and night Nursing Staff. Wireless (headphones) throughout.

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Apply, Mr. D. C. FORD, Secretary,
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Established 1900 for the treatment of Tuberculosis. Miles of carefully graduated walks through pine-clad hills, with sea and mountain views. Modern treatment, including SANOCRYSIN, ARTIFICIAL PNEUMOTHORAX, etc. X-ray plant, electric light, central heating, wireless. Full day and night nursing staff. On L.M.S. Main Line to Holyhead, 4¼ hours from London. Resident Physicians: Dennison Pickering, M.D.(Cantab.), F. W. Godbey, M.D., D.P.H.; Matron: Miss N. Rennardson, S.R.N.

For particulars apply to the Secretary, Pendyffryn Hall, Penmaenmawr, N. Wales. ('Phone, 20.)

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Situated in the upper Speyside district of Inverness-shire. One of the highest inhabited districts in Britain—"The Switzerland of the British Isles." Bracing and dry mountain climate. Well sheltered Sanatorium specially built for the Open-air Treatment of Tuberculosis. Opened in 1901. Elevation 860 ft. above sea-level. Electric light throughout buildings and in rest shelters. Central heating. Fully equipped X-ray Plant. All forms of treatment available, including Artificial Pneumothorax, and Ultra-Violet Rays for surgical cases of Tuberculosis.

For particulars apply to the Secretary.

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THE OLD MANOR SALISBURY

A Private Hospital for the Care and Treatment of those of both sexes suffering from MENTAL DISORDERS.

Extensive grounds. Detached Villas. Chapel. Garden and dairy produce from own farm. Terms very moderate.

CONVALESCENT HOME at BOURNEMOUTH standing in 9 acres of ornamental grounds, with tennis courts, etc., which Patients or Boarders may visit by arrangement, for long or short periods.

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Unsurpassed situation, 600 ft. above sea-level, high sunshine record, own farm. Resident Medical Officer. Male cases only.

Inclusive weekly terms 50/-.

Special preferential arrangements for a few private cases at 4 guineas.

Artificial Pneumothorax, etc.

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Beautifully situated 600 feet above sea level. Facing south, completely sheltered from north and east. 21 miles from Edinburgh.

All modern Baths, Douches, Massage, and Electrical Treatment. Ultra-Violet Radiation. Physician in attendance.

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Electric Light, Central Heating, Electric Lift, three Billiard Tables, Ball Room, Winter Garden, Swimming Bath, Hard and Grass Tennis Courts, Badminton, Croquet Lawn, Golf Course. Prospectus from Manager. 'Phone: Peebles 2.

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A first-class Country Mansion adapted for the reception of a limited number of Ladies and Gentlemen mentally afflicted.

Large gardens, deer park, private golf links, fishing. Grounds extend to over 200 acres.

Voluntary Boarders accepted.

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PRIVATE HOME for MENTALLY AFFLICTED LADIES. Ten only received. Apply, Medical Officer or Mrs. PEELE. *Telephone*: 2708.

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A few VACANCIES for Nerve, Paralysis, and Senile Patients. Fully qualified staff. Terms moderate. Tel. 1443. Convenient to all stations. *Doctors references can be had.*

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Large grounds, 400 ft. above sea. HOME for Ladies Mentally afflicted. Voluntary Boarders received. Stations: Brentwood and Shenfield 1 mile. Liverp'l St. 26 min.—Apply, Dr. HAYNES.

CITY OF LONDON MENTAL HOSPITAL DARTFORD, KENT.

PRIVATE PATIENTS are received at a weekly charge of TWO GUINEAS and upwards.

Voluntary BOARDERS can now be admitted.—Apply to the MED. SUPERINTENDENT.

Grove House, All Stretton, Church Stretton, Shropshire.

A Private Home for the care and treatment of a limited number of ladies mentally afflicted. Climate healthy and bracing.

Medical Superintendent: Dr. MCCLINTOCK.

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THE PRINCIPAL HEALTH RESORT IN EGYPT.

SULPHUR-SALINE SPRINGS.

ETABLISSEMENT THERMAL. SULPHUR BATHS. MASSAGE. ELECTRO-THERAPEUTICS, ETC.

The best winter health resort. Warm, dry, equable climate. Average eight hours daily sunshine in winter. Situated in the desert, 16 miles South of Cairo. Baths are suitable for treatment of Rheumatism, Gout, Rheumatoid Arthritis, etc., Albuminuria, Chronic Skin Diseases.

Golf, Tennis, Excursions to Pyramids and other places of interest.

GRAND HOTEL, HELOUAN. First-class Hotel. Special arrangements for visitors taking the cure. Under the same management as the Baths. Open November to April.

For particulars apply to the MANAGER, GRAND HOTEL, HELOUAN.

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Unrivalled suites of Baths for Ladies and Gentlemen, including Turkish and Russian Baths, Aix and Vichy Douches, Massage and Plombières Treatment, an Electric Installation for Baths and other Medical purposes, Dowsing Radiant Heat, D'Arsonval High Frequency, Diathermy, Nauheim Baths, etc. Special provision for invalids. Milk from our farm. Large Winter Garden. Night Attendance. Rooms well ventilated and all bedrooms warmed in Winter. A large Staff (upwards of 60) of trained Male and Female Nurses, Masseurs, and Attendants.

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For Prospectus and full information please write MANAGER, M.J.

GREAT BRITAIN'S GREATEST HYDRO

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Mild and invigorating climate.

RAVEN HOTEL or PARK HOTEL for health and for comfort. Cordial hospitality and first-class cuisine await you. Adjoining brine baths—the certain cure for rheumatism. Special residential terms for Autumn and Winter. There are 230 rooms, magnificent grounds, lock-up garages and cars for hire. Illus. booklet sent on request. 'Phone 50 or 38.

BOURNEMOUTH HYDRO,

with Vita-glass Sun-lounge and Marine Balcony on the South Coast.

Every kind of Bath. *Plombiere* Lavage
Every kind of Massage. Ultra-violet Light
Every kind of Electricity. Diathermy.
Every kind of Diet.
Carlsbad and Vichy Waters, etc.
High Frequency. Electric Lift.

Prospectus from *Secretary*. *Tele.* 341.
Resident Physician: W. JOHNSON SMYTH, M.D.

Vacancy for Resident Patient,

one only taken. Two Doctors in residence. Excellent rooms, good grounds. Every comfort. Beautiful country and climate. By sea and moors. All forms of sport. North-West Somerset.—Address, No. 5024, B.M.A. House, Tavistock Square, W.C.1.

HOME FOR FEEBLE-MINDED. BRUNTON HOUSE, LANCASTER.

This well appointed private establishment overlooks Morecambe Bay, and possesses extensive gardens and grounds, with tennis and croquet lawns. Varied scholastic and manual instruction. Individual attention given by experienced staff under Lady Matron. For terms, apply, Dr. W. H. COUPLAND, Med. Supt.

VICTORIA SANATORIUM

(an entirely British Sanatorium), DAVOS (GRISONS), SWITZERLAND. Terms from £5 a week. Medical Supt.: BERNARD HUDSON, M.D.(Cantab.), M.R.C.P., Swiss Federal Diploma.

VILLA WALDFRIEDE.

HOME FOR CHILDREN and YOUNG PEOPLE, delicate or predisposed to Tuberculosis, in English Doctor's House, near Davos, Switzerland. Terms from £5 5s. p.w.—Apply, Dr. BERNARD HUDSON, Victoria, Davos, Switzerland.

Lady, with comfortable small

house, garden, garage, close to sea, requires one or more Ladies as PAYING GUESTS. Possible permanency. Suit those desiring equable climate. — Address, No. 6005, B.M.A. House, Tavistock Square, W.C.1.

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LECTURER.	SUBJECT.	On the following dates at 4.30 p.m., 1929.
Dr. G. R. Mather Cordiner.	Pyelography.	Wednesday, Oct. 2nd.
Dr. David Thomson.	Common Infections of the Genito-Urinary Tract.	Wednesday, Oct. 9th.
Mr. R. H. Jocelyn Swan.	The Examination of a Urological Patient.	Wednesday, Oct. 16th.
Mr. W. K. Irwin.	The Diagnosis and Treatment of some important Bladder Conditions.	Wednesday, Oct. 23rd.
Mr. Stanford Cade.	The limitations of Radium Therapy on Genito-Urinary Diseases.	Wednesday, Oct. 30th.
Mr. Kenneth Walker.	The Enlarged Prostate.	Wednesday, Nov. 6th.
Sir Thomas Carey Evans.	Stone in the Bladder, with special reference to Treatment by Litholapaxy.	Wednesday, Nov. 13th.
Mr. Claude Mills.	Some interesting Urological Cases, with demonstration of pathological specimens and radiograms of same.	Wednesday, Nov. 20th.
Mr. Frank Kidd.	Radium for malignant disease of the Bladder.	Wednesday, Nov. 27th.

No fee will be charged for attendance at the lectures, etc. Registered Medical Practitioners and Students are invited to attend any branch of the work in which they are interested. Tea will be served at 4 p.m.

Post-Graduate Teaching, West London Hospital.

WINTER SESSION commences OCTOBER 7th.

Continuous Clinical Instruction daily from 10 a.m. to 4 p.m.—Post-Graduates may enrol at any time for any period from 1 week to 3 months.—Special facilities for "Study Leave."—Anæsthetic Courses.—Clinical Assistantships.—Annual Membership Tickets at Special Terms available for General Practitioners who wish to attend the Hospital Practice at irregular intervals.

Prospectus from Sir Henry Simson, K.C.V.O., Dean, West London Hospital, Hammersmith, W.6.

MEDICAL CORRESPONDENCE COLLEGE

19, WELBECK ST., LONDON, W.1. Tel: Langham 1166.

PROVIDES HIGHLY SUCCESSFUL ORAL AND POSTAL COACHING FOR ALL MEDICAL EXAMINATIONS.

Special Preparations for all Surgical Qualifications.

F.R.C.S.ENGLAND. (Primary & Final.) Ch.M.EDINBURGH. M.C.CANTAB.
F.R.C.S.EDINBURGH. M.S.LONDON.
And all other Surgical Degrees and Diplomas.

¶ The remarkable success of Students of the Medical Correspondence College at the higher Surgical Examinations is specially noteworthy.
¶ Both at the Primary and Final F.R.C.S. England the majority of our Students are successful at the first attempt, and Candidates who have failed at these Examinations on several previous occasions get through without difficulty after going through our courses.
¶ The Surgical Tutors of the College all hold either the M.S.Lond. or F.R.C.S.England, or both, and are highly experienced teachers.
¶ The Postal Courses are thoroughly clear, concise, and up to date, and the test questions are carefully selected from those set at previous Examinations, so as to embrace all parts of the subject. By working systematically through the Course the Student is brought up to the examination standard in the minimum time, and much unnecessary reading is saved.

VALUABLE BOOK

"How to Pass the F.R.C.S.," free on application to the Secretary.

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(Camb., Edin., Glasg., Durh., &c.)

SKILLED COACHING, GUIDANCE, and ADVICE From Specialist Tutors, in conformity with the Regulations of the various Universities. Apply for particulars and free booklet, "Hints on Writing a Thesis for the M.D. Degree," to the SECRETARY, Medical Correspondence College, 19, Welbeck Street, London, W.1.

UNIVERSITY EXAMINATION POSTAL INSTITUTION

17, RED LION SQ., LONDON, W.C.1.
(FOUNDED IN 1882.)

Principal: Mr. E. S. WEYMOUTH M.A. (Lond.). POSTAL OR ORAL PREPARATIONS FOR ALL MEDICAL EXAMINATIONS.

SOME SUCCESSES:

M.D.(Lond.), 1901-28 (9 Gold Medallists during 1913-28)		309
M.S.(Lond.), 1901-28 (including 4 Gold Medallists)		20
M.B.,B.S.(Lond.), *Final* 1906-28 (Completed Exam.)		237
F.R.C.S.(Eng.), *Primary* 1906-28)		149
	Final	135
M.R.C.P.(Lond.), 1914-28		152
D.P.H. (Various) 1906-28 (Completed Exam.)		280
F.R.C.S.(Edin.), 1918-28		39
M.R.C.S., L.R.C.P. *Final* 1910-28 (Completed Exam.)		402
M.D.(Dur.) (Practitioners) 1906-28		36
M.D. Various By Thesis. Numerous successes.		

Preparation for Medical Preliminary, and Chemistry, Physics, Anatomy, Physiology, and final subjects for the Conjoint Board; M.B.(Cantab., etc.); also D.P.M., D.O.M.S., D.T.M. & H., D.L.O., L.M.S.S.A., etc. Numerous successes.

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M.R.C.P., M.D., Final F.R.C.S., F.R.C.S (Edin.), Final M.B., B.S., and M.R.C.S., L.R.C.P. Museum and Microscope Work. Also Private Tuition.

MEDICAL PROSPECTUS (48pp.)

CONTENTS:—The method and the cost of entering the Medical Profession. *Particulars of all Medical Examinations*, Postal Courses, and Oral Classes. Suggestions for the higher Medical Examinations. Suggestions for the higher Surgical Examinations. Suggestions for the Special Diploma [illegible] Medical [illegible] Tutors, [illegible] Mr. E. S. [illegible] London, W.C.1. (Telephone: [illegible])

DIPLOMA IN PUBLIC HEALTH, &c.

THE ROYAL INSTITUTE OF PUBLIC HEALTH.

Patron:
HIS MAJESTY KING GEORGE V.

Principal: Colonel Sir WILLIAM SMITH, M.D., D.Sc., LL.D., F.R.S.Ed., Barrister-at-Law.
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Director of Chemical Laboratories: ALAN WEST STEWART, D.Sc., A.I.C., Public Analyst for the County of Berks, Oxford, Paddington, etc.; Assistant Director: E. H. BUNCE, A.I.C.
Lecturers on Public Health, etc.: ALBERT E. THOMAS, M.A., M.D.Oxon., D.P.H.Oxon., Barrister-at-Law, Medical Officer of Health for the Borough of Finsbury; CECIL W. HUTT, M.A., M.D.Camb., D.P.H.Oxon, Medical Officer of Health for the Borough of Holborn, Examiner for the D.P.H., Conjoint Board of Physicians and Surgeons, London; GEOFFREY E. OATES, M.D.Lond. (State Medicine), D.P.H.Camb., Barrister-at-Law, Medical Officer of Health for the Borough of Paddington.

The Course of Instruction can be commenced at any time.

The Principal will be pleased to interview intending candidates for the purpose of advice.

Further particulars can be obtained from the Secretary, 37, Russell Square, W.C.1.
Telephone: MUSEUM 0766.

POST-GRADUATE MIDWIFERY.

Qualified Medical Women are admitted to **The Mothers' Hospital of the Salvation Army, Lower Clapton Road, E.5** for practical fortnightly Courses in Midwifery. These include delivery of normal cases, attendances at all abnormal cases, operations, ward rounds of visiting staff, V.D. clinics, and ante-natal clinics. For further particulars, fees, etc., apply to the Secretary.

Medical and Dental Students.

Special Classes for Pre-Medical and Dental Exams., Matric., and Prelims.
Chemistry, Physics, and Biology Labs.
MANCHESTER TUTORIAL COLLEGE,
327, Oxford Road, Manchester.

F.R.C.S.(Edin.).

Prep. Classes and Museum Demons. for next Fellowship Exam. will commence shortly. Correspondence course for Jany. and later exams. should begin now. Parties., Mr. H. C. ORRIN, F.R.C.S., at Surgeons' Hall, Edinburgh.

STAMMERING.

SPEECH DEFECTS.
Resident and non-resident pupils. Full particulars upon request.—Mr. A. C. SCHNELL, 119, Bedford Court Mansions, London, W.C.1. Estab. 1906. Telephone: Museum 3665.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE.

(University of London.)

Tropical Medicine and Hygiene.

The School provides two courses yearly, each of 20 weeks. The next courses commence on September 30th, 1929, and February 3rd, 1930.

Diploma in Public Health.

The course of study in Public Health, covering a period of 12 calendar months, commences on September 30th, 1929, and is so designed that students wishing to do so can proceed to the new academic diploma instituted by the University of London.

The inclusive fee of 50 guineas will cover the cost, not only of the ordinary lectures and demonstrations, but also of the necessary practical work in public health departments and instruction in infectious diseases, etc.

Diploma in Bacteriology.

The course of study, covering one academic year, commences in October.

Special advanced courses of study in various branches of Medicine and Science are given by the Professors and other teachers on the staff of the School.

Applications for information as to the above courses and other special advanced courses of study should be addressed to the Secretary, Keppel Street (Gower Street), London, W.C.1.

LIVERPOOL SCHOOL OF TROPICAL MEDICINE.

(UNIVERS[illegible]

COURSES OF [illegible] : three months) f[illegible] Medicine commen[illegible] 7th, and for the Diploma in Tropical Hygiene on January 12th and April 26th. (Candidates for the D.T.H. must possess the D.T.M. of this University.)

For particulars apply to the Hon. Dean, Liverpool School of Tropical Medicine, Pembroke Place, Liverpool.

TAUNTON SCHOOL,

TAUNTON.

A PUBLIC SCHOOL FOR BOYS.

Boys are regularly prepared for the First M.B. Examination, University Scholarships in Chemistry, Biology, etc.

Special facilities are offered for the teaching of Chemistry, Physics, Botany, and Zoology.

New Science Buildings, containing seven laboratories, two lecture rooms, science library, store rooms, etc., opened in September, 1925. Prospectus from Head Master.

CITY OF LONDON MATERNITY HOSPITAL,

CITY ROAD, E.C.1.

MIDWIFERY TRAINING SCHOOL.

MEDICAL STUDENTS admitted to Hospital practice, with operative Midwifery, and Obstetrical complications.

PUPILS TRAINED as Midwives and Monthly Nurses in accordance with C.M.B. regulations.

PRIVATE WARDS for paying patients.

F.R.C.S.(Edin.)

CLASSES, with Museum and Anatomical Demonstrations, for next Exam., will commence shortly. Correspondence work at any time. Particulars from CHAS. WHITTAKER, F.R.C.S., Surgeons' Hall, Edinburgh.

Refraction and the Ordering of GLASSES

taught by Practising Ophthalmic Surgeon in London. £8 8s for 10 lessons—Address, No 123, B.M.A. House, Tavistock Square, W.C.1.

THE NORTH-EAST LONDON POST-GRADUATE COLLEGE.

The Prince of Wales's General Hospital, Tottenham, N.15, and the North Middlesex Hospital, Edmonton, N.18.

A ONE WEEK COURSE IN GASTRO-ENTEROLOGY will be held from September 30th to October 4th inclusive.

Enquiries and applications should be sent to *the Dean at the Prince of Wales's General* Hospital, or to the Secretary of the Fellowship of Medicine, 1, Wimpole Street, W.1.

NORTH-EAST LONDON POST-GRADUATE COLLEGE,

PRINCE OF WALES'S GENERAL HOSPITAL, N.15.

The Practice of the Hospital is limited to Medical Practitioners. Particulars from T. H. C. BENIANS, F.R.C.S., Dean

A REALLY GOOD SCHOOL FOR GIRLS. REASONABLE INCLUSIVE FEES.

MARLBOROUGH COLLEGE,

Tytherington Hall, nr. Macclesfield.

Sound Education. Upper and Lower Schools. Preparation, when desired, for all University Entrance Examinations. Particulars from Sec.

Special Terms to Medical Men.

UNIVERSITY OF OXFORD.

DIPLOMA IN OPHTHALMOLOGY.

The next EXAMINATION begins on MARCH 17th, 1930. The two months' COURSE OF INSTRUCTION starts on JANUARY 20th, 1930. For further information apply to—

P. H. ADAMS,
6, Holywell, Oxford. Margaret Ogilvie Reader in Ophthalmology.

UNIVERSITY OF CAMBRIDGE

Diplomas in (*a*) PUBLIC HEALTH, (*b*) HYGIENE (for foreign graduates), (*c*) TROPICAL MEDICINE AND HYGIENE.

Courses of Instruction in the Subjects of the Examinations commence October 9th, 1929. Full particulars to be obtained from Mr. J. E. Purvis, Public Health Chemical Laboratory, Medical School, Cambridge.

STAMMERING, SPEECH DEFECTS.

BEHNKE METHOD. Estab. 1882. Cases, non-resident, treated at 39, Earl's Court Square, S.W.5, and in residence, in the Summer holidays, at Miss BEHNKE'S house on the Chilterns.

[illegible]

STAMMERING, CLEFT PALATE SPEECH, LISPING, 3/9 of Miss BEHNKE, 39, Earl's Court Sq., S.W.5.

Glamorgan County Council.

APPOINTMENT OF MEDICAL OFFICER.

The Glamorgan Education Committee invite applications for the appointment of a Male *Medical Officer*. Applicants must have had at least three years' professional experience after qualification, and also hold a Diploma in Public *Health*. Special experience in Eye Diseases and Refraction work is essential, and experience in Orthopædic work would also be an advantage. Candidates must not be over 35 years of age.

The commencing annual salary will be £632 10s. less 5 per cent., and after three years will be increased to £641 5s., and thereafter by annual increments of £23 15s. to a *maximum* of £760.

Travelling and subsistence expenses will be paid according to scale.

The post is an established post under the County Superannuation Scheme, and for this purpose a deduction of 5 per cent. of the annual salary will be made, repayable with interest on retirement before pensionable age.

The person appointed will be required to give his whole time to the *duties*, under the control and supervision of the School Medical Officer, and to reside where directed by the Committee.

The appointment will be terminable by two months' notice on either side.

Applications for the appointment, stating age and qualifications, and accompanied by copies of not more than three *recent* testimonials, should be sent to the School Medical Officer, Dr. E. COLSTON WILLIAMS, County Hall, Cardiff, and should be received by him *not later* than the first post on the morning of October 2nd.

Canvassing, personal or otherwise, will be a disqualification.

Glamorgan County Hall, Cardiff.
Sept 14th, 1929.

HENRY ROWLAND, Clerk of the County Council.

University of Cape Town.

APPOINTMENT OF ASSISTANT ANATOMIST.

Applications are invited for the post of Assistant Anatomist in the Department of Anatomy at the University of Cape Town.

Candidates must have a registrable medical qualification, and must have had experience of teaching anatomy. The appointment is a whole-time one, and the holder will be expected to take a responsible share in the teaching and to undertake research.

Salary.—£750 per annum, but for pension purposes it will be regarded as being on the scale £500—£25—£650.

Salary will be paid from February 1st, 1930, provided the Assistant has vacated his previous post on or before January 31st, 1930, and reports for duty on or before February 25th, otherwise salary will be paid from date of assumption of duty.

The appointment is for a period of three years in the first instance.

Passage Money.—£50 will be allowed for passage expenses, subject to a proportionate refund in the event of the Assistant terminating his agreement within three years of the date of the assumption of duty.

Duties.—To be assumed on March 1st, 1930.

Applications, stating age, professional qualifications and experience, together with copies of three recent testimonials (all in duplicate), should reach the Secretary, Office of the High Commissioner for the Union of South Africa, South Africa House, Trafalgar Square, W.C.2, from whom forms of application and further particulars may be obtained, not later than October 8th, 1929.

Medical Department, SUDAN GOVERNMENT.

A MEDICAL OFFICER is required immediately for the Sudan Medical Service. The candidate must be single and should be under 30 years of age, and he must have held a Resident appointment in a large General Hospital.

Pay commences at £E.720 a year, *rising to* £E.1,200 after thirteen years' service. On confirmatio[illegible] lected candidate wil[illegible] service.

Applic[illegible] th copies of recent[illegible] ade to Dr. HODSON, from whom, and from the Secretaries or Deans of the principal Medical Schools, further particulars can be obtained.

British Hospital, Port Said.

ASSISTANT MEDICAL OFFICER.

Resident Assistant Medical Officer required immediately. Salary £350 per annum, *rising* £400. Free quarters, board, and laundry provided, also first saloon passages out and home. Candidates should be young and unmarried. Applications, in writing, with recent testimonials, should be sent to the Secretary, British Hospital, Port Said, 19, Berkeley Street, London, W.1.

City of Westminster.

ST. STEPHEN'S HOSPITAL.

THIRD ASSISTANT MEDICAL OFFICER.

The Guardians require a Third Assistant Medical Officer (male) for their Hospital, 369, *Fulham Road*, S.W.10.

Remuneration £300 per annum, rising £25 yearly to £350 per annum, with board, residence, and washing.

Candidates must have had experience in the administration of anæsthetics, and will be required to take part in the teaching and instruction of the Nursing Staff.

Further particulars of the duties may be obtained upon personal application to the Medical Superintendent at the Hospital any day between 12 noon and 1.30 p.m., or forms of application may be obtained on forwarding to him a stamped addressed envelope.

Forms of application must be returned to the Medical Superintendent not later than 12 noon on Wednesday, October 9th.

W. J. LICKLEY,
Clerk to the Guardians.

North Ormesby Hospital,

MIDDLESBROUGH. (140 Beds.)

HOUSE PHYSICIAN required early in October. Male and unmarried. Salary £115 per annum, with board, residence, and laundry.

There are three Residents, and the successful candidate will be eligible for the post of House Surgeon in due course.

Applications, stating age, qualifications, previous experience (if any), with copies of three recent testimonials, to be sent to the undersigned as early as possible.

GEORGE WATTS, Secretary-Supt.

ROYAL NAVAL MEDICAL SERVICE.

VACANCIES EXIST FOR MEDICAL OFFICERS IN THE ROYAL NAVY.

Candidates will be entered as Short Service Medical Officers and will be considered for transfer to the Permanent Service after 6 months' service. They must be registered under the Medical Acts, and be under 30 years of age on date of entry.

Medical Officers, R.N., are liable to serve in Naval Hospitals or Ships in any part of the world.

Excellent opportunities exist for clinical professional work, both medical and surgical, as well as for study and practice of Hygiene, Pathology, Ophthalmology, and other specialist branches.

Adequate provision is made for Post-Graduate Study.

OUTFIT ALLOWANCE of £50 is paid on joining.

PAY.—Pay from £452 to £2,350 a year, according to length of service.

ALLOWANCES.—When in charge of **Hospitals** and **Sick Quarters,** 10s. and 5s. a day.

60 Specialists Allowances of 5s. a day.
Flag Allowances, 5s. and 2s. 6d. a day.
Provision Allowance, Lodging Allowance, etc.

PROMOTION.—To Surgeon Lieutenant Commander after 6 years' service; to Surgeon Commander after a total of 12 years' service. Promotion to Surgeon Captain, Surgeon Rear-Admiral, and Surgeon Vice-Admiral is by selection.

Ante-date of seniority on account of civil hospital appointments, and accelerated promotion can be gained.

RETIREMENT.—Gratuities are paid as follows:—

Short Service Officers, after 3 years' service	£300
Permanent Officers, after 4 years' service ...	£400
„ 8 „ „ ...	£1,000
„ 12 „ „ ...	£1,500
„ 18 „ „ ...	£2 250

Rates of Pension range from £423 a year, normally earned after 20 years' service, to £1,123 a year, the maximum earned by a Surgeon Vice-Admiral.

Copies of the Regulations and Particulars as to Conditions of Service and Emoluments may be obtained on written or personal application to the Medical Director General of the Navy, Queen Anne's Chambers, Tothill Street, London, S.W.1.

Birmingham Union.

SELLY OAK HOSPITAL.

RESIDENT PHYSICIAN (Male).

Applications are invited for the above post, giving age, full details of experience and qualifications and accompanied by copies of not more than three recent testimonials. Applications should be forwarded so as to reach the undersigned not later than Wednesday, October 9th.

Candidates must hold the degree of Doctor of Medicine of one of the Universities of the United Kingdom, or be a Fellow or a Member of the Royal College of Physicians of London or Edinburgh.

The Resident Medical Staff, including the Medical Superintendent, numbers eight.

The present Hospital accommodation consists of 540 beds for acute cases, divided into general medical, general surgical, gynæcological, obstetrical, and children's sections. Out-patient and Casualty Departments, as well as the following fully equipped special departments, are attached to the Hospital:—Pathological, X-ray, Electro-therapeutic, Massage, Ultra-violet ray.

The admissions and discharges for the year 1928 were 7,284 and 7,448 respectively.

The person appointed must devote the whole of his time to the duties of the office. He will act under the control and direction of the Medical Superintendent and will carry out such duties as may be assigned to him by such officer with the consent of the Guardians. Should occasion arise, the successful applicant must be prepared to assist at any of the other Institutions in the Union without additional remuneration.

The commencing salary will be fixed between £400 and £600, according to qualifications and experience. If fixed lower than the latter figure, the salary will rise to that figure by £50 annually, subject to satisfactory service. The Guardians' regulations provide that at the expiration of 12 months' satisfactory service additional allowances not exceeding in all £150 per annum are granted to the holders of certain prescribed degrees and/or diplomas.

Furnished quarters, rations, laundry, and attendance, will be provided. A deduction of 2 per cent. will be made from the salary and value of the emoluments under the provisions of the Poor Law Officers Superannuation Act, 1896.

Further particulars may be obtained, if desired, on application to the Medical Superintendent, R. P. S. KELMAN, Esq., M.B., F.R.C.S.(Eng. & Edin.).

Union Offices, Edmund Street, Birmingham. C. P. BEECH, Clerk to the Guardians.

Kingston Union.

APPOINTMENT OF THIRD ASSISTANT RESIDENT MEDICAL OFFICER.

The Guardians of the Poor of the Kingston Union require a thoroughly qualified Third Assistant Resident Medical Officer at the Kingston and District Hospital (age not to exceed 30 years).

The appointment will be for six months in the first instance and may be extended subject to satisfactory service.

The salary will be at the rate of £250 per annum, with apartments, rations, laundry, and attendance (valued at £125 per annum for superannuation purposes), and will be subject to the terms of the Poor Law Officers Superannuation Act, 1896.

Applications for the post, stating age, experience, and nationality, together with recent testimonials, should reach me not later than 10 a.m. on Friday, October 4th.

Experience in administration of anæsthetics essential.

Canvassing, either directly or indirectly, will disqualify.

Union Offices, Kingston-on-Thames. September 17th, 1929. W. TAYLOR, Clerk to the Guardians.

The Royal Hospital,

WOLVERHAMPTON.
(Incorporated under Charter.)

A RESIDENT MEDICAL OFFICER WANTED.

The Hospital contains 240 beds, the usual special departments, and is recognized by the various Examining Bodies for a part of the requisite attendance on Medical and Surgical Practice.

Candidates must be registered under the Medical Acts.

The appointment is for six months, with a salary at the rate of £150 per annum. Board, furnished rooms, and laundry provided.

Duties to commence November 1st.

Application, with copies of testimonials, to the undersigned.

W. H. HARPER,
House Governor and Secretary.
Wolverhampton.
September 24th, 1929.

Birmingham Union.

DUDLEY ROAD HOSPITAL.

JUNIOR ASSISTANT MEDICAL OFFICERS (Male).

Applications are invited from fully qualified medical practitioners for appointments as Junior Assistant Medical Officers (male) at the Dudley Road [illegible]

The Hospi[illegible] by the Guardians [illegible] Medical, Surgical, [illegible]ternity, Gynæcological, and Obstetrical Section. There are completely equipped Pathological and Biochemical Laboratories, X-ray, Electrical, Massage, Sunlight, and Dental Departments. Approximately 5,000 operations are performed annually.

The appointments will be for a period of six months in the first instance, but may be extended at the end of that period.

The persons appointed will be required to assist at operations, to administer anæsthetics, and undertake casualty work and such other duties as may be assigned to them by the Chief Medical Officer, and, should occasion arise, to assist at any of the other Institutions under the control of the Guardians.

The salaries attached to the appointments will be at the rate of £200 per annum, together with full residential emoluments (rations, apartments, laundry, and attendance).

A deduction of 2 per cent. will be made from the salaries and value of emoluments under the provisions of the Poor Law Officers Superannuation Act, 1896, and for this purpose the emoluments are valued at £200 per annum. Fourteen days' leave will be granted to the successful candidates during their term of office.

Further particulars of the appointments may be obtained from the Chief Medical Officer, F. W. ELLIS, Esq., M.D., F.R.C.S., Dudley Road Hospital.

Applications, stating age, experience, and qualifications, accompanied by copies of recent testimonials, should be forwarded so as to reach me not later than Wednesday, October 9th.

Union Offices, Birmingham. Sept. 19th, 1929. C. P. BEECH, Clerk to the Guardians.

Parish of St. Pancras.

GUARDIANS OF THE POOR.

The Guardians of the Poor of the Parish of St. Pancras invite applications from duly qualified candidates for the appointment of a THIRD ASSISTANT MEDICAL OFFICER of the HIGHGATE HOSPITAL, Dartmouth Park Hill, N.19. Salary at the rate of £350 per annum, together with rations, lodging, and laundry, subject to deductions under the provisions of the Poor Law Officers' Superannuation Act, 1896.

Candidates must be registered Medical Practitioners, qualified by law to practise both medicine and surgery in England and Wales, [illegible] to candidates with [illegible] hours, and off-duty [illegible] Superintendent of [illegible] Hospital.

Applications to be made on forms to be obtained from the Medical Superintendent at the Hospital, and selected candidates will be informed when and where they may attend a meeting of the Guardians.

B. CHAPMAN,
Clerk to the Guardians.
Town Hall, Pancras Road, London, N.W.1.
September 24th, 1929.

Central London Throat, Nose, AND EAR HOSPITAL,

Gray's Inn Road, W.C.1.

CHIEF CLINICAL ASSISTANTS.

It has been decided to increase the number of Chief Clinical Assistants. Applications are therefore invited for two such posts, which are honorary and tenable for one year, subject to re-election.

Attendance is required at two Clinics each week to assist the Surgeons in seeing the patients.

Applications, accompanied by copies of not more than three recent testimonials, should be sent to the undersigned on or before Oct. 7th.

JOHN H. YOUNG, [illegible]

Stockton and T[illegible]

STOCKTON-ON-TEES.
(140 Beds.)

Applications are invited for the post of JUNIOR RESIDENT MEDICAL OFFICER (male). Salary £150, with residence, board, and laundry. Candidates for the above post must be doubly qualified and unmarried, and are required to commence duties on or about October 1st. Application, stating age, nationality, and experience, together with copies of three recent testimonials, to be sent to the undersigned as early as possible.

J. WILKINSON, Secretary.

County of London.

The London County Council invites applications for appointment as FOURTH ASSISTANT MEDICAL OFFICER (woman) at HORTON MENTAL HOSPITAL, EPSOM, SURREY. Candidates must have had special education and experience in gynæcology, the practice of which will be one of the principal duties of the person appointed. The duties otherwise will be those allocated generally to Assistant Medical Officers at the Hospital. Applicants must be under 40 years of age, and be registered to practise both in Medicine and Surgery in England. Marriage terminates contract of service. Salary £423 a year, rising by annual increments of £25 to £500 a year, plus fluctuating temporary additions, making the total commencing remuneration at present approximately £578 a year. No emoluments. Charges made for board, lodging, etc. (at present £2 9s. weekly) if required to be resident. Candidate appointed will be pensionable under the Asylums Officers Superannuation Act, 1909. Form of application on which full particulars are given can be obtained from the Acting Chief Officer, Mental Hospitals Department, The County Hall, Westminster Bridge, S.E.1. Completed applications must be received by October 10th. Canvassing disqualifies.

MONTAGU H. COX,
Clerk of the London County Council.

County of London.

The London County Council invites applications for appointment as ASSISTANT MEDICAL OFFICER at the MAUDSLEY HOSPITAL, Denmark Hill, S.E.5 (for Treatment of Incipient Mental Disorder). Candidates must be under 40 years of age unless in London County Mental Hospital Service, and must be registered to practise both in Medicine and Surgery in England. The position is pensionable under the Asylums Officers Superannuation Act, 1909. Salary £300 a year, rising by annual increments of £25 to £350 a year, plus fluctuating temporary additions, the total commencing remuneration at present being about £423 a year. No emoluments. Charges made for board, lodging, etc. (at present £2 9s. weekly) if required to be resident. Full particulars and condition[illegible] of application (on [illegible] can be made) obtainab[illegible] Officer, Mental Hospital [illegible] Hall, Westminster [illegible] disqualifies. Applicati[illegible] by Friday, October 4th.

MONTAGU H. COX,
Clerk of the London County Council.

Lindsey (Lincs) County Council.

APPOINTMENT OF LADY ASSISTANT MEDICAL OFFICER.

Applications are invited for the post of Lady Assistant Medical Officer under the Lindsey County Council. Applicants will be required, under the general supervision of the County Medical Officer of Health, to undertake duties in connexion with the Maternity and Child Welfare Service of the Council, including the conduct of Infant Welfare Centres and Antenatal Clinics and the treatment by modern methods of Venereal Diseases in Women, and also the treatment of errors of refraction in school children and any other duties that may from time to time be prescribed by the County Council.

Salary £500 per annum, rising by annual increments of £25 to £700. Travelling allowance according to the Council's scale (person appointed finding own car).

Applications, which must be on the prescribed form, to be obtained from the undersigned, must be received not later than October 31st, 1929.

W. S. H. CAMPBELL,
County Medical Officer.
County Offices, Newland, Lincoln.
September 18th, 1929.

City of Birmingham Education COMMITTEE.

ASSISTANT SCHOOL MEDICAL OFFICER (MALE).

Applications are invited for the appointment of Male Assistant School Medical Officer. Remuneration for candidate with suitable experience and qualifications, £600 per annum; £10 per annum travelling expenses.

Forms of application should be returned not later than first post on Monday, October 7th. Further information may be obtained from the undersigned [illegible] be endorsed "[illegible]

Canvass [illegible]

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Educati[illegible]

Margaret Street, Birmingham,
September 21st, 1929.

Southwark Hospital.

VISITING DENTAL SURGEON.

The Guardians of the Southwark Union invite applications from practising Dental Surgeons who would be prepared to enter into a Contract with them as Visiting Dental Surgeon at the Southwark Hospital, East Dulwich Grove, S.E., upon the following terms, viz.:

(*a*) £2 2s. for a weekly visit of three hours' duration;

(*b*) Supplying dentures at the rate of £5 per complete set, with proportionate charges for part dentures.

A fully equipped dental room is provided at the Hospital.

Any further particulars can be obtained upon application to the Medical Superintendent of the Hospital.

Applications, accompanied by copies of recent testimonials, will be forwarded to the undersigned, endorsed "Application for Visiting Dental Surgeon," not later than 12 noon on Monday, October 14th.

By Order,
A. P. STANWELL SMITH,
Clerk to the Guardians.

Union Offices, 50/51, Ufford Street, Blackfriars Road, S.E.1.
September 19th, 1929.

Hospital of St. Cross, Rugby.

(114 Beds.)

Applications are invited for the posts of SENIOR and JUNIOR RESIDENT MEDICAL OFFICERS (males).

Candidates must be registered medical practitioners, and must be prepared to begin duties on October 1st. Salary for the Senior post at the rate of £150 per year. Junior at the rate of £100 per year, with board and residence in the Hospital.

Candidates are requested to state whether they are prepared to accept the post of Junior if not selected for the Senior office.

The appointments are for a period of six months only; at the end of that time the Junior will be eligible to apply for the Senior post, which then becomes vacant.

This Hospital is recognized by the University of London for the purposes of the M.D. and M.S.

Applications, stating age and qualifications, with copies of three recent testimonials, should be sent to me immediately.

W. COCKBURN,
Superintendent and Secretary.

Kettering and District General Hospital.

(82 Beds.)

Applications are invited for the post of JUNIOR HOUSE SURGEON. Salary £100 p.a., with board, residence, and washing. Candidates must be fully qualified and registered.

The appointment is for six months, but candidates will be eligible for re-election.

Applications, stating age, nationality, and qualifications, together with copies of three recent testimonials, to be sent immediately to the Secretary-Superintendent.

London Jewish Hospital,

Stepney Green, E.1. (103 Beds.)

The Council of Management invite applications for the following posts:

HONORARY
HONORARY
OF THE
MENT, wi
Department at least twice a week.

Candidates desiring to make applications for either of the above posts must send twenty copies of the applications, with copies of three recent testimonials, to the Secretary at the Hospital before Friday, October 4th.

Hospital of St. John and St. Elizabeth,

60, Grove End Road, N.W.8.

Applications are invited for the post of RESIDENT HOUSE SURGEON (male). The appointment will be for six months from November 1st. Salary at the rate of £75 per annum, with full board. Applications, together with three testimonials, should reach the undersigned not later than October 1st.

F. DUDLEY HOBB, B.A.,
Secretary.

September, 1929.

City of London Hospital for Diseases of the Heart and Lungs,

Victoria Park, E.2.
(Bus, tram, and rail, Cambridge Heath, L. & N.E. Railway.)

Applications for the post of HOUSE PHYSICIAN (male), with copies of recent testimonials, are invited to be sent to the undersigned by Monday, October 7th.

The appointment will be for six months from November 1st.

Salary at the rate of £100 per annum, with board, residence, and laundry provided.

GEORGE WATTS, Secretary.

West Middlesex Hospital,

ISLEWORTH.

APPOINTMENT OF RESIDENT ASSISTANT MEDICAL SUPERINTENDENT.

The Guardians invite applications for the appointment of Resident Assistant Medical Superintendent and Assistant Medical Officer of their Warkworth House Institution and Scattered Homes, which are adjacent, from medical practitioners with previous experience in major surgery and of administration in similar Institutions.

Commencing inclusive salary £450 per annum, rising, upon approved service, on October 1st, 1930, and thereafter, annually by £50, to £600 per annum, together with residential emoluments valued for superannuation purposes at £90 per annum. All fees received are to be repaid to the Guardians.

Applications, upon forms to be obtained by forwarding a stamped addressed foolscap envelope, are to be returned to the undersigned before 10 a.m. on Saturday, October 5th.

F. E. HARMSWORTH,
Clerk to the Guardians.

Toolands House, 34, Twickenham Road, Isleworth, Middx.
September 23rd, 1929.

Papworth Village Settlement,

Near CAMBRIDGE,
For the Treatment of all Forms of Tuberculosis.
(Over 300 Beds, Male and Female.)

Applications are invited for the post of SECOND ASSISTANT MEDICAL OFFICER. Salary from £200 per annum, according to experience, with board, lodging, and laundry.

Applications are also invited for the post of HOUSE PHYSICIAN. Salary £100 to £200 per annum, according to experience, with board, lodging, and laundry. The appointment is for six months.

Applicants for these posts must be male, and single, and all applications should be sent to the Medical Director, Papworth Village Settlement, Papworth Hall, Cambridge, accompanied by copies of not less than three references.

Hospital for Consumption and Diseases of the Chest,

Brompton, S.W.3.

The Committee of
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which there are th
include work in the Out-Patient Department as well as in the Wards, and one of the selected candidates will also be appointed Assistant to the Tuberculosis Officer for the local Tuberculosis Dispensary at the Hospital. Applications, with copies of testimonials, must reach the undersigned not later than Saturday, October 12th.

The appointment is for six months, commencing on November 1st, with an honorarium of £50.

FREDERICK WOOD, Secretary.

Brompton, September, 1929.

City Mental Hospital,

NOTTINGHAM.

Wanted, JUNIOR ASSISTANT MEDICAL OFFICER (male), preferably with some Post-Graduate General Hospital experience. Salary £350 to £400 per annum by two £25 increases, all found, with an additional £50 per annum on obtaining the D.P.M. The Hospital has a well-equipped Laboratory. Application, with fullest particulars and names of two referees, should be sent to the Medical Superintendent of the above-named Hospital forthwith.

South Yorkshire Mental Hospital,

SHEFFIELD.

Wanted, MEDICAL OFFICER (male) not over 35, unmarried. Salary £400, rising £25 a year to £500, with board, etc. The appointment is made subject to the provisions of the Asylums Officers' Superannuation Act, 1909. Applications, with three testimonials (copies only), to be sent to the Medical Superintendent on or before October 16th.

Swansea Hospital.

(316 Beds.)

HOUSE SURGEON wanted, gentleman, single. Salary £150 per annum, with board, residence, and laundry.

Applications, stating age, nationality, qualifications, and experience, together with copies of three recent testimonials, to be forwarded to the undersigned.

O. C. HOWELLS, Secretary.

Applications are invited for two appointments of HONORARY ANÆSTHETIST for duty on Tuesday and Saturday mornings respectively, at the NATIONAL DENTAL HOSPITAL, Great Portland St., W.1, and should be forwarded to the Secretary, University College Hospital, Gower St., W.C.1, before noon on Saturday, October 12th.

Stirling District Mental Hospital,

LARBERT.

THIRD ASSISTANT MEDICAL OFFICER required (lady), with some previous experience of modern laboratory methods and pathological work. Well-equipped laboratory and facilities given for research work. Salary £250 per annum, with board, lodging, and laundry. Appointment subject to provisions of the Asylums Officers Superannuation Act. Apply, stating age, with particulars as to experience in laboratory work, and testimonials, to the Medical Superintendent.

Consumption Sanatoria Orphan Homes of Scotland, and Colony for Epileptics.

Applications are invited for the post of RESIDENT ASSISTANT MEDICAL OFFICER (female). Salary £200, with board, rooms, and laundry.

State qualifications and subsequent experience. Duties to commence middle of October.

Apply, Medical Superintendent, Sanatoria, Bridge of Weir.

Eastern Dispensary, Leman St., E.1.

Applications are invited for the post of PHYSICIAN to this Institution, to attend on two evenings a week. Candidates must be Fellows or Members of a Royal College of Physicians in the United Kingdom, or Graduates in Medicine of a recognized British University. There is an honorarium attached to the post.

Further particulars can be obtained from the undersigned.

GEORGE W. HISLEY,
Secretary.

September 24th, 1929.

Saint Mark's Hospital for Cancer, Fistula and other diseases of the Rectum, City Road, London, E.C.1.

HOUSE SURGEON (male) required. Must be fully qualified. Salary £75 per annum, with board, residence, and laundry. The appointment is for a minimum of six months from November 1st next. Applications, with copies of testimonials, must reach the Secretary (from whom further particulars may be obtained) not later than 10 a.m. Saturday, October 12th.

Merthyr General Hospital,

MERTHYR TYDFIL.

Applications are invited for the post of RESIDENT MEDICAL OFFICER at this Hospital (103 beds, mainly surgical) for a period of six months. Salary at the rate of £150 per annum, with board, rooms, and laundry. Applicants must have had experience in administration of anæsthetics.

Applications, stating age and qualifications and enclosing copies of not more than three recent testimonials, should be addressed, Hon. Sec., Honorary Medical Staff, not later than October 1st.

Falkirk and District Infirmary.

RESIDENT MEDICAL OFFICER wanted, to commence duty on or about September 30th, must have previously held similar position. Salary £150 per annum, with board and laundry. Applications to be sent to Mr. DUNCAN KENNEDY, W.S., Hon. Secretary, Falkirk & District Infirmary, 5, Bank Street, Falkirk.

Free Eye Hospital, Southampton.

The Committee require the services of a duly qualified HOUSE SURGEON to enter on duties immediately. Salary £150 per annum, with board, residence, and laundry. Applicants must have had Post-Graduate experience in Ophthalmology. Applications, with three recent testimonials, to reach the Secretary by Saturday, October 5th.

Herefordshire General Hospital.

Applications are invited for the post of HONORARY PHYSICIAN.

Candidates must be duly registered practitioners.

Applications, stating age, qualifications, experience, etc., accompanied by three recent testimonials, should be forwarded to the Secretary on or before Saturday, October 19th.

H. AUBREY FROGGATT, Secretary.

Leeds Public Dispensary.

Wanted, JUNIOR RESIDENT MEDICAL OFFICER. Salary £150 per annum with board, residence, and 4s. weekly for laundry. Separate sitting-room. Applications, with copies of three recent testimonials, to be addressed to the Secretary of the Faculty, Public Dispensary, North Street, Leeds, [illegible]

London Homœopathic Hospital

(Incorporated by Royal Charter),
Great Ormond Street and Queen Square,
Bloomsbury, W.C.1. (172 Beds.)

The Board of Management are prepared to receive applications, male or female, for the following appointment:

ASSISTANT SURGEON FOR DISEASES OF THE EYE.

The successful candidate must possess or obtain a registrable University Degree, and be, or become, a Member of the British Homœopathic Society. Any candidates canvassing the Members of the Board, Medical Council, or Medical Committee are thereby disqualified.

Candidates may be required to attend a meeting of the Medical Committee.

Applications, stating age, with 35 copies of application and 35 copies of each testimonial, should be sent, addressed to the Secretary, of whom further particulars may be obtained.

EDWARD ATTWOOD, Secretary.

September, 1929.

The Willesden General Hospital

(Incorporated), London, N.W.10
(106 Beds.)

The Executive Committee invite applications for the appointment of RESIDENT HOUSE SURGEON (male). Candidates must be duly registered under the Medical Acts, and unmarried.

The appointment is for a period of six months from November 1st (the first three months as Casualty Officer and House Physician, the second three months as House Surgeon). Salary at the rate of £100 per annum.

Fully detailed applications, with copies of testimonials, to be received by the Secretary not later than noon on Monday, October 7th.

R. J. HEARNE,
September 19th, 1929. Secretary.

The Willesden General Hospital

(Incorporated), London, N.W.10.

The Council of Management invite applications for the appointment of OPHTHALMIC SURGEON.

Candidates must be Fellows of the Royal College of Surgeons of England

Thirty copies of application and testimonials must reach the Secretary not later than Friday, October 4th, from whom a list of the Members of the Medical Committee and other particulars can be obtained.

R. J. HEARNE,
September 19th, 1929. Secretary.

The Willesden General Hospital

(Incorporated), London, N.W.10.

The Council
tions for the
Candidates
and Member
Physicians.

Thirty copies of application and testimonials must reach the Secretary not later than Monday, October 7th, from whom a list of the Members of the Medical Committee and other particulars can be obtained.

R. J. HEARNE,
September 21st, 1929. Secretary.

The Glasgow Eye Infirmary.

The Directors invite applications for the post of CLINICAL ASSISTANT.

Honorarium at the rate of £30 per annum.

Applications, with twelve copies thereof and twelve copies of each testimonial submitted, should be lodged with the undersigned at once.

174, West Regent St., WM. M. MOORE,
Glasgow. Secretary.
September 21st, 1929.

The Royal Gwent Hospital,

NEWPORT, MON.

There is a vacancy for a JUNIOR RESIDENT MEDICAL OFFICER at the above Hospital. Salary at the rate of £125 per annum, with board, lodging, and laundry.

Applications, stating age and qualifications, with copies of three testimonials, to be sent to the undersigned.

Applications from ladies not entertained.

J. K. MILLWARD,
Sept 16th, 1929. Secretary-Supt.

Weston - super - Mare General

HOSPITAL. (60 Beds in use)

HOUSE SURGEON.

The Committee require the services of a duly qualified RESIDENT HOUSE SURGEON. Salary £150, with board, residence, and laundry. Duties to commence immediately. Applications, with copies of testimonials, to be sent to the undersigned.

LESLIE J. FURSLAND, Secretary.

The Hospital for Epilepsy and

PARALYSIS, Maida Vale, W.9.

A RESIDENT MEDICAL OFFICER required November 1st.

HOUSE PHYSICIAN required November 1st.

Applications are invited for these posts. The salaries are at the rate of £150 and £100 per annum respectively, and the appointments are for six months. Candidates for the post of Resident Medical Officer should state if they are willing to take that of House Physician, and applications, accompanied by copies of three recent testimonials, should reach me by October 9th.

The accommodation at the Hospital does not permit of Women Graduates holding these appointments.

H. W. BURLEIGH,
Secretary & Gen. Supt.

The King Edward VII Welsh

NATIONAL MEMORIAL ASSOCIATION.

Applications are invited from duly registered medical practitioners (male) for the post of ASSISTANT RESIDENT MEDICAL OFFICER at the GLAN ELY TUBERCULOSIS HOSPITAL, FAIRWATER, near CARDIFF. Salary £250 per annum, plus maintenance, the appointment being limited to a period of twelve months.

Applications, giving age, qualifications, and experience, together with copies of three recent testimonials, should reach the undersigned by October 12th.

Memorial Offices, Westgate Street, Cardiff. D. A. POWELL, Principal Medical Officer.

Paddington Green Children's

HOSPITAL (Incorporated),
London, W.2.

HOUSE PHYSICIAN. HOUSE SURGEON.

These appointments will become vacant on November 1st. Gentlemen (unmarried) are invited to send in their applications, with copies of three testimonials, to the undersigned not later than the first post on Friday, October 11th. Salary of each at the rate of £150 per annum, with board and residence.

Candidates who have held a responsible Resident Hospital appointment are preferred. The appointments are for a period of six months.

JAMES A. HAMLIN, Secretary.

Paddington Green Children's

HOSPITAL (Incorporated),
London, W.2.

Applications are invited for the post of ANÆSTHETIST to the above Hospital.

Applications, accompanied by copies of testimonials, should be forwarded to the undersigned not later than the first post on Friday, October 11th.

The appointment carries with it an honorarium of £75 per annum, and attendance will be required on Monday and Tuesday afternoons and Friday mornings.

JAMES A. HAMLIN, Secretary.

Batley and District Hospital.

(General Hospital. 84 Beds.)

Applications are invited for the post of RESIDENT MEDICAL OFFICER (male). Salary £150, with residence, board, and laundry. Candidates for the above post must be doubly qualified and unmarried. Commence duties as soon as possible.

Application, stating age and qualifications, together with copies of three testimonials, to be sent to the undersigned at once.

ARTHUR W. WESTERN,
Batley, Yorks. Secretary

Blackburn and East Lancashire

ROYAL INFIRMARY.

FOURTH HOUSE SURGEON (male) required at a salary of £130 per annum, with board, residence, laundry, etc.

The Hospital contains 240 beds, with X-ray, Massage, V.D., Eye, Ear, Nose, and Throat Departments, Pathological Laboratory, etc There is no outside work.

Applications, with copies of testimonials, stating age, nationality, experience, etc., to be sent at once to the undersigned.

Royal Infirmary, Blackburn. NATHAN A. SMITH, Gen. Supt. & Secretary.

Bootle Borough Hospital,

DERBY ROAD, BOOTLE.

Appointment of HONORARY ASSISTANT GYNÆCOLOGICAL SURGEON. Applications are invited for the above vacancy. Candidates are requested to send particulars of their qualifications and experience, accompanied by testimonials, to the undersigned, not later than October 11th

J. A. BEARDSALL, Secretary-Supt.

Newcastle - upon - Tyne Eye

HOSPITAL.

Wanted, a male non-resident HOUSE SURGEON. Salary £200 per annum, together with lunch at the Hospital. The post offers excellent opportunities to anyone wishing to become proficient in Ophthalmology and is a recognized Institution for the D.O.M.S.

There is ample time for study for higher examinations.

Intending candidates should send in their applications as soon as possible to the undersigned and should state when they are prepared to commence duty.

Eye Hospital, Newcastle-upon-Tyne. CHARLES E. V. UPTON, Secretary.

North Riding Infirmary,

MIDDLESBROUGH.
(General Hospital. 150 Beds.)

JUNIOR HOUSE SURGEON (gentleman) wanted to take up duties soon as possible. Salary £125 per annum, with board, residence, and laundry. Six months' appointment. This appointment is for a Third House Surgeon, who will be eligible for advancement. Applications, with three recent testimonials (copies), stating age, qualifications, experience, and nationality, should be sent to the undersigned without delay.

CHARLES POSTGATE,
Sept. 27th, 1929. Secretary-Supt.

Royal Albert Hospital and Eye

INFIRMARY, DEVONPORT.

A vacancy for an ASSISTANT HOUSE SURGEON (unmarried) exists. Applicants must be duly registered and the appointment will be for six months.

Salary £100 p.a., with board, apartments, and laundry free.

Applications, accompanied by copies of not more than three testimonials, should reach the undersigned not later than Friday, Oct. 5th.

By Order of the Committee,
FRANK ROWE,
Sept. 23rd, 1929. Secretary.

Royal National Orthopædic

HOSPITAL.

HONORARY ASSISTANT SURGEON.

The Committee propose to appoint an Honorary Assistant Surgeon, whose duties will include attendance in the Out-patients' Department on Wednesday and Thursday afternoons and charge of beds. Application, with copies of three recent testimonials, should be sent to the Secretary, 234, Great Portland Street, W.1, on or before Thursday, October 17th.

Royal National Orthopædic

HOSPITAL.

SURGICAL REGISTRARS.

The Committee invite applications for the appointment of Three Registrars (male) as from November 1st.

Honorarium £105 per annum. The appointments are for 12 months, renewable for a further 12 mont pies of the Medical Bor the three recent Secretary, 234, Great Portland Street, W.1, not later than October 17th.

Royal Sussex County Hospital,

BRIGHTON. (225 Beds.)

HOUSE PHYSICIAN (male) required immediately, with charge of beds. Salary £150 per annum, with board, residence, and laundry. Candidates must hold a Medical and Surgical qualification of the British Empire, and be duly registered under the Medical Acts. They must be unmarried, and when elected under 30 years of age. Applications, with copies of testimonials, should be sent at once to the undersigned.

I

Resident

at once for STOURBRIDGE DISPENSARY (Outside Patients only). Salary £250 p.a. (with prospect of further increases), with furnished accommodation. Full details supplied to applicants on request. Applications, stating age, qualifications, and testimonials, to be sent immediately to the Secretary, PERCIVAL D. FOLKES, Chartered Accountant, Stourbridge.

St. Vincent's Hospital, Dublin.

Applications are invited for the post of ASSISTANT RADIOLOGIST to St. Vincent's Hospital, Dublin. Applications, together with copies of testimonials, to be forwarded to Mr. WM. DOOLIN, M.B., F.R.C.S.I., Hon. Sec., Medical Board, not later than October 5th.

APPOINTMENTS—Important Notice.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

(a) British Islands.

Town or District.	Town or District.	Town or District.
CONTRACT PRACTICE.	**CONTRACT PRACTICE** *(Contd.).*	**PUBLIC HEALTH** *(continued).*
EBBW VALE, MON. *(Workmen's Medical Society.)*	NEATH AND DISTRICT. *(Medical Aid Association.)*	CORNWALL EDUCATION COMMITTEE. *(Assistant School Medical Officer—Female.)*
GILFACH GOCH, GLAMORGAN. *(Workmen's Medical Scheme.)*	OAKDALE, MON. *(Medical Officer for Medical Aid Association.)*	GLASGOW EDUCATION AUTHORITY. *(Male Assistant Medical Officer.)*
LLWYNYPIA, CLYDACH VALE PENYGRAIG, GLAMORGAN. *(Workmen's Medical Scheme.)*	OGMORE VALLEY, GLAMORGAN. *(Wyndham Colliery Medical Aid Society.)* *(Workmen's Medical Scheme.)*	YORKSHIRE NORTH RIDING COUNTY COUNCIL EDUCATION COMMITTEE. *(Assistant School Medical Officer.)*
MARDY, GLAMORGAN. *(Workmen's Medical Scheme.)*	**PUBLIC HEALTH.**	YORKSHIRE WEST RIDING COUNTY COUNCIL. *(School Medical Inspector.)*
	CHESHIRE EDUCATION COMMITTEE. *(Assistant School Medical Officer.)*	

(b) Colonial Medical Service.—

WINDWARD ISLANDS MEDICAL SERVICE. (Grenada with Carriacou, St. Vincent and St. Lucia.)

(c) Overseas.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.
NEW SOUTH WALES. *(All Friendly Society Appointments.)*	Dr. R. H. TODD (Hon. Sec., New South Wales Branch), B.M.A. Building, 30-34, Elizabeth St., Sydney, N.S.W.	VICTORIA. *(All Institute or Medical Dispensaries.)*	Dr. FRANK DAVIES (Hon. Sec., Victorian Branch), British Medical Association, Medical Society Hall, East Melbourne, Victoria.	WESTERN AUSTRALIA. *(Contract and Lodge Practices.)*	Hon. Sec., Western Australian Branch, British Medical Association, No. 6, Bank of N.S.W. Chambers, St. George's Terr., Perth, Western Australia.
QUEENSLAND. *(Brisbane Associated Friendly Societies Institute.)*	The Hon. Sec., Queensland Branch, British Medical Association, B.M.A. Building, Adelaide St., Brisbane.	WELLINGTON, NEW ZEALAND. *(Contract Practice Appointments.)*	Dr. G. F. V. ANSON (Hon. Sec., New Zealand Branch), British Medical Association, P.O. Box 156, Wellington, New Zealand.		

Address: B.M.A. House, Tavistock Square, W.C.1.
September 25th, 1929.

By Order of the Council of the British Medical Association.
ALFRED COX, Medical Secretary.

Princess Louise Kensington
HOSPITAL FOR CHILDREN, North Kensington. (42 Beds.)

HOUSE PHYSICIAN (woman) required for six months from November 1st. During the first three months the House Surgeon will be Senior Resident, after which a new House Surgeon will be appointed and the House Physician becomes Senior. Salary at the rate of £75 per annum for the first three months, and at the rate of £100 for last three months, with board, residence, and laundry.

Applications, together with copies of three testimonials, must be submitted on a form to be obtained from the Secretary, Princess Louise Kensington Hospital for Children, St. Quintin Avenue, W.10, and must be sent in by Saturday, October 12th.

Royal Free Hospital,
Gray's Inn Road, W.C.1.

Applications are invited from duly qualified and registered medical men for the post of SENIOR RESIDENT MEDICAL OFFICER, vacant on December 1st, and tenable for one year. Salary £150 per annum, with board and residence. Intending candidates should submit applications, stating age and experience, accompanied by copies of three recent testimonials, to the undersigned on or before October 5th.

REGINALD R. GARRATT, Secretary.

Royal Free Hospital,
Gray's Inn Road, W.C.1.

Applications are invited from duly qualified medical women for the post of CASUALTY OFFICER. Previous experience as Hospital Resident essential. Salary £150 per annum. Intending candidates should submit applications stating age, and accompanied by copies of three recent testimonials, to the undersigned before October 5th.

The appointment is tenable for six months from November 1st.

REGINALD R. GARRATT, Secretary.

The Gloucestershire Royal
INFIRMARY AND EYE INSTITUTION, GLOUCESTER. (153 Beds.)

The General Committee invite applications for the post of HONORARY EAR, NOSE, AND THROAT SURGEON.

Candidates must be duly registered practitioners.

Applications, stating age, qualifications, experience, etc., accompanied by testimonials, should be forwarded to the Secretary on or before Wednesday, October 9th.

F. J. SYMONS,
September 5th, 1929. Secretary.

The Belgrave Hospital for
CHILDREN (Incorporated), 1, Clapham Road, S.W.9.

The Committee of Management invite applications for the post of HOUSE SURGEON and ASSISTANT HOUSE PHYSICIAN, which will become vacant on October 31st.

Applicants (men) must be fully qualified and registered. The appointments are for six months, with board, residence, and washing provided.

Salary at the rate of £100 per annum in each case.

Applications, with copies of testimonials, stating age, to be forwarded on or before Wednesday, October 2nd.

By Order,
THOS. CLAPHAM, Secretary.

Manchester Ear Hospital,
GROSVENOR SQUARE, ALL SAINTS.

Non-resident HOUSE SURGEON required. Salary at the rate of £150 per annum, with partial board. Appointment for six months. Applications, with copies of four recent testimonials, to be forwarded not later than October 5th to Mr. REGINALD S. MILFORD (Hon. Sec., Manchester Ear Hospital), c/o Mr. W. J. ELLAM, 33, Brazennose Street, Manchester.

The Gloucestershire Royal
INFIRMARY AND EYE INSTITUTION, GLOUCESTER. (153 Beds.)

Applications are invited for the post of FIRST HOUSE SURGEON (male). Salary £135 per annum, with board, residence, and laundry.

The appointment is for six months, which may be extended for similar periods from time to time.

Applications, stating age, qualifications, and nationality, with copies of not less than three recent testimonials, to be sent to the undersigned not later than Wednesday, October 2nd. The appointed candidate will be required to enter upon his duties on October 19th.

F. J. SYMONS,
Sept. 16th, 1929. Secretary.

General Hospital, Gt. Yarmouth.
(72 Beds.)

Applications are invited for the post of JUNIOR HOUSE SURGEON. Salary £100 per annum, with board, residence, and laundry. Duties to commence at once. Candidates (male and unmarried) must be fully qualified and registered.

Applications, stating age, nationality, and qualifications, together with copies of three recent testimonials, to be sent immediately to the undersigned.

T. H. G. GARTLAND, Secretary.

Brighton and Hove Provident
DENTAL HOSPITAL (Incorporated), 27, Queen's Road, BRIGHTON.

A vacancy exists on the Honorary Staff for an ANÆSTHETIST. Candidates, who must be registered medical practitioners, should send in their [illegible] on or before September 28th, to the Hospital, 5a, C[illegible] 1

British Medical Journal,
BRITISH MEDICAL ASSOCIATION HOUSE,
TAVISTOCK SQ., LONDON, W.C.1.
T/A: ARTICULATE, WESTCENT, LONDON.
Tel.: MUSEUM 9861 (4 lines).

SMALL ADVERTISEMENT RATES.

Up to Six Lines (32 Words) 9s.
Each Additional Line, 1s. 6d.
(Address included.)

Sixpence should be added if replies to a box number are to be posted.

All advertisements must be received not later than first post Tuesday previous to date of publication.

ASSISTANCIES.

Wanted.—Assistant in Surgical Practice. Must be Graduate, F.R.C.S., British [illegible] resident posts in a [illegible] ; £720, with rooms, [illegible] ; full particulars of age [illegible] and experience i[illegible] 6013, B.M.A. House, [illegible]

Wanted immediately, Assistant, indoor or outdoor as may be convenient, for mixed Yorkshire Practice, pleasant district; work reasonable. Salary: indoor £250, outdoor £350, if recently qualified; larger salary accord. to exp.—Address, giving essen. particss., No. 6073, B.M.A. House, Tavistock Sq., W.C.1.

Wanted immediately, Assistant-SHIP. Conjoint man, sober, keen, unmarried, aged 27. Same position since qualifying two years ago. Good experience private and panel work. Excellent references. London pref. —No. 6017, B.M.A. House, Tavistock Sq., W.C.1.

Wanted immediately, indoor ASSISTANT (male). Industrial Practice in Midlands. Commencing salary £250 p.a. Car kept. Good opportunity for young man to gain experience in general practice.—Address, No. 6028, B.M.A. House, Tavistock Sq., W.C.1.

Wanted immediately, Assistant, outdoor, male, Protestant, Scottish or English, for mixed Practice in North Yorkshire. Sign bond. Salary £350–£400 p.a.—Address, No. 6026, B.M.A. House, Tavistock Sq., W.C.1.

Wanted about October 31st, Indoor ASSISTANT for Country Practice. Salary about £250, car to drive. Interview in London if desired. State particulars.—Address, No. 6071, B.M.A. House, Tavistock Sq., W.C.1.

Wanted, an Assistant in Hospital Town in Cambridgeshire, in[illegible] £300 per annum. Annual [illegible].2, B.M.A. [illegible]

Wanted, a young indoor Assistant for mixed Practice in Northumberland Colliery district and near Newcastle-on-Tyne. Salary £275 p.a. State age, nationality. Send any further particulars, and photo.—Add., No. 6007, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — Experienced Assistant for good general Practice in Manchester. Permanent, with excellent prospects for suitable man. Full particulars, photo. if poss., at once. — Address, No. 6020, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—Permanent Assistant, male, young, to work with Two Partners in London. Private and panel. Salary to commence £275, increasing quarterly by £25 to £350. All found. English, Welsh, or Scottish preferred.—Address, No. 6002, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Indoor Assistant, immediately. Scotch or English, Protestant. Good salary to experienced man, under 30 years, with prospects. Testimonials and photo.— Private and panel.—Address, No. 6025, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Indoor Male Assistant in busy East London Practice. Salary net £286, gross £350, with extras, p.a. State experience, height, and photo. Period at least one year. Must be energetic.—Address, No. 5829, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — Assistant, outdoor, male, to take charge of Branch Surgery. Pembs. Coast, country district. Motor-cyclist. Work light.—Address, No. 5013, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Indoor Assistant for mixed Practice, male. Salary £300 per annum. State references, age, etc.—Address, No. 6032, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — Indoor Assistant, middle October, Newcastle-on-Tyne. Send references and other essential particulars. Usual bond.—Address, No. 6006, B.M.A. House, Tavistock Square, W.C.1.

Wanted by M.D., F.R.C.S. Ed., aged 28, ASSISTANTSHIP or PARTNERSHIP in [illegible] ably in Hospital town. expert knowledge V.I [illegible] B.M.A. House, Tavistock Square, W.C.1.

Assistant wanted at once for mixed Practice in London. Good prospects for suitable man. Unfurnished rooms and salary. Young man just qualified would do.—Address, No. 6011, B.M.A. House, Tavistock Square, W.C.1.

Assistants (indoor and outdoor) wanted immediately. Good salaries offered. —BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Assistant, indoor, male, Protestant, wanted for October, North-West district, panel and private. Dispenser kept. — Address, stating essential particulars, No. 6025, B.M.A. House, Tavistock Sq., W.C.1.

Assistantship wanted before Christmas, London or vicinity, by Irish Graduate; 26 years, single, R.C.; 3½ years qualified; ex ship's surgeon; now in panel practice. Interview possible shortly.—Address, No. 6036, B.M.A. House, Tavistock Sq., W.C.1.

Woman, M.R.C.S., L.R.C.P., æt. 27, keen, experienced in panel and general practice, requires ASSISTANTSHIP. Free November. — Address, No. 6009, B.M.A. House, Tavistock Square, W.C.1.

MEDICAL POSTS, DISPENSERS, etc.

Wanted.—Fully qualified Doctor for service in the Tropics. Ophthalmic experience essential. Agreement for three years. Salary £850, £900, £950. Renewable on higher terms. Free furnished quarters and first-class passage provided. Candidates must be unmarried. Ladies not eligible.—Address, with copies of testimonials (not returnable), No. 5719, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — Resident Medical OFFICER for small Private Sanatorium situated in one of the healthiest districts in the country. Post would suit young Doctor convalescing from tuberculosis and who is anxious to take up sanatorium work. Work very light and salary nominal.—Address, No. 6022, B.M.A. House, Tavistock Square, W.C.1.

A Lady D[illegible] supplie[illegible] fied and with [illegible] practice and [illegible] Bacteriological Laboratories of the LONDON COLLEGE OF PHARMACY FOR WOMEN. Preparation for Examinations.—Write, wire, or 'phone (Park 0969), Secretary, 7, Westbourne Park Road, W.2.

An experienced Doctor (middle-aged!) would like to RESIDE in a London practitioner's house, with BOARD in exchange for taking 3 EVENING SURGERIES per week; or live out, 37.6 per week. — Address, "Medicus," 24, Colville Road, Bayswater, W.11.

Country Doctor, Sussex, requires SECRETARY-DISPENSER. Must be prepared help [illegible] 30 to 45. Live i[illegible] —Apply, sendin[illegible] Mrs. POTT, Crawley Down, Sussex.

China Coastal Town.—Temporary ASSISTANT required for 12 months, male, single, under 30; ex H.S. preferred. Salary £50 per month; first-class fare out and home, with travelling allowance. Would be required to sign bond.—Apply, giving references, to "Eastern," c/o REYNOLDS & BRANSON, Ltd., 13, Briggate, Leeds.

Dispensers supplied to Doctors at short notice, without fee. Qualified and exper. in priv. and panel prac. Perm. and part time Bookkeeper-Dispensers, Secretary-Dispensers, Nurse-Dispensers, and Chauffeuse-Dispensers.—Write, wire, or 'phone Central 3679, THE RELIANCE BUREAU FOR DISPENSERS, 87, Holborn Viaduct House, 12, Holb. Viad. E.C.1.

Doctor's Widow (aged 40), competent, trustworthy, business exper., seeks post as SECRETARY, HOUSEKEEPER, or MATRON. Has good exper. in running a medical household. Accust. to interv. and capable of keeping books; also a competent housekeeper.—No. 5713, B.M.A. House, Tavistock Sq., W.C.1.

Doctors requiring qualified Dispensers, Nurse Dispensers, Secretary Dispensers or Chauffeuse Dispensers, are invited to write, wire, or 'phone Temple Bar 5358, THE DISPENSERS' BUREAU, 145, Shaftesbury Avenue, London, W.C.2.

Dispenser, Lady; Hall; 3 years' full experience, including clerical work with general practitioner, requires POST in North London. Good references.—"Colmore," Alverstone Avenue, East Barnet.

Dispenser - Bookkeeper (42), thoroughly experienced (20 years), any district. Highest references. At liberty.—"DISPENSER," 16, Birr Street, Shipley, Yorks.

Dispenser, lady (Hall), desires POST with doctor or i. st'tution in South-East London, or within easy travelling distance. Eight years' experience.—Address, No. 6035, B.M.A. House, Tavistock Square, W.C.1

Dispenser (lady), nearly three years' experience as locum in hospitals and private practice; free shortly for whole or part-time dispensing. Apothecaries' Hall qualification. London only.—Address, No. 6031, B.M.A. House, Tavistock Square, W.C.1.

Doctor's Daughter, brought up amongst mental and dyspeptic patients, and had charge of same, nursing experience, seeks POST in London. All or part time. Good housekeeper. — Address, No. 6030, B.M.A. House, Tavistock Square, W.C.1. Or Park 1940.

Lady Dispenser, Bookkeeper, SECRETARY required; Country Practice; willing assist management two young girls.—Address, No. 6003, B.M.A. House, Tavistock Square, W.C.1.

Lady Dispenser, experienced, would like POSITION with Doctor or Institution. Leicester district preferred. — Miss COOKE, 40, St. Albans Road, Leicester.

Medical Officers.—Important Oil interests operating in VENEZUELA have openings for Oilfield Camp Doctors. Age not exceeding 35. Applicants must be fully qualified, and desirable also possess Diploma of Tropical Medicine. Those with practical experience of tropical conditions, including Mosquito Control, Sanitation, etc., will be given preference. Salary $600 (U.S.A. currency) per month. Three-year engagement, with first-class passage out, and home upon completion of agreement. Outfit allowance provided.—Write, giving full particulars, to Z.X.167, DEACON'S ADVERTISING AGENCY, Fenchurch Avenue, London, E.C.3.

Medical Officer (preferably un-married) with British Degree required immediately for a Group of Rubber Estates in NORTH BORNEO; passage out and home paid; plainly furnished quarters; four years' agreement.—Apply for further particulars to the Secretary, British North Borneo (Chartered) Company, 17, St. Helen's Place, London, E.C.3.

Medical Man (M.D.Lond., etc.), desires POST in SANATORIUM abroad, pref. S. Africa. Three years' Tuberculosis experience, as well as Hospital and general. Would be willing, after investigation, to take share if satisfactory.—No. 6018, B.M.A. House, Tavistock Square, W.C.1.

Medical Man without home

Officer, Indian Medical Service, retired this year, living near Bristol, and thoroughly experienced in all branches, would undertake WORK in Bristol, or would accept SHIP SURGEONCY or Appointment abroad. — Address, No. 6078, B.M.A. House, Tavistock Square, W.C.1.

Part-time Work wanted by Medical Woman taking D.P.H. in Manchester. Qualified 1924.—Address, No. 6027, B.M.A. House, Tavistock Square, W.C.1.

Shorthand Typist requires Post with medical author, 13 years' previous experience in proof correcting, indexing, and general secretarial work. Scotch. Excellent testimonials.—Write, "Helm," c/o SCRIPPS'S, South Molton Street, W.1.

Secretary - Dispenser (Hall) desires POST, South or Midlands. Shorthand, typewriting, bookkeeping, card index, etc. Experienced panel and private Practice routine. State salary.—Address, No. 6016, B.M.A. House, Tavistock Square, W.C.1.

The Royal Army Medical Corps ASSOCIATION. — If you require men trained in all branches of hospital work—Dispensers (capable of undertaking returns, clerical work, etc., connected with Ministry of Health), Clerks, Laboratory Assistants, general hospital duties, Porters, Caretakers, etc.—Apply, Secretary, 76, Claverton Street, S.W.1.

Typewriting.—Expert undertakes Theses, Testimonials, etc. Numerous letters of appreciation from Doctors.—'Phone Primrose Hill 0803, or write BEATRICE RADFORD, BM/BOAJ, London, W.C.1.

Woman Dispenser-Book-KEEPER (2 years' experience) requires POST shortly in general practice, within easy distance of, or in London. Available for interviews in town from October 3rd to October 14th.—Address, No 6070. B.M.A. House, Tavistock Square, W.C.1.

Young Lady, an Oxford Graduate, and having had a recent nervous breakdown, wishes to find a HOME with a Doctor or in a Private Nursing Home where she can do some LIGHT SECRETARIAL or ADMINISTRATIVE WORK. Kindly state terms.—Address, No. 6077, B.M.A. House, Tavistock Square, W.C.1.

LOCUMS.

HOLIDAY LOCUMS.

THE MEDICAL AGENCY has pleasure in announcing that lists are now being prepared for Locum engagements for the forthcoming Holiday Season. Principals requiring a RELIABLE SUBSTITUTE are advised to make early application.—Address, W. H. GRANT, The Medical Agency, Watergate House, Adelphi, W.C.1. Tel.: Gerrard 8954 and Riverside 1254 (night calls).

M.D., M.R.C.P.Ed., male, single, aet. 27, Anglo Scot, Protestant, seeks post as LOCUM or ASSISTANT. Over two years' Hospital experience, one year as locum in all varieties G.P. Refractionist. Drive car. Highest references. Free October 10th. Interview preferred if for long engagement.—No. 6038, B.M.A. House, Tavistock Sq., W.C.1.

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Wanted.—Junior Partner in old-established non-panel non-dispensing Practice in residential town on South Coast. Higher qualification and experience of general practice essential. Value of share for disposal about £1,200 p.a.
Address, No. 5919, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—Partner in good urban rural Practice in Midlands. £3,000 a year; panel list 2,700; would dispose of 1/3 share. Suitable house to be let or sold.
Address, No. 6015, B.M.A. House, Tavistock Square, W.C.1.

Wanted by retired Service man, another Service man as PARTNER. Practice, working class, established 6 years; panel over 900. Lock-up surgery. South Coast.—Address, No. 6034, B.M.A. House, Tavistock Square, W.C.1.

A Partner is urgently required in a Practice in Hospital town on Cornish Coast. Gross cash receipts over £5,000 p.a. Panel 2,397. Nice house on rental at £60 p.a. Assistant with view to early partnership entertained. 1/5 share to commence with, at 2 yrs.' purchase; slightly less to prompt buyer.—Add., No. 6080, B.M.A. House, Tavistock Sq., W.C.1.

Lancs Town.—Half Share in old-estab. PRACTICE. Average cash receipts £3,000. Panel 2,516. Good house, 5 bedrooms; garage and garden. Rent £60 p.a. Premium 1¼ years' purchase.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

M.D., F.R.C.S.E., B.Sc.(Lond.) would like PARTNERSHIP where Surgery is done. Applicant is keen, temperate, loyal, and usually well received; 2½ years' hosp. exper., and 6 years' G.P. All-round man. Short apprenticeship desirable. Small capital.—No. 6001, B.M.A. House, Tavistock Sq., W.C.1.

York.—Partnership in old-established PRACTICE. Receipts over £3,000. Good house, garden, garage, £50 yearly. Panel 2,050. Price ½ share (to commence) 2 years' purchase, guaranteed first 2 years.—MANCHESTER MEDICAL & SCHOLASTIC ASSOCIATION, 6, Brown St.

PRACTICES.

Wanted. — Practice or Partnership, with or without Assistantship, in London, by Scotch Graduate, 26, ex H.S., H.P., 2½ years' G.P. experience. Very energetic.—Address, No. 6079, B.M.A. House, Tavistock Square, W.C.1.

Wanted immediately, good mixed PRACTICE or PARTNERSHIP by experienced practitioner in residential area within 40 miles of London, about £1,500. Capital available.—Address, No. 6074, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—We have innumerable applicants for sound investments in all districts, incomes from £600 to £4,000, with and without panel. Correspondence invited from prospective Vendors. — THE MEDICAL AGENCY (W. H. Grant), Watergate House, 15, York Buildings, Adelphi, W.C.2.

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Ex H.S., H.P., Edin. Royal Infirm., ex R.M.O. Provin. Hosps., æt. 30, Graduate, desires intro. into mixed PRACTICE or PARTNERSHIP after prelim. assistantship. Thoroughly exper. Capital. Lond. and the South or Liverpool and N. Wales districts pref.—No. 6014, B.M.A. House, Tavistock Sq., W.C.1.

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For Sale.—Large Yorkshire City, sound General PRACTICE. Gross receipts £1,750. Panel 1,800. House.—Address, No. 5721, B.M.A. House, Tavistock Square, W.C.1.

Lancashire Coast Resort. — Old-estab. PRACTICE. Average cash receipts £1,100. Panel 550. Scope. Modern house (freehold) for sale, containing 2 reception rooms, 5 bedrooms, garage, and garden. Premium—Practice—1¼ years' purchase.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Lancs Town.—Excellent non-panel PRACTICE. Owner leaving to specialize in distant city. Nice house, garage; rent £60, on lease. [illegible]

Lancashire Town. — Woman Doctor's PRACTICE. Cash receipts £2,243. Panel 1,450. Good house, 4 bedrooms, rent £60 p.a. Premium £3,000 (to include book debts, drugs, etc.). — BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Lancashire Town. — Non-panel PRACTICE. Cash receipts last year £1,508. Fees 7/6 upwards. Purchaser must be capable of doing major surgery. Good house to rent at £60 p.a., 2 reception and 4 bedrooms. Premium £1,200.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Lock-up (mainly cash) Practice for sale in London. Receipts £1,450 per annum. Panel 983. Vendor taking up consulting work. Premium £2,300, cash. No agents.—Address, No. 6075, B.M.A. House, Tavistock Square, W.C.1.

Lancashire Town. — Old-estab. PRACTICE. Cash receipts £970. Panel 1,150. Scope. Good house to rent at £70 p.a. Suit bachelor. Premium £300. — BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Lady Doctor's Practice for Sale in wealthy residential town. Last year's receipts £960, including £200 panel. One appointment. Very good scope. Residence on lease. Premium £1,250.—Address, No. 6019, B.M.A. House, Tavistock Square, W.C.1.

Manchester.—Suburban Practice. Cash receipts 1928, £1,650. Panel 900. Scope. Excellent house, with 3 enter., 5 bedrooms, garage and garden, to be sold or rented on lease. Premium 1¼ years' purchase.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Manchester. — Good-class Practice (non-panel) in first-rate residential suburb. Average cash receipts £2,206 p.a. Fees 5/- to 21/-. Excellent house to rent on lease. Premium 1¼ years' purchase.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Manchester. — Nucleus. Cash receipts £600. Panel 200. Good house, 5 bedrooms. Rent £60 p.a. Premium £500 or near offer. — BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Near Chester.—Practice. Cash receipts 1928, £600. Panel 440. Scope. Nice modern house to rent. 2 enter., 3 bedrooms, garden, and garage. Premium £650 cash (to include surgery furniture and drugs).—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

North Wales Coast. — Medical Woman's PRACTICE; equally suitable for man. Cash receipts last year £300. Panel 164. Premium £350, part by arrangement.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Small Practice for Sale; great prospects. — Address, No. 6008, B.M.A. House, Tavistock Square, W.C.1.

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Hendon, in beautiful situation.— FREEHOLD COTTAGE RESIDENCE on main road. Six bed and dressing rooms, bathroom, three recep. rooms, conservatory, domestic offices, etc. Spacious garage. Pretty gardens. Near golf links. Price £3,000.
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Suit Medical Man desirous of Practising in Mayfair.—TWO ROOMS near Berkeley Square, use of waiting rooms, etc., in Dental Surgeon's Flat. State if willing to give Anæsthetics.—Address, No. 6004, B.M.A. House, *Tavistock Square, W.C.1.*

To Let in Devonshire Street, a large CONSULTING ROOM suitable for Doctor or Dentist; also Part-time Consulting Room, use of Waiting Room, etc., from £40 per annum. — Address, No. 6039, B.M.A. House, *Tavistock Square, W.C.1.*

Two Bedrooms to Let near Harley Street, or could be used as bedroom and sitting room, in Doctor's house adjoining Harley Street. Telephone by arrangement. Breakfast supplied.—Address, No. 6072, B.M.A. House, Tavistock Square, W.C.1.

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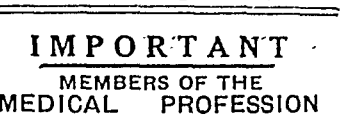

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APPOINTMENTS.—Contd.

St. Peter's Hospital for Stone,
Henrietta Street, W.C.2.

It has been decided to appoint a RADIOLOGIST on the staff of the above Hospital. An honorarium of £25 per annum will be paid.

Applications, which should be accompanied by not more than three copies of recent testimonials, will be received by the undersigned not later than the first post on Wednesday, October 16th.

BEECHEY ROGERS, Secretary.

Bath, Somerset, and Wilts
CENTRAL CHILDREN'S ORTHOPÆDIC HOSPITAL, COMBE PARK, BATH.

Wanted by November 1st, HOUSE SURGEON. The appointment will be for six months, with salary at the rate of £120 per annum, together with quarters, board, and laundry. Candidates must have had special experience in administering anæsthetics.

Applications, with copies of three recent testimonials, to reach the undernamed by Oct. 5th.

HAROLD J. FRICKER, Secretary.

Liverpool Hahnemann Hospital,
HOPE STREET.

Applications are invited for the post of STIPENDIARY MEDICAL OFFICER to the above Hospital.

Post is non-resident, tenable for six months, renewable. Mornings only. Some visiting.

Salary at the rate of £125 per annum.

Candidates must be willing to study and apply Homœopathy.

Apply, stating age, sex, experience, and enclosing copies of testimonials, to the Registrar.

September 24th, 1929.

Jewish Maternity Hospital
(Jewish Maternity Home Incorporated),
24, Underwood Street, E.1.

A vacancy arises for a general SURGEON on the staff, and applications for this post are invited.

Candidates should hold the diploma F.R.C.S.Eng., and should be a member of the surgical staff of a general hospital.

Application, with copies of three testimonials, should reach the Secretary before October 25th.

Aberdeen Royal Mental Hospital.

JUNIOR ASSISTANT PHYSICIAN (male) wanted *for the above Mental Hospital.* Preference will be given to one who has had General Hospital experience. Commencing salary £250 per annum, with board, lodging, and laundry.

Applications, stating qualifications and experience, with copies of three recent testimonials, should be sent to the Physician-Superintendent.

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Terms from £3 3s. *Apply to the Secretary or Lady Supt.*

West London Hospital,
Hammersmith, W.6.

An HONORARY REGISTRAR is required for the Throat, Nose, and Ear Department. The appointment is for one year from November 1st, and subject to annual re-election, may be extended for a period not longer than three years. [illegible] qualified registered [illegible] by copies of testimonials, must reach me not later than first post on Thursday, October 17th. Candidates must attend the Meeting of the Medical Council on Friday, October 18th at 4 p.m., and prior to that date call upon, and send copies of application and testimonials to each Member thereof. They must not canvass Members of the Board, but nevertheless must send a copy of their application and testimonials to each Member thereof, and if notified be in attendance at a Meeting of the Board at 5 p.m. on Tuesday, October 22nd, when the appointment will be made.

H. A. MADGE, Secretary.

West London Hospital,
Hammersmith, W.6. (225 Beds.)

Required, One NON-RESIDENT HOUSE OFFICER (part-time) for Children's Department for six months from November 1st next, subject to one month's notice on either side. Applicants may be male or female. Salary at the rate of £150 per annum. Candidates must be registered under the Medical Act and have held a resident appointment at a Children's Hospital or in the Children's Department of a General Hospital.

Applications and copies of testimonials in quadruplicate (which must be made on printed forms obtained from me) must reach me not later than first post on Friday, October 11th. Selected candidates will be required to call upon such members of the Medical Staff as directed, to be in attendance at a Meeting of the Medical Council on Friday, October 18th, at 4 p.m. and the House Committee Meeting at 4.45 p.m. the same day when the appointment will be made.

H. A. MADGE, Secretary.

West London Hospital,
Hammersmith Road, W.6.

One SENIOR ASSISTANT MEDICAL OFFICER and Three JUNIOR ASSISTANT MEDICAL OFFICERS will shortly be required for work in the Venereal Diseases Department. Salaries: Senior £450 per annum, Juniors £350 per annum each. The appointments will be subject to six months' [illegible] dates must be registered who have had special and modern treatment [illegible]

Applications, accompanied by copies of testimonials, must reach me not later than first post on Tuesday, October 22nd. Candidates must attend a Meeting of the Medical Council on Friday, October 25th, at 4 p.m., and prior to that date call upon such members as directed, and send copies of application and testimonials to each member thereof. The appointments will be made by the House Committee at 4.45 p.m. the same day. Further details with regard to the duties can be obtained from the undersigned.

H. A. MADGE, Secretary.

The Prince of Wales's General
HOSPITAL, Tottenham, N.15.

The following Resident posts will be vacant on November 1st next:

SENIOR HOUSE PHYSICIAN, SENIOR HOUSE SURGEON and SPECIAL HOUSE SURGEON. Salaries at the rate of £120 per annum.

JUNIOR HOUSE PHYSICIAN and Two JUNIOR HOUSE SURGEONS. Salaries at the rate of £90 per annum.

Board, residence, and laundry.

Appointment held for six months, but holders are eligible for reappointment for a further term.

Candidates (male) must be fully qualified and registered, and applications (on prescribed form), together with copies of three recent testimonials, should be sent to me on or before the first post on Tuesday, October 1st.

FREDK. W. DREWETT,
September 9th, 1929. Director.

Joint Counties Mental Hospital,
CARMARTHEN.

JUNIOR ASSISTANT MEDICAL OFFICER.

The Committee of Visitors of the above Institution (660 patients) invite applications from duly qualified candidates for the post of full-time Junior Assistant Medical Officer (unmarried) at a cash salary of £300 per annum, together with emoluments (full board, residence, and attendance) now valued at £156 15s. for the purposes of the Asylums Officers' Superannuation Act, 1909, subject to the provisions of which and the previously existing terms of service the appointment will be made terminable by three months' notice on either side.

Previous experience at a similar Institution and a knowledge of the Welsh language will be deemed desirable [illegible] the post, and [illegible] particulars as to [illegible] experience, together with copies of three recent testimonials, must be delivered in sealed envelopes marked "Junior Assistant M.O.," on or before Monday, October 7th, to the undersigned, from whom any desired further particulars may be obtained.

34, Quay St., W. J. WALLIS-JONES,
Carmarthen. Clerk to the Visitors.
September 20th, 1929.

County Mental Hospital,
STAFFORD.

SECOND ASSISTANT MEDICAL OFFICER, male, single, required. Salary £600, rising by £25 per annum to £700; £50 per annum in addition if or when in possession of Diploma in Psychological Medicine. £130 per annum will be charged for furnished quarters, board, laundry, and attendance.

Every opportunity afforded for study and research, sero-diagnostic, etc., in well-equipped laboratory. Applications will be considered only from candidates with some experience of laboratory work.

[illegible] conditions of Asylums [illegible]t, 1909. [illegible] qualifications, etc., [illegible] sent testimonials; to [illegible] Superintendent.

Seamen's Hospital Society.

The Committe [illegible] cations for the [illegible] charge of In-p[illegible] HOSPITAL, Connaught Road, E. The elected candidate will be appointed for 12 months and will be eligible for re-election.

Candidates must be Fellows of the Royal College of Surgeons of England, or Masters of Surgery of a University in the United Kingdom.

Applications to be sent in on or before October 15th to the undersigned, from whom further particulars can be obtained.

By Order,
Greenwich. R. E. V. BAX,
Sept. 9th, 1929. Secretary.

Seamen's Hospital Society.

KING GEORGE'S SANATORIUM FOR SAILORS, LIPHOOK, HANTS, for the Treatment of Pulmonary and Non-Pulmonary Tuberculosis.

Applications are invited for the post of ASSISTANT MEDICAL OFFICER. Commencing salary at the rate of £200 per annum, with quarters and board. The appointment is for six months in the first instance. There is no accommodation for a married man. Applications, with copies of three recent testimonials, to be sent in by October 9th to the undersigned.

Greenwich. R. E. V. BAX,
September 20th, 1929. Secretary.

Birkenhead General Hospital.
(156 Beds.)

Applications are invited for the post of CASUALTY SURGEON (gentleman). Salary £100, with board and residence, to take up duties immediately.

Applications, stating qualifications, experience, and nationality, with three copies of recent testimonials, to be sent to the Secretary-Superintendent as early as possible.

Royal Devon & Exeter Hospital,
EXETER.

HONORARY PHYSICIAN.

Applications are invited for the post of Honorary Physician at this Hospital.

Candidates must be Fellows or Members of the Royal College of Physicians of London and Doctors of Medicine of one of the Universities of the United Kingdom and if appointed must practise as a Physician.

Particulars as to duties, etc., may be obtained from the undersigned.

Applications, together with certificates, of birth and registration, original testimonials, with 35 copies, should be delivered to the undersigned not later than Saturday, October 26th.

Signed on behalf of the Committee,
S. S. COLE, Secretary.

N.B.—Canvassing of any member of the Standing Elective Committee is forbidden by the Rules of the Hospital.

Bristol Dispensary.

The Committee are prepared to appoint a NON-RESIDENT MEDICAL OFFICER on the Staff of this Institution.

Candidates must be duly registered, according to the provisions of the Medical Acts, and not over the age of 35.

The candidate appointed will be required to commence duty not later than November 1st, and must give his or her whole time to the service of the Institution in such a way as may be directed. The Committee may give permission for private practice.

For particulars apply to the Secretary, to whom testimonials must be sent on or before October 3rd. Cards with address should be enclosed.

Albion Chambers, H. MERRETT STOCK,
Bristol. Secretary.
September 19th, 1929.

London Hospital, E.1.

Applications are invited for the post of FIRST ASSISTANT and REGISTRAR to one of the five Surgical Firms. Candidates must be Fellows of the Royal College of Surgeons. The salary is £300 per annum, which is paid by the Hospital and Medical College jointly. The appointment is for one year, and is renewable up to three years.

Applications should arrive not later than Saturday, October 12th.

Further particulars may be obtained from the House Governor.

E. W. MORRIS, House Governor.

London Temperance Hospital,
Hampstead Road, N.W.1.

Applications are invited for the post of RESIDENT MEDICAL OFFICER.

The appointment will be for a period of six months at a salary of £175 per annum, and will date as from October 11th.

Cæteris paribus, preference will be given to abstainers and to those who have held resident posts.

Candidates must submit applications, stating qualifications, age, etc., with copies of not more than three testimonials, by Thursday, October 3rd, addressed to the Secretary.

Rotherham Hospital.

Wanted, HOUSE PHYSICIAN (male), qualified. Salary £180 p.a., with board, lodgings, and laundry, to have charge of Out-patients, administer Anæsthetics, and assist Honorary Physician.

Applications, with copies of recent testimonials, to be sent to the Secretary, G. W. ROBERTS, 8, Moorgate Street, Rotherham.

Royal Hampshire County
HOSPITAL, WINCHESTER. (158 Beds.)

RESIDENT HOUSE SURGEON, male, required as soon as possible. Six months' appointment. Must be of British nationality. Salary £150 per annum, board, lodging, and attendance provided. Candidates must be duly qualified and registered. Applications, stating age, and enclosing copies of recent testimonials, should be sent to the undersigned.

HERBERT MARLEN, Secretary.

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PARTNERSHIPS

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BRITISH MEDICAL BUREAU

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12, Stratford Place, Oxford St., London,

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33, Cross Street, Manchester,

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7, Windsor Place, Newcastle - on - Tyne.

Those requiring additional

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B.M.A. House, Tavistock Sq., London, W.C.1.

Woolwich and District War MEMORIAL HOSPITAL,
Shooters Hill, London, S.E.18.
(A General Hospital. 112 Beds.)

RESIDENT MEDICAL OFFICER.

The Board of Management invites applications from suitably qualified (male) candidates, with special knowledge of surgery, for the post of Resident Medical Officer. Salary £175 per annum, with board, residence, and laundry. The appointment is for one year from November 1st, 1929, to October 31st, 1930, with renewal of appointment for one year at a salary of £200, if approved by the Board of Management.

Applications (accompanied by copies of not more than three recent testimonials, and should be sent to the undersigned, on or before Friday, [illegible]

Woolwich and District War MEMORIAL HOSPITAL,
Shooters Hill, London, S.E.18.
(A General Hospital. 112 Beds.)

HOUSE SURGEON.

The Appointments Committee invites applications for appointment as House Surgeon. An honorarium of £125 per annum will be paid in respect of this appointment, which will be for a period of six months, as from November 1st.

Applications, accompanied by copies of not more than three recent testimonials, are invited from suitably qualified candidates, and should be addressed to the undersigned, to reach him not later than 10 a.m. on Friday, Oct. 18th.

EDWIN RADFORD, Secretary-Supt.

Hull Royal Infirmary.
(272 Beds.)

Applications are invited for the post of ASSISTANT HOUSE PHYSICIAN (male), at present vacant. The appointment will be for six months in the first instance, and will be terminable by one month's notice on either side.

Salary at the rate of £130 per annum, with residence, board, and laundry.

Applications should be addressed to the undersigned.

Dated 23rd, 1929. E. J. CARLESS, House Governor.

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W. J. HICKS, *Secretary.*

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Telephone: Mayfair 5420.

Northern Branch.—Apply, Lady Superintendent 57, Clarendon Rd., Leeds. 'Phone: Leeds 26165

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Aberystwyth Infirmary and CARDIGANSHIRE GENERAL HOSPITAL.
(40 Beds.)

HOUSE SURGEON required (male). Salary £200 per annum, with board, residence, and laundry.

Candidates must be fully qualified and registered, and must be experienced anæsthetists; knowledge of X-ray a consideration.

Knowledge of Welsh desirable.

Applications [illegible]

Addenbrooke's Hospital,
CAMBRIDGE.

The General Committee invite applications for the [illegible] an HONORARY [illegible] by sixteen copies of testimonials, to be sent to the undersigned on or before Saturday, October 12th.

Personal canvass of the Committee is expressly forbidden.

W. H. HEAD, Secretary-Supt.

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Midlands (Industrial). — Over £1,500 p.a., with ample scope. Panel about 1,700. House to rent at £56.—No. 8546.

Essex Coast. — Urgent Sale. — About £700 p.a. Small panel. Good house and garden to rent in growing district. —No. 8544.

Wilts.—£2,250 p.a. Country Town. Panel 1,000. Surgical scope. Choice of houses. Premium £1,800 for 2/3 share.—No. 8541.

Lancs. — Average £1,590 p.a. 1/2 share for sale. Panel £800 p.a. House, 4 bed., etc., to rent. Premium only £1,200.—No. 8517.

Dorset. — Average £2,300 p.a. 1/2 share for sale. Good appts. Small panel. House, 6 bed., etc., and garden, to rent. —No. 8537.

Liverpool.—£1,300 p.a. Visits 3/6 to 5/-. Mids. 3 to 4 gns. Panel 560. House, 4 bed., etc., and garden.—No. 8535.

Yorks. — Average £1,800 p.a. Panel over 1,000. Visits 3/6 up. No mids. House, 5 bed., etc.—No. 8533.

Cornwall. — About £850 p.a., increasing. Small panel. Visits 4/- to 21/- House, 6 bed., etc., and good garden.—No. 8529.

Staffs. — About £1,300 p.a. Panel 1,500. Fees 5/-. House, 5 bed., etc., to rent. Premium £1,000 cash.—No. 8527.

Lancs Coast.—£2,000 p.a. Mid. and upper-class panel over 800. Visits 7/-. Mids. 3—4 gns. Good house to rent.—No. 8525.

N. Wales Borders.—£4,000 p.a. 1/3 or 2/3 share. Panel 3,800. Appts. worth £1,600 p.a. Visits 5/- up. About 60 mids. at £2 2s. House (4 bed., etc.) to rent or buy.—No. 8519.

Home Counties.—Death Vacancy. —About £760 p.a. Mids. 2 gns. Panel 516. Visits up to 10/-. Good house and large garden to rent.—No. 8516.

Yorks.—Over £3,000 p.a. 1/4 share, good scope for increase. Panel over 2,000. Mids. 2—5 gns. Med. house to rent or buy.—No. 8510.

Lancs.—£4,000 p.a., increasing. Panel over 2,600. Visits 2/6—7/-. Mids. 2—5 gns. Suitable for two. Two houses, rent or buy.—No. 8509.

Sussex Coast.—About £1,400 p.a. Good-class, non-panel, non-dispensing. Appt. £35. Visits 5/- to 15/-. Large house to rent.—No. 8476.

Home County.—Over £700 p.a. Small residential town within 25 miles, South. Panel 462. Good fees. Large well-built house and garden.—No. 8494.

Cornwall. — Share £1,000 p.a. General mixed Practice. Panel nearly 2,400. House, 5 bed., etc., low rent.—No. 8493.

Lancs.—1/3 or 1/2 share of over £2,400 after prelim. assistancy. Panel £500 Mixed class. Good house, with 4 bed., 2 attics, etc.—No. 8454.

Bucks.—About £2,800 p.a. 1/2 share. Appts. £200 p.a. Panel over 1,900. Visits 3/6—10/6. Mids. 2—5 gns. House, 4 bed., to rent. Prem. 1½ yrs.—No 8483.

Kent.—Country Practice. About £1,000 p.a. Panel about 400. Appts. over £50 p.a. Visits 3/6 to 10/6. House, 5 bed., etc. Extensive grounds.—No 8408.

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SOUTH-WEST COAST.—PARTNERSHIP in well-established good-class rural G.P. Excellent house to rent. Receipts over £4,000 p.a. Panel approx. 1,000. Suitable to well-qualified man. Premium for half share 2 years' purchase.

LONDON, S.E.—Near West End.—Well-established G.P. Excellent corner house to rent on long lease. Receipts £1,000. Panel 750. Premium £1,500.

LIVERPOOL.—Well-established G.P. Receipts over £500 p.a. Panel 700. Medium-sized house to rent or for sale. Premium £750.

YORKS.—PARTNERSHIP in middle- and working-class G.P. Receipts over £3,000 p.a. Panel over 2,000. House to rent. Premium for 1/4th share £1,500.

MIDLANDS.—Cash and panel PRACTICE situated in manufacturing town. Suitable accommodation available. Receipts £650. Panel 800. Premium £1,000, cash.

SHROPSHIRE.—NUCLEUS PRACTICE. Receipts approx. £350. Panel 380. House to rent at £35. Premium £475.

LONDON, E.—NUCLEUS G.P., situated in thickly-populated locality. Medium-sized house to rent. Receipts approx. £450 p.a. Panel 300. Premium 1½ years' purchase.

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KENT.—Coastal Town.—Old-established G.P. Receipts average over £1,450. Panel 1,350. House to rent. Premium 1½ years' purchase.

LANCS.—Large Town.—PARTNERSHIP in mixed-class Practice. Receipts £1,900. Panel 1,900. Good house to rent or for sale. Premium for half share 1½ years' purchase.

BUCKS.—DEATH VACANCY in Country Practice. Receipts £700. Panel 500. House to rent. Premium 1 year's purchase.

WILTS.—PARTNERSHIP in mixed country and small town Practice. Receipts £2,250. Cottage Hospital. Premium for 2/5ths share 2 years' purchase. Suitable for experienced man keen on surgery.

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STAFFS.—Country PRACTICE near manufacturing area. Receipts average £1,100 p.a. Panel 1,500. Good-sized house for sale, or to rent at £50 p.a. Premium for immediate sale £1,000, cash.

EASTERN [illegible] with view to succession. Non-panel [illegible] p.a. Suitable house available. Premium [illegible] ase, or would sell whole Practice with l[illegible]

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2. YORKSHIRE. — Large County Borough. — Well-estab. working and middle-class PRACTICE. Receipts over £1,500 p.a. and steadily increasing. Panel about 1,700. Good house to rent.
3. LANCASHIRE. — Old-established panel and industrial PRACTICE. Receipts £2,242 and increasing. Panel 1,450. Appointments worth about £95. Good house to rent.
4. YORKSHIRE.—Unop. Country PRACTICE. Receipts £513. Panel 233. Appts. about £44, transferable. Good house, garage, and garden.
5. MIDLANDS. — PARTNERSHIP (One-third share), with preliminary Assistantship (min. inc. of £600 p.a. guaranteed), in industrial Practice in healthy district on borders of nice country. Good house to rent. Garage and garden. Panel 1,800 and increasing. Ample scope.
6. GLOUCESTERSHIRE. — Well-estab. unopposed middle and working-class Country PRACTICE. Receipts average £1,270 p.a. Panel 1,113. Good house, garden, garage.
7. MIDLAND COUNTY BOROUGH.—Panel and Cash PRACTICE. Receipts over £600 p.a. Panel 750—800. House to rent or can probably be purchased. Garage.
8. YORKSHIRE (Near large City).—PARTNERSHIP (1/4 share). Receipts average over £3,000 p.a. (£750 p.a. guaranteed). Panel 2,080. Suitable accommodation (corner house) and garage.

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7. LONDON, W.—Middle-class, non-panel PRACTICE returning last year £1,137. Capable of expansion in more active hand. Fees 5/6 to 10/6. No midwifery. Suitable accommodation arranged. Vendor retiring.
8. KENT.—Charming locality within 30 miles. Income £700. Panel over £200. Scope. Unique residence for sale. Suitable for semi-retired man of capital.
9. WITHIN easy run of Cornish Coast.—Country PRACTICE of about £750—£800 p.a. Panel and appts. £300. Social district hunting, fishing. Very comfortable old Devon house also for sale. Freehold and Practice £2,200.

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2. SURREY. — Nice residential town. — Mixed-class PRACTICE. Receipts last year £600, including fair panel. Good house and garage on long lease, rent £150. Premium £750. Practice steadily growing.
3. [illegible]ental Home for average nearly [illegible]r goodwill, and home let furnished at £375 p.a.
4. SCOTLAND.—Large town.—Death Vacancy.—Receipts about £1,200 p.a., including panel of 2,395. Good house available. Premium for house and Practice £2,500. Immediate sale desired.
5. LONDON, S.W.—Junior PARTNER required for large cash and panel Practice. Share worth £500 p.a. for disposal. Good opportunity for young and energetic practitioner.
6. LONDON, S.W.—Small working-class PRACTICE capable of being greatly developed by energetic lady or gentleman. Receipts £150 p.a., including panel 140. Lock-up surgery, rent 21/- per week. Premium £100 and little extra for furniture.
7. CUMBERLAND.—Large town.—Small mixed-class PRACTICE, started two years. Receipts nearly £400, steadily increasing, including panel 300. House and garage £35. Premium £300.
8. KENT. — Well-known seaside resort. — Well-established PRACTICE. Receipts average £700 a year, panel 400. Immediate sale essential, small reasonable offer accepted. Nice flat available.
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British Medical Bureau

(THE SCHOLASTIC, CLERICAL & MEDICAL ASSOCIATION LTD.)

(FOUNDED 1880.)

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Tele. Address: Triform, Wesdo—London.

Telephone: Mayfair 1782 1783

The Association has long been favourably known to the members of the Medical Profession as a thoroughly trustworthy and successful Agency for the transaction of every description of Medical, Scholastic and Accountancy business, and the BRITISH MEDICAL ASSOCIATION has every confidence in recommending its members to consult Mr. A. V. STOREY, the General Manager, in all transactions requiring the services of a Medical Agent.

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1 LONDON, W.—Partnership in non-dispensing Practice about £2,500 p.a. No panel or appointments. One-third share, with view to ultimate succession. Premium 2 years' purchase. Purchaser must be well qualified and used to good-class Practice.

2 SOUTH OF ENGLAND.—Partnership in middle-class Practice, £2,800 p.a., in flourishing town. No panel. House (6/7 bed and dressing rooms) for sale. Premium one-half share 2 years' purchase.

3. LANCASHIRE. — Partnership in Practice £2,500 in urban district easy distance of important town. Panel 3,800. Premium one-half share 1½ years' purchase.

4 SOUTH MIDLANDS. — Well-established Country PRACTICE about £1,500 in first-rate hunting centre. Panel 733. House (6 bedrooms) with every modern convenience in grounds (2 acres), on lease. Cottage Hospital. Prem. £1,750.

5 WEST OF ENGLAND.—Good Town.—A share of over £900 p.a. (£600 from panel and appointments) in well-established Practice. Small non-basement house to rent.

6 WEST MIDLANDS.—Practice of £1,440 p.a. in small market town in agricultural district. Panel 500. Good house (7 bed and dressing rooms), with electric light and gas, for sale. Scope for increase. Premium £2,100.

7 MIDDLESEX. — Practice of over £1,300 p.a. in residential district within 20 miles of London. Panel over 1,100. House (5 bedrooms), with very attractive garden, etc., to rent. Premium 1½ years' purchase.

8 SOUTH MIDLANDS.—Increasing Country PRACTICE averaging over £1,500 p.a. (£750 from panel and appointments) in pretty village. Convenient house (6 bed and dressing rooms), good garden and acre paddock to rent on lease. Sport. Premium £2,200.

9 EASTERN COUNTIES.—Practice averaging nearly £3,300 p.a. in seaport town. Panel 700. House (5 bedrooms), large garden, for sale or rent. Scope. Premium 1½ years' purchase (or share up to one-half at 2 years' purchase).

10 HOME COUNTY.—Country Practice averaging nearly £1,100 p.a. in village under 15 miles from London (North). Panel 670. Old-fashioned roomy and comfortable house (6 bedrooms), large garden and garage, to rent. Good prospects for scope. Premium £1,650.

11 NORTH OF ENGLAND. — Ophthalmic PRACTICE over £1,300 p.a. in good town. Excellent introduction. Premium 1½ years' purchase.

12 MIDLANDS. — Country Practice about £1,000 p.a. in residential district and hunting centre. Panel 600/700. House, with 8 bedrooms, to rent. Premium £1,300.

13 DEATH VACANCY. — Surrey.—Practice about £1,700 p.a. in residential town. Panel 840. Excellent house (7 bedrooms), with beautiful garden, for sale or rent.

14 SOUTH COAST. — Practice worth about £1,500 p.a. in first-class residential seaside place. Small panel. Detached house (6 bedrooms), with garage and garden to be sold. Moderate premium for Practice.

15 ESSEX. — Rapidly increasing Practice of nearly £1,200 in residential district under 10 miles from London. Panel 747. Fine imposing and centrally situated house to be sold. Premium—Practice—£1,800.

16 YORKSHIRE (E.R.). — Old-established Town and Country PRACTICE £2,750, within easy distance of important town. Panel 1,750 to 1,800. Well-situated house (9 rooms and bath). Great scope. Premium—Practice and house—£4,650, or, assistantship with view to purchasing one-third share entertained.

17 SOUTH OF ENGLAND.—Partnership in Practice of over £6,700 p.a. in pleasant residential neighbourhood close to good Town. One-sixth share at first at 2 years' purchase. Purchasers should have held H.P. appointment at one of the London Hospitals.

18 EAST ANGLIA.—Partnership in Country Town Practice averaging £1,600 p.a. Panel about 700. Picturesque old-fashioned house (8 bedrooms), with electric light, etc., to rent. Premium one-half share 2 years' purchase.

19 LONDON, N.—Partnership in well-estab. middle-class Practice, nearly £2,750 p.a., in pleasant outlying suburb. Panel about 800. Suitable accommodation to rent. Premium one-third share 2 years' purchase.

20 YORKSHIRE (W.R.). — Partnership in Practice averaging £1,400 p.a. in country district close to large town. Opposition weak. Plenty of scope for increase. One-half share at 1½ years' purchase.

21 BUCKS.—Practice about £800 in small country town. Panel 741. Nice detached house (4 bedrooms), garden and garage, to rent. Premium £1,050.

22 SOUTH OF ENGLAND. — Assistant required (with view to Partnership) in steadily increasing Practice £2,770 in attractive town within 90 miles of London. Panel 1,770. Applicant must be English or Scotch (about 28 to 30), who must have held House appointments. One-third share at 2 years' purchase to suitable man after assistantship.

23 BRITISH EAST AFRICA. — Assistant required (with view to Partnership) in General and X-ray and Electro-therapeutic Practice. Assistant must hold the F.R.C.S., and experience in X-ray would be advantageous. Share of about £1,200 p.a. offered to suitable man after preliminary assistantship.

24 SOUTH AFRICA.—Old-established PRACTICE. Receipts last year £1,816. Travelling and midwifery light. Climate ideal—no tropical diseases (altitude nearly 5,000 ft.). Delightful residence (5 bedrooms), in perfect order, with 2 acres grounds. Excellent scope. Local Hospital. Premium £1,200, with option to purchase house.

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Practices and Partnerships for Disposal (continued).

25 SOUTH AFRICA.—Old-established PRACTICE in one of the pleasantest towns, with beautiful climate, in the Cape Province. Receipts average £2,900 p.a. House (4 bedrooms) to rent. Purchaser should be able to do major surgery. Knowledge of Dutch unnecessary. Premium £2,250.

26 CARDIFF. — Non-dispensing Practice averaging £1,543 p.a. Small panel. Pleasantly situated house (5 bedrooms) to be sold or let. Premium £2,000.

27 MIDLANDS.—Practice averaging £1,680 p.a. in important city. Panel 1,560. Specially built house (4 bed and dressing rooms) to be sold. Scope for increase. Price £2,250.

28 HOME COUNTIES.—Partnership in Practice £2,800 p.a. in good town about 30 miles from London. Small panel. Convenient house (5 bedrooms) to be sold or let. University and Public School man who has held appointments preferred. One-third share at 2 yrs.' purchase after preliminary assistantship.

29 LONDON, S.E.—Increasing Practice averaging about £800 p.a. in populous district close to the City. Panel 800. House (3 bedrooms) to rent. Premium 1½ years purchase.

30 PRIVATE ASYLUM.—Partnership.—Exceptional opportunity for suitably qualified Medical Man (age 30—35) in first-rate establishment. Preliminary assistantship 12 months. Capital required about £4,000.

31 SOUTH OF ENGLAND.—Partnership in Practice £2,250 p.a. in beautifully situated Country Town within 100 miles of London. Panel under 1,000. Suitable accommodation. Share, worth about £900 p.a., at 2 years' purchase.

32 SOUTH OF ENGLAND.—Seaport Town. PRACTICE of about £750 p.a., including appointments over £225 p.a., and panel nearly 1,000. Good house (6 bedrooms) to be sold or let. Premium 1½ years' purchase.

33 DEATH VACANCY.—Surrey.—Practice of between £250/300 p.a. in residential district easy distance of London. Small panel. Specially built corner residence (4 bedrooms), with nearly half acre of garden, for sale.

34 LONDON, W.—Partnership in good middle and upper class (non-dispensing) Practice. No panel. Applicant should be aged about 30 and have held several Hospital appointments. Share of £1,000 (or more) at 2 years' purchase after preliminary assistantship.

35 SURREY.—Sound rapidly increasing PRACTICE in suburban district under 10 miles. Receipts last year £2,500. Panel 750. Small house for sale. Premium—Practice—£4,000.

36 NORTH OF ENGLAND. — Practice about £600 p.a. in Inland Spa. Panel over 500. Well-situated house (6 bedrooms) to rent. Premium £1,000.

37 LIVERPOOL. — Increasing Practice of nearly £1,300. Panel 550. House (4 bedrooms), garage and garden, for sale. Golf near by. Premium £1,650.

38 SOUTH OF ENGLAND. — Partnership in Country Town Practice of nearly £2,300 p.a. Small panel. Well-built house (6 bedrooms) to rent. Premium one-half share 1½ years' purchase.

39 SOUTH COAST.—Non-dispensing Practice of about £1,900 in residential town. No panel. Choice of house.

40 MIDLANDS. — Practice averaging over £1,850 p.a. in small Industrial Town with pretty country all round. Panel 1,380. Double-fronted house (7 bedrooms) for sale. Good scope. Premium £2,500.

41 MIDDLESEX.—Partnership in sound Practice of between £3,000 and £4,000 p.a. in town within easy distance of London. Panel over 2,000. Share worth about £1,000 p.a. at 2 years' purchase after preliminary assistantship.

42 LONDON, W.—Good middle-class Practice of £840 in outlying residential suburb. No panel and practically no midwifery. House (4 bedrooms) and fair-sized garden to rent. Premium £1,100.

43 S.W. OF ENGLAND. — Country Practice of £950 p.a. Panel 400. Very little midwifery and night work. House, with 4 bedrooms, garden, and garage, for sale. Good society. Premium 1½ years' purchase.

44 LONDON, N.—Sound easily worked PRACTICE over £2,500 p.a. in residential district. Small panel and few midwiferies. Good house (5 bed and dressing rooms), with large garden, to be sold. Premium for Practice 1½ years' purchase.

45 MIDDLESEX. — Rapidly increasing PRACTICE doing about £600 in new developing district. Small panel. Very convenient house (3 bedrooms) for sale. Great scope. Premium £900.

46 NORTH OF ENGLAND.—Partnership in non-dispensing Practice about £6,000 p.a. in first-rate Country Town. Small panel. Very good house (6 bedrooms) to be sold or let. Premium one-fifth or two-fifths share 2 years' purchase.

47 CARMARTHENSHIRE.—Practice of over £950 p.a. derived from contract work and panel, in pretty village. Modern bungalow residence (3 bedrooms), with separate surgery, standing in 1½ acres of ground. Premium—Practice and house—£2,500, part on mortgage if desired.

48 LANCASHIRE. — Practice of £1,500 in rapidly growing district within a few miles of popular resort. Panel over 200. Very nice compact house (4 bedrooms), with beautiful garden and orchard, for sale. Prem.—Practice—£1,500.

49 LONDON, N.W.—Partnership in increasing middle and working-class Practice £2,550. Panel about 1,500. Excellent flat (2 bedrooms) at moderate rent. Premium one-third share £1,700, part by instalment.

50 MIDLANDS.—Partnership in sound well-established Practice over £4,000 p.a. in flourishing town. Panel 2,800. House, with 4 bedrooms, to rent. One-fifth share at 2 years' purchase. Partner should be experienced in Surgery.

51 LANCASHIRE.—Partnership in Practice averaging £2,100 p.a. in an industrial district. Panel over 1,500. One-third share at 1½ years' purchase after prelim. assistantship.

52 N. WALES.—Country Practice averaging nearly £450 p.a. in agricultural district. Small panel. Good house (4 bedrooms), with 9½ acres of meadow land, for sale. Hunting, shooting, etc. Premium £450.

53 EASTERN CITY. — Assistantship with view to Partnership in non-dispensing Practice Rs.4,500 a month. After assistantship six months at Rs.700 a month, all found. Third share would be sold at 1½ years' purchase. Applicant must be F.R.C.S.

54 SHEFFIELD.—Practice about £800 (including two appointments £155). No panel and no dispensing. Convenient house (6 bedrooms) for sale or to rent. Prem. £800.

55 CARMARTHENSHIRE. — Steadily increasing PRACTICE of £800 in small country town. Panel 645. Small house (3 bedrooms, etc.) to rent. Premium 1½ years' pur.

56 DEATH VACANCY.—Cathedral City N. of England.—Receipts about £1,100. Visits 5/- to 7/6. House in commanding position (3 sitting rooms, 5 bedrooms).

57 DURHAM. — Well-established Practice £1,169 p.a., including appointments worth about £500 and panel 1,050. House contains 7 rooms, surgery, and waiting room, with separate entrance, to be sold or let. Premium 1½ years' purchase.

58 DEATH VACANCY.—BUCKS.—Practice about £750 p.a. Panel 516. Visits 2/6 to 7/6. Good detached house (2 reception, 3 bedrooms, etc.). Rent £72 p.a.

59 SOUTH OF ENGLAND.—Partnership in sound old-established Practice. Beautifully situated country town. Small nice house available. Rent £47 p.a. Preference Oxford or Cambridge Graduate. Premium 2 years' purchase for share about £1,000 p.a.

60 N. WALES (SEASIDE RESORT).—Well-established PRACTICE £600 p.a. in nice residential town. Panel 245. House (7 bedrooms, etc.). Premium, house and Practice, only £2,300.

"MEDICAL PARTNERSHIPS, TRANSFERS AND ASSISTANTSHIPS" (BARNARD & STOCKER). Published by B.M.B., post free 12/6.

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1. HOME COUNTY — Near the Sea. — Old estab. unopposed Country PRACTICE in pretty district. Receipts last year over £1,100, including Union, etc., £55, and panel of 400. Railway station near. Good house in its own grounds of 10 acres (part is let for grazing, but could be sold for building purposes), containing 2 reception, 6 bedrooms, bathroom, etc. Water laid on and electric light available. Price for freehold £2,100. Premium £1,625. Educational facilities, sport, etc.
2. NORTH LONDON — Old-established good middle-class PRACTICE. Average gross cash receipts for past three years £2,572. Selected panel of 240. Fees from 5/- upwards. Mids. from 7 gns (only a few cases yearly). Very good corner house, non-basement, with 3 reception, 5 bedrooms, etc. Price for leasehold £1,800. Premium £3,000.
3. MIDDLESEX.—RESIDENTIAL SUBURB.—PARTNERSHIP.—A one-third share is offered in a very sound good mixed-class Practice, averaging over £3,200 p.a., including panel of 1,600. Fees 5/6 upwards. Very suitable house, with nice garden, can be rented on lease at £100 p.a. Up-to-date Cottage Hospital, which is being enlarged. Premium 2 years' purchase. University Graduate having held Hospital appointments preferred.
4. HERTS. — Better-class Country PRACTICE, within easy reach of London. Old-established, and patients are chiefly of the professional class. Average income £1,000 p.a., including panel of 480 and about £60 from appointments. Advice and medicine 3/6 to 10/6, visits 5/6 to 21/-. Not much midwifery. Exceptionally nice house, with every modern convenience and half an acre of garden. Price for freehold £2,700. Excellent sport, society, and schools. Prem. £1,500.
5. MIDLANDS.—In a clean thriving Hospital town (pop. 130,000), an old-established mixed-class PRACTICE worth last year £1,100, including panel producing over £400 p.a. and £150 from Public Medical Service. Large house, with ample accommodation, good garage, garden, etc. Vendor's leasehold having 31 years unexpired (ground rent £9 16s.). Price £1,500. Premium £1,650.
6. WILTS.—COUNTRY PRACTICE, on outskirts of large town. Well-established and producing for the immediate past year over £1,650, including panel of 1,390. Advice and medicine 3/6, visits 5/- upwards. Detached double fronted house, with good garden. Garage. Rent on lease £60 p.a. Premium £2,400.
7. NEW ZEALAND (South Island).—In a delightful and popular seaside resort (pop.: town over 17,000 and country 5,000, greatly augmented by visitors) on main line, a well-estab. PRACTICE averaging £1,816 p.a. for the past 5 years, including about £175 from Lodges. Consultations fees 10/6. Mids. 4 to 10 gns. (75 cases p.a.). House is situated in excellent position and contains 14 rooms, with 1/2 an acre of garden, tennis court, etc. Can be leased. Excellent educational facilities. Sport of all kinds.
8. LONDON, S.W.—Within easy reach of Charing Cross.—Very old-established middle-class non-panel PRACTICE averaging over £2,000 p.a. Fees 2/6 to 10/6. Mids. 3 to 10 gns. (about 12 cases). Commodious house, with 2 reception, 5 bedrooms, etc. Garden. Rent on lease £65. Premium £3,100.
9. LONDON, WEST.—Good-class General PRACTICE, held by Vendor for the past 25 years. Gross cash receipts for past three years average £1,682. Fees 10/6 to 2 guineas. Only a few midwifery cases at from 10 to 20 guineas. Good house, with 3 public and 6 bedrooms, etc. Electric light. Garden. Garage. Rent on lease £150. Premium £2,750.
10. HOME COUNTY.—Within 40 miles of London.—Good Country PRACTICE, established over 100 years, in very attractive district within 10 miles of favourite County Town. Patients include many county families. Income for immediate past year nearly £1,400, including transferable appts. worth about £120, and panel of 750, producing with mileage £470. Fees from 2/- to 21/-. Little midwifery. Facellent house, with 3 reception, 5 bedrooms, etc. Good garden. Garage. Rented on lease at £80 p.a. Premium £2,200.
11. CORNWALL.—FAVOURITE COAST TOWN.—PARTNERSHIP.—A one-third share is offered in a well-established Practice, having good surgical scope. Average gross cash receipts £4,200 p.a. Panel of about 1,800 and good appts. Very nice house available on rental, or smaller house or rooms could be taken. Hospital and prospect of appt. on staff. Premium £2,400.
12. PARTNERSHIP.—SOUTH-EAST COAST.—A one-third share (with increase later) is offered in a well-established non-dispensing Practice situated in a popular residential town and health resort. Receipts for past three years average over £3,000, with good scope. Fees from 5/- to 21/-. Very little mid. Attractive house, with 4 reception, 6 bedrooms, etc. Garden. Garage. Premium 2 years' purchase.
13. SOUTH-WEST OF ENGLAND.—SEAPORT TOWN.—PARTNERSHIP.—A one-sixth share is offered in a very old-estab. sound mixed-class Practice situated in residential outlying suburb. Average gross cash receipts for past three years over £6,700, including panel of 4,000, and appts. worth about £750. Excellent house, property of retiring partner, can be bought; or purchaser can select his own residence. Good sport and schools. Premium 2 years' purchase.
14. CARDIFF.—Old-established better-class non-dispensing worth last year about £1,400. Panel of 450. Fees from 5/- to 21/-. Very little midwifery. Good house in best part of the city. Can be rented on lease. Premium £2,000.
15. ESSEX.—Rapidly developing outlying suburb, within ten miles of the Bank.—Well established and increasing PRACTICE. Income last year £2,274. Panel of 1,646. Fees 2/6 upwards. Very little midwifery, but large scope. Very good corner house, in excellent repair, with 2 reception, 5 bedrooms, separate professional rooms, etc. Electric light. Garden. Garage. Price for freehold £1,550. Prem. £3,600.
16. SOUTH-WEST OF ENGLAND.—GOOD HOSPITAL TOWN.—PARTNERSHIP.—A one-half share in a very old established mixed-class Practice is for disposal owing to the retirement of the Junior Partner. Gross cash receipts average £2,300 p.a., including good appts. Small panel. Low expenses. Commodious house, with garden and garage. Rent £70 p.a. Vendor on staff of Hospital, and scope for surgery. Premium 2 years' purchase.
17. PARTNERSHIP.—WILTS.—A two-fifths share, with increase up to one-half later, is offered in a good mixed Practice situated in a pleasant town, with country surroundings. Income from share £900 p.a. Good scope for increase, particularly in surgery and midwifery. Cottage Hospital. Premium 2 years' purchase.
18. WITHIN 50 MILES OF LONDON.—Well-established and increasing PRACTICE situated in small country town in very pretty district. Income last year over £800, including panel of over 500, and appts. worth about £60. Visits 5/6 to 21/-, medicine extra. Exceptionally nice house can be bought, or smaller house available, which can be rented at £50 p.a. Good schools for boys. Premium 1½ years' purchase. Good scope for increase.
19. BORDERS OF WARWICK AND OXON. — Old-established Country PRACTICE, in attractive district near two good towns. Average income for past three years £1,157, including panel of 580 and appts. worth over £100. Fees 2/6 to 21/-. Good house, with 2 sitting, 4 bedrooms, etc. Separate entrance to surgery. Garden. Garage. Price for freehold £1,350. Hunting, golf, and schools within reach. Premium 1½ years' purchase.
20. SHROPSHIRE.—Unopposed Country PRACTICE, in pretty district, producing this year at the rate of about £1,400, including panel of 550, and appts. worth £65. Visits 3/6 to 7/6, with medicine and mileage extra. Midwifery from 3 gns. About 20 cases. Suitable house, with modern conveniences, and containing 3 reception, 5 bedrooms, etc. Electric light. Garden. Garage. Rent on lease £100 p.a. Good sport and schools. Premium £1,500.
21. YORKS.—LARGE TOWN.—Old-established mainly working class PRACTICE. Income £1,250. Panel of over 1,400. Fees 2/6 to 5/-. Well-situated house, with good garden. Price £1,500. Prem. £1,800.
22. LIVERPOOL.—Centrally situated old-established PRACTICE. Income about £1,500. Panel of over 2,500, worked from Branch Surgery. Visits and medicine from 3/6 to 7/6. Little midwifery. Large corner house, with garden and garage. Recently redecorated. Electric light and new hot water system throughout. Price, freehold, £2,000. Large scope for increase. Premium 1½ years' purchase.
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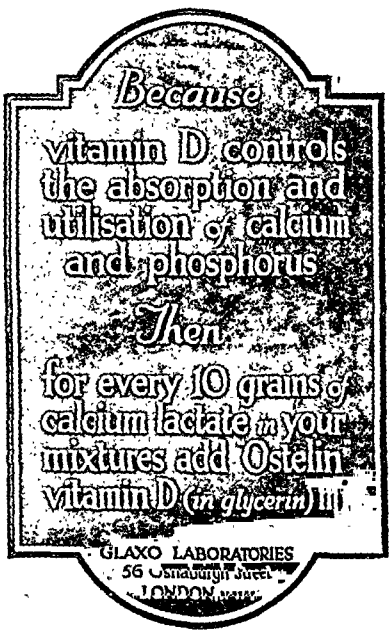

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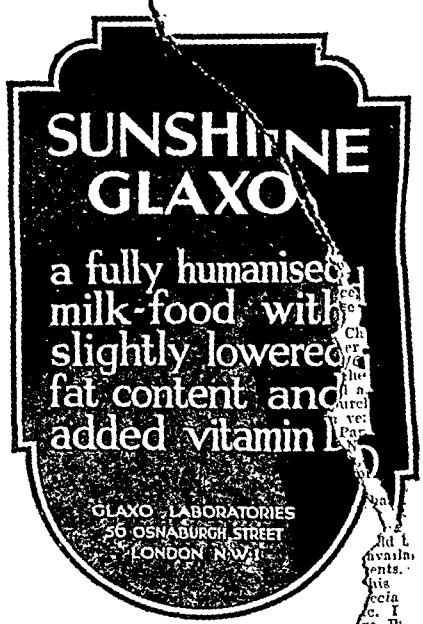

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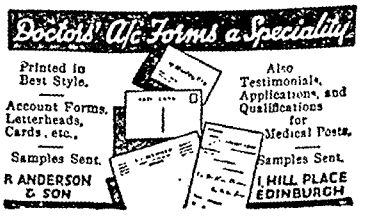

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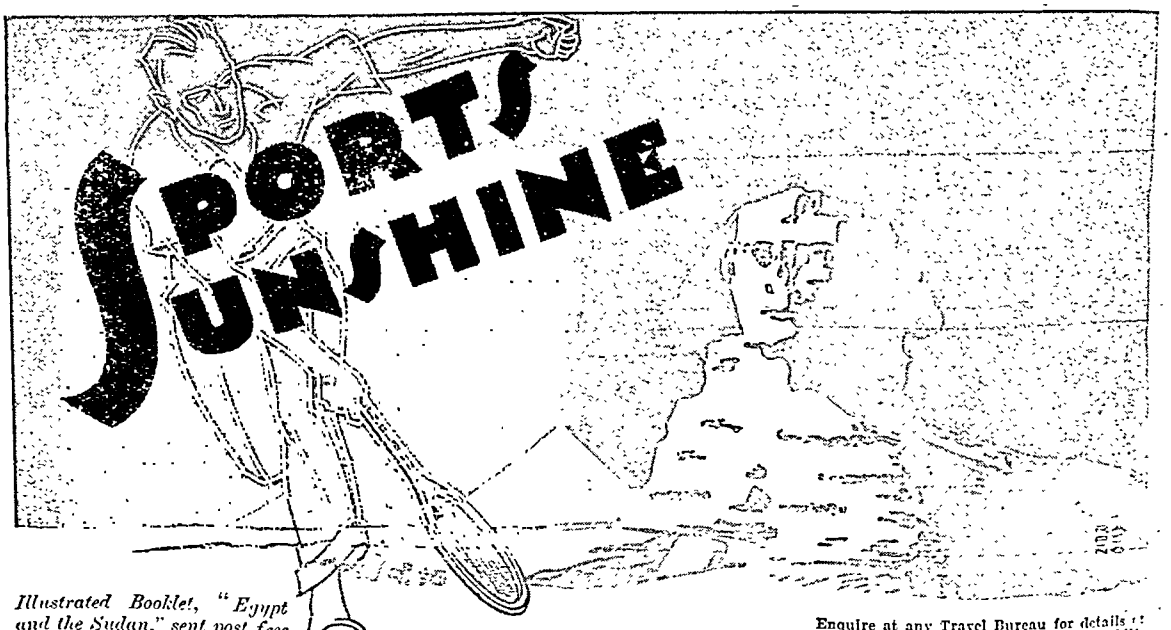

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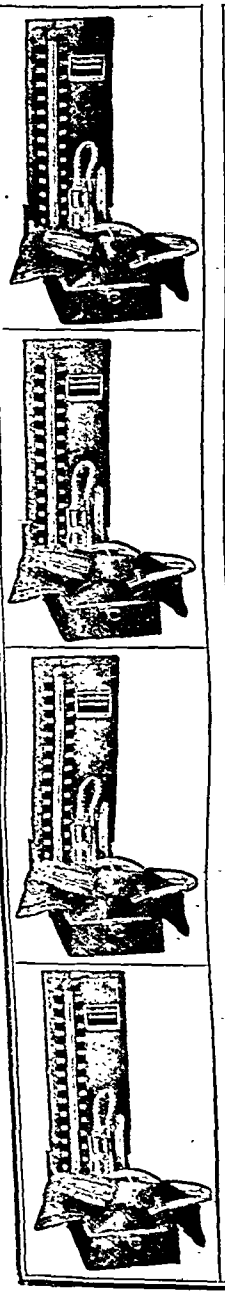

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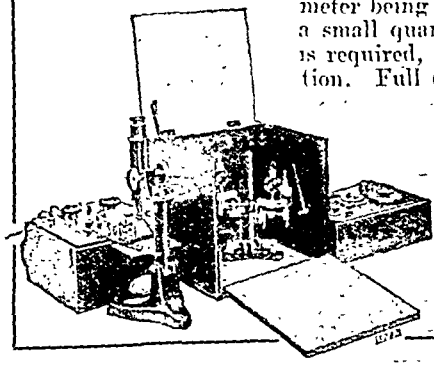

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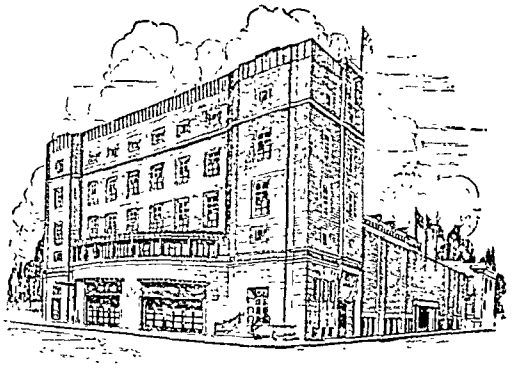

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Emol-Keleet

Immediate and marked relief from the distressing itching is afforded by Emol-Keleet. Emol-Keleet is prepared from an unctuous earth. It is impalpable in texture, pleasantly sedative, emollient and mildly astringent in action, and, being purely inorganic, is available for application in purulent and inflammatory conditions.
In all dermatoses where a sedative dusting powder is indicated Emol-Keleet will be found ideal.

Samples free to the Medical Profession on request.
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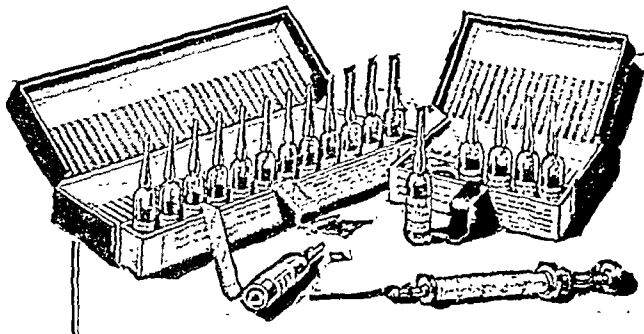

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Clinical evidence shows that intramuscular injections of Contramine will often achieve results unobtainable with any other drug; moreover, the injections are non-toxic and the treatment is painless.

Issued in solution in ampoules, and in the form of pessaries.

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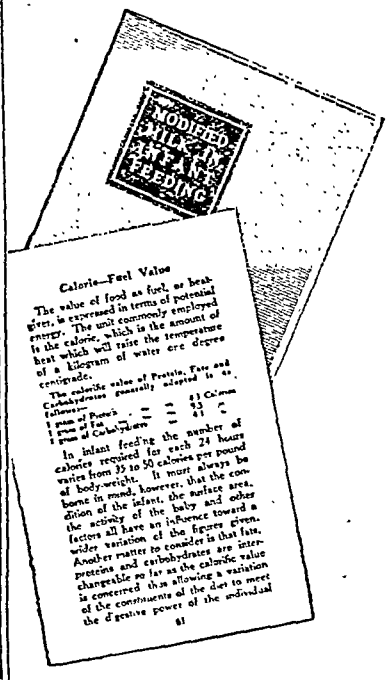

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containing an ample store of the vitamins essential for the nourishment of the developing babe, provides this source of energy. Prepared for use with fresh cow's milk, it combines the stimulating action of malt extractives with the high nutritive properties of fresh milk.

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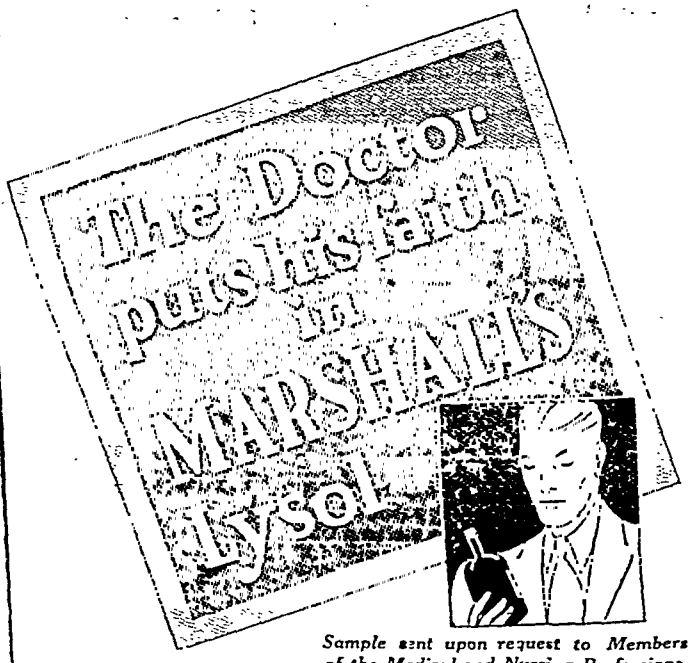

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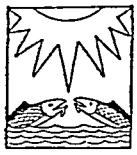

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Being a Yeast Extract, Marmite supplies any deficiency of Vitamin B in the ordinary diet. It is easily administered in soups and other invalid dishes, in sandwiches, or as a consommé made with hot water.

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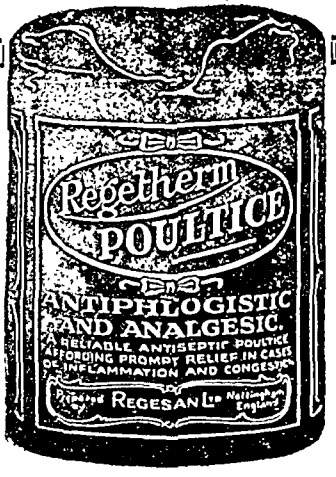

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More certain in its action than the old-fashioned poultice.

The healing action of Regetherm Antiphlogistic Poultice is governed by its ability to prolong and maintain an even degree of heat over a lengthy period. Moreover, the ingredients are so balanced that this action does not set up any counter-irritation, but allays pain, ensures an even circulation through the congested areas, and thus induces natural and pain-free rest.

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OVER 850 BRANCHES
THROUGHOUT GREAT BRITAIN

PRICE 2/- PER 1-lb. TIN

(NOTE THE WEIGHT).

Full size free sample to any medical practitioner, in British Isles, on application by postcard.

SPECIAL DISCOUNT TO THE MEDICAL PROFESSION.

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'ZYMINE' Peptonising Tubes

(FAIRCHILD)

For the preparation of Peptonised Milk and other Predigested Food for the Sick.

'Zymine' Peptonising Tubes have been in use since 1882, making it possible for physicians to assure proper nutrition to their patients, even in cases where digestive power has been reduced to its lowest terms, and enabling chronic dyspeptics, invalids, convalescents, etc., who must live upon fluid foods for more or less prolonged periods, to take milk in quantities sufficient to maintain nutrition and promote restoration.

Peptonised milk presents all the nourishment of plain milk freed from the objectionable qualities which constitute so serious a drawback to the utilisation of milk in the feeding of the sick. And of the many methods employed to make milk an available food for the sick, there is none that approaches the 'Fairchild' peptonising process in the certainty with which it accomplishes the desired purpose.

Supplied in boxes containing 6 and 12 Tubes.

The contents of one Tube will peptonise one pint of milk.

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Put your patient on

'WHITE BEAR' BRAND Cod Liver Oil

THERE is no finer grade of Norwegian Cod Liver Oil imported into this country than White Bear Brand.

It is exceptionally free from taste and odour, well-tolerated and easily assimilated. The process of refinement is scientifically controlled, hence the Vitamin activity of the oil is fully retained. Thus, the utmost benefit, obtainable from cod liver oil, is assured to the patient. The price, too, is advantageous.

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Supplied in 4 oz., 8 oz., 12 oz., 16 oz., and 20 oz. bottles by all chemists.

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FOR INSOMNIA.

Sleeplessness is a common feature of Neurasthenia. The value of "Ovaltine" in this condition is exceptional. A cup of "Ovaltine" taken upon retiring allays nervous irritability, and the patient passes into a natural and healthful sleep.

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"The patient slept the first night I used 'Ovaltine,' but I thought it merely a coincidence. By continuing its use, however, I am convinced of the value of 'Ovaltine' to induce sleep."

"In a case of Neurasthenia associated with sleeplessness and difficult feeding I gave my patient 'Ovaltine.' To my great satisfaction 'Ovaltine' was retained without difficulty, and rapid improvement followed."

"Ovaltine" is a rich concentration of the vitalizing principles of malt, milk, and eggs. Its delicious flavour and its high nutritive and digestive qualities render it a food beverage of outstanding worth.

A liberal supply for clinical trial sent free on request.

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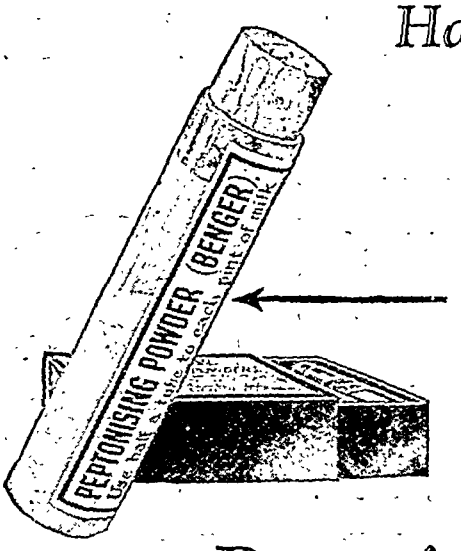
Works: KING'S LANGLEY, HERTS. M.205

Seb-The Earth God with a figure of a goose upon his head (EGYPTIAN)

The most efficient Peptonising Powders!

Half a tube of Benger's is enough!



While half a tube of Benger's Peptonising Powders is enough to peptonise a pint of milk, gruel or soup, in most cases in 10 minutes, the extent of the peptonising action can be regulated by either increasing or diminishing the quantity of the powders, and by lengthening or shortening the time during which they are allowed to act on the milk, gruel, etc.

Generally speaking, Benger's Peptonising Powders produce the required result with half the quantity necessary of other preparations, whose initial cost also is higher.

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Benger's Liquor Pancreaticus.

An important aid in the preparation of Peptonised Milk, etc.

Benger's Liquor Pancreaticus is an active solution of the digestive principles of the Pancreas; a really efficient agent for the digestion of milk, gruel, and farinaceous or partly farinaceous foods. Benger's Liquor Pancreaticus is odourless and tasteless.

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Often underlying the chronic condition is bowel stasis and irrational use of harsh cathartics.

Many chronic cases have been definitely benefited by a period of "habit time" education together with other rational treatment.

'Petrolagar' Brand Paraffin Emulsion affords a valuable aid to diet and exercise in bringing about a restoration of normal bowel movement—the effect being purely mechanical.

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Petrolagar

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**Literature available.*

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Concentrated Fluid Extract of LIVER

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The only stabilised FLUID EXTRACT accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in their list of New and Non-Official Remedies.

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of great value in all cases of MALNUTRITION AND DEBILITY.

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This Vaccine has been used with great success for several years. Its outstanding feature is the absence of reaction, which makes it especially useful for hypersensitive patients.

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Many practitioners consider a slight reaction has definite therapeutic value, and this type of Vaccine has been prepared to meet their requirements. It has the advantage of a very low price.

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For patients who object to Vaccine treatment by subcutaneous injections, and for children, this Local Immunity Product is particularly indicated. An additional convenience is that frequent attendances by the patient for injections are unnecessary.

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3 oz. - -	1/1½
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Every year we find at this season an increasing demand for prophylactic courses of our "Common Cold Vaccine." It is generally recognized that Vaccine Therapy gives good results, and it is known that the largest measure of success may be anticipated when the course is commenced two or three weeks before the season when the individual is usually susceptible.

EVANS'
Common Cold
VACCINE No. 3
Prophylactic.

Micrococcus catarrhalis	...	200 mills.	1,200 mills. per c.cm.
Diplococcus pneumoniæ	...	200 ,,	
Streptococci ...	...	200 ,,	
Bacillus friedlander	...	100 ,,	
Bacillus septus ...	...	100 ,,	
Staphylococci (alb. and aur.)		200 ,,	
Micrococcus tetragonus	...	100 ,,	
Bac. influenzæ ...	...	100 ,,	

Strongly recommended as a prophylactic and also in the treatment of inflammatory conditions of the upper air passages.

Supplied in 1 c.c. Ampoules, rubber-capped bottles, and boxes of graduated doses.

Brochure on "Vaccine Therapy" may be had on application.

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INSULIN "A.B."

TRADE A B MARK **Brand**

The ideal Insulin should be so pure that its use is entirely free from any untoward effect. This is the aim of the makers of Insulin "A.B.", who have adopted their own stringently high standard of purity and have always maintained it. Reductions in their prices have never involved the slightest sacrifice of quality.

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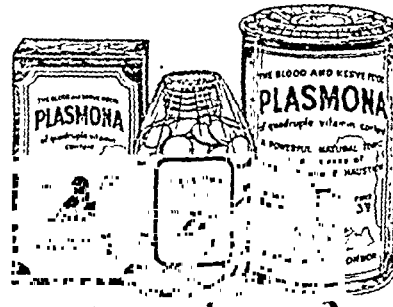
THE BLOOD & NERVE FOOD



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IN TABLET FORM

as well as in powder form.

HERE IS THE ANALYSIS:

Lipoid Compounds (phosphatides, cerebrosides, cephalin, protagon, etc.)	12.5%
Blood-forming Hormones	20%
Protein Compounds of high biological value, chiefly protein of milk	20%
Magnesium Salts (MgO)	10%
Ferro Salts (Fe_2O_3)	1.5%
Alkali Metals (Na_2O+K_2O)	1%
Calcium (CaO)	8.5%
Phosphates (P_2O_5)	12.5%
Iodine	0.025%
Carbonic Acid ($C.O_2$)	8%

2 or 3 Plasmona Tablets are equal in therapeutic value to 1 to 2 heaped teaspoonfuls of the powder.

Full particulars and clinical sample on request.

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EIGHTH PERIOD—circa 750 B.C. to A.D. c. 404

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TRADE 'Empirin' MARK Compound

A particularly useful formula in which pure acetylsalicylic acid, prepared at the Wellcome Chemical Works, is combined with phenacetin and caffeine of equally high standard.

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℞ 'Empirin,' gr. 3-1/2 (0·227 gm.)
(Acetylsalicylic Acid)
Phenacetini, gr. 2-1/2 (0·162 gm.)
Caffeinæ, gr. 1/2 (0·032 gm.)

Prices to the Medical Profession in London:
Bottles of 25, 1/3; 100, 3/9

Other 'Empirin' products are:—

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For formulæ and prices, see Wellcome's Medical Diary

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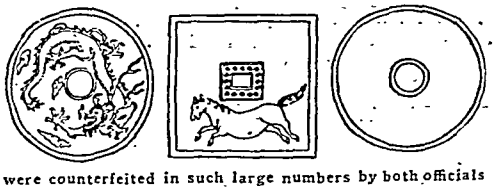
COINS OF WU TI, WHO INFLATED THE CURRENCY, IMPOSED A CAPITAL LEVY AND CHECKED PROFITEERING IN ORDER TO PROVIDE FOR THE NEEDS OF HIS PEOPLE REDUCED TO POVERTY BY COSTLY WARS, INTERNAL DEVELOPMENT AND INUNDATIONS.—The "spacious times" of the great Wu Ti, who pioneered the fortunes of China to their apogee, entailed an enormous expense which ultimately exhausted the treasury. The traders amassed enormous fortunes until Wu Ti established officials to check profiteering, to keep prices steady and to regularise them throughout the empire by controlling buying, selling and transport. Next, the traders were called upon to make a valuation of their fortunes and contribute proportionately to the state funds. Shamefully large fortunes were confiscated altogether. Wu Ti resorted also to the device of issuing coins having a nominal value far above their intrinsic worth, e.g., among those here reproduced, the "dragon" coin had a nominal value of 3000 of the former copper coins. These, however,



were counterfeited in such large numbers by both officials and people that before a year had elapsed they were no longer accepted, and the state was brought to the verge of financial ruin. To restore the currency the emperor appointed three officials who alone had the right to issue new coins. The results of these various efforts to bring back prosperity were such that: "The people enjoyed good cheer and fine clothes, and no one gave himself up any longer to increasing and accumulating his patrimony." However—"The officials, thanks to salt and iron (the chief sources of revenue) and ... the denunciation of acquired fortunes, had abundant resources."

DATE (of Wu Ti): 140-87 B.C.

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CREMOR ALKALINUS "A. & H."

Presents in a convenient form the formulae recommended by Professor MacLean for the intensive alkaline treatment of duodenal and gastric ulcers.

In Cremor Alkalinus "B" the Magnesia is reduced and the Bismuth increased, thus reducing the laxative effect.

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Sod. Bicarb. - -	2 parts
Mag. Carb. - -	4 parts
Calcii Carb. - -	4 parts
Bismuth Carb. - -	1 part

In 8-oz. bottles for prescribing.
In 80-oz. bottles for dispensing.

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Observations
ON
THE TREATMENT OF PLEURITIC EFFUSIONS.*

BY
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THE choice of this subject for discussion suggests that there may be differences in the routine teaching and practice of some of us in regard to this matter, or that there may be new methods that require ventilation and criticism. In the remarks which follow I propose to deal very largely with the principles which guide me personally in practice, rather than present a summary of all the known variations upon customary procedure. It will probably be found that I have very little to say that is novel, but what I say will at any rate serve as a basis for any novelties that may follow in the course of the discussion.

I desire, in the first place, to stress the fact that the successful handling of a case of pleuritic effusion does really rest upon principles, more or less clearly definable, and that the appropriate treatment of the effusion depends upon a consideration of several factors:

1. The cause of the infection.
2. The nature of the effusion.
3. Its size.
4. The stage in the disease process at which the patient has arrived.
5. The associated condition of the lung.
6. The degree of illness of the patient.
7. The contribution made by the effusion, as such, to the illness.

The time-honoured division of effusions into serous, or sero-fibrinous, and purulent is justified both on clinical and on bacteriological grounds, and brings into close association the first and second of the above-named factors:

1. *Sero-fibrinous Effusions.*—Tuberculous; rheumatic; influenzal; lymphadenomatous; ? some other infections; neoplastic.

2. *Purulent Infections (including Empyema)*—Pneumococcal; streptococcal; staphylococcal; influenzal; mixed infections; gonococcal; coliform; streptothrix.

The stage at which the disease process has arrived when effusion is diagnosed is a fact of great importance in the decision whether to remove the fluid, and also by what method to remove it. To remove all effusions "at sight" is, undoubtedly, bad practice, and this statement applies alike to purulent as to serous effusions. Care must be taken, however, not to confuse treatment with diagnosis. It is assumed that no effort is spared to make the diagnosis as early as possible; it is also assumed that no one is ashamed of a negative pleural puncture; better a negative puncture too early than a positive puncture too late.

The associated condition of the lung should be assessed with as much care as possible. Active and acute inflammatory changes in this organ contraindicate removal of pleuritic effusion, *ceteris paribus*, and this is true whatever the nature of the infection, because the presence of the fluid is undoubtedly of conservative value in keeping the lung at rest.

But the accumulation of fluid adds toxic and mechanical factors to the patient's illness, and these must be taken into account in determining treatment of the effusion. The question often arises: To what degree is the patient handicapped by the presence of the fluid, and to what degree is he ill by virtue of his general, or his pulmonary, infection? The proper answer to this question can only be given after the exercise of judgement based upon experience.

Lastly, it is necessary to carry in mind how ill the patient is, though this has more bearing upon the manner by which the effusion is removed, and the rate at which it is removed, than upon the question whether or no it be dealt with.

These general principles will be found again and again to govern particular instances, as will now be seen.

1. SEROUS EFFUSIONS.

The great majority of these are tuberculous in origin. Their treatment follows traditional lines. If they are very large effusions they are tapped as soon as they are diagnosed. If they are associated with respiratory or cardiac distress, and this seems referable to the effusion rather than to other factors, again they are tapped as soon as diagnosed, and irrespective of their size. Thirdly, if they show no signs of (further) absorption after fourteen days or so from the date of their discovery, they are tapped. Too early an interference with serous effusions is meddlesome. There is a definite evolution in the exudative process consequent upon the disease, so that the fluid tends to collect again if removed before its high tide is reached. But a more important reason against premature removal of the fluid is that by such interference the associated collapse of the lung is interfered with, and its expansion encouraged. Should the lung itself be the seat of active tuberculous disease such expansion tends to increased activity, and if it be not itself involved its partial collapse protects it from infection from the pleura. Several days of observation of the patient are sometimes necessary in order to decide if the lung is, or is not, involved, and in cases of doubt it is better to assume that it may be. Too late an interference with a serous effusion, on the other hand, is prone to leave the lung permanently collapsed, with consequent deformity of the chest and scoliosis.

If there is evidence that the lung is diseased, and in proportion as this evidence is definite, even greater care must be exercised against too hasty removal of the liquid effusion. Our experience of the good results of collapse therapy in the treatment of some cases of pulmonary tuberculosis has an obvious bearing upon this matter. The replacement of the effusion by oxygen may be considered, and this is sometimes done with excellent results. The production of active symptoms of lung disease is not infrequently witnessed as the result of the rapid expansion which follows removal of a serous effusion when a latent focus of tubercle is present. Less often, but more serious still, a pneumothorax, with all its lamentable consequences as a complication of pulmonary tuberculosis, ensues from the same error in practice.

Whilst this policy of forbearance is in operation the doctor is not idle. The patient is, from the first, regarded as suffering from tuberculosis, and the general measures that follow upon this view are put into action. The arm on the affected side is immobilized; perhaps that side of the chest is strapped, unless it be decided to paint the skin with equal parts of the tincture and the liniment of iodine, or to apply some other form of counter-irritation. Iodides are given internally, and calcium is thought by some to be of service.

Of *auto-serotherapy* few seem to have had much experience in this country. As might be expected, the device makes considerable appeal to some French physicians, but results do not appear to be such as to call for fuller exploitation of the method. The fact is, expectant treatment of serous effusions, followed by simple removal of the liquid at a well-chosen time in those cases in which it does not undergo spontaneous absorption, is so successful that to complicate it by, or to substitute for it, other methods seems a matter of supererogation.

How to remove pleuritic effusion, when the conditions indicate this, need not be dealt with here in detail. With most practitioners the Potain type of aspirator is deservedly more popular than the method of siphonage. With the latter there is often uncertainty whether cessation in the flow is due to absence of more fluid or to blocking of the tube by clot; whereas with aspiration, provided the operation be not hurried, and the patient be made quite comfortable both in mind and in body, the risk of too rapid expansion of the lung, as shown by cough, haemoptysis, or "albuminous expectoration," is negligible. Care should be taken to see that the local anaesthesia is

* Made in opening a discussion in the Section of Medicine at the Annual Meeting of the British Medical Association, Manchester, 1929.

really effective, and there is much to say for the preliminary use of a sharp scalpel, wherewith to nick the skin, before inserting the needle attached to the aspirator. Trocars with cannulas are to be avoided, and the ritual of a major operation, which is sometimes witnessed, is quite uncalled for.

How much liquid to remove depends much upon the individual case. It is very striking sometimes to see fairly rapid absorption started by the removal of quite a small amount. On the other hand, in large effusions, there is nothing to be gained by ceasing the aspiration so long as the liquid flows easily and the patient remains comfortable.

Drugs injected into the pleura after removal of the liquid, at least on the first occasion of its removal, are of dubious value. It is a question whether they do more than satisfy an inherent weakness in human nature to complicate a simple procedure.

The after-care of the patient follows the lines indicated by the knowledge that he is almost certainly tuberculous. Therefore his convalescence must on no account be hurried. Nor must so-called "respiratory gymnastics" be brought into the scheme of treatment too soon—certainly not before the pyrexia has completely ceased, redux friction has disappeared, and any other evidence of active inflammation has subsided. Otherwise there is, once more, the danger of "lighting up" a latent lung focus or of a relapse in the acute pleurisy. A return to ordinary life must not be considered under three months from the time of cessation of symptoms, and it may be necessary to extend this period if the season of the year is unfavourable or the case has been tedious. Even then there should be rules for daily observance, as for an early case of pulmonary tuberculosis.

Rheumatic effusions are almost invariably accompanied by other expressions of rheumatic inflammation, especially by some form of carditis, and their treatment becomes part of the therapy of acute rheumatism. Aspiration is rarely necessary.

Serous effusions in influenza are either associated with active lung disease (pneumonia), when their treatment is determined by this fact and by the degree of illness of the patient; or they appear later as residual collections of fluid when the main illness has subsided, when the question should be carefully considered whether or no the effusion is not really tuberculous. These facts determine their treatment.

In lymphadenoma and in *cancer* there are no special rules of guidance: the individual case must determine treatment.

2. Purulent Effusions and Empyema.

In the main the principles governing the treatment of serous effusions operate here also. But the time factor is of greater urgency, since the old-established surgical maxim to "evacuate pus as soon as it is discovered" should not be departed from in this or in any other condition. The points under consideration, therefore, are concerned more with methods of drainage than with the time of drainage. And these methods have less uniformity in opinion and practice than is the case with serous effusions, because the conditions of satisfactory drainage of a pleural abscess are obtained with less constancy.

The various methods of drainage and subsequent treatment will now be passed in review.

Treatment by Aspiration, Repeated as Indicated.—When purulent effusion occurs during the active stage of any disease, and especially when it occurs during the active stage of pneumonia, aspiration is the method of election. Both incision and resection should be postponed, but especially resection. In not a few cases one or two aspirations suffice, and major procedures are found to be unnecessary. Not only is this so in pneumococcal cases, it is sometimes the case in septicaemia with focal pleuro-pulmonary lesions of a suppurative nature, especially when the infection is streptococcal. In influenzal cases, again, this procedure should always be given a trial before it is decided to incise the chest or to resect a rib. In staphylococcal pyaemia, on the other hand, although aspiration very occasionally succeeds, and should therefore be tried, drainage by the open method will probably be required sooner or later. Speaking generally, the more ill the patient, and the more certain the evidence of existing pneumonia, the more should the practitioner favour aspiration as against the open method. Too much care cannot be given to this consideration: is the patient ill chiefly as the result of his general infection (with or without pneumonia), or is he ill chiefly as the result of the empyema? Upon the answer to this question depends the decision to aspirate, and perhaps to repeat the aspiration, or to incise with rib resection. The course of the disease must be carefully watched if we are to arrive at the correct answer. The character of the pus is of less importance as a guide to the method to be adopted than are the above considerations. It is assumed that needles of adequate bore are used, and also of adequate length. It is sometimes difficult to persuade instrument makers that there is use for a needle which is bigger and longer than a hypodermic needle and yet smaller than a trocar.

Treatment by Simple Incision and Drainage.—This intermediate method is probably less often indicated, and less often successful, than aspiration on the one hand and resection on the other. But, again, in very ill patients this method may be resorted to with advantage, and especially when the exudate is very thick, and where there are coagula and sloughing pyogenic membrane, as in some pneumococcal cases.

Treatment by Incision (with or without Rib Resection), Irrigation, and Closure of the Wound.—This method has had a vogue of late. It is probably only applicable to pneumococcal cases, and, despite some successes, it too often transpires that recourse must be had later to the older, and more tedious, methods. Its pursuit appears to be an example of the hope that technique can, some day, triumph over experience.

Treatment by Incision, Rib Resection, and Drainage.—This is the old-fashioned method, and still remains the method of election in the majority of cases. Matters of purely surgical technique will not be entered into here. But the level of approach, so as to effect the best drainage, the choice of anaesthetic, and the extent to which digital exploration is undertaken are all of them matters which pay for careful thought. Digital exploration is probably of service in most cases: it enables the observer to glean helpful information in respect of the state of the lung, admits of the breaking down of recently formed adhesions, and facilitates the expulsion of sloughs and coagula. But forbearance should be exercised in all this: "Be bold, be bold . . . be not too bold." Modifications in the system of drainage in this, the open method of treatment, deserve further consideration and trial. The desiderata are adequate evacuation of the pus, the avoidance of more than local and temporary pneumothorax, and the least disturbance of the (presumed) diseased lung. The use of a tube which is carefully adapted to the chest wall, and which delivers into an air-tight bottle, is worth more extensive trial. Unfortunately in children, who are the very patients in whom the above-mentioned desiderata are of special importance, apparatus of a complicated pattern are difficult to keep in place.

The question of *irrigation of the empyema cavity* is one which recurs in the minds and practice of successive generations of practitioners. Whilst admitting that the calamity termed "pleural shock" is a rare event—though probably less rare in pleural lavage than in pleural puncture—it is very doubtful if irrigation as a routine procedure is justified by results. A large number of substances have been used at different times. Dakin's solution (5 per cent. neutral sodium hypochlorite) is supposed to have virtue as a decorticator and solvent as well as a germicide. Aniline dyes, such as methylene blue and gentian violet, have been used a good deal of late. Iodoform emulsion and iodized oil have their advocates. But more ambitious preparations have at times been used. One of these is pepsin with hydrochloric acid and phenol. Another is iodoform with ethyl morrhuate in olive oil. It is difficult to believe that the use of such solutions will ever get farther than the experimental stage. Two things seem clear: irrigation at the time of the operation is always of questionable value, and irriga-

tion at any time, either then or subsequently, is to be avoided if there be any suspicion of pulmonary abscess in addition to the empyema.

In *autopyotherapy* the limit of hopefulness in conservative treatment would seem to be reached; and even the recorded success in one case of injecting 1 c.cm. of the pus subcutaneously, at intervals of four or five days, seems scarcely to justify the employment of the practice as a general method of treatment.

The importance of treating the patient must never be lost sight of. Indeed, the after-care of the patient should receive special attention. Abundant aerotherapy should be adopted, and, whenever possible, the patient should be in the open air for long periods of the twenty-four hours. The diet should be simple. Sunlight or/and ultra-violet rays are often helpful. The use of vaccines, though not so popular as a decade or two ago, should be considered, and general tonic measures are not to be omitted. In this way is combated any residual *infection* that may exist, and expansion of the lung is encouraged. Respiratory gymnastics—deep breathing—may well be employed, and less caution is necessary here than in serous effusions, lest such helps be sought too early.

The problem of the residual sinuses is ofttimes a difficult one. The help of x rays and lipiodol injections is notorious. The indications for treatment when the case has arrived at this point depend upon the application of two principles: that a septic focus in the chest, however small, constitutes a general as well as a local danger; and that there are only two ways in which such a focus can be effectively dealt with—either the lung must be allowed to expand until it reaches the chest wall, or the chest wall must be allowed to fall in until it comes in contact with the lung. Which of these two modes of securing permanent healing is chosen, or whether both are chosen, depends upon the particular case. In the first instance digital exploration with efforts at decortication is the method of election; in the latter, the resection of portions of more ribs. Meantime the methods by which the patient's *general tone is re-established* must not be relaxed. In such difficulties patience, vigilance, and the pursuit of the principles stated usually achieve the end desired.

An Address
ENTITLED
LYMPH-STASIS THE PRECURSOR OF CANCER.

DELIVERED AT WELLINGTON BEFORE THE NEW ZEALAND BRANCH OF THE BRITISH MEDICAL ASSOCIATION, FEBRUARY 19TH, 1929,

BY

W. SAMPSON HANDLEY, M.S., F.R.C.S.,

SURGEON TO THE MIDDLESEX HOSPITAL AND TO THE MIDDLESEX CANCER HOSPITAL.

(*With Special Plate.*)

I PROPOSE to use my opportunity to-day for the purpose of laying before you my views on the origin and causation of cancer. Carry your minds back, then, to the dawn of the world, uncounted millions of years ago, when life first appeared upon its surface in the form of amoeba-like organisms, each a single cell, a single unit of living protoplasm, animated by two fierce passions—the desire for food and the desire to double its ego by the simple process of cell-division.

A little later in time there arose from these unicellular organisms, organisms composed of many cells living together in a communal life like that of a small village or a great city. The cells are now specialized into groups, and each kind of cell follows a trade or profession, exerting for the community its special skill, receiving from the community in exchange food, warmth, and protection. To carry out the scheme and to ensure that each cell receives its due share of food, and of such cell products as it no longer makes for itself, elaborate systems of conduits—the circulatory, lymphatic, and glandular systems—have been evolved, and equally elaborate machinery, comparable with the telegraphs, telephones, and newspaper and business offices of the city, brings information of the outer world, and controls the activities of the cell community. As Sir Arthur Keith[1] has said: "The resemblance between the body physiological and the body politic is more than an analogy; it is a reality," and Mr. Morley Roberts[2] has insisted that politics must be regarded as a branch of the science of biology.

It is a part of the bargain that the individual cells shall abandon the primitive right to unlimited cell division. In the many-celled animals this right is reserved to the cells of the ovary and testis.

THE ORIGIN OF MANY-CELLED ORGANISMS.

It is an interesting speculation how the many-celled organisms arose from the unicellular individuals, which were presumably the first living things to appear on the globe. It appears likely that they arose from some inhibition of the process of cell division when it had proceeded half-way—that is to say, the nucleus completely divided, but the cell protoplasm still remained connected by protoplasmic strands. There is evidence that the cells of the higher animals are still interconnected by protoplasmic bridges.

To understand the origin of multicellular organisms the most hopeful avenue is a study of the processes which inhibit or frustrate cell division after the process has been initiated. Such a study might be pursued upon the amoeba.

Note that, if the foregoing sketch of evolution is true, each cell of one of the higher animals is descended from a primitive one-celled organism with an irresistible appetite for food and for multiplication. Note, further, that these are the appetites which dominate the cancer cell, and you may be led to conclude that cancer is an atavistic reversion of certain cells of the body to the state of their primitive one-celled ancestors. Such a conclusion would, in my opinion, be correct. The cancer cell is a selfish unicellular organism, derived by direct descent from the cells of the body, but living among them as a parasite.

You might further be led to compare the cancer cell, with its fierce antisocial individualism, to an anarchist in the body politic, and to inquire whether the anarchist represents a spontaneous reversion to the savage primitive type of man, or whether he is the product of disorders in the social organism. Experience shows that the anarchist does not appear, or is soon exterminated, in prosperous and happy communities. It is therefore probable that in cancer the reversion to the primitive cell type is conditioned by disordered bodily function. In other words, the body has failed to carry out the contract under which the cell abandoned its right to unlimited multiplication. Under that contract each cell of the body has the right to its share of the products of all the other cells. It has also a right to protection from external irritation. It is my object now to show how the contract has been violated. My observations lead me to believe that the origin of cancer is intimately associated with local obstruction of the lymph vessels in the area where the cancer arises. To produce cancer the obstruction must be of long standing—must have lasted from twenty to thirty years. It may not be complete enough to cause obvious lymphatic oedema, but may *manifest itself only by papillary hypertrophy* and increased cellularity of the subepithelial connective tissues.

Complete direct proof of this theory is at present impossible. But if the disconnected heap of jig-saw fragments which constitute our knowledge of cancer are tried together upon this hypothesis and are found to fit as a coherent picture, a definite orientation, hitherto lacking, will be given to experimental work on the origin of cancer. It is for the reader to judge if my work fulfils the object thus stated.

It is, I think, significant to note that the recent work of Warburg shows that the cancer cell is a cell which has somehow acquired an entirely new type of cell metabolism, but no suggestion has hitherto been offered as to the way in which this change of cell habit is brought about. It is

evident that chronic lymphatic obstruction must profoundly influence the conditions under which the cell lives. The intercellular pressure must be raised, wandering cells brought by the blood will be trapped in the district and will be unable to leave it, the supply of oxygen will be restricted, and the fluid bathing the cells will be relatively stagnant—wanting, therefore, in the supply of fresh hormones derived from other cells of the body, which it should normally contain, and wanting specially in the inhibitory hormone which is the sedative to the cell's primal passion for division.

We must now consider what light can be obtained upon the etiology of the disease from a study of experimentally produced cancer. The salient facts will be found well marshalled by P. Menetrier,[3] who has himself done so much to advance this subject. He shows that attempts to induce cancer by the injection of micro-organisms, or by the inoculation of embryonic grafts, have failed. Doubt is thus thrown upon the infective theory of cancer, and upon Cohnheim's hypothesis of its origin in embryonic "rests." On the other hand, chronic irritation in various forms has succeeded in artificially inducing cancer; and Menetrier's belief that cancer is a morbid process resulting from "multiple and non-specific forms of irritation" is thus justified. The successful irritant may be:

1. A physical agent, such as *x* rays, radium, or heat.
2. A chemical agent, such as tar or paraffin.
3. A parasitic agent, such as the spiroptera which causes stomach cancer in rats, and possibly the bilharzia (bladder cancer) and the demodex (Borrel).

It must be observed in passing that it does not take us far to say that chronic irritants produce cancer. We want to know whether their effect is a direct one on the epithelium, or is exerted indirectly through an action upon the connective tissue. If the latter, what is the nature of the connective tissue change?

To resume our study of Menetrier. By exposing the ears of guinea-pigs for long periods to repeated small doses of *x* rays he produced hyperplasia of the epithelium and metaplastic alterations of the cells. He draws attention to the great thickening of the epithelium, and to the formation in it of cell nests, also to "papillomatous appearances," which he evidently considers deceptive and due to the downgrowth of epithelial processes, a mistake which Clunet also made. He does not refer to the changes in the connective tissue of the papillae.

In concentrating his attention upon the epidermic changes and ignoring those in the connective tissue, I believe that Menetrier has missed the true interpretation of his results.

In his figure (Fig. 9) there are to be seen hypertrophied papillae, a stage of real if incipient papillomatosis. In the centre of each of the two hypertrophied papillae on the left are seen cellular cords, uniting below to form a single vessel. My experience with lupus (cf. Fig. 7) warrants me in asserting that these cords are papillary lymphatics of origin in a state of proliferative lymphangitis. In the papillae to the right of the figure the process has gone further: the vessels have been destroyed and a richly cellular mass of granulation tissue has replaced them (cf. Fig. 8). In my view, then, the *x* rays have set up an obliterative lymphangitis of which the epithelial hypertrophy is a secondary consequence. A direct stimulating action of the *x* rays upon the epithelium may no doubt occur, but it is of less moment than the lymphangitis which Menetrier ignores, as will be seen when the facts of lupus carcinoma are studied.

Marie, Clunet, and Lapointe exposed a number of white rats to a few successive massive doses of *x* rays, each dose causing a severe dermatitis. In two cases a spindle-celled sarcoma arose in the irradiated area, but epithelioma was not produced in any of the animals. These experiments, from my point of view, show the predominance of the connective tissue changes produced by chronic radiation over the epithelial changes. Though in man the epithelial changes may ultimately prove of more serious import, they are conditioned by previous long-standing chronic lymphangitis, and perhaps to a less extent by obliterative haemangeitis.

It may be remarked that papillomatous hyperplasia is a recognized precursory stage of *x*-ray cancer. Furthermore, early *x*-ray epitheliomata have a tendency to remain localized for a long time, and only disseminate when they have advanced by infiltration into regions where the lymphatics are still intact. In these respects they resemble lupus cancer, which is certainly conditioned by lymphatic obstruction.

In 1923 Block succeeded for the first time in producing an *x*-ray carcinoma in a rabbit.

TAR CANCER.

The precancerous stage of clinical tar cancer manifests itself by the production of warts (Fig. 11), which mostly after a time drop off, leaving an erythematous or pigmented patch. Sooner or later one of the warts grows, becomes broad-based, ulcerates, and develops all the signs of malignancy (Fig. 12). Yamagiwa and Ichikawa in 1914 first succeeded in producing experimental tar cancer by painting the ears of rabbits with coal-tar once every two or three days. Sometimes the applications were preceded by the intradermic injection of scarlet-red, an admirable means of irritating the lymphatic vessels. In from 30 to 100 days papillomatous new formations appeared. In certain cases after 55 to 360 days carcinoma appeared. In a later series of experiments carcinoma was produced in 77 per cent. of the experimental animals. In 72 per cent. metastases occurred. The same authors injected tar into the mammary gland of female rats, and produced cancer of the mamma in 12 per cent. of the animals. Yamagiwa and Ichikawa state that "repeated simple chemical and physical irritation renders the normal epithelial cell cancerous, without any necessity to invoke another unknown causal agent." This statement requires examination. It is at least possible that the tar acts primarily upon the connective tissues, and we must now inquire into the evidence available upon this point.

It is certain, at any rate, that the connective tissue is not indifferent to the irritation of tar, for in Fibiger and Bang's experience, out of 24 tar carcinomas in mice, 2 were accompanied by a tar sarcoma. Russell produced sarcomas by deep or subcutaneous injections of tar.

More direct evidence of the importance of the connective tissue changes produced by tar painting comes from Borrel. He noted the accumulation of connective tissue cells (mastocytes) forming little intra-epidermic or sub-epidermic collections. Prolongations from these mastocytes insinuate themselves between the cells of the Malpighian layer, which is thus dissociated. The observations of Borrel harmonize with those of Victor Bonney,[4] who in every case found that the origin of a cancer is preceded by increased cellularity of the subjacent connective tissue. Menetrier, without, I think, sufficient reason, ascribes these collections of connective tissue cells rather to accidental infections of the skin than to the action of the tar. Nevertheless, Menetrier himself, in the epithelial hypertrophy of the hair follicles, which is one of the precursory stages of tar carcinoma, observed a great increase in the number of branched pigmented connective tissue cells (chromatophores) lying among the deeper layers of the epithelium and in the superficial layer of the dermis. Evidently in such cases a powerful stimulus has been applied to the connective tissue.

In the other precancerous stage of tar carcinoma, that of papillomatous hypertrophy, the deeper layer of the epithelium shows a hyperplasia of the chromatophores (pigment-bearing connective tissue cells) which it normally contains. Later an increase of chromatophores is seen also in the underlying dermis.

It must, however, be admitted, as Menetrier insists, that in the rabbit's ear the onset of tar carcinoma may occur in the absence of any connective tissue proliferation. It is true, as Menetrier says, that this fact runs contrary to the views of Ribbert as to the importance of inflammation of the connective tissues in the origin of cancer, but, on the whole, the balance of evidence points strongly to the view that the action of tar is primarily upon the connective tissue. I suggest that tar produces cancer by causing lymphatic obstruction with papillary hypertrophy as an intermediate stage in the process.

It has long been known that the evolution of a papilloma into a carcinoma is not a rare event, but the closeness of

FIG. 1.—Cross-sections of skin papillae in Paget's disease of the nipple, showing blocked central lymphatics.

FIG. 2.—Cross-sections of skin papillae in lupus, showing blocked central lymphatics. (*Cf. Fig. 1.*)

FIG. 3.—An innocent duct papilloma of the breast. (Contrast Fig. 4.)

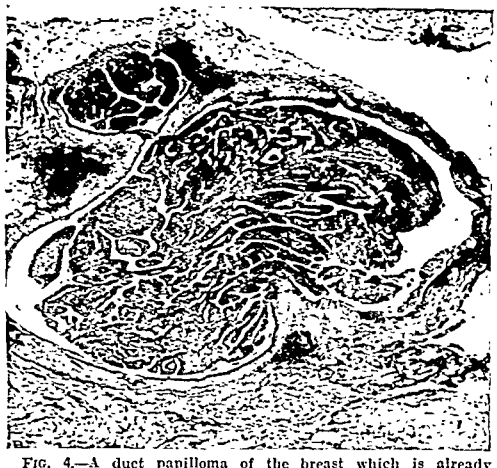

FIG. 4.—A duct papilloma of the breast which is already carcinomatous. (Contrast Fig. 3.)

FIG. 5.—A highly magnified portion of the papilloma seen in Fig. 4, showing infiltration of its connective tissue by malignant epithelium.

FIG. 6.—Hypertrophied papillae adjacent to a carcinoma of the tongue. On the right the edge of the carcinoma is seen.

FIG. 7.—Section just beyond the edge of an area of non-ulcerative lupus of the skin, showing the blocked papillary lymphatics which simulate a stag's antler in outline.

FIG. 8.—A much hypertrophied papilla of the skin in lupus occupied by tuberculous granulation tissue and by a line of giant cells representing the original central lymphatic.

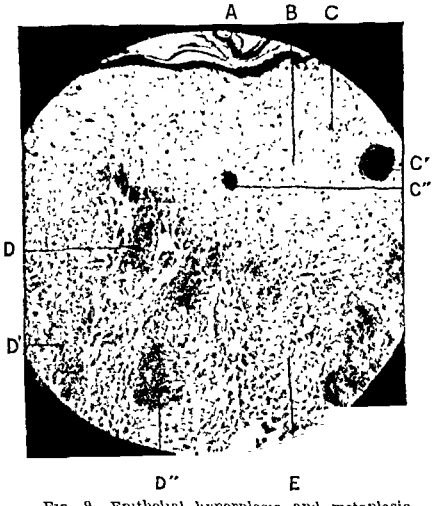

FIG. 9.—Epithelial hyperplasia and metaplasia in the ear of a rat following x-radiation. From Menetrier, *Le Cancer, Généralités*, p. 129.

FIG. 10.—Lupus carcinoma of the left cheek. On the right cheek is seen an innocent papilloma.

FIG. 11.—Tar warts of the forearm. From a patient who had worked in hot tar for twenty years.

FIG. 12.—The scrotum of the same patient, showing a tar carcinoma.

the relationship between these two forms of tumour has only very recently been realized. It seems probable that carcinoma is invariably preceded either by a definite papilloma or by a local area of papillary hypertrophy.

Chronic glossitis with papillary hypertrophy is the usual precursor of carcinoma of the tongue (Fig. 6). Cancer of the lip and of the larynx frequently arises on a pre-existing papilloma. In regard to carcinoma of the stomach there is no evidence.

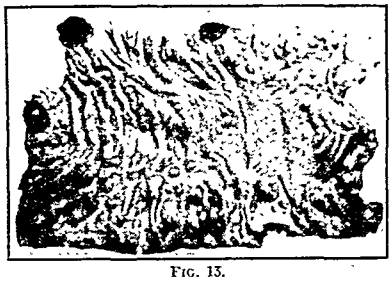

FIG. 13.

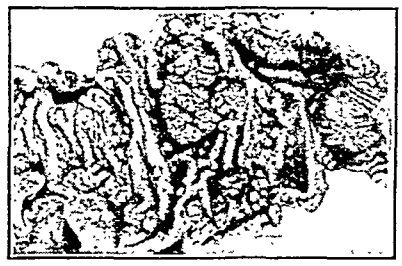

FIG. 13A.

FIG. 13.—Portion of colon removed by operation from a case of multiple adenomata. Note the little round tumours scattered over the mucous membrane. (M.A. 5.) (× 3.) (Dukes.)
FIG. 13A.—To show the naked-eye appearance of the simple tumours associated with a cancer of the rectum. (Dukes.)

Cuthbert Dukes[5] has shown that in the neighbourhood of early carcinoma of the large bowel groups of papillomata can be usually demonstrated, though these disappear at a later stage (Fig. 13A). He infers that carcinoma of the bowel begins as a papilloma. Cases of multiple papillomata of the colon are known to end almost invariably in carcinoma, and generally before middle age is reached (Fig. 14). Dukes has been able to demonstrate the origin of carcinoma at the tip of a papilloma (Fig. 15). On two occasions I have seen a papilloma appear at the lip of a colostomy opening as a little stalked, perfectly innocent, tumour, and develop within a few weeks into a carcinoma. On the first occasion, in a case of abdomino-perineal excision of the rectum for carcinoma, the new primary carcinoma grew rapidly and produced a malignant stricture of the colostomy opening. On the second occasion I excised the incipient carcinoma with scissors. It was the earliest and smallest carcinoma I have seen, and resembled Fig. 14.

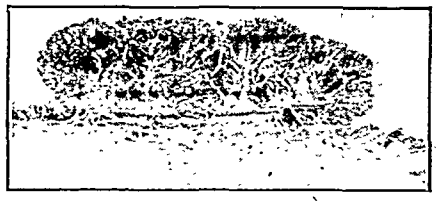

FIG. 14.—A complete section through a very early cancer of the rectum, which measured only 1 cm. in its broadest diameter and projected like a little button about 3 mm. above the surface of the bowel. Four small non-pedunculated adenomata were found within a radius of two inches of the growth. (M.A. 6) (× 8.) (Dukes.)

MULTIPLE PAPILLOMATA OF THE LARGE BOWEL.

Jüngling[6] has supplied a remarkable family tree covering *four generations* descended from a male who died of pulmonary tubercle and a female who died of old age. Both the ancestors were free of polyposis. Of their thirty-one descendants, fourteen suffered from polyposis of the alimentary tract, five from cancer of the rectum. Two of the first generation died of intestinal tubercle. Four of the six children of the first generation died of carcinoma of the rectum. For further details the family tree must be consulted. It appears to justify Jüngling's assertion that the tendency to polyposis behaves as a Mendelian dominant.

Professor Jüngling makes no comment on the fact that this family had a tuberculous ancestor and that tubercle reappeared in the two succeeding generations. Yet it seems to me likely that this fact is the key to the unknown pathogenesis of intestinal polyposis. It is known that when tubercle attacks the skin it may cause either an ulcerative or a warty non-ulcerative form of lupus. I believe that when it attacks the mucosa of the intestine, and fails to produce ulceration, an intestinal polyposis is the result. And just as carcinoma may attack the scarred area of a lupus, so may it arise in an intestinal polyposis. Papilloma of the bladder likewise, in my opinion, is a non-ulcerative form of tubercle of the bladder. A case in which I removed a typical polypus from near the right ureter, and had subsequently to remove the right kidney for what proved to be advanced tubercle, remains in my mind as a probable indicator of the pathogenesis of vesical polypus.

It might appear useless to bring forward these hypotheses upon such inadequate evidence. I do so in order to suggest that some young investigator who reads these lines should endeavour to produce intestinal and vesical polypus in animals by injecting the lymphatics locally with a suspension of active tubercle bacilli.

CANCER OF THE BREAST.

In the case of the breast the appearance which Lenthal Cheatle calls the "laciform edge" is a diffuse papillomatosis of the smaller ducts. He points to this appearance as a precursor of malignancy. If, as Cheatle maintains, and I think correctly, nearly every case of breast carcinoma originates in the ducts, it is probable that nearly every case of breast cancer is preceded by papillary hypertrophy or by definite papillomata.

Duct papilloma of the breast is recognized clinically when it arises in the larger ducts and causes serous or blood-stained discharge from the nipple. Such cases, if neglected, are known to end usually in carcinoma. In the following case I was able to demonstrate the occurrence of carcinomatous degeneration in a duct papilloma of the breast, which had apparently only existed for a very short time. At the time of the operation the papilloma was suffering from carcinoma, but the disease had not yet attacked the tissues of the patient herself.

FIG. 15.

FIG. 15A.

FIG. 15.—A polypoid adenoma situated close to a large ulcerating cancer of the rectum, but separated from it by an inch of normal mucous membrane. Other smaller adenomata were also present. The cells at the tip of this tumour had undergone cancerous degeneration (A) (see Fig. 15A); B, lymphoid follicle in stalk of tumour (dark mass). (M.A. 9.) (× 6.) (Dukes.)
FIG. 15A.—A higher magnification of the tip of the polypoid adenoma illustrated in Fig. 15, to show onset of cancer at tip. (× 135.)

Mrs. ——, aged 70, noticed a serous discharge from the left nipple a week before she was first seen on June 12th, 1928. The breast was normal on palpation except that, vertically half an inch below the left nipple, a tiny very superficial shot-like swelling could be

felt. Pressure at this point made fluid exude from the nipple. No other nipple changes were found. There were no glands in the axilla. On June 15th, 1928, this lump was cut down upon, two dilated ducts were exposed, divided close to the nipple surface, and then again divided where they began to ramify in the breast substance. On section of the excised portion across the ducts a small papilloma, just visible to the naked eye and perhaps one-fiftieth of an inch in diameter, was found within the duct, attached to it by a slender pedicle. A section across the tissue showed that this minute and early morphological papilloma had already become a carcinoma within its own substance. The fibrous tissue of its core was infiltrated with carcinoma cells, though there was no evidence that the physiological tissues of the patient had been attacked by the disease. The pedicle of the papilloma, fortunately included in the section, was composed of fibrous tissue only, and showed no infiltration. (Figs. 4 and 5.)

An indication of the pathogenesis of the papilloma was, however, given upon examination of the pedicle. It showed several cylindrical groups of round-celled infiltration, some cut as circles, others as ovals. In company with one of the groups was a small artery. These are exactly the appearances given by blocked lymphatics which have lost their lumen by proliferation of their endothelium, as I know from my experience of lupus and elephantiasis. In other words, the patient had suffered from a chronic lymphangitis of the tissues of the breast, and it appears highly probable that the resulting lymph-stasis was one of the main exciting causes of the papilloma which so rapidly developed into a potential carcinoma. It appears possible that the *Demodex folliculorum*, known by the work of Dr. Helen Chambers and others to be so common an inhabitant of the nipple and of the terminations of its ducts, is competent to excite mild infections and abrasions of the nipple, which, while causing no clinical symptoms, may nevertheless set up a chronic lymphangitis.

By this time you will, I think, admit that a process of papillary hypertrophy, sometimes only to be shown microscopically but often producing visible warts or papillomata, is the characteristic precursory stage of carcinoma. Chronic irritation, whether it be bacterial or chemical, would appear to be a cause of cancer, because it is a cause of papillary hypertrophy. If this be so, a study of the origin of a papilloma may be the key, and at least must be an essential preliminary to an understanding of the genesis of carcinoma.

THE PATHOGENESIS OF THE PAPILLOMA.

If a single papilla of the skin or of a mucous membrane is examined it is found to consist of a teat-like elevation of the connective tissue carrying in its substance a mesh-work of blood capillaries. These capillaries are supplied by an arteriole and drained by a venule. The papilla is clothed by a covering of epithelium, and it has always been presumed by the dermatologists that the active agent in the formation of a papilloma is increased proliferative activity on the part of the epithelium, and that the increase in size of the connective tissue papilla is merely a response to increased nutritive demands from the active epithelium. Unna, on these grounds, objected to the word "papilloma," and wanted to substitute for it the word "acanthoma," as indicating an innocent tumour of the prickle epithelium. He ignored an essential anatomical element of the papilla which is the key to its normal and morbid physiology. The central structure of every papilla of the skin or the mucous membrane is a lymphatic capillary exactly like the lacteal vessel of a papilla of the small intestine. I have demonstrated this by direct lymphatic injections of the skin, as well as by a study of diseases affecting the skin lymphatics (Figs. 1 and 2). Papillary hypertrophy occurs, and I believe only occurs, when this central lymphatic vessel of the papilla is blocked. The papilla is a little physiological engine. From its blood capillaries there exudes into its connective tissue spaces a constant nutritive stream of diluted blood plasma at a certain pressure. The excess of fluid is renewed and the equilibrium maintained by the drainage action of the central lymphatic. Block this lymphatic and what will happen? The first effect will be a rise in the pressure in the intercellular spaces of the papilla, and on ordinary hydraulic principles the papilla will increase in size until the intercellular pressure is equal to the pressure in the capillary blood vessels. A second effect will be over-nutrition and consequent proliferation of the papilla itself and of the overlying epithelium. But the most important effect of all for our present purpose remains to be considered. In the normal papilla a constant stream of blood fluid, along with lymphocytes, is exuding from the capillaries and passing away by the lymphatic. As soon as the lymphatic is blocked, stasis occurs and the flow of fresh blood fluid through the papilla is arrested or greatly retarded, even though just as much blood may be passing through its blood capillaries. Two consequences are inevitable: the supply of oxygen to the tissues of the papilla, to its epithelium as well as to its connective tissue, will be much reduced; furthermore, the supply of hormones to the cells of the papilla will be cut off or greatly diminished. In this connexion I use the term "hormone" perhaps somewhat loosely, to signify those products of the rest of the cells of the body which are necessary to the well-being of the cells of the papilla we are considering. Here, I think, we approach the crux of the problem.

Local lymphatic stasis brings about a definite rupture of the contract in virtue of which the unicellular organism originally forsw ze its egotism and became a social unit. Or, in the terms of biochemistry, the epithelium covering the papilla is deprived of the supply of growth-inhibiting substance, which in a well-conducted cell community is circulated to every cell.

I have shown that local lymphatic obstruction must seriously reduce the supply of oxygen to the epithelium of the blocked papilla. It would not be surprising if, in the course of years, the affected epithelium, adapting itself to meet this difficulty, should acquire a type of metabolism in which oxygenation played a relatively subordinate part. Warburg has recently brought forward strong evidence that the carcinoma cell, as compared with the normal epithelial cell, is an anaerobe, deriving most of its energy from the hydrolysis of sugar into lactic acid, and relatively little from oxidation. This remarkable fact is in exact accord with the theory of the origin of cancer which I am presenting to you. It must not be forgotten that in dealing with such a complex matter as the origin of cancer, direct proof is, in the earlier stages, not to be expected. All that can be hoped is to fit together the isolated facts into a coherent pattern.

In only one variety of cancer can I present with absolute clearness to you all the stages from the initial obstruction to fully developed carcinoma, a cycle of changes occupying in the human subject from twenty to thirty years. Tuberculous lupus, especially of the non-ulcerative variety known as lupus erythematosus, is followed, in a certain proportion of cases, by the appearance of warts upon the scarred surface, and one or more of these warts may develop into carcinoma (Fig. 10). Lupus carcinoma has been stated to be an *x*-ray carcinoma, and it may have become more frequent since the discovery of *x* rays, but it was quite common before *x* rays were known, and it is a natural evolution of the disease process known as lupus. By the examination of sections at and just outside the growing edge of areas of non-ulcerative lupus, I have been able to show[8] that the disease is essentially an obliterative tuberculous lymphangitis which destroys the lymphatics (Figs. 7 and 8). The characteristic lupus nodules found in the dermis are produced by proliferation of the endothelium of the affected lymphatics. The earliest stage of the lymphangitis is seen in apparently normal skin outside the visible edge of the diseased area (Fig. 7), and here also papillary hypertrophy of the diseased papillae can be seen. Passing back to the centre of the area of lupus, progressive enlargement of the papillae up to five times their normal length can be seen. Here, then, it is evident that blocking of the lymphatic is the primary factor, with chronic papillary hypertrophy as its consequence. The further development of the papillary areas into carcinoma is a matter of common clinical knowledge. If tubercle affecting the skin may cause papillary hypertrophy, may produce definite papillomata, and may ultimately give rise to cancer, it would seem likely that tubercle in other parts of the body may have the same result. It is perhaps significant that the form of lupus which most commonly produces cancer is the non-ulcerative or papillary form in which there is lymphatic obstruction without ulceration or destruction of tissue. This fact lends colour to my suggestion that multiple papillomatosis

of the large intestine, and also papillomata of the bladder, are really products of abortive local tuberculous infection occurring in early life.

In this connexion I would draw your attention to some very interesting observations by Dr. Thomas Cherry[7] of Melbourne. He ascertained statistically that whereas during the last thirty years the death rate from tuberculosis has greatly diminished and that from cancer has greatly increased, the combined death rate from tubercle and cancer together has remained at a constant level. This curious fact, though susceptible of several interpretations, in his opinion indicates that persons who recover from an attack of tubercle are likely in later life, and as a consequence of their attack of tubercle, to die of cancer. Since every tuberculous infection is of the nature of a chronic lymphangitis, and must leave behind it some degree of lymphatic obstruction, Dr. Cherry's facts, derived from the whole mortality experience of England over a long series of years, offer rather a startling suggestion of the importance of tubercle, and hence of lymphatic obstruction, in the etiology of cancer. Early this year Dr. Cherry published in the *Medical Journal of Australia* a paper in which he records that, by the subcuticular injection of active tubercle bacilli in mice, he has been able to raise the incidence of malignant tumours to a significant extent in the mice experimented on. These experiments call for repetition and confirmation. It is certain that under modern conditions an abortive attack of tubercle is a common event of early life. The frequency of healed scars at the pulmonary apices and of tuberculous tonsils and adenoids suffices to prove this. May not mild, undetected tuberculous infection of the mammary glands in childhood leave behind it areas of lymph-stasis which give rise in middle life to duct papillomata and carcinoma of the breast?

Where I would differ from Dr. Cherry is in denying to the tubercle bacillus any specific role in the production of cancer. In my opinion any pathological process which gives rise to lymphatic obstruction may be a cause of cancer. The specific factor is not the particular organism concerned, but the lymphatic obstruction to which that organism may give rise.

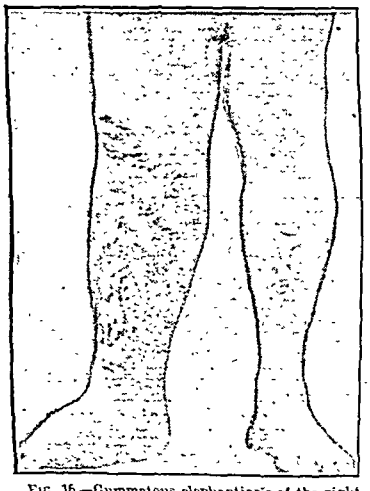

FIG. 16.—Gummatous elephantiasis of the right leg. From a case seen with the late Dr. J. J. Pringle.

The tubercle bacillus is not the only organism which finds itself at home in the sluggish stream and quiet backwaters of the lymphatic vessels. The history of syphilis is mainly a study in the pathology of chronic lymphangitis. The primary lesion is a local proliferative lymphangitis. There follows enlargement of the regional lymph glands, and then an invasion of the great fascial lymphatic plexus with an accompanying secondary rash, often presenting papillary lesions. The mucous membrane where it joins the skin is next invaded, and here lymphatic obstruction is clearly evidenced by the appearance of condylomata, mucous patches, and moist papillomata of the tongue and lips. Then, in the tertiary stage, the deeper lymphatics are invaded, and gummata, which are areas of local proliferative lymphangitis, make their appearance (Fig. 16). The chronic glossitis which syphilis leaves behind it is an obstructive lymphangitis, known frequently to lead to papillary hypertrophy and carcinoma. Carcinoma of the lip and of the inside of the cheek frequently arises on the scar of an old mucous tubercle.

Chronic lymphangitis is not exclusively caused by the organisms of tubercle and syphilis. It may be due to many other organisms—for instance, to the members of the pyogenic group—and these organisms, also, in so far as they may produce lymphatic obstruction, are potential cancer-producing agents. Chronic lymphangitis may also be set up by a chemical or thermal agency. I have already given prima facie reasons for thinking that tar cancer, and the kangri cancer of Kashmir, and the epithelioma which occurs on the scars of old burns, are caused in this way. The fact that spontaneous tar cancer in man is usually preceded for years by the appearance of crops of warts which drop off, leaving a pigmented area, is presumptive evidence of the coexistence of a chronic lymphangitis, and the initial lesion of the tar carcinoma of mice is usually a papilloma.

Papillary hypertrophy as a consequence of pure lymphatic obstruction, apart from local infection, is perhaps best seen in elephantiasis. I have also produced it experimentally in the ear of the rabbit by placing an elastic ligature, not so tightly as to strangulate the blood vessels, round the base of the ear. Warts not rarely occur upon prolapsed rectal mucosa, and may become malignant (Fig. 17).

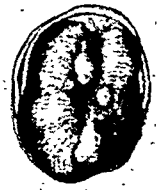

FIG. 17.—Prolapse of rectum with polypi.

Is there any connexion between elephantiasis and carcinoma? If my contentions are correct, there ought to be. Well, I would point out that the chronic ulcers of the legs so often seen in elephantiasis may become malignant. A more striking example of the connexion is within my experience. A lady who had lived in India for many years came home with typical elephantiasis of one leg. She was persuaded by a friend's advice to try radiant heat baths for the leg, and shortly afterwards virulent multiple epitheliomata, twenty or thirty in number, appeared on the skin of the affected leg. The regional glands became enlarged and she died in a few months.

In this case, judging by the multiplicity and activity of the growths, the cancerogenous factors were very active. The diseased leg differed from the healthy one in two obvious respects: it was the seat of long-standing lymphatic obstruction, and its surface when in this condition had been subjected to irritation by heat and light.

In this address I have dealt with a great subject, and necessarily, in the present state of knowledge, my remarks contain a large element of speculation, though for the sake of brevity and emphasis I have put them in dogmatic form. I shall be content if you admit my proofs that lymph-stasis lies at the root of cancer—certainly of carcinoma, possibly of sarcoma. For the rest, my address is a working hypothesis, which may perhaps serve to orientate the work of younger men.

The anatomist, the physiologist, and the biochemist, and I would add the physician, have devoted too little attention to the lymphatic system. The biologist has never attempted to produce from a unicellular organism a bicellular one, still less a multicellular one. There exists, I believe, a four-celled organism, two of whose cells only possess mouths. Here in embryo is the multicellular animal. I challenge the biologists to produce experimentally a two- or four-celled organism from a unicellular one. When this has been accomplished, the converse problem, that of the origin of cancer, may prove easy of solution.

In conclusion, I do not want a tombstone, but neither am I content to lie under the green turf of oblivion. I would like to be remembered for two things: first, as having shown twenty-five years ago that cancer spreads mainly by lymphatic permeation; and secondly, as having demonstrated to-day the importance of lymph-stasis in its etiology.

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CHRONIC DYSPEPSIA IN CHILDREN OF SCHOOL AGE.*

BY

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The Usual Clinical Features.

The term "chronic dyspepsia" in children is used to connote a group of symptoms, varying in degree and in proportion, which together form a common clinical picture. For the most part it arouses no memory of exact morbid anatomy or of precise deviations from the normal in functional activity. The picture presented to our minds is somewhat as follows. The child is ailing, dull, and listless, lacking vitality and composure. The appetite is poor and capricious, the tongue coated, and the breath heavy and perhaps foul. The complexion is muddy, while the facies, with sunken eyes, or puffy eyelids and dark orbital rings, is itself characteristic enough to suggest the nature of the malady. There may be *abdominal pains* of varying degrees of severity, from slight discomfort to attacks of colic; or pain may be absent. The pain may occur after food, but is seldom gastric in position, being more often about the umbilicus or along the course of the large intestine. It may be related to the passage of flatus or precede defaecation. The *general nutrition* is usually impaired, the child losing weight in severer forms, failing to gain weight in milder. On the other hand, the weight may be satisfactory but there is a general toneless ness of skin and muscles. The *stools* are variable, in some cases infrequent, in others too frequent, but always irregular. They may be uneven in their consistence, particoloured, offensive, and contain mucus or even blood, and food which has not been digested. There may be slight nocturnal *fever*, perhaps with bouts of higher fever, coincidently with which the odour of the breath and the abdominal symptoms become more evident. *Sleep* is restless, often disturbed by dreams or night terrors. In some cases there is wakefulness. In the morning the child is tired and drowsy, and dislikes getting up. During the day he is easily exhausted and fatigued, liable to headaches, and lacks concentration or interest in his school work, being slow in acquisition and poor in performance. *Psychical symptoms* take an important place, but are more prominent in some cases than in others, depending in their degree, in part at least, on hereditary psychical traits. The child is apt to be morose, despondent, resistant, and irritable, solitary in habit, taking no part in games, and subject to fits of crying and of temper. Examination of the abdomen may reveal no abnormal physical signs, or there may be some persistent or intermittent abdominal distension, related chiefly to flatulent distension, but in some cases in part to faecal accumulation. There may be considerable indicanuria.

Some Comparisons with Adult Dyspepsia.

When we scrutinize this motley collection of symptoms, which together we are accustomed to call "dyspepsia," we realize that they do not differ materially from those of many adult dyspeptic patients. It is customary to contrast the symptoms in adults and in children, but the difference lies chiefly, I think, in the relative infrequency of organic lesions in children, and not in any great divergence of symptoms in what is called functional dyspepsia at the two ages. There is a similar condition of the skin, of the tongue, and of the breath, and similar varying tumescence of the abdomen. Flatulence, anorexia, irregular colicky pains, irregular undigested motions, nutritional disturbance, morbid and uncontrolled mental states, are common to both, and differ in the main from those of adults only in a manner or direction which might be expected.

There appears to be a growing tendency to regard this common form of dyspepsia in children, called intestinal dyspepsia, as a disorder apart, contrasting etiologically as well as symptomatically with dyspepsia in adults. It may be doubted whether this attitude is justified, if functional dyspepsia be considered alone and organic lesions, such as septic or alcoholic gastritis, gastric and duodenal ulcerations, or gastric or intestinal new growths, be ruled out of the argument.

It must be granted, however, that the form of dyspepsia known as gastric, in contradistinction to intestinal dyspepsia, is less prevalent in children than in adults. Pain after food, when it occurs, is more often situated about the umbilicus than in the epigastrium, hypochondrium, or back. Return of food and eructation of flatus are less usual, the sensation of distension, eerie sensations of detachment, so-called gastric angina, and cardiac phenomena such as palpitation and tachycardia are not so often met with. There is not, moreover, the ordered relation of pain to food which often pertains to dyspepsia in adults.

Although it be granted that dyspepsia with prominent gastric symptoms is relatively rare, and dyspepsia with intestinal symptoms relatively frequent in children, we are not justified in the present stage of our knowledge in disregarding the stomach in the common dyspepsia of childhood which we call intestinal and assuming that it plays no part. Our information on functional disorders of the stomach and intestine is less precise in children than in adults, and we cannot with an equal degree of assurance correlate symptoms and signs with defects in secretory, motor, or sensory function.

Etiology of Intestinal Dyspepsia.

Analysis of the symptoms shows that they fall into three groups—abdominal, constitutional, and psychical. The etiological relationship between these groups has provoked some discussion. Does the intestinal dyspepsia, by leading to the absorption of poisons, cause the constitutional disturbance and the functional nervous phenomena, or is there some underlying cause responsible for all three groups? The former view is that generally held, and was supported in a recent discussion by Reginald Miller. H. C. Cameron, on the other hand, is of opinion that there is an antecedent acidosis, as shown by lowered alkalinity of the blood, and that this is responsible for the nervous and also the intestinal symptoms. The question is full of difficulty and cannot be settled without fuller knowledge. The whole position of toxaemia, arising in that home of lost causes the intestinal tract, is thorny and contentious. In attempting to solve the problem we should not, I hold, forget that there are many cases of dyspepsia in adults which are essentially the same as the intestinal dyspepsia of children. Nor should we overlook the commonplace knowledge that any disorder which causes loss of restful sleep and exhaustion will lead to fretfulness, resistance, apathy, and eventually to moroseness in a child, as in an adult, but that in a child they are likely to be more in evidence, being less controlled. Neither toxaemia nor acidosis need be invoked to explain defective nutrition in a child with chronic digestive disorder. No useful purpose would be served by my pursuing the argument further, for I believe that much more work is necessary before the question can be answered with conviction.

I propose to approach the etiology of dyspepsia in children from a different point of view and consider some of the clinical antecedents which appear to me to have an important bearing upon it.

1. *Dietetic Causes.*

Whether we regard it as the primary or merely as a contributory cause, food plays an important role. Some cases are associated with continued overfeeding; others with meals so frequent or irregular that appetite is absent. Frequently the sequence of events is as follows: appetite is lost from overfeeding, then tit-bits are given between meals to tempt it because the usual meals are not taken, until a coated tongue, listlessness, and the other attributes of dyspepsia follow. The failure to gain weight, or its loss, is followed by insistence upon still more food, with perhaps the addition of cod-liver oil until further dyspepsia and wasting occur. A child will always take its food if there is appetite, and there is no surer way to court dyspepsia than to [illegible]

*The opening paper of a discussion in the Section of Diseases of Children of the Annual Meeting of the British Medical Association at Manchester, 1929.

reluctant and resistant child, forgetting Macbeth's grace, "Now good digestion wait on appetite, and health on both!" Not infrequently I have been told by mothers that the dyspeptic child will not take its food except by the encouragement of a stick. The physiological importance of appetite is, of course, one of the ascertained truths of digestion. Among other means by which we find it destroyed is the giving of cod-liver oil, or chocolate, or other fatty foods, a short time *before meals*.

Another common error is the giving of food *at or near bedtime*, which leads to restless sleep, with dreams or night-terrors, to tiredness and headache in the morning, and to an antipathy to breakfast. The child then goes empty to school or with a stomach filled by food taken in the absence of appetite. *Food bolting* in excitable children, to whom meals are so much loss of time from games, or in children with ravenous appetites, brings its own train of dyspeptic symptoms. The meal is begun eagerly, but after a few mouthfuls have been hurriedly swallowed appetite ceases, there is abdominal uneasiness, perhaps definite colic, and that symptom popularly known as "stitch," accompanied by flatulence. This last symptom is one which should always arouse inquiry into the rate of feeding rather than into the particular ingredients of the food.

A diet containing too much "*roughage*," as it has been called—one leaving too large and coarse a residue—is an important factor in many cases, and one which, I think, is especially related to those with signs of mild colitis, in which mucus and occasionally blood is passed in the stools. It is a subject for argument whether the colitis is caused by the mechanical action of the undigested particles or whether these are detrimental to a colitis produced in other ways—for example, by bacterial causes. In this regard I would suggest that the finding of a particular substance in the stools is no certain proof that it is the primary cause. All those who eat nuts or strawberries, or jams with pips or seeds, or similar substances, will pass recognizable detritus in the stools, but most people do so with impunity and without dyspepsia. Too much stress, therefore, should not be laid upon the etiological significance of any undigested particles found in the faeces. They indicate what the child has been taking, and perhaps taking in excess, but they do not necessarily indicate the actual cause of the indigestion. Whether, however, they are the initial cause of the disorder, or whether they contribute to its persistence or its severity, there can be little doubt that such mechanical irritants are of moment and should be taboo when there is evidence of disturbance of the large intestine. Among the commoner irritants of this kind are nuts, especially the hard and resistant and altogether indigestible variety found in cakes and sweets (such as nut-milk chocolate), coarse oatmeal, and certain *proprietary cereal foods*, *unripe fruits* such as apples, and the artificially matured banana, excess of which is a prevalent abuse. On numerous occasions pieces or strings of undigested banana covered with blood-stained mucus have been presented to me by the mothers of dyspeptic children, either as curious objects found in the stools or under the guise of worms. A chemical irritant producing colitis is *liquid paraffin*, often administered too plentifully and too persistently for constipation.

Relative excess of one of the elementary food factors is apt to be less considered in children of school age than in infants, but there is no doubt that faults in dieting are often committed along these lines. There is in children of this age, as in infants, much variation in ability to digest carbohydrates and fats, so that carbohydate and fat dyspepsia are more readily provoked in some than in others. Defective powers of digestion for either is often accompanied by distaste for the food which cannot be readily digested. This is especially noticeable in the case of *fat dyspepsia*, and there are many Jack Spratts among children who will eat no fat voluntarily. If made to do so they suffer from dyspepsia. The stools in such cases are pale, greasy, rancid in odour in those more severe, but may be misleading in appearance, and in spite of a brown colour may contain much excess of fat. The severest cases of fat dyspepsia do not survive to school age.

The fermentation, which arises from *carbohydate excess*, leads to the stools being voided forcibly with flatus. They are acid in reaction, sometimes sufficiently so to produce soreness of the anus, are often accompanied by mucus, may be partly or wholly fluid, and if formed are ragged and pitted by the gas evolved. The habit of eating biscuits and sweets at night on going to bed is a common cause of such evacuations in the morning. *Protein dyspepsia* of a chronic kind is to me, at any rate, somewhat ill defined and uncertain.

Protein Sensitization.—There is, however, a group of cases, with dyspeptic symptoms, which arise from protein sensitization. This disorder should be borne in mind when nausea and vomiting repeatedly follow rapidly upon the taking of food, in the absence of acute illness, or other ready explanation. It has already been stated that these symptoms are unusual in the ordinary chronic dyspepsia of childhood. Inquiry may elicit that the vomiting is always after a particular article of food, such as fish or eggs or apples, and their omission brings the attacks of vomiting to an end. Other signs of protein sensitization, such as asthma or urticaria, may exist in the same children and may be found to occur after the vomiting attacks. In a recent case an apple always produced vomiting, to be followed by urticaria, and withdrawal of this "apple a day" sufficed to prevent any recurrence of the attacks.

It may be doubted whether *vitamin deficiency* takes any part in the dyspepsia at school age, but the possible relationship of atony and dilatation of the stomach and intestine to deficiency of vitamin B requires further elucidation.

Defective mastication is another cause which must be considered, and in this respect the state of the teeth and gums is of some importance. Any mechanical defect due to an imperfect bite or to tender teeth or gums is, however, relatively slight, in my view, in comparison with the infection which accompanies these conditions. The need for laborious and painstaking mastication has probably been exaggerated; Mr. Warwick James tells me that observation of school children has shown that the strong and healthy ate their meals rapidly with a minimum of mastication, while the weakly took much longer over them. This observation is open to other interpretations, for it is possible that the weakly child, although taking more time, may not actually chew more effectively, and poor appetite may provide less saliva to mix with the food.

The state of general health and vigour is of first-rate importance, for while a strong open-air country child may eat raw turnips and *unripe apples voraciously without* harm, one feebler and more sheltered may suffer after indiscretions more venial.

2. *The Role of Infection.*

If we turn from diet as a factor to infections we enter upon more uncertain ground. There are certainly some few cases of entero-colitis where are encountered specific organisms such as those of dysentery, to which the symptoms should rightly be ascribed. There are also a few cases in which lamblia is probably the pathogenic agent. In a considerable number *Streptococcus*, generally *viridans*, less often *haemolyticus*, is preponderant in the stools over *Bacillus coli communis*; sometimes haemolytic coliforms are found in large numbers; sometimes other organisms—for example, the bacillus of epidemic jaundice—are found. It is not possible, however, to correlate the symptoms and course of the digestive disorder with the infection, either in degree or kind, nor can it be claimed with certainty, except in the case of dysenteric infections, and perhaps in that of lamblia, that the departure from the usual intestinal flora is primary and provocative and not merely secondary and incidental.

A difficult question, and one worthy of discussion, is the manner of production of the toxaemia. Is it to be explained by infection by pathogenic organisms of the intestine, by excessive formation of toxins due to abnormal digestive processes and the abundance of suitable pabulum for the ordinary flora of the gut, by increased permeability of the mucosa, or by weakness in protective power? Stasis alone does not seem to me to be an adequate explanation, for it is not a prominent feature in the dyspepsia of children, and the severest degrees of toxaemia often coincide with loose, frequent, and bulky motions.

F. Power and C. Sherwin have isolated the main non-nitrogenous and nitrogenous products of the action of bacteria upon the proteins of the intestine, and found that they had to give more than 50 mg. of indole or skatole to produce symptoms in man comparable to those of constipation. They suggest that the intestinal mucosa itself is an important detoxicator of putrefactive products, and that the body possesses a chemical defence mechanism more than adequate for the detoxication of putrefactive substances normally produced by the action of bacteria upon unabsorbed protein material in the intestine. It has often been shown that indicanuria is no guide to intestinal putrefaction. J. Olivet recently corroborated this, and demonstrated that there is no parallel between the amount of indicanuria and the degree of decomposition in the bowel, while in complete paralytic ileus indican is often absent from the urine. These observations seem to rule out stasis and putrefaction as sources of the intoxication, at least as long as the mucosa is healthy.

Whatever the relation between the intestinal flora and the dyspepsia or its toxic symptoms may be there are certainly cases of this disorder which only improve after treatment of focal sepsis. Dental sepsis, unhealthy tonsils and adenoids, and sepsis of the nose and accessory sinuses are not uncommon in dyspeptic children; when these have been satisfactorily dealt with the abatement of the dyspepsia is often manifest.

The frequency of the appendix as a source of infection and cause of intestinal dyspepsia is probably not great in children, but this is again a matter on which opinions differ. The issue is somewhat confused by the similarity between the symptoms caused by chronic appendicitis and tuberculous glands in the right iliac fossa. In a case which was under my care chronic appendicitis appeared to be the cause of pyloric spasm and secondary gastric dilatation. It was that of a girl aged 10, who suffered from repeated vomiting. There was a large area of gastric tympany with splashing several hours after food, and *x*-ray examinations proved the existence of dilatation and a varying degree of delay at the pylorus. During her stay in hospital she developed an attack of acute appendicitis. After removal of the appendix, which showed evidence of earlier inflammation as well as of the acute attack, the vomiting and delay at the pylorus ceased, and ultimately the signs of gastric dilatation disappeared. Gastric delay and dilatation with splashing under examination is an occasional occurrence at this age, but I have had no further opportunity of demonstrating any relation between it and chronic appendicitis. I believe that in children, as in adults, there are examples of dilated and splashing stomachs due to excessive ingestion of fluids.

3. *Hepatic Dyspepsia.*

Dyspepsia in children has been divided for descriptive purposes into gastric, intestinal, and hepatic forms. In this paper I have dwelt chiefly on the usual intestinal form, and have pointed out that the variety in which gastric symptoms predominate is relatively uncommon. The cases which I have been accustomed to call "hepatic" have been those in which fats are badly borne, in which there are from time to time bouts of toxaemia, with pale greasy stools, slight jaundice, and sometimes a palpable liver. Defective functioning of the liver may, however, be a factor in many of the cases and may be related to the toxic symptoms. Liver function tests, at best somewhat unreliable, are rendered still more so by intestinal disorder. In that unexplained malady, *coeliac disease*, in which disordered fat metabolism is coupled with such lack of development that the term "intestinal infantilism" came to be applied to it, and in which the mental features are so characteristic, the liver may play an important part. The use of bile salts certainly increases the power of these children to deal with fats.

In *cyclical vomiting* the extreme fatty change found in the liver in the fatal cases is the most noteworthy post-mortem appearance, and the close resemblance of the severe cases to those of delayed anaesthetic poisoning seems definitely to inculpate the liver. Whether this organ is primarily at fault, or whether it is damaged by toxins derived from the bowel, is a moot point. The bouts of toxaemia, accompanied by acetonaemia and the presence of the acetone series in the urine, are not wholly explained by "ketosis"; they differ from diabetic coma and are little influenced by alkalis. There is also a well-defined group of cases in which periods of toxaemia occur, with a strong odour of acetone in the breath, and in which acetone and diacetic acid are found in the urine. These appear to resemble cyclical vomiting in every particular, except that vomiting is absent; perhaps they should also be included among the hepatic dyspepsias. Mellanby holds that the outpouring of bile salts into the duodenum is of vital importance in digestion, and that it is the bile salts and not the gastric hydrochloric acid or other substance which leads to the liberation and absorption of secretin, upon which depends the secretion of the pancreatic juice. This mechanism depends very largely upon the *p*H values in the duodenum, and this to a large extent upon the gastric activity. This view throws the essential upset to digestion upon impaired bile flow rather than upon alterations in gastric secretion, for without the presence of bile salts in the duodenum the pancreatic ferments are not produced except by a nervous mechanism. This work must be borne in mind when attempting to estimate the position of the liver in cases of dyspepsia.

4. *The Role of the Nervous System.*

Mention has already been made of the frequency of nervous symptoms in the disorder under discussion. They loom large in many of the cases and perhaps reach their acme in coeliac disease. Are they the result or the cause of intestinal symptoms in the usual intestinal dyspepsia, or are both due to some antecedent cause, such as the acidosis described by Cameron? In this connexion the high values of the fat in the blood found by Monerieff and Payne in coeliac disease may be of importance in indicating a primary dysfunctioning of the nervous or chemical regulators of fat metabolism.

I should be glad to hear the opinions of others on this subject; my inclination is in favour of the nervous symptoms being secondary in most cases to the intestinal disorder, partly due to toxins, partly to loss of restful sleep, partly to the effect of exhaustion. Many of these children, however, are of the nervous type originally, though made worse by the dyspepsia and by the solicitude and petting of anxious parents.

There are a few examples of disordered action of the alimentary tract in children to which the name "nervous" may properly be applied in an etiological sense. Among them is that much-debated group in which there is *disordered neuro-muscular co-ordination*, leading to local spasm or failure of dilatation of segments of the tract—for example, at the cardiac end of the oesophagus, at the pylorus and in the colon, producing dilatation and hypertrophy above the situation of the zone of constriction. In another group there is *depression or exaggeration of the gastro-colic reflex*, dyspeptic symptoms in the former case being consequent upon constipation. When the gastro-colic reflex is exaggerated, intake of food is promptly followed by colic, or, in less severe cases, by discomfort about the umbilicus and along the colon, and a hurried evacuation of the bowel—the lienteric diarrhoea of the older writers. Again, *excitement or anxiety* in nervous children, as in adults, may lead to failure of the normal reaction to the taste and smell of food and complete abeyance of appetite. Lastly must be mentioned among the dyspepsias primarily nervous that which—accompanied by colitis—is consequent upon the neurosis known as *pica* or dirt-eating.

Summary.

After describing the symptoms of dyspepsia in children of school age as it is usually met with, and making a brief comparison between it and dyspepsia in adults, it is suggested that there is no fundamental difference between intestinal dyspepsia in children and many examples of dyspepsia in adults, and no reason for regarding it as a disease apart, with an individual etiology. Some views as to the interrelation of the various symptoms have been mentioned, but it has been held that our present knowledge is not sufficiently exact to argue this question with precision. The relations of dyspepsia at this age to diet, to local infections, to the liver, and to the nervous system have then been considered briefly.

MINOR INJURIES TO THE EYE IN INDUSTRY.*

BY

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Eye injuries in industry have received from time to time a good deal of attention, but it has been mainly towards the major ones involving loss of one or both eyes that interest has been chiefly directed. This is as it should be, for industrial eye injuries are by no means the least important cause of blindness. Thus in the report of the Departmental Committee on the Causes and Prevention of Blindness it is stated that 10 per cent. of the blindness in three of the largest cities in the country was due to accident; sixteen other causes were mentioned, but only three of these were responsible for a higher percentage, and only one of the three (ophthalmia neonatorum) to any appreciable extent. Moreover, from various reasons the figure 10 per cent. is, I think, rather lower than it should be.

Again, in the report of the Departmental Committee on the Welfare of the Blind, published in 1917, Professor Collis states that *5 per cent. of all accidents reported by* certifying surgeons—that is, all accidents in industry—for the years 1907 to 1914 were eye accidents, and that of these at least 2.5 per cent. resulted in the loss of one or both eyes. In the departmental report of the Scottish Register of the Blind 7.2 per cent. are stated to be due to occupation.

And next, if we turn to American statistics, which cannot be far different from our own, we find that accident *is responsible for 13.5 per cent. of all blindness in the* United States. Furthermore, out of 250,000 eye accidents which occur annually in the United States, there was loss of, or serious impairment of, vision in one eye in 3,100 cases, whilst there are no fewer than a hundred cases of total blindness in industry every year in that country.

A very full survey of eye accidents in industry was made some years ago by the Departmental Committee appointed by the Ministry of Health to investigate the causes and prevention of blindness generally. The report was published in 1922, and you are no doubt familiar with the excellent recommendations which were made with regard to prevention. The statistics made use of by the committee were based wholly upon major accidents—that is, cases which had required admission to hospital and were in receipt of compensation—but no reference was made to the minor injuries beyond the remark in one paragraph that "there are also many minor eye accidents causing absence of less than seven days and which are not reported."

It is to these minor injuries that I wish especially to draw attention, for, so far as I am aware up to the present time, there is little information as to their economic effect in industry—as to what they mean both to employer and to employed, as to how far they are worth preventing, and, if so, what more can be done in the way of prevention. No doubt some attempts have been made, but that much still remains to be done will at once be acknowledged by all surgeons of eye hospitals and departments, especially those situated in industrial areas, where a good proportion of all the cases seen are accident cases of major or minor type.

In my own hospital of fifty beds 6,880 accidents were dealt with in 1928, as compared with 6,040 other new cases due to disease or requiring refraction—a proportion of 53 per cent. In the past twenty years there has been an increase in this proportion from 39 per cent. in 1909 to the 53 per cent. already mentioned for 1928. The vast majority of these accidents *are of course minor ones*, and it is fortunate that only a very small proportion involve the loss of one or both eyes. I find that the giant magnet was only used in twelve cases in 1928.

Recently the Council of British Ophthalmologists appointed a subcommittee to ascertain what effect had been given to the recommendations of the Departmental Committee on the Causes and Prevention of Blindness in its report of 1922. In the course of its investigation the subcommittee thought that it would be of value to obtain accurate reports of minor eye injuries, involving less disablement than a week, from the casualty and out-patient records of hospitals situated in representative industrial areas. Accordingly a special case-card was designed in which the following essentials could be recorded—namely, *the occurrence of the accident, its effect as regards time* lost and injury (permanent or otherwise) sustained, and any details as to the adoption of prevention. These case-cards were distributed, and information on 426 cases was obtained from four surgeons—namely, Mr. J. Jameson Evans of Birmingham, Mr. A. J. Ballantyne of Glasgow, Mr. R. J. Coulter of Newport, and myself. The number obtained was not a large one, but the investigation was in the nature of a trial trip, and it was intended that if useful information was revealed the matter would be pursued further on similar lines. I am indebted to the Council of British Ophthalmologists for permission to bring forward the details of a review of this work, which are as follows.

Taking the cases first of all from the point of view of occupation, it was possible to divide them into three main groups:

A. Regular or occasional workers at grindstones or emery wheels, involving exposure to small flying particles	51%
B. Occupations involving exposure to chips of metal	26%
C. Miscellaneous	23%

In Group A the risk of serious injury is small, the lesion almost always being a foreign body on the cornea. In Group B the risk of serious injury is greater. Group C includes a variety of occupations—from miners, road workers, painters, and plasterers, to general labourers. The injury is usually an odd one—from a simple foreign body on the cornea, a burn or contusion, to lime in the eye.

Types of Injury.

	Per cent.
Foreign bodies on the cornea	90
Abrasions of the cornea	5
Miscellaneous (burns of lids, wounds of the conjunctiva, contusions of the globe)	5

Information as to Protection (406 Cases).

	Per cent.
A. Protection not used	70
B. Protection admitted available but not used	19
C. Protection made use of (chiefly goggles, otherwise machine guards)	11

Time Lost from Work owing to the Accident (three Groups).

	Cases.
A. Those who lost from 1 to 2 hours (comprising all where it is presumed the workman was able to return to work at once)	371
B. Those who lost from 2 to 8 hours	48
C. Those who lost from 8 to 24 hours	7

At a rough average estimate the time lost from work is 992 hours, or 124 working days of eight hours each, due to 426 cases of minor eye injuries—that is, seven minor eye injuries mean the loss of two days of eight hours each. This is undoubtedly a low estimate, as, from information received through welfare supervisors, many men do not return to work that day, whilst those who do frequently waste much more than two hours.

Other factors which must also be considered as causing loss of time are the covering with pad and bandage of the injured eye, which is done in many hospitals, and which, even if the man returns at once to his work, proves a great handicap. As a rule, however, a bandaged eye means no work for that day. The instillation of atropine, which is sometimes *thought necessary, acts in a similar* manner, and is a handicap for days, even though the eye is uncovered. And, again, a man is frequently told to attend the hospital the next day for observation.

These are factors which add materially to the loss of time away from work and which have not been taken into account in computing the foregoing figures. It would, in fact, seem a fair and reasonable estimate to say that every three minor eye injuries mean one whole day's loss

*A paper read in the Section of Ophthalmology at the Annual Meeting of the British Medical Association, Manchester, 1929.

of output. In a small percentage of cases no working time is lost, as the man struggles on with his work until closing time, attends the hospital, and recovers by the next day, to return at the usual time.

The following table shows the time which elapsed between the occurrence of the accident and the attendance at the hospital (information obtained in 234 cases).

A. Cases which attended at once	5
B. Cases which attended after 1 to 12 hours	119
C. Cases which attended after 12 to 24 hours	65
D. Cases which attended after 2 to 6 days	45

The average time which elapsed between the accident and the attendance at the hospital was sixteen hours per person. These figures are of value from the point of view of the increased liability to infection owing to delay.

Some information was also obtained from the records of a firm employing 975 hands (males 675, females 300), taken over a period of nine months. Of these, 98 cases of minor eye injuries were reported at the well-equipped first-aid station, 85 of which were dealt with by the nurse, the remaining 13 being sent to the Wolverhampton Eye Infirmary. Of these 13 cases, the amount of time lost from work averaged about two and a half hours each in 12 cases; the thirteenth, more serious, lost about twenty hours (or two and a half working days). The total loss of time due to the 13 cases of minor eye injury amounted to fifty-eight and a half hours—nearly one and a third working weeks. The injuries comprised in these 98 cases were:

Foreign bodies	48
Dust or sand in the eye	27
Blows with chips of metal	14
Burns with hot metal or acid	9
	98

The monthly incidence of the cases was as follows: January 10, February 7, March 9, April 14, May 12, June 11, July 8, August 12, September 15. The monthly incidence was taken in order to see the effect of hot weather, meaning fatigue. Apparently the figures show nothing in this respect from which to draw any conclusion. This is in contradistinction to the finding of Lafon of Périgueux, who in 1911 made elaborate statistics of 2,816 cases of foreign body on the cornea incurred in various industries, which presented themselves at the Bordeaux Clinic between 1896 and 1906. His conclusions were as follows:

1. The number of cases increases with the hours of work, the maximum being reached at the end of the day. The increase is proportional to the development of fatigue.

2. The number increases towards the end of the week in proportion after the Sunday rest.

3. The number increases with the elevation of the temperature, which diminishes the resistance to fatigue.

4. The number is inversely proportional to the age of the patients—the younger the worker the more easily is he fatigued and the greater the incidence.

Thus fatigue, both mental and physical, is the explanation of the variations shown by the statistics, and he suggests that, besides suitable protection, some rest, especially in the hot months, should be allowed.

These observations, though based on a comparatively small number of cases, are sufficient to show that from the economic point of view minor eye injuries are of considerable importance. Further, it must be remembered that from sepsis any minor injury may become a major one—as, for example, when a pneumococcal ulcer of the cornea follows an abrasion incurred in coal mining or the heavy iron trades.

As has already been shown, the large majority of minor eye injuries are caused by flying particles, and it naturally follows that there are two ways in which the prevention of such injuries can be achieved: (1) to ensure that the flying particle does not reach the eye, and (2) better still, to eliminate the flying particle altogether. It is on these two essentials that the three main principles of prevention are based. They are as follows: (1) mechanical guarding; (2) education of workmen and foremen; (3) engineering revision.

1. *Mechanical Guarding.*

Mechanical guarding is the interposition of a guard between the eye and the flying particle. It comprises various forms of goggles, machine-guards, and shields, face-masks, and helmets or hoods, according to the area of the head and neck it is desired to protect. For the protection of the eyes themselves it is a question of goggles and shields, either held in the hand or fixed to the machine. Goggles, if of the right kind and properly worn and kept in order, form 100 per cent. protection, as against 90 per cent. offered by shields; but, on the other hand, it must be borne in mind that the goggle at its best is a handicap to output of work, and that the shield is more likely to be in its place than the goggle. If an ideal pair of goggles could be produced and put on the market at a reasonable price it should not be so difficult a matter to induce men to adopt the fashion of wearing them. The words "adopt the fashion" are purposely used, for fashion is the prelude to custom. The chief difficulty lies in producing the ideal goggles. Such might be visualized as being an instrument a man could wear all his working day, hardly realizing that he was doing so, and at the same time without impeding his output in any way.

Out of the many models that have been devised one of the most acceptable, referred to by the Chief Inspector of Factories and Workshops in his report for 1927, has been adopted by the Shipbuilding and Engineering Trades Mutual Assurance Association. No doubt many present are familiar with this model, which consists of a strong frame with flexible ear-catches containing lenses of fair size made of toughened glass. There are no side flanges, and ventilation can take place freely, so that the lens surfaces are not dimmed by moisture. Messrs. Hamblin's Limited have produced a model on these lines fitted either with toughened glass or "splintanil," a material which on receiving a sharp blow behaves in the manner usual to all types of safety glass.

An ingenious form of protection of quite another type is one which consists of a piece of silk gauze, and which, I understand, is very effective in stopping small flying particles from emery wheels, etc., but gives little protection in the heavier metal industries. Yet another type is one modelled (at the suggestion of Mr. Treacher Collins) on the visor invented by Sir Richard Cruise in the late war. This visor of fine chain mail attached to the steel helmet was allowed to hang in front of the eyes, and formed from experiment a good protection against splinters of all kinds, at the same time causing little interference with vision. I think, however, that it would be difficult to get men to take kindly to wearing this model.

2. *Education of Workmen and Foremen.*

This, the second principle of prevention, is one which naturally is directly associated with the first, and simply means making the man realize the risk he is running and teaching *him* how best to avoid the danger.

3. *Engineering Révision.*

The third principle is the most recent method of prevention, and as amongst other things it seeks to eliminate the flying particle altogether, it is the ideal. It aims at doing away with the underlying cause of accidents rather than the covering up of danger points. The term is generally understood to mean the changing of a manufacturing process, the re-designing of a machine or tool, the rearranging of the physical equipment of a plant, or the changing of the method of work to any other for the purpose of preventing accidents. The introduction of the automatic machine is an excellent example of engineering revision, since fewer men are required for the same amount of work, and therefore fewer are exposed to hazards.

One cannot help feeling that it is by engineering revision we are likely to meet with the greatest success in prevention, for we *are* then independent of the necessity of guards and education of workmen. The last-named method seems to be very difficult to carry out in this country—more perhaps than in others. In America, for example, a

fair amount of success has been met with by the employment of safety engineers, who, in addition to concentrating on engineering revision, make a special point of educating the workmen by propaganda and many ingenious and telling methods. If it was possible to ensure that all of the three methods could be carried out simultaneously, it could be imagined that all accidents due to flying particles would be abolished. In theory no accident ought to occur, but actually it is impossible to prevent those due to unforeseen circumstances.

The prevention of eye accidents in the great variety of occupations followed in this country is, on investigation, a much greater subject than might be thought, and it is impossible in a short paper such as this to enter into the detailed study which is necessary for each type of occupation, but it is hoped that enough evidence has been brought forward to show that minor eye injuries have an appreciable importance in industry.

The fact that *three* of such simple everyday occurrences as a foreign body on the cornea are responsible for the loss of a whole working day of eight hours should be sufficient to arouse the financial attention of every employer, quite apart from the suffering borne by the employee. Furthermore, when, in addition, the burden on the hospitals is taken into account, it must be conceded that the time is ripe for some great effort to be undertaken towards the reduction of these apparently trivial accidents. The word elimination would, of course, be preferable to reduction, but this would involve superhuman efforts.

The difficulties in the way are great, and not the least among them is the psychology of the employee, especially when of British nationality. No disparagement of my countryman is here insinuated, but merely a reference to the wonderful spirit of indifference to danger so characteristic of our race, to which may perhaps be added some ignorance of risks run.

THE RESULTS OF INDUCTION OF LABOUR WITH ANIMAL BLADDERS.

BY

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In 1901 Baumm[1] described the method of induction of labour in which a sterile animal bladder is introduced through the cervical canal, and then partially filled with glycerin. As a semi-permeable membrane the bladder allows water to pass from the surrounding tissues into its cavity, so that its contents gradually increase and the bladder becomes progressively more distended. At the same time a small proportion of the glycerin passes out into direct contact with the uterine wall.

Although the method seems to have been fairly widely used on the Continent, it has attracted little attention in this country, and the figures published here represent the results obtained in the first thirty cases in which the method was tried at Guy's Hospital. I am indebted to the obstetric surgeons at that hospital for permission to publish these results.

The technique used has been modified slightly from that suggested by Baumm. The apparatus that has been found most satisfactory consists of a short piece of metal tube about one inch long to which is attached a piece of rubber tubing about six inches in length. Through this a long metal stylet is passed so that its point projects about five inches beyond the end of the metal tube. The end of the stylet is flexible, and protected at the tip by a smooth knob. The animal bladders, which are obtainable ready sterilized in sealed glass tubes, are of two sizes—a large (pig's) bladder with a capacity of about 500 c.cm., and a small (sheep's) bladder with a capacity of about 200 c.cm. The bladder is tied to the metal tube by means of a silk ligature, and stretched by means of the stylet. It can thus be introduced through the cervical canal in the same way as a Krause's bougie, and when it is completely within the uterine cavity the stylet is withdrawn, and (in the case of a large bladder) about 200 c.cm. of pure sterile glycerin is injected into the bladder by means of a syringe. The rubber tubing is then clamped. The flexible stylet ensures deflection of the bladder, should it hit against the presenting part, and thus renders the introduction a simple and safe procedure. With care the bladder can be introduced without coming into contact with the skin of the vulva or vagina, and without any undue handling on the part of the operator, but the aseptic technique practically always makes an anaesthetic necessary.

After introduction into the uterus the contents of the bladder gradually increase in amount; at the same time a small amount of glycerin passes out into direct contact with the uterine wall. The uterus is thus subjected to the double stimulus of the mildly irritating glycerin and of the gradually increasing size of the bladder. In the later months of pregnancy a large bladder has been used in the majority of cases. The smaller bladder is more suitable for the induction of abortion in the early months.

In the majority of the cases previous unsuccessful attempts to induce labour with quinine and pituitary extract had been made. Several cases in which abortion was successfully induced in the early months of pregnancy have been excluded. Only cases in which pregnancy had progressed past the twenty-eighth week are considered here. The indications for induction in these cases were either disproportion between the size of the head and the pelvis, or maternal toxaemia. It is not suggested that the results obtained are to be regarded as entirely satisfactory, but for the purpose of comparison they are considered side by side with the results of twenty-three consecutive inductions with bougies or stomach tube, undertaken at Guy's Hospital during the same period and under similar conditions.

Results.

	Animal Bladder.	Stomach Tube or Bougie.
Failures	3 (10%)	2 (9%)
Successes	27 (90%)	21 (91%)
Induction interval:		
Longest	72 hours	95 hours
Shortest	2 hours	2 hours
Average	13 hours	35 hours
Less than 24 hours	25 (83%)	8 (40%)
Less than 12 hours	17 (63%)	4 (20%)
Less than 6 hours	11 (41%)	2 (10%)
Puerperal morbidity	4 (15%)	3 (14%)
Complications:		
Separation of placenta	1	1
Malpresentation	1	Nil

The three cases in which the method failed may be considered separately. In the first, a patient with albuminuria of pregnancy, since no pains had occurred eighty-eight hours after the bladder had been introduced, this was removed and a stomach tube was inserted instead, after which a further thirty-eight hours elapsed before the onset of labour. The puerperium was morbid on account of pyelitis. In the second, a patient with a contracted pelvis, labour pains started and the bladder was expelled after forty-eight hours. After this the pains ceased entirely, and pregnancy then ran a normal course until it was terminated by Caesarean section ten days later. In the third patient the bladder was expelled with a few pains, which ceased almost immediately afterwards. The patient refused any further intervention and was discharged from hospital. She was admitted in labour four weeks later, and delivered with difficulty, by the forceps, of a dead foetus, death being due to intracranial haemorrhage. A normal puerperium followed.

Although all three cases must be regarded as complete failures in that the object of the operation was not attained, yet it is satisfactory that the attempt did not

influence unfavourably the results of subsequent treatment. Of course, the fact that a foreign body has been introduced into the uterus must add considerably to the risks of sepsis if further intervention is necessary subsequently, but in the three cases in this series this danger was fortunately not manifest.

The twenty-seven cases in which the method succeeded will next be considered. The chief advantage of the method lies in the comparatively short time in which labour started in the majority of cases. The "induction interval"—that is, the interval between the introduction of the bladder and the onset of pains—is often of considerable importance. In pre-eclamptic patients it may be a matter of urgency that labour should start within a few hours. In all cases an interval of more than thirty-six hours is, at least, a cause for some anxiety. The comparative figures which have been quoted amply justify the conclusion that the induction interval with animal bladders is very much shorter than with the stomach tube or bougies.

Quite apart from the question of efficacy in inducing labour, certain dangers associated with the method must be considered. The injection of large amounts of glycerin between the membranes and the uterine wall is said to be followed by alarming toxic symptoms. In the method here described only a small amount of glycerin can pass out of the bladder, and that very slowly. Nothing suggestive of a toxic effect has been noted in any case in this series.

The presence of any foreign body in the lower segment must tend to displace the head from the pelvic cavity. With animal bladders displacement of the head was noted several times, and on one occasion it caused a breech presentation with a prolapsed cord. The child suffered no harm, but this fortunate result does not, of course, lessen the seriousness of the condition, which must in this case be attributed to the method used. The only other accident which occurred was separation of the placenta in one case. Since the bladder and stylet are passed for a distance of about five inches into the uterus, it is evident that this accident may occur if the placental edge is less than five inches from the internal os. It would probably be sufficient to rupture the membranes and reinsert the bladder within the amniotic cavity in such an emergency; but in the case in which it did happen a smaller (sheep's) bladder was inserted, and no further haemorrhage occurred.

In four cases the puerperium was morbid (British Medical Association standard), but in one of these the rise in temperature was considered to be due to a urinary infection, and in another to an attack of influenza. In the other two cases there was evidence of uterine sepsis of a mild type. The danger of sepsis must exist whenever a foreign body has been introduced into the uterus, but this danger will be minimized in methods which allow of a good aseptic technique. An animal bladder can be inserted without any undue handling on the part of the operator, and without coming into contact with the vulva or vagina.

Apart from the cases in which a macerated foetus was delivered, all the infants in this series were born alive.

The principle underlying all instrumental methods of induction of labour is essentially crude, but in the present state of our ignorance as to the cause of the onset of labour we have to rely on these crude methods in many cases. We must not, therefore, expect entirely satisfactory results from an essentially unsatisfactory operation, but until we are in possession of a more rational principle there can be no objection to attempting to improve the details of an instrumental method of induction.

In publishing these results stress has been laid on the disadvantages and dangers, equally with the advantages, and although it may seem that attention has been drawn to an imperfect method of inducing labour, there is no doubt that it has some advantages over other methods in common use. The lessening of the induction interval is a very real advantage of the animal bladder method, and at the same time the disadvantages associated with it seem to be no greater than with other instrumental methods of induction.

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THE PRESENT POSITION OF X-RAY THERAPY IN MALIGNANT DISEASE.*

BY

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THE present time appears opportune for a review of the position of *x*-ray treatment in malignant disease. Anyone who has followed the progress of radiotherapy during the past twenty-five years cannot have failed to note what might be termed a periodicity in the favour shown to *x* rays and radium respectively. Just before the war radium was beginning an era of popularity.

At the Annual Meeting of the British Medical Association in 1914 the Section of Radiology arranged a debate, which I had the honour of opening, on the relative value of *x* rays and radium in malignant disease. The chief points claimed in favour of *x* rays were availability, unlimited quantity, and, most important of all, evenness of distribution in the tissues, owing to its being possible to use an *x*-ray tube at a considerable distance from the patient. On the other hand, the advantages of radium were set forth as follows: It could be brought into intimate relation with malignant growths, either by its introduction into cavities such as the oesophagus, or by actually burying radium tubes, or by inserting multiple needles—the latter procedure having been advocated by Professor Joly of Dublin in May, 1914, and a little later by Dr. Stevenson, also of that city. It was, moreover, claimed that, apart from questions of quantity, distribution, etc., radium rays—by which were chiefly meant gamma rays—were qualitatively of more value than *x* rays. There was said to be a further advantage in the standardization of dosage, or rather of output, which in the case of radium depended only on the quantity of radium and thickness of filter used; whereas the *x*-ray tube of that period was difficult to control. To some extent the upholders of the *x* rays admitted the impeachment, but claimed that, with technical advances, the output of *x*-ray tubes excited at a high voltage would more nearly approach the gamma ray in quality, and that exact control of output would also be secured.

It is interesting to note that radium, although in a sense the most dynamic of the elements, must, as a therapeutic agency, be regarded as static. By this I mean that the radium in use to-day is the same agent precisely as was in use twenty years ago, although the mode of its application may differ. Not so with *x* rays. Despite the war, the prophesied developments of the *x*-ray tube did in fact occur. The introduction of the hot cathode tube by Coolidge in America made the control of output easy, and later developments gave us *x*-ray bulbs capable of standing up to a quarter of a million volts for continuous running.

Working with voltages of this order, the directors of the gynaecological clinic at Erlangen claimed a high percentage of "cures"—three to five years—in cases of carcinoma of the cervix uteri such as previously had been dealt with by panhysterectomy. Their claims as to the value of their treatment in other forms of cancer were very modest, but an idea was unfortunately promulgated in this country that the "new *x* rays" were of almost equal value in all forms of cancer. The technique as originally introduced required the administration of a so-called "lethal dose" at a single sitting. With the outputs then available this meant seven or eight hours' continued exposure. Severe anaemia and violent sickness were often produced, and many patients died from the effects of the treatment. It is to the credit of British radiologists in general that they were not carried away by this craze; in fact, a joint letter was sent to the *Times* warning the public against exaggerated hopes.

The doctrine of the "lethal dose," which was the *therapia sterilizans magna* of Ehrlich applied to cancer, was bound to be discredited, for it disregarded the part

* Abstract of an address to the Croydon Division of the British Medical Association, May 1st.

played by the local and general reaction of the patient. By the time the medical and lay public in England had become interested in it, the theory was already going out of favour in the country of its origin, and as it faded into the background the technique founded upon it was correspondingly modified. The original intensive dose was divided at first over days, and then over two or three weeks. It became, in short, no longer an "intensive dose," but a course of deep therapy.

The years 1913 and 1914 may be described as boom years for radium; 1922 and 1923 were boom years for the new *x*-ray therapy. After 1923 the latter began to decline in favour, and last year (1928) radium was once more in the ascendant. Yet the problems are still essentially those of 1914; radium is scarce; efficient *x*-ray plants are almost everywhere available. *X* rays are unlimited in quantity, and can be evenly distributed over any desired area. At present the burying of radium is greatly in favour; the chief advances in technique over that in use fifteen years ago consist in the use of more numerous foci of irradiation —radon seeds or radium needles—and a wider encirclement of the growth to be attacked.

In certain circumstances the method succeeds admirably. In early carcinoma of the tongue operative removal is already obsolete, and early uterine carcinoma will probably soon be treated by radium alone. It is in the later and more extensive cases that failure occurs.

Realizing the limitations both of surgical implantation and of surface applications, the Paris Radium Institute has been using relatively large quantities of radium at a distance of 10 cm. or more from the skin. Here we see the wheel in full circle; this is an approach to the technique of deep therapy. In fact, the massive stands used in deep therapy have been utilized to carry the heavy lead box, weighing scores of pounds, which contains the four or five grams of radium which are necessary for the purpose. The cost of the radium for such an apparatus is in the neighbourhood of £50,000, representing interest of at least £2,400 a year. Furthermore, Dr. Regaud of the Paris Radium Institute is aware that this new technique is an imitation of established *x*-ray procedure, and he warns radium enthusiasts that no final verdict can yet be given as between the natural gamma rays of radium and the artificial gamma rays generated in an *x*-ray bulb.

Let us now turn to the hard facts we have to face in this country. All *x*-ray departments in hospitals with large out-patient clinics are crowded out with cancer cases. To change from *x* rays to radium we should need in England alone more than the whole world's present supply of radium. It is quite obvious that *x* rays must be used for many decades to come, and advocates of radium who decry their use do a disservice, not only to *x*-ray workers, but also to the public. In actual fact the hospital type of patient is more often than not a more suitable subject for the exhibition of *x* rays than of radium, for it is in this class of the community that malignant disease is often neglected until it is widespread. This is not usually the doctor's fault, but is due to ignorance, carelessness, or fear on the part of the patient. The most notable examples occur in middle-aged or elderly women who allow a uterine carcinoma to spread until the whole pelvis is infected before seeking medical advice. Such a case is the following:

A married woman, aged 63, in March, 1928, gave a history of irregular loss for six months, the *menopause having* occurred ten years before. The vaginal vault was indurated, the cervix irregular, and the uterus fixed. Treatment by deep therapy produced disappearance of all pain and discharge. In June the patient was doing well and had a course of light treatment. A precautionary dose of deep therapy treatment was given in November. The condition was quite satisfactory when the patient was last heard of about a year after the first treatment.

In a considerable proportion of such cases it is possible to dry up all bleeding and discharge, and to abolish pain. The patient returns to ordinary duties for six, eight, or even twelve months, and then usually succumbs very quickly to an acute recurrence.

I say nothing about the "cure"—using the term in the same sense as the surgeons do—of early carcinoma of the cervix by deep *x* rays alone. In this country we have not had any chance of treating such cases; but I have never heard that the Erlangen claims of 70 per cent. five-year cures in this particular field have been disproved.

Then there is the extensive inoperable carcinoma of the breast—perhaps already ulcerating when the patient first comes for treatment. Here a preliminary course of *x* rays, followed by palliative surgery, is usually called for; then, after healing of the wounds, further *x*-ray courses, alternating with, or combined with, ultra-violet light treatment.

As regards the quality of *x* rays to be used, a great controversy has gone on in the past between the advocates of medium and very hard rays. The general consensus of British radiological opinion, as voiced in a British Medical Association debate at the Annual Meeting in Edinburgh (1927), was that, in breast cancer, medium rays were preferable to very hard ones. My own belief, based upon the treatment of many hundred of cases, is that both types of radiation are necessary. Invasion of the skin, in the form which looks like multiple flat warts, responds best to unfiltered or very slightly filtered rays of medium quality. For mediastinal growth, and for metastases in bone, deep therapy is necessary. It is also often the only treatment that will at times relieve the pain and temporarily stay the progress of that terrible affliction oedema of the arm. I refer to the oedema which is the result of recurrence, and not that which is caused by contraction of scar tissue after operation.

In breast cancer, post-operative irradiation is of great importance. X-ray treatment used solely as a preventive measure has been accused of doing actual harm; and this accusation has been at times justified. If radiotherapy is to avoid this reproach it is necessary to bear in mind certain principles. A large dose of *x* rays has a depressing effect upon the system as a whole. Unless the dosage has been unduly concentrated the depressing effect is only temporary; but during this period, which may be regarded as a negative phase, a latent metastasis, which might otherwise give no trouble for years, is apt to be freed from restraint. When a patient is apparently sound it is wrong to do anything to him that may depress his powers of resistance even for a short time. I need hardly, before an audience of clinicians, stress the point that the body *does* put up a resistance against the spread of cancer, and that such resistance sometimes gives way in dramatic fashion. We must, then, for safe prophylaxis, use a mode of treatment which is, in the first place, known to be effective where there is actual growth, and, secondly, which improves the patient's general health. As regards the first essential, experience has shown that by a careful gradation of doses a primary or secondary nodule in the breast may often be caused to disappear, without there being any constitutional symptoms whatever. But something more than this is desirable. We must actually make the patients feel better. If they are anaemic and below weight, they must be brought up to a healthy standard. Two years ago I had some patients suffering from actual carcinomatous lesions who had ceased to respond to *x* rays, and appeared to be going rapidly downhill. As an experiment, I put them on to treatment by mercury vapour lamp. Some of the results were remarkable, as the following case will show.

An unmarried woman, aged 67, suffering from carcinoma of the left breast with glands in both axillae, was given a course of superficial *x*-ray treatment in April, 1927. A gland in the right groin had previously been excised, but the other lesions were not removed. The patient did not respond to the treatment; she lost weight and was terribly depressed. Mercury vapour lamp treatment (general) was started, and immediate improvement was noted. By December, 1927, the patient had put on 6½ lb., and she had become cheerful. There was a further gain in weight during 1928. The nodules have been kept in check by deep *x* rays, and the patient is in good health to-day.

I have no hesitation in claiming that a combination of *x* rays and light will in some cases add months or even years to a patient's life. The effect of the light is a constitutional one, analogous to what occurs in patients suffering from lupus and other tuberculous lesions. But while tuberculous lesions may disappear under light alone, although the diseased areas are shielded from it, cancerous nodules are merely arrested for varying periods; they do not become smaller. The arrest, even though in many instances temporary only, is accompanied by a gain in weight and by a feeling of restored well-being. Many patients say: "the light treatment is life to me." Is it not, therefore, rational to apply such treatment as a

preventive measure? At the least, the patient feels better for it; and, as recurrences must have a microscopic beginning, surely a treatment which can check an established growth must in many cases enable the system to repel an invasion which has as yet gained little force.

In conclusion, I feel that I must, even at the risk of prolixity, hark back once more to the case of the patient suffering from chronic recurrent carcinoma of the breast. Have you ever asked yourselves what happened to such patients before the days of x-ray clinics? I will tell you what happened. For months, sometimes for years, they lay and festered in their homes, the victims of horrible ulceration, more loathsome than leprosy. I can myself remember entering homes where the stench of the cancer patient not only permeated the whole house, but seemed to rush into the street, overwhelming the visitor before he had even crossed the threshold. Such cases must now be rare indeed, and that they are to-day the exception is due to the care bestowed on them in the out-patient x-ray clinics of the general hospitals. The aim of these clinics is to keep the breast patient upon her feet—free from pain, cheerful in mind, and physically unobjectionable—until a final rapid internal spread of the disease removes her after but a few weeks of bedridden life. On the whole this aim is accomplished, and it can be accomplished more readily now than was the case even two or three years ago. This is a record to be proud of. There is a cry at present of "new lamps for old"; but let us remember the Arabian Nights tale, and be quite sure that the old lamps are valueless, and the supply of new ones adequate, before we throw them away.

SYCOSIS BARBAE.*

BY

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This paper is limited to a consideration of the subject of coccogenic sycosis or sycosis barbae, a simple staphylococcal infection of the hair follicles of the beard area in the adult male. Sabouraud[1] has referred to sycosis barbae, with reason, as "un des opprobres de la dermatologie." Textbooks unite in describing the condition as essentially a chronic process, difficult to cure; and discuss treatment, with little enthusiasm, in terms of years. It is wise that the views of the many upon such a malady should be ventilated from time to time, and it is the object of this paper to promote such a discussion.

Pathology.

An external infection of the hair follicles by the *Staphylococcus pyogenes aureus* produces inflammation which proceeds to abscess formation within the follicle, and is confined, in the main, to that portion of the follicle superficial to the neck of the sebaceous gland. The deeper portions of the follicle are rarely involved. This is the pathology of the condition, and it should be emphasized, first, that the infection is probably always of external origin, and secondly, that there appears to be no further complicating factor in the first instance, no question of a particular constitutional factor, and no question of any local or general state of susceptibility.

Diagnosis.

A correct diagnosis at the onset of any infective process affecting the beard area is of prime importance. The differential diagnosis is not a difficult one, and it is useful to bear in mind here that sycosis barbae—presenting punctate follicular abscesses with surrounding erythema—was so named on account of its resemblance to the yellow pips set in the pink pulp of the inside of a fresh fig. Impetigo, ringworm, seborrhoeic dermatitis, and seborrhoeic sycosis are the conditions most likely to present difficulty in diagnosis.

Impetigo is a vesicular dermatitis primarily, as opposed to a pustular folliculitis, and this should be sufficient differentiation. If treated with ointments, impetigo is commonly the forerunner of sycosis barbae, but this is the fault of treatment. Ointments tend to spread the eruption, to increase the period of infection, and so, by creating a chronic infective condition of the skin, favour the development of a secondary staphylococcal folliculitis. Impetigo should be treated with antiseptic lotions or powders.

Ringworm of the beard area is usually of the kerion type, and individual lesions—somewhat resembling boils—are red and boggy. The suspicion of ringworm is confirmed if infected hairs can be removed from their follicles without experiencing any resistance whatsoever. The fungus can be demonstrated microscopically.

Seborrhoeic dermatitis and *seborrhoeic sycosis*, unlike sycosis barbae, never affect the beard area alone. The moustache area is commonly affected, and the eyelids invariably present a chronic blepharitis. The scalp, the eyebrows, and other hairy parts of the body, as well as the flexures, may be involved. The importance of the diagnosis here lies in the recognition of the seborrhoeic diathesis and the special susceptibilities of the patient, which factors must be borne in mind in treatment.

Etiology.

Sycosis barbae is admittedly a disease confined, in the main, to the hospital class of patient, whether seen in private or hospital practice. Why should this be so?

Is it not likely that the solution of this first problem may have some bearing also upon the mysterious chronicity of this disease? For it is mysterious that a simple staphylococcal infection of the superficial parts of the hair follicles should resist treatment as does sycosis. Focal sepsis, sensitization, the excited or the uncleanly hand of the barber, the use of blunt razor blades, and even the colour of the hair, have all been called in to explain these mysteries, or rather the mystery of sycosis barbae as a whole; but they do not seem in any way to bear upon these two outstanding features—of class distinction and of chronicity.

Inquiry will elicit the fact that almost 100 per cent. of the sufferers from sycosis barbae are persons in the habit of shaving irregularly. He who shaves daily, and he who shaves not at all, rarely falls victim to the barbers' rash. It is this distinction in the personal toilet habits of the upper and lower classes which accounts for the incidence of the disorder being low in the one and high in the other. The factor of daily shaving is not merely of interest from the etiological standpoint, but is of the utmost importance in treatment. That hairy surfaces which are allowed to grow a stubble of hair are prone to irritation and infection is commonly observed; the boil or carbuncle on the nape of the neck is a daily instance of this.

While improper toilet, as well as improper treatment, may be a cause of chronicity in sycosis barbae, there are two other features which must not be overlooked. Septic infections discharging externally—particularly if adjacent to the beard area—may constantly reinfect the beard. Fissures at the angles of the mouth and about the nose, infections of the vestibule of the nose and of the external auditory meatus, infected teeth and gums, boils, whitlows, etc., commonly contribute to the chronic nature of a coccogenic sycosis, and must be cured before that condition will resolve.

Finally, in cases of long standing, the development of sensitization in the tissues affected may have some small bearing upon the course of the disease, but it is of little importance in treatment until the infective process has been eradicated. That the factor does enter into the constitution of these cases is shown by the following, cited from my own practice.

A man, aged 27, had previously suffered from sycosis barbae, which had at long last yielded to treatment. He presented himself, at this time, complaining of persistent irritability and redness of the beard area, which had replaced the old sycosis. The non-infective, papular, erythematous eruption seen was diagnosed as a sensitization phenomenon, and cleared after the administration of three small doses of x rays. About twelve months later the patient received a course of staphylococcal vaccine treatment for an infection in the upper respiratory tract, and the first of these injections caused a relapse of the papular erythema of the beard area which persisted throughout the course.

*A paper read in the Section of Dermatology at the Annual Meeting of the British Medical Association, Manchester, 1929.

TREATMENT.

To be effective the treatment of sycosis barbae must be based upon a consideration of the etiological factors which have been stressed here; further, it must have due regard for the pathology of the disease, and must show a proper appreciation of the physiology and the anatomy of the part treated.

The first essential is that the patient must shave daily, no matter what the state of the beard area or the stage of the infection. For the comfort of the patient, he should use a sharp razor.

Secondly, any infective lesions other than the sycosis—fissures, infections of the vestibule of the nose, and of the external auditory meatus, etc.—must be treated, and must be cleared up before a cure of the sycosis can be expected.

Thirdly, a strongly caustic, antiseptic lotion must be applied with a view to eradicating the infection from the follicles; a weak application is not effective. The lotion should be dabbed on and allowed to dry on. Wet lint dressings, masks, etc., should not be employed.

Many prescriptions meet these requirements; one of the best is the eau d'Alibour of the St. Louis Hospital, Paris, which contains copper sulphate 4 grains, zinc sulphate 6 grains, camphor water to the ounce. At first this may be applied at night only, and a lotion or liniment of calamine may be used by day.

Finally, at no time and at no stage throughout the treatment of a case of sycosis barbae should an ointment be prescribed. There can be very little doubt but that the use of ointments in sycosis barbae—and in a number of other conditions—has been and still is responsible, in large part, for the persistently bad results of treatment. There is no reasonable basis, physiologically or anatomically, for the application of an ointment to the skin in any infective condition when that process is accompanied by the discharge of serum or pus—and especially when follicles and glands are involved. The vital functions of the whole of the skin covered, and sealed, by the ointment are seriously interfered with, more particularly the functions of respiration and secretion. The result is that the affected area passes rapidly into an unhealthy state and is readily irritated by the small proportion of antiseptic in the application. Meanwhile, the infected follicles, having their apertures blocked, now function as ideal bacteriological culture tubes, and the last state is worse than the first.

The prolonged use of fomentations, wet lint dressings, and even dry masks, similarly interfere with the normal functioning of the skin and impede the process of healing.

These simple measures usually succeed in eradicating the infection, and it is rarely necessary to invoke the aid of the more complicated forms of treatment so often practised.

The idea that *x*-ray epilation is necessary for proper drainage of the follicles is untrue, and the analogy so commonly quoted—the opening of an abscess by the surgeon—has absolutely no basis in fact, either anatomically or pathologically. It is, of course, more easy to treat a case that has been epilated, but *x*-ray epilation demands great skill and care in the operator to ensure that no damage is done to the skin. If *x*-ray epilation is resorted to in an obstinate case, it is still most important to resist the desire to apply an ointment subsequently, or the whole purpose of the epilation is undone.

The use of drugs internally, the intramuscular injection of metals, the application of so-called antivirus, and the exhibition of vaccines appear to me to add unnecessarily to the tortures of the damned. Most of these produce some measure of relief, but no measure of cure.

When the infective process in sycosis barbae has been dealt with there sometimes remains a papular erythema about the mouths of the follicles. This condition readily responds to a few small applications of *x* rays.

PROGNOSIS.

The prognosis in sycosis barbae is, in my opinion, good. Few cases should require treatment for a period of longer than three months, and cases diagnosed early will clear up in the course of a few weeks.

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Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

TREATMENT OF CHRONIC COCCOGENIC SYCOSIS (BARBERS' RASH).

THE treatment of this chronic pyogenic folliculitis of the beard, moustache, and scalp regions has always been, I feel, the despair of the unfortunate patient suffering from the disease, and of his doctor, who is unable to do very much for him. The difficulty in the treatment of the condition lies in the fact that this folliculitis is too deep to be affected by ordinary antiseptic treatment, and yet is not deep enough to be modified by vaccines. X-ray treatment, also, is practically useless because the condition is purely a folliculitis, and the hairs in the diseased follicles are not invaded by the cocci. Epilation by means of *x* rays does not destroy the majority of the infecting organisms, as it does in those diseases due to the higher fungi, such as tinea capitis and certain types of trichophytic affections of the scalp and beard regions, where the hairs are primarily infected, and the folliculitis is only a secondary infection.

After vainly trying all kinds of treatments for nearly ten years in the skin department at the General Hospital, Birmingham, I have gradually evolved the following method of dealing with the condition. It is not a "lightning cure," and there is nothing very unusual about it, but, if it is employed properly, it will render the sufferer presentable in a very short time, and cure him eventually.

The treatment may at first sight appear to be rather *complicated, but it is not really so. It should be carried out only once a day*, and with the average patient should not take longer than ten minutes. None of the steps should be omitted, since they all have their *raison d'être*.

1. Epilate infected follicles and evacuate pustular lesions with a clean needle.

2. Wash the affected parts, using Midgley's 10 per cent. superfatted sulphur soap.

3. Dry the parts, leaving them slightly damp by mopping with a towel.

4. Apply the following iodine solution, with a tampon of cotton-wool, all over the affected parts, fairly hard:

Iodine (without potassium iodide)	4 grains
Spirit (90 per cent.)	1 oz.

5. Allow to dry.

6. Smear the following sulphur lotion, sparingly, all over the affected parts:

Sulph. precipit.	1–2 drachms
Spt. camph.	1 drachm
Lot. calaminae	ad 8 oz.

7. Allow to dry.

8. Apply very sparingly a small quantity of the following zinc cream all over the affected parts:

Zinci oxidi	15 grains
Neutral yellow vaseline	1 oz.

9. Dust over sparingly with pure talcum powder.

The patient, in my opinion, should not shave more than twice a week. When he does so he should first epilate the infected follicles; then wash with sulphur soap; then shave with a very sharp razor; then wash again with sulphur soap; and then carry on with the treatment as suggested.

The strength of the sulphur lotion used is to be varied with the degree of inflammatory reaction present in the skin, and the tolerance of the patient's skin to sulphur. The zinc cream must be used sparingly; if it is plastered on it will overheat the parts instead of acting as a corrective to the other applications.

It must be remembered that the patient's general health and occupation have an important bearing on the chronicity of the affection. Septic foci should be looked for, especially teeth, and dealt with. Working in ill-ventilated, overheated workshops is bad, since it lowers the vitality of the patient and converts his hair follicles into culture tubes for the *Staphylococcus aureus*. For the well-to-do a holiday in Switzerland, or in a dry place well above the sea level

in the British Isles, is ideal, and will often shorten considerably the time necessary to effect a cure.

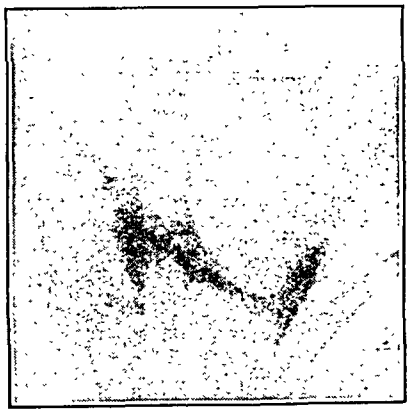
In conclusion, I wish to add that the above treatment is thoroughly impregnated with the teaching I received from Professor Sabouraud; if my colleagues find it useful, as I know they will, they must be grateful to a large extent to that excellent teacher of common-sense dermatology.

Birmingham. JAMES AVIT SCOTT, M.D.

AN UNUSUAL TYPE OF DISLOCATION OF THE SHOULDER.

LUXATIO ERECTA is a rare subvariety of subglenoid dislocation of the shoulder, in which the arm is abducted and displaced vertically upwards, the head of the humerus remaining below the glenoid cavity. The following is an instance of the condition, which appears to be sufficiently uncommon to be worthy of recording.

The patient, a man aged 27, was riding a bicycle, which skidded, throwing him to the ground. When he regained his feet his right arm, which lay by his side, felt numb; to relieve



this he raised the elbow and abducted the arm with his left hand. The right arm immediately assumed the attitude shown in the *x*-ray photograph and remained fixed in this position. The numbness was at once relieved.

When seen, shortly after the accident, the appearance of the patient sitting with the arm raised and the forearm resting on the top of the head was so striking that there was no difficulty in recognizing the condition as one of luxatio erecta. The head of the humerus could be felt lying on the lateral aspect of the chest wall below the axilla. He was given a general anaesthetic; slight traction on the arm in an upward direction combined with upward pressure on the head of the humerus easily effected reduction of the dislocation.

Subsequent *x*-ray examination revealed that there was also a fracture of the great tuberosity of the humerus but no displacement of the fragment.

NORMAN HODGSON, M.S., F.R.C.S.Ed.

Newcastle-on-Tyne.

ACUTE APPENDICITIS COMPLICATING DOUBLE OVARIAN CYST IN A YOUNG GIRL.

THE following case is unusual, and seems worthy of record.

On July 1st I was called to see a very healthy, well-developed schoolgirl, aged 14 years and 9 months, in whom menstruation had commenced at the age of 12, and had continued with absolute regularity. Twenty-four hours previously to my being consulted she was seized with acute abdominal pain, unceasing in character, and situated in the right iliac fossa. When I saw her she had a normal temperature, a pulse rate of 80, and there was tenderness and resistance in the right iliac fossa. A firm and elastic central swelling occupied the hypogastric area to within two inches of the umbilicus; it gave the impression of being a full bladder, but that organ was empty. A diagnosis of acute appendicitis and ovarian cyst was made, and the patient was removed to hospital.

Subsequently, on opening the abdomen in the mid-line, the lower part was found to be occupied by an ovarian cyst of the right ovary, the size of a coco-nut, to which was adherent a large mass consisting of omentum and several coils of small gut. These were separated and the cyst was removed; at one point it was very soft and inflamed. The pelvis was now examined, and on raising the uterus a second cyst, of the same size as the first, was found impacted and adherent in the pouch of Douglas. This was formed from the left ovary, and after considerable difficulty it was freed and removed. The mass of adherent omentum detached from the first cyst was then examined, and after some time the tip of an acutely inflamed appendix was found in its midst. This was traced to the caecum, ligatured, and removed. As careful a peritoneal toilet as possible was made, and the abdomen was closed without drainage.

The patient made an uninterrupted recovery, and was discharged from the hospital on July 27th.

A pathological examination showed no malignancy in either tubes or ovaries, but demonstrated the almost entire destruction of both ovaries by the large follicular cysts and multiple small ones.

The case is noteworthy in view of the age of the patient, the regularity of the menstrual cycle, and the history of uniform good health up to the time of the acute condition.

Harrow-on-the-Hill. C. F. MAYNE, B.Ch.

DIURETIC EFFECT OF NOVASUROL.

THE following case, treated by novasurol, is interesting in view of the copious diuresis produced.

The patient, an ex-policeman aged 58, was admitted to the General Hospital, Birmingham, on February 12th with ascites and very marked oedema of the legs, back, and scrotum; the swelling had been coming on gradually for about twelve months. He was cyanosed and very breathless, and the blood pressure was 200/140; his blood urea was 71 mg. per cent., the urine being absolutely loaded with albumin; no casts were present. Venesection gave him some relief.

For the first fifteen days the average urinary secretion was 25 oz. daily, and he was becoming much more waterlogged. On February 27th he was given 1/2 c.cm. of novasurol, and during the night he passed 34 oz. of urine (measured) and literally flooded the bed besides. The amount of novasurol he received during the next nine days, with the quantity of urine exercted, is shown in the following table.

Date.	Novasurol.	Excretion.
February 27	1/2 c.cm.	26 oz.
,, 28	1 ,, ...	34 ,,
March 1	1 ,, ...	84 ,,
,, 2 No record		
,, 3	—	40 oz.
,, 4	1 c.cm.	40 ,,
,, 5	—	100 ,,
,, 6	1 c.cm.	314 ,,
,, 7	1 ,, ...	150 ,,
,, 8	—	146 ,,

Since March 7th his daily secretion has averaged 110 oz.; he has now lost all his oedema and is quite comfortable, sleeping well and having a good appetite. His average daily intake is only about 50 oz.

I may say that before being given novasurol he was given 10 grains of ammonium chloride every four hours for three days, and its administration has been continued. Only on one occasion, and that on the day following the last dose of novasurol, did he have any diarrhoea, and then without any obvious colitis.

I am indebted to Dr. K. Douglas Wilkinson, honorary physician to the General Hospital, Birmingham, for allowing me to publish this case.

CYRIL E. PERRY, M.B., Ch.B.,
General Hospital, Birmingham.

HYDATID CYST OF THE HEART.

THE following case appears to be of sufficient medico-legal interest to justify recording.

In April, 1928, the body of a well-nourished male Iraqi, about 30 years of age, was brought to the Royal Hospital, Baghdad, for post-mortem examination. He had been found dead in bed that morning, having retired the night before in apparently normal health. A proprietary preparation of digitalis was found among his belongings. It was known that he had been in the habit of saying to people that he suffered from heart disease, but apparently he never stated what symptoms actually troubled him. In Baghdad he had not sought medical advice, and a doctor who had treated him in Mosul from twelve to six months prior to his death unfortunately could not recall any clinical details. To his employer and companions his behaviour and condition had never appeared abnormal.

At the post-mortem examination the right side of the heart was found to be engorged, the blood being markedly venous. A hard tumour the size of a goose egg (which proved to be a hydatid cyst) was felt situated in the interventricular septum; it projected equally into both ventricles, and a small orifice communicated with the left ventricle. The interior of the cyst contained an ante-mortem clot. All four valves of the heart were structurally intact. No cysts were found elsewhere in the body, and the remaining organs were healthy. The cyst wall was calcified and varied from one to three millimetres in thickness. The internal surface was smooth and of a pearly sheen.

The specimen is preserved in the Museum of the Royal Iraq College of Medicine, Baghdad.

I am indebted to the Director of Public Health, Iraq, for permission to record this case.

NORMAN L. CORKILL,
Civil Staff Surgeon, Baghdad.

Reviews.

CHILD PSYCHOLOGY.

THREE additions to the International Library of Psychology, Philosophy, and Scientific Method have recently been published, all dealing with the interesting but difficult problem of child psychology. *Judgment and Reasoning in the Child*[1] and *The Child's Conception of the World*[2] are translations into English of two volumes of a great work by Professor JEAN PIAGET of the University of Geneva, and a number of collaborators who have been working under his direction at the J. J. Rousseau Institute. The first of these books, together with one which preceded it, deal with the problem of child logic. An attempt is made to discover whether child thought, which differentiates itself from every other kind of thought, both by the interests which guide it and by its means of expression, cannot also be distinguished by its logical structure and method of functioning. Thus the problem considered is an analysis of the form and functioning of child thought, the method utilized consisting in observations of children's behaviour when confronted with those conjunctions which denote causality (because, for, therefore, etc.) and with those expressing antithetical relations (*in spite of, even* though, although, etc.). In the second volume Professor Piaget considers the problem of the content of child thought or the system of intimate beliefs as to the nature of things which the child entertains. A full account of the special method employed by the author is given. It is pointed out that this is both difficult and tedious, and that it demands also an outlook, the fruit of at least one or two years' full training. The great care taken in the investigations here described makes the conclusion reached of definite value and significance.

The third volume, *The Growth of the Mind*,[3] is a translation of a work by Professor K. KOFFKA of the University of Giessen, which is intended to serve as an introduction to child psychology. This book will be especially interesting to the student of psychology because it embodies a consistent attempt to give a new and wider application to certain principles of psychological theory and research which have recently been advanced under the name of the *Gestalt-Theorie*, and to demonstrate their significance in the interpretation of childhood. The Gestalt theory is opposed to the conventional view that the consciousness of the newborn infant is nothing but a confused mass of sensations (original chaos). It holds, on the contrary, that the first phenomena are *qualities* or *figures upon a ground*. The phenomenal appearance in consciousness divides itself into a given quality, and a ground upon which that quality appears—a level from which it emerges. Such a coexistence of phenomena in which each member "carries every other," and in which each member possesses its peculiarity only by virtue of, and in connexion with, all the others, is called by Koffka a *configuration* (Gestalt). This Gestalt theory is probably very important. Observations are cited which suggest that specific emotional qualities are more primitive and more elementary contents of perception than those we learn of as "elements" in the textbooks of psychology. A certain order or "meaning" dominates experience from the beginning. Thus at quite an early age the child's reactions to a "friendly" face and to an "angry" face are different, and this difference obliges us to conclude that "friendly" and "angry" faces are phenomenal facts to the infant, and not mere distributions of light and shade. That such subtle "intuitive" differentiations should be "given" in the child at the outset rather than acquired by association, according to the usual view, certainly does not diminish the mystery of life. Rather would it appear to enhance it. This interesting book includes a useful discussion of the behaviourist psychology, and in the development of his thesis the author draws freely upon Koehler's unique researches on the mentality of chimpanzees. We have here a new orientation of psychology, and every serious student of this subject would be well advised to make himself acquainted with this volume.

These volumes exemplify an increasing tendency to devote research to the problem of the psychology of children. A like tendency is manifested in the sphere of abnormal psychology, and a vast amount of literature is now being published dealing with the maladjustments of children. It would therefore appear suitable to include in this notice a volume by Miss MARY CHADWICK, a member of the College of Nursing, on *Difficulties in Child Development*.[4] The writer is an orthodox Freudian, and thus the problem is approached from the standpoint of a specific theory of psychic development. For this reason many of the generalizations in this work will probably be found unconvincing to some of its readers, such, for instance, as those relating to character traits and infantile eroticism —the spendthrift and verbally incontinent individual is one who suffered from relaxed sphincters in childhood, etc. Miss Chadwick's aim is to put forward in a simple and direct manner views and discoveries made by Freud and his followers, now scattered in many books written upon the development and upbringing of children, and to condense these into a more convenient form for parents, teachers, and nurses, and others who are interested in the problems of child life. The book includes an extensive bibliography, and it is evident that the writer has expended considerable labour in its production. It contains a good deal of useful advice and is eminently readable. However much some of the theoretical principles elaborated in this work may fail to carry conviction, the writer's insistence upon the need for giving at least as close attention to the psychological difficulties of children as to their physical health will meet with general assent.

RADIUM IN SURGERY.

IN *Radium and its Surgical Applications*[5] Mr. H. S. SOUTTAR has provided within small compass an interesting and easily read summary of the present position of radium therapy. Knowledge is accumulating rapidly, and methods are changing month by month, so that the time is scarcely ripe for large textbooks on the subject. A book of only 60 pages can be entirely rewritten at frequent intervals, and so its message can be kept fresh. The first chapter is formed by an account of the physics of radium which has been already printed in the *British Medical Journal*. The other ten chapters describe the apparatus required, the sensitivity of the tissues to radium, and the treatment of malignant disease in the different regions of the body.

In a work of such brevity the author is naturally unable to develop his arguments at length, and it is almost inevitable that he should take up a rather more dogmatic attitude than the subject warrants. His statement, for instance, on page 14, that a thickness of 0.5 mm. of platinum "will absorb all but the most trivial fraction of the beta rays," will not meet with general acceptance. The fraction of beta rays remaining unabsorbed may be small, but it is not for that reason trivial, and opinion is moving in the direction of increasing the screenage. There are other statements in chapter ii which might perhaps mislead the uninitiated reader. In discussing the sensitivity of the tissues to radium in chapter iii Mr. Souttar makes a considerable point of the part played by "fibrosis" and "dense sclerosis" in the stroma in destroying the malignant cells. He is here dealing with a highly controversial subject, and there are those who doubt whether correct dosage produces any sclerosis at all, so that its pathological significance, when it occurs, may be overemphasized. Further, some workers with radium have failed to find that cancer cells "become resistant to repeated doses" (p. 24), and therefore much more investigation is needed before this can be safely stated as a fact. The remaining chapters (iv to xi) are thoroughly practical, but so brief that no one must suppose himself

[1] *Judgment and Reasoning in the Child*. By Jean Piaget. London: Kegan Paul, Trench, Trübner and Co., Ltd. 1928. (Demy 8vo, pp. viii + 260. 10s. 6d. net.)

[2] *The Child's Conception of the World*. By Jean Piaget. London: Kegan Paul, Trench, Trübner and Co., Ltd. 1929. (Demy 8vo, pp. ix + 397. 12s. 6d. net.)

[3] *The Growth of the Mind*. By K. Koffka. Translated by R. M. Ogden. Second edition, revised. London: Kegan Paul, Trench, Trübner and Co., Ltd. 1928. (Demy 8vo, pp. xix + 427; 16 figures. 15s. net.)

[4] *Difficulties* [illegible] By Mary Chadwick, S.R.N., F.B.C.N. London: G. A[illegible] Demy 8vo, pp. 211. 15s. net.)

[5] *Radium a*[illegible] By H. S. Souttar, M.Ch.Oxon., [illegible]main (Medical Books) Ltd. 1929. (Fcap 4to, pp. [illegible] 7s. 6d. net.)

qualified to practise radium therapy after he has read them, though he will obtain from them an excellent survey of its possibilities, and may be stimulated to study further the new weapon that is being put into the surgeon's hand.

It is to be hoped that Mr. Souttar will soon be enabled to issue a second edition of his little volume, revised in the light of further experience. The author's line drawings are excellent, and would add considerably to the value of the book if they were more numerous.

PATHOLOGY OF SURGICAL INFLAMMATION.

MOST writers on surgical pathology are content to accept Burdon-Sanderson's definition of inflammation; some consider it impossible to arrive at any definition that is entirely satisfactory; others adopt a conventional rather than a logical definition. The latter course has been adopted by Dr. D. B. RONCALI in his very original treatise on surgical infections or inflammations.[6] He regards inflammation as a conflict for existence between a living parasite, vegetable or animal, and the host, terminating in the discomfiture of one or other of the combatants. He makes it a postulate that a living pathogenic virus, constituting the attacking party, shall be present within the tissues of the host attacked; thus the bite of a rabid dog carrying an infective agent would lead to inflammation, whereas the reaction to a non-infective bite would be excluded by the definition. This conception of inflammation is not entirely new, but authors have not hitherto made any considerable use of it in their descriptions; they generally branch off into a merely abstract description of the processes involved. Roncali, on the contrary, has strictly adhered to the point of view throughout his treatise. First, he describes the numerous parasites which the body may have to combat, enumerates the diverse means of offence which they possess, and explains the nature of the damage which they are capable of inflicting on the tissues of the host. Then an account is given of the various means of defence possessed by the host, how these are brought into play, the conditions under which they are effective or the reverse, and the various artificial methods of increasing the defensive powers by means of vaccines and serums. Finally, the actual conflict between parasite and host is followed in detail, first at the portal of entry of the parasite, secondly in the lymphatic tissues and viscera as the second line of defence, and, finally, in the blood. This method of expounding the subject is interesting in itself, and it has the further advantage of bringing the facts of pathological anatomy, bacteriology, immunology, and related matters within one focus, instead of regarding them as distinct and separate subjects of study. The present volume treats of inflammation generally, and will be followed by two other volumes dealing with acute and chronic inflammation respectively.

Adopting the view that malignant tumours are of microbial origin, Roncali necessarily includes them under the heading of inflammation, which, according to his definition, as above stated, is a conflict between parasite and host. He states, however, that malignant disease is an inflammation *sui generis*—of a particular kind. This concentration on the idea of conflict, regardless of the nature of the process involved, is of doubtful advantage; if pushed to the extreme it would lead to our regarding every reaction of the body to abnormal conditions of the environment as a conflict, and all diseases as inflammations.

ELECTRO-CARDIOGRAPHY.

IN the anomalies of the ventricular complex[7] Dr. J. ROBERT LÉVY attempts to form a basis for prognosis of cardiac disease from the electro-cardiographic standpoint. He has studied 900 cases of all ages, both clinically and electrocardiographically, and his observations on these cases are presented from two points of view. In the first place he gives a statistical study of the chief anomalies from their prognostic aspect, and, secondly, he considers the anomalies in relation to their occurrence in the different clinical types. The author concludes that the presence of anomalous complexes is a bad prognostic sign, but the prognosis is not equally grave for all forms. His conclusions, however, are of very doubtful value, for the evidence as it is presented is insufficient to warrant them. The author seems to have overlooked the necessity for adequate controls when assessing the prognostic value of any sign. For example, the prognostic value of a QRS complex of low voltage is assessed from the observation that of twelve patients who were followed, eight died of their cardiac condition within ten weeks, a mortality of 66.66 per cent. No details are given as to the age or clinical condition of the twelve patients, nor are we told the mortality of a series of cases similar in age and cardiac condition but without low voltage QRS. The same criticism applies to the evidence throughout the book.

Clinical Electrocardiograms[8] by Dr. FREDERICK WILLIUS of the Mayo Clinic is a work of reference rather than a textbook. It contains nearly a thousand illustrations of electro-cardiograms exemplifying the disorders of the heart beat and, as the author states in his preface, the text of the book is devoted entirely to the subject of reading the records themselves and their clinical significance. A bibliography is appended to each chapter, and there is a good index. The illustrations are clear and their interpretations adequate; taken in conjunction with a standard textbook the volume might be of use to those who are learning the subject.

ATLAS OF HUMAN HISTOLOGY.

STUDENTS of histology should be grateful to Professor J. SOBOTTA for the admirable and up-to-date fourth edition of his well-known textbook and atlas of histology and microscopical anatomy[9] *Lehrbuch der Histologie und mikroskopischen Anatomie des Menschen*. It is always desirable that these compilations of systematic knowledge should be reconsidered and adjusted from time to time to meet our present-day outlook and requirements. It is now eighteen years since the publication of the second edition of this book, and the author has been well advised to present this revised and greatly extended account of the subject; the third edition was only an emergency post-war reissue of the second edition, and was soon out of print.

The more attractive and valuable part of this work is contained in volume ii, which is a fairly complete atlas of human histology—a collection of beautiful plates, 24 being in black-and-white and 68 in colour, reproduced by lithographic process from the original drawings of W. Freytag, which express by a judicious blending of diagram and realism a useful and practical conception of the microscopical anatomy of the tissues. These illustrations are succinctly and fully described, together with the methods employed in fixing and staining the specimens from which the drawings have been made, in explanatory notes, with key to directional letters, on the pages facing the plates. Volume i comprises a systematic account of human histology, in which the author has endeavoured to reproduce in words the pictures of volume ii, and with the help of marginal references he hopes to facilitate the study together of text and atlas. It is a pity that the text is so overburdened with parentheses, which are often unnecessary and always hinder and confuse the reader. The arrangement of the subject is excellent, progressing from the structure of the primitive cell to that of special cells, and so to the structure of organs. Many of the descriptions are accompanied by ingenious schematic diagrams which will undoubtedly assist the student to visualize the structure of the organs described—for example, liver, spleen, secretory glands, cylindrical epithelium, etc. Special care has been given to the varieties of connective tissue and

[6] *Trattato Generale e Speciale delle Infezioni o Inflammazioni Chirurgiche.* Per Demetrio B. Roncali. Volume Primo. Stabilim. Tipografico I.N.A.G. 1929. (Imp. 8vo, pp. xiv + 336; 8 figures, 6 plates. L.65.)

[7] *Les Anomalies du Complexe Ventriculaire Electrique.* Par Dr. J. Robert Levy. Préface du Dr. Clerc. Paris: Masson et Cie. 1929. (Roy. 8vo, pp. 204; 21 figures. 30 fr.)

[8] *Clinical Electrocardiograms.* By Frederick A. Willius, B.S., M.D., M.S. Mayo Clinic Monograph[illegible] London: W. B. Saunders Company. 1929. (Imp [illegible] 36s.)

[9] *Lehrbuch der Histologie und [illegible] des Menschen.* Von Dr. med. J. Sobotta. Vierte, stark vermehrte und vollständig umgearbeitete Auflage. Lehmanns Medizinische Atlanten, Band 9, Teil i und ii. München: J. F. Lehmann. 1929. (8 × 10, Teil i, pp. xiii + 354, 42 figures; Teil ii, pp. 384, 535 figures, 92 plates. M.48 the two volumes.)

muscle, but the histology of the blood and bone marrow has received only slight attention. The statement that megakaryocytes occur in bone marrow, "einzig und allein beim Menschen," is, of course, not correct; these cells occur in the bone marrow of all mammalia.

Excessive weight, probably inseparable from the demands of the colour printer, is a great disadvantage to these volumes; together they weigh six and a half pounds. The appendix on the use and object of the microscope seems to be out of place in a book of this character. The outstanding feature of the publication is its very moderate price; at 48 marks (bound) this is truly wonderful value for money.

A SURGEON ON INDIGESTION.

Mr. H. J. Paterson's monograph on *Indigestion*,[10] based as it is on his long experience of abdominal surgery, should be of much value to the practitioner. Mr. Paterson does not allow his surgical tastes to run away with his judgement, and in many cases is insistent that medical measures should be given a thorough trial before surgery is resorted to. Thus, in gastric and duodenal ulcer he advocates a prolonged regime of rest and careful dieting, although he is very sceptical about the results of the intensive alkaline treatment. His scorn of the advocate of this treatment who, after a "cure," suggests that, if there be any return of the symptoms, the use of the powder should be resumed for "a few days," is justifiable, but the enthusiast is always liable to expose these irrational loopholes in his armour. If rest and dieting fail, Mr. Paterson urges gastro-jejunostomy, combined with removal of the appendix, as the correct treatment. He has little use for the more severe operations of partial gastrectomy and duodenectomy in these cases, just as in intestinal stasis and gastroptosis he condemns all "pexies" as unsound and unscientific procedure. Mr. Paterson pleads very strongly for the examination of the gastric contents in all doubtful cases of digestive trouble, and thinks that if the use of the stomach tube were part of the routine of gastric diagnosis radical treatment for carcinoma of that organ would be possible in 60 per cent. of all cases. In an appendix he gives a list of apparatus for gastric analysis, suitable for use by the general practitioner, and costing less than twenty shillings. At the beginning of the book an attempt is made to classify indigestion into three main clinical varieties, under which are grouped the various diseases which may give rise to, or be associated with, these disturbances of function.

NOTES ON BOOKS.

For the medical practitioner in the tropics who has to deal with native sick in large numbers, when time, expense, and lack of assistance impose limitations, and circumstances have not permitted of his formulating his own standard treatments, the small volume entitled *The Use of Standard Treatments in the Campaign against Disease in the Tropics*,[11] by Dr. J. Neil Leitch, will be of great value. The number of diseases dealt with is small—malaria, kala-azar, cholera, hookworm infection, and amœbiasis—but the treatments advised have been standardized as the result of large experience, and therein lies their value. The method of formulating a standard treatment is explained, and can be adapted to other diseases in which certain factors obtain—namely, a specific easily recognizable cause and a known specific remedy which, administered in certain doses over a given time, will effect cure.

We were able to give a favourable account of the first edition of Labat's *Regional Anesthesia*[12] on its appearance some six years ago, and the second edition, which has now been issued, has been improved in several minor details, and rewritten as regards the chapter on subarachnoid block (spinal anæsthesia). A useful table, called "Code for regional anæsthesia of the body," from the pen of Dr. Morris Segal, has been added, and will serve to call to mind quickly the various details of position, landmarks, strength of solution, depth of insertion of needle, etc., which are required for any given operation. The illustrations, printing, and general get-up of the book are admirable, and it is a monograph that can be recommended to anyone interested in the subject of regional anæsthesia.

Jeanneney's *Cancer*,[13] translated from the French by Dr. John Gibson and Dr. John H. Watson, is a practical summary of the subject for the use of the general practitioner. Its aim is to further the campaign against cancer by helping the practitioner in making early diagnoses; within the compass of 180 small pages it describes the precancerous conditions and early signs of cancer in every part of the body. Dr. Watson has added a chapter on the organization of the campaign in Great Britain.

The Hospital for Sick Children, Toronto, has now followed the practice, which is becoming increasingly common, of publishing a volume[14] of selected articles written by members of the staff both of the hospital and of the department of paediatrics at the University. Dr. Alan Brown explains in a preface that the volume is dedicated to Miss Angelica M. Courtney, who has been director of the research laboratories of the department for the past ten years. Miss Courtney's work on the metabolism of infancy and childhood is well known, and throughout this volume there is evidence of her influence. For twenty years she has been studying her subject, and the first eight articles in this volume report various aspects of her work, either alone or in collaboration. Most of the articles have appeared elsewhere in various periodicals, but it is a fitting tribute to the work of Miss Courtney and her associates to have them conveniently collected in a well-produced volume.

The sixth edition of Professor H. Kleinschmidt's well-known little book, therapeutic vade-mecum for paediatrists,[15] has just appeared, and it shows evidence of thorough revision in the light of new knowledge. The sections on diabetes, rickets, and some of the skin disorders have been rewritten, and the doses of drugs carefully revised. Nirvanol is included for the treatment of chorea—an indication of the modern character of the book.

The proceedings of the second international conference on light and heat in medicine and surgery, which was held in London at the end of last year, and mentioned in the *Journal* on November 10th, 1928 (p. 853), have now been published as a book, which is entitled *Light and Heat in Therapy*,[16] a chapter on foam treatment being added.

The third series of memoirs presented to the Institute of Egypt comprises a bibliography of works relating to mummification, with excerpts, epitomes, critical and biographical notes, by Mr. Warren R. Dawson.[17] In his preface the author remarks on the scarcity of works of real value on a subject of such importance as the technique of mummification in ancient Egypt. Of the countless mummies discovered during the last two hundred years, few have been scientifically examined; they have been treated generally as mere curios, more space being usually devoted to a description of their cases and decorations and to speculations on the meaning of the inscriptions than to the bodies themselves. Mr. Warren Dawson's object in publishing this bibliography is to place before students the principal literary materials for studying mummification of human bodies. The frontispiece is reproduced from a portrait of Thomas Joseph Pettigrew, surgeon and antiquary, whose *History of Egyptian Mummies*, published in 1834, was the first scientific monograph exclusively devoted to the subject of mummification.

Income Tax Up to Date[18] is a pamphlet which sets out in readily available form the salient points which it is desirable to bear in mind, and illustrates them by clear examples. Naturally the compiler has found it impossible to include any detailed information on the most difficult part of the taxpayer's task, that of computing the amount to be returned for assessment, but within the limits imposed by the brevity of the publication it should be of real assistance to taxpayers.

[10] *Indigestion*. By Herbert J. Paterson, C.B.E., M.C., M.D., F.R.C.S. London: W. Heinemann (Medical Books) Ltd. 1929. (6½ × 8½, pp. viii + 153; 4 figures. 7s. 6d. net.)

[11] *The Use of Standard Treatments in the Campaign Against Disease in the Tropics*. By J. Neil Leitch, M.D., B.S.Lond., D.T.M. and H.Eng., etc. With an Introduction by J. Carmichael Low, M.D., F.R.C.P. London: H. K. Lewis and Co., Ltd. 1929. (Demy 8vo, pp. xii + 64; 23 illustrations. 6s. net.)

[12] *Regional Anesthesia*. By Gaston Labat, M.D. With a foreword by William J. Mayo, M.D. Second edition, revised. Philadelphia and London: W. B. Saunders Company. 1923. (Sup. roy. 8vo, pp. xvii + 567; 367 figures. 25s. net.)

[13] *Cancer*. By G. Jeanneney. Translated by John Gibson, *M.C.*, M.D., and John H. Watson, M.B., B.S., F.R.C.S. London: H. K. Lewis and Co., Ltd. 1929. (Cr. 8vo, pp. xiv + 185; 33 figures. 7s. 6d. net.)

[14] *Selected Articles from the Department of Paediatrics, University of Toronto and the Hospital for Sick Children, Toronto*. 1929. (6 × 9, pp. vii + 536; illustrated.)

[15] *Therapeutisches Vademecum für die Kinderpraxis*. Von Professor Dr. H. Kleinschmidt. Sechste, verbesserte Auflage. Berlin: S. Karger. 1929. (Cr. 8vo, pp. iv + 256. M 6.50.)

[16] *Light and Heat in Therapy*. London: The Actinic Press, Ltd. 1929. (Cr. 8vo, pp. 173; illustrated. 6s. 6d. net.)

[17] Cairo: Imprimerie de l'Institut Français, d'Archéologie Orientale. 1929.

[18] *Income Tax Up to Date*. By H. J. Gully, F.C.A. Fifteenth year. London: *The Financial News*. 1929. (Demy 8vo, pp. 20. 6d.)

THE LEAGUE OF NATIONS ASSEMBLY.

PROGRESS OF THE HEALTH ORGANIZATION.

THE health work of the League of Nations, which a few years ago was regarded with distrust as carrying the League into fields not within the Covenant, has received nothing but praise during the present Assembly at Geneva, and the usual talk of "stabilizing" the health budget—another term for limiting fresh activities—has not been heard.

The Campaign against Syphilis.

The report on the Health Organization was introduced by Mr. Fierlinger of Czechoslovakia. He spoke in particular of the study of salvarsan and its derivatives, which has been proceeding for some time. The Health Organization had done much, he said, to bring into use effective non-toxic remedies against syphilis. It had been hoped that the remedies now available would produce a decrease of incidence, but some doubt was expressed whether the decrease was real, and whether the treatment had the value claimed for it. Inquiries had accordingly been set on foot in university centres and dispensaries in Germany, Denmark, the United States, France, and Great Britain, and the results of an analysis of about 50,000 cases would be known towards the end of the year.

Infant Mortality.

Mr. Fierlinger also stated that an inquiry into infant mortality had been entrusted to experts from seven European countries. These experts had studied the medical and social causes of more than 7,000 deaths among children under 12 months of age, as well as of 2,000 stillbirths. One fact which the inquiry had brought out was that of every hundred deaths of children under 1 year, from eighteen to thirty-four (according to the locality) occurred during the first eight days of life. Similar investigations had also been made in four countries of Latin America, and a general report on the whole subject would be submitted next year. The country in which the inquiry aroused the keenest interest was Denmark, where national investigations were also proceeding.

Malaria.

Inquiries had been conducted by the Malaria Commission of the League in malarial districts of Europe, North America, and Asia Minor. A few weeks ago some members of the Commission landed at Bombay, at the invitation of the Indian Government, to study, in conjunction with the health authorities of the various provinces of India, the results of the measures there adopted. The delegation consists of experts in the subject from Germany, America, Spain, France, and Holland, and its aim will be to establish co-operation with the Indian health services and medical associations with a view to furthering the efforts of the Malaria Commission.

Assistance for Health Administrations.

Another matter referred to with gratification by the rapporteur was the fact that the Greek Government had recently sought the Health Committee's assistance in the reorganization of its health services. Greece was seeking to establish a modern public health service, with a trained personnel. Legislative authority had been obtained for the necessary measures. A new health organization of prefectures was to be set up in certain selected districts, and by 1934 or 1935 was expected to cover the entire country. A school of hygiene was to be instituted in Athens, the function of which would be to train all classes of health personnel, to conduct and administer the work in the different districts, and to advise the Government on public health questions. The President of the Bolivian Republic has made a similar request for assistance, and an expert was to be sent from the Health Organization to co-operate with the Bolivian health administration in the reorganization of the services. The expert chosen would act as administrative officer for two years. The "cry from Macedonia" had been heard also from China, where the National Government had invited the medical director of the League (Dr. Rajchman) to become a member of an international committee of technical advisers, and the invitation had been accepted.

Radiotherapy.

The debate on the health administration was noteworthy for a very interesting contribution from Dr. Roberta Jull, one of the members of the Australian delegation to the Assembly. She spoke of medical advances in the Pacific, and in particular of the help which both the federal and local Governments in Australia were giving in the way of subsidies to work on radiation in the treatment of cancer. A committee of the Cancer Commission of the League is also charged with the study of radiotherapeutic measures; cancer of the cervix uteri has been selected for investigation, and three experts—one from the Curie Foundation at Paris, another from the Universitäts-Frauenklinik at Munich, and the third from the Radiumhemmet at Stockholm—have been selected to help in collecting and analysing information on the results of radiological treatment at clinics and institutions in different countries where experience has extended over a sufficiently long period. Records of cases are being collected according to a uniform method in order to facilitate comparison. The question of the dangers arising from x rays is also under review. The medical director has asked public health administrations for information as to any regulations on this subject or any action taken to avoid these dangers. The health authorities of nine countries have replied that no special laws or regulations are in existence. Special committees to study the subject have been set up in Austria, Denmark, Germany, Norway, and Greece. The Industrial Hygiene Division of the Department of Public Health of Australia is also conducting an inquiry. Information received from England is to the effect that, although there are no statutory regulations on the matter, most hospitals and responsible institutions accept in their practice the requirements recommended by the X-Ray and Radium Protection Committee.

Interchanges of Health Personnel.

Several of the speakers mentioned from personal experience in their respective countries the value of the interchanges of health personnel arranged by the Health Organization. An interchange in India which took place during the early part of the present year was attended by sixteen public health officers from the administrations of twelve countries in the Far East, and a number of opportunities were afforded for studying the campaign against malaria (probably the most serious health problem in India), and against other tropical diseases, such as cholera, kala-azar, leprosy, and ankylostomiasis. Another interchange took place in Europe for the study of rural hygiene; there were twenty participants from eighteen countries, and visits were paid to rural areas in the kingdom of the Serbs, Croats, and Slovenes, Hungary, Germany, the Netherlands, and Belgium. During the final conference, held at Geneva, each participant gave an account of the work which he hoped to inaugurate in his own service as a result of the tour. Another interchange has taken place in Italy, attended by twenty-one public health officials from sixteen countries. The visit was arranged so as to give the participants a clear picture of the varying social and economic conditions in that country, as well as a good general idea of public health problems.

Control and Limitation of Narcotic Drugs.

Long discussions—one of them extending beyond midnight—have taken place in the Fifth Committee of the Assembly, which deals with social questions on the unsatisfactory position with regard to the illicit traffic in drugs. Particular attention was drawn to a memorandum submitted by the Netherlands Government on the transactions of a Dutch firm—the most detailed document which has ever come before the Opium Committee—regarding the ways in which drugs are supplied to the international illicit traffic. It shows that, although this firm's transactions did not infringe the laws in force in the Netherlands, the narcoti[illegible] firm were intended for other than [illegible] The committee believed that this Dutch traffic—which has now been suppressed—probably dealt with about half the total world production of heroin.[1]

A long discussion took place during the Assembly on a scheme for limiting the manufacture of drugs. The outstanding features of this scheme are that each Government shall notify in advance for a determined period its requirements of each of the substances derived from opium and the coca leaf that are now, or may be in the future, covered by either The Hague Convention or the Geneva Convention, and that each Government shall state from which country it will purchase its requirements in narcotic drugs for medical and scientific purposes. The Japanese delegate said that his Government was preparing a number of important reforms in the existing regulations, and it was hoped that new measures would be brought into force by the end of the year. The chief object of these measures was to check the leakage of cocaine and other drugs. The manufacture of narcotic drugs in Japan, he said, had already been reduced, and it had been decided recently that further reduction would be made within a few years' time up to two-thirds of the quantity of cocaine at present manufactured. The representatives of other Governments gave particulars of the measures taken to curb illicit traffic. The French Government has prepared a scheme under which manufacturers will be able only to handle raw materials

[1] *British Medical Journal*, February 2nd, p. 213.

up to a quantity fixed by a ministerial ordinance. Only persons in possession of a Government licence will be able to import or export, manufacture or trade in France in the drugs in question. No person who has been convicted of illicit traffic in any country will be granted a permit. A system of notification of deliveries has been instituted for exports to countries which do not employ the import certification system. It was stated that there were nine countries which must be described as drug-manufacturing countries.

The Fifth Committee passed a resolution stating that it regarded the principle of the limitation of the manufacture of morphine, heroin, and cocaine and other drugs mentioned in Article 10 of the Geneva Convention as now accepted, and requested the Opium Advisory Committee of the League to prepare plans for such limitation, regard being paid to world requirements for medical and scientific purposes.

At the close of the discussion M. Fotitch, the rapporteur on the subject, expressed his pleasure at the unanimity with which the principle of limitation by international means had been accepted; it would give, he said, an entirely fresh character to the activity of the League in this field. M. Gallavresi of Italy, the vice-chairman of the Permanent Central Board, said that his Board was now ready to supply the necessary basis for the scientific determination of the world's need for drugs.

At the instance of the British delegate, Professor Noel Baker, a further resolution was passed, recommending every State Member of the League to make arrangements for all suspected postal matter, in either the country of consignment or the country of destination, to be opened by, or in the presence of, the authorities.

The outstanding result of the discussions is the request to the League Council to take immediate steps to draw the attention of Governments to the necessity of putting into operation an effective system of administrative control of manufacture and distribution.

Vaccinations against Diphtheria and Scarlet Fever.

Preliminary inquiries undertaken in various European countries, in accordance with a decision of the Health Committee showed that a consultation between experts, and an exchange of experimental material, on the various methods of positive vaccination against scarlet fever and diphtheria and their results would be of great value. The following experts were consequently convened to a consultation in Paris on July 4th to 6th, 1929, of which a report has just been issued: Professor Th. Madsen, Copenhagen (chairman); Dr. Bie, Copenhagen; Dr. Borcic, Zagreb; Professor Cantacuzene, Bucarest; Professor Dr. R. Debré, Paris; Professor Friedemann, Berlin; Professor E. Gorter, Leyden; Dr. E. H. R. Harries, Birmingham; Dr. Hirszfeld, Warsaw; Dr. R. A. O'Brien, Beckenham, Kent; Dr. Ramon, Garches, Seine-et-Oise; Dr. O. Schubert, Prague; Dr. Temesik, Budapest. It was decided, without going into theoretical discussions of the problems under consideration, to draw up a programme of comparative experiments, to be undertaken under similar conditions in specially chosen districts with identical research material, methods, and procedure, in order to draw from the results obtained comparative conclusions for practical application.

Diphtheria.—Comparative experiments are to be undertaken: (*a*) on the Schick reaction; (*b*) on the positive immunity conferred. For the Schick reaction a homogeneous toxin is to be used, and the method is to be applied according to a detailed uniform technique. The vaccination is to be carried out comparatively with (1) anatoxin, (2) toxoid, (3) toxin-antitoxin. The following questions will be particularly investigated: (*a*) Comparison with Ramon anatoxin of the various antigens used for active immunization against diphtheria. (*b*) A comparative study of the results, varying the intervals between the injections. (*c*) The comparative effects of subcutaneous and intramuscular vaccinations, to be determined by comparing the reaction and degree of immunity conferred by the two methods. (*d*) Influence of the age of the vaccinated persons. (*e*) Influence of the environment of the vaccinated persons. With a view to co-ordination of the experiments, directions have been laid down for the preparation of a general technique applicable to all the experiments, and a standard record card has been adopted. It is expected that the experiments will cover some 20,000 cases in Czechoslovakia, Denmark, England, France, Germany, Holland, Hungary, Jugoslavia, Poland, and Rumania.

Scarlet Fever.—Comparative experiments, similar to those relating to diphtheria, are to be carried out on (*a*) the Dick reaction; (*b*) the degree of positive immunity conferred. For the Dick reaction the same toxin is to be used in each country. The reaction is to be carried out in accordance with uniform directions drawn up by the experts. In certain countries toxin prepared from local streptococcic strains will be used to provide further comparative tests. For experiments in active immunization the Danish Government Serum Institute will provide each of the countries in question with two Dick strains and one Dochez strain. From these, anatoxin is to be prepared in accordance with a uniform process laid down by Ramon, and the anatoxin so prepared will be compared with anatoxin prepared from local streptococcic strains. A uniform scheme will be drawn up for the establishment of the general technique, and records will be kept on standard forms. The experiments are to be carried out in Czechoslovakia, France, Germany, Holland, Hungary, Japan, Jugoslavia, Poland, and Rumania, and will include about 10,000 cases.

Both in the diphtheria and in the scarlet fever tests the result of vaccination is, where possible, to be assessed not only by the reaction of the skin, but also by determination of the antibody content of the serum of the person vaccinated. The results of the tests, which will thus be comparable, will form a reliable basis for a more extensive study of certain problems which it has not yet been possible to cope with owing to their extremely complicated character. A solution of the problems under discussion is, however, urgently required in order to combat some of the most frequent causes of death among children.

THE BRITISH COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS.

The first meeting of the Council of the British College of Obstetricians and Gynaecologists was held in London on September 25th. The president, Professor W. Blair Bell, was in the chair. It was reported by Mr. Oswald Hempson (solicitor to the College) that incorporation had been granted and completed on September 13th, 1929.

Election of Council.

The following were elected members of the first full Council:

London:
Dame Louise McIlroy, M.D., D.Sc.
T. Watts Eden, M.D., F.R.C.P.
J. S. Fairbairn, M.B., F.R.C.P., F.R.C.S.
L. C. Rivett, M.Chir., F.R.C.S.

Provinces:
Professor A. Donald, M.D., LL.D. (Manchester).
Professor Sir Ewen Maclean, M.D., F.R.C.P. (Cardiff).
Professor Carlton Oldfield, M.D., F.R.C.P., F.R.C.S. (Leeds).
Professor Miles Phillips, M.B., B.S., F.R.C.S. (Sheffield).
Professor Beckwith Whitehouse, M.B., M.S., F.R.C.S. (Birmingham).
E. Farquhar Murray, M.D., F.R.C.S. (Newcastle).
Leyland Robinson, M.D., F.R.C.S. (Liverpool).

Scotland:
Professor R. W. Johnstone, M.D., M.R.C.P., F.R.C.S.Ed. (Edinburgh).
Professor Munro Kerr, M.D., F.R.F.P.S. (Glasgow).
T. Haultain, M.B., B.Ch., F.R.C.S.Ed. (Edinburgh).
R. A. Lennie, M.B., Ch.B., F.R.F.P.S. (Glasgow).

Ireland:
Professor C. G. Lowry, M.D., F.R.C.S.I. (Belfast).
Bethel Solomons, M.D., F.R.C.P.I. (Dublin).
T. M. Healy, M.B., B.Ch., M.R.C.P.I. (Dublin).

The following were co-opted (under Article 40) for the purpose of organization:

Professor R. J. Johnstone, M.B., B.Ch., F.R.C.S. (Belfast).
Eardley L. Holland, M.D., F.R.C.P., F.R.C.S. (London).

Election of Officers and Committee.

The following officers were elected:

President: Professor W. Blair Bell, M.D., F.R.C.S. (Liverpool).
Vice-President: Professor J. M. Munro Kerr, M.D., C.M., F.R.F.P.S. (Glasgow).
Treasurer: Comyns Berkeley, M.D., M.Chir., F.R.C.P., F.R.C.S. (London).
Secretaries:
Professor Fletcher Shaw, M.D., Ch.B. (Manchester).
H. Russell Andrews, M.D., F.R.C.P. (London).

Sir Francis Champneys, Bt., M.D., F.R.C.P., was appointed vice-patron of the College in recognition of his services to obstetrics and gynaecology, and to the College during the process of formation.

The following were elected members of the executive committee:

Professor Blair Bell	Professor Lowry
Mr. Comyns Berkeley	Mr. Rivett
Professor Munro Kerr	Professor Fletcher Shaw.

Nova et Vetera.

SURGEONS WHO WERE NEVER SURGEONS.*

BY

SIR D'ARCY POWER, K.B.E., F.R.C.S.

SURGEONS who were *never* surgeons, I may premise, are *not* to be confused with surgeons who are *no* surgeons. Of the latter there is no lack, and each will call to mind an outstanding example. By "surgeons who were never surgeons" I mean those who obtained the Fellowship of the Royal College of Surgeons of England without having practised, and sometimes without having intended to practise, as surgeons. They are much fewer than surgeons who were no surgeons, and I am at a loss to explain why some of them should have exposed themselves to the perils of a severe examination without any adequate cause. It may have been that they had acquired a liking to have their knowledge tested—a curious form of pleasure and a morbid one, as it seems to me, akin to that of those unfortunate women who develop a craze for abdominal operations to cure their "adhesions." It may be mere vanity, to show that they could acquire knowledge which they knew would be useless to them in after-life. It was often because they had achieved success in paths widely different from surgery.

There are many surgeons who were never surgeons, and I propose to give you a very short account of some of them, from knowledge obtained whilst editing Plarr's *Lives of the Fellows of the Royal College of Surgeons of England*, in conjunction with Mr. W. G. Spencer and Professor G. E. Gask, which is shortly to be published.

Richard Robert Madden.

First upon the list is Richard Robert Madden (1798–1886). He took the Membership of the College in 1829, and was elected to the Fellowship in 1855. He was admitted to the intimate circle of Lady Blessington in 1823, and became a friend of Lord Byron and Count D'Orsay. He afterwards published *The Literary Life and Correspondence of the Countess of Blessington*. He travelled much in the Levant; was one of the special magistrates appointed to administer the statute abolishing slavery in 1833 in Jamaica; became superintendent of liberated slaves; and was judge arbiter in the mixed court of commission at Havana. He accompanied Sir Moses Montefiore on a philanthropic mission to Egypt in 1840, and was employed on the West Coast of Africa to inquire into the administration of the British settlements. He lived in Lisbon from 1843 to 1846, acting as special correspondent to the *Morning Chronicle*, and afterwards went to Western Australia as Colonial Secretary. He ended his life as secretary to the Local Fund Board in Dublin, where he died and was buried as a devout Roman Catholic.

William Guybon Atherstone.

William Guybon Atherstone had an even more varied career. He was born at Nottingham in 1814, took his M.R.C.S. in 1838, and the M.D.Heidelberg in 1839. He was elected F.R.C.S. in 1863. His father, who had been a house-surgeon at Guy's, emigrated with his family to South Africa in 1819, and settled at Grahamstown. The son, after a short apprenticeship to his father, acted as staff medical officer under Sir Benjamin D'Urban during the second Kafir war, and afterwards received his certificate as a qualified medical man. Throughout his life he was far in advance of colonial opinion, and was a man of the type of Cecil Rhodes, for whom he, in some measure, made the paths straight, although the two men never met. He was keenly in favour of a Cape to Cairo railway; he wished to see a telegraph wire carried overland to Egypt, and he fostered the infancy of ostrich farming. As a prospector with a sound knowledge of geology he made many important journeys throughout the length and breadth of the land. In 1867 he identified the first diamond found at what is now Kimberley, examined it with a polariscope, and tried its hardness on glass—the window on which he experimented has since been preserved and framed. His pioneer work was recognized in 1888 by the Kimberley companies, who presented him with a valuable diamond. Atherstone was a good field botanist, an artist, and a competent musician, but as a surgeon he was negligible. In later life he was elected a member of the Legislative Assembly, and in 1884 he entered the Legislative Council.

Robert James Stone.

Robert James Stone was born in 1817, and became a Member of the College of Surgeons in 1840. In 1845 he published *The Planetary and Stellar Universe*, which was followed by a long series of textbooks on astronomy, chemistry, physiology, and health. He left England for Natal in 1857 as Superintendent of Education, and became interested in the meteorology of the colony. In 1866 he returned to London as emigration officer for Natal, and became president of the Meteorological Society. From 1874 to 1886 he was secretary of the "African" and the "Foreign and Colonial" sections of the Royal Society of Arts. He took an active part in the organization of the scientific apparatus at the South Kensington Museum in 1876, having superintended the collection and dispatch of the Natal collections to the Great Exhibition of 1862. He also compiled the catalogue of the Natal Court at the Colonial and Indian Exhibition of 1886.

George Redford.

George Redford is chiefly remembered in connexion with sculpture. He was born in 1816, and was registrar of the Crystal Palace collection of sculpture in 1853–54; curator of the Art Treasures Exhibition in Manchester in 1857; and commissioner for the National Exhibition of Works of Art in Leeds in 1868. He was elected a F.R.C.S. in 1869, and published *A Manual of Ancient Sculpture with Illustrations and Chronological Lists*, in 1886. His son, George Alexander Redford, was well known for many years as the official examiner of plays.

The Bishop of Labuan and Sarawak.

Dr. Francis Thomas McDougall seems to have been the only English bishop who passed the examinations and was admitted a Fellow of the Royal College of Surgeons of England. His father was a captain in the 88th Regiment who was quartered at Malta at the time of his son's birth in 1817; his mother was a woman of strong evangelical principles, and the bishop during his life was able to use all his qualities, both inherited and acquired. He was a first-rate fighter, an excellent doctor, and a sincere divine. He entered as a medical student at King's College, London, in 1835; matriculated at Oxford from Magdalen Hall in 1839; was for a short time medical officer to some ironworks in South Wales, and married the sister of Bishop Colenso's wife. The ironworks failed, McDougall was ordained, served as a curate at Christ Church, Woburn Square, accepted a permanent post in the British Museum, repented, undertook mission work in Borneo, and was consecrated Bishop of Labuan in 1855. In 1862 he had an exciting fight with Malay pirates, and sent an account to the *Times*, in which, quite unostentatiously, he shows himself to have been a first-class fighting man, a surgeon, and a priest. Some exception was taken to the tone of his letter by the "unco guid," for he says: "My double-barrelled Terry's Breechloader, made by Reilly, New Oxford Street, proved itself a most deadly weapon from its true shooting, certainty, and rapidity of fire. It never missed fire in 80 rounds, and was then so little fouled that I believe it would have fired 80 more with like effect." Dr. Tait, Bishop of London, when he next met McDougall, told him dryly that when there was occasion for another letter of a similar character it would be better if he let his wife write it for him.

After resigning his bishopric in 1868, McDougall became vicar of Godmanchester in Huntingdonshire, and afterwards a canon of Winchester, archdeacon of the Isle of Wight, and rector of Mottistone with Shorwell, where he is still

* Read in the Section of the History of Medicine at the Manchester meeting of the British Medical Association on Friday, July 26th, 1929.

remembered as a small, somewhat portly person who could occasionally be prevailed upon to tell of his early experiences when he had demonstrated anatomy at King's College. He died in 1886.

Alfred Smee.

Alfred Smee was but little interested in surgery, though the directors of the Bank of England created the post of surgeon especially for him in order to use his great scientific knowledge entirely in their service. His father was accountant-general to the bank, and Alfred was educated at St. Paul's School, at King's College, and at St. Bartholomew's Hospital. He devoted himself from an early period to the study of chemistry and physics, and had he lived now he would have been a distinguished electrical engineer. "Smee's battery" of zinc and silver in sulphuric acid still recalls his name. It was largely employed for trade purposes, and gained the Isis gold medal at the Royal Society of Arts. In 1842 he invented a durable writing ink, and in 1854 he perfected a system of printing the cheques and notes. Certain modifications were also introduced into the manufacture of notes to prevent and render it impossible any longer to split them. His communication on "The new Bank of England notes and the substitution of surface printing from electrotypes for copperplate printing" was read before the Society of Arts in 1842. He was also much interested in electro-biology, and was a pioneer in the territory of electrical physiology. He was one of the founders of the Gresham Life Assurance Society and of the Accident Insurance Company. Although his medical work was subordinated to other issues, his acumen enabled him to carry out improvements in the details of everyday surgical practice. Whilst he was still a student he invented that method of making splints which was largely used under the name of "gum and chalk" until they were superseded by "Croft's splints," and he was quick to turn to account the physical properties of guttapercha. He also employed electrical means to detect the presence of needles impacted in different parts of the human body.

And so one might continue with many others. They were honoured in their generations and were the glory of their times, although they were never surgeons, for they be of them that have left a name behind them that their praises might be reported.

THE BOARD OF CONTROL.

Fifteenth Annual Report.

In their annual report[1] for the year 1928 the Commissioners of the Board of Control express their regret that legislation to give effect to the recommendations of the Royal Commission on Lunacy and Mental Disorder has not yet materialized. This postponement is all the more regrettable inasmuch as the poorer classes must continue to be denied facilities for voluntary treatment in the early and hopeful stages of mental disorder which are open to those more fortunately circumstanced. The Board hopes, however, that it may be possible to introduce legislation at an early stage in the next session of Parliament.

Mental Disorder.

The incidence of fresh cases of mental disorder during the past year as notified under the Lunacy Acts has been slightly above the average for the last five years—2,787 cases as against 2,149. There appears, however, to be no ground for the suggestion that the stress of modern life has resulted in an abnormal increase in insanity. The average increase of approximately 2,000 a year in the number of patients under care is due very largely to increased longevity, both in mental hospitals and among the population generally.

The Commissioners regret that the general recovery rate has remained practically constant over a long period of years, notwithstanding the undoubted success which has attended the treatment of general paralysis by induced malaria. This disease is present in some 6 per cent. of the total admissions, and in as many as 11 per cent. of the male admissions, and has a yearly death rate of 1,500 persons, so that its alleviation or cure is a matter of very considerable moment.

In an exhaustive report[2] by Surgeon Rear-Admiral Meagher, one of the Board's inspectors, cases treated by the new method in England and Wales from 1922 to 1927, numbering 1,500, were taken into account and contrasted with numbers of untreated cases in the same period. The results indicated that the treatment, especially when applied in the early stages, is a most encouraging advance, and definitely offers hopes of improvement which could not be expected without it.

Work of Mental Hospitals.

Steady progress is recorded in the process of hospitalization. From the point of view of humane treatment, the Board cannot speak too highly of the way in which mental hospitals are conducted. From the scientific point of view, however, the Board considers that much more might have been accomplished in many hospitals if there were a larger medical staff and a more generous provision of laboratory and other therapeutic resources.

Ultra-violet rays and other forms of light treatment are now being employed in a number of mental hospitals, but while good results have been claimed in some cases the present methods of applying those treatments are largely empirical. The Board welcomes the attention that this matter is receiving from a committee of the Medical Research Council and the steps which are being taken to associate certain mental hospitals in a definite scheme of research. With regard to all new lines of treatment it is highly desirable that hospitals should pool their experience; but this can only be done if the results of experimental methods are carefully and scientifically noted.

In deploring the ultra-conservative policy pursued by many visiting committees, the Board points out that the public generally, and in particular the patients' relatives, will never regard mental hospitals as hospitals in the true sense until they are satisfied that vigorous effort directed to the individual patient is being made to effect a cure.

The Nursing Staffs.

With respect to nursing personnel, gratifying progress is recorded in the provision of nurses' homes. This is welcomed not only because fresh accommodation for patients is thus released, but still more because of the importance of securing for the nursing staff restful and comfortable surroundings. Mental nursing is an arduous and exacting occupation, and young nurses cannot be expected to combine with their duty in the wards the theoretical instruction which is now demanded of them unless their hours off duty are quiet and uninterrupted.

It is regrettable that the training of mental nurses is still in an unsatisfactory and unsettled condition, owing to the continuance of two sets of examinations and alternative certificates based upon an almost identical curriculum. The Board would cordially welcome any agreement between the General Nursing Council and the Royal Medico-Psychological Association which would secure a unified examination system.

Treatment and After-Treatment.

Gratifying results have been obtained in some mental hospitals by the development of occupational therapy, and it is recommended that the appointment of occupation officers be more generally adopted. It is increasingly recognized that there are many apparently unemployable patients who, in the hands of staff trained in teaching handicrafts of various kinds, can be occupied with great benefit to themselves if sufficient care is taken to select the particular kind of occupation best suited to the patient's mental condition.

The Board notes with pleasure the increasing number of centres for out-patient treatment which are being opened, generally in conjunction with a local voluntary hospital

[1] The Fifteenth Annual Report of the Board of Control. Part I. H.M. Stationery Office. 1929. Price 1s. 9d. net.

[2] General Paralysis and its Treatment by Induced Malaria. H.M. Stationery Office. 1929. 2s. net.

and with the co-operation of the medical superintendent. The Board wishes to see the number of these largely increased, and appeals for the co-operation of the press in emphasizing the irreparable harm which may be done by postponing any attempt to seek treatment until concealment is no longer possible and until the patient has to be certified.

With regard to those who are discharged from mental hospitals, and who so often find the transition from the ordered and sheltered life of the hospital to the stress and competition of the outside world too exacting, the Board pays a tribute to the excellent work accomplished by the Mental After-Care Association.

Improvements in the Mental Hospitals.

The linking up of a number of mental hospitals with medical schools is viewed with approbation. Such an arrangement cannot but prove mutually beneficial. It makes available to the mental hospital patients the services and advice of operating surgeons and other specialists; it is stimulating to the medical staff of the general hospital, and helps them to realize that psychological medicine is not a subject to be studied in isolation, but is a part of medicine as a whole. Nothing could be worse for psychological medicine than any tendency to divorce it from other branches of medical study. Closer co-operation between mental hospitals and general hospitals, particularly teaching hospitals, will be to the benefit of all concerned.

The Board has followed with interest the scheme of study tours of foreign hospitals organized by the Royal Medico-Psychological Association. It is believed that the mental hospitals in Great Britain will stand comparison with those of any other country; but it would be foolish to suggest that there is nothing to be learnt from a study of Continental methods.

The need for additional beds in the county and borough mental hospitals continues to be acute. There is practically no margin of vacant accommodation anywhere, and in not a few cases there is now overcrowding of both day and night space. A number of buildings suitable for the accommodation of the quieter protracted type will probably be available under the new Local Government Act; but such relief will be merely temporary, and the Board urges the authorities not to postpone any effort to meet their problems, and to take into account their probable requirements for a term of years.

Statistics for the Year.

On January 1st, 1929, the number of notified insane persons under care in England and Wales was 141,080, an increase of 2,787 during the preceding year. The percentage distribution of the sexes—males 43.9, females 56.1—was practically unchanged. Private patients numbered 14,636 (males 8,549, females 6,087). Included in this number are 5,402 "service" and "ex-service" patients. Rate-aided patients on the same date numbered 125,534 (males 52,753, females 72,781), or 89 per cent. of all the notified insane. Criminal patients numbered 910 (males 687, females 223), an increase of 17 during the year.

Direct admissions during the year numbered 22,377 (males 10,002, females 12,375) of which 92.8 per cent. were admitted into county and borough mental hospitals; this number was 484 more than in 1927. First admissions numbered 17,766 (males 8,231, females 9,535) or 79.4 per cent. of all the direct admissions.

The number of persons discharged was 10,386 (males 4,236, females, 6,150). Of these, 6,901 were discharged as recovered, yielding a recovery rate, calculated on the direct admissions, of 30.84 per cent. (28.21 for males, 32.96 for females). Deaths numbered 8,769 (males 4,372, females 4,397). They were 542 fewer than in the preceding year; and the death rate was 7.31 per cent. of the daily average number resident.

MENTAL DEFICIENCY.

The Commissioners of the Board of Control feel it incumbent on them to repeat that the subject of mental deficiency is closely related to that of mental disorders, and that many of the questions involved are but different aspects of what is in reality one problem. The Board desires to see a more frequent use made of Sections 28 or 66 of the Mental Deficiency Act of 1913, under which it is possible to create one committee for the discharge of duties under both Acts. This would enable all matters in the area which were specifically related to mental health to receive unified consideration.

Little progress has been made during the year to meet the shortage of accommodation for mental defectives. This delay is to be ascribed to the introduction of the Local Government Act causing local authorities to defer action until they saw what accommodation for mental deficiency and other health services would become available. Some authorities have shown an inclination to defer expenditure on the ground that they are no longer receiving a 50 per cent. grant; but as the Minister of Health has repeatedly pointed out, the new block grant includes a substantial amount of new money to provide for the development of their services, and local authorities have no justification for postponing necessary expenditure on the ground that they are not receiving adequate assistance from the Exchequer.

In the opinion of the Board, the Local Government Act should result in a very great improvement in the provision for this unfortunate section of society. Hitherto, mental deficiency committees have had, in general, no duties in relation to defectives in receipt of any form of Poor Law assistance. Under the Local Government Act for the first time unified control becomes possible, and all defectives in the area, other than those dealt with by the local education authority, may be brought within the scope of the mental deficiency committee.

Marriage of Mental Defectives and Sterilization.

The Board is of opinion that sterilization will not obviate the need of institutional treatment for large numbers of mental defectives. So far as the low grade cases—idiots and imbeciles—are concerned, the need for institutional treatment is obvious; but with regard to the feeble-minded, who form approximately three-quarters of the whole number of mental defectives, it is not sufficiently understood that the great majority are incapable of managing themselves. The greater number of defectives cannot support themselves, many cannot resist criminal impulses, and others, though not actively dangerous, are a menace to the community, because they have no idea of truth or social obligation, and because they cannot keep themselves clean or observe the simplest rules of personal hygiene. Such anti-social tendencies and habits, states the Board, are not to be cured or even lessened by sterilization, and as the provision of institutional beds is far below even the most conservative estimate of present needs, it hopes that no local authority will relax its efforts because of any fallacious promise of what sterilization might achieve.

The Board holds that it would be a valuable safeguard if the marriage of defectives, whether under order or under supervision, could be prohibited by law. A definite prohibition of the marriage of defectives would prevent unions which are socially disastrous and would make it much easier to secure the protection of young defectives under supervision or guardianship or on licence by bringing home to the public conscience the antisocial character of any overtures towards persons definitely stamped as incapable of valid marriage.

Statistics for the Year.

The number of mentally defective patients on January 1st, 1929, was 45,415 (males 22,803, females 22,612); included in this total are the cases under statutory supervision, which numbered 19,606 (males 10,541, females 9,065).

During 1928 there were increases of 95 in State institutions, of 741 in certified institutions, of 556 in Poor Law institutions, of 9 in approved homes, of 245 among those under guardianship or notified, and of 1,712 under statutory supervision, while the number in certified houses decreased by 6, making a total net increase of 3,352 patients under care.

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TEAM WORK IN RESEARCH.

The methods of large-scale organization, so characteristic of the age we live in, may be seen operating in the field of scientific investigation as fully perhaps as in any other department of human activity. In this period, characterized by a developing collectivist ideology, scientific research indeed, like art, would at first sight appear to be the last refuge of individualism. Yet there is a sense in which it is true that all scientific investigation is collective. The greatest individualist among scientific workers can build only on a foundation others have laid before him; through the medium of scientific journals and learned societies he must meet and receive stimulation from others engaged in work related to his own; in a thousand ways he must use knowledge which others have gained in the past or are at the moment collecting round him; and in the end his own contribution is but an instalment which must be merged in the unending serial story of man's discovery of the universe. The scientist of popular imagination—the isolated individual ploughing his lonely furrow through an uncharted wilderness—has indeed his counterpart in reality. But his loneliness is an illusion; his wilderness is the meeting place of an international conference in perpetual session.

There are, indeed, vital differences between collective research undertaken in this loose and undeliberate manner and collective research planned and organized by groups of scientists working in teams. In every new territory invaded by science the independent pioneer has blazed a trail along which others have had to follow. It would seem as though at every stage, as science makes its halting progress, there is a period, perhaps only a moment, when the direction of the next step is uncertain, when the difficulties are hardly realized, and the problems yet inadequately formulated. It is a period of reconnaissance, when only the loosest organization, giving the greatest scope for independence and originality, is likely to ensure success. But after that, the more carefully planned and directed the advance the better. Independence and team work in scientific investigation are complementary to each other; both are necessary for the advancement of knowledge.

Once the need for organization is admitted it is inevitable that a demand should arise for bigger and better teams. In the field of medical research the unit may be the hospital; or, as at St. Andrews, the bulk of the practitioners in a district; or, as in the collective investigations undertaken by the British Medical Association, members of the medical profession throughout the whole country. It will be recalled that the latter team—surely the largest that has ever been brought together for the advancement of medical knowledge—last year made collective investigations of the treatment of varicose ulceration and the after-effects of gastro-enterostomy. This year, encouraged by the success with which these inquiries were attended, the Council has decided to invite a similarly constituted team to investigate the incidence of cancer and its history after treatment. As before, the success of the inquiry will depend on the patient and enthusiastic co-operation of members of the Association in all parts of the country, on the care with which they make their observations, and the accuracy with which they record their findings. Above all, it will depend on the precision with which the questions to which an answer is required are defined. The inquiry is to be limited to carcinoma of the breast, cervix, rectum, and tongue, and its object is to obtain information about the previous history of patients suffering from these forms of carcinoma; the actual evolution of the disease itself, especially of the first symptom which called attention to it; the result of any treatment which may be undertaken, and the duration of the disease both when treated and when untreated. On these matters it is believed that the general practitioner is in a far better position to make the necessary personal observation and to supply reliable information than is the operating surgeon, under whose care the patient may come only for a short time. The inquiry will cover a period of one year, and practitioners participating in it will be asked to keep records, on specially printed forms, of all cases of the conditions under investigation which come to their notice during this period. The questions to which answers are required have been formulated with great care; they are precise, and have been designed to elicit all the information relevant to the inquiry, while imposing a minimum of clerical labour on the practitioners sharing in the work.*

We have mentioned some of the conditions whose fulfilment we believe to be essential to success. There is yet another: the inquiry is in large part statistical, and to reduce the chances of error the net must be spread as wide as possible. Every Division of the British Medical Association should make it its duty to ensure that every one of its members in a position to do so shall take part in the investigation; in the fight against disease God is on the side of the big battalions.

THE BRITISH COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS.

We offer a cordial welcome to the British College of Obstetricians and Gynaecologists, which was incorporated on September 13th and held its first council meeting in London last week. The proposed Memorandum and Articles of Association of the new body were described in an article in our issue of March 9th (p. 462); the wording of these has now been amended in certain respects, but as they stand they are still admirably adapted to serve the purpose for which the College was established—namely, to encourage the study and improve the practice of obstetrics and gynaecology. The officers and council, whose names are printed elsewhere in this issue (p. 627), are thoroughly representative, and under their guidance the new College may be trusted to use to the best effect the powers it has been granted. Of special interest are those clauses in the Memorandum of Association which deal with the functions of the College in relation to the examination of candidates for admission to the *Medical Register* and the granting of special diplomas. According to these clauses the College will, if invited by the authorized teaching and examining bodies, co-operate in the examination of candidates for admission to the *Medical Register*. Furthermore, it may,

* Secretaries of Divisions have been requested to forward to the Head Office the names of those who are willing to help in this new collective investigation. Members of the Association desiring to take part who are not approached through their Divisional machinery should apply to the Medical Secretary for the special forms on which the required particulars are to be recorded. We hope to publish shortly the questionaries relating to the various forms of cancer upon which information is desired.

either alone or in co-operation with authorized teaching and examining bodies, grant to registered medical practitioners diplomas or other equivalent recognition of special knowledge in obstetrics and gynaecology. Diplomas granted independently by the College, however, will not of themselves confer any legal qualification to practise, and will embody a statement to the effect that they have been issued by the authority of the College only. If and so long as the College, on the joint invitation of the Royal College of Physicians of London and the Royal College of Surgeons of England, co-operates with them in holding an examination and granting a diploma in obstetrics and gynaecology, it will not independently grant a diploma or other equivalent recognition of special knowledge in these subjects, though this provision will not debar it from holding joint examinations and granting joint diplomas with any other authorized teaching or examining body.

The College has shown in its by-laws that it will take no light view of the standard of education and experience that must be attained by those who aspire to its fellowship or membership. Every applicant for membership will be required to submit evidence of having held one or more of the following appointments: (*a*) for at least six months, a resident post in a maternity hospital or the maternity department of a general hospital, and for at least six months in a gynaecological hospital or gynaecological department of a general hospital; (*b*) for at least one year a resident post which combines obstetrics and gynaecology; (*c*) for at least one year a post on the honorary staff of a hospital which combines obstetrical and gynaecological practice; (*d*) for at least six months a resident post in an obstetrical hospital, and for at least one year the post of registrar in a gynaecological hospital or the gynaecological department of a general hospital; or (*e*) for at least six months a resident post in the obstetrical and gynaecological wards of a general hospital, followed by at least a year as registrar in a similar department. The applicant will, in addition, have to submit a fully documented record of fifty consecutive obstetrical cases attended personally, and twenty consecutive gynaecological operations which he or she has performed; and with at least one of the obstetrical and one of the gynaecological cases a review of the literature will be required as well. Applicants will only be admitted to the membership if their names are entered on the British *Medical Register* or on the register of duly qualified practitioners of a British dominion or dependency; and at the meeting at which any name is submitted for election a majority in the candidate's favour of two-thirds of the members of council present will be required. The council may from time to time elect to the fellowship such members of the College as it judges to have advanced the science and art of obstetrics and gynaecology; it may furthermore elect to honorary fellowship obstetricians and gynaecologists of renown, distinguished members of the medical profession, and other eminent persons not necessarily members of the medical profession. Everyone admitted to the College as fellow or member will be required to subscribe to the following declaration: "I solemnly affirm that I will at all times maintain the welfare and dignity of the College, faithfully obeying in the spirit as well as in the letter the Articles and Regulations, and submitting myself to the lawful authority of the Council. Furthermore, I pledge myself in the practice of the art of obstetrics and gynaecology ever to have regard to the honour of the College and to the welfare of the State."

The innovations foreshadowed in those clauses of the Memorandum which deal with the granting of diplomas and other equivalent recognition of special knowledge of obstetrics and gynaecology are of far-reaching importance; we may hope that no step towards putting them into effect will be taken except after the fullest consultation between the College and the established teaching and examining bodies. We are not disposed to underestimate the difficulties that have yet to be overcome; nor do we imagine that the College, exclusively occupied with obstetrics and gynaecology, will always find itself in accord with the teaching and examining bodies whose interests are necessarily wider. Our hope that harmony will be reached and conflicting views will be adjusted is based on the faith that everyone concerned is animated by the single ideal of raising as high as possible the level of medical practice in all its branches.

GROUP TEMPERATURE RECORDING.

In certain circumstances medical officers are called upon to take the temperatures of a large number of patients in a small space of time, and the use of the ordinary clinical thermometer makes this a lengthy and tedious procedure. By a large number of patients is meant, of course, many more than the usual content of the average hospital ward, where a nurse armed with, say, three clinical thermometers very quickly gets round. In the course of investigating the temperatures of native mine labourers in South Africa with the idea of quickly detecting those showing abnormal temperatures for further examination, Sir Spencer Lister found that the use of the ordinary mercurial thermometer was impracticable. He has therefore devised, with the help of Professor A. V. Hill in London, an electrical apparatus for this purpose which he has recently described in detail.[1] The principle of the electrical thermometer is similar to that already applied to the construction of thermometers for other than clinical purposes, and depends upon the "thermocouple," the action of which, it will be remembered, is due to the production of a thermo-electric force when the junctions of different metals in an electric circuit are at different temperatures. In the apparatus used by Sir Spencer Lister a "battery" of fifteen such thermocouples is employed. The fifteen "cold" junctions are immersed in a thermos flask in which the temperature is kept constantly at 98.4° F. The fifteen corresponding "hot" junctions are hanging free in the air, or in disinfectant if so desired, and may be situated at any convenient distance from the "cold" junctions. These free-lying "hot" junctions are placed in the mouths or axillae of the subjects whose temperatures are to be recorded. The "hot" and "cold" junctions are wired in circuit with a dead beat moving-coil galvanometer with a reflecting mirror. A switchboard is included in the circuit so that each thermocouple can be separately connected with the galvanometer by moving the necessary switch. The galvanometer mirror reflects a beam of light on to a calibrated scale on which the temperature of the individual in contact with the "hot" junction can be rapidly read. In practice fifteen individuals hold the "hot" junctions beneath the tongue and the investigator rapidly closes the necessary switches in turn, noting any deviation from normal on the calibrated scale. As soon as the subject at number one thermocouple has had his temperature read he moves away, the "hot" junction is placed in disinfectant, rinsed, and the next subject (that is, number sixteen) takes his place. By the time the subject at number fifteen is finished a new batch of subjects is in position and the process is rapidly

[1] *Journ. of the Med. Assoc. of South Africa*, 1929, iii, 155.

and easily repeated. Besides detecting quickly all patients with abnormal temperatures, the exact degree of abnormality can be read upon the calibrated scale, but this naturally takes more time. The apparatus is at present in use at the South African Institute for Medical Research, Johannesburg, and with inevitable improvements towards greater compactness and portability it may prove a very useful instrument for recording temperatures in a wholesale fashion.

EPIDEMIC ENCEPHALITIS AND PREGNANCY.

THE comparatively infrequent association of these two conditions has not in this country attracted much attention, and not until recently has any important study of the subject appeared in English medical literature. Even now the amount of first-hand material which Dr. Frederick Roques has been able to use in his recently issued monograph, *Epidemic Encephalitis in Association with Pregnancy, Labour, and the Puerperium*,[1] of which a brief notice appeared in our issue of March 23rd (p. 560) is somewhat slight, as the author himself admits. But Dr. Roques reinforces the evidence provided by the 40 cases coming *more or less directly under his own observation* with evidence derived from some 170 case records of other clinicians and compilers, both at home and abroad. Among such records are the list of cases published by the Ministry of Health in 1922[2] and an earlier list compiled by Dr. Ricardo Jorge in 1921,[3] which refers mainly to Continental cases. Dr. Roques has made the very most of his subject, the many facets of which he skilfully presents in turn for detailed examination. Dealing first with the influence of pregnancy upon epidemic encephalitis, he concludes that pregnancy does not increase susceptibility to the disease, nor does it apparently alter or aggravate the symptoms of an acute attack; parity has little, if any, effect upon the course of the disease. The case mortality, according to British experience, is not affected adversely, but Continental writers consider that the fatality rate is higher in pregnant women than in others. The influence of labour is variable. As regards the effect of an acute attack of epidemic encephalitis upon pregnancy, there is again some difference of opinion between English and foreign observers. The former consider that, as a rule, the prospects of the pregnant woman are no worse than those of others, while the latter find that gestation is interrupted in a large number of cases. Labour itself is said to be less painful than under normal conditions, while the puerperium is usually uneventful, though occasionally retention of urine has been recorded. As to the child. Dr. Roques finds that the combined foetal and infantile mortality varies directly with the stage of gestation and the maternal issue; the most common causes of foetal mortality are maternal death before delivery in the earlier months and prematurity in the later months; but provided pregnancy goes to full term, and as far as the acute phase of the disease concerns the mother, the child's chances are generally good. Moreover, infants born of such infected mothers and who survive the first few weeks of life usually escape altogether. The author is satisfied that infection through the mother's milk is highly improbable, and, while considering that the term "encephalitis epidemica neonatorum" has become justified, he finds no clear evidence that maternal infection of newly born infants occurs frequently, if at all. This exemplifies once more the apparently slight infectiousness of patients suffering from epidemic encephalitis; for, assuming that the virus of the disease exists in the patient's oral and nasal secretions, it is hard to conceive a relationship more conducive to the transference of infection than that established between a mother and her newborn babe. But possibly, as the author suggests, we have here another feature of resemblance between epidemic encephalitis and syphilis in that the infected mother cannot harm her own child after birth. On the other hand, there is evidence on pathological and clinical grounds, as well as from experiments with rabbits, that placental transmission of the virus is possible, and there is reason to believe that three or four cases of congenital encephalitis lethargica have been correctly reported as such. For his conclusions concerning the interactions of Parkinsonism—that is, chronic epidemic encephalitis—and pregnancy, Dr. Roques relies on the evidence furnished by cases observed in this country. He finds that, while pregnancy does not increase the chances of becoming primarily infected with epidemic encephalitis, those pregnant women who are attacked are more likely to develop Parkinsonism than women not in that state: that existing Parkinsonism is frequently aggravated as a result of pregnancy, the aggravation occurring usually either early in gestation or shortly after the confinement. On the other hand, Parkinsonism has no malign influence on pregnancy, labour, or the puerperium, nor does it cause sterility. *Children born of Parkinsonian* parents are almost always healthy, and apparently remain so.

[1] Manchester: Sherratt and Hughes. 1928. 15s.
[2] Ministry of Health: Reports on Public Health and Medical Subjects, No. 11, Encephalitis Lethargica. 1922, p. 168.
[3] *Paris Médical*, 1921, xxxix, 381, and *Archives do Instituto Central de Hygiene*, 1928, vol. iii, 3e, p. 65.

METHYL CHLORIDE POISONING.

TOXIC effects due to the inhalation of small quantities of gases of various kinds have become sufficiently widespread to constitute an important industrial problem. Although, owing to their more extensive use in industrial processes, compounds in the benzene or aromatic group have been more closely studied, attention has also been directed to the aliphatic hydrocarbons, which have an increasing use as refrigerators and as solvents for grease and rubber. The halogen derivatives of the aliphatic hydrocarbons appear to be more active than the corresponding hydrocarbons themselves, although the toxicity depends, not on the action of the halogen, but on that of the entire molecule. The inhalation of these gases, especially if prolonged, causes degenerative changes in the heart, liver, and kidneys, and may also lead to permanent lesions in the central nervous system. The monohalogen derivatives of methane appear to become decomposed in the body into methyl alcohol, and, as this substance tends to accumulate in the tissues, they may therefore give rise to severe destructive lesions. The physiological effects of trichlormethane (*chloroform*) and tetrachlormethane (*carbon* tetrachloride) have been very extensively studied, the former on account of its anaesthetic action, the latter because it is used on a large scale in rubber works (as a solvent), in the process of dry cleaning, and as a fire extinguisher. On the other hand, comparatively little attention has been paid to the monochloride or methyl chloride, this product having had but a limited use in industry. In recent years, however, with the advance of mechanical refrigeration, toxic gases of various kinds have been experimented with, and methyl chloride is now commonly used in domestic refrigerating plants, especially in America, and has caused a considerable amount of illness and a number of deaths. It is stated that in one city alone methyl chloride is in use in 75,000 domestic refrigerators. The gas is free from any marked odour or irritating effect, and therefore a small leak in the apparatus may pass unnoticed for long enough to permit a definite toxic effect to occur. According to Drs. Kegel, McNally, and Pope,[1] who record a series of interesting observations on the toxic effects of methyl chloride, this gas during the past year has been responsible in Chicago alone for twenty-nine cases of poisoning with ten deaths. The clinical picture is fairly characteristic—the outstanding symptoms being drowsiness,

[1] *Journ. Amer. Med. Assoc.*, August 3rd, p. 353.

mental confusion, coma, nausea, and vomiting—but if a history of exposure to the gas is not forthcoming a diagnosis of food poisoning or epidemic encephalitis is frequently made. The blood picture is that of a primary anaemia, and urinary examination may show the presence of formic acid, diacetic acid, and acetone. The sequels of methyl chloride poisoning are likely to be serious, their cause, as mentioned above, being destruction of nervous tissue by the accumulation within the body of methyl alcohol. In this country domestic refrigeration is still comparatively rare, and in the larger installations such compounds as sulphur dioxide and ammonia are more commonly used, but in any future development the noxious effects of many of the commonly used gases should be kept in mind.

BINOCULAR VISION.

BINOCULAR vision is perhaps the highest physical possession of man. Without it he would never have been the cunning workman that he is. To-day, more than ever, is this capability of value to him in his conquest of the air. Safety in landing is determined more by the visual judgement of the pilot than by any other factor. Lieutenant Commander N. M. S. Langlands of the Royal Navy has made a series of most elaborate and ingenious researches into the qualities and quantitative reactions of binocular vision.[1] The first recorded measurements of binocular acuity were made by von Helmholtz in 1896; he used three vertical needles, the centre one being movable. He could "with perfect certainty" correctly estimate a movement of half a millimetre out of the plane of the wing needles; he concluded that the acuity was 60.5 seconds. The measurement has since been found to be too high. In all experiments the binocular acuity is determined by the minimum resolvable difference in depth, and is measured by the smallest difference of binocular parallax which can just be appreciated. It is necessary that the test objects or their images should be at some considerable distance, so as to exclude the possibility of judgement of difference of depth by variation of accommodation. Commander Langlands's new tests are of a highly technical order, and they show great ingenuity in the adaptation of his instruments. The accuracy of his observations seems certain. He found that *with an increase of the field of vision there was an increase* in the acuity of binocular vision. Binocular acuity did not always go with good form sense; both appeared to improve with practice, but sometimes the form sense seemed to be poorer than the binocular acuity. Duration of illumination of the tests varied the acuity appreciably. The acuity obtained in some of the experiments involved some reconsideration of the theories of visual perception. Hering explained binocular acuity as involving an integral number of cone widths in the retinae. From a consideration of stereoscopic and entopic phenomena, Fortin has thought that the cone is too large to function as the ultimate receptor, and he suggested that the receptors were bell-shaped elements, which he claims to have discovered between the external fibre layer and the internal nuclear layer. Langlands, the author of the latest researches, has outlined a theory of binocular vision based on the photo-electric theory of vision. Light falling on the photo-chemical liquid between the cones causes energy, in the form of an emission of electrons, to flow out from the region of incidence and to stimulate the neighbouring cones. The perceptual pattern of the object is derived from the flow of energy from the cones near the physical retinal image. In some of the tests so fine an acuity as 1.5 seconds was obtained, and this would suggest that corresponding elements are interconnected, so that the energy flowing from the two elements can be compared.

[1] Privy Council Medical Research Council. Reports of the Committee upon the Physiology of Vision. IV. Experiments on Binocular Vision. By N. M. S. Langlands, M.A., D.Sc., Instructor Lieutenant Commander R.N. London: H.M. Stationery Office. 1929. (Pp. 69. 2s. 6d. net.)

NATIONAL ASSOCIATION FOR PREVENTION OF TUBERCULOSIS.

RATHER more than three years ago a special appeal for £100,000 was launched by the National Association for the Prevention of Tuberculosis. At the thirtieth annual general meeting, on July 22nd, it was announced that the total amount collected was £110,941. In the annual report of the association for 1928 there is an account of the way in which this money is being used. Four medical commissioners have been appointed to deliver lectures and engage in general propaganda activities; three motor vans have been equipped with interesting exhibits, including cinematograph apparatus; illustrated lectures are being given in many parts of England and Scotland, and care committees have been established for the supervision of tuberculous patients and their families. Grants are being made towards the establishment of workshops for tuberculous patients and also towards the Burrow Hill Sanatorium Colony. In special individual cases, where there is some need which is not covered by the ordinary tuberculosis machinery, financial assistance is given. Commenting on these various activities, attention is drawn in the report to the valuable services rendered by the medical commissioners, and a detailed account of their work, including a list of the places visited, is contained in an appendix. As an outcome of the educational campaign a scheme for more intensive propaganda was launched in Scotland with the joint support of the National Association, the Scottish Branch of the British Red Cross Society, the Royal Victoria Hospital Tuberculosis Trust, and the Scottish Branch of the Queen's Institute of District Nursing. Two commissioners were appointed for special nursing duties also, and, after a pioneer caravan tour had been made through the Western Highlands in the summer of 1927, it was decided that these commissioners should work in Inverness-shire and Ross-shire, with special reference to the provision of instruction in the prevention of tuberculosis. At the Burrow Hill Sanatorium Colony an experimental scheme is in operation for providing treatment and technical training for lads between the ages of 14 and 19. Reference to the work of this institution appeared in our issue of March 23rd (p. 570). Dr. McPhail, the assistant medical superintendent, has made an extensive tour in England, explaining to public health authorities the principles laid down for the successful running of this most valuable colony. Two useful appendices to this annual report give lists of cinematograph films for public exhibition and also of lantern slides relating to the prevention and treatment of tuberculosis. The fifteenth annual conference of the National Association will be held from October 10th to the 12th next, in the Connaught Hall, Newcastle-upon-Tyne. After the formal opening of the conference a sociological survey of tuberculosis on Tyneside will be reported. The subjects announced for discussion include: the factors that produce adult pulmonary tuberculosis; the combined treatment and technical education of tuberculous youths; the provision of instruction in tuberculosis for undergraduates and medical officers; methods of local propaganda; and dentistry in relation to tuberculosis.

MODERN CIVILIZATION.

MR. W. E. D. ALLEN, M.P., writing about the Russian Soviet Republics, has well said that "the fundamental problem of the modern world is the adjustment of the mind and the emotions of men to the changing physical conditions of the new mechanistic age. Social organization has not proceeded so rapidly as industrial development, and where conditions of life have been static and the human mind has lacked plasticity, there the processes of transformation and adaptation have been characterized by the most violent shocks." Dr. Charles A. Beard, the

editor and introducer of a recently published symposium entitled, *Whither Mankind: A Panorama of Modern Civilization*,[1] speaks of an "inquisitive wondering about civilization" and an "anxiety about the values and future of civilization"; and there is no doubt that such wondering and anxiety is the increasing occupation of many minds. Any book whose declared purpose is pertinent thinking and a clarification of notions on these matters should be the subject of interested and respectful attention if its authors are of a status which entitles them to attention. There can be no doubt that the contributors to the volume which Dr. Beard has produced are of this status, and there can be no doubt either that they have together composed a remarkable book. The authorship and outlook are partly British and partly American, but there are included also essays by such men as Emil Ludwig and Hu Shih. The latter leads with a novel and thought-provoking chapter on "The Civilization of the East and the West," differentiating them by the facts that "Oriental civilization is built primarily on human labour as the source of power, whereas the modern civilization of the West is built on the basis of the power of machinery"; he maintains, nevertheless, that it is the former which is "materialistic" and the latter which is "spiritual," for "that civilization which makes the fullest possible use of human ingenuity and intelligence in search of truth in order to control nature and transform matter for the service of mankind, to liberate the human spirit from ignorance, superstition and slavery to the forces of nature, and to reform social and political institutions for the benefit of the greatest number—such a civilization is highly idealistic and spiritual." Similarly, dealing with the division of civilizations in terms of their time and not their place, Mr. H. W. van Loon claims the year 1769 as "the great milestone of mankind." On January 5th in that year James Watt patented his new machine. "It was on that day that the era of the deus ex machina came to an end and that the epoch of the homo in machinae commenced. It was on that day that man ceased to be a beast of burden and was given his first decent chance to become a human being." Such may be said to be the general outlook of the essays here collected, but this does not mean that all are in eulogy of the modern world. The chapter on "Education," by Everitt Dean Martin, for instance, is a very powerful and whole-hearted indictment of the American educational system. We hope and believe that the greater part of this chapter is wholly inapplicable to education in Great Britain: certainly if it is intended to apply, a formidable defence could be put up, though, as a warning, it is not negligible. The earlier part of Dr. C. E. A. Winslow's chapter on "Health" contains a brief but broad and useful survey of what modern scientific civilization has accomplished in this field; and, in considering some of its potentialities for the future, emphasizes the fact that "the modern public health movement is not based on autocratic dictatorship, but on democratic education of a free and intelligent people by the force of expert leadership," a statement which may be commended to the notice of some of those who just now are beginning, both locally and centrally, to administer health affairs in this country. No doubt particular essays in this volume—on "Business," "Law and Government," "War and Peace," "Religion," "Philosophy," "The Arts," "Literature," and so on—will be found of special interest to individual readers; but certainly among the most interesting, attractive, provocative, and stimulating are those on "Science," by Bertrand Russell, and on "Labour," by Beatrice and Sidney Webb. Neither of these should be missed by anyone who can delight in comprehensive and suggestive thought compactly and almost perfectly expressed.

[1] *Whither Mankind: A Panorama of Modern Civilization.* Edited by Charles A. Beard. London: Longmans, Green and Co. 12s. 6d. net.

OCCUPATIONAL THERAPY FOR CRIPPLES.

An international exhibition of handicrafts will be held at Exeter from October 30th to November 1st, under the auspices of the Devonian Association for Cripples Aid, supported by the Central Committee for the Care of Cripples and the International Society for the Care of Cripples in New York. At this exhibition will be assembled specimens of work by cripples, not only in all parts of this country, but in the United States of America and many European countries. The variety of the work shown, and the high degree of skill, technical and artistic, attained by craftsmen suffering from gross physical disablement are likely to come as a surprise to those without experience of what can be achieved by the carefully directed training of crippled persons. Even while orthopaedic treatment is still in progress the patient may derive great psychological benefit from vocational and occupational therapy; but the chief advantage comes later, when, equipped with a suitable trade, he leaves hospital fit to enter the labour market as an active and useful citizen. The trade, however, must be adapted to his physical condition; his employment in an unsuitable occupation may quickly bring about a relapse and undo the results of many months of treatment in a hospital. The exhibition at Exeter is intended to show how much even the limited amount of occupational therapy now available has accomplished. It is hoped, however, that it will serve to stimulate efforts to organize such therapy on a much larger and more generous scale than any that has hitherto been attempted. Proper organization would ensure that in training the disabled the needs of the labour market are taken fully into account. Dame Georgiana Buller, chairman of the Devonian Association for Cripples Aid, has done well to bring these important problems into focus.

ASSISTANCE FOR THE DEAF.

THE National Institute for the Deaf has rendered excellent service by compiling and issuing its handbook, *The Problem of the Deaf*.[1] The short title does not fully indicate the value of the book. It is not a piece of propaganda on behalf of the deaf so much as a full and well-documented "inquire within" upon everything that can concern the welfare of the deaf. Most specialists in disease of the ear know what to do for the advantage of their incurably deaf patients, and some members of education committees have this knowledge; but there are few general practitioners who do not feel somewhat at a loss how to assist such afflicted persons, and the general public are for the most part entirely in ignorance. In this book there are excellent accounts of measures for the prevention of deafness, on education of the deaf, on the teaching of lip-reading, on aids to hearing for those whose deafness is acquired, upon legal provisions for the assistance of the deaf, on welfare work, hospitals, special schools, and organizations for the assistance of the deaf. The deaf fall into two essentially distinct general classes, according to the history of their affliction: the deaf-born have to rely upon direct instruction by visual methods to develop language, but the deafened retain audible memories and continue to use them. These two diverse modes of language cerebration and their respective effects on language knowledge, mental development, and general outlook indicate wide variations in the conditions and needs of the two classes. Some 40,000 persons in Great Britain are deaf from birth, and are incapable of being benefited by the general provisions that exist for education. The State has recognized this disability, and spends yearly about £300,000 on their education to the age of 16 years; thereafter no provision is made save for some after-care work. Most of the work of assisting these persons falls to

[1] *The Problem of the Deaf.* A handbook of information on deafness, the deaf and dumb, and the deafened through disease or accident. Revised edition. London: The National Institute for the Deaf. 1929. (Pp. 96. 2s. net.)

voluntary societies. The deafened share with the born deaf the isolating silence of their common affliction, though its hardships are often more keenly realized because of the severance which it causes from accustomed habit and interests. They have the memories of their hearing days, and the abiding sense of their loss. Numbers lose their employment and live in enforced idleness. Few realize the hardships of the deaf; it is thought that this is the reason why so little is done to help the deaf, for it is doubtful whether more than £30,000 a year is voluntarily provided for work among them in this country. The book indicates what more could be undertaken for their assistance. The chapter on "Aids to hearing" is most valuable; there is an indication of the utility of general appliances, electrical and mechanical, with a warning against extravagant claims. The National Institute for the Deaf advises that the first step to be taken should be the obtaining of medical advice on the appliance likely to be of service; purchases should only be made from a firm willing to give advice about the merits of the proposed aid, and to refund the purchase money (less a small sum for expenses) should it prove unsuitable. The Institute is prepared to supply a list of firms which will undertake work on these terms. In its fifth annual report, which has been published recently, it is mentioned that a home for deaf women is being established in the North of England, and arrangements have been made, in conjunction with the National Institute for the Blind, for educating infant twins who are born both blind and deaf. Provision for the training of suitable candidates to be teachers of lip-reading is under consideration.

DETECTION OF MUSTARD GAS: INTERNATIONAL COMPETITION.

THE International Committee of the Red Cross, on the recommendation of a committee of experts which met at its instance at Brussels last year, has opened an international competition for the invention or discovery of a reaction capable of detecting minute quantities of mustard gas in air. It is laid down that the reaction must be characteristic for the gas, and sufficiently delicate to reveal a concentration as slight as 0.07 milligram of mustard gas in a litre of air. The competitor is required also to state whether the reaction is influenced by other chemical substances which might be mixed with mustard gas as used in war. The prize is 10,000 Swiss francs (rather more than £400), which may be awarded to one or divided between several competitors according to the value of the proposals submitted. The competition, which has just opened, does not close until December 31st, 1930. Before that date competitors should send in their entries to the secretary of the International Committee of the Red Cross (1, Promenade du Pin, Geneva) in the following manner: the name and address of the competitor should be placed in a sealed envelope, on the outside of which should be some distinguishing motto, together with a declaration that the reagent is the result of his own work. In a second sealed envelope bearing the same motto the detailed proposals should be given. The language used may be English, French, German, or Italian, but when the envelopes are opened at the beginning of 1931 the contents will be translated into French. Both the original texts and the translations will be examined by a jury, who will be aware only of the motto, not of the author's name. After the various proposals have been examined and assessed the envelopes containing the names will be opened, and the result of the competition published. The reagent will bear the name of its discoverer, but it will be the property of the International Red Cross; one of the conditions of the competition is that whatever apparatus is required shall be easy to construct and capable of being produced in large quantities at reasonable cost.

MEETING OF THE RADIUM COMMISSION.

AT the first formal meeting of the Radium Commission, which was held on September 27th, with Lord Lee of Fareham in the chair, it was provisionally agreed that loans of radium should be made only on terms which would recoup the Commission for expenses involved, and thus avoid the necessity of making calls on the National Radium Fund. Supplies of radium as placed at the disposal of the Commission by the Radium Trust will, pending distribution, be consigned for safe keeping to the National Physical Laboratory at Teddington, which will also undertake the testing and measuring of all consignments received from the manufacturers. The process of testing and measuring is necessarily slow, and it is therefore not anticipated that more than three grams at the outside will be available in suitable containers, ready for use, before the end of the year. The Commission hopes that a four-gram radium "bomb," to be used for intensive irradiation, may be secured on loan from the manufacturers for a limited period free of charge, and negotiations to this end are now in progress. An inquiry will be held by the Commission into the needs, equipment, and capabilities of institutions administering radium treatment, but at present no decisions can be arrived at as to the institutions to which radium may be loaned. The Commission agreed, however, on the principle that preference should, in the first instance, be given to centres where radium therapy can be combined with teaching and research. The offices of the Commission have been established at 5, Adelphi Terrace, Strand, W.C.2, and any communications should be addressed to the office secretary, Miss K. Griffiths. Dr. Sidney Russ, professor of physics at the Middlesex Hospital Medical School, has been appointed scientific secretary.

THE PANEL CONFERENCE.

THE provisional agenda has now been issued for the Annual Conference of Representatives of Local Medical and Panel Committees, to be held on Thursday, October 24th, at 10 a.m., in the Great Hall of the British Medical Association House, Tavistock Square, W.C., under the chairmanship of Dr. E. K. Le Fleming. Among the motions to be brought forward by the Insurance Acts Committee is the following recommendation, drafted on precisely the same lines as a resolution adopted by the Representative Body of the British Medical Association at Manchester in July last:

That the conference supports the Council of the British Medical Association in its effort to obtain amendment of Section 3 of the 1925 Dangerous Drugs Act, and recommends that heroin and its salts should come under the same conditions as morphine and its salts; also that the Council should on all possible occasions urge the Government not to enter into International Conventions involving medical questions until the opinion of the medical profession has been ascertained.

We print in the *Supplement* this week the supplementary report of the Insurance Acts Committee for 1928–29; the annual report appeared on August 24th. These two documents will form the basis of the proceedings at the Panel Conference. The final agenda is to be issued on October 17th.

THE Harveian Oration before the Royal College of Physicians of London will be delivered by Sir Wilmot Herringham, on Friday, October 18th, at 4 p.m., at the College, Pall Mall East, S.W.1.

THE seventh Lloyd Roberts Lecture has been arranged by the Royal College of Physicians of London for Thursday, November 14th, at 5 p.m. It will be delivered by the Right Hon. H. A. L. Fisher, LL.D., F.R.S., Warden of New College, Oxford.

Opening of the Winter Session.

MEDICAL SOCIETIES: THEIR ORIGIN AND VALUE.

Address to the Guy's Hospital Medical School

BY

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MEDICAL history seldom appeals to the student who has all that he can do to keep pace with the increasing demands of medical education, and to take his proper share of outside interests and healthy exercise. Indeed, study of the past may appear to be the province, with the advantage that it is also a wholesome corrective, of the senescent in the stage of anecdotage, whose experience forms the basis of their conversation and whose ambitions for to-morrow are of a strictly limited, conservative, and often largely negative character. On the other hand, those whose earthly pilgrimage commands a comparatively long vista of the recent rapid progress of science may plead that there is no better way of getting a sound grasp of present knowledge and of the probable future than by using the historical method and the picture it gives of past events and experience. In any event the beginning of the academic year is a time to look back as well as to the future.

Physic and the Guy's School.

It is impossible to think of the Medical School of Guy's Hospital without whole-hearted admiration for its traditions; for its Fathers in physic—Thomas Addison, Richard Bright, and Thomas Hodgkin; for Bright's initiation in 1842 of team work in the intensive study of renal disease; for other distinguished physicians, such as Samuel Wilks, Walter Moxon, James Goodhart, who were also foremost as pathologists; for the philosophic W. W. Gull; for F. W. Pavy, the active physiologist when an octogenarian; and for many others, including John Hilton, the surgeon, whose *Rest and Pain* mid-Victorian students were advised to read as more engrossing than the yellow-back novels of that period. The teaching of Guy's physicians has been freely given to generations of the profession in the text-books of Addison and Bright (1839); of Hilton Fagge, edited by P. H. Pye-Smith (1886); of Frederick Taylor (1890); continued until this present by E. P. Poulton and his collaborators; and, as an alternative attraction, in the textbook edited by J. J. Conybeare (1929). But great as are its traditions, Guy's does not live on its inheritance, for its *Reports*, so unobtrusively inspired by the senior physician, A. F. Hurst, are not only the oldest in London, but, like vintage wines, progressively improve. In yet another direction the school of Guy's Hospital has played a pioneer part—namely, in promoting the growth of medical societies and thus furthering medical education and progress, general understanding, and unity.

The Drawbacks of Medical Isolation.

In the past great advances in medicine have largely been due to individual effort without collaboration or much encouragement or financial assistance from outside sources; they have not come in a continuous stream, but in an interrupted fashion, depending on the irregular appearance of men with the necessary outstanding ability. It may be hoped that more general collaboration and team work will render the advance of medicine more regular and constant in the future than in the past. The attitude of the solitary worker is part of the individuality and independence of the members of our profession; unfortunately the accompanying lack of combination for mutual advantage, and on occasion for concerted action, has handicapped not only the profession as a whole, but its constituent members, who are thus apt to plough their lonely furrows while glancing askance at others as rivals rather than as familiar friends and helpful colleagues. It is perhaps not surprising that, accustomed to fight disease single-handed, the hermit-like doctor may not be devoid of antagonism to his professional brethren. It is, however, hardly necessary to labour the obvious value in the practice of our art and in the advance of our science of the human touch and the atmosphere of unity, peace, and concord which medical clubs, societies, and associations should foster and perpetuate. A medical club or society need not be, and probably seldom is, one for mutual admiration, but it should be one for mutual improvement and the furtherance of good relations—objects so inimitably set out in Sir William Osler's address "On the Educational Value of a Medical Society" (1903).

The Growth of Medical Clubs and Societies.

The first germ of medical clubs and societies may perhaps be found in the meetings, beginning about 1649 in Oxford, of an "Experimental Philosophicall Clubbe." As regards both its objects and its members, this was much the same as the Invisible or Philosophical College at Gresham College, London, out of which arose in 1662 the Royal Society, the *Philosophical Transactions* of which are, as R. T. Gunther points out, "an enduring memorial to the first scientific society in Oxford." Many, but by no means all, of the early members of these societies were physicians, such as John Wallis, Thomas Willis, William Petty, Francis Glisson, and George Ent, and in the science of that period medical problems took a far more prominent place than in these days of accumulated knowledge and the necessarily greater specialization of research.

It was in the eighteenth century that medical men as such began to unite in clubs and societies, and in Great Britain this example was set by Scotland; let us therefore gratefully acknowledge the influence of the students' great society—the Royal Medical Society—in Edinburgh, founded in 1734 and honoured by the grant of a Royal Charter in 1778. From it men like John Fothergill came south, and with fervid enthusiasm became moving spirits in starting medical societies in London. In the second half of the eighteenth century many medical clubs and societies saw the light in Edinburgh and London, some select, such as "The Society for the Improvement of Medical and Chirurgical Knowledge" (1783), others more catholic, like the "Lyceum Medicum Londinense" (1793), both inspired by John Hunter. Some of them had similar names, such as medical or physical societies, and thus there has been some confusion in tracing them. Among these eighteenth century societies two are of special interest here—the Guy's Physical Society and the Guy's Pupils' Physical Society.

The Physical Society of Guy's Hospital and the Medical Society of London.

The Physical Society of Guy's Hospital, with its name redolent of respectable antiquity dating from 1771, was composed of medical men in and near the hospital; its first president, William Saunders (1743–1817), was one of the original members of the Medical Society of London in 1773 and the first president of its offshoot—the Medical and Chirurgical Society—in 1805. The success of the Physical Society, though followed by flattering imitation, carried with it a penalty, for the competition of younger societies—the Medical Society of London (1773), the Medical and Chirurgical (1805), the Hunterian (1819), and the South London Medical Society (1832)—became so serious that in 1852 it ceased to be. Its declining years, however, were cheered by watching the activities of its offspring—the Pupils' Physical Society, which is confined to students of Guy's Hospital, members of the staff being eligible as honorary members only. As shown in the history of the Physical Society of Guy's Hospital, written by Sir William Hale-White and Dr. Maurice Campbell, the Pupils' Physical Society dates from 1830, and will therefore be able to celebrate its centenary in this academic year. It is a matter for sincere congratulation and justi-

fiable pride that, if the parent's and the offspring's lives be regarded as a continuous whole, the Physical Family, so to speak, of Guy's is the oldest medical society in London.

It is interesting, as showing the character of the men concerned, to glance at the connecting links between the Physical Society of Guy's Hospital and the present Medical Society of London, founded two years later, in 1773, by John Coakley Lettsom. Members of the senior society seem to have held out a helping hand to the junior; for Guy's is well represented in the picture painted in 1791 by Samuel Medley (1769-1857) of the twenty-two "founders" of the Medical Society, some of whom, however, were really men prominent in medical London at the time it was painted rather than responsible for the birth of the society. This well-known picture shows William Saunders; the much-beloved William Babington (1756-1833), one of the founders of the Hunterian Society in 1819, and, like his colleague Saunders, concerned in the formation of the Medical and Chirurgical Society in 1805; John Haighton (1755-1823), anatomist, physiologist, obstetrician, and mathematician; John Relph, physician to Guy's (1789-1804) and president of the Medical Society in 1785; and Robert John Thornton (1768-1837), a Cambridge Bachelor of Medicine (1793), lecturer on botany at Guy's, and a prolific writer on medical subjects.

Medical Clubs.

The evolution of a full-blown medical society can easily be traced. The embryonic stage is found in medical friendships and the gregarious nature of the human man; in due course the initiative of some energetic spirit creates a medical coterie or club, and meetings for the reading and discussion of papers follow. By expansion and systematic organization a medical club may give birth to a society with a more catholic membership: for example, the informal "Moorfields Club," which met in the house-surgeon's room for the discussion of ophthalmological cases and problems as far back as 1866, in 1880 took steps to establish the Ophthalmological Society. Sometimes, on the other hand, the club stage is short-lived, or is practically short-circuited, as, for example, in the formation of the Association of Physicians of Great Britain and Ireland.

Medical clubs differ from medical societies mainly in their less formal and more private character, in the more personal element, especially in the election of members, their limited membership, and usually in not possessing a library, which is such an essential asset to a medical society. A medical club is the organized outcome of a group of men working in unison; these clubs flourished long before the word team-work became popular in connexion with those engaged in original research, but the same fundamental principle that inspires the research workers is shared by clubs or small societies designed for mutual education. Medical clubs differ much in their objectives, the prominence of the scientific and social characters varying widely. Some starting with high educational intent have become more social and post-prandial, so that later the members are chosen rather for their clubbable attractions than because they are pale students. Such a lapse from the ideal of high thinking to high living is, it must be feared, more frequent in clubs made up of prosperous qualified men than in those whose members are *in statu pupillari*.

Medical Societies.

By those who do not attend medical societies, and may perhaps regard this devotion as a youthful indiscretion, the reason confessed for their abstinence is sometimes, not indolence, but a delicate disdain for self-advertisement. Modesty is indeed an admirable virtue, particularly in our rivals; but the English are somewhat prone to an excess of this fine trait, and men too diffident or hypercritical of their own work, or too much impressed by the verse expressing a desire that "mine adversary had written a book," may delay publication of their observations indefinitely so that they remain mute and inglorious, and thus may perhaps delay the progress of knowledge. The wisely modest man remains a student all his life, and recognizes a medical society as a means of easily obtaining post-graduate instruction. With the passing years the habit of attending meetings wanes, and eventually is given up altogether, ostensibly on account of the increasing calls and fatigues of professional life; as a result the individual necessarily loses touch with what is going on. He may excuse himself by saying that he can read it just as well and more quickly; but, even if he remembers to do so, the effect of the written word is not always the same as that of the spoken address. Further—and this is not very rare—laziness when disguised under the cloak of modesty may exert an unwholesome influence; a cynical attitude to societies in a senior tends to counteract the benefits that may be obtained from the give and take of debate; it may discourage others from speaking and sharing in the stimulating contest of wits which by a flash may create new ideas and strike out hypotheses worthy at least of being tested.

That those prominent and keen at societies possess the faculties which make for professional eminence and success is well shown by the records of the Royal Medical Society run by the students at Edinburgh, the presidents of which so often reach the seats of the mighty, both in the Northern Athens and in the capital of what the Scots have modestly called the southern peninsula of their country; Richard Bright, for example, was president of the Royal Medical Society before he left Edinburgh in 1813 for Cambridge, where he spent two terms before returning to Guy's. Another instance of early activity at societies as an omen of future success was seen in London about fifty years ago, when no medical meeting was said to be missed by "the three G.'s"—Sir James Goodhart, Sir William Gowers, and Professor W. S. Greenfield of Edinburgh, who reached the highest places in general medicine, neurology, and pathology respectively.

Advantages of Medical Clubs and Societies.

Medical clubs of an educational character have become much more numerous of late years, and this is no doubt associated with the legitimate rise of specialism. It is difficult to exaggerate the value of such clubs in multiplying enthusiasms and thus stimulating research work, in bringing men together, in originating and maintaining friendly relations, and so obviating the risks of misunderstandings and minimizing jealousies among men who are rivals in climbing the ladder of scientific and professional success. As the personal characteristics of the members must influence the success of such clubs and the elections, it might be urged that there is a risk of thus fostering a spirit of cliquishness; but even if this be admitted the undoubted good that results greatly outweighs any occasional harm, and for the able if prickly individual the larger societies and the journals offer ample opportunity of letting his light shine before his fellows.

A valuable and instructive, though often evaded, function of a medical club is the obligation on each member in turn to contribute a paper or demonstration; for not only is this the most excellent way of obtaining a knowledge of the subject selected, but it provides a training in the art of accurate argument and exact expression. The power of writing well is not easily acquired, much less is it an innate gift, as the autobiographical confessions of Robert Louis Stevenson and T. H. Huxley, both masters of different styles, should convince any sceptic; it demands much patient practice, and of a more exacting character than that necessary to acquire facility in public speaking, and yet this is often unrecognized by those who have not tried to set out their thoughts on paper and had the privilege of hearing the candid opinions of their readers. It is interesting in passing to compare medical writers and speakers; the successful writers have more often been physicians, as the Guy's traditions prove, whereas real oratory, a rare accomplishment, seems specially related to surgical eminence, as is so remarkably shown by the succession of William Lawrence, James Paget, William Savory, and Henry Butlin at St. Bartholomew's Hospital, and by other Presidents of the Royal College of Surgeons of England. The training in writing papers is an invaluable preparation for the production of professional reports, articles, and books, and there is, therefore, this further justification, if it were needed, for the not very popular requirement of theses for degrees in medicine at the universities. Another advantage reaped by the author of a paper is the free criticism and opportunity of reply that may follow its delivery before a club unrestrained by the presence of high authority or by the fear of the pre-

mature and comprising publicity which attends speaking at a large medical society. It is therefore important that the members of students' medical clubs and societies should be responsible for reading the papers and opening the discussions, and that their seniors and teachers, who must be treated with at least outward respect, should only exceptionally be in the chair, read papers, or be listeners. Otherwise the opportunities of education in the art of speaking in public are diminished. In 1801 Sir Astley Cooper wrote to his assistant, J. C. Saunders, "I have wished to see you join in the debates of the Guy's Medical Society. The capability of expressing our ideas in public is a source of more power than anything with which I am acquainted. It is the road to bring a public teacher to character and to fortune."[1] Lastly, let us not overlook our debt to the early medical societies for setting an example by their publications and thus leading to the appearance of medical journals.

FACULTY OF MEDICINE, UNIVERSITY OF BIRMINGHAM.

ADDRESS BY SIR FARQUHAR BUZZARD.

AT the opening of the session of the Faculty of Medicine, University of Birmingham, on October 1st, Sir E. Farquhar Buzzard, Regius Professor of Medicine at the University of Oxford, presented prizes to successful students, and gave an address entitled "Arrogance and ignorance in medicine." The present reputation of the medical profession among the general public, said Sir Farquhar, was not at all satisfactory. It was blamed almost in one breath for its medical conservatism, its surgical radicalism, and its ethical trade unionism, and, generally speaking, it lived in an atmosphere which might be described as unsympathetic and suspicious, if not actually antagonistic. The charges laid against the profession might be divided roughly into two groups—those of arrogance and those of ignorance. The terms of the former indictment included the suggestions that medical practitioners were inclined to treat their patients as fools, to assume an air of infallibility, and to display intolerance of the views of others. These suggestions, he said, contained some measure of truth. The medical practitioner, flung into practice, found himself in a world where he was called upon to discuss medical matters with patients not only lacking in scientific knowledge, but often incapable of clear thinking. None the less, if he were wise he would train himself to answer with truth and nothing but the truth, even if he did not always feel justified in imparting the whole truth. Although medicine was year by year becoming more scientific, no medical man could afford to neglect the arts of questioning and listening, and the doctor might readily earn a reputation for arrogance if he could not conduct his cross-examination with tact and indulgence. Passing to the charge of ignorance, he said that the public measured medical knowledge by the ability of doctors to cure; thus the profession was criticized because it could cure neither cancer nor the common cold. The claims for prevention of disease, however, were becoming daily more firmly established, and the future of medicine surely lay in that direction. The common cold was probably preventable, but no Minister of Health was ever likely to stand out against the outcry that would arise if he attempted to impose the appropriate preventive measures. The claim to cure disease might well be left to the quacks and charlatans; it should be the object of the profession to make its methods of practice and claims so different from those of quacks that the public should have no difficulty in making the proper distinction. In so far as the profession failed to do these things it must plead guilty to a charge of ignorance. Doctors had applied each new cure-all in turn to the treatment of every known ailment, their only defence being based on the statement that patients insisted on having the newest things in the way of cures; this was a poor defence and unworthy of the profession whose scientific status they were anxious to raise. If he were permitted to coin a motto appropriate alike to consulting room and surgery, it would be: "Give, and do, more than is required of you."

[1] E. Treacher Collins: *History and Traditions of the Moorfields Eye Hospital*, 1929, p. 5.

LONDON SCHOOL OF MEDICINE FOR WOMEN.

ADDRESS BY DR. JANE WALKER.

THE new session of the London (Royal Free Hospital) School of Medicine for Women was opened on October 1st, when the prizes were presented and an address delivered by Dr. Jane Walker. The dean, Lady BARRETT, welcomed sixty-five new students to the school this year—the highest entry, she said, that the school had ever known, except in the war years. It was not possible to keep pace with the demands for medical women which were made upon the school and the hospital. There were far more demands for medical women to occupy posts than there were women to occupy them. Within the past few weeks three hospitals so ardently desired a student from the school that they had begged the school itself to nominate a woman for the posts they had to offer. In recounting some of the successes of the staff and students she mentioned that Miss Mildred Warde, F.R.C.S., assistant surgeon for diseases of the ear, nose, and throat at the Royal Free Hospital, wishing also to have the M.S. of the University of London, had come out at the top of the list, with the gold medal of the University.

Dr. JANE WALKER took as the title of her address "The return of women to medicine." Many people had the idea, she said, that the entrance of women into medicine was of comparatively recent date—that is to say, belonging to the last sixty or seventy years. But, in fact, the practice of medicine by women was as old as the hills. From the beginning of time women had been quietly and efficiently tending the sick and binding up wounds. Many women doctors were in practice in ancient Greece and Rome. She thought there was some evidence that the book of Ecclesiastes was written by a woman doctor, perhaps a little disillusioned by general practice. Again, in the Middle Ages, when learning was not widely diffused, medicine was not regarded as a gentleman's accomplishment, and to a certain degree it was left to women. Ladies of mediaeval households were both nurses and doctors. In the famous school of Salerno women as well as men taught and practised medicine and surgery; at least she held the view that Trotula was a woman, and rejected the view of some German higher critics that this was the name of a book or of a body of teaching. In Spain and North Africa many a marble slab had been found commemorating a woman doctor. In Egypt women doctors must have practised for thousands of years. In our own country Sir Thomas More, in the Tudor period, earnestly wished that his daughter might spend the rest of her time studying physick and reading the Scripture. In the time of John Evelyn some women doctors, apparently, had a fashionable reputation. Probably the only act of justice that Napoleon Bonaparte ever did to any woman was to appoint a woman a professor of obstetrics. As medicine became a science and less of a mystic and empirical art, men of science declared that women were incapable of learning it, but gave them no chance of proving whether they were incapable or no.

The passing of the Medical Act, 1858, in Great Britain, although a great advance in many ways, made it impossible for women to practise medicine unless and until a university or corporate body with power to examine them would do so and grant them degrees. Looking backwards, it was almost impossible to believe that many things which were now a mere matter of course should in the past have been refused to women merely because they were women. Dr. Walker then recounted the struggle led by the three pioneers—Elizabeth Blackwell, Elizabeth Garrett Anderson, and Sophia Jex-Blake. Of these three pioneers, Sophia Jex-Blake was the most forceful and compelling personality. "You either disliked her intensely, or you were prepared to go with her to prison and to judgement." After a brief epitome of the labours of these three women, Dr. Walker mentioned some of the men who had helped in the early struggles. Some men doctors had always been in favour of women's emancipation in this respect. In the very early days nearly two hundred signed a petition in favour of women entering medicine. Among the signatories was Sir James Paget, although he did not quite approve of women in the profession. Among stalwart friends of the

women's movement were many former members of the staff of the Royal Free Hospital.

Dr. Jane Walker concluded her address with a few words of counsel to the young women students before her. She impressed upon them not only the necessity of acquiring technical knowledge and skill, but of the exercise of infinite patience, forbearance, tact, and courage, the possession of business ability, energy, and good health, and the observance of absolute loyalty to their colleagues.

ST. GEORGE'S HOSPITAL.

ADDRESS BY Dr. E. I. SPRIGGS.

At the opening of the session at St. George's Hospital, on October 1st, Dr. Edmund I. Spriggs presented the prizes and delivered an address entitled "Doctor and patient."

Dr. Spriggs described the relation between doctor and patient, beginning with the history and going on to the *etiology, method of examination, pathology, complications,* prognosis, and treatment. He remarked that his observations were founded upon thirty-three years of mistakes. The written history, perhaps, began with the account of the rescue of a surgeon by his patient, when Machaon, son of Aesculapius, was withdrawn, being wounded, from the fight, by Nestor—"for a leech is worth many other men, to cut out arrows and spread soothing medicaments." The students now entering the wards were the recruits of a great army of men who had served the physician's art; they were more fortunate than their forerunners in many respects, especially that of intellectual freedom; moreover, the means of controlling and arresting disease were fuller than ever before. Doctors used to wear some sort of impressive costume, and de la Fouchardière suggested that only a very complacent person would let himself be cured by a doctor in a tweed *suit who did not even* any longer speak Latin. This little matter was, however, adjusting itself in the whirligig of time, for a modern costume had appeared—the white coat of work; the wish was doubtless present, as it was put on, that wisdom and skill could also be woven at so much a yard.

In the course of the address the speaker said: "If the patient comes to you because you are known to be competent, well and good. But if you are chosen because your patient's dinner or dancing partner told her that you were *absolutely the* only man, or whatever it is—beware. It is a danger to have emotional persons going about saying Dr. So-and-so is wonderful; as soon as many people say the same it becomes *le dernier cri, and this lives only* a little longer than a mayfly. Nearly every patient will be a single-minded person, seeking relief and ready to give you all possible help in your work. But you will learn to recognize a few folk who are less anxious to keep to the truth than to produce a certain impression; you will also become familiar with the sublime unconscious selfishness of the neurotic, and with the 'imitation great,' who show their importance by giving trouble. On the part of the doctor the relation to the patient would be a wrong one if there were any trace of insincerity. The difference between you and the charlatan is that you are there to do the patient good by any method, and the charlatan is out to sell his wares, whatever they may be. You will judge yourself severely and others not at all. Humbugs of one kind or another are with us; it has never been otherwise. They come as regularly as waves on the beach; every ninth one is perhaps a bit bigger, but, like waves, they go."

The students were advised by Dr. Spriggs to avoid using long words when shorter ones would do; they were recommended always to listen carefully *to the patient*, even to the neurasthenic, and to be particularly cautious with a person who related all the mistakes which other doctors had made, remembering that he might, in due course, add his *present doctor to the collection*. They were advised strongly to get into touch with other doctors who had seen the patient. The family doctor was the unit of medical work, and additional opinions were most useful if they were connected with the information which he could supply. Instances were given of patients who had gone from doctor to doctor without any one control, with disaster to themselves. It was *important to learn* to examine the patient upon a definite plan, and to avoid the pitfall of making a diagnosis upon one finding, which may not be the cause of the illness.

Dr. Spriggs continued: "It is essential not to allow anxiety to bias judgement. If there is one place more than another where a fidgety mind is not wanted it is in the sick-room, and the doctor who worries too much takes away from his own usefulness; though I suspect that he who does not worry at all is no doctor. Doubt and anxiety *will be lessened* if you are able so to arrange your work that you deal with a problem at the time. Keep good reference books, and read up the case at once. To-morrow fresh puzzles will come and drive the finer points of this *one out of your mind*. On the part of the patient the worst complication is mistrust. This is only natural in the first instance, and must not be resented. By the time that you have done all in your power to help your patient it will nearly always have vanished. Faith is, of course, a help. De la Fouchardière, our cynic, says that is why the clergy go to Vichy and the doctors to Lourdes. . . . How full a doctor's life may be of satisfactions and friendships you will learn for yourselves. You will not be able to get all your patients well; it would be unreasonable to expect a man who is not getting better to be as pleased and grateful as one who recovers. But he very often is, knowing that you have done all you can think of for his relief. If an exact relation between success and gratitude is expected there will be disappointment. Well! you do not work from any peddling motive, and if you have learned to laugh at yourself you will have a good deal of fun. On balance, the rewards are more than the deserts. . . . It is generally better to tell an intelligent person the truth about his illness, in as simple language as possible, avoiding technical terms and all details which may be misinterpreted. The case of cancer is *sui generis*, and to destroy hope in the mind of any patient is inexcusable; it is also unwise, because you do not always know. We are not there to pass sentence. Remember *'Guérir quelquefois, soulager souvent, consoler toujours.'*

"In all these matters," Dr. Spriggs concluded, "you will have the advantage of learning your profession in a country in which the standard and the conduct of practice is higher than in any other; in a city the streets of which were trodden by Harvey and Sydenham, Hunter, Jenner, Young, and Lister; and at a hospital which has had more than its share of these pioneers of medicine. The physicians and surgeons at St. George's have played a part in other spheres besides medicine—in science, literature, art, and sport. That is one reason why they have trained so many good doctors, and you will, if you are wise, carry on our hospital tradition. Don't have *all your friends doctors. Be a man among men* away from the sick-room. I had the idea as a student that all the main discoveries in medicine had been made, and that new ones would come only from the exceptionally able, and after laborious and abstruse research. Gentlemen, it was not so, and it is not so now. 'The sphere of our knowledge expands without ceasing, but as it increases so do the number of its relations with the unknown.'"

WESTMINSTER HOSPITAL.

ADDRESS BY Dr. F. N. KAY MENZIES.

At Westminster Hospital the inaugural address was given, on October 1st, by Mr. F. N. Kay Menzies, medical officer of health and school medical officer to the London County Council. His theme was the application to London of the Local Government Act, 1929.

Dr. Menzies explained that this Act transferred to the London County Council as from April next the whole of the services of the Poor Law guardians and the powers and duties of the Metropolitan Asylums Board. This meant, in effect, the transference to one public authority of over one hundred hospitals and other institutions for the treatment of the sick. With the beds it already provided for mental cases and for various other purposes the council would presently have under its direction and *control no* fewer than 75,000 beds for dealing with every variety of disease, or five times as many beds as the total

for the voluntary hospitals of London. Dr. Menzies briefly reviewed the history of the past century in order to show what had led up to this revolution—the rapid industrialization and growth of town life, which had created many new health problems, the emergence, by the end of the nineteenth century, of a "sanitary conscience," and, later, during the last twenty-five years, the entrance of public authorities into the domain of treatment as contrasted with prevention. The evolution of public health administration had followed a logical sequence: first, communal health or environmental hygiene, as exemplified by housing or water supply, and then personal or individual health, as exemplified by services dealing with tuberculosis and venereal disease.

Dr. Menzies next turned to the Poor Law, and pointed out that if a sick person could not obtain medical attention elsewhere the Poor Law guardians were required to provide it—they had no choice in the matter. That was the great distinction between the Poor Law hospitals and the voluntary hospitals; the latter carried no legal obligation, and made their own selection of cases. It was important to remember that the great bulk of hospital treatment in this country was provided by the Poor Law guardians out of the rates or by public authorities out of the rates and taxes. These services were represented in England and Wales by 350,000 beds, as compared with 50,000 in voluntary hospitals. Therefore the London County Council was not creating an entirely new public service; it was simply taking over and centralizing under one authority what was actually a going concern. The agitation in favour of transferring the duties of guardians with regard to the treatment of the sick to the public health authorities, and thus preventing any stigma upon the recipient, had been going on for twenty-five years, and Parliament had continually preferred the public health authority, as distinct from the Poor Law authority, for providing the new health services.

It was difficult to say how this new public hospital organization would affect the voluntary hospitals. But the wisest course was for both the public authorities and the voluntary hospitals to realize that this was an unmistakable case for co-operation or voluntary partnership in the interests of the sick. The worst thing that could happen would be antagonism, which could have only one result—namely, that the public purse would prevail. The policy of the London County Council had always been one of cordial co-operation with the voluntary hospitals, whose assistance it had sought. In London, at all events, there should be no ground for apprehension. The council and its medical staff would shortly be called upon to undertake the greatest responsibility that any public authority had ever been asked to shoulder, and the speaker begged for the cordial sympathy and wholehearted support of all genuinely interested in the care of the sick.

Annual Dinner.

The past and present students of Westminster Hospital met at dinner at Grosvenor House, Park Lane, on October 1st, to the number of 120, under the chairmanship of Mr. Stanley Dodd. The toast of "The School" was proposed by its chairman, Mr. A. E. W. Marshall, and the dean, Dr. A. S. Woodwark, in responding, reminded the gathering that this was the commencement of the ninety-sixth year of the medical school and the two hundred and tenth of the hospital. Last year, he said, a record was reached in the number of students entering, and this year the number had been maintained. The school had an excellent athletic as well as an educational record. The great event of the year had been the opening of the sports pavilion, the gift of the visiting medical staff to the students, at a cost of £1,100. It had been for long a reproach to Westminster that it did not possess a school ground worthy of the name; that reproach had now been wiped out by the provision of a school ground second to none, within half an hour's journey of the school. Dr. Woodwark also referred to the post-graduate classes; these had been attended by thirty-seven general practitioners, and over thirty surgeons from all parts of the country came up for a radium course given by the staff of the hospital during July of this year; this was the first radium course ever given by a hospital. The dean spoke of the steady progress of the school during the last ten years, and of his hopes for the next decade.

Mr. Stanley Dodd proposed the health of the "Past and Present Students," and entered upon some reminiscences of former athletic achievement. One of his pieces of advice to students, which was heartily applauded, was not to work too hard—to perform their tasks conscientiously, but to have adequate intervals for play. The toast was responded to by an old student, Dr. F. F. Bond, and by a present student, Mr. A. S. V. Daniel, secretary of the students' club, who expressed the thanks of the students for the provision of athletic facilities. Sir James Purves-Stewart, in a happy speech, toasted "The Guests," among whom he mentioned Dr. F. N. Kay Menzies, the orator of the afternoon, Dr. Florence Barrie Lambert, chairman of the Health Committee of the London County Council, and Mr. Kenneth Wolfe-Barry, chairman of the House Committee, who bore a name linked with Westminster for the last half-century. Dr. Kay Menzies responded with some entertaining reminiscences of his student days in Edinburgh, and a very enjoyable evening concluded with the toast of "The Chairman," proposed by Mr. Rock Carling.

ST. BARTHOLOMEW'S HOSPITAL.

OLD STUDENTS' DINNER.

The new winter session at St. Bartholomew's Hospital opened with the customary old students' dinner; this was held on October 1st in the Great Hall of the hospital, with Sir Frederick Andrewes in the chair. He was supported by Lord Stanmore, treasurer of the hospital, and other members of the lay staff; Sir John Rose Bradford, P.R.C.P.; Sir Holburt Waring; Sir Humphry Rolleston; Air Vice-Marshal Munro; the Masters of the Salters', Haberdashers', Drapers', Ironmongers', Vintners', and Apothecaries' Companies; Sir William Lawrence; the architect of the new extensions of the hospital; and senior members of the honorary medical staff.

After the Royal toast had been honoured, the chairman explained that, as usual, formality would be absent; he proposed, however, to recount something of the history of the hospital during the preceding twelve months. The hand of death had removed Sir William Church, for so long the chairman at such dinners, Sir Dyce Duckworth, Mr. A. E. Cumberbatch, Sir Anthony Bowlby, and Sir Charles Harding. Those present were invited to admire the ceiling, completely cleaned for the first time in 150 years, and brilliant in the light of the new system of illumination. Many of the pictures were no longer to be seen on the walls; in ordinary circumstances they would be found on easels in the middle of the hall, where they could be examined to better advantage than formerly. The floor of newly polished oak was also to be admired. Outstanding among the changes at the hospital must be accounted the new surgical block, which was approaching completion. The internal arrangements were exceptionally good, and every effort was being made to promote surgical efficiency. Each surgeon would be provided with a self-contained floor comprising two wards, an operating theatre, and a private room. For administering anaesthetics gas and oxygen were being "laid on" to each theatre from the basement, and Sir Frederick, in imagination, foretold the time when this innovation might be extended still further, and the anaesthetist be able to play upon a keyboard, supplying anaesthetic fugues to meet all requirements in all theatres at once. The work already in progress had cost more than £200,000, of which rather less than half had already been provided. The extensions undertaken so far had included a new block for out-patients, a pathological block, and a new nurses' home to accommodate 260 out of the 400 sisters, nurses, and probationers. Further additions contemplated included the extension of the medical school by the provision of new buildings on a site which had been already acquired, the erection of a residential college, and the establishment of an institute for research. Sir Frederick Andrewes remarked that it was an open secret that an appeal for funds would soon be launched, and he expressed the hope that Bart's men would give their hearty support by commending it wherever financial assistance might be derived for this most deserving cause. He commented on the

coincidence that there hung on the wall of the Great Hall a board commemorating the names of those who had subscribed to the rebuilding of the hospital in 1729; he ventured the belief that the bicentenary of this event fell appropriately at the time of the present reconstruction, and would serve as a stimulus to many to serve the poor of their generation as generously as their predecessors. Lord STANMORE proposed the health of Sir Frederick Andrewes, which was drunk with musical honours. The large assembly of old students then adjourned to the library for social converse on an even less formal basis.

MIDDLESEX HOSPITAL.

ADDRESS BY DR. E. A. COCKAYNE.

AT the opening of the ninety-fifth winter session of the Middlesex Hospital Medical School on October 1st, the prizes gained during the past year were presented by Mr. SAMUEL COURTAULD, and Dr. E. A. COCKAYNE delivered the inaugural address, entitling his subject "Life's endless chain."

Dr. Cockayne said that heredity was a branch of medicine that was almost completely ignored in textbooks and by teachers in medical schools, yet clinical observation was daily adding to the great store of knowledge already amassed on this important subject. Even now, he said, we could foretell of many human characters whether they were transmissible or not, and in what proportion of the offspring they might be expected to appear. None the less, the science of eugenics was in its infancy, and the application of Mendelian principles to the human race would for many years remain limited; moreover, he did not see how they could be applied to man as effectively as to the lower animals, the methods employed in stock-breeding not being available for human beings. The stamping out of undesirable characters would be easy if they were dominants, but it would be a long and perhaps impossible process if they were recessives. Even if the inherited afflictions of the human race were eliminated, they might still arise again as fresh mutations. But for the patient work of the microscopists, the long and difficult experiments in breeding carried out by botanists and zoologists, and the labour of the chemists, little would be known to-day about heredity in man. The nature of many inherited defects was still obscure and awaited investigation. That branch of medicine alone, said Dr. Cockayne, was sufficient justification for giving students a thorough grounding in the basic sciences of chemistry, physics, botany, and zoology.

Dr. T. IZOD BENNETT, dean of the Medical School, stated that, in the Bland-Sutton Institute of Pathology, Professor James McIntosh with his assistants was pursuing researches into the nature of the filterable viruses; cancer research was carried out in various forms in nearly every laboratory of the institute, and through the help of the British Empire Cancer Campaign a systematic inquiry was being conducted into the nature of certain groups of malignant tumours. Valuable work was being done in the Courtauld Institute of Biochemistry, including an investigation of glandular extracts of medical utility, which was being conducted in collaboration with certain important firms interested in pharmacological products of this class.

ANNUAL DINNER.

The annual dinner of past and present students of the Middlesex Hospital Medical School was held the same evening at the Savoy Hotel, with Mr. A. E. WEBB-JOHNSON in the chair. In proposing the toast of "The Middlesex Hospital and Medical School," Mr. Webb-Johnson gave a summary of the progress that had been made in rebuilding the hospital. Gigantic as the task was, he said, it was now within measurable distance of accomplishment, and within a few weeks they would taste the first fruits of their labours. The board had decided that two wards in the new surgical wing should bear the names of old surgeons of the hospital—namely, of Sir Charles Bell and Sir John Bland-Sutton. The new wing was no Tower of Babel; it had been built to last, and its builders had used a common language which assured them of the Divine blessing. About £300,000 given quickly would secure the completion of their task; those with a taste for really sound safe investment could do no better than put their money into the Middlesex Hospital; it would be returned to them one hundredfold, not in cash, but in the relief of suffering and the prevention and cure of disease. The gift of £300,000 for the erection of a new nurses' home was perhaps the greatest ever given to any hospital in this country by an individual donor during his lifetime, and so touched was the Queen by this gift that she had made her first public appearance after the King's illness in order to lay the foundation stone. Turning to the work of the scientific departments of the hospital and medical school, Mr. Webb-Johnson said they were proud to remember that during the King's illness scientific investigations had been carried out by Middlesex men at the Middlesex laboratories. The epic fight for the King's life recalled to his mind a tribute that had once been paid to the voluntary hospitals by Sir Frederick Treves, who, speaking to King Edward after his severe illness, said, "Sir, you have had as much care and skill in your illness as the humblest of your subjects." Prince ARTHUR OF CONNAUGHT, chairman of the hospital, in responding, said that the hospital had passed through an extremely difficult time, but now the dawn was breaking and there was every reason for feeling optimistic about the future. Dr. IZOD BENNETT, in referring to his recent appointment as dean of the Medical School, said that he was supported by the knowledge that four ex-deans were present that evening. He himself could claim no credit for the progress that had been outlined by previous speakers, but he had studied the methods by which his predecessors had achieved so much. The qualities of a dean, he said, were tact modified by firmness, and skill in making a timely compromise when necessary. The Medical School was fortunate in having acquired as its treasurer a urological surgeon, for it was common knowledge that men of this class concealed beneath a steely exterior a spirit of exuberant romanticism. Mr. ERIC PEARCE GOULD, in giving the toast of "The Guests," welcomed the presence of Mr. Lints Smith, manager of the *Times*, and paid tribute to the late Mr. Bernhard Baron, two members of whose family were present as guests. They were also under a debt of gratitude to Mr. J. B. Joel for large donations to the hospital and the endowment of a professorial chair to the school. Another guest, Lord Lee of Fareham, he said, was giving devoted service to the Radium Commission, and was to be congratulated on his good fortune in having two teachers of the Middlesex Hospital Medical School to guide him in his work. Lord LEE OF FAREHAM, in responding, said that a good case could be made out for appointing a layman as chairman over a committee of experts; the experts would never agree among themselves, but would always find themselves in accord with a layman, who could not possibly be a professional rival. Major-General HAROLD B. FAWCUS, D.G., Army Medical Services, also responded on behalf of the guests, and Sir ARNOLD LAWSON proposed the toast of "The Chairman." At the conclusion of the dinner students, past students, and their guests adjourned to a reception room for conversation and the renewal of old associations.

ROYAL MEDICAL BENEVOLENT FUND.

AT the two recent meetings of the committee £855 was voted in grants to sixty-four applicants, and £537 was voted in annuities to twenty beneficiaries over 60 years of age. The following were some of the cases helped.

L.R.C.P., M.R.C.S., aged 79, who, owing to deafness and age, is unable to follow his profession. His wife's savings have been exhausted by the claims made upon him by his family, and his only income is £52 a year, contributed by two nephews. Voted annuity of £70.

L.R.C.P. and S., aged 79, whose savings have all been exhausted. She is the inmate of a home, where she has to pay rent of £19 10s. Her only income is the old age pension of £26. Voted annuity of £36.

Widow of M.B., aged 68, whose only income is £52 a year from a daughter who earns 30s. a week. Voted annuity of £26.

Widow of L.R.C.P., M.R.C.S., aged 74, unable to work and has only the old age pension. Voted annuity of £26.

Daughter of M.R.C.S., aged 69. Has an income from investments of £34 a year. Voted an annuity of £26.

Subscriptions and donations are urgently needed, and should be sent to the Honorary Treasurer, Sir Charters Symonds, at 11, Chandos Street, Cavendish Square, W.1.

The Royal Medical Benevolent Fund Guild still receives many applications for clothing, especially for coats and skirts for ladies and girls holding secretarial posts, and suits for working boys. The Guild appeals for second-hand clothes and household articles. The gifts should be sent to the Secretary of the Guild, 58, Great Marlborough Street, W.1.

Scotland.

Scottish Health Services.

A circular issued by the Department of Health for Scotland to local authorities instructing them in their duties and responsibilities under the Local Government Act of this year indicates in broad outline the revolution in the Scottish local government system of health services brought about by that Act. The area of administration of the major public health services will be the county or large burgh, and a new public health local authority is created in the counties for those health services. The authority responsible for health services becomes identical with the authority responsible for medical services under the Poor Law, and also with the authority responsible for school health administration. Power is given to provide assistance which might be given by way of poor relief or by virtue of another enactment exclusively under such other enactment. Assistance includes the maintenance and treatment of sick persons, and provision ordinarily made under schemes of maternity service and child welfare or school health administration. Power is also given to local authorities to reorganize the hospital facilities at their disposal, and to provide hospital accommodation for the sick of all classes. The percentage grants for public health services are abolished and a block grant is substituted. It is a condition of the payment of the block grant that adequate public health services are provided. An authority is not required to appoint a public health committee, but has power to do so, and it may also appoint a public assistance committee, or alternatively may appoint a single committee for public health and public assistance with subcommittees for these purposes. The relationship between these two services becomes much closer under the Act, and in the circular emphasis is laid on the fact that it becomes possible, as it is indeed desirable, for a large number of sick persons who apply for assistance to receive that assistance under the public health service. The relation between the public health committee and the education committee will be gradually developed in the light of experience, and meantime authorities are counselled that the school medical service should be definitely linked up with the other health services, and in particular with the maternity service and child welfare schemes. Under one authority these services may now be all co-ordinated, and if there is to be any division of responsibility in respect of the children it should be at the age of 1, till when the care of the mother and of the child are naturally grouped together. From that age till the end of the school period the welfare of the child should be regarded as a single service.

Organization of Staffs.

In the matter of the organization of staffs the department takes the view that the whole medical, veterinary, and sanitary staff should be under the general direction and control of a chief medical officer. It also takes the view that ordinarily it will be best, at least in the less populous areas, that the assistant medical officers should so far as possible carry out all public health duties within a particular district rather than confine themselves to the carrying out of a particular branch of public health work throughout the whole area. At the same time each medical officer should as far as possible be equipped with special knowledge of one branch of the health service. This form of organization where feasible will not only avoid unnecessary travelling, but will, in the view of the department, be in the best interests of the officer concerned. Where a considerable number of medical officers are employed the chief medical officer should have under him a grade of chief assistants acting as heads of the various departments. Vacancies in the medical officership of small burghs occurring after May 15th, 1930, must be filled by the appointment of the county medical officer, so that in course of time the only medical officers of health in the country will be those of the county councils and the large burghs. Local authorities are advised to consider how far it is possible for them to utilize the services both of the consultants and of the general medical practitioners of the area in the clinical duties under the several health schemes.

Development of Hospital Services.

The provision of assistance which might be given, either by way of poor relief or by virtue of other enactments—now commonly spoken of as "the break-up of the Poor Law"—is left for detailed consideration in a later circular. Its importance is emphasized, however, in relation to the provision of hospital facilities, and the department has no doubt that local authorities will desire so soon as practicable to make hospital treatment a matter of public health and not of poor relief. Dealing with hospital provision, the circular recalls and endorses the findings of the Mackenzie Committee in 1925 as to the shortage of hospital beds in Scotland, and expresses the view that the shortage is no less now than it was when the committee reported. The ultimate object of any hospital policy must be to bring a complete and efficient hospital service within the reach of all. The Mackenzie Committee considered that this end could best be obtained by the full development of both voluntary and public authority services working in co-operation. With this view the department is in full agreement, and it regards it as of the first importance that the development of hospital services in every area should be a matter of agreement between the public authorities and the voluntary hospitals. Hitherto the duties of local authorities in the provision of hospital beds under various schemes have in many cases been discharged through the agency of voluntary hospitals, and in the less populous areas this method may continue to be the most effective way of meeting the need for additional accommodation. In other areas it may be found expedient that the local authority itself should provide the accommodation, but "whatever course is followed the essential point is that there should be an agreed policy between the local authorities and the managers of the voluntary hospitals." The machinery for securing contact between the public authorities and the managers of voluntary hospitals has been provided by the setting up of regional committees. Before approving schemes for the utilization of existing institutions or for the extension of facilities, the department is required to consider the whole accommodation, voluntary and other, for the area, and to satisfy itself that the local authority has taken reasonable steps to seek and continue to secure full co-operation with the hospitals and university or medical school within or serving the area. The most effective use of all the institutions that will now pass into the hands of the new authority is fully discussed; it is concluded that most of these can be usefully devoted to other purposes than hospitals, and the ideal of providing hospital units large enough to combine elasticity of accommodation with economy and efficiency of administration is enunciated as the ultimate aim to be kept in view. It is suggested that pressure on in-patient accommodation may be considerably relieved by the provision of out-patient and diagnostic clinics in connexion with hospitals, and that the service of those clinics might be made available to the medical practitioners of the area.

Effects of the Block Grant.

On the debatable question of the recovery of costs of treatment, the department points out that it is lawful, but not compulsory, for the local authority to recover costs, and expresses the view that recovery should not be enforced to an extent that will discourage persons in need of treatment from obtaining it. Authorities are reminded of the condition of the block grant—namely, the achieving or maintaining a reasonable standard of efficiency and progress in the discharge of their functions relating to public health services—and indication is given that a higher standard will be required than has sometimes been attained in the past. "The amount of relief given by the new grant system is in a number of areas so material as to create a new set of circumstances, and the authority should review the adequacy of its services in the light of its new financial resources."

The whole tenor of the circular clearly shows that a new era of development of health services is opening in Scotland. In that development the medical profession is vitally interested, and it will be the duty of the Divisions of the British Medical Association and of the regional professional committees to keep a watchful eye upon the

progress of events and to proffer, at the appropriate time and place, helpful criticism and counsel.

Other circulars to be issued by the department will deal with (*a*) infectious diseases (including tuberculosis and venereal diseases); (*b*) milk supply, unsound food, and food and drugs; (*c*) maternity service and child welfare; (*d*) school health administration. It is announced that copies of these circulars may be obtained, price 1d. (post free 1½d.), from H.M. Stationery Office, 120, George Street, Edinburgh.

Promotion of Public Health in Scotland.

The fifty-fifth annual conference of the Royal Sanitary Association of Scotland, held at Kirkcaldy on September 10th, 11th, and 12th, was attended by some 500 delegates. The president, Mr. W. J. Harvey, Edinburgh city treasurer, in his address on economics and public health, said that at its lowest estimate public health activity by local authorities or by the State could be justified only in so far as it made a material contribution to the production of wealth; it could contribute to that end only by emphasizing prevention as against cure. Accordingly, he pleaded for the educative influence of the public health administrator being brought to bear upon the mass of the population, with a view to each citizen realizing his responsibilities to the State in respect of the maintenance of his own health. The public health service of the country would never be satisfactory until the individual was made to feel that he was part of the machine. As a result of enlightened propaganda, Treasurer Harvey looked forward to a diminution in the demand for treatment facilities. In a popular evening lecture Dr. J. Parlane Kinloch, chief medical officer, Department of Health for Scotland, defined the meaning of an adequate health service. He traced the growth of the modern health movement, and stressed the desirability of taking a wide view of the problem. Dr. Kinloch then explained the reasons for the introduction of the new Local Government (Scotland) Act, and outlined its scope, with special reference to the health services. Dr. John Guy, deputy medical officer of health, Edinburgh, read a paper entitled "The dietary of the people." He said it might be taken as an axiom that a well-fed animal was a disease-resisting animal, and a well-fed man, although housed in an inferior dwelling, would resist disease better than a poorly fed one in a better house. Nutrition was the basis of well-being. After a reference to the constituents of food, the relative amounts required and especially the quality, Dr. Guy dealt exhaustively with the financial aspect. Working on a purely theoretical basis, and giving adequate amounts of all the constituents of a diet, he found that a fully balanced and varied ration could be provided for 6s. a week, but this required some knowledge of food values. Recently he had made a detailed study of the dietaries of thirty Edinburgh families, and had concluded that, if these families were to be regarded as typical of the bulk of the population, vast numbers of persons in this country were living on diets which were only slightly over the bare subsistence allowance. He felt that there was great need for the education of the people in the buying and the preparation of food. Councillor W. Brownhill Smith (Glasgow), in a paper on the smoke nuisance, said that to-day smoke from all sources whatever could be prevented. The hope of the future lay in the extended use of electricity, and he hoped that the electrification of the railways in Scotland was a reform which would not be too long delayed. The president-elect of the association is Dr. T. F. Dewar, Department of Health for Scotland.

Glasgow Dental Hospital.

The initial step was taken in the erection of a new and up-to-date dental hospital in Glasgow on September 23rd, when Lord Provost Sir David Mason cut the first sod on the site at 201, Renfrew Street. Sir John Stirling Maxwell, Bt., who presided, said that the present hospital was quite inadequate to meet the increasing demands of the city and district for dental treatment. Whereas in 1921 the number of patients was 24,000, in 1928 there were no fewer than 74,000, an increase of 200 per cent. in seven years. The nation had hitherto been very careless in regard to the care of its teeth, but it was now beginning to find out its mistake, and to realize that not only comfort and appearance, but health itself, depended upon proper attention being given to the teeth. For the new building which they were about to erect they had in hand £30,000, but the large sum of £60,000 was still required to ensure its adequate equipping and endowment.

Ireland.

Housing Conditions in the Free State.

In the fourth volume of the Census of Population, 1926, which is published by the Department of Industry and Commerce, Mr. John Hooper, Director of Statistics, discusses housing in the Irish Free State. The report, which contains much valuable information, describes the housing conditions of all persons in private families, and deals with 94 per cent. of the whole population. Most of the inhabitants, it is revealed, live in three-room dwellings, this being the case with families of two persons or more up to those with a total of eleven; the family of five members is the most usual in each size of dwelling from two to nine rooms. The compilers of the report point out that in the statistics of other countries families having more than two persons to each room are considered to be overcrowded. Accepting this definition, overcrowding in the Free State in 1926 existed in the following degree: 75.2 per cent. of persons in one-room dwellings; 59.3 per cent. of those in two rooms; 36.9 per cent. of those in three rooms; and 17.2 per cent. of those in four-room dwellings. It is disclosed that 24,849 persons in the Saorstat, representing 2,761 families with nine persons in each, resided in two-room dwellings; each of these families should have had a five-room dwelling if overcrowding was to be avoided. In a table designed to show the changes that were necessary in 1926 to ensure that not a single family in the Saorstat should suffer from the overcrowding as defined, it is set out that in 1926 there were 22,915 families living in "overcrowded" conditions in one-room dwellings; 13,121 should have had two rooms, 6,665 should have had three rooms, etc., in order not to be overcrowded. There were 39,615 families living in two rooms; 22,576 should each have had three rooms, 11,844 four rooms, 4,325 five rooms, etc. There were 10,820 families each with four rooms; 8,366 of these should each have had five rooms, and the remaining 2,454 should have had six rooms. It is emphasized that along the western seaboard and in counties Dublin and Kildare the rural population are most overcrowded. In the Munster counties, except Kerry, and in counties Carlow, Kilkenny, and Wexford and Meath, the rural population are best housed; Wexford has the best housing, but in Mayo, Donegal, and Kerry the housing is much worse than in any other county. Contrasting death rates, it is found that they are much smaller in rural than in town areas. In Mayo, for instance, with 41.7 per cent. in overcrowded houses, the general standardized death rate is only 11.8 per 1,000, as compared with 15.2 in the twenty-four best-housed urban districts, with only 15.2 overcrowded. The percentages of population overcrowded in the four provinces, including town and rural areas, are: Leinster, 27.5; Munster, 22.9; Connaught, 32.8; Ulster (three counties), 29.6. The towns of the three Ulster counties had the best housing, the percentage of persons living more than two in a room being 14.6. Of the thirteen towns in county Donegal with a population of over 500, Moville and Rathmullen had less than 10 per cent. overcrowded; in four others the percentage was less than 15, in five others less than 20, and in the remaining two it was 20 and 25. Towns with over 1,500 inhabitants reported as being most overcrowded are: Dublin City, 45 per cent.; Edenderry, 38 per cent.; Limerick City, 37 per cent.; Kildare, 36 per cent.; Newbridge and Newcastle-West, 34 per cent.; Tullamore, Drogheda, and Clara, 33 per cent.; Tipperary, 32 per cent.; Ballinasloe, 31 per cent.; and Cork City, Waterford City, and Sligo, 29 per cent.

largest proportion of the population in Scotland; a three-room dwelling in Saorstat Eireann; and a four-room dwelling in Northern Ireland, Wales, and England. In Wales 41.5 per cent. of the population live in dwellings of six or more rooms, and only 0.5 per cent. in one-room dwellings. It is shown that a much larger proportion of the population live in one-room tenements in Dublin than in Glasgow, but, taking the one- and two-room dwellings together, a much larger proportion live in these small dwellings in Glasgow (64.7 per cent.) than in Dublin (50.1 per cent.). In Dublin the size of the dwelling in which the largest proportion of the population live is the one-room tenement: in Cork and Limerick two rooms, in Waterford three rooms, in other towns four rooms, and in the rural districts three rooms. The towns, other than county boroughs, have a large percentage (29.7) in dwellings with six or more rooms. In Leinster and Munster the four-room dwellings house the largest proportion of the population; in Connaught and Ulster the three-room dwellings. From 1911 to 1926, it is pointed out, there was a remarkable increase in the county boroughs in the population of persons living in less than five rooms, and a still more striking decrease in the remainder of the inhabitants. The decrease in the population living in five rooms or more is suggested to be due in the case of the provinces to the decrease in the number of Protestants, etc., and in the case of Dublin, partly to the removal of more prosperous families to the suburbs. The number of persons living in one-room tenements or dwellings decreased much faster than the general population since 1901. The numbers of persons living in one-room tenements in 1926 were: Dublin city, 78,920; other county boroughs, 11,097; rest of Saorstat, 50,044; total, 140,061. Thus more than one-half of these persons resided in Dublin city. It is shown by means of diagrams how infantile mortality increases in association with overcrowding. The lowest figure in the Dublin area was that of Clontarf and Howth; the highest, North City No. 2. The percentage of overcrowding in the first instance is 9.6; in the second 63.4. The death rate under 1 year per 1,000 births is 79 in the first, and 170 in the second. In a survey of the housing conditions as affecting different occupations, it is pointed out that painters are the worst housed of the skilled occupations. The families of tinsmiths appear to be unusually large. Railway firemen, waiters, motor mechanics, and Civic Guards have families less overcrowded than the size of the dwelling would suggest; probably they are comparatively young, and their families small. In the better-housed occupations married publicans, farmers with over 200 acres, teachers, and farmers owning 50 to 100 acres, appear to have larger families than others in about the same size of dwelling. Farmers with 50 to 100 acres have slightly smaller dwellings than clerks, but much larger families; farmers with over 200 acres have dwellings of much the same size as dentists, civil engineers, etc., but much larger families. Teachers have much the same housing as farmers with over 200 acres.

Salaries of County Mayo Medical Officers.

The Ministry for Local Government and Public Health notified the Mayo Board of Health, at its meeting on September 20th, that the salaries of the county surgeon and of the dispensary doctors had been increased by sealed order. In regard to the salary of Dr. McBride, county surgeon, the Minister for Local Government and Public Health pointed out that the claims of Dr. McBride to increased remuneration had been before the Board for a considerable time. As, however, the Board had failed to award a salary commensurate with the duties of this officer, the Minister had felt constrained to make an order determining that the salary to be paid should be £800 a year. An order was also sent fixing the salaries of the medical officers of the dispensary districts in County Mayo at the amounts shown in the schedule attached to the order. In the case of some of the medical officers with long service the scale fixed by the Minister means an immediate increase of over £100 per annum. The Mayo Health Board unanimously protested against the action of the Minister in increasing the salaries of the medical officers against its wishes.

England and Wales.

Vital Statistics for 1928.

TABLES in the *Registrar-General's Statistical Review of England and Wales for the year 1928* (Part I, Medical)[1] follow, with minor variations, the same sequence as in previous years, and embody a comprehensive analysis of the birth rates, death rates, rates of infant mortality, and of natural increase of the population; the estimate of the number and distribution of the inhabitants of England and Wales is based mainly on the census returns of 1921. The birth rate for the year 1928 was 16.7, which, with the exception of the rate for the year 1927 (16.6),[2] is the lowest yet recorded. The crude death rate was 11.7 per 1,000 of population, as against 12.3 in 1927. The corresponding standardized rates—namely, those which would have been recorded if the sex and age constitution of the population had been the same as in 1901—were 9.9 and 10.6, the figure for 1928 being lower than in any other year. Yet another record figure is that of deaths of infants under the age of 1 year: the rate during the year was 65 per 1,000 births, an improvement even on the figure for 1923, which was 69. The mortality from the epidemic diseases was far less than in the previous year, largely owing to the lower mortality from influenza, which was 196 per million living, as against 567 in the previous year. The death rate from influenza was the lowest since 1914. The mortality from diseases of the respiratory system, the lowest recorded, was 1,507 per million. On the other hand, for cancer the crude death rate figures (1,425 per million living) were higher than in any preceding year, the increase over the figure for 1927 (1,376 per million) being approximately equal for the two sexes. Since 1920, until when the figure had for some time shown a tendency to decline, the death rate from diseases of the circulatory system has, except in one year (1923), steadily risen, being for the years 1924, 1925, 1926, 1927, and 1928 respectively, 2,044, 2,160, 2,181, 2,489, and 2,669 per million living. Maternal deaths from puerperal sepsis and accidents of pregnancy and childbirth were equal to a rate of 4.42 per 1,000 live births, the highest recorded in the eighteen years for which comparable figures are available. The suicide rate showed a slight decline from 125 to 124 per million living, this lower figure being due to a diminished rate for males, that for females actually showing a slight increase. Deaths returned by His Majesty's coroners as resulting from motor accidents rose from 4,492 in 1927 to 5,251 in 1928. Excluding deaths from collisions between two different types of vehicles, the deaths caused by motor cars increased from 1,292 to 1,550, and those by motor cycles from 940 to 1,043.

Trowbridge and District Hospital.

For more than forty years the Cottage Hospital in the Halve, with its eleven beds, has served the needs of Trowbridge, but latterly its accommodation and equipment has proved inadequate, and a new building had to be obtained. So long ago as 1921 Dr. C. E. S. Flemming called attention to the difficulty of dealing satisfactorily with the sick and injured, and in May, 1924, it was determined to provide a new hospital at a cost of £16,000. Adcroft House with its grounds was acquired in 1927, and a successful appeal for funds was launched early in the following year. The house has been retained as the administrative block of the new hospital, very little structural alteration being necessary: from it there now extend new buildings of the "ground-floor" type, a continuous communication being established by a corridor from one end of the hospital to the other. On the west of the administrative block is a children's ward containing six beds; there are also three private wards for men, and a general men's ward of eight beds. On the east side are the maternity ward with six beds, two private wards for women, a main women's ward of eight beds, a night nursery, and a labour ward. On the north side of the corridor is an operating block, including an x-ray room.

[1] *The Registrar-General's Statistical Review of England and Wales for the year 1928.* (New Annual Series, No. 8.) Tables, Part I, Medical. H.M. Stationery Office. 1929. Price 15s. net.
[2] *British Medical Journal*, May 11th, 1929, p. 874.

A large north light window gives ample illumination during the day-time, and the electrical equipment is of the most modern kind. Wooden sun balconies painted white have been erected, with extending revolving blinds to shade the terraces. The institution stands in naturally pleasant surroundings with green lawns and flower and vegetable gardens. In the absence of Lord Radnor, who had hoped to be able to perform the opening ceremony, the Marquess of Bath took his place. The president of the hospital, Mr. C. I. Haden, delivered an address in which he described the development of the Trowbridge hospital service since its foundation in 1870. He remarked that the present building could now hardly be fitly called a cottage hospital, and it would be, therefore, known in future as the Trowbridge and District Hospital. The total cost of erection was approximately £16,000, and an additional £1,100 was required for equipment. Towards this £16,800 had already been received. As regards the cost of maintenance, it was hoped to increase the list of subscribers and also to establish a contributory scheme in the district. An address was given by Mr. H. S. Souttar, surgeon to the London Hospital, who congratulated the committee on the excellent buildings it had provided. He described the progress of hospital development through the ages, since the temples of Saturn were used to house the sick some 6,000 years ago. The modern hospital had come to be the last word in efficient organization, and the time was passing when it could be limited to the service of one class. Hospitals, he added, ought to be open to the whole community, since sickness made no distinction between poverty and riches. A great tradition was enshrined in the hospital system of this country, and Mr. Souttar looked forward to the time when these institutions would serve as a refuge for the nation, all the resources of the healing art being freely open to anyone in need of them.

Disposal of London Refuse.

Mr. J. C. Dawes's report of an investigation into the public cleansing service in the Administrative County of London was in effect an exposure of an intolerable failure to deal with a matter closely affecting the public health in a manner worthy of a great city. An interesting discussion of the situation disclosed in his report, and of his proposed remedy—namely, the creation of an *ad hoc* authority representative of the vast number of local sanitary authorities which in the aggregate go to the making of Greater London—took place on September 25th at a conference at the Middlesex Guildhall, Westminster, which was attended by representatives of the county councils of Middlesex, Essex, Buckinghamshire, Hertfordshire, and Kent. A preliminary notice of this conference appeared in last week's issue at page 603, and a discussion of the report itself in our issue of April 20th at page 734. Alderman H. R. Brooks, chairman of the Essex County Council, who presided, said that the dumping by the metropolitan boroughs of London of millions of tons of household refuse on the north shore of the Thames and at various places within the county of Essex had become an intolerable nuisance. One of the dumps was already 90 feet high, and spontaneous combustion had generated clouds of smoke and a nauseating smell which had drifted to the village of Rainham. The development of the London County Council estate at Becontree and of the industrial area north of the Thames was driving the population nearer and nearer to these insanitary areas, and the position had already become very serious. No local authority should be permitted to create such a nuisance within the area of another local authority. Some of the metropolitan boroughs had provided dust destructors and were able to deal with their own refuse without causing annoyance. Others simply made arrangements with a contractor, who took their refuse, and then did not care what became of it. The local authorities affected would do well, for their own protection, to consider the need of unitedly bringing pressure to bear on the Government. Mr. D. Crawford (Hertfordshire) said that proposals to be submitted to the Departmental Committee of Inquiry on behalf of the Hertfordshire County Council embodied the suggestion that no dump except for agricultural purposes should be allowed in any area without being registered and a licence being first obtained from the local authority of the area. The licence should contain such reasonable conditions as the Ministry of Health might approve, and there should be a right of appeal to the Ministry of Health if the licence was unreasonably withdrawn or withheld. Dr. A. Greenwood (medical officer of health for Kent) stated that in almost every area where the by-laws had been adopted and enforced rigidly the dumps had practically ceased. He did not like the proposal to make an exception for agricultural purposes; it might result in loopholes. Dr. J. Tate (medical officer of health for Middlesex) expressed his agreement with these views, and said that there were many differences of opinion as to what would constitute safety with regard to a dump. If it were possible to adhere strictly to precautionary measures drawn up by the Ministry of Health as by-laws a great deal of the offence of dumps would cease. Finally, the meeting agreed to the following resolution:

> That in the opinion of this conference a local authority should not be permitted to deposit by its servants, agents, or contractors refuse or other rubbish outside its own area without the previous approval of the county council and the district council within whose area the refuse or rubbish is deposited, and subject to such conditions as may be prescribed by such councils; this restriction not to apply to ordinary stable manure sent direct to a farm for agricultural purposes. In the event of a county council or local authority refusing consent an appeal to be made to the Minister of Health, whose decision shall be final.

Correspondence.

Mr. F. T. Paul.

Sir,—I see in to-day's *British Medical Journal* that in the Section of Surgery, at Manchester, Dr. William J. Mayo of Rochester, Minnesota, spoke of "the late Mr. F. T. Paul." About a month ago I had a long conversation with Mr. Paul in his garden at Caldy, and he was certainly then very much alive. It seems strange that no surgeon present at the meeting corrected such an obvious error. I hope it will be a long time before Mr. Paul gives me an occasion to write an appreciative obituary notice. Possibly he may be saying the same for myself.—I am, etc.,

Hindhead, Sept. 28th. James Barr.

*** We hope Mr. Paul will accept our sincere apologies for the editorial oversight.—Ed., B.M.J.

The Dressing of Wounds.

Sir,—In your interesting review of Dr. Orr's book on *Osteomyelitis and Compound Fractures and Other Infected Wounds* (September 21st, p. 540) you relate his methods of rest by skeletal fixation *without antiseptic dressings*, and his sang-froid in the presence of putrefaction under his vaseline-gauze dressing, even if the "discharge oozes out of the end of the plaster cast" and stinks.

Dr. Orr claims, we are told, to be a disciple, not only of Hunter and Hilton, but of Lister too. Of Hunter, I suppose, because his methods imitate Nature's; of Hilton because he gives diseased parts rest; but of Lister on the narrower and partial ground that the healing that takes place under the vaseline pad is comparable to that of Lister's first case of treatment of compound fracture under a scab of carbolic acid and blood. "He is a reasonable cleanly man, considering the scabs he has to deal with"[1] was Earle's vignette of the surgeon of his day (1628): I fear we shall lose even that lukewarm approval if the wounds we dress stink.

The acceptance of the principle of rest to the surface of damaged tissues on which Dr. Orr insists seems jeopardized, and jeopardized unnecessarily, by his disregard of putrefaction in the wound discharges; can that not be prevented without loss of the principle? In the little hospital where I work I use what goes by the name of "a peaceful picket"; it is a wet antiseptic dressing put over a piece of plain sterile gauze. Should the discharge soak through this plain dry gauze it reaches the antiseptic. We trust to the chemical to picket this open gate

[1] *Microcosmography, or a Piece of the World Characterized.*

(the discharge-soaked tract) against the entry of germs. That was Lister's method: "All we require," he said, "is that the dressing should be able to prevent the development of organisms from without into the discharges with which the dressing may be soaked."[1] Lister sought for a more suitable chemical than carbolic or the sublimate; Nowadays there is a great range of choice; and those that act in vitro must be best. Some of the dyes, such as flavine, do this; but what is especially desirable is a drug which will prevent the "odor" of which Dr. Orr speaks, and flavine in this respect runs second to tri-chloro-phenyl-methyl-iodo-salicyl, or "T.C.P." for short.

Healing by scabbing is always a problem. The opposite condition, "the clean granulating surface" which can be daily freed from pus, gives the satisfaction that nothing is hidden. But the daily dressings disturb what the scab protects—the growing skin, the vulnerable tissues. I have tried, in a small way, the experiment of dressing a raw surface by a homely method, based on Lister's practice, which may be described as an artificial scab. It is this: a thin piece of material, such as thin bandage cloth, is boiled in very strong tea—a readily improvised solution of tannic acid. It is cut a little larger than the surface to be healed, and applied so as to cling to it. A "peaceful picket" of gauze wrung out in "T.C.P." is put on top (with or without dry gauze intervening, according to the degree of sepsis). Only the gauze is changed. The material next the wound is left in place, and day by day is merely drenched with tea. A tanned scab is formed which falls off when all is healed.

For burns and scalds this way is useful, and as soon as discharge ceases the tea alone is used and the "picket" omitted. I am, etc.,

LIONEL JAS. PICTON.

Holmes Chapel, Cheshire, Sept. 25th.

PROPHYLAXIS OF POST-OPERATIVE THROMBOSIS.

SIR,—In a letter on this subject published in the *Journal* of July 27th (p. 166), Dr. R. Chalmers discussed the biochemical changes in the blood of patients recently subjected to operation. I made a study of the coagulation time of patients before and after operations in Professor Wilkie's wards of the Royal Infirmary, Edinburgh, using Cobb's coagulometer. A shortening of coagulation time was found in 80 per cent. of 157 cases; it was most marked immediately after operation, persisted for a few hours, and was not present on the third, fourth, and eighth days after operation. In 34 cases examined during anaesthesia a constant shortening of the coagulation time was found during or after the "excitement stage." On the 20 per cent. of cases which showed no change or an increase in coagulation time after operation many were associated with minor operations involving little trauma of tissue, or performed under twilight sleep or local anaesthesia. The greatest shortening of coagulation time was found after laparotomies and radical breast operations.

Two cases of femoral thrombosis occurred and one of fatal embolism. During the course of the thrombosis the patients showed a shortening of the coagulation time, but on recovery in both instances it was distinctly longer than normal average. Details of the fatal case may be of interest.

A married woman, aged 52, underwent the operation of gastro-enterostomy for duodenal ulcer. She had had one normal confinement, and three operations on the uterus. The coagulation time, before gastro-enterostomy, during the operation, and immediately after, was as follows:

	Coagulation time
Latency before operation	2 min. 25 sec.
(Normal	2 " 25 ")
Before beginning operation, 11.35 a.m.	2 " 0 "
(Normal	2 " 20 ")
Induction (Chloroform and Ether)	
11.36 a.m.	1 " 55 "
11.42 "	2 " 0 "
12.50 "	1 " 45 "
[illegible]	1 " 50 "

[illegible] progressed favourably. The temperature was 98.8° on the [illegible]

[1] "An Address on Germicidal Methods and Agents," *Lancet*, 1893, vol. ii, p. 1; *Collected Papers*, vol. ii, p. 100.

and fifth evenings, and again on the ninth evening. At 9 p.m. on the ninth day she complained of numbness of the left leg. At 1 a.m. she awoke, and again complained of numbness. While the nurse was moving the pillow under her knees the patient suddenly collapsed, and died in half an hour. At the post-mortem examination the upper branch of the left pulmonary artery was found to contain an embolus, and in the left internal iliac vein there was a long mixed clot, which was not adherent. There was also primary pulmonary thrombosis at the base of the right lung.

During an operation several conditions are produced, which, by calling forth adrenalin from the suprarenals, would cause increased coagulability of the blood. These are: (1) fear before the operation and excitement during the induction stage; (2) operative procedures under light anaesthesia; (3) asphyxia; (4) direct action of the chloroform or ether on the suprarenals; (5) low blood pressure, shock, or severe haemorrhage.

Some local thrombosis must occur after all operations, and substances liberated from the wounded tissues may so alter the coagulability of the blood that it begins to clot in vessels where there is stasis, or where a churning movement is produced by tributaries joining large veins, or where there is excess of carbon dioxide, as in the dependent parts of the lungs. Now all these factors are at a maximum either during or very soon after the operation; and this accounts for the fact that, although the most common time for pulmonary complications to follow thrombosis is during the second week, when movements are freer, and a piece of clot being in a friable stage may become detached, fatal pulmonary embolism has ensued within twenty-four hours of the operation.

Certain writers have remarked that post-operative embolism occurs in small epidemics, and might almost be said to have a seasonal incidence, with a maximum in February and March, in June, and in October. I have noticed during routine examinations of coagulation times that at certain periods all the pre-operative and normal control readings were short. (The normal average was 2 min. 40 sec. at 30° C.) During one of these periods (March 15th to 21st, 1927) one of the patients with femoral thrombosis had her operation, and a case of primary pulmonary thrombosis after an operation for cataract under local anaesthesia was seen in the post-mortem room. It was during another such period (May 23rd and 24th, 1927) that the fatal embolus case was operated upon, along with one other patient who also showed a very marked shortening of coagulation time after operation.—I am, etc.,

SIDNEY E. CROSKERY, M.D.

Tunbridge Wells, Sept. 28th.

THE PLANTAR RESPONSE IN HYPOGLYCAEMIA.

SIR,—Dr. Hawthorne in his letter on September 14th (p. 516) invites the recording of further cases of coma due to hypoglycaemia in which the extensor response has been noted. In the only case of hypoglycaemic coma in which I have examined the plantar responses these have been extensor. The blood sugar was 0.025 in this case; on return to consciousness the response became flexor. In cases of hypoglycaemia not reaching the stage of coma I have never found extensor responses. The plantar response was flexor in one case in which hypoglycaemia produced a severe confusional mental state and the blood sugar fell to 0.024.—I am, etc.,

A. W. CURTIS.

London, Sept. 30th.

RACIAL INCIDENCE IN DISEASE.

SIR,—In the *Journal* of September 14th sundry references are made to questions of race or type and their alleged morbid proclivities. Dr. M. Sonnsky (p. 513) challenges the allegation that there is a greater frequency of adenoid- among Jewish children, and Dr. Gray Hill and Miss Mary Allan (p. 499) furnish statistics to prove that a so-called rheumatic type is non-existent. It appears to me that, in most arguments against morbid proclivities being associated with a particular race or type, an essential factor is omitted from the premisses—namely, the environment that evokes the alleged proclivity.

It will hardly be need [illegible] in Greenland or a settlement of Eskimos on the Coast, each will exhibit in even degree morbid proclivities which the natives amongst whom they have intruded [illegible]

correctly regard as "racial" in character, seeing that they themselves suffer from them little or not at all, being harmoniously adjusted to their surroundings. It is undeniable that the Negro, with his gaping nostrils and peculiarities of skin, as regards its pigment, vascularity, and gland supply, has physical traits correlated with the climatic conditions in which he evolved. He is a highly differentiated type, and so is the Eskimo; each will exhibit inability to adapt to a major degree of change in environment.

But can it be maintained that between such gross disharmonies and a state of perfect adaptation to environment no minor or intermediate degrees of maladjustment exist? For example, do the "Caucasian" and the Mongol not exhibit signs of maladaptation peculiar to their type in surroundings differing from those determining the evolution of their characteristic traits? This, also, is undeniable.

What about the Nordic, the Jewish, the Alpine, the Mediterranean types? Are their distinctive features not to be correlated with the conditions of their evolution, or is their adaptability so perfect that migration to the land of the stranger evokes no typical reaction? Proceeding from them, consider the less clearly defined but still distinguishable types, physical or mental, such as those who are termed in our own land North-, South-, East-, or West-country folk, or such as spring from little rural communities, long inbred, and thereby *specialized for local conditions*, including soil, atmosphere, and occupation. Is it not probable that they also will manifest recognizable disabilities and proclivities proportionate to the *degree* of discordance of their present environment with that in which their particular type was evolved?

I have been asking for research on these matters for many years, and have adduced examples, from my own experience and that of other observers, seeming to warrant the comprehensive investigation needed finally to establish or disprove the truth of my contention. I repeat that it is futile to inquire whether this, that, or the other racial type or subtype evinces this, that, or the other morbid proclivity, unless such alleged proclivity *is correlated* with the environment—tropical, temperate, arctic; dry or humid atmosphere; urban, suburban, or rural; nutritional, psychical, etc. In which signs of disharmony or disease appear.

Taking "rheumatism," for example. There are two environmental conditions of almost diametrically opposed character which appear to favour its onset. One is damp associated with cold; the other is drought and heat when the air is full of germ-charged dust such as, for instance, has occurred during the past summer, when rheumatism in various forms has been very prevalent. I should like to know whether more "non-pigmenters" develop rheumatism in the one condition and more "pigmenters" in the other. I believe that I have observed the cold and damp conditions to be specially noxious to non-pigmenters, but I have a mind open to correction.

Then, regarding the Jews; a considerable proportion of my practice has been among them during the past thirty years. I sought an explanation of what appeared to me their disproportionate proclivity, *compared with* my other patients, to catarrhal infections, and, what is so closely linked up with them, enlarged tonsils *and adenoid* growths. This observation was made with the opportunities afforded by the intimacy of family practice. It occurred to me that the explanation lay in the fact that the Jewish type was evolved *in a warmer and dryer climate* than that of North-West Europe an evolution of many thousands of years' duration. Their proclivity to enlarged tonsils, adenoids, and catarrhs in general was therefore a sign of imperfect adaptation to their present environment. On the other hand, the Jews' experience of urban conditions has been very much longer and more severe than that of our average urban communities, and in this respect they evince superior adaptation.

It was this consideration of the Jews that started an inquiry on my part whether other intrusive types Nordic, Alpine, etc. also showed signs of imperfect harmony with conditions in this country, and, from this, the effect of intramigration and urban immigration on our rural types. Those who care to follow up the matter will find references to it in papers in the *New Age*, June 1-8, 1911, *School Hygiene*, September, 1911; *Clinical Journal*, August 9th, 1911; *British Medical Journal*, August 17th, 1912, and August 2nd, 1913; *Lancet* (letter), June 10th, 1916; and *Medical Press and Circular*, 1919 20.

I should add that the *scope* of my inquiry has not been so much the fact, already noted by Beddoe, Shrubsall, Woodruff, and others, that certain types appear to evince certain morbid proclivities; my endeavour has been to ascertain why they do so in this country and in what circumstances.—I am, etc.,

J. STEWART MACKINTOSH, M.D.,
Fellow of the Royal Anthropological Institute.

London, N.W.3, Sept. 21st.

CO-OPERATION BETWEEN PRIVATE PRACTITIONERS AND HOSPITALS.

SIR,—Writing as a private practitioner and *from experience of the system* at present in vogue at the Royal Free Hospital, which Mr. Joll mentioned in his letter on September 28th (p. 598), I consider the forwarding of the case-sheet to the patient's private doctor would meet most of the requirements. It seems that in most of the London hospitals at present we have to depend for our information on communicating with the house-surgeon. Every practitioner knows how difficult it is to get a house-surgeon on the phone: he is either engaged at an operation or busy in the out-patient department, etc. When we do eventually get in touch with him it is quite possible that he is not the one who admitted our patient, or in charge of him, and consequently can tell us very little. We can only hang up the receiver and repeat the process later on, when we may be again unlucky. It would be both unjust and unfair to expect the consultant staff to reply personally to each doctor's letter that accompanies a patient. If the hospital authorities could provide some means whereby the salient features of the patient's case-sheet could be transferred to his private doctor it would greatly stimulate the latter's interest and knowledge, and would be deeply appreciated.—I am, etc.,

JAS. E. AMBROSE.

London, N.1, Sept. 29th.

SIR,—There would be no more complaints by private practitioners against hospitals as regards lack of co-operation if the excellent plan adopted by the Ear, Nose, and Throat Department, Bristol Royal Infirmary, were universally adopted. In all cases, whether in-patient or out-patient, one receives a letter with full notes under the appropriate printed headings—"diagnosis," "clinical findings," "suggested treatment," "prognosis," etc. In addition to this, and added underneath the address of the department, are the days and hours of attendance, details which are apt to escape the memory of the busy practitioner, to whom this reminder is a ready aid. I expect the Bristol Royal Infirmary is every bit as busy as any other hospital, and if the procedure set out above can be carried out in that institution, there seems to be no reason why it should not obtain in all hospitals. At any rate, *I have found it a great boon*, and never neglect to acknowledge these letters with my most grateful thanks.—I am, etc.,

September 30th. SOMERSET PRACTITIONER.

MATERNAL MORTALITY.

SIR, At the National Conference of Friendly Societies held at Lowestoft *this week* more than one speaker referred to the gravity of the death toll of motherhood, and one *mentioned* the fact that there had been no reduction in the death rate among mothers during the last twenty years. *It is high time* that the general practitioner asserted himself, for, until he does so, this state of affairs will remain.

The question of maternal mortality and morbidity is one of *national* importance, and closely bound up with the question of infantile mortality and morbidity. The whole *profession* is concerned, but the solution of the problem is intimately within the province of the general practitioner; given the chance, it is he, and he alone, who will reduce the death rate of mother and child.

Every lying-in woman should, by law, have a qualified medical practitioner in attendance; she should not be left to the care of the army of badly taught and badly trained women, many of whom are launched on the long-suffering community after a short stay in hospital. They have ousted the good old-fashioned "handy woman who followed the doctor"; she did as she was told, and knew by experience and not by making unnecessary vaginal examinations when to send for medical help.

The midwife of to-day is taught to use strong antiseptics, and she has not the first idea of asepsis. She imagines because she has rinsed her hands in a strong antiseptic solution that her fingers are clean enough to make a vaginal examination. She introduces her fingers laden with a corrosive solution, which causes pain in nine women out of ten, and destroys the vaginal flora which, with the natural secretion of the vagina, are there to protect the parturient woman against the invasion of septic organisms. These midwives are not content with one examination, and the law is on their side. One sequel is the raising of an army of women to keep an eye on midwives; they are a burden on the rates, and their sole occupation apparently is collecting statistics to swell the annual report of the M.O.H. This army has to be officered, and the staff of the M.O.H. is swelled to bursting point with highly paid assistants with no experience of general practice—another burden on the ratepayer.

The present-day midwife too frequently fails to send for a doctor to suture a ruptured perineum; consequently a broad highway is left for the entrance of septic invasion. The day will come, and it should come soon, when it will be an indictable offence for any person other than a qualified medical practitioner to make a vaginal examination in a pregnant woman. The matter is too serious to be long delayed, for, not only is the maternal death rate not diminishing, but the survivors too frequently are left with a legacy of ill health, and are either unable or unwilling to bear further children.

Here is an extract from a letter I have received from a retired practitioner.

"I do not think that maternal mortality has been reduced enough since I began in 1878. Then there were scarcely any precautions taken. We did not even wash our hands before an examination. For lubricating the fingers or forceps—if in a farmhouse a dab of saltless butter was used—any old oil or grease that was handy was utilized. When the case was managed by the so-called midwife, the soiled nightdress, flannel petticoat, etc., and the underlying blanket were left undisturbed for three or four days, irrespective of the amount of blood, liquor amnii, etc., that saturated these things. Imagine the effluvia! and, as fresh air was excluded as much as possible, and the *room darkened* according to custom, you can also imagine what an unhealthy condition existed. Yet, as a rule, *the patient got on all right.* Even when there had been rough interference—say, craniotomy, or difficult turning—*the patient generally did well.* Chloroform was hardly ever used, forceps not often needed, laceration of the perineum seldom happened, lactation was sufficient for nine months or more—and now, with all the improvements in the conduct of labour, etc. etc., things are still bad. Labour seems to be more tedious, more difficult, necessitating an anaesthetic almost always, and the very frequent use of forceps. Few can give the breast, even the willing ones, for more than a month or two. . . ."

These were the days, too, when the doctor, generally after imbibing freely, fell asleep at the bedside with two fingers in the vagina, to be aroused by the gush of liquor amnii when the membranes ruptured—and the patients "generally did well"! And why? The natural secretions were undisturbed, the birth-canal was flushed by liquor amnii, swabbed by the child, and sponged by the afterbirth. Lacerations were rare, and it is through lacerations, internal or external, that infection takes place.

The remedies, therefore, are clear.

1. A doctor must be present at every confinement.

2. He must remember, after scrubbing with antiseptics in the usual way to get his hands surgically clean, to rinse them in sterile water before making an examination in order to remove all trace of antiseptics, unless he is using gloves sterilized by boiling.

3. The external genitalia may be swabbed, but on no account must the vulva or vagina be subjected to any treatment whatsoever.

4. All lacerations, however small, must be sutured, and iodine freely used afterwards.

5. Most important of all, every effort must be made to lessen exhaustion by the judicious use of all the appliances at our disposal.

All our efforts to-day are directed to the alleviation of the pain and suffering that every lying-in woman is heir to. To quote from *Then and Now in Midwifery*, by Dr. W. J. Young:

"Prior to 1847 the experience of womankind throughout the ages may be likened to a toilsome, interminable journey through a morass of pain . . . and so at last the Then began to pass away before the dawn of Now, when in 1847 anaesthesia came to be administered to alleviate the pains of maternity. Simpson himself wrote early on, 'I have now seen an immense amount of maternal pain and agony saved by its employment'; and the triumph of chloroform was assured by its administration to Queen Victoria in 1853."

Axis-traction forceps, twilight sleep, and now the administration of ovarian residue, have all been thought out with that one end in view—the alleviation of this terrible suffering. By lessening the pain and shortening the duration of labour we are going to produce a stronger and a healthier motherhood and a stronger and a healthier race of children. There will no longer be the dread of having to go through a long and tedious labour after nine weary months of ups and downs in health. Succeeding pregnancies will be entered into without a qualm, and the State will benefit, not only by the raising of an A1 population, but by the definite increase in population which will ensue.—I am, etc.,

D. C. MACDONALD, M.B.

Blackley, Manchester, Sept. 29th.

THE DIAGNOSIS OF ANAEMIAS BY MEANS OF DIFFRACTION.

SIR,—In the *British Medical Journal* for July 13th (p. 48) Dr. Frank C. Eve of Hull published a paper entitled "The early diagnosis of pernicious anaemia by the halometer." The paper deals with a method and an instrument for the quick measurement of red blood cells by using a blood smear as a *diffraction grating.*

The method described by Dr. Eve is a simplified and distorted version of the diffraction method of measuring red cells which I discovered in 1918.[1] As soon as Hurst's memorable paper on pernicious anaemia appeared in the *British Medical Journal* I applied the method to the diagnosis of pernicious anaemia.[2] Subsequent to the publication of my earlier papers, I have learnt that Thomas Young used the identical principle, with a different technique, for purposes of measurement, but, of course, there was no question of differential diagnosis of anaemias in his time.

Since I first introduced the diffraction method of diagnosing anaemias I have considerably improved the method by designing a technique which facilitates measurements, increases sensitiveness, and widens the scope of the method. It is now possible to determine simultaneously the average diameter of a million cells, the degree and quality of anisocytosis present by measuring the larger and smaller cells, and the degree of poikilocytosis. A full account of these improvements was quite recently given by me in your columns.[3] Dr. Eve in his paper disregards the history of the diffraction method as a diagnostic measure. He presents it as an entirely new and original method of his own. He leaves out all references (except one, and that is a reference to another apparatus of his own design, this time for the sucking of tonsils). Though he does me the honour of mentioning my name in connexion with a certain feature of the theory, he gives no reference to my work on the subject, and completely ignores improvements recently introduced. His apparatus is based on an incomplete and incorrect interpretation of the theoretical foundation underlying the method as described by me many years ago.—I am, etc.,

Pretoria, Aug. 12th. A. PIJPER.

[1] *Med. Journ. of South Africa*, August, 1918, and June-July, 1919; and *South African Med. Record*, September 27th, 1919.
[2] *Lancet*, August 23rd, 1924; *South African Med. Record*, June 13th, 1925, and October 24th, 1925; and *Journ. Med. Assoc. of South Africa*, September 22nd, 1928.
[3] *British Medical Journal*, April 6th, 1929.

Obituary.

ERNEST E. GLYNN, M.D., F.R.C.P.,

Late Professor of Pathology, University of Liverpool, and Honorary Bacteriologist, Liverpool Royal Infirmary.

The news of the death of Professor Ernest Glynn on Sunday, September 22nd, did not come as a surprise to his friends. For many years he had suffered from diabetes mellitus, and latterly complications had supervened so serious that two years ago he was obliged to resign from the chair of pathology at the University of Liverpool.

Ernest Edward Glynn was born at Liverpool in 1873, the son of Dr. T. R. Glynn, who is still emeritus professor of medicine at the University of Liverpool. At an early age he must have felt the supreme attraction of medicine as a scientific study, and the intense satisfaction from its pursuit as an art. To such a mind, imbued with high ideals of duty and service, it was natural that religion in its more formal aspect would make an irresistible appeal. It is not surprising, therefore, that on entering Clare College, Cambridge, in 1892, Glynn set himself to read for the theological tripos. A year later, however, he decided that natural science would more completely satisfy his emotional and intellectual needs, and from this time to the end of his life he never faltered in its service. From the study of science to the more human and less academic one of medicine is an almost natural transition for a man of Glynn's temperament, and in 1898 he obtained the diplomas M.R.C.S., L.R.C.P. before graduating M.B., B.Ch. at Cambridge in 1901. Three years later he became M.R.C.P.; in 1909 he graduated M.D.Camb., and in 1913 was elected F.R.C.P. Having served as house-physician at the Royal Infirmary and as Holt Fellow in Pathology at the University of Liverpool, in 1902 he began his career as a consulting physician by being appointed to the staff of the Liverpool Hospital for Consumption. Two years afterwards he was elected honorary assistant physician to the Liverpool Royal Infirmary.

At this point in his career the fates began to weave a web which was to draw the young consultant from his appointed path, and irrevocably entangled him, not unwilling, in the pursuit of pathology. Owing to the indifferent health of Sir Rubert Boyce, then professor of pathology, Glynn was called upon to act as his deputy from time to time. In April, 1906, he was obliged to take six months' holiday on account of an infection contracted in the post-mortem room. On his return to work in October the University again requested him to take charge of the pathological department. His medical advisers forbade him to undertake this duty in addition to his work as physician to the Royal Infirmary. Glynn, realizing that a man cannot serve two masters, resigned his position at the Royal Infirmary, and from henceforth he devoted himself entirely to pathology. He was immediately appointed deputy professor, became associate professor in 1910, and, on the death of Sir Rubert Boyce in 1912, was given full charge of the department. In the course of time he became honorary pathologist to the Royal Infirmary, and consulting pathologist to the Northern Hospital, the Children's Infirmary, and the Hospital for Women. During the war Professor Glynn served in the R.A.M.C. with the rank of captain, and was responsible for an immense amount of valuable routine and research work. As one of the chief pathologists in the Western Command his services were in constant request during the great epidemics which took place at this time.

Professor Glynn and the workers in his laboratory carried out researches of considerable importance; much of the work only a pathologist is competent to discuss and assess, but not a little has proved of general interest to the whole medical profession. With hypernephromata and their connexion with the production of secondary male sex characteristics the name of Glynn will always be associated. That surgical tragedy, pulmonary embolism, and its attendant problems constantly occupied his mind. His contention that the condition was not embolic but rather a primary thrombosis in the lung vessels has received much support, but the final solution is not yet. His laborious researches on the bacteriology of pneumonia are too technical for discussion here, and the same applies to his work on blood grouping. His last contribution to medical science dealt with the Wassermann reaction. His intense labour on this subject, which seemed to take possession of his mind to the exclusion of nearly all else, was not without causal connexion with his final breakdown. As the result of his most careful and critical study of a large mass of statistics he came to the surprising conclusion that Wassermann negative syphilitic patients treated with continuation courses of mercury relapsed more often than those who received no continuation treatment at all. It was no little disappointment that this really remarkable result received relatively slight attention at the hands of syphilologists. Before leaving the purely professional side of Professor Glynn's activities, mention must be made of his remarkable inventive skill. The best example of this was the machine for the mechanical distribution of measured amounts of fluid from a series of glass syringes. The speed and accuracy of this machine is wonderful, and as a labour-saving device it merits more extensive employment. He was never happier than when engaged upon some new mechanical invention, and had he been of a commercial turn of mind one could almost imagine the slogan appearing on advertisement hoardings, "Glynn for gadgets."

As a teacher Professor Glynn will never be forgotten by his old students. His intense and forcible delivery, coupled with an admirable dogmatism, impressed even the most listless of his audience with the weight of his remarks, so that to forget was wellnigh impossible. A delightful caricature, drawn for the menu card of one of the medical students' annual dinners, depicted him in post-mortem apron holding a dripping specimen in one hand and with the other beating time to the refrain "For Heaven's sake don't forget typhoid." No mere academic life, however full, could satisfy the intense humanity of Professor Glynn. Throughout his life a very real interest and active participation in practical affairs was evident. As a student he was president of the Liverpool University Guild of Undergraduates; for many years he filled the office of honorary treasurer of the Athletic Club, and was also a prominent figure in the Old Students' Association. The Liverpool Medical Institution, the Pathological Society of Great Britain and Ireland, and many other centres of activity found in him a supporter whose place will not be filled. In this connexion, too, one must mention another characteristic of the man—his intense love for his country. This was prompted by no flag-waving spirit of jingoism, but by a deep reverence for what England had meant in the history of the world, and by an intense optimism for the future. In this sense he was a politician.

One can enumerate in cold words this and that side of his personality, but always there will remain in the memory of his more intimate friends those delightful informal gatherings which took place in his laboratory every afternoon. Here would come old students home on leave from all parts of the Empire, and over a cup of tea old friendships would be renewed and new friendships made. Presiding over such happy gatherings as these one will remember the kindly spirit of our old teacher and friend. These cherished memories are a memorial in our hearts to Professor Glynn. He would have it so.

A. Douglas Bigland.

We are indebted to Professor A. E. Boycott, F.R.S., for the following appreciation:

Glynn was originally a clinician, and it was more or less by accident that he succeeded Rubert Boyce as professor of pathology in Liverpool. His training had been comprehensive: morbid anatomy, general pathology, and bacteriology were all of interest to him if they threw any light on disease, and the exceptional range of his original inquiries reflects very well his attitude towards pathology. That suprarenal tumours are now successfully removed by surgeons from women who show sex changes is chiefly due to his calling attention to the association, and so making diagnosis possible. The work on the changes in the blood platelets after operations which has lately come from the Liverpool laboratory, and on the quantitative aspect of isohaemagglutinins, illustrate his studies in general pathology

to the academic pathologist, Glynn conceived them as illuminating respectively post-operative thrombosis and the dangers of transfusion. In bacteriology he dealt with dysentery bacilli, pneumonia, the meningococcus, pyorrhœa, and in earlier years with the opsonic index and methods of counting bacteria; he made good use of the mass of records of the venereal diseases clinic in evaluating the advantages (apparently negative) of giving mercury in addition to the arsenicals. It was since the war that Glynn's powers as an investigator developed and ripened; in the last few years, before he broke down in 1927, his industry and effectiveness were really remarkable, not only in his own work, but in the teaching of his students and the stimulation of young graduates. His classes in pathology reached a standard which is seldom achieved; his keen dogmatic teaching gave an admirable immediate result, and roused an interest which bore fruit in many good M.D. theses. Unmarried, with few or no interests outside his department, he gave his heart to pathology, and his influence was always for good.

Professor J. Lorrain Smith, F.R.S., dean of the Faculty of Medicine in the University of Edinburgh, writes:

When Professor Ernest Glynn was appointed to the chair of pathology in Liverpool he had already held the office of assistant to Sir Rubert Boyce. Sir Rubert had given much time and energy to the movement for the expansion of the medical school, but he did not live to see more than the early result of his labour. Glynn took up the duties of the chair with great zeal. Like his predecessor, he had a strong conviction of the value of pathology in the medical curriculum. His aim was to present the subject to the students so that they could not fail to see the necessity for a competent knowledge of the subject. The secret of his success as a teacher lay in his profound knowledge of pathological principles and his rich experience of their application in practical medicine. The time left when his official duties were done was spent in research. His toil was unremitting, and the amount of work he was able to carry out was an inspiration to all his colleagues. Yet he was ever modest in his estimate of what he had accomplished, and when an investigation had been completed and published he would quietly remark that he feared he had not been able to do all that was required to secure the full results the inquiry should have yielded. To a great variety of subjects he made contributions which, by the thoroughness and accuracy of his observations, made him an outstanding authority. He covered a wide field in both human and comparative pathology and bacteriology.

He was an original member of the Pathological Society, and in the committee, and later as treasurer, he took an active part in its proceedings. His contributions to the agenda were always welcomed, and the debating to which they gave rise was a real gratification to him. When it came round to his turn to conduct the meeting of the society in his own department there was a large gathering of the members. The agenda was full of interest, and the members found that he had spent such care in arranging details that the visit to Liverpool was a memorable event. When he could spare time for a holiday he was a genial companion, keen to take part in holiday pursuits, but he was apt to be called back to work before he had had the relaxation which the holiday should have given. While he was working to the utmost of his powers his health failed, and though he rested he was not restored. His friends and colleagues will cherish the memory of his personality—genial, loyal, and steadfast, and devoted to the highest ideals.

The following well-known foreign medical practitioners have recently died: Professor Toby Cohn, a Berlin neurologist; Dr. Walter Hövz, an eminent Breslau surgeon; Dr. Capitan, professor at the Collège de France and member of the Académie de Médecine; Dr. Eduardo Semprun y Semprun of Madrid, inspector-general of the health services of the Spanish army and director of the Technical Institute of Military Hygiene; and Dr. Aletty Jakobs of Amsterdam, the first Dutch woman practitioner, aged 79.

Universities and Colleges.

UNIVERSITY OF LONDON.

Three lectures, on (1) seasonal variations of epidemic diseases, (2) milk epidemics, (3) diphtheria toxin and antitoxin, will be given by Professor Thorvald J. M. Madsen, Director of the Statens Serum Inst[illegible] the London School of Hygiene and Tropica 14th, 16th, and 18th, at 6 p.m. Dr. Andrew Director of the London School of Hygiene, lecture.

A course of four lectures on secretion of the digestive juices will be given by Dr. R. J. Brocklehurst at University College, Gower Street, W.C.1, on October 14th, 21st, and 28th, and November 4th, at 5 p.m.

Four lectures on metabolism of the carbohydrates and fats will be given by Dr. J. A. Hewitt at King's College, Strand, W.C.2, on October 17th, 24th, and 31st, and November 7th, at 5 p.m.

Professor V. H. Mottram will give a course of six lectures on human nutrition at King's College for Household and Social Science, Campden Hill Road, W.8, on October 18th and 25th, and November 1st, 8th, 15th, and 22nd, at 5 p.m.

The Semon Lecture, entitled "The lower end of the œsophagus at birth and in the adult," will be given by Dr. Harris P. Mosher, professor of laryngology in the Harvard University, in the Barnes Hall of the Royal Society of Medicine on Thursday, December 5th, at 5 p.m.

Viscount Grey of Fallodon will deliver the Rickman Godlee Lecture on Thursday, November 7th, at 5.30 p.m.

Sir StClair Thomson will deliver a lecture, under the auspices of the King's College Medical Society, on Lord Lister: "Reminiscences by a house-surgeon," on Friday, October 11th, at 5.30 p.m.

The Geoffrey Duveen travelling studentship in oto-rhino-laryngology, of the value of £450, will be awarded annually. The tenure shall be, in the first instance, for one year, which will be spent in study abroad, in accordance with a scheme to be approved by the Geoffrey Duveen Studentship Board, but may be extended for one or two years; during the extended period the student may be allowed to undertake research at the Royal Ear Hospital or some other approved laboratory. Grants for the promotion of research in the subject of oto-rhino-laryngology, or any part thereof, may also be made from the trust fund of the benefaction. No person is qualified for election to the studentship or to receive grants from the fund until he or she has obtained the degree of M.B. and B.S. in the University. Applications must be made on prescribed forms obtainable from the Academic Registrar of the University, and should be sent to reach him by December 31st, together with a statement of the nature of the proposed research and a scheme of study submitted for the approval of the Board.

University College.

Farewell Dinner to Sir Gregory Foster.

Sir Gregory Foster, who retires from the position of Provost of University College, London, on December 31st, will be entertained at dinner by the past and present students of the College on Friday, December 20th. The dinner will be held in London, and the place will be determined when the number of those intending to be present has been ascertained. Past and present students who wish to attend the dinner are requested to notify Mr. B. N. Parker, honorary secretary, Old Students' Association, at the College, with as little delay as possible, and to add particulars of their Faculty and dates of student years.

UNIVERSITY OF LEEDS.

The following candidates have been approved at the examinations indicated:

M.D.—R. Chester, M. S. Scott, A. Sourasky.

Final M.B., Ch.B.—*Part I:* F. B. T. T. Drake, W. R. Everatt, G. Hirst, J. Rabinovitch, M. I. Silverton. *Part II:* W. H. Craven, H. Denton, C. H. Foster, W. L. Hardman, J. N. Hill, L. Hoyle, C. Poniedel, S. Rosenberg, L. Seaton, W. E. Smart, E. J. Wayne, J. W. Whitworth. *Part III:* E. J. Wayne (first-class honours), C. H. Foster (second-class honours), W. L. Hardman (second-class honours), T. G. Clarke, H. Denton, S. R. Foster, W. Greaves, L. Hoyle, H. T. Knowles, C. Poniedel, Margaret F. Robertson, Mary G. Shawe, J. W. Whitworth.

D.P.H.—Kathleen M. Peacock, Edith A. Whitney.

D.P.M.—C. L. Copeland, W. Fraser, D. T. Gemmell, J. J. O'Riordan.

The William Hey Medal for the most distinguished medical graduate of the year has been awarded to Mr. Edward Johnson Wayne, who has also received the West Riding Panel Practitioners' Prize for proficiency in medicine.

UNIVERSITY OF LIVERPOOL.

Liverpool School of Tropical Medicine.

The Mary Kingsley Medal, which is conferred in recognition of distinguished scientific achievement, has been awarded to the following gentlemen:

Dr. George Carmichael Low, Senior Physician to the Hospital for Tropical Diseases, London; Guy A. K. Marshall, C.M.G., F.R.S., Director, Imperial Bureau of Entomology; Emeritus Professor Robert Newstead, F.R.S., formerly Dutton Memorial Professor of Entomology, Liverpool School of Tropical Medicine; Dr. A. T. Stanton, Chief Medical Adviser to the Secretary of State for the Colonies; Emeritus Professor J. W. W. Stephens, F.R.S., formerly Professor of Tropical Medicine, Liverpool School of Tropical Medicine: Dr. C. M. Wenyon, C.M.G., F.R.S., Director-in-Chief,

[illegible] chairman of the school, Liverpool on October 11th.

CONJOINT BOARD IN IRELAND.

THE following candidates have been approved at the examinations indicated:

FINAL EXAMINATION.—T. G. De V. Coneys, T. J. Gilmartin, W. C. B. Harrison, D. J. Mangan, P. F. Murray, J. F. O'Halloran, M. H. O'Reilly, H. D. Plunkett.
D.P.H.—Dr. E. J. Daly, Dr. A. B. Monks, Dr. T. V. C. Nolan, Dr. J. H. Owen-Flood.

ROYAL COLLEGE OF SURGEONS IN IRELAND.

THE following candidates have been approved at the examinations indicated:

PRIMARY FELLOWSHIP.—Dr. R. G. Krishnan, Dr. P. P. Chandu Nambiar, Dr. L. N. Ross.
FINAL FELLOWSHIP.—Dr. S. V. Furlong, Dr. J. Owens, Dr. R. R. Woods.

The Services.

DEATHS IN THE SERVICES.

Lieut.-Colonel William James Taylor, R.A.M.C. (ret.), died at Plaston, in the Transvaal, on July 1st, aged 64. He was born at Ballymoney, in Ulster, on August 27th, 1865, and was educated at Queen's College, Galway, and at the Carmichael College, Dublin, graduating as M.B., Ch.B., and B.A.O. of the Royal University, Ireland, in 1888. Subsequently, in 1908, he took the D.P.H. of the Irish Colleges, with honours. After filling the posts of demonstrator and lecturer in anatomy in Queen's College, Galway, he entered the R.A.M.C. as surgeon lieutenant on January 30th, 1893, became lieutenant-colonel on March 1st, 1915, and retired on March 20th, 1920. On the first appearance of plague in Bombay in 1896 he volunteered for plague duty, and was employed as a district plague officer in Bombay. He served in the Tirah campaign on the north-west frontier of India in 1897-98, receiving the medal with two clasps; and in the recent great war of 1914-18, when he was mentioned in dispatches in the *London Gazette* of June 15th, 1916.

Lieut.-Colonel Henry Haldane Stokes, R.A.M.C. (ret.), died at Oxford on July 6th, aged 82. He was born on September 11th, 1846, and was educated at Trinity College, Dublin, where he graduated as M.B. in 1869, subsequently taking the M.R.C.S. in 1872. He was the last officer commissioned as assistant surgeon in the army, which he entered on March 30th, 1872; the rank of assistant surgeon was soon after abolished, and he was promoted to surgeon from the day on which he entered as assistant surgeon, March 30th, 1872. He attained the rank of brigade surgeon lieutenant-colonel on July 9th, 1895, and retired on September 13th, 1902. He attained the rank employed at Oxford from 1902 to 1911. After his retirement he was Africa, in the Zulu war of 1879, receiving the medal with a clasp; and on the north-west frontier of India, in the Hazara campaign of 1891, when he was mentioned in dispatches in the *London Gazette* of October 20th, 1891, and received the frontier medal with a clasp.

Lieut.-Colonel Frank Edward Barrow, R.A.M.C. (ret.), died on August 7th, aged 79. He was born at Brecon on July 7th, 1850, the son of the late Inspector-General T. W. Barrow, A.M.D. In his childhood he accompanied his father to South Africa, and later to Montreal, where his father was senior medical officer, and went through his schooldays there. Subsequently he entered Guy's Hospital, and took the M.R.C.S. and L.S.A. in 1871. He entered the A.M.D. as assistant surgeon on September 30th, 1871, passing in two places above his brother, the late Colonel H. J. W. Barrow, and was posted to the Royal Irish Fusiliers, 89th Foot, being the last assistant surgeon posted to that battalion under the old regimental system. He became lieutenant-colonel after twenty years' service, and retired on January 25th, 1893. When on the retired list he was employed for a time at Woolwich, and later as principal medical officer of a general hospital in the South African war. He served in the Egyptian campaign of 1882 (medal and Khedive's bronze star); in the Sudan campaign of 1885, at Suakin (clasp); and in the South African war (Queen's medal with two clasps). His immediate family has contributed no fewer than five members to the A.M.D. and R.A.M.C. His father, Inspector-General Thomas Waller Barrow, entered on June 8th, 1841, served in the Kaffir war of 1852-53 and in the Crimea, retired in 1863, and died in 1900. His eldest brother, Lieut.-Colonel Thomas Samuel Barrow, entered in 1864, served in the Egyptian war, retired in 1884, and died last February. His twin brother, Colonel Henry John Waller Barrow, entered at the same time as himself, served in the Sudan campaign of 1885-86, retired in 1910, and died in 1923. His nephew, son of Colonel H. J. W. Barrow, is now Major General H. P. W. Barrow, C.B., C.M.G., D.S.O., O.B.E., K.H.S.

Medical News.

THE annual general meeting of the Medical Sickness, Annuity, and Life Assurance Society will be held at the First Avenue Hotel, High Holborn, W.C.1, on Monday, October 7th, at 4 p.m.

A SESSIONAL meeting of the Royal Sanitary Institute will be held on October 11th and 12th at The Castle, Shrewsbury, when discussions will take place on recent bridges over the River Severn; reconditioning of houses under the Housing (Rural Workers) Act, 1926; and the scope of a house property management department.

THE Liverpool annual medical service will be held in the Cathedral on October 13th, at 3 p.m.; the sermon will be preached by the Right Reverend E. C. Pearce, D.D., Bishop of Derby. Medical practitioners and their friends are cordially invited to attend, and tickets may be obtained from Dr. R. Kennon, 28, Rodney Street, Liverpool.

THE RT. HON. CHRISTOPHER ADDISON, M.D., M.P., has been appointed by the Prime Minister chairman of a committee to inquire into the question of establishing one or more national parks in Great Britain with a view to the preservation of natural characteristics including flora and fauna, and the improvement of recreational facilities for the people.

DR. ALLAN C. PARSONS, a medical officer of the Ministry of Health, has been appointed a member of the Departmental Committee appointed to inquire into the relief of the casual poor and to make recommendations having special regard to the assistance of persons genuinely seeking work and to persons suffering from physical or mental disability. The chairman of the committee is the Rev. L. R. Phelps, and the secretary Mr. L. N. Ure, of the Ministry of Health, Whitehall, S.W.1.

THE new session of the Torquay and District Medical Society will open on October 10th with a lecture by Sir Farquhar Buzzard on disorders of function. Dr. P. A. McCallum will deliver his presidential address on November 21st. Dr. H. Morley Fletcher will lecture in January on the prognosis and treatment of pneumonia, and in April Dr. John Freeman will discuss the present position of vaccine therapy. The programme for the session also includes a survey of some of the less common ear, nose, and throat conditions, a demonstration of neurological cases, a display of medical and surgical cinematograph films, and a debate on birth control. In addition, afternoon clinical meetings will be held at the Torbay Hospital, the Whitecliffe Hospital, and the Newton Abbot Hospital.

THE Fellowship of Medicine has arranged a series of weekly clinical demonstrations in medicine and surgery for the winter session. The first two will be given at the Prince of Wales's Hospital, Tottenham, on October 8th, at 2.30 p.m., by Dr. Browning Alexander, who will conduct a ward round, and on October 10th, at 2 o'clock, Mr. H. W. Carson will demonstrate in the out-patient department. From October 8th to 31st a series of lecture-demonstrations will be given on Tuesday and Thursday afternoons at the London School of Tropical Medicine. There will be a morning course at Great Ormond Street Hospital from October 14th to 26th, which will comprise work in all the various departments of the hospital. A course in gynaecology will be held at the Chelsea Hospital for Women from October 14th to 25th, comprising operations and lectures. A special all-day course in diseases of the throat, nose, and ear will be held at the Central London Throat, Nose, and Ear Hospital from October 14th to November 2nd, comprising clinical, practical operative (limited), and pathological classes. There will be an intensive course in medicine, surgery, and the specialties at the Metropolitan Hospital from October 21st to November 2nd. The Fellowship of Medicine has also arranged an evening course for the M.R.C.P., comprising sixteen lectures at the Medical Society of London, 11, Chandos Street, Cavendish Square, W.1, at 8.30 p.m., on Tuesdays and Fridays, from October 15th to December 6th; the opening lectures will be delivered by Dr. B. T. Parsons-Smith on October 15th and 18th. Copies of all syllabuses and information regarding the general course of work at the associated hospitals can be obtained from the secretary of the Fellowship, 1, Wimpole Street, W.1.

LECTURES to school audiences on the work of the London Voluntary Hospitals are being resumed by King Edward's Hospital Fund for London. The scheme has now been in operation for five years. Among the subjects treated are: "One day in the life of a hospital," "Modern methods of fighting disease," and "Science in the service of the hospitals." The lectures are given by doctors and others intimately associated with hospital work; they are educational, and no direct appeal for money is made in connexion with them. The King's Fund would particularly welcome an offer by any school with a suitable hall to act as host for

a lecture to a combined audience consisting of the upper forms of two or more schools in the same neighbourhood. Heads of secondary schools or colleges desiring lectures are requested to communicate with the secretary of the Fund, 7, Walbrook, E.C.4.

Dr. Boyd S. Gardner, of the Mayo Clinic, Rochester, Minnesota, will give a lecture at the Royal Dental Hospital of London, School of Dental Surgery, on Monday, November 4th, at 6 p.m., on the relationship between medicine and dentistry, emphasizing the routine use of the *x* ray from both a pre- and a post-operative standpoint; the necessity of an improved extracting technique; and the significance of laboratory investigation.

A course of post-graduate lectures on child welfare, especially intended for health visitors, nurses, midwives, and the superintendents of infant welfare centres, will be held at the Infants Hospital, Vincent Square, S.W.1, on Mondays, from 6.30 to 7.30 p.m., from October 14th to December 16th. A detailed syllabus may be obtained from the honorary secretary of the National Association for the Prevention of Infant Mortality, 117, Piccadilly, W.1. A series of elementary lectures on infant care will be given by Dr. Prudence Gaffikin in the lecture hall at Carnegie House, 117, Piccadilly, W.1, on Thursday evenings, from 7.30 to 8.30, from October 10th to December 12th. Further information may be obtained from the secretary of the National Society of Day Nurseries at the same address.

The British Institute of Philosophical Studies has arranged for a course of six lectures on the mind and nature to be delivered during the Michaelmas term by Professor Leonard J. Russell, and also for a course of the same length by Mr. E. S. Russell, D.Sc., on the interpretation of development and heredity. During the Michaelmas and Lent terms there will be a course of lectures by the director of studies, Mr. Sydney Hooper, dealing with the introduction to philosophy, and during the Lent term a course by Professor W. G. de Burgh on some aspects of the moral life. A full syllabus of these lectures can be obtained on application to the director of studies at the British Institute, 88, Kingsway, W.C.2.

Mr. F. E. Smith, D.Sc., F.R.S., director of scientific research at the Admiralty, has been appointed by His Majesty the King in Council to be secretary to the Committee of the Privy Council for Scientific and Industrial Research, with effect from October 1st, 1929, on the resignation of Mr. H. T. Tizard, F.R.S.

The London School of Hygiene and Tropical Medicine states that the transfer of Dr. J. G. Thomson to the Ross Institute, recently announced in the press, will not take place. Dr. Thomson retains his appointment in the school as director of the department of protozoology.

In many towns in England and also throughout the Empire a "health week" will be held from October 6th to 12th, under the auspices of the Health and Cleanliness Council, the offices of which are at 5, Tavistock Square, W.C.1.

At an inquest which was held on the body of a married woman, aged 29, who died on September 21st, in a hospital where she had been receiving injections of an arsenobenzol preparation, Sir Bernard Spilsbury said that death was due to syncope from the effects of chronic arsenical poisoning. The house-physician stated that 20,000 injections were given in the hospital each year, but only one death had occurred. The deceased woman had developed purpura haemorrhagica, a condition which, he said, was so rare that only twelve cases were recorded in medical literature. Three attempts had been made to save her life by blood transfusion, but without success. The coroner said he was satisfied that the injections had been given with due care, at proper intervals, and recorded a verdict of death by misadventure.

The city council of Budapest, with the object of mitigating the nuisance of excessive noise, is proposing to issue orders some of which might well be emulated in our own country. According to the *Observer* (September 15th), the continuous in whistles, tramcar bells, and motor dust carts will no longer be allowed ngines will sound their sirens only when going to a fire. Noisy motor cyclists will be severely dealt with, and those convicted a second time under the new orders will forfeit both their licences and their machines. Traffic passing schools and hospitals will be compelled to obey a "go slow" order. Workmen building or repairing houses will not be permitted to shout to each other, and carpet beating will be tolerated only if the noise cannot be heard outside the courtyard. If a single tenant in a block of flats objects to an organ-grinder the music will have to stop. No one will be allowed to turn on a loud speaker or gramophone except behind sealed windows and doors, and even in music schools windows will have to be shut during the lessons. It is expected that the new orders will come into force on January 1st.

Dr. Howard Somervell, who accompanied the last Mount Everest expedition, will broadcast from all B.B.C. stations on October 6th, at 5.15 p.m., a missionary travel talk describing the Neyyoor Hospital of the London Missionary Society, in Travancore, South India.

The seventh congress of stomatologists will be held in Paris under the presidency of Dr. Rousseau-Decelle from October 21st to the 26th, when the following subjects will be discussed: septicaemias of dental origin, introduced by MM. Thibaut and Raison; surgical treatment of periodontal infections, introduced by Dr. Lacronique; and prophylaxis of dental caries, introduced by M. Léon Frey.

The Home Service Ambulance Committee of the Joint Council of the Grand Priory in the British Realm of the Order of St. John of Jerusalem and the British Red Cross Society, reporting for the quarter ended June 30th, 1929, notes the increasing use in the country of the committee's ambulances, which are now regarded as indispensable necessities by the community at large. Motor manufacturers are paying increased attention to the design of these ambulances, the price of which ranges from £250 to £1,000. No type has yet been evolved which eliminates all road shocks to the passenger, but the use of air mattresses with adjustment of the air pressure to the weight of the patient is to be recommended. Attention is also drawn to the importance of standardization in the manufacture of both stretchers and ambulances; many of the ambulances now in use are too short for the army type of stretcher that has not got telescopic handles.

Dr. Wu Lien Teh (G. L. Tuck), Director of the Manchurian Plague Prevention Service, was delegated by the Ministry of Health at Nanking to attend the Pan-Pacific Surgical Conference at Honolulu in August. Dr. Wu contributed two papers: one on the practice of surgery and anaesthetics in ancient China, and the other on surgical aspects of the treatment of bubonic plague.

The Queen Alexandra Sanatorium Fund, which helps patients in the early stage of pulmonary tuberculosis to obtain treatment in Switzerland—weekly grants of £2 being made to selected cases—has disbursed £2,638 during the year 1928-29, as compared with £1,898 last year. The St. Moritz Aid Fund has now been amalgamated with it. The number of patients assisted during the year under review was fifty-three, as compared with forty-four in the previous year; the average stay of patients at Davos was 168 days. It is announced in the annual report that it will not be possible to make so many grants in the coming year. Inquiries should be addressed to Mr. D. Vesey, 97, Warwick Road, S.W.5.

The Food Investigation Board of the Department of Scientific and Industrial Research has issued a report embodying a critical and historical study of the pectic substances of plants by M. H. Braufoot (M. H. Carré), D.I.C., D.Sc. Pectins are gelatinous carbohydrate substances widely distributed in plant tissues, especially in fruit and vegetables and in gums and mucilages. In recent years, in view of a growing realization of the importance of pectic substances in certain industrial processes, the need has arisen for more detailed knowledge of their nature and constitution and for the development of accurate methods for their extraction and estimation. The report may be obtained from H.M. Stationery Office, price 3s. 6d. net.

According to the *Journal of the American Medical Association* of August 10th, ten of the United States prohibit the issuing of any permits to physicians for prescribing alcohol, and only a limited amount of alcohol can be prescribed in thirteen other States. The total number of permits issued to physicians throughout the country on July 1st, 1929, was 69,645, as compared with 48,097 on July 1st, 1927. The States in which most liquor licences were issued were New York, Pennsylvania, and Illinois.

W. Heinemann announces for early publication a new edition of *Acute Infectious Diseases* by Dr. J. D. Rolleston.

According to an announcement in the *Frankfurter Nachrichten* of September 19th, an American lady, Mrs. Kerckhoff of Los Angeles, has presented the sum of 4,500,000 marks (£220,000) to the corporation of Bad Nauheim for the benefit of poor persons suffering from diseases of the heart. It is proposed with part of the money to build an institute for the investigation of the pathology and therapeutics of heart disease, and the treatment of patients sent to Bad Nauheim under the social insurance scheme.

The following appointments have recently been made in foreign faculties of medicine: Professor Schede, professor of orthopaedics at Leipzig; Dr. M. Baudoin, professor of general pathology at Paris, in succession to Professor Marcel Labbé; Dr. Ricardo Cabellero, professor of the history of medicine at Rosario; and Professor Jean Lépine, dean of the medical faculty at Lyons for the next three years.

Professor Karl Friedrich Wenckebach of Vienna has been awarded the Order of Merit of the Austrian Republic.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBERS** of the British Medical Association and the *British Medical Journal* are *MUSEUM 9861, 9862, 9863, and 9864* (internal exchange, four lines).

The **TELEGRAPHIC ADDRESSES** are:

EDITOR of the *British Medical Journal, Aitiology Westcent, London.*

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*

MEDICAL SECRETARY, *Medisecra Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone 24361 Edinburgh).

QUERIES AND ANSWERS.

TREATMENT OF MENORRHAGIA.

DR. MILDRED BURGESS (London, S.W.2) writes: In reply to "Persisting," who asked on September 14th (p. 523) for suggestions for treating menorrhagia in a young unmarried woman, I have found the following useful if taken fourteen days before and during the period: Potassium iodide, 5ss–5j; syr. aurantii, 5j; aquam ad 5viii. Half an ounce is taken in water three times a day after meals.

ABDOMINAL SURGERY AT SEA.

DR. J. E. J. PALSER (London, N.10) writes: In answer to the inquiry of "T. S. S." on September 28th (p. 604), I suggest Treves and Hutchinson's *Student's Handbook of Surgical Operations* (fourth edition, 1924), published by Cassell at 10s. 6d. As a ship surgeon I took it with me. It is short, and therefore cheap, but contains all essentials, including, of course, a large proportion of abdominal surgery.

INCOME TAX.

Bad Debt Allowance.

"A. B. C." inquires whether the names and addresses of patients whose accounts have been written off as bad debts can be demanded.

*** The Inspector of taxes has no such authority, but the Commissioners, in exercising their function in hearing appeals, are entitled to put any inquiries which, in their discretion, they consider necessary, and which are relevant to the amount of the liability. The question to which "A. B. C." refers is undoubtedly relevant, and if the Commissioners have reasonable grounds for desiring some corroboration of his estimate of bad debts, they are entitled to require the information. At the same time, in the case of a medical man, the information is of so confidential a nature that the Commissioners would, in our opinion, be unlikely to insist on its production, unless they felt there were strong grounds for requiring it. We therefore suggest that "A. B. C." should, first of all, make sure that his writing-off of bad debts is not excessive, and then inform the inspector that, having regard to the confidential nature of the information, he would prefer to appeal to the Commissioners rather than to supply the required particulars.

Assistant—Board and Lodging.

"E. J. S." is working as a full-time assistant, receiving £250 per annum *plus* board and lodging, which is paid for by his principal. He is married, and supports a widowed mother and a sister under 16 years of age. He has been assessed at £351, without any special allowance.

*** If the contract is that he shall receive £250 and free board and lodging, only the £250 is assessable, although his principal can treat the whole cost to him as a professional expense. He is entitled to an allowance of £25 in respect of the assistance given to his widowed mother, provided that she has no other substantial means of support. The allowance for the sister is doubtful, as it is not clear that "E. J. S." has the legal custody of the girl. Subscriptions to medical societies are deductible provided that his principal requires him to maintain his membership of those societies. We suggest that he might request the Inspector of taxes to show how the £351 has been arrived at, pointing out at the same time that the board and lodging cost to the principal is not assessable on himself.

Motor Car Transactions.

"R. S. F." bought a Buick saloon in 1926 for £475 and sold it this year for £50, replacing it by a Riley saloon, second-hand, at a cost of £135.

*** £135 is the maximum amount allowable, as the "cost of replacement" is the basis to be applied. Our correspondent would have done better if he had claimed depreciation allowance in the past. As it is, though he cannot now make such a claim for the current financial year, he would be well advised to do so for the following years.

LETTERS, NOTES, ETC.

DATE OF FIRST RECOGNITION OF PLACENTA PRAEVIA.

DR. BETHEL SOLOMONS (Dublin) writes: In opening the discussion on placenta praevia at the Annual Meeting of the British Medical Association at Manchester with a paper published on September 21st (p. 525), I gave a short historical survey of the subject. Dr. W. J. Young of Cambridge has very kindly drawn my attention to an omission. Jacques Guillemeau in 1609 mentioned that the placenta may be the presenting part, and that the condition gives rise to dangerous haemorrhage, which Nature is unable to suppress. He treated the condition by version and extraction. I am sure the mortality was very large following on extraction.

TONSILLECTOMY AND OLD AGE.

DR. A. T. CUNNINGHAM (London, W.1) writes: In the *Journal* of September 28th (p. 604) Mr. E. G. Collins records a case under this heading. Two years ago I removed the tonsils of a lady, aged 71, who had suffered from general ill health, with minor attacks of tonsillitis for several years. Immediately before the operation she had had more severe attacks, with definitely septic tonsils. I was asked to remove her tonsils, which I did by dissection under pure chloroform anaesthesia, using the Davis-Boyle gag; she was sitting up in bed and eating solid food in forty-eight hours. At that time I looked up some literature, but I could find little reference to the operation having been performed on patients over the age of 70. I believe, however, that it is not so rare as one thinks.

MEDICAL SICKNESS, ANNUITY, AND LIFE ASSURANCE SOCIETY, LTD.

DR. HARVEY HILLIARD (London, W.2), in the course of a letter received as we go to press, writes: The annual general meeting of this society will be held on Monday afternoon next, October 7th. The agenda on the notice calling the meeting ostensibly is to inform members what business will be transacted at the meeting. In point of fact, however, three important resolutions to be moved at the meeting, due notice of which had been given, do not appear on this agenda. Thus members of the society have not been made fully aware of all the resolutions on which a vote will be taken.

THE BRITISH COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS.

MR. VICTOR BONNEY (London, W.1) writes: In the issue of the *Times* of September 27th, in which the composition of the Council of the British College of Obstetricians and Gynaecologists was set forth, my name was included in the list of councillors. This was a mistake, and I should be obliged if you would publish this letter of correction.

A WARNING.

MEMBERS of the medical profession are advised to forward any begging letters they may receive from individuals unknown to them personally, but claiming to be widows or daughters of medical men, to the secretary of the Royal Medical Benevolent Fund, 11, Chandos Street, W.1, who is prepared to inquire into the circumstances of the case and to forward a report. We are informed that of letters which have thus been forwarded for investigation a number have proved to be from persons known to the Royal Medical Benevolent Fund as not deserving of charity.

MOTORISTS AND "WINTER TIME."

ON and after Sunday, October 6th, when summer time ceases, the hours of duty for day service A.A. road patrols will be from 9 a.m. till lighting-up time. Night service patrols will commence duty at lighting-up time and leave the road at 12 midnight. Lamps must be lit half an hour after sunset, instead of one hour as in summer time.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 53, 54, 55, 56, 57, 60, 61, and 62 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 58 and 59.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 163.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

283. Chromium Poisoning.

W. W. CARTER (*Med. Journ. and Record*, August 7th, 1929, p. 125) reports a case showing the effects on the nose and throat of chromium poisoning due to exposure to the fumes escaping during the process of plating on metallic surfaces by the electro-deposition of the metal from a solution of chromic acid varying in strength from 27 to 67 ounces in a gallon of water. The articles to be plated are immersed in this solution and subjected to the action of the electric current for six hours, oxygen being evolved from the anodes and hydrogen from the cathodes. These gases carry with them minute particles of chromic acid, which, coming in contact with the mucous membrane of the upper respiratory passages, cause symptoms of chromium poisoning, or of local poisoning when in contact with abraded skin. Although the vats may be covered and ventilated during the process, it is when they are opened for the removal of the plated articles that the fumes escape into the air and the danger of contact occurs; the risk is only slightly lessened by the use of electric fans. The symptoms are those of an ordinary coryza with an irritating cough, which is worse at night; if preventive measures and treatment are not adopted, ulceration and perforation of the cartilaginous septum ensues in two to three months. The bony septum is not affected and no incapacity results, though there may be frequent epistaxis with muco-purulent scabs and an irritating cough. The roots of the nails become affected if in contact with the solution. Prophylaxis consists in the provision of adequate exhaust ventilation of tanks and plating room, daily baths with change of clothing, the employment of an alkaline nasal spray once a day, and the use of vaseline on the hands, face, and nose, and all abraded surfaces. The author adds that affected areas should be cleansed with a strong solution of sodium bicarbonate or a dilute solution of sodium thiosulphate; this treatment is followed by the application of vaseline.

284. Influenza and Agranulocytosis.

A. BENATT and F. PFEUFFER (*Münch. med. Woch.*, August 2nd, 1929, p. 1283), who record an illustrative case, emphasize the resemblance between malignant influenza and agranulocytosis, both being characterized by their rapid course and extensive necrosis. Their patient was a lad, aged 18, who during the influenza epidemic of February–March, 1929, was suddenly taken ill with high fever, dyspnoea, and diarrhoea. Examination of the blood showed a leucopenia of 2,500, of which 12 per cent. were polymorphonuclears and the rest lymphocytes and monocytes. Death followed within twenty-four hours with signs of cardiac failure, and the necropsy showed the general lesions of influenza. The clinical course and pathological features of the case closely resembled those of agranulocytosis, except for the absence of buccal and faucial necroses.

285. Heart-block and the Stokes-Adams Syndrome.

E. DOWNIE (*Med. Journ. of Australia*, June 22nd, 1929, p. 822) has investigated a series of 27 patients with heart-block from the etiological, clinical, electro-cardiographic, and diagnostic standpoints; in all cases the block had been repeatedly demonstrated by the electro-cardiogram. Evidence of the Stokes-Adams syndrome was present in 13 of the 27 patients. Two other patients in whom this syndrome was present, though due to another cause, brought the total to 29; of these, 11 had died, while 6 could not be traced. The series collected by the author constituted 0.3 per cent. of a large number of unselected cardiac cases. The disease was found three times as often in males as in females, and most frequently in the sixth and seventh decades. Syphilis, degenerations of the [illegible]y disease were the [illegible]und that the Stokes-Adams syndrome was common when the block was variable in degree, while it occurred in only one-third of patients with constant block. In the whole series an average pulse rate of 38 was found, the average blood pressure being 160 systolic and 75 diastolic. Apart from the presence or absence of the Stokes-Adams attack and variation in the degree of block, no clinical distinction could be drawn between the group affected by, and the group free from, this syndrome. Purely syncopal attacks were found to be about twice as frequent as epileptiform seizures, and in most no warning occurred. Those patients afflicted with the Stokes-Adams syndrome lived for two to six years after the onset of symptoms, while those with constant dissociation and no attacks lived for an average of ten years. Death from progressive myocardial failure was never observed. Electro-cardiography showed that 14 of the 27 patients had complete block; extra-systoles, left-sided preponderance, right and left branch bundle block occurred as associated conditions. Concerning diagnosis, the author emphasizes the presence of a slow ventricular rate uninfluenced by exercise, atropine administration, or vagal compression, and the necessity of repeated clinical and electro-cardiographic examination of suspected patients.

286. Immunization against Scarlet Fever by a Scarlatinal Anatoxin.

G. RAMON and R. DEBRÉ (*C. R. Soc. de Biologie*, August 13th, 1929, p. 1035) have prepared a scarlatinal anatoxin from a filtrate of cultures of *Streptococcus scarlatinae* by the addition of formol. It is said to be not only perfectly harmless, but also to possess a specific antigenic action. To 171 children and 40 adults with a positive Dick reaction were given three injections of the anatoxin, the first consisting of 0.5 c.cm.; the second, three weeks later, of 1 c.cm.; and the third, a fortnight afterwards, of 1.5 to 2 c.cm. The injections were well borne, there being only a local redness with more or less swelling at the site of injection. In about half the cases a slight general reaction was observed. Three weeks after the third injection the Dick test was performed and found to be negative in 88.37 per cent. The authors remark that time will show whether the immunity thus conferred by this anatoxin is permanent.

287. Narcolepsy following Epidemic Encephalitis.

G. R. KAMMAN (*Journ. Amer. Med. Assoc.*, July 6th, 1929, p. 29), who records an illustrative case, states that narcolepsy is a rare sequel of epidemic encephalitis. The outstanding symptoms of narcolepsy, which was first described by Gelineau in 1880, are periodic attacks of involuntary sleep, and attacks of temporary loss of tone in the involuntary muscles, brought on by some emotional stimulus. Kamman's patient was a female school teacher, aged 36, in whom the two symptoms described developed after an acute attack of encephalitis, which was mistaken at the time for influenza. All forms of treatment failed, but the patient was able to continue her work as a teacher.

Surgery.

288. The Surgical Treatment of Biliary Calculosis.

A. BONADIES (*Il Policlinico*, Sez. Chir., July 15th, 1929, p. 341) publishes brief records of 123 cases of gall-stones operated upon in the last nine years. There were 9 deaths (mostly from pulmonary complications, and in severe cases with fever and jaundice) and 4 relapses. Since the use of preliminary anticatarrhal vaccination the pulmonary complications have much diminished; thus in the first 60 cases without this vaccination the pulmonary complications numbered 8, while in the second 63, with vaccination, they were only 5. To combat general infection the author recommends the free administration of glucose solution either rectally, orally, or hypodermically. Relapses may be due to overlooked small calculi, fresh formation, or possibly to pseudocolic due to spasm. The result of 90 per cent. cures and low mortality (no deaths in cases where there was no jaundice or fever) encourages the author to plead for early operation in preference to medical treatment. The subsequent history was traced in 85 out of the 123 cases.

289. Conservative Treatment of Exomphalos.

P. CAFFIER (*Zentralbl. f. Gynäk.*, August 17th, 1929, p. 2087) reports with illustrations the case of a full-time male infant born with extensive exomphalos after normal labour. The parents had had fourteen years of sterile married life before the birth of this child. The hernia was 10 cm. long, 8 cm. wide, and 7 cm. deep, and it was covered by a transparent membrane through which the stomach, intestines, and liver were plainly visible, the upper quadrant alone being covered with epithelium. The protrusion was situated mainly in the epigastrium, the urinary bladder being apparently normal. As the infant was not seen until some hours after birth an operation was contraindicated on account of the risk of sepsis, and conservative treatment in the form of 5 per cent. alcohol compresses changed frequently was employed. The

transparent hernial sac soon took on a greyish colour, and was quite opaque; by the seventh day the skin, which originally only extended over one-quarter of the hernia, had become very vascular and covered nearly half the sac, the remaining portion being overlaid by a mass of necrotic amnion. This was cast off in shreds in the course of the next few days, leaving a small granulating area, while the epithelium continued to spread over the hernia. The alcohol treatment was then discontinued and alternate dressings of silver and zinc ointment were applied, while the granulating ulcer was cauterized with silver nitrate. At the end of three months the whole hernia was covered with epithelium; its length and breadth had been diminished by 2 cm. and its depth by 3 to 4 cm. With the growth of the child and the increasing thickness of the epithelium it was possible by pressure to reduce the whole of the hernial contents between the recti into the abdominal cavity, and Caffier hopes that as the sac shrinks further and the recti increase in strength a complete cure will ultimately result. At the time of reporting the child was 4½ months old, weighed 11 lb., and, in spite of an intercurrent attack of broncho-pneumonia at 4 weeks, was developing satisfactorily. Caffier points out that in the treatment of exomphalos the question of space inside the abdominal cavity should receive careful attention. In view of the fact that this congenital condition is not the result of true extrusion of viscera, attempts at covering the protruding mass by a ventral hernia operation of the usual type, if performed before the abdominal wall and cavity have grown sufficiently to hold the additional mass, must entail the risk of either a recurrence of the hernia or bursting of the wound. He therefore recommends that the above technique, modified from a recommendation of Ahlfeld, should be adopted, at any rate as a preliminary measure, in suitable cases.

290. Facial Erysipelas.

D. SEEGAL and B. C. SEEGAL (*Journ. Amer. Med. Assoc.*, August 10th, 1929, p. 430) have made a study of 281 cases of facial erysipelas treated at the Massachusetts General Hospital from 1870 to 1927. The cases were most frequent from December to May—a period roughly coinciding with the high frequency months for haemolytic streptococcus throat carriers and wound infections; 13.5 per cent. of the cases occurred in the hospital staff, but only one was a medical officer; 48 per cent. occurred in patients after admission, about half of whom were medical cases, while the others had recently undergone some surgical operation. Of the last group slightly more than half had had their operation limited to the face. The temperature was usually high during the first two days of the disease, and about three-fourths of all the patients had a temperature of 103–104°. The natural course of facial erysipelas untreated by specific serum sometimes ended abruptly by crisis in four to seven days. The death rate was 19.6 per cent., which was reduced to 5 per cent. when patients with other serious illnesses were excluded. The highest mortality occurred among the very young and the aged.

291. Congenital Defects of the Bladder and Urethra.

G. GREY TURNER (*Brit. Journ. Surg.*, July, 1929, p. 114) describes the t[illegible] defects of the bladder and urethra by [illegible] ureters into the bowel, and gives the [illegible] most suitable age for operation is said to be between 5 and 7, though the intraperitoneal method of operation has been performed as early as the third year of life. The method of Stiles, which was that used in all but two of the 17 cases, is an intraperitoneal anastomosis of the ureters into the recto-sigmoid, carried out through an abdominal incision, about 1½ inches of the ureter being buried in the bowel wall. The ureters are anastomosed one at a time with an interval of two or three weeks. In nearly every case continence became complete, and when the renal function had become established any plastic operation necessary for the repair of deformity was performed. The congenital defects rendering the operation necessary have been exstrophy of the bladder, and epispadias with incontinence in both sexes. Among the 17 cases treated there were 4 deaths due to operation; in three of these the cause was peritonitis, and in the fourth sloughing of the ureter with pelvic peritonitis. It was observed that the deaths occurred either when both ureters had been transplanted at one operation, or after the transplantation of the second ureter in the divided operation. Sometimes several months or even two years may elapse before the system becomes quite accustomed to the altered state and the condition of the patient is stabilized, since during the intervening period complete [illegible] are [illegible] ng acquired and the kidneys Duri[illegible] to constant mild infection. [illegible] to be inadvisable to attempt any plastic procedure such as the removal of the bladder mucous membrane.

Therapeutics.

292. The Acid Treatment of Hay Fever.

H. BECKMAN (*Med. Journ. and Record*, July, 1929, p. 9) refers to Bishop's publication of 1893, setting out the uric acid theory of hay fever. Although this theory has since been discredited, Beckman believes that the empirical success of acid therapy suggests that a relative degree of alkalosis may be the underlying fault in many hay fever subjects. He points out that the pollen desensitization treatment came into prominence immediately after Bishop's publication, and that the acid therapy never obtained a fair share of publicity. In 1918 Beckman, himself a sufferer from hay fever, made a trial of treatment by nitrohydrochloric acid and obtained complete relief; he has had the opportunity of treating sixteen other patients during the last ten years, all with success. He publishes a table of results in 185 cases, including his own, and compares the results with those in 2,185 cases treated by pollen desensitization, the number of cases "completely relieved" and "greatly benefited" in the two series being approximately equal. Beckman recommends the use of a solution of nitrohydrochloric acid (U.S.P. not diluted) as follows: nitrohydrochloric acid 4 drachms, distilled water to 4 oz. One teaspoonful in two-thirds of a glass of water, followed by another glass of water, is taken after each meal, and again on retiring, as near midnight as possible. This solution gives a dose of just over ten drops of the acid to each teaspoonful; the fluid is pleasantly acid to the taste but not corrosive, though it is admitted that some physicians have stated that patients have complained that it was "too strong." Mention is made of the rarity of asthma and hay fever among diabetics, and Beckman suggests that the acidotic state may well act contrarily to the production of hay fever and other allergic diseases. In conclusion, the advantage of acid therapy over pollen desensitization is urged, by reason of its greater simplicity and the absence of unpleasant reactions. It is suggested that the study of the relation between the acid-base equilibrium and allergic diseases would repay further study.

293. Arsenobenzol Therapy of Vincent's Stomatitis.

DELGUEL and MAGIMEL (*Journ. de Méd. de Bordeaux et du Sud-Ouest*, August 10th–20th, 1929, p. 639) remark that Vincent's gingivo-stomatitis is usually thought to be associated with oral sepsis and neglect of cleanliness; they think that this explanation is insufficient, since this form of stomatitis is very rare in comparison with the great frequency of neglected mouths. Clinical observation shows that the infection may occur in a previously perfectly healthy mouth—as, for example, when the eruption of a wisdom tooth provides an entry for saprophytic bacteria. Delayed eruption of the third molars is a frequent cause of infection. The symbiosis of the various spirochaetes found in gingivo-stomatitis, noma, and pyorrhoea has not been explained satisfactorily. The theory that all these spirochaetes have a common origin has led to the employment of arsenobenzols in the treatment of buccal spirochaetosis, but the results have been disappointing, and the local application of arsenobenzols in cases of pyorrhoea has fallen into disrepute. The authors have seen a man who was under treatment for primary syphilis; during the first course of arsenobenzol injections (which cured his chancre) he developed a severe attack of Vincent's gingivo-stomatitis, with intense systemic symptoms. The stomatitis, although unaffected by the arsenobenzol treatment, was relieved and ultimately cured by local applications of chromic acid, and of aluminium and ammonium fluorides. The authors claim that this case shows clearly the absolute uselessness of antisyphilitic treatment in Vincent's spirochaetosis.

294. Treatment of Diabetic Ketosis.

O. PUCSKO (*Med. Klinik*, August 16th, 1929, p. 1284) discusses the action of glucose and insulin upon the course of diabetic ketosis, and concludes that whether administered together or separately they are beneficial. All his cases were of the worst type, mostly juvenile diabetes. Pucsko points out that, because of this adjuvant action of glucose, the patient's comfort could be greatly increased by substituting oral glucose for many of the insulin injections. When both are combined the patient drinks 10 grams of glucose in black coffee, and, either two or four hours later, receives an injection of 20 to 40 units of insulin. Glucose alone without any other remedy will often cause disappearance of the ketone bodies, and, curiously, a reduction of glycosuria. Daily examination of the urine of one patient treated only by dieting revealed that the specific gravity was 1025, the sugar content 2.8 per cent., and that there was much acetone. On treating with only 10 grams of glucose the figures changed in one day to 1015 and 0.95; the urine volume and the amount of acetone remained about the same. Further treatment with glucose

reduced the acetone, but the glycosuria persisted at about 1 per cent. Later the treatment was combined with insulin, so that on the twenty-third day of observation, though the patient was receiving only 20 units of insulin (combined with 10 grams of glucose) daily, yet the glycosuria and ketosis had disappeared, the body weight had increased by about 17 lb., and the patient was eating bread. Several other instances are recorded in which for a time the patients were successfully treated with glucose alone. Another patient was treated with insulin alone; his progress was only fairly good until glucose was given in addition; then improvement was marked. Quite apart from the fact that this treatment can replace so many units of insulin, glucoso-insulin therapy seems to produce results that no amount of insulin alone will yield. The method is also useful when a sudden severe ketosis occurs —for instance, in coma or after an operation. Finally, patients need not be forbidden drinks sweetened with glucose once or twice daily. It should be noticed that these results apply to 10 or 20 grams of glucose; the author remarks that, perhaps, quantities greater than this may produce the opposite effect.

Anaesthetics.

295. Nitrous Oxide-Oxygen Anaesthesia in Goitre Operations.

J. L. DE COURCY (*Anesthesia and Analgesia*, July–August, 1929, p. 230) agrees with Crile that the combination of nitrous oxide with oxygen offers the safest general anaesthetic in goitre operations and is the method of choice. From the standpoint of the patient this form of anaesthesia is by far the most satisfactory yet devised. The induction of anaesthesia is rapid and free from any disagreeable features; the rapidity of recovery is equally as great, and, even after an anaesthesia lasting two or more hours, the patient may return to full consciousness in about two minutes. The dreaded after-effects of ether anaesthesia, particularly nausea and vomiting, are absent. The mixture of nitrous oxide and oxygen is, however, one of the most difficult anaesthetics to administer, and requires skill and patience. In goitre operations care must be taken that the air passages are kept clear, and the tongue must be prevented from falling backwards into the pharynx. Nitrous oxide alone produces its symptoms by oxygen deprivation, and leads to cyanosis and evidence of asphyxiation; it also raises the blood pressure. In combination with oxygen there is little danger of these untoward occurrences. Asphyxiation may also occur from compression or collapse of the trachea; this danger can be averted by the immediate administration of oxygen under pressure. During the induction of anaesthesia a high percentage of nitrous oxide must be inhaled until the patient reaches the desired stage of anaesthesia, and perhaps becomes slightly cyanotic. As the operation proceeds the percentage of oxygen is increased. Muscular twitchings can be controlled by increasing the ratio of oxygen; a loud stertor also is an indication for more oxygen. As a rule, the patient's colour and the mechanical type of respiration are the main guides as to the amount of the anaesthetic required, but the condition of the pupils and the activity of the reflexes should be examined from time to time. De Courcy states that the contraindications usually assigned for nitrous oxide do not apply when it is administered with oxygen, and that, even in aged patients, nitrous oxide-oxygen is not so dangerous as was once thought, because this combination does not cause a rise in the blood pressure.

296. Ethylene Anaesthesia.

As a result of its use in 1,000 cases of anaesthesia, covering a wide range of operations, C. E. TIPPING (*Canadian Med. Assoc. Journ.*, July, 1929, p. 62) concludes that the advantages and superiority of ethylene over any other anaesthetic far outweigh its few disadvantages. In anaesthesia with this gas the patient does not lose such a quantity of fluid from sweating as with other anaesthetics, and in the matter of causing nausea it compares favourably with nitrous oxide. The body temperature does not drop, the colour remains good, and no effect is produced on the basal metabolic rate. The kidney function may be slightly reduced, but there is no effect on the liver, and no harmful results have been noted in active lung cases. Its beneficial effects in heart lesions are probably due to the slow pulse rate. The gas is eliminated very rapidly from the lungs, and has less effect on the blood pressure than any known anaesthetic. There are no gas pains, yet peristalsis returns very rapidly. The disadvantages of ethylene are its odour and explosiveness. The former may be eliminated by starting and finishing with nitrous oxide. Tipping considers that the danger of explosion is no greater than with ether, and is unduly exaggerated. Success with this particular anaesthetic depends on proper premedication. Half an hour before operation 1/4 grain of morphine, which is better combined with 1/150 grain of atropine, should be given; in laparotomies 1/4 grain of morphine with 1/200 grain of hyoscine should be given one and a half hours before the operation. Any type of apparatus may be used. Tipping commences anaesthesia with 90 per cent. nitrous oxide and 10 per cent. oxygen. The latter is then stopped for one or two breaths, and 90 per cent. ethylene with 10 per cent. oxygen is administered. Smooth anaesthesia can be maintained with such a mixture. If, after the skin incision has been made, the blood appears dark (despite a pink colour of the skin) the percentage of oxygen is increased. When the skin is being sutured nitrous oxide is substituted for the ethylene, and when the operation is finished the bag is emptied and filled with oxygen. This eliminates any odour or headache. In only about 30 per cent. of cases is ether necessary; if so, it should be given in sufficient quantity rapidly, as this will suffice for the rest of the operation.

297. V. GHIRON (*Il Policlinico*, Sez. Chir., August 15th, 1929, p. 416) states that ethylene anaesthesia, which is employed in about 12 per cent. of the operations performed in the surgical clinic of the University of Rome, presents the following advantages over ether and chloroform. It does not do the slightest damage to the heart, lungs, liver, or kidneys; the patients recover rapidly from the anaesthetic, with a good colour and pulse; they complain only rarely of thirst and seldom suffer from vomiting. The only drawbacks to ethylene are its unpleasant smell and the rapidity with which it explodes in the neighbourhood of a light.

298. Volume Control of Spinal Anaesthesia.

R. B. STOUT (*Amer. Journ. of Surgery*, July, 1929, p. 57) describes a method of spinal anaesthetization by which the degree of anaesthesia on the body can be definitely controlled without the introduction of any substance other than novocain. The technique also prevents the wide variations in blood pressure and the nausea, vomiting, and related discomforts which frequently occur with most methods now in general use. Certain physico-chemical principles governing the diffusion of crystalloids in solution form the basis of the method. The most important factors in the volume control technique of spinal anaesthesia are: the aspiration of accurately measured volumes of spinal fluid to be used as a solvent for graded doses of novocain, and the re-injection of this spinal fluid-novocain solution at a constant measured rate without loss of fluid during the manipulation. Of equal importance is the properly timed prophylactic administration of ephedrine in amounts directly proportional to the height of anaesthesia to be produced, varied also according to the size of the patient and his vascular condition. This measure will maintain a vascular tone during anaesthesia which closely approximates the patient's normal. Tables and diagrams are given showing the different levels of anaesthesia and the dosage of novocain and ephedrine requisite to obtain these levels. The pre-operative treatment of the patient and the technique of ether anaesthetization are described. Stout also discusses the indications and contraindications for spinal anaesthesia and its benefits and complications. Failure to obtain anaesthesia may be due to two causes: one is the injection of the novocain extradurally, and the other is idiosyncrasy of the patient to novocain.

Obstetrics and Gynaecology.

299. Diabetes Insipidus and Pregnancy.

E. MOMIGLIANO (*Ann. di Ostet. e Ginecol.*, July 31st, 1929, p. 905), who records two personal cases, states that diabetes insipidus is a rare complication of pregnancy, as is shown by the fact that he has been able to collect only 31 cases from the literature between 1792 and 1927. As a general rule it appears fairly late in pregnancy. The principal symptoms, which are polyuria and polydipsia, may be occasionally accompanied by others, such as irregular temperature and anorexia. Loss of flesh is exceptional. The blood pressure is generally raised, and there is a slight diminution of the red blood cells and haemoglobin. A frequent if not constant symptom is the absence of sweating, not only under normal conditions, but also under thermal and pharmacological stimulation. In 10 of the 31 cases diabetes insipidus first appeared in the course of pregnancy, in 8 diabetes was complicated by pregnancy, in one it was congenital, while in the rest it was produced by mechanical, physical, or psychical causes, degenerative changes in the nervous system, or it was of toxi-infective origin. The prognosis depends on whether the pregnancy occurred in the course of diabetes insipidus or whether diabetes first developed in diabetes insipidus or whether diabetes first developed in pregnancy. In the former case pregnancy does not appear to exercise any special influence on the intensity of the

symptoms, while in the latter the symptoms of diabetes gradually increase until delivery and rapidly clear up in the puerperium. Treatment depends on whether the diabetes is symptomatic or idiopathic. In the symptomatic forms the treatment will obviously be guided by the cause of the condition, while in the other cases the treatment will be mainly concerned in dealing with the symptom of polyuria. Pituitary therapy may be followed by success, but the results as a whole are slight and inconstant. Drugs which have been employed are novasurol, insulin, adrenaline, urotropine, and digitalis, as well as protein therapy and lumbar puncture.

300. Ante-natal Intracranial Haemorrhages.

H. PIGEAUD (*Journ. de Méd. de Lyon*, July 5th, 1929, p. 437) does not accept the theory that meningeal haemorrhages in newborn children are, in the majority of cases, due to injury at birth. The author has examined seven embryos, expelled before the sixth month of pregnancy; in six of these the membranes were intact. Obviously these embryos were protected from pressure by their small size and the presence of liquor amnii. All showed extensive subdural and subarachnoid haemorrhages, while examination of other organs revealed many visceral haemorrhages (especially in the liver and spleen), and also inflammatory changes in the choroidal plexuses and in the hepatic parenchyma. In one case the foetus was mummified. The seventh specimen, a foetus in the fourth month, showed definite symptoms of hereditary syphilis. The subdural and visceral haemorrhages were usually surrounded by an intensely vascular zone with numerous macrophages containing blood pigment. These changes indicated that the haemorrhages had occurred at a period considerably antecedent to the date of foetal death, and therefore were not connected with any mechanical injury. Pigeaud concludes that the majority of these embryos were syphilitic, and that congenital syphilis is the principal, if not the sole, cause of ante-natal intracranial haemorrhage.

301. Treatment of Puerperal Infections.

A. FALCONE (*Riv. d'Ostet. e Ginecol. Prat.*, May, 1929, p. 15) has found that puerperal infections yield satisfactorily to treatment with injections of protein, and also of a ferment-producing substance—stomosine. He records 8 cases treated with protein and 11 cases with stomosine, without any failures. The protein used was sterile milk, of which 5 c.cm. were given as soon as a rise of temperature was noted. One patient required only one injection before the temperature fell; another had three injections, and the remainder two injections each. There were no anaphylactic symptoms, and the patients exhibited great tolerance to the treatment. The author considers the lactalbumin to be the therapeutic agent, but quotes Linding as stating that the casein promotes the disintegration of the antibodies. The curative action of stomosine is attributed to the liberation of ferments. One or two intramuscular injections were given, sometimes preceded by an injection of adrenaline; in some cases the reaction was considerable, with a brief rise of temperature, in others there was no reaction. There was an immediate fall of temperature in some patients, in others lysis ensued.

Pathology.

302. Serological Control of Kala-azar Treatment.

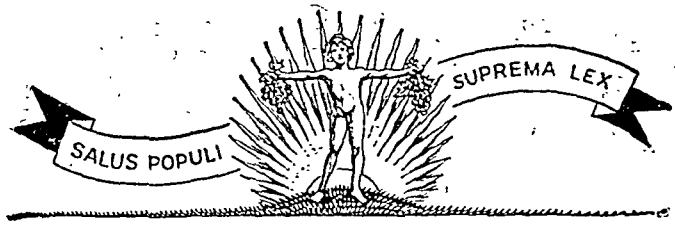
R. B. LLOYD, L. E. NAPIER, and S. N. PAUL (*Indian Journ. of Med. Research*, April, 1929, p. 1056) discuss the serological control of the treatment of kala-azar and add some observations on the significance of hypoproteinaemia; twenty-one graphs showing the behaviour of the serum protein fractions in varying types of the disease treated in different ways support the view originally put forward by Lloyd, in a publication of eight graphs showing the effect of a concentrated course of treatment by Bayer 693 B (para-amino-phenyl stibinate of diethylamine), that these changes may be used as a serological control leading to greater precision in treatment and clearly determining the point of cure. The authors studied the effects (i) of concentrated courses of 693 B consisting of eight daily intravenous injections to a total of 2.3 grams, (ii) of alternate daily injections, (iii) of intramuscular and (iv) of interrupted intravenous courses, (v) of stiburea, and (vi) of sodium antimonium tartrate. The protein graph test was found to be much more sensitive than all other tests, showing at any stage the progress towards cure; it was noted that the serum proteins resumed their normal values approximately 120 days from the commencement of treatment, and several patients were cured by giving fractional courses under the guidance of the graphs. The onset of the second stage is much more rapid with the concentrated courses of 693 B than with any other method of treatment, and its appearance indicates that the final stage of cure has commenced and that the prognosis is good. The authors are of opinion that the speed of onset of the second stage may be regarded as an index of the potency of the treatment, and that by this means the relative efficacy of different drugs and plans of treatment may be estimated. It appears that hypoproteinaemia, the characteristic feature of which is marked reduction in the albumin, produces conditions in which the malaria parasite will exist and reproduce, but that if kala-azar supervenes the reaction of the body produces the high globulin condition which is inimical to the malarial parasite. Apart from their applications to treatment the graphs are valuable as indicating the type of response to be expected when high globulin conditions are treated with the appropriate remedy.

303. The Induction of Tar Tumours in Mice.

I. BERENBLUM (*Journ. Path. and Bact.*, July, 1929, p. 425) describes a series of investigations which were undertaken to discover whether the skin of mice subjected to repeated applications of mild irritants (known to produce hyperaemia) would react more readily than normal skin to a carcinogenic tar, by developing tumours at an earlier date. The first irritant used, repeated freezing with carbon dioxide snow, gave inconclusive results, as the snow itself produced tumours, and also because the tar spread beyond the frozen area, thus complicating the results. A very dilute solution of dichloroethyl sulphide (mustard gas) was then chosen, and these results are now reported. Three groups, each comprising forty mice, were treated as follows: one group received applications of tar containing 0.1 per cent. mustard gas over a small area of skin; another group received applications of tar alone; and the third a 0.1 per cent. solution of mustard gas in acetone alone. It was found that the addition of the 0.1 per cent. of mustard gas to a carcinogenic tar inhibited the tar from inducing tumours, and that the induction of warts is still inhibited if the mustard gas is added to the tar as late as the eleventh week of tarring. This anticarcinogenic effect of mustard gas is due to its action on the animal, so that the skin no longer responds to the tar. In view of these observations Berenblum assumes that if a tar or other mixture of chemicals is found unable to produce tumours when painted on susceptible animals, it contains no carcinogenic principles. One possibility is that no such principle is present, but another possibility is that, though present, it cannot produce tumours because some other substance is also present which causes the skin to become refractory (as mustard gas would do). Some constituents of a non-carcinogenic tar might be absent in carcinogenic tars, and have the property of inhibiting the induction of warts. No such agent may exist (other than in the form of mustard gas), but its non-existence must be proved before ignoring the possibility of such an agent existing.

304. Typhoid Allergy.

J. F. DELALANDE (*Thèse de Paris*, 1929, *No.* 54) applies the term "typhoid allergy" to the various modes of reaction to the typhoid antigen observed in patients suffering from enteric fever. They appear to be due to a systemic intolerance to the proteins contained in the typhoid bacillus. The sensitiveness acquired in enteric fever may be demonstrated by application of the antigen to the conjunctiva (ophthalmo-reaction), or preferably by cuti or intradermal reactions. The author has employed a solution of globulins extracted from typhoid or paratyphoid bacilli and submitted to the prolonged action of formol. This product, while possessing a ver[illegible] toxicity, as is shown by [illegible] ents with the intrader[illegible] ..g results.—(1) In 75 per cent. of enteric patients it produces a papular erythema indicating hypersensitiveness of the patient injected. The age of the patient, the duration of the disease, and the occurrence of relapses do not appear to modify the results obtained. On the other hand, the reaction is absent or very slight in severe attacks of the ataxo-adynamic form. The reactions persist with the same intensity in convalescence and several years after recovery, thus showing that the immunity conferred by the infection is associated with hypersensitiveness of the organism to the typhoid antigen. The allergic state of typhoid patients in the acute stage or in convalescence can also be shown by intramuscular injection of antigen, which causes local tenderness and a rise of temperature of varying duration. (2) In 70 per cent. of healthy subjects the intradermal inoculation of typhoid antigen does not result in any appreciable reaction, while in 30 per cent. it gives rise to a slight redness or a distinct papule like that seen in the typhoid patient. This sensitiveness has hitherto been attributed to a typhoid carrier state or to previous unrecognized typhoid infection. This interpretation, however, is probably applicable to only a small number of cases, and a more likely explanation is a co-sensitization produced by saprophytic or pathogenic intestinal micro-organisms.



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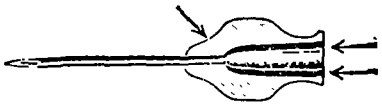

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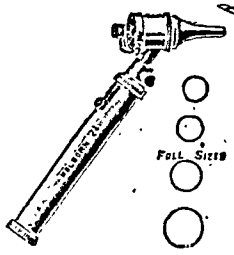

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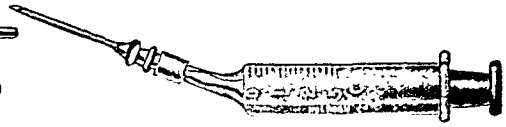

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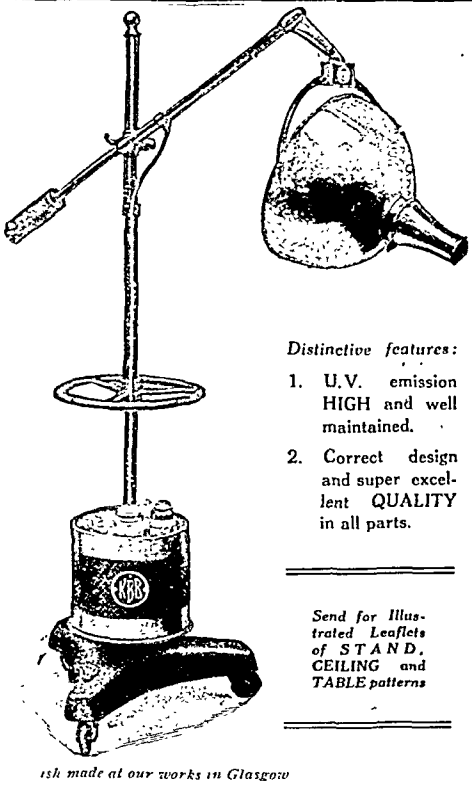

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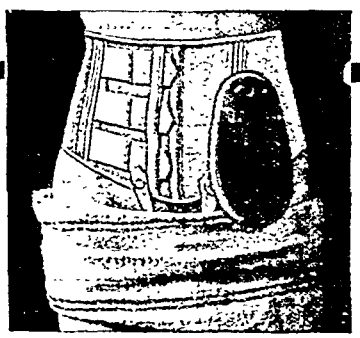

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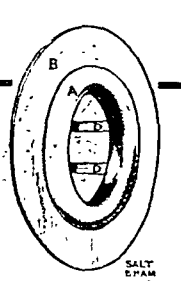

FIG. 1

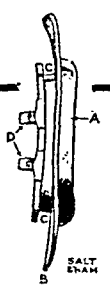

FIG. 2

FIGURES 1 and 2

A. Solid rubber pad fitting next body.

B. Flange to prevent belt becoming soiled.

C. Groove over which aperture in bag is stretched.

D. Curved bars to hold bag open.

FIG. 3

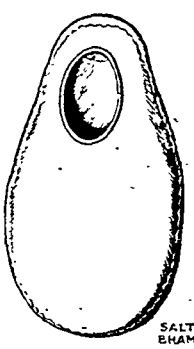

FIG. 4

Figure 3 shows end view of india-rubber receiver with (Fig. 4) bag attached.

Figure 5 shows receiver on belt, bag being on outer side of belt.

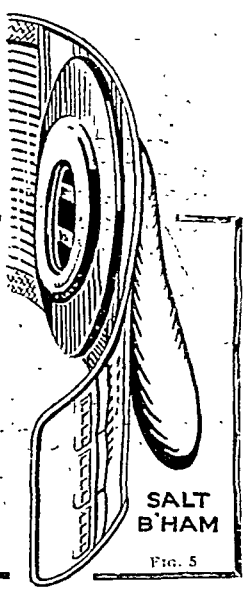

FIG. 5

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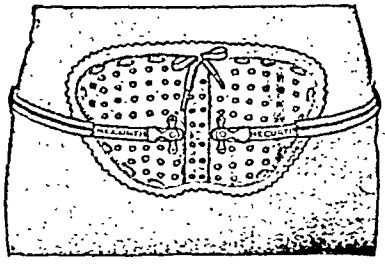

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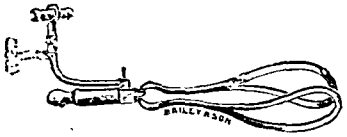

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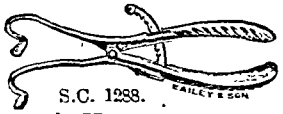

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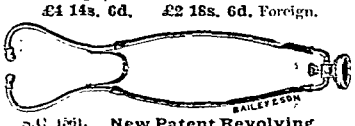

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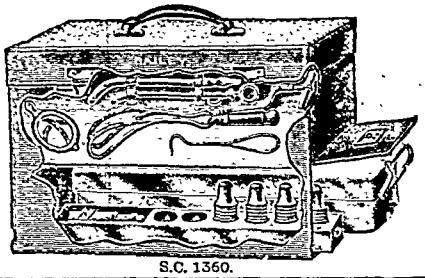

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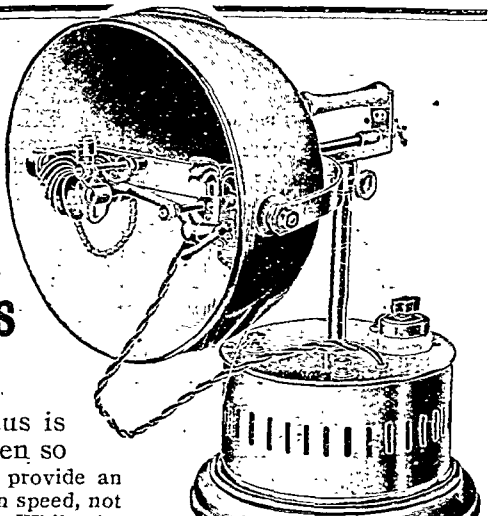

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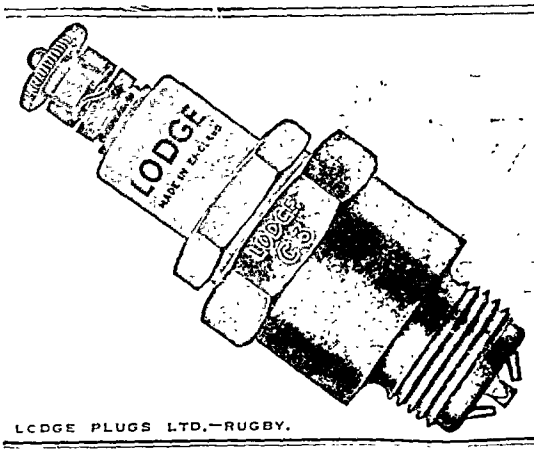

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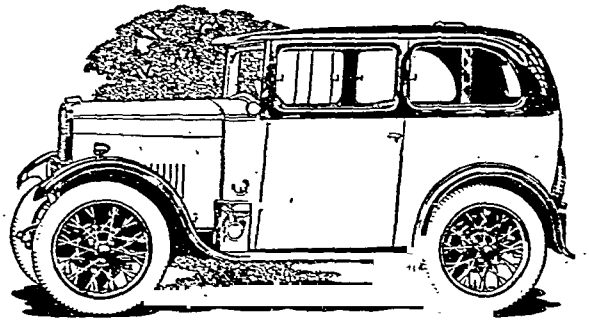

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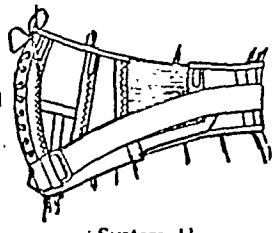

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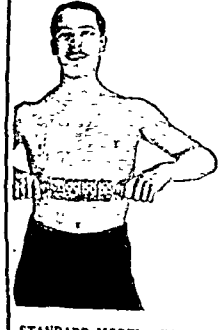

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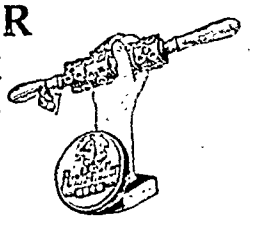

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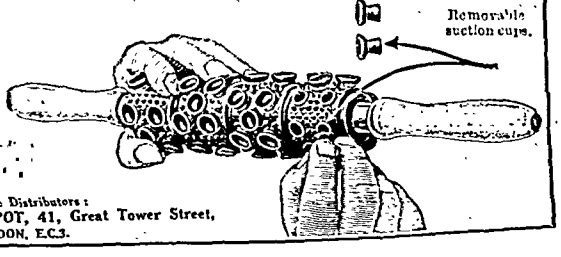

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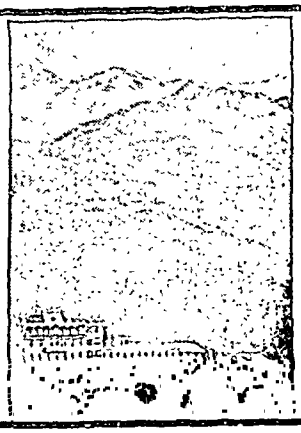

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The age of the pupil, district preferred, and rough idea of fees should be given.

J. & J. PATON, Educational Agents, 143, Cannon St., London, E.C.4 Tel: Mansion House 5053

F.R.C.S.(Edin.).

Prep. Classes and Museum Demons. for next Fellowship Exam will commence shortly. Correspondence course for Jany. and later exams. *should* begin now. Partics., Mr. H. C. ORRIN, F.R.C.S., at Surgeons' Hall, Edinburgh.

University of London.

Three Lectures (illustrated with lantern slides) on (1) *Seasonal Variations of Epidemic Diseases*, (2) *Epidemics*, (3) *Diphtheria Toxin and Antitoxin*, will be given by Professor Dr. THORVALD J. M. MADSEN (Director of the Statens Serum Institut, Copenhagen) at the LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE (Keppel Street, Gower Street, W.C.1) on OCTOBER 14th, 16th, and 18th, at 5 p.m. At the First Lecture the Chair will be taken by Dr. ANDREW BALFOUR, C.B., C.M.G., F.R.C.P., D.P.H. (Director of the London School of Hygiene and Tropical Medicine).

A Course of Four Lectures on "*Secretion of the Digestive Juices*" will be given by Dr. R. J. S. MCDOWALL at UNIVERSITY COLLEGE, LONDON (Gower Street, W.C.1), on MONDAYS, OCTOBER 14th, 21st, 28th, and NOVEMBER 4th, at 5 p.m.

A Course of Four Lectures on "*Metabolism of the Carbohydrates and Fats*" will be given by Dr. J. A. HEWITT, Ph.D., D.Sc., at KING'S COLLEGE, LONDON (Strand, W.C.2), on THURSDAYS, OCTOBER 17th, 24th, 31st, and NOVEMBER 7th, at 5 p.m.

A Course of Six Lectures on "*Human Nutrition*" will be given by Professor V. H. MOTTRAM, M.A. (Professor of Physiology in the University), at KING'S COLLEGE FOR HOUSEHOLD AND SOCIAL SCIENCE (91, Campden Hill Road, W.8), on FRIDAYS, OCTOBER 18th, 25th, and NOVEMBER 1st, 8th, 15th, and 22nd, at 5 p.m.

Admission free, without ticket.

EDWIN DELLER, Academic Registrar.

Epsom College.

(Established in 1855 as a Public School with a Royal Medical Foundation)

Notice is hereby given that an EXTRAORDINARY GENERAL MEETING of the Governors will be held at the Office, 49, Bedford Square, W.C., on Wednesday, October 23rd, at 5.45 o'clock, when the Council will propose that the Right Hon. the VISCOUNT BURNHAM, G.C.M.G., be elected President of the College.

By Order of the Council,

J. BERNARD LAMB,
Secretary.

September 30th, 1929.

Medical Department, SUDAN GOVERNMENT.

A MEDICAL OFFICER is required immediately for the Sudan Medical Service. The candidate must be single and should be under 30 years of age, and he must have held a Resident appointment in a large General Hospital.

Pay commences at £E.720 a year, rising to £E.1,200 after thirteen years' service. On confirmation of his appointment, the selected candidate will be eligible for pensionable service.

Applications (in writing only), with copies of recent testimonials, should be made to Dr. HOPSON, 24, Welbeck Street, W.1, from whom, and from the Secretaries or Deans of the principal Medical Schools, further particulars can be obtained.

Westminster Hospital, Broad Sanctuary, S.W.1.

THE "WANDER" SCHOLARSHIP IN DISEASES OF CHILDREN.

Applications are invited for the office of "Wander" Scholar and Registrar to the Children's Department. Salary £250 per annum.

Candidates must be registered medical practitioners who have held a resident post or posts in a Hospital, one of them preferably in diseases of children. The office is a whole-time one and is tenable for one year.

Applications, together with six copies of three recent testimonials, should be submitted to the undersigned, from whom further details regarding the duties of the office can be obtained, not later than Monday, October 21st.

By Order of the House Committee,

CHARLES M. POWER, Secretary.

Aberdeen Royal Mental Hospital.

JUNIOR ASSISTANT PHYSICIAN (male) wanted for the above Mental Hospital. Preference will be given to one who has had General Hospital experience. Commencing salary £250 per annum, with board, lodging, and laundry.

Applications, stating qualifications and experience, with copies of three recent testimonials, should be sent to the [illegible]

Dykeb [illegible]

ASSISTANT MEDICAL OFFICER wanted about the end of October. Salary £300 or £550 per annum, with [illegible] Applications to be s[illegible]

D P.H. —

Medical Officer of Health [illegible] a single PUPIL.—Address, No. 6278, B.M.A. House, Tavistock Square, W.C.1.

The Government of Bengal invite

applications for an appointment as a PROFESSOR OF PHYSIOLOGY at the PRESIDENCY COLLEGE, CALCUTTA.

Candidates must possess a good Honours Degree in Science or Medicine and should have specialised in Physiology. They should have undergone a recognized course in practical Zoology and Human Anatomy, possess experience as a lecturer or demonstrator, and preferably have published some original work in Physiology. Age should not be less than 30 nor more than 40 years.

Agreement for five years in the first instance. Pay at the rate of Rs.1,000, rising by annual increments of Rs.50 to Rs.1,200 a calendar month, the first increment taking effect at age 41, plus Overseas pay (for an officer of non-Asiatic domicile) of £35 a month. (Approx. sterling equivalent per annum of Rs.1,000: £900, Rs.1,200: £1,030.) Provident Fund. House allowance. Free first-class passages to and from India, and free first-class return passage to England on leave once during period of agreement. Strict medical examination. Selected candidate will be required to join the appointment at the beginning of March, 1930.

Further particulars and forms of application may be obtained upon request by postcard to the Secretary to the High Commissioner for India, General Department, 42, Grosvenor Gardens, London, S.W.1. Last date for receipt of applications, October 31st.

University of Sydney. NEW SOUTH WALES.

BOSCH CHAIR OF BACTERIOLOGY.

The salary for this Chair has been increased from £1,100 to £1,500 per annum, and the date of application has been extended to November 9th, 1929.

Applications already made will be assumed to have been made on these revised conditions.

Full conditions may be obtained on application to the undersigned.

(*N.B.—The notice applies to the Bacteriology Chair only: there is no alteration in the conditions relating to or in the date of application for the Bosch Chairs of Medicine and Surgery.*)

AGENT-GENERAL FOR NEW SOUTH WALES,
Australia House,
Strand, London, W.C.2.

Sept. 30th, 1929.

Manchester Union.

ASSISTANT MEDICAL OFFICER.

The Guardians of the Manchester Union invite applications from medical practitioners of either sex who have had previous resident hospital experience, for the appointment of Assistant Medical Officer at the WITHINGTON HOSPITALS (1,200 beds), and INSTITUTION (1,150 beds), NELL LANE, WEST DIDSBURY, MANCHESTER.

The Hospitals are recognized training schools for nurses, and are equipped with all modern hospital requirements.

The salary will be at the rate of £275 per annum, with rations and furnished apartments, subject to the usual deductions under the Poor Law Officers' Superannuation Act, 1896.

The successful candidates will be required to commence duty as soon as possible after appointment.

Applications, endorsed "Medical Appointment, Withington," accompanied by not less than three testimonials, must reach me not later than first post on Thursday, October 10th proximo.

Union Offices,
All Saints,
Manchester,
September 28th, 1929.

By Order,
F. W. GREENHALGH,
Clerk to the Guardians.

Burgh of Motherwell and WISHAW.

ASSISTANT TUBERCULOSIS OFFICER AND ASSISTANT MEDICAL OFFICER OF HEALTH.

Applications are invited from duly registered medical practitioners (male) holding the Diploma of Public Health and with experience of Tuberculosis work for the post of Assistant Medical Officer of Health and Resident Tuberculosis Officer in the Tuberculosis Hospital, Wishaw. Salary £400 per annum, increasing by annual increments of £25 to £500 per annum, with board and residence in the Tuberculosis Hospital, Wishaw.

The duties will be whole-time and under the direction of the Medical Officer of Health, and will be mainly those of executive tuberculosis work. The person appointed will also undertake general public health work when required.

Applications, stating age, qualifications, and experience, with copies of testimonials, not exceeding three in number, to be lodged with the Subscriber on or before October 12th.

Town Hall,
Motherwell.
September 26th, 1929.

A. G. STEWART,
Town Clerk.

ROYAL NAVAL DENTAL SERVICE.

The Admiralty is prepared to receive applications from qualified Dental Surgeons for entry into the Royal Navy as DENTAL OFFICERS.

Two vacancies are to be filled. Candidates must be below 28 years of age on December 31st, 1929 (unless granted an allowance for age, not exceeding six months, in respect of a period served in a recognized Civil Hospital appointment), and must be registered under the Dentists Act as qualified to practise as Dental Surgeons in Great Britain and Ireland. They will be required to appear before a Selection Committee and to pass a medical examination by a Board of Naval Medical Officers as to their physical fitness for entry.

The Regulations for entry and the forms to be filled up by candidates can be obtained on application to the Medical Director-General of the Navy, Queen Anne's Chambers, Tothill Street, London, S.W.1.

The form of application, accompanied by the necessary documents, must reach the Medical Director-General not later than November 18th.

Lindsey (Lines) County Council.

APPOINTMENT OF LADY ASSISTANT MEDICAL OFFICER.

Applications are invited for the post of Lady Assistant Medical Officer under the Lindsey County Council. Applicants will be required, under the general supervision of the County Medical Officer of Health, to undertake duties in connexion with the Maternity and Child Welfare Service of the Council, including the conduct of Infant Welfare Centres and Ante-natal Clinics and the treatment by modern methods of Venereal Diseases in Women, and also the treatment of errors of refraction in school children and any other duties that may from time to time be prescribed by the County Council.

Salary £500 per annum, rising by annual increments of £15 to £700. Travelling allowance according to the Council's scale (person appointed finding own car).

Applications, which must be on the prescribed form, to be obtained from the undersigned, must be received not later than October 31st, 1929.

W. S. H. CAMPBELL,
County Medical Officer.

County Offices,
Newland, Lincoln.
September 18th, 1929.

County Borough of Bootle.

ASSISTANT SCHOOL MEDICAL OFFICER AND ASSISTANT MEDICAL OFFICER OF HEALTH.

Applications are invited for the appointment of Assistant School Medical Officer and Assistant Medical Officer of Health (male) at a salary of £600 per annum, rising by £30 annually to a maximum of £750 per annum. Particulars of the duties (which include School Medical Inspection and the conduct of Maternity and Child Welfare Clinics) and forms of application may be obtained from the Medical Officer of Health, Town Hall, Bootle.

Applications, accompanied by copies only of not more than three testimonials, endorsed "Assistant Medical Officer," must be returned to me on or before October 19th.

Canvassing, either directly or indirectly, will disqualify candidates.

Town Hall,
Bootle.
September 27th, 1929.

J. SPENCER TUMILTY,
Town Clerk.

Parish of St. Pancras.

GUARDIANS OF THE POOR.

The Guardians of the Poor of the Parish of St. Pancras invite applications from duly qualified candidates for the appointment of a THIRD ASSISTANT MEDICAL OFFICER of the HIGHGATE HOSPITAL, Dartmouth Park Hill, N.19, with salary at the rate of £350 per annum, together with rations, lodging, and laundry, subject to deductions under the provisions of the Poor Law Officers Superannuation Act, 1896.

Candidates must be registered medical practitioners, qualified by law to practise both Medicine and Surgery in England and Wales, and preference will be given to candidates with Institutional experience.

For details as to duties, hours, and off-duty time apply to the Medical Superintendent of the Highgate Hospital.

Applications to be made *on forms* to be obtained from the Medical Superintendent at the Hospital, and selected candidates will be informed when and where they may attend a meeting of the Guardians.

Town Hall,
Pancras Road,
London, N.W.1.
September 24th, 1929.

B. CHAPMAN,
Clerk to the Guardians.

Birmingham Union.

SELLY OAK HOSPITAL.

RESIDENT PHYSICIAN (Male).

Applications are invited for the above post, giving age, full details of experience and qualifications and accompanied by copies of not more than three recent testimonials. Applications should be forwarded so as to reach the undersigned not later than Wednesday, October 9th.

Candidates must hold the degree of Doctor of Medicine of one of the Universities of the United Kingdom, or be a Fellow or a Member of the Royal College of Physicians of London or Edinburgh.

The Resident Medical Staff, including the Medical Superintendent, numbers eight.

The present Hospital accommodation consists of 540 beds for acute cases, divided into general medical, general surgical, gynæcological, obstetrical, and children's sections. Out-patient and Casualty Departments, as well as the following fully equipped special departments, are attached to the Hospital:—Pathological, X-ray, Electro-therapeutic, Massage, Ultra-violet ray.

The admissions and discharges for the year 1928 were 7,284 and 7,448 respectively.

The person appointed must devote the whole of his time to the duties of the office. He will act under the control and direction of the Medical Superintendent and will carry out such duties as may be assigned to him by such officer with the consent of the Guardians. Should occasion arise, the successful applicant must be prepared to assist at any of the other Institutions in the Union without additional remuneration.

The commencing salary will be fixed between £400 and £600, according to qualifications and experience. If fixed lower than the latter figure, the salary will rise to that figure by £50 annually, subject to satisfactory service. The Guardians' regulations provide that at the expiration of 12 months' satisfactory service additional allowances not exceeding in all £150 per annum are granted to the holders of certain prescribed degrees and/or diplomas.

Furnished quarters, rations, laundry, and attendance, will be provided. A deduction of 2 per cent. will be made from the salary and value of the emoluments under the provisions of the Poor Law Officers Superannuation Act, 1896.

Further particulars may be obtained, if desired, on application to the Medical Superintendent, R. P. S. Kelman, Esq., M.B., F.R.C.S (Eng. & Edin.).

Union Offices, Edmund Street, Birmingham.
C. P. BEECH, Clerk to the Guardians.

Hospital of St. Cross, Rugby.

(114 Beds.)

Applications are invited for the posts of SENIOR and JUNIOR RESIDENT MEDICAL OFFICERS (males).

Candidates must be registered medical practitioners, and must be prepared to begin duties as soon as possible. Salary for the Senior post at the rate of £150 per year, Junior at the rate of £100 per year, with board and residence in the Hospital.

Candidates are requested to state whether they are prepared to accept the post of Junior if not selected for the Senior office.

The appointments are for a period of six months only; at the end of that time the Junior will be eligible to apply for the Senior post, which then becomes vacant.

This Hospital is recognized by the University of London for the purposes of the M.D. and M.S.

Applications, stating age and qualifications, with copies of three recent testimonials, should be sent to me immediately.

W. COCKBURN, Supt. & Secretary.

Borough Mental Hospital,

ROWDITCH, DERBY.

SECOND ASSISTANT MEDICAL OFFICER wanted. Commencing salary £350 per annum, rising by £25 per annum to £450, with an additional £50 per annum if in possession of the Diploma in Psychological Medicine, with board, apartments, attendance, and laundry. Candidates must be unmarried and registered under the Medical Act. The appointment is subject to 5 per cent. deduction on salary and emoluments under the Asylum Officers Superannuation Act, 1909. Apply, not later than October 15th, stating age and full particulars, to the Medical Superintendent.

Wanted.—Fully qualified Doctor

for service in the TROPICS. Preferably ex House Surgeon or Physician. Agreement for three years. Salary £850, £900, £950. Renewable on higher terms. Free furnished quarters and first class passage provided. Candidates must be unmarried. Ladies not eligible. —Address with copies of testimonials (not returnable) No. 6276, B.M.A. House, Tavistock Square, W.C.1.

Birmingham Union.

SELLY OAK HOSPITAL.

CASUALTY OFFICER (Male).

Applications are invited from fully qualified medical practitioners for the appointment of Casualty Officer (male) at the Selly Oak Hospital, Birmingham.

The present Hospital accommodation is 550 beds, divided into General Medical, General Surgical, Gynæcological, Obstetrical, Children and Infectious sections. There is a completely equipped Pathological Laboratory, also X-Ray, Electro-therapeutic, Massage, and Sunlight Departments. Over 2,500 operations are performed annually.

The appointment will be for a period of six months in the first instance, but may be extended at the end of that time.

The gentleman appointed will be required to assist at operations, administer anæsthetics, and undertake casualty work, and such other duties as may be assigned to him by the Medical Superintendent, and, should occasion arise, to assist at any of the other Institutions under the control of the Guardians.

The salary attached to the appointment is at the rate of £200 per annum, together with full residential emoluments (rations, apartments, laundry, and attendance).

A deduction of 2 per cent. will be made from the salary and value of emoluments under the provisions of the Poor Law Officers Superannuation Act, 1895, and for this purpose the emoluments are valued at £200 per annum.

Further particulars of the appointment may be obtained from the Medical Superintendent, Mr. R. P. S. Kelman, M.B., F.R.C.S.(Eng. & Edin.), at the Selly Oak Hospital.

Applications, stating age, experience, and qualifications, accompanied by copies of recent testimonials, must be forwarded so as to reach me not later than Thursday, October 17th.

Union Offices, Edmund Street, Birmingham.
C. P. BEECH, Clerk to the Guardians.

September 25th, 1929.

Birmingham Union.

DUDLEY ROAD HOSPITAL.

JUNIOR ASSISTANT MEDICAL OFFICERS (Male).

Applications are invited from fully qualified medical practitioners for appointments as Junior Assistant Medical Officers (male) at the Dudley Road Hospital by the Guardians' Medical, Surgical, Maternity, Gynæcological, and Obstetrical Section. There are completely equipped Pathological and Biochemical Laboratories, X-ray, Electrical, Massage, Sunlight, and Dental Departments. Approximately 5,000 operations are performed annually.

The appointments will be for a period of six months in the first instance, but may be extended at the end of that period.

The persons appointed will be required to assist at operations, to administer anæsthetics, and undertake casualty work and such other duties as may be assigned to them by the Chief Medical Officer, and, should occasion arise, to assist at any of the other Institutions under the control of the Guardians.

The salaries attached to the appointments will be at the rate of £200 per annum, together with full residential emoluments (rations, apartments, laundry, and attendance).

A deduction of 2 per cent. will be made from the salaries and value of emoluments under the provisions of the Poor Law Officers Superannuation Act, 1896, and for this purpose the emoluments are valued at £200 per annum. Fourteen days' leave will be granted to the successful candidates during their term of office.

Further particulars of the appointments may be obtained from the Chief Medical Officer, F. W. Ellis, Esq., M.D., F.R.C.S., Dudley Road Hospital.

Applications, stating age, experience, and qualifications, accompanied by copies of recent testimonials, should be forwarded so as to reach me not later than Wednesday, October 9th.

Union Offices, Birmingham.
C. P. BEECH, Clerk to the Guardians.

Sept 19th, 1929.

North Ormesby Hospital,

MIDDLESBROUGH. (140 Beds.)

HOUSE PHYSICIAN required at once. Male and unmarried. Salary £115 per annum, with board, residence, and laundry. There are three Residents, and the successful candidate will be eligible for the post of House Surgeon in due course. Applications, stating age, qualifications, previous experience (if any), with copies of three recent testimonials, to be sent to the undersigned as early as possible.

GEORGE WATTS, Secretary-Supt.

County Borough of Darlington.

APPOINTMENT OF DEPUTY MEDICAL OFFICER OF HEALTH.

The Town Council invite applications from qualified persons for the post of Deputy Medical Officer of Health at a salary of £750 per annum.

The appointment will be a whole-time one and be terminable at any time by three months' notice on either side, and the person appointed will be required to act under the control and direction of the Medical Officer of Health and to carry out such duties as the Council or the Medical Officer of Health may assign to him from time to time.

He will be required to undertake the treatment of all persons attending the Council's Venereal Diseases Treatment Centre and to act as an Assistant School Medical Officer and as a Medical Certifier under the Mental Deficiency Acts, 1913 to 1927.

The appointment will be subject to the approval of the Ministry of Health and the Board of Education.

The person appointed must live in Darlington, must not engage in private practice, and will be required to pass a medical examination, and the appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922.

Applications on forms to be obtained from the undersigned, together with copies of three recent testimonials, must be received by him on or before noon on October 23rd.

Canvassing will disqualify.

Town Clerk's Office, Houndgate, Darlington. September 27th, 1929.
H. HOPKINS, Town Clerk.

Parish of Bermondsey.

ASSISTANT MEDICAL OFFICER (RESIDENT).

The Guardians of the Parish of Bermondsey invite applications from duly qualified medical gentlemen for the appointment of Assistant Medical Officer at their Hospital, Lower Road, Rotherhithe, London, S.E.16.

Candidates must have had at least twelve months' experience in hospital after registration, and should have enough surgical experience to be able to undertake emergency operations.

The appointment will be made for a period of six months only in the first instance, renewable for a further period upon satisfactory service.

Salary at the rate of £400 per annum for the first six months, increasing to the rate of £450 per annum for the second six months, together with rations, furnished apartments, washing, and attendance. The person appointed will be required to devote his whole time to the service of the Guardians, reside in the hospital, and act under the direction of the Medical Superintendent.

The hospital contains 687 beds.

The appointment is subject to the sanction of the Ministry of Health and the provisions of the Poor Law Officers' Superannuation Act, 1896.

Applications ... to be, qualifications, and date of three recent testimonials, and places to be made on forms to be obtained from the undersigned.

Applications must be returned to me at the latest by 10 a.m. on Monday, October 14th, and selected candidates will have notice when to attend a meeting of the Guardians.

Canvassing, either directly or indirectly, will disqualify.

By Order,
Guardians' Offices, 283, Tooley St., London, S.E.1
HENRY H. REEVE, Clerk to the Guardians.

September 28th, 1929.

County Borough of West Hartlepool.

ASSISTANT MEDICAL OFFICER OF HEALTH.

Applications for the position of Assistant Medical Officer of Health are invited from duly registered medical men holding the Diploma of Public Health.

The candidate appointed, who will act under the direction and supervision of the Medical Officer of Health, will be required to carry out the work in connection with Maternity and Child Welfare and as Assistant School Medical Officer. In addition he will be required to undertake any duties in connection with the medical services of the Local Authority, which may from time to time be assigned to him by the Medical Officer.

Forms of application may be obtained from me.

The inclusive salary will be £600 per annum.

Applications, endorsed "Assistant Medical Officer of Health," must reach me not later than October 16th.

HAROLD W. STANTON, Town Clerk.

September 30th, 1929.

Cumberland and Westmorland MENTAL HOSPITAL, GARLANDS, CARLISLE.

JUNIOR ASSISTANT MEDICAL OFFICER required.

Applicants must be registered practitioners, male, unmarried, not over 30. Salary £350 per annum, rising by two annual increments of £25 per annum to £400, together with the usual emoluments (board, furnished apartments, coal, light, attendance, laundry) at present valued for the purpose of the Asylum Officers Superannuation Act at £100 per annum. £50 additional will be given on obtaining the D.P.M. (facilities for study leave with a view to obtaining the D.P.M. are granted on recommendation of the Medical Superintendent). Previous experience desirable, but not essential. The appointment to be subject to two months' notice on either side. The successful candidate to be free to take up duty between November 10th and 17th. Applications, stating age, qualifications, religion, etc., together with copies of three recent testimonials, to reach the undersigned not later than first post October 17th.

J. H. MADILL, Medical Supt.

Leicester Royal Infirmary. HONORARY ASSISTANT OPHTHALMIC SURGEON.

The post of Honorary Assistant Ophthalmic Surgeon has been created and the Board of Governors will proceed to appointment on October 16th. Candidates should be Graduates in Medicine or Surgery of a University of the United Kingdom or Ireland, or Fellows by examination of a Royal College of Surgeons of the United Kingdom or Ireland. They will be required to give proof of six months' duty at an Ophthalmic Hospital or Dispensary, and be restricted to Ophthalmic practice. Applications, with copies of testimonials, to the undersigned by Saturday, October 12th, from whom further particulars may be obtained.

HARRY JOHNSON,
House Governor & Secretary.

NOTE.—The present Clinical Assistant in the Department, who is qualified under the above conditions, is a candidate for the appointment.

Hull Royal Infirmary. (272 Beds.)

Applications are invited for the following posts:

THIRD HOUSE SURGEON, vacant October 25th. Salary £150 per annum, with board, residence, and laundry.

ASSISTANT HOUSE PHYSICIAN, now vacant. Salary £130 per annum, with board, residence, and laundry.

Both appointments will be for six months in the first instance, terminable by one month's notice on either side.

Applications should be sent to the undersigned.

R. J. CARLESS,
Sept. 28th, 1929. House Governor.

Birmingham and Midland Ear AND THROAT HOSPITAL. (65 Beds.)

Applications are invited for the appointment of ASSISTANT SURGICAL OFFICER. Honorarium £200 per annum. The officer is appointed for twelve months, but he is eligible for re-election. He shall confine his practice to the specialty of the Hospital. Full particulars may be obtained on application to the undersigned. Applications to be sent in not later than October 19th.

S. G. GREW,
September 27th, 1929 Secretary.

Bolingbroke Hospital. (120 Beds) Wandsworth Common, S.W.11.

HOUSE PHYSICIAN (male) required. The appointment is for six months, commencing on November 1st next. Salary £120 per annum, with board, residence, and laundry.

Candidates must be fully qualified and registered.

Applications, stating age, qualifications, and experience, with copies of not more than three recent testimonials, should be sent to the undersigned on or before October 9th.

W. S. RANDOLPH BISS,
Secretary-Superintendent.

Bootle Borough Hospital (General—100 Beds). DERBY ROAD, BOOTLE.

Applications are invited from medical men for the post of JUNIOR MEDICAL OFFICER for the period ending March 31st, 1930. Salary at the rate of £125 per annum, with board, residence, and laundry. Duties to commence immediately.

Applications, stating age and qualifications, with copies of testimonials, to be sent to the undersigned at once.

J. A. BEARDSALL, Secretary-Supt.

Manchester Royal Infirmary. HOUSE SURGEON (Male)—Anal, Gynæcological and Ophthalmic Departments.

The Board of Management of the Manchester Royal Infirmary invite applications for the above appointment, which becomes vacant on November 15th.

Applicants must be registered and hold a Medical and Surgical qualification.

The appointment is for six months (three months as Junior and three months as Senior), subject to the provisions of the By-laws as to notice, etc.

Salary at the rate of £50 per annum, with board, residence, and allowance for laundry.

Applications, stating age, should be addressed to the Chairman of the Medical Board not later than October 16th.

By Order,
FRANK G. HAZELL,
Sept. 26th, 1929 Gen. Supt. & Sec.

County Mental Hospital, STAFFORD.

SECOND ASSISTANT MEDICAL OFFICER, male, single, required. Salary £600, rising by £25 per annum to £700; £50 per annum in addition if or when in possession of Diploma in Psychological Medicine. £130 per annum will be charged for furnished quarters, board, laundry, and attendance.

Every opportunity afforded for study and research, zero-diagnosis, etc., in well-equipped laboratory. Applications will be considered only from candidates with some experience of laboratory work.

Appointment subject to conditions of Asylums Officers Superannuation Act, 1909.

Applications, stating age, qualifications, etc., and enclosing copies of recent testimonials, to be addressed to the Medical Superintendent.

The Royal Infirmary, Doncaster. (121 Beds.)

THIRD HOUSE SURGEON (male) required immediately. Duties include Ophthalmic, Medical, and Casualty work. Opportunity for gaining excellent experience. Appointment is for six months, and successful candidate is eligible for re-appointment and probable promotion.

Salary £150 per annum, with board, residence, and laundry. Applications, with full particulars, should be addressed to the undersigned by Friday, October 11th.

J. LAWRENCE MEARS,
October 1st, 1929. Secretary-Supt.

Norfolk and Norwich Hospital, NORWICH.

Applications are invited for the post of HOUSE PHYSICIAN. Salary £120 per annum, with board, residence, and laundry. Preference will be given to candidate who has held a previous Hospital appointment. Candidates (male), who must possess registered qualifications, should forward applications, stating age, nationality, etc., together with copies of testimonials, to the undersigned, not later than Tuesday, October 15th.

FRANK INCH,
Oct. 5th, 1929. House Gov. & Secretary.

Royal South Hants and SOUTHAMPTON HOSPITAL, SOUTHAMPTON.

Applications are invited for the post of CASUALTY OFFICER. Salary £120, with rooms, board, and laundry. Six months' engagement. Candidates, who must be male and unmarried, should apply at once to the undersigned, stating age, and enclosing copies of testimonials.

By Order,
HY. TRUSSON, Secretary.

Queen's Hospital, Birmingham (MEDICAL SCHOOL).

Applications are invited for the post of MEDICAL REGISTRAR. Salary £200 p.a., with board, residence, and laundry. The appointment is for one year with eligibility for re-election. Applications, together with diplomas, evidence of registration, and copies of testimonials, to be sent to the undersigned not later than October 18th

G. HURFORD,
September 30th, 1929. House Governor.

Rotherham Hospital.

Wanted, HOUSE PHYSICIAN (male), qualified. Salary £180 p.a., with board, lodgings, and laundry, to have charge of Out patients, administer Anæsthetics, and assist Honorary Physician.

Applications, with copies of recent testimonials, to be sent to the Secretary, G. W. ROBERTS, 8, Moorgate Street, Rotherham.

Cardiff City Mental Hospital, WHITCHURCH, Near Cardiff.

A POST-GRADUATE RESEARCH STUDENTSHIP is available for one year, with possibility of renewal. The candidate, who must be medically qualified, is expected to undertake researches either in biochemistry or pathology, with some reference to mental or nervous problems. The research laboratories are under the directorship of J. H. QUASTEL, D.Sc., Ph.D. (Fellow of Trinity College, Cambridge), and the Hospital is attached, for teaching purposes, to the University of Wales.

The studentship carries, besides full board and accommodation, an honorarium of £100 per annum, augmented by locum work carried out within the Hospital to approximately £180.

Further details on application to the Medical Superintendent.

Royal Victoria Hospital, FOLKESTONE.

The Committee of Management invite applications for the posts of RESIDENT MEDICAL OFFICERS, SENIOR and JUNIOR (female) to commence duty on November 1st.

The salaries attached to the posts are: Senior £125, and Junior £100, with board and residence.

The appointments are for six months, subject to one month's notice on either side.

The present Junior Medical Officer is a candidate for the Senior post.

Applications, which should state if applicants are willing to serve in the junior position, together with copies of recent testimonials, should be sent to Capt. R. W. REED, Secretary-Superintendent, Royal Victoria Hospital, Folkestone, not later than Monday, Oct. 14th.

Salford Royal Hospital. (263 Beds.)

Applications are invited for the post of CASUALTY HOUSE SURGEON (male). Salary at the rate of £125 per annum.

The appointment is for a period ending March 31st, 1930, with board and residence.

Candidates must be registered under the Medical Acts. Forms of application, which may be obtained from the undersigned, must be delivered without delay.

By Order of the Board,
Salford Royal Hospital, GEORGE RUDDLE,
Manchester. Gen. Supt. & Sec.
September 30th, 1929.

Brighton and Hove Provident DENTAL HOSPITAL (Incorporated), 27, Queen's Road, BRIGHTON.

A vacancy exists on the Honorary Staff for an ASSISTANT DENTAL SURGEON. Candidates, who must be registered Dental Surgeons, should send in their applications on or before October 12th, giving full details as to qualifications, etc., to me, the undersigned, at the registered offices of the Hospital, 5a, Castle Sq., Brighton.

By Order of the Board,
(Signed) FRANK T. GOODLIFF,
Assistant Secretary.

Nottingham General Dispensary, Broad Street, NOTTINGHAM.

Wanted, RESIDENT SURGEON (male), unmarried. Must have Medical and Surgical qualifications. Salary £250, with £25 increase per year up to £300. Apartments (not board), attendance, light, and fuel. This Institution is a non-provident one. No beds. No midwifery.

Applications, stating age, and accompanied by recent testimonials, to be sent by October 16th to—

5, Eldon Chambers, R. J. WILLATT,
Nottingham. Secretary.

Northern Infirmary, Inverness.

The Directors propose to appoint an HONORARY RADIOLOGIST to the Hospital. Candidates should possess a Diploma in Radiology and will be expected to confine themselves to the practice of radiology. Candidates should possess experience in the use of Radium. Details and conditions of the appointment will be furnished on application to the Secretary, ROBERT GILBERT, Esq., 20, Church Street, Inverness, with whom letters of application and copies of testimonials should be lodged on or before November 4th.

St. John's Hospital, Lewisham, S.E.13.

Applications are invited for the resident appointments of MALE CASUALTY OFFICER and MALE HOUSE PHYSICIAN. These appointments are tenable for three or six months, commencing on November 1st, at a salary of £100 p.a. on November 1st, at a salary of £100 p.a. Applications, with copies of testimonials, should reach the Secretary at the Hospital not later than October 14th.

Birmingham Union.

SELLY OAK HOSPITAL.

RESIDENT PHYSICIAN (Male).

Applications are invited for the above post, giving age, full details of experience and qualifications and accompanied by copies of not more than three recent testimonials. Applications should be forwarded so as to reach the undersigned not later than Wednesday, October 9th.

Candidates must hold the degree of Doctor of Medicine of one of the Universities of the United Kingdom, or be a Fellow or a Member of the Royal College of Physicians of London or Edinburgh.

The Resident Medical Staff, including the Medical Superintendent, numbers eight.

The present Hospital accommodation consists of 540 beds for acute cases, divided into general medical, general surgical, gynæcological, obstetrical, and children's sections. Out-patient and Casualty Departments, as well as the following fully equipped special departments, are attached to the Hospital:—Pathological, X-ray, Electro-therapeutic, Massage, Ultra-violet ray.

The admissions and discharges for the year 1928 were 7,284 and 7,448 respectively.

The person appointed must devote the whole of his time to the duties of the office. He will act under the control and direction of the Medical Superintendent and will carry out such duties as may be assigned to him by such officer with the consent of the Guardians. Should occasion arise, the successful applicant must be prepared to assist at any of the other Institutions in the Union without additional remuneration.

The commencing salary will be fixed between £400 and £600, according to qualifications and experience. If fixed lower than the latter figure, the salary will rise to that figure by £50 annually, subject to satisfactory service. The Guardians' regulations provide that at the expiration of 12 months' satisfactory service additional allowances not exceeding in all £150 per annum are granted to the holders of certain prescribed degrees and/or diplomas.

Furnished quarters, rations, laundry, and attendance, will be provided. A deduction of 2 per cent. will be made from the salary and value of the emoluments under the provisions of the Poor Law Officers Superannuation Act, 1896.

Further particulars may be obtained, if desired, on application to the Medical Superintendent, R. P. S. Kelman, Esq., M.B., F.R.C.S.(Eng. & Edin.).

C. P. BEECH,
Clerk to the Guardians.

Union Offices,
Edmund Street,
Birmingham.

Hospital of St. Cross, Rugby.

(114 Beds.)

Applications are invited for the posts of SENIOR and JUNIOR RESIDENT MEDICAL OFFICERS (males).

Candidates must be registered medical practitioners, and must be prepared to begin duties as soon as possible. Salary for the Senior post at the rate of £150 per year, Junior at the rate of £100 per year, with board and residence in the Hospital.

Candidates are requested to state whether they are prepared to accept the post of Junior if not selected for the Senior office.

The appointments are for a period of six months only, at the end of that time the Junior will be eligible to apply for the Senior post, which then becomes vacant.

This Hospital is recognized by the University of London for the purposes of the M.D. and M.S.

Applications, stating age and qualifications, with copies of three recent testimonials, should be sent to me immediately.

W. COCKBURN, Supt. & Secretary.

Borough Mental Hospital,

ROWDITCH, DERBY.

SECOND ASSISTANT MEDICAL OFFICER wanted. Commencing salary £350 per annum, rising by £25 per annum to £450, with an additional £50 per annum if in possession of the Diploma in Psychological Medicine, with board, apartments, attendance, and laundry. Candidates must be unmarried and registered under the Medical Act. The appointment is subject to 3 per cent. deduction on salary and emoluments under the Asylum Officers Superannuation Act, 1909. Apply, not later than October 15th, stating age and full particulars, to the Medical Superintendent.

Wanted.—Fully qualified Doctor

for service in the TROPICS. Preferably ex House Surgeon or Physician. Agreement for three years. Salary £850, £900, £950. Rent quarters and first-class passage provided. Candidates must be unmarried. Ladies not eligible. Address with copies of testimonials (not returnable) No. 6276, B.M.A. House, Tavistock Square, W.C.1.

Birmingham Union.

SELLY OAK HOSPITAL.

CASUALTY OFFICER (Male).

Applications are invited from fully qualified medical practitioners for the appointment of Casualty Officer (male) at the Selly Oak Hospital, Birmingham.

The present Hospital accommodation is 550 beds, divided into General Medical, General Surgical, Gynæcological, Obstetrical, Children and Infectious sections. There is a completely equipped Pathological Laboratory, also X-Ray, Electro-therapeutic, Massage, and Sunlight Departments. Over 2,500 operations are performed annually.

The appointment will be for a period of six months in the first instance, but may be extended at the end of that time.

The gentleman appointed will be required to assist at operations, administer anæsthetics, and undertake casualty work, and such other duties as may be assigned to him by the Medical Superintendent, and, should occasion arise, to assist at any of the other Institutions under the control of the Guardians.

The salary attached to the appointment is at the rate of £200 per annum, together with full residential emoluments (rations, apartments, laundry, and attendance).

A deduction of 2 per cent. will be made from the salary and value of emoluments under the provisions of the Poor Law Officers' Superannuation Act, 1896, and for this purpose the emoluments are valued at £200 per annum.

Further particulars of the appointment may be obtained from the Medical Superintendent, Mr. R. P. S. Kelman, M.B., F.R.C.S.(Eng. & Edin.), at the Selly Oak Hospital.

Applications, stating age, experience, and qualifications, accompanied by copies of recent testimonials, must be forwarded so as to reach me not later than Thursday, October 17th.

C. P. BEECH,
Clerk to the Guardians.

Union Offices,
Edmund Street,
Birmingham.
September 25th, 1929.

Birmingham Union.

DUDLEY ROAD HOSPITAL.

JUNIOR ASSISTANT MEDICAL OFFICERS (Male).

Applications are invited from fully qualified medical practitioners for appointments as Junior Assistant Medical Officers (male) at the Dudley Road Hospital, Birmingham.

The Hospital accommodation is fixed by the Guardians at 926 beds, divided into Medical, Surgical, Children's Infectious, Maternity, Gynæcological, and Obstetrical Section. There are completely equipped Pathological and Bio-chemical Laboratories, X-ray, Electrical, Massage, Sunlight, and Dental Departments. Approximately 5,000 operations are performed annually.

The appointments will be for a period of six months in the first instance, but may be extended at the end of that period.

The persons appointed will be required to assist at operations, to administer anæsthetics, and undertake casualty work and such other duties as may be assigned to them by the Chief Medical Officer, and, should occasion arise, to assist at any of the other Institutions under the control of the Guardians.

The salaries attached to the appointments will be at the rate of £200 per annum, together with full residential emoluments (rations, apartments, laundry, and attendance).

A deduction of 2 per cent. will be made from the salaries and value of emoluments under the provisions of the Poor Law Officers Superannuation Act, 1896, and for this purpose the emoluments are valued at £200 per annum. Fourteen days' leave will be granted to the successful candidates during their term of office.

Further particulars of the appointments may be obtained from the Chief Medical Officer, F. W. Ellis, Esq., M.D., F.R.C.S., Dudley Road Hospital.

Applications, stating age, experience, and qualifications, accompanied by copies of recent testimonials, should be forwarded so as to reach me not later than Wednesday, October 9th.

C. P. BEECH,
Clerk to the Guardians

Union Offices,
Birmingham.
Sept 19th, 1929.

North Ormesby Hospital,

MIDDLESBROUGH. (140 Beds)

HOUSE PHYSICIAN required at once. Male and unmarried. Salary £115 per annum, with board, residence, and laundry. There are three Residents, and the successful candidate will be eligible for the post of House Surgeon in due course. Applications, stating age, qualifications, previous experience (if any), with copies of three recent testimonials, to be sent to the undersigned as early as possible.

GEORGE WATTS, Secretary-Supt.

County Borough of Darlington.

APPOINTMENT OF DEPUTY MEDICAL OFFICER OF HEALTH.

The Town Council invite applications from qualified persons for the post of Deputy Medical Officer of Health at a salary of £750 per annum.

The appointment will be a whole-time one and be terminable at any time by three months' notice on either side, and the person appointed will be required to act under the control and direction of the Medical Officer of Health and to carry out such duties as the Council or the Medical Officer of Health may assign to him from time to time.

He will be required to undertake the treatment of all persons attending the Council's Venereal Diseases Treatment Centre and to act as an Assistant School Medical Officer and as a Medical Certifier under the Mental Deficiency Acts, 1913 to 1927.

The appointment will be subject to the approval of the Ministry of Health and the Board of Education.

The person appointed must live in Darlington, must not engage in private practice, and will be required to pass a medical examination, and the appointment will be subject to the provisions of the Local Government and Other Officers Superannuation Act, 1922.

Applications on forms to be obtained from the undersigned, together with copies of three recent testimonials, must be received by him on or before noon on October 23rd.

Canvassing will disqualify.

H. HOPKINS,
Town Clerk.

Town Clerk's Office,
Houndgate,
Darlington. September 27th, 1929.

Parish of Bermondsey.

ASSISTANT MEDICAL OFFICER (RESIDENT).

The Guardians of the Parish of Bermondsey invite applications from duly qualified medical gentlemen for the appointment of Assistant Medical Officer at their Hospital, Lower Road, Rotherhithe, London, S.E.16.

Candidates must have had at least twelve months' experience in hospital after registration, and should have enough surgical experience to be able to undertake emergency operations.

The appointment will be made for a period of six months only in the first instance, renewable for a further period upon satisfactory service.

Salary at the rate of £400 per annum for the first six months, increasing to the rate of £450 per annum for the second six months, together with rations, furnished apartments, washing, and attendance. The person appointed will be required to devote his whole time to the service of the Guardians, reside in the hospital, and act under the direction of the Medical Superintendent.

The hospital contains 687 beds.

The appointment is subject to the sanction of the Ministry of Health and the provisions of the Poor Law Officers' Superannuation Act, 1896.

Applications, with particulars of age, qualifications, diplomas, and certificates held, date and place of registration, together with copies of three recent testimonials, must be made on forms to be obtained on application to the undersigned.

Applications must be returned to me at the latest by 10 a.m. on Monday, October 14th, and selected candidates will have notice when to attend a meeting of the Guardians.

Canvassing, either directly or indirectly, will disqualify.

By Order,
HENRY H. REEVE,
Clerk to the Guardians.

Guardians' Offices,
283, Tooley St.,
London, S.E.1
September 28th, 1929.

County Borough of West Hartlepool.

ASSISTANT MEDICAL OFFICER OF HEALTH.

Applications for the position of Assistant Medical Officer of Health are invited from duly registered medical men holding the Diploma of Public Health.

The candidate appointed, who will act under the direction and supervision of the Medical Officer of Health, will be required to carry out the work in connection with Maternity and Child Welfare and as Assistant School Medical Officer. In addition he will be required to undertake any duties in connection with the medical services of the Local Authority, which may from time to time be assigned to him by the Medical Officer.

Forms of application may be obtained from me.

The inclusive salary will be £600 per annum.

Applications, endorsed "Assistant Medical Officer of Health," must reach me not later than October 16th.

HAROLD W. STANTON,
Town Clerk.

September 30th, 1929.

Cumberland and Westmorland
MENTAL HOSPITAL,
GARLANDS, CARLISLE.

JUNIOR ASSISTANT MEDICAL OFFICER required.

Applicants must be registered practitioners, male, unmarried, not over 30. Salary £350 per annum, rising by two annual increments of £25 per annum to £400, together with the usual emoluments (board, furnished apartments, coal, light, attendance, laundry) at present valued for the purpose of the Asylum Officers Superannuation Act at £100 per annum. £50 additional will be given on obtaining the D.P.M. (facilities for study leave with a view to obtaining the D.P.M. are granted on recommendation of the Medical Superintendent). Previous experience desirable, but not essential. The appointment to be subject to two months' notice on either side. The successful candidate to be free to take up duty between November 10th and 17th. Applications, stating age, qualifications, religion, etc., together with copies of three recent testimonials, to reach the undersigned not later than first post October 17th.

J. H. MADILL, Medical Supt.

Leicester Royal Infirmary.
HONORARY ASSISTANT OPHTHALMIC SURGEON.

The post of Honorary Assistant Ophthalmic Surgeon has been created and the Board of Governors will proceed to appointment on October 16th. Candidates should be Graduates in Medicine or Surgery of a University of the United Kingdom or Ireland, or Fellows by examination of a Royal College of Surgeons of the United Kingdom or Ireland. They will be required to give proof of six months' duty at an Ophthalmic Hospital or Dispensary, and be restricted to Ophthalmic practice. Applications, with copies of testimonials, to the undersigned by Saturday, October 12th, from whom further particulars may be obtained.

HARRY JOHNSON,
House Governor & Secretary.

NOTE.—The present Clinical Assistant in the Department, who is qualified under the above conditions, is a candidate for the appointment.

Hull Royal Infirmary.
(272 Beds.)

Applications are invited for the following posts:

THIRD HOUSE SURGEON, vacant October 25th. Salary £150 per annum, with board, residence, and laundry.

ASSISTANT HOUSE PHYSICIAN, now vacant. Salary £130 per annum, with board, residence, and laundry.

Both appointments will be for six months in the first instance, terminable by one month's notice on either side.

Applications should be sent to the undersigned.

R. J. CARLESS,
Sept. 28th, 1929. House Governor.

Birmingham and Midland Ear
AND THROAT HOSPITAL. (65 Beds.)

Applications are invited for the appointment of ASSISTANT SURGICAL OFFICER. Honorarium £200 per annum. The officer is appointed for twelve months, but he is eligible for re-election. He shall confine his practice to the speciality of the Hospital. Full particulars may be obtained on application to the undersigned. Applications to be sent in not later than October 19th.

S. G. GREW,
September 27th, 1929. Secretary.

Bolingbroke Hospital.
(120 Beds.) Wandsworth Common, S.W.11.

HOUSE PHYSICIAN (male) required. The appointment is for six months, commencing on November 1st next. Salary £120 per annum, with board, residence, and laundry.

Candidates must be fully qualified and registered.

Applications, stating age, qualifications, and experience, with copies of not more than three recent testimonials, should be sent to the undersigned on or before October 9th.

W. S. RANDOLPH BISS,
Secretary-Superintendent.

Bootle
(General—100 Beds),
DERBY ROAD, BOOTLE.

Applications are invited from medical men for the post of JUNIOR MEDICAL OFFICER for the period ending March 31st, 1930. Salary at the rate of £125 per annum, with board, residence, and laundry. Duties to commence immediately.

Applications, stating age and qualifications, with copies of testimonials, to be sent to the undersigned at once.

J. A. BEARDSALL, Secretary-Supt.

Manchester Royal Infirmary.
HOUSE SURGEON (Male)—Anal, Gynæcological and Ophthalmic Departments.

The Board of Management of the Manchester Royal Infirmary invite applications for the above appointment, which becomes vacant on November 16th.

Applicants must be registered and hold a Medical and Surgical qualification.

The appointment is for six months (three months as Junior and three months as Senior), subject to the provisions of the By-laws as to notice, etc.

Salary at the rate of £50 per annum, with board, residence, and allowance for laundry.

Applications, stating age, should be addressed to the Chairman of the Medical Board not later than October 16th.

By Order,
FRANK G. HAZELL,
Sept. 28th, 1929 Gen. Supt. & Sec.

County Mental Hospital,
STAFFORD.

SECOND ASSISTANT MEDICAL OFFICER, male, single, required. Salary £600, rising by £25 per annum to £700; £50 per annum in addition if or when in possession of Diploma in Psychological Medicine. £130 per annum will be charged for furnished quarters, board, laundry, and attendance.

Every opportunity afforded for study and research, sero-diagnosis, etc., in well-equipped laboratory. Applications will be considered only from candidates with some experience of laboratory work.

Appointment subject to conditions of Asylums Officers Superannuation Act, 1909.

Applications, stating age, qualifications, etc., and enclosing copies of recent testimonials, to be addressed to the Medical Superintendent.

The Royal Infirmary, Doncaster.
(121 Beds.)

THIRD HOUSE SURGEON (male) required immediately. Duties include Ophthalmic, Medical, and Casualty work. Opportunity for gaining excellent experience. Appointment is for six months, and successful candidate is eligible for re-appointment and probable promotion.

Salary £150 per annum, with board, residence, and laundry. Applications, with full particulars, should be addressed to the undersigned by Friday, October 11th.

J. LAWRENCE MEARS,
October 1st, 1929. Secretary-Supt.

Norfolk and Norwich Hospital,
NORWICH.

Applications are invited for the post of HOUSE PHYSICIAN. Salary £120 per annum, with board, residence, and laundry. Preference will be given to candidate who has held a previous Hospital appointment. Candidates (male), who must possess registered qualifications, should forward applications, stating age, nationality, etc., together with copies of testimonials, to the undersigned, not later than Tuesday, October 15th.

FRANK INCH,
Oct. 5th, 1929. House Gov. & Secretary.

Royal South Hants and
SOUTHAMPTON HOSPITAL,
SOUTHAMPTON.

Applications are invited for the post of CASUALTY OFFICER. Salary £120, with rooms, board, and laundry. Six months' engagement. Candidates, who must be male and unmarried, should apply at once to the undersigned, stating age, and enclosing copies of testimonials.

By Order,
HY. TRUSSON, Secretary.

Queen's Hospital, Birmingham
(MEDICAL SCHOOL).

Applications are invited for the post of MEDICAL REGISTRAR. Salary £200 p.a., with board, residence, and laundry. The appointment is for one year with eligibility for re-election. Applications, together with diplomas, evidence of registration, and copies of testimonials, to be sent to the undersigned not later than October 18th.

G. HURFORD,
September 30th, 1929. House Governor.

Rotherham Hospital.

Wanted, HOUSE PHYSICIAN (male), qualified. Salary £180 p.a., with board, lodgings, and laundry, to have charge of Out patients, administer Anæsthetics, and assist Honorary Physician.

Applications, with copies of recent testimonials, to be sent to the Secretary, G. W. ROBERTS, 8, Moorgate Street, Rotherham.

Cardiff City Mental Hospital,
WHITCHURCH, Near Cardiff.

A POST-GRADUATE RESEARCH STUDENTSHIP is available for one year, with possibility of renewal. The candidate, who must be medically qualified, is expected to undertake researches either in biochemistry or pathology, with some reference to mental or nervous problems. The research laboratories are under the directorship of J. H. QUASTEL, D.Sc., Ph.D. (Fellow of Trinity College, Cambridge), and the Hospital is attached, for teaching purposes, to the University of Wales.

The studentship carries, besides full board and accommodation, an honorarium of £100 per annum, augmented by locum work carried out within the Hospital to approximately £180.

Further details on application to the Medical Superintendent.

Royal Victoria Hospital,
FOLKESTONE.

The Committee of Management invite applications for the posts of RESIDENT MEDICAL OFFICERS, SENIOR and JUNIOR (female) to commence duty on November 1st.

The salaries attached to the posts are: Senior £125, and Junior £100, with board and residence.

The appointments are for six months, subject to one month's notice on either side.

The present Junior Medical Officer is a candidate for the Senior post.

Applications, which should state if applicants are willing to serve in the junior position, together with copies of recent testimonials, should be sent to Capt. R. W. REED, Secretary-Superintendent, Royal Victoria Hospital, Folkestone, not later than Monday, Oct. 14th.

Salford Royal Hospital.
(263 Beds.)

Applications are invited for the post of CASUALTY HOUSE SURGEON (male). Salary at the rate of £125 per annum.

The appointment is for a period ending March 31st, 1930, with board and residence.

Candidates must be registered under the Medical Acts. Forms of application, which may be obtained from the undersigned, must be delivered without delay.

By Order of the Board,
Salford Royal Hospital, GEORGE RUDDLE,
Manchester. Gen. Supt. & Sec.
September 30th, 1929.

Brighton and Hove Provident
DENTAL HOSPITAL (Incorporated),
27, Queen's Road, BRIGHTON.

A vacancy exists on the Honorary Staff for an ASSISTANT DENTAL SURGEON. Candidates, who must be registered Dental Surgeons, should send in their applications on or before October 12th, giving full details as to qualifications, etc., to me, the undersigned, at the registered offices of the Hospital, 5a, Castle Sq., Brighton.

By Order of the Board,
(Signed) FRANK T. GOODLIFF,
Assistant Secretary.

Nottingham General Dispensary,
Broad Street, NOTTINGHAM.

Wanted, RESIDENT SURGEON (male), unmarried. Must have Medical and Surgical qualifications. Salary £250, with £25 increase per year up to £300. Apartments (not board), attendance, lights, and fuel. This Institution is a non-provident one. No beds. No midwifery.

Applications, stating age, and accompanied by recent testimonials, to be sent by October 16th to—

5, Eldon Chambers, R. J. WILLATT,
Nottingham. Secretary.

Northern Infirmary, Inverness.

The Directors propose to appoint an HONORARY RADIOLOGIST to the Hospital. Candidates should possess a Diploma in Radiology and will be expected to confine themselves to the practice of radiology. Candidates should possess experience in the use of Radium. Details and conditions of the appointment will be furnished on application to the Secretary, ROBERT GILBERT, Esq., 20, Church Street, Inverness, with whom letters of application and copies of testimonials should be lodged on or before November 4th.

St. John's Hospital, Lewisham,
S.E.13.

Applications are invited for the resident appointments of MALE CASUALTY OFFICER and MALE HOUSE PHYSICIAN. These appointments are tenable for three or six months, commencing on November 1st, at a salary of £100 p.a. Applications, with copies of testimonials, should reach the Secretary at the Hospital not later than October 14th.

British Medical Journal,

BRITISH MEDICAL ASSOCIATION HOUSE,
TAVISTOCK SQ., LONDON, W.C.1.

T/A: ARTICULATE, WESTCENT, LONDON.
Tel.: MUSEUM 9861 (4 lines).

SMALL ADVERTISEMENT RATES.

Up to Six Lines (32 Words) 9s.
Each Additional Line, 1s. 6d.
(Address included.)

Sixpence should be added if replies to a box number are to be posted.

All advertisements must be received not later than first post Tuesday previous to date of publication.

Will Bertram or Horace Horwitz of East London, South Africa, believed to be studying medicine in England, please communicate with MYER SELIG, 17, Mitchell Avenue, Newcastle-on-Tyne.

ASSISTANCIES.

Wanted. — Assistant (outdoor) male, single, by middle of October. English or Scot. Pleasant agricultural country Practice, West of England, all classes. Work light and time for study or sport. Able to drive car. £250—£300, according to experience. Board and lodging, etc., found. Advancement later considered. Usual bond.—Address, No. 6125, B.M.A. House, Tavistock Square, W.C.1.

Wanted immediately, Assistant, for private and panel Practice, Lancs town. Salary for outdoor £450, increase after 12 months; ex H.S. and experienced in panel preferred. Send all essential particulars.—Add., *No. 6136*, B.M.A. House, Tavistock Sq., W.C.1.

Wanted immediately, Assistant, young, male, unmarried, for general Practice, Newcastle-on-Tyne. Salary £350 p.a., outdoor. — Address, No. 6270, B.M.A. House, Tavistock Square, W.C.1.

Wanted immediately, indoor ASSISTANT (male) for mixed Practice in Midlands. Salary to commence £275 p.a. Car kept. Good opportunity for young man to gain experience in general practice.—Address, No. 6266, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—Permanent Assistant, male, young, to work with Two Partners in London. Private and panel. Salary to commence £275, *increasing quarterly by £25* to £350. All found. English, Welsh, or Scottish preferred.—Address, *No. 6002*, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistant, outdoor, male, to take charge of Branch Surgery. Pembs. Coast, country district. Motor-cyclist. Work light.—Address, No. 5013, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistant, single, outdoor, for Sheffield Branch Surgery; little midw[illegible] [illegible]ary £350, with rooms and half night fees. [illegible]eturned.—No. 6260, [illegible]q., W.C.1.

Wanted. — Assistant, indoor, male, in a Colliery Practice in South Wales. Dispenser kept. Salary £300 p.a.—Address, giving age, nationality, and *testimonials*, No. 6263, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistant, easily worked Medical Practice. Early succession or immediate sale with good introduction. S. of Eng. City. Receipts *about £1,000*.—Address, "L.," 20, Balcombe Street, N.W.

Wanted. — Indoor Assistant, London, in R.C. family. Work light. Usual duties. Opportunity to cultivate *speciality* if desired. Usual bond.—Address, No. 6109, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Indoor Assistant for panel Practice, five minutes from Charing Cross. Work light. Usual bond. State full particulars. Salary £250, board, etc.—Address, No. 6122, B.M.A. House, Tavistock Square, W.C.1.

Wanted, a young indoor ASSISTANT for mixed Practice in Northumberland Colliery district and near Newcastle-on-Tyne. Salary £275 p.a. State age, nationality. Send any further particulars, and photo.—Add., No. 6117, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — Part-time Assistantship in London, by M.B., B.S.(Lond.); 4 years' experience G.P.; reading higher exam.; indoor. Excellent references. Free Oct. 7th.—Address, No. 6139, B.M.A. House, Tavistock Square, W.C.1.

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September 25th, 1929.

Paisley District Asylum.
ASSISTANT MEDICAL OFFICER, male or female, required. Salary £200 per annum, with emoluments in board, lodging, laundry, etc., valued at £90 for Superannuation purposes.
Apply to Medical Superintendent, stating age, qualifications, and experience, with copies of not more than three testimonials.

Peace Memorial Hospital,
WATFORD, HERTS.
[illegible] OFFICER
Additional
(female). £
six months,
stating age
three recent
later than O

CAVENDISH NURSES (Male and Female)

Head Office: 64, BEAUMONT ST., LONDON, W.1 (late 43, New Cavendish St., London, W.1.)

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TELEPHONES: London, 1277 Welbeck. Glasgow, 477 Douglas. Manchester, 3152 Ardwick. Dublin, 631 Ballsbridge.

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Terms from £3 3s. *Apply to the Secretary or Lady Supt.*

West London Hospital,
Hammersmith, W.6.

An HONORARY REGISTRAR is required for the Throat, Nose, and Ear Department. The appointment is for one year from November 1st, and subject to annual re-election, may be extended for a period not longer than three years. Applicants must be duly qualified registered medical practitioners.

Applications, accompanied by copies of testimonials, must reach me not later than first post on Thursday, October 17th. Candidates must attend the Meeting of the Medical Council on Friday, October 18th at 4 p.m., and prior to that date call upon and send copies of application and testimonials to each Member thereof. They must not canvass Members of the Board, but nevertheless must send a copy of their application and testimonials to each Member thereof, and if notified be in attendance at a Meeting of the Board at 5 p.m. on Tuesday, October 22nd, when the appointment will be made.

H. A. MADGE, Secretary.

West London Hospital,
Hammersmith, W.6. (225 Beds.)

Required, One NON-RESIDENT HOUSE OFFICER (part-time) for Children's Department for six months from November 1st next, subject to one month's notice on either side. Applicants may be male or female. Salary at the rate of £150 per annum. Candidates must be registered under the Medical Act and have held a resident appointment at a Children's Hospital or in the Children's Department of a General Hospital.

Applications and copies of testimonials in quadruplicate (which must be made on printed forms obtained from me) must reach me not later than first post on Friday, October 11th. Selected candidates will be required to call upon such members of the Medical Staff as directed, to be in attendance at a Meeting of the Medical Council on Friday, October 18th, at 4 p.m. and the House Committee Meeting at 4.45 p.m. the same day when the appointment will be made.

H. A. MADGE, Secretary.

West London Hospital,
Hammersmith Road, W.6.

One SENIOR ASSISTANT MEDICAL OFFICER and Three JUNIOR ASSISTANT MEDICAL OFFICERS will shortly be required for work in the Venereal Diseases Department. Salaries: Senior £450 per annum, Juniors £350 per annum each. The appointments will be subject to six months' notice on either side. Candidates must be registered medical practitioners who have had special experience in the diagnosis and modern treatment of venereal diseases.

Applications, accompanied by copies of testimonials, must reach me not later than first post on Tuesday, October 22nd. Candidates must attend a Meeting of the Medical Council on Friday, October 25th, at 4 p.m., and prior to that date call upon such members as directed, and send copies of application and testimonials to each member thereof. The appointments will be made by the House Committee at 4.45 p.m. the same day. Further details with regard to the duties can be obtained from the undersigned.

H. A. MADGE, Secretary.

South Yorkshire Mental Hospital,
SHEFFIELD.

Wanted, MEDICAL OFFICER (male) not over 35, unmarried. Salary £400, rising £25 a year to £500, with board, etc. The appointment is made subject to the provisions of the Asylums Officers' Superannuation Act, 1909. Applications, with three testimonials (copies only), to be sent to the Medical Superintendent on or before October 16th.

Cumberland Infirmary,
CARLISLE.

HOUSE PHYSICIAN (male) required middle of October; six months' appointment; previous experience desirable. Salary at rate of £155 per annum, board, residence, etc. Applications, stating age, with copies of four testimonials, should be sent at once to the undersigned.

J. G. HOWITT,
September 30th, 1929. Secretary.

Woolwich and District War
MEMORIAL HOSPITAL,
Shooters Hill, London, S.E.18.
(A General Hospital. 112 Beds.)

RESIDENT MEDICAL OFFICER.

The Board of Management invites applications from suitably qualified (male) candidates, with special knowledge of surgery, for the post of Resident Medical Officer. Salary £175 per annum, with board, residence, and laundry. The appointment is for one year from November 1st, 1929, to October 31st, 1930, with renewal of appointment for one year at a salary of £200, if approved by the Board of Management.

Applications (accompanied by copies of not more than three recent testimonials), stating age, qualifications, experience, and nationality, should be sent to the Secretary-Superintendent on or before Friday, October 18th.

Woolwich and District War
MEMORIAL HOSPITAL,
Shooters Hill, London, S.E.18.
(A General Hospital. 112 Beds.)

HOUSE SURGEON.

The Appointments Committee invites applications for appointment as House Surgeon. An honorarium of £125 per annum will be paid in respect of this appointment, which will be for a period of six months, as from November 1st.

Applications, accompanied by copies of not more than three recent testimonials, are invited from suitably qualified candidates, and should be addressed to the undersigned, to reach him not later than 10 a.m. on Friday, Oct. 18th.

EDWIN RADFORD, Secretary-Supt.

The Hospital for Epilepsy and
PARALYSIS, Maida Vale, W.9.

A RESIDENT MEDICAL OFFICER required November 1st.

HOUSE PHYSICIAN required November 1st.

Applications are invited for these posts. The salaries are at the rate of £150 and £100 per annum respectively, and the appointments are for six months. Candidates for the post of Resident Medical Officer should state if they are willing to take that of House Physician, and applications, accompanied by copies of three recent testimonials, should reach me by October 9th.

The accommodation at the Hospital does not permit of Women Graduates holding these appointments.

H. W. BURLEIGH,
Secretary & Gen. Supt.

Hospital for Consumption and
DISEASES OF THE CHEST,
Brompton, S.W.3.

The Committee of Management invite applications for the post of HOUSE PHYSICIAN (for which there are three vacancies). The duties include work in the Out-Patient Department as well as in the Wards, and one of the selected candidates will also be appointed Assistant to the Tuberculosis Officer for the local Tuberculosis Dispensary at the Hospital. Applications, with copies of testimonials, must reach the undersigned not later than Saturday, October 12th.

The appointment is for six months, commencing on November 1st, with an honorarium of £52.

FREDERICK WOOD, Secretary.
Brompton, September, 1929.

Central London Throat, Nose,
AND EAR HOSPITAL,
Gray's Inn Road, W.C.1.

CHIEF CLINICAL ASSISTANTS.

It has been decided to increase the number of Chief Clinical Assistants. Applications are therefore invited for two such posts, which are honorary and tenable for one year, subject to re-election.

Attendance is required at two Clinics each week to assist the Surgeons in seeing the patients.

Applications, accompanied by copies of not more than three recent testimonials, should be sent to the undersigned on or before Oct. 7th.

JOHN H. YOUNG, Secretary-Supt.

Joint Counties Mental Hospital,
CARMARTHEN.

JUNIOR ASSISTANT MEDICAL OFFICER.

The Committee of Visitors of the above Institution (660 patients) invite applications from duly qualified candidates for the post of full time Junior Assistant Medical Officer (unmarried) at a cash salary of £300 per annum, together with emoluments (full board, residence, and attendance) now valued at £156 15s. for the purposes of the Asylums Officers' Superannuation Act, 1909, subject to the provisions of which and the previously existing terms of service the appointment will be made, terminable by three months' notice on either side.

Previous experience at a similar Institution and a knowledge of the Welsh language will be deemed desirable additional qualifications for the post, and applications containing full particulars as to age, qualifications, and previous experience, together with copies of three recent testimonials, must be delivered in sealed envelopes marked "Junior Assistant M.O.," on or before Monday, October 7th, to the undersigned, from whom any desired further particulars may be obtained.

34, Quay St., Carmarthen. W. J. WALLIS-JONES, Clerk to the Visitors.
September 20th, 1929.

Royal Devon & Exeter Hospital,
EXETER.

HONORARY PHYSICIAN.

Applications are invited for the post of Honorary Physician at this Hospital.

Candidates must be Fellows or Members of the Royal College of Physicians of London and Doctors of Medicine of one of the Universities of the United Kingdom and if appointed must practise as a Physician.

Particulars as to duties, etc., may be obtained from the undersigned.

Applications, together with certificates of birth and registration, original testimonials, with 35 copies, should be delivered to the undersigned not later than Saturday, October 26th.

Signed on behalf of the Committee,
S. S. COLE, Secretary.

N.B.—Canvassing of any member of the Standing Elective Committee is forbidden by the Rules of the Hospital.

The Gloucestershire Royal
INFIRMARY AND EYE INSTITUTION,
GLOUCESTER. (153 Beds.)

The General Committee invite applications for the post of HONORARY EAR, NOSE, AND THROAT SURGEON.

Candidates must be duly registered practitioners.

Applications, stating age, qualifications, experience, etc., accompanied by testimonials, should be forwarded to the Secretary on or before Wednesday, October 9th.

T. J. SYMONS,
September 5th, 1929. Secretary.

Seamen's Hospital Society.

KING GEORGE'S SANATORIUM FOR SAILORS, LIPHOOK, HANTS, for the Treatment of Pulmonary and Non-Pulmonary Tuberculosis.

Applications are invited for the post of ASSISTANT MEDICAL OFFICER. Commencing salary at the rate of £200 per annum, with quarters and board. The appointment is for six months in the first instance. There is no accommodation for a married man. Applications, with copies of three recent testimonials, to be sent in by October 9th to the undersigned.

R. E. V. BAX,
Greenwich. Secretary.
September 20th, 1929.

St. Peter's Hospital for Stone,
Henrietta Street, W.C.2.

It has been decided to appoint a RADIOLOGIST on the staff of the above Hospital. An honorarium of £25 per annum will be paid.

Applications, which should be accompanied by not more than three copies of recent testimonials, will be received by the undersigned not later than the first post on Wednesday, October 16th.

BEECHEY ROGERS, Secretary.

Royal Halifax Infirmary.

Wanted, a THIRD HOUSE SURGEON (male, unmarried). Candidates must be duly qualified and registered. (The Resident Medical Staff consists of Resident Surgical Officer and Three House Surgeons.) Th
months ending April
motion if satisfactor
Staff are as follows: Resident Surgical Officer £250, First House Surgeon £175, Second House Surgeon £150, and Third House Surgeon £100 per annum, with residence, board, and laundry. Particulars of duties may be obtained from the undersigned, to whom applications, with copies of testimonials, should be sent not later than October 15th.

A. MIDGLEY,
September 30th, 1929. Secretary.

North Middlesex Hospital,
EDMONTON, N.18.

SECOND ASSISTANT SURGEON (male) required for General and Obstetric Surgery. Salary £500 per annum, with board and lodging. Age not over 45 years. Candidates must have held senior posts with surgical experience and be able to deal with all surgical and obstetrical emergencies. The appointment is a whole-time one, and the gentleman appointed will be resident and must be unmarried. The work will include wards, theatre, and alternate 24 hours' emergency duty. Candidates are expected to hold a *University degree in Surgery* and should be or become a Fellow of a Royal College of Surgeons. Applications on forms obtainable from and to be returned to the Medical Superintendent. No personal interviews at present.

Worcester General Infirmary.
(132 Beds.)

JUNIOR RESIDENT MEDICAL OFFICER wanted.

Applications from gentlemen are invited, stating age, whether married or single, qualifications, experience, with copies of recent testimonials (not more than four), to be forwarded immediately to the undersigned. Salary at the rate of £120 per annum inclusive, with board, residence, and laundry.

The successful candidate will be required to take up duties on October 12th.

P. N. GLASS, B.Sc.(Vict.),
General Secretary.

Stirling District Mental Hospital,
LARBERT.

THIRD ASSISTANT MEDICAL OFFICER required (lady), with some previous experience of modern laboratory methods and pathological work. Well-equipped laboratory and facilities given for research work. Salary £250 per annum, with board, lodging, and laundry. Appointment subject to provisions of the Asylums Officers Superannuation Act. Apply, stating age, with particulars as to experience in laboratory work, and testimonials, to the Medical Superintendent.

North Riding Infirmary,
MIDDLESBROUGH.
(General Hospital, 150 Beds.)

JUNIOR HOUSE SURGEON (gentleman) wanted to take up duties soon as possible. Salary £125 per annum, with board, residence, and laundry. Six
appointment is for
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should be sent to th
C
Sept. 27th, 1929

City Mental Hospital,
NOTTINGHAM.

Wanted, JUNIOR ASSISTANT MEDICAL OFFICER (male), preferably with some Post-Graduate General Hospital experience. Salary £350 to £400 per annum by two £25 increases, all found, with an additional £50 per annum on obtaining the D.P.M. The Hospital has a well-equipped Laboratory. Application, with fullest particulars and names of two referees, should be sent to the Medical Superintendent of the above-named Hospital forthwith.

Weston-super-Mare General Hospital.
(60 Beds in use).

HOUSE SURGEON.

The Committee require the services of a duly qualified RESIDENT HOUSE SURGEON. Salary £150, with board, residence, and laundry. Duties to commence immediately. Application, with copies of testimonials, to be sent to the undersigned

LESLIE J. FURSLAND, Secretary.

General Hospital, Gt. Yarmouth.
(72 Beds.)

Applications are invited for the post of JUNIOR HOUSE SURGEON. Salary £100 per annum, with board, residence, and laundry. Duties to commence at once. Candidates (male and unmarried) must be fully qualified and registered.

Applications, stating age, nationality, and qualifications, together with copies of three recent testimonials, to be sent immediately to the undersigned.

T. H. G. GARTLAND, Secretary.

Liverpool Stanley Hospital,
STANLEY ROAD, LIVERPOOL.

The Committee of the Liverpool Stanley Hospital invite applications for the appointment of HON. DERMATOLOGIST.

Applications, stating qualifications and experience, are to be lodged with the undersigned, from whom any further particulars may be obtained by October 19th, endorsed "Hon. Dermatologist."

FRANK WHITE, Hon. Sec.
September 30th, 1929.

General Infirmary, Salisbury.
(General Hospital, 151 Beds.)

A RESIDENT MEDICAL OFFICER (male) required to commence duties November 9th.

Candidates must be unmarried, fully qualified, and registered. Salary £150, with board, etc.

Applications, with copies of testimonials, to be sent to the House Governor and Secretary, from whom a copy of the rules may be had if desired.

Islington Dispensary,
303, Upper Street, N.1.

RESIDENT MEDICAL OFFICER (lady, unmarried) wanted. Candidates must be Fellows or Members of the Royal College of Surgeons, and qualified to practise Medicine and Surgery. Salary £300 p.a., with furnished residence. Applications before October 22nd, on printed form to be obtained (by postcard) from the Hon. Secretary at the Dispensary. Duties begin December 1st.

The Royal Eye and Ear Hospital,
BRADFORD.

Applications are invited for the post of JUNIOR HOUSE SURGEON (male).

Salary £120, with board, residence, and laundry.

Applications, stating qualifications, age, etc., with copies of recent testimonials, to be forwarded to the undersigned.

T. BRIGGS, Secretary-Supt.

Scunthorpe and District War Memorial Hospital.
(Surgical and Medical—66 Beds.)

RESIDENT HOUSE SURGEON (male, unmarried) wanted to take up duties. Salary £250 per annum, with board, residence, and laundry. Applications, with three recent testimonials (copies), stating age, qualifications, experience, and nationality, must reach the undersigned, endorsed "House Surgeon," not later than October 21st.

ARTHUR E. MAW, Secretary.

St. Mary's Hospitals, Manchester

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logical), each for a period of six months from November 1st next. Salaries at the rate of £50 per annum, with board and residence. Application, with copies of three testimonials, to be sent to the undersigned on or before Oct. 16th.

R. RATCLIFFE, Secretary.

Saint Mark's Hospital for Cancer,
FISTULA AND OTHER DISEASES OF THE RECTUM, City Road, London, E.C.1.

HOUSE SURGEON (male) required. Must be fully qualified. Salary £75 per annum, with board, residence, and laundry. The appointment is for a minimum of six months from November 1st next. Applications, with copies of testimonials, must reach the Secretary (from whom further particulars may be obtained) not later than 10 a.m. Saturday, October 12th.

Southern General Hospital,
GOVAN, GLASGOW.

JUNIOR ASSISTANT MEDICAL OFFICER (male) wanted. Commencing salary £275 per annum, with board, laundry, and apartments. Applications, with copy testimonials, to be lodged with the Medical Superintendent not later than October 9th.

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West of England Town.—Share worth £900 p.a., of which £600 is from panel and appts. House, with 7 beds., etc., to rent.—No. 8552.

London, N.W. — £2,550 increasing. 1/3 share, rising to 1/2. Panel 1,550. Appts. £200 p.a. Small house to rent.—No. 8550.

Surrey.—About £650 p.a., with scope. Residential. Visits 5/- to 10/6. Small panel. Good house, 6 bed., etc. Reduced premium quick sale.—No. 8542.

Share worth £800 net in suburban Practice. Appts. £400 p.a. Panel over 3,000. Prelim. assistancy essential.—No. 8547.

Midlands (Industrial). — Over £1,500 p.a., with ample scope. Panel about 1,700. House to rent at £56.—No. 8546.

Essex Coast. — Urgent Sale. — About £700 p.a. Small panel. Good house and garden to rent in growing district.—No. 8544.

Wilts.—£2,250 p.a. Country Town. Panel 1,000. Surgical scope. Choice of houses. Premium £1,800 for 2/5 share.—No. 8541.

Lancs. — Average £1,590 p.a. 1/2 share for sale. Panel £800 p.a. House, 4 bed., etc., to rent. Premium only £1,200.—No. 8517.

Dorset. — Average £2,300 p.a. 1/2 share for sale. Good appts. Small panel. House, 6 bed., etc., and garden, to rent.—No. 8537.

Liverpool.—£1,300 p.a. Visits 3/6 to 5/-. Mids. 3 to 4 gns. Panel 560. House, 4 bed., etc., and garden.—No. 8536.

Special October List of Practices, Partnerships, Nursing Homes, Institutions, etc., in all parts, will be sent post free on application.

Yorks. — Average £1,800 p.a. Panel over 1,000. Visits 3/6 up. No mids. House, 5 bed., etc.—No. 8533.

Cornwall. — About £850 p.a., increasing. Small panel. Visits 4/- to 21/-. House, 6 bed., etc., and good garden.—No. 8529.

Staffs. — About £1,300 p.a. Panel 1,300. Fees 5/-. House, 5 bed., etc., to rent. Premium £1,000 cash.—No. 8527.

Lancs Coast.—£2,000 p.a. Mid. and upper-class panel over 800. Visits 7/-. Mids. 3—4 gns. Good house to rent.—No. 8525.

N. Wales Borders.—£4,000 p.a. 1/3 or 2/3 share. Panel 3,800. Appts. worth £1,600 p.a. Visits 5/- up. About 50 mids. at £2 2s. House (4 bed., etc.) to rent or buy.—No. 8519.

Home Counties.—Death Vacancy. —About £760 p.a. Mids. 2 gns. Panel 516. Visits up to 10/-. Good house and large garden to rent.—No. 8516.

Yorks.—Over £3,000 p.a. 1/4 share, good scope for increase. Panel over 2,000. Mids. 2—5 gns. Med. house to rent or buy.—No. 8510.

Lancs.—£4,000 p.a., increasing. Panel over 2,600. Visits 2/6—7/-. Mids. 2—5 gns. Suitable for two. Two houses, rent or buy.—No. 8509.

Sussex Coast.—About £1,400 p.a. Good-class, non-panel, non-dispensing. Appt. £55. Visits 5/- to 15/-. Large house to rent.—No. 8476.

Cornwall. — Share £1,000 p.a. General mixed Practice. Panel nearly 2,400. House, 5 bed, etc., low rent.—No. 8493.

Lancs.—1/3 or 1/2 share of over £2,400 after prelim. assistancy. Panel £500. Mixed class. Good house, with 4 bed., 2 attics, etc.—No. 8454.

Bucks.—About £2,800 p.a. 1/2 share. Appts. £200 p.a. Panel over 1,900. Visits 3/6—10/6. Mids. 2—5 gns. House, 4 bed., to rent. Prem. 1½ yrs.—No. 8483.

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WEST END.—X-RAY PRACTICE.—PARTNERSHIP is offered in established Practice to one experienced in Radiology. Further details may be obtained on personal application to this address.

HOME COUNTIES.—(S.E.).—Well established Country PRACTICE. Receipts nearly £1,400. Panel 703. Excellent freehold house, with large garden and garage. Scope for surgery. Premium 2 years' purchase or near reasonable offer.

LANCS.—Cash and Panel middle- and working-class G.P. House to rent or for sale. Receipts £750. Panel 700. Premium 1,000 gns. £600 down and balance by instalments.

KENT.—NUCLEUS G.P., with vast possibilities for early development. Receipts at the rate of £200 to £250 p.a. House to rent at 15/- per week. Premium for quick sale £100.

WE have several small Practices, with incomes ranging from £100 to £300 p.a. Particulars will be sent on application.

CORNWALL.—PARTNERSHIP in old-established good-class G.P. Receipts over £3,000 p.a. Panel 500 approximately. Suitable house to rent. Scope for surgery and X-ray work if desired. Premium 2 yrs.' pur.

SOUTH WALES.—Well-established G.P. Receipts over £1,500 p.a. Panel worth £950. House to rent. Premium £1,400, part down and balance by instalments.

NORFOLK.—PARTNERSHIP in good-class non-panel G.P. Receipts over £4,400 p.a. One-fourth share now, with view to larger share, at 2 years' purchase. Suitable to Physician, young, and preferably single.

MIDLANDS.—Well-established G.P. Receipts £2,500. Panel 1,900. Choice of two residences for sale or to rent. Premium 1½ years' purchase. Partnership up to half share entertained at 2 years' purchase.

LONDON, W.C.—Middle class G.P. Receipts approx. £600 p.a. Panel 190. Accommodation to rent. Premium £800.

YORKS.—Spa Town.—Well established G.P., with choice of two residences to rent. Receipts approx. £600 p.a. Panel about 500. Appointments. Premium £1,050.

SURREY.—Well-established G.P., with excellent scope. Receipts £500 p.a. Increasing panel of about 200. Excellent house for sale. Premium for house and Practice £3,000.

YORKS.—PARTNERSHIP in middle- and working-class G.P. Receipts over £3,000 p.a. Panel over 2,000. House to rent. Premium for 1/4th share £1,500.

MIDLANDS.—Cash and panel PRACTICE situated in manufacturing town. Suitable accommodation available. Receipts £650. Panel 800. Premium £1,000, cash.

SHROPSHIRE.—NUCLEUS PRACTICE. Receipts approx. £350. Panel 380. House to rent at £35. Premium £475.

LONDON, E.—NUCLEUS G.P., situated in thickly-populated locality. Medium-sized house to rent. Receipts approx. £450 p.a. Panel 300. Premium 1½ years' purchase.

GLOS.—Well-established middle- and working-class PRACTICE. Medium-sized freehold house in own grounds. Receipts average £1,270 p.a. Panel 1,100. Fees 2/6 up. Premium for house and Practice £2,700.

MIDDLESEX.—Semi rural PRACTICE. Receipts £1,600, including income from panel. House for sale or to rent. Premium 1½ years' purchase.

KENT.—Coastal Town.—Old established G.P. Receipts average over £1,450. Panel 1,350. House to rent. Premium 1½ years' purchase.

EASTERN COUNTIES.—PARTNERSHIP with view to succession. Non panel Practice. Receipts over £3,000 p.a. Suitable house available. Premium for half share 2 years' purchase, or would sell whole Practice with long introduction.

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2. YORKSHIRE. — Large County Borough. — Well-estab. working and middle-class PRACTICE. Receipts over £1,500 p.a. and steadily increasing. Panel about 1,700. Good house to rent.
3. LANCASHIRE. — Old-established panel and industrial PRACTICE. Receipts £2,242 and increasing. Panel 1,450. Appointments worth about £95. Good house to rent.
4. YORKSHIRE.—Unop. Country PRACTICE. Receipts £513. Panel 233. Appts. about £44, transferable. Good house, garage, and garden.
5. MIDLANDS. — PARTNERSHIP (One-third share), with short prelim. Assistantship (min. inc. of £600 p.a. guaranteed), in industrial Practice in healthy district on borders of nice country. Good house to rent. Garage and garden. Panel 1,800 and increasing. Ample scope.
6. GLOUCESTERSHIRE. — Well-estab. unopposed middle and working-class Country PRACTICE. Receipts average £1,270 p.a. Panel 1,113. Good house, garden, garage.
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(FOUNDED 1880.)

12, Stratford Place, Oxford Street, W.1.

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2 DEATH VACANCY, S.E. COAST.—Increasing PRACTICE in popular resort. Receipts past 12 months about £750. Panel 130. Semi-detached residence (4 bedrooms), garage, and garden, to rent. Reasonable offer.

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5 WEST MIDLANDS. — Partnership in middle and better-class Practice £3,000 p.a., in one of the most picturesque towns. No appointments or panel. Suitable house available. Premium two-fifths share 2 years' purchase. Partner must be well qualified and have held Hospital appointment.

6 N.E. COAST.—Partner required in sound lucrative Practice £7,000 p.a. in attractive town. Small select panel. Large house to be sold. Well-equipped Hospital. One-fifth or one-fourth share at 2 years' purchase, part by instalments. Strongly recommended.

7 EAST COAST.—Partnership in steadily increasing Practice of about £8,000 in large seaport town. Panel over 7,000. Suitable house available. Premium one-fourth share £2,700.

8 HOME COUNTIES. — Practice doing at rate of £500 p.a. in first-rate town under 20 miles from London. Panel 220. Excellently situated house (6 bedrooms) for sale. Cottage Hospital. Premium 1½ years' purchase.

9 LONDON, W.—Partnership in non-dispensing Practice about £2,500 p.a. No panel or appointments. One-third share, with view to ultimate succession. Premium 2 years' purchase. Purchaser must be well qualified and used to good-class Practice.

10 SOUTH OF ENGLAND.—Partnership in middle-class Practice, £2,800 p.a., in flourishing town. No panel. House (6 7 bed and dressing rooms) for sale. Premium one-half share 2 years' purchase.

11 LANCASHIRE. — Partnership in Practice £2,500 in urban district easy distance of important town. Panel 3,800. Premium one-half share 1½ years' purchase.

12 SOUTH MIDLANDS. — Well-established Country PRACTICE about £1,500 in first-rate Hunting district. Panel 733. House (6 bedrooms) with every modern convenience in grounds (2 acres), on lease. Cottage Hospital. Prem. £1,750.

13 WEST OF ENGLAND.—Good Town.—A share of over £900 p.a. (£600 from panel and appointments) in well-established Practice. Small non-basement house to rent. Premium to effect quick sale £1,570.

14 WEST MIDLANDS.—Practice of £1,440 p.a. in small market town in agricultural district. Panel 600. Good house (7 bed and dressing rooms), with electric light and gas, for sale. Scope for increase. Premium £2,100.

15 MIDDLESEX. — Practice of over £1,300 p.a. in residential district within 20 miles of London. Panel over 1,100. House (5 bedrooms), with very attractive garden, etc., to rent. Premium 1½ years' purchase.

16 SOUTH MIDLANDS.—Increasing Country PRACTICE averaging over £1,300 p.a. (£750 from panel and appointments) in pretty village. Convenient house (6 bed and dressing rooms), good garden and acre paddock to rent on lease. Sport. Premium £2,200.

17 EASTERN COUNTIES.—Practice averaging nearly £3,300 p.a. in seaport town. Panel 700. House (5 bedrooms), large garden, for sale or rent. Scope. Premium 1½ years' purchase (or share up to one-half at 2 years' purchase).

18 HOME COUNTY.—Country Practice averaging nearly £1,100 p.a. in village under 15 miles from London (North). Panel 670. Old-fashioned roomy and comfortable house (6 bedrooms), large garden and garage, to rent. Good prospects for scope. Premium £1,650.

19 NORTH OF ENGLAND. — Ophthalmic PRACTICE over £1,300 p.a. in good town. Excellent introduction. Premium 1½ years' purchase.

20 MIDLANDS. — Country Practice about £1,000 p.a. in residential district and hunting centre. Panel 600/700. House, with 8 bedrooms, to rent. Premium £1,300.

21 DEATH VACANCY. — Surrey.—Practice about £1,700 p.a. in residential town. Panel 840. Excellent house (7 bedrooms), with beautiful garden, for sale or rent.

22 SOUTH COAST. — Practice worth about £1,500 p.a. in first-class residential seaside place. Small panel. Choice of houses, to be sold. Moderate premium for Practice.

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Practices and Partnerships for Disposal (continued).

23 YORKSHIRE (E.R.). — Old-established Town and Country PRACTICE £2,750, within easy distance of important town. Panel 1,750 to 1,800. Well situated house (9 rooms and bath). Great scope. Premium—Practice and house—£4,850, or, assistantship with view to purchasing one-third share entertained.

24 SOUTH OF ENGLAND.—Partnership in Practice of over £6,700 p.a. in pleasant residential neighbourhood close to good Town. One sixth share at first at 2 years' purchase. Purchasers should have held H.P. appointment at one of the London Hospitals.

25 EAST ANGLIA.—Partnership in Country Town Practice averaging £1,600 p.a. Panel about 700. Picturesque old-fashioned house (8 bedrooms), with electric light, etc., to rent. Premium one-half share 2 years' purchase.

26 LONDON, N.—Partnership in well-estab. middle-class Practice, nearly £2,750 p.a., in pleasant outlying suburb. Panel about 800. Suitable accommodation to rent. Premium one-third share 2 years' purchase.

27 YORKSHIRE (W.R.). — Partnership in Practice averaging £1,400 p.a. in country district close to large town. Opposition weak. Plenty of scope for increase. One-half share at 1½ years' purchase.

28 BUCKS.—Practice about £800 in small country town. Panel 741. Nice detached house (4 bedrooms), garden and garage, to rent. Premium £1,050.

29 SOUTH OF ENGLAND. — Assistant required (with view to Partnership) in steadily increasing Practice £2,770 in attractive town within 90 miles of London. Panel 1,770. Applicant must be English or Scotch (about 28 to 30), who must have held House appointments. One-third share at 2 years' purchase to suitable man after assistantship.

30 BRITISH EAST AFRICA. — Assistant required (with view to Partnership) in General and X-ray and Electro-therapeutic Practice. Assistant must hold the F.R.C.S., and experience in X-ray would be advantageous. Share of about £1,200 p.a. offered to suitable man after preliminary assistantship.

31 SOUTH AFRICA.—Old-established PRACTICE. Receipts last year £1,816. Travelling and midwifery light. Climate ideal—no tropical diseases (altitude nearly 6,000 ft.). Delightful residence (5 bedrooms), in perfect order, with 2 acres grounds. Excellent scope. Local Hospital. Premium £1,200, with option to purchase house.

32 SOUTH AFRICA.—Old-established PRACTICE in one of the pleasantest towns, with beautiful climate, in the Cape Province. Receipts average £2,900 p.a. House (4 bedrooms) to rent. Purchaser should be able to do major surgery. Knowledge of Dutch unnecessary. Premium £2,250.

33 MIDLANDS.—Practice averaging £1,680 p.a. in important city. Panel 1,560. Specially built house (4 bed and dressing rooms) to be sold. Scope for increase. Price £2,250.

34 HOME COUNTIES.—Partnership in Practice £2,800 p.a. in good town about 30 miles from London. Small panel. Convenient house (5 bedrooms) to be sold or let. University and Public School man who has held appointments preferred. One third share at 2 yrs.' purchase after preliminary assistantship.

35 LONDON, S.E.—Increasing Practice averaging about £800 p.a. in populous district close to the City. Panel 800. House (3 bedrooms) to rent. Premium 1½ years purchase.

36 PRIVATE ASYLUM.—Partnership.—Exceptional opportunity for suitably qualified Medical Man (age 30—33) in first-rate establishment. Preliminary assistantship 12 months. Capital required about £4,000.

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38 SOUTH OF ENGLAND.—Seaport Town. PRACTICE of about £750 p.a., including appointments over £225 p.a., and panel nearly 1,000. Good house (6 bedrooms) to be sold or let. Premium 1½ years' purchase.

39 DEATH VACANCY.—Surrey.—Practice of between £250/300 p.a. in residential district easy distance of London. Small panel. Specially built corner residence (4 bedrooms), with nearly half acre of garden, for sale.

40 LONDON, W.—Partnership in good middle and upper class (non dispensing) Practice. No panel. Applicant should be aged about 30 and have held several Hospital appointments. Share of £1,000 (or more) at 2 years' purchase after preliminary assistantship.

41 SURREY.—Sound rapidly increasing PRACTICE in suburban district under 10 miles. Receipts last year £2,500. Panel 750. Small house for sale. Premium—Practice—£4,000.

42 NORTH OF ENGLAND. — Practice about £600 p.a. in Inland Spa. Panel over 500. Well-situated house (6 bedrooms) to rent. Premium £1,000.

43 LIVERPOOL. — Increasing Practice of nearly £1,300. Panel 560. House (4 bedrooms), garage and garden, for sale. Golf near by. Premium £1,550.

44 SOUTH OF ENGLAND. — Partnership in Country Town Practice of nearly £2,300 p.a. Small panel. Well-built house (6 bedrooms) to rent. Premium one-half share 1½ years' purchase.

45 SOUTH COAST.—Non-dispensing Practice of about £1,900 in residential town. No panel. Choice of house.

46 MIDLANDS. — Practice averaging over £1,850 p.a. in small Industrial Town with pretty country all round. Panel 1,380. Double-fronted house (7 bedrooms) for sale. Good scope. Premium £2,500.

47 LONDON, W.—Good middle-class Practice of £840 in outlying residential suburb. No panel and practically no midwifery. House (4 bedrooms) and fair-sized garden to rent. Premium £1,100.

48 S.W. OF ENGLAND. — Country Practice of £950 p.a. Panel 400. Very little midwifery and night-work. House, with 4 bedrooms, garden, and garage, for sale. Good society. Premium £1,350.

49 LONDON, N.—Sound easily worked PRACTICE over £2,500 p.a. in residential district. Small panel and few midwiferies. Good house (5 bed and dressing rooms), with large garden, to be sold. Premium for Practice 1½ years' purchase.

50 MIDDLESEX. — Rapidly increasing PRACTICE doing about £600 in new developing district. Small panel. Very convenient house (3 bedrooms) for sale. Great scope. Premium £900.

51 NORTH OF ENGLAND.—Partnership in non-dispensing Practice about £6,000 p.a. in first-rate Country Town. Small panel. Very good house (6 bedrooms) to be sold or let. Premium one-fifth or two-fifths share 2 years' purchase.

52 CARMARTHENSHIRE.—Practice of over £930 p.a. derived from contract work and panel, in pretty village. Modern bungalow residence (3 bedrooms), with separate surgery, standing in 1½ acres of ground. Premium—Practice and house—£2,500, part on mortgage if desired.

53 LANCASHIRE. — Practice of £1,500 in rapidly growing district within a few miles of popular resort. Panel over 200. Very nice compact house (4 bedrooms), with beautiful garden and orchard, for sale. Prem.—Practice—£1,500.

54 LONDON, N.W.—Partnership in increasing middle and working-class Practice £2,550. Panel about 1,500. Excellent flat (2 bedrooms) at moderate rent. Premium one-third share £1,700, part by instalment.

55 MIDLANDS.—Partnership in sound well-established Practice over £4,000 p.a. in flourishing town. Panel 2,800. House, with 4 bedrooms, to rent. One fifth share at 2 years' purchase. Partner should be experienced in Surgery.

56 N. WALES.—Country Practice averaging nearly £450 p.a. in agricultural district. Small panel. Good house (4 bedrooms), with 9½ acres of meadow land, for sale. Hunting, shooting, etc. Premium £450.

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2. [illegible] Country Practice, within easy reach of [illegible] and averaging over £1,600 p.a., including [illegible] nd £60 from appts. Fees from 2/6 to 21/-. Large house, with 3 reception, 6 bedrooms, etc. Electric light. Good garden. Garage. Vendor's freehold. Premium 1½ years' purchase.
3. WEST OF ENGLAND.—LARGE TOWN.—PARTNERSHIP.—A share representing about £900 p.a., including about £600 from panel, is offered in a well-established middle and working-class Practice. Fees 2/6 upwards. Suitable house, with 2 reception, 4—5 bedrooms, etc. Garden. Garage. Rent on lease £40 p.a. Premium £1,200 cash and balance by arrangement.
4. HOME COUNTY.—Near the Sea.—Old-estab. unopposed Country PRACTICE in pretty district. Receipts last year over £1,100, including Union, etc., £55, and panel of 400. Railway station near. Good house in its own grounds of 10 acres (part is let for grazing, but could be sold for building purposes), containing 2 reception, 6 bedrooms, bathroom, etc. Water laid on and electric light available. Price for freehold £2,100. Premium £1,625. Educational facilities, sport, etc.
5. MIDDLESEX.—RESIDENTIAL SUBURB.—PARTNERSHIP.—A one-third share is offered in a very sound good mixed-class Practice, averaging over £3,200 p.a., including panel of 1,600. Fees 3/6 upwards. Very suitable house, with nice garden, can be rented on lease at £100 p.a. Up-to-date Cottage Hospital, which is being enlarged. Premium 2 years' purchase. University Graduate having held Hospital appointments preferred.
6. HERTS. — Better-class Country PRACTICE, within easy reach of London. Old-established, and patients are chiefly of the professional c[illegible] Average income £1,000 p.a., including panel of 480 and about £6[illegible] from appointments. Advice and medicine 3/6 to 10/6, visits 3/6 to 21/-. Not much midwifery. Exceptionally nice house, with every modern convenience and half an acre of garden. Price for freehold £2,700. Excellent spot, society, and schools. Prem. £1,500.
7. MIDLANDS.—In a clean thriving Hospital town (pop. 130,000), an old-established mixed-class PRACTICE worth last year £1,100, including panel producing over £400 p.a. and £150 from Public Medical Service. Large house, with ample accommodation, good garage, garden, etc. Vendor's leasehold having 31 years unexpired (ground rent £9 16s.). Price £1,500. Premium £1,650.
8. WILTS.—COUNTRY PRACTICE, on outskirts of large town. Well-established and producing for the immediate past year over £1,630, including panel of 1,590. Advice and medicine 3/6, visits 5/- upwards. Detached double-fronted house, with good garden. Garage. Rent on lease £60 p.a. Premium £2,400.
9. NEW ZEALAND (South Island).—In a delightful and popular seaside resort (pop.; town over 17,000 and country 5,000, greatly augmented by visitors) on main line, a well-estab. PRACTICE averaging £1,816 p.a. for the past 5 years, including about £175 from Lodges. Consultations fees 10/6. Mids. 4 to 10 gns. (75 cases p.a.). House is situated in excellent position and contains 14 rooms, with 1/2 an acre of garden, tennis court, etc. Can be leased. Excellent educational facilities. Sport of all kinds.
10. LONDON, S.W.—Within easy reach of Charing Cross.—Very old-established middle-class non-panel PRACTICE averaging over £2,000 p.a. Fees 2/6 to 10/6. Mids. 3 to 10 gns. (about 12 cases). Commodious house, with 2 reception, 5 bedrooms, etc. Garden. Rent on lease £65. Premium £3,100.
11. HOME COUNTY.—Within 40 miles of London.—Good Country PRACTICE, established over 100 years, in very attractive district within 10 miles of favourite County Town. Patients include many county families. Income for immediate past year nearly £1,400, including transferable appts. worth about £120, and panel of 750, producing with mileage £470. Fees from 2/- to 21/-. Little midwifery. Excellent house, with 3 reception, 5 bedrooms, etc. Good garden. Garage. Rented on lease at £80 p.a. Premium £2,200.
12. CORNWALL.—FAVOURITE COAST TOWN.—PARTNERSHIP.—A one-third share is offered in a well-established Practice, having good surgical scope. Average gross cash receipts £4,200 p.a. Panel of about 1,800 and good appts. Very nice house available on rental, or smaller house or rooms could be taken. Hospital and prospect of appt. on staff. Premium £2,400.
13. PARTNERSHIP.—SOUTH-EAST COAST.—A one-third share (with increase later) is offered in a well-established non-dispensing Practice situated in a popular residential town and health resort. Receipts for past three years average over £3,000, with good scope. Fees from 5/- to 21/-. Very little mid. Attractive house, with 4 reception, 6 bedrooms, etc. Garden. Garage. Premium 2 years' purchase.
14. SOUTH-WEST OF ENGLAND.—SEAPORT TOWN.—PARTNERSHIP.—A one-sixth share is offered in a very old-estab. sound mixed-class Practice situated in residential outlying suburb. Average gross cash receipts for past three years over £6,700, including panel of 4,000, and appts. worth about £750. Excellent house, property of retiring partner, can be bought; or purchaser can select his own residence. Good sport and schools. Premium 2 years' purchase.
15. CARDIFF.—Old-established better-class non-dispensing worth last year about £1,400. Panel of 450. Fees from 5/- to 21/-. Very little midwifery. Good house in best part of the city. Can be rented on lease. Premium £2,000.
16. ESSEX.—Rapidly developing outlying suburb, within ten miles of the Bank.—Well established and increasing PRACTICE. Income last year £2,274. Panel of 1,646. Fees 2/6 upwards. Very little midwifery, but large scope. Very good corner house, in excellent repair, with 2 reception, 5 bedrooms, separate professional rooms, etc. Electric light. Garden. Garage. Price for freehold £1,550. Prem. £3,600.
17. PARTNERSHIP.—WILTS.—A two-fifths share, with increase up to one-half later, is offered in a good mixed Practice situated in a pleasant town, with country surroundings. Income from share £900 p.a. Good scope for increase, particularly in surgery and midwifery. Cottage Hospital. Premium 2 years' purchase.
18. WITHIN 50 MILES OF LONDON.—Well-established and increasing PRACTICE situated in small country town in very pretty district. Income last year over £800, including panel of over 500, and appts. worth about £60. Visits 3/6 to 21/-, medicine extra. Exceptionally nice house can be bought, or smaller house available, which can be rented at £50 p.a. Good schools for boys. Premium 1½ years' purchase. Good scope for increase.
19. BORDERS OF WARWICK AND OXON, — Old-established Country PRACTICE, in attractive district near two good towns. Average income for past three years £1,157, including panel of 580 and appts. worth over £100. Fees 2/6 to 21/-. Good house, with 2 sitting, 4 bedrooms, etc. Separate entrance to surgery. Garden. Garage. Price for freehold £1,250. Hunting, golf, and schools within reach. Premium 1½ years' purchase.
20. SHROPSHIRE.—Unopposed Country PRACTICE, in pretty district, producing this year at the rate of about £1,400, including panel of 550, and appts. worth £65. Visits 3/6 to 7/6, with medicine and mileage extra. Midwifery from 3 gns. About 20 cases. Suitable house, with modern conveniences, and containing 3 reception, 5 bedrooms, etc. Electric light. Garden. Garage. Rent on lease £100 p.a. Good sport and schools. Premium £1,500.
21. YORKS.—LARGE TOWN.—Old-established mainly working-class PRACTICE. Income £1,250. Panel of over 1,400. Fees 2/6 to 5/-. Well-situated house, with good garden. Price £1,500. Prem. £1,500.
22. LIVERPOOL.—Centrally situated old-established PRACTICE. Income about £1,500. Panel of over 2,500, worked from Branch Surgery. Visits and medicine from 3/6 to 7/6. Little midwifery. Large corner house, with garden and garage. Recently redecorated. Electric light and new hot water system throughout. Price, freehold, £2,000. Large scope for increase. Premium 1½ years' purchase.
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24. SOUTH-WEST OF ENGLAND.—HOSPITAL TOWN.—PARTNERSHIP.—A half share is for disposal in a good middle-class non-panel, general, and surgical Practice, averaging for the past three years over £5,000 p.a. Good house, with 2 reception, 6 bedrooms, etc. Premium 2 years' purchase. Purchaser should hold the F.R.C.S.
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26. NORTH-WEST LONDON.—Within easy reach of Charing Cross.—Old-established mixed-class PRACTICE averaging over £2,000 p.a., including panel of about 1,400. Fees 2/6 to 10/6. Midwifery 3 to 15 gns. Six-roomed house, with bathroom, kitchen, etc. Rent on lease £85. Surgery premises (part let off) rented at £75 p.a. Could be worked as "lock-up." Premium 1½ years' purchase.
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28. GLOS.—LARGE TOWN.—PARTNERSHIP.—A half share of an old established good-class non-dispensing Practice, owing to retirement through ill health of senior partner. Income about £5,000, with small select panel. Fees 5/- to 10/6. Purchaser should be about 40, married, and keen on midwifery. Good house available at low rental. Premium 2 years' purchase part by instalments.
29. LIVERPOOL.—Mixed-class PRACTICE, producing this year at the rate of over £1,200. Panel of 560. Good house, specially built and well situated, containing 2 reception, 4 bedrooms, etc. Large garden. Garage. Price for leasehold £1,700, part on mortgage. Prem. £1,550.
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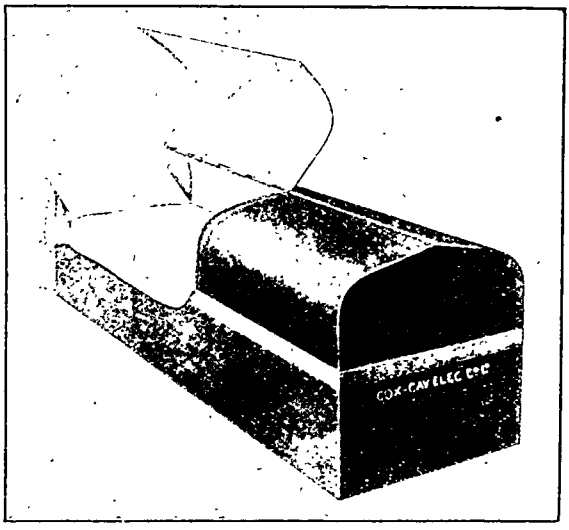

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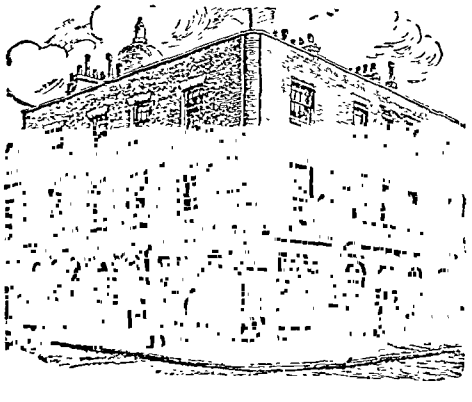

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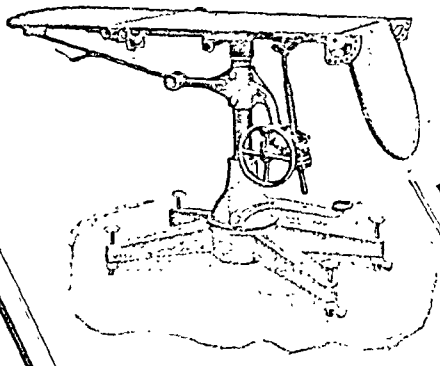

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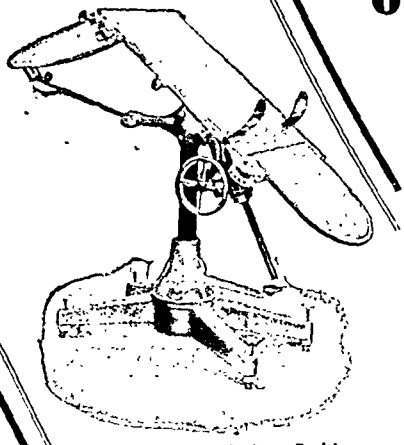

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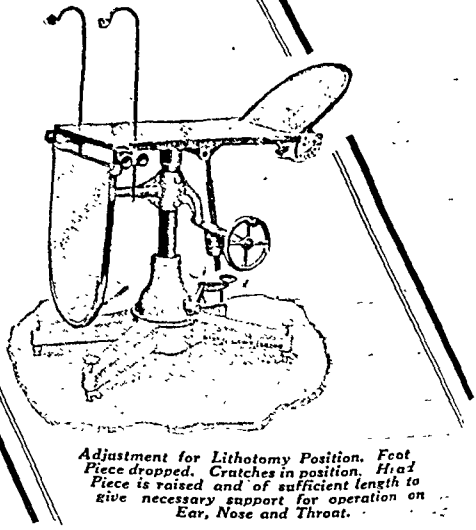

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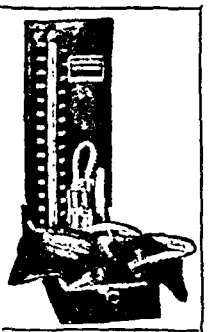

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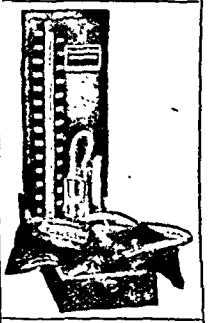

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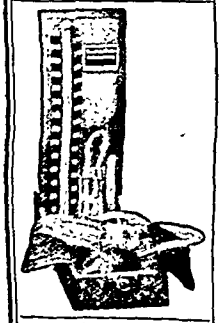

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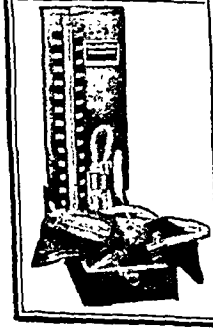

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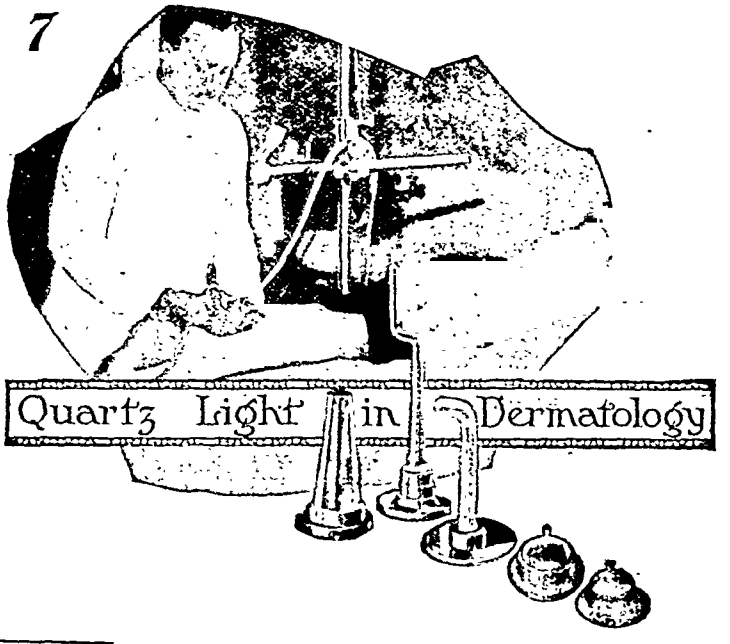

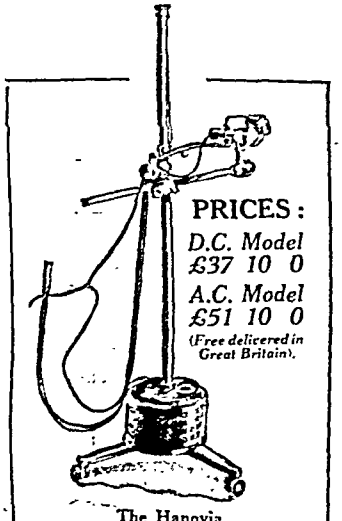

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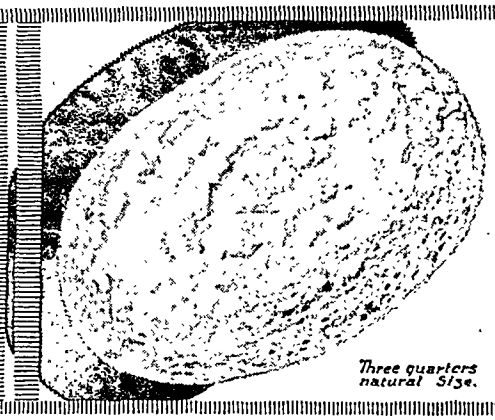

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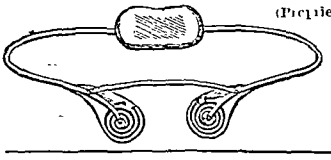

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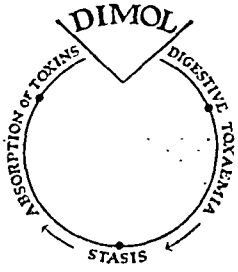
Cn. 19

Break the Vicious Circle in Chronic Constipation



THOUGH THE differential action of many of the toxins of the intestinal tract on the tissues of the body is still a matter of conjecture, it is probable that each putrefactive organism creates a toxin productive of some deleterious effect. It is on this hypothesis that constipation is primarily ascribed to the influence of some of these poisons acting directly on the musculature of the bowel or on the nerve cells and ganglia in its walls.

HOWEVER THE diminished peristaltic action is caused, it is certain that it is the beginning of a vicious circle, which is completed by a deepening line of inertia, stasis, digestive toxæmia, and lowered resistance of the glands and cells of the mucosa.

TO BREAK THE vicious circle, an efficient, non-toxic intestinal disinfectant is clearly indicated; the resultant action is easy to understand. Now that the problem of intestinal disinfection has been solved by the introduction of the benzene derivative Dimol, we know that the putrefactive organisms can be destroyed, thus shutting off the further supply of toxin. The nerve cells, released from the paralysing action of the toxins, are once more free to stimulate the muscles, with the consequent result that peristalsis is re-established—the accumulated contents of the intestine are expelled and the vicious circle is broken.

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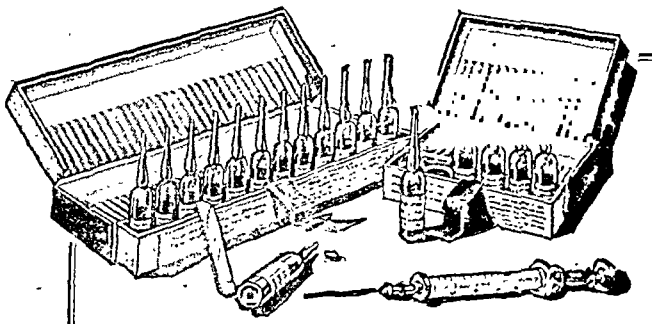

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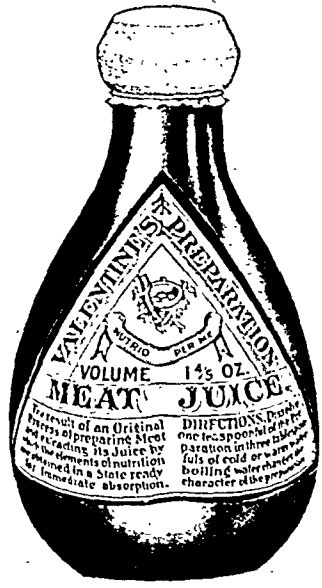

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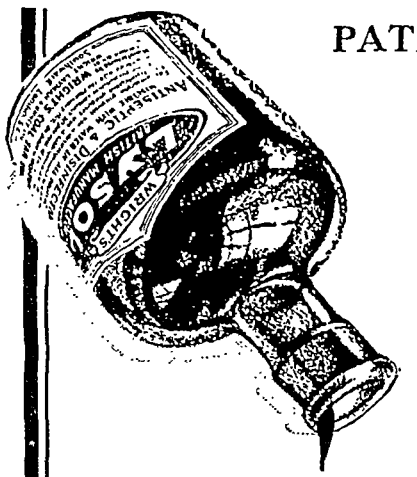

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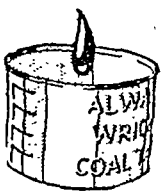

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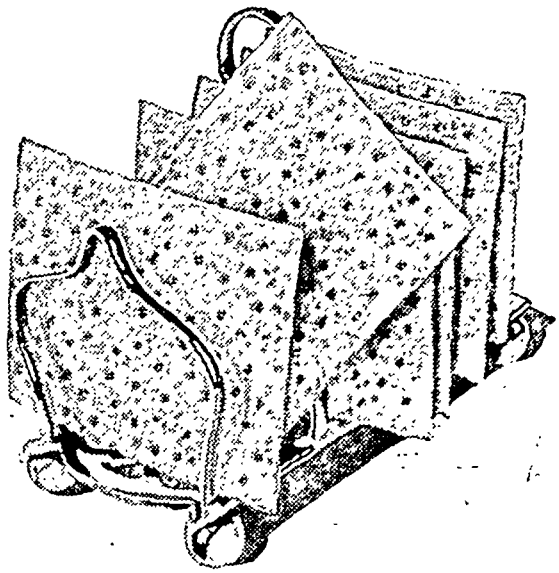

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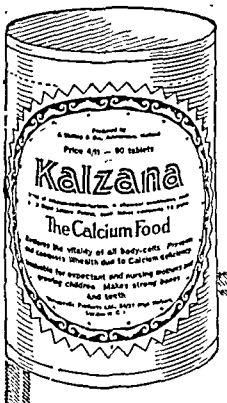

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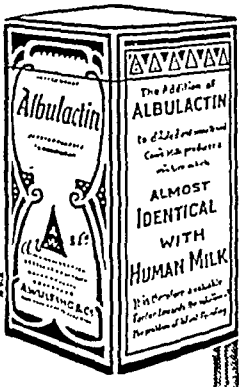

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The British Medical Journal says:

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In many of the wasting diseases of childhood, a sensitive irritable stomach and intestines preclude proper nourishment.

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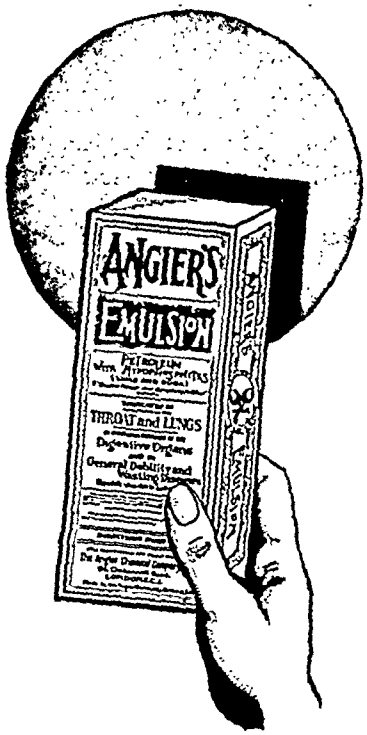
The pleasant cream-like flavour of Angier's Emulsion and its ready miscibility with milk or water, make it eminently suitable for administration to children.



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The following letter has been received recently.

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I am in receipt of your sample of Kaylene, for which I thank you. I do not dispense and do not wish to be without some in the house.

My last sample was used on a patient suffering from acute Ptomaine poisoning following a meal of shell fish (mussel) at 10.30 p.m. Symptoms first appeared at 12.30 a.m., and when I saw him at 3.0 a.m. he was vomiting blood and passing almost pure blood per rectum. He had commenced cramps and nervous twitchings which would shortly have gone on to tonic convulsions. He was very collapsed and had a weak pulse. I gave him **only** Kaylene in cold water, one drachm every quarter of an hour, from 3.0 until 8.0 a.m., when I felt it safe to leave him. For the next two days Kaylene was given every one to two hours, and was then followed by Kaylene-ol. No other medication of any sort was used, and he made an excellent recovery. This follows a somewhat similar case which I treated at the end of last year.

Your excellent preparation should supplant Bismuth for any purpose.

Yours faithfully,

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The unanimous results of recent researches on milk as a food for the Infant have shown that processes which adopt intensive temperature periods, such as are necessarily employed in pasteurisation, the preparation of evaporated milks, and spray process dried milks, have a disturbing influence on the calcium and phosphorus of the milk, and consequently on the retention by the Infant of these important elements. In addition, it has been shown by various investigators that such processes have a destructive effect on essential vitamins.

Cow & Gate Milk Food

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On the other hand, such drying processes—as "Cow & Gate" process, in which the milk is held for a matter of a few seconds at a high temperature—have been shown to be free from the above disturbances, and the full nutritive and vitamin value of the original rich West Country milk is preserved intact.

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COW & GATE Ltd.,

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Pluriglandular Total Extracts with Iodalbumin.

A safe and useful adjunct in the treatment of Obesity and other troubles due to deficient endocrine activity.

In bottles of 60 and 120 Tablets.

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A combination of Bile Extract, Yeast, and Lactic Ferments.

An educator of the bowels and an intestinal disinfectant in alimentary toxemias and intestinal stasis.

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CADBURY'S MILK CHOCOLATE.

Fresh milk only is used in Cadbury's Milk Chocolate, which is made by a distinctive process incorporating the fresh milk direct with the chocolate.

By this process, the important Vitamins A, B and D, natural to fresh milk, are retained.

Owing to its concentrated form (there are 1½ glasses of milk in every ½-lb. cake) the chocolate is appreciably richer in Vitamin D than milk itself. Further, it contains the whole of the bone-forming calcium and phosphates present in the milk. All the essentials of an anti-rachitic food are contained in Cadbury's Milk Chocolate.

The dietetic value of milk has always been recognised by the medical profession — a convenient and concentrated form is Cadbury's Milk Chocolate.

This chocolate is sold in 2d. Bars, 6d. Packets, and 1/- ½-lb Blocks.

An Address
ON
TUBERCULOSIS IN EARLY CHILDHOOD.*

BY
CHARLES McNEIL, M.A., M.D., F.R.C.P.Ed.,
PHYSICIAN, ROYAL EDINBURGH HOSPITAL FOR SICK CHILDREN; LECTURER ON DISEASES OF CHILDREN, EDINBURGH UNIVERSITY.

This discussion was to have been opened by Professor von Pirquet of Vienna, who would have treated the subject with the authority of exceptional knowledge. His death is a loss not only to us on this occasion but also to medicine as a whole. And in deploring the loss, it is fitting that we should also pay tribute to the great and lasting value of his work. We need not attempt now to sum up and appraise the work of von Pirquet, which was not confined to the field of tuberculosis; but in that important field his great contribution was the introduction of the cutaneous *tuberculin test*—the first test of tuberculous infection that was at once safe, accurate, and convenient. The widespread application of the Pirquet test has revealed in the living the prevalence of concealed and apparently innocent tuberculous infection, and has also given us a method of distinguishing tuberculous and non-tuberculous disease. It would be hardly possible for a general discussion of tuberculosis to take place at the present day without a reference to the Pirquet test.

Our subject—tuberculosis in early childhood—is not only wide and complicated, it is also well worn by much previous discussion. He who attempts to discuss it again must run the risk of omitting things that may seem important, and of repeating what has been often said before. But it will be granted that it is an important subject for all those who have the medical care of children; and there may be advantage in reaffirming what is well known and in bringing up for fresh discussion familiar points of dispute.

In the first place let us define as the period of our survey the first five years of life, and compare the amount of tuberculous disease in all its forms at this time with similar succeeding periods. That can be done by taking the total deaths from tuberculosis in England and Wales for 1927. (Chart 1.) The number of deaths in the first period—about 3,000—greatly exceeds that in the later period of

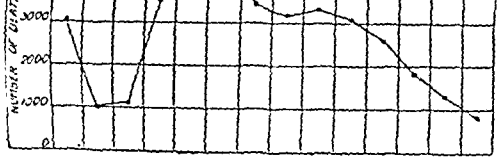

CHART 1.

childhood and of puberty; thereafter in adolescence and throughout the prime of life the figures are about or exceed the 4,000 mark. The first phase of tuberculosis is therefore, as regards fatal disease, easily the most important of the whole period of childhood. But it is worth remembering that in the first period of childhood the number of deaths from tuberculosis is exceeded by those from measles and whooping-cough, and far exceeded by those from diarrhoea, bronchitis, and pneumonia. Further, all these diseases just mentioned, deadly in themselves, are known to facilitate tuberculous infection. Even with these facts in view, tuberculosis in the first five years of life is an important disease, either in relation to tuberculosis at any later period, or in comparison with the other common and fatal diseases of the same period.

* Delivered in opening a discussion in the Section of Diseases of Children at the Annual Meeting of the British Medical Association, Manchester, 1929.

Types of Tuberculous Disease in the First Five Years.

An accurate idea of the relative prevalence of clinical types can again be obtained by examination of the Registrar-General's death figures for England and Wales in 1927. Three are selected—meningeal, respiratory, and abdominal tuberculosis—and their relative incidence in five-yearly periods for the first half of life are shown in Chart 2; together they account for the great majority of deaths from tuberculosis in the period of our survey. Cases of disseminated tuberculosis, which also make a considerable total at this period, are not included; it is probable that the great majority of these deaths are due to a focus of primary disease in the abdomen or thorax. Cases of so-called surgical tuberculosis—glands in the neck and disease of the bones and joints—are also numerous at this period, but these make only a small *contribution to the total of deaths.*

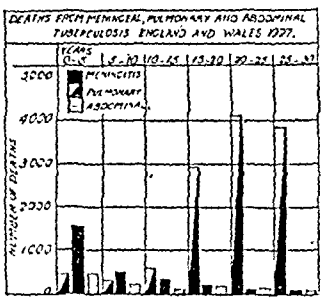

CHART 2.

The chart demonstrates clearly a number of facts. Meningitis easily takes the first place in this list of deaths in the first five years; and the total for this period is far greater than at any subsequent period. Abdominal tuberculosis also causes far more deaths at this period than at any later period. The number of deaths from pulmonary tuberculosis practically equals that from abdominal tuberculosis in the first period; but although it falls in the second five years of childhood, it thereafter rapidly rises, and towers above any other type of tuberculous disease as a cause of death. In the first five years, in England and Wales, the deaths from tuberculous meningitis are three times greater than those from pulmonary and from abdominal tuberculosis. These three types, while they do not constitute the whole of tuberculosis at this period, form the greatest and most important part of it.

I now present a survey of 254 cases of tuberculosis admitted to my ward during the past eight years; they *include non-fatal cases, and their examination, together with* the result of post-mortem examination, will allow a further and more accurate analysis of types of tuberculous disease at this period; some clinical features will also be discussed and some broad conclusions bearing on preventive measures will emerge. They are grouped in age periods: birth to 2 years, 2 to 5 years, and 5 to 12 years.

Tuberculous Meningitis, Pulmonary and Abdominal Tuberculosis.

Age incidence in early and later childhood.

	Birth-2 years.		2-5 years.		Birth-5 years.		5-12 years	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Tuberculous meningitis	48	48	25	25	73	73	18	18
Pulmonary tuberculosis	17	16	10	3	27	19	22	3
Abdominal tuberculosis	35	25	46	18	81	43	23	7
Total...	100	89	81	46	181	135	73	28

The deaths given in the table do not express death rate; an unknown number of cases discharged from hospital must have died later.

A few general remarks may be made before proceeding to some observations on each of these types of tuberculous disease.

The Cutaneous Tuberculin Test.

A brief discussion on the value of the Pirquet test will be suitable here. It is a common remark that the test often fails in tuberculous meningitis and in general

tuberculosis; this has not been my experience in tuberculous children, if the test is properly performed. And in the first two years a positive tuberculin test is of great value in diagnosis and of grave significance, because at this period latent or healed tuberculosis is a rare event and active tuberculosis is generally fatal. In later childhood a positive test is of less value in diagnosis; it only permits a "tuberculous" interpretation of the clinical evidence, but in itself it has not even corroborative value. At the later period of childhood, however, a negative test is of great value in excluding tuberculous disease—although it must be remembered that the test may, although rarely, fail to appear in an actually tuberculous condition.

Latent Tuberculosis.

The existence of healed or dormant tuberculous lesions is an important fact in later childhood and in later life. Do such lesions exist in the first period of life that we are considering; and to what extent? I would offer for discussion the following statement. In the first two years of life tuberculous infection nearly always proceeds to tuberculous disease; and tuberculous disease ends in death in nearly all cases of pulmonary lesions, either by acute pulmonary tuberculosis or by meningitis, and has a like ending in a majority of cases of abdominal tuberculosis. At this period dormant or healed tuberculosis is a rare event; in the third, fourth, and fifth years it becomes more common; while the number of recoveries from active tuberculous disease also increases. In the above table of cases I have excluded a group of latent or dormant tuberculosis, where a condition of ill health seemed to be partly due to a concealed tuberculous focus, in some cases presumed to be in the thorax, in others in the abdomen, but in which no proof of active tuberculous disease could be obtained. The group was a small one, 18 in all; one only was under 2 years of age, while six were from 2 to 5 years, and the remainder above 5 years.

Dr. Agnes Macgregor, the pathologist of the Edinburgh Children's Hospital, has lately been collecting evidence on this question of latent tuberculosis in childhood from post-mortem examinations, and has kindly allowed me to give one or two of her general results. Healed or inactive tuberculous lesions are rare under 2 years; they increase after that age; and the great majority of these healed or latent tuberculous lesions are in the abdominal mesenteric glands.

The practical conclusion of this clinical and post-mortem evidence is that latent tuberculosis can scarcely be said to occur in infancy, and is uncommon in the later years of the period of our survey. And yet our clinical consciences are often troubled by this haunting fear of latent tuberculosis, throughout childhood, and particularly in the lungs. The loose statements frequently made as to the prevalence of latent tuberculous infection in early childhood are not supported either by clinical or post-mortem evidence. The problem of diagnosis at this time is the discovery of active, not of latent, tuberculosis in the thorax or abdomen.

Tuberculous Meningitis.

This type of tuberculous disease, so common and so deadly in the first years of childhood, is only the end-result of an earlier focus of disease implanted in the body; it is a secondary and not a primary type. Without post-mortem examination it is not possible to detect and locate in many cases of meningitis the primary seat of disease; this is certainly true of meningitis in childhood. In the clinical series given above of 91 cases of tuberculous meningitis in children up to 12 years, 73 occurred under 5 years; and of the latter group, this final phase occurred in nearly all without clinical evidence of tuberculous disease elsewhere. Of the total (91), post-mortem examination was made in 51, and the primary lesion was revealed in all but two; so that in the great majority of these it was now possible to re-distribute the cases of meningitis among the two other primary groups of pulmonary and abdominal tuberculosis. The results of this determination of the primary lesion in tuberculous meningitis are shown in the following table.

Primary Lesions in Tuberculous Meningitis.

Age Period.	Pulmonary.	Abdominal.	Cervical Glands.
Birth to 2 years	15	10	1
2 to 5 years	9	4	0
5 to 12 years	11	2	1
Total	33	16	2

In two other necropsies no primary tuberculous lesion was found. The number of cases (53) is perhaps large enough to warrant the general statement that nearly all cases of tuberculous meningitis are derived from a glandular or visceral focus in thorax and abdomen, a clear majority being thoracic, and a smaller number from the abdomen (the number here, no doubt, varying in different areas, according to the amount of bovine infection). It is uncommon for tuberculous meningitis to follow tuberculous glandular disease in throat and neck.

In cases of tuberculous meningitis it is uncommon, even after careful clinical examination of the throat and neck, the thorax and abdomen, to discover during life the seat of the primary focus. Occasionally, however, physical signs of a pulmonary focus may be found, and verified during life by an *x*-ray photograph, and after death at necropsy. The location of the primary focus is the most important thing to be done in any case of tuberculous meningitis; in most cases this essential information can only be obtained by post-mortem examination, and without this knowledge the adoption of preventive measures in the family becomes more difficult. The value of post-mortem examination in tuberculous meningitis can hardly be exaggerated in revealing the situation of the primary focus, and in a majority of cases this is a thoracic lesion.

Pulmonary Tuberculosis.

A few remarks may be made bearing upon the clinical problem of diagnosis. The difficulty of diagnosis is perhaps greater in the period of infancy, the first two years, than later, although it is never easy. In the first two years active pulmonary tuberculosis assumes a greater variety of forms. Four of these may be mentioned: tuberculous bronchitis becoming broncho-pneumonia; acute caseous pneumonia with or without acute cavity formation; chronic fibroid pneumonia with cavities; and a caseous tuberculous process at the hilum of the lung, spreading into it.

The first two, bronchitis and broncho-pneumonia, and massive caseous pneumonia may be discussed together. They occur at an age when simple bronchitis and lobar pneumonia are common conditions, and they give the same physical signs. Some clinical features are helpful in distinguishing the tuberculous conditions: the illness in these is insidious in onset and quiet in its course, and at first there is less dyspnoea and general distress; but presently there is definite weakness, pallor, and loss of flesh. This quiet but relentlessly progressive course is characteristic of the tuberculous process. The *x*-ray picture in tuberculous broncho-pneumonia is, of course, unmistakable. Finally, although there may be little cough and no expectoration, a throat swab will often show tubercle bacilli; and a positive tuberculin cutaneous reaction is also of much value.

As to the third type, even at an early age pulmonary tuberculosis may be a relatively slow process, lasting for many months, and associated with fibroid change and cavity formation. Here diagnosis is easier.

The fourth type, a caseous change in tuberculous glands at the root of the lung and slowly extending inwards, is more difficult to diagnose than any other type. Morbid physical signs may be absent, and at the early stage *x*-ray examination may also be negative. In such a case there are only the general signs of a severe progressive toxaemia.

Tuberculous pleural effusion is an uncommon event in the first two years. In my own clinical series there was not a case at this time; between 2 and 5 years there were three cases.

It is worth repeating again that tuberculous infection of the lung or the mediastinal lymph glands in the early years of life either proceeds to an active and fatal pulmonary tuberculosis or ends in meningitis; very rarely is it arrested as a healed process either in lung or gland.

Abdominal Tuberculosis.

One of the interesting things about this type is the variation in its frequency in different towns and districts of the British Isles; but whatever these local variations are, in all areas the greatest number of deaths falls in the first five years. In Scotland the number of deaths from tuberculous disease of the intestines and peritoneum is relatively much higher than in England. In London there were 16 deaths under 5 years from this condition in 1927; and in Edinburgh, with a tenth of the population, 9 deaths. Throughout Northern England and all Scotland abdominal tuberculosis is still a grave problem. In early childhood primary abdominal tuberculosis is due to infected milk, as also are a large majority of cases of tuberculous glands of the neck and at least a third of cases of tuberculous bones and joints. High rates of mortality and morbidity from abdominal tuberculosis in any area are a reliable index of widespread infection of the milk supply with tubercle bacilli.

PREVENTIVE MEASURES.

It is hardly necessary to emphasize the greater importance of preventive as against curative treatment of tuberculosis at any time of life; and this is certainly true of the first period, where in some of its clinical types the number of deaths equals the number of cases. The greatest impetus towards prevention of tuberculosis has been the conviction of the medical mind that the disease is a contagious one, transmitted from one individual to another, and the gradual persuasion of the body of the people of this truth. Another demonstration, hardly less powerful towards prevention, was that tuberculous disease in cattle can be transmitted by milk to man. It is a curious fact that Laennec and Koch, the two greatest discoverers in the field of tuberculosis, both held wrong views here, Laennec declaring that pulmonary phthisis was not contagious, and Koch that bovine tuberculosis could not be communicated to man.

Tuberculosis in childhood is peculiar in that both these kinds of contagion and transmission are powerfully at work; and this is specially true of the early period of childhood which we are discussing. As medical men we are fully persuaded of this, and we have a fairly accurate knowledge of the various methods and channels of this double transmission to the young child. If the people had the same general persuasion of the existence and danger of this double contagion, the reduction of the disease in young children would become more rapid. As it is, the mortality figures from all kinds of tuberculous disease, which have declined at every period of life, are declared by statisticians to have fallen most of all in the first five years. Education of the people in the fundamental facts is still needed, however, and ought to keep an important place in medical preventive measures. There is still need, not merely for preaching the truth, but also for denouncing error. The old heresy that tuberculosis is a hereditary disease, fatally transmitted from parents to children, still lingers in the minds of many, and blinds them to the real dangers. This propaganda of education, both by the family doctor and by the organized tuberculosis service, has gone on for many years, and has produced its effect; but with an "educated" people, and the means of reaching them so manifold, it should be possible for all to know and understand the simple essential facts of tuberculous disease in children and of its transmission by milk and man.

It is in the first two or three years of life that this twofold attack of tuberculosis is so common and so dangerous. It has been said of syphilis, but it can be said more truly of tuberculosis in early life, that it is shared between the father, the mother, and the children like the daily bread.

Hospital Statistics of Tuberculosis in Children.

The death rates given in the Registrar-General's reports are our main source of information as to the progress or decline of tuberculosis. Other figures that might be expected to give useful information are the statistics of cases and deaths occurring in the principal children's hospitals throughout Great Britain; these, however, are not presented in any uniform way; the totals given are often not of cases, but of admissions. Where cases—for example, of bone tuberculosis—are readmitted several times, it is obvious that the total numbers may give a quite misleading statement of the prevalence of the disease. It is most desirable that children's hospitals should adopt a uniform method of presenting and analysing their statistics of tuberculosis: if this were done a much more accurate and detailed survey of the prevalence and progress of the disease and of its main types in the various hospital areas could be obtained. Such a yearly survey would be of great value, both to the medical profession and to the public health authorities in each area, in stimulating and directing preventive measures.

Tuberculous Milk.

The problem of milk in relation to tuberculosis in young children is complicated. The amount of bovine tuberculosis varies a good deal in different areas, but in a large number of our towns and districts it is very considerable. In these areas the medical profession and the public health authorities are well aware of the prevalence of tuberculous milk, and are now taking more active steps to improve the situation by the provision of tubercle-free milk, better veterinary inspection, and by wholesale pasteurization of milk. It will be a long time before tuberculosis in cattle can be stamped out; in the Manchester report for 1927 the veterinary officer records an increase in the samples of tuberculous milk. Manchester is not alone in this; but in the work of Delépine it has given a lead to other places in exposing the danger by bacteriological examination of milk samples.

The widespread existence of tuberculous milk constitutes the greatest and most serious example of food poisoning in this country, and gives Great Britain a "bad eminence" in this matter over almost every other great State in the Old and New Worlds. And there is no general agreed policy, either national, municipal, or private, to meet this danger. Until all our dairy cattle are free of tubercle there are two ways of dealing with the situation—either that the public health authorities require and supervise the pasteurization of all milk supplies for young children, with the exception of certified milk, or that the medical profession unanimously recommend the boiling in the home of all milk for children. But medical opinion is not agreed as to the necessity for this step; and this division of opinion, which has lately become more marked, is chiefly due to two things. The virtue of freshness in milk, owing to recent knowledge of vitamins, has become emphasized, and unduly so. Also there is a vague but widely held belief that a mild bovine infection is widespread, and is a protective vaccination against the more dangerous human and pulmonary infection, and that although this rough uncontrolled vaccination costs many lives and much crippling disease, the price must be paid as a protection against a greater danger. It is very desirable that the medical profession should reconsider the question of sterilization of milk: we are agreed as to the prevalence of tuberculous milk and of milk-tuberculosis in children; it would be a great gain if we were agreed in recommending the sterilization of all ordinary milk used by young children. It is always hard to change the customs and habits of the people—these household laws that are older and stronger than Acts of Parliament. It is settled custom to boil our eggs; we have far more reason to boil our milk, and it is an easy matter to make good the rather dubious loss of vitamins.

Human Tuberculosis.

Pulmonary tuberculosis, with all its consequences, is not only the greater part of the problem of tuberculosis in young children; it is also the more difficult to deal with. It can be ascribed almost entirely to human infection—that is, to active tuberculosis in the father, mother, or some other individual in close contact with the young child. As we have seen, tuberculous meningitis, which causes the greatest number of deaths in the first five years of life, is in the majority of cases due to pulmonary tuberculosis. In the early years of life the child, carried in its parents' arms and closely attended by them, has that close contact which

readily allows contagion to pass to it; and this condition of nature and necessity mainly explains the height of the tuberculosis curve in the first five years, and its drop in the later years of childhood, when there is increasing freedom and separation.

Efficient prevention of pulmonary tuberculosis in the young child demands, first, the detection of phthisis in the parent or adult relative; next, measures to guard against the danger of their close contact with the child. Even so, notwithstanding all the advantages of a special service and of trained nurses who point out the dangers and how they may be guarded against, the risk of infection of the child in a crowded home must remain high. And in the young child infection is followed by disease with its high mortality. Not seldom it is the appearance of active tuberculosis in the child that gives the clue to the existence of unsuspected phthisis in one or other parent. This is one of the great benefits of notification of all forms of the disease—that from many sides information is gathered that may lead to the detection of cases of adult phthisis. The key to the problem of prevention of pulmonary tuberculosis in childhood lies in the early detection of cases of phthisis in the middle period of life, in their isolation, in their instruction in hygiene, and, above all, in reduction of their numbers. The segregation of young children from tuberculous parents and insanitary homes, as in the Grancher system in France, is not feasible as a general policy; in the few cases where it is practicable it is, of course, the most effective safeguard.

With regard to the children in a family where phthisis in a parent has been discovered and dealt with, what further preventive measures are available? Is it possible to detect and arrest early infections? This is a difficult but important question, and one that receives much attention from tuberculosis officers. In the infant and younger child it seems to me that little can be done here, for latent or dormant infections are very rare, and active disease is nearly always fatal. In abdominal tuberculosis from milk infection the case mortality is lower, and latent abdominal infection, although uncommon, may occur. The occurrence of latent pulmonary infection in the older child, its detection, its relation to phthisis in the adolescent and adult, are all important questions, which, however, lie outside the scope of our subject.

CHRONIC CERVICITIS (LEUCORRHOEA): ETIOLOGY AND SYMPTOMS.*

BY

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Chronic cervicitis (leucorrhoea) forms one of the commonest conditions met with in both hospital and private practice. The discharge is often persistent; not infrequently it is neglected; it is resistant to treatment, and the results of treatment are often disappointing. The condition may, moreover, give rise to complications, not only locally in the pelvis, but also in other parts of the body. Chronic cervicitis is therefore a subject of great practical interest and importance, and is deserving of careful study.

Chronic cervicitis may be defined as an inflammatory affection which involves the mucous membrane of the cervical canal and of the os uteri externum. It is characterized by leucorrhoea and the presence usually, but not invariably, of a cervical erosion. It is due to infection, and is accompanied by microscopic signs of inflammation.

In order to understand the condition it is first necessary to study the anatomy and development of the normal cervix. The two Müllerian ducts by their fusion form the Fallopian tubes, uterus, cervix, and vagina. At first these structures are lined by columnar epithelium. Changes occur at a later date whereby the tubes are lined by columnar ciliated epithelium, the uterus by columnar epithelium, and still later the tubular glands appear. In the cervical canal is a mucus-secreting epithelium with many racemose glands. It is not ciliated. It does not pass through the menstrual changes of the uterine endometrium. In the vagina we see the greatest change in the original epithelial lining of the Müllerian ducts, for squamous epithelium, growing from below upwards, replaces the original columnar. Normally this squamous epithelium comes to line the whole vagina; it also covers the cervix and tends to invade the cervical canal. It is found there in a sixth-month foetus, but is later replaced by the columnar epithelium. Occasionally the columnar epithelium of the cervical canal spreads out beyond the external os over the cervix, thus producing the so-called congenital erosion or pseudo-erosion. These congenital anomalies rarely cause trouble in later life, and become covered again by squamous epithelium.

It is known that the vagina may contain organisms in its lower part within forty-eight hours of birth. The lower part of the vagina, therefore, even in a virgin, is not sterile. The upper part of the vagina normally contains the vaginal bacillus of Döderlein. This is non-pathogenic. It is believed to produce an acid substance which, with the secretion from the vagina, forms an acid medium hostile to the growth of pathogenic organisms. Thus pure cultures of streptococci and staphylococci injected into the vagina and cervical canal have been found to be destroyed within a few hours. Winter, Stroganoff, and Menge have shown that bacteria are not normally found above the external os. Curtis confirmed these observations, and has demonstrated that the cervical glands are susceptible to chronic infection.

In chronic cervicitis bacteriological investigation reveals the presence of pathogenic organisms. The organism most commonly found is the staphylococcus, either alone, but usually in combination with the *Bacillus coli*, the streptococcus, and gonococcus. Diphtheroids may also be found, but it is not certain that these should be regarded as pathogenic, for they may be found in the lower part of the vagina during health.

How is the normal protective barrier broken down and access given to these pathogenic organisms?

The invasions of organisms may be the result of a direct infection—for example, gonococcal infection. Indirect infection may follow after injuries to the cervix, such as lacerations of the cervix accompanying childbirth or abortion; or from the upward spread of infection from disease or inflammation of the vulva. The protective acid medium may also be swept away or destroyed by discharge from the uterus, the presence of vaginal pessaries, and by the use of contraceptives and vaginal douching.

Chronic cervicitis is very common. The incidence in a series of 6,483 women examined by Fulkerson was 2,150, or 33.15 per cent. Fulkerson found that the condition occurred in 78 per cent. of cases between the ages of 20 and 40. Burns found it most commonly between the ages of 30 and 40, and next most commonly between 20 and 30. That is to say, it occurs usually during the child-bearing time of life, which supports the view that traumatism of labour or abortion is an important factor in the production of the disease.

The chief symptom is leucorrhoea. This was present in 74 per cent. of Fulkerson's cases. The discharge varies greatly in colour, consistence, and quantity. It is usually of a viscid white mucoid variety, like unboiled white of egg. It may be slightly yellow or green. The discharge is usually more profuse in the morning, on resuming the erect attitude probably, and also just before and after menstruation. In cases in which the infection is of gonococcal origin it may be noticed sometimes that the discharge is more definitely yellow, and is usually muco-purulent. There may be a slight blood-stained discharge on examination or after coitus if a vascular erosion is present. General debility, anaemia, and constipation are not unusually accompanying symptoms. It is not improbable that these are the direct consequence of the absorption of toxic substances from the infected cervical canal. Not infrequently the patient complains of pruritus vulvae due to the vaginal discharge.

Sterility may result from chronic cervicitis. Burns, in a series of 84 cases, found that 37 per cent. were sterile; 39 per cent. had one or more children, no miscarriages; 25 per cent. had one or more children, one or more miscarriages; 2 per cent had miscarriages only. Disorders of menstruation and backache do not occur unless the infec-

* Read in opening a discussion in the Section of Obstetrics and Gynaecology at the Annual Meeting of the British Medical Association, Manchester, 1929

tion involves also the endometrium or the uterine appendages. Chronic cervicitis of itself does not cause irregular uterine haemorrhage or pain.

It is when we consider the complications which may be consequent upon chronic cervicitis that the importance of the condition is realized. The cervix has been described as the tonsil of the pelvis, and it may act as a focus of infection. The experimental work of Laura Moench has shown that organisms grown from the chronically infected cervical glands of patients suffering from arthritis will produce joint lesions in rabbits, and culturally these organisms are identical with the anaerobic streptococci found in patients suffering from arthritis.

It is known that puerperal pyosalpinx and peritonitis may follow in patients suffering from chronic cervicitis of gonococcal and streptococcal origin. Finally, cervical trauma and cervical erosion may be associated with malignant disease. Bailey has recently reported upon the examination of 850 specimens of the cervix uteri in a paper entitled "An inquiry into the basic cause of cervical cancer; the pathology of cervicitis (cervical erosion) and the relation between cervicitis and cancer of the cervix," in which he was able to trace the changes from erosion to malignant disease.

THE PATHOLOGY OF CHRONIC CERVICITIS.*

BY

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CHRONIC infection of the cervix is by far the most common lesion met with in gynaecological practice. Authorities differ only slightly in their estimates of its frequency, and it is safe to say that, alone or in combination with other lesions, it is present in from 70 to 85 per cent. of all patients seen. British gynaecologists have not given this lesion the attention that it merited, although the recent exhaustive research by K. V. Bailey[1] of Manchester is a most important contribution to the subject. In America and on the Continent, on the other hand, great attention has been paid to the condition in recent years, and a very extensive literature has grown round the subject.

The condition has received many names, such as cervical endometritis, ectropion of the cervix, cervical erosion, cervical catarrh, proliferative adenoma (B. P. Watson[5]), pseudo-adenoma (Eden and Lockyer[2]), cystic disease of the cervix, chronic cervicitis (Moench[4]), and several others. Some of these names are given to different appearances met with at different stages of the disease, while others are based on erroneous ideas of the pathology. The condition is found most commonly in women who have borne children; less commonly it is found in nulliparae; and less commonly still is it present in virgins.

STRUCTURE OF THE CERVIX.

The structure of the cervix is important in this respect. It is covered on its vaginal aspect by stratified squamous epithelium, which contains no glands and which is continuous with the general squamous lining of the vagina. This squamous epithelium is in its deeper basal layer composed of cylindrical cells; superficial to this the main substance of the epithelium is composed of several layers of polygonal "prickle" cells, while the superficial layer or two are composed of flat cells, which are cast off from time to time. From the cylindrical layer are produced by cell division the more superficial layers.

At the external os the squamous epithelium suddenly changes to a high columnar-celled epithelium, with deeply placed nuclei. At numerous sites this epithelium is invaginated deeply into the mucosa, and into the innermost muscular layers of the cervix, to form compound racemose glands. The secretion from these glands and from the epithelium is thick, mucoid, and viscous, and forms the characteristic cervical secretion. Deep to the epithelium on both aspects of the cervix is a scanty stroma which contains few cells, and which merges into the fibro-muscular substance of the cervix.

The high columnar epithelium lining the cervical canal can be followed up to the internal os, when the appearance again suddenly changes as the uterine cavity is reached. Here the epithelium is similar but not so high, the glandular depressions are simple tubules, and the stroma is thick and cellular.

Between these two epithelium-covered surfaces of the cervix is the main muscular and fibrous structure of the viscus. The muscular layers are described as three—an outer and an inner, both longitudinal, and an intermediate one, circular in direction—but in an ordinary section it is difficult to see any regular arrangement of this sort. Fibrous tissue strands lie between the muscular bundles, and thick-walled blood vessels and smaller endothelium-lined lymphatic spaces are also present.

The anatomical relations of the cervix are important from the point of view of its pathology. Above it is continuous with the corpus uteri, and the intermuscular lymphatic spaces of the two communicate. It lies embedded in the pelvic cellular tissue, which stretches out on each side at the bases of the broad ligaments; posteriorly this cellular tissue is incorporated in the utero-sacral ligaments, which are attached to the sacrum on each side of the rectum, while anteriorly the less marked utero-vesical ligaments connect the cervix with the bladder.

THE INFECTIVE PROCESS.

The essential lesion in cervicitis is irritation produced by infection, and this may be brought about in several ways, but the most usual mechanism is chronic pyogenic infection after laceration of the cervix at childbirth. It has to be understood that the extent of the laceration matters not at all; it is the incidence and degree of infection of even a small lacerated surface that counts. The conditions after labour rather predispose to infection. The cervix is patulous, lacerated, and bruised, with the vagina bathed in alkaline lochia instead of the normal acid secretion, and in this way the normal resistance to infection is definitely impaired.

The most commonly found organisms in these cases are the staphylococcus, streptococcus, and *B. coli communis*, but the gonococcus is responsible in a certain proportion of cases. In cervicitis occurring in nulliparae the gonococcus is a more common agent, and here it exercises its well-known ability to penetrate and infect an intact mucous surface. It is very difficult to estimate the exact proportion of all cases which are of gonococcal origin, as the gonococcus soon becomes reinforced and masked by a mixed pyogenic infection, and also tends to disappear into the depths of glandular acini, and so is not obvious in swabs from the cervical canal. It is probable, in our opinion, that the incidence of gonorrhoea as a causative agent in the production of cervicitis is exaggerated.

As a result of infection the changes of inflammation soon appear. While in some cases the inflammation may be acute in the early stages, it is usually only in the late chronic stage, which is discussed here, that the condition is first seen. But it is more than probable that the majority of cases are chronic in type from the onset.

There is oedema of the subepithelial stroma with outpouring of lymphocytes and plasma cells, especially round the blood vessels and the glands, and under the surface epithelium. The blood vessels dilate, the surface columnar and glandular epithelium becomes irritated, so that glandular hypertrophy and distension occur, and the cervical secretion becomes increased in amount and of a muco-purulent appearance from mixture with inflammatory products. This increased inflammatory cervical secretion is known as leucorrhoea. It always retains its thick, viscous tenacity, and it is to be emphasized that, in general, *leucorrhoea is almost always a sign of cervical infection*. Partly as a result of maceration by continual leucorrhoeal discharge, partly by being raised and devitalized by subepithelial oedema, and partly on account of trauma, a plaque of squamous epithelium surrounding the external os becomes separated and cast off in the discharge,

* A paper read in the Section of Obstetrics and Gynaecology at the Manchester Meeting of the British Medical Association in opening a discussion on chronic cervicitis. The paper was illustrated by lantern slides showing the conditions described.

and a raw surface of varying extent is now left wholly or partly surrounding the external os. The columnar epithelium from the cervical canal, being more resistant, is seldom affected in this manner; on the contrary, it is usually stimulated to grow outwards and cover over the raw surface, so that after a time the area round the external os becomes covered by columnar epithelium, which carries with it in its outgrowth cervical racemose glands. This area has a red, raspberry appearance, and the name "cervical erosion" is given to it. It was to this condition of outgrowing endocervical epithelium and glands that Eden and Lockyer gave the name of "pseudo-adenoma."

This erosion is not an ulcer and it is not a granulating patch; it is an epithelium-covered surface, although there is often a breach of continuity between the two types of epithelium at the periphery of the erosion. In the "congenital erosion" this condition of extension of glandular tissue on to the portio is also found, but this is usually regarded as a persistence of a foetal condition, although some observers (Bailey) find inflammatory changes.

If the surface is smooth and the glands few the erosion is called "simple"; if the glands are numerous and dilated, the surface is rough, and the condition is called a "follicular erosion"; while if the glands are numerous but run mostly at right angles to the surface, numerous papillae project upwards between the glands, and it is known as a "papillary erosion." Occasionally these papillae grow to a large size, and constitute the single or multiple mucous polypi often found in this condition. These subdivisions are, however, artificial and unnecessary, and should be discarded.

If the cervix should be definitely lacerated, especially if bilaterally lacerated, it tends to become everted, partly by muscular action and partly as the result of inflammatory infiltration, so that the congested and thick endocervical mucosa is exposed to view. The name "ectropion" is given to this condition of eversion of the endocervical mucosa.

It has to be remembered, then, that the occurrence of erosion marks the first effort at healing on the part of the infected cervix by the covering over of the raw surface by epithelium. After a time the displaced squamous epithelium makes an attempt to reinstate itself. The basal germinal layer grows inwards and insinuates itself beneath the covering columnar epithelium. By cell division more superficial layers of cells are formed, and, with this process continuing, the columnar epithelium may finally be cast off from the eroded surface and confined to its normal bounds.

But prior to this the infection seldom remains limited to the mucosa; usually the fibro-muscular substance of the cervix has also become infected, so that chronic inflammatory hypertrophy is seen, and this, after the process subsides, may be succeeded by fibrosis and atrophy, so that the cervix is finally reduced to a hard nodular condition whose everted lips are shrunken and may be flush with the vaginal vault. Because of the frequency with which the substance of the cervix is infected in this way Moench suggests the appropriate name of "cervicitis" for the condition.

When the squamous epithelium displaces the columnar cells, the racemose glands of the latter are left *in situ*, and their ducts usually become occluded by blockage by epithelium, by blockage by inspissated secretion, or by periglandular fibrosis, and one of two things usually happens. Most commonly the glands continue to secrete; they become increasingly distended with retained secretion, while the lining epithelium, at first columnar, becomes cuboidal, and later flat from pressure. In some cases the epithelium may be unrecognizable as an intact layer. In this way a number of cystic spaces—Nabothian follicles—are formed in the substance of the cervix, and often form projections, especially under the vaginal aspect. In some extreme cases the cervix may be largely occupied by these cysts, but usually they are few in number. It will be evident, then, that the presence of Nabothian follicles indicates an advanced stage of the healing process in this condition, and that when these follicles have developed the red erosion will have disappeared, although fibrosis and puckering of the cervix usually persists.

In other cases the squamous epithelium may grow downwards into the glandular acini, which may become fully occupied by these squamous plugs. Unless this process is recognized these plugs of squamous cells filling the glands may present the appearance of columns of epithelioma, and an unnecessarily grave prognosis be given.

The final structural result, then, to the cervix consists of fibrosis and eversion, with some persistent Nabothian follicles.

Late Results of Cervicitis.

The sequelae of the condition may now be considered. They are many and important, and may be grave. The parametrium is frequently affected by lymphatic extension from the cervix, so that in the early stages tender infiltration and in later stages fibrosis is produced. The bases of the broad ligaments are often affected in this way, and frequently a tight fibrous scar can be felt stretching over one or other fornix from the edge of an eroded laceration. Equally often the utero-sacral ligaments are involved, and, on pulling the cervix forwards, pain in the lower part of the back is elicited.

These parametrial extensions are the most common causes of backache or chronic pelvic pain in women.

Absorption of toxins from the chronically inflamed cervical surface leads in some cases to a degree of general ill health, and it is probable, as shown by clinical experience, that some cases of muscular rheumatism and osteo-arthritis are due to such toxic absorption. Young[4] has recently cited examples of these complications, and I have also had experience of several cases which benefited largely by repair or amputation of the cervix. The presence of a continual vaginal discharge, again, may cause definite mental distress, but its effect in bringing about mental disease has probably been exaggerated. Sterility, and a tendency to puerperal sepsis, have been described as complications of this condition, but clinical experience does not bear this out. The majority of these patients have had a number of children, and when their labours have been normal no special tendency to pyrexia has been noted.

Direct extension to the uterine mucosa is not common, but as the lymphatics of the cervix and body are associated, chronic infection of the musculature of the uterus may occur, and the condition of chronic metritis develop. The main symptom here is menorrhagia with uterine enlargement, and this always indicates uterine involvement. Menorrhagia is not a symptom of uncomplicated cervical infection. In the same way, by lymphatic extension, the tubes and ovaries are commonly affected, and chronic salpingo-oöphoritis may be produced, with resulting pelvic pain and sterility.

On account of prolonged leucorrhoeal discharge pruritus vulvae may develop, while in gonorrhoeal cases prolonged vulval irritation may produce a crop of irritating condylomata.

But the most important sequel is carcinoma. It is often a late sequel, occurring many years after the injury was inflicted. Carcinoma of the cervix usually occurs in patients who have had a child or children, and it is just these women who have had cervical damage and erosion. In this connexion Farrar[3] recently reported that of 300 cases of carcinoma 96 per cent. had had one or more children. Similar figures are quoted by other writers, and my own experience is in general agreement with this.

So far as is known there is no marked tendency for the patient with the congenital erosion or the nullipara with the gonorrhoeal erosion to develop carcinoma, so we are forced to the conclusion that it is not merely the erosion, but the damage to the cervix at childbirth associated with the erosion, which is the predisposing factor in this connexion. This is borne out by the fact that most patients with carcinoma of the cervix have not had one but several pregnancies.

When we consider the long-continued irritation, the great epithelial proliferation which is stimulated, and the damage, often repeated, of childbirth, the wonder is that carcinoma is not a more common sequel than is the case.

Carcinomatous overgrowth usually occurs in the squamous epithelium, and the first thing noticed is that the basal germinal layer proliferates in columns and breaks through its basement membrane. The cell columns penetrate

deeply into the substance of the cervix, and even before surface ulceration occurs a well-marked lymphocytic barrier is thrown out in an attempt, usually vain, to control the proliferating cells. Similar changes may occur in connexion with the glandular epithelium. When extensions occur, it is very common to find them most marked in the utero-sacral ligaments or along the thickened base of one or other broad ligament, the very places that have been previously affected by chronic irritative fibrosis.

Conclusion.

A study of this pathology shows us that the cervix is one of the most important pelvic structures and that chronic inflammation here is a widespread condition which may have far-reaching immediate and late results.

Another important point emerges that, while severe puerperal sepsis accompanied by pyrexia occurs in about four cases per thousand, puerperal sepsis in a minor degree, often with no symptoms at the time, lasting many years, and with a risk of carcinoma formation, occurs in a large proportion of all parturient women.

The main etiological factor in this condition is injury at childbirth, and these cervical injuries represent the wounds which women in labour receive in the process of producing the next generation.

The medical and sociological considerations raised by a study of this subject are very large and important, and there is no aspect of obstetrics and gynaecology which is more worthy of our attention.

Leucorrhoea may be produced by other lesions, such as tuberculous or syphilitic cervical ulcers, or foreign bodies, but only the more common lesion can be discussed in this paper.

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TREATMENT OF CHRONIC ENDOCERVICITIS.*

BY

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WHEN I was asked if I would open a discussion on the treatment of chronic endocervicitis at this meeting, I felt much flattered at the honour done to me, but I accepted with grave misgivings when I came to consider the subject which had been assigned to me. I do not think there is any gynaecological condition which is seen so frequently by doctors in all types of practice, and which is more difficult to treat satisfactorily. It is presumably on account of this difficulty that the methods of treatment advised are so numerous and diverse; owing to this I am unable to put forward any authoritative bibliography, and this paper expresses merely my own personal preferences.

That the condition requires treatment, and effectual treatment at that, is obvious when its complications are considered. Quite apart from the personal discomfort and annoyance which chronic leucorrhoea causes to patients of cleanly habits, it bears in its train a series of sequelae of great importance. It is one of the commonest causes of sterility and—perhaps even more often—of the one-child marriage. Again, owing to the deep ramifications of the glands of the endocervix, and their close relationship to the lymphatics draining into the base of the broad ligaments, it is a very common cause of a mild thickening and inflammation of the pelvic cellular tissues in that region. This condition is very much commoner than is generally realized, and gives rise to pressure on, and nipping of, the ureter, with symptoms of chronic backache and renal pain. This has been most clearly worked out and described in numerous papers by Guy Hunner,[1] and for some years I have been in the habit of passing acorn-headed ureteric bougies up the ureters in cases of backache associated with "erosion," and it is astonishing how often there is found a well-defined stricture of the ureter about the situation where it passes across the cervix below the uterine artery. The worst complication which can ensue is carcinoma of the cervix, and I am sure it is generally agreed that there is now no question as to the close relationship between the incidence of chronic infected lacerations and cancer of the cervix; so that if there were no other reasons at all, this fact alone would justify any attempt at curing these infections. It is not my province to discuss the pathology of this condition, but when it is reviewed it will be seen that there are two factors to be treated: (1) the leucorrhoea and so called *erosion*; (2) the deep infection of the cervical tissues with its surrounding infiltration. The former is much easier to attack and conquer than is the latter when once it is well established, and I would press for the early treatment of all lacerations of the cervix, and also for all established "erosions." This particularly applies to lacerations diagnosed at the time of the confinement, which can easily be sutured immediately, or before the puerperium is concluded. De Lee[2] states in his textbook that he has never seen a carcinoma follow on a laceration which has been properly repaired at the time when it occurred.

Although leucorrhoea may be one of the symptoms of a variety of gynaecological conditions this paper is concerned only with chronic infection of the endocervix, and no attempt is made to discuss the diagnosis or treatment of any of the other conditions giving rise to similar symptoms.

Coming now to the actual treatment of the condition of chronic endocervicitis, when it is established, we are at once faced with the problem of the individuality of the patient. It is impossible to apply the same rules of treatment to the patient with an extensive laceration as to the one with no tear at all. It is equally useless to group together the young woman with an infection following her first childbirth and the patient of 55 who will not become pregnant again. Each case must be considered on its merits, and to some extent the cause of the lesion will direct the method of its cure.

For some years I have had the great advantage of being on the staff of the Bristol venereal clinic as well as being gynaecologist to the Royal Infirmary, and I am firmly convinced that gonorrhoea is far more commonly at the bottom of a chronic cervical infection than is usually thought. In my gynaecological out-patient clinic smears are taken from the urethra and cervix of all cases of leucorrhoea, and quite a large proportion are returned showing gonococci present, when the case is transferred to the venereal disease clinic for treatment. The converse also holds good. I have now seen a very large number of cases of gonorrhoea which have developed erosions of the cervix while under treatment, and this condition persists when no trace of the gonococcus can be obtained with the most careful methods of taking smears and cultures. I would like to stress the importance of paying no attention to the presence or absence of a discharge in deciding as to whether a gonorrhoea is cured. because the leucorrhoea associated with the resulting chronic endocervicitis will persist for a very long time after the actual gonococcal infection is cured. It is therefore, in my opinion, necessary to examine all cases of chronic cervical infection for gonococci—by smears from urethra, cervix, and Bartholin's glands—before commencing further treatment.

If the presence of the gonococcus can be demonstrated I consider that there is no treatment so good as that of daily douching with boric acid, wiping away the mucopus, and then thoroughly swabbing the cervix and vaginal vault with 1 per cent. mercurochrome.* I think the stronger solutions defeat their object by delaying the normal process of healing—that is, the replacement of the columnar-celled erosion by the normal squamous-celled covering of the vaginal surface of the cervix. In all

* Read in opening a discussion in the Section of Obstetrics and Gynaecology at the Annual Meeting of the British Medical Association, Manchester, 1929.

cases of recent infection with much muco-purulent discharge—even though they are not gonorrhoeal—I find mercurochrome most excellent, while 1 in 1,000 flavine solution makes a most useful change.*

The above is the method of treatment I use in all fairly recent infections of the cervix which are not complicated by erosion or extensive laceration. In cases where the cervical canal is obviously infected fairly high up, a Playfair's probe can be used to carry the solution as high as the internal os. Probably the next most useful remedy is 10 per cent. silver nitrate used in a similar manner. I have had little or no success with the old-fashioned iodized phenol, as the infection usually recurs within a few weeks. A recent form of treatment, of which I have no personal experience, though it is used by my colleague Dr. H. L. Shepherd, is the local application of vaccines to the endocervix; but, while he is enthusiastic, he has not yet treated a sufficient number of cases to form a final opinion as to its value.

It will be seen that the best forms of treatment for purulent endocervicitis must be administered by an attendant; it is quite useless to supply patients with a douche can and materials to use in it and let them treat themselves, and it is quite obvious that they cannot possibly swab the cervix and upper vagina with the antiseptic selected. These difficulties arise in the treatment of private patients. At the Bristol Royal Infirmary the matron has very kindly arranged for a "douching clinic" to be held every morning, and patients attend for daily treatment, which is carried out by a skilled nurse. The results have exceeded our best expectations. The patients are enthusiastic over the rapid amelioration of their discomfort, while a great advantage is gained by the hospital in the falling off in the numbers of the cases of this type requiring admission to the wards.

When the cervical infection is accompanied by laceration it will be found that many patients present themselves complaining of dull pain in the groins and backache. In these cases the base of the broad ligament will be found to be thickened and tender on one or both sides, the ureters are often palpable and tender, and the patient complains of frequency of micturition and usually shows a quite considerable bacilluria. This mild-grade cellulitis, with its consequent fibrosis and contraction, may cause far more discomfort to the patient than the actual laceration and infection. I have found that really hot and prolonged douching is by far the most efficient remedy. The douche is given as hot as it can be borne, and is continued for at least fifteen minutes. This requires very large quantities of fluid (about twenty pints), and is not easy to manage in the ordinary way. In the out-patient department we have made special arrangements at the "douching clinic," but in private cases the procedure can be made comparatively simple when carried out as follows: The patient lies in a warm bath, and a large douche can is hung upon a conveniently placed nail. The douche nozzle is inserted to the top of the vagina, and the can is then replenished from the hot tap as often as is desired, while the presence of the warm water in the bath prevents too rapid an outflow. If there is much pus the patient is told to give herself a short lysol douche in the usual way before getting into the bath. The relief thus obtained is immediate, and usually becomes permanent after a short time. Should the symptoms still persist I explore the ureters for stricture by Hunner's method.[5]

Glycerin, or glycerin and ichthyol, tampons are of use only when applied by an expert nurse or by the medical attendant, otherwise they are positively harmful. The patient never manages to get them right up to the vaginal vault, and so a gap is left between the cervix and the tampon. Owing to the hygroscopic action of the glycerin a pool of muco-purulent fluid forms and bathes the cervix, which becomes sodden and sheds still more of its squamous epithelium, and the condition of the cervix becomes worse rather than better, while very little improvement, if any, is produced in the thickening of the broad ligament.

Another most excellent remedial method is the use of hot antiphlogistine tampons. These are formed of a cup-shaped lump of antiphlogistine enclosed in a single layer of gauze, heated as hot as can be borne and pressed well moulded right up against the vaginal vault, to be removed after six hours. It requires expert insertion, but an intelligent nurse can learn how to apply it when she has tried it two or three times under supervision.

The practice, once so frequent, of putting in ring pessaries to relieve the backache cannot be too strongly condemned; it tends to keep up the cervical infection and presses upon the tender fornices and ureters. It is far better to remove any pessary during treatment, even though there should be a considerable degree of prolapse.

Very excellent results are also obtained with diathermy using a current which the patient can just endure with comfort, and it is especially useful in the treatment of gonorrhoeal cases when used with the technique advised by Cumberbatch.[4]

So far the treatment discussed has been that of cases of fairly recent origin; it now remains to consider the more chronic type of endocervicitis, which resists the above methods of treatment. I do not think there is any question that the treatment of these resistant cases must be operative, and I include the use of the cautery under this heading. For some time past I have been using the electro-cautery in the treatment of chronic cervicitis with the greatest success. It has been enthusiastically advocated by Hunner and by Kelly,[6] while Matthews[5] has compared the value of treatment by the cautery with surgical treatment, to the advantage of the former.

In cases with ectropion of the cervix accompanied by erosion the electro-cautery is used to draw a series of radiating lines from the os to the edge of the affected area, the patient being warned that the discharge will be worse for a few days. The results are most striking; the swollen and everted mucosa shrinks rapidly, and the whole cervix improves astonishingly quickly. The treatment is repeated weekly until cure is effected. It has the great merit of being practically painless, and requires no anaesthetic at all; none of my patients has complained of more than a slight pricking, and they return without the least anxiety for their weekly treatment. The same procedure is utilized in those cases where the cervical canal is infected without much erosion being present. Here a cautery point is inserted up the canal and drawn up and down once or twice. If there is very much eversion and rolling out of the mucosa a short anaesthetic—for example, nitrous oxide—can be given and a much heavier cautery point may be used to cauterize the tissues more deeply. In these cases the treatment should be repeated at intervals of a month, and not of a week. I personally prefer light cautery and more frequent treatment, as there is then no danger of contraction of scar tissue. In either case I order a daily saline douche for a few days after the treatment to deal with the temporary increase in the discharge.

When the endocervicitis is complicated by laceration it becomes urgently necessary to treat the condition by operation, owing to the relatively great predisposition to carcinoma. The operations possible fall into three groups: (*a*) repair operations; (*b*) amputations of the cervix; and (*c*) panhysterectomy. Whichever operation is eventually decided upon, the condition of the perineum and pelvic floor should always be taken into consideration, and a perineorrhaphy should be performed when required. The main deciding factor as to the type of operation chosen is the question of the probability of further pregnancies. In young patients I do not think that amputation of the cervix is usually advisable. In some cases it is followed by abortion, and in one of my own cases there was severe cicatrization, which caused much trouble in a subsequent labour. If amputation is performed for hypertrophy of the cervix it should be of the "low" variety in young women. I prefer to repair the cervix by a plastic operation, denuding the lateral scarred areas and suturing them together, the classic operation of Emmett requiring too long a preparation and not always curing the erosions. This gives a very good result, and I have inspected a large number of these cases two years after operation and found it difficult to believe that they had ever shown the large tears and erosions described in their notes. In patients who are unlikely to become pregnant again an amputation of the cervix is the best procedure. I prefer the operation

* If mercurochrome is used, it must be a reliable brand. Many failures are due to the fact that there are substances on the market which are not mercurochrome at all, although they resemble it in appearance.

of Victor Bonney (sometimes associated with the name of Stumndorf), the only precaution necessary being firm ligation of the lateral vessels, as this operation can cause really dangerous post-operative bleeding. An excellent modification is described by Te Linde[10] for amputation at a lower level, and is very useful in patients who might possibly become pregnant again. In most of my cases the perineum also has required repair, which is done at the same time.

In elderly patients, especially if there is reason to suspect any uterine complications, such as the so-called "fibrosis uteri," the operation of election is a panhysterectomy. It is most disappointing to perform an amputation of the cervix and have the patient returned in six or eight months with intractable uterine haemorrhage. In many patients of this class the perineum is torn and the pelvic floor has yielded, so that there is a very considerable degree of prolapse. For these there is no operation so good as that of vaginal hysterectomy, with repair of the pelvic floor and perineum. At the Bristol Royal Infirmary we use the technique of G. V. Ward,[11] which is a modification of the Mayo operation. We have had no trouble with shock or bleeding, and the results have been surprisingly good, the perineum and vagina becoming anatomically reconstructed. I think that the operation of vaginal hysterectomy has been much neglected of recent years, and my own experience is in complete accord with that of Professor Green-Armytage described in his recent paper.[3] I would, however, urge the complete repair of the pelvic outlet at the same time. The combined operation causes little or no shock, and is easily performed, while in fat patients it is enormously superior in every way to an abdominal hysterectomy with a separate repair operation.

If true ulceration is found upon the cervix it is essential to remove a portion of its growing edge for sectioning. Whilst carcinoma is much the most likely complication, the possibility of tubercle or gumma must not be overlooked, and in all gonorrhoeal cases it should be part of the routine treatment to take a Wassermann test. It is very surprising how many patients with chronic gonorrhoea are also syphilitic. In these cases I defer operation till the patient has had twelve months' routine antisyphilitic treatment.

Finally, as prevention is better than cure, I would again urge the importance of inspecting the cervix after delivery and suturing all considerable tears. It is surprisingly easy to press down the fundus till the cervix appears at the outlet, and then it can be quite easily inspected with the labia separated by two fingers. I feel sure that if this procedure were taught and practised more there would be a great decrease in the incidence of chronic endocervicitis, and therefore of carcinoma of the cervix.

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THE TREATMENT OF INFLUENZA WITH S.U.P. 36.

BY

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The drug S.U.P. 36 is a symmetrical urea, and its full chemical name is para-benzoyl-para-amino-benzoyl-amino-naphthol 3 : 6 sodium sulphonate.

During the influenza epidemic in the spring of the present year I endeavoured to make a systematic test of the advantages of treating influenza by intramuscular injections of this drug. Every case of influenza seen, in which the disease had not existed for more than forty-eight hours, was used for my records, alternate cases being treated by injection of S.U.P. 36 and the remaining cases orally by drugs such as salicylates, aspirin, and influenza mixtures. Cases not first seen until more than forty-eight hours after the onset of the disease were not taken into account, as it was not expected that the injection of S.U.P. 36 could be of much use after the acute phase had passed.

The method employed in the injected cases was to inject as early as possible an initial dose of 0.5 c.cm. (representing 0.005 gram). This was followed by an injection of 0.75 c.cm. on the fourth day following the initial dose if the case had not cleared up in the meantime. In some cases the initial dose given was 0.75 c.cm. The injections were usually made into the gluteus medius muscle, and only very trivial complaints of pain were ever received. Occasionally the injections were made into the deltoid muscles, where in one or two cases rather more pain was suffered. The only drugs given orally to any of the patients treated with S.U.P. 36 were calomel, 2 to 5 grains, where indicated—that is, in roughly half the injected patients—and the use of a simple expectorant mixture where necessary (in only about 10 per cent. of the injected patients). In no other injected patients, excepting the two noted with cardiac trouble, were any other drugs given.

At the end of a fortnight it became quite evident to me that the injected patients had the advantage over the non-injected ones, and thereafter I treated by injection all patients who would submit to the treatment.

The epidemic of influenza prevailing was of the somewhat mild type. The onset was very acute, with a sudden rise of temperature to 101° to 103°, with pain in the limbs and back, fairly severe headache, and in many cases a particularly troublesome cough with little expectoration. Pulmonary complications were rare and the mortality was low, no death being recorded among the series of cases investigated.

It was found to be difficult in practice to collect data which would be of value for tabulation in a comparative manner between injected and non-injected cases, but, taking five headings as the main symptoms in the disease, comparison may be drawn in the following manner:

	Control Cases.	Injected Cases.
Average duration of pyrexia in days	2.8	1.4
Average duration of headache in days	2.1	1.0
Average duration of muscular pain in days ...	3.4	1.3
Average number of days in bed	5.7	2.8
Average number of days off work	16.0	6.9

At first sight it may appear that these comparisons are subject to many fallacies and therefore not of much value, but, taking into consideration the following points, I think, though the numbers are small, that the five comparisons drawn give a fairly accurate idea of the progress of the attack.

The average age in each group was: Controls 33.9 years; injected cases 34.8 years.

The sexes of the two groups were: Controls 40 per cent. males; injected 57 per cent. males.

The class of patient treated in each group was similar.

No attempt was made to hurry the injected patients out of bed or back to work, and in many cases they were purposely kept in bed some time after their temperature was normal.

From a comparison of these figures it will be seen that in the injected group the duration of pyrexia and headache is halved, while the duration of muscular pain is even more than halved. The time in bed is also halved, but this is perhaps the least reliable of the figures for comparison. The figure for the average time off work may, I think, be taken as reliable, and is again seen to be slightly more than halved in the injected cases.

A careful study of the injected cases reveals the fact that the earlier the injection is given the greater is the benefit derived, and this was even more obvious from the clinical study of the cases themselves. As a matter of interest, several patients seen too late to be included in the comparative records were given their initial dose on the third, fourth, and in one instance on the fifth day of the disease, and in none of these cases was any benefit noticed

from the injection. This fact is noteworthy, as it may be of importance in determining how the beneficial effect of the injection of such drugs as S.U.P. 36 is brought about, and is a point which warrants further investigation. One very interesting clinical phenomenon observed after injection was the almost entire absence of perspiration during the period of the abatement of pyrexia. So noticeable was this that in many cases my attention was drawn to the dryness of the patient's skin by other members of the family, and in several cases of pneumonia which I have treated with S.U.P. 36 the same absence of perspiration has been noticed by nurses in attendance.

The following clinical notes were taken on the individual cases.

Case 1a.—Mr. W., aged 26. Typical influenza. Temperature 102°. 0.5 c.cm. S.U.P. 36 injected into the gluteus medius muscle. Next day the temperature was normal, but patient still felt poorly. On the third day patient got up, feeling better, and made an uninterrupted recovery, returning to work on the seventh day. In this case no second injection was necessary.

Case 2a.—Mr. J. A. S., aged 19. Typical influenza. Temperature 101°. On February 22nd 0.5 c.cm. S.U.P. 36 was injected into the gluteus medius. Twenty-four hours later the temperature was normal, but some bronchial catarrh was present and patient was kept in bed for three days. He returned to work completely recovered in fourteen days.

Case 3a.—Mr. L., aged 40. Typical influenza. Temperature 101.6°. Headache very severe, muscular pains slight. 0.5 c.cm. S.U.P. 36 was injected into the gluteus medius. Twenty-four hours later the temperature was normal, the headache and muscular pains having passed away within twelve hours from the injection. Patient was in bed for two days. Complete recovery and return to work on the sixth day.

Case 4a.—Mr. J., aged 35. Typical influenza. This patient says that he "always has 'flu' whenever it is about," and I have previously treated him for two rather severe attacks of influenza during the past three years. Patient on this occasion was first seen with a temperature of 103°, sweating profusely, headache and muscular pains very severe. As he had been dosed with quinine by his wife no injection was made on this day. The next day 0.75 c.cm. S.U.P. 36 was injected into the gluteus medius, the temperature at this time being still 102° and the pains and general condition the same as on the previous day. During the next twenty-four hours improvement was most marked and the temperature became normal, the patient getting up of his own accord twenty-four hours after the injection. He resumed his work, completely recovered, on the sixth day. Three points are of interest: (1) The condition was completely stationary for twenty-four hours before the injection. (2) The profuse sweating ceased almost immediately after the injection was made. (3) The patient is particularly subject to influenza, and is convinced that he has never before recovered in anything like so short a time.

Case 5a.—Mr. R., aged 24. Typical influenza. Temperature 102.6°; muscular pains very severe, and severe headache. 0.5 c.cm. S.U.P. 36 injected into gluteus medius. Twenty-four hours later the temperature was normal, the headache had been relieved within twelve hours, and the muscular pains within twenty-four hours. Patient was kept in bed for three days, and recovery was complete in seven days.

Case 6a.—Mrs. S., aged 29. Typical influenza. Temperature 101°. 0.5 c.cm. S.U.P. 36 injected into gluteus medius. Twenty-four hours later temperature still 101°. The next day the temperature was normal, but patient still felt ill and was given a second injection of 0.75 c.cm. of S.U.P. 36. The following day the patient got up, and she returned to work recovered on the ninth day.

Case 7a.—Mrs. F., aged 27. Typical influenza. Temperature 102°, with exceptionally severe muscular pain and severe headache. 0.5 c.cm. S.U.P. 36 injected into deltoid muscle. Twenty-four hours later the temperature was normal; the muscle pain and headache had both disappeared within twelve hours of injection. Patient was in bed only two days and returned to work on the fourth day. She had complained of pain in the injected arm lasting twenty-four hours.

Case 8a.—Mrs. M., aged 32. Typical influenza. Temperature 102°. On February 25th 0.5 c.cm. S.U.P. 36 was injected into the gluteus medius; twenty-four hours later the temperature was 100.6°. On February 27th the temperature was normal and the patient feeling quite well, but the next day slight tonsillitis developed, and on March 1st an injection of 0.75 c.cm. was given. The patient was again seen on the following day, when all the symptoms had cleared up, the attack of tonsillitis being apparently aborted. Return to work was made ten days from onset.

Case 9a.—Mrs. P., aged 38. Typical onset of influenza. Seen in the very early stages with a temperature of 101.6°, headache, and severe muscular pain, all of only a few hours' standing. At 11 a.m. 0.5 c.cm. S.U.P. 36 was injected into the gluteus medius. Almost complete relief of both headache and muscular pain was obtained by 11 p.m. the same day, at which time the temperature was still only 101°. Four days later a second injection of 0.75 c.cm. was given; the next day the patient was quite well and doing her work. An interesting point in this case is that prior to the attack of influenza the patient had suffered from chronic nasal catarrh for some weeks. This completely cleared up following the injections, and there has been no recurrence up to the present date—July 9th.

Case 10a.—Mr. S. C., aged 46. Typical influenza. 0.5 c.cm. S.U.P. 36 injected into gluteus muscle. Two days later the temperature still remained high, and on the fourth day a second injection of 0.75 c.cm. was given. The patient was in bed five days and off work twelve days.

Case 11a.—Mr. B. C., aged 57. Typical influenza. Temperature 102.6°. On February 26th 0.5 c.cm. S.U.P. 36 was injected into gluteus medius. This patient was not seen the following day, on February 28th the temperature was normal. The patient kept in bed for four days, a second injection of 0.75 being given on the fourth day. He resumed work, recovered, on the fourteenth day.

Case 12a.—Mrs. L. S., aged 35. Typical influenza. Temperature 102°; muscular pains and headache both severe. 0.5 c.cm. S.U.P. injected into gluteus medius. Twenty-four hours later the temperature was normal and pain and headache had both disappeared. Patient was in bed three days, and had completely recovered six days.

Case 13a.—Baby R., aged 3 (boy). Typical influenza (infection from other members of the household). The child was seen at 7.30 p.m., and was decidedly ill with a temperature of 104.6° and violent delirium. (There was no constipation or gastric disturbance to account for this.) 0.75 c.cm. S.U.P. 36 was injected into the gluteus at 7.30 p.m. The child had settled down by midnight and had a good night. At 10 o'clock next morning the temperature was 100°. No other treatment whatever was given in this case, and no further injection was given. The child was kept in its cot for four days, and was completely recovered by the fifth day.

Case 14a.—Mrs. J., aged 36. Typical influenza. Temperature 102°; muscular pains very severe. 0.5 c.cm. S.U.P. 36 injected into gluteus muscle. Twelve hours later the temperature was normal and all muscular pain had disappeared. The patient was kept in bed for two days, and returned to work recovered in six days.

Case 15a.—Mrs. O., aged 24. Severe case of typical influenza. Temperature 103°. 0.5 c.cm. S.U.P. 36 injected into gluteus medius. Twenty-four hours later the temperature was normal and all other symptoms had disappeared, but the patient complained of feeling very weak and was kept in bed for five days, 0.75 c.cm. being injected on the fourth day. Complete recovery and return to work on the tenth day.

Case 16a.—Mrs. H., aged 35. Very early case of typical influenza. Infection from other members of the household, and on the first signs patient went to bed. Temperature was then 100° and pain was complained of, especially at the back of the neck. 0.5 c.cm. S.U.P. 36 was injected into the gluteus medius. Next day the temperature was normal and all pain gone. The patient was up and resumed her work the following day. No further injection was given.

Case 17a.—Mr. H., aged 40. Influenza with tonsillitis. Temperature 102.6°. On February 27th 0.5 c.cm. S.U.P. 36 was injected into the gluteus medius. On March 1st the patient was very much better, and two days later the temperature was normal and patient got up. On March 5th he had quite recovered. In this case pain was complained of after the injection and a second injection was refused. Experience had now shown me that this type of case does better if the initial dose injected is 0.75 c.cm.

Case 18a.—Miss I. B., aged 27. Typical influenza. This patient is a weakly and a neurotic type of girl. On February 27th the temperature was 102°, when 0.5 c.cm. S.U.P. 36 was injected into the gluteus medius. Twenty-four hours later the temperature was 100.6°, with marked improvement generally. On March 3rd patient got up feeling quite well. Rather long convalescence until March 23rd, when she returned to her work.

Case 19a.—Mrs. W., aged 30. Early case of typical influenza. Patient sent to bed with temperature of 101°, and 0.5 c.cm. S.U.P. 36 injected into gluteus medius. All the symptoms quickly subsided; the patient was up forty-eight hours after the injection, and resumed her housework on the third day.

Case 20a.—Mrs. M., aged 25. Severe case of typical influenza. Temperature 103°, with very severe headache, troublesome cough, and the patient felt very ill. On March 1st, when first seen, 0.5 c.cm. S.U.P. 36 was injected into the gluteus medius. On the following day the temperature was 101° and the patient felt much better. The next day the temperature had fallen to normal. On March 5th the temperature was still normal, but patient complained of muscular pain, so a second injection of 0.75 c.cm. was given. Two days later the patient got up. On March 10th she was quite well.

Case 21a.—Mr. P., aged 34. Early case of typical influenza. Temperature 101.6° on March 3rd, when 0.75 c.cm. S.U.P. 36 was injected into the gluteus medius. In twenty-four hours the temperature was normal and all pain had disappeared. On March 6th the patient had quite recovered. He returned to work on the seventh day.

Case 22a.—Miss P., aged 29. Early case of typical influenza. On March 5th, when the temperature was 101°, 0.5 c.cm. S.U.P. 36 was injected into the deltoid muscle. On March 7th the temperature was normal and the patient got up. On March 9th a second injection of 0.75 c.cm. was given into the deltoid of the other arm. Patient resumed her work nine days from the onset. No complaint of pain in either arm was made.

Case 23a.—Mr. P., aged about 40. Typical influenza with tonsillitis. On March 5th 0.5 c.cm. S.U.P. 36 was injected into the gluteus medius. Two days later there was marked improvement and the tonsillitis was clearing up. On March 9th a second injection of 0.75 c.cm. was given. The patient was fit for work on March 15th.

Case 27a.—Mr. W., aged about 26. Typical severe case of influenza. Temperature 104°, severe muscle pains, headache, and bronchial catarrh. On March 6th 0.75 c.cm. S.U.P. 36 was injected into the gluteus medius. Twenty-four hours later the temperature had fallen to normal, the headache had disappeared, but the muscular pains persisted. On March 8th the muscular pains had gone, and the patient got up of his own accord. The next day the patient felt so well that he went to his work for a short time, but in the evening another injection of 0.75 c.cm. was given. On the morning of the following day the patient again went to his work, and continued without interruption.

Case 28a.—Mr. H., aged 31. Typical influenza. Temperature 103°; muscular pains and headache both severe. 0.5 c.cm. S.U.P. 36 was injected into the gluteus medius. Twenty-four hours after injection the temperature was normal, the headache relieved, and muscular pain less severe. The patient was kept in bed for four days, and a second injection of 0.75 c.cm. was given on the fourth day. Complete recovery followed, and he was able to return to work on the seventh day.

Case 26a.—Mr. M. H., aged about 45. Seen in the early stages of onset of influenza. 0.75 c.cm. S.U.P. 36 was injected into the muscle of the forearm at 11 a.m. The patient went to bed at noon the same day, and was up and at work feeling fit the next morning. No further injection was given, the attack having apparently been completely aborted.

Case 25a.—Mr. F., aged 35. Typical influenza of a severe type. *Temperature 104°, with very severe pain in head and muscles.* Cough and signs of bronchitis were present. 0.5 c.cm. S.U.P. 36 was injected into the gluteus medius on March 5th—that is, the second day after onset of the symptoms. The next day little improvement was noticed, but the temperature was down to 101.4°. On March 7th pneumonia of the influenzal type developed and the patient was decidedly ill. The next day 0.75 c.cm. was injected. On March 9th the patient was much improved in every way, and the improvement continued without a further injection being necessary, the temperature falling by lysis and becoming normal on the seventh day from the onset of the pneumonia. Convalescence was uneventful.

Case 24a.—Mr. J., aged 40. Influenza and tonsillitis. On March 6th the temperature was 102°, and 0.5 c.cm. S.U.P. 36 was injected into the gluteus medius. The next day the temperature had fallen to normal and there was marked improvement generally. On March 10th a second injection of 0.75 c.cm. was given, the patient getting up the following day. On March 14th the patient was quite well and attended the surgery, asking to return to work.

Case 29a.—Miss M. R., aged 19. Typical influenza. On March 6th 0.5 c.cm. S.U.P. 36 was injected into the gluteus medius. The next day there was marked improvement with normal temperature. On March 9th the patient was not so well and the temperature had risen to 100.2°, so a second injection of 0.75 c.cm. was made into the gluteus medius. On March 11th the patient was up and feeling quite well. She returned to her work on the eighth day from onset, remarking that she had had influenza three times previously and had always been obliged to stay away from work for two to three weeks.

Case 30a.—Mrs. M. R., aged 49. Typical influenza. The second case in the same household as Case 29a. Immediately the first symptoms showed themselves, and when the temperature was 99.4° at 10 a.m. and pains in the back were complained of, 0.5 c.cm. S.U.P. 36 was injected into the gluteus medius. All symptoms subsided in twelve hours, the attack apparently being completely aborted. No second injection was given.

Case 31a.—Mr. R., aged 50. Early case of typical influenza. Third case in the same household as Cases 29a and 30a. 0.5 c.cm. S.U.P. 36 was injected into the deltoid muscle on the first onset of symptoms. The attack appeared to be completely aborted, the patient only missing one day's work.

Case 32a.—Miss E. S., aged 53. This patient suffered from *chronic bronchitis and chronic mitral endocarditis.* Auricular fibrillation was present at the time of the onset of an attack of typical influenza, and the patient was obviously dangerously ill. 0.75 c.cm. S.U.P. 36 was injected into the gluteus medius, and this dose was repeated two days later. Massive doses of digitalis were given by the mouth for the treatment of the fibrillation, on the lines of Cole's treatment. The influenzal symptoms subsided rapidly, marked improvement being made in the first sixteen hours, and recovery was uneventful, the heart responding well to digitalis.

Case 33a.—Mr. M., aged 33. Typical influenza. Temperature 102°, muscle pains and headache both severe. 0.5 c.cm. S.U.P. 36 was injected into the gluteus medius. Twelve hours later the headache and pain had disappeared, the temperature being normal twenty-four hours after injection. The patient was in bed three days, and had completely recovered in five days.

Case 34a.—Mr. B., aged 56. Influenza of the gastric type, with vomiting and diarrhoea. 0.75 c.cm. S.U.P. 36 was injected into the gluteus medius as the initial dose. Twenty-four hours later the temperature was normal, and vomiting and diarrhoea had ceased. The patient returned to his work eight days from the onset, having been in bed three days. This case is of interest as being the only case of the gastric type in the series, and no other medicine whatever was given, this not being one of the cases to receive calomel.

Case 35a.—Mr. J. H., aged 48. Influenza and tonsillitis. 0.5 c.cm. S.U.P. 36 injected into the gluteus medius. Temperature became normal by the third day, and on the fourth day a second injection of 0.75 c.cm. was given. Patient got up on the fifth day and was off work for ten days from the onset. This is another instance of a patient who should have received 0.75 c.cm. as the initial dose.

Case 36a.—Miss E. M., aged 35. This patient has a bad chronic mitral lesion and was treated for auricular fibrillation two years ago, remaining on a small dose of digitalis ever since. She was seen on March 7th with typical symptoms of influenza, temperature 101°, and severe pains in back and limbs. 0.75 c.cm. S.U.P. 36 was injected into the gluteus medius as the initial dose, and all symptoms subsided and the temperature became normal within forty-eight hours. The patient was kept in bed for five days, and returned to work completely recovered in eight days from the onset.

Case 37a.—Mr. T., aged 43. Typical influenza; second attack this year. On March 9th the temperature was 102.6°. 0.75 c.cm. S.U.P. 36 was injected into the gluteus medius as the initial dose. The next day the temperature was still 102°. On March 11th the temperature was normal and all other symptoms had subsided. The patient was then feeling quite well and asking to get up. He returned to work on March 13th.

Case 38a.—Mrs. B., aged 49. Typical influenza, but pain in the back especially marked. On March 11th 0.5 c.cm. S.U.P. 36 was injected into the gluteus medius. On the following day very great improvement was noted. On March 14th 0.75 c.cm. was injected into the gluteus. Two days later the patient was quite well and returned to work. The severity of the pain in the back was of interest in this case, as the patient was told to report if there was any return of this pain. She did not do so, but I have since seen her, and she remarked voluntarily that, whereas in previous attacks of influenza she had always been troubled by pain in the back continuing after the attack, she had this time been quite free from pain.

Case 39a.—Miss N. D., aged 24, came to the surgery with early symptoms of influenza on March 15th, when the temperature was taken and found to be 100.2°. 0.5 c.cm. S.U.P. 36 was injected into the deltoid muscle, and she was sent home to bed, where she stayed all the next day. On March 17th she was feeling better, and attended at the surgery the next day quite well. She only complained of the arm being "a little stiff for twenty-four hours." No second injection was given.

Case 40a.—Miss E. S., aged 25. Typical influenza. Temperature 100°, headache severe, cough troublesome, and muscular pains. 0.5 c.cm. S.U.P. 36 injected into the deltoid muscle. The next day the temperature was normal and all symptoms with the exception of the cough had disappeared. Complete recovery in five days with no second injection.

Case 41a.—Mr. E. S., aged 35. Typical influenza. Temperature 101°. 0.5 c.cm. S.U.P. 36 injected into the gluteus medius. Next day the temperature was normal, but the patient was kept in bed. The day following the patient got up and went out, resuming his work on the fourth day after onset. No second injection was given.

Case 42a.—Myself. Early influenza. Felt symptoms of influenza coming on all day, and at 6 p.m. temperature was found to be 100.6°. At 7 p.m. I injected 0.75 c.cm. S.U.P. 36 into one of my thigh muscles as the initial dose and went to bed an hour later. Next morning my temperature was normal and I felt much better. Stayed in the house that day and resumed my work the following morning, forty hours after the injection, feeling perfectly well.

It is important to emphasize here that all the cases injected were definitely influenza, showing the clinical symptoms already described, and that no cases of "severe colds" were included. The injected cases, as a matter of fact, were mostly of a rather more severe nature than those not injected.

Case 9a is of special interest on account of the catarrh present having existed for some time prior to the onset of the influenza. My observations in this case led me to suspect that the injection of S.U.P. 36 might have influenced the catarrh apart from the acute condition, and that S.U.P. 36 might therefore hold out possibilities for the treatment of cases of purely chronic nasal catarrh. I have tried the treatment in several other cases, and the results so far are very encouraging.

Summary of Conclusions Arrived At.

1. That the injection of S.U.P. 36 should be made at the earliest possible moment when once symptoms point definitely to influenza.

2. That in the early uncomplicated case the initial dose should be 0.5 c.cm.

3. That in severe early cases, cases of more than twelve hours' standing, and cases presenting such complications as tonsillitis or bronchitis, the initial dose should be 0.75 c.cm.

4. That these doses need only be repeated on the fourth day after the initial dose if symptoms have persisted until that time, and that there is no advantage whatever in repeating the injection when symptoms have subsided.

5. That although the gluteus medius muscle is the site of choice, the injections can quite well be made in other muscles. This is a very much more important matter in

general practice than might be supposed, especially in view of the importance of making the injection "then and there" at the earliest possible moment.

6. That the early initial dose completely aborts the attack in nearly every case, and that therefore if the treatment be used in influenza epidemics on a wholesale scale and early enough it is the most valuable agent that we at present have discovered for combating these epidemics.

7. That treatment administered at later stages, providing that the attack has not existed for more than forty-eight hours, considerably shortens the duration of the disease.

8. That although my present series of cases is too small to show whether the liability to complications is reduced, I certainly think that this will be proved to be the case.

THE HINTON TEST FOR SYPHILIS.

BY

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THE Hinton test for syphilis[1] has attracted so much attention, more especially in America, that a trial of its value appeared to be a subject of considerable interest. The test is essentially an agglutination reaction depending on the reaction between syphilitic serum and an antigen consisting of a mixture of glycerol, cholesterol, and extract of beef muscle; it is simple to perform, and, what is even more important, easy to read. A satisfactory antigen having been obtained, all that is necessary is to mix varying amounts of inactivated serum with a fixed amount of antigen and incubate for sixteen hours at 37° C. Reading is done with the naked eye, and results are recorded according to the agglutination of particles.

For the above purpose 500 serums were submitted to the Wassermann[2] and Hinton tests. They were mostly obtained from treated cases of syphilis, but a number from untreated cases of syphilis, and cases without syphilis were included. The following figures show how far the two tests agreed.

Absolute agreement	409	458 = 91.6%
Relative agreement	49	
Disagreement	42	= 8.4%
Total cases	500	

Of the 42 cases in which there was disagreement the Wassermann test appeared to be correct in 25 and the Hinton in 17. Of the 25 cases, in 18 of treated syphilis the Wassermann reaction was positive and the Hinton negative; in 3 cases of untreated syphilis the Wassermann reaction was positive and the Hinton negative; in 2 cases without syphilis the Wassermann reaction was negative and the Hinton strongly positive; in 2 cases without syphilis the Wassermann reaction was negative and the Hinton weakly positive. Of the 17 cases, in 15 of treated syphilis the Wassermann reaction was negative and the Hinton positive; in 2 cases of untreated syphilis the Wassermann reaction was negative and the Hinton positive.

From the above it will be seen that the Hinton test gave four apparently false positive results. Two of these were only weak positives and might have been read as "doubtful." The explanation of the other two is not clear; they may have been due to errors in technique. Apart from these the agreement between the two tests was remarkably close, especially when consideration is given to the fact that a large proportion of the serums were "borderline" ones from treated cases of syphilis.

In addition to the above the opportunity was taken, when a sufficient amount of serum was available, to compare the Hinton with the Kahn[3] test, and also with the Sigma[4] test.

The Hinton and Kahn Tests Compared.

Absolute agreement	170	187 = 93%
Relative agreement	17	
Disagreement	14	= 7%
Total tests	201	

Of the 14 cases in which the two tests showed disagreement 7 were in favour of the Kahn and 7 in favour of the Hinton, as judged by the clinical history of the cases.

The Hinton and Sigma Tests Compared.

Absolute agreement	113	127 = 92.7%
Relative agreement	14	
Disagreement	10	= 7.3%
Total tests	137	

Of the 10 cases in which there was disagreement 6 were in favour of the Hinton and 4 in favour of the Sigma.

It would appear from the above that the Hinton test can claim to be the equal, at least, of the Wassermann, Kahn, and Sigma tests. It is the easiest to perform, and far easier to read than either the Kahn or Sigma test. The only difficulty is the standardization of the antigen; once this is overcome the setting up and reading of the test are simplicity itself.

I have to thank Dr. W. A. Hinton for the description of his technique and for supplying me so kindly with the antigen used in the above investigation, and also Colonel L. W. Harrison for permission to publish the results.

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THE WASSERMANN REACTION AND KAHN TEST.*

BY

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ON May 24th, 1928, the Kahn test was adopted as routine, to be performed in parallel with the Wassermann test on all blood specimens received in sufficient quantity. Up to December 31st, 1928, some 169 specimens had been dealt with in this fashion. Of these, 108 were negative by both tests, one specimen was positive by both tests, and 26 were strongly positive by both tests, using the nomenclature of the League of Nations Health Committee. The two reactions can be said to have been in complete agreement in 135 specimens out of 169, or 80 per cent. So far there has not been an instance of a strongly positive Wassermann reaction occurring with a negative Kahn test in the same specimen, although a strongly positive Wassermann reaction has coincided with a "weakly positive" Kahn test on two occasions. On one occasion the Wassermann reaction was negative and the coincident Kahn test strongly positive; this occurred in a blood specimen from a man with a remarkable fibrous hypertrophy of his upper and lower gums, a portion of which swelling, on section, showed typical syphilitic granulation tissue.

In the 34 cases not showing complete agreement in this series, the Wassermann reaction and the Kahn test were roughly in agreement.

Of 11 cases, the Wassermann test was negative and the Kahn weakly positive in 3; the Wassermann test being weakly positive and the Kahn negative in 8.

Discrepancies, when they occurred, were of degree rather than direct opposition.

Slight discrepancies occurred in 9 cases, the Wassermann reaction being weakly positive and the Kahn positive in 2; the Wassermann positive and the Kahn strongly positive in 3; while the Wassermann test was strongly positive and the Kahn test weakly positive in the remaining 4.

Marked discrepancies occurred in 14 cases. Of these, the Wassermann reaction was negative and the Kahn positive in 3; the Wassermann was positive and the Kahn negative in 10; the remaining case showing a negative Wassermann and a strongly positive Kahn reaction.

The two reactions can be said to have been in nearly complete agreement in 146 out of 169 specimens, or roughly 86.4 per cent.

Of the 13.6 per cent. of discrepancies, only one (0.6 per cent.) was of supreme importance (Wassermann negative, Kahn strongly positive). The remaining 13 per cent. contains 13 instances of contradiction (Wassermann positive,

* A report of work done in the Pathological Laboratory of the Anglo-Persian Oil Company's Hospital at Masjid-i-Sulaiman, Persia. Published by permission of the Chief Medical Officer.

Kahn negative, and vice versa)—a percentage of 7.8. The remaining 5.2 per cent. were discrepancies of degree only, both reactions being positive, but one or the other strongly so.

To sum up, one may say that 91.6 per cent. of the tests roughly agree and 8.4 per cent. are contradictory as performed by the technique at present in use. It was found that in treated cases there was a tendency in blood specimens for the Wassermann to become negative sooner than the Kahn test—possibly owing to the Wassermann being slightly less sensitive; but in untreated cases one formed the impression that the Kahn test gave fewer false positives. Both reactions occasionally fail when the clinical signs of syphilis are fairly clear-cut.

In October a specimen of blood from an out-patient with very large hard dry perianal condylomata was examined and found negative by both the Kahn and Wassermann reactions. This patient was examined in the laboratory with a view to the detection of *Sp. pallida* in his lesions by the dark-ground method; also the possibility of infection with *S. mansoni* was investigated, with entirely negative results in each case. After biopsy by Dr. Davies a portion of a condyloma was submitted to microscopical examination in section and showed gummatous tissue. Another section treated by the method of Levaditi failed to show any spironemas, but the evidence of the histological structure of the fragment was conclusive.

The problem of a satisfactory Wassermann antigen has been a great source of speculation and experiment. The antigens in common use in English laboratories are a simple alcoholic extract of fresh heart muscle (bovine or human), and such antigens keep in the English climate in a cold chamber for many years. A small supply of English-made antigen was brought out to Persia by the pathologist, but, in the atmosphere of Masjid-i-Sulaiman, rapidly developed anticomplementary properties and became unfit for use.

Antigen prepared in Persia from bullock hearts and guinea-pig hearts by a variety of methods (Mackintosh and Fildes, modified Kahn, Neyman and Gager, Park and Williams) all became unfit for use after keeping on ice for two or three months in the summer. Even the Kahn antigen suddenly failed five months after the date of manufacture. The antigen elaborated by Kolmer is now being constructed and experimented with, and it is hoped that this antigen may solve many of the problems connected with the manufacture of a sensitive antigen with good keeping properties. Many of the discrepancies between the results of the Wassermann reaction and the Kahn test are probably due to defects of the antigen used. A supply of pipettes graduated in one-thousandths of a cubic centimetre are now on the way out, and will greatly assist the technician in performing the numerous and very accurate measurements of minute quantities of liquid that are such a feature of the Kahn test.

The difficulties with the supply of complement that were so acute last year were in a great measure overcome by the adoption of the routine of storing complement, frozen hard, in a test tube surrounded with a freezing mixture in a thermos flask. This year forty-six Wassermann reactions were performed with the blood from one guinea-pig; last year it was seldom that more than twelve Wassermann reactions could be performed with the blood from one guinea-pig.

In conclusion, it may be stated that, at its present stage of development, the Kahn test cannot replace the Wassermann reaction, but the adjuvant value of the tests when performed in parallel on all blood specimens is very high indeed.

ANTHRAX IN A 15 MONTHS OLD BABY.

BY

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The case here recorded is of interest from various points of view, among others the age of the patient and the probable source of infection. Incidentally, an added interest arises from the fact that the father of this baby was himself a patient of mine suffering from anthrax, from which he recovered, eight months ago.

L. E. W., aged 15 months, was admitted to the City Hospital, Fazakerley, on May 9th, 1929, suffering from cutaneous anthrax. The infection had taken place on the front of the left forearm, one inch below the flexure of the elbow-joint. On arrival at the hospital with the baby the mother said that she had noticed the red "spot" on the arm five days before, but had not then thought it a cause for alarm. By May 9th, however, the "spot" had become much more angry, the arm had swollen, and the child was ill and distressed. The mother took it to the doctor, who at once suspected the nature of the condition, especially as anthrax is at all times a present danger in the district (Runcorn, Cheshire), and also as the father works in a local tannery. A film showed the presence of *B. anthracis*, and the patient was immediately sent to hospital.

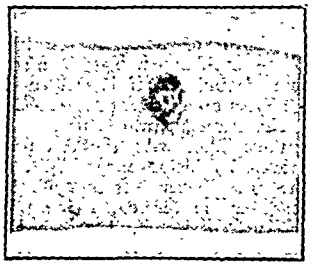


FIG. 1.

FIG. 2.

FIG. 1.—Photograph taken on May 10th, showing the vesiculated lesion. The swelling of the arm is evident.

FIG. 2.—Photograph taken on May 17th, showing the ulcer after the shedding of the necrotic slough, as well as the abatement of the swelling.

When the child was admitted the local appearance was typical. The arm was much swollen, red, and indurated from three inches above the elbow-joint to well below the middle of the forearm. The axillary lymphatic glands were not unduly enlarged or tender. Characteristically, the swollen arm was not as painful to touch as the swelling would lead one to expect. The lesion showed a small dark brown centre about one-fourth of an inch in diameter, surrounded by a ring of angry vesicles, the whole covering an area rather larger than that of a shilling. Film and culture confirmed the presence of the anthrax bacillus.

Owing to the plumpness of the child the intravenous route for the injection of serum was not practicable, and accordingly the intramuscular method was chosen. A dose of 50 c.cm. anti-anthrax serum (Parke, Davis and Co.) was given immediately. The infected area and arm were treated with eusol fomentations. No excision was made. A like amount of serum was given the next day and on the three succeeding days, making in all five injections of 50 c.cm. each.

The temperature and pulse, which hovered about 98.8° to 99.8° F. and 120 to 130 respectively for five days, became normal on the sixth. For the first two days the local inflammation increased, and the arm became much more swollen and indurated. On the third day a definite decrease of inflammation and swelling commenced, and by seven days from the first injection the arm was no longer swollen except for a very limited zone about the slough at the point of infection. From the third day the baby appeared well and took its feeds readily.

The child made uneventful progress except for the incidence of a severe serum rash of urticocrythematous type which appeared on May 25th, and persisted for five days. The wound gave negative swabs from May 23rd onwards. Healing was normal, and when the baby was discharged a well-formed circular scar only remained, with no evidence of adherence to the tissues underneath.

I have not been able to find on record any case of anthrax in so young a patient. The source of infection almost certainly originated in the dust carried on the father's clothes from his work. The response to anti-anthrax serum injected intramuscularly, without excision of the "malignant pustule," is gratifying, though elsewhere[1] I have preferred the intravenous method, and almost invariably still rely upon it. In this instance it is probable that a more rapid checking of the inflammation would have been produced had the latter mode been feasible.

I desire to thank Dr. Claude Rundle, medical superintendent of the City Hospitals and Sanatorium, Fazakerley, for his kind permission to publish the case.

REFERENCE.

[1] "The Serum Treatment of Cutaneous Anthrax," *Lancet*, September 22nd, 1928, p. 594.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

FRACTURE OF PATELLA WITH ATYPICAL SIGNS AND SYMPTOMS.

ON May 21st of this year A. W., when dirt track racing, crashed into a fence. His knee struck the fence and the gear lever of his machine. At this stage all the combatants fell, and the race had to be re-run from the beginning; it was won by A. W.

He did not notice any pain during the race, but nearly fainted on its termination. On the following day he got about with the aid of crutches, and re-started racing in ten days, which, however, gave him some pain. On July 10th he was sent to me by a colleague for an *x*-ray examination because of pain on pressure exerted from above downwards on the antero-internal aspect of the knee. When seen by me I was able to elicit the above sign in

the region of the internal semilunar cartilage. Direct backward pressure, however, did not cause pain. He could extend and flex the knee to the full extent without causing any pain. There was a moderate amount of fluid present in the joint. Pressure exerted on the patella from all directions did not cause pain. The skiagrams show a Y-shaped fracture of the patella.

The case is of interest because of the very small amount of pain and disability caused by the fracture, and because of the impossibility of diagnosing the condition other than by an *x*-ray examination.

Coventry. A. H. LAIRD, M.B., D.R.M.E.

TREATMENT OF ECLAMPSIA BY SPINAL ANAESTHESIA.

I THINK it worth while recording the following details of a case of eclampsia which was successfully treated by spinal anaesthesia on the lines suggested by Dr. R. H. Paramore at the meeting of the Section of Obstetrics and Gynaecology of the Royal Society of Medicine on April 20th, 1928, and published in the *Proceedings* of that Society (1928, vol. xxi, p. 70).

A young primipara, in the seventh month of her pregnancy, was suddenly seized with convulsions on April 29th after a day of "spring cleaning." I found her at 8 p.m. in the throes of severe eclampsia, without any intermission of the fits and quite unconscious; I injected 1/4 grain morphine without effect. In response to an urgent message Dr. Paramore came, sending word in advance for me to administer chloroform; I did so, but until deep anaesthesia was reached the fits continued. On his arrival Dr. Paramore prepared the patient and administered tropacocaine by lumbar puncture. The effect was immediate, the fits at once subsiding, nor, when the effect of the chloroform had passed off, was there any recurrence. I saw the patient in violent convulsions at 8 o'clock; by 10 o'clock she was quiet and could be left to the nurse, one slight fit occurring just after we left. The patient went to full term without any further relapse, and was delivered naturally, on June 20th, of a male child 7¼ lb. in weight, which lived eight days.

The immediate after-effects of the eclamptic seizure were muscular pains all over the back, headache, and noises in the head; these had all passed off by the end of the week. The more remote effect was a momentary feeling of losing herself, or as the patient puts it, "I don't know where I am." This was first apparent during the puerperium, and she complained of it again on July 8th; otherwise she is quite well.

This case may be contrasted with another of equal severity which occurred just fourteen years previously, my first case of eclampsia after coming to Rugby. (Two cases which occurred between I sent to hospital; one patient died, but the other, a mild case, recovered after a prolonged illness.) In the first case and the most recent one the patients were of the same physical type; both were strong and rather stout young women late in their first pregnancy, and both were quite well until, after some extra bodily strain, they were seized with convulsions.

On April 21st, 1915, a woman far on in her first pregnancy walked to the railway station, which is about two miles from her home, and was seized with her first convulsion; she was removed to hospital and later to the infirmary, where she regained consciousness. She returned to her home, but the fits immediately recurred and continued until she aborted three days later, being delivered of a dead child. The treatment in this case was hot air, pilocarpine, and, later, on the advice of the late Dr. Clement Dukes, injections of morphine at repeated intervals. At no time could it be said that the treatment was either effective or satisfactory, the fits continuing until delivery. After delivery it was found that the patient was mentally affected, and, since she gradually became violent, she was removed to the asylum on April 29th. She remained there for three and a half weeks, when she recovered and was discharged. She has since remained quite well.

I think the contrast between these two cases is too marked to be ignored; whatever the theories as to the cause of eclampsia may be, Dr. Paramore's method of treatment by spinal anaesthesia is so immediately effective that it should be made a note of.

Rugby. G. H. WAUGH, L.R.C.P. and S.Ed., L.R.F.P.S.Glas.

IONIZED SILVER IN THE TREATMENT OF BURNS.

DR. KURT HULDSCHINSKY, in a paper read at the meeting of the Berlin Society for Internal Medicine and Paediatrics on July 9th, 1928,[1] described a treatment of eczema in children by what he called the "Uvag" or ultra-violet argentum method. I have lately been using this method for burns with such good result that it seems worth description.

Silver nitrate in a 1 to 5 per cent. solution is sprayed or painted on the area affected by the burn. An exposure of one to five minutes is then given with a mercury vapour or tungsten arc lamp at a distance of six to twenty inches, the varying limits being given to allow for the factors of the age of the patient, the size of the burn, efficiency of the lamp, etc. In the absence of an artificial source of ultra-violet rays an exposure to real sunlight, if it can be obtained, for half an hour produces much the same result.

The silver nitrate is ionized by the light and the silver ion combines with the cell proteins—an effect which is practically instantaneous with artificial ultra-violet light; the whole area becomes black and dry, and a shiny coagulum is formed, fixing proteins resulting from cell destruction, which, if absorbed, give rise to the toxaemia often associated with burns, and at the same time the penetration of the rays to the deeper layers is prevented, thus counteracting any possibility of over-irradiation. Rapid healing is produced in second degree burns and the pain is very much decreased. No dressings are used and the bedclothes are not allowed to touch the treated area. Another application may be given in twenty-four to thirty-six hours if required.

In theory[2] the process is similar to the tannic acid treatment,[3] but it has the additional advantage of the peculiarly sedative action of ultra-violet rays on peripheral nerve endings as well as its bactericidal effect. Unfortunately the number of cases that I have had the opportunity of treating by this method so far has been few, but it would be interesting to hear what results are obtained from a wider application of this method, which seems a most satisfactory one.

West Runton, Norfolk. L. SHILLITO, M.B., B.Ch.

[1] Huldschinsky: *Brit. Journ. Act. and Physiotherapy*, February, 1929.
[2] Shillito: Ibid, September, 1929.
[3] Barling: *Birmingham Med. Rev.*, March, 1928, p. 58.

Reports of Societies.

SOME PRINCIPLES OF THERAPEUTICS.

In the Section of Therapeutics and Pharmacology of the Royal Society of Medicine, on October 8th, the annual address from the chair was delivered by the incoming president, Dr. PHILIP HAMILL, who discoursed very briefly on "Some principles of therapeutics."

Dr. Hamill began with the remark that when drafting a scheme for dealing with any particular problem he had found it useful to consider first whether any canons of therapeutics could be formulated, and then to examine the available resources in relation to them in order to determine how far these complied with the ideal. The more accurate one's appreciation of the nature of the disorder to be treated, and of the physiological changes which had occurred, the more readily could one act with assurance *that such intervention would not be untimely or misplaced.* One of the great difficulties was the tendency to conclude that any departure from the accepted normal was in itself evil, and to set out to correct it; whereas deeper knowledge might reveal that the abnormality was but a manifestation of a compensatory mechanism, and that to counteract it would not be helpful. At the same time, he was far from suggesting that symptoms should not be treated; on the contrary, it was necessary to intervene when symptoms were in themselves distressing and called for relief. At times, indeed, very little more than this could be done.

Many of the conditions with which the medical man had to deal were the result of previous disease. Damaged organs had to be sustained and protected from further injury. A heart or kidney already damaged could not well afford to be subjected to any subinfection or intoxication. Stresses which a subject in good health could bear with little difficulty or risk might easily precipitate a breakdown in a subject already "out of repair." In a reference to substitution therapy, the speaker mentioned how the effects of atrophy or degeneration of some organs could be met by supplying a hormone which they no longer themselves liberated to an adequate extent. Brilliant examples of substitution therapy were afforded by thyroid extract and insulin in cases involving loss of function of the thyroid or the pancreas, though the cause of such loss of function was still unknown.

Methods of Dealing with Infective Processes.

In dealing with infective processes the cause of the infection should, wherever possible, be eliminated, and this in its broader aspect involved large questions of public health *administration and industrial hygiene.* In the combating of established infections, which was more closely the concern of the Section he was addressing, he mentioned the success achieved with quinine in malaria and emetine in amœbic dysentery, the organic arsenic compounds in syphilis and relapsing fever, and antimony compounds in leishmaniasis, trypanosomiasis, and bilharzia. In bacterial infections the success had not been so evident: although by means of drugs the blood could be made bactericidal to pneumococci, success in the clinical treatment of pneumonia had not been realized; mercurochrome was still on probation in the treatment of general infections; and urinary antiseptics, while they rendered the urine strongly bactericidal, had not been proved greatly to influence the duration of an attack of acute cystitis. On the other hand, the beneficial effects of sanocrysin in tuberculosis and of chaulmoogra oil in leprosy were encouraging as indicating that direct attack on bacteria in the tissues was possible. Another example of direct attack was the treatment of gonococcal cervicitis by diathermy, in which the tissues were heated above the thermal death-point of the organism but themselves remained unchanged.

Prophylactic Immunization and Serum Therapy.

If the cause of an infection could not be eliminated or directly combated, perhaps the chosen recourse was to confer or exalt immunity. In principle, prophylactic immunization against small-pox, the enteric group of diseases, and scarlet fever, on the one hand, and serum therapy on the other, were almost ideal. By the former of these methods the body was itself educated in the art of its own defence; by the latter the fruits of training and experience in others were directly transferred. Specific immunotherapy, however, though ideal in principle, fell short of requirements in practice in many respects, more particularly in the treatment of less severe ailments. The immunity was too specific—there was no mithridatum available as yet—and sometimes it was short-lived. In serum therapy, again, there was usually some delay until the nature of the infection could be recognized. For many infections immunizing agents of adequate potency had not yet been developed, so that the body had to rely on its own resources, its power to develop antibodies under stress of invasion or intoxication.

Nutrition and Elimination.

Dr. Hamill next turned to the important factors in developing and maintaining this bodily resistance. These factors were nutrition and elimination, rest, and hygienic surroundings. It was common knowledge that individuals *varied in their resistance to, and power of, combating infection,* and that those who were properly nourished and lived under hygienic conditions had powers of resistance, on the whole, greater than others less favourably circumstanced. He mentioned in this connexion the experiments of Mellanby and Green (*British Medical Journal*, 1928, ii, p. 691) on vitamin A in the dietary as a factor in producing immunity to infection. During the influenza epidemic of 1929 a London business firm placed at the disposal of its staff a preparation rich in this and other vitamins, and while the staffs of most business houses suffered severely during the epidemic the list of absentees on account of influenza or "colds" in this particular firm was quite inconsiderable. The same investigators (ibid., 1929, i, p. 984) went on to apply a severe test, administering vitamin A in massive doses to patients suffering from puerperal septicæmia; the mortality fell to zero, as compared with 90 per cent. in the same institution in previous years. No extravagant claims were made by these investigators, who were content to put forward the results so far obtained as warranting further trial of this mode of treatment. But if the observations were confirmed it would be legitimate to argue, said Dr. Hamill, that the power to overcome a virulent septicæmia was conferred by oral administration of full doses of vitamin A, and to regard as proved that not only resistance to infection but power to develop immunity were, in a measure, capable of control by dietetic means. Vitamin A was contained in milk and other dairy foods, green vegetables, and oily fish, such as the sprat and herring—forms of diet readily obtainable by the poor.

Rest as a Therapeutic Measure.

On the subject of rest, Dr. Hamill said that he spoke with trepidation, not wishing to reawaken a recent controversy on the use of hypnotic drugs. He was ready to admit that on occasions hypnotics were of the highest value, but he felt that, quite apart from the irresponsible manner in which they were taken by patients of their own accord, they were too frequently prescribed without any adequate effort to discover and rectify the causes of the symptoms, and without trial of more simple and domestic remedies. He was led from this to make a few observations on hospital planning and construction. He feared that some boards of management were not without a desire, most natural and even laudable in the case of a commercial house, to erect imposing buildings on valuable sites. To his own mind the excellent results obtained in army huts during the war appeared to justify quite a different policy, and he suggested that, instead of costly buildings in the centre of cities, less permanent structures in more open areas would admirably serve the purpose and better comply with the therapeutic ideal of rest and hygienic surroundings.

Dr. Hamill closed his brief address by stressing the fact that it was the patient's own body which in the long run effected its repairs and readjustments. The part of the therapeutist was to remove impediments and to assist the process, to ease the patient's discomfort so that he could enjoy rest, and to maintain his nutrition, circulation, and elimination until such time as he had attained immunity or equilibrium.

Reviews.

HUMAN TUBERCULOSIS OF BOVINE ORIGIN.

As medical officer of health for one of our great milk-producing counties—Somerset—Dr. WILLIAM G. SAVAGE has had the opportunity and the incentive to study the question of milk in its relation to human tuberculosis. He has made himself an authority upon the subject, and gives us the results of his investigations and experience in his latest book, *The Prevention of Human Tuberculosis of Bovine Origin*.[1] It is an easy book to review; after reading it from cover to cover, without any skipping, we may sum it up in the one word "excellent." It should have a wider circulation than most technical books; in fact, it can be read with interest by anyone, for apart from the medical profession it will be welcomed by veterinarians, agriculturists, and local government workers. Dr. Savage has a pleasant style, and, in spite of his forcibly expressed opinions, his breadth of view and tolerance show through the whole book and add weight to the lessons that he has to teach.

The book starts by admitting that the bovine tubercle bacillus causes but a small proportion of human tuberculosis—about 5 per cent. of the total annual tuberculosis death rate being due to it. But, though they are relatively small, the death rate figures are large enough to be of national importance; to them must be added the much larger figures of the non-fatal cases of illness and incapacity due to the same cause, and it must be remembered that much of this incapacity and disfigurement is lifelong. As Dr. Savage points out, there are two separate problems—the protection of human beings against tuberculous milk, and the eradication of tuberculosis among bovines. Though these are closely entangled and should be dealt with together they can be handled separately. The difficulties to be faced in attempted solutions are many, and they are mostly due to urbanization. In rural communities where milk can be produced and consumed locally the difficulties are not great; but the adequate supply of milk to large urban areas necessitates distant sources, pooling of supplies, and central redistribution. Under these conditions milk ceases to be only an important food, but becomes as well a valuable commercial product, large financial interests become involved, and the difficulties of control increase. The present pooling system makes the bacteriological examination of samples useless, for even if tubercle bacilli are found it is practically impossible to trace the culprit herd. Pasteurization will protect the public, but there are great practical difficulties attending its use, such as the cost of plant and the fact that its efficiency depends upon the personal factor. Further, though pasteurization may be protective, it does not go to the root of the problem, but rather encourages uncleanly milk production. The certified milk scheme has not been a success, probably because the method of obtaining licences is unduly cumbersome, and it means an increase in the price of milk.

The author feels that the real solution is the eradication or diminution of tuberculosis among cows. He gives interesting figures relating to the "accredited herd plan" used in America by which the herds are examined periodically at Government expense, and tuberculin reactors when found are slaughtered and the owner indemnified by the State. This is practicable in America, where tuberculin reactors are only about 5 per cent. of the bovine population, but could not be applied to this country with its 40 per cent. of reactors. Bang's separation method, used in Denmark, is also carefully examined. It is suggested that the cause of the cow being more prone to tuberculosis than the calf is the continued strain of yearly calving and perpetual unnatural milk production, coupled with the innumerable chances of massive infection in insanitary byres. One can see that the author feels keenly on this subject and that he would like to be given a free hand to deal with the cowsheds of England. Space forbids more than this brief mention of only a few of the interesting sections of a most valuable book.

[1] *The Prevention of Human Tuberculosis of Bovine Origin.* By William G. Savage, B.Sc., M.D. Lond., D.P.H. London. Macmillan and Co., Ltd. 1929. (Med. 8vo, pp. viii + 191. 10s. 6d. net.)

ORTHOPAEDIC SURGERY.

In our review (April 14th, 1923, p. 634) of the first edition of JONES and LOVETT'S *Orthopedic Surgery*[2] we predicted that it would become the standard work on the subject in the English language. In the second edition, which has just appeared, the work is enlarged and, in many respects, improved. The place made vacant by the lamented death of Dr. R. W. Lovett has been filled by DRS. NATHANIAL ALLISON and FRANK R. OBER of Harvard, and Mr. HARRY PLATT of Manchester, whose reputations are a guarantee that the new edition will contain an adequate account of the latest advances in bone and joint surgery.

It seems inevitable that standard works should increase in size with each new edition, and this book is no exception. The net result of some omissions and many additions is an increase of 108 pages and eighty figures, and of four chapters—thirty-five instead of thirty-one. Six years' further experience has by no means modified the very conservative and cautious attitude taken by the authors of the first edition towards arthroplasty of the knee, and towards bone-fusion operations for Pott's disease in children. One of the most important additions is the chapter on osteomyelitis. References to this infection were scattered about in various chapters of the first edition, without, however, any comprehensive discussion of the disease. The new chapter is a valuable one and embodies the conclusions expressed by Mr. Platt in his opening paper of the discussion on acute haematogenous osteomyelitis at the Orthopaedic Section of the Royal Society of Medicine (*British Medical Journal*, 1928, i. p. 456). Although the acute form of this disease is nowadays not very common in this country, its effects, if it is not early recognized and treated, are so serious that a correct and up-to-date account of its etiology, pathology, and treatment is desirable in any comprehensive work on orthopaedics.

In the present edition the subject of Volkmann's ischaemic paralysis, which was very scantily noticed in the first edition, receives due consideration, and an account is given of Jepson's important experiments, which go far to explain the pathology of this malady. Dupuytren's contraction of the palmar fascia, consideration of which was altogether omitted from the first edition, is now included in chapter XXV, under "Affections of Muscles, Tendons, and Fasciae," but no fresh light is thrown on its etiology. In this edition, moreover, instead of the chapter of six pages on malunited fractures, one of twenty-five pages on fractures in general and particular has been substituted. Even this space is by no means excessive for the discussion of a subject which is becoming more and more specialized and is of such importance to patients and surgeons; for the details of various methods of treatment the surgeon must still have recourse to special monographs. Other subjects discussed are fractures of the spine, especially compression fractures, spastic paralysis and its treatment, and amputations and artificial limbs. The chapter on scoliosis, which is one of the fullest in the book, has been enlarged by descriptions of the turn-buckle plaster jacket and of the methods of measurement and correction practised by Galleazi of Milan. We still think that a much fuller index is desirable.

PATHOGENIC MICRO-ORGANISMS.

THE third edition of KOLLE and v. WASSERMANN'S *Handbook* of Pathogenic Micro-organisms[3] is appearing seriatim, the necessary consequence, perhaps, of an attempt to deal adequately with the very large number of specialized subjects which make up the science of bacteriology and which are continually being expanded by new discoveries. It is obviously impossible to deal with each separate fasciculus on its merits in a review, but, on the other hand, the shorter notice which alone is possible should not conceal the fact that this particular series constitutes a valuable

[2] *Orthopedic Surgery.* By Sir Robert Jones, Bt., K.B.E., C.B., Ch.M., F.R.C.S., F.A.C.S., and Robert W. Lovett, M.D., F.A.C.S. Second edition, revised with the collaboration of Nathanial Allison, M.D., F.A.C.S., Frank R. Ober, M.D., and Harry Platt, M.D., M.S., F.R.C.S. Oxford Medical Publications. London: Milford, Oxford University Press. 1929. (Sup. roy. 8vo, pp. xvi + 807; 782 figures. £2 12s. 6d.)

[3] *Handbuch* [illegible] u. Begründet von W. Kolle und A. v. [illegible] Auflage. Jena: G. Fischer; Berlin und [illegible] 1929.

book of reference, the subject matter being well set out and generously illustrated. Whenever it is possible coloured plates are employed, and special care has obviously been taken in their production. References to the parts already published have appeared in several previous issues of the *Journal*. We have recently received six further fascicuti. The first of these, Part 31 of vol. i, deals with non-specific immunization, and the experimental investigation of tumours from the standpoint of infection and immunity. The respective authors are Professors W. Weichardt of Erlangen and W. Caspari of Frankfurt. In Part 35 of vol. ii Professor M. Knorr of Munich discusses the bactericidal and bacteriolytic substances in the blood; the haemolytic and complement-fixing elements are described by Professor H. Sachs of Heidelberg, while Professor F. Neufeld of Berlin deals with bacteriotropin and opsonin. In each instance the present state of knowledge and the current views held are set out lucidly though in considerable detail. Part 33 of vol. vii is devoted entirely to relapsing fever, and the author, Professor P. Muhlens of Hamburg, has prepared what is in effect a monograph embodying a useful epitome of our present knowledge: the coloured plates here are particularly good. For Part 32 of vol. viii Professor V. Jollos of Cairo is largely responsible; he contributes articles on intestinal flagellates and infusoria in the human being, and also a useful note on coccidiosis. Professor W. H. Hoffmann of Havana supplies an article on yellow fever, summing up the available information in an interesting account. There is also a well-illustrated and comprehensive description by Dr. B. Lipschütz of Vienna of the chlamydozoa and their relation to various infections. Part 34 of vol. ix deals with the principles and practice of microscopical examination, the cultivation of micro-organisms, and special procedures such as their enumeration. The authors concerned are Professors H. Reichenbach of Göttingen, W. Scheffer of Berlin, M. Berek of Wetzlar, W. Busson of Vienna, M. Ficker of Berlin, G. Giemsa of Hamburg, W. Rosenthal of Göttingen, G. Joannović of Belgrade, and E. Gildemeister of Berlin. Part 30 of vol. x includes illustrated articles on plating and the preparation of pure cultures; there are also practical notes on the investigation of anaerobes. The authors are Professor E. Pribram of Chicago and Drs. H. Lubinski of Breslau, J. Zeissler of Altona, and W. Klein of St. Goarshausen. The total value of this series is certainly very great, and it is undoubtedly convenient to be able to obtain special monographs on the various subjects, particularly when, as in this instance, each one is so carefully prepared.

THE AMINO-ACIDS.

THE production of the "handbuch" has hitherto remained almost the prerogative of Germany, a prerogative which we have been mostly willing to yield to a nation that at some points is admittedly more painstaking and industrious than ourselves; but the increasing volume of work which, coming from both sides of the Atlantic, is reported in English, has now almost forced upon us the necessity of producing something of the kind for ourselves. *The Biochemistry of the Amino Acids*,[1] by H. H. MITCHELL and T. S. HAMILTON, deals, it is true, with a single phase of a subject and not with the whole; but in completeness it certainly rivals anything that the Germans have produced, while its avowed limits make it less unwieldy and give more scope for critical treatment.

The authors' purpose in the opening chapters is to describe the chemistry of the different known amino-acids, the means by which they can be identified and estimated, and the chief methods by which they are separated. The descriptions are accompanied by a very full bibliography, and the matter is brought up to date as far as is reasonably possible, so that the book should prove of the greatest assistance to those who are engaged in advanced teaching and in laboratory work. The later chapters are constructed on an equally satisfactory plan. We may take as an example that on digestion and absorption. Except, perhaps, for the omission of the more recent papers of Waldschmidt-Leitz, the survey is thorough and complete; nor have the authors hesitated to discuss problems such as the significance of intestinal putrefaction and its possible relationship to "auto-intoxication." In the treatment of such difficult questions as endogenous metabolism and the specific dynamic action of foodstuffs, we are struck by the fairness and the clarity with which the evidence is presented, even if we do not always find ourselves in agreement with the final conclusion. A valuable feature of the book is the chapter on "Special phases of amino-acid metabolism," which is, in effect, a discussion of the relationships and physiological and chemical properties of such substances as histamine, thyroxin, glutathione, and adrenaline. Finally, there is a critical discussion of the nutritive value of proteins.

Naturally, the matter is approached from the standpoint of the laboratory worker dealing with experimental animals, rather than from that of the clinician dealing with patients. Current experimental methods are discussed and certain common practices are criticized. The interesting question of the possibility of using non-protein nitrogenous bodies—for example, urea—as a source of nitrogen is discussed at some length, and mention is made of the experiments on these lines done in Germany during the war. We could wish that the question of "optimal" and "adequate" nutrition had been pursued, and that the authors had discussed more fully the question whether, by adjusting the quantity and quality of the ration, an altogether supernormal race of organisms could be produced. It seems at least probable that both fertility and resistance to disease can be increased by special dietary measures, though it is true that the substances concerned seem to fall into the class of "accessory substances" rather than into that of proteins. Perhaps enough has been said to make it clear that the book is in no sense one of "applied" science. It necessarily contains much material of value to practical medicine, since it deals with one of the sciences upon which modern medicine is based; it is written, however, from the standpoint of the experimentalist, and the clinician will have to find and interpret for himself the matter which lends itself to direct application.

[1] *The Biochemistry of the Amino Acids*. By H. H. Mitchell and T. S. Hamilton. American Chemical Society Monograph Series. New York: The Chemical Catalog Co., Inc. 1929. (Med. 8vo, pp. 619; 18 figures. 9.50 dollars.)

THE RADIOLOGY OF TUBERCULOUS CAVITIES.

THE clinical investigation and radiology of tuberculous cavities,[2] by Dr. JACQUEROD of Leysin, a book of fourteen pages, which are followed by about eighty radiographs (upon twenty-four plates) of the highest degree of technical excellence, and beautifully reproduced, adds considerably to our knowledge of the course of cavity formation in cases of pulmonary tuberculosis. The author for over twenty years has been collecting material in the shape of cases which have been watched for many years, and in which a long series of radiographic examinations has been made. He describes cavities as of three degrees. (1) In those of the first degree the radiographic shadow is a relatively slightly marked ring, the interior of which is not completely clear. These are found in cases in which there is no expectoration, and they represent the first phase of a breaking-down area. (2) In cavities of the second degree there is a clearly defined ring shadow with the space inside clear. The ring shadow is caused by thickened pulmonary tissue containing tubercle bacilli, and the sputum also contains bacilli. (3) In those of the third degree there is a dense circular shadow of large dimension, the walls of which are of fibrous tissue. At the same time, many cases show ring shadows passing from one degree into another. The author holds that, apart from rare exceptions, all radiographic circular shadows, whether in the midst of normal lung or in the midst of an area of infiltrated lung, are tuberculous cavities. He discusses the reasons for coming to this conclusion, describes certain rare exceptions and their causes, and how to arrive at a definite differential diagnosis. Another very important part of this monograph is devoted to the question of the disappearance of

[2] *Spéléologie Pulmonaire: Etude Clinique et Radiologique des Cavernes Tuberculeuses*. Par Dr. Jacquerod. Paris: Masson et Cie. 1928. (9 × 12½, pp. 14; 24 plates, 81 figures. 30 fr.)

these cavities, and how this is brought about. On this point, again, the author is very definite, and his conclusions are backed up by cases in which a series of radiographs has been taken at intervals which often spread over some years.

After a brief introduction the material is divided into a series of short chapters. These deal successively with the pathological anatomy of pulmonary cavities, their frequency, their mode of formation, the question of differential diagnosis, the processes of cure, general considerations in treatment, and, finally, the conclusions arrived at. Then come the magnificent and striking radiographs already alluded to, each having a short explanatory note attached, and bearing witness to the truth of the author's conclusions. He writes in a style which even a moderate French scholar can follow easily, and his book is entirely free from padding. The volume is a valuable contribution to the literature of the subject, interesting and instructive alike to those concerned with pulmonary tuberculosis and to radiologists.

IN PRAISE OF MEDICINE.

DR. E. RIST, physician to the Laennec Hospital in Paris, has done well to publish in book form seven essays, of which the first, What is Medicine?[6] provides the title. Four of these essays have previously appeared in French journals; and though their titles suggest that the ground covered is comparatively wide (for they deal with the diagnosis of diseases of the chest before the invention of percussion and auscultation, the early stages of percussion, science and art in medicine, some moral responsibilities of the doctor, and the Hippocratic Oath), the same *motif* underlies them all—namely, a defence of the medical profession against its more serious and violent critics. The earliest of these essays in point of time, that on the progress of medicine, appeared in an ephemeral paper, *Pages libres*, in 1904, as a counterblast to an article in the previous number of that publication, which endorsed the derogatory opinions of a Russian medical man about the evolution of his profession. This essay has not been altered, as the views therein expressed still represent the author's faith after twenty-five years of further experience. Believing firmly in the value of a knowledge of the history of medicine, he sets out the state of medicine before the introduction of percussion and auscultation, and discusses the lessons to be learnt from this survey. It appears that in spite of early references to pleurisy, intrathoracic affections were not recognized, and even a century after Harvey there were the most fantastic ideas about the pulse—every viscus except the heart having a characteristic pulse ascribed to it. In discussing the familiar problem whether medicine is an art or a science, Dr. Rist gives due recognition to the value of empirical observations to the art of medicine, and, starting from the time of Edward Jenner and Laennec, traces the gradual development of scientific medicine. The essay on the early stages of percussion contains some interesting personal details about Auenbrugger, including an explanation of the mistaken spelling of his name with a *v* instead of a *u* in French literature, and embodies references to a certain number of errors in Corvisart's translation of the *Novum Inventum*. The earlier translation of Auenbrugger's classic by P. Rozière de la Chassagne, bound up with his *Manuel des pulmoniques*, is extremely rare, only one copy in Paris being known. Both in the first essay and in the last, that on the Hippocratic Oath, the wide influence of medicine on human affairs is well described, and the reader will agree that the author of these well-written essays ably justifies his faith in the value of the medical profession.

NOTES ON BOOKS.

MR. W. STUART-LOW'S little handbook on the care of the nose and throat,[7] first published ten years ago, has reached its second edition. The purpose of the book is the same as stated in the preface to the first edition—namely, to make it clear that the care of the nose and throat is worth while, that the necessity for this is urgent, and that this can be easily and simply accomplished. "A healthy nose," the author states, "is an item of physical capital which renders one almost completely immune from many of the diseases which tend to thrive under the vagaries of our climate." So many of Mr. Stuart-Low's readers having asked why the ear was not incorporated in the first edition, he has now added to this second edition a few chapters devoted to the ear, and indicated this fact in the title.

DR. MAURICE PARMELEE'S work on *Nudity in Modern Life*[8] contains an enthusiastic plea on behalf of the *Nacktkultur* movement which is prevalent in Germany and Scandinavia. While admitting that gymnosophy is not a panacea for all human and social evils, Dr. Parmelee claims that it aids naturally in bringing mankind close to nature, in promoting more genuine relations between the sexes, and in rearing the young. He maintains in particular that while gymnosophy is not associated with any particular dietetic reform, it will inevitably lead to a more hygienic dieting, and will destroy the craving for stimulants and sedatives caused by the nerve-racking life of modern civilization. The text is accompanied by a number of rather amateurish photographs illustrating the activities of those who practise this cult.

We have received the third volume[9] of the proceedings of Professor G. MARAÑÓN'S clinic at the General Hospital at Madrid for the period October, 1927, to October, 1928. The work contains brief accounts of clinical cases given by Professor Marañón or his assistants, statistics of the cases admitted in the course of the year, and a list of publications emanating from the clinic.

A third and revised edition of *The Writing of Medical Papers*,[10] by Mrs. MAUD H. MELLISH-WILSON, the editor of the Mayo Clinic publications, has now reached us. A favourable review of this little work appeared in our issue of March 31st, 1923 (p. 563), and we feel sure that the new edition will be welcomed by many who have occasion to seek guidance in the preparation of medical articles.

[6] *Qu'est-ce que la Médecine? Suivi de Six Autres Essais.* Par E. Rist. Paris: Masson et Cie. 1929. (5½ × 9, pp. 256. 25 fr. sans majoration.)

[7] *The Care of the Nose, Throat, and Ear.* By W. Stuart-Low, F.R.C.S.Eng. Second edition. London: Baillière, Tindall and Cox. 1929. (Cr. 8vo, pp. xv + 83, 18 figures. 5s. net.)

[8] *Nudity in Modern Life.* By Maurice Parmelee. With an introduction by Havelock Ellis. London: N. Douglas. 1929. (Demy 8vo, pp. xiii + 303; illustrated. 12s. 6d.)

[9] *Trabajos del servicio de patología médica del Hospital General de Madrid.* Año iii, 1927–28. By Dr. G. Marañón. Madrid: Ruiz Hermanos. 1929. (Cr. 8vo, pp. xv + 270. 5 pesetas.)

[10] *The Writing of Medical Papers.* By Maud H. Mellish-Wilson. Third edition, revised. Philadelphia and London: W. B. Saunders Company. 1929. (4½ × 7½, pp. 184. 7s. 6d.)

PREPARATIONS AND APPLIANCES.

AN ALKALINE CREAM.

CREMOR ALKALINUS (Messrs. Allen and Hanburys Ltd.) is a preparation for use in the intensive alkaline treatment of gastric and duodenal ulcer. The formulae for alkalis advocated by MacLean have been prepared in the form of simple creams. The standard formula contains sodium bicarbonate 2 parts, magnesium carbonate 4 parts, calcium carbonate 4 parts, and bismuth carbonate 1 part. A second formula is provided for cases in which the standard formula proves to be too laxative. This second formula contains the same ingredients, but less magnesium carbonate and more bismuth carbonate. The dose advocated is a dessertspoonful, which contains the equivalent of 30 grains of the alkaline powder recommended by Professor MacLean. The purpose of the preparation is to simplify for the patient the technique of administration of alkalis.

A BROMIDE BOUILLON.

Brosedan, or bromide bouillon, is a preparation of bromide and vegetable yeast; one teaspoonful contains 15 grains of sodium bromide. It has an agreeable flavour, and is suitable for administration in hot water or soup. When the mixture is given in salt-free soup the taste resembles that of ordinary soup containing salt. The preparation offers, therefore, a convenient and pleasant method for administering bromides to epileptics and other mental patients. The agents for this country are Messrs. Coates and Cooper, Great Tower Street, E.C.3.

EFFERVESCENT ALKALINE TABLOIDS.

"Tabloid" alkaline compound, effervescent (Messrs. Burroughs Wellcome and Co.), contains sodium and potassium bicarbonate, calcium lactophosphate, magnesium sulphate, sodium chloride, and effervescent salt. These tabloids are recommended for use in numerous forms of acidosis. They are sold in tubes of 25.

SOLUBLE PROTARGOL.

Protargol granulate (Messrs. Bayer Products Ltd.) contains one part of protargol and two parts of urea. The substance is white and granular; it is very soluble, and dissolves rapidly in cold water. The purpose of this preparation is to provide protargol in a form in which it can be easily and rapidly dissolved; three parts of the granulate are equivalent to one part of protargol. Protargol is a brand of silver proteinate containing 8.3 per cent. of silver, and is a well-known remedy for conjunctivitis, urethritis, and other infections of mucosa. The protargol granulate is prepared in a convenient form, with a cap to the bottle which serves as a measure, so that a solution of any percentage can be rapidly prepared with the minimum of trouble.

THE INTERNATIONAL CONTROL OF DANGEROUS DRUGS.

BY

HILDA CLARK, M.B., B.S.Lond.

The report of the Opium Advisory Committee of the League of Nations to the Assembly this year, which was described in the *British Medical Journal* of September 28th (p. 589) and October 5th (p. 626), was presented to a somewhat pessimistic gathering. It is the Fifth, or "Humanitarian," Committee which always considers this annual report, and its members, both new and old, had reason to be depressed at the small progress which has been made in stopping the illicit traffic in narcotic drugs of addiction. This discontent was voiced by M. Parra-Perez of Venezuela, who asked for an inquiry into the reasons why States had not succeeded in limiting the manufacture of such drugs. The South American Republics suffer very severely from the growth of the drug habit and the difficulty of preventing smuggling. M. Parra-Perez believed that the traffic was actually increasing, and claimed that it was generally admitted that it can only be checked by limitations of manufacture. He pointed out that the Health Committee had been able to determine the quantities necessary for medical use, but that no measures had yet been attempted to limit manufacturers to these quantities. He suggested that the Advisory Committee did not include enough representatives of what are called the "victim" States—who do not manufacture themselves but suffer from the increase of drug habits, which are having a terrible effect on the physical and moral state of their people.

The Italian delegate, M. Sardi, strongly emphasized the urgency of restricting and rationing manufacturers, and pointed out that schemes for this purpose had been brought forward by his own Government and by that of the United States, but that both had been rejected. He proposed a resolution asking the Advisory Committee to take the matter up seriously.

It was explained in the discussion that States were still expecting the indirect effect of the general system of export and import licences upon manufacturers to bring about the limitation which is accepted as a principle in the 1925 Convention.

The Japanese delegate gave the welcome news that his Government was trying to limit manufacture, and the Spanish, Hungarian, and Serbian delegates each spoke of measures taken in their respective countries to strengthen the control of this traffic.

Then came a surprise which changed the atmosphere of the conference. The French delegate, M. Pernot, announced that his Government, realizing that no really effective result could be obtained without direct limitation of manufacture, had prepared a measure, which would come into force within a few days, by which French manufacturers would only be able to handle the raw material and manufacture these drugs within the limits determined by a Ministerial decree. Other measures had also been taken to bring into force a strict licensing system, and no permit would ever be given to any person who had been convicted of illicit trading in any country. Further, a special Narcotics Bureau had been set up in order to combat illicit traffic in every possible way. M. Pernot pointed out that French internal legislation had been adequate to prevent the spread of drug addiction in the country, and the spirit in which the French Government had acted in taking the measures he had described was one of purely international co-operation.

This speech brought new hope and life into the discussion. A French firm was one of the four whose products were found in enormous quantities in the illicit trade when the Dutch Government made public last year the dealings of the Naarden firm, and there had been no indication up to this meeting of the Assembly whether any of the four countries to which these firms belonged intended to take adequate measures to prevent the recurrence of such leakage. The French delegate's speech showed that at least one of the manufacturing countries which had opposed direct limitation had come to realize that it was necessary, and in the course of a later session the delegate of the Netherlands, another manufacturing country, after explaining that he still did not think direct limitation necessary, announced that his Government would now be prepared to consider any practical proposal put forward.

Mr. Noel Baker, on behalf of the British delegation, promptly took advantage of this change in the atmosphere. He reminded the Committee that the British Government had put forward a proposal for direct limitation of manufacture in 1924 in the course of the preparation of the Convention, but that owing to the opposition of other manufacturing countries it had not been possible to include it. In a very able and convincing speech, he emphasized that national measures alone would not be effective without an international agreement as to the quota to be manufactured by each country of the total amount estimated to be needed for medical and scientific purposes. He put forward a draft resolution in which the Assembly would recommend the Council to "invite the Governments of the countries in which morphine, heroin, or cocaine are manufactured to confer together as to the possibility of arriving at an agreement as to the total amount of each of those drugs to be manufactured annually and as to the quota of that amount to be manufactured by each of those countries."

Mr. Baker also laid great emphasis on the urgency of all States ratifying the 1925 Convention and carrying out its provisions, and throughout the discussions, which lasted through six sessions of the Committee, one felt that, owing to the feeling that a definite attempt to limit manufacture would make the success of control more likely, the plea to States to carry out the other measures of control was meeting with more response than ever before. Among the speakers who followed, the German and Swiss delegates, representing the other manufacturing countries whose drugs have been found in large quantities in illicit trade, assured the Committee that their Governments would give favourable consideration to the British proposal.

There is not space to consider in detail the greater part of the discussion that followed. Some suspicion of the Advisory Committee was shown because it consists mainly of representatives of countries which manufacture drugs, and half of its members have not yet ratified the Convention of 1925. A number of other important proposals were considered and adopted in the final report to the Assembly, but the chief debate was on the best procedure to secure an effective plan for the limitation of manufacture. The Italian delegate insisted with great force that the conference proposed by the British should not be of manufacturing countries only, but should include representatives of "consuming" countries, and should be under the direct auspices of the League. The Chinese delegate also pressed for the inclusion of non-manufacturing States, because otherwise he felt that the temptation to the manufacturers to keep a margin above the medical needs would be too great and public opinion in the States which suffer most from the drug habit would not be satisfied. It was the latter States which were vitally affected.

Mr. Noel Baker, who had already proposed that there should be further representatives of the "consuming" countries on the Advisory Committee, agreed that they should also be represented in the conference on limitation of manufacture, in equal numbers with the representatives of manufacturing countries.

Finally a long resolution was agreed on, presented to the Assembly, and adopted. The important points are that the Assembly asks the Advisory Committee to prepare plans for the limitation of the manufacture of the drugs mentioned in paragraphs (*b*), (*c*), and (*g*) of Act 4 of the Convention

of Geneva by international agreement, regard being had to world requirements for medical and scientific purposes, and the means of preventing an increase in price which would lead to the establishment of new factories in countries which are not at present manufacturing countries. The Committee's report is to be presented to the Council, "which will decide on the convening of a conference of the Governments of countries where drugs are manufactured and the principal 'consuming' countries in a number not exceeding that of the manufacturing countries, and whether certain experts proposed by the Opium and Health Committees should be included."

This conference will evidently be of considerable interest to the medical profession. The drugs which are to be limited are those which are scheduled as dangerously habit-forming, but the question will certainly arise whether it is possible to have adequate control of these without some provision to keep track of those products of opium, such as codeine, which are not found to be dangerous. Obviously a manufacturer can profess to be manufacturing codeine when he is really buying it in the open market and using the opium he obtains for this purpose to manufacture additional supplies of morphine.

Manufacturers who are above suspicion will feel aggrieved if they suspect that others are making profit in this way. The question of State monopoly will also doubtless be considered, and many feel that it will prove to be the best solution.

INDUSTRIAL FACTORS IN THE PRODUCTION OF TUBERCULOSIS.

ADDRESS BY SIR THOMAS OLIVER.

ONE of the events of the fifteenth annual conference of the National Association for the Prevention of Tuberculosis, which has been taking place during this week at Newcastle-upon-Tyne, was a discussion on the factors that produce adult pulmonary tuberculosis.

In an opening address, in which he approached this question from the industrial side, Sir THOMAS OLIVER, Vice-Chancellor of Durham University, said that while occupation as such could not cause tuberculosis—unless in the case of direct infection of a wound—it could favour the development of the disease by locally predisposing the pulmonary soil for the reception of the organism, and also by reducing the individual resistance. Moisture and dust were the media for the conveyance of bacilli, but the number of tubercle bacilli thrown off during coughing, apart from expectoration, was smaller than might be expected. Experience showed that where tuberculous workmen were employed, so long as spittoons containing disinfecting fluid were provided and used their fellow-workmen remained free. It was when a careless phthisical workman spat indiscriminately on the floor, and the expectoration, having dried, was raised from the floor with the fine dust, that there was danger. As direct sunlight was hostile to the organism, factories in which dusty occupations were followed should have large windows so placed as to allow the workrooms to be flooded with sunlight, even if, during the summer months, it was necessary to make them temporarily opaque.

After mentioning bodily conditions, such as fatigue, exposure, and lack of nourishment, which lowered the barriers of resistance, Sir Thomas Oliver spoke at length on dust, especially dust of hard stone, which, when inhaled, seriously injured the lungs. The particles evolved from a rock during dry machine drilling varied in size, but all had the same character of extreme hardness and comparative insolubility in the juices of the body, so that on reaching the lungs they might, if in small quantity, be engulfed and eliminated by the large scavenger cells in the pulmonary alveoli, or by means of mobile cells be carried into the lymphatics of the lungs, and, emerging from them, subsequently give rise to structural changes in the connective tissue which tended to fibrosis. The organisms of influenza and pneumonia, when operating in the lungs, could induce physical alterations of an almost similar character. On the whole, the lung with fibrosis caused by dust was harder and heavier, cut with a gritty sensation, and when incinerated showed a larger quantity of ash and was richer in silica than a fibrotic tuberculous lung.

Discussing some trades in particular, Sir Thomas Oliver mentioned the Sheffield cutlery trade. Much of the hand grinding of steel blades had been replaced by machine grinding, and natural sandstones by an artificial abrasive wheel. Great improvement had taken place in the health of the Sheffield steel grinders. In 1927 the medical officer of health for Sheffield reported that his city's death rate from tuberculosis was less than that of any other town, very considerably less than most, and that the percentage of reduction during the previous decade had been the highest of any town, much higher than the figure for England and Wales as a whole. With regard to granite cutting, Sir Thomas Oliver cited some experiences from the United States which showed that there was no particular liability to pulmonary tuberculosis so long as the concentration of granite dust remained within certain limits. There appeared to be a distinct relationship between the length of exposure to the granite dust and the prevalence and mortality rate of tuberculosis. Men following a dusty occupation and breathing orally could not but inhale the dust, the finer particles of which might reach the lungs and induce the structural changes mentioned. As the silicosis proceeded the altered structure of the lungs appeared to provide a favourable soil for the reception and multiplication of the tubercle bacillus, so that if a workman with silicosis lived for a few years he would probably succumb to tuberculosis.

In the report of the Miners' Phthisis Medical Bureau for 1928 Dr. Irvine had stated that in the gold mines of South Africa, while the number of cases of simple silicosis had in recent years decreased the infective or tuberculous type of the malady had increased, and he regarded the present method of mining, involving sprinkling with water, as largely responsible. Dr. Irvine was of opinion that water sprinkling, while it had contributed largely to a great reduction of the dust content of the mine air, had certain positive disadvantages, for even with the best of watering a residuum of very fine dust remained, for the removal of which the best means would be ventilation as if the material were a gas. A moist atmosphere formed a good vehicle for the entry into the lungs of whatever dust remained in the air, and an equally good entry for tubercle bacilli. The finest particles of dust, such as soot and coal dust, did not take up water, and here Sir Thomas Oliver described some experiments on the surface tension of these materials, which had been carried out for him by Professor W. M. Thornton of Armstrong College. It was generally held that the finest particles, when inhaled, injured a miner's lungs, but according to these experiments, even when passed through water, most of the finest particles remained dry and were not moistened at all. The particles, however, still exercised their power for harm as siliceous agents, so that their removal by ventilation would be more effective as a preventive measure than water sprinkling.

Sir Thomas Oliver also touched on trades of a lighter kind, into which less robust adolescents were drawn, such as wholesale tailoring, where a high tuberculous mortality was not entirely due to the occupation itself, but to the combined influences of faulty posture, the nature of the work, and often overheated and badly ventilated workrooms, reacting unfavourably upon individuals with inherited or acquired physical feebleness. Among laundresses there had been a notable decline in tuberculosis, owing to the fact that parcels of clothing now received preliminary disinfection, and washing was largely done by machinery. Rigid attention to cleanliness and disinfection accounted for the small incidence of the disease among hospital and sanatorium nurses. The same remark did not apply, in his experience, to sisters of religious orders; incidence of tuberculosis was high, especially amongst those who were brought into intimate association with subjects of chronic phthisis, and who spent hours in imperfectly ventilated wards and took little exercise in the open air. In a final word on injury and tuberculosis, Sir Thomas Oliver remarked that injury of itself could not cause the disease, but where patients had died shortly after a severe blow upon the chest the lung at the autopsy had been found lacerated and haemorrhagic. Had the individual survived he might subsequently have died from pulmonary tuberculosis, due either to infection by inhalation or to the activation of dormant foci.

British Medical Journal.

SATURDAY, OCTOBER 12TH, 1929.

THE INCIDENCE AND CONTROL OF MEASLES.

No student of recent vital statistics is likely to take a light view of the risks attaching to measles, which, as Sir George Newman has reminded us in his annual report for 1928 on the state of the public health, ranks second only to whooping-cough as the most fatal infectious disease of childhood. The Registrar-General's survey for the same year of death rates from the principal epidemic diseases of persons at ages under 15 provides illuminating data of the comparative mortality from measles, scarlet fever, and whooping-cough, the average figures for the period 1921–28 being respectively 422, 77, and 437 per million persons living. While, moreover, the scarlet fever figures show an *irregular but still definite tendency to decline*, and those for whooping-cough *were lower in 1928 than in* 1927, the figures for measles, though subject to *fluctuation*, remain consistently high, the rate in 1928, for example, being *considerably higher* than in the previous year. In London alone, as Dr. F. N. Kay Menzies points out in his report on the measles epidemic of 1927–28,[1] the deaths during the six months ended May 31st, 1928, numbered 1,357, as compared with 1,034 during the six months of 1925–26, also an epidemic period. This interval of two years between epidemics of measles appears to be constant in London. Outbreaks usually start in the latter part of the autumn and last about six months, during which period the ratio of immune to non-immune persons becomes high enough to withstand "infection pressure." Gradually, however, and mainly owing to new births, the proportion of susceptible children rises until, in eighteen months, the "mass immunity" once again becomes too low to withstand rapid spread of the disease. Observation of school children has shown that at least one-third of them must be susceptible before an outbreak can occur. During an epidemic period the disease tends to become more virulent as the infection pressure increases, the result being reflected in the mortality figures, especially among children under the age of 5.

Measles not being generally notifiable, its incidence cannot be gauged with any degree of accuracy, but a reasonable estimate of its prevalence is obtainable through the reports received from head teachers of the London County Council's schools. During the seven months ended June 30th, 1928, 41,417 cases were thus reported, and Dr. Menzies thinks it probable, therefore, that during the epidemic period—measles being a disease especially of pre-school age—a total of approximately 100,000 cases occurred among persons of all ages in London. An interesting observation was that the incidence of the disease fell more heavily on schools in the West and North-Western districts than on those in poorer parts—a phenomenon which may probably be explained by the fact that, in general, children of the poorer classes suffer from measles at a very early age, while those living more sheltered lives do not contract the disease until they have been exposed to infection at school. Of the recorded 1,357 deaths at all ages, 280 occurred among children under 1 year, 575 among those under 2, and no fewer than 1,249 in the age group under 5 years. It is noteworthy, however, that whereas the actual prevalence of measles among school children during the past four quinquenniums has remained more or less stationary, the mortality among them has progressively declined. Although, therefore, there is at present little hope of limiting the incidence of the disease, it is evident that much loss of life may be prevented by energetic and systematic action on the part of the public health authorities. It may be noted that the mortality among patients treated in hospital was 11.9 per cent.; since, however, difficulties were experienced at the height of the epidemic in securing the immediate removal of patients, many of them were no doubt suffering from severe complications, such as broncho-pneumonia, before they could be admitted. The contrast between the mortality of patients in hospital and those at home, in favour of the latter, was very striking in St. Pancras. Dr. Sowden, the medical officer of health, is doubtful whether the whole explanation lies in the fact that the more severe cases were selected for hospital treatment, the basis of selection having been home conditions rather than gravity of illness. In one hospital to which patients from the St. Pancras district were admitted the medical officer stated that the heavy mortality was due to overcrowding of the wards; in view of the special preparations made by the Metropolitan Asylums Board little pressure had been expected, and, owing to building operations, two wards were out of use. We are bound to agree with the authors of the report that the question of hospitalization of measles patients is difficult. It is, on the one hand, always dangerous to remove a child suffering from broncho-pneumonic complications; on the other hand, it is impossible to favour the retention of such a child in an unhygienic environment, in which facilities for the proper care of patients are lacking. The wisest procedure, undoubtedly, is to remove unsuitably housed patients to hospital at the earliest possible moment. Confirmation of this view is afforded in the last report of the Board, in which it is noted that of 8,929 patients admitted to its hospitals during the period October, 1927, to July, 1928, inclusive, 526 (7 per cent.) died. Among 1,528 suffering from complications at the time of admission the deaths numbered 485, corresponding to a rate of 31.7 per cent.; whereas among the 7,401 who were free from complications on admission there were only 141 deaths (1.9 per cent.). The chief cause of death was broncho-pneumonia, which accounted for 542 out of the total of 626.

The present scheme of control adopted by the London County Council aims at securing through the school organization and local public health and voluntary services the earliest possible notification of cases to the medical officer of health; fostering a better recognition among parents of the fact that measles is a dangerous disease; improving the care and nursing of children suffering and convalescing from measles; providing, through district nursing associations, adequate nursing for children treated at home; immediately removing to the hospitals of the Board those infected children for whom proper treatment cannot be provided at home; and transferring children suffering from complications to hospitals where special provision is made for their treatment. From time to time attempts have been made to incorporate the knowledge of the epidemiology of measles gained by the school medical service

[1] Measles. Report of the School Medical Officer on the Measles Epidemic, 1927-28. London County Council, County Hall, S.E.1.

in London into schemes designed to control the spread of the disease. School closure, at one time considered a practical method of prevention, was found to be valueless, inasmuch as it was not resorted to until the outbreak had become well established, and all the susceptibles had already been exposed to infection. A policy of excluding unprotected children from classrooms for prescribed periods on receiving reports of the first cases of measles superseded school closure, but owing to the difficulty of securing sufficiently early knowledge of the first cases it was found to be equally ineffective. For some years past, therefore, the London County Council has concentrated attention upon speeding up the machinery of voluntary school notification. In the recent epidemic, moreover, it adopted the principle of devoting special care to overcrowded and insanitary areas, and, although tangible results were not altogether reflected in the mortality figures—owing probably to a greater virulence of the epidemic in question—Dr. Menzies has no doubt that this method of attack is the right one, and should be pursued and improved. In general, the campaign against measles in London involves the correlation of the powers of the Council as the school authority, and those of the metropolitan boroughs as the public health authorities. The Council undertakes to obtain the earliest possible information of cases of measles, arranging to this end, as soon as a district shows signs of becoming infected, for the school nurse to pay a daily visit to the schools affected. This officer, in co-operation with the teaching staff, at once excludes all suspects, and informs the divisional educational officer of any suspicious absentees. All cases of measles thus disclosed are reported at once to the medical officer of the district where the child lives, and he, in his turn, arranges for the provision of treatment as circumstances dictate.

Since 1918, when Nicolle and Conseil[2] and Richardson and Connor[3] described the use of serum from human convalescents in the prevention and treatment of measles, a number of attempts have been made to manufacture a reliable serum from animals. Notwithstanding, however, the work of Tunnicliff and Hoyne,[4] and of other investigators who claim to have isolated the causal organisms, most observers are agreed that no effective animal serum has yet been obtained. But of the value of serum from human convalescents in the prevention, if not in the treatment, of measles there can now be little doubt; and one turns, therefore, with interest to the section of the London County Council's report in which this method of prevention is discussed. The authors suggest that, measles being essentially a disease of young children, serum cannot be obtained in sufficient quantities, because for various reasons it should never be taken from a young child, much less from one who is convalescing from so serious an illness. It is important to realize, on the other hand, as Sir George Newman points out in his annual report, that older children, at any rate, can usually spare an appreciable quantity of blood without detriment to their health. Obviously the consent of their parents should always be obtained, but this is seldom withheld when it is explained that the blood may be the means of saving a number of lives. Most of the available supplies are at present obtained from adult volunteers, tested for freedom from diseases conveyable to the recipients through the serum; recent work suggests that this source of supply may be much richer than at first appeared, the whole blood of adults with a history of measles, even as far back as twenty-five years previously, having been used effectively in the protection of children who had been exposed to infection.[5] Dr. Menzies suggests as the optimum period for administering the serum the second or third day of incubation, but makes no mention of the view now widely held that, given later, the serum has the advantage of not wholly preventing, but of modifying the attack of measles, thereby securing for the child permanent immunity at comparatively small risk. Convalescent serum, he says, has been used in the treatment of severe cases, but once the disease has become established and shows serious symptoms, even large doses have failed to benefit the patient. The report emphasizes the prophylactic influence of foods rich in vitamin A, both in preventing infectious disease and in protecting those already infected against severe complications—a view which accords in general with that expressed in these columns by Mellanby and Green[6] on the value of vitamin A as an anti-infective agent.

[2] Nicolle, C., and Conseil, E.: Pouvoir preventif du serum d'un malade convalescent de rougeole. *Bull. et Mém. Soc. Méd. des Hôp. de Paris*, April 12th, 1918.

[3] Richardson, D. L., and Connor, Hilary: Immunization against Measles. *Journ. Amer. Med. Assoc.*, 72, 1045.

[4] Tunnicliff, Ruth, and Hoyne, A. L.: Further Studies on a Diplococcus in Measles: Prevention of Measles by Immune Goat Serum. *Journ. Infect. Dis.*, 38, 48.

[5] Bader, G. B.: Intramuscular injection of adult whole blood as prophylactic against measles. *Journ. Amer. Med. Assoc.*, 93, 668.

[6] *British Medical Journal*, 1928, vol. ii, p. 691, and 1929, vol. i, p. 884.

WHAT IS MEDICINE?

THE question What is medicine? though in nature philosophical rather than practical, is not inappropriate for some consideration at the beginning of an academic year, and admits of many answers: *tot homines, tot sententiae*. Is it a means of livelihood and little more than a trade, or is it a form of service to mankind? Is it an art or a science—a kind of engineering of the human body? Is it concerned with man as a whole, or only with his individual organs? Is it parasitic on [illegible]es, or does it offer them its own [illegible]? It is doubtful if the wise man faced with these antitheses will range himself definitely on one side or the other. Medicine, like an umbrella, covers many subjects, and so presents varied alternatives to those who enter on "the physic line," often, perhaps generally, without giving more than a superficial consideration to all the possible reasons for such a momentous decision. Hence it comes about that an accidental or instinctive choice of medicine as the life's work may eventually lead to a congenial career of a kind never dreamt of at the outset; in like manner those who fall in love and endow their future partners with all kinds of properties, some of which may be imaginary, are sometimes compensated by the discovery later of unsuspected virtues. Medicine may appear in very different guises to different individuals, just as in the past its general aspect has seemed to change from time to time; in this it resembles a man who, though continuing to possess the same features, presents them in altered relief and with an expanded setting in correspondence with the experience he gains in the passage of time.

Originally the healing art was closely allied with magic and the priestcraft; it first became independent of religion in the Hippocratic era. A century ago, when Medicine began to be more of a science, Laennec defined the aim of medicine as the cure of

disease. A little later Littré gave an almost prophetic description of medicine as an art having for its objects the preservation of health and the cure of disease, and based on the knowledge of disease or pathology. By the order in which its aims were placed, this anticipated the now accepted view that the ideal of medicine is the prevention of disease, and implied the corollary that therapeutics is a separate branch or appendage of medicine, which is only called into action when the first line of defence—prophylaxis—has been driven in. In a philosophical article entitled "Medicine and science," published rather more than a year ago, Dr. Alfred E. Cohn,[1] of the Hospital of the Rockefeller Institute for Medical Research, classified the activities aroused by an interest in disease as teaching, practice, and research; he pleaded for the recognition of the last of these as a natural science. Cohn regarded the phenomena of disease as part of nature, and thought that their investigation was likely to yield valuable information about the behaviour of living organisms; as indicating the kind of new knowledge which might be anticipated he quoted the late J. G. Adami's *Medical Contributions to the Study of Evolution* (1918). These morbid phenomena were, according to Cohn, distinct from the subject-matter of any other science, and even if classed as bases of physiological derangement they could not be included within the confines of physiology. That this view might well be open to question Dr. Cohn obviously realized when he remarked that the success of physiology has been so great as to "embolden its professors to attempt to extend their labours to the study of disease itself, as witness the institution of departments of research or experimental medicine." At any rate, he would appear to regard the investigation of morbid phenomena, and probably what has been included under "human biology" by Raymond Pearl, as a natural science distinct from others. He would certainly in this connexion divorce treatment (which he described as "an attempt to utilize the knowledge obtained by the study of morbid phenomena for the purpose of interfering with or rectifying abnormal courses") from medicine, for unless this reparation is effected medicine remains as only applied science. This is perhaps a position which many would be quite content to accept.

In a recently published essay entitled "What is medicine?" and dedicated to his two nephews, who are medical students, Dr. E. Rist, physician to the Laennec Hospital, Paris, presents quite another point of view; he illustrates by many examples the wide influence of medicine on human activities, including those of the State, the Law, and various sciences; in fact, he believes that Terence's dictum, *Homo sum; humani nihil a me alienum puto*, applies *more completely* to medicine than to any other profession. Medicine, he shows, includes a knowledge of man in every respect; thus psychology, formerly the preserve of philosophy and investigated almost exclusively by introspection, has now been elucidated by psychopathology and the experimental method. It would appear, then, that medicine is a complex subject. In so far as it comprises empirical knowledge derived from experience, and its practice depends on the application of knowledge obtained from various sciences, it may be regarded as an art or craft; but one branch of it—research—is entitled to recognition as a special science. Medicine thus offers attractions to men of very various minds—humanitarian, "practical," educational, and scientific.

[1] Cohn, A. E.: *Journ. Philosophy*, 1928, xxv, 403-416.

AN AMERICAN STUDY OF B.C.G.

With the forty-fourth annual medical report of the Trudeau Sanatorium, for the year ending September 30th, 1928, is incorporated the twelfth collection of the studies of the Edward L. Trudeau Foundation for research and teaching in tuberculosis—a series of reprints from various scientific journals of papers which have recently emanated from the sanatorium's research and clinical laboratory. Of outstanding interest are the reports by Dr. S. A. Petroff and his research associates of their investigations into the properties of B.C.G. and their interpretation of the contradictory views held by different workers on the virulence of this organism. In the course of their experiments they have been able to demonstrate the production of generalized tuberculosis by direct inoculation of B.C.G.—in one case after the second animal passage—and for these results they cannot accept the explanation of Calmette and his collaborators that positive tuberculosis in animals inoculated with B.C.G. is due to the use of a product contaminated with a virulent tubercle bacillus; it is, they hold, no justifiable criticism to accuse trained workers of such gross carelessness. They have observed that any culture of tubercle bacillus may contain two types of colonies which can be differentiated by their cultural characteristics and virulence for animals. In B.C.G. cultures they have found an "R" colony, which is non-virulent, and an "S" colony, which is virulent, for guinea-pigs. The nomenclature is arbitrary; applied to micro-organisms "R" denotes rough and "S" smooth colonies, but the authors interpret them as "R," meaning resistant to environment, and "S," meaning sensitive. They believe that by continuous subculture on potato-bile media Calmette has gradually eliminated most of the "S" colonies, allowing the "R" to predominate. The virulent "S" colonies, however, have never been completely eliminated, and under favourable conditions they may increase in number to such an extent that reversibility of virulence may occur. The authors go further, and cite experiments which show that even an "R" colony, when inoculated intravenously, may sometimes produce fatal tuberculosis, suggesting as tentative explanations of this phenomenon, first, that there is a possibility that the "R" colony is not completely free from "S" micro-organisms, and, secondly, that mutation of "R" into "S" may take place in the animal body. If the second explanation is valid no one can predict what may happen in the course of time if B.C.G. is implanted in the human body or accidentally carried from human being to human being, or what transformations may occur after such a series of events. Even when B.C.G. confers protection the authors hold that its amount is no greater than that obtained by the use of heat-killed organisms. The cellular reaction observed in animals sensitized with heat-killed tubercle bacilli differing in no way from that seen in animals infected with living virulent organisms, they believe that immunity produced by dead bacilli is also likely in no way to differ from that produced by living bacilli. Moreover, heat-killed organisms used as a vaccine are harmless, for the reason that they do not propagate, while attenuated organisms entering the body may conceivably revert to their former pathogenicity. It is interesting to note that the problems engaging the attention of Dr. Petroff and his colleagues are, as reported by the Chief Medical Officer of the Ministry of Health in his annual report on the state of the public health, at the present time also being investigated under the auspices of the Medical Research Council.[1] Dr. A. Stanley Griffith, working in the service of the Council on the immunizing value of B.C.G., has been unable to confirm the conclusions of Calmette that the ingestion or inoculation of B.C.G. can give complete protection to

[1] *On the State of the Public Health.* Annual Report of the Chief Medical Officer of the Ministry of Health for the year 1928. H.M. Stationery Office. 1929. Price 3s. nrt.

monkeys against an infection with virulent tubercle bacilli. With one exception all the monkeys subjected to B.C.G. vaccination became infected and developed progressive tuberculosis. On the other hand, absolute immunity has apparently been produced in a calf by an intravenous inoculation of B.C.G. Dr. Griffith and Professor J. B. Buxton are conducting experiments to find the relative values of different methods of giving the vaccine, the most effective dosage, and the duration of the resulting immunity.

THE FOOT AND THE SHOE.

EVER since civilized man abandoned the habit of going barefoot or wearing sandals, and first enclosed his feet in boots or shoes, he has had trouble. The stages by which in ancient Egypt the papyrus sandal developed into the papyrus shoe may be traced in the specimens exhibited in the British Museum. When leather superseded papyrus the more rigid material made matters worse, and the old metaphor "where the shoe pinches" is evidence that shoes have "galled the kibes" of our forefathers for many generations. Some of the trouble was inevitable if the foot was to be protected from the weather and injuries from various sources, but much of it has been due to fashion. Not only in Europe, but in Oriental countries, it would appear as though the artificer considered not that the shoe should fit the foot, but that the foot should adapt itself to whatever he and his employers thought the shoe should be. We believe it is strictly accurate to say that till recent years in no case has the form of the shoe truly represented that of the foot within it, sandals excepted. Often it has seemed that the shoemaker has forgotten that a foot looked at alone is not symmetrical, and has made his wares accordingly. The medial pointed shoes and slippers of the Chinese and many other Oriental peoples offer a case in point, but the most glaring example appeared in the fourteenth century in France, when the length of the long pointed shoe—the "poulaine"—was regulated by royal edict, and only those of the highest rank were allowed to wear the most exaggerated recurved shoes with pointed toes, tied or chained up to the wearer's knees. It is true that by a freak of fashion in the sixteenth century for a short time the toes were freed from bondage by the fashion of wearing puffed-out shoes—"snub-nosed" (souliers camus), as Viollet-le-duc called them—with which the portraits of our Henry VIII have made us familiar; but the fashion soon passed, and the smart set returned to its evil ways. There has been a great difference between the fashions of the two sexes in the Western world in this matter of footwear. Perhaps it was natural that among the well-to-do classes, of which the women were expected neither to walk nor to work, purely ornamental considerations should have prevailed. But in these days of sex equality, when woman challenges man to the contest in every field of activity, and when millions of women toil side by side with men, it is surely remarkable that she should choose to emulate her forebears of the days of powder and patches, and try to copy the digitigrade method of progression of the cat and the dog, instead of the plantigrade method of the anthropoids and bears. For this is what it comes to. Dr. J. J. Buka of Pittsburgh, in an article in the *Journal of the American Medical Association* of August 10th, hints at this contrast, and recommends more rational footwear for both sexes, although, probably as a concession to fashion, his "correct" type of woman's shoe is more pointed than is ideal or is considered advisable for the male. In this country it is rare to find men's boots and shoes (in America "boot" is used only for Wellingtons, riding boots, etc.) with a heel higher than one inch, which, assuming the sole to be half an inch thick, gives a lift to the heel of only half an inch—not enough to affect the mechanics of locomotion. The woman's heel is seldom less than two inches high, while the sole is seldom as much as a quarter of an inch thick. Thus the greater part of the weight and stress in locomotion is transferred from the heel to the toes, and the pegtop heel is, as Dr. Buka points out, merely used as "a buffer, a reminder that the heel of the foot must not be walked on, that it should act only as a buttress to steady the forefoot." Nevertheless, many high heels seen in the streets to-day have to bear weight, and not seldom yield under it to one side as soon as they are somewhat worn. Efforts to produce and bring into use suitable shoes are laudable, but the old proverb of the horse and the water comes into our mind; the modern young woman may be shown the reformed shoe, but not be induced to wear it at the sacrifice of smartness (as she thinks it) and of at least an inch of her apparent stature.

THE GENEVA CONVENTION.

THE present position of the League of Nations in respect to dangerous drugs was ably summarized on the final day of the Assembly by M. Fotitch of Czechoslovakia, a member of the Opium Advisory Commission. The Geneva Convention, which came into force in September, 1928, has now been ratified by thirty-one Governments, including twenty-six members of the League. These Governments include those of Great Britain, of all the British dominions, and of India, as well as those of France, Germany, Austria, Spain, Portugal, and Japan. Seven other Governments have announced that steps are being taken towards ratification, and declarations were made at the Assembly by representatives of the Irish Free State, Italy, and Norway of the intention of their Governments to ratify. The view taken at the Assembly was that the immediate ratification and rigid enforcement of the Convention is the most valuable single step that can be taken at present to combat the illicit traffic. Our readers scarcely need to be reminded that the Geneva Convention is the outcome of the conference held in 1924–25 to implement the provisions of Chapter III of the Hague Opium Convention of 1912, which dealt with the control of traffic in medicinal opium and other drugs. M. Fotitch declared that the discussions which have taken place during the recent Assembly have shown an unusual sense of the seriousness of the position, and a general determination to put an end to the illicit traffic as soon as possible. As will be seen from the note by Dr. Hilda Clark printed at page 673 this week, the debates have been largely occupied with the question of limitation of manufacture. For the first time in the history of the League there has been brought about an agreement among the manufacturing countries as to the desirability of such limitation, to be secured by means of an international conference which would determine the total amount of narcotic drugs required to meet the legitimate medical and scientific needs of the world, as well as the quota to be allocated amongst the various manufacturing countries. A resolution was proposed by the British delegation asking the Council of the League to invite the Governments of the countries in which morphine, heroin, or cocaine are manufactured to confer together as to the possibility of arriving at an agreement on these points, and this resolution was adopted with the extension that the proposed conference should also include representatives of the chief "consuming" countries. Meanwhile the Secretariat of the League has been instructed to take certain steps which are likely to put the opium work of the League upon a sounder footing. It has been requested to study and prepare a report on the data in its possession regarding the legitimate consumption of dangerous drugs; also to consider the possibility of preparing a list of all the laws now in operation in the various countries regarding drug traffic, with a view

to facilitating the more effective operation of the Geneva and Hague Conventions, and, further, to make a careful comparative study of all the seizure reports with a view to bringing out the chief administrative weaknesses revealed. There was evident at Geneva a feeling that up to now the work of the League in this field had been stultified and its authority flouted; but as a result of the debates, and particularly of the acceptance by the manufacturing countries of the principle of direct limitation of manufacture by means of international agreement, a much more optimistic feeling prevailed at the close.

THE IDEAL MEDICAL MUSEUM.

DR. S. H. DAUKES is one of those fortunate men who have lived to realize a great ambition, made possible by the munificence of Dr. Henry S. Wellcome. As a student Dr. Daukes was impressed with the dullness and deficiencies of most museums attached to medical schools, and conceived a scheme for their regeneration. He had to wait for his opportunity; it came to him first in 1917–18, when he was placed in charge of the Army School of Hygiene at Leeds. He resolved to teach his men objectively; trenches were cut, dug-outs made, latrines erected, incinerators set up, and kitchens built: these became his school of army sanitation. The success of the school was noted by Dr. Andrew Balfour, who perceived that the officer in charge was a born teacher, one who was brimming over with fresh ideas of a kind which could be put into practice. Dr. Balfour invited Dr. Daukes to become curator of the Wellcome Museum of Tropical Medicine. So successful was the new curator in giving a graphic exposition of tropical diseases that he was permitted to extend its scope to embrace all forms of illness to which human flesh is heir. In this way there has come into being at Endsleigh Court, W.C., a unique medical institution of which London may well be proud. In the ordinary medical museums, specimens stand in monotonous rows detached from the field of clinical utility. In Dr. Daukes's system the patient and his disease take the centre of the picture; by aid of photographs, drawings, charts, and models the manifestations and symptoms of the disease are given a graphic representation. Special means of diagnosis are depicted where necessary. On one side of the patient are set out the environment or conditions predisposing or causing the disease; if the causative organism is known its life-history is depicted and its mode of conveyance exemplified. On the other side of the patient are set out specimens to illustrate the nature of the lesion—the organs attacked and their pathological changes. The visitor has also set before him the nature of the changes in these organs as revealed by the highest powers of the microscope. Thereafter follows an illustrated epitome of treatment, including preparations of drugs. The picture ends by a series of illustrations to bring home to the student the most effective means of prevention. The aim is to tell the complete story of every disease by an appeal to the eye. In the traditional medical museum the student is supplied with the material, but he himself must supply the imagination which restores dead specimens to the bodies of living patients. In the new scheme Dr. Daukes supplies the imagination; the student has only to open his eyes and permit the stories which Dr. Daukes has told with great ingenuity and often with the happiest effect to sink home. Under this new conception the museum, in place of being merely the appanage of the post-mortem and dissecting rooms, becomes the integrating centre of education in a medical school—the centre where all departments of knowledge are focused on the central problem of the patient and his disease. Dr. Daukes[1] has written a book in which he gives an account of the history of the museum under his charge, the aims he has sought to realize and the methods he has found most helpful. It is a book which will make its chief appeal to curators of museums, but the Wellcome Museum itself, once its merits become known, will appeal to medical men, to medical students, and to the layman. From the point of view of medical propaganda modern medicine could not be better served than by the Wellcome Museum of Medical Science.

[1] *The Medical Museum.* Based on a New System of Visual Teaching by S. H. Daukes, M.D. London: The Wellcome Foundation, Ltd. 1929.

THE HOUSING PROBLEM.

AMONG the hopes which spring eternal in the human breast is that of the abolition of slums. Unfortunately, the problem is beset with many difficulties, and the results of the best laid, and most expensive, schemes are often unexpected. Since the war vast sums have been spent on housing; but, as Dr. J. Howard Jones, medical officer of health for Newport, points out in a pamphlet, *The Housing Problem*, reprinted from the yearbook of the Welsh Housing and Development Association, very many of the new buildings have been occupied by the artisan-clerk type of tenant, the housing of whom since the war has rather distracted attention from the problem of helping the small wage earner. Work on old courts, cellar dwellings, and dilapidated cottage property has been suspended, so that the conditions under which a large proportion of these small wage earners live are worse than before the war. In Cardiff the percentage of houses occupied by more than one family has increased in the last two years. According to Dr. Howard Jones the morals of the slum dweller have deteriorated; he no longer regards the payment of rent as a primary duty, and this is attributed to the Rent Restrictions Act. Landlords complain that money which was formerly ear-marked for rent is now spent on amusements, it being known that landlords cannot get rid of unsatisfactory tenants. Dr. Jones quotes Mr. E. D. Simon as maintaining that clearance of slums and dilapidated houses can only be accomplished by intensive house building; but he notes also that a large number of the houses built in 1919–21 are still costing central and local authorities over £1 each per week more than is received as rent. The one ray of hope in Dr. Jones's pessimistic pamphlet is the suggestion of a return to the pre-war method in Newport of dealing with dilapidated cottage properties. It was the habit of the Newport corporation to address comparatively polite letters to the owners and occupiers of insanitary premises. The owner was offered the advice and assistance of an inspector, and if he carried out the required improvements the inspector paid a quarterly visit to the tenant to see that he kept the premises clean and in a sanitary condition. In this way the tenant was educated in his duties and responsibilities; the system benefited the landlord; and the corporation was spared the expense, unpleasantness, and delay attending recourse to legal proceedings under the Housing and Town Planning Act. Apparently, however, the gleam of hope contained in the suggestion of a return to this system is clouded by the existence of the Rent Restrictions Act.

THE Bradshaw Lecture on "The virulence of the micro-organism of infective disease" will be delivered before the Royal College of Physicians of London by Dr. J. A. Arkwright on November 5th. Dr. G. F. Still will deliver the FitzPatrick Lectures on "The history of paediatrics in the seventeenth and eighteenth centuries" on November 7th and 12th. The Lloyd Roberts Lecture, entitled "An Oxford Movement," will be given by the Right. Hon. H. A. L. Fisher on November 14th. The lectures will be delivered at the College, Pall Mall East, S.W.1, at 5 p.m.

Opening of the Winter Session.

CHARING CROSS HOSPITAL.

DISTRIBUTION OF PRIZES.

A large gathering of old students, attracted by a special post-graduate course that was given by the staff throughout the week-end, was present on October 5th at the opening of the winter session and distribution of prizes to students of Charing Cross Hospital Medical School. Dr. David Forsyth, in the course of his inaugural address, said that a vacated convent on Haverstock Hill had been bought for the purpose of housing the nurses and other hospital staff, and the accommodation thus set free at the hospital would be available for use as wards for paying patients. The convent had cost £10,000, and an additional expenditure of £3,000 would be necessary to equip it to house some 300 people. Of the £100,000 required for the extension of the hospital £98,000 had been raised. Extensive alterations were being carried out in the casualty department, where, owing to the situation of the hospital, many victims of traffic accidents had to be treated. Those who remembered the financial difficulties of the hospital before Mr. George Verity became its chairman would feel the deepest gratitude for the state of affairs he had brought about; during the past few years he had raised £250,000 on behalf of the hospital. Mr. J. Bright Banister, acting dean of the Medical School, said that, owing to the drastic change which had been made in its constitution, the Medical School had two or three difficult years before it, but there was every reason to hope that it would then once more assume its rightful place among the great medical schools of London. The prizes were presented by Lady Rees.

The Annual Dinner.

The annual dinner of past and present students was held the same evening at Gatti's Restaurant, with Dr. J. M. H. MacLeod in the chair. In proposing the toast of "The Hospital and Medical School" Mr. N. C. Lake said that though, in what was essentially a Charing Cross Hospital family party, this was always a popular toast, there were, on the present occasion, special reasons for its enthusiastic reception. The opening of the session coincided with the completion of the most considerable addition that had been made to the hospital in the last quarter of a century. The premises of the Westminster Ophthalmic Hospital had been adapted to house a number of special departments, and it was hoped that soon the present congestion of the wards would be relieved. An added reason for enthusiasm, said Mr. Lake, was the fact that the dinner was attended by the most representative body of old students that had come together for many years. Some of those present had probably not been in the hospital since their graduation, but had now returned, like prodigal sons, to partake of the fatted calf in the form of a post-graduate course. He did not wish to press the parable too far and suggest that they had wasted their substance in riotous living, or, in view of the fact that some had honoured guests with them, that they ended up by becoming feeders of swine. To some old students, revisiting the hospital after a long absence, the wards must have appeared shrunken in size, the present generation of students not so fine as in their own days, and the staff less efficient. He assured them that those who were working and teaching in the hospital perceived no such deterioration; the phrase "there were giants in those days" represented, indeed, subjective change rather than historical truth. Charing Cross men were often critical of their hospital and school; he was critical himself, but he had every sympathy with the Irishman who was abusing his own village and then punched the head of the first stranger who ventured to agree with him. Mr. Banister having made sympathetic references to the illness of the dean, Dr. F. H. Young, of whose progress towards recovery he was able to give an encouraging report, stated that the school was on the threshold of a difficult phase of its career, and for the next two or three years nothing very startling was to be expected of it. The number of entrants was, however, increasing, and soon the facilities afforded by the hospital and its efficient staff would be used to the full by as large a body of students as the school could accommodate. He asked all old students to subscribe to the *Charing Cross Hospital Gazette*, so that they might learn what was happening in the hospital and maintain touch with its activities. Dr. W. C. Bosanquet, in proposing "The Health of the Chairman," referred to him as one of those who, after a brilliant career in a Scottish university, had unselfishly decided to confer the advantage of his presence and attainments upon the southern part of the island. He remembered how, many years ago, in the dermatological department, they had both sat at the feet of James Galloway and learned the names of mysterious skin lesions coupled with the equally mysterious names of gentlemen from Central European universities, and, at the same time, heard of what was called a rival institution—St. John's Hospital for Diseases of the Skin. Much had changed since then; in Central European dermatological schools students often heard the name of MacLeod, and Dr. MacLeod, far from carrying on the tradition of rivalry between St. John's Hospital and the skin department at Charing Cross, had become a senior and honoured member of the staffs of both. In his reply Dr. MacLeod referred to the distinguished group of physicians—Green, Mitchell Bruce, and Frederick Mott—who were associated with Charing Cross when he first joined the hospital; at that time also on the staff of the hospital was James Mackenzie Davidson, the first man ever to treat a malignant growth with radium in this country. Dr. MacLeod gave an amusing account of the trouble he was put to in preventing an enterprising pressman from giving publicity to his name and that of Dr. Davidson in connexion with the successful treatment of rodent ulcer by means of radium. In conclusion, he referred to the Local Government Act and its possible repercussions on the voluntary hospitals. Whatever happened, he was certain that Charing Cross would continue to do its work of caring for the sick and advancing medical knowledge in the future as it had done in the past.

ST. MARY'S HOSPITAL.

OLD STUDENTS' DINNER.

Sir John Broadbent, Bt., presided over the annual dinner of the past and present students of St. Mary's Hospital School, which was held on October 4th. The toast of "St. Mary's Hospital and Medical School" was proposed by Lieut.-Colonel H. E. Verey, chairman of the hospital board. After commenting briefly on the importance of a medical school to a great hospital Colonel Verey referred appreciatively to the valuable donations received from Lord Beaverbrook and the late Lord Revelstoke for the building of the new Medical School, and to the gift of £20,000 by Lord Iveagh towards the rebuilding of Sir Almroth Wright's department. It would thus be possible to make a start with the erecting of the school building on the island site early next year. Work on the new laboratories would similarly begin shortly, and, later on, a much larger nurses' home would be provided. Accommodation would thus become available for beds for paying patients, which Colonel Verey considered to be one of the most urgent needs of St. Mary's Hospital. A warm tribute was paid by the speaker to Mr. Warren Low, who was soon to retire after having been a tower of strength to the hospital; regret was expressed at the resignation of Mr. Leslie Paton also, and mention was made of the deep

sense of loss occasioned by the untimely death of Mr. Kenneth Lees. Dr. C. M. Wilson, dean of the Medical School, replied to the toast, and sketched an interesting picture of the great change which had come over the prospects of the school in the last ten years. In 1919, he said, the financial position was extremely gloomy, and the continued existence of the school was gravely threatened. The desperate struggle for life which had ensued had been the chief factor in its phenomenal progress; thus, such an activity as good post-graduate training was anticipated by St. Mary's Hospital before other London hospitals had realized its value. Some indication of what had been done was shown by the fact that although the expenses of the Medical School were now four times that of the corresponding cost in 1913, when there was a bank overdraft, the school was now paying its way. For the new buildings a sum of about £150,000 was available, and it would be possible to arrange for the provision of a good gymnasium and swimming bath. In fact, St. Mary's was out to establish the best possible school for medical students, both as regards their earlier training and their later progress. An ample supply of house appointments existed, and it was significant that new entries were being received from all parts of the Empire.

Mr. G. P. Harben, a member of the board of St. Mary's Hospital, proposed the toast of "The Chairman," and eulogized the valuable work which Sir John Broadbent had done in the last quarter of a century. He recalled the fact that his own father had been closely associated in working for the hospital with Sir William Broadbent; great difficulties had been overcome, and useful progress made. Since the coming four years would be a far from easy time Mr. Harben expressed the strong hope that Sir John's assistance would be available for St. Mary's in spite of his resignation. The toast was drunk with great enthusiasm. The Chairman, in his reply, gave details of the improvements which his own father had been able to effect in conjunction with Mr. Harben's father, as regards the hospital and the Medical School. He referred to the advent of Sir Almroth Wright, and the beginning of his work in very humble quarters, which contrasted sharply with the fine prospect now, a prospect which was largely due to the great efforts made by Dr. Freeman and the staff of the pathological laboratory to win assistance for the work of enlargement. A little later the Chairman rose again to call attention to the presence of the Inter-Hospital Cricket Challenge Cup, and to propose the health of the team, which was drunk with enthusiasm; the captain, Mr. Maitland, replied briefly, and mentioned that the cup had not been won by St. Mary's since 1899. The formal proceedings ended early, and the time set free for social intercourse enabled old friendships to be strengthened and new ones formed.

ST. THOMAS'S HOSPITAL.

OLD STUDENTS' DINNER.

The new winter session at St. Thomas's Hospital opened without formal ceremony, but a reunion meeting was held on October 4th at St. Thomas's House on the occasion of the annual old students' dinner. The chairman, Dr. H. G. Turney, consulting physician to the hospital, was supported by the President of the Royal College of Physicians; the medical heads of the Navy, the Army, and the Royal Air Force (Surgeon Vice-Admiral Arthur Gaskell, Lieut.-General H. B. Faweus, and Air Vice-Marshal David Munro); the treasurer and almoners of the hospital, and the dean of the Medical School; Sir George Makins, Sir Cuthbert Wallace, and Sir Farquhar Buzzard, of the consulting staff; Professor G. E. Gask, representing the University of London, and the headmaster of Merchant Taylors' School. In proposing the toast of "Prosperity to St. Thomas's Hospital and Medical School," the Chairman touched lightly on the theme of "Doctors who are not doctors," and on the history of the hospital from the thirteenth century to the present time. The Treasurer (Sir Arthur Stanley), in response, said that they were entering on a year of extreme importance for St. Thomas's; the acquisition of a site on the opposite side of Lambeth Palace Road had brought with it the problem of where to put the out-patient department. It was a mystery to him how the work of that department was carried on in its present quarters; since 1914 the attendances had grown from 249,000 to more than 600,000. The suggestion had been made that the existing Medical School building should be taken over and the out-patient department rebuilt on that site, the Medical School being transferred across the road. This would cost a very large sum, perhaps half a million, but they had a very strong case for launching an appeal for this purpose. Professor L. S. Dudgeon (dean of the Medical School), who also responded to the toast, said that over £200,000 would be needed for the new Medical School, and until that had been obtained the out-patient department could not be rebuilt. He then referred to some of the losses of the past year, in particular to the deaths of Sir Seymour Sharkey, a great teacher of clinical medicine; Sir Hector Mackenzie, a physician popular with all alike; and Dr. F. F. Caiger, who was made emeritus physician to mark his outstanding position in the study of infectious fevers. They were losing by retirement Professor F. G. Parsons, who had taught anatomy to generations of St. Thomas's men, and Dr. J. S. Fairbairn, whose enthusiasm, originality, and organizing power would be greatly missed. "The Health of the Guests" was proposed in happy terms by Sir Percy Sargent, senior surgeon to the hospital, and responded to by Sir John Rose Bradford, P.R.C.P., who recalled agreeable personal associations with St. Thomas's. The last toast, that of "The Chairman," was proposed by Dr. A. E. Russell, senior physician, who spoke of Dr. Turney's unbroken work for St. Thomas's since his nominal retirement from the staff ten years ago, and of his own debt to his old teacher and friend. The Chairman then, after a brief acknowledgement, handed, on behalf of past and present students, a cheque for £300 and an illuminated address to Robert S. Hopkins, the school bedell, to mark the beginning of his fiftieth year of service in the Medical School. Mr. Hopkins's long and faithful service, combined with that of his late father and grandfather, has covered a period of over a hundred years.

KING'S COLLEGE HOSPITAL.

ADDRESS BY Sir GREGORY FOSTER.

The centenary session of King's College Hospital Medical School was opened on October 2nd, under the presidency of Lord Gorell, chairman of the committee of management of the hospital. Dr. H. Willoughby Lyle, the dean, stated in his report that the total number of students was 295. A centenary appeal for funds for the extension of the school buildings and the provision of further facilities for investigation and research was projected, the sum aimed at being £30,000.

Sir Gregory Foster, Vice-Chancellor of the University of London, addressed the company on certain tendencies in professional education. He gave it as his opinion that in early school life too many subjects were attempted, while towards its end there was apt to be premature specialization. Not many years ago the average medical student commenced his medical studies equipped only with a general, and usually a mainly literary, knowledge. To-day the vast majority of medical students came up after having had a considerable training in chemistry and physics and some instruction in biology. The tendency of education, whether during the school or the university period, was towards specialization, and this involved some loss in that the wide humanitarian training which was once the hallmark of all the great schools of this country, and had so vividly influenced the country's life, was to a large extent gone. One of the great problems of the educator was to recover what had been lost. It was not merely that the classical languages had ceased to hold their former place for those who entered the learned professions, but that owing to the multiplicity of subjects which had to be taken the humanitarian training given in former days by the classics had disappeared. Efforts, not yet fully successful, had

been made by the schools to substitute for the classical discipline a discipline based upon a fuller knowledge of our own and other languages and literatures, especially French and German.

After pointing out that the perplexities and difficulties of university training arising from the growth of knowledge and consequent specialization were apparent in every one of the faculties, Sir Gregory Foster, speaking as a layman, proceeded to consider how this state of affairs had affected the general practitioner, who, he said, no longer had the place he used to occupy in the life of the people. Such were the ramifications of medical practice that the general practitioner was being driven more and more to resort to the specialist. Patients were sent by the general practitioner to the specialist, and then on perhaps from one specialist to another. Under these conditions the application of the doctrine that it was the patient, not the disease, which should be treated became more and more difficult. The remedy was to associate more closely, somehow, the general practitioner with the public medical service and the hospitals. The linking-up into the general system of the public health service of what had hitherto been known as Poor Law infirmaries seemed to provide opportunities for the general practitioner to keep himself up to date and to re-establish himself in the life of the community. The voluntary hospitals, especially those with medical schools, must join in this great co-operative movement; if they did so there would be no question about the survival of the voluntary system. Whatever might be the chosen remedy for the difficulties he had mentioned, he thought that, while the teaching and training of the undergraduate should throughout be informed by the research method, it must, somehow or other, if it was to have life and balance and proportion, be made more emphatically a well-ordered whole. In speaking of the research method he meant that the undergraduate must be trained throughout to know the sources of knowledge, and to read, as far as possible, original papers rather than a multiplicity of textbooks.

In conclusion, Sir Gregory Foster gave some particulars about the University of London. On its teaching and research side the University included thirty-eight schools; there were twelve general medical schools, nine other schools for the teaching of special branches of medicine, and five for the promotion of research in various medical fields. He claimed that this was a provision for medical education without parallel in any other university in the world.

ROYAL DENTAL HOSPITAL.

ADDRESS BY DR. WILLIAM HUNTER.

At the opening of the winter session of the Royal Dental Hospital of London on October 2nd, Dr. WILLIAM HUNTER, consulting physician to Charing Cross Hospital, gave an address on the progress and increasing importance of the work of the dental profession in relation alike to personal and national health.

In recent years, said Dr. Hunter, there had been a growing recognition of the fact that the teeth were the seat of an infection which was more significant than any other in causing and complicating medical and surgical diseases in all parts of the body. From being the humble handmaiden of her two older sisters in the healing art—medicine and surgery—dental science had become a veritable Cinderella, and her work was regarded as one of the most important in the realm of preventive medicine. This revolutionary change of outlook had been initiated some thirty years ago by the investigations and writings of the speaker, who had shown that oral sepsis was the cause of many diseases whose connexion with dental infection had previously not been suspected. Primarily it was the medical profession which was specially concerned with the new problems created by these investigations, and it was upon the doctor that the first responsibility lay for recognizing the existence and significance of oral sepsis in his patients. Dr. Hunter deprecated a tendency to shift the responsibility to the dental profession, the problems, in his view, concerning not simply the teeth, but a great infection so widespread in its effects that it was now recognized to play even a greater part in medical than in surgical diseases. Oral sepsis was often the source of other septic infections with which the surgeon had to deal—for example, in the tonsils, glands, throat, nose, pleura, and gastro-intestinal tract. The speaker quoted Lord Moynihan's view of the dependence on focal sepsis of anaemia, glandular diseases, certain obscure fevers, rheumatic infections, infections of the kidney, many affections of the nervous system, and perhaps all forms of cardiac disease, and added that during the past twenty years similar recognition had been given to the part played by dental sepsis in the causation of many forms of eye diseases, diseases of the skin, and thyroid and pancreatic diseases, including diabetes.

The dental surgeon, continued Dr. Hunter, had for some time past added radiography, local anaesthesia, and bacteriology to his other equipment. Radiography had revealed the extent and variety of the septic conditions in and around the teeth and their sockets, and had further helped the dental surgeon by enabling him to show the patient the actual conditions present, and thus convince him of the need for the prescribed treatment. Moreover, the dental surgeon now had the helpful co-operation of the doctor, who was able to correlate the patient's medical complaints with the dental infection, and both the dental surgeon and the doctor often had occasion to see the striking improvement of health which followed the removal of such infection. The lecturer then proceeded to consider the prevention of oral sepsis, and suggested that the problem could be met only by work among children of school age, who could all be brought under observation and inculcated with proper habits of mouth hygiene. The chief measure required was the provision in the schools of dental nurses, who would personally impart instruction in mouth cleanliness and stimulate the interest of the children themselves. He had himself seen the efficacy of simple measures of antisepsis in investigations he had conducted between the years 1904 and 1907 in the course of his work as physician to the London Fever Hospital. A study was made of 648 patients, mostly children of school age, 43 per cent. of whom had some degree of oral sepsis. As a result of using simple measures of oral antisepsis the incidence of secondary adenitis fell from 9.6 per cent. in 1904 to 1.8 per cent. in 1907; cellulitis of the neck from 5.2 per cent. to *nil*; and glandular suppuration from 1.7 per cent. to *nil*. Even more interesting was a later sequel of this work: when he returned to the Fever Hospital after the war he found that from being present in a quarter to a half of his patients, oral sepsis had practically disappeared. It was clear that this gratifying change was due to the increased dental care that had been provided for the school children of London. In 1906 the London County Council started a dental service in a single school of 245 children; in 1927 the service had so expanded that dental treatment was given to 125,000 children. The number of dental surgeons employed by the council had increased from one to eighty-six, and sixty-one dental centres, covering practically the whole County of London, had been established. The improvement was reflected in a marked diminution in the average number of carious teeth per child, and the drop in the incidence of cervical adenitis, sore throat, anaemia, and maldevelopment. With such a body of evidence before it, concluded the lecturer, not only the dental and medical professions, but the general public, would learn to realize as it had never done before the tremendous effects of oral and dental infection both on the health of the individual and on that of the nation.

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.

ADDRESS BY DR. H. H. RUSBY OF COLUMBIA UNIVERSITY.

At the opening of the eighty-eighth session of the School of Pharmacy of the Pharmaceutical Society of Great Britain on October 2nd the address was given by Professor HENRY H. RUSBY, M.D., who has been professor of botany, physiology, and materia medica at Columbia University, U.S.A., since 1888; he was presented with the

Hanbury gold medal for the promotion and prosecution of original research in chemistry and natural history.

Taking for his subject "The authentication of materials used in research," Professor Rusby gave numerous illustrations of the ignorance which still existed as to the identity of the drugs now in use, and the possibility of materials taken from commercial sources not being genuine, and being therefore unreliable for research purposes. He said that the corner-stone of official and legal standardization of vegetable drugs was the statement of their botanical origin. Owing to the absence of identification of this kind, such vague definitions as the following were found in the *Pharmacopoeia*: Asafoetida, "derived from *Ferula asafoetida, Ferula fetida*, and other species of *Ferula*," and, again: Siam benzoin, collected from the same species as Sumatra benzoin, "or from other species of Styrax." Authentication had been carried to perfection in the basic sciences. In his own special field of botany it was declared that no name assigned to any species should be held valid unless it was supported by a description sufficient for identification, but even that was found to be insufficient in the case of most descriptions previously to recent times, when nearly all descriptions were framed merely so as to distinguish the species described from all others then known; as additional species were published, these early descriptions had been found quite inadequate for purposes of identification. In such circumstances all that had saved botanical nomenclature, extending back for centuries, was the custom which had always prevailed of preserving the original specimen from which the description was drawn, and known as the "*type*," in suitable herbaria, where a comparison could always be made in doubtful cases. Professor Rusby here added that it was because in Great Britain such remarkable care had been taken and so large a sum of money expended in building up these collections of type specimens, that no botanist in any part of the world, engaged in extensive critical work, could long continue successfully without visiting England for comparative study. He added that it would not be going too far to decree that no report of research work in pharmacognosy—the branch of pharmacology relating to unprepared medicines—chemistry, pharmacodynamics, or therapeutics should be regarded as valid or given serious recognition unless such report stated where authenticated samples of the material employed had been permanently deposited. The earlier in the history of the drug that this could be done the better, but it was never too late, as witness Farwell's recent tracing of *Cascara amarga* to the genus Sweetia in the family Papilionaceae, whereas no student of materia medica ever expected it to be referred to any other family than the Simarubaceae. It was a fact worthy of note that Farwell had taken pains to preserve specimens of the bark and of the tree yielding it, in order that all doubts for the future might be eliminated.

In concluding his address, Professor Rusby impressed upon his hearers the fact that every good student was a discoverer at every step taken in his career. That method of instruction which led the student to investigate and discover his facts and principles for himself was the one that produced the best scholars. It was as obligatory on the students while working in the School of Pharmacy to observe all the rules for authentication and verification as it was for the most eminent of discoverers, and it was this habit, formed while those discoverers were students, that contributed more to their success than did the immediate conditions connected with their discovery. Still more important would these habits be to them as practical pharmacists. No longer could chemists deal wholly with chemistry, or botanists with botany. Every worker in a special field was obliged to know enough of other fields to enable him to keep his bearings and to interpret correctly the relations of all facts that came before him. When a student found himself disposed to dodge a lesson in physics because of his love for histological examination, or to neglect his bacteriological preparations for chemical experimentation, he should try to remember that it would be impossible successfully to carry his work very far in one direction without being required to observe and determine correctly in each of the others.

MOTOR CARS FOR 1930.

THE OLYMPIA SHOW.

[From our Motoring Correspondent.]

To many persons the possession of a motor car is a luxury: to members of the medical profession, faced with the need of completing the daily round as quickly as possible, or even of extending their area of practice, it is a necessity: the annual Motor Show is therefore an event to which they look forward keenly, for it enables them to obtain easily a comprehensive picture of the progress that has been made by the different manufacturers and of the general trend in the design and construction of motor vehicles. This year's exhibition, the twenty-third organized by the Society of Motor Manufacturers and Traders, will open at Olympia, London, W., on Thursday next, October 17th, and continue daily from 10 a.m. to 10 p.m. until Saturday, October 26th. The charge for admission on the opening day is 10s., on Fridays and Saturdays 2s. 6d., and on all other days 5s.

Despite the fact that there are only eighty-six stands in the car section, as against ninety-eight a year ago, the show maintains its international character, the products of no fewer than nine countries being on view, those of Britain, France, and America predominating. British cars are the most numerous, but there are more foreign than British makers represented, thus emphasizing the importance which Continental and American manufacturers attach to the market in Great Britain. Notwithstanding the keen foreign competition and some uncertainty with regard to the future of the McKenna import duties, there would seem to be renewed vitality in the activities of British manufacturers, and there is every reason to believe that the British vehicles of 1930 will be able to hold their own with those of any country.

Mechanical Changes.

Except for improvements in detail and a distinct trend in favour of cars with six- and eight-cylinder engines, the 1930 cars do not show any startling change from those of the past year, what alterations there are being in the direction of a smarter external appearance by the adoption of neater radiator and body designs and harmoniously blending tones for the paintwork. Makers are also competing with each other in catering for the comfort of both the driver and the passengers by including many little conveniences which were formerly regarded as luxuries and accordingly charged as extras.

Although, nowadays, the majority of motor owners are inclined to take the efficiency and reliability of cars for granted, there is still a large section interested in the progress of engine design and in other mechanical details, and for them it may be useful to study briefly a modern chassis. So far as engines are concerned, apart from the trend towards six and eight cylinders, there is, except perhaps for a slight reversion from overhead to side valves, no striking new departure. Carburettors are being more generally provided with air cleaners, and lubricating systems with oil purifiers and coolers, while, to the regret of some older motorists, coil ignition, drawing its current from the lighting and starting battery, is steadily gaining on the magneto. One detail improvement, in the more expensive cars at least, is the fitting of shutters to the front of the radiators, thermostatically opened and closed with the object of maintaining the temperature of the cooling water at a point which ensures maximum engine efficiency.

The alteration in radiator outlines is probably one of the most noticeable changes. Morris led the way in this direction some three years ago when he discarded the old round-nosed type. Other makers have held on until this year to their long-used patterns, but among those who have adopted new and more attractive forms are Messrs. Humber, Hillman, and Swift. Even the Renault Company, whose cars have long been noted for a radiator at the dashboard end of the engine bonnet, have at last come into line with the prevailing practice of placing radiators

at the front, though their design still differs materially from that generally adopted.

Sleeve-valve engines, while retained by the firms who have used them for years, have found no new adherents, the main departure being a "straight-eight" sleeve valve adopted by a Belgian company. Another novel eight-cylinder is the Lancia from Italy, whose cylinders, instead of being in line or arranged in V-form, are grouped side by side in two sets of four. The Daimler "double six" is the only British twelve-cylinder vehicle. At the Salon at present in progress in Paris the Voisin Company are attracting attention to a new chassis fitted with a V-type twelve-cylinder sleeve-valve engine, the first of the kind. At the time of writing, however, it is not known whether the car will be on view at Olympia. The Jowett continues to be the only exponent of the two-cylinder engine, the Trojan Company of the two-stroke motor—which is now, in the pleasure car, of the vertical instead of the horizontal type—while the American Franklin car is still alone in using air-cooled engines.

Quieter Change-speed Gears.

Unit construction of engines and gearbox is still the order of the day, and clutches of the plate type, either running dry or working in oil, are the most popular. Three-speed gears are mainly used on the smaller cars, but on large cars four speeds are *de rigueur*, a trend which even American makers are now following. It is noteworthy that, in spite of the tendencies towards six- and eight-cylinder engines and the claims made for them in the direction of increased flexibility, four-speed gearboxes should be fitted. Except in very hilly districts the bulk of the running is to-day done on the top speed, the first gear being only required to set the car in motion, and although it is admitted that gearboxes are provided with the object of preventing any overstraining of the engine, thereby extending its useful life, motorists nowadays are inclined to look askance at cars which require frequent use of the change-speed lever. As for gearbox control, the centrally disposed lever appears to be the most popular, and in some cases the levers are being made of a length that makes for more convenient operation than hitherto.

Except that Armstrong-Siddeley's retain the mechanically controlled or "self-changing" gearbox introduced last year as an optional fitting on two of their models, and that several four-speed gearboxes in which "third" is claimed to be as quiet as "fourth" are now to be seen, there are no new departures of note in this part of the car's anatomy, nor does the "free-wheel" device about which much was heard a year ago appear to have made any noticeable headway.

Motor engineers still show individual preference for metal or fabric universal joints, while for the final drive, although worm-gearing is still used by some manufacturers, spiral-bevel-gearing is found on the majority of cars. Brakes on all four wheels are now universally employed, those operated by the foot being usually assisted nowadays by compressed air or hydraulic servo mechanism. Brake efficiency has also been improved by the employment of larger drums and better friction lining material. Chassis suspension continues to receive attention. Although independent wheel suspension has not progressed as far in this country as in France, there would seem to be a reversion from the cantilever to the semi-elliptic spring, while shock absorbers of one form or another are universally fitted. One notes, too, that oilless spring shackle bolts are now being much more widely adopted. In road wheels popularity lies between the steel spoked and wire types, with a growing use of the latter, despite the fact that, from the owner-driver's point of view, they are not so easily cleaned. Tyre manufacturers, although now providing us with tyres having treble the life of those of pre-war days, are still striving for even better results.

The Dazzling Headlight Problem.

Those who have to do much driving at night will naturally desire to know what progress is being made in connexion with the difficulty of dazzling headlights. Early in the year the Royal Automobile Club held a demonstration of anti-dazzle devices, but although many ingenious arrangements were displayed it would seem that the difficulty has not yet been entirely overcome. The demonstration showed, however, that a good deal of thought is being centred on the problem, and doubtless some simple, yet effective, method will eventually be discovered. In the meantime, many forms of dipping headlights, lamps with dipping reflectors, and others with full- and dim-light bulbs, as well as several anti-glare devices, have been put on the market, and are being supplied as part of the equipment of many new cars. Lighting and starting equipment is also continually being scrutinized for improvement, this being particularly noticeable as regards the batteries. Instrument boards, too, are being more neatly arranged, and in some cases are less complicated in that certain controls have been removed to the steering wheel.

Both for windscreens and the windows of covered cars unsplinterable glass—of which there is now quite a variety on the market—is being employed on many cars without extra charge, whereas a year ago it was only obtainable as an extra. Pneumatic upholstery, too, is being more widely adopted, while bumpers, although their use has not yet become general, are more frequently seen and are of a neater design than those first introduced. Another device which is making slow progress in England, although quite generally used on Continental cars, is the direction indicator.

Each motor manufacturing concern has its own ideas on the trend of the motor movement, and these are so varied that it is difficult to generalize. It is certain that there are more car models with six- and eight-cylinder engines and fewer with four cylinders, yet the show reveals many paradoxes. Thus there are firms that have dropped "fours" to concentrate on "sixes," others that are confining their output to "fours," still others producing "fours" and "eights," others "fours," "sixes," and "eights," while one German firm is limiting its output to only the eight-cylinder chassis, and one model at that. The Alvis continues as the only British example of the front-drive car, although there are several in France, and one or two new ones in America.

Cars for Owner-Drivers.

The show, as usual, maintains its wide appeal, for while there is again a large selection of luxurious cars for the wealthier classes who are in a position to employ expert mechanic-drivers, the note of the exhibition is the increasing attention that is being paid to the requirements of those who not only drive, but also look after their own cars. The past year has witnessed a further marked development in the car servicing and "valeting" facilities provided by traders, so that it is now possible to get one's car not only cleaned and polished, but also lubricated. Whether the owner does this work himself or has it done for him, the easier means of maintenance are all to the good. Points that appeal more particularly to owner-drivers, in that they mean less work for them in the garage, are chromium non-tarnishable plating and "one-shot" lubrication, the latter being also good for the car, in that parts which in past years have suffered from neglect will now receive their requisite amount of lubricant.

Sunshine Saloons to be Popular.

Although the open touring car is far from being superseded, saloon cars continue far and away the most popular. Even these are undergoing alteration in design, the sportsman's type, in which a rearward-sloping windscreen is matched by a forward-inclined back panel, being now a prominent design. But though saloons are the fashion, the dry and sunny weather of the past summer has made many motorists long for the open air rather than a stuffy or, alternatively, a draughty atmosphere. Hence most makers are now including in their range a "sunshine" saloon, part of the roof of which can be opened or closed at will.

During the past year there has been considerable discussion as to the respective merits of closed and open cars. To those who use their cars for pleasure purposes and mainly in the spring and summer, there is no doubt that the open model makes a strong appeal, especially in view of the ease and rapidity with which modern hoods can be

raised and lowered, and the fact that the all-weather side panels have been greatly improved. For doctors, however, who have to be out in all weathers all the year round, the saloon car has proved a distinct advantage. At the same time, even medical men will welcome the greater attention that is being given to the provision of a car that can be used either open or closed.

The Trend of Prices.

The show indicates that the prices of cars have for the present touched bottom; there are few instances of reductions, many where prices remain unchanged, and many in which slight advances have taken place. Actually, however, by reason of the detailed improvements that have been introduced and of the inclusion of features hitherto regarded as extras, the cars of 1930 are much better value than their predecessors. Indeed, a few years ago it would have been thought impossible that saloons with eight-cylinder engines would be available, as they are to-day, at so low a price as £395.

The gradual disappearance of some of the successful and popular-priced four-cylinder cars, which have given good service in practice, is reducing the choice of vehicles in the £200–£250 division. Against this, however, is to be set the fact that there is a growing selection of medium-power six-cylinder cars which, even with saloon bodies, are available from £265 to £300, the opinion being widely held that the smoother running of the "six" as compared with the "four" more than compensates for the slight additional cost. The £100 car about which so much was heard a few years ago would appear to be as far off as ever, the cheapest vehicles being the Austin Seven and the Morris Minor, the open four-seaters of which sell at £130. There has been no addition to the range of "babies," which include, in addition to the two just mentioned, the Singer Junior and the Triumph Super Seven, but judging from the number one sees on the roads it is clear that, despite their diminutive size, they meet a real need and are able to hold their own with even the most powerful cars. In the manufacture of "baby" cars Great Britain has led the way, and it is a tribute to British motor engineers that at least one of the little cars is now being manufactured under licence in Germany, France, and the United States.

Cars for Doctors.

It is difficult to single out any cars for the special attention of medical men. There are some who will find that one of the "babies" fully meets their requirements; others, particularly those whose practice lies in very hilly districts, who will require a fairly powerful vehicle. Generally speaking, however, the popular car of next year is likely to be a six-cylinder sunshine saloon of from 12 to 15 h.p., and costing anything from £265 to £395, with a choice of several makes under £300. Although, as already indicated, light six-cylinder cars are rapidly replacing those with four-cylinder engines, there are still many excellent "fours" available, which are well able to meet all everyday requirements in the way of power development and comparatively smooth running, and which, from the point of view of low taxation, ease of management, and low running and maintenance costs, are likely to appeal for some years to come to those of moderate means.

The medical motorist needs no reminder that whatever the class or make of vehicle the essentials from his point of view are reliability of operation, comfort, and smart appearance, rather than luxury and speed. Good all-weather protection and reliable lighting, the latter especially in the case of country practitioners, are also desirable features. Moreover, in view of the fact that doctors' cars have, in the course of a day's round, to be started and stopped frequently, the engine-starting installation, and especially the capacity, trustworthiness, and accessibility of the battery of accumulators used in connexion with it, is a point to be taken into consideration when contrasting the merits of different vehicles.

Nowadays the efficiency and reliability of the chassis components are largely taken for granted, so that the interest of the more wealthy class of motorist will probably centre chiefly in the carriage builders' section of the exhibition, where on over sixty stands one can inspect the latest products of the industry—from the "perky" sports two-seater to the most lordly of limousines, the fittings of which each year become more numerous and sumptuous.

Winter Motoring Requirements.

As usual the galleries are devoted to the display of motoring accessories, the variety of which is so extensive and bewildering that one could spend a day in that section of the exhibition without exhausting its novelties. With winter looming ahead special attention may be drawn to the many varieties of radiator cosies and garage-heating stoves and lamps, the former to keep the engine warm when driving in very cold weather, the latter to prevent freezing up and probable bursting of radiators and cylinders in frosty weather, when the precaution is not taken of drawing off the cooling water when putting the car away for the night. Last winter, despite constant references in motor instruction books and the motoring journals to the special attention it is necessary to give to cars in extremely cold weather, the firms specializing in welding work had more cracked engine cylinders to deal with than ever before. It may be well, therefore, once more to stress the fact that to prevent damage to the engine or radiator it is necessary to draw off the cooling water each night and to fill up again the next morning; alternatively the vehicle must be stored in a warm garage or some anti-freezing medium such as glycerin must be added to the water in the radiator.

Organization of the Show.

In past years there have been many complaints on the part of visitors to the motor show that their detailed inspection of the exhibits was considerably obstructed by the presence on the stands of an unnecessarily large number of salesmen and dealers' representatives. It is therefore satisfactory to know that the organizers of the show have issued a regulation putting a limit on the number of sales assistants that may be stationed on the stands in the car section. All assistants whose presence is authorized will wear a badge which will establish their identity with the make of car with which they are concerned. Although it is hoped that this will to some extent relieve the congestion of former years, those who can visit the show in the mornings will find it the best time to examine the new vehicles in comfort.

Next week it is proposed to continue this review of the main features of the exhibition, and to deal with some of the new models of cars specially suitable for the use of medical motorists.

C. J. W.

WELFARE OF THE BLIND.

AN INTERNATIONAL SURVEY.

We are so accustomed to think of the League of Nations as a body that discusses problems of international politics that we are apt to overlook the work of the League in matters of health. It is, in fact, an active health organization, and evidence of its work in this direction is at hand in the admirable Report on the Welfare of the Blind* which has just been issued. The report arose from a request by the British Government for more general information upon work done for the blind in other countries, and embodies a summary of replies from twenty-six countries to a questionary that was drawn up and issued to fifty-seven countries.

In the main the report deals with the general and economic welfare of the blind, but it includes some interesting material relating to the causes and prevention of blindness. The term "general welfare of the blind" covers all attempts to alleviate the handicap of blindness by education, the provision of literature, social contacts, homes, and the like; "economic welfare" covers vocational training and employment.

Care for the blind is a social effort of comparatively recent date. The first school for the blind was opened in Paris in 1784, the second, in Liverpool, seven years later.

* League of Nations, Health Organization: Report on the Welfare of the Blind in Various Countries. Series of League of Nations Publications, III, Health. 1929. III, 8. Geneva, 1929. London: Constable and Co. Pp. 278. 10s. 6d.

The promoters of these schools believed that with training the blind would be able to earn their own living, but the logic of events compelled them to go further and provide workshops for the employment of their old pupils. A great advance in education followed the relative stabilizing of blind script in the Braille type about 1880, before which, owing to the multiplicity of systems, matters were chaotic. For many years work for the blind was carried out entirely by voluntary effort; gradually Governments intervened, and in many States their activities, especially in relation to the education of blind children, have constituted the most significant advance in the care of the blind that has taken place in recent years. Both in the United States of America and in the British Empire welfare work has been carried much further by the recognition of the State's responsibility for the blind of all ages, the institution of measures for the prevention of blindness, the training of the blinded, and the provision of pensions. During the great war sympathy with war-blinded men resulted in the promotion of measures for the care of all blind persons, whether military or civilian.

Definition of Blindness.

Inquiries were made by the League of Nations into definitions of blindness. Properly speaking, a blind person is one who has no sense of light, but many with such a sense are for all practical purposes blind; they are economically blind, for they cannot earn a living by sight. Again, the definition of blindness in children for educational purposes must be somewhat different from that in adults for economic purposes. This is well brought out by the replies that are reviewed in the report. A child who cannot read the ordinary school books except with difficulty or danger to vision is regarded as blind for purposes of education. Most definitions are based on the presence of some incapacity, though a few countries have adopted a numerical standard. For adults there is an even greater divergence of practice. In Great Britain, Northern Ireland, and the Free State the definition of blindness for the purpose of blind old-age pension has been adopted for all purposes save education. In other countries there does not appear to be any such general uniformity, with the result that there arise all the difficulties associated with the presence of varying standards. For the most part definitions of blindness in adults turn on the capacity to perform work; in the British form occurs the phrase "so blind as to be unable to perform any work for which eyesight is essential"; in the American, "unable to provide himself with the necessities of life." Some Continental countries adopt numerical standards, but these vary from the certification of blindness when vision is less than 6/60 to inability to count fingers on a dark ground at a distance of one metre. In Britain, visual factors alone are taken into account; in the Netherlands regard is paid to other factors, such as health and intelligence. The report stresses the fact that numerical standards cannot be rigidly applied, and that the determination of blindness in doubtful cases, particularly where there are inducements to malingering, may require a high order of ophthalmological skill and experience.

The adoption of a general international standard, or standards, of blindness is discussed; the difficulties involved are clearly recognized, but it is suggested that these are not insuperable, at least in relation to blindness for census and all educational purposes.

The Number of the Blind.

Three methods have been advocated for the discovery of the blind. Of these, compulsory notification is impracticable. The census return has proved to be of poor value owing to the generally recognized fact that reliable information cannot be expected in returns made by, or on behalf of, the individuals afflicted. Experience in Britain suggests that a system of local registration is the most effective way of securing the fullest and most accurate statistics of the blind. A similar procedure is in operation in some States of the U.S.A., and in Canada and New Zealand. Making allowance for varying standards and inaccurate methods of assessing the numbers of the blind, it is estimated that in the countries under review there are, out of a total population of 763 million, 801,443 blind persons, or 104 per hundred thousand; these figures include those of India, where total blindness is the criterion. It is estimated that if unrepresented countries were included and the criterion of blindness were everywhere an economic one, the total of the blind in the world would reach six million. The prevention of blindness is therefore a matter of urgency, and in recent years many countries have done a great deal to this end, particularly by instituting measures for the prevention of ophthalmia neonatorum.

Education of Blind Persons.

In dealing with the blind it is necessary to recognize that there is more variation among them than among normal people; all persons differ from each other in temperament and capability, but the blind differ also in the degree and cause of their blindness. They need, therefore, much individual attention. Particularly is this true of the unemployable blind—that is, of those who, even with assistance, are incapable of an independent economic existence; some of these may, indeed, be able to do some domestic work, but not earn their living in a true sense.

The report proceeds to an examination of the conditions of the infant blind, blind school children, adult blind needing training, employable blind and unemployable and necessitous blind. Contrasts are drawn between the care of the blind child in the home and in what are known in this country as Sunshine Homes. The latter are clearly unsuitable to small countries where the number of blind infants is small, and where parents will give the necessary elementary care. In many countries the State provides for the education of blind children of elementary school age, a matter in which Denmark took the lead in 1858. The tendency is to make the school attendance compulsory. Hardship arises when blind children are compelled to leave home in order to go to a residential school; against this has to be set the future of the child, for the lot of an uneducated blind child is a very unhappy one. Schools for the joint teaching of blind and deaf children are found to be unsatisfactory, the fewer blind children being neglected. The report stresses the need for schools for the mentally defective blind, for their presence in the same school may retard the otherwise normal blind. In most countries the curriculum for the blind is similar to that of the elementary school education, but of late years vocational training has been introduced. One of the most important subjects of training is physical culture, to compensate for the children's inability to join in ordinary games. A blind child finds himself less handicapped in swimming than in many other sports. In England there are troops of blind Boy scouts and girl guides, whilst Worcester College for boys has developed rowing, and even sent an eight to Henley Regatta.

In recent years much use has been made of intelligence tests in guiding the education of blind children. Almost all of them are retarded (some two years) on their first admittance to school, and it is essential to determine whether, and to what degree, this is due to backwardness or mental defect. In this connexion it is desirable that careful records should be made of the general intelligence, progress, and special aptitudes of each pupil, and that these records should follow the child throughout its training. In some schools differentiation is made in the instruction of pupils with different degrees of vision; this is important, especially where the definition of blindness is more comprehensive for children than it is for adults, for a child blind for purposes of education may not be deemed economically blind. Note is made of the myope classes, or sight-saving classes, for children whose sight is defective, but not within the category of blindness. Experience suggests that it may be undesirable to include these classes in schools for the blind; there is a danger that the child with defective vision may, by association with blind children, come to regard itself as one of them.

Vocational Training.

Before undertaking vocational training, with all its trouble and cost, it should be determined whether the child is likely to be economically blind; also, whether he is likely to benefit from the training and become reasonably proficient. A further need is careful adaptation of the course of training to the aptitudes of the pupil. In the United States the training is for the most part given in schools; in this country it is given mostly in workshops. The danger of the school is that it may become academic; of the shop that the pupils may be exploited for commercial ends. The inquiry elicited the fact that there was comparatively little provision for vocational training; in many countries there were facilities for training; but in few was the training obligatory. Provision for higher

education is rare; there are three colleges in England, Germany has one, and Russia one. There is much to be said for the practice of sending blind students to the universities with scholarships, as is done in this country and in the United States.

Occupations.

Music, piano-tuning, massage, handicrafts such as basket and mat-making, chair-caning, knitting-machine work, and the like are much favoured. Of late, many pupils have been taught shorthand and typing, and have entered business. The handicap of blindness usually makes it impossible for blind persons to earn as much as sighted persons in similar occupations; the reduction in their earning capacity is estimated in this country as between 50 and 66 per cent. Though, therefore, the employment of the blind must involve financial loss, their well-being demands that this loss must be faced. The report discusses various methods of meeting the employment needs of blind persons. Special workshops have the advantage that the blind like them; they are their centres of social life. Shops cost a great deal, however; the capacity of the blind is small, and their sickness rate is in excess of the normal; moreover, unless the shop can afford to pay sufficient to attract a competent man to control the business side, the management suffers. The difficulties point to the conclusion that the shop should employ only industrious and competent blind workers; the incompetent and idle should be excluded. There is need, therefore, for better selection for training and more efficient training.

Home workers are found in all countries. Only a few make a success of their work without assistance. The scheme developed in England is cited as advantageous: the workers are trained for some form of handicraft; at certain periods they have refresher courses of training; supervisors visit them and look after their tools and machines; advice is given on marketing and advertising, and in some cases there is co-operative marketing. Such a scheme can best be run from a workshop, which has its own business organization. One of the most striking developments of recent years has been the attempt to bring the blind into ordinary factories and to set them to work alongside with sighted workers. In Germany such employment is compulsory under a recent law making it the duty of employers to engage a certain percentage of war-disabled persons, including the blind; difficulties have arisen, as neither the employer nor the employed realize the extent of the blind man's capacity for work. It is essential for all such experiments that only healthy, self-reliant blind should be employed; it is reported, however, that most employers affirm that blind workers have proved very suitable for certain kinds of work.

The Unemployable and Necessitous Blind.

In this country, where the blind are carefully classified, it is found that two out of every three blind persons are unemployable. The great majority of these are over the age of 50 years, an age at which blind training and new work are usually impracticable. It is believed that these figures are not exceptional.

The needs of the unemployable vary; some few have means or friends; some have State disability pensions, or pensions through insurance or compensation schemes; some are comfortable, others lonely, helpless, and destitute. In the report consideration is given to the various means adopted to help the unemployable blind. It is increasingly common to provide State pensions, and a word of warning is given on the methods of initiating such provision. It appears that the campaigns in the United States of America have been initiated in most instances by blind persons themselves rather than by workers for the blind; in the few States where experienced workers for the blind have taken the lead there has been less abuse of the law, and the blind have been more intelligently treated. If an attempt is made to deal with all the destitute blind who need institutional treatment in special homes for the blind it will be necessary to provide different homes for different classes of the blind. Begging, the immemorial resource of the blind, is legalized in some countries, prohibited in others. Its suppression depends upon the success with which the needs of the blind are met otherwise.

Conclusion.

The report has been issued in the hope that it may stimulate those who are engaged in working for the blind to pool their experiences, and thus point the way to a fuller knowledge of what is being, and can be, done to meet an urgent social problem. Great credit is due to the two British civil servants, Mr. F. R. Lovett of the Ministry of Health, and Mr. G. Hawley of the Department of Health for Scotland, who were responsible for producing the report, and to the social insurance service of the International Labour Office of the League of Nations, which prepared the section of the report dealing with occupational causes of blindness. To members of public health committees of municipal authorities, to medical officers, and to all those responsible for the care of the blind, we commend this report as an admirable and stimulating piece of work.

MEDICAL DEFENCE UNION.

Annual Meeting.

The annual general meeting of the Medical Defence Union was held at the registered offices, 49, Bedford Square, W.C.1, on September 26th, with the president, Sir Herbert Waterhouse, in the chair.

President's Address.

In moving the adoption of the annual report of council for the year 1928-29, the President said that this was the fourth annual meeting of the Medical Defence Union at which he had taken the chair, and on each occasion he had had to report an increase of membership and a continued improvement in the financial position. The fact that the work steadily increased was only to be expected with an increased membership; the union was constantly faced with new questions, and its work did not by any means consist merely in affording a member legal assistance when action was taken against him. By sound advice it could often enable a member to avoid proceedings: often it found that prompt attack might be the best form of defence. The most satisfactory way of handling the various difficulties met with in medical practice could only be known to those who had had considerable experience in such matters, and, in fact, the history of the Medical Defence Union was one long record of the successful handling of every variety of difficulty connected with the practice of medicine.

During the past year allegations of negligence in respect of the treatment of fractures had again been the union's greatest anxiety. In almost every case failure to advise an *x*-ray examination had been the ground of the alleged negligence, and it could not be emphasized too strongly how essential it was, in the interests of all concerned, to advise an *x*-ray examination in all cases of injury to a bone or joint, and, when *x*-ray examination was refused, to preserve some definite record of its refusal; otherwise the defence of the member became a matter of great difficulty or even impossible. During the year it had been necessary to settle out of court an unusually large number of claims against members; the union had done so with the greatest reluctance, and only because the claims could not be successfully defended. Only two actions had been lost, one undoubtedly owing to injudicious conduct of the member after the action was threatened. In the other—the case of Dr. Churcher—the union was unsuccessful in the county court, in the Divisional Court, and in the Court of Appeal. The decision in this case had made it clear that the medical practitioner must be careful to disclaim personal liability when giving an order on behalf of a patient, or he might be held liable at law. Legally the judicial decisions were inevitable, though they might appear unjust and even ludicrous to the uninstructed.

It was impossible, continued Sir Herbert Waterhouse, within the limits of the annual report to deal with more than a small fraction of the work in which the union had been engaged. Various difficulties were brought to its notice daily, and valuable assistance was promptly given so long as a professional principle was involved. It could not be expected that the union should take up a case in which a member was attacked outside his professional occupation, or a case in which a member became involved in a dispute with a professional colleague, unless in very exceptional circumstances. But in cases of disputes between two members of the union the council was always willing to appoint an arbitrator if requested to do so by both members, and provided they were willing to accept his decision as final. In this way several serious disputes had been amicably settled during the past year with no expense to the parties concerned.

Since 1925 the invested funds of the union had increased from some £18,000 to over £40,000, largely owing to the vigilant care of the Finance Committee; the union was therefore in an extremely strong financial position. Its relations with the other English defence society were very cordial, and a standing joint committee of representatives of the two

societies met regularly to discuss matters of common interest and concern. The work of the union was appreciated by the General Medical Council, the British Medical Association, and the various Government departments with which it came into contact, and by the profession generally.

In concluding his address, the president tendered his best thanks to Dr. James Neal, general secretary, and to Mr. Hempson, solicitor to the union, for much valued help and advice during the past year. Frequently it happened that the president was called upon to decide what action, if any, the union should take in an urgent case which could not await the next meeting of the council. In such cases he always consulted Dr. Neal, and frequently Mr. Hempson also. The fact that every decision he had arrived at in such circumstances during his four years of office had been endorsed by the council at its next meeting was good evidence of the value of the advice that he received from these two capable and experienced officers of the union.

The Annual Report.

In its annual report the council recorded that during the year 1,279 new members were elected, a net gain of 799; the total membership on July 18th was 15,794, including 1,339 women. In the course of the report the council deals with cases that came before it during the year under review, and states in general terms the legal issues that were involved. An important decision concerns the legal position of practitioners who are asked to furnish information to medical officers of health in cases of maternal death. The council advised members not to furnish detailed information where there was any possibility of the patient being identified, but following consultations between the British Medical Association and the Ministry of Health the council has been assured that the inquiries in question are so conducted that the position of the attending practitioner is adequately safeguarded.

The confusion that exists, even in the legal mind, on the subject of professional secrecy was illustrated in the case of a member who, having attended a girl in her confinement, was subsequently asked for an interview by a solicitor acting for a client against whom the girl was claiming paternity and aliment. This solicitor contended that doctors were bound, if necessary, not only to give evidence against their patients, but to allow themselves to be precognosced by the solicitor of each party. The union rightly contested this view, and the member was advised not to discuss any matter with the solicitor unless directed to do so by the court.

The unsatisfactory legal position with regard to the right of medical practitioners to be represented at post-mortem examinations was exemplified in a recent case where a medical practitioner, found guilty of manslaughter by a coroner's jury, but subsequently acquitted at the Central Criminal Court, complained that he had not been given an opportunity of such representation. The law provides that the practitioner, if he so desires, may be represented at the post-mortem examination only when a statement has been made on oath that the death was caused partly or entirely by his improper or negligent treatment. The council holds that an accused practitioner should have the right in question whenever any accusation has been made against him.

The solicitors to the union in their report draw attention to a number of cases in which a settlement had to be made out of court, but assure members that their policy is always averse to the settlement of claims so long as there is any real prospect of a successful defence. No encouragement is given to claims which savour of blackmail, or in which it is sought to take advantage of the fact that a professional man may feel inclined to pay rather than face publicity. The solicitors emphasize the fact that once a member has consulted the union he should take no step and make no communication to the other party except on the union's advice; they give added point to their warning by reminding members that the council has the right in any case in which a member has acted on his own account to refuse to be associated with the case any further or to accord the member the help which would otherwise be due to him. They warn members working in partnership that they are not fully protected unless they ensure that each party is a member of the union; even when action is brought against the firm in respect of an act of that partner who is a member of the union the firm is covered only against his part of the liability.

The remainder of the solicitors' report covers a number of the more important cases that concerned the union during the year under review. The cases are extraordinarily varied in character, and their bare recital in print serves to emphasize how many are the hazards of litigation that beset even the most conscientious practitioner.

The report of the council and the financial statement for the year 1928 were adopted unanimously. Sir Hamilton Ballance, Mr. R. F. Jowers, and Sir Herbert Waterhouse, the retiring members of council, were re-elected, and Dr. E. Lewis Lilley of Leicester was elected to fill a further vacancy among the elected members of council created by the resignation of Mr. W. G. Spencer. The auditors, Messrs. Lewis Hardy and Co., were reappointed, and authority was given for the payment of the first-class railway fares (with expenses if detained for the night) of members of council attending council meetings at a distance. The proceedings concluded with a vote of thanks to the president and council for their services during the past year.

MEDICAL SICKNESS, ANNUITY AND LIFE ASSURANCE SOCIETY.

THE annual general meeting of the Medical Sickness, Annuity and Life Assurance Society, Limited, was held at the First Avenue Hotel, High Holborn, W.C., on October 7th, under the chairmanship of Dr. F. J. ALLAN.

Chairman's Address.

The CHAIRMAN, in presenting the report of the board of directors for the year ending June 30th, 1929, said that the Society continued to make steady progress and that the figures presented called for satisfaction all round. The inauguration of the house purchase and practice purchase schemes, to which he referred at the last general meeting, had shown great activity. The loans on property, which were almost all house purchase, had increased from £23,000 to £40,000, while the loans on personal and other securities had risen from £23,000 to £38,000, a large part of which were purchase practice loans on which they had not experienced any bad debts.

The sickness experienced during the year had been very heavy, and was due to the epidemic of influenza during the early part of 1929. The number of influenza claims paid was 384, involving a payment of £6,200. The epidemic had been one of the most serious in the Society's history, and, like previous epidemics, had left in its train all sorts of trouble affecting the health of members.

With regard to the life assurance fund the sums assured steadily rose, and the Society was within a few thousand of its quarter of a million gross. This the directors felt was eminently satisfactory considering the somewhat limited field of the Society's operations. The severe weather of last winter had caused a number of deaths of annuitants, so that there was a reduction in the amounts paid out. The flourishing condition of the Society enabled the directors to recommend the payment of an interim bonus at the same rate as was announced at the valuation in 1927. While management expenses had naturally increased with the increase of business the ratio had decreased from 13.8 to 13.4 per cent. The satisfactory investment of the Society's funds was a matter of vital importance. The board of directors aimed at obtaining as high a rate of interest as was consistent with first-class security. The net rate of increase for the year on the total funds was £4 3s. 2d. per cent. This would have been higher were it not for the investments made twenty or thirty years ago in loans to public authorities; those stood at a very low rate of interest, but were being paid off yearly by a fixed proportion of each loan. The bulk of the Society's investments were redeemable at a fixed rate and at a fixed price. Notwithstanding the depression in all values which began in the spring of the present year the auditors reported that there was £11,786 in the Society's favour in the difference between the aggregate book values and the market quotations.

The Society mourned the death of Dr. de Havilland Hall in January last. He was a foundation member, and had taken a keen interest in its work. After acting as medical examiner for many years he succeeded the late Mr. Ernest Hart as chairman, a position he held for over seventeen years. On his retirement in 1912 he was elected president, and continued as such until the incorporation of the Society in 1920 under the Companies Act.

Dr. Allan added that the present occasion would be the last time he would address them in the capacity of chairman; he had intended giving up the position last year, but the board desired him to continue. He concluded his address by moving that the directors' report and the financial statement for the year be received and adopted. The motion was seconded by Dr. KNOWSLEY SIBLEY.

Dr. HARVEY HILLIARD said he had given notice of four motions, three of which did not appear on the agenda. He had been notified by the secretary that it would be in order to take the three motions on the motion for the adoption of the report. He contended that the motions should have been printed on the agenda of the meeting. He would therefore move that the meeting request the board of directors to prepare a scheme for the insurance against sickness and accident on a permanent contract ceasing at 70, in addition to the contract

of insurance terminating at 65, as at present. He maintained that many members did not read their policies, and were unaware that their benefits ceased on reaching the age of 65.

The CHAIRMAN announced that the board was quite prepared to consider the suggestion.

DR. HILLIARD proposed that a special date be fixed for holding the annual general meeting. This, he said, would enable members to know exactly when the meeting would take place, and they could then put forward any nominations or resolutions in good time. A suggestion by the CHAIRMAN that the date fixed for the annual general meeting should be announced in the medical press six weeks before the date appointed was adopted.

The third motion put forward by Dr. HILLIARD requested the board to resume the practice of issuing a list of members of the Society. This was duly seconded and discussed. On being put to the meeting it was lost by a large majority.

The motion for the adoption of the report was then carried.

Election of Directors and Auditors.

Sir William Willcox and Mr. W. H. Dolamore were re-elected members of the board of directors, and Messrs. Harber, Sturges, and Fraser were re-elected auditors for the ensuing year. On the motion of the CHAIRMAN a vote of thanks was accorded to the staff for their excellent work. The recommendation of the board of directors to pay an interim bonus on all with-profit policies for permanent sickness and accident insurance and life assurances becoming claims during the year July 1st, 1929–June 30th, 1930, was adopted. A motion by Dr. HARVEY HILLIARD, proposing that every director of the Society should resign on attaining the age of 65 years and not be eligible for re-election, was withdrawn with a view to its being brought up on a future occasion.

Vote of Thanks to Chairman.

Dr. MARTLEY said he would like the members to pass a very hearty vote of thanks to Dr. Allan in view of the fact that this was the last annual general meeting over which he would preside as chairman. For seventeen years he had put the best of his force into the work of the Society, and the members had only to look at what the Society was in 1912 and what it was at the present time, when it was trebled in size, to realize some of the changes which had taken place under Dr. Allan's chairmanship. The motion was seconded by Dr. HILLIARD, and carried with musical honours.

Scotland.

Jordanburn Nerve Hospital.

THE lecture theatre of the Jordanburn Nerve Hospital and Psychological Institute, Morningside, Edinburgh, will be opened formally by the Rt. Hon. William Adamson, Secretary of State for Scotland, on the afternoon of Monday next, October 14th. A preliminary account of this new institution was given in the *British Medical Journal* of March 9th last (p. 468). It has been established by the managers of the Royal Edinburgh Hospital for Mental Disorders at Morningside as a voluntary hospital with a complete service for the remedial and preventive treatment of nervous troubles in Edinburgh and neighbourhood. It is not intended to include the treatment of confirmed cases of mental disorder, suitable provision for such maladies being already provided by the managers at Craig House and the West House. The new lecture theatre, which forms an integral part of the organization, has been built at a cost of £8,000 and will be available not only for academic purposes, but also for popular lectures of an educational character.

Crematorium at Edinburgh.

A crematorium was formally opened in Edinburgh by Lord Provost Sir Alexander Stevenson on October 3rd. This is the first provision of cremation in the capital city. Lord Salvesen, chairman of the company, remarked that a Cremation Society had been founded some twenty years ago under the presidentship of the late Sir Henry Littlejohn, and since then they had been working to educate public opinion with a view to obtaining a crematorium such as that now being opened, which would afford a place for the rational disposal of the dead. There had been a great deal of prejudice to fight, including the suggestion that a crematorium might be used as a means for concealing a poisoner's deed, but the speaker considered that in view of the regulations which affected burial and cremation respectively, a murderer or poisoner would be the last person in the world to select cremation for his victim. Not merely must there be a certificate of death from the physician who had attended the deceased, and who must have been present after the individual was dead, but an independent inquiry was conducted by an expert, who must also examine the body. If the official of the Cremation Society had any doubt with regard to the two certificates of these medical men, he was empowered to ask for a post-mortem examination into the cause of death. He remarked further that a great deal of waste, which at present accompanied burial, would be saved by the practice of cremation. The Lord Provost, in declaring the building open, remarked that there were over 6,500 deaths in Edinburgh each year, and the disposal of these remains must sooner or later become a menace to the living so that the corporation would watch the development of the crematorium with great interest. The building has been constructed by the Edinburgh Crematorium Limited, a company formed a year ago with a capital of £13,000. It is situated in the mansion house of Easter Warriston, in grounds of some two and a half acres in extent, and the whole mansion house has been altered by the late Sir Robert Lorimer, R.S.A., to provide a chapel and other necessary accommodation. The incineration is conducted in the lower part of the building by the aid of gas, which provides a temperature between 1,500 and 1,700° F. The Edinburgh crematorium is the nineteenth to be opened in Great Britain, and the number of cremations is steadily rising, the total for last year having been 4,186, as compared with 3,266 for the previous year.

Edinburgh Hospital for Crippled Children.

H.R.H. the Duchess of York, on October 1st laid the foundation stone of the Hospital for Crippled Children, which is to be built near Fairmilehead, on the southern fringe of Edinburgh. The hospital is designed to be a central hospital for the south-east of Scotland, to which other hospitals for orthopaedic treatment in outlying areas will be affiliated. The Earl of Home, chairman of the governors of the hospital, presided. Sir David Wallace, F.R.C.S., remarked that the committee of this hospital deemed themselves very fortunate in having reached the present stage in their work, for a sufficient sum of money had been raised to justify the building of the hospital. An ideal site had been obtained, protected from the north by the Braid Hills, while belts of trees would protect the inmates from strong winds from other directions, and the hospital would face due south so as to obtain all the sunshine that was available. There was a large site of fourteen acres where children would be educated in the open air, and there would be workshops so arranged that patients could work in the open air and sunlight. Manual work would be of great benefit to the patients as it necessitated the use of the muscles, which meant better circulation and which had a beneficent mental influence. It must not be forgotten that major and minor clinics were to be formed throughout the various counties under their scheme, and at the earliest possible time patients who were under treatment in the hospital would be sent out to these local clinics, where further treatment could be carried on in their own homes under careful supervision in close relationship to the central staff of the hospital. The foundation stone was afterwards laid by the Duchess of York, to whom Lord Provost Sir Alexander Stevenson proposed a vote of thanks.

Glasgow University War Memorial.

The new memorial chapel erected at the University of Glasgow was formally opened on October 4th, and dedicated by the Right Rev. Dr. John White, Moderator of the General Assembly of the Church of Scotland. The memorial commemorates 750 students of the University who laid down their lives in the great war. It is an imposing addition to the historic pile at Gilmorehill, and fills a long-felt want in academic life. Built of Blaxter stone, and of simple design, it is as dignified as it is imposing. Inside, the lower walls of the chancel are delicately arched, and within the five arches are contained the black slate slabs bearing the names of the fallen. The organ, which is placed in the north gallery, is the gift of Lord

Maclay in memory of his two sons. A large and representative company attended the dedication service. Following upon prayer and praise, Sir Donald MacAlister, on behalf of the University, performed the ceremony of unveiling the memorial tablets, immediately after which the "Last Post" was sounded from the Stone of Remembrance.

The Housing Problem in Stirling.

Dr. T. Adam, medical officer of health for the county of Stirling, in his annual report deals with the slum question, and pays a tribute to the slum-dweller. He expresses his admiration for the laudable and often successful attempts of many, especially in the mining villages, who, despite unemployment and other adverse circumstances, manage to make their homes look attractive. In his district the new houses provided under the various Housing Acts had been mostly for the more fortunate working classes, but there was a strong feeling in the local authority that the time had now arrived when their housing programme should be so shaped as to do something for the people who were less fortunate.

England and Wales.

Vital Statistics for 1928.

The Registrar-General's *Statistical Review of England and Wales for 1928*, Tables, Part II, Civil, is now obtainable from H.M. Stationery Office (price 5s.). The volume contains statistics of population, marriages and divorces, births, passenger movement, parliamentary and local government electors, and vital statistics of the British Dominions. The estimated population in thousands of Great Britain and Ireland was:

	1927.	1928.	Increase + or Decrease − per cent.
England and Wales	39,299	39,482	+0.5
Scotland	4,892	4,893	+0.02
Northern Ireland	1,253	1,250	−0.2
Irish Free State...	2,958	2,949	−0.3
Total	48,393	48,571	+0.4

The number of marriages solemnized in England and Wales during the year was 303,228, and was equal to a rate of 15.4 persons married per 1,000 persons living. During the three years 1919–21, following demobilization after the war, the rate averaged 19.0, which was the highest recorded since the establishment of civil registration. The rate in succeeding years showed an almost continuous decline until 1926 (the year of the general rate), when it was 14.3—the lowest rate recorded since 1886—while it rose to 15.7 in 1927, and, as stated previously, fell slightly to 15.4 in 1928, comparing with 15.2, 15.3, and 15.2 in the three years 1923, 1924, and 1925 respectively. The births registered during the year numbered 660,267, and were equal to a rate of 16.7 per 1,000 population. This is an advance of 0.1 on the preceding year, the actual number of births rising from 654,172 in 1927, but is presumably a reflection merely of the higher marriage rate for 1927, since the figures for 1929 so far as yet available show a reversion to the previous steady decline in the birth rate. The number of illegitimate births was 29,702, or 45 per 1,000 total live births, a slight increase on those recorded in 1927. The proportion of male to 1,000 female births was 1,044, a slight rise over the figures for the preceding two years. This proportion showed a great increase during the war years and attained a maximum of 1,060 in 1919, since when the decline has been almost continuous; the proportion is now approximating to that which prevailed in the period immediately preceding the war. The number of parliamentary electors on the autumn register was 19,865,649, of whom 11,226,396 were males and 8,640,253 females.

Changes in London Local Government.

The general character and scope of the changes which will follow the application of the Local Government Act to London as from April 1st next have already been explained (*British Medical Journal*, July 13th, p. 67), but figures are now available which furnish a clearer idea of the magnitude of the unified services. Consequent upon the absorption of the Metropolitan Asylums Board and of the work hitherto done by the Poor Law guardians, the staff of the London County Council will be increased by 23,000, and the annual expenditure by £12,000,000. The council will have 40,000 beds for the treatment of the sick and 20,000 for mental cases, in addition to a further 20,000 beds in workhouses which also have been and will continue to be used to a great extent for sick persons. The new duties will as far as possible be fitted into the existing system at County Hall. Thus finance will be dealt with by the present committee of the council; the children in Poor Law institutions will come under the care of the Education Committee, and the ambulance service of the Metropolitan Asylums Board will be assimilated to the council's ambulance service or work in close collaboration with it. To deal with relief a new committee to be called the Public Assistance Committee will be created, and in association with it there will be a number of local committees; those who have served on boards of guardians will be encouraged to be members of these local bodies. For the purpose of this administration the county is to be divided into ten areas, consisting mostly of three—in some cases two and in one case four—metropolitan boroughs. The health services will be dealt with by a reconstituted and enlarged Central Public Health Committee. This committee will deal, among other matters, with the provision, maintenance, and management of hospitals, and for the purpose of hospital administration the county will be divided into five areas, but again following the boundaries of groups of boroughs.

London Hospital Post-Graduate Course.

A number of hospitals are adopting the scheme of holding a post-graduate course for old students during the week of the annual dinner. It is not easy to determine if the post-graduate course is the lure to draw old students to the dinner or vice versa. Perhaps these two attractions have a reciprocal action, for it is certain that wherever it has been adopted the scheme has proved far more successful than its sponsors dared to hope, and both the dinner and the post-graduate course have been attended by a "record" number of old students. The London Hospital, whose annual dinner will take place on October 17th, originally proposed to hold a post-graduate course on October 16th, 18th, and 19th, but so great has been the number of "old Londoners" who have signified their intention of being present that it has decided to hold the course on October 17th as well. For each day of the course there has been arranged a very full programme of lectures and demonstrations, the morning sessions lasting from 10 to 12.45, and the afternoon sessions from 1.30 to 4.30. On October 16th Dr. Russell Brain will give a demonstration on the therapeutic uses of luminal, Dr. W. W. Woods on the causes of sudden death, Dr. S. Phillips Bedson on recent work on vaccination, Mr. Hugh Lett on haematuria, Sir R. S. Woods on the present position of general light therapy, and Dr. John Parkinson on non-valvular diseases of the heart. Mr. W. S. Perrin will give a demonstration of cases treated by radium, Dr. George Riddoch of neurological cases, and Mr. E. C. Lind-ay will conduct surgical operations. The following lectures and demonstrations will be given on October 17th: Dr. W. J. O'Donovan on occupational dermatitis, Dr. Maitland-Jones on infant feeding, Dr. Donald Hunter on the modern treatment of lead poisoning, Mr. Alan Perry on the injection treatment of varicose veins, Mr. H. S. Souttar on radium and its surgical application, and Dr. O. Leyton on diabetes. Ward demonstrations will be given by Dr. R. A. Rowlands and Mr. J. D. Driberg, and Mr. H. S. Souttar will conduct surgical operations. The programme for October 18th includes lectures by Professor A. Ellis on the use and abuse of intravenous therapy, by Dr. P. N. Panton

on pernicious anaemia, and by Mr. Robert Milne on pain in the fore part of the foot; Mr. A. J. Walton will conduct operations; Dr. Clark-Kennedy and Dr. Theodore Thompson will hold ward demonstrations, and Mr. Eardley Holland will give a gynaecological lecture on uterine haemorrhage. At 9 o'clock the same evening, if members of the course desire it, Dr. Ashley Daly will demonstrate methods of anaesthesia. On October 19th Dr. Robert Hutchison will lecture on the dyspepsias of childhood, and Mr. A. J. Walton on the place of surgery in lesions of the upper abdomen; Mr. Russell Howard will hold a ward demonstration. Those specially interested in surgery are invited to attend not only the courses above outlined, but to be present at the operations which will be going on in the theatres each afternoon from 1.30 onwards. The course will be free to old students of the London Hospital, who may obtain further particulars from Mr. Hugh Cairns, London Hospital, E.1.

Courses at the Maudsley Hospital.

As in previous years, arrangements for practical training in psychological medicine will be provided at the Maudsley Hospital, London, during the late autumn and spring. A series of afternoon clinical lectures, illustrated by demonstrations of cases, will begin on Monday, October 28th, when Dr. A. J. Lewis will discuss mental symptoms and their genesis; this series will be continued on subsequent Mondays. Nervous disorders in children will be dealt with by Dr. T. Tennent on the following Tuesdays, and neurotic and psychotic syndromes, by Dr. E. Mapother, on Wednesdays. Dr. J. S. Harris will lecture on Thursdays on the relations of mental disorder to physical conditions. Friday afternoons will be devoted to the pathology of mental disorders and physiological psychology, the lecturer being Dr. F. L. Golla, while Mr. S. A. Mann will discuss laboratory methods and their place in diagnosis, and Mr. C. Geary the pathology of the nervous system. All these lectures begin at 2.30. A clinical discussion on cases in the hospital is held in the wards on Mondays, Tuesdays, and Thursdays at midday; it is free to medical practitioners, as are the lectures previously mentioned. A course of lectures and practical instruction for the diploma in psychological medicine will begin at the Maudsley Hospital next January. The lectures and demonstrations are given in series, and either group can be attended separately. Inquiries should be addressed to the Director of the Central Pathological Laboratory, Maudsley Hospital, Denmark Hill, S.E.5.

Correspondence.

INDUCTION OF LABOUR.

SIR,—Mr. G. F. Gibberd's very interesting article on the induction of labour in the *Journal* of October 5th (p. 617) shows that there is still dissatisfaction with the methods in vogue. Bladders and bags, bougies and stomach tubes, all seem to have their drawbacks.

Induction of labour is quite a modern procedure; it dates from about the middle of the eighteenth century, and most probably sprang out of the observation of successful spontaneous cases of premature labour in women incapable of giving birth to a full-time child. It was approved at a consultation of the most eminent practitioners in London in 1756, and was "soon after successfully carried into effect by Dr. Macaulay" (Lee's *Clinical Midwifery*, p. 62). Two methods seem to have been employed in those days: separation of the membranes from the uterine wall by means of a sound or a large bougie, and puncture of the membranes by a metal catheter or a stylet. The first of these was evidently dictated by the laudable desire to imitate natural labour as closely as possible, but the latter was justly regarded as much the more certain. Since that time a great variety of methods have been put into practice, but one and all have apparently left something to be desired. May it not be that there is no ideal method suited for all cases and all circumstances?

Regarded from the standpoint of the general practitioner, all methods that involve anaesthesia, risk of sepsis, or much handling are to be avoided if possible; bougies, bladders, and stomach tubes are not for us in the homes of the people. For some years I have been using the combined castor oil method with very good results: castor oil 1 oz. at 7 a.m.; quinine bisulphate 10 grains at 8 a.m.; pituitary extract 1/2 c.cm. at 8.30, and every half-hour thereafter for four doses if need be. But there have been failures, and these constitute irritating experiences which the doctor is most anxious to avoid; they can all be obviated by puncture of the membranes and liberation of liquor amnii, and so far as my experience goes there is nothing whatever of moment to be urged against this practice. It is pre-eminently safe and absolutely sure; it needs no following up with the use of bags, nor does it sensibly prolong labour. Everyone is familiar with the fact that early rupture of membranes—a frequent phenomenon of the castor oil induction—makes little or no difference to the progress of labour. A great advantage of puncture, to my mind, is the immediate relief afforded by the escape of liquor amnii to women suffering from hydramnios, vomiting, or toxaemic states generally, so that even if the onset of labour does not take place for several days the patient herself is made comfortable, and that is a great gain.

If, then, I might offer counsel to a fellow general practitioner, it would be to induce labour in most cases where the intercristal measurement is ten inches or under, and the interspinous nine inches or under; to do it in all cases where the head cannot be easily pushed down into the pelvis; to give "hospital" methods the go-by, and stick to puncture of membranes, with or without castor oil, etc., but always with 10 grains of quinine. I have occasionally regretted the non-induction of labour, but never induction. Like mercy, it is blessed in both giver and receiver.—I am, etc.,

Harston, Cambridge, Oct. 5th. W. J. YOUNG.

MATERNAL MORTALITY.

SIR,—During the last ten to fifteen years midwifery has, through the influence of the Ministry of Health, largely passed into the hands of registered midwives. A survey of the results shows no reduction in maternal mortality. The latest survey shows an increase. Surely this indicates that the solution of the problem does not lie in the complete divorcement of the general practitioner from midwifery practice, as the latest scheme of midwifery service seems to aim at.

As a practitioner of average experience and skill, who has conducted about 1,000 confinements without a single case of maternal mortality, I ought to have a shrewd idea of the principal factors which contribute to a maximum of safety in labour. My cases have occurred in industrial, middle-class, and high-class practice, in institutions, and a few in hospital, so that they are representative for purposes of general averages. I have come to the conclusion that the prevailing system, which encourages a midwife to "book" and attend confinements without supervision by a doctor, is fruitful of all the evils encountered in the practice of midwifery in this country, and is doing more to bring the practitioner into disrepute than anything else. The doctor is called in only when a case is already morbid. If things end not happily the fact is recorded against the doctor who has shielded the blundering midwife. I do not blame the midwife, because she has not been taught to recognize her own limitations; it is the system that is at fault. In my own practice I would refuse to be party to an understanding with any midwife who would look to me to attend at her discretion. Fortunately the system referred to has never been adopted by midwives in this district, with the result that there is the healthiest co-operation between doctors and midwives.

Reviewing briefly the emergency cases to which I have been called in the past, the following in order of frequency have been the causes of failure of the mothers to deliver themselves: (1) debility or disease; (2) psychological

reasons; (3) slight or moderate pelvic contraction; (4) malpresentation or malposition; (5) unduly resistant parts—cervix, or membranes, or pelvic floor. Very much rarer emergencies have been placenta praevia, post-partum haemorrhage, and adherent or retained placenta, etc. In a case of placenta praevia or post-partum haemorrhage, unless the practitioner is on the spot the mother has not one chance in a thousand. In the former case it is of scant comfort to the practitioner called in, and placed perhaps twenty to thirty miles from the nearest hospital, to know that the highbrows advocate Caesarean section as the method of choice in placenta praevia. The only maternal death I have witnessed took place in hospital while preparations were being made for this choice operation in a case of placenta praevia.

(1) *Foulac of Mother due to Debility.*—This is by far the largest group, and therefore the most important in general practice. The expulsive power of the uterus proves inadequate. Secondary uterine inertia has set in before the doctor is called. Delivery with forceps is often necessary after the resumption of normal pains has been patiently waited for. Delivery is easy, and due attention is paid to aseptic technique. There is great tendency to post-partum haemorrhage, but anticipated and encumvented by use of pituitrin. Too often pyrexia follows on the third day or later. On investigation one or two of the following complications are found: anaemia, pyorrhoea, bacilluria, nephritis, gonorrhoea, tuberculosis, or even milk fever or constipation. A general flare-up is feared. Mortality, I am convinced, is highest in this group. The confinement is but an incident in the train of events, the activator of lurking infection already present before labour.

(2) *Psychological Causes.*—The disability is nearly always overcome by use of suasion and sedatives. The use of hyoscine hydrobromide, with or without morphine, gives the happiest results in skilful hands.

(3) *Slight Pelvic Contraction.*—Time and conservation of the mother's strength give the best results. Application of forceps is largely admission of failure on the part of the practitioner. "Failed forceps" should not be heard of in midwifery practice. The desperate remedy of craniotomy should be the only treatment in failed forceps cases. If there is alternative treatment the use of forceps has been wrong to begin with. I have had to do craniotomy once—in a primipara, of course. Forceps, moreover, may cause grave trauma to mother or child or to both, even if there is no perineal laceration.

(4) *Malpresentation.*—In this group difficult manipulation (under deep anaesthesia) is often necessary. The time when correction could have been effected with a minimum of effort and a maximum of safety has long ago elapsed. Contrary to expectation, the anxieties of the case end with the labour, although the chances of infection from without seem considerable. In my experience the same can be said of difficult forceps cases, except where the mother was in a poor physical condition prior to the onset of labour. Trauma *per se* seems therefore relatively unimportant in the causation of puerperal fever and mortality. But trauma is of paramount importance in subsequent disabilities, as the gynaecological surgeon can freely testify.

(5) *Unduly Resistant Parts.*—Time, sedatives, or light anaesthesia bring about the desired results. In a case of resistant perineum where strong pains are present chloroform and forceps may be the best way of preventing perineal rupture, although it is equally true that in the average case of forceps delivery it is time to remove the forceps when moderate "crowning" is effected. Ovarian residue may be of value in this group.

The above series constitute the commonest causes of delayed delivery. Rarer difficulties do happen, but have little bearing on general maternal mortality. The above, however, suffices to show that the great mass of catastrophes is preventable if the expectant mother is under the care of a practitioner from an early date in pregnancy.

The factors which, in order of importance, count in safe midwifery, to my mind, are:

1. Care of the health of the mother throughout pregnancy.

2. Ante-natal examination with a view to finding, in primiparae, (*a*) that there are adequate pelvic measurements, (*b*) that there is no serious disproportion between the foetal head and the pelvis, (*c*) the foetal position. In multiparae with histories of normal deliveries finding of the foetal position as a rule suffices.

3. Post-natal supervision and treatment of any illness present, and the routine use of quinine and ergot in all asthenic cases.

4. Modified supervision until six weeks have elapsed since childbirth.

To leave any case wholly in the hands of a midwife, as the present system will certainly encourage, is surely too great a risk. Abnormalities, whether of health or of pregnancy, are not diagnosable by the midwife until the abnormality has become a menace to the mother's life. Nevertheless, the midwife is a necessity, not a luxury, but the midwife should be subordinate to the family doctor.

It must not be overlooked that in any case of pregnancy the physician's knowledge and intuition, the surgeon's tactile sense, and the accoucheur's manipulative skill may be necessary to circumvent disaster. Given a place and proper encouragement in the preventive aspect of midwifery practice the practitioner will be found to possess all these requirements; but his helpfulness in emergencies will in a great degree depend on his opportunities of attending normal as well as difficult cases.

To compare the mortality rates of to-day in midwives' and practitioners' cases is about as useful as to compare the death rates from common colds and pneumonia. It is useless, therefore, to frame schemes and draw inferences from statistics which at their very source are misleading as to the respective parts played by midwives and doctors in cases which prove fatal. Any scheme likely to prove useful in the reduction of maternal mortality must be born of the genius of the general practitioner, who is at grips with the problem.—I am, etc.,

Ingleton, West Yorks, Sept. 29th. J. MacLeod, M.B., Ch.B.

Sir,—The humorous letter by Dr. D. C. Macdonald, published on October 5th (p. 648), must not be allowed to be taken too seriously. He argues that maternal mortality is due to lack of self-assertion on the part of the general practitioner, and then states that the solution to this problem can only be supplied by the general practitioner. If, Sir, the latter claim is true, then certainly the rest of the profession must see that it is carried out.

Dr. Macdonald's next paragraph states that the old handy-woman was good and experienced, and that the modern midwife is badly taught and badly trained. As one who is interested in the training of pupil midwives I shall be grateful for some instruction from Dr. Macdonald, who has apparently forgotten that many midwives are State-registered nurses, as all should be. He accuses them of breaking Rule 9 of the Central Midwives Board, but has apparently failed in his own public duty by not reporting such instances as came under his notice. He would probably have found that the midwife in question was once a handy-woman, and had gained her status of midwife by reason of practice before the appointed day under the Midwives Act. Next, strong antiseptics are deplored and asepsis exalted in midwifery—just the opposite of opinions expressed at the Annual Meeting of the British Medical Association a few months ago in Dr. Macdonald's own city. As to the supervision of midwives, one point worth bearing in mind is that midwives at least *are* supervised, but not general practitioners! The one hundred or so of inspectors distributed all over the country could perhaps be considered an army burdening the rates by such an observer as Dr. Macdonald. As regards his criticisms of the salary of assistants to medical officers of health, he really should remember that these are rarely above the B.M.A. scale.

After accusing midwives of breaking Rule 21, Dr. Macdonald turns to refer to ill health following confinement. In effect, he states that every effort should be made to lessen pain and shorten the duration of labour by the use of all the appliances at our disposal, and though he does qualify this use by the word "judicious," he is there preaching a dangerous doctrine that one had thought never to hear preached again. It is this very doctrine that is responsible for the ill health that Dr. Macdonald so rightly deplores. He then states that all lacerations, however small (internal or external), should be sutured, and I venture to ask whether he, himself, examines every patient for slight tears of the cervix immediately after delivery and sutures them there and then. I am afraid that some practitioners, even to-day, do not scrub their hands before applying forceps, do not have their instruments boiled before use, decline sterile

towels when offered them, and generally behave in such a manner as to refute Dr. Macdonald's argument.

The problem must be approached on other lines than such polemics. For one thing, there must be recognition and prompt removal for institutional treatment at the first suspicion of infection. I submit that there are to-day indications of a wide-spread absence of immunity to infection. The first letter quoted by Dr. Macdonald shows what immunity used to be enjoyed in maternity cases. Frequent dramatic benefits from autohaemotherapy in many branches of medicine support this thesis, and the work recently published by Professor Mellanby and Dr. Green in the *Journal* of June 1st (p. 984), suggests that this lack of immunity may have a dietetic origin. Finally, it may be noted that maternal mortality from sepsis is definitely less than that due to other causes (1928 returns), which seems to have escaped Dr. Macdonald's notice.

In closing, I would point out that I have adhered rather closely to Dr. Macdonald's own phraseology.—I am, etc.,

Preston, Oct. 6th. R. KELSON FORD, M.D., M.M.S.A.

SIR,—In the *Journal* of October 5th (p. 648), Dr. D. C. Macdonald quotes from a letter I wrote to him recently, and I thank him for this. I felt that modern methods and technique had not improved matters much, or enough, and that a solution of the question of maternal mortality and morbidity cannot be satisfactorily reached on these lines alone. While Listerism has done wonders in the domain of medicine and surgery, its success has not been so manifest in the lying-in chamber. Dr. Macdonald, in recent letters, enthusiastically extolled the use of ovarian residue; he claims for it that the rigors of labour are lessened and the accidents incident thereto are fewer. If this is so, it seems that he is supplying something which the system of the modern parturient woman lacks—something which, perhaps, her own ovaries have failed to elaborate he gives artificially, with apparently marked benefit.

The question arises, Is the present-day woman less efficient to meet the strain and stress of parturition than, say, her grandmother was? I think the answer is in the affirmative, and an inquiry should be made, perchance to get on the right track of the why and the wherefore of this persistent and unyielding maternal mortality and morbidity.—I am, etc.,

Prestatyn, Oct. 5th. W. THOMAS.

RADIUM IN SURGERY.

SIR,—Inasmuch as Mr. Souttar's book was written for beginners, the criticism of it which appears in the *Journal* of October 5th merits far greater publicity than it receives under reviews. Mr. Souttar, in his lectures and writings, leads the reader to suppose that his is an experienced and authoritative voice, and yet he commits himself to statements which can only lead the beginner into a troubled world. While it is true that 0.5 mm. platinum cuts off 99.9 per cent. of beta rays, it is far from true to say that the rest of the irritating rays are negligible, and it is certain that if radium be used with only this amount of screening then a large number of cases will show symptoms of a burn in greater or lesser degree. One of the earliest lessons I learned, both in the laboratory and in the ward, was that 0.5 mm. platinum was not sufficient to prevent the destruction of healthy tissues, and further, that dense sclerosis only occurs after inadequate filterage of the destructive rays. The most difficult point to impress upon beginners is the necessity of a screen of at least 1 mm. platinum, and even with this great caution is necessary. I have seen six cases this year of burns of the bladder and rectum following the use of radium in the vagina in which 1 mm. platinum had been used as a filter. Heyman of Stockholm, who has had a unique experience with radium, employs the equivalent of 1.5 mm. platinum as a minimum, and frequently 2 mm. Many other statements made are unsettled and open to discussion, but the above is of fundamental importance and requires immediate amendment.—I am, etc.,

London, W.1, Oct. 4th. SIDNEY FORSDIKE, F.R.C.S.

SALT DEPLETION BY SWEATING.

SIR,—In view of the correspondence on the above subject in your columns, the following information given in a recent report by the Department of Health of the Commonwealth of Australia, entitled "An investigation into the health of employees in gas-making plants," may be of interest.

Out of the 370 gas workers examined for the purpose of this inquiry, 135 complained of one or more symptoms, and of these 74 complained of cramps. These cramps were usually associated with headache, cough, giddiness, and shortness of breath. It was noted that abdominal cramp sometimes followed the drinking of large quantities of water. In some cases headaches and cramps were experienced at first, but ceased to occur after the men had been employed in gas-making for a certain time. A fireman who had been employed in the horizontal retort house at South Melbourne for twenty years, and who was in perfect health, stated that by rinsing his mouth only and drinking practically no water he had found that he could avoid cramps altogether.—I am, etc.,

London, Oct. 4th. WELDON DALRYMPLE-CHAMPNEYS.

DECLINE IN THE ART OF PRESCRIBING.

SIR,—I consider your article (September 21st, p. 547) very timely. There is not the slightest doubt, with so many firms producing mixtures, tablets, etc., followed by samples and literature galore, that the tendency to resort to these easy methods of prescribing induces the practitioner to ignore the art of writing an original prescription and at the same time gives the patient an easy method of getting the prescription repeated—unless the prescription is definitely headed "Not to be repeated," as it should be in every instance.

In my opinion a most important cause of the decline (and a cause to be deplored) is the tendency to increase formulae, in book form, for national health insurance work. This cause I believe to be a great factor, also, in increasing the cost of the Drug Fund. Personally, I favour the total abolition of all formulae, and the idea of establishing a national formulary booklet is, in my opinion, a move in the wrong direction. It makes prescribing too easy—a rule of thumb—lowers the status of the prescriber before his patient, and throws the art of prescribing to the winds. Thousands of pounds are wasted by their publication and by the excessive prescribing which it unquestionably induces. Thousands of pounds are wasted on keeping a large staff to publish tariff lists (often at once thrown into the wastepaper basket), reminders about drugs, prescriptions, etc., and on inquiring into the cost of each prescription and whether a practitioner is guilty of so-called "excessive prescribing." All this money would be much better spent in maintaining whole-time national health insurance chemists, who could dispense prescriptions at any hour, and not keep patients waiting because some client wants a bar of soap or some scent. At the same time I would trust the panel practitioner to give what he deems as necessary for his panel patient as for his private patient by intelligent prescribing when thrown on his own resources rather than let him be dependent on a booklet. The art of prescribing will then revive. I am sure the cost of the Drug Fund would be less, and more satisfactory to all parties. Whilst some method may—less frequently, I think—be necessary to guard against "excessive prescribing," I would not consider any such charge except after seeing the patient, the whole course of notes, etc., as shown on the medical record card, and hearing the doctor's own views as to the justification.—I am, etc.,

St. Leonards, Sept. 29th. A. G. NEWELL, M.D.

SIR,—I have carefully perused your leader on the above subject in the *Journal* of September 21st, as well as the letter of Dr. Spalding in the issue of the week following (p. 604). I feel strongly inclined to stress a sentence in your leader in which it is stated that "the decline . . . may to some extent be explained by failure on the part of the medical schools and of the various examining bodies to

give due weight to the importance of the subject." It would certainly appear as if the present educational system is more defective than its product. Without doubt the medical man newly armed with degree or diploma starts practice with a serious handicap in the realm of therapeutics and applied pharmacology, and for this reason falls a ready prey to the use of proprietary preparations and compressed "ready-mades," empirical prescribing following as a matter of course.—I am, etc.,

Arnside, Westmorland, Oct 7th D. M. Macdonald.

WOMEN MEDICAL OFFICERS AT V.D. CLINICS.

Sir,—The council of the Medical Women's Federation at its recent meeting considered the question of the appointment of women medical officers in connexion with clinics or hospitals for the treatment of venereal disease. It was the strongly expressed opinion of the council that there is a definite desire on the part of many women patients for treatment by practitioners of their own sex. The following resolution, which I am desired to bring to your notice, was unanimously passed:

> The Medical Women's Federation urges that the medical officers treating female venereal disease cases, whether in hospitals or clinics, should be women medical practitioners, where and whenever such practitioners are available.

—I am, etc.,

Violet Kelynack,
Medical Secretary.

Medical Women's Federation, 9, Clifford Street, Bond Street, W.1, Sept. 30th.

X-RAY DEPARTMENT DANGERS.

Sir,—The comments of Dr. J. R. Riddell and Dr. L. A. Rowden upon my letter in your issue of September 7th (p. 478) necessitate further encroachment on your space.

Dr. Riddell courteously sent me a copy of his letter which was published on September 28th (p. 599), and on inquiry I find his first contention correct. The first valve apparatus was exhibited in November, 1925, and was installed in the German Hospital, London, in December, 1925. The apparatus I used for private work was installed in January, 1927, and the firm responsible for the installation informed me that these were then the only two examples of such apparatus existent in Britain. The installation of Dr. Riddell's apparatus in October, 1926, unknown to the firm installing that which I used, was therefore the prior installation for private work. This does not, however, materially alter the object of my statement, which was for the purpose of showing that, while I am a critic of the value of four-valve apparatus, I was a very early user of this, and therefore my criticism is based on experience and not conservatism.

I am unable to agree with Dr. Riddell's contention in his last paragraph, since, unlike valve apparatus requiring constant attention, the mechanical apparatus requires attention very rarely, perhaps once in two or three months. Actually I have known one apparatus, doing very heavy work, which was not even inspected for two years; this shows that the need of attention is very small with the mechanical rectifier. Any possibility of the rectifier getting out of phase is removed if it is correctly manufactured and pinned before delivery, when it is, once for all, determined for the whole life of the apparatus.

To avoid further misunderstanding I would say that the valve apparatus which I criticize is that employing four valves connected in what is termed the "Gratz connexion." The so-called "constant potential" valve apparatus has certain advantages over other apparatus as regards the spectral emission of x rays. This employs two valves and condensers, and, whereas the rectification can be attained mechanically, owing to the tendency of the condensers to discharge backwards across the rectifier, valve rectification is usually preferable.

Concerning Dr. Rowden's letter on September 28th (p. 599), I fail to see why Dr. Finzi's name has been introduced, since it certainly did not appear in my own letter, which was only concerned with pointing out that the suggestion in your article of August 17th as to lining a valve apparatus cabinet with lead rubber was, on the score of economy, merely another disadvantage of this apparatus, which only has application where space is restricted, and is not applicable where the installation can be arranged in two or more rooms—always a preferable course. My remark that the mere possession of x-ray apparatus did not constitute a radiologist was certainly not applicable to a radiologist of Dr. Finzi's eminence, but was directed against the wholesale installation of x-ray apparatus by many having no specialized knowledge of radiology, apparently purely as a further source of income. Poor work is then turned out, and, in consequence of many errors of diagnosis, radiological science is brought into disrepute. I could give many examples of errors in such amateur radiological work. The difference between skilled and amateur radiological work is exactly that between skilled specialized surgery and occasional amateur surgery as judged by the end-results.

No one will question Dr. Rowden's demand for a sound knowledge of pathology, medicine, and surgery. Like fire, radiology is a very good servant but a very bad master, and its findings have to be interpreted in conjunction with clinical findings. Where this is done errors are not so liable to occur in consequence of artefact appearances, and radiology is not brought into disrepute. It is equally obvious that for the best results a knowledge of the physics of x rays is equally imperative, and the requirements of the D.M.R.E. make this need obvious. The only point on which I disagree with Dr. Rowden is the suggestion that, instead of "long experience," "extensive experience" should be substituted, since the one need not necessarily be the same as the other.—I am, etc.,

Forest Gate, E., Oct. 1st. Bernard Leggett.

Medico-Legal.

FAILURE TO COMPLY WITH DANGEROUS DRUGS REGULATIONS.

At the Marylebone police court, on October 1st, before Mr. Powell, Dr. Reginald George Karn of Beaumont Street, W., was fined £10, and Dr. Frederick Stuart of Charles Street, Knightsbridge, £20, in each case with ten guineas costs, for contraventions of the Dangerous Drugs Consolidated Regulations, 1928. It was proved that Dr. Karn had failed to enter in a register a quantity of heroin, and Dr. Stuart a quantity of morphine sulphate and heroin, obtained from a firm of chemists. In imposing the penalties, however, the magistrate said that one thing was clear: there was no suggestion against either of these medical men that the regulations were infringed for the purpose of any malpractice in administering the drugs. In one case the offence arose through carelessness and slackness, in the other through ignorance.

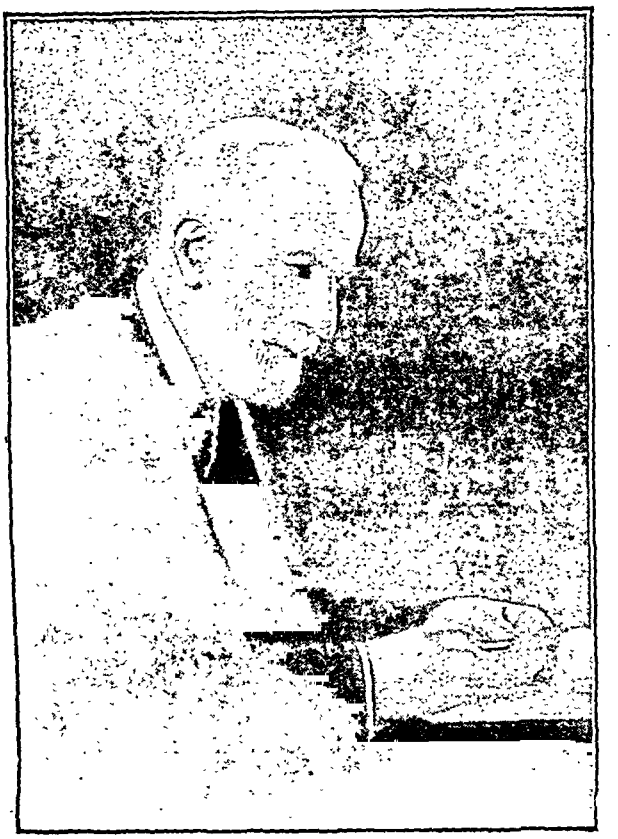
Mr. Vincent Evans, for the Director of Public Prosecutions, stated that in June last a Scotland Yard inspector, making inquiries as to a quantity of drugs supplied to two persons, a man and a woman, found a number of prescriptions signed by one or other of these practitioners, and in several cases the body of the prescription had been filled in by a different hand from that of the signature. Dr. Karn, on being shown certain prescriptions, admitted that they were signed by him, and that the body of the prescription was in the handwriting of the patient. Ten orders for drugs obtained for professional use, although signed by him, were in the handwriting of one of the patients, and although the orders were marked "For professional purposes," the drugs were obtained for, and sent direct to, the patient. Dr. Karn had apparently taken over these patients from Dr. Stuart, and had attended them for three months. Dr. Stuart, with regard to certain of the prescriptions signed by him, admitted that they had been filled in by the patient. There were thirty occasions on which drugs were supplied to Dr. Stuart, but only ten had been recorded by him. Dr. Stuart put down his neglect to overwork and illness, while Dr. Karn pleaded that he himself was purely an anaesthetist, not in the habit of prescribing dangerous drugs, and was in complete ignorance of the detailed regulations. Mr. Vincent Evans agreed that the prosecution was not in a position to refute the evidence of Dr. Stuart that the drugs were necessary for the treatment of the two persons concerned, and the magistrate said that he himself would assume that that was so. He regarded Dr. Stuart's as the more serious case, because Dr. Stuart knew of the necessity of keeping a register, and in his case the offence had been going on for many months.

Obituary.

SIR T. JENNER VERRALL, LL.D., M.R.C.S.,

Past-Chairman of the Representative Body, British Medical Association; Consulting Surgeon, Sussex County Hospital.

We have to announce with sorrow the death, on October 4th, of Sir Jenner Verrall, for very many years a leading figure in the British Medical Association, who won the esteem and warm personal regard of all with whom he came in contact. Though he had not been physically the same man since an operation, his mind remained alert, and he felt keenly the relinquishment of active work in the Association and on the General Medical Council.



T. Jenner Verrall

Thomas Jenner Verrall was born on October 13th, 1852, and belonged to a family which has been continuously associated with Sussex affairs for generations. His father, Henry Verrall, J.P., was clerk to the magistrates and a solicitor in Brighton, and prominent in all local matters; he was colonel of the 1st Volunteer Battalion Royal Sussex Regiment, a position later held by his younger son, Hugh. Sir Jenner also took a warm interest in the regiment, and became captain (honorary major), on reaching which rank he retired. His elder brother was the well-known classical scholar, Arthur Verrall, Litt.D., Fellow and Tutor of Trinity College, Cambridge, and later King Edward VII Professor of English Literature in the University of Cambridge. Jenner Verrall was educated first at a private school in Brighton, and then at Marlborough College. He began his medical studies at the Sussex County Hospital, and completed them at St. Bartholomew's Hospital, obtaining the M.R.C.S. and L.R.C.P. diplomas in 1876. He then went to practise at Brighton, becoming surgeon and, later, senior surgeon to the Sussex County Hospital, and on his retirement was elected consulting surgeon. He was recognized by his colleagues in the district as a good clinician and a very good operator. Had he wished to do so he could have made a name as a surgeon, although the more strictly scientific side of medicine did not much attract him; he was perhaps too literary in his tastes and habit of mind. Always keen on English literature and the English language, he was very well read, and his scholarship revealed itself in everything he spoke or wrote. He was also much interested in architecture (especially ecclesiastical) and in history, and enjoyed all open-air pursuits.

A man of Verrall's outstanding character and gifts would have made his mark in any walk of life, and it was fortunate for our profession that from an early stage in his career he chose to identify himself with its organization, and after retirement from active practice devoted his energies to public work in the interests of his fellows. At first locally, and afterwards in central affairs, he gave himself heart and soul to the service of the British Medical Association. It is unlikely that any one member has ever been called upon to serve in so many different capacities. The record opens more than forty years ago with his appointment as district honorary secretary for East Sussex in the South-Eastern Branch, followed four years later by secretaryship of that Branch, which he held until 1904, afterwards serving as its vice-president and president. In the Brighton Division he held office as secretary, vice-chairman, and chairman; when he went to live at Bath in 1912 he was promptly elected on to the Bath and Bristol Branch Council; and again, on his removal to Leatherhead, the Surrey Branch Council made him a member. But all this executive work at the periphery formed but a small part of what Verrall did for the Association and its members, and, through the Association, for the profession at large and the public. At one time or another he was a member of thirty committees or subcommittees at headquarters, serving on some of them for many years in succession. Apart from his chairmanship of the Central Medical War Committee, he had been chairman of four important committees in London—the Dominions, the Organization, the Medico-Political, and the State Sickness Insurance Committees—and he served on the Central Council of the Association almost without a break from 1893 to the day of his death.

Whenever a big project appeared on the horizon, or an urgent public question arose, or delicate negotiations had to be undertaken, the natural thing was to put Verrall on the appropriate body. Thus, to name but one of many occasions in thirty years, he was a member of the Constitution Committee set up in 1900, which formulated the scheme for reconstruction of the Association's machinery. In due course the Representative Body, which resulted from that scheme, elected him its Deputy Chairman, and later its Chairman. His tenure of these two offices coincided with the introduction of the National Insurance Bill, its passage through Parliament, and the beginning of medical benefit under the new Act. All who took part in those stormy Representative Meetings between 1911 and 1914 will remember the tact and courtesy and the statesmanlike poise of Jenner Verrall in the chair. To mark its sense of his worth, and its gratitude for his work, the Council awarded him the Association's Gold Medal of Merit in 1914, and six years later the Representative Body, by unanimous vote, made him a Vice-President of the Association. In 1921 he was President of the Section of Medical Sociology at the Annual Meeting in Newcastle, and in 1924 he was chosen to visit Canada in company with

Dr. Cox as envoy of the British Medical Association to the Canadian Medical Association. During the Annual Meeting of 1914 he received the honorary degree of LL.D. from the University of Aberdeen, and in May, 1919, the honour of knighthood was conferred on him in recognition of his services as chairman of the Central Medical War Committee during the previous four years, in which capacity he greatly assisted the Army Council and the Ministry of National Services in obtaining medical officers for the Army, Navy, and Air Force.

This outline of Sir Jenner Verrall's work for the profession may fittingly close with a brief reference to his membership of the General Medical Council. He became a direct representative for England and Wales on January 1st, 1912, and at the end of each term of office his fellow practitioners showed their trust in his wisdom and discretion by re-electing him. It was with great regret that the Representative Body of the British Medical Association heard last July that he would not seek further re-election at the end of the present year, and a motion recording high appreciation of his eighteen years' service on the General Medical Council and in other capacities was carried with acclamation. The resolution ended with the hope that he would long be spared to increase the debt owed to him "for counsel, for inspiration, and for leadership."

Sir Jenner Verrall married in 1882, and is survived by his widow, two sons, and four daughters. His eldest son, Mr. Paul Jenner Verrall, F.R.C.S., is orthopaedic surgeon to the Royal Free Hospital; his second son, Christopher, an officer in the Royal Sussex Regiment, was killed in action in December, 1914. Sir Jenner Verrall's funeral took place at the Parochial Cemetery, Brighton, on October 7th. It was very quiet, being practically a family affair, but the Council of the Association was represented by the Chairman of the Representative Body, the Treasurer, Mr. E. B. Turner, and the Medical Secretary, while the Sussex Branch was represented by Mr. Nethersole Fletcher, senior surgeon to the Sussex County Hospital, and Mr. George Morgan, an ex-president of the Branch, Dr. Helen Boyle, and Dr. L. A. Parry, honorary secretary.

Dr. Mark H. H. Vernon (Horsham) writes:

My first recollections of Thomas Jenner Verrall carry me back to a mathematical classroom about 1867 or 1868 at Marlborough. Seeing me in difficulties about sums or a problem in Euclid, Verrall, unasked, gave me efficient help. His kindly action laid the foundation of a friendship which lasted through a fairly long life. His school career was steady and creditable, though not marked by any special brilliancy in either work or games. After leaving Marlborough we found ourselves together as pupils at the Sussex County Hospital at Brighton, where we had the advantage of much good clinical teaching from the staff. At that time a period of pupilage at Brighton counted as part of the four years' professional course before taking a qualifying examination. Whether his time at Brighton counted or not, he made good use of it. After leaving Brighton we saw much of each other at St. Bartholomew's. He was clinical clerk to Dr. Andrew, and dresser to Sir Thomas Smith when I was that surgeon's house-surgeon. In that capacity he was one of the best, always reliable and ready for any amount of work at any time. The qualities which made him a ready helper at school were ingrained in him, and he loved his work. After leaving Bart's he became a valued member of the surgical staff at the Sussex County Hospital. Working as I have done most of my professional life in Sussex, I often came in contact with him, and had the advantage of his good counsel. He did much good work for the British Medical Association in Brighton and the county of Sussex, and I have had opportunities of admiring his conduct in the chair at B.M.A. meetings. Verrall's home training and personal character inclined him to take a serious view of life and its responsibilities, and to avoid its frivolities, though he could be cheery and genial. He set himself a very high standard of life and acted up to it, and he spared no pains to help others to attain to it. He was faithful in all things.

Mr. E. B. Turner, F.R.C.S., writes:

Verrall took office as Chairman of the Representative Body in very troublous times. The fight over the Insurance Bill was raging and necessitated very frequent meetings, so that in one year he probably presided over more sessions of the Representative Body than any other Chairman in his three years of office. It was a difficult and delicate task which he had to handle—controversy and feelings ran high, and his tact and personality often saved the meeting from disaster. At the same time he was chairman of the State Sickness Insurance Committee, to which the Representative Meeting entrusted the formulation and definition of the policy of the Association with regard to the Bill. He carried through this exceedingly strenuous and exacting business with such success that all of his colleagues on that committee entertained him to dinner to celebrate the presentation of its report and the discharge of its reference. In 1915, the last year of his chairmanship of the Representative Body, resolutions were introduced and carried through constituting a "Central Medical War Committee," which might deal with the question of the staffing of the new armies with civilians as medical officers, and do all that was possible for the Association to accomplish in aid of the country during the war. I proposed Verrall as one of the British Medical Association members of that committee, and as chairman of it at its first meeting. On the passing of the Military Service Act this committee (which had worked with the Committee of Reference appointed by the Royal Colleges to deal with the "consultant" class of practitioners) was constituted the "Central Professional Committee," and was empowered to deal with the enrolment and appeals of the whole medical profession. During all the years of the war, and afterwards when demobilization was taking place, Verrall came up from Bath times without number, and gave of his very best to the work. The success of this committee's efforts is generally admitted, and it probably stands out as the best work the Association has ever accomplished for the good of the whole medical profession. This success was mainly due to the great and unselfish work of its chairman. As one who was associated with him in all these activities I can testify to the exceeding value of his work and personality to the Association, the profession, and the nation. He was clear, eloquent, witty, and explicit, absolutely single-hearted and straight, with, above all, the saving grace of humour. A great gentleman has passed over; it will be long ere we look upon his like again.

Dr. H. B. Brackenbury, Chairman of Council of the British Medical Association, writes:

When I first became a member of the Council Sir Jenner Verrall was Chairman of the Representative Body. To an inexperienced member it appeared at that time that in Sir Jenner Verrall and in Dr. J. A. Macdonald, then Chairman of Council, lay embodied most of the wisdom and experience that were necessary to guide the Association on a voyage that promised to be by no means smooth. This appearance was not wholly true, for there were others; but it truly indicated the impression made by the character of the man, the whole-hearted devotion which he continuously showed to the interests of the Association and profession, and the wisdom and experience which he brought to bear upon all their affairs. Even before those days, and certainly ever since, this personality of his, this devotion, zeal, and wisdom, have never failed the profession. He was constant in his duty and invaluable in counsel, and I, like many others of his colleagues, have had personal experience of his careful and kindly help in many a difficulty. I cannot speak at first hand of his work in connexion with the Central Medical War Committee, but as a direct representative on the General Medical Council he was equally helpful and devoted. He was an interesting, friendly, and lovable man, and an adept at verbal and technical, as well as more fundamental, criticism. His passing will leave a great gap at meetings of the Council, committees, and Representative Body of the Association, but he must have been gratified to be able to continue his work there till the last, and to die, as they say, in harness.

Sir Robert Bolam writes:

The British Medical Association loses, by the passing of Sir Jenner Verrall, an influence in its inner councils of a rare quality not easily, if ever quite, to be replaced. He had an intimate knowledge of Association affairs during long years of service in some of the most anxious and unprecedented times that a professional organization has passed through. His was the hand that guided the Representative Body through the difficult years when the echoes of the strife over health insurance still lingered and the turmoil of the great war involved the profession of medicine. Perhaps of all his work the marshalling of medical manpower by the Central Medical War Committee will stand as the finest achievement. In the chair of that committee there was need of all the qualities which in Jenner Verrall were so fully found. He has left a profound impress, too, on the organization of the profession he loved to serve. And there will remain with those who were privileged to work with him the exhilaration of his blithe and ever-youthful spirit, the sheer joy of his fluent speech and apt quotation, the intellectual pleasure of his balanced arguments, and, beyond all, the memory of his fearless courage.

Dr. C. E. S. Flemming (Bradford-on-Avon) writes:

Verrall dead! It seems impossible when we think of the quick mind, the cheery welcome, the bright eye that we knew so short a while ago at Manchester—yet at the Representative Meeting, after the Chairman had delivered a eulogy on the work of our retiring representative on the General Medical Council, Verrall, shaken with emotion, three times got up to reply, three times sat down, unable to say a word. Those who witnessed that poignant scene must have felt that he at any rate had at that moment seen coming up the valley the great shadow that was all too soon to hide from his sight for ever the world that he loved and served so well; the days that were a joy to him and all that knew him. At the same time they must, too, have realized what his work for the profession meant to him and what he was to the profession. For several years he lived in Bath, where medical men quickly came to recognize him as a man above most. With his fluent speech, ready wit, and fearlessness in debate, and his wise counsel, he soon became the trusted friend and guide of the profession in the neighbourhood—all men loved him. He lived in Bath during the days of the insurance fights, and it is easy to realize how valuable his help was then, for he was a man of high ideals and had withal a logical and practical mind. To all who had the privilege of knowing him intimately the first impression on hearing of his death must have been—there is gone a very dear friend, a wonderful companion who loved life and all that was good in it; gone a great heart and a fine courage. But there is left a happy memory, a lasting inspiration. Could he speak, his last words would be "Carry on."

The Medical Secretary sends the following tribute:

I write this under a deep sense of personal loss, for Sir Jenner Verrall was not only the doyen of our Council, a brilliant man, and a most active member of our Association, but a close personal friend and a never-failing source of inspiration and joy to me. It is thirty years since I first met him at an Annual Meeting of the Association, but I only got to know him when he and I were members of the Constitution Committee in 1900, which not only greatly changed the constitution of our Association, but directed its activities into new channels. He sat on that committee as one who was already a member of Council, professing, as he always did, conservative leanings of a pronounced type. But then, as always, up to the very last, he was open to new ideas and, once convinced, proved of great help in getting them adopted by the general body of the Association. From the first I was an admirer of the wit and brilliance which were so characteristic of the man, but gradually I got an insight into the emotional side of his character and a knowledge of his sterling qualities, and was proud to become a friend as well as a colleague. He affected to be a confirmed pessimist. Very frequently he came into my room and announced, when asked how he was, "I am very depressed. It's a *poor* world." But he could not keep it up for long, and there is no man who has brought inside the walls of the B.M.A. headquarters more of the sense of the joy of life and the "worthwhileness," as he called it, of good work. And in this I speak for all my staff who came in contact with him.

I remember him with deep thankfulness as a leader and comrade in many a dark and anxious time, particularly in connexion with the early days of national health insurance and with the work of the Central Medical War Committee. He had not the masterfulness or the prompt decision of a J. A. Macdonald, but what a combination they made, and how each admired the gifts of the other! Elsewhere will be found some indication of the offices Verrall held in the Association and in other professional bodies, so I need not dwell on that side, except to point out what a tribute it is to the British Medical Association that a man of his calibre, easy in circumstances, and who could undoubtedly have made a mark in either local or national politics, chose to devote his energies to our Association. For there is no doubt about it, the B.M.A. was the apple of his eye, and there was nothing we could ask him to do that he would not do with all his might.

Verrall was always ready in debate—indeed, his weakness (and he knew it) was too great a fluency. I saw somewhere a description which I thought applied with peculiar fitness to Verrall, "His thought worked best along a kind of paper-chase track of vivid words laid for the pursuing intellect by the fore-running tongue," and I remember how he laughed when I tried it on him. But at his best he was a real orator, by which I mean that, given the occasion, he could impart into his speech deep feeling and indeed passion. The finest example I ever heard was at Ottawa in 1924, when he and I were on our mission to the Canadian Medical Association which resulted in the affiliation of that body to the B.M.A. The occasion was the dinner of the Canadian Medical Association, at which were present many prominent Canadian laymen, including that eminent orator and statesman Sir Robert Borden. In replying to the toast of "The British Medical Association," Verrall rose to great heights, bringing out his faith in our profession, in our Association, and, above all, in the destinies of the British Empire, in a way which deeply moved his audience. Verrall made many friends for himself and our Association in Canada, and I know his loss will be deeply felt by them.

Greatly as I feel his death, I am even more conscious of the value of his life and personality to our Association, and I am sure that is the way he would like to be thought of just now. He was, I think, the one who suggested the two beautiful phrases which adorn our Memorial Gates: "Faithful hath been your warfare" and "Memory and praise." Though these words were chosen as a tribute to our fallen members, they can very appropriately be applied to one who gave abundantly of great gifts to the service of his fellows in the medical profession. How moved he was by the resolution which the Representative Body passed at Manchester, and how glad we must all be that we did not wait until he was gone, but told him, in his presence, how proud and how fond we were of him. He was a great B.M.A. personality; an upright man in whose presence you simply could not say a mean or a base thing; a fine specimen physically and mentally of the British gentleman; and there is not one of us who had the privilege of working with him who is not a better man for his friendship.

[The photograph reproduced is by Herbert Lambert, Bath.]

The following well-known foreign medical men have recently died: Professor Ardin-Delteil, dean of the Faculty of Medicine of Algiers; Professor O. Kutvirt, director of the Czech oto-rhino-laryngological clinic of the Karl University at Prague, and founder and president of the Czech Oto-laryngological Society; Professor René Fortier, who had held the chair of hygiene and paediatrics at the Quebec Faculty of Medicine since 1894, aged 63; Dr. C. Papastratigakis, an eminent neurologist of Athens; and Dr. Amédée Pugnat, professor of oto-laryngology at Geneva, aged 55.

WILLIAM GORDON, M.D., F.R.C.P.,

Consulting Physician to the Royal Devon and Exeter Hospital, and the West of England Eye Infirmary.

WITH deep regret we have to record the death, at Exeter, on October 1st, of Dr. William Gordon, after an illness of a few weeks. His passing takes from that city her most distinguished physician, whose fame as a consultant was widespread in the West of England. The death, in July, of his brother, Mr. T. E. Gordon, president of the Royal College of Surgeons in Ireland, moved him very deeply, and some weeks later he contracted an influenzal infection from which he failed to recover.

William Gordon was born in County Tyrone, in 1863. After winning an exhibition and a scholarship at Trinity College, Cambridge, he obtained a first class in both parts of the Natural Science Tripos; he then continued his medical education in Heidelberg, and in University College Hospital, London. He received the diploma L.R.C.P. in 1888, and graduated M.B., B.Ch.Camb. in 1890, proceeding M.D. four years later. In 1891 he became M.R.C.P., and was elected F.R.C.P. in 1903. Exeter then became the centre of his professional life, and his scientific skill and clinical wisdom rapidly won for him a great reputation as an expert diagnostician in cardiac and pulmonary conditions. The special interest he took in pulmonary tuberculosis—then one of the least hopeful spheres of medicine—led to an invitation from the Devon County Council to investigate the cause and effect of this disease as regards that county. He subsequently made a close study of the influence of strong, prevalent, and rain-bearing winds on the incidence of phthisis; the report and the statements which he published later attracted considerable attention and provoked no little discussion. The problems concerned with the diagnosis and treatment of cancer were also of special interest to him. Among the appointments he held in the Exeter area were those of physician to the West of England Eye Infirmary, and of the Exeter Dispensary in Queen Street. For many, however, his memory will be most closely associated with the outstanding work he carried on at the Royal Devon and Exeter Hospital, where, until last year, he was senior physician. Always a scientist, he was foremost in adopting the most effective scientific methods in his clinical work, and he made this hospital a leading centre of medical progress in the West of England. On his retirement last year under the age limit, he was appointed consulting physician to the hospital. During the war he acted as medical officer of No. 1 Temporary Hospital at Exeter from October, 1914, to February, 1918. He contributed numerous articles to British and American medical journals, and at the congress in Zürich of the Royal Institute of Public Health last spring he read by request an article on phthisis.

Dr. William Gordon was a most distinguished member of the British Medical Association, and his work under its aegis was soon recognized as being of national importance. He was a member of the Council from 1893 to 1897, and from 1896 to 1898 he was chairman of the Parliamentary Bills Subcommittee on Army Medical Reform; in this capacity he played a prominent part in the founding of the Royal Army Medical Corps. Since the early eighties the British Medical Association had endeavoured to relieve the then existing Army Medical Service of the serious incubus which prevented its attracting the better-trained members of the profession. Year after year the fight continued, but little progress was made, despite the efforts of Mr. Ernest Hart, then Editor of the *British Medical Journal*. Dr. Gordon threw himself into the campaign, and drafted a comprehensive and convincing report embodying the history of the whole question and the reforms necessary. Lord Lansdowne, the then Secretary of State for War, received a deputation from the British Medical Association, and Dr. Gordon also visited him subsequently in order to ensure the whole position being made clear. This resulted in a Royal Warrant being promulgated in June, 1898, establishing the right of medical officers in the army to all the ranks open to military officers, and creating the Royal Army Medical Corps. Dr. Gordon's triumph in this respect was recognized officially by the British Medical Association, and at the Edinburgh Meeting in July, 1898, the President, Sir Thomas Grainger Stewart, publicly congratulated him, and expressed the thanks of the Association for his fine achievement. Dr. Gordon also rendered valuable services as a member of the Constitution Committee of the Association, which came into being in 1900, and brought about far-reaching changes in the ensuing two years. His interest in such matters did not, however, distract his attention from the needs of the Association in the West of England; he served as honorary secretary of the South-Western Branch from 1895 to 1897; he was a member of the Branch Council from 1898 to 1923, and again from 1927 to 1929; he was president of the Branch from 1924 to 1925, and vice-president from 1928 to 1929. He gave the utmost support to the Exeter Division; he was a member of the Executive and Ethical Committees from 1915 to 1921, vice-chairman from 1920 to 1922, and chairman the following year. When the British Medical Association met at Exeter in 1907 he was president of the Section of Medicine, and in 1913 he was vice-president of the Section of Climatology and Balneology at the Annual Meeting at Brighton. Dr. Gordon was a Fellow of the Royal Society of Medicine; Hyde Lecturer in 1913; president of its Balneological and Climatological Section from 1915 to 1917; and vice-president of its Section of Medicine from 1923 to 1925.

Mr. RUSSELL COOMBE, F.R.C.S., sends the following tribute:

I have been asked to write a few personal notes about Dr. Gordon. It is not easy to do this about one whom one has known for nearly half a century, for I first made his acquaintance at Cambridge in 1882. During the forty years he has been in Exeter we have always been close friends, and for the last thirty years on terms of brotherly intimacy. He was the most loyal of friends, an upright, courageous, conscientious man; one to be trusted to the uttermost. It is as a great scientific physician that we must think of William Gordon. He worked at science at Cambridge for a year before entering the University. It was a time of immense scientific enthusiasm: the eagerness of that band of scientists whom Sir Michael Foster had

gathered round him when he founded the Cambridge scientific school was at its highest pitch; men like Sherrington, Rolleston, Bateson, Shipley, Adami, Henry Head, and Threlfall were of his time, and he was a member of the University Natural Science Club. At Trinity College, and later at University College Hospital, he and Michael Foster were great friends, and so Gordon came very directly under his influence; Langley had recently obtained his fellowship at Trinity, and from him he must have derived still further inspiration. The degree he took in the time of such a scientific galaxy speaks for itself.

Gordon came to Exeter in 1890, and, there being a vacancy for a physician on the hospital staff, he was elected to it. Thus at the early age of 27 he obtained the care of one-third (shortly to become one-half) of the medical beds in a hospital of over 200 beds. As the physicians also had charge of out-patients, he was provided with a large clinical experience at once. Here again his scientific enthusiasm and training were at once apparent. He spent a vast amount of time in the most accurate observation and careful recording of his patients' symptoms. His industry was immense, and the whole of his records were carefully tabulated and scientifically collated. No mean pianist, he had a most accurate ear for music, and it was this that enabled him to obtain the great results which he achieved in percussion. It was this also that led to his accurate observations on the changes in the heart dullness in varying postures; he could detect early lung changes that were lost to others. As a surgeon I am unfit to assess his medical achievements, but we frequently met in doubtful and anxious cases, and I never failed to be impressed by the scrupulous care of his methods and by the accuracy of his conclusions. He was invaluable to me as a medical consultant. His scientific methods led to diagnoses by exclusion that were almost uncanny. I remember a case in which he astonished everyone by diagnosing early spinal caries; there were no physical signs and merely some vague nerve symptoms, but he said "it couldn't be anything *else*." He was justified some months later. Outside his professional work he was a great reader of history, and to it he applied his scientific methods. With infinite pains he drew up parallel records of contemporary happenings throughout the world in successive centuries; his highly retentive memory enabled him to keep these synopses in mind, so that when anyone started him on the subject he revealed a wealth of historical information that was truly amazing. It may be recalled that early in 1927 he read a paper before a meeting of the Devon and Exeter Medico-Chirurgical Society reviewing the medical history of twenty-five centuries; this paper was subsequently printed privately, and was welcomed as a most valuable and interesting summary of medical progress by "periods."

I wondered at first at his coming to Exeter; it hardly seemed a big enough sphere for his scholarly attainments, and some time after his arrival I inquired his reasons. He told me of his extremely keen interest in medicine; that the opportunity of getting immediate clinical work attracted him and was not one to be lost; and that if he only succeeded in laying firmly one brick in the edifice of medical knowledge he would have his reward. Who shall say that he has not so laid—well and truly—and that his life's purpose has not been fully realized? There was no guessing about his methods; his conclusions were all the result of most careful observation. For myself, I have lost the last intimate of my own standing, and it is with a sad heart that I write the word *Vale*.

Dr. F. W. Burton-Fanning (Norwich) writes:

As an old friend of Dr. William Gordon, our friendship going back to student days at Cambridge and at University College Hospital, I welcome an opportunity to send a few *lines of appreciation*. As a consultant and in the wards of the Royal Devon and Exeter Hospital his kindness of heart, his sterling character, and his keen intellect soon won him recognition. Thirty years ago Dr. Gordon was convinced that strong rain-bearing winds had an influence on the prevalence of pulmonary tuberculosis, and in 1910 he published his work on the subject, which represented an exhaustive and laborious inquiry into phthisis mortality statistics and into the meteorological conditions of Devonshire. He had gone so deeply into his thesis that he was fully prepared with vigorous answers to his critics, and his name will always be associated with his particular views on this question. To the last his industry and mental activity were in evidence. In addition to many original contributions to clinical medicine, his fertile brain produced a volume of poems written after the war. A remarkable man has passed, and his friends will remember his warm-heartedness and his many-sided activities.

[The photograph reproduced is by Heath and Benelucc, Exeter.]

We regret to record the death, in his sixty-seventh year, of Dr. Horron Davies, which took place on September 1st at his home in Leicester. Horron Davies received his medical education at Glasgow University, qualifying L.R.C.P.Ed. and L.M. in 1882, and M.R.C.S.Eng. in 1883. Later he graduated M.D.Brux., with honours, in 1886. Having held appointments as house-surgeon to the Glasgow Royal Infirmary, and for three years as resident medical officer to the Denbighshire Infirmary, he proceeded to build up a general practice in Leicester, where, by his professional skill and friendly personality, he soon made himself popular among all sections of the community. A man with strong political interests and prominent in the Conservative party, Horron Davies closely identified himself with the public life of Leicester, becoming a member of the city council in 1889 and a justice of the peace in 1903. In association with the late Sir John Rolleston he was responsible for the creation of the Leicester Poor Boys and Girls' Summer Camp, and in many other ways was active in social, political, and philanthropic work. Davies was a keen member of the British Medical Association, and vice-president of the Midland Branch; when, in 1905, the British Medical Association held its annual meeting in Leicester, he took a prominent part in the work of organization. In the same year he was asked to become mayor of Leicester, an honour which he reluctantly found himself unable to accept. During the great war he was major in the R.A.M.C., and served at the base hospital, Leicester. Horron Davies contributed a number of papers to the medical journals, among them "Gangrene of distal parts following erysipelas" (*British Medical Journal*, 1892); "The practical working of the Leicester system" (*Lancet*, 1893); "Reinsertion of teeth, with cases" (*Quarterly Medical Journal*, 1898). He is survived by a widow and one son.

Dr. Walter Anson Smith of Shelburne Falls, Massachusetts, news of whose death, at the age of 72, has reached this country, graduated M.D. in the University of Vermont in 1882. After practising in several towns he settled at Springfield in 1894, where he continued his practice until 1922. He was one of the founders of the Mercy Hospital, which he served as a member of the medical staff, and subsequently as consultant, until ten years ago. He also took a prominent part in the foundation of the Springfield Academy of Medicine, of which he was at one time president. During a period he spent in England in post-graduate study at Birmingham, under the late Lawson Tait, he joined the British Medical Association and retained his membership until his death. In 1905 he was appointed surgeon, with the rank of lieutenant-colonel, in the First Brigade of the Massachusetts Volunteer Militia, and in October, 1907, when the militia came under national control, he became a major in the medical department. He is survived by a widow and one son.

The death took place, on September 28th, in a nursing home at Aberdeen, of Dr. Peter Mitchell, who for many years had been a well-known practitioner in that city. Dr. Mitchell was born in 1864 at Inverarn, Banffshire, and graduated M.B., C.M. at Aberdeen in 1894; he proceeded M.D. four years later. After practising for a short time at Newtonhill, Kincardineshire, he took up work in the East End of Aberdeen, where he conducted a large practice for some thirty years. Having joined the 5th Volunteer Battalion Gordon Highlanders as a surgeon lieutenant in 1898, he was afterwards transferred to the

Aberdeen Company of the Royal Army Medical Corps (Volunteers). On mobilization at the outbreak of the war he was placed in charge of the local hospital; in 1916 he was appointed to the command of the 45rd General Hospital at Salonika, where he remained till he was demobilized in 1918 with the rank of lieutenant-colonel. He had been mentioned in dispatches, and in 1918 received the Territorial Decoration. Dr. Mitchell worked in partnership with a brother; another brother, Sir William Mitchell, was *Vice-Chancellor of the University of Adelaide*, and was knighted by the King in 1926 for services to the Commonwealth of Australia. Dr. Peter Mitchell is survived by a widow and a family, including three daughters, who are all graduates in medicine of Aberdeen University, and a son.

Dr. GEORGE GEDDES of Heywood, Lancs, *died on October 1st, after an illness of only about half an hour's duration*, at the age of 61. Dr. Geddes graduated M.B., C.M.Aberd. in 1892, and proceeded M.D. in 1903. He settled in general practice in Heywood about thirty years ago, and held several public appointments, including those of medical officer for Heywood district of the Bury Poor Law Union and medical officer to the post office. He took great interest in the public life of the district; in 1923 he entered the Heywood town council and was vice-chairman of the education committee. In 1926 he was made a justice of the peace, and he took a very active part in the local branch of the League of Nations Union. In religion he was a member of the United Methodist Church and was the circuit steward for the Heywood circuit. He was a loyal member of the British Medical Association, and had served in the Rochdale Division as chairman from 1913 to 1918, vice-chairman in 1912, and as a member of the executive committee. He was keenly interested in the question of puerperal sepsis, and was the author of a monograph on the subject. In 1924 he was awarded the Nicholls Prize by the Royal Society of Medicine for his work on puerperal septicaemia. His funeral on October 3rd, at Heywood, was attended by a large gathering of his medical and municipal colleagues and patients.

The Services.

DEATHS IN THE SERVICES.

Surgeon Captain Richard Miller, R.N. (ret.), died after an operation in the Cottage Hospital at Fleet, Hants, on September 12th, aged 67. He was educated at Trinity College, Dublin, where he graduated as M.B. and B.Ch. in 1833. After filling the posts of assistant medical officer and deputy superintendent of Bethlem Royal Hospital, and of temporary medical superintendent of the East Riding Asylum, Yorks, he entered the navy as surgeon in 1887, attained the rank of fleet surgeon on February 28th, 1903, and retired on August 26th, 1917, with an honorary step as surgeon captain. After retirement he went into practice at Stock, Essex, where he was medical officer and public vaccinator of the 7th Division of the Chelmsford Union and certifying factory surgeon, retiring from practice last year. He received the bronze medal of the Royal Humane Society on February 28th, 1889, when serving as surgeon on H.M.S. *Iron Duke* at Gibraltar, for jumping overboard, fully dressed, to the assistance of Corporal Hill, R.M.L.I., and getting him safely on board again, while an easterly gale was blowing and a heavy sea running. In December, 1911, he was appointed to the charge of the Naval Mental Hospital at Great Yarmouth, and served there for five years, till July, 1916, when he was appointed senior medical officer of the battle-cruiser H.M.S. *Princess Royal*, receiving the medals granted for service in the recent great war.

Lieut.-Colonel Jerome William Morgan, R.A.M.C. (ret.), died at Seend, Wilts, on August 26th, aged 85. He was born on June 27th, 1844, and was educated in Dublin, where he took the L.R.C.S.I. in 1865 and the L.K.Q.C.P. in the following year. Entering the army as assistant surgeon on April 1st, 1867, he served in the 6th Foot, now the Royal Warwickshire Regiment, became surgeon major after twelve years' service, and retired, with an honorary step as brigade surgeon, on August 31st, 1887. He served with the 6th Foot in the Hazara campaign on the north-west frontier of India in 1868, receiving the medal with a clasp; and in the Sudan campaign in 1884, receiving the Egyptian medal and the Khedive's bronze star. He also received the thanks of the Indian Government for his services during a cholera epidemic at Peshawar in 1872.

Lieut.-Colonel James John Conway Donnati, R.A.M.C. (ret.), *died at Eastbourne on September 20th, aged 71. He was born* at Lisbon on June 18th, 1858, educated at King's College Hospital, and took the M.R.C.S. and L.R.C.P.Ed. in 1882. Entering the army as surgeon on February 2nd, 1884, he became lieutenant-colonel after twenty years' service, and retired on May 7th, 1913, rejoining for service in the recent war of 1914-18. *He served in the Nile* campaign in the Sudan in 1884-85, receiving the Egyptian medal with a clasp, and the Khedive's bronze star; also in the Sudan in 1889, when he was present at the action at Toski, and received another clasp.

Major Willis Clarence Connell, R.A.M.C., died in the British *Military Hospital at Delhi* on August 12th. He was educated at Toronto University, where he graduated as M.B. in 1916, subsequently becoming M.C.P.S.Ontario in 1919. He joined the R.A.M.C. as a temporary lieutenant on July 21st, 1916, became temporary captain, and, after a year's service, got a permanent commission as captain on January 24th, 1920, becoming major last year. He served in the war of 1914-18. He recently held the appointments of staff surgeon, Mhow, and of midwifery and gynaecology specialist of the Central Provinces District, India.

Major William Henry Forsyth, D.S.O., R.A.M.C., died at Bexley, Kent, on September 17th, aged 47. He was the third son of the late Charles Forsyth, J.P., of Northside, Berwick-on-Tweed, and was educated at Edinburgh University, where he graduated as M.B. and Ch.B. in 1904, subsequently taking the D.T.M. and H. in 1910. Entering the R.A.M.C. as lieutenant on July 30th, 1906, he became major after twelve years' service. He served throughout the war of 1914-18, was twice mentioned in dispatches—in the *London Gazette* of May 20th, 1917, and December 30th, 1918—and received the D.S.O.

Universities and Colleges.

UNIVERSITY OF LONDON.

AT the meeting of Convocation on October 8th Earl Beauchamp was elected to the vacancy in the Chancellorship caused by the death of the Earl of Rosebery.

At the September matriculation examination there were 78 successful candidates in the first division and 437 in the second division; in addition, 27 obtained the supplementary certificate for Latin.

LONDON HOSPITAL MEDICAL COLLEGE.

The following entrance scholarships have been awarded:—Scholarships in Science, £100 and £50: H. Caplin and R. Solly, equal; scholarships divided. Scholarship in Science open to students of Epsom College: J. N. Morrison. Scholarships open to students of the Universities of Oxford and Cambridge: (1) Price Scholarship in Anatomy and Physiology, £100: R. A. Jones and J. M. Vaizey, equal; scholarship divided. (2) "Freedom" Scholarship in Pathology, £100: J. F. Brock.

UNIVERSITY COLLEGE.

A public lecture on medicine in the days of Shakespeare will be given by Dr. Herbert R. Spencer at University College on November 25th at 2 p.m.

UNIVERSITY OF BIRMINGHAM.

Faculty of Medicine.

THE following prizes were presented to the successful candidates by Sir E. Farquhar Buzzard, Bt., K.C.V.O., M.D., F.R.C.P., on October 1st:

Peter Thompson Prize (for Anatomy) and Foyle Prize (awarded in 1928-29 for Physiology), P. J. Stoy; Arthur Foxwell Gold Medal (for Clinical Medicine — Final M.B., Ch.B. Examination) and Ingleby Prize for Midwifery and Diseases of Women (value £10 Final M.B., Ch.B. [illegible] Smallwood; Sampson Gamgee Gold Medal (Ch.B. Examination), C. St.Johnston E. G. Abdel-Malek. Prizes awarded: Bond: Senior Medical Prize, Senior Prize (Gold Medals), W. C. Smallwood; Junior Surgical Prize (Silver Medal), G. R. Bashford.

UNIVERSITY OF LIVERPOOL.

THE following candidates have been approved at the examination indicated:

D.P.H.—J. L. Clegg, R. L. Corlett, R. W. Eldridge, A. B. Follows, R. S. Jarvis, J. C. McVittie, R. J. Ormsby, D. E. P. Pritchard, D. Regan, F. C. Speechly.

ROYAL COLLEGES OF PHYSICIANS AND SURGEONS, IRELAND.

THE following candidates have been approved at the examination indicated:

D.P.H.—E. J. Daly, A. B. Monks, T. V. C. Nolan, J. H. Owen-Flood.

Medical News.

Four lectures on "How England learned to control disease" will be given by Sir George Newman, K.C.B., at Gresham College, Basinghall Street, E.C.2, on October 15th, 16th, 17th, and 18th at 6 p.m. Admission to the lectures is free.

The Long Fox Memorial Lecture will be delivered in the Physiological Lecture Theatre of the University of Bristol by Mr. A. Rendle Short, M.D., F.R.C.S., on Tuesday, October 22nd, at 8.30 p.m.; the subject will be ten years' progress in surgical treatment.

Sir Leonard Rogers will deliver the inaugural address to the Abernethian Society of St. Bartholomew's Hospital on the evening of Thursday, October 24th. His subject is "Climate and disease: forecasting epidemics in connexion with small-pox, cholera, and plague."

The annual dinner of past and present students of University College Hospital will be held at the Hotel Cecil on Friday, October 25th, at 7 p.m. Tickets may be obtained on application to the honorary secretaries at the Medical School.

The Royal Microscopical Society will hold its annual pond life and general microscopical exhibition in the lecture hall and library at 20, Hanover Square, W., on Wednesday, October 16th, at 7.30 p.m.

The annual Corporate Communion of the Guild of St. Luke will be celebrated at Grosvenor Chapel, South Audley Street, W.1, on *St. Luke's Day, Friday, October 18th*, at 8.15 a.m. The annual general chapter will be held the same afternoon, at 5 o'clock, at King's College, Strand. The annual service will be held in Westminster Abbey on Sunday, October 20th, at 6.30 p.m., when the Bishop of Bradford will preach; members are invited to wear academic dress and to robe in the Jerusalem Chamber, after notifying in advance the secretary of the Guild, King's College, Strand.

The general meeting of the Guild of St. Luke, St. Cosmos, and St. Damian will be held in the Westminster Cathedral Hall, Archbishop's House, on *Sunday, October 20th, immediately* after High Mass in the Cathedral, which will be celebrated at 10.30 a.m. Annual reports will be received, and the officers and council will be elected.

The opening lecture of the series on common complaints, arranged by the Fellowship of Medicine, will be delivered at the Medical Society of London, 11, Chandos Street, Cavendish Square, W.1, on Monday, October 14th, at 5 p.m., by Dr. F. G. Chandler, whose subject will be the treatment of pulmonary tuberculosis. On the same afternoon, from 2 to 4, Dr. W. Griffith will give a clinical demonstration at St. John's Hospital for Skin Diseases (Leicester Square); on October 17th Mr. McAndrew will give a demonstration at the Samaritan Hospital for Women at 2.30 p.m. Both demonstrations, as well as the lecture, are free to medical practitioners. The series of sixteen lectures arranged for M.R.C.P. candidates will begin on October 15th, and will continue until December 6th. The lectures are given on Tuesdays and Fridays at 8.30 p.m. at the Medical Society of London. From October 14th to 26th a morning course will be held at the Hospital for Sick Children, and a course in gynaecology at the Chelsea Hospital. There will be an intensive course at the Central London Throat, Nose and Ear Hospital from October 14th to November 2nd, comprising operative and pathological classes. An intensive course in medicine, surgery, and the specialties will continue at the Metropolitan Hospital from October 21st to November 2nd. Copies of all syllabuses, information regarding the general course of work at the associated hospitals, and specimen copies of the *Post-Graduate Medical Journal* may be obtained from the secretary of the Fellowship, 1, Wimpole Street, W.1.

The fourth of a series of dances in aid of the Royal Medical Benevolent Fund Guild will be held in the Great Hall of the British Medical Association, Tavistock Square, W.C.1, on October 31st, from 8.30 to 12.30. Tickets, price 11s. double and 6s. single, may be obtained from Miss English, 82, Brook Street, W.1; Mrs. G. A. Ewart, 25a, Norfolk Crescent, Hyde Park, W.2, and Mr. H. Ferguson, St. George's Hospital, S.W. Application for bridge tables should be addressed to Mrs. Harold Barwell, 39, Queen Anne Street, W.1.

The international congress of cancer research will be held at Barcelona from October 28th to 30th. The international congress of microbiology, which was to have taken place this month, has been postponed until next July.

Under the auspices of the National Council for Mental Hygiene, in association with the joint committee of the National Council for Mental Hygiene and the Tavistock Square Clinic, a conference on mental health will be held at the Central Hall, Westminster, from October 30th to November 2nd. The subjects for general discussion will be: sex education, the personal equation in industry, child and parent, and delinquency; in addition, magistrates and probation officers will hold a group discussion on the working of the juvenile courts, public health nurses and social workers on the relation of their work to the mental health of the community, and parents and teachers on the problem child at home and in school. The cost of an inclusive ticket (to cover the whole conference) is 7s. 6d., for a single session 2s., and for a single group discussion 1s. Further particulars may be obtained from the secretary, National Council for Mental Hygiene, 78, Chandos House, Palmer Street, S.W.1.

The King has granted permission to Sir Charles H. Bedford, D.C.L., LL.D., M.D., D.Sc., Lieut.-Colonel I.M.S. (retired), to accept and wear the Insignia of Knight Grand Cross of the Order of Civil Merit of Spain, bestowed upon him by H.M. the King of Spain for specially distinguished services.

The offertory at the Liverpool annual medical service in the Cathedral on October 13th, at 3 p.m., will be in aid of the Royal Medical Benevolent Fund. The preacher will be the Bishop of Derby, and the Lord Mayor and Lady Mayoress will be present. Medical practitioners and their friends are cordially invited to attend. Tickets may be obtained from Dr. R. Kennon, 28, Rodney Street, Liverpool.

On October 6th the staff of the Public Health Office of the Blackpool Corporation presented Dr. E. W. Rees-Jones, medical officer of health for Blackpool, with a gold hunter watch suitably inscribed, in recognition of the services he had rendered during his twenty-one years of office. On the same day Dr. Rees-Jones was the recipient of a presentation from the nursing staff at the sanatorium, Talbot Road.

The London School of Dermatology commenced its winter session last week with a lecture on "The rise and progress of dermatology," delivered by Dr. James H. Stowers at St. John's Hospital for Diseases of the Skin, Leicester Square. Lectures will be given every Tuesday and Thursday throughout the winter months.

At a meeting of the Society of Public Analysts on October 2nd H. E. Cox, M.Sc., Ph.D., read a paper on chemical tests in relation to fur dermatitis. He stated that paraphenylene diamine, the intermediate most frequently used in the process of dyeing furs, was also the most toxic, and expressed the view that the so-called Bandrowski's base was not a fast final product; it was, he said, easily reduced, re-forming p-phenylenediamine, and so might be an indirect cause of irritation. In the *British Medical Journal* of June 8th (p. 1048), attention was drawn to the risk of severe dermatitis attending the use of paraphenylenediamine as a hair dye.

The forty-fourth annual meeting of the Caledonian Medical Society was held at the residence of the medical superintendent (Dr. David Blair), County Mental Hospital, Prestwich, Manchester, on October 4th, under the presidency of Dr. D. Sage Sutherland. The president took as the subject of his address the journey of Johnson and Boswell through Scotland *en route* to the Hebrides in 1773, referring especially to that part of it which lay through the county of Inverness. A number of books of interest in connexion with the subject were on view. A vote of thanks was proposed by Dr. W. E. Henderson (Windermere). The annual dinner took place the same evening at the Queen's Hotel, Manchester, with Dr. Sutherland in the chair. The speakers included Judge Leigh, Mr. A. H. Burgess (President of the British Medical Association), Mr. Harry Platt, Dr. Cameron Blair, and Dr. Corsar Sturrock. On the next morning visits were paid to places of interest in the city, such as the Ryland Library and Chetham's Hospital, and in the afternoon members enjoyed a drive through Knutsford and the Gaskell country to Alderley Edge, where they were hospitably entertained by Professor and Mrs. A. Donald.

Dr. G. Stuart, Colonial Medical Services, has been awarded the North Persian Forces Memorial Medal for 1928 for his paper on "The serological diagnosis of the enterica by the method of qualitative receptor analysis," written in conjunction with Dr. K. S. Krikorian, and published in the *Journal of Hygiene*, November 26th, 1928, p. 105. This medal is awarded annually for the best paper on tropical medicine or hygiene published in any journal during the preceding twelve months by a medical officer, of under twelve years' service, of the Royal Navy, Royal Army Medical Corps, Royal Air Force, Indian Medical Service, or of the Colonial Medical Service.

Count Wladislaus Semsey, one of the richest magnates in Hungary, has presented 300 milligrams of radium to the Hungarian Minister of Public Health for the treatment of cancer.

Dr. Louis Davraigne, head of the maternity department of the Hôpital Laribaisière, Paris, has been nominated the successor of Dr. Jules Comby in the presidency of the Pierre Budin Foundation of Puericulture.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.**

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The **TELEPHONE NUMBERS** of the British Medical Association and the *British Medical Journal* are *MUSEUM 9861, 9862, 9863,* and *9864* (internal exchange, four lines).

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FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*

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The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone 24361 Edinburgh).

QUERIES AND ANSWERS.

TREATMENT OF METRORRHAGIA.

DR. [illegible] in reply to an inquiry as to [illegible] ublished an article in the *Pr* [illegible] current in treatment of uterine haemorrhage," with details of the method of copper ionization adopted in several cases. In one of these every form of treatment had been tried, and hysterectomy was being considered by the gynaecologist who sent the patient to me as a last resort. *The late Dr. Sloan, in his book Electro-therapy in Gynaecology*, describes this method, and much has also been written on the subject by Dr. Zimmern of Paris.

TREATMENT OF SEVERE HEADACHE WITHOUT PHYSICAL SIGNS.

DR. I. SACKS (Winburg, South Africa), in reply to the inquiry of "M.B." under the above heading (August 17th, p. 330), recommends the administration, every two hours, of liquor sedans (Parke, Davis and Co.) in doses of one drachm in a wineglassful of warm water, with or without the addition of bromide.

INCOME TAX.

Cash Basis and Debts.

"J. M. J." has been requested by the local inspector of taxes to state the gross amount of fees earned in the year, and to explain how bad debts are dealt with. The gross income of the practice has been returned for assessment on the cash basis.

*** The basis which is legally correct is the value of the gross bookings of the year—that is, the nominal amount less a reasonable and carefully considered allowance for bad and doubtful debts. Where the practice is not materially increasing or decreasing from year to year, the amount of cash received is a fairly accurate indication of the value of the bookings, and in such cases the revenue authorities usually accept the cash basis, especially in such a case as this, where the loss in bad debts is heavy and the amount difficult to estimate. If "J. M. J." puts these points to the inspector it may very well be that he will agree to the cash basis being continued.

Cash Basis for Return.

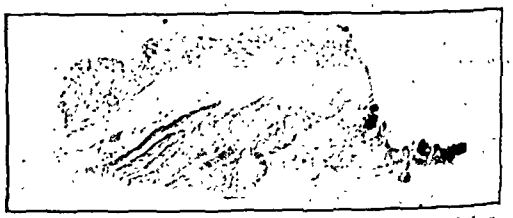
"W. H. P." was formerly in practice with his father, but the latter died three years ago. The accounts have always been prepared on a cash basis, but the inspector of taxes is now asking for a "certificate that the receipts represent gross earnings—cash and credit."

*** The inspector of taxes has no legal right to demand this information, but it is a question relevant to the amount to be assessed, and the Commissioners who have that right would probably insist on the information being given, if necessary. Assuming that the gross income of the practice has been reasonably constant during the past three years, the cash basis would yield approximately the same result as the basis of taking the *value* of the year's bookings, and if that assumption is justified we suggest that our correspondent should state the fact in his reply and point out in that case the gross receipts as returned for assessment, though calculated according to the amount of cash received in any particular year, do fairly "represent the gross earnings—cash and credit." If the nominal amount of the outstanding debts at the end of each year can be calculated without undue trouble, it might be worth while giving those figures as proof that the real income of the practice has not been rising, and therefore that the cash basis is not unfair to the Revenue.

LETTERS, NOTES, ETC.

CHRONIC GASTRIC ULCER IN A SEA-LION.

MR. DOUGLAS ROBB, M.D., F.R.C.S., assistant surgeon, Auckland (N.Z.) Hospital, sends the following interesting note. An elderly male sea-lion (*Arctocephalus hookeri*) in the Auckland Municipal Zoo was unexpectedly found dead one morning. The animal had been taking its food (mainly fish) well, and seemed in good condition, though of late unwilling to take its usual exercise. There had been a period, some months previously, when it had become very thin, though latterly its appearance had returned to



omental tissue, in which the eroded artery was found.

normal. Post-mortem examination showed the cause of death to be a large haemorrhage into the stomach from a chronic ulcer. The ulcer was 2 in. in diameter, and situated on the posterior surface of the stomach, at the junction of the middle and distal thirds, near the lesser curvature. It resembled in all respects the chronic peptic ulcer of man, having eroded cleanly through mucosa, submucosa, and muscle, and having for its base peritoneal and omental tissues in which an artery about 1 mm. in diameter had been eroded. There was no adhesion of the base to pancreas.

"CONDITIONING" OF BEEF.

THE Food Investigation Board of the Department of Scientific and Industrial Research has issued a report by T. Moran and E. C. Smith, entitled "Post-mortem changes in animal tissues—the conditioning and ripening of beef." The authors, after a protracted investigation, concluded that hanging, or, as it is sometimes called, "conditioning," has a favourable effect on the palatability and tenderness of meat, especially of the coarser cuts. They found that beef could be stored for seventeen days at a temperature ranging from 32° to 41° F. and still reach the consumer essentially unaltered, save for an improvement in its palatability. From their observations of the post-mortem changes in animal tissues they are convinced that conditioning of beef may be carried out at central abattoirs, and they propose a procedure whereby such conditioning may be secured efficiently. The report may be obtained from H.M. Stationery Office, price 2s. net.

LECTURERS ON HYGIENE.

MRS. C. NEVILLE ROLFE, secretary-general, British Social Hygiene Council (Carteret House, Carteret Street, S.W.1), writes: The British Social Hygiene Council are undertaking a considerable amount of campaign work during the coming winter, and would be glad to receive applications from medical men and women willing to give single lectures in London or to undertake short campaigns in the provinces. The fee for a single lecture in London is 1 guinea.

AN APPEAL.

THE colleagues of the late Dr. W. E. Powell are trying to raise a fund to help his widow and family of young children; Dr. Powell died at an early age, before he had time to make the necessary provision himself. The Brighton and Sussex Medico-Chirurgical Society and the Brighton Division of the British Medical Association have jointly launched an appeal, and [illegible] rect to J. G. Ellis, [illegible] Street, Brighton, surer to the fund.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 49, 50, 51, 52, 53, 56, 57, 58, and 59 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 54 and 55.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 171.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

305. Apical Tuberculosis.

Investigations during the last five years have clearly demonstrated that, the more carefully early cases of pulmonary tuberculosis are studied, the larger will be the proportion found of lesions originating below the clavicle. M. Fishberg and A. Shamaskin (*Journ. Amer. Med. Assoc.*, July 13th, 1929, p. 108) quote from a study by Fowler of the pathological anatomy of the tuberculous lung that the earliest lesions are, as a rule, located below the clavicle, and that, with the progress of the disease, they extend upwards to the apices and downwards to the lower lobes. Braeuning, Lydtin, and many other authorities have stated that the first lesion seen on the radiogram in active and progressive tuberculosis is in more than 90 per cent. of cases situated below the clavicle, most commonly towards the axillary region, while the apices remain free. With the appearance of these lesions, the symptoms of active phthisis are more or less pronounced. When the physical signs clearly show an apical lesion the process has lasted for some time, and extended from the infraclavicular localization to the apex. The present authors have examined the radiograms in 1,000 cases of tuberculosis with the clinical history and course of the disease in each instance. In 160 cases the *x*-ray signs were quite clear. In 107 the earliest localization of lesions was infraclavicular, and in 60 supraclavicular. In 31.7 per cent. with apical lesions, the patients survived for ten or more years after the first symptoms of the disease, and, despite extensive involvement of the apices, felt fairly well. Fishberg and Shamaskin conclude that pulmonary tuberculosis limited to the apex usually has a benign course, and in many cases there is no need for prolonged treatment. Though the physical signs and radiographical changes may persist for many years, the patient survives and may be able to work, even though suffering at irregular intervals from exacerbations, which are usually mild and abate. The presence of the initial lesion below the clavicle is of greater clinical significance, and in most cases demands immediate attention. Such cases almost always occur in persons under the age of 35. Patients with apical lesions generally have less marked constitutional symptoms, especially fever. Haemoptysis occurs in both groups, but those patients with lesions below the clavicle are more apt to bleed copiously. Open tuberculosis is found in only 15 per cent. of apical, as against 66.4 per cent. of infraclavicular lesions; the former, therefore, are not such a menace as the latter.

305. Anaemia due to Gastric Deficiencies

M. Hochrein (*Münch. med. Woch.*, August 9th, 1929, p. 1327) describes two cases of anaemia occurring in patients on whom seven and eight years previously gastrectomy had been performed. In one case the blood picture suggested pernicious anaemia, in the other the picture was that of secondary anaemia. In both patients the anaemia was relieved after treatment with liver, the haemoglobin rising from 54 to 70 per cent. and from 43 to 85 per cent. respectively; the red cell counts rose from 1,560,000 to 4,800,000 and from 3,420,000 to 4,460,000 per cubic millimetre respectively. The common factor in these cases was a functional deficiency of the stomach. The author refers to achylia gastrica as being a constant symptom of pernicious anaemia. He concludes that under certain conditions a similar noxious agent can evoke in different individuals quite different reactions, so that various blood pictures may result from similar causes.

307. Iodide and Bromide Rashes.

W. H. Goeckerman (*Minnesota Med.*, July, 1929, p. 408) reports twelve cases of uncommon eruptions following the administration of iodine and bromine. The majority of the patients were women who had been taking the drug, often without medical supervision or advice. The author shows by photographs the varied nature and distribution of the lesions, and points out the impossibility of distinguishing the results of the two drugs. The lesion usually begins with a pustule, but later part of it is commonly warty, the remainder being a crust of inspissated serum and pus with secondary scarring. There is no characteristic distribution, but the legs are most often affected. Final diagnosis can only be made by collateral evidence. Recovery of the drugs from the urine is not always possible, and rarely from the scales and crusts. If the diagnosis cannot be finally settled a small provocative dose of the drug concerned will produce an exacerbation of the symptoms with local reaction in the lesions. Most of the patients in the author's series had taken the drugs for months or years before these unusual lesions appeared. He thinks that severe cases are best treated in bed with cathartics and increased intake of fluids. Mildly antiseptic wet dressings such as those utilizing potassium permanganate or boric acid, are useful. As the fungating lesions dry the crusts should be removed. In painful cases one or two quarter to half skin doses of unfiltered *x* rays have been helpful, and have aided the drying of the lesion. Some cases closely resemble malignant disease in the great proliferation of the epidermal epithelium.

303. Cardiac and Pulmonary Efficiency Tests.

A. Thouvenel (*Paris Méd.*, August 3rd, 1929, p. 123) has recorded the pulse and respiration rate in 80 children of 9 to 14 years of age, before and after exercise, which consisted of the elevation to the horizontal of the lower limbs, right and left alternately, fifty times, at the rate of ten movements in five seconds. The increase in the pulse rate ranged from 8 to 64 per minute, with an average of 33. The return to normal took one minute in 17, two minutes in 14, and two to five minutes in 16 cases. A repetition of the experiment with the same children, after a rest, the same day and on succeeding days, gave, except on one occasion, results that varied from the previous ones by 2 to 34 pulsations per minute. The increase in the respiration rate varied from four to eighteen per minute, an average of eleven. Here, too, it was found that the results obtained were not constant, a repetition of the experiment giving results that varied from the previous ones by two to four respirations per minute. There was no relationship between the increase in the pulse rate and that of the respiration.

309. Hemiplegia of Cardiac Origin.

E. Nedelec (*Thèse de Paris*, 1929, No. 157), who records six cases, in patients aged from 28 to 64, states that of the nervous manifestations encountered in cardiac disease, hemiplegia of various forms is the most frequent. The majority of the cases of hemiplegia are permanent, but a certain number are transient. This transient form of hemiplegia may be met with in all cardiac affections and at all ages, but is most frequent in cardiac disease of long standing. Owing to its organic origin it cannot be distinguished from permanent hemiplegia, except by its evolution. The pathogenesis is not yet clearly understood, the condition being variously attributed to cerebral embolism, vascular spasm, or chronic arteritis. The prognosis is difficult to establish owing to the absence of distinctive clinical signs, but the condition always indicates a serious involvement of the cardio-vascular system.

Surgery.

310. Subphrenic Abscess.

T. H. Russell (*Annals of Surgery*, August, 1929, p. 238) describes a subphrenic abscess as a localized inflammatory process between the domed surface of the liver below and the diaphragm above, the liver and its coronary ligament dividing this area into an anterior and posterior space. The upper part of the subphrenic space is divided into a large right and small left space by the suspensory or falciform ligament, and the liver also divides this space into a supra-hepatic and infrahepatic space. The majority of abscesses occur in the right side, although perforation of the stomach, or pancreatic, splenic, or renal infections, may be complicated by a subphrenic abscess on the left side. The micro-organism most frequently found is the colon bacillus, although the streptococcus, pneumococcus, *B. pyocyaneus*, and rarely the tubercle bacillus may be found. Out of 24 cases recorded, 6 complicated appendicitis and 6 gall-bladder disease, 4 were associated with pneumonia, empyema, or pleurisy, 2 cases followed perforated duodenal ulcers, 2 developed after trauma to the upper abdomen, 1 case was due to exposure, and 1 to abscess formation with actinomycosis of the right pleura and subphrenic space. Subdiaphragmatic abscess may develop rapidly after abdominal infection, but sometimes months, or even a year, may elapse. The symptoms resemble those found in diseases of the lower part of the thorax, with pain in the epigastrium, the right or left hypochondrium, or the lumbar region, and frequently referred to the end of the twelfth rib. The pain is sharp and pleuritic in character,

and in an abscess on the right side a perihepatitis is usually present with rales in the lower chest. Paralysis of the *diaphragm with depression of the liver may* be an early symptom if the abscess is infraperitoneal; the liver does not move up and down freely with respiration, and there may be jaundice or the so-called purulent complexion. When a subdiaphragmatic abscess is well developed the prognosis is grave, the mortality rate being from 20 to 50 per cent. The use of an aspirating needle in making a diagnosis is to be condemned, and should be replaced by an *x*-ray examination. An exploratory abdominal incision in the epigastrium or through the right or left upper rectus muscle gives valuable information as to the best methods of opening and draining the abscess. If the abscess when located is to be drained through the abdomen the pus can be removed without spilling by means of a suction tube, as used by a laryngologist; a counter-incision is then made between the ribs in the lateral or posterior wall of the upper abdomen and through drainage instituted. It is sometimes possible to incise along the costal border down to the peritoneum, which is then stripped, the abscess being entered extraperitoneally. Some cases can be drained through an incision in the ninth or tenth intercostal space if pus is present in the posterior space, a double rubber tube being introduced into the abscess cavity. Early recognition and proper surgical treatment should reduce the present high mortality rate.

311. Suprarenal Virilism.

A. D. FORDYCE and W. H. EVANS (*Quart. Journ. Med.*, July, 1929, p. 557) report two cases of suprarenal virilism with cortical hypernephroma. The first, a boy aged 2 years and 3 months, the son of normal parents, weighed 9¾ lb. at birth, and 3 st. when 8 months old, but towards the end of the second year he lost weight, and at the time of examination he weighed 2 st. 10 lb., and was 2 ft. 10 in. in height. He was shy and of a most rubicund complexion with vivid red hair; his body was covered with downy hairs, and there were coarse hairs on the chin, upper lip, cheeks, breast, axillae, and pubis. The spleen was palpable and both testicles were large and in the scrotum, and the penis was as large as that of an adult. A left cortical hypernephroma was diagnosed; it was found at operation in the position of the left suprarenal capsule and not attached to the kidney. The boy died a few hours after its removal. Pathologically the main tumour was one of the suprarenal cortex, and two metastases were discovered in the liver and brain. No chromaffin tissue could be recognized and the testes were in an undeveloped state. The second patient, a girl aged 2, of normal parents, had red hair and a vivid complexion. The labia and clitoris were much enlarged and there was a profuse growth of coarse hairs, and downy hairs on the upper lip. A large tumour was removed, after which the abnormalities gradually disappeared. The extreme redness of the hair was a striking feature in both cases, and in the case of the boy the larynx presented the characteristic deformity found in congenital laryngeal stridor — namely, exaggeration of the normal infantile peculiarities resulting in narrowing in the transverse diameter of the upper aperture.

312. Pharyngeal Diverticulum.

A. NEWTON (*Journ. Coll. Surg. Australasia*, July, 1929, p. 3) discusses the etiology, morbid anatomy, symptoms, and treatment of pulsion diverticulum of the pharynx. These pouches emerge in the posterior mid-line between the oblique and transverse fibres of the crico-pharyngeus muscle. The cause is unknown, but the pouching may be due to congenital weakness of the pharyngeal wall, to abnormal propulsive and sphincteric muscular co-ordination, or to trauma from the impaction of a firm portion of food in the pharynx. Noisy deglutition is one of the earliest and most constant signs, followed by an uncomfortable sensation of pressure in the neck as the sac fills, with regurgitation of unaltered food. Wasting and malnutrition may result. *Notes are given of* successful operation upon five cases with no recurrences. Co-operation between the surgeon and the laryngologist is essential for effective treatment. Before the operation the pouch is washed out with sterile water, and intranasal ether anaesthesia is induced. After passing the oesophagoscope and emptying the sac with a suction pump to prevent the risk of pneumonia from insufflation of its contents into the lungs and to lessen the risk of contamination of the field of operation, the pouch is loosely packed with gauze and a bougie is passed. Small pouches can be invaginated into the pharynx, the neck of the pouch being surrounded with a purse-string suture, but in larger pouches the stump of the mucous lining is invaginated into the pharynx by a purse-string suture, and the tunica fibrosa is so arranged as to overlap across the weak spot in the pharyngeal wall. Although a one-stage operation is to be preferred, the operation can be performed in two stages, with ten days' interval, special care being taken to repair the weak spot at the second operation.

Therapeutics.

313. Indications for Using Acetylcholine.

J. HEITZ (*Arch. des Mal. du Cœur*, June, 1929, p. 383), in a critical review of the diagnostic and therapeutic uses of acetylcholine, recalls the fact that this derivative of choline, when injected subcutaneously, causes dilatation of the arterioles, with increase in the volume of the limbs and reduction of the blood pressure. The drug produces these effects by its action upon the nerves supplying the blood vessels, and by its direct influence upon the plain muscle of the arterioles. Acetylcholine differs pharmacologically from histamine in that the latter dilates the capillaries while constricting the arterioles. Administered in moderate doses subcutaneously, no modification of the cardiac rhythm is produced, but by retinoscopy a dilatation of the retinal vessels, lasting about ten minutes, is observed. The author describes a method by which acetylcholine can be employed in the diagnosis of arterial spasm. The latter has hitherto been investigated by noting whether or not the oscillations of a sphygmomanometer applied to the limb increase when the extremity is placed in a hot bath. These oscillations are augmented according to the degree to which the reduction of blood supply is due to spasm. It has been found that the *subcutaneous injection of 0.1 to 0.2 gram of acetylcholine* will simulate the effect of a hot bath, and cause the return or increase of oscillations which had been absent or reduced, owing to spasm of the vessels supplying the limb. These investigations have shown that even in a diseased blood vessel there is frequently superadded spasm, causing still further impairment of the blood supply. Acetylcholine has been administered therapeutically, with varying results, in several conditions. In Raynaud's disease and obliterative arteritis daily injections of 0.3 gram over periods of weeks or months have given satisfactory results, while the use of the drug in scleroderma, angina pectoris, and permanent hypertension has not been so successful. In spasms of the retinal and cerebral arteries, and in lead colic, acetylcholine frequently gives extremely good results.

314. Sodium Salicylate in Infantile Hemiplegia.

P. BARRY (*Paris Méd.*, August 17th, 1929, p. 158) reports a case of acute encephalitis, probably of infectious origin, in a little girl aged 6. There was an onset of headache associated with raised temperature, violent convulsions, involuntary passage of the urine and faeces, and vomiting, followed by complete paralysis on the right side and of the *seventh nerve on that side, temporary suppression of* urine, extreme dilatation of the left pupil, aphasia, and mental disturbance. Lumbar puncture negatived the presence of meningitis. After receiving without effect 0.5 gram of uroformine by the mouth on three successive days, an injection of 10 c.cm. of a 10 per cent. solution of sodium salicylate in glucose (1 gram of the salicylate) was given into the left arm; about three-quarters of an hour later, after an attack of profuse sweating, the symptoms began to abate. The injections were repeated daily for twenty-three days. The condition of the patient rapidly improved; she could soon walk alone, speech was slowly regained by re-education, and after three months there persisted only a weakness of the forearm, which was treated by calcium ionization, and a limited vocabulary, which at the patient's age would soon be extended. The author refers to the remarkable tolerance for glucose solution which was manifested by the delicate veins of the child.

315. Acriflavine in Undulant Fever.

A. M. HOFFMAN (*Journ. Amer. Med. Assoc.*, June 29th, 1929, p. 2169) states that the treatment of undulant fever is still empirical, and that symptomatic measures do not shorten its usual duration, which ranges from six weeks to eighteen months. Thus the economic loss involved is considerable, and any *method* that shortens this period is of *value*. The administration of vaccines, colloidal metals, and mercurochrome has met with little success. In 1927 Izar and Mastroeni found that acriflavine dyes had a markedly bactericidal action *in vitro* on *Brucella melitensis*, and they reported favourable results from the intravenous injection of acriflavine hydrochloride (0.01 gram per kilo of body weight). Three cases are now reported; the diagnosis in each was confirmed by agglutination tests. In one instance cure seemed to occur spontaneously; in the other two this was obtained by intravenous injections of acriflavine base. Serial doses of 0.1, 0.25, and 0.4 gram, and of 0.2, 0.3, and 0.4 gram, were administered to each patient respectively at intervals of two to three days. With each injection one patient had moderate though distressing reactions while the injection was being given; the slower the rate of injection, the less the distress. In each instance the duration of the disease was considerably shortened. Hoffman states that acriflavine, if injected properly, can do no harm.

Radiology.

316. Radiography of the Bladder.

M. SGALITZER (*Wien. klin. Woch.*, May 9th, 1929, p. 648) describes a radiographic method of examining the bladder which is said to be specially applicable when such conditions as haemorrhage render cystoscopy impracticable. After using various quantities of fluid and taking skiagrams in different positions, he has found the following technique the most satisfactory. He injects 50 c.cm. of an opaque fluid into the bladder. If this fails to show any irregularity in the wall, such as might be produced by a new growth, the bladder is filled with a further 50 c.cm. of solution and two skiagrams are taken, one in the antero-posterior direction and the other "axial." For the latter exposure the patient sits on the film, bending the trunk backwards and supporting himself on his arms, while the tube is so placed that the rays pass through the bladder in a cephalo-caudal direction just above the pubes. The patient may also be rotated slowly behind the *x*-ray screen, and the bladder be screened while it is being emptied. Partial filling of the bladder with 50 c.cm. best demonstrates polypoid growths which project into the lumen of the bladder; this filling defect may be obscured again when more fluid is injected, while distending the bladder more completely with 100 c.cm. reveals more readily those tumours which have infiltrated the bladder wall and only project slightly into the lumen. This method of examination not only helps in most cases to differentiate tumours from other affections of the bladder wall, but will generally show the size of the tumour and give an approximate idea of the area of bladder wall involved; it can, however, give little indication of the benign or malignant nature of the growth. Since the 15 per cent. solution of sodium bromide mixed with 1 per cent. novocain originally used was found to be somewhat irritating to an inflamed bladder, Sgalitzer uses for preference collargol or 20 per cent. iodipin. The latter is not miscible with urine, and it is therefore essential that before the injection the bladder should be completely emptied by catheter with the patient in various positions (recumbent, erect, and knee-elbow), since catheterization in the recumbent position only will not entirely empty it.

317. E. BORCH-JOHNSON (*Norsk Mag. f. Laegevid.*, September, 1929, p. 952) records four cases, in patients whose ages ranged from 25 to 56, in which severe complications followed cystoscopy with catheterization of the ureters and pyelography. Two of the patients died after showing signs of infection and uraemia, and in the others haematuria of long duration developed. While the concentration of the fluid does not seem to play any important part, the quantity of the solution injected is of great importance; in infected cases the examination ought to be performed in two or more stages. In cases with nitrogen retention, pyelography, especially when it is bilateral, is a serious procedure. Cystoscopy should always be performed with great gentleness and preferably under local anaesthesia.

318. Radiological Examination of the Uterus.

G. COTTE (*Journ. de Radiol. et d'Électrol.*, June, 1929, p. 321) maintains that radiological examination of the uterus and tubes presents no technical difficulty; lipiodol, which is usually employed for this purpose, is completely innocuous and perfectly tolerated, and involves a minimum of inconvenience. The examination should be made immediately after menstruation, as then the os is more easily permeable and the risk of [illegible] a commencing, undiagnosed [illegible] the injection a manometer is [illegible] mentally the tubes have withstood pressure of 30 to 40 c.cm. of mercury, Cotte never exceeds 20 to 25 c.cm.; in this way interstitial rupture of the tubes is prevented. If the uterus be normal 5 to 6 c.cm. of lipiodol is sufficient to inject the tubes. The sound should not be introduced beyond the isthmus, thus eliminating all risks of injury to the uterine mucosa or interruption of a pregnancy. After the photograph has been taken the plate should at once be developed to determine if the injection has been correct and sufficient; if not, a second exposure should be made, and, if necessary, one in profile. The operation, for which anaesthesia is not requisite, should be performed as quickly as possible, since the uterus, being under pressure, contracts; this sometimes causes sharp pains, which subside when the uterus is emptied. The lipiodol in the uterus drains away by the vagina; that in the tubes either empties into the uterus or passes into the peritoneum. If the latter occurs no harm ensues; this is shown to be the case by the fact that in subsequent laparotomies no inflammation or other evidence of irritation has been observed. Radiography of the uterus and tubes should be preceded by a most careful clinical examination in order to exclude unfavourable conditions. Pregnancy is an absolute contraindication, and the method should be reserved for particular cases, especially those in which later radiotherapy is anticipated. It is useful in the differential diagnosis of fibromas and tumours of the ovaries or of other sites; in certain obstinate types of dysmenorrhoea and amenorrhoea it sometimes gives valuable information. The method is of particular value in the etiological diagnosis of sterility. In order to avoid all inflammatory reaction patients should remain in bed for twenty-four hours or longer, if necessary, after the operation.

319. Radiotherapy of Breast Carcinoma.

M. PONZIO (*Med. Welt*, August 3rd, 1929, p. 1097) reports on 304 of 545 cases treated in the Turin radiological institute since 1908. They are classified as (1) operable, (2) operated on, (3) inoperable, the last including about 200 of the cases; they have all been followed up. In many instances *x*-ray therapy has been combined with radium, the dosage being varied to suit the requirements of the case. The results were on the whole favourable; in the first group definite diminution in size of the growth is found, and has been more marked after improvement of the technique; several of these patients are alive and well; early cases where operation has been followed by radiation gave better results than operation without radiation; later cases with similar treatment were favourable in that recurrence was postponed for three to five years; in still more advanced cases recurrences and metastases were delayed and limited, and life was prolonged two to five years. Ponzio remarks that in the very earliest diagnosable cases radiation alone may be tried, but in most cases an operation followed by radiation is advisable; it should be applied particularly in the clavicular, cervical, and axillary regions in the hope of destroying neoplastic elements set free by the operation and occupying the lymph channels. When glandular involvement is known or suspected, massive doses over small areas should be given; in some instances, when the glands are deeply infected, surgery should be limited to the breast itself and any easily accessible nodules, leaving the lymphatics to radiation; in very advanced cases better results are obtained by radiation alone than by partial removal surgically. Radiation actually aggravates the condition, and cannot therefore be used in cases when very widespread tumour formation is accompanied by severe cachexia, toxic absorption, and disturbance of function. The author concludes that surgery combined with radium is the treatment of election in early cases. Inoperable cases should be treated medically and with radium and *x* rays. Of the former, 65 per cent. have remained healed after four years; of the latter, in 45 per cent. life has been prolonged more than two years.

Obstetrics and Gynaecology.

320. Headache at the Menopause.

N. C. STEVENS (*New England Journ. Med.*, July 25th, 1929, p. 168) from a study of 28 cases discusses a hitherto undescribed symptom-complex occurring in women between 45 and 60 which is characterized by headache, fatigue, nervousness, subnormal temperature, dry skin, sensitiveness to cold, and a low basal metabolic rate. The majority of such patients are relieved by the administration of thyroid extract, the author's practice being, when the basal metabolic rate is definitely subnormal, to give one grain twice a day for one week and then once a day for three weeks under weekly observation. Luminal is sometimes of value, and the patient is urged to take regular daily outdoor exercise. The headache, rarely severe, is usually frontal and dull in character; it recurs two or three times a week, while vertigo is common. The results of treatment with thyroid extract were striking; only a few derived no benefit, and in most cases the headache disappeared, the temperature rose, the skin became warm and moist, and there was a return of energy so that the patient commented upon her sense of well-being.

321. Pregnancy and Coitus.

L. BALLIN (*Münch. med. Woch.*, August 3rd, 1929, p. 1293) states that the question of whether sexual intercourse is permissible during pregnancy is one on which medical opinion is divided, especially as regards the first half of the period. Of recent years statistics from various sources concerning several thousand women have been published showing that with few exceptions coitus has taken place during pregnancy, and in 25 per cent. throughout the whole period. Provided the woman was healthy, miscarriage occurred only in exceptional cases, and this could never undoubtedly be attributed to sexual intercourse. There does not, therefore, appear to be any medical justification for the general rule of abstinence laid down by some gynaecologists during the first

five months of pregnancy. In the last months, however, the sexual act may cause haemorrhage, premature rupture of the membranes, and fever during and after delivery. It is therefore advisable to prescribe moderation in sexual intercourse between the sixth and eighth months, and complete abstinence after the eighth month. Generally speaking, all authorities are agreed that coitus may be resumed four to six weeks after delivery. H. BÄR (ibid., p. 1292) records two cases of puerperal fever, one of which was fatal, where coitus a few hours before delivery was apparently the cause of infection, especially as in one case the same micro-organisms (Gram-positive diplococci) were found in the wife's vaginal secretion and on the husband's prepuce.

322. Procidentia Complicated by Rectal Prolapse.

D. J. CANNON (*Irish Journ. Med. Sci.*, August, 1929, p. 580) reports a case of procidentia complicated by rectal prolapse in a nulliparous woman, aged 58. Complete uterine prolapse was present, and several inches of the rectum protruded from the anus. After palliative treatment for six weeks an operation was performed, and the patient made a good recovery, except for the development of a rectocele which appeared about six weeks after the operation. Cannon remarks that this case raises the interesting questions of the pathology of rectocele, and the relation between rectocele and rectal prolapse. The pathology of rectocele, as usually defined by gynaecologists, is as follows. The perineum is torn and the tear becomes infected. In consequence there is a mild infection of the cellular tissue in the recto-vaginal septum. The walls of the two viscera adhere closely together, instead of passing freely over one another. When the patient strains at stool the rectal wall is prevented from sliding upwards over the faecal mass. Rectocele does not follow tears through the perineum which divide the anal sphincter, for when the sphincter is torn through the patient does not strain at stool. While this may be correct in the majority of cases, Cannon suggests that in a certain number of cases rectocele may be due to weakening, whether congenital or acquired, of the special band of connective tissue that passes from the rectum to the side walls of the pelvis, and which, he thinks, helps to keep the rectum at its proper level in the pelvis. This is the band of connective tissue which requires to be cut through in order to complete the operation of abdomino-perineal resection for cancer of the rectum. Should there be a weakening of this band from any cause, a rectocele may develop, provided that the anal sphincter is intact. Should there be a relaxation of the sphincter, a rectal prolapse will ensue.

323. Resuscitation of the Asphyxiated Newborn.

A. MATHIEU and A. HOLMAN (*Journ. Amer. Med. Assoc.*, June 8th, 1929, p. 1917) consider that the attempts at resuscitation of the asphyxiated newborn in vogue at present, such as beating, slapping, or plunging the infant into cold water, are either futile or actual deterrents that defeat their own purpose. Post-mortem examinations of the newborn that were living at birth reveal that 20 per cent. have atelectasis as the only demonstrable cause of death; therefore, it is logical to suppose that the majority of these would be amenable to a proper means of artificial respiration. Harrison advised the use of 5 per cent. carbon dioxide in oxygen administered by means of a tank and face mask, but this is considered an anatomical and economic impracticability. The mixture of carbon dioxide and oxygen should be given in such a way as to overcome the collapsibility of the embryonic larynx and trachea, and to prevent the gas going down into the stomach. The apparatus should be simple, cheap, easy to keep in order, and easily accessible at all times; the present authors maintain that the tracheal catheter fulfils all these requirements. Expired air contains sufficient oxygen and carbon dioxide to meet the needs of the asphyxiated infant. By means of the catheter all mucus, blood, and amniotic fluid can be withdrawn from the mouth, pharynx, and larynx before resuscitation is attempted. After the air passages have been freed from foreign material the gas (expired breath of the operator) can be placed at a location in the child's body where it will be readily available for use. Positive pressure is here of value, as it is delivered into the trachea and inflates the lungs; the air is warm and helps to maintain the body temperature. The authors state that the insertion and use of the tracheal catheter is simple and easy, and describe their technique. Negligence in maintaining the infant's body heat is the cause of some failures; a basin of warm water or soft warm blankets are adequate. Efforts at resuscitation should be continued as long as the heart beats, and may be supplemented with three minimal doses of a solution of pituitary extract and adrenaline. After the establishment of regular respiration, the child should be kept warm and observed closely for several hours for fear of subsequent respiratory failure; should this occur, the manœuvres must be repeated.

Pathology.

324. Effect of Exertion on Blood Sugar.

C. BRUUSGAARD (*Norsk Mag. f. Laegevid.*, July, 1929, p. 778), in order to determine the variations in blood sugar caused by severe muscular exercise, carried out an examination of athletes during training and contests (sprinting and long-distance competitions). The method employed was that of Hagedorn and Normann-Jensens. His conclusions were as follows. Exertions of short duration were constantly accompanied by an increase of blood sugar, the extent of this increase being considerably greater than has been previously stated, and partly due to emotional factors, since it was much less pronounced during training. Hypoglycaemia, therefore, could not be the cause of fatigue produced by exertion of short duration. When the exertion lasted more than three hours a decrease in the amount of blood sugar was constantly met with. As a rule the decrease was not very pronounced, since the organism has a remarkable capacity for keeping the blood sugar at a normal level. It was only severe exertions on an empty stomach that caused a pronounced hypoglycaemia. During severe exertions of long duration hypoglycaemia might be regarded as a factor in producing fatigue. Under such circumstances, therefore, sugar should be given, preferably in a concentrated watery solution. A study of the literature showed that the diabetic organism reacted in the same way as the normal. The variations, however, were considerably greater both as regards hyperglycaemia and hypoglycaemia.

325. The Reliability of Cultures taken at Necropsies.

H. F. HUNT, ETHEL BARROW, L. THOMPSON, and G. W. WALDRON (*Journ. Lab. and Clin. Med.*, July, 1929, p. 907) have made a bacteriological study of 567 post-mortem subjects. Blood cultures were taken from the pulmonary artery, and cultures were made from the liver, spleen, and other organs when indicated. From examination of their results the authors conclude that, in the case of bodies not subjected to refrigeration, no demonstrable post-mortem invasion of the blood or visceral organs occurs within twelve hours of death, and that cultures made from these situations before this time has elapsed may be regarded as being reliable. The former conclusion rests on the more or less constant ratio between the number of positive and the number of negative cultures taken at varying hours after death; since, however, the majority of cultures were taken within three hours of death, the ratios determined for the later hours are based on relatively few figures. Cultures taken from cadavers which, on macroscopical examination, showed no obvious foci of infection were almost invariably sterile. Cases of this type included such conditions as brain tumours, thyroid diseases, cardio-vascular diseases, and blood dyscrasias. Only once in 266 cases was a positive culture obtained—a case of lymphatic leukaemia. On the other hand, in an examination of 301 cadavers which showed definite foci of infection, such as peritonitis, abscess, meningitis, ulcerative colitis, and pneumonia accompanied by abscess formation, positive cultures were obtained from 172—that is, 57.1 per cent. From this study the authors conclude that post-mortem bacteriology is reliable, and may often be most valuable in ascertaining the cause of death.

326. Bactericidal Action of Tuberculous Serum.

P. COURMONT and H. GARDÈRE (*C. R. Soc. de Biologie*, July 5th, 1929, p. 817) have attempted to obtain some measure of the bactericidal power of the serum of tuberculous patients on the tubercle bacillus. A series of glycerin broth tubes was taken, and to each one was added a varying amount of the serum to be tested. The tubes were then inoculated with a strain of tubercle bacillus which grows homogeneously in a fluid medium, and the results were read after a fortnight. If no growth occurred in the tube containing broth *plus* one-eighth of the quantity of serum, the reaction was reported as + 8; growth in a tube containing equal quantities of broth and serum was apparently reported as 0. The serum of 37 patients was examined. (1) Sixteen patients had a high bactericidal titre, + 8 or + 4; in all these patients, except two who died, the evolution of the disease was very favourable, frequently passing on to a clinical cure. (2) Thirteen patients had a moderate titre, + 2; of this group five died. (3) Eight patients had a very low titre, + 1, or showed no evidence of bactericidal bodies by this technique; of this group six died. In the horse, an animal resistant to tuberculosis, the titre is said to be always high, + 8 or + 4; in the susceptible guinea-pig it is lower, + 2. In human beings showing no sign of clinical tuberculosis, and in patients who have recovered from tuberculosis, it is likewise + 2. The authors regard these observations as suggesting that the bactericidal power of the serum plays a considerable part in the defence of the host against tuberculosis.

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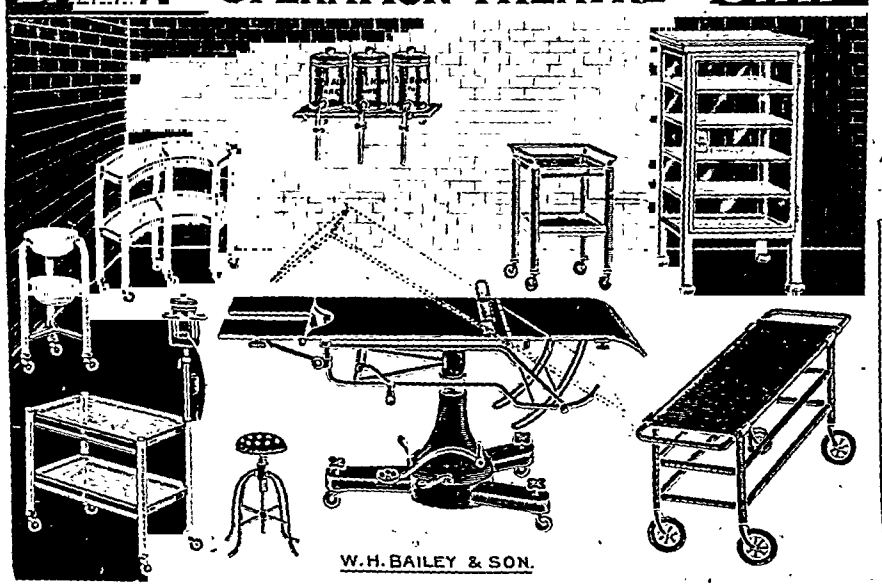

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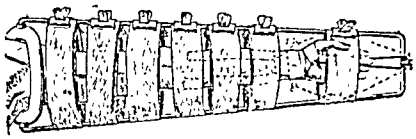

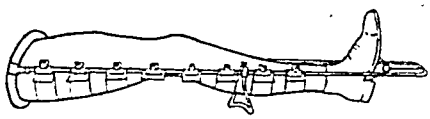

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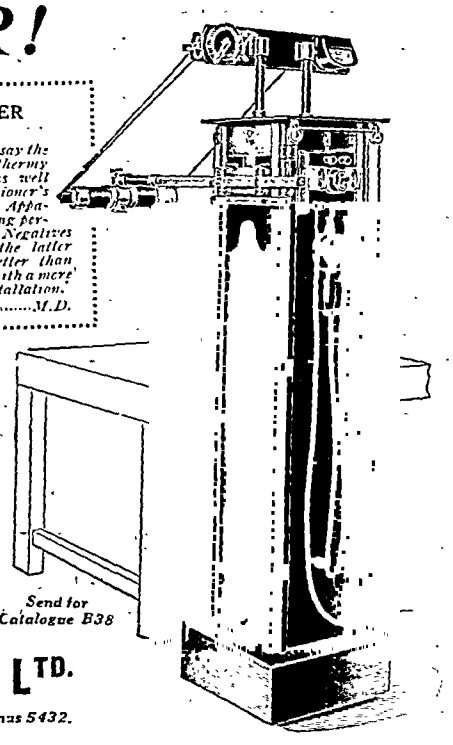

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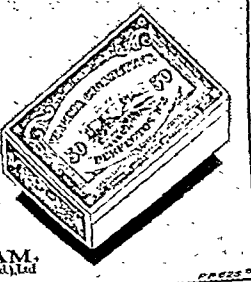

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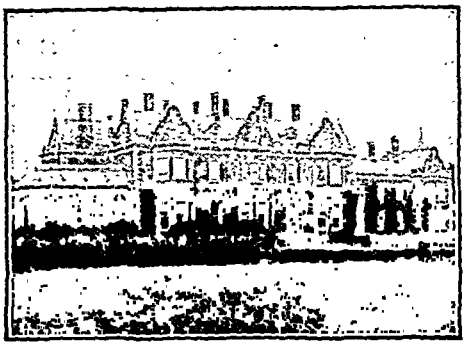

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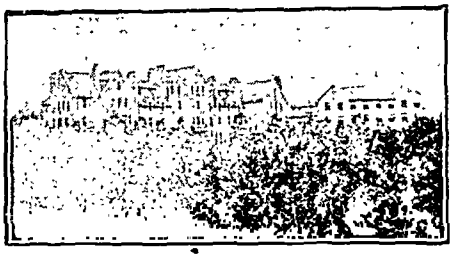

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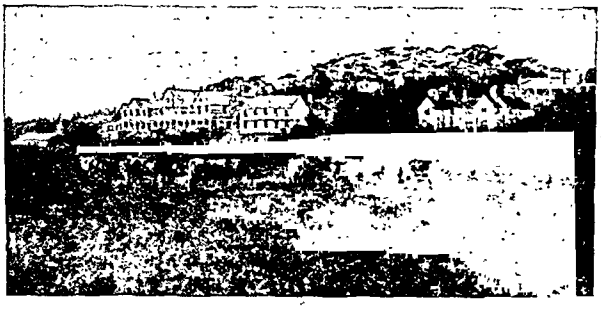

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University College, London. (Gower Street, W.C.1.)

C. O. G. DOVE, Secretary.

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Medical Men, Women, and Students are earnestly invited to attend. Those wearing Academic Dress will not require tickets, but will proceed to the Jerusalem Chamber and robe there. Tickets for others and their friends can be obtained from the Secretary of the Guild, King's College, Strand, London.

Long Fox Memorial Lecture.

The Long Fox Memorial Lecture will be delivered by Mr. A. RENDLE SHORT, B.Sc., M.D., F.R.C.S., in the Physiological Lecture Theatre of the University of Bristol, at 8.30 p.m. on Tuesday, October 22nd, 1929.

Subject: "*Ten Years' Progress in Surgical Treatment.*"

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F. E. D'ALTON, Secretary.

University of London.

Three Lectures (illustrated with lantern slides) on (1) *Seasonal Variations of Epidemic Diseases*, (2) *Epidemics*, (3) *Diphtheria Toxin and Anti-toxin*, will be given by Professor Dr. THORVALD J. M. MADSEN (Director of the Statens Serum Institut, Copenhagen) at the LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE (Keppel Street, Gower Street, W.C.1) on OCTOBER 14th, 16th, and 18th, at 6 p.m. At the First Lecture the Chair will be taken by Dr. ANDREW BALFOUR, C.B., C.M.G., F.R.C.P., D.P.H. (Director of the London School of Hygiene and Tropical Medicine).

A Course of Four Lectures on "*Secretion of the Digestive Juices*" will be given by Dr. R. J. BROCKLEHURST at UNIVERSITY COLLEGE, LONDON (Gower Street, W.C.1), on MONDAYS, OCTOBER 14th, 21st, 28th, and NOVEMBER 4th, at 5 p.m.

A Course of Four Lectures on "*Metabolism of the Carbohydrates and Fats*" will be given by Dr. J. A. HEWITT, Ph.D., D.Sc., at KING'S COLLEGE, LONDON (Strand, W.C.2), on THURSDAYS, OCTOBER 17th, 24th, 31st, and NOVEMBER 7th, at 5 p.m.

A Course of Six Lectures on "*Human Nutrition*" will be given by Professor V. H. MOTTRAM, M.A. (Professor of Physiology in the University), at KING'S COLLEGE FOR HOUSEHOLD AND SOCIAL SCIENCE (61, Campden Hill Road, W.8), on FRIDAYS, OCTOBER 18th, 25th, and NOVEMBER 1st, 8th, 15th, and 22nd, at 5 p.m.

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By Order of the House Committee,
CHARLES M. POWER, Secretary.

St. Mary's Hospital, Institute
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Principal: Sir ALMROTH E. WRIGHT.

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The Institute comprises the following departments: Anatomy and Embryology, Physiology, Pathology, Chemical Pathology, Clinical Bacteriology, Systematic Bacteriology, and Immunology.

The student, who will receive an honorarium at the rate of £200 per annum, may elect to carry out his researches in any one of these departments, and would be required to work under the direction of the head of the department concerned.

Preference will be given to old St. Mary's Students.

For further particulars apply to the Secretary, Institute of Pathology and Research, St. Mary's Hospital, Paddington, W.2, to whom applications must be sent not later than October 22nd.

Macclesfield General Infirmary.
(100 Beds.)

Wanted at once, SECOND HOUSE SURGEON, male. Salary at the rate of £150 per annum, with board and residence. Anæsthetic experience essential.

months, subject
her sole
nationality, and
their testimonials,

HAN, Secretary.

ROYAL NAVAL DENTAL SERVICE.

The Admiralty is prepared to receive applications from qualified Dental Surgeons for entry into the Royal Navy as DENTAL OFFICERS.

Two vacancies are to be filled. Candidates must be below 28 years of age on December 31st, 1929 (unless granted an allowance for age, not exceeding six months, in respect of a period served in a recognized Civil Hospital appointment), and must be registered under the Dentists Act as qualified to practise as Dental Surgeons in Great Britain and Ireland. They will be required to appear before a Selection Committee and to pass a medical examination by a Board of Naval Medical Officers as to their physical fitness for entry.

The Regulations for entry and the forms to be filled up by candidates can be obtained on application to the Medical Director-General of the Navy, Queen Anne's Chambers, Tothill Street, London, S.W.1.

The form of application, accompanied by the necessary documents, must reach the Medical Director-General not later than November 18th.

Western Australia.

PERTH HOSPITAL.

RESIDENT PATHOLOGIST.

Applications are called for the appointment of a Resident Bacteriologist and Pathologist at the above Hospital.

Salary £500 per annum, and board and residence.

The successful applicant will be required to enter into a three years' agreement with the Board of Management and to provide a satisfactory medical certificate of health.

First-class steamer fare via Suez will be paid after first year's service.

Applications, giving experience in Pathology and Bacteriology, and enclosing copies of testimonials, to be addressed to the undersigned, will close on December 10th, 1929.

V. C. H. EAGLETON,
Perth Hospital, Secretary
Western Australia.

The University of Adelaide.

ELDER PROFESSOR OF ANATOMY AND HISTOLOGY.

Applications are invited for the Elder Professorship of Anatomy and Histology in the University of Adelaide, South Australia.

The Professor will be required to offer courses of lectures and practical work in Anatomy and Histology suitable for students in Medicine and in Dentistry, together with advanced courses suitable for Honours students in Science.

The services of a full-time lecturer are provided and also a technician. Salary £1,100 per annum.

Applications, with testimonials, statement of age, academic qualifications, experience, and copies of publications, should reach the Registrar, the University of Adelaide, South Australia, not later than January 1st, 1930. Candidates must state the earliest date after March 1st at which they can take up their duties.

Further information may be obtained from:

(*a*) The Agent-General for South Australia, Australia House, Strand, London.

(*b*) Any University in Australia or New Zealand.

F. W. EARDLEY, Registrar.

Elizabeth Garrett Anderson
HOSPITAL, Euston Road, N.W.1.

Wanted, fully qualified Medical Woman as inm £10 10s. per this post, of which from the Secretary,

should be sent in before 28th inst.

(Sgd.) IMOGEN H. MURPHY,
Secretary.

University College Hospital,
Gower Street, W.C.

Applications are invited for the honorary post of CLINICAL ASSISTANT to Dr. TREDGOLD, Associate Physician in Psychological Medicine. Candidates must possess a registered medical qualification, and should forward their applications to the Secretary before October 23rd.

City of Manchester.

PUBLIC HEALTH DEPARTMENT.

BAGULEY SANATORIUM. (333 Beds.)

APPOINTMENT OF SENIOR ASSISTANT MEDICAL OFFICER.

Applications are invited from qualified Medical Men for the position of Senior Assistant Medical Officer.

Every applicant must be a registered Medical Practitioner, under 40 years of age, and unmarried.

Applicants must have held Resident Hospital and Sanatorium appointments, and have had practical experience in the diagnosis and modern methods of treatment of tuberculosis; practical experience in radiology is desirable.

Salary £500 per annum, with board, residence, and laundry in addition.

The successful candidate would be required to take up duty on January 1st, 1930.

Every application, stating fully the training, qualifications, and experience of the candidate, and his age, with copies of three recent testimonials, and endorsed on the envelope, "Medical Officer, Baguley Sanatorium," must be addressed to the undersigned only, and not to members of the Committee or Council, and must reach him not later than Monday, the 28th instant.

The gentleman appointed will be required to pass a medical examination, to devote the whole of his time to the duties of his office, to take charge in the absence of the Medical Superintendent, to contribute to the Corporation Superannuation Fund, and to execute the Deed of Service.

Canvassing in any form, oral or written, direct or indirect, is prohibited.

By Order,
F. E. WARBRECK HOWELL,
Town Clerk.

Town Hall,
Manchester. October 7th, 1929.

City of Manchester.

PUBLIC HEALTH DEPARTMENT.

BAGULEY SANATORIUM. (333 Beds.)

APPOINTMENT OF ASSISTANT MEDICAL OFFICER.

Applications are invited from qualified Medical Men for the position of Assistant Medical Officer.

Every applicant must be a registered Medical Practitioner, under 40 years of age, and unmarried.

Preference will be given to applicants with previous Hospital experience; some experience of bacteriology or radiology is desirable.

Salary £350 per annum, with board, residence, and laundry in addition.

The appointment is made in the first instance for a period of twelve months, renewable at the expiration of that period.

Every application, stating fully the training, qualifications, and experience of the candidate, and his age, with copies of three recent testimonials, and endorsed on the envelope "Medical Officer, Baguley Sanatorium," must be addressed to the Medical Officer of Health, Civic Buildings, 1, Mount Street, Manchester, only, and not to members of the Committee or Council, and must reach him not later than Monday, October 28th.

The gentleman appointed will be required to pass a medical examination, to devote the whole of his time to the duties of the office, to contribute to the Corporation Superannuation Fund, and to execute the Deed of Service.

Canvassing in any form, oral or written, direct or indirect, is prohibited.

By Order,
F. E. WARBRECK HOWELL,
Town Clerk.

Town Hall,
Manchester. October 7th, 1929.

County Borough of Bootle.

ASSISTANT SCHOOL MEDICAL OFFICER AND ASSISTANT MEDICAL OFFICER OF HEALTH.

Applications are invited for the appointment of Assistant School Medical Officer and Assistant Medical Officer of Health (male) at a salary of £600 per annum, rising by £30 annually to a maximum of £750 per annum. Particulars of the duties (which include School Medical Inspection and the conduct of Maternity and Child Welfare Clinics) and forms of application may be obtained from the Medical Officer of Health, Town Hall, Bootle.

Applications, accompanied by copies only of not more than three testimonials, endorsed "Assistant Medical Officer," must be returned to me on or before October 19th.

Canvassing, either directly or indirectly, will disqualify candidates.

Town Hall, J. SPENCER TUMILTY,
Bootle. Town Clerk.
September 27th, 1929.

Birmingham Union.

SELLY OAK HOSPITAL.

CASUALTY OFFICER (Male).

Applications are invited from fully qualified medical practitioners for the appointment of Casualty Officer (male) at the Selly Oak Hospital, Birmingham.

The present Hospital accommodation is 550 beds, divided into General Medical, General Surgical, Gynæcological, Obstetrical, Children and Infectious sections. There is a completely [illegible] atory, also X-Ray, [illegible] and Sunlight De[illegible] perations are performed annually.

The appointment will be for a period of six months in the first instance, but may be extended at the end of that time.

The gentleman appointed will be required to assist at operations, administer anæsthetics, and undertake casualty work, and such other duties as may be assigned to him by the Medical Superintendent, and, should occasion arise, to assist at any of the other Institutions under the control of the Guardians.

The salary attached to the appointment is at the rate of £200 per annum, together with full residential emoluments (rations, apartments, laundry, and attendance).

A deduction of 2 per cent. will be made from the salary and value of emoluments under the provisions of the Poor Law Officers Superannuation Act, 1896, and for this purpose the emoluments are valued at £200 per annum.

Further particulars of the appointment may be obtained from the Medical Superintendent, Mr. R. P. S. Kitman, M.B., F.R.C.S.(Eng. & Edin.), at the Selly Oak Hospital.

Applications, stating age, experience, and qualifications, accompanied by copies of recent testimonials, must be forwarded so as to reach me not later than Thursday, October 17th.

Union Offices, C. P. BEECH,
Edmund Street, Clerk to the
Birmingham. Guardians.
September 25th, 1929.

Monmouthshire County Council.

ASSISTANT MEDICAL OFFICER.

The Council invite applications from duly qualified Medical Practitioners holding a Diploma in Public Health and State Medicine, and not exceeding 35 years of age, for the appointment of Assistant Medical Officer (woman), to undertake mainly the work associated with (1) the Medical Inspection and Treatment of School Children; (2) Maternity and Child Welfare; and (3) the assessment of vision under the Blind Persons Act, 1920.

Special experience in refraction and ophthalmic work is essential.

Salary £500 per annum, rising by annual increments of £25 to £750, with third-class rail fares and reasonable subsistence allowance.

The successful candidate will be required to act under the direction and supervision of the County Medical Officer, to devote whole time to the service of the County Council, and to reside in such place as the Council may determine.

The requisite statutory meeting of the County Council has adopted the Local Government and Other Officers Superannuation Act, 1922, and when confirmed by the Minister of Health the post will be subject, as and from April 1st, 1930, to the provisions of the Act.

A schedule of the duties to be performed, together with conditions of appointment and a form of application, can be obtained from the undersigned, to whom applications, accompanied by copies of not more than three recent testimonials, are to be sent by November 1st.

County Hall, D. ROCYN JONES,
Newport, Mon. County Medical Officer.
October 7th, 1929.

County Borough of West Hartlepool.

ASSISTANT MEDICAL OFFICER OF HEALTH.

Applications for the position of Assistant Medical Officer of Health are invited from duly registered medical men holding the Diploma of Public Health.

The candidate appointed, who will act under the direction [illegible] Officer of Heal[illegible] the work in [illegible] Child Welfare [illegible] Officer. In addition he will be required to undertake any duties in connection with the medical services of the Local Authority, which may from time to time be assigned to him by the Medical Officer.

Forms of application may be obtained from me.

The inclusive salary will be £600 per annum.

Applications, endorsed "Assistant Medical Officer of Health," must reach me not later than October 16th.

HAROLD W. STANTON,
September 30th, 1929. Town Clerk.

County Borough of St. Helens.

TUBERCULOSIS OFFICER.

Applications are invited for the above post. Duties will be mainly in connection with the Authority's Tuberculosis Scheme, including those of Resident Medical Officer at the Council's Tuberculosis Sanatorium, but the selected candidate will be required to perform such other duties as the Medical Officer of Health may direct.

Candidates must have had special experience in Tuberculosis (both pulmonary and non-pulmonary) from both clinical and administrative aspects, and the possession of a Diploma in Public Health is desirable.

Salary £600 per annum, with board residence.

The appointment will be subject to the provisions of the Local Government and Other Officers Superannuation Act, 1922, and to the successful candidate passing the necessary medical examination.

Forms of application may be obtained from the Medical Officer of Health, Town Hall, St. Helens, and completed applications, accompained by copies of not more than three recent testimonials, should reach him not later than Saturday, October 26th.

Town Hall, FRANK HAUXWELL,
St. Helens. Medical Officer of Health.
October 7th, 1929.

Lindsey (Lines) County Council.

APPOINTMENT OF LADY ASSISTANT MEDICAL OFFICER.

Applications are invited for the post of Lady Assistant Medical Officer under the Lindsey County Council. Applicants will be required, under the general supervision of the County Medical Officer of Health, to undertake duties in connexion with the Maternity and Child Welfare Service of the Council, including the conduct of Infant Welfare Centres and Ante-natal Clinics and the treatment by modern methods of Venereal Diseases in Women, and also the treatment of errors of refraction in school children and any other duties that may from time to time be prescribed by the County Council.

Salary £500 per annum, rising by annual increments of £25 to £700. Travelling allowance according to the Council's scale (person appointed finding own car).

Applications, which must be on the prescribed form, to be obtained from the undersigned, must be received not later than October 31st, 1929.

W. S. H. CAMPBELL,
County Offices, County Medical Officer
Newland, Lincoln.
September 18th, 1929.

Devon County Council.

APPOINTMENT OF TUBERCULOSIS OFFICER FOR NORTH DEVON.

Applications are invited for the appointment of Tuberculosis Officer (Clinical) for the Barnstaple Dispensary Area of the County of Devon.

The salary will commence at £750 per annum, and travelling expenses will be allowed in accordance with Grade A of the Council's Scale, the officer to provide his own motor car, also to contribute to the Council's Superannuation Scheme.

The officer appointed will be required to devote the whole of his time to his official duties and will not be permitted to accept any fee or present of any description.

Forms of application and further particulars can be obtained from the undersigned, and must be returned endorsed "Tuberculosis Officer," and accompanied by not more than three recent testimonials, not later than the first post on October 26th.

The Castle, BRIAN S. MILLER,
Exeter. Clerk of the County Council.
October 4th, 1929.

Royal Borough of Kingston-upon-Thames.

ANTE-NATAL CLINIC.

Applications are invited for the post of LADY MEDICAL OFFICER to the Ante-Natal Clinic, Kingston-upon-Thames.

Candidates should possess special experience in Ante-Natal work, and the appointment will be subject to the approval of the Ministry of Health.

The remuneration will be at the rate of £1 11s. 6d. per session.

At present one session per month is held, but an increase to two sessions per month is likely in the near future.

Applications, stating age, qualifications, experience, etc., accompanied by copies of three recent testimonials, should be sent to the undersigned not later than Monday, October 28th.

Municipal Offices, E. W. MATTHEWS,
High Street, Medical Officer of Health.
Kingston-upon-Thames.

Royal Free Hospital and London (R.F.H.) SCHOOL OF MEDICINE FOR WOMEN.

Applications are invited for the following appointments vacant on January 1st, 1930:

Obstetrical and Gynæcological Unit—
SENIOR ASSISTANT, part-time, £350. (The present holder is eligible for re-appointment.)
THIRD ASSISTANT, full-time, £270, with residence.

Pathological Department—
RESIDENT ASSISTANT PATHOLOGIST, full-time, £150, with residence.

Applications, accompanied by copies of not more than three testimonials, and the names of not more than two persons to whom reference can be made, should reach one of the undersigned, from whom further particulars may be obtained, by the first post on Friday, October 25th. Nine copies of all documents must be furnished.

REGINALD R. GARRATT, Secretary,
Royal Free Hospital, W.C.1.
LOUIE M. BROOKS, Warden & Secretary.
London (R.F.H.) School of Medicine
Oct. 5th, 1929. for Women, W.C.1.

The Royal Hospital, WOLVERHAMPTON. (Incorporated under Charter.)

CASUALTY OFFICER and RESIDENT ANÆSTHETIST (male) required. Duties to commence November 1st, and will include Casualty work and administration of anæsthetics.

The Hospital contains 240 beds, and includes the usual special departments, and is recognized by the various Examining Bodies for a part of the requisite attendance on Medical and Surgical Practice.

Candidates must be registered under the Medical Acts, and unmarried. The appointment is for six months, with eligibility for further appointment for six months as House Surgeon to In-patients. Salary at the rate of £125 per annum. Board, furnished rooms, and laundry provided.

Applications, with copies of testimonials, to be forwarded to the undersigned.

W. H. HARPER,
Oct. 5th, 1929. House Gov. & Sec.

Royal Chest Hospital, City Road, E.C.1. (Royal Northern Group of Hospitals.)

The post of HOUSE PHYSICIAN at this Hospital will be vacant on November 1st.

The appointment is for six months.

Salary at the rate of £100 per annum, with board, residence, and laundry.

Applications, with copies of testimonials, should be sent to the undersigned, from whom forms of application, rules, and further particulars can be obtained.

GILBERT G. PANTER,
Royal Northern Hospital, Secretary.
London, N.7.

The Queen's Hospital for CHILDREN, Hackney Road, London, E.2.

HOUSE PHYSICIAN required on December 31st. A six months' appointment. Salary £100 a year, with board, residence, and washing. Preference given to candidates who have previously held Resident appointments. Applications must be made on forms to be obtained from the Secretary, and must be sent in with copies of not more than four testimonials on or before October 31st.

T. GLENTON-KERR,
October 3rd, 1929. Secretary.

The Queen's Hospital for CHILDREN, Hackney Road, London, E.2.

CASUALTY OFFICER required January 12th, 1930. A six months' appointment. Salary £100 a year, with board, residence, and washing. Preference given to candidates who have previously held Resident appointments. Applications must be made on forms to be obtained from the Secretary, and must be sent in with copies of not more than four testimonials on or before October 31st.

T. GLENTON-KERR,
October 3rd, 1929. Secretary.

The Queen's Hospital for CHILDREN, Hackney Road, London, E.2.

HOUSE SURGEON (male) required on December 31st. Six months' appointment. Salary at the rate of £100 a year, with board, lodging, and washing. Applications must be made on forms to be obtained from the Secretary, and must be sent in with copies of not more than four testimonials on or before October 31st.

T. GLENTON-KERR,
October 3rd, 1929. Secretary.

West End Hospital for Nervous DISEASES.

In-patient Department: Gloucester Gate, Regent's Park, N.W.
Out-patient Department and Secretary's Office: Welbeck Street, W.

The Committee of Management invites applications from candidates for the appointment of HON. ASSISTANT PHYSICIAN.

Candidates must be Fellows or Members of the Royal College of Physicians of London, and Graduates in Medicine of one of the Universities of the United Kingdom.

Twelve copies of the application and testimonials should be received by the undersigned, *from whom further particulars may be obtained*, not later than Monday, November 18th.

J. P. WETENHALL, Secretary.

The Hospital for Epilepsy and PARALYSIS, Maida Vale, W.9.

A RESIDENT MEDICAL OFFICER required November 1st.

HOUSE PHYSICIAN required November 1st.

Applications are invited for these posts. The salaries are at the rate of £150 and £100 per annum respectively, and the appointments are for six months. Candidates for the post of Resident Medical Officer should state if they are willing to take that of House Physician, and applications, accompanied by copies of three recent testimonials, should reach me by October 23rd.

The accommodation at the Hospital does not permit of Woman Graduates holding these appointments.

H. W. BURLEIGH, Secretary.

Bedford County Hospital.

HOUSE SURGEON (male), fully qualified, unmarried, required for a term of not less than six months, commencing November 1st. Salary £175, with board, lodging, and laundry.

Also ASSISTANT HOUSE SURGEON (male), fully qualified, unmarried, required for a similar term, commencing November 1st. Salary £150, with board, lodging, and laundry.

Applications, stating age, nationality, qualifications, together with three recent testimonials, to be sent to the Hon. Secretary, Medical Staff Committee, not later than Saturday, October 19th. Selected candidates will be invited for an interview Wednesday, October 23rd.

Queen's Hospital, Birmingham. (A Medical School.)

Applications are invited for the post of *RESIDENT ANÆSTHETIST* to commence duties at once.

Salary £70 to £100 p.a. (according to experience and previous Hospital Resident appointments), together with board, apartments, and laundry.

Applications should be sent to the undersigned, accompanied by three recent testimonials.

Birmingham. G. HURFORD,
October 7th, 1929. House Gov. & Sec.

Birmingham and Midland Ear AND THROAT HOSPITAL. (65 Beds.)

Applications are invited for the appointment of ASSISTANT SURGICAL OFFICER. Honorarium £200 per annum. The officer is appointed for twelve months, but he is eligible for re-election. He shall confine his practice to the speciality of the Hospital. Full particulars may be obtained on application to the undersigned. Applications to be sent in not later than October 19th.

S. G. GREW,
September 27th, 1929. Secretary.

Kent and Canterbury Hospital, CANTERBURY. (120 Beds.)

THIRD RESIDENT MEDICAL OFFICER (male) required to commence duties on November 5th. Nine months' appointment. Salary £125 per annum, plus board, residence, and laundry.

Applications, stating age, qualifications, and experience, and enclosing copies of testimonials, should be forwarded to the undersigned not later than October 18th.

W. T. SOUTHWOOD, Secretary.

Westmorland Sanatorium, MEATHOP, GRANGE-OVER-SANDS.

Applications are invited for the position of ASSISTANT MEDICAL OFFICER (unmarried) at this Sanatorium (147 beds).

Commencing salary is £350 per annum, with board, residence, and laundry.

Applications, stating age, qualifications, and experience, and copies of recent testimonials, should reach the undersigned not later than October 21st.

J. MUNRO CAMPBELL,
Oct. 6th, 1929. Medical Supt.

Salford Royal Hospital.

Applications are invited for the following vacancies in the Resident Medical Staff (male):

HOUSE SURGEON (attached to the Orthopædic Department). Salary at the rate of £125 per annum.

CASUALTY HOUSE SURGEON. Salary at the rate of £125 per annum.

The appointments are for a period of six months, with board and residence.

Candidates must be registered under the Medical Acts.

Forms of application, which may be obtained from the undersigned, must be delivered without delay.

By Order of the Board,
Salford Royal Hospital, Manchester. *GEORGE RUDDLE,* Gen. Supt. & Secretary.
October 7th, 1929.

Royal Waterloo Hospital for CHILDREN AND WOMEN, Waterloo Road, S.E.1.

There is a vacancy for the post of HONORARY GYNÆCOLOGICAL REGISTRAR at the above Hospital. Candidates must be Fellows of the Royal College of Surgeons or Members of the Royal College of Physicians. Particulars regarding the appointment can be obtained from the undersigned, to whom applications should be sent not later than Tuesday, October 22nd, with not more than three recent testimonials.

J. H. TEASDALE, Secretary.

Samaritan Free Hospital for WOMEN, Marylebone Road, N.W.1.

Applications are invited for the post of HOUSE SURGEON for a period of six months commencing on November 13th next. Salary at the rate of £100 per annum, with board, lodging, and washing. Previous experience as House Surgeon essential.

Applications, stating age, accompanied by copies only of testimonials, must reach the Secretary at the Hospital on or before Thursday noon, October 31st.

G. H. HAWKINS, Secretary.

Scunthorpe and District War MEMORIAL HOSPITAL. (Surgical and Medical—66 Beds.)

RESIDENT HOUSE SURGEON (male, unmarried) wanted to take up duties. Salary £250 per annum, with board, residence, and laundry. Applications, with three recent testimonials (copies), stating age, qualifications, experience, and nationality, must reach the undersigned, endorsed "House Surgeon," not later than October 21st.

ARTHUR E. MAW, Secretary.

The Glasgow Eye Infirmary.

The Directors invite applications from registered Medical Practitioners for the post of RESIDENT ASSISTANT HOUSE SURGEON. Salary £75 per annum, with apartments and board. The post will be vacant towards the end of October. Applications, with copy testimonials, should be lodged with the undersigned by October 15th.

171, West Regent St., Glasgow, C.2. WM. M. MOORE, Secretary.
October 7th, 1929.

The Royal Waterloo Hospital for CHILDREN AND WOMEN, Waterloo Road, S.E.1.

There will be a vacancy on November 1st for a HOUSE SURGEON (male) at this Hospital. The appointment is in the first instance for a period of six months. Salary at the rate of £100 per annum, with board and residence. Application, with copies of testimonials, should be forwarded not later than Tuesday, October 22nd, to the Secretary at the above address, from whom further particulars can be obtained.

The Woking and District VICTORIA HOSPITAL.

The Committee of the Woking and District Victoria Hospital invite applications for the post of HON. SURGEON.

Applicants must be resident and in active practice in the area served by the Hospital, and applications, with testimonials, should be sent to the Hon. Secretary at the Hospital.

South Yorkshire Mental Hospital, SHEFFIELD.

Wanted, MEDICAL OFFICER (male) not over 35, unmarried. Salary £400, rising £25 a year to £500, with board, etc. The appointment is made subject to the provisions of the Asylums Officers' Superannuation Act, 1909. Applications, with three testimonials (copies only), to be sent to the Medical Superintendent on or before October 23rd.

Hospital for Consumption and
DISEASES OF THE CHEST,
Brompton, S.W.3.

The Committee of Management invite applications from duly qualified Medical Men for the post of JUNIOR HOUSE PHYSICIAN at the SANATORIUM at FRIMLEY. The appointment is for six months dating from December 1st. In the event of a vacancy the Junior House Physician at the expiration of his term of office will be expected to apply for and, if appointed, to hold the post of Senior House Physician. The honorarium is at the rate of £100 per annum, with full board and lodging. Applications, with copies of testimonials, must reach the undersigned not later than Monday, October 21st.

Brompton. FREDERICK WOOD,
October 3rd, 1929. Secretary.

Royal Victoria Infirmary,
NEWCASTLE-UPON-TYNE.

The House Committee by Resolution declare two vacancies in the offices of HONORARY SURGEON.

According to statutory provision every candidate must be a registered Graduate in Surgery of any University recognized by the General Council of Medical Education and Registration of the United Kingdom, or a Registered Fellow, Member, or Licentiate of one of the Royal Colleges of Surgeons of the United Kingdom, provided that he is practising as a Surgeon and not as a General Practitioner.

Applications must be sent to the House Governor & Secretary, Royal Victoria Infirmary, Newcastle-upon-Tyne, not later than Tuesday, October 29th.

The appointment will be made on Nov. 7th.

Personal canvassing will be considered a disqualification for office.

S. DUNSTAN,
Oct. 4th, 1929. House Governor & Sec.

Ilford Emergency Hospital,
to be extended as a General Hospital to serve a wide area on the Eastern outskirts of London, and renamed
KING GEORGE HOSPITAL.

Applications are invited for the post of HONORARY RADIOLOGIST to the above Hospital.

Applicants, preferably to hold a Diploma in Radiology, must be prepared to attend the Hospital on two afternoons per week. An honorarium of £50 is offered, plus a proportion of private patients' fees. Applications, with copies of testimonials, should be sent to the undersigned on or before October 31st.

G. AUSTIN HEPWORTH, Secretary.

Mildmay Mission Hospital,
Austin Street, Bethnal Green, E.2.

Applications are invited for the post of ASSISTANT CASUALTY OFFICER (female), which becomes vacant on November 1st. The appointment is non-resident and for six months. Salary £100 per annum.

Candidates must be registered under the Medical Acts, and the Mildmay Council is anxious that they should be fully in sympathy with the religious work of the Hospital.

Applications, with copies of recent testimonials, should be sent to the Medical Supt. immediately.

Mildmay Mission Hospital,
Austin Street, Bethnal Green, E.2.

Applications are invited for the post of JUNIOR RESIDENT MEDICAL OFFICER (male), which becomes vacant on November 1st. Salary £100 per annum, with board, residence, and laundry. The appointment is for six months.

Candidates must be registered under the Medical Acts, and the Mildmay Council is anxious that they should be fully in sympathy with the religious work of the Hospital.

Applications, with copies of recent testimonials, should be sent to the Medical Supt. immediately.

The Royal Infirmary,
SUNDERLAND. (290 Beds.)

Wanted beginning of December, HOUSE PHYSICIAN (male). Salary £140 per annum, with board, residence, and laundry.

Applications, stating age, qualifications, and accompanied by copies of testimonials, to be sent to the undersigned by October 18th.

S. C. FRYERS,
House Governor and Secretary.

Woodilee Mental Hospital,
LENZIE, GLASGOW.

Wanted JUNIOR ASSISTANT MEDICAL OFFICER (male). Salary £300, rising to £350 after six months. Applicants must have Hospital experience. Apply Medical Superintendent

Miller General Hospital,
Greenwich Road, S.E.10.
(151 Beds.)

There is a vacancy for an HONORARY SURGEON. The Senior Assistant Surgeon is an applicant for the post, and in the event of his election there will be a vacancy for an Honorary Assistant Surgeon. Applications for these posts are now invited. Candidates must be Fellows of the Royal College of Surgeons of England and not engaged in general practice, and they are expected to call upon the Members of the Honorary Medical and Surgical Staff, a list of whom can be obtained from the Secretary. The duties include attendance in the Out-patient Department on two days a week, and four beds will be allotted. An honorarium of 20 guineas per annum is allowed towards travelling expenses.

Applications (which must be printed or typewritten), together with copies of not more than three recent testimonials, should be sent to the Chairman of the Hospital as soon as possible.

October 7th, 1929.

Miller General Hospital,
Greenwich Road, S.E.10.
(151 Beds.)

Applications are invited for the post of HONORARY PHYSICIAN to the Skin Department, to which two beds are allotted.

Candidates must be Fellows or Members of the Royal College of Physicians of London and not engaged in general practice, and they are expected to call upon the Members of the Honorary Medical and Surgical Staff, a list of whom can be obtained from the Secretary.

An honorarium of 20 guineas per annum is allowed towards travelling expenses.

Applications (which must be printed or typewritten), together with copies of not more than three recent testimonials, should be sent to the Chairman of the Hospital as soon as possible.

October 7th, 1929.

Miller General Hospital,
Greenwich Road, S.E.10.

ORTHOPÆDIC HOUSE SURGEON (male and unmarried) required for In- and Out-patients. There are five other residents. Salary at the rate of £125 per annum, with board, residence, and laundry. The appointment is for six months. The department is under the care of Mr. PAUL BERNARD ROTH and Mr. EDWIN A. LINDSAY. In addition to routine orthopædic work, between two and three thousand cases of fracture are treated in the course of a year.

Applications, stating age, nationality, qualifications, and experience, accompanied by copies of not more than three recent testimonials, to be sent to the Secretary as soon as possible.

October 7th, 1929.

The Victoria Hospital for
CHILDREN, Tite Street, Chelsea, S.W.3.
(138 Beds.)

The Committee of Management invite applications for the posts of

(*a*) HONORARY MEDICAL REGISTRAR;
(*b*) HONORARY SURGICAL REGISTRAR.

Candidates for post (*a*) are expected to call on members of the Honorary Medical Staff and those for post (*b*) on the members of the Honorary Surgical Staff.

The appointments are for one year, renewable for a second year. Applications, with copies of three recent testimonials, should be sent to the Secretary *not later than Saturday, October 26th.*

By Order,
D. St. JOHN BAMFORD,
Secretary.

Lincoln County Hospital.

Wanted, a JUNIOR HOUSE SURGEON, male, unmarried. Salary at the rate of £150 per annum, rising to £200 per annum at the conclusion of six months' approved service. Board, residence, and washing will also be provided.

Every candidate for the appointment must be registered under the Medical Acts.

Applications, stating age and other particulars, with copies of testimonials (not more than three), are to be sent to the undersigned, from whom further particulars may be obtained.

Lincoln. ARTHUR MOORE,
October 1st, 1929 Secretary-Supt.

The Hospital for Epilepsy and
PARALYSIS, Maida Vale, W.9.

Applications are invited for the post of MEDICAL REGISTRAR. They should be accompanied by copies of not more than three recent testimonials, and should reach the undersigned by October 23rd.

An honorarium of £100 is attached to this appointment, which is for one year, and further particulars can be obtained on application.

H. W. BURLEIGH,
Secretary & Gen. Supt.

The Royal Earlswood Institution,
REDHILL, SURREY.
(Under Mental Deficiency Acts 1913-27.)

JUNIOR ASSISTANT MEDICAL OFFICER required (British). Applicants must be registered practitioners, males, unmarried, and willing to assist in the games and amusements.

The appointment is temporary for six months. Inclusive salary at the rate of £250 per annum, with board, residence, and washing. Good facilities for Post-Graduate Studies, Classes, and Examinations.

Applications, stating age, religion, and qualifications, with copies of three testimonials of recent date, and two references, to be sent on or before November 1st to the Medical Superintendent at the Institution. The envelope to be endorsed "Assistant Medical Officer."

H. STEPHENS,
October 4th, 1929. Secretary.

The Royal Hospital,
WOLVERHAMPTON.
(Incorporated under Charter.)

HOUSE SURGEON (male) required.

The Hospital contains 240 beds, and includes the usual special departments, and is recognized by the various Examining Bodies for a part of the requisite attendance on Medical and Surgical Practice.

Candidates must be registered under the Medical Acts, and unmarried.

The appointment is for six months. Salary at the rate of £150 per annum. Board, furnished rooms, and laundry provided.

Applications, with copies of testimonials, to be forwarded to the undersigned.

W. H. HARPER,
Wolverhampton. House Gov. & Sec.
October 1st, 1929.

Hull Royal Infirmary.
(272 Beds.)

Applications are invited for the following posts:

THIRD HOUSE SURGEON, vacant October 25*th. Salary £150 per annum, with* board, residence, and laundry.

ASSISTANT HOUSE PHYSICIAN, now vacant. Salary £130 per annum, with board, residence, and laundry.

Both appointments will be for six months in the first instance, terminable by one month's notice on either side.

Applications should be sent to the undersigned.

R. J. CARLESS,
Sept. 28th, 1929. House Governor.

The Authorities of Cambridge
HOUSE INFANT WELFARE CENTRE, CAMBERWELL, invite applications for the appointment of a Female MEDICAL OFFICER for service on Thursday afternoon in each week at £1 11s. 6d. per session. Applications should be addressed to the Secretary of the Infant Welfare Centre at 39, Grosvenor Road, Westminster, S.W.1, not later than Friday, October 18th. Any special experience in pediatrics, obstetrics, and maternity and child welfare work generally should accompany the application.

General Hospital, Gt. Yarmouth.
(72 Beds.)

Applications are invited for the post of JUNIOR HOUSE SURGEON. Salary £100 per annum, with board, residence, and laundry. Duties to commence at once. Candidates (male and unmarried) must be fully qualified and registered.

Applications, stating age, nationality, and qualifications, together with copies of three recent testimonials, to be sent immediately to the undersigned.

T. H. G. GARTLAND, Secretary

Herefordshire General Hospital,
HEREFORD.

Applications are invited for the post of HOUSE PHYSICIAN (male). Six months' appointment, renewable. Salary £150 per annum, with board, residence, and laundry.

Candidates must be fully qualified and registered. Applications, stating age, qualifications, and experience, together with not more than three copies of recent testimonials, should reach the undersigned not later than October 26th.

H. AUBREY FROGGATT, Secretary.

Huddersfield Royal Infirmary.

JUNIOR HOUSE SURGEON wanted to commence duty November 1st. Salary £150 per annum, with board, residence, and laundry. The appointment is for six months, subject to renewal.

Applications, with copies of testimonials, are invited from qualified and registered gentlemen, and should be addressed to the undersigned at the Infirmary, not later than Saturday, October 19th

H. E. G. HALL, Secretary.

APPOINTMENTS—Important Notice.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

(a) British Islands.

Town or District	Town or District	Town or District
CONTRACT PRACTICE.	**CONTRACT PRACTICE** *(Contd.).*	**PUBLIC HEALTH** *(continued).*
EBBW VALE, MON. *(Workmen's Medical Society.)*	NEATH AND DISTRICT. *(Medical Aid Association.)*	CORNWALL EDUCATION COMMITTEE. *(Assistant School Medical Officer—Female.)*
GILFACH GOCH, GLAMORGAN. *(Workmen's Medical Scheme.)*	OAKDALE, MON. *(Medical Officer for Medical Aid Association.)*	GLASGOW EDUCATION AUTHORITY. *(Male Assistant Medical Officer.)*
LLWYNYPIA, CLYDACH VALE PENYGRAIG, GLAMORGAN. *(Workmen's Medical Scheme.)*	OGMORE VALLEY, GLAMORGAN. *(Wyndham Colliery Medical Aid Society.)* *(Workmen's Medical Scheme.)*	LEEDS EDUCATION COMMITTEE. *(Assistant School Medical Officer.)*
MARDY, GLAMORGAN. *(Workmen's Medical Scheme.)*	**PUBLIC HEALTH.**	YORKSHIRE NORTH RIDING COUNTY COUNCIL EDUCATION COMMITTEE. *(Assistant School Medical Officer.)*
	CHESHIRE EDUCATION COMMITTEE. *(Assistant School Medical Officer.)*	YORKSHIRE WEST RIDING COUNTY COUNCIL. *(School Medical Inspector.)*

(b) Colonial Medical Service.—

WINDWARD ISLANDS MEDICAL SERVICE. (Grenada with Carriacou, St. Vincent and St. Lucia.)

(c) Overseas.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.
NEW SOUTH WALES. *(All Friendly Society Appointments.)*	Dr. R. H. TODD (Hon. Sec., New South Wales Branch), B.M.A. Building, 30-34, Elizabeth St., Sydney, N.S.W.	VICTORIA. *(All Institute or Medical Dispensaries.)*	Dr. FRANK DAVIES (Hon. Sec., Victorian Branch), British Medical Association, Medical Society Hall, East Melbourne, Victoria.	WESTERN AUSTRALIA. *(Contract and Lodge Practices.)*	Hon. Sec., Western Australian Branch British Medical Association, No. 6, Bank of N.S.W. Chambers, St George's Terr., Perth Western Australia.
QUEENSLAND. *(Brisbane Associated Friendly Societies Institute.)*	The Hon. Sec., Queensland Branch, British Medical Association, B.M.A. Building, Adelaide St., Brisbane.	WELLINGTON, NEW ZEALAND. *(Contract Practice Appointments.)*	Dr. G. F. V. ANSON (Hon. Sec., New Zealand Branch), British Medical Association, P.O. Box 156, Wellington, New Zealand.		

Address: B.M.A. House, Tavistock Square, W.C.1. By Order of the Council of the British Medical Association
October 1st, 1929. ALFRED COX, Medical Secretary

West London Hospital,
Hammersmith Road, W.6.

One SENIOR ASSISTANT MEDICAL OFFICER and Three JUNIOR ASSISTANT MEDICAL OFFICERS will shortly be required for work in the Venereal Diseases Department. Salaries: *Senior* £450 per annum, *Juniors* £350 per annum each. ...bject to six months' ...idates must be regis... who have had special experience in the diagnosis and modern treatment of venereal diseases.

Applications, accompanied by copies of testimonials, must reach me not later than first post on Tuesday, October 22nd. Candidates must attend a Meeting of the Medical Council on Friday, October 25th, at 4 p.m., and prior to that date call upon such members as directed, and send copies of application and testimonials to each member thereof. The appointments will be made by the House Committee at 4.45 p.m. *the same day. Further details with regard to* the duties can be obtained from the undersigned.

H. A. MADGE, Secretary.

St. Mary's Hospitals, Manchester

...ITWORTH ST. ...d Two for the ...(Gynæcological), each for a period of six months from November 1st next. Salaries at the rate of £50 per annum, with board and residence. Application, with copies of three testimonials, to be sent to the undersigned on or before Oct. 16th.

R. RATCLIFFE, Secretary.

Rotherham Hospital.

Wanted, HOUSE PHYSICIAN (male), qualified. Salary £180 p.a., *with board*, lodgings, and laundry, to have charge of Out-patients, administer Anæsthetics, and assist Honorary Physician.

Applications, with copies of recent testimonials, to be sent to the Secretary, G. W. ROBERTS, 8, Moorgate Street, Rotherham.

West London Hospital,
Hammersmith, W.6.

An HONORARY REGISTRAR is required for the Throat, Nose, and Ear Department. The appointment is for one year from November 1st, and subject to annual re-election, may be extended for a period not longer than three years. Applicants must be duly qualified registered medical practitioners.

Applications, accompanied by copies of testimonials, must reach me not later than first post on *Thursday*, October 17th. Candidates must attend the Meeting of the Medical Council on Friday, *October 18th at 4 p.m., and prior to* that date call upon and send copies of application and testimonials to each Member thereof. *They must not canvass* Members of the Board, but nevertheless must send a copy of their application and testimonials to each Member thereof, *and if notified be in attendance at a* Meeting of the Board at 5 p.m. on Tuesday, October 22nd, when the appointment will be made.

H. A. MADGE, Secretary.

Woolwich and District War
MEMORIAL HOSPITAL,
Shooters Hill, London, S.E.18.
(A General Hospital, 112 Beds.)

RESIDENT MEDICAL OFFICER.

The Board of Management invites applications from suitably qualified (male) candidates, with special knowledge of surgery, for the post of Resident Medical Officer. Salary £175 per annum, with board, residence, and laundry. The appointment is for one year from November 1st, 1929, to October 31st, 1930, with renewal of ...lary of ...agement. ... of not ...stating ...ionality, should be sent to the Secretary-Superintendent on or before Friday, October 18th.

Woolwich and District War
MEMORIAL HOSPITAL,
Shooters Hill, London, S.E.18.
(A General Hospital, 112 Beds.)

HOUSE SURGEON.

The Appointments Committee invites applications for appointment as House Surgeon. An honorarium of £125 per annum will be paid in respect of this appointment, which will be for a period of six months, as from November 1st.

Applications, accompanied by copies of not more than three recent testimonials, are invited from suitably qualified candidates, and should be addressed to the undersigned, to reach him not later than 10 a.m. on Friday, Oct. 18th.

EDWIN RADFORD, Secretary-Supt.

Borough Mental Hospital,
ROWDITCH, DERBY.

SECOND ASSISTANT MEDICAL OFFICER wanted. Commencing salary £350 per annum, rising by £25 per annum to £450, with an additional £50 per annum if in possession of the Diploma in Psychological Medicine, with board, apartments, attendance, and laundry. Candidates must be unmarried and registered under the Medical Act. The appointment is subject to 3 per cent. deduction on salary and emoluments under the Asylum Officers Superannuation Act, 1909. Apply, not later than October 15th, stating age and full particulars, to the Medical Superintendent.

Cumberland Infirmary,
CARLISLE.

HOUSE PHYSICIAN (male) required middle of October; six months' appointment; previous experience desirable. Salary at rate of £165 per annum, board, residence, etc. Applications, stating age, with copies of four testimonials, should be sent at once to the undersigned.

J. G. HOWITT, Secretary.

September 30th, 1929.

British Medical Journal,

BRITISH MEDICAL ASSOCIATION HOUSE,
TAVISTOCK SQ., LONDON, W.C.1.

T/A: ARTICULATE, WESTCENT, LONDON.
Tel.: MUSEUM 9861 (4 lines).

SMALL ADVERTISEMENT RATES.

Up to Six Lines (32 Words) 9s.
Each Additional Line, 1s. 6d.
(Address included.)

Sixpence should be added if replies to a box number are to be posted.

All advertisements must be received not later than first post Tuesday previous to date of publication.

Will Bertram or Horace Horwitz of East London, South Africa, believed to be studying medicine in England, please communicate with MYER SELIG, 17, Mitchell Avenue, Newcastle-on-Tyne.

Advertiser thanks those who have replied to the advertisement in *British Medical Journal* of September 28th, No. 6013, and regrets that it is impossible to reply individually to all the communications received.

ASSISTANCIES.

Wanted Nov. 1st, in London suburb, first-class ASSISTANT, British, Protestant, T.T. if possible. Must be well qualified and some sound experience G.P. Partnership of six. Share of £1,000 after trial, increasing to equal shares. Good house, would suit married man. Most excellent opportunity for a good man desirous of getting on. Only wants seeing.—Address essentials, with photo. if possible, No. 6318, B.M.A. House, Tavistock Square, W.C.1.

Wanted by Two Partners in country town in West, ASSISTANT with a view to Partnership. Man under 40. Two years' assistantship at £500 p.a., then, if mutually agreeable, 1/4 share of £5,000, increasing later. Ex H.S. with experience of major surgery, but anxious to help in all work. —Address, stating particulars, No. 6469, B.M.A. House, Tavistock Square, W.C.1

Wanted. — Assistant, October, male, Protestant, Scotch Graduate if surgery, mid- district, South nd. £400 p.a. refs., age., etc., No. 6305, B.M.A. House, Tavistock Sq., W.C.1.

Wanted immediately, Assistant, to manage Branch, Essex, easy reach of London. Age 30 or under. British. Salary £400 and furnished quarters. Good prospects for keen energetic man. Immediate. Interview essential. — Address, No. 6320, B.M.A. House, Tavistock Square, W.C.1.

Wanted immediately, Assistantship. Conjoint man (1927), age 27, single, keen, sober. Last position two years. Good experience private and panel. Excellent references. London preferred.—Address, No 6457, B.M.A. House, Tavistock Square, W.C.1.

Wanted immediately, Assistant, male, under 30, for private and panel Practice, Newcastle-on-Tyne (West End). Salary £500, indoor. Usual bond. Increase six months. — Address, No. 6454, B.M.A. House, Tavistock Square, W.C.1.

Wanted after Christmas, Assistantship with view. H.P., Accoucheur, H.S., own London Teaching Hospital; age 32. Keen on midwifery and general practice.—Address, "K," 10, Crescent Road, Sidcup, Kent

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Wanted for panel and private PRACTICE. North-East Coast Town. Outdoor ASSISTANT. Salary £400 a year to commence. Prospects of early Partnership to suitable man. Some previous experience essential.—Address, with full particulars, No 6324, B.M.A. House, Tavistock Square, W.C.1.

Wanted immediately, Assistant, with view to Partnership, in Northern City. Preference given to ex Resident with experience of general practice.—Address, No. 6323, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistant, outdoor, male, to take charge of a Branch in a Colliery Practice in Glamorgan. Good prospects for a suitable man desiring a permanency. Salary £400 p.a., with rooms, attendance, etc.— No. 6452, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — Assistant, outdoor, male, to take charge of Branch Surgery. Pembs. Coast, country district. Motor-cyclist. Work light.—Address, No. 5013, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistant, indoor, immediately, in pleasant Country Practice, Yorkshire. Time for study or sport. Protestant. Send all essential particulars; photograph. Salary £250.—Address, No. 6331, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Indoor Assistant, male, in South Wales Colliery Practice. Must recently qualified man. British. Salary £300 p.a —Address, No. 6460, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Indoor Assistant, Panel Practice, Co. Durham. English, Irish, Scotch, or Welsh; energetic. Salary £252 per annum. Usual bond. State age, nationality, and enclose references. — Address, No. 6328, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—Assistant, with view to Partnership, to take charge of Branch Surgery. Good prospects in nice district. Particulars. — Address, No. 6329, B.M.A. House, Tavistock Square, W.C.1.

Wanted, an Assistant in Hospital Town in Cambridgeshire, indoor; experienced man £300 per annum. Recently qualified, £250 per annum. Annual increments for both.—Address, No. 6468, B.M.A. House, Tavistock Square, W.C.1.

Wanted, Assistant, male or female, Protestant, for London Industrial Practice. Work light. Salary £200 p.a. Board and lodging provided at Surgery.—Address, No. 6325, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistantship, def. view early Partnership, on easy terms, by L.R.C.P. & S.I., L.M., æt. 30, married, one child. Six yrs.' exp. panel and priv., minor ops., U.Y. ray. Own car. Lond. or Home Counties pref. —No. 6333, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — Assistantship in London, by M.R.C.S., L.R.C.P., age 28, keen, energetic, reliable, well received. Two years' experience G.P., panel and private; ex ship surgeon. Excellent refs.—Address, No. 6462, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistantship, with or without view, by M.B., B.Ch., preferably in South of England Town within 100 miles London. 2½ years' experience hospital, panel, and private practice. Some capital avail. —No. 6459, B.M.A. House, Tavistock Sq., W.C.1.

Assistant wanted to manage Country Branch; work light; time for reading. £300—£350, and furnished rooms, etc., or unfurnished house. Car provided. English, Scotch, or Irish. Photo. with application. — Address, No. 6312, B.M.A. House, Tavistock Square, W.C.1.

Assistant required in nice Country Town Practice in Wilts. Salary, indoor, £350 p.a. Must be a gentleman (age 27 to 30) and capable of doing a little surgery and givi... Apply, Bedford ...

Assistant (male), energetic, capable, for panel and private Practice, Newcastle-on-Tyne. Excellent house. Salary £350 first year. Prospects for suitable man. Full particulars.—Address, No. 6458, B.M.A. House, Tavistock Square, W.C.1.

Assistant required for better-class Practice in Herts. Scotch Graduate, keen on medicine, and pref. having the M.R.C.P. —Apply, BOVERIL MEDICAL AGENCY, 10/13, Bedford Street, Strand, W.C.2.

Assistants (indoor and outdoor) wanted immediately. Good salaries offered. —BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Assistant (indoor), Scotch or English, for Practice in Yorkshire. Salary £250 beginner, or £350 with experience. Essential particulars and photograph. — Address, No. 6310, B.M.A. House, Tavistock Square, W.C.1.

Assistant, indoor, male, Protestant, wanted for October, North-West district, panel and private. Dispenser kept. — Address, stating essential particulars, No. 6463, B.M.A. House, Tavistock Sq., W.C.1.

Assistantship, whole or part-time, wanted by Woman M.B., B.Ch., D.P.H., qual. 1924, age 30, keen, reliable. Excellent references. Good experience panel, private, Poor Law work. Free now. Interview. —No. 6317, B.M.A. House, Tavistock Sq., W.C.1.

Highly qualified and experienced Doctor requires ASSISTANTSHIP in London. Good testimonials.—Address, No. 6304, B.M.A. House, Tavistock Square, W.C.1.

Woman, L.R.C.P., M.R.C.S., D.P.H., requires ASSISTANTSHIP, preferably to a firm. Four years' experience Hospitals and General Practice. Special experience women, children, eye work, anæsthetics, light. Can drive car. Excellent testimonials.—Addl. No. 6308, B.M.A. House, Tavistock Sq., W.C.1.

Woman Doctor, five years' experience in general practice, desires ASSISTANTSHIP. Country preferred. Cyclist —Address, No. 6453, B.M.A. House, Tavistock Square, W.C.1.

Woman Licentiate requires ASSISTANTSHIP or LOCUMS. Experienced in private and panel practice. Cyclist— Address, No. 6258, B.M.A. House, Tavistock Square, W.C.1.

Woman Doctor, thoroughly experienced in panel and private practice, well recommended, seeks ASSISTANTSHIP, whole or part-time, London or South of England. Good personality. Suit. to work up Branch Surg. —No. 6473, B.M.A. House, Tavistock Sq., W.C.1.

MEDICAL POSTS, DISPENSERS, etc.

Wanted.—Fully qualified Doctor for service in the TROPICS. Preferably ex House Surgeon or Physician. Agreement for three years. Salary £850, £900, £950. Renewable on higher terms. Free furnished quarters and first-class passage provided. Candidates must be unmarried. Ladies not eligible. —Address, with copies of testimonials (not returnable), No. 6276, B.M.A. House, Tavistock Square, W.C.1.

Wanted.-Fully qualified married DOCTOR for FALKLAND ISLANDS. Five years' agreement, £600 a year, free furnished house and fuel. First-class passage Send testimonials.—J. W. DEAN, "Northfield," Langton Green, Tunbridge Wells, Kent.

Wanted by M.R.C.S., L.R.C.P., doubly qualified, 39, Scotch extraction, PART-TIME WORK, anywhere. Reading higher exam. Institutional, insurance, private, or surgeries. Experienced panel, etc.—Address, No. 6464. B.M.A. House, Tavistock Square, W.C.1.

Wanted by Lady Secretary, WHOLE or PART-TIME WORK. Excellent testimonials from eminent London surgeons —Address, Miss PARNETT, 116, Beckenham Road, Beckenham, Kent.

A Lady Private Secretary seeks POST, College trained, shorthand, typing and bookkeeping. Previous experience.—Address No. 6302, B.M.A. House, Tavistock Sq., W.C.1.

Chauffeuse-Receptionist requires POST at once with professional man or woman. Thoroughly experienced driver; running repairs. Town or country. Excellent testimonials.—Address, No. 6334, B.M.A. House, Tavistock Square, W.C.1.

Chauffeuse (non-resident).—Lady desires post as CHAUFFEUSE; able to do secretarial or other useful work; country preferred.—"W," 17, Beechwood Road, Sanders'end, Surrey.

Dispenser - Bookkeeper, Lady, with 14 years' experience, now disengaged, desires POST, in or near London; excellent references; quick and accurate; own typewriter.—Apply, A. HOLMES, 166, Hazlewood Lane, Palmers Green, N 13

Ante- and Post-natal Clinic.

MEDICAL WOMAN required for one session weekly, Thursday morning or afternoon. Must be fully qualified and have experience in ante- and post-natal work.—Apply before October 20th to Secretary, Loughboro' Junction Infant Welfare Centre, 109, Sussex Road, Brixton, S.W.9.

A Lady Dispenser-Bookkeeper supplied immediately on request, qualified and with practical experience in private practice and dispensary work, also trained in bacteriological Laboratories of the LONDON COLLEGE OF PHARMACY FOR WOMEN. Preparation for Examinations.—Write, wire, or 'phone (Park 0969), Secretary, 7, Westbourne Park Road, W.2.

Dispensers supplied to Doctors at short notice, without fee. Qualified and exper. in priv and panel prac. Perm. and part time Bookkeeper-Dispensers, Secretary-Dispensers, Nurse-Dispensers, and Chauffeuse-Dispensers.—Write, wire, or 'phone Central 3679, THE RELIANCE BUREAU FOR DISPENSERS, 87, Holborn Viaduct House, 12, Holb. Viad. E.C.1.

Dispenser - Bookkeeper, lady, Hall qualification, requires POST with Doctor. Experienced in Country Practices. Good references. Free October 19th. Able to drive car.—Address, No. 6474, B.M.A. House, Tavistock Square, W.C.1.

Dispenser, Nurse (Hall and C.M.B.), desires POST with Doctor. Can take charge of Branch Surgery. Held similar post for 13 years. Excellent testimonials.—NURSE M., 30, Colwyn Road, Leeds.

Doctors requiring qualified Dispensers, Nurse Dispensers, Secretary Dispensers or Chauffeuse Dispensers, are invited to write, wire, or 'phone Temple Bar 5858, THE *DISPENSERS' BUREAU*, *15, Lindsay House*, 171, Shaftesbury Avenue, London, W.C.2.

Experienced Governess requires POST in Doctor's house with children 6—10 to be prepared for school. Can also assist as Secretary-Receptionist—typewriting, shorthand, accounts, etc. Own typewriter.—Miss M. E. BUNYARD, Mereworth, Maidstone, Kent.

Gardener requires work (ex Scots Guards, invalided out—fits; now much better). Tall, strong, competent in growing vegetables and general work. Willing and amenable. Educated. — "P." c/o WYMAN & SONS, Fetter Lane, London, E.C.4.

India.—Medical Officer required for Tea Estates. Salary 1,200 Rupees per month, with furnished house. Passage paid out and home. Must be of British nationality, about 28 years of age and unmarried. Personal application if possible.—Apply BOVRIL MEDICAL AGENCY, 10/13, Bedford Street, Strand, W.C.2.

Physician required for Important Oil interests operating in VENEZUELA. Candidates must be men of robust physique, aged 30—40 years, and should have exceptional Clinical and Bacteriological experience; also Diploma of Tropical Medicine desirable. Appointment for three years at a commencing salary of $750 (U.S.A. currency) per month, with first-class passage out, and home upon completion of agreement. Outfit allowance provided.—Apply, stating age and qualifications, and giving in chronological order full particulars of training and appointments held, to "Z M 256," c/o DEACON'S ADVERTISING AGENCY, Fenchurch Avenue, London, E.C.3.

Pathological and Bacteriological LABORATORY ASSISTANTS ASSOCIA- [illegible] biologists requir[illegible] LABORATORY [illegible] mmunicate with [illegible]re," 10, Holbeck Grove, Victoria Park, Manchester. No fees.

Part-time Work, mornings or evenings, wanted by Scotsman taking D P H ; 2½ years' G P. London area.—Address, No 6313, B.M.A. House, Tavistock Square W.C.1.

The Charterhouse Typewriting BUREAU, 18-21, Charterhouse Sq., E.C.1.—Typewriting, Duplicating, and Translations of all descriptions. Medical work a speciality. Testimonials typed and returned same day. Very moderate terms. Clerkenwell 6672.

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The Royal Army Medical Corps ASSOCIATION. — If you require men trained in all branches of hospital work—Dispensers (capable of undertaking returns, clerical work, etc., connected with Ministry of Health), Clerks, Laboratory Assistants, general hospital duties, Porters, Caretakers, etc.—Apply, Secretary, 85, Eccleston Square, S.W.1.

Typewriting.—Expert undertakes Theses, Testimonials, etc. Numerous letters of appreciation from Doctors.—'Phone Primrose Hill 0805, or write BEATRICE RADFORD, BM/BOAJ, London, W.C.1.

Young Lady, smart appearance, desires post as SECRETARY-RECEPTIONIST, whole or part time. Exceptional references. West End preferred, but not essential.—Address, No. 6465, B.M.A. House, Tavistock Square, W.C.1.

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Partnership in good-class of l-established Practice in p'easant residential district near large Midland town. Income over [illegible] gard[illegible] [illegible] pur. W.C.1.

Quarter Share in unopposed PARTNERSHIP of four Partners, in beautiful part of North of England. Panel 8,000 and all appointments. One outdoor Assistant kept. Scope for surgery. Not much midwifery. House to rent with garage. Men with capital only need apply. — Address, No. 6259, B.M.A. House, Tavistock Square, W.C.1.

Yorkshire.—Partnership.—Cash receipts over £4,600. Good house, 3 reception, 4 bedrooms. Rent £52 p.a. Premium—1/5 share—£1,500. Preliminary Assistantship.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

PRACTICES.

Wanted.—October, 1930, Cash and Panel PRACTICE in Hammersmith or Earl's Court district. Must be lock-up.—Address, No. 6301, B.M.A. House, Tavistock Square, W.C.1.

Wanted by F.R.C.S.Eng., Surgical PRACTICE or PARTNERSHIP; preferably within 50 miles of London. General Practice with genuine scope for surgery would be considered. — Address, No. 6467, B.M.A. House, Tavistock Square, W.C.1.

Wanted by M.B., B.S.Lond., 1912, PRACTICE or PARTNERSHIP, near or in London, worth £2,000 p.a. or more. Ample capital. — Address, No. 6272, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—Practice in Scotland, West Coast or Perthshire district preferred. — Address, No. 6101, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—Good general Practice in Country Town or City Suburb, between £1,200 and £1,500. Twenty-five years' general experience. Partnership considered.—Address, No. 6470, B.M.A. House, Tavistock Sq., W.C.1.

Co. Durham.—Well - estab. growing PRACTICE for Sale. 1928 re[illegible]pts £861 comprising panel, private, and club. Very convenient eight-roomed freehold house, with garage, etc. Price £900.—Address No. 6451, B.M.A. House, Tavistock Square, W.C.1.

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For Sale.—Manufacturing Town, Panel and Industrial PRACTICE. Panel 1,900. Average in one £1,700. House on lease. Premium £2,550.—Address, No. 6455, B.M.A. House, Tavistock Square, W.C.1.

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For Disposal. — Good Country PRACTICE in East Midlands, near good town. Average last three years £2,370. Panel over 1,600. Suit two friends. Two good houses to rent on lease. Premium 1½ years' purchase. —No 6128. B.M.A. House, Tavistock Sq., W.C.1.

For Sale. — Working-class Practice, manufacturing town near Manchester. Old-estab. Average gross cash receipts £2,500. Private and panel 2,900. Good house to lease or buy. Premium 1½ years' purchase.—No. 6133, B.M.A. House, Tavistock Sq., W.C.1.

Lancashire Town. — Non-panel PRACTICE. Cash receipts last year £1,508. Fees 7/6 upwards. Purchaser must be capable of doing major surgery. Good house to rent at £60 p.a., 2 reception and 4 bedrooms. Premium £1,200.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

London, S.E.—Branch SURGERY for Sale. Unlimited scope for both private and panel practice. Good nucleus already. Large airy house, surgery, and waiting room. Open garage. Main road position.—Address, No. 6316, B.M.A. House, Tavistock Square, W.C.1.

Lancashire Town. — Old-estab. PRACTICE. Cash receipts £970. Panel 1,150. Scope. House to rent at £70 p.a. Suit bachelor. Premium £800. — BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Manchester.—Old-established working-class PRACTICE in well populated district. Receipts £1,300, increasing. Panel 1,400. Good house, rent £39 16s. Residence behind. [illegible] referred. [illegible] ASSN., 6, Brown Street.

Manchester. — Suburban Practice. Cash receipts 1928, £1,650. Panel 900. Scope. Excellent house, with 3 enter., 5 bedrooms, garage and garden, to be sold or rented on lease. Premium 1½ years' purchase.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Medical Practice with House for SALE, near GLASGOW. Practice £1,500; panel 1,000; house £1,200. Apply, MACLAY, MURRAY & SPENS, Writers, Glasgow.

Manchester.—Mixed-class Practice. Cash receipts £913. Panel 898. House, 2 reception, 4 bedrooms. Rent £75 p.a. —BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Manchester, Residential Suburb. — Old-established. Nice corner house, large garden, garage; rent £120 on lease. Receipts £2,000. Panel over 1,500. Price 1½ years' purchase part deferred. Golf, tennis.—MANCHESTER MEDICAL & SCHOLASTIC ASSOCIATION, 6, Brown Street.

Manchester. — Good-class Practice (non-panel) in first rate residential suburb. Average cash receipts £2,206 p.a. Fees 5/- to 21/-. Excellent house to rent on lease. Premium 1½ years' purchase.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

North-East Coast. — Seaside Resort. — Cash receipts 1928, £2,101. Panel 720. Large Terraced house, with garden. Good introduction.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

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North Wales Coast. — Medical Woman's PRACTICE, equally suitable for man. Cash receipts last year £300. Panel 164. Premium £350, part by arrangement.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

South-West England.—Country PRACTICE for sale. Income £1,350. Panel 780. Ten miles from sea. House to rent £45. Premium 1½ years.—Address, No. 6309, B.M.A. House, Tavistock Square, W.C.1.

To Purchasers. — Do not buy without expert assistance. With 40 yrs.' experience Mr. PERCIVAL TURNER can advise in all cases. Terms free on application to 4, Adam St., Strand, W.C.2. Telephone: Temple Bar 9011. Telegrams: "Epsomian, London."

Unique opportunity occurs to acquire a first-class London PRACTICE of £2,000 a year (no panel) in Cadogan Square district, together with a small up-to-date convenient house, with long lease, at a very low rental. No agents. Address, No. 6307, B.M.A. House, Tavistock Square, W.C.1.

Yorkshire.—Old-estab. Country PRACTICE. Average cash receipts £894 p.a. Panel 430. Good house, 2 reception, 5 bedrooms, garage, and garden. Rent £70 p.a. Premium £1,250.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

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Cheadle Hulme, Cheshire.—Well-built Semi, near new property, suit DOCTOR or DENTIST. 6 bedrooms, side entrance, large garden, with room for garage.—G. STANLEY BURLING, Estate Agent, 3, Victoria Avenue, Cheadle Hulme. Tel. 383.

Clinical Pathologist's Laboratory in Harley Street to Let. Moderate price accepted for laboratory fixtures, or for complete and [illegible] ed. Pathologist is g[illegible] Hou[illegible] 6274, B.M.A.

Consulting Rooms to be Let. Harley Street and district. Whole or part time. Lists sent on application.—ELGOOD & Co., 10, Henrietta Street, Cavendish Square, W.1. Mayfair 5659.

Eastbourne. — Room to Let, central situation. Suitable for Dentist. Rent £100 per annum, including use of waiting room, hot and cold water.—Apply, MACE, St. Dunstan's Headquarters, Inner Circle, Regent's Park (Welbeck 7921).

Flat over old Dentist's, suit Medical Man. Two large rooms, 1 smaller, geyser, bath room, covered over, whereg od carpets and lino, includ. stairs. Sep ent. Two gardens. Rent £2 p.w. Hire of electric fitting, carpets, &c., 3 6. Garage can be hired.—HOARD, 393, Holloway Rd., N.

Harrogate.—For Sale or to Let, desirable semi-detached VILLA RESIDENCE, in excellent condition and near Stray, eminently suitable for Doctor or Dentist, two reception and six bedrooms; central heating.—Further particulars from HUNTER, WILSTROP, Roman Road, Middlesbrough.

For Sale. — Desirable double-fronted MODERN RESIDENCE on the Claremont Estate, 117, Claremont Road, Pendleton, Manchester. Pleasant situation in well-populated and growing suburban district. Three entertaining rooms, 4 bedrooms, kitchen, etc., front and back garden, room for garage. Admirable house for Practitioner. — Apply, FRANK B. HEYDON, F.A.L.P.A., Estate Agent, 1, Brazennose St., Manchester. 'Phone City 6608.

Horsham, Sussex, situate in a good residential road of this fast growing important old-world market town.—For sale, a Detached MODERN RESIDENCE, containing 6 principal bedrooms, 2 secondary bedrooms, 2 bathrooms, 3 reception rooms, billiards or school room. Stabling and garage; nice gardens, with tennis lawn; all main services. Ideally suited for Medical Practitioner. Price £2,800.—Sole Agents, KING & CHASEMORE, Horsham.

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Kingston & Surbiton (between). —Attractive DETACHED HOUSE, restibule and waiting room, hall, 2 large rec., 5 bed., bath (h. and c.), c.i. Side entrance and nice garden. Long lease and first-rate repair. Only £950. Immediate possession.—COX & MARTIN, Fife House, Kingston-on-Thames.

Manchester Suburb. — Good CORNER HOUSE, occupied by Doctor for 30 years; 3 reception, 4 bedrooms. Excellent opening for young Practitioner. Price £1,000.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Piccadilly. — Consulting ROOMS in Dental Surgeon's Office. Exceptionally well equipped and furnished, fitted for [illegible] Receptionist, see. £12 per month. [illegible] tock Sq., W.C.1.

Queen Anne Street. — To Let, handsome CONSULTING ROOM, with small Ante-room; low rent. Small Bachelor Flat also available in same building.—Address, No. 6466, B.M.A. House, Tavistock Square, W.C.1.

Rent Free.—Charming Unfurnished MAISONETTE, Belsize Park, in return for ATTENDANCE on Doctor's (furn shed) consulting room. Required Nov. 20th. Accom. suitable for Lady [illegible] with maid. Also same [illegible] and kitchen an[illegible] people only app[illegible]

Surgery, grand opening for Doctor. SHOP AND ROOM, etc. Prominent position, Hampstead district. Rent 25/- per week.—Address, No. 6311, B.M.A. House, Tavistock Square, W.C.1.

To Let, just off Harley Street, a large CONSULTING ROOM, suitable for Doctor or Dentist. Also, if required, Suite consisting of bed-room, sitting room, and bathroom.—Address, No. 6456, B.M.A. House, Tavistock Square, W.C.1.

To Let, well-furnished Consulting and WAITING ROOM, with attendance; two afternoons a week; in principal street, close to Cavendish Square.—Address, No. 6231, B.M.A. House, Tavistock Square, W.C.1.

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Second-hand X-ray and Electro-MEDICAL APPARATUS for disposal, including Couches, Screening Stands, etc. Low prices accepted for clearance purposes.—A. E. DEAN & Co., Leigh Place, Brooke Street, Holborn, London, E.C.1.

APPOINTMENTS.—Contd.

The Preston and County of LANCASTER ROYAL INFIRMARY. (362 Beds.)

Applications are invited for the undermentioned posts from unmarried gentlemen, doubly qualified and registered.

RESIDENT SURGICAL OFFICER. Twelve months' appointment (subject to renewal). Salary £300, with board, residence, and laundry.

HOUSE SURGEON. Six months' appointment (subject to renewal). Salary £150, with board, residence, and laundry.

Applications, stating age, nationality, qualifications, and experience, together with copies of testimonials, to be forwarded to the undersigned.

JOHN GIBSON, Supt. & Secretary.

New Sussex Hospital for Women AND CHILDREN, Windlesham Road, BRIGHTON.

Applications are invited from fully qualified Medical Women for the following posts:

1. HONORARY ASSISTANT OPHTHALMIC SURGEON for the first and third Friday afternoons in each month.
2. HONORARY ANÆSTHETIST for Tuesday mornings.

Applications, with copies of testimonials, to be sent to the Secretary on or before Oct. 21st.

St. John's Hospital, Lewisham, S.E.13.

Applications are invited for the office of RESIDENT MEDICAL HOUSE SURGEON for three or six months from November 1st, at a salary of £100 per annum. Applications, with copies of testimonials, should reach the Secretary at the Hospital not later than October 21st. The Selection Committee will sit on October 22nd at 4.30 p.m.

Alexandra Hospital for Children WITH HIP DISEASE, SWANLEY, KENT.

(In connection with St. Bartholomew's Hospital.)

Applications are invited for the post of RESIDENT ASSISTANT MEDICAL OFFICER. Candidates (male) must be unmarried, fully qualified, and have held a resident surgical appointment. The successful candidate will be required to take up his duties about November. The appointment is for six months, with eligibility for re-election. Salary to commence at £300 a year, with board and lodging.

Applications, stating age and qualifications, should be sent, not later than October 16th, to the undersigned, at the London Offices, 107, Southampton Row, W.C.1, from whom particulars of the duties and conditions of the appointment may be obtained.

STANLEY SMITH, Secretary.

Northern Infirmary, Inverness.

The Directors propose to appoint an HONORARY RADIOLOGIST to the Hospital. Candidates should possess a Diploma in Radiology and will be expected to confine themselves to the practice of radiology. Candidates should possess experience in the use of Radium. Details and conditions of the appointment will be furnished on application to the Secretary, ROBERT GILBERT, Esq., 20, Church Street, Inverness, with whom letters of application and copies of testimonials should be lodged on or before November 4th.

Stockton and Thornaby Hospital, STOCKTON-ON-TEES. (140 Beds.)

Applications are invited for the post of JUNIOR RESIDENT MEDICAL OFFICER (male). Salary £150, with residence, board, and laundry. Candidates for the above post must be doubly qualified and unmarried, and are required to commence duties on or about November 1st. Application, stating age, nationality, and experience, together with copies of three recent testimonials, to be sent to the undersigned as early as possible.

J. WILKINSON, Secretary.

North Ormesby Hospital, MIDDLESBROUGH. (140 Beds.)

HOUSE PHYSICIAN required at once. Male and unmarried. Salary £115 per annum, with board, residence, and laundry. There are three Residents, and the successful candidate will be eligible for the post of House Surgeon in due course. Applications, stating age, qualifications, previous experience (if any), with copies of three recent testimonials, to be sent to the undersigned as early as possible.

GEORGE WATTS, Secretary-Supt.

Weymouth and District General HOSPITAL. (90 Beds and Cots.)

Wanted, HOUSE SURGEON, fully qualified, male, for November 1st, or soon after. Salary £180 per annum, with board, residence, and laundry.

Applications, stating age, qualifications, and copies of testimonials, should be sent to the undersigned not later than October 15th.

MORRIS LODGE, Hon. Sec.

Batley and District Hospital. (General Hospital. 84 Beds.)

HOUSE SURGEON.

The Committee require the services of a duly qualified Resident House Surgeon. Salary £150, with board, residence, and laundry. Duties to commence immediately. Applications, with copies of testimonials, to be sent to the undersigned.

Batley, Yorks. A. W. WESTERN, Secretary.

St. John's Hospital, Lewisham, S.E.13.

A vacancy has been declared in the office of RADIOLOGIST to the Hospital, to fill which applications are invited. The successful applicant must be prepared to commence duties at the beginning of Novem[illegible] appointment and f[illegible] obtained from the [illegible] and applications must be received by Oct. 21st.

Chelmsford and Essex Hospital.

RESIDENT MEDICAL OFFICER.

Applications are invited for the post of Resident Medical Officer. The appointment is for six to twelve months. Salary £150 per annum, with board and residence.

Applications, with copies of three testimonials, to be sent to the undersigned, London Road, to be sent to the undersigned, London Road, Chelmsford, on or before Saturday, October 19th.

R. G. MORRISH, Secretary.

Bethnal Green Board of GUARDIANS.

PUBLIC VACCINATOR.

The Guardians invite applications from registered Medical Practitioners having a bona-fide surgery within the South or West Wards of the Borough of Bethnal Green for the post of Public Vaccinator for the South-West District, which comprises the above-mentioned Wards of the Borough.

The fees payable are as follows:

Successful primary vaccinations performed at the home of the person vaccinated	5s.
Successful re-vaccinations performed at the home of the person vaccinated	5s.
except that if two or more re-vaccinations are performed at the same home within 24 hours the fee for others than the first is	2s. 6d.
Successful primary vaccinations or re-vaccinations performed at the vaccinator's surgery or elsewhere than at the home of the person vaccinated	2s. 6d.
For each child's name entered in the List II supplied by the Vaccination Officer	1s.

All vaccination must be done in accordance with the Vaccination Acts and the regulations of the Ministry of Health, and the person appointed must appoint a registered medical practitioner also having a bona-fide surgery within the district to act as his Deputy in the event of his unavoidable absence, and he must enter into a Contract in a form approved by the Ministry of Health, which Contract will be terminable by either party by 28 days' notice to the other.

Applications should reach the undersigned not later than first post on October 17th.

Canvassing the Guardians, directly or indirectly, will be deemed a disqualification.

By Order,
C. FAULKNER JONES,
Clerk to the Guardians.

Administrative Offices, Bishop's Road, Bethnal Green, E.2. October 2nd, 1929.

County Borough of Darlington.

APPOINTMENT OF DEPUTY MEDICAL OFFICER OF HEALTH.

The Town Council invite applications from qualified persons for the post of Deputy Medical Officer of Health at a salary of £750 per annum.

The appointment will be a whole-time one and be terminable at any time by three months' notice on either side, and the person appointed will be required to act under the control and direction of the Medical Officer of Health and to carry out such duties as the Council or the Medical Officer of Health may assign to him from time to time.

He will be requ[illegible] ment of all pers[illegible] Venereal Diseases [illegible] as an Assistant S[illegible] a Medical Certifier [illegible] Acts, 1913 to 1927.

The appointment will be subject to the approval of the Ministry of Health and the Board of Education.

The person appointed must live in Darlington, must not engage in private practice, and will be required to pass a medical examination, and the appointment will be subject to the provisions of the Local Government and Other Officers Superannuation Act, 1922.

Applications on forms to be obtained from the undersigned, together with copies of three recent testimonials, must be received by him on or before noon on October 23rd.

Canvassing will disqualify.

Town Clerk's Office, Houndgate, Darlington. September 27th, 1929. H. HOPKINS, Town Clerk.

The Royal Gwent Hospital, NEWPORT, MON.

There is a vacancy for a HOUSE SURGEON at the above Hospital. Salary at the rate of £125 per annum, with board, lodging, and laundry.

Applications, stating age and qualifications, with copies of three testimonials, to be sent to the undersigned.

Applications from ladies not entertained.

J. K. MILLWARD, Secretary-Supt.

Oct. 1st, 1929.

British Hospital for Mothers and BABIES, WOOLWICH.

(Maternity Hospital—42 beds and extern Dept.—large Ante- and Post-Natal Clinics.)

Applications are invited for the post of RESIDENT MEDICAL OFFICER (lady) for 12 months from January 7th next. Board, lodging, and honorarium of £70. Apply by letter to Miss ALICE GREGORY, Hon. Secretary, at the Hospital.

CAVENDISH NURSES (Male and Female)

Head Office: 54, BEAUMONT ST., LONDON, W.1 (late 43, New Cavendish St., London, W.1.)

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TELEPHONES: London, 1277 Welbeck. Glasgow, 477 Douglas. Manchester, 3152 Ardwick. Dublin, 531 Ballsbridge.

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Terms from £3 3s. Apply to the Secretary or Lady Supt.

Cumberland and Westmorland MENTAL HOSPITAL, GARLANDS, CARLISLE.

JUNIOR ASSISTANT MEDICAL OFFICER required

Applicants must be registered practitioners, male, unmarried, not over 30. Salary £350 per annum, rising by two annual increments of £25 per annum to £400, together with the usual emoluments (board, furnished apartments, coal, light, attendance, laundry) at present valued for the purpose of the Asylum Officers Superannuation Act at £100 per annum. £50 additional will be given on obtaining the D.P.M. (facilities for study leave with a view to obtaining the D.P.M. are granted on recommendation of the Medical Superintendent) Previous experience desirable, but not essential. The appointment to be subject to two months' notice on either side. The successful candidate to be free to take up duty between November 10th and 17th. Applications, stating age, qualifications, religion, etc., together with copies of three recent testimonials, to reach the undersigned not later than first post October 17th.

J. H. MADILL, Medical Supt.

Royal Sea Bathing Hospital, FOR

A MALE HOUSE SURGEON is required immediately. The salary is at the rate of £200 per annum, with board, residence, attendance, and laundry. Candidates for the post must be legally qualified and registered. The appointment is for six months There are 300 beds for adults and children, which afford special opportunities for the study of Surgical Tuberculosis.

Applications, stating age and previous appointments, with copies of three testimonials, should be sent to the Secretary, R.S.B.H. Offices, 15, York Buildings, Adelphi, London, W.C.2.

Royal National Orthopædic HOSPITAL.

SURGICAL REGISTRARS.

The Committee invite applications for the appointment of Three Registrars (male) as from November 1st

Honorarium £105 per annum. The appointments are for 12 months, renewable for a further 12 mont
the Medical Boa
of three recent
Secretary, 234, G
later than October 17th.

Royal National Orthopædic HOSPITAL.

HONORARY ASSISTANT SURGEON.

The Committee propose to appoint an Honorary Assistant Surgeon, whose duties will include attendance
ment on Wed
and charge of
three recent
Secretary, 23
or before Thursday, October 17th.

St. John's Hospital, Lewisham, S.E.13.

Applications are invited for the resident appointments of MALE CASUALTY OFFICER and MALE HOUSE PHYSICIAN. These appointments are tenable for three or six months, commencing on November 1st, at a salary of £100 p.a. Applications, with copies of testimonials, should reach the Secretary at the Hospital not later than October 14th.

St. Peter's Hospital for Stone, Henrietta Street, W.C.2.

It has been decided to appoint a RADIOLOGIST on the staff of the above Hospital. An honorarium of £25 per annum will be paid.

Applications, which should be accompanied by not more than three copies of recent testimonials, will be received by the undersigned not later than the first post on Wednesday, October 16th.

BEECHEY ROGERS, Secretary.

Hampstead General and North-West LONDON HOSPITAL, Haverstock Hill, N.W.

APPOINTMENT OF CASUALTY MEDICAL OFFICER AND CASUALTY SURGICAL OFFICER.

Applications are invited from unmarried registered medical practitioners for the positions of Casualty Medical Officer and Casualty Surgical Officer, vacant on November 1st next, at the Out-patient Department of the Hospital, Bayham Street, Camden Town.

The salary for each appointment will be at the rate of £100 per annum, together with board, residence, etc., and the term will be for six months.

Applications, to be made on a form which will be supplied by the Secretary, together with copies of not more than three testimonials, should reach the Secretary not later than noon on October 19th next.

Hampstead General and North-West LONDON HOSPITAL, Haverstock Hill, N.W.

APPOINTMENT OF A HOUSE SURGEON.

Applications are invited from unmarried registered medical men for an appointment of House Surgeon, vacant on November 1st next. The salary will be at the rate of £100 per annum, together with board, residence, etc., and the term will be for six months.

Applications, to be made on a form which will be supplied by the Secretary, together with copies of not more than three testimonials, should reach the Secretary not later than noon on October 19th.

Royal Halifax Infirmary.

Wanted, a THIRD HOUSE SURGEON (male, unmarried). Candidates must be duly qualified and registered. (The Resident Medical Staff consists of Resident Surgical Officer and Three House Surgeons.) Th
months ending April
motion if satisfactor
Staff are as follows: Resident Surgical Officer £250, First House Surgeon £175, Second House Surgeon £150, and Third House Surgeon £100 per annum, with residence, board, and laundry. Particulars of duties may be obtained from the undersigned, to whom applications, with copies of testimonials, should be sent not later than October 15th.

A. MIDGLEY,
September 30th, 1929. Secretary.

Kettering and District General HOSPITAL. (82 Beds.)

Applications are invited for the post of JUNIOR HOUSE SURGEON. Salary £100 p.a., with board, residence, and washing. Candidates must be fully qualified and registered.

The appointment is for six months, but candidates will be eligible for re-election.

Applications, stating age, nationality, and qualifications, together with copies of three recent
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(General Hospital, 151 Beds.)

A RESIDENT MEDICAL OFFICER (male) required to commence duties November 9th.

Candidates must be unmarried, fully qualified, and registered. Salary £150, with board, etc.

Applications, with copies of testimonials, to be sent to the House Governor and Secretary, from whom a copy of the rules may be had if desired.

Jewish Maternity Hospital (Jewish Maternity Home Incorporated), 24, Underwood Street, E.1.

A vacancy arises for a general SURGEON on the staff, and applications for this post are invited.

Candidates should hold the diploma F.R.C.S.Eng., and should be a member of the surgical staff of a general hospital.

Application, with copies of three testimonials, should reach the Secretary before October 25th.

Metropolitan Hospital, Kingsland, Road, E.8.

There are vacancies for the following:
(*a*) SENIOR HOUSE PHYSICIAN (Male).
(*b*) SENIOR HOUSE SURGEON (Male)
(*c*) JUNIOR HOUSE PHYSICIAN (Male).
(*d*) JUNIOR HOUSE SURGEON (Male).
(*e*) TWO CASUALTY OFFICERS (Male)

Salary £100 per annum. Appointments in the first place will be for a period of six months dating from November 1st.

Candidates must possess a registered medical and surgical qualification of the United Kingdom.

Applications, with copies of three recent testimonials, and a certificate of ability to administer anæsthetics, should be sent to the undermentioned not later than the first post on Friday, October 18th. Two members of the resident staff are candidates for the two senior appointments.

HERBERT F. RUTHERFORD,
Secretary and House Governor.

Royal Devon & Exeter Hospital, EXETER. (225 Beds.)

AURAL HOUSE SURGEON AND CASUALTY OFFICER.

Applications are invited for the post of Aural House Surgeon and Casualty Officer at this Hospital now vacant. The appointment is for six months, but candidates are eligible for re-election.

Salary at the rate of £120 per annum, with board, apartments, and washing.

Applications, giving particulars as to age and qualifications, together with copies of recent testimonials, should be sent to the undersigned as soon as possible.

By Order of the Committee,
S. S. COLE,
Oct. 1st, 1929. Secretary & Manager.

Norfolk and Norwich Hospital, NORWICH.

Applications are invited for the post of HOUSE PHYSICIAN. Salary £120 per annum, with board, residence, and laundry. Preference will be given to candidate who has held a previous Hospital appointment. Candidates (male), who must possess registered qualifications, should forward applications, stating age, nationality, etc., together with copies of testimonials, to the undersigned, not later than Tuesday, October 15th.

FRANK INCH,
Oct. 5th, 1929. House Gov. & Secretary.

Nottingham General Dispensary, Broad Street, NOTTINGHAM.

Wanted, RESID
married. Must ha
fications. Salary
year up to £300. Apartments (not inclu
attendance, lights, and fuel. This Institution
is a non-provident one. No beds. No midwifery.

Applications, stating age, and accompanied by recent testimonials, to be sent by October 16th to—

5, Eldon Chambers, R. J. WILLATT.
Nottingham. Secretary.

The Metropolitan Ear, Nose, and THROAT HOSPITAL (1838. Incorporated), Fitzroy Square, W.1.

HOUSE SURGEON (non-resident) Salary £150 per annum.

Applications are invited for the above appointment, and should be forwarded, with not more than three recent testimonials, to the undersigned.

L. L. PHILLIPS, Secretary.

The Royal Eye and Ear Hospital, BRADFORD.

Applications are invited for the post of JUNIOR HOUSE SURGEON (male).

Salary £120, with board, residence, and laundry.

Applications, stating qualifications, age, etc., with copies of recent testimonials, to be forwarded to the undersigned.

F. BRIGGS, Secretary-Supt.

BRITISH MEDICAL BUREAU

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MANCHESTER MEDICAL AGENCY.

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MALE OR FEMALE.

TRAINED NURSES FOR MENTAL, MEDICAL, SURGICAL, AND FEVER CASES.

Nurses reside on the premises and are available for urgent calls Day or Night.

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(In conjunction with the MALE NURSES' ASSOCIATION),
29, York St., Baker St., London, W.1.
Mrs. MILLICENT HICKS, *Supt.*
W. J. HICKS, *Secretary.*

Bradford Royal Infirmary.

HONORARY PHYSICIAN IN CHARGE OF THE RADIOLOGICAL DEPARTMENT.

(FORMAL NOTICE.)

The Board of Management at their Meeting on November 1st will proceed to the election of an Honorary Physician in Charge of the Radiological Department to fill the vacancy caused by the retirement of DR. WM. MITCHELL. The Honorary Assistant Radiologist will be a candidate for the post.

J. J. BARRON,
October 7th, 1929. Secretary-Supt.

Bradford Royal Infirmary.

HONORARY ASSISTANT PHYSICIAN
(Open Appointment)

The Board of Management invite applications for the post of Honorary Assistant Physician. Candidates must be duly qualified under the Medical Acts. Applications, with certificate of registration and copies of not more than three recent testimonials, should reach the Secretary-Superintendent not later than first post on October 22nd.

J. J. BARRON,
October 7th, 1929. Secretary-Supt.

Bradford Royal Infirmary.

HOUSE PHYSICIAN wanted to enter to duties on December 1st next.

Candidates must be single and legally qualified. Salary £150 per annum, with board, residence, and washing.

There are 215 beds and six Resident Officers.

Applications, stating age, qualifications, and previous experience (if any), with copies of recent testimonials, to be received by the undersigned not later than October 22nd.

J. J. BARRON,
October 7th, 1929. Secretary-Supt.

Royal United Hospital, Bath.

Wanted at once, a HOUSE SURGEON. Salary £150 per annum.

The appointment will be for not less than six months, and candidates must be male, unmarried, and of British nationality.

Applications, with three recent testimonials, must be addressed to the Secretary.

J. M. SHEPPARD, F.C.I.S.,
Secretary.

MEDICAL PRACTITIONERS' UNION AGENCY, LIMITED,

56, RUSSELL SQUARE, LONDON, W.C.1.

Telephone: Museum 6161 and 5197.
Telegrams: "Ullabrini, Westcent, London."

TRANSFER DEPARTMENT.

ASSISTANTS wanted for General Practices in London E., S.E., Staffs, Birmingham, and Glamorgan.

PARTNERSHIP.—HALF SHARE for sale in busy panel and private Practice. Old established. Income of share £910 18s. Fees for consultation 2s. 6d. up. Visits 3s. 6d. to 5s. Good house, containing consulting room, 2 waiting rooms, dispensary, dining and drawing rooms; and upstairs, all on one floor, 4 bedrooms, 3 maids' rooms, and bathroom. Large garden and garage. Rent £40 per annum. Premium £1,675. Accept £1,200 down.

PARTNERSHIP for sale in busy general PRACTICE in Staffs. One-third share of £3,500. Over 4,900 on panel. Suit young man. Good house and surgery, electric light, and garage. Premium 1½ years' purchase.

NUCLEUS for sale in Peckham, S.E.—Receipts £240 per annum. Number on panel 180. Consultation fees 2s. up. Well-furnished lock-up waiting room and surgery, rent 25s. One furnished room available upstairs if desired. Possible chance of taking over whole flat. Premium £300; accept £100 down.

PECKHAM, S.E.—PRACTICE established 4 years for sale. Income £821 17s. Fees 1s. 6d. up. Number on panel 740. Small house, shop-fronted. Waiting and consulting rooms, surgery, kitchen, and 3 rooms upstairs. Rent £50 per annum. Premium £1,200.

BLOOMSBURY, W.C.—Good-class PRACTICE for sale. Small panel of 185. Fees 10s. 6d. Income £800 per annum. Very nice consulting and waiting rooms. Rent 30s. per week.

SOUTHWARK, S.E.—Panel and private PRACTICE for sale. Income over £830 Panel 800. Fees 2s. up. Small shop-fronted premises. Waiting and consulting rooms, 2 reception rooms, kitchenette, 3 bedrooms; electric light and gas fires in all rooms. Constant hot-water supply. Small garden. Premium £1,200; accept part down.

BIRMINGHAM.—For sale, WHOLE or SHARE of panel and private PRACTICE. Income £2,300. Number on panel 1,700. Fees 2s. up. Large detached house, big garden. Vendor's freehold property, value £1,500. Branch Surgery, Vendor's freehold property, £700. Whole practice 1½ years' purchase. Share, 2 years' purchase. Unlimited scope for two men.

MANCHESTER.—General PRACTICE for sale. Average income £1,020. Number on panel 893. Consultation fees 2s. 6d. up. House contains surgery and waiting rooms in basement, 2 reception rooms, 4 bedrooms, garage. Vendor's own property; lease 960 years. To be sold £900. £500 could remain. Premium for Practice £1,500; accept £1,000 down.

MIDLAND COUNTY.—For sale, PRACTICE established by Vendor seven years. Net income for 1928, £820. Number on panel 600. Fees 3s. 6d. to 12s. 6d. Excellent house; 3 large living rooms, 6 bedrooms, bathroom. Large garden, garage, and outhouses. Vendor's own property. Premium for house and Practice £2,200.

THE MANCHESTER MEDICAL & SCHOLASTIC ASSOCN., Ltd.,

The oldest Medical Agency in Manchester

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TRANSFERS and PARTNERSHIPS arranged, and Investigations, Valuations, &c., undertaken. ASSISTANTS & LOCUM TENENS SUPPLIED. PRACTICES for Sale. Particulars on application.

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FOR MENTAL DISORDERS.

Private Nursing Staff Department.

Trained Nurses for Mental and Nervous Cases can be had immediately.

Apply to Lady Superintendent,
19, Nottingham Place, London, W.1.
Telephone: Mayfair 5420.

Northern Branch.—Apply, Lady Superintendent 57, Clarendon Rd., Leeds. 'Phone: Leeds 26165.

THE OLDEST AND LEADING MEDICAL AGENT

PERCIVAL TURNER, LTD.

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4 & 5, ADAM ST., STRAND, W.C.2.
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Telephone: TEMPLE BAR 9011.

Terms post free on application.

Kent.—Suburb. — £1,250, ineg. and scope. Fees 3/6 to 21/-. Panel over 650. House to rent.—No. 8558.

London Suburb (about 10 miles). £2,300, scope. Panel 1,650. Fees 3/6 to 5/-. Corner house, 5/6 bed., garage, etc. —No. 8557.

Herts.—Country.—Nearly £1,000. Panel 470. Appts. £54. Residential. Good fees. House, with good surgery, 6 bed., garden, etc.—No. 8556.

London Suburb, S.E.—£1,800- £2,000. 1/2 share and succession. Non-panel. Fees 4/- to 10/6. Little midwifery. —No. 8555.

Lancs.—Death Vacancy.—£2,200. Panel 2,200. Good house, 5 bed., etc., and tennis court. Rent or sell.—No. 8554.

West of England Town.—Share worth £900 p.a., of which £600 is from panel and appts. House, with 7 beds., etc., to rent.—No. 8552.

Surrey.—About £650 p.a., with scope. Residential. Visits 5/- to 10/6. Small panel. Good house, 6 bed., etc. Reduced premium quick sale.—No. 8542.

Share worth £800 net in suburban Practice. Appts. £400 p.a. Panel over 3,000. Prelim. assistancy essential.—No. 8547.

Midlands (Industrial). — Over £1,500 p.a., with ample scope. Panel about 1,700. House to rent at £56.—No. 8546.

Essex Coast. — Urgent Sale. — About £700 p.a. Small panel. Good house and garden to rent in growing district. —No. 8544.

Special October List of Practices, Partnerships, Nursing Homes, Institutions, etc., in all parts, will be sent post free on application.

Wilts.—£2,250 p.a. Country Town. Panel 1,000. Surgical scope. Choice of houses. Premium £1,800 for 2/5 share.—No. 8541.

Lancs. — Average £1,590 p.a. 1/2 share for sale. Panel £800 p.a. House, 4 bed., etc., to rent. Premium only £1,200.—No. 8517.

Dorset. — Average £2,300 p.a. 1/2 share for sale. Good appts. Small panel. House, 6 bed., etc., and garden, to rent. —No. 8537.

Liverpool.—£1,300 p.a. Visits 3/6 to 5/-. Mids. 3 to 4 gns. Panel 560. House, 4 bed., etc., and garden.—No. 8536.

Yorks. — Average £1,800 p.a. Panel over 1,000. Visits 3/6 up. No mids. House, 5 bed., etc.—No. 8533.

Cornwall. — About £850 p.a., increasing. Small panel. Visits 4/- to 21/-. House, 6 bed., etc., and good garden.—No. 8529.

Staffs. — About £1,300 p.a. Panel 1,300. Fees 5/-. House, 5 bed., etc., to rent. Premium £1,000 cash.—No. 8527.

N. Wales Borders.—£4,000 p.a. 1/3 or 2/3 share. Panel 3,800. Appts. worth £1,600 p.a. Visits 5/- up. About 50 mids. at £2 2s. House (4 bed., etc.) to rent or buy.—No. 8519.

Home Counties.—Death Vacancy. —About £760 p.a. Mids. 2 gns. Panel 516. Visits up to 10/-. Good house and large garden to rent.—No. 8516.

Yorks.—Over £3,000 p.a. 1/4 share, good scope for increase. Panel over 2,000. Mids. 2—5 gns. Med. house to rent or buy.—No. 8510.

Lancs.—£4,000 p.a., increasing. Panel over 2,600. Visits 2/6—7/-. Mids. 2—5 gns. Suitable for two. Two houses, rent or buy.—No. 8509.

Sussex Coast.—About £1,400 p.a. Good-class, non-panel, non-dispensing. Appt. £35. Visits 5/- to 15/-. Large house to rent.—No. 8476.

British Medical Bureau

(THE SCHOLASTIC, CLERICAL & MEDICAL ASSOCIATION LTD.)

(Founded 1880.)

12, Stratford Place, Oxford Street, W.1.

Tele. Address: Triform, Wesdo—London. Telephone: Mayfair 1782, 1783

The Association has long been favourably known to the members of the Medical Profession as a thoroughly trustworthy and successful Agency for the transaction of every description of Medical, Scholastic and Accountancy business, and the BRITISH MEDICAL ASSOCIATION has every confidence in recommending its members to consult Mr. A. V. STOREY, the General Manager, in all transactions requiring the services of a Medical Agent.

Members of the British Medical Association may take advantage of a reduced scale of charges applicable to them.

NORTHERN BRANCH.

The Manchester Medical Agency, lately under the control and management of the Manchester Medical Committee, has now been taken over by the British Medical Bureau as their Northern Branch.

Medical Practitioners in the North requiring the services of the Bureau are recommended to consult the Branch Manager, at the Offices, 33, Cross Street, Manchester.

Telephones: CENTRAL 3925; after Office Hours: RUSHOLME 2549.
Telegrams: "LOCUM, MANCHESTER."

Practices and Partnerships for Disposal. Full particulars sent free.

1 HOME COUNTIES.—Partnership in Practice £2,500 in small country town under 40 miles from London. Panel over 800. One-half share at one and a half years' purchase.

2 WEST OF ENGLAND. — Partnership in Practice in small watering-place. Receipts past 12 months over £1,800. Panel 1,375. Pleasantly situated house (5 bedrooms) in good residential part for sale. Premium two-fifths share £1,400.

3 S.W. OF ENGLAND. — Partnership in Practice about £4,000 p.a. in watering-place. Panel about 1,700. Choice of residence to rent or purchase. Hospital and scope for surgery. Premium one-third share £2,400.

4 HOME COUNTIES. — Country Practice over £450 in residential and agricultural district, easy distance of London. Panel over 200. Nice house (3 bedrooms and attics). Rent £60. Premium 1½ years' purchase, or offer.

5 LANCASHIRE.—Practice of about £2,000 p.a. (over £500 from panel) in a semi-rural district near good town. Nice house (6 bedrooms, etc.), recently redecorated, for sale. Premium—Practice—£2,750.

6 ITALY. — Non-dispensing Season Practice in small seaside town. Cash receipts past season £200. Good scope.

7 S. WALES. — Non-dispensing Practice about £1,200 in important town. Small panel. Well situated house, with ample accommodation, to be sold or let. Reasonable offer for prompt sale.

8 DEATH VACANCY, S.E. COAST.—Increasing PRACTICE in popular resort. Receipts past 12 months about £750. Panel 130. Semi-detached residence (4 bedrooms), garage, and garden, to rent. Reasonable offer.

9 EAST COAST. — Partnership in Practice nearly £3,000 p.a. in popular watering-place. No panel. Modern house (5 bedrooms) to rent. Excellently equipped Hospital and scope for Ear, Nose, and Throat work. One-third share at moderate premium.

10 HOME COUNTIES.—Partner required in non-dispensing Practice £3,200 p.a., in growing residential district within 15 miles of London. Panel 1,600. Very convenient non-basement house (5 bedrooms) to rent. Cottage Hospital. Premium one-third share 2 years' purchase.

11 WEST MIDLANDS. — Partnership in middle and better-class Practice £3,000 p.a., in one of the most picturesque towns. No appointments or panel. Suitable house available. Premium two-fifths share 2 years' purchase. Partner must be well qualified and have held Hospital appointment.

12 N.E. COAST.—Partner required in sound lucrative Practice £7,000 p.a. in attractive town. Small select panel. Large house to be sold. Well-equipped Hospital. One-fifth or one-fourth share at 2 years' purchase, part by instalments. Strongly recommended.

13 EAST COAST.—Partnership in steadily increasing Practice of about £8,000 in large seaport town. Panel over 7,000. Suitable house available. Premium one-fourth share £2,700.

14 HOME COUNTIES. — Practice doing at rate of £500 p.a. in first-rate town under 20 miles from London. Panel 220. Excellently situated house (6 bedrooms) for sale. Cottage Hospital. Premium 1½ years' purchase.

15 LONDON, W.—Partnership in non-dispensing Practice about £2,500 p.a. No panel or appointments. One-third share, with view to ultimate succession. Premium 2 years' purchase. Purchaser must be well qualified and used to good-class Practice.

16 SOUTH OF ENGLAND.—Partnership in middle-class Practice, £2,800 p.a., in flourishing town. No panel. House (6/7 bed and dressing rooms) for sale. Premium one-half share 2 years' purchase.

17 LANCASHIRE. — Partnership in Practice £2,500 in urban district easy distance of important town. Panel 3,800. Premium one-half share 1½ years' purchase.

18 WEST OF ENGLAND.—Good Town.—A share of over £900 p.a. (£600 from panel and appointments) in well-established Practice. Small non-basement house to rent. Premium to effect quick sale £1,570.

19 WEST MIDLANDS.—Practice of £1,440 p.a. in small market town in agricultural district. Panel 500. Good-house (7 bed and dressing rooms), with electric light and gas, for sale. Scope for increase. Premium £2,100.

20 MIDDLESEX. — Practice of over £1,300 p.a. in residential district within 20 miles of London. Panel over 1,100. House (5 bedrooms), with very attractive garden, etc., to rent. Premium 1½ years' purchase.

21 EASTERN COUNTIES.—Practice averaging nearly £3,300 p.a. in seaport town. Panel 700. House (5 bedrooms), large garden, for sale or rent. Scope. Premium 1½ years' purchase (or share up to one-half at 2 years' purchase).

22 HOME COUNTY.—Country Practice averaging nearly £1,100 p.a. in village under 15 miles from London (North). Panel 670. Old-fashioned roomy and comfortable house (6 bedrooms), large garden and garage, to rent. Good prospects for scope. Premium £1,650.

23 NORTH OF ENGLAND. — Ophthalmic PRACTICE over £1,300 p.a. in good town. Excellent introduction. Premium 1½ years' purchase.

24 MIDLANDS. — Country Practice about £1,000 p.a. in residential district and hunting centre. Panel 600/700. House, with 8 bedrooms, to rent. Premium £1,300.

British Medical Bureau

(THE SCHOLASTIC, CLERICAL & MEDICAL ASSOCIATION LTD.)
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Practices and Partnerships for Disposal (continued).

25 SOUTH COAST. — Practice worth about £1,500 p.a. in first-class residential seaside place. Small panel. Choice of houses, to be sold. Moderate premium for Practice.

26 YORKSHIRE (E.R.). — Old-established Town and Country PRACTICE £2,750, within easy distance of important town. Panel 1,750 to 1,800. Well-situated house (9 rooms and bath). *Great scope. Premium—Practice and house*—£4,850, or, assistantship with view to purchasing one-third share entertained.

27 SOUTH OF ENGLAND.—Partnership in Practice of over £6,700 p.a. in pleasant residential neighbourhood close to good Town. One-sixth share at first at 2 years' purchase. Purchasers should have held H.P. appointment at one of the London Hospitals.

28 EAST ANGLIA.—Partnership in Country Town Practice averaging £1,600 p.a. Panel about 700. Picturesque old-fashioned house (8 bedrooms), with electric light, etc., to rent. Premium one-half share 2 years' purchase.

29 LONDON, N.—Partnership in well-estab. middle-class Practice, nearly £2,750 p.a., in pleasant outlying suburb. Panel about 800. Suitable accommodation to rent. Premium one third share 2 years' purchase.

30 YORKSHIRE (W.R.). — Partnership in Practice averaging £1,400 p.a. in country district close to large town. Opposition weak. Plenty of scope for increase. One-half share at 1½ years' purchase.

31 BUCKS.—Practice about £800 in small country town. Panel 741. Nice detached house (4 bedrooms), garden and garage, to rent. Premium £1,050.

32 SOUTH OF ENGLAND. — Assistant required (with view to Partnership) in steadily increasing Practice £2,770 in attractive town within 90 miles of London. Panel 1,770. Applicant must be English or Scotch (about 28 to 30), who must have held House appointments. One-third share at 2 years' purchase to suitable man after assistantship.

33 BRITISH EAST AFRICA. — Assistant required (with view to Partnership) in General and X-ray and Electro-therapeutic Practice. Assistant must hold the F.R.C.S., and experience in X-ray would be advantageous. Share of about £1,200 p.a. offered to suitable man after preliminary assistantship.

34 SOUTH AFRICA.—Old-established Practice. Receipts last year £1,816. Travelling and midwifery light. Climate ideal—no tropical diseases (altitude nearly 5,000 ft.). Delightful residence (5 bedrooms), in perfect order, with 2 acres grounds. Excellent scope. Local Hospital. Premium £1,200, with option to purchase house.

35 SOUTH AFRICA.—Old-established Practice in one of the pleasantest towns, with beautiful climate, in the Cape Province. Receipts average £2,900 p.a. House (4 bedrooms) to rent. Purchaser should be able to do major surgery. Knowledge of Dutch unnecessary. Premium £2,250.

36 MIDLANDS.—Practice averaging £1,680 p.a. in important city. Panel 1,560. *Specially built house* (4 bed and dressing rooms) to be sold. Scope for increase. Price £2,250.

37 HOME COUNTIES.—Partnership in Practice £2,800 p.a. in good town about 30 miles from London. *Small panel. Convenient house (5 bedrooms) to be sold or let.* University and Public School man who has held appointments preferred. One-third share at 2 yrs.' purchase after preliminary assistantship.

38 LONDON, S.E. [illegible] P-aging about £800 p.a. in [illegible]el 800. House (3 bedrooms).

39 PRIVATE ASYLUM.—Partnership.—Exceptional opportunity for suitably qualified Medical Man (age 30—33) in first-rate establishment. Preliminary assistantship 12 months. Capital required about £4,000.

40 SOUTH OF ENGLAND.—Partnership in Practice £2,250 p.a. in beautifully situated Country Town within 100 miles of London. Panel under 1,000. Suitable accommodation. Share, worth about £900 p.a., at 2 years' purchase.

41 SOUTH OF ENGLAND.—Seaport Town. PRACTICE of about £750 p.a., including appointments over £225 p.a., and panel nearly 1,000. Good house (6 bedrooms) to be sold or let. Premium 1½ years' purchase.

42 DEATH VACANCY.—Surrey.—Practice of between £250/300 p.a. in residential district easy distance of London. *Small panel. Specially built corner residence* (4 bedrooms), with nearly half acre of garden, for sale.

43 LONDON, W.—Partnership in good middle and upper class (non-dispensing) Practice. No panel. Applicant should be aged about 30 and have held several Hospital appointments. Share of £1,000 (or more) at 2 years' purchase after preliminary assistantship.

44 SURREY.—Sound rapidly increasing Practice in suburban district under 10 miles. Receipts last year £2,500. Panel 750. Small house for sale. Premium—Practice—£4,000.

45 NORTH OF ENGLAND. — Practice about £600 p.a. in Inland Spa. Panel over 500. Well-situated house (6 bedrooms) to rent. Premium £1,000.

46 LIVERPOOL. — Increasing Practice of nearly £1,300. Panel 560. House (4 bedrooms), garage and garden, for sale. Golf near by. Premium £1,550.

47 SOUTH OF ENGLAND. — Partnership in Country Town Practice of nearly £2,300 p.a. Small panel. Well-built house (6 bedrooms) to rent. Premium one-half share 1½ years' purchase.

48 SOUTH COAST.—Non-dispensing Practice of about £1,900 in residential town. No panel. Choice of house.

49 LONDON, W.—Good middle-class Practice of £840 in outlying residential suburb. No panel and practically no midwifery. House (4 bedrooms) and fair-sized garden to rent. Premium £1,100.

50 S.W. OF ENGLAND. — Country Practice of £950 p.a. Panel 400. Very little midwifery and night work. House, with 4 bedrooms, garden, and garage, for sale. Good society. Premium £1,350.

51 LONDON, N.—Sound easily worked Practice *over £2,500 p.a. in residential district. Small panel* and few midwiferies Good house (5 bed and dressing rooms), with large garden, to be sold. Premium for Practice 1½ years' purchase.

52 MIDDLESEX. — Rapidly increasing Practice doing about £600 in new developing district. Small panel. Very convenient house (3 bedrooms) for sale. Great scope. Premium £900.

53 NORTH OF ENGLAND.—Partnership in non-dispensing Practice about £6,000 p.a. in first-rate Country Town. Small panel. Very good house (6 bedrooms) to be sold or let. Premium one-fifth or two-fifths share 2 years' purchase.

54 CARMARTHENSHIRE.—Practice of over £930 p.a. derived from contract work and panel, in pretty village. Modern bungalow residence (3 bedrooms), with separate surgery, standing in 1¼ acres of ground. Premium—Practice and house—£2,500, part on mortgage if desired.

55 LANCASHIRE. — Practice of £1,500 in rapidly growing district within a few miles of popular resort. Panel over 200. Very nice compact house (4 bedrooms), with beautiful garden and orchard, for sale. Prem.—Practice—£1,500.

56 LONDON, N.W.—Partnership in increasing middle and working-class Practice £2,550. Panel about 1,500. *Excellent flat (2 bedrooms)* at moderate rent. Premium one-third share £1,700, part by instalment.

57 MIDLANDS.—Partnership in sound well-established Practice over £4,000 p.a. in flourishing town. Panel 2,800. House, with 4 bedrooms, to rent. One-fifth share at 2 years' purchase Partner should be experienced in Surgery.

58 N. WALES.—Country Practice averaging nearly £450 p.a. in agricultural district. Small panel. Good house (4 bedrooms), with 9½ acres of meadow land, for sale. Hunting, shooting, etc. Premium £450.

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WEST END.—(Harley Street locality).—The opportunity occurs for an experienced [illegible] in another in his [illegible]. Further information [illegible] address.

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4. BU[illegible] Pre[illegible]cei[illegible] war detached house on lease, rent £60. Premium £1,050. Excellent sport.
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3. EASTERN COUNTY.—(Within easy reach of sea).—PARTNERSHIP, after preliminary Assistantship, at a salary of £400 p.a., outdoor. A one-third share is offered in a good-class general Practice averaging [illegible] p.a. Panel of 1,300. Cottage Hospital and [illegible] ing partner must be a gentleman and fond [illegible] 2 years' purchase.
4. SUSSEX.—In a very pretty district amidst delightful surroundings an old-established PRACTICE worth at present about £1,150 p.a., but offering exceptional scope for development. Panel of 525 and Union appt. Fees 3/6 upwards. Opposition 3½ miles distant. Rail-way station. Charming residence in its own grounds of 2½ acres [illegible] ws. Ample accommodation. Central [illegible] Freehold for sale. Prem. £1,700.
5. [illegible] RESORT.—Well-established PRAC-TICE, averaging about £600 p.a., easily worked, and capable of increase. Panel of 500. Fees 3/6 to 21/-. No midwifery. Suitable house can be rented at £85 p.a. Premium £1,000. Ill health reason for sale.
6. SOUTH-WEST COAST.—FAVOURITE HEALTH RESORT.—Good mixed PRACTICE, averaging over £700 p.a. and offering scope for in-crease. Panel of 720. Fees 5/- upwards. Very nice house, with 2 reception, 4—5 bedrooms, etc. Garden. Premium 2 years' purchase.
7. ESSEX.—Within fifteen miles of London.—Old-established unopposed and increasing PRACTICE, situated in a beautiful country district, and producing last year over £1,100, including Union £90, and panel, with mileage, £432. Comfortable house (professional accommo-dation, 2 sitting, 6 bedrooms, with h. and c. water laid on, etc.). Large garden. Rent £70 p.a. on lease. Electric light available. Pre-mium £1,650. Ill health reason for disposal.
8. NORTHANTS.—Unopposed Country PRACTICE, within easy reach of large town, old-established and averaging over £1,600 p.a., including about £675 from panel and £80 from appts. Fees from 2/6 to 21/-. Large house, with 3 reception, 6 bedrooms, etc. Electric light. Good garden. Garage. Vendor's freehold. Premium 1½ years' purchase.
9. WEST OF ENGLAND.—LAR[illegible] —A share representing about £900 p.a[illegible] n panel, is offered in a well-established [illegible]ctice. Fees 2/6 upwards. Suitable hous[illegible] rooms, etc. Garden. Garage. Rent on lease £40 p.a. Premium £1,200 cash and balance by arrangement.
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14. WILTS.—COUNTRY PRACTICE, on outskirts of large town. Well-establi[illegible] immediate past year over £1,630, includ[illegible]e and medicine 3/6, visits 5/-upwar[illegible]ouse, with good garden. Garage. Rent [illegible] £2,400.
15. NEW [illegible] a delightful and popular seaside resort (pop.: town over 17,000 and country 5,000, greatly augmented by visitors) on main line, a well-estab[illegible] p.a. for the past 5 years, including a[illegible] sultations fees 10/6. Mids. 4 to 10 [illegible] situated in excellent position and con[illegible] acre of garden, tennis court, etc. Can be leased. Excellent educational facilities. Sport of all kinds.
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18. NORTH LONDON. — Old-established good middle-class PRACTICE. Average gross cash receipts for past three years £2,572. Selected panel of 240. Fees from 5/- upwards. Mids. from 7 gns. (only a few cases yearly). Very good corner house, non-basement, with 3 reception, 5 bedrooms, etc. Price for Practice and house £5,000.
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24. WITHIN 50 MILE[illegible] and increasing PRACTICE situated [illegible] pretty district. Income last year ov[illegible] 500, and appts. worth about £60[illegible]a. Exceptionally nice house can be bought, or smaller house available, which can be rented at £50 p.a. Good schools for boys. Premium 1½ years' pur-chase. Good scope for increase.
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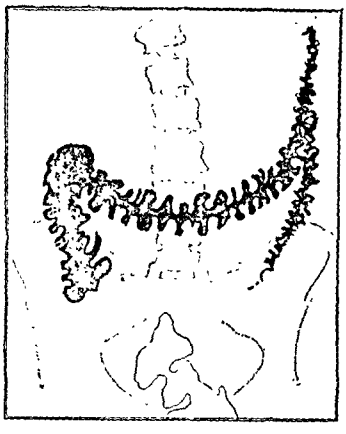
26. LIVERPOOL.—Centrally situated old-established PRACTICE. Income about £1,500. Panel of over 2,500, worked from Branch Surgery. Visits and medicine from 3/6 to 7/6. Little midwifery. Large corner house, with garden and garage. Recently redecorated. Electric light and new hot water system throughout. Price, freehold, £2,000. Large scope for increase. Premium 1½ years' purchase.
27. SOUTH-WEST OF [illegible] —PARTNERSHIP.—A half share is for [illegible] non-panel, general, and surgical Practi[illegible] years over £5,000 p.a. Good house, [illegible] etc. Premium 2 years' purchase. Purchaser should hold the F.R.C.S.
28. GLOS.—LARGE TOWN.—PARTNERSHIP.—A half share of an old-established good-class non-dispensing Practice, owing to retirement through ill health of senior partner. Income about £5,000 with small select panel. Fees 5/- to 10/6. Purchaser should be about 40, married, and keen on midwifery. Good house available at low rental. Premium 2 years' purchase, part by instalments.
29. NORTH-WEST LONDON.—Within easy reach of Charing Cross.—Old-established mixed-class PRACTICE averaging over £2,000 p.a., in-cluding panel of about 1,400. Fees 2/6 to 10/6. Midwifery 3 to 15 gns. Six-roomed house, with bathroom, kitchen, etc. Rent on lease £85. Surgery premises (part let off) rented at £75 p.a. Could be worked as "lock-up." Premium 1½ years' purchase.
30. SOMERSET.—Increasing PRACTICE, situated in very pretty district. Income last year over £900, with good scope. Panel of nearly 400, and appts. worth about £260. Fees 2/6 to 15/-. Not much midwifery from 7 to 15 gns. Good house, with 2 reception, 5 bedrooms, etc. Garden. Price for freehold £1,275, part on mortgage. Excellent sport. Schools. Premium 1½ years' purchase.
[illegible] PRACTICE, producing this year at the [illegible] nel of 560. Good house, specially built and [illegible] 2 reception, 4 bedrooms, etc. Large garden. [illegible] old £1,700, part on mortgage. Prem. £1,550.

Full Schedule of Terms and Conditions will be forwarded on application.

Occult Constipation



Occult constipation (from an X-Ray) 24 hours after opaque barium meal. There has been one small stool as usual. Note the deep haustrations and partial dilatation of the cæcum.

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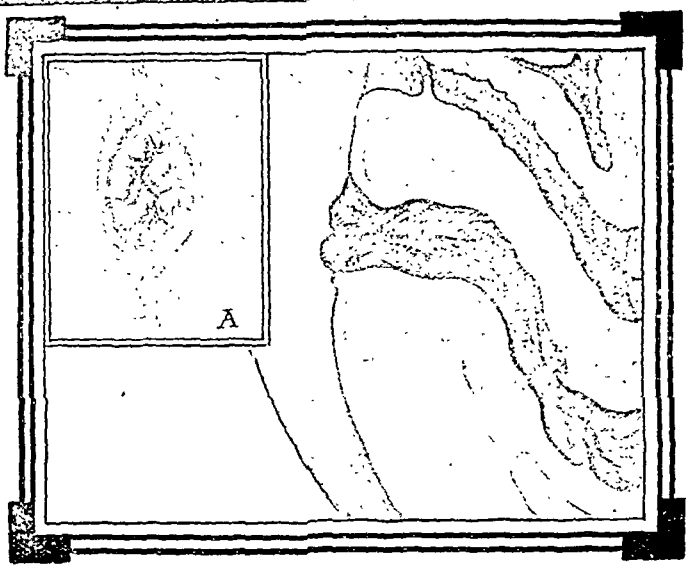

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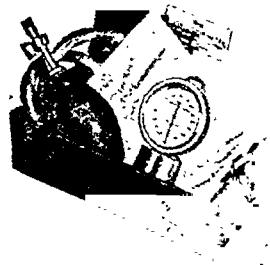

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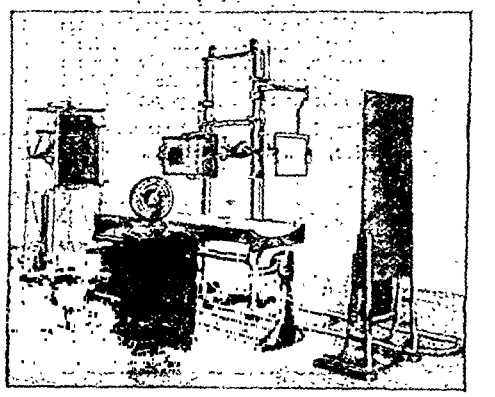

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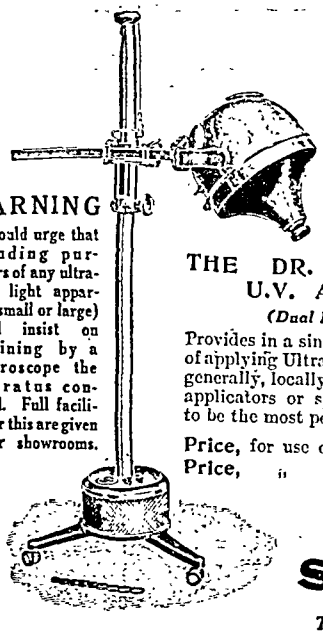

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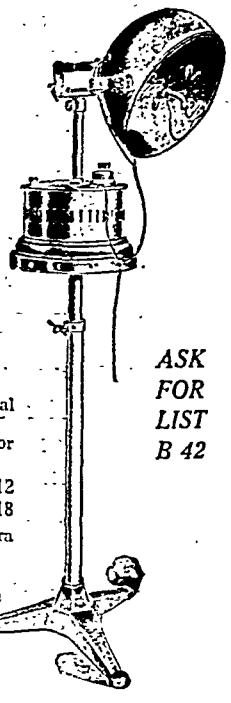

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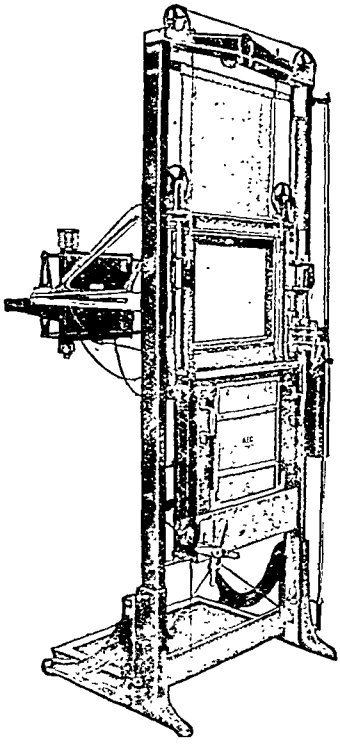

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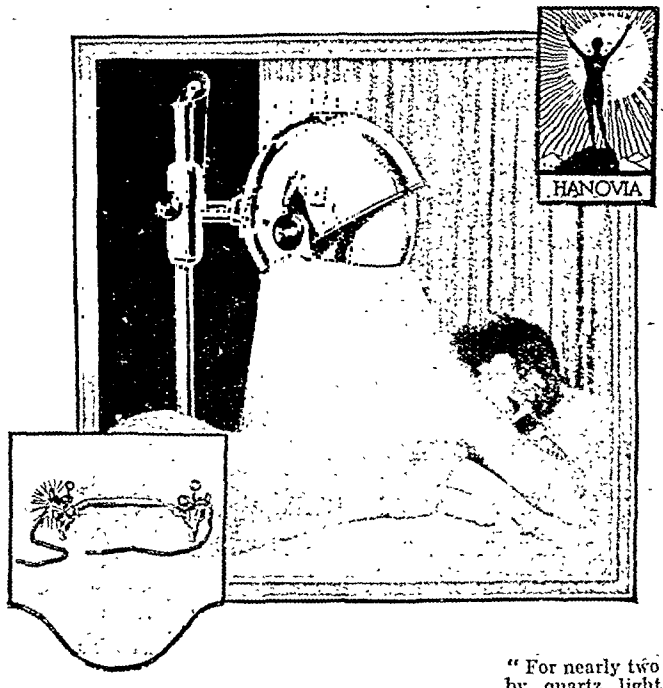

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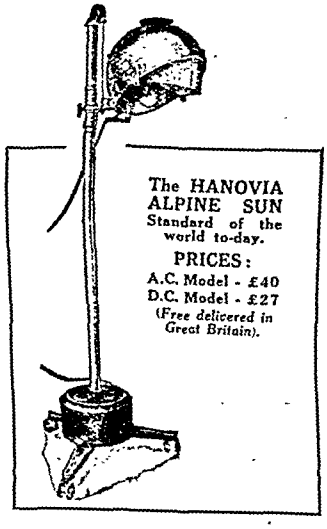

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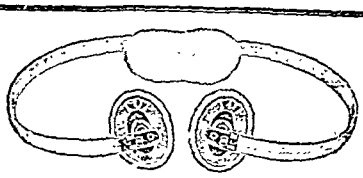

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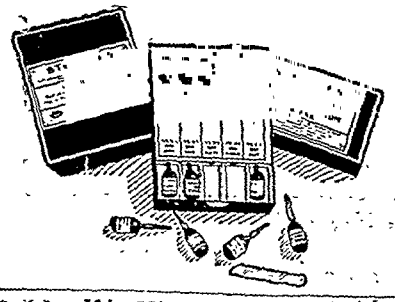

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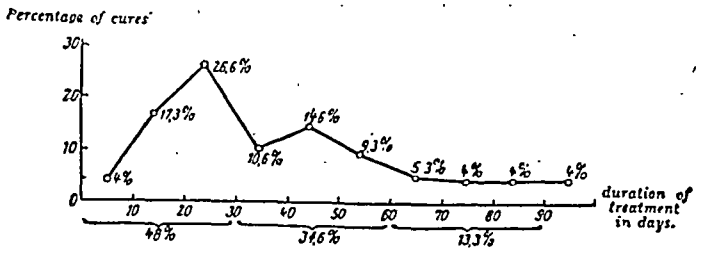

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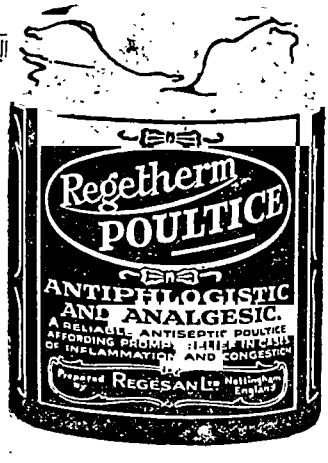

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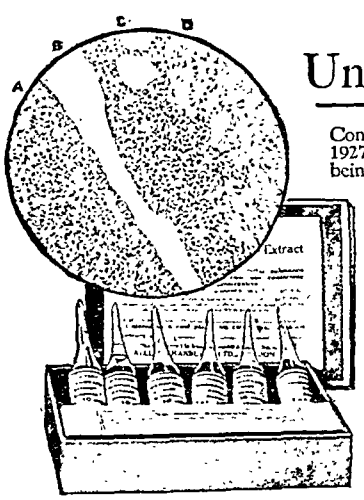

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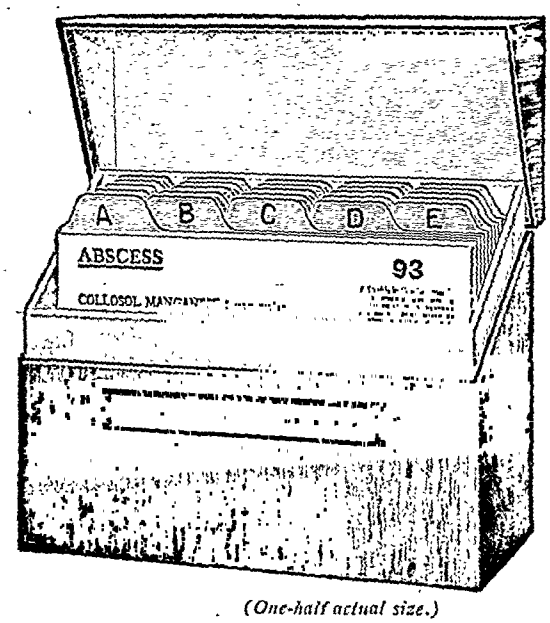

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INFANT MORTALITY

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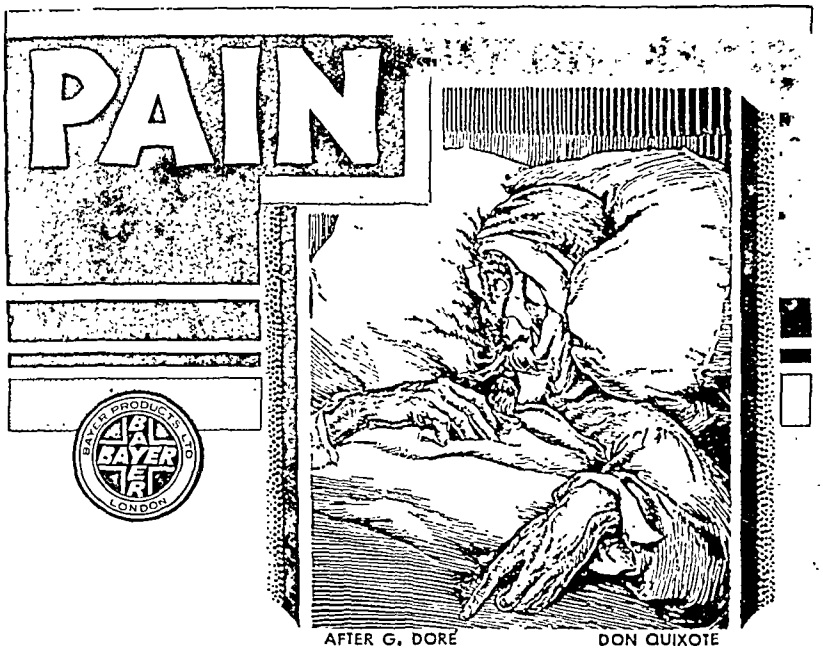

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Observations ON THE MECHANISM OF ABDOMINAL PAIN.*

BY

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THE subject of abdominal pain is a most interesting and extensive one, and one which may be discussed from many points of view. The work on the nervous system is one of the glories of British physiology. Of late we have come to hear more and more about the involuntary nervous system, so that now the prize-fighter is not the only one who appreciates the importance of the solar plexus. In America our interest in the sympathetic nervous system was greatly stimulated a few years ago by the visit of Royle and Hunter of Australia. Encouraged by their work with spastic leg muscles, a number of surgeons throughout the world have revived the attempts to treat angina pectoris by section of a number of branches of the cervical sympathetic nerve, and are attempting to control hyperacidity and pylorospasm by section of one or more branches of the vagi. These involuntary nerves with their ganglionic hook-ups make me think often of radio apparatus with each tube amplifying the message that is passed. If, however, we do make use of this rather fantastic simile we must think of each ganglion as a group of stations all broadcasting at one time.

There has been much controversy over the nature of the stimulus which produces visceral pain, and Mackenzie and Lennander have actually claimed that pain is felt not in the viscera, but only in the overlying structures. Although some recent studies are tending to revive this view, it is to-day pretty well discarded, and when care is taken to avoid stimulation of nerve-endings in the parietal and visceral peritoneum it can be shown that the structures in the abdomen are sensitive to pulling, clamping, and tying. This is particularly true of the gall-bladder, the urinary bladder, the connective tissue around the pancreas, and the large and small omenta. The fact that the stomach, the intestine, the liver, gall-bladder, pancreas, and spleen appear insensitive to cutting and pinching does not prove that they are incapable of giving rise to pain, because it may be that there is no physiological necessity for these organs to respond painfully to the type of stimulus used.

In general it may be stated that most abdominal pain that is not due to peritoneal involvement is dependent either on undue contraction of a viscus, which brings pressure to bear on nerves in its wall, or on extreme distension, which leads to stretching of the nerves. This would explain the fact that pain is felt during the passage of abnormally intense peristaltic waves, such as those seen sometimes in the colon. That pain may be felt also during relaxation of a peristaltic contraction has been shown by the recent work of Payne and Poulton on the œsophagus. They believe that in a distended muscular tube peristaltic contraction will actually relieve pain if it happens to shorten the length of the muscle and thus relieve tension on stretched nerve-endings.

Kappis has emphasized Meyer's observation that distension of the intestine with gas will produce pain only when the mesentery is stretched and pulled on. Still another explanation for visceral pain may be found in the anæmia of the wall of the intestine when it contracts down so as to resemble a hard white cord. It may be that this can produce the type of pain that is felt in thawing fingers after they have been nearly frozen. Possibly in this case the stimulus is a chemical one—that is, some substance formed in the tissues when they are deprived of oxygen. It should also be noted that the blood vessels are sensitive to pain. Thus puncture of an artery, especially one of the smaller ones, will cause dull pain of a peculiarly unbearable type, and this may be accompanied by reflex sweating and nausea.

Even the solid abdominal viscera appear at times to be sensitive to pain. Thus Foerster noted during the war that while a piece of shrapnel was being removed from the liver of a soldier complaint was made of a painful sensation in the organ. It is well known that the ovary is sensitive to pressure, and the stretching of the tunica albuginea by the growing follicle often produces pain which reaches its maximum just before the structure bursts.

Turning to the anatomical side of the problem, it should be remembered that the parietal peritoneum is innervated mainly by the intercostal nerve, and that the phrenic nerves innervate not only the diaphragm, but also the peritoneum on the under surface of the diaphragm. The sensory fibres in the visceral peritoneum and in the abdominal organs pass back to the spinal cord in association with the sympathetic nerves. The fibres from the stomach, duodenum, cæcum, ascending colon, pancreas, spleen, liver, and gall-bladder return with the greater splanchnic nerves, while those from the distal half of the colon go back through the hypogastric and the pelvic nerves.

That the splanchnic nerve contains pain fibres can readily be demonstrated in either experimental animals or man. Even when general anæsthesia is used any stimulus applied to the nerve is likely to produce reflex movements or actual waking. It is easy to show also that splanchnic anæsthesia, or anæsthesia of the abdominal plexus, will render the whole visceral peritoneum, stomach, duodenum, liver, and gall-bladder quite insensitive to pain.

Langley has stated that the sensory fibres in the splanchnic nerves are white and medullated, and that they rise in posterior root ganglions in the thoracic region of the cord. They pass without interruption to the organs. He and Gaskell believed that the involuntary nervous system proper consists only of connector and effector neurones. The pain-carrying fibres, therefore, do not belong to this system, but are true sensory fibres similar to those found in the rest of the body.

It is very doubtful if the vagus nerves ever have anything to do with the transmission of pain sensations from the abdomen. It was frequently noted during the war that when the upper part of the thoracic portion of the spinal cord was severed by a gunshot wound, peritonitis and other abdominal diseases ran their course without pain. Stimulation of the central end of the cut vagus was shown by Foerster to cause nausea, but not pain.

It has long been known that disease in the gall-bladder or the liver may be accompanied by severe pain in the shoulder and in the side of the neck. This so-called viscero-sensory reflex suggests strongly that the phrenic nerve must have something to do with pain in the upper part of the abdomen, and Ramström has described a branch which unites with the sympathetic fibres of the coeliac plexus to form the phrenic plexus. On the right side these nerves run to a special structure, the phrenic ganglion.

As is well known, the pains of peptic ulcer and of cholecystitis are not always felt in the same place in the epigastrium and back. The site of pain may vary from patient to patient, or from time to time in the same patient. This is not surprising when one remembers how many complicating factors there may be. Cholecystitis in many cases is associated with hepatitis or pancreatitis, and an ulcer near the incisura, or a gall-stone, may produce painful spasm of the pyloric muscle. The perforation of an ulcer into the pancreas or into the lesser peritoneal sac should also change the type and situation of the pain, because another group of sensory nerves then become involved. It is conceivable also that differences in the anatomical distribution and course of nerves in different persons might cause differences in the distribution of pain produced by ulcer or cholecystitis.

That our knowledge in regard to the mechanism of abdominal pain is still inadequate has been realized many times by surgeons as they have attempted to relieve the gastric crises of tabes. Those crises may perhaps be divided into three groups: (1) those in which pain, vomiting, and hyperalgesia of the abdominal wall are the most prominent symptoms; (2) those in which nausea and vomiting predominate, and in which there may also be pain in the larynx, ear, and heart, and perhaps bradycardia; and (3) those in which there is, in addition to the abdominal pain, hiccup; and pain over one or both

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* Made in opening a discussion at a joint meeting of the Sections of Surgery and Physiology and Biochemistry at the Annual Meeting of the British Medical Association, Manchester, 1929.

shoulders. In the first group we suspect that the splanchnic nerves are mainly at fault; in the second we suspect the vagi; and in the third we feel sure that the phrenic nerves are involved.

In all of these types nothing abnormal can be seen or felt during abdominal exploration. On roentgenographic examination it has been found by Groedel, Lüden, and Carnot and Bruyère that the stomach is unusually active during crises, and that the height of the paroxysm of pain corresponds to the greatest intensity of a contraction. Similar observations were made by Daniélopolu with the help of recording balloons introduced into the stomach.

It is remarkable that denervation of the entire stomach rarely abolishes the crises. Foerster has cut all the posterior roots involved in the nerve supply of the stomach, and has sometimes failed to give relief. This must mean either that sensation is reaching the spinal cord through anterior roots, or else that it is arising in some part of the cord or brain, whence it is projected into the abdomen. Actually, in a few cases, after section of the posterior roots had failed to give relief, section of the anterior roots resulted in cessation of pain. In one case the induction of paravertebral anaesthesia, in which the rami communicantes were blocked, was not followed by relief of pain. In another case, after section of the sixth, seventh, eighth, ninth, and tenth thoracic roots had failed to work relief, both vagi were cut below the diaphragm and posterior gastro-enterostomy was performed, but even this extensive denervation failed to influence the severity of the pain.

So far as I know, the phrenic nerves have not yet been cut for the relief of gastric crises. The spinothalamic tracts, which carry sensory impulses up the spinal cord, have been sectioned, and some of the patients so treated have been relieved. It may be possible that the surgeon did not always cut deeply enough, because the fibres from the more cranial segments lie deepest in the cord.

The lesion in tabes dorsalis is in the posterior root gangions and in the dorsal columns of the spinal cord. Gastric crises, however, may be caused by a variety of conditions other than tabes dorsalis. They may be associated with inflammation of the membranes of the spinal cord, injury of the spinal cord from gunshot, or fracture of the spinal column, or they may even result from angioneurotic oedema. Eusterman has described cases of typical gastric crises which were seen in association with duodenal ulcer and angina pectoris. In tumours of the cauda equina the clinical picture may be that of crises involving the bladder, the colon, and the rectum.

I have gone so into detail with regard to tabetic crises because they illustrate how diverse may be the paths through which painful sensations may leave the abdomen and how little we really know about the subject. In some cases one can find zones of cutaneous hyperaesthesia or hyperalgesia. Ever since Head's classical studies it has been known that visceral disease may be accompanied by these zones, and sometimes they are so strictly localized as to indicate the presence of disease in some one of the internal organs. Surgeons know well the tenderness of skin and muscle without rigidity associated with disease of the diaphragm and upper part of the abdomen. They have long recognized also that early pneumonia in the lower lobe of the right lung may simulate appendicitis. I might state, parenthetically, that severe, long-continued pain in a localized abdominal area may be the result of bacterial involvement of the spinal nerve supplying the region and the muscle under it. The source of this infection will usually be found in the mouth, the cervix, or the prostate.

There are certain chronic lesions in the abdomen which produce pain of a type that does not fit well into any of the categories just mentioned. Much has been written about the cause of the pain in gastric and duodenal ulcer. Wilson found that spasm of the duodenal cap and pain occurred simultaneously in twelve out of fourteen cases of duodenal ulcer. Störek found in the bed of a gastric ulcer exposed nerves with neuromatous formations. The pain of gastric ulcer may be compared to the pain of a varicose ulcer of the leg. I believe the exacerbations of pain in these ulcers are the result of vascular spasms and later small extensions in the margin of the lesion. When these little extensions heal, as they do after a week or two, the pain disappears. Certain peptic ulcers do not cause pain, and when pain has been present its disappearance does not necessarily mean that the ulcer is healed.

As compared with the skin, the abdominal viscera contain very few nerve-endings, so fairly large areas in these organs must be insensitive. Although, under local anaesthesia, one can incise the stomach without causing pain, I doubt if this experiment proves that the pain of gastric or duodenal ulcer is any different from that produced by local extension of a varicose ulcer of the leg. It may be, however, that the pain produced by a peptic ulcer is the result of a long-continued summation of stimuli which, if acting singly, would not affect the consciousness of the patient. Actually, Adrian has shown recently with the string galvanometer that a stimulus applied to a single receptor organ will produce a rhythmic disturbance in the nerve, a disturbance which is repeated from five to a hundred times a second. For simple end-organs, such as those which record pain, the duration of the volley of impulses was found to vary directly with the strength of the stimulus; the number of impulses in each second did not vary to any great extent. The significance of this observation lies in the fact that one method of overcoming synaptic resistance (and getting an impulse to reach the field of consciousness) is to keep repeating the message. In the spinal animal this is exemplified by the summation of inadequate stimuli, which finally results in, let us say, the scratching response. In cases of gastric ulcer, therefore, it may well be that it is the long-continued summation of inadequate stimuli that eventually produces pain.

Experience is invaluable, and yet, now that we are being helped so much by the roentgenologist and the laboratory worker, we must not forget that two or three decades ago pain was often a misleading as well as a leading symptom. What is needed is mass accumulation of data for careful analysis. I believe with Ryle that we need more knowledge concerning abdominal sensations, that we may more carefully elicit and interpret symptoms of disease in an earlier stage—in fact, anticipate and possibly prevent the advance of disease. With the abdomen open the surgeon, by splanchnic injection of anaesthetic solutions, frees the whole abdomen of pain, and yet local anaesthesia in the abdomen is secured by injecting, within peritoneal folds, the lesser or greater omentum or local mesenteric areas, and this is often an advantage over general anaesthesia.

I think I have said enough to convince you that when the character and site of an abdominal pain tells something to the surgeon, it does so not because he knows much about the underlying anatomy and physiology, but because he has noted that particular pain many times before, and he remembers what he found when he opened the abdomen.

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ABDOMINAL PAIN.*

BY

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As one of the individuals deputed to open this discussion on abdominal pain I warmly appreciate the honour, greedily claim the privileges, and reluctantly assume the responsibilities of the task. The honour is great in direct proportion to the names of those who precede and follow me, and in this instance, therefore, is one of high degree. The privileges entitle me not only to a first and last word, but to the choice of any aspect of the subject under discussion on which to base my opening remarks. The responsibilities lie in raising questions and making dogmatic statements such as will invite criticism and provoke attack.

Pain has always played an important part on the stage of human life. In the eyes of the moralist its chief function has been that of a corrective; to the physiologist its interest lies in its influence as a protective agent; to the man of medicine its share in promoting the healing of wounds and in the detection of disease makes its widest appeal.

In this assembly we may expect that more attention will be paid to pain as a noxious stimulus or an aid to diagnosis than as an instrument of punishment. On the other hand, the usefulness and uselessness of physical suffering constitute a theme so large and so full of difficulties and dangers that we may well leave its philosophic consideration out of to-day's programme.

The increment of knowledge which has accumulated during the last fifty years concerning the various functions of the nervous system, and particularly in regard to afferent and reflex mechanisms, has led us to understand much about the origin of pain in all parts of the body, and has encouraged us to look upon and recognize it as a valuable asset for purposes of diagnosis. We have learned that the threshold of pain, under normal conditions, is higher than that of other forms of sensation, and, when passed, leads not only to recognition by the higher centres, but to other phenomena which are more or less outside the control of the will. Urgent motor responses, such as the withdrawal of the leg when a noxious stimulus is applied to the sole of the foot, or the active lacrymal secretion associated with a painful injury to the surface of the eyeball, are familiar examples of such reflex phenomena within the sphere of action of the ordinary spinal and cranial afferent nerves.

On the other hand, the territory of the sympathetic nervous system presents problems which are fundamentally different. Here we are faced by an involuntary musculature which carries on its activities in health without intruding upon consciousness, and by viscera which can be maltreated in many ways without the production of pain. These viscera are protected from outside injury by one line of defence, the abdominal parietes, which reacts to painful stimulation as do other parts of the surface of the body. But many of these viscera are hollow, open to attack from within, and dependent on a special nervous mechanism of their own to maintain their integrity and to preserve their functions. The chief menace to the latter is provided by disease or deformity of the visceral walls, or by the presence of obnoxious and abnormal substances within their cavities.

The abdominal wall is designed to protect the viscera against external trauma or against morbid processes originating in its constituent tissues by means of an afferent and reflex mechanism of the ordinary cerebro-spinal type, with pain, aroused by various familiar stimuli, as its vigilant outpost. The daily experience of frequent attacks, or of threatened attacks, of greater or less seriousness, upon the abdomen, raises this mechanism to a level high enough for discrimination and localization to be added to mere reflex response.

On the other hand, the hollow viscera are provided with a nervous mechanism of sympathetic origin which usually carries on its functions quietly, unobtrusively, and undisturbed by the outside world. Variations from the normal routine are rare events, generally insufficient in degree to produce or necessitate more than passing notice, easily met without any call for help on the organism as a whole, and too trivial to require any special discriminative or topographical recognition on the part of the higher cerebral centres.

But exceptional and untoward events may happen even in this tranquil territory. Obnoxious strangers are introduced or appear from unexpected quarters, and their ejection is not only imperative and urgent, but demands unaccustomed effort and perhaps the help of auxiliary forces. The alarm is signalled through the agency of unusual afferent impulses, the spasmodic efforts of the involuntary musculature of the visceral walls are reinforced by skeletal muscles summoned to its aid, and the clinical picture of colic is evolved. Such, broadly, is the physiological story of a bedside incident familiar to all who practise medicine and surgery.

Pain is the outstanding feature which overshadows all else in this picture, and it is to the origin of this pain that so much research has been directed of recent years. Its indefinite localization, its intermittent paroxysmal character, the effortful and doubled-up attitude it provokes—all serve to proclaim its distinction from the localized, continuous, and immobilizing pain associated with disease of, or injury to, the abdominal wall, including in the latter term the parietal peritoneum.

Splanchnic pain is something very real, at any rate to anyone who has experienced or witnessed the tortures of colic, and yet we know that the abdominal viscera are quite insensitive to ordinary painful stimulation, such as section by knife or piercing by needle. For this reason we may assume an absence of true pain receptors in the visceral walls and attribute the production of pain to stimulation of nerve fibres. This is the more likely in view of its high threshold, its radiative and its non-discriminative characters—features characteristic of the pain resulting from the irritation of spinal nerve fibres in other parts of the body. There is a good deal of evidence to show that stretching the visceral tissues can provoke pain, and there can be little doubt that most examples of splanchnic pain are associated with unusual motor activity or muscular spasm. More speculative, however, must be any hypothesis attempting to describe exactly the form of stimulus which provokes pain and the precise nervous structures on which it acts.

Another question, too, awaits a clear answer, and that is the order of events which give rise to pain. Take, for instance, the case of a small calculus impacted in a ureter and attacks of colicky pain at long intervals. What initiates at any particular moment the paroxysms of pain referred at first to the penis and spreading all over the lower part of the abdomen? Is the afferent impulse which arouses the muscular spasm in the wall of the ureter a painful impulse, or is the pain only evoked by the raising of tension consequent on the muscular spasm?

Finally, we would welcome a clearer insight into the variations which, it seems, must occur in the threshold of painful sensibility under conditions of health and disease. Damage or disease of superficial tissues in the territory of spinal nerves will undoubtedly lower their threshold of pain, and it may be justifiably inferred that ulceration within a hollow viscus may bring about a similar result. Of particular interest from a clinical point of view is the length of time during which a lowering of the pain threshold may persist after a structural abnormality has been removed or all evidence of its presence has disappeared. An answer to this question might throw much light on the problem of certain chronic abdominal cases which are alike the despair and the livelihood of surgeons. We are inclined to attribute the hypersensibility of such patients to some alteration of mental attitude, to hide our ignorance behind a diagnosis of psychalgia or functional pain, always casting suspicion on the higher levels of the nervous system. This may be an

* Read in opening a discussion at a joint meeting of the Sections of Surgery and Physiology and Biochemistry at the Annual Meeting of the British Medical Association, Manchester, 1929.

unfair interpretation of symptoms which are difficult to understand, and we might consider the possibility of deranged function at a lower level—a sympathetic level—being responsible for a threshold of pain so depressed as to make many stimuli, innocuous under healthy conditions, assume noxious habits and qualities.

There is some support for such a view to be obtained on the clinical side. The patient who develops chronic abdominal pain after an abdominal operation, and who is prepared to undergo a relay of further operations for its relief, is often not of the neurotic type in the first instance. She does not respond to, or rather does not recover under, psychotherapy. Time, uninterrupted by much medical or any surgical treatment, may bring about complete recovery, unless fear and impatience combine to produce a psychoneurosis. After all, we are familiar with localized areas of hyperaesthesia in the distribution of the peripheral nerves after injury or sepsis, areas which may be exquisitely sensitive to all stimulation for months and years, and which may yet gradually approach a more normal condition if left well alone.

On the other hand, painful intestinal spasm of a paroxysmal type is a somewhat rare but very definite symptom in anxiety states, and may give rise to much difficulty in diagnosis, as well as to needless laparotomy. Such instances as I have met with have occurred in profoundly neuropathic patients, and have only yielded to psychotherapeutic measures. They are interesting from a physiological standpoint because they are examples of severe colic without any discernible local lesion. The intense pain and resulting tenderness, sometimes accompanied by a palpable knuckle of contracted gut resembling what can be felt in a cramp of a skeletal muscle, strongly suggest that splanchnic pain is chiefly due to muscular spasm, and may be independent of any morbid process either in the intestinal wall or in the bowel contents. Whether the pain is the result of pressure exerted on the intrinsic nervous structures, or due to interference with their blood supply, is a question which has yet to be answered. The early intermittent colicky pains associated with mesenteric thrombosis and embolism bring the circulatory condition into prominence as a causative factor.

There is perhaps no more important and difficult problem confronting a surgeon than the interpretation of pain in acute abdominal conditions, but, having referred to some of the features which characterize the splanchnic and peritoneal types, I shall leave their further elaboration to those who are much better qualified to deal with them than I am. In particular, we may hope to hear Mr. Morley giving us the result of his carefully considered research into the nature and meaning of the pain associated with appendicitis. Meanwhile, may I recall to your memory some of the heteronomous types of abdominal pain which are liable to entrap surgeon and physician alike?

First of all, there is the immobile painful abdomen met with in acute pulmonary disease—in pneumonia and infarct of the lower lobes, for instance. This is sufficiently common, and has been so long recognized that it deserves no more than a passing reference. Less common is the *acute* epigastric pain associated with vomiting and profound collapse observed in cases of coronary thrombosis, and generally found in persons suffering from arterial degeneration. It may simulate the picture of a perforated gastric ulcer so faithfully as to be a real diagnostic pitfall. Still more rare are the attacks of severe abdominal pain, colicky in type, which result from atheroma of the abdominal aorta and which have earned the title of "angina abdominalis." They resemble their cardiac namesakes in being *paroxysmal*, often at long intervals, and do not present associated physical signs such as should justify an exploratory laparotomy.

The gastric crises of tabes have an unpleasant notoriety for creating an atmosphere of diagnostic doubt, and the problem is generally dismissed in textbooks with the statement that the presence or absence of knee-jerks will *suffice* for its solution. As a matter of fact, the presence or absence of knee-jerks *may* guide us to the presence or absence of the tabetic process at the *lumbar level* of the cord, but has no bearing on the presence or absence of a lesion of the *upper dorsal* roots. On the other hand, the pains of tabes, although pathogenetically obscure, are clinically characteristic, and those which infest the epigastrium present much the same features as those which inflict torture on the patients' limbs. They are lancinating, rapidly repeated, and chronologically paroxysmal. They are associated with intense superficial hyperaesthesia, but with no such muscular immobility or rigidity as is met with in peritonitis. The accompanying nausea and vomiting may be regarded as secondary and reflex in origin. In fact, careful attention to descriptive details and to the abdominal physical signs should serve to distinguish gastric crises from any morbid process originating in the abdominal organs without the necessity of worrying the patellar tendons.

Those who follow me will discuss the views held and supported by various authorities during the last forty or fifty years in regard to the origin and nature of abdominal pain. Since Ross advocated the distinction between splanchnic and somatic pain there have been many workers in this field of research. Mackenzie, Head, Hurst, Ryle, Payne and Poulton, Maylard and Bolton have all contributed much of value towards the solution of a very important and difficult problem from the clinical standpoint, and we may hope that its ventilation in a physiological atmosphere to-day may lead to its further elucidation.

Whether or not this hope is fulfilled, the discussion may be welcomed as evidence that the profession is taking an increasing interest in the meaning of pain, is more inclined to subject pain to careful analysis, and is more appreciative of the position of pain in the proper execution of its daily work. We may look forward with confidence to a time when the loose employment of such terms as rheumatic, neuritic, neuralgic, etc., for descriptive purposes is abandoned, and when due regard is paid, not only to the site and quantity, but also to the precise quality of pain as an essential factor in the diagnosis of disease.

As Hilton wrote sixty-five years ago: "Every pain has its distinct and pregnant signification, if we will but carefully search for it."

CONDITIONS SIMULATING PULMONARY TUBERCULOSIS;

WITH SPECIAL REFERENCE TO PNEUMONOCONIOSIS AND BRONCHIECTASIS.*

BY

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THE substance of what I am about to say might be crystallized in one sentence: It is by bacteriological examinations of the sputum and faeces, and by these examinations almost alone, that we can establish a diagnosis of pulmonary tuberculosis or exclude it. I know that there are exceptions, such as the very early, sometimes the *miliary* and the latent case, and even occasionally, but very rarely, in other instances, but in the vast majority of cases the dogma will be found true. It is because of the neglect of this simple test that a great many cases of pulmonary tuberculosis escape recognition in the early stages. It is because of this neglect that many non-tuberculous conditions are diagnosed as tuberculous, and their true nature is unrecognized. If tubercle bacilli are not found after repeated examinations of the sputum, and a few examinations of the faeces, and there are definite signs and symptoms, it is certainly the time to begin to consider that the condition may be a non-tuberculous one.

Some may ask why I insist so strongly on the examination of the faeces, and an explanation still appears to be necessary. In many cases of active pulmonary tuberculosis either no expectoration is produced or what is produced is merely mucus or muco-pus from the nasopharynx. This is specially apt to occur in children and

* A paper read in opening a discussion in the Section of Tuberculosis at the Annual Meeting of the British Medical Association, Manchester, 1929.

women. All the pulmonary secretion is swallowed. Millions of tubercle bacilli may be swallowed in this way, and may easily be found in the stools by the antiformin method of examination. Such bacilli, when tuberculous food or milk is excluded, imply pulmonary tuberculosis, for a primary tuberculous enteritis is a pathological curiosity, and there is no other origin of the bacilli. The existence of these bacilli has been known for some time, but the test was not a routine one in most clinics. In 1924 I made, with my house-physician Dr. Stobo, an investigation into the quesyphilitic infection, and the presence of tubercle bacilli, was of real practical clinical value. We found it of the greatest value, and since then we have made it a routine test at Victoria Park, when the sputum fails us. The controls had no tubercle bacilli in the faeces. Subsequent experience has fully confirmed the importance of this examination.

There are a great many conditions which may simulate pulmonary tuberculosis, sometimes only when they are fairly advanced as with pneumonoconiosis, sometimes only at the beginning when symptoms may be similar or identical—for instance, cough, sputum, haemorrhage—later they begin to diverge and the picture in each case becomes distinctive—as, for example, bronchiectasis. Occasionally tuberculosis may coexist with one of the diseases by which it is simulated, which may cause great difficulty for a time. The knowledge that such conditions may be present concurrently will help us to arrive at the correct dual diagnosis. I will enumerate the more common of these apparently fortuitously associated affections. I say apparently fortuitous, for so it seems to be, except in the case of certain forms of pneumonoconiosis, where silica increases the liability to tuberculous infection.

1. *Pneumonoconiosis and pulmonary tuberculosis.*
2. Lymphadenoma and pulmonary tuberculosis.
3. Syphilis and pulmonary tuberculosis.
4. New growth and pulmonary tuberculosis.
5. Bronchiectasis and pulmonary tuberculosis.
6. *Mitral stenosis and pulmonary tuberculosis.*

The following points will help in the diagnosis. In each case it is assumed that tubercle bacilli have been found.

1. *Pneumonoconiosis and Pulmonary Tuberculosis.*—Here the history of the patient's employment would help. The other distinctive points will be discussed later.

2. *Lymphadenoma and Pulmonary Tuberculosis.*—This may cause great difficulty, but a gland may be available for examination, though this unfortunately is not always histologically distinctive. Curious intermittent exacerbations of temperature may suggest lymphadenoma. The *x*-ray picture may show enlarged glands or masses in the mediastinum. If there is a large pleural effusion obscuring the *x*-ray picture, replacement of the fluid by oxygen or air and subsequent radiography may reveal the presence in the mediastinum or lung of large masses characteristic of lymphadenoma or growth, and unlike tuberculosis. The response to arsenic and *x*-ray treatment may help.

3. *Syphilis and Pulmonary Tuberculosis.*—Here a strongly positive Wassermann reaction or a history of previous syphilitic infection, and the presence of tubercle bacilli, will help to establish the dual diagnosis.

4. *New Growth and Pulmonary Tuberculosis.*—This combination may cause great difficulty, but the deterioration of the patient's condition, more rapid than one would expect with the amount of disease present if it were tuberculous, and the presence of radiographic shadows unlike those produced by tubercle, will give rise to a suspicion, which will be confirmed as the case progresses. Sometimes, however, a very dense fibrosis may simulate neoplasm, both in cases of tuberculosis and pneumonoconiosis, but the progress of the case usually gives a clue to the true nature of the affection. We have had many cases at Victoria Park Chest Hospital where tuberculosis and primary malignant growth have coexisted in the lung. In certain cases the *x*-ray picture, in the early stages, is by no means pathognomonic. In such a case under my care certain symptoms were suggestive of either tuberculosis or malignant growth, and at first the diagnosis was not easy. But the absence of tubercle bacilli, the steady deterioration of the patient, and yet so small an area of disease aroused a suspicion of malignant disease, which was confirmed later. If tubercle bacilli had been present at that stage a correct diagnosis would have been problematical. I have known a tuberculous mass to be removed from the lung in the belief that it was a growth. On the contrary, growths in an apparently operable stage may be left, because they are thought to be inflammatory. When the diseases coexist the mistake does not matter so much, as drastic treatment could scarcely be undertaken. But with malignant disease by itself a correct and early diagnosis is important if we hope to employ effective treatment. Although some cases may present great difficulty, the absence of tubercle bacilli, the symptoms, and the *x*-ray picture will usually provide sufficient evidence on which to diagnose malignant neoplasm of the lung. Paralysis of one of the phrenic nerves or of one of the recurrent laryngeal nerves is strong evidence in favour of growth and against tuberculosis.

5. *Bronchiectasis and Pulmonary Tuberculosis.*—The diagnosis of bronchiectasis will be discussed in more detail later. With modern methods of diagnosis the coexistence of these two conditions can be demonstrated almost with certainty.

6. *Mitral Stenosis and Pulmonary Tuberculosis.*—The haemorrhages which may occur in mitral stenosis may simulate tuberculosis, but the characteristic signs of a mitral lesion with tubercle bacilli in the sputum usually make the diagnosis easy. The physical signs may be of no help. The *x*-ray picture may be characteristic of tuberculosis, but the presence of infarction, and the denser striations of pulmonary engorgement, may make the picture equivocal, and therefore reliance must not be placed on the *x*-ray findings alone.

The conditions which may simulate pulmonary tuberculosis may resemble it because of symptoms such as continuous fever, or wasting, or haemorrhage, or because of signs such as those of fibrosis, or because of the appearance of a serous pleural effusion. It would be far too long a task to discuss in detail the differential diagnosis of every one. I must content myself, therefore, with enumerating the various diseases, giving here and there an impressionist hint at the most important points in their differentiation, and dealing in fuller detail with those with which we are most likely to be confronted, with especial reference to pneumonoconiosis and bronchiectasis.

Serous Effusion.—The causes of a serous effusion, other than tuberculosis, are lymphadenoma, malignant growth (secondary or primary), dermoid, cardiac, or renal disease, subphrenic abscess, polyserositis.

Lymphadenoma I shall refer to again later. *A malignant serous effusion* may be diagnosed by replacement and thoracoscopy in cases where nothing else will help. Occasionally the *x*-ray picture is distinctive after replacement. In spite of what is often written, the effusion is seldom bloody, and the cytology of the fluid seldom of help. *A dermoid* is usually obvious in the skiagram. With an effusion secondary to *cardiac* or *renal disease* careful examination will, as a rule, show the underlying cause. Sometimes, however, a recurrent unilateral effusion may be cardiac in origin, and it may be difficult to say whether it is tuberculous, malignant, cardiac, or due to polyserositis. I have seen a case of serous effusion above a subphrenic abscess called tuberculous. But there was no excuse for the mistake, for there was a high leucocytosis and daily rigors, and the latter never occur in tuberculosis.

In *polyserositis* there may be associated changes, mediastino-pericarditis, ascites, perihepatitis, and perisplenitis, with enlargement of the liver and spleen. The effusion, however, may be an isolated phenomenon, and the diagnosis will only be made after many aspirations, the fluid tending ever to recur while the patient's general condition deteriorates surprisingly little.

Many cases of long-continued fever without physical signs may arouse a suspicion of tuberculosis. If the patient is seriously ill miliary tuberculosis may be suspected. Repeated *x*-ray examinations of the chest may reveal quite definitely the evolution of miliary tuberculosis in the lungs. This may be illustrated by three slides. The first shows widely distributed small opaque dots. The second shows an increase in size of these shadows. The third shows a spontaneous pneumothorax to have occurred, while the

lungs are becoming more and more grossly involved. The diagnosis was confirmed at post-mortem examination.

In every case of obscure fever it is important first to exclude a *Bacillus coli* infection of the urinary tract and those diseases that may be diagnosed by blood examinations and agglutination reactions—as, for example, the typhoids, malaria, and even rat-bite fever, Malta fever, and *Bacillus abortus* fever. With the last-mentioned rigors are a feature, and these, as I have already remarked, never occur in tuberculosis.

Subacute bacterial endocarditis may be extremely difficult to diagnose. Blood cultures, which should always be performed, are frequently disappointing. The most important diagnostic point, in my opinion, is the occurrence of embolic phenomena in the skin, the kidneys, the spleen, and elsewhere.

Cryptic collections of pus, as in a subphrenic or perinephritic abscess, will almost invariably give a high leucocytosis, but rare cases of pyonephrosis and carbuncle of the kidney with a blocked ureter may fail to give rise to this leucocytic response and may yield few or no urinary signs, thus making the diagnosis more difficult. Rigors, however, should at once make the diagnosis of pus, somewhere, almost certain. With generalized streptococcal and staphylococcal infections great difficulty may be experienced. Blood cultures and urine cultures may help, but I would utter a warning against accepting, as proof positive, the finding of streptococci and staphylococci in the urine by culture only.

Hyperthyroidism of the type that begins with great wasting and tachycardia, with no other signs or symptoms, may suggest tuberculosis; but the absence of fever, and of tubercle bacilli and physical signs, would almost exclude tuberculosis, for such severe and dramatic symptoms could hardly be due to incipient phthisis. The determination of the basal metabolism would probably suggest hyperthyroidism.

Chronic conditions which may simulate pulmonary tuberculosis owing to signs and symptoms may be tabulated as follows:

1. Unresolved pneumonia, or broncho-pneumonia.
2. Obscure empyema or simple unrecognized empyema.
3. Non-tuberculous fibrosis.
4. Apical catarrh.
5. Pneumonoconiosis.
6. Bronchiectasis.
7. Lung abscess.
8. Neoplasm (malignant or innocent).
9. Fungus Infections: Actinomycosis. Aspergillosis. Blastomycosis.
10. Spirillosis (or broncho-pulmonary spirochaetosis).
11. Pulmonary distomiasis.
12. Hydatid.
13. Mitral stenosis.
14. Lymphadenoma.
15. Syphilis.
16. Foreign body in bronchus.
17. Bronchial stenosis.

Of these the spirillum, fungus, and fluke infections [illegible] acteriological examination. Before [illegible]r spirochaete as the cause of the conditions must be satisfied. The spirillum must be constantly present, present in large numbers, and the sputum must contain the organism in numbers far in excess of those found in the saliva. Such a differential examination should therefore always be made. A massive basal tuberculosis may simulate unresolved pneumonia, especially when the condition has apparently followed an acute influenzal attack. The condition of the patient, the absence of leucocytosis, the presence of tubercle bacilli, are the diagnostic points.

Certain cases of *obscure empyema* may cause difficulty, but the history, the leucocyte count, the *x*-ray examination, skilful exploration, and even exploratory thoracotomy, will usually give the clue. From time to time cases of chronic empyema that have been treated as tuberculosis are admitted to hospital. This mistake is usually unpardonable, and is mostly due to ignoring the history of onset.

The only method that I know of distinguishing *a non-tuberculous from a tuberculous fibrosis* is by the presence or absence of the tubercle bacillus. If tubercle bacilli are present it is a tuberculous fibrosis, if absent it is a non-tuberculous fibrosis, except of course in completely healed extensive tuberculosis or after the cessation of artificial pneumothorax treatment, when tubercle bacilli had previously been found.

Apical Catarrh.

There is no doubt, I think, that after certain catarrhal conditions of the lung, especially after influenza, constant crepitations may be heard at the apices which may persist for some time. They naturally suggest the possibility of tuberculosis. I have investigated many such cases, and have come to the conclusion that a simple catarrh, possibly associated with adhesions, explained the signs. The only way to be certain is to follow the usual routine of evening temperature record, weight record, sputum examinations, and possibly an *x*-ray examination. In some epidemics, however, this phenomenon will be found so frequently that we are probably compelled to use our judgement as to which cases require the complete investigation.

Pneumonoconiosis.

This condition may arise from many occupations. Thus we get anthracosis, silicosis, or chalicosis, siderosis, asbestosis, byssinosis (workers in cotton, felt, and shoddy mills). In most cases, however, the trouble is due to silica.

Symptoms.—Of 36 cases of silicosis analysed by Drs. Sutherland and Bryson,[1] seventeen had no symptoms. In other cases the symptoms were almost entirely shortness of breath, cough, and expectoration. There was no instance of haemoptysis. Wasting was not usual. In some of the cases of asbestosis that we have investigated at Victoria Park Hospital, however, there has been extreme wasting and easily produced cyanosis on exertion, or on contracting a cold, etc.; but perhaps the most remarkable symptom is the dyspnoea. Many cases of asbestosis have been collected recently by Dr. W. Burton Wood, who has made a valuable contribution to the subject in the May issue of *Tubercle*.

The diagnostic points are the history, the symptoms, the physical signs, the absence of tubercle bacilli, the *x*-ray picture, and, in some cases of asbestosis, the finding of asbestos fibres in the sputum, described by Dr. S. Roodhouse Gloyne in the June issue of *Tubercle*, or, as pointed out by Dr. M. J. Stewart, the discovery of yellow club-shaped "curious bodies" which had previously been demonstrated in lung sections. Lung puncture has also been tried, but I personally do not consider this justifiable.

The physical signs may be simply those of a delicate fibrosis or perhaps emphysema. Later there may be contraction of the chest wall and dullness to percussion. Gross fibrosis may occur. The adventitious sounds are like those of any other type of fibrosis.

The *x*-ray picture differs according to the stage of the disease and the type of dust—for example, gold miners' lungs, potters' lungs, and asbestos lungs may all give a different appearance. Help has been claimed from the localization of the abnormal shadows, but these cannot be regarded as pathognomonic; the appearance may simulate tuberculosis, any sort of fibrosis, or even new growth of the lung. On the other hand, we occasionally get skiagrams which reveal an unexpected widespread fibrosis throughout the lungs in cases in which there is no history of exposure to dust.

Where the condition is established, however, there will be little difficulty in diagnosing the condition from the *x*-ray picture, the history of the case, and the absence of tubercle bacilli. The distribution of the fibrosis is suggestive—for example, its rough symmetry, its selection of the mid zone. In the early stages diagnosis may be most difficult, and it is only the history of the patient's occupation, the dyspnoea, and perhaps the *x*-ray picture, on which a diagnosis may be based.

Bronchiectasis.

A few years ago the differential diagnosis between bronchiectasis, pulmonary tuberculosis, and other diseases was by no means easy. In the advanced stage, of course, there was little difficulty, though even here serious mistakes could be made—for example, abscess, chronic empyema, or foreign body in the bronchus might be called bronchiectasis—but in the early stages of the evolution of the

[1] Report on the Occurrence of Silicosis among Sandstone Workers. H.M. Stationery Office.

disease, stages which can extend over very many years, a diagnosis was often difficult or impossible. At such a time I should have been compelled to talk at length about symptoms and signs, and at the end have left matters as they were—uncertain. We might hazard a shrewd guess, but it would have been an opinion, not an established fact. Now, owing to the introduction of iodized oil by Sicard and Forestier, we can claim to prove or exclude bronchiectasis and to localize it. The symptoms at first may be identical with those of tuberculosis—cough, sputum, haemorrhage; the physical signs do not really help, for tuberculosis may be basal, and bronchiectasis apical. The *x*-ray picture of both diseases may be similar, or in both cases may show nothing distinctive. If, therefore, with such symptoms there is an absence of tubercle bacilli in the sputum and faeces, a non-tuberculous condition should be thought of, iodized oil should be given, and the diagnosis established. I must confess, however, that in one or two cases I have been a little puzzled to determine whether the cavities revealed were tuberculous or bronchiectatic. In the example shown, however, I think it will be agreed that the appearance is that of lung cavitation rather than dilatation of bronchi.

In chronic *lung abscess* there are no tubercle bacilli. The *x*-ray appearance is suggestive. Lipiodol, as a rule, does not enter the affected area, thus differentiating it from bronchiectasis.

Malignant growth has already been discussed. *Innocent tumours*, as a rule, have a distinctive appearance on the skiagram. One great pitfall is to mistake lymphadenoma for an innocent tumour, but to discuss this would be to digress too far beyond the limits of my subject.

Lymphadenoma may simulate pulmonary tuberculosis in many ways—by long-continued fever, by lung symptoms and signs, by the production of a pleural effusion. It is one of the most difficult of all causes of obscure fever, but the pattern of the temperature chart, the curious intermittent regular bouts of fever, will frequently help. If primary in the chest, the bulk of the disease is probably in the mediastinum, and will so appear in the skiagram. If an effusion is present and there is doubt of the diagnosis, replacement by gas and subsequent radiography will probably reveal masses in the mediastinum, perhaps extending into the lung. The response to treatment by arsenic and *x* rays may be a further help in diagnosis.

Syphilis.—Although many different syphilitic affections of the lung are described, such as massive consolidation, chronic bronchitis, bronchiectasis, etc., the only certain syphilitic conditions that I have seen are an apparent gumma in the lung, a gummatous mass in the mediastinum causing venous obstruction, bronchial stenosis, and the changes following pressure by an aneurysm. The history, the Wassermann reaction, the *x*-ray picture, and the response to treatment may give the diagnosis.

With *foreign body* in the bronchus, the history and bronchoscopic examinations are the most important points. In *bronchial stenosis* lipiodol injections and bronchoscopic examinations are essential.

To sum up, in difficult cases the routine to pursue will be as follows: A careful history, an exhaustive bacteriological investigation, lipiodol injections, *x*-ray examinations, and bronchoscopic examinations. In certain cases such procedures as replacement and thoracoscopy will be needed, in others even an exploratory thoracotomy. Of all these I would put first the bacteriological investigation.

SOME PHARMACOLOGICAL ASPECTS OF AVERTIN.

BY

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(From the Pharmacological Laboratory, Cambridge.)

ANY recent advances which have been made in anaesthesia have been rather those of improved methods of administration and technique than the introduction of new anaesthetics. This is due partly to the fact that anaesthetics have come to be regarded as substances to be administered by inhalation, a method which has attained popularity because it permits accurate control and regulation of the duration and depth of anaesthesia; and partly to the reliability of three volatile drugs—ether, chloroform, and nitrous oxide—introduced in the very earliest days.

The rectal administration of anaesthetics does not permit of such fine control of anaesthesia as can be obtained by inhalation. Gwathmey[9] has shown that anaesthesia results when ether is absorbed at a constant rate from a solution in olive oil given by the rectum, and that the drug is excreted by the lungs. Obviously such considerations do not apply to non-volatile anaesthetics. Rectal anaesthesia has certain practical advantages: it is more comfortable for the patient, it does not necessarily require the presence of an anaesthetist, for the surgeon himself can administer the anaesthetic, and it is more convenient for operations about the head and neck. The main disadvantages are the risk of irritation to the intestinal mucosa and the difficulty of maintaining a constant concentration of the anaesthetic in the tissues. This second problem is intimately connected with the absorption and excretion of the drug in question, for the administration of a rectal anaesthetic is not continuous, and, once given, it is impossible to control its action further.

Some three years ago it was discovered that tribromethyl-alcohol, a simple organic compound of bromine, possessed the property of producing anaesthesia. Moreover, it has been found[14] that the therapeutic margin of safety is greatest with this substance when it is administered by the rectum. A quantity of experimental and clinical data has been accumulated ([1–7 10 12 13 14 17–23], and others) regarding this substance, which is now issued under the trade name of "avertin." The opinion has been formed that the drug represents a definite advance towards the ideal anaesthetic, largely because of the simplicity of its administration. All that is necessary is to give a definite proportion of the drug per unit of body weight in aqueous solution by the rectum. Administration is not continuous, for, once the requisite quantity of the drug has been injected, the patient becomes anaesthetized and remains so for a period depending upon the amount of avertin given. The drug is absorbed with extreme rapidity,[21] so that, when the operation is over, it is useless to attempt to remove any which may remain in the rectum, as is the case with other rectal anaesthetics.

The pharmacology of avertin has been studied mainly in Germany, and no experimental investigations have been recorded in this country as yet. The present paper includes the main results of an investigation on these lines to confirm and extend previous observations.

Some Physical and Chemical Considerations.

Avertin is an odourless, white, crystalline powder. It has a melting point of 80° C., and is soluble in water to the extent of 3 per cent. at 37° C. Solution occurs very slowly; it takes upwards of forty-five minutes, aided by vigorous shaking, to produce a clear solution. As the solution must be freshly prepared for each anaesthesia this is a material disadvantage, and the makers have to some extent solved the difficulty by issuing the substance dissolved in amylene hydrate, itself a rectal anaesthetic, in the proportion of 1 gram of avertin in 1 c.cm. of the solvent. This solution is readily soluble in water, and avertin can thus be prepared conveniently for rectal injection.

The chloroform/water distribution coefficient of avertin is comparable with that of ether, and indicates that the two drugs have a similar anaesthetizing power. Avertin contains a high proportion, approximately five-sixths, of bromine. In aqueous solutions it is decomposed by heating above 50° C. into hydrobromic acid and dibrom-acetaldehyde:

$$CBr_3.CH_2OH - HBr = CBr_2 : CHOH = CHBr_2.CHO.$$

Many of the earlier difficulties in the use of avertin by rectal administration were due to the presence of these decomposition products. It has been found that they are

markedly irritant to the intestinal mucosa; if a decomposed solution is injected into a cat's rectum an acute haemorrhagic proctitis results within a very short time. The solution should only be used when freshly prepared; and before injection it must be tested for its reaction by adding two drops of a 1 in 1,000 solution of Congo red to 5 c.cm. of avertin solution. If the reaction is less than $pH = 4.5$ the indicator gives a purplish or blue colour and the solution is not satisfactory for use. Although reports

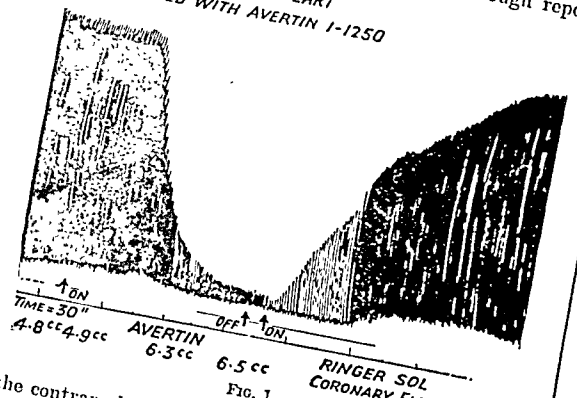

FIG. 1.

to the contrary have been made, I have found that avertin does not decompose readily when exposed to light and air at room temperatures. Solutions have been kept for over three months under these conditions without any evidence of decomposition.

Avertin was first prepared by the action of yeast upon bromal.[25] Since then improved manufacturing methods, based upon the reduction of bromal, have been introduced. There is a close relationship chemically between bromal and chloral; and, further, this holds good up to a point with regard to their decomposition in the body. Chloral circulates in the blood as trichlorethylalcohol, which is excreted in the urine in combination with glycuronic acid as urochloralic acid. Bromal, upon reduction, is converted into tribromethylalcohol (avertin), and it has been suggested[22] that this substance is excreted in the urine in combination with glycuronic acid as urobromalic acid. This is discussed fully later.

The Cardio-vascular System.

The action of avertin upon the heart and blood vessels has been studied by Straub[21 22 23] and Skvortsov;[19] their results have been confirmed and extended in the present research by experiments upon intact animals.

Perfusion of the isolated rabbit's heart with a 1 in 5,000 solution of avertin causes a slight increase, followed immediately by an appreciable diminution, in the force of the heart beat, accompanied by slowing of the rate. These effects are more marked when a 1 in 2,500 solution is used, and with a strength of 1 in 1,250 (Fig. 1) there is no initial stimulation and the beat is almost stopped, but regains its normal amplitude rapidly upon perfusion with this strength of avertin causes arrest of the heart in systole within five minutes.

The coronary outflow is increased in all dilutions of avertin, but particularly at 1 in 2,500, when the increase may amount to 40 per cent. of the flow. Avertin therefore dilates the coronary arteries to a considerable degree.

The intravenous injection of a small dose of avertin (1 c.cm. of a 2 per cent. solution) into a cat already anaesthetized with this drug weakens and slows the heart beat and causes slight cardiac dilatation. The blood pressure falls about 30 mm. of mercury and may remain low for some time. This effect is due entirely to the cardiac action; intestinal volume and limb volume experiments show that the peripheral vessels constrict, but this is not sufficient to maintain the blood pressure at a normal level. A normal anaesthetic dose of avertin administered per rectum has little or no effect upon the blood pressure in the cat, which remains at about 110 mm. of mercury. If the anaesthetic dose of avertin given in this way or subcutaneously is doubled, the blood pressure falls to about 80 mm.; and if it is tripled, it falls to about 50 mm. of mercury. Similar results are obtained with rabbits. These results confirm the findings of Blomfield and Shipway in man,[2] that "there is a slight fall of blood pressure, usually about 10 mm. Hg, which is greater in proportion as the strength of the dose is increased."

Avertin resembles chloroform in its action upon the heart, in that it weakens the force and slows the rate of the beat, with resulting cardiac dilatation and a fall in blood pressure. The great distinction between the two drugs is that there is a greater margin of safety with avertin; effects which are produced by chloroform in a dilution of 1 in 20,000 are not produced by avertin until a concentration of 1 in 1,250 is reached. Accordingly, avertin has a comparatively low toxicity upon the cardiac musculature—about one-sixteenth that of chloroform.

Respiration.

Avertin anaesthesia is accompanied by marked slowing of respiration, due in part to diminution of voluntary movement and to absence of reflex activity from the respiratory tract. It is possible that avertin is not responsible for this depression, which occurs after the administration of the normal dose, for the respiratory centre retains all its reflex effects and its response to drugs; thus inhalation of ammonia and injection of hydrocyanic acid still produce both quickening and deepening of respiration, while the stimulation of an afferent nerve, such as the vagus or sciatic, elicits the normal response.

The respiration under deep anaesthesia shows certain peculiarities which can be demonstrated by a rapid tracing of the respiratory movements. Such a tracing (Fig. 2) shows that the animal first takes a normal inspiration, but by five or six extremely short expirations and inspirations. A normal expiration occurs and then the process is repeated.

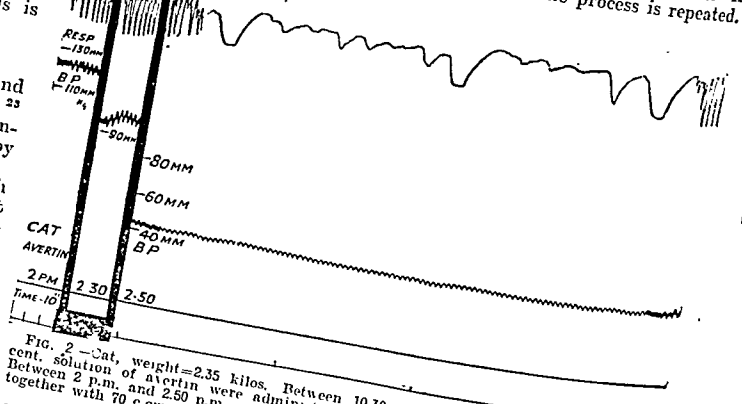

FIG. 2.—Cat, weight=2.35 kilos. Between 10.30 a.m. and 2 p.m., 45 c.cm. of a 2 per cent. solution of avertin were administered per rectum, with resulting anaesthesia. Between 2 p.m. and 2.50 p.m. a further 20 c.cm. of this solution were given per rectum, together with 70 c.cm. subcutaneously.

This type of breathing is strongly suggestive of that described by Lumsden[16] as occurring when the brain is transected through the upper part of the pons; it is known to result from overdosage with anaesthetics. With toxic doses of avertin the respiration becomes slower and more irregular, and finally ceases. Death results from respiratory failure, for the heart continues to beat long after respiration has ceased. Nevertheless, there is a fairly large margin of safety; a cat requires four times the anaesthetic dose administered subcutaneously or per rectum, and very frequently 3 or 4 c.cm. of a 2 per cent. solution intravenously in addition, to cause death from respiratory failure

The Excretion of Avertin.

We are indebted to Straub[21 22 23] for our present knowledge of the excretion of avertin. This writer has established the fact that avertin is excreted entirely in the urine, except for traces in the breath and sweat, and he has expressed the opinion that the drug is excreted in combination with glycuronic acid. My experiments have confirmed certain of his results.

The main difficulty in determining the excretion of bromine-containing anaesthetics is to obtain a simple and accurate method of estimating bromine in the urine. Existing methods, such as those of von Wyss[24] for inorganic bromides only, Hale and Fishman,[11] and Lucas,[15] are unsatisfactory because they involve complex manipulations for separating chlorine from bromine and the use of relatively large amounts of urine, with a resulting undesirable margin of error. In addition, in this work, organic as well as inorganic bromides had to be estimated, and for this purpose von Wyss's method is useless.

With the assistance of Mr. Palmer and Mr. Notton, the following method, depending upon the fixation of organic bromine by sodium carbonate and its subsequent oxidation by iodic acid, was devised. In this way the difficulty of separating chlorine from bromine is overcome, as chlorine is not liberated by iodic acid, except when present in a concentration that is never found in urine.

Method.

The apparatus shown in Fig. 3 was used. It consists of a 300 c.cm. flask, A, with a long neck, B, fitted with a ground-glass stopper, C, carrying a screw-clamp, E. A delivery tube, F, is fused into the neck of the flask as high as possible, and into this is blown a bulb, G, of approximately one inch in diameter. This bulb serves both as a trap and as an inspection chamber for fumes coming over. The delivery tube then passes vertically downwards through a condenser, J, into a boiling tube, H. This is fitted with a cork carrying a small tube, K, which just projects into the boiling tube, while the delivery tube reaches to the bottom. K is connected by rubber tubing to a glass tube, L, dipping to the bottom of a second boiling tube, M. This is also fitted with a small glass tube, N, similar to K.

When bromine is evolved in the flask A and carried over into the boiling tube H, there is no rubber with which it may come in contact. The design of the flask and delivery tube is such that there is no possibility of the contents of the flask splashing into the boiling tube H. Furthermore, by closing the clamp E, fluids in flask A can be boiled at atmospheric pressure. By attaching a pump to tube N boiling point can be reached at a reduced temperature, and by opening clamp E air can be drawn through the apparatus.

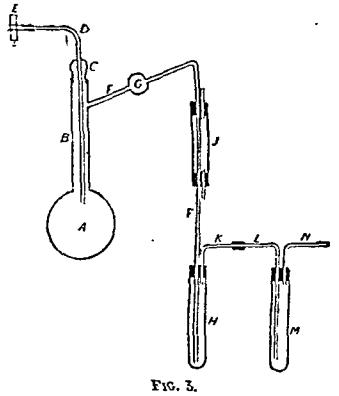

FIG. 3.

A convenient quantity of the urine to be tested is placed in a small nickel crucible; 5 c.cm. was found to be adequate in the case of urines passed immediately following the administration of avertin, but in other cases 10 to 15 c.cm. had to be taken. About 2 grams of solid sodium carbonate are added to the urine in order to fix any organic bromine compounds which otherwise would volatilize, and the whole is evaporated down to dryness.

The crucible, with its contents, is then heated until the organic constituents of the urine are ashed and the sodium carbonate is fused. It is essential that no organic matter be left, because this liberates iodine from iodic acid and interferes with the estimation. After cooling, the fused mass is dissolved in the minimal quantity of N/2 sulphuric acid and is transferred, together with washings of distilled water, to the flask A; 20 c.cm. of N/2 sulphuric acid and 20 c.cm. of an aqueous solution of potassium iodate (7 grams per litre) are added to the flask, and about 15 c.cm. of a 10 per cent. solution of potassium iodide in water are placed in each of the tubes H and M.

The clamp is tightened and the flask is heated. Bromine is liberated by the iodic acid formed by the interaction of sulphuric acid and potassium iodate. The contents of the flask, which at first are colourless, turn brown as the temperature rises. Bromine passes through the delivery tube and bulb into the potassium iodide solution, where iodine is liberated, which dissolves in excess of potassium iodide. Tube M traps any bromine which escapes tube H.

The contents of the flask are allowed to boil until they and the condensed fluid in the trap G are colourless. This takes about twenty minutes, and then air is sucked through the apparatus in order to remove the last traces of bromine from the distillation flask. The contents of the tubes H and M are titrated with a solution of sodium thiosulphate of known strength (1 c.cm. = 0.0008 gram of bromine), using starch as an indicator. The amount of sodium thiosulphate used corresponds with the amount of iodine liberated from the solution of potassium iodide, and indirectly with the amount of bromine liberated from the original material.

Duplicate estimations on urines to which known amounts of potassium bromide and avertin were added showed that 0.2 mg. of bromine could be estimated with an accuracy of 99.8 per cent.

Rate of Excretion of Avertin in Rabbits.

Experiments were made upon rabbits in order to determine the rate of excretion of avertin. Each rabbit was given a dose of avertin subcutaneously, the urine was collected at suitable intervals, and the bromine content estimated. The results obtained are given in Table I.

TABLE I.

	Rabbit 1. Weight 1.8 kg. Avertin given 0.4 g. Bromine content 0.346. No anaesthesia.		*Rabbit 2.* Weight 2.5 kg. Avertin given 0.8 g. Bromine content 0.692. Anaesthesia.	
	Urine (c.cm.).	Bromine (gram).	Urine (c.cm.).	Bromine (gram).
First day	90	0.1872	—	—
Bromine	...	54%		
Second day	340	0.0566	135	0.505
Bromine	...	...	...	72%
Third day	200	0.056	90	0.0504
Fourth day	290	0.0232	130	0.0156
Fifth day	205	0 0123	120	0.0144
Sixth day	115	0.0055	—	—
Seventh day			290	0.0232
Eighth day			—	—
Ninth day			—	—
Tenth day			400	0.04
Eleventh day			—	—
Twelfth day			380	0.0228
Thirteenth day			—	—
Fourteenth day			400	0.008
Fifteenth day			160	0.0019
Sixteenth day				No Br
Total Br recovered		0.3408		0.6813
Total Br given		0.346		0.692
Percentage recovered		98.5		98.4

	Rabbit 3. Weight 1.55 kg.		*Rabbit 4.* Weight 1.55 kg.		*Rabbit 5.* Weight 2.5 kg.	
	Urine (c.cm.).	Bromine (gram).	Urine (c.cm.).	Bromine (gram).	Urine (c.cm.).	Bromine (gram).
First day	160	0.384	160	0.3328	142	0.368
Bromine	...	73%	...	63%	...	53%
Second day	170	0.0136	60	0.0128		

— = No urine collected.

In the cases of rabbits 1 and 2, estimations were performed until no bromine could be detected in the urine. Rabbits 3, 4, and 5 are included to show the rate of excretion in the first twenty-four hours, and the estimations were not carried further. In the case of rabbit 2, the urine was not collected necessarily each day; upon occasions it was collected for two or three days and then estimated as a whole. Unless otherwise mentioned, the urine was collected at twenty-four hours' interval.

The main points may be summarized as follows:

1. The high figure for total bromine recovery. This was over 98 per cent. in each case in which the estimations were continued until no bromine was found in the urine; this is a much higher figure than that first obtained by Straub,[22] who stated that he could only recover from the urine the equivalent of 81 per cent. of the avertin administered. At the same time, Straub could only find traces of bromine in the sweat and breath of avertinized animals; and the figures obtained here, which allow of the excretion of 1.2 per cent. of bromine by channels other than the urine, confirm this statement. Later, by using an improved technique, Straub[23] asserted that practically the whole of the avertin ingested could be recovered from the urine, thus confirming the figures given in Table I.

2. The amount excreted in the first twenty-four hours. Quantities ranging from 53 to 73 per cent. were recovered in this period. Great caution must therefore be exercised in giving a second dose of avertin before a suitable length of time has elapsed, because an average of 37 per cent. remains in the body twenty-four hours after administration. This shows that avertin is a cumulative drug within certain limits.

3. The period of excretion varies with the dose administered. In the case of the small rabbit No. 1 insufficient avertin was given to produce anaesthesia, and bromine disappeared from the urine on the seventh day. With rabbit No. 2 anaesthesia was produced, and bromine was found in the urine until the sixteenth day. The daily excretion gradually diminished from the first day after administration to a trace on the last few days.

Rate of Excretion of Avertin in Man.

I have had the opportunity, through the kindness of Mr. Arthur Cooke, to study the excretion of avertin in one of his patients. The urine was examined for bromine, with the results shown in Table II. The total bromine

TABLE II.

Man. Weight 9 st. 5½ lb. = 59.5 kilograms.
Avertin given = 5 grams = 4.24 grams of bromine.

	Urine passed. c.cm.	Bromine. Grams.
First day	426	1.43
Second day	852	1.636
Third day	738	0.389
Fourth day	1,136	0.182
Fifth day	738	0.177
Sixth day	824	0.068
Seventh day	—	No bromine
Total bromine recovered		3.882
Total bromine given		4.24
Percentage recovery = 91		

recovery was only 91 per cent., but as a small quantity of avertin solution was lost from the rectum during the operation this figure is probably too low. Excretion was somewhat erratic for the first forty-eight hours, and the amount of bromine passed in the second twenty-four hours exceeded that passed in the first twenty-four hours. This is explained by the fact that the patient experienced considerable difficulty in passing urine in the first twenty-four hours, and reference to the table shows that the quantity of urine passed on the second day was exactly double that passed on the first day; 72 per cent. of the bromine administered was recovered from the urine in the first forty-eight hours, and diminishing quantities were found until the seventh day, when no bromine could be detected.

The Mode of Elimination of Avertin.

It is necessary to remember the analogy between chloral and avertin which has been mentioned previously, and to point out that Straub[22] in his experimental work obtained results which upheld the theoretical contention that avertin is excreted in combination with glycuronic acid as urobromalic acid.

There are four ways in which it is possible for avertin to be excreted: (1) as sodium bromide; (2) as unchanged avertin; (3) as urobromalic acid; (4) as an organic compound of bromine other than (2) or (3).

Avertin is not excreted as sodium bromide. The precipitate obtained by adding silver nitrate to the acidified urine of an avertinized rabbit contains only a trace of bromine, while the filtrate contains 95 per cent. As silver nitrate precipitates inorganic bromide, the conclusion is that avertin is not excreted in this form. This is confirmed by the fact that administration of sodium chloride to an avertinized animal does not alter the duration of anaesthesia or the rate of bromine excretion.

Avertin is not excreted unchanged. It forms a precipitate with silver nitrate, and, as stated in the previous paragraph, no such precipitate can be obtained with the urine of avertinized animals. Further, avertin is freely soluble in ether, chloroform, and petroleum ether, and extraction of suitable urines with these solvents gives negative results.

Glycuronic acid is found in the urine of both man and animals after the administration of avertin, and this suggests that the drug may be excreted as urobromalic acid. I have been unable to find any reference to this substance, but its chlorine homologue, urochloralic acid, is said[6] to be soluble in ether and chloroform and to be precipitated by basic lead acetate. No bromine-containing compound can be extracted from the urine of avertinized animals by these solvents, neither can such a compound be precipitated by basic lead acetate.

Avertin can be distilled in steam, but when this process is applied to a suitable urine there is no bromine in the distillate, and we must conclude that avertin is absent from the urine. In addition, the distillate contains no bromine if the urine is first treated with concentrated sulphuric acid in order to decompose any hypothetical urobromalic acid that may be present into glycuronic acid and avertin; this affords strong evidence that the drug is excreted in some other form. In view of the presence of glycuronic acid, it is probable that this is a complex organic compound of bromine.

Summary.

1. Great care must be exercised in the preparation of solutions of avertin for anaesthesia. Decomposition products formed by the action of heat (over 50° C.), light, and air are irritant to the rectal mucosa.

2. In anaesthetic doses avertin has no appreciable effect upon the cardio-vascular system. In larger doses it slows the rate and weakens the force of the heart beat. The coronary vessels dilate and the blood pressure falls.

3. Avertin anaesthesia is accompanied by marked slowing of respiration. Toxic doses cause death by respiratory paralysis.

4. In both man and animals avertin is excreted in the urine over a period of several days. Considerably more than 50 per cent. is excreted in the first twenty-four hours.

5. The form in which avertin is excreted could not be determined. The indications are that elimination occurs in the form of an organic compound of bromine other than tribromethylalcohol or urobromalic acid.

I have to thank both Professor W. E. Dixon and Dr. J. C. Hoyle for their kind advice and criticism.

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AVERTIN NARCOSIS.*

BY

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AVERTIN has been used in this country for the last year and a half and has been on the market for the last six months. During the last year I have been privileged to work with Dr. J. Blomfield and Dr. Z. Mennell, and was able to gain some knowledge of its use.

Avertin is tribromethylalcohol, a white crystalline solid. It is soluble in water to the extent of 3½ per cent. at body temperature. When heated above 40° Centigrade or exposed to light for long it decomposes into dibromacetaldehyde and hydrobromic acid. The former substance is extremely irritating to the bowel; the hydrobromic acid is readily observed by its reaction with Congo red reagent and provides a ready and necessary means for testing the purity of avertin solutions.

Introduced into the rectum avertin is readily absorbed from its solution. It is excreted almost entirely by the liver and kidneys, and appears in the urine in combination with glycuronic acid. Straub[1] has recovered from the urine as much as 81 per cent. of the dose given.

The anaesthetic properties of avertin are best indicated by the fact that the chemical manufacturers now call it "the basal narcotic." Full surgical anaesthesia can be obtained, and is occasionally obtained by avertin alone, but the variation in depth of anaesthesia produced by similar doses on different patients is so great that one cannot set out definitely to produce anaesthesia solely by this method. Once a patient is narcotized with avertin, only a very small quantity of inhalation anaesthetic is required to complete the anaesthesia. From the anaesthetist's point of view this is the chief merit of the drug. The patient has much more cause to welcome it. The anaesthetic is given in the ward without fuss, the falling asleep is gradual and peaceful, and the awakening equally so. Even though the narcosis has been very light, there will be no memory of anything from the time of the injection. Further, the events of the next twenty-four or thirty-six hours will not be remembered with any clearness, and the whole horrible business of being anaesthetized and of recovering is thus not only diminished in fact, but is minimized in retrospect. The merits of avertin narcosis are, in short, those of rectal anaesthesia combined with those of deep preliminary and subsequent narcosis.

Avertin is found to be of particular value in dealing with highly nervous patients, with cases of Graves's disease, and, I am told, with children. In patients with respiratory affections it largely reduces the amount of inhalation anaesthetic required, or may enable the operations necessary to be carried out under local anaesthesia. Flessa[2] at the Munich Gynaecological Clinic has used light avertin narcosis in demonstrating patients to his classes. He finds that the patients are not sensible of their exposure, and that the true pain reflexes persist whilst the functional element is obliterated, so that a much more accurate diagnosis is possible. For obstetric purposes, avertin was at first said to be unsuitable, owing to its paralysing action upon plain muscle. However, reports vary exceedingly.

The conditions in which avertin is contraindicated are such as one would expect from its method of absorption and excretion. All inflammatory and ulcerated conditions of the rectum and colon rule it out. Cases with severe renal and hepatic lesions should not be given avertin, although nephrectomy has been performed and cases with severe jaundice have been operated upon under it. Acidosis, advanced cachexia, and serious blood diseases are also given as contraindications. Recent work in Germany by Fribram[3] shows that patients with hyperthyroidism can take massive doses of avertin and can eliminate them quickly. This suggests that patients with deficient thyroid secretion will not eliminate the drug, and that one line of treatment in case of delayed return to consciousness would be the injection of thyroxin. Further, in cases where there is doubt as to the advisability of giving avertin, a determination of the basal metabolism may help in coming to a reasoned decision.

The physiological changes in avertin narcosis are a falling of the blood pressure and a decrease in the respiratory movements. No definite changes in the pulse rate have been observed. The fall in the blood pressure is usually within the limits of that observed in deep sleep, between 10 and 30 mm. I have never seen more than this change, and there appear to be no reports of a greater fall which could have been due to the avertin alone. The respiratory centre is affected and a slight cyanosis is usually observed, more particularly in patients who have had preliminary doses of morphine. The breathing is shallow and the rate normal or slightly quickened. Patients vary a great deal in the amount of cyanosis they show; much depends, of course, upon the general condition of the patient, upon the anatomy of the air passages, and upon the dose of avertin they have had. Marked cyanosis will not occur if the dose has not been greater than 0.1 gram per kilo of body weight, and as long as the airway is kept clear.

The anaesthesia comes on gradually and takes from twenty to thirty minutes to reach completion. The ocular reflexes disappear in the usual way, and with the routine dosage the patients end up with contracted pupils which react to light, with an absent conjunctival reflex, and with no, or only a slight, corneal reflex. There may still, however, be a skin reflex, and pinching the inner side of the thigh or scratching with a needle may cause a movement. A sudden blast of strong ether vapour may produce a cough; this is a useful preliminary test to give one an idea of how much inhalation anaesthetic will be needed. With increasing experience of a routine dosage it is possible fairly accurately to judge what state of anaesthesia has been effected, and to estimate how much pushing of the inhalation anaesthetic will be necessary.

The actual administration of avertin is now a simple proceeding. In the first cases, the weighing out of the requisite amount of powder, the slow dissolving of it in water at 38° C., the testing of the solution, the giving of two rectal washouts before the administration and one after the operation, together with the peculiar anxiety regarding the patient, made an avertin anaesthesia a formidable business. Finding that more often than not a complete anaesthesia did not result, the anaesthetist felt that a great deal of trouble had been taken for no reasonable return. The introduction of a standard concentrated avertin solution ready for dilution has simplified matters, and experience has shown that much lavage of the rectum is not only unnecessary but undesirable, as an excess of fluid in the bowel may interfere with absorption.

The preliminary measures are an enema the night before operation, repeated next morning if it should seem necessary. In emergencies, satisfactory results have been obtained without any preparation of the bowel.[4] Some observers think it good to give a sedative overnight. The desirability of an injection of morphine or of omnopon before the rectal injection appears to be a moot point. Acting upon Dr. Mennell's suggestion, I tried a series of cases with and without omnopon. The difference in the degree of anaesthesia was definite, but the general condition of the patients without morphine was better: respirations were less shallow and there was less cyanosis. As it had been agreed by this time that full anaesthesia was not to be attempted with avertin alone, the omission of the morphine merely slightly added to the amount of ether or chloroform required.

The dosage of avertin is still a matter for discussion; but the general agreement has been that where there is no marked weakness or general infection, 0.1 gram per kilo of body weight is a perfectly safe dose, and this is the dose which is largely used; 0.125 and 0.15 gram per kilo have been used with success, but where there has been trouble it has nearly always been with these high doses. In Germany larger doses still have been tried.[5] I have not been able to get the full results, but am told that cases of Graves's disease stand these doses particularly well.

* A paper read in the Section of Anaesthetics at the Annual Meeting of the British Medical Association, Manchester, 1929.

Avertin is provided in a concentrated solution with amylene hydrate—1 gram in 1 c.cm. The dose works out at between 6 and 8 grams. The appropriate amount of the solution is measured out and enough distilled water to make a 2½ or 3 per cent. solution is heated to 38° C. The avertin is then added and the mixture is shaken till a clear solution results. The most important points are that the temperature must never exceed 40° C. and that the final solution must be free from hydrobromic acid and therefore free from dibromacetaldehyde; 5 c.cm. of the dilute solution are taken and a drop of 1 in 1,000 Congo red solution is added. The colour should remain bright orange red. The blue reaction of free acid is sometimes delayed and it is essential to make the test immediately before administration.

The solution being now ready and satisfactory, it is injected into the rectum fairly slowly through a catheter and funnel. The catheter must be passed well into the rectum proper. The patient is best arranged lying on the left side with a pillow under the pelvis. The 250 or 350 c.cm of solution are easily retained if the injection takes three or four minutes. Attempts have been made to give fractional doses, running in more solution if the anaesthesia produced by the original dose was inadequate. It has been shown that the avertin in solution is more readily absorbed than the water. This makes all calculations with regard to strength of solution useless, and it is impossible to gauge rate of absorption or to prophesy the depth of anaesthesia which will be obtained. If undue depth should be observed at an early stage, washing out the rectum for the purpose of removing any of the avertin that may remain there is a sound proceeding.

In practice, it seems best to give the rectal injection thirty minutes before the advertised time of the operation. This means that the patient need not be disturbed for twenty minutes, and then may be taken straight to the theatre. During the induction period we have endeavoured to keep the patient quiet, to keep the room dark, and to keep out all sources of irritation. Flessa, however, says that some patients resent strongly the sepulchral atmosphere, and that light and noise have no effect upon the induction, so that it is better to allow the ordinary noise and disturbances to go on normally.[6]

Having taken the patient to the theatre, the anaesthetist tests the skin reflexes, and either starts the inhalation anaesthetic at once or, if a fairly deep state has been achieved, withholds the ether till necessary. Ether, C.E. mixture, chloroform, gas and oxygen, or local anaesthetic may be used. If gas and oxygen be used, one has to wait for a severe stimulus to be given by the surgeon before the patient will breathe sufficiently deeply to take in enough of the gases. The amount of ether and chloroform used will be measured in drachms rather than in ounces. Once a sufficient relaxation has been obtained, it is often unnecessary to give any more of the inhalant. The peritoneum that has been relaxed enough for the abdomen to be opened will remain so for closing, unless the operation lasts so long that the avertin effect is wearing off. The usual duration of the narcosis is from one and a half to two hours from the time of the injection. About four hours from the start the patient is usually quite conscious of his surroundings.

The chief care in the nursing is watching the relaxed jaw and tongue; this applies during the period of induction as well as of recovery. A rectal washout used to be given on return to the ward. This is now considered to be unnecessary. Should the patient's condition demand it the routine saline treatment is carried out.

In only one case have I seen any trouble directly due to an avertin anaesthesia. In this case, which was reported in the *Lancet*[7] by Sir Francis Shipway and Dr. Blomfield, the patient died twenty hours after the administration of a dose at the rate of 0.125 gram per kilo. It would seem probable that in that case a deficiency of thyroid secretion had diminished the patient's power of detoxicating and eliminating the drug.

The lines of treatment in cases of prolonged delay in return to consciousness are respiratory stimulation by injections of lobeline, the giving of carbon dioxide and oxygen mixture, and injections of ephedrine to maintain the circulation. So far as I can discover, thyroxin has not been tried; but this would seem a rational method of assisting elimination.

In conclusion, avertin can be used to provide a deep narcosis, which is easily convertible into an anaesthesia by the giving of very small quantities of the ordinary anaesthetics. It is reasonably safe in doses up to 0.1 gram per kilo of body weight. It eliminates nearly all the mental stress which accompanies the usual administration of an anaesthetic. It has no effect upon the respiratory tract. It is well taken by persons with excessive thyroid secretion. It is fairly easy to give.

On the other hand, it is not controllable and cannot safely be used as the sole anaesthetic agent. It has to be prepared with care. It should not be used where there is any disease of the kidneys, liver, or colon, or where there is thyroid deficiency. It is not, as was at first hoped, an anaesthetic that anybody can give at any time. It requires an experienced anaesthetist to control the superimposed anaesthesia. The necessity of giving the injection half an hour beforehand adds to the anaesthetist's duties and makes its use difficult in hospital practice where cases follow each other with rapidity.

In certain cases and types of patients avertin is a great help. As a routine anaesthetic agent, it is hardly practicable.

References.

[1] *Klin. Woch.*, 1928, No. 49. [2] *Munch. med. Woch.*, June 7th, 1929. [3] *Zentralbl. f. Chir.*, 1929, No. 19. [4] *Munch. med. Woch.*, June 7th, 1929. [5] *Zentralbl. f. Chir.*, 1929, No. 19. [6] *Munch. med. Woch.*, June 7th, 1929. [7] 1929, vol. i, p. 545.

THE TREATMENT OF TORTICOLLIS.*

BY

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Torticollis or wry-neck is a very rare deformity, occurring once in every 150,000 births. Congenital club-foot is ten times as frequent. The outstanding deformity is the tilting of the head towards the affected side, with rotation of the chin forward and away from the affected side. Secondary deformities are facial asymmetry and scoliosis, chiefly of the cervical region.

The cause of the deformity is contraction of the sterno-mastoid muscle, more particularly its sternal head. Its origin is either congenital or acquired, the following being the chief varieties:

A. *Congenital.*—(1) Prenatal; (2) natal.
B. *Acquired.*—(1) Rheumatic; (2) reflex—for example, tubercle of cervical spine; (3) ocular; (4) *spasmodic*, etc.

The congenital variety, as indicated above, has two subdivisions—prenatal and natal—and there are several theories as to their origin.

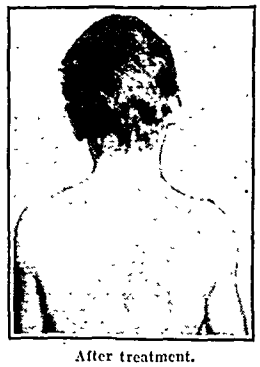
1. *Prenatal.*—The prenatal subdivision includes those due to abnormal posture *in utero*, giving rise, on the one hand, to temporary or permanent shortening of the sterno-mastoid, or, on the other, to localized fibrosis and contracture of the muscle from interference with the blood supply—thus being allied to Volkmann's ischaemic paralysis. The rarer forms are due to abnormal development of the cervical vertebrae, which may be unusual in number and often wedged. A certain percentage of the latter are associated with Sprengel's shoulder or congenital elevation of the shoulder. In addition, cervical ribs may be present. The contracture of the sterno-mastoid is usually on the right side, and is very rarely bilateral. I have personal records of three cases of bilateral torticollis, each one of which was associated with congenital abnormalities of the cervical spine, whilst in one Sprengel's deformity was present.

2. *Natal.*—The natal subdivision of the congenital variety is generally associated with a difficult confinement. The presentation is usually a breech, when there may

* A paper read in the Section of Orthopaedics at the Annual Meeting of the British Medical Association at Manchester on July 25th. This was illustrated by photographs of patients before, during, and after treatment. Photographs of the operation table used are reproduced at page 721.

be trauma of the after-coming head and neck, resulting in rupture of fibres of the sterno-mastoid, with or without the formation of a haematoma within its sheath. Bruising of the neck is not always present, however, and in these instances the so-called haematoma is found generally in the middle and lower third of the substance of the muscle. From such examples arose the theory of the congenital origin of the deformity—that it is due to intramuscular fibrosis during intrauterine life. This theory is borne out by anatomical experiments which show that the blood supply of the lower half of the muscle is more easily interfered with by torsion of the neck *in utero*, thereby causing ischaemia of that part. On the other hand, I have had instances of torticollis associated with Erb's paralysis on the same side, thus supporting the traumatic theory of the cause of the deformity. In one instance there was a history of heredity, the mother of the patient also suffering from torticollis. With regard to sex incidence, females were definitely in the majority.

Before treatment.



After treatment.

In this paper I do not propose to discuss the acquired varieties of torticollis, the differential diagnosis of which can be made by a careful clinical examination of the patient, in particular of the eyes, the spine, and the x-ray films, after which the appropriate line of treatment can be carried out.

TREATMENT OF CONGENITAL TORTICOLLIS.

This depends upon the age at which the patient is brought to the orthopaedic surgeon. The earlier the better, as a complete cure within a few months can then be promised.

Early Cases.

If the child be brought within a few days of birth then the cure is simple, non-operative, and should be complete within three months. To secure this the orthopaedic masseuse rotates and tilts the head to the position directly the reverse of the deformity, whilst the mother pulls down the shoulder and arm on the side of the deformity. After these movements have been repeated a number of times the masseuse kneads the contracted muscle, especially in the neighbourhood of the so-called haematoma should this exist. The treatment is repeated daily, and in the intervals the mother endeavours to copy the masseuse. Correct posture of the child whilst being carried can also help in the cure. Just as a mother can cause scoliosis in her infant by carrying it constantly on the same hip, so can she, by reversing the process, cure that deformity. Exactly the same simple method can be applied by the mother to the cure of torticollis.

Late Cases.

These have marked shortening of the sterno-mastoid, with or without facial asymmetry and scoliosis. In all such patients operation, followed by suitable exercises and re-education, is the only cure. I have operated upon 24 cases, of which 23 were of the true congenital variety. The only acquired type was a case of spasmodic torticollis in a woman, in whom the condition had existed for a considerable number of years. The operation in this particular case consisted in crushing, and thereby paralysing for some months, the muscular branches of the spinal accessory nerve which supply the sterno-mastoid, with complete relief for a considerable time.

Of the 23 cases of true congenital torticollis all except 3 were operated upon by the subcutaneous method, the sternal end of the muscle being divided with a blunt Jones tenotome. Of the 3 cases treated by the open division of the sterno-mastoid, 2 were tackled at the lower end, and one at the upper end below the mastoid process. This latter case occurred in a girl, and was the only case in which an incomplete cure resulted from the subcutaneous division of the sternal end. Open division of the upper end resulted in a complete cure, the operation scar being hidden by the hair.

Details of the Subcutaneous Operation.

The essentials of the operation are extensive preparation of the skin, including both upper limbs; adequate towelling off of the operation area; very skilled assistance, consisting of chief assistant, together with helpers to hold and pull upon the upper limbs; endotracheal anaesthesia whenever possible; adequate airway; maintenance of over-correction of the deformity after tenotomy by a plaster-of-Paris cast, followed by exercise and re-education by an orthopaedic masseuse after its removal some weeks after the operation.

Before treatment.

During treatment.

After treatment.

The patient having been anaesthetized, a flat sandbag is placed transversely beneath the shoulders, the head held well over the end of the table, the skin prepared, and the towels applied. Each upper limb is held adducted by the hand by assistants, whilst the chief assistant takes sole charge of the head, and moves it as required by the surgeon during the operation. He is seated on a stool, with the table so arranged that he can hyperextend the head. The head is flexed to relax the sternal end of the muscle, and the skin is picked up with toothed dissecting forceps, held in the left hand, about an inch above the clavicle close to the sternal end. This facilitates the

introduction of the tenotome beneath the skin. The forceps being dispensed with, the finger and thumb of the left hand firmly grip the sternal portion of the muscle and lift it away from the deep structures of the neck. The tenotome is then slid transversely behind the tendon from the inner side, and a moderate degree of tension put upon it by traction on the head by the chief assistant, a similar amount of traction being applied at the same time to the upper limb on the affected side. The tendon is thus cut through slowly and the tenotome withdrawn. The surgeon then kneads the muscle, especially the clavicular portion, whilst the chief assistant stretches the contracted tissues by rotation and extension of the head. A dressing is now applied, followed by a plaster-of-Paris jacket, with the head in the over-corrected position, and the shoulder on the affected side pulled well down. The application of the plaster cast is much facilitated if the operation be performed on the orthopaedic operation table described at page 721 of this issue, which was invented some years ago, and shown at the Orthopaedic Section of the Royal Society of Medicine on February 7th, 1928. If this be not available, then the plaster should be applied with the patient lying on a simple pelvic rest. The points to be emphasized in its application are pressure beneath the chin, mastoid process, and shoulder on the affected side, and adequate airway.

The plaster jacket is not as irksome as might appear, patients being able to walk, and even play football and ride a donkey. This is bi-valved in four weeks' time, and exercises and re-education are commenced by the masseuse. At first the exercises should be carried out in the prone position, with the head low to avoid the faintness sometimes experienced on removal of the jacket. It is worn as a corrective splint for another four weeks, and then it is discarded. A complete cure usually results in three to six months, depending on the degree of deformity present *per se*, as well as the secondary ones; naturally the facial asymmetry takes longest to disappear.

It should be emphasized that the masseuse undertaking the treatment should make the acquaintance of the patient some days before the operation in order to initiate the corrective exercises which will be necessary afterwards, and should, of course, be present at the operation.

Results of Operation.

The results of operation by this method were complete cures in 19 out of 20 cases; the one case which was a partial success was made a complete one by open division of the attachment at the mastoid process.

The risks of the closed operation are not great provided the tendon is carefully lifted from the deeper structures of the neck and the surgeon has adequate skilled assistance. All the instruments necessary for the open division of the tendon are, of course, readily sterilized for use should anything unforeseen arise. The resulting fine pinprick scar is of great cosmetic importance to a girl.

Indications for Open Operation.

The indications for open operation are: (1) incomplete cure or relapse from the subcutaneous method; (2) cases in which there are other abnormalities—for example, Sprengel's shoulder, or congenital cervical scoliosis, as shown by the presence of wedged vertebrae, etc. In such cases the deeper structures are contracted, and will require stretching or even division.

The incision is preferably obliquely transverse over the sternal end of the clavicle to make the scar as inconspicuous as possible, the platysma is divided, and then the sternal head of the muscle over an elevator. The clavicular head seldom gives trouble, except in those instances where a previous operation may have caused fibrous tissue formation. The head is then stretched to the over-corrected position, the soft tissues carefully sewn up with fine catgut, and the skin with fine salmon gut, and a plaster jacket applied. The resulting scar is disfiguring, and tends to broaden as years go by.

Contraindications for Operation.

1. Those cases in which *x*-ray films show a marked congenital bony deformity, generally due to wedged vertebrae, with perhaps cervical ribs.

2. Bilateral torticollis. I have seen three such cases.

3. Those cases in which the torticollis is secondary to disease of the spine—for example, tubercle.

In all the above, where bony deformity is present, it would be of little value to divide the contracted soft structures, as the bony ones would remain, and these are not correctable.

Summary.

This paper has been written, and these photographs of cases before, during, and after treatment have been shown, in order to emphasize that torticollis may be prevented by careful ante-natal examination of the mother to secure the simplest presentation, avoiding natal injury. Further, the younger the infant the sooner the cure. Lastly, the subcutaneous tenotomy of the sterno-mastoid muscle gives a complete, lasting, scarless result.

CONGENITAL POLYCYSTIC DISEASE OF THE KIDNEYS AND LIVER.

BY

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The following case of congenital polycystic disease of the kidneys and liver is interesting not only on account of the pathological condition of the liver, but also because of the family history. As happens in so many similar cases, the condition of the kidneys and liver was only discovered at post-mortem examination; during the lifetime of the patient it had never been considered in the differential diagnosis of his illness.

History.

A. H., a male aged 55, saw his family doctor in February, 1929. He had been sent by his wife because of occasional vomiting, from which he had suffered during the preceding fortnight. His own mental outlook was curious, in that he seemed quite unconscious of the fact that he was ill. At that time he was very anaemic; his tongue was pale and flabby, but there was no glossitis; his liver was slightly palpable in the right hypochondrium. The illness was diagnosed as Addison's anaemia, and he was ordered to rest, and was treated by means of liver, arsenic, and hydrochloric acid. Following the adoption of this treatment, especially after taking the liver, he vomited several times, and the administration of liver was therefore stopped. Two days later he had a copious bright red haemorrhage from the rectum; rectal examination revealed no abnormality. He was given kalzana tablets and an intramuscular injection of 4 c[illegible] but this and subsequent injections of the [illegible] Following the second injection he had [illegible] right nostril, which was successfully plugged with gauze soaked in adrenaline. The next day bleeding occurred from a small denuded area in the situation of the lower left canine tooth; this was finally arrested by a turpentine application. A blood count made at this time showed marked diminution in the number of red cells (2,500,000 per c.mm.), but no obvious change in the white count. The urine was pale in colour; its specific gravity was 1010; it contained no sugar, but traces of albumin and an occasional cast were found. The optic discs though pale were normal, and no retinal haemorrhages were seen.

The patient now began to be rather sleepless, and there was marked tremor of the fingers. The bleeding from the rectum persisted, and to check it he was given by mouth an emulsion of half an ounce of turpentine with half an ounce of castor oil. Following this treatment haemorrhage stopped for one day, but it reappeared on the next day. Neither suppression of urine nor haematuria followed the administration of turpentine.

He was admitted to hospital on February 16th, about a fortnight after his first visit to his private doctor. He complained of a dull ache in the right loin, and preferred to lie on his left side. In hospital he was given an intravenous injection of calcium chloride, without, however, any apparent effect on the haemorrhage. He died on February 18th.

Post-mortem Findings.

Kidneys.—Both kidneys were equally enlarged and cystic; each weighed 2 lb. and measured 6½ inches from its upper to lower pole and 3¾ inches in breadth. The cysts varied in size from that of a pea to that of a walnut.

Liver.—The liver was uniformly enlarged, and weighed 3½ lb. Its anterior surface measured 6¾ inches by 6¾ inches by 7½ inches. Its whole substance was thickly studded with small cysts, the size of which varied up to that of a hazel nut.

Other Organs.—No cysts were seen in the pancreas, and no pathological condition was found in any other organ.

Microscopical Examination.

The section of liver examined microscopically showed typical congenital cysts. Normal liver tissue was seen, between which were spaces lined with a flattened epithelium. The normal tissue was not compressed, and the cysts probably arose from ordinary liver-forming cells very early in their development.

Family History.

The patient was the youngest of ten children, one of whom died at birth; of the rest, only one is alive, a woman aged 69, apparently in good health. His mother died from Bright's disease, aged 56; his father (the cause of whose death is unknown) when 85. The following is a list of the children in order: (1) a male, died at the age of 1 year from convulsions; (2) a female, aged 69, still alive; (3) a female, died from convulsions, aged 2; (4) a female, died at the age of 49, and post-mortem examination revealed cystic kidneys; (5) a female, died of kidney trouble, aged 45; (6) a male, died from convulsions, aged 2; (7) a female, died of cancer (organ not specified), aged 55; (8) a female, died from convulsions, aged 1; (9) the patient himself. From this list it will be seen that of his brothers and sisters two are known to have had cystic kidneys, one died of kidney trouble, one of cancer, and four died under the age of 2 from convulsions. It is possible that the latter four may have suffered from uraemia.

Discussion.

Teuscher[1] has suggested that cystic formation in the kidneys and the liver depends on an anomaly in the germ plasm. In examining the liver she always found openings between the cysts and the bile passages, and concluded, therefore, that cyst formation was due not to failure of bile ducts to establish their connexion with the larger bile passages, but to a capacity for growth on the part of the epithelium. She suggested that the cystic development was an expression of a perverted tendency, widespread in the body, for tissues of the excretory ducts to multiply at the expense of the more highly differentiated glandular tissue. The above family history appears to confirm her theory that a predisposition to the disease is hereditary, since two of its members were known to have suffered from cystic disease, and five others may have done so.

I am indebted to Dr. Rupert Waterhouse for permission to publish this case.

[1] Teuscher: Ueber die kongenitale Cystenleber mit Cystennieren und Cystenpankreas, *Beit. z. path. Anat. u. z. allg. Path.*, Jena, 1926, lxxv, 459-485.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

SIMPLE MASTOIDITIS WITH SYMPTOMS OF CEREBRAL ABSCESS.

THE following case, which recently came under my care, is of interest because at the time of operation I was quite prepared to find a temporo-sphenoidal abscess, the symptoms and general appearance of the patient pointing to this condition.

A married woman, aged 58, first consulted me about six months ago; she was suffering from acute suppurative otitis media of the left ear. On examination the membrana tympani was found to be very red and inflamed, and a small perforation was present in the postero-superior quadrant, through which thick pus was oozing. There was a certain amount of mastoid tenderness, and general malaise with a slight rise of temperature. Under treatment the condition improved, the tenderness disappeared, and the discharge, which was profuse at first, later became less.

After the eighth week an exacerbation occurred, and, the perforation already present being inadequate, a fresh incision was made in the drum, thereby increasing the size of the existing opening. This only partly relieved the pain and tenderness, and a second operation was performed twelve days later to allow free exit to the discharge, which was very thick and plentiful.

The general condition *became worse, and when I* saw her fourteen days later she presented the following picture. She looked extremely ill and wasted, with a rather terrified expression. She complained of deep-seated pain in the left temporal fossa, and tenderness over the squamo-parietal bone. Sleep had been impossible for several days owing to the intense pain; sickness and retching were complained of. The temperature was subnormal, being 97.6° F., and the pulse was 70; the aural discharge had ceased. There was no oedema or tenderness on pressure over the mastoid region, but slight pain was experienced on deep pressure beneath the tip of the mastoid and upper part of the jugular vein.

The symptoms were those of a temporo-sphenoidal abscess, and, as the patient was obviously very ill indeed, could not endure the pain much longer, and was becoming unbalanced mentally, I decided to operate without delay. I made the usual post-aural incision, and exposed the entire mastoid region; the bone looked healthy but sclerosed. On chiselling down to the depth of a quarter of an inch I struck a large quantity of pus coming from the middle ear and antrum, and also from the deep surface of the mastoid tip. Having cleared out the cells, which were numerous and extended well up on the squamous plate of the temporal bone and into the zygoma, I found the tegmen quite healthy. Not being satisfied, I removed it, and exposed the dura of the middle fossa, which was also healthy. On these findings, and as the symptoms present did not justify me in doing so, I decided not to open the dura mater. The deep surface of the mastoid process was entirely eaten away, and the lower end of the lateral sinus exposed and covered with granulations. Just towards the end of the operation I must have slightly damaged the sinus, as profuse haemorrhage occurred, which could only be stopped by plugging the lower part of the cavity. This was left *in situ*, and having plugged the rest of the operation cavity with gauze soaked in iodoform emulsion, the skin incision was closed with the exception of the lower end, which was kept open for drainage and lavage. The patient made an uninterrupted recovery.

This case is interesting because it shows: (1) the presence of extensive mastoid disease with what one might almost call an absence of symptoms of mastoiditis; (2) the presence of symptoms of cerebral abscess in the absence of any intracranial complication.

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INGUINAL HERNIA IN A MONORCHID.

IN view of the interesting questions raised by the occurrence of a right-sided oblique inguinal hernia in the absence of a descended right testicle, the following clinical details of such a case seem to be worth recording.

A Hindu male labourer, aged 31, was admitted into the Ranbir Hospital, Jind, May 22nd, with a reducible swelling in the upper part of the right side of the scrotum of over ten years' duration. The swelling had been small at first, but it eventually reached the size of a big plum, descending very frequently and on the slightest exertion; when down it was not easily reducible, and the patient could no longer undertake any hard work. He attributed the condition to an attack of influenza in the pandemic of 1918. On examination of the upper part of the right side of the scrotum in which there was no testicle a soft swelling as large as a big plum was found; there was pulsation on coughing but no testicular sensation. It could be reduced and the opening behind it could admit two finger tips. On deep palpation in the region of the internal abdominal ring, no swelling could be made out. There was no history of there having been a right testicle in the scrotum nor of any operation on that side; no scar was found; the left testicle was apparently normal. The patient had married about twelve years previously and was the father of five children, of whom four had died, the survivor being 8 years old. Virility was said to be unimpaired, and no other member of the family is monorchid. The patient was of a sturdy appearance and had a strong abdominal wall.

On May 23rd the usual incision for inguinal hernia was made; the aponeurosis of the external oblique was incised in the direction of its fibres and the sac was identified underneath it; it was separated but no cord could be made out. A small opening was made in its dependent part, and the great omentum was seen. The sac was easily replaced into the peritoneal cavity, traced towards the inner side, and found to be firmly adherent to the pubic spine. Efforts were made to separate it from its attachment, but this was found difficult, so it was cut across as near the bone as possible; the neck was tied, and the distal portion removed, the stump being transfixed in the usual way. The inferior epigastric artery was seen pulsating on the inner side of the sac. It was noted that *the conjoined tendon and the aponeurosis of* the external oblique were not quite uniformly thick, otherwise they were strong and the abdominal wall was quite firm. The wound was closed in the usual way; the patient made an uneventful recovery and was discharged cured on June 11th. One month later, and again after two months, he remained perfectly well and was anxious to resume his occupation; he had started carrying some heavy loads, though advised to abstain from such work for six months.

An interesting point is that the case is one of right-sided oblique inguinal hernia in a monorchid. It appears that the gubernaculum developed normally and followed the usual direction, as did the peritoneal sac, so it was not clear why the testicle lagged behind. Was this due to the absence of some substance in the gubernaculum which failed to attract the testicle down, or was the testicle totally absent on that side? A second question is why it took so long for the peritoneal contents to make their way into the sac; perhaps it had become sealed, though imperfectly, and, later, when the patient was debilitated by influenza in 1918, the great omentum succeeded in working its way through the internal abdominal ring. Thirdly, if the sac was attached to the pubic spine, how did the swelling appear in the upper part of the scrotum? It appears that the contents of the sac while making their way towards the fundus encountered the resistance of the bone, and took the path of least resistance—the external abdominal ring—making a loop in the lower part of the sac. This case evidently supports [illegible] theory for inguinal hernia suggested b[illegible] ave should be glad to know whether [illegible] been recorded.

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A TWIN BREECH CONFINEMENT.

If the proportion of twin pregnancies is 1 in 90 births, and the proportion of breech presentations that come to full term is 1 in 60, the occurrence of full-term twins, both of which present by the breech, must be very rare indeed. The following clinical details of such a case would seem, therefore, to be worthy of record.

A woman suffered from irregular periods for which I advised curetting, but she became pregnant before this was performed. The pregnancy was associated with the presence of a considerable amount of amniotic fluid, a quantity of which escaped on two occasions during the fifth and the sixth months without interfering with the gestation. The limbs were readily felt through the abdominal wall. There was much water present up to the time of labour; a few days before this was due I felt a leg presenting, and recommended her removal to a nursing home or a consultation. As the patient preferred to remain at home, Dr. M. G. Pearson saw the case with me. On his examination the leg could no longer be felt, but he diagnosed a twin pregnancy; a head was palpable about the level of the umbilicus, and the child was clearly in the posterior position.

At the onset of labour a few days later a good-sized bag of waters presented, but the foetal head could not be felt. When the os was fully dilated, I ruptured the membranes under an anaesthetic, and, after some delay, assisted the delivery of a breech by the carefully applied forceps. The rest of the delivery was accomplished without trouble or injury to the child, which was a girl, who readily commenced to breathe when the body was sprinkled with cool water. As the labour pains continued without delivery of the placenta or presentation of the other child, I perforated the amnion which separated the two sacs, and a fair amount of amniotic fluid escaped. It was some time before anything presented, and, in view of the weakness of the pains, I used forceps to assist the passage of the breech of the second child over the brim. The occiput being posterior, I had a little more difficulty in bringing the arms down without injury than I had experienced in the delivery of the first child. The second child was a girl; both were of full size, and both were delivered without any injury to the mother or to themselves. After the delivery of the second child there was an escape of much amniotic fluid, and 0.5 c.cm. pituitrin was injected intramuscularly as a safeguard against post-partum haemorrhage, but no trouble was encountered. Except for a slight rise in temperature on the fifth day, which responded to treatment with a hot douche, quinine, and purgative, the mother was not inconvenienced by her exceptional experience. I had attended her at her two previous confinements, which were normal.

The case was of particular interest to me because the last confinement I attended was a breech presentation of a full-time female child in a persistent posterior position. I had difficulty in the delivery of both arms because the patient started to recover from the anaesthetic when I had delivered the legs; the need for haste in the interests of both mother and child resulted in some crushing of the brachial plexus and the fracture of a humerus, which necessitated the use of a plaster for three weeks.

The principles of treatment advocated in manuals of midwifery are hard to follow when one has to attend a difficult confinement without the assistance of a skilled anaesthetist, and when there are special reasons against leaving the case unfinished once labour has set in.

Durban, South Africa. F. G. Cawston, M.D.Camb.

Reports of Societies.

LATENT SINUSITIS AS A CAUSE OF RETROBULBAR NEURITIS.

In the Section of Ophthalmology of the Royal Society of Medicine, on October 11th, Dr. Rosa Ford, ophthalmic surgeon to the South London Hospital for Women, gave an account of two cases of retrobulbar *neuritis* due to a latent sinusitis which every usual method of diagnosis had failed to detect.

Dr. Ford remarked that at a previous discussion three years ago, held in conjunction with the Laryngological Section, several members expressed the opinion that retrobulbar neuritis was rarely, if ever, the result of sinus disease. The two cases she now demonstrated both belonged originally to the category of cases which were without ascertainable cause, and the first of them had so remained for three and a half years; but there now seemed reason to believe that both were due to a latent sinusitis, the diagnosis of which was extremely obscure.

The first was the case of a man, aged 31, who saw Dr. Ford in 1926 for a blind right eye, with central scotoma and vision 2/60. Sinusitis was suspected, but his only symptom was a quite negligible post-nasal catarrh of three years' duration, and the only sign a few pus cells in the washings from the posterior sinuses, giving a culture of *B. alkaligenes*. These were disregarded as probably contaminations. Under general treatment the vision slowly improved to 4/10. Two years later the man reported that the improvement had been maintained, but that he had remained subject to frequent attacks of misty vision and slight pain at the back of the eyes. These eventually ceased, but his post-nasal catarrh at the same time became marked, until it interfered with his night's rest. Nasal examination showed signs of double ethmoiditis with muco-pus in quantity on the right side. The speaker's interpretation was that the sinusitis was at first latent, and the very inadequate drainage into the nose showed itself by a slight post-nasal catarrh. The pent-up secretion affected the optic nerve, causing the central scotoma, but whenever the secretion found more adequate drainage the vision cleared, and when the drainage was less than usual an attack of misty vision ensued. With the establishment of free drainage, as shown by the marked catarrh, all eye symptoms ceased.

The second case was that of a woman aged 42, with central scotoma in the right eye, temporal contraction of the field, and 6/60 vision. There was no catarrh, but she had severe pain over the right cheek. In view of the blindness and pain it was decided to operate, and the antrum, when opened, was found to contain clear jelly-like mucus and a small polypus, which seemed clear evidence of a low-grade infection. The effect of performing a right partial middle turbinectomy and the opening of the ethmoidal cells was a marked relief of pain, shrinking of the scotoma, and enlargement of the field, which lasted about five weeks and then relapsed, the nose being then reported perfectly normal. The result seemed to point completely to a causative sinusitis, yet all the usual methods of diagnosis left the rhinologist uncertain of its presence.

In these cases clinical examination failed to detect the cause (as had been reported in like cases by other observers); exploration failed, for no macroscopic pus was seen in the washings from either case; culture of the washings from the sinuses also failed, for in the first case the *B. alkaligenes* was not considered to be of pathological significance, and in the second case the culture was sterile; *x*-ray examination failed, being negative in the first case, and indefinite in the second. Sinusitis being so extremely elusive, she thought that two conclusions could be drawn: (1) that it would be very helpful to ophthalmology if rhinology could give some more conclusive test than those in ordinary use, and (2) that retrobulbar neuritis might be more often due to a latent sinusitis than had been thought, and that perhaps one might look in this direction for a solution of some of those unexplained cases which were so disturbingly numerous.

Retrobulbar neuritis showed a strong tendency to spontaneous recovery, as had happened in the first of these cases, but she thought the case showed that there was some danger in waiting for this to occur, for recovery had been extremely slow, and even now, nine months after complete cessation of eye symptoms, there was relative dimming of the whole field. To wait for spontaneous recovery was to run the risk of permanent damage to the optic nerve.

After discussing the respective parts to be played by the rhinologist and the ophthalmologist, pointing out that while these cases were altogether nasal the key to their solution was often altogether ophthalmic, she disputed the view sometimes responsible for a hopeless prognosis in these cases—namely, that a retrobulbar neuritis of obscure origin might be an early sign of disseminated sclerosis. It might not be disseminated sclerosis at all. Moreover, if disseminated sclerosis was a subacute inflammation of the nervous system, possibly of autogenous origin, it was doubly important to eradicate any doubtful focus of infection, such as a latent sinusitis, when the retrobulbar neuritis was acting as a herald of its onset.

Reviews.

THE EYE IN GENERAL MEDICINE.

BOOKS which present opinions and methods of practice based upon a long and carefully gathered personal experience can hardly fail to be of value to those whose professional responsibilities are yet at the beginning; and, indeed, so wide and so varied is the clinical picture that even a senior may welcome a tale well told by a colleague. It is in this order of contributions that Dr. MAITLAND RAMSAY'S *The Eye in General Medicine*[1] must be placed. The book is neither a systematic textbook on diseases of the eye nor an ordered description of the disturbances to be found in the eyeballs in general or constitutional disease. Rather it may be described as the author's thoughts about the eye and its diseases and the application of these thoughts to various practical situations. Through all the chapters runs the claim that in the eye may be studied readily and with advantage many of the pathological processes to which other parts of the body, equally with the eye, are liable; in other words, that a wide mental outlook in the practice of ophthalmology recognizes local changes as parts of a larger whole, and affords guidance in dealing with the symptomatic claims that these changes establish.

Thus the pain caused by spasmodic contraction of the unstriped muscle of the iris has its parallels in angina pectoris, in intermittent claudication, in intestinal colic, and in strangury, for in each of these disturbances unstriped muscle in spasm is concerned; in the pneumococcal ulcer of the cornea may be observed the morbid processes which mark the pulmonary changes produced by the pneumococcus; a hypopyon has its analogue in an empyema; and the vascular derangements which in an eyeball produce tension and glaucoma are comparable to those which in the kidney establish tension and anuria. Stated in the bald fashion here summarized these propositions may seem somewhat extravagant, but as developed and argued in Dr. Ramsay's pages they have an inviting quality, and they certainly challenge attention and thought.

Moreover, this identification of the processes of disease in the eye with the processes of disease elsewhere is not presented as a mere academic exercise. On the contrary, it is urged that the recognition of this truth has educational and practical values. From it follows the thesis that pathological disturbances, as these come to the attention of the clinical ophthalmologist, are not detached and isolated events which require mere local regard and treatment, but that, equally with other symptoms, they set up a demand for a complete inquiry into the patient's history and an investigation of all the clinical facts of the case. The reward, it is urged, is not only the security which comes from knowledge, but also—and this is strongly pressed—an enlarged opportunity for successful treatment. This order of teaching is applied in all sections of the book, and particularly in chapters which deal with ocular symptoms due to disordered carbohydrate metabolism, to defective elimination, and to toxic agents; and a like comprehensive view is exhibited in discussing the medical aspects of eyestrain, the relation of the capillary circulation to glaucoma, and the ocular manifestations of cardio-vascular disease.

Of clinical ophthalmology, in short, Dr. Ramsay takes no narrow view. He is urgent that every practitioner should cultivate the ophthalmoscope as a routine method of examination; similarly he pleads that ocular disturbances and diseases should be viewed in relation to the body as a whole, and that upon this inclusive examination the therapeutic needs of the patient should be met. Though the teaching is decided or even emphatic, it is not arbitrary, and the argument is presented in a pleasing and lucid fashion. In preparing his book as a second edition Dr. Ramsay has given to his readers many things of high value, and we feel sure the event will prove that he has not laboured in vain.

[1] *The Eye in General Medicine.* By A. Maitland Ramsay, M.D., LL.D. Second edition of *Diathesis and Ocular Diseases.* London: Baillière, Tindall and Cox. 1929. (Demy 8vo, pp. x + 255. 12s. 6d. net.)

THE TOXAEMIAS OF PREGNANCY.

MONOGRAPHS on medical subjects may be written from one of two aspects: they may aim at setting forth a particular view of the subject, or at giving a comprehensive review of many varied, and often incompatible, theories. The first method has the advantage that it enables the author to present a more or less logical sequence of ideas, and to give a more readable, if more biased, account of the subject. The second method serves a different purpose, and has been adopted by Dr. STANDER in his book on *The Toxæmias of Pregnancy.*[2] He is to be congratulated on the way he has considered every theory, weighed every piece of evidence, and reviewed so wide a field of literature; it is not owing to any fault in his presentation that he leaves the reader quite bewildered as to the present state of our knowledge of the toxaemias of pregnancy.

Perhaps in no other subject is knowledge so chaotic; in none is it more difficult to compromise the various conflicting theories or to correlate the various disconnected pieces of evidence. It is obvious that mutually exclusive theories cannot all be true, and some must therefore be discarded. Unfortunately no theory is sufficiently established to justify the unbiased observer in rejecting all the rest. A second misfortune hangs round the subject, and that is the overwhelming rate at which "evidence" has collected during the last ten years. During this period biochemistry and biophysics have been the main lines of approach, and although at first they promised great advances, it must be admitted that despite our increased knowledge of the metabolic changes in normal and abnormal pregnancy, we are not really any nearer the solution of the problem of the "toxaemias of pregnancy." The hope that biochemistry would bring us nearer to an understanding of the cause of eclampsia and allied conditions has not been realized. Dr. Stander, who devotes a large part of his book to a review of this aspect of the subject, has succeeded, by discarding the useless work and correlating the rest, in presenting a clear statement of existing knowledge of the metabolic changes associated with the "toxaemias."

Bound up with our ignorance of the nature of these diseases is the difficulty of classifying them, and it is doubtful whether Dr. Stander's classification is more satisfactory than the rest. He rightly points out that, albuminuria being a laboratory finding and nothing more, the term "albuminuria of pregnancy" should not be used to denote any particular type of disease. In its place he suggests the term "low reserve kidney" to denote a condition found in previously healthy women whose pregnancy is associated with an albuminuria which rapidly clears up after delivery. The albuminuria may or may not recur with subsequent pregnancies, but the essential thing is that the kidney lesion does not become progressively worse with each attack. In this respect the patients with "low reserve kidney" differ from those with a true "nephritis," who, according to Dr. Stander, invariably become worse with each pregnancy. In addition to these two groups he recognizes two others—eclampsia and pre-eclampsia. The criterion of eclampsia is the occurrence of fits, while pre-eclampsia is "limited to the relatively small group of cases in which the patient presents the signs, symptoms, and laboratory findings of eclampsia but has not yet developed convulsions." The weakness in this classification seems to be in the confusion of criteria. The "low reserve kidney," and the "nephritis" groups are based essentially on the subsequent history of the patients; the "pre-eclamptic," and the "eclamptic groups," upon the immediate findings. Apart from quantitative differences there seems to be no fundamental distinction between "low reserve kidney" and "pre-eclampsia," and apart from a single symptom—convulsions—no difference between "pre-eclampsia" and "eclampsia." In the present state of our knowledge it would seem simpler to regard all the cases in these three groups as having a common pathology. It is true that the biochemical findings differ in the two groups ("low reserve kidney" and "pre-eclampsia"),

[2] *The Toxæmias of Pregnancy.* By H. J. Stander. Medicine Monographs, Vol. XV. London: Baillière, Tindall and Cox. 1929. (Med. 8vo, pp. xi + 161. 13s. 6d. net.)

but the differences are only of degree, and it is impossible to draw any hard-and-fast line, clinical or chemical, between the two conditions. The classification adopted can possibly be defended on clinical and, to a less extent, on biochemical grounds, but it has not helped to clarify the fundamental problem of the etiology of the kidney changes associated with pregnancy.

The sections on vomiting of pregnancy and acute yellow atrophy are comprehensive, and include detailed accounts of the associated changes in the chemistry of the blood and urine. Taking it as a whole the monograph offers the reader a wide survey of the available knowledge and theories about the toxaemias of pregnancy. The summary of recent work could have found no more able author than Dr. Stander, who has himself contributed so much original biochemical research to the subject.

APPLIED PHARMACOLOGY.

THE third edition of *Applied Pharmacology*,[1] by Professor A. J. CLARK, who speaks with the authority and experience of teaching chairs in the three Universities of Capetown, London, and Edinburgh, fully maintains the high opinion expressed by one so well qualified to judge as Professor W. E. Dixon in these columns (1923, i, p. 514) about the first edition. In spite of its natural increase in size and value the price remains the same; two new chapters have been added—on the pharmacology of the skin and on inorganic metabolism, and those on the vitamins and the pharmacology of the liver have been rewritten in the light of more recent knowledge. In the chapter dealing with the skin, in which the help of his colleague Dr. G. H. Percival is acknowledged, the use of thallium acetate as a depilatory (the nature of its action being unknown) is described, and reference is made to the toxic effects which should not occur if the dose is carefully calculated and the drug only administered to children under puberty. The summary of inorganic metabolism contains sections on poisoning due to excessive ingestion of water, and Professor Clark points out that, although it is difficult to induce this intoxication in healthy persons unless pituitrin is given at the same time, mild degrees of it may easily be produced in nephritis. The important subject of calcium metabolism, which, like those of acidosis and alkalosis, is mentioned elsewhere in special connexions, is clearly epitomized. Under the heading of pharmacology of the liver the treatment of pernicious anaemia by liver is described as resembling the insulin treatment of diabetes in that it relieves rather than cures the condition. Well written and full of information, this handbook is assured of many more editions.

CLINICAL METHODS.

GOOD books on the various methods of physical examination employed at the bedside already exist, but a warm welcome must be extended to a new arrival in Dr. S. A. LOEWENBERG'S *Diagnostic Methods and Interpretations in Internal Medicine*.[2] This is a good book because throughout the fundamental object of all diagnostic measures is kept in mind—namely, to enable the person conducting the physical examination to visualize, as it were, the pathological condition of the organs he is examining. Dr. Loewenberg has hit upon the original idea of including plentiful photographs of pathological specimens, so that the reader can take in the physical signs, the scientific explanation of those signs, and the pathological condition they represent almost at a glance.

The most important sections in the book are on the respiratory and cardio-vascular systems, but the whole field of diagnosis is covered from the initial chapters on history-taking and general inspection right through to radiography, a special chapter on which has been written by Dr. L. Solis-Cohen. The section on the physical signs of respiratory disease is an excellent one, and a good example of the thoroughness of the author's methods, for he sketches the history of percussion and auscultation, gives a very full account of the methods in use, and cleverly illustrates the why and wherefore of breath sounds and added sounds heard over the lungs. A good addition to the cardio-vascular section is a chapter on electrocardiography and tests for cardiac capacity, while the concluding chapter contains most useful information on physical examinations as applied to industry, life insurance, health preservation (dealing with periodic health examinations), and the detection of malingering. A chapter on the interpretation of laboratory findings deals with the assessment of results and not with the actual laboratory methods employed, and this is perhaps a weak spot in a book intended, as the author insists, for the general practitioner. At the same time, this section does give valuable aid by indicating how to estimate the value of laboratory reports. Altogether, this book of over a thousand pages is an excellent production, and a valuable contribution to the literature of clinical medicine.

GONORRHOEA.

THE flood of literature that came as a direct result of the increased incidence of venereal disease following the war shows no sign of abatement, and Dr. GEORGE ROBERTSON LIVERMORE, professor of urology, Medical Department, University of Tennessee, and Dr. EDWARD ARMIN SCHUMANN, associated professor of obstetrics, University of Pennsylvania, have added yet another to the many existing works on the subject of gonorrhoea. In this work[3] they deal with the diagnosis and treatment of gonorrhoea, both in the male and in the female, and their aim is to present, in a practical manner, the results of their own personal experience rather than to discuss methods advocated by other authorities. This way of handling the subject has its advantages, though some readers will note with surprise that forms of treatment which are recognized in other countries receive no mention—for example, the treatment of gonococcal cervicitis by means of diathermy. The most probable explanation of this particular omission is that the authors, having found diathermy of little use in cases of acute epididymitis, apparently decided that it was not likely to be of value in the treatment of cervicitis. But such omissions are bound to occur in any book that aims at being concise and practical. A method of treatment that is likely to strike the British expert as unusual is the use of an in-dwelling catheter in cases of acute prostatitis; surely this procedure must lead to an epidemic of epididymitis in the authors' practice. The work concludes with a chapter on granuloma inguinale, a disease seldom seen in this country, and, as a result, one that is almost always missed when it is met with. Few textbooks describe it, and the good account given in this work will certainly be of value. The illustrations and figures scattered throughout the text are excellent.

COLLOIDS IN BIOLOGY AND MEDICINE.

WE have much pleasure in welcoming the appearance of a fifth edition of Colloids in Biology and Medicine[4] by Professor H. BECHHOLD. The first edition, which appeared in 1911, was a pioneer work, for it dealt with the application to medicine of a new and rapidly developing science. A second edition appeared at the end of the war, and the author explains that in the next two editions only a partial revision was attempted. Hence the book now before us is the first edition in which post-war knowledge has been fully incorporated. The author has obviously put a large amount of work into the preparation of the new edition, and has brought together a great mass of new information. Perusal of the book suggests, indeed, the doubt whether the subject has not really outgrown the limits of a single volume. When this book was first written

[1] *Applied Pharmacology*. By A. J. Clark, M.C., B.A., M.D., F.R.C.P., Professor of Materia Medica and Pharmacology in the University of Edinburgh. Third edition. London: J. and A. Churchill. 1929. (Demy 8vo, pp. xi + 529; 65 illustrations. Price 15s.)

[2] *Diagnostic Methods and Interpretations in Internal Medicine*. By Samuel A. Loewenberg, M.D., F.A.C.P. Philadelphia: F. A. Davis Company. 1929. (6 × 9½, pp. xiii + 1032; 547 figures. 10 dollars net.)

[3] *Gonorrhoea and Kindred Affections*. By George Robertson Livermore, M.D., F.A.C.S., and Edward Armin Schumann, M.D., F.A.C.S. New York and London: D. Appleton and Co. 1929. (6½ × 10, pp. xvi + 257; 66 figures. 18s. net.)

[4] *Die Kolloide in Biologie und Medizin*. Von Professor Dr. H. Bechhold 5 völlig umgearbeitete Auflage. Dresden und Leipzig: T. Steinkopff. 1929. (6½ × 9, pp. xii + 585; 87 figures, 7 plates. M.32.)

colloidal chemistry was in its infancy, and only a few persons had studied the application of that science to the problems of medicine. Since then the great science of biochemistry has grown up, and the larger portion of it is concerned with problems of colloidal chemistry. Professor Bechhold has, however, the advantage of having studied this new science continuously since it started its rapid development, and he has succeeded in producing a clear and readable account from the vast amount of scattered evidence that exists regarding his subject.

NOTES ON BOOKS.

A REVISED edition of *Recent Advances in Surgery*[1] has been soon demanded, but Mr. W. H. OGILVIE has not been content to rest on his laurels. Sixty pages on cancer and radium treatment have been added, and they succeed in giving a clear picture of both technical and clinical problems. Cancer of the tongue is the despair of surgeons, and there has been no approach to the late Sir Henry Butlin's results of twenty or thirty years ago. Modern methods cannot yet compete with his success, but they are producing results which bear publication. Mr. Ogilvie holds the balance evenly, but he feels that team work between old-fashioned surgery and new-fashioned radium *therapy must blaze the trail if further success is to follow.* The rest of the book is little altered, but there are several new plates and figures, a few are omitted, and there is a general improvement in the reproduction of the remainder. The new volume is thirty-five pages longer than the old, and the disappearance of hydrocephalus will be lamented by few. We confidently expect further editions of this admirable book, and in response to the author's disarming request for criticisms we can only point out that Madame Curie spells her name with one "r," and that a few diagrams of the intraneural topography of the main nerve trunks of the limbs would be a very welcome addition.

Since its first appearance in 1900 the *American Illustrated Medical Dictionary*,[2] by Dr. NEWMAN DORLAND, has been revised fourteen times, and the present fifteenth edition has been completely re-edited by the editorial staff of the *Journal of the American Medical Association*, under the direction of Dr. Morris Fishbein. By this new collaboration the dictionary has received the most thorough revision of its long career, and several thousand terms noted in the most recent medical literature have been added. The editors have throughout followed the official nomenclatures of the American Chemical Society, the Council on Physical Therapy, the Council on Pharmacy and Chemistry, the Association of Pathologists and Bacteriologists, the American Radiological Society, and similar bodies. Many illustrations have been added, and it may be said that the new edition fully justifies the great amount of work that has evidently been devoted to its preparation.

We have received a copy of the first volume of *Archivos da Fundaçao Gaffrée e Guinle*, published at Rio de Janeiro by a committee consisting of Professors Carlos Chagas and E. Rabello and Dr. G. da Moura Costa. The volume contains thirty-two papers which have been published elsewhere and deal mainly with various aspects of syphilis, certain nervous diseases, and laboratory methods.

[1] *Recent Advances in Surgery.* By W. Heneage Ogilvie, M.D., M.Ch.Oxon., F.R.C.S.Eng. Second edition. London: J. and A. Churchill. 1929. (5½ × 8½, pp. vii + 495; 115 figures. 15s. net.)

[2] *The American Illustrated Medical Dictionary.* By W. A. Newman Dorland, M.D., F.A.C.S. Fifteenth edition, revised and enlarged. Philadelphia and London: W. B. Saunders Company. 1929. (Med. 8vo, pp. 1,428; illustrated. 35s. plain; with thumb index 37s. 6d.)

PREPARATIONS AND APPLIANCES.

AN ORTHOPAEDIC OPERATION TABLE.

MR. B. WHITCHURCH HOWELL, F.R.C.S. (London, W.), writes:

The table here described was invented by me some years ago as the result of dissatisfaction with orthopaedic tables which are not adjustable in height. In it are embodied the ideas of other tables, with the following special features:

1. Oil pump base.
2. Pelvic rests, and extension apparatus for fractures and the application of plaster-of-Paris.
3. Torticollis rest for neck and shoulder operations, and the application of plaster-of-Paris.
4. Side tables for the operations on the upper limb.
5. Monel metal top, requiring no polishing, but soap and water only for washing.

By means of the lever L the table is made to rise or fall in sections so that it may be used for the application of plaster-of-Paris to fractures of the lower limbs.

The torticollis rest, indicated by T in Fig. 3 (top right-hand corner), was devised to facilitate the application of plaster-of-Paris to the head, neck, and shoulders immediately after the division of the sterno-mastoid tendon, as described in my paper on the treatment of torticollis read before the Orthopaedic

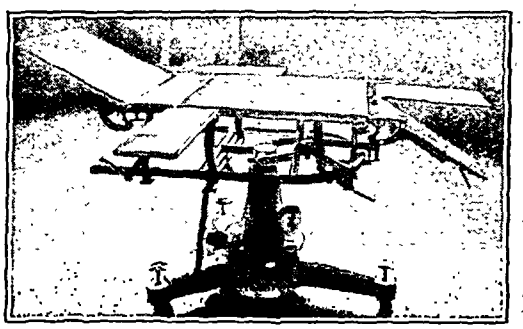

FIG. 1.

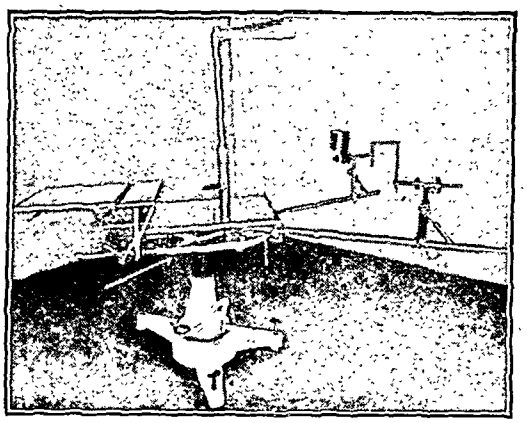

FIG. 2.

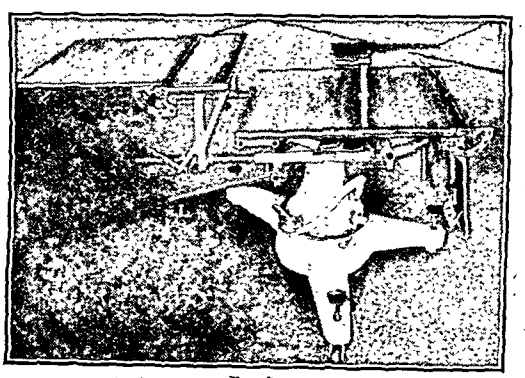

FIG. 3.

Section of the British Medical Association at Manchester in July last, which is published at page 714. Since that date several minor improvements have been made.

The photographs show the method of its working. It is manufactured by Messrs. J. H. Montague, of 69, New Bond Street, W.1, to whose courtesy and enthusiasm much of the success of the table is due.

AN INEXPENSIVE STOP-WATCH.

Medical practitioners, laboratory workers, and nurses may be glad to hear of a very inexpensive stop-watch which should suffice for everyday requirements. The centre seconds hand, which makes a complete revolution every minute over a scale graduated in fifths of a second, can be stopped or started at will by sliding a small projection on the outer rim. Apart from this mechanism the watch is an ordinary pocket timepiece with lever movement. The price is 7s. 6d., and other patterns with dig-back action are supplied at correspondingly low cost by the same firm. Messrs. A. Arnold and Co., 17, Elmcroft Avenue, Golders Green, N.W.11.

THE CAMPAIGN AGAINST TUBERCULOSIS.

CONFERENCE IN NEWCASTLE.

THE fifteenth annual conference of the National Association for the Prevention of Tuberculosis was opened in Newcastle-on-Tyne, on October 10th, under the presidency of Sir ROBERT PHILIP, vice-chairman of the council of the association, in the absence of Sir Arthur Stanley, the president.

A SURVEY OF TUBERCULOSIS ON TYNESIDE.

During the years 1925 to 1928 an attempt was made to measure and analyse the chief conditions affecting the welfare of the inhabitants of the industrial towns on the River Tyne. The method employed was the assembling and interpretation of existing data; there was no house-to-house visitation, and the survey was not made primarily by medical practitioners, though the assistance and advice of these was obtained. Mr. HENRY A. MESS, Ph.D., the director of the Tyneside Council of Social Service, was in charge of the work, and opened the conference of the National Association by reporting the findings with regard to tuberculosis. He stated that in all save two of the thirteen towns concerned the death rates from pulmonary tuberculosis for the quinquennium 1921 to 1925 had exceeded that for England and Wales for the same period. In nine this excess was 30 per cent. or more, and in the worst town it was almost exactly 100 per cent.; in twelve of the thirteen towns the death rate was in excess of that for England and Wales by at least 34 per cent., and in the worst town the rate was almost exactly three times that for the whole country. He admitted that application of the process of standardization for age and sex would probably modify these figures favourably for the Tyneside area, but, even so, the huge difference between the local and the national death rates would not disappear. The Tyneside area had suffered more than elsewhere owing to the intense industrial depression which had prevailed, and there had also been a high incidence of the respiratory diseases generally in this part of the country. Roughly, one-half of all the deaths from tuberculosis had occurred in persons under the age of 25, but no special occupational factor seemed to be concerned. There had, however, been obviously some influence at work operating unfavourably on the young, and on women, and with special strength in the north-east coast area. Tuberculosis authorities should give the most careful attention to the case of young women between the ages of 15 to 25. The speaker pointed out that the Tyneside towns were among the most overcrowded in England and Wales; the homes were generally small, and, except in the two middle-class suburbs, the percentage of persons living more than two to a room exceeded 30 everywhere, and in two of the towns was over 40. He had little doubt that the 42 per cent. of overcrowding in Jarrow had a direct relation to the 2 per 1,000 tuberculosis death rate in that town; this could not be the main factor, since two areas within the scope of the survey had very bad housing figures with quite good tuberculosis figures. Moreover, the pit villages and mining towns in the county of Durham had, as a rule, remarkably low tuberculosis death rates in spite of very bad housing conditions. Though it was a mistake to emphasize too much the effect of overcrowding on the incidence of tuberculosis, it could not be denied that, when from other causes tuberculosis had established its hold on an area, overcrowding became a factor of great importance by increasing the chances of infection, since there was little possibility of effective isolation. Tyneside was predominantly a shipping area, and this industry was one of those most subject to violent fluctuations. It was probable that occasional high earnings blinded both employers and employed to the actual lowness of earnings over a period of years, and it was suggestive that the worst tuberculosis figures in the area studied were found in those towns with a great deal of casual labour. Early notification of pulmonary tuberculosis was still lamentably deficient, and this prejudiced its treatment and promoted its diffusion. At present an immense amount of money was being wasted in sending patients to sanatoriums for absurdly short periods of time. Early diagnosis depended essentially on the provision of adequate staffing, particularly of health visitors. The attack upon tuberculosis had to be made from many directions, which included housing schemes, smoke abatement, protection of the milk supply, and the adequate treatment of patients. More co-operation of the different authorities concerned was necessary, and greater efforts to improve personal habits, such as expectorating in public places.

Discussion of this paper was opened by Councillor JOHN BARKER, chairman of the Tuberculosis Committee, Newcastle-on-Tyne, who stated his conviction that one of the most serious adverse factors in the fight against tuberculosis was the lamentable ignorance of the community as regards the menace of this infection. Interest had been awakened by the educational activities of the National Association, but much remained to be done. There had been an appreciable fall in the mortality rate in the Tyneside towns, but many hundreds of people were still dying whose lives might have been preserved. Isolation in a properly equipped sanatorium was the only safe form of segregation for working people, and a new tuberculosis pavilion had recently been opened in the Walkergate Sanatorium, giving accommodation for forty-four extra beds. No sanatorium could be considered properly equipped in which there was not an efficient *x*-ray plant for diagnosis, and every up-to-date appliance in medicine; more beds for advanced cases were also necessary. Councillor Barker urged the National Association to bring to the notice of the Ministry of Health the desirability of imposing on local authorities a stricter obligation to provide adequate tuberculosis dispensaries, educational agencies, and institutional segregation. Regional advisory councils should be established in industrial districts to ensure complete co-ordination and co-operation between medical practitioners and laymen. The erection of new houses and the clearance of slums were valuable agencies, but greater care ought to be taken with regard to protecting food from all kinds of infection during preparation and distribution; more teaching as regards cleanliness was also desirable.

The discussion was continued by Dr. VEITCH CLARK, medical officer of health for Manchester, who emphasized the importance of providing financial assistance for the families of patients in institutions, and so lessening anxiety, which greatly reduced the effectiveness of antituberculosis treatment.

FACTORS IN THE PRODUCTION OF ADULT PULMONARY TUBERCULOSIS.

Dr. EDOUARD RIST read a paper in which he discussed the causes of the appearance of pulmonary tuberculosis in the adult. Now that the old theories of constitutional or hereditary predisposition had been abandoned it was being recognized that the development of pulmonary tuberculosis in an adult person implied the occurrence of a first infection during childhood. This was usually succeeded by a period of years during which the patient remained healthy and apparently immune; he then suddenly showed signs of tuberculosis, which seemed to imply reinfection. The conditions of civilized life were far from healthy, involving as they did irregularities of diet, lack of exercise, and too great an amount of time spent indoors; if these could be rectified tuberculosis would die out. There were probably other factors which it would be the task of future investigators to discover.

Dr. C. G. R. GOODWIN, medical superintendent of the Newcastle-on-Tyne Sanatorium at Barrasford, emphasized the point that infection with the tubercle bacillus, though an essential factor, was not the sole cause of the production of manifest pulmonary tuberculosis in adults. Positive reactions to the tuberculin test were given by 90 per cent. of the general population in apparently good health, indicating that such infection was present; and in about the same percentage of bodies submitted to post-mortem examinations definite evidence was obtained of tuberculous infection, even though the signs and symptoms of it had never been apparent during life. In the case of patients entering the Barrasford Sanatorium it was most unusual to find any history of direct contact with consumptives, and the probability of recent infection was small. Dr. Goodwin concluded, therefore, that debilitating conditions, such as those inseparable from bad housing, were primarily responsible for a large proportion of the adult cases coming under treatment. In slum areas there were present all the conditions which produced debility, and when several adult members of the household showed signs and symptoms of tuberculosis within short periods, probably the cause was that they were all subjected to some adverse environmental conditions, rather than that actual disease had spread from one to another. Many cases of so-called influenza were really febrile manifestations of pulmonary tuberculosis, and injury, such as a blow on the chest, was another undoubted factor. Chronic alcoholism did not seem to be a real cause of tuberculosis, but the associated lack of sleep, inadequacy of nutrition, exposure, and similar debilitating conditions, contributed to such a loss of vitality as might allow the disease to become manifest. Dr. Goodwin assigned special importance to the influence of chronic fatigue as a factor, and gave examples of how the continuance of hard physical and mental work during the day and the evenings was particularly injurious. He was convinced that such fatigue—whether mental or physical—was one of the commonest causes of the reactivation in adult life of an infection contracted in childhood: there was always a definite fall in the body weight, and, therefore, regular periodical weighing was desirable, since in this way early diagnosis became possible.

Sir THOMAS OLIVER read a paper dealing with the factors producing adult pulmonary tuberculosis viewed from the industrial side; an abstract of it was published in our columns on October 12th (p. 674).

OTHER PAPERS.

The second day of the conference was devoted to short papers and discussions. Dr. A. H. MACPHERSON, medical superintendent of Burrow Hill Sanatorium Colony, described the scheme

which combines treatment with technical education in the case of youths between the ages of 14 and 19. We have previously called attention to the valuable work of this institution, in our columns of March 23rd (p. 570). Dr. WILLIAM BRAND submitted a scheme of national propaganda with regard to tuberculosis. Reference was made to Dr. Brand's proposals in the *Journal* of June 22nd (p. 1134). Dr. FERGUS HEWAT emphasized the value of providing instruction in tuberculosis for medical students, and gave details of the course arranged in the final year at Edinburgh. Dr. W. H. DICKINSON dealt with the importance of providing systematic training for tuberculosis officers. He believed that a period of general practice was necessary as a preliminary, and this might well be followed by the holding of a junior appointment in some department of the public health service other than tuberculosis, particularly if it was possible to combine with this a course of study for the D.P.H. Subsequently an appointment should be held in a large and well-equipped sanatorium for at least six months, and some instruction in non-pulmonary tuberculosis should be obtained. Mr. WILLIAM GUY, dean of the Dental Hospital and School in Edinburgh, read a practical paper on dentistry in relation to tuberculosis.

ALCOHOL AS AN ECONOMIC FACTOR.

NORMAN KERR LECTURE BY SIR JOSIAH STAMP.

THE thirteenth Norman Kerr Memorial Lecture, under the auspices of the Society for the Study of Inebriety, was delivered by Sir Josiah Stamp in the Great Hall of the British Medical Association House on October 8th. Mr. W. MCADAM ECCLES, F.R.C.S., president of the society, was in the chair, and the large audience included many well-known medical men and women.

Sir JOSIAH STAMP, who remarked that his written lecture was three times as long as his oral one, entered upon a brilliant analysis of the economic effects of alcohol production and consumption. He evidently assumed that his audience had a mastery of economics equal to his own, and rapidly and summarily placed one economic proposition after another before them, so that when at length he reached some comparatively simple and understandable conclusion they felt rather like those who watched Horatius breasting the Tiber, "when above the surges they saw his crest appear." He began by attempting a classification of the economic differences which must exist between the present state of affairs in which alcohol was freely partaken and an ideal condition in which alcohol was entirely absent. He divided the effects into four grades: (1) changes in production and employment involved by the removal of the demand for alcohol and the production of other commodities and services in its place; (2) changes in production resulting from changes in the producer consequent upon abstinence, these including the effects on efficiency of output, absenteeism, and accident rates; (3) the social costs of alcohol, as in the prevention of crime and the treatment of disease; and (4) influences on character, morals, happiness, and family life, promoted or retarded by alcohol. With regard to statistics and illustrations from the interesting social experiment proceeding in the United States, he gave certain reasons why no rough-and-ready conclusions as to American prohibition should be adopted. Prohibition notwithstanding, there was no complete absence of alcohol in that country, a circumstance which had brought certain specific evils in its train; again, the records of improved social and economic conditions there involved a combination of many causes, and the assignment of particular effects was very difficult; and, finally, a good proportion of statistics were drawn from polemical literature, although it was true that the amount of work on scientific disinterested lines was steadily growing.

In dealing with the effect of alcohol or its absence upon the efficiency of the working output, the lecturer said that he had taken all the available records of physiological experiments, some twenty-six in number, covering physical and mental reactions, accuracy, and quickness, made by medical men and physiologists. These included the most recent ergographic studies. Before they were applied to industry as a whole, many reservations had to be made, but he thought the results were consistent with a minimum estimate of 5 per cent. gain in efficiency as a result of absence of alcohol, but that they would not themselves support a higher estimate than 10 per cent. A summary of experience in America from various questionaries, however, had indicated a difference of between 10 and 15 per cent. He had himself questioned many manufacturers in the United States, and the figure generally given for increased efficiency was between 10 and 20 per cent. On the incidence of industrial accidents the influence of alcohol was very indeterminate. He quoted a United States authority who for twelve years had been examining the records: "I know that alcohol is a serious factor in accident occurrence, but to demonstrate its seriousness is very difficult, and I have given up the attempt."

With regard to the economic costs of crime caused by drink, Sir Josiah Stamp pointed out here, again, the lack of all value in the usual statistics, even those quoted in the well-known work of Horsley and Sturge. It was customary to say that of the total convictions a certain proportion were for drunkenness, but most needed was information—which appeared never to be given—about the effect of alcohol on the incidence and nature of the other crimes and misdemeanours. Again, the costs of poverty due to drink were usually confused with the costs of charity and maintenance, which did not represent a loss of wealth, but only a transfer. He thought, however, that the available statistics justified an estimate of over 20 per cent. of poverty as directly attributable to alcohol. The total out-of-pocket social costs of alcohol in sickness, crime, and accident, borne out of tax funds—a cost which would not be incurred but for alcohol consumption—lay between 25 and 50 millions, but if the figure was to include voluntary effort in the shape of charity and hospitals, it would be considerably greater. He also pointed out that in so far as the absence of alcohol had a tendency to lengthen life, this was an economic gain only in proportion as it diminished the risk of death during the working period; in so far as it lengthened life after 65 it was an economic loss, amply compensated for, no doubt, by humanitarian and sentimental gain. In other words, it was no economic loss to the State, but quite the reverse, if a man having finished his working career at the lower age, died at 70 instead of 80.

Sir Josiah Stamp entered into many other interesting discussions, including the effect of the diversion of the family income from alcohol to milk, and contrasted whatever might be the satisfactions of alcohol for the parents with the benefits derived from the additional growth of the children due to increased milk consumption, not to speak of the advantages of better clothing and household amenities, house purchasing, and additional saving following upon the gain to the family exchequer if alcohol were no longer purchased. The lecturer's general conclusion, after an attempt to assess the various factors he had instanced at the beginning, was that the weight of evidence showed that the effect upon national economic welfare was not less than 8 per cent. nor more than 15 per cent.

At the close of the lecture Viscount Brentford, who was introduced by the chairman more familiarly as "Jix," moved a vote of thanks to Sir Josiah Stamp. He mentioned that he was shortly celebrating his fiftieth anniversary as a pledged total abstainer. Confessing that after such a lecture his brain was in a whirl, he said that, so far as he could see, three conclusions were to be drawn from the arguments Sir Josiah Stamp had advanced—namely, that the workman who was an abstainer was more efficient than the workman who took alcohol, even to a moderate amount; that the amount of money spent on the consumption of alcohol could be better expended on commodities and services more useful to the community; and, finally, that the earlier the old-age pensioner died the better economically for the nation, though it was true that the lecturer had intentionally disregarded sentimental considerations, which, of course, far outweighed any economic ones in this connexion.

After the vote of thanks had been seconded by Sir THOMAS BARLOW and carried, the CHAIRMAN announced that the next Norman Kerr Memorial Lecture, in 1931, would be delivered by Viscount Brentford, who had elected to speak on "How the alcohol question concerns the duties of the Home Office."

MOTOR CARS FOR 1930.

THE OLYMPIA SHOW.

[From our Motoring Correspondent.]

The visitor to the annual motor show at Olympia, which opened on October 17th, cannot fail to be impressed by the large variety of cars and the wide range of prices. While popular-priced cars are admittedly excellent value for money they are bound in some respects to be inferior to those costing more. Saving may be effected at the expense of paintwork and upholstery, to mention only two features having an interest for medical motorists. The doctor's car has to be used all the year round and in all varieties of weather, and the paintwork and upholstery must therefore be of very good quality if they are not to lose their smart appearance. It is evident that the doctor in buying a car would be well advised to give due weight to factors other than price before making his final choice.

A Technical Survey.

An interesting summary, prepared by the *Autocar*, of the tendencies in motor chassis design and construction, as shown by the 1930 models, largely bears out the views expressed in these columns last week. Thus, it shows that of the wide range of British and foreign cars now on the market in this country more than half—52.5 per cent., to give the exact proportion—are of the six-cylinder type, as against only 49.6 per cent. a year ago. On the other hand, those equipped with four-cylinder engines, which until about 1925–26 were in the majority, have fallen during the past twelve months from 34.6 per cent. to only 26.8 per cent. The increasing vogue of eight-cylinder vehicles is also shown by the fact that they now represent 18.3 per cent. of the total as compared with but 14.6 per cent. twelve months ago. From an examination of the cars at Olympia it is evident that the change over from magneto to coil ignition, referred to last week, is even more general than at first appeared. As a matter of fact the position during the past year has been entirely reversed; magneto ignition now takes second place to ignition by coil and distributor, the former having declined from 47.3 per cent. to only 32.3 per cent., while the coil form has advanced from 45.4 per cent. to 60 per cent. Another notable alteration in engine practice is in connexion with the water cooling, the ratio of cars with pump circulation having advanced from 67.1 per cent. to 72.8 per cent., that of cars depending on the thermo-siphon principle of circulation having fallen from 32.2 per cent. to 25.7 per cent.

Marked changes have also been effected in the transmission details of chassis. Clutches of the disc or plate type are now almost universally employed; the once popular cone type is now very rare, being found on only 2.3 per cent. of the cars. Unit construction of the engine and gearbox continues to increase in favour, the proportions of "units" and separate gearboxes being now about 83 per cent. to 16 per cent. Reference was made last week to the tendency to provide gearboxes with four instead of three speeds. At the same time, the central gear change is not quite as popular as it was, the proportion having fallen from 66.8 per cent. to 63 per cent.; on the other hand, the proportion of cars with right-hand change has progressed from 31.8 to 35 per cent. Another change is in connexion with propeller shafts; the open type is this year more general than the enclosed variety, the torque of the back axle being now taken up through the springs. An examination of the cars at the show also corroborates the impression gained from the advance information that wire wheels are now the most popular, over 60 per cent. of all 1930 cars having them, as against 47 per cent. during the past year. Curiously enough, it is the ordinary wood- or steel-spoked variety that has lost ground, while the proportion of cars with disc wheels remains about the same.

The Popular Morris Cars.

The well-known Morris cars maintain their popularity as well with doctors as with the general motoring public, and hence a few details of this company's 1930 programme may be given. The Morris Minor, introduced a year ago, has proved a very successful model, providing as it does a most useful little car at a very low price. It is not surprising, therefore, to find that it is being continued with but a few detailed improvements. Fitted with an engine having a tax rating of only 8 h.p., and using only one gallon of fuel for every 40–50 miles, it has shown itself to be a "go anywhere" car. Similarly, too, the 11.9 h.p. Morris-Cowley has only been changed in detail. Notable additions to both the Minor and Cowley range is a saloon with a folding head, providing the advantage of a partially open car in fine weather. The price of the larger of the two vehicles is £200.

The chief departure of the Morris Company for next year is the replacement of the Morris-Oxford 14–28 h.p. four-cylinder cars with an entirely new range of six-cylinder vehicles rated at 15 h.p. The new cars have several novel features. The engines have an air cleaner incorporated in the casing of the cylinder head, which collects any fumes from the crank-case and prevents them from entering the body of the car; the radiators are provided with shutters automatically controlled by a thermostat to maintain the water at the most efficient temperature; brakes are of the Lockheed hydraulic variety, while the springs are fitted with hydraulic shock absorbers. Following a modern tendency, the control switches of the lamps, as well as the throttle and ignition levers, are neatly grouped in a small circular casing on the steering wheel. The new model is being built in four styles—an open four-seater, a coupé and a coach-built saloon, both with sliding head, and a fabric saloon; the prices range from £275 to £299.

Another Morris "six" designed for the use of motorists desiring a car of greater power is the "Isis" model, the engine of which is rated at 18 h.p. The new "Fifteen," however, is well able to meet all ordinary requirements, and is likely to prove the most popular of the Morris range during the coming year. Finally, it may be mentioned that all these cars, from the Minor to the Isis, are now fitted with Triplex safety glass windscreens and windows, and that all bright parts are chromium-plated.

The Citroën Cars.

Another make of cars very popular among doctors is the Citroën. Attention is now being centred on two models—a 13-30 h.p. four-cylinder and a six-cylinder of 2½ litre capacity. The smaller vehicle, the prices of which range from £250 to £305, has only been altered in detail. On the other hand, the "six" has been considerably modified with the object of securing better performance and durability. Among the numerous improvements are the adoption of a new design of clutch and gearbox, hydraulic shock absorbers, a hand-operated brake on the transmission, a new and more powerful starter, a vibration damper on the engine crankshaft, and oilless spring shackles. The track has also been increased to enable the bodies to be widened, while other coachwork improvements include new colour schemes, better quality trimmings, arm rests, roof ventilators, and chromium-plated bright parts. The Citroën "six" is being made in three grades—standard, "safety," and "sports"—with prices varying between £298 and £450.

Armstrong-Siddeley and Austin Cars.

The Armstrong-Siddeley Company, which was one of the first to introduce a light six-cylinder car at a popular price, has now ceased to manufacture the 14 h.p. four-cylinder car in order to concentrate on "sixes," of which, in addition to the 12 h.p., there are 15, 20, and 30 h.p. models. The improvements for 1930 include a new labour-saving finish for the radiator, chromium plating, and central "one-shot" chassis lubrication. On certain models unsplinterable glass windscreens and anti-glare headlamp control have been adopted. The firm's special "self-changing" silent four-speed gearbox is being continued as an extra on the 20 and 30 h.p. models.

A firm which for some time has given up the practice of bringing out different models each year, but is incorporating improvements as these are found necessary or possible, is the Austin Motor Co., Ltd. Four models are produced—7 and 12 h.p. four-cylinder, and 16 and 20 h.p. six-cylinder—it being found that with this range the requirements of the majority of motor users can be met. A considerable number of doctors have found in the Austin Seven a vehicle which, though diminutive, is well suited to their practice; many are, and will continue to be, more conveniently served by the "Twelve." A number of users have, however, changed over during the past year from the 12 h.p. four-cylinder to the 16 h.p. "six," and, despite its slight extra cost, report very highly of its smooth running and general satisfactoriness. Among the recent detail improvements are the chromium plating of the external bright parts, and the adoption of new wings of larger, dome design. The 12 h.p. and 16 h.p. models are fitted with central gear change, the lever of which has been lightened and lengthened with the object of providing more convenient operation. All the models, with the exception of the "Seven," are now fitted with Silentbloc oilless spring shackles, which not only eliminate a number of greasing points, but add considerably to the riding comfort. The throttle and ignition levers are now neatly placed at the head of the steering column. Additional new details on the 16-h.p. and 20-h.p. cars include Biflex headlamps with electrically controlled dip and switch reflector equipment.

The Singer Series.

Another firm which has dropped its medium-power four-cylinder car in favour of a light "six" is Singer and Co., Ltd. The Singer Junior "four" is, however, retained, and has been improved in detail, with prices ranging from £135 to £165. Chief interest lies in the new "six," which, as a coachbuilt saloon, is listed at £275, making it one of the cheapest six-cylinder cars on the market. The engine is of the side-valve type, with a £16 tax rating. Coil ignition with automatic advance and retard is fitted, and the crankshaft runs on four main bearings. The three-speed gearbox is centrally controlled. The specification also includes chromium plating, Triplex safety glass, bumpers, and real leather upholstery. For those requiring a more powerful car at the same taxation rating, there is the Singer Super-six, which has a long-stroke engine with a cylinder capacity of 1,920 c.cm. A four-speed gearbox is also provided on this model, which is available in either coupé or saloon form at £350.

Hillman and Humber Cars.

The Hillman and Humber Companies, although still carried on as entirely separate undertakings, now work in close association. Hillmans are continuing to concentrate their energies on only two types of chassis—a 14 h.p. four-cylinder and a 20 h.p. "straight eight." The latter, with prices ranging from £430 to £510, constitute the cheapest of the British-built eight-cylinder vehicles, but they compare favourably with others from the points of appearance, performance, smoothness of operation, and general comfort. Many detailed improvements have been introduced into both models, including the Silentbloc oilless spring shackle bushes. If the Hillman cars have only been modified in detail, the Humber series have undergone radical changes. Their range now includes 9–28 h.p. four-cylinder, 16–50 h.p. and 20–65 h.p. six-cylinder, and two entirely new 24–73 h.p. "sixes," one known as the "Snipe" and the other as the "Pullman." The prices vary between £240 and—for a cabriolet de ville—£1,095. Chief interest in the new series lies in the "Snipe" vehicles, the saloon of which is listed at £535. There are many interesting features in the new models, notably an improved four-speed gearbox which, owing to the use of helical gear wheels, provides a third speed as silent as the fourth.

Stars and Triumphs.

In the earlier motoring days there were many doctors who found Star cars very reliable productions. For the past few years, while maintaining their reputation in this respect, the Star Motor Co., Ltd., have concentrated their attention on somewhat high-powered cars of 18–50 and 20–60 h.p., both equipped with six-cylinder engines. In this case also only detailed changes have been found necessary, these relating chiefly to the clutch, brakes, and steering gear. A new type of radiator has been adopted, as has also chromium plating of the bright parts, while sliding roofs can now be provided on all closed cars.

So extensive has been the demand for the "baby" car known as the Triumph Super-seven that the Triumph Company is now practically concentrating production on this one model, which it supplies, however, in a wide range of attractive bodywork. Little or no alteration has been made in the chassis details, what changes there are being in the external appearance, and arising chiefly from the adoption of a ribbon radiator—in other words, one having thin metal edges. Chromium plating of the bright metal parts, and safety glass for the windscreens—and for the windows on most models—have also been standardized. Several styles of bodywork are available, among these being a two-seated coupé with fixed head, a de luxe fabric saloon, and a coach-built saloon, the latter having been remodelled on fashionable lines.

Notable Motor Bodywork.

As usual, the annexe to the main hall is devoted to a display of cars fitted with special bodywork, all striking examples of the carriage-builder's art. The majority of doctors nowadays are content to choose one or other form of the standard bodywork supplied by car manufacturers. Medical men, however, who do not mind the extra cost involved can exercise choice, both as regards any particular chassis and the design and finish of the body.

It is impossible to refer to all the vehicles in the carriage-building section, many of which, indeed, are too large and elaborate, as well as too costly, for the ordinary doctor's use. Among exhibits to which special attention may be drawn, however, are those of Gordon England, Ltd., and Mann Egerton and Co., Ltd. The last-named firm has for some years past given special attention to the construction of doctors' cars. For purely professional use Messrs. Mann Egerton recommend the coupé type, but for those requiring a vehicle that can also be used for recreation they have produced what they term the "M.E." all-purpose coupé-cabriolet. This body, while retaining the characteristic appearance of the coupé, provides, by means of collapsible occasional seats, accommodation for four passengers inside; it is also so constructed that the boot at the rear can be fitted to take a dickey seat for two more. A further development of the main idea is shown on an Austin 16 h.p. chassis, the body in this case having, in addition to the two front seats, a wide well-upholstered single seat behind the driver capable of seating three, so accommodating altogether five persons inside. The really novel feature of this car is the four-position roof. When the roof is completely closed the vehicle has the appearance of a normal coupé, but by simple adjustments every conceivable opening can be obtained—that is, the roof only, or the rear quarter only, or the roof and rear quarter together, the two latter giving the equivalent of a completely open car. It is the work of a few seconds only to secure any of the different positions.

A Useful Buyers' Guide.

Last week's issue (October 11th) of the *Autocar* as usual included the Annual Buyers' Guide, a feature which is always appreciated at the time of the show. The guide is intended to help intending purchasers in their choice of a new car, and comprises alphabetically arranged tables of all 1930 models, British and foreign, on the market in this country, with their full specifications, principal dimensions, annual tax and weight, together with the prices of the different vehicles in chassis, saloon, and open-tourer forms.

Next week we propose to deal briefly with other cars exhibited, and also to draw attention to some of the more interesting exhibits in the galleries. It may be well to remind readers that the show will be open daily from 10 a.m. to 10 p.m. until Saturday, October 26th. The charge for admission on Fridays and Saturdays is 2s. 6d., and on all other days 5s.

C. J. W.

British Medical Journal.

SATURDAY, OCTOBER 19TH, 1929.

ABDOMINAL PAIN.

That physicians and surgeons, both individually and in conference, should actively concern themselves with the study of pain is in the nature of things. Among the manifestations of disease pain has a conspicuous place, and it is one of the most frequent of the discomforts that drive the sufferer to solicit medical advice and to demand succour and relief. Indeed, not a few persons would agree that one of the main functions of the doctor is to understand what any given pain means, what is the cause of it, by what means it may be promptly suppressed, and how further attacks may be prevented. Hence the layman will hardly be surprised to know that pain is a subject much discussed by doctors, and his only comment will probably be that it is high time they knew all about it. If, however, attention is given to two papers read at the recent meeting of the British Medical Association at Manchester, and printed in the opening pages of our present issue, any notion that pain is a very direct and simple issue will not long survive. The title of the discussion may appear engagingly straightforward, but abdominal pain, as revealed in contributions made by those most competent to deal with it, is found to be associated with problems both numerous and difficult, and while some of these are problems of practical clinical interpretation, others have their roots in anatomical structure and in the physiology of many parts of the nervous system. Not that the two groups of questions are separate and distinct: on the contrary, they have intimate associations one with another, and doubtless it was an appreciation of this relationship which determined that the contributions of physicians and surgeons should be brought on to a common platform with those of physiologists and biochemists.

From several quarters in recent times active co-operation of the physiologist with the clinician has been advocated; and certainly the interpretation and explanation of pain—its causes, the nervous pathways of its travel, the anatomical structures involved—would seem to supply a platform on which doctrinal physiology and clinical experience can meet with advantage. While the principal aim of any such discussion may be to make pain "a valuable asset for purposes of diagnosis," the benefit may well be a mutual one, for on not a few occasions medicine and surgery have done much to help to solve some of the problems which perplex the physiologist.

If the joint meeting of the two Sections had a well-chosen subject, it was fortunate also in the contributors to the discussion. Dr. Charles H. Mayo and Sir Farquhar Buzzard, who introduced the debate, not only presented the subject in its surgical and medical aspects respectively, but each showed himself to be fully aware of the scientific studies of pain to which both physicians and physiologists have alike contributed, and abundantly competent to discuss these. One clinical topic in particular they found in common —namely, the gastric crises of tabes dorsalis—and each makes a serviceable comment. The physician describes features of the attack which he maintains mark it out quite characteristically from seizures which may need abdominal section, and he does well to remind us that absence of the knee-jerks is not an essential part of the picture. The surgeon submits an ingenious analysis and grouping of symptoms as these give reason to believe that the splanchnic nerves, or the vagi, or the phrenic nerves are involved; and recalling the attempts to relieve angina pectoris by section of some of the branches of the cervical sympathetic, he notes the possibility of controlling hyperacidity and pylorospasm by section of one or more branches of the vagi. Two other observations of interest, each with an obvious physiological relation, may be quoted: one a doubt that the vagus nerves ever have anything to do with the transmission of pain from the upper abdomen; and another that, in view of the association of pain in the right shoulder and neck in diseases of the liver and gall-bladder, it is probable that the phrenic nerve is a medium for the passage of painful stimuli.

On the strictly practical plane Sir Farquhar Buzzard contributes a number of memoranda of great value, both as aids to diagnosis and as warnings against a too ready conclusion that abdominal pain wanting an obvious cause must needs be met by surgery. The simulation of the pain of appendicitis by right basal pneumonia or infarction is not uncommon, and most house-physicians have had an opportunity of observing it. Less frequent is the epigastric pain accompanied by vomiting and collapse seen in coronary thrombosis —a clinical picture not unlike that of perforated gastric ulcer. Among the rare causes of abdominal pain described during the discussion are "angina abdominalis" associated with atheroma of the abdominal aorta, painful paroxysmal intestinal spasm in anxiety states, and puncture of an artery, which, it is said, "will cause dull pain of a peculiarly unbearable type," with perhaps reflex sweating and nausea (C. H. Mayo).

Among the theoretical issues debated were inevitably such questions as the late James Mackenzie's claim that pain is felt, not in the viscera, but in the overlying structures, and the same author's doctrines of viscero-sensory and viscero-motor reflexes. These teachings have their critics, and on the first of them Dr. Mayo says that because certain viscera "appear insensitive to cutting and pinching" this does not prove that they are incapable of giving rise to pain, as it may be that "there is no physiological necessity for these organs to respond painfully to the type of stimulus used." It would have been of interest had some critical physiologist offered an opinion on this doctrine. Much discussion centred round the relation between spasm of unstriped muscle and abdominal pain. There was general agreement that undue contraction in the wall of a hollow viscus causes pain by pressure on the nerves in the visceral wall, and evidence was quoted to show that, similarly, abnormal distension led to pain by stretching of the nerves. Sir Farquhar Buzzard made a subtle point when he asked, Is the afferent impulse which arouses the muscular spasm in the wall of the ureter, in a case of impacted ureteral calculus, a painful impulse, or is the pain evoked only by the tension consequent on the muscular spasm?

The opening papers of the discussion at Manchester present the whole subject on a high scientific level. They show its intricacies and difficulties, and leave at points some room for differences of opinion. In them are no short cuts to a swift and certain diagnosis. But the study of them has value both in the field of thought

and in the field of practice. Abdominal pain is a frequent symptom, and its correct interpretation is, at least at times, of the highest moment. In the two papers we print there are substantial aids to this interpretation, and their authors deserve from the profession a cordial message of appreciation.

NEW LIGHT ON LIVER INTOXICATIONS.

SOME of the more recent work on the prevention and cure of liver intoxications is of great interest from a purely biochemical point of view, and may well prove to have a wide clinical application. The experiments of Mann and Magath with dehepatized dogs, carried out some years ago, emphasized the fact that one very important function of the liver is the maintenance of the blood sugar at a sufficiently high level. When frequent intravenous injections of glucose were given, the dehepatized dogs could be kept alive for several days, whereas without this treatment they showed severe hypoglycaemic symptoms and died in a very sort time. It had also been realized for some time that animals with good reserves of glycogen in their liver, for instance after feeding with adequate amounts of carbohydrate, were more resistant than those with depleted stores to agents liable to cause liver intoxication and atrophy.

To this very slender stock of knowledge Minot and his collaborators have now added several important facts. While investigating carbon tetrachloride poisoning in dogs, Minot[1] found (originally as the result of an accidental change in the stock dietaries) that animals which had been kept on a diet with a low calcium content were particularly susceptible to the poisonous effects of this drug. Moreover, they could be made very resistant even to large doses by feeding for a few days with a diet rich in calcium. The susceptible animals had gastro-intestinal symptoms and tetany-like convulsions, and at post-mortem examination showed severe central necrosis of the liver. Even after symptoms of poisoning appeared, however, the dogs could often be cured by repeated intravenous injections of calcium chloride. Minot and Cutler,[2] extending this work, showed that poisoning by guanidine compounds and by chloroform inhalation very much resembled that produced by carbon tetrachloride in susceptible animals, and that the guanidine content of the blood did in fact show a considerable rise in all three types of intoxication. Moreover, they believed that similar symptoms appeared in all at similar levels of blood guanidine. There was at the same time a serious fall in the blood sugar level—doubtless another sign of impaired liver function—and the authors received the impression that the severity of the intoxication bore a definite relationship to the severity of the hypoglycaemia. The artificial raising of the blood sugar level by intravenous injection of glucose was not, however, a very successful form of treatment, as the nervous symptoms were not cured, nor, as later experience showed, was it at all easy to maintain the required level by this means alone. On the other hand, when treatment by calcium injection was once more resorted to, it was found that this did, by some mechanism as yet unknown, raise the level of the blood sugar, and maintain it at a nearly normal value. By the simultaneous administration of calcium and glucose remarkable cures could be effected in severely intoxicated animals, provided that the severe and intractable intestinal haemorrhages which were sometimes a prominent symptom did not render a cure impossible.

A few clinical cases (not including any cases of chloroform poisoning) in which there was presumably impairment of liver function, and in which similar phenomena were observed, were treated on these lines with satisfactory results, except in those cases in which the liver condition was of very long standing. One case of acute catarrhal jaundice had a high blood guanidine and a very low blood sugar level (0.05 mg. per 100 c.cm.), and was much improved by putting on a meat-free diet rich in carbohydrate, accompanied by oral administration of calcium lactate. A baby which had had a congenital abnormality of the liver, and which eventually died of the accompanying digestive disturbances, also had a very low blood sugar level and a high blood guanidine level. Administration of glucose by the mouth raised the blood sugar level to 0.07 mg., but calcium medication was necessary to raise it above this and to prevent the occurrence of tetany. Post-mortem examination showed severe necrosis of the liver. Several cases of "eclampsia" and "pre-eclamptic toxaemia" were included in the series, and are of particular interest, as they show that calcium and glucose medication is a valuable form of treatment in these cases and causes considerable improvement of the symptoms. The blood sugar falls to 0.06 or 0.075 per cent. in pre-eclamptic conditions and as low as 0.05 or 0.04 per cent. before actual eclamptic convulsions.

This work is obviously highly suggestive, and demands further clinical investigation; while to the biochemist the explanation of the pronounced effect of the administration of calcium upon the carbohydrate metabolism offers an intriguing problem.

[1] Minot: *Proc. Soc. Exp. Biol. and Med.*, vol. xxiv, 1927.
[2] Minot and Cutler: Ibid., vol. xxvi, 1929, Nos. 2 and 7.

DISTRIBUTION OF RADIUM.

AT a meeting of the Radium Commission, held on October 11th, with Lord Lee of Fareham in the chair, further consideration was given to the question of the disposition of the four-gram "bomb," the loan of which has been secured by the National Radium Trust for a period of three months from November 1st, with an option to purchase at the end of that time. Applications for the custody and use of this bomb having been invited from a selected list of hospitals with special experience of radium therapy, the various schemes submitted were examined, and, after careful consideration of all the questions involved, it was unanimously decided that the bomb should be entrusted provisionally to the authorities of the Westminster Hospital, subject to their acceptance of certain conditions and terms prescribed by the Commission. With regard to these, negotiations are proceeding between the Commission and the hospital authorities, and a further announcement will be made shortly. So far as the supply of national radium which will come under its control is concerned, the Commission's policy of allocation will be based upon the principle of concentration at a limited number of centres in Great Britain, to which patients will have to be brought for treatment. In its view, a smaller subdivision of the radium, in an attempt to satisfy the demands of the large number of hospitals, institutions, and individual medical practitioners who are submitting applications, will not be either feasible or desirable. The Commission hopes, however, that the limited supply of radium available may be supplemented by the distribution, under proper safeguards and conditions, of radon (radium emanation) prepared under its auspices. This aspect of the problem is receiving special consideration, as is also the question of fees to be charged for the loan or supply of

national radium or radon. It was further decided that any national radium sent out on loan should be fully insured, at the cost of the hospital or other institution to which it is entrusted. The Commission has succeeded in arranging specially favourable rates of premium which will make this charge a comparatively light one. All communications should be sent to the secretary, at 5, Adelphi Terrace, Strand, W.C.2.

THE PROVISION FOR CHRONIC DISEASE.

The success which has attended the attack on epidemic and acute disease has thrown into more prominent relief the prevalence of disease which is more chronic in character. The more advanced age to which a large proportion of the population lives emphasizes this. Some American statistics show that whereas sixty years ago chronic diseases caused only one-fifteenth of all deaths, they are to-day responsible for one-half. It is no wonder, then, that the attitude both of the medical profession and of the community towards chronic disease is changing, and that the problems to which it gives rise have become urgent. These problems, and the methods for dealing with them from the American standpoint, are admirably set out and discussed in a book entitled *The Challenge of Chronic Diseases*,[1] by Drs. Boas and Michelson, physicians to the Montefiore Hospital for Chronic Diseases. The volume is relatively short, but not a page is wasted, and, being the outcome of the authors' own experience, it teems with very practical suggestions. The writers say that "the book is designed for the layman who is interested in communal problems as well as for professional workers in the field of public relief. It is our hope that it may also serve as a modest handbook for those who are directly charged with the care of sufferers from chronic diseases." It is excellently suited for all these purposes and persons. Among patients suffering from chronic disease it is only the insane and the tuberculous who have been adequately catered for. A very large proportion of the others are being dealt with under the Elizabethan Poor Law and institutions, and, in America, under laws and in "almshouses" which have the same origin. Reform has proceeded even less far in America than in this country. The picture presented in this volume of the "almshouse" is, in general, appalling. "Poverty is the only common denominator of the inmates. In any almshouse we may find the well, the aged, the feeble-minded, the expectant mother, and the sick, not a few epileptics and insane and tuberculous." There is an increasing number of diseased occupants, yet they receive no medical care. In one with fifty inmates "there were patients with tuberculosis, far-advanced cancer, all types of heart disease, neurological conditions, one with a tumour of the brain, all languishing in bed with only an orderly to administer to their wants. The sole medical supervision was in the hands of a non-resident physician, who was required to visit every day for half an hour. When questioned as to their various ailments he replied, 'How should I know what's the matter with them: I guess most of them have asthma,' and for treatment the majority received a dose of asthma medicine." Nearly 40 per cent. of the almshouses have not more than ten inmates each; more than half accommodate only twenty-five. The superintendents are almost all illiterate, and in one case we read: "Superintendent is very low grade, and his wife, who is matron, is evidently a moron." While in our country we cannot match this picture, it must be admitted that many of our Poor Law institutions stand in need of reform. Of recent years improvement has been steady and great, and the hope is that this year's Local Government Act has brought us to the last stage. There is perhaps some danger that, in the rearrangements thus provided for, the chronic patient may receive less than his due. The prevalent desire seems to be to turn the transferred institution into a first-class hospital for general diseases. It would be salutary if at this stage administrators, lay governors, and medical staffs would read the book now under notice. In Great Britain those chronic patients who can be dealt with at home are provided for by means of old age pensions, health insurance, including medical attendance even when sickness and disablement benefit ceases, and nursing care, though this last is in need of systematization and extension. In America these things are not forthcoming, so the problem of such patients is urgent in many areas. For the rest, the medical, economic, and social factors rendering suitable hospital provision necessary are well stated by Drs. Boas and Michelson, and a useful division of those to be provided for is made into persons needing active medical care, those needing chiefly skilled nursing, and those needing only custodial care. The character of the institutional provision for all these is considered in detail, as well as the relation which such institution should bear to the hospital for more acute cases, and to the training of medical students and nurses. Suggestions of a very practical and valuable kind are made in these chapters, and, taken altogether, the book is to be commended to widespread consideration, both in this country and in that of its origin.

[1] *The Challenge of Chronic Diseases.* By Ernst P. Boas and Nicholas Michelson, M.D. New York: The Macmillan Company; London: Macmillan and Co., Ltd. (10s. 6d. net.)

VENTILATION CONDITIONS.

Mr. R. C. Frederick has published the lecture which he delivered last March at a meeting of the South-Eastern Counties Section of the Institute of Chemistry on the investigation of normal and abnormal ventilation,[1] providing a concise and well-written account of the subject. He has studied the physiological literature and cites the chief authorities, but, being a chemist, he inclines, perhaps naturally, to belief in the old view that there is some injurious quality of the air in ill-ventilated and crowded rooms, quite apart from dust, microbic infection, and heat stagnation. There is always a tendency to fly to some mysterious unknown agent such as "deionization," which certain engineers in the United States of America are now discussing—men who advocate systems of mechanical ventilation with so-called "conditioned" air. There is not the least proof of any subtle poison being exhaled by human beings or of the ionization of the air having any influence in making open-window ventilation better and more stimulating than do mechanical methods which propel heated and conditioned air through ducts. Of first importance in the prevention of infection by microbes and of pollution of the respiratory membrane by dust are plenty of space and very free ventilation; there is also needed an abundance of cool air to stimulate the flow of blood through and secretion from the respiratory membrane. The latter carries the lysozyme, discovered by Flemming, which is potent in destroying microbes. Mr. Frederick, however, scarcely touches on this essential matter, though he comments fully on the equally important action of good ventilation in preventing body heat stagnation; furthermore, he does not discuss the advantages of exposure to cool clean air and light—in open-air schools, for example—as a means of stimulating health, restricting himself to the consideration of the ventilation of rooms. He deals very well with the question of the use of the percentage of carbonic acid as an index of ventilation, and with the psychological effect induced by confined hot places, which may be unbearable to the newcomer, but are little noticed by the workman inside, who has become acclimatized to working in this atmosphere.

[1] *Ventilation Conditions—Normal and Abnormal—and Their Investigation.* By Robert C. Frederick, A.I.C. London: The Institute of Chemistry of Great Britain and Ireland, 30, Russell Square. 1929.

FACTORS IN THE PRODUCTION OF BLACKWATER FEVER.

A controversy of considerable importance is given prominence in the June and July issues of the *Kenya and East African Medical Journal*. There has hitherto been a fairly general impression that quinine administration is one of the exciting causes of an attack of blackwater fever, and statements to this effect appeared in the paper by Professor D. B. Blacklock and Dr. G. Macdonald, on the mechanism of this fever and allied conditions, which was published in the *British Medical Journal* on July 28th, 1928 (p. 145). These authors admitted the difficulty, in many "quinine attacks," of excluding some other cause, such as exertion or chill; and Lieut.-Colonel S. P. James, in the July issue of the Kenya periodical, mentions that such measures as the provision in a district of adequate medical care and nursing, with attention to road making, housing, water supply, and the general welfare, bring about a significant reduction in this and others of the graver sequels of malaria. Colonel James advocates caution as regards the administration of quinine in this disease, and is sceptical about its prophylactic value in preventing infection—a different matter from the prevention of clinical attacks. Dr. O. R. Arnell, however, considers that the existing evidence for incriminating quinine is far from convincing, and he has contributed to the June issue of the Kenya journal a statistical note on what he terms the hypothesis that this drug is likely to cause, or to precipitate, an attack of blackwater fever. His main point is that conclusions based on the analysis of blackwater fever cases alone are likely to be entirely false, and he suggests eight groups of cases which should be investigated simultaneously, if a reasonably accurate deduction is to follow. These groups comprise malarial and non-malarial patients to whom quinine was or was not given, and who did or did not develop blackwater fever. Dr. Arnell recognizes the difficulty of differentiating those who have had quinine in sufficient quantity to be a real factor in such a comparison. He comes to the conclusion that, since this drug is completely excreted within twenty-four hours, and since haemolysis, if it is going to develop, will become manifest in three or four hours, it is reasonable to classify a person as being "quinine-free" if he has taken no quinine for thirty-six hours. The number of patients investigated on the lines suggested by Dr. Arnell is admittedly too small at present for any dogmatic conclusion. He believes, however, that in malarial patients blackwater fever is likely to develop seven and a half times more frequently if quinine is withheld than if it is given. Further, in non-malarial patients he concludes that there is no probability of blackwater fever developing, whether this drug is given or withheld. The evidence, though inadequate, seems to suggest the possibility that an attack of blackwater fever occurs in spite of, rather than because of, quinine administration.

THE PRE-SCHOOL CHILD.

The age at which compulsory education begins in England and Wales is five years. In Scotland and in most European countries it is somewhat later. Some education authorities, however, admit children below this age to their elementary schools, and the provision of special nursery schools for such children by local education authorities was made permissive by the Education Act of 1918. These nursery schools, established primarily for the sake of the children, are to be distinguished from day nurseries, established mainly for the sake of the mothers. In spite of a good deal of encouragement, at the end of the year 1927 only twenty-seven nursery schools were in existence, and only twelve of these had been established by local education authorities, the rest being under the auspices of voluntary bodies. The infant up to one year of age, or even two years, has, of course, of late years been the object of much public solicitude and action; concern for the child of from two to five years of age has been less pronounced. This era of comparative neglect now seems to be passing, and much more attention is likely to be given to the needs of these children in the near future. The nursemaid or even nursery governess of the ordinary type is being replaced by the highly educated and specially trained attendant and teacher. It may be said that everyone who has charge of a small child is conducting a gigantic experiment, the outcome of which is of profound importance; and except in homes where economic circumstances and cultural influences permit of the best conditions for its conduct and control, it is evident that such an experiment may most suitably be carried through at, or in connexion with, a place where the equipment and workers are carefully chosen rather than under the haphazard conditions and uninstructed observation of the majority of homes. The world of the baby and of the toddler is now recognized to be widely different from that of the adult, and the neurological conditions and psychological processes of the small child are being studied and understood as they have never been hitherto. It is coming to be acknowledged, too, that these conditions and processes may be the subjects of a truly scientific control, and that if this control is not brought to bear in the very earliest years an opportunity is lost which no amount of schooling at a later age can really replace or compensate for. Fortunately just now the experts in this field are beginning to expound and teach their subject in books which contain more than popular truism and commonplace, and which are really adequate to interest and instruct the intelligent parent and the teacher. One such book recently published by Messrs. Partridge in their "Home and School Library" can be strongly recommended. It is entitled *The Psychology of the Pre-school Child*, and is by Dr. James Drever and Miss Margaret Drummond.[1] It is therefore authoritative and trustworthy. In the first three chapters Dr. Drever gives an admirable account of the fundamental psychological principles involved in the study of the pre-school period, and Miss Margaret Drummond, in the remaining seven chapters, illustrates from her wide practical experience the way in which these principles find expression in the different stages of development of the young child, as it passes from what has been termed the period of omnipotence, through the period of magic, to the stage at which it slowly and imperfectly recognizes causal law (if this expression may still be permitted). The importance in this connexion of Pavlov's work on conditioned reflexes is recognized, but perhaps, when future editions are called for, it may be possible to apply this work more fully and positively and to include some practical indications not merely how to avoid the impressions and connexions leading to undesirable habits, but how to promote that growth of fresh physiological paths in the higher centres of the brain which will be most useful and advantageous when the child at five or six years of age passes on to the infant school or kindergarten.

A CONFERENCE ON MENTAL HEALTH.

The National Council for Mental Hygiene and the Tavistock Square Clinic have combined in organizing a conference on mental health, which will be held at the Central Hall, Westminster, from October 30th to November 2nd. Co-operating in this conference are a large number of organizations, including the British Medical Association, concerned directly or indirectly with the promotion of the mental health of the community, and, as announced in last week's issue (p. 701), it is hoped in the course of certain group

[1] *The Psychology of the Pre-school Child*. By James Drever, M.A., B.Sc., D.Phil., and Margaret Drummond, M.A. London: S. W. Partridge and Co., Ltd. 1929. (6s. net.)

discussions to correlate the personal experiences of magistrates, probation officers, teachers, and parents, responsible for the care and supervision of children whose mental life presents problems of special difficulty. At the inaugural meeting, under the chairmanship of Viscount Brentford, Sir Maurice Craig will speak upon the work of the National Council for Mental Hygiene, and make special reference to the necessity for early and preventive treatment of mental disorder. We understand that he will also make an appeal for funds to enable the work of the National Council and of the Tavistock Square Clinic to continue, and, as the need arises, to increase their scope. Other speakers on this occasion will be Dr. Letitia Fairfield, who will give an account of the child guidance movement, Sir Frederick Willis, and Dr. F. E. Fremantle, M.P. At the first session on October 1st Dr. H. Crichton Miller, Miss G. Coster, and Mrs. Neville-Rolfe will introduce a general discussion on sex education. At the second session a discussion on the personal equation in industry will be initiated by Dr. Millais Culpin and Professor Winifred Cullis. An exacting programme has been arranged for the three sessions on November 1st; at the first—presided over by Sir George Newman—Sir Humphry Rolleston, Dr. H. P. Newsholme, medical officer of health for Birmingham, Miss E. M. Lawrence, chief social worker to the Child Guidance Clinic, and Miss Viney of the College of Nursing will open a discussion on the place of mental hygiene in social and public health work; at the second session Dr. Cyril Norwood, headmaster of Harrow, will preside over a general debate, introduced by the Rev. L. W. Grensted and Dr. Helen Boyle, on the relation of the child and the parent; and at the third session, with Mr. Alexander Maxwell, chairman of the Prison Commission, presiding, Dr. J. A. Hadfield and Mr. Clarke Hall, magistrate at Old Street Police Court, will examine delinquency as a problem in mental hygiene. The following morning, Dr. R. H. Crowley, senior medical officer to the Board of Education, will preside over a group discussion, introduced by Miss E. M. Neville and Dr. E. A. Hamilton-Pearson, on the "problem child" at home and in school.

THE AUTUMN DINNER OF THE ASSOCIATION.

The Great Hall of the British Medical Association's House in Tavistock Square was transformed into a banqueting chamber on Tuesday evening, when the Council held its eighth annual dinner. The dinner was made the occasion of the first public inspection of the recent extensions to the House and of the reconstructed Library and Council Chamber. The guests were received by the Chairman of Council in the handsome room at the head of the staircase in the front of the new building, and from there they walked the length of the now much-extended wings to the Great Hall at the rear. Nearly two hundred and fifty sat down to dinner in the hall. The guests included the Minister of Health (Mr. Arthur Greenwood, M.P.), several medical and other members of Parliament, representatives of public authorities (one of whom was the chairman of the London County Council) and of the civil service, and the presidents of medical and kindred institutions, headed by Sir John Rose Bradford for the Royal College of Physicians, and Lord Dawson of Penn for the Royal Society of Medicine. A wider interpretation than usual had been given to the phrase "kindred institutions," and the guests included the titular heads of the great professional bodies representing the Bar, architecture, and accountancy. A large number of ladies were present, including Mrs. Burgess, who accompanied the President, and Miss Maclean, sister of the Past-President. Sir Ewen Maclean, who is in Melbourne, sent, together with the Australian Branches, a greeting by wireless. In a delightfully humorous speech Dr. E. H. Snell proposed the usual toast of "The Common Health," to which the Minister responded. Mr. Greenwood, who received a cordial welcome on his first appearance at the table of the Association, caused some laughter by remarking that he hoped to be in office long enough to solve all the problems which he had found awaiting him in Whitehall. He described himself as the only layman in the company, and the typical "man in the street," but he emphasized the happiness of the relations existing between the medical profession and his department. A Ministry run without regard to the profession, he said, would be a Ministry deprived of its most useful contact with experience. Dr. Walter E. Elliot, M.P., Under Secretary for Scotland in the last Government, made a brilliant speech in reply to the same toast. After some chaff at the expense of the Minister, he acknowledged that the differences between parties were differences of method rather than of principle. He thought it a good thing that there should be changes, and that representatives of different sections of the community should try their hand at the business of government. To Mr. McAdam Eccles fell the duty of proposing the toast of "The Kindred Societies," and, numerous and varied as these were, he managed most skilfully to weave them all into a complimentary oration. There were two responses to the toast, one by Dr. Andrew Balfour, who was able to relate all the various bodies, including the Royal Society and the Royal Colleges, to the London School of Hygiene and Tropical Medicine, of which he is director; and the other by Lord Riddell, who amused the company with a new batch of anecdotes. Dr. Langdon-Down, in a few words, proposed the Chairman's health, and paid a tribute to Dr. Brackenbury's gifts as a counsellor in professional affairs. The proceedings closed with Dr. Brackenbury's reply, in which he mentioned the sorrow of all his colleagues at the recent passing of a well-loved and honoured figure from Association gatherings—Sir Jenner Verrall. A fuller account of the speeches will be given in our next issue.

GENERAL MEDICAL COUNCIL ELECTION.

In connexion with the forthcoming election of two direct representatives for England and Wales on the General Medical Council, we publish in the *Supplement* this week the joint address issued to the electorate by Dr. H. B. Brackenbury and Mr. N. Bishop Harman, the candidates chosen by the Representative Body for support by the British Medical Association. A letter in support of the candidature of Sir Norman Walker, who is seeking re-election as direct representative for Scotland, will also be found in the *Supplement*. Formal notices of the election of two representatives for England and Wales, one representative for Scotland, and one representative for Ireland, signed by the President of the General Medical Council as returning officer, appear in our advertisement pages. In each case nomination papers must be delivered to the appropriate registrar in London, Edinburgh, or Dublin, on or before November 7th.

The Bradshaw Lecture before the Royal College of Surgeons of England will be given by Mr. R. P. Rowlands, M.S., F.R.C.S., on Thursday, November 14th, at 5 p.m.; the subject will be "A review of the surgery of the gall-bladder and bile ducts."

in the history of the relations of this is the visit of a party of a hundred udents from the universities of Jugo-slavia. The party arrived in London on Thursday of this week, and leave for Paris on October 22nd. The Jugoslav Society of Great Britain, who are welcoming them, have arranged, with the help of the Fellowship of Medicine, visits to representative medical institutions in London, and have prepared a general programme, which includes visits to the British Museum and other places of interest, and an evening reception at Crosby Hall. The Lord Mayor and the Lady Mayoress are entertaining the party to tea at the Mansion House to-day (Saturday, October 19th).

Nova et Vetera.

JOHN DALTON, PHYSIOLOGIST.*

BY

E. M. BROCKBANK, M.D., F.R.C.P.,

PRESIDENT OF THE SECTION OF HISTORY OF MEDICINE, BRITISH MEDICAL ASSOCIATION.

[In his introductory remarks Dr. Brockbank explained that he had chosen the subject for two reasons: first, for its special nature; and secondly, for personal reasons—namely, that he had heard many stories from two of his late octogenarian aunts who had hearsay information about John Dalton from their own relatives who were kin to him. One of these relatives had kept house for Dalton in Manchester from 1830 to 1835. One of the aunts inherited some personal objects of interest which belonged to Dalton, and letters written by him, and amongst the letters were two, hitherto unpublished, which show that he was attracted to a medical career, and which give some information about the training and habits of London and provincial doctors of the eighteenth century and of how to succeed in such a life.]

It was whilst John Dalton was teaching at Kendal (1789–93) that his thoughts turned to other fields of knowledge and work. With the thoroughness with which he dealt with any subject he wrote to various relatives on the matter. He had one objection, he said, to his teaching, and that was that it did not bring him in enough emoluments to support a small family with the decency and reputation he could wish should it fall to his lot to have to do so; he doubted not that he could adapt himself to any business that might promise to be of advantage, but it seemed most natural to turn to such wherein literary or scientific knowledge was requisite, as his pursuits and acquisitions hitherto had been of that nature. Under such a head stood law and physic, and of the two he preferred the latter. The great objection was expense. He calculated that three winters' study at Edinburgh would exhaust his resources, although he expected his board for each six months to cost no more than £15. If he were unable after all to succeed as a physician he could return to teaching.

An uncle to whom he wrote considered that both the professions of law and physic were totally out of reach of a person in his circumstances. He thought that the humbler sphere of an apothecary or attorney might, with a little capital and great industry, be within his powers. Another relative advised that his talents were best adapted to, and "that he would not only shine but be really useful in, that noble labour of teaching youth. He was far from thinking that physic would be a misconstruction or misapplication of his talents, parts or genius, so he much desired that Dalton might be guided by best wisdom in all his pursuits."

Dalton's views on the subject are expressed in two most interesting letters to a cousin, which have not previously been published.

Kendal 9th of 4mo. 1790.

DEAR COUSIN,

Having for some Time past had an Inclination to quit my present Profession of Teacher & enter upon some other where there may be an Expectation of greater Emolument I thought it not imprudent to acquaint thee with it & request thy Advice on the Subject, & the rather as I could wish to enter upon the Study of Physic (a Science in which I presume thou art no inconsiderable adept) provided my Circumstances will admit of it.

If I should come to such Determination I apprehend an Acquaintance with the principal Part of the Materia Medica will be deemed necessary & likewise sufficient before the entrance at College; a previous Acquaintance with the technical terms of Anatomy, Chymistry and Medicine will doubtless be useful, together with a knowledge of Botany.

Should any Occasion call thee to this Place in the Course of a Week or two I should be glad to converse with thee on the Subject, otherwise to be informed by Letter, how far my Scheme appears to thee likely or practicable, with such other Remarks relative thereto as may occur.

My Love to Cousin Nancy & Family &

I remain thy affectionate Cousin

JOHN DALTON.

George Bewley
Whitehaven.

P.S.—Taking a Fancy a few weeks past to determine as near as might be the Quantity of Matter discharged from the body by insensible Perspiration, somewhat like Sanatorius' famous Experiments, though I am ignorant of his Manner of effecting it, as well as of his Result, I shall subjoin my Observations.

He then records daily the quantity of food taken, the quantity of the evacuations, both solid and liquid, and the volume of the perspiration.

This P.S. is probably the first account of his observations on physiological processes, with himself for subject, or, to quote a recent writer, "on being his own rabbit"; but in 1787–89 he was applying his barometric observations to experimenting on the power of vacuum, or immersion in water, to destroy or overpower vitality in snails, mites, and maggots.

The next letter to his cousin carries the matter further.

Kendal 25th of 4th mo. 1790.

DEAR COUSIN,

I may acknowledge the Receipt of thy obliging letter, & that a few Days before I received one from Cousin E. Robinson & another from Uncle T. Greenup (whose Advice relative to the Profession of Law I had requested) upon the same subject as thine. Cousin Elihu's Sentiments nearly coincide with thine, but those of my Uncle are somewhat different; he represents to me that the Profession of a Physician is entirely out of my reach, that an expensive Education at College, & then a Course of Travels through a great Part of Europe, & a Visit to the several Universities are quite requisite, previous to any Practice; after this a Carriage and suitable Equipage, a genteel Appearance, &c., must be supported, or I should be deemed a Disgrace to the Profession. His Ideas are, I think, calculated for the Meridian of London. I consider a Visit to the foreign Universities, &c., though it may contribute towards his Accomplishments as a Gentleman, & perhaps towards his success & Reputation as a Physician, are of less Service to a Person's real knowledge of the Profession than the same Time spent in Practice would be. My Uncle moreover seems to think that if I could be content to move in the humbler Sphere of an Apothecary I might perhaps get a Livelihood from the Business.

I cannot say that I have yet fully determined respecting myself, but I hope I shall steer a due Course between a sudden and inconsiderate Conclusion and a dilatory Irresolution that loses the proper season for Action; & in the Mean Time shall spend my leisure Hours in such pursuits as are preparative to the Practice of Physic, whatever the ultimate event may be:—Respecting Botany I would observe that as few of our English Herbs are efficacious Articles in the Materia Medica, the Being able to distinguish & class them properly does not seem to me of so much Service, as an Investigation of their Organisation and Oeconomy, from which a skilful Person may be able to make judicious Inferences after a proper Comparison with the Structure & Oeconomy of Animals. With regard to Chymistry, I sometime since perused Boerhave's Treatise which I suppose is a capital one; making Allowance for the Time since it was written; also the Chymical (?) Essays of the present Bishop of Llandaff which are a good Introduction: I have likewise read Boyles chemical Tracts, but his Style is so tedious & verbose that one cannot reap the full Advantage from them, except they were condensed & digested a little better. With regard to Books on Anatomy, the Materia Medica, the Nature, Cause & Cure of Diseases, I have seen few or none, & should be glad if thou would inform me at some opportunity which of the great Number of Publications are most worthy of Perusal in thy Judgement. I mean of those thou hast seen thyself or heard recommended by others.

I am thy obliged Cousin,

JOHN DALTON.

George Bewley
Whitehaven.

* Extracts from an address given to the History of Medicine Section at the Annual Meeting of the British Medical Association, Manchester, 1929.

A great wish to become a doctor not being gratified, he accepted an offer to come to Manchester in 1792, at the age of 27, as teacher in mathematics and natural philosophy at the Manchester Academy, also called the New College. He soon joined the Literary and Philosophical Society of Manchester, to which during his life he communicated the following physiological papers:—

October 31st, 1794. Extraordinary Facts relating to the Vision of Colours with Observations.

April 7th, 1798. Essay on the Mind—Its Ideas and Affections; with an Application of Principles to Explain the Economy of Language. (Not printed.)

March 7th, 1806. On Respiration and the Causes of Animal Heat.

January 8th, 1830. Physiological Investigations arising from the Mechanical Effects of Atmospherical Pressure on the Animal Frame.

March 5th, 1830. On the Quantity of Food taken by a Person *in Health, compared with the Quantity of the Different Secretions* during the same period, with Chemical Remarks on the several Articles.

He recorded many original observations carried out on himself and deduced conclusions new to the physiology of his day, some of which still hold true.

[The full address has been printed for private circulation, and Dr. Brockbank will be glad to let anyone especially interested *in the subject have a copy.*]

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RECURRENT DISLOCATION OF THE SHOULDER.

A REPORT BY DR. TAVERNIER OF LYONS.

ONE of the two subjects chosen for discussion at the annual meeting in Paris of the French Orthopaedic Society on October 11th was recurrent dislocation of the shoulder. Dr. LOUIS TAVERNIER of Lyons opened the session with a detailed report, summarizing the available information as regards its etiology and the various operative measures which have been employed for the relief of the disability. Although the condition is mentioned by Hippocrates, it was not till modern times that any accurate description, such as that of Dupuytren, was given. Its pathological anatomy has long been obscure, for it does not cause death, and therefore there are scarcely any museum specimens which illustrate it. Moreover, the evidence obtained at operations is conflicting. Each surgeon who has devised a procedure for its cure is apt to find at the time of operation the lesion which his method was devised to remedy. Turner Thomas, who has performed so many operations of capsulorrhaphy, is convinced that the capsule is in fault, being too lax. Mr. Blundell Bankart expressed the opinion *in a letter in the British Medical Journal* (1925, vol. ii, p. 978) that no competent surgeon who has exposed the joint at operation could fail to observe that detachment of the capsule and/or the glenoid ligament is the cause. All surgeons who have operated in divers ways record cures, but one of the difficulties in coming to a decision in this matter is the interpretation of this word "cure." When is it safe to say that the tendency to luxation from comparatively slight force no longer exists? Dr. Tavernier mentions many cases in which, after so long an interval after operation as two years, the luxation has recurred, yet such cases may easily and excusably have been recorded as cured.

Generally the lesions suspected of being causal have been confined to the soft parts, but of late the subject has been further complicated by the assertion of Grégoire and Bazy that certain deformities of the head of the humerus to which they have called attention may predispose to luxation and favour recurrence, or, together with injury, be the real causes of both.

Etiology.

In considering the etiology of this lesion one of the outstanding facts that are encountered is the great liability to it manifested by epileptics and athletes, 90 per cent. of the cases being found between the ages of 10 and 30 years. As regards sex, it is a striking fact that the proportion of recurrent dislocations among females is twice as great as the proportion of primary luxations, which, as Tavernier points out, suggests that there is some factor besides injury to be reckoned with, although the main cause may be trauma. Generally speaking, the subjects of this disability have well-developed muscles. It is astonishing, first, that there should be no trace of atrophy in these cases, and secondly, that such powerful muscles should not be able, by their tonic contraction, to keep the head of the humerus in its place, despite lesions of the capsule. The original accident in which dislocation first occurred has generally been a serious one, but it must not be forgotten that in some few cases slight efforts, such as throwing a stone, putting on a coat, fencing, or chopping wood, have produced the primary dislocation. In such cases surely there must have been a predisposing abnormality which favoured both the primary and the recurrent dislocation. Whether this abnormality consists in a deformity of the humeral head or of inadequacy of the glenoid cavity is still the subject of debate. What is the role of the kind and duration of treatment of the original dislocation in the production of recurrences? Here Tavernier finds a racial difference of opinion. The Anglo-Saxon orthopaedists—in which category he includes North Americans as well as the British—are unanimous in attributing it to too early abduction movements. The Germans did hold similar opinions, but after characteristically patient research they have arrived at the conclusion that, seeing that in a large proportion of cases immediate mobilization has not been followed by recurrence, while cases after prolonged immobilization still recur, they admit the inefficiency of the latter method. Tavernier thinks the capsular theories of the Americans, notably that of Turner Thomas, are too simple to answer to the complicated facts.

Symptoms and Diagnosis.

There is generally nothing about the first dislocation to indicate that it will recur, unless the slight violence which caused it or the fact of epilepsy give rise to apprehension. One point of diagnostic importance stands out in the account of symptoms, and that is the increasingly spontaneous character of successive recurrences. Indeed, recurrences after adequate trauma should not be included in our category, which would be better called "habitual" than "recurrent." Snapping shoulder (*épaule à ressort*) is excluded from this discussion.

Pathological Anatomy.

Unfortunately, the various lesions that have been described are not constant, so that it would seem that recurrence is not always due to the same cause, and that different anatomical conditions might lead to it. Post-mortem morbid anatomy offers practically no help. Moynihan's pathology of the living is but little more helpful owing to the generally restricted area of the field of operation. Radiography only gives information about the skeleton, but in a certain number of cases has shown malformations of the head and neck of the bone which are of importance. A certain number of observers have by this means recorded departures from the norm which are included in the general term of "hatchet-shaped head." Such changes are only evident when the humerus is fully rotated outwards. Some surgeons have laid stress on the importance of detachment of insertions of muscles into the humerus, especially the supra- and infra-spinatus; that of the subscapularis has been less often noted, and its importance is doubtful, seeing that division of this tendon has entered into some successful operations. Perthes, Clairmont, and Ehrlich attribute recurrence to detachment of the insertion of the external rotators, and the first in the course of eleven operations had to refix the tuberosity in six cases. But recent researches have diminished the im-

portance of these lesions, which have been only exceptionally demonstrated by radiography. Turner Thomas, in his large series of cases, reports no lesion of the peri-articular muscles. Moreover, Auvret, in his Paris thesis of 1907–8, shows reason to think that luxation complicated by fracture is likely to lead to limitation of movement and less liability to recurrence. On a review of the evidence Tavernier considers that these fractures are of little importance in this connexion.

Laxity of the capsule of the joint is the lesion most often noted by operators. Joessel in one case injected it with mercury, and found its capacity to be three times as great as normal. Only four operators are recorded to have found the capsule so tight that it was impossible to pleat it as was intended. The normal capsule, however, is loose, otherwise the free normal movements of the humerus could not be carried out. Operators in general give no precise details of the amount of dilatation, which is, indeed, not easily estimated. Turner Thomas, it is true, approaching the joint from the axilla, has found a thin-walled hernial protrusion of the capsule in which the luxated head rested. Tavernier makes little of this in view of the importance of rupture of the capsule, which is commonly found on its antero-inferior aspect close to its insertion into the glenoid ligament, or extending into this ligament itself. This split in the capsule leads into a sort of pocket beneath the subscapularis and in front of the neck of the scapula. This tear in the capsule he considers to be, if not the first cause of habitual dislocation, at least a necessary condition of it.

It is only after opening the joint and examining the capsule from the inside that the breach can be seen, and, even so, it is sometimes apt to be overlooked. The capsule, instead of splitting, may tear away the glenoid cartilage and periosteum from the neck of the scapula, thus allowing the head to be displaced in front of the denuded bone. This lesion, however, Tavernier considers to be exceptional. Enlargement of the bursa of the subscapularis and the presence of foreign bodies in the joint are only mentioned to be dismissed.

Lesions of the humeral head to which allusion has been made are more important. They are of two kinds: (1) a groove (*encoche*) corresponding to the line of junction of the head and neck and tuberosity, on the posterior aspect, and (2) various alterations in the form of the head itself. The hollow is described as being formed as though one had removed bone in the shape of a quarter of an orange. It is supposed that this hollow or groove catches on the edge of the glenoid cavity, and the two parts, acting like cog-wheels, cause the humerus to roll out of the joint. But however plausible this theory may be, it appears that the groove is not present in every case of habitual luxation. Alibert in 110 cases in the literature, taken at random, found its presence recorded in only thirty-five, but it is possible that it may have escaped notice in a number of cases. Some of the various deformities of the humeral head which have been grouped under (2) as "*hatchet head*" are represented in the figures illustrating the report. Alibert has found this abnormality present not only in all his own cases, but in twenty out of fifty-seven radiographical records in the literature, including cases of Turner Thomas, Eden, and, above all, Schultze. These various deformities all tend to make the humerus take up more room in its rotating movements, thereby to distend the capsule, and finally to tear it and escape from the cavity of the joint. The causes of such deformities of the head are quite obscure.

Pathogeny.

All that has been already said leads up to the theory that bony malformations prepare the way by distending the capsule; traumatism produces the first dislocation, and defective cicatrization of capsular lesions is kept up by the malformation of the head. The necessity of trauma for the production of the first dislocation explains the frequency of the lesion in the male sex, the athlete, and the epileptic. General laxity of the capsule, or laxity of its lower part only, has been cited as the cause. Turner Thomas, from an experience of more than 150 cases, considers that luxation is the result of exaggerated abduction, permitted by such laxity which itself is the result of allowing too free movement soon after the primary luxation. But the many failures of capsulorrhaphy prove the inadequacy of this explanation. Perthes, Quénu (and Tavernier himself formerly) attributed habitual luxation to a torn capsule; Broca and Hartmann to detachment of the capsule and periosteum; Popke, Kraske, Hildebrandt, and others to tearing of the edge of the glenoid ligament or the cartilage itself or the bony edge of the cavity; all of these are apt to happen in ordinary luxations, and it is necessary to explain why they do not heal in cases of habitual dislocation, as they usually do after violent dislocation.

Tavernier now turns from all these alleged causes to malformations of the humeral head, and possibly in some cases insufficient size of the glenoid cavity, as the real predisposing causes of habitual dislocation.

Treatment.

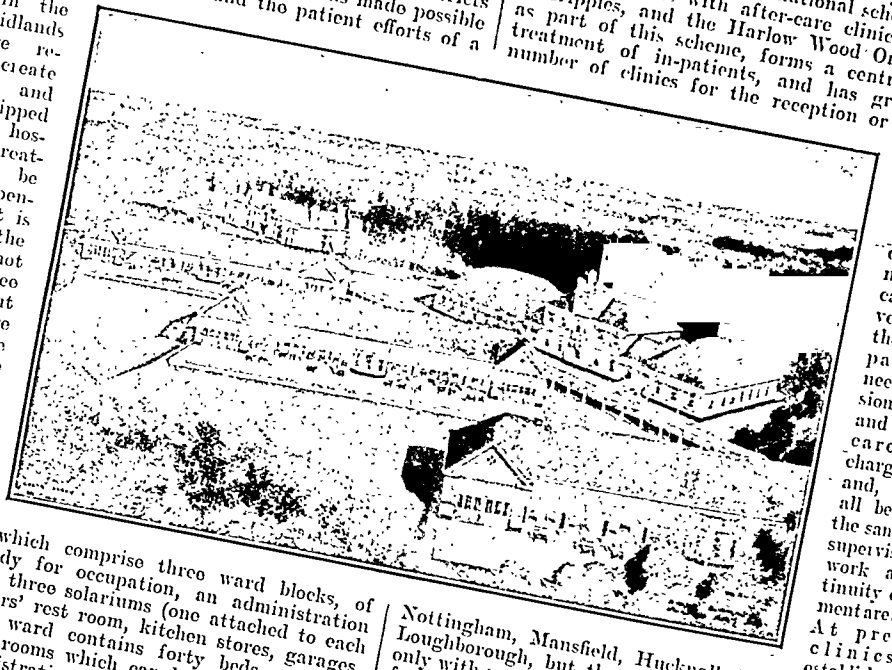
The following curative operations, based on the supposed pathology of the condition, have been performed, and are described and illustrated by the author. (1) Capsulorrhaphy with or without incision or resection of capsule, shortening of tendons, and reinforcement of the capsule with fascial graft. (2) Suture of the split in the capsule. (3) Reinsertion of the detached tendon of the subscapularis. (4) Section or autoplasty of muscles to combat supposed lack of muscular equilibrium. (5) Enlargement of the glenoid cavity. (6) Resection of the head of the humerus. The following palliative operations have been undertaken: (1) Arthrodesis of the shoulder-joint. (2) Operations designed to limit abduction. (3) Tendon-suspensions. (4) The interposition of a bony obstacle to luxation. Except the generally unjustifiably severe operations of arthrodesis and resection and the operation of interposition of an osseous obstacle, all these operative procedures are discussed and dismissed as insufficient, for all have been followed in a number of cases, sooner or later, by recurrence, unless they permanently limit movement.

Tavernier holds that all attempts at cure depending on muscular or fibrous support are bound to fail sooner or later owing to yielding of the restraining band or its attachments. Osseous obstacles he considers as much more likely to be permanent. Of these he refers to that of Eden, who implanted a bone-graft from the tibia on the bared anterior surface of the neck of the scapula overhanging the joint, so as to prevent anterior dislocation. Kellogg Speed of Chicago, with the same aim in view, drives a bone peg taken from the tibia into the antero-inferior border of the glenoid cavity, leaving it projecting far enough to check luxation. He and Phemister have recorded good results. Nevertheless, the operation of Oudard is preferred to these. It consists in lengthening the coracoid process by dividing it across and interposing between the cut surfaces a graft from the tibia four centimetres long. In more recent operations, instead of introducing a graft, Oudard has split the coracoid process obliquely and lengthened it by sliding down one half with the insertions of the coraco-brachialis and biceps attached. In the original and in the modified operation he also shortens the tendon of the subscapularis. In this operation the author considers, however, that the osseous block is everything, and that the effect of the operation on the tendon is negligible. The results, he says, are excellent. No relapses are recorded, even after seven years, and the functional results are also good, but it is admitted that in some there is reduction of the range of abduction and in a few some pain. The original grafting operation no doubt provides the longest and most solid coracoid process, but Oudard has had some trouble with sinuses and necrosis of the graft; the modification by splitting and sliding does not expose the patient to the risk of these complications, and appears to be equally effective.

For our part we cannot but think that this operation, which, as Tavernier says, is almost unknown outside France, must be followed by some limitation of extension and abduction. He has collected a series of thirty-one publications relating to the subject, and this bibliography is appended to his report.

HARLOW WOOD ORTHOPAEDIC HOSPITAL.

AN interesting ceremony took place on August 3rd, when Their Royal Highnesses the Duke and Duchess of York opened the Harlow Wood Orthopaedic Hospital, near Mansfield, Nottinghamshire. This hospital is situated on an admirable site in one of the fringes of Sherwood Forest, and will be able to serve not only a large agricultural area, but some of the most populous districts in the East Midlands. Its establishment was made possible by the generous contributions and the patient efforts of a large number of persons in the East Midlands who were resolved to create a modern and fully equipped orthopaedic hospital where treatment could be given on open-air lines. It is true that the hospital has not been opened free from debt, but what debt there is will soon be cleared if the present stream of contributions is maintained.



The inset photograph gives a general idea of the arrangement of the buildings, which comprise three ward blocks, of which two are ready for occupation, an administration block, nurses' home, three solariums (one attached to each ward block), a visitors' rest room, kitchen stores, garages, and a lodge. Each ward contains forty beds, and has attached at one end rooms which can be used for paying patients. The administration block is linked up with all three wards by a covered way, and contains at one end the operating theatre, x-ray department, and treatment rooms, at the other the kitchens, and between the two the offices of the secretary and the clerical staff. Each bedroom in the nurses' home is supplied with running water. The responsibility for the building operations was assumed by the Sir Jesse Boot Property and Investment Trust, which generously undertook to carry out this task without making any profit. The architects were Messrs. Bromley Cartwright and Waumsley of Nottingham. The site itself was presented by the Duke of Portland, and he and the Duchess of Portland, who has been elected president of the hospital, took a prominent part in the opening ceremony.

The hospital owes its origin largely to the success with which, during the great war, the military orthopaedic hospitals, or special military surgical hospitals as they were then called, were able to treat many of the wounded and train them for civilian life. Shortly after the war Sir Robert Jones evolved the national scheme of central orthopaedic hospitals with after-care clinics for the treatment of cripples, and the Harlow Wood Orthopaedic Hospital, as part of this scheme, forms a central hospital for the treatment of in-patients, and has grouped round it a number of clinics for the reception or after-care of out-patients. At the out-patient clinics, each of which is managed by its own independent committee, are carried out preventive work, the treatment of patients not needing admission to hospital, and the after-care of discharged patients, and, the clinics all being under the same surgical supervision, team work and continuity of treatment are assured. At present, clinics are established at Nottingham, Mansfield, Hucknall, Worksop, Newark, and Loughborough, but the hospital, it is hoped, will deal not only with patients coming from these clinics, but with those from other areas also; irrespective of county boundaries, it is ready to co-operate with any practitioner who feels that it is near enough to be of service to his patients. The Harlow Wood Orthopaedic Hospital should thus form an important centre for treating the more advanced cases of deformity, and afford a means for co-ordinating all work for cripples in the East Midlands. It may be hoped that its efforts will contribute to a solution of the serious problem of turning cripples into self-supporting citizens.

On the consulting staff are Sir Robert Jones, Mr. Naughton Dunn, and Mr. R. G. Hogarth as honorary consulting surgeons; Dr. J. Wilkie Scott as consulting physician; Mr. J. Llewellyn Davis as consulting surgeon; and Mr. S. A. S. Malkin as surgeon in charge. The resident surgical officer is Mr. John Campbell.

BRITISH EMPIRE CANCER CAMPAIGN.

AT the quarterly meeting of the Grand Council of the British Empire Cancer Campaign, held on October 14th, with Sir JOHN BLAND-SUTTON, Bt., in the chair, the grant was renewed to the Cancer Hospital for the special scheme of radiological research which is being carried out on the effects of x rays upon the blood constituents and bone marrow, with the object of correlating the findings of experimental work with those observed in the treatment of patients suffering from cancer. A further grant of £250 for one year was also made to Mr. E. Nevill Willmer for the continuation of his research work on the relation of the growth of cultures to the chemical nature of the media in which they grow.

A report from the Finance Committee by Sir Richard Garton showed that grants made by the Campaign during the last year for research purposes amounted to £25,000, while donations received during that period only amounted to £17,000. The Finance Committee asked that special efforts should be made during the ensuing year to increase the donations to the Campaign in order that it may be able to subsidize the work of the cancer research centres at their maximum activity.

The general secretary reported that details of the policy which the National Radium Commission proposed to adopt, relative to the co-ordination of existing bodies interested in the use of radium, had not been so far communicated to this Campaign. The Grand Council expressed a hope that early steps would be taken to bring about co-ordination between the work of the Radium Commission, the use of the radium in the hands of King Edward's Hospital Fund, and the various radium centres in existence which have been formed by the British Empire Cancer Campaign.

It was reported that the North of England Council of the Campaign, combining the counties of Northumberland, Durham, Cumberland, and Westmorland, had been successfully founded under the presidentship of the Duke of Northumberland, with Sir Thomas Oliver as chairman of the Executive Committee. The inaugural meeting of the Council is being held this week at Newcastle-on-Tyne. The Grand Council was informed that it is intended that a substantial part of the funds resulting from this appeal shall be devoted to the establishment of a radium institute in the North of England.

New Zealand.

[FROM OUR CORRESPONDENT IN WELLINGTON.]

The Cancer Campaign.

As a result of the visit to New Zealand of Mr. Sampson Handley a branch of the British Empire Cancer Campaign has been formed in New Zealand, with headquarters at Wellington. The Governor-General is patron, and the Prime Minister and Minister of Health are keen supporters of the movement. A thoroughly trained research worker is being appointed from England to institute cancer research at the New Zealand Medical School in Dunedin, where proper facilities are available. From his experience he will understand the best lines to follow here in the Empire-wide attack on the cancer problem. Divisions of the branch are being formed in the larger centres of population, and an attempt is being made to enlist the sympathy and co-operation of the public. In addition to the work in the main centre of research at Dunedin there is urgent need for accurate statistical research in connexion with the hospitals in the cities and larger towns with a view to uniformity. To this end, delegates from New Zealand to the Australasian Medical Congress in Sydney will obtain valuable data, such as the method employed in organizing the cancer records of the Prince Alfred Hospital. In each of the main hospitals in New Zealand a cancer committee has been formed, composed of a surgeon, a physician, a pathologist, a radiographer, and a radiotherapist, to review each case, or suspected case, and confer as regards diagnosis and treatment. This course of action will lead to a certain amount of segregation of cancer patients and to their close supervision. Radium treatment has hitherto been too much in the hands of the radiotherapists, and not sufficiently under surgical control. As the scheme progresses it is hoped that surgeons will become more qualified in the uses of radium, and better instructed in its limitations. The New Zealand Branch of the British Medical Association has been prominent in organizing the proposed campaign. In this part of the world cancer appears to be as common as in Great Britain.

Sir Ewen Maclean's Visit.

Sir Ewen Maclean, past-president of the British Medical Association, arrived at Wellington on August 26th, and left the following evening on his way to the Australasian Medical Congress in Sydney. His time during his short visit was fully occupied. He spoke very helpfully on the international problem of maternal mortality, and was interested in investigating the low infant mortality rate in New Zealand. Sir Ewen was entertained to dinner by the medical profession of Wellington, and a free and frank discussion took place on possible means whereby visiting members from Dominion Branches could come into closer and more helpful contact with the parent body in London. This discussion opened up the question of the need for more efficient organization of post-graduate instruction in London, at present so much inferior to the arrangements at the clinics and medical schools of the United States. It was pointed out that a New Zealander could travel to America in sixteen days, whereas the journey to England usually occupied about six weeks. The visitor to America had no difficulty in seeing anything he wanted, but in Great Britain, unless he presumed on the kindness and hospitality of a friend on a hospital staff, he found few facilities for post-graduate work. Even if he was prominent in the British Medical Association overseas, unless his visit to the homeland synchronized with the Annual Meeting, the colonial visitor could seldom make effective contact with headquarters. If post-graduate work were organized in London and the other centres on business lines visitors would be only too pleased to pay reasonable fees rather than submit to annoying and haphazard ways. The clinics of the United States were quite alive to the post-graduate needs of the profession in Australia and New Zealand, and desired pan-Pacific co-operation. Although science had no frontiers it was reasonable to expect more cordiality and help from kith and kin than from strangers. Sir Ewen Maclean showed that he has a clear view of the whole situation, and his visit to the "camp fires of the Southern Legions," to borrow Mr. Victor Bonney's phrase, should be productive of much good. Sir Ewen is reported to have said: "In so far as medical relations are concerned, I will use my best endeavour to set up the most useful and intimate connexion between the medical profession in New Zealand and in London and the other big centres, particularly in regard to post-graduate teaching. I believe the time is ripe to develop such a scheme."

Scotland.

Glasgow Mental Colony.

LENNOX CASTLE, Stirlingshire, together with surrounding grounds, was purchased some time ago by the Glasgow District Board of Control for conversion into a colony for the care and treatment of mental defectives, and was formally opened for this purpose on October 5th by the Right Hon. William Adamson, Secretary of State for Scotland. Mr. Adamson remarked that the opening of this institution indicated that Scotland was awakening to the duty of providing for the less fortunate section of the community. When the Mental Deficiency and Lunacy Act of 1913 came into operation, the Glasgow Board of Control had been faced with the responsibility of providing accommodation for mental defectives. The institution of Stoneyetts had been converted for this purpose, and had been managed with conspicuous success. Later, in 1916, Barnhill had been licensed as an institution for housing fifty-two mental defectives, and in 1922 Blinkbonny, Falkirk, had been licensed for eighty patients. These institutions were, however, only palliatives, and in 1927 the Glasgow Board of Control had purchased the estate of Lennox Castle, with the ultimate intention of erecting a village colony which would accommodate 1,000 mental defectives. Meantime, the mansion house, which would ultimately be used as a nurses' home, was being utilized for the accommodation of 150 female defectives. After May 15th, 1930, the supervision of lunatics and mental defectives would be taken over by the new local authorities, in this case the town council of Glasgow. The speaker expressed the hope that this institution would provide, in full measure, the service for which it was being built.

Scottish Insurance Committees' Conference.

A two-day conference of the Scottish Association of Insurance Committees was held at Ayr at the end of last month; several points affecting insurance practice in Scotland were discussed. It was decided to make representations to the Government for the provision to all insured persons of specialist and consultant treatment as essential parts of a complete and satisfactory medical service. Reference was made to the hiatus which at present existed in the scheme of health services between the statutory age of leaving school and the statutory age for entering national insurance. Large sums were spent on child welfare during the first five years of life, with most beneficial results, and during school years the health services were continuously available at considerable cost, but with equally satisfactory results. Yet between the ages of 14 and 16 years there was no provision for health services, and this was a serious anomaly. It was reported by Mr. A. B. Gilmour, of the Central Checking Bureau, Glasgow, that during 1928 the number of prescription forms handled on behalf of fifty-four insurance committees in Scotland was 2,655,737, which was a decrease of 93,000 compared with 1927. The value of these prescriptions (exclusive of the cost of insulin) was £147,328, a decrease of £4,410 compared with 1928, while the difference in cost between the years 1924 and 1928 was nearly £14,000. It was pointed out that the tariff price for 100 units of insulin had been reduced by successive stages from £1 6s. 8d. to 2s. 7d. After some discussion, a motion was passed that the cost of drugs, including insulin, supplied to insured persons under treatment in voluntary institutions, should be a charge against the Drug Fund of the Insurance Committee, instead of having to be paid from the funds of the voluntary institutions.

Quarrier's Orphan Homes.

A unique Scottish institution, the Orphan Homes at Bridge of Weir, celebrated the centenary of the birth of the founder, William Quarrier, on September 27th. The institution comprises a sanatorium, an epileptic colony, and a farm, in addition to the homes. Lord Maclay presided at the thanksgiving ceremony, and pointed out that over 20,000 boys and girls had been cared for, educated, and trained within the homes, and to-day in almost every part of the world there were to be found men and women, playing useful parts, who had cause to bless that institution and pay tribute of remembrance to William Quarrier and his wife. It was a remarkable fact that no less than £2,000,000 had been gifted since 1871 without the issue of a single public appeal. Three daughters of the founder were present at the celebrations, which were attended by 3,000 visitors.

England and Wales.

Medical Charity in Yorkshire.

The twenty-first annual meeting of the Medical Benevolent Society for the East and North Ridings of Yorkshire (including the city of York) was held last week at the Hull Royal Infirmary, with the president, Dr. D. M. Mackay, in the chair. The annual reports of the honorary treasurer and the honorary secretary were received and adopted. From these it appeared that the financial position remained satisfactory, only one case (that of the widow of a former member) needing help during the past year. The cash balance is over £160, in addition to nearly £3,000 invested capital, which has been steadily accumulating during the twenty-one years of the society's existence, and from which a reliable income accrues. The election of officers resulted in Dr. D. M. Mackay of Hull being reappointed president; also, as vice-presidents, Dr. E. M. Hainsworth of Hull, and Dr. H. J. Mackenzie of York, who are respectively honorary treasurer and honorary secretary. All members of the medical profession living in the area described in the above-mentioned title of the society are eligible for membership: application for particulars should be made to Dr. Mackenzie, 254 Bishopsthorpe Road, York.

St. Marylebone Children's Rheumatism Supervisory Centre.

In 1926 a supervisory centre with reference to rheumatism in children—the first of its kind in England—was instituted at the St. Marylebone General Dispensary. The director of the centre, Dr. Halls Dally, has now published a report of the work of the centre since its beginning, together with an analysis of the first 100 patients who attended, the results being grouped under three main headings — namely, environmental, clinical, and biochemical. In view of the small number of cases the conclusions reached are only submitted as tentative, but it is hoped that they will be considered sufficiently encouraging to warrant further investigation along the same lines, with a view to determining how the rheumatic child differs from other children. It was found that, generally speaking, there was an increase of the velocity of sedimentation of the red blood corpuscles, even when focal infections appeared to be absent. Cardiac involvement was present in all the children who manifested a lowered alkaline reserve, and the urinary examination in these cases revealed a deviation in the direction of increased acidity. Cases which showed a deviation to the alkaline side were eventually classified as not being rheumatic on clinical as well as on biochemical grounds. The total sulphate excretion was disproportionately high in sixty cases, and the phosphate excretion was relatively diminished in forty; as many as seventy cases showed an abnormal carbon-nitrogen ratio. An excessive faecal loss of calcium was found in forty cases. Evidence was therefore obtained pointing to a definite tissue retention of acid, and it is proposed to carry this investigation further with a view to establishing a correlation between a certain type of "rheumatic" children and the acid retention type of adult "rheumatic" patients. Although the blood uric acid content was within the normal limits in all cases, the urinary ratio of uric acid to urea was below normal in over sixty, the latter ratio being probably an accurate and sensitive index of acid retention in the tissues. Dr. Halls Dally adds that an attempt is being made to associate the clinical and biochemical findings in order that an interpretation may be defined of each individual in terms of endocrine function, with special reference to the thyroid, pituitary, and suprarenal glands.

Central Midwives Board.

At a meeting of the Central Midwives Board for England and Wales, held on October 4th, a letter was read from the registrar of the Nurses' Registration Board, Tasmania, asking that reciprocal arrangements with regard to the registration of midwives might be entered into between the Central Midwives Board and the Government of Tasmania. The board agreed to offer reciprocity on terms similar to those already accorded to the midwifery authorities of the various States in Australia. It was also decided to accede to a request made by Dr. Farquhar Murray and Dr. Ranken Lyle that pupil midwives training at the Princess Mary Maternity Home, Newcastle, might, as part of their training, attend cases of doctors in private practice. As a condition of its consent the board stipulated that only pupil midwives who had completed twenty cases and entered in their last month of training should be allowed to engage in such service, and that the work should be conducted under the general supervision of the training midwife of the hospital. In response to a suggestion that pupils in training under the Somerset County Association might obtain part of their intern experience at the Mary Stanley Training Home at Bridgwater, the board decided that cases in this home might form part of the pupil's training experience only after she had completed five intern cases at some other institution.

Correspondence.

TONSILS AND ADENOIDS IN HOSPITAL PRACTICE.

Sir,—With reference to the correspondence on this subject, and Dr. R. R. Simpson's suggestion that the Section of Diseases of Children should press the matter further and advise giving up the practice of operating upon out-patients, as President of the Section of Diseases of Children I have thought over this matter carefully since the Manchester Meeting, and I feel that the time is not yet ripe to press for abolition of this practice, provided that certain measures are taken for after-care.

These measures have been taken by the Manchester Children's Hospital for some time, and my colleague Mr. Arnold Jones outlines the essentials of the scheme in his letter which follows. He also gives an account of the inquiry which he is making to ascertain whether children do suffer severely from being operated upon at out-patient departments when they are sent to their homes afterwards in an ambulance.

To give up the practice of operation upon out-patients means the provision of extra beds. We cannot decrease the already overtaxed accommodation for other surgical cases, so that the provision of these beds means expensive building. My feeling, therefore, is that we should wait for definite evidence before we ask hospital boards to incur additional expense: if the inquiry shows that the children do suffer, then we should press home the need for provision of beds and abolition of the practice wholeheartedly.—I am, etc.,

Manchester, Oct. 14th. C. Paget Lapage.

Sir,—Before embarking upon a crusade to substitute in-patient operations for out-patient operations for tonsils and adenoids, with the vast expense which this would incur (almost certainly diverting money which should be expended upon more urgent problems), we should be quite sure that the issue is a vital one. To my mind this has not been shown.

My opinion, based upon an extensive experience of these operations during the past twenty-five years, is that if

due and proper precautions are taken out-patient operations for tonsils and adenoids can be performed with as good results and with as few complications as those which follow in-patient operations. This is my strong impression, but, wishing to gain knowledge from recorded facts, last August I instituted an inquiry into the subject at the Royal Manchester Children's Hospital. This inquiry I propose to continue for a year.

I, or the senior medical officer, see all the patients operated upon both in hospital and as out-patients, a fortnight after operation. The history of that fortnight is inquired into and noted. If a patient fails to appear the inquiry is pursued through the post. Thus at the end of a year it will be possible to compare the results of in- and out-patient operations from definitely recorded facts.

The due and proper precautions referred to, which have been in force at the Royal Manchester Children's Hospital for some years, are:

1. The cases are selected: (*a*) none come from a distance greater than five miles; (*b*) no child with a "chest" or "heart" is operated on as an out-patient; (*c*) the older children are operated on as in-patients.
2. The patients lie on couches in the recovery rooms for three or four hours, are attended to by a nurse, are examined before leaving by the medical officer, and are then sent home in the hospital ambulance.
3. If there is any doubt about the patients' condition the medical officer detains them in hospital.
4. When the weather is inclement no out-patient operations are done. This mainly applies to east winds, fog, and extreme cold.

In addition, I have recently made arrangements for the inspection of homes where there may be doubt as to their suitability, and I intend, if practicable, to have all the patients visited at their homes by a nurse the day after operation.

I submit that, if similar inquiries were set on foot by other surgeons at various hospitals, in a year's time a valuable mass of real evidence could be obtained. Until that is done it seems to me that any action taken by the profession in this matter, as suggested by some of your correspondents, would be premature and based on insufficient evidence.—I am, etc.,

Manchester, Oct. 15th. J. ARNOLD JONES.

RADIUM IN SURGERY.

SIR,—In his letter in the *Journal* of October 12th, criticizing certain paragraphs in my book on *Radium and its Surgical Applications*, Mr. Forsdike raises a question of considerable interest, the answer to which is by no means so simple as his letter suggests. The experiments of Bédère and Laborde indicate that with a screen of platinum 0.6 mm. in thickness there is for all practical purposes a total absorption of the primary beta rays. The surface layers of the screen give off, however, a secondary radiation of soft beta rays, produced by the impact of the gamma rays, and very destructive in their action on living cells. It would seem, therefore, that any increase of the thickness of the platinum screen beyond 0.6 mm. is futile, and that it is to the abolition of this secondary radiation that attention must be turned.

A far more effective method, in my opinion, is to use sources of radiation so small that secondary rays are negligible, and, where an intense effect is desired, to bury these in the substance of the tumour where local destruction of tissue is actually an advantage. I am now using exclusively seeds containing 1.5 or 2 millicuries of radon, screened by only 0.3 mm. of silver, and of the immediate results in carcinoma of the oesophagus and of the breast I can speak with some confidence from a very fair experience. In no case have I noted any ill effects such as might be due to inadequate screening, whilst the minute dimensions of the seeds reduce to a minimum the trauma associated with their introduction.

The whole question is, however, one on which it is impossible to dogmatize, and the present divergence of opinion upon so elementary a point shows how important for progress is the careful control and observation of our cases, for it is only upon our results, and not upon any theoretical considerations, that we must ultimately depend.—I am, etc.,

London, W., Oct. 15th. H. S. SOUTTAR.

THE CONTROL OF MEASLES.

SIR,—Your leading article on measles (October 12th, p. 675) is extremely timely, but, quite naturally, in the space available for such an article, the whole of the points concerned cannot be adequately discussed.

You deal very definitely with *immediate* mortality, but the appalling effect of measles is not merely felt at the time of the epidemic, but results in a very considerable amount of morbidity causing early mortality. The results of a calculation of the ultimate mortality attributable to an epidemic of measles would give us a shock. I recall an epidemic in the early years of this century affecting fifty-five children. The immediate mortality was twenty-seven. At the end of twelve months an attempt was made to trace the remaining twenty-eight, with the amazing result that one live child only could be found. This was, of course, exceptional, but those of us who deal with numbers of sick children for many years find our measles patients coming back and dying of other conditions, which can be directly attributed to their attack of measles.

It is obvious, therefore, that any attempt to deal with this problem is of vital importance, in the strictest sense of the term. Production of serum from cases of measles or from convalescents will prove of very great advantage if an epidemic takes place in a delicate community—for example, in an infants' ward in a children's hospital—but until some satisfactory prophylactic of animal origin is obtainable the method cannot be widespread. Incidentally, I may say we have come to the conclusion that the administration of a moderate amount of serum is the plan to adopt, permitting the child to have a mild attack of measles free from complications.

But because the animal supply is not yet available there is no necessity for us to stand idle. The mortality and morbidity of measles can be reduced enormously with our present knowledge. You refer in the last paragraph of your leader to the influence of vitamin A. I would suggest that you might have been more dogmatic, and have stated that the mortality and morbidity of measles are the measure of the incidence of rickets. Unfortunately, even in these days, the newly qualified practitioner is firmly convinced that rickets is indicated by bony deformities, and is therefore a disease of the second year of life. The textbooks and, I regret to say, the teachers do not emphasize sufficiently that rickets—not mild rickets—is a general disease, laying the mucous membranes open to the attacks of pathogenic organisms. Hence children who do not receive adequate quantities of vitamins A and D when attacked by measles have a very low resistance to mucous membrane complications, and immediately up jumps the incidence of broncho-pneumonia, enteritis, and otorrhoea.

Obviously, then, the end of the matter is nutritional, and our efforts should be concentrated on the adequate provision of satisfactory fats. To come down to practical details, I would suggest (*a*) doubling the milk consumption, (*b*) the provision of cheap edible fat having satisfactory quantities of the necessary vitamins. Butter is, of course, our mainstay in this respect, but the vitamin content of butter is extremely variable during the whole of the year, and very low during the winter months, just at the very time when it is most essential, and as eggs are at that time scarce, and correspondingly expensive, our difficulty is intensified. I would therefore suggest the provision of a margarine with adequate quantities of added vitamins.

At the present time the doubling of the milk supply is impossible, and, having regard to its appalling character, probably undesirable. There is no difficulty in providing an adequate supply of the necessary vitamins with an edible fat, and I am satisfied that such provision would bring our mortality and morbidity rates of measles down to an astonishingly low level—and, surely the British Medical Association can find no better object than the reduction of this enormous preventable national loss.—I am, etc.,

JNO. D'EWART.

Booth Hall Infirmary, Manchester, Oct. 14th.

"THE IDEAL MEDICAL MUSEUM."

Sir,—I read with interest the short article on "The ideal medical museum" which appeared in the *British Medical Journal* for October 12th (p. 679). While I yield to no one in my admiration of the excellent work which Dr. Daukes has carried out in connexion with what is now the Wellcome Museum of Medical Science, it seems desirable, if only in the interests of accuracy, to point out that the article in question is calculated to convey a wrong impression with respect to the genesis of that museum and the development of the so-called "graphic" system of display.

When I was appointed director of the Wellcome Bureau of Scientific Research in 1913 I pressed strongly for the establishment of a teaching museum arranged on somewhat special lines, for I had long felt that existing medical museums were in certain respects unsatisfactory. Mr. (now Dr.) H. S. Wellcome was good enough to give his consent, but, owing to the fact that I had to proceed abroad, I was unable to make a beginning with a museum of tropical diseases until 1914, a fact duly chronicled in Dr. Daukes's interesting and useful book.

The museum was started on graphic lines, of which I had already obtained some experience owing to my participation, on behalf of the Sudan Government, in the great Hygiene Museum at Dresden in 1911, and later at the Ghent Exhibition, where I had charge of the display of several diseases, including leprosy. The Ghent exhibits, indeed, served as a nucleus for the Wellcome Museum at 10, Henrietta Street, Cavendish Square, and there was then and there evolved a scheme of graphic representation on screens and on the walls, which later formed the subject of a joint illustrated paper by Dr. Daukes and myself, which appeared in the *Journal of Tropical Medicine and Hygiene* for September 1st, 1920. This paper explains how and why the museum came into being.

The museum developed slowly but steadily on these lines, and though its growth was hindered by the war there was soon after the close of hostilities a fairly complete representation in colour and black-and-white of nearly all the important tropical diseases. It had, indeed, attained such dimensions that a curator was required, and Dr. George Buchanan, now on the staff of the South African Institute for Medical Research at Johannesburg, was appointed. He rendered most useful service, and his skill as an artist was most helpful. Indeed, examples of his illustrative ability are still to be seen in the museum at Gordon Street (Endsleigh Gardens). I would also like to pay a tribute to the admirable work of the first artist to the museum, Mr. Schwarz-Lenoir, who, until the time he was unfortunately laid aside by illness, laboured most assiduously and successfully at depicting tropical disease in all its aspects.

Dr. Buchanan remained curator until 1919, when Dr. Daukes was, as stated in your article, appointed. No better selection could have been made. Not only did Dr. Daukes share the ideas which I had endeavoured to bring into being, but his experience at Leeds had given him fresh conceptions, while he had also what can only be called a "flair" for museum work of this kind. He was of the greatest assistance and, after my connexion with the Wellcome Bureau terminated, he was appointed director of the museum, and given full scope for the exercise of his talents, with the result which is now visible, and on which your article comments, and with justice, so favourably. At the same time the scheme adopted for the museum of the Wellcome Bureau did not originate with Dr. Daukes, but in the manner I have indicated.

I may add that, with the help of Sir Wilfred Beveridge and Dr. Newham, the museum of the London School of Hygiene and Tropical Medicine is being developed along similar lines, and that we encourage our students to make use of both museums, regarding them as complementary one to the other, and recognizing that the Wellcome Museum, so far as medicine is concerned, covers a wider field and possesses resources to which we cannot aspire.—I am, etc.,

London School of Hygiene and Tropical Medicine, Oct. 14th. ANDREW BALFOUR.

P.S.—After this letter had been written it came to my knowledge that my old colleague Dr. Daukes had also drafted a communication which he proposed sending to your *Journal*. As the views expressed in the two letters were similar, Dr. Daukes decided to withhold his note, especially as mine entered somewhat more fully into detail. —A. B.

TREATMENT OF INFECTIONS WITH S.U.P. 36.

Sir,—Having introduced S.U.P. 36 and used the drug experimentally and clinically since 1923, I was much interested to read Dr. R. M. Pearce's paper in the *British Medical Journal* of October 12th. The uses and the action of this drug and other symmetrical urea compounds are described in *The Nature of Disease*, Part II; but allow me to repeat them in brief.

S.U.P. 36 should be injected in any acute inflammatory condition as early as possible two days in succession, and again on the fifth day, if necessary, in 0.005 to 0.01 gram doses. The dose is not of paramount importance, although I use generally 0.01 gram in all cases, including babies, children, and animals smaller than man. In animals larger than man I use up to 0.1 gram doses. S.U.P. 36 is invaluable in the milder infections caused by the staphylococcus, pneumococcus, *Micrococcus catarrhalis*, the micro-organisms of influenza, etc. It is equally useful in acute infections in animals, such as distemper in dogs, the coughing of horses, the various forms of garget, udder infections, etc.

This drug is useful in some of the toxaemias of pregnancy, in post-operative acidosis, in venous thrombosis, and in certain cases of hay fever and asthma. It will prevent insulin from causing intoxication, it will check the shock occasioned by histamine, and act as an antidote in intoxications caused by the non-metallic elements, such as the halogens, oxygen, sulphur, etc. S.U.P. 36 would appear to act as a conductor through the two negatively charged hydroxyl groups in the 8-positions of the naphthalene rings. Infections and non-metallic negatively charged intoxicants rob the host's main resistance—the protein particles in the plasma—of electricity, and this is made good by the conduction of electricity from the positively charged hydrogen atoms in the hydroxyl groups. These hydrogen atoms function as metallic atoms like the arsenic atoms in arsenobenzene. Indeed, there is no fundamental difference in action between S.U.P. 36 in influenza and salvarsan in syphilis. Both act by increasing the patient's resistance, not by directly killing the invading micro-organisms.—I am, etc.,

London, W., Oct. 12th. J. E. R. McDONAGH.

Sir,—I was much interested in the article in your issue of October 12th (p. 663) by Dr. Raymond Pearce on the use of S.U.P. 36 (para-benzoyl-para-amino-benzoyl-amino-naphthol 3:6 sodium sulphonate). As the result of a knowledge of the work of Mr. J. E. R. McDonagh—and it is to his fertile brain we owe this as well as other drugs—I have made some use of S.U.P. 36 in acute inflammations of the middle ear, as also in acute rhinitis and other acute inflammations of the upper respiratory passages.

Observations of cause and effect are in such matters peculiarly liable to fallacy, but my impressions of the effects of the drug are fairly similar to those found by Dr. Pearce in influenza. I am sure the period of the common cold is shortened. I note that Dr. Pearce says: "The injections were usually made into the gluteus medius muscle, and only very trivial complaints of pain were ever received. Occasionally the injections were made into the deltoid muscles, where in one or two cases rather more pain was suffered," and the object of this letter is to suggest to him that he might try the abdominal fat as a suitable site for injection of this drug. From self-experiment the injection is much less unpleasant there than when made into a muscle. An injection into the abdominal fat did not with myself, for instance, interfere with my using a golf club at all, whereas an injection into the gluteus, and still more into the deltoid, made me prefer not to play golf for a few days. I have seen no ill effect from the injection into the abdominal fat.—I am, etc.,

York, Oct. 12th. PETER MACDONALD.

SIR,—Dr. Pearce's article on the use of S.U.P. 36 is of particular interest to me, because I used this substance on more than fifty consecutive cases of influenza, with results differing widely from those which he obtained.

The patients were treated on the first or second day of the illness with an intramuscular injection of 1 c.cm. of the preparation in question. The dose was repeated daily for three days. Comparing these cases with a like number treated on the usual lines, no beneficial effect, as evidenced by reduction of the duration of fever, pains, length of time in bed, or convalescence, could be established.—I am, etc.,

London, W.1, Oct. 14th. A. H. DOUTHWAITE.

MILK A CAUSE OF ARTERIO-SCLEROSIS?

SIR,—Some years ago a communication of mine, on milk and arterio-sclerosis, was considered worthy of space in the *British Medical Journal*, December 6th, 1924 (p. 1082). This encourages me to submit a further note on the same subject. The paper on diseases of the coronary arteries, by Dr. G. A. Allan, published in your issue of August 11th, 1928 (p. 232), in which he states,

"in almost all cases prognosis is bad, particularly in view of the absence of any evidence that arterio-sclerosis, atheroma, or calcification *can be influenced materially by any known line of treatment*,"

still further encourages me in this request. If milk is in fact a cause of arterio-sclerosis, then so long as milk, and cheese, are allowed to patients suffering from this disorder all treatment is likely to be in vain.

I believe I have suffered severely from arterio-sclerosis, but am now very much better, though my age is several years more than threescore and ten. Before describing my own experience, however, I would first draw your readers' attention to Sir Clifford Allbutt's work on this disease, published in April, 1925. After reading it more than once, very carefully, I am driven to the conclusion that the profession has no idea as to the cause of the disease. His book, however, leads me to think it is closely allied to the condition generally known as high blood pressure. It is with more confidence, therefore, that I ask my colleagues to consider my suggestion, especially as milk is believed by some leading consultants to have a pronounced stimulating effect upon the heart.

Secondly, I feel our thanks are due to Dr. Rutherford Daw for his paper on the incidence of arterio-sclerosis, published in the *Journal* of July 25th, 1925 (p. 162). It points to a close connexion between arterio-sclerosis and calcium degeneration. While all can readily understand Nature taking calcium from one tissue where it is needed in health to another to repair damage caused by disease, we cannot readily conceive that this transfer produces disease. Where we find calcium producing disease we are justified in concluding it does so because it is present in excess of bodily needs. We *must, then*, look to our food for the most likely source of this excess. Do we find this in milk? In my opinion, yes. Primrose McConnell states that one gallon of milk, containing 14 per cent. of solids, has 1.23 oz. of ash. The ash of cow's milk has 17.8 per cent. of lime, which amounts to 105 grains per gallon, or 6½ grains per glass. I would ask those hospital surgeons who have the opportunity of procuring healthy arteries to ascertain the amount of calcium in them; this information would add greatly to our knowledge, and be complemental to Dr. Dow's paper. In support of my contention, I must become personal; I hope, however, your readers will consider this justified. I will try and put my case impartially, as though I were an onlooker.

Until nearly 50 years of age I was a very heavy milk drinker. I like it; it agreed, I thought, with me, and it is an ideal food. During my boyhood at home we had an unstinted supply. As a medical student my lunch was a pint of milk, with a few biscuits, a bun, or sponge cake, to prevent large curds forming in the stomach. In after years, especially in hot weather, my midday meal was on similar lines. Early in my professional life I noticed my radial arteries were very visible and tortuous. I attached no importance to this: I thought they were somewhat abnormal.

Over twenty years ago the idea occurred to me that milk, owing to its large proportion of calcium, might have some effect in producing atheroma. Later, I began to think it would also have a tendency towards causing arterio-sclerosis. I thereupon practically abstained from the use of it. My radial arteries were then very prominent and tortuous. Noticing lately that they had ceased to be conspicuously prominent and tortuous, and altogether more normal, I asked Dr. W. J. Baird of Bury to examine them and tell me what he thought. I did this because he has kindly acted, from time to time, during the last twenty years, as my medical adviser, and while so doing he has remarked on the bad state *of my arteries in general. Incidentally, my friend Dr. Reginald* Clarke to a great extent corroborates Dr. Baird as to the state of my arteries. In February, 1922, during a casual visit, he tested my blood pressure, and made the following note: "I noticed there was a general thickening of the arteries, the radials visible, somewhat hard, and rolled under the fingers when palpated; blood pressure 208 left, 210 right."

Dr. Baird now reports as follows: "About twenty years ago I had occasion to examine Dr. James Holmes, and found his radial arteries very hard; his temporal arteries were also very hard and tortuous. I called his attention to it, and advised *caution in exercise, etc. I examined him again recently*, and found a very great improvement. The radials were only slightly hardened, and the temporals were not tortuous or hard as formerly. He told me about his experience with and without milk diet, and I must say the improvement is astonishing, and the cessation of milk as a food significant."

The bearing of this on treatment is obvious. Assuming that milk is a causal factor in arterio-sclerosis, I suggest the absolute, or nearly absolute, abstention from milk and its products, excepting cream and butter, which are only the fatty portion of milk.—I am, etc.,

Bury, Lancs, Oct. 10th. JAMES HOLMES, M.D.

DIAGNOSIS OF ANAEMIAS BY DIFFRACTION.

SIR,—I have been indicted by Dr. A. Pijper in his letter published on October 5th (p. 649) on three counts, of which the first two are that I did not give him credit for his pioneer work in the diagnosis of anaemias by diffraction methods, and that I did not refer to his recent paper. In my paper published on July 13th (p. 48) I did credit him with his main discovery in these words.

"A thin blood smear acts as a very efficient diffraction grating and splits up the rays from a small source of light into a brightly coloured halo like a circular rainbow (Pijper)."

I also gave him full credit in my two earlier papers in the *Lancet* and *Clinical Journal*. But this third paper of mine in the *British Medical Journal* of July 13th was very condensed. The Editor—from lack of space—had to strike out eight of my ten illustrative cases, and also deleted the following passage, which I gladly quote.

"Dr. A. Pijper has now described (*British Medical Journal*, April 6th, p. 635) his improved method, with what is, in effect, a large camera with a simple uncorrected lens. A central partition enables him to compare abnormal with normal blood, and he points out that the distance between the violet and red bands is a measure of the anisocytosis. The method demands alignment with a Pointolite or arc lamp, and seems a device rather for the laboratory than for the clinician. Judging from my experience when I used my camera method I should have great difficulty in judging the exact margins of the red, yellow, and violet bands, specially of the colourless haloes of many cases of pernicious anaemia. Whereas in the halometer the sharp red edge of the halo yields one definite reading instead of three vague ones."

Doubtless this passage, *had it been printed*, would have more than satisfied Dr. Pijper's second indictment. Incidentally I may add that Dr. Pijper has already committed the fault against which he now declaims. For, after I had shown that a camera answered the purpose of his dark room, he adopts a camera-like apparatus and does not acknowledge the fact or mention my camera paper which I had sent him.

His third indictment is that my halometer is not original, but is a distorted version of his method. Certainly, I found that lenses he used were not necessary; as regards originality, old Thomas Young of Emmanuel College, Cambridge, discovered all the facts about it a century before. We are all indebted to Dr. Pijper for applying the method of Young to blood smears and thus measuring the average diameters of red cells rapidly instead of by the

very lengthy method of Price-Jones. The latter made the invaluable discovery that enlarged red cells are the most reliable and characteristic feature of pernicious anaemia. Since liver apparently always cures in the earlier stages of this disease (and its special degeneration) the early diagnosis of pernicious anaemia has suddenly become of the utmost importance.

All I claim for the halometer is that it renders available to the clinician all this esoteric knowledge at a moderate price in a simple form, which will pack into his bag, enabling him to diagnose for himself (or eliminate) pernicious anaemia in its earliest stages instantly and reliably from a thin blood smear. This was not possible before. When Dr. Pijper has seen and tested the halometer he now abuses, I think he will find that it modestly and accurately performs these services—now really indispensable.—I am, etc.,

Hull, Oct. 12th. FRANK C. EVE, M.D., F.R.C.P.

THE ROYAL COMMISSION ON THE ALCOHOL QUESTION.

SIR,—I write to draw the attention of your readers to the constitution of this Commission, which has been appointed under the Home Office: (1) to inquire into the working of the licensing laws; (2) to inquire into "the social and economic aspects of the question"; (3) "to examine and report upon proposals for amending the law in England and Wales." The personnel, as published on September 26th, consists of a lay chairman, seventeen lay men, and three lay women. The *Times* remarks, "Contrary to some expectations, no member of the medical profession has been appointed"; while the *Observer* states, "As the drink problem touches public health at many points, it will be foolish and weak if one medical man and one medical woman are not placed on this Commission." It appears to me that the omission to appoint any scientists is one that, viewed from the following two aspects alone, should not be overlooked by medical bodies.

Trade interests are heavily represented on the Commission, and in any recommendations will doubtless seek to show how the commercial value of England may be increased by this or the other policy; but there is something else at stake, that is man's destiny—the production of progressively perfected men and women. Therefore, firstly, is it to the nation's credit that scientists should be excluded from a body appointed to advise the nation on a question involving an issue of this magnitude?

Secondly, as to the "social aspect," here again we might ask whether, from the point of view of the individual, financial or commercial interests and those to which the medical profession is pledged are always identical. May not the health of the individual be a more important factor in bettering social conditions than the production in, or influx into, the country of greater and greater wealth? However camouflaged the wording of the terms of reference be with regard to it, discussion must hark back to the highly technical question of drug addiction in the individual; and to exclude technicians from any part in formulating advice to the nation under this head would seem to be absurd.—I am, etc.,

Braunton, N. Devon, Oct. 9th. C. A. MORTLOCK-BROWN.

THE HEART IN MODERN PRACTICE.

SIR,—The review of my book *The Heart in Modern Practice*, which appeared in your esteemed *Journal* for June 29th, contains the words "neither failure nor venous congestion appears in the index." On the contrary, the index contains the item "Heart failure, 20, 33, 78, 189, 354," and the subheading "*Relation* to infection, 93." Aside from this, the review is informing and correct. It is my desire, in case a subsequent edition is published, to be given freedom to expand the portions of the text that may be improved thereby.—I am, etc.,

Boston, Mass., Oct 2nd WILLIAM D. REID.

Obituary.

DR. JABEZ DAVENPORT WINDLE, medical officer of health for Southall, Middlesex, who died on October 5th, at the age of 64, received his medical education at Owens College, Manchester, and University College, London. He obtained the diplomas L.R.C.P.I. and L.M.Ed. in 1857, the L.R.C.S. in 1859, and the M.R.C.S.Eng. in 1891. He graduated M.B., Ch.B.Vict. in 1898, and proceeded M.D. in the following year. He was for many years a member of the British Medical Association, and was honorary secretary of the Section of Pharmacology when the Association met in Aberdeen in 1914. A colleague writes: Dr. Windle always seemed to me the ideal scientific general practitioner who combined intense devotion to the science of clinical medicine with the ability to inspire absolute confidence in all his patients. During forty years of exceptionally busy general practice he was at the same time doing original work in the investigation of problems of cardiac irregularity, and published papers on the subject in the *British Medical Journal*. He had a panel practice of 3,000, which he treated single-handed, in addition to a private practice of equal proportion, which included 250 midwifery cases a year. He was also medical officer of health and medical officer of the isolation hospital for a population of 30,000. There were also other appointments which he held, yet he was never without his polygraph, and continued to collect beautiful tracings at all times and seasons. He took up polygraph work at its very beginning, soon after Mackenzie invented it, and accumulated a splendid collection of beautifully selected tracings of all varieties of rare cardiac abnormalities, especially of pulsus alternans. When faced with one of those interesting but baffling problems of diagnosis which arise from time to time, when some hedging, evasive answer might be given by most practitioners to the anxious relatives, he would, to my astonishment, tell them with the utmost frankness that he did not know what was the matter; they were quite satisfied that if he did not know then neither could anybody else. By his very large practice and frugal mode of living he certainly amassed a large fortune during his long years of practice. There were very many people whom he treated for a decade without receiving one payment to any of the bills sent; they could very well have afforded to pay, but he never put them into court or ceased attendance. His whole interest lay in the daily problems of his clinical work, and he was restless if away from it for more than a few days.

Deep regret is felt among a wide circle of friends at the death, on July 7th, in Wellington, New Zealand, of DR. PATRICK MACKIN, who was born at Dunavil, co. Down, Ireland, in 1864, and went to New Zealand in 1882. He began his medical education at Otago University College and the Dunedin Hospital. In 1888 he became a medical student in Glasgow, and gained experience in some of the large hospitals in Scotland and in England. After obtaining in 1891 the diplomas L.R.C.P., L.R.C.S.Ed., L.R.F.P.S. Glas., and L.S.A.Lond., he sailed for New Zealand and started practice in Wellington. In 1894 he returned to Great Britain for further study, graduating M.D.Brussels and obtaining the F.R.C.S.Ed. in the following year; he then went back to Wellington, and became one of the leading practitioners in that city. Travel was one of his chief hobbies; another was the keen desire to keep himself abreast with the latest discoveries in medical science and treatment by periodical trips for refresher courses in Europe. In addition to his professional attainments Dr. Mackin was held in the highest esteem for his many fine qualities of head and heart. He diffused cheerfulness wherever he went, and his natural kindness found active expression in many acts of compassion and generosity. He was a sympathetic and skilled physician, cautious in judgement, and highly esteemed as a clinician of the conservative and safe type. His loss is felt as a personal one by the many patients, rich and poor, who knew and loved him, and much sympathy is extended to his widow.

Among those who attended the funeral of Sir Jenner Verrall on October 7th the name of Dr. E. Rowland Fothergill should have been included.

The Services.

MEMORIAL TO SIR WILLIAM BABTIE.

IN the chapel of the Queen Alexandra Military Hospital at Millbank, on October 9th, a marble tablet was unveiled and dedicated as a memorial to Lieut.-General Sir William Babtie, V.C., K.C.B., who died in 1920. A brief memorial service was conducted by the Chaplain-General to the Forces, the Rev. Dr. A. C. E. Jarvis, and afterwards the memorial was unveiled by Lieut.-General Sir Charles Burtchaell. In performing this ceremony Sir Charles Burtchaell said that William Babtie was an officer of great merit and high ability. He was beloved by all who knew him. His long service in the army was conspicuous for distinguished bravery on the battlefield and constant devotion to the advancement of every phase of the work of the Royal Army Medical Corps and the welfare of the British soldier. In these tasks he never faltered and never failed; as this tablet would for all time testify. The tablet was then dedicated by the Chaplain-General. It recorded the outstanding events of the late General's career in the army, extending over thirty-six years. He was Deputy Director-General of the Army Medical Services, 1910–14, Director of the Medical Services in India, 1914–15, and later Inspector of Medical Services at the War Office. Among those attending the ceremony were Lady Babtie and her daughter, Field-Marshal Sir George Milne (Chief of the Imperial General Staff), General Sir Walter Braithwaite (Adjutant-General to the Forces), Lieut.-General H. B. Fawcus (Director-General of the Army Medical Service), Lieut.-Generals Sir Arthur Sloggett and Sir Matthew Fell (former Directors-General), and Major-General Sir Alfred Blenkinsop. Sir William Babtie at the time of his death was a member of the Council of the British Medical Association and of its Naval and Military Committee.

Colonel H. E. M. Douglas, V.C., C.M.G., D.S.O., late Royal Army Medical Corps, has been selected for promotion to major-general and for the appointment of Deputy Director of Medical Services, Southern Command, India, vice Major-General J. M. Sloane, C.B., C.M.G., D.S.O., who is retiring at his own request.

Brevet Colonel J. S. Bostock, C.B.E., Royal Army Medical Corps, will succeed Colonel Douglas as commandant of the Royal Army Medical College, London.

Medico-Legal.

A SURGEON'S FEE.

IN its issue for July 5th, 1929, the *Surrey Mirror and County Post* reported a meeting of the Reigate Town Council, held on July 1st. The report included the following item, with reference to legal proceedings instituted by Dr. M. W. Baker and his partner, Dr. C. H. Laver of Redhill, for the recovery of professional charges in respect of an emergency operation performed by Dr. Laver five years previously in the corporation's Isolation Hospital at the request of the medical officer.

An Action Settled.

The Finance and General Purposes Committee reported that at their meeting, on June 17th, the town clerk presented a summons in the county court served upon him in connexion with an action brought by Messrs. Baker and Laver against the corporation for the recovery of £21 for performing a mastoid operation on a patient in the Isolation Hospital on May 23rd, 1924, the hearing of the case being fixed for Wednesday, June 26th. The committee recommended that the town clerk be instructed to take all necessary steps for defending the action.

Mr. Spranger proposed that the matter be considered by the council in committee. Mr. Townshend seconded, and this was agreed to. Alderman Malcomson said the case had been adjourned, so that it would come before them again.

The council considered the matter for some time in committee, and on again resuming in open council an amendment was carried to the effect that the town clerk be instructed to pay the amount and the county court costs which had been incurred.

It may be assumed that Drs. Baker and Laver did not begin legal proceedings until they were satisfied that a settlement of their claim could be obtained in no other way. The moral will not, we hope, be lost upon those members of the medical profession who find themselves in like circumstances.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

THE following candidates have been approved at the examination indicated:

D.P.H. [illegible]
Je
Is
L. R. Sharma.

UNIVERSITY OF LONDON.

UNIVERSITY COLLEGE.

A COURSE of forty-nine post-graduate lectures in biochemistry is being delivered on Thursdays and Fridays at 4 p.m. at University College, London; they began on October 17th. The syllabus for the first term includes lectures on the chemical study of the cell in relation to its environment, and the chemistry of the chief components of plant and animal cells. During the second term lectures will deal with the kinetics and dynamics of systems of biological importance, and also with plant synthesis. During the third term lectures will be given on metabolism, the chemical study of growth and reproduction, and physiological action in relation to chemical constitution. The course is free to students of University College who have paid a composition fee in the Faculties of Science and Medical Sciences; the charge to others is 9 guineas for the session, or £3 13s. 6d. for any one of the terms. Application for tickets should be addressed to Mr. C. O. G. Douie, University College, London, W.C.1.

UNIVERSITY OF GLASGOW.

THE following candidates have been approved at the examination indicated:

FINAL M.B., CH.B.—W. B. Adam, D. A. Agnew, D. M. Airlie, Ann T. Allan, J. G. Allardice, Margaret W. Anderson, Margaret C. Barron, N. Beaton, R. Bewick, G. G. Binnie, W. J. Blackley, C. A. Boland, M. C. Brogan, Isobel M. Brown, W. S. Burnet, G. F. A. Caldwell, D. A. Cameron, I. M. Christie, *R. Cochran, R. Cole, E. C. R. Couper, Eileen G. Craig, J. W. Crawford, R. S. Dewar, R. B. Douglas, J. Emerson, *J. N. M. Fairley, J. C. Ferguson, *C. M. Fleming, L. Fletcher, A. Fyfe, R. Gardiner, W. Gilmour, H. G. Grace, I. P. Granger, A. Gray, J. M. Grieve, S. Guyer, J. W. Hamilton, G. T. A. Hastings, C. Hicks, A. T. Hill, J. R. Hunter, J. G. Jamieson, [illegible] M'Dougall, MacKillop, MacLean, M'Millan, [illegible] Pahwa, T. Reilly, Robertson, . Stewart, [illegible] Temple, e, W. J. W.

* Distinction in surgery.
† Distinction in midwifery.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

A QUARTERLY Council meeting of the Royal College of Surgeons was held on October 10th, when the President, Lord Moynihan, was in the chair.

The annual report of the Council, to be presented to the Fellows and Members at the annual meeting on Thursday, November 21st, was approved and adopted.

Mr. Hugh Lett was appointed a member of the Committee of Management of the Conjoint Examining Board in the vacancy occasioned by the retirement in rotation of Mr. G. E. Gask.

Primary Fellowship Examination.

A letter of August 10th last from Dr. T. C. Routley, general secretary of the Canadian Medical Association, was read, reporting that of the 37 candidates who had applied for admission to the Primary Examination in Anatomy and Physiology for the F.R.C.S.Eng., held at Toronto from August 6th to 10th, 23 ultimately paid their fees and sat for the examination. The following 9 candidates were approved:

J. H. Beasley, J. M. Bruner, G. A. Fleet, F. L. Horsfall, H. D. Isaacs, R. Marnham, H. J. Muth, L. R. Olver, V. N. Shirodkar.

It is proposed to hold another Primary Examination for the F.R.C.S. at Montreal next year.

Membership.

Diplomas of Membership were granted to the following 6 candidates, who had now complied with the by-laws:

C. S. Kah, D. Sheehan, P. D. B. Spence, F. R. Stansfield, E. H. Parkinson, T. J. Millin.

Licence in Dental Surgery.

On the recommendation of the Board of Examiners in Dental Surgery it was decided that, after July, 1930, candidates for the Licence in Dental Surgery be required to pass in Part II of the Pre-medical examination in Elementary Biology, as required of candidates for the L.R.C.P., M.R.C.S. It was also decided that, while not more than two terms' work in dental mechanics might be recognized before Part II of the pre-medical examination was passed, no instruction in anatomy and physiology should be

recognized before the pre-medical examination had been completed—that is, chemistry, physics, and biology.

The University of Cairo (dental department) was added to the list of recognized dental schools at which the curriculum for the Licence in Dental Surgery may be taken.

Gifts.

The President reported that he had received a cheque for £10,000 from the Public Trustee in respect of the legacy bequeathed to the College by Mrs. Eliza Macloghlin for scholarships for medical students, to be founded in memory of her husband, the late Mr. Edward P. P. Macloghlin, M.R.C.S. A committee was appointed to make such modifications in the original scheme for the administration of the trust drawn up in January, 1905, as may be necessary, and to take the necessary steps to put it into operation. The President reported also that Lord Melchett had offered £500 a year for seven years for a research scholarship at the Royal College of Surgeons. The President was requested to convey to Lord Melchett the Council's appreciation of his liberality and their grateful acceptance of his offer.

The Council accepted with thanks a copy of the Hon. John Collier's portrait of Charles Darwin, presented by Mr. Arthur Jaffé.

TESTIMONIAL TO SIR RONALD ROSS.

SIXTH LIST OF CONTRIBUTORS.

WE now print a further list of those whose donations, amounting to £820 16s. 5d., were received between August 11th and September 12th, in response to the appeal on behalf of the Ross Award Fund published in our issue of May 11th. The total amount in hand on September 12th was £9,768, including bank interest and upwards of £3,285 received from Singapore through the *Straits Times*, and £75 from the *Malayan Daily Express* Fund, Kuala Lumpur. The list published below does not include anonymous contributors or those whose initials only have been supplied. Donations should be sent to Lloyds Bank, Ltd., 110, High Street, Putney, S.W.15.

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Sir Alfred Yarrow, Mr. R. W. Yule.

Medical News.

THE annual dinner of the Royal Society of Medicine will be held at the May Fair Hotel, Berkeley Square, W.1, on Thursday, November 21st, at 7.30 for 8 p.m. The Prime Minister, the Minister of Health, and the French Ambassador have consented to be the society's guests of honour.

THE annual dinner of the Chelsea Clinical Society will be held at the Hotel Rembrandt, Thurloe Place, S.W.7, on Tuesday, October 22nd, at 7.30 for 8 p.m. The programme of the forthcoming session includes the following subjects for debate: treatment of climacteric disorders in women; the the present position and possibilities of physical treatment; sweating; defaecation; micturition; coughing; sleep. These discussions will take place respectively on November 19th, December 17th, January 21st, February 18th, March 18th, April 15th, and May 20th, at the Hotel Rembrandt, and will each be preceded by an informal dinner at 7.30 p.m.

ON November 1st the People's League of Health will commence a series of lectures on "Racial and Individual Welfare," to be given on seven consecutive Fridays in the lecture room of the Medical Society of London, Chandos Street, Cavendish Square, W.1, at 6 p.m. The lecturers include Sir Thomas Oliver, Dr. A. F. Tredgold, and Mr. Harold Cox. Tickets can be obtained from the headquarters of the league, 12, Stratford Place, W.1.

AT the meeting of the Medico-Legal Society to be held at 11, Chandos Street, W.1, on Thursday, October 24th, at 8.30 p.m., Lord Riddell will deliver his presidential address on ancient laws and modern women. Members of the Medico-Legal Society are invited by the Hunterian Society to attend a discussion on the doctor and the motorist to be held in The Cutlers' Hall, Warwick Lane, E.C., on Monday, November 18th, at 9 p.m.

TWO Chadwick Lectures on "The Histological Basis of Health" will be given by Professor J. Boeke of Utrecht University at 5.15 p.m., in the British Medical Association House, Tavistock Square, W.C. The subject of the first, on Tuesday, October 29th, at which Sir William J. Collins will preside, is "The tissues in youth and age," and that of the second, on Friday, November 1st, with Sir James Crichton-Browne in the chair, is "The nervous system in relation to health." Another Chadwick Lecture, on Friday, November 22nd, at 8.15 p.m., at the House of the Royal Society of Arts, John Street, Adelphi, will be given by Professor A. E. Boycott on "The causes of cancer." Admission to these lectures is free, without ticket.

INCLUDED in the programme of the Child Study Society, London, are the following lectures, which will be delivered at the Royal Sanitary Institute, 90, Buckingham Palace Road, S.W.1, on Thursdays, October 24th and 31st, and November 14th, at 6 p.m.: Co-education, by the Rev. Cecil Grant; the use of books in the school and home, by Mr. H. C. Dent; and the child and the cinema, by Lady Cowan.

THE Fellowship of Medicine announces that the following lectures will be given at the House of the Medical Society of London, 11, Chandos Street, Cavendish Square: on Monday, October 21st, at 5 p.m., Mr. H. W. Carson will speak on indigestion from the surgeon's standpoint; on Tuesday evening, October 22nd, at 8.30, Dr. L. S. T. Burrell will deal with intrathoracic tumours; and on Friday evening, October 25th, at 8.30, Dr. Burrell will lecture on bronchiectasis, abscess of the lung, and empyema. The last two lectures are part of a series suitable for M.R.C.P. candidates, and the fees are payable at the lecture room. A demonstration of cases in the wards will be given by Dr. Ernest Fletcher, at the Royal Chest Hospital, City Road, on Tuesday, October 22nd, at 2 o'clock; a surgical demonstration will be given by Mr. Herbert Paterson at the London Temperance Hospital, Hampstead Road, on Thursday, October 24th, at 2 p.m.; these demonstrations are free to medical practitioners. A special post-graduate course in medicine, surgery, and the special branches will be given at the Metropolitan Hospital, Kingsland Road, from October 21st to November 2nd; the course will occupy each day from 10.30 to 5.30, with special demonstrations and lectures, operations, and clinical work. Lunch will be provided at the hospital at a small charge. The subjects of courses to be held in November include: ante-natal work (four Fridays at 5 p.m.); medicine, surgery, and gynaecology (daily for three weeks); venereal disease (every afternoon for four weeks); neurology (daily at 5 p.m. for one month); proctology (all day for one week); and orthopaedics (all day for two weeks). Copies of all syllabuses and tickets of admission may be obtained from the secretary of the Fellowship, 1, Wimpole Street, W.1.

THE following course of lecture-demonstrations will take place at the St. James' Hospital, Ouseley Road, Balham, S.W., under the auspices of the South-West London Post-

Graduate Association: October 24th, the nervous child, Dr. Hector C. Cameron; November 1st, skin diseases common to animals and man, Dr. W. J. O'Donovan; November 6th, radium therapy, Mr. V. Zachary Cope; November 13th, demonstration of cases, Dr. Charles E. Lakin; November 20th, contraception technique, Dr. Norman Haire; November 27th, the ophthalmoscope in general practice, Mr. Maurice Whiting; December 3rd, disorders of the menopause, Mr. Leonard E. Phillips; December 11th, modern methods of diagnosis of rectal diseases, Mr. E. T. C. Milligan. Each lecture-demonstration will begin at 4 p.m. Particulars as to membership, etc., may be had from the honorary secretary, Dr. R. J. Saunders, 10, Lyford Road, Wandsworth Common, S.W.18.

THE Right Hon. Christopher Addison, M.D., Parliamentary Secretary to the Ministry of Agriculture, will, it is understood, be the chairman of the body to be set up by the Government to inquire into the fishing industry in Great Britain.

THE Minister of Health has appointed Mr. R. J. Simpson to be an Assistant Secretary of the Ministry.

THE Society of Apothecaries celebrated Master's Day on October 4th with a service at St. Andrew's-by-the-Wardrobe, followed by the usual Master's dinner at the Apothecaries' Hall. Special interest was lent to this occasion by the fact that for the first time for many years the outgoing Master, Lieut.-Colonel C. T. Samman, in recognition of his services to the society, was placed in office for a second term.

DR. W. ALLEN DALEY, the medical officer of health for Hull, on leaving Hull to become a principal medical officer of the London County Council, has been presented by the members of the staffs of the Health, Maternity and Child Welfare, and School Medical Departments of the corporation, and of the Hull and Goole Port Sanitary Authority with a grandfather clock. Dr. Daley also received silver cigarette boxes from the chief officials of the corporation, and an expanding book support from the motor car watchers employed under the scheme inaugurated by him for the assistance of ex-sanatorium patients.

A LARGE number of members and guests of the Surgical Instrument Makers' Association attended the annual dinner at the Holborn Restaurant on October 11th. The president of the association, Mr. Patrick C. Maw, of Messrs. S. Maw, Son and Sons, Ltd., was in the chair, and the principal guest was Mr. Charles Goulden, F.R.C.S. Mr. L. Ferris-Scott, Financial Secretary and Business Manager of the British Medical Association, who was to have been one of the guests, was unable to be present. The toast of "The Association" was proposed by Mr. H. E. Curtis, J.P., and supported by Mr. A. W. Down, a former president, who remarked that the one great object of the association was to maintain the high character of the work turned out by the manufacturers of this country. Although foreign competition could not always be fought successfully in the matter of price, it could always be met in the matter of quality. The association had been very active in its endeavours to get an order for all foreign instruments to be marked on importation, so that surgeons might know where they had been made. The Merchandise Marks Act Committee in their report appeared to be convinced of the soundness of the manufacturers' case, but to feel that this was rather a small trade in volume, and that marking would impose difficulties upon the excise officers. All that the manufacturers had been able to obtain from the committee was a recommendation that instruments should be marked on sale. In thanking the association for its hospitality, Mr. Goulden remarked on the opportunity he had at that dinner of meeting many whose names had been familiar to him for years in connexion with the instruments he commonly employed. The names of some firms of instrument makers were household words in the medical profession, and it was a great pleasure to see their living representatives.

THE Minister of Health and the Minister of Transport received a deputation, on October 15th, from the London County Council upon the question of the proposed Battersea Power Station. The deputation was introduced by the chairman of [illegible] Bretton. Dr. Barrie Lambert, chairman [illegible] Committee, set out the views of the council on the erection of the station, and drew attention to resolutions passed by the council, indicating that in its opinion every possible endeavour should be made to secure that the most efficient measures were adopted to prevent any nuisance or menace to health, particularly from the emission of sulphur fumes, and that the efficacy of the measures should be thoroughly tested in actual working over a sufficient period before any further new electricity stations or enlargements of such stations in London were authorized. The Minister of Health and the Minister of Transport, while indicating in their replies that they could not be indifferent to electrical needs, stated that the Government would certainly insist upon everything practicable being done for the protection of the public.

THE Colyer Prize was founded by the Section of Odontology of the Royal Society of Medicine in June, 1926, to commemorate the twenty-five years' service of Sir Frank Colyer as honorary curator of the Odontological Museum. The accumulated income of this fund may be used every third year for the purpose of awarding a prize for the best original work in dental science completed during the previous five years by a dental surgeon educated at any recognized dental school in Great Britain or Northern Ireland who has not been qualified to practise more than five years at the date of the award. Applications from candidates for the first award should be submitted not later than March 31st, 1932, together with a general account of their researches, both completed and in progress. A document declaratory of the award will be presented with the prize, the value of which is about £35. If no work of sufficient merit is submitted the prize will not be awarded.

A CONFERENCE on maternal mortality will be held on Tuesday afternoon, October 22nd, at 2.30, in the Central Hall, Westminster. A report on its work will be presented by the Maternal Mortality Committee, and consideration will be given to the report of the Departmental Committee on the Training and Employment of Midwives. The speakers will include the Minister of Health and Lady Barrett.

THE council of the Midwives' Institute has issued a statement welcoming the report of the Departmental Committee on the Training of Midwives, in so far as it recommends schemes for making available, for all mothers, skilled attention and nursing care at the time of childbirth. While recognizing that many of the recommendations of organized midwives have been accepted by the committee, the council views with strong disapproval the suggestion that the control of the training and curriculum for midwives should be taken over by a Government department, thus eliminating the principle of self-government and self-development that is accorded to all other professions. It considers that the withdrawal of control from a specialized body on which organized midwives have definite representation and powers, would lower the standard of the profession and lessen its attraction for the most suitable women to undertake the responsible part in the struggle against maternal mortality assigned to midwives by the departmental committee.

ON October 4th, at a well-attended meeting of medical practitioners in the county of West Lothian, Dr. John Keay was presented with a fine mahogany bureau as a token of affection for himself and in appreciation of his services to the profession as chairman of the local panel and medical committees during the past seventeen years.

UNDER the auspices of the Industrial Health Research Board a report entitled *A Study of Personal Qualities in Accident Proneness and Proficiency*, by Messrs. Eric Farmer and E. G. Chambers, has been published by H.M. Stationery Office, price 3s. net. The authors, who previously conducted a research into the personal factors involved in the causation of accidents in six groups of workers (see *Journal*, 1926, vol. ii, p. 1132), have now investigated the conditions in respect of 1,800 apprentices in the workshops of certain Naval and Royal Air Force establishments. They conclude that industrial proficiency with proneness to accidents depends on many dominant factors, and not upon one only; the tests on which the estimation is based, while applicable to some of these factors, do not necessarily measure the most important of them. The authors believe, however, that even at the present stage the general use of certain of the tests described would result in the selection of entrants more capable of benefiting by instruction and less liable to accidents.

THE seventy-sixth meeting of the Swiss Society of Psychiatry will be held at Basle, in conjunction with the Association of Psychiatrists of South-West Germany, on October 26th and 27th, when there will be a discussion on the primary and secondary symptoms of schizophrenia, introduced by Professors E. Bleuler of Zürich and Mayer-Gross of Heidelberg.

THE thirty-fifth congress of the Italian Society of Internal Medicine will be held at Genoa from October 23rd to 26th, when [illegible] ts will be discussed: haemolytic [illegible] by Professor Ferdinando Micheli; [illegible] of the respiratory system, introduced by Professors Giovanni Boeri and Iginio Jacono; spontaneous gangrene of the limbs with special reference to endarteritis obliterans, introduced by Professors Guglielmo Scala and A. Ciminata; chronic lesions of the respiratory tract and military service, introduced by Lieut.-Colonel Gino di Logu. The secretary is Dr. Michele Manara, R. Clinica Medica, Via Balilla 5, Genoa.

AT the close of the recent congress of French-speaking dermatologists and syphiligraphers the presidents, Dr. Sabouraud, was presented with a medal by his friends and pupils.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to ***The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.***

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

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All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

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The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone 24361 Edinburgh).

QUERIES AND ANSWERS.

Treatment of Glandular Deficiency in a Child.

DR. L. S. WOOLF (London, N.W.) wishes to hear of a school in the country for a child suffering from a slight degree of glandular deficiency, where she would have good medical treatment and also plenty of fresh air while being taught the ordinary school subjects.

Fleas.

"W. G. H." writes: I should be very grateful if some reader of the *British Medical Journal* could suggest a satisfactory method of protection against fleas. In a working-class practice I frequently pick these parasites up and carry them home. One member of my household is hypersensitive to their bites. They form vesicles and afterwards running sores, which do not heal for some days.

Hot Feet at Night.

DR. F. LILLEY (Weston-super-Mare) invites suggestions for the relief of feet becoming so uncomfortably warm about two hours after going to bed that they have to be kept outside the bedclothes for the remainder of the night, thus preventing sleep. The rest of the body is quite normal. His patient is about 60 years old, and is otherwise quite healthy.

Treatment of Chilblains.

DR. C. DE Z. MARSHALL (*Hampton, Middlesex*) *writes*: I have found that potassium citrate will rapidly cure most cases of chilblains, and the worst cases are markedly alleviated and eventually cured. Pot. citr., sod. bicarb., āā gr. x, with inf. gent. co., t.d.s., a.c., is the mixture I have been in the habit of giving, and I have heard of no failures. Mild cases are cured in three days. I shall be glad to hear the experiences of others.

Income Tax.

Capital or Revenue Expense.

"J. E. P." formerly garaged the car used professionally at a cost of 10s. per week, but has now erected a garage at a cost of £90, thus saving the future expense of outside garaging. The inspector states that, though the 10s. per week was allowable, the outlay of £90 cannot be allowed.

*** That is correct. The £90 represents an expenditure of capital—that is, an outlay for *future* benefit, and under the Income Tax Acts cannot be deducted in calculating the liability.

Cessation of Employment.

"MARTHA" was superannuated from July 15th, 1929, with a pension of £150 a year, and has been informed that for the financial year ending April 5th, 1930, he will be assessed on the amount of his income for the year to April 5th, 1929.

*** This is incorrect. Section 45 (5) of the Finance Act, 1927, provides that "where in any year of assessment a person ceases to hold an office or employment . . . tax shall be charged for that year on the amount of his emoluments for the period beginning on the 6th day of April in that year and ending on the date of the cessation." The effect of this is that for the year ending April 5th, 1930, our correspondent will be chargeable, so far as his emoluments and pension are concerned, on the amount of his income for that year.

Visit to the United Kingdom.

"B. V. C." arrived in this country from abroad on May 19th, 1929, for a holiday till March 15th, 1930. Is he liable to income tax?

*** If he spends six months in the United Kingdom during the year ended April 5th, 1930, he will be liable to account for tax on the amount of his foreign income—less the usual personal allowances, children allowances, etc. If, therefore, it is necessary for "B. V. C." to avoid that liability, he can do so—as he suggests—*by spending part of his holiday outside the United Kingdom*, but "three weeks or a month" will not be enough; he will have to spend a period of nearly five months in that manner.

LETTERS, NOTES, ETC.

Disclaimer.

ON October 2nd a London daily newspaper published an alleged interview between one of its reporters and a Dr. F. C. Keith, described as borough medical officer for Bethnal Green. Dr. F. C. Keith, formerly medical officer of health for Bethnal Green and now medical officer of health for Deptford, informs us that the alleged interview did not take place with him, and that he has addressed a disclaimer to the editor of the newspaper in question.

A Word to the Wise.

DR. H. I. DAVIES (London, W.2) writes: For the benefit of my colleagues I should like to call attention to the fact that there is abroad in London an individual whose symptoms and signs are interesting enough to engage attention, but whose bank account appears to be non-existent. She is about 40, short, plump, and dark, with blue eyes and a slight moustache; her history is one of mastoid disease and a severe intracranial operation on the right side, and the signs bear this out, showing in addition a hysterical hemiparesis and hemianaesthesia on the right. Apart from interest in an unusual case, practitioners would be wise not to waste their time or risk their money upon her.

Medical Golf.

THE autumn meeting of the Medical Golfing Society was held at Deal on the Royal Cinque Ports golf course on October 12th and 13th. The weather was delightful and the course in grand order, both greatly enjoyed by over 70 members. The selling sweep dinner was held at the South-Eastern Hotel, where nearly all the members stayed. The competition results were as follows:

Singles v. Bogey.—Cland Apperley, 2 up, after a fourfold tie with Sir Milsom Rees, G. F. Wilson, and J. Pringle.

Foursomes v. Bogey.—J. Pringle and J. Collins, all square.

Canny Ryall Cup.—C. V. Mackay, 84 − 12 = 72; A. Galletly, 75; D. A. Davies and C. Max Page, 77.

THE autumn meeting of the Shropshire Medical Golf Association was held at the Wrekin Golf Club on Sunday, October 13th. The competitions were: Morning, eighteen holes medal play for the captain's prize, presented by Dr. Aubrey Ireland (Shrewsbury). This was won by Dr. G. D. Wedd, with the fine net score of 68.

G. D. Wedd, 85−17=68; W. R. Pooler, 84−15=69; H. G. Beckett, 80−10=70; T. R. Elliott, 79−6=73; J. Lavelle, 85−12=73; A. Mackenzie, 82−8=74; D. Max, 89−14=75.

In the afternoon the foursomes v. bogey was won by Dr. Wedd and Dr. Harker, 2 down; Dr. Ireland and Dr. Elliott were 3 down; Dr. Mackenzie and Dr. Lavelle, 4 down; and Dr. Richardson and Dr. Beckett, 5 down. Dr. Ireland presented the prizes, and Dr. Clarke (Newtown) was elected captain for the ensuing year, and Dr. T. R. Elliott honorary secretary. The next meeting was fixed for the last Sunday in May, 1930, at Church Stretton.

Precautions against Skidding.

THE SECRETARY of the Automobile Association writes: After an abnormally fine summer it is highly probable that there will be many drivers of motors with but limited experience in guarding against skidding. The following hints, suggested by the A. A., may be of use now that wet weather has set in: (1) Carefully examine tyres and, if necessary, get new ones, so as to obtain the full benefit of the antiskid tread. (2) The brakes should be thoroughly overhauled and balanced. (3) When driving on greasy or wet roads set a moderate pace, and avoid violent swerving or braking, and sharp cornering. (4) Allow a longer distance in which to pull up. (5) Be specially careful on roads with a steep camber or slope. (6) Some forms of road surface are more slippery than others; be careful when passing from one to another. (7) Tree-shaded roads often have a very treacherous surface of rotting leaves in the gutters. (8) If inexperienced in how to correct a skid, take some lessons from an expert. (9) Avoid "cutting-in" or "cutting-out," and be very careful, especially with motor cycles, when crossing tram lines. (10) Give more road space to cyclists, and avoid forcing them towards steep gutters.

Vacancies.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 54, 56, 57, 60, 61, 62, 63, and 64 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 58, 59, and 60.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 179.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

327. Diabetic Endarteritis.

L. LETULLE, M. LABBÉ, and J. HEITZ (*Arch. des Mal. du Coeur*, uly, 1929, p. 449) introduce some pathological studies of a ase of diabetic endarteritis by reference to its previously stablished features. This disease affects principally the ıost peripheral vessels and is unattended by much throm-ıosis, the obliteration of the lumen being due entirely to ıtimal proliferation. The latter shows infiltration with holesterin and sometimes hyaline degeneration. In the nedia there is degeneration with diffuse or local calcifica-ion, while the adventitial tissues show little or no change. The formation of new arterial and venous channels to take he place of the obliterated vessel has been observed to occur n the media, and sometimes in the intima, as a sequel to nflammatory processes. Such new channels are so rare in ırterial disease of diabetic origin that the authors have given ı full description of the clinical and pathological changes bserved in their patient. A woman, aged 60, after suffering or fifteen years with diabetes, was found to have gangrene of the foot, which subsequently necessitated amputation. Microscopical examination of the arteries showed that although the femoral, anterior tibial, and dorsalis pedis were affected in varying degree, the posterior tibial had suffered most. In the proximal part of this vessel, although the lumen was not quite obliterated, spaces lined with endothelium and filled with blood were seen in the deeper layers of the intima. Lower down none of the natural lumen remained; small, newly formed venules were observed as in the more proximal parts of the vessel, but in addition a new formation of arteries had occurred in the substance of the proliferated intima. These minute vessels possessed elastic layers and muscle fibres with well-marked nuclei, in addition to an endothelial lining. The authors attribute the rarity of these appearances to the lack of reconstructive power in a tissue the seat of advanced degenerative changes.

328. Diabetes Mellitus and Arterio-sclerosis.

K. W. ANDERSON (*Minnesota Med.*, August, 1929, p. 484) comments on the increasing interest in the question of the interrelationship of diseases of metabolism and those of the degenerative type, particularly in connexion with arterio-sclerosis and diabetes. Clinically, it is often difficult to distinguish cause from effect, particularly in the older diabetics, in whom the commencement of diabetes appears to coincide closely with the age of the onset of arterio-sclerosis. Anderson reports the case of a man, aged 33, in whom diabetes mellitus preceded by ten years the symptoms of degenerative disease. The patient at the age of 19 began to suffer from intractable boils and carbuncles; these persisted for three years, when glycosuria was discovered and a diagnosis of diabetes mellitus was made. Dieting without insulin controlled the disease. At the age of 26 he contracted syphilis and received energetic treatment for two years, when he had to cease work on account of debility; he could not then live on his regular diet. He was admitted to hospital and treated with insulin and dieting. On discharge the urine contained neither sugar, diacetic acid, nor acetone. Two years later he noticed slight oedema of ankles, and after some months was again obliged to stop working. The urine then contained 8 per cent. sugar, many hyaline casts and erythrocytes, occasional leucocytes, and acetone, but no diacetic acid. The Wassermann reaction was negative. The glycosuria disappeared with dieting, but progressive cardiac failure terminated fatally a month after readmission, in spite of the exhibition of diuretics and digitalis. The heart was very dilated and there was evidence of generalized arterio-sclerosis, especially in the retinal and coronary arteries. This patient had diabetes for fourteen years, but it became less severe with advancing age, although the arterio-sclerosis progressed rapidly during the three years that elapsed between the first and second admissions to hospital. Anderson quotes Joslin's observation that diabetics age prematurely, as is shown by increased arterio-sclerosis. Other authors have recorded arterio-sclerosis revealed by skiagrams in 63 per cent. of diabetics above the age of 40, while in 121 non-diabetic patients of similar ages only 28 per cent. showed arterio-sclerosis. Another writer has reported that arterio-sclerosis is more severe and frequent in diabetics than in non-diabetics of the same age-group. Aortic sclerosis was always present in diabetics over 50 years of age. Anderson does not think that syphilis was an important factor in this case; but many writers have assumed that the heavy metals used in antisyphilitic treatment predisposed to premature arterio-sclerosis. One interesting observation made was that the pancreas in this case appeared to be normal, and the arteries did not show any extensive changes.

329. Bronchial Asthma.

DISCUSSING the pathogeny and treatment of bronchial asthma and its anaphylactic nature, HAIBE (*Rev. de Méd.*, 1929, No. 6, p. 623) maintains that, contrary to the old conceptions, the bronchitis is now considered to be the cause, not the result, of the asthma, and that at its onset the latter disease reveals a pulmonary lesion, often insidious, and apparent only by *x*-ray examination. This lesion, termed by Besançon and Dejong the "pulmonary thorn," dominates the whole pathology of bronchial asthma, and many diseases predispose to its causation, such as rhinitis, rhino-tracheitis, coryza, and tracheitis. While tuberculosis and syphilis are rarely responsible for true asthma, in numerous cases the pulmonary lesion is of bacterial origin and terminates in asthma in subjects capable of being sensitized to the corresponding toxins. Streptococci, particularly of the haemolytic type, and staphylococci are the most frequent causal factors of the rhino-tracheo-bronchitis, and their proteins sensitize predisposed persons. In treating these cases Haibe recommends the use of autogenous vaccines, the dosage of which is governed by the degree of the reactions produced. Owing to local reactions, and in order to avoid a local refractory condition, it is advisable to utilize a fresh site for each injection. Better results are obtained by first injecting into the pre-thoracic region, then into the interscapular space, and finally into the limbs. As an adjunct in cases complicated by rhino-pharyngitis, antivirus therapy is advised, the filtrates being prepared according to Besredka's method. This is instilled into each nostril three or four times daily. Since asthma is essentially a recurring disease, vaccine treatments should be given before autumn and at the beginning of spring in order to prevent recurrences. Haibe claims to have obtained cures in 90 to 95 per cent. of cases in children, adolescents, and adults with a recent infection; in old cases cure results in only 40 to 45 per cent. K. D. FIGLEY (*Amer. Journ. Med. Sci.*, September, 1929, p. 338) reports four cases of asthma due to may-flies; the disease had been caused by the inhalation of minute particles of the shed pellicle of these insects. One patient was successfully treated with an extract of dried may-flies. It is thought possible that these widely distributed insects may be sensitizing agents.

330. Post-vaccinal or Vaccinal Encephalitis.

A. NETTER (*Bull. de l'Acad. de Méd.*, July, 1929, p. 30) reviews the literature and states that he has collected twenty-one French cases of encephalitis following vaccination, the first of which were published in October and November, 1926, and May, 1927, by Comby, Huber, and Dénechau. He favours the substitution of the term "vaccinal" for "post-vaccinal" encephalitis on the following grounds: (1) Calmette and Guérin found the virus in the nerve centres of vaccinated rabbits; (2) A. Marie, followed by Levaditi and his collaborators, showed the possibility of producing a vaccinal encephalitis in the rabbit; (3) in a case recorded by Fracassi and Cuestas a generalized vaccinal eruption was associated with encephalitis. This view, which was advanced by Netter in 1925 and accepted by Leiner in 1926 and Jorge in 1927, was rejected by the Dutch physicians as well as by the Andrewes and Rolleston Committees and the League of Nations Committee, owing to the negative results obtained by Levaditi, Biji, and Kraus. Netter, however, maintains that the positive results are of much greater value than the negative results, which may be explained by rapid disappearance of the virus from the brain by a process of auto-sterilization. In conclusion, Netter emphasizes the extreme rarity of encephalitis when the number of uncomplicated cases of vaccinations are taken into account, and urges that their occurrence should not contraindicate the performance of such an effective safeguard against small-pox.

331. Lederer's Anaemia.

T. CHRISTIANSEN (*Acta Med. Scand.*, August 21st, 1929, p. 472) discusses a form of haemolytic anaemia which was first described by Lederer. It is an acute, probably toxic, anaemia manifesting a megaloblastic blood cell regeneration and a raised colour index. Unlike pernicious anaemia, there is a high leucocyte count which may be over 50,000 per c.mm., and the polymorphonuclear leucocyte percentage

may be over 80, many being young cells; myelocytes are commonly present. The illness has an acute onset with fever and slight icterus; there is a rapid fall in the haemoglobin percentage and red cell count. The red cells are said to be normal in shape and size; megaloblasts and enormous numbers of normoblasts (up to 3,000 per c.mm.) have been noted. The condition is not associated with glossitis, achylia, or nervous symptoms. Transfusion gives immediate relief, and the patient makes a complete recovery. Apparently only five cases have been recorded. One of these was treated by Christiansen with liver. Before the treatment was started a spontaneous increase in the reticulocytes occurred, suggesting the onset of a remission. Liver diet had no influence on the percentage of these cells, and there was no reaction fall in their number; the red cells were unaffected, though the *haemoglobin percentage was raised. A normal red cell count* was only re-established after the liver treatment had been discontinued for a long time.

332. Pemphigoid Varicella.

P. GAUTIER and A. THEVENOT (*Rev. Franç. de Péd.*, June, 1929, p. 363), who record an illustrative case in a boy, aged 2 years, who recovered, remark that the existence of a pemphigoid or bulbous form of varicella was disputed by Leredoullet and David and their pupil Lebis in 1927, on the ground that the cases hitherto published were either examples of simple pemphigus or cases of pemphigus accidentally associated with varicella. The present case, however, was not an example of epidemic pemphigus or of pemphigus associated with varicella, but was a classical instance of the pemphigoid form of varicella, in which the lesions, which were at first typical of varicella, subsequently assumed a *pemphigoid appearance. Moreover, the authors add, if the* case had been one of pemphigus only the patient would undoubtedly have contracted varicella from the other patients in the ward, where he remained more than a month. Pemphigoid varicella does not appear to be due to secondary infection of the vesicles, since repeated cultures of the serum of the bullae always remained sterile; nor is it caused by an enhanced virulence of the causal organism of varicella, since a pemphigoid varicella may give rise to an ordinary attack, as in the present case, in which the pemphigoid patient infected his brother, who had an ordinary attack of varicella. On the other hand, the authors hold that the supposed epidemics of pemphigoid varicella were probably epidemics of pemphigus.

Surgery.

333. Ligation in Thrombo-Angiitis Obliterans.

G. W. VAN GORDER (*Annals of Surgery*, July, 1929, p. 88) reviews nine cases of thrombo-angiitis obliterans in which high ligation of the main vein of the extremity was employed with good results. This disease of the blood vessels is one in which arterial occlusion predominates, and in cases of thrombo-angiitis obliterans the collateral circulation is the most promising key to the solution of gangrene prevention. *Of the nine cases under review, in five the femoral vein was* tied at the apex of Scarpa's triangle, and in the same number of cases the external iliac vein was ligatured just distal to the bifurcation of the common iliac. In two instances obliterated femoral arteries were also cut; in one of these ligation of the left basilic and brachial veins was performed, and in the other the saphenous vein was tied, together with the femoral vein. Three of the first five cases definitely improved; there was cessation of the gangrene, but slight residual pain in one, *and failure to relieve* symptoms in one. In the five cases with external iliac vein ligations, there was disappearance of pain and cessation of gangrene in three, relief from pain but not from gangrene in one, and no improvement in the fifth until the tip of a gangrenous toe was removed. The two cases in which section of the obliterated femoral artery was performed in addition to vein ligation to relieve pain were failures, as was also the case in which the saphenous vein was tied together with the femoral vessels. Ligation of the basilic and brachial veins was successful in one case. Thus, of nine cases treated by high ligation of the vein, there was marked improvement in six, some improvement in two, and no improvement in one; this suggests that if the disease is arrested even temporarily by this method of treatment, the most reasonable explanation is on the basis of an improved collateral circulation. High ligation of the main vein offers a marked resistance to the outflow of blood and an increased venous and capillary pressure, which directs a greater volume of *collateral blood* from the normal arteries of the limb into anastomosing channels that will eventually reach the distant capillary bed. It is concluded that the procedure is of definite value in giving relief from pain, in combating impending or advancing gangrene, and in postponing or obviating high amputation.

334. Bilateral Renal Calculi.

C. BORETTI (*Urol. and Cut. Rev.*, July, 1929, p. 460), who records eighteen personal cases, of which only five were fatal, states that of 300 operations for renal and ureteral lithiasis by Professor Lasio at the Ospedale Maggiore, Milan, 16 per cent. were for bilateral calculi. Such cases are more frequent in men (66.67 per cent.). The earlier the diagnosis the better the prognosis will be, deaths being usually due to an exacerbation of pre existing uraemic conditions in patients who have come under treatment too late. The diagnosis must be founded on radiography and sometimes pyelography. The functional condition of the kidneys must be determined separately and conjointly by bilateral catheterization, Ambard's constant, and the phenolsulphonephthalein test. As bilateral renal surgery must be ultra-conservative, Boretti recommends pyelolithotomy, by which all kinds of stones can be extracted from the pelvis and also from the calyces. Where, however, there are several small stones situated in the calyces or in the parenchyma they should be removed by small and, if necessary, multiple incisions, guided by an exploratory needle. It is always best to begin with the kidney which functions best. Nephrectomy is an operation which should seldom be performed. Permanent nephrostomy *should be preferred when one is not sure about the efficiency* of the other kidney.

335. Pyrexia in Malignant Disease.

G. TIZIANELLO (*Il Policlinico*, Sez. Med., September 1st, 1929, p. 452) remarks that the pathogenesis of fever occurring in connexion with new growths has long been the object of discussion, having first been described by Wunderlich; no *adequate explanation, however, of it has yet been offered.* During the period 1921–26 118 cases of various tumours were treated in the medical department of the Civil Hospital of Venice, their distribution being as follows: digestive system 85; brain 13; larynx, mediastinum, lungs, and pleurae 8; urogenital system 8; glandular and osseous systems 2 each. Of the 118 cases, 43 were accompanied by fever and 75 were always apyrexial. Communication with the exterior does not appear to be an important factor in the development of fever, since the proportion of febrile cases was not higher in the case of the digestive system (36.47 per cent.) or the urogenital system (12.50 per cent.) than in the case of cerebral tumours (12.50 per cent.). This fact, therefore, controverts the view that neoplastic fever is due to secondary infection. Moreover, the tumours are completely shut off, and are capable of themselves of giving rise to fever. Of 17 cases examined histologically by Tizianello, 8 were accompanied by fever; 2 of these were examples of epithelioma, 4 of adenocarcinoma, and 2 of endothelioma. No relation was discovered between the existence of fever and the activity of cell division, necrosis, caseation, or metastasis. Tizianello concludes, therefore, that no connexion can be demonstrated between the presence of fever and the histological type of growth.

336. Congenital Scoliosis.

C. ROEDERER and H. DIJONNEAU (*Paris Méd.*, September 21st, 1929, p. 240) suggest that to limit the term "congenital" to scolioses that are apparent only at birth is somewhat inexact, and that this condition, if late in producing its effects, in none the less always pre-n [illegible] postulated by Roederer and Mouchet in [illegible] congenital scoliosis as a late[illegible] by an embryonic or foetal [illegible] on one or more parts of the vertebral column. This elementary alteration terminates, according to its importance and quality, either in a malformation of one bone or of some vertebral elements (the bo[illegible] or in a more extensive inequality of [illegible] involving the whole column. The various types of scolioses, those without and those with osseous vertebral anomalies, and spina bifida accompanied by scoliosis; they record cases illustrating each type. The chief characteristics of congenital scoliosis are the following: the paramedian, irreducible, osseous gibbosity; rigidity of the spine; and the absence of all pain, either spontaneous or provoked. A sharp inflexion in the line of the spinous apophyses is often present, and sometimes at the inflexion is felt a deep depression, the spinous foramen of Gourdon, which is characteristic of congenital scoliosis with spina bifida. Radiography is indispensable in diagnosis, and three plates are advisable—namely, full face, in profile, and oblique. The treatment of scolioses is unsatisfactory, since *the cause cannot be remedied. The sole aim must be to* create, above and below the abnormal point, compensatory curvatures, which will still permit free functioning of the thoracic and abdominal [illegible] Patients should be constantly watched, [illegible] nenace intervention should be practised. [illegible] on its back in a hypercorrected

plaster cast. When old enough to walk, corsets of reinforced duck for very young infants, or of celluloid for older ones, should be used. Corrective gymnastics should be instituted, and appropriate medical treatment favouring growth (saline baths, lime salts, iodine, etc.) should be given. The authors consider that a congenital scoliosis with perceptible anomalies is less grave than one without these, than a pleuritic or paralytic scoliosis, and even than a juvenile rachitic scoliosis.

337. Congenital Malformations of the Hip.

J. GOURDON (*Gaz. Hebd. des Sci. Méd. de Bordeaux*, September 8th, 1929, p. 566) maintains that the term "congenital luxation of the hip," to designate the affection which characterizes the claudication of cripples, is erroneous. The luxation is not congenital and is produced only when the child commences to stand—that is, when it is about 16 to 20 months old. At birth the only malformations which exist are those which permit femoral displacement by the force imparted from below upwards in the erect position; such are arrested development of the cotyloid cavity, vertical direction of the pelvis, and atrophy and abnormal direction of the upper extremity of the femur. An early diagnosis of these conditions is desirable, before articular dislocation supervenes, when treatment becomes difficult and prolonged and the results are less certain. Gourdon employs the following diagnostic method in every infant who, without any symptom of paralysis, presents an abnormal mobility of the hip which can only be attributed to malformations of the coxo-femoral articulations. The patient is laid on a table and reclines on the sound side. The thigh of the affected side is horizontally flexed and adducted till the knee rests on the table. The leg is then flexed at right angles to the thigh, and, this position being maintained, the lower end of the femur is slowly rotated inwards. If this movement is arrested when the leg is raised not more than 60 degrees above the table the hip is normal; if the elevation exceeds 70 degrees there is articular relaxation; and if it reaches 90 degrees malformations of the cotyloid cavity are present. Internal hyperrotation is an efficient treatment for restoring the cotyloid cavity to its normal state; it is sufficient to place the thigh in abduction at right angles for a quarter of an hour three times daily. The child should be allowed to assume the upright position only after four months of this treatment. Gourdon reports excellent results from this method in all cases that he has followed.

338. Vesical Calculus and Enlarged Prostate.

G. MILLUL (*Il Policlinico*, Sez. Chir., July 15th, 1929, p. 365) records fifteen cases of vesical calculi in patients suffering from enlarged prostate and retention. He remarks that it is not always easy to diagnose the presence of calculi from symptoms alone, though certain symptoms are suggestive of their presence. In the prostatic patient who has calculi but no great amount of residual urine, pain on micturition comes on towards the commencement of micturition rather than at the end; it is aggravated when the contractions of the bladder are frequently repeated, or when the bladder is partly emptied and the stone irritates the bladder wall. Haematuria of the vesical type, brought on by movement and ceasing during repose, is suggestive. The safest way to establish the diagnosis is to radiograph the bladder. In all the author's cases the calculus was of local origin, and there was no evidence of any renal stone. Catheterization, lavage, infection, and retention of urine are each likely to originate a calculus.

339. Senile Gangrene.

W. SAMPSON HANDLEY (*Journ. Coll. Surg. Australasia*, July, 1929, p. 38) describes his experience with periarterial alcohol injections in the treatment of threatened senile gangrene as compared with arterial sympathectomy. In the latter procedure a certain length of the outer coat of the artery is stripped off, thus interrupting the sympathetic nerves running thereon, and producing a vaso-dilator action on the parts below. A local contraction of the artery occurs, so that a low circulation, lasting for a time up to fifteen hours, precedes the onset of the vaso-dilator symptoms, which eventually supervene for three or four weeks. Such an initial vaso-constriction may be very dangerous in threatened gangrene, and the period of subsequent vaso-dilatation is too short to permit separation of the toes or of a portion of the foot. In periarterial alcohol injection there is no initial period of diminished circulation, vaso-dilatation being produced at once without any local contraction of the artery at the site of injection, and without any temporary aggravation of the condition. The method is useless in thrombo-angiitis obliterans, and in cases in which the temperature of the gangrenous foot is higher than that of the sound foot; in Raynaud's disease, however, and in infantile paralysis with capillary congestion, it may avert a more serious procedure and produce some degree of improvement. The author adds that in cases with signs of threatened gangrene the procedure should be employed before actual gangrene has occurred, or while it is still confined to a small area.

340. Acute Glanders.

J. W. ROELOFFS (*Nederl. Tijdschr. v. Geneesk.*, July 13th, 1929, p. 3272), who records an illustrative case of acute glanders, illustrates the rarity of both the acute and chronic forms of the disease by the fact that the last instance in Holland was recorded in 1913 by Van der Valk and School, who published a case of chronic glanders. The present patient was a laboratory attendant, aged 33, in whom the disease developed after an incubation period of a few days, with symptoms of septicaemia. At the end of a fortnight he developed a characteristic rhinitis with a sanious discharge, typical lesions in the skin and mucous membranes in the form of small bluish nodules which rapidly broke down, and typical foci in the lungs, as well as non-specific infiltration. Treatment consisting of intravenous injections of 5 c.cm. of 2 per cent. solution of trypaflavine was of no avail, and the disease ended fatally in nineteen days. Glanders bacilli were found in the blood, pustules, and throat mucus.

Therapeutics.

341. Therapeutic Vasotrophic Shock in Asthma.

ACCORDING to G. BOUCHÉ (*Le Scalpel*, August 17th, 1929, p. 889) the typical lesions of the respiratory tract found in asthma should not be considered causal, since they are frequently present in non-asthmatic cases such as bronchial and nasal catarrh or emphysema. With regard to the physiological pathology, he rejects the hypotheses of direct vagus irritation (although admittedly this is found in rare cases associated with wounds) and of excessive carbonaemia, and he holds that the immediate cause is vasotrophic shock associated with parasympathetic irritation, in the second stage of which a rise of the blood pressure occurs. The agents of shock are innumerable, and any one may precipitate the irritation. Individual variation may determine lesions of this irritation to one particular system; for example, damage of the lungs by gaseous irritants may lead to its manifestation in bronchial asthma. The shock is not necessarily anaphylactic; Bouché admits that occasionally sensitiveness to one particular protein may cause asthma, but he does not practise routine search for any one cause. His method of treatment is to inject substances producing shock, in amounts giving a minimum of local and general reaction; such substances are the serums, crotalin, and vaccines, the stock varieties being found as efficacious as the autogenous. He remarks that asthmatic patients usually react violently; it is therefore wise to use serums diluted 1 in 10 in doses of about 1 c.cm. Some patients are hypersensitive to serums, and crotalin or vaccines are preferable; patients with tuberculous lesions are particularly sensitive to serums. Doses sufficient to precipitate crises should be avoided, and they should be diminished also during periods of respiratory excitation. Treatment should be continued for eighteen months to two years after the subsidence of attacks. Bouché recognizes two main varieties of tractable cases. In hay fever the treatment should be begun two months before the "season" and be continued to its end; in this class he has had only one failure in twelve cases. As regards the nervous type of asthma, the author states that he has no experience of treating patients with gross pleural lesions or continual bronchitis, but he does not exclude from treatment those with small inactive apical lesions. He defines three stages of treatment as follows. (1) In the course of the first six or seven injections the patient's degree of sensibility is determined and an appropriate dosage evolved; sometimes improvement is noticed from the first dose. (2) The reactions become fixed or gradually less. Attacks become less frequent and more amenable to palliation; the length of this period is variable. (3) The crises disappear, but the treatment should be continued for a period ranging from some months to two years. Of 17 cases treated by the author he claims twelve complete cures of varying duration and three temporary ameliorations; he admits two complete failures in patients who could not tolerate the initial reactions. He thinks that the treatment of patients with [illegible] is too risky to be worth attempting. With [illegible] he suggests that it is always w[illegible] of the injection, but that the success of any substitute one almost always empirical, prolonged search for a specific one being waste of time. In associated "shock lesions," such as urticaria with asthma, it is noteworthy that one lesion may

may be over 80, many being young cells; myelocytes are commonly present. The illness has an acute onset with fever and slight icterus; there is a rapid fall in the haemoglobin percentage and red cell count. The red cells are said to be normal in shape and size; megaloblasts and enormous numbers of normoblasts (up to 3,000 per c.mm.) have been noted. The condition is not associated with glossitis, achylia, or nervous symptoms. *Transfusion gives immediate relief, and the patient makes a complete recovery. Apparently only five cases have been recorded. One of these was treated* by Christiansen with liver. Before the treatment was started a spontaneous increase in the reticulocytes occurred, suggesting the onset of a remission. Liver diet had no influence on the percentage of these cells, and there was no reaction fall in their number; the red cells were unaffected, though the haemoglobin percentage was raised. A normal red cell count was only re-established after the liver treatment had been discontinued for a long time.

332. Pemphigoid Varicella.

P. GAUTIER and A. THEVENOT (*Rev. Franç. de Péd.*, June, 1929, p. 363), who record an illustrative case in a boy, aged 2 years, who recovered, remark that the existence of a pemphigoid or bulbous form of varicella was disputed by Lereboullet and David and their pupil Lebis in 1927, on the ground that the cases hitherto published were either examples of simple pemphigus or cases of pemphigus accidentally associated with varicella. The present case, however, was not an example of epidemic pemphigus or of pemphigus associated with varicella, but was a classical instance of the pemphigoid form of varicella, in which the lesions, which were at first typical of varicella, subsequently assumed a pemphigoid appearance. Moreover, the authors add, *if the case had been one of pemphigus only the patient would undoubtedly have contracted varicella from the other patients* in the ward, where he remained more than a month. Pemphigoid varicella does not appear to be due to secondary infection of the vesicles, since repeated cultures of the serum of the bullae always remained sterile; nor is it caused by an enhanced virulence of the causal organism of varicella, since a pemphigoid varicella may give rise to an ordinary attack, as in the present case, in which the pemphigoid patient infected his brother, who had an ordinary attack of varicella. On the other hand, the authors hold that the supposed epidemics of pemphigoid varicella were probably epidemics of pemphigus.

Surgery.

333. Ligation in Thrombo-Angiitis Obliterans.

G. W. VAN GORDER (*Annals of Surgery*, July, 1929, p. 88) reviews nine cases of thrombo-angiitis obliterans in which high ligation of the main vein of the extremity was employed with good results. This disease of the blood vessels is one in which *arterial occlusion predominates, and in cases of* thrombo-angiitis obliterans the collateral circulation *is the* most promising key to the solution of gangrene prevention. Of the nine cases under review, in five the femoral vein was tied at the apex of Scarpa's triangle, and in the same number of cases the external iliac vein was ligatured just distal to the bifurcation of the common iliac. In two instances obliterated femoral arteries were also cut; in one of these ligation of the left basilic and brachial veins was performed, and in the other the saphenous vein was tied, together with the femoral vein. Three of the first five cases definitely improved; there was cessation of the gangrene, but slight residual pain in one, and failure to relieve symptoms in one. In the five cases with external iliac vein ligations, there was disappearance of pain and cessation of gangrene in three, relief from pain but not from gangrene in one, and no improvement in the fifth until the tip of a gangrenous toe was removed. The two cases in which section of the obliterated femoral artery was performed in addition to vein ligation to relieve pain were failures, as was also the case in which the saphenous vein was tied together with the femoral vessels. Ligation of the basilic and brachial veins was successful in one case. Thus, of nine cases *treated* by high ligation of the vein, there was marked improvement in six, some improvement in two, and no improvement in one; this suggests that if the disease is arrested even temporarily by this method of treatment, the most reasonable explanation is on the basis of an improved collateral circulation. High ligation of the main vein offers a marked resistance to the outflow of blood and an increased venous and capillary pressure, which directs a greater volume of collateral blood from the *normal arteries* of the limb into anastomosing channels that will eventually reach the distant capillary bed. It is concluded that the procedure is of definite value in giving relief from pain, in combating impending or advancing gangrene, and in postponing or obviating high amputation.

334. Bilateral Renal Calculi.

C. BORETTI (*Urol. and Cut. Rev.*, July, 1929, p. 460), who records eighteen personal cases, of which only five were fatal, states that of 300 operations for renal and ureteral lithiasis by Professor Lasio at the Ospedale Maggiore, Milan, 16 per cent. were for bilateral calculi. Such cases are more frequent in men (66.67 per cent.). The earlier the diagnosis the better the prognosis will be, deaths being usually due to an exacerbation of pre-existing uraemic conditions in patients who have come under treatment too late. The diagnosis must be founded on radiography and sometimes pyelography. The functional condition of the kidneys must be determined separately and conjointly by bilateral catheterization, *Ambard's constant, and the phenolsulphonephthalein test.* As bilateral renal surgery must be ultra-conservative, Boretti *recommends pyelolithotomy, by which all kinds of stones* can be extracted from the pelvis and also from the calyces. Where, however, there are several small stones situated in the calyces or in the parenchyma they should be removed by small and, if necessary, multiple incisions, guided by an *exploratory needle.* It is always best to begin with the kidney which functions best. Nephrectomy is an operation which should seldom be performed. Permanent nephrostomy should be preferred when one is not sure about the efficiency of the other kidney.

335. Pyrexia in Malignant Disease.

G. TIZIANELLO (*Il Policlinico*, Sez. Med., September 1st, 1929, p. 452) remarks that the pathogenesis of fever occurring in connexion with new growths has long been the object of discussion, having first been described by Wunderlich; no adequate explanation, however, of it has yet been offered. During the period 1921–26 118 cases of various tumours were treated in the medical department of the Civil Hospital of Venice, their distribution being as follows: digestive system 85; brain 13; larynx, mediastinum, lungs, and pleurae 8; urogenital system 8; glandular and osseous systems 2 each. Of the 118 cases, 43 were accompanied by fever and 75 were always apyrexial. Communication with the exterior does not appear to be an important factor in the development of fever, since the proportion of febrile cases was not higher in the case of the digestive system (36.47 per cent.) or the urogenital system (12.50 per cent.) than in the case of cerebral tumours (12.50 per cent.). This fact, therefore, controverts the view that neoplastic fever is due to secondary infection. Moreover, the tumours are completely shut off, and are capable of themselves of giving rise to fever. Of 17 cases examined histologically by Tizianello, 8 were accompanied by fever; 2 of these were examples of epithelioma, 4 of adenocarcinoma, and 2 of endothelioma. No relation was discovered between the existence of fever and the activity of cell division, necrosis, caseation, or metastasis. Tizianello concludes, therefore, that no connexion can be demonstrated between the presence of fever and the histological type of growth.

336. Congenital Scoliosis.

C. ROEDERER and H. DIJONNEAU (*Paris Méd.*, September 21st, 1929, p. 240) suggest that to limit the term "congenital" to scolioses that are apparent only at birth is somewhat inexact, and that this condition, if late in producing its effects, in none the less always pre-natal. The definition, *postulated* by Roederer and Mouchet in 1922, is accepted; this described congenital scoliosis as a lateral deviation of the spine caused by an embryonic or foetal alteration of the germ, acting on one or more parts of the vertebral column. This elementary alteration terminates, according to its importance and quality, either in a malformation of one bone or of some vertebral elements (the bodies or apophyses), or in a more extensive inequality of development, sometimes involving the whole column. The present authors describe various types of scolioses, those without and those with osseous vertebral anomalies, and spina bifida accompanied by scoliosis; they record cases illustrating each type. The chief characteristics of congenital scoliosis are the following: the paramedian, irreducible, osseous gibbosity; rigidity of the spine; and the absence of all pain, either spontaneous or provoked. A sharp inflexion in the line of the spinous apophyses is often present, and sometimes at the inflexion is felt a deep depression, the spinous foramen of Gourdon, which is characteristic of congenital scoliosis with spina bifida. Radiography is indispensable in diagnosis, and three plates are advisable—namely, full face, in profile, and oblique. The treatment of scolioses is unsatisfactory, since the cause cannot be remedied. The sole *aim must be to* create, above and below the ab[illegible] he curvatures, which will still per[illegible]ly *thoracic* and abdominal organs. F[illegible] watched, and at the slightest menace intervention should be practised. The child is laid on its back in a hypercorrected

plaster cast. When old enough to walk, corsets of reinforced duck for very young infants, or of celluloid for older ones, should be used. Corrective gymnastics should be instituted, and appropriate medical treatment favouring growth (saline baths, lime salts, iodine, etc.) should be given. The authors consider that a congenital scoliosis with perceptible anomalies is less grave than one without these, than a pleuritic or paralytic scoliosis, and even than a juvenile rachitic scoliosis.

337. Congenital Malformations of the Hip.

J. GOURDON (*Gaz. Hebd. des Sci. Méd. de Bordeaux*, September 8th, 1929, p. 566) maintains that the term "congenital luxation of the hip," to designate the affection which characterizes the claudication of cripples, is erroneous. The luxation is not congenital and is produced only when the child commences to stand—that is, when it is about 16 to 20 months old. At birth the only malformations which exist are those which permit femoral displacement by the force imparted from below upwards in the erect position; such are arrested development of the cotyloid cavity, vertical direction of the pelvis, and atrophy and abnormal direction of the upper extremity of the femur. An early diagnosis of these conditions is desirable, before articular dislocation supervenes, when treatment becomes difficult and prolonged and the results are less certain. Gourdon employs the following diagnostic method in every infant who, without any symptom of paralysis, presents an abnormal mobility of the hip which can only be attributed to malformations of the coxo-femoral articulations. The patient is laid on a table and reclines on the sound side. The thigh of the affected side is horizontally flexed and adducted till the knee rests on the table. The leg is then flexed at right angles to the thigh, and, this position being maintained, the lower end of the femur is slowly rotated inwards. If this movement is arrested when the leg is raised not more than 60 degrees above the table the hip is normal; if the elevation exceeds 70 degrees there is articular relaxation; and if it reaches 90 degrees malformations of the cotyloid cavity are present. Internal hyperrotation is an efficient treatment for restoring the cotyloid cavity to its normal state; it is sufficient to place the thigh in abduction at right angles for a quarter of an hour three times daily. The child should be allowed to assume the upright position only after four months of this treatment. Gourdon reports excellent results from this method in all cases that he has followed.

338. Vesical Calculus and Enlarged Prostate.

G. MILLUL (*Il Policlinico*, Sez. Chir., July 15th, 1929, p. 365) records fifteen cases of vesical calculi in patients suffering from enlarged prostate and retention. He remarks that it is not always easy to diagnose the presence of calculi from symptoms alone, though certain symptoms are suggestive of their presence. In the prostatic patient who has calculi but no great amount of residual urine, pain on micturition comes on towards the commencement of micturition rather than at the end; it is aggravated when the contractions of the bladder are frequently repeated, or when the bladder is partly emptied and the stone irritates the bladder wall. Haematuria of the vesical type, brought on by movement and ceasing during repose, is suggestive. The safest way to establish the diagnosis is to radiograph the bladder. In all the author's cases the calculus was of local origin, and there was no evidence of any renal stone. Catheterization, lavage, infection, and retention of urine are each likely to originate a calculus.

339. Senile Gangrene.

W. SAMPSON HANDLEY (*Journ. Coll. Surg. Australasia*, July, 1929, p. 38) describes his experience with periarterial alcohol injections in the treatment of threatened senile gangrene as compared with arterial sympathectomy. In the latter procedure a certain length of the outer coat of the artery is stripped off, thus interrupting the sympathetic nerves running thereon, and producing a vaso-dilator action on the parts below. A local contraction of the artery occurs, so that a low circulation, lasting for a time up to fifteen hours, precedes the onset of the vaso-dilator symptoms, which eventually supervene for three or four weeks. Such an initial vaso-constriction may be very dangerous in threatened gangrene, and the period of subsequent vaso-dilatation is too short to permit separation of the toes or of a portion of the foot. In periarterial alcohol injection there is no initial period of diminished circulation, vaso-dilatation being produced at once without any local contraction of the artery at the site of injection, and without any temporary aggravation of the condition. The method is useless in thrombo-angiitis obliterans, and in cases in which the temperature of the gangrenous foot is higher than that of the sound foot; in Raynaud's disease, however, and in infantile paralysis with capillary congestion, it may avert a more serious procedure and produce some degree of improvement. The author adds that in cases with signs of threatened gangrene the procedure should be employed before actual gangrene has occurred, or while it is still confined to a small area.

340. Acute Glanders.

J. W. ROELOFFS (*Nederl. Tijdschr. v. Geneesk.*, July 13th, 1929, p. 3272), who records an illustrative case of acute glanders, illustrates the rarity of both the acute and chronic forms of the disease by the fact that the last instance in Holland was recorded in 1913 by Van der Valk and School, who published a case of chronic glanders. The present patient was a laboratory attendant, aged 33, in whom the disease developed after an incubation period of a few days, with symptoms of septicaemia. At the end of a fortnight he developed a characteristic rhinitis with a sanious discharge, typical lesions in the skin and mucous membranes in the form of small bluish nodules which rapidly broke down, and typical foci in the lungs, as well as non-specific infiltration. Treatment consisting of intravenous injections of 5 c.cm. of 2 per cent. solution of trypaflavine was of no avail, and the disease ended fatally in nineteen days. Glanders bacilli were found in the blood, pustules, and throat mucus.

Therapeutics.

341. Therapeutic Vasotrophic Shock in Asthma.

ACCORDING to G. BOUCHÉ (*Le Scalpel*, August 17th, 1929, p. 889) the typical lesions of the respiratory tract found in asthma should not be considered causal, since they are frequently present in non-asthmatic cases such as bronchial and nasal catarrh or emphysema. With regard to the physiological pathology, he rejects the hypotheses of direct vagus irritation (although admittedly this is found in rare cases associated with wounds) and of excessive carbonaemia, and he holds that the immediate cause is vasotrophic shock associated with parasympathetic irritation, in the second stage of which a rise of the blood pressure occurs. The agents of shock are innumerable, and any one may precipitate the irritation. Individual variation may determine lesions of this irritation to one particular system; for example, damage of the lungs by gaseous irritants may lead to its manifestation in bronchial asthma. The shock is not necessarily anaphylactic; Bouché admits that occasionally sensitiveness to one particular protein may cause asthma, but he does not practise routine search for any one cause. His method of treatment is to inject substances producing shock, in amounts giving a minimum of local and general reaction; such substances are the serums, crotalin, and vaccines, the stock varieties being found as efficacious as the autogenous. He remarks that asthmatic patients usually react violently; it is therefore wise to use serums diluted 1 in 10 in doses of about 1 c.cm. Some patients are hypersensitive to serums, and crotalin or vaccines are preferable; patients with tuberculous lesions are particularly sensitive to serums. Doses sufficient to precipitate crises should be avoided, and they should be diminished also during periods of respiratory excitation. Treatment should be continued for eighteen months to two years after the subsidence of attacks. Bouché recognizes two main varieties of tractable cases. In hay fever the treatment should be begun two months before the "season" and be continued to its end; in this class he has had only one failure in twelve cases. As regards the nervous type of asthma, the author states that he has no experience of treating patients with gross pleural lesions or continual bronchitis, but he does not exclude from treatment those with small inactive apical lesions. He defines three stages of treatment as follows. (1) In the course of the first six or seven injections the patient's degree of sensibility is determined and an appropriate dosage evolved; sometimes improvement is noticed from the first dose. (2) The reactions become fixed or gradually less. Attacks become less frequent and more amenable to palliation; the length of this period is variable. (3) The crises disappear, but the treatment should be continued for a period ranging from some months to two years. Of 17 cases treated by the author he claims twelve complete cures of varying duration and three temporary ameliorations; he admits two complete failures in patients who could not tolerate the initial reactions. He thinks that the treatment of patients with latent tuberculosis is too risky to be worth attempting. With regard to the antigen employed, he suggests that it is always worth while to vary the nature of the injection, but that the success of any substance is almost always empirical, prolonged search for a specific one being waste of time. In associated "shock lesions," such as urticaria with asthma, it is noteworthy that one lesion may

disappear before the other. There appears to be a "refractory period" after asthmatic crises during which attacks cannot occur. Bonché considers that in cases with severe attacks at long intervals the "refractory period" mechanism is well developed, and that such cases are favourable for shock treatment; conversely, in patients with frequent slight attacks the condition is more intractable. He advances a theory that non-specific immunization is due to excitation of all the body cells, and especially those of the parasympathetic nervous system, with the resulting production of receptors capable of fixing antigens, of whatever nature, which previously precipitated parasympathetic irritation.

342. Sodium Cacodylate in Malaria.

RENÉE ULLMANN-APOSTOLON and G. APOSTOLON (*Presse Méd.*, August 31st, 1929, p. 1137) have been treating old-standing cases of malaria in Macedonia during the past ten years with large doses of sodium cacodylate; the patients had enlargement of the spleen and liver, pronounced anaemia, and some jaundice. Quinine even in large doses failed to effect a cure, although the attacks were controlled. Large intravenous injections of neosalvarsan were first tried with unsatisfactory results, so the authors turned to the procedure advocated by Carnot and Ravaut. Their routine treatment consisted of a series of graded courses. On the first day they gave an intravenous injection of 0.5 gram sodium cacodylate; 1 mg. of strychnine sulphate was injected subcutaneously; and 1.5 grams of quinine was given by the mouth. On the second day the doses were: 1 gram of sodium cacodylate; 2 mg. of strychnine sulphate; and 1.5 grams of quinine. During the subsequent days the same doses were given except that the strychnine was increased to 3, 4, or even 5 mg. according to the susceptibility of the patient. If after seven days all went well the cacodylate was increased to 1.5 grams. In each course 15 to 18 grams in all of sodium cacodylate were given, and at the end of the first course the treatment was discontinued for ten days. A second identical course was followed by a twenty-day period; a third by a month; and after the fourth course further treatment was rarely necessary. The patient's condition began to improve soon after the beginning of the treatment; the anaemia disappeared, the spleen and liver decreased, and repeated microscopic examinations of the blood for the parasites proved negative. The authors assert that there were no other drawbacks to this heroic treatment except that in 3 to 5 per cent. of the cases a generalized eruption appeared, with puffing up of the face and swelling in the parotid region. These manifestations soon disappeared on a light milk diet without any particular medical treatment. In 10 to 15 per cent. a slight diarrhoea occurred, but was easily controlled by laudanum. Children were also similarly treated, but the dose of cacodylate was reduced to 0.1 gram for each year of age up to 10, and the results were similarly successful. Pregnant women were also treated with the ordinary doses and no ill effects were produced, even during the last months of pregnancy.

343. The Action of Digitalis on the Heart.

W. D. REID (*Journ. Amer. Med. Assoc.*, June 22nd, 1929, p. 2090) refers to the well-known effect of digitalis upon the conducting system of the heart. This effect is manifested chiefly by the production of such arrhythmias as extrasystoles, coupled beats, ventricular escape, auricular and ventricular fibrillation, and paroxysmal tachycardia. Experimental work upon cats showed that therapeutic effects were produced by 25 to 50 per cent. of the minimal lethal dose: 50 per cent. doses caused prolongation of the PR interval, while 70 per cent. of the minimal lethal dose was necessary to cause coupled rhythm and ventricular escape. The author has shown that these results are applicable to man, and he has been unable to find in the literature any convincing record of patients dying from heart-block resulting from digitalis medication. A few cases are recorded in which heart-block existed over many years, causing no reduction in effort tolerance. In them the myocardial lesion must have been confined to the conducting system, and there [illegible] the great majority of heart-block case[s] [illegible] n conduction is but a part of widespre[ad] [illegible]. Digitalis produces an effect comparable to the former group, and therefore should cause no embarrassment to the cardio-vascular system. Heart-block in general has been identified with the second group, in which the prognosis is serious, and therefore the possible dangers of digitalis block have been over-estimated. The author [illegible] that digitalis produces its beneficial [effects] [illegible] inducing a degree of block which pro[duces] [illegible] m receiving an excessive number of [beats] [illegible] urges its administration until either good results are obtained or toxic symptoms produced.

344. Treatment of Tapeworm Infestation.

S. MARGULIS (*Münch. med. Woch.*, September 6th, 1929, p. 1510) has treated more than forty adults and children infected with tapeworm by administering an emulsion of the extract of *Filix mas* and infusion of senna in gum arabic through a duodenal tube; he has obtained entirely satisfactory results. The patients receive two preliminary doses of sodium sulphate at 5 and 8 p.m. on the previous day; a water enema is given next morning, and this is followed by the passage of the duodenal tube and the administration of the emulsion. Margulis found that the advantages of this method were the avoidance of nausea and vomiting; smaller doses were as a rule required, which was particularly valuable in children. He was by this means able to obtain the evacuation of the head of the tapeworm in several cases which had hitherto proved refractory; in one case as many as four tapeworms were found. The doses of *Filix mas* varied from 6 c.cm. for an adult to 2 c.cm. for a child 5½ years old.

Ophthalmology.

345. Ocular Anaphylaxis.

RECALLING that in 1903 Uhlenhuth showed that animals could be sensitized and immunized with lens protein, and that this hypersensitivity was tissue specific and not species specific, A. N. LEMOINE (*Arch. of Ophthalmol.*, June, 1929, p. 706) reviews the literature on ocular anaphylaxis. The conclusion reached is that allergies play a definite and important rôle in many ophthalmic clinical entities, but that in most cases allergy is not the underlying cause, but merely a manifestation of a disturbed endocrine balance, with a resulting disturbance of the metabolic and biochemical function. Cases of vernal catarrh are reported in which cure was obtained by the administration of thyroid and parathyroid extracts with calcium. A case of vernal conjunctivitis following removal of the ovaries cleared up after ovarian and thyroid extracts had been given. Similar cures are reported in phlyctenular keratitis, dendritic ulcers, corneal herpes, and other ophthalmic conditions. Lemoine asserts that the great majority of patients in whom these allergic phenomena develop have endocrine disturbances, and that the treatment for ocular anaphylaxis is the correction of these disturbances. The antigen causing the allergy should be identified and removed from the patient if possible. If this cannot be done the patient should be immunized to the antigen in question, and apparently this immunization must be repeated about every two years. Many patients can be cured of these allergic phenomena by glandular therapy, most commonly of the thyroid, parathyroid, and gonads.

346. Amaurotic Family Idiocy in Japanese Families.

F. C. CORDES and W. D. HORNER (*Amer. Journ. Ophthalmol.*, July, 1929, p. 558) record two cases of this disease occurring in Japanese families. Amaurotic family idiocy was at one time thought to occur in Jewish families only. Latterly, however, several cases in non-Jewish families have been reported. Up to the present no cases have been noted as occurring in Japanese families. Of the present two cases one was characteristic of the condition in every way. The other was not quite so typical in that the symptoms developed somewhat later in life, and the eye symptoms antedated the other changes considerably. In each of these two cases the parents were first cousins. Consanguinity is very frequent in this disease. With regard to sex, the two cases reported were females; of reported cases, it would appear that in the Jewish families the sex incidence is approximately equal, whereas in the non-Jewish families the females are most often affected.

347. Treatment of Herpes Zoster Ophthalmicus.

J. S. FRIEDENWALD (*Bull. Johns Hopkins Hospital*, August, 1929, p. 103) reports an unexpectedly favourable result in an unusually severe instance of ophthalmic herpes zoster in which he made use of convalescent serum. In a woman, aged 47, a lesion resembling simple herpes developed on the left cheek; the left eye subsequently became inflamed, and minute infiltrations were noted in the cornea. Later there was diffuse hyperaemia throughout the region of the ophthalmic branch of the left trigeminal nerve, with many minute skin vesicles in this area. Typical zona lesions subsequently spread from the tip of the nose to the vertex of the scalp. They were also present on the nasal mucous membrane and the palpebral conjunctiva, and were associated with corneal infiltrations of increasing size, iritis of the left eye, great oedema of the lids, severe pain, and pyrexia. Five days after the onset of the cutaneous lesions, and eleven days after the start of the neuralgic pain, the patient received an intramuscular injection of 8.5 c.cm. of blood serum from

another patient who, six weeks before, had recovered from a severe attack of perineal zoster. Five hours after the injection a marked freedom from pain was reported; by the next morning the lid oedema had much decreased, and the skin rash began to subside rapidly. The iritis, however, was very stubborn, and its treatment was complicated later by the development of a local allergy, first to atropine and then to all other mydriatics. Two months later the vision of the left eye was 6/12, but in another two months it had improved to 6/6. Friedenwald remarks that cases of ophthalmic herpes zoster with such extensive lesions usually end in complete loss of vision from the corneal involvement, and he considers, therefore, that the favourable sequel in his case could hardly have been anticipated. Another unusual feature was the iritis, which is not commonly found in these cases.

Obstetrics and Gynaecology.

348. The Morphology of Normal Menstrual Blood.

AFTER citing the work of von der Leyen, Rotter, and others on the morphology of menstrual blood, S. H. GEIST (*Surg., Gynecol. and Obstet.*, August, 1929, p. 145) records the results of his own investigations, in which he found that menstrual blood contains a definite number of elements which are so characteristic and stable as to enable its differentiation with certainty from blood of other types of genital bleeding; he believes that this difference may afford a valuable diagnostic aid in pelvic diseases accompanied by haemorrhage. Studies were made of 100 specimens, some of which were taken during the whole menstrual period, others only on certain days. The constituents particularly studied were the vaginal and uterine epithelium and the mononuclear and polynuclear leucocytes. To obtain the material a glass tube was placed in the vagina, just within the introitus, and was held in place by adhesive tape. The uterine epithelium appeared as small strips of columnar epithelium with only a few cells, or of long strands with many cells. It occurred also as small clumps of glands, in some instances of only one gland. In other specimens the epithelial tissue formed large fragments with tortuous glands and surrounding stroma, while in several instances large masses, similar to those expelled in membranous dysmenorrhoea, were found. Clumps of stroma cells were observed, independently of the epithelium, as small groups of darkly stained oval, round, or polygonal cells, ranging in number from five to twenty. The stroma did not show the same extent of necrosis as the epithelium, though in both the viable far exceeded the degenerative tissue. The presence of these fragments is considered extremely characteristic and constant, and to be sufficient to warrant a diagnosis of menstrual blood. Both the stroma and epithelium appear on the first day, increase progressively up to the third day, maintain a maximum desquamation for two days, then diminish on the fourth and fifth days. Another striking finding was the presence of desquamated vaginal epithelium as isolated cells or in plaques. The isolated cells were short flat spindles with a small round central nucleus. Three types of plaques were found: plaques of squamous epithelium, varying from three to one hundred or more cells, and from three to twenty layers; plaques of large spheroidal or polygonal cells; and strands of cells, one or more layers in thickness, crowded, non-nucleated, and dark. The number of polynuclear leucocytes varied greatly, and in some instances was so great as to suggest pus. The number found in the discharge in the vagina was always greater than that in the blood from the cervix. Apparently pelvic infection did not always cause a leucocytic increase in the vaginal blood, and the cause of this variation in number is unknown.

349. Sacral Nerve-block in Obstetrics.

C. H. KNAUER (*Anesthesia and Analgesia*, July–August, 1929, p. 243) considers that the production of a sensory nerve-block, thus preventing pain impulses from reaching the cerebrum, is the ideal form of obstetrical anaesthesia. The objections to gas and other forms of anaesthesia are contrasted with the

and its overlying structures is briefly recalled. The dural sac ends at the third sacral segment; the sacral canal below this contains the trunks which form the sciatic and pudic nerves, and it is these trunks that are anaesthetized in this variety of nerve-block. Knauer uses 33 c.cm. of a solution of 2 per cent. apothesin or procaine (the latter is said to be the more desirable) and 0.5 per cent. of quinine-urea hydrochloride with five drops of a 1 in 1,000 adrenaline chloride solution. The quinine salt acts as an oxytoxic on the uterine muscle and increases its action. By using 30 c.cm. of a solution containing 10 grains of procaine, 2.7 grains of the quinine salt, and 5 drops of the adrenaline solution, anaesthesia of the sacral area is complete in from fifteen to forty-five minutes, and lasts from twelve to forty-eight hours. Not uncommonly a few toxic symptoms occur, such as pallor, accelerated pulse, and nausea, but these are never of an alarming degree. This technique produces no untoward effects on the mother or child other than those mentioned. The injection may be made any time after there is two or three fingerbreadths' dilatation of the cervix, or after the head has fully engaged, and the character of the pain is such as to demand relief. Two brief summaries of typical case reports are given.

350. Adenocarcinoma of the Uterus.

J. V. MEIGS (*New England Journ. Med.*, July 25th, 1929, p. 155) reports the results of investigations in 206 cases of adenocarcinoma of the fundus of the uterus in which 25 (12.1 per cent.) showed vaginal metastases. All the patients had passed the menopause, and the symptoms of a possible extension to the vagina were discharge and bleeding recommencing after hysterectomy or radium treatment. When the metastatic nodule in the vagina was present and ulcerated at the original operation, there was no intermission of the bleeding and discharge. Meigs remarks that it is important to bear in mind the possibility of such metastases; a vaginal carcinoma should not be regarded as the primary condition until the uterus has been investigated with a view to detecting adenocarcinoma of the fundus; after hysterectomy or radium treatment the necessity for a careful vaginal examination is obvious. The lymphatics, or possibly the veins, are the most probable channels by which metastases occur; direct implantation is less likely. Treatment consisted either of total hysterectomy followed by radium application to the vaginal metastases, or radium was used both in the uterus and in the vaginal growth; the first procedure was preferred when the metastases appeared to be treatable and the uterine tumour operable, while the latter should be employed if either the metastasis or tumour is inoperable or untreatable. The best treatment for the vaginal metastases appears to be infiltration with gold or glass seeds and surface application with about 2,500 millicurie hours of lead-screened radiation.

351. The Haemostatic Action of Calcium during Labour and the Puerperium.

SINCE it has been found that the blood calcium is diminished from the normal 10.20 mg. per cent. to 9.40 mg. per cent. at the end of pregnancy, S. SZENTEH (*Zentralbl. f. Gynäk.*, July 20th, 1929, p. 1828) conducted a series of tests in order to ascertain what effect the administration of calcium had on the haemorrhage following parturition. Though the blood calcium was low in all the cases examined, the bleeding time and coagulation time only exceeded the normal in five out of forty cases, in all of which the loss of blood immediately after delivery exceeded 300 c.cm. Calcium was administered to all these patients by injecting 0.5 c.cm. of a 10 per cent. preparation of calcium chloride into an arm vein very slowly, the piston of the syringe being withdrawn several times during the course of the injection in order to mix blood and calcium solution in the syringe and thus prevent unpleasant secondary effects. During the injection the pulse rate fell, but reverted to its previous rate in five or six minutes; the *uterus contracted and the haemorrhage was satisfactorily controlled.* In a few patients in whom the uterus was very flabby the calcium preparation was mixed with pituitary extract; the resultant effect on this organ was found to be much more marked than when pituitary extract alone was injected. The effect produced by the calcium injections is ascribed by Szenteh to increased thrombosis in the uterine vessels and to increased contraction of the organ, the latter being probably partly due to stimulation of the sympathetic innervation of the uterus, and partly to increased sensitization of the uterus to circulating pituitary hormone. The fall in blood pressure recorded in a number of cases after the injection also has a beneficial effect in arresting haemorrhage. During the puerperium calcium was injected intravenously into sixty patients in whom the lochia remained red after the fourth day and the uterus was not involuting normally; seven of these patients received more than one injection. The results were satisfactory, though no definite effect was observed when 6 grams of calcium lactate were administered orally as a routine to fifty puerperal women, and the duration of red lochia and rate of involution of the uterus in these were compared with that of fifty controls who received no calcium. Though no case of venous thrombosis occurred in Szenteh's series after the injection of calcium, he advises that, in view of this risk, the use of intravenous calcium should be restricted during labour (1) to patients with mild atonic conditions of the [illegible] hon pituitary extr[illegible] (2) to patients with [illegible] calcium injection [illegible] itary extract;

and (3) in conditions such as thrombopenia, haemorrhagic diathesis, and certain infections associated with diminished coagulability of the blood. During the puerperium intravenous calcium injections should be used if the lochia remain red after the fourth day, provided, of course, that there has been no retention of the placenta or membranes.

352. Puerperal Scarlet Fever.

ACCORDING to P. BAIZE and M. MAYER (*Presse Méd.*, August 3rd, 1929, p. 1007), who record six illustrative cases in women aged from 17 to 39, all but one of whom were primiparae, the etiological features of puerperal scarlet fever are as follows. Two-thirds of the cases occur in primiparae. In most cases the source of contagion cannot be discovered. In the great majority of the cases the disease sets in on the third to fifth day after delivery. The symptoms differ but slightly from those of ordinary scarlet fever. The gravity varies in different epidemics. None of the authors' cases was fatal. Generally speaking, the prognosis is likely to be grave when the incubation period (the interval between delivery and the onset of symptoms) is short. As regards the pathogenesis, the authors hold that two groups of puerperal scarlet fever may be distinguished. The first consists of cases of ordinary scarlet fever which has developed as a mere coincidence in the puerperium, while in the second group, which is much larger, the attack has been the result of the endometritis, which is usually slight. These two groups of scarlet fever must be distinguished from puerperal scarlatiniform erythema by the Schultz-Charlton reaction.

Pathology.

353. Isoagglutination and Paternity.

E. WOLF (*Acta Med. Scand.*, June 12th, 1929, p. 54) has determined the blood groups of 503 persons—162 women, 172 men, and 169 children—collected from all parts of Sweden. The distribution of the groups was 180 (35.6 per cent.) O; 232 (46.1 per cent.) A; 60 (11.9 per cent.) B; and 31 (6.2 per cent.) AB, figures which agree very nearly with those of other observers. Of 166 children, 63 (41 per cent.) belonged to a different group from the mother; in 39 (23.5 per cent.) children there were A or B receptors which were absent in the mothers. Of the 63 children of 61 mothers of group O no child belonged to AB group; of 59 children of group O no mothers belonged to group AB—that is to say, neither combination AB mother +O child, nor O mother + AB child, occurred in the material examined. The object of the investigation was the practical application of isoagglutination groups in cases of disputed paternity, whereby exclusion of parentage would be considered only in those cases where the child's agglutinogen was absent from the mother and also from the alleged father. In a sample of 152 cases a possible exclusion of the father occurred in 9 cases (6 per cent.). Among 23 children of 22 cases where both mother and supposed father belonged to group O, there were 2 group A children and 1 group B child. Among 36 children of 35 cases where both mother and father belonged to group A there were 2 group B children and 1 group AB child. Among 52 children of 51 cases where mother or father belonged to A or O group respectively there were 2 AB children and 1 B child. When the mother and father are both AB and the child O, the father must be definitely excluded.

354. Influence of Iron on the Pigmentation of Acid-fast Bacteria.

G. B. REED and CHRISTINE E. RICE (*Journ. Bact.*, June, 1929, p. 407) find that, when acid-fast bacilli are grown in a medium containing iron, pigment of a yellow, brown, or pink variety is formed very much more readily than in a similar medium to which iron salts have not been added. The particular medium employed consisted of a beef-infusion agar containing glycerol; to this was added 0.2 gram of ferric citrate per litre. The reaction was adjusted to *p*H 7.4; at this reaction the citrate maintains the iron in solution, but if the *p*H passes above 8.0, even in the presence of the citrate, the iron is precipitated. Several strains of acid-fast bacilli were tested on this medium, including avian, human, and bovine types of tubercle bacilli, certain of the saprophytic acid-fast bacilli, and four strains of the leprosy bacillus. The results were very striking: in all cases pigment, varying in depth, was formed on this medium, whereas on the medium to which no iron had been added many strains gave no pigment at all. This effect of iron salts appears to be mainly confined to the acid-fast bacilli; experiments made with a number of other bacteria, such as staphylococci, pseudomonas, chromo-

ing group, showed
the same amount
n the special iron-

medium.

355. Lipoids in the Uterine Decidual Cells.

S. MARTINES (*Ann. di Ostet. e Ginecol.*, June 30th, 1929, p. 711) reports a study of 28 cases in which the uterus was studied from the point of view of its fat content, and particularly of lipoids. At different periods of pregnancy from the second month to full term longitudinal sections of the uterus were examined, one at the insertion of the placenta and one on the opposite side of the uterus. The sections were fixed in formalin and stained with osmic acid, Sudan III, and Ciaccio I. The author concludes that fats and lipoids are part of the normal contents of the decidual cells throughout pregnancy. The fats of the chorionic villi he considers to be an indication of their lipolytic and lipogenetic activities, which give to the foetus necessary elements of life. Fats and lipoids were found to be present in greater quantity during the first half of pregnancy than during the second half. The author deduces that these fatty substances are essentially the expression of endocrine activity in the decidual cells and not a product of degeneration. This activity probably has a direct bearing on the uterine mucosa, or on the muscles and vessels. During the second half of gestation, and especially near its termination, this endocrine activity ceases; the decidual cells go through their cycle of evolution, and manifest degenerative changes, which are not only appreciable under the microscope, but can be detected by the naked eye.

356. Estimation of the Degree of Immunity to Measles.

WITH a view to obtaining a definite indication of susceptibility to measles, W. L. BRADFORD (*Journ. Infect. Dis.*, May, 1929, p. 378) tested 96 children intradermally with the broth filtrate of the Tunnicliff coccus, with the following results. It has been suggested that some specific skin reaction might exist. Of 43 who gave a history of measles, 2 were positive and 41 negative; while of 53 who had not had measles, 10 were positive and 43 negative. In another series of 109 children tested with the Tunnicliff antigen, of 69 who had had measles 17 were positive and 52 negative, while of 40 with a negative history of measles 12 were positive and 28 negative. Similar results were obtained with the filtrates and with the antigens produced by *Streptococcus morbillosus*, by the Duval coccus, and by a stock culture of *Streptococcus viridans*. Reactions were more frequently negative in young infants and during the immediate convalescence from measles. Although the test was negative, as a rule, in persons who had had the disease, it was also generally negative in those who had never had measles. Bradford concludes that cutaneous reactions to the toxic filtrates and antigens of the green-producing cocci mentioned do not provide any basis for distinguishing patients immune to measles from those who are susceptible.

357. Malarial Parasites in Bone Marrow.

G. SORGE (*Rif. Med.*, June 29th, 1929, p. 872) questions the common statement that the bone marrow is a refuge for malarial parasites when they are not observed in the peripheral blood. In nine cases of aestivo-autumnal infection the author examined smears of bone marrow (*stained* by the Romanowski-Giemsa process) obtained from the sternum by puncture under local anaesthesia. In five cases parasites were not observed in the blood at the time of the sternal puncture, and of these in every case after prolonged careful search the marrow appeared free from parasites; three of these patients subsequently suffered relapses. In the other four instances parasites were seen in the peripheral blood. In two the number of parasites was remarkable—three to four to each microscopic field—but in the sternal bone marrow they were only sparsely present; in the other two cases in which the parasites were fewer in the blood—one to every four fields—the examination of the bone marrow was in both cases negative. The author concludes that the bone marrow *is not serviceable for diagnostic purposes* in cases of suspected malarial infection where the blood examination is negative. There is no correspondence between the numbers of parasites in the blood and in the bone marrow, being much less in the latter; this applies not only to sporulating forms, but also to the sexual stages. The bone marrow is thus not a refuge for malarial parasites during the period of latent infection.

358. Saprophytism of Ducrey's Bacillus.

L. CACIOPPO (*Rev. Sanit. Sicil.*, August 1st, 1929, p. 988), who records an illustrative case and quotes similar examples recorded by Pautrier, Roderer, Ulmo, and Lépinay, maintains that Ducrey's bacillus, the organism of chancroid, may live as a saprophyte on otherwise healthy mucous membranes, and that women who have no venereal ulcers may be the source of contagion with soft chancres. The author remarks that this fact is of considerable medico-legal importance, and shows the necessity of repeated microscopical and cultural examinations in cases of this kind.

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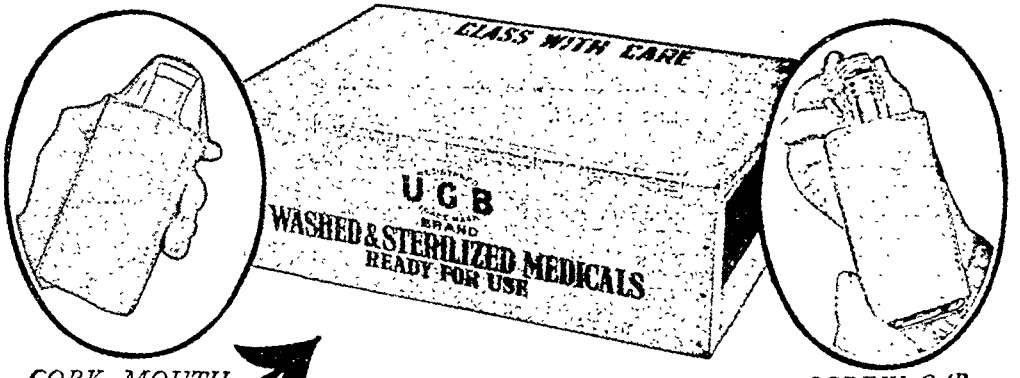

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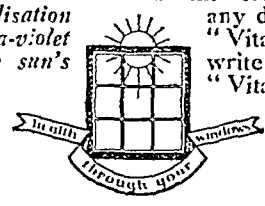

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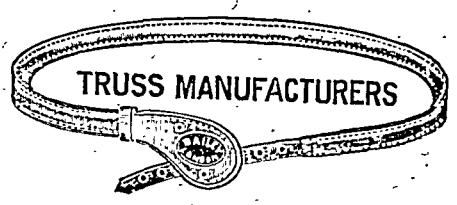

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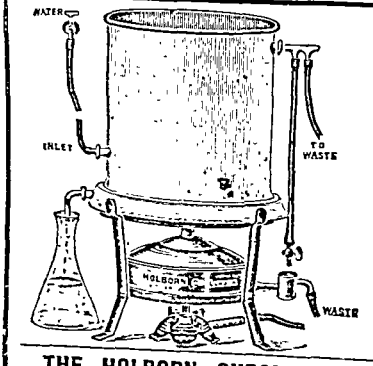

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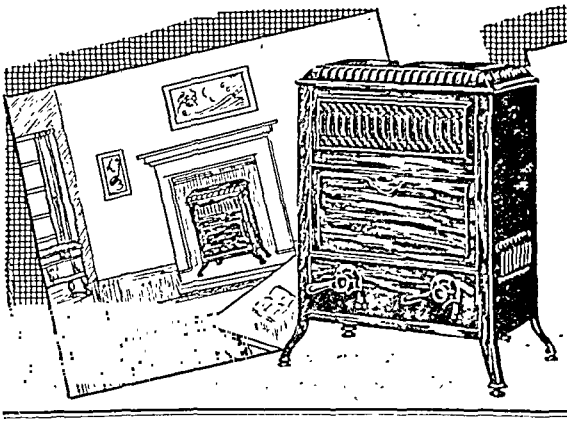

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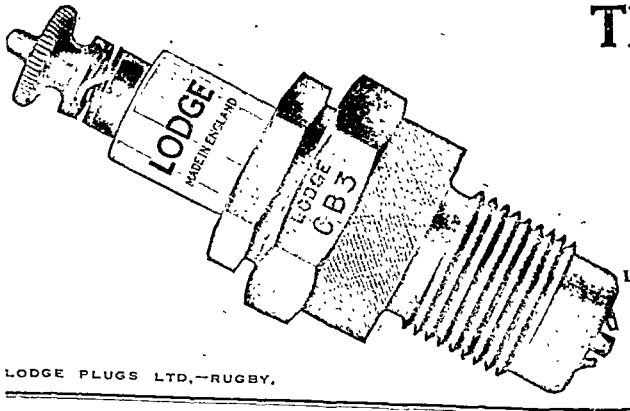

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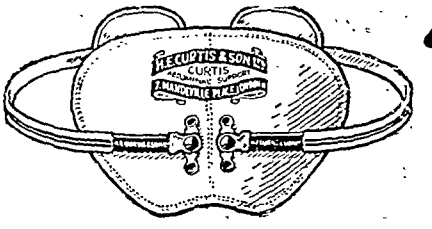

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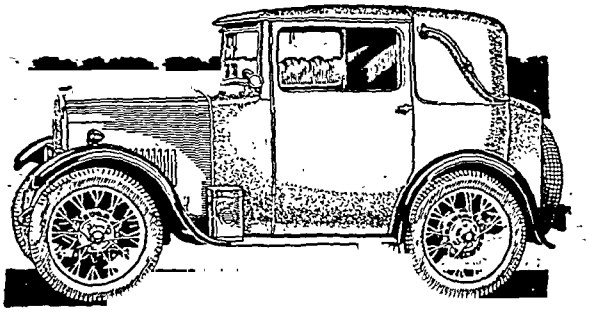

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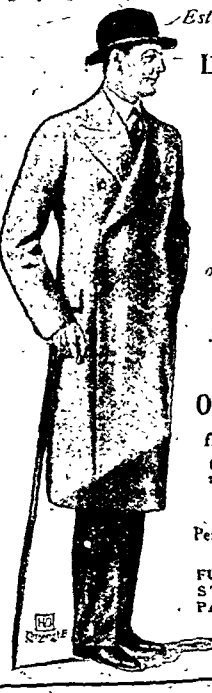

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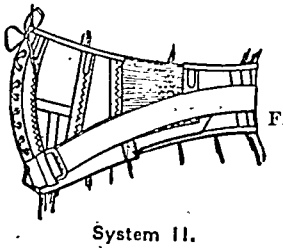

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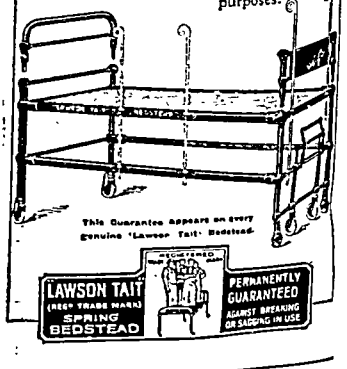

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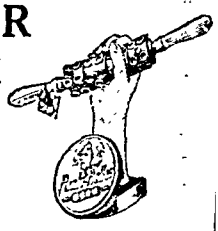

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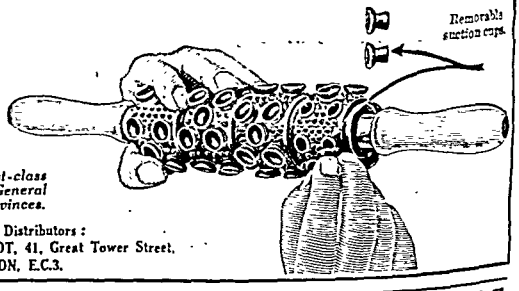

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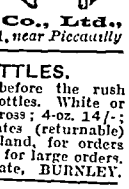

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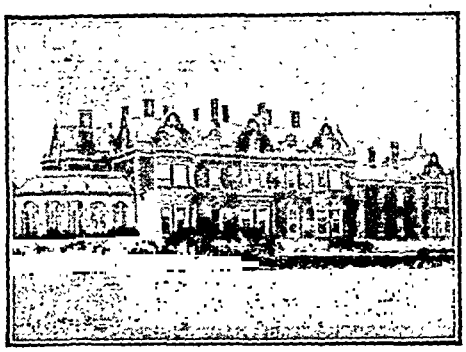

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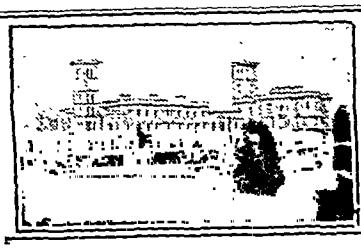

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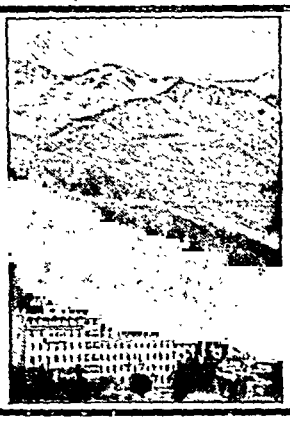

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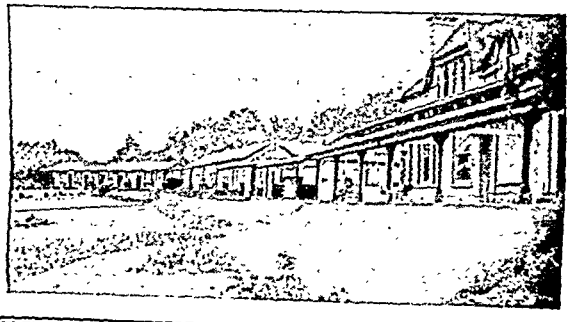

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(University of London.)

SCHORSTEIN MEMORIAL LECTURE.

The above Lecture will be delivered by ARTHUR F. HURST, Esq., D.M., F.R.C.P., Senior Physician to Guy's Hospital, on FRIDAY, NOVEMBER 8th, 1929, at 4.30 p.m., *in the* BEARSTED CLINICAL THEATRE.

Subject: "*Precursors of Carcinoma of the Stomach.*"

Members of the Profession are cordially invited to attend.

Professor WILLIAM WRIGHT, M.B., D.Sc., F.R.C.S., Dean.

September 3rd, 1929.

A REALLY GOOD SCHOOL FOR GIRLS. REASONABLE INCLUSIVE FEES.

MARLBOROUGH COLLEGE,

Tytherington Hall, nr. Macclesfield.

Sound Education. Upper and Lower School. Preparation, when desired, for all Universities' Entrance [illegible]

F.R.C.S.(Edin.).

Prep. Classes and Museum Demons. for next Fellowship Exam. will commence shortly. Correspondence course for Jany. and later exams. should begin now. Parties Mr. H. C. OBRIN, F.R.C.S., at Surgeons' Hall, Edinburgh.

RADIOLOGICAL UNIT.

PRESTON ROAD, HARROW.

(11 mins. Baker Street Met. Station.)

COURSES OF LECTURES for Practitioners on the USE OF X-RAYS IN SURGICAL DIAGNOSIS. Particulars—A. P. BERTWISTLE, F.R.C.S.Ed.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE.

(University of London.)

Tropical Medicine and Hygiene.

The School provides two courses yearly, each of 20 weeks. The next courses commence on February 3rd and September 30th, 1930.

Diploma in Public Health.

The next course of study in Public Health, covering a period of 12 calendar months, commences on September 30th, 1930, and is so designed that students wishing to do so can proceed to the new academic diploma instituted by the University of London.

The inclusive fee of 50 guineas will cover the cost, not only of the ordinary lectures and demonstrations, but also of the necessary practical work in public health departments and instruction in infectious diseases, etc.

Diploma in Bacteriology.

The course of study, covering one academic year, commences early in October.

Applications for prospectuses and for other information as to courses of study should be addressed to the Secretary, Keppel Street (Gower St.), London, W.C.1.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL

(UNIVERSITY OF LONDON).

ADVANCED MEDICINE.

A Course in Clinical Medicine, Pathology, Morbid Histology, and Biochemistry, suitable for M.D. and M.R.C.P. Examinations, will be given for six weeks, commencing October 29th.

Further particulars may be obtained on application to the Dean (H. WILLOUGHBY LYLE, M.D., F.R.C.S.), King's College Hospital Medical School, Denmark Hill, S.E.5.

SCHOOLS for BOYS and GIRLS.

TUTORS FOR ALL EXAMS.

Messrs. J. & J. PATON, having *an up-to-date* knowledge of the BEST SCHOOLS and TUTORS in this Country and on the Continent, will be pleased to AID PARENTS in their choice by *sending* (free of charge) *prospectuses and* TRUSTWORTHY INFORMATION *and* ADVICE.

The age of the pupil, district preferred, and rough idea of fees should be *given*.

J. & J. PATON, Educational Agents, 143, Cannon St., London, E.C.4. Tel.: Mansion House 5053.

POST-GRADUATE MIDWIFERY.

Qualified Medical Women are admitted to **The Mothers' Hospital of the Salvation Army, Lower Clapton Road, E.5** for practical fortnightly Courses in Midwifery. These include delivery of *normal cases, attendances* at all abnormal cases, operations, ward rounds of visiting staff, V.D. clinics, and antenatal clinics. For further particulars, fees, *etc., apply to the* Secretary.

All Saints' Hospital (For Genito-URINARY DISEASES),

49/55, Vauxhall Bridge Road, S.W.1.

DEMONSTRATIONS IN CYSTOSCOPY are held on: [illegible]

M[illegible] Street, Lancaster Gate, W.2.—A dancing lesson any time by appointment. Tel.: Mountview 3634. *Special* terms for classes of students. Weekly class 3/6. Dances held. Children's class under specially trained teacher.

LONDON SCHOOL OF DERMATOLOGY,

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN,

LEICESTER SQUARE, W.C.2.

Conducted by the Honorary Staff of the Hospital, together with the Physicians in charge of the Dermatological [illegible] Teaching Hospitals. [illegible] tions every Tuesday from October to May during May. Clin[illegible] 6 p.m., Saturdays, Laboratory for Inst[illegible]

For further particulars, fees, etc., apply to J. E. M. WIGLEY, M.B., Dean.

CITY OF LONDON MATERNITY HOSPITAL,

CITY ROAD, E.C.1.

MIDWIFERY TRAINING SCHOOL.

MEDICAL STUDENTS admitted to Hospital practice, with operative Midwifery, and Obstetrical complications.

PUPILS TRAINED as Midwives and Monthly Nurses in accordance with C.M.B. regulations.

PRIVATE WARDS for paying patients.

TAUNTON SCHOOL,

TAUNTON.

A PUBLIC SCHOOL FOR BOYS.

Boys are regularly prepared for the First M.B. Examination, University Scholarships in *Chemistry, Biology*, etc.

Special facilities are offered for the teaching of Chemistry, Physics, Botany, and Zoology.

New Science Buildings, containing seven *laboratories*, two *lecture rooms*, science library, store rooms, etc., opened in September, 1925. Prospectus from Head Master.

LIVERPOOL SCHOOL OF TROPICAL MEDICINE.

(UNIVERS[illegible]

COURSES OF [illegible] three months) f[illegible]

Medicine commence on October 1st and January 7th, and for the Diploma in Tropical Hygiene on January 12th and April 26th. (Candidates for the D.T.H. must possess the D.T.M. of this University.)

For particulars apply to the Hon. Dean, Liverpool School of Tropical Medicine, Pembroke Place, Liverpool.

Examining Board in England

BY THE

ROYAL COLLEGE OF PHYSICIANS OF LONDON AND THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

PRE-MEDICAL EXAMINATION.

This Examination will commence on Tuesday, December 31st, 1929.

FIRST EXAMINATION (OLD REGULATIONS).

This Examination will commence on Tuesday, December 31st, 1929.

SECOND EXAMINATION (OLD REGULATIONS).

This Examination will commence on Thursday, January 2nd, 1930.

FIRST EXAMINATION (NEW REGULATIONS).

This Examination will commence on Thursday, January 2nd, 1930.

THIRD OR FINAL EXAMINATION.

This Examination will commence on Monday, January 6th, 1930.

DIPLOMA IN LARYNGOLOGY AND OTOLOGY.

Part I of this Examination will commence on Monday, December 2nd, and Part II on Monday, December 9th, 1929.

DIPLOM[illegible] MEDICINE.

Part I [illegible] ill commence on Mon[illegible] Part II on Friday,

ALTH.

Part I [illegible] commence on Monday, [illegible] d Part II on Monday, [illegible] 6th, 1930.

DIPLOMA IN TROPICAL MEDICINE AND HYGIENE.

This Examination will commence on Monday, March 3rd, 1930.

DIPLOMA IN OPHTHALMIC MEDICINE AND SURGERY.

Part I of this Examination will commence on Monday, February 10th, and Part II on Friday, February 14th, 1930.

Particulars of these examinations, dates of entry, etc., may be obtained from the Secretary, Examination Hall, 8-11, Queen Square, London, W.C.1.

HORACE T. REW, Secretary.

October 14th, 1929.

Royal College of Surgeons of England.

ANNUAL MEETING OF FELLOWS AND MEMBERS.

Notice is hereby given that it is proposed to hold a MEETING OF FELLOWS AND MEMBERS at the College in Lincoln's Inn Fields on Thursday, NOVEMBER 21st, 1929, at 3 o'clock p.m., and that a Report from the Council will be laid before the Meeting. Fellows and Members can obtain copies of the Report on application to the Secretary, and can, if they so desire, have their names placed on the list of those to whom the Report is sent annually.

Motions to be brought forward at the Meeting must be signed by the mover, or by the mover and other Fellows and Members, and must be received by the Secretary not later than November 11th.

Copies of the Agenda will be issued on or after November 14th to any Fellow or Member who may apply for one.

S. FORREST COWELL, Secretary.

October 16th, 1929.

The University of Adelaide.

ELDER PROFESSOR OF ANATOMY AND HISTOLOGY.

Applications are invited for the Elder Professorship of Anatomy and Histology in the University of Adelaide, South Australia.

The Professor will be required to offer courses of lectures and practical work in Anatomy and Histology suitable for students in Medicine and in Dentistry, together with advanced courses suitable for Honours students in Science.

The services of a full-time lecturer are provided and also a technician.

Salary £1,100 per annum.

Applications, with testimonials, statement of age, academic qualifications, experience, and copies of publications, should reach the Registrar, the University of Adelaide, South Australia, not later than January 1st, 1930. Candidates must state the earliest date after March 1st at which they can take up their duties.

Further information may be obtained from:

(a) The Agent-General for South Australia, Australia House, Strand, London.

(b) Any University in Australia or New Zealand.

F. W. EARDLEY, Registrar.

South Australian Government.

The Agent-General for South Australia has been instructed by the South Australian Government to secure the services of TWELVE JUNIOR MEDICAL GRADUATES (Women Graduates will be eligible) for service at the ADELAIDE HOSPITAL.

The terms of engagement will be for one year, commencing February, 1930, with a salary of £100 per annum, in addition to apartments, rations, fuel, and light, such salary to commence from time of taking up duties.

Selected applicants will be nominated by the Hospital Board, and the cost of single passage to Adelaide will be borne by the Government.

Applications for the above appointments will be received until October 31st, at the Office of the Agent-General for South Australia, Room 216, Australia House, Strand, London, W.C.2.

University of Leeds.

CANCER RESEARCH FELLOWSHIP.

The Senate of the University will shortly proceed to the election of a Cancer Research Fellow in the Department of Experimental Pathology and Cancer Research. The value of the Fellowship will be £500 per annum. Candidates must possess a registrable medical qualification. The conditions of appointment may be obtained from the Clerk to the Senate.

Preliminary Examinations.

The COLLEGE OF PRECEPTORS holds Preliminary Examinations for Medical and Dental Students in London and at Provincial Centres in March, June, September, and December. For Regulations, apply to the Secretary, College of Preceptors, Bloomsbury Square, London, W.C.1.

Invalid and Crippled Children's Hospital.

Balaam Street, Plaistow, E.13.

Applications are invited for the post of HONORARY SURGEON to the Ear, Nose, and Throat Department (8 beds and out-patients), Friday afternoons.

Applications, with copies of testimonials, should be sent to the Secretary not later than Friday, November 1st.

B. I. HOWARD, Secretary.

ROYAL NAVAL DENTAL SERVICE.

The Admiralty is prepared to receive applications from qualified Dental Surgeons for entry into the Royal Navy as DENTAL OFFICERS.

Two vacancies are to be filled. Candidates must be below 28 years of age on December 31st, 1929 (unless granted an allowance for age, not exceeding six months, in respect of a period served in a recognized Civil Hospital appointment), and must be registered under the Dentists Act as qualified to practise as Dental Surgeons in Great Britain and Ireland. They will be required to appear before a Selection Committee and to pass a medical examination by a Board of Naval Medical Officers as to their physical fitness for entry.

The Regulations for entry and the forms to be filled up by candidates can be obtained on application to the Medical Director-General of the Navy, Queen Anne's Chambers, Tothill Street, London, S.W.1.

The form of application, accompanied by the necessary documents, must reach the Medical Director-General not later than November 18th.

City of Manchester.

PUBLIC HEALTH DEPARTMENT.

BAGULEY SANATORIUM. (333 Beds.)

APPOINTMENT OF SENIOR ASSISTANT MEDICAL OFFICER.

Applications are invited from qualified Medical Men for the position of Senior Assistant Medical Officer.

Every applicant must be a registered Medical Practitioner, under 40 years of age, and unmarried.

Applicants must have held Resident Hospital and Sanatorium appointments, and have had practical experience in the diagnosis and modern methods of treatment of tuberculosis; practical experience in radiology is desirable.

Salary £500 per annum, with board, residence, and laundry in addition.

The successful candidate would be required to take up duty on January 1st, 1930.

Every application, stating fully the training, qualifications, and experience of the candidate, and his age, with copies of three recent testimonials, and endorsed on the envelope, "Medical Officer, Baguley Sanatorium," must be addressed to the undersigned only, and not to members of the Committee or Council, and must reach him not later than Monday, the 28th instant.

The gentleman appointed will be required to pass a medical examination, to devote the whole of his time to the duties of his office, to take charge in the absence of the Medical Superintendent, to contribute to the Corporation Superannuation Fund, and to execute the Deed of Service.

Canvassing in any form, oral or written, direct or indirect, is prohibited.

By Order,
F. E. WARBRECK HOWELL,
Town Clerk.

Town Hall, Manchester. October 7th, 1929.

Liverpool County Borough.

LOCAL EDUCATION AUTHORITY.

JUNIOR ASSISTANT SCHOOL MEDICAL OFFICER.

Applications are invited for a JUNIOR ASSISTANT SCHOOL MEDICAL OFFICER in the Department of the Medical Officer to the Local Education Authority, at a salary of £600 per annum.

Applicants must be registered Medical Practitioners, and shall have had at least three years' experience. It is desirable that they should have had some special experience in School Hygiene and in Diseases of Children.

The officer appointed will be required to devote his whole time to the service of the Education Authority, under the direction of the Medical Officer to the Education Authority. He will not be allowed to undertake private practice, and will be required to contribute to the Liverpool Corporation Superannuation Scheme, as required by the Standing Orders of the City Council.

A form of application may be obtained from the undersigned, and applications, endorsed "Junior Assistant School Medical Officer," must be delivered at the office of the Town Clerk, Municipal Buildings, Liverpool, on or before November 4th.

Canvassing of members of the Committee or the City Council is strictly prohibited, and will be considered a disqualification.

WALTER MOON,
Town Clerk and Clerk to the Local Education Authority.

Municipal Buildings, Liverpool
Oct. 17th, 1929.

City of Manchester.

PUBLIC HEALTH DEPARTMENT.

BAGULEY SANATORIUM. (333 Beds.)

APPOINTMENT OF ASSISTANT MEDICAL OFFICER.

Applications are invited from qualified Medical Men for the position of Assistant Medical Officer.

Every applicant must be a registered Medical Practitioner, under 40 years of age, and unmarried.

Preference will be given to applicants with previous Hospital experience; some experience of bacteriology or radiology is desirable.

Salary £350 per annum, with board, residence, and laundry in addition.

The appointment is made in the first instance for a period of twelve months, renewable at the expiration of that period.

Every application, stating fully the training, qualifications, and experience of the candidate, and his age, with copies of three recent testimonials, and endorsed on the envelope "Medical Officer, Baguley Sanatorium," must be addressed to the Medical Officer of Health, Civic Buildings, 1, Mount Street, Manchester, only, and not to members of the Committee or Council, and must reach him not later than Monday, October 28th.

The gentleman appointed will be required to pass a medical examination, to devote the whole of his time to the duties of the office, to contribute to the Corporation Superannuation Fund, and to execute the Deed of Service.

Canvassing in any form, oral or written, direct or indirect, is prohibited.

By Order,
F. E. WARBRECK HOWELL,
Town Clerk.

Town Hall, Manchester. October 7th, 1929.

Monmouthshire County Council.

ASSISTANT MEDICAL OFFICER.

The Council invite applications from duly qualified Medical Practitioners holding a Diploma in Public Health and State Medicine, and not exceeding 35 years of age, for the appointment of Assistant Medical Officer (woman), to undertake mainly the work associated with (1) the Medical Inspection and Treatment of School Children; (2) Maternity and Child Welfare; and (3) the assessment of vision under the Blind Persons Act, 1920.

Special experience in refraction and ophthalmic work is essential.

Salary £500 per annum, rising by annual increments of £25 to £750, with third-class rail fares and reasonable subsistence allowance.

The successful candidate will be required to act under the direction and supervision of the County Medical Officer, to devote whole time to the service of the County Council, and to reside in such place as the Council may determine.

The requisite statutory meeting of the County Council has adopted the Local Government and Other Officers Superannuation Act, 1922, and when confirmed by the Minister of Health the post will be subject, as and from April 1st, 1930, to the provisions of the Act.

A schedule of the duties to be performed, together with conditions of appointment, and form of application, can be obtained from the undersigned, to whom applications, accompanied by copies of not more than three recent testimonials, are to be sent by November 1st.

D. ROCYN JONES,
County Medical Officer.

County Hall, Newport, Mon.
October 7th, 1929.

County Borough of St. Helens.

TUBERCULOSIS OFFICER.

Applications are invited for the above post. Duties will be mainly in connection with the Authority's Tuberculosis Scheme, including those of Resident Medical Officer at the Council's Tuberculosis Sanatorium, but the selected candidate will be required to perform such other duties as the Medical Officer of Health may direct.

Candidates must have had special experience in Tuberculosis (both pulmonary and non-pulmonary) from both clinical and administrative aspects, and the possession of a Diploma in Public Health is desirable.

Salary £600 per annum, with board-residence.

The appointment will be subject to the provisions of the Local Government and Other Officers Superannuation Act, 1922, and to the successful candidate passing the necessary medical examination.

Forms of application may be obtained from the Medical Officer of Health, Town Hall, St. Helens, and completed applications, accompanied by copies of not more than three recent testimonials, should reach him not later than Saturday, October 26th.

FRANK HAUXWELL,
Medical Officer of Health.

Town Hall, St. Helens.
October 7th, 1929.

City of Manchester.

PUBLIC HEALTH DEPARTMENT.

BAGULEY SANATORIUM. (333 Beds.)

APPOINTMENT OF ASSISTANT MEDICAL OFFICER.

Applications are invited from qualified Medical Men for the position of Assistant Medical Officer.

Every applicant must be a registered Medical Practitioner, under 40 years of age, and unmarried.

Preference will be given to applicants with previous Hospital experience; some experience of bacteriology or radiology is desirable.

Salary £350 per annum, with board, residence, and laundry in addition.

The appointment is made in the first instance for a period of twelve months, renewable at the expiration of that period.

Every application, stating fully the training, qualifications, and experience of the candidate, and his age, with copies of three recent testimonials, and endorsed on the envelope "Medical Officer, Baguley Sanatorium," must be addressed to the Medical Officer of Health, City Buildings, 1, Mount Street, Manchester, only, and not to members of the Committee or Council, and must reach him not later than Monday, October 28th.

The gentleman appointed will be required to pass a medical examination, to devote the whole of his time to the duties of the office, to contribute to the Corporation Superannuation Fund, and to execute the Deed of Service.

Canvassing in any form, oral or written, direct or indirect, is prohibited.

By Order,
F. E. WARBRECK HOWELL,
Town Clerk.

Town Hall, Manchester. October 7th, 1929.

NOTICE OF ELECTION.

MEDICAL ACT, 1886. (49 and 50 Vict. Ch. 48.)

NOTICE IS HEREBY GIVEN that, pursuant to the Medical Act, 1886, an ELECTION of TWO MEMBERS of the General Council of Medical Education and Registration of the United Kingdom, to represent the registered Medical Practitioners resident in ENGLAND, is about to be held.

Every registered Medical Practitioner is qualified to be nominated as a candidate.

Each candidate must be nominated by a separate nomination paper.

Every registered Medical Practitioner resident in England is entitled to take part in nominating two candidates.

Every nomination paper must state the name, registered address, and registered qualification or qualifications of the candidate nominated; it must be signed by not fewer than twelve registered Medical Practitioners resident in England, as nominating such candidate; and the registered address and registered qualification or qualifications of each one so signing must be appended to his signature.

Every nomination paper, accompanied by a declaration in writing signed by the person nominated, acknowledging that he consents to be nominated, must be delivered, by post or otherwise, on or before the seventh day of November, 1929, addressed to MR. NORMAN C. KING, the Registrar, at the Medical Council Office, 44, Hallam Street, London, W.1, where forms of nomination papers may, on application by post or otherwise, be obtained.

Every nomination paper in respect of which any of these Regulations has not been complied with, or which is not received at 44, Hallam Street, London, W.1, on or before Nov. 7th, 1929, will be invalid.

DONALD MACALISTER,
President of the General Medical Council, Returning Officer.

NOTICE OF ELECTION.

MEDICAL ACT, 1886. (49 and 50 Vict. Ch. 48.)

NOTICE IS HEREBY GIVEN that, pursuant to the Medical Act, 1886, an ELECTION of ONE MEMBER of the General Council of Medical Education and Registration of the United Kingdom, to represent the registered Medical Practitioners resident in SCOTLAND, is about to be held.

Every registered Medical Practitioner is qualified to be nominated as a candidate.

Each candidate must be nominated by a separate nomination paper.

Every registered Medical Practitioner resident in Scotland is entitled to take part in nominating one candidate.

Every nomination paper must state the name, registered address, and registered qualification or qualifications of the candidate nominated; it must be signed by not fewer than twelve registered Medical Practitioners resident in Scotland, as nominating such candidate; and the registered address and registered qualification or qualifications of each one so signing must be appended to his signature.

Every nomination paper, accompanied by a declaration in writing signed by the person nominated, acknowledging that he consents to be nominated, must be delivered, by post or otherwise, on or before the seventh day of November, 1929, addressed to MR. T. H. GRAHAM, the Registrar, at 12, Queen Street, Edinburgh, where forms of nomination papers may, on application by post or otherwise, be obtained.

Every nomination paper in respect of which any of these Regulations has not been complied with, or which is not received at 12, Queen Street, Edinburgh, on or before November 7th, 1929, will be invalid.

DONALD MACALISTER,
President of the General Medical Council, Returning Officer.

NOTICE OF ELECTION.

MEDICAL ACT, 1886. (49 and 50 Vict. Ch. 48.)

NOTICE IS HEREBY GIVEN that, pursuant to the Medical Act, 1886, an ELECTION of ONE MEMBER of the General Council of Medical Education and Registration of the United Kingdom, to represent the registered Medical Practitioners resident in IRELAND, is about to be held.

Every registered Medical Practitioner is qualified to be nominated as a candidate.

Each candidate must be nominated by a separate nomination paper.

Every registered Medical Practitioner resident in Ireland is entitled to take part in nominating one candidate.

Every nomination paper must state the name, registered address, and registered qualification or qualifications of the candidate nominated; it must be signed by not fewer than twelve registered Medical Practitioners resident in Ireland, as nominating such candidate; and the registered address and registered qualification or qualifications of each one so signing must be appended to his signature.

Every nomination paper, accompanied by a declaration in writing signed by the person nominated, acknowledging that he consents to be nominated, must be delivered, by post or otherwise, on or before the seventh day of November, 1929, addressed to MR. RICHARD J. E. ROE, the Registrar, at 35, Dawson Street, Dublin, where forms of nomination papers may, on application by post or otherwise, be obtained.

Every nomination paper in respect of which any of these Regulations has not been complied with, or which is not received at 35, Dawson Street, Dublin, on or before November 7th, 1929, will be invalid.

DONALD MACALISTER,
President of the General Medical Council, Returning Officer.

Hackney Hospital.

The Guardians of the Hackney Union invite applications from duly qualified gentlemen for the position of JUNIOR ASSISTANT MEDICAL OFFICER (Physician).

Candidates must be single, and must have held previous resident Hospital appointment.

The Hospital, which is situate at High Street, Homerton, E.9, contains 800 beds, and is equipped with modern requirements.

Besides the Medical Superintendent, there are six Resident Medical Officers and a Clinical Pathologist.

The remuneration is at the rate of £350 per annum, rising by £25 annually to a maximum of £375 per annum, together with allowances, washing, furnished apartments, and attendance.

The duties of the officer appointed will be mainly on the medical side of the Hospital, but he will also be required to render assistance at the other establishments and departments of the Union, to assist in the training and instruction of nurses, and to devote the whole of his time to the service of the Guardians.

The appointment will be subject to the provisions of the Poor Law Officers Superannuation Act, 1896.

Further particulars as to the duties may be obtained from the Medical Superintendent.

Canvassing the Guardians, directly or indirectly, will disqualify candidates.

Applications must be made upon forms which are obtainable from the undersigned.

The forms must be completed and returned, with copies of not more than three recent testimonials, by Monday, November 4th, 1929.

By Order,
E. W. HARBOUR,
Clerk to the Guardians.

Clerk's Office,
Hackney Union,
Homerton, E.9.

St. Mary's Hospital, W.2.

The Board of Management are prepared to receive applications for the post of ASSISTANT SURGEON for Diseases of the Ear, Nose, and Throat.

Applicants for the appointment are requested to forward their applications, addressed to the Secretary at the Hospital, so that they shall reach him on or before October 31st.

Candidates must be Fellows of the Royal College of Surgeons of England, or must undertake to become so within six months.

The Supernumerary Assistant Surgeon for Diseases of the Ear, Nose, and Throat is a candidate for the post.

By Order,
W. PARKES,
Secretary.

October 14th, 1929.

St. Mary's Hospital, W.2.

The Board of Management are prepared to receive applications for the post of ASSISTANT OPHTHALMIC SURGEON.

Applicants for the appointment are requested to forward their applications, addressed to the Secretary, at the Hospital, so that they shall reach him on or before October 31st.

Candidates must be Fellows of the Royal College of Surgeons of England, or must undertake to become so within six months.

The Supernumerary Assistant Ophthalmic Surgeon to the Hospital is a candidate for the post.

By Order,
W. PARKES,
Secretary.

October 14th, 1929.

South Yorkshire Mental Hospital,

SHEFFIELD.

Wanted, MEDICAL OFFICER (male) not over 35, unmarried. Salary £400, rising £25 a year to £500, with board, etc. The appointment is made subject to the provisions of the Asylums Officers' Superannuation Act, 1909. Applications, with three testimonials (copies only), to be sent to the Medical Superintendent on or before November 1st.

St. John's Hospital,

Lewisham, S.E.13.

A vacancy has been declared in the office of RADIOLOGIST to the Hospital, to fill which applications are invited. The successful applicant must be prepared to commence duties at the beginning of November. The conditions of appointment and further information may be obtained from the Secretary at the Hospital, and applications must be received by Oct. 21st.

St. John's Hospital,

Lewisham, S.E.13.

Applications are invited for the office of RESIDENT MEDICAL HOUSE SURGEON for three or six months from November 1st, at a salary of £100 per annum. Applications, with copies of testimonials, should reach the Secretary at the Hospital not later than October 21st. The Selection Committee will sit on October 22nd at 4.30 p.m.

The Hospital for Sick Children,

Great Ormond Street, London, W.C.1.

A RESIDENT MEDICAL OFFICER is required at the COUNTRY BRANCH HOSPITAL, TADWORTH COURT, TADWORTH, SURREY, on November 7th.

Candidates are invited to send in their applications to the Secretary before 12 o'clock on Monday, November 4th, accompanied by copies of not more than three testimonials given specially for the purpose.

The appointment is made for six months, but the successful candidate will be eligible for re-appointment.

Salary at the rate of £250 per annum, with board, residence in the Hospital, laundry allowance at the rate of £10 per annum, and, on re-election for a further period of six months, £18 18s. for the purpose of providing a substitute during annual leave of a maximum of four weeks.

Candidates must be unmarried and possess a legal qualification to practise, and must have held a responsible resident appointment at a General Hospital.

All candidates must be in attendance on Wednesday, November 6th, at 4.45 p.m., precisely, to appear before the Joint Committee, if required.

Forms of application and copies of the Rules may be obtained from the Secretary, at the Hospital.

By order of the Board of Management,
JAMES McKAY, Secretary.

October, 1929.

Manchester Royal Infirmary.

ASSISTANT MEDICAL OFFICER.
MASSAGE AND ELECTRICAL DEPARTMENT.

The Board of Management invite applications from registered Medical Practitioners (men and women) for the above appointment. Previous experience in the work is not essential.

The duties are to attend daily and to assist the Medical Officer in charge of the Department. The appointment is part-time (non-resident) for one year; the holder of the office is eligible for re-election twice. Salary £100 per annum.

Candidates must state age, and send twelve copies of their application and testimonials to the undersigned on or before November 6th.

By Order,
FRANK G. HAZELL,
Gen. Supt. and Secretary.

Salford Royal Hospital.

(353 Beds.)

Applications are invited for the post of CASUALTY HOUSE SURGEON (male). Salary at the rate of £125 per annum. The appointment is for a period ending March 31st, 1930, with board and residence.

Candidates must be registered under the Medical Acts. Forms of application, which may be obtained from the undersigned, must be delivered without delay.

By Order of the Board.
GEORGE RUDDLE,
General Superintendent and Secretary.

Salford Royal Hospital, Manchester.

October 14th, 1929.

District Infirmary,

ASHTON-UNDER-LYNE.
(General Hospital, 200 Beds, mainly Surgical.)

TWO HOUSE SURGEONS required. Six months' appointment. Salary at the rate of £150 per annum, with board, residence, and laundry.

The Resident Staff comprises a Resident Surgical Officer and three House Surgeons.

Applications, with testimonials, to be sent to the undersigned.

FRANK OLIVER,
General Superintendent and Secretary.

October 14th 1929.

Queen's Hospital, Birmingham

(MEDICAL SCHOOL).

Applications are invited for the post of MEDICAL REGISTRAR. Salary £200 p.a., with board, residence, and laundry. The appointment is for one year with eligibility for re-election. Applications, together with diplomas, evidence of registration, and copies of testimonials, to be sent to the undersigned.

G. HURFORD,
House Governor.

October 15th, 1929.

Essex County Hospital,

COLCHESTER (160 Beds.)

Wanted in November, ASSISTANT HOUSE SURGEON and REGISTRAR (male). Salary £120, with board, washing, and residence. Medical and Surgical qualifications required.

Applications, with three recent testimonials, to be sent on or before Friday, October 25th, to

ALFRED G. BUCK, Secretary.

Bethlem Hospital,

Lambeth Road, S.E.

Wanted, one RESIDENT HOUSE PHYSICIAN (gentleman, unmarried), recently qualified in Medicine and Surgery. The term of residence is for six months from November 1st, apartments, complete board, and laundry being provided, and an honorarium at the rate of £25 per quarter will be paid. He will be under the direction of the Physician-Superintendent, to whom he must present himself previous to the date of election.

Copies of the duties can be obtained from the undersigned, and applications, with testimonials, are to be forwarded to the Treasurer, Bethlem Hospital Office, 14a, New Bridge Street, E.C.4, before October 28th, endorsed "House Physician."

Candidates must attend at the Hospital on Wednesday, October 30th, at 11.30 a.m., when the Subcommittee will make the appointment.

JOHN L. WORSFOLD, Clerk.

Bethlem Hospital Office, 14a, New Bridge Street, E.C.4. October, 1929.

Sussex Maternity and Women's Hospital.

(38 Beds.)

RESIDENT HOUSE SURGEON (male) required. Salary at the rate of £120 per annum. Board and washing found. Good experience in midwifery and gynæcology afforded. No canvassing allowed. The successful candidate will be required to enter on his duties on December 9th.

Applications in writing, accompanied by testimonials, should be sent on or before November 1st, to A. F. GRAVES, Clerk, 117, North Street, Brighton.

Queen's Hospital, Birmingham.

(A Medical School.)

Applications are invited for the post of RESIDENT ANÆSTHETIST to commence duties at once.

Salary £70 to £100 p.a. (according to experience and previous Hospital Resident appointment(s), together with board, apartments, and laundry.

Applications should be sent to the undersigned, accompanied by three recent testimonials.

G. HURFORD,
House Gov. & Sec.

Birmingham.
October 15th, 1929.

Torbay Hospital, Torquay.

Notice is hereby given, in accordance with Rule 8, that the Court of Governors will meet on November 28th next to elect an HONORARY ANÆSTHETIST.

Candidates are required to be registered under the Medical Act.

Applications (sixteen copies), accompanied by sixteen copies of not more than three testimonials, should be sent to the undersigned not later than Wednesday, November 20th next.

E. L. GRIST, Secretary.

October 14th, 1929.

Worcester General Infirmary.

(132 Beds.)

Applications are invited for the post of JUNIOR RESIDENT MEDICAL OFFICER at the above Institution, stating age, qualifications, and experience. Salary at the rate of £120 per annum, including board, residence, and laundry. Applications, together with not less than three copies of testimonials, to be forwarded immediately to the undersigned.

PERCY N. GLASS, B.Sc.(Vict.),
General Secretary.

Western Ophthalmic Hospital,

Marylebone Road, N.W.1.

Applications are invited for the posts of SENIOR and JUNIOR NON-RESIDENT HOUSE SURGEONS. The salaries are at the rate of £150 and £100 per annum respectively, and the appointments are for six months. The selected candidates will be required to take up duty on November 1st.

Applications, accompanied by copies of three testimonials, should reach me by October 23rd.

H. W. BURLEIGH, Esq.,
Honorary Secretary.

Royal United Hospital, Bath.

Wanted at once, ASSISTANT HOUSE SURGEON. Salary £100 per annum.

The appointment will be for not less than six months, and candidates must be male, unmarried, and of British nationality.

Applications, together with three recent testimonials, must be addressed to the undersigned.

J. M. SHEPPARD, F.C.I.S.,
Secretary.

APPOINTMENTS—Important Notice.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

(a) British Islands.

Town or District.	Town or District.	Town or District.
CONTRACT PRACTICE.	**CONTRACT PRACTICE** *(Contd.).*	**PUBLIC HEALTH** *(continued).*
EBBW VALE, MON. *(Workmen's Medical Society.)*	NEATH AND DISTRICT. *(Medical Aid Association.)*	CORNWALL EDUCATION COMMITTEE. *(Assistant School Medical Officer—Female.)*
GILFACH GOCH, GLAMORGAN. *(Workmen's Medical Scheme.)*	OAKDALE, MON. *(Medical Officer for Medical Aid Association.)*	GLASGOW EDUCATION AUTHORITY. *(Male Assistant Medical Officer.)*
LLWYNYPIA, CLYDACH VALE PENYGRAIG, GLAMORGAN. *(Workmen's Medical Scheme.)*	OGMORE VALLEY, GLAMORGAN. *(Wyndham Colliery Medical Aid Society.)* *(Workmen's Medical Scheme.)*	LEEDS EDUCATION COMMITTEE. *(Assistant School Medical Officer.)*
MARDY, GLAMORGAN. *(Workmen's Medical Scheme.)*	**PUBLIC HEALTH.**	YORKSHIRE NORTH RIDING COUNTY COUNCIL EDUCATION COMMITTEE. *(Assistant School Medical Officer.)*
	CHESHIRE EDUCATION COMMITTEE. *(Assistant School Medical Officer.)*	YORKSHIRE WEST RIDING COUNTY COUNCIL. *(School Medical Inspector.)*

(b) Colonial Medical Service.—

WINDWARD ISLANDS MEDICAL SERVICE. (Grenada with Carriacou, St. Vincent and St. Lucia.)

(c) Overseas.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.
NEW SOUTH WALES. *(All Friendly Society Appointments.)*	Dr. R. H. TODD (Hon. Sec., New South Wales Branch), B.M.A. Building, 30-34, Elizabeth St., Sydney, N.S.W.	VICTORIA. *(All Institute or Medical Dispensaries.)*	Dr. FRANK DAVIES (Hon. Sec., Victorian Branch), British Medical Association, Medical Society Hall, East Melbourne, Victoria.	WESTERN AUSTRALIA. *(Contract and Lodge Practices.)*	Hon. Sec., Western Australian Branch, British Medical Association, No. 6, Bank of N.S.W. Chambers, St. George's Terr., Perth, Western Australia.
QUEENSLAND. *(Brisbane Associated Friendly Societies Institute.)*	The Hon. Sec., Queensland Branch, British Medical Association, B.M.A. Building, Adelaide St., Brisbane.	WELLINGTON, NEW ZEALAND. *(Contract Practice Appointments.)*	Dr. G. F. V. ANSON (Hon. Sec., New Zealand Branch), British Medical Association, P.O. Box 156, Wellington, New Zealand.		

Address: B.M.A. House, Tavistock Square, W.C.1. By Order of the Council of the British Medical Association.
October 1929. ALFRED COX, Medical Secretary.

The Victoria Hospital for CHILDREN, Tite Street, Chelsea, S.W.3. (138 Beds.)

The Committee of Management invite applications for the posts of
(*a*) HONORARY MEDICAL REGISTRAR;
(*b*) HONORARY SURGICAL REGISTRAR.
Candidates for post (*a*) are expected to call on members of the Honorary Medical Staff and those for post (*b*) on the members of the Honorary Surgical Staff.
The appointments are for one year, renewable for a second year. Applications, with copies of three recent testimonials, should be sent to the Secretary not later than Saturday, October 26th.

By Order,
D. St. JOHN BAMFORD,
Secretary.

The Queen's Hospital for CHILDREN, Hackney Road, London, E.2.

HOUSE PHYSICIAN required on December 31st. A six months' appointment. Salary £100 a year, with board, residence, and washing. Preference given to candidates who have previously held Resident appointments. Applications must be made on forms to be obtained from the Secretary, and must be sent in with copies of not more than four testimonials on or before October 31st.

T. GLENTON-KERR,
October 3rd, 1929. Secretary.

The Queen's Hospital for CHILDREN, Hackney Road, London, E.2.

HOUSE SURGEON (male) required on December 31st. Six months' appointment. Salary at the rate of £100 a year, with board, lodging, and washing. Applications must be made on forms to be obtained from the Secretary, and must be sent in with copies of not more than four testimonials on or before October 31st.

T. GLENTON-KERR,
October 3rd, 1929. Secretary.

Jersey General Hospital and Poor LAW INFIRMARY.

RESIDENT MEDICAL OFFICER.

Applications are invited for the above post (male). Applicants must be duly qualified practitioners in medicine and surgery. Salary £200 per annum, with board, residence in the Hospital, and laundry.
The appointment is for one year and is renewable. Applications, with testimonials, must be sent in on or before Saturday, November 9th, addressed to the undersigned, from whom further particulars may be obtained.

P. BEUZEVAL, Secretary.

The Queen's Hospital for CHILDREN, Hackney Road, London, E.2.

CLINICAL ASSISTANT required in the Orthopædic Department. Attendance every Thursday at 1.30 p.m.
Lunch provided. Honorarium of 5*s*. per attendance to cover expenses. Applications, stating age, qualifications, and experience, should be addressed to the Secretary at the Hospital, and should be delivered on or before November 5th.

T. GLENTON-KERR,
October 12th, 1929. Secretary.

The Queen's Hospital for CHILDREN, Hackney Road, London, E.2.

CASUALTY OFFICER required January 12*th*, 1930. A six months' appointment. Salary £100 a year, with board, residence, and washing. Preference given to candidates who have previously held Resident appointments. Applications must be made on forms to be obtained from the Secretary, and must be sent in with copies of not more than four testimonials on or before October 31st.

T. GLENTON-KERR,
October 3rd, 1929. Secretary.

North Ormesby Hospital, MIDDLESBROUGH. (140 Beds.)

HOUSE PHYSICIAN required at once. Male and unmarried. Salary £115 per annum, with board, residence, and laundry. There are three Residents, and the successful candidate will be eligible for the post of House Surgeon in due course. Applications, stating age, qualifications, previous experience (*if any*), with copies of three recent testimonials, to be sent to the undersigned as early as possible.

GEORGE WATTS, Secretary-Supt.

Royal South Hants and SOUTHAMPTON HOSPITAL, SOUTHAMPTON.

Applications are invited for the post of CASUALTY OFFICER. Salary £120, with rooms, board, and laundry. Six months' engagement. Candidates, who must be male and unmarried, should apply at once to the undersigned, stating age, and enclosing copies of testimonials.

By Order,
HY. TRUSSON, Secretary.

The Sheffield Royal Hospital.

A Male RESIDENT ANÆSTHETIST is required and the selected candidate will be eligible for appointment to any vacancy occurring on the Resident Staff. Salary £80 per annum, with board, residence, and laundry. Applications, with copies of testimonials, should be sent as soon as possible to the undersigned.

W. H. BOOTH,
October 9th, 1929. Supt. & Secretary.

Stamford, Rutland, and General INFIRMARY (Not Poor Law).

[illegible] immediately. Must [illegible] good Anæsthetist. [illegible] week all found.

[illegible]BOROUGH.

British Medical Journal,
BRITISH MEDICAL ASSOCIATION HOUSE,
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ASSISTANCIES.

Wanted. — Assistant (Scottish Graduate preferred), with view to Partnership, in mixed private and panel Practice in E. Lancs town. Salary £350, with house, etc. Full particulars, references, and photo.—Add., No 6608, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — Assistant, outdoor, for Derbyshire Practice. £450 p.a. (rising to £500 for suitable man); English nationality); London, Oxford, or Cambridge Grad. pref.—Address, with refs., prev. appts., photo.—No. 6529, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — Assistant, outdoor, male, to take charge of Branch Surgery. Pembs. Coast, country district. Motor-cyclist. Work light.—Address, No. 5013, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Outdoor Assistant, male, age 27—30, British. In East Anglia. Salary £400 p.a. Good prospects later to suitable man.—Address, refs., age, etc., No. 6615, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—Assistant, indoor, for mixed panel and private Practice. Residential district, near Manchester. Work light. £275 p.a. Particulars, and photo. if possible.—Address, No. 6522, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistant, indoor, male, for General Practice in N. of England, outside Colliery area. Scotsman preferred. Salary from £240, depending on experience. Rise in six months if suitable. Usual bond. Send age, nationality, and two refs.—No. 6603, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — Indoor Assistant, Panel Practice, Co. Durham. English, Irish, Scotch, or Welsh; energetic. Salary £252 per annum. Usual bond. State age, nationality, and enclose references. — Address, No. 6328, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistant, male, Industrial Practice in Midlands. £300, all found. Photo.—Address, No. 6611, B.M.A. House, Tavistock Square, W.C.1.

Wanted, an outdoor Assistant in a Colliery Practice in Glamorgan. Salary to commence at £350 per annum, with rooms and attendance. Usual bond. No dispensing.—Address, No. 6537, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Indoor Assistant, (male) in Colliery Practice in Glamorgan. Dispenser kept. Salary £300 p.a.—Address, enclosing testimonials, age, and nationality, No. 6527, B.M.A. House, Tavistock Square, W.C.1.

Wanted, an indoor Assistant, male preferred, for Colliery district in Northumberland. Salary £300 p.a. State age, nationality, and enclose any references, and photo if possible.—Address, No. 6509, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Outdoor Assistant, near Manchester. Salary £400 p.a. Experienced, energetic, and to sign bond. Give full particulars.—Address, No. 6508, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistant, mixed Practice near Nottingham. Must be keen and loyal. Time for study and recreation. Nurse-dispenser kept. Use of car. £300, indoor, or proportionate increase if outdoor.—No. 6620, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — Assistant, single, experienced in Surgery. Salary £300 per annum, with rooms, coal, gas, and attendance. To start December 1st.—Apply, A. H. JAMES, M.D., The Park, Blaenavon.

Wanted. — Woman Assistant, motorist, with Hospital, Midwifery, and private experience, for Wills Country Practice. £250 indoor, three weeks' holiday. Share of increased returns.—Address, No. 6511, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistant for large firm in Hampshire. Must have University qualification and be under 30. Bias toward clinical pathology welcomed.—Address, No. 6523, B.M.A. House, Tavistock Square, W.C.1.

Wanted, indoor male Assistant in private and panel Practice in London. Usual duties. Sign bond. Comfortable home. Work light. Salary £20 per month.—Address, No. 6616, B.M.A. House, Tavistock Sq., W.C.1.

Wanted, an Assistant in Hospital Town in Cambridgeshire, indoor; experienced man £300 per annum. Recently qualified, £250 per annum. Annual increments for both.—Address, No. 6468, B.M.A. House, Tavistock Square, W.C.1.

Wanted, young unmarried male ASSISTANT (indoor), English or Scotch, for Industrial Practice near Oldham. Usual bond. Photo. Salary £250—£300.—Address, No. 6526, B.M.A. House, Tavistock Sq., W.C.1.

Wanted.—Assistant for Branch. Panel, industrial, East End. State essentials.—Address, No. 6528, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistantship by Woman M.B. and Conjoint, ex H.P., aged 26, English. Some experience panel and private practice, dispensing. London or near preferred.—Address, No. 6510, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistantship by Graduate, Scotch University, male, aged 28, Protestant. Give terms and some particulars. —Address, No. 6532, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistantship, with early view, by M.R.C.S., male, age 27, Hospital experience. Good panel, pleasant district, with Hospital, required. State particulars. —Address, No. 6525, B.M.A. House, Tavistock Square, W.C.1.

Wanted, in a South Wales Colliery Practice, an ASSISTANT with a view to Partnership. A knowledge of Welsh an advantage. An ex-H.S. Salary £400 p.a., with rooms, attendance, &c.—Address, stating age, refs., &c., No. 6536, B.M.A. House, Tavistock Sq., W.C.1.

Assistants (indoor and outdoor) wanted immediately. Good salaries offered. —BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Assistant (male), energetic, capable, for panel and private Practice, Newcastle-on-Tyne. Excellent house. Salary £416 first year. Prospects for suitable man. Full particulars.—Address, No. 6519, B.M.A. House, Tavistock Square, W.C.1.

Assistant wanted, South Coast Town; age about 30. Panel Practice. Duties very light. Suit man reading for exams. Very little night work; few mids. Salary £250 and board.—Address, No. 6612, B.M.A. House, Tavistock Square, W.C.1.

Assistant wanted (outdoor) in Cheshire, with view to Partnership in good-class Town and Country Practice. £450 p.a. Hospital experience essential.—Address, No. 6624, B.M.A. House, Tavistock Sq., W.C.1.

Assistantships. — Messrs. R. SUMNER & CO., Ltd., Manufacturing Chemists, Liverpool, will be pleased to hear from gentlemen who are open to accept either above or LOCUM TENENCIES.

Assistantship wanted by M.B., Ch.B.(1923); excellent experience in all branches of general practice, including midwifery. Single, Scotch, abstainer, aged 32 yrs. Own car if desired. Ex. tests. Now free, London.—No. 6606, B.M.A. House, Tavistock Sq., W.C.1.

Lady Doctor, M.B., D.P.H. (N.U.I.), 27, ex H.S., 3 years' experience private and panel, wishes ASSISTANTSHIP. Keen and reliable. Accustomed to sole charge. Good references. Free October 30th.—Address, "Dr. D.," 93, Gower Street, London, W.C.1.

M.B., B.Ch., B.A.O., 32, single, requires ASSISTANTSHIP; ex H.S. large teaching Hospital. Possesses very highest testimonials. Must be good-class Practice, London or easy reach. Free now.—Address, No. 6605, B.M.A. House, Tavistock Sq., W.C.1.

Woman, M.D., seeks Assistant-SHIP, with or without view; qualified 1924; ex H.P., R.M.O.; own Teaching Hospital. Special experience in women; anæsthetics; experience of general practice. Can drive car. Excellent references. Address, No. 6623, B.M.A. House, Tavistock Square, W.C.1.

MEDICAL POSTS, DISPENSERS, etc.

Wanted.—Fully qualified Doctor for service in the TROPICS. Preferably ex House Surgeon or Physician. Agreement for three years. Salary £850, £900, £950. Renewable on higher terms. Free furnished quarters and first-class passage provided. Candidates must be unmarried. Ladies not eligible. —Address, with copies of testimonials (not returnable), No. 6276, B.M.A. House, Tavistock Square, W.C.1.

Wanted by experienced Lady Secretary, DAILY WORK in London. Fluent French, experienced chauffeuse; nine years' reference. Free now.—Address, No. 6507, B.M.A. House, Tavistock Square, W.C.1.

Wanted at once, a Lady DISPENSER, country District, outdoor. Particulars of age, salary, etc., to Dr. LEVERTON-SPRY, "Polventon," St. Keverne, Cornwall.

Wanted.—Resident Lady DISPENSER-SECRETARY, public school-girl preferred, for a large country Practice in East Anglia. Shorthand and typewriting desirable. Reply, giving references and full particulars as to age, experience, and salary required; indoors.—No. 6583, B.M.A. House, Tavistock Square, W.C.1.

A Lady Dispenser-Bookkeeper supplied immediately on request, qualified and with practical experience in private practice and dispensary work, also trained in Bacteriological Laboratories of the LONDON COLLEGE OF PHARMACY FOR WOMEN. Preparation for Examinations.—Write, wire, or phone (Park 0969), Secretary, 7, Westbourne Park Road, W.2.

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Doctors requiring qualified Dispensers, Nurse Dispensers, Secretary Dispensers or Chauffeuse Dispensers, are invited to write, wire, or 'phone Temple Bar 5858, THE DISPENSERS' BUREAU, 15, Lindsay House, 171, Shaftesbury Avenue, London, W.C.2.

Dispenser-Bookkeeper, 42, desires POST; thoroughly experienced private and panel. Highest references. At liberty nov. —"DISPENSER," 13, Victoria Road, Edmonton, N.18.

Exper. Radiologist (D.M.R.E.), with experience of general and panel Practice, seeks SITUATION. Special experience of Dental Radiology.—Address, No. 6621, B.M.A. House, Tavistock Square, W.C.1.

Experienced Governess requires POST in Doctor's house with children 6—10 to be prepared for school. Can also assist as Secretary-Receptionist—typewriting, shorthand, accounts, etc. Own typewriter.—Miss M. E. BUNYARD, Mereworth, Maidstone, Kent.

Gentleman, ex Medical Student, British, requires post as SECRETARY-RECEPTIONIST. Speaks French. Drives car. Book-keeping. Anatomy, Physiology, Pharmacy. Assist in dispensing, etc. Elementary lessons to children. Pref. London or to travel abroad.—No. 6617, B.M.A. House, Tavistock Sq., W.C.1.

India.—Medical Man, preferably ex H.S., or with other surgical experience, abstainer, and in full sympathy with Medical Missionary work, required on agreement for a well-equipped Missionary Hospital in the United Provinces. Married or single.—Apply, C.M.O., 5, Warltersville Road, N.19.

Lady Dispenser - Bookkeeper desires RE-ENGAGEMENT for winter months or permanency; qualified, thoroughly experienced. *Good testimonials. Disengaged now.*—Address, Miss DANIEL, 5, Dix's Field, Exeter.

Lady, S.R.N., first-class training, now Matron good Hospital, extensive experience, seeks other SPHERE OF WORK, London area. Good salary essential.—Address, No. 6512, B.M.A. House, Tavistock Sq., W.C.1.

Lady Dispenser (Hall qualification) requires POST. Experience of hospital and private surgery. Knowledge of shorthand, typewriting, and book-keeping.—Address, No. 6604 B.M.A. House, Tavistock Square, W.C.1.

Secretary-Bookkeeper to Doctor wants similar work with London Doctor, two or three days a week. — Apply, Miss WOODING, 56, The Pryors, N.W.3.

The Royal Army Medical Corps ASSOCIATION. — If you require men trained in all branches of hospital work—Dispensers (capable of undertaking returns, clerical work, etc., connected with Ministry of Health), Clerks, Laboratory Assistants, general hospital duties, Porters, Caretakers, etc.—Apply, Secretary, 85, Eccleston Square, S.W.1.

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Young Man (28), Science or PART-ay; expert veral yrs.' best refs.; Norwegian No. 6618, .1.

LOCUMS.

No. 4219.—Advertiser thanks applicants to the above advertisement. The post has, however, now been filled.

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Wanted.—Locum or Assistantship by Woman M.B., B.Ch. Four yrs.' experience panel and private. Accustomed to sole charge. Well recommended. Free in London now.—Address, No. 6619, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—Locum Tenens work, four to five weeks, available November 5th. Scotch. Fully registered 1926. G.P., panel, and colliery experience.—Address, No. 6506, B.M.A. House, Tavistock Square, W.C.1.

Locum Tenens disengaged.—Relia[illegible] cia ses of terms.—W[illegible]

FOR L[illegible]

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PARTNERSHIPS.

Wanted immediately, PARTNER in Country Practice, convenient to London. Average takings over £2,300. Two-thirds share at 1½ yrs.' purchase. Cot. Hosp. Charming house on lease or purch. Scope, Cap. essent.—No. 6315, B.M.A. House, Tavistock Square, W.C.1.

Essex.—Death Vacancy.—Third SHARE of an old-established middle-class PRACTICE. Total receipts average £2,800 a year. Medium-sized [illegible] Premium 2 years' [illegible] vacant through death. Apply, PEACOCK & [illegible] Street, Strand, W.C.2.

Ear, Nose, and Throat Partnership, after preliminary Assistantship, desired by M.B., Ch.B., F.R.C.S.Ed., with considerable experience in speciality. Opportunity of Hospital appt. essential. Capital available.—No. 6513, B.M.A. House, Tavistock Sq., W.C.1.

Lancashire Town. — Half Share, with early succession. Average cash receipts £1,536. Panel 1,200. House to rent at £60 p.a. Premium 1½ years' purchase.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Manchester. — Half Share in mixed PRACTICE. Average cash receipts £2,000 p.a. Panel 1,700. Good scope. Premium (to include book debts) 1½ years' purchase.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

North Wales. — Nice residential part.—SHARE to be arranged of an old-established PRACTICE. Receipts £4,000 a year; panel 3,800. Large detached house available. Premium 1½ years' purchase on whatever share purchased. Knowledge of Welsh not required.—Apply, PEACOCK & HADLEY, Ltd., 19, Craven Street, Strand, W.C.2.

Partner wanted by Woman Doctor; must have had some experience in general practice. Good surgery and gynæcology an advantage. Good prospects in new district. Income £1,000. Half share at 2 yrs.' purch.—Add., No. 6614, B.M.A. House, Tav stock Square, W.C.1.

Partner wanted in old-[illegible]

Partnership wanted in Country Practice or in small town in S. Eng. [illegible] ck Sq. W.C.1.

Partnership. — Old-established, easily worked, and steadily increasing Practice in a progressive industrial town near Manchester. Total income over £3,000. One-third share for disposal, or two-fifths share and great prospects for a man experienced in eye, ear, nose, and throat, or major surgery. Corner house, 2 rec., 4 beds. Surgeries, double garage. Premium 1½ years' purchase. — Address, No. 6622, B.M.A. House, Tavistock Square, W.C.1.

Partner wanted, panel and private Practice on East Coast doing over £2,000 a year. One-third share for disposal at two years' purchase.—Address, No. 6625, B.M.A. House, Tavistock Square, W.C.1.

Quarter Share in unopposed PARTNERSHIP of four Partners, in beautiful part of North of England. Panel 8,000 and all appointments. One outdoor Assistant kept. Scope for surgery. Not much midwifery. House to rent with garage. Men with capital only need apply. — Address, No. 6259, B.M.A. House, Tavistock Square, W.C.1.

Yorks. — Partnership in old-established Practice of £1,400 yearly. Panel £550. Appts. £85. House for Partner or live with Vendor. Great scope. Price half share 1½ years' purchase. — MANCHESTER MEDICAL & SCHOLASTIC ASSOC., 6, Brown St.

Yorkshire.—Partnership.—Cash receipts over £4,600. *Good house*, 3 reception, 4 bedrooms. Rent £52 p.a. Premium—1/5 share—£1,500. Preliminary Assistantship.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

PRACTICES.

Wanted by M.B., B.S.Lond., 1912, PRACTICE or PARTNERSHIP, near or in London, worth £2,000 p.a. or more. Ample capital. — Address, No. 6272, B.M.A. House, Tavistock Square, W.C.1.

Wanted, in or near London, a General PRACTICE, earning about £900 p.a., which is a thoroughly sound investment. Ample capital available for purchase.—Address, No. 6515, B.M.A. House, Tavistock Sq., W.C.1.

Wanted.—Very large panel and cash PRACTICE. Brighton or London. Can pay cash. — Address, No. 6517, B.M.A. House, Tavistock Square, W.C.1.

Wanted by M.B., F.R.C.S. (Edin.), aged 27, PRACTICE or PARTNERSHIP in Lancs. Must be genuine. Scope for surgery.—Address, No. 6534, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—General Practitioner with 20 years' experience wishes to PURCHASE PANEL. Sufficient capital available. Partnership considered.—Address, No. 6602, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—Small Cash and [illegible] Panel PRACTICE or NUCLEUS in [illegible]

A Client desires to purchase well-established PRACTICE in good residential town. Bath or Cheltenham preferred. Income *not* under £1,800. Midwifery and panel *minimum or nil.*—Replies to Messrs. HUMPHRYS, SYMONDS & SPENCER, 34, Bridge Street, Hereford.

Co. Durham.—Well-estab. growing PRACTICE for Sale. 1928 receipts [illegible] Very [illegible] with g[illegible] B.M.A

Cornwall. — Death Vacancy. — Old-established PRACTICE. Receipts average £1,600 a year, fair panel. Large house and grounds. Locum in charge. Reasonable offer considered, part by instalments.—Apply, PEACOCK & HADLEY, Ltd., 19, Craven Street, Strand, W.C.2.

EXCEPTIONAL OPPORTUNITY.
Death Vacancy.—Easily worked mixed PRACTICE in Midlands, growing neighbourhood, capable of ready increase. Average receipts £2,616; appts. £20 per annum; panel 1,932. 1½ yrs.' pur. Efficient introduction by late partner, who is now in charge.—Apply to Exors., 17, Fletton Av., Peterborough.

Death Vacancy. — Near Manchester.—Average cash receipts £2,118 p.a. Panel 2,200. Excellent house, 2 reception, 5 bedrooms; garden and garage.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

East Midlands.—Old-[illegible] established PRACTICE in small industrial [illegible] s 1928, 4 beds, d intro. V.C.1.

East Midlands.—Old-established P[illegible]ACTICE in small industrial [illegible] ceipts 1928, ouse, 4 b[illegible]ds, Good intro. rs' purchase. Sq., W.C.1.

For Sale.—Practice or PARTNERSHIP near Manchester. Panel 2020. Income £1800. Small house and light expenses. 1½ years' purchase. Including debts and drugs. State essential particulars.—Address, No. 6601, B.M.A. House, Tavistock Square, W.C.1.

For Disposal, unopposed [illegible] within [illegible]rchase. [illegible]ooms. 3 [illegible] £150. House.

For Disposal. — Good Country PRACTICE in East Midlands, near good town. Average last three years £2,370. Panel over 1,600. Suit two friends. Two good houses to rent on lease. Premium 1½ years' purchase. —No. 6128, B.M.A. House, Tavistock Sq., W.C.1.

For Disposal.—A good Practice is not always to be had directly, but Mr. PERCIVAL TURNER can generally offer applicants something suitable. Nearly all the best Practices are sold by him without being advertised. Inform. free on applic.—4, Adam St., W.C.2.

For Sale.—A large panel and private PRACTICE (panel a little over 4,000). Those with capital only need apply. Two years' purchase. No agents.—Address, No. 6520, B.M.A. House, Tavistock Square, W.C.1.

Lancashire Coast Resort. — Old-estab. PRACTICE. Average cash receipts £1,100. Panel 550. Scope. Modern house (freehold), 2 reception, 5 bedrooms. Garden and garage. For sale or may be let on long lease. Premium—Practice—1½ years' purchase. —BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Lady Doctor's Practice for sale (Scotland). Panel (270) and private. Steadily increasing. Good district. Convenient house.—Address, No. 6503, B.M.A. House, Tavistock Square, W.C.1.

Lancashire Town. — Old-estab. PRACTICE. Cash receipts £970. Panel 1,150. Scope. House to rent at £70 p.a. Suit bachelor. Premium £800. — BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Mixed Practice for Sale. Panel 400. Receipts £400. Both much decreased owing to illness of Vendor. Good scope. Price £400 or offer.—Address, No. 6535, B.M.A. House, Tavistock Square, W.C.1.

Medical Practice (unopposed) for immediate disposal in Village and good agricultural district in Aberdeenshire.—Particulars from F. J. R. ANDERSON, Solicitor, Fraserburgh, Aberdeenshire.

Manchester. — Indoor Assistant wanted. Salary £22 per month. View to succession to Practice worth over £2,000 per annum.—Address, No. 6514, B.M.A. House, Tavistock Square, W.C.1.

Manchester.—Mixed-class PRACTICE. Cash receipts £913. Panel 898. House, 2 reception, 4 bedrooms. Rent £75 p.a. —BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Medical Practice with House for SALE, near GLASGOW. Practice £1,500; panel 1,000; house £1,200. Apply, MACLAY, MURRAY & SPENS, Writers, Glasgow.

Manchester. — Suburban PRACTICE. Cash receipts 1928, £1,650. Panel 900. Scope. Excellent house, with 3 recep., 5 bedrooms, garage and garden, to be sold or rented on lease. Premium 1½ years' purchase.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Monmouthshire. — Well-estab. PRACTICE. Receipts £3,000 p.a., including panel 2,200. Small house, no garden, rent £52 p.a. Premium 1 year's purchase, payable one-third down, rest by instalments. Excellent opportunity. — Apply, PEACOCK & HADLEY, Ltd., 19, Craven Street, Strand, W.C.2.

Manchester Suburb. — Good NUCLEUS in pleasant district. Nice house, rent £60. Receipts £600, with much scope. Panel 200, increasing. Price 1 year's purchase or offer. — MANCHESTER MEDICAL & SCHOLASTIC ASSOCIATION, 6, Brown Street.

North-East Coast. — Seaside Resort. — Cash receipts 1928, £2,101. Panel 720. Large Terrace house, with garden. Good introduction.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

North Wales.—Sound rapidly increasing PRACTICE of £800 p.a., in charming surroundings of favourite health resort. Fine med. house, every con., to rent or purchase. Good intro. Vendor ret. owing ill-health. Prem. 1½ yrs.' pur.—No. 6531, B.M.A. House, Tavistock Sq., W.C.1

Orkney.—Well-established, very pretty district. Good house, large garden, garage; rent £12. Receipts £650. Panel £120, much scope. Price £400, including small car, cycle, and drugs. — MANCHESTER MEDICAL & SCHOLASTIC ASSOCIATION, 6, Brown Street.

Purchaser wanted.—Good-class old-established PRACTICE and Detached HOUSE; Vendor retiring; open London Suburb; good Partnership introduction given. Would suit Churchman with private means. Panel 400. Receipts average last 3 yrs. over £600. Good scope for inc. 2 yrs.' prem. No agents.—No. 6502, B.M.A. House, Tavistock Sq., W.C.1.

Practice for sale in a Town in Lancashire. Receipts £2,600, panel 1,760.—For further particulars please apply to Messrs. R. SUMNER & Co., Ltd., Manufacturing Chemists, 40, Hanover Street, Liverpool.

Sale. — Practice in Yorkshire Town, about £1,500 p.a., panel of 1,000. Nice house on lease £70 p.a. Garage on premises. — Address, No. 6521, B.M.A. House, Tavistock Square, W.C.1.

To Purchasers. — Do not buy without expert assistance. With 40 yrs.' experience Mr. PERCIVAL TURNER can advise in all cases. Terms free on application to 4, Adam St., Strand, W.C.2. Telephone: Temple Bar 9011. Telegrams: "Epsomian, London."

Unique opportunity occurs to acquire a first-class London PRACTICE of £2,000 a year (no panel) in Cadogan Square district, together with a small up-to-date convenient house, with long lease, at a very low rental. No agents. Address, No. 6307, B.M.A. House, Tavistock Square, W.C.1.

Woman Doctor has Nucleus for sale in London. Small, increasing panel. Attractive maisonette to be rented. Premium £250. — Address, No. 6504, B.M.A. House, Tavistock Square, W.C.1.

Wales. — Old-established PRACTICE. Receipts £1,450 per annum, including panel 1,300. Midwifery 35 cases yearly. Nice house, garage, etc. Rent £60. Premium £1,500, part by instalments.—Apply, PEACOCK & HADLEY, Ltd., 19, Craven St., Strand, W.C.2.

HOUSES, CONSULTING ROOMS.

Bournemouth. — A freehold PROPERTY to be Sold, with GOODWILL, to Doctor. Slightly mental cases; one patient to be left with £600 per annum. House could be let on lease if preferred. Premium required. Fixtures at valuation. Write "K.," SMITH'S BOOKSHOP, Fisherman's Walk, W. Southbourne.

Clinical Pathologist's Laboratory in Harley Street to Let. Moderate price accepted for laboratory fixtures, or for complete and up-to-date equipment if desired. Pathologist is going abroad. — Address, No. 6274, B.M.A. House, Tavistock Square, W.C.1.

Consulting Surgeon requires PART-TIME USE of CONSULTING ROOM in Brighton and Hove, with attendance.—Address, No. 6516, B.M.A. House, Tavistock Square, W.C.1.

Consulting Rooms to be Let.— Harley Street and district. Whole or part-time. Lists sent on application.—ELGOOD & Co., 10, Henrietta Street, Cavendish Square, W.1. Mayfair 5659.

Dentist to Share Consulting and Waiting Rooms at Doctor's Surgery. Panel. Main thoroughfare, near Finsbury Park. Telephone: North 2587; or address, No. 6613, B.M.A. House, Tavistock Square, W.C.1.

Eastbourne. — Room to Let, central situation. Suitable for Dentist. Rent £100 per annum, including use of waiting room, hot and cold water.—Apply, MACE, St. Dunstan's Headquarters, Inner Circle, Regent's Park (Welbeck 7921).

Harrogate.—For Sale or to Let, desirable semi-detached VILLA RESIDENCE, in excellent condition and near Stray, eminently suitable for Doctor or Dentist, two reception and six bedrooms; central heating.—Further particulars from HUNTER, WILSTROP, Roman Road, Middlesbrough.

DOCTOR OR DENTIST'S IDEAL HOUSE.

Kingston & Surbiton (between). —Attractive DETACHED HOUSE, vestibule and waiting room, hall, 2 large rec., 5 bed., bath (h. and c.), e.l. Side entrance and nice garden. Long lease and first-rate repair. Only £950. Immediate possession.—COX & MARTIN, Fife House, Kingston-on-Thames.

Mayfair. — Two Consulting ROOMS to Let, with use of waiting room, etc. State if willing to give Anæsthetics to two Dental Surgeons practising there— Address, No. 6505, B.M.A. House, Tavistock Square, W.C.1.

Piccadilly. — Consulting ROOMS in Dental Surgeon's Office. Exceptionally well equipped and furnished, fitted for Ophthalmic and Sunlight work. Receptionist, service, light, telephone, all inclusive £12 per month. —No. 6322, B.M.A. House, Tavistock Sq., W.C.1.

Plombière Clinic. — Well-equipped Plombière, Massage, and Sunlight Clinic to be DISPOSED of as a going concern. Highest credentials.—Write, "Clinic," c/o W. H. SMITH & SON, LTD., Hornby House, Liverpool.

OPENING FOR DOCTOR.

Semi-detached House for Sale, with possession, in pretty village adjoining Midland City. All modern conveniences and small garden. Being used as Branch Surgery—for disposal, with small Nucleus. Excellent scope for resident Doctor as none resides in village. Population about 1,200, increasing. Price £900. Particulars.—Address, No. 6507, B.M.A. House, Tavistock Square, W.C.1.

Small Room to let, in good house, Harley Street. £165 per annum, with plate. — Address, No. 6501, B.M.A. House, Tavistock Square, W.C.1.

To Let, just off Harley Street, a large CONSULTING ROOM, suitable for Doctor or Dentist. Also, if required, Suite consisting of bedroom, sitting room, and bathroom. — Address, No. 6518, B.M.A. House, Tavistock Square, W.C.1.

Queen Anne Street. — To Let, handsome CONSULTING ROOM, with small Ante-room; low rent. Small Bachelor Flat also available in same building.—Address, No. 6466, B.M.A. House, Tavistock Square, W.C.1.

IN PORTLAND PLACE.

Very fine Consulting Suite of THREE ROOMS to be Let together, or separately at very moderate rents.—Apply to SAMUEL B. CLARK & SON, 16b, New Cavendish Street, Portland Place, W.1.

£750 Freehold. — Large vacant SHOP, suitable for Surgery, with two vacant rooms at rear. Separate entrance to upper part, which is let at 24/- per week. Excellent opening for young Practitioner in populous working-class district (Kentish Town).—Apply, OWNERS, 1, Greenland Street, Camden Town.

MISCELLANEOUS SALES, etc.

Wanted, a copy of "Annals of Surgery," part 429, volume LXXXVIII, September, 1928 (now out of print).—DENBY MEDICAL SOCIETY, 48, Kedleston Road, Derby.

Mice for experimental purposes. —W. & R. BELL, Live Stock Dealers, Wheeler Road, Norwich, suppliers to Universities, etc. Any quantities, any colour, from 6/- doz. delivered. Special quotations for regular supplies. Prompt delivery. State colour, etc.

Sight-testing Apparatus wanted, lenses, etc. Price and condition to Dr. STUART, 47, Goldington Road, Bedford.

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Supply Instruments, Palomine Leg Rests, etc. Stock of 30,000,000 Tablets. Sample bottle (500) of Cough or Mist. Expect., 1/- post free. *Showroom:* 97, Swinderby Road, Wembley.

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Vols. I and II of the BRITISH MEDICAL JOURNAL for 1927 and 1928 can be had, price 2s. 6d., by parcel post 2s. 10d. each.

Remittances must accompany all orders. Apply at the office, B.M.A. House, Tavistock Square, W.C.1.

APPOINTMENTS.—Contd.

New Zealand.

COOK HOSPITAL, GISBORNE.

RESIDENT SENIOR HOUSE SURGEON and JUNIOR HOUSE SURGEON. Salaries £250 and £150 respectively, with board, etc. Applications, accompanied by testimonials, will be received by the High Commissioner for New Zealand, 415, Strand, London, W.C.2, not later than October 28th, 1929.

The Royal Portsmouth Hospital.

Applications are invited for the posts of:
SENIOR HOUSE SURGEON (male). Salary at the rate of £175 per annum, with board, etc. Candidates must have held appointment as House Surgeon at a General Hospital.
HOUSE PHYSICIAN (male). Salary at the rate of £130 per annum.
HOUSE SURGEONS, TWO (male). Salary at the rate of £130 per annum each.

All officers must be qualified, and will be required to commence on December 1st. Six months' appointments, and eligible, on completion of term, for extension or other resident posts.

Applications, stating age, nationality, and full details, with copies of three recent testimonials, to be sent to the undersigned on or before November 1st, from whom all particulars can be obtained.

B. WAGSTAFF, Secretary.

The Royal Hospital,

WOLVERHAMPTON.
(Incorporated under Charter.)

HOUSE SURGEON (male) required.

The Hospital contains 240 beds, and includes the usual special departments, and is recognized by the various Examining Bodies for a part of the requisite attendance on Medical and Surgical Practice.

Candidates must be registered under the Medical Acts, and unmarried.

The appointment is for six months. Salary at the rate of £150 per annum. Board, furnished rooms, and laundry provided.

Applications, with copies of testimonials, to be forwarded to the undersigned.

W. H. HARPER,
Wolverhampton. House Gov. & Sec.
October 1st, 1929.

Connaught Hospital

(100)
for Walthamstow, Wanstead and Leyton, Orford Road, E.17.

RESIDENT MEDICAL OFFICER (who will be Senior House Surgeon) (male) required. Salary £150 per annum.

RESIDENT HOUSE PHYSICIAN (male) required. Salary £100 per annum.

RESIDENT HOUSE SURGEON (male) required. Salary £100 per annum.

Each appointment to date from November 1st, and to be for a period of six months, with board, residence, and laundry provided.

Applications, with three testimonials (or copies), should be sent to the Secretary, to reach him not later than October 28th.

Royal Devon & Exeter Hospital,

EXETER. (225 Beds.)

HOUSE SURGEON TO SPECIAL DEPTS.

Applications are invited for the post of House Surgeon to the Ear, Throat, and Nose, X-ray, and Casualty Departments at this Hospital, now vacant. The appointment is for six months, and candidates are eligible for re-election.

Salary at the rate of £130 per annum, with board, apartments, and washing.

Applications, giving particulars as to age and qualifications, together with copies of recent testimonials, should be sent to the undersigned as soon as possible.

By Order of the Committee,
S. S. COLE,
October 15th, 1929. Sec. & Manager.

Charing Cross Hospital.

There is a vacancy for an HONORARY CLINICAL ASSISTANT in the X-ray Department of Charing Cross Hospital. The rules of the office may be obtained from the undersigned. Candidates should have, by preference, the qualification of D.M.R.E.(Camb.), and should submit their applications, accompanied by copies of three recent testimonials, to the undersigned not later than Monday morning, October 28th.

Charing Cross Hospital, PHILIP INMAN,
W.C.2. House Governor.

Charing Cross Hospital.

RESIDENT MEDICAL OFFICER.

Applications are invited for the post of Resident Medical Officer from male candidates (unmarried), who must be registered Medical Practitioners. Salary £350 per annum, plus additional fees amounting to approximately £75 per annum. The rules of the office may be obtained from the undersigned, to whom applications, accompanied by copies of three recent testimonials, must be delivered not later than Monday morning, October 28th.

Charing Cross Hospital, PHILIP INMAN,
W.C.2. House Governor.

Surrey County Council.

LUNATIC ASYLUMS VISITING COMMITTEE.

APPOINTMENT OF THIRD ASSISTANT MEDICAL OFFICER.

Applications are invited for the post of Third Assistant Medical Officer at one of the Surrey County Mental Hospitals. Commencing salary, which will be subject to statutory deductions under the provisions of the Asylums Officers Superannuation Act, 1909, will be £300, rising by annual increments of £25 to a maximum of £350 per annum, together with apartments, board, laundry, and attendance, valued for superannuation purposes at £150 per annum. The person appointed will also be paid in addition to his salary the sum of £50 per annum if he holds the Diploma of Psychological Medicine. The appointment will be subject to termination by one calendar month's notice on either side.

Applications, accompanied by copies of three recent testimonials, and enclosed in an envelope, endorsed "Assistant Medical Officer," must reach me not later than 12 noon on Saturday, October 26th.

13, Penrhyn Road, W. HALL,
Kingston-upon-Thames. Clerk to the
Oct. 15th, 1929. Visiting Committee.

Derbyshire County Sanatorium,

Near CHESTERFIELD.

RESIDENT ASSISTANT MEDICAL OFFICER.

Applications are invited for the post of Resident Assistant Medical Officer (male or female) at the Derbyshire County Sanatorium. Candidates with previous Institutional experience of Tuberculosis will be preferred, and practical experience of artificial pneumothorax work will be considered an additional qualification. Candidates must be single.

Salary will be at the rate of £350 per annum, together with board, lodging, etc.

Application forms may be obtained from the undersigned, to whom they must be returned, together with copies of not more than three recent testimonials, on or before October 31st.

New County Offices, W. M. ASH,
Derby. County Medical Officer.
October 14th, 1929.

Evelina Hospital for Children,

Southwark, S.E.1.

The Committee of Management requires a HOUSE PHYSICIAN (male) for seven months, from November 12th (during first three months duty in Casualty and Out-patient Department). Salary £120 per annum, with board and residence. Candidates, duly registered, to send applications, giving age, qualifications (with dates), and copies of four testimonials, to the undersigned at the Hospital, before October 29th. Applicants will be informed if they will be interviewed by the Medical Committee of Management. Date of meeting will be notified by the undersigned, from whom rules and other particulars relating to the post must be obtained.

By Order of the Committee of Management,
H. C. S. SMITH,
October 15th, 1929. Secretary-Supt.

The Manor House Hospital,

Golders Green, London, N.W.11.
(112 Beds.)

Applications are invited for the post of HOUSE SURGEON. Salary at the rate of £200 per annum, with board, residence, and laundry. Appointment for six months; renewable if mutually agreed. Preference given to one having held six months' previous appointment as a House Surgeon. Candidates (male and unmarried) must be fully qualified and registered. Applications, stating age, nationality, and qualifications, together with copies of three recent testimonials, should reach the undersigned not later than the first post on Saturday, October 26th.

JAMES W. LINKHORN, Secretary.

The Royal Infirmary, Doncaster.

(121 Beds.)

THIRD HOUSE SURGEON (male) required immediately. Duties include Ophthalmic, Medical, and Casualty work. Opportunity for gaining excellent experience. Appointment is for six months, and successful candidate is eligible for re-appointment and probable promotion.

Salary £150 per annum, with board, residence, and laundry. Applications, with full particulars, should be addressed to the undersigned by Wednesday, October 23rd.

J. LAWRENCE MEARS,
October 16th, 1929. Secretary-Supt.

Parish of Stepney.

RESIDENT ASSISTANT MEDICAL OFFICER.

The Guardians invite applications from duly qualified registered Medical Practitioners for the vacant post of Resident Assistant Medical Officer at their ST. PETER'S (WHITECHAPEL) HOSPITAL, Vallance Road, London, E.1. Salary £450 per annum, together with full residential emoluments valued at £120 per annum for the purposes of superannuation.

Candidates must have previously held a resident House appointment at a Hospital, and the person appointed will be required to work generally under the direction of the Medical Superintendent. Preference will be given to candidates who possess some experience in the treatment of Nervous and Early Mental Disorder.

The appointment is for a probationary period of six months in the first instance; is subject to a medical examination as to physical fitness before commencing duties, and also to any provisions affecting officers in the Local Government Act, 1929.

Forms of application may be obtained from the undermentioned address upon receipt of a stamped addressed foolscap envelope, or by personal application to the Medical Superintendent at the Hospital, and must be returned to this office by not later than Monday, October 28th.

By Order,
S. McCLELLAND,
Clerk to the Guardians.

Administrative Offices,
Bancroft Road,
Mile End, E.1.
October 9th, 1929.

Leicestershire County Council.

ASSISTANT COUNTY MEDICAL OFFICER OF HEALTH.

Applications are invited from duly qualified Medical Practitioners (male) under 40 years of age, for the appointment of Assistant County Medical Officer.

Candidates must possess a Diploma in Public Health; experience in School Medical Inspection and Public Health administration will be deemed additional qualifications.

The person appointed must devote the whole of his time to the duties of the office, and will carry out such other duties as the County Medical Officer may assign to him.

The salary will be at the rate of £650 per annum, rising, subject to satisfactory service, by annual increments of £25 to £700, per annum, with travelling expenses according to the County Council scale.

The appointment is subject to the Local Government and Other Officers Superannuation Act, 1922.

The appointment will be terminable by three months' notice on either side.

Forms of application may be obtained from the undersigned, and should be returned, accompanied by copies of not more than three recent testimonials, by Friday, November 1st.

W. J. FREER,
Clerk to the Council.

10, New Street,
Leicester.
October 14th, 1929.

Prison Medical Service.

Applications are invited for the post of MEDICAL OFFICER, CLASS II, in the above service. Salary £350, rising by £20 per annum to £600, with quarters, or an allowance in lieu. The pay is subject to a bonus, which at present on a salary of £350 is £135 8s. These posts are pensionable, and there are prospects of promotion to higher rank.

Candidates must be fully qualified and registered. Preference will be given to those who have held House appointments, have had experience in Lunacy and Psychological methods, and are under the age of 30. Forms of application can be obtained from the Secretary, Staff Branch, Prison Commission, Home Office, London, S.W.1.

City of Birmingham.

MEDICAL OFFICER FOR MATERNITY AND CHILD WELFARE.

The Public Health Committee invite applications from Medical Women for the post of Medical Officer for Maternity and Child Welfare. Applicants must have had Children's Hospital and Maternity Hospital experience. The Diploma of Public Health is desirable. Salary £600 per annum. The appointment will be terminable by one month's notice on either side. Applications endorsed "Medical Officer for Maternity and Child Welfare," and accompanied by copies of three recent testimonials, to be made on a form to be obtained from the Medical Officer of Health, Council House, Birmingham, and returned to him on or before November 2nd. Canvassing will disqualify.

Devon County Council.

APPOINTMENT OF TUBERCULOSIS OFFICER FOR NORTH DEVON.

Applications are invited for the appointment of Tuberculosis Officer (Clinical) for the Barnstaple Dispensary Area of the County of Devon.

The salary will commence at £750 per annum, and travelling expenses will be allowed in accordance with Grade A of the Council's Scale, the officer to provide his own motor car, also to contribute to the Council's Superannuation Scheme.

The officer appointed will be required to devote the whole of his time to his official duties and will not be permitted to accept any fee or present of any description.

Forms of application and further particulars can be obtained from the undersigned, and must be returned endorsed "Tuberculosis Officer," and accompanied by not more than three recent testimonials, not later than the first post on October 26th.

The Castle,
Exeter.
October 4th, 1929.

BRIAN S. MILLER,
Clerk of the County Council.

City and County of Kingston-upon-Hull.

ASSISTANT MEDICAL OFFICER OF HEALTH.

The Corporation of Hull invite applications from Medical Men, under the age of 40 years, and of not less than three years' standing in their profession, for the post of Assistant Medical Officer of Health.

Salary £600 per annum, rising by annual increments of £25 to £700.

The appointment is subject to the provisions of the Local Government and Other Officers Superannuation Act, 1922.

The successful candidate will be required to devote the whole of his time to the duties of the office, which consists mainly of work in the School Medical Department, but may also include duty in any section of the Health Services of the City or Port.

A form of application may be obtained from the undersigned, and must be returned to the Medical Officer of Health (in an envelope, endorsed "Assistant Medical Officer of Health"), together with copies of three recent testimonials, not later than the first post on Thursday, November 7th.

Health Department,
Guildhall, Hull.
Oct. 12th, 1929.

W. ALLEN DALEY,
Medical Officer of Health.

West Bromwich Union.

HALLAM HOSPITAL, WEST BROMWICH.

RESIDENT HOUSE SURGEON.

Applications are invited from fully qualified male registered Medical Practitioners for the above appointment.

Preference will be given to applicants who have had previous Surgical experience.

Salary £250 per annum.

Furnished quarters, rations, laundry, and attendance will be provided by the Guardians.

Further particulars may be obtained from the undersigned.

Canvassing the Guardians, either directly or indirectly, is strictly prohibited, and will be deemed a disqualification.

Applications, stating age, experience, and qualifications, accompanied by copies of recent testimonials, must be forwarded so as to reach me not later than first post on Wednesday, October 30th.

By Order,
A. H. WARD,
Clerk.

22, Lombard Street,
West Bromwich.
October 15th, 1929.

Noble's Hospital, Douglas, ISLE OF MAN.

(72 Beds; opened 1912; extension 1926; new Electro-Medical Hall, 1928.)

The Committee invite applications for the post of Male RESIDENT HOUSE SURGEON. Candidates must be single, have double qualifications, and be registered under the Medical Acts. The duties, in addition to Ward and Dispensary work, will comprise visiting patients in their own homes.

Salary (with board and washing free) £175 per annum, which in certain circumstances can be supplemented by fees for other duties.

Applications, stating age and experience, with copies of recent testimonials as to professional ability, etc., must reach the undersigned before Wednesday, October 30th.

The candidate appointed will be required to begin his duties on December 1st.

E. K. KELLY,
Hospital Secretary.

Westmoreland Rd.,
Douglas, Isle of Man.

Royal London Ophthalmic Hospital,

(Moorfields Eye Hospital), City Road, E.C.1.

SENIOR HOUSE SURGEON.

Applications are invited for the office of Senior House Surgeon.

Candidates must be registered Medical Practitioners, and must be prepared to begin the duties on December 1st.

Salary at the rate of £150 a year, with board and residence in the Hospital.

In the event of the Second House Surgeon being appointed, other candidates are requested to state whether they would accept the office of Second House Surgeon at the rate of £125 a year, or Third House Surgeon at the rate of £100 a year.

The appointments are for a period of eight months.

Applications, with testimonials, stating age and qualifications, must be received not later than October 31st by—

A. J. M. TARRANT, Secretary.

City of Plymouth.

MATERNITY AND CHILD WELFARE DEPT.

ASSISTANT MEDICAL OFFICER OF HEALTH.

Applications are invited from duly qualified Medical Women for the position of Assistant Medical Officer of Health in the Maternity and Child Welfare Department of the City. The person appointed will rank as an Assistant Medical Officer of Health, and will work under the direction of the Medical Officer of Health.

Candidates must have had practical experience in Maternity and Child Welfare work, and preference will be given to those who have had special experience in the Diseases of Children and Women, in Venereal Diseases, and in Ultra-violet Light Therapy.

The person appointed will be required to devote the whole of her time to the duties of the office, and will not be allowed to engage in private or consulting practice. The appointment will be terminable by three months' notice, in writing, on either side. The salary is at the rate of £600 per annum.

Applications, stating age, qualifications, and experience, together with copies of not more than three recent testimonials, should be sent to the undersigned not later than Saturday, November 2nd, and should be endorsed "Assistant Medical Officer." Forms of application will not be provided. Canvassing will be a disqualification.

A. T. NANKIVELL, M.D., M.R.C.P., D.P.H.,
Medical Officer of Health.

Town Hall,
Stonehouse, Plymouth.
October 16th, 1929.

The Royal Earlswood Institution,

REDHILL, SURREY.

(Under Mental Deficiency Acts 1913-27.)

JUNIOR ASSISTANT MEDICAL OFFICER required (British). Applicants must be registered Practitioners, males, unmarried, and willing to assist in the games and amusements.

The appointment is temporary for six months. Inclusive salary at the rate of £250 per annum, with board, residence, and washing. Good facilities for Post-Graduate Studies, Classes, and Examinations.

Applications, stating age, religion, and qualifications, with copies of three testimonials of recent date, and two references, to be sent on or before November 1st to the Medical Superintendent at the Institution. The envelope to be endorsed "Assistant Medical Officer."

H. STEPHENS,
Secretary.

October 4th, 1929.

Batley and District Hospital.

(General Hospital. 84 Beds.)

HOUSE SURGEON.

The Committee require the services of a duly qualified Resident House Surgeon. Salary £1[illegible] with board, residence, and laundry. Duties commence immediately. Applications, with copies of testimonials, to be sent to the undersigned.

Batley,
Yorks.

A. W. WESTERN,
Secretary.

Stockton and Thornaby Hospital,

STOCKTON-ON-TEES. (140 Beds.)

Applications are invited for the post of JUNIOR RESIDENT MEDICAL OFFICER (male). Salary £150, with residence, board, and laundry. Candidates for the above post must be doubly qualified and unmarried, and are required to commence duties on or about November 1st. Application, stating age, nationality, and experience, together with copies of three recent testimonials, to be sent to the undersigned as early as possible.

J. WILKINSON, Secretary.

CAVENDISH NURSES (Male and Female)

Head Office: 54, BEAUMONT ST., LONDON, W.1 (late 43, New Cavendish St., London, W.1.)

A very convenient form of telephone message pad sent free on application to the Secretary.

Branches: MANCHESTER: 176, *Oxford Road.* *GLASGOW*: 28, *Windsor Terrace.* *DUBLIN*: 23, *Upper Baggot Street.*

TELEGRAMS:
Tactear, London. Surgical, Glasgow.
Tactear, Manchester. Tactear, Dublin.

TELEPHONES:
London, 1277 Welbeck. Glasgow, 477 Douglas.
[illegible] Ardwick. Dublin, 531 Ballsbridge.

Superior trained Nurses for Medical, Surgical, Mental, Dipsomaniac cases. Nurses reside on the premises, and are always ready for urgent calls Day and Night. Skilled Masseuses, attendants supplied.

Terms from £3 3s. *Apply to the Secretary or Lady Supt.*

West London Hospital,
Hammersmith Road, W.6.

One SENIOR ASSISTANT MEDICAL OFFICER and Three JUNIOR ASSISTANT MEDICAL OFFICERS will shortly be required for work in the Venereal Diseases Department. Salaries: Senior £450 per annum, Juniors £350 per annum each. The appointments will be subject to six months' notice on either side. Candidates must be registered medical practitioners who have had special experience in the diagnosis and modern treatment of venereal diseases.

Applications, accompanied by copies of testimonials, must reach me not later than first post on Tuesday, October 22nd. Candidates must attend a Meeting of the Medical Council on Friday, October 25th, at 4 p.m., and prior to that date call upon such members as directed, and send copies of application and testimonials to each member thereof. The appointments will be made by the House Committee at 4.45 p.m. the same day. Further details with regard to the duties can be obtained from the undersigned.

H. A. MADGE, Secretary.

Hospital for Consumption and
DISEASES OF THE CHEST,
Brompton, S.W.3.

The Committee of Management invite applications from duly qualified Medical Men for the post of JUNIOR HOUSE PHYSICIAN at the SANATORIUM at FRIMLEY. The appointment is for six months dating from December 1st. In the event of a vacancy the Junior House Physician at the expiration of his term of office will be expected to apply for and, if appointed, to hold the post of Senior House Physician. The honorarium is at the rate of £100 per annum, with full board and lodging. Applications, with copies of testimonials, must reach the undersigned not later than Monday, October 21st.

FREDERICK WOOD,
Brompton. Secretary.
October 3rd, 1929.

The Royal Waterloo Hospital for
CHILDREN AND WOMEN,
Waterloo Road, S.E.1.

There will be a vacancy on November 1st for a HOUSE SURGEON (male) at this Hospital. The appointment is in the first instance for a period of six months. Salary at the rate of £100 per annum, with board and residence. Application, with copies of testimonials, should be forwarded not later than Tuesday, October 22nd, to the Secretary at the above address, from whom further particulars can be obtained.

Royal Waterloo Hospital for
CHILDREN AND WOMEN,
Waterloo Road, S.E.1.

There is a vacancy for the post of HONORARY GYNÆCOLOGICAL REGISTRAR at the above Hospital. Candidates must be Fellows of the Royal College of Surgeons or Members of the Royal College of Physicians. Particulars regarding the appointment can be obtained from the undersigned, to [illegible] sent not later than [illegible] not more than three

J.

Samaritan
WOMEN, Marylebone Road, N.W.1.

Applications are invited for the post of HOUSE SURGEON for a period of six months commencing on November 13th next. Salary at the rate of £100 per annum, with board, lodging, and washing. Previous experience as House Surgeon essential.

Applications, stating age, accompanied by copies only of testimonials, must reach the Secretary at the Hospital on or before Thursday noon, October 31st.

G. H. HAWKINS, Secretary.

Rotherham Hospital.

Wanted, HOUSE PHYSICIAN (male), qualified. Salary £180 p.a., with board, lodgings, and laundry, to have charge of Out-patients, administer Anæsthetics, and assist Honorary Physician.

Applications, with copies of recent testimonials, to be sent to the Secretary, G. W. ROBERTS, 8, Moorgate Street, Rotherham.

Miller General Hospital,
Greenwich Road, S.E.10.
(151 Beds.)

There is a vacancy for an HONORARY SURGEON. The Senior Assistant Surgeon is an applicant for the post, and in the event of his election there will be a vacancy for an Honorary Assistant Surgeon. Applications for these posts are now invited. Candidates must be Fellows of the Royal College of Surgeons of England and not engaged in general practice, and they are expected to call upon the Members of the Honorary Medical and Surgical Staff, a list of whom can be obtained from the Secretary. The duties include attendance in the Out-patient Department on two days a week, and four beds will be allotted. An honorarium of 20 guineas per annum is allowed towards travelling expenses.

Applications (which must be printed or typewritten), together with copies of not more than three recent testimonials, should be sent to the Chairman of the Hospital as soon as possible.

October 7th, 1929.

Miller General Hospital,
Greenwich Road, S.E.10.
(151 Beds.)

Applications are invited for the post of HONORARY PHYSICIAN to the Skin Department, to which two beds are allotted.

Candidates must be Fellows or Members of the Royal College of Physicians of London and not engaged in general practice, and they are expected to call upon the Members of the Honorary Medical and Surgical Staff, a list of whom can be obtained from the Secretary.

An honorarium of 20 guineas per annum is allowed towards travelling expenses.

Applications (which must be printed or typewritten), together with copies of not more than three recent testimonials, should be sent to the Chairman of the Hospital as soon as possible.

October 7th, 1929.

Miller General Hospital,
Greenwich Road, S.E.10.

ORTHOPÆDIC HOUSE SURGEON (male and unmarried) required for In- and Out-patients. There are five other residents. Salary at the rate of £125 per annum, with board, residence, and laundry. The appointment is for six months. The department is under the care of Mr. PAUL BERNARD ROTH and Mr. EDWIN A. LINDSAY. In addition to routine orthopædic work, between two and three thousand cases of fracture are treated in the course of a year.

Applications, stating age, nationality, qualifications, and experience, accompanied by copies of not more than three recent testimonials, to be sent to the Secretary as soon as possible.

October 7th, 1929.

Ilford Emergency Hospital,
to be extended as a General Hospital to serve a wide area on the Eastern outskirts of London, and renamed
KING GEORGE HOSPITAL.

Applications are invited for the post of HONORARY RADIOLOGIST to the above Hospital.

Applicants, preferably to hold a Diploma in Radiology, must be prepared to attend the Hospital on two afternoons per week. An honorarium of £50 is offered, plus a proportion of private pati[illegible] copies of testi[illegible] undersigned on

G. AU[illegible]

Lincoln County Hospital.

Wanted, a JUNIOR HOUSE SURGEON, male, unmarried. Salary at the rate of £150 per annum, rising to £200 per annum at the conclusion of six months' approved service. Board, residence, and washing will also be provided.

Every candidate for the appointment must be registered under the Medical Acts.

Applications, stating age and other particulars, with copies of testimonials (not more than three), are to be sent to the undersigned, from whom further particulars may be obtained.

Lincoln. ARTHUR MOORE.
October 1st, 1929. Secretary-Supt.

West End Hospital for Nervous
DISEASES.

In-patient Department: Gloucester Gate, Regent's Park, N.W.
Out-patient Department and Secretary's Office: Welbeck Street, W.

The Committee of [illegible] invites applications for the post of [illegible] appointment of H[illegible]

[illegible] Members of th[illegible] of London, and G[illegible] of the Universities of the United Kingdom.

Twelve copies of the application and testimonials should be received by the undersigned, from whom further particulars may be obtained, not later than Monday, November 18th.

J. P. WETENHALL, Secretary.

The Hospital for Epilepsy and
PARALYSIS, Maida Vale, W.9.

A RESIDENT MEDICAL OFFICER required November 1st.

HOUSE PHYSICIAN required November 1st.

Applications are invited for these posts. The salaries are at the rate of £150 and £100 per annum respectively, and the appointments are for six months. Candidates for the post of Resident Medical Officer should state if they are willing to take that of House Physician, and applications, accompanied by copies of three recent testimonials, should reach me by October 23rd.

The accommodation at the Hospital does not permit of Woman Graduates holding these appointments.

H. W. BURLEIGH,
Secretary & Gen. Supt.

The Hosp[illegible]
PARALY[illegible], Maida Vale, W.9.

Applications are invited for the post of MEDICAL REGISTRAR. They should be accompanied by copies of not more than three recent testimonials, and should reach the undersigned by October 23rd.

An honorarium of £100 is attached to this appointment, which is for one year, and further particulars can be obtained on application.

H. W. BURLEIGH,
Secretary & Gen. Supt.

Bradford Royal Infirmary.

HONORARY ASSISTANT PHYSICIAN
(Open Appointment).

The Board of Management invite applications for the post of Honorary Assistant Physician. Candidates must be duly qualified under the Medical Acts. Applications, with certificate of registration and copies of not more than three recent testimonials, should reach the Secretary-Superintendent not later than first post on October 22nd.

J. J. BARRON,
October 7th, 1929. Secretary-Supt.

Bradford Royal Infirmary.

HOUSE PHYSICIAN (male) wanted to enter to duties on December 1st next.

Candidates must be single and legally qualified. Salary £150 per annum, with board, residence, and washing.

There are 215 beds and six Resident Officers.

Applications, stating age, qualifications, and previous experience (if any), with copies of recent testimonials, to be received by the undersigned not later than October 22nd.

J. J. BARRON,
October 7th, 1929. Secretary-Supt.

General Hospital, Gt. Yarmouth.
(72 Beds.)

Applications are invited for the post of JUNIOR HOUSE SURGEON. Salary £125 per annum, with board, residence, and laundry. Duties to commence at once. Candidates (male and unmarried) must be fully qualified and registered.

Applications, stating age, nationality, and qualifications, together with copies of three recent testimonials, to be sent immediately to the undersigned.

T. H. G. GARTLAND, Secretary.

Hospital of St. Cross, Rugby.
(114 Beds.)

Applications are invited for the posts of SENIOR and JUNIOR RESIDENT MEDICAL OFFICERS (males).

Candidates must be registered Medical Practitioners, and must be prepared to begin duties on November 1st. Salary for the Senior post at the rate of £150 per year, Junior at the rate of £100 per year, with board and residence in the Hospital.

Candidates are requested to state whether they are prepared to accept the post of Junior if not selected for the Senior office.

The appointments are for a period of six months only; at the end of that time the Junior will be eligible to apply for the Senior post, which then becomes vacant.

This Hospital is recognized by the University of London for the purpose of the M.D. and M.S.

Applications, stating age and qualifications, with copies of three recent testimonials, should be sent to me immediately.

W. COCKBURN, Supt. & Secretary.

The General Hospital, Birmingham.

MEDICAL REGISTRAR AND RESIDENT MEDICAL OFFICER.

Applications are invited for the above post from Graduates in Medicine of a University of the United Kingdom. Salary £155 per annum, with residence, board, and laundry.

The appointment will be made for one year in the first instance, and will date from November 4th next.

Applications, with certificates of registration and copies of testimonials, should be sent by October 28th to the undersigned, from whom a list of duties should be obtained.

October 10th, 1929. A. H. LEANEY, House Governor.

The Preston and County of Lancaster Royal Infirmary.
(362 Beds.)

Applications are invited for the undermentioned posts from unmarried gentlemen, doubly qualified and registered.

RESIDENT SURGICAL OFFICER. Twelve months' appointment (subject to renewal). Salary £300, with board, residence, and laundry.

HOUSE SURGEON. Six months' appointment (subject to renewal) Salary £150, with board, residence, and laundry.

Applications, stating age, nationality, qualifications, and experience, together with copies of testimonials, to be forwarded to the undersigned.

JOHN GIBSON, Supt. & Secretary.

The Cancer Hospital (Free)
(Incorporated under the Royal Charter), Fulham Road, London, S.W.3.

The Committee invite applications for the post of PART-TIME RESEARCH RADIOLOGICAL ASSISTANT. He will be required to attend on three or four half-days per week. Candidates should hold the D.M.R.E. An honorarium of one guinea per attendance will be paid.

Applications, together with copies of not more than three testimonials or references, to be sent to the undersigned not later than Wednesday, October 30th.

J. COURTNEY BUCHANAN, Secretary.

The Cancer Hospital (Free)
(Incorporated under the Royal Charter), Fulham Road, London, S.W.3.

The Committee are prepared to receive applications for the post of HOUSE SURGEON at the rate of £100 per annum.

The appointment is for six months and subject to rules, a copy of which may be obtained from the Secretary).

Previous experience as a House Surgeon is indispensable.

Applications, with three (copies only) testimonials, to be sent to the undersigned not later than Wednesday, October 30th.

J. COURTNEY BUCHANAN, Secretary.

Stroud General Hospital, Stroud, Glos.

HOUSE SURGEON required to commence duty on November 11th. Salary £125 per annum, with board, lodging, and washing. The appointment is tenable for six months, but application may be made for an extension of this period. Candidates must be registered according to the provisions of the Medical Act.

Applications, stating age, nationality, etc., together with copies of three recent testimonials, to be sent to the undersigned by October 28th.

C. FORD SPENCER, Secretary.

MR. HERBERT NEEDES,
31, Bedford Street, Strand, W.C.2.
(Temple Bar 3873.) (Estab. 1860.)

This Agency (the oldest in the Kingdom) undertakes the SALE of PRACTICES and PARTNERSHIPS, AUDITS, and VALUATIONS, and the SUPPLY OF LOCUMS and ASSISTANTS.

No Charge to Purchasers. All Business receives Mr. NEEDES' personal attention.

Herefordshire General Hospital, Hereford.

Applications are invited for the post of HOUSE PHYSICIAN (male). Six months' appointment, renewable. Salary £150 per annum, with board, residence, and laundry.

Candidates must be fully qualified and registered. Applications, stating age, qualifications, and experience, together with not more than three copies of recent testimonials, should reach the undersigned not later than October 26th.

H. AUBREY FROGGATT, Secretary.

Bath, Somerset & Wilts Central Children's Orthopædic Hospital, Combe Park, Bath.

Wanted by November 1st, HOUSE SURGEON. The appointment will be for six months, with salary at the rate of £120 per annum, together with quarters, board, and laundry.

Candidates must have had special experience in administering anæsthetics.

Applications, with copies of three recent testimonials, to be sent to the undernamed.

HAROLD J. FRICKER, Secretary.

Huddersfield Royal Infirmary.

JUNIOR HOUSE SURGEON wanted to commence duty November 1st. Salary £150 per annum, with board, residence, and laundry. The appointment is for six months, subject to renewal.

Applications, with copies of testimonials, are invited from qualified and registered gentlemen, and should be addressed to the undersigned at the Infirmary, not later than Saturday, October 19th.

H. E. G. HALL, Secretary.

Kettering and District General Hospital. (82 Beds.)

Applications are invited for the post of JUNIOR HOUSE SURGEON. Salary £100 p.a., with board, residence, and washing. Candidates must be fully qualified and registered.

The appointment is for six months, but candidates will be eligible for re-election.

Applications, stating age, nationality, and qualifications, together with copies of three recent testimonials, to be sent immediately to the Secretary-Superintendent.

Macclesfield General Infirmary.
(100 Beds.)

Wanted at once, SECOND HOUSE SURGEON, male. Salary at the rate of £150 per annum, with board and residence. Anæsthetic experience essential.

The appointment is for six months, subject to one month's notice on either side.

Applications, stating age, nationality, and qualifications, with copies of their testimonials, to be sent to the undersigned.

A. E. HANRAHAN, Secretary.

Cumberland Infirmary, Carlisle.

HOUSE PHYSICIAN (male) required middle of October, six months' appointment; previous experience desirable. Salary at rate of £155 per annum, board, residence, etc. Applications, stating age, with copies of four testimonials, should be sent at once to the undersigned.

J. G. HOWITT, Secretary.

September 30th, 1929.

General Lying-In Hospital, York Road, Lambeth, S.E.1.

Applications are invited for the post of REGISTRAR. Preference will be given to those candidates who possess the qualification of F.R.C.S (Eng.). Applications, with three copies of testimonials, to be sent not later than November 4th to the undersigned.

LILY HEARN, Secretary.

Royal Southern Hospital, Liverpool.

Applications are invited for the post of MEDICAL TUTOR AND REGISTRAR, to commence duty on appointment.

Applications and testimonials to be forwarded to the undersigned, from whom any further particulars as to duties may be obtained, on or before Saturday, October 26th.

ALLEN NALDRETT, Supt. & Sec.

THE OLDEST AND LEADING MEDICAL AGENT

PERCIVAL TURNER, LTD.
(Established 50 years.)
4 & 5, ADAM ST., STRAND, W.C.2

Telegrams: "EPSOMIAN, LONDON."
Telephone: TEMPLE BAR 9011.

Terms post free on application.

Eastern County. — Over £1,000. Panel and appts. £560. Visits 4/6 up. Good house, with 4 beds., and garden. Low rent.—No. 8559.

Lancs.—£4,000 p.a., increasing. Panel over 2,650. Fees 2/6—7/-. Mids. 2—5 gns. Suitable for two. Two adjoining houses to rent or buy. Premium, including drugs, book debts, surgery furniture, etc., only £5,250.—No. 8509.

Kent.—Suburb. — £1,250, ineg. and scope. Fees 3/6 to 21/-. Panel over 650. House to rent.—No. 8558.

London Suburb (about 10 miles). £2,300, scope. Panel 1,650. Fees 3/6 to 5/-. Corner house, 5/6 bed., garage, etc. —No. 8557.

Herts.—Country.—Nearly £1,000. Panel 470. Appts. £54. Residential. Good fees. House, with good surgery, 6 bed., garden, etc.—No. 8556.

London Suburb, S.E.—£1,800-£2,000. 1/2 share and succession. Non-panel. Fees 4/- to 10/6. Little midwifery. —No. 8555.

Lancs.—Death Vacancy.—£2,200. Panel 2,200. Good house, 5 bed., etc., and tennis court. Rent . . ll.—No. 8554.

West of England Town.—Share worth £900 p.a., of which £600 is from panel and appts. House, with 7 beds., etc., to rent.—No. 8552.

Share worth £800 net in suburban Practice. Appts. £400 p.a. Panel over 3,000. Prelim. assistancy essential.—No. 8547.

Midlands (Industrial). — Over £1,500 p.a., with ample scope. Panel about 1,700. House to rent at £56.—No. 8546.

Essex Coast. — Urgent Sale. — About £700 p.a. Small panel. Good house and garden to rent in growing district. —No. 8544.

Wilts.—£2,250 p.a. Country Town. Panel 1,000. Surgical scope. Choice of houses. Premium £1,800 for 2/5 share.—No. 8541.

Lancs. — Average £1,590 p.a. 1/2 share for sale. Panel £800 p.a. House, 4 bed., etc., to rent. Premium only £1,200.—No. 8517.

Dorset. — Average £2,300 p.a. 1/2 share for sale. Good appts. Small panel. House, 6 bed., etc., and garden, to rent. —No. 8537.

Liverpool.—£1,300 p.a. Visits 3/6 to 5/-. Mids. 3 to 4 gns. Panel 560. House, 4 bed., etc., and garden.—No. 8536.

Yorks. — Average £1,800 p.a. Panel over 1,000. Visits 3/6 up. No mids. House, 5 bed., etc.—No. 8533.

Cornwall. — About £850 p.a., increasing. Small panel. Visits 4/- to 21/-. House, 6 bed., etc., and good garden.—No. 8529.

Staffs. — About £1,300 p.a. Panel 1,300. Fees 5/-. House, 5 bed., etc., to rent. Premium £1,000 cash.—No. 8527.

N. Wales Borders.—£4,000 p.a. 1/3 or 2/3 share. Panel 3,800. Appts. worth £1,600 p.a. Visits 5/- up. About 50 mids. at £2 2s. House (4 bed., etc.) to rent or buy.—No. 8519.

Home Counties.—Death Vacancy. —About £760 p.a. Mids. 2 gns. Panel 516. Visits up to 10/-. Good house and large garden to rent.—No. 8516.

Yorks.—Over £3,000 p.a. 1/4 share, good scope for increase. Panel over 2,000. Mids. 2—5 gns. Med. house to rent or buy.—No. 8510.

Sussex Coast.—About £1,400 p.a. Good class, non-panel, non dispensing. Appt. £35. Visits 5/- to 15/-. Large house to rent.—No. 8476.

SPECIAL NOTICE.

FINANCIAL ASSISTANCE to enable purchasers to obtain Practices and Partnerships can be afforded to approved applicants.

Full particulars on application to Mr. Percival Turner.

THE MEDICAL AGENCY

(ESTABLISHED BY J. A. REASIDE IN 1893)

WATERGATE HOUSE, 15, YORK BUILDINGS, ADELPHI, W.C.2.

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FOR SALE.

YORKS.—Well-established middle- and working-class Town PRACTICE. Receipts approx. £1,520. Panel nearly 1,700. House to rent. Premium £2,250.

LONDON, S.E.—LOCK-UP SURGERY on main thoroughfare. To rent on lease at £70 p.a. Receipts average £427 p.a. Panel over 440.

WARWICKSHIRE.—Industrial Town.—Working-class PRACTICE. Receipts approx. £675 p.a. Panel 800. Premium for quick sale £800, cash.

DERBYSHIRE.—PARTNERSHIP in old-established non-panel Practice in best part of town. Receipts approx. £3,000 p.a. Quarter share now, with view to larger share at 2 years' purchase.

YORKS.—Spa Town.—Well-estab. G.P., with choice of two residences to rent. Receipts approx. £600 p.a. Panel 500. Several appointments.

[illegible] ith view to Partnership and Succession in situated in small town. Receipts approx. Good accommodation to rent.

ESSEX.—NUCLEUS non-panel G.P., with excellent house for sale or to rent. Receipts approx. £250 p.a. Scope for panel if desired.

LONDON, N.—LOCK-UP SURGERY, with living accommodation if desired. Receipts £750. Panel 510. Premium for quick sale £850.

EASTERN COUNTIES.—PARTNERSHIP in Town Practice. Receipts over £4,000 p.a. Panel 4,000. Premium for quarter share, with view to larger share 2 years' purchase.

MIDDLESEX.—Old-established G.P. Receipts average £1,800 p.a., including income from panel of 800. Suitable house available. Premium 1½ years' purchase.

DURHAM.—PARTNERSHIP in increasing Practice situated in colliery district. Receipts £1,600, [illegible]el 1,350. Premium for half share 2 years' purchase.

WILTS.—PARTNERSHIP in mixed Country and small Town Practice. Receipts £2,250. Cottage Hospital. Premium for 2/5ths share 2 years' purchase. Suitable to experienced man keen on surgery.

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1 S.E. COAST.—Partnership in Practice over £5,000 p.a. in popular resort. Choice of house. Premium one-fourth share 2 years' purchase. Partner should be aged about 30 and must have held House appointments. Short preliminary assistantship.

2 SUSSEX.—Partnership in Country Practice, £2,750 p.a. in residential district near the Coast. Panel about 700. Good house (about 6 bedrooms) to rent on lease. Scope. Premium one-half share 2 years' purchase.

3 SOUTH OF ENGLAND.—Seaport Town.—PARTNERSHIP in non-dispensing Practice. No panel. Share worth about £1,000 p.a. for sale. Partner must be young Graduate, Oxford or Cambridge preferred. London School F.R.C.S.(Eng.).

4 LONDON.—Well-established Practice about £1,100 p.a. in Western suburb. Panel about 420. Nice double-fronted house (7 bedrooms) on main road, to be let on lease. Premium 1½ years' purchase.

5 S.W. OF ENGLAND.—Ophthalmic Practice, between £850 and £900, in residential seaside resort. Semi-detached house for sale. Considerable scope as Vendor has undertaken only minor operations. Premium £1,300.

6 MID-WALES. — Country Practice nearly £300 p.a. in beautiful part. No midwifery. Well-built house (4 bedrooms, etc.). Rent £30. Premium for quick sale only £100.

7 S.W. OF ENGLAND. — Seaport Town. — PARTNERSHIP (after preliminary assistantship) in good mixed Practice about £3,000 p.a. Panel 2,100. One-third share offered to suitable man at 2 years' purchase.

8 S.W. OF ENGLAND. — Partnership in Practice nearly £950 p.a., in first-rate town. No panel. Double-fronted house (4 bedrooms) to rent. Two-thirds share would be sold.

9 WEST OF ENGLAND. — Partnership in Practice in small watering-place. Receipts past 12 months over £1,800. Panel 1,375. Pleasantly situated house (5 bedrooms) in good residential part for sale. Premium two-fifths share £1,400.

10 S.W. OF ENGLAND. — Partnership in Practice about £4,000 p.a. in watering-place. Panel about 1,700. Choice of residence to rent or purchase. Hospital and scope for surgery. Premium one-third share £2,400.

11 HOME COUNTIES. — Country Practice over £450 in residential and agricultural district, easy distance of London. Panel over 200. Nice house (3 bedrooms and attics). Rent £60. Premium 1½ years' purchase, or offer.

12 LANCASHIRE.—Practice of about £2,000 p.a. (over £500 from panel) in a semi-rural district near good town. Nice house (6 bedrooms, etc.), recently redecorated, for sale. Premium—Practice—£2,750.

13 ITALY. — Non-dispensing Season Practice in small seaside town. Cash receipts past season £200. Good scope.

14 S. WALES. — Non - [illegible] about £1,200 in important town. house, with ample accommodation, to offer for prompt sale.

15 DEATH VACANCY, S.E. COAST.—Increasing PRACTICE in popular resort. Receipts past 12 months about £750. Panel 130. Semi-detached residence (4 bedrooms), garage, and garden, to rent. Reasonable offer.

16 EAST COAST. — Partnership in Practice nearly £3,000 p.a. in popular watering-place. No panel. Modern house (3 bedrooms) to rent. Excellently equipped Hospital and scope for Ear, Nose, and Throat work. One-third share at moderate premium.

17 WEST MIDLANDS. — Partnership in middle and better-class Practice £3,000 p.a., in one of the most picturesque towns. No appointments or panel. Suitable house available. Premium two-fifths share 2 years' purchase. Partner must be well qualified and have held Hospital appointment.

18 N.E. COAST.—Partner required in sound lucrative Practice £7,000 p.a. in attractive town. Small select panel. Large house to be sold. Well-equipped Hospital. One-fifth or one-fourth share at 2 years' purchase, part by instalments. Strongly recommended.

19 EAST COAST.—Partnership in steadily increasing Practice of about £8,000 in large seaport town. Panel over 7,000. Suitable house available. Premium one-fourth share £2,700.

20 HOME COUNTIES. — Practice doing at rate of £500 p.a. in first-rate town under 20 miles from London. Panel 220. Excellently situated house (6 bedrooms) for sale. Cottage Hospital. Premium 1¼ years' purchase.

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21 LONDON, W.—Partnership in non-dispensing Practice about £2,500 p.a. No panel or appointments. One-third share, with view to ultimate succession. Premium 2 years' purchase. Purchaser must be well qualified and used to good-class Practice.

22 LANCASHIRE. — Partnership in Practice £2,500 in urban district easy distance of important town. Panel 3,800. Premium one-half share 1½ years' purchase.

23 WEST OF ENGLAND.—Good Town.—A share of over £900 p.a. (£600 from panel and appointments) in well-established Practice. Small non-basement house to rent. Premium to effect quick sale £1,570.

24 WEST MIDLANDS.—Practice of £1,440 p.a. in small market town in agricultural district. Panel 500. Good house (7 bed and dressing rooms), with electric light and gas, for sale. Scope for increase. Premium £2,100.

25 MIDDLESEX. — Practice of over £1,300 p.a. in residential district within 20 miles of London. Panel over 1,100. House (5 bedrooms), with very attractive garden, etc., to rent. Premium 1½ years' purchase.

26 EASTERN COUNTIES.—Practice averaging nearly £3,300 p.a. in seaport town. Panel 700. House (5 bedrooms), large garden, for sale or rent. Scope. Premium 1½ years' purchase (or share up to one-half at 2 years' purchase).

27 HOME COUNTY.—Country Practice averaging nearly £1,100 p.a. in village under 15 miles from London (North). Panel 670. Old-fashioned roomy and comfortable house (6 bedrooms), large garden and garage, to rent. Good prospects for scope. Premium £1,650.

28 MIDLANDS. — Country Practice about £1,000 p.a. in residential district and hunting centre. Panel 600/700. House, with 8 bedrooms, to rent. Premium £1,300.

29 SOUTH COAST. — Practice worth about £1,500 p.a. in first-class residential seaside place. Small panel. Choice of houses, to be sold. Moderate premium for Practice.

30 YORKSHIRE (E.R.). — Old-established Town and Country PRACTICE £2,750, within easy distance of important town. Panel 1,750 to 1,800. Well-situated house (9 rooms and bath). Great scope. Premium—Practice and house—£4,850, or, assistantship with view to purchasing one-third share entertained.

31 LONDON, N.—Partnership in well-estab. middle-class Practice, nearly £2,750 p.a., in pleasant outlying suburb. Panel about 800. Suitable accommodation to rent. Premium one-third share 2 years' purchase.

32 YORKSHIRE (W.R.). — Partnership in Practice averaging £1,400 p.a. in country district close to large town. Opposition weak. Plenty of scope for increase. One half share at 1½ years' purchase.

33 SOUTH OF ENGLAND. — Assistant required (with view to Partnership) in steadily increasing Practice £2,770 in attractive town within 90 miles of London. Panel 1,770. Applicant must be English or Scotch (about 28 to 30), who must have held House appointments. One-third share at 2 years' purchase to suitable man after assistantship.

34 BRITISH EAST AFRICA. — Assistant required (with view to Partnership) in General and X-ray and Electro-therapeutic Practice. Assistant must hold the F.R.C.S., and experience in X-ray would be advantageous. Share of about £1,200 p.a. offered to suitable man ... preliminary assistantship.

35 ... d-established PRACTICE ... with beautiful climate, in the C... £2,900 p.a. House (4 bedrooms) to rent. Purchaser should be able to do major surgery. Knowledge of Dutch unnecessary. Premium £2,250.

36 MIDLANDS.—Practice averaging £1,680 p.a. in important city. Panel 1,560. Specially built house (4 bed and dressing rooms) to be sold. Scope for increase. Price £2,250.

37 HOME COUNTIES.—Partnership in Practice £2,800 p.a. in good town about 30 miles from London. Small panel. Convenient house (5 bedrooms) to be sold or let. University and Public School man who has held appointments preferred. One-third share at 2 yrs.' purchase after preliminary assistantship.

38 LONDON, S.E.—Increasing Practice averaging about £800 p.a. in populous district close to the City. Panel 800. House (3 bedrooms) to rent. Premium 1½ years purchase.

39 PRIVATE ASYLUM.—Partnership.—Exceptional opportunity for suitably qualified Medical Man (age 30—33) in first-rate establishment. Preliminary assistantship 12 months. Capital required about £4,000.

40 SOUTH OF ENGLAND.—Partnership in Practice £2,250 p.a. in beautifully situated Country Town within 100 miles of London. Panel under 1,000. Suitable accommodation. Share, worth about £900 p.a., at 2 years' purchase.

41 SOUTH OF ENGLAND.—Seaport Town. PRACTICE of about £750 p.a., including appointments over £225 p.a., and panel nearly 1,000. Good house (6 bedrooms) to be sold or let. Premium 1½ years' purchase.

42 DEATH VACANCY.—Surrey.—Practice of between £250/300 p.a. in residential district easy distance of London. Small panel. Specially built corner residence (4 bedrooms), with nearly half acre of garden, for sale.

43 SURREY.—Sound rapidly increasing PRACTICE in suburban district under 10 miles. Receipts last year £2,500. Panel 750. Small house for sale. Premium—Practice—£4,000.

44 NORTH OF ENGLAND. — Practice about £600 p.a. in Inland Spa. Panel over 500. Well-situated house (6 bedrooms) to rent. Premium £1,000.

45 LIVERPOOL. — Increasing Practice of nearly £1,300. Panel 560. House (4 bedrooms), garage and garden, for sale. Golf near by. Premium £1,550 (£500 by instalments, without interest).

46 SOUTH OF ENGLAND. — Partnership in Country Town Practice of nearly £2,300 p.a. Small panel. Well-built house (6 bedrooms) to rent. Premium one-half share 1½ years' purchase.

47 SOUTH COAST.—Non-dispensing Practice of about £1,900 in residential town. No panel. Choice of house.

48 S.W. OF ENGLAND. — Country Practice of £950 p.a. Panel 400. Very little midwifery and night work. House, with 4 bedrooms, garden, and garage, for sale. Good society. Premium £1,350.

49 NORTH OF ENGLAND.—Partnership in non-dispensing Practice about £6,000 p.a. in first-rate Country Town. Small panel. Very good house (6 bedrooms) to be sold or let. Premium one-fifth or two-fifths share 2 years' purchase.

50 CARMARTHENSHIRE.—Practice of over £930 p.a. derived from contract work and panel, in pretty village. Modern bungalow residence (3 bedrooms), with separate surgery, standing in 1¼ acres of ground. Premium—Practice and house—£2,500, part on mortgage if desired.

51 LANCASHIRE. — Practice of £1,500 in rapidly growing district within a few miles of popular resort. Panel over 200. Very nice compact house (4 bedrooms), with beautiful garden and orchard, for sale. Prem.—Practice—£1,500.

52 LONDON, N.W.—Partnership in increasing middle and working-class Practice £2,550. Panel about 1,500. Excellent flat (2 bedrooms) at moderate rent. Premium one-third share £1,700, part by instalment.

53 MIDLANDS.—Partnership in sound well-established Practice over £4,000 p.a. in flourishing town. Panel 2,800. House, with 4 bedrooms, to rent. One-fifth share at 2 years' purchase. Partner should be experienced in Surgery.

54 N. WALES.—Country Practice averaging nearly £450 p.a. in agricultural district. Small panel. Good house (4 bedrooms), with 9½ acres of meadow land, for sale. Hunting, shooting, etc. Premium £450.

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2. CORNWALL.—Old-established increasing PRACTICE in pretty district, 5 miles from Hospital Town, and within 10 miles of the sea. Income last year £1,504, including Union and Vaccination (£105) and panel of 780. Visits 5/- to 10/6, medicine extra. Nearest opposition 3 miles. Railway station near. Detached house, professional rooms, 2 reception, 5 bedrooms, bathroom, etc.). Garden. Garage. Rent on lease £45 p.a. Premium £2,100.
3. PARTNERSHIP.—EAST COAST.—LARGE SEAPORT TOWN.—A one-fourth share is for disposal owing to the retirement through ill health of the Junior partner, in a well-established good mixed Practice. Gross cash receipts for the past 12 months over £8,000, including panel of over 7,300. Lowest fee 3/-. Suitable house, with 3 reception, 4 bedrooms, etc. Large garden. In best position. Price for freehold £1,500, part on mortgage. Premium for prompt sale only £2,700.
4. PARTNERSHIP.—NORTH WALES.—(Pretty district on Borders of Cheshire).—The THIRD or HALF SHARE of old-established PRACTICE worth over £4,000 p.a., and consisting mainly of panel (producing over £2,100) and appts. worth about £1,600. Only 50 mid. cases yearly. Expenses light. Suitable house available if half share taken (net rent £50 p.a.), otherwise inexpensive rooms. Premium for share 1½ years' purchase.
5. PARTNERSHIP.—EASTERN COUNTIES.—LARGE TOWN.—A one-third share in a very sound middle and working-class PRACTICE averaging over £7,000 p.a., including large panel. Suitable house available on rental at £35 p.a. Premium 1½ years' purchase, payable part by arrangement. Ingoing partner should be experienced and a keen worker.
6. EASTERN COUNTY.—(Within easy reach of sea).—PARTNERSHIP, after preliminary Assistantship, at a salary of £400 p.a., outdoor. A one-third share is offered in a good-class general Practice averaging approximately £3,300 p.a. Panel of 1,300. Cottage Hospital and scope for Surgery. Ingoing partner must be a gentleman and fond of country life. Premium 2 years' purchase.
7. SURREY. In a very pretty district amidst delightful surroundings [illegible] worth at present about £1,150 p.a., [illegible] for development. Panel of 525 and [illegible]ds. Opposition 3½ miles distant. Rail-[illegible]way [illegible] [illegible]ge in its own grounds of 2½ acres and [illegible]ws. Ample accommodation. Central heati[illegible] Freehold for sale. Prem. £1,700.
8. YORKS.—FAVOURITE HEALTH RESORT.—Well-established PRACTICE, averaging about £600 p.a., easily worked, and capable of increase. Panel of 500. Fees 5/6 to 21/-. No midwifery. Suitable house can be rented at £85 p.a. Premium £1,000. Ill health reason for sale.
9. SOUTH COAST.—FAVOURITE HEALTH RESORT.—Good mixed PRACTICE, averaging over £700 p.a., and offering scope for increase. Panel of 720. Fees 5/- upwards. Very nice house, with 2 reception, 4/5 bedrooms, etc. Garden. Premium [illegible] years' purchase.
10. ESSEX.—Within fifteen miles of [illegible] unopposed and increasing PRACTICE, situate[illegible] district, and producing last year over £1[illegible]290, and panel, with mileage, £432. Comfortable house (professional accommodation, 2 sitting, 6 bedrooms, with h. and c. water laid on, etc.) Large garden. Rent £70 p.a. on lease. Electric light available. Premium £1,650. Ill health reason for disposal.
11. [illegible]ry PRACTICE, within easy reach of [illegible] veraging over £1,600 p.a., including [illegible]) from appts. Fees from 2/6 to 21/-. [illegible]1,000. Premium 1½ years' purchase.
12. [illegible] TOWN.—PARTNERSHIP.—A share [illegible]ncluding about £600 from panel, is [illegible]dle and working-class Practice. Fees [illegible] upwards. Suitable house, with 2 reception, 4—5 bedrooms, etc. Garden. Garage. Rent on lease £40 p.a. Premium £1,200 cash and balance by arrangement.
13. HOME COUNTY.—Near the Sea.—Old-estab. unopposed Country PRACTICE in pretty district. Receipts last year over £1,100, including Union, etc., £55, and panel of 400. Railway station near. Good, house in its own grounds of 10 acres (part is let for grazing, but could be sold for building purposes), containing 2 reception, 6 bedrooms, bathroom, etc. Water laid on and electric light available. Price for freehold £2,100. Premium £1,625. Educational facilities, sport, etc.
14. DEATH VACANCY.—HANTS.—COUNTRY PRACTICE, at present producing about £480 p.a., but offering large scope. Panel of 280. Fees 3/6 to 10/6. Mid. from 3 gns. Convenient house, with 2 reception, 5 bedrooms, etc. Garden and garage. Can be rented on lease at £75 p.a. Small premium. Locum in charge.
15. HERTS. — Better-class Country PRACTICE, within easy reach of London. Old-established, and patients are chiefly of the professional class. Average income £1,000 p.a., including panel of 480 and about £60 from appointments. Advice and medicine 3/6 to 10/6, visits 3/6 to 21/-. Not much midwifery. Exceptionally nice house, with every modern convenience and half an acre of garden. Excellent sport, society, and schools. Premium £1,500.
16. MIDLANDS.—In a clean thriving Hospital town (pop. 130,000), an old-established mixed-class PRACTICE worth last year £1,100, including panel producing over £400 p.a. and £150 from Public Medical Service. Large house, with ample accommodation, good garage, garden, etc. Vendor's leasehold having 31 years unexpired (ground rent £9 16s.). Price £1,500. Premium £1,650.
17. WILTS.—COUNTRY PRACTICE, on outskirts of large town. Well-established and producing for the immediate past year over £1,650, including panel of 1,390. Advice and medicine 3/6, visits 5/- upwards. Detached double-fronted house, with good garden. Garage. Rent on lease £60 p.a. Premium £2,400.
18. NEW ZEALAND (South Island).—In a delightful and popular seaside resort (pop.: town over 17,000 and country 5,000, greatly augmented by visitors) on main line, a well-estab. PRACTICE averaging £1,816 p.a. for the past 5 years, including about £175 from Lodges. Consultations fees 10/6. Mids. 4 to 10 gns. (75 cases p.a.). House is situated in excellent position and contains 14 rooms, with 1/2 an acre of garden, tennis court, etc. Can be leased. Excellent educational facilities. Sport of all kinds.
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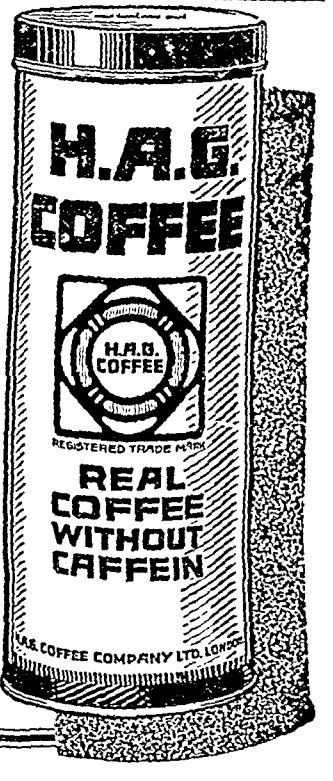

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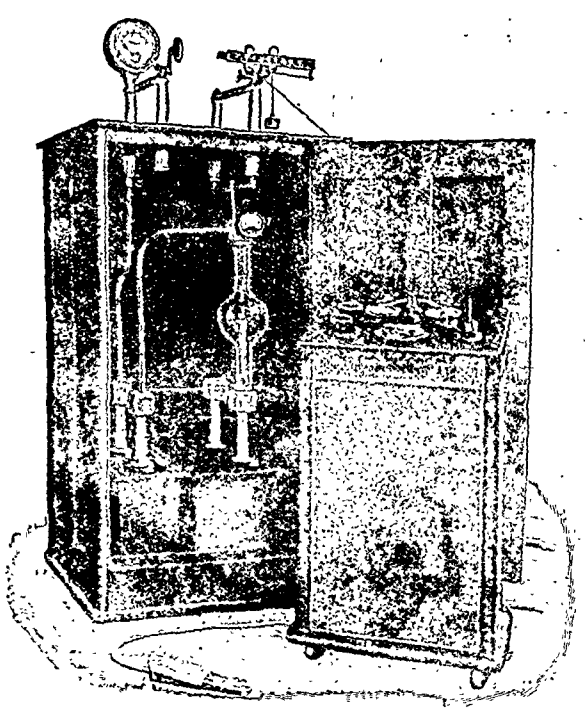

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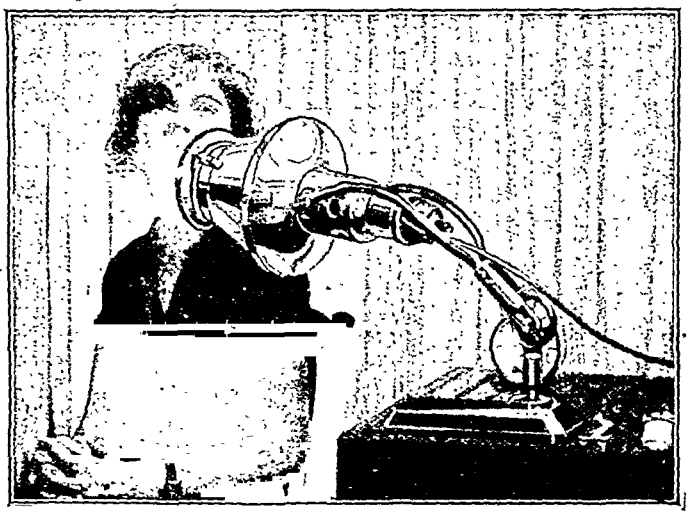

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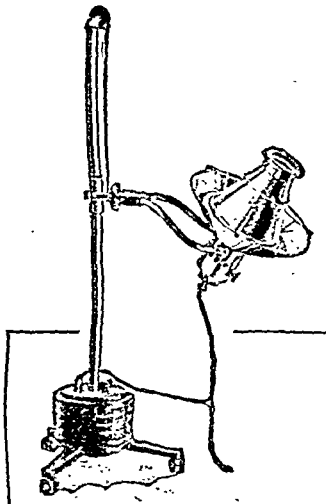

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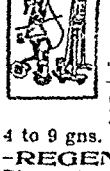

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A SUGGESTED IMPROVEMENT IN THE PLOMBIÈRES TREATMENT

By

Capt. J. T. AINSLIE-WALKER,

R.A.M.C. (T.F.), F.I.C., F.C.S.

Extract from "The Medical Press," November 7th, 1923:

"As is generally known, the Plombières treatment in cases of colitis and other forms of intestinal disorders is now largely resorted to. Its increasing vogue has been chiefly due to its results, favourable up to a certain point, but incomplete in a particular detail, which militates against a curative effect. The principle upon which the lavage method rests is to remove the bowel contents by means of irrigation at regular intervals. Thus the whole process is a mechanical one, and it leaves out of account the toxin-producing bacteria of the intestines, which still remain after the irrigation. Captain Ainslie-Walker makes a valuable suggestion in his brochure by which this difficulty can readily be overcome. In the course of his researches the fact has been established that an ordinary Plombières solution, after expulsion from the bowel, shows confluent growth, but under the same circumstances a Plombières solution in which Dimol powder has been previously dissolved *shows no growth.* The experiments are described by which these results were obtained. By the simple method, therefore, of adding this intestinal bactericide—Dimol—to the Plombières solutions the circle of effective treatment is made complete."

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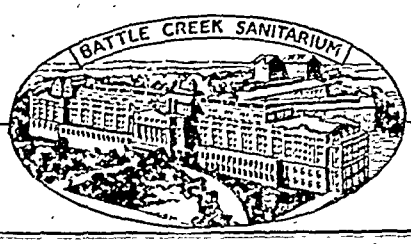

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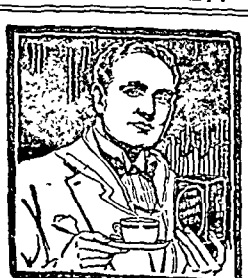

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FOR many years Doctors have recommended our China Tea to Invalids and Dyspeptics when ordinary tea was out of the question. The Medical Press, too, has commented frequently upon the merits of this particular blend—and so we call it DOCTOR'S China Tea.

It is a perfect blend of the finest China leaf with all excess tannin eliminated.

Invalids and dyspeptics can drink it with no ill effects.

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Intestinal Evacuant.

"Sweeps the bowel clean"

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MECHANICAL IN ACTION.
NOT HABIT FORMING.

For all conditions of Intestinal Stasis.

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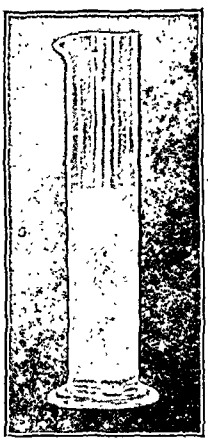
A Stimulating and Sustaining Food Beverage



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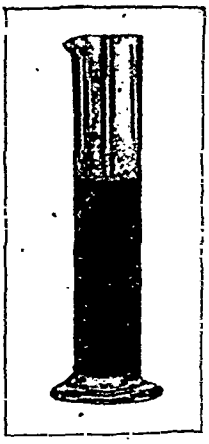
A solution to the problem of feeding in many acute and chronic affections is found in the use of the 'Allenburys' Diet, which presents distinct advantages over cow's milk both with regard to food value and digestibility. The 'Allenburys' Diet is a palatable and highly nutritive food beverage prepared from pure fresh full-cream milk and whole wheat, and is particularly easy of assimilation. It replaces with advantage milk and the milk dishes commonly employed in sickness and convalescence and can often be taken and retained where other foods are rejected. As a stimulating and sustaining beverage for people of all ages, it is infinitely superior to tea, coffee, etc. It can be made in a minute simply by adding either boiling water or milk.

In tins at 2/1, 4/- and 7/6.



B Showing the finely flocculent curd formed by the action of gastric juice on the 'Allenburys' Diet.

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Pregnancy and lactation often produce manifestations of calcium deficiency because the calcium reserve cannot meet the demands made upon it. The systematic use of Kalzana in these cases stays the destructive processes in the teeth and bones of the mother, and ensures normal development of the skeletal structure of the infant. The special feature of Kalzana is that it combines calcium lactate and sodium lactate in the form of a double salt, with the result that the sodium element improves the blood alkalinity to the extent necessary to ensure adequate calcium retention.

"The Practitioner" says:

"Kalzana acts efficiently in promoting the growth of strong bones and healthy teeth, in protecting the expectant and nursing mother against a dangerous loss of calcium . . . . particularly because Kalzana promotes calcium retention."

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Also supplied *direct* for Doctor's own dispensing at 15/- per 1000 plain tablets.

(*Made by A. WULFING & CO., Amsterdam, Holland.*)

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CREAM OF MAGNESIA with LIQUID PARAFFIN

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Price 1/6 per bottle.

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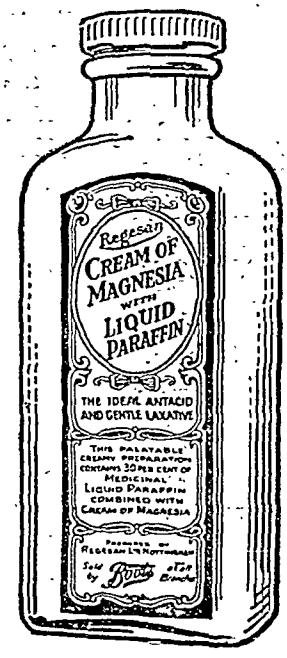

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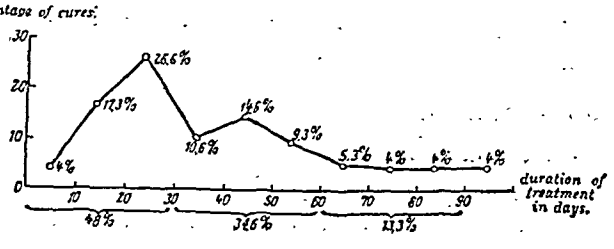
ACUTE GONORRHŒAL URETHRITIS

CITRAGAN

(Silver-Sodium-Citrate)



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My last sample was used on a patient suffering from acute Ptomaine poisoning following a meal of shell fish (mussel) at 10.30 p.m. Symptoms first appeared at 12.30 a.m., and when I saw him at 3.0 a.m. he was vomiting blood and passing almost pure blood per rectum. He had commenced cramps and nervous twitchings which would shortly have gone on to tonic convulsions. He was very collapsed and had a weak pulse. I gave him only Kaylene in cold water, one drachm every quarter of an hour, from 3.0 until 8.0 a.m., when I felt it safe to leave him. For the next two days Kaylene was given every one to two hours, and was then followed by Kaylene-ol. No other medication of any sort was used, and he made an excellent recovery. This follows a somewhat similar case which I treated at the end of last year.

Your excellent preparation should supplant Bismuth for any purpose.

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Whilst these investigations were confined to specific cases of puerperal septicæmia, the use of Radiostoleum in practice is being extended to a wider field, particularly in the prophylaxis of acute infections of the lungs, such as pneumonia.

Precise activity, unvarying in effect, is an essential factor in the success achieved by this new therapy. Radiostoleum is scientifically-standardised in regard to Vitamins A and D; it can be administered with the full assurance that not only will it produce uniformly beneficial results, but that possibilities of deleterious effects such as hypercalcæmia and hyperphosphatæmia will be precluded entirely.

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Morphine Sulphate, gr. ¼ in 1 c.c.
Morphine Sulphate, gr. ¼, Atropine Sulphate, gr. 1/100 in 1 c.c.
Quinine Bihydrochloride, gr. 5 in 2 c.c.
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Complete chemical history of "Alocol" with convincing clinical reports and supply for trial, sent free to physicians on request.

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Your patients should never ask merely for "Lysol." They may easily get a very inferior grade, useless for all practical purposes and even dangerous to their health. Stress the name "Wright's."

British Owned and British Made by the makers of the world famous Wright's Coal Tar Soap.

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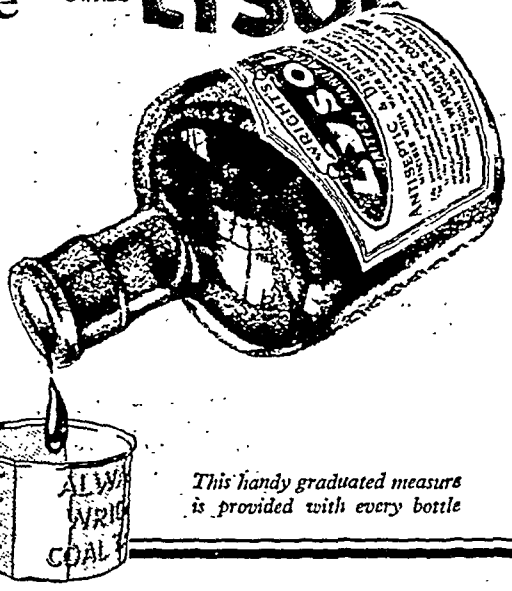

This handy graduated measure is provided with every bottle

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A valuable asset in Treating Nervous Ailments

Every Doctor knows the value of specific treatment in illness, and one of the greatest difficulties in treating nervous troubles hitherto has been the absence of a specific remedy for debilitated nerve cells and tissues.

"NEW-PROMONTA" is not only a specific remedy, but also a very speedy and reliable one, as has been proved by exhaustive tests in many hospitals and clinics and in private practice.

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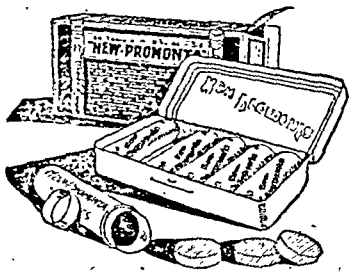

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Builds up in underweight conditions and provides a perfectly balanced, highly nutritive diet for growing children

TO the problem of the "underweight" child Horlick's Malted Milk provides a convenient solution.

For many years it has been successfully used by the medical and nursing professions for fast-growing children, for invalids, for expectant and nursing mothers — in all cases where it is particularly important to sustain strength and replenish natural energy quickly.

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HOVIS is shown, from an analysis of many experiments, not only to possess a larger content of the vital element Vitamin B than other breads, but provides more positive nourishment for the quantity consumed.

One slice of HOVIS weighing 1 oz. contains as much Vitamin as 2 oz. of wholemeal, or 5 to 6 g. of fresh yeast; white bread contains only about 2 per cent. of yeast.

It is also found that "brownness" of bread is no measure of the Vitamin content.

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These facts all point to one conclusion: that in dietetic value HOVIS holds the first place for promoting health.

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Best Bakers Bake it

OVIS LTD. LONDON & MACCLESFIELD

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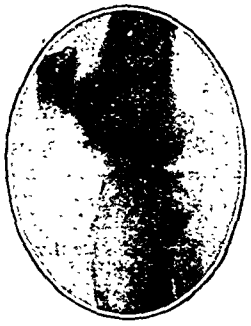
A Powerful Fibrolytic Agent

Strikingly Successful in Chronic Arthropathies



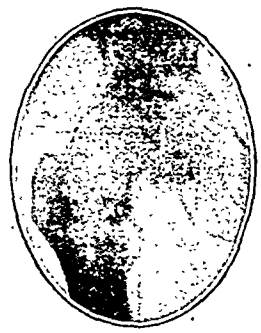
Radiograph of Knee-joint in Rheumatoid Arthritis

A fibrolytic agent which gives really satisfactory results in a large percentage of cases must appeal to the general practitioner who has constantly to deal with difficult and intractable cases of chronic rheumatism and allied conditions. This can be justly claimed for 'Iodolysin' which has a striking effect in Rheumatoid Arthritis; and it is also employed with advantage for the removal of all forms of pathological fibrous tissue.

"Iodolysin" is a chemical combination of Iodine and Thiosinamin with these special advantages:

Ready Solubility in water. Well tolerated. Absence of local reaction on injection

'Iodolysin' is supplied in ampoules for hypodermic injection; in capsules for oral administration, or as an ointment or paint for local application.



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No Gastro-Intestinal Disturbances
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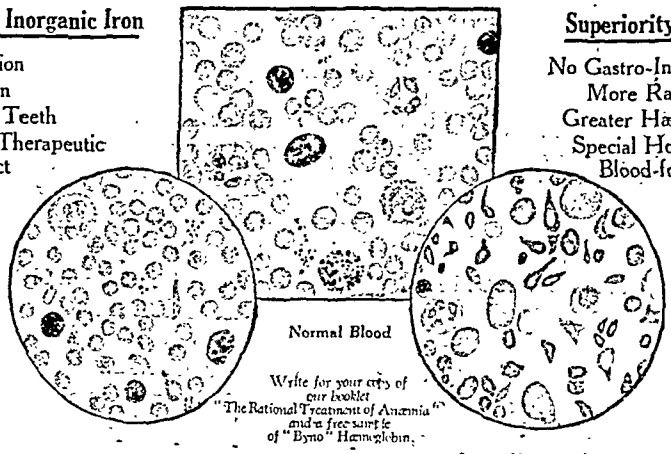

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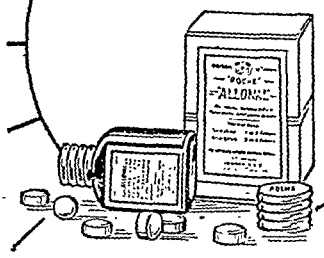

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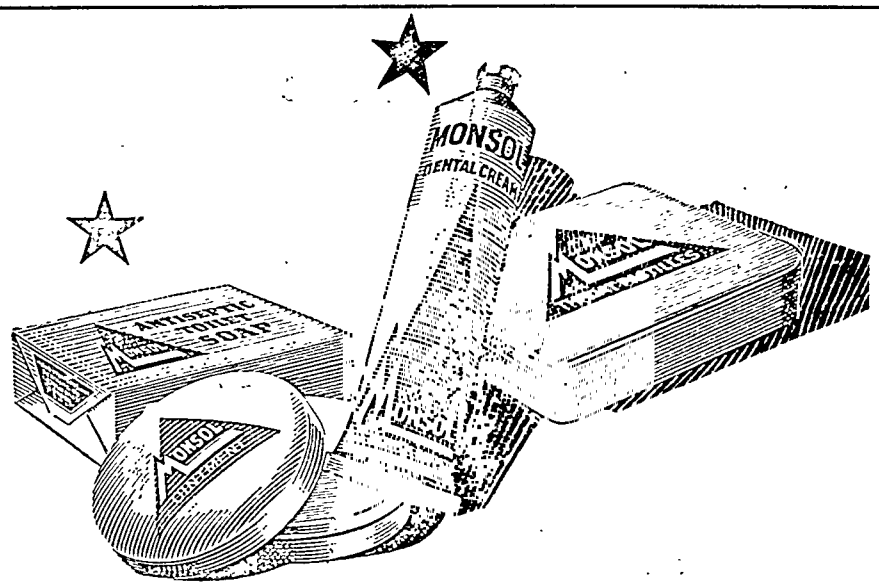

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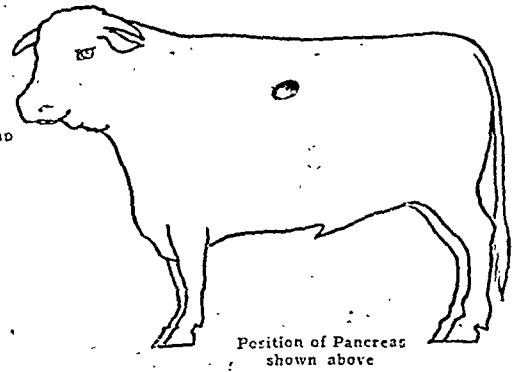

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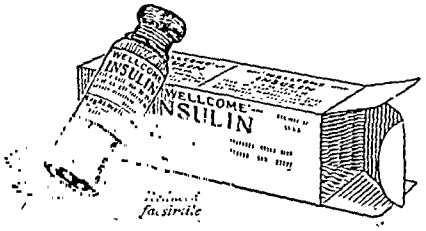

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Remarks ON SOME ASPECTS OF THE PROBLEM OF THE EPILEPSIES.*

BY

S. A. KINNIER WILSON, M.D., F.R.C.P.,

PHYSICIAN TO OUT-PATIENTS, NATIONAL HOSPITAL FOR PARALYSED AND EPILEPTIC, QUEEN SQUARE.

IT is only five years since this Section of the British Medical Association, at the Bradford Meeting, was occupied with a discussion on the nature and treatment of epilepsy; and the fact that epileptic problems are again offered for consideration may properly be taken as proof of continuing interest in their examination and hope for their solution. Indeed, if we are to judge by recent output,[1] epilepsy and its allied conditions form for the moment one of the "growing points" of neurological research; and this is matter for congratulation, since nothing but good can emerge from a vigorous and concentrated attack on the difficulties presented by an age-old yet ever new and common morbid clinical state.

I am, however, personally under no delusion as to the complexities and intricacies of the subject, and I cannot conceive of any advantage in minimizing them; on the contrary, now is the time to remind ourselves of Curnow's dictum, often quoted by Hughlings Jackson: "The tendency to appear exact by disregarding the complexity of the factors is the old failing in our medical history." Were epilepsy not so involved a problem it would long ago have received at least a working interpretation, but the truth is the condition defeats us on many grounds; its etiology is heterogeneous, its semeiology indeterminate, its pathology dubious, its pathogenesis conjectural, and its therapeutics empirical. For the purposes of this discussion I can only single out one or two aspects to which attention may be usefully directed; they have been chosen intentionally as in my view best calculated to indicate the range of the problems connected with the epilepsies.

I. THE CLINICAL FEATURES OF EPILEPTIC STATES.

At the outset the student must face difficulties arising from the *clinical polymorphism* of epileptic phenomena. We all believe we can diagnose an epileptic fit with readiness when we see one, and it is true enough that a major attack is, fortunately, like nothing else in the whole field of symptomatology; but the epileptic state is not by any means confined to major seizures. Motor, sensory, psychical, and visceral variants exist; and in not a few instances it is hard to say whether the symptoms observed belong to the epileptic group. To separate recurring involuntary movements of a tic-like or spasm-like character from local epilepsy is often difficult, and sometimes impossible. Moreover, during a major attack the observer will frequently notice movements which will not bear interpretation as essentially convulsive; they are co-ordinated, and have the appearance of being purposive, involuntary though they must be. At the other end of the scale are fits distinguished by relative motionlessness—an akinetic or inhibitory variety that refuses to be separated from the main class by any physiological or clinical criterion, unless, indeed, our semeiological scheme is to be convicted of arbitrariness. But apart from the seizure itself we have to consider pre-seizure and post-seizure disorders, which are integral parts of the whole, however grossly they differ from the symptomatology of the attack of convulsive movement. It will therefore aid us in taking a large, a scientific, view of the question if we remember the following points.

1. The epileptic aura is a *sensation*, and thus a symptom belonging to the *psychical* series. It is something in consciousness. The wonderful historical study of the aura conducted long ago by Herpin[2] emphasizes the hallucinatory nature of this familiar phenomenon, for a description of which we are dependent on the patient himself. But I stress the fact that it need not be either distorted or caricatured; any sense may be involved, simply or elaborately; I mention in passing, as worthy of special remark, hallucinations of the muscular sense. Further, it may be more intricate still, consisting of a series of panoramic pictures, of forgotten memories recalled, of incidents apparently re-lived; and in this respect its relation to some of the phenomena we call "hysterical" is immediately apparent.

2. Interruption of the stream of *consciousness* may, or may not, accompany epileptic manifestations. Absolute unconsciousness may supervene without aura, fulminantly; but many fits, especially perhaps those of a local or unilateral, and some of a visceral kind, run their course with conservation of consciousness, enabling the subject to observe and comment on his own experiences.

3. The *motor content* of the fit consists usually of violent convulsive movements, not to be likened to any of everyday life—powerful repetitive muscular contractions at their wildest and most intense. Yet every clinician knows it is not always thus. Mild flickers of finger and thumb, quivering facial contractions round the mouth, repeated local twitching of a solitary limb-segment, something little more than the striking of an attitude in momentary spasm, can constitute the whole of the motor performance. We must note, again, the not infrequent occurrence of co-ordinated, quasi-purposive movement; and also absence of movement.

4. The *sensory elements* in an epileptic seizure, aura apart, sometimes make up practically the whole of it; further, in numerous instances the aura develops as though to herald the onset of the usual attack, without the latter making its appearance.

5. The *visceral components*, neurosympathetic in origin, are just as significant as the somatic, and just as frequent. Here are included circulatory, respiratory, vasomotor, vesical, rectal, renal, vagal, salivary, sudatory, pupillary, and other phenomena.

6. As for *post-seizure manifestations*, they embrace the most varied sets of opposites, from sleep to fugues, from stupor to aggressiveness and combativeness, from speedy or immediate recovery to prolonged headache, physical fatigue, and general malaise. In some of these respects they are completely indistinguishable from what occurs in the condition we still, for want of a better name, call hysteria.

With all this the clinician is familiar. My sole purpose in this sketch has been to underline that *heterogeneousness of manifestation*, ranging from the psychical to the visceral, which has to be included in any survey of epilepsy and has to be accounted for by any theory of pathogenesis.

II. THE INHERITANCE OF EPILEPSY.

Epileptic phenomena being demonstrably of extreme diversity, it becomes a question whether inheritance can be of any particular import in connexion therewith. Twenty-one years of practice and hospital experience have long since convinced me that the hereditary factor is persistently overrated, and the personal or constitutional factor underrated. The number of cases in which no hereditary element can be traced far exceeds that in which such a factor seems to be responsible. It is time protest should be unitedly voiced by neurologists against the portentous ascription of a sinister prognosis to every case of epilepsy because of a supposed inheritance and consequent incurability. Gowers[3] found a family history of epilepsy in about 27 per cent. of his own and other collected cases (2,400); and Russell Brain[4] in 28 per cent. of 200. But the percentage noted by other observers has been less still (in Spratling's series of 1,070 cases parental epilepsy existed in 16 per cent.; Davenport and Weeks,[5] 19; Binswanger,[6] 11). Even if we assume heredity for, say, 20 per cent., this means that in no less than 80 per cent. that factor is altogether awanting.

The matter can be approached from another angle. Were inheritance really a determinant, then in a large out-patient experience I should find myself treating many cases

* Made in opening a discussion in the Section of Neurology and Psychological Medicine at the Annual Meeting of the British Medical Association, Manchester, 1929.

of the condition among siblings. As a fact, this is distinctly rare. At the present time the sole *familial pair or* group is that of two epileptic sisters, whose family history is negative, and who are identical or homologous twins[7]—a striking example of the significance of the personal or constitutional component. Myerson[8] cites information obtained (1925) from the superintendent of the Massachusetts State Hospital for Epileptics to the effect that among 1,500 inmates only four families of 11 persons in all were to be found. At the same institution Thom[9] ascertained that 138 marriages of epileptics resulted in 553 offspring, among whom a history of epilepsy was obtainable in only 10 cases (1.8 per cent.). The most recent figures are those of Pilcz,[10] who traced 161 children of 144 epileptic mothers; 78 died under one year, and of the others five were imbecile, three criminal, four psychopathic, two psychotic, and *only three epileptic. It is, I submit, impossible* to draw any other conclusion from these statistics than that direct heredity is of little moment in comparison with other inducing factors.

III. The Experimental Production of Convulsions.

The first point of importance that emerges from a great number of researches, old and new, on the experimental production of epileptic fits is that normal animals can be *made to develop convulsions with ease and certainty.* No inheritance is requisite, nor does this consideration, I venture to say, ever cross the mind of the experimentalist. Whatever the provenance of his laboratory animals, they are all potentially capable of developing epilepsy.

Study of methods reveals two possibilities, or, rather, two main technical procedures for the production of the convulsive state, and these may be classed as (1) neural, and (2) humoral, respectively.

It is of some relevance, I consider, to note at once that these may act separately or interrelatedly. This has been well demonstrated by Dandy and Elman,[11] who, to begin with, provoked convulsions in a normal cat by simple oral administration of absinthe in sufficient quantity. They next made cerebral (pre-Rolandic) lesions in the animals employed by either cortical or subcortical extirpation or the introduction of a foreign body subcortically (all the lesions were unilateral). Within from one to five months such animals became much more sensitive to the effect of absinthe, one-third to one-seventh of the original dose now resulting in fits. The addition of a pathological cerebral factor increased the facility, and aggravated the degree, of action of the convulsant; in other words, cerebral injury lowered the convulsion threshold. Experimental provocation of fits in the human subject also has in recent years been given much attention, in regard to both epileptic patients and normal persons, and a considerable gain to knowledge has thereby accrued.

(1) Taking the humoral factor first, we may define it comprehensively as that component in the production of experimental (both laboratory and human) epilepsy which consists in alteration of body fluids and biochemical constituents either mechanically or in connexion with exogenous and endogenous noxae. The table below is based on those published by Brock[12] and by Lennox and Cobb[1], with some modification.

Table I.—*Humoral Factors.*

Mechanical.

1. Increased intracranial pressure.
2. Increased permeability of tissues.
3. Alteration of water balance; oedema.
4. Pressure on or ligation of carotids and vertebrals.

Exogenous.

1. Convulsants (alcohol, lead, acid fuchsin, camphor, absinthe, thujone, cocaine, picrotoxin, etc.).
2. Insulin hypoglycaemia.
3. Foreign proteins.
4. Anoxaemia (variously induced).
5. Alteration of acid-base equilibrium; alkalosis (variously induced).

Endogenous.

1. Disorder of endocrines (parathyroid, thyroid, pituitary, ovary, etc.).

Without examining in any detail the "convulsigenic" significance of these various factors, I shall for the purpose of this discussion content myself by setting forth certain general conclusions recently arrived at by Lennox and Cobb.[13]

1. Acidosis tends to inhibit, and alkalosis to augment, seizures.
2. An increased tension of oxygen in the tissues tends to inhibit and a decreased tension to augment seizures.
3. Oedema of the brain tends to increase, and dehydration to diminish, seizures.

Although these generalities merit attention the modes of action of the various factors have not been satisfactorily determined, and the separateness of their functions is not established. In other words, we are not in a position to say that the mechanical and the toxic components are always in essence contrasted or in their effect mutually and invariably independent. And not a few anomalies and difficulties remain for investigation. In order to produce opacity of cerebral arteries for radiographic purposes Moniz and Lima[14] have injected harmless solutions of sodium iodide into the internal carotid, transiently ligatured; and in "a large number of cases" this has been followed by severe and rapidly developed Jacksonian fits, involving the body and limbs *on the same side as the injection and ligation.* At present no satisfactory explanation of this apparent paradox is forthcoming. The experimentation of Temple Fay[15] appears to show that the mechanical factor (pressure, increased fluid, defective fluid absorption) is at least as significant in numerous instances as any of a chemical or biochemical nature (see further below).

(2) As for the second (neural) mechanism, it has been known for years that direct excitation of neural centres can result in the development of unilateral or generalized epileptic attacks. When in these days so much attention is being directed to humoral factors it is essential not to underestimate the importance of the other.

IV. The Occurrence of Convulsions in Pathological States.

If the deductions of the experimentalist in respect of epileptic determinants are to prove of *value they* must be capable of substantiation from the clinical side—that is to say, there must be evidence that these, or some or other of these, play a part in the production of epileptic syndromes under pathological circumstances. What, then, are the neural and humoral (or humori-vascular) conditions encountered in clinical medicine that are likely to exhibit epilepsy as one of their manifestations?

Taking neural (cerebral) conditions first, we recognize in what a large number of diverse organic cerebral states epilepsy in one or other form may make its appearance, and these can be tabulated as follows.

Table II.—*Organic Cerebral States associated with Epilepsy.*

1. Cerebral tumours, of diverse kinds and sites.
2. Cerebral infections and toxi-infections (varieties of encephalitis, syphilis, tuberculosis, abscess; toxins of many specific fevers and exanthems, etc.) (Some of these are classifiable as humoral states also.)
3. Cerebral toxi-degenerations or scleroses (disseminated sclerosis, tuberous sclerosis, Pick's cortical atrophy, Alzheimer's disease, diffuse sclerosis, Westphal's pseudo-sclerosis, etc.).
4. Cerebral trauma.
5. Certain varieties of congenital and heredo-familial disease.

In some organic cerebral affections fits are few and far between, and in the case of fevers and exanthems they often occur solely at the onset. In other instances they are frequent and persistent. If we seek a common factor for the development of convulsive attacks in these uncommonly diverse states it will be difficult to find, no doubt; but this question we shall for the moment postpone.

Passing now to humoral and vascular cerebral pathological conditions, we can classify them in the following way.

Table III.—*Humoral and Vascular Cerebral States associated with Epilepsy.*

1. Disease of blood vessels (thrombosis, embolism, haemorrhage, arterio-sclerosis, endarteritis obliterans, aneurysm, etc.).
2. Disorder of cerebral circulation (heart-block, anaemia, asphyxia of various origins, etc.).
3. Disorder of cerebro-spinal fluid regulation (hydrocephalus, external ("occult") hydrocephalus, alterations in fluid pressure, etc.).

Neither of these two latter tables makes any pretence at completeness; nor, for that matter, have I by any means exhausted the catalogue of clinical conditions, temporary or otherwise, in the course of which epilepsy may reveal itself, for I might mention its occurrence during the administration of anaesthetics, in association with narcolepsy, under the influence of emotion, in alternation with certain psychical conditions, such as attacks of bad temper, and so forth.

V. The Mechanism of Production of the Epileptic Seizure.

If now we put together the information garnered from the two preceding sections we shall probably not be far wrong in concluding that it can be summarized as implying the existence of three or four determinants, at most, for the production of epileptic phenomena.

An epileptic disorder is a disorder of a neuronic mechanism, without question; not of any specific mechanism, but simply of the individual's neural network in one or other of its parts. True, the major portion being motor, the disorder exteriorizes itself via the pyramidal system, but it commences anywhere, so to speak; witness the polymorphic aurae.

The crux of the pathogenic problem remains; is this neuronic disturbance (irritative or release, it matters not) initiated in the neuronic mechanism itself, or is the latter influenced by humoral or vascular change? Does one accompany the other, or precede? At the present time no direct answer can be given to the question. What evidence has accumulated is indirect and collateral, and may be set down as follows.

1. *Mechanical Determinant.*

It has for many years been suspected, and often argued, that some connexion exists between the epileptic state and increase in amount and pressure of cerebro-spinal fluid; and the view has often been expressed that a relation can be established between the occurrence of the latter and failure in fluid absorption owing to arachnitis or other pathological local condition. According to Dandy,[16] Fay,[15] Foerster,[17] and many more, *x*-ray photographs of the head in a large number of idiopathic epileptics (fluid being replaced by air for radiographical purposes) have shown the existence of enlarged subarachnoid spaces, more especially over the vertex and fronto-parietal regions, while, pathologically, subarachnoid collections of fluid, local oedemas, and such-like conditions have often been seen. These and other data suggest the possibility of external hydrocephalus—the "occult hydrocephalus" of Reynolds,[18] who has found the condition in epileptic subjects at operation—which arises from defective fluid absorption and leads to pressure, and so to fits. Fay[15] has recently added to our knowledge of this particular mechanism by his examination of the Pacchionian bodies in chronic epileptic brains. They are the portals through which the fluid in large part escapes, and it is therefore instructive to note that his colleague Dr. Winkelman has found various stages of sclerosis, calcification, atrophy, failure of development, and other abnormalities in these organs in epileptic subjects. Such changes follow infections, haemorrhages, local injuries, toxicoses, etc. They suffice to account for delay in fluid absorption, fluid accumulation, back pressure, and consequent supracortical oedema. Yet the problem still remains—to explain the occurrence of fits, given such pathological circumstances.

2. *Vascular Determinant.*

Many direct observations have been made of the vascular state of a patient on the threshold of an epileptic attack and of the exposed brain surface throughout an attack, and the consensus of opinion holds that cerebral and general pallor or anaemia is more or less constantly visible to the eye just as the seizure commences. This circulatory derangement or disorder is confirmed by the frequent observation of failure of the peripheral pulse at the outset, and the rarer one of constriction of retinal arteries at the same moment. These are old and long-established facts, which we owe to clinicians of other generations (Moxon,[19] Trousseau,[20] Hughlings Jackson, Hilton Fagge,[21] Broadbent[22]), whose work should not be overlooked by newcomers in the epileptic field. The analogy of these phenomena with what obtains in syncopal or fainting attacks is unmistakable, and was minutely studied by Russell[23] a number of years ago. In 1903 the circulatory steps were thus epitomized by Francis Hare[24]:

> 1. Vaso-constriction, causing rapid rise in general blood pressure.
> 2. Cardiac inhibition (vagal), to counteract the effects of the above, causing sudden fall in general blood pressure.
> 3. Sudden cerebral anaemia, causing unconsciousness and tonic spasm.
> 4. Recommencement of the heart beat, causing rise of pressure, returning cerebral circulation, relaxation of tonic spasm, and clonic convulsions.
> 5. Re-establishment of blood pressure and cerebral circulation; cessation of convulsions; sleep recuperative of exhaustion and damage.

It is undoubtedly possible to harmonize the facts of clinical observation and of experimental epilepsy with this sketch of the phases in pathogenesis; but there are many obscurities.

What is the proximate cause of the sudden initial vascular constriction? And where does it start? To the former question no satisfactory answer is as yet forthcoming. We do not know whether the vasomotor change begins in the vasomotor centre of the bulb, or locally in the cerebral cortex, or distally, by way of reflex influence on the medulla or cortex. And even when we assume for vaso-constriction a pathogenic significance, I may point out that by itself transient cerebral anaemia is insufficient to determine the epileptic attack. Elsewhere[25] I have commented on and criticized the evidence in its favour, and have endeavoured to show how indeterminate the relationship is. Changes in cerebral circulation accompany the march of events in an epileptic fit, but whether the interconnexion is causal remains to be proved. Were cerebral anaemia the *per se* cause, then every deathbed, more or less, should be the scene of convulsions, which is, fortunately for all concerned, not the case. Nor can the occurrence of an integral epileptic phenomenon—the aura—be thus easily explained, for it is in numerous instances a precise psychical activation, a hallucination; and there is no reason to imagine that neural activity is accompanied by anaemia in the cerebrum of the normal subject. If, however, we assume it to come into consciousness before cortical vaso-constriction, we still are faced with the enigma of how it arises itself, how it is related to the latter, and what is the state of affairs when it is not followed by convulsions. Is the existing condition then neural or vascular? I submit, further, that many local cerebral anaemias are unaccompanied by discharging phenomena (witness the flaccid palsies of embolism and thrombosis); and, on the other hand, that varieties of epileptic discharge occur in a way at once so limited and so continuous (some Jacksonian attacks, epilepsia partialis continua) that it seems impossible to conceive for them a vasomotor determinant such as is suggested for major fits.

In arguing thus I do not underrate the importance of the vascular factor, which can properly be made responsible for some of the obvious manifestations of the seizure, and I do not hold entirely with my former teacher, the late Sir William Gowers,[26] when he stated dogmatically that "The vasomotor theory of epilepsy is alike unneeded, unproved, and inadequate. The phenomena indicate that there is a discharge of grey matter, and there is nothing to warrant us in going beyond the grey matter concerned in our search for the origin of the discharge." But it is my present considered opinion that proof of the initiation of the whole sequence of events by a causal vasomotor constriction is lacking, and that it is equally conceivable that a neural factor originates the vascular change.

3. *Humoral Determinant.*

The humoral or physicochemical determinant has, as we have seen, received an immense amount of attention in recent times, and some conclusions have been outlined above. Briefly, it must be considered as established that a number of conditions (hyperventilation, injections of various chemical substances, anoxaemia variously produced)

cause experimentally a marked fall of O_2 tension in the tissues and are calculated to give rise to convulsions (Argyll Campbell[27]). And it is frequently stated that the "purpose" of convulsions is to counteract this O_2 deficiency. The relation of such deficiency to alkalosis and other non-neural components is sketched by Lennox and Cobb[13] as follows:

"Contraction of cerebral vessels might lead to a decrease in the oxygen supply to the brain. Because of the anoxaemia there would be dilatation of capillaries with passage of fluid outward through their walls. One or more of these factors—decreased oxygen tension, oedema, increase in intracranial pressure—might lead to abnormalities in the activity of cortical neurones and a fit. Consequent on the convulsion there would be an accumulation of carbon dioxide and lactic acid in the tissues, which would initiate a reversible reaction. Accompanying the acidosis there would be an increase in the utilization of oxygen by the tissues, a passage of fluid into the capillaries, and a restoration of normal intracranial circulation."

The clinician is willing to believe that such a series of physicochemical interchanges accompanies a major epileptic seizure; but he notes that the description commences with a postulated "contraction of cerebral vessels," which, as I have just emphasized, itself remains unexplained, of uncertain origin, and of dubious application to various clinical symptoms which cannot be expelled from the epileptic category. Lennox and Cobb, it is satisfactory to observe, are aware of the hiatus, for they admit that "these processes are only contributory; they may be effective only in persons with a tendency to seizures, and with those having some pathology either in the brain, the body, or the emotional life."

4. *Neuronic Determinant.*

We are therefore, after this excursus into newer fields of investigation, brought back, not unexpectedly, to the position which for some is still unassailed (I do not say unassailable)—namely, that the essence of all epileptic semeiology, major or minor, pre-seizure or post-seizure, psychical or visceral, is neuronic derangement, and that this derangement is of neuronic derivation. Nervous tissue can be, and is often enough, influenced by mechanical, vascular, and humoral agencies; but the secret of epilepsy—the core of the problem—resides in the qualities of the neural mechanisms exhibiting discharge.

It is wise not in the least to undervalue the importance of recent acquisitions to knowledge, apropos vascular and humoral constituents and accompaniments of epileptic fits, but at the same time the following considerations must be given due weight.

1. The action of laboratory convulsants such as absinthe, which will produce fits in a normal animal, is much facilitated if the animal undergoes any cerebral injury.

2. Single humoral or vascular factors, by themselves, are often insufficient to produce fits; and even when combinations occur there may be no element of essential repetitiveness in the attacks thus generated.

3. Only a small percentage, as is well recognized, of cases with head injuries and with histories of infective and other conditions, leading presumably to the pathological states mentioned above, react with fits.

4. The development of epilepsy in some organic brain states (see especially No. 3 in Table II above) pleads in favour of a neural factor, seeing that no evidence of vascular or humoral anomalies is forthcoming in them.

5. A "susceptibility" or "tendency" can scarcely be ruled out in cases of direct heredity and of epilepsy in homologous twins, and it is at least as easy to express this in terms of neural instability as of extraneural abnormality.

6. The clinical occurrence of so-called reflex epilepsy strongly suggests a pure neural reaction.

7. Certain features of the epileptic state are clinically indistinguishable from hysterical manifestations; but for the latter, so far as I am aware, no attribution to mechanical, vascular, or humoral precipitants is thought of.

8. Certain phenomena of the epileptic fit (for example, inhibition and radiation) are much more readily explicable by neural than by any extraneural mechanism.

It is therefore impossible to find one single common factor for the totality of epileptic manifestations, unless the significance of some inherent nervous factor, some functional propensity, is allowed. However unsatisfactory the word "tendency" or "instability" may be, however useful in cloaking ignorance, I do not consider this a feeble conclusion; on the contrary, it is consonant with the facts of observation; the only trouble is that we cannot at present gauge "susceptibility" by reference to objective criteria. Nor, for that matter, can anyone estimate what is signified by susceptibility to infection or illness of any kind, unless by rather vague allusions to "immunity." But the question of immunity in epilepsy has never yet been seriously approached. For this reason I shall conclude by a brief note on the influence of intercurrent conditions on the epileptic state.

VI. The Influence on Epileptic Semeiology of Other Intercurrent Affections.

This perhaps deserves more attention than has hitherto been accorded it. The observation is as old as the days of Hippocrates, for that Father of Medicine stated it himself, that intermittent fever replaced or mitigated epilepsy, whence the adage "Quartana epilepsiae vindex appellatur." Lenoir[28] (1901) remarked that Esquirol had commented on the diminution or disappearance of epileptic attacks during "accidents fébriles," while Hammond[29] in the same year said that some authors, struck with the favourable influence exerted by infectious diseases over a pre-existing epilepsy, had advocated "the establishment of some of these different processes, such as malaria and erysipelas, to cure it." As long ago as 1882 it was noticed by Bourneville and Bonnaire[30] during an epidemic of measles in epileptics and idiots at Bicêtre that while the intercurrent affection lasted fits were much decreased in force and frequency, and similar observations were recorded by Séglas[31] (at the Salpêtrière). Gowers[3] quotes the case of a child ("with strong inheritance") who suffered from fits from 2 years of age till 7, when they ceased during an attack of typhoid fever and did not recur till the age of 27. He also states that scarlet fever provides an exception to this perhaps general rule. Aldren Turner,[32] on the other hand, has seen a case in which a mild attack of scarlatina induced a period of amelioration lasting for several months; and another in which respite was obtained for a similar period after acute pneumonia. Bourneville,[33] once more, found during a typhoid epidemic among epileptic children (six cases out of seven) that the attacks were suspended while the pyrexia lasted, and that the improvement persisted for some time after recovery.

In my own experience measles and chicken-pox are the febrile illnesses which have sometimes effected a striking cessation of fits—nor has the improvement been limited solely by the duration of the intercurrent state.

So far as I have discovered no attempt has been made by Gowers or any of the other authors mentioned to explain the way in which this influence may be, theoretically, exerted. According to Francis Hare,[34] however, it is the pyrexia which is of significance, for it involves general vascular relaxation, and he argues that vaso-dilatation is similarly of value in cutting short attacks of both asthma and migraine. He quotes in this connexion Garrod, who noticed the effect of acute pyrexial gout on recurrent epilepsy.

"A gentleman had suffered from epilepsy from the age of 20 to 52; the fits were frequent, sometimes occurring as often as once a week. He then had distinct articular gout in one great toe, and afterwards experienced attacks of the same kind, from time to time, up to his death at the age of 72. From the first manifestation of decided gout there was an entire cessation of the epileptic convulsions."

It would be simple and proper enough to account for this particular ameliorating action on humoral lines; but in the case of the exanthems I scarcely feel that pyrexial vaso-dilatation covers the whole pathogenesis, just as I do not feel confident that the old observation that in children various acute diseases commence with convulsions, but in adults with rigors is to be elucidated by a theory of vaso-constriction, acting more precipitately in the former than in the latter.

Whatever the explanation, it may yet turn out to be of importance from a pathogenic and a therapeutic standpoint that epileptic manifestations are sometimes controlled by Nature's own methods.

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TUBERCULOSIS OF THE LARYNX.*

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With so large a subject as this it is not easy to know from what side to approach it, and I think that it will probably best serve the purposes of the discussion which is to follow if I make a few remarks from a very general point of view, and let those that follow amplify or criticize some aspect that may particularly appeal to them.

I am afraid that, in spite of the fact that for the past twenty years I have tried to study this disease at St. Thomas's Hospital, the Victoria Park Chest Hospital, and elsewhere, I have really nothing to say that is new, and the more cases that one sees the more is one inclined to wonder at the protean manifestations of this disease as far as the larynx is concerned. If one examines carefully the larynx in patients who are suffering from pulmonary tuberculosis, one may say that somewhere about 10 per cent. show abnormality in the larynx. I do not wish to imply that a definitely recognizable tuberculous lesion is present in all these cases, but that the larynx is not quite normal; it may be that the mucosa is more anaemic than is usual, or there may be a generalized erythema, or possibly some fullness in the interarytenoid region. Do such departures from the normal occurring in a phthisical subject possess more than usual significance, and is there such a thing as a pretuberculous stage of the disease? I believe that many people consider that there is such a stage. Personally I am disinclined to admit this designation, and I would prefer to regard the local anaemia as a part of a more general one, and the catarrhal laryngitis as a not unusual accompaniment of the chronic cough, while the passage of sputum over the interarytenoid fold is surely sufficient to cause a little local hypertrophy without this being of necessity due to a definite tuberculous infection. At the same time, it is naturally advisable to keep a careful watch on such local conditions as they arise, and to make certain that they yield to the appropriate treatment.

What proportion of cases of proved phthisis exhibit laryngeal symptoms that are definitely tuberculous? The answer to this question is not very easy, as statistics are not by any means unanimous on the subject, and, like all statistics, they may be essentially fallacious, as often the information is not given as to what particular class of case is being dealt with. Thus at a large sanatorium (Midhurst) 8 per cent. show definite laryngeal disease, whilst at an institution such as the Victoria Park Chest Hospital, where the cases are year by year more carefully selected, the proportion may fall as low as 4 per cent. On the other hand, some recent American statistics from a State sanatorium mention 25 per cent. of laryngeal cases. However much statistics vary, it is, I believe, true to say that laryngeal complications of phthisis are certainly less common than they were even twenty-five years ago. Then, the average statistics of many skilled observers in Germany and elsewhere showed considerably more than 30 per cent. This improvement is, I think, undoubtedly due to the fact that the chest disease is recognized earlier and is usually treated most efficiently from the beginning of the disease.

It may be noted that I am assuming that tuberculosis of the larynx is secondary to pulmonary disease. This is, I think, almost universally agreed for the vast majority of cases, even though no definite lesion can be demonstrated in the lungs. There is to my mind, however, one lesion that is difficult to explain on this assumption, and that is the tiny nodule which may occur on the edge of a vocal cord in an elderly person, and which may give rise to the suspicion of cancer, but which the microscope proves to be tuberculous in spite of the fact that there was no trace of tuberculosis to be found elsewhere. I can recall at least two cases in which (with the concurrence of distinguished colleagues) I removed the supposedly cancerous cord with completely successful results, and no further manifestation of tuberculosis over a period of twelve years and seven years respectively.

When the larynx becomes affected in a case of pulmonary tuberculosis, how does the infection occur, and what parts are most commonly involved? In the large majority of cases secretion coughed up from the lungs produces a surface infection of the laryngeal mucosa, and the infecting bacilli can undoubtedly enter apparently intact epithelium, and still more so epithelium damaged by previous disease. When one considers the amount of sticky sputum that so often hangs about the interarytenoid region and the posterior ends of the vocal cords, it is perhaps surprising that infection does not more often take place. Certainly this stagnation of secretion in the region of the posterior commissure can be regarded as a very potent source of infection. In this connexion it is interesting to note that singers and some other voice users who do not tolerate any accumulation of mucus in the larynx are said to be less susceptible to laryngeal complications. This may be so, but there are, of course, other explanations.

When we allow the possibility of entry of bacilli through intact or abraded epithelium, or through the ducts of racemose glands, it seems perhaps unnecessary to consider the blood stream as the primary vehicle for the submucous deposit, and it may, indeed, be doubted whether infection ever occurs this way. At the same time, when once tuberculous disease has been established, spread to neighbouring parts of the larynx may undoubtedly occur by extension through the lymphatics.

It is, I think, agreed that in the majority of cases the posterior part of the larynx is most commonly affected, and it is here that we are accustomed to look for the earliest signs of disease. We are all familiar with the firm nodular

* Read in opening a discussion at a joint meeting of the Sections of Oto-Rhino-Laryngology and Tuberculosis at the Annual Meeting of the British Medical Association, Manchester, 1929.

infiltration, the feathery outgrowths, the regular cone-shaped palisade, or the round frog-spawn-like excrescences that are so often seen in the early stages, but it is well to remember that it is when the situation is unusual that the diagnosis is more difficult, and it would, in my view, be helpful if some of the many careful observers amongst us would tell us of some unusual appearance that experience has taught them to regard as significant. For my own part I have often thought that a curious, gelatinous-like appearance of one vocal cord merited very careful attention, whilst on several occasions a diffuse subglottic infiltration, only caught sight of when the cords are widely abducted, has seemed to be the starting point of the laryngeal disease. But the manifestations are so various that one is often forced to say: "I have never seen anything quite like this before, but it must be tubercle."

It is to my mind remarkable how many of the unusual conditions that one sees in the larynx turn out in the end to be tuberculous. It will scarcely be necessary for me to make more than a brief reference to the symptoms of this disease. They are of two types, and these depend on whether it is the interior of the larynx, or whether it is the structures at the entrance to the larynx, that are affected. It may, however, be well to say that as far as the intralaryngeal type is concerned, long before any definite hoarseness may be present, we may notice, or should notice, any slight alteration in the voice, such as tiring very easily, occasional huskiness, or loss of euphony, and any abnormal sensations in the throat or larynx such as a feeling of great dryness, irritation of a tickling or scratching nature, excess of mucus, and tendency continually to clear the throat. Any of these symptoms should, I suggest, call for a careful laryngeal examination, if such is not indeed part of a routine measure. Diagnosis of any laryngeal involvement in an early stage makes the outlook so much more hopeful.

I should like to turn attention to the question of treatment. Each year it is being more appreciated that the disease, serious though it undoubtedly is, is not really as hopeless as it is so often represented to be, and that indeed a considerable proportion of cases can definitely be cured, particularly if treatment is instituted at an early stage.

This treatment should, of course, be both general and local. The general treatment should, wherever possible, take place in a sanatorium, or under sanatorium conditions, so that every variation in the lung condition and the general health and resistance of the patient may be carefully watched, for upon the skilful care of the pulmonary disease depends the whole outlook of the patient. It has happened before now that the laryngeal condition has been healed but that the patient has succumbed to the pulmonary disease. In mentioning general treatment it would be well to ensure that there are no gross inflammatory conditions of the upper respiratory tract that might keep up irritation and delay the success of other therapeutic measures.

The question of local treatment has undergone many and various changes during the past twenty-five years, and even now constant experiment is taking place with local applications in the hope of checking the disease and mitigating its more distressing symptoms. From this multiplicity of endeavour two landmarks seem to me to stand out pre-eminently as definite advances. The first is the appreciation of the value of absolute vocal rest, and the second is the substitution of the galvano-cautery for other active surgical treatment. I am not quite certain who it was who first thought of silence as a means of ensuring physiological rest to the diseased larynx, but I know that in this country one of its earliest and most persistent advocates was Sir StClair Thomson, and he must be gratified to find it now regarded as the keystone in the arch of our local treatment.

It is remarkable what extensive lesions heal up under this treatment alone, always provided that the lung condition is favourable and that the patient co-operates to make the silence as absolute as possible. It will be necessary in the majority of cases to ensure that this treatment is carried out for six months or more, and this naturally puts a great strain on the fortitude of the patient. It will often be noted that for the first month or two little or no improvement is shown, and indeed the larynx may look definitely worse; but suddenly it begins to mend, and from that time progress is steady until complete healing has occurred. It is advisable that the larynx should be inspected once a month and the patient informed of the progress and encouraged to continue the vocal rest.

The surgical treatment of local lesions, mainly introduced by Heryng and Krause and advocated in this country by Richard Lake, consists mainly in the removal of infiltrated tissues and the curetting of ulcerated areas with the subsequent rubbing in of lactic acid and other mild caustics. These procedures marked a definite advance and many cases were undoubtedly cured by them; but to-day our Heryng curettes, epiglottis shears, and arytenoid punch forceps are seldom used, as their work can be more effectively performed by the galvano-cautery. The value of galvano-caustic puncture in suitable cases is, I am glad to say, gaining greater recognition, and is, as time goes on, likely to supersede all other procedures in the surgical treatment of local lesions. This method, valuable though it undoubtedly is, should not be used indiscriminately, and the cases in which it is proposed to apply it should be most carefully selected, not only with regard to the extent and situation of the local lesion, but also with careful consideration of the lung condition and the general resistance of the patient. In properly selected cases even a few applications at three-weekly or monthly intervals may restore an infiltrated arytenoid to normal or promote the healing of a definite ulcer. The galvano-cautery acts as a powerful counter-irritant, and it is the hyperaemia that is induced and the formation of granulation tissue with the development of new blood vessels that causes revitalization of the tissues and the healing of the tubercle, rather than any actual destruction of diseased tissue that may be achieved.

My experience of the use of direct sunlight is somewhat limited; it is difficult to be certain of it in this country, and I have never used it to the exclusion of other forms of treatment, so that its individual value is difficult to assess. One is certainly struck by the fact that the laryngeal mucosa is extremely sensitive to reflected sunlight, so that the applications and dosage should be under the strictest control. One of my patients was so pleased at seeing his own larynx with one of these cleverly reflecting appliances, designed, I think, by a Frenchman, that he was constantly sunning it, with anything but beneficial results.

Artificial sunlight has been strongly advocated by Wessely and others, and ingenious machines have been devised for its application. The dosage can be carefully regulated, but the treatment is apt to be a lengthy one, and of the cases that I have seen under treatment in foreign clinics some would probably have been cured more quickly by other methods.

It is commonly supposed that tracheotomy is only justified in this disease when laryngeal obstruction becomes severe, and that it should not be employed for the sole purpose of putting the larynx at rest. I am amongst those who consider that in some cases tracheotomy is not only justifiable but advisable. These cases are few and far between, and are mainly those in which there is an indolent, almost lupoid, infiltration, and where the lung condition is fibroid or inactive. Such cases, slowly progressive under other forms of treatment, may gradually yield to the complete functional rest that tracheotomy ensures.

For the cases that cannot be cured by the measures I have outlined treatment must unfortunately be mainly symptomatic, and it is in this field that experiment and ingenuity may devise methods and applications that may give considerable relief to the symptoms and amelioration of the laryngeal condition.

The chief symptoms that we have to contest are pain and cough. The relief of pain taxes all our resources, and every form of spray and insufflation may be called in to relieve the pain in swallowing that is so inimical to the general nutrition.

It was hoped that nerve-blocking would provide a means of efficiently controlling painful dysphagia, and in some cases it certainly is of value, but on the whole it has in

my hands proved rather disappointing, and it seems to fail most often in advanced cases in which one was hoping the most from it.

Cocainization of the spheno-palatine ganglion, as in the Sluder operation for ethmoidal disease, is said to abolish the reflex pain in the ear, but the effects are naturally only transitory.

Cough, which may be due to the local laryngeal condition, is often most satisfactorily relieved by the intratracheal injection of oily solutions. A large variety of drugs have naturally been employed, but a 3 per cent. solution of creosote in olive oil will be found to be as effective as any in relieving the irritation that seems to produce the cough.

There is one oily solution for local application that has within recent years been strongly advocated in America, but of which my experience is so limited that I cannot speak with any degree of first-hand knowledge. I refer to chaulmoogra oil. This appears to have a definitely beneficial effect not only as regards the diminishing of the irritable cough, but it is said also to allay the painful dysphagia very considerably, besides promoting the healing of ulceration in the larynx. The oil is rather a viscous one, and I have had it made up with two parts of almond oil so that it can be readily dropped into the larynx from a laryngeal syringe. If even a part of the benefits that are claimed for it can be substantiated after an extended trial it should certainly prove a most valuable addition to the medical side of our treatment.

It is in the later stages of the disease that the symptoms are so distressing, and anything that can give even temporary relief is well worthy of a trial. It is to be hoped that this discussion may reveal methods that are helpful and so carry us on the way to the attainment of our object.

TUBERCULOSIS OF THE LARYNX.*

BY

SIR STCLAIR THOMSON, M.D.,
F.R.C.P., F.R.C.S.

On a rough average one out of every three patients with active pulmonary tuberculosis suffers from the complication of a laryngeal lesion. In England to-day there are 55,000 individuals who require our knowledge and care to relieve and, if possible, cure them of this condition. Tuberculosis is not the most killing of the diseases we have to combat. Heart disease still heads the list. Pneumonia and bronchitis, together, hurry more people to the grave than does tuberculosis. But when we remember that tuberculosis attacks mankind chiefly when in the prime of life, that a third of all deaths between 15 and 40 are due to it, and when we recall the long and weary and expensive passage to the grave it may entail, we must congratulate the officers of these two Sections on taking this opportunity for focusing attention on what is the most serious complication of tuberculosis, next to meningitis.

Much encouragement lies in the well-established proof that tuberculosis is becoming both less frequent and less virulent. My own impression—which I hope to verify—is that the lessened virulence of the disease is shown by a diminution in the frequency with which the larynx is involved.

Five years ago I published the results of ten years spent in observing 477 cases of laryngeal disease discovered in 2,541 tuberculous patients, all of whom I had examined.[1] With your permission I will use these published figures for a few observations, as more extended experience has only served to confirm the conclusions I have already published as regards sex distribution, incidence of the disease, principles of treatment, prospect of cure, and so forth.

(These various points were then elucidated by a lantern demonstration.)

The principal conclusions are as follows:

1. Tuberculosis is found in about 18 per cent. of the patients admitted to a sanatorium.
2. It only occurs in 4.8 per cent. of patients in the early stage of pulmonary tuberculosis (Group 1 of the Turban-Gerhardt classification). Hence
3. The great importance of early diagnosis.
4. The post-mortem room shows that in advanced cases the larynx may be affected in half the patients who die of pulmonary tuberculosis.
5. The presence of a laryngeal complication darkens the prognosis at all stages. If we study their after-history, 60 per cent. of patients who left the sanatorium with a healthy larynx are alive when only 30 per cent. of those with a diseased larynx are still surviving after the same lapse of time. In other words, amidst laryngeal cases two are dead out of every three when, amidst larynx-free cases, only one has died.
6. No laryngeal case can be looked on as "slight." Its import is always serious, both as regards length of treatment required and ultimate recovery.
7. Seventy per cent. of only fairly favourable cases are dead.
8. In only too many cases which come under observation the prospect of recovery is so slight that it may be unjustifiable to submit the sufferer to any trying, dangerous, or expensive treatment.
9. On the other hand, a complete repair of the larynx has been obtained in no less than 25 per cent. of patients with tuberculous laryngitis.
10. Amongst 477 cases 119 cures have been obtained by sanatorium treatment, combined with silence, whispers, and the galvano-cautery. To secure both results—and to forestall the development of this serious complication—we only require earlier diagnosis and more prompt sanatorium treatment.
11. When we recall that Morell Mackenzie wrote that "it is not certain that any cases ever recover," we may derive much encouragement from the results.

Hippocrates said that no head injury was so slight that it should be neglected, and none so grave but that it might recover. No laryngeal lesion in tuberculosis is so slight as to be neglected; some serious ones may recover; but the majority of advanced cases are hopeless.

In such a kaleidoscopic disease as tuberculosis it is rash to commit oneself to too definite conclusions. In formulating these opinions time has prevented me from inserting many saving clauses and from dwelling on the relation of the laryngeal lesion and the primary focus to the general infection and to the local and general resistance.

REFERENCE.

[1] Tuberculosis of the Larynx: "Ten Years' Experience in a Sanatorium," Medical Research Council, 1924.

* Read at a joint meeting of the Sections of Oto-Rhino-Laryngology and Tuberculosis at the Annual Meeting of the British Medical Association, Manchester, 1929.

PELLAGRA AMONG THE MAIZE-EATING NATIVES OF THE UNION OF SOUTH AFRICA.

BY

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In spite of the fact that maize, or mealies, forms the chief article of diet of the Bantu population of the Union, often to the exclusion of all else, pellagra outbreaks have been of relatively infrequent occurrence. Only three outbreaks of any importance are known to have occurred—one in 1906, when some 150 pellagrins were found among Zulu rebel prisoners; another in 1912–13, in the Pretoria Mental Institution, affecting about 60 native inmates; and the recent outbreak in the Durban prison command, in which a total of 64 cases have been reported to date among the non-European prisoners. In addition to these outbreaks sporadic cases have been reported, amounting to about 50, mainly from Natal (including Zululand) and the Transkeian native territory of the Cape Province. Only six of these patients were Europeans, the remainder being Eurafricans, Indians, or Bantus, the last-named greatly preponderating.

The relatively small amount of pellagra among our maize-eating natives is probably due to crude methods of grinding, which do not result in the removal of pellagra-preventing properties of the grain. The native merely stamps the grain, generally in a crude stone mortar.

In Table I all the known cases that have occurred in the territory now constituting the Union are summarized.

Table I.—*Known Cases of Pellagra that have Occurred in the Territory now Constituting the Union.*

Year.	Number.	Race.	Region.	Remarks.
1906	150	Native	Zululand	Dinizulu-Bambata rebellion.
1907	Several	Native	Zululand	From Tugela Valley; seen by Dr Knight.[2]
1912	1	Native	Durban	Reported by Dr. Drummond.
1912-13	60	Native	Pretoria	Mental institution.[1]
1913	Several	Native	East London	Gaol.[3]
1913	1	Native	Transkei	Reported by Dr. Mitchell.
1914	1	Coloured	East London	Gaol.
1916	1	Coloured	East London	Gaol.
1920	1	European	Durban	Reported by Dr. Drummond
1922	1	European	Durban	Reported by Dr. Drummond.
1922	4	European	Witwatersrand	Reported by Dr. Pyper.[5]
1927	1	European	Witwatersrand	Reported by Dr. Orenstein.
1927	1	Native	Witwatersrand	Reported by Dr. Orenstein.
1927	1	Native	Amatikulu	Reported by Drs. P. Ross and Rhodes.
1927	3	Native	Durban	Addington Hospital.
1927-28	64	Native	Durban	Prison Command.
1928	7	Native	Durban	Addington Hospital.
1928	1	Native	Witwatersrand	Krugersdorp Gaol.
1928	1	Native	Queenstown	Municipal location.

During the Zulu rebellion of 1906 Dr. L. G. Haydon was in medical charge of 3,000 prisoners, from among whom he picked out some 150 individuals exhibiting symptoms which, from his description, leave little doubt that the patients were pellagrins. A photograph of one of them, showing typical and unusually extensive erythema of the forearms, is preserved in the records of the Union Health Department. These prisoners had by force of circumstances been detained under bad conditions for a considerable time in Zululand. They had been confined in batches in wire enclosures with unsatisfactory food, chiefly mealies. It is also probable, remarks Dr. Haydon, that during the progress of the rebellion the majority of the native rebels in the field had had to subsist entirely on inferior mealies.

The outbreak in the Pretoria Mental Institution commenced in 1912 and extended into 1913. Some 60 of the native inmates, chiefly males, were affected. The patients showed the typical rash; diarrhoea and neuritis were prominent features. The intensity of the disease varied greatly; many of the cases were very severe, and about 15 were fatal. When the condition was recognized as pellagra the diet was immediately improved, chiefly by the addition of peanuts and extra green vegetables, with a view to increasing the fat and vitamin content of the ration. Soon after this improved diet scale had been introduced the outbreak ended.

In 1913 Dr. J. Drummond[2] described what he considered to be the first recorded case in Natal. This was a native pellagrin admitted to the Addington Hospital, Durban, in December, 1912. In his paper Dr. Drummond states that the condition, though not previously recorded in Natal, had been noted as present among the coloured lunatics at the Robben Island Mental Hospital, Cape. This reference appears to be erroneous; investigation of the records does not confirm it. In the discussion[2] on Dr. Drummond's paper, Dr. Knight stated that in 1907, when in the Nqutu district of Zululand, he had reported a series of cases which conformed closely to the one described; the patients had all come from the Tugela Valley, and had all died.

In August, 1913, Dr. Barcroft Anderson, district surgeon of East London, reported that he had several cases of skin diseases among native women in the East London gaol which he believed to be pellagra. He investigated the fly population of a neighbouring stream, Sambon's simulium theory at that time holding the field. The specimens he sent in were found, however, not to belong to the genus Simulium. A photograph of a typical case was taken by Dr. Barcroft Anderson and published in the *South African Medical Record* of October 25th, 1913.[3]

Dr. J. A. Mitchell saw a case in December, 1913.[4] The patient was a native convict from the Transkei. He was arrested in April, 1911, at Cathcart, removed the following month to East London gaol, and in November, 1913, to Tokai, where he was seen by Dr. Mitchell, whose diagnosis of pellagra was confirmed by the Government pathologist.

Cases of pellagra in coloured female convicts in East London were reported by Dr. Barcroft Anderson, one in 1914, another in 1916. Dr. Drummond reported a European case in Durban in 1920. He then made a general inquiry throughout the Union, but could trace no other cases. In 1922 he saw a case in a European female who had contracted the disease in Newcastle, Natal; she died in Durban Sanatorium. He saw two more cases in 1916—one a European, the other a native. Writing in the *South African Medical Record* of July, 1922, Dr. C. Pyper mentions having seen four cases in Europeans in Johannesburg which he diagnosed as pellagra.[5]

In April, 1927, a leprosy board consisting of Dr. Park Ross (assistant health officer for the Union) and Dr. Rhodes (Government pathologist) diagnosed pellagra in a native who had been sent with a diagnosis of leprosy to the leper institution at Amatikulu, Zululand. During 1927 the superintendent of sanitation, Rand Mines, Ltd., made careful inquiries as to the possible occurrence of pellagra on the Witwatersrand mines. He could trace only two cases—one European, the other native. In the Durban prisons outbreak, which extended from December, 1927, to December, 1928, 64 native cases occurred. This outbreak will be dealt with in greater detail.

During February, 1928, a circular was sent by the Union Health Department to all district surgeons in attendance on prisoners, asking for reports of any cases of pellagra that had been encountered in either their prison or private practice. Nineteen district surgeons reported that they had not seen any cases; two had seen a single case each—one in Krugersdorp, Transvaal, the other in Queenstown, Cape. Both patients were natives.

Seven cases in no wise connected with the Durban prisons outbreak were admitted to Addington Hospital, Durban, during 1928. One of these patients, a Zulu, when interviewed, stated that he had come south from Zululand with the express purpose of being admitted into a Government hospital to be treated for his condition. He stated that he had seen many natives in Zululand with skin condition similar to his, and he persisted in this statement when severely cross-questioned.

There can be little doubt that pellagra is more common in the Union, especially in the native territories of Zululand and Transkei, than the data given above would suggest. Its diagnosis may easily be missed by those not familiar with its symptoms.

The Outbreak in the Durban Prison Command.

During the period December, 1927, to December, 1928, 64 cases occurred among non-Europeans in the Durban prison command. The first case was seen by Dr. Rhodes on December 22nd, 1927. With the exception of this first case, detailed information, collected chiefly by Dr. G. D. English, assistant district surgeon, Durban, is available.

Date of Onset.—Of the 63 pellagrins of whom detailed information is available, only 2 showed symptoms on admission to gaol; in 25 symptoms appeared within three months of admission; 10 had been in prison three to six months; 8 six to twelve months; 5 one to two years; 13 over two years.

Table II.—*Period of Imprisonment after which Pellagra Symptoms Appeared.*

Length of Imprisonment.	No. of Cases.
Previous to admission	2
3 months	25
3-6 months	10
6-12 ,, ...	8
12-24 ,, ...	5
Over 24 ,, ...	13

TABLE III.—*Showing the Monthly Distribution of Cases.*

Month in which Symptoms of Pellagra appeared.	No. of Cases.
December, 1927	6
January, 1928	11
February, 1928	9
March, 1928	12
April, 1928	5
May, 1928	1
June, 1928	0
July, 1928	1
August, 1928	3
September, 1928	1
October, 1928	10
November, 1928	3
December, 1928	1
January, 1929	0

Prison Diet Scales.—Six diet scales are used in the prisons throughout the Union. The diet varies according as to whether the prisoner is European, coloured (that is, Asiatic or Eurafrican), or native, and whether he is serving a sentence of three months or less (short sentence), or one of over three months (long sentence). The scales are officially known as:

Diet A.—Short service European prisoners.
Diet B.—Long service European prisoners.
Diet C.—Short service coloured prisoners.
Diet D.—Long service coloured prisoners.
Diet E.—Short service native prisoners.
Diet F.—Long service native prisoners.

Of the 63 patients, 2 had been on C diet, 7 on D, 10 on E, 36 on F, and 8 on E and F. All the official non-European diets are physiologically deficient. They are analysed in Table IV.

TABLE IV.—*Non-European Prison Diet Scales of the Union of South Africa.*

DIET C.—Short Service Asiatic and Eurafrican Prisoners.

Article of Diet.	Weekly Ration in oz.	Daily Ration in oz.	Daily Protein in oz.	Daily Carbohydrate in oz.	Fat in oz.	Calories.
Mealie meal	70	10	0.75	6.6	0.43	255 625
Rice	56	8	0.60	6.36	0.024	815.000
Meat or Beans	8	1.143	0.17	—	0.25	85.000
	8	1.143	0.265	0.685	0.017	117.080
Beans	12	1.70	0.404	1.02	0.025	171 168
Vegetables	24	3.43	0.058	0.14	0.14	26.800
Curry	0.25	—	—	—	—	—
Bread	42	6	0.474	3 03	0.133	442.125
Soup or Gruel	7 pints	1 pint	0 231	0.08	0.439	183.250
	7 pints	1 pint	0.145	1.32	0.085	193.125
Total daily ration			2 855–2.582	19.155–17.23	1.309–0.726	2,730 9–2,685.9

DIET D.—Long Service Asiatic and Coloured Prisoners.

Mealie meal	56	8	0.58	5.28	0 31	772.5
Whole mealies or Bread	70	10	1.00	7.175	0.425	1,070.5
	56	8	0.63	4.04	0.17	589.5
Rice	48	6 85	0.51	5.34	0.02	697.84
Meat or Beans	16	2.286	0.34	—	0.49	170.02
	16	2 286	0.52	1.37	0.03	230.17
Vegetables	30	4.285	0.07	0.175	0.01	33.48
Beans	10	1.428	0.33	0.85	0.02	143.78
Curry	½	—	—	—	—	—
Chee or fat	3	0.428	—	—	0.428	107.00
Treacle, Jam, or sugar	7	1.0		1.0		116.25
Total daily ration			3 01–2.45	20.19–16.685	1.533–1 018	3,171.52–2,6:0.37

TABLE IV (*continued*).

DIET E.—Short Service Native Prisoners.

Article of Diet.	Weekly Ration in oz.	Daily Ration in oz.	Daily Protein in oz.	Daily Carbohydrate in oz.	Fat in oz.	Calories.
Mealie meal	93	14	1.02	9.24	0.6	1,351.9
Whole mealies	56	8	0.80	5.74	0.34	856.4
Sugar or Fat	7	1	—	1.0	—	116.25
	7	1	—	—	1.0	250.00
Vegetables	112	16	0.27	0.65	0.05	125 00
Total daily ration			2.09	16.63–15 63	2.0–1.0	2,583 3–2,449.55

DIET F.—Long Service Native Prisoners.

Mealie meal	108	15.4	1.12	10.16	0.66	1,487.00
Whole mealies	70	10	1 00	7.175	0.425	1,070.5
Meat	16	2.28	0 34	—	0.49	169.6
Vegetables	48	6.88	0.12	0.28	0.02	52.75
Sugar or Fat	7	1.0	—	1.00	—	115.25
	7	1.0	—	—	1.00	250.00
Beans	48	6.88	1.58	4.12	0.10	752.73
Total daily ration			4.16	22.735–21.735	2.695–1.695	3,622 58–3,688.83

"E" diet is seen to be grossly deficient in calorific value and deficient also in protein, fat, and carbohydrate. The "F" diet has a reasonably high calorie value, but this is obtained by an overbalance of carbohydrate; fats are deficient and the proteins of low biologic value. None of the diets make adequate vitaminic provision; no uncooked food is provided; the main source of vitamin is the vegetable ration.

The first six cases which occurred in December, 1927, were short service natives on "E" diet. As the result of representations from the Union Health Department, all native prisoners in the Durban prison command were put on the more liberal "F" diet on April 1st, 1928. During the three following winter months only two cases occurred; but during the remaining five months of the year eighteen more cases occurred. From the fact that cases continued to occur after the discontinuance of "E" diet the director of prisons deduced that the fault did not lie in the insufficiency of this scale, and he suggested that it be reverted to. He pointed out that his department was accused from time to time of overfeeding its prisoners and of making prison conditions too comfortable. The position is indeed difficult, as the prisoners have often subsisted on a pellagra-producing diet previous to conviction. Even the deficient prison diet may therefore be attractive, and much of the deterrent effect of prison life may be lost. The director of prisons also pointed out that, though the existing diet scales had been in force throughout the Union prisons for the past seventeen years, there had been no previous outbreaks of pellagra. He was apparently unaware of the cases which occurred in East London gaol in 1913, 1914, and 1916.

Nature of Work and Degree of Exposure.—The Durban prison command consists of three sections: the Central Gaol, the Point Prison, and the Congella Prison. The population of the Central Gaol consists of European and non-European males and females. The two prisons house non-European males only, and chiefly long sentence prisoners. The non-Europeans in the Central Gaol are chiefly short sentence prisoners. Another important difference between the gaol and the prisons is the nature of the work. The prisoners from Congella and Point Prisons work mostly on harbour construction in the open, and are much exposed to the rays of the sun; those from the gaol work chiefly in the shade. Exposure to the sunlight is known to be a contributory cause of pellagra, especially when associated with hard work. Other things being equal, one would therefore expect to find more pellagra cases from Point and Congella than from the Central Gaol. The only special feature favouring the production of pellagra in the Central Gaol was the preponderance of short service native

prisoners who, until March 31st, were on the grossly deficient "E" diet. The preponderance of cases among the prisoners working chiefly in the sun is indicated in the following table. The two cases found suffering from pellagra on admission are omitted from the table.

Table V.—*Distribution of Pellagra Cases in the Three Sections of the Durban Prison Command.*

	Central Gaol.	Point Prison.	Congella Prison.
Average daily number of non-European inmates	698	505	405
No. of cases of pellagra	13	17	33
Percentage	1.9	3.4	8.2

Of the 13 cases which occurred in the Central Gaol, 10 occurred previous to the introduction of diet "F" for short sentence prisoners.

Etiology.

There is now fairly general agreement that pellagra is the result of dietetic deficiency. A pellagra-preventing dietary is necessary to prevent its occurrence. This pellagra-preventing property is possessed by most natural foods with the exception of oils and fats. It is stated to be located in a vitamin which has been named "P-P," and is believed to be the same as the vitamin necessary for the prevention of the occurrence of the canine disease known by American veterinarians as blacktongue.[6] The "P-P" content of foods has not yet been worked out with the same degree of accuracy as in the case of the other vitamins. It is probably present in all vegetables and fruit in small amount. In "P-P" value Goldberger equates 2 lb. of tomatoes, a quart of buttermilk, 1/2 lb. of lean meat, and 1 oz. of powdered yeast.[7] Maize (mealies) was found to contain very little, if any, of the preventive for both blacktongue and pellagra.[8]

The pellagra-preventing vitamin appears to be identical with vitamin B2, which has a somewhat similar distribution among foodstuffs as vitamin B, now referred to as vitamin B1. If the neuritic symptoms which result in rats from deprivation of vitamin B are prevented by presenting an alcoholic extract of yeast in which vitamin B1 alone is present, the deficiency of vitamin B2 was found by Chick and Roscoe to manifest itself.[9]

Though the etiology of pellagra is not yet completely cleared up, it is fairly certain that the central feature is a deficiency of a pellagra-preventing vitamin. The association of the disease with poverty or restricted maize diets is readily accounted for by the probable deficiency of "P-P" vitamin under these conditions. The occurrence of pellagra in certain individuals or groups of individuals and not in others on the same diet remains to be accounted for. Why, for instance, does pellagra occur among Durban prisoners and not among prisoners elsewhere in the Union on the same diet scale? It seems reasonable to suppose that a "P-P" deficient diet may produce a "subpellagric" state which is readily converted into overt pellagra by other factors. Such a factor would be hard work in intense sunlight, such as the Natal prisoners are subjected to in the Point and Congella Prisons.

A state of affairs similar to that of scurvy among Bantu labourers on the Transvaal mines would appear to exist. These labourers will arrive on the mine apparently healthy, although it is known that they have been subsisting in the native territories on a diet grossly deficient in antiscorbutic value. The mine medical officer cannot detect any physical fault in such a native, yet hard underground work will sometimes produce scurvy within a few weeks, although he has during those weeks been receiving the liberal mine ration with its carefully supervised amount of vitamin C contained in germinated beans, vegetables, etc.

The fact that there are pellagrins in Natal who have never been subjected to gaol conditions suggests that a large portion of the native population are in a subpellagric state. Such individuals, when admitted to gaol, will readily be converted into overt pellagrins by a monotonous, deficient diet combined with hard work in intense sunlight.

It would appear to be necessary to protect Natal native prisoners from pellagra by means of the addition to the ration of a "P-P"-rich substance such as yeast, in the same way as it has been found necessary to prevent scurvy on the Transvaal mines by the use of germinated beans. The native prison diets are grossly deficient, as will be seen from Table IV. It is probable that a relatively insignificant factor may tip the scale in favour of pellagra. Such a factor may be the grossly inferior bean ration which was issued to the Durban prisoners. In any case, the disappearance of the disease after the introduction of a good bean ration is significant. The "P-P" value of these good beans has apparently been sufficient to prevent the appearance of symptoms.

Summary.

Though the Bantus are largely and often almost exclusively maize-eating, pellagra has been rare in South Africa. There have been only three outbreaks of any significance—namely, in 1906 in Zululand, in 1912–13 in Pretoria Mental Institution, and a recent outbreak among Durban prisoners. These and a few isolated cases of which anything is known are tabulated.

The prison diet scales are uniform throughout the Union. The diets for natives consist largely of maize or mealies and are physiologically deficient. They are grossly deficient in "P-P" value. The fact that this diet resulted last year in pellagra in Durban and not in other parts of the Union must be attributed to contributory factors. Such a factor might be hard work in intense sunlight to which prisoners in the Congella and Point Prisons are submitted. In these two prisons the incidence of pellagra was higher than in the Durban Central Gaol, the inmates of which labour chiefly in the shade.

If the existing deficient prison diets are to be continued, it will be necessary under present conditions in Durban to supplement them by means of a substance rich in "P-P" vitamin, such as yeast. A similar procedure has been found effective in scurvy prevention among Transvaal mine labourers, who are protected from the scurvy brought out by hard underground work by the addition of highly antiscorbutic germinated beans.

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THE BEAUFORT ARTIFICIAL LIMB WITH RECENT MODIFICATIONS.

BY

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This limb is simple in construction, moderate in price, and satisfactory in use. It was invented in Rome in 1851, by an Italian nobleman—Count Beaufort. His attention had been drawn to the need of an efficient artificial limb, at a moderate cost, to replace the old-fashioned "peg leg," which did not meet the requirements of the workmen. The Beaufort limb was made by a working carpenter without any special training in limb making. Additional help in the construction and distribution of the Beaufort limb was given by General Maxwell, a retired artillery officer, then living in Rome. His knowledge of physics enabled him to explain how to shape the Beaufort foot correctly, and his interest in the disabled workmen led him to form a small society to aid them with money.

MECHANICAL FEATURES.

Both the "thigh" and "below-knee" portions of this artificial limb consist of two side bars, an "inner" and an "outer." They are shaped to correspond to the outline of the leg which had been amputated. Each pair of bars is held together and strengthened by "distance pieces." (See Figs. 1 and 2.)

The upper ends of the "thigh bars" are united at the back by a well-padded half-hoop of iron. On this the patient bears his weight, when standing or walking, as a patient with a tuberculous knee-joint does on the ring of a Thomas's knee splint.

Joints are provided at the level of the knee on each side, to allow the limb to bend. The joint on the outer side is provided with a lock, by means of which the wearer can

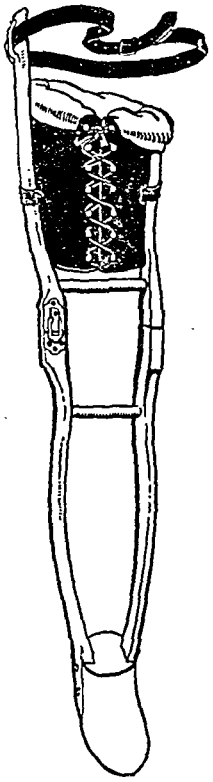

FIG. 1.

FIG. 3.

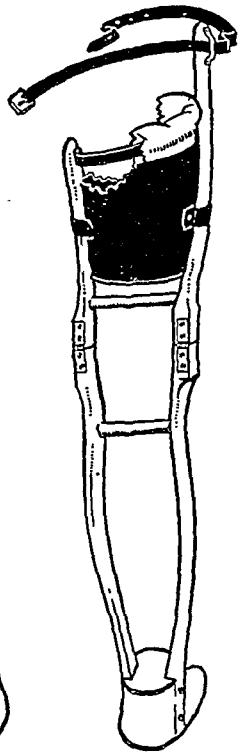

FIG. 2.

easily fix the limb in the straight position, when he wishes to stand or walk, and he can as easily release it.

Beaufort Foot.—The foot consists of a block of wood, curved on its under surface. On each side a slot is cut, into which the side bars are securely fitted. (See Fig. 3.)

From this brief description of the main features of the Beaufort limb it will be evident that no attempt is made to copy exactly the shape of the human leg. This disadvantage, from an aesthetic point of view, is not important, because artificial limbs are concealed, in any case, by the clothes of the wearer. It is well to bear in mind, however, that, although the expensive artificial limbs now in use have joints at the knee and ankle, they have no mechanism to take the place of muscles. The curved sole of the Beaufort limb affords the wearer a satisfactory resemblance to the normal movement of the body in walking.

MEASUREMENTS FOR THE ABOVE-KNEE LIMB.

The following measurements should be taken: The length of the stump from the fork to the end. The circumference (1) at 1 inch below the fork, (2) at the middle of the stump, (3) at 2 inches from the end, and (4) upon the pelvis between the great trochanter and the crest of the ilium (for the pelvic belt). The outline of the foot.

MATERIALS AND INSTRUMENTS REQUIRED.

1. *For the leg bars:* A block of tough wood, such as beech, 24 by 12 by 1¾ inches. Mark its long edges "A" and "B" and its short edges "C" and "D."

2. *For the foot* (large size): A block of well-seasoned wood, such as beech, 10 by 4 by 4 inches.

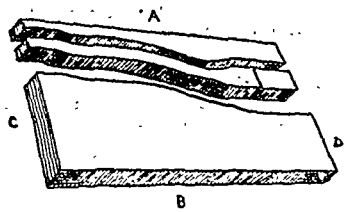

FIG. 4.

3. *Two strong brass "bagatelle" hinges*, 4 inches long, 5/8 inch broad, 1/8 inch thick, strong brass screw nails, and tools for insertion. (See Fig. 2.)

4. *A band saw, a bow saw, or a keyhole saw*, to cut out the bars from the large block, and to shape the small block for the foot.

5. *An "attaché case bolt."* This consists of two sections. (See Fig. 6.)

6. *For the thigh corset.* (1) A rectangular piece of strong, pliable leather, such as cowhide; *length* equal to the distance from the "fork" to a point 4 inches above the knee level; *breadth* 1 inch less than the circumference of the thigh at the fork. (Feel for the knee-joint at the upper edge of the head of the tibia.) (2) Several eyelets, special forceps to cut out the holes, and "closing" forceps to fix the eyelets in position. (3) Laces to close the corset. (4) A pelvic leather strap to surround the pelvis of the patient. (5) A small strip of bridle leather, 3 inches long and 1 inch broad, to be fixed vertically to the top of the outer bar by a screw nail at each end to keep the pelvic strap in position. (See Fig. 2.)

7. *A piece of hoop-iron*, 1 inch broad, 1/8 inch thick, and in length three-quarters of the circumference of the thigh just below the tuber ischii. This is required for the support of the tuber ischii. (Fig. 2.)

8. *Distance pieces.* These are short transverse bars of wood, about 3/8 inch thick, fitted into the side bars of the artificial limb, to afford the necessary rigidity. The length of these pieces is governed by the breadth of the stump. (See Figs. 1 and 2.)

9. *For drawing the contour lines.* Obtain three or four sheets of firm white paper, *in length* equal to the distance from the crest of the ilium to about 2 inches below the knee-joint, *in breadth* a few inches broader than the thigh.

INSTRUCTIONS FOR MAKING THE BEAUFORT LIMB.

Side Bars.

The shape of these bars is obtained (1) by tracing the *contours of the sound thigh and leg on paper:* (2) *by cutting* out the patterns thus traced; and (3) by reversing the patterns.

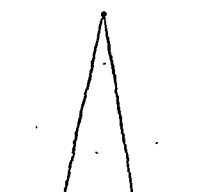

FIG. 5.

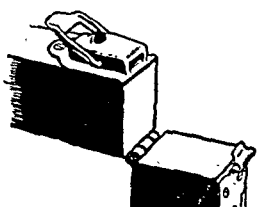

FIG. 6.

The reversed patterns afford the contours required for the artificial limb.

1. *Contour for the Upper Outer Bar.*—Lay a sheet of the required paper on a firm, smooth surface and place the patient's thigh upon it. Then, with a long pencil held vertically, trace the outline of the thigh on the outer side, from the crest of the ilium to a point 2 inches below the level of the knee-joint. Mark the position of the knee-joint.

2. *Contour for the Upper Inner Bar.*—Trace similarly the inner side of the leg from the "fork" to a point about 2 inches
[illegible] Mark the position of the knee-joint. Lift
draw a line between the marks which
Mark the surface of the paper with a
cross. Then cut the paper along the contour lines, and the line

which indicates the knee-joint. Reverse the paper, position its contours will correspond to those of the amputated leg.

3. *Contour for the Lower Outer Bar.*—Lay the leg upon another sheet so that its upper edge is 2 inches above the level of the knee-joint. Then, with a long pencil held vertically, trace the outer side of the leg from the upper edge of the paper downwards to a point 1 inch above the outer ankle. From that point continue the line straight to the sole of the foot.

4. *Contour for the Lower Inner Bar.*—Draw a similar contour *in every detail* on the inner side of the limb. Mark the paper to indicate the level of the knee-joint on each side. Lift the leg, and indicate this surface by a cross. Then cut along the contour lines, and the line which indicates the position of the knee-joint.

To obtain the contour of the bars required reverse the contour of the bars by laying the marked surface downwards.

To shape the upper outer bar: Place the above-knee portion of the reversed paper pattern upon the block of wood as follows: (1) Let the edge of the pattern at the knee level lie upon edge "C" of the block of wood. Then, while it still lies over that edge, move the pattern towards edge "A" of the block till its most prominent curve comes to about 1 inch distant from edge "A." Mark the contour of this pattern on the block. (2) Now, while the knee level of the pattern is still lying over edge "C," move the pattern towards edge "B" for 3/4 inch and mark the contour on the wood again.

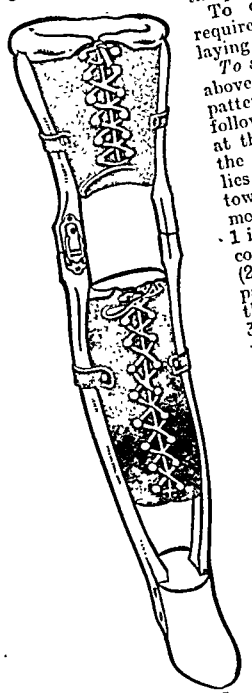

FIG. 7

N.B.—To provide a greater thickness of this bar for the knee lock put a mark 1/4 inch nearer edge "A" in advance of the first contour line, and carry a new line for 3 inches towards the trochanter end of the bar at the same distance—that is, 1/4 inch in advance of the first contour line. Then taper the line gradually nearer to the first contour line till the two lines join. (See Fig. 4.)

To shape the lower outer bar: Repeat this procedure, including the extra thickness for the knee lock, but carry the additional line towards the foot, instead of towards the trochanter.

To shape the upper inner bar (not to be thickened): Place the pattern of the inner side of the thigh on the block with the "knee level" laid over either side "C" or side "D," as is most convenient. Advance the pattern till its most prominent part is within 1/2 inch from the adjacent long edge. *Mark this contour* on the block of wood. Then, while still keeping the knee level of the pattern lying over the required short side of the block ("C" or "D"), withdraw the pattern for 3/4 inch from the first contour line and mark a second contour line on the wood. This interval will correspond to the required bar when cut out by the narrow-bladed saw.

To shape the lower inner bar: Trace upon the block of wood the contour line taken from the inner side of the leg, from the level of the knee-joint downwards to a point about 1 inch above the ankle. From that point continue the line straight to the sole of the foot. Repeat the same contour at a distance of 3/4 inch from the previous one. With a narrow bladed saw cut vertically through the block of wood, following the contour lines marked on the wood.

Beaufort Foot.

The correct formation of this part is essential. The curvature of the sole is of great importance. Mark one end of the foot-block as the heel, and the other as the toe. Determine which surface is to be the sole. On the sides of the block describe an arc of a circle, the distal edge of which reaches the lower margin of the block, while its radius is equal to the length of the sound leg from the knee-joint to the ground. Upon the circumference of that arc mark off a length equal to that of the sound foot. Thus section of the circle will indicate the curve required for the foot. Lastly, shave away the wood till the plane reaches the curved line. Nail a strong layer of durable leather upon the sole. (See Fig. 5.)

Attaching the Side Bars to the Foot.—On each side of the shaped block, at a position which corresponds to that of the inner ankle, cut a slot down to the sole $1\frac{1}{4}$ inches broad and $\frac{3}{4}$ inch deep to receive the straight lower ends of the bars. Secure them in position with glue and two screw nails on each side. Shape the fore part of the foot to resemble an instep. Round off the corners of the block. (See Fig. 3.)

Knee-joint.

(*a*) For the two *inner* bars, one above and one below the joint. With strong screw nails fix the plates of one of the hinges upon the posterior surfaces of these inner bars. Make sure that the interlocking edges of the brass plates lie over the line of the knee-joint. This will allow the lower bar to bend backwards towards the upper one, or vice versa. (*b*) For the two *outer* bars, one above and one below the knee-joint. (Note that this joint has the lock attached to it.) Fix a hinge to the posterior surfaces of these bars, as described under paragraph (*a*). (See Fig. 2.)

The "Attaché Case Bolt."—This appliance has two portions, which can be easily clamped together or released by the fingers of the wearer acting through the clothing. The straight edges of the foot-plates of the lock are placed on the front surface of the bars with their edges in contact with one another, over the line of the knee-joint. Fasten the foot-plates securely with screw nails to the upper and lower bars respectively. (See Fig. 6.) When no stump intervenes connect the bars above and below the level of the knee-joint with distance pieces. (See Figs. 1 and 2.)

Bearing of Weight.

(*a*) *Tuber-bearing Half-ring.*—Rivet this half-ring to both upper bars, at the level of the top of the inner one, thus leaving a sufficient projection on the outer bar for the attachment of the pelvic strap. Pad this half-hoop well with felt, on the top edge and inner surface. (See Fig. 2.)

(*b*) *Leathern Corset.*—Wrap the longer portion of the leather transversely round the thigh from the fork down to a point 4 inches above the knee level. This will cause overlapping of the leather on each side, especially near the knee. Draw lines on the leather where the two sides meet. Make it fit comfortably over the thigh. Cut away enough superfluous leather to leave in front a gap of 1 inch from top to bottom. This allows for stretching of the leather and shrinking of the thigh. Cut away superfluous leather at the top and bottom to make the upper and lower borders of the corset horizontal. Attach the corset to the side bars by two rivets on the inner side of each bar. Make the upper border of the corset lie inside the half-hoop ring. Fix the eyelets down the front for closing the corset, and insert a lace for tightening. Secure the leather pelvic strap to the top of the outer thigh bar by the leather loop, which must be screwed vertically to the bar. (See Figs 1 and 2.)

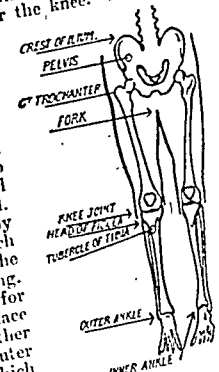

FIG. 8.

MEASUREMENTS FOR THE BELOW-KNEE LIMB.

Length of stump from the tubercle of the tibia to the end of the stump. Circumference (1) of the thigh 1 inch below the fork, (2) of the thigh 4 inches above the level of the knee-joint, (3) of the stump at the level of the tubercle of the tibia, (4) at the mid-point of the stump, and (5) at 2 inches above the end.

CONSTRUCTION OF THE ARTIFICIAL LIMB FOR THE BELOW-KNEE AMPUTATION.

Provide the following: (*a*) A tuber-bearing ring as described for an artificial limb for a thigh stump. (*b*) Side bars, the joints and locks as for a thigh stump. (*c*) A foot (see Fig. 3). (*d*) A leather corset to support the thigh as in the case of a thigh stump. (*e*) A leather corset to embrace a below-knee stump, similar in construction and attachment to that described for a thigh stump; *length*, from the tubercle of the tibia to half an inch below the end of the stump; *breadth*, (*a*) equal to the circumference of the head of the tibia at the level of the tubercle, and (*b*) equal to the circumference at the lower end of the stump. (N.B.: A leather pelvic strap is *not* an essential part of a below-knee leg.) (See Fig. 7.)

SYME'S AMPUTATION: MEASUREMENTS FOR SYME'S LIMB.

Take a contour of the affected limb from below the head of the fibula downwards, round the end of the stump, and up to the same level on the inner side. Note circumference (1) just below the head of the fibula, (2) at the mid-point of the stump, (3) at its narrowest part, and (4) at the bulb end. Note diameters at the end of the stump from side to side, and from back to front. Measure the length and breadth of the sole of the sound foot.

CONSTRUCTION OF THE BEAUFORT "SYME'S AMPUTATION" LIMB.

Make the foot as described for a thigh stump, except that the depth of the foot-block must not be more than 2 inches. Make the two side bars the same in thickness and breadth as pre-

viously instructed, except that the length of the bars must not reach higher than to a position half an inch below the head of the fibula. Fit the bars into slots in the foot, as indicated in Fig. 3.

Socket.—Procure a piece of strong leather—*length*, from above the bulb of the stump to below the head of the fibula; *breadth* equal to the circumference of the stump. Rivet this leather to the inner sides of the bars. Insert eyelets for lacing the socket. The end of the stump, which is not enclosed, rests on a soft pad on the top of the artificial foot. Line the socket down the front with felt, or similar substance.

CHOPART'S AMPUTATION.

This amputation only requires the patient's boot to be filled up with firm stuffing to replace the lost portion of the foot.

THE TREATMENT OF PNEUMONIA IN CHILDREN BY SUBCUTANEOUS OXYGEN.

BY

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THE active treatment of pneumonia has long been augmented by the administration of oxygen. Those of us who have given the gas by intranasal catheter or inverted funnel have advocated it for its psychological rather than for its therapeutic benefit.

The value of oxygen administered subcutaneously has been by no means definitely authenticated, and therefore, with the object of investigating the immediate effects on the patient, and the more lasting effect on the course of the illness, 179 children admitted to my wards in Booth Hall Infirmary, Manchester, between November, 1928, and April, 1929, were treated with relatively large doses of oxygen injected into the subcutaneous tissues. Each case of acute pneumonia, irrespective of the type, etiology, or severity of the disease, coming under my care received oxygen as early as possible. It should be observed that the ages of the children varied from a few weeks to 16 years, and that the hospital recruits its patients from poorer-class Manchester districts where in winter child debility is widespread.

As a control, I have made notes on 89 consecutive cases admitted to Dr. I. A. Milne's wards during the same period to which subcutaneous oxygen was not administered.

In each series simple expectorant and counter-irritant remedies were employed as seemed indicated in each particular case. All were nursed in open-air pavilions in charge of the same sisters. To my regret, several patients who had received treatment were removed by parents before recovery was complete.

Dosage.

Mr. T. S. Kirk[1] found that the area of skin raised from the chest wall by 100 c.cm. of oxygen slowly injected was equal to the area covered by the palm of a man's hand. This rule was found to be fairly accurate, and was followed in this series, 50 to 200 c.cm. being injected at a time. Generally two or more doses were given. If on the day following the first treatment the temperature had not fallen, or if it had fallen and then became raised, as was a frequent occurrence, a second dose was administered. The average aggregate dosage was: up to 5 years of age, 200 c.cm.; from 6 to 10 years, 300 c.cm.; from 10 to 16 years, 400 c.cm. It was interesting to remark that whereas the absorption commenced in a few minutes, an oxygen emphysema was almost invariably felt for twenty-four hours or longer.

Method.

Rubber tubing was connected up to a cylinder of oxygen, and, with aseptic precautions, the gas was allowed to escape slowly through a hypodermic needle under the skin. About five minutes were taken to run in 100 c.cm. Specially warmed oxygen appeared to be without additional advantage. The hypodermic puncture was sealed with collodion, as the oxygen readily escaped. This simple procedure was unconnected with pain or discomfort, older children describing the sensation as similar to that produced by water trickling over the skin. In no case was there associated shock or other general disturbance, or abscess formation.

Immediate Effects.

Within four hours after the injection the temperature, as a rule, fell—sometimes to normal. This was accompanied by a partial fall in the pulse rate. The lowering in the pulse and respiration rates was less obvious than the temperature fall. Dyspnœa was eased. If cyanosis was a feature, within an hour the colour was improved. In four cases of pulmonary tuberculosis with cyanosis treated by this method a similar phenomenon was noted. Unfortunately, in all four relief was transitory, and the course of the disease either was not affected or it was expedited. No improvement occurred in the congestion of the face of a girl suffering from acute rheumatic myocarditis. The patients soon became less distressed (roughly in four to twelve hours), and as a rule slept comfortably. On the following day the general condition was improved except in some of the fatal cases. In no case did a crisis take place, the temperature falling by lysis.

In the first 50 cases—where it was possible without interfering with sleep—the temperature and pulse and respiratory rates were taken half-hourly for forty-eight hours. Nothing other than the remarkable variability in these phenomena was noted.

An early necropsy was performed on the body of a patient who died a few hours after administration. There was no evidence of oxygenation of the pulmonary tissues; the blood was dark, the bright redness described by Mr. Kirk not being observed.

Death Rate.

The following table indicates the percentage death rates in the various types of pneumonia.

	Oxygen Series.		Control Series.	
	Number.	Death Rate	Number.	Death Rate
		Per cent.		Per cent.
Total number of cases ...	179	25	89	25
Broncho-pneumonia ...	130	33	54	33
Lobar pneumonia	49	2	35	2
Primary pneumonia ...	121	23	71	20
Secondary pneumonia ...	58	28	18	33
Influenzal pneumonia ...	22	9	7	14

It is thus apparent that it cannot be claimed that the use of subcutaneous oxygen has a beneficial influence on the mortality.

Late Effects.

Pyrexia.—The average length of the febrile stage was shorter in the oxygen group.

	Oxygen Series.	Control Series.
Average length of febrile stage in all cases	10 days	13 days
Average length of febrile stage in broncho-pneumonia	10 days	15 days
Average length of febrile stage in lobar pneumonia ...	11 days	11 days

Duration.—The average length of the course of the disease was lessened in the oxygen series. The criterion of this was taken as the interval of time elapsing after onset before the chest was definitely cleared of adventitious sounds.

	Oxygen Series.	Control Series.
Average time in which chest cleared in all cases ...	23 days	29 days
Average time in which chest cleared in broncho-pneumonia	21 days	31 days
Average time in which chest cleared in lobar pneumonia	21 days	26 days

Conclusion.

From the cases investigated it was to be concluded that, whilst the injection of subcutaneous oxygen in pneumonia is without effect on the death rate, there is an immediate improvement in symptoms, with a curtailment of fever. The actual course of the disease itself is shortened by six or seven days. The reduction in the febrile period, and in the course of the disease, is more definite in broncho-pneumonia.

The definite alleviation of the toxaemia is not peculiar to pneumonia and seems quite apart from any specific action on the lung tissue *per se*. The toxaemia in a case of severe diphtheria was greatly relieved after injection of oxygen.

As a whole the pathological processes are apparently expedited. Possibly the stages of hepatization are hastened by an early formation of hydrogen peroxide in the pulmonary tissues.[2]

To the medical superintendent, Dr. J. D'Ewart, my thanks are due for permission to make use of the cases investigated.

REFERENCES

[1] Kirk: *British Medical Journal*, August 4th, 1928, p. 195. [2] J. W. McLeod: Bacteriology of Pneumonia, *Encyclopaedia Medica*.

BACTERIOLOGY OF THE TONSILS IN RELATION TO RHEUMATISM IN CHILDREN.*

BY

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IT has often been suggested that the infective agent in rheumatism, in regard to which streptococci have more often been incriminated than any other organism, is to be found in the tonsil. Whether it exerts its toxic influence from there, or whether it enters the body by that portal, and is then disseminated to other parts, has not yet been decided. If, however, specific streptococci are to blame, and their *locus* of rest or passage is in the tonsil, one would expect to find some difference in the streptococcal flora of the tonsil in rheumatic and non-rheumatic cases. To determine this point a number of rheumatic and non-rheumatic tonsils were investigated. The rheumatic tonsils came from out-patients with articular rheumatism, chorea, and heart conditions, all of whom had some degree of enlargement or sepsis in their tonsils. The non-rheumatic patients were those in whom the tonsils were enlarged or septic, and from whom no history of any rheumatic manifestation could be elicited. In each case an endeavour was made to isolate *all* the varieties of streptococci present in each tonsil so that the types might be compared.

Analysis of Streptococci from the Tonsils of Rheumatic and Non-Rheumatic Children.

	Rheumatic.		Non-Rheumatic.
Total tonsils	50	.....	48
Total streptococci	190	.....	157
Streptococci per tonsil	3.80	.....	3.27
Haemolytic	14.1%	.....	14.03%
Non-haemolytic	85.9%	.....	85.97%
Green	46.3%	.....	45.86%
Non-green	51.0%	.....	53.51%
Doubtful	2.7%	.....	0.63%
Mitis	44.2%	.....	37.0%
Salivarius	26.3%	.....	28.0%
Faecalis	4.2%	.....	3.18%
Pyogenes	12.6%	.....	11.5%
Other streptococci	12.7%	.....	20.0%

From this table it will be seen that the streptococci from the rheumatic tonsils do not differ materially, as regards the characteristics investigated, from those of the non-rheumatic. There is at present no really satisfactory classification of non-haemolytic streptococci, and this makes it difficult to draw a hard-and-fast line between varieties. Classification by means of sugar fermentation is not much to be relied on, and therefore, though we put in comparative differences in this particular, we fully realize its limitations. As, however, the conditions were always identical for cultures from the rheumatic and non-rheumatic series, even these variable tests should be of some assistance.

The appearance of the culture plates showed no marked difference, and even on Crowe's medium,[1] which shows the minutest changes in colony appearance, we were unable to tell a rheumatic from a non-rheumatic plate. As regards the number of streptococci isolated per tonsil, this is rather low, owing to the fact that in one case in each series there were no streptococci found, in one or two almost a pure growth of one variety, and also that in a few cases the organisms died before any of their reactions could be carried out. This, however, was the same for both series.

Most observers—Poynton and Paine,[2] Small,[3] and Birkhaug,[4] to mention only a few—who have described "rheumatic streptococci," have placed them in the non-haemolytic and non-green-producing group. Without trying to isolate any of these recognized varieties, it might be expected that rheumatic tonsils would show a higher percentage of inert streptococci. There was little difference in our series, the rheumatic being slightly lower. This is in agreement with the work of Hitchcock,[5] who found no greater incidence of inert streptococci in rheumatic fever throats.

Discussion.

For many years tonsillectomy in rheumatism has been advocated. Poynton and Paine (1900)[2] demonstrated their diplococcus in rheumatic tonsils, and in 1913 Poynton[7] says that unhealthy tonsils are very frequent in rheumatism. Again in 1925[8] he says that he believes successful removal of unhealthy tonsils to be a valuable prophylactic step in rheumatism when viewed on broad lines. Schicheld (1910)[9] claimed that removal of the tonsils cures the attack and prevents recurrence, and Hutchison (1911)[10] upholds his view, if not quite so emphatically. Pybus (1915),[11] Morris (1916),[12] and Langmead (1920)[13] all consider that tonsillectomy is advantageous, and in more recent years the British Medical Association report (1926),[14] Robey and Freedman (1927),[15] Kaiser (1927 and 1929),[16] and Wilkinson and Ogilvie (1928)[17] all recommend tonsillectomy.

From the observations of the above-named authors it would seem that rheumatic infection has a close connexion with the tonsil, and certainly any workers who have described definite streptococci as possible causes of rheumatism have been able to isolate the organisms from the tonsil. A number of different varieties are described, none of which seems definitely established, or is regularly isolated from every case. Birkhaug[4] made a considerable advance when he succeeded in preparing a soluble exotoxin from his non-methaemoglobin-forming streptococcus, and he published some interesting results of skin tests which gave a much higher incidence of positives in rheumatic than in non-rheumatic children. This finding has not, however, been definitely corroborated in this country. Indeed, Mackie and McLachlan (1927)[18] state that "the ability to produce toxic filtrates seems to rest in some peculiarity of this type of micro-organism" (streptococci), "rather than in a specific etiological role in respect of rheumatic fever."

To review briefly some of the results of earlier experiments, Cole, in 1904,[19] produced arthritis and endocarditis in rabbits by inoculation of streptococci from various sources, not necessarily rheumatic; and in 1913 Harrison[20] states that inoculation of "non-rheumatic" streptococci will produce arthritis, at times indistinguishable from that produced by *Streptococcus rheumaticus* (Poynton and Paine). Faber in 1915[21] produced a sensitization by giving more than one injection, and obtained arthritis in animals with a comparatively non-pathogenic green-producing streptococcus. Rosenow (1914)[22] isolated three different types of streptococci from joint fluids in fourteen rheumatic cases. Swift and Kinsella[23] showed in 1917 that there were considerable immunological and cultural differences in streptococci isolated from their series of rheumatic fever cases. Clawson (1925)[24] isolated green-producing streptococci from twenty cases of well-defined acute rheumatic fever, and Andrewes, Derick, and Swift (1926)[25] found haemolytic, non-haemolytic, and *viridans* streptococci in acute throats in association with rheumatic fever. The researches of these workers show a considerable diversity of possible causal agents in rheumatism, and they have isolated in most cases streptococci which are to be found

* The investigations upon which this paper is based were carried out by one of us (R. A. M.) during tenure of the Ida Schag-Montefiore Research Fellowship at the Hospital for Sick Children.

normally as saprophytes (so-called) in various parts of the body. It is difficult, on the supposition of a specific bacterial cause of rheumatism, to correlate this conflicting work, and indeed it seems reasonable to suppose that the soil is more important than the seed, and that any streptococcus present in a given patient may, in suitable circumstances, become the infecting agent. What these circumstances are has not yet been determined, but the sensitization by small doses of streptococcal toxin over long periods is a point of importance. Swift, Wilson, and Todd[26] suggest that patients may be made more sensitive to toxins by repeated skin test doses, and also that hypersensitivity seems to increase with age. They also think that type specificity does not exist. Swift, Derick, and Hitchcock[27] have gone a step further in this direction. They produced a hypersensitive state in rabbits, when a comparatively small dose of streptococci would produce a disproportionately severe result. Their conclusions represent an interesting hypothesis for the etiology of rheumatic fever.

"The theory is advanced that the pathogenesis of rheumatic fever can be explained by the existence in certain individuals of a condition of hypersensitiveness (allergy or hyperergy) to streptococci, resulting from repeated low-grade infections or from the persistence of foci of infection in the body. When under suitable circumstances streptococci or their products are disseminated to the tissues, these tissues over-react and the characteristic picture of the disease results. When, on the other hand, a state of immunity exists" (which they say may be developed by different dosage among other things) "the dissemination of streptococci results in a minimum of injury to the tissues, and the characteristic phenomena of the disease fail to appear."

To return to the tonsils, they may well be one of the foci in which these "repeated low-grade infections" occur, which would account for the undoubted advantages to be obtained from tonsillectomy in rheumatism. If, as has been suggested, the type of streptococcus is unimportant, then the fact of there being little difference between the rheumatic and non-rheumatic tonsils as regards their streptococcal flora is not of much importance, and cannot be used as an argument against tonsillectomy, as prima facie it might seem to be.

Conclusions.

1. Streptococci isolated from rheumatic tonsils do not differ materially from those isolated from non-rheumatic tonsils.

2. This absence of difference fits in with the theory that there is no specific streptococcus which is the cause of rheumatism, but that the condition is due to a hypersensitiveness resulting from repeated small doses of toxin.

3. The tonsil is probably one of the foci from which these toxins may be absorbed.

4. For this reason, in spite of the lack of difference mentioned above, tonsillectomy in rheumatic cases is probably a valuable prophylactic and therapeutic measure.

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AN UNUSUAL INFECTIVE CONDITION OF THE BLADDER.

BY

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THE case of cystitis here recorded, in which an atypical bacillus was apparently the infecting organism, is of considerable bacteriological interest. The clinical details were as follows.

The patient, a man aged 65, had an acute attack of cystitis about ten years ago; since then he had been troubled with a mild degree of frequency of micturition at various times; he continued to pass a very turbid urine, and a diagnosis of prostatic abscess had been made. He reported that his urine had been examined bacteriologically on several occasions during the past ten years, and it had always contained much pus and, as he stated, *B. coli*. He was referred to me for the possibility of vaccine treatment.

Examination of the urine showed numerous pus cells and non-motile bacilli, which in stained films proved to be Gram-negative. Cultures on all the usual media were sterile. These results were repeatedly obtained, whether attempts were made to grow the organism aerobically or anaerobically. Finally, after numerous attempts, a small growth was obtained on agar to which human oxalated blood had been added. After several subcultures on this medium it became possible to grow it fairly readily on ordinary agar, and its cultural characteristics were further investigated, with the following results: gelatin was not liquefied; indol was produced in broth in overnight cultures; litmus milk was turned acid but was not clotted. When the organism was grown in sugar media—dextrose, maltose, dulcite, mannite, lactose, and cane sugar—they became acid, but no gas was produced.

At the time the organism was thought to be *B. coli anacrogenes*. Later on my attention was called to a paper by Bamforth,[1] in which an organism with very similar cultural characteristics, which was associated with a small outbreak of dysentery, is described, and related to the bacilli described by Sonne. Later still Nabarro's observations[2] on the relation between *B. coli anacrogenes* and Sonne's bacillus were noted; accordingly, further observations were made on my cultures. On plating the agar culture it was found that the colonies could be divided into rough and smooth forms. On litmus lactose agar plates both red and blue colonies were noted. On further forty-eight to fifty-two hours' incubation the colourless colonies showed central red papillae. The red colonies were thus coloured in twenty-four hours, and, as Nabarro points out, are not to be distinguished on plates from *B. coli*.

Both Dr. Bamforth and Dr. Nabarro very kindly sent me some of their antiserum, which they had prepared from their bacilli. Considerable difficulty was experienced in making stable emulsions, since, as White[3] points out, spontaneous agglutination is very apt to occur in rough forms of this group, and therefore emulsions in distilled water were used. In each case agglutination took place up to the end point of the two serums employed. Both were pooled serums, and were used on agar subcultures of mixed types of colonies.

The interesting features of this case are the unusual infecting organism and the curious fact that many times no growth could be obtained, although the urine was swarming with bacilli. No lysis of the cultures subsequently obtained was ever noted.

I might mention that recently I saw a similar case. The patient had cystitis, and microscopical examination showed very numerous pus cells and masses of Gram-negative bacilli, but no growth could be obtained; I was informed that a previous examination had given a similar result. Unfortunately I had no opportunity of examining this second case again.

At the present time the first patient's symptoms remain the same in spite of all treatment. The urine still contains numerous pus cells and masses of Gram-negative non-motile bacilli. The curious fact that has arisen now is that the bacilli described previously can be isolated without difficulty, so that one is uncertain whether the organism now isolated with ease is the same bacillus noted in every examination, but which could not be obtained by culture in many of the previous examinations. Morphologically it appears to be exactly similar. The patient's serum does not agglutinate this organism obtained from his urine.

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Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

RUPTURE OF THE JEJUNUM.

The following case of an unusual sequel to a fall appears worth placing on record.

A healthy-looking lad, aged 18, walked into the accident room of the Eccles and Patricroft Hospital complaining of a head injury, the result of a fall over some rails. He was accompanied by a friend, who volunteered the information that the patient had also complained of his stomach. Examination of the abdomen showed no external evidence of injury, but there was some rigidity, though it was very difficult to be certain that this was real rigidity and not a mere nervous tightening of the abdominal wall. Pain was slight and epigastric in site, radiating towards the right shoulder. The temperature was 97° F., and the pulse 80. There was no nausea or vomiting. He had a desire to pass water, but was unable to do so. It was decided to admit him to the wards for observation. After admission his pain diminished, but did not entirely disappear. About an hour later he vomited twice, but the character of the vomit could not be clearly determined as he micturated in the same bowl. After vomiting he felt rather better, but the abdominal rigidity persisted

Mr. E. D'Arcy McCrea performed laparotomy, and the peritoneal cavity was found to contain a large quantity of brownish fluid, which was removed by swabbing. Examination of the bowel revealed a large tear in the jejunum, about six inches below the duodeno-jejunal flexure, the bowel showing almost complete separation. The bowel above the lesion was contracted, while the small gut below it was dilated. The bowel was sutured and the abdomen closed with two drains, one at the site of the lesion and one in the pelvis. The pelvic drain was removed after twenty-four hours and the other in forty-eight. The temperature fluctuated between normal and 100.4° F. for a few days after the operation, and remained normal after the third day. Vomiting on the second day after operation was easily controlled by small doses of tinct. iodi mit. Convalescence was otherwise uneventful, and the patient made a complete recovery.

The case presents several interesting features: rigidity was the only sign present; shock was entirely absent; pain was slight; vomiting only occurred once; and septic peritonitis did not supervene. The most striking point is the site of the lesion. A freely movable piece of bowel was ruptured by violence applied through the abdominal wall, whereas the usual site is the duodeno-jejunal flexure, where the gut is fixed to the posterior abdominal wall by peritoneum, and is unable to glide out of harm's way.

I am indebted to Mr. E. D'Arcy McCrea, F.R.C.S., honorary surgeon, for permission to publish this case.

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ENDOCARDITIS WITH EMBOLI IN BOTH FEMORAL ARTERIES.

The case here recorded seems of sufficient interest to warrant publication.

On June 19th a man, aged 41, was admitted to the Brighton Infirmary with a vague history of illness starting one week previously with headaches, shivering, sweating, and pains in the chest. Two days before admission he temporarily lost the power in his left hand, which soon recovered. His past history included several attacks of malaria whilst in India (twenty-one years' army service there), cellulitis of the left leg from a bush scratch, and a bullet wound of the left thigh just above the knee in 1908.

On admission the temperature was 99.4°, pulse 104, respirations 26. He was obviously very ill; his face was grey and drawn; he was dull and lethargic, and he could not give a clear account of the onset of his symptoms.

On examination the heart was found to be slightly increased in size downwards and outwards. There was a well-marked systolic murmur to be heard at the apex, and limited to the apex. Blood pressure: systolic 94 mm. and diastolic 72 mm. The lungs and abdomen were negative. Central nervous system: the pupils were equal and reacted to light and accommodation; no knee-jerks were obtained. The plantar reflex was flexor on the right, no response on the left. There was no ankle-clonus. The left foot was bluish in colour and cold; there was complete loss of sensation below the left knee, and the veins were thickened on the inner side of the leg. There was no pulsation in the dorsalis pedis artery. Both femoral arteries pulsated equally well at the level of Poupart's ligament. At this stage the right leg appeared normal.

On June 21st the whole left leg rapidly became discoloured and cold. Two days later the right foot was cold and showed faint signs of bluish discoloration on the dorsum. The general condition of the patient at this stage was much worse, and he died the same evening.

A post-mortem examination was performed and the following were found. The heart showed external evidence of pericarditis, with roughening of the pericardium and a little more free fluid than normal. On opening the heart large vegetations were found on the mitral valve, parts of which appeared to have been recently broken off. The lungs were apparently normal. The spleen was enlarged, soft, and contained three large infarcts. There was infarction in the left kidney. The brain was congested. The femoral arteries were opened and a large embolus was found in each vessel at the junction of the femoral and profunda femoris vessels. There was no abnormality in the vessel walls.

The interest in the case was: (1) the exactly similar positions in which the emboli were found; (2) the fact that amputation of the left leg was considered (before the right foot showed signs of discoloration), but owing to the patient's general condition it was thought inadvisable to operate.

We are indebted to Mr. H. J. McCurrich for his help and for permission to publish this case.

A. G. B. Fenwick.
H. C. Dundon.
Brighton Infirmary.

Reports of Societies.

CAUSES OF EARLY ABORTION AND STERILITY.

The Sections of Obstetrics and Gynaecology and of Comparative Medicine of the Royal Society of Medicine combined on October 18th for a discussion on the causes of early abortion and sterility. The chair was taken by Mr. Arthur E. Giles, president of the first-named Section, who, in opening, urged the speakers to pay attention to terminology, for there was much confusion in this respect; the term "sterility" ought to mean incapacity to conceive, and consequently abortion should not be considered as a form of sterility.

Professor Arthur Robinson (Edinburgh), who introduced the subject, widened the president's definition; he preferred to define sterility as the incapability of a pair to produce living young who should survive until the natural period for their own reproduction and be themselves fertile. For the purposes of the discussion, however, he took sterility to signify incapability to produce living young. Sterility might be intentional or unintentional. Intentional sterility was more a sociological than a medical subject, and was outside the range of the present discussion. Unintentional sterility might be associated with inefficiency of the male or of the female, or of both male and female, or of neither male nor female alone, but of these particular two together; neither individual might be infertile with another partner, though their mutual union was sterile. The immediate causes of sterility could be grouped under various heads: injuries, malformations, or disease of the genital organs; non-production of mature germ cells on the part of one or other of the pair; or production of inefficient germ cells. Professor Robinson described a number of observations on horses, in which, out of some thousands of ova shed, 48 per cent. in the case of Clydesdale mares, and 58 per cent. in the case of thoroughbreds, did not produce young, although the matings had been carried out under control, and the stallions used were all in perfect health. How was this large proportion of unfertilized ova to be accounted for? Seeking for animals more convenient for experiment, Professor Robinson selected the ferret, and he gave particulars of an extended series of observations in which 165 ferrets produced 1,640 ova, about 39 per cent. of which did not produce living young—no results followed their union with spermatozoa. Both sires and dams were healthy, and were kept under ideal conditions; all were fed in the same way. Why did it so rarely happen that all the ova shed became converted into living individuals? The only explanation he could offer was that there was some disturbance of the chromatic arrangement in the nuclei. In some cases the spermatozoon of one male might not be able to unite with the ovum of a given female. It was well known that in the human species a pair might have no children, but, after divorce,

either, or perhaps both, might have children by other partners. There was a possible incompatibility between the germ cells of two members of opposite sex, with the result either that no fertilization occurred, or, if it did occur, the arrangement of the chromatic particles was such that the foetus was destined to perish prematurely, either before or after birth. Many abortions were due to the fact that the zygote produced by fertilization had continued to develop to a certain extent and had then died, really in consequence of the original incompatibility; by means of abortion nature took the easiest way of "cutting the loss" and beginning afresh the reproductive cycle.

Professor BECKWITH WHITEHOUSE (Birmingham) began by remarking that abortion in the human species was a phenomenon of common occurrence. The frequency varied in different countries, but the criminal practice of the termination of pregnancy vitiated the value of the figures in so far as they might have furnished any guide to the frequency of natural abortion. He furnished figures based on an investigation of 3,000 patients admitted to the gynaecological clinic at Birmingham General Hospital. In 11,430 pregnancies there were 1,972 abortions. The number of patients who aborted was 1,064, or 35 per cent. of the total. The statistics related to two periods—namely, 1909–13 and 1924–28. The percentage of abortions to pregnancies in the pre-war period (17.7) was slightly higher than in the post-war period (16.9). For a gestation to progress in a normal manner, Professor Whitehouse continued, the following conditions must be present: the germ-plasm of the oöcyte and spermatozoon must possess adequate initial vitality; the zygote must be implanted in a favourable position for its subsequent development; and the nutrition of the ovum must be maintained by an adequate supply of food factors in a suitable uterine environment. The natural and normal site of attachment of the zygote was the decidua of the upper uterine segment. Many abortions after the twelfth week of gestation appeared to be associated with a low placentation in the region of the os internum. The proper development and function of the decidua were all-important for the growth of the zygote. Since the growth of the decidua was dependent upon a hormone elaborated in the corpus luteum, lesions in the ovaries might account for many of the early abortions associated with uterine fibroids, displacements, and the like. Inasmuch as the Graafian follicle and corpus luteum were liberally supplied with nerve elements, inhibition of the latter might be the cause of the "reflex abortion" which followed mental or physical shock. A diseased decidua furnished a pathological environment to the developing ovum, and therefore anatomical lesions such as inflammation or hypertrophy of the endometrium might be responsible for disordered function. About half the ova that were aborted during the first three months of gestation were apparently pathological. Lesions not only affected the embryo, but were equally common in the foetal membranes. Many aborted ova consisted of the amnion and chorion only; the embryo had been absorbed. Embryologists considered that pathological ova were the result of an abnormal environment and were not caused by any inherent factor in the germ cells. The influence of environment was shown by the embryos present in tubal gestations, 86 per cent. of which appeared to be pathological. Experiment had also shown that by the use of various chemical solutions it was possible in the case of the eggs of certain fishes, sea-urchins, and frogs to produce from normal cells every form of anomaly known to occur in man, including such important lesions as spina bifida and anencephalus. It appeared, therefore, that impairment of nutrition (the result of faulty implantation, of abnormal food factors, or of various toxins) might be a potent factor in the cause of many obscure early abortions. The maintenance of nutrition was effected differently in various mammals. In some ungulates the secretion of the uterine glands, known as "uterine milk," was the sole source of nutriment to the developing embryo. In the human species, although the secretion of the uterus contained important reserves of calcium and iodine, the zygote depended upon materials in the maternal blood, except for a very short period in its life. Certain food factors appeared to exercise a very important influence upon the life and well-being of the ovum and foetus: thus, the value of iodine was being appreciated more and more in the raising of animal stock and in egg production. On a Staffordshire farm sows receiving iodine fallowed 50 per cent. more young than those having no iodine. An adequate supply of calcium was equally important. Finally, the work of Evans and Burr upon the existence in certain vegetable leaves and seeds of a specific anti-sterility food factor known as vitamin E would, if confirmed, open up a new and important field both for the investigation of the cause, and also for the treatment, of repeated abortion. The vitamin resembled in certain of its reactions the ovarian follicular hormone, although a wide divergence existed in the matter of solubility. Professor Whitehouse related one case in which a married woman, after having had two stillbirths and one abortion, was at her next pregnancy put upon a diet of vitamin E and calcium lactate and a preparation of ovarian hormone. A healthy child was delivered by Caesarean section. In a second case, after the woman had produced her first child prematurely, and her second child had spina bifida, she was placed on a similar diet and a healthy child was delivered.

Veterinary Experience.

Mr. J. R. BARKER discussed abortion in cattle, the causes of which, he said, were lack of power of the morula to absorb nutrient materials, the absence of such materials, the presence of deleterious materials, the absence of placental areas, and a definitely diseased endometrium. Sterility in cattle was only a state preceding an early abortion, and was due, in the main, to the same underlying agencies. The causes of sterility might be summarized as failure of the male to produce perfectly functioning spermatozoa owing to orchitis; failure of a functioning spermatozoon to reach the ovum, owing to vaginitis, cervicitis, endometritis, or salpingitis; failure of the ovary to produce a perfectly functioning ovum, due to ovaritis; and failure of the ovum to reach a favourable position for fertilization in the Fallopian tube, as a consequence of salpingitis.

Mr. O. STINSON said that in cattle abortion was due to the bacillus of Bang: this was taken in by the mouth. He had noticed that many cows affected would go on to full term, but be sterile afterwards, never conceiving again. He had also noticed an increased incidence of abortion and retained placenta in years when, owing to climatic conditions, the hay was musty. Mr. STEWART R. DOUGLAS, president of the Section of Comparative Medicine, agreed that the most serious abortions in veterinary practice were undoubtedly due to bacillary infection, though in human abortions, he thought, the infection factor was never mentioned. Nevertheless, if gynaecologists and bacteriologists would co-operate in examining samples of the uterine contents immediately on abortion, it was possible they might find evidences of bacterial causation. The greater part of the remaining discussion was occupied with the question of abortion in cattle, one speaker stating that it had been shown that of cows affected with contagious abortion approximately 30 per cent. passed the abortion bacillus—the bacillus of Bang—in the milk supply.

Mr. ARTHUR GILES said that in gynaecology the knowledge of sterility and abortion seemed to have come to a standstill; therefore the experience of veterinary colleagues might prove stimulating. He was a little confused by the apparent contradiction as between Professor Robinson and Professor Whitehouse. The former appeared to take the view that pathological ova were due in a measure to conditions inherent in the germ cells, and not exclusively to environmental defects, whereas Professor Whitehouse had claimed that pathological ova were the result of abnormal environment, and were not caused by any inherent factor. Professor ROBINSON repeated his belief that in many cases the cause was inherent, though he would not exclude environmental abnormalities as the cause in other cases. Professor WHITEHOUSE mentioned that on one occasion he had been able to isolate the bacillus of Bang from a uterus after abortion; this was in the case of a woman living on a farm. After that case he took cultures from the next fifty abortions, but did not find it again.

Reviews.

PROBLEMS IN SURGERY.

The mature reflections of a surgeon with such a vast experience as Crile could scarcely fail to be full of interest. In *Problems in Surgery*[1] the author, in the form of a series of lectures, has given to the world some of the results of his wide experience, and we venture to say that there is no one engaged in the practice of surgery who will not learn something from almost every page. Written in an intimate and conversational style, and dealing quite obviously with the everyday work of the author, the lectures are full of practical hints and of reflections which are always suggestive. The lectures deal, in order, with the management of acute infections, pre-malignant and malignant disease, operations on the bad-risk patient, hyperthyroidism, and certain difficulties in diagnosis and problems related to shock. In every lecture the originality and directness of the author are in full evidence, and although his statements are dogmatic they are always supported by substantial reasons. Of all the chapters those on the bad-risk patient and on the management of acute abdominal infections will appeal most to the general surgeon, and we would most strongly recommend the book to his attention.

THE MECHANISM OF THE LARYNX.

In spite of the fact that the study of the larynx and its diseases has been pursued unremittingly for the last half-century and is responsible for a large and expanding literature, comparatively little work has been done to increase our knowledge of the mechanism of the organ. The subject has not awakened the interest it deserves, and textbooks may be searched in vain for enlightenment. This may in some measure be explained by the tendency of laryngologists to fix their gaze upon the larynx as a medium of voice, and to ignore other physiological aspects of importance and significance. The gaps in our knowledge Mr. V. E. Negus has set himself to fill, and in *The Mechanism of the Larynx*,[2] after tracing the reason for the existence of the larynx and the steps of its evolution, provides us with an admirable study of the normal mechanism made from the biological standpoint and extending throughout the animal kingdom. From the wealth of material in the gardens and laboratories of the Zoological Society which has been at his disposal, he has been able to study the larynx in a wide range of animal species. Some of his results have already been embodied in illuminating papers and lectures, and he has supplemented his work by a careful study of the physiological aspect of the subject and widened his horizon by a knowledge of phonetics. The result is a book conceived in the scientific spirit, with the facts analysed with great care, and distinguished by a judicious and impartial outlook which shows the author more concerned to understand the problems than to hurry to a solution of them.

An excellent chapter on the evolution of the larynx reminds us that the organ is primarily developed as a valvular mechanism to protect the entrance to the pulmonary air-way, and that it is incorrect and misleading to speak of it as the organ of speech, though in course of evolution it has acquired other functions as well. Concerning its modification for olfaction, Mr. Negus points out that nasal respiration is primarily adapted for olfactory reasons, that coaptation of larynx and nasopharynx has for its primitive object the maintenance of the sense of smell while the mouth is open—mechanism made perfect by means of the epiglottis, which is primarily evolved for olfaction. All keen-scented animals have a big epiglottis in contact with a long soft palate. The needs of respiration explain other modifications, various factors interacting to give man a tract incapable of carrying a large supply of oxygen to his lungs, though this is not the cause of his inferiority in speed, but is a degenerate characteristic associated with lack of O_2 and CO_2 carriage in the blood. It is noted how the air tract has undergone many modifications to make the passage of air along it as frictionless as possible. The protective closure of the glottis is a primitive function, though in man closure takes place at the level of the aryepiglottic folds and not at the glottis. In its modification for deglutition it may be seen in various types how the larynx has responded to the necessities of the individual in regard to deglutition associated with olfaction and respiration, and how the type of food in its influence on the formation of a lateral food channel exerts a preponderating effect. For the regulation of intrathoracic pressure attention is directed to the larynx in its role of an air valve, and the view is expressed that in the larynx an organ has been evolved particularly by arboreal animals to subserve locomotion, prehension, olfaction, and deglutition, and that by the various modifications brought in an instrument has been provided capable of use for sound production in a highly efficient form.

The mechanism of phonation receives full discussion in an important chapter, and the author states his conclusion that throughout the animal world it is not by the anatomical structure of the larynx with which it is provided that the powers of phonation of the majority of species are decided, but by the use to which such an organ is put. Man follows this general rule. He possesses a larynx degenerate in most respects, but accidentally well adapted to phonation. The physiological anatomy of the larynx is dealt with in a concluding chapter, and an appendix contains a suggestive paper on observations on the evolution of man from the evidence of the larynx. The book is well provided with excellent illustrations—all except four being original—and with a copious bibliography which might have been stronger in foreign sources.

We are confident that this book will receive the cordial recognition it deserves. It is characterized by great industry and equal accuracy, and the clear insight it displays will make it invaluable as a volume of reference to all who desire to understand the basis on which laryngology rests. Its logical arrangement and its wealth of illustration, drawn from the whole animal world, make it most interesting reading, and its great practical value to the laryngologist is foreshadowed by the many points of contact which shed light upon problems that he himself is endeavouring to solve. Mr. Negus's book may be regarded as a worthy complementary volume to another work from the same school—Sir StClair Thomson's well-known textbook—and King's College Hospital may well be gratified by the issue from its throat department of two notable contributions to British laryngology.

THE BIOLOGICAL ACTION OF LIGHT.

The First International Conference on Light took place last autumn at Lausanne and Leysin, and the proceedings have now been published in book form.[3] So many and various are the aspects of the subject dealt with that the volume forms a précis of modern knowledge and opinion concerning light and its therapeutic applications.

Dr. Dorno of Davos, where accurate measurements of sunlight have been made continuously for many years, suggests in his paper that the significance of skyshine as a source of ultra-violet radiation has been neglected, and that the other tracts of the solar spectrum should not be excluded from therapeutic consideration. Professor Leonard Hill also stresses the importance of skyshine as a source of ultra-violet radiation, and points out that sunlight treatment can be carried out on a cloudy day or in the shade, a matter of practical importance in the treatment of febrile cases that should not be exposed to the heat of the direct sun; he maintains that a curative effect can result from such exposure of the body independently of the production of erythema. In his communication he includes a description of his acetone-methylene blue method of measuring the biologically active ra[illegible] obtained thereby

[1] *Problems in Surgery.* By George W. Crile, M.D. Edited by Amy F. Rowland. Philadelphia and London: W. B. Saunders Company. 1928. (6 × 9¼, pp. 171; 42 figures. 18s. net.)

[2] *The Mechanism of the Larynx.* By V. E. Negus, M.S.Lond., F.R.C.S.Eng. With an introduction by Sir Arthur Keith, F.R.S. London: W. Heinemann (Medical Books) Ltd. 1929. (Sup. roy. 8vo, pp. xxx + 523; 160 figures. 45s. net.)

[3] [illegible] *Lumière.* Paris: L'Expansion [illegible] 548; illustrated. 60 fr.)

in many parts of the world. The contribution of Fabry and Buisson also concerns the solar ultra-violet radiation. They note that though the light output of the sun is substantially constant, it is subject to considerable variations as we receive it, and while the earth's atmosphere absorbs and thus reduces the sun's radiations, it does so in degrees differing with the wave-length concerned, the shorter waves being especially absorbable. The nature of pigment formation in response to light is discussed by Bloch of Zürich, and other communications refer to the phenomena of hypersensitiveness. A. F. Hess of New York, in his paper on irradiated foods and sterols, summarizes the salient facts about the history of this subject, and discusses its theoretical importance and its bearing on the treatment of rickets and other states of calcium deficiency.

Dr. Roussel of Lamotte-Beuvron describes heliotherapy as an important adjunct in the open-air treatment of pulmonary tuberculosis, especially in the less severe cases. He believes that the indications for dosage should be based less on the anatomical extent of the disease than on its activity, acute tuberculosis being a contraindication. His paper is followed by an extensive and useful bibliography. Dr. Ceresole of Venice stresses the importance in therapy of climatic changes, noting that even small geographical variations may be associated with considerable differences in the therapeutic value of the solar radiations. At the Lido the amount of ultra-violet radiation is much enhanced by reflection from the water surface, and there is great reflection of heat from the sand; it is thus possible, by slightly varying the location, to graduate at will the amount and kind of radiation to which it is desired to expose the body. Dr. Reyn of Copenhagen deals with the administration of general light baths in the treatment of skin tuberculosis, as an adjunct to local actinotherapy, and gives details of the improved results which have followed this extension of the treatment.

Dr. Bernhard of St. Moritz, one of the pioneers of heliotherapy in surgery, presents a highly interesting account of the history of the subject since 1886. His experience with surgical tuberculosis concerns over two thousand cases. In 1904, when he was almost alone in this field, he was followed by Dr. Rollier, who developed treatment by sunlight on a large scale. Dr. Rollier himself has dealt with many thousands of patients, and the routine, yet pliable, system of sun bathing which he has elaborated is now practised in all parts of the world. For some years he has held at Leysin an instructional course on heliotherapy, and the homage paid to him by Dr. Rosselet of Lausanne was echoed by many pupils. Dr. Rollier was in a very real sense the nucleus of the conference. Additional interest was given to the proceedings by demonstrations at Leysin and some excursions in the vicinity. The mention of these will recall to many their enjoyment of a pilgrimage to Rollier's clinics.

A FREUDIAN VIEW OF THE NEUROSES.

Professor Israel Wechsler's *The Neuroses* is the expansion of a chapter devoted to the consideration of that subject in his *Text-book of Clinical Neurology*, which was reviewed in our issue of January 21st, 1928 (p. 100). We learn from the preface to the present work that that chapter received favourable comment from many of the author's colleagues, and was honoured by the personal appreciation of Professor Freud. The chapter in question, appearing as it did towards the end of a work on organic neurology, came as a surprise to readers who had hitherto been immersed in neuro-anatomy and neuro-physiology, for Professor Wechsler in his study of the neuroses threw all such conceptions aside in favour of a purely psychological method of approach. In adopting this attitude Professor Wechsler frankly contended that it was more important for an understanding of the neuroses to know why a person did a certain thing than how he did it, and the latter belonged, in his opinion, to the field of neuro-anatomy and neuro-physiology. While not denying that for every mental process there was an underlying and accompanying [illegible] admitti

[4] The [illegible] London: [illegible]

some of the psychic manifestations of the neuroses will some day be explained in terms of neuro-physiology, the author felt himself constrained to adopt the psychological method of approach as the only one to offer an understanding of the neuroses. As he himself has said in the chapter referred to, "It is fruitless to discuss an obsession in terms of chemistry, or a hysterical phobia in terms of physics. As well discuss the sublime beauty of the Sistine Madonna in terms of aniline dyes, or the tragic conflict of Hamlet in terms of radio-activity!"

The present volume consists of a psycho-analytic, that is to say, Freudian, description of the neuroses; and the Freudian classification has been followed throughout. Neurological and endocrinological views as to etiology are also referred to in order to shed further light on the complex causation of the neuroses and to serve as a comparison with the psycho-analytic method. In the introductory chapters the author discusses the history of psychiatry and the development of psychopathology. The chapters which follow are devoted to the description of mental mechanisms, the etiology of the neuroses, their classification, clinical manifestation, their diagnosis, course, prognosis, and treatment. A short chapter is appended on taking a psychiatric and neurological history and making a mental examination. Two chapters, one on "General intelligence mental level and the psychoneuroses," and the other on "Psychometric tests," have been contributed by Dr. David Wechsler, the author's brother.

Professor Wechsler's book may be commended to all who accept the Freudian standpoint, and may induce others to re-examine their theories in the light of this.

THE NURSING OF INFECTIOUS DISEASES.

The little book entitled *Communicable Diseases for Nurses and Mothers*,[5] by Dr. Albert G. Bower and Miss Edith B. Pilant, is intended for the use of student nurses and mothers in the home, particularly in communities where skilled assistance is lacking. The diseases considered include all those named in the annual report of the Committee of the American Public Health Association on "Standard Regulations for the Control of Communicable Diseases." The forty-two diseases considered include not only the acute infectious disorders which are usually sent to isolation hospitals, but also venereal diseases, malaria, tularaemia, Rocky Mountain spotted fever, and yellow fever. The account of the various diseases is preceded by chapters dealing with the care of communicable diseases in private houses and in hospital, with details as to barrier nursing and ward management. The authors rightly emphasize the fact that aseptic technique is as important in dealing with infectious diseases as it is in the domain of surgery, though the fact does not appear to be sufficiently realized or enforced.

The work on the *Nursing Care of Communicable Diseases*[6] by Mary Elizabeth Pillsbury, which is the latest addition to Lippincott's *Nursing Manuals*, is divided into two unequal parts. In the first, which consists of seven chapters, the writer discusses the causal organism, modes of infection, measures of control of disease (special emphasis being laid upon the part played by the nurse), resistance to disease, and the various modes of prophylaxis and control. The second part, which forms the bulk of the work, is devoted to a consideration of the forty-two diseases listed by the United States Public Health Service as communicable, as well as six others—namely, colds, impetigo contagiosa, erysipelas, ringworm, scabies, and Vincent's angina.

Both books are written in a clear and concise style, and are not only admirably suited for the class of readers for whom they are intended, but contain details of nursing with which every medical practitioner should be familiar. Another work on the same subject,[7] by Dr. Eustace Thorp,

[5] *Communicable Diseases for Nurses and Mothers.* By Albert G. Bower, M.D., and Edith B. Pilant, R.N. Philadelphia and London: W. B. Saunders Company. 1929. (Post 8vo, pp. 327; 34 figures. 14s. net.)

[6] *Nursing Care of Communicable Diseases.* By Mary Elizabeth Pillsbury, B.S., R.N., M.A. London: J. B. Lippincott Company. 1929. (5½ × 8½, pp. 463; 116 figures. 12s. 6d. net.)

[7] *Infectious Diseases for Nurses.* By Eustace Thorp, O.B.E., M.B., B.Ch. London: Baillière, Tindall and Cox. 1929. (Cr. 8vo, pp. viii + 154. 5s. net.)

is written by one who is specially fitted for the task in his capacity of visiting medical officer to the Sunderland Borough Sanatorium for Infectious Diseases and Tuberculosis, and examiner in fevers to the General Nursing Council. This little book contains a clear and concise account of the diseases nursed in fever hospitals, including tuberculosis and venereal disorders.

NOTES ON BOOKS.

An Introduction to Pharmacology and Therapeutics,[8] by Professor J. A. GUNN, is a short book of about 200 pages, which presents the essential facts of elementary pharmacology. The author explains that his purpose here is to provide the medical student with a book that he can read in vacation before attending lectures in the subject. The author has evidently spent a great deal of time on the work, and has managed to present his subject in this brief form by exercising a very rigorous selection of material. At the same time, he has avoided making the book a bare catalogue of facts, and the volume constitutes an easily read introduction to the subject, and therefore should serve its purpose very well.

The seventh edition of *Landmarks and Surface Markings of the Human Body*,[9] by Mr. L. BATHE RAWLING, is similar in every respect to the sixth edition, reviewed in our columns on December 13th, 1924 (p. 1120), except that five new figures have been substituted for those illustrating the surface markings of the foot and ankle. The author in his preface writes: "The continued popularity of this book, first published in 1904, is sufficient proof that it fills a gap in the books on medical education." With this comment we are in full agreement.

Dr. LEWIS E. HERTSLET is a firm believer in the value of air and sun baths for the maintenance of health and the prevention and cure of disease. In his book, *Skin: Its Uses in Six Phases*,[10] he instructs the lay reader in the importance of the skin as a medium through which the air and the radiations from the sun produce their beneficial effects, and gives some account of other ways in which the skin may serve to regulate the health of the body. He writes with vigour and enthusiasm, and succeeds in crowding within a relatively small compass a great deal of interesting material bearing directly and indirectly on his main theme. The work is illustrated with eight well-produced photographs.

Dr. A. R. FRIEL has published a small book on chronic otorrhoea,[11] with special reference to the use of zinc ionization in the treatment of selected cases. The first part deals with the role of the electric current and zinc ions in the treatment of septic surfaces; the second with conditions in the ear in chronic otorrhoea and the technique of treatment by ionization; and the third with the organization of aural clinics, with special reference to the treatment of chronic suppuration of the middle ear in school children. The book is clearly illustrated with reproductions from line drawings.

In *La Pratique Psychiatrique*,[12] by Professor LAIGNEL-LAVASTINE, Dr. A. BARBE, and Dr. DELMAS, the increasing importance of some knowledge of psychiatry in general practice is emphasized, so that the general practitioner may be able to treat not only incipient cases of the severer kinds of mental disease, but also those neuroses which underlie many of the minor ailments so prevalent in these days. The anatomical, physiological, and psychical causes of the different mental diseases are discussed from a very up-to-date point of view, and some of the mental after-effects of the war are well described. The forensic portion is interesting though chiefly applicable to France. The mental effect of workmen's compensation with regard to prognosis is clearly set out. The fact that fifteen years after the French law permitted intoxicants to be sold more freely there was a sudden great increase in the number of juvenile criminals gives food for thought. The authors insist on the importance of prophylactic treatment for the improvement of the mental health of the public, especially in connexion with syphilis and alcohol.

[8] *An Introduction to Pharmacology and Therapeutics.* By J. A. Gunn, M.D., D.Sc.Ed. London: Milford, Oxford University Press. 1929. (Fcap. 8vo, pp. 220. 5s. net.)

[9] *gs of the Human Body.* By L. Bathe Seventh edition. London: H. K. Lewis viii + 98; 36 figures. 7s. 6d. net.)

[10] By Lewis E. Hertslet, M.R.C.S.Eng., L.R.C.P.Lond. London: J. and A. Churchill. 1929. (Demy 8vo, pp. xviii + 206; 8 plates. 10s. 6d. net.)

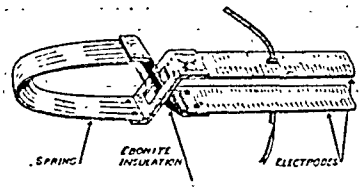
[11] *Notes on Chronic Otorrhoea: With Special Reference to the Use of Zinc Ionization in the Treatment of Selected Cases.* By A. R. Friel, M.A., M.D., F.R.C.S.I. Bristol: John Wright and Sons, Ltd.; London: Simpkin Marshall, Ltd.; New York: William Wood and Co. 1929. (Demy 8vo, pp. viii + 83; 54 figures. 6s. net.)

[12] *La Pratique Psychiatrique.* Par M. Laignel-Lavastine, André Barbe et Delmas. Deuxième édition, revue et corrigée. Paris: J. B. Baillière et Fils. 1929. (5½ × 7½, pp. 891; 24 figures. 60 fr.)

PREPARATIONS AND APPLIANCES.

AN APPLIANCE FOR TREATING ANTERIOR URETHRAL LESIONS BY DIATHERMY.

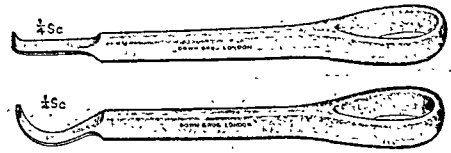
DR. F. J. T. BOWIE (Aberdeen) writes: I desire to introduce an apparatus designed for the treatment, by diathermy, of chronic infections of glands and follicles in the penile urethra in chronic gonorrhoea. It consists of two electrodes, each five inches long by three-quarters of an inch broad; they are slightly curved from side to side, with the concavities opposed to each other, and are connected by crossed insulating material



to a spring. The whole apparatus resembles, therefore, a pair of crossed-action forceps, the action of the spring being to keep the blades (electrodes) pressed together. The electrodes are opened out by compressing the spring; they are placed, one ventrally and the other dorsally, over the whole length of the penis, and are then allowed to close on the organ, thus collapsing the urethra into a flat tube between them. The diathermy current is turned on, and, passing through the whole thickness of the penis, treats the urethra *en route*. Since the walls of the urethra are flattened out dorsi-ventrally, the associated glands and follicles are spread out in a position which ensures a maximum effect from the current. This method of treatment of chronic folliculitis and littritis has given very gratifying results, obstinate cases yielding readily when all other methods have failed to ensure absolute cure; it has been used now long enough to warrant its use as a routine. I am indebted to Dr. J. F. Christie for permission to publish this description.

RASPATORIES FOR THE OPERATIVE TREATMENT OF FRACTURES.

Major MEURICE SINCLAIR, R.A.M.C. (ret.) (London), writes: These instruments are designed primarily for lifting the periosteum and young callus, together with the soft structures, from (1) the flat surface of bones; (2) the cylindrical surface of bones. They may also be used to retract the elevated tissues during a bone operation. Both have a periosteal cutting blade, a smooth oval shaft, and fenestrated handles, which give the operator a firmer hold. The blade of one raspatory is straight, with a square and slightly curled-up end, while the other is curved throughout, with a somewhat pointed extremity. When operating on the left femur and the periosteum or callus has been incised to the whole length of the cut, it is comparatively simple to pass the blade of the curved raspatory under the upper fragment with the shaft and handle projecting out of the wound and nearly at right angles to the bone. The operator stands with his left side against the table, and faces the patient's left shoulder; by grasping the



handle of the jutting-out instrument with the right hand, and hooking the fingers of the left under the shaft, he is able to keep the blade in close contact with the bone by the firm, upward lift. This force is reversed when the instrument is used to clear the anterior convexity of the bone. When the upper end of the lower fragment is being attended to it is advantageous to use the left hand in a pronated position and employ a pressing force in the direction of the cleavage. The hold of the left fingers gives the purchase required for the longitudinal pull or push; at other times it acts as a useful fulcrum. These movements alternating with one another, together with a slight, constant rocking motion of the right hand, will very readily and neatly detach young callus and the strong fibrous attachments from the roughened ridges of the linea aspera. The straight raspatory is used much in the same way. It may also be used in a deep wound to hold back the tense strata of tissues from the immediate neighbourhood of the eyelet of the wire-introducer, and thus allow the assistant to pass the wire safely into its opening without delay. Subsequently it permits the encircling of the fragments of bone in a very ready manner, as described in the *British Medical Journal*, August 3rd (p. 207). These instruments are made for me by Messrs. Down Bros., St. Thomas's Street, S.E.1.

MOTOR CARS FOR 1930.

THE OLYMPIA SHOW: A FINAL REVIEW.

[FROM OUR MOTORING CORRESPONDENT.]

THE 1929 Olympia Show, which closes to-day (Saturday, October 26th), has continued to attract considerable attention. A year ago there was a good deal of talk of changing the exhibition from an annual to at most a biennial event, owing to the heavy financial burden it thrusts on exhibitors, and the view was expressed in these columns that if the show was to continue yearly and the exhibitors to secure an adequate return for their outlay, the question of the overcrowding of the stands by motor agents and their representatives from all parts of the country would have to be dealt with. The complaints that inspection of the cars was considerably obstructed, if not actually prevented, by the presence of an unnecessarily large number of salesmen and traders, indeed, became so general that the organizers of the exhibition were compelled to take action. Thus, during the show now closing, a limit was put on the number of sales assistants permitted on the car stands, the authorized persons wearing a badge to identify them with the particular car with which they are associated. At the time of writing it is not possible to estimate completely what effect the new arrangement will have had on the total attendance, but in the first few days of the show it was evident that the stands were less crowded than in past years and, except perhaps at those of such popular makes of cars as the Austin, Morris, Singer, and Swift, it was consequently possible to examine the cars and chassis with greater ease and comfort. Even although the attendance figures may not establish a record, any decline in the total will not represent a diminution of public interest, but merely a reduction in the number of "clicks" of the turnstiles through which the trade representatives have in altogether unnecessary numbers formerly passed.

Safety Motoring.

The keynote of the show is undoubtedly to be found in the consideration given to the requirements of the owner-driver. Nearly every new device, every new development, and every change in design has been introduced with a view to making motoring safer and more comfortable, and the owning of a car as little troublesome as possible. Centralized chassis lubrication, chromium plating, easy gear-changing arrangements, and servo devices to assist in the application of the brakes are all adding their quota in this direction. The safety factor in motoring is also becoming increasingly important, and for that reason the tendency to standardize unsplinterable glass and to build cars with a slightly lower frame and lower centre of gravity is to be welcomed.

Since the advent of four wheel brakes, and a growing practice of manufacturers to link up the hand lever with the shoes of the rear wheel brakes, there has been some doubt of the legal position, the motoring regulations having hitherto required that cars shall be fitted with two independent brakes. On the eve of the show the Ministry of Transport issued an Amendment Order which brings the regulations up to date and makes the position quite clear. Under the new rules, in the case of cars with four wheel brakes, two entirely independent brakes are not in future to be insisted upon. There must, however, be two independent means of brake operation, and even in the case of cars fitted with servo-actuated brakes one of the methods of operation must be direct. Also, in the case of brake failure, the construction must be such that brakes on two wheels are always available; furthermore, one of the brake controls must be so arranged that it can be secured in the "on" position when a car is left unattended.

A WIDE CHOICE OF CARS.

There are few if any countries in the world in which motorists have so wide a selection of cars as Great Britain. The list of the different makes extends to well over one hundred, the number being at least tripled, if not quadrupled, when the various models of each manufacturer are taken into account. It is therefore obviously impossible to refer to the productions of all the different makers; the writer, in the cars mentioned last week and in those referred to below, has, however, endeavoured to select those suitable for doctors' use.

Crossleys and Rovers.

Crossley Motors, Ltd., are continuing their 15.7 h.p. and 20.9 h.p. six-cylinder cars with only detail changes in the chassis; the bodywork has, however, been greatly improved, some very attractive designs being available. The Rover Company, in addition to their well-known 10–25 h.p. four-cylinder and two-litre six-cylinder cars, have added to the range a new light "six," with a power unit similar to the two-litre model, but with a smaller and lighter chassis; it is mainly intended, however, for sporting motorists' use. Some very elegant body designs are included in the Rover range, which include, both for the 10–25 h.p. and two-litre chassis, a saloon with a folding roof.

The Fiat.

Among the most widely used of Italian-built cars is the Fiat. The makers are nowadays largely concentrating their attention on six-cylinder vehicles, but although the 9 h.p. is the only "four" left in the construction programme, it is a useful little vehicle and a favourite with many doctors. Several new designs of both two- and four-seated bodies have been introduced, notably a fixed-head coupé at £235 and a fabric four-door saloon at £250. For those desiring a larger and more powerful car there is a choice of 17–50 h.p., 18–55 h.p., and 20–70 h.p. six-cylinder models. The 18–55 h.p. is the latest addition to the Fiat list, both chassis and bodywork being on thoroughly modern lines. The five-seated coach-built saloon is priced at £395, or only £20 more than the 17–50 h.p. model.

Some Popular American Models.

Among the popular American and Canadian cars in this country is the Buick, which is available with six-cylinder engines of two different capacities, the cheapest, with saloon body, being listed at £485. Among the detail improvements of the latest models are lower-built bodies, longer wheelbase, servo-operated brakes, thermostatically controlled radiator shutters, Lovejoy shock absorbers, and many new accessories. General Motors have also introduced a new popular-priced car known as the Marquette, the six-cylinder engine of which is not quite so powerful as that of the Buick. The car, however, possesses many good features, and although it has only been on the market a short time is already being well spoken of. Another popular and widely used American car is the Essex, which, although fitted with a six-cylinder engine carrying a £19 annual tax, is available at prices ranging from £250 for the coach or two-door saloon to a convertible coupé with a dickey seat or a five-seated town sedan at £295. The latest models embody many detail improvements both in the chassis and the bodywork, noteworthy features being a roller-bearing steering gear and easily adjusted brakes. Like the majority of next year's cars, all bright parts are chromium-plated.

A New-Type Radiator on Renault Cars.

A French firm that is steadily changing over from four- to six-cylinder vehicles is the Renault Company. Of the "fours" only the 14–45 h.p. model is retained, while there are now two six-cylinder cars of respectively 12.5 and 21 h.p., a five-seated coach-built saloon of the lower power costing £310. The main change in Renault cars is in the radiator. For many years, unlike the majority of cars, this has been located at the dashboard end of the engine. In the latest models it is at the front; it is, however, inclined rearwards and concealed by the bonnet, the front of which is provided with shutters.

Two Coventry-built Cars.

Those doctors who use the Standard cars will be interested to learn that the makers are continuing to concentrate on but two chassis models—the 8 h.p. four-cylinder and the six-cylinder. Neither of them shows important mechanical changes, but there are many improvements in the bodywork, the variety of which has also been increased. In this connexion, too, it is interesting to note that, despite an increasing vogue of cars with brightly

painted bodywork, the Standard Company have found it desirable to add one in a quiet combination of black and brown to the range of 9 h.p. vehicles. This model is made in two lengths of wheelbase, at prices ranging for saloons from £185 to £250, the latter being the "Teignmouth" special fabric saloon, which has wire wheels, safety glass windscreen and windows, bumpers, chromium-plating, and many additional accessories. The vehicle which is, however, likely to appeal to many doctors is the 15 h.p. six-cylinder Standard, at prices ranging from £325 to £365. As with the 9 h.p., the chassis is available in two lengths of wheelbase, the longer one, which is known as the "Envoy," being fitted with very roomy bodies. The details, too, have been greatly improved, the lamp control switches, the head-lamp dipping controls, and horn switch, for example, being now, in addition to the throttle and ignition levers, neatly grouped on the steering column. Leather is used for the upholstery, while the interior finish generally has been improved. It may be added that all the Standard Company's saloons can be fitted with the Stanlite sliding roof.

Among the cars in which radical alterations have been effected are those of the Swift Company. Only one type of chassis is being made—10 h.p. four-cylinder—which, however, is being produced with a wide variety of bodywork, at prices ranging between £235 and £295. Among the chassis alterations to which attention may be drawn are an entirely new design of chromium-plated radiator, the adoption of semi-elliptic springs with shock absorbers at both front and rear, a lower centre of gravity, and "one-shot" chassis lubrication. Among the models suitable for doctors' use are a drop-head coupé, a "foursome" coupé—a fixed head car with seats for two at the front and two occasional seats at the rear—and the "Migrant" four-seated four-door saloon, both the latter being fitted with Pytchley sliding roofs so that they may be used in closed or open form.

The Wolseley Range.

A make of car that has long held a good reputation for reliability among members of the medical profession is the Wolseley. The range of choice is a very wide one, embracing as it does 12–32 h.p. four-cylinder, 16–45 h.p. and 21–60 h.p. six-cylinder, and a 32–80 h.p. eight-cylinder. So far as chassis are concerned the changes are confined to matters of detail, the main Wolseley departure for 1930 being the introduction, in addition to the standard vehicles, of a range of de luxe models known as the "County" in both 16–45 h.p. and 20–60 h.p. forms. Among the fittings which justify the term "de luxe" are chromium-plating, dash-controlled radiator shutters, electrically operated dipping headlights, safety glass, two spare wheels, and upholstery and internal fittings of special quality. While the 12–32 h.p. four-cylinder saloon at £345 will meet the requirements of many doctors, there are no doubt some to whom the 16–45 h.p. six-cylinder saloon with four or six lights, at £405, will appeal, the "County" de luxe models costing an additional £45.

More British Six-cylinder Cars.

Among the makers of British cars who are continuing their previous models unchanged except for detail modifications in both chassis and bodywork are the Sunbeam, Clement-Talbot, and Vauxhall companies. The first-named concern is building six-cylinder cars in three sizes—16 h.p., 20 h.p., and 25 h.p. The Talbots are confined to a single 14–45 h.p. chassis model fitted, however, with a wide selection of bodywork, notable among which is a three-quarter coupé-cabriolet, at £465. The Vauxhall Company are also concentrating on a single chassis type—a 20–60 h.p. six-cylinder model which embodies many interesting features.

In view of the increasing popularity of six-cylinder cars it is worth while remembering that one of the first to realize the advantage of six cylinders over four was Mr. S. F. Edge, who, in the early days, was closely connected with the Napier Company, whose energies to-day are entirely devoted to the production of aeroplane engines. For some years past Mr. Edge has been at the head of A.C. Cars, Ltd., whose productions are confined to six-cylinder vehicles bearing the name Acedes. For the 1930 season the company has brought out a new and larger model known as the Acedes Magna, it being fitted with an engine which, although rated at only 16 h.p., is capable of developing up to 60 h.p. A feature of the car is that the gearbox is located above and in front of the differential casing, with which it forms a unit. The four wheel brakes are of the Lockheed hydraulic type, while the steering gear is of a newly patented form notable for the simplicity of the adjustment for wear and backlash. The Acedes 16–40 h.p. models range in price from £350 to £395, and the new Magna models from £475 to £495.

Prices for 1930.

In the preceding articles of this series the various cars of 1930 have been mainly analysed from the point of view of the number of cylinders and that of the chassis details; the matter of prices has only been briefly alluded to. Price being, however, an important consideration, it may be well to look at the new models a little more closely from this aspect.

Taking vehicles with saloon bodies as being the most popular type at the present time, there are only three makes below £150—the Austin Seven, the Morris Minor, and the two-cylinder Jowett, all being of the miniature type yet well able to give good service. Between £151 and £200 there is a choice of nine makes, all, with a single exception, being fitted with four-cylinder engines. At the lower end of the section are the Singer Junior and the Triumph Super-seven, while towards the £200 limit chief attention centres on the 9 h.p. Standard, the 11.9 h.p. Morris-Cowley, and the 14.9 h.p. Ford, the latter, although not seen at Olympia, being, in its modern form, an increasingly popular model. As the price increases, so does, up to a point, the variety of choice. Thus, from £201 to £250 there is a selection of about eight cars, only three of them, however, having six-cylinder engines—the Essex, Erskine, and Chevrolet, the latter being somewhat handicapped in this country by its annual tax of £27. Of four-cylinder models, the best known are the Fiat and the Willys-Overland Whippet. In the £251–£300 category there are a dozen four-cylinder and half that number of six-cylinder models to choose from. Chief among the "fours" are the Citroën, Humber, Swift, and Rover, while among the popular "sixes" are the Armstrong-Siddeley, Citroën, Morris-Oxford, Renault, and Singer. Several excellent cars are available in the £301–£350 group; the majority have six-cylinder engines, among the more prominent being the 15 h.p. Standard and the Singer Super-six. What four-cylinder vehicles there are in this section are, however, well-tried products, such as the Austin Twelve and the 12–32 h.p. Wolseley. Taking the £351–£400 cars as being the outside limit of the average medical man, the six-cylinder type is in this case in the majority, the range including the 16–40 h.p. Acedes, the 15 h.p. Armstrong-Siddeley, the Austin Sixteen, the Chrysler, Fiat, Morris-Isis, the 23.4 h.p. Nash, the 21 h.p. Renault, and the 14 h.p. Riley. There is one American eight-cylinder car in the group at £395, but the cheapest British "eight" is the Hillman at £445.

A Look Round the Galleries.

Although the majority of cars are now turned out so completely equipped in the way of lamps, horns, and a wide variety of accessories that there would hardly appear to be room for any further additions, yet a walk round the galleries at Olympia always reveals many interesting and useful devices. Mention has already been made of the many radiator "cosies," garage stoves, and other appliances for winter motoring use. To these may be added, lest the fine summer be again followed by a severe winter, the Parsons non-skid chain attachment for tyres, to facilitate car driving over snow-covered roads, the device being one the efficiency of which has long been recognized.

The headlamp dazzle problem, also previously alluded to, is being attacked in two main ways. On the one hand there are numerous devices fitted in conjunction with headlamps to prevent any dazzling of the eyes of the drivers of oncoming vehicles, and, on the other, a number of coloured celluloid and glass attachments to the windscreens

that overcome the dazzling effect of powerful fixed headlights. Among the first-mentioned devices worthy of notice are those of Barker and Company, which is made in three forms—a straight dipper, a dip and one-way turn, and a dip and a right and left swivel. The Lucas dipping reflector arrangement also appears to be very effective. Included in the range of lamp exhibits are several specially designed for use in foggy weather as well as one or two attachments for the fronts of headlights, which are claimed to be able so to diffuse the light that it will penetrate fog.

There is, of course, the usual range of exhibits of magnetos and coil ignition devices, while among the many displays of sparking plugs is that of Lodge Plugs, Ltd., a tribute to whose manufactures is afforded by the fact that their plugs were used on the engine of the aeroplane which proved the winner of the recent Schneider Trophy contest. Recent research by the Lodge Company in connexion with plugs for aircraft use has resulted in the discovery of certain improvements both in materials and in methods of construction, some of which have been embodied in the plugs for use on cars. In an earlier article reference was made to the necessity for devoting some attention to the lighting equipment, and particularly to the battery on which so much depends, the more so in these days when the accumulators are being relied upon to supply current for ignition as well as for the engine starting and car lighting. Among the firms specializing on battery manufacture are Oldham's, Lucas, Hart, P. and R., Exide, Tungstone, and Vandervells. Whichever make is chosen, the main point to bear in mind, just as with the car itself, is not so much the actual first cost as the degree of service the article will render.

Most of the gallery exhibitors are wholesale only, but among the retailers of accessories are Dunhills, Ltd., and A. W. Gamage, Ltd. At the stand of the last-named firm, in addition to all the latest "gadgets," there are some excellent driving gloves and rugs. At Gamage's stand, too, are some useful small cases of spare lamp bulbs, one of which should always be carried by country practitioners who have much night driving to do, as there is nothing more disturbing than a lamp failure in the dark with no spare bulb at hand.

So wide is the range of useful accessories that it is possible only to mention the many improved forms of jacks, the useful preparations for stopping leaks in radiators, and the many pastes and liquids now available for maintaining the clean and fresh appearance of the paintwork and metal fittings of cars. A useful device, of which several patterns are now available, is a petrol filter, the outer casing of which is of glass, so that it can be seen at a glance whether the filter needs cleaning out, many engine stoppages on the road in the past having been traced to choked-up filters. Although more numerous than a year ago, cars fitted with "one-shot" chassis lubricating arrangements are still in the minority, so that a good deal of interest is taken in the special pressure oil and grease-feeding guns now available, while those who know what a messy job the filling of grease guns can be will appreciate the grease cartridges now being marketed, which are so made that they can be quickly and cleanly introduced into grease-gun barrels.

The Tyre Section.

Motor tyres have so greatly been improved, from the point of view of their wearing qualities, since the war that it is not surprising there are no striking departures to be found in the tyre section of the exhibition. Here and there new tread designs have been introduced to render tyres more proof against skidding, but, this apart, the most noticeable feature is the production in this country of many of the makes, such as the Michelin, Goodrich, and Pirelli, that were formerly imported. Although it is hardly likely to appeal to doctors, who cannot afford to economize in the matter of tyres, it may be mentioned that the Dunlop Company, in addition to their Dunlop Fort tyres, now have a cheaper variety in the Clipper. It may be noted, too, that the Avon tyres have been improved, both as regards the anti-skid tread design and the strengthening of the walls of the covers.

C. J. W.

CHARTERED SOCIETY OF MASSAGE AND MEDICAL GYMNASTICS.

THE Chartered Society of Massage and Medical Gymnastics, which has been holding a series of conferences in the Great Hall of the British Medical Association's House in London, assembled for its first annual dinner, on October 16th, at the Café Royal. Mr. R. C. ELMSLIE presided over a large company of members and guests; the latter included Sir Farquhar Buzzard, Sir James Purves-Stewart, Sir Henry Gauvain, Sir Arthur Stanley, Dr. Jane Walker, Dr. Catherine Chisholm, and Dr. Alfred Cox, Medical Secretary of the British Medical Association.

In responding to the toast of the society's health, which was proposed by Professor WINIFRED CULLIS, Mr. ELMSLIE referred regretfully to the absence of the chairman of the council, Sir Cooper Perry, who, he said, had been foremost in the efforts to obtain a charter, and whose counsel and ripe experience had always been at the society's service. Massage, Mr. Elmslie continued, was an old and widespread remedy, almost as ancient as medicine itself, though medical gymnastics might be said to be only one hundred years old, dating from the time when Ling founded his school at Stockholm. It was not until the latter part of the last century, however, that massage became a scientific treatment, and its practice on any considerable scale in this country was still more recent. When he himself was a student at St. Bartholomew's, shortly before 1900, the entire massage and exercise treatment at that hospital was carried out by one masseuse and one porter, both of whom held the certificates of the then newly incorporated society. It was about 1894 that a society of trained masseuses was founded by ten practitioners of the art, only one of whom (Miss Paget) was still with them. After six years, with 200 certificate holders, the society became incorporated, and in 1905 the articles of incorporation were extended in order that the society's examination might include male candidates, after which time regular examinations of candidates from the naval and military hospitals were held. On the outbreak of war the late Mrs. Almeric Paget founded a corps of masseuses, almost all of whom were members of the incorporated society, for employment by the War Office for work in the military hospitals, and from this developed the military massage service and later the pensions massage service, both still existing, although now having greatly reduced numbers. The charter was granted in 1920, and the society had obtained the permission of the Privy Council for its members to use the title "chartered masseur" or "chartered masseuse." The membership at the present time was 7,276, of whom 470 were men. Mr. Elmslie claimed for the society that it was the greatest organization in the world for physical treatment, and that massage was better organized and regulated in this country than in any other. The society had been fortunate in obtaining the assistance of members of the medical profession. It was sometimes complained that the medical profession did not utilize the services of the society to the full, but it had to be remembered that the growth of the society had been very rapid, and that there were still many physicians and surgeons in practice who were entirely unfamiliar with the value of physical treatment on modern lines. A great deal had to be done in the way of educating the medical profession. Among other recent developments he mentioned the new examination in medical diathermy and light therapy, and that the Society of Apothecaries had established a roll of biophysical assistants, persons qualified to administer these treatments under the direction of a member of the medical profession. Mr. Elmslie closed with the remark that massage and physical methods were of such value that they ought to constitute an additional benefit under the Insurance Acts.

In reply to the toast of "The Guests," Sir FARQUHAR BUZZARD confessed that in the course of his medical career he had probably prescribed massage less than any medical man or woman in that room. Recently, in connexion with an address of his, he had been "rapped on the knuckles" for being too pessimistic, but he was not really pessimistic about massage, and certainly not about medical gymnastics, especially after reading an excellent article in the society's journal on the treatment of patients suffering from the terrible after-effects of encephalitis lythargica. Dr. JANE WALKER also replied to the toast in a speech recounting some amusing experiences.

PSYCHIATRIC UNITS IN PUBLIC HOSPITALS.

BY

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The subject of the treatment of early mental disorder has deservedly received much attention in late years; it admittedly bristles with difficulties, which arise from many causes, some of them capable, in my opinion, of considerable amelioration, even under existing conditions of legislation. It is with a view to describing an experiment now being made in London that I am writing this article.

Most of the preliminary treatment of mental cases in London is carried on through the machinery of the Poor Law, by medical officers and nurses of the observation wards of the workhouses. Here the patients arrive very often hostile and refractory, having betrayed their affliction sufficiently to bring them within the arm of the law, either through police channels or under the statutory detention order of a relieving officer. On arrival at these observation wards, often unsatisfactory in structure and staffing, they must be examined by a justice and a doctor with a view to certification or discharge; criticism has been levelled against this system from many angles, among the more serious charges being lack of skill in diagnosis and treatment, and in the nursing and handling of the patients.

From the point of view of the general public health the problem is of outstanding interest, since the mental breakdown is often the concomitant or even the precursor of a physical breakdown. The apparently general increase of nervous disorders should be regarded as a warning to us to examine the machinery of our civilization with great care —especially in so far as it tends to produce exhaustion of nervous powers—and to take measures to counteract their influence at every turn. It has been my good fortune to have to cope with a corner of the problem in circumstances of considerable difficulty; it may therefore be truly claimed that if some success has attended this effort, then the beginnings of a path have been found, and in more favourable circumstances greater success should be attained. The scheme has been considered promising enough to be recommended for adoption by the London County Council when it takes over control in April, 1930, and so perhaps it is worth while setting out in some detail.

Object of the Scheme.

The scheme aims at bringing all the suspected incipient mental disorder in an area in touch with a unit comprising in- and out-patient departments, and situated in a hospital which deals with physical ailments. The unit must be of such a standard as to command the confidence of the public, and patients should be willing to resort to it without always having to be driven to it. The best specialist advice would be obtainable, and also the most *modern* methods of treatment; there would be special facilities for the most kindly and helpful inquiries to be made with a view to cutting the illness short and preventing its recurrence. The activity of this unit should not, in my opinion, so heavily preponderate over the rest of the work of the hospital as to lead to its being more than a large special department. Within its scope should be included:

1. Any type of organic nervous disorder.
2. Any type of functional nervous disorder.
3. Disorders of conduct in children.
4. Incipient mental disorder in adults who attend voluntarily.
5. Cases under statutory orders for detention and examination.

It was the present inadequate provision for this last category which led to my investigations of lines of possible advance. The subject is rather complicated legally, but it will never present great difficulties for those able to make adequate provision privately. The ordinary poorer citizen, however, who shows signs of mental disorder is removed to an observation ward in what is legally a workhouse, and in that ward grave decisions have to be arrived at which affect his future liberty and treatment. Certification may be called for in order to protect the patient and the public, but no one can deny that the fact of certification is not helpful to a citizen subsequent to recovery, whereas a stay of a few weeks at a nerve clinic may actually stamp an individual as being of a superior order of intelligence. Why should not the poor be allowed the luxury of a nervous breakdown occasionally without the stigma of certification?

For these observation wards there is often no skilled nursing available; there are no facilities for diagnosis or treatment on a modern scale; there is a financial reward for transferring cases to a mental hospital, and often the governing idea is to send patients on to a mental hospital at the earliest possible moment, where skilled treatment will be available in good surroundings. Any critic who saw my observation wards might think this theory was correct, but the patients and friends very seldom take this view, having, for various reasons, an intense dislike of the fact of certification.

How the Scheme may be Carried Out.

If we agree that prevention of certification in a case likely to recover quickly is a desirable end, then the path to reform of the existing conditions becomes fairly clear. First of all there must be a consultant of standing who will give an opinion as to which cases should be certified, which discharged, and which detained for treatment. To do this satisfactorily necessitates having a fairly large unit of beds at one's command—say 150 to 200. The advantage of this will be the possibility of classification in the admission stage, with segregation of the noisy or objectionable patient; these patients often quickly recover, but the inexorable demand of the welfare of the *majority* will lead to certification in the absence of isolation accommodation.

Site.—These wards should be in an institution which is situated conveniently for the district in which the sickness occurs. As in the case of any other acute illness, mental disorder is best treated near home and friends, and the question of transfer to country surroundings should be left until the acute stage is over. This opinion may arouse hostile criticism, but it is based on the observation of several hundred cases over a period of years, and the expressed views of numerous relatives, friends, and the patients themselves. Mental patients often travel badly, and the shorter the journey before they come under skilled supervision the better.

Structure.—The observation wards should give facilities for the seclusion of individual patients on a scale not yet adequately worked out, but possibly of one for every eight to ten cases. In a unit of 80 beds this would mean seclusion accommodation for at least eight cases. The ward decoration should be cheerful, and there should be an opportunity for open-air treatment. The recovery wards should be similarly provided with small wards, since to these will resort the patients who are not under statutory orders for detention, but who urgently require rest and treatment.

The Scheme in Operation.

The following is a brief description of the actual working of the scheme at St. Peter's Hospital. This is a Poor Law institution, containing about 500 beds, in the congested area of Whitechapel; it caters for a poor but hard-working conglomeration of mixed races. Of the 500 beds, 31 are in the observation wards (male and female), and a varying number, up to about 30, in recovery wards for both sexes, and situated above the observation wards.

Patients are admitted on statutory orders of detention from the whole of Stepney, and these orders can be prolonged on a medical officer's certificate for a further fourteen days. This is a valuable power, which exists only in the hands of the Poor Law doctor, and its lack would hamper the activity of any but a statutory authority undertaking this work. The London County Council will

be the Poor Law authority as well as the hospital authority, so quite obviously the possibilities for improved work on the psychiatric side are much enhanced.

One medical officer out of the six comprising the resident staff deals with the work of the special wards; he writes the notes for the specialist's visit and arranges for any pathological examinations. He prepares notes in duplicate for sending with any patient transferred to another institution; in this way he is able to maintain a continuity of information about the patient's illness, which is of great use at the other end of the journey. The duplicate is filed, and to it is added any further information obtained if the patient returns. This medical officer becomes skilled in diagnosis and treatment, even if he is not so at first, for every patient admitted is seen by the specialist, who visits once a week; these visits could no doubt with advantage be more frequent, but there is always the question of remuneration and responsibility. The conditions are not like those of a general hospital, where the beds are in charge of a specialist. Under the Poor Law orders the beds are in charge of the resident medical officer, the specialist being the adviser, and the responsibility of the medical officer in charge is underlined in all orders, written and oral. The medical officer attached to the observation wards for purposes of admitting and relief duties shares the general work of the hospital, and so keeps in touch with it.

Nursing.—The nursing is supervised on each side by the equivalent of a "sister," who holds the medico-psychological certificate; on the male side the whole staff is male. The nurses work an eight-hour day in these wards, but in the recovery and general wards the hours are a little longer. As many as possible hold the medico-psychological certificate or receive training in mental therapeutics. The recovery wards are supervised by specially trained or qualified "sisters," and working under them on the male side are male probationer nurses as well. Here I would point out that it is an advantage to have a male nurse *training school in conjunction with the scheme, since male* probationers can often be obtained with the medico-psychological certificate, and anxious to receive general training.

General Service.—In addition to the provision of special medical and nursing facilities, the fact that these patients are in a building in which the work of a general hospital is also going on enables every branch of specialist service and treatment to be brought to the patient's aid. Ophthalmological, otological, x-ray, dental, and other services are all available on the spot, and beds in appropriate wards can be obtained. Mental patients have often been transferred to general medical or surgical wards, with great advantage to themselves and no harm to others.

Out-patients.—An out-patient clinic has been established, and is open once a week. To this persons seeking advice can come on a doctor's recommendation, without having to pass a relieving officer; on the other hand, it caters for relief cases, or follow-up cases discharged from hospital. This clinic enables supervision to be continued, and the early help to be given which may avert later serious consequences. The functions of such a clinic are capable of being developed in many directions, but it is certainly not my purpose to have it regarded solely as the resort of the seeker after bottled knowledge.

Social.—An important part of the work is the maintenance of contact with friends and relatives. As soon as possible after admission the friends see the medical officer, give him an account of the illness and general history, and receive certain assurances about treatment and disposal which help to set their minds at rest. The day after the specialist's visit they can call again at 9.30 a.m., hear what his opinion is, and state any special wishes they have in the light of that opinion. Considerable elasticity is exercised in this area with regard to the discharge of patients to the care of friends, on condition that they sign a responsibility form; but no doubt every doctor must make his own standard of advice conform to that of a legal authority, having regard to the needs and creeds of the particular area he works in, and risking his patient as little as possible, but also paying some heed to the justifiable sympathies of public opinion.

In the following table I give a few statistics of observation ward cases.

	1921.	1922.	1923	1924.	1925.	1926	1927.	1928.
No. of cases admitted ...	151	142	158	147	169	345	5 5	517
Cases certified for mental hospita	80	82	83	87	105	176	249	232
Percentage certified (approximately)	53	58	53	59	62	51	45	4 8

These figures show a marked drop in the percentage certified consequent on the new policy adopted on centralization in 1926. On 500 cases a 10 per cent. saving of certification means a total of 50 persons a year benefiting by the result of early treatment.

I am indebted to the Stepney Guardians, to Dr. Mapother (the consultant), to Dr. Marian (my assistant medical officer), and, in fact, to the willing co-operation of all who have been brought in contact with the work, for being able to say that mental disorder can be approached like any other illness, and encouraging results be obtained. I can forward fuller statistics of the work to any persons specially interested.

VISIT OF JUGOSLAV DOCTORS TO LONDON.

THE party of over one hundred Jugoslav doctors now visiting London assembled on the morning of Saturday, October 19th, in the Barnes Hall of the Royal Society of Medicine, at 1, Wimpole Street. Short addresses of welcome were given by Sir William Hale-White and Sir James Berry on behalf of the Fellowship of Medicine and the Jugoslav Society of Great Britain respectively. Dr. Richard Burian, professor of physiology at Belgrade University, speaking in excellent English, made a graceful reply. He said that when his colleagues decided to visit this great city they were not only animated by the desire to see the vital centre of a large part of the world, and the capital of a nation which had contributed immensely to civilization, but they wanted above all to have contact with the leaders of British medical science and the British medical service.

Continuing, Professor Burian said: "We Jugoslavs are conscious of the fact that we have, individually and as a whole, very much to learn from the great British nation. Only some months ago our excellent Professor Bogdan Popovic gave us a beautiful lecture on this subject. This, the contact with you, is of inestimable value to the Jugoslav medical men, even so far as medicine is not concerned. However, its principal importance is on medical grounds. Our two medical faculties, of Belgrade and of Zagreb, are young and not quite settled, being founded in a country worn out by the war, and without proper traditions in medical teaching. But we are earnestly endeavouring to raise teaching and research, theory and practice, to a level equal to that existing in other civilized countries, and for these efforts of ours nothing can be more helpful than a close relation with the headquarters of British medicine. Therefore we hope that these relations will become more and more close and cordial, and that we shall have the pleasure of welcoming British medical men among us, although our medical institutions are only at the beginning of their development. A few days ago we had the privilege of seeing at Belgrade Dr. Leonard Findlay, the excellent professor of paediatrics at Glasgow, and to listen to his most interesting lecture. We should be happy if other representatives of British medical science would follow this example."

Professor Ainsworth Davis then showed Dr. Ronald Canti's cinematograph film of the cultivation of healthy and cancerous tissues under the microscope and the action of radium emanation upon them. This film had been lent by the British Empire Cancer Campaign, and was greatly appreciated by the audience. In the afternoon the visitors were entertained to tea at the Mansion House by the Lord Mayor of London.

On Sunday morning a large party made an excursion to Oxford, and in the afternoon a reception was given at the Legation in London by His Excellency the Jugoslavian Minister. Among the medical and other institutions visited on Monday was St. Thomas's Hospital, and in the evening the visitors were entertained by the Jugoslav Society of Great Britain at Crosby Hall, Chelsea, where they had an opportunity of meeting a number of prominent members of the medical profession in London.

British Medical Journal.

SATURDAY, OCTOBER 26TH, 1929.

PUBLIC CLEANSING IN LONDON.

"I am certain," said Mr. Arthur Greenwood, Minister of Health, in the course of a speech at the recent autumn dinner of the British Medical Association, "that in this country we shall never be in danger of a bureaucracy." The word "bureaucracy," it is clear, carries with it certain sinister implications; it is not what one may call an emotionally neutral word, but like many other words etymologically devoid of emotional significance, it has come by usage to acquire emotional accretions which have distorted or added to its original meaning. At present the word is understood to imply not only a method of government, but a hostile criticism of that method; indeed, an institution or a method of administration may be condemned simply by applying this epithet to it. The question "What's in a name?" it would therefore seem, cannot be adequately answered by the simple statement that "A rose by any other name would smell as sweet." Names may have their own dynamism, and not merely describe the things to which they are applied, but express or even determine our attitude towards them. The group mind has aptly expressed this psychological truth in the proverb, "Give a dog an ill name and hang him," and to this we may add: "Call an institution bureaucratic and condemn it." Etymologically, "bureaucracy" signifies government by bureaux, and the bureaucrat is a person who endeavours to concentrate administrative power in his own office. It is probable that persons and institutions to whom these names are applied will always be suspect in a world which values liberty above mere efficiency, and, in the long run, it is perhaps in the interest of good government that this should be so; but not less in the interest of good government is it worth remembering that such institutions and such persons may or may not, according to circumstances, work for the common good.

An extension of bureaucracy, though of bureaucracy to which everyone concerned with preventive medicine may give whole-hearted support, was predicted by the Minister of Health in the course of some remarks he made on October 14th to the Metropolitan Mayors Association on the subject of public cleansing in London, a service which he described as a scandal to the capital of the British Empire. "I am," he added, "speaking the naked truth when I use the word 'scandal.' Water and the collection and disposal of refuse mean more perhaps to national health than any other two factors. Until we have solved the great problem of public cleansing London will not have the right to hold up its head in the world. I am determined that the matter shall be settled, and that the councils shall settle it. The problem has to be solved somehow as a common problem, and not merely as one for each metropolitan borough." Some indication of the magnitude and the urgency of the problem was given in our leading article (April 20th p. 734) on the report by Mr. J. C. Dawes of an investigation into the public cleansing service in the administrative county of London.

It will be recalled that Mr. Dawes demonstrated the complete failure of the existing system whereby London's refuse is dealt with by twenty-nine separate cleansing authorities, and urged that a satisfactory service for what is in effect one compact area—in which he would include some, at any rate, of the districts outside the metropolis—could be provided only by a centralized scheme administered by a special body representative of all the sanitary authorities. Detailed criticism was directed against the crudity of the prevalent method of collecting refuse in vehicles of obsolete design, which, moving through the streets with their contents bulging over the tops, scatter dust through the windows of houses and into the eyes, noses, and mouths of the passers-by. The severest condemnation, however, was reserved for the present method of dealing with refuse, whereby boroughs indiscriminately send their rubbish into adjoining areas for disposal, and, above all, for the indefensible and unhygienic practice of dumping the crude refuse on London on the banks of the lower Thames. These riverside dumps are an offence to smell and sight; they are breeding-belts of flies and other insects, and the haunts of vermin. One of these dumps is no less than 90 ft. high, and its spontaneous combustion has generated clouds of smoke and a stench which have become intolerable to the inhabitants of neighbouring villages. There is no little irony in the fact that the outward pressure of London's increasing population, which should have driven people from the congested areas of central London into pleasant rural districts, is in fact forcing them nearer and nearer to insanitary areas overshadowed by mountains of festering muck.

In our issue of October 5th (p. 646) we recorded an interesting discussion on the situation disclosed in Mr. Dawes's report, which took place at a conference attended by representatives of the county councils of Middlesex, Essex, Buckinghamshire, Hertfordshire, and Kent. At this conference the following resolution was agreed to: "That in the opinion of this conference a local authority should not be permitted to deposit by its servants, agents, or contractors refuse or other rubbish outside its own area without the previous approval of the county council and the district council within whose area the refuse or rubbish is deposited, and subject to such conditions as may be prescribed by such councils; this restriction not to apply to ordinary stable manure sent direct to a farm for agricultural purposes. In the event of a county council or local authority refusing consent an appeal to be made to the Minister of Health, whose decision shall be final." This resolution, effective though it might be in dealing with the evil of indiscriminate dumping, does not, in our view, go so far to meet the existing need as the proposal embodied in Mr. Dawes's report—namely, that for the control of the scavenging arrangements of the London area there should be created an *ad hoc* authority representative of the large number of local sanitary authorities which in the aggregate go to the making of Greater London. The Committee of Inquiry at the Ministry of Health, which was appointed last March to review the whole subject, has had under consideration a proposal for the creation of one dumping ground to which the whole of London's refuse might be removed, sifted of paper, metal, rags, and other commercially useful materials, and then destroyed. For this scheme it is claimed that out of the millions of tons of refuse collected from London each year, not even the dust would be left. The work of the Committee of Inquiry has to some extent been held up through the death of its chairman, Sir John Gatti, but in view of the Minister of Health's pronouncement before the Metropolitan Mayors Association we may hope that appropriate action will be taken without further delay.

A MEDICAL SERVICE FOR CANCER PATIENTS.

A policy that endeavours to establish in the public mind the conviction that cancer, if recognized in an early stage, can be treated with a large prospect of success, necessarily implies the provision of adequate machinery for the diagnosis and treatment of this dread disease. The public is being urged to bring its suspicions and fears and discoveries promptly to medical examination, and these exhortations, reinforced as they now are by the suggestion that curative means other than surgical are available, are certain to have some, and probably an increasing, measure of success. The question naturally arises, therefore, whether when this response is secured the patient can count with certainty upon the skill and experience necessary both to decide the diagnostic issue and to provide the appropriate therapeutic measures. It is something to the good that the chance of early recognition and treatment should be afforded. But the more fully the public provide this chance the more urgent and weighty is the demand that the capacity to utilize it shall be at hand. To arouse and educate the public may be the first step, but, if a full advance is to follow, an efficient medical service is obviously essential. An improved procedure on the one side plainly asks for full competence on the other, and there are some not uninfluential voices which contend that more pressing than a campaign of popular education is the provision of more adequate facilities for diagnosis and treatment.

It is the position here defined that, some two years ago, led the American Society for the Control of Cancer to appoint a committee to review the existing situation and to report on the best methods of improving the medical services available to the cancer patient. The report of the committee (Dr. James Ewing, Dr. Robert B. Greenough, and Dr. John C. A. Gerster) has now been issued,[1] and it certainly calls for careful study. It is based upon personal investigations pursued on both sides of the Atlantic, and on discussions in which many experts have taken a share. No one will question the thoroughness of the inquiry or the courage of the conclusions. Possibly some of the developments proposed may be regarded as beyond practical attainment either on financial or on scientific grounds. High aim, however, is hardly a reproach, and especially may such an ambition be encouraged when an attempt is made to deal effectively with a disease which the authors describe as "the most important, economically, of all the causes of death."

The dominant note in the American report is the proposition that the care of cancer patients requires special training, and the word "care" is used in its broadest possible sense. Thus, while allowing that the family physician is the "key man" in cancer control, the authors of the report contend that general practice rarely affords the experience necessary to enable an early and confident diagnosis to be made, and that the special function of the family physician is to be on the alert and to refer any suspicious fact to a suitable authority. Similarly, the private surgeon, it is argued, though individual exceptions exist, is not generally equipped to deal efficiently with cases of cancer; and, still further, a plea is advanced for the organization, even in general hospitals, of a "tumour clinic" as a special department to which all the tumour patients should be referred. Applying the same principle, the report calls for pathologists able not only to make an accurate histologic diagnosis, but also "to determine the clinical type of the disease" and, so far as possible, "the grade of malignancy and radiosensitivity," and the opinion is expressed that "defects in this field form one of the most serious obstacles to the successful treatment of cancer." It may be assumed that this critical examination of the existing state of affairs is based mainly on facts observed in the United States, but the assertion is added that in Europe there is "uniform agreement that improvement in cancer service must precede any substantial progress in cancer control."

The practical proposals made in the report for the improvement of the cancer service aim at concentration, organization, and specialization. The central feature in the scheme is a limited number of cancer institutes, each equipped for all forms of treatment, including an adequate supply of radium, and provided with a staff which should include a general medical director and experts in surgery, radiology, physics, chemistry, and biology. Here not only clinical practice, but also research and teaching, are to be cultivated, and the institute should be a source of help and a court of appeal for the district in which it is situated. Cancer hospitals are to be encouraged, but should be affiliated each with a cancer institute, and no hesitation, it is argued, should be felt in enlisting municipal or State aid, though independent organizations or university affiliations are regarded as preferable. It is a pleasing feature of the report that its authors have never been led to consider their subject as one dealing merely with the cold hard facts of pathology and administration. Everywhere, it is urged, provision ought to be made for the full recognition of the economic status of the patient and for the therapeutic and social help of sufferers who are beyond the reach of any existing curative methods.

In these proposals it is not pretended that there is anything particularly original, and some of them, in view of recent developments, may be regarded as almost inevitable. In principle they are widely recognized in this country, and a good deal of actual practice is in harmony with them, though the necessary facilities are not ready to hand in districts remote from large centres. Probably the one most likely to be disputed is the proposal to organize a specialized "tumour clinic" in connexion with the service of each general hospital. Yet it is certain that the surgeon, the radiologist, the pathologist, and the experts in radium and x-ray therapy must establish mutual relations if the new and growing knowledge of the therapeutics of cancer is to secure for the patient all the advantages of modern research and practice. And more than a sympathetic word may certainly be allowed to the suggestion that conferences should be arranged between practitioners who deal with cancer as it appears in different regions of the body. Specialization, though inevitable, doubtless has its dangers, and the best way to guard against these is to neutralize isolation by communion on a common platform. Any development in organization and administration that is likely to increase knowledge and succour humanity ought, of course, to be promoted, and efforts in this direction may reasonably be commended to the public, for increased efficiency demands increased expense. Yet no multiplication of machinery is of value in the absence of early diagnosis, and here both the individual patient and the family practitioner are immediately concerned; if one must provide the opportunity the other must be ready to utilize it, and this well-worn lesson is not the least important word in the American report here briefly surveyed.

[1] *Journal of the American Medical Association*, xciii, 3, 165.

THE HARVEIAN FESTIVAL IN LONDON.

THE annual Harveian Commemoration at the Royal College of Physicians of London was celebrated on St. Luke's Day (October 18th) in the usual manner. In the afternoon the Harveian Oration was delivered at the College by Sir Wilmot Herringham, consulting physician to St. Bartholomew's Hospital. The Oration was historical in scope, being mainly concerned with the life and character of William Harvey and his relation to his contemporaries and to the times in which he lived. In developing his theme Sir Wilmot Herringham observed that in order to understand the England of Harvey it was necessary to imagine a society to which science was unknown, for in Harvey's time the few sciences that existed were but little removed from magic. After the Oration the President, Sir John Rose Bradford, presented the Bisset Hawkins Medal to Dr. Edward Mellanby, F.R.S., professor of pharmacology in the University of Sheffield. This medal is awarded triennially to a British medical practitioner who has performed work in advancing sanitary science or in promoting public health which, in the opinion of the College, deserves special recognition. The Baly Medal, awarded every alternate year to the person who shall be deemed to have most distinguished himself in the science of physiology, especially during the two years immediately preceding the award, was presented to Dr. E. D. Adrian, F.R.S., university lecturer in physiology at Cambridge. In the evening the customary dinner was held in the College in accordance with the injunction of Harvey: "Once every year there shall be a general Feast kept within the said College for all the Fellows that shall please to come." It was attended by a large number of Fellows, and many distinguished guests were entertained, including the Right Hon. Arthur Greenwood, Minister of Health, Lord Dawson of Penn, Mr. Justice Eve, Lord Gorell, Lord Riddell, Mr. V. Warren Low, Vice-President of the Royal College of Surgeons, the Rev. Chancellor S. G. Ponsonby, Sir Reginald Blomfield, R.A., Sir Percy Mackinnon, Sir Walter Fletcher, Secretary of the Medical Research Council, the Master of the Society of Apothecaries, and the Editors of the *British Medical Journal* and the *Lancet*. After the memory of William Harvey had been toasted in silence, the health of "The Guests" was proposed by the President and responded to by Mr. Arthur Greenwood and Mr. Justice Eve. Replying to the toast of "The Harveian Orator," proposed by the Senior Censor, Dr. Robert Hutchison, Sir Wilmot Herringham said that some excuse might be needed for a gossipy Oration, but after all "bottled gossip is the foundation of history." After dinner the library was visited, where the Harveian Librarian, Dr. Arnold Chaplin, had put on view a number of valuable books and MSS. possessed by the College.

PATHS OF INFECTION FROM THE NASAL CAVITIES TO THE BRAIN.

THE Committee on Vaccination, appointed in 1925 by the Minister of Health in conjunction with the Medical Research Council, includes in its terms of reference authority to inquire into "the practical methods which are available in the light of modern knowledge to diminish or remove any risks which may result from vaccination," and to report on these from time to time. This committee, it will be recalled, reported in 1928 that, while the risks attending vaccination remained substantially the same after the passing of the Vaccination Act and Order of 1898 as they were before, there appeared in 1923 on the death certificates of certain recently vaccinated children terms which suggested the occurrence of a disturbance of the central nervous system other than convulsions; and furthermore that, though the occasional occurrence of nervous symptoms following vaccinia was as old as the practice of vaccination itself, until recently nervous complications did not appear to have been recorded as concerned in bringing about a fatal issue. In the course of its inquiry into the nature and origin of these nervous manifestations the committee formed the opinion that for the solution of the specific problems with which it was concerned—indeed, for the study of acute nervous diseases in general—it was important to gain a knowledge of the channels by which infection might pass from the nasal cavities into the brain. Professor W. E. le Gros Clark, who, on the committee's recommendation, undertook a study of this aspect of the pathology of post-vaccinal encephalitis, has now submitted a report,[1] in which he describes the technique and results of his investigations, and discusses the extent to which the conclusions he has derived from them may be applied to man. Earlier researches have demonstrated the existence of abundant connexions between the subarachnoid space and the extracranial tissues by means of the perineural spaces of the cranial nerves, especially of the olfactory nerves. There is known to exist, therefore, a potential route along which infection may pass to the brain from the tissue spaces of the nasal submucosa. In order to demonstrate the actual path along which such an infection might travel, and at the same time to test the possible existence of a route of connexion by way of emissary vessels, lymphatics, and so forth, Professor le Gros Clark tried to find some appropriate solution or suspension of particulate matter whose passage from the nasal to the intracranial cavity of the experimental animal—in this case the rabbit—could be clearly demonstrated by macroscopic or microscopic methods. Positive results were obtained by dropping into the nasal cavities a solution of potassium ferrocyanide and iron ammonium citrate, which, it was found, was very rapidly absorbed by the nasal mucous membrane, reaching the surface of the brain within one hour. Absorption took place mainly through the olfactory submucosa, and only slightly through the submucosa of the respiratory region, a difference which may well be correlated with the special properties of the olfactory mucosa by which its sensory epithelium is brought into intimate contact with odoriferous substances of widely differing chemical composition. In this connexion Professor le Gros Clark cites the investigations of Lowndes Yates,[2] who, in a study of thirty-four cases of encephalitis lethargica, found evidence of nasal infection accompanied by well-marked ciliary paralysis and increased absorptive power in the mucosa—the latter probably being a factor which permitted the entrance of a filter-passing virus. In his own experiments Professor le Gros Clark found that the solution reached the subarachnoid spaces by way of the perineural sheaths of the olfactory nerves, the evidence indicating that the spaces of these sheaths were continuous above with the subarachnoid spaces and extended peripherally along the peripheral fibres of the olfactory nerves to the olfactory sensory epithelium. Although, however, perineural sheath spaces provided the main route by which the absorbed fluid reached the surface of the brain, there is some evidence that material may also pass to the intracranial cavity (but not directly into the subarachnoid space) by way of blood vessels piercing the cribriform plate in company with the olfactory nerves. No support was afforded for the supposition that the subarachnoid space is in direct communication with the lymphatic vessels of the nasal mucosa. In discussing the practical application of his investigation the author points out that the anatomical features of the nasal cavities and the region of the cribriform plate in man correspond closely with those of other mammals, including

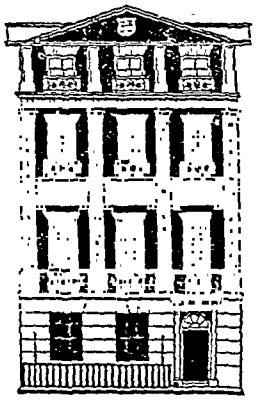
[1] Reports on Public Health and Medical Subjects. No. 54. Report of the Committee on Vaccination on an Anatomical Investigation into the Routes by which Infection may pass from the Nasal Cavities into the Brain. By W. E. le Gros Clark, D.Sc., F.R.C.S. Ministry of Health. 1929. Price 1s.

[2] The Condition of the Accessory Sinuses in Encephalitis Lethargica, *Journal of Laryngology*, vol. 40, 1925.

the rabbit, and suggests, therefore, that the conclusions derived from his experiments may safely be applied to man, with the reservation that in man the rate of absorption from the mucous surface may not necessarily be the same as in the rabbit.

THE LANCET'S NEW HOME.

During the past few days the editorial and publishing offices of the *Lancet* have been transferred from 1, Bedford Street, and 423, Strand, to the delightful house known as 7, Adam Street, Adelphi, whose freehold has been purchased by the proprietors. The move is a short one, for the buildings are only a hundred yards apart. Throughout its long history the editorial office of the *Lancet* has been in or very near the Strand, and our contemporary, in changing its quarters, has thus been able to maintain an unbroken tradition. From its first issue in 1823 until 1847 the paper was edited from a house in Norfolk Street, where Thomas Wakley, the founder, was engaged in private practice. In 1847 Wakley acquired the lease of the familiar building at the corner of Bedford Street, and from that time until 1921 the printing office was on the same premises. No. 7, Adam Street, stands in the middle of the eastern boundary of the famous block of buildings erected on the north bank of the Thames by Robert Adam and his brothers, John, James, and William, their joint authorship appearing in the word Adelphi—ἀδελφοί. The construction upon vaulted arches of these symmetrical streets was begun in 1773. The names of the two younger brothers have disappeared from their streets, and the connecting passage between the Strand and the Adelphi, at the north-west corner of the quadrangle, is now named Durham-house Street, in commemoration of the fact that nearly the whole area was once occupied by the town house of the bishops of Durham. The accompanying illustration shows the *Lancet's* new home as seen from the end of John Street. An informal house-warming party was held there on the evening of Wednesday, October 16th, when a large number of friends were received by the Editor and Lady Sprigge in the editorial room on the first floor, and afterwards had an opportunity of admiring the way in which Mr. Graham Dawbarn has carried out the work of *reconstruction*.



PURIFICATION OF SWIMMING-BATH WATER.

The practice of sterilizing and filtering the water in public swimming baths is gradually increasing. Up to 1912 in London only two of the metropolitan borough public swimming baths had filtration plants; now, out of a total of about a hundred public baths, at least forty-five have been fitted with them. Although in the provinces the increase has not been proportionately great, nevertheless progress has been made in this direction. The process is seen in its simplest form at an open-air bath such as that provided by the Harrow Urban District Council, where throughout the summer a continuous flow of water through the bath takes place, the contents of the bath being changed in the course of ten hours. The water, after flowing through a strainer to remove gross impurities, passes to the engine house and the sand filters. Prior to filtration a coagulant—alum—is introduced, and after filtration enough slaked lime is added to make the water slightly alkaline, and also the sterilizing agent—bleaching powder. Before re-entering the bath the water passes through a picturesque aerator of the cascade type, forming a series of small concentric waterfalls. The bleaching powder is added in such amount as to ensure the constant presence of chlorine in the bath water; at least 0.2 part per million must be present; the amount must not exceed 0.5 part, otherwise its presence will make itself felt by causing tingling and smarting of the conjunctivae. Experience of the open-air swimming pools under the control of the London County Council has shown that sterilization of swimming-bath water alone is not enough; it does not remove the slime. Filtration removes the turbidity (and any colour present in the water supplied) and gives the water a bright appearance, important because the look of the water is the only criterion by which the average bather can judge of its purity. Aeration adds to its freshness and sparkle. In a recent pamphlet on swimming-bath water purification[1] Mr. F. Wilkinson, the Willesden borough engineer, and Mr. F. J. Forty describe eight different filtration systems in use in this country. No attempt is made to estimate their relative efficiency; the authors consider that all the systems give good results. Some reference is made to further measures necessary to ensure the hygienic use of swimming baths. All costumes and towels hired out should be sterilized so as to ensure that they do not spread such diseases as ringworm; the common use of scrubbing brushes, the authors hold, spreads disease, and they should not be supplied for washing in the foot-bath or shower-bath, which every bather ought to use before entering the swimming bath. Children under 14 should be compelled to wash, and adults so advised by means of propaganda posters on the walls of the dressing boxes pointing out the unpleasantness and danger to other bathers if anyone enters the bath in a dirty or infectious condition. The bath superintendent should have authority to refuse admittance to the bath of anyone suffering from a running nose, the result of a heavy cold, as well as those presenting signs of skin disease.

The whole subject of the purification of the water of swimming baths has come into considerable prominence this week through the issue by the Ministry of Health of an interesting and exhaustive report by three of its officers, Messrs. E. A. Sandford Fawcett and H. T. Calvert, and Dr. J. Alison Glover.[2] Owing to the great increase in recent years in the provision and use of swimming baths, the Ministry recognizes the importance of taking measures to ensure that the water in these establishments is in a wholesome condition. Many improvements are practicable, often with a saving of cost, and the report (to which we shall refer in more detail on another occasion) contains practical suggestions to this end. With regard to the possibility of infection, the authors are satisfied that although other factors are important, transmission of disease by polluted bathing water does occur. Since pathogenic bacteria can live in dirty bath water for considerable periods, the water of swimming pools therefore requires constant and expert attention. Its bacteriological count should approximate to that of drinking water, and this standard of purity can best be maintained by a system of purification which combines efficient continuous filtration, with continuous and accurately controlled chlorination and aeration. While it is evident that the water in many public and private bathing pools is often deplorably dirty, and may thus be a source of danger to health, the authors find no evidence to support alarmist rumours suggesting that disease in epidemic form has its origin in swimming baths in this country.

[1] *Swimming Bath Water Purification.* By F. Wilkinson and F. J. Forty. London: *The Contractors' Record and Municipal Engineering*, 329, High Holborn, W.C. 1s. post free.

[2] Ministry of Health. The Purification of the Water of Swimming Baths. London: H.M. Stationery Office. 1929. 1s. net.

CANCER RESEARCH IN THE UNIVERSITY OF SYDNEY.

THE progress of cancer research in Sydney has been increasingly rapid during the last eight years, since the University received, in 1921, the sum of £7,000 to be applied to this purpose. A committee which was formed to compile a programme of investigations to be undertaken came to the conclusion that a much larger income would be required than was available at the University, and a public appeal was launched which yielded £134,000. Laboratories were furnished and equipped, and researches were begun on various lines. Early in 1927 £100,000 was set aside by the Government of the Commonwealth to purchase radium for research in Australia; part of this fund was used to make available a radium clinic at the Royal Prince Alfred Hospital, New South Wales. The Cancer Research Committee of the University of Sydney, which was founded in 1921, was small at first, but soon increased in size and activity. It has now produced a *journal*, the first number of which, dated May 1st, 1929, has recently been received. The editors, Drs. H. G. Chapman and F. P. Sandes, are assisted by an editorial committee. A striking feature of this first issue is the amount of ground covered. Details are given by Dr. H. G. Chapman to illustrate the birth and steady growth of cancer research in New South Wales. Dr. J. H. L. Cumpston contributes a valuable statistical article on the incidence of cancer in Australia and on the measures taken to deal with it; the list of early indications of this disease, which was compiled by the Victorian Branch of the British Medical Association, is republished, and Dr. Cumpston's article ends with a warning that any suspicious sign should lead invariably to a prompt examination by an expert. Dr. Arthur Burrows comments on the results which may be expected from the purchase of radium by the Commonwealth, and discusses the ways in which radium can be employed to cure certain varieties of cancer or to relieve symptoms. Mr. W. H. Love deals with the subject of biophysics and the work of Professor Crowther on the reaction of tissue cells to *x*-ray exposure. The part played by trauma in producing cancer is critically discussed by Dr. H. M. Moran, who concludes that, while trauma reveals and aggravates this condition, the available evidence is too conflicting to justify any confident assertion. Dr. E. H. Molesworth contributes the first of a series of lectures on deep *x*-ray therapy, and Professor O. U. Vonwiller gives an outline of his introductory course on the physics of *x* rays and radium. All communications with regard to the journal should be addressed to the secretary of the Cancer Research Committee, University of Sydney, New South Wales.

A PROPOSED INSTITUTE OF MEDICAL PSYCHOLOGY

AN important development of the work of the National Council for Mental Hygiene and of the Tavistock Square Clinic is contemplated by a joint committee of these two organizations, which has under consideration a proposal to establish in London an Institute of Medical Psychology for the investigation and the early and preventive treatment of nervous breakdown and minor mental disorders in adults and children. The Tavistock Square Clinic, which would provide the nucleus of the proposed institute, was started nearly nine years ago, but the facilities, though sufficient at the beginning, have become inadequate to meet the increasing demand for treatment. Thus in 1920–21, 248 patients were treated at the clinic; during last year this number rose to 750. It is estimated that even this number could be doubled or trebled if there were the necessary accommodation, and on the staff of the clinic a certain number of medical officers on a whole-time basis with sufficient clinical assistants. At present there is a long waiting list, which has from time to time to be closed because some patients would have to remain on it for six months before they could receive treatment. Among those to whom treatment has to be refused on these grounds are some who have been referred by the London hospitals, police authorities, and police court magistrates—including a number on "probation," who have been sent from the courts for immediate treatment. It is claimed that of the patients who received treatment in the period 1920–27, 80 per cent. derived benefit, and that in the great majority of these the benefit was maintained or, as time went on, even increased. The joint committee suggests, therefore, that the work of the clinic would be usefully extended by the establishment of larger departments for the treatment of adults and children, the provision of adequate facilities for research, and the development on a large scale of the educational activities which the clinic has successfully carried out in the past. These proposals are set out concretely in a pamphlet issued by the joint committee; they include a scheme for extending the present clinic buildings, the establishment of a hostel where patients of limited means could stay during the period of their treatment, and of homes for the temporary accommodation, observation, and environmental treatment of maladjusted children, the institution of a fund sufficient to provide fellowships and studentships for medical men and women who wish to do research in psychotherapy or to train themselves in its practice, and to provide a research department, a lecture hall, and library. The estimated capital outlay for the completion of this scheme is £300,000, and the committee is launching an appeal for that amount. Donations may be given either to the general fund (in which case one-third of the amount will go to the National Council for Mental Hygiene, one-third to the Tavistock Square Clinic, and one-third to the Institute of Medical Psychology; or specifically earmarked for the clinic extension building, the hostel, the homes for maladjusted children, the fellowship fund, the endowment fund, the National Council for Mental Hygiene, or the Tavistock Square Clinic. If the donor mentions no appropriation the money will go to the general fund. Cheques should be made payable to the Institute of Medical Psychology, and sent to the secretary at 51, Tavistock Square, London, W.C.1.

HEALTH OF THE ROYAL AIR FORCE.

THE report on the Royal Air Force for the year 1928,[1] which has just been issued, follows the lines of previous years, except that in accordance with the recommendation of the Joint Medical Services Subcommittee on Tuberculosis a more detailed analysis of the incidence of phthisis in the Royal Air Force has been included. The health of the force at home and abroad compares favourably with that of previous years, and the high level of physical fitness has been well maintained. In 1928 there began an investigation into the effects of fast flying and intensive aerobatics; a special apparatus has been constructed for the investigation of the effects of fast horizontal turns, and it is proposed to use this in conjunction with an apparatus suggested by the director of scientific research for studying the effects of steep dives, etc. A certain number of successful pilots have been tested to ascertain the effects upon the pulse rate, blood pressure, and the ocular muscle balance. An attempt was made to estimate the prophylactic value of two varieties of influenza vaccine among the apprentices between the ages of 15 and 18 years living under similar conditions in barracks at Halton. It did not appear that inoculation with either of these two vaccines diminished the incidence of influenza or acute nasopharyngitis in any appreciable degree. Such influenza as occurred was of a very mild type, and, consequently, no

[1] Report on the Health of the Royal Air Force for the Year 1928. London: H.M. Stationery Office. 1929. Price 4s. net.

information was gained as to whether inoculation lessened the severity of the disease or of its complications. The report includes a short historical account of the transfer of casualties by air since the inception of this method of evacuation, with special reference to Iraq and Palestine. There are now no aircraft definitely allocated to medical use. The practice of employing a service type of aircraft, either for routine medical communication flights or, when specially requisitioned, for medical use, has proved satisfactory and economical.

MEDICAL INSURANCE AGENCY.

The annual general meeting of the Medical Insurance Agency Limited (by Guarantee) was held at the House of the British Medical Association on October 15th. The report then received covered the twenty-second year of the agency's work, and showed that the great expansion which is now taken as a matter of course had been experienced during the past year. The balance sheet, as certified by the auditors, was approved, and showed that the life assurance now dealt with through the agency approximates very closely to a total of one and three-quarter million pounds. Striking increases were also shown in the sections dealing with sickness and accident, motor car insurance, and comprehensive household policies. The total premiums for insurance business debited to the agency by the various companies with which its business is transacted amounted to £89,948. The rebates to medical practitioners insuring through the medium of the agency amounted to £4,187, and the total so saved to the medical profession during the life of the agency has been £33,085. The following grants were made to the organized medical charities for 1929:

		£	s.	d.
Royal Medical Benevolent Fund...		630	0	0
Royal Medical Benevolent Fund Guild ...		630	0	0
Epsom College—				
Dawson Williams Scholarship ...	£500			
Do., to replace sum spent in 1929	£150			
For votes	£210			
		860	0	0
Girls' Education Subcommittee...		250	0	0
Royal Home for Incurables, Putney		52	10	0
Sir Charles Hastings Fund		52	10	0
		£2,475	0	0

As a result of this distribution the total sum devoted to medical charities by the Medical Insurance Agency since 1910 has amounted to £22,880.

CONFERENCE ON MATERNITY SERVICES.

The Minister of Health and Laggard Local Authorities.

A fourth annual conference under the auspices of the Maternal Mortality Committee—a voluntary organization concerned for the protection of motherhood and for infant welfare—was held at the Central Hall, Westminster, on October 22nd, and was attended by some hundreds of women representing local authorities and societies for social service. Lady Cynthia Colville presided, and the principal speaker was the Minister of Health (Mr. Arthur Greenwood), who was accompanied by Miss Susan Lawrence (Parliamentary Secretary to the Ministry) and Sir George Newman (Chief Medical Officer). A report by the convening committee was placed before the conference, indicating what had been done during the last twelve months to advance its aims. The report of the Departmental Committee on the Training and Employment of Midwives was welcomed, and the Minister was urged to put into force as soon as possible the recommendations therein made concerning maternal care. In a reference to the memorandum on a national maternity service scheme issued by the British Medical Association, the Maternal Mortality Committee stated that the most interesting feature of the scheme was the emphasis it placed on the necessity for the improvement in the training of doctors in maternity work. A resolution assuring the Minister of the active and enthusiastic support of the conference in any action he might take upon the recommendations of the Departmental Committee on Midwives, so far as these concerned maternal care, was carried unanimously.

In an address, which was cordially received, Mr. Arthur Greenwood pointed out that the problem of maternal mortality was not only the loss, serious as it was, of 3,000 mothers a year, but the drain on the vitality of a large number of others whose health was permanently injured. On the occasion of the previous conference,[1] his predecessor, Mr. Neville Chamberlain, had referred to the setting up of two departmental committees, one on the problem of maternal mortality, and the other on midwives. The latter had now reported; the former was continuing its scientific investigations. He also acknowledged the good offices of the British Medical Association in putting forward a policy of reform, and, again, there were the recommendations of the Royal Commission on National Health Insurance. On the basis of these constructive proposals he hoped it would be possible to take effective action. The major proposals of the Departmental Committee on Midwives required legislation, but certain of its recommendations could be put into effect under existing powers. He intended to bring these recommendations as forcibly as he could to the notice of the local authorities, and he hoped also to deal with the larger questions of legislation.

Mr. Greenwood went on to say that, while the causes for the high rate of maternal mortality were not all understood, it was clear that the better the general health of the community, the better the chance for the mothers. The development of an energetic public opinion on health matters and the education of expectant mothers were of great importance. He was no opponent of further legislation on maternal mortality, but by no means all local authorities were using more than a fraction of the powers they possessed. A large number of them, whether owing to indifference, false economy, or lack of understanding of the importance of the subject, had not used the lever which was already to their hand. He was prepared to do all he could to stimulate local authorities to use their full powers. The expectant mother ought to have behind her the sympathy of the community, expressed through ante-natal clinics, midwives, the availability of a doctor, with a specialist in the background if necessary, and the provision of maternity hospitals when the domestic surroundings were not suitable. He hinted that at no distant date it might be possible to deal with these problems by comprehensive legislation, but the question had to be fitted into general provisions for maintaining and raising the standard of communal health and the system of social insurance.

After some representatives of local authorities had addressed the conference, Dr. H. B. Brackenbury claimed for the proposals of the British Medical Association that they were put forward before public attention had otherwise been drawn to the question. If the Minister would move in the direction of these proposals, he would be supported by professional and public opinion, which was ripe for action. Lady Barrett wound up the discussion by urging women voters to bring pressure to bear upon local authorities to do what Parliament had empowered them to do. There was evidently general agreement that every woman should have, during confinement, the attendance of a skilled midwife, and that a doctor should be called in at the beginning of pregnancy, and again at a later period, to ensure that all was well.

[1] *British Medical Journal*, November 3rd, 1928, p. 810.

On October 18th the Minister of Health received a deputation from the Garden Cities and Town Planning Association. The deputation was introduced by Mr. Cecil Harmsworth, and the speakers were Dr. F. E. Fremantle, M.P., Captain Reiss, Dr. Macfadyen, Mr. R. C. Wallhead, M.P., Alderman Culpin, and Miss Bushell. The deputation urged that new machinery is required in order to further the garden city movement; it asked that the Government should investigate the difficulties in the way of a more rapid development of garden cities under existing legislation, and also that a statutory body should be established to undertake the actual initiation of new garden city development. The Minister said, in reply, that he would give further and careful consideration to the suggestions which had been made to him.

Nova et Vetera.

JAMES BRAID OF MANCHESTER.*

BY

GEORGE FLETCHER, M.D., M.R.C.P.,

CONSULTANT TUBERCULOSIS OFFICER, LANCASHIRE COUNTY COUNCIL.

James Braid was a general practitioner who, in his day, won something of a European reputation. He died less than seventy years ago, and yet his doings and his writings alike are now difficult to retrieve. His biographies are scanty and sometimes erroneous in details; the year of his birth is mentioned with uncertainty, and in the last edition of a well-known history of medicine that of his death is wrongly given. His writings appeared for the most part in the form of small paper-backed pamphlets, which are now not easy to come by.

He was the son of James Braid and Anne Suttie, and was born on June 19th, 1795, in Fifeshire, where his father seems to have been a man of some substance. He matriculated at Edinburgh University in 1812 and remained there until 1815, when he took the diploma of the Royal College of Surgeons of that city. He served his apprenticeship with Mr. Anderson of Leith, a surgeon of some distinction, and soon after qualifying went to live at Leadhills in Lanarkshire, where he married and had a daughter and a son born to him. About eight years later he removed to Dumfries as a partner of Dr. William Maxwell, who is assuredly immortal, for he was the friend and physician of Robert Burns. Whilst here, Braid was called to attend a Manchester commercial traveller who had been slightly injured in a road accident, and was induced by him to turn his thoughts southwards. Accordingly, about the year 1826 he came to Manchester, where he set up in practice and remained until his sudden death on the morning of March 25th, 1860. He awoke complaining of chilliness and pain in the side, was given a drink of tea, and then sank back and died. There was an inquest, but no necropsy, and death was certified as having been due to "natural causes," of which the most likely seems to have been cerebral haemorrhage. He was buried at the parish church of Neston, Cheshire, where his son, James Braid, was in practice. In spite of a long and busy professional life he died a comparatively poor man, for his whole estate was valued at under £3,000.

His Manchester career was one of success and distinction, but he had little connexion with official medicine in the city. The fact is that his advocacy of hypnotism—an advocacy which strikes one now as having been temperate and reasonable—led to his being regarded by his more disciplined brethren as something of a charlatan. He had no connexion with the Infirmary, he was not a member of the Literary and Philosophical Society, and he took no part in the Medico-Ethical Association which was founded in 1849.

Braid first won distinction in the field of surgery. He specialized in the treatment of various deformities, and by the year 1841 he had operated on more than 900 cases of talipes, spinal curvature, and strabismus. He devised a new operation for paralytic talipes, and seems to have been the first man, in this country at any rate, to perform tendon shortening for this condition. His reputation brought him patients from all parts of the kingdom, while his results were so good that modern orthopaedists regard them with some perplexity.

The course of Braid's life was altered in November, 1841, when a travelling mesmerist named Lafontaine visited this city. Braid went to the demonstrations as a complete sceptic, but he took the trouble to examine the mesmerized subjects for himself, and soon concluded that there was something genuine in the condition. He set out to investigate the subject experimentally, and within a month we find him beginning to give public lectures, not only in Manchester, but in London, Birmingham, Rochdale, Macclesfield, and Liverpool. In May, 1842, he offered to read "A practical essay on the curative agency of neuro-hypnotism" to the Medical Section of the British Association, which was about to meet in Manchester. The essay was declined, but its author, who was not easily repressed, gave a conversazione at which he read the essay and demonstrated his cases to an audience which contained some distinguished men of science. Having convinced himself of the reality of the hypnotic state and of its therapeutic value, he deemed it his duty to make his results as widely known as possible. He was aware that this course was somewhat irregular, but he justified himself by the argument that only by demonstrating the safety and value of hypnotism could he win the confidence of the public and the co-operation of the profession.

In 1843 appeared Braid's chief work, "Neurypnology, or the Rationale of Nervous Sleep considered in relation to Animal Magnetism or Mesmerism, and illustrated by numerous cases of its successful Application in the Relief and Cure of Disease." The edition was soon sold, but the book was never reissued by its author. It was reprinted in 1899 along with some extracts from Braid's other works; but even this reprint is not now common. The word "hypnotism" was coined by Braid, and in this volume he explained what he meant by it, and by cognate words.

In the first part of the work he describes the phenomena of the hypnotic state, and details his mode of inducing it, and in the second part he gives an account of the patients whom he had treated hypnotically with more or less success. Many of the cases were suffering from various kinds of rheumatism or paralysis, but the list also includes deafmutism, failing vision, corneal opacity, and tic-douloureux as well as other ailments. He even hoped that hypnotism would benefit such conditions as tetanus and hydrophobia, the true nature of which was then obscure.

His other noteworthy publications were "The Power of the Mind over the Body" (1846); "Observations on Trance or Human Hybernation" (1850); "Electro-biological Phenomena" (1851); "Magic, Witchcraft, Animal Magnetism, Hypnotism and Electro-biology" (1852); "Hypnotic Therapeutics" (1853); "The Physiology of Fascination"; and lastly, "Observations on the Treatment of certain Forms of Paralysis," wherein he recounts his surgical operations on organic paralysis and his hypnotic treatment of the functional variety.

Braid was not, of course, the first to discover the hypnotic state, nor was he the first to assert that this state is wholly subjective, but he did reach that conclusion independently, and by dint of much experiment; and he also devised a simple means of producing hypnosis. His great merit lies in the fact that he stripped mesmerism of its occult and baseless extravagances, and reissued it in the form of hypnotism for the service of the physician and the psychologist. To Braid's work are directly attributable the subsequent developments of hypnotism in France and elsewhere. It is gratifying to recall that, while the Medical Section of the British Association rejected his essay in 1842, the report of the Hypnotic Committee of the British Medical Association issued in 1893 was such that it might have been written by Braid half a century before.

Braid's interests, however, were not confined to hypnotism. In 1858 David Livingstone complained that his explorations had been hindered by the tsetse fly disease among his beasts of burden. In February of that year Braid wrote to the *British Medical Journal* suggesting that Livingstone should try arsenic as a preventive and a remedy, since the snake charmers of India were said to employ it successfully against the poison of snake-bite. The Editor passed on the suggestion, and Livingstone later put it into practice. He was the first to do so, and thus the vogue of arsenic in the treatment of trypanosomiasis is directly due to this suggestion from Manchester.

Braid always remained a practising surgeon. In 1847 he performed Caesarean section on a woman who had been in labour for more than three days, and whose case was hopeless from the outset. He returned to the house a day or two later in the hope of performing a post-mortem examination, but even he must have been somewhat disconcerted when he found the funeral party already assembled. Nevertheless, he was not deflected from his purpose. He obtained permission to make an inspection of the body, "but," he

* Abstract of an address delivered to the History of Medicine Section at the Annual Meeting of the British Medical Association, Manchester, 1929.

complains, "we were necessarily compelled to be very circumspect as we were closely watched, and were thus prevented the opportunity of possessing ourselves of the pelvis. However, I had used the precaution of taking some plaster-of-Paris with us, and thus we were enabled to make an accurate model of the inlet of the pelvis." This model is duly figured in Radford's book on Caesarean section.

He took an active interest in sanitary matters. He volunteered for service during the cholera epidemic of 1832, and many years later he described in a letter to the press the awful conditions of the cellar dwellings in Manchester. He stated that the open gratings of the sewers were close to these dwellings and opened on a level with their floors. He advocated the use of proper traps, and suggested that the air from the sewers should be passed through fires before being allowed to escape into the atmosphere.

That he kept in touch with general science may be argued from the fact that in his later years he was honorary curator of the museum of the Manchester Natural History Society.

Personally Braid was a striking figure. His portrait in the Manchester Medical School confirms the impression of energy and self-assurance which his writings suggest. One suspects him to have been a Scot "with a good conceit of himself." Orthodox medicine in the city may have fought shy of him, but he certainly did not lack friends. Accounts of him speak of his high personal character, his jovial nature, and the warmth of his friendship. They add that by his death the poor of the city lost a good friend.

Is it too much to suggest that James Braid, take him for all in all, is by no means the least notable figure in the records of Manchester medicine?

JORDANBURN NERVE HOSPITAL.

OPENING OF THE LECTURE THEATRE.

THE Lord Provost, Sir Alexander Stevenson, presided over a large gathering, which included official representatives of the city, university, and Royal College of Physicians of [illegible] Thomas Holland, Principal [illegible] A. Fleming, President of [illegible] the Very Rev. Charles L. Warr, the Dean of the Thistle, Sir Robert Philip, Professor George M. Robertson, Sir Norman Walker, Professor Lorrain Smith, and the Members of Parliament for three of the Edinburgh divisions—when, on October 14th, the Right Hon. William Adamson, M.P., Secretary of State for Scotland, formally opened the new lecture theatre of the Jordanburn Nerve Hospital and Psychological Institute. This lecture theatre, of which some preliminary accounts have already appeared in our columns, has been built at a cost of £8,000, and it constitutes an additional wing to the hospital. In its design, the architects have taken every care that it should be suitable not only for ordinary academic purposes—for the classes of psychiatry in the university and in the Royal Colleges school of medicine, and for post-graduate and special courses of lectures on psychological and neurological subjects—but that it should be adapted to all the purposes of a theatre in which popular lectures of an educational character might be delivered. The authorities of the Jordanburn Nerve Hospital lay special stress upon this latter aim, for they believe that their object of preventing nervous disorder will be attained largely through the education of the lay public and the help of volunteers among laymen and lay-women. There are many volunteer societies whose co-operation will be welcomed, not only because their objects are allied with those of the hospital, but in acknowledgement of the spade work they have done for many years in creating a public opinion favourable to the ideals of mental hygiene.

ARCHITECTURE OF THE THEATRE.

The theatre holds over 250 persons comfortably. It has a sloping area, each row of seats being a foot higher than the one in front, so that everybody in the audience may have a perfect view of the platform, which is 12 ft. wide and 34 ft. long. Special attention has been directed to the lighting, and it will be possible, when lectures and demonstrations are given in the evening, for the audience to see clearly everything on the platform. These are features of importance, because it is intended to give from the platform clinical demonstrations of cases of mental disorder. The acoustics of the theatre are believed to be perfect; the ordinary speaking voice can be heard easily at any part of the hall, and there is no echo. These desirable ends have been attained by covering the walls and ceiling with a specially prepared porous material, by padding the backs of the seats with corduroy, so that there may be no echo from the wooden benches, and by covering the passages with matting. There is thus no surface from which the sound of the voice can recoil, except the wall behind the lecturer, which acts as a sounding-board. The theatre is furnished with [illegible] atus, and it is intended also shortly t [illegible] The lecture theatre is in the same [illegible] ent department, and its platform is in line with the hospital corridor; there is thus free communication between the theatre and the out-patient department, and patients in bed can, without inconvenience, be brought on to the platform. Communicating with the platform is a large ante-room, which may serve, among other purposes, as a waiting room for subjects of demonstration.

THE DEPARTMENT OF PSYCHOLOGY.

In recognition of the value of a study of pure psychology to clinical psychiatry a department of psychology, under the directorship of Dr. James Drever, Reader in Psychology at the University, has been instituted in connexion with the Jordanburn Nerve Hospital; Dr. Drever will be assisted by Dr. Mary Collins and Dr. Fairbairn. It may be noted that pure

JORDANBURN NERVE HOSPITAL: OUT-PATIENT DEPARTMENT AND LECTURE THEATRE.

psychology is a compulsory subject in the medical curriculum of Edinburgh University, and that it is taught on alternate days with the subjects of psychiatry and psychopathology during the whole of each spring term. It is intended ultimately, in connexion with the department of psychology, to build special laboratories for research purposes, but to achieve this end a sum of about £20,000 will be required.

SPEECHES AT THE OPENING CEREMONY.

At the opening ceremony the LORD PROVOST announced that an anonymous donor had, a few days previously, given a sum of £10,000 as an endowment fund for the working expenses of the lecture theatre and the out-patient department, and he expressed the hope that this lead might be followed by some other generous donor in Edinburgh. The SECRETARY FOR SCOTLAND, in declaring the theatre open, emphasized the importance to Edinburgh of having under one roof a hospital and out-patient clinic, a psychological institute, and a lecture theatre, all specially designed to tackle the problem of preventing and treating the nervous disturbances that were the forerunners of serious nervous breakdown. The prevention of disease, he said, whether of mind or body, was an economic proposition. It would pay the nation in pounds, shillings, and pence to provide facilities for this much-needed social service. He reminded the audience of the urgent financial needs of the laboratories—the vital centre from which the whole of the hospital's research activities must radiate. Principal Sir THOMAS HOLLAND said that Edinburgh, which had acquired its reputation largely because of its medical school, now had another opportunity, due in great part to the irresistible enthusiasm of Professor Robertson, of leading the medical schools of the world in opening up new ground in the field of mental disorder. Professor LORRAIN SMITH said that the Jordanburn Nerve Hospital would give medical students of Edinburgh an opportunity not only of learning the adopted,

recognized, and tested rules of treatment, but of following the working out of investigations upon which these rules were founded. The highest aim of a medical school was to turn out the greatest number of graduates possessing the habit of research. Dr. R. A. FLEMING stressed the contribution that psychology could make towards the solution of a number of problems, and said that he would suggest to the Secretary of State that in Borstal institutions they had problems which might be met most effectively by psychological methods. Mr. T. M. GARDINER, chairman of the board of managers, said that the novelty of their enterprise had aroused world-wide interest, and he paid a tribute to Professor Robertson, who, he said, had been the inspiration of the whole undertaking.

RESEARCH WORK IN MENTAL HOSPITALS.

REPORTS TO THE BOARD OF CONTROL.

THE increase in the amount of research work undertaken in the mental hospitals in England and Wales is largely due to the enlightened advocacy of the Board of Control, and is reflected in the ever-increasing size of each year's supplement to its annual reports. An account of Part I of the Board's fifteenth annual report appeared in our issue of October 5th (p. 629). The supplement in question is embodied in Part II of this report, and has just been published. It provides a convenient and succinct account, based on the reports issued by the individual mental hospitals, of the manner in which problems of psychiatrical diagnosis and treatment, and to a lesser extent of infective conditions incidental to institutional life, are being explored.

Treatment of General Paralysis.

As in previous supplements, considerable space is devoted to an account of the various methods adopted in the treatment of general paralysis, principally malarial therapy. The report from the West Riding Mental Hospital, Wadsley, Sheffield, by Dr. W. J. N. Vincent, medical superintendent, recounts that the malarial method of treatment has been carried out there for five years, and of the 140 cases treated during that time nearly 29 per cent. have been discharged and are reported to be doing well. The Lancashire Asylums Board report, furnished by Dr. G. A. Watson, pathologist to the board, refers to the following up of the malarial treatment in Lancaster Mental Hospital by courses of tryparsamide, by which means it is hoped that the improvement attained will be rendered more lasting. At Rainhill Mental Hospital the summary of conclusions regarding this mode of therapy is to the effect that malarial treatment alone is as effective as the combined therapy (malaria and tryparsamide) in producing a remission of the mental symptoms and changes in the serological reactions; that tryparsamide as an adjunct to malaria acts as a general physical tonic, allaying the motor restlessness, and thus making the subsequent nursing through the pyrexial attack less fraught with danger; that tryparsamide is apt to induce serious complications (chiefly visual and hepatic), and adequate safeguards and controls should be employed; and that if the word "cure" be defined as a complete remission of mental symptoms, serological changes, and accompanying physical signs, no case in their series can be said to be scientifically cured. Tryparsamide therapy is also the subject of one of the communications from the Maudsley Hospital. Dr. T. Tennant is of opinion that this is a most valuable drug in the treatment of general paralysis, but its action is aided by combining it with non-specific therapy, of which malaria has proved, in their series, safest. Beneficial results occur in indirect ratio to duration of symptoms. In early stages after treatment there is no parallelism between clinical and serological improvement. A partial parallelism exists in the later period, as all patients who show clinical improvement show a concomitant serological improvement.

In the report from the London County Mental Hospital, Bexley, communicated by Dr. G. Clarke, medical superintendent, is an account of extensive histological studies carried out by Dr. John Brander on patients who had died at various periods after treatment with malaria, and on patients who had not been so treated. The object of these studies was to ascertain the nature of changes induced by treatment, particularly to test the suggestion that malaria tends to transform so-called parenchymatous syphilis into ordinary tertiary disease of the brain and membranes; but it has not yet been possible to arrive at definite conclusions.

Included in the report by Dr. Golla on the research work done in the Central Laboratory of the London County Mental Hospitals are observations made on the histological changes in the brains of general paralytics treated by malaria, recurrent fever, and tryparsamide. The net result of these investigations has been to confirm previous work on the value of malarial therapy. The absence of spirochaetes in brains of general paralytics treated by malaria has been confirmed by numerous examinations.

Of the forty-four cases treated at the London County Mental Hospital, Horton (Dr. J. R. Lord, medical superintendent), all but four were by direct mosquito bite; 54.5 per cent. have definitely improved. A strain of quartan malaria was also obtained, and was employed in patients of a senile type who could not tolerate a full course of benign tertian. It would seem that quartan malaria can be used for a much more debilitated type of patient, and that the patients can withstand the fever for a longer time without showing any ill effects physically.

Dr. H. W. Eddison, medical superintendent at Wonford House Hospital, Exeter, contributes a report on the haematopoietic tissues in general paralysis. He considers that these changes serve to differentiate definite parctic cases from those suffering from other forms of cerebral syphilis. An analogy is drawn between general paralysis and pernicious anaemia in that there is, in both, impairment of the activity of the blood-forming organs, and the distribution of the degenerated areas in the medulla and cord is suggestively similar in both.

A report by Dr. A. A. W. Petrie, medical superintendent of the London County Mental Hospital, Banstead, on the treatment of general paralysis with relapsing fever, saprovitan, and milk injections, is of interest. With relapsing fever the percentage of improvements was a little lower than the general figures given for malaria. The results from saprovitan were disappointing. With regard to the milk therapy, Dr. Petrie is of opinion that the results are mainly due to the reaction to organisms which still remain in the fluid, and not to a protein reaction.

Dementia Praecox.

The pathology of dementia praecox, or, as it is now more generally termed, schizophrenia, has been investigated by Dr. Golla and his team of workers in the Central Laboratory, in continuance of work commenced in 1924. It has been found that in 84 per cent. of schizophrenic patients there exists a depression of the excitability of the respiratory centre closely resembling what occurs in normal sleep. The condition of these patients as regards the acid-base equilibrium was also in every way similar to that occurring in normal sleep.

Dr. Bamford of Rainhill Mental Hospital considers that there is a certain type of dementia praecox which runs a remarkably acute course, and generally terminates fatally in a few months. The digest of this paper, however, as it appears in the supplement to the Board of Control's report for 1928, does not make it clear whether any of the cases described might not be regarded as cases of acute toxic confusion with marked schizophrenic symptoms.

Three cases of dementia praecox were treated in the West Riding Mental Hospital, Wadsley, by induced malaria. One case of katatonic stupor of twelve months' unaltered duration began to show improvement shortly after the completion of the treatment, and subsequent progress has been satisfactory.

Toxic Infective Conditions.

The relation of infective processes to the causation of mental disorder has been widely investigated. Chief among these are the researches made by Dr. F. A. Pickworth and Dr. T. C. Graves with regard to the laboratory and clinical findings on patients in the Birmingham Mental Hospital. Dr. Graves draws attention to the prevalence of nasal sinusitis in the newly admitted cases, and points out that the symptoms usual in a normal

patient are not found in one mentally disordered. These symptoms frequently represent an extension of a chronic infective process which has been in existence long before the acute mental symptoms have arisen. In some cases the infective process has been traced back to an acute infective process such as measles, scarlet fever, etc.

The presence of diseased states of the nasal accessory sinuses among the Birmingham cases was reported for the year 1927 to be 25 per cent. of the direct admissions. Mr. Musgrave Woodman and Mr. Stirk Adams report the percentage of the 1928 admissions so affected as 33, and with bacteriological examination as a criterion the proportion of sinuses regarded as infected would be even greater than 33 per cent.

Miscellaneous Topics.

The report by Professor Shaw Bolton, medical director of the West Riding Mental Hospital, Wakefield, embodies the various papers and demonstrations which were presented at the annual meeting of the Royal Medico-Psychology Association held last year under his presidency.

Dr. Edwin Goodall's report from the Cardiff City Mental Hospital includes extensive research work on cholesterol and menstruation, and cholesterol and epilepsy, and on investigations into the hydrogen-ion concentration of the urine.

Among the publications by Dr. Edward Mapother, medical superintendent of the Maudsley Hospital, is one on "Early treatment of the psychoses and psychoneuroses," which appeared in our columns of August 18th, 1928 (p. 304). According to Dr. Mapother the ideal towards which to work is a special building designed for the reception of patients with every degree of mental disorder and for their proper classification. Whether such clinics are attached to the voluntary or municipal hospitals is, in his opinion, a minor point. Relatively small wards in general hospitals, staffed in the manner customary there, and psychiatric out-patient departments can only deal with a limited class, serving for routine treatment where the more adequate scheme is impracticable.

We have above referred to the fact that this supplement dealing with the scientific research work in mental hospitals is steadily growing in size. We hope it may soon be of such dimensions as to justify its publication as a separate volume. It might also, at some later date, be feasible for the subject matter to be grouped in accordance with the special type of investigations, and not as at present under the name of each mental hospital. This would ensure a wider knowledge and appreciation of such valuable research.

England and Wales.

Dinner to Dr. E. K. Le Fleming.

A DINNER was held at the Town Hall, Dorchester, on the evening of October 18th, St. Luke's Day, by the Dorset Local Medical and Panel Committee, in honour of Dr. and Mrs. E. Kaye Le Fleming of Wimborne. A large and representative gathering was present. The host and hostess were Dr. T. MacCarthy of Sherborne (chairman of the committee) and Mrs. MacCarthy. In addition to a large number of local doctors and their wives, the following were present: Sir James and Lady Brooks, the Rev. C. Canning (headmaster of Canford School) and Mrs. Canning, Mr. J. Leslie Torr (clerk to the Dorset County Council) and Mrs. Torr, Mr. S. S. Holloway (chairman of the Dorset Insurance Committee), Mr. R. J. Ganderton (vice-chairman) and Mrs. Ganderton, Dr. C. E. S. Flemming (Bradford-on-Avon), Dr. H. A. R. Unwin (chairman of the West Dorset Division) and Mrs. Unwin, Dr. G. C. Anderson (Deputy Medical Secretary) and Mrs. Anderson, Dr. O. Carter (honorary secretary of the Bournemouth Division) and Mrs. Carter. Apologies for absence were received from Major and Mrs. K. Balfour (chairman of the Medical Service Subcommittee), Dr. H. G. Dain (chairman of the Insurance Acts Committee), Major H. B. Nicholson, D.S.O. (chairman of the Health Committee, Dorset County Council), Dr. J. Elliott Robinson (county medical officer of health), Dr. C. J. Marsh (Yeovil), Dr. P. W. MacDonald (Weymouth), and Dr. O. Rees (Abbotsbury).

After dinner and the loyal toast, Dr. MacCarthy proposed the health of the principal guest. He said that they all knew Dr. Le Fleming as a man of astonishingly many parts, and the more they knew of him the more they were astonished that all those parts were so admirable; there was nothing shoddy about any of them. He was a renowned golfer, he was one of the founders of motoring in Dorset, and was a judge and connoisseur of antique furniture. They knew that as a doctor his scientific knowledge was of a very high order, widely appreciated in his neighbourhood, and that that was really his first love and his last love—his profession and the practice of it. As for Dr. Le Fleming's services to his colleagues the reason for the gathering that night was the work he had done, freely, all those years, for the honour and welfare of his own profession as a profession. Dr. Le Fleming felt he could never do enough for it to maintain its standard, and in whatever direction he had tried to uphold the honour of the medical profession he equally considered the duties of his profession to the public. He would never countenance anything which sacrificed the rights and welfare of the public—that was, the patients at large. First, there was the work he had done for the profession in general at the headquarters of the British Medical Association as a member of the Council, and as a member of the Insurance Acts Committee, and as chairman of the Panel Conference. At first Dr. Le Fleming worked for the profession locally, then he went to committees at headquarters and worked for the profession there. He had served for a great many years at a very great cost to himself of time and trouble and finance, but he reckoned it as nothing. Latterly he had added to their gratitude by becoming a member of the General Medical Council, which was the most important position in this country that a doctor could hope to attain. They were honoured and delighted that he had taken up that work, but sorry because it necessitated his giving up the work he had done locally. From 1912 to the present time he had been the head and front of the Panel Committee, under the National Insurance Act, in Dorset, and he had looked after the interests of doctors in Dorset. There were many conflicting interests to watch, but Dr. Le Fleming had always borne in mind that the honour of the profession must be maintained, and equally that the rights of insured persons must be maintained. Dr. MacCarthy then presented to Dr. Le Fleming, on behalf of the doctors of Dorset, a silver porringer of old Chinese design as a token of their esteem and as a slight recognition of his devoted services, and to Mrs. Le Fleming a silver clock. The toast was drunk with musical honours, and Dr. Le Fleming, in the course of his acknowledgement, spoke of the period of strain from which the medical profession of Dorset had now happily emerged. The strain would have been unbearable without the support he received from the whole profession, and more particularly from their chairman and Dr. Pridham. The three of them had had wonderful support in London from the Insurance Acts Committee, and in a special degree from Dr. Anderson and Dr. Dain. In conclusion, Dr. Le Fleming said that the work done by those who served on committees in organizing medical opinion brought its own reward; whatever services he himself had rendered were amply repaid by the friendships he had made. The toast of "The British Medical Association" was proposed by Dr. H. A. R. Unwin, who paid a tribute to the secretary, Dr. J. A. Pridham, and was responded to by Dr. G. C. Anderson. The health of the ladies was proposed by Dr. A. E. Staffurth, and that of the guests by Dr. G. Dru Drury, to which Dr. C. E. S. Flemming replied. The final toast was that of "The Chairman," proposed by Dr. H. M. Moyle.

London School of Hygiene and Tropical Medicine.

In the *Journal* of June 1st (p. 1018) a preliminary account was given of the course of study at the London School of Hygiene and Tropical Medicine for post-graduate students working for a diploma in public health. A programme, arranged by Professor Jameson, of special lectures, to be given in connexion with this course, has now

been issued. During the Michaelmas term Dr. J. S. Owens, superintendent of observations in the Department of Scientific and Industrial Research, and Professor Leonard Hill will lecture on atmospheric pollution; and Professor Hill will also lecture on sunlight and health, and clothing and climate. Mr. J. C. Dawes will give three lectures on the disposal of refuse. The programmes for the other terms of the academic year will include lectures on the control of the marketing of fish; shell-fish and the public health; anthrax and other diseases common to man and lower animals; public abattoirs; meat inspection; food poisoning; refrigeration problems; laws of inheritance; venereal disease; ante-natal hygiene; puerperal pyrexia and sepsis; mental hygiene; industrial hygiene; school hygiene; town planning; port sanitation; and international hygiene. The programme, as will be seen, is an interesting one, and is an indication of the very high standard of training that the school aims at giving to students working for the diploma of public health. We are informed that the number of students taking the course is far greater than was expected by the director and the school council, but members of the public health services and other interested members of the general public will be admitted to these lectures.

Memorial to Dr. B. H. Mumby.

The Bishop of Portsmouth dedicated, on St. Luke's Day, October 18th, a window at St. James's Church, Milton, to the memory of Dr. B. H. Mumby, who died in 1914. Dr. Mumby, who was formerly medical officer of health for Portsmouth, and, later, medical superintendent of the borough mental hospital, was at one time a member of the Council of the British Medical Association, and had been secretary and chairman of the Portsmouth Division. The memorial took the form of a stained glass centre panel in a window in the north wall of St. James's Church, the figure represented being that of St. Luke; below the window a brass tablet has been placed, upon which is inscribed. "This window, in memory of Bonner Harris Mumby, M.D., D.P.H., V.D., was given by members of the Portsmouth Medical Association, 1929." The window was designed by Mr. Cuthbert Atcherley, and was executed by Messrs. Wippell and Son of Exeter; it was unveiled by Drs. H. Warren and Philip Green. In his address the Bishop remarked that it was the memory of a beloved physician which brought them together. The Gospel of St. Luke and the Acts of the Apostles were in the front rank of the writings of the ancient world as regards accuracy, importance, and authenticity. The close connexion of the well-being of the mind and body was a theme which ran through St. Luke's Gospel, and it was clear that the author had been impressed by the discoveries he made in tracing accurately the facts that happened, for his writings recorded the triumph of spiritual forces over physical and material conditions. The memorial window, added the Bishop, commemorated the service rendered to the community by a man whom the inhabitants of Portsmouth knew to have been devoted to his work and swift to recognize the great part played by environment in human well-being. Dr. Mumby had spent his life not only in healing the sick, but also in reconstructing conditions of life in the town to prevent disease and to further physical welfare. He had worn himself out in striving to improve the environment of the people and to promote systematic organization and reconstruction of the conditions in which they lived. The Bishop eulogized the great services rendered by the medical profession, and added that without progressive healing of the sick and the conquering of disease the Kingdom of God could never come in this or in any other world. Before the close of the service the congregation were asked to remember certain medical practitioners who had died within recent times, including Mr. Charles P. Childe, Dr. V. J. Lane, and Dr. J. Lister Wright. An offertory, which was taken for medical charities, realized more than £16; the church was crowded, and extra chairs had to be provided. Many of the medical practitioners who were present wore their academic robes, and a processsion was formed. It is hoped that the service on St. Luke's Day will become an annual event in Portsmouth.

Holloway Sanatorium.

The governors of the Holloway Sanatorium at Virginia Water have now provided a nurses' home in the hospital grounds, with admirable accommodation for some seventy-five of the female nursing staff. The opening ceremony took place on Saturday, October 19th, after a luncheon party in the recreation hall of the main building, presided over by Sir Lindsey Smith, chairman of the Board of Governors. The company, as was only natural, included many who are prominently associated with psychiatry and the care of mental patients. Among those present were Sir Robert Armstrong-Jones and Dr. Nathan Raw (Lord Chancellors' Visitors in Lunacy); Mr. L. G. Brock (chairman of the Board of Control), Sir Hubert Bond, Mr. Fraser Macleod, K.C., and Mrs. E. F. Pinsent (Commissioners of the Board of Control); the Right Hon. J. S. Sandars, the Bishop of Guildford, the Earl of Lucan, Viscount Fitzalan, and other governors of the Holloway Sanatorium; General Sir Edmond Elles and the Hon. Arthur Brodrick (trustees), and Dr. Henry Devine (medical superintendent). The formal opening took place in a marquee outside the new building. The Bishop of Guildford pronounced a prayer of dedication, and a hymn was sung by the choir of hospital nurses and attendants. Sir Lindsey Smith, before inviting the Countess of Midleton to unlock the main door and declare the home open, paid a tribute to those who had worked hard in this good cause, and spoke of the need of proper accommodation and amenities for those who devoted themselves to nursing the mentally afflicted. After performing the ceremony Lady Midleton acknowledged briefly a vote of thanks, and expressed her deep interest in all that concerned the welfare of hospital nurses throughout the county of Surrey.

Scotland.

Retirement of the Principal of Glasgow University.

At a meeting of the University Court of Glasgow University on October 10th, Sir Donald MacAlister, who presided, formally intimated his intention to resign office on October 15th. The court accepted the resignation with regret, and Lord Provost Sir David Mason, speaking on behalf of the city of Glasgow, said that for twenty-three years of tenure of office as principal, Sir Donald MacAlister had been a wonderful administrator. He considered that a tribute to the great confidence which Sir Donald MacAlister's administration had spread abroad was to be found in the large number of chairs that had been endowed, and in the high place now occupied by Glasgow University. At the same meeting, intimation was made of a gift of £20,000 by an anonymous donor for the foundation of two or more scholarships in memory of Dr. David Foulis and Mr. Stuart Foulis. Intimation was also made that the Lord Rector, Mr. Stanley Baldwin, would come to Glasgow early next year for the purpose of delivering his rectorial address. On October 15th Sir Donald MacAlister delivered a valedictory address to the students of Glasgow University in the Union Hall.

Post-Graduate Courses in Glasgow.

The Glasgow Post-Graduate Medical Association has arranged a programme of special courses and demonstrations during the winter months on the lines of those which have proved popular in recent years. A series of demonstrations on Wednesday afternoons will continue from November 6th until May 28th, 1930, and include medicine, surgery, obstetrics, and certain special subjects, thus enabling practitioners to make themselves acquainted with recent advances as regards diagnosis and treatment. The fee for this course is three guineas. Slit-lamp classes for ophthalmic surgeons will be arranged during November and December at the Glasgow Eye Infirmary on days and hours to suit the convenience of those participating. From January until May there will also be a course of instruction qualifying for the diploma in ophthalmic medicine and surgery of the Conjoint Board in England. Particulars of these ophthalmological courses may be obtained on application to the medical superintendent of the Eye Infirmary,

Berkeley Street, Glasgow. Special facilities are offered at the Royal Maternity and Women's Hospital, Glasgow, for the study of clinical obstetrics, including ante-natal work; for details of these application should be made to the house superintendent of this hospital. A series of demonstrations on diseases of the ear, nose, and throat will be given on Tuesday and Thursday evenings from the middle of April, 1930, to the middle of May, at the Ear, Nose, and Throat Hospital, St. Vincent Street. A limited number of clinical assistantships are available during the winter months at most of the institutions which are associated with the work of the Post-Graduate Medical Association. Graduates desiring to obtain one of these assistantships are recommended to enrol for a period of three months, and be prepared to devote to the work either the whole or part of the day according to the terms of the particular assistantship. Further information in this respect may be obtained from the secretary of the Post-Graduate Medical Association, Dr. James Carslaw, 9, Woodside Terrace, Glasgow, C.3.

Royal Medical Society of Edinburgh.

The inaugural address of the Royal Medical Society for the one hundred and ninety-third session was given in the Society's Hall on October 18th. Mr. C. W. Cathcart, F.R.C.S., delivered the address, and dealt particularly with the personality of the late Dr. Joseph Bell, the original of Sir Arthur Conan Doyle's character of Sherlock Holmes. He told several anecdotes which illustrated Dr. Bell's great power of obtaining information by inference drawn from a patient's accent, or some apparently trivial detail in dress or person. One young man had been surprised when Dr. Bell remarked to him that he had walked along the Meadows on his way to the Infirmary. Dr. Bell explained that when driving through the Meadows he had noticed a heap of bright red clay, which had been taken from a quarry at a distance, and there was no other bed of red clay anywhere near resembling that to be seen upon the patient's boots. In another case he had deduced that a man was a mason from observing the callosities of the man's left forefinger and thumb, caused by the firmly held and hammered chisel. Mr. Cathcart mentioned several important discoveries which had resulted from thoughtful observation. Thus, Edward Jenner, while an apprentice, had been struck by the remark of a woman who said that she could not take small-pox because she had had cow-pox. After investigation among other milkers, he had carried out experiments of inoculating with cow-pox, and afterwards with small-pox, to which he discovered that patients had then become immune. The discovery of the anaesthetic effects of nitrous oxide gas was accidentally made by Dr. Wells of Boston, who, in 1844, had noticed that a man excited by the inhalation of this gas knocked his legs on the benches near him without seeming to feel any pain. Hypodermic injection as a substitute for oral administration had been discovered by Dr. Alexander Wood in 1853, by what might be called an accident. He had a patient much troubled with neuralgia, and, hoping to relieve the pain, he injected a few drops of morphine solution at the place. Next forenoon, when he called on the patient, he found her soundly asleep, and realized that the solution had been absorbed into the circulation and was thus capable of producing a general effect.

Midlothian Nursing Services.

The annual meeting of the Midlothian County Nursing Association was held on October 7th in the County Chambers, Edinburgh. Lady Elphinstone, president of the association, presided, and the principal speaker was Dr. J. Parlane Kinloch, chief medical officer of the Department of Health for Scotland. Lady Elphinstone stated that there was a pressing need for the establishment of a nursing service to cover the entire county, as there were still several villages without nurses. The committee proposed to undertake, in addition to nursing, the public health and child welfare work. During 1928 the nurses in the county had paid over 83,000 visits, and had attended 338 maternity cases. Dr. Parlane Kinloch remarked that the whole position had to be reviewed in the light of the Local Government (Scotland) Act of 1929. The doctor could not do his work without the nurse, and in any organized health service it was necessary to have an organized nursing service. The speaker believed that a reorganization of the training of nurses was wanted, for at present any woman who made a comprehensive profession of nursing required ten years of tutelage, including three or four years general training, three years fever training, one year maternity nursing, one year of mental diseases, and so on. This state of affairs was ridiculous, and he looked forward to a time when, in a period of four or five years, a woman going in for nursing could get a comprehensive training in all its branches. The speaker aimed at the orientation of the county services of Scotland round the medical schools of Edinburgh, Glasgow, Dundee, and Aberdeen, which would give the utmost efficiency with reasonable economy. The nursing service at present was unbalanced, being good in some places, not so good in others, and absent in still others, and it was not linked up with institutional treatment. The national health insurance system was breaking down at the vital point where the person needed nursing and hospital treatment. A combination of the voluntary and official organizations in the country was necessary, and the five regional committees now spoke with one voice for Scotland, and had a liaison committee which would speak to the Secretary of State with the voice of the voluntary hospitals. When they knew what the voluntary system could do, they would go to the local authorities and ask them to fill the gap. The same thing held good as regarded the nursing service, and he looked to Edinburgh and Midlothian to formulate a scheme which would be a model for the whole of Scotland and for the whole world.

Compulsory Treatment of Venereal Disease.

A conference of representatives of local authorities, held under the auspices of the Scottish committee of the British Social Hygiene Council, was held in the City Chambers, Glasgow, on October 18th. The Edinburgh proposals in regard to dealing with this type of disease and with the problem of the defaulter in treatment, were outlined by Mr. A. Grierson, town clerk of Edinburgh. He said that the Edinburgh corporation had come to the conclusion that these diseases would never be controlled by a purely voluntary scheme, because it had been found, all over the country, that there was a considerable percentage of infected persons for whom peaceful persuasion in regard to treatment was of no avail. A review of the work accomplished recently in Scotland was given by Dr. David Lees of the Edinburgh Royal Infirmary, who said that the annual cost of administration of the Venereal Diseases Regulations in Scotland varied from £60,000 to £78,000, one-quarter of which was paid by the local authorities. Dr. T. F. Dewar, of the Department of Health for Scotland, gave an account of the administrative control, and the need for further powers of control was emphasized by Dr. A. S. M. Macgregor, medical officer of health for Glasgow. At the conclusion of the meeting a resolution was submitted by Bailie Dunlop, and carried unanimously, that the conference was of opinion that the condition of affairs anticipated by the Trevethin Committee in 1923 had now emerged, that the time was ripe for applying greater measures of control, that the action already taken by the corporations of Edinburgh and Glasgow and other local authorities was worthy of approval, and that these bodies should be urged to continue their efforts to obtain from Parliament additional powers for the control and treatment of persons suffering from venereal disease.

St. Andrews Ambulance Association.

A general meeting of St. Andrews Ambulance Association was held in Glasgow on October 10th. The Duke of Buccleuch presided. It was stated that during the past year 33,199 calls had been made upon the association's ambulance wagons. It was specially pointed out that, during the past year, 1,475 cases of accident in which motor vehicles were involved had been attended, and that this was an increase of 180 over the number in the previous year. The chairman, in moving the adoption of the report, said that this was the first annual meeting which had been held in the new headquarters of the

association, and it was a matter of congratulation that the sum required to complete the building scheme had now been fully subscribed. The association had some fifty local centres, covering the whole of Scotland, and during the past year the wagons of the association had attended over 33,000 cases of accident alone. The association had now been in existence for forty-seven years.

Fifty Years in Medical Practice.

On October 15th, Dr. James Hunter, Linlithgow, was presented with his portrait in recognition of his long public service to the community of Linlithgow. Mr. James Forbes presided, and Provost Meek, who made the presentation, remarked that Dr. Hunter had practised for fifty years in the burgh, and during that time had used his skill for the alleviation of suffering among rich and poor alike. The speaker pointed out that of Dr. Hunter's family, four were members of the medical profession, one being a well-known practitioner in Dumfries, while his brother, Dr. Joseph Hunter, M.P., was the Scottish Liberal whip. Mrs. Hunter was at the same time presented with a silver salver. The portrait is the work of Mr. Henry W. Kerr, R.S.A.

Ireland.

Vital Statistics of the Irish Free State.

THE Registrar-General's weekly returns of deaths in the Dublin registration area and the principal provincial urban areas for last week and the past four weeks respectively were equal to the following annual rates per 1,000 of the population: Eleven town districts, 12.9 and 12.7; Dublin registration area, 12.4 and 12.1; Dublin county borough, 13.0 and 12.6; Cork, 15.9 and 17.1; Limerick, 11.9 and 14.5; Waterford, 11.7 and 13.2. The deaths from the principal epidemic diseases for the eleven town districts were equal to an annual rate of 1.4 per 1,000. In the Dublin registration area the births registered during the week numbered 256 (142 boys and 114 girls) and the deaths 124 (50 males and 74 females). The deaths registered (omitting the 23 of persons admitted to public institutions from outside the area) represented an annual rate of 12.4 per 1,000 of the population. During the thirty-nine weeks ended with September 28th the death rate averaged 16.3, and was 0.8 below the mean rate for the corresponding period of the ten years 1919–28.

Health of Belfast.

In his annual report on the health of Belfast for the past year Dr. Samuel Barron, acting medical superintendent officer of health, states that the birth rate was 22.5 per 1,000 of the population, a decrease of 0.4, and the death rate 14 per 1,000, an increase of 0.4. The number of cases of infectious diseases reported during the year was 2,717, an increase of 813 on the previous year's figure. This was largely due to an increase in scarlet fever cases, and also in typhoid and paratyphoid fever cases. The incidence of diphtheria was high, and 628 cases were notified during the year. In the same period 446 persons died from cancer, and 63 from influenza, while 123 persons died from violence. There were 260 deaths of children under one year, an infantile mortality rate of 103 deaths per 1,000 births registered. In the preceding year the number registered was 961, corresponding to a rate of 101 per 1,000 births; the rate for 107 English cities is 70. Dr. Barron hopes that measures for preventing such unnecessary waste of infant life will be adopted.

The report by the medical officer of health for the county borough of Belfast for the year 1928 includes reports by the chief tuberculosis officer, the visiting surgeon of the municipal hospital for tuberculosis, and of the medical superintendent of the municipal sanatorium, Whiteabbey. Dr. Andrew Trimble, the chief tuberculosis officer, comments on the part played by unemployment and the consequent poverty in fostering the spread of tuberculosis. The death rate in the city in 1928 from pulmonary tuberculosis has decreased by over 40 per cent. as compared with that of 1914; the corresponding reduction in the rate for non-pulmonary tuberculosis was more than 62 per cent. For every 100 persons who died of pulmonary tuberculosis in Belfast in 1918, only 47 died in 1928—a reduction in the rate of 53 per cent. Dr. Trimble urges the importance of arranging for more intensive education of the community in matters of public and personal health, and in the prevention and cure of tuberculosis. He asks for more open-air schools for delicate children, and for children in danger of developing tuberculosis through living in unhealthy home surroundings. He recommends the addition to the medical curriculum of a course comprising the history, prevention, diagnosis, and methods of treatment of tuberculosis, and the means of dealing with it in the community. He mentions that consideration is being given to increasing the accommodation for the treatment of non-pulmonary tuberculosis in children. He repeats his plea of last year for the extension of medical benefit to insured persons in Northern Ireland on the lines existing in Great Britain, and mentions the need of a larger medical staff. Mr. H. P. Malcolm, visiting surgeon to the municipal hospital for tuberculous children, which has been in existence for nearly eight years, states that the present accommodation is quite inadequate; treatment by ultra-violet light is impracticable owing to the absence of electricity. The present custom of sending patients to the central institute for *x*-ray examination is not satisfactory. Dr. P. S. Walker, medical superintendent of the municipal sanatorium, complains of the regrettable delay in instituting active remedial measures; patients are still reaching the sanatorium in many cases too late for effective treatment. The accommodation there also is said to be inadequate, and in some respects unsatisfactory, but there has been a gratifying reduction in the number of deaths; it is feared, however, that this will not be the case in the current year. Plans have been adopted for an open-air school attached to the sanatorium at a cost of about £1,800; this will replace an existing school building which has proved to be inadequate, particularly during inclement weather.

Correspondence.

THE RACIAL INCIDENCE OF DISEASE.

SIR,—Periodically we are told that this or that human race is more afflicted by this or that non-bacterial disease (for example, cancer or adenoids) than this or that other race. Like most anthropological data (for example, cephalic indices) these "facts" are invariably empirical. Cause and effect are not traced. Moreover, they are always disputed—partly because they are empirical and partly because they depend on limited personal experience. When we are able to link cause with effect we receive an assurance of truth much stronger than mere enumeration can supply. A seeming truth then becomes a necessary truth.

Bacterial diseases cause enormously more mortality and suffering than the non-bacterial maladies. Here cause and effect can be traced with the utmost clearness. The manner in which races have differentiated is plainly indicated. The following is a law to which there is no exception. "Every human race is resistant to every lethal and prevalent human disease precisely in proportion to the length and severity of its past experience of that disease." The same is true of brutes and plants and their diseases. Thus Englishmen are more resistant to tuberculosis than African blacks, who are more resistant to malaria; and the native herbivora of East Africa are more resistant to the fly disease than imported stock. In England we are especially resistant to the diseases of civilization (the crowd diseases). We think England healthy. It is perhaps the most deadly region in all the world for the aborigines of half the world. A black from African forests, or a Red Indian, or a Polynesian who attempts to reside in London perishes more surely than an Englishman who tries to live under native conditions in the forests of the Congo or the Amazon. This fact is vaguely known, and for that reason we seldom see even such seafaring types as the Kanakas.

Why are races particularly resistant to the diseases of which their ancestry has had much experience? Consider tuberculosis: (1) It is a disease of crowds, especially those

which inhabit the dark and ill-ventilated dwellings of northern climates. (2) It is chronic; that is, individual experience of it weakens rather than strengthens powers of resistance, and therefore it is of indefinite duration; the individual (not the race) cannot become immune, or "acclimatized," to it. (3) In England its bacteria are so prevalent that probably no one escapes illness unless naturally immune, or death unless highly resistant. (4) Individuals vary in powers of resistance; some do not contract the disease even in the slums of great northern cities; some recover more or less quickly, some perish slowly, some are so unresistant that they perish swiftly. (5) Powers of resistance tend to run in families; that is, they are inheritable; this is best seen when we compare individuals of different races—for example, Polynesians and Englishmen.

If individuals vary in their powers of resisting tuberculosis, if these variations tend to be transmitted to their descendants, and if tubercle bacilli choose for death the more susceptible, and for life the more resistant, then this is that natural selection which "shook the thought of the civilized world" nearly three-quarters of a century ago, which a majority of naturalists accepts on grounds of common sense, but which a minority rejects because "no man has seen natural selection at work." Naturalists suppose that "man has escaped from natural selection." "There is no veil like the veil of familiarity." We are unable to perceive natural selection among wild animals and plants because we cannot observe closely enough the vital variations of individuals or watch their careers from birth to death. But natural selection among men is as manifest as that artificial selection which has created our domesticated animals and cultivated plants. Its results also are manifest; for, as I say, every race is resistant to every lethal and prevalent disease in proportion to the length and severity of its past experience of that disease. When diseases are not prevalent or not lethal (for example, common cold and chicken-pox) then ancestral experience does not increase powers of resistance.

We deal here with matters of more than academic interest. The social and political consequences are tremendous. Natural evolution is very slow. Here we have forces enormous, uncontrolled, uncontrollable, unrecognized, working towards immense conclusions. No race can become civilized which has not evolved *gradually* against the crowd diseases. Man and his diseases appear to have originated at a very remote period in the eastern hemisphere. When Columbus broke the age-long isolation between the East and the West he took with him not only men highly resistant to the Old World diseases, but also the diseases themselves. Then began the greatest tragedy in human history. The races of half the world commenced to displace those of the other half. The New World began to be swept by immensely destructive epidemics. Small-pox, measles, whooping-cough, and the like, piled the earth with the dead. When all were stricken, famine followed. Whole tribes were exterminated. The work of tuberculosis, though slower, was more thorough. It came not like air-borne disease as a swiftly spreading epidemic, but when it came it stayed, and exterminated.

The Spanish and Portuguese, then powerful maritime nations and first in the field, elbowed the British and French to the seemingly inhospitable North. But the forests of the South were defended by malaria, which rendered true colonization difficult. Such colonization as there was had to be accomplished by means of negro slaves. But North America was unprotected, and into the vast void created by imported disease the British and French poured. The former won the battle of *Quebec; French* immigration ceased; and all the North fell into the grasp of the Anglo-Saxon, giving their race almost illimitable room for expansion, and finally establishing it as the greatest on earth. Quite unconsciously and almost peacefully the process continues in Australasia and Polynesia.

The British hold conquests in the East, where their wars have been more bloody than in the West. But they have introduced no new diseases and the natives multiply. If history teaches any truth with certainty, it is that conquest is never permanent without the extermination of the aborigines. Thus the Romans, who conquered but did not destroy, have gone from Britain, and the Normans are absorbed. But the descendants of the Saxons, who exterminated, still inherit the land. British conquests in the West, with the natives gone, with foundations dug deep by bacteria, are apparently as permanent as the hills; for civilized peoples do not exterminate with the sword, and diseases have reached their limits. But all precedent indicates that their conquests in the East are only temporary.

Is it not remarkable how the significance of these monstrous events has escaped the attention of the learned concerned—medical men, naturalists, anthropologists, historians? There is no veil like the veil of the excessively obvious.—I am, etc.,

Southsea, Oct. 20th. G. Archdall Reid.

Sir,—In reply to my letter in the *Journal* of September 14th (p. 518) criticizing the unconvincing evidence on which far-reaching conclusions as to the racial incidence of disease are being based, Dr. J. S. Mackintosh on October 5th (p. 647) advances arguments of the *a priori* type as to why Jews should be prone to adenoids and other catarrhal affections. However interesting his arguments are they do not constitute facts; indeed, Dr. Mackintosh can only fall back on his own impressions, derived in practice, which are not synonymous with established observations. In advancing arguments why Jews in this country should be excessively prone to adenoids among other catarrhal affections, he points out that to the Jews, as a race which has evolved in a warm climate, the climate of England is severe. Apart from entering upon the very debatable ground as to whether the modern Jew is anything but a European, Dr. Mackintosh begs the question by assuming that a race from a warm climate will be prone to respiratory catarrh if transferred to a colder region. But surely there is no evidence for such a contention. Is there any evidence that Italians in New York suffer excessively from respiratory catarrh, and particularly from adenoids? If adenoids are all a matter of disharmony between race and climate one would expect that the Welsh would be more prone to this affection than the English, the Welsh being of Iberian origin, cradled in a warm climate, and the English coming essentially from a hardier stock—Saxon, Dane, and Norman. But apart from all these arguments, which lead nowhere, what is the evidence that adenoids are the result of respiratory irritation? Unfortunately these masses of lymphoid tissue present a problem which is not quite so simple.

Dr. Mackintosh's argument of the proneness of Jews to catarrhal troubles is reminiscent of the old argument of the racial predisposition of Jews to trachoma. The Jews were smitten with trachoma because their conjunctiva was ill adapted to the climatic conditions under which they lived. Altogether, trachoma was the expression of an unsuitable climatic environment; it was thus that any and every climate was in turn blamed for trachoma. No one now believes in the climatic origin of trachoma, and the racial predisposition of Jews to trachoma has followed other "Jewish" diseases into oblivion.

There is a tendency to regard disease not as an entity in itself but as the expression of disturbed harmony between the individual and his environment, both external and internal. In such a view of disease the interaction between the racial and environmental factors is of obvious importance, and it is therefore all the more imperative to distinguish between fact and hypothesis. In this barely explored field an ounce of fact is worth more than a ton of theory, even of the most ingenious quality.—I am, etc.,

London, W.1, Oct. 7th. M. Sourasky.

TONSIL AND ADENOID OPERATIONS IN HOSPITAL PRACTICE.

Sir,—Why should Mr. Arnold Jones (October 19th, p. 736) assert that "any action taken by the profession in this matter . . . would be premature" pending the results of his investigations? It is the almost unanimous opinion that abolition of "out-patient" tonsil operations is a reform long overdue. A wide correspondence in your columns in 1920–21 condemned the practice. In 1922 the

Section of Laryngology of the Royal Society of Medicine published a resolution[1] of which the apposite clause (quoted by Dr. P. Watson-Williams in your issue of September 28th, p. 599) is identical with the resolution *unanimously* adopted by the Children's Section last July at Manchester.

Nine years ago you published my statistical evidence[2] of the greater risks run by "out-patient" *opérés*. While assistant surgeon to the throat department of the Royal Infirmary I performed about 400 tonsil operations annually. Despite the precautions advised by Mr. Arnold Jones—which, by the way, have long been universal practice—each year brought confirmatory evidence. Since I have been in charge of that department every child has been admitted, though it is still doubtful whether the reform can be maintained. Admission to hospital for forty-eight hours after operation spares the parents the most difficult part of the nursing—a point of real importance in poor homes—and tides the children over the period when risks from chill or infection are greatest. Mr. Arnold Jones said at Manchester, "The surgeon may be called upon to deal with haemorrhage more or less severe a few hours after operation." And what if this occurs at night in a poor home three or four miles away? He himself admits to hospital (*a*) children from a distance, (*b*) apparently all delicate or sickly children, (*c*) "older children," (*d*) those with bad homes, (*e*) those unfit to return home. It is simply misleading to allege that the *extra* cost of admitting the remainder would be "vast." Each cot can deal with about 130 cases a year, and the patients need no expensive treatment during their short stay.

It rests with hospital governors to say what provision shall be made for those attending their institutions, and it has long been their boast that they afford the poorest as good treatment as the wealthiest can obtain. Yet no medical man would wish to submit his own child or the child of a private patient to "out-patient T's and A's." As long as medical heads of throat clinics acquiesce in "out-patient" operations, reform will lag. The most conservative opponent of change can hardly regard them as desirable. His only argument is "*faute de mieux*—an out-patient operation is better than nothing at all." Agreed, but do not let us confuse the issue.—I am, etc.,

E. Watson-Williams.

Clifton, Bristol, Oct. 19th.

RADIUM IN SURGERY.

Sir,—In his letter in the *Journal* of October 19th (p. 737) Mr. Souttar states that we must depend upon results and not upon theoretical considerations for an estimate of the value of radium, and therefore I suggest that it would be best to forget the physicist's division of rays into alpha, beta, and gamma, and only regard them as irritating and non-irritating. He appears to be impressed with the fact that 0.6 mm. platinum absorbs practically all the primary beta rays, and is not aware that the softer gamma rays are as destructive as the harder beta rays, and in order to cut off the former a thickness of at least 1.0 mm. of platinum is necessary. The increase of platinum from 0.6 to 1.0 mm. is only futile in theory; in clinical gynaecological practice it is established beyond question, and for experimental evidence on this point Mr. Souttar might refer to a paper published by Lazarus-Barlow as long ago as 1914. Again, he appears to forget that the secondary radiations (rays of Sagnac) are efficiently absorbed by rubber tubing 3.0 mm. thick. Mr. Souttar is perhaps entitled to argue that the numerous discrete burns he must produce by his technique are not prejudicial to the treatment; time alone can answer this proposition, but that burns are produced is beyond question. Finally, Mr. Souttar speaks with confidence of the immediate results in carcinoma of oesophagus and breast. May I recall that twenty-five years ago workers were similarly expressing themselves about immediate results, and three or four years later radium treatment was almost abandoned. I would suggest to all workers with radium that it would be wise to avoid publishing results until five years have elapsed from the treatment, by which time the space they will require will be very much reduced.—I am, etc.,

Sidney Forsdike.

London, W.1, Oct. 21st.

LYMPH-STASIS AND CANCER.

Sir,—In Mr. Sampson Handley's address entitled "Lymph-stasis the precursor of cancer" (October 5th, p. 607), he points out that Warburg has shown that cancer cells differ in metabolism from ordinary cells; but, Mr. Handley says, "... no suggestion has hitherto been offered as to the way in which this change of cell habit is brought about." I wish to say that this matter was fully dealt with in my book published in 1927.[1] As regards lymph-stasis, this cannot be regarded as the precursor of cancer, as lymph-stasis itself depends upon important precedent causes. Moreover, if it is necessary to be in action for twenty to thirty years, as Mr. Handley estimates, this would rule out cancers occurring before, say, 25 years of age. A serious error, I submit, is to allot no role in cancer production to the nervous system, which, directly or indirectly, controls the whole of the body tissues and their activities. Neither can it be at all useful to compare vertebrate cells with amoebae. Cancer only occurs in vertebrates, which have a highly organized nervous system of a particular kind. Amoebae possess no nervous system. Vertebrate cells are civilized and have established law and order imposed or, at any rate, enforced by the nervous system. Amoebae, like primitive man, have merely the law of self-preservation. Therefore, to produce a four-celled organism from a one-celled one, or vice versa, if that were possible, would, I contend, teach us nothing. Anarchists, in civilized communities, or in vertebrate cell groups, are produced by a partial breakdown or misapplication of "the law," and they are also "exterminated," or brought under control, in both these situations, if and when "the law" resumes its normal sway.

I cannot agree with Mr. Handley that cancer occurring in a case of elephantiasis is a good example of lymph-stasis being the precursor of cancer. In my opinion body-poisoning, chronic irritation, and local anaphylaxis are the precursors of cancer, and these would appear to be present in elephantiasis. The case he quotes of elephantiasis of the leg rapidly becoming cancerous under radiant heat treatment supports this view. A further criticism of the lymph-stasis precursor theory lies in the fact that no individual epithelial or connective tissue cells are ever exposed to lymph-stasis action for anything like twenty to thirty years, owing to waste and repair of tissues. Mr. Handley's mention of the tuberculous families, subject to multiple papillomata of the large bowel, and his reference to mice being more subject to cancer after injection of tubercle bacilli, simply confirm the views expressed in my book. Tar-cancer experiments, which are mentioned by Mr. Handley, I have previously shown to be fallacious, and I venture to assert that no amount of "short-cuts" by animal experimentation, tissue culture, or what not, will ever succeed in demonstrating the cancer process or in obtaining an understanding of it. It is difficult to understand how Mr. Handley can claim that lymph-stasis "lies at the root" of sarcoma also, if we bear in mind his dictum that twenty to thirty years is necessary for lymph-stasis to produce "cancer." Possibly he exempts sarcoma from this condition. At any rate, I know of cases where the initiation, course, and fatal termination of sarcoma following injury were a matter of months, not years.

I submit that Mr. Handley's "proofs that lymph-stasis lies at the root of cancer—certainly of carcinoma, possibly of sarcoma," cannot be admitted as such. As regards the role of lymph-stasis in such cases, one can, I think, only regard it as a natural concomitant of the far more important precedent conditions present in the initiatory stages of tumour (and cancer) formation.—I am, etc.,

Andrew S. McNeill, L.R.C.P.S.Ed.

Orpington, Oct. 16th.

[1] *Proc. Roy. Soc. Med.*, Sec. Laryngol., 1921-22, p. 29.
[2] Risks after operation for tonsils and adenoids in outdoor clinics, *British Medical Journal*, December 11th, 1920, p. 887.

[1] *The Cancer Mystery Solved.* By Andrew S. McNeill, L.R.C.P.S.Ed. The C. W. Daniel Company. 1927.

TREATMENT OF INFECTIONS WITH S.U.P. 36.

SIR,—I was much interested in the article by Dr. R. M. Pearce on the use of Mr. McDonagh's S.U.P. 36 in influenza. I have used the drug for over two years; I have not found it superior to other remedies in septic conditions, such as boils, quinsy, tonsillitis, etc., but in catarrhal fevers it is invaluable. Dosage need not be considered so carefully; I have injected 1 c.cm. into infants 1 year old.

The following are a few striking cases:

1. (?) *Pneumonia.*—A married woman, whose confinement was overdue, had a rigor, and the temperature rose to 104°. There was pleuritic pain at the right base, rapid breathing, and suggestive signs of deficient air entry at the right base. The same evening the temperature was 102°, and 1 c.cm. of S.U.P. 36 was injected. The temperature fell continuously from the moment of injection, and was subnormal in twenty-four hours. Labour began during this period, and was normal, as was the puerperium.

2. *Diaphragmatic Pleurisy.*—A boy, aged 6, had a rigor, and his temperature rose to 101°; there was rapid, painful breathing, and abdominal rigidity on the right side. Sodium salicylate was given, but a restless night followed. Next day the temperature was 102°, and, thirty-six hours from the commencement of illness, I injected 1 c.cm. of S.U.P. 36; the following night was the most comfortable for three weeks, and next day the temperature was normal, though on the following day it rose to 99°. Four injections of S.U.P. 36 were given at two-day intervals. In three weeks the patient was well, and was putting on flesh rapidly.

4. *Broncho-pneumonia.*—A child, aged 2½, was attended for over a week for bronchitis, going on to broncho-pneumonia. I then injected 1 c.cm. of S.U.P. 36. On the day of injection she lay cyanosed and panting, and appeared to be dying. The next day the temperature was normal, and I found her sitting up in bed, playing with her toys. Injections were continued till she was well.

5. *Bronchitis.*—A man, aged 39, developed an apyrexial cold in the head, and the catarrh spread to the larynx and then to the bronchi. He felt "seedy," but kept at work for six weeks, and then went away for change of air. On his holiday he was unable to play more than five holes of golf daily, and felt great fatigue; he coughed up large quantities of muco-pus day and night. After three days attempting to golf his temperature rose to 103°; Dover's powder and aspirin tablets, in 15-grain doses, were taken three times daily for two days without benefit. On the third day 1 c.cm. of S.U.P. 36 was injected; that night there was much less cough and sputum, and the temperature was normal next day. The night following there was no cough or sputum, and on the next day he did fourteen holes at golf without fatigue. Five days later he looked so fit that his friends could hardly believe he had had any illness at all. His treatment comprised four injections of S.U.P. 36 in all.

6. *Influenza.*—I left my evening surgery feeling symptoms of influenza; my temperature was 102.6°, and I injected 1 c.cm. of S.U.P. 36. At 9 a.m. next day it had fallen to 99°, and at 11 a.m. it was normal. I got up, and did sixteen visits in the rain and sleet. Next day I did my ordinary surgeries and forty-six visits. I felt well, but slight cough and expectoration remained. A week or so later I injected three doses of S.U.P. 36, spread over four days; all the catarrhal symptoms cleared up.

In my experience, repeated doses shorten convalescence and make recovery more thorough. I usually give 1 c.cm. for two consecutive days, and a third dose on the fourth day, unless all symptoms subside with the first injection.—I am, etc.,

Hull, Oct. 13th. W. THOMSON BROWN, M.B., Ch.B.

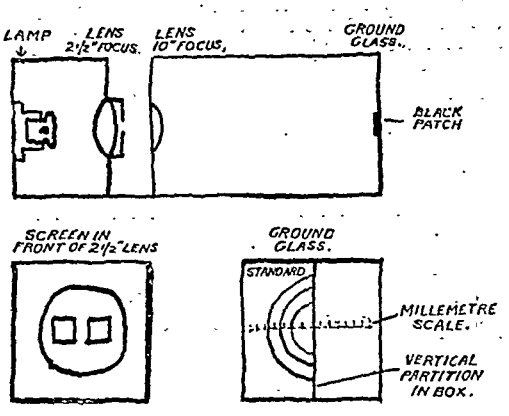
THE DIAGNOSIS OF ANAEMIAS BY DIFFRACTION.

SIR,—The recent correspondence on this subject (October 5th and 19th) induces me to describe a modification of Dr. Pijper's method which I have been using for some months.

Dr. Pijper's original method, involving a dark room and an arc light, is rather too cumbersome for the clinician. Dr. Eve's apparatus is portable, but, while giving an average measurement of the red blood cells, does not seem to permit measurement of the degree of poikilocytosis or anisocytosis.

The apparatus I have designed measures about 16 in. by 6 in. by 6 in.; it is self-contained, and cost me about 15s. (I believe Dr. Eve's halometer costs £4 4s.) Two boxes, each 6 inches square, one 4 inches long, the other 11 inches long, are mounted on a common baseboard. The smaller box contains a cheap 4½-volt flash lamp bulb of the pointolite variety, mounted opposite a double convex lens of 2½ in. focal length. The larger box has at one end a plano-convex lens of about 10 in. focal length, at the other a ground-glass screen. This box is divided vertically as in Dr. Pijper's apparatus (*British Medical Journal*, April 6th, p. 635).

The ground glass and the flash lamp are in each case at the focal distance of their respective lenses, and, once they are mounted, no further alignment is necessary. Mounted in front of the smaller box is a screen with two square holes, while the blood films are clipped to the front



of the larger box across the lens. The ground-glass screen has a scale of millimetres horizontally and a black patch centrally.

With this simple apparatus the violet, yellow, and red haloes are very clearly defined; a direct comparison is possible between a standard smear and the one under examination, and measurements of the diameters of the haloes may be quickly made. I have found it very useful, both in following the course of pernicious anaemia and in excluding that disease in numerous cases of secondary anaemia. The apparatus could easily be made more portable, if desired, by making both boxes of the collapsible bellows type. It can be used in a shaded corner of a room, a dark room being quite unnecessary.—I am, etc.,

London, S.W.16, Oct. 17th. W. EDWARDS.

THE CONTROL OF MEASLES.

SIR,—In his letter of October 19th Dr. D'Ewart draws a very gloomy picture of the consequences following in the wake of epidemics of measles. Fortunately there is another side of the picture. After an experience of twenty-five years in general practice I have become increasingly impressed with the fact that measles is neither so fatal nor so serious in its after-effects as various authorities would have us believe. This view is, of course, based on my personal experience alone.

In recent years I can remember only one death from measles, and that case was a patient of a colleague, and is therefore not included in the series of cases referred to below. On examining my records I find I have notified 153 cases of measles since January, 1924. To the cases actually notified there must be added those other cases occurring later in the same households and which are not notifiable; as it is very uncommon to have one case only of measles in a household unless the child happens to be an only child, the addition of a further 50 per cent. of cases would not be an excessive estimate, making a total of some 230 patients. All the children were attended at their own houses, the majority of them good middle-class homes. Among them there was no fatal case, and few cases with serious complications. At the present time I can trace 92 of the 153 notified cases, the remainder either having left the district or come under the care of other practitioners. In 18 cases only has the attack been

followed by other troubles, and most of these subsequent illnesses have been of such a nature that I think it would be scarcely fair to attribute them to the attack of measles which preceded them by a more or less considerable interval.—I am, etc.,

Manchester, Oct. 21st. ARNOLD GREGORY.

LIVER INTOXICATIONS.

SIR,—In your leading article (October 19th, p. 727) on some recent advances in respect of the prevention and treatment of liver intoxications, it was mentioned that the condition might well prove to have a wide clinical application. After giving details of the similarity between poisoning due to carbon tetrachloride and poisoning due to guanidine, it was pointed out that the mere administration of glucose in these cases to rehabilitate the liver cells and raise the blood sugar content was not sufficient, since it did not stabilize the carbohydrate metabolism. On the addition of calcium chloride (it was stated) the blood sugar was, however, raised, the other manifestations of nerve disturbance removed, and the general condition permanently bettered. At the end of the article it was suggested that an explanation of the pronounced effect of the administration of calcium upon the carbohydrate metabolism would be welcome.

The rise in the guanidine blood content is associated with a hypoglycaemia; just as guanidine has an action akin to insulin, synthalin (a synthetic guanidine derivative) causes hypoglycaemic convulsions with minute doses when given by the mouth. Frank and others (*Klin. Woch.*, 1926, 2100) have shown this; and Collip (*Journ. Biol. Chem.*, 1923, lviii, 163) also suggested the possibility that insulin, guanidine, and certain constituents of plant extracts were related chemically in some fundamental manner. In parathyroidectomized animals, or in animals injected with guanidine, calcium chloride prevents the onset of tetany symptoms; insulin coma convulsions can be arrested by injection of calcium chloride and parathyroid. Wherever there is a toxic action on the liver cells the metabolism is increased three- to four-fold (Whipple). The action of the calcium seems to be in neutralizing the toxic substance by combining with it and causing it to be excreted by the kidneys. In this way the liver cells are no longer irritated or poisoned; they are able to settle back at their normal metabolic level, and to retain their glycogen. Thus, the blood sugar is restored to normal if the glucose administration has been constant over the period. I have worked out this same solution for these cases, as met with in clinical work, and I write this note, therefore, to endorse what you say as to its wide applicability.

In a letter to the *Lancet* (1928, vol. ii, p. 1050) I described a series of cases with most diverse symptoms, chiefly seen between September and December of that year, where marked acetonuria was the outstanding symptom. Glucose and alkalis at first were given, and although in many of the cases the peripheral nerves showed great irritability, calcium was at first withheld, under the impression that an acidosis was always associated with an increased calcium content in blood. Later, however, it was given, and when the patients had fully corrected and their reaction had passed over to the alkaline side, they were put on to calcium chloride and parathyroid extract. Administration of any meat juices at this stage was apt to precipitate the attack, as at the very commencement of the illness. A notable feature of many of these cases was the increased excretion of urea in the urine; 2.5 per cent. was common, and several went up to 4 per cent., 4.5 per cent., and even 5 per cent. urea. This supports the increased endogenous (liver) metabolism mentioned by Whipple, and is particularly noticeable in cases with defective functioning parathyroids.

In the leading article in the *Journal* you mention the successful treatment of cases of toxaemias of pregnancy, eclampsia, etc. We used the same treatment for any such case at the time, and with success. Alkalis and glucose alone will not save such cases if severe; if my contention is correct, that the hypoglycaemia is due to the insulin (like the action of guanidine), then it would seem wrong to use glucose and insulin as suggested in some quarters.

MacLeod has stated with regard to the defective functioning of the parathyroid glands that this may not become evident at the time of stress due to pregnancy or improper diet. When this is so a diet of flesh is much more apt to bring about this condition than one containing vegetables or milk.

Space does not allow me to enter on the question of seasonal incidence (Osler says it is endemic in Norway in cold winter months), but I should like to mention a few of the types of case where this line of treatment is helpful owing to the occurrence of the same or some similar disturbance of metabolism. Under the heading "Debility in children and cyclical vomiting," you published a letter of mine on February 8th (p. 269) in which I disagreed with the suggestion that glucose or an increased carbohydrate intake was all that these patients wanted. In summing up I stated my view that in addition to the intestinal-hepatic syndrome, the question involved the *p*H of the blood, its calcium content, and the thyroid-parathyroid apparatus in its detoxicating and acid-base regulating mechanism. Since following this line I have obtained marked success with certain cases of this type. I have on several previous occasions referred to the advantage of dealing with liver metabolism in cases of hyperpiesia, angina pectoris, and cardiac arrythmias with high blood pressure, and I am glad to find that Major of Johns Hopkins and Addison of Toronto General Hospital have obtained satisfactory results along similar lines. This biochemical problem and others related to it are of very great and widespread importance in the solution of problems of disease; hence my lengthy letter.—I am, etc.,

Darlington, Oct. 19th. R. CHALMERS.

MILK A CAUSE OF ARTERIO-SCLEROSIS?

SIR,—Dr. James Holmes's interesting letter on this subject (October 19th, p. 739) contains a quotation from a paper by Dr. G. A. Allan, which seems worthy of special notice at the present time—"in almost all cases prognosis is bad, particularly in view of the absence of any evidence that arterio-sclerosis, atheroma, or calcification can be influenced materially by any known line of treatment." There are now on the market at least two types of reagents on behalf of which claims are made that they are capable of preventing calcareous degeneration, and of restoring, to some extent at least, tissues which have undergone such change. One is a preparation of silica, the other a preparation containing chlorophyll. There is in use on the Continent a preparation containing both these ingredients.

Continental investigators offer experimental and clinical evidence to support their claim that silica therapy leads to a more pliable and elastic repair of damaged tissue than calcium therapy does. The physical chemistry of silica offers some support to this contention, and suggests that silica is capable of replacing or removing lime in the tissues. Incidentally, the theory of electrolytic dissociation does not appear to hold in the case of silica in solution, and the existence of a silica "ion" (SiO_3) is said to be extremely doubtful! Colloidal silica is largely used I understand, in homœopathic medicine to reduce blood pressure; and is looked upon as almost a specific in the treatment of the sleeplessness of old age. The matter seems worthy of the attention of our experimental pharmacologists.—I am, etc.,

Buxton, Oct. 26th. P. HEFFERNAN, M.D.

MATERNAL MORTALITY.

SIR,—If Dr. Kelson Ford's assertion (October 12th, p. 692) that "some practitioners, even to-day, do not scrub their hands before applying forceps, do not have their instruments boiled before use," and "decline sterile towels when offered them" has any foundation in fact I fear the standard of work done in his area must be very low, or, alternatively, Dr. Ford is laying himself open to a charge of libelling his fellow practitioners.

The art of midwifery can be acquired only by long experience, built upon a foundation of sound knowledge of anatomy, physiology, medicine, and surgery; can one credit

the midwife, however well trained she may be, with such knowledge? Labour is a process in which at least two lives are dependent upon the skill and care of the accoucheur; yet in this vital matter a large proportion of the community are forced, on economic grounds, to rely upon the services of the midwife. It is our duty, therefore, to devise a scheme whereby expert help may be given to every lying-in woman in the land. Labour, after all, is not an emergency; it can be legislated for in advance. For at least thirty weeks contributions could be made by those wishing to avail themselves of such a scheme. This could be done through the Post Office, and when thirty payments of, say, one shilling, have been made, the amount could be doubled by a grant from the Exchequer and a form, made out as a crossed cheque, passed to the woman for presentation to her doctor.

This would not be a costly scheme. In fact, if everybody took advantage of it, it would cost the country roughly about £1,750,000 per annum; but, as many would not need this assistance, the cost would work out at less than one million. Compared with other schemes under consideration at the present time, this is a very modest one, more especially when one considers the enormous benefits which it would confer on the mothers of the country, and a real step would be taken in the direction of reduction of both maternal and infantile mortality. Moreover, our hospitals would benefit by the substantial reduction in maternal morbidity which is bound to ensue. Of course, this scheme would not interfere with the working of the National Health Insurance Act, but would be an adjunct thereto. It would be of great assistance to the wives of uninsured men with small incomes.—I am, etc.,

Manchester, Oct. 14th. D. C. MACDONALD.

QUININE AND BLACKWATER FEVER.

SIR,—Though without any professional qualification, you may perhaps allow me to make some remarks on the real or supposed relations between quinine medication and blackwater fever, a subject treated in your current number (October 19th, p. 729). There seems little doubt that there is some connexion, but what is it? So far I have not seen noted the belief of many medical men of great experience in malarial countries that this fever is due not to overdosing with quinine, or to its entire lack, but rather to its use over a long period in insufficient and ineffective quantities. It is not always easy to obtain medical help at once, and the common erroneous belief that a few grains of quinine taken daily act as a prophylactic leads those suffering from slight "chills and fever" to take the drug in doses which have no other effect than the postponement of the real attack. If such patients took 30 or 40 grain doses at once, instead of 5 grains a day, it is possible that blackwater would rarely occur.

As those on whose authority I rely in saying so much are too far away from me to get permission to use their names, perhaps the mere unsupported suggestion may lead some of your readers to say whether their tropical experience seems to lend support to this view.—I am, etc.,

London, Oct. 19th. MORLEY ROBERTS.

THE ROYAL COMMISSION ON THE ALCOHOL QUESTION.

SIR,—Surely the function of this Royal Commission is mainly judicial? Is it not a pity that any interests—the trade, avowed temperance reformers, or the profession of medicine—should be represented on the Commission? Would it not be much better for all such interests to lay their views before the Commission as witnesses rather than to sit on the Commission with their views already formed and publicly known—a state of affairs which can only lead to at least one minority report being produced, and possibly to no report being supported by enough commissioners to give it the weight which should be attached to the report of a Royal Commission?—I am, etc.,

Monmouth, Oct. 21st. N. S. B. VINTER.

Obituary.

DR. HOWARD MARSHALL, O.B.E., who died on October 9th, at the age of 58, received his medical education at Cambridge and St. Bartholomew's Hospital. He graduated M.B., B.Ch. in 1895. After holding house appointments at St. Bartholomew's and the Nottingham General Hospital, he practised for five years at Bexhill, where he was also medical officer to the Metropolitan Convalescent Home. In 1902 he went to Cirencester, as partner to the late Mr. O. H. Fowler. While conducting an extensive practice, Dr. Marshall won considerable reputation by reason of his surgical ability, and was appointed surgeon to the Cirencester Memorial Hospital; at the time of his death he was the senior member of the honorary medical staff. He associated himself actively with the extensions and improvements of the hospital from time to time, and was largely responsible for the establishment of an employers' and workers' voluntary contribution scheme in connexion with it. He was also medical officer to the Royal Agricultural College, Cirencester, and civil surgeon to the 4th Battalion of the Gloucester Regiment. On the outbreak of war a Red Cross Hospital came into being at Bingham Hall, and Dr. Marshall was appointed medical officer in charge of it; in 1920 he received the O.B.E. in recognition of the particularly valuable services he rendered in this way. Dr. Marshall was a member of the British Medical Association, and president of the Gloucester Branch from 1915 to 1917. He took special interest in the effort to regularize the position of civil surgeons called upon to provide attendance for military patients during the war. Throughout his life he was devoted to outdoor sports; in his student days he was distinguished as a Rugby footballer, gaining an international cap as half-back.

WE regret to announce the death of Dr. JAMES MORRISON GARDINER BREMNER, O.B.E., on October 12th, at his residence in Norwich. James Bremner was born in Banffshire, and received his medical education in Aberdeen, where he graduated M.B., C.M. in 1894. Soon afterwards he went to Norwich, and for a period of more than thirty years he resided there, building up a large practice and acquiring varied and numerous associations. He early became attached to the Territorials, joining the Norfolk Regiment. In 1914 he received a commission as major, and took command of the Second East Anglian Field Ambulance; in the following autumn he was gazetted lieutenant-colonel. His personal knowledge of training, organization, and equipment enabled him as an officer in command to place in the field a unit which did very fine work. In July, 1915, he took part in the landing at Gallipoli, where he remained until the evacuation. After accompanying his unit to Mudros, and thence to Egypt, he was stationed at the Suez Canal after the push forward to Gaza. After three battles there he accompanied his ambulance as far as Ludd. In the spring of 1918 he took charge of a large convalescent home at Alexandria. Immediately after the war he resumed his medical work in Norwich, and his deep interest in Freemasonry and the local Scots Society found outlet in renewed activity. In Freemasonry he occupied a high position; in 1908 he became Provincial Grand Director of Ceremonies, and in 1920 was raised to the high rank of Provincial Grand Standard Bearer. The local Scots Society will also find it difficult to replace him, for much of the success it enjoys to-day was due to his enthusiasm. A colleague writes: In his profession Dr. Bremner was an assiduous and painstaking clinician; his quiet and sympathetic directness always arrested the attention and won the confidence of his patients. He was a man whose desire it was that no ostentation or public acknowledgement should attend any act of his. Quietly and gently disposed, it may be said that sincerity was the keynote of his whole life. Among a host of friends his memory will be widely treasured for many fine qualities of personal service, far outlasting more brilliant or more blazoned achievements.

The Services.

HONORARY PHYSICIANS TO THE KING.

LIEUT.-COLONEL R. B. AINSWORTH, D.S.O., O.B.E., R.A.M.C., and Lieut.-Colonel E. C. Hodgson, D.S.O., I.M.S., have been appointed Honorary Physicians to the King and promoted to the brevet rank of colonel.

DEATHS IN THE SERVICES.

Lieut.-Colonel Daniel Nicholas Martin, Bengal Medical Service (ret.), died at Rowlands Castle, Hants, on October 3th, aged 84. He was born on August 4th, 1841, the second son of the late Robert Martin, Esq., of Castle Fane, Glanmire, county Cork, was educated at Queen's College, Cork, and graduated as B.A., M.D., and M.Ch. of the Queen's University, Ireland, in 1869. Entering the I.M.S. as assistant surgeon on October 1st, 1869, he attained the rank of brigade surgeon lieutenant-colonel on February 28th, 1898, and retired with an extra pension on May 1st, 1899. He served in the Afghan war of 1879-80, receiving the medal, and in the Mahsud Waziri campaign of 1881, for which no medal was given. Most of his service was in military employ, when he was for many years medical officer of the old 30th Punjab Infantry; but the last few years of his service were spent as a civil surgeon in the Central Provinces.

Major Robert Napier Buist, R.A.M.C. (ret.), died at Tunbridge Wells on October 2nd, aged 67. He was born in India on December 28th 1861, the second son of the late Major-General D. S. Buist, Indian Army, was educated at Edinburgh University, where he graduated as M.B. and C.M. in 1885, and entered the army as surgeon on July 28th, 1886. He attained the rank of major after twelve years' service, and retired on July 28th, 1906.

Corrigendum.—We regret that in this column, in our issue of October 12th (p. 700), the name of the late Lieut.-Colonel J. J. C. Donnet was misspelt.

Universities and Colleges.

UNIVERSITY OF OXFORD.

AT a congregation held on October 17th the degree of Bachelor of Medicine (B.M.) was conferred on B. R. Caygill.

UNIVERSITY OF CAMBRIDGE.

AT a congregation held on October 18th the following medical degrees were conferred:

M.D.—W. W. McLean, N. F. C. Burgess, F. B. Parsons.
M.B., B.CHIR.—*A. D. Charters, J. C. Gordon, H. Bell.
M.B.—L. Shiito.
B.CHIR.—N. L. White.

* Admitted by *proxy*.

UNIVERSITY OF ST. ANDREWS.

ON the occasion of the installation of Sir Wilfred Grenfell, K.C.M.G., M.D., as Rector of the University on November 6th, the Senatus Academicus will confer upon him the honorary degree of LL.D.

UNIVERSITY OF DUBLIN.

SCHOOL OF PHYSIC, TRINITY COLLEGE.

THE following candidates have been approved at the examination indicated:

FINAL MEDICAL (*Part I, Materia Medica and [illegible], Jurisprudence and Hygiene; Pathology*).
Ennis: *G. A. Wray, *R. O'Brien, *A. A. M. G. Leane, O. W. S. Fitzgerald, H. Y. T. A. D. Barber, T. J. O Sullivan, Annie [illegible], D. Egan, J. A. Page, C. M. Elliott, T. H. Dockrell, R. D'Scott, W. M. E. Anderson, J. Elliman.

* Passed on high marks.

NATIONAL UNIVERSITY OF IRELAND.

UNIVERSITY COLLEGE, DUBLIN.

THE following candidates have been approved at the examination indicated:

D.P.H.—*Part I*: C. J. Ellison, P. P. McNamara. *Part II*: *Catherine M. O'Brien, †M. Hanly, †H. Macken, †E. R. Waldron, †E. A. Grant, †P. Fleming, †T. Feeney, †M. A. Cooney, J. J. L. Cox, T. J. Kirby, Mary K. McGloughlin, A. B. O'Malley, E. White.

* First-class honours. † Second-class honours.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

THE annual Buckston Browne dinner of Fellows and Members will be held at the College on the evening of Thursday, November 14th.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

AT a meeting of the Royal College of Surgeons of Edinburgh held on October 16th, when Mr. Alexander Miles, M.D., LL.D., President, was in the chair, the following 33 successful candidates, out of 108 entered, having passed the requisite examinations in July, were admitted Fellows:

J. W. Anderson, R. S. Aspinall, G. H. Burnell, J. H. Coolican, R. Cormack, N. R. Cotton, D. E. Cuffey, R. T. Desai, T. S. Donovan, E. A. Fiddian, A. A. Fothergill, J. R. Godsall, S. J. P. Gray, V. C. J. Harris, L. Herzenberg, G. L. Khirwadar, Beryl P. Lye, J. T. McOuat, D. G. Martin, D. M. W. Maxwell, G. W. Milton, B. G. Mitford, J. E. Monro, G. J. Murray, E. W. M. H. Phillips, G. F. Rich, W. B. Smellie, A. C. Thomas, M. E. Tiruchelvam, C. H. Watson, F. L. Webster, L. B. Wevill, N. A. J. Young.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND.

THE annual meeting was held on St. Luke's Day, October 18th. Dr. Alice Barry was unanimously elected a Fellow of the College.

Dr. William Arthur Winter was elected President and Dr. J. A. Matson was re-elected Vice-President.

The following were elected censors of the College: Medicine, Dr. Matson and Dr. Micks; medical jurisprudence and hygiene, Dr. Wigham; midwifery, Dr. Spencer Sheill.

The following officers were re-elected: Representative on the General Medical Council, Sir John Moore; treasurer, Dr. H. Bewley; registrar, Dr. T. P. C. Kirkpatrick; librarian, Mr. R. Phelps.

The representatives on the committee of management under the conjoint examination scheme were re-elected as follows: Dr. Walter Smith, Sir John Moore, and Dr. T. P. C. Kirkpatrick.

CONJOINT BOARD IN SCOTLAND.

THE following candidates have been approved at the examination indicated:

FINAL EXAMINATION.—*Medicine*: R. F. L. V. Harvey, Florence L. M. Millard, E. O. Hagedorn. *Surgery*: G. R. Parker, P. van der Lith. *Midwifery*: G. R. Parker, G. Henderson, P. van der Lith, T. H. Oh, Florence L. M. Millard, E. O. Hagedorn. *Medical Jurisprudence and Public Health*: M. K. Yong, C. C. Teck, A. I. Sayhid, Mary McF. Buchanan, A. Brock, W. E. MacDonnell, S. Y. Bajah, W. R. Young, T. W. Millar, H. C. Bodemer, Ethle E. Keighley, G. Brown, J. W. McGregor, M. N. Rozdon.

Out of 75 candidates entered, the following passed the Final Examination, and have been admitted L.R.C.P.Ed., L.R.C.S.Ed., L.R.F.P. and S.Glasg.:

H. P. Lawson, E. C. Thomas, H. C. Franz, C. J. Poh, J. Kearney, W. Smith, A. Medwar, F. K. Fenton, Annott, D. Gould, W. O. Molander, J. Sam-, W. P. Kennedy, T. S. M. San- Jolhe, banthiam, J. Elliott, S. Th. S. A. Kelaney, K. C. K. E. Raja, A. E. Daviot.

Medical News.

THE Norman Lockyer Lecture before the British Science Guild will be given by Sir Walter Fletcher, K.B.E., M.D., F.R.S., at the Goldsmiths' Hall, Foster Lane, E.C.2, on Tuesday, November 19th, at 4.30 p.m., when he will speak on certain aspects of medical research and their applications.

THE Schorstein memorial lecture at the London Hospital Medical College will be delivered in the Bearsted Clinical Theatre by Dr. A. F. Hurst on Friday, November 8th, at 4.30 p.m.; the subject will be "Precursors of carcinoma of the stomach." Members of the medical profession are cordially invited.

As will be seen from our advertisement columns, applications for a Fouleron research studentship of the Royal Society, at an annual stipend of £700, must be received by December 9th. The studentship is for three years, but may be renewed from year to year to a total of six years in all. The duties of the student will be to conduct researches in medicine or the contributory sciences under the supervision of the management committee, to whom he or she will be required to report from time to time. Particulars may be obtained from the assistant secretary of the Royal Society, Burlington House, Piccadilly, W.1.

THE annual dinner of the Society of Medical Officers of Health will be held at the Piccadilly Hotel, London, W., on Thursday, November 14th, at 7.15 for 7.30 o'clock.

THE annual dinner of the West Riding Association of the graduates of the University of Edinburgh will be held at the Midland Hotel, Bradford, on Wednesday, November 13th, at 7.15 p.m. The guest of the evening is Dr. Logan Turner. The general meeting of the society will be held prior to the dinner at 6.30 p.m. Further information may be had from the Honorary Secretary, 33, Manor Row, Bradford.

PRINCESS MARIE LOUISE will lay the foundation stone of the first block of the new Queen Charlotte's Maternity Hospital in Hammersmith on November 4th, at 3 p.m. Guests are requested to arrive not later than 2.30 p.m., at 339, Goldhawk Road, W. A description of the new building appeared in our columns on September 7th (p. 473).

UNDER the auspices of the British Institute of Philosophical Studies Mr. E. S. Russell will give a course of six lectures at University College, London, Gower Street, W.C.1, on the interpretation of development and heredity. The lectures will be given on Mondays at 5.[illegible] ember 4th. Full information may be [illegible] to the Director of Studies, 88, Kingsway, W.C.2.

THE University of Sheffield commenced a new series of nine post-graduate clinics on October 18th, when Dr. Imrie gave a demonstration of [illegible] and the methods employed in their [illegible]. The [illegible] clinic takes place to-day (Friday, [illegible], when Dr. Skinner will discuss gastro-intestinal disorders of neurological origin. In response to a suggestion that a series of clinics might usefully be devoted to some special subject, it was arranged to devote the first six clinics of the course to gastro-intestinal disorders. No fee is charged for attendance at the clinics, which are held at the Royal Hospital, Sheffield, on Fridays, at 3.30 p.m. The last of the series will be held on December 13th. Afternoon tea will be served.

A COURSE of six lectures on smoke abatement will be given at the College of Technology, Manchester, on Fridays, from November 8th to December 13th, at 7 p.m. The lectures will deal with the nature of combustion, the direct and indirect effects of smoke on health, the employment of smokeless fuels, and the abatement of domestic and industrial smoke. Further information may be obtained from the secretary of the National Smoke Abatement Society, 23, King Street, Manchester.

A SHORT course of lectures on functional nervous disorders for practitioners and students will be given at the Tavistock Square Clinic for Functional Nervous Disorders, 51, Tavistock Square, W.C.1, commencing on Monday, November 11th, and concluding on Saturday, November 23rd. The fee for the course to medical practitioners is £2 2s. and to medical students 10s. 6d. Tickets for the course may be obtained in advance from the honorary secretary at the clinic.

THE Fellowship of Medicine announces that lectures will be given in the lecture room of the Medical Society, 11, Chandos Street, Cavendish Square, on the following dates: Monday, October 28th, at 5 p.m., by Dr. Maurice Davidson, on "*Coughs*" (*free to medical practitioners*); Tuesday evening, October 29th at 8.30, by Dr. A. F. Hurst, on "Recent work on disorders of the stomach"; and on Friday evening, November 1st, at the same time, by Dr. J. W. McNee, on "Recent views on diseases of the liver and biliary tract." The last two lectures are part of a series especially suitable for M.R.C.P. candidates. A demonstration of cases in the wards will be given by Sir Thomas Horder at St. Bartholomew's Hospital on October 31st, at 1.30 p.m.; a demonstration of gynaecological cases will also be given by Mr. McKim McCullagh at the Samaritan Hospital, Marylebone Road, on October 30th, from 10 a.m. to 12.30. Both demonstrations are free to medical practitioners. The second week of the special post-graduate course in medicine, surgery, and the special departments will continue at the Metropolitan Hospital, Kingsland Road, from October 28th to November 2nd, the daily sessions lasting from 10.30 a.m. to 5.30 p.m. On Friday, November 1st, Professor Dame Louise McIlroy will give the first of four weekly demonstrations in ante-natal treatment at the Royal Free Hospital at 5 p.m. The subjects of courses in November include: medicine, surgery, and gynaecology; venereal disease; proctology; and orthopaedics. Copies of all syllabuses and tickets of admission may be obtained from the Secretary of the Fellowship, 1, Wimpole Street, W.1.

A CLINICAL meeting will be held at the East London Hospital for Children and Dispensary for Women, Shadwell, on Wednesday, November 6th, at 4.15 p.m., when cases of interest will be demonstrated in the wards. Tea at 4 p.m. All practitioners will be welcome.

A FESTIVAL service in connexion with St. Luke's Day was held in St. Albans Cathedral on Sunday, October 20th, for medical practitioners of Hertfordshire and Bedfordshire, nurses, voluntary aid detachments, and members of the St. John Ambulance Brigade of the diocese. The lessons were read by medical practitioners, and the Dean of St. Albans delivered an eloquent address, entitled "Fellow workers with God." Before the service Dr. J. H. Gilbertson of Hitchin inspected the St. John Ambulance Brigade representatives, who numbered more than 150; after the service the congregation had tea together.

THE annual autumn meeting of the medical missions department of the Society for the Propagation of the Gospel in Foreign Parts was held on October 21st, at the Caxton Hall, Westminster, after a conversazione which had been attended by medical practitioners and nurses from overseas. The speakers included Sir Leonard Rogers, the Bishop of Assam, Dr. H. H. Weir, Dr. Mary Geil (China), and Miss H. Monkhouse (India).

THE annual festival service of the Guild of St. Luke was held in Westminster Abbey on Sunday evening, October 20th. The Bishop of Bradford in his sermon emphasized the need of such an increase in faith as was characteristic of the early Church. Members of the Guild of St. Luke were pledged to be men and women of prayer, and to give encouragement and support to others in leading a Christian life. They represented and assisted the work of medical missionaries abroad, and they must associate themselves actively with the promotion of an optimistic view of a campaign which should triumph over evil generally. During the service there was a procession of medical practitioners in academic robes, which included Mr. St. Aubyn Farrer, Provost of the Guild, Dr. Culver James, Vice-Provost, Dr. Andrew Currie, honorary secretary, and the Rev. Dr. Kirkland Whittaker.

THE second report of the Legislation Subcommittee of the Ministry of Health Advisory Committee on Water has now been published by H.M. Stationery Office, price 9d. It reviews the position as regards the existing legislation with respect to water supply, and proposals are submitted with a view to bringing the legal provisions up to date.

THE annual congress of German medical historians was held at Budapest on September 6th, when twenty-six papers were communicated, and the president, Professor Karl Sudhoff, delivered a speech in honour of Ignaz Semmelweis (1818-65), and laid a wreath at the foot of his statue.

THE *Yorkshire Post* of October 10th contains an interesting reference to the problem of the financial burden thrust upon hospitals in respect of the treatment of the victims of motor accidents. In an editorial reference the opinion is given that whatever is done in providing compensation should be on a national and not on a local basis. In a letter appearing in the same issue of the *Yorkshire Post* Colonel W. L. Kirby, chairman of the County Hospital, York, suggests that the addition of 1s. a year to the existing cost of a driver's licence would provide a sum which might be the nucleus of a central fund for distribution to all voluntary hospitals. Colonel Kirby also supports the plea that a small part of the Road Fund might be allocated to this useful purpose.

THE National Association for the Prevention of Tuberculosis has, during September and October, conducted educational tours in Angus, Perthshire, Berkshire, Staffordshire, Nottinghamshire, Essex, Leicester, Bolton, Glossop, Ipswich, Gateshead, Oldham, and Barnes.

ON October 11th, at Plymouth, Mr. T. Young Simpson, O.B.E., M.D., M.S., F.R.C.S.Ed., was presented with a walnut compactum and an illuminated autograph book from many of his medical colleagues on his retirement from practice on account of ill health due to overwork.

THE Medical Society of Budapest has recently celebrated the centenary of the birth of Friedrich von *Korányi* (1828-1913), who was noted for the introduction of cryoscopy of the blood and urine, the benzol treatment of leukaemia, several valuable works on tuberculosis, and his interest in post-graduate teaching.

DR. THEODOR AXENFELD, professor of ophthalmology at Freiburg i. Br., has been awarded the Lucien-Howe gold medal by the American Ophthalmological Association, and Dr. Ernest Fuchs, professor of ophthalmology at Vienna, has been awarded the Leslie-Dana gold medal.

THE two German journals devoted to anaesthetics, *Schmerz* and *Narkose und Anaesthesie*, in the issue of July 15th united to form a single organ entitled *Schmerz, Narkose-Anaesthesie*, under the editorship of C. J. Gauss of Würzburg, B. Behrens of Heidelberg, and H. Franken of Freiburg.

WE have received a copy of the first issue of the *Collected Papers* of the Lockwood Clinic at Toronto. This brings together under one cover reprints of articles published during recent years in various medical journals by Dr. Ambrose L. Lockwood and some of his colleagues.

A COUNCIL has recently been formed in Sydney to investigate the social and physiological effects of alcohol. The president is Mr. I. V. Newman of the botanical research department of Sydney University, and Dr. Arthur, Minister of Health for New South Wales, vice-president.

A PROPOSAL to abolish regulated prostitution has recently been rejected by a small majority in the Japanese Parliament. The Director of Public Health pointed out that venereal disease occurred in only 13 per cent. of the registered women, as compared with 32 per cent. of the unregistered.

A SOCIETY has been founded in New York, with a capital of a million dollars, to undertake further investigations on poliomyelitis.

DURING 1928 there were 25,764 deaths in Vienna, or 13.3 deaths per thousand inhabitants, and 19,744 births, or 10.2 births per thousand inhabitants.

DR. MAX RUBNER, professor of hygiene and physiology of Berlin University, has been elected an honorary member of the Physiological Society.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to *The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.*

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The *TELEPHONE NUMBERS* of the British Medical Association and the *British Medical Journal* are *MUSEUM 9861, 9862, 9863,* and *9864* (internal exchange, four lines).

The *TELEGRAPHIC ADDRESSES* are:

EDITOR of the *British Medical Journal, Aitiology Westcent, London.*

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*

MEDICAL SECRETARY, *Mediocria Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone 21361 Edinburgh).

QUERIES AND ANSWERS.

TREATMENT OF THYROID CYSTS.

"F. S." asks if there is any known method of treating thyroid cysts by injections.

SUN BATHING.

"N." wishes for details of the construction and main requirements of sun baths in this country, and asks where information may be acquired, either in books or by visits to certain places.

FLEAS.

"T. G. P." (Aylesbury) writes in reply to "W. G. H." (p. 744), who asked how to keep fleas away: *This method has proved satisfactory.* Enclose in each of four small bags a piece of camphor, 1 in. square and 1/2 in. thick; with a small safety pin attach them to the inside of the trousers, about the ankle level. Most fleas gain entrance at this spot.

INCOME TAX.

Cash Receipts Basis.

"H. E. H." has been in practice for many years, and has been assessed on the basis of cash receipts. In July last he bought an additional practice, which has been amalgamated with his previous one. The inspector of taxes proposes to tax the earnings of the additional practice separately, on the basis of the book debts, and not on that of the cash receipts. The two practices have become so intermingled that separation of the receipts is impracticable.

*** On the facts explained it would be legally incorrect, in our opinion, as well as most inconvenient, to make separate assessments in respect of the two practices—which have, in effect, become one. On the other hand, "H. E. H." cannot claim to apply the cash receipt basis to the new practice as now constituted, because the cash receipts from that portion of it which results from the purchase of the additional practice will not, in the first year or so, represent a fair computation of the "income" therefrom, as calculated according to the Income Tax Acts. The best solution to a somewhat troublesome problem seems to us to be as follows:—July, 1929, to April 5th, 1930: "H. E. H." to accept liability on the amount of the existing assessment, or on the amount of the bookings from that practice for that period, *less any additional current* expenses incurred through taking over the additional work. Year to April 5th, 1931: Take the cash receipts of the year to December 31st, 1929, *plus* the probable amount received by the vendor of the new practice in the period January to June, 1929, *less* the expenses incurred by "H. E. H." in the year to December 31st, 1929, and those incurred by the vendor in the period January to June, 1929. The above may be open to some objection on strict technical grounds, but would provide an equitable settlement.

Payment of Indian Income Tax.

"N. D. D." explains that he receives dividends—on shares in the name of his wife and his children—on which Indian income tax has been paid of, say, about 22d. in the £, and he pays here an additional income tax to bring up the total payment to the full rate of 4s. in the £. He encloses a circular received from the company, and inquires whether he is not paying too much.

*** He is chargeable at 4s., *less* the relief provided. That relief cannot exceed half his "appropriate rate," and as that rate appears to be 4s., the maximum relief would be 2d. in the £, whereas he has received relief at 22d. in the £. Whether he should receive a further 2d. in the £ will depend on the amount of the refund which he can claim from the Indian Revenue under Section 43 of the Indian Income Tax Acts of 1922 and 1923, on which he can obtain advice on application to the High Commissioner for India in London. What is probably a more important point is that if his children are beneficially entitled to the income arising on the shares which stand in their names, then they are not taxable in this country as part of "N. D. D.'s" income, though the reverse is the case with the income on his wife's shares. This is a point which he would be well advised to take up with his local inspector of taxes at an early date.

Separate Assessment of Husband and Wife.

"CERNOS" (whose inquiry was answered on September 21st, p. 565) writes again with regard to the calculation of the allowances due to his wife and himself separately, sending additional particulars.

*** The allowances appear to be correctly calculated; the marked difference between the years 1927–28 and 1928–29 is due to the change in our correspondent's own income, following on the sale of investments and the purchase of an annuity.

LETTERS, NOTES, ETC.

PRESCRIBING BY CIRCULAR.

"C." writes: A few days ago I came into possession of a circular, copies of which had apparently been sent to all the customers on *the books of a certain chemist. This circular advertised cachets* of thyroid and manganese for trial to members of the general public in cases of "asthma, rheumatism, blood pressure, obesity (stoutness), intestinal troubles, acne (pimples and blotches), kidney troubles, neuritis, and all other troubles which are caused by auto-intoxication." It scarcely seems right that a chemist should *circularize the public in such a manner*, since thyroid and manganese is not a preparation which can be taken with impunity without medical supervision. Surely the doctor is the one to say whether this treatment is suitable for any particular case, and not the chemist. Is it not against the ethical code of pharmacists to purloin a mode of treatment from the medical *journals and advertise it wholesale to their customers?* How can it be prevented?

AN IRISH MEDICAL POET.

"IRISH GRADUATE" writes: I desire to draw attention through your columns to the proposed publication of the letters of Dr. Drennan, the Belfast patriot, poet, and doctor, who lived at the end of the eighteenth and the beginning of the nineteenth centuries. Dr. Drennan was the author of the well-known poem "When Erin First Rose" and other poems; he was in close contact with many well-known figures in a stirring period of Irish history. Those who desire to support the publication should send their names to the Deputy Keeper of Public Records, Public Record Office for Northern Ireland, Murray Street, Belfast, or H.M. Stationery Office, Custom House, Belfast. The price of the publication will be 7s. 3d., post free, but the volume will only be brought out if sufficient subscribers are obtained. Those who wish to make the publication possible should write at once to one of the above addresses.

HERPES AND VARICELLA.

DR. E. J. BOSCHI (Bruton, Somerset) writes: On August 26th I was called to see a woman, whom I found to be suffering from rather severe frontal (supraorbital) herpes. Exactly fourteen days later, September 19th, three of her children developed varicella. At the time, so far as I can ascertain, there were no other cases of varicella in this district.

ERRATUM.

IN the final correction of Dr. F. G. Chandler's paper on "Conditions Simulating Pulmonary Tuberculosis" (published last week), a regrettable error was perpetrated by the substitution of one line for another. Line 11 in the first column of page 707 is obviously out of place and distorts the sense of the whole sentence. This, which begins in line 9, should read as follows: "In 1924 I made, with my house-physician Dr. S. Isbo, an investigation into the question of whether the faecal examination for tubercle bacilli was of real practical clinical value."

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 48, 49, 50, 51, 54, 55, 56, 57, and 58 of our advertisement columns, and advertisements as to partnerships, assistantships, [illegible] 53.

A short summ [illegible] advertisement columns appear [illegible]

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

359. Syphilis of the Stomach.

J. A. JOHNSON (*Minnesota Med.*, August, 1929, p. 496) reports the case of a man, aged 54, who contracted syphilis when 35 years of age. He was treated energetically for several years, but on admission to hospital in 1922 his Wassermann reaction was strongly positive. Since 1918 he had complained of indigestion, flatulence, and pyrosis; a year later severe pain and vomiting occurred after a heavy meal. The vomiting grew worse and he lost 33 lb. in weight. A skiagram showed almost complete obstruction in the lower third of the stomach, and a large tumour could be felt; there was slight melaena and no free HCl in the gastric contents, with moderate anaemia. An exploratory operation revealed great thickening of the stomach wall, with grey striations, especially over the fundus, resembling linitis plastica, or "leather-bottle stomach." There was generalized hypertrophy, especially at the pylorus, and extensive adhesions between the duodenum and liver. A posterior gastro-enterostomy was performed and a condition typical of gastric syphilis was present—extensive mucosal atrophy with hypertrophy of the submucous and muscular coats. Three years later the patient reported that he had had no trouble since the operation. He received antisyphilitic treatment for two years and regained health. J. M. HAYES (ibid., p. 496) believes that gastric syphilis is not as rare as was formerly believed: it is estimated to occur once in about 300 gastric lesions. Various authors have reported 115 cases. The condition may occur in either congenital or acquired syphilis, and gastric symptoms appear from four to twenty-five years after the initial lesion. The average duration of symptoms is about eight years; these simulate gastric or duodenal ulcer, or cholecystitis. Pain is usually severe immediately after meals and at night. Anacidity or achylia is present, probably due to mucosal destruction. The pain is frequently relieved by alkalis, but not by food. Considerable emaciation without cachexia may occur. Gastric deformity, usually of the hour-glass or dumb-bell type, due to sclerosis of the middle portion of the stomach, occurs, and the symptoms then become severe. A palpable tumour or six-hour residue is rare. Under specific treatment symptoms usually disappear, but the deformity remains. Hayes describes the case of a married woman, aged 31, who could give no history of a primary lesion, although her Wassermann reaction was strongly positive. In 1920 she had attacks of severe nocturnal epigastric pain, relieved by medicines for three years, when perforation of a gastric ulcer occurred. The pain was relieved, but the dyspepsia persisted after an operation. In 1924 she married and had a healthy child, but in 1926 epigastric pain after meals recurred, and skiagrams showed a typical dumb-bell deformity. Antisyphilitic treatment was given and the symptoms disappeared. In 1928 she had a sudden severe haematemesis and the haemorrhage recurred in spite of repeated transfusions. At an operation extensive adhesions between the anterior gastric wall and the abdominal wall were found, with a large ragged ulcer in the posterior wall perforating into the pancreas; around the ulcer the gastric wall resembled the "leather-bottle" stomach. The ulcer was excised with a large portion of the lower gastric wall; a high gastro-enterostomy was performed and the wound closed without drainage. The patient made a good recovery and has had but little trouble since. Skiagrams show that the stomach is now almost normal.

360. Isolated Hepatic Tuberculosis in Epidemic Encephalitis.

P. NAYRAC and J. DUBOIS (*L'Écho Méd. du Nord*, September 7th, 1929, p. 423) describe the case of a woman, aged 22, who died early in 1929, after a sudden exacerbation of hypertonic symptoms, with fever and wasting; she had suffered from Parkinsonism and the typical physical and mental changes following an acute attack of epidemic encephalitis in 1919. At the necropsy the usual degenerative and inflammatory changes at the base of the brain and nerve cells were found. No other changes of importance were discovered elsewhere in the body, except in the liver. This organ was normal in size, but on microscopical examination degenerative changes were detected in the lobules, and there were one or two collections of round cells with epithelioid cells at the centre of the masses. A careful search through many preparations revealed only two giant cell systems, but these were so typical of tuberculous lesions that, in spite of their infrequency in the preparations, the authors consider that the liver was undoubtedly affected with tuberculosis. Discussing the etiology, the authors prefer to regard this case as an example of "isolated" tuberculosis of the liver, primary affection of the viscus being virtually unknown. In their opinion the known tendency of the encephalitic virus to damage the liver secondarily to the central nervous system was in this case responsible for the breaking down of the ordinarily high resistance of the liver to a tuberculous infection arising in some unknown focus.

361. Inverted Landry's Paralysis.

E. N. BOUDREAU (*New York State Journ. of Med.*, August 12th, 1929, p. 1001) records the case of a man, aged 41, who during an epidemic of poliomyelitis, after a few days' malaise and abdominal discomfort, noticed weakness and numbness of the lip muscles on the left side. About ten days later he began to have difficulty in moving the food round in his mouth. Weakness of the left side of the face then became apparent and salivation developed. The symptoms disappeared for a month; he then began to have difficulty in swallowing, and a little later developed fibrillary twitching of the right deltoid and other muscles of the upper arm. The symptoms progressed slowly, and death ensued about six months after the onset. The nucleus of the twelfth nerve was thus first affected, but the process later involved the ninth and tenth nuclei and then the cervical segments of the right side. Possibly the left seventh or fifth nerve (descending or spinal portion) was first involved. There was no necropsy.

Surgery.

362. Aplasia of the Gall-bladder.

A. W. MEYER (*Deut. Zeit. f. Chir.*, September, 1929, p. 410), who records an illustrative case, states that aplasia of the gall-bladder is frequent in many animals, but is very rare in man, only one previous surgical case having been described by Kehr. Meyer's patient was a man, aged 21, whose parents had had repeated attacks of biliary colic, his father having been operated on twenty years previously on this account. The patient himself had suffered from abdominal pain, usually at night, for five years. Owing to an unusually violent attack laparotomy was performed. No trace of a gall-bladder could be found, but a fibrous cord extending from the usual site of the gall-bladder to the duodenum was exposed and resected. There were two hepatic ducts, which united shortly before entering the duodenum. No ulcer was found in the stomach or duodenum, and the pancreas, spleen, and appendix were quite normal. Apart from bilateral parotitis, which was perhaps due to haematogenous infection from the bile ducts, recovery was uneventful, and the patient was in good health three years later.

363. Ocular Symptoms of Fractures of the Base of the Cranium.

IN some cases of cranial injuries doubt may arise as to whether the lesion is really a fracture of the base or merely a cerebral contusion. In such cases certain ocular symptoms may be noted which entirely eliminate the diagnosis of contusion, and, even when occurring alone, not only establish that of fracture, but also locate its site. H. VILLARD (*Paris Méd.*, September 7th, 1929, p. 191) describes these symptoms, and divides them into two main groups: those of vascular, and those of nervous origin. The vascular symptoms are palpebro-conjunctival ecchymosis and pulsatile exophthalmia. The former, which is often associated with a slight exophthalmia due to an orbital haematoma, is of no significance unless it occurs immediately after the injury. Pulsatile exophthalmia, symptomatic of an arterio-venous aneurysm due to a communication between the internal carotid and the cavernous sinus, is a much less frequent and much later symptom. Neurological symptoms can appear in the four nervous systems of the eye—the sensory, sensorial, motor, and sympathetic. Usually only one of these is affected, but in certain lesions two—as a rule the sensorial and motor—may be implicated. Lesions of the sensory nerve (the trigeminal) are extremely rare in fractures of the base. They cause either an anaesthesia or neuralgia in the region supplied by this nerve, and occasionally a neuro-paralytic keratitis is seen. Much less rare are disorders of the sensorial system due to injuries of the optic nerve, which cause a partial or total paralysis of this nerve with diminution or suppression of vision of the affected eye. Alterations

in this nerve are indicated on examination by a white, pearly atrophy of the optic papilla, which is accompanied in total atrophy by a mydriasis with suppression of the photomotor reflex. Lesions of the optic nerve occur in fractures of the orbital summit. Of the motor nerves the fourth cranial is rarely injured, while lesions of the third nerve are commoner. In the latter the paralysis is frequently total, involving the extrinsic and intrinsic branches. Sometimes only the extrinsic ones are involved, and occasionally only one filament, usually the nerve to the levator palpebrae superioris. Paralysis of the third nerve may be associated with paralysis of another oculomotor nerve, with atrophy of the optic nerve, or with facial paralysis. Lesions of this nerve occur in fractures involving the sphenoidal fissure, and are often incurable. The external oculomotor nerve (the sixth) is most frequently injured in cranial fractures, and usually affects it alone, or another motor nerve may be involved. The paralysis may be partial or total, and may disappear or persist definitely. Lesions of the sixth nerve are present in fractures of the petrous portion of the temporal bone. Involvement of the sympathetic nerves is exceptional; *it it occurs it causes the peculiar affection*, traumatic enophthalmia, which is almost always unilateral, and usually indicates a fracture of the orbital region.

361. Embryonal Carcinoma of Testis.

A. L. STAPLER (*Urol. and Cutan. Rev.*, July, 1929, p. 447), who records three illustrative cases in men aged 34, 40, and 22 respectively, with a review of the literature, states that testicular tumours form about 3 per cent. of all tumours. They generally occur between the ages of 18 and 40—that is, in the period of full sexual maturity. The great majority are malignant. Sarcoma of the testis is extremely rare, and most tumours of this origin are of carcinomatous nature. The great majority are of the nature of embryonal carcinoma—that is, a malignant epithelial tumour arising from heterologous tissues which establish its teratomatous nature—or spermatocytoma—that is, a malignant epithelial tumour arising from homologous elements (probably the seminiferous tubules), and morphologically different from tumours of teratomatous origin. Trauma is an important etiological factor, a history of it being present in 22 per cent. of Tanner's series. The principal symptoms are enlargement of the testis and neuralgic pain radiating to the abdomen and back. The skin over the enlarged testis may be unchanged or it may be reddened, hypervascular, or discoloured. Hydrocele is frequently present. Testicular tumour must be distinguished from tuberculosis, syphilis, and haematocele. The familial and personal history is of value in excluding tuberculosis and syphilis; tuberculous growth usually begins in the epididymis and extends later to the testicle, and other parts of the genital tract are likely to be affected. Haematocele can be excluded if the tunica vaginalis can be palpated on the surface of a scrotal tumour and if the epididymis can be felt on pinching. The prognosis of malignant tumours of the testicle is extremely bad. Of 600 cases collected by Tanner on which operation had been performed, only 5½ per cent. of those traced were alive and well after four and a half years. Treatment consists of removal of the affected testicle and retroperitoneal glands by the abdominal route, followed by the application of *x* rays and radium.

Therapeutics.

355. The Treatment of Hiccup.

G. ROSENFELD (*Med. Welt*, August 10th, 1929, p. 1152) thinks that hiccup is becoming increasingly prevalent; it is frequently associated with influenza, either as a prodromal symptom or as a sequel, and in rare cases it becomes chronic. The author asserts that chronic hiccup was formerly peculiar to Polish Jewesses, and was often very severe; latterly it has been of a milder type, and never occurs during sleep, although the condition may be very persistent. In one recent instance a young man suffered from persistent hiccup for three weeks. Rosenfeld has found treatment by suggestion and hypnosis very *satisfactory*. A Jewess who had very persistent hiccup was relieved during the preliminary procedures; hiccup ceased as soon as hypnosis was induced, and the patient had no recurrence. In another case the mere suggestion of treatment by hypnosis effected a cure. The old method of sipping water and then *holding* one's breath often *inhibits* the spasmodic contraction of the diaphragm. In other cases holding the nostrils and forcibly closing the lips until partial asphyxia occurs will relieve the condition. Rosenfeld has found that in some chronic cases good results follow the passage of an oesophageal bougie. The instrument is introduced into the stomach and is held in that position for several minutes until the patient attempts to breathe deeply. Although in the case previously mentioned of the young man in whom hiccup persisted for three weeks retention of the sound in the stomach for two minutes was followed by ten hours' remission, the paroxysms returned until the bougie was passed again and held *in situ* for ten minutes. This was followed by permanent cure. The author advises that the general health and nutrition of patients should be carefully regulated, especially when these are children. Some children suffer from hiccup when hungry or cold; barley sugar is recommended for them and the provision of warm clothing in winter. This treatment relieves the paroxysms and prevents recurrence. Finally, Rosenfeld refers to Benda's observation that severe hiccup is sometimes associated with epidemic encephalitis, as in the epidemics of 1921 and 1922.

356. Insulin in Pernicious Anaemia.

ANOREXIA is one of the characteristic symptoms of pernicious anaemia, and since insulin has been used effectively for this condition in other diseases, V. VARGA (*Paris Méd.*, September 21st, 1929, p. 249) has employed the drug in pernicious anaemia. Eight cases are reported in which its administration, either alone or with arsenic and liver extract, was followed, especially in one case, by striking benefits. Insulin produces astonishing results. Within three or four days hunger is strikingly manifested; simultaneously, the vertigo, tinnitus aurium, and general weakness disappear, and the skin and mucous membranes assume their normal colour. Headache is the last symptom to disappear, but the achlorhydria is uninfluenced. A marked improvement in the haematological picture is also observable. Walinsky and other authors consider that pernicious anaemia is the result of a blood acidosis, which favours haemolysis, and insulin is one of the best agents to combat this condition. The drug acts not only by suppressing the hormone disturbance and increasing the alkalinity of the blood, but also, by stimulating the appetite, it enables the organism to utilize the necessary aliments. As a commencing dose 30 units, gradually increased to 50, is administered in two doses half an hour before each chief meal. No signs of intolerance following these doses have been noted. The use of the liver extract, the "*hépatopson*" of Schottmüller, has, on account of its repugnant odour, been abandoned for the "perhépar" of Richter, a very condensed product in tablets, of which 1 gram corresponds to 100 grams of fresh liver. Varga considers that insulin is a most valuable adjunct to liver therapy, and that in grave cases in which, owing to the anorexia, the introduction of liver is difficult or impossible, it is indispensable.

357. Administration of the Barbituric Acid Derivatives.

S. WEISS (*Amer. Journ. Med. Sci.*, September, 1929, p. 390) agrees that the intravenous administration of the barbituric acid derivatives has a distinct therapeutic value, but he gives a warning that this method is not without danger if used indiscriminately. Many of the pharmacological and therapeutic actions are identical in all members of the series. The author discusses their pharmacological effects and toxicity in animals and men, together with their therapeutic uses in the latter, with more particular reference to sodium luminal (sodium-phenyl-ethyl barbiturate). He concludes that man is more susceptible to these drugs than animals, and that in human subjects a relatively smaller percentage of the fatal dose produces analgesia and narcosis. Marked individual variations exist in the response of patients to identical doses, and the state of the central nervous system is one of the important factors determ
Sensory and motor excitement act
depression acts synergistically with
derivatives. Sodium luminal injected intravenously in doses of 0.4 to 1.2 grams at a rate of 50 mg. per minute in a 10 per cent. solution stops convulsions, produces muscular relaxation, and induces sleep with considerable regularity. The narcosis may be superficial and the analgesia only partial. The effect of a single dose may last twelve hours. In certain patients with severe status epilepticus, eclampsia, grave toxic reactions from local anaesthetics, convulsions due to cerebral haemorrhage or tetanus, the intravenous injection of sodium luminal and other derivatives is of distinct value. The routine use of the intravenous hypnotic dose of these drugs for surgical anaesthesia, or for the inducement of sleep of long duration in certain psychoses, is held to be dangerous. The mechanism of the action of the barbituric acid derivatives is different from that of ether, chloroform, and nitrous oxide, and the latter cannot usually be replaced by the former. The hypnotics of the barbituric acid series have a marked inhibitory influence on certain medullary and mid-brain centres. The dose should be determined by the individual behaviour of the subject during the slow intravenous administration of the hypnotic. In the pathological conditions mentioned large sedative or hypnotic doses

should be given only if the condition of the patient is critical, and other efficient, and safer, measures are not available. A hypnotic dose of any of these derivatives entails potential danger for the patient.

368. Mercurial Inunction in Syphilis.

H. N. COLE, J. E. RAUSCHKOLB, N. E. SCHREIBER, and T. SOLLMANN (*Arch. Derm. and Syph.*, August, 1929, p. 176) report the results of a study to determine whether the absorption of mercury could be hastened materially and with safety by means of massive inunctions at weekly intervals. Six patients were selected, three with intact skins, two with papular syphiloderms, and one with a follicular syphilitic eruption. Massive inunctions of mild mercurial ointment in doses of 30 grams (*30 per cent. of mercury*) were rubbed into the skin for sixty minutes once a week for four weeks. The ointment was applied to the body generally, but especially to the chest, thighs, and forearms. These inunctions caused little or no irritation, and were quite as effective as the ordinary daily ones. A slight salivation was noted in but one case, and the condition of the teeth, if oral hygiene was followed, had little or no bearing on the appearance of salivation. Investigations of the excretory function showed a greater and more rapid cumulative removal of the mercury in the urine and faeces than with simple inunctions with 50 per cent. ointment, clean inunctions with 50 per cent. ointment (the excess of ointment being removed with benzene), simple inunctions with 25 per cent. *ointment, and daily intramuscular injections of mercuric* sodium bromide. The excretion of mercury in the after-period of four weeks was similar to that following daily inunctions. The authors believe, therefore, that this technique has practical advantages in the treatment of certain syphilitic patients requiring supervision by a physician.

Neurology and Psychology.

369. Infiltrating Cerebral Tumours.

THE diagnosis of cerebral disease is seldom easy if the course of events is rapid, and numerous unexpected complications arise; *it may be difficult to decide between cerebral tumour*, softening due to vascular thrombosis, and even some type of inflammatory disease. There may be a lack of the cardinal signs which would be expected to be present; the existing signs may, moreover, be misinterpreted and their importance wrongly assessed. H. L. PARKER (*Journ. Neurol. and Psychopath.*, July, 1929, p. 1) reports a case which illustrates these difficulties and indicates how cerebral tumours may affect the surrounding tissues. Without appreciable warning, progressive hemiplegia, aphasia, and stupor developed in a man aged 58, and death occurred within three weeks. A striking feature of the case was the presence of a turbid, greenish-yellow cerebro-spinal fluid, seemingly purulent. The turbidity was found to be due to an enormous number of polymorphonuclear leucocytes. There were 1,600 per c.mm. of these on the day of admission, and 107 small lymphocytes; on the

[illegible] cerebro-spinal fluid.

increased intracranial pressure, and a diagnosis of progressive thrombosis of the middle cerebral artery with wide infarction of the brain was made. That this was actually the case was shown by an exploratory craniotomy, but post-mortem examination revealed also the presence of a small tumour in the tip of the left temporal lobe. Presumably this had given rise to no symptoms until it had caused compression and thrombosis of the artery, with resultant softening of the brain. The difficulty of differentiating cerebral tumours and softening is well known, and Parker cites illustrative cases from the literature. A factor to be considered in the problem of associated tumour and softening is the character of the growth; in Parker's case this was a spongioblastoma multiforme, the one type of tumour usually associated with an acute onset, an extremely rapid development, and a brief clinical course terminating in death. The symptoms and findings in the case can be explained by the nature as well as the site of the neoplasm. The author finds the changes in the cerebro-spinal fluid harder to understand. Microscopically the walls of the ventricles showed in places masses of polymorphonuclear leucocytes, and he suggests that these represent a reaction of the tissues to the necrosis and softening. This occurred close to the ventricular cavity, and the cerebro-spinal fluid was necessarily flooded with these cellular products. Parker adds that support is thus

370. Treatment of Dementia Praecox.

K. SCHROEDER (*Ugeskrift for Laeger*, June 20th, 1929, p. 519) gives an account of six cases of dementia praecox treated with deep intramuscular injections of an emulsion of sublimed sulphur in olive oil. He states that in his cases of dementia paralytica this procedure has been even more effective than artificial infection with malaria. After giving details of these six cases, in which several injections were followed by the desired febrile reaction, the author mentions that the first three patients regained their capacity to work, the mental condition of one of them becoming perfectly normal. Of the remaining three patients, one became better but was lost sight of, another did not improve, and the third was so much benefited that he wished to return home and resume work. The author has persuaded two German colleagues to adopt this treatment, and the results they have achieved in about forty cases since they began this treatment in 1928 have been encouraging; in as many as sixteen there was more or less marked improvement in direct relation to t[illegible]hor further refers to investigations at [illegible]al in Lund, Sweden, by Dr. Loberg[illegible]rt's direction. The first preliminary [illegible] of fifty cases, is described as being so encouraging that further investigations on a large scale and with adequate controls are contemplated.

371. Psychoses Treated with Liver and Thyroid Extracts.

O. LINGJAERDE (*Nordisk Medicinsk Tidsskrift*, August 17th, 1929, p. 523), of the Dikemark Asylum in Norway, started his therapeutic investigations on the basis of Wigert's observation that in dementia praecox, running a comparatively favourable course the thyroid is slightly enlarged or at any rate definitely palpable, whereas in the cases running an unfavourable course this gland is not palpable. The basal metabolism being the best index to the functional condition of the thyroid, the author has investigated the basal metabolism in about 130 cases, and he has never found it above normal in any case of schizophrenia. Many attempts to treat this condition with thyroid extracts have been made, and the author suggests that many of the failures have been due to inadequate dosage. Using the Norwegian thyroid preparation "nyco," standardized by the aceto-nitril method, each tablet corresponding in action to 0.10 mg. of pure thyroxin, and containing the equivalent of 0.30 gram of the fresh gland, he has exceeded the timid dosage of one or two tablets a day, and has pushed the treatment till the basal metabolism was over 110–115, and the pulse rate had risen to 80–100, at which stage he has ke[illegible] several months. Among 20 ca[illegible] there were 8 in which grea[illegible] symptoms was achieved, [illegible] improvement. In May, [illegible] with a diet of liver in certain cases, but on this treatment alone the improvement observed was limited to the purely physical condition of the patients; very good results were obtained, however, *in some cases with a combination of thyroid and* liver treatment, 9 out of 13 cases of schizophrenia showing great improvement or freedom from symptoms, and 2 other patients being markedly benefited. The author does not claim that these substances act as a specific on a well-defined morbid entity, but he believes they may support the body's natural recuperative powers.

Obstetrics and Gynaecology.

372. Transplantation of the Ovaries.

SERDUKOFF (*La Gynécol.*, June, 1929, p. 321) remarks that, with the development of endocrinology, transplantation of tissues and glands has assumed an important place in practical medicine; he discusses ovarian transplantation as to its indications, technique, and results. The operation consists of either auto-, homo-, or hetero-transplantation, or the transplantation of tissues of an animal of the same type and species. According to him, the best material for transplantation is that taken from goats or monkeys; very rarely are auto- or homo-transplants successful. One of the following methods can be employed: (1) a procedure which leaves intact the neuro-vascular pedicle of the transplant; (2) the implantation of the vessels of the transplant—a difficult method; (3) the transplantation of the glands after their section into small pieces; (4) after their division into only two portions. Serdukoff advocates the last method, and describes his operative technique. He reports his results in forty cases, and asserts that, by transplantation of the endocrine glands, the equilibrium of the endocrine status can be reconstituted and the fundamental functions of the female organism be regulated. Simultaneous transplantation

of the ovary, anterior lobe of the pituitary body, and thyroid gland gives better results than that of the ovary alone. In cases of infantile genital organs, ovarian transplantation plays a stimulating, trophic role, contributing to a duplication of the blood supply, to an increase of the uterus, and to a care of the functional form of sterility. In cases of amenorrhoea in castrated females, transplantation of the endometrium must be performed simultaneously with that of the endocrine glands. Success in transplantation strictly depends on an exact diagnosis and on well-marked individual indications.

373. Inflammatory Tumours of the Uterine Appendages.

ACCORDING to H. KIENLIN (*Zentralbl. f. Gynäk.*, July 13th, 1929, p. 1775) the main causes of such tumours are gonococcal infection, pregnancy, necrotic tumours, and tuberculosis. Hydrosalpinx has been caused in animal experiments by closure of the abdominal end of the tube, and a similar condition may arise in the human subject in cases of fibroid where adhesions blocking the abdominal ostium have been caused by friction of the tumour mass. Adhesions arising from endometritis may cause hydrosalpinx or haematosalpinx, and organisms may reach the tube in the menstrual blood. Infection by the blood stream is also possible. To elucidate this question 60 uteri excised at operation have been investigated bacteriologically, especially in regard to anaerobic organisms; the organs were removed under sterile precautions, and swabs were taken immediately after removal from the body, isthmus, and cervix, and cultured on bouillon, grape sugar and blood agar, and on blood. From these cases the following deductions have been made. The uterine cavity remains sterile even after prolonged haemorrhages. In isolated cases a few pyogenic organisms are found, and in such cases infection of the appendages is possible if any of the uterine contents pass into the tube; this may happen where there is any obstruction to the outflow by the vagina. It is therefore possible to find infective tumours without any of the above recognized causes; and this is commonest in elderly women, where the mucous membrane is inactive, cervical stenosis is approaching, and the outflow is slowed.

374. Painful Relaxation of Pelvic Joints in Pregnancy.

K. SKAJA (*Norsk Mag. f. Laegevid.*, July, 1929, p. 728) found painful relaxation of the symphysis and sacro-iliac joints in 31 out of 185 private patients (16.8 per cent.) at the end of pregnancy. In a number of instances these symptoms were only slight, but in one case after the pain had increased for some time rupture of the symphysis occurred when the patient turned in bed. Another three cases showed symptoms of rupture, which was not confirmed by *x*-ray examination. Two patients had pain and difficulty in walking, which recurred and increased with each pregnancy, from affection of one sacro-iliac joint. *X* ray examination was performed in 35 patients without, and 13 patients with, painful relaxation of the joints during pregnancy. A new technique was employed, the Roentgen film being placed in the vagina just behind the symphysis. The width of the symphysis in both groups was from 4 to 9 mm. In the second group cavity formation in the cartilage was far more frequent, while in some cases there were patches of atrophy in the adjacent part of the pubic bone.

375. Syphilis and Pregnancy.

A. S. WELLS (*Journ. Med. Assoc. South Africa*, June, 1929, p. 331) states that in 1,000 women whose blood was examined during pregnancy, a positive Wassermann reaction was obtained in 28.2 per cent.; placental blood examined in 393 cases proved positive in 23.5 per cent. These figures are high when compared with those of Edinburgh, Glasgow, and Copenhagen, where a positive Wassermann reaction is found in from 5 to 7 per cent. of pregnant women. Wells points out that a negative Wassermann reaction may occur when syphilis is present, but, according to Adams, the test is reliable in all but 1 to 3 per cent. of cases. As regards the significance of testing the placental blood, the chorionic ferments have the power of preventing the infection passing to the child (Adams); Wells remarks that, if this is so, then the results obtained in his series are high. The reactions of the male and female to syphilis are compared. In the female the chancre is rarely seen; rather is there a granulomatous infiltration of the uterus and cervix. The vaginal portion of the latter is indurated and discoloured; it is often cauliflowerlike in appearance, with a similar change evident in the urethral meatus, clitoris, and breast nipple. The symptoms of secondary syphilis are milder in women than in men, but a marked constitutional disturbance is much more often present. This difference is still without explanation. It may be that the serums are different—that in the female there is a greater lymphocytosis; or, again, it may be that a protective action is produced by some hormone, or that a conceptional protection results through chorionic proteins.

Treatment is usually satisfactory, according to Wells, if begun six weeks before term. Weekly injections of novarsenobillon intravenously and bismuth intramuscularly are given, while cases admitted just before, or in, labour have intravenous injections of novarsenobillon if no albuminuria is present, with a view to reducing the risk of infection to both nurses and child.

Pathology.

376. Filterable Forms of the Tubercle Bacillus.

S. R. GLOYNE, R. E. GLOVER, and A. S. GRIFFITH (*Journ. Path. and Bact.*, October, 1929, p. 775) have conducted in London and Cambridge a series of experiments to determine whether it is possible to demonstrate the existence of a filterable form of the tubercle bacillus. These experiments conformed in their general plan to those described by French workers during the past few years; special care, however, was taken over technique. Doubtful lesions in the inoculated animals were closely scrutinized, and in most cases examined both histologically and by animal passage. The material examined comprised tuberculous sputum, which was generally used either fresh or after three days' autolysis in the incubator; placental or foetal tissues from tuberculous mothers; the organs of naturally or experimentally infected rabbits, guinea-pigs, or fowls; and cultures of human, bovine, and avian types. From this material suspensions were prepared in saline solution or broth. After preliminary centrifugalization or coarse filtration, these suspensions were passed through Chamberland L_2 or L_3 candles, or in a few instances through a Berkefeld N candle. The pressures employed in filtration were 150 to 200 mm. of mercury in one series of experiments, and 500 mm. in another. The filtrates were injected into guinea-pigs in the case of mammalian, and into fowls in the case of avian viruses. The dose used varied from 1 to 5 c.cm. in one series, and from 5.5 to 40 c.cm. in another. The results of these experiments were entirely negative. None of the animals inoculated showed any of the usual signs of tuberculosis, even though they were not killed as a rule for three or four months. A few of the animals died, generally from pseudo-tuberculosis or a staphylococcal infection. None of the passage animals inoculated from doubtful lesions showed any signs of tuberculosis. These experiments have therefore failed to demonstrate the existence of a filterable form of the tubercle bacillus.

377. Persistence of Living Cells in Maitland's Medium for Cultivating Vaccine Virus.

T. M. RIVERS, E. HAAGEN, and R. S. MUCKENFUSS (*Journ. Exper. Med.*, August, 1929, p. 181) have repeated the experiments of the Maitlands on the cultivation of vaccinia virus in a medium that was supposed to be unsuitable for the multiplication of the tissue cells. This medium consisted of minced chicken kidney suspended in a mixture of chicken serum (1 part) and Tyrode's solution (2 parts). It was found by the Maitlands that vaccinia virus multiplied abundantly in this medium, and they were of the opinion that this multiplication occurred in the absence of growth of tissue cells. The present authors have confirmed the increase of the vaccinia virus, but from experiments devised to determine the length of time that living cells might survive under these conditions they come to the conclusion that this medium must be regarded as in fact a tissue culture. By subculture into suitable media they obtained evidence that many cells were able to remain viable in it for at least five days. It was found, moreover, that a medium of serum and Tyrode's solution was capable at times of supporting multiplication of certain cells. It would appear, therefore, that the increase of vaccine virus in this medium does not occur in the absence of living cells. In support of this statement they find that if the chicken kidney is frozen and thawed an adequate number of times, so that subcultures into favourable media prove negative, showing that the cells are in all probability destroyed, no multiplication of the vaccinia virus occurs.

378. Relation between the Thyroid and the Tonsils.

G. BUSACCA (*Arch. Ital. di Otol., Rinol. e Laryngol.*, August, 1929, p. 519), in order to determine the relation existing between the thyroid gland and the tonsils, carried out experiments on young dogs, with the following results. Total thyroparathyroidectomy produced changes in the tonsils consisting in a slight diminution of weight of the organs, and, histologically, in a decrease in number and still more in size of the follicles, with a consequent relative increase in the adenoid tissue, diminution of the lymphoid cells, and an increase in the cells of the reticulum. On the other hand, partial thyroidectomy did not cause any appreciable changes in the structure of the tonsils.

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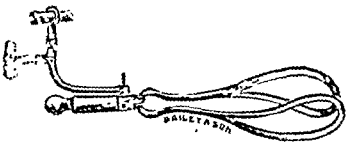

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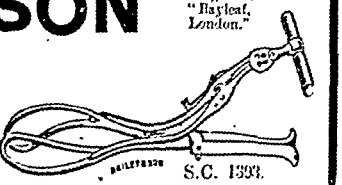

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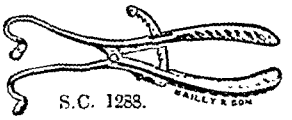

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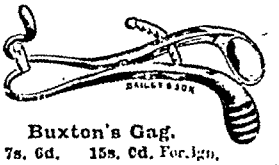

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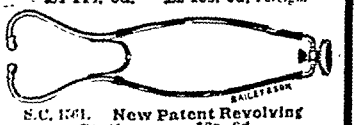

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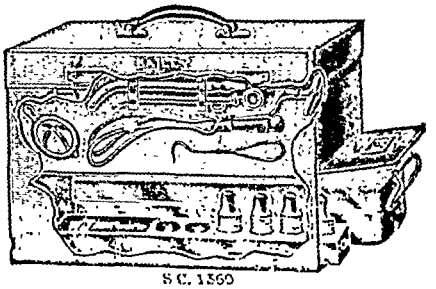

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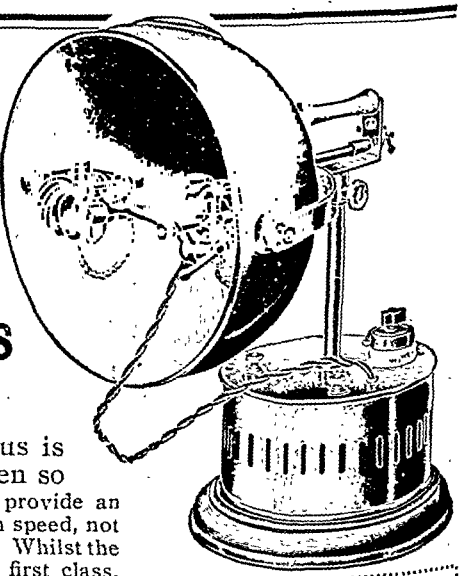
"MEDISUN"

ULTRA-VIOLET LIGHT APPARATUS

100% BRITISH.



Specification:

The "MEDISUN" Ultra-Violet Light Apparatus is of the quartz mercury vapour type. It has been so designed as to eliminate all unnecessary expense, and yet provide an efficient source of ultra-violet radiation, quick in its reaction speed, not requiring adjustment, and foolproof in its mechanical details. Whilst the price of the "Medisun" is quite low, its appearance is really first class. Manufactured in polished aluminium throughout, it does not require frequent cleaning, is designed to stand on any table, weighs only 14 lb., and is a thoroughly reliable piece of apparatus.

RUNNING COST: **30 TREATMENTS 3d.**

Price:
For use on Direct Current ... £12
For use on Alternating Current £18
THIRTY OTHER TYPES
Ask for Catalogue No. B12.

HIRE.—Where required Ultra-Violet Light Apparatus may be hired for individual cases.

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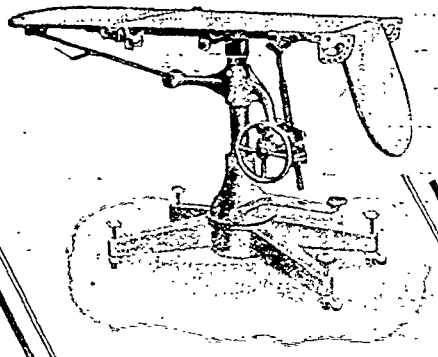

Table in Horizontal Position with Head Piece lowered. Note the length of Head Piece and extreme angle to which this can be lowered.

An ACHIEVEMENT in SCIENTIFIC CONSTRUCTION

"Emesay Popular" Model OPERATING TABLE

£45 100% BRITISH

ESSENTIALLY similar in design to our well-known "Universal" Model. By the experience gained in its manufacture, and the use of modern methods of production, we are able to offer a first-class heavy and stable Table at a price within the reach of the smaller Hospitals and Nursing Homes.

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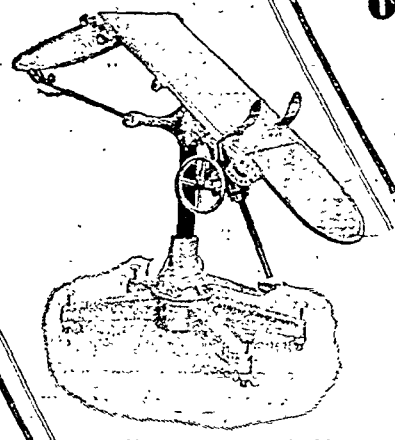

Table in Trendelenburg Position. Both throughout the movement and after the desired position has been obtained, table is held absolutely secure. Foot Piece automatically falls into position shown

CONTRIBUTES ALL THAT A TABLE CAN CONTRIBUTE TO A SUCCESSFUL OPERATION

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Royal Free Hospital
City of London Chest Hospital
Hull Royal Infirmary
Aukland General Hospital
Maude Memorial Hospital
Crown Agents for the Colonies
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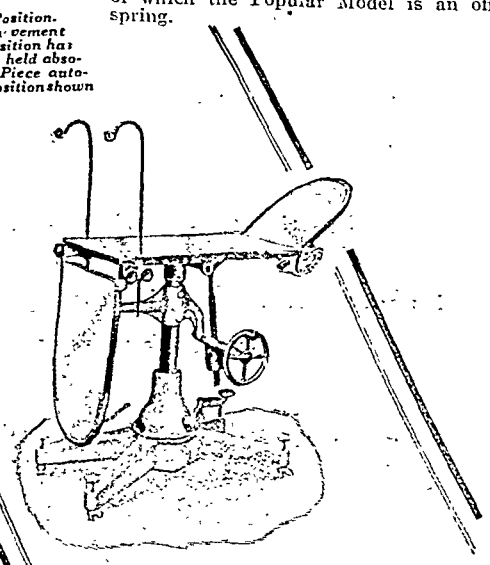

Adjustment for Lithotomy Position. Foot Piece dropped. Crutches in position. Head Piece is raised and of sufficient length to give necessary support for operation on Ear, Nose and Throat.

"EMESAY POPULAR"

Heavy Oil-pump Base. Shoulder Rests, Lithotomy Stirrups.

Complete **£45 : 0 : 0**

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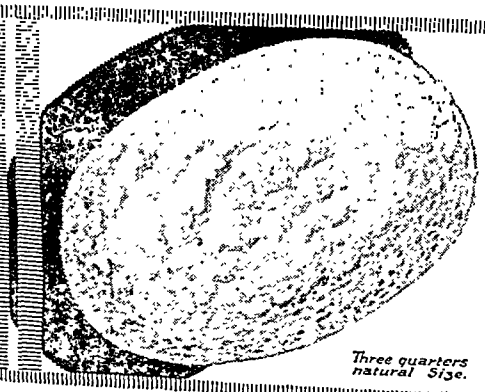

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Made by

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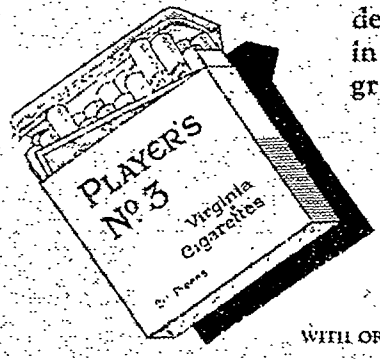

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Safest for your patients

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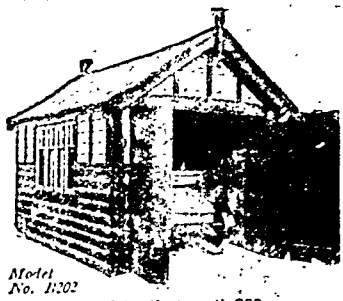

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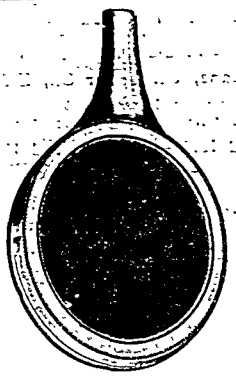

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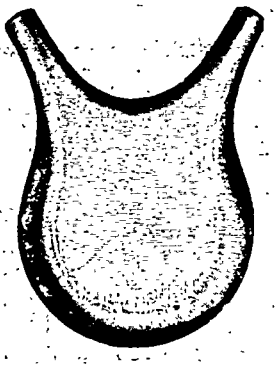

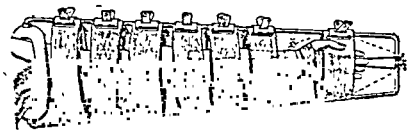

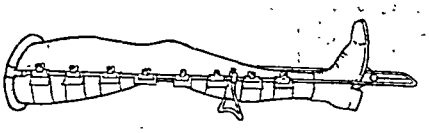

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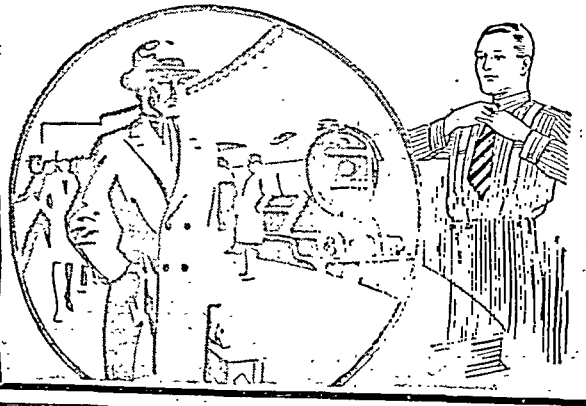

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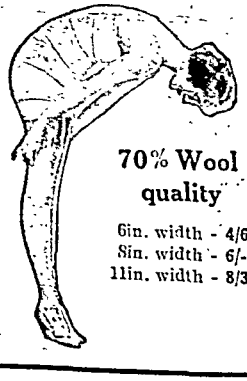

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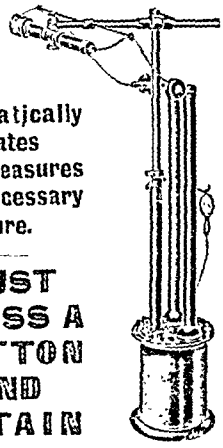

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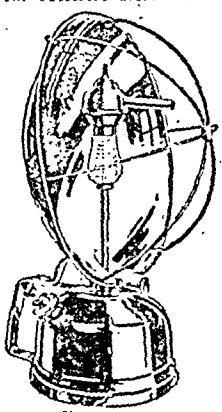

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" Zinci Ox., Benz., 28 lb. @ 1/- lb.		

	B.P.	Aquos.
Hyoscyam.	4/3	2/4
Nucis. Vom.	3/10	1/4
Opii	5/7	4/6
Quin. Ammon.	3/3	—
Rhei. Co.	2/8	1/9

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PRIVATE HOSPITAL for Ladies and Gentlemen suffering from Mental and Nervous Disorders. The hospital is situated in nine acres of pleasure grounds. Both voluntary and patients under certificates received. For further particulars apply Dr. GERALD JOHNSTON and Dr. ERNEST ROLLINS, Resident Physicians.

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Telephone: 481 GATLEY.

STRETTON HOUSE, Church Stretton, Shropshire.

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Telegrams: "Alleviated, London." Telephone: Rodney 4741—4742.

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A PRIVATE HOME for the treatment of patients of both sexes suffering from Mental Illnesses.
Conveniently situated four miles from Charing Cross. Easy of access from all parts.
Six acres of ground, highly situated, facing Finsbury Park.
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For further particulars, apply to the MEDICAL SUPERINTENDENT.

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Extensive grounds. Detached Villas. Chapel. Garden and dairy produce from own farm. Terms very moderate.

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Illustrated Brochure on application to the Medical Superintendent, The Old Manor, Salisbury. Telephone 51.

BETHLEM ROYAL HOSPITAL, LAMBETH ROAD, S.E.1.

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President: Colonel and Alderman Sir CHARLES CHEERS WAKEFIELD, Bart., C.B.E.
Treasurer: Sir LIONEL FAUDEL-PHILLIPS, Bart.

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ST. ANDREW'S HOSPITAL
FOR MENTAL DISORDERS,
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FOR THE UPPER AND MIDDLE CLASSES ONLY.

President: The Most Hon. the Marquess of Exeter, C.M.G., A.D.C.

Medical Superintendent: Daniel F. Rambaut, M.A., M.D.

This registered Hospital is situated in 120 acres of park and pleasure grounds. Voluntary Boarders, persons suffering from incipient nervous and mental disorders, as well as certified patients of both sexes, are received for treatment. Careful clinical, biochemical, bacteriological, and pathological examinations. Private rooms with special nurses, male or female, in the Hospital or in one of the numerous villas in the grounds of the various branches can be provided.

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This is a Reception Hospital in detached grounds, with a separate entrance, to which patients and voluntary boarders can be admitted. It is equipped with all the apparatus for the most modern treatment of Mental and Nervous Disorders. It contains special departments for hydrotherapy by various methods, including Turkish and Russian baths, the prolonged immersion bath, Vichy Douche, Scotch Douche, Electrical baths, Plombières treatment, etc. There is an Operating Theatre, a Dental Surgery, an X-ray Room, an Ultra-violet Apparatus, and a Department for Diathermy and High Frequency treatment. It also contains Laboratories for biochemical, bacteriological, and pathological research.

MOULTON PARK.

Two miles from the Main Hospital there are several branch establishments and villas situated in a park and farm of 650 acres. Milk, meat, fruit, and vegetables are supplied to the Hospital from the farm, gardens, and orchards of Moulton Park. Occupation therapy is a feature of this branch, and patients are given every facilitiy for occupying themselves in farming, gardening, and fruit-growing.

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FUNCTIONAL NERVOUS DISORDERS & CHRONIC MEDICAL CASES.

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Telephone: Teignmouth 289.

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This Institution is exclusively for the reception of a limited number of Private Patients of both sexes of the Upper and Middle Classes at moderate rates of payment. It is beautifully situated in its own grounds on an eminence a short distance from Nottingham, and from its singularly healthy position and comfortable arrangements affords every facility for the relief and cure of those mentally afflicted. Voluntary Boarders received without Certificates.

For terms, etc., apply to the Medical Superintendent.

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Hard and grass Tennis Courts, Croquet Lawn, Cricket Field, and all indoor amusements, Dancing, Concerts, Wireless, Billiards, Badminton. Occupational treatment.

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A REGISTERED HOSPITAL for the CARE and TREATMENT of LADIES and GENTLEMEN suffering from NERVOUS and MENTAL DISORDERS. Within two miles of the G.W. Railway and L. M. & S. Railway Stations at Gloucester, the Hospital is easily accessible by rail from London and all parts of the United Kingdom. It is beautifully situated at the foot of the Cotswold Hills, and stands in its own grounds of over 280 acres. Voluntary boarders of both sexes are also received for treatment.

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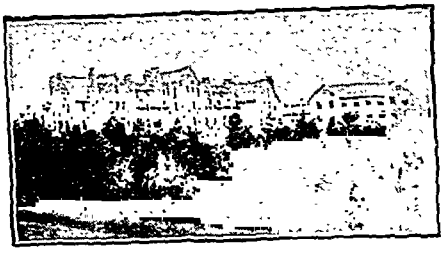

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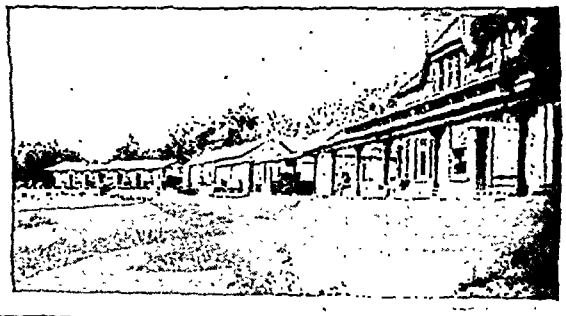

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HOME FOR CHILDREN and YOUNG PEOPLE, delicate or predisposed to Tuberculosis, in English Doctor's House, near Davos, Switzerland. Terms from £5 5s p.w.—Apply, Dr. BERNARD HUDSON, Victoria, Davos, Switzerland.

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Large grounds, 400 ft. above sea. HOME for Ladies Mentally afflicted. Voluntary Boarders received. Stations: Brentwood and Shenfield 1 mile. Liverp'l St 26 min. Apply Dr HAYNES

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PRIVATE HOME for MENTALLY AFFLICTED LADIES. Ten only received. Apply, Medical Officer or Mrs. PEELE. *Telephone*: 2708.

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Unsurpassed situation, 600 ft. above sea-level, high sunshine record, own farm. Resident Medical Officer. Male cases only.

Inclusive weekly terms 50/-.

Special preferential arrangements for a few private cases at 4 guineas.

Artificial Pneumothorax, etc.

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with Vita-glass Sun-lounge and Marine Balcony on the South Coast.

Every kind of Bath. Plombière Lavage.
Every kind of Massage. Ultra-violet Light.
Every kind of Electricity. Diathermy.
Every kind of Diet.
Carlsbad and Vichy Waters, etc.
High Frequency. Electric Lift.

Prospectus from Secretary. *Tele.* 341
Resident Physician: W JOHNSON SMYTH, M.D

M.D. THESIS

(Camb., Edin., Glasg., Durh., &c.)

SKILLED COACHING, GUIDANCE, and ADVICE from Specialist Tutors, in conformity with the Regulations of the various Universities. Apply for particulars and free booklet, "Hints on Writing a Thesis for the M.D. Degree," to the SECRETARY, Medical Correspondence College, 19, Welbeck Street, London, W.1.

Grove House, All Stretton,

Church Stretton, Shropshire.

A Private Home for the care and treatment of a limited number of ladies mentally afflicted. Climate healthy and bracing.

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Vision and home comforts in large well-appointed House, S. London. MENTAL, CHRONIC, or SENILE PATIENTS received. Lovely grounds. From 6 gns. p.w. Medical refs.—No. 6859, B.M.A. House, Tavistock Sq., W.C.1.

Delightful Home, care and supervision, with trained Mental Nurse, for YOUNG PATIENTS. Large house and grounds, out-skirts London. Medical references. From 5 gns — Address, No: 6858, B.M.A. House, Tavistock Square, W.C.1.

Retraction and the Ordering of GLASSES taught by Practising Ophthalmic Surgeon in London. £8 8s. for 10 lessons.—Address, No. 123, B.M.A. House, Tavistock Square, W.C.1.

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PRIVATE WARDS for paying patients.

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TAUNTON.

A PUBLIC SCHOOL FOR BOYS.

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New Science Buildings, containing seven laboratories, two lecture rooms, science library, store rooms, etc., opened in September, 1925. Prospectus from Head Master.

LIVERPOOL SCHOOL OF TROPICAL MEDICINE.

(UNIVERSITY OF LIVERPOOL)

COURSES OF INSTRUCTION (lasting about three months) for the Diploma in Tropical Medicine commence on October 1st and January 7th, and for the Diploma in Tropical Hygiene on January 12th and April 26th. (Candidates for the D.T.H. must possess the D.T.M. of this University.)

For particulars apply to the Hon. Dean, Liverpool School of Tropical Medicine, Pembroke Place, Liverpool.

GLASGOW POST-GRADUATE MEDICAL ASSOCIATION.

A SERIES OF WEEKLY DEMONSTRATIONS for medical practitioners has been arranged in the various hospitals of Glasgow, from the [illegible] the end of May.

[illegible] also offered, and [illegible] are available in [illegible] syllabus may be had on application to the Secretary, Post-Graduate Medical Association, The University, Glasgow.

A REALLY GOOD SCHOOL FOR GIRLS. REASONABLE INCLUSIVE FEES.

MARLBOROUGH COLLEGE,

Tytherington Hall, nr. Macclesfield.

Sound Education. Upper and Lower Schools. Preparation, when desired, for all University Entrance Examinations. Particulars from Sec. *Special Terms to Medical Men.*

NORTH-EAST LONDON POST-GRADUATE COLLEGE,

PRINCE OF WALES'S GENERAL HOSPITAL, N.15.

The Practice of the Hospital is limited to Medical Practitioners. Particulars from T. H. C. BENIANS, F.R.C.S., Dean.

Dancing.—Miss Evadne Newsholme. Tel.: Mountview 3634. Palace Hotel, Lancaster Gate, W.2. Priv. lessons (course of 3 and 7: 1 gn. and 2 gns.). Reduct. 2 or more pupils: 2, 3 gns.; 4, 5 gns. (7 lessons). Class course of 12 £1/11/6; single class 3/6.

The Tavistock Square Clinic for Functional Nervous Disorders,
51, Tavistock Square, W.C.1.

A SHORT COURSE of Lectures on
FUNCTIONAL NERVOUS DISORDERS
FOR PRACTITIONERS AND STUDENTS

will be given at the Clinic beginning November 11th, 1929.

	4.45 p.m.	5.45 p.m.
	R. G. GORDON, M.D., F.R.C.P. Royal United Hospital, Bath.	**J. R. REES**, M.D.
Mon., Nov. 11.	The Significance of Psychological Insight in Diagnosis and Treatment.	The Nature and Scope of Psychotherapy.
	CHARLES BERG, M.D., D.P.M.	
Tues., Nov. 12.	The Technique of Psycho-Analysis in Relation to other forms of Psycho-therapy.	Treatment: Physical, Environmental, Re-educational.
	JAMES YOUNG, M.D.	
Wed., Nov. 13.	Jung's Analytical Psychology and its Relationship to other Schools of Thought.	Persuasion: Suggestion: Conscious Adjustments.
	W. LANGDON BROWN, M.D., F.R.C.P. St. Bartholomew's Hospital.	
Thurs., Nov. 14.	The Biology of the Endocrine System.	The Use of Mental Analysis: Methods of Working: Free Association.
Fri., Nov. 15.	The Function of the Endocrines.	Analytical Methods cont.
Sat., Nov. 16.	2.30 to 5 p.m. *Suggestion and Hypnosis with Practical Demonstrations.*	
	4.45. p.m.	**5.45 p.m.**
	W. LANGDON BROWN, M.D., F.R.C.P. St. Bartholomew's Hospital.	**H. CRICHTON-MILLER**, M.D.
Mon., Nov. 18.	The Interaction of the Endocrine System with the Gonads.	Heredity, Environment and Adaptation.
Tues., Nov. 19.	Psychoneuroses associated with the Endocrines.	Conflict and Repression: Mental Mechanisms.
	EDWARD A. BENNET, M.B., D.P.M.	
Wed., Nov. 20.	The Relations of Adler's Theory and Technique to other Schools of Thought.	Emotional Development: Oedipus and Electra Complexes.
	JOHN FREEMAN, M.D. St. Mary's Hospital.	
Thurs., Nov. 21.	Toxæmia in Relation to Functional Disorder.	Dreams and Day Dreams: Myths and Symbols.
	W. J. ADIE, M.D., F.R.C.P. National Hospital, Queen Square.	
Fri., Nov. 22.	Differential Diagnosis of Post-encephalitic and Functional Conditions.	Anxiety and Hysterical States.
Sat., Nov. 23.	2.30 to 5 p.m. *Demonstration of Intelligence Testing.*	

8.15 p.m. each evening: **Description of Cases, with Discussion**, by Members of the Clinic Staff.

FEE for the Course - Medical Practitioners £2 2s. 0d.
Medical Students (i.e., unqualified) 10s. 6d.

Tickets for the Course to be obtained in advance from the Hon. Lecture Secretary at the Clinic.
These Lectures are not open to the general public.

HIGHER MEDICAL QUALIFICATIONS

Why not add one of the following degrees or diplomas to your name?

Diploma in Psychological Medicine.
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Diploma in Ophthalmology.
Diploma in Radiology.
Diploma in Tropical Medicine.
Diploma in Bacteriology.
Diploma in Public Health.
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You can qualify for any of the above by our Courses of Combined Postal, Clinical, and Practical Instruction.

We Specialise in Post-Graduate Coaching for all Examinations.

Special Preparation for all Surgical Qualific[illegible] F.R.C.S EDINBURGH, F.R.C.S [illegible] THE HIGHER

You can ensure [illegible] *ination at the*

MEDICAL CORRESPONDENCE COLLEGE
19, WELBECK STREET, CAVENDISH SQUARE, LONDON, W.1.

Courses always in progress for all the above Examinations, and also the 1st, 2nd & Final M.B., B.S.London, and all other Universities. 1st, 2nd & Final Conjoint, Edinburgh Triple & L.M.S.S.A. D.P.H.(Cantab., Lond., Vict., Dublin, &c.). M.D.London, M.R.C.P. London and Edinburgh. *M.D.Durham for Practitioners of 15 years' standing. M.D.Thesis* (all Universities, British and Colonial). All Dental Examinations.

WHY FAIL AT ANY MEDICAL OR SURGICAL EXAM?

VALUABLE BOOK FREE!

Write at once for our "Guide to Medical Examinations," stating in which Examination you are interested, and a copy will be sent post free by return.
Medical Correspondence College, 19, Welbeck St., Cavendish Sq., W.1.

POST-GRADUATE MIDWIFERY.

Qualified Medical Women are admitted to The Mothers' Hospital of the Salvation Army, Lower Clapton Road, E.5 for practical fortnightly Courses in Midwifery. These include delivery of normal cases, attendances at all abnormal cases, operations, ward rounds of visiting staff, V.D. clinics, and ante-natal clinics. For further particulars, fees, etc., apply to the Secretary.

UNIVERSITY OF OXFORD.

DIPLOMA IN *OPHTHALMOLOGY*.

The next [illegible] H
17th, 1930 F
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For furth[illegible]

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Oxford.

UNIVERSITY EXAMINATION POSTAL INSTITUTION
17, RED LION SQ., LONDON, W.C.1.
(FOUNDED IN 1882.)

Principal: Mr. E. S. WEYMOUTH, M.A. (Lond.). POSTAL OR ORAL PREPARATIONS FOR ALL MEDICAL EXAMINATIONS.

SOME SUCCESSES:

M.D.(Lond.), 1901-28 (9 Gold Medallists during 1913-28)	309
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M.B.,B.S.(Lond.), *Final* 1906-28 (Completed Exam.)	237
F.R.C.S.(Eng.), *Primary* (1906-28), *Final*	149 / 135
M.R.C.P.(Lond.), 1914-28	152
D.P.H. (Various) 1906-28 (Completed Exam.)	280
F.R.C.S.(Edin.), 1918-28	39
M.R.C.S., L.R.C.P. *Final 1910-28* (Completed Exam.)	402
M.D.(Dur.) (Practitioners) 1906-28	36
M.D. Various. By *Thesis*. Numerous successes.	

Preparations for Medical Preliminary, and Chemistry, Physics, Anatomy, Physiology, and final subjects for the Conjoint Board; M.B.(Cantab., etc.); also D.P.M., D.O.M.S., D.T.M. & H., D.L.O., L.M.S.S.A., etc. Numerous successes.

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MEDICAL PROSPECTUS (48pp.)

CONTENTS:—The method and the cost of entering the Medical Profession. *Particulars of all Medical Examinations*, Postal Courses, and Oral Classes. *Suggestions for the higher Medical* Ex[illegible] the higher Sur[illegible] for the Special D[illegible] Course. Openings for Women. Hints for writing theses.

Medical Prospectus gratis along with list of Tutors, etc., on application to the Principal, Mr. E. S. WEYMOUTH, M.A., 17, Red Lion Sq., London, W.C.1. (Telephone: HOLBORN 6313.)

STAMMERING, SPEECH DEFECTS.

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F.R.C.S.(Edin.)

CLASSES, with Museum and Anatomical Demonstrations, for next Exam., will commence shortly. Correspondence work at any time. Particulars from CHAS. WHITTAKER, F.R.C.S., Surgeons' Hall, Edinburgh.

Medical and Dental Students.

Special Classes for Pre-Medical and Dental Exams., Matric., and Prelims.
Chemistry, Physics, and Biology Labs.
MANCHESTER TUTORIAL COLLEGE,
327, Oxford Road, Manchester.

STAMMERING.

SPEECH DEFECTS.

Resident and non-resident pupils. Full particulars upon request.—Mr. A. C. SCHNELLE, 119, Bedford Court Mansions, London, W.C.1. Estab. 1905. Telephone: Museum 3665.

F.R.C.S.(Edin.).

Prep. Classes and Museum Demons. for next Fellowship Exam. will commence shortly. Correspondence course for March and later exams should begin now. Partics., Mr. H. C. ORRIN, F.R.C.S., at Surgeons' Hall, Edinburgh.

LONDON HOSPITAL MEDICAL COLLEGE:
(University of London.)

SCHORSTEIN MEMORIAL LECTURE.

The above Lecture will be delivered by ARTHUR F. HURST, Esq., D.M., F.R.C.P., Senior Physician to Guy's Hospital, on FRIDAY, NOVEMBER 8th, 1929, at 4.30 p.m., in the BEARSTED CLINICAL THEATRE.

Subject: *"Precursors of Carcinoma of the Stomach."*

Members of the Profession are cordially invited to attend.

Professor WILLIAM WRIGHT,
M.B., D.Sc., F.R.C.S., Dean.

September 3rd, 1929.

Royal College of Surgeons of EDINBURGH.

At the Annual Meeting of the College held on October 16th, the following OFFICE-BEARERS were elected for the ensuing year:

President: JAMES HAIG FERGUSON, M.D., LL.D.
Vice-President: ALEXANDER MILES, M.D., LL.D.
Secretary and Treasurer: JOHN WILLIAM STRUTHERS, M.B.
Librarian: DAVID MIDDLETON GREIG, M.B.
Convener of Museum Committee: CHARLES WALKER CATHCART, C.B.E., M.B.

PRESIDENT'S COUNCIL.

JOHN WHEELER DOWDEN, M.B.
ARTHUR H. H. SINCLAIR, M.D.
GEORGE LYALL CHIENE, M.B.
HENRY WADE, C.M.G., D.S.O., M.D.
WILLIAM JAMES STUART, M.B.
JOHN SMITH FRASER, M.B.

REPRESENTATIVE ON THE GENERAL MEDICAL COUNCIL:
ALEXANDER MILES, M.D., LL.D.

The Royal Society.

FOULERTON RESEARCH STUDENTSHIP.

Subject to candidates of sufficient merit presenting themselves, the President and Council of the Royal Society propose to appoint a Foulerton Research Student at a stipend of £700 per annum, the duties of the Student being to conduct researches in Medicine or the contributory sciences under the supervision and control of the Management Committee, to whom he will be required to report from time to time.

The Studentship will be tenable for three years, but may be renewed from year to year with a maximal total tenure of six years. Members of either sex are equally eligible, but must be of British nationality. Applications must reach the Royal Society not later than December 9th. Further particulars can be obtained from the Assistant Secretary of the Royal Society, Burlington House, London, W.1.

George Henry Lewes Studentship
IN PHYSIOLOGY.
ANNUAL VALUE £250 (about).

The Student is required to give his whole time to research work except such as, in the opinion of the Trustees, does not interfere with his original enquiries. Candidates should send (*a*) a statement of their qualifications, (*b*) the subject of their proposed research, (*c*) the name of one referee to the Director, Prof BARCROFT, Physiology School, Cambridge, by Nov. 15th.

The studentship is open to persons of either sex and is tenable for one, two, or three years as the Trustees shall decide. The student is expected to work in the Cambridge Physiology School, but under special circumstances with the consent of the Director he may carry on his researches elsewhere.

The Middlesex Hospital and MEDICAL SCHOOL, W.1.

Applications are invited for ONE MEDICAL and ONE SURGICAL REGISTRARSHIP. The Registrars are attached to Clinical Units of the Hospital and are responsible for the clinical notes, the carrying out of clinical and pathological examinations, the preparation of material for demonstration, and the co-ordination of the work in the Bland-Sutton Institute of Pathology with that in the Wards.

The appointment is for one year from January 1st, 1930, and the holder is eligible to apply for re-appointment, and may retain office for three consecutive years. Salary £300 per annum. He is required to attend at the Hospital daily from 10 to 5. Further particulars may be obtained from the Secretary-Superintendent, to whom applications, with not more than three testimonials, must be sent by noon on Tuesday, December 10th.

By Order of the Board,
S. R. C. PLIMSOLL, Secretary-Supt.

ROYAL NAVAL DENTAL SERVICE.

The Admiralty is prepared to receive applications from qualified Dental Surgeons for entry into the Royal Navy as DENTAL OFFICERS.

Two vacancies are to be filled. Candidates must be below 28 years of age on December 31st, 1929 (unless granted an allowance for age, not exceeding six months, in respect of a period served in a recognized Civil Hospital appointment), and must be registered under the Dentists Act as qualified to practise as Dental Surgeons in Great Britain and Ireland. They will be required to appear before a Selection Committee and to pass a medical examination by a Board of Naval Medical Officers as to their physical fitness for entry.

The Regulations for entry and the forms to be filled up by candidates can be obtained on application to the Medical Director General of the Navy, Queen Anne's Chambers, Tothill Street, London, S.W.1.

The form of application, accompanied by the necessary documents, must reach the Medical Director General not later than November 18th.

The University of Adelaide.

ELDER PROFESSOR OF ANATOMY AND HISTOLOGY.

Applications are invited for the Elder Professorship of Anatomy and Histology in the University of Adelaide, South Australia.

The Professor will be required to offer courses of lectures and practical work in Anatomy and Histology suitable for students in Medicine and in Dentistry, together with advanced courses suitable for Honours students in Science.

The services of a full-time lecturer are provided and also a technician. Salary £1,100 per annum.

Applications, with testimonials, statement of age, academic qualifications, experience, and copies of publications, should reach the Registrar, the University of Adelaide, South Australia, not later than January 1st, 1930. Candidates must state the earliest date after March 1st at which they can take up their duties.

Further information may be obtained from:
(*a*) The Agent-General for South Australia, Australia House, Strand, London.
(*b*) Any University in Australia or New Zealand.

F. W. EARDLEY, Registrar.

The University of Sheffield.

FACULTY OF MEDICINE.

The Council of the University and the Board of Management of the Royal Hospital, Sheffield, acting conjointly, are about to make an appointment to the post of PATHOLOGIST to the Hospital and DEMONSTRATOR OF PATHOLOGY in the University. The salary offered is £500 per annum. Applications, accompanied by recent testimonials and references, should be sent on or before Saturday, November 16th, to the undersigned from whom further details may be obtained.

W. M. GIBBONS, Registrar.

The University of Sheffield.

FACULTY OF MEDICINE.

The Council of the University are about to make an appointment to the post of LECTURER IN PATHOLOGY in the University. The salary offered is £500 per annum. Applications, accompanied by recent testimonials and references, should be sent on or before Saturday, November 16th, to the undersigned, from whom further details may be obtained.

W. M. GIBBONS, Registrar.

University of London.

Applications are invited from Graduates of the University of London in Medicine and Surgery for the GEOFFREY DUVEEN TRAVELLING STUDENTSHIP IN OTO-RHINO-LARYNGOLOGY, which is of the value of £450 a year, and is tenable, in the first instance, for one year.

Applications should reach the University on or be[illegible] must be made on the [illegible] may be obtained, toget[illegible]ulars, from the Acad[illegible] of London, South Kensington, S.W.7.

The Royal Infirmary,
SUNDERLAND. (290 Beds.)

Wanted beginning of December, HOUSE PHYSICIAN (male). Salary £140 per annum, with board, residence, and laundry.

Applications, stating age, qualifications, and accompanied by copies of testimonials, to be sent to the undersigned by October 18th.

S. C. FRYERS,
House Governor and Secretary.

County Borough of Dewsbury.

APPOINTMENT OF MEDICAL OFFICER OF HEALTH AND SCHOOL MEDICAL OFFICER.

The Dewsbury Corporation invite applications from duly qualified and registered Medical Practitioners holding the Diploma in Public Health for the position of Medical Officer of Health and School Medical Officer at a commencing salary of £900 per annum.

The gentleman appointed will be required to devote the whole of his time to the duties of the office, to reside in the Borough, and will not be allowed to engage in private practice. All emoluments or fees which may be payable to, or received by him, must be paid over to the Corporation.

The appointment will be made in accordance with and subject to the Public Health Officers Act, 1921, the Sanitary Officers Order, 1926, and to the approval of the Minister of Health.

Canvassing, either directly or indirectly, is prohibited. Applicants may, if they desire, forward 15 copies of their application and testimonials for the use of the members of the Committee.

Applications, with copies of not more than three recent testimonials attached, to be sent to me, endorsed "Medical Officer of Health," not later than November 8th.

HOLLAND BOOTH,
Town Clerk.

Town Hall,
Dewsbury.
October 16th, 1929.

Leicestershire County Council.

ASSISTANT COUNTY MEDICAL OFFICER OF HEALTH.

Applications are invited from duly qualified Medical Practitioners (male) under 40 years of age, for the appointment of Assistant County Medical Officer.

Candidates must possess a Diploma in Public Health; experience in School Medical Inspection and Public Health administration will be deemed additional qualifications.

The person appointed must devote the whole of his time to the duties of the office, and will carry out such other duties as the County Medical Officer may assign to him.

The salary will be at the rate of £650 per annum, rising, subject to satisfactory service, by annual increments of £25 to £700 per annum, with travelling expenses according to the County Council scale.

The appointment is subject to the Local Government and Other Officers Superannuation Act, 1922.

The appointment will be terminable by three months' notice on either side.

Forms of application may be obtained from the undersigned, and should be returned, accompanied by copies of not more than three recent testimonials, by Friday, November 1st.

W. J. FREER,
Clerk to the Council.

10, New Street,
Leicester.
October 14th, 1929.

City of Birmingham.

MEDICAL OFFICER FOR MATERNITY AND CHILD WELFARE.

The Public Health Committee invite applications from Medical Women for the post of Medical Officer for Maternity and Child Welfare. Applicants must have had Children's Hospital and Maternity Hospital experience. The Diploma of Public Health is desirable. Salary £600 per annum. The candidate appointed will be required to join the Birmingham Corporation Superannuation Scheme, and for this purpose to pass a medical examination. The appointment will be terminated by one month's notice on either side. Applications endorsed "Medical Officer for Maternity and Child Welfare," and accompanied by copies of three recent testimonials, to be made on a form to be obtained from the Medical Officer of Health, Council House, Birmingham, and returned to him on or before November 2nd. Canvassing will disqualify.

Borough of Dover.

ASSISTANT MEDICAL OFFICER OF HEALTH.

The Corporation of Dover invite applications for the above appointment from Medical Practitioners between 30 and 40 years of age who hold a Diploma in Sanitary Science. Salary £700, rising to £750.

The applicant appointed will be required to commence his duties as soon as possible and to devote his attention principally to work under the Aliens Order, 1920. Colloquial French and German will be a recommendation.

Further details of the duties and terms and conditions of the appointment may be obtained of the undersigned, to whom applications, accompanied by copies of testimonials, must be delivered by November 4th.

R. E. KNOCKER,
Town Clerk.

Town Clerk's Office,
Brook House, Dover.
October 15th, 1929.

ROYAL NAVAL MEDICAL SERVICE.

VACANCIES EXIST FOR MEDICAL OFFICERS IN THE ROYAL NAVY.

Candidates will be entered as Short Service Medical Officers and will be considered for transfer to the Permanent Service after 6 months' service. They must be registered under the Medical Acts, and be under 30 years of age on date of entry.

Medical Officers, R.N., are liable to serve in Naval Hospitals or Ships in any part of the world.

Excellent opportunities exist for clinical professional work, both medical and surgical, as well as for study and practice of Hygiene, Pathology, Ophthalmology, and other specialist branches.

Adequate provision is made for Post-Graduate Study.

OUTFIT ALLOWANCE of £50 is paid on joining.

PAY.—Pay from £452 to £2,350 a year, according to length of service.

ALLOWANCES.—When in charge of **Hospitals** and **Sick Quarters,** 10s. and 5s. a day.

60 Specialists Allowances of 5s. a day.
Flag Allowances, 5s. and 2s. 6d. a day.
Provision Allowance, Lodging Allowance, etc.

PROMOTION.—To Surgeon Lieutenant Commander after 6 years' service; to Surgeon Commander after a total of 12 years' service. Promotion to Surgeon Captain, Surgeon Rear-Admiral, and Surgeon Vice-Admiral is by selection.

Ante-date of seniority on account of civil hospital appointments, and accelerated promotion can be gained.

RETIREMENT.—Gratuities are paid as follows:—

Short Service Officers, after 3 years' service	£300
Permanent Officers, after 4 years' service ...	£400
,, 8 ,, ,, ...	£1,000
,, 12 ,, ,, ...	£1,500
,, 18 ,, ,, ...	£2,250

Rates of Pension range from £423 a year, normally earned after 20 years' service, to £1,123 a year, the maximum earned by a Surgeon Vice-Admiral.

Copies of the Regulations and Particulars as to Conditions of Service and Emoluments may be obtained on written or personal application to the Medical Director General of the Navy, Queen Anne's Chambers, Tothill Street, London, S.W.1.

City of Plymouth.

MATERNITY AND CHILD WELFARE DEPT.

ASSISTANT MEDICAL OFFICER OF HEALTH.

Applications are invited from duly qualified Medical Women for the position of Assistant Medical Officer of Health in the Maternity and Child Welfare Department of the City. The person appointed will rank as an Assistant Medical Officer of Health, and will work under the direction of the Medical Officer of Health.

Candidates must have had practical experience in Maternity and Child Welfare work, and preference will be given to those who have had special experience in the Diseases of Children and Women, in Venereal Diseases, and in Ultra-violet Light Therapy.

The person appointed will be required to devote the whole of her time to the duties of the office, and will not be allowed to engage in private or consulting practice. The appointment will be terminable by three months' notice, in writing, on either side. The salary is at the rate of £600 per annum.

Applications, stating age, qualifications, and experience, together with copies of not more than three recent testimonials, should be sent to the undersigned not later than Saturday, November 2nd, and should be endorsed "Assistant Medical Officer." Forms of application will not be provided. Canvassing will be a disqualification.

A. T. NANKIVELL, M.D., M.R.C.P., D.P.H.,
Town Hall, Medical Officer of
Stonehouse, Plymouth. Health.
October 16th, 1929.

City and County of Kingston-upon-Hull.

ASSISTANT MEDICAL OFFICER OF HEALTH.

The Corporation of Hull invite applications from Medical Men, under the age of 40 years, and of not less than three years' standing in their profession, for the post of Assistant Medical Officer of Health.

Salary £600 per annum, rising by annual increments of £25 to £700.

The appointment is subject to the provisions of the Local Government and Other Officers Superannuation Act, 1922.

The successful candidate will be required to devote the whole of his time to the duties of the office, which consists mainly of work in the School Medical Department, but may also include duty in any section of the Health Services of the City or Port.

A form of application may be obtained from the undersigned, and must be returned to the Medical Officer of Health (in an envelope, endorsed "Assistant Medical Officer of Health"), together with copies of three recent testimonials, not later than the first post on Thursday, November 7th.

Health Department, W. ALLEN DALEY,
Guildhall, Hull. Medical Officer of
Oct. 12th, 1929. Health.

Rotherham Union.

RESIDENT ASSISTANT MEDICAL OFFICER.

The Guardians invite applications for the above post at the UNION HOSPITAL, Alma Road, Rotherham, at a commencing salary of £125 per annum, together with the usual residential allowances.

Candidates must be single, not exceeding 30 years of age, fully qualified and registered.

Appointment will be for a period of one year in the first instance, subject to extension for a further period not exceeding twelve months at the option of the Guardians.

Applications, stating age, qualifications, etc., together with copies of three testimonials, to be sent to the undersigned not later than Nov. 2nd.

Union Offices, W. C. HARRISON,
26, Moorgate St., Clerk to the
Rotherham Guardians.
October 15th, 1929.

Sheffield City Hospitals.

INFECTIOUS DISEASES.
(537 Beds)

RESIDENT MEDICAL OFFICER.

Applications are invited from duly qualified registered Medical Practitioners with Bacteriological experience for the post of Resident Medical Officer (male).

Salary, with three years' experience in professional practice, £350, with board, lodging, and washing.

Applications, stating age, qualifications, and previous experience, together with copies of recent testimonials, to be sent to the Medical Superintendent, Lodge Moor Hospital, Sheffield, not later than November 1st.

County Borough of East Ham.

MEDICAL
RESIDENT
ISOLATION

The Town Council invite applications from duly qualified persons for the appointment of Deputy Medical Officer of Health and Resident Medical Superintendent of the Isolation Hospital at a salary of £700 per annum, plus residence, light, and fuel (these emoluments being valued for superannuation purposes at £100 per annum).

Age not to exceed 45 years.

The successful candidate will be required to give full-time service and act under the control and direction of the Medical Officer of Health. Administrative and organising ability are essential qualifications for the post.

Candidates must possess the Diploma in Public Health and must have had previous experience of administration in a Public Health Department of a Municipal Corporation.

The appointment will be subject to the approval of the Ministry of Health and the Board of Education.

The person appointed must not engage in private practice, and will be required to pass a medical examination, and the appointment will be subject to the provisions of the Local Government and Other Officers Superannuation Act, 1922.

Applications, on forms to be obtained from the undersigned, must be, together with copies of three recent testimonials, received by him on or before noon on Thursday, November 14th.

Canvassing, either directly or indirectly, will disqualify.

By Order,
Town Hall, C. EUSTACE WILSON,
East Ham, E.6. Town Clerk.
October 16th, 1929.

Liverpool County Borough.

LOCAL EDUCATION AUTHORITY.

JUNIOR ASSISTANT SCHOOL MEDICAL OFFICER.

Applications are invited for a JUNIOR ASSISTANT SCHOOL MEDICAL OFFICER in the Department of the Medical Officer to the Local Education Authority, at a salary of £600 per annum.

Applicants must be registered Medical Practitioners, and shall have had at least three years' experience. It is desirable that they should have had some special experience in School Hygiene and in Diseases of Children.

The officer appointed will be required to devote his whole time to the service of the Education Authority, under the direction of the Medical Officer to the Education Authority. He will not be allowed to undertake private practice, and will be required to contribute to the Liverpool Corporation Superannuation Scheme, as required by the Standing Orders of the City Council.

A form of application may be obtained from the undersigned, and applications, endorsed "Junior Assistant School Medical Officer," must be delivered at the office of the Town Clerk, Municipal Buildings, Liverpool, on or before November 4th.

Canvassing of members of the Committee or the City Council is strictly prohibited, and will be considered a disqualification.

WALTER MOON,
Municipal Buildings, Town Clerk and
Liverpool. Clerk to the Local
Oct. 17th, 1929. Education Authority.

Bolton Union.

TOWNLEYS HOSPITAL.

Wanted for the Townleys Hospital, Farnworth, near Bolton, a SECOND ASSISTANT MEDICAL OFFICER *(male)* for a period of one year.

The salary will be at the rate of £225 per annum, and rations, furnished apartments, attendance, washing, etc.

Forms of application, together with conditions of appointment (for which a stamped addressed foolscap envelope must be enclosed), may be obtained from me.

Last day for applications November 11th.
28, Mawdsley St., H. I. COOPER,
Bolton. Clerk to the Guardians.
October 18th, 1929.

Royal United Hospital, Bath.

Wanted at once, ASSISTANT HOUSE SURGEON. Salary £100 per annum.

The appointment will be for not less than six months, and candidates must be male, unmarried, and of British nationality.

Applications, together with three recent testimonials, must be addressed to the undersigned.

J. M. SHEPPARD, F.C.I.S.,
Secretary.

Brighton Parish.

SENIOR ASSISTANT (RESIDENT) MEDICAL OFFICER.

The Guardians of the Poor of the above-named Parish require the services of a Senior Assistant *(Resident)* Medical Officer at their Poor Law Infirmary.

Candidates must be single men under the age of 35 years.

The appointment is for one year only, but the person appointed will be eligible for further appointment from year to year.

The Infirmary has a consulting staff and is divided into Medical, Surgical, and Gynæcological and Obstetrical, etc., sections; there are also X-ray, Electro-therapeutic and Massage Departments.

The person appointed must be duly registered and in possession of the qualifications required by the Minister of Health. Experience in the management and routine work of a Hospital is essential. He will be required to devote the whole of his time to the service of the Guardians and to act as Deputy to the Medical Officer both at the Poor Law Institution and Warren Farm (Poor Law) Schools, which are situate about two miles from the Infirmary, and containing approximately 250 children; he will also carry out such other duties as may be assigned to him by the Medical Officer.

Salary £375 per annum, with residential allowances valued for the purposes of the Poor Law Officers Superannuation Act, 1895, at £150 per annum.

Applications for the appointment, giving age, qualifications, etc., accompanied by copies of not more than three recent testimonials, and a description of the diplomas, certificates of degrees, licences, and other instruments held by the candidate, must be sent to me not later than Monday, November 4th, by 10 o'clock in the forenoon.

Further particulars of the appointment may be obtained on application to the Medical Officer of the Infirmary.

By Order,
Poor Law Offices, HORACE BURFIELD,
Prince's St., Brighton. Clerk to the
October 21st, 1929. Guardians.

Brighton Parish.

APPOINTMENT OF ANÆSTHETIST.

The Guardians of the Poor of the above-named Parish invite applications from duly qualified Medical Practitioners for the appointment of Anæsthetist at the Poor Law Institution Infirmary, Elm Grove, Brighton.

Salary 150 guineas per annum.

The appointment will be subject to the provisions of the Poor Law Officers Superannuation Act, 1895.

The person appointed will be required to administer anæsthetics at the Poor Law Infirmary at the request of the Medical Officer or his Deputy, and to provide at his own expense a duly qualified Medical Practitioner to act as Deputy Anæsthetist during any period of holiday or absence from duty.

Applications for the appointment, giving age, qualifications, etc., and stating what experience the candidate has had in administering anæsthetics, accompanied by not more than three recent testimonials, must be sent to me not later than 10 o'clock in the forenoon of Monday, November 4th.

Further particulars, if desired, may be obtained from Mr. H. J. [illegible], M.S.(Eng.), Medical Officer of the Poor Law Institution.

Canvassing the Guardians, either personally or by letter, will be considered a disqualification.

By Order,
Poor Law Offices, HORACE BURFIELD,
Prince's St., Brighton. Clerk to the
October 21st, 1929. Guardians.

West Derby Union.

RESIDENT ASSISTANT MEDICAL OFFICER (Female).

The Guardians invite applications for the appointment of a *Resident* Assistant Medical Officer (female) at the ALDER HEY CHILDREN'S HOSPITAL, WEST DERBY, LIVERPOOL (800 beds), at a salary after the rate of £200 per annum, together with the usual residential allowances.

Candidates must be single, fully qualified, and registered.

The appointment will be for a period of one year in the first instance, subject to extension for a further period not exceeding twelve months, at the option of the Guardians.

Applications, stating age, qualifications, etc., with copies of three testimonials, to be received by the undersigned not later than 10 a.m. Monday, November 4th.

Union Offices, G. O. HOLLOWAY,
Brougham Terrace, Clerk to the
Liverpool. Guardians.
October 19th, 1929.

APPOINTMENTS—Important Notice.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

(a) British Islands.

Town or District.	Town or District.	Town or District
CONTRACT PRACTICE.	**CONTRACT PRACTICE** *(Contd.).*	**PUBLIC HEALTH** *(continued).*
EBBW VALE, MON. *(Workmen's Medical Society.)*	NEATH AND DISTRICT. *(Medical Aid Association.)*	CORNWALL EDUCATION COMMITTEE. *(Assistant School Medical Officer—Female.)*
GILFACH GOCH, GLAMORGAN. *(Workmen's Medical Scheme.)*	OAKDALE, MON. *(Medical Officer for Medical Aid Association.)*	GLASGOW EDUCATION AUTHORITY. *(Male Assistant Medical Officer.)*
LLWYNYPIA, CLYDACH VALE PENYGRAIG, GLAMORGAN. *(Workmen's Medical Scheme.)*	OGMORE VALLEY, GLAMORGAN. *(Wyndham Colliery Medical Aid Society.)* *(Workmen's Medical Scheme.)*	LEEDS EDUCATION COMMITTEE. *(Assistant School Medical Officer.)*
MARDY, GLAMORGAN. *(Workmen's Medical Scheme.)*	**PUBLIC HEALTH.**	YORKSHIRE NORTH RIDING COUNTY COUNCIL EDUCATION COMMITTEE. *(Assistant School Medical Officer.)*
MERTHYR VALE COLLIERY WORKMEN'S MEDICAL COMMITTEE. *(Workmen's Medical Scheme.)*	CHESHIRE EDUCATION COMMITTEE. *(Assistant School Medical Officer.)*	YORKSHIRE WEST RIDING COUNTY COUNCIL. *(School Medical Inspector.)*

(b) Colonial Medical Service.—

WINDWARD ISLANDS MEDICAL SERVICE. (Grenada with Carriacou, St. Vincent and St. Lucia.)

(c) Overseas.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.
NEW SOUTH WALES. *(All Friendly Society Appointments.)*	Dr. R. H. TODD (Hon. Sec., New South Wales Branch), B.M.A. Building, 30-34, Elizabeth St., Sydney, N.S.W.	VICTORIA. *(All Institute or Medical Dispensaries.)*	Dr. FRANK DAVIES (Hon. Sec., Victorian Branch), British Medical Association, Medical Society Hall, East Melbourne, Victoria.	WESTERN AUSTRALIA. *(Contract and Lodge Practices.)*	Hon. Sec., Western Australian Branch, British Medical Association, No. 6, Bank of N.S.W. Chambers, St. George's Terr., Perth, Western Australia.
QUEENSLAND. *(Brisbane Associated Friendly Societies Institute.)*	The Hon. Sec., Queensland Branch, British Medical Association, B.M.A. Building, Adelaide St., Brisbane.	WELLINGTON, NEW ZEALAND. *(Contract Practice Appointments.)*	Dr. G. F. V. ANSON (Hon. Sec., New Zealand Branch), British Medical Association, P.O. Box 156, Wellington, New Zealand.		

Address: B.M.A. House, Tavistock Square, W.C.1.
October 23rd, 1929.

By Order of the Council of the British Medical Association.
ALFRED COX, Medical Secretary.

The Hospital for Sick Children,
Great Ormond Street, London, W.C.1.

A RESIDENT MEDICAL OFFICER is required at the COUNTRY BRANCH HOSPITAL, TADWORTH COURT, TADWORTH, SURREY, on November 7th.

Gentlemen are invited to send in their applications to the Secretary before 12 o'clock on Monday, November 4th, accompanied by copies of not more than three testimonials given specially for the purpose.

The appointment is made for six months, but the successful candidate will be eligible for re-appointment.

Salary at the rate of £250 per annum, with board-residence in the Hospital, laundry allowance at the rate of £10 per annum, and, on re-election for a further period of six months, £18 18s. for the purpose of providing a substitute during annual leave of a maximum of four weeks.

Candidates must be unmarried and possess a legal qualification to practise, and must have held a responsible resident appointment at a General Hospital.

All candidates must be in attendance on Wednesday, November 6th, at 4.45 p.m. precisely, to appear before the Joint Committee, if required.

Forms of application and copies of the Rules may be obtained from the Secretary, at the Hospital.

By order of the Board of Management;
October, 1929. JAMES McKAY, Secretary.

Bedford County Hospital.

ASSISTANT HOUSE SURGEON (male), fully qualified, unmarried, required for a term of not less than six months, commencing at once. Salary £130, with board, lodging, and laundry.

Applications, stating age, nationality, qualifications, together with three recent testimonials, to be sent to the Hon. Secretary, Medical Staff Committee, not later than the first post Wednesday, October 30th. Selected candidates will be invited for an interview Saturday, Nov. 1st.

Derbyshire County Sanatorium,
Near CHESTERFIELD.

RESIDENT ASSISTANT MEDICAL OFFICER.

Applications are invited for the post of Resident Assistant Medical Officer (male or female) at the Derbyshire County Sanatorium. Candidates with previous institutional experience of Tuberculosis will be preferred, and practical experience of artificial pneumothorax work will be considered an additional qualification. Candidates must be single.

Salary will be at the rate of £350 per annum, together with board, lodging, etc.

Application forms may be obtained from the undersigned, to whom they must be returned, together with copies of not more than three recent testimonials, on or before October 31st.

New County Offices, W. M. ASH,
Derby. County Medical Officer.
October 14th, 1929.

The General Hospital,
BIRMINGHAM.

Applications are invited for the following Resident appointment from November 15th.

HOUSE PHYSICIAN. Salary £70 per annum.

Applications, giving full details of qualifications and accompanied by testimonials (if desired), should reach the undersigned by October 28th.

A. H. LEANEY, House Governor.

Cumberland Infirmary,
CARLISLE.

HOUSE PHYSICIAN (male) required. Six months' appointment; previous experience desirable. Salary at rate of £155 per annum, board, residence, etc. Applications, stating age, with copies of four testimonials, should be sent at once to the undersigned.

J. G. HOWITT,
September 30th, 1929. Secretary.

The Cancer Hospital (Free)
(Incorporated under the Royal Charter),
Fulham Road, London, S.W.3.

The Committee are prepared to receive applications for the post of HOUSE SURGEON. Salary at the rate of £100 per annum.

The appointment is for six months and subject to rules, a copy of which may be obtained from the Secretary.

Previous experience as a House Surgeon is indispensable.

Applications, with three (copies only) testimonials, to be sent to the undersigned not later than Wednesday, October 30th.

J. COURTNEY BUCHANAN, Secretary.

The Cancer Hospital (Free)
(Incorporated under the Royal Charter),
Fulham Road, London, S.W.3.

The Committee [illegible] of PART-TIME ASSISTANT. He [illegible] on three or four half-days per week. Candidates should hold the D.M.R.E. An honorarium of one guinea per attendance will be paid.

Applications, together with copies of not more than three testimonials or references, to be sent to the undersigned not later than Wednesday, October 30th.

J. COURTNEY BUCHANAN, Secretary.

Kettering and District General
HOSPITAL. (82 Beds.)

Applications are invited for the post of JUNIOR HOUSE SURGEON. Salary £100 p.a., with board, residence, and washing. Candidates must be fully qualified and registered.

The appointment is for six months, but candidates will be eligible for re-election.

Applications, stating age, nationality, and qualifications, together with copies of three recent testimonials, to be sent immediately to the Secretary-Superintendent.

British Medical Journal,

BRITISH MEDICAL ASSOCIATION HOUSE,
TAVISTOCK SQ., LONDON, W.C.1.

T/A: ARTICULATE, WESTCENT, LONDON,
Tel.: MUSEUM 9861 (*4 lines*).

SMALL
ADVERTISEMENT RATES.

Up to Six Lines (32 Words) 9s.
Each Additional Line, 1s. 6d.
(a line averages 5 words)
Address must be paid for.

All advertisements should reach the above address by not later than first post TUESDAY preceding publication.

ASSISTANCIES.

Wanted Nov. 1st, in London suburb, first-class ASSISTANT, British, Protestant, T.T. if possible. Must be well qualified and some sound experience G.P. Partnership of six. Share of £1,000 after trial, increasing to equal shares. Good house, would suit married man. Most excellent opportunity for a good man desirous of getting on. Only wants seeing.—Address essentials, with photo. if possible, No. 6720, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistant, October, male, Protestant, *Scotch Graduate* if available; experienced minor surgery, midwifery, anæsthetics; Colliery district, South Wales. Dispenser kept. Sign bond. £400 p.a. Use of car. Temperate.—Address, refs., age, etc., No. 6709, B.M.A. House, Tavistock Sq., W.C.1.

Wanted, November, by two Partners in Practice in West Riding of Yorkshire, ASSISTANT. Must be well qualified and experienced G.P. and Anæsthetics. Indoor. Good salary to suitable man.—Address, No. 6705, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — *Assistant immediately*, in mixed and panel Practice in Yorks. Salary £450, outdoor, increasing. Little midwifery. Experience essential.—Address, No. 6722, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — Assistant, indoor, male, for panel and private Practice in Midland Town. Salary £300, all found.—Address, stating age, references, and enclose photo., No. 6732, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistant, outdoor, male single, motor cyclist, for General Practice near South Coast. English or Scottish ex Resident preferred. Salary £420 per annum. —Address No. 6703, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Outdoor Assistant, for panel and private Practice, North-East Coast Town. Previous experience desirable. Commencing salary £400 per annum. Good prospects for suitable man.—Address, No. 6832, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistant, outdoor, male, to take charge of Branch Surgery, Pembs. Coast; country district. Motor-cyclist. *Work light.*—Address, No. 5013, B.M.A. House, Tavistock Square, W.C.1.

Wanted, Assistant, by young bachelor Doctor, indoor. Work very light. Time for recreation and study. Salary £250. Usual bond. Sheffield district. Particulars of age, nationality, experience, etc.—No. 6714, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — Lady Assistant, young. Private and Panel Practice in London. Indoor. Photograph and all other essential particulars.—Address, No 6719, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Indoor Male Assistant for Practice in Midland Town. Scottish, English, or Irish. Salary £250—£300 according to experience. Usual bond.—Address, No. 6739, B.M.A. House Tavistock Sq., W.C.1.

Wanted. — Indoor Assistant, woman. Pleasant Country Practice. *Work light. Car. Suit newly qualified. Small* salary. — Address, No. 6833, B.M.A. House, Tavistock Square, W.C.1.

Wanted, an outdoor Assistant in a Colliery Practice in Glamorgan. Salary to commence at £350 per annum, with rooms and attendance. Usual bond. No dispensing. — Address, No. 6537, B.M.A. House, Tavistock Square, W.C.1.

Wanted, young unmarried male ASSISTANT (indoor) for Industrial Practice in Glamorgan. Liberal salary. Good sphere. Principal a bachelor.—Address, No. 6835, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Indoor Assistant, English, Irish, Scotch, or Welsh, energetic, for panel Practice. Salary £252 per annum. Usual bond.—Address, with copies of tests., stating age, nationality, etc., Dr. S. J. B. Fox & Son, South Moor, Stanley, Co. Durham.

Wanted, an indoor Assistant, male preferred, for Colliery district in Northumberland. Salary £300 p.a. State age, *nationality, and enclose any references, and* photo. if possible.—Address, No. 6509, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistant, single, experienced in Surgery. Salary £300 per annum, with rooms, coal, gas, and attendance. To start December 1st.—Apply, A. H. JAMES, M.D., The Park, Blaenavon.

Wanted. — Assistant for large firm in Hampshire. Must have University qualification and be under 30. Bias toward clinical pathology welcomed.—Address, No. 6523, B.M.A. House, Tavistock Square, W.C.1.

Wanted for Liverpool, young recently qualified man as ASSISTANT; ex H.S. or ex H.P. pref. Panel and private. Salary £300, indoor.—Address, with recent portrait and testimonials, stating nationality, etc.—No. 6834, B.M.A. House, Tavistock Sq., W.C.1.

Wanted by M.B.(Glasgow), F.R.C.S.(Edinburgh), aged 28, ex H.S., H.P. (children and general), at present R.S.O., short ASSISTANTSHIP, with view to Partnership in good-class General Practice with surgical opportunities. Nine months' experience good-class G.P. — Address, No. 6734, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistantship, with early view, by M.B., Ch.B., male, aged 28 years, married, Scotch descent, Protestant; ex H.S. H.P., R.O.O. Experienced in all branches of medical practice, private and panel. Excellent tests. and refs. Own car if desired.—No. 6724, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — Assistantship or LOCUMS by Woman M.B., D.P.H., 6 yrs. Graduate, ex *H.P.* Very experienced in panel and private work. Excellent testimonials. In London and free immediately. — Address, No. 6737, B.M.A. House Tavistock Square, W.C.1.

Wanted. — Assistantship, with definite view to Partnership out of income, by M.R.C.S., male, English, æt. 25, qual. 2 years; ex H.S. and H.P., and some experience private and panel. Would consider Partnership for part down and rest out of income.—Address, No. 6733, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — Assistantship by M.B., B.Ch. (*N.U.I., 1923*), *æt.* 29. Two years in present post. Would take charge of Branch. — Address, No. 6821, B.M.A. House, Tavistock Square, W.C.1.

Assistant wanted, South Coast Town; age about 30. Panel Practice. Duties very light. Suit man reading for exams. Very little night work; few mids. Salary £250 and board.—Address, No. 6612, B.M.A. House, Tavistock Square, W.C.1.

Assistants (indoor and outdoor) wanted immediately. Good salaries offered. —BRITISH MEDICAL BUREAU, 33, Cross Street, *Manchester.*

Assistantship wanted by M.R.C.S., L.R.C.P., woman; two years' experience in panel and private work. Used to sole charge. Free in November.—Address, No. 6731, B.M.A. House, Tavistock Square, W.C.1.

Assistantship wanted by Woman M.B., Ch.B. Four years' experience of General Practice (panel and private). London or South preferred.—Address, No. 6721, B.M.A. House, Tavistock Square, W.C.1.

M.D., M.R.C.P.Ed., æt. 27, single, qualified 1924, seeks ASSISTANTSHIP with or without view. Over 2 years' Hospital and 1 year G.P. experience. Anglo-Scot, abstainer. Highest refs. Own car if desired. Free now and in West Riding.—Add., No. 6725, B.M.A. House, Tavistock Sq., W.C.1.

Scotch Graduate, ex H.P. and H.S., many years experience General Practice—private and panel—desires ASSISTANTSHIP, preferably outdoor and *with view. Keen*, energetic, motorist, cyclist. Excel. recent refs.—No. 6727, B.M.A. House, Tavistock Sq., W.C.1.

Woman Doctor requires Assistantship or LOCUMS. Four years' experience private and panel Practice. Anæsthetics. Can drive car. English.—Address, No. 6717, B.M.A. House, Tavistock Square, W.C.1.

Young Lady Assistant wanted, outdoor, London, S.E. Suit one recently qualified or reading for Exam. Some dispensing. State essential particulars. Scotch lady preferred. — Address, No. 6837, B.M.A. House, Tavistock Square, W.C.1.

Young Lady, recently qualified Scotch Graduate seeks ASSISTANTSHIP. One year's experience in panel and private practice, with dispensing. Well received. —Address, No 6857, B.M.A. House, Tavistock Square, W.C.1.

MEDICAL POSTS, DISPENSERS, etc.

Wanted.—Fully qualified Doctor for service in the *TROPICS*. Preferably ex House Surgeon or Physician. Agreement for three years. Salary £850, £900, £950. Renewable on higher terms. Free furnished quarters and first-class passage provided. Candidates must be unmarried. Ladies not eligible. —Address, with copies of testimonials (not returnable), No. 6276, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — An unmarried MEDICAL OFFICER by British Company operating in Venezuela. Salary £800 with board and lodging. First class passage. Tropical experience *preferable*.—Write, Box "M.O.," c/o Advertisement Dept., 5, New Bridge street, *London*, E.C.4.

Wanted. — Part-time Work by M.R.C.S., L.R.C.P., doubly qualified, 30. Scotch extraction. Reading higher exam. Insurance, private, or surgeries. Experienced panel, private, etc.—Address, No. 6828, B.M.A. House, Tavistock Square, W.C.1.

A Lady Dispenser-Bookkeeper supplie[illegible] on request, qualified and with practice and bacteriologica[illegible] COLLEGE OF paration for [illegible] phone (Park [illegible] Park Road, W.2.

A vacancy occurs at an L.C.C. TREATMENT CENTRE for the post of ANÆSTHETIST to the AURAL CLINIC. Remuneration £18 15s. per annum for 11 sessions. Applications must be forwarded not later than November 2nd to the Hon. Sec., Miss M. TALBOT KELLY, Kilburn Treatment Centre, 107, Kingsgate Road, N.W.6.

Burma.—Assistant Chief Medical OFFICER required who must be experienced in Surgery, Bacteriology, and Tropical Diseases. Contract for 4 years. Quarters (suitable for married man) and first-class passage provided. Salary £950 p.a., increasing to £1,138 p.a.—Apply, BRITISH MEDICAL BUREAU, 12, Stratford Place, Oxford Street, London, W.1.

Dispensers supplied to Doctors at short notice, without fee. Qualified and exper. in priv and panel prac. Perm and part-time Bookkeeper-Dispensers, Secretary Dispensers, Nurse-Dispensers, and Chauffeur-Dispensers.—Write, wire, or 'phone Central 3679, THE RELIANCE BUREAU FOR DISPENSERS, 87, Holborn Viaduct House, 12, *Holb. Viad.* E.C.1.

Doctors requiring qualified Dispensers, Nurse Dispensers, Secretary Dispensers or Chauffeuse Dispensers, are invited to write, wire, or 'phone Temple Bar 5858, THE DISPENSERS, BUREAU, 15, Lindsay House, 171, Shaftesbury Avenue, London, W.C.2.

Dispenser.—Doctor's Daughter (Hall qualification) requires whole or part-time POST in London. Thoroughly experienced in Hospital and private practice. Excellent testimonials.—Address, Miss WHIDBORNE, Highclere, Woodbridge Suffolk.

Doctor highly recommends ain cook running Square, W.C.1.

Experienced Governess requires POST in Doctor's house with children 6—10 to be prepared for school. Can also assist as shorthand, a M. E. BUNY

Lady Dispenser, (Hall qualifications) desires POST; London preferred. Excellent testimonials. Experienced in hospital and private surgery. Free now.—Miss CRABTREE, 14, St. Edmunds Road, Ipswich.

Laboratory Assistant or DISPENSER.—Lady, 7 years' experience in al br requi H.h Parade, Hunstanton.

London M.B., B.S., etc., æt. 27, 4 years' experience G.P., studying for D.P.H., would ASSIST busy practitioner with MORNING AND EVENING SURGERIES and occasional week-ends. London area only. Free now. —No. 6735, B.M.A. House, Tavistock Sq., W.C.1.

Post-Graduate, either sex, received as PAYING GUEST in Doctors house. Modified terms for very occasional ASSISTANCE. Close W. L. Hosp.—Address, No. 6823, B.M.A. House Tavistock Square, W.C.1.

Part-time work, week-ends, Cambridge or neighbourhood, desired by Medical Man reading for additional qualifications; ex H.S., ex H.P. (teaching hospital); 2 years' G.P.—Address, No. 6707, B.M.A. House, Tavistock Square, W.C.1.

Responsible position is sought by a Doctor's Widow, young, good organizer, diplomatic. Would run house, act as receptionist, etc. Town or country, but country preferred.—Address, No. 6702, B.M.A. House, Tavistock Square, W.C.1.

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Wanted by M.B., mixed PRACTICE with good panel in London. Income about £1,500 p.a. Ample capital available. —Address, No. 6830, B.M.A. House, Tavistock Square, W.C.1.

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Apply, MACLAY, MURRAY & SPENS, Writers, Glasgow.

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Hanovia Alpine Sun Ray MACHINE; mercurial vacuum burner; new £22 10s. model for £14. Great Bargain. Suit homes or doctors.—Box No. K., 23, Stirling Street, Aberdeen.

It is desired to secure the full commercial development in the United Kingdom of BRITISH PATENT No. 250,481, which relates to Improvements in Lighting Fixtures, either by way of sale or the grant of Licences on reasonable terms. — For particulars, apply, PHILLIPS'S, 70, Chancery Lane, London, W.C.2.

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APPOINTMENTS.—Contd.

Coventry and Warwickshire HOSPITAL, COVENTRY. (307 Beds.)

RESIDENT HOUSE PHYSICIAN (male) wanted. Salary £160 per annum, board, laundry, and attendance provided. Candidates must be duly qualified and registered. Applications, stating age, and enclosing copies of recent testimonials, should be sent to the undersigned on or before November 6th.

(Miss) R. HOOPER, Secretary.

The Royal Eye and Ear Hospital, BRADFORD.

Wanted, JUNIOR HOUSE SURGEON (male). Salary £150, advancing to £175, with board, residence, and laundry. Applications, stating qualifications, age, etc., with copies of recent testimonials, to be forwarded to the undersigned.

F. BRIGGS, Secretary-Supt.

The Children's Hospital, BIRMINGHAM.

PHYSICIAN IN CHARGE OF SKIN DEPT.

A Meeting of the Committee of Election will be held on December 9th, at 11.45 a.m., for the purpose of electing a Physician in Charge of the Skin Department.

Applications are invited for the post.

It is required that candidates shall be Members of the Royal College of Physicians, or undertake to become so within twelve months of their election.

The successful candidate will be appointed for a term of three years, and will be eligible for re-election. After six years his honorarium (£40 per annum) will cease and he will become a Member of the full Medical Staff.

Particulars as to the duties can be obtained on application to the undersigned, to whom applications, accompanied by diplomas and certificate of registration, should be sent by November 30th.

HAROLD F. SHRIMPTON,
October 22nd, 1929. House Governor.

Central London Throat, Nose, AND EAR HOSPITAL, Gray's Inn Road, W.C.1.

ASSISTANT SURGEON.

There will shortly be a vacancy for an Assistant Surgeon, who must be a Fellow of one of the Royal Colleges of Surgeons of the United Kingdom, or a Master in Surgery of a British University.

Applications, accompanied by copies of not more than three recent testimonials, should be sent to the undersigned on or before Nov. 9th.

JOHN H. YOUNG, Secretary-Supt.

Bangour Mental Hospital, WEST LOTHIAN.

Vacancy for unmarried man as SECOND ASSISTANT MEDICAL OFFICER. Experience of mental work not necessary, but Post-Graduate Medical or Surgical experience a recommendation. Salary £350 per annum, rising to £400 after 12 months' satisfactory service, together with apartments, board, laundry, and attendance. Appointment pensionable under the Asylums Officers Superannuation Act, 1909.

Applications to be addressed to the Medical Superintendent, Bangour Village, West Lothian.

Bradford Royal Infirmary.

HOUSE PHYSICIAN (male) wanted to enter to duties on December 1st next.

Candidates must be single and legally qualified. Salary £150 per annum, with board, residence, and washing.

There are 215 beds and six Resident Officers.

Applications, stating age, qualifications, and previous experience (if any), with copies of recent testimonials, to be received by the undersigned not later than October 29th.

J. J. BARRON,
October 21st, 1929. Secretary-Supt.

Weymouth and District General HOSPITAL, WEYMOUTH. (86 Beds and Cots.)

Wanted, HOUSE SURGEON, fully qualified, male, for second week in November or soon after. Salary £180 per annum, with board, residence, and laundry. Applications, stating age, qualifications, and copies of testimonials, should be sent to the undersigned not later than November 2nd.

MORRIS LODGE, Hon. Sec.

Waterloo and District General HOSPITAL, WATERLOO, Near LIVERPOOL.

HOUSE SURGEON required for the above Hospital to commence duties on November 15th. Salary £50 per annum, with board, residence, and laundry.

The appointment will be for a period of six months.

Applications, with testimonials, must be received by the Hon. Sec., Medical Board, not later than October 31st.

Sussex Throat and Ear Hospital, BRIGHTON.

The Committee of Management invite application from male registered practitioners for the post of HONORARY ASSISTANT ANÆSTHETIST for one year.

Further particulars may be obtained from the Secretary, Mr. W. A. HAGENS, Sussex Throat & Ear Hospital, Church Street, Brighton.

Applications to be sent in by November 1st.

Oldham Union.

POOR LAW INSTITUTION.

RESIDENT ASSISTANT MEDICAL OFFICER.

The Guardians invite applications for the appointment of Resident Assistant Medical Officer (lady) at the Poor Law Institution, Rochdale Road, Oldham. Candidates must be qualified to practise Medicine and Surgery in England and Wales, and be registered under the Medical Acts.

Salary (inclusive) £200 per annum, with apartments, rations, laundry, and attendance, valued for the purposes of the Poor Law Officers Superannuation Act; 1895, at £90 per annum. Deductions at the rate of 2 per cent. per annum will be made from the salary and emoluments in accordance with the provisions of that Act.

The appointment is subject to termination by one calendar month's notice on either side, and to the appropriate provisions of the Local Government Act, 1929.

Copies of the duties applicable to the office and any further particulars may be obtained from the undersigned, to whom applications, stating age, qualifications, and experience, and accompanied by copies of three testimonials of recent date, must be sent so as to be received not later than Tuesday morning, November 5th.

Union Offices, F. W. FLETCHER,
Oldham. Clerk to the Guardians.
October 21st, 1929.

The Manor House Hospital, Golders Green, London, N.W.11. (112 Beds.)

Applications are invited for the post of HOUSE SURGEON. Salary at the rate of £200 per annum, with board, residence, and laundry. Appointment for six months; renewable if mutually agreed.

House Surgeon. Preference given to one having held six months' previous appointment as a married) must be fully qualified and registered. Applications, stating age, nationality, and qualifications, together with copies of three recent testimonials, should reach the undersigned not later than the first post on Saturday, November 2nd.

JAMES W. LINKHORN, Secretary.

The Prince of Wales's General HOSPITAL, Tottenham, N.15.

Applications are invited for the post of HONORARY MEDICAL REGISTRAR. Honorarium of £100 per annum.

Candidates must be Graduates in Medicine of a British University, or a Fellow or Member of the College of Physician.

Applications, accompanied by three testimonials, to be sent on or before the first post on Monday, November 4th next, to—

FREDK. W. DREWETT,
October 21st, 1929. Director.

Beckett Hospital & Dispensary, BARNSLEY. (130 Beds.)

JUNIOR HOUSE SURGEON (male) required, to commence duty December 16th. Applicants must be fully qualified and registered.

Salary attached to this appointment is at the rate of £140 per annum, together with board, residence, and laundry.

Applications, stating age, qualifications, and experience (Ophthalmology desirable), accompanied by testimonials, should be sent to the undersigned not later than November 2nd.

ARTHUR L. BOURNE,
October 23rd, 1929. Secretary-Supt.

Chester Royal Infirmary. (211 Beds.)

Wanted, HOUSE SURGEON (male), to commence duties November 11th for term of six months. Salary £120 per annum with board, lodging, and washing. Candidates must be doubly qualified and registered.

Applications, stating age, and accompanied by copies of testimonials, to be sent to the undersigned not later than first post on Tuesday, November 6th.

J. ROWSE MITCHELL,
October 21st, 1929. Secretary.

General Hospital, Gt. Yarmouth. (72 Beds.)

Applications are invited for the post of JUNIOR HOUSE SURGEON. Salary £125 per annum, with board, residence, and laundry. Duties to commence at once. Candidates (male and unmarried) must be fully qualified and registered.

Applications, stating age, nationality, and qualifications, together with copies of three recent testimonials, to be sent immediately to the undersigned.

T. H. G. GARTLAND, Secretary.

Miller - General - Hospital,
Greenwich Road, S.E.10.
(151 Beds.)

There is a vacancy for an HONORARY SURGEON. The Senior Assistant Surgeon is an applicant for the post, and in the event of his election there will be a vacancy for an Honorary Assistant Surgeon. Applications for these posts are now invited. Candidates must be Fellows of the Royal College of Surgeons of England and not engaged in general practice, and they are expected to call upon the Members of the Honorary Medical and Surgical Staff, a list of whom can be obtained from the Secretary. The duties include attendance in the Out-patient Department on two days a week, and four beds will be allotted. An honorarium of 20 guineas per annum is allowed towards travelling expenses.

Applications (which must be printed or type-written), together with copies of not more than three recent testimonials, should be sent to the Chairman of the Hospital as soon as possible.

October 7th, 1929.

Miller General Hospital,
Greenwich Road, S.E.10.
(151 Beds.)

Applications are invited for the post of HONORARY PHYSICIAN to the Skin Department, to which two beds are allotted.

Candidates must be Fellows or Members of the Royal College of Physicians of London and not engaged in general practice, and they are expected to call upon the Members of the Honorary Medical and Surgical Staff, a list of whom can be obtained from the Secretary.

An honorarium of 20 guineas per annum is allowed towards travelling expenses.

Applications (which must be printed or type-written), together with copies of not more than three recent testimonials, should be sent to the Chairman of the Hospital as soon as possible.

October 7th, 1929.

Miller General Hospital,
Greenwich Road, S.E.10

ORTHOPÆDIC HOUSE SURGEON (male and unmarried) required for In- and Out-patients. There are five other residents. Salary at the rate of £125 per annum, with board, residence, and laundry. The appointment is for six months. The department is under the care of Mr. PAUL BERNARD ROTH and Mr. EDWIN A. LINDSAY. In addition to routine orthopædic work, between two and three thousand cases of fracture are treated in the course of a year.

Applications, stating age, nationality, qualifications, and experience, accompanied by copies of not more than three recent testimonials, to be sent to the Secretary as soon as possible.

October 7th, 1929.

Evelina Hospital for Children,
Southwark, S.E.1.

The Committee of Management requires a HOUSE PHYSICIAN (male) for seven months, from November 12th (during first three months duty in Casualty and Out-patient Department). Salary £120 per annum, with board and residence. Candidates, duly registered, to send applications, giving age, qualifications (with dates), and copies of four testimonials, to the [illegible] pital, before October [illegible] informed if they will [illegible] Medical Committee. [illegible] attend Committee of [illegible] eting will be notified [illegible] om whom rules and [illegible] to the post must be obtained.

By Order of the Committee of Management,
H. C. S. SMITH,
October 15th, 1929. Secretary-Supt.

Worcester General Infirmary.
(132 Beds.)

Applications are invited for the post of SENIOR RESIDENT MEDICAL OFFICER to the above Institution. Salary at the rate of £180 per annum, board, residence, and laundry inclusive. Applications, stating age, qualifications, and experience, together with copies of not less than three testimonials, to be forwarded to the undersigned immediately.

PERCY N. GLASS, B.Sc.(Vict.),
General Secretary.

Worcester General Infirmary.
(132 Beds.)

Applications are invited for the post of JUNIOR RESIDENT MEDICAL OFFICER to the above Institution. Salary at the rate of £120 per annum, board, residence, and laundry inclusive. Applications, stating age, qualifications, and experience, together with copies of not less than three testimonials, to be forwarded to the undersigned immediately.

PERCY N. GLASS, B.Sc (Vict.),
General Secretary.

Alexandra Hospital for Children
WITH HIP DISEASE,
SWANLEY, KENT.
(In connection with St. Bartholomew's Hospital.)

Applications are invited for the post of RESIDENT ASSISTANT MEDICAL OFFICER. Candidates (male) must be unmarried, fully qualified, and have held a Resident Surgical appointment. The successful candidate will be required to take up his duties sometime in November. The appointment is for six months, with eligibility for re-election. Salary to commence at £300 a year, with board and lodging.

Applications, stating age and qualifications, should be sent not later than November 5th to the undersigned, at the London Offices, 107, Southampton Row, W.C.1, from whom particulars of the duties and conditions of the appointment may be obtained.

STANLEY SMITH, Secretary.

Italian Hospital,
Queen Square, London, W.C.2.

Applications are invited for the post of RESIDENT MEDICAL OFFICER from duly qualified and registered candidates.

The appointment will be for six months from December 8th next, but candidates will be eligible for re-appointment at the discretion of the Committee. Salary £150, with board, residence, and washing.

Applications, with copies of testimonials, should be sent to the undersigned on or before November 9th.

By Order of the Committee of Management,
F. HORNYIK,
October 21st, 1929. Acting-Secretary.

West End Hospital for Nervous Diseases.

In-patient Department: Gloucester Gate, Regent's Park, N.W.
Out-patient Department and Secretary's Office: Welbeck Street, W.

The Committee of Management invites applicat[illegible] appointment of HO[illegible] C[illegible] or Members of the Royal College of Physicians of London, and Graduates in Medicine of one of the Universities of the United Kingdom.

Twelve copies of the application and testimonials should be received by the undersigned, from whom further particulars may be obtained, not later than Monday, November 18th.

J. P. WETENHALL, Secretary.

Walsall General Hospital.

The Committee invite applications from men for the posts of SENIOR HOUSE SURGEON (salary £200 per annum) and HOUSE SURGEON (salary £150 per annum).

Candidates, who must be registered under the Medical Acts, must have had previous experience in Surgery and administration of Anæsthetics, and produce three recent testimonials.

The appointments will be for six months.

The Hospital contains 100 beds and is equipped in all Special Departments.

Applications must be received by the undersigned not later than the first post Tuesday, November 5th.

WALTER FRANCOMBE,
October 16th, 1929. Secretary.

The Queen's Hospital for Children,
Hackney Road, London, E.2.
Telephones: Bishopsgate 6305 and 2534.

The Committee invite applications for two posts of SURGEON for the Ear, Nose, and Throat Department.

Attendance required on one or more of the following mornings at 9.30—viz., Monday, Tuesday, and Thursday. Lunch provided and honorarium to cover travelling expenses.

Candidates must be Fellows by examination of the Royal College of Surgeons, England.

Applications, with copies of three recent testimonials, which may be printed or typewritten, should be sent on or before December 2nd to the undersigned, from whom further particulars may be obtained.

T. GLENTON-KERR,
October 21st, 1929 Secretary.

The Queen's Hospital for Children,
Hackney Road, London, E.2.

CLINICAL ASSISTANT required in the Orthopædic Department. Attendance every Thursday at 1.30 p.m.

Lunch provided. Honorarium of 5/- per attendance to cover expenses. Applications, stating age, qualifications, and experience, should be addressed to the Secretary at the Hospital, and should be delivered on or before November 5th.

T. GLENTON-KERR,
October 12th, 1929. Secretary.

The Gloucestershire Royal Infirmary and Eye Institution,
GLOUCESTER. (153 Beds.)

Applications are invited for the post of SECOND HOUSE SURGEON (male). Salary £100 per annum, with board, residence, and laundry. (Four Resident Medical Officers.)

The appointment is for six months, which may be extended for similar periods by re-election from time to time.

Applications, stating age, qualifications, and nationality, with copies of not less than three recent testimonials, must be received by the undersigned not later than Wednesday, November 6th. The elected candidate will be required to enter upon his duties on Thursday, Nov. 21st.

F. J. SYMONS,
October 24th, 1929. Secretary.

St. Mark's Hospital for Cancer, Fistula, and other diseases of the Rectum, City Road, E.C.1.

Applications are invited for the positions of CLINICAL ASSISTANTS in the Out-patients' Department for the Sessions on Tuesdays, Thursdays, and Fridays, at 5 p.m., and Saturdays at 1.30 p.m. The appointments are for six months in the first instance. A fee of three guineas is payable on appointment. Applications to be addressed to the Secretary of the Hospital.

Stroud General Hospital, Stroud, Glos.

HOUSE SURGEON required to commence duty on November 11th. Salary £125 per annum, with board, lodging, and washing. The appointment is tenable for six months, but application may be made for an extension of this period. Candidates must be registered according to the provisions of the Medical Act.

Applications, stating age, nationality, etc., together with copies of three recent testimonials, to be sent to the undersigned by October 28th.

C. FORD SPENCER, Secretary.

Sussex Maternity and Women's Hospital.
(38 Beds.)

RESIDENT HOUSE SURGEON (male) required. Salary at the rate of £130 per annum. Board and washing found. Good experience in midwifery and gynæcology afforded. No canvassing allowed. The successful candidate will be required to enter on his duties on December 9th.

Applications in writing, accompanied by testimonials, should be sent on or before November 1st, to A. P. GRAVES, Clerk, 127, North Street, Brighton.

The Mount Vernon Hospital,
NORTHWOOD.

There is a vacancy for an ASSISTANT PATHOLOGIST. Whole-time appointment, non-resident. Salary £500 per annum.

Applications, with copies of three testimonials, to be sent to the undersigned on or before November 9th.

WILLIAM J. MORTON,
Offices: Secretary.
7, Fitzroy Square, W.1.

London Jewish Hospital,
Stepney Green, E.1.
(General Hospital. 108 Beds.)

Applications are invited for the following posts:

RESIDENT MEDICAL OFFICER. Salary at the rate of £150 per annum, with board and residence; appointment for six months.

JUNIOR RESIDENT MEDICAL OFFICER. Salary at the rate of £100 per annum, with board and residence; appointment for six months.

Applications, with copies of three recent testimonials, to be sent to the Secretary on or before Friday, November 15th. The successful candidates will be required to take up their duties on December 1st.

London Jewish Hospital,
Stepney Green, E.1.
(General Hospital. 108 Beds.)

The Council of Management invite applications for the post of HONORARY ASSISTANT RADIOLOGIST.

Candidates should send 20 copies of their application, with copies of three recent testimonials, to the Secretary at the Hospital, on or before Friday, November 15th.

London Jewish Hospital,
Stepney Green, E.1.
(General Hospital. 108 Beds.)

CLINICAL ASSISTANTS required in the Surgical Department, who will be required to attend on Monday and Friday mornings at 9.30 a.m. Applications to the Secretary.

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Superior trained Nurses for Medical, Surgical, Mental, Dipsomania, Travelling and all cases. Nurses reside on the premises, and are always ready for urgent calls Day and Night. Skilled Masseuses, Masseurs, and good Valet attendants supplied.

Terms from £3 3s. *Apply to the Secretary or Lady Supt.*

Gravesend and North Kent HOSPITAL.

JUNIOR HOUSE SURGEON (TEMPORARY).

Applications are invited from fully qualified men for the above post. The Hospital contains 100 Beds and Cots and has a large Casualty Out-patient and Ophthalmic Department.

The post affords excellent opportunities for surgical experience, three Resident Medical Officers being employed.

The appointment will be vacant on December 15th, and is for five months, with a possibility of the successful applicant carrying on for an additional 12 or 18 months.

The salary for the five months is at the rate of £80 per annum, payable in equal monthly instalments, with the addition of board, lodging, and washing, and certain cash perquisites, approximate value £70 per annum.

The Hospital is fully equipped with modern X-ray and other apparatus.

Applications, with one copy of three recent testimonials, should be sent to the undersigned immediately.

C. E. CHAPMAN, Secretary.

Royal London Ophthalmic HOSPITAL (MOORFIELDS EYE HOSPITAL), City Road, E.C.1.

OUT-PATIENT OFFICER.

Applications are invited for the post of Out-patient Officer to attend on Wednesday and Saturday in each week.

Candidates must be registered Medical Practitioners. Salary at the rate of £100 per annum. The Out-patient Officer will be appointed for a period of one year and will be eligible for re-appointment.

Copies of regulations governing the appointment can be obtained on application.

Applications, stating age and qualifications, with testimonials, must be received not later than November 4th by—

ARTHUR J. M. TARRANT, Secretary.

Royal London Ophthalmic HOSPITAL (MOORFIELDS EYE HOSPITAL), City Road, E.C.1.

EAR, NOSE, AND THROAT SURGEON.

Applications are invited for the office of Ear, Nose, and Throat Surgeon to the above Hospital.

Candidates must be Fellows of the Royal College of Surgeons of England.

Canvassing is not permitted. Candidates are requested to send copies of their application and testimonials to the members of the Committee of Management and the Honorary Medical and Surgical staff, whose names and addresses can be obtained on application to the Secretary.

Applications, stating age, with copies of testimonials, must be received not later than November 11th by—

ARTHUR J. M. TARRANT, Secretary.

The King Edward VII Welsh NATIONAL MEMORIAL ASSOCIATION.

[illegible] gistered post of CER at FAIR-

WALES, near CARDIFF. Salary £250 per annum, plus maintenance, the appointment being limited to a period of twelve months.

Applications, giving age, qualifications, and experience, together with copies of three recent testimonials, should reach the undersigned by October 31st.

Memorial Offices, Westgate Street, Cardiff. D. A. POWELL, Principal Medical Officer.

Victoria Hospital, Blackpool. (152 Beds.)

HOUSE SURGEON (SECOND), male, six months. Salary £120 per annum, with residence, board, and washing. Applicants (who must be duly qualified and registered) are requested to send in their applications, stating age, qualifications, and experience, with three recent testimonials, not later than November 9th, and endorsed "House Surgeon," to—

JOHN HACKING, Hon. Secretary.

Hospital of St. Cross, Rugby. (114 Beds.)

Applications are invited for the posts of SENIOR and JUNIOR RESIDENT MEDICAL OFFICERS (males).

Candidates must be registered Medical Practitioners, and must be prepared to begin duties on November 1st. Salary for the Senior post at the rate of £150 per year, Junior at the rate of £100 per year, with board and residence in the Hospital.

Candidates are requested to state whether they are prepared to accept the post of Junior if not selected for the Senior office.

The appointments are for a period of six months only; at the end of that time the Junior will be eligible to apply for the Senior post, which then becomes vacant.

This Hospital is recognized by the University of London for the purpose of the M.D. and M.S.

Applications, stating age and qualifications, with copies of three recent testimonials, should be sent to me immediately.

W. COCKBURN, Supt. & Secretary.

The Staffordshire General INFIRMARY, STAFFORD.

HONORARY VISITING PHYSICIAN.

The General Committee invite applications for the position of Honorary Visiting Physician.

Candidates must be Graduates in Medicine of a University in the United Kingdom, or Fellows, Members, or Licentiates of the Royal College of Physicians of London, or Fellows of the Royal College of Phys[illegible]n.

Applications, age, qualifications, with copies of three be delivered to the undersigned on or before Thursday, November 7th.

A. E. COLLINS, Stafford. Secretary.

October 17th, 1929.

Jersey General Hospital and Poor LAW INFIRMARY.

RESIDENT MEDICAL OFFICER.

Applications are invited for the above post (male). Applicants must be duly qualified practitioners in medicine and surgery. Salary £200 per annum, with board, residence in the Hospital, and laundry.

The appointment is for one year and is renewable. Applications, with testimonials, must be sent in on or before Saturday, November 9th, addressed to the *undersigned*, from whom further particulars may be obtained.

P. BEUZEVAL, Secretary.

Hospital of St. John and ST. ELIZABETH, 60, Grove End Road, N.W.8.

Applications are invited for the post of RESIDENT HOUSE PHYSICIAN (male). The appointment will be for six months from December 1st. Salary at the rate of £100 per annum, with full board. Applications, together with three testimonials, should reach the undersigned on or before Monday, November 4th.

F. DUDLEY HOBBS, Secretary.

King Edward VII Hospital, WINDSOR.

A vacancy has occurred on the Medical Staff of the above Hospital for an HONORARY ASSISTANT SURGEON.

Applications to be sent to the Secretary before October 29th, stating qualifications and experience.

Candidates must reside within a six-mile radius of the Hospital.

General Hospital, Nottingham.

A SECOND CASUALTY OFFICER (male) is required at once. Candidates are desired to submit applications, together with copies of testimonials, stating age, qualifications, experience, and when at liberty, to the undersigned. The appointment is for six months, with salary at the rate of £150 a year, with board, residence, and laundry.

PETER M. MacCOLL, House Gov. & Sec.

The Royal Earlswood Institution, REDHILL, SURREY.

(Under Mental Deficiency Acts 1913-27.)

JUNIOR ASSISTANT MEDICAL OFFICER required (British). Applicants must be registered practitioners, males, unmarried, and willing to assist in the games and amusements.

The appointment is temporary for six months. Inclusive salary at the rate of £250 per annum, with board, residence, and washing. Good facilities for Post-Graduate Studies, Classes, and Examinations.

Applications, stating age, religion, and qualifications, with copies of three testimonials of recent date, and two references, to be sent on or before November 1st to the Medical Superintendent at the Institution. The envelope to be endorsed "Assistant Medical Officer."

H. STEPHENS, Secretary.

October 4th, 1929.

The Royal Portsmouth Hospital.

Applications are invited for the posts of:

SENIOR HOUSE SURGEON (male). Salary at the rate of £175 per annum, with board, etc. Candidates must have held appointment as House Surgeon at a General Hospital.

HOUSE PHYSICIAN (male). Salary at the rate of £130 per annum.

HOUSE SURGEONS, TWO (male). Salary at the rate of £130 per annum each.

All officers must be qualified, and will be required to commence on December 1st. Six months' appointments, and eligible, on completion of term, for extension or other resident posts.

Applications, stating age, nationality, and full details, with copies of three recent testimonials, to be sent to the undersigned on or before November 1st, from whom all particulars can be obtained

B. WAGSTAFF, Secretary.

Charing Cross Hospital.

RESIDENT MEDICAL OFFICER.

Applications are invited for the post of Resident Medical Officer from male candidates (unmarried), who must be registered Medical Practitioners. Salary £350 per annum, plus additional fees amounting to approximately £75 per annum. The rules of the office may be obtained from the undersigned, to whom applications, accompanied by copies of three recent testimonials, must be delivered not later than Monday morning, October 28th.

Charing Cross Hospital, W.C.2. PHILIP INMAN, House Governor.

Charing Cross Hospital.

There is a vacancy for an HONORARY CLINICAL ASSISTANT in the X-ray Department of Charing Cross Hospital. The rules of the office may be obtained from the undersigned. Candidates should have, by preference, the qualification of D.M.R.E. (Camb.), and should submit their by copies of three nder- signed not l ning, October 28th.

Charing Cross Hospital, W.C.2. PHILIP INMAN, House Governor.

Molyneux Asylum for Female BLIND, LEESON PARK, DUBLIN.

A MATRON for the above Institution will be required on January 1st next, active and competent to take entire charge. Age not over 45; Church of Ireland or England. Special consideration will be given to applications from duly qualified nurses, if otherwise suitable. Salary £100, with apartments, board, medical attendance, and laundry. Address, stating age, with copies of testimonials, to the Secretary, from whom all further information may be obtained.

London Hospital, E.1.

There is a vacancy for a DENTAL ANÆSTHETIST in the London Hospital and Dental School. To attend two mornings a week. A small honorarium is attached to the appointment. Further particulars may be obtained from the House Governor, London Hospital, E.1.

E. W. MORRIS, House Governor.

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Bethnal Green Hospital,
London, E.2.

ASSISTANT MEDICAL OFFICER.

Applications are invited for the appointment of an Assistant Medical Officer at the above Hospital, at an inclusive salary of £350 per annum, with furnished apartments, board, and washing.

The Hospital is a recognized Training School for Nurses, has accommodation for 650 patients, and possess X-ray apparatus and a fully-equipped laboratory. The medical staff consists of eight Medical Men, a visiting Dental Surgeon, a Consulting General Surgeon, and Consulting Specialists for certain diseases.

Candidates must possess both medical and surgical qualifications, be duly registered, and have held previous Hospital appointments. The candidate appointed will be required to devote the whole of his time to the duties of the office, as assigned by the Medical Superintendent, which duties include such outdoor medical work as may be necessary.

Applications must be made upon forms which are obtainable from the undersigned, and which must be completed and returned not later than Wednesday, October 30th.

C. FAULKNER JONES,
Administrative Offices, Clerk to the
Bishop's Road, Board.
Bethnal Green, E.2. Oct. 16th, 1929.

Hull Royal Infirmary.

The Appointing Committee are prepared to receive applications for the office of HONORARY OPHTHALMIC SURGEON to the Infirmary.

Candidates must be Fellows, Members, or Licentiates of one of the Royal Colleges of Surgeons in England, Edinburgh, or Ireland, or a Graduate in Surgery of one of the Universities of the United Kingdom or Ireland; and must have done six months' duty in an Ophthalmic Hospital or Dispensary or in an Ophthalmic Department of a General Hospital or Dispensary.

... will be restricted to ... Infirmary.

... e for a period not ... or until the holder ... the age of sixty, whichever event comes first.

Personal canvassing is prohibited, but candidates may send copies of their applications and testimonials to the members of the Appointing Committee.

Applications, addressed to the Chairman of the Committee of Management, should reach the Institution not later than 10 a.m. on Wednesday, November 6th.

R. J. CARLESS,
October 18th, 1929. House Governor.

British Hospital for Mothers and BABIES, WOOLWICH.

(Maternity Hospital—42 Beds and Extern Dept.—large Ante- and Post-Natal Clinics.)

Applications are invited for the post of RESIDENT MEDICAL OFFICER (lady) for 12 months from January 7th next. Board, lodging, and honorarium of £70. Apply by letter to Miss ALICE GREGORY, Hon. Secretary, at the Hospital.

St. Vincent's Hospital, Dublin.

Applications are invited for the post of ASSISTANT SURGEON (Extern Department) to St. Vincent's Hospital, Dublin.

Applications, with copies of testimonials, to be forwarded to Mr. WM. DOOLIN, M.B., F.R.C.S., Hon. Sec., Medical Board, not later than October 31st inst.

MR. HERBERT NEEDES,

31, Bedford Street, Strand, W.C.2.
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4. LONDON, N.W.—Sound middle- and working-class Cash PRACTICE, returning over £900 and increasing. Panel over 800. Very prominent corner residence, with garage. Premium 1½ years' purchase.
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6. LONDON (near Westminster).—£1,000 a year. Panel 750. All cash. Corner house on lease, rent and taxes wholly sub-let.
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9. BRISTOL.—PARTNERSHIP. Share worth over £900 p.a., two-thirds of which is derived from panel and appointments, and with good scope for private extension. Convenient house, garden, and garage. Rent and rates £80. Premium £1,500.
8. REQUIRED, within 30 miles of Scottish Border, by M.B., B.S., PRACTICE or PARTNERSHIP of £700 upwards. Capital £4,000.

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W. J. HICKS, *Secretary.*

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Eastern County. — Over £1,000. Panel and appts. £560. Visits 4/6 up. Good house, with 4 beds., and garden. Low rent.—No. 8559.

Lancs.—£4,000 p.a., increasing. Panel over 2,650. Fees 2/6—7/-. Mids. 2—5 gns. Suitable for two. Two adjoining houses to rent or buy. Premium, including drugs, book debts, surgery furniture, etc., only £5,250.—No. 8509.

Kent.—Suburb. — £1,250, ineg. and scope. Fees 3/6 to 21/-. Panel over 650. House to rent.—No. 8558.

London Suburb (about 10 miles). £2,300, scope. Panel 1,650. Fees 3/6 to 5/-. Corner house, 5/6 bed., garage, etc. —No. 8557.

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20 S.W. OF ENGLAND. — Partnership in Practice nearly £950 p.a., in first-rate town. No panel. Double-fronted house (4 bedrooms) to rent. Two-thirds share would be sold.

21 WEST OF ENGLAND. — Partnership in Practice in small watering-place. Receipts past 12 months over £1,800. Panel 1,375. Pleasantly situated house (5 bedrooms) in good residential part for sale. Premium two-fifths share £1,400.

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31 HOME COUNTIES. — Practice doing at rate of £500 p.a. in first-rate town under 20 miles from London. Panel 220. Excellently situated house (6 bedrooms) for sale. Cottage Hospital. Premium 1½ years' purchase.

32 LONDON, W.—Partnership in non-dispensing Practice about £2,500 p.a. No panel or appointments. One-third share, with view to ultimate succession. Premium 2 years' purchase. Purchaser must be well qualified and used to good-class Practice.

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37 HOME COUNTY.—Country Practice averaging nearly £1,100 p.a. in village under 15 miles from London (North). Panel 670. Old-fashioned roomy and comfortable house (6 bedrooms), large garden and garage, to rent. Good prospects for scope. Premium £1,650.

38 MIDLANDS. — Country Practice about £1,000 p.a. in residential district and hunting centre. Panel 600/700. House, with 8 bedrooms, to rent. Premium £1,300.

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41 LONDON, N.—Partnership in well-established middle-class Practice, nearly £2,750 p.a., in pleasant outlying suburb. Panel about 800. Suitable accommodation to rent. Premium one third share 2 years' purchase.

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60 LANCASHIRE. — Practice of £1,500 in rapidly growing district within a few miles of popular resort. Panel over 200. Very nice compact house (4 bedrooms), with beautiful garden and orchard, for sale. Prem.—Practice—£1,500.

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7. CORNWALL.—Old-estab[illegible] PRACTICE in pretty district, 5 miles from Hospital To[illegible] miles of the sea. Income last year £1,504, includin[illegible]d Vaccination (£105) and panel of 780. Visits 5/- to 10/-, [illegible]ncome extra. Nearest opposition 5 miles. Railway station near. Detached house, professional rooms, 2 reception, 5 bedrooms, bathroom, etc.). Garden. Garage. Rent on lease £45 p.a. Premium £2,100.

8. PARTNERSHIP.—EAST COAST.—LARGE SEAPORT TOWN.—A one-fourth share is for disposal owing to the retirement through ill health of the Junior partner, in a well-established good mixed Practice. Gross cash receipts for the past 12 months over £8,000, including panel of over 7,300. Lowest fee 5/-. Suitable house, with 3 reception, 4 bedrooms, etc. Large garden. In best position. Price for freehold £1,500, part on mortgage. Premium for prompt sale only £2,700.

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11. EASTERN COUNTY.—(Within easy reach of sea).—PARTNERSHIP, after preliminary Assistantship, at a salary of £400 p.a., outdoor. A one-third share is offered in a good-class general Practice averaging approximately £3,300 p.a. Panel of 1,300. Cottage Hospital. Ingoing partner must be a gentleman and fond of country life. Premium 2 years' purchase.

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13. [illegible] RESORT.—Well-established PRACTICE, averaging about £600 p.a., easily worked, and capable of increase. Panel of 500. Fees 5/6 to 21/-. No midwifery. Suitable house can be rented at £85 p.a. Premium £1,000. Ill health reason for sale.

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15. ESSEX.—Within fifteen miles of London.—Old-established unopposed and increasing PRACTICE, situated in a beautiful country district, and producing last year over £1,100, including Union £90, and panel, with mileage, £432. Comfortable house (professional accommodation, 2 sitting, 6 bedrooms, with h. and c. water laid on, etc.). Large garden. Rent £70 p.a. on lease. Electric light available. Premium £1,650. Ill health reason for disposal.

16. NORTHANTS.—Unopposed Country PRACTICE, within easy reach of large town, old-established and averaging over £1,600 p.a., including about £675 from panel and £80 from appts. Fees from 2/6 to 21/-. Suitable house available. Price £1,000. Premium 1½ years' purchase.

17. WEST OF ENGLAND.—LARGE TOWN.—PARTNERSHIP.—A share representing about £900 p.a., including about £600 from panel, is offered in a well-established middle and working-class Practice. Fees 2/6 upwards. Suitable house, with 2 reception, 4—5 bedrooms, etc. Garden. Garage. Rent on lease £40 p.a. Premium £1,200 cash and balance by arrangement.

18. HOME COUNTY. — Near the Sea. — Old-estab. unopposed Country PRACTICE in pretty district. Receipts last year over £1,100, including Union, etc., £55, and panel of 400. Railway station near. Good house in its own grounds of 10 acres (part is let for grazing, but could be sold for building purposes), containing 2 reception, 6 bedrooms, bathroom, etc. Water laid on and electric light available. Price for freehold £2,100. Premium £1,625. Educational facilities, sport, etc.

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21. [illegible] 'CTIC" on outskirts of large town. Well-[illegible] for one immediate past year over £1,630, [illegible]). Advice and medicine 3/6, visits 5/-. [illegible]e-fronted house, with good garden. Garage. Premium £2,400.

22. [illegible] sland)—In a delightful and popular seaside [illegible],000 and country 5,000, greatly augmented a well-estab. PRACTICE averaging £1,816 p.a. for the past 5 years, including about £175 from Lodges. Consultations fees 10/6. Mids. 4 to 10 gns. (75 cases p.a.). House is situated in excellent position and contains 14 rooms, with 1/2 an acre of garden, tennis court, etc. Can be leased. Excellent educational facilities. Sport of all kinds.

23. LONDON, S.W.—Within easy reach of Charing Cross.—Very old-established middle-class non-panel PRACTICE averaging over £2,000 p.a. Fees 2/6 to 10/6. Mids. 3 to 10 gns. (about 12 cases). Commodious house, with 2 reception, 5 bedrooms, etc. Garden. Rent on lease £65. Premium £3,100.

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29. SOUTH-WEST OF [illegible]—PARTNERSHIP.—A half share is for [illegible] non-panel, general, and surgical Practi[illegible] 3 years over £5,000 p.a. Good house, with 2 reception, 6 bedrooms, etc. Premium 2 years' purchase. Purchaser should hold the F.R.C.S.

30. NORTH-WEST LONDON.—Within easy reach of Charing Cross.—Old-established mixed-class PRACTICE averaging over £2,600 p.a., including panel of about 1,400. Fees 2/6 to 10/6. Midwifery 3 to 15 gns. Six-roomed house, with bathroom, kitchen, etc. Rent on lease £85. Surgery premises (part let off) rented at £75 p.a. Could be worked as "lock-up." Premium 1½ years' purchase.

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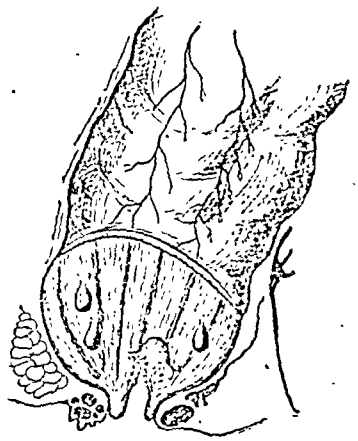

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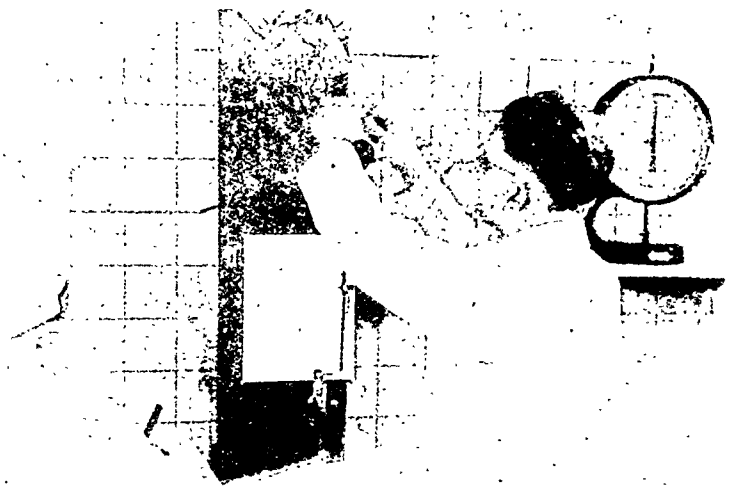

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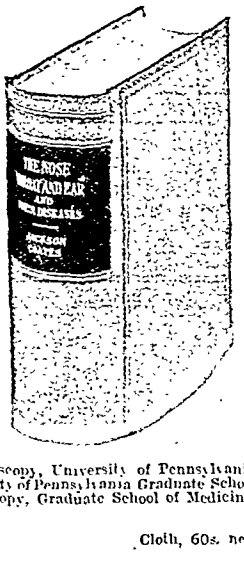

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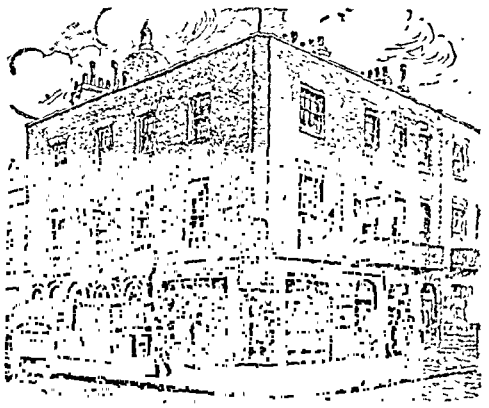

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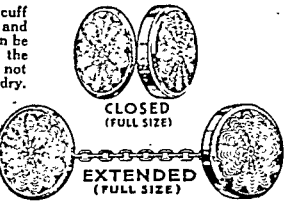

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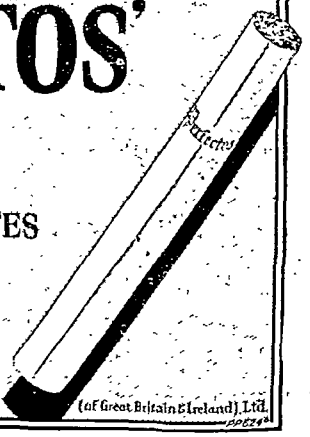

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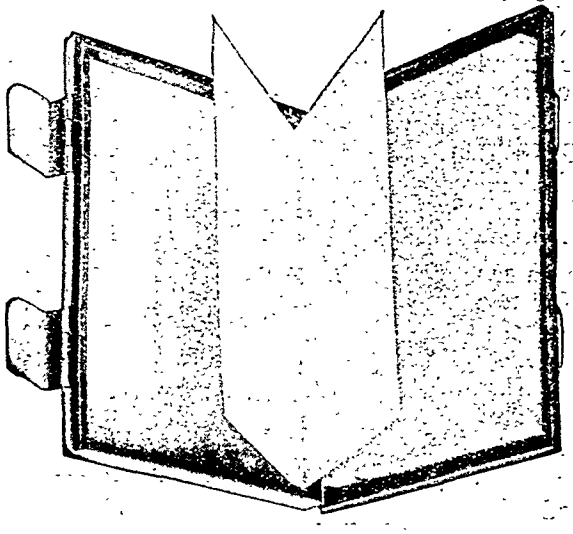

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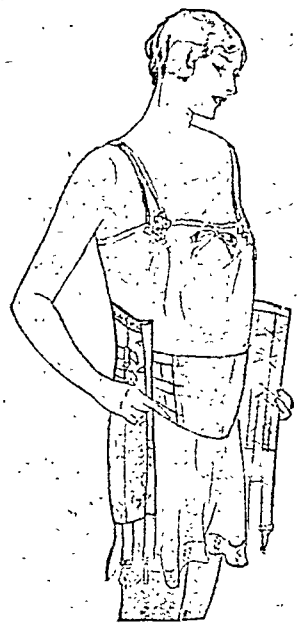

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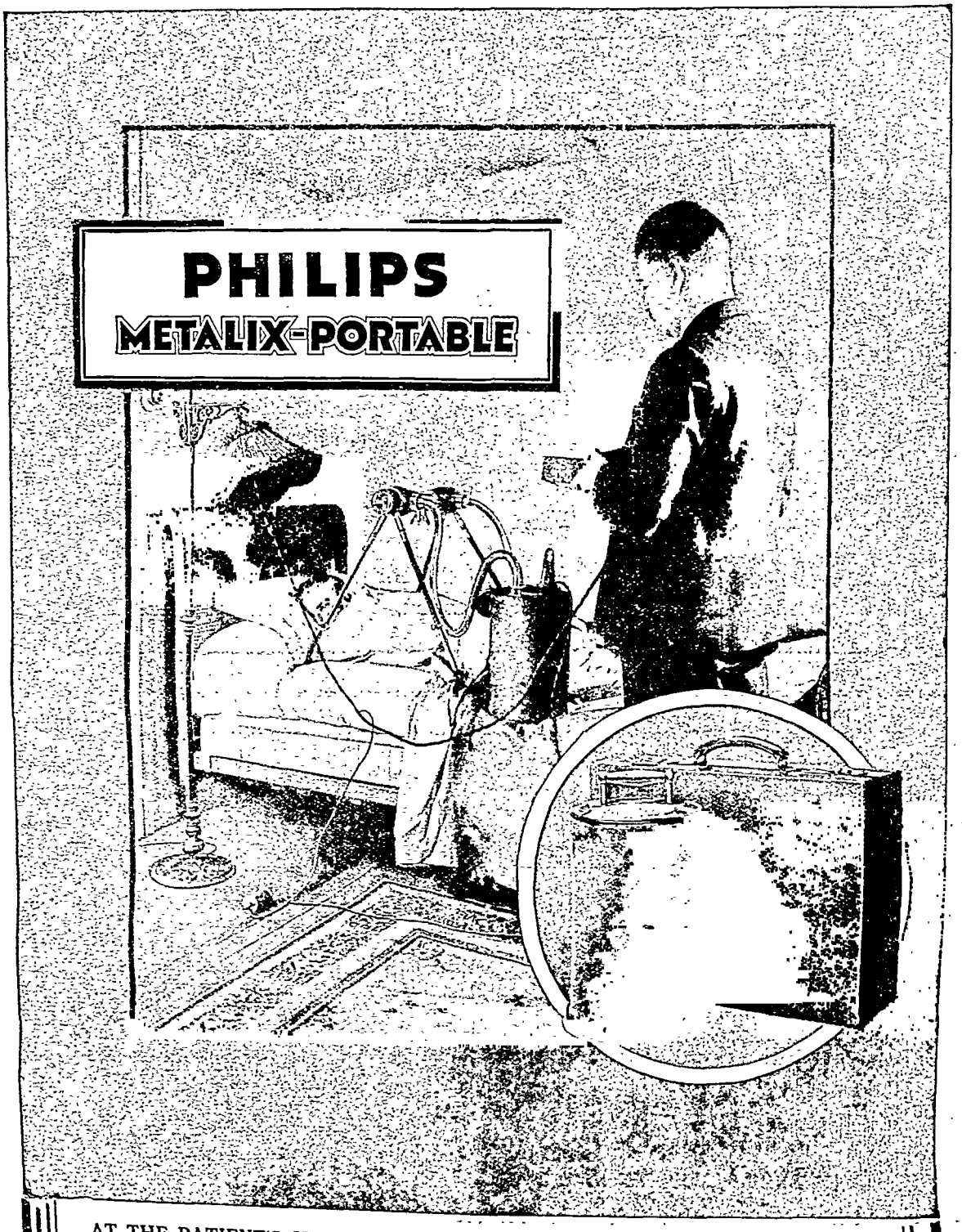

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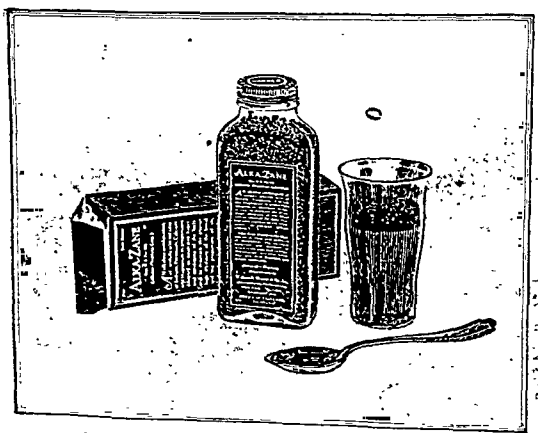

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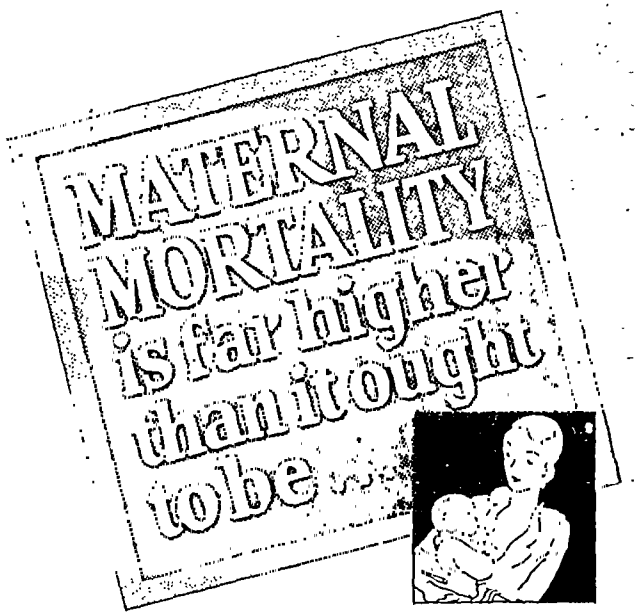

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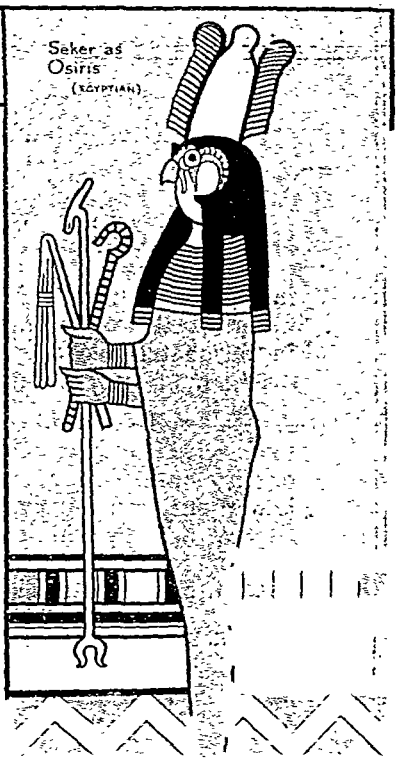

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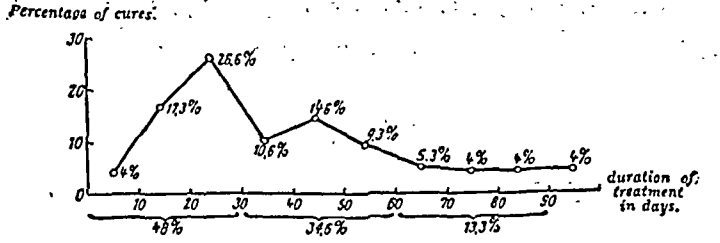

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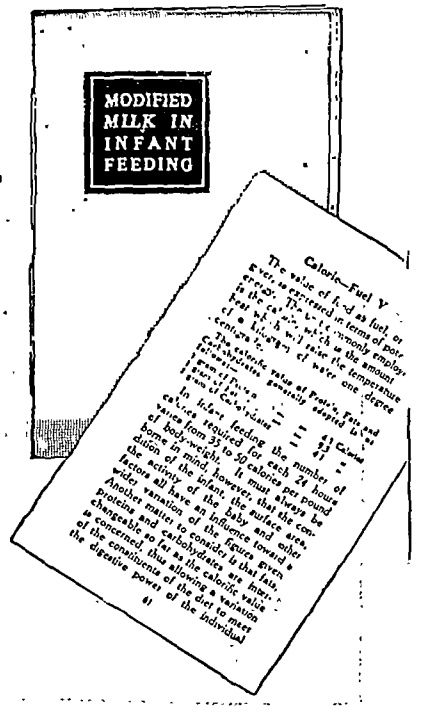

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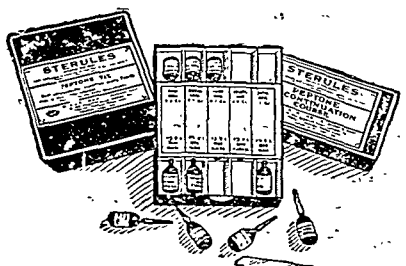

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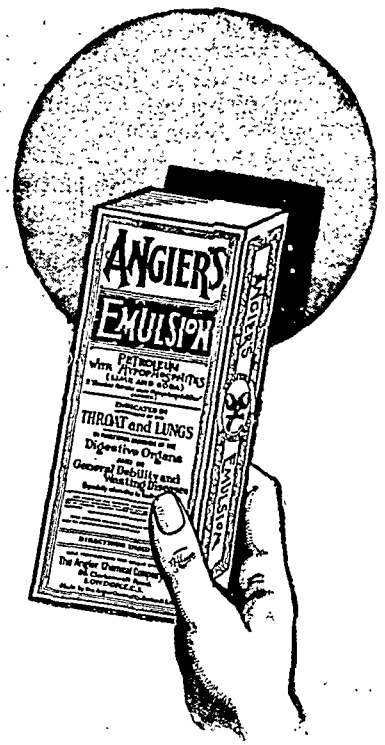

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ORIGIN OF THE ORIENTAL INFLUENCE UPON BYZANTINE AND CHRISTIAN ART.—The study of textile-finds in Egyptian graves of late Hellenistic period led investigators, at the beginning of the present century, to look to the Far East, for the origin of certain features in their decorative motifs. There were, however, no links by which such a connection could be established. Recent discoveries of decorated textiles (such as here reproduced), excavated upon the central Asian high-road over which all overland trade passed between China and the West, take us back to the time when the Chinese designers and weavers first prepared their products for export. These discoveries provide the tangible links required with "Sassanian," Byzantine and Coptic designs and thus seem to prove their Chinese origin. The principal motifs of the early Chinese decorators were "rolling clouds, scrolls and virile beasts." If the latter are bizarre in conception and incorrect as to details, they are, nevertheless, full of life and originality. A comparison of these vigorous designs with the over-conventionalised and lifeless patterns of "Sassanian" and Coptic silks suggests at once that the former represent the pioneer work and the latter the imitations. The Chinese designers used beautiful and rich colours to enhance the charm of their work.

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Observations
ON
BORDERLINE PROBLEMS IN CHILDHOOD.

BY
A. DINGWALL FORDYCE, M.D.,
F.R.C.P.Ed.,
HONORARY PHYSICIAN, ROYAL LIVERPOOL CHILDREN'S HOSPITAL.

If we recognize varying planes of sound health, life on one of the lower planes does not signify abnormality. We meet with many children in average health and we may call them normal; gross forms of abnormality—for example, inflammation, infection, deformity, idiocy—are readily detectable. But there is a wide undefined ground between normality and abnormality where answers have to be found to three difficult questions: Is the child well? What is wrong? What should be done?

These children on the borderline of the normal or healthy and of the subnormal or sick come before us for an enormous variety of reasons, with countless indefinite symptoms common to many forms of subnormality, or with suggestions and impressions that the child is not what he or she ought to be. Their study taxes the resources of medical knowledge, their care is often largely a matter of opportunity for adequate supervision, and sometimes expediency is permitted a place in therapeusis.

I seek here to dwell on some outstanding practical points, considering first the physical, and secondly the mental, aspect.

A.—Physical.

The essential error—if there is one—in a borderline case may be a local defect or disorder, with consequent disturbed general metabolism, or may be a primary general peculiarity, defect, or disorder, and treatment necessarily involves consideration of the fundamental bases of medicine. Such consideration is demanded in all cases, but with varying peaks of intensity according to the condition, and a grouping of cases into types according to complaint facilitates discussion of the general subject.

We not infrequently see children with the complaint that they are "too fat" or "too thin" or "under-size." If we agree that the complaint is justified and find no indication of a definite cause, what is to be the explanation of the condition and what the treatment? In all cases of poor nutrition and backward growth we seek first an infective cause, but failing in such search, and in the absence of the common symptoms of toxaemia, such as lassitude, pallor, etc., I think we may answer: hygiene, including diet and endocrines.

For therapeusis in this connexion endocrine practically means thyroid extract, an aid so powerful as to demand cautious usage. The important contraindications to thyroid therapy are well known, but apart from these the two main dangers in its administration are, I think, first, that it be not sufficiently pushed in cases obviously demanding it—for example, cretins—and which prove resistant to doses ordinarily accepted as moderate; and secondly, that it be used in a wide variety of indeterminate cases, in some of which it causes improvement, but by its action hides the fundamental difficulty or error—for example, dietetic or digestive. Thus intermittent mild glycosuria is not necessarily a contraindication, particularly when associated with a high fatty diet, but improvement under thyroid therapy may obscure recognition of the basal trouble. In the case of a borderline child there is often a degree of thyroid instability, and while minute doses of thyroid extract may help to stabilize thyroid activity, yet the cause of the instability has still to be sought.

If environment, diet, and general hygiene can be controlled success should be obtained, but just these conditions are so often the unobtainable desiderata. Lacking satisfactory control in such directions, small doses of thyroid are often beneficial, and perhaps particularly so in the case of girls about the period of the commencement of puberty. But thyroid should not be given for the solitary symptom of fatness—obesity—and it should never be given to a child simply to make the child thinner.

Vitamin administration may also be considered in these cases—particularly those of "under-size" or "too thin." In cases of definite illness—rickets, for example—an indication exists for the administration of a definite vitamin, and such administration can be effectively carried out by special diet, or by synthetic drug preparation, or by artificial sunshine, or by all combined. In such a case the treatment must be pushed. In the borderline children there will be no special call for any definite vitamin, and satisfactory provision for vitamins should be present under ordinary hygienic conditions. But for these same borderline children exposure to artificial sunshine is often of distinct benefit, provided exposure is short and mild, and it is sometimes most useful when associated with small doses of thyroid and of ephedrine. Such treatment is perhaps particularly useful in the cases of sallow or pigmented children.

Another large group of borderline children is that in which the symptoms complained of are many and varied, but grouped in all cases round the central complaint that the child seems languid, weak, pale, easily tired—and *without definite cause. Such a combination of symptoms* can be coalesced into the diagnosis "debility," and this possibly disintegrated into the further definitions of pre-tuberculous, or pre-rheumatic, or hypotonic, or catarrhal, or intestinal, or nervous. The child I have in view at the moment has no marked catarrhal, intestinal, or nervous symptoms, and might be placed in one or other of the first three groups—if such groups be recognized. These terms, however, are not those of diagnosis, but rather the pious expressions of a groping for diagnosis.

In these cases we consider family and personal history, and from them we may receive guidance to diagnosis and treatment—or we may not. If on full examination there is no discoverable abnormality in the child, it is right that we should concede to our clinical training its due and, accepting negative clinical signs, attempt to glean information from the facts of environment and habits of daily life. Is the mental and material environment healthy? Is school work suitable? Is the sex position normal? With all our trying we may fail to define a cause, and if treatment appears advisable we should base it on the fundamental principles of therapeutics—rest, fresh air, simple diet. The greatest of these is rest. The healthy child is never lazy—he bubbles over with physical and mental activity. A child does not like to be guided into lines of activity, or, rather, may be guided into lines to which he objects. Thus he may get easily tired if forced to continued monotonous physical exercise, or he may appear lazy if asked to do school work above him or below him. *His bodily* and mental processes are active but spasmodic, and if guided indiscreetly easily tired. If the child of whom we speak is languid and wishes to stay in bed he is abnormal, and should be kept in bed till he asks to get up. If any reasonable cause for change in mental activity can be found it should be fully explored.

It is important that the child should not be exploited in the light of the value of fresh air. Desperate illnesses demand desperate remedies, and even our climate often helps to cure desperate illness. But this child requires as much fresh air as can be sensibly obtained by educated guardians in view of the climatic conditions prevailing.

In relation to consideration of diet there is just one point to mention at present. For most children of the type of which I speak iron is bad treatment, and pallor and languidness are often secondary to gastro-intestinal disturbance. But for apparently causeless mild anaemia in young children with no digestive abnormality the administration of a few grains of iron daily often has most rapid and excellent results.

There is another group of cases in which the complaints relate to excessive or diminished appetite, vague symptoms of indigestion, irregularity of bowel action, and biliousness. Most parents to-day have a considerable if superficial acquaintance with the details of dietetics, and seriously endeavour to feed their children correctly. They

further pride themselves on not being faddy, but open to modern teaching. Among the well-to-do, however, two slogans are often obeyed to excess—the call for vitamins and the restriction of meat. All parents like to see their children big and strong, and it comforts their hearts to know that butter, eggs, and cream, as well as vegetables and fruits, are rich sources of vitamins. At the same time they read of the dangers of excessive meat in the diet, and the wisdom of curtailing this article in the dietary of the child. As a result the diet of very many children contains too much fat and too little meat, and in countering these tendencies lies much of medical work in borderline children. Acidosis is a popular term and a common subterfuge for a diagnosis. But a real tendency to the condition is, of course, also common, and accounts for the value of alkalis as tonics for children. There is also a further reason for the value of alkalis and big doses of alkali, which I believe is more common than is sometimes suspected. This reason is the condition of coli-uria or coli-pyuria in girls, and chiefly young girls. In babies the condition is usually so acute as to pass beyond any borderline stage, but in a less acute form it is common in young girls as a cause of borderline symptoms without hint of urinary origin.

The diagnosis of "latent tuberculosis" in the complete absence of signs on thorough examination, though possibly often a correct diagnosis in view of the very great incidence of infection, must yet be frequently no sufficient explanation of symptoms or condition present. Latent tuberculosis must be arrested local infection, and such infection is *compatible with general fair health—with* adequate growth and nutrition. Indefinite symptoms may be caused by toxaemia from the tuberculous focus, or may be due to some quite different intercurrent condition. All the more important is it that because the child is considered tuberculous other abnormalities should be sought for and treated.

In the case of some children the main complaint is frequent colds or sore throats—recurrent nasopharyngeal catarrh and infection. An occasional cold is part of the physical education of youth, but frequently repeated colds overstrain resisting processes and may produce a local focus of weakness and possibly, further, of infection. The dividing line between education and danger is hard to define. Who dare be so bold as to dogmatize? Having considered the general aspect in each particular case, there remains the question of local interference. Have the tonsils and adenoids become a source of weakness and danger, and should they be removed? This we may say: in borderline cases it is wise to postpone tonsillectomy if possible until the child is at least 5 years of age; and, further, when the operation is performed we should see that it is a true tonsillectomy and not merely a tonsillotomy. It is possible that there may be occasions when tonsillotomy is indicated, but tonsillotomy performed when tonsillectomy is indicated is bad medicine and probably also bad surgery.

Particularly during recent years great emphasis has been laid upon the symptoms of nervous instability in children. We rarely see a child who is not described as nervous. Nervousness is a complaint. But all children must always have been nervous if by the word we are to understand instability and ready excitability of the nervous system. It is possible that the nervous system of many children during the past fifteen years has been more excitable than in previous generations, but it is certain that the nervous phenomena of childhood have been more closely studied by a nervous public than has been the case for a long time.

The complaint with our borderline children is nervousness, possibly abnormalities of sleep and enuresis, pains, twitchings, and occasionally stammer. If a child has chorea, habit-spasm, or a definite stammer, he ceases to be borderline. Are the symptoms present because of innate physical make-up or because of influence from without, material or mental? It is impossible for anyone to alter the peculiarities of heredity—the child is the offspring of his parents—but it may be possible to counteract special tendencies if they can be determined, and for the rest we must seek for and deal with material and mental influences. *Thus we* must see that the *condition* is not one of primary physical unrest or disorder in which we may, for example, by giving alkalis, by releasing foreskin, or by removing worms, directly cause improvement. Very often in order to reach the child we have to work through the parents, and in all cases we need their hearty co-operation.

Among important possible causes which should be sought for are slight and unsuspected abnormalities of sight or hearing which may give rise to trouble in school.

The last two types of children I shall note under the heading of physical defect are those where, in the first place, the complaint is that the child is dull, stupid, placid, and quiet; and secondly, where the child is described as naughty, unreliable, and irresponsible. The first type of complaint to a doctor is rare without distinct physical or mental abnormality to account for it, if we except the group of borderline mental cases in whom the dullness is usually brought into prominence through scholastic efforts.

With regard to the latter type, it is merely necessary here to note that such a master of the subject of nervous conditions in childhood as the late *John Thomson wrote* of "abnormal naughtiness in normal children"; it is advisable, therefore, to be cautious in labelling a child as a post-encephalitic.

B.—MENTAL.

Consideration of the last two types carries our attention to *borderline children in whom mental traits or characteristics* or symptoms are the chief cause of anxiety to parent, schoolmaster, or doctor. Is the child mentally normal? In attempting to answer this question we must proceed carefully along a path which, though tortuous, differs in no fundamental respect from that we customarily travel in purely physical cases.

Thus here we deal with a central factor—the independent capability of the child; and two environmental factors—the home and the school; and we have to consider the nature of each of these environments, their influences on the child, and his reaction to them.

Our examination, then, can be considered under three headings:

(*a*) Ordinary medical physical examination, including facts of history and environment.

(*b*) Investigation into temperamental and social conditions and reactions.

(*c*) Scholastic reports and tests of general and scholastic intelligence.

Ordinary medical examination and investigation conducted in the usual manner must form the essential basis for a considered opinion. Thus it is important to commence with inquiry into details of family history. While gross mental defect is usually a sporadic occurrence it is very striking how borderline children tend to be born of a borderline group of the community—are of borderline ancestry. Also striking is the tendency to large families and high mortality. Further, facts of illegitimacy, mixed breed, extreme poverty with large family, alcoholism, and criminality in themselves favour suspicion. The influence of syphilis is, of course, hard to assess, and its direct effects appear to be either very striking or *little* marked.

As regards personal history, very important points are the nature of the labour and the condition of the baby at birth. If the baby was definitely a "blue baby," if he *appeared moribund; or if he took fits within the first few* weeks of life—particularly within the first few days—all such histories strongly favour a diagnosis of mental defect.

Any discoverable physical defect has an important bearing on the mental position. A child growing up with a severe physical defect tends to have an unusual mental outlook, but though many are very backward from lack of opportunities of varied experience or schooling, yet they *may be otherwise distinctly clever. Also the nature of the* physical defect is obviously of very great importance, as it may in itself directly affect mentality—for example, spastic diplegia resulting from birth trauma.

When dealing with children who show no gross or obvious defect, physical or mental, examination is concerned with search for inconspicuous abnormalities—*defects which*, though inconspicuous, may yet have important bearings on the mental status. Thus it is important to decide if there is any suspicion of chronic toxaemia—intestinal, tuberculous, or rheumatic. Is there

any reason to suspect such a latent constitutional condition as may conduce to nervous and mental symptoms—for example, backwardness at school work, dullness, variability? Is the nasopharynx healthy and free from infection, or is there a history of recurrent catarrh, enlarged cervical glands, or otitis? Are the eyesight and hearing normal, or so nearly so as to cause no possible trouble with school work in a large room? Very minor degrees of abnormality may yet cause trouble in a big class, and a child reprimanded for apparent inattention, naughtiness, or impudence may be driven to apparently abnormal and peculiar reactions.

Are the deep reflexes normal? It is not uncommon to see cases of birth trauma which have been so inconspicuous in their physical effects as even to escape treatment by the orthopaedist, or which have been treated by him for minor local deformities. A clear epileptic is, of course, outside the borderline group, whether the epilepsy be idiopathic or secondary to birth trauma, primary amentia, or infantile cerebral paralysis. But occasional fits spread over years and brought on by acute circumstances, and the rare occurrence of pyknolepsy, sometimes leave the matter of mentality so far open. A definite history of encephalitis lethargica likewise places a child beyond my present scope, but in conduct cases an indefinite history may clinch a diagnosis made on the appearance, manner, and behaviour of the child.

After a thorough examination, then, some defects may have been found, but there may still be uncertainty regarding mentality, and it remains to decide if the symptoms or conditions complained of in the individual child are within the bounds of the normal. There is no sharp dividing line between the normal and the feeble-minded, or, as it is stated in the recent report of the Mental Deficiency Committee (*p. 92*), "*the defective merge* into the normal by insensible gradations."

There can at present be no accurate scientific line of division between the two classes. In the ordinary *private practice of our profession we require unequivocal* evidence of mental subnormality before giving an opinion that a child is mentally defective—feeble-minded. This medical standard, which certainly exhibits reluctance to signalize or stigmatize as defective, may be regarded as giving the benefit of the doubt to the child, excluding from definition as abnormal borderline children, lowering the boundary of the normal. With the advance of research and knowledge in *psychological medicine*, with the recognition of claims for specialized education, and with national acceptance of responsibility for the care of irresponsible persons, attempts have been made to define with greater accuracy the *borderline between normality* and defect, and statutory definitions have been formulated by the Board of Education and the Board of Control.

In the Elementary Education (Defective and Epileptic *Children*) Act, 1899, defective children were defined as children who "not being imbecile and not merely dull and backward, are by reason of mental or physical defect incapable of receiving proper benefit from the instruction in the ordinary public elementary schools, but are not incapable, by reason of such defect, of receiving benefit from instruction in such special classes or schools as are in this Act mentioned." This *section* was *included* in the Education Act, 1921, and stands to-day.

The Mental Deficiency Act, 1927, defined four categories of mental defectives—idiots (the lowest grade), imbeciles, feeble-minded persons, and moral defectives—and the definition of feeble-minded persons is as follows:

> "Persons in whose case there exists mental defectiveness which, though not amounting to imbecility, is yet so pronounced that they require care, supervision, and control for their own protection or for the protection of others, or, in the case of children, that they appear to be permanently incapable by reason of such defectiveness of receiving proper benefit from the instruction in ordinary schools. . . .
>
> "For the purposes of this section 'mental defectiveness' means a condition of arrested or incomplete development of mind existing before the age of 18 years, whether arising from inherent causes or induced by disease or injury."

It will be noted that in the definitions regarding children, whether by the Board of Education or the Board of Control, the predominant note in the test of the child is benefit from school—scholastic progress. This appears to exalt to pre-eminence a secondary though important element in diagnosis. The suggestion has now been put forward in the report of the Mental Deficiency Committee that "the only really satisfactory criterion of mental deficiency is the social one." If this be adopted it should bring the statutory definition closely in line with the definition in general medical practice, while, with newer methods available, doctors are in a position to define with greater precision.

Having, then, made a thorough physical examination of the borderline mental child it is necessary to investigate his temperamental and social characteristics, these being dependent upon his emotionality and general intelligence.

Stigmata can be very misleading, but the manner and appearance of a child at ease and under examination often give valuable information. There is to be noted, perhaps, a shambling or furtive gait and manner, or the child may be exceptionally facile, smiling, docile. He may exhibit a noticeable lack of shyness, or have a superficial vivacity without fixity of idea or purpose; or, on the other hand, with a superficially bright appearance, be irresponsive and reticent, have blank eyes, and be inane and meaningless in manner.

From home history is to be discovered if he exhibits in ordinary degree the common home virtues and vices, or in what way he manifests peculiarity. It is often hard to judge from this history, and too much reliance cannot be placed on isolated statements. If striking they arouse *suspicion, but insight into the environment is as necessary* as into the child's temperamental manifestations. He should, of course, disclose signs of ordinary home affections—should not, for example, be wantonly cruel to the baby, *and should not be notoriously spiteful and destructive* or aggressive. He should not be too naughty and uncontrollable, but equally he should not be too good. As Stanley Hall writes of a boy approaching the teens; "Morally he should have been through many if not most forms of what parents and teachers commonly call-'badness,' and Professor Yoder even calls 'meanness.'"

Peculiar habits are, of course, noteworthy and suspicious—such, for example, as pica, indiscriminate spitting, cutting or biting, sticking pins into people, etc. On enuresis and night terrors little importance need usually be laid, but "wanderings" away from home require careful investigation and are an important symptom.

What initiative is shown in scholarly or hand work, in the laboratory or workshop, in games or gangs? Can he reliably *carry out instructions, go messages*, correctly account for change? Does he adhere to a purpose and carry it out? Has he any special aptitudes? Is he to an ordinary degree amenable to discipline or punishment? *Does he co-operate with others*, or is he solitary among his fellows? This is a most important point of information, and it is a most suspicious sign if a physically healthy child is solitary at school or only plays with those who are markedly his juniors.

What information can be obtained from the child regarding home and school conditions? What is his explanation of alleged peculiarities—has he a possibly satisfying explanation? While, *regarding school work, there are many* points on which information is important no point is more important than the fact—if it is a fact—that the child is solitary at school. Such a condition means that the *child is failing in the social test*—a test of far greater importance than any merely scholastic one, any test dealing with the acquisition of knowledge of the three R's. Scholastic backwardness is no more a *proof of mental defect than it is of genius*, but in cases of mental defect scholastic backwardness is a common sign. It is important, therefore, to know the child's capacity in this direction, the class he is in, and the progress he is making. How much schooling has he missed? Is he competent in an average class for his age, or how much is he retarded? How does he do in hand work? Apart from any tests it is of first importance to learn such facts from school. The opinion of the teacher as to the mental status is most desirable, but the facts of scholarly progress are essential—the exact position attained in reading, writing, and arithmetic.

These facts having been obtained, there remains for investigation the response to tests of scholastic and general intelligence.

The Binet-Simon tests as commonly used are certainly of great assistance in defining the degree of intelligence when these tests are faithfully and intelligently carried out—otherwise they may be most misleading. The scholastic standard set in the associated tests commonly used is, on the whole, I think, high. There is no special difficulty in carrying out the tests, but the value of their results depends on strict adherence to instructions. In fact, there is a right way and a wrong way in which to carry them out, and they are worse than useless unless carried out in the right way.

As regards guidance in the care of borderline children, the doctor naturally advises about physical treatment. He must also act as guide in home and school management, and make clear to parents the methods peculiarly suitable for the child. Is there call for restraint or stimulation, exercise or rest? Is it encouragement—is it punishment? If the latter, what is the place of corporal punishment? It is common for children with an inconspicuous physical ailment or defect to be "naughty," and certainly corporal punishment is illogical and bad treatment for them. For most borderline mental children corporal punishment is likewise bad, but I cannot agree that there is no place for such treatment.

The advances of modern psychology and the probings and criticisms into so-called mechanistic physiology in relation to mental processes have introduced into the life of the child an intensified atmosphere of psychical attention which is not only common among the educated classes but is developing rapidly in the form of schemes—child guidance, mental hygiene, social welfare—for the benefit of the less well-to-do.

In the case of the wealthier brother, parent, schoolmaster, and doctor usually together decide the course of events, and it is well that the doctor guide the schoolmaster by information regarding the make-up of the child if the child requires special attention. For the poorer brother it is no less necessary that the doctor should guide the ship of health—bodily and mental—but for this child, with possibly more stormy seas to sail, there is at the same time more tendency to divided command.

The difficult child, the "maladjusted" child, the conduct case, may be a physically and mentally normal child, likewise so may be the dull and backward child. But many of all types are not. It is necessary in all cases where difficulty or doubt as to conduct or mentality arises that both the physical and mental capacity of the child be determined, and that full inquiry be made into all circumstances of the environment, material and mental. For this latter work, when done by child guidance clinics, psychologists and psychiatric social workers are essential, and team work is invaluable.

Two important points have, however, to be remembered. All children—and particularly borderline children—can have too much attention, can have their paths made too clear for their own good. Whether these children require to be dealt with by team work, or only the care of an individual, the medical man is the only suitable person to control the case.

With the diffusion of superficial medical information, however, there is a tendency for both physical and mental borderline children to be dealt with in association with very tempered medical control, and to take his rightful place in guidance the young practitioner must be fitted to aid both puericulture and pedagogy by defining indications for each borderline case. For the young graduate to carry out this work efficiently he must be fully and widely trained in the functions of normal childhood and in the beginnings of childish disease and disorder.

PAPILLOMA OF THE BLADDER.*

BY

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The name papilloma indicates a tumour made up of hypertrophied papillae, and is a generic term applied to any of the warty growths of the body. A vesical papilloma is, however, a unique tumour, having no counterpart in human pathology outside the urinary tract, and one about which the most divergent views are expressed by men of standing in urology, a fact which I will illustrate as I proceed. Two problems invite brief preliminary discussion.

1. *Do all papillomata if left to themselves eventually undergo malignant transformation?*

It is a prevailing opinion that whilst many papillomata are definitely malignant in the earlier phases all the so-called benign papillomata are to be regarded as pre-malignant tumours, and if left untreated they will in course of time undergo malignant degeneration and destroy life, a view which was first advanced by Civiale, the French urologist. Statements to this effect occur without discussion in many leading textbooks, and the assumption forms a working hypothesis to which, I think rightly, we all conform, giving an allegiance which in practice is desirable because it produces a degree of vigilance and solicitude which would not otherwise be attained, and which helps to safeguard many patients in whom recurrence does actually occur. It is a view, however, which is not by any means universally accepted. Nitze himself, on an experience of 177 of these tumours, was emphatic in his view that most papillomata are actually benign, and considered that by christening them "Zottenkrebs" (tufted cancer) Rokitansky had caused much confusion. Again, Syring in 1911, during a careful study of this subject, found astonishingly little evidence in support of the hypothesis of metaplasia. For the present the question remains an open one, but recent literature tends to support the views of those earlier writers who regarded all papillomata as definitely malignant. It is hard, however, to agree entirely with this view, for many cases are on record running for ten years or more—in my own series there are three—and cases are reported by Fenwick and Geraghty having histories extending over twenty years and ultimately ending fatally from carcinoma. The long history in such cases appears to me definitely to preclude malignancy in the earlier period, whilst, on the other hand, their termination suggests that even very benign tumours will eventually take on malignancy.

2. *How shall the nature of the growth be decided?*

The problem of differentiating a simple from a malignant papilloma, or of deciding at what stage a simple papilloma has taken on malignancy, has baffled both clinicians and pathologists. It is remarkable that after all these years the criteria of malignancy are still uncertain. There is much divergence of view in the copious literature regarding papillomata as to whether they shall be judged by their clinical or by their pathological features. At the outset I would invite your consideration of the desirability of attempting a pathological diagnosis. The uncertainty of the pathological opinion regarding these tumours is almost a byword, and different pathologists have not infrequently reported differently on the same section. It has happened in the experience of many surgeons that a tumour has been reported as malignant and its recurrence as simple; or that a tumour reported as simple has destroyed life by metastasis; or again, that of one reported malignant a clinical cure has been achieved. Further, a tumour regarded by the pathologist as simple has recurred in the suprapubic scar as a malignant growth and has destroyed life.

It is not uncommon for two papillomata to be encountered in the same bladder, of which one is apparently benign and the other malignant. Moreover, it is stated that malignancy may be observed in one part of a tumour

* Read in opening a discussion in the Section of Surgery at the Annual Meeting of the British Medical Association held in Manchester, July, 1929.

of which the remainder is apparently benign. In a viscus seen comparatively recently a large area of the base was infiltrated by a hard scirrhous mass, whilst on the lateral wall close to the exit was a villous covered tumour the size of a cherry of quite different macroscopical appearance, which on section proved to be a malignant papilloma. Such mixed growths are not very uncommon, and Fenwick[1] believed that "certain epitheliomata of the bladder are able so to irritate the surrounding healthy vesical surface that . . . benign papillomata spring up." An alternative explanation would be that a portion of a papilloma had undergone malignant degeneration which was not shared by the remainder of the growth. These features afford a convenient explanation when pathological reports and clinical course do not correspond, but emphasize the importance of serial sections of these tumours. They illustrate the occasionally peculiar behaviour of the neoplasm under discussion, and, I hope, provide some excuse when we are decoyed into error by a papilloma's idiosyncrasies.

Moreover, there is disagreement regarding whether the pathological material shall be acquired from the intravesical prominence or from the tumour's base. Each site has its advocates. Thus Buerger,[2] Beer,[3] Young and Davis,[4] and others recommend the superficies, whilst Geraghty[5] states that "the base of a papilloma may show no signs of infiltration and yet the tumour may be distinctly malignant in its body and periphery." Later he agrees that "probably in no other tumour have so many mistakes been made by pathologists." In another communication, however, the same writer[6] states that "in the vast majority of cases there was not sufficient evidence to indicate whether a tumour would respond to fulguration." Other writers (Ziegler,[7] Orth,[8] etc.) who are in favour of pathological investigation advise that the base be examined, and many indeed deny that any opinion can be formed from an examination of the intravesical prominence.

Quite apart from the question of whether microscopical examination of the tumour is worth while it must be acknowledged that there are practical objections which concern the methods of obtaining such pathological material. If it is decided to examine the superficies of the growth this will be acquired by the cystoscopic rongeur. But gentleness is fundamental in dealing with papillomata because of their great tendency to disseminate, and though the danger may to some extent be mitigated by immediate lavage with fluids intended to destroy grafts I have always held that the use of the cystoscopic rongeur violates first principles. I am disposed to think that the microscopy of the superficies of a bladder tumour is valuable, but greatly doubt the wisdom of practising it. If, on the other hand, the base is selected for microscopy it can only be obtained by open operation, and this is unfortunate, for the excision of the growth must then be completed at the time of this operation, and the uncertainty with regard to the diagnosis may lead to lack of boldness in removal.

These practical difficulties and the demonstrated uncertainty of the pathological diagnosis have led me to rely solely on clinical, which in fact, means cystoscopic, data for my diagnosis. Moreover, in my practice growths which are judged to be simple are treated by perurethral diathermy, and as the pathological material is thus destroyed, it is but rarely that the opportunity occurs for the microscopical examination of early benign papillomatous tissue. Only those cases which are submitted to open operation because they are regarded as carcinomatous supply pathological matter.

Cystoscopic Diagnosis.

"In the diagnosis of bladder tumours cystoscopy celebrates its greatest triumph," said Nitze,[9] the originator of modern cystoscopy. Written by the one who first possessed means of looking into the interior of the living bladder these words disclose an explorer's zeal on first experiencing the wonders of a new world. Since his day, through reiteration, such expressions have lost their early freshness and have even grown trite; yet I suppose that each of us has experienced some like emotion on first discovering a papilloma and realizing the scope and value of cystoscopy in the diagnosis and treatment of bladder growths. For cystoscopy is our single yet sufficient approach to a knowledge of these structures. Through it we determine the presence, the position, the shape, size, variety, and nature of the neoplasm, whether it is single or multiple, and we furthermore decide what treatment is appropriate.

Composed of clumps of dainty mobile villi, a shade darker in colour than the vesical mucosa, a benign papilloma when still small is an elegant object, whose attractive appearance would seem to preclude its eventually malign propensities. The longer and more delicate its villi the more benign the growth. The less these features are in evidence the more it is suspect. In rare instances long fragile streamers float in the bladder fluid like seaweed in a rock pool. As the papilloma grows, however, this mobility and elegancy recede, the villi becoming more stunted and swollen, their epithelium getting more granular and losing its lustre. Many growths, indeed, when quite small show this coarser exterior, and must already be regarded with misgiving. Finally, surface necrosis appears, a feature which is indicative of malignancy, though when sepsis is present, as so often happens, it requires some acumen to differentiate between ulceration and a film of muco-pus adhering to the villi.

The surface appearance of a papilloma is related to its microscopic features. The villi of a benign growth are clothed with an epithelium which in arrangement imitates the transitional epithelium of the bladder quite closely. It therefore has a colour similar to that of the bladder wall, and reflects light well. In the less benign varieties the layers are more numerous and therefore thicker, which accounts for their coarser and paler appearance. They are also less evenly arranged and stain less uniformly, whilst the epithelium of adjacent villi coalesces—a fact which is responsible, in some degree at least, for the apparent shortening and for the stunted appearance of their villi.

The appearance and characteristics of the pedicle should supply strong evidence with regard to the presence or absence of malignancy, but this evidence is more often than not denied to us because the pedicle is hidden beneath the mass of the papilloma. When the pedicle is exceptionally long it may remain uncovered. In early growths it is sometimes visible before the villi have developed, but as a rule one must judge of its development by deduction, noting whether the contour of the growth's rounded lower margin suggests a high or a low origin for its inferior branches.

After the earliest stages development chiefly concerns the main body of the tumour. The pedicle, however, gets thicker, and in due course may overtake the superstructure in breadth. I have often diagnosed a stiffening of the pedicle through employing a manœuvre which Jocelyn Swan[10] suggested. By running the high-frequency current through a diathermy electrode whilst it is in contact with the neoplasm, adhesion between the two may be obtained, whereupon gentle traction on the growth will indicate the degree of its mobility on the pedicle. A thin, flexible, and relatively long pedicle occurs with a benign papilloma; a stout, stumpy one indicates malignancy. A large villous covered growth which is completely sessile is certainly malignant.

The type which is sessile over a wide area without much projection into the bladder has a very unfavourable outlook. Moreover, if swollen mucosa or actual bullous œdema can be detected near the base it must be regarded as of evil omen. This is one of the points which should be looked for when the growth is first seen. After it has been treated endovesically there may be some inflammatory swelling at the base due to the burn, and it may be quite impossible to distinguish this from true neoplastic infiltration. Its presence or absence should therefore be remarked when the first cystoscopic examination is made. Beer[11] called attention to the danger of this mistake in 1911, within a year of the first use of diathermy. Cabot[12] called it a "pseudo-carcinoma," and states that it takes anything up to three months to subside. I have on two occasions had patients referred to me on account of such a "pseudo-carcinoma." In each instance the surgeons had reburnt the supposed growth to obtain a cure. In each, as might be expected, the lesion was aggravated, but when allowed time it subsided completely. If, after a

reasonable period of waiting, the cystoscopic appearance is still indeterminate, a portion of the bladder wall may be removed by the cystoscopic rongeur and submitted to the microscope; but there is some danger of acquiring the inflammatory part of the tumour only, as in five instances recorded by Frater[13] in which such material was reported upon as inflammatory, and in each the disease eventually proved to be malignant. Prolonged cystoscopic vigilance is probably easier and more satisfactory than any other means of investigation, as, if the lesion is due to the burn, it will recede, whereas if it represents malignant infiltration it will be progressive. The opposite mistake has also occurred, a "pseudo-carcinoma" being excised by open operation, after which its inflammatory nature was recognized by microscopy (Barney).[14]

In about one-third of all patients the papillomata are multiple. Usually not more than two or three are to be found, but occasionally I have seen them so numerous as to be uncountable, a condition which has been termed a "diffuse papillomatosis." When multiple the appearance of the secondary growths denotes a degree of malignancy in excess of that which the parent growth showed at a corresponding stage in its own development. Opinion is divided regarding the significance of multiplicity in these papillomata. Thus Swan[10] and others believe that multiplicity is no evidence of malignancy, whilst Young and Davis[4] say that they are "almost surely malignant," and Fenwick[15] says "the prognosis of cure after operation will never be so good or so hopeful in multiple as in single papillomata." Whatever the truth regarding the significance of plurality it unquestionably portends a great tendency to return, and successive recurrences are progressively more malignant. Such daughter growths are generally small and are quite easily destroyed by diathermy, a measure which is very suitable for these small splashes.

This is a thumbnail sketch of a papilloma and its malignant successor. For the former there is unanimity as to the suitability of perurethral diathermy. For the latter there is almost equal accord that, if it is operable at all, open operation must be employed. But in the transition lies the difficulty. Once malignancy has supervened, diathermy must be abandoned. All features of the growth must be reviewed before a decision is arrived at. It cannot be expected that different surgeons will express identical interpretations regarding the individual members of these borderland types. This probably accounts for the wide discrepancies in the numbers of benign papillomata and malignant ones which make up the lists of different writers. Thus Barringer,[16] out of a total of 53 growths, gives 7 papillomata, 40 carcinomas, and 6 which are of types not now being considered, whilst Egger,[17] out of a total of 80, gives 38 papillomata and 42 carcinomas. It is presumed that these surgeons draw their cases from similar sources and that the differences in percentage are explained by the different standards of the several investigators. When in doubt it may be wise to try the lesser measure of cystoscopic desiccation first, a practice which I have largely followed. A simple tumour reacts thereto much more favourably than does a malignant one, and the result of treatment is helpful in forming an opinion. Many authorities, indeed, rely so much upon this reaction of the tumour to diathermy in forming an opinion regarding its nature that it has been called the "therapeutic test."

But this method also is not without its disadvantages, for there will be delay before it gives its verdict, during which the tumour may be becoming inoperable. Furthermore, we are hazarding the dissatisfaction of our patient, who, having undergone treatment which held promise and has failed, is now advised that more radical measures are desirable. The danger of losing the confidence of a patient at the end of a series of unsuccessful treatments is a real one, and one which must be taken into account, for he may decide against further treatment, to his own disadvantage and with serious loss of prestige to his adviser. The task of at first sight placing these borderland growths in their correct categories is a difficult one, and one on which finality is by no means yet reached. In view of the improvements in the technique of partial cystectomy I feel that if diathermy is not plainly succeeding there should be no delay before adopting open operative treatment. When diathermy was first introduced it was thought that all tumours might show themselves responsive to it, but it was soon evident that whilst the benign varieties are very susceptible thereto the malignant ones do not react favourably, and may even be stimulated by it to more rapid growth. All writers are now insistent that as soon as malignancy is an established fact perurethral desiccation shall be dispensed with; but, more than that, a review of the recent literature makes abundantly clear the growing consensus of opinion that if there is a definite suspicion of malignancy superior results will be obtained in a series of cases by assuming malignancy and proceeding to resection of the whole thickness of the bladder wall.

Cystography.

Unfortunately a number of patients are not seen by the surgeon till the tumour is so advanced that even its cystoscopic recognition is difficult or impossible. The difficulty may arise because the bladder is almost or quite filled by the growth, or because, owing to cystitis or infiltration, it is small or intolerant. Haemorrhage, however, is the commonest cause, and it may be severe and intractable, or may be excited by even the gentlest of vesical washings. In any one or a combination of these circumstances cystoscopy may be so much hampered that little or no information is obtained. We may then with advantage resort to cystography. By filling the bladder with some solution which is radiographically opaque a silhouette of its cavity may be obtained on an *x*-ray plate. A tumour present in that cavity will be shown by an area of diminished opacity within the *x*-ray shadow. Though not capable of giving us the detailed information obtainable from cystoscopy this examination will nevertheless confirm the suspicion that a tumour is present, indicating its size, the site of its origin, the extent to which it projects into the vesical cavity, and as a rule will show whether its surface is villous covered or smooth. Moreover, it will indicate the shape and size of the bladder itself, and thereby it is often possible to judge the likelihood of infiltration. The bladder in epithelioma gives some quite characteristic distortions which experience makes recognizable.

I have during the last ten years seen 91 cases of papillomatous disease, with the majority of which I have been in communication recently, and, indeed, they are followed and periodically cystoscoped for two years after the bladder appears to be free from growth. It appears to me preferable, in the limited space at my disposal, to select points of interest from the series and to outline my conclusions on diagnosis and treatment, rather than attempt an analysis of these cases.

Aniline Dye Workers.

In this series there are 6 cases which have occurred in workers in aniline factories, 5 of those being from this city and 1 from elsewhere. It has been known since 1895 that those employed in aniline factories are unduly prone to suffer from this disease. Rehn, at that date, reported 3 cases in Frankfort-on-Main, and his communication aroused considerable interest in many dye manufacturing districts, particularly in Germany, where this industry was mainly centred. In the British Isles sporadic cases also cropped up in the years prior to the war, but owing to the then slight development of dye factories they were few in number and did not attract much attention.

Among the cases which I include is one in which the patient was operated upon by Mr. Burgess in 1911 for a papilloma. It is particularly interesting to recall that this patient was well until 1928, a period of seventeen years, when he again showed symptoms and a papilloma was treated by cystodiathermy in the Ancoats Hospital. It is hardly to be believed that this tumour was a recurrence of a growth which had lain dormant for seventeen years. It would appear more likely that it was a fresh tumour occurring in a patient who was unduly susceptible, either naturally or as a result of his occupation. Yet it is not unknown for patients to have recurrences late, and Simon[18] reports instances where he has seen death occur from local recurrence seven, ten, and twelve years after operation.

The patient was submitted to me for inspection by Mr. Heritage, and now remains under my care and treatment in the event of further relapses.

A somewhat similar case was seen recently suffering from cystitis, haematuria, and obstruction to micturition. In 1915 this patient had an ulcer the size of a half-crown excised from a situation above the left ureter by Mr. Hey, and the section was reported as carcinomatous. At the present time he is under my care for a small villous-like structure lying just above and to the left of the urethral orifice, the bladder itself being mildly inflamed. There is some thickening of the left ureteral bar—probably at the site of the original operation—which, however, is not regarded as neoplastic.

Prior to the onset of a vesical neoplasm in these aniline workers there is a premonitory period in which the patient suffers from symptoms of cystitis, such as frequency of micturition, with strangury, and sometimes haematuria. The haematuria is generally terminal, and may be suggestive of tumour formation. This stage of cystitis may be the forerunner of a neoplasm, but if the patient changes his occupation the symptoms sometimes disappear and no tumour occurs. Occasionally, in spite of a change in employment, a growth ensues, and this may happen several years after the factory has been left.[19] It is hardly necessary to emphasize the importance of cystoscopy during this prodromal stage. It is undertaken so that the neoplastic degeneration, if it occurs, may be caught early. The cystoscopic picture I have found to differ from that seen in a septic cystitis, particularly in the absence of exudate. The bladder shows a bright erythema with a tendency to mottling. It is more brightly red or pink than the usual colour in cystitis. Its surface is free from exudate, and apparently the superficial epithelium is not exfoliated. Perhaps this accounts for the brilliant appearance of the mucosa. There is, however, a fair degree of evenly distributed oedema, though I have not observed the bullous variety.

In addition to these 6 cases, I have, through the courtesy of Dr. Wignall, had the advantage of studying the records of 9 other cases which have occurred in dye workers in this city since 1920. As Dr. Wignall is reporting these cases at the discussion on industrial cancer I shall not further refer to them, save to remark on the long period of contact with the dye which appears to be necessary. There is one case which developed cystitis after eight to ten years, but in this small series all those who have developed growths have had twenty to thirty years of service.

A not uncommon situation for the development of a papilloma is the vesical orifice, and I have seen 4 cases in which the primary growth occurred there. Secondary growths are not uncommon here also, and are probably accounted for by a large frond getting caught in the meatus during micturition and forming a "kiss cancer." Such patients are liable to suffer from intermittency of the stream and even acute retention. Growths situated at the bladder outlet cannot be reached by the usual catheterizing cystoscope, and to meet this difficulty Swift Joly has introduced an ingenious instrument capable of retrograde vision and retrograde treatment. Prior to the invention of this instrument I have had to open the bladder to destroy a tumour surrounding the urinary outlet. Indeed, such tumours situated near the neck may still have to be submitted to cystotomy because instrumentation, however gentle, may cause bleeding sufficiently severe to debar endoscopy. I have used Joly's instrument with much satisfaction on several cases, but on occasion I have found it difficult to approach the urethral margin sufficiently closely, and have therefore had to complete its work with the posterior urethroscope. More than once I have had to treat implants actually occurring within the proximal half of the posterior urethra, and these also may be reached with the posterior urethroscope. It is an interesting fact that they are unknown in the anterior urethra, where wart formation is almost invariably a complication of gonococcal infection.

A papilloma of the bladder is itself occasionally secondary to one in the upper urinary passages. Of this I have seen two instances. In the first a small papilloma was seen protruding from the ureteric orifice into the bladder. An illustration of this I have published elsewhere.[20] In a second case a papilloma of the ureter was removed, but the tumour recurred in the adjacent ureteric stump, and also in the bladder. In the latter organ it grew from the actual lips of the ureter. I excised the greatly distended and thickened lower end of the ureter, together with an area of bladder surrounding its opening.

Implants from the kidney have also been known to grow in the bladder, and Murchison[21] records one in which there were papillomata in each of the renal pelves and an implant at the orifice of each ureter. Bland-Sutton[22] states that papillomata of the renal pelves, though rare, are often bilateral. This, however, I have not corroborated from the literature. In the museum of the Royal College of Surgeons[23] there is a specimen showing a papilloma attached by a narrow pedicle to the neck of the bladder immediately above the urethra. One end of the right kidney was occupied by a soft spongy mass of cancerous material.

I remember a case where I removed the kidney for papillomatous disease of the pelvis some eleven years ago. I was perhaps less alive then than now to the advisability of removing the ureter together with the kidney. The patient had a haematuria of moderate severity several days after the operation, which caused me some anxiety, as it suggested that I might have left a papillomatous secondary in the ureter. In spite of prolonged observation, however, this patient did not develop further trouble.

Treatment.

The treatment of small benign papillomata was revolutionized in 1910, when Beer[24] conceived the idea of applying the then comparatively new high-frequency current to their destruction. For a time after their introduction opinion wavered between the monopolar and bipolar diathermic currents, but it finally settled down to the latter so far as this country is concerned, and is now, I believe, universally employed here, though Beer[25] in America has recently emphasized some advantages of the Oudin monopolar current. The difficulties of adequate insulation are greater with the Oudin than with the d'Arsonval current. This probably accounts for the preference shown for the latter on this side, as with the small calibre cystoscopes which we favour these difficulties cannot be overcome.

Technique of Bipolar Diathermy.

A large flat indifferent electrode is closely applied to the sacrum or thigh, and the active electrode, a fine, insulated copper wire with a platinum terminal, is passed through the catheterizing cystoscope for application to the growth. These electrodes connect with the terminals of a diathermy apparatus, and the papilloma is burnt piecemeal under cystoscopic vision. The movements of the active electrode are controlled in the same way as the catheter is moved for ureteric catheterization. When commencing the operation the surgeon selects an area to apply his electrode. It is prudent not to start on the easiest areas first, but to reserve them until later, for the operation becomes increasingly difficult as it proceeds, and it is as well to destroy the more inaccessible portions of the tumour before the bladder conditions become unfavourable, leaving the easier ones to the end. A weak current is employed in the first instance and is gradually increased in strength, the surgeon judging the necessary strength by its effect on the growth and not by the reading on the ammeter. When the current first runs a gentle swirl is observed amongst the fronds of the papilloma, followed by the formation of a few minute air bubbles. A blanching of that portion of the growth in contact with the electrode is soon visible, and it extends till the tip is surrounded by a whitened ring of coagulum, one or two millimetres in width. The current may now be broken and a fresh situation for the electrode chosen, the treatment being repeated at different points till the whole surface has been desiccated, when the treatment is suspended for a period to allow the separation of the sphacelus.

A slough should be given time to separate. Between two treatments I am accustomed to allow three or four weeks to elapse. At the end of this period a benign papilloma should be definitely smaller, should have separated its burned areas, and we should find that the parts which have survived lie on a lower plane, being recognizable by

their deeper and redder colour. Their surface appearance simulates that of fine healthy granulation tissue. If slough still adheres to the growth malignancy must be suspected. I am much impressed by this property of a malignant growth to retain slough on its surface after diathermy, and agree with Young[1] when he says, "the adherence of the slough to the surface of the tumour seems to be in direct ratio with the malignancy of the growth." Sometimes a growth is completely hidden by slough, though with the electrode you can generally displace the deposit and so expose the papilloma. Experience with these growths will show that this feature is one of the most certain evidences of malignancy which we possess. It is related to the tendency shown by bladders containing a malignant neoplasm to become septic and to remain so in spite of treatment.

An alternative plan is to apply the current rather fiercely for a longer time at one spot. When it has run for a short time it will be noticed that adhesion between the two has occurred. The electrode is now slightly withdrawn so as to elevate the papilloma from the bladder base. This little manœuvre lifts the lowest lying villi from the vesical wall, thus eliminating alternative routes by which the current may gain the indifferent electrode and concentrating it upon the pedicle. Heat is developed in greater or less degree along the whole course of the current between the two electrodes, but varies in intensity directly as the current density. It will be very intense at the point of the active electrode and least intense where it is spread out to reach the large surface of the indifferent electrode. Between these two lies the pedicle of the papilloma—in many instances a narrow isthmus. If alternative routes can be eliminated by means which I have already suggested, this pedicle must carry the whole current. The heat will therefore be high and the pedicle, if it is a narrow one, may be devitalized. The tumour will then in due course be cast free in the bladder and passed with the urine. I have witnessed this several times; thus a growth 1¾ inches in length and half to three-quarters of an inch wide was passed through the urethra by one patient, whilst in another instance, through the cystoscope, I actually saw the papilloma lying free in the bladder cavity. In yet a third case a papilloma grew from within a vesical diverticulum. Diverticulum and growth should have been excised by open operation, as was done in a similar case which I shall describe shortly; but the patient being in feeble health I resolved to employ diathermy to the papilloma as it lay in the diverticulum. This I did vigorously, with the result that, for a period of two years, during which the patient was under observation, no recurrence was seen, and I believe that destruction of the growth was accomplished through overheating of its pedicle as just described.

Large growths, either because they are fast-growing and therefore of high cellular activity, or because they have been long in the bladder and have had time to degenerate, are more likely to have undergone metaplasia than small ones, and size is therefore in favour of malignancy. A bulky growth hampers diagnosis, but it also impedes treatment, whether endovesical or open. When a large neoplasm is benign, one must decide whether to set out on a protracted course of diathermy or to open the bladder and, by the use of a combination of excision and burning, to destroy the main mass of the tumour. There are disadvantages with each method, for, on the one hand, prolonged and repeated endovesical treatment is trying alike for patient and surgeon, whilst on the other hand is the danger of implantation, the prolonged convalescence, and the fact that the patient does not entirely escape subsequent cystoscopies and perhaps diathermies. If the growth is *malignant*, excision offers the only hope for its unfortunate host.

Open Operation.

Whilst the introduction of endovesical treatment marked a revolution in its own line, an advance scarcely less important has since been registered in the technique of the open operation. As you know, until recently it has been customary to proceed in the first place to a suprapubic cystotomy and then to attack the tumour from within the vesical cavity. This limited operation permitted the removal of the mucosa and other superficial layers of the bladder wall surrounding the base of the tumour. The intimate contact and adhesion of the bladder to extravesical structures prohibited a bold removal of the whole thickness of its wall, much less a wide resection. Moreover, as the lymphatics run in the deeper coats of the viscus and are absent from the mucosa and submucosa the avenues of spread for malignancy were left behind, and it is little wonder that recurrence was frequent.

It is largely due to the work of Bentley Squier[26] that the methods of mobilizing the bladder have been put on a satisfactory basis. In the operation which I practise, and which I have based on Squier's technique, a median incision extends from above the umbilicus to the pubis. By gauze dissection the lateral aspects of the bladder are raised from the pelvic parietes and the dissection is continued in an upward direction till the peritoneal reflection is encountered and the peritoneum is stripped off the fundus of the bladder. This order of progression is adopted with a view to reaching the urachus late. Where the urachus leaves the bladder the peritoneum is closely adherent to both these structures. When the urachus is divided the peritoneal cavity is entered and the opening is used for the investigation of the peritoneal surface of the bladder and for the determination of the presence or absence of pelvic and iliac secondaries. The peritoneum is then closed and the remainder of the operation is strictly extraperitoneal.

After this stage the patient is placed in the Trendelenburg position and the dissection (in the absence of perivesical inflammation or adhesion) is rapid and easy, and gauze stripping can completely mobilize the viscus, leaving it attached only by the structures around its neck. Deep in the pelvis two bands—the uretero-sacral bands—pass backwards and outwards. They contain the ureters, which are thus located but not necessarily seen, and can easily be better exposed if the circumstances demand it. When required the dissection is continued till the prostate and seminal vesicles are exposed.

Not until the bladder has been sufficiently freed is it opened. The organ is drawn forward over the pubis and the incision is made into the posterior wall of the viscus, but its exact site is chosen with reference to the position and dimensions of the growth which have already been ascertained by cystoscopy. The neoplasm is removed together with a generous area of bladder wall. The division is effected by scissors, the work being conducted from within the viscus so that the tumour shall be in full view. Owing to the customary situation of these tumours it will often happen that the area removed will include a ureteric orifice. When the incision is complete the ureter will therefore anchor the excised growth. Being fixed for identification by a pair of forceps this will be the last structure calling for division. It will subsequently require reimplantation, though sometimes when this is not possible satisfactory results may be got by ligaturing it, as recommended by Judd and Harrington.[27] The kidney then gives no trouble unless it is severely infected. Many kidneys are in any case dilated and valueless.

Squier[28] has, however, shown that the area of bladder to be excised cannot be dismissed as lightly as the above description might indicate. Having described the lines of lymphatic drainage within the bladder wall, he has demonstrated that the area to be removed must be regulated by a knowledge of these drainage routes if recurrence is to be avoided. Space forbids me to go into the subject of these routes in greater detail. Frequently it happens that a half or more of the viscus must be removed, yet when healing is complete it is astonishing how rapidly the bladder regains its full capacity, even after an extensive resection.

That this operation is superior to its forerunners is unquestionable. In none of my cases has there been trouble from deep pelvic suppuration due to the extensive dissection and soiling of the wound with urine, the healing of the posterior surface of the bladder being, so far as can be judged, prompt and more easily obtained than that of the anterior. The operation becomes more formidable when ureteric resection has to be practised, however, and it carries a higher *immediate* mortality. Resection of the

ureter is not necessary when growths originate at a distance, but, as is well known, the areas above and external to its orifice are the sites of election for these tumours. In my experience papillomata arising high on the bladder walls run a very benign course, and I have seen several which have gone for ten years or more and remained small and benign, and therefore good subjects for cysto-diathermy. Yet when malignancy does occur excision has to be exceptionally free because the vesical apex is a watershed for the lymphatic fields, and the routes of dissemination are therefore numerous. For this reason, though the growth involves the most accessible part of the bladder wall, the *late* operative results are not so good as those following operation on growths arising at the site of election (Squier[24]). Moreover, the dome of the bladder "resembles the silent area of the stomach, the greater curvature, where tumours occasionally become large before localizing symptoms appear" (Scholl[28]).

The preliminary mobilization of the bladder which I have described is an invaluable method of attack in other operative procedures on the deeper-placed areas of the viscus—as, for example, when a diverticulum has to be removed or a stone in the lowest segment of the ureter calls for open operation. In one of my two cases of papilloma springing from within a diverticulum the whole sac was excised together with the papilloma. In another patient, of whom *I have already spoken*, the lower end of the ureter contained a recurrent papilloma together with an implantation in the bladder at the ureteric outlet. The ureter was removed by a similar exposure, together with an area of bladder surrounding its orifice.

Whatever method of open operation is employed the tendency for implantation to occur in the wound itself must be guarded against by *protecting all* exposed surfaces with tetras and swabs *soaked in silver* nitrate solution (1 *in* 1,000). The greatest care is exercised *in the handling* of the growth itself, and every preparation which can shorten the *time that it is exposed* is undertaken *before the bladder* is opened. Here again the advantage of the preliminary wide mobilization of *the organ is evident*. In the final toilet the wound is again sponged with silver nitrate 1 *in* 1,000, resorcin 50 per cent. (Young *and* Davis),[4] or alcohol (Beer), according to the choice of the surgeon.

This is a large and severe operation, yet it represents a *material improvement on its* predecessors. When the tumour is small it is less difficult, but when it is large the difficulties are much increased. The fact which must strike one, of course, is the wide difference between the treatment of a small benign and a large malignant growth, the one being successful and rapid, the other very dangerous and very difficult. The problem therefore lies in getting the cases in their early stages as *soon* as ever the earliest haematuria gives warning of a lesion in the urinary tract which calls for cystoscopy. It is the relative infrequency of bladder tumours which militates against their early reference to the surgeon, for the importance of immediate examination *is not* borne home so easily to the medical attendant. "Had symptomless haematuria been as common as the acute appendix, it would have gone *through the same phase* as that condition experienced twenty years ago, and would now be invariably submitted to immediate cystoscopy, *just as the* acute abdomen is promptly submitted to laparotomy."[29a]

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THE COMBINATION OF COLLOIDAL LEAD SELENIDE (D4S) AND RADIUM IN THE TREATMENT OF CANCER.

BY

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In view of the recent increase in the use of colloidal lead selenide (D4S, British Drug Houses) in the treatment of cancer it is considered that the findings to be narrated should not await the second edition of our *monograph*. *This early report is sent out in the hope that other centres may avoid* the regrettable result of incorrect combination of this preparation with radiation.

We found that therapeutic *x* radiation subsequent to administration of D4S was nothing less than disastrous. Five cases were so treated, and the growth of the neoplasm appeared to be promptly and markedly stimulated. The combination of these two methods of treatment was considered to be dangerous, and a warning was given.[1] Two of the cases were as follows:

Case 1.—Male with inoperable carcinoma of lip and involvement of *submaxillary* glands. He was treated for five months with D4S, which resulted in increased feeling of well-being, gain in weight, fairly marked reduction in size of the growth with disappearance of the glands. Then the case remained stationary, and as the patient had had as much lead as we thought advisable we decided to try the effect of *x* radiation. He had received only half the usual carcinoma dose when it was found that rapid growth had extended into the tissues of cheek and jaw, and fistulae developed within two weeks. More lead was given, and the growth appeared to be checked, but by this time there was a large ulcer with much sepsis. *Ultimately* he died, apparently of sepsis, for there were no metastases.

Case 2.—Young female with large medullary carcinoma of breast. After five months of treatment this case was considered to be operable as the growth had become sharply circumscribed, much smaller, and glands had regressed. However, we decided to try *x radiation instead*. By the *time half the dose* had been given the mass was very *much larger*. The radiologist considered this to be oedema at first, but very shortly widely spread nodules in the skin of the chest and consolidation of the *underlying lung* dispelled optimism. After *improving* on D4S enough to be a fair operable risk the patient died of general carcinomatosis within six weeks of commencing *x* radiation.

In three other cases, with variation only as regards site, we had *similar results*—stationary or diminishing carcinoma began to extend quickly immediately *after x* radiation.

Later, when radium became available, we had a very similar experience. Some cases, not responding to treatment with D4S, were treated with radium. Marked oedema, shortly followed by necrosis of the tissues around the growth and sepsis, was the result. Two of these cases are worthy of note, for they appeared to give a clue to success in the combination of the two methods of treatment.

Case 3.—Male, recurrence of carcinoma of lip in submaxillary glands. He had been treated with D4S for three months, and had gained in strength and weight, but though the masses had become so soft as almost to fluctuate they were steadily growing. On the advice of one of the leading radium workers, who saw the patient and advised the dose and its application, radon was implanted in screened seeds of 50 per cent. strength. Oedema and necrosis followed immediately, and fungation into the pharynx

threatened to end the case. We decided to try to arrest growth with D4S, and gave the man his usual dose. He had had this amount for about three months, and experienced very little reaction, but after the radon there was severe focal reaction, and the dose had to be diminished to one-fifth. Thus, in this case, as in others, we have found that radium increases the local reaction to colloidal lead selenide.

FIG. 1.—Control mice, no treatment. All implanted from same tumour on May 28th. Scale throughout is one-fourth.

Case 4.—A female with recurrence of carcinoma of breast; two main masses were present, one above the clavicle, the other adherent to the ulnar trunk in the arm, causing anaesthesia dolorosa. She, too, was seen, and advised a dosage by the same authority; it was intended to implant two half-strength seeds into each mass—that is, half the dose for an untreated case. By error, only one seed was implanted into the supraclavicular mass—that is, one-quarter the usual dose—and this mass promptly disappeared. The brachial node was implanted with the other three seeds—that is, three-quarters of the usual dose; it became larger, and soon afterwards extension to the axilla and the pleura ended the case.

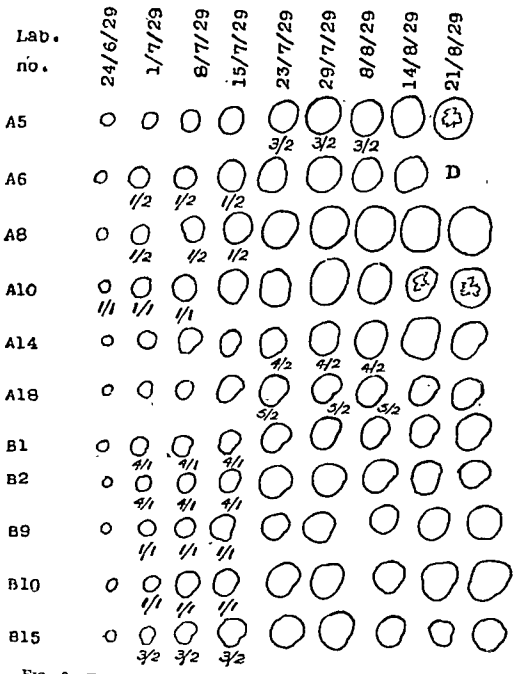

FIG. 2.—Treated with D4S first. Series A received 0.3 c.cm., B 0.4 c.cm. Radium dosage noted in the same manner as in Fig. 3.

A full description of the dozen cases which received therapeutic x radiation or radium after the administration of colloidal lead selenide would make very dismal reading, as it would be a repetition of the four cases recorded above. The only hint of success was the supraclavicular mass which received one-quarter of the calculated dosage. It would appear that D4S increases the sensitivity of cancer to x radiation and radium, and, secondly, that radium increases the sensitivity of the cancer to D4S. Other cases, treated at varying but longer intervals after x rays or radium, show that this sensitization is temporary; after an interval of six weeks or longer there is no evidence of unusual reaction.

It was decided that no more trial of the combined method should be made before a better technique should emerge from animal experiments. Mice were implanted with the Twort carcinoma. Some were not treated at all (Fig. 1); some were given intravenous injections of D4S in amounts less than sufficient to produce any decided result, then we applied radium (Fig. 2); still others were treated with radium first and given similar amounts of D4S afterwards (Fig. 3). Variations in exposures to radium and in the dosage of D4S are noted in the text. The radium was radium bromide, 1 mg. screened with 0.6 mm. of gold. It was applied to the surface over 5 mm. of compressed cotton-wool. In some cases two similar needles were used.

The result, as given in the figures, is much the same as we found in man. The reduced scale necessary for reproduction in the press, however, renders less evident the striking differences between the batches of animals. The tumours are very much larger than those of the untreated animals in the batch which had radium after lead, and, with one doubtful exception, all are advancing; while the

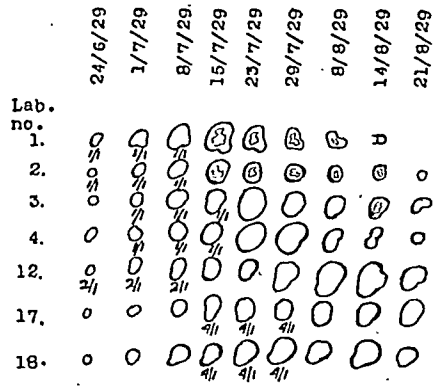

FIG. 3.—Treated with radium first. Dosage noted: 1/1 means 1 mg. for 1 hour, 4/1 means 1 mg. for 4 hours. Nos. 1 and 2 received 0.5 c.cm. D4S; Nos. 3 and 4, 0.4 c.cm.; Nos. 12, 17, and 18, 0.3 c.cm. afterwards.

tumours treated with lead after radium are diminishing in size, with one doubtful exception.

The result of one experiment should be accepted with reserve, but when, as in this case, it is completely in agreement with the therapeutic trial in man, its conclusions are strengthened. It is hoped that this paper may limit the number of unfortunate results in other centres. Those workers who have visited our clinic have been told that we allow an interval of four to six weeks after radium before starting colloidal lead selenide, and that we give very small doses of D4S if a patient has had any radiation within three months.

To attempt to explain these findings with the help of our inadequate knowledge of the pharmacology of lead and selenium would be foolish. It is possible that secondary radiation from the lead in and around the neoplasm might be a partial cause—that is, if secondary radiation is really of more than academic importance. It is more likely that the selenium, amongst other properties being markedly a photosensitizer, might sensitize the surrounding tissues to radiation. The latter explanation would be more in agreement with the severe peripheral oedema and necrosis which has followed radiation on tissue previously treated with lead selenide.

Further experimentation is being carried out here. If our conclusions become substantiated it is claimed that a further advance is likely in the treatment of cancer, for it is considered that colloidal lead selenide increases the susceptibility of the neoplasm to radiation, and that a dosage of radium of about one-fifth of that advised at the present time will be about the optimum.

Conclusion.

In the meantime it is strongly recommended that x radiation or radium should be applied with extreme caution, if at all, in cases of cancer which have been treated recently with colloidal lead selenide (D4S).

We have to thank Dr. J. A. Murray for Twort carcinoma and Professor Sidney Russ for gifts of radon. The expenses of this research have been met by the Bristol Royal Infirmary Cancer Research Fund.

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HYOSCINE AMNESIA IN LABOUR.

A RECORD OF 24 CASES TREATED BY HYOSCINE ALONE.

BY

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AN outcome of the suggestion that the morphine used in the twilight sleep method was responsible for the asphyxia or oligopnoea in some of the newborn has been the development of a new technique whereby amnesia is produced by hyoscine alone. It was devised by Dr. Bertha Van Hoosen of Lyola University, U.S.A., and consists in giving 1/100 grain of hyoscine hydrobromide as soon as labour is fairly started. Thereafter two more 1/100 grain injections at half-hourly intervals, followed by a similar injection of 1/100 grain every two hours for as long as labour lasts.

This treatment was brought to our notice by Dr. Cargil of Ottawa—a past resident of this hospital—who had tried it on several cases with success. At the instigation of Mr. Lane Roberts this treatment was carried out on 24 cases at Queen Charlotte's Maternity Hospital in July last. The treatment was applied to a sequence of cases where no evidence of any circumstance contraindicating normal delivery was present. This definition covered all patients who had been under treatment for albuminuria during pregnancy, for large doses of hyoscine diminish secretions and throw an added strain on the kidneys.

Analysis of Cases.

Of the cases treated, 16 were primigravidae and 8 were multigravidae. Their ages varied from 20 to 37 years. All except one were occipito-anterior presentations; the one exception was a breech presentation with extended legs, in a multigravida.

The average total duration of labour for primigravidae was 19 hours 43½ minutes; the shortest 6 hours 50 minutes, and the longest 42½ hours. The average total duration of labour for multigravidae, on the other hand, works out at the rather large figure of 20 hours 47 minutes. The shortest was 7 hours 40 minutes; had it not been for the fact that one massive patient had gone 22 days over her dates, producing a 9 lb. 12 oz. post-mature baby after a total labour of 77 hours 20 minutes, the average time would have approximated 9 hours, which is quite a favourable figure. The average second stage for primigravidae was 2 hours 16½ minutes, and that for multigravidae was 41½ minutes.

Twenty of the patients had normal deliveries; 2 patients required the application of low forceps, and in one case the head was assisted over the perineum by the use of 2 units of pituitrin. The breech with extended legs was treated by bringing down one leg and flexing the other at the knee-joint when the cervix was fully dilated. Open ether was administered with apparent safety and ease to the three cases requiring assistance.

An interesting feature of this treatment was the fact that the babies at birth showed signs of active life rather more readily than in normal cases. All were born alive, the majority presenting a high pinkish hue on delivery. Where the cord was round the neck, having to be cut or slipped over the child's head, there was no more blueness than is usual. The babies in the two forceps cases were "left alone," and they recovered just as ordinary forceps cases do. The baby with extended legs was born in white asphyxia. The treatment of masterly inactivity and a warm bath soon revived it.

No trouble was experienced with the third stage of labour. The average duration for all cases was 15 minutes 12 seconds. The loss of post-partum blood was small, the average being 5⅔ oz. The highest loss was 10 oz. and the lowest 3 oz.

When to Start.

The best time to give the initial injection of 1/100 grain of hyoscine to primigravidae was found to be when the cervix was taken up and dilated one finger. This must be associated with good regular pains, or the institution of the treatment may tend to delay labour rather than augment the pains. Should the former happen, it is better to wait an hour or so longer, until regular pains return, before giving the second injection, which normally should be given half an hour after the first.

The choice of time for multigravidae was more difficult to determine. They should be started early, as soon as they have definite pains, which must be felt and timed. Dilatation of the cervix may be deceiving, especially if the presenting part is low, for what is sometimes called a "multips os" may be mistaken for commencing dilatation of the cervix. Hyoscine treatment tends to quicken labour, hence if the injections are started late, amnesia may not be produced in a short labour. Most patients remember receiving two injections; so total amnesia does not start until an hour after the beginning of the treatment, though the memory of pains is probably lost earlier.

Course of Treatment.

The effect of the hyoscine becomes moderately noticeable after the second half-hourly injection. The patients enter that state which is so aptly termed "dopy." Compared with a normal patient there is a sharper distinction between the actual pains and the period of quiescence. The pains are characterized by a varied restlessness, some patients attempting to get out of bed. The period of quiescence is spent in quiet sleep. The pupils become dilated and the lips and tongue dry. Either at this time, or later, is noticeable a slight cyanotic flush, which may deepen in colour with subsequent injections, and is more noticeable during a pain.

The massive effect of the three half-hourly injections is not so marked as might be expected. The patients are not sunk in deep unconsciousness. They can be roused from their state, can give their names, and recognize common objects. It is usual for the memory test to be lost here, and it remains so until the end. The recognition test of an object such as a pen may be lost with subsequent injections. Its loss is certainly an indication that hyoscine is acting powerfully, and its early loss may incline one to lessen the dose or prolong the interval between doses; but the mere loss of the test does not seem a danger signal unless it be associated with a deep unconsciousness and stertorous respirations. None of the cases caused any alarm in this direction.

Restlessness, which rarely encroaches upon the interval between pains, is of varied quality. Rarely is it extremely violent. Only one of the patients—one whose build and strength magnified the restlessness—gave any real trouble. Most of the movements are best termed restless, and in some cases a slight deepening of the colour of the cheeks or a movement of a limb may be all that indicates the presence of a pain. The vocal organs may be used; but the voice is rarely raised above a moan or subdued muttering.

As long as the pains continue satisfactorily the two-hourly injections should be continued. Should they weaken or pass off it is better to prolong the interval before the next injection is given; but this is occasioned rarely when the treatment is started at the optimum time.

Here it may be noted that it is essential that the cases be under constant supervision throughout the treatment. A careful watch should be kept upon the bladder, as most patients require catheterization one or more times,

depending on the duration of the narcosis. Fluids, particularly milk, may be administered by the mouth. Restraint may be needed, but the patients are amenable to kindly yet forceful orders. Mechanical restraint of the arms may be required during the actual delivery in order to avoid a tear of the perineum or the soiling of the sterile clothes; but the perineum may be stretched and the "occiput flexed" without any added discomfort to the patient.

In view of the occasional idiosyncrasy sometimes found in using hyoscine it will be of interest to recount that while no patients were found intolerant of the drug, two patients exhibited definite hallucinations, which, curiously enough, did not appear until immediately after the delivery of the placenta. This condition gave rise to no anxiety. It disappeared with the dawn of consciousness, and all the mothers have since been normal.

Results.

The most interesting part of the whole treatment is visible when consciousness returns some two to three hours after delivery. The mothers look remarkably fit and well. There is hardly anything in their facial appearance to suggest that they have been through a labour and delivered of a child. Most remain oblivious of the fact that they possess a baby until they are informed or happen to place a hand upon the abdomen and find the contour changed. Then their smiling thanks are worth any added work entailed by the accoucheur.

Complete amnesia was obtained in 20 cases. One primigravida, who had had three injections, only remembered six pains and the birth of the baby, which was painless. One of the patients, delivered by forceps, only remembered the mask being placed upon her face. This island of memory, similar to two other small islands of memory in the two remaining cases, seemed directly attributable to a delay in giving the last injection owing to an apparently imminent birth. Experience showed that the last injection might be given in safety, even when the head was distending the perineum. In patients under the influence of this treatment the *vis a tergo* seemed purely uterine, and the final extraordinary expulsive efforts were more or less lacking and not accompanied by increased abdominal tension. This often led to a relatively slow stretching of the perineum.

The Application.

Dr. Van Hoosen gives the lengthy name of "scopolamine-narco-anaesthesia" to her treatment; but in view of the rather unique narcotic and anaesthetic effects of hyoscine I venture to suggest that the name of "hyoscine amnesia"—or "scopolamine amnesia," if you will—would be more all-embracing and suitable.

Conclusion.

It has been stressed already that the patients must be under constant supervision. Apart from the usual nursing attendance, restraint may be needed for restlessness during the pains. Extra help may be required at the time of delivery, unless the patient is secured with suitable appliances, which limit the use of her hands and the tendency of her body to undo the left lateral position in which she has been placed. Against this can be placed the valuable assistance rendered by repeated kindly, simple, yet forceful orders. It is often the hefty type which causes trouble; the thin, nervous woman, for whom this treatment seems eminently suitable, rarely gives any trouble.

Advantages of Hyoscine Amnesia.

1. The treatment is simple to carry out.
2. There is a fair certainty of obtaining loss of memory of the delivery and of the worst of the labour pains.
3. There is no apparent ill effect on the child.
4. The treatment has a tendency to shorten labour as a whole.
5. There is no apparent increased tendency to the use of low forceps.
6. There is a shortening of the third stage of labour and a small loss of post-partum blood.

RESPIRATORY FAILURE DUE TO CEREBRAL ABSCESS.

BY

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AMONG the modern advances in medical science the pathology, diagnosis, and treatment of intracranial lesions occupy a high position, but the case of cerebral abscess described below presents some unusual features, and is, I think, worthy of being recorded. The following notes are taken from the case records.

H. R., male, aged 25, was admitted to Monsall Fever Hospital at 10.15 p.m. on May 2nd, 1929, certified to be suffering from meningitis. Several days previous to admission he had complained of left earache, but had continued at his occupation of fruit-market salesman. He returned from work at midday on the day of his admission complaining of severe headache and backache, and soon afterwards began to feel drowsy. When seen by his doctor he was thought to be suffering from meningitis, and was sent to Monsall Hospital.

On admission he was in a drowsy, semicomatose condition, and could be roused with difficulty, but quickly returned to his drowsy state. Both pupils reacted to light, but the left pupil was slightly smaller than the right one. There was no strabismus or nystagmus. There was slight retraction of the head and marked nuchal rigidity. The tongue was dry and furred, but the throat was clean. No rhinorrhœa or otorrhœa was present, and no tenderness was elicited over the mastoid processes. Kernig's and Babinski's signs were present. No albumin or sugar was found in the urine. Examination of the heart, lungs, and abdomen revealed no lesion. Temperature 100.2°, pulse 100, respirations 28.

May 3rd. Patient was drowsy; there was no delirium or irritability; he could be roused sufficiently to answer questions rationally, but only after a definite latent period; complained of suboccipital pain; pupils normal and reacted to light; no strabismus or nystagmus; no otorrhœa; Kernig's and Babinski's signs present; temperature 101°, pulse 104, respirations 23. Under local anaesthesia lumbar puncture was performed. The cerebro-spinal fluid was under pressure, and 40 c.cm. of slightly turbid fluid were withdrawn. Examination revealed numerous polymorphonuclear leucocytes, but no organisms were found in stained films, and cultures on blood agar yielded no growth.

May 4th. Patient not so drowsy and nuchal rigidity not so marked; complained of severe frontal headache; herpes of upper lip and pinna of right ear; temperature 98.6°, pulse 68, respirations 20.

May 5th. Condition unchanged; no evidence of aural lesion; headache continued; temperature 99.4°, pulse 76, respirations 20.

May 6th. Severe frontal and suboccipital headache; no head retraction, but definite rigidity of neck muscles; slightly drowsy; no incontinence; pupils normal; no mastoid tenderness, but slight reaction to hydrogen peroxide in right ear; temperature 99.6°, pulse 56, respirations 22. Lumbar puncture was repeated, the cerebro-spinal fluid was not under pressure, and 15 c.cm. were withdrawn. The fluid showed very slight turbidity, but no organisms were found, despite the continued presence of polymorphonuclear leucocytes. The visiting aural surgeon was asked to examine this case, and he reported as follows: "Both tympanic membranes opaque, but no pus in either and no bulging. No indication of aural cause for meningeal condition." The following day the condition was unchanged; temperature 100°, pulse 56, respirations 20.

May 8th. General condition showed slight improvement; temperature 98°, pulse 52, respirations 24. On May 9th the nuchal rigidity and headache were less; he was rational in conversation, but not taking much interest in his surroundings; there was no paralysis or paresis; pulse still slow; temperature 97.8°, pulse 52, respirations 20.

May 10th. At 10 a.m. I arrived at the ward in response to an urgent call to find the patient unconscious and cyanosed. Respiration had ceased, but the heart was beating regularly, though slowly. There was general spasticity of the muscles, but no twitching; both pupils were fixed, the right contracted and the left widely dilated; there was no strabismus, no nystagmus, and the superficial reflexes were absent. A gag having been inserted into the mouth artificial respiration was begun and the cyanosis rapidly disappeared. Strychnine and pituitrin were administered hypodermically. Gradually the limbs became flaccid, and both pupils were now dilated and fixed. Artificial respiration was maintained, but no attempt at natural respiration occurred, though the heart's action continued to be regular and forceful. While a careful watch was kept on the condition of the heart, artificial respiration was discontinued till the patient was "black in the face," but artificial respiration had to be started again. At the end of one hour the condition was unchanged. Cistern puncture

was performed, but the cerebro-spinal fluid was not under pressure, and only a few drops of clear fluid were withdrawn. No alteration in the condition followed this procedure. Despite the continued artificial respiration, an earthy cyanosis now appeared, both pupils were dilated and fixed, and the extremities cold and clammy. At 3 p.m. the heart began to lose tone, gradually became irregular, and, despite energetic stimulation, death occurred at 4 p.m. (six hours after cessation of respiration).

A post-mortem examination was performed on May 11th, and the following notes are extracted from the report.

"Brain: no evidence of meningitis; circumscribed abscess about the size of a walnut in left temporo-sphenoidal lobe; abscess cavity contained thick greenish pus with foul odour; abscess situated completely in the white matter, but a visible track led through the grey matter to the petrous portion of the left temporal bone; the white matter round the abscess for a variable distance showed marked softening, with scattered minute haemorrhages; ventricles not distended, and contained no pus; no cerebellar or pontine lesion.

"Left temporal bone: tegmen tympani discoloured and eroded; middle ear and mastoid antrum full of partially organized granulations; the mastoid process showed marked sclerosis of the bone, and the scanty air cells were filled with granulations; lateral sinus not involved; no evidence of spread of infection to cerebellar fossa; membrana tympani thickened but intact.

"Stained films of the pus showed numerous pus cells, Gram-positive and Gram-negative diplococci, Gram-negative bacilli, and short chains of streptococci. Films of the growth on blood agar plates revealed similar organisms; the streptococci were non-haemolytic."

The cessation of respiration must have been sudden in onset as the ward sister had conversed with the patient shortly before she discovered him in this state, and none of the other patients in the ward was aware of any change in his condition.

With the assistance of the family practitioner I made more detailed inquiry into the previous history of this case. On or about April 15th he had complained of earache, and had attended the Ear Hospital, where he was given some drops to instil into the ear. The condition apparently subsided, and he was in good health till the day of his admission to hospital. His wife reported that she had heard him say that he had "always been slightly deaf." The marked sclerosis of the mastoid process and its incomplete pneumatization suggest that the aural lesion was of longer standing than the history would suggest. No history of vomiting, vertigo, dimness of vision, diplopia, or even headache could be obtained. The necropsy findings point to the abscess being of some duration, and that the terminal condition was due to extension into the surrounding cerebral tissue.

Ransom[1] states that the respiratory centre is situated in the caudal part of the medulla oblongata. Landois and Stirling[2] discuss the question of an additional cerebral respiratory centre, but modern physiologists agree in placing the respiratory centre in the medulla oblongata. The work of Lumsden[3] shows that the mid-brain has no influence on respiration. On anatomical grounds the cessation of respiration in this case does not seem to have been due to pressure on the centre. Four days had elapsed since the last withdrawal of cerebro-spinal fluid.

Macewen[4] and others have described cases of cerebellar abscess causing pressure on the pons and cessation of respiration, but I have been unable to find any references to a similar condition occurring in a case of cerebral abscess.

I wish to express my thanks to Dr. D. Sage Sutherland, medical superintendent, for permission to publish this case.

References.

1 Ransom, W. S.: *The Anatomy of the Nervous System*, 1925, p. 330.
2 Landois and Stirling: *A Textbook of Human Physiology*, 1891, vol. ii, p. 815.
3 Lumsden: *Journal of Physiology*, 1923, 57, pp. 153 and 354.
4 Macewen, W.: *Pyogenic Infective Diseases of the Brain and Spinal Cord*, pp. 137 and 196.

NASAL DISCHARGE IN CHILDHOOD.*

BY

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For the purpose of this communication 50 children, under 14 years of age, have been selected; these, when first seen, had one symptom common to all—nasal discharge. The children have been kept under observation, with few exceptions, for two years or longer. The fifty children may be classified as follows.

Fifty Cases of Nasal Discharge.

	Cases.
A. Tonsils and adenoids previously removed; maxillary antrum infection present	23 (16)
B. Maxillary antrum infection present; no operation on throat previously; adenoids not present	9 (1)
C. Tonsils and adenoids removed; antral investigation negative; nasal discharge persisting ...	10 (8)
D. Required second or third operation on tonsils and adenoids to terminate nasal discharge ...	6 (4)
E. Atrophic rhinitis	2

The figures in parentheses indicate the number of cases in which otorrhœa or deafness was a symptom: 29 such cases are noted, or 58 per cent. of all cases. It is only fair to add that many of these cases came under my notice primarily for the relief of aural disease. Sinus infection was present in 32 patients, or 64 per cent. of cases, as shown in the table.

Class A.

In these cases nasal discharge had persisted despite an efficient removal of tonsils and adenoids. Cleminson, in 1921, put forward as a cause of the lack of attention paid to the sinuses in young children the great similarity between the clinical picture produced by sinus disease and that painted in almost every textbook as due to adenoid hypertrophy. Both conditions may give rise to the running nose, and probably in the 23 cases in this group the tonsils and adenoids had been removed with a view to the relief of this symptom among others. When first seen by me nasal discharge was present, and unilateral or bilateral antral infection was demonstrated by proof puncture. The presence of pus or muco-pus in the suction syringe or wash-out was the only positive criterion of infection accepted. In the majority of children I perform proof puncture of the antrum with a fine, straight trocar and cannula through the inferior meatus of the nose, having first inserted a probe covered with cotton-wool in 5 per cent. cocaine with adrenaline on to the selected spot for perforation of the antral wall. I have had no trouble from the cocaine. I would like to ask the question, Was it unnecessary in the first place to have advised the throat operation? Probably it was not, as, in my experience, the presence of an obstructed or septic nasopharynx is a hindrance to the cure of an infected sinus; for, as

* A communication to the Section of Oto-Rhino-Laryngology at the Annual Meeting of the British Medical Association, Manchester, 1929.

Cleminson very aptly expressed it, "These two conditions [infected adenoids and sinuses] play into one another's hands." In view, however, of our increasing experience of the frequency of sinusitis in children, the presence of pus in the nose should have put the operator on his guard and made him consider the possibility of sinus involvement.

In most of these cases, when I saw them for the first time the diagnosis was self-evident, pus being present in the nose, generally in the middle meatus. A boggy or polypoid anterior end of the inferior turbinate led me to suspect an antral infection in a few cases. Recent correspondence in the *British Medical Journal* showed a very active interest in this class of case, and, unless the general practitioner—who operates on a great number of patients for tonsils and adenoids—and otologists and laryngologists realize the pitfalls of sinusitis in children, great harm will be done to the prestige of the "tonsils and adenoids" operation. In my opinion local authorities who recommend removal of tonsils and adenoids in great numbers should especially heed this warning. Another pitfall which it would appear appropriate to mention at this juncture is that pus in the nose, without blood, may be due to the presence of virulent Klebs-Loeffler bacilli. I have been called to three such cases in the last year and introduced this point, as in two cases the patients were children of medical men and the true cause of the discharge had been unrecognized.

CLASS B.

This class is composed of 9 cases; they are perhaps interesting in that they were cases of sinusitis uncomplicated by the presence of adenoids at any time in their history, with a marked freedom from otological complications. As in the previous group, I have no wish to give my views on the treatment of antrum disease, but record my disappointment of the value as a curative measure of simple antral wash-outs by means of trocar and cannula, except in cases of recent infection. What particularly is in the forefront of my mind in this connexion is the question as to whether ethmoidal disease is common in young children. Not all of our cases of antrum infection clear up as we should like them to. Are some of these failures—often comparative—attributable to an unsuspected ethmoiditis? A recent transatlantic communication lays stress on this aspect of the subject, and bases diagnosis on *x*-ray appearances. The infallibility of this course cannot as yet be accepted, but the question which appears to arise is whether in every case of suspected antral suppuration an *x*-ray photograph should be taken before treatment is commenced, and studied with reference to all the accessory sinuses of the nose. The following case is illustrative of difficulty in both diagnosis and treatment in a small child.

The patient was an undersized child, aged 5, whose tonsils and adenoids were removed one year previously for obstruction and nasal discharge; the muco-purulent nasal discharge persisted. There was a history of bronchitis since an early age. In the radiogram both ethmoids were dim. An antral wash-out was negative, right and left. The nose was very small, and it was impossible to remove a portion of the middle turbinate. The discharge continued. Pure culture streptococcus vaccines were given.

Opinion appears to favour removal of a middle turbinate in such cases as a first step in treatment. This should answer well in a suppurative case, but would it be of any use in an early case of polypoidal degeneration of the ethmoidal cells? One question in connexion with nasal catarrh and sinusitis in children I should like to hear your opinion upon, and that is: Is it possible that obstinate sinusitis and polypus formation in young adults is a development of nasal trouble, apart from adenoids, that begins in childhood? If ethmoidal disease with polypoidal degeneration of the mucous membrane of the cells be present at an early age, can we hope by operation to prevent the bugbear of an adolescent ethmoiditis? From my own experience operation on such cases is safer, and the field of operation more clear if the patient is sitting up in a chair. I use Woodman's chair.

One of my first cases in practice was a child, aged 7, whose adenoids had been removed three years previously. The child still suffered from some nasal obstruction. Adenoids had been well removed. Luckily, from my point of view, I saw the child at the age of 11, when polypi were growing from the diseased ethmoidal cells. Such a case imprinted on my mind very forcibly the possibility of the early beginnings of ethmoidal disease, and increasing experience has confirmed this supposition.

CLASS C.

This class consisted of 10 cases of nasal discharge of indefinite nature which persisted after the tonsils and adenoids had been removed efficiently, proof puncture of the maxillary antra being negative. Several of these patients were plethoric-looking children with a persistent mucous nasal discharge and intermittent otorrhœa, mucoid in nature and coming from an anterior perforation. Broad nostrils, with excoriation of the surrounding skin due to nasal discharge, short cough, and husky voice were common to all. To me they answer to the description "catarrhal child." The nasal mucosa is thickened and congested in common with that of the pharynx and probably the respiratory tract. Some of these patients give a long history, almost since birth, of chronic colds. Neil Maclay has suggested that the susceptibility of the nasal mucosa to toxic products begins very early in life, and may be responsible for the catarrhal conditions in babies who have wet noses and a congested nasal mucosa, with nasal obstruction and respiratory difficulties. The frequency with which a history of colds dating from the first year of life can be obtained has been referred to by Dan McKenzie. I should like to emphasize the point from my own experience of these case-histories and many others, which show the early sensitization of the nasal mucosa to infection, with frequent spread to the bronchial tree during childhood. May I be excused for quoting from the following case record of Dr. Crosskey.

A boy, born August 22nd, 1922, was "snuffly" on September 2nd, and had bronchitis on December 1st of the same year. Later acute bronchial catarrh followed a cold. He had urticaria in September, 1923, and bronchitis in 1924, followed by nasal catarrh. In May, 1925, the tonsils were septic. He was seen by a physician in consultation in 1927, who advised removal of tonsils and adenoids, and thought cough might be partially due to asthma. The operation was performed by myself. Seen again in 1928, there was no improvement in the nasal catarrh and very little in the bronchial condition.

In this case there had developed an underlying vasomotor element, as evidenced by the development of asthma. I am precluded from dwelling on this aspect of the subject as a cause of prolonged nasal catarrh, but undoubtedly it has a place in the causation of the condition.

Maclay further suggested that the altered condition of the nasal mucosa brought about by "colds" in infancy favoured the growth of germ-life in the nose, and might lead later to a superimposed infective inflammation, probably spreading to the accessory sinuses. While watching one of these catarrhal children over a period of three years, and in 1928 having punctured both antra with negative results, I was surprised to find in 1929 that the nasal discharge which had before been mucoid had become muco-purulent. By radiography and by washing out I confirmed the presence of pus in the right frontal sinus. Such cases show their origin from a chronic cause rather than an acute one.

One patient in this group of ten cases had the well-known symptoms of a vasomotor rhinitis: attacks of tickling sensation in the nose, lacrymation, and copious nasal discharge. On washing out his antrum a large amount of pus was found. No cases could be traced as due to food proteins or animal emanations. Such cases are of importance, but apparently rare. As regards treatment for these children with a chronic catarrhal condition I am on rather unexplored territory; at present I direct treatment towards improving their general health. Three certainly improved greatly after courses of treatment by means of general ultra-violet radiation. Removal of tonsils and adenoids had not noticeably improved them. In this class are the cases with enlarged anterior and posterior ends of the inferior turbinates. Does removal of the posterior ends do any good? Is it still practised as frequently as formerly? Should the anterior ends be cauterized or removed to give better aeration to the nostrils?

Research on the chemical constitution of the blood in these patients may be a helpful line which I intend to investigate further.

CLASS D.

This consists of cases in which operations in the throat had been badly performed, and which cleared up after thorough removal of adenoids.

CLASS E.

Cases in this class are included merely to show the material on which this communication is based.

CONCLUSIONS.

The points which have appealed to me in reviewing these cases are:

1. That the presence of pus or muco-pus in the nose must suggest the possibility of sinus infection, although the presence of adenoids may produce the same picture.

2. That when dealing with infection of the maxillary antrum in children the possibility of ethmoid infection at an early age must be kept in mind.

3. That before deciding on any operative form of treatment of a child's nose or throat a careful history should be obtained. This may form a useful guide to prognosis:

PERSISTENT NASAL CATARRH IN CHILDREN.*

BY

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PERSISTENT nasal catarrh, or, in scientific language, chronic rhinitis, is a common disease in childhood, and its causes are numerous. The foremost cause is, of course, adenoids, and the adenoid growth is of two varieties. There is, first, the large central tumour mass; and secondly, the type in which the lymphoid growth is spread as a sheet over the roof and posterior wall of the nasopharynx. It is this second variety which is more liable to cause nasal discharge, and the discharge may persist even after careful operation.

Another cause of nasal discharge in children is diphtheritic infection, and we have found it so common in the Children's Hospital that we take a swab from every case of nasal discharge. I mention this in passing in order to emphasize the importance of bacteriological examination.

As regards sinus suppuration, there is no doubt that the *antra* and ethmoids may become infected at an early age, as is proved by the work of Dean and others in America, and of Cleminson in London. My colleague Dr. Hall has followed up those researches and has kindly permitted me to quote his results, which are not yet published. He performed lavage of the antra in 85 cases from which adenoids and tonsils were to be removed. In 10 per cent. he found actual creamy pus in the antra, in 13 per cent. there was muco-pus, and in 27 per cent. the saline which he aspirated back into the syringe was turbid. The majority of such cases are curable by removal of adenoids, though a few cases may require operation on the antrum—namely, intranasal drainage.

The type of case which particularly interests us to-day is the little patient who suffers from persistent nasal discharge for which no apparent cause can be found. How frequently, for example, does one meet with children whose nasopharynges have been curetted on two or more occasions, without result!

Such patients suffer from nasal obstruction, as well as from nasal discharge, and I venture to submit that it is the obstruction, rather than the discharge, which constitutes the real cause of all the trouble. In fact, the so-called "persistent nasal catarrh" is caused by pyogenic infection in a narrow and poorly drained nasal cavity. In an obstructed nose secretions accumulate and readily become infected. The obstruction arises from arrested development of the nose and *nasopharynx*, caused by the *adoption* of a mouth-breathing habit at an early age. And how has this mouth-breathing habit originated? From a succession of head colds during the first few years of life. The sequence of events is as follows: recurrent attacks of acute rhinitis, nasal obstruction and mouth-breathing, arrest of nasal development, and eventually chronic rhinitis. The appearance of adenoids as an attempt to combat infection is a mere incident, though a fortunate incident if the adenoids are of the large tumour variety. Operation then effects a dramatic cure. But frequently there are no adenoids, and, furthermore, in at least 20 per cent. of cases of adenoids of the second diffuse type operation fails to cure the discharge and obstruction. This heterodox view, that nasal stenosis is the essential lesion, is borne out by the results of treatment.

The object of treatment must be to restore the patency of the nasal passages. Naturally one must deal with any cause of obstruction which one discovers. Adenoids must be removed, and I agree with Dr. Dan McKenzie that the adenotome is a more accurate and scientific instrument than the curette.

Enlarged turbinals must be reduced by partial removal, and special attention paid to enlarged "posterior ends." I have never discovered posterior ends in children under the age of 6, though they are not at all uncommon in older children.

As regards deviation of the nasal septum, this cause of obstruction is, in my experience, rather rare in childhood, apart from deviation directly due to injury. The deviation involves, as a rule, only the cartilage and not the bone. There need be no hesitation in performing a limited submucous resection, and I have never seen deformity follow operation when care has been taken to remove only sufficient cartilage to relieve the nasal stenosis.

There remains, however, the large group of patients who show no obvious cause of the nasal catarrh, although the entire nasal cavity may be smaller and less developed than it should be. What can be done for those little patients?

Regular removal of the muco-purulent secretion is the first essential. In babies a simple suction apparatus (*mouche bébé*) is useful. Older children must be taught how to blow the nose (by the open method, not by grasping the nose), although this is a difficult task for teacher and pupil. Local applications may follow this cleansing regime, and one of the best is the French preparation gomenol, which is used in 5 per cent. solution in olive oil, and dropped into the nose with a pipette.

As regards internal treatment, the "catarrhal" child derives benefit from sodium bicarbonate in large doses. I cannot explain this action, but the free use of such an alkali, by the mouth, is of great value in middle-ear suppuration, as well as in chronic rhinitis.

The so-called "catarrhal" and thickened mucous membrane may often be restored to normal by the method of "diastolization" introduced by Gautier in France five years ago, but only recently adopted in this country. The procedure is virtually a means of massaging the nasal mucosa by the expansion and dilatation of a thin hollow rubber bougie, connected to an otomasseur.

The dental condition is of some importance. When the upper dental arch is narrow and the teeth crowded it may be desirable to fit an expanding denture composed of two halves. This aspect of nasal obstruction in children has perhaps been unduly stressed by our dental colleagues, but it certainly deserves attention in selected cases.

Most important, however, is the restoration of the perverted respiratory function by systematic re-education. Breathing exercises are indispensable, but in carrying out the exercises, expiration, as well as inspiration, must be nasal. It is essential to insist on this, as one often finds that the teacher encourages children to take a deep breath through the nose and then let the air escape by the mouth. This is, of course, quite an unnatural method of respiration. It is even worse than the method sometimes adopted after adenoid removal—namely, no instructions and no exercises at all!

By such methods, conducted with diligence and care, the patency of the nasal airway may be gradually restored, and as the patient loses his mouth-breathing habit and acquires the normal manner of respiration by the nasal route, the nasal discharge will disappear.

*A communication to the Section of Oto-Rhino-Laryngology at the Annual Meeting of the British Medical Association, Manchester, 1929.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

ASTHMA AND URTICARIA.

THE following case, in which urticaria and asthma appeared in a patient suddenly and simultaneously, is interesting in view of the connexion many believe to exist between the two conditions.

On September 10th I was called to see a married woman, aged 81. I was informed that she had been perfectly well until half an hour before, when suddenly, on preparing to get into bed, she had experienced a feeling of great constriction round her waist, and of suffocation. Her hands and arms felt as if they had "gone to sleep," and she had an unpleasant sensation of tightness over the temples.

At first I was under the impression that the case was one of cerebral haemorrhage. The patient had made one abortive attempt to vomit, was very restless, and her hands were continually moving. On the other hand, the pupils were normal, the pulse 80, and the mind quite clear. The face was flushed, and the patient continually drew my attention to her hands, which were very red and hot, affirming that she felt as though they were "going to burst." Whilst I was observing her the breathing became wheezy, and on examining the chest I heard wheezy rhonchi, such as occur in association with asthma, but although the respiration was a little hurried there was no dyspnoea. Suddenly the patient complained of the onset of intense irritation round the body, and on exposing the skin I discovered a dense urticarial eruption chiefly on the flanks, extending down the thighs for about three inches below the groin. The limbs were otherwise clear. I now noticed that the patient's voice was becoming rather hoarse; the temperature was normal. The body was sponged with 1 in 100 carbolic lotion, which at once stopped the irritation and appeared to cool and calm the patient considerably.

The next morning when I called the patient was quite normal and clamouring to get up. The rash had quite disappeared, the voice was no longer hoarse, and the aeration of both lungs clear and good; with no adventitious sounds. I could discover very little which shed any light on the cause. Two hours previous to the attack she had taken a glass of milk which was rather sour. She had never before suffered from urticaria or asthma, and was perfectly well up to the moment of the attack.

Grays, Essex. F. E. WHEELER, M.R.C.S., L.R.C.P.

A CASE OF SPONTANEOUS RUPTURE OF THE UTERUS.

A MARRIED woman, aged 45, was admitted in labour to Queen Charlotte's Hospital on May 6th. The obstetric history was as follows:

The patient has had four previous pregnancies; the first and second labours were normal, the third was terminated by craniotomy because the child was stated to have been very large, and the fourth was induced at (?) thirty-two weeks, a live baby of 7 lb. being born. During the present pregnancy the presentation had been variable, occasionally a shoulder, but towards the end it was a vertex with no evidence of disproportion. It was thought wise to induce labour on May 10th, which was about her expected date. Labour started spontaneously on May 6th, and the patient was admitted at 3 p.m., after about twelve hours of feeble pains. The cervix was not fully taken up, the head was high and badly flexed, but could be pushed into the pelvis with difficulty. By 9 p.m. the head was well fixed, but the foetal heart could not be heard. The uterus was contracting feebly but regularly; the patient was tired, but in good condition. The os admitted three fingers. An old tear was noted on the left side, with one lip hanging down sufficiently to be mistaken at one time for a prolapsed cord. Morphine gr. 1/4 was given, and it was decided to do nothing further.

About 11.30 p.m. the patient began to complain of abdominal pain and look distressed, while there were no proper labour pains. The face became pale, and the pulse rose to 140. On examination the uterus could be felt contracting, while by the vagina there was no further advance. As it seemed certain the foetus was dead, the head was perforated without difficulty, but no attempt at extraction was made. During the night the pain continued, but the pulse fell to 110. By 9 a.m. on May 7th, however, it had risen again to 140. A further examination found the foetus easily palpable, and there was a firm mass on the right side; but per vaginam the head could not be reached, and the unoccupied cervix was hanging down into the vagina. It was now evident that the uterus had ruptured, and the patient was at once taken to the theatre and the abdomen opened. The foetus and placenta were found free among the intestines, together with much blood. The uterus was torn horizontally through the lower segment in front and to the left side. It was removed as rapidly as possible at the site of the tear, and after clearing out most of the blood the abdomen was sewn up without drainage. During the operation two pints of gum saline were injected intravenously. The patient's condition after the operation was good, and thereafter she made an uneventful and complete recovery. The temperature did not rise above 99.5° throughout the convalescence.

A piece of uterine wall at the edge of the rent was examined by Dr. Wilfred Newcomb at St. Mary's Hospital. He reported as follows: "The fragment consists of uterine wall with blood extravasated between the muscle bundles. In one place a small artery contains organizing blood clot and the muscle supplied by it is almost entirely replaced by oedematous fibrous tissue. It would appear that thrombosis of this vessel is the primary lesion causing partial infarction and fibrosis of a portion of the muscular wall which later ruptured."

The noteworthy points of this case are, first, the possible cause of the rupture as indicated by Dr. Newcomb, and its spontaneous occurrence after a short period of comparatively feeble pains. Secondly, the wide extent of the tear, which left only the posterior wall and right uterine artery intact. Should it be necessary to perform any internal manipulation for delivery in a similar case before rupture has been suspected complete avulsion of the uterus might easily be produced without any undue violence. The remarkably smooth convalescence was also unexpected.

My thanks are due to Mr. Aleck Bourne and Mr. L. C. Rivett for permission to publish this case.

London, N.W.1. I. H. K. STEVENS, M.D., M.R.C.P.

Reports of Societies.

RADIUM THERAPY.

Discussion by the Medical Society of London.

THE first discussion of the session in the Medical Society of London was held on October 28th, when the subject taken was radium therapy. Mr. DONALD ARMOUR, the president, was in the chair.

Mr. A. E. HAYWARD PINCH, medical superintendent of the Radium Institute, in opening, said that during the last twenty-one years he and his colleagues at the Institute had treated nearly 25,000 cases. He had seen the advent of radium therapy heralded with unreasoning enthusiasm as a panacea for all ills. These expectations were not realized, and then radium was derided; and afterwards ignored. Presently it became grudgingly accepted as a cure for some obscure and rare forms of disease after other treatments had failed to alleviate, but to-day it was universally recognized as a potent and in many respects unique addition to the surgeon's armamentarium. He deprecated the loose and indiscriminate use of the phrase "radium cure for cancer." The phrase was often extremely ill advised. He had recently seen some remarks in the lay press attributed to certain latter-day enthusiasts for radium therapy which he himself, from his special experience, would find the greatest difficulty in endorsing. Radium assisted surgery; but did not abolish it. Radium therapy meant a great deal more than the treatment of malignant disease by gamma radiation. He divided radium therapy into two parts: the first, superficial radium therapy, carried out with an apparatus unscreened or so lightly screened as to permit the passage of the beta radiation; the second, deep radium therapy, with apparatus screened so as to give entirely or almost entirely gamma radiation, with perhaps a minute proportion of beta. Superficial radium therapy, again, might be divided into the treatment of malignant and non-malignant conditions. This branch of radium therapy was extremely useful in the treatment of a variety of conditions, some of them not serious in themselves, but extremely annoying to their possessors. Pruritus was one example. Papillomata of the feet was another. At the Radium Institute, in the dancing season, quite a number of young people were treated for this condition. Another condition was acute papillomata of the ear, often so tender as to interfere with sleep at night; one treatment, and the thing was gone. Cases of lupus vulgaris occasionally came forward, having failed to respond to the usual routine treatments. In lupus erythematosus,

again, radium was used, not with the pretence of cure, but to secure a certain amount of comfort for the patient and to improve his appearance. Other conditions which responded to radium in a way which might be described as miraculous were very bad keloids, often developing in vaccination scars, also big diffuse cavernous naevi. As for malignant conditions, the chief of these for which superficial radium therapy was useful was rodent ulcer. He had noticed a striking diminution in the number of bad cases of rodent ulcer which had come forward during the last ten years, as compared with the number seen in the skin department when he was a student; this, he thought, was largely due to the application of radium, perhaps also x rays, in the early stages. Another amenable condition was mycosis fungoides, a disease the origin of which was unknown. He had a patient at the present moment who had had at different times thirty-five such growths excised from his body by surgeons. Epithelioma of the cornea, with an unscreened exposure of an hour's duration, could be successfully treated practically every time; and yet another condition in the same category was dermatitis pigmentosa. With regard to deep radium therapy the first of the non-malignant conditions where gamma radiation had had marvellous success in his hands was menopausal haemorrhage. He had had an unbroken sequence of 41 cases, all of which had been practically cured by radium treatment. At the same time, he had to admit the failure of radium in essential uterine haemorrhage in young women under 25. In cases of tuberculous adenitis, if in a fairly early stage, before suppuration, radium would certainly bring about absorption of the infected glands. In splenic leucocythemia, radium, while it would not cure, would help the patient very materially, and prolong life. It was of service also in lymphadenoma and lymphatic leukaemia. Coming, finally, to malignant disease treated with gamma radiation, Mr. Pinch put forward some hypothetical cases of cancer of the uterus and elsewhere, and discussed the prospects of surgery and of radiation. With regard to carcinomatous glands, whether secondary to cancer of the tongue or of the breast, he had tried all kinds of procedures, and frankly he did not know which was the best method of treatment. He had tried needling the glands, placing seeds in and around the glands, contact, crossfire, and focal radiation; the only thing he had not tried was bomb radiation, because the Radium Institute had not a bomb. In some cases he got a remarkable result, in others nothing whatever happened. He thought one of the biggest problems in radium therapy was the successful treatment of secondarily infected malignant glands. With regard to carcinoma of the oesophagus, he had treated some hundreds of cases, and had never cured one, nor seen a case cured. The best result he obtained was in one of his earliest cases, a man of 60, with almost complete stricture. After radium treatment he was able to eat mutton chops. But he died, unfortunately, twenty months later from lobar pneumonia. One of the great difficulties when a patient came up with cancer of the oesophagus was to determine the exact extent of the disease. In many textbooks a disease was alluded to as cardiospasm. His experience of cases with this denomination was that it was advisable to be on the look-out for the possibility of disease of the stomach wall at the cardiac end. Mr. Pinch added that, thanks to the foresight of the late Government, 20 grams of radium would shortly be at the disposal of the medical world. It was inevitable that some of this must fall into the hands of those who, to put it mildly, had not had any great clinical experience in radium therapy. He hoped they would not be too proud or too progressive to learn from the experience of their predecessors. The pathfinders in this subject had done much to clear out the jungle growth of ignorance and empiricism, but plenty of snags were still left for their followers to stumble over. At the Radium Institute any information desired would be placed at the disposal of medical men and physicists.

Professor Sidney Russ, director of the Physics Department, Middlesex Hospital, and scientific secretary of the Radium Commission, spoke on certain aspects of radium therapy which presented themselves to a physicist engaged on this work. The physicist tried to look at the thing quantitatively. It was usual to speak of the lethal action of radium. This did not mean that the radium rays cauterized the cells, but that they had some action on growing cells which prevented those cells from subsequent proliferation. By means of diagrammatic slides he endeavoured to get his audience to visualize the lethal action of a platinum tube of radium, anything from 1 to 6 cm. in length. The intensity of action fell off very rapidly with distance. From one table he showed it appeared that if the intensity at a certain short distance were taken as 100 per cent., it fell off to something like 4 per cent. at ten times that distance. But Professor Russ also pointed out how, judging from animal experiments, the action of a tube could be supplemented by tubes or other applicators placed in a different position so as to secure that a very large area received a more or less uniform radiation; it was a question of disposing or "staggering" the tubes. Incidentally he remarked that it was impossible to regard the Stockholm technique for the treatment of cancer of the cervix as able adequately to cope with extensions of the primary growth. One of the most interesting things arising out of the directly clinical application of radium in growths within the last five or six years had been a reduction of the intensity commonly employed in the tubes. Formerly it was quite common to have tubes of 10 or 20 mg. of radium element left in for twenty-four hours, and this, especially in certain sites, led to very unfortunate results. Good results had followed the introduction of radium of smaller intensity, from 0.5 to 1 mg., left in for seven or ten days. Especially in cancer of the tongue it had been found much better to lengthen the time of exposure and reduce the intensity of the dose. The reaction to radium was much more favourable with small intensities over a long time. Professor Russ proceeded to point out that in a tumour there were cells in every phase of division, some of them more susceptible to radium than others. Radiation, applied to groups of cells, prevented cells from reaching the stage of division, or daughter cells from maturing. He showed by diagrams how an application of radium in a rat had delayed the growth of the cells by as long as eighty days—a considerable fraction of the animal's life.

Mr. Duncan Fitzwilliams regarded the science of radium therapy as in no more than its experimental stage. In ten or twenty years' time he did not believe a single device employed to-day would be in existence. From the successes in radium treatment he learned singularly little; it was more intriguing to analyse the failures. He could talk with some authority about the entire failures he had seen with radon and radium. At present the work was being done largely in ignorance. No standards were available. The centres at Paris, Brussels, and Copenhagen all decried certain treatments, were perfectly stereotyped, and it was difficult to get them to do any experimental work outside their own accustomed field. In this country, until St. Bartholomew's took up the scientific investigation of the subject, radium was abused rather than used. The public had got the idea that it was only necessary to talk radium and the cure automatically followed. He feared, also, that in a few years' time there would be a number of commercial houses to which anybody could go and hire radon. The radon would be used by those who knew nothing about it, and in the most disastrous manner.

Dr. J. H. Douglas Webster agreed with the last speaker that in a very few years there was likely to be commercial exploitation of radon and radium. There was a good deal of this already in the United States, where it caused anxiety to the older radium workers. Dr. Webster showed photographs of some malignant cases, including squamous-celled carcinoma, which had remained well for five years. He doubted the statement that it was better to give doses of small intensity over a long period than to give large doses for a short period. He had found excellent results from using large intensities for a short time, and it was not yet determined whether the good results accruing under the other method might not be due to multiplicity of foci. He spoke also of the value of radium applied from a distance; he believed he was the first worker in this country to use it in that way. When radium was placed at a distance the possible damage to the skin was lessened. He endorsed what had been said

about the relatively little that was known on the subject of radium as compared with what in all probability would be known in thirty years' time. He believed that important arguments could be brought against any of the dogmas erected on the subject of radium. One method of treatment much spoken of was that of encircling the growth or the recurrence with radium tubes. But how could anybody be sure that the growth would extend in a circle? It might extend in an ellipse, or possibly have a ribbon development. A very good piece of advice was given by Mr. Fitzwilliams when he bade radium workers to study their failures. If the cases of failure were analysed the cause would nearly always be found to be wrong technique in the dosage. Either a sufficient total radiation was not given, or a sufficient amount was not given for the necessary length of time, or a sufficient extent was not treated.

Sir James Dundas-Grant said that one thing which had impressed him in the use of radon was the extraordinary relief afforded to people with cancer of the lower part of the oesophagus and the framework of the larynx. As a result of radon treatment these people had been able to swallow with great comfort until their death either from extension of the disease or from metastases. He mentioned the case of an old Chelsea pensioner who came with a tracheotomy tube, suffering great discomfort, almost unable to swallow or to make a sound. After the removal from the larynx of a considerable mass, three radon tubes were inserted into the base of the growth, and within a very few days the man took out his tracheotomy tube and found he could breathe without it. At the present time, a year afterwards, he was well, and nothing remained but the swelling of some epiglottic folds.

Mr. Arthur Edmunds, taking up a question put by Mr. Pinch as to what should be done in a case of commencing cancer of the tongue, with possible glandular spread, said that he would do as complete a dissection of the glands of the neck as he could straight away, and, at the same time, leaving some loose stitches in the middle, would insert radium, pushing the radium needle in from the base of the tongue. It was quite possible, having done an extensive dissection of all the glands of the neck, to put a finger in the mouth and get the radium quite low down at the level of the cricoid. Then, leaving the strings hanging out, one could complete the operation.

Mr. W. Gilliatt agreed that radium was a useful addition to the surgeon's armamentarium. This could not be overemphasized, at least in a gynaecological department. Since the beginning of 1923 he had treated all cases of carcinoma of the cervix at King's College Hospital, both operable and inoperable, with radium. The operable ones had been operated on subsequently to the radium treatment, and he could assure the society that the effect of the application of radium previous to operation had been beneficial in all but one case. He had done Wertheim's operation, following radium, on about forty-six cases. The striking features were the disappearance of growth of the hypertrophic type, the healing of the ulcerated type, and the possibility of doing the operation without the occurrence of post-operative sepsis. A very large number of patients upon whom Wertheim's operation was done died from sepsis as a result of the infection of the growth. His feeling with regard to the general results with radium was that there was some personal idiosyncrasy in the patient to account for the excellent reaction in some cases and the bad reaction in others when the conditions were practically of the same type and the technique was identical.

Dr. C. E. Lakin referred to the treatment of splenomedullary leukaemia. He had used radium rather than deep x rays because after surface application of radium he had rarely found any constitutional disturbance, whereas he could not say quite the same for x rays. Dr. Webster had been responsible for the radium treatment of the cases of spleno-medullary leukaemia in his wards, and quite a number had done remarkably well.

Mr. Hayward Pinch, in a brief reply, suggested that one meeting of the society each year should be devoted, not to a laudation of radium successes, but to a private confession of failures and mistakes. It would be an instructive, though probably not an overcrowded, meeting.

He fully agreed with Mr. Gilliatt as to the existence of some personal factor which, in an identical class of case, the same technique being used, led to remarkable differences in the result. He cited the case of two women, both of the same age, both at the menopause, who came to the London Radium Institute at the same time, and received the same treatment for a uterine condition. One of them was an inert, imperturbable woman, the other was highly strung and neurotic. In the case of the first the treatment was highly beneficial; in the case of the second it led to severe systemic disturbance and serious complaint from the lady's husband—a medical man—of the results of the treatment.

DISEASES OF THE PITUITARY BODY.

At a meeting of the Section of Medicine of the Royal Society of Medicine on October 22nd, with Dr. R. A. Young in the chair, Dr. W. J. Adie opened a discussion on diseases of the pituitary body.

Dr. Adie said that the tumour associated with acromegaly was usually a simple granular growth of the anterior lobe. There was a rough agreement between structure and symptoms, but no rigid formula was universally applicable. The commonest form of tumour in acromegaly might be very large and cause failure of vision, with granular symptoms absent or slight. A question which deserved consideration was whether an operation should be performed in the earliest stage of the disease in order to prevent abnormalities. Some day—probably soon—any ill effects which might follow the removal of the gland would be prevented by substitution-therapy; at present he did not think it justifiable to operate for such disturbances only. For every case which he encountered of pituitary tumour with acromegaly he saw five or six without it. The cardinal sign was loss of vision; there might be nothing else, but eyesight was often lost because these tumours were not diagnosed in time. In every case of failing vision without obvious cause, a pituitary causation should be suspected; indeed, he would go further, and search for a pituitary origin even when some other cause appeared to be at work. Toxic amblyopia was diagnosed too readily, and time was wasted while septic foci were being sought and removed. Congenital cystic tumours were unfavourable for operation, and the ultimate prognosis was bad. Dr. Adie then put a number of questions with regard to diabetes insipidus. Was this a symptom of uncomplicated pituitary disease, or was it always the result of damage to neighbouring nervous structures in the hypothalamus? Was it an expression of hyper- or of hypo-function of the control mechanism? Was it a simple symptom or a complex—the algebraic sum of disturbances of function? Did its clinical features vary with the site of the lesion producing them? Some of these questions had been answered; most of them were still open to discussion. To the first question the answer was definite: diabetes insipidus could result from a lesion confined to the pituitary body; it could also result from a lesion confined to the hypothalamus. How the mechanism acted, whether it was nervous or hormonal, was undetermined. But for many aspects of these questions regarding the elucidation of the symptom, special reference must be made to the clinician and biochemist, who must work hand-in-hand. From the findings of the biochemist and experimental physiologist a better understanding of the mode of production of diseases of the pituitary body would be reached.

Mr. Norman Dott mentioned briefly seven illustrative examples of these cases from the surgical point of view, and the variations in his treatment of them; he showed photographs and drawings of each. He referred to the purely hypothalamic lesions, cases in which there was impairment of vision alone, and other varieties. Recent evidence showed that eosinophil cells were concerned with growth, and basophil cells with sexual development and activity. The sexual functions might be depressed or not in acromegaly, presumably according to whether or not the basophil cell element was crowded out by the eosinophil hyperplasia.

Professor E. C. Dodds drew attention to various methods which could be applied to the investigation of pituitary

disease—methods which, he thought, had not yet come into the realm of ordinary routine examination in medical cases. It had been known for many years that the pituitary was associated with growth and with the control of the sexual function, but it was only in recent years that this had been demonstrated by animal experiments. There were to-day available very important methods of examination of the parts or secretions of the anterior lobe which were concerned with the regulation of sexual function. It had been possible to prepare, for example, from the anterior lobe of the pituitary an extract which, when injected into immature animals, such as young mice, would produce corpora lutea within fifty-six hours. It had been definitely shown that the anterior lobe produced a secretion which acted upon the ovary and caused it to produce in turn its own internal secretion, which would bring about the oestrous response in animals. If a young mouse was killed fifty-six hours after injection its ovary would be found studded with corpora lutea. Injected into the mature animal which was having its oestrous cycle, extract from the anterior lobe would first cause the animal to go into continuous oestrus, and then after a few days bring about the disappearance of the oestrus, which would be inhibited for as long as the giving of the extract was continued. The action was prolonged to such an extent that the ovary became exhausted, and could no longer produce its secretion, with the result that a condition of anoestrus was set up. This probably explained the occurrence of amenorrhoea in pituitary cases. All this, although it sounded so very speculative, had been found to hold good experimentally. Another very important fact, demonstrated recently, was that in the very early stages of pregnancy, possibly within the first few days, there was a certain discharge of this pituitary lobe hormone into the urine. That was interesting, and could be demonstrated by injecting the urine obtained from a pregnant woman into an immature female mouse. Within fifty-six hours the ovaries of the animal became covered with corpora haemorrhagica. This definite means of diagnosing pregnancy had been used in Germany a good deal and in this country to some extent. If the anterior pituitary lobe was transplanted into immature male animals the development of puberty was brought about, with dropped testicle and the appearance of spermatozoa. He thought that if cases of this nature were examined by this technique of injecting into immature mice either the urine or extracts from the blood, a good deal of information as to the internal secretory nature of the tumours might be elicited. The methods were very simple for anyone who had at his disposal an animal house. It would also be interesting to try these anterior lobe extracts on cases where there appeared to be hypofunction of the gland.

Dr. O. Leyton confined himself to some observations on the relative effects of different preparations on the market. Some years ago, in treating a series of cases of diabetes insipidus, he found that certain extracts on the market had very different effects from others, some controlling the diuresis very well, others doing so only to a slight degree, although all were standardized preparations. This led to the belief that the oxytocic material and that which controlled diuresis must be different. The experiment had for its object the determination whether vasopressin was the antidiuretic substance. He recounted the experiment and named the preparations used. The experiment showed that the two substances were not identical.

Dr. Macdonald Critchley spoke of epithelial tumours occurring in the pituitary and superpituitary bodies. He instanced in the first place cysts of Rathke's pouch, which were rather rare tumours; then simple papillary cysts, which were also rather uncommon; adamantinomata, which were the most characteristic tumours in this situation, characterized by a single peripheral layer of columnar cells; and, finally, spindle-celled carcinoma, which was excessively rare. It was also just possible that there was another type of embryonic tumour growing in relation with the pituitary body and perhaps arising from the infundibular recess. He exhibited photomicrographs of all these varieties.

Mr. H. W. B. Cairns referred to the differential diagnosis of hypophyseal lesions from the surgical point of view. He dealt upon the importance to the surgeon of an accurate diagnosis of diseases of this group. Occasionally acromegalic patients might be found to have a normal sella turcica. He thought it within the bounds of possibility that operation might come to be undertaken for the relief of acromegaly pure and simple. Dealing with cysts of Rathke's pouch, he said that this condition was sometimes confused with tumours of the third and fourth ventricles, but gliomas of the third ventricle could be distinguished as a rule from pituitary tumours.

Dr. F. A. Pickwell, dealing with pituitary infection by contiguity, pointed out that the sphenoidal sinus had only a very small communication with the nasopharynx, and that pus within the sinus escaped only with difficulty. There was thus a tendency for toxic products to be absorbed locally, and it was obvious that the pituitary body, which in this case was practically suspended in a bath of pus, must be seriously involved. It had been possible to demonstrate histologically a few organisms within the gland, which was seen to contain some large masses of colloid. Resistance to the spread of organisms had been shown to depend, first, upon the sinus membrane, and secondly upon the dural capsule of the gland, the intervening bone offering much less resistance. He and those associated with him at the Joint Board of Research for Mental Diseases at Birmingham were of the opinion that large masses of colloid were in many if not most cases due to bacterial toxin acting on the pituitary substance, and, conversely, they were placing some relative importance on the presence of large masses of colloid as at least some indication of previous sepsis in or adjacent to the gland. He went on to argue that there existed an explanation of the varied symptoms ascribed to the pituitary in the extension of sepsis by contiguity from the sphenoidal sinus to the pituitary and hypothalamus. A sphenoidal sinusitis might resolve or become chronic and involve bone. If the roof of the sinus was affected, or if the sinus became filled with septic secretion, the pituitary would be involved, producing varied endocrine symptoms in accordance with the age and stability of the other endocrine glands of the body. Should the septic absorption or pressure of invasion proceed further, there resulted disturbances of metabolism such as diabetes, dystrophia-adiposo-genitalis, and cachexia. By still further spread it was postulated that the nuclei surrounding the third ventricle was affected, resulting in clinical symptoms of lethargy, katatonia, and irritability, which might progress to a condition recognized as mental disorder.

Dr. T. C. Graves said that the occurrence of endocrine disturbances in these patients was now generally accepted, but such disturbances were extremely variable and were so overshadowed by mental symptoms that they might not be adequately recognized. Especially was this the case in reference to the pituitary, since the symptoms of disorder were indefinite, and varied with the view taken as to the extent of the inclusion of disturbances of function of adjacent nervous tissue. There were, however, some symptoms of frequent occurrence in the subjects of mental disorder which appeared to him to have a direct relation to pituitary function. These were: general loss of muscle tone; disturbances of the peripheral circulation causing extreme facial pallor and cyanosis of the dependent parts; disturbances of nutrition, with extreme emaciation, which might be followed by obesity; and, finally, disturbances of the reproductive mechanism—for example, amenorrhoea. He showed a large number of photographs illustrating particular cases, and also indicating the recovery of patients under treatment.

Dr. Bernard Myers commented upon the absence of any mention of blood pressure. As a clinician he would suggest that blood pressure was distinctly of some importance in these cases. In his experience he had a case of pituitary adiposity in a girl aged 11, with low blood pressure. The effect of giving pituitary by the mouth was to drive the systolic pressure up to 150, and it dropped to 105 when the pituitary was discontinued.

Dr. Adie, in a brief reply, mentioned that he had noticed in a recent German publication the statement that the pituitrin manufactured by a certain British chemical house was still the best of all the products available.

Reviews.

MARTINDALE'S EXTRA PHARMACOPOEIA.

The second volume of the nineteenth edition of the *Extra Pharmacopoeia of Martindale and Westcott*,[1] which has just appeared, well maintains the reputation of this work. As most of our readers will be aware, the volume consists of a collection of data concerning the numerous sciences on which therapeutics is based. It covers a wide range of rapidly expanding sciences, and with each successive edition the task of keeping the contents up to date must become more difficult. The author, Dr. W. H. Martindale, is to be congratulated on the untiring energy and industry he has expended on this work for so many years. He has ransacked the literature with remarkable thoroughness, and has collected information concerning the most recent advances. He has even succeeded in introducing into the index references to articles that have appeared within the last month. The greater portion of the volume is devoted to pharmaceutical chemistry, analytical chemistry, biochemistry, pharmacology, and bacteriology, and these subjects are dealt with in a very satisfactory manner. There is also a section of 50 pages on radiology, ultra-violet light, and radium. These are subjects that are developing particularly rapidly, and no fewer than 160 new references have been introduced into this section.

A special feature of the book is the amount of space devoted to matters affecting the public health. In the first place the volume forms a valuable legal reference book, for summaries are given of the enactments that control the sale of foods and drugs. Much of this legislation is too recent to be noted in most standard textbooks, and hence the volume is specially useful in this respect. It also provides information concerning other subjects controlled by official or semi-official pronouncements, which are of importance in public health and therapeutics, but which are not the immediate concern of any particular science, and hence are peculiarly difficult to locate in works of reference. For example, the volume gives information about the following subjects: the methods for biological standardization of drugs, with reference to the official or semi-official announcements on this subject; the findings of inquiries regarding the toxicity of tetra-ethyl lead; evidence regarding the iodine content of British waters and the use of iodized salts in the prevention of goitre; and the conclusions of official inquiries made regarding the bleaching of flour. The few examples we have picked out for mention are sufficient to show the remarkable variety of the information that the author has collected into a single volume.

This book has a well-established reputation as a most useful and convenient work of reference for medical men, and the present edition will add to its popularity.

A HISTORY OF BIOLOGY.

In Erik Nordenskiöld's *History of Biology*,[2] which has been well translated by Mr. L. Bucknall Eyre, we have an excellent survey of the development of that science, viewed in relation with the general cultural development of mankind. Treatment of the subject on these lines is of special value to the biologist and to the general reader, since it is the only means by which a clear vision of the present position of biological science can be obtained.

As is well known, biology had its origin in the philosophical systems of the Greeks, and at first it had no separate existence apart from general philosophy. At the present time it may be defined as the science of the phenomena of living matter. The delimitation of its scope was a gradual process, which is well portrayed by the author in a series of biographies of men representative of the ideas of their period; these, varying in fullness of detail according to their importance, are interwoven in the narrative and form a very valuable feature of the work. Closely associated with the evolution of ideas and theories has been the gradual accumulation of material facts, the rate of progress of which has depended on political and social circumstances and on the introduction of new methods of research. The author discusses this parallel development in relation to every branch of biological science. Observation and hypothesis, which with experiment form the tripod of modern scientific method, were first practised by the Greeks, who, according to the author, derived their freedom of thought from the particular character of their political system. Unlike the primitive races, their organization left them free to investigate nature with the direct object of finding an explanation of existence, and not merely to help them in the art of placating gods and demons; and their science progressed steadily up to the time of their absorption into the Roman Empire. Their store of facts was, however, necessarily scanty, and their biological systems were, therefore, largely theoretical; and as they had but an imperfect idea of the distinction between fact and theory, their systems were essentially dogmatic. Their most highly elaborated system, that of Aristotle, postulated a divine guiding intelligence rendering every phenomenon of existence purposeful, with a striving towards ever higher forms. Form was held to be the only reality, perfect in the divine intelligence, non-existent in formless matter—which was regarded as potentiality without reality—imperfect, but tending towards perfection, in the terrestrial sphere, within which it exhibited varying degrees of dominance over matter, slight in inanimate objects, more potent in the animal and vegetable kingdoms, and highest in human consciousness and reason. This was a complete theory of evolution well calculated to promote the progress of biological science had not circumstances, political and ecclesiastical, brought about its undoing.

Amid the general Roman degradation science died out, but fortunately the Greek philosophy found a home in the outskirts of the Empire—in Persia, Syria, and among the Arabians—and it gradually filtered back to Europe, enriched by the Arabian discovery of the experimental method, at a time when the Catholic Church had become the dominant cultural centre. The Aristotelian system, with its postulate of a divine guiding intelligence, proved compatible with Catholic doctrine; it was adopted by the Church and acquired almost the character of an accessory creed, which, though it was necessarily erroneous in innumerable details, it was deemed heretical to question. Catch-phrases and appeal to ecclesiastical authority took the place of the observation of nature, and freedom of thought was curbed by the strong hand of the Church. Wielded by a few independent thinkers, the experimental method—the *novum organum*, to use Bacon's expression—in which the appeal was directly to nature, was instrumental in liberating science from ecclesiastical authority. "Facts wait not on opinions," wrote Harvey. "The things of nature bow not to antiquity. There is nothing more ancient or of higher honour than nature." Questions posed for nature to answer under controlled experimental conditions replaced the appeal to authority and dogma in scientific questions, and in the hands of such men as Galileo and Harvey results were immediate. Science made a fresh start, discoveries of great importance were recorded, and the subsequent progress of biological science, as of science generally, has been uninterrupted and phenomenally rapid. Nordenskiöld closes the first section of his history at this point; in the second section, covered roughly by the seventeenth and eighteenth centuries, he describes the elaboration of new biological systems to fill the void left by the breakdown of scholasticism. Among the numerous theories which were the product of the time the mechanistic theory of Descartes and the animistic theory of Stahl serve to illustrate the main lines along which biological thought was moving—on the one hand towards materialism and a purely mechanical view of life, on the other towards a mystical interpretation of nature. Descartes, rejecting the theory of final causes, held that the body was best regarded simply as a machine, every phenomenon of which was to be explained on mathematical principles. The theory was of value in giving an impetus to research into

[1] *The Extra Pharmacopoeia of Martindale and Westcott.* Revised by W. Harrison Martindale, Ph.D., Ph.Ch., F.C.S. Nineteenth edition. In two volumes. Vol. II. London: H. K. Lewis and Co., Ltd. 1929. (Fcap. 8vo, pp. xxxviii + 752. 22s. 6d. net.)

[2] *The History of Biology.* By Erik Nordenskiöld. Translated from the Swedish by Leonard Bucknall Eyre. London: Kegan Paul, Trench, Trübner and Co., Ltd. 1929. (9 × 6, pp. x + 623 + xv; illustrated. 30s. net.)

the purely mechanical and physical processes of the organism; but in claiming to explain the more complex vital phenomena it was in error and tended to materialism. Stahl's theory postulated the existence of a soul, independent of the body, but inducing and controlling all its actions, which he supposed were undertaken exclusively for the sake of the soul. The futility of metaphysical theories of this type, which by a confusion of fact and theory offered a ready explanation for any and every problem, has been better appreciated since Kant (1724) defined the two kinds of reality with which the mind has to deal. He distinguished between realities the knowledge of which we gain through the evidence of the senses, and realities about which such knowledge gives no information, the latter falling outside the sphere of rational knowledge, although legitimately and usefully pictured according to individual fancy.

Of greater interest than these speculations was the solid work done during the period in the systematic description and classification of living forms by Ray, Linnaeus, Buffon, Lamarck, Cuvier, and others. These studies revealed the fact that no clear line of demarcation could be drawn between animal species; that it seemed possible to arrange animal forms in a single linear series (Bonnet, Lamarck), or in several parallel or branching series of gradually increasing complexity (Cuvier). It was but a short step to the conception that similarity of form might indicate genetic relationship, higher forms being evolved from lower. The theory of evolution was thus reintroduced into biological science. It made no headway at the time, however, owing, as the author considers, to the prevailing tendency to philosophize on the development of life in nature, a tendency which lacked all feeling for material development. Lamarck's theory of evolution, for example, was merely an incident in his somewhat fantastic speculations upon life. The account of the definite establishment of the theory of evolution forms the central matter of the third and final section of Nordenskiöld's work. Darwin, with an initial prejudice in favour of the fixity of species, approached the question as a specific problem apart from philosophical speculation; he adduced good evidence for believing that species were mutable, and thus placed the theory of evolution on a sound basis. The general acceptance of the theory was, in Nordenskiöld's opinion, greatly favoured by the liberalism of the nineteenth century with its pronounced faith in progress, but it was through Darwin that evolution was elevated to a natural law governing all life. His theory was hailed with enthusiasm by all who cherished the ideals of the new age; it has taken the place of idealistic theories and made common descent the connecting link in existence instead of ideas and archetypes, and in every sphere of knowledge the development from earlier to later stages has now become the one clue to research. As regards the present, modern research in heredity has introduced a different and essentially experimental treatment of the problem of evolution, and the old morphological speculation upon the origin of species, with its undue insistence on external causes in explanation of the phenomena of life, has lost ground. It has come to be recognized that evolution is a part of life itself.

GONOCOCCAL ARTHRITIS OF THE HIP.

Considerable attention has of late been paid, especially in France, to the study of what used to be called gonorrhoeal rheumatism, the more acute forms of which are very grave and extremely painful affections, leading, in the case of the hip, too often to pathological dislocation. This disease was first described by Coulson of London in 1837. The general subject was very fully and ably discussed from the surgical point of view last year by Dr. H. Mondor in *Les Arthrites gonococciques*, of which a review appeared in our issue of January 12th, 1929 (*p. 70*). The more restricted field of such affections localized in the hip-joint is now presented to us by Dr. Marthe Lamy in a monograph entitled *La Coxite gonococcique*,[2] based on the study of 130 cases already published, to which are added eleven cases collected by the author, who seems justified in stating that this localization is much less rare than had been thought by such authorities as König of Berlin. It occurs in both sexes, but more often in the female (nine out of eleven of the author's cases), especially if one admits that many cases of puerperal arthritis are of gonococcal origin. Gonococcal joint disease in infants is as yet not well known, but the author cites B. Cooperman (*American Journal of Diseases of Children*, February, 1926, p. 183) as an authority who has shown how disastrous to the joint such lesions can be. One of the most characteristic symptoms of acute gonococcal arthritis is the intensity of the pain.

The author holds it as certain that the disease is essentially an osteo-arthritis, and that this early affection of the bone accounts for the alterations in the acetabulum and femoral head which permit of luxation. In six out of the eleven cases referred to such a luxation occurred, and the author considers it as inevitable in severe adult cases, as well as in young infants, on account of the early disappearance of the capitular epiphysis. Dr. Lamy asks the question, suggested by radiographic appearances, whether the gonococcus may not be the cause of some so-called congenital dislocations, of coxa vara, and Legg-Calvé disease as well as of arthritis deformans and morbus coxae senilis. This question cannot be answered in the affirmative until a great deal of evidence has been brought forward, which is at present non-existent. The seventeen cases followed up by the author yield the following statistics: One death from secondary septicaemia. Eleven pathological dislocations with serious shortening, up to 4 centimetres. Only three of these cases healed without ankylosis. Three others are contracted in flexion. Apart from serum and vaccine treatment, according to our author, the only means of actively combating the consequences of the destruction caused by the infection is continued extension, associated or not with immobilization in plaster-of-Paris. It is worthy of a note that in one case when the last-named means had entirely failed to relieve the excruciating pain and spasm, weight extension was at once successful, as it has so often proved to be in acute tuberculous coxitis.

The number of detailed case reports and the illustrations add to the interest of this book, which offers, together with that of Mondor, an excellent survey of the subject of gonococcal arthritis.

THE LITERATURE OF OTOSCLEROSIS.

The publication of two volumes on otosclerosis[1] is part of the investigation of this disease, well described as the bugbear of otology, which has been undertaken by a committee of the American Otological Society at the instigation of Dr. Arthur B. Duel since 1924. These volumes, each divided into two sections, contain abstracts of everything that has been reported in medical literature on the subject from 1735, when Valsalva described ankylosis of the stapes, down to 1928. In the first volume pathology is examined under the headings of stapes ankylosis and changes in the labyrinthine capsule, and etiology under the headings of heredity, congenital conditions in the labyrinthine capsule, local conditions, and general conditions. The second volume is devoted to symptoms and diagnosis, and lastly to treatment, including local surgical measures, local non-operative measures, and general treatment. There is, of course, an exhaustive bibliography, and it would be a keen eye that discovered any omission. This gives a general idea of the methodical way in which the work has been attacked and carried through. There is neither comment nor criticism, only a record of all that has been done and written, and the industry devoted to it must evoke our respectful admiration.

The material difficulties have been smoothed by the grant of a large sum from the Carnegie Corporation, but money alone could play only a small part in the production of a work so perfectly designed and executed. It will naturally make no appeal to the general medical reader, nor even to the average otologist, but equally it will remain for all time essential to anyone who undertakes or even

[2] *La Coxite gonococcique.* Par Marthe Lamy. Paris: Gauthier-Villars et Cie. 1929. (6 × 9¼, pp. 259; 31 figures. 35 fr.)

[1] *Otosclerosis: A Résumé of the Literature to July, 1928.* Compiled under the direction of the Committee on Otosclerosis, American Otological Society. Vols. I and II. New York: P. B. Hoeber, Inc. 1929. (6¼ × 9¼, pp. vii + 409 + xxii. 35 dollars the two volumes.)

contemplates any research work in the pathology of the temporal bone. It will give to many an ardent spirit good reason to pause and consider when he finds that his original ideas have already been fully exploited, and will save many from disappointment and repetition. This work is the preliminary to an intensive investigation of otosclerosis, but by itself it places the science of otology under a heavy debt to Dr. Duel and those whom he has inspired.

PRIMERS FOR DIABETIC PATIENTS.

Dr. Rudy's *Practical Handbook for Diabetic Patients*[5] is a volume designed for the use of the diabetic aliens and Jews among American immigrants. It gives a clear account, adapted to the needs of the layman, of diabetes and insulin treatment; and this is followed by food diagrams and charts and suggestions for diets that are of great practical utility. Some 200 recipes for the kitchen are added, taken from the menus of many nationalities, so that Jews, Greeks, Armenians, Swedes, Italians, and the French are catered for in Dr. Rudy's book. It is clearly written, and the so-called "substitution charts" constructed by the author enable those who use them to make many variations in what is often a monotonous diet, without going beyond the physician's prescription. The volume is undoubtedly useful, and may be recommended to the attention of diabetic subjects.

Dr. Cammidge's *A Dict Summary in Average Servings for Diabetics*[6] is a pamphlet setting out a system for the quantitative regulation of the diabetic diet, with or without the use of insulin as well. It is full of concentrated information, and should be of service as a *multum in parvo* to diabetic patients anxious to construct safe and satisfactory diets for themselves.

Similar in aim and equally successful is *The Diabetic A B C*[7] by Dr. R. D. Lawrence, a practical book for patients, particularly those using the line-ration diet, which the author has fully described in *The Diabetic Life*. In a small compass the volume includes an account of what diabetes is and how it is treated, and advice to the patient on the routine he should adopt in order to remain well and the precautions he must take when he is ill. To the description of the line-diet system the author adds a number of useful recipes prepared by Staff Nurse Wheeler, of the diabetic kitchen at King's College Hospital.

NOTES ON BOOKS.

Drs. Donald Paterson and J. Forest Smith, in revising their work entitled *Modern Methods of Feeding in Infancy and Childhood*,[8] of which the first edition was reviewed in our columns on July 17th, 1926 (p. 118), have increased its usefulness by adding a chapter on diets for sick children and children of school age, a section on stools in infancy, and a description of common articles of diet, with their uses and digestibility. They have rewritten the sections on vitamins, condensed milks, and artificial foods, and the instructions for preparing lactic acid feeds. The general practitioner confronted with feeding problems will find in this work the practical information he requires presented in a clear and dogmatic manner.

A second edition of *Practical Clinical Psychiatry*[9] by Drs. Edward A. Strecker and Franklin G. Ebaugh, has recently been published. We commented favourably upon the first edition (April 10th, 1926, p. 660), and it is evident that it has met the needs of the student and young psychiatrist. Additions have been made to several chapters, and short sections on the management of post-encephalitic behaviour disturbances, physical habitus and mental disease, and the newer treatment of general paralysis are now part of this volume. The author has also felt it desirable to write a chapter which attempts to delineate the elements of psychological conceptions of mental disease.

An unusually rich store of information for all interested in the territories covered—as business men, as settlers, as tourists in search of health, sport, or the simple attractions of travel—is provided in the *South and East African Year Book and Guide for 1929*.[10] Issued under the auspices of the Union-Castle Mail Steamship Company, it contains, in addition to the usual topographical and travel guide-book matter, special sections dealing with climate, public health, immigration, industry, agriculture, game hunting, and fishing. An account of Mauritius is included. There is also a useful gazetteer, and an extensive atlas with excellently printed maps. The price is low, considering the size and quality of the volume.

In a small pamphlet on the nature and pathogeny of cancers[11] Dr. E. Georgiou, after a long theoretical dissertation, mentions a series of experiments in the following terms: "Sixty mice were employed in the experiments, forty-eight of which had spontaneous malignant growths of the breast or skin. The animals were divided into four groups of twelve each, the ages ranging from 10 to 20 months. In the first set the pineal gland was excised and a graft of the sexual gland implanted. In the second group excision of the pineal gland alone was performed. In the third group a sexual graft alone was employed. The fourth group served as control. The animals of the first group which survived the operation (seven out of twelve) were cured of their cancers and showed signs of rejuvenescence. The surviving half of the second group were radically cured of cancer, but showed no rejuvenescence. The third group exhibited no improvement as regards the cancers, and the sexual grafts failed to take." These experiments cannot be regarded as of much interest in the absence of complete protocols.

[5] *Practical Handbook for Diabetic Patients.* By Abraham Rudy, M.D. Introduction by Dr. Frederick M. Allen. Boston: M. Barrows and Company. 1929. (Demy 8vo, pp. xi + 180; illustrated. 2 dollars.)

[6] *A Dict Summary in Average Servings for Diabetics.* By P. J. Cammidge, M.D.Lond. London: Bailliere, Tindall and Cox. 1929. (Cr. 8vo, pp. 8. 1s. net, or 6s. a dozen.)

[7] *The Diabetic A B C.* By R. D. Lawrence, M.D., M.R.C.P.Lond. London: H. K. Lewis and Co., Ltd. 1929. (Demy 8vo, pp. vii + 55. 3s. 6d net.)

[8] *Modern Methods of Feeding in Infancy and Childhood.* By Donald Paterson, M.D.Ed., M.R.C.P.Lond., and J. Forest Smith, M.R.C.P.Lond. Second edition. Modern Medical Monographs. London: Constable and Co., Ltd. 1929. (Demy 8vo, pp. xiii + 149. 7s 6d. net.)

[9] *Practical Clinical Psychiatry for Students and Practitioners.* By Edward A. Strecker, M.D., and Franklin G. Ebaugh, M.D. Second edition, enlarged and revised. London: H. K. Lewis and Co., Ltd. 1928. (Demy 8vo, pp. viii + 458; 21 figures. 18s. net.)

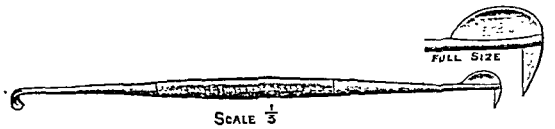
[10] *The South and East African Year Book and Guide.* Edited annually for the Union-Castle Mail Steamship Co., Ltd., by A. Samler Brown, F.R.M.S., and G. Gordon Brown, F.R.G.S. Thirty-fifth edition. London: Sampson Low, Marston and Co., Ltd. 1929. (Cr. 8vo, pp. lv + 908. 2s. 6d.)

[11] *Sur la Nature et la Pathogénie des Cancers. La Guérison radicale des Cancers chez les Souris cancéreuses.* By Dr. Evagoras Georgiou. Paris: N. Maloine. 1929. (5¼ × 7½, pp. 46.)

PREPARATIONS AND APPLIANCES.

A Tonsil Enucleator and Pillar Retractor.

Mr. W. S. Thacker Neville, M.D., F.R.C.S.Ed. (Harrogate), writes: The late Mr. Syme of Glasgow kindly demonstrated his quick dissection operation to me several years ago. He performed the operation under ethyl chloride. He made an incision round the tonsil and then swept down behind the tonsil. For both these movements he employed one instrument, and then he completed the removal of the tonsil by means of a wire snare. This procedure of Mr. Syme's is an ideal operation, but



Scale ½

it requires great dexterity and quickness if done with ethyl chloride anaesthesia, and so I have combined three instruments into one in order to do the operation quickly. The pointed knife makes an incision round the tonsil, the oval knife on the opposite side separates the tonsil from the fossae, an Eve's snare is then applied and screwed up and left on the tonsil. The other tonsil is then similarly treated, and finally both tonsils are removed. The pillar retractor allows one to depress the tongue and inspect the fossae. This instrument is made by Thackray of Leeds.

An Adhesive Dressing.

Elastoplast is described as a surgical dressing, made of material which has been specially woven to give the maximum stretch cross-wise, and covered with an elastic antiseptic adhesive plaster. The manufacturers claim that it is firmly adhesive, provides an even support, and, as it need not be removed when taking a bath, it may, if necessary, be left *in situ* for weeks at a time. A cabinet, fitted with a useful range of elastoplast dressings, has been prepared for the medical profession, and may be recommended to the notice of busy practitioners who would prefer, in treating minor injuries, to apply dressings that will remain in position without bandaging. Particulars and prices may be obtained on application to Messrs. T. J. Smith and Nephew, Ltd., Neptune Street, Hull.

Nova et Vetera.

FIELD ARCHAEOLOGY.

A Book on Prehistoric Sussex.

The two Dr. Curwens of Hove—*fils et aîné*—have long been known to archaeologists for their magnificent field work. *Prehistoric Sussex*,[1] by Dr. E. Cecil Curwen, comes, therefore, from no superficial week-ender. For seventeen years he has studied his ground. Every break in the rounded outline of the hills he has realized as due to the hand of man, and has set himself to solve its purpose. He has called in the aid of photography, both surface and aerial; he has measured, surveyed, and excavated; and he has checked his conclusions with a sound knowledge of museum archaeology, and of the work of other archaeologists, in which Sussex has been particularly rich. The result is a book—sound, safe, and clearly written—which will serve as an introduction to the whole subject of field archaeology, as well as to the special study of the Southdown Ridge.

There are chapters on flint mines, burial mounds, hill forts, villages and cultivation, prehistoric and Roman roads, miscellaneous earthworks, and on their detection and mapping; and each chapter is followed by a valuable list of localities and full bibliographical references.

Flint, to be easily worked, must be unweathered and fresh from the chalk. It was obtained by sinking groups of shafts from ten to fifty feet deep and extending galleries as much as fifty feet long. As each shaft was exhausted it was filled up with the spoil of the next one dug, and excavation often reveals a network of communicating galleries with the deer-horn picks and even the smoke stains from the miners' lamps of nearly four thousand years ago. For the late Neolithic age of these mines is proved by that of the fragments of pottery, and the forms of the flint artefacts worked and left *in situ*. With the exception of Grimes's graves in Norfolk, all that have been excavated in England are found in Sussex.

Sepulchral tumuli, single and in groups, which are found along the ridgeways are of all periods, from the Neolithic long barrows which occur in two localities—one at each end of the county—to the various round forms of later date; and the author has an interesting digression on Mr. Hadrian Allcroft's theory of the derivation of the Christian "church," in both etymology and origin, from the sacred circular mound.

Of the twenty-three "Hill Forts" which occur under this heading, only three or four belong to the Early Iron Age class of strong camps more common in the Wessex country. But if Sussex is not rich in these, she can boast of no fewer than three out of the five examples so far recognized in England (and two of the three have been proved by excavation) as belonging to the Neolithic Age. Dr. Curwen's survey and excavations at the Trundle overlooking Goodwood racecourse, where the trace of the older earthwork inside the well-known hill-top fortress was revealed by air photography, is an outstanding piece of work.

The Southdowns are rich in traces of the early "Celtic" square-field cultivation, and if the villages are not so numerous as they are in Wiltshire, the description of the settlement excavated at Park Brow, near Worthing, with its three successive occupations of Late Bronze, Early Iron, and Romano-British date, each with its own peculiar form of dwelling, is one of the most interesting in the book.

The roads and trackways—early British and Romanized—and the well-known military Stane Street are all admirably dealt with, while the chapter on miscellaneous earthworks gives a description of archaeological puzzles which await solution. There are descriptions of special localities rich in such features; in one, Bow Hill, near Chichester, there are no fewer than sixteen objects of archaeological interest within the compass of a day's walk. Dr. Curwen's section on the diagnosis and detection by percussion of ploughed-out earthworks will interest his medical colleagues. His percussor is a navvy's rammer, and the relative resonance of "thud" and "thoomp" distinguish between wasted bank and filled-up ditch. But the whole book is admirable, and, dealing with a country so well known and accessible, it will do much to advance not only interest in, but the real scientific knowledge of, field archaeology.

J. P. W.-F.

[1] *Prehistoric Sussex*. By E. Cecil Curwen, M.B., B.Ch., F.S.A. With a foreword by O. G. S. Crawford, F.S.A. London: The Homeland Association, Ltd. 1929. (Demy 8vo, pp. xi + 172; illustrated. 10s. 6d. net.)

AN EARLY ADVOCATE OF EXERCISE IN THE OPEN AIR.

One of our readers has turned up among some old family documents a MS. copy of the set of verses printed below. The paper on which they are written bears the watermark "R. Tassell, 1834," and the inscription on the wrapper suggests that they were copied from some local newspaper by one lady for the entertainment of a friend. At the foot of the poem appear the words, "Inscribed very mirthfully to Dr. Jephson." We have not been able to identify Dr. Jephson of Leamington, but he evidently preached the gospel of fresh air and exercise at a time when such views found little favour with his colleagues.

Leamington Peripateticks,
or
Use your Limbs and Have Them.

Scene.—*Union Parade, a Stranger meeting a Patient of Dr. J---n's.*

Stranger: I hear Sir yr Warwickshire far-famed Physician
Who seems to cure all whate'er their condition
Has revived the old school of Athenian ethics,
Or at least the old name of the Peripateticks.
Pray is it not true, with child, woman and man,
He makes walking a *sine qua non* in his plan?

Patient: He does Sir; So much so that some have a notion
The secret is his of perpetual motion,
For all the disciples who bow to his sway
Walk out at all seasons all hours of the day!
They walk when the north wind blows piercing and bleak,
They walk when their mouths are so stiff they can't speak;
They walk in the mists and cold fogs of *November*,
They walk in the drizzle and damp of December.
They walk when it thaws, they walk when *it freezes*,
They walk for all causes to cure all diseases.
They walk when they have not a limb that is sound,
They walk when they cannot set foot to the ground.
They walk when their poor backs are ready to break,
They walk though each bone in their bodies may ache.
They walk when they're fasting, they walk when they've eaten,
They walk when so weary, they had rather be beaten.
They walk when *they're peevish, they walk when they're placid*,
They walk when they're pinched with the Sulphuric acid.
They walk after faintings, hysterics and fits,
They walk in their senses and out of their wits,
They walk if they're commoners, walk if they're peers,
They walk if they're young, middle aged, or *in years*.
Epileptic, Dyspeptic, Rheumatic, what not!
No matter what ails them, they set off full trot!
Be they gentle or simple, Plebeian or noble,
All walk, or if gouty, at least they all hobble,
The Plethora walk, in the hope to grow paler,
The palid ones walk to grow stronger and haler,
The stout and unwieldy they're walking for that,
The bony and skinny they walk to grow fat,
If some walk too slowly they're joined by "the Master,"
Then surprising to see they walk faster and faster.
At other times body and soul make resistance,
But with him they can walk, any pace, any distance.
In short he makes those walk who ne'er walked before,
And those who have always walked here walk still more.
'Tis rumour'd Jephsonian trained Infants are able,
To walk the first month, but this must be a fable,
But who knows what strange marvels may meet our inspection
When walking like steam shall be brought to perfection.
Which it must be in Leamington where without strife
Walking forms the chief end, the main business of life.

British Medical Journal.

SATURDAY, NOVEMBER 2ND, 1929.

THE PANEL CONFERENCE.

DURING the last year or two the matters dealt with at the Annual Conferences of representatives of Local Medical and Panel Committees have not been of such fundamental importance, and hence have not afforded evidence of so much controversial feeling, as was the case in some former years. The two main subjects discussed at the Conference held last week are, however, of great general interest to the medical profession, and do not merely concern those who are engaged or interested in insurance practice. These subjects were medical certification, and the availability of hospital practice and experience for general practitioners.

Great importance in many spheres attaches to correct and judicious medical certification. This has been impressed upon the profession many times by precept, by warning notice, even by penal example. Under the national health insurance scheme the extent of medical certification is so wide, and its effect on the success of the system and the financial stability of many approved societies is so vital, that some rules have had to be made with regard to the forms and methods of issue of the more usual certificates. One or two of these rules might well be modified, and it is probable that the approved societies have been unwise, even in their own interests, in resisting certain proposals for such modification which have from time to time been made by the Insurance Acts Committee. The part which alleged improper certification has played in relation to the greatly increased claims for sickness benefit during recent years has been much exaggerated, and extravagant statements on this matter are still occasionally made by some members of Parliament and society officials. Though it is now generally admitted that the increase in sickness claims has resulted from many other causes, some of them still quite mysterious, yet it remains true that the demand for the greatest care in medical certification is a perfectly legitimate one. Such certification may be imperfect in three directions. It may be deliberately or stupidly false. If a medical practitioner puts his signature to a statement which he knows to be untrue (even if he is pleased to consider it unimportant) this constitutes a very grave professional offence, and will probably be dealt with severely by the General Medical Council. Again, a certificate may be not false, but irregular—that is, not in accordance with the rules laid down. The giving of such a certificate must be recognized as a definite offence, even though it is often committed in response to a patient's appeal, and even sometimes at the direct instigation of the agent of an approved society. The machinery and procedure for dealing with such irregularities are laid down in the Medical Benefit Regulations, though an approved society, before setting such machinery in motion, might often be wise to consider whether a letter of inquiry, or a reminder to the doctor of the rules, would not be sufficient to meet the case. Further, a medical certificate, without being either false or irregular in the sense above indicated, may still be lax in so far as sufficient thought and care have not been exercised, or in so far as wrong or irrelevant criteria have been applied in arriving at a decision. Such laxity may have serious consequences, but as yet no method has been adopted for dealing with it.

The devising of some such method is the problem with which the Insurance Acts Committee and the Panel Conference were concerned. Certain proposals were made in the report of the Committee which have received the provisional approval of the Ministry of Health, though not yet that of the Scottish Board of Health. These proposals were endorsed by the Conference. Clearly this laxity of certification is, in the main, a matter of professional judgement, and the proposals for meeting it are therefore properly based on the principle that the investigation of any allegation of this kind of laxity should be conducted, and conclusions formulated, by purely professional tribunals; though provision is made that, when the conclusions have been arrived at, the advice of approved societies and of Insurance Committees may be sought before any decision as to penalty is promulgated by the Minister. The maintenance of this principle is of importance to the whole profession, and it is to be hoped that, however much the details may be modified in further pending negotiations, there will be no departure from it.

The second main subject of discussion at last week's Panel Conference eventuated in the passing of the following resolution: "That it is desirable that provision be made in, or in association with, voluntary hospitals and municipal hospitals, or in separate institutions, for practitioners to attend and treat those of their cases who are admitted to these institutions." The Conference was considerably exercised as to the exact wording of this resolution. A somewhat similar resolution was passed at last year's Conference, and since that time the Hospitals Committee and the Insurance Acts Committee of the British Medical Association have been occupied with these matters. As far as private and paying patients are concerned, certain alterations made in the hospital policy of the Association by the Representative Body in July will, if effectively applied, do all that seems necessary. As regards non-paying patients in the ordinary wards, the matter is more difficult of adjustment. Inquiries are being made as to the present facilities for general practitioners to have responsibility for their own patients in hospitals, and it would not be surprising to discover that, by means of beds in cottage hospitals and arrangements with other institutions, there are already large districts of the country in which such facilities are not far from adequate. In the largest towns, and in some other urban areas, more opportunity for general practitioners and other private practitioners is highly desirable; but the exceptions that must be made and the conditions that must be arranged in some cases will require the most careful consideration. Meanwhile, such a discussion as that which took place at the Conference, and such a resolution as that which was passed, are timely and valuable. They were in effect, and were intended to be, a demonstration that just now, when the hospital question is in the foreground, and when new arrangements with regard to institutional provision and usage are about to be discussed, the general practitioner or the specialist who is not on the regular staff of a hospital shall not be forgotten, and the needs of his patients who wish him to continue in attendance when it is appropriate for him to do so shall be provided for.

For the last two years the Conference has had for its chairman Dr. E. K. Le Fleming of Dorset. His chairmanship has been a notable success, and the thanks of the Conference were tendered to him very

heartily indeed. His successor is Dr. Cardale of London, whose qualifications for the post, in knowledge and experience, are very high, and to whom, in common with his colleagues, we accord a sincere welcome.

DIAGNOSTIC VALUE OF THE VACCINIA-VARIOLA FLOCCULATION TEST.

THE immunity reactions of filterable viruses still form the subject of acute controversy. The majority of workers are prepared to admit that immunity to a filterable virus is associated with the appearance in the blood of a new and specific activity which can be demonstrated by mixing serum and virus and inoculating the mixture. With a sufficient concentration of serum and appropriate virus such a mixture is innocuous—neutralized—and the specific activity of the serum is spoken of as a neutralizing or viricidal antibody. But beyond this there is no unanimity of opinion, and investigators are sharply divided on the question of the mechanism of this immunity reaction. Some hold that the virus antibody is similar in nature to the bacterial and other antibodies with which we are familiar, and capable of demonstration by the usual *in vitro* reactions. Others deny this, and consider that virus antiserums operate in some obscure and unusual way. M. H. Gordon, who is an exponent of the first school, demonstrated in 1925[1] that both specific complement fixation and flocculation could be obtained with the viruses of vaccinia and variola and their antiserums. Admittedly these reactions required considerable skill and care for their satisfactory demonstration, but the evidence produced by Gordon was quite clear-cut. Schultz and his co-workers[2] have failed to confirm Gordon's findings, and look upon these reactions, when they do occur, as being non-specific and probably caused by the presence of contaminating bacteria in the virus suspensions used as antigens.

The report on the "Diagnostic value of the vaccinia-variola flocculation test," by W. L. Burgess, James Craigie, and W. J. Tulloch, just issued by the Medical Research Council,[3] is a complete vindication of Gordon. These workers produce convincing evidence to show that, with a satisfactory serum, specific flocculation can be obtained with the viruses of vaccinia and small-pox. The two viruses are immunologically identical, of course. The material which they have examined has consisted of the crusts derived from small-pox (50 cases), vaccinia (4 bovine, 5 rabbit, and 2 human), varicella (27 cases), septic rash (1 case), impetigo (1 case). The crusts were weighed, triturated, and suspended in saline, any flocculer material being removed by centrifugalization before using the suspension in the test. It is not the place here to discuss the technical details of this reaction; suffice it to say that these workers used the greatest possible care in order to avoid unequivocal results. In the human cases the result of the test was confirmed by the subsequent history of the patient and of the contacts, and the result of vaccination. The authors conclude that the test is specific, and their evidence certainly entitles them to this conclusion. They have given full consideration to the claim of Schultz and his colleagues, but a series of carefully planned experiments designed to show whether contaminating bacteria—usually staphylococci—could be responsible for the reaction failed to uphold this contention. There seems little doubt that the reaction is a specific one implicating virus and specific antibody. There is a remote possibility that it is heterogenetic, like the Wassermann reaction, and Burgess, Craigie, and Tulloch, with commendable caution, confine themselves to indicating the possibility, and call for further work on this point.

Quite apart from the academic interest attaching to the mechanism of this flocculation reaction, there is the practical importance of such a test and the service which it can render the practising physician. At the present time small-pox in this country is of an extremely mild nature. Not infrequently cases are atypical and difficult to diagnose, particularly so at the commencement of an epidemic. It is in such cases that a specific test of this nature should be of inestimable value. Although this mild small-pox (alastrim; para-small-pox, small-pox minor) has only an insignificant mortality, its control is of considerable economic importance. With the increasing relaxation of specific prophylactic immunization the eradication and limitation of small-pox epidemics turns very largely on early diagnosis. The work of Burgess, Craigie, and Tulloch indicates how the laboratory can participate in making this effective. As the Medical Research Council says in its preface, this report gives an example of the valuable results obtainable by scientific investigation conducted in the field by a medical officer of health in close co-operation with laboratory investigators. "It illustrates also the process of applying to practical ends the results of work which at its beginning had no immediate objective save that of increasing knowledge."

[1] Medical Research Council. Special Report Series, No. 98.
[2] Journ. Immunol., 1928, 15, 229, 243, and 265.
[3] Medical Research Council. Special Report Series, No. 143. 1929. H.M. Stationery Office. Price 1s. 3d. net.

TREATMENT OF BLADDER TUMOURS.

MR. J. B. MACALPINE, in his opening paper on vesical papilloma, read at the Annual Meeting of the British Medical Association at Manchester, and published this week at page 794, has laid stress on the fundamental difficulty of deciding whether a bladder tumour is innocent or malignant. He states that more divergent views have been expressed by clinicians and pathologists on the subject of papilloma of the bladder than on any other tumour affecting the human body. This divergence not only causes difficulty in the differential diagnosis of innocent from malignant growths of the bladder, but it also introduces into the treatment of what has been diagnosed as a papilloma an element of doubt. If a surgeon holds the view that all papillomata in this situation eventually undergo malignant change, his attitude towards treatment must of necessity differ somewhat from that of a surgeon who regards a papilloma as a simple growth that may occur locally, but will never become malignant. And it is to this doubt concerning the fundamental nature of a papilloma that differences in opinion on treatment are in great part due.

It is to our individual experience rather than to a precise knowledge of pathology that we must turn for guidance in this important matter. At the present time we have three main methods of dealing with vesical growths—excision, diathermy, and radium. Mr. Macalpine, in his paper, confines his remarks to the first two of this therapeutic trinity. In each of them he puts on record great advances—in excision through the use of the method of bladder mobilization advocated by Bentley Squier, and in diathermy by the perfecting of various forms of operating cystoscopes that facilitate the task of electro-congulation. Armed with the appropriate instrument, the expert is now in a position to deal cystoscopically with all but the very extensive types of papillomata of the bladder where

better results are to be obtained by the use of open diathermy.

Mr. Macalpine did not find room in his admirable paper for the third line of attack on bladder growths by means of radium. The omission was probably due to the fact that the discussion in the Section of Surgery at Manchester was primarily concerned with papilloma of the bladder, and only dealt incidentally with other growths. But even when papillomata alone are considered, radium therapy would appear to have a place in their treatment. It is not surprising that the great tendency of these growths to recur, and the fear that they may become malignant, have led surgeons to try on them the effect of radium, either alone or in conjunction with other measures. Excellent results have been obtained from burying radium seeds in the base of a bladder growth removed by open operation. In addition, Dr. Hugh Young in America, and Mr. R. Ogier Ward at the London Radium Institute, have developed a technique for implanting radium seeds cystoscopically that is of the very greatest service in dealing with borderline cases unsuited to treatment by means of diathermy. When these ingenious methods become better known, and the facilities for obtaining radon are increased, it is probable that radium therapy will be used in the treatment of bladder growths of every type.

In the meanwhile, a knowledge of the scope and limitation of this form of treatment is being gained, and a technique is being gradually evolved that may be expected to bring it within the powers of anyone who is possessed of an ordinary proficiency in cystoscopy. There are, indeed, very good grounds for believing that the next decade will witness as great an advance in the treatment of bladder growths as has the last.

THE NORMAL CHILD.

The importance of preventive medicine as part of the programme for the general practitioner has now become almost a commonplace. What is perhaps less fully appreciated is the need for accurate knowledge of the normal, so that the earliest departures from health may be recognized and corrected before well-marked symptoms of disease make their appearance. Definition of the normal is in many ways a difficult task, and one which is in danger of being neglected in the training of students. There has recently been in many quarters a plea for a more extensive teaching of clinical physiology. This was made plain at the Annual Meeting of the British Medical Association at Manchester last July, when a discussion on the subject was opened by Professor F. R. Fraser.[1] It is notorious that many medical students begin to forget all about normal standards after they leave the dissecting room and physiological laboratory, and at many children's hospitals, for example, it is well known that welfare centre authorities are inclined to scoff at the lack of knowledge of the normal child which some highly trained paediatricians betray. The paper by Dr. A. Dingwall Fordyce which appears at page 791 in this issue deals with some of the borderline problems in childhood, and his observations raise very pertinently the question of what is a normal child. The search for standards of normality has attracted attention for many years, but while it would seem at first sight an easy matter to collect statistics of normal healthy children, the task proves often to be difficult and complicated. Tables of heights and weights for age are commonly held to supply standards for gauging normality, but even here difficulties arise. Some years ago *The World's Health* published[2] figures obtained by authorities in different countries for heights and weights for age among normal children, and the discrepancies were much too big to be accounted for merely by race. Thus it appeared that the average Belgian boy of 9 was ten pounds less in weight than the English boy of the same age, but the tables for different countries do not always make it clear whether conditions are identical as regards clothing and boots and the estimation of the nearest age. In America further difficulties arise, for if American-born children are accepted as the standard, then children of "all nationalities" in America give quite different figures. Some observers feel that height and weight alone are crude figures, and various indexes of nutrition have been devised to get over this difficulty. Perhaps the best known is the "pelidisi" system of von Pirquet, where a formula connecting the cube root of ten times the weight divided by the sitting height is used. Any of these systems fails to take into account other important factors, such as the general appearance of the child, the colour of the skin, the state of the subcutaneous fat, the lustre of the eyes, and the state of muscular tone, none of which can ever be satisfactorily expressed as a formula. There is no doubt that if borderline conditions of physical health are to be recognized there must be some increased study of these elementary standards, and it is a matter for surprise that in most textbooks of children's diseases in this country, and in most children's hospitals, figures for heights and weights derived from American sources are accepted without reservation. On the mental side the matter is even less satisfactory in many ways. The public has heard so much about the "problem child" that, as Dr. Dingwall Fordyce says, "we rarely see a child who is not described as nervous." In studying the psychology of children there is a tendency to ascribe all behaviour which is the least bit out of the "ordinary" to some mental warp or perversion, and there is a grave danger of forgetting that a child who is never "naughty" is much more likely to be mentally abnormal than the boisterous "naughty" child whom so many psychologists regard as requiring some sort of analytic treatment. Indeed, even abnormal naughtiness may occur in normal children, and the late John Thomson wrote on this subject, as Dr. Dingwall Fordyce points out. Nowadays abnormal naughtiness may be too lightly ascribed to a previous attack of supposed encephalitis; such an attitude is akin to that of persons who uphold the defence of kleptomania in deliberate shoplifting. A close study of the psychological development of the child is necessary, and should not be left entirely in the hands of educationists and skilled novelists. The normal child is by no means a rare phenomenon; there is no scarcity of material, and on both the physical and the mental side research into normal standards is still very necessary. It is becoming increasingly important for the practitioner to study borderlines of health at all ages, and the background of normality must be satisfactorily defined if such study is to be successful in preventing disease.

[1] *British Medical Journal*, August 31st, 1929, p. 379.
[2] *The World's Health*, 1924, p. 145.

SLEEP IN HOSPITALS.

In the wards of a well-administered hospital all the routine activities are carried out strictly by the clock. It is therefore a matter of some interest to consider what are the pivotal events in the hospital day from which all the rest are calculated, and whether, by making any change in the hours fixed for their occurrence, the comfort of patients in hospital may be enhanced. What one might call "zero hour" in hospital is the moment when the resident physician or surgeon in charge begins his morning round. Before this hour it is expected, and rightly, that all preparations for his visit shall be complete—the patients washed, routine treatments administered, and the work of cleaning the wards completed. These tasks have to be divided equitably between the day and night nursing staffs; it would be impossible to complete them if they all had to be

undertaken by the day staff, and even if it were this would mean that the day nurses would be so heavily burdened with duties as to run a serious risk of breakdown in health. Before zero hour, therefore, there is another pivotal moment in the hospital day—namely, the time fixed for the change of the day and night nursing staffs. If, as is at present the rule in most hospitals, the bulk of the routine tasks has to be completed by the night staff before the day staff comes on duty, the hospital work must begin at a very early hour, and the patients in consequence have to be roused from their sleep much earlier than they would be in their own homes. The adage "Early to bed, early to rise," is applied in hospital too literally for most patients' comfort; perhaps when they are in health early rising may help to keep them fit, but when they are sick any routine which has the effect of curtailing sleep may be detrimental, not only to their comfort, but to their progress towards recovery. In pre-Listerian days the chief horror of hospitals was sepsis; to-day it is what many patients regard as the nurses' morbid passion for cleanliness. Their main impression of a hospital (and often of a nursing home too) is a place where they are likely to be roused at some incredible hour for nothing better than to be washed. Some of them have not seen the dawn for years, and have no desire to learn what it looks like through hospital windows. We are therefore glad to learn that the authorities of the Middlesex Hospital have just introduced a new rule by which all patients are to be given breakfast not earlier than 7 a.m., and are not to be washed or disturbed before this hour, except for urgent medical reasons. To make possible this reform—in which the matron, sisters, and nurses are loyally co-operating—it has been necessary to effect a substantial redistribution of duties as between the day and night nursing staffs, and to make it a rule that the visits of the medical officers should not begin before 10 a.m. The hospital authorities believe and hope that their example will be followed throughout Great Britain, and we sincerely trust that this may prove to be the case.

UNDULANT AND ABORTUS FEVERS.

FOR many years the practitioner in temperate climates has been aware that around the Mediterranean and in connexion with goats there exists a human fever which was investigated by Bruce. The disease was for long thought to have no particular interest except round the Mediterranean Sea, and probably few in Northern Europe, in America, or elsewhere, noticed that the Maltese objected to the name "Malta fever," as well as that the geographical limitations suggested by the name "Mediterranean fever" had been found not to apply, and that the name "undulant fever" was coming into use. It may be doubted whether the new name is a happy one—any happier, indeed, than the term "continued fever," which is now disappearing. The issue by the Ministry of Health of No. 56 of its Reports on Public Health and Medical Subjects[1] has considerable interest in Britain at the present time, but there would seem to have been little need to recapitulate the history of true Mediterranean fever from the time of its first recognition in the Mediterranean area. The importance of the undulant fever problem from the British point of view can be quite shortly stated. It became noticeable that cases of disease, recognizable as Mediterranean fever, were occurring outside the area first supposed to limit that complaint, and in places little or not at all associated with goats. Evans established the fact in the United States of America that the causal organism of Malta fever, as recognized by Bruce and called *Micrococcus melitensis*, is very closely allied to, and indistinguishable morphologically from, the organism of infectious abortion of cattle, commonly called the *Bacillus abortus* of Bang. Both have been given the generic name Brucella, some speaking of separate species under the names of *Br. melitensis* and *Br. abortus*, others putting both in the same species as *Br. melitensis* and recognizing var. *abortus* and var. *melitensis*, these distinctions resting on serological reactions. Infectious abortion of cattle is known to be widespread in Britain and most other countries of the world, and there has been, in the last year or two, a steady stream of records from many countries of obscure cases of human fever in which the blood agglutinated *Br. abortus* in high dilutions; in many of these cases haemoculture, guinea-pig inoculations, and elaborate serological tests left no doubt that human infection with the organism of infectious abortion of cattle was by no means rare. In addition to these discoveries, the milk of cows has been found in many countries to contain *Br. abortus*, and there is abundant evidence that the disease can be contracted by direct contact with infected animals—cow, horse, sheep, pig, and others. Only a few cases of undulant fever indubitably contracted in Britain from other sources than goats have been reported, and Captain W. Dalrymple-Champneys, the author of the Ministry's report, puts the question, Is the disease really rare in Britain, or is it not being recognized? Indeed, he goes further, and canvasses the question whether recent discoveries all over the world indicate spread of the disease, or spread of knowledge of the disease and therefore its recognition. No extensive examination of blood samples for serological reactions with Brucella organisms seems to have been made in Britain, but in some tests a by no means negligible proportion of samples of market milk have been found to contain *Br. abortus*. The clinical phenomena exhibited by persons with undoubted Brucella infection are very variable indeed—so variable that use of the name "undulant fever" is misleading. It seems likely that once the possibility of obscure and long-continued fever being due to Brucella infection is widely known, evidence of the presence of the disease in Britain will be forthcoming. There is on record no well-established case of human abortion due to specific infection with *Br. abortus*. The literature of the subject has become enormous; the present report gives 457 references, which the author does not present as a complete bibliography. Those who are well acquainted with recent medical literature will discover little new in the report; those who have regarded undulant fever as a tropical or subtropical disease, and infectious abortion of cattle as a purely veterinary matter, will, however, find present knowledge and opinion admirably summarized, and may well obtain an explanation of cases which have been very puzzling and intractable. Abortus infections in man are rarely fatal; the disease is generally of moderate severity, tending to chronicity, and ambulant cases occur. Pasteurization renders milk safe, and herds can be freed from the disease by elimination of the infected, who often secrete *Br. abortus* in milk and urine while apparently in perfect health.

[1] *Undulant Fever. With special reference to animal sources of infection and the possibility of its prevalence in England and Wales.* By Captain W. Dalrymple-Champneys. Ministry of Health Reports on Public Health and Medical Subjects, No. 56. H.M. Stationery Office. 1s. 6d. net.

SILICOSIS: MEDICAL ARRANGEMENTS.

THE committee, consisting of Dr. J. C. Bridge, Dr. F. J. H. Coutts, and Professor Arthur Hall, which was appointed to advise as to the medical arrangements which could be made for the diagnosis of silicosis and for carrying out any periodic or other medical examinations of workers in any industry involving risk of silicosis has now issued its report.[1] More than one complaint is made of the difficulty of the task set. So complicated does the subject appear to be that the report envisages the possibility of the following classes of medical men being called on either to visit a works or to examine a workman where the risk is attendant;

[1] Report of the Departmental Committee appointed by the Secretary of State to advise as to the Medical Arrangements which could be made for the Diagnosis of Silicosis. London: H.M. Stationery Office. 1929. 6d. net.

(1) the certifying factory surgeon (immemorial rights); (2) the tuberculosis officer (to make the initial examination of the newly employed); (3) the two members of the medical board (for whom centres will be necessary, the first in Sheffield, Bristol, and Newcastle-on-Tyne, and later at Stoke-on-Trent, Birmingham, Manchester, and Glasgow); (4) the chief medical officer (the appointment of one is recommended); (5) the medical radiologist; (6) the employer's medical man; (7) the workman's medical man; (8) H.M. Medical Inspector of Factories. The suggestion put forward by the witnesses for the Trade Union Congress General Council that, in addition, a medical board of appeal should be set up on lines similar to that in existence under the Fibroid Phthisis Act of 1925 in South Africa was not encouraged. The committee really plumps for an extension of the system of medical boards, the existing one appointed under the Refractories Industries (Silicosis) Scheme having carried out its duties with commendable success. The last paragraph of the report contains a strong plea for research into silicosis on the clinical side, on the pathological and experimental side, and towards ascertaining the concentrations of dust likely to cause injury, establishing a ready method of estimation of dust concentration for field work, and exploring methods of dust control. Here the committee recommends, as is right, that the research should embrace not only silicosis, but the pneumonoconioses in general. A weak point in the report appears to be the absence of figures—except for well-known silicosis-producing industries—showing not only the number of persons brought in under the recently issued Various Industries (Silicosis) Scheme, but also the number of industries and processes. All that is said under this head is: "We are convinced that silicosis . . . occurs to some extent in a number of industries and occupations where its presence has not been suspected." May there not also be many industries and occupations where a little silica is used without any risk whatever? It might be best to take no action on the report until more information is vouchsafed on this important aspect, and until the prospective conference of experts in Johannesburg next spring has been held.

CONTROL OF EXCESSIVE NOISE BY LEGISLATION.

The Motor Car (Excessive Noise) Regulations, which came into force on August 1st, make it an offence for any person to use, or permit to be used, any motor car, or trailer driven by a motor car, which, by reason of its design, constitution, lack of repair, or load, creates any excessive noise. When, following the recommendations made in the report of the conference on road traffic noises and priority of traffic at cross roads, these regulations were announced, we suggested (June 22nd, p. 1131) that a certain difficulty might arise through the fact that the onus of deciding what constitutes "excessive noise" was to be placed in the first instance on the police, and then on the magistrates who would have to deal with charges under the regulations. Subjective impressions are notably unreliable, and in the absence of a precise definition of "excessive noise," involving the use of some objective standard, the fate of the motorist would seem to depend upon the private judgement of the policeman, and, what is even more unsatisfactory, the decision of a magistrate who has had no opportunity of hearing the noise at all. While, however, the noise which is the subject of complaint cannot, as it were, be brought into court, it is possible by means of an accurate description of a vehicle or of its load to establish a reasonable probability that it is capable of making a noise which, by any reasonable objective standard, would be classed as excessive. Such evidence, indeed, is circumstantial, but the validity of circumstantial evidence is, after all, recognized in English law, even in establishing charges of greater seriousness than the infringement of traffic regulations. In any case it would seem that, pending a definition of "excessive noise" on the lines we have suggested, such evidence might be of great service to magistrates faced with the responsibility of administering the law as it stands. In one of our courts recently there were heard five summonses under the regulations, and in each case evidence of defect in the vehicle responsible, or of careless loading, was brought forward by the police. The magistrate, in imposing fines, said that he was determined to try to put an end to such noises in the streets, especially on Sunday mornings. We may hope that he will take an equally serious view of excessive noise at other times, the need for quiet of persons engaged in their ordinary occupations demanding sometimes as much consideration as the need of persons enjoying their week-end rest. In New York the problem is at present engaging serious attention, and according to a message to the *Times* from its correspondent (October 23rd), a small group of people, each eminent in some field connected with the problems, has been appointed by the Health Department to act as a noise commission. The commission includes a former president of the New York Board of Education, two neurologists, and a research engineer, and it will have at its disposal all the facilities of the Health Department and the best available laboratory equipment. While it is hoped that its researches will enable the authorities, by new legislation, to handle the wider aspects of the problem, there is also an immediate demand for the alleviation, under the existing ordinances, of the more strident noise-making activities which have increased with special rapidity during the past few years. In discussing the fundamentals of the problem the Health Commissioner says: "We need a complete classification of noises and a tabulation of their intensity geographically arranged. We need a scientific statement of the effect of noise on the human being. We should have scientific measurements of certain types of noises and recommendations as to what constitutes the borderline of reasonable, inevitable noise and unreasonable noise. We further suggest a thorough investigation of the possibilities of constructing buildings with a high capacity for absorbing sound." We may hope that the noise commission in New York will, as a result of its inquiry, be able to suggest practical proposals for dealing with the problems included in its terms of reference. Every civilized country to-day is confronted with similar problems, and it is all to the good that as many trained minds as possible should be applied to their solution.

MAN AND MICROBE.

For nearly fifty years Sir William Collins, as a sanitarian interested in the control of specific diseases, has emphasized the importance of man—the soil on which these diseases flourish—not, as a lesser advocate might have done, with the purpose of discrediting the seed, but to correct the perspective of those who lose sight of man "amid the luxuriant and magnificent flora of the bacteriological laboratory." "We are," he writes in a preface to *The Man versus the Microbe*,[1] "rather too apt in our 'tithing of mint, anise and cumin,' and in the cult of the microbe, to forget or ignore 'the weightier matters of the law' of healthy living." And again later: "it may be permissible to inquire, with all humility, whether bacteriology has adequately explained the etiology of even our commoner zymotic diseases in the sense of identifying, beyond doubt or dispute, a specific organism as the *vera causa* of each of them? It may be respectfully asked whether the influences attributed to predisposition, to sanitary environment, to the resistant power of health, to the *vis medicatrix naturæ*, have really been shown up as mere moonshine?" In the

[1] *The Man versus the Microbe.* Five Presidential Addresses to the Sanitary Inspectors' Association. By Sir William Job Collins, K.C.V.O., M.S., M.D., F.R.C.S. 1929. Surrey Fine Art Press, Redhill. Price 1s.

course of the five addresses which form the subject-matter of his pamphlet Sir William Collins poses these questions again and again, and adduces cogent reasons for his faith that the possibilities of environment are not exhausted by the "confectionery of the laboratory." Thus, taking for example typhus fever, regarded by the older sanitarians as a "filth" disease, he argues that while no micro-organism has yet been established as its cause, no disease has proved to be more definitely related to bad hygiene, or more amenable to eradication by ordinary sanitary measures and decent conditions of living. "You may speak of its hypothetical organism as louse-borne," he writes; "you may describe it as ultra-visible or a filter passer, but the disease is, nevertheless, vanquished by the gospel of soap and water, and yields submissively to the Chadwick touch." He is far from suggesting that the community must sell itself body and soul to those who wield the communal scrubbing brush. Drainage, water supply, the control of infectious disease and dangerous mental disease, the abatement of nuisances—admittedly these should be the concern of the community acting through a responsible and representative authority; but the public, in matters which are not communal in their nature, will, he believes, rightly resent either a State or a municipal bureaucracy. We may be sure that, for all his sanitarian principles, Sir William Collins would not feel at home in a world smelling of institutional soap. He holds, with John Stuart Mill, that "the principle of freedom cannot require that a man should be free not to be free," and when he advocates limitation of individual freedom it is only in the interests of disciplined free-will and self-control. He writes with wit, scholarship, and distinction, and enlivens his theme with a wealth of epigram, historical detail, and literary allusion. It is a pleasure to read his collected addresses, if only for the attractive thumbnail sketches they contain of Koch, Chadwick, Pasteur, Semmelweis, and many others who have helped man to understand, not merely the microbe, but himself.

DAVID FERRIER.

THE full text of the first Ferrier Lecture, on "Some functional problems attaching to convergence," delivered by Sir Charles Sherrington on June 20th last, has now appeared in the *Proceedings of the Royal Society* (*B*, *vol.* 105, 1929). A summary was published in our issue of June 22nd (p. 1136). In his introductory paragraph the lecturer said: "This occasion bears tribute to a name which marks a turning-point in the story of the study of the nervous system. David Ferrier, with his pursuit of localized function in the brain, took neurology into a new period. Thence onward functional neurology could never resign itself again to picturing the cerebral cortex as an uncharted sea with for its one accredited feature unanalysed uniformity. It was a fitting step, promoted by some whom we welcome here to-day, to assure as from to-day an enduringly recurrent opportunity for spoken remembrance of him. And for David Ferrier remembrance could take, I think, no shape more congenial to himself than that of the foundation of a lecture bearing his name at this Society. Here his picture, the gift of Lady Ferrier, re-images to us not a little of that genial and penetrative vivacity which was part of him. And it was in this room, fifty-five years ago, and to this Society, that he described first those memorable experiments which fascinated scientific attention then and now stand as starting-point for contributory knowledge from surely every quarter of the civilized world. . . . It has seemed to me that to recall in detail, when but a short while ago he was still with us, the history of Ferrier's scientific work, and to recall it before this audience, would be to retell familiar matter. It therefore would seem to me that a form our tribute to him might preferably take to-day might be presentment—slight and imperfect though it be—of some current neurological research. His own unflagging interest in such themes permits the thought that such might please himself. Ferrier's work ranged over the nervous system widely. It furnished illustrations of how to each region of that system two questions may be addressed: Toward what aim does this part work? and, In what way is what it is doing done?"

SOCIETY OF APOTHECARIES.

Two interesting ceremonies took place after a Livery Dinner given on the evening of October 29th by the Society of Apothecaries of London in their Hall at Blackfriars, with the Master, Lieut.-Colonel C. T. Samman, in the chair. One was the presentation of the Society's gold medal for pharmacology and therapeutics lately awarded to Professor John Jacob Abel of Johns Hopkins Hospital, Baltimore. The medal was received on his behalf by Mr. Ray Atherton, Chargé d'Affaires of the United States, who expressed the Ambassador's regret at his inability to be present, and read an appreciative message from Professor Abel. The second ceremony was the conferment upon Sir Humphry Rolleston, Bt., G.C.V.O., of the honorary freedom of the Society. Sir Humphry was presented to the Master to receive this honour by his colleague at Cambridge, Professor W. E. Dixon, F.R.S., acting as Deputy Senior Warden in the absence of Sir George Buchanan. The customary toast of "The Royal Colleges" was then proposed by Dr. Cecil Wall, and Sir John Rose Bradford, *President* of the Royal College of Physicians, and Sir Holburt Waring, representing the Royal College of Surgeons, replied. The health of "The Guests" was proposed by the Junior Warden, Colonel E. C. Freeman, who coupled with this toast the names of Lord Dawson of Penn, President of the Royal Society of Medicine, and Lord Riddell, President of the Medico-Legal Society. Other distinguished guests present were Professor A. H. Burgess, President of the British Medical Association, Sir John Bland-Sutton, Sir George Makins, Dr. A. E. Giles, Master of the Drapers' Company, and the Directors-General of the Royal Naval Medical Service and the Army Medical Service.

NATIONAL RADIUM TRUST.

A MEETING of the National Radium Trust was held on October 23rd at the Privy Council Office, under the chairmanship of Lord Parmoor. The matters under consideration included the arrangements which are being completed for the purchase of radium, the financial and administrative organization of the Trust, and questions relating to the work of the Radium Commission. Questions arising in regard to the purchase of radium on behalf of individual institutions were deferred for consideration at a subsequent meeting. The Trust appointed the Hon. R. H. Brand to be its honorary financial adviser, and under Article 2 (2) of the Charter two members of the Commission—Mr. Comyns Berkeley and Dr. J. W. W. Morrison—were co-opted to be members of the Trust.

VISCOUNT GREY OF FALLODON will deliver the Rickman Godlee Lecture in the Great Hall of University College, London, on Thursday next, November 7th, at 5.30 p.m. His subject is "Natural history, the pleasure and purpose of observation." The chair will be taken by Sir John Rose Bradford, President of the Royal College of Physicians.

WE regret to announce the death, on October 26th, at his home in Paris, of Professor Theodore Martin Tuffier, K.B.E., F.R.C.S. (Hon.), the eminent French surgeon. We hope to publish an obituary notice in an early issue.

THE ENGLAND OF HARVEY.

EXTRACTS FROM SIR WILMOT HERRINGHAM'S HARVEIAN ORATION.

The annual Harveian Oration before the Royal College of Physicians of London was delivered on St. Luke's Day, October 18th, by Sir Wilmot Herringham, K.C.M.G., C.B., M.D., Fellow of the College and consulting physician to St. Bartholomew's Hospital.

After quoting some little-known or forgotten passages in the life of William Harvey, and describing the characters and fortunes of members of the Harvey family, the Orator passed to a consideration of some of the conditions of Harvey's own life.

School and University.

Harvey was brought up at the Cathedral School of Canterbury, one of the best in the country. At that date Latin was the univ[illegible] the language of learned men, the [illegible] and of travel. Every bachelor of [illegible] in Latin; the young barristers used it in their moots in the Inns of Court; the accounts of the royal household, and even some of the merchants' accounts, were kept in it. Accordingly it was the aim of every good school to make its boys not only able to read but able to speak Latin, and in the statutes of Canterbury dated 1541 it is ordered that the boys, whether at work or play, should speak nothing but Latin and Greek; but Greek was rarely taught in schools. You may remember that Montaigne, who lived about that time, was not allowed to speak any language but Latin until he was 6. Greek was brought into the schools by the Calvinists who returned to England on the accession of Elizabeth. For them Greek and Hebrew were the two sacred languages, and for the study of the Bible Greek became common in the schools, and even Hebrew was sometimes taught.

We may therefore confidently suppose that Harvey went to Cambridge able not only to read, but also to speak Latin after a fashion, and with some knowledge of Greek. The old free university had given place to a system of colleges and halls founded to train priests by pious benefactors, of whom the greatest, though not the first, was my own founder, William of Wykeham. The life was hard and the teaching narrow. Into these ecclesiastical seminaries the classic revival of the fifteenth century in Italy, patronized by Humphrey, Duke of Gloucester, and other great men, brought a fresh inspiration. At Oxford, Linacre and Groeyn, and in London, More, were as good Grecians as any in Europe. Wolsey and Fox and Henry VIII all encouraged and endowed classical studies. But the classics, and especially Greek, were attacked for their paganism both by the old religion and the new. In Oxford, Greek soon fell into contempt. At Cambridge, under Cheke and Smith, it held better. By Harvey's time it was re-established. Spenser, who went up in 1570, was a Platonist, and Harvey was devoted to Aristotle.

But meanwhile the universities had fallen on evil times. The Church had been plundered by the Crown, and also by its own patrons, both lay and ecclesiastic. Spenser, in *Mother Hubberd's Tale*, describes the lay patron bargaining with an unfortunate clergyman, before he would present him to a £40 living, that he should resign half the income to the squire's son. The upper clergy were pluralists. One man might hold several benefices. The lower clergy were accordingly half starved, and as a natural consequence were grossly ignorant, careless of their duties, and sometimes drunken and corrupt. Scandalous benefices beget scandalous ministers. It was this state of things that gave the Calvinist attack such strength. The Church fell as much by its own faults as by the virtues of the Calvinists.

The absence of decent prospects in the ministry led to a great falling off in the number of students. Added to this, the destruction of the monasteries had deprived the universities of the large numbers of scholars whom they sent up with exhibitions. In the middle of the sixteenth century the numbers had fallen to a few hundreds, nearly all the halls were closed, and the colleges were half empty. Further, the ecclesiastical character of the universities laid them open to interference by the head of the Church, now the monarch. By voting for the divorce they had placated Henry VIII. But under Edward VI all the heads and professors who sympathized with the old religion were expelled. Under Mary the process was renewed in the opposite direction. Eleven heads were expelled in Cambridge alone. Under Elizabeth the Act of Supremacy was enforced, with a similar expulsion of all Romanists, and the universities became violently Calvinist.

In 1573 the vice-chancellor of Cambridge and two other leading dons broke into Caius Chapel and destroyed all the decorations with which John Caius, who was a high churchman, if not a papist, had beautified it. In 1595 Whitgift, the Archbishop of Canterbury, and a synod of bishops drew up the Lambeth Articles, of which the following are specimens:

> God, from all Eternity, hath predestined certain men unto life: certain men He hath reprobated.
>
> The moving cause of Predestination unto Life is not Faith or Good Works or "anything that is in the person predestinated," but only the Goodwill and Pleasure of God.
>
> There is predetermined a certain number of the Predestinate, which can neither be augmented nor diminished.
>
> Those who are not predestinated to salvation shall be necessarily damned for their sins.
>
> Saving Grace is not given . . . to all men by which they may be saved if they will.
>
> No man can come unto Christ unless the Father shall draw him; and all men are not drawn by the Father.
>
> It is not in the will or power of everyone to be saved.

This cheerful view of the future was, however, too much for Elizabeth. She sent for her little black husband, as she called Whitgift, and, after giving him what, in those days, was called a rattling, told him to withdraw the articles altogether, which he had to do. James, who loathed the Scottish Calvinists, threw all his weight on the same side. In 1611 Laud, who, in spite of violent opposition, had led a growing High Church party in Oxford, was elected president of St. John's, and by 1622 Oxford had become anti-Calvinist. Cambridge followed suit, though considerably later.

Meanwhile, however, a great change had taken place in the material circumstances of the universities. Elizabeth, who loved to air her accomplishments, began the system of royal visits to the universities with all their solemn puerilities, which was continued by James and Charles. She made the universities fashionable. Donations were made by her courtiers, and the numbers rose, at the end of her reign, to 2,500 at Oxford and nearly as many at Cambridge. Venn says that 1590 to 1640 was the zenith of the universities until quite recent times. The result was not an unmixed blessing. The rich youth who now flocked in brought with them the manners of rich men, and for many years the statute-books are full of decrees against extravagance in dress, drunkenness, gambling, insubordination, and such unseemly sports as football. An undergraduate twice convicted was to be whipped.

All this had, however, little effect upon the poorer students. Their life continued as hard and scanty as it was before. Harvey went to Caius with a Matthew Parker scholarship. The capital endowment of it was £61 13s. 4d. Elizabeth, in 1559, made an injunction that all clergy whose benefices were worth £100 or more should, for every £100 of their income, contribute £3 6s. 8d. as an exhibition for a scholar at the universities. Under James existing professorships received additional revenue, among which the

chair of physic at Oxford was augmented by the mastership of Ewelme Hospital, and fresh chairs were set up in mathematics, in natural and in moral philosophy, and in anatomy. All these at Oxford. Similar improvements, no doubt, took place at Cambridge.

During the Rebellion both universities were at first Royalist, for Cambridge was preparing to send its plate when it was prevented by Cromwell, but Scarborough was expelled from Caius for his loyalty, and the university had by this time been overpowered by the Parliament. Oxford was loyalist throughout, and after the King's death refused to take the oath prescribed by Parliament, for which it was punished by a visitation under Philip, Earl of Montgomery and Pembroke, the chancellor who succeeded Hertford. On his death in 1650 Cromwell became chancellor, and under his tolerant rule Oxford had comparative rest.

Of Harvey's feeling to Cambridge we know nothing. He is not known to have returned there after taking his degree, though, as he was at Newmarket in 1636 attending the young Elector, it is possible he was present at some ceremony.

Medical Practice.

To understand the England of Harvey we have to imagine a society to which science was unknown. To us the growth of knowledge by observation and experiment is a commonplace. Every morning we read the discussion of some scientific society, or are told of some new discovery. In Harvey's time the few sciences that existed were little removed from magic. The great majority, including all the sciences of living things from botany to sociology, did not exist at all. Alone in the great mind of Bacon had the real meaning of science been grasped and the immensity of its future conceived. Men were still content to ascribe the action of the liver or the brain to spirits, and the cause of disease to disordered humours. Not only had they not yet comprehended that such operations could be examined by physical methods, but they looked upon such attempts to continue the spirit of Galen and other authorities by correcting their mistakes exactly as the Roman Church looked upon the Reformation.

Bacon, in his *Advancement of Learning*, published in 1604, the year that Harvey took his degree, describes with great shrewdness the difficulties of medical practice, and sums up:

> "So then the subject being so variable hath made the art by consequence more conjectural, and the art being conjectural hath made so much the more place to be left for imposture.
>
> "And therefore I cannot much blame physicians that they use commonly to intend some other art or practice which they fancy more than their profession. For you shall have of them antiquaries, poets, humanists, statesmen, merchants, divines, and in every of these better seen than in their profession; and no doubt upon this ground, that they find mediocrity and excellence *in their art maketh no difference in profit* or reputation towards their fortunes.
>
> "Medicine is a science which hath been, as we said, more professed than laboured, and yet more laboured than advanced,"

and the reasons that he gives are "the discontinuance of the ancient and serious diligence of Hippocrates" in taking notes of cases, the neglect of morbid anatomy, and the absence of exact inquiry into the effect of drugs.

In Bacon's own lifetime two men, Mayerne and Harvey—partly, we may think, owing to Bacon's criticism, and partly, no doubt, because they *shared in the scientific* spirit that was just beginning to awake—worked exactly as Bacon advised. We have Mayerne's clinical and post-mortem notes in his own beautiful handwriting here in the library. Harvey's, to which he himself alludes, are unfortunately lost, but he had them in 1648 when the letters to Riolan were published, and it is possible they may yet be found. These two men revived the old Hippocratic tradition, and they were followed, after the Restoration, by Willis, Lower, Glisson, and Sydenham.

It is difficult to judge exactly what Harvey's position was in the general estimation. He attended Bacon himself, and also his successor, Lord Keeper Williams, Bishop of Lincoln; and the latter's biographer, Bishop Hacket, tells how "that great secretary of nature, Dr. William Harvey," saved William's life in what seems to have been a dangerous attack of enteric in 1621. We know the names of other patients, Sir Thomas Thynne and Sir Thomas Sandys, from certificates that he gives of their unfitness to travel. He also attended the Lord Treasurer Weston, who was laid up with an attack of the stone at York during Charles's expedition to Scotland in 1633. He says he lost practice by publishing the *De Motu*, but he must have regained it when he was made Physician to the Household. He practised medicine, surgery, and, it seems by his notes in the *De Generatione*, diseases of women especially.

The title of Medicus Regius, meaning physician to either James or Charles or their Queens, was held by no fewer than sixteen men besides Harvey. Five of them were knighted, which Harvey was not. Sir Matthew Lister was physician to Henrietta Maria, and when she was confined at Exeter in 1644, he and Mayerne went down to see her. But the great man of the time was Sir Theodore Turquet de Mayerne.

The Sciences and the Arts.

There was a small circle of men who sought relief from the troubles of the times by working at natural science at Oxford. Members of the group were Wallis, Savillian professor of geometry, Willis, professor of natural philosophy, Robert Boyle the chemist, and Wilkins, warden of Wadham and Cromwell's brother-in-law. They had been accustomed to meet in London up to 1648, so that Harvey did not form one of the Oxford group, and they were the nucleus of the Royal Society, incorporated by Charles II in 1660. It is curious that no mention of Harvey as a discoverer occurs in Sprat's *History of the Royal Society*.

Of other sciences, physics had produced in 1600 the work of Gilbert on the lodestone, which is of the first class, and in many points is a standard at the present day. Astronomy had made great advances under Kepler, who died in 1630, Galileo was lecturing at Padua when Harvey was there, and in 1636 a poor Lancashire parson called Horrocks for the first time observed the transit of Venus. Napier invented logarithms in 1614. It is curious that the only references that Harvey makes to astronomy are to disparage its methods in comparison with the direct observation of anatomy.

In striking contrast to the infantile condition of science was the maturity of art and literature. In Harvey's time there was a great enthusiasm for painting and sculpture. Charles is said to have had the finest collection of pictures in Europe. Arundel was second only to the King. Denbigh also collected. But they were not alone. Buckingham and many others were collectors, and it was not confined to court circles. Colonel Hutchinson was a good judge, and Mrs. Cromwell had a collection of portraits. There was no native school, though Dobson painted good portraits, but the seventeenth century was the age of the Dutch, Flemish, and Spanish schools, and collectors can seldom have had such chances. Vandyck lived for several years at different times in England, and Rubens was sent over as ambassador.

Harvey was undoubtedly interested in painting, for Charles gave him a commission to buy for him in Italy, and when he escaped from quarantine he travelled to Florence and Rome under the guidance of Mr. Petty, a clergyman who collected in Italy and the Near East for Arundel. By his introductions he was very courteously treated by the Grand Duke of Tuscany, who was a scientific man, and by Cardinal Barberini at Rome, but he was an amateur at buying, and failed to get anything of value.

Another art that was universally cultivated then was music. From 1580 to 1640 English music was at its best. The Puritans stopped ecclesiastical music, but rather because it was favoured by the bishops than that they themselves objected to it. There was a good deal of destruction of organs and church instruments at the hands of the soldiers; but it was not widespread, and the Puritans themselves sang psalms. Secular music was never thought wrong by anyone, and it is quite untrue to say that the Puritans set their faces against it. Bunyan, Milton, Cromwell, and Colonel Hutchinson were all devoted to music, and Colonel Hutchinson to dancing also, yet no one was a stricter Puritan than he. Cromwell was the first man who provided a court concert as an entertainment

for his friends. His ambassador to Sweden, Whitelock, took musicians with him, and was himself a performer. In fact, in those days it was a regular part of a gentleman's education, whatever his religion or his politics.

But of course nothing equals in significance the fact that Harvey's life was practically coterminous with what we term Elizabethan literature—the greatest outburst of literary genius that the world has ever seen. The first three books of the *Faerie Queene* were published when Harvey was 11 years old, and Herrick's *Hesperides* in 1648, when he was 70, and between those dates lie all the greatest names in English literature.

I have wondered whether, in their early married life, Dr. and Mrs. Harvey took a boat across to Bankside, where Shakespeare's plays were being given at the Globe up to 1613. I have wondered, too, what Harvey thought of the *Religio Medici*, which was circulating in MS. in 1636, and what he would have said to Browne if they had met. We know Browne's opinion of the *De Motu*. In recommending it to Dr. Henry Power, he speaks of it as a greater discovery than that of Columbus.

Harvey quotes Virgil and Terence, but he gives no sign that he had ever read or heard of the great writers of his own day. But a writer on scientific subjects can hardly be expected to quote contemporary poetry. We need not, therefore, suppose that Harvey's silence means that he was without knowledge of the wonderful art around him; on the contrary, we know that he mixed with men who held it in the highest honour. Charles kept a Shakespeare in his bedroom. But in the first half of the seventeenth century the interest of most men was turned not to literature, nor to painting, nor to science, but to two subjects, which of all others are the most inimical to the cultivation of science or of art—politics and religion.

Politics and Religion.

The chief social change in the sixteenth century was the rise in wealth and influence of the upper middle class, including the squires in the country and the merchants in the towns. Both were of the same stock, for younger sons went into trade, and merchants who succeeded bought land. Some families combined both. The squires profited by the ruin, in the Wars of the Roses, of the old nobility, whose estates they bought, and also by grants and cheap leases of the abbey lands under Henry VIII; both they and the merchants, by the great increase of the cloth trade which began under Edward IV, increased under Henry, and continued with fluctuations throughout the century. It led to a great demand for sheep pasture, and this in turn to a fourfold rise in rents, as related by Latimer, and to a large reduction of arable land to pasture, as described in *Utopia*. But this again threw so many labourers out of work that Elizabeth was obliged to pass a new Poor Law to save them from starvation. The House of Commons was practically filled by the squires, the merchants, and the lawyers, who sprang from both.

The Tudors, the ablest and the only native dynasty we have ever had, knew the House of Commons thoroughly, and except in matters of religion, managed them with great tact. But Elizabeth, with all her prestige and popularity, so clearly recognized their reluctance to grant money that she practised the most sordid parsimony, suffered her great public servants to die in poverty, and, sooner than ask for supplies, poisoned with bad victuals the soldiers and sailors who saved England.

James, coming as a foreigner from a country where the middle classes hardly existed, and ignorant of our great political struggles in past centuries, was as entirely unable to recognize the position of the Commons as he was personally incapable of dealing with them. His silly profusion brought him rapidly to poverty, and he presented the ironic spectacle of a King blustering about his sovereign power and in the same breath begging for money to pay his tradesmen. No wonder that the Commons lost their loyalty to the Crown. In 1621 James tore out of the Commons' journals the dignified declaration in which they stated their rights and liberties, and in 1625 he died at the end of the negotiations for the Spanish match, an enterprise begun with the usual Stuart disregard of the national feeling, pursued with the usual Stuart duplicity, and ending in the usual Stuart ill success.

For Charles there was less excuse. He had taken a prominent part in politics for some years before his accession, and had abundant opportunity to learn. But if a man cannot learn by experience, wherewithal can he be instructed? He was, in his first years, dominated by his evil genius, Buckingham, and though the Commons undoubtedly treated him very badly at that time, yet surely no man could have treated them with less tact than Charles. A Venetian wrote of him: "This King is so framed by Constitution that he can never oblige any man by word or deed." When he finally decided to govern without Parliament his arbitrary measures, if not against the letter of the law—and it must be remembered that he had the warrant of most of his judges for what he did—were so completely against the spirit both of the Constitution and of the Petition of Right, which he had recently signed, that he irretrievably alienated both Parliament and the country. Moreover, both parties, the King and the Commons, were equally justified in distrusting each other. If the Commons had good cause to distrust Charles—and they certainly had—Charles had equally good grounds to distrust them. Faction ran high; what was voted on Monday was rescinded on Tuesday, and at the end the majority who wished to continue negotiations were expelled from the House by the minority and the army.

But the desire for political liberty had small influence compared with the violence of religious fanaticism. Religious grievances were invariably placed first in all the transactions of the House of Commons. Henry VIII, to gratify his own passions, had led the nation to revolt from the Pope. But beyond a change of supremacy the religious practice of England was, for many years, little altered. Gradually, however, and more rapidly after the Marian persecution, Calvinism spread over the whole of England and Scotland. The City of London and the universities were its chief strongholds. It is difficult for us to understand its appeal. Probably few Fellows of the College have laboured under the conviction of original sin and the certainty of damnation which clouded Cromwell's early manhood, or have experienced the assurance of saving grace which was his comfort and support in later life. But we can imagine how men accustomed to the lax religion of the time, administered by an ignorant and careless clergy—for such they were—must have been affected by the greatest revival that has ever taken place, to which Wesley and the Salvation Army are but ripples on a pond to a storm in the ocean, and what, to men living under the formalism of Rome, must have seemed the splendour of Calvin's great announcement that the creature could commune with the Creator, that the individual soul could approach the Divinity, that there was no barrier between God and man. Men's minds are naturally fascinated by horrors. Gloomy creeds have created the fiercest enthusiasm, and the Independents, the logical sons of Calvin, though he would have been the first to disown them, formed the most remarkable army that England has ever raised.

But if we find it hard to understand the acceptance of Calvinism, still harder is it to comprehend a society in which toleration was not only not approved, but was even abhorred as treachery to God. The Puritans were mocked as saints, but they spoke of themselves by the same term, and it was not always undeserved. Some of them were as truly saints as any that religion ever had. But even such men hated their opponents with a violence we can hardly believe, and had no thought of allowing them any kind of toleration. Calvinist, Arminian, Anglican, Independent, and Papist, each was convinced that his own opinion was the true, and each was determined that it should be enforced on every man, woman, and child in the country.

Posterity has undoubtedly approved the political aims of the Long Parliament, and looks upon it rightly as the preserver of English liberty. We are therefore the more astonished to observe the complete dearth of constructive political ability which marks its ranks. They pulled down everything; they built nothing. The Calvinists destroyed the Church; the Independents destroyed the Commons, the Lords, and the monarchy, and they themselves, when they turned out the Rump and set up the

Protectorate, were attacked by the Republicans and Fifth Monarchy men, who plotted the assassination of Cromwell. Compare what Cromwell, honestly anxious to restore good government, could do for England in the years of his power, with the complete system of administration—religious, educational, judicial, municipal, and financial—which Napoleon established between 1800 and 1811; or, if you like a modern instance, with the system of government established in Italy since the war. It may be that when Mussolini dies the edifice will fall; but see what force and what creative imagination he has displayed.

The great vice of the age was its intolerance, and the religious mania, for we can call it nothing else, which overran England between 1560 and 1660 like an epidemic, did not even, like bodily epidemics, leave a population behind it immune to its particular poison. Never was religious hatred more bitter than after the Restoration, and in its graver forms it persisted for over a century and a half. Catholic emancipation was not carried till 1829. Oxford and Cambridge were not thrown open till 1871, and mutual respect and good will between the Free and the Established Churches is a growth of the last thirty or forty years.

It has been claimed that the Puritans preserved the family life of England from the corruption and the licentiousness of court manners. Such statements assume, on the one hand, that the court society of the day was something exceptional, and on the other that the manners of the capital were the manners of the country. Neither is true. It is said, too, that to the Puritans we owe that sturdiness which has kept and increased the liberty they won. Neither is this to be accepted. Lived there no brave men before Agamemnon? Did not the men of that day expressly proclaim themselves followers in their fathers' footsteps, guardians of what they had obtained by peril of their lives? The temper of a great nation is a thing too firmly set to change under every blast of new doctrine, and its history is the consequence of its character, not the cause of it. The Puritans were the guardians of spiritual fervour at a season when religion had become cold and dead. Such seasons of decay occur from time to time, and the Puritans are neither the first nor the last of the revivalists. Whenever need arises such men have a great part cast for them on the world's theatre, and none of us should criticize them so harshly as to refuse them their due praise. But we owe to them the loss of half the beauty of England.

But, after all, our interest is not to praise or blame the actors in this great tragedy. It is to consider what was Harvey's attitude to the great struggles, political and religious, that were taking place around him. And of this we obtain from himself no evidence whatever. He mentions the King and Queen two or three times in the *De Generatione*, but without any word either of affection or regret, which indeed in 1651 it might not have been prudent to print. He mentions Parliament once, complaining that the mob had destroyed his collections, though he was attending the King with the permission, and even at the command, of Parliament. There remains only the message that he is said to have sent to Scarborough, who was an ardent Royalist, "Leave thy gunning and come here and I will bring thee into practice." But that may be significant. We may well believe that he would not approve either the folly and tyranny of Charles or the violence and malice of his foes. To Harvey the war must have seemed a vast catastrophe, for which both parties were alike responsible, from which little good was gained, and by which the progress of knowledge was irreparably hindered.

And for religion. No man of serious character then doubted the fundamental beliefs of Christianity, and Harvey was of a reverent mind. But we cannot fancy his sympathizing either with Laud's formal discipline or with the brutal irreverence of the Puritans. Harvey's religious feelings, we may be sure, were too sincere and too deeply felt ever to be published to the world. Addison once asked Garth of what religion he was. Garth replied, "Wise men all hold the same religion." "What is that?" said Addison, and Garth answered, "Wise men never tell."

TREATMENT OF BURNS AND SCALDS.

THE TANNIC ACID METHOD.

It can hardly be doubted that one of the most important recent advances in modern therapeutics is the introduction of tannic acid for the treatment of burns and scalds. In 1925 Dr. E. C. Davidson of Detroit contributed a carefully argued paper on this subject to the August issue of *Surgery, Gynecology and Obstetrics*, the salient points of which were detailed in our *Epitome* of September 12th, 1925 (para. 185). Davidson advocated the use of gauze dressings saturated with a 2.5 per cent. freshly made aqueous solution of tannic acid, with a view to coagulating the damaged tissues and so preventing the absorption of toxins. He added that the subsequent formation of scar tissue was found to be notably less than when other methods of treatment were employed. Various investigators in Great Britain subsequently made trial of the method, but their reports were not always favourable.

At the Annual Meeting of the British Medical Association in Edinburgh in 1927, Mr. W. C. Wilson, assistant surgeon to the Royal Edinburgh Hospital for Sick Children, reported a series of thirty-seven cases of burns in children *treated by tannic acid* (*British Medical Journal*, 1927, vol. ii, p. 591). His method consisted in the spraying over the burnt tissues of a 2.5 per cent. solution of tannic acid at intervals of an hour, the surface being dried by electrical heat. The highly gratifying results obtained encouraged Mr. Wilson to continue his investigation, in the Department of Surgery at Edinburgh University, and a report by him was published in our columns on July 21st, 1928 (p. 91), in which certain important principles were enunciated and the results of treatment were recorded in forty-two infants and eight adults. The attention of the Medical Research Council having been drawn to the method, it was observed that the procedure was not so popular in hospitals as might have been expected, and that the results reported did not appear to be uniformly good. The Council therefore invited Mr. W. C. Wilson to make a further survey of his results; and a memorandum by him has now been published as No. 141 of the Special Report Series of the Medical Research Council, which may be obtained from the Stationery Office, price 1s.

Clinical Course and Pathology of Burns.

Mr. Wilson adheres to the view expressed in his article in the *British Medical Journal* that the customary classification of the clinical course of burns into the three stages of shock, inflammation, and healing is misleading. He recognizes and defines carefully four stages—namely: (1) shock (initial or primary); (2) acute toxaemia (secondary or toxic shock); (3) septic toxaemia; and (4) healing. It is admitted that there are wide variations in the duration and importance of these stages, depending on the extent and severity of the injury, and, more especially at the present time, on the treatment adopted. The second stage in the past was unquestionably regarded as the most important, and showed the highest mortality. The first two stages were described by Mr. Wilson in his article in these columns, and need not be considered further here. As regards the third stage of septic toxaemia, Mr. Wilson remarks that its symptoms and signs may be evident from the fifth day until healing is advanced. Clinically it may be absent, or, conversely, the bacterial infection may be so severe as to cause acute toxaemia and death; the pathological condition is, as he remarks, that of an open wound, and some degree of infection is always present when any considerable area of epithelium has been destroyed. The fourth stage—that of healing—begins when the infection has been overcome; its duration depends largely upon the depth of the lesion. First and second degree burns heal quickly and without formation of scar tissue, whereas in third degree lesions the granulating surface becomes covered with epithelium derived partly from the edges and partly from epithelial islets which have escaped destruction. In still more deeply burned areas healing is slow, and, owing to the tendency of the scar tissue to contract, deformities and disability may follow.

Treatment by Tannic Acid.

Mr. Wilson's method has already been described in detail in our columns, but it may be recalled that he sprays over the burned areas a warm, freshly prepared solution of tannic acid from an ordinary nasal spray atomizer, the parts being then dried by means of electric lamp bulbs in a bed cage. The spraying and drying are repeated at frequent intervals until all the burnt area is covered by a thin layer of brown coagulated tissue. He now adds, that, although a 5 per cent. tannic acid solution has been recommended by some authorities, it has, in his opinion, no special advantage over the weaker solution, while very strong solutions have a corrosive action. In burns of the face, he adds, coagulation of the cornea is an accident to be guarded against; the eyes, nostrils, and external auditory meatus are protected by moist wool during the spraying process.

Summary of Cases.

In the report under notice details are given of 117 cases so treated; in ninety-five of these the injury resulted from scalding, and in twenty-two from burning by fire. All except twelve patients were children below the age of 10, and eighteen were less than 1 year old. The death rate in the series was 11.1 per cent., which must, as Mr. Wilson remarks, be regarded as extremely satisfactory; even though cases of less extensive burns are more frequently admitted to hospital now than formerly, there can be no doubt that the mortality has been reduced in a most striking manner by the introduction of tannic acid. With previous methods of treatment shock accounted for 2.5 per cent. of the deaths, acute toxaemia for 80 per cent., and sepsis for 15 per cent., the remainder occurring from causes unconnected with the injury. In the present series 30.77 per cent. of the deaths were due to shock, 23.77 per cent. to acute toxaemia, and 23.77 per cent. to sepsis. In other words, the second stage is no longer the main danger period; the acute toxaemia, which was the chief cause of the high mortality in the past, can now be controlled; it is rarely prominent and never occurs in a fulminating form. The mortality in 105 children under the age of 10 was 10.5 per cent., as compared with 38.7 per cent. in a series of comparable cases treated by other methods; the prognosis has also improved. The outlook in children is considered favourable now when the involvement of total body surface is less than 35 per cent.; though serious, it is not hopeless even if as much as 60 per cent. of the entire surface of the body is affected; burns of still greater extent than this prove rapidly fatal. Mr. Wilson supplies clinical details of four cases, and illustrations showing the rapid healing by the tannic acid method. He adds that it promotes rapid analgesia, there being no pain or discomfort while the coagulum is present; healing is usually rapid, and contractures as a sequel are exceptional.

Practical Application of the Method.

Mr. Wilson advised, in his paper published in this *Journal* on July 21st, 1928, that tannic acid should form part of the armamentarium of the country practitioner, and find a place in the first-aid equipment in mines and factories. Packets containing 110 grains of the powder can, he suggests, be kept ready for emergencies; one of these dissolved in half a pint of water provides the necessary 2.5 per cent. solution. In the report under review an appendix contains provisional instructions for applying the treatment under first-aid conditions. His original suggestions have been improved in some respects as the result of helpful criticisms and suggestions proffered by the medical inspector of mines and the professors of surgery at St. Thomas's Hospital and University College Hospital.

It is suggested that in mines and other places where burning injuries are not uncommon the emergency first-aid treatment might take the following lines. A first-aid "*unit*," which is kept ready, consists of two two-pint enamel measures graduated in ounces; two glass rods; fifty packets of tannic acid powder, each containing 110 grains; a bottle containing tablets of corrosive sublimate, each of 8.75 grains; twelve rolls of white absorbent wool; eight dozen gauze bandages; a jar of vaseline, and a flat stick for its application; and five dozen packages of sterilized white lint, each package consisting of a piece of lint covered by a layer of gauze and wrapped in Kraft paper. The lint is in three forms: (1) a piece measuring 20 by 30 inches, this package being labelled "*trunk*"; (2) a bandage 4½ inches by 3 yards, labelled "*bandage*"; (3) a face-mask measuring 1 by 2 feet, in which are cut the following openings: one of 7 by 1½ inches to expose the eyes, and two horizontal slits of 3 inches and 3½ inches long as openings for the nose and mouth; the package is labelled "face." The instructions in the case of a burn occurring are as follows. Remove all clothing from the burned area in order to estimate its dimensions, but prevent the patient becoming chilled; no cleansing is to be attempted. Prepare the tannic acid solution by dissolving in two pints of water one tablet of corrosive sublimate and four packets of tannic acid powder, stirring with the glass rod until all the powder is dissolved. The solution is antiseptic, and there is no need to sterilize measures, glass rods, or powder. It must be warm when applied, so as not to cause chilling of the patient. The lint in the "trunk" package will cover the entire front or back, and requires one pint of solution. The lint in a package labelled "bandage" will cover one arm entirely, and requires half a pint of solution. Two "bandages" cover one entire leg, and use up one pint of solution. The piece in the "face" package will cover the face, neck, and sides of the head, and requires six ounces of the solution. According to the surface extent and regional distribution of the burns, a suitable number and type of packages are selected. The lint is soaked in the solution and wrung out gently, and its smooth side is applied to the burned area, after which it is covered with a layer of wool and fixed with a gauze bandage. The hands should be washed thoroughly with soap and water before the lint is touched. In the case of burns of the face the patient is told to keep his eyes closed while a thick layer of vaseline is smeared over the eyelids, eyebrows, and for some distance round the eyes; the vaseline area should be covered by wool. The face-mask is soaked in the solution and wrung out firmly; it is then applied to the face, leaving the regions of the eyes, nostrils, and mouth exposed through the slit openings in the lint. It is held secure by a gauze bandage round the head and neck, the openings being widened if necessary.

The packages with the covering of Kraft paper are previously sterilized by steam for twenty minutes at a pressure of 15 lbs. and then dried; the lint will remain sterile for a long period if the packages are kept clean and dry. The whole "unit" is placed in a wooden box and stored in a dry place. The powder packets are best kept in a tin box with a tightly fitting lid.

Mr. Wilson is certainly to be congratulated on the success that has followed his persistent efforts to establish the full value of a most useful remedy, and on his careful study of all the scientific principles involved. In a preface to his report, contributed by the Medical Research Council, it is pointed out that his work raises scientific questions of considerable interest, and that still further investigation is desirable based on the discovery that tannic acid has this undoubted power to diminish or abolish the dangerous secondary shock or acute toxaemia following burns and scalds.

GUIDING PRINCIPLES OF PUBLIC HEALTH REFORM.

PRESIDENTIAL ADDRESS TO THE SOCIETY OF MEDICAL OFFICERS OF HEALTH.

THE annual general meeting of the Society of Medical Officers of Health was held on October 25th, when DR. JOHN J. BUCHAN, medical officer of health for Bradford, was elected and installed as president of the society.

In an address from the chair on "Some principles of public health reform," Dr. Buchan said that public health was a practical application of scientific knowledge; in this country full use was by no means made of the knowledge already gained, and there was a still greater lack of facilities for investigation and research whereby this knowledge might be increased. The possibilities of success in health work were limited only by the boundaries of knowledge. Just as manufacturers maintained research workers and institutes of various kinds to assist them in their respective industries, so the State might well do something more than leave the great bulk of research work in health and medicine to the self-sacrificing labours of a few or the vicarious generosity of the well-intentioned. Furthermore, any great advance in the application of knowledge required a constant revision and readaptation of organization, both central and local. In public health work

in England this was a task of no small difficulty, because the subject had been developed, not on any systematic and well-ordered plan, but as a result of sporadic activity in different fields. Social reformers had drawn attention to the special health needs of some particular class which appealed to them at the time, and piecemeal legislation was the result. No doubt such legislation served a temporary purpose, but ultimately overlapping, inefficiency, and waste occurred. One of the great tasks of the Ministry of Health had been to bring order out of the chaos into which public health work had been plunged owing to a century of patchwork legislation. This work had not been completed, but substantial progress had been made since the creation of the Ministry, and the general lines of reform were beginning to be disclosed.

Public Health an End in Itself.

Certain principles must be steadily adhered to if this work was to reach a successful issue. The first laid down by Dr. Buchan was that the protection and improvement of the health of the people should be regarded by the State as an end worthy to be sought by itself. A large amount of work in the past had been badly done because it was undertaken to serve some other purpose. An outstanding illustration, shortly to cease, was health work under the Poor Law, which had been done, not to meet a health need, but for the relief of destitution. Another example was factory legislation, in which health considerations were approached primarily from the point of view of certain trades and industries, without full regard to the more important question that good conditions of health should be enjoyed in all employment. It was true that certain inimical conditions were peculiarly liable to arise in some industries, but these were not confined to the industries to which factory legislation had been made to apply. In the result, despite a succession of statutes and a multitude of orders, factory legislation had failed to meet fully the real health needs of the whole body of employed persons. Health and labour conditions were, of course, closely interwoven, but Dr. Buchan refused to regard the health of the worker as a labour problem to be solved by the codification of industrial laws. Whatever reform was imminent, it should bring the health of employed persons within the survey of the Ministry of Health, not leave it in the hands of the Home Office.

Integration of all Branches of Health Work.

A further principle in public health was the close integration of all classes and conditions in the community. Bad health conditions in one class of society or among individuals related by one set of circumstances had comparable results in very different quarters. To combat ill health, for example, at one age, required, more often than not, action at quite another age. It was not possible to sectionalize the population. Take the case of the expectant mother. Here were special conditions arising in a particular class of the community. But health in pregnancy had a most profound effect on the health of the nation, and no proper consideration of the matter could be made unless it were viewed in relationship, not only to the expectancy, but also to the conditions before expectancy, and those liable to arise afterwards. Take, again, the school child. There was no disease or condition of ill health which could now be associated with school life alone, and few, if any, conditions of ill health amongst school children the prevention and cure of which were to be sought in the educational system. The more closely the conditions of health of school children were inquired into, the further was the inquirer taken from the school. The school was little more, from this point of view, than a convenient centre in which children might be surveyed and teachers instructed on health matters. Tonsils and adenoids, mental defect, defective vision, even dirty and verminous heads, were in essence hardly problems of school life at all.

Reorganization at the Periphery.

The third principle of public health reform remarked by Dr. Buchan was that central unification and reorganization of health effort was not in itself sufficient unless accompanied by a similar unification and reorganization at the points of actual administration. The passing of the Local Government Act, 1929, was the first step towards this end, but, sooner or later, legislation would be required to unify health services locally. At present this was being done chiefly through the influence of the Ministry of Health, but local circumstances existed in many places where it could not reasonably be required. Health work generally in this country had from the start suffered from the want of well-ordered and arranged local government areas. It was incumbent upon the State to see that its machinery was competent in every fashion to discharge the work placed upon it, and the State should not permit any consideration of local history, pride, prejudice, or precedent to stand in its way.

Independence of the Professional Officer.

Finally, Dr. Buchan insisted that the professional officer in health work must have freedom of expression of opinion within his own sphere; not that he sought to control and direct any organization or department set up for a different, though allied, purpose, but in giving advice he must have a free right to set forth his own opinion on matters of health, whether it be on lead poisoning among painters or the exclusion of school contacts in infectious disease. Dr. Buchan concluded his thoughtful address by quoting Carlyle: "Health is a great matter both to the possessor of it and to others. . . . Does not health mean harmony, the synonym of all that is true justly ordered good; is it not in some sense the net total . . . of whatever worth is in us?"

Scotland.

University of Edinburgh.

Sir Thomas Henry Holland, F.R.S., the new principal of the University of Edinburgh, was formally welcomed by the students on October 25th at a luncheon in the University Union, Edinburgh. The new principal, in replying to his toast, said that he would like to express one thought sincerely and seriously to the senior men who were able to advise the juniors. He considered that the man who went out from the University with a degree was not of the slightest use as a citizen of the world unless he had taken his share in the students' social and athletic activities. The student had to determine how much of his life was to be devoted to social activity and how much to academic work, and if he over-did one or other he was bound to suffer, and he hoped that students would keep a clear balance between the requirements of social life and the absolute necessities of academic work.

For the first time in the history of the General Council of the University of Edinburgh the Lord Rector (Sir John Gilmour, M.P.) presided at a statutory meeting of that body, on October 25th. A cordial welcome was extended by the council to the new principal, Sir Thomas Holland. Dr. Alexander Morgan, convener of the Business Committee, referred to the statistics in the last report of the Treasury Committee on University grants, which showed that two-thirds of the total increase of students in the United Kingdom had taken place in the four Scottish universities. Of the British universities, Edinburgh attracted most students from the Empire overseas and from foreign countries, the total being 650. Cambridge came next with 637.

Principal Sir Thomas Holland presided, on October 25th, at the opening ceremony of Cowan House. This is a new residential hall for students attending the University of Edinburgh, situated in George Square, and accommodating about one hundred students. It is the gift to the University of Dr. Thomas Cowan, a well-known Scottish shipowner. The large hall and house were declared open by Sir John Gilmour, who expressed the gratitude of the University to Dr. Cowan, the donor. Dr. Cowan, in replying, said that if the establishment tended to awaken the social life of the University and to bring the colonial student into a happy community, he had an ample reward. He trusted that the home atmosphere of the house would make the latter feel that he was not far from home, despite the element of distance, and that students from the Scottish glens and sons of empires from across the seas would there form friendships which would remind them in after years of happy connexions with the city of Edinburgh and its great University.

Extension to Sick Children's Hospital, Edinburgh.

A ward for the treatment of ear and throat diseases in children was opened at the Royal Edinburgh Hospital for Sick Children on October 22nd. Mr. Colin M. Black, chairman of the hospital, performed the opening ceremony, and said that this hospital was in the present instance showing the way towards an advance, for, so far as he was aware, no other children's hospital in the country possessed a ward set aside exclusively for such cases. Owing to the special importance of such disorders in children, and the great increase in the number of patients with complaints of ear and throat attending the hospital, a special department had been formed a year or two before the war under the charge of Dr. Porter. After his death in the war, Dr. Douglas Guthrie had been appointed to succeed him in 1919. At first only two beds had been reserved for ear and throat cases, the number being afterwards increased to five, but as the directors found that, owing to lack of accommodation, many children had to be treated as out-patients who would have been better in a ward, the present extension of the hospital had been instituted. The number of new patients attending the ear and throat department had risen from 767 in 1920 to over 1,200 in 1928, and he believed that in the present year there would be considerably over 2,000. Of these, it had only been possible to admit as in-patients some 300. This ward, with 12 beds, which bring the total number of beds in the hospital up to 132, has been named the Meikleham Ward in tribute to the memory of a benefactor of the hospital.

Reception to Glasgow Medical Graduands.

In accordance with the now well-established custom, the council of the Glasgow and West of Scotland Branch of the British Medical Association entertained the successful students at the recent final medical examination at Glasgow University at an "At Home" in the Men's Union, the University, on October 17th, the day before the graduation ceremony in the Bute Hall. The atmosphere of the meeting was distinctly homelike, and the students were obviously well disposed to the British Medical Association. After tea and general conversation, Dr. G. Morris Crawford (Uddingston), President of the Branch, took the chair, and called upon Professor Ralph Stockman to address the students. Professor Stockman, in a characteristically witty speech, said that on the following day, as the University was at present in the position of having no vice-chancellor and principal, the duty of capping the students would fall to himself, and as he understood that he was not to be allowed to make them a speech on that occasion, he was very glad to have that opportunity of wishing them God-speed. No doubt there were among them some who had come down in several examinations, but he instanced the names of several famous men who had not shown the evidence of any special talents during their earlier years. Again, no doubt, there were others amongst them who had been more or less distinguished students, and again history abounded in the names of famous men who *had* had notable university careers. There was therefore no need for the second group to be any more discouraged than the first. He advised as many as possible of his hearers to obtain a resident hospital post for however short a time before they went into practice. A voyage to the East, and even a few short weeks living in London were a liberal education. As to the British Medical Association, it would not be very long before they heard a considerable amount of criticism of it, but they would hear that about almost everything, and no doubt they had already heard criticism of himself. The point was, however, that the B.M.A., like most other things that were subject to criticism, was the best they had. Dr. J. R. Drever (Scottish Medical Secretary) gave a brief outline of the work of the Association and the advantages to newly qualified graduates in becoming members of it. Dr. Towart of the Medical and Dental Defence Union of Scotland was also given the opportunity of explaining the imperative necessity of joining a medical protection society. At the end of the meeting fifty-three students signed application forms for membership of the British Medical Association, and next day a further twenty-five forms were duly signed.

Lewis Hospital.

Considerable discussion has recently taken place in connexion with a decision by the managers of the Lewis Hospital to terminate the engagement with Mr. J. Ewart Purves, F.R.C.S., as surgeon-superintendent of the institution. The Lewis Hospital is one of the surgical units established under a scheme designed by the Department of Health for Scotland in order to bring to remote areas, such as the Island of Lewis, the benefits of modern surgery. The scheme took form in 1924, when, as an experiment, a medical superintendent and surgical consultant was appointed for a period of five years. Since then the institution has been extended and modernized at a cost of £12,000, defrayed by the Department of Health, who also paid the salary of the surgeon-superintendent. The maintenance of the institution otherwise is defrayed by the management of the hospital, largely from voluntary subscriptions. Details of the improved scheme appeared in the *Journal* on May 12th, 1928 (p. 821). A strong protest from the medical profession in the Island of Lewis was lodged with the managers of the hospital against their refusal to enter into a new agreement with the present surgeon-superintendent, and a deputation from the Department of Health, consisting of Dr. Parlane Kinloch and three other members, went to Stornoway to investigate the working of the Department's experimental scheme. On October 25th a conference was held between these representatives and the local authority of Lewis, in connexion with the whole medical, nursing, and hospital services of the island. Dr. Kinloch presided, and said that since 1913 there had been developed in the Island of Lewis a medical and nursing service of a very high order, and to make this scheme complete the Department of Health and the managers of the Lewis Hospital had, in 1924, entered into an agreement to provide a modern institution and a specialist surgical service. The Lewis Hospital was now one of the best surgical units in the North of Scotland, and the surgical, radiological, and nursing services provided at the hospital were of a very high standard. The people of Lewis had rapidly realized the value of these services, with the result that full advantage was being taken of them, and transport facilities to the hospital were improving. He added that the present arrangement between the hospital managers and the Department of Health would continue, and he paid a high tribute to the surgical skill and devoted service of Mr. Purves, the surgical specialist.

Fitness among the General Population.

Colonel P. S. Lelean, professor of public health in the University of Edinburgh, in the inaugural address of the Combe Trust series of lectures on public health, emphasized the vital importance of national fitness in the strenuous competition of the world's markets, and gave figures which showed the extent of ill health prevailing in this country at the present time. He estimated that sickness, sufficient to incapacitate from work for over three days, keeps an average of 190,000 persons away from work throughout the year in Scotland alone, and causes an average of fifteen days' lost work per worker per year. The sum lost to the nation in this way amounted to £31,461,000. Expressed otherwise, he calculated that among 100 average people doing their usual work, there were 14 definitely sick and 35 others unfit to an extent which prevented their maintaining their full efficiency. The lecturer pointed out that if these figures for Scotland were applicable to the rest of the country, then it might be concluded that the loss due to sickness in Great Britain amounted to £283,000,000 annually, or about the same as the total interest upon the national debt. Sickness was therefore really a more pressing matter than unemployment, both on account of its greater magnitude of cost and misery, and because an immediate reduction might be made in its amount by healthy living. Every sick worker lessened the nation's output, raised sale prices, reduced overseas trade, added to unemployment, and raised the price of food, all in inevitable sequence. With regard to remedial action, the lecturer considered that the public had lagged behind doctors in the matter of what they ought to know regarding the maintenance of health. It was the first duty of the educationist

to teach the art of keeping fit. Health was now recognized to be something more than the mere dodging of disease and delaying of death; it was the art of getting out of oneself and of life the very best, and of being all the time on the 100 per cent. line. What could be achieved was illustrated by the experience of the army. In the army of 1855 the death rate was nearly double (185 to 100) that for civilian males of military age; about the year 1900 the two rates drew level; but when every private in the army was instructed in sanitation its death rate fell to three-quarters that of the civil population by 1910. The army had thus led the way for brilliant results, and when the elements of hygiene were taught to every child in our schools the lecturer believed that as striking an improvement would occur in the health of the nation. He hoped that the additional year of school life would be wisely utilized for some such purpose.

Ireland.

Radiotherapy in Ireland.

On October 19th, at the opening meeting of the fifty-fifth session of the Dublin University Biological Association, Professor J. Brontë Gatenby delivered his inaugural address, taking as his subject "Radium, x rays, and the cell." Dr. Madill, outgoing president, occupied the chair. Lantern slides were used to illustrate the subject-matter of the address.

Professor Gatenby's Address.

Professor Gatenby, having expressed his appreciation of the honour of having been invited to become president of the association, said that the subject of his paper was an apt one in Trinity College, for the pioneers of x radiation in Ireland were the late Dr. Lane-Joynt and Dr. W. S. Houghton. The association was much honoured that night by the presence of Dr. Joly and Dr. Stevenson. Dr. Joly, in conjunction with Dr. Stevenson, worked out the method of placing radon, or radium, enclosed in needles, around and in a tumour. This brilliant discovery was now being used all over the world, especially for cancer of the tongue. He was glad to welcome Dr. R. Ludford of the Imperial Cancer Fund Laboratory, London, and Fouterton Scholar of the Royal Society of London. Proceeding to the subject of his address, Professor Gatenby reminded his audience that it had been known for over a quarter of a century that rapidly growing tissues were deleteriously affected by the rays given off from x-ray tubes and from radium. Thus skin, gonads, mucous membranes, and blood-forming tissues were all easily damaged by exposure to x or radium radiation. A characteristic of cancer cells was that the inhibition of cell division was either poor or absent. It was common knowledge that the erratic course of cell division followed by cancer cells could be checked by radiation. The tumour usually recurred, however, in the same position or in metastases. The rapidly growing type of tumour responded best to radiation; the less active types were difficult to treat properly. The question of radiosensitivity was all-important in the treatment of growths. Broadly speaking, the growing cell was the more radiosensitive, and theoretically, by striking a dosage which would incommode the growing cell and would not deleteriously affect the resting cell, one could hope to eradicate, or at least arrest, cells with a rapid division rate. In practice, radiation might have only a temporary effect. Only a proportion of the undesirable cells might be dividing or rapidly growing, and so expose themselves to destruction; likewise, the division rate of the growing cells might approximate to that of the cells of the normal tissues, so that it was difficult, if not quite impossible, to hit off the proper dosage. Having referred to several classes of material which had been generally used for x-ray research, and to experiments on the effect of radiation on cells, the speaker said that the great advantage of the tissue culture technique was that, no matter what might be the actual structure of the cell, cell multiplication went on; it might be watched, and the number of cell divisions accurately counted. No other type of material offered such a good opportunity for watching the effects of radiation on the numbers of cell divisions, and therefore on growth itself.

The appearance of warts on the hands, wrists, and sometimes faces of working radiologists was common. X-ray dermatitis, which after many years might be followed by epithelioma, was not now so common as it used to be. The wart was evidence that the skin cells had begun to divide very rapidly in one situation. The rapid growth might usually be controlled by treatment, but the appearance of an epithelioma showed that small doses of x rays over a long period could cause a pernicious growth. The appearance of warts on the hand seemed a negation of the rule that irradiation killed actively growing cells; it might, in fact, be interpreted as evidence of a stimulating effect. This example had always struck him as one of the most difficult to interpret on the assumption that x radiation did not stimulate. The x ray might be supposed to have deprived the skin cells of their division inhibition; but there seemed no escape from the conclusion that the end effect was a stimulation, if by stimulation one meant a rapid accession of cell divisions in parts exposed to radiation. The question of possible stimulation by radiation was of prime importance, but very confused and difficult, said the speaker, who went on to review what might be called the laboratory evidence for stimulation, and stated that all the cytological evidence was against the view that radiation stimulated the cell. X-ray dermatitis was practically always found only in radiologists who had been years at their work. In the current laboratory experiments to test stimulation, exposure was over only a very short period, and exposure of tumours to x rays or radium was also only for short periods. It seemed clear, therefore, that it was unfair to class x-ray dermatitis as evidence for stimulation in the sense that the word was used by radiologists and by him in his address. Professor Gatenby mentioned that, in answer to a letter he had sent to the National Radium Commission it was stated that this Commission did not extend to the Irish Free State.

General Discussion.

Professor Joly moved that the best thanks of the University Biological Association be accorded to the president, Dr. Gatenby, for his valuable address. He said his excuse for speaking lay in the fact that the several domains of science were not shut up in watertight compartments. Roughly speaking, the therapeutic use of radium began very tentatively in or about the beginning of the present century. As one of the governors of Dr. Steevens's Hospital, he then witnessed the cure of a case of rodent ulcer by the application of a little radium which he had obtained from Germany. In subsequent years a number of modes of radium application were introduced, but all were objectionable for one reason or another. With the formation of the Radium Institute of the Royal Society, Dublin, in 1920 a new technique, involving the use of hollow needles, was employed. The chief advantage of this technique was in the uniformity of radiation thereby secured. The Radium Institute was from the first a great success—largely, owing to Mr. Richard Moss's skill in overcoming the technical difficulties attending the separation of the radium emanation and its introduction into the capillary glass tubes destined for insertion in the hollow needles. The most important event in its subsequent history was undoubtedly the obtaining of a loan of 220 milligrams of radium from the British Government in 1920. He was glad to say that Dr. Stevenson's priority respecting the introduction of the needle technique was freely recognized in a very important paper by James Ewing of the Memorial Hospital, New York, and that the method had been standardized in the Radium Institute of the University of Paris. A recent addition to the needle technique was the introduction of hollow needles which would emit radiations of very differing strengths from opposite sides of the needle. These needles were, in fact, bi-radiant, and their use would be valuable where it was desirable to radiate a tumour uniformly to its very margin, without unduly

radiating the surrounding tissues; he had been told that these conditions applied more especially to cerebral tumours. He cordially welcomed Dr. Gatenby's reference to the necessity of obtaining radium for purposes of research; he issued a warning, however, against the danger of dividing their forces. That each hospital should possess its own supply of radium was a policy of perfection; but it was one which, even if attainable, was sure to prove wasteful, for the reason that the radium must often be laid by doing nothing. To deal locally with its emanation would involve a running expense quite beyond the reach of any of their hospitals. This great expense was borne by the Royal Dublin Society, where the work was carried out under conditions involving the constant care of an experienced scientific officer, and securing absolutely reliable data as to the strength of the dosage. He would ask the boards of hospitals to hold their hands until they could combine with a view to providing their Radium Institute with a supply of radium adequate to meet the demands of research as well as of routine treatment.

Dr. Walter C. Stevenson said that between 1914 and the end of last year he had treated with beta and gamma rays, given off during the disruption of radium B, and more particularly radium C, 2,143 patients, and had records of the doses and technique employed in practically every case; this year he had treated 215 cases, making a total of 2,358. Of these, 531 were for gunshot wounds and other injuries received during the great war, this treatment having been approved by the War Office after his results had been investigated by Sir Robert Jones and his colleagues at Liverpool. When body cells were unable satisfactorily to cope with infection or disease, mild radiation had a pronounced effect, and was able to influence the tide of battle for the benefit of the patient. In regard to inoperative cancer, he said that if the case was far advanced radiation could be considered only as a palliative measure, because it was futile to cure cancer and kill the patient. Skin cancers and rodent ulcers were very amenable to radiation. Dr. Stevenson went on to speak of the treatment of non-malignant conditions where long-continued, very gentle radiation had proved most beneficial in influencing the course of chronic ailments and infections, and gave figures representing the number of cases treated to illustrate the opinion that his colleagues and others entertained of this treatment.

Professor Maurice R. J. Hayes, who proposed the motion that the Dublin University Biological Association was worthy of the support of all students of medicine and other sciences in that University, said that radiotherapy was no longer empirical; it was now an exact science. Radiation was, however, a very potent and, therefore, a very dangerous therapeutic agent. One of the essentials of therapeutics was an accurate knowledge of the quality, the dose, and the effects of the remedies they employed. A great many variables must be considered, and inattention to their control could end only in failure or disaster. Sir William I. de C. Wheeler, in seconding the resolution, said that in the Biological Association the spirit was good and the outlook was wide. He carried with him many impressions left from his apprenticeship to the association as secretary, and afterwards as president, in the old days. They were taught as students a sympathetic respect for advancing thought; they were made to realize that in a progressive science, such as medicine, books and rules and time-honoured doctrines must pass and fail, and by coming in contact with distinguished visitors and contributors they learned to honour the wisdom of the cultured mind. Everything in the State depended upon an efficient medical service, and the birthplaces of efficiency were associations such as he was addressing that night. Dr. Leonard Abrahamson and Dr. Reginald Ludford supported the motion, which was passed. Dr. Madill, in acknowledging a vote of thanks, endorsed the remarks of some of the previous speakers about the therapeutic value of radium, especially in diseases of women. It was a method of treatment full of promise, and one in which he took a great interest; he hoped something would be done very soon to provide the Dublin hospitals with a supply of radium adequate to their needs.

England and Wales.

Infantile Mortality in Kensington.

AN attempt is being made in Kensington to intensify the campaign against infant mortality and to co-ordinate the activities of general practitioners and the public health service to this end. The North Kensington Medical Society, which is composed of medical practitioners in the district, and meets monthly, arranged a meeting last summer of local practitioners and the medical staffs of the Kensington infant welfare centres, with a view to fuller co-operation. More recently, the society held a meeting on October 8th to discuss the high mortality rate in the borough for 1928; there were present as guests members of the executive committees of the Kensington and Chelsea Divisions of the British Medical Association. A circular issued in connexion with this meeting called attention to the fact that the infantile death rate in Kensington had considerably increased in the last three years, and was very high as compared with that in neighbouring boroughs. Certain conditions were cited as being possible factors in favouring infantile mortality and morbidity—namely, unsatisfactory housing conditions in parts of North Kensington; inadequate cleansing of the streets and the removal of house refuse in the same district; and the prevalence of casual employment. The chief suggestion submitted was to the effect that a system of inquiring into all infantile deaths might well be devised, and that the medical officer of health and local practitioners might co-operate in this. In the ensuing discussion no agreement was reached as to any one single cause being concerned; many factors appeared to contribute to the admittedly high death rate. Dr. James Fenton, medical officer of health for Kensington, emphasized the point that the method of allocation of births and deaths among the London boroughs by the Registrar-General increased the figure for Kensington. A resolution was subsequently passed deploring the high infantile death rate and recommending further investigation of the cause of death in all cases when this occurred under the age of 1 year. It was suggested that three members of the North Kensington Medical Society should confer with the medical officer of health with a view to devising such a scheme, or to facilitate further use being made of the existing methods of combating infantile morbidity and mortality.

Rebuilding of the Treloar Cripples' Hospital.

Concurrently with the coming of age of Lord Mayor Treloar Cripples' Hospital and College at Alton in Hampshire, the rebuilding of the institution has been started, and the foundation stone of the new wards was laid on October 22nd. The present hospital buildings are timber structures remaining from the Princess Louise Military Hospital for troops returning from the South African war. The cost of repair and upkeep of the building has reached a figure equal to the interest on the estimated capital outlay for a new building, and therefore the trustees have judged it more economical to rebuild, and thus enable the institution to be more effectively adapted to the care of crippled children. The hospital is to be rebuilt on the same site, and the plans of the architect, Mr. H. C. Smart, are for five ward-blocks, each of sixty beds, all with a southern aspect on a continuous terrace, nearly 1,000 feet long, at the same level. Provision is to be made for sun and open-air treatment, and the wards will have sliding roofs, so that it will not be necessary to wheel the cots out into the sunshine. The rebuilding is expected to cost £100,000, but it will only be completed as finances allow, and the work will be carried out without the closing of a single bed. As the founder of the institution, the late Sir William Treloar, was a distinguished Mason, and 700 lodges have contributed to the funds, it was felt to be appropriate that the stone laying should take place with Masonic ceremonial. The Pro Grand Master of the United Grand Lodge of England (Lord Ampthill) presided over the function, and had the assistance of the brethren in their regalia. The stone was tapped at the four corners

with a mawl used by a workman in Egypt some four thousand years ago, the Pro Grand Master saying, "With temperance, fortitude, prudence, and justice let our work be founded"; and afterwards, from golden vessels, corn, denoting plenty, was scattered on the stone; wine, denoting gladness, and oil, the symbol of charity, were poured; and salt was sprinkled, signifying hospitality and friendship. Sir Henry Gauvain thanked the Pro Grand Master, who, in reply, paid high tribute to the work of the resident medical superintendent and the staff. In the evening a banquet was held in the London Mansion House under the presidency of the Lord Mayor, when Viscount Burnham, in submitting the memory of the founder, mentioned that since the first patients were received in September, 1908, 5,000 children had passed through the institution, 95 per cent. of whom had been successfully treated. At present in the hospital there are 355 crippled children, and fifty crippled boys are being trained in the college.

Municipal Medical and Maternity Institutions in Hull.

Two new municipal institutions were recently opened at Hull. The first of these, the East Hull Clinic, represents an attempt to provide a complete public medical centre, combining the work hitherto carried on at the tuberculosis dispensary in Holderness-Road; ante-natal treatment in Kingston Square; dental, ophthalmic, and massage treatment in Beverley Road; light treatment in Coltman Street; radiography at Cottingham; and the supply of dried milk and nutritive preparations at Hanover Square. By collecting the corporation clinics together the medical officers concerned are now enabled to work in closer association, and team work becomes possible. The new building contains on the ground floor the ante-natal, infant welfare, radiological, orthopaedic, and light clinics, together with rooms for health visitors and food distribution, and a kitchen. On the first floor is a dental clinic with two operating rooms, a waiting room, rooms for medical officers and other members of the staff, and ophthalmic, aural, and minor ailments treatment clinics. The cost of the building has been defrayed by the Maternity and Child Welfare Committee, the contract price being £10,493; the total cost of equipment is estimated at rather over £2,000. The clinics on the first floor are primarily school medical clinics, and so come under the control of the Education Committee, which pays an appropriate rent to the Maternity and Child Welfare Committee. The other institution, which was opened on October 11th, is a maternity home and infants' hospital, situated in Hedon Road. The first maternity home in Hull was provided by Mr. and Mrs. Edwin Robson in 1912, when a house in Holderness Road was equipped as a maternity home for six patients. In 1915 the work had expanded so much that the corporation assumed the responsibility for managing the home; three years later an adjoining house was obtained, thus increasing the accommodation to fourteen beds. From 1924 the work was carried on in a corporation building at Cottingham, and in 1918 the confinements numbered 645. These buildings were required to form part of a new hospital for infectious diseases this year, and arrangements were therefore made for the adaptation of premises in Hedon Road for use as a maternity home and infants' hospital, with accommodation for forty-nine maternity beds, ten isolation beds, eight beds for nursing mothers, and sixteen cots for infants suffering from dietetic diseases. Provision is made for the instruction of twenty-four midwife pupils. It is proposed to close the maternity wards at the Poor Law institutions next April and to undertake all the work now being carried on there in the new maternity home. The corporation is also responsible for a service of municipal midwives, who attend patients in their homes; in 1928 440 women were so visited. All who apply for admission to the maternity home, or for the services of a municipal midwife, attend the corporation clinic for ante-natal supervision. The patients either contribute three guineas a week, or, if they cannot afford this, they are assessed in accordance with an income scale, the usual charge being from £1 to £2 a week. The maternity home consists of six pavilions and an administrative block accommodating a resident medical officer, a matron, and the nursing and domestic staffs. One pavilion is devoted to the treatment of expectant mothers infected with venereal disease. It is hoped that this new institution will suffice permanently for the public maternity needs of the city, and that as increasing use is made of it the maternal mortality and morbidity of Hull will diminish.

Chelsea Clinical Society.

A large number of members with their guests were present at the annual dinner of the Chelsea Clinical Society, which was held at the Hotel Rembrandt on October 22nd. The president, Mr. L. A. Harwood, was in the chair, and among the official guests were the Lord Chief Justice (Lord Hewart); Lieutenant-General H. B. Faweus, Director-General A.M.S.; Sir William Hale-White; and the presidents of the Harveian Society, the Hunterian Society, and the West London Medico-Chirurgical Society. Dr. Halls Dally, who proposed the toast of the "Chelsea Clinical Society," paid a tribute to its president, who, he said, both as a civilian and as brevet-colonel to the City of London Field Ambulance, had shed lustre upon the profession to which he belonged. He appreciated the nicety with which the society, by its practice of combining each of its clinical meetings with an informal dinner party, had succeeded in balancing the two chief aims of a medical society, which were the fostering of high intellectual endeavour, and the promotion of good fellowship. In his reply the president said that the society was in a flourishing condition; the clinical meetings had been well attended, and he believed that the interesting programme for the coming session would attract even larger attendances in the future. On behalf of the members he thanked the officers of the society, whose constant work behind the scenes had contributed so much to its success. Dr. Eckenstein succeeded in weaving into a witty speech graceful reference to the visitors. Lord Hewart began his reply by suggesting that the model after-dinner speech was made by an eminent peer who, many years ago at a whitebait feast at Greenwich, said, "I will follow the excellent example of these excellent little fishes: drink a great deal and say nothing"; fortunately, however, he made no attempt to live up to this standard of post-prandial oratory. General Faweus, who also replied, spoke of the happy relations that exist between the civilian and military branches of the medical profession, and appealed to those who had been members of the Army Medical Services during the war to maintain touch with their old corps.

Correspondence.

A SIMPLE CHEMICAL TEST FOR PREGNANCY.

SIR,—The Zondek-Aschheim test for pregnancy,[1] which consists in the injection of urine into an immature female mouse, has proved to be of considerable service. In practice it has its drawbacks. It requires that a large stock of immature female mice shall always be maintained, and therefore the test is bound to be expensive. It requires also that the specimens shall be sent by post, a procedure that is apt to become a nuisance. Manifestly it would be far better if some test which could be carried out by the practitioner himself, and which did not involve the use of mice, could be devised. An attempt to provide such a test has been made.

In view of the fact that a connexion has been demonstrated between the elaborated products of the pituitary and compounds of the β-iminazolyl type (histamine, histidine, and tethelin), it was thought advisable to test for the presence of such substances in the urine of pregnant women which has been sent here to the pregnancy diagnosis station for examination by the Zondek-Aschheim test.

The chemical method employed was that described by Knoop[2] for the detection of histidine (see also Hunter[3]). 2.5 c.cm. of urine is pipetted into a soft glass test tube (6 in. by 3/4 in.), and 1 c.cm. of bromine water is added.

[1] Zondek and Aschheim: *Die Umschau*, 1928, xxxii, 805.
[2] Knoop: *Beiträge*, 1908, xi, 255.
[3] Hunter: *Biochem. Journ.*, 1922, xvi, 637–9.

This latter consists of one part of bromine water of the ordinary laboratory strength, diluted with twice its volume of tap water. The mixture should be brought to the boiling point, when a positive reaction is indicated by the presence of a pink coloration, which rapidly fades, however. In a negative reaction the original yellow colour is maintained.

It should be noted that the hydrogen-ion concentration of the urine will effect these results, and as changes occur with bacterial contamination, this especially should be avoided. All the urines examined were five to seven days old. If to male, or non-pregnant female, urine a small trace of histidine is added a positive reaction is obtained, whereas the addition of urea, alloxantin, xanthin, alloxan, or arginine to such urine yields a negative result. It would thus appear that the test possesses a certain degree of specificity.

Up to the present 60 urines have been examined, and the results may be tabulated as follows:

Zondek-Aschheim test positive; this test positive ...	24 cases
Zondek-Aschheim test positive; this test negative ...	1 case
Zondek-Aschheim test negative; this test positive ...	2 cases
Zondek-Aschheim test negative; this test negative...	33 cases

The correlation between these two tests has been worked out according to the Pearsonian formula, and χ^2 is shown to possess a value of 48.41, which indicates that a very close relation exists between the findings of these two tests.—I am, etc.,

CECIL I. B. VOGE, B.Sc., Ph.D.

Animal Breeding Research Department,
Edinburgh, Oct. 22nd.

THE CONSTITUTIONAL FACTOR IN EPILEPSY.

SIR,—In his interesting and informative address on the epilepsies (October 26th, p. 745), Dr. Kinnier Wilson includes one paragraph which seems to betray a confusion of thought, or maybe it is only a confusion of expression. In either case it calls for correction. I refer to his paragraph dealing with inheritance, and more particularly to that sentence in which he says: "Twenty-one years of practice and hospital experience have long since convinced me that the hereditary factor is persistently overrated and the personal or constitutional factor underrated." Now this seems to me to contain a direct contradiction, for by "constitution" most physicians and geneticists imply precisely that which is inherited, and the accepted meaning of a "constitutional" disease is one dependent, in part at any rate, upon constitution, or, in other words, upon the germ-plasm. Moxon, writing ten years before Weismann, was, I believe, the first to suggest this as the proper usage for the adjective "constitutional." If we exclude anatomical peculiarities such as supernumerary digits, and physiological defects such as haemophilia, there are few "diseases" which may be said to be inherited in the sense of being both familial and evident from birth and through life. But, in addition to the inheritance of morbid structures and morbid functions, we recognize also the inheritance of morbid dispositions, and of such are those which incline to gout, asthma, and epilepsy. The argument for inheritance as a factor in the development of these disorders is as good as it is in the case of longevity or superior mental ability. Predispositions or diatheses may be considered biologically as variations, and as such may be favourable or unfavourable. In the consummation of a diathesis there is a part played (*a*) by the constitutional or blastogenic factor, and (*b*) by extrinsic or environmental factors. Viewed in this light it is impossible to exclude epilepsy from among the constitutional disorders.

Dr. Kinnier Wilson's epileptic twins supply one of the strongest arguments in favour of the influence of the germ-plasm. The fact that a family history is not obtained in more than 25 or 30 per cent. of all cases of epilepsy (higher figures are given for asthma and gout, but here the expectation of life and fertility is greater) can scarcely, as Dr. Kinnier Wilson seems to suggest, be advanced as an argument against the influence of inheritance. Rather would it be surprising if the figures were higher, when due allowance is made for the influences calculated to dilute existing strains, for inadequate data, and for the circumstance that a certain proportion only of all the victims of a diathesis (or unfavourable variation) meet the determining noxa and develop the disease. As it is, most physicians would, I believe, agree that a positive family history is sufficiently frequent in epilepsy to be helpful in diagnosis.

Perhaps I may appear too particular in asking for a clearer definition in matters of this kind, yet I cannot but think that in medicine, which is a branch of biology, we are too open to the accusation of neglect of the important science of genetics, and if, as I hope, our profession is some day to lead the van, both educationally and politically, in the eugenic crusade, it is time we became more particular.—I am, etc.,

London, W.1, Oct. 28th. J. A. RYLE.

TUBERCULOSIS OF THE LARYNX.

SIR,—In his admirable paper on tuberculosis of the larynx in the recent issue of the *British Medical Journal* (p. 750) the distinguished writer expresses disappointment with the result of alcoholic injection of the superior laryngeal nerve for the relief of pain in this disease. I have used it many times and have almost invariably found it successful, and I have frequently been specially requested by my colleagues to carry it out in cases under their care. The effect is often quite dramatic, and many patients whose faces present a picture of misery, with distressing contortions on swallowing, are almost immediately after the injection able to swallow without pain and to show faces wreathed with smiles. The relief may last for days or weeks, and even permanently if the reaction of concomitant appropriate treatment is favourable.

The injection is indicated mainly in advanced cases when the ulceration in the larynx is too extensive for galvano-cauterization (see *British Medical Journal*, August 17th, p. 325). I think it is most effective when the ulceration is confined mainly to the aryteno-epiglottic folds, and least when the epiglottis is the chief site. The part taken by the superior laryngeal nerve in the innervation of the epiglottis is probably limited and is shared with the glosso-pharyngeal. Fortunately the epiglottis is accessible for other treatment.

I may state that I always inject in the thyro-hyoid space (*Lancet*, June 25th, 1910), where the nerve is so directly accessible that *it should be quite possible for the practitioner in charge to make the injection himself.* This is all the more desirable if facilities for the galvano-caustic treatment are not available.

Hoping that this suggestion may be helpful to those of your readers who have to deal with this very distressing class of case, I am, etc.,

London, Oct. 28th. JAMES DUNDAS-GRANT.

THE CONTROL OF MEASLES.

SIR,—I was much interested to read, in Dr. John D'Ewart's letter in your issue of October 19th (p. 737), the statement that "the mortality and morbidity of measles are the measure of the incidence of rickets." I have for some years held the same opinion from experience gained in Glasgow and Motherwell, and I do not recollect having seen it stated so precisely before. At various conferences in London and elsewhere, during the last three or four years, in discussing ultra-violet light work, I have stated that "most of the mortality from measles (and possibly whooping-cough) is, in my experience, associated with rickets, and I believe that the best way to prevent this mortality is not by the expensive method of hospital treatment of measles, but by the systematic eradication of rickets in infants."

This is a proposition of the highest importance to the public health, and its truth or otherwise should not be incapable of demonstration. I wish, however, now to supplement Dr. D'Ewart's remarks by suggesting that in any scheme for the prevention and cure of rickets exposure to light should be given a place not subsidiary to the provision of an adequate vitamin-containing diet. Throughout the summer, even in northern districts, much can be accomplished by teaching mothers to take every

available opportunity of exposing the skin of infants wholly or partially to sunlight, even for a few minutes per day. When these measures have failed and the first signs of rickets appear (how seldom are they looked for, how seldom diagnosed!) the ultra-violet light clinic, I believe, still holds the premier place as a therapeutic measure, not only for curing rickets, but for raising the standard of general health.—I am, etc.,

H. Stanley Banks;
Medical Superintendent.

Isolation Hospital and Sanatorium, Leicester, Oct. 22nd.

TREATMENT OF INFECTIONS WITH S.U.P. 36.

Sir,—With reference to my article on the treatment of influenza by S.U.P. 36 in the *Journal* of October 12th (p. 662), I have received several letters from epidemiologists interested pointing out that there is a serious omission in not giving the exact number of the control non-injected cases. It is also pointed out that the exact figures for each case, both of the non-injected as well as of the injected, should be given.

In the original typescript there was a table giving these figures in detail; this was omitted to save space. I myself suggested that it was not really necessary to print this. On consideration, however, it seems to be rather important, as its omission suggests that my controls might have been few and my records of their progress scanty. I would therefore ask you to be good enough to publish the table with this short explanation as an addendum to my paper.

May I take this opportunity of disclaiming any responsibility whatsoever for the offensive and misleading publicity which has been given to my paper in the lay press?—I am, etc.,

R. M. Pearce.

Halifax, Oct. 18th.

*** We appreciate Dr. Pearce's desire that the exact figures for each case—non-injected as well as injected—should be given, and gladly accede to his request for publication of his table. It is as follows (patients' initials have been omitted).

Patients Not Injected.							Patients Injected.						
Case.	Sex and Age.	P.	H.	M.P.	D.B.	D.W.	Case.	Sex and Age.	P.	H.	M.P.	D.B.	D.W.
1	F. 30	3	4	4	5	10	1a	M. 26	1	1	2	3	7
2	F. 52	3	2	7	8	21	2a	M. 19	1	1	2	3	14
3	F. 30	2	2	5	4	14	3a	M. 40	1	1	3	1	6
4	F. 48	4	1	4	5	21	4a	M. 35	1	1	1	2	6
5	F. 55	5	3	3	8	24	5a	M. 24	1	½	1	3	7
6	F. 38	3	2	2	6	23	6a	F. 29	3	2	2	3	9
7	F. 40	4	1	6	6	18	7a	F. 27	1	½	½	2	4
8	M. 44	3	2	3	6	14	8a	F. 32	1	1	1	3	10
9	F. 23	3	3	3	7	15	9a	F. 28	1	½	½	2	5
10	F. 26	2	2	2	6	13	10a	M. 46	2	2	3	5	12
11	F. 24	3	1	1	4	14	11a	M. 57	2	1	2	4	14
12	M. 3	2	1	1	4	12	12a	F. 35	1	1	1	3	6
13	M. 30	3	3	2	6	21	13a	M. 3	2	1	1	4	6
14	M. 34	2	1	2	4	12	14a	F. 3	1	½	½	2	6
15	M. 23	2	2	2	4	12	15a	F. 24	1	1	1	5	10
16	F. 30	2	2	2	4	13	16a	F. 35	1	1	1	1	2
17	F. 24	3	4	5	6	11	17a	M. 40	1	2	1	4	7
18	M. 40	4	2	6	7	23	18a	F. 27	2	2	2	5	25
19	M. 50	3	1	5	5	21	19a	F. 30	1	½	1	2	3
20	F. 30	3	2	3	5	12	20a	F. 25	2	1	5	7	10
21	M. 50	3	2	3	6	21	21a	M. 31	1	1	1	2	7
22	F. 52	4	2	2	6	14	22a	F. 28	2	1	1	2	9
23	M. 30	2	2	4	6	14	23a	M. 40	2	1	2	3	10
24	F. 24	3	3	5	7	14	24a	M. 26	1	1	2	2	3
25	F. 40	2	2	2	5	14	25a	M. 31	1	1	3	4	7
26	M. 34	3	2	4	5	10	26a	M. 45	1	½	½	1	1
27	M. 25	2	2	2	5	12	*27a	—	—	—	—	—	—
28	M. 27	3	3	5	7	18	28a	M. 40	1	1	1	5	9
29	F. 28	2	3	2	5	16	29a	F. 19	4	1	1	5	8
30	M. 31	4	2	7	8	22	30a	F. 49	1	½	1	1	2
							31a	M. 60	1	1	1	1	1
							32a	F. 53	1	1	1	3	7
							33a	M. 5	1	½	½	3	5
							34a	M. 56	1	1	½	2	8
							35a	M. 48	3	2	2	5	10
							36a	F. 25	2	1	2	5	8
							37a	M. 43	2	1	1	2	4
							38a	M. 49	1	1	1	2	6
							39a	F. 24	1	½	1	2	4
							40a	F. 25	1	1	1	2	5
							41a	M. 35	1	1	1	2	4
							42a	Self	1	1	1	1	2

*This patient (case 27a) developed pneumonia.

P=Average duration of pyrexia in days. H=Average duration of headache in days. M.P.=Average duration of muscular pain in days. D.B.=Average number of days in bed. D.W.=Average number of days off work.

Sir,—The following observations upon the action of S.U.P. 36 and its allied compounds are put forward partly as a tribute to the genius of Mr. J. E. R. McDonagh, and partly to correct an impression gained from Dr. Thomson Brown's letter (October 26th, p. 785) that the utility of S.U.P. 36 begins and ends with catarrhal conditions. This is one of the hardest fields on which to assess its merits. I have been using these drugs since their commercial inception, and, like Dr. Douthwaite (October 19th, p. 739), I was disappointed with their effect in the first series of catarrhal conditions that I treated. The few rapid cures that occurred might have been explained by coincidence, particularly as I myself did not respond to injections for colds in any dramatic manner. I was subsequently induced to read the two volumes of *The Nature of Disease*, after which my interest in these remedies was renewed.

In order that the use of S.U.P. 36 may not suffer an untimely extinction its limitations must be realized. The whole conception of this group of drugs is founded upon a pathological theory which must be accepted, at any rate in part, as a working basis for their rational exposition. This theory is apparently so opposed to any classical teaching that we all must hesitate before admitting its truth. Ultimately one is convinced that the broad outlines are in accord with observed facts, and that the theory represents the nearest attempt yet made to reduce clinical medicine to an exact science. I give a brief list of diseases in whose treatment S.U.P. 36 has proved specific.

Hyperemesis Graviarum.—In severe vomiting of pregnancy 0.01 gram daily till vomiting ceases: I have never had to give more than three doses. This result is borne out by several of my colleagues, who have so far reported no failure.

Pyelitis.—A simple case—for example, resulting from a *B. coli* infection—will yield to two or three injections of 0.01 gram on alternate days. The administration may be followed by rigors, which are slight and in no way dangerous.

Broncho-pneumonia in Children.—A daily dose of 0.005 to 0.01 gram till the temperature drops: this seems an absolute specific.

Venous Thrombosis.—I give 0.01 gram every three days for three to five doses. The results are constant and sometimes dramatic; the usual time of resolution (six weeks) is at least halved.

Osteomyelitis.—If the infection is staphylococcal S.U.P. 36 will often resolve the condition without operation, and even if suppuration occurs it is far more superficial and localized than in an untreated case. In streptococcal cases S.U.P. 468 in 0.002 gram doses is necessary to effect an improvement.

Acute Cystitis.—These cases respond well to daily doses of 0.01 gram, and resolved in a few days.

Acute Mastoiditis.—I have treated with S.U.P. 36 every case of acute mastoiditis that has come under my care in five practices for two and a half years, and every one has resolved after two successive doses of 0.01 gram, leaving, in two cases, an otitis media, which soon cleared up of itself, and in the others septic tonsils, which were subsequently removed. As a routine these patients should be admitted to hospital or carefully watched, as it is too dangerous to regard the results of so small a series as evidence of a certain cure. So far, however, an immediate improvement has occurred from the first, and after the first twelve hours local surgical intervention has become quite unnecessary.

For the past two years every patient of mine submitted to major operation in the Victoria Hospital, Deal, has received 0.01 gram of S.U.P. 36 before operation, with a view to diminishing or preventing post-anaesthetic vomiting. That this result is achieved is difficult to prove, as most patients vomit at least once on returning to consciousness. A definite improvement in their general condition the day after operation is certainly evident. On no account should S.U.P. 36 be given during or immediately after anaesthesia, as there is grave risk of inducing pulmonary thrombosis; I have given it safely eight hours after operation. Post-operative pneumonia does not occur, even after partial gastrectomy; and post-operative sepsis and stitch abscesses are reduced almost to *nil*.

In conclusion, may I suggest to Dr. Thomson Brown that the specific for boils is manganese butyrate in 1 c.cm. doses of a 1 per cent. solution, and that a streptococcal infection of the throat will rapidly resolve with S.U.P. 468. So also will erysipelas and barber's rash, both of which are refractory to ordinary therapeutic measures.—I am, etc.,

James S. Hall.

Walmer, Oct. 26th.

ETIOLOGY OF RHEUMATISM.

Sir,—The second conclusion of Drs. Nabarro and MacDonald (*British Medical Journal*, October 26th, p. 759) states:

"This absence of difference fits in with the theory that there is no specific streptococcus which is the cause of rheumatism, but that the condition is due to a hypersensitiveness resulting from repeated small doses of toxin."

The term "toxin" could be elucidated further with some advantage, taking into consideration the recent work of Hitchcock, Lancefield, and others. Miss Lancefield[1] has isolated from the streptococcus three fractions: (1) a non-specific protein fraction; (2) a type-specific protein fraction; (3) a species specific carbohydrate. Of these, only No. 1 is a true antigen, and produces an antibody on injection; the other fractions do not produce antibodies when injected alone. Miss Lancefield has further shown that the nucleo-proteins of the non-haemolytic type are essentially alike in serological reactions,[2] and that there is a close relationship between the nucleo-proteins of the different strains. Hitchcock[3] has demonstrated that the nucleo-proteins of the haemolytic type are a homogeneous group. And Miss Lancefield has established that both haemolytic and non-haemolytic streptococci have a large fraction common to both nucleo-proteins.[4]

Is the toxin responsible for the hypersensitiveness the nucleo-protein which is common to the whole group of non-haemolytic streptococci? If so, an explanation is provided for the small importance of the type or variety of streptococcus involved. Rich[5] has shown that the allergic reaction is the property of the body cells rather than the fluids, and is an antigen-antibody reaction. This hypothesis would suggest that those symptoms of rheumatism due to hypersensitiveness are the resultant between the liberated nucleo-protein, common to all non-haemolytic streptococci, and the sensitized cells of the host.

This explanation, however, will not cover all the manifestations of rheumatism. Rich has suggested that the Aschoff body is analogous to the tubercle. Tubercle formation is claimed by Anderson[6] to be due to the lipoid fraction of Koch's bacillus. There is therefore a need for further research into the roles played by other constituents of the streptococcus in the causation of rheumatic disease.—I am, etc.,

Bristol, Oct. 28th. FRANK BODMAN.

TONSILLECTOMY AND RHEUMATISM.

Sir,—Drs. Nabarro and MacDonald, in their article on the bacteriology of the tonsils in relation to rheumatism in children, published in the *British Medical Journal* of October 26th (p. 758), quote many authorities who favour tonsillectomy as a prophylactic and therapeutic measure in rheumatic fever. They have entirely ignored the numerous investigators who have shown that tonsillectomy in this disease is of little, if any, value. With all deference, I would like to submit that the only fair summary of the evidence at present available is an admission that no adequate case has yet been made out either for or against this operation, and that "the undoubted advantages to be obtained from tonsillectomy in rheumatism" are only apparent after a biased consideration of the evidence.—I am, etc.,

London, W., Oct. 28th. A. ARNOLD OSMAN.

*** An article on tonsillectomy in the prevention and treatment of rheumatism, by Professor Leonard Findlay, Dr. James W. Macfarlane, and Dr. Mary M. Stevenson, of Glasgow, appears in the October issue of the *Archives of Disease in Childhood*, published by the British Medical Association.—Ed., *B.M.J.*

[1] Lancefield: *Journ. Exper. Med.*, xlvii, 91.
[2] Idem: Ibid., xlvi, 377.
[3] Hitchcock: Ibid., xli, 13.
[4] Lancefield: Ibid., xlvi, 397.
[5] Rich: *Arch. Int. Med.*, xlvii, 691.
[6] Anderson: Quoted in *Presse Méd.*, June 8th, 1929.

THE BURDEN OF DEAFNESS.

Sir,—The wearing of spectacles to aid the sight has been a common habit for so long that no one whose eyes are defective makes any fuss about it. But many people who are partially deaf are so self-conscious about the use of an instrument to aid their hearing that their disability becomes a burden to themselves and to their relations and friends. It is also a nuisance to everyone they have to speak to in daily life. The sufferer from deafness, if he refuses to avail himself of the help afforded by an instrument, hears, or partly hears, only a small amount of what is going on around him. Consequently his life is one of continual misunderstandings. In addition to this, he is always saying "What?" and straining forward to hear what is said. He does not hear unless people shout at him. He himself is liable to shout, because he cannot hear his own voice plainly, and so everyone within earshot hears what he has to say, whether it is a suitable subject for broadcasting or not. There is no privacy or decent reticence when such a deaf person is about.

The deaf, unaided by a suitable appliance, not only exhaust themselves with shouting and straining to hear, but may become an intolerable strain to their families, who have daily and hourly to repeat everything they say, and tire themselves out with their efforts. "There are none so deaf as those who won't hear" is a proverb which all deaf people may take to heart. A totally deaf person is a great rarity. There is hardly one who cannot hear quite well enough through an ordinary speaking tube. Aids for the deaf, whether they consist of ear trumpets, speaking tubes, or electrical instruments, are now so good that all can carry on a conversation in a normal tone of voice.

It is true that ear specialists can do much to prevent deafness, and to improve the hearing of those who have become deaf. In fact, many cases can be quite cured. But there is a very large residue of incurably deaf who could hear perfectly well if a false pride, or failure to appreciate the efficiency of the appliances devised to help them, did not stand in their way. It is only right that their friends and relations should know these facts in order to save themselves and the person afflicted with deafness an immense amount of unnecessary trouble. Great as is the disability inflicted by deafness—and I would be the last to minimize this—it is yet true that deaf people have some advantages which are denied to others; they need not hear if they would rather not, and in a world confronted with the problem of increasing noise this is a blessing. Furthermore, their very gesture of handing the mouthpiece of a speaking tube to an acquaintance is a request to him to say something worth hearing.

I should add that what I have written applies only to some deaf persons. There are, of course, others who behave habitually with the utmost consideration in order that their infirmity may cause the least possible inconvenience to others. I would not like to be thought—nor am I—lacking in sympathy for the deaf.—I am, etc.,

London, Oct. 22nd. H. MORTIMER WHARRY.

TWIN BREECH CONFINEMENT.

Sir,—The occurrence of a twin breech presentation is a matter of interest, but is it anything like as rare as suggested by Dr. F. G. Cawston (*British Medical Journal*, October 19th, p. 718)? According to Spiegelberg, in a series of 1,138 cases 8.6 per cent. both presented by the breech; the percentage according to Balfour Marshall is 9, and that given by T. W. Eden is 10.7. I take it that these percentages apply to all twin confinements. It is well known and quite obvious that malpresentation is more likely to occur in cases of twin labour than in labour with a single child. It is generally accepted, as stated by Dr. Cawston, that only one in sixty breech presentations comes to full term, but does this in any way affect the question of twin pregnancy? I think not, and according to the figures given I would expect one twin breech presentation

in every 900 to 1,000 births. If twins occur once in eighty confinements, as stated in Herman's *Difficult Labour* (Carlton Oldfield, 1920) and the percentage of double breech presentation is taken at ten, then the frequency would be increased to 1 in 800.—I am, etc.,

Huddersfield, Oct. 28th. S. H. WADDY.

LATE RESULTS OF ARTIFICIAL PNEUMOTHORAX.

SIR,—The value of collective methods of investigation has recently been emphasized by the success of the British Medical Association's inquiry into the treatment of varicose ulcers. Might I suggest that statistical evidence of great value might result from a similar inquiry into the late results of artificial pneumothorax therapy?

That this method of treatment is of real value is suggested by the fact that all those who have practised it on any considerable number of patients are unanimous in its praise; this was well shown by Burrell and McNalty (Report of Medical Research Council, No. 67). In order to convince the sceptic, however, statistical evidence is necessary. Artificial pneumothorax is no new form of treatment, and such evidence should be obtainable now. The published results of certain foreign investigators, such as Saugman and the Matsons and Bisailloa, are valuable and suggestive, but to bring conviction they need the confirmation of a carefully controlled inquiry on a large scale. I suggest that a questionary sent to various institutions and individuals in this country might yield very valuable data. For instance, the survival rate of patients four years after commencement of artificial pneumothorax treatment might be compared with the survival rate of putum-positive patients who have been subjected to other methods of treatment. If artificial pneumothorax is of real value then many lives are being needlessly lost.—I am, etc.,

Burley, Hants, Oct. 26th. R. L. OSMASTON, M.R.C.S., L.R.C.P.

Obituary.

WILLIAM BEVAN-LEWIS, M.Sc., M.R.C.S.,

Late Professor of Mental Diseases and Examiner in the University of Leeds.

WE regret to record the death of Dr. W. Bevan-Lewis on October 14th, at the age of 82.

William Bevan-Lewis was born at Cardigan, and received his medical education at Guy's Hospital; he obtained the diplomas M.R.C.S., L.R.C.P., and L.S.A. in 1868. After four years spent in private practice at Burry Port he joined the staff of the West Riding Asylum at Wakefield, becoming successively pathologist, senior assistant, medical officer, and, lastly, medical superintendent and director. While he was at Wakefield he inaugurated the new hospital for acute mental diseases, the new home for the imbecile and feeble-minded, and an out-patients' department. He was also responsible for a complete re-modelling of the pathological department. After thirty-five years' work at the Asylum he joined the staff of the University of Leeds, where he was lecturer, examiner, and, subsequently, professor of mental diseases. Dr. Bevan-Lewis was a member of the British Medical Association, and was president of the Section of Psychological Medicine at the Annual Meeting at Nottingham in 1892. He was also vice-president of the Physiological Section when the British Association met at York in 1906. He was the author of a number of text-books and publications on mental disease, including a *Students' Manual of Examination of the Human Brain*, a *Text-Book of Mental Diseases*, and the section devoted to the general pathology of the nervous system in Allbutt's *System of Medicine*.

We are indebted to Sir JAMES CRICHTON-BROWNE for the following appreciation.

With Dr. William Bevan-Lewis has passed away one of the most diligent and productive of labourers in the field of medical psychology in this country during the last quarter of the last century and the first decade of that through which we are hurrying along. With few outside interests, he was wedded to medical psychology, regarded it with an affection only second to that which he bestowed on his over-helpful wife, and notably contributed to its advancement, on both its practical and scientific sides.

After completing his studies at Guy's Hospital, and qualifying, Bevan-Lewis, then 21 years old, became assistant medical officer at the Buckingham County Asylum, but after being there for two years, and having married, yielding to the wish of his family, he commenced private practice in Cardigan, his native town. But he had been strongly attracted to the study of mental disease, and the call of the laboratory was upon him. He soon found that his occupation in a mountainous district of Wales was uncongenial, and left him no opportunity for the research work in which he earnestly desired to engage. He sought, therefore, to re-enter the lunatic asylum service, but at that time there was not an asylum in England that provided accommodation for a married assistant medical officer, and so, after several attempts, he failed to get his foot on that ladder again. He ultimately, as a forlorn hope, applied to me, I was on the look-out for talent, and happily discerned his zeal and ability. I succeeded in making the necessary arrangements, so that he and his wife took up their abode at the West Riding Asylum in the beginning of 1875. He came there as a clinical assistant without pay, though board and lodging were provided, but promotion was rapid at the West Riding Asylum in those days, and within a few months he was appointed medical assistant and pathologist. In that capacity he continued to act under my medical directorship until I became a Chancery Visitor in April, 1876. My official relations with him were of the happiest description, and ripened into warm friendship, which subsisted unchilled until his death.

During the eight years after I left Wakefield I was in constant communication with Bevan-Lewis, and knew what excellent work he was doing in the research laboratory and as deputy medical director, which he had become; but I confess that when he was appointed to the chief charge in succession to Dr. Herbert Major, in 1884, I had doubts whether, with all his ability, the somewhat delicate, studious, and retiring subaltern, with keen Cymric sensibility, would be equal to the administrative control of a great mental hospital with 1,600 beds, gradually expanding, and with a certain reputation to maintain. His predecessor had found the burden too oppressive. But "as thy days, so shall thy strength be," and my doubts were speedily dissipated. From the first Bevan-Lewis, by his rectitude, assiduity, and modest self-possession, secured the confidence of his staff and his committee, and for twenty-six years he remained the trusted and esteemed head of the institution and the beloved physician at the bedside.

Not only did Bevan-Lewis maintain unsullied the best traditions of the West Riding Asylum, but he extended its usefulness and introduced some new developments. He created a dispensary or out-patient department, the first experiment of the kind attempted in an asylum in this country; he made special provision for the education and training of the weak-minded; he established a reception block, furnished with all the most modern apparatus for clinical observation and research; and he constituted the asylum in some measure a post-graduate school, for he opened it for short periods of residence to young medical men anxious to obtain some special knowledge of mental and nervous disease. Many who availed themselves of the privilege thus offered, and who have since attained professional distinction, together with many of the students who attended his class at the Leeds School of Medicine, afterwards the University of Leeds, will bear testimony to the stimulating nature of his teaching, and to the charm and encouragement of his personal influence.

Of Bevan-Lewis's manifold scientific labours and achievements it is impossible to give here anything but the barest outline. His first contribution to medico-psychological literature was a paper published in the *West Riding Asylum Medical Reports* for 1875, on "The histology of the sciatic nerve in general paralysis"; in this he described degenerative changes in peripheral nerves in the advanced stages of that disease, and correlated these with the spinal changes in locomotor ataxia. This was followed in the *Reports* of 1876 by a careful calorimetric study of "The influence of

various alkaloids on the generation of animal heat." In the *Proceedings of the Royal Society* for 1878 there appeared a paper on "The lamination of the motor area of the brain," and in *Brain* of the same year there was a paper on "The comparative structure of the cerebral cortex," which was the starting-point of those discoveries in histological localization of the cerebral cortex by which he will be best remembered. While on the editorial staff of *Brain* I received from Bevan-Lewis invaluable assistance, and it was in its pages that appeared the series of articles on "The methods of preparing, demonstrating, and examining cerebral structure in health and disease," which were afterwards collected in book form with the title of *The Human Brain: Histological and Coarse Methods of Research*, and published in 1882.

It was in 1889 that Bevan-Lewis issued his *magnum opus*—his *Text-Book of Mental Diseases*—the product of years of elaborate investigation, a book now forty years old, but that still in many respects holds its own, and has not been altogether squeezed out by the multitude of textbooks that have since emerged, especially in the United States. The *Text-Book* is much more than a textbook, being really a compendious system of psychological medicine. It embodies all the author's histological observations, with admirable illustrations; it supplies life-like studies of the symptoms of the various forms of mental disease, studies that could not be bettered to-day. There have, of course, been great advances in etiology and treatment since the *Text-Book* was written, but in its clinical and pathological sections it is still abreast of our knowledge of to-day. Enormous pains were expended on its preparation, and it is singularly lucid in style. In later years Bevan-Lewis continued to contribute to *Brain* and the *Journal of Mental Science* thoughtful essays on alcoholism, crime, and insanity; on the neuron theory; and on rest and sleep.

Bevan-Lewis received the honorary M.Sc. degree of the University of Leeds in 1905, and was president of the Medico-Psychological Association in the same year. The value of his work has been fully appreciated by his own specialty at home and abroad, and has been widely recognized by the profession at large. That it did not receive the higher acknowledgement it deserved was no fault of mine or of Sir David Ferrier. One of the gentlest and most unobtrusive of men in an age when notoriety is the universal quest, Bevan-Lewis persistently kept himself in the background.

ROBERT JAMES SMITH, O.B.E., M.B., B.Ch.,

Coroner to the City of Cardiff, and Past-Chairman of the Cardiff Division.

THE sudden death, on October 23rd, of Dr. R. J. Smith, which occurred in a nursing home at Chichester while he was on holiday, removes from the public life of Cardiff not only a distinguished medical practitioner, but also one of her leading citizens.

Robert James Smith, born fifty-seven years ago in Middleton, County Cork, the son of the late Rev. John A. Smith, chaplain to H.M. Prisons, received his medical education at Queen's College, Cork, and University College, Cardiff. In 1896 he graduated M.B., B.Ch., B.A.O. of the Royal University of Ireland, and obtained the D.P.H. of the Royal Colleges of Physicians and Surgeons of Ireland in 1911. In 1897 he went to Cardiff to take up an assistantship. Despite the obligations incurred by a busy general practice, he always took a keen interest in municipal affairs, and in 1903 he was elected to the city council to represent the Grangetown Ward in the Conservative interest. He held this seat for eighteen years, and weathered many contests until his resignation in 1924, on his appointment to the office of city coroner. During this period he acted on many municipal committees, of some of which he was chairman; he was elected alderman in 1909, and in 1915 was elected Lord Mayor of Cardiff, being one of the youngest and most popular men who have held this office. His public interests were many, and he gave of his time unstintingly to them. He was chairman of the Grangetown Old Age Pensions Committee, and of the Cardiff and County Public Health Laboratory Joint Committee; he was also lecturer to the St. John Ambulance Association and to the Red Cross Society. His professional interests were equally wide. He was a member of the board of management of Cardiff Royal Infirmary, a member of council of University College of South Wales and Monmouthshire, and physician to the Welsh Metropolitan War Hospital; he held a commission in the R.A.M.C. during the latter part of the war, and was awarded the O.B.E. for his services. He was also an active member of the British Medical Association, and during the Insurance Act disputes became very prominent; in 1913-14 he was chairman of the Cardiff Division of the Association.

A colleague writes: It was in his personality that Dr. Robert Smith excelled. With the fluent tongue of his country he was a ready speaker and debater; he was always prepared to give and take the hardest knocks, but he took them in the best of spirits, and expected them to be accepted by others in the same way. He never harboured malice or ill feeling, and any underhand action or unjust thought regarding a man was impossible in him. In his duties as coroner he was most kindly and tactful, and always anxious to save the feelings of relatives of the deceased. He held his duties and his profession in the highest regard. Formerly a most active man, he contracted a slight hemiplegia a few years ago, and, although he made a most satisfactory recovery, he was never since then the same old "R. J." that we knew. The spring was loosened, and he quite suddenly became an elderly man. The death of a brother and a sister during the present year was a great blow to him, and saddened his latter days. He was a bachelor, and lived with his devoted twin sister, Miss M. A. Smith, to whom widespread sympathy is extended at this time. The funeral, on Saturday, October 26th, was one of the largest ever seen in Cardiff. Besides relatives and a very large number of his professional colleagues and friends in Cardiff and district, the city police and the St. John Ambulance were represented, while the Lord Mayor and City Corporation were present at the graveside. The Cardiff Division of the Association was represented by Dr. Robert Walker, its chairman, and Drs. Williamson and Pearson, the honorary secretaries.

DR. HERBERT WILLIAM CHAMBERS, who died on September 20th at Worthing, was born in 1862 at Lowestoft, and received his medical education at St. Bartholomew's Hospital. He obtained the diplomas M.R.C.S., L.R.C.P. in 1884. After holding the appointment of house-surgeon at Hull Royal Infirmary, he engaged in general practice in Yorkshire for five years. In 1892 he came to London, where he practised for thirty-five years, until his retirement in 1927, when he went to Worthing. He became a member of the British Medical Association soon after qualifying, and was subsequently elected vice-president of the Metropolitan Counties Branch and chairman of the Kensington Division. Throughout his professional career he was devoted to the West London Medico-Chirurgical Society, which he joined in 1892. He soon became a personal friend of many on the staff of the West London Hospital, among whom, in the early days, was Charles Bell Keetley, F.R.C.S., the founder of the society. Dr. Chambers's close friendship and association with Keetley did much to inspire his lifelong interest in this society. He was editor of the society's journal for many years, secretary, and, finally, president in 1919, afterwards remaining on the council until recently. His presidential address was entitled "The history of London medical societies." Dr. Chambers also took a deep interest in the Invalid Children's Aid Association, and was chairman of the Hammersmith branch. He was an ardent and zealous Freemason, and held many high and important offices in the craft, where his death has been deeply deplored. He was an enthusiastic philatelist, and his collection of stamps was well known among London collectors. Throughout his life he always aimed at the highest ideals of professional conduct and practice. His personality and wide experience of his profession earned for him the lasting gratitude, respect, and esteem of patients, colleagues, and friends, to whom his loss has been a deep and personal one. Dr. J. F. Halls-Dally writes: For many years I had the great privilege of being brought into close association with

the late Herbert Chambers, and of enjoying his genial friendship. By reason of many excellencies of character he was beloved by his friends, whilst by a still larger circle of acquaintances he was also held in the highest esteem. The West London Medico-Chirurgical Society, in particular, owes his memory a deep debt of gratitude for long personal service to the society, extending over a period of thirty-seven years. During this time he gave of his best to further its aims and objects, holding as he did no fewer than six of its executive offices, including that of the presidency, to which, in 1919, he was elected after ten years' most able editorship of its journal. In Masonic circles he was a familiar and distinguished figure. Master of the Cavendish Lodge in 1914, he had been its valued treasurer since 1920. In the Freemasons Hospital he took a deep and abiding interest. His professional attainments were such as caused him to be respected alike by his patients and colleagues, and in private and public life his death is widely and severely felt.

THE LATE DR. J. DAVENPORT WINDLE.

A FORMER colleague (A. J. W.) writes:

In the death of Dr. Davenport Windle medical science and medical practice have suffered a grievous loss. My association with him dates from the pre-war days when we were both workers together in the heart wards of the old Mount Vernon Hospital at Hampstead. We were then in valued association with James Mackenzie, A. R. Cushny, and many others keenly interested in that branch of medicine. Among the keen he was one of the keenest, and as a practical exponent of the graphic method there was none superior if any equal. Windle made valuable original contributions at that time to what has become known as cardiology, particularly perhaps in respect of sinus arrhythmia in children, pulsus alternans in the aged, with special reference to prognosis, and Cheyne-Stokes breathing as met with in cases of heart disease. Devoted to the interests of the individual patient in his onerous practice, he was a source of inspiration and helpfulness to his fellow workers in hospital. Able, kindly, considerate, and unselfish, he was truly a fine example of the present-day medical practitioner.

The Services.

STANDARDIZATION OF FIELD MEDICAL EQUIPMENT.

CONGRESS OF THE PERMANENT INTERNATIONAL COMMISSION.

THE fourth meeting of the permanent international commission on the standardization of field medical equipment was held in Geneva from October 7th to the 14th. It was convened by the International Red Cross Council, and was attended by representatives of Belgium, France, Germany, Great Britain, Holland, Italy, Poland, Rumania, Spain, Sweden, and Switzerland. The permanent committee of the Congress of Medicine and Military Pharmacy was represented by its general secretary, Major J. Voncken. Inspector-General Marotte of France, who had presided over the third meeting of the international commission, was re-elected to that office, and Lieut.-Colonel van Baumberghen of Spain was elected vice-president. In a preliminary meeting it was agreed to establish liaison between the permanent committee of the International Congress of Medicine and Military Pharmacy, through the agency of the general secretary of the last-named.

Standardization of Stretchers.

As regards the adaptation of the field stretcher for conveyance by vehicles on wheels, it was agreed, in the first place, that such vehicles were undoubtedly valuable auxiliaries to the hand carriage of the wounded, especially over flat surfaces. Although it was not at present possible to adopt a standard pattern, the following characteristics were defined as being essential. Stretchers should be transportable by the ordinary or special means of conveyance, and, therefore, they should be constructed to be as *light* as possible, while being strong enough to resist all rough handling. They should be no more cumbersome than was inevitable, and any interchangeable parts should be easily detachable. Simplicity must be the keynote both as regards their construction and their carrying and setting down. The parts of which they were composed should be durable, easily and cheaply replaceable, and convenient for storing. Stretchers should be as little visible as possible when on the ground; be comfortable for wounded patients, even during motion; and be quite stable, whether moving or at rest. It ought to be possible to change at will from wheeled to manual transport, and *vice versa*, with the aid of a minimal staff. The commission issued an urgent request to the military medical authorities of the nations interested to send as soon as possible, and in any case not later than March 1st, 1930, to the medical headquarters of the Belgian army in Brussels the models in use, or being tested in their respective armies, together with details about the manner of their employment and their construction.

Adaptation of Stretchers for Transport by Air.

From a preliminary investigation which had been made of the problem of adapting field stretchers for transport by aeroplanes the commission drew the following conclusions. To prevent or minimize disturbance of the sick and wounded the aeroplanes intended for their conveyance ought to be constructed so as to receive the standardized field stretcher. Since it was obvious that the transport of the sick and wounded could not be always effected by such specially constructed aeroplanes, it was held to be desirable that military, as well as civil, aeroplanes should be adapted to carry the standardized stretcher, a matter which did not seem to raise any *a priori* difficulty. The following subjects were selected for further investigation: (1) the essential principles concerned in adapting these standardized stretchers for aerial transport; (2) the provision of absorbers to minimize shock during shoulder carrying and setting down; (3) methods of rendering ordinary aeroplanes suitable for the transport of the sick and wounded. The commission invites military medical authorities to send as soon as possible, and in any case before March 1st, 1930, to the Central Association of the Italian Red Cross in Rome, any publications, models, designs, plans, and photographs, with a view to making the catalogue fully comprehensive.

Conversion of Stretchers into Operating Tables and Beds.

The commission approved the following principles: (1) The height of the operating table appliance when in use should be 5 to 10 cm. more than that of an ordinary table. The height of the bed appliance should be 50 cm. from the ground. (2) All such appliances should be characterized by such solidarity and stability as would meet vertical, longitudinal, lateral, and diagonal strains without causing sliding over their supporting bases; the area of these bases should not exceed 10 cm. (3) The appliances might be constructed according to one or other of three designs to secure stability: provision of two supports in a special frame; or of two supports furnished by the stretcher itself; or of two separate supports. (4) Other conditions being equal, the first two of these supporting methods had been shown to be preferable to the third. (5) The first two of these designs should permit the reception at each end of a weight of 160 kilograms; in the third case each support should be able to bear this weight independently. (6) These appliances, in view of their transportability, should be of as small a bulk as possible; they must be light, involve the minimum of separable parts, and be capable of being rapidly loaded. (7) It might be worth while for these operation tables and beds to incorporate movable supporting surfaces, easily attachable to the underside of the stretcher; such surfaces would have to be as light as possible, and have no projecting portions.

The commission invites the attention of manufacturers to the following points. For fixing the supporting surfaces it is necessary to remember the differences in height and breadth of the handles, which vary according to the type of stretcher, from 2½ to 7 cm.; another point to be borne in mind is the narrowing involved by the displacement of these handles due to the weight of the patient or the nature of the canvas. It is recalled that the handles of stretchers must allow a free space of 119 cm. for their suspension or support from below, and that the supporting surface must allow on each side a margin of at least 10 cm.

Vehicles for Transport of the Sick and Wounded.

A preliminary survey of the problem of vehicular transport has made it clear that it will be best to investigate separately the applicability of horse-drawn vehicles with two or four wheels, and automobiles. In order to make a start the commission has placed on the agenda for the next session of the international commission the general characteristics which these vehicles must have. They must provide the maximum degree of comfort in bad weather and in compensating for jolting. The best forms of heating, lighting, and ventilation must be adopted. They must afford protection against gas attacks, and facilitate rapid cleansing and disinfection. They must be readily adaptable for the carriage of the standardized stretchers and the previously mentioned accessories. Loading and discharging should be easily and rapidly accomplished.

The commission urgently requests the military medical departments of the nations which are co-operating to send as soon as possible (and not later than March 1st, 1930) to the medical

headquarters of the Rumanian Army in Bucarest all documents, sketches, plans, photographs, and other information relating to such vehicles for transporting the wounded which have been, or are being, used in their armies. Details are particularly desired as regards their weight, dimensions (including length and inside width), lighting, facility for carrying stretchers, and their capability of being produced in wartime.

Medico-Legal.

A SURGEON'S FEE.

IN its issue of October 18th the *Surrey Mirror and County Post* reports a further stage in the legal proceedings by Dr. M. W. Baker and his partner, Dr. C. H. Laver, of Redhill, to which reference was made in this column on October 19th (p. 741). The amount of the fee claimed (£21), with costs, had been paid into court by the Reigate Corporation, but there was an application by the plaintiffs for costs on a higher scale.

The case was heard in the Redhill County Court on October 16th, before Judge Hill Kelly. Mr. Denning, barrister-at-law, on behalf of the plaintiffs, explained that the operation had been performed by Dr. Laver on one of the child patients at the isolation hospital for an acute mastoid. The charge of 20 guineas had been subsequently disputed by the corporation, which alleged that this was unreasonable and excessive, and offered five guineas. This Dr. Laver and his partner considered insufficient for a major operation of that nature, but when they protested the corporation suggested that an action might lay against Dr. Fardon, medical officer to the hospital. The plaintiffs were not disposed to adopt this course, hence the present action, which might be regarded, perhaps, as in the nature of a test case as to whether a public body running a hospital was responsible in such circumstances as those described. There was a novel and important point of law involved as to the liability of the corporation, and one which was of considerable interest to the medical profession generally.

Judgement was entered for the plaintiffs, whose application in respect of the costs was likewise upheld, Judge Hill Kelly holding that these had been reasonably incurred.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

Reassembly of Parliament.

PARLIAMENT reassembled on Tuesday, October 29th, when the Collecting Charities (Regulation) Bill was discussed and its second reading deferred. The Widows Pensions Bill was down for second reading on October 31st.

On October 29th Mr. SNOWDEN, in announcing the Government's programme of business, said that it was proposed to proceed with the Unemployment Insurance Bill before the Christmas adjournment, and to make progress with other measures foreshadowed in the King's Speech, including the Factories Bill, to regulate hours of industrial employment. The financial resolution for the Highlands and Islands medical services would be placed on the Order Paper next day, and a White Paper on the subject would be available. It was understood in the Lobby that the Highlands and Islands (Additional Grants) Bill would be introduced during the week.

In the ballot for notices of motion, on October 29th, Dr. FREMANTLE gave notice that next week he would call attention to "ribbon development," and move a resolution. Mr. T. HENDERSON gave notice of a motion on the nationalization of water supply.

On October 29th Dr. FREMANTLE asked Mr. Snowden whether the promised measure for slum clearance was included in the bills to be introduced, or if it was not considered of sufficient importance to be introduced before Christmas. Mr. SNOWDEN said he hoped that when the bill was introduced it would be recognized that it was a bill of first-rate importance. It would be taken as soon as parliamentary time permitted.

Motor Accident Cases in Hospitals.

Mr. CLYNES, in reply to a question by Mr. Louis Smith, on October 29th, said that he had consulted the Minister of Health, and was advised that the number of accidents treated in local hospitals and resulting from the use of motors, from April to October, could not be ascertained without imposing great labour on the police, out of all proportion to the usefulness of any results. He did not see his way to ask the police to furnish the information.

On the same day Sir W. DAVISON asked the Minister of Transport whether, in view of the serious cost and difficulties thrown on voluntary hospitals in the receiving and treating of persons suffering from motor accidents, and also in view of the fact that in very many cases no payment is made to the hospital in question by such persons for their treatment in the hospital, the Government would consider the propriety of raising a central fund by means of a small deduction from driving licences, or otherwise, with a view to adequate payments being made to voluntary hospitals, which are unable to obtain payment for services rendered in the case of motor accidents. Mr. H. MORRISON said that he did not feel justified in recommending the legislation which would be required to impose a compulsory levy on the drivers of all motor vehicles for this purpose.

Sir W. DAVISON asked if the Minister of Transport did not recognize that many hospitals kept a special ward for dealing with motorists' accidents, which interfered with the normal work of the hospitals, and was a great expense to them when they already found it difficult to pay their way. He asked if the Minister could not introduce some clause in the legislation which he had promised with regard to third-party insurance which would deal with this matter. Mr. MORRISON replied that they all recognized the financial difficulties of voluntary hospitals, but he was unable to agree that this was exclusively related to the services required from the hospitals by motorists.

Mr. ALBERY asked the Minister to approach the Automobile Association and the Royal Automobile Club with the suggestion that they should try to devise means of collecting sums for the hospitals. Mr. MORRISON replied that there was no reason to believe that motorists as a class were less generous in their contributions to hospitals than any other section of the community. It would be difficult to single them out from other users of the hospitals.

Coroners' Inquests.—On October 29th Sir KINGSLEY WOOD asked the Home Secretary whether he was aware of the considerable public apprehension concerning the recent conduct and procedure of certain coroners' inquests in relation to the ancient and well-established rights and liberties of the subject, and whether he could make any proposals in the matter. Mr. CLYNES said that the law relating to coroners' inquests was revised and brought up to date by a comprehensive measure only three years ago. The view, in which the Lord Chancellor and the Attorney-General concurred, was that it would be a mistake so soon after the revision of the law to consider making another fundamental alteration because of what had happened in one or two quite exceptional cases. He proposed, therefore, as at present advised, to take no action in the matter.

War Pensions.—On October 29th Mr. F. O. ROBERTS, replying to a question, said that he expected to be able shortly to make a full statement on the Government's attitude regarding the abolition of the seven years' limit in regard to ex-service men. He was giving close attention to all difficulties in administration of war pensions, and would do what was possible from time to time to remedy them.

Administration of Factory Acts.—On October 29th Mr. SNOWDEN told Mr. Graham White that the question of the transference of the administration of the Factory Acts to the Ministry of Labour was under the consideration of the Government.

Universities and Colleges.

UNIVERSITY OF LONDON.

Meeting of the Senate.

A MEETING of the Senate was held on October 23rd, when the Vice-Chancellor (Sir Gregory Foster) was in the chair.

The degree of D.Sc. in Medical and Vital Statistics was conferred upon Mr. A. B. Hill, an internal student of the London School of Hygiene and Tropical Medicine, for a thesis entitled "An investigation of sickness in various industrial occupations."

Sir Cooper Perry was appointed a governor of Holloway Royal College, and Professor H. R. Kenwood, Sir William Simpson, and Sir Holburt Waring governors of the London School of Hygiene and Tropical Medicine.

UNIVERSITY OF EDINBURGH.

A GRADUATION ceremonial was held in the Upper Library Hall on October 26th.

The degree of D.Ph. in the Faculty of Medicine was conferred on J. R. Greig, M.R.C.V.S., for his thesis on acute calcium deficiency in farm animals, with special reference to milk fevers in cows.

The Diploma of Public Health was conferred upon H. J. Gibson, D. Lennox, K. A. T. Martin, S. Narain, and N. S. Turnbull.

UNIVERSITY OF GLASGOW.

Appointment of Principal.

THE KING has approved the appointment of Professor Robert Sangster Rait, C.B.E., LL[illegible] Scotland, to be Principal of the [illegible] on to Sir Donald MacAlister, [illegible] held the Chair of Scottish History and Literature in the University since 1913.

NATIONAL UNIVERSITY OF IRELAND.

THE following awards have been made: Pierce Malone Scholarship in Mental and Moral Science, M. P. O'Connell; Dr. Henry Hutchinson Stewart Medical Student Scholarships—anatomy, D. K. O'Donovan and J. J. Linehan (scholarship divided); physiology, J. K. Feeney.

Dr. J. McGrath has been appointed lecturer in medical jurisprudence at University College, Dublin.

The Dr. Henry Hutchinson Stewart Scholarships in arts, medicine, and mental and nervous diseases will be offered for competition in 1930.

Medical News.

The forty-sixth annual dinner of the past and present students of the School of Medicine, Leeds, will be held on Friday, November 8th, at the Hotel Metropole, Leeds, under the presidency of Mr. S. W. Daw, F.R.C.S.

The annual dinner of the London (Royal Free Hospital) School of Medicine for Women will be held at the Savoy Hotel (Embankment entrance) on Thursday, December 5th, at 7 for 7.30 p.m., under the chairmanship of Mr. Joseph Cunning, senior surgeon to the hospital.

The annual dinner of the staff and past and present students of the Royal Dental Hospital of London will be held, at 7 p.m., on Saturday, November 23rd, at the Trocadero Restaurant, with Mr. W. J. May in the chair. The Medical Committee will be "At Home" to all past and present students of the hospital on the same day, from 9.30 a.m. to 5 p.m. In the morning demonstrations will be given, and in the afternoon orthodontic and other cases of special interest will be shown. The various departments of the hospital and school will be open for inspection.

The annual dinner of the Prince of Wales's Hospital Reunion Association will be held at the Holborn Restaurant on Thursday, November 21st, at 7.45 for 8 p.m., with Mr. T. H. C. Bevians in the chair. Price of dinner (exclusive of wines) 12s. 6d.; no tickets will be issued. Members are asked to notify the hon. secretary, Dr. Bruce Williamson, 137, Harley Street, W.1, of their intention to be present, stating number of guests.

The next quarterly meeting of the Royal Medico-Psychological Association will be held at the British Medical Association House, Tavistock Square, W.C.1, on Wednesday, November 6th, at 2.30 p.m. Papers will be read by Dr. T. Saxty Good on some experiments with suggestion and association tests in the feeble-minded, and by Dr. Geoffrey Shera on *Bacillus acidophilus* deficiency in mental patients, with notes on the ancillary flora.

At a meeting of the Pharmaceutical Society of Great Britain to be held at 17, Bloomsbury Square, W.C., on Tuesday, November 12th, at 8.30 p.m., a lecture will be given by Dr. E. N. da Costa Andrade, Quain professor of physics, University of London, on modern views of matter. Medical friends of members and student-associates will be welcomed.

The first of a series of lectures on racial and individual welfare, arranged by the People's League of Health, will be delivered to-day (Friday, November 1st) at the Medical Society of London, Chandos Street, Cavendish Square, W.1, at 6 p.m., by Dr. A. F. Tredgold, on the subject of inborn qualities in regard to national health.

A conference on the international control of opium and dangerous drugs will be held at the London School of Economics on Wednesday, November 13th, under the auspices of the Women's International League, and in response to an appeal from the Chinese Anti-Opium Society. The Women's International League is organizing a series of conferences in different European countries, through its national sections, in order to obtain instruction from experts, and to educate public opinion. At the conference on November 13th there will be speakers from India, China, and Egypt, including Mr. P. J. Noel Baker, M.P., and Mr. Lyall, chairman of the Permanent Central Opium Board of the League of Nations. The sessions and subjects of the conference will be as follows: *10.30 to 1 o'clock*, Present Position; 2.30 to 4.30, Possible Remedies; 5 to 6.30, Discussion. Admission is free to all sessions, and seats will be reserved on request to the secretary, Women's International League, 55, Gower Street, W.C.1.

The annual congress of the British Institute of Radiology, incorporated with the Röntgen Society, will be held at the Central Hall, Westminster, on December 4th, 5th, and 6th, during which time there will be a trade exhibition of *x*-ray apparatus. The Sylvanus Thompson and Mackenzie Davidson Memorial Lectures will be given in the congress hall adjoining the exhibition.

The Royal Sanitary Institute will hold a sessional meeting on Friday, November 15th, at 7.30 p.m., in the Town Hall, Carlisle, when discussions will take place on town planning of built-up areas, the dangers and difficulties of small water supplies, and the veterinarian in relation to the milk supply.

A course of post-graduate lectures at King's College Hospital Medical School commenced on October 10th, and will be continued on successive Thursdays till March 27th, 1930, with the exception of December 19th and 26th, 1929, and January 2nd and 9th, 1930. The lectures, which will be given in the lecture theatre of the Medical School at 9 p.m., are free to medical practitioners and to final-year students of King's College Hospital. Coffee will be served at 8.45 p.m.

A new course of post-graduate lectures at the Royal Northern Hospital, Holloway Road, N.7, will commence on Tuesday, November 5th, at 3.15 p.m., and continue weekly until March 30th next. During an intensive week, December 2nd to 6th, lectures and demonstrations will be held daily at 2.15 and 3.15 p.m. The full programme of the course, which is open free to all medical practitioners, may be obtained from the dean of the hospital.

The Fellowship of Medicine announces that the following lectures will be given in the lecture-room of the Medical Society of London, 11, Chandos Street, Cavendish Square: on Monday, November 4th, at 5 p.m., Mr. W. B. Gabriel will speak on common rectal complaints (no fee); on Tuesday evening, November 5th, at 8.30, Dr. J. W. McNee will discuss the structure and functions of the spleen in relation to its diseases; and on Friday evening, November 8th, at 8.30, Dr. O. L. N. de Wesselow will speak on nephritis and oedema. The last two lectures are especially suitable for M.R.C.P. candidates. A demonstration on gastric diagnosis will be given at the Royal Waterloo Hospital by Dr. Cecil Bull on November 6th, at 10 a.m., and there will be a demonstration of throat operations by Mr. W. Ibbotson on November 6th, at 2 p.m., at the Prince of Wales's Hospital, Tottenham; both demonstrations are free to medical practitioners. Three special courses start on November 4th; the first, at the Royal Waterloo Hospital, in medicine, surgery, and gynaecology, will continue for three weeks, occupying each afternoon and some mornings; the second, at the London Lock Hospital, will be held each afternoon and most evenings for four weeks, dealing with venereal disease; the third, an afternoon course in ophthalmology at the Central London Ophthalmic Hospital, will last for four weeks. Other courses in November deal with orthopaedics (November 18th to 30th), proctology (November 25th to 30th), and neurology (November 18th to December 13th). Detailed syllabuses of all courses and the advance list of special courses for 1930 may be obtained from the secretary of the Fellowship, 1, Wimpole Street, W.1.

A post-graduate course will be held in Vienna, from November 25th to December 8th, dealing with the internal secretions and their relation to the general constitution. Details of this and of other shorter courses to be held can be obtained from the secretary of these international courses, Dr. A. Kronfeld, Porzellangasse 22, Vienna IX.

A medical tour to the Riviera will be conducted from December 26th to January 8th, and include excursions into Italy, the Alps, and Corsica. The places to be visited include Marseilles, Aix-en-Provence, Toulon, Hyères, St. Raphael, Le Cannet, Grasse, St. Juan-les-Pins, Nice, Mentone, Bordighera, St. Remo, Monaco, and Beaulieu. Further information regarding the tour may be obtained from the manager of the Federation of the Health Resorts of France, 1, Gordon Square, W.C.1.

The October issue of *Leprosy Notes*, the quarterly publication of the British Empire Leprosy Relief Association, contains an article by the editor, Dr. R. G. Cochrane, on the position of iodides in the treatment of leprosy. Dr. Cochrane maintains that iodides should only be given to the healthy leper, those who have flabby muscles or who are physically weak being unsuitable for this treatment. Administration should be stopped as soon as the treatment begins to produce weakness. Dr. J. L. Maxwell discusses the problem of leprosy in China, with special reference to migration; while the treatment of this condition in Weihaiwei is considered by Dr. F. Clark, who reports on the use of alepol, or sodium hydnocarpate, in treatment. Sir Leonard Rogers contributes a short note on the therapeutic and economic value of work for lepers. The leprosy problem in Canada is discussed by Dr. J. D. Page of Ottawa, who urges that more attention should be paid to this disease by practitioners and those responsible for medical education.

Dr. Rouvillois, director of the Val-de-Grâce School of Military Medicine, and Dr. Le Noir, formerly physician to the Hôpital St. Antoine, Paris, have been elected members of the Académie de Médecine.

Professor Luis Morquio of Montevideo has been created a chevalier and Dr. Gustave Humbert of Geneva an officer of the Legion of Honour.

The following appointments have recently been made in foreign faculties of medicine: Frau Privat-docent Golant-Ratner has succeeded the late Professor Bechterew in the chair of psychiatry at Leningrad; Professor Rössle, director of the Institute of Pathological Anatomy at Basle, has succeeded Professor Lubarsch in the chair of pathological anatomy in Berlin; Professor Beltzke, the pathologist, has been made rector of the medical faculty of Graz; and Professor von Metternich, the paediatrist, dean of the medical faculty at Frankfort.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to ***The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.***

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The ***TELEPHONE NUMBERS*** of the British Medical Association and the *British Medical Journal* are *MUSEUM 9861, 9862, 9863,* and *9864* (internal exchange, four lines).

The ***TELEGRAPHIC ADDRESSES*** are:

EDITOR of the *British Medical Journal, Aitiology Westcent, London.*

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*

MEDICAL SECRETARY, *Mediocria Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone 24361 Edinburgh).

QUERIES AND ANSWERS.

EFFICIENT ANTISEPSIS IN MIDWIFERY.

"A." writes: In a recent textbook of midwifery it is stated that in the case of a biniodide solution (1) *soap* precipitates the mercury and so renders this antiseptic useless; and (2) contamination with *blood* renders the mercury solution useless as an antiseptic. I was under the impression that both these statements were true so far as the ordinary perchloride was concerned, but that neither was true in the case of biniodide. I should be glad to have further light on the subject.

OCCASIONAL WEAKENING OR LOSS OF VOICE.

"W. D." asks for advice in treating a strong healthy man, 50 years old, who does a lot of talking in business and finds that his voice seems powerless at times; he does not seem able to raise it without an effort, especially where other people are talking, or in traffic, or when music is being played. It causes him considerable mental worry.

TREATMENT OF CHILBLAINS.

DR. HENRY WALDO (Clifton) writes: Your correspondent (October 19th, p. 744) will concede that prevention is better than cure. This is the view that the late Sir Jonathan Hutchinson took some years ago when he wrote that those who toast their feet never get chilblains.

FLEAS.

"B. C." replying to the request by "W. G. H." (October 19th, p. 744) for a protection against fleas, writes: Years ago I had the same trouble, and I found I could protect myself by the use of Calvert's carbolic and camphor antimosquito soap. I have never tried it against mosquitos, but it certainly seemed to work against fleas.

INJECTION OF THYROID CYSTS.

DR. C. L. MARSH (Yeovil) writes: With reference to the inquiry of "F. S." on October 26th (p. 790) about the treatment of thyroid cysts by injections, I remember when I was at hospital, about fifty years ago, a strong-looking healthy man was admitted with a thyroid cyst about the size of a pigeon's egg. The cyst was injected with tinct. ferri perchlor., and the man was dead in less than an hour. *Verb. sap.*

INCOME TAX.

Sale of Practice.

"E. E. H.," who has usually made up his accounts to April 5th, sold his practice as from June 1st, 1929, and has been asked for a statement of account for the period April 5th to May 31st, 1929. He has no access to the books of his successor.

*** At present we are unable to see that our correspondent would find any particular difficulty in preparing a statement of his receipts and expenses for the two months in question on the basis adopted for the earlier twelve months' accounts. Some such statement, even if estimates of expenses have to be used, will be necessary, because his liability for the financial year 1929-30 cannot be dealt with as a unit, but must be computed separately in respect of his former and his present practice. He should, of course, make sure that the assessment on the latter does not cover a period greater than his ownership of it—presumably ten months only. The inspector of taxes is correct in disallowing "depreciation" if he deducts the cost of renewal of a car.

Residence in the United Kingdom.

"T. C. L." asks whether in the event of an individual arriving in Great Britain from abroad a few days before the end of the financial year (April 5th) with the intention of settling here permanently he is liable to be assessed for the year in which he arrives?

*** Yes, he is so liable, and in respect of foreign income as well as income arising in the United Kingdom. But the amount of the assessable foreign income would be restricted to the amount received in this country, or arising to him after reaching this country, and he would be entitled to the full year's personal allowances from the income assessable for the year of arrival, though that amount would, of course, be less than a year's income. If, therefore, the arrival is "a few days" only before April 5th the liability for the year of arrival would presumably be negligible.

Paying Guest Taken.

"S. S." asks whether and, if so, how the profits on a paying guest are to be entered in the income tax return. The guest pays £5 5s. per week, and costs about 25s. in food, 20s. for firing and lighting, and 10s. for extras, and has the best room in the house.

*** The profit made is assessable. The charge stated above for firing and lighting seems heavy, but, on the other hand, some portion of the total cost of the domestic staff (wages, keep, etc.) is allocable to the amount received from the guest, as well as a *fair portion of the total rent and rates as applicable to* the guest's room. The amount returned will obviously have to be in part based on an estimate, and it looks as if the net amount returnable will be somewhere round about £75 per annum.

LETTERS, NOTES, ETC.

DISCLAIMERS.

DR. F. HOWARD HUMPHRIS (London, W.) writes: Accompanying a prospectus of a company formed, or about to be formed, for treatment centres for electrotherapy, physiotherapy, *x*-ray diagnosis, etc., was a letter said to be addressed to the medical profession. On the back of that letter were two quotations from articles I had written, one in the *Lancet* of March 3rd and the other in the *British Journal of Actinotherapy*. The use of my name is entirely unauthorized, and I have written to the secretary of the company, protesting strongly against the publication of my name without my consent.

DR. J. R. REES (London, W.) writes: A number of stupid, sensational articles appeared in the press at the end of last week with regard to the Tavistock Square Clinic. The inanities of these paragraphs are not worth taking in detail, but, as deputy director of the clinic, may I disclaim the substance almost *in toto*. A reporter came to the clinic and was told a certain amount about the need for the proposed expansion of the work. I saw him myself, and impressed on him that what was needed above all things was restraint, as opposed to sensation, and the series of inventions which appeared in the press were the result.

LIVER INTOXICATIONS.

Corrections.

DR. CHALMERS (Darlington) asks for the following corrections to be made in his letter published in the *Journal* of October 26th at page 786. The sentence beginning in line 9 of the third paragraph should read: "Later, however, it was given as lactate (the chloride at this stage would increase the acidosis)." For the sentence beginning in line 4 of paragraph 4 read: "Alkalis and glucose alone will not save such cases if severe; if my contention is correct that the hypoglycaemia is due to the insulin-like action of guanidin[illegible] to give glucose *plus* insulin." In [illegible] "MacLeod has stated with regar[illegible]g of the parathyroid glands that this may not become evident except at a time of stress, as from pregnancy or improper diet." In the last paragraph, fourth last line, after the word "lines," add: "namely, the use of calcium chloride."

PURIFICATION OF SWIMMING BATH WATER.

DR. F. W. ALEXANDER, formerly M.O.H., Metropolitan Borough of Poplar, writes: Although belated, I greet with pleasure the report of the Ministry of Health on the purification of the water of swimming baths. I regret that no mention has been made of the strenuous, difficult, and prolonged pioneering work carried out at Poplar for over twenty years. "Special reports" were always forwarded, as legally required, to the Ministry of Health.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 48, 49, 52, 53, 54, 55, and 56 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 50 and 51.

A short summary of vacant posts not filed in the advertisement columns appears in the *Supplement* at page *211*.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

379. Subacute Syphilitic Myocarditis.

INSTEAD of the classical division of syphilitic myocardial lesions into localized and diffuse forms, L. GRAVIER (*Journ. de Méd. de Lyon*, September 20th, 1929, p. 609) classifies them as mechanical (dystrophic) and inflammatory. The first variety, which is due to an obliterating coronaritis, presents no particular characters and is comparatively rare. The inflammatory form may be specific, appearing as gummata, which also are rare, or non-specific (subacute or chronic myocarditis). The subacute form is said to be more directly due to syphilitic infection than the chronic, and presents a more striking clinical picture. A case, diagnosed during life, is recorded which illustrates the principal clinical and anatomical features of this condition. Clinically, subacute syphilitic myocarditis is essentially characterized by a left ventricular insufficiency of sudden onset and progressively rapid evolution, pulmonary oedema being the chief symptom. This type of myocarditis does not occur by itself, as sometimes the tuberculous type does, but is usually accompanied by an aortitis. Gallavardin has especially insisted on this association, and has shown its importance in the evolution of aortic infections. In syphilis is revealed the importance of the inflammatory factor in the pathogeny of asystolic phenomena. Anatomically, subacute myocarditis may present large sclerous lesions, macroscopically visible; more often, however, the lesions are discrete, and discernible only by microscopic examination. They consist of an interstitial connective-tissue reaction, with marked inflammatory characters, which infiltrates the muscular bundles, dissociating the cardiac fibres and forming fibrous bands or areas. The lesions are autonomous; if endarteritis or periarteritis is present, this does not condition the interstitial reaction, but evolves parallel with it. In the recorded case Gravier detected a diffusion of these lesions through the thickness of the muscles, and an absence of electivity, if not of predominance, for the subendocardial layers, the subpericardial fibres being markedly affected. He remarks that there is a great disparity between the grave clinical evolution and the extent of the histological lesions. Gallavardin has also noted this fact, and suggests that other factors may intervene, such as venous influences and reflexes. Gravier considers that parenchymatous troubles may be a causal agent, and should be suspected in certain cardiac or myocardiac hypertrophies with recognizable histological lesions.

330. Epidemic Peripheral Neuraxitis and the Cerebro-spinal Fluid.

ACCORDING to A. BLAIZOT (*Thèse de Paris*, 1929, No. 173) the peripheral forms of epidemic neuraxitis (the term invented by Sicard as being more comprehensive than epidemic encephalitis) comprise numerous clinical types, including an algo-myoclonic form, and types simulating anterior poliomyelitis, spastic paraplegia, Landry's disease, and tabes. The polyneuritis of epidemic neuraxitis usually appears in the form of simple paraplegias or as paraplegias with involvement of the cranial nerves, or quadriplegias. Less extensive lesions may be encountered, involving only the terminal part of the nerves or the muscle only, and giving rise to a pseudo-myopathic form of the disease. In spite of the polymorphous character of these clinical forms, there are numerous arguments in favour of these being due to the same cause—namely, their occurrence during an epidemic, previous history of ocular palsies and lethargy, and transitional pains in the same individual. The disease runs its course with little or no fever; the development of the symptoms is incomplete, and they rapidly and entirely subside. Lastly, the condition of the cerebro-spinal fluid is almost invariably the same; the fluid is clear, under slight pressure, with only slight lymphocytosis, but a considerable increase of albumin. The chlorides are not affected. The Wassermann reaction is always negative, while Guillain's reaction is sometimes positive in the meningeal zone. The thesis contains the histories of four illustrative cases.

331. Clinical Aspects of Influenza.

W. NATORP (*Deut. med. Woch.*, August 16th, 1929, p. 1377) records his observations on 231 cases of influenza admitted to the municipal hospital at Königsberg in January and February, 1929; 151 were women and 80 men. The ages of the patients were usually between 20 and 30. In about two-thirds of the cases there was a sharply circumscribed redness of the soft palate and uvula, as well as of the tonsils and posterior wall of the pharynx, a symptom to which Natorp attaches considerable diagnostic importance. In uncomplicated cases the temperature fell by lysis in two to four days. In about 10 per cent. of the cases the temperature rose again to a subfebrile level at the end of the first or beginning of the second week without any physical signs. The frequently described bradycardia of convalescence was usually absent. Blood pressure estimations, which were made several times a day, showed an average systolic reading of 99–100 mm. of mercury with a tendency to oscillations up to 115 and down to 70. The principal complications were those affecting the respiratory system. Pneumonia occurred in 39 cases, of which 6 were fatal; not infrequently it followed mild attacks. Otitis media was noted in only four cases. Rashes in the form of scarlatiniform and morbilliform eruptions or erythema nodosum were observed in a few cases. A few examples of relapse two to three weeks after the end of the first attacks occurred. Colic was an occasional sequel. Prophylaxis in the form of application of collargol solution to the eyes, nose, and throat was carried out among the nursing staff with encouraging results. The treatment was on the usual lines.

382. Hemiplegia in Scarlet Fever.

J. D. ROLLESTON (*Clin. Journ.*, August 14th, 1929, p. 393), who records an illustrative case, in a boy aged 3½ years, in which cerebral embolism was probably the cause of the condition, states that in 1908 he collected 66 cases of this rare condition, including 3 which he had personally observed. Since then he had found only 9 cases recorded, a total of 75 cases. The ages of the patients ranged from 3 months to 27 years. Though 54 patients had recovered, in only 17 was recovery complete; in most of them contractures had supervened as in the present case. Necropsies had been held on only nine cases, and the most frequent alleged causes were uraemia, and cerebral embolism, thrombosis, or haemorrhage.

383. Primary Mumps Orchitis.

M. A. RABINOWITZ and B. SELIGMAN (*Med. Journ. and Record*, August 21st, 1929, p. 215), who record an illustrative case, state that Wesselhoeft in 1920 collected 64 cases of mumps orchitis in which there had been no parotitis. Their patient was a man, aged 29, who developed pain and swelling of the left testis with fever which lasted for three weeks. The diagnosis was made on the grounds of the absence of gonorrhoea and of instrumental or other trauma; it was ascertained that his daughter had had a mild attack of mumps a fortnight before he became ill.

Surgery.

384. Abdominal Symptoms due to Enlargement of the Mesenteric Glands.

F. BATT (*Nordisk Medicinsk Tidsskrift*, August 31st, 1929, p. 557) records observations made at the communal hospital in Drammen, Norway, during the year July 1st, 1922–June 30th, 1923, and also the year 1926. In the first period appendicectomy was performed on 66 patients under the age of 15, and among these patients there were 19 in whom enlarged mesenteric glands were found (7 boys and 12 girls). In the same period appendicectomy was performed on 336 patients over the age of 15, but only in 2 of them (a boy of 16 and a girl of 18) was a corresponding enlargement of the mesenteric glands observed. In 1926 appendicectomy was performed on 32 patients under the age of 15, and in 16 of these cases the mesenteric glands were found to be enlarged (8 boys and 8 girls). Among these 16 cases there were 5 of chronic and 1 of acute appendicitis. In the remaining 10 cases the operation revealed no evidence of appendicitis. The clinical history of these cases before operation included an acute attack of pain in the abdomen, nausea, vomiting, and more or less fever. On admission to hospital the patients referred their pain to the umbilical region, whence it radiated to the right iliac fossa. But there was no local tenderness or rigidity, deep palpation in the right iliac fossa provoking no pain. Yet on account of the [illegible] of the signs and symptoms of [illegible] deemed advisable to accept [illegible] who had sent the patients to the operation was performed in the acute stage the mesenteric glands were tense and elastic, and there was free serous fluid in the peritoneal cavity. When the operation was performed in the subacute stage the glands were tense and

elastic, but there was no free peritoneal fluid, although the surface of the intestines was remarkably moist. In the eight cases operated on during the free interval, the enlargement of the glands was not so marked; they were not so tense and elastic, and there was no increase of the peritoneal fluid. The microscopical examination of excised glands showed no evidence of tuberculosis or other inflammatory state, but in glands removed during the acute stage there were signs of extensive fat infiltration, which was considerably less marked in the cases operated on in the chronic stage. On the assumption that the capacity of these patients to digest fat was reduced, instruction was given on their discharge that their diet should contain little fat and plenty of carbohydrates. In the spring of 1929 the subsequent fate of these patients was investigated, and information about 14 was obtained. Eight, who at the time of the operation were found to have enlarged glands, but no appendicitis, had sooner or later suffered from recurrences of their symptoms; this was also the case in 3 out of the 6 cases in which acute or chronic appendicitis had been found at the operation. The recurrences in some cases were traced by the parents to fatty meals.

385. Etiology of Dupuytren's Contraction.

DISCUSSING the etiology of Dupuytren's contraction in its relation to the compensation of workmen J. M. DE VILLAVERDE (*La Medicina Ibera*, August 31st, 1929) points out that most cases, though there may be a history of trauma, are really due to some other unknown factor; the patient stresses the injury with a view to compensation. The author cites the case of a carpenter who wounded himself in the left hypothenar eminence with a tool; a year later, although the lesion had long since healed perfectly, signs of Dupuytren's contraction began, but in a few months contraction also appeared in the right hand. Another man received a blow on the arm; the median nerve must have been stimulated, because at the time he felt violent pain over its whole distribution. Some months later Dupuytren's contraction appeared in the same hand, but no signs of nerve involvement were present to support the idea of traumatic neuritis; shortly afterwards the other hand became involved. Many other similar cases are mentioned. The author remarks that investigation of the nervous diseases said to be responsible for Dupuytren's contraction shows that in syringomyelia the deformity that occurs is capable of modification by movement; it is not a fixation as in the genuine Dupuytren's contraction. The same considerations apply to cervical hypertrophic pachymeningitis. In general paralysis the genuine contraction does seem to occur occasionally, but it would be wrong to correlate these as cause and effect; the spirochaete itself can attack all tissues, and might easily be the direct cause of Dupuytren's contraction in these cases. One case only was observed where Dupuytren's contraction coexisted with manifest neuritis; the patient was a coach-painter addicted to alcohol, and in him a definite polyneuritis was a little preceded by Dupuytren's contraction. No other signs of lead poisoning being present, it was concluded that the neuritis was due either to alcohol or to under-nourishment. De Villaverde adds that such neuritis can always be cured by attacking the cause; but in the case cited the contraction persisted in spite of all antineuritic treatment. Moreover, all cases where genuine nervous lesions coëxist with Dupuytren's disease are rare enough to be classed as merely coincidental.

386 Prevention of Aspiration during Tonsillectomy.

UNTIL the inception of local anaesthesia the occurrence of post-operative pulmonary sequels was attributed to the use of an inhalation anaesthetic, but such sequels continued after the introduction of local anaesthetics, and so the relation of inhalation anaesthesia to post-operative pulmonary complications became doubtful. Ample evidence was obtained that pulmonary abscess might follow any surgical procedure, including laparotomy or tonsillectomy. Bronchoscopy and indirect laryngoscopy have been used by all investigators to ascertain the degree of aspiration during tonsillectomy, the operation in which aspiration is most frequent. Thinking that these observations might be erroneous, R. V. MAY, T. W. THORBURN, and H. C. ROSENBERGER (*Journ. Amer. Med. Assoc.*, August 24th, 1929, p. 589) concluded that greater accuracy would result from the use of x rays after rendering the secretions of the throat opaque so that their passage into the lungs might be observed. This procedure was followed in twenty-five patients, whose ages ranged from 3 to 12 years, and who were operated on for the removal of tonsils and adenoids. A mixture of equal parts of sterile olive oil and iodized oil was used to produce opacity of the tracheobronchial tree. These investigations showed that the incidence of aspiration, particularly during tonsillectomy under inhalation anaesthesia, might be diminished by the adoption of the extreme Trendelenburg position; by constant and thorough removal of all pharyngeal secretions; by the choice of those types of anaesthetic and operative technique which cause a minimum amount of mucous secretions and haemorrhage; and by the degree of anaesthesia, which, in part at least, preserves the irritability of the laryngeal and tracheal reflexes. The authors add that the depositing in the lungs of aspirated material is variable and should be further investigated. When aspiration occurs, most or all of the aspirated material is eliminated during the six hours following the operation. Some aspiration is unavoidable in all operations under inhalation anaesthesia, but the technique suggested by the authors reduces this to a minimum.

Therapeutics.

387. Venesection in Congestive Heart Failure.

W. S. MIDDLETON (*Amer. Heart Journ.*, August, 1929, p. 641) has analysed 22 cases of congestive heart failure with the aim of determining the indications for this procedure and its results. The bulk of the patients were suffering from myocardial degeneration, the most prominent etiological factor being arterio-sclerosis. All the subjects except three were males, and 13 of the 22 were over 50 years of age. The level of the venous blood pressure was taken as the principal criterion for venesection. If by the indirect method of Hooker and Eyster a sustained reading of 20 cm. of water was found, and if the usual subjective and objective indications were present, phlebotomy was performed and 50 c.cm. of blood removed. In 11 of the 18 patients who were bled once, and in seven of the eight operations on the remaining 4 patients, the immediate results were favourable. It was found that a fall in venous pressure of 8 cm. of water was usually accompanied by definite clinical improvement. Such a fall occurred in 13 patients, benefit accruing in 11 of them. The ultimate outlook in patients selected for venesection cannot be good, and a survival rate of only 45 per cent. is recorded in the author's group; in an additional 23 per cent. there appeared to be a prolongation of life as a result of the operation, although the recovery was insufficient for discharge from hospital. The five patients who died within thirty-one hours of the operation showed no early amelioration of right heart distress, nor was an adequate venous pressure fall noted; these facts are held to confirm the prognostic importance of such a fall. The series analysed by the author agrees with a series of 21 previously studied by him in point of immediate benefit; as regards ultimate results, the present series shows a more favourable response.

383. Treatment of Gonorrhoea.

W. SCHOLTZ (*Deut. med. Woch.*, August 2nd, 1929, p. 1287) comments on the fact that gonorrhoea in men and women may be cured in a few months without any treatment; this spontaneous cure occurs sometimes in the course of an associated epididymitis. The author suggests that the body has a means of defence which can overcome the infection, and that besides the inflammatory suppurating reaction of the mucous membrane there is an antibody circulating in the blood; this possibility has suggested that a complement-fixation test might serve to indicate the successful termination of the infection after treatment. Without local treatment, however, there is no question that in the majority of cases complications will arise sooner or later and the case will assume a chronic course, the patient remaining infectious for many years. For local treatment Scholtz recommends Neisser's antiseptic methods of injections of silver salts. He gives five injections daily for four to seven minutes, slowly increasing the concentration of protargol from 0.3 to 2 per cent. solution, and usually succeeds in removing the gonococci in one to three days. The silver preparation acts directly on the superficially situated gonococci, but besides this there is a tissue reaction, an effect of the injection on the mucous membrane. This tissue reaction results in the production of "silver pus," which is composed more or less of degenerated and badly staining pus cells, in contrast to gonorrhoeal pus, which is characterized by the presence of healthy leucocytes with well-stained nuclei. In gonorrhoeal pus gonococci are always present, but in "silver pus" cocci are rarely found. The production of "silver pus" is therefore an indication of successful treatment. The injections are continued daily until the preparations from the discharge have been free from gonococci for more than three weeks. The difficulty of determining whether a patient is cured is well known; for this there are no certain criteria apart from the absence of gonococci and the presence of "silver pus." Scholtz thinks that the complement-fixation test, which seemed likely to be helpful in this respect, needs further research. As now applied it occasionally gives non-specific reactions; sometimes the reaction is permanent with gonorrhoeal complications, and can remain positive for months,

even a year, after the gonorrhoea has been completely cured. A positive result after completion of treatment is therefore of little value, but a negative reaction following a positive reaction seems of great use in the confirmation of cure.

389. Extra-diabetic Indications for Insulin.

J. HOET (*Bruxelles-Médical*, September 8th, 1929, p. 1243) calls attention to certain non-diabetic affections where insulin has been found very beneficial. Its use is based on its power to increase hepatic glycogen, to lessen the formation of acetone bodies, and to restore a normal protein metabolism. In the vomiting of pregnancy, when insulin is given in full doses (10 to 40 units) in association with a diet rich in carbohydrates and glucose, excellent results have been obtained; so also is the case in post-anaesthetic vomiting. In children cyclic vomiting accompanied by acetonuria is often relieved by insulin, and the same is true of certain chronic affections of the skin, such as boils, chronic ulcer of the leg, and pruritus. In arteritis obliterans, hypertension, or angina the results are not so favourable. Lastly, the author comments on the good results which often follow the administration of insulin in states of denutrition and wasting.

Dermatology.

390. A Hereditary Ectodermal Dystrophy.

H. R. CLOUSTON (*Canadian Med. Assoc. Journ.*, July, 1929, p. 18) presents an analysis of 119 cases in six generations, 40 of which were inspected, of a well-marked and easily recognized condition, usually known as hereditary or familial dystrophy of the hair and nails. The disease, though very rare, as judged by the scanty references to it in medical literature, is said to be comparatively common in eastern Canada, where it is peculiarly associated with the French race. Both sexes are equally affected, transmit it equally, and one-half of the children of defectives of this kind are defective. The dystrophy, therefore, follows the law of Mendelian hybrids, not sex-linked, the defect being a dominant. The dystrophy involves the epidermis itself, the nails, hair, sebaceous glands, and to some extent the sweat glands. Dystrophy of the nails is a constant factor, and the nail defect is more persistent than that of the hair. The toe-nails are always affected when the finger-nails are involved. Scrapings have proved negative for mycoses. The hair condition is a true and general hypotrichosis persisting from birth, and is a failure of the pilo-sebaceous system to develop. Microscopical examination shows only a fine hair which is otherwise normal. The condition of the eyebrows is a most striking feature; they are thinned, often markedly, in their outer two-thirds, as contrasted with the thinning of the outer third in hyperthyroidism. The skin dystrophy varies greatly, and is present in those spots where the stratum lucidum is present—as, for example, the palms of the hands and the soles of the feet. Clinical evidence is presented that the condition involves other ectodermal tissues, such as the teeth, the nervous system, and the glands of internal secretion of ectodermal origin. Involvement of the suprarenal medulla is suspected because the symptoms resemble those of Addison's disease in its earlier stages. Involvement of the anterior lobe of the pituitary gland is held to be responsible for certain features suggestive of those found in acromegaly. Since the condition is as fundamental as the germ plasm, the treatment is necessarily familial rather than individual. The dystrophy tends to diminish in succeeding generations, both as to incidence and severity, and every transitional stage is seen. Familial dystrophy of the nails alone may be a mild expression of the same condition. Hereditary keratosis plantaris et palmaris, in certain cases, is probably another residual form of the disappearing dystrophy.

391. Sulphur Baths in Dermatology.

A. E. OSTERBERG, M. W. RUBENSTEIN, and W. H. GOECKERMAN (*Arch. Derm. and Syph.*, August, 1929, p. 158) remark that sulphur and its compounds as they occur in natural waters and also in artificial sulphur baths have a beneficial effect when combined with other types of treatment for skin diseases. In order to ascertain the reasons for the efficacy of sulphur, these authors decided to determine first whether there was any absorption of sulphur compounds by the blood, and, if this did occur, where it took place, the effect of the type of sulphur employed on its rate of absorption, and whether there was any relation between the results obtained, the type of sulphur, and its concentration in the blood. Accordingly the total concentration of sulphur in the blood and the total amount excreted in the urine were determined in sixteen patients with various pathological skin conditions, and in two without cutaneous lesions on whom had been imposed a therapeutic regimen which included some form of sulphur baths. All the patients received the usual hospital diet, the sulphur content of which was equivalent to that of a well-balanced normal diet. The baths were given daily over varying periods, and three types were used, one of which contained colloidal sulphur. The data from these experiments lead to the conclusion that considerable sulphur is absorbed when a bath is prepared in such a way that sulphur dioxide is evolved. If the influence of sulphur dioxide is eliminated, either by arranging that the patient shall breathe through a gas-mask or by preparing a bath containing only colloidal sulphur, the rise in the concentration of sulphur in the blood or the total amount of sulphur excreted is much less marked, although the therapeutic response is as good. The authors believe that sulphur baths are a valuable adjunct in dermatological therapy, but that the mechanism of their action is unknown. Their greatest efficiency appears to be in diseases of vesicular and pustular types.

392. Treatment of Sycosis Barbae.

E. P. FIDANZA (*Ann. de Derm. et de Syph.*, July, 1929, p. 731) reports seven cases of trichophytic suppuration of the beard treated by him with preparations of iodine. The first five patients were given intravenous injections of from 2 to 5 c.cm. of Gram's iodine solution diluted with from 5 to 15 c.cm. of physiological serum. Improvement ensued in all cases, but treatment had to be discontinued temporarily in four owing to the occurrence of induration and obliteration of the veins, with much discomfort. After an interval treatment was continued and completed. The last two cases, however, were treated with a 20 per cent. solution of the biniodide of hexamethyl diamino-propanol, which was given daily by the intravenous route; improvement was rapid and the cure was complete. The drug was well borne and there was neither malaise nor local trouble. Fidanza thinks that the iodine acts on the lymphoid tissue, causing a lymphocytosis, rather than directly on the parasite. The preparation used contains 0.18 gram of iodine per c.cm. in combination with nitrogen, which raises its tolerability and assures its regular disintegration—an advantage over the carbon combination. The author advises a daily administration of 2 c.cm., which dose has given him the best results. Sporotrichosis, actinomycosis, and blastomycosis are mentioned as diseases in which this treatment might be accompanied by similar satisfactory results.

393. The Etiology of Eczema.

A SERIES of experiments has led Dr. J. TRÉGER (*Bratislavské Lékárske Listy*, August, 1929, p. 551) to the conclusion that various substances are capable of producing eczema on the human skin. The particular reaction of the skin in each individual case is independent of the chemical constitution of the irritating substance, and in the same person several different chemical substances can produce similar eczematous lesions. The character of the reaction depends entirely on the specific reactivity of the skin concerned. The possibility of transmitting eczema by means of the blood serum from an eczematous person has not been proved, but it is possible to transmit urticaria and exanthemata caused by drugs (such as salvarsan exanthema) by means of serum collected from spontaneous or artificial blisters formed on the skin of the affected person. It is also possible to transmit the reactivity to certain chemical substances from patients with pemphigus or dermatitis herpetiformis to other persons, but these other persons reacted no more definitely with pemphigus or this dermatitis than with eczema.

Obstetrics and Gynaecology.

394. Indications for Myomectomy.

R. H. HARRIS (*Surg., Gynecol. and Obstet.*, September, 1929, p. 322) summarizes the relations between fibromyoma of the uterus and pregnancy, and gives statistics of the removal of fibromyomata in 147 cases, with detailed reports in five. Although pregnancy and labour may progress satisfactorily in the presence of a large uterine fibromyoma, this condition may give rise to serious complications in pregnancy, labour, and the puerperium—such as uterine haemorrhages, breech and transverse foetal positions, high foetal mortality, stasis in the urinary and intestinal tracts, and sepsis. The presence of such tumours may prevent pregnancy by obstructing the cervix or uterine cavity, and by changing the glandular and vascular structure of the endometrium; but in examining statistics of sterility caused thereby such factors as refusal to bear children, widowhood, the menopause, and diseases of the adnexa must be considered. Diagnosis may be difficult when early pregnancy exists in a fibromyomatous uterus, or when a large soft fibromyoma simulates pregnancy. In

women under the age of 40 who are desirous of having children, but who are sterile owing to fibroids, pregnancy frequently follows myomectomy; such patients should, however, be selected carefully, the surgeon reserving the right to perform hysterectomy should its need be indicated by the discovery of conditions such as malignancy and disease of the adnexa. Myomectomy during pregnancy may be necessary because of degeneration, torsion, impaction, or magnitude of the fibromyomata; hysterectomy is rarely needed unless it is found that the patient cannot be saved by myomectomy from accidents due to the tumour, or that infection or malignancy is present.

395. FROM a detailed study of myomectomy unassociated with pregnancy, E. MERIEL and BAILLAT (*Gynecol. et Obstét.*, August, 1929, p. 223) conclude that this operation should be performed only in the young with a view to future maternity, and that, in these cases, it is for this reason preferable to hysterectomy or irradiation. The danger from shock, haemorrhage, infection, or embolism is no greater than in hysterectomy, and the mortality in the two procedures is the same. Though after this operation the tumours are liable to recur, these new fibroid growths rarely undergo malignant degeneration, and, since they recur only about ten years after surgical intervention, the patient is assured of that period of normal genital life. The indications for myomectomy depend on the nature, size, and number of the growths. In soft tumours invading a great portion of the uterine walls, in very large tumours, and in multiple fibromas (exceeding two to four in number) hysterectomy is to be preferred. A. BRINDEAU (ibid., p. 235) agrees that myomectomy in non-pregnant women does not prevent future gestations, and that these evolve normally and without complications. Even when fibromas exist, pregnancy usually terminates normally. In certain cases with such symptoms as violent pains, rapid hypertrophy of the tumour, and torsion of the pedicle, surgical intervention is indicated. In the majority of these myomectomy can be performed with excellent results both for the mother and child. This operation is less frequently indicated during labour, since fibroma praevia at the end of pregnancy is rare. It should only be performed after extraction of the infant by Caesarean section. If myomectomy is then found impossible or dangerous, hysterectomy should be performed. Vaginal myomectomy is rarely indicated, and then only in cases of submucous tumours causing an obstruction in the cervical orifice.

396. Thyroid Treatment in Eclampsia and Pre-eclampsia.

G. GROSSI (*Ann. di Ostet. e Ginecol.*, August, 1929, p. 1019) describes eight cases of pregnancy or puerperal eclampsia and fourteen cases of pre-eclampsia with high degrees of albuminuria, in which the daily administration of 70 to 100 drops of thyroid extract was followed by speedy cessation of any convulsions and albuminuria, and rapid fall of the blood pressure. The dietetic regime was of the ordinary character, and no purgative or depleting treatment was employed. The efficacy of the thyroid medication is ascribed to (1) the fact that thyroid hypofunction accompanies many cases of pregnancy albuminuria; (2) a vasomotor action on the kidneys which favours diuresis; and (3) the increased excretion of chlorides.

397. Diathermy in Gynaecology.

F. A. MAGUIRE (*Med. Journ. of Australia*, July 13th, 1929, p. 38) discusses the application of diathermy in gynaecology. Surgical diathermy, by means of which the heat is concentrated by the active electrode over the small area to be treated, with the indifferent electrode placed evenly in contact with a large area of the body well removed from the site of operation, may be used with advantage in the treatment of cervical erosion, caruncles, malignant disease, or gonorrhoeal infection of the cervix, vagina, or urethra, salpingitis, and in such joint affections as chronic arthritis or osteo-arthritis. Erosions of the cervix heal rapidly if they are lightly touched with a small disc electrode and are then allowed to coagulate to a depth of 2 to 3 millimetres; urethral caruncles can be completely and painlessly removed and their recurrence prevented. Most useful in malignant conditions, the treatment arrests haemorrhage, destroys secondary pathogenic infection and the septic portions of the growth, reduces glandular enlargement, allows a clear operating field, and affords a means whereby many inoperable growths can be made operable. In gonorrhoeal conditions the gonococci are killed for a distance of from 10 to 15 millimetres from the lumen of the canal by temperatures of 110° to 115°F., no organisms being found by microscopical examination after a month's treatment. Diathermy is used in salpingitis to produce a general heating of the pelvic organs, for the relief of pain and effusions, and as an accessory to douching. Local diathermy of the joint in chronic arthritis, either inflammatory or gonococcal, relieves pain and inflammation, and promotes absorption; in gonorrhoeal arthritis excellent results have followed its use in combination with local urethral or cervical treatment. Three to five applications over the sacro-iliac joints in chronic arthritis in elderly women have often afforded complete relief, especially in those cases in which *x*-ray examinations indicate definite bony changes.

Pathology.

398. Blood Cells of the Newly Born.

C. E. FORKNER (*Bull. Johns Hopkins Hospital*, August, 1929, p. 75) has examined the blood of children over a period of twelve days from the day of birth; he used an *intra vitam* method of staining with 0.5 per cent. neutral red and 0.1 per cent. Janus green in 95 per cent. alcohol. On the first day the total number of white cells ranged from 15,250 to 45,000 per c.mm.; it fell more or less precipitately on the second day, reaching 10,000 by the fifth to sixth day. The polymorphonuclear leucocytes decreased in percentage and in absolute numbers during these first days, the lymphocytes gradually increasing in percentage and in absolute numbers: eosinophil leucocytes averaged 2.07 per cent. on the first day and 3.42 per cent. on the tenth day, the absolute numbers of these cells remaining constant between 400 and 600 per c.mm. The monocytes ranged from 1,400 to 2,200 per c.mm., which is high; these cells did not share in the initial decrease of the total white cells, and followed neither the lymphoid nor the myeloid elements in their fluctuations. The number of neutrophil myelocytes and reticulated red cells was high on the first day, but rapidly decreased. The average total number of red cells decreased until the fourth day from 5,963,000 to 5,497,000, with a slight rise at the end of the first week, and subsequently falling slightly to 5,252,000 on the tenth day. The total number of platelets averaged 350,460 per c.mm., with a slight drop by the tenth day.

399. Physiology of the Sexual Hormones.

BY injections into castrated mice E. PHILIPP (*Zentralbl. f. Gynäk.*, September 21st, 1929, p. 2386) has found that the sexual hormone folliculin or oestrin is contained in large amounts in the urine of newborn infants of either sex until the end of the third day. The blood of the umbilical vein has previously been shown to contain the hormone. A number of observations are described which show that the source of the hormone in the newborn is the placenta: (1) it is present in hydatiform mole, which is purely foetal; (2) in the sow towards term the maternal ovary and blood, as well as the maternal portion of the placenta, contain practically none of the hormone concerned, while it is abundantly present in the foetal part of the placenta, the liquor amnii, and the foetal blood; (3) in the rabbit the oestrogenous substance is first detected in the blood towards term. It is well known that the hormone is abundant in the human placenta, and the author points out that the name "folliculin" in this connexion is inappropriate; the placenta plays the most important part in its production. It was also found that the urine of infants one to ten days old injected into infantile mice brought about the hypertrophic and intein changes in the ovarian follicles which are ascribed by Zondek and Aschheim to action of the anterior pituitary hormone, and constitute the criterion in their test for pregnancy by examination of maternal urine. Philipp confirms the observation also of Zondek and Aschheim that placental implantations induce similar ovarian changes in infantile mice; he found that particles of hydatidiform mole implanted, or the vesicular fluid injected, were also effective, and that the "anterior pituitary hormone" was more abundant in the foetal than in the maternal portion of the sow's placenta. He concludes that the pregnancy reaction of Zondek and Aschheim is due less to an overproduction of hormone by the anterior lobe of the pituitary than to a new production of hormone by foetal tissues.

400. Persistence of Meningococci after Death.

H. WILLIAMS, R. VAN WOERT, and V. M. BERGSTROM (*Journ. Amer. Med. Assoc.*, August 10th, 1929, p. 437) record a case in which live meningococci were isolated from the spinal fluid taken post mortem from a girl aged 8 years. The child had died on the fourth day of illness, and lumbar puncture was made to exclude the diagnosis of poliomyelitis. The body had been embalmed by the cavity process for twenty-six hours when the lumbar puncture was made, and thirty hours had elapsed from the time of death until the spinal fluid was examined. The meningococci did not belong to any particular type, but agglutinated polyvalent antimeningococcal

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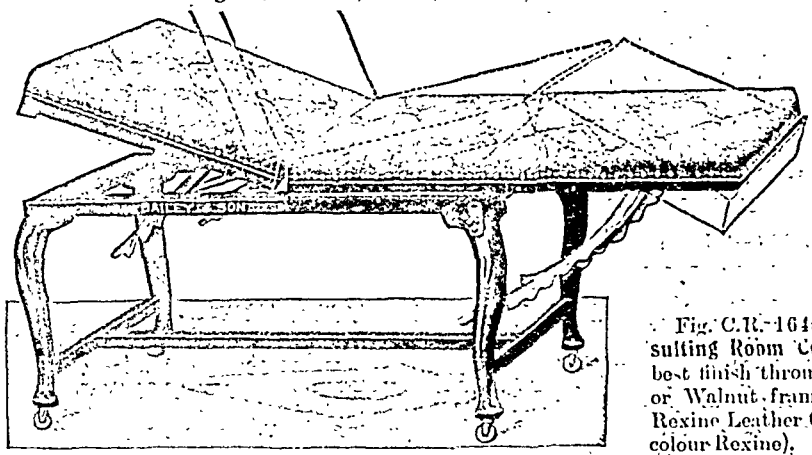

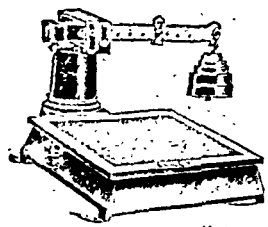

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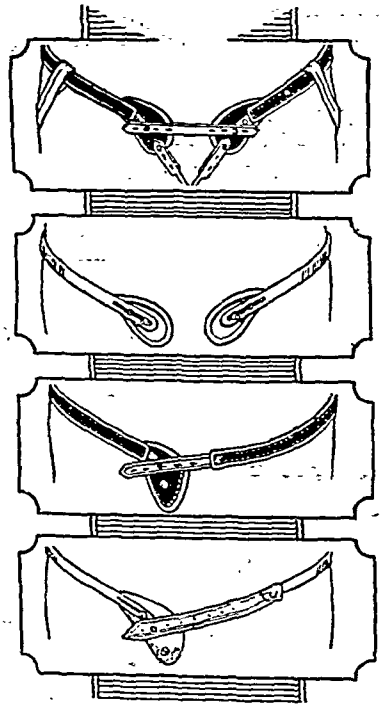

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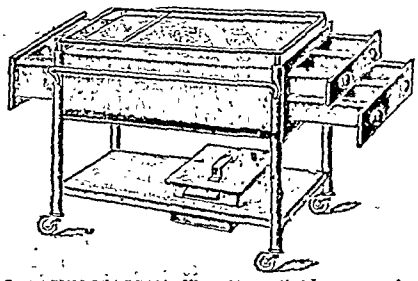

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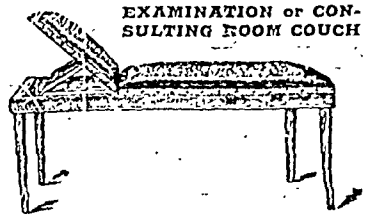

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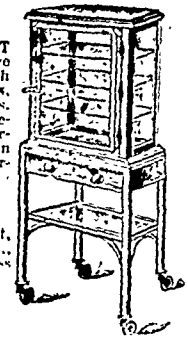

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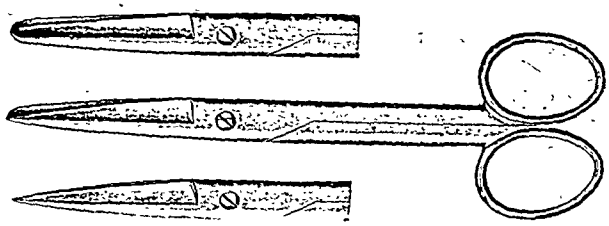

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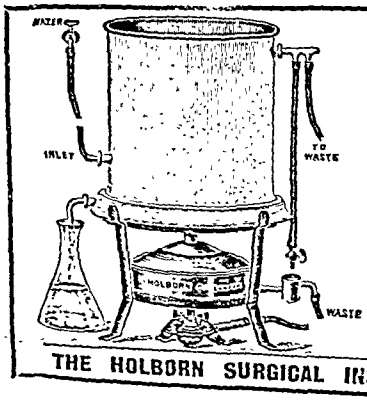

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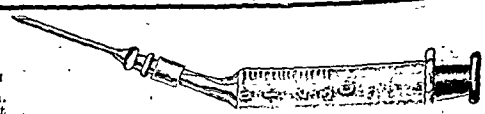

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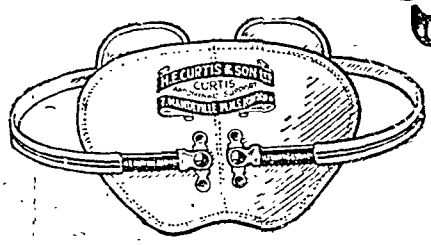

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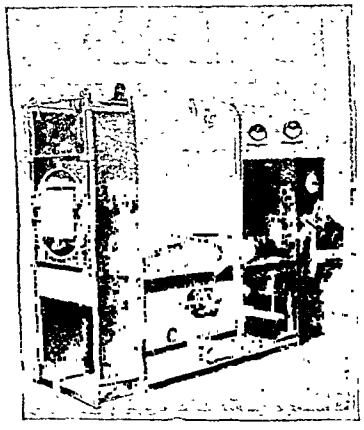

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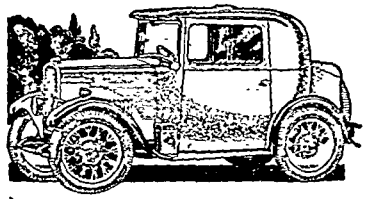

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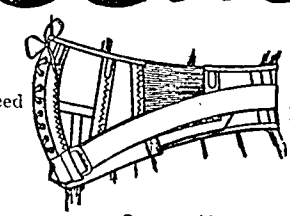

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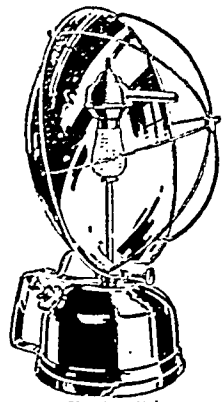

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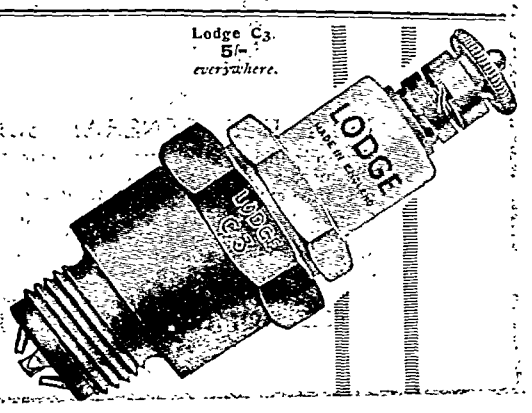

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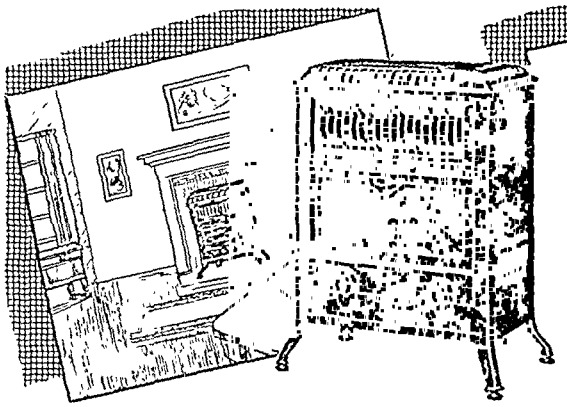

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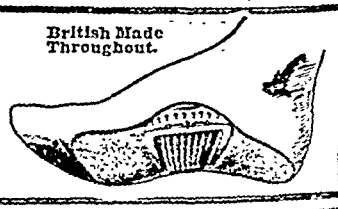

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HOVIS
REGD. TRADE MARK
Best Bakers Bake it.

FUNCTIONAL NERVOUS DISORDERS.
CALDECOTE HALL, NUNEATON.
RESIDENTIAL TREATMENT of the most modern kind is carried out under the personal direction of the *Resident* Medical Superintendent in this beautiful Country Mansion. Fees are moderate. *Full particulars from the Resident Medical Superintendent*:
A. E. CARVER, M.D., D.P.M.,
Telephone: Nuneaton 241.

CHEADLE ROYAL,
CHEADLE, CHESHIRE.
This registered Hospital for MENTAL [illegible] branch Glan-y-Don, [illegible] atment and care of [illegible] e UPPER and MID- [illegible] *Boarders* received. [illegible]
For terms, etc., apply to the Medical Superintendent, J. A. C. ROY, M.B., who may also be seen in Manchester by appointment.
Telephone: 481 GATLEY.

STRETTON HOUSE,
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A PRIVATE HOME for the treatment of Gentlemen suffering from Mental or Nervous allied disorders of Habit. All types of cases are received
Voluntary Boarders.
Medical Directory, p. 2138.—Apply to Medical Superintendent.
Telephone: 10 P.O. Church Stretton.

CLARENCE LODGE,
CLAPHAM PARK, LONDON.
Situated in 3½ acres of secluded gardens
HOME FOR TWELVE MENTAL PATIENTS (LADIES).
Home comforts
Eminent Mental
Station: Clapham Common Tube. *Telephone*: Brixton 0494. Apply: Mrs. THWAITES.

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RENDLESHAM HALL

(Postal Address)—WOODBRIDGE, SUFFOLK.

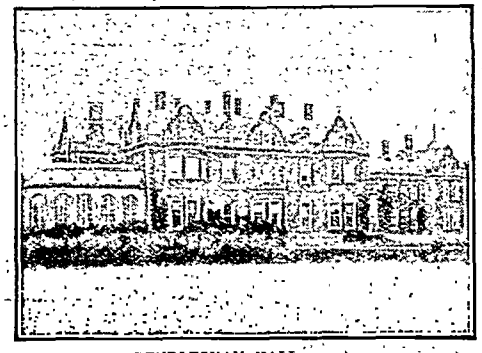
Rendlesham Hall, which is open to receive patients, is essentially a Sanatorium. Its daily life and routine are that of an ordinary comfortable holiday or health resort, or of a large country house. Each patient has all the privileges of a guest consistent with the prescribed medical treatment.

Rendlesham Hall has 45 bedrooms, and about 450 acres of gardens and park. It has also a private nine-hole golf course, tennis and croquet lawns, and bowling green.

Illustrated Booklet, giving particulars as to terms, etc., can be had on application to the

RESIDENT MEDICAL SUPERINTENDENT.

Telegrams and Telephone: Wickham Market 16.



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Telephone: RAVENSBOURNE 0648. *Telegrams:* NOROTORIUM, BECKENHAM.

Proprietors: The Norwood Sanatorium, Limited.

ALCOHOLISM, DRUG HABIT, AND NEURASTHENIA.

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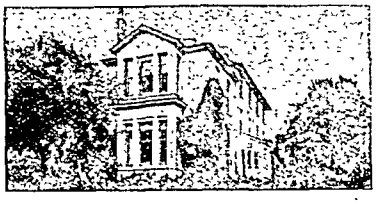
A small comfortable Home charmingly situated in secluded gardens overlooking Torbay. Ladies and Gentlemen treated with a view to a rapid and permanent cure by modern methods, which give excellent results. Ample amusement, billiards, wireless, golf, tennis, etc. Good train service (3¼ hours London). Moderate inclusive terms. Prospectus, report, etc., from—Stanford Park, M.B., CH.B., Res. Med. Supt., Bay Mount, Paignton



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THE HARE NURSING HOME

As founded and established by the late Dr. FRANCIS HARE, for 20 years Med. Supt. of The Norwood Sanatorium, and author of "Alcoholism," etc.; for the treatment of ALCOHOLISM, other Drug Habits, Insomnia, Neurasthenia, Functional Nervous Disorders, TROPICAL Ailments, etc.

"THE OLD HILL HOUSE," CHISLEHURST, KENT.

Terms moderate. Quiet and pleasant situation. *Ladies and gentlemen admitted for treatment.* For Prospectus, etc., write or 'phone: WALTER E. MASTERS, M.D., M.R.C.S., D.P.H., Barrister-at-Law (Resident Medical Superintendent). *'Phone:* Chislehurst 451. *Telegrams:* "Masters," Chislehurst.

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The Church of England Temperance Society has its own COUNTRY MANSION where Treatment is given by its Resident Medical Superintendent. The Institution is not conducted for profit, and fees are moderate, with Grants in-Aid, in certain cases

Particulars from the General Secretary.

40, Marsham Street, S.W.1.

CITY OF LONDON MENTAL HOSPITAL, DARTFORD, KENT

PRIVATE PATIENTS ... lived at a weekly ... upwards. ... now be ad- ... SUPERINTENDENT.

THE MORPHIA HABIT.

The Springfield method, selected for full description in the "Medical Annual," has been favourably noticed in medical papers throughout the world. Eighty per cent. of cases treated in the last four years are still well; average duration of treatment 30 days.

This special treatment was originated and is carried out in a general nursing home, the address of which is never advertised.

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INEBRIETY

DALRYMPLE HOUSE, RICKMANSWORTH, HERTS.

For the treatment of GENTLEMEN under the Act and privately. Estab. 1883 by an Association of prominent medical men and others for the study and treatment of alcohol and drug abuse. Large secluded grounds on the bank of the River Colne. Full-sized billiards, tennis, croquet, bowls. Golf (Moor Park, Sandy Lodge) close by For particulars apply to— F. S. D. HOGG, M.R.C.S., &c., Resident Medical Supt. Telephone: 16 RICKMANSWORTH.

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Large gardens, deer park, private golf links, fishing. Grounds extend to over 200 acres.

Voluntary Boarders accepted.

Apply for particulars to Dr. SANKEY.

SPRINGFIELD HOUSE,

Near BEDFORD. (Phone 3417)

FOR MENTAL AND NERVOUS CASES

Physicians: DAVID AND CEDRIC W. BOWER. *Ordinary Terms,—Five Guineas per week.* (Including Separate Bedrooms where suitable.) Interviews in London by appointment.

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A registered Hospital situated in large grounds near the Cathedral receives VOLUNTARY BOARDERS and PRIVATE PATIENTS of both sexes for treatment of Mental and Nervous Disorders, including Post-Encephalitic conditions. Special facilities for Psychotherapy in co-operative cases.

All particulars may be obtained from the Resident Medical Superintendent, Dr. MARY R. BARKAS, M.D., D.P.M.

Tel. & Telegrams: "Haynes Brentwood, 45"

Littleton Hall, Brentwood, Essex.

Large grounds, 400 ft. above sea. HOME for Ladies Mentally afflicted. Voluntary Boarders received. Stations: Brentwood and Shenfield 1 mile. Liverp'l St. 26 min.—Apply, Dr. HAYNES.

ST. ANDREW'S HOSPITAL
FOR MENTAL DISORDERS,
NORTHAMPTON

FOR THE UPPER AND MIDDLE CLASSES ONLY.

President: THE MOST HON. THE MARQUESS OF EXETER, C.M.G., A.D.C.

Medical Superintendent: DANIEL F. RAMBAUT, M.A., M.D.

This registered Hospital is situated in 120 acres of park and pleasure grounds. Voluntary Boarders, persons suffering from incipient nervous and mental disorders, as well as certified patients of both sexes, are received for treatment. Careful clinical, biochemical, bacteriological, and pathological examinations. Private rooms with special nurses, male or female, in the Hospital or in one of the numerous villas in the grounds of the various branches can be provided.

WANTAGE HOUSE.

This is a Reception Hospital in detached grounds, with a separate entrance, to which patients and voluntary boarders can be admitted. It is equipped with all the apparatus for the most modern treatment of Mental and Nervous Disorders. It contains special departments for hydrotherapy by various methods, including Turkish and Russian baths, the prolonged immersion bath, Vichy Douche, Scotch Douche, Electrical baths, Plombières treatment, etc. There is an Operating Theatre, a Dental Surgery, an X-ray Room, an Ultra-violet Apparatus, and a Department for Diathermy and High Frequency treatment. It also contains Laboratories for biochemical, bacteriological, and pathological research.

MOULTON PARK.

Two miles from the Main Hospital there are several branch establishments and villas situated in a park and farm of 650 acres. Milk, meat, fruit, and vegetables are supplied to the Hospital from the farm, gardens, and orchards of Moulton Park. Occupation therapy is a feature of this branch, and patients are given every facility for occupying themselves in farming, gardening, and fruit-growing.

BRYN-Y-NEUADD HALL.

The Seaside house of St. Andrew's Hospital is beautifully situated in a Park of 330 acres, at Llanfairfechan, amidst the finest scenery in North Wales. On the North-West side of the Estate a mile of sea coast forms the boundary. Voluntary Boarders or Patients may visit this branch for a short seaside change or for longer periods. The Hospital has its own private bathing house on the sea-shore. There is trout-fishing in the park.

At all the branches of the Hospital there are cricket grounds, football and hockey grounds, lawn tennis courts (grass and hard courts), croquet grounds, golf courses, and bowling greens. Ladies and gentlemen have their own gardens, and facilities are provided for handicrafts, such as carpentry, etc.

For terms and further particulars apply to the Medical Superintendent (Telephone No. 56, Northampton), who can be seen in London by appointment.

HAYDOCK LODGE,
NEWTON-LE-WILLOWS, LANCASHIRE.

Phone: 11 Ashton-in Makerfield.

For the reception and treatment of PRIVATE PATIENTS of both sexes of the UPPER AND MIDDLE CLASSES either voluntarily or under Certificate. Patients are classified in separate buildings according to their mental condition.

Situated in park and grounds of 400 acres. Self-supported by its own farm and gardens, in which patients are encouraged to occupy themselves. Every facility for indoor and outdoor recreation. For terms, prospectus, etc., apply MEDICAL SUPERINTENDENT.

BELVOIR NURSING HOME,
ASTON-ON-TRENT, DERBY.

FUNCTIONAL NERVOUS DISORDERS & CHRONIC MEDICAL CASES.

The Home, a Georgian mansion, 14 miles from Nottingham and 6 miles from Derby, is for both sexes. In addition to the methods of general medicine, Psycho-Therapeutic treatment is used extensively in suitable cases. Certifiable cases are not received. Electrical Treatment, Radiant Heat, X-ray, and Ultra-violet Light is available in the Nursing Home. Billiards, tennis, etc. Fees from 5 to 12 guineas per week; for Chronic Medical Cases from 3 guineas a week. For further particulars apply to—

Dr E. M DOUGLAS-MORRIS, ASTON, DERBY. *Telephone*: Shardlow 16.

THE COPPICE, NOTTINGHAM.
HOSPITAL FOR MENTAL DISEASES.

This Institution is exclusively for the reception of a limited number of Private Patients of both sexes of the Upper and Middle Classes at moderate rates of payment. It is beautifully situated in its own grounds on an eminence a short distance from Nottingham, and from its singularly healthy position and comfortable arrangements affords every facility for the relief and cure of those mentally afflicted. Voluntary Boarders received without Certificates.

For terms, etc., apply to the Medical Superintendent.

COURT HALL, KENTON, EXETER,
SOUTH DEVON.

For the care and treatment of Ladies suffering from Mental Diseases. Limited to eight patients. Telephone: Starcross 19.

CLIFFDEN, TEIGNMOUTH, in connection with Court Hall, for early and convalescent cases beautifully situated in grounds of 19 acres. The gardens are very attractive, and there is a private road to the beach.

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Telephone: *Teignmouth* 285.

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A Private Mental Hospital for the Treatment and Care of Mental and Nervous Disorders.

Now removed to:

CHISWICK HOUSE,
PINNER,
MIDDLESEX.

Telephone: PINNER 234.

A modern country house, 12 miles from Marble Arch, in beautiful secluded grounds.

Fees are from 10 guineas a week.

Voluntary Patients received for treatment.

DOUGLAS MACAULAY, M.D., D.P.M.

WONFORD HOUSE HOSPITAL,
EXETER, DEVON.

Telegrams: Exeter 2642. *Telephone*: Exeter 2642.

A registered Hospital for the treatment of patients of both sexes suffering from Nervous and Mental Disorders, situated in beautiful country within a mile and a half of the City of Exeter.

Hard and grass Tennis Courts, Croquet Lawn, Cricket Field, and all indoor amusements, Dancing, Concerts, Wireless, Billiards, Badminton. Occupational treatment.

The patients are carefully graded, and accommodation provides for the separate treatment of early recoverable and convalescent patients.

Voluntary and certified patients are received for treatment.

A prospectus and full particulars can be obtained from the Medical Superintendent.

BARNWOOD HOUSE,
GLOUCESTER.

A REGISTERED HOSPITAL for the CARE and TREATMENT of LADIES and GENTLEMEN suffering from NERVOUS and MENTAL DISORDERS. Within two miles of the G.W. Railway and L. M. & S. Railway Stations at Gloucester, the Hospital is easily accessible by rail from London and all parts of the United Kingdom. It is beautifully situated at the foot of the Cotswold Hills, and stands in its own grounds of over 280 acres. Voluntary boarders of both sexes are also received for treatment.

Special accommodation for Lady Voluntary Boarders is also provided at the MANOR HOUSE, which has its own private grounds and is entirely separate from the main Hospital.

For particulars as to terms, etc., apply to—
ARTHUR TOWNSEND, M.D., Resident Supt.
Telephone: No. 7 Barnwood.

The Devon Mental Hospital,
Exminster, near Exeter.

The Committee of the above Hospital have accommodation for the reception of PRIVATE PATIENTS of both sexes, in special wards, which are healthily situated, with extensive views of the Exe Valley and surrounding scenery. The Hospital is fully equipped with Operating Theatre and X-ray departments, and has facilities for Ultra-violet Light treatment and modern Hydrotherapy.

Charges: £3 3s. per week, including all necessaries except clothing. Reductions can be made by arrangement. Apply to the Med. Supt. Tel.: Deepway, Exeter. 'Phone: 3580 Exeter.

THE MOAT HOUSE,
TAMWORTH, STAFFS.

[illegible] for the TREATMENT of [illegible]m NERVOUS and [illegible] *olunt*ary patients [illegible] to Proprietor and [illegible]: 108 *Tamworth*.

WYE HOUSE, BUXTON.

For the treatment of Ladies and Gentlemen *mentally afflicted*. Voluntary Boarders received. Situated 1,200 ft. above sea-level, facing S.; 14 acres of grounds.—For terms, apply to the Resident Medical Superintendent, W. W. HORTON, M.D. Nat. Tel. 130.

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(FORMERLY DUFF HOUSE, BANFF.)

The first Private Hospital in the United Kingdom to be fully provided with a whole-time specially qualified Staff of Doctors, Analytical Chemists, Bacteriologists, Radiologists, Nurses, Dietists, Masseurs, and Masseuses, and a full equipment of Laboratories, X-rays, Electrocardiograph, Artificial Sunlight, and Medical Baths.

The Hospital is equipped for the diagnosis and treatment of any form of ill-health, except Mental and Infectious Diseases. The fees are inclusive.

The climate is mild and the neighbourhood beautiful. Apply: The Secretary,
Telegrams: Castle, Ruthin. Telephone: 66, Ruthin. Ruthin Castle, North Wales.

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A NURSING HOME OPENED IN 1911 FOR THE INVESTIGATION AND TREATMENT OF FUNCTIONAL NERVOUS DISORDERS OF ALL TYPES.

No cases under certificate. Thorough clinical and pathological examinations. Psychotherapeutic treatment, occupation, and recreation as suited to the individual case.

PARTICULARS FROM THE MEDICAL SUPERINTENDENT. *Telephone and Telegrams:* HARROW 0545.

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NEAR BASINGSTOKE, HANTS.

Private Hospital for Mental Diseases

A modern building situated in a healthy district, easily accessible by rail and road. Patients taken at from three guineas per week.

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Also completely detached Villas for mild cases, with private suites if desired. Voluntary Patients received. Twenty acres of grounds. Hard and Grass Tennis Courts, Bowls, Croquet, Squash Racquets, and all indoor amusements, including Wireless and other Concerts. Occupational Therapy, Physical Drill, and Dancing Classes. X-ray and Actino-therapy, Prolonged Immersion Baths. Operating Theatre, Dental Surgery, and Ophthalmic Dept. Chapel. Senior Physician: Dr. Hubert James Norman, assisted by three Medical Officers, also resident, and Visiting Pathologist. An illustrated Prospectus may be obtained upon application to the Secretary.

HOVE VILLA, BRIGHTON. — CONVALESCENT BRANCH OF THE ABOVE.

NORTHUMBERLAND HOUSE,

GREEN LANES, FINSBURY PARK, N.4.

Telegrams: "SUBSIDIARY, LONDON." *Telephone:* NORTH 0888.

A PRIVATE HOME for the treatment of patients of both sexes suffering from Mental Illnesses.
Conveniently situated four miles from Charing Cross. Easy of access from all parts.
Six acres of ground, highly situated, facing Finsbury Park.
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For further particulars, apply to the MEDICAL SUPERINTENDENT.

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A Private Hospital for the Care and Treatment of those of both sexes suffering from MENTAL DISORDERS.

Extensive grounds. Detached Villas. Chapel. Garden and dairy produce from own farm. Terms very moderate.

CONVALESCENT HOME at BOURNEMOUTH standing in 9 acres of ornamental grounds, with tennis courts, etc., which Patients or Boarders may visit by arrangement, for long or short periods.

Illustrated Brochure on application to the Medical Superintendent, The Old Manor, Salisbury. Telephone 51.

PECKHAM HOUSE, 112, Peckham Road, London, S.E.15.

Telegrams: "Alleviated, London." Telephone: Rodney 4741—4742.

The above House, which was established in 1826, is an Institution for the care and treatment of persons suffering from mental diseases and nervous disorders. Both certified patients and voluntary boarders are received. Separate houses for treatment and accommodation of special cases adjoin the Institution. There is a seaside branch, Kearsney Court, near Dover, to which patients may be sent for treatment or on holiday. Motor and carriage exercise is provided as required. Patients can avail themselves of a course of physical drill. Tennis courts. Entertainments, dances, and indoor amusements held throughout the year.

Illustrated prospectus and further particulars can be obtained from the Medical Superintendent.

MAUDSLEY HOSPITAL,
DENMARK HILL, S.E.5.

Telephone: RODNEY 4841.

A CLINIC instituted by the London County Council for Treatment of NERVOUS and CURABLE MENTAL DISORDER. Voluntary patients ONLY RECEIVED.

OUT-PATIENTS—2 p.m.: MEN—Mondays and Thursdays. WOMEN—Tuesdays and Fridays.
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Terms:

(*a*) **£5 a week**, but in case of patients with a legal settlement in the County of London a less sum may be charged according to means.
(*b*) **£6 6s. a week.**

Terms include (with rare exceptions) all forms of treatment, for which exceptional facilities exist—there being a staff of consultant specialists and the central laboratory of London County Mental Hospitals being attached to the hospital. Inquiries of EDWARD MAPOTHER, M.D., M.R.C.P., F.R.C.S., Medical Superintendent.

FENSTANTON,
CHRISTCHURCH ROAD,
STREATHAM HILL, S.W.2

A Private HOME for the Care and Treatment of a limited number of Ladies with Mental and Nervous Disorders. Separate accommodation for Voluntary Boarders. Large Mansion with 12 acres of ground (See *Medical Directory*, p. 2190.) Apply J. H. EVANS, M.D., Resident Physician Telephone: Streatham 8430

Telegraphic Address: "RELIEF, OLD CATTON." *Telephone:* 293 NORWICH.

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A PRIVATE NURSING HOME for the CURATIVE TREATMENT OF NERVOUS AFFECTIONS. Voluntary Boarders also received. Ladies only.

Apply, the Misses MCLINTOCK, or Dr. S. BARTON, Visiting Physician.

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BOX, near BATH.

For the CARE and TREATMENT of NERVOUS and MENTAL DISORDERS in BOTH SEXES.

Separate accommodation for Voluntary Boarders of the Female Sex. Applications received at the above or at 17, Belmont, Bath, by—
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Medical Superintendents

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A SMALL PRIVATE HOME FOR TREATMENT OF NEURASTHENIC CASES.

Magnificent situation overlooking Firth of Forth. Stress laid on re-education of will and ...nment.
... R J. BROCK,
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A HOUSE Licensed for the reception of a limited number of ladies suffering from Nervous and Mental disorders. Both certified and voluntary patients received. This is a large country house, with beautiful grounds and park, 5 miles from Sheffield. Station: Grange Lane, G.C. Railway, Sheffield. Telephone: No. 40030 Ecclesfield. Resident Physician: GILBERT E. MOULD, L.R.C.P., M.R.C.S.

BROOKE HOUSE,
CLAPTON, LONDON, E.5.

Telephone: Clissold 1648.

PRIVATE HOSPITAL for Ladies and Gentlemen suffering from Mental and Nervous Disorders. The hospital is situated in nine acres of pleasure grounds. Both voluntary and patients under certificates received. For further particulars apply Dr. GERALD JOHNSTON and Dr. ERNEST ROLLINS, Resident Physicians.

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650 feet above sea-level on Southern Chilterns. 90 acres, Gardens, Woods, and Park.

FOR REST AFTER OPERATION or ILLNESS, CARDIAC and NERVOUS DISEASES, or PERMANENT INVALIDS.

Fees from 8 guineas.

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FOR MENTAL DEFECTIVES, REDHILL, SURREY.
(FORMERLY THE EARLSWOOD ASYLUM.)

FOR THOSE REQUIRING CONTROL with EXPERT SUPERVISION, and needing SPECIAL TRAINING in useful Occupations, SCHOOLS, FARMING, and various TRADE WORKSHOPS.

ALL outdoor games. EXCELLENT BAND by Male Staff. Telephone:
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This beautiful mansion in fifty acres of secluded grounds was built specially for the TREATMENT OF MENTAL ILLNESS. Voluntary boarders and certified patients of both sexes. Thorough clinical, bacteriological, and pathological examinations. Separate bedrooms. Private suites. Indoor and outdoor amusements. Wireless and other concerts. Occupational therapy. Physical drill. Garden and dairy produce from farm on the estate. Reasonable terms.

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Unrivalled suites of Baths for Ladies and Gentlemen, including Turkish and Russian Baths, Aix, and Vichy Douches, Massage and Plombières Treatment, an Electric Installation for Baths and other Medical purposes, Dowsing Radiant Heat, D'Arsonval High Frequency, Diathermy, Nauheim Baths, etc. Special provision for invalids. Milk from our farm. Large Winter Garden. Night Attendance. Rooms well ventilated and all bedrooms warmed in Winter. A large Staff (upwards of 60) of trained Male and Female Nurses, Masseurs, and Attendants.

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For Prospectus and full information please write MANAGER, M.J.

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G. C. R. HARBINSON, M.B., B.Ch., B.A.O. (R.U.I.).
R. MACLELLAND, M.D., C.M. (Edin.).

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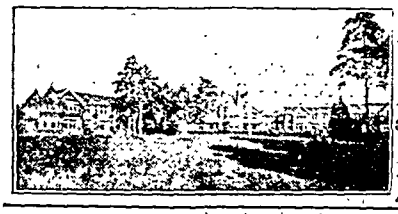

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Special Wards for Paying Patients.

3 to 4 Guineas per week.
Apply to the Sec., Brompton Hospital, S.W.3.

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Mild and invigorating climate.

RAVEN HOTEL or PARK HOTEL for health and for comfort. Cordial hospitality and first-class cuisine await you. Adjoining brine baths—the certain cure for rheumatism. Special residential terms for Autumn and Winter. There are 230 rooms, magnificent grounds, lock-up garages and cars for hire. Illus. booklet sent on request. 'Phone 50 or 38.

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Every kind of Bath. Plombière Lavage.
Every kind of Massage. Ultra-violet Light.
Every kind of Electricity. Diathermy.
Every kind of Diet.
Carlsbad and Vichy Waters, etc.
High Frequency. Electric Lift.

Prospectus from Secretary. *Tele.* 341
Resident Physician: W. JOHNSON SMYTH, M.D

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A Private Home for the care and treatment of a limited number of ladies mentally afflicted. Climate healthy and bracing.
Medical Superintendent: Dr. MCCLINTOCK.

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Unsurpassed situation, 600 ft. above sea level, high sunshine record, own farm. Resident Medical Officer. Male cases only.

Inclusive weekly terms 50/-.

Special preferential arrangements for a few private cases at 4 guineas.
Artificial Pneumothorax, etc.

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Specially built for the Open-air Treatment of Tuberculosis, and opened in 1901. Bracing mountain air. Elevation 860 ft. above sea-level. Sheltered situation in pine wood. Graduated walks. Electric light throughout building and in shelters. Central heating. Fully equipped X-ray Plant. Inoculation Treatment available for patients—24 beds. Trained Nurse on duty all night. Terms £4 6s. 8d. to £6 6s. *inclusive p.w.* Med. Supt.—FELIX SAVY, M.B., Ch.B. For particulars apply to the Secretary.

Haslemere Nursing Home,
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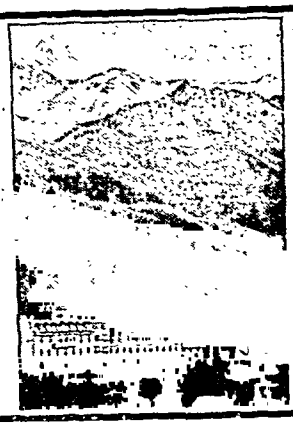
Medical, Convalescent, and permanent patients. Ideal for Rest Cures. Comfort, sunny rooms, large gard., own poultry, veg., etc. Trained staff. 5 to 10 gns. weekly. Tel.: Haslemere 22.



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SUNNIEST HEALTH RESORT IN THE ALPS.

For the treatment of all forms of lung diseases.
Special Department for surgical cases.

NEW MANAGEMENT.

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Full day and night staff of ENGLISH and Swiss trained nursing SISTERS.

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MURTLE DEESIDE ABERDEENSHIRE.

Medical Director: David Lawson, M.D., F.R.S.E.

FULLY EQUIPPED WITH EVERY MODERN APPLIANCE FOR THE DIAGNOSIS AND TREATMENT OF ALL FORMS OF TUBERCULOSIS & ALLIED DISEASES.

Physician Superintendent - J. M. JOHNSTON, M.B., D.P.H., etc.

Full particulars and Prospectus on application to the Secretary.

Inclusive Terms: SEVEN GUINEAS A WEEK.

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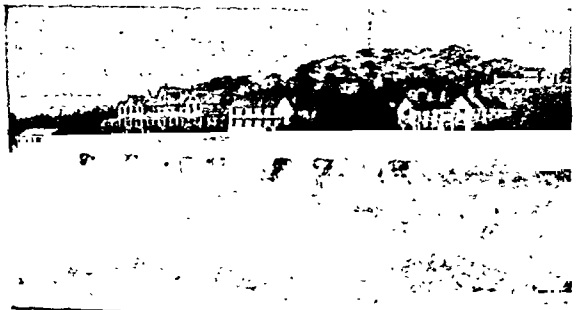

Specially built for the treatment of Pulmonary and other forms of Tuberculosis. Aspect S.S.W., on a carefully chosen site. Pure bracing air. High sunshine record. Heliotherapy. Arc-light treatment. One mile from the coast. Electric light throughout. X-ray installation. Full day and night Nursing Staff. Wireless (headphones) throughout.

Resident Physicians:
S. VERE PEARSON, M.D.(Camb.), M.R.C.P.(Lond.),
L. WHITTAKER SHARP, M.B.(Camb.).
ANDREW J. MORLAND, M.B.(Lond.).

Apply, Mr. D. C. FORD, Secretary,
The Sanatorium, Mundesley, Norfolk.

LINFORD SANATORIUM,

RINGWOOD, NEW FOREST, HANTS.

Established 1893 for the treatment of Tuberculosis. Radiators and Electric Light throughout. Hot and cold water and shower bath in nearly all rooms. Powerful X-ray Plant. Ultra-violet Rays. Full Nursing Staff. All forms of treatment available. Farm of 120 acres, including 40 acres of wood. Herd of Tuberculin-tested Guernsey cows kept. Resident Physicians—Arthur de W. Snowden, M.D., B.Ch.(Cantab.), A. G. E. Wilcock, M.R.C.S., L.R.C.P., Colin Cassidy, M.B., B.Ch.(Cantab.).

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PENMAENMAWR.

Established 1900 for the treatment of Tuberculosis. Miles of carefully graduated walks through pine-clad hills, with sea and mountain views. Modern treatment, including SANOCRYSIN, ARTIFICIAL PNEUMOTHORAX, etc. X-ray plant, electric light, central heating, wireless. Full day and night nursing staff. On L.M.S. Main Line to Holyhead, 4½ hours from London. Resident Physicians: Dennison Pickering, M.D.(Cantab.), F. W. Godbey, M.D., D.P.H.; Matron: Miss N. Rennardson, S.R.N.

For particulars apply to the Secretary, Pendyffryn Hall, Penmaenmawr, N. Wales. ('Phone, 20.)

BRIDGE OF ALLAN HYDRO.

(Allan Water Hotel)

This once famous Hydro adjoining the Mineral Wells has recently been equipped with the most modern appliances for treatment by Electro-therapeutics, Medicated Baths, etc. All treatment is given only on the instruction of the Medical Superintendent, or of the patient's own medical adviser.

Bridge of Allan is an Inland Spa and Climatic Resort, sheltered from the North and East winds.

Terms on application. Medical Superintendent: Dr. W. C. HOFFMAN.

NORDRACH-UPON-MENDIP SANATORIUM

FOR THE TREATMENT OF PULMONARY AND OTHER FORMS OF TUBERCULOSIS
WAS OPENED IN JANUARY, 1899.

Patients are received for open-air, inoculation, or operative treatment. There are X-ray and ultra-violet ray installations. Full nursing staff. The Sanatorium stands in gardens and private grounds of 65 acres, at an elevation of 862 feet above sea-level, surrounded by woods and moorland. The patients' rooms are heated by hot-water pipes and electrically lighted. Fees 4, 5, and 6 guineas per week.

Physicians: ROWLAND THURNAM, M.D., JAMES HENDERSON, M.B., Ch.B.Glas.

For full particulars apply to *The Secretary*, Nordrach-upon-Mendip, Blagdon, Bristol. *Telegrams*: Nordrach, Blagdon. *Telephone*: Blagdon 25.

The Tavistock Square Clinic for Functional Nervous Disorders, 51, Tavistock Square, W.C.1.

A SHORT COURSE

of Lectures on

FUNCTIONAL NERVOUS DISORDERS

FOR PRACTITIONERS AND STUDENTS

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Post-Graduate Teaching, West London Hospital.

Continuous Clinical Instruction daily from 10 a.m. to 4 p.m.—Post-Graduates may enrol at any time for any period from 1 week to 3 months.—Special facilities for "Study Leave."—Anæsthetic Courses.—Clinical Assistantships.—Annual Membership Tickets at Special Terms available for General Practitioners who wish to attend the Hospital Practice at irregular intervals.

Prospectus from Sir Henry Simson, K.C.V.O., Dean, West London Hospital, Hammersmith, W.6.

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(ITALIAN RIVIERA)

and Sunshine for the Winter.

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All the advantages of an English Hydro, with English Medical Men and modern electro-therapeutic and hydropathic treatments available. Resident qualified English Nursing Matron. Special diets arranged.

Beautiful situation and bright sunny rooms. Central heating, lift, and all the conveniences of a modern hotel.

Pension terms from 12/6 a day inclusive, according to accommodation.

For further particulars apply to MANAGER.

Member of the British Spas Federation

TREFRIW WELLS

is the richest Sulphur-iron Spa known—the waters contain Iron as Ferrous-sulphate—the dosage never exceeds one ounce—and they are wonderfully curative in cases of *Anæmia*, Neur-asthenia, Neuritis, Sciatica, Rheum-atism, Nephritis, Mucous Colitis, and Kindred Ailments.

PERFECTED SYSTEM OF HOME TREATMENT.

The waters are scientifically bottled in absolutely natural Spa condition, without any alteration, and supplied through the post, so that the actual Spa Cure may be taken by patients at home just as beneficially as at the Spa.

Full particulars from Manager of the Pumproom and Baths, Trefriw, Caernarvonshire, N. Wales.

VILLA WALDFRIEDE.

HOME FOR CHILDREN and YOUNG PEOPLE, delicate or predisposed to Tuberculosis, in English Doctor's House, near Davos, Switzer-land. Terms from £5 5s. p.w.—Apply, Dr. BERNARD HUDSON, Victoria, Davos, Switzerland

VICTORIA SANATORIUM

(an entirely British Sanatorium), DAVOS (GRISONS), SWITZERLAND. Terms from £5 a week. Medical Supt.: BERNARD HUDSON, M.D.(Cantab.), M.R.C.P., Swiss Federal Diploma

Mental Patients (not certifiable).—Vacancies for two, either sex, in an ideal private Country HOME near London. Physician and Nursing Sister in residence. Moderate terms, many amenities.—Write Box 831, ALDRIDGE'S ADVERTISING SERVICE, 34, Paternoster Row, E.C.4.

Matron giving up Nursing Home will take Two INVALID GUESTS (not bedridden). Skilled attention can be given. Telephone: Hampstead 7102.

GLASGOW POST-GRADUATE MEDICAL ASSOCIATION.

A SERIES OF WEEKLY DEMONSTRATIONS for medical practitioners has been arranged in the various hospitals of Glasgow, from the end of May, also offered, and are available in syllabus may be Secretary, Post-Graduate Medical Association, The University, Glasgow.

STAMMERING, SPEECH DEFECTS.

BEHNKE METHOD. Estab. 1882. Cases, non-resident, treated at 39, Earl's Court Square, S.W.5, and in residence, in the Summer holi-days, at Miss BEHNKE'S house on the Chilterns. and treatment —"Times." —"Lancet." and perfectly

STAMMERING, CLEFT PALATE SPEECH, LISPING, of Miss BEHNKE, 39, Earl's Court Sq., S.W.5.

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Qualified Medical Women are admitted to The Mothers' Hospital of the Salvation Army, Lower Clapton Road, E.5 for practical fortnightly Courses in Midwifery. These include delivery of normal cases, attend-ances at all abnormal cases, operations, ward rounds of visiting staff, V.D. clinics, and ante-natal clinics. For further particulars, fees, etc., apply to the Secretary.

Society of Apothecaries of LONDON.

MASTERY OF MIDWIFERY EXAMINATION.

The next Examination will take place on Monday, November 18th, and following days. For regulations apply to—

FRANK HAYDON, Secretary.

Trained Mental Nurse has accommodation in her own PRIVATE HOUSE for one GIRL PATIENT, aged about 10 years. Doctor's references.—Write Box "U.60," WILLINGS, 86, Strand, W.C.2

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Sir,—Please send me your "Guide to Medical Examinations" by return.

Name.....
Address.....
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Examination in which interested .....

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POSTAL OR ORAL PREPARATIONS FOR ALL MEDICAL EXAMINATIONS.

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F.R.C.S.(Eng.), *Primary* 149
(1906-28) *Final* 135
M.R.C.P.(Lond.), 1914-28 **152**
D.P.H. (Various) 1906-28 (Completed Exam.) **280**
F.R.C.S.(Edin.), 1918-28 **39**
M.R.C.S., L.R.C.P. *Final* 1910-28 (Completed Exam.) **402**
M.D.(Dur.) (Practitioners) 1906-28 **36**
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M.R.C.P., M.D., Final F.R.C.S., F.R.C.S. (Edin.), Final M.B., B.S., and M.R.C.S., L.R.C.P. Museum and Microscope Work. Also Private Tuition.

MEDICAL PROSPECTUS (48pp.)

CONTENTS:—The method and the cost of entering the Medical Profession. *Particulars of all* [illegible] Courses, and Oral [illegible] higher Medical [illegible] the higher Surgical [illegible] for the Special [illegible] Course. Openings for Women. Hints for writing theses.
Medical Prospectus gratis along with list of Tutors, etc., on application to the Principal, Mr. E. S. WEYMOUTH, M.A., 17, Red Lion Sq., London, W.C.1. (Telephone: HOLBORN 6313.)

LONDON HOSPITAL MEDICAL COLLEGE.

(University of London.)

SCHORSTEIN MEMORIAL LECTURE.

The above Lecture will be delivered by ARTHUR F. HURST, Esq., D.M., F.R.C.P., Senior Physician to Guy's Hospital, on FRIDAY, NOVEMBER 8th, 1929, at 4.30 p.m., in the BEARSTED CLINICAL THEATRE.
Subject: *"Precursors of Carcinoma of the Stomach."*
Members of the Profession are cordially invited to attend.

Professor WILLIAM WRIGHT, M.B., D.Sc., F.R.C.S., Dean.
September 3rd, 1929.

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(Camb., Edin., Glasg., Durh., &c.)
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Special Terms to Medical Men.

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ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN,
LEICESTER SQUARE, W.C.2.

Conducted by the Honorary Staff of the Hospital, together with the Physicians in charge of the Dermatological Departments of the London Teaching Hospitals. Lectures and Demonstrations every Tuesday and Thursday, at 5 p.m., from October to March, and four times weekly during May. Clinics daily at 2 p.m. and 6 p.m., Saturdays, 2 p.m. only. Pathological Laboratory for Instruction or Research Work.
For further particulars, fees, etc apply to J. E. M. WIGLEY, M.B., Dean

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New Science Buildings, containing seven laboratories, two lecture rooms, science library, store rooms, etc., opened in September, 1925. Prospectus from Head Master.

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(UNIVERSITY OF LIVERPOOL)

COURSES OF INSTRUCTION (lasting about three months) for the Diploma in Tropical Medicine commence on October 1st and January 7th, and for the Diploma in Tropical Hygiene on January 12th and April 26th. (Candidates for the D.T.M. must possess the D.T.M. of this University.)
For particulars apply to the Hon. Dean, Liverpool School of Tropical Medicine, Pembroke Place, Liverpool

F.R.C.S.(Edin.),

Prep. Classes and Museum Demons. for next Fellowship Exam. will commence shortly. Correspondence course for March and, later exams should begin now. Partics., Mr. H. C. ORRIN, F.R.C.S., at Surgeons' Hall, Edinburgh.

RADIOLOGICAL UNIT.

PRESTON ROAD, HARROW.
(11 mins. Baker Street Met. Station.)
COURSES OF LECTURES for Practitioners on the USE OF X-RAYS IN SURGICAL DIAGNOSIS.
Particulars—A. P. BRETWISTLE, M.D., Ed.

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Special Classes for Pre-Medical and Dental Exams., Matric., and Prelims.
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F.R.C.S.(Edin.)

CLASSES, with Museum and Anatomical [illegible] Exam. will commence [illegible] work at any time. [illegible] WHITTAKER, F.R.C.S., Surgeons' Hall, Edinburgh.

A POST-GRADUATE COURSE IN ORTHOPÆDIC SURGERY.

A SPECIAL TWO WEEKS' COURSE will be held at the ROYAL NATIONAL ORTHOPÆDIC HOSPITAL from November 18th to 30th. Fee three guineas. Lectures and demonstrations will be given, and those taking the course will have access to operations and the practice of the Hospital. Names of those wishing to attend should be sent to the Secretary of the Hospital, 234, Gt. Portland Street, W.1, or to the Secretary, Fellowship of Medicine, 1, Wimpole Street, W.1, not later than November 12th

Royal College of Physicians.

DR. J. A. ARKWRIGHT will deliver the BRADSHAW LECTURE on TUESDAY, NOVEMBER 5th, at 5 p.m., at the COLLEGE, PALL MALL EAST, S.W.1.

Subject: "*The Virulence of the Micro-organism in Infective Disease.*"

Any member of the Medical Profession admitted on presentation of card.

By Order of the President,
H. M. BARLOW, Bedell & Secretary.

Royal College of Physicians.

DR. G. F. STILL will deliver the FITZPATRICK LECTURES on THURSDAY, NOVEMBER 7th, and TUESDAY, NOVEMBER 12th, at 5 p.m., at the COLLEGE, PALL MALL EAST, S.W.1.

Subject: "*The History of Paediatrics in the XVIIth and XVIIIth Centuries.*"

Any member of the Medical Profession admitted on presentation of card.

By Order of the President,
H. M. BARLOW, Bedell & Secretary.

The Royal Society.

FOULERTON RESEARCH STUDENTSHIP.

Subject to candidates of sufficient merit presenting themselves, the President and Council of the Royal Society propose to appoint a Foulerton Research Student at a stipend of £700 per annum, the duties of the Student being to conduct researches in Medicine or the contributory sciences under the supervision and control of the Management Committee, to whom he will be required to report from time to time.

The Studentship will be tenable for three years, but may be renewed from year to year with a maximal total tenure of six years. Members of either sex are equally eligible, but must be of British nationality. Applications must reach the Royal Society not later than December 9th. Further particulars can be obtained from the Assistant Secretary of the Royal Society, Burlington House, London, W.1.

The University of Sheffield.

FACULTY OF MEDICINE.

The Council of the University and the Board of Management of the Royal Hospital, Sheffield, acting conjointly, are about to make an appointment to the post of PATHOLOGIST to the Hospital and DEMONSTRATOR OF PATHOLOGY in the University. The salary offered is £500 per annum. Applications, accompanied by recent testimonials and references, should be sent on or before Saturday, November 16th, to the undersigned from whom further details may be obtained.

W. M. GIBBONS, Registrar.

The University of Sheffield.

FACULTY OF MEDICINE.

The Council of the University are about to make an appointment to the post of LECTURER IN PATHOLOGY in the University. The salary offered is £500 per annum. Applications, accompanied by recent testimonials and references, should be sent on or before Saturday, November 16th, to the undersigned, from whom further details may be obtained.

W. M. GIBBONS, Registrar.

Preliminary Examinations.

The COLLEGE OF PRECEPTORS holds Preliminary Examinations for Medical and Dental Students in London and at Provincial Centres in March, June, September, and December. For Regulations, apply to the Secretary, College of Preceptors, Bloomsbury Square, London, W.C.1.

Dancing.—Miss Evadne Newsholme,

Tel.: Mountview 3634, Palace Hotel, Lancaster Gate, W.2. Private lessons (course of 3 and 7: 2 gns. and 2 gns.). Reduction 2 or more pupils: of 2: 3 gns.; 4, 5 gns. (7 lessons). Class course of 12 £1/11/6; single class 3/6.

Southern Rhodesia.

The GOV
invite app
titioners
PUBLIC

The duties embrace the charge of the Government Public Health Department, which controls the Medical, Nursing, and Hospital Services; Medical and Dental Services for Schools, Defence, and Police; Health on Mines; Registration of Births and Deaths; Administration of Law Ordinances relating to Public Health, Foods and Drugs, Medical and Dental Registration, Leprosy Repression; Lunacy; and the Department generally deals in an advisory capacity to the Government in all matters pertaining to the Public Health.

The appointment to be subject to six months' notice of termination by either side. The appointment is on the Pensionable Establishment of the Southern Rhodesia Civil Service.

Applicants must also possess a recognized Diploma in Public Health and must be able to assume duty by April 1st, 1930. Salary will be at the rate of £1,750 per annum, with an allowance of £120 per annum towards the cost of motor transport at headquarters.

First-class steamship and rail passage to Salisbury will be provided.

Private practice will not be allowed.

Further particulars can be obtained from the Secretary, Office of the High Commissioner for S. Rhodesia, Crown House, Aldwych, London, W.C.2, to whom applications, with full details as to age, qualifications, past appointments held, with references, etc., should be addressed and should reach that official not later than November 15th, 1929.

County Borough of Dewsbury.

APPOINTMENT OF MEDICAL OFFICER OF HEALTH AND SCHOOL MEDICAL OFFICER.

The Dewsbury Corporation invite applications from duly qualified and registered Medical Practitioners holding the Diploma in Public Health for the position of Medical Officer of Health and School Medical Officer at a commencing salary of £900 per annum.

The gentleman appointed will be required to devote the whole of his time to the duties of the office, to reside in the Borough, and will not be allowed to engage in private practice. All emoluments or fees which may be payable to or received by him, must be paid over to the Corporation.

The appointment will be made in accordance with and subject to the Public Health Officers Act, 1921, the Sanitary Officers Order, 1926, and to the approval of the Minister of Health.

Canvassing, either directly or indirectly, is prohibited. Applicants may, if they desire, forward 15 copies of their application and testimonials for the use of the members of the Committee.

Applications, with copies of not more than three recent testimonials attached, to be sent to me, endorsed "Medical Officer of Health," not later than November 8th.

Town Hall, HOLLAND BOOTH,
Dewsbury. Town Clerk.
October 18th, 1929.

Borough of Dover.

ASSISTANT MEDICAL OFFICER OF HEALTH.

The Corporation of Dover invite applications for the above appointment from Medical Practitioners between 30 and 40 years of age who hold a Diploma in Sanitary Science. Salary £700, rising to £750.

The applicant appointed will be required to commence his duties as soon as possible and to devote his attention principally to work under the Aliens Order, 1920. Colloquial French and German will be a recommendation.

Further details of the duties and terms and conditions of the appointment may be obtained of the undersigned, to whom applications, accompanied by copies of testimonials, must be delivered by November 7th.

Town Clerk's Office, R. E. KNOCKER,
Brook House, Town Clerk.
Dover October 28th, 1929.

Bolton Union.

TOWNLEYS HOSPITAL.

Wanted for the Townleys Hospital, Farnworth, near Bolton, a SECOND ASSISTANT MEDICAL OFFICER (male) for a period of one year.

The salary will be at the rate of £225 per annum, and rations, furnished apartments, attendance, washing, etc.

Forms of application, together with conditions of appointment (for which a stamped addressed foolscap envelope must be enclosed), may be obtained from me.

Last day for applications November 11th.

28 Mawdsley St., H. I. COOPER,
Bolton. Clerk to the Guardians.
October 18th, 1929.

County Borough of Derby.

APPOINTMENT OF MEDICAL OFFICER OF HEALTH.

The Council of the County Borough of Derby invite applications for the appointment of Medical Officer of Health for the Borough. Commencing salary £1,100 per annum.

Candidates must be duly qualified Medical Practitioners possessing a recognized Diploma of Public Health and the requisite qualifications required by Acts of Parliament and Regulations of the Ministry of Health. Any applicant appointed must devote the whole of his time to his duties and not engage in private practice.

The appointment will be subject to the provisions of the Local Government and Other Officers Superannuation Act, 1922, and the selected candidate will be required to pass a medical examination satisfactory to the Corporation.

Age not to exceed 40 years in the case of any applicant not already in the service of the Corporation.

Other conditions being equal, preference will be given to applicants possessing the necessary qualifications who have actually served in the Forces overseas.

Particulars of qualifications and duties of the office and terms and conditions of service, together with forms of application, may be obtained from the undersigned, and applications endorsed "Medical Officer of Health" (on the form supplied only), accompanied by copies of not more than three recent testimonials, to be sent to the Town Clerk, Derby, not later than Saturday, November 16th.

Canvassing, either directly or indirectly, will be a disqualification.

Market Place, G. TREVELYAN LEE,
Derby. Town Clerk.
October 30th, 1929.

County Borough of East Ham.

MEDICAL
RESIDENT
ISOLATION

The Town Council invite applications from duly qualified persons for the appointment of Deputy Medical Officer of Health and Resident Medical Superintendent of the Isolation Hospital at a salary of £700 per annum, plus residence, light, and fuel (these emoluments being valued for superannuation purposes at £100 per annum).

Age not to exceed 45 years.

The successful candidate will be required to give full-time service and act under the control and direction of the Medical Officer of Health. Administrative and organising ability are essential qualifications for the post.

Candidates must possess the Diploma in Public Health and must have had previous experience of administration in a Public Health Department of a Municipal Corporation.

The appointment will be subject to the approval of the Ministry of Health and the Board of Education.

The person appointed must not engage in private practice, and will be required to pass a medical examination, and the appointment will be subject to the provisions of the Local Government and Other Officers Superannuation Act, 1922.

Applications, on forms to be obtained from the undersigned, must be, together with copies of three recent testimonials, received by him on or before noon on Thursday, November 14th.

Canvassing, either directly or indirectly, will disqualify.

By Order,
Town Hall, C. EUSTACE WILSON,
East Ham, E.6. Town Clerk.
October 16th, 1929.

Burgh of Motherwell & Wishaw.

ASSISTANT TUBERCULOSIS OFFICER AND ASSISTANT MEDICAL OFFICER OF HEALTH.

from duly registered
male) holding the
and with experience

of tuberculosis work, for the post of Assistant Medical Officer of Health and Resident Tuberculosis Officer in the Tuberculosis Hospital, Wishaw. Salary £450 per annum, with board and residence in the Tuberculosis Hospital, Wishaw.

The duties will be whole-time and under the direction of the Medical Officer of Health, and will be mainly those of executive tuberculosis work. The person appointed will also undertake general public health work when required.

Applications, stating age, qualifications, and experience, with copies of testimonials, not exceeding three in number, to be lodged with the Subscriber on or before November 9th.

Town Hall, A. G. STEWART,
Motherwell. Town Clerk.
October 23rd, 1929.

APPOINTMENTS—Important Notice.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

(a) British Islands.

Town or District.	Town or District	Town or District
CONTRACT PRACTICE.	**CONTRACT PRACTICE** *(Contd.).*	**PUBLIC HEALTH** *(continued).*
EBBW VALE, MON. *(Workmen's Medical Society.)*	NEATH AND DISTRICT. *(Medical Aid Association.)*	CORNWALL EDUCATION COMMITTEE. *(Assistant School Medical Officer—Female.)*
GILFACH GOCH, GLAMORGAN. *(Workmen's Medical Scheme.)*	OAKDALE, MON. *(Medical Officer for Medical Aid Association.)*	GLASGOW EDUCATION AUTHORITY. *(Male Assistant Medical Officer.)*
LLWYNYPIA, CLYDACH VALE PENTGRAIG, GLAMORGAN. *(Workmen's Medical Scheme.)*	OGMORE VALLEY, GLAMORGAN. *(Wyndham Colliery Medical Aid Society.)* *(Workmen's Medical Scheme.)*	LEEDS EDUCATION COMMITTEE. *(Assistant School Medical Officer.)*
MARDY, GLAMORGAN. *(Workmen's Medical Scheme.)*	**PUBLIC HEALTH.**	YORKSHIRE NORTH RIDING COUNTY COUNCIL EDUCATION COMMITTEE. *(Assistant School Medical Officer.)*
MERTHYR VALE COLLIERY WORKMEN'S MEDICAL COMMITTEE. *(Workmen's Medical Scheme.)*	CHESHIRE EDUCATION COMMITTEE. *(Assistant School Medical Officer.)*	YORKSHIRE WEST RIDING COUNTY COUNCIL. *(School Medical Inspector.)*

(b) Colonial Medical Service.—

WINDWARD ISLANDS MEDICAL SERVICE. (Grenada with Carriacou, St. Vincent and St. Lucia.)

(c) Overseas.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.
NEW SOUTH WALES. *(All Friendly Society Appointments.)*	Dr. R. H. TODD (Hon. Sec., New South Wales Branch), B.M.A. Building, 30-34, Elizabeth St., Sydney, N.S.W.	VICTORIA. *(All Institute or Medical Dispensaries.)*	Dr. FRANK DAVIES (Hon. Sec., Victorian Branch), British Medical Association, Medical Society Hall, East Melbourne, Victoria.	WESTERN AUSTRALIA. *(Contract and Lodge Practices.)*	Hon. Sec., Western Australian Branch, British Medical Association, No. 6, Bank of N.S.W. Chambers, St. George's Terr., Perth, Western Australia.
QUEENSLAND. *(Brisbane Associated Friendly Societies Institute.)*	The Hon. Sec., Queensland Branch, British Medical Association, B.M.A. Building, Adelaide St., Brisbane.	WELLINGTON, NEW ZEALAND. *(Contract Practice Appointments.)*	Dr. G. F. V. ANSON (Hon. Sec., New Zealand Branch), British Medical Association, P.O. Box 156, Wellington, New Zealand.		

Address: B.M.A. House, Tavistock Square, W.C.1. By Order of the Council of the British Medical Association.
October 30th, 1929. ALFRED COX, Medical Secretary

Walsall General Hospital.

The Committee invite applications from men for the posts of SENIOR HOUSE SURGEON (salary £200 per annum) and HOUSE SURGEON (salary £150 per annum).

Candidates, who must be registered under the Medical Acts, must have had previous experience in Surgery and administration of Anæsthetics, and produce three recent testimonials.

The appointments will be for six months.

The Hospital contains 100 beds and is equipped in all Special Departments.

Applications must be received by the undersigned not later than the first post Tuesday, November 5th.

WALTER FRANCOMBE,
October 16th, 1929. Secretary.

Salford Royal Hospital.
(263 Beds.)

Applications are invited for the appointment of HOUSE PHYSICIAN (male) for the period ending March 31st, 1930.

Salary at the rate of £125 per annum, with board and residence.

Candidates must be registered under the Medical Acts.

Forms of application, which may be obtained from the undersigned, must be delivered at once.

By Order of the Board,
Salford Royal Hospital, Manchester. GEORGE RUDDLE, Gen. Supt. and Secretary.
October 26th, 1929.

Coventry and Warwickshire Hospital, Coventry. (307 Beds.)

RESIDENT HOUSE PHYSICIAN (male) wanted. Salary £160 per annum, board, laundry, and attendance provided. Candidates must be duly qualified and registered. Applications, stating age, and enclosing copies of recent testimonials, should be sent to the undersigned on or before November 6th.

(Miss) R. HOOPER, Secretary.

The Hospital for Sick Children, Great Ormond Street, London, W.C.1.

[illegible]ER is re-
HOSPITAL,
SURREY,

Gentlemen are invited to send in their applications to the Secretary before 12 o'clock on Monday, November 4th, accompanied by copies of not more than three testimonials given specially for the purpose.

The appointment is made for six months, but the successful candidate will be eligible for re-appointment.

Salary at the rate of £250 per annum, with board-residence in the Hospital, laundry allowance at the rate of £10 per annum, and, on re-election for a further period of six months, £18 18s. for the purpose of providing a substitute during annual leave of a maximum of four weeks.

Candidates must be unmarried and possess a legal qualification to practise, and must have held a responsible resident appointment at a General Hospital.

All candidates must be in attendance on Wednesday, November 6th, at 4.45 p.m. precisely, to appear before the Joint Committee, if required.

Forms of application and copies of the Rules may be obtained from the Secretary, at the Hospital.

By order of the Board of Management,
October, 1929. JAMES McKAY, Secretary.

The Royal Infirmary, SUNDERLAND. (290 Beds.)

Wanted beginning of December, HOUSE PHYSICIAN (male). Salary £140 per annum, with board, residence, and laundry.

Applications, stating age, qualifications, and accompanied by copies of testimonials, to be sent to the undersigned.

S. C. FRYERS,
House Governor and Secretary.

Jersey General Hospital and Poor Law Infirmary.

RESIDENT MEDICAL OFFICER.

Applications are invited for the above post (male). Applicants must be duly qualified practitioners in medicine and surgery. Salary £200 per annum, with board, residence in the Hospital, and laundry.

The appointment is for one year and is renewable. Applications, with testimonials, must be sent in on or before Saturday, November 9th, addressed to the undersigned, from whom further particulars may be obtained.

P. BEUZEVAL, Secretary.

Central London Throat, Nose, and Ear Hospital, Gray's Inn Road, W.C.1.

ASSISTANT SURGEON.

There will shortly be a vacancy for an Assistant Surgeon, who must be a Fellow of one of the Royal Colleges of Surgeons of the United Kingdom, or a Master in Surgery of a British University.

Applications, accompanied by copies of not more than three recent testimonials, should be sent to the undersigned on or before Nov. 9th.

JOHN H. YOUNG, Secretary-Supt.

St. Mark's Hospital for Cancer, Fistula, and other Diseases of the Rectum, City Road, E.C.1.

Applications are invited for the positions of CLINICAL ASSISTANTS in the Out-patients' Department for the Sessions on Tuesdays, Thursdays, and Fridays, at 5 p.m., and Saturdays at 1.30 p.m. The appointments are for six months in the first instance. A fee of three guineas is payable on appointment. Applications to be addressed to the Secretary of the Hospital.

ASSISTANCIES.

Wanted. — Assistant, indoor, with a view to Partnership, for mixed panel and private Practice near Newcastle-on-Tyne. Work light. £250 to £300, depending on experience. Rise in six months if suitable. References and photo., and to sign usual bond. —No. 7022, B.M.A. House, Tavistock Sq., W.C.1.

Wanted immediately, outdoor ASSISTANT (male), with view, for panel and private Practice in Swansea. Salary £400 per annum and half midwifery fees. Usual bond.—Address, No. 7021, B.M.A. House, Tavistock Square, W.C.1.

Wanted at once, unmarried male outdoor ASSISTANT, under 30 years, in East London Practice. Salary £440 per annum. —Address, No. 7023, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistantship or LOCUMS by Woman M.B., D.P.H., 1923. Very experienced in panel and private. Hospital experience, Post-Graduate. Excellent testimonials. Interview. Now free and in London. —No. 6937, B.M.A. House, Tavistock Sq., W.C.1.

Wanted immediately, Lady ASSISTANT, outdoor, for Industrial and Country Practice in North Wales. Welsh desirable.—Full particulars to "MEDICAL," 40, Hamilton Street, Hoole, Chester.

Wanted. — Assistant, indoor, male, single, for panel and private Practice in Midland City. Salary £350, all found. —Address, stating age, references, and enclose photo., No. 6912, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistant, indoor, male, for Suburban Practice near Manchester. Mixed panel and private £270 p.a. Little midwifery and night work. Parties., etc. —Address, No. 6919, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistant, outdoor, male single, motor cyclist, for General Practice near South Coast. English or Scottish ex Resident preferred. Salary £420 per annum. —Address No. 6703, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Indoor Assistant, English, Public School man, motor cyclist, car driver, for pleasant country district. All sports. Commence £250, all found. Early Partnership.—Address, No. 6908, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistant, outdoor, male, to take charge of Branch Surgery. Pembs. Coast, country district. Motor-cyclist. Work light.—Address, No. 5013, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—Assistant, Liverpool. Salary £300 per annum, with rooms, attendance. No midwifery; little night work. —Address, No. 6918, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Indoor Assistant, in town of 100,000 inhabitants. Mixed Practice. Dispenser and chauffeur kept. Usual bond. Salary £350.—Address, No. 6933, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Lady Assistant, indoor. Country Practice, South-West of England. Cyclist. Protestant. One recently qualified might be suitable.—Address, with particulars, testimonials, and photograph, No. 6905, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Male Assistant for Branch, good house, in Lancashire. Salary £400. English preferred. Usual bond. —Address, No. 6925, B.M.A. House, Tavistock Square, W.C.1.

Wanted, an indoor Assistant, male preferred, for Colliery district in Northumberland. Salary £300 p.a. State age, nationality, and enclose any references, and photo, if possible.—Address, No. 6922, B.M.A. House, Tavistock Square, W.C.1.

Wanted, an outdoor Assistant in a Colliery Practice in Glamorgan. Salary to commence at £350 per annum, with rooms and attendance. Usual bond No dispensing. — Address, No. 6915, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Indoor Male Assistant for Practice in Midland Town. Scottish, English, or Irish. Salary £250—£300 according to experience. Usual bond.—Address, No. 6739, B.M.A. House Tavistock Sq., W.C.1.

Wanted. — Indoor Assistant, English, Irish, Scotch, or Welsh, energetic, for panel Practice. Salary £252 per annum. Usual bond.—Address, with copies of tests., stating age, nationality, etc., Dr. S. J. B. FOX & SON, South Moor, Stanley, Co. Durham.

Wanted. — Assistant, single, experienced in Surgery. Salary £300 per annum, with rooms, coal, gas, and attendance. To start December 1st.—Apply, A. H. JAMES, M.D., The Park, Blaenavon.

Wanted. — Assistant for large firm in Hampshire. Must have University qualification and be under 30. Bias toward clinical pathology welcomed.—Address, No. 6523, B.M.A. House, Tavistock Square, W.C.1.

Wanted in London, male indoor ASSISTANT in mixed Practice. Usual duties. Sign bond. R.C. preferred. Salary £250 per annum. Enclose photo. with recent references.—Address, No. 6905, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—Assistantship or long LOCUMSHIP by a young Indian Doctor. Energetic, well received, and experienced in private and panel Practice.—Address, No. 6913, B.M.A. House, Tavistock Square, W.C.1.

Wanted shortly, indoor male ASSISTANT, English or Scots. Apply personally any morning (except Sunday) 11 a.m. —Dr. RIDEWOOD, 103, Bethnal Green Road.

Assistantship, with view, required by Dublin Univ. Graduate, age 26, M.B., B.Ch., B.A.O.(1927), L.M.(Rotunda Hosp.), ex H.P., H.S., and R.S.O. G.P. experience.—Address No. 6932, B.M.A. House, Tavistock Square, W.C.1.

Assistant wanted for London Industrial Practice. £400 per annum and rooms. Good prospects. — Write Box 450, HANNAFORD & GOODMAN, Ltd., 57-59, Ludgate Hill, London, E.C.4.

Assistants (indoor and outdoor) wanted immediately. Good salaries offered. —BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Assistant wanted.—£350 outdoor. Work light. Pleasant district, near large town, South Yorks. Newly qualified. State age, height, religion. — Address, No. 6921, B.M.A. House, Tavistock Square, W.C.1.

Assistant wanted immediately for Practice in pleasant country district in North of England, near town. Salary £250 per annum, indoor. Young Graduate preferred.—Address, No. 6927, B.M.A. House, Tavistock Square, W.C.1.

Large Partnership in South of England in good-class Practice requ're ASSISTANT with view to Partnership. Must have University qualifications and be under 30. Experience of Pathology and Pathology welcomed. Salary £750 p.a —Address, No. 6920, B.M.A. House Tavistock Square W.C.1.

Malaya.—Required, to sail Feb., experienced Graduate, unmarried, preferably Scotch, æt. 25—30, as ASSISTANT in old-estab. Practice in healthy district with all social and sporting amenities. Some experience Trop. Med. and V.D. desirable. D.P.H. or D.T.M. an added recommendation. No surgery. Midder and night work negligible. Four years' agreement followed by Partnership if suitable. Return passage paid. Salary (outdoor) £340—£70—£1,050 with free car and upkeep. Principal in London. Interview. Highest references required as to character and ability. Full particulars.—Address, No. 6917, B.M.A. House, Tavistock Square, W.C.1.

M.B., aged 29, experienced in Hospital and G.P. requires OUTDOOR ASSISTANTSHIP with definite view.—Address, No 6923, B.M.A House, Tavistock Sq., W.C.1.

Part-time or occasional WORK wanted by W. Practitioner. Neighbouring districts preferred. Telephone: "DOCTOR," Padd 9908.

Part-time Work, week-ends, London, desired by Medical Graduate in exchange for residence. Reading for higher exam. Ex H.P. and H.S. with experience of G.P.—Addl., No 6934, B.M.A. House, Tavistock Square, W.C.1.

Woman Doctor requires ASSISTANTSHIP or LOCUMS. Four years' experience private and panel Practice. Anæsthetics. Can drive car. English.—Address, No. 6717, B.M.A. House, Tavistock Square, W.C.1.

Scotch Graduate, 1924, woman, desires ASSISTANTSHIP with view to Partnership in Doctor's firm, in or near London preferred. Good experience, well received, keen clinical pathology, etc., specializing children. Part-time work accepted while studying for higher degree. Free London now.—Address, No. 6929, B.M.A. House, Tavistock Sq., W.C.1.

MEDICAL POSTS, DISPENSERS, etc.

Wanted.—Fully qualified Doctor for service in the TROPICS. Preferably ex House Surgeon or Physician. Agreement for three years. Salary £850, £900, £950. Renewable on higher terms. Free furnished quarters and first-class passage provided. Candidates must be unmarried. Ladies not eligible. —Address, with copies of testimonials (not returnable), No. 6276, B.M.A. House, Tavistock Square, W.C.1.

Wanted by British Company operating in VENEZUELA, a married couple for work in small Hospital—husband as STEWARD, wife as NURSE; latter must be fully qualified. Combined salary £550, with free board and lodging, first-class passages. Tropical experience preferable. — Write Box "W.P.," c/o Advertisement Dept., 5, New Bridge Street, London, E.C.4.

A Lady Dispenser-Bookkeeper supplied immediately on request, qualified and with practical experience in private practice and dispensary work, also trained in Bacteriological Laboratories of the LONDON COLLEGE OF PHARMACY FOR WOMEN. Preparation for Examinations.—Write, wire, or 'phone (Park 0969), Secretary, 7, Westbourne Park Road, W.2.

A Dispenser-Secretary required in a Country Practice on the S.W. Coast. Applicants please state salary and send references and photograph. — Address, No. 6906, B.M.A. House, Tavistock Square, W.C.1.

Capable Lady Dispenser and BOOK-KEEPER desires re-engagement for winter months, or permanency. Qualified. Good testimonials. Disengaged now.—Miss DANIEL, Harvey House, Dix's Field, Exeter.

Dispenser-Secretary (lady) desires POST with Doctor. Hall certificate. Six years' experience in dispensing and clerical work of busy practice. Indoor or outdoor.—"RITCHIE," 6, Broomhill Road, Goodmayes, Essex.

Doctors requiring qualified Dispensers, Nurse Dispensers, Secretary Dispensers or Chauffeuse Dispensers, are invited to write, wire, or 'phone Temple Bar 5858, THE DISPENSERS, BUREAU, 15, Lindsay House, 171, Shaftesbury Avenue, London, W.C.2.

G.P., wide experience, efficient and tactful, is now free for PART-TIME WORK. Long or short period. London or district. Own car. Highest references. Personal interview desirable.—Address, No. 6901, B.M.A. House, Tavistock Square, W.C.1.

India.—Medical Man, preferably ex H.S. or with other Surgical experience, abstainer, and in full sympathy with Medical Missionary work, required on agreement for a well-equipped Missionary Hospital in the United Provinces. Married or single.—Apply, C.M.O., 5, Warltersville Road, N.19.

Lady Secretary, with nine years' experience in large Dental Practice in London, disengaged. Accurate book-keeper. Excellent testimonials.—Address, No. 6938, B.M.A. House, Tavistock Square W.C.1.

Qualified Masseuse, experienced in Artificial Sunlight and Electro-therapeutics, is anxious to obtain EVENING WORK, private or clinic. Engaged during day at well-known London Hospital.—Address, No. 6911, B.M.A. House, Tavistock Square, W.C.1.

Typewriting and Duplicating.—Testimonials, Theses, Medical MSS., etc., accurately copied by experts.—WOBURN BUREAU, 3, Upper Woburn Place, London, W.C.1. (Adjoining B.M.A. House.) 'Phone: Museum 4475.

The Royal Army Medical Corps ASSOCIATION — If you require men trained in all branches of hospital work—Dispensers (capable of undertaking returns, clerical work, etc., connected with Ministry of Health), Clerks, Laboratory Assistants, general hospital duties, Porters, Caretakers etc.—Apply, Secretary, 85, Eccleston Square, S.W.1.

Typewriting.—Expert undertakes Theses, Testimonials, etc. Numerous letters of appreciation from Doctors.—'Phone Primrose Hill 0803, or write BEATRICE RADFORD, BM/BOAJ, London, W.C.1.

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FOR LOCUM TENENS APPLY TO Mr. PERCIVAL TURNER, Ltd. The oldest and only Agent who for 40 years has supplied substitutes at short notice without fee to principals.
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As Locum or outdoor Assistant, an exper. G.P., obstet., dispensing, M.R.C.S., L.R.C.P.Lond., ex H.S., English; T.T., refs., motorist. Fees £6 6s. per week and return fare.—Address, "DOCTOR," 12, Caledonia Place, Clifton, Bristol.

Recently qualified desires LOCUM or ASSISTANTSHIP for 4 to 6 weeks, just for gaining experience. Awaiting House job. Free now. Small salary.—Address, No. 6924, B.M.A. House, Tavistock Square, W.C.1.

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Telegrams: "REASIDE, TUBERCLE, WESTRAND, LONDON."

PARTNERSHIPS.

Wanted. — Partnership within 25 miles London, by M.B. with 5 years' experience Hospital and General Practice. Income £1,200. House to rent. Capital available.—Address, No. 6926, B.M.A. House, Tavistock Square, W.C.1.

East Coast. — Large Seaport Town. One-fourth share. Cash receipts £9,000. Panel 7,300. Suitable house available. Premium £2,700, part by arrangement.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Manchester. — Half Share in mixed PRACTICE. Average cash receipts £2,000 p.a. Panel 1,700. Good scope. Premium (to include book debts) 1½ years' purchase.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Partner (male) wanted shortly to join two others in rapidly increasing, non-industrial, good-class Practice (some panel) within 20 miles London. Local Hospital. Must be British, Protestant, Christian; ex H.S. or H.P. preferred, well qualified, and should have some speciality. Fifth share for disposal at 2½ years' purchase, yielding £800—£1,000. Must have capital.—Address fullest particulars, No. 6827, B.M.A. House, Tavistock Square, W.C.1.

Partnership.—Junior Share worth £1 000 or £1,200 (i.e., one third or two-fifths). Increasing Lancashire Practice. Panel 2 800. Genuine prospects. Good house. Premium 1½ years.—Address, No. 6930, B.M.A. House, Tavistock Square W.C.1.

Partnership, with house and garden, offered to young energetic Doctor, with view to succession, in suburb of London. Premium for half share £750.—Address, No. 6928, B.M.A. House, Tavistock Square, W.C.1.

Partnership.—Exper. energ. Graduate desires Partnership progressive Practice after short prelim. assist. Age 34, single. Over 4 years [illegible]. Total abstain No. 6935, B

PRACTICES.

Wanted.—Good-class PRACTICE PARTNERSHIP or SUCCESSION, town or country. Good house and garden. From £1,500 to £4,000. Advertiser well qualified, and ample capital.—Address, No. 6931, B.M.A. House, Tavistock Square, W.C.1.

Wanted, early in 1930, mixed General PRACTICE £900 to £1,200, with good panel. S.E. Coast or County preferred. Modern house, 5–6 beds.; optional rent or purchase.—Address, No. 6916, B.M.A. House, Tavistock Square, W.C.1.

Wanted in or near London, mixed PRACTICE with good panel. Income not less than £1,400. Capital available.—Address, No. 6907, B.M.A. House, Tavistock Square, W.C.1.

Cumberland. — Large Town. — Small mixed-class PRACTICE, started two years. Receipts nearly £400, steadily increasing, including panel 300. House and garage, £55. Premium £300. — Apply, PEACOCK & HADLEY, Ltd., 19, Craven Street, Strand, W.C.2.

Death Vacancy. — Near Manchester.—Cash receipts £745. Panel 550. Good scope. Excellent house, 2 reception, 6 bedrooms. Large garden and garage.—BRITISH MEDICAL BUREAU, 33, Cross St., Manchester.

EXCEPTIONAL OPPORTUNITY.

Death Vacancy.—Easily worked mixed PRACTICE in Midlands, growing neighbourhood, capable of ready increase. Average receipts £2,616; appts. £20 per annum; panel 1,932. 1½ yrs.' pur. Efficient introduction by late partner, who is now in charge.—Apply to Exors., 17, Fletton Av., Peterborough.

Droysnire.—Country Town.—3 5ths or 1 2 SHARE in excellent PRACTICE. Gross cash receipts £2.150. Panel 1 400. Excellent house available; 2 reception, 4 bedr ooms. Garage and garden. Rent £65 p.a.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

For Disposal.—A good Practice is not always to be had directly, but Mr. PERCIVAL TURNER can generally offer applicants something suitable. Nearly all the best Practices are sold by him without being advertised Inform. free on applic.—4, Adam St., W.C.2

For Sale.—Small, good Private PRACTICE, West London. Scope. Suit man or woman. House long lease. Full details at interview.—Address, No. 6914, B.M.A. House, Tavistock Square, W.C.1.

Lancashire Coast Resort. — Old-estab. PRACTICE. Average cash receipts £1,100. Panel 550. Scope. Modern house (freehold), 2 reception, 5 bedrooms. Garden and garage. For sale or may be let on long lease. Premium—Practice—1½ years' pur. — BRITISH MEDICAL BUREAU, 33, Cross St., Manchester.

London, N.—Lock-up Surgery for Sale. Corner shop. Good Nucleus, with small but increasing panel. Wide scope. Vendor going abroad. Price £300 cash.—Address, No. 6902, B.M.A. House, Tavistock Square, W.C 1.

London, S.W.—(Near Clapham Common). — Small but well-established PRACTICE. Receipts last year £300, including panel nearly 120. Rent of premises 25/- weekly. Premium £300. Good scope.—Apply, PEACOCK & HADLEY, Ltd., 19, Craven Street, Strand, W.C.2.

London, W. — Old-established PRACTICE held 10 years by Vendor. Receipts £1,200 per annum, including fair panel. Good house and garden. Rent £75, lease. Premium 1½ years' purchase.—Apply, PEACOCK & HADLEY, Ltd., 19, Craven Street, Strand, W.C.2.

Lancs Death Vacancy.—Receipts about £750. Panel £250. In late Incumbent's hands 24 years. Excellent scope. Very nice house, good garden.—MANCHESTER MEDICAL & SCHOLASTIC ASSOCIATION, 6, Brown Street.

Manchester.—Mixed-class PRACTICE. Average cash receipts £923. Panel 700. Good house, 2 reception, 5 bedrooms. Rent £70 p.a. Premium 1½ years' purchase.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Medical Woman's Practice. —Good NUCLEUS, with scope; established 18 months; doing £100 p.a. Pop. 7,000; one other resident doctor; near first-class town. Premium £150; house £65/0, or to rent. West Eng.—No. 6936, B.M.A. House, Tavistock Square, W.C.1.

Monmouthshire. — Well-established PRACTICE. Receipts £3,000 p.a., including panel 2,200. Small house, no garden, rent £52 p.a. Premium 1 year's purchase, payable one-third down, rest by instalments. Excellent opportunity. — Apply, PEACOCK & HADLEY, Ltd., 19, Craven Street, Strand, W.C.2.

Medical Practice (unopposed) for immediate disposal in village and good agricultural district (Longside, Aberdeenshire).—Particulars from F. J. R. ANDERSON, Solicitor, Fraserburgh, Aberdeenshire.

Manchester. — Old-estab. PRACTICE. Average cash receipts £2,525. Panel 1,021. Prominent house, 6 bedrooms. Garden and garage. Premium 1½ years' purchase. A preliminary Partnership might be arranged.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Midlands.—Mixed-class Practice for immediate disposal. Receipts £1,100, including panel 1,100. Nice house on lease, £52 p.a. Premium £1,000.—Apply, PEACOCK & HADLEY, Ltd., 19, Craven Street, Strand, W.C.2.

Nursing Home, for Nervous or Slight Mental illnesses, for Sale. Large house and grounds fully equipped, healthy situation, in North-East of Scotland. Well suited for a Convalescent Home if preferred. Can be run by one Matron, but can easily be extended for two or more. Good opening for Doctor wishing combined residence and "Home."—Apply, No. 489, KEITH & Co., Advertising Agents, Edinburgh.

North-East Coast. — Seaside Resort. — Cash receipts 1928, £2,101. Panel 720. Large Terrace house, with garden. Good introduction.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Practice for disposal near Manchester. Receipts £2 600 per annum. Number on panel 1,760.—For further particulars apply to Messrs. R. SUMNER & Co., Ltd., Manufacturing Chemists, 40, Hanover Street, Liverpool.

Pretty Country District, Lancs. —Very nice house, garden, garage. Receipts £500, excellent scope. Panel 300. Appointments £150. Price 1½ years' purchase. House also for sale. Golf, tennis.—MANCHESTER MED. & SCHOLASTIC ASSOC., 6, Brown Street.

Small Practices, with scope.—We have several in the Manchester district. Cash receipts £700, £600, £400, etc.—Full particulars from BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

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Well-known Midland Town.—Mixed-class PRACTICE. Receipts average £1,500 a year, panel 1,150. Good semi-detached house, rent £100. Premium 1½ years' purchase, part payable by instalments.—Apply, PEACOCK & HADLEY, Ltd., 19, Craven St., Strand, W.C.2.

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Suits, Overcoats, Costumes Turned as new. Guaranteed 100 per cent. satisfaction. Full general list free.—WALKERS, Express Dyeing, Cleaning and Tailoring Works, Markham Chase, Laindon.

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Can secure Perfect Fitting and Distinctive Clothes of Exceptional value. FINEST QUALITY MATERIALS. *BEST WORKMANSHIP ONLY.*

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Supply Instruments, Palomine Leg Rests, etc. Stock of 30,000,000 Tablets. Sample bottle (500) of Cough or Mist. Expect., 1/- post free. *Showroom*: 97, Swinderby Road, Wembley.

HOUSES, CONSULTING ROOMS.

CONSULTING ROOMS WANTED.
Messrs. ELGOOD & CO.,
Consulting Room Specialists,
10, Henrietta St., Cavendish Sq., W.1.
(Mayfair 6659.)

Centre of Watford.—Eminently suitable for Professional man.—A substantial and roomy modern RESIDENCE, in fine condition: 7 bedrooms, 2 reception, usual offices, electricity, etc. Improving position. £1,950, freehold; vacant.—Sole Agents, SIMPSON, LOCK & VINCE, Watford.

Chigwell.—10 miles from London, yet in secluded position and standing in its own park of 50 acres. GEORGIAN MANSION, particularly suitable for Institutional purposes. Rent £300 per annum.—KEMSLEYS, Chartered Surveyors, 164, Bishopsgate, E.C.2. Po. G.98.)

Clinical Pathologist's Laboratory in Harley Street to LET. Moderate price accepted for laboratory fixtures or for complete and up-to-date equipment if desired. Pathologist is going abroad. — Address, No. 6910, B.M.A. House, Tavistock Square, W.C.1.

Doctor's Widow having fine furniture suitable for 12/14-roomed house would FURNISH for anyone, anywhere, in return for ROOMS. Can bring car, and is thoroughly experienced driver.—Address, No. 6708, B.M.A. House, Tavistock Square, W.C.1.

Doctor's widow, with good Surgery fittings, would furnish and give attendance on Doctor's Consulting Room in return for rent free house. London or Home Counties preferred, but not essential.—Address, No. 6909, B.M.A. House, Tavistock Sq., W.C.1.

Harley Street.—Consulting Room (small) to be LET, unfurnished. Modern house and attendance. Rent £165 per annum. —Address, No. 6904, B.M.A. House, Tavistock Square, W.C.1.

Nobly designed Freehold Residence centrally situate in most important situation. Thriving township. Ten beds., 2 dressing rooms, 3 servants' bedrooms, linen cupboards, bathroom, magnificent gallery and staircase. Expansive lofty hall, 4 recep., conserv'y, splend. domes. accom. Numerous useful brick outbldgs, splend. garden. Suit. Institution, Medical, Club, or Scholastic purp.—Write "Owner," at Horneastle's, 60, Cheapside, E.C.2.

Queen Anne Street. — To Let, handsome CONSULTING ROOM, with small Ante-room; low rent. Small Bachelor Flat also available in same building.—Address, No. 6466, B.M.A. House, Tavistock Square, W.C.1.

Sussex Downs.—To Let, furnished or unfurnished, beautiful OLD-WORLD HOUSE. Wealth of old oak. Views into 4 counties. Four—six bedrooms, garage, etc.—"D. J.," Earlscolne, Richmond Road, Worthing.

To Let.—Consulting Room in professional house. Corner position. Good neighbourhood. Service, light, and heating.—"J. G. B.," 1, Earl's Court Square, S.W.5.

To Let, fine suites of Medical Rooms; also single Consulting Rooms; Wimpole Street. No agents. Ring Welbeck 9753, or write Box 42, SCRIPPS'S, South Molton Street, W.1.

Young Gentlewoman, with nice house about eleven miles North London (all conveniences, 'phone, garage), would like Doctor or Student as BOARDER. Suit one with appointment in Town. Good position to put up plate if desired.—D.O.D.K., Monomark, London.

APPOINTMENTS.—Contd.

West London Hospital,
Hammersmith, W.6.

Applications are invited for the post of ASSISTANT SURGEON DENTIST. Candidates are required to hold some Medical or Surgical qualifications
Council of the
cations, with
to reach me no
20th; to attend a meeting of the Medical Council on Friday, November 22nd, at 4.30 p.m., and prior to that date call upon and send copies of their applications and testimonials to the members thereof; to abstain from canvassing, but nevertheless to send copies of their application and testimonials to the Members of the Board of Management, who will elect on Tuesday, November 26th, at 5 p.m., when candidates (if notified) must be in attendance.

H. A. MADGE, Secretary.

Public Dispensary,
122, Drury Lane, W.C.2.

Vacant, the post of RESIDENT MEDICAL OFFICER.

Salary £150 per annum, with furnished apartments over the Dispensary, attendance, coals, and electric light.

A Practitioner (male) to be eligible must be unmarried and be duly registered in accordance with the requirements of the Medical Registration Act, a Member of the Royal College of Surgeons, and a Licentiate of the Royal College of Physicians, or possess such other medical qualifications as may be deemed equivalent to the foregoing.

The applicant will not be allowed to engage in any private practice, nor, without the consent of the Committee, to hold any other professional appointment.

The duties of the post, which include the supervision of a Minor Ailment Clinic, are light, and there is time for study.

Candidates should address their applications to the Secretary, not later than November 12th.

J. C. CRUMP, Major (R.P.),
122, Drury Lane, W.C.2. Secretary.
October 30th, 1929.

Applications are invited from qualified Medical Practitioners to fill vacancies on the Honorary Medical Staff of the BLACKHEATH AND CHARLTON HOSPITAL.

Noble's Hospital, Douglas,
ISLE OF MAN.
(72 Beds; opened 1912; extension 1926; new Electro-Medical Hall, 1928.)

The Committee invite applications for the post of Male RESIDENT HOUSE SURGEON. Candidates must be single, have double qualifications, and be registered under the Medical Act. The duties, in addition to Ward and Dispensary work, will comprise visiting patients in their own homes.

Salary (with board and washing free) £175 per annum, which in certain circumstances can be supplemented by fees for other duties.

Applications, stating age and experience, with copies of recent testimonials as to professional ability, etc., must reach the undersigned before November 8th.

The candidate appointed will be required to begin his duties immediately.

Westmoreland Rd., E. K. KELLY,
Douglas, Isle of Man. Hospital Secretary.

Warrington Infirmary and
DISPENSARY.

The Board of Management invite applications for the post of JUNIOR HOUSE SURGEON (male), unmarried. Applicants, who must be of British nationality, must be duly qualified Medical Practitioners.

Salary £175 per annum, with board, apartments, and laundry. Applications, stating age, with copies of three recent testimonials, should be sent in at once to the undersigned.

The post will become vacant about Nov. 18th.

By Order,
HENRY L. BOOT, Supt. & Sec.

Blackburn and East Lancashire
ROYAL INFIRMARY.

FOURTH HOUSE SURGEON (male), to commence duties December 1st, required at a salary of £130 per annum, with board, residence, laundry, etc.

The Hospital contains 240 beds, with X-ray, Massage, V.D., Eye, Ear, Nose, and Throat Departments, Pathological Laboratory, etc. There is no outside work.

Applications, with copies of testimonials, stating age, nationality, experience, etc., to be sent at once to the undersigned.

Royal Infirmary, NATHAN A. SMITH,
Blackburn. Gen. Supt. & Sec.

Merthyr General Hospital,
MERTHYR TYDFIL.

Applications are invited for the post of RESIDENT HOUSE SURGEON at this Hospital, 104 beds (mainly surgical), for a period of six months. Salary at the rate of £150 per annum, with board, rooms, and laundry. Applicants must have had experience in administration of anæsthetics.

Applications, stating age and qualifications, and enclosing copies of three recent testimonials, should be addressed, Hon. Sec., Honorary Medical Staff, General Hospital, Merthyr Tydfil.

New Sussex Hospital for Women
AND CHILDREN,
Windlesham Road, BRIGHTON.

Applications are invited for fully qualified Medical Women for the following posts:

1. RADIOLOGIST. Honorarium £100 per annum. To give two attendances per week.
2. HOUSE PHYSICIAN.
3. HOUSE SURGEON. Honorarium for (2) and (3) at the rate of £50 per annum.

Duties to begin on December 15th.

Applications, with copies of testimonials, to be received by the Secretary on or before November 18th.

Bootle Borough Hospital.
(General, 100 Beds.)
DERBY ROAD, BOOTLE.

Applications are invited from Medical Men for the Two posts of JUNIOR HOUSE SURGEON for the period ending March 31st, 1930. Salary at the rate of £125 per annum, with board, residence, and laundry.

Duties to commence as soon as possible. Applications, stating age and qualifications, with copies of testimonials, to be sent to the undersigned at once.

J. A. BEARDSALL, Secretary-Supt.

Bootle Borough Hospital.
APPOINTMENT OF HONORARY SURGEON.

Applications are invited from gentlemen for the above vacancy.

Candidates are requested to send particulars of their qualifications, accompanied by testimonials, addressed to the undersigned, not later than Friday, November 15th.

J. A. BEARDSALL, Secretary-Supt.

Holborn Union, London.

TO MEDICAL PRACTITIONERS.

The Guardians of the Poor of the Holborn Union require the services of a Medical Practitioner or Practitioners as DISTRICT MEDICAL OFFICER for the Holborn District, MEDICAL OFFICER for the Receiving Home for Children, Lloyd Street, W.C.1, and PUBLIC VACCINATOR for the Holborn (Western) District of the Union. The salary for the office of District Medical Officer is £120 per annum and for the Receiving Home £15 per annum, subject to deductions under the provisions of the Poor Law Officers Superannuation Act, 1896; the fees receivable as Public Vaccinator amount approximately to £20 per annum.

The gentleman to be appointed must reside within the respective districts or so contiguous thereto as to occasion no inconvenience in the performance of the duties. The District Medical Officer will be required to attend at the Administrative Offices, 53, Clerkenwell Road, E.C.1, one hour each day—viz., from 9 to 10 o'clock a.m. He will also have to visit applicants for medical relief at their houses at any hour on receipt of a Relieving Officer's Order.

All medicines, etc., are provided by the Guardians.

The appointments are subject to the sanction of the Minister of Health and the provisions of the Local Government Act, 1929.

Applications, stating qualifications and full particulars, should be made in the form of a letter, accompanied by not more than three testimonials, addressed to the undersigned not later than noon on Monday, November 11th.

Selected candidates will have notice when to attend before the Guardians.

By Order,
Administrative Offices, 53, Clerkenwell Road, E.C.1. CHAS. J. CROSS, Clerk to the Guardians.
October 26th, 1929.

County Borough of Southampton

RESIDENT MEDICAL OFFICER.

The Corporation invite applications for the position of Resident Medical Officer at the Borough Isolation Hospital.

The gentleman appointed will hold office during the pleasure of the Council, will be required to reside at the Isolation Hospital, to devote his whole time to the duties of the office, and to act under the direction of the Medical Officer of Health.

Salary £350 per annum, with residence, board, and washing.

The Local Government and Other Officers Superannuation Act, 1922, will be applicable to the appointment, and contributions to the Superannuation Fund will be deducted from the salary. The selected candidate will be required to pass a satisfactory medical examination.

Forms of application may be obtained from the Medical Officer of Health, Municipal Offices, Southampton.

Applications on the prescribed form, endorsed "Resident Medical Officer," and stating age, qualifications, experience, etc., together with copies of not more than three recent testimonials, must be delivered at the Town Clerk's Office, Municipal Offices, Southampton, on or before November 16th.

R. RONALD H. MEGGESON,
October 25th, 1929. Town Clerk.

County of London.

The LONDON COUNTY COUNCIL invites applications for appointment as EIGHTH ASSISTANT MEDICAL OFFICER (man) in its Mental Hospital Service. Candidates must be under 35 years of age and be registered to practise both in Medicine and Surgery in England. Salary £300 a year, rising by annual increments of £25 to £400 a year, plus fluctuating temporary additions, the present total commencing remuneration being approximately £493 a year. No emoluments. Charges made for board, lodging, etc. (at present £2 9s. weekly) if required to be resident. Candidate appointed will be pensionable under the Asylums Officers Superannuation Act, 1909. Form of application, on which full particulars are given, can be obtained from the Acting Chief Officer, Mental Hospitals Department, The County Hall, Westminster Bridge, S.E.1. Completed applications must be received by Thursday, November 14th. Canvassing disqualifies.

MONTAGU H. COX,
Clerk of the London County Council.

Batley and District Hospital.

(General Hospital. 84 Beds.)

Wanted, RESIDENT HOUSE SURGEON, fully qualified (male). Salary £150 per annum, with board, residence, and laundry.

Applications, stating age, qualifications, and copies of testimonials, should be sent to the undersigned at once.

Batley, Yorks. A. W. WESTERN, Secretary.

City of Manchester.

APPOINTMENT OF ASSISTANT TUBERCULOSIS OFFICER.

The Public Health Committee invites applications for the position of Assistant Tuberculosis Officer at a commencing salary of £650 per annum, rising by annual increments of £25 to £750 per annum. (First increment January 1st, 1931.)

Candidates must be fully qualified Medical Practitioners having special knowledge of Medical and Surgical Tuberculosis. Candidates should state whether they possess the Diploma of Public Health.

Applications, stating age, qualifications, and experience, with copies of not more than three recent testimonials, and endorsed on the envelope "Assistant Tuberculosis Officer," must be addressed to the Town Clerk only, and not to members of the Committee or Council, and must be received by him not later than Monday, November 18th.

The gentleman appointed will be under the administrative control of the Medical Officer of Health and the immediate control of the Senior Tuberculosis Officer. He will be required to devote the whole of his time to the duties of his position, to execute the Deed of Service, and to contribute to the Corporation Superannuation Fund.

Canvassing in any form, oral or written, direct or indirect, is prohibited.

By Order,
Town Hall, Manchester. F. E. WARBRECK HOWELL, Town Clerk.

The Radium Institute,

Riding House Street, London, W.1.

Applications are invited from duly qualified Medical Practitioners for the post of WHOLE-TIME ASSISTANT (non-resident) in the MEDICAL DEPARTMENT of the Institute.

The salary will be at the rate of £600 per annum, and the appointment will take effect as from January 1st, 1930.

The present House Surgeon is a candidate for the post.

Applications, stating age, qualifications, and experience, with copies of three recent testimonials, must be received at the Institute not later than November 12th.

Canvassing, either directly or indirectly, is not permitted.

THOS. A. GARNER, Secretary.

Ministry of Pensions.

BIRMINGHAM PENSIONS HOSPITAL COMMITTEE.

HIGHBURY HOSPITAL, BIRMINGHAM.
(144 Beds.)

Applications are invited for the post of RESIDENT MEDICAL OFFICER at the above Hospital.

The cases treated are Surgical (mainly Orthopædic) and Medical, but the duties required of the successful candidate will be mainly Surgical.

Salary £350—£400 per annum, according to experience, with lodging, fuel, and light. The appointed candidate to be prepared to take up duty on or about November 26th next.

Candidates selected for interview will be required to pay their travelling expenses.

Applications, stating age, experience, whether married or single, and war service (if any), together with copies of recent testimonials, to be received not later than November 13th, addressed to the Chairman of the Committee, Highbury Hospital, Moseley, Birmingham.

Queen's Hospital, Birmingham.

(MEDICAL SCHOOL.)

JUNIOR RESIDENT SURGICAL OFFICER required at once.

Candidates must be Fellows of the Royal Colleges of England, Scotland, or Ireland, or have passed the Primary F.R.C.S.(Eng.).

Appointment for one year, with eligibility for re-appointment for a further year.

Salary £100 per annum, together with board, apartments, and laundry.

Applications with three recent testimonials, to be forwarded to the undersigned.

Birmingham. G. BURFORD.
October 28th, 1929. House Governor.

British Hospital, Port Said.

ASSISTANT MEDICAL OFFICER.

RESIDENT ASSISTANT MEDICAL OFFICER (British) required immediately. Salary £350 per annum, rising to £400. Free quarters, board, and laundry provided, also first saloon passages out [illegible] should be young and unm[illegible]ting, with recent [illegible]tary, British Hospit[illegible] St., London, W.1.

County Council of Durham.

MATERNITY AND CHILD WELFARE.

ASSISTANT WELFARE MEDICAL OFFICER.

The County Health Committee invite applications for the appointment of an Assistant Welfare Medical Officer (woman), at a commencing salary of £600, rising by annual increments of £25 to £650 per annum. Travelling expenses will be paid by the County Council according to scale.

Applicants must be registered Medical Practitioners of not less than three years' standing, and not exceeding 45 years of age, with special experience in Maternity and Child Welfare work and its organization. The person appointed will be required to reside in Durham City or other approved centre and to devote her whole time to the duties of the office, and must be prepared if called upon to act as Locum Tenens to other members of the Medical Staff of the County Medical Officer, and will be debarred from engaging in private practice. The D.P.H. or its equivalent will be considered an additional qualification.

The appointment will be terminable by three months' notice on either side.

A condition of the appointment is that on marriage the officer will be required to vacate her post.

The appointment will be subject to the provisions of the Local Government and Other *Officers Superannuation Act, 1922*, and to a medical examination, as required by the Council for the purposes of the Act, and the statutory contributions to the Superannuation Fund under that Act will be deducted from the salary.

Applications, marked "Assistant Welfare Medical Officer," together with copies of not more than three recent testimonials, must be sent to the County Medical Officer, Shire Hall, Durham, not later than November 18th.

Shire Hall, Durham. HAROLD JEVONS, Clerk of the County.
October 28th, 1929. Council.

City of Birmingham.

ASSISTANT MEDICAL OFFICER.

The Public Health Committee invite applications for one of the posts of Assistant Medical Officer for Public Health duties. Candidates must be qualified Medical Practitioners and possess a degree or diploma in Public Health or Science. The candidate appointed will be required to join the Birmingham Corporation Superannuation Scheme, and for the purpose to pass a medical examination. The appointment will be terminable by one month's notice on either side. Salary £750 per annum.

Applications, endorsed "Assistant Medical Officer of Health," and to be accompanied by copies of three recent testimonials, to be made on a form to be obtained from the Medical Officer of Health, The Council House, Birmingham, and returned to him on or before Saturday, November 16th. Canvassing will disqualify.

County Borough of Smethwick.

PART-TIME LADY MEDICAL OFFICER.

The services of a Lady Medical Officer are required for one half day weekly in connection with the extension of the Council's Maternity and Child Welfare Scheme. The person appointed will have clinical charge of one Infant Welfare Centre, and remuneration will be at the rate of 14 guineas per session. Applications accompanied by copies of recent testimonials, should be made as soon as possible to the undersigned, stating age, whether married or single, qualifications and experience in diseases of children, etc.

280 High Street, Smethwick. HUGH PAUL, M.D., Medical Officer of Health.

Hertford County Hospital.

Applications are invited for the post of HOUSE PHYSICIAN (male). Duties commencing December 1st. Salary £150 per annum, with board, residence, and laundry. The appointment is for six months in the first instance.

Applications with copies of three recent testimonials, should be sent to the undersigned and be received not later than November 16th.

PERCY G. BROOKS, Secretary.

The General Infirmary at Leeds.

MEDICAL OFFICER IN CHARGE OF RADIUM.

Applications are invited for the post of a whole-time, fully qualified, Medical Officer in charge of the Radium Department.

Salary £500 per annum, non-resident.

Applications should be forwarded to the undersigned not later than November 18th, from whom further particulars as to duties, etc., may be obtained.

R. KINGSLEY PEARCE,
October 29th, 1929. Gen. Manager.

West Middlesex Hospital, ISLEWORTH.

APPOINTMENT OF AN ASSISTANT TO THE MEDICAL SUPERINTENDENT.

The Guardians invite applications for the appointment of an Assistant to the Medical Superintendent of the West Middlesex Hospital, who is also Medical Officer of Warkworth House and the Central Scattered Homes.

Salary £250 per annum, with residential emolument.

All fees received, arising out of the office, are to be repaid to the Guardians through the Medical Superintendent.

Candidates must be single, duly registered under the Medical Acts, and qualified by law to practise both in Medicine and Surgery in England and Wales.

Apply, enclosing stamped addressed foolscap envelope, to F. E. HARMSWORTH, Clerk, Toolands House, 34, Twickenham Road, Isleworth, Middx.

October 28th, 1929

Ethel Hedley Hospital for CRIPPLED CHILDREN, WINDERMERE.

(An active Surgical Centre, with 50 Beds, serving the Counties of Westmorland, Cumberland and North Lancashire, with charge of After-Care Clinics in these areas.)

Applications are invited for the post of RESIDENT HOUSE SURGEON. Candidates (female) must be fully qualified and registered, and have held a previous Resident appointment. The appointment is for six months, with extension to one year. Salary at the rate of £150 per annum. Applications, with copies of three recent testimonials, should be submitted, not later than November 23rd, to the MEDICAL DIRECTOR, Ethel Hedley Hospital, Calgarth Park, Windermere.

Italian Hospital, Queen Square, London, W.C.1.

Applications are invited for the post of RESIDENT MEDICAL OFFICER from duly qualified and registered candidates.

The appointment will be for six months from December 8th next, but candidates will be eligible for re-appointment at the discretion of the Committee. Salary £150, with board, residence, and washing.

Applications, with copies of testimonials, should be sent to the undersigned on or before November 9th.

By Order of the Committee of Management,
F. HORNYIK,
October 21st, 1929. Acting-Secretary.

Lady Chichester Hospital, Hove.

(For Early Nervous Breakdowns.)
(50 Beds.)

Medical Woman required as HOUSE PHYSICIAN for six months. Salary at the rate of £100 per annum, with board, lodging, and laundry.

Also JUNIOR required, with board, lodging, and laundry, and honorarium at the rate of £50 per annum. The successful candidates will be required to enter on their duties on January 15th, 1930.

Applications must be made in writing, and be accompanied by testimonials, and sent to the Secretary, Mr. A. E. GRAVES, 117, North St., Brighton, not later than Saturday, Nov. 23rd.

Children's Hospital, Balaam St., Plaistow, E.13.

HOSPITAL FOR THE INVALID AND CRIPPLED CHILDREN'S SOCIETY.

Applications are invited for the post of HOUSE PHYSICIAN (female) to the above Hospital for a period of six months. Time available for POST-GRADUATE STUDY. Salary at the rate of £50 per annum, together with board, residence, and laundry. Applications, together with particulars of qualifications and testimonials, must be sent to the undersigned not later than Saturday, November 9th next.

R. I. HOWARD, Secretary.

The Royal Gwent Hospital, NEWPORT, MON. (160 Beds.)

Wanted a JUNIOR RESIDENT MEDICAL OFFICER to act as House Surgeon to Outpatients and House Physician.

Salary £135, with board, lodging, and laundry.

Large Out-patient Department. Eligible for promotion. Resident Medical Staff (five).

Applications, stating age and qualifications, with copies of three recent testimonials, to be sent to the undersigned.

Applications from ladies not entertained.

October 29th, 1929. J. K. MILLWARD, Secretary-Supt.

The Royal Infirmary, Sheffield.

(500 Beds.)

OPEN APPOINTMENTS.

Applications are invited for the undermentioned posts (male or female):

CLINICAL ASSISTANT to the Ophthalmic Department.

CLINICAL ASSISTANT to the Medical Departments.

There are in the Institution 69 Ophthalmic Beds, 122 Medical Beds, and a large Out-patient Department open daily.

The salary attached to each appointment is £250 per annum.

Applications, stating age and giving particulars of qualifications and previous experience, should be submitted forthwith to the undersigned, from whom further particulars may be obtained.

JNO. W. BARNES, F.C.I.S.,
Board Room, Gen. Supt. & Secretary.
October 23rd, 1929.

North Middlesex Hospital, Silver Street, Edmonton, N.18.

MALE RESIDENT MEDICAL OFFICER required. A well-qualified gentleman desirous of good hard work is required at this Hospital, with over 1,000 sick beds and Out-patient Department. As experience is very extensive, the candidate should have previously held a House appointment, and preference will be given to one with knowledge of routine of Hospital work. The appointment is a whole-time one, living in. Age not over 45 years. Salary £200 per annum, subject to terms stated on the application form. Applications, in writing only, to be made immediately on forms to be obtained from the Medical Superintendent and Surgical Director. No personal interview at present.

The Willesden General Hospital

(Incorporated),
London, N.W.10. (106 Beds.)

The Executive Committee invite applications for the appointment of RESIDENT HOUSE SURGEON (male). Candidates must be duly registered under the Medical Acts, and unmarried.

The appointment is for a period of six months from November 1st, or as soon after that date as can be arranged (the first three months as Casualty Officer and House Physician, the second three months as House Surgeon). Salary at the rate of £100 per annum.

Fully detailed applications, with copies of testimonials, to be sent at once to the Secretary.

R. J. HEARNE,
October 28th, 1929. Secretary.

Woking and District Victoria HOSPITAL.

(General Hospital. 50 Beds.)

FEMALE RESIDENT MEDICAL OFFICER required for January 1st, 1930. Applicants must be doubly qualified and registered. Salary £100 per annum, with board, residence, and laundry. Appointment for six months, and renewable for further six months.

Applications, stating age, etc., and accompanied by copies addressed to the particulars may received not later t canvassing not allowed.

Woking and R. MANNING DRIVER,
District Victoria Hospital. Hon. Sec.

Children's Hospital, Sheffield.

(92 Beds.)

Applications are invited for the following posts, vacant January 1st, 1930.

HOUSE PHYSICIAN. (Hospital, Western Bank.)

THIRD RESIDENT MEDICAL OFFICER. (East End Branch, Nursery Street.)

Salary in each case £100 per annum, with board, residence, and laundry.

Candidates (female and unmarried), who must possess registered qualifications, should forward applications, stating age, etc., together with copies of testimonials, to the undersigned, as soon as possible.

T. H. G. GARTLAND, Secretary.

Mansfield and District Hospital.

The Board of Management of the above Hospital (140 beds) invite applications for the post of HOUSE PHYSICIAN (male).

Salary at the rate of £150 per annum, with residence, board, and laundry.

The appointment is for six months and is renewable.

Applications, accompanied by not more than three recent testimonials, to be sent to the undersigned.

Dated this 28th day of October, 1929.
ARTHUR H. LIMB, Secretary.

Hampstead General and North-West London Hospital, Haver-stock Hill, N.W.

APPOINTMENT OF CASUALTY MEDICAL OFFICER AND CASUALTY SURGICAL OFFICER.

Applications are invited from unmarried registered Medical Practitioners for the positions of Casualty Medical Officer and Casualty Surgical Officer, vacant on November 1st, at the Out-patient Department of the Hospital, Bayham Street, Camden Town.

The salary for each appointment will be at the rate of £100 per annum, together with board, residence, etc., and the term will be for six months.

Applications, to be made on a form which will be supplied by the Secretary, together with copies of not more than three testimonials, should be sent to the Secretary not later than November 16th next.

The Queen's Hospital for CHILDREN, Hackney Road, London, E.2.

Telephone: Bishopsgate 6305 and 2554.

The Committee invite applications for two posts of SURGEON for the Ear, Nose, and Throat Department.

Attendance required on one or more of the following mornings at 9.30—viz., Monday, Tuesday, and Thursday. Lunch provided and honorarium to cover travelling expenses.

Candidates must be Fellows by examination of the Royal College of Surgeons, England.

Applications, with copies of three recent testimonials, which may be printed or typewritten, should be sent on or before December 2nd to the undersigned, from whom further particulars may be obtained.

T. GLENTON-KERR,
October 21st, 1929. Secretary.

The Queen's Hospital for CHILDREN, Hackney Road, London, E.2.

CASUALTY OFFICER required January 12th, 1930. A six months' appointment. Salary £100 a year, with board, residence, and washing. Preference given to candidates who have previously held Resident appointments. Applications must be made on forms to be obtained from the Secretary, and must be sent in, with copies of not more than four testimonials, on or before December 2nd.

T. GLENTON-KERR,
October 22nd, 1929. Secretary.

Queen's Hospital for Children, Hackney Road, London, E.2.

HOUSE SURGEON (male) required on December 31st. Six months' appointment. Salary at the rate of £100 a year, with board, lodging, and washing. Applications must be made on forms to be obtained from the Secretary, and must be sent in, with copies of not more than four testimonials, on or before Dec. 2nd.

T. GLENTON-KERR,
October 28th, 1929. Secretary.

Elizabeth Garrett Anderson HOSPITAL, Euston Road.

Wanted, fully qualified Medical Women for the following posts:

HOUSE PHYSICIAN, OBSTETRIC ASSISTANT, Three HOUSE SURGEONS. Appointments for six months from January 1st next. Salary at rate of £50 per annum, with board, residence, and laundry.

CLINICAL ASSISTANTS (Senior for two years, Junior for one year) are also wanted in the Out-patient and Special Departments.

Applications, with three copies of testimonials, should be sent to the Secretary by Wednesday, November 27th.

IMOGEN H. MURPHY, Secretary.

Queen's Hospital, Birmingham.

(A Medical School.)

Applications are invited for the post of RESIDENT ANÆSTHETIST to commence duties at once.

Salary £70 to £100 p.a (according to experience and previous Hospital Resident appointments), together with board, apartments, and laundry.

Applications should be sent to the undersigned, accompanied by three recent testimonials.

G. HURFORD,
Birmingham. House Gov. & Sec.
October 15th, 1929.

The Royal Eye and Ear Hospital, BRADFORD.

Wanted, JUNIOR HOUSE SURGEON (male). Salary £150, advancing to £175, with board, residence, and laundry. Applications, stating qualifications, age, etc., with copies of recent testimonials, to be forwarded to the undersigned.

F. BRIGGS, Secretary-Supt.

CAVENDISH NURSES (Male and Female)

Head Office: 54, BEAUMONT ST., LONDON, W.1 (late 43, New Cavendish St., London, W.1.)

A very convenient form of telephone message pad sent free on application to the Secretary

Branches: *MANCHESTER*: 176, *Oxford Road*. *GLASGOW*: 28, *Windsor Terrace*. *DUBLIN*: 23, *Upper Baggot Street*.

TELEGRAMS: Tactear, London. Surgical, Glasgow. Tactear, Manchester. Tactear, Dublin.

TELEPHONES: London, 1277 Welbeck. Glasgow, 477 Douglas. Manchester, 5152 Ardwick. Dublin, 531 Ballsbridge.

Superior trained Nurses for Medical, Surgical, Mental, Dipsomania, Travelling and all cases. Nurses reside on the premises, and are always ready for urgent calls Day and Night. Skilled Masseuses, Masseurs, and good Valet attendants supplied.

Terms from £3 3s. *Apply to the Secretary or Lady Supt.*

Gravesend and North Kent HOSPITAL.

JUNIOR HOUSE SURGEON (TEMPORARY).

Applications are invited from fully qualified men for the above post. The Hospital contains 100 Beds and Cots and has a large Casualty Out-patient and Ophthalmic Department.

The post affords excellent opportunities for surgical experience, three Resident Medical Officers being employed.

The appointment will be vacant on December 15th, and is for five months, with a possibility of the successful applicant carrying on for an additional 12 or 18 months.

The salary for the five months is at the rate of £80 per annum, payable in equal monthly instalments, with the addition of board, lodging, and washing, and certain cash perquisites, approximate value £70 per annum.

The Hospital is fully equipped with modern X-ray and other apparatus.

Applications, with one copy of three recent testimonials, should be sent to the undersigned immediately.

C. E. CHAPMAN, Secretary.

Hospital of St. Cross, Rugby. (114 Beds.)

Applications are invited for the posts of SENIOR and JUNIOR RESIDENT MEDICAL OFFICERS (males).

Candidates must be registered Medical Practitioners, and must be prepared to begin duties on November 1st. Salary for the Senior post at the rate of £150 per year, Junior at the rate of £100 per year, with board and residence in the Hospital.

Candidates are requested to state whether they are prepared to accept the post of Junior if not selected for the Senior office.

The appointments are for a period of six months only; at the end of that time the Junior will be eligible to apply for the Senior post, which then becomes vacant.

This Hospital is recognized by the University of London for the purpose of the M.D. and M.S.

Applications, stating age and qualifications, with copies of three recent testimonials, should be sent to me immediately.

W. COCKBURN, Supt. & Secretary.

The Prince of Wales's General HOSPITAL, Tottenham, N.15.

Applications are invited for the post of HONORARY MEDICAL REGISTRAR. Honorarium of £100 per annum.

Candidates must be Graduates in Medicine of a British University, or a Fellow or Member of the College of Physician.

Applications, accompanied by three testimonials, to be sent on or before the first post on Monday, November 4th next, to—

FREDK. W. DREWETT,
October 21st, 1929. Director.

Leicester Royal Infirmary. (400 Beds.)

THIRD RESIDENT ANÆSTHETIST.

Applications are invited for this post. Appointment for six months, with possibility of renewal. Salary £250 per annum, with board and residence.

Applicants should give particulars of special experience in the administration of anæsthetics and enclose copies of testimonials, with particular reference to anæsthetic work, to the House Governor and Secretary by first post on Wednesday, November 6th.

October 24th, 1929.

Molyneux Asylum for Female BLIND, LEESON PARK, DUBLIN.

A MATRON for the above Institution will be required on January 1st next, active and competent to take entire charge. Age not over 45; Church of Ireland or England. Special consideration will be given to applications from duly qualified nurses, if otherwise suitable. Salary £100, with apartments, board, medical attendance, and laundry. Apply before November 15th, stating age, with copies of testimonials, to the Secretary, from whom all further information may be obtained.

Royal Northern Hospital, Holloway, N.7.

Applications are invited for the following posts:

MEDICAL REGISTRAR. Candidates will be required to attend at the Hospital from Monday to Friday inclusive. The appointment is for one year, with eligibility for re-election from December 15th. Honorarium £100 per annum, with luncheon and tea provided.

HOUSE SURGEON (male). The appointment is for nine months (six months House Surgeon and three months Casualty Officer) from December 15th. Salary at the rate of £70 per annum, with board, residence, and laundry.

Applications, with copies of testimonials, should be sent by November 9th to the undersigned, from whom forms of application and rules can be obtained.

GILBERT G. PANTER, Secretary.

Hospital for Women at Leeds.

Vacant post of HONORARY ASSISTANT SURGEON. Notice is hereby given that the Special Election Committee will proceed to the election of an Honorary Assistant Surgeon (Gynæcological and Obstetrical) on Thursday, November 14th next. Candidates for the office should hold the Degree of Master of Surgery, or be a Fellow of the Royal College of Surgeons, England. Further information regarding the appointment may be obtained from the Secretary. Applications, marked "Private," should be addressed to the Chairman, at the Hospital, and should be received not later than November 8th. Copies only of testimonials should be sent.

By Order,
Leeds. S. CECIL HILL,
October 24th, 1929. Secretary.

Manchester Hospital for CONSUMPTION AND DISEASES OF THE THROAT AND CHEST.

Wanted, a RESIDENT MEDICAL OFFICER for the In-patients' Department (50 beds), BOWDON, CHESHIRE. Must be registered. Salary £200 per annum, with board, apartments, laundry, and railway contract. Duties include attendance on three mornings a week at the Out-patients' Department, Manchester.

Applications, with copies of testimonials, to be sent in not later than November 9th to—

Consumption Hospital, C. W. HUNT,
Hardman St., Manchester Secretary.

Kettering and District General HOSPITAL. (82 Beds.)

Applications are invited for the post of JUNIOR HOUSE SURGEON. Salary £100 p.a., with board, residence, and washing. Candidates must be fully qualified and registered

The appointment is for six months, but candidates will be eligible for re-election.

Applications, stating age, nationality, and qualifications, together with copies of three recent testimonials, to be sent immediately to the Secretary-Superintendent

Liverpool Maternity Hospital, OXFORD STREET.

HOUSE SURGEON required for six months commencing January 1st next. Salary at the rate of £90 per annum, with board, residence, and laundry. Previous experience as House Surgeon essential. Membership of a Medical Defence Society is a condition of appointment.

Applications, stating age, qualifications, and experience, together with copies of testimonials, to be sent to the Hon. Secretary of the Medical Board on or before November 23rd.

General Hospital, Nottingham.

...FICER (male) is ... are desired to ... with copies of ...ifications, experi... the undersigned.

The appointment is for six months, with salary at the rate of £150 a year, with board, residence, and laundry.

PETER M. MACCOLL, House Gov. & Sec.

St. Bartholomew's Hospital, ROCHESTER. (126 Beds.) (Rochester, Chatham, Gillingham, and District.)

The House and Finance Committee invite applications for the post of RESIDENT SURGICAL OFFICER, which will become vacant on January 1st, 1930.

Candidates must be unmarried, qualified, and registered Medical Men. It is desirable that candidates shall have previously held a Resident Surgical appointment. The post is partly administrative. The appointment is for six months, renewable for a further six months at the discretion of the Committee. Salary is at the rate of £225 per annum, with board, residence, and laundry.

Applications, stating age, qualifications, experience, etc., accompanied by copies of three recent testimonials, to reach the Secretary not later than November 15th.

Royal Sussex County Hospital, BRIGHTON.

A SENIOR ASSISTANT PATHOLOGIST (male) to the Pathological, Bacteriological, and Clinical Research Department of the above Institution required. Commencing salary £350 per annum (non-resident).

Applications, with copies of testimonials, must reach the undersigned at the Hospital not later than November 21st.

The successful candidate will be required to take up his duties on January 1st, 1930.

Particulars of duties and rules will be forwarded on ...

L. I

The Gloucestershire Royal INFIRMARY AND EYE INSTITUTION, GLOUCESTER. (153 Beds.)

Applications are invited for the post of SECOND HOUSE SURGEON (male). Salary £100 per annum, with board, residence, and laundry. (Four Resident Medical Officers.)

The appointment is for six months, which may be extended for similar periods by re-election from time to time.

Applications, stating age, qualifications, and nationality, with copies of not less than three recent testimonials, must be received by the undersigned not later than Wednesday, November 6th. The elected candidate will be required to enter upon his duties on Thursday, Nov. 21st.

F. J. SYMONS,
October 24th, 1929. Secretary.

General Hospital, Gt. Yarmouth. (72 Beds.)

Applications are invited for the post of JUNIOR HOUSE SURGEON. Salary £125 per annum, with board, residence, and laundry. Duties to commence at once. Candidates (male and unmarried) must be fully qualified and registered,

Applications, stating age, nationality, and qualifications, together with copies of three recent testimonials, to be sent immediately to the undersigned.

T. H. G. GARTLAND, Secretary.

Hospital of St. John and ST. ELIZABETH, 60, Grove End Road, N.W.8.

Applications are invited for the post of RESIDENT HOUSE PHYSICIAN (male). The appointment will be for six months from December 1st. Salary at the rate of £100 per annum, with full board. Applications, together with three testimonials, should reach the undersigned on or before Monday, November 4th.

F. DUDLEY HOBBS, Secretary.

Northern Infirmary, Inverness.

The Directors propose to appoint an HONOR... tal. Candidates ...logy and will ... to the practice ... possess experi... details and com... be furnished on ...ONT. GILBERT, ... application to the Secretary, ... Esq., 2, Church Street, Inverness, with whom letters of application and copies of testimonials should be lodged on or before November 4th.

Bolingbroke Hospital,
Wandsworth Common, S.W.11.

Applications are invited from gentlemen engaged solely in the practice of Oto-rhino-laryngology for the post of CLINICAL ASSISTANT in the Ear, Nose, and Throat Department.

The appointment is for one year from December 1st next, and there is an honorarium of £100 attaching to the position.

The successful candidate must be prepared to be in attendance at the Hospital on Wednesday afternoons at 2 o'clock and on one other half day a week.

Applications, accompanied by copies of three testimonials, should be sent to the undersigned on or before November 13th.

W. S. RANDOLPH BISS, Secretary Supt.

Bolingbroke Hospital,
Wandsworth Common, S.W.11. (120 Beds.)

Applications are invited for the post of RESIDENT MEDICAL OFFICER (male). The appointment is for twelve months from December 1st next.

Salary £200 per annum, with board, residence, and laundry.

Candidates must be fully qualified and registered.

Applications, stating age, qualifications, and experience, with copies of not more than three testimonials, should be sent to the undersigned on or before November 13th.

W. S. RANDOLPH BISS, Secretary Supt.

Bangour Mental Hospital,
WEST LOTHIAN.

Vacancy for unmarried man as SECOND ASSISTANT MEDICAL OFFICER. Experience of mental work not necessary, but Post-Graduate Medical or Surgical experience a recommendation. Salary £350 per annum, rising to £400 after 12 months' satisfactory service, together with apartments, board, laundry, and attendance. Appointment pensionable under the Asylums Officers Superannuation Act, 1909.

Applications to be addressed to the Medical Superintendent, Bangour Village, West Lothian.

Chester Royal Infirmary.
(211 Beds.)

Wanted, HOUSE SURGEON (male), to commence duties November 11th for term of six months. Salary £120 per annum with board, lodging, and washing. Candidates must be doubly qualified and registered.

Applications, stating age, and accompanied by copies of testimonials, to be sent to the undersigned not later than first post on Tuesday, November 5th.

J. ROWSE MITCHELL,
October 21st, 1929. Secretary.

Essex County Hospital,
COLCHESTER. *(160 Beds.)*

Wanted in November, ASSISTANT HOUSE SURGEON and REGISTRAR (male). Salary £120, with board, washing, and residence. Medical and Surgical qualifications required.

Applications, with three recent testimonials, to be sent on or before Friday, November 1st, to

ALFRED G. BUCK, Secretary.

London Jewish Hospital,
Stepney Green, E.1.
(General Hospital. 108 Beds.)

Applications are invited for the following posts:

RESIDENT MEDICAL OFFICER. Salary at the rate of £150 per annum, with board and resi[dence] months.

JUNIOR [OFFICER] Salary at [rate of] £120 per annum, with board ar[d] for six months.

Applications, with copies of three recent testimonials, to be sent to the Secretary on or before Friday, November 15th. The successful candidates will be required to take up their duties on December 1st.

London Jewish Hospital,
Stepney Green, E.1.
(General Hospital. 108 Beds.)

The Council of Management invite applications for the post of HONORARY ASSISTANT RADIOLOGIST.

Candidates should send 20 copies of their application, with copies of three recent testimonials, to the Secretary at the Hospital, on or before Friday, November 15th.

London Jewish Hospital,
Stepney Green, E.1.
(General Hospital. 108 Beds.)

CLINICAL ASSISTANTS required in the Surgical Department, who will be required to attend on Monday and Friday mornings at 9.30 a.m. Applications to the Secretary.

Telephone: WELBECK 2/28.
Telegrams: "ASSISTIAMO, LONDON."

NURSES
MALE OR FEMALE.

TRAINED NURSES FOR MENTAL, MEDICAL, SURGICAL, AND FEVER CASES.

Nurses reside on the premises and are available for urgent calls Day or Night.

THE NURSES' ASSOCIATION
(In conjunction with the MALE NURSES' ASSOCIATION).
29, York St., Baker St., London, W.1.

Mrs. MILLICENT HICKS, *Supt.*
W. J. HICKS, *Secretary.*

ST. LUKE'S HOSPITAL.
FOR MENTAL DISORDERS.

Private Nursing Staff Department.

Trained Nurses for Mental and Nervous Cases can be had immediately.

Apply to Lady Superintendent,
19, Nottingham Place, London, W.1.
Telephone: Mayfair 5420.

Northern Branch.—Apply, Lady Superintendent 67, Clarendon Rd., Leeds. 'Phone: Leeds 26165

MR. HERBERT NEEDES,
31, Bedford Street, Strand, W.C.2.
(Temple Bar 3873.) (Estab. 1860.)

This Agency (the oldest in the Kingdom) undertakes the SALE of PRACTICES and PARTNERSHIPS, AUDITS, and VALUATIONS, and the SUPPLY OF LOCUMS and ASSISTANTS.

No Charge to Purchasers. All Business receives Mr. NEEDES' personal attention.

Bedford County Hospital.

HOUSE SURGEON (male), fully qualified, unmarried, required for a term of not less than six months, commencing at once. Salary £175, with board, lodging, and laundry.

Applications, stating age, nationality, qualifications, together with three recent testimonials, to be sent to the Hon. Secretary, Medical Staff Committee, not later than the first post Wednesday, November 13th. Selected candidates will be invited for an interview Saturday, Nov. 16th.

Bedford County Hospital.

ASSISTANT HOUSE SURGEON (male), fully qualified, unmarried, required for a term of not less than six months, commencing at once. Salary £130, with board, lodging, and laundry.

Applications, stating age, nationality, qualifications, together with three recent testimonials, to be sent to the Hon. Secretary, Medical Staff Committee, not later than the first post Wednesday, November 6th. Selected candidates will be invited for an interview Saturday, Nov. 9th.

Newark Hospital and Dispensary
(50 Beds.)

Wanted, a fully qualified RESIDENT HOUSE SURGEON (male) to commence duty January 1st, 1930. Must be a good Anæsthetist. Salary £150 per annum, with board, residence, and laundry. Appointment for six months, or twelve if mutually desired. For form of application apply to W. T. CRAMPTON, 27, Kirk Gate, Newark, Notts.

St. John's Hospital, Lewisham,
S.E.13.

A vacancy has been declared in the office of PHYSICIAN to the Children's Department. The successful applicant will be expected to hold one Out-patient Clinic weekly and to take charge of the Medical beds in the Children's Ward.

Applications, with copies of testimonials, should reach the Secretary not later than Nov. 14th.

The Sheffield Royal Hospital.

A Male RESIDENT ANÆSTHETIST is required, and the selected candidate will be eligible for appointment to any vacancy occurring on the Resident Staff. Salary £80 per annum, with board, residence, and laundry. Applications, with copies of testimonials, should be sent as soon as possible to the undersigned.

W. H. BOOTH,
October 9th, 1929. Supt. & Secretary.

THE OLDEST AND LEADING MEDICAL AGENT

PERCIVAL TURNER,
(Established 50 years.) LTD.
4 & 5, ADAM ST., STRAND, W.C.2.

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Telephone: TEMPLE BAR 9011.

Terms post free on application.

Continental Coastal Practice.—*About £450 p.a.* Visits 10/6 to 21/-, cons. 5/- to 10/6. No appts. or mids. Good flat to rent, 3 bed., etc.—No. 8551.

Lancs.—1/3 or 1/2 share of over £2,400 p.a. Prelim. Assistancy. Panel £900 Mixed class. Good house, 4 beds., attics, etc.—No. 8454.

London, N.W.—Over £900 p.a. Cash and panel of over 800. Visits 3/6 up. Corner house, 6 rooms, surgery, etc.—No. 8560.

Eastern County. — Over £1,000. Panel and appts. £560. Visits 4/6 up. *Good house, with 4 beds., and garden. Low rent.*—No. 8559.

Lancs.—£4,000 p.a., increasing. Panel over 2,650. Fees 2/6—7/-. Mids. 2—5 gns. Suitable for two. Two *adjoining* houses to rent or buy. Premium, including drugs, book debts, surgery furniture, etc., only £5,250.—No. 8509.

London Suburb (about 10 miles). £2,300, scope. Panel 1,650. *Fees 3/6 to 5/-.* Corner house, *5/6 bed.*, garage, etc. —No. 8557.

Herts.—Country.—Nearly £1,000. Panel 470. Appts. £54. Residential. *Good fees. House, with good surgery, 6 bed.*, garden, etc.—No. 8556.

London Suburb, S.E.—£1,800- £2,000. *1/2 share and succession.* Non-panel. Fees 4/- to 10/6. Little midwifery. —No. 8555.

Lancs.—Death Vacancy.—£2,200. Panel 2,200. Good house, 5 bed., etc., and tennis court. Rent or sell.—No. 8554.

West of England Town.—Share worth £900 p.a., of which £600 is from panel and appts. *House, with 7 beds., etc., to rent.*—No. 8552.

Share worth £800 net in suburban Practice. Appts. £400 p.a. Panel over 3,000. Prelim. assistancy essential.—No. 8547.

Midlands (Industrial). — Over £1,500 p.a., with ample scope. Panel about 1,700. House to rent at £56.—No. 8546.

Wilts.—£2,250 p.a. Country Town. Panel 1,000. Surgical scope. Choice of houses. Premium *£1,800 for 2/5* share.—No. 8541.

Lancs. — Average £1,590 p.a. 1/2 share for sale. Panel £800 p.a. House, 4 bed., etc., to rent. *Premium* only £1,200.—No. 8517.

Dorset. — Average £2,300 p.a. 1/2 share for sale. Good appts. Small panel. House, 6 bed., etc., and garden, to rent. —No. 8537.

Liverpool.—£1,300 p.a. Visits 3/6 to 5/-. Mids. 3 to 4 *gns.* Panel 560. House, 4 bed., etc., and garden.—No. 8536.

Yorks. — Average £1,800 p.a. Panel over 1,000. Visits 3/6 up. No mids. House, 5 bed., etc.—*No. 8533.*

Cornwall. — About £850 p.a., increasing. Small panel. Visits 4/- to 21/-. House, 6 bed., etc., and good garden.—No. 8529.

Staffs. — About £1,300 p.a. Panel 1,300. Fees 5/-. House, 5 bed., etc., to *rent. Premium* £1,000 cash.—No. 8527.

N. Wales Borders.—£4,000 p.a. 1/3 or 2/3 share. Panel 3,800. Appts. worth £1,600 p.a. Visits 5/- up. About 60 mids. at £2 2s. House (4 bed., etc.) to rent or buy.—No. 8519.

Home Counties.—Death Vacancy. —About £760 p.a. Mids. 2 gns. Panel 516. Visits up to 10/-. Good house and large garden to rent.—No. 8516.

Yorks.—Over £3,000 p.a. 1/4 share, good scope for increase. Panel over 2,000 Mids. 2—5 gns. Med. *house* to rent or buy.—No. 8510.

SPECIAL NOTICE.

FINANCIAL ASSISTANCE to enable purchasers to obtain *Practices* and Partnerships can be afforded to approved applicants.

Full particulars on application to Mr. Percival Turner.

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(ESTABLISHED BY J. A. REASIDE IN 1893)

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FOR SALE.

HOME COUNTIES.—SURGICAL PARTNERSHIP.—Under 60 miles from London: Receipts nearly £8,000. Panel. Excellent house for sale or to rent. Hospital appointment. Suitable only to F.R.C.S. One-fifth share at 2 years' purchase.

WARWICKSHIRE.—ASSISTANTSHIP with view to SUCCESSION in old-established Practice situated in charming rural locality. Receipts over £1,000 p.a. Panel over 1,000. Commencing salary, indoor, £250 p.a.

LANCS.—Seaside Resort.—Middle-class G.P. Average receipts nearly £1,200. Panel 600. House for sale or to rent. Scope for surgery. Premium 1¼ years' purchase, for quick sale.

SOUTH COAST.—PARTNERSHIP in good-class non-panel G.P. Excellent scope. Share worth about £600 to commence with at 2 years' purchase. Suitable only 'Varsity Graduate.

EASTERN COUNTIES.—PARTNERSHIP with view to SUCCESSION. Non-panel Practice. Receipts over £3,000 p.a. Suitable house available. Premium for half share 2 years' purchase.

HANTS.—Seaport.—Well-established mixed-class G.P. Good house, with garden, to rent or for sale. Receipts £800 p.a. Panel 900. Two appointments. Premium 1½ years' purchase.

LONDON, N.W.1.—Small LOCK-UP SURGERY, with living accommodation. Receipts approx. £104. No panel. Fees 2/6 upwards. Scope. Premium £150 or near offer.

BERKS.—PARTNERSHIP with view to SUCCESSION. Country Practice. Receipts average £1,120. Panel nearly 600. House to rent. Premium for 2/5ths share 2 years' purchase.

ASSISTANTSHIPS, with and without view. We have several openings for experienced Practitioners, married and single. Personal interview in London essential.

SURREY.—PARTNERSHIP in old-established middle-class G.P. Receipts approx. £2,000 p.a. Panel 1,400. Premium for 1/3rd share 2 years' purchase.

GLOS.—Well-estab. middle- and working-class PRACTICE. Medium-sized freehold house in own grounds. Receipts average £1,270 p.a. Panel 1,100. Fees 2/6 up. Premium for house and Practice £2,700.

LONDON, E.—Working-class PRACTICE. Receipts £850. Panel approx. 500. House to rent at £80 p.a. Premium 1½ years' purchase.

EASTERN COUNTIES.—ASSISTANTSHIP, with view to Partnership, in rural G.P. Receipts over £2,200. Panel 1,500. Premium for 1/3rd share 2 years' purchase. Commencing salary during Assistantship (outdoor) £400 p.a.

LONDON, S.E.—Near West End.—Well-established G.P. in thickly populated district. Large house held on lease at exceptionally low rental. Part easily sub-let if desired. Receipts approx. £1,000 p.a. Panel 750. Fees 2/6 up. Premium for Practice and lease £1,500.

LANCS.—Old-established middle-class PRACTICE in manufacturing area. Receipts over £4,250. Panel 2,600. House (corner) for sale at £1,100. Premium for Practice 1½ years' purchase, payable part down and balance as arranged. Partnership would be considered.

LONDON, N.—NUCLEUS Lock-up Practice, with living accommodation if desired. Receipts over £750. Panel 510. Premium £800 cash, for quick sale.

KENT.—ASSISTANTSHIP, with view to Partnership, in old-established G.P. within 15 miles of London. Receipts average £3,800. Panel 2,500. One-third share will be offered at 2 years' purchase.

HOME COUNTIES.—(Seaside Resort).—DEATH VACANCY in well-established G.P., with small panel. Receipts approx. £2,000. Scope for surgery, if desired. Excellent house available. Premium £1,250 cash, for quick sale.

YORKS.—PARTNERSHIP in middle- and working-class G.P. Receipts over £3,000 p.a. Panel over 2,000. House to rent. Premium for 1/4th share £1,500.

YORKS.—Well-established middle- and working-class Town PRACTICE. Receipts approx. £1,520. Panel nearly 1,700. House to rent. Premium £2,250.

LONDON, N.—LOCK-UP SURGERY, with living accommodation if desired. Receipts £750. Panel 510. Premium for quick sale £850.

DURHAM.—PARTNERSHIP in increasing Practice situated in colliery district. Receipts £1,600. Panel 1,350. Premium for half share 2 years' purchase.

LANCS.—Cash and Panel middle- and working-class G.P. House to rent or for sale. Receipts £750. Panel 700. Premium 1,000 gns. £600 down and balance by instalments.

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Transfers of Practices and Partnerships arranged.

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4 MIDLANDS.—Practice averaging £1,680 p.a. in important city. Panel 1,560 Specially built house (4 bed and dressing rooms) to be sold. Scope for increase. Price £2,250.

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9 LONDON, W. — Non-dispensing Practice about £1,650, within easy distance of Marble Arch. No panel or appointments and practically no midwifery. Commodious house to be let or sold. Premium one and a half years' purchase.

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13 SURREY.—Partnership in old-established Practice about £2,250 p.a. in outlying suburban district. Panel over 1,500. House (5 bedrooms) to rent. One-half share at 2 years' purchase.

14 EASTERN COUNTIES. — Country PRACTICE of £2,350 p.a. carried on by two Partners. Panel 1,600. Two houses to be let. Premium 1½ years' purchase.

15 WEST OF ENGLAND.—Steadily increasing PRACTICE (carried on by Medical Woman) of well over £700 in first-rate town. Panel 550. Centrally situated house in excellent position for sale. Premium £1,050.

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17 LONDON, S.E.—Cash Practice about £600 a year in suburban district within half an hour of Charing Cross. Panel 360. Small corner house to rent. Great scope. Premium £900, part by instalments.

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19 LANCASHIRE.—Partnership in old-established Practice about £2,650 p.a. in manufacturing town. Panel 900. Applicant should be experienced and aged about 30 to 35. Share up to one-half at 1½ years' purchase after preliminary assistantship.

20 ESSEX.—Very compact and easily worked PRACTICE in rapidly developing industrial district. Receipts 1928, £350. Panel 472. House (2 bedrooms) on main road to rent. Premium £600.

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28 S.W. OF ENGLAND. — Partnership in Practice about £4,000 p.a. in watering-place. Panel about 1,700. Choice of residence to rent or purchase. Hospital and scope for surgery. Premium one-third share £2,400.

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35 LONDON, W.—Partnership in non-dispensing Practice about £2,500 p.a. No panel or appointments. One-third share, with view to ultimate succession. Premium 2 years' purchase. Purchaser must be well qualified and used to good-class Practice.

36 LANCASHIRE. — Partnership in Practice £2,500 in urban district easy distance of important town. Panel 3,800. Premium one-half share 1½ years' purchase.

37 EASTERN COUNTIES.—Practice averaging nearly £3,300 p.a. in seaport town. Panel 700. House (5 bedrooms), large garden, for sale or rent. Scope. Premium 1½ years' purchase (or share up to one-half at 2 years' purchase).

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22. Country PRACTICE, within easy reach of and averaging over £1,600 p.a., including nd £50 from appts. Fees from 2/6 to 21/-. Suitable house available. Price £1,000. Premium 1½ years' purchase.
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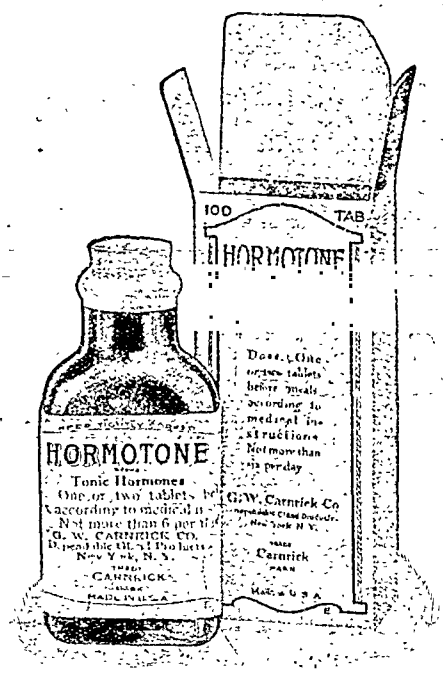

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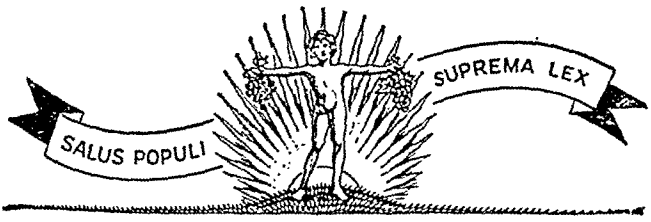

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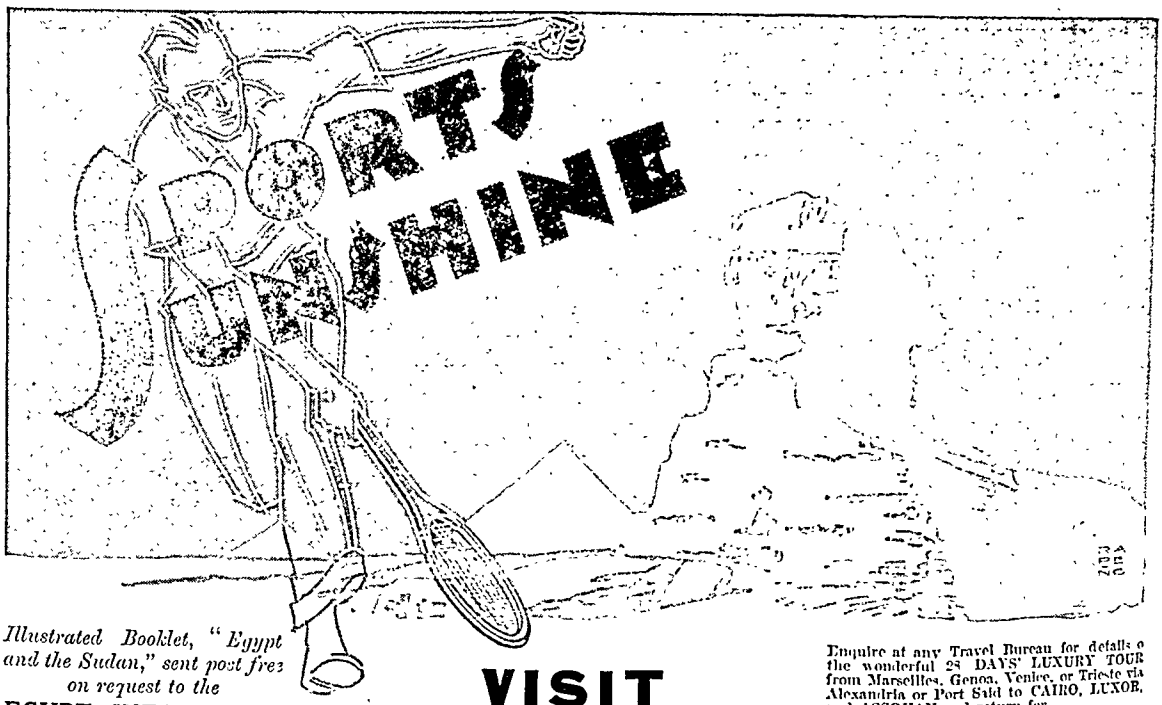

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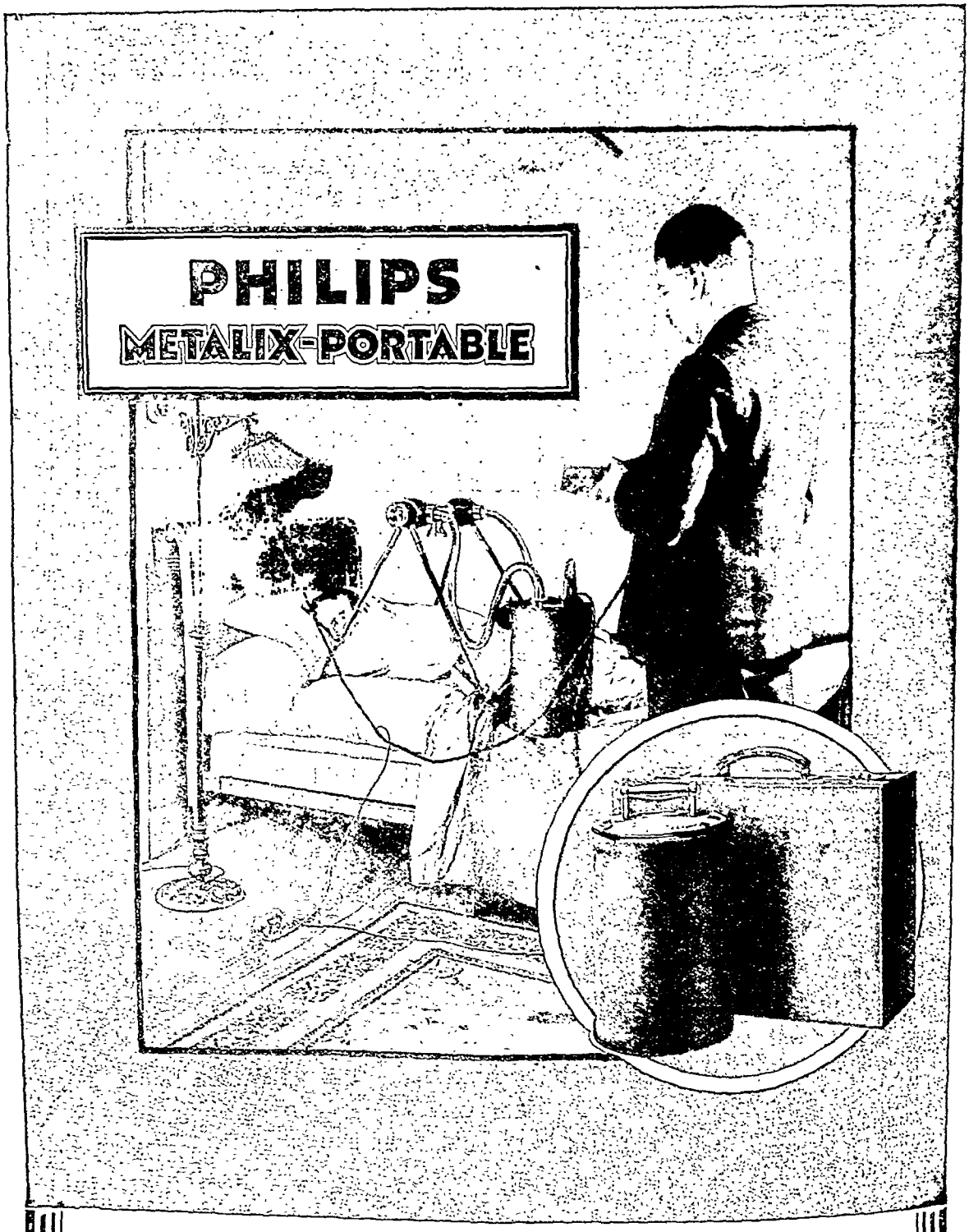

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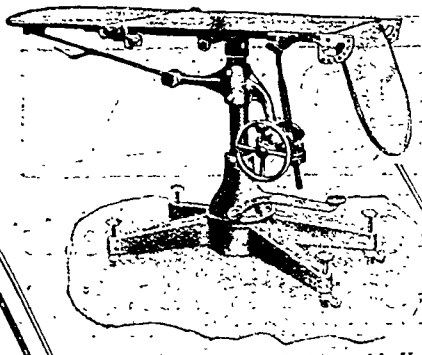

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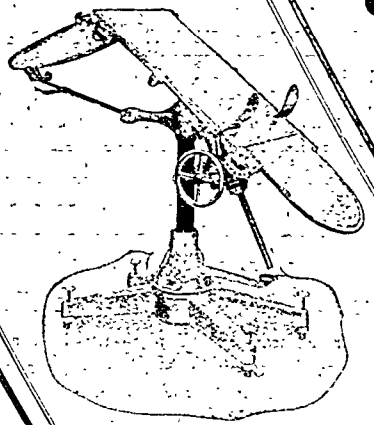

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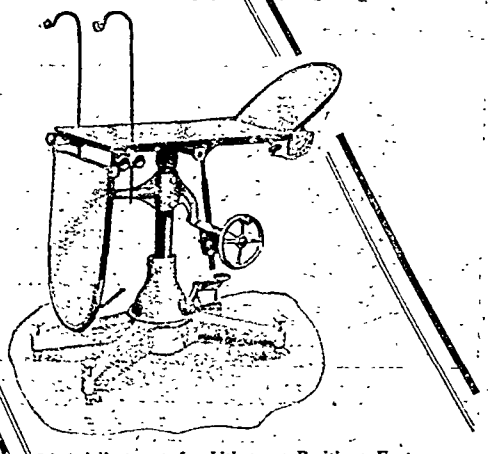

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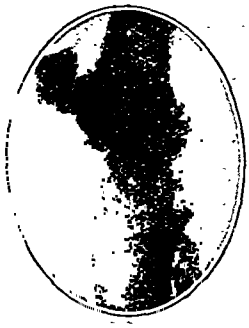

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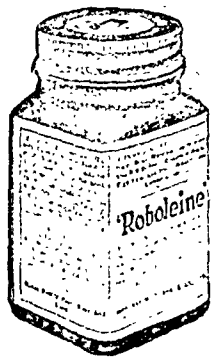

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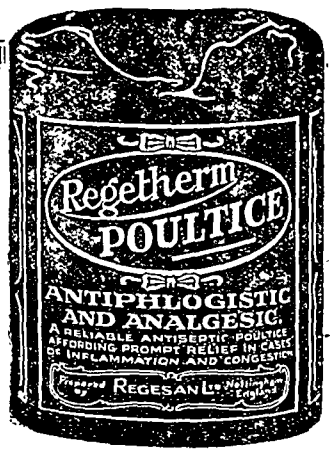

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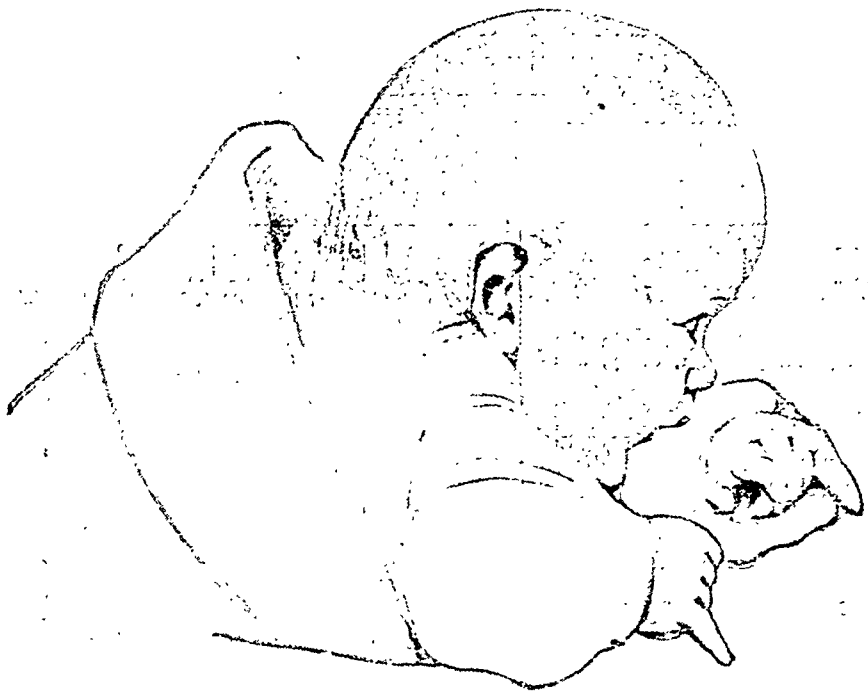

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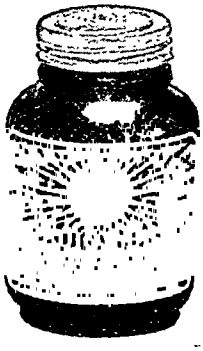

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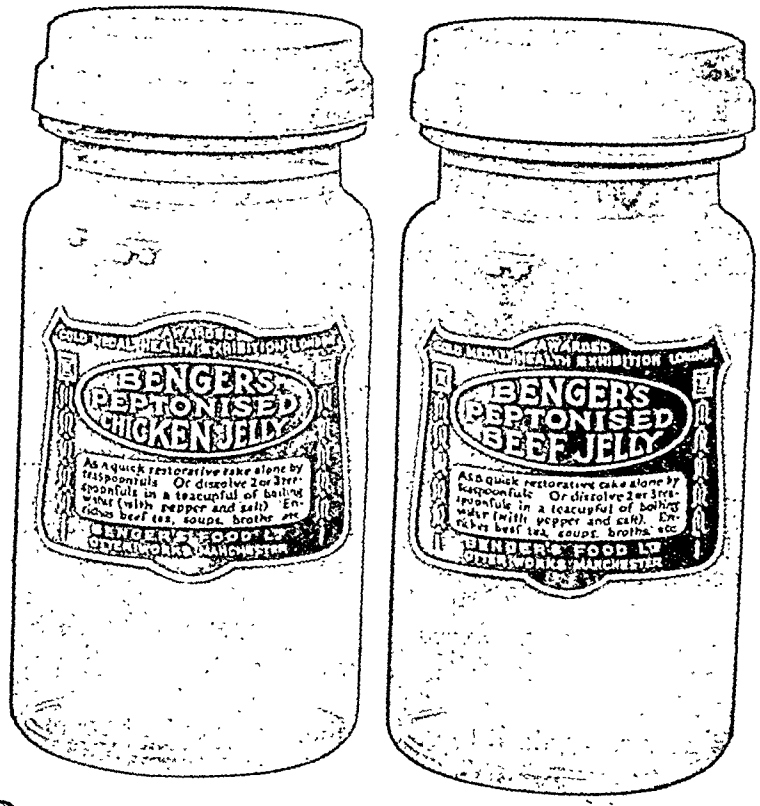

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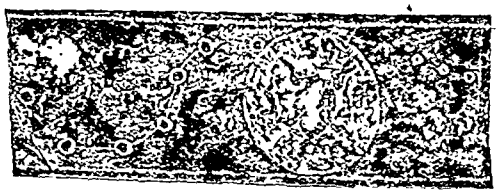

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References—The Therapeutic Application of Acetylcholine.—THE LANCET. 9th Mar., 1929.
Acetylcholine as a Depressant.—THE PRESCRIBER, April, 1929.

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Remarks ON THE PATHOGENESIS AND TREATMENT OF ASTHMA.*

BY

ARTHUR F. HURST, M.D., F.R.C.P.,

SENIOR PHYSICIAN TO GUY'S HOSPITAL.

THIS is the sixth occasion on which asthma has been discussed at the Annual Meetings of the British Medical Association since 1900. At the meeting in 1911 nothing was said which was not known to Hyde Salter when he wrote his admirable book on asthma fifty years before. At the meeting in 1921 the recent introduction of skin tests was regarded as holding out prospects of curing asthma with a frequency hitherto unapproached, a prospect which was already seen to be doomed to disappointment at the discussion in 1925. Though no new discovery of importance has been made in the four years which have elapsed since then, the large amount of work which has been done in the investigation of asthma in all parts of the world has, I think, led to a better understanding of the problem with which we are faced, and treatment founded on a thorough study of each asthmatic individual from every point of view is now likely to be followed by improvement, though unfortunately not often by cure.

The chemical constitution of the body fluids is not exactly the same in all healthy individuals, but shows slight variations from the average normal. I believe that these slight variations, though compatible with perfect health, form the basis of the congenital and often inherited constitutional tendency to develop certain diseases.

The balance between the vagal and the sympathetic constituents of that part of the respiratory centre in the medulla which, together with the associated peripheral ganglia, controls the activity of the muscular coat and mucous glands of the bronchi, is perfectly adjusted in normal individuals. I believe that the asthma diathesis—the congenital and often inherited constitutional abnormality which is the one essential factor in the pathogenesis of asthma—is caused by a slight deviation from the average blood chemistry, which results in the vagal constituent of the bronchial nervous system being the predominant partner. In such individuals certain chemical, reflex, and psychical stimuli, which have no effect on normal individuals, give rise to spasm of the bronchial muscles and hypersecretion of the bronchial mucous glands, together with congestion of the bronchi, which is the natural accompaniment of their excessive functional activity.

Some indication of the nature of the primary biochemical factors which predispose to asthma has recently been discovered by Dr. Oriel (*Guy's Hospital Reports*, lxxix, October, 1929), whose investigations at Guy's Hospital have demonstrated that even in the intervals between attacks the blood of asthmatics generally shows certain divergences from the average normal.

A further biochemical factor depends upon the varying activities of the internally secreting organs. The effect of fatigue, as shown by the increased tendency to asthma towards the end of each day, each week, and each period of work without holiday, is best explained as the result of exhaustion of the suprarenal glands, whose deficient secretion helps the vagal constituent of the bronchial nervous system to gain the upper hand over the sympathetic constituent, the activity of which requires an adequate supply of adrenaline. In accordance with this theory the blood pressure of asthmatics is generally low, and Oriel has found that many of them have well-marked hypoglycaemia. The increased tendency to attacks just before or during menstruation in many female asthmatics must also depend upon some alteration in the normal balance of the internal secretions.

In recent years so much attention has been directed to the question of hypersensitiveness to proteins and other chemical substances in asthma that there has been a tendency to regard this as the one essential factor. The truth is, however, that an individual who is hypersensitive to one or more proteins only suffers from asthma if he has the constitutional tendency, the nature of which I have just described, and there is no doubt that many asthmatics are not hypersensitive at all, their attacks being caused by reflex and occasionally psychical stimuli. It is none the less of the greatest importance to give every asthmatic an exhaustive cross-examination with the object of discovering whether some or all of his attacks are due to his being hypersensitive to the proteins of one or more articles of food, an animal emanation, a pollen, house-dust, orris-root face powder, or the toxins of some organism, which is present in his body owing to infection of the bronchi themselves, the tonsils, nasal sinuses, teeth, or even the appendix or gall-bladder. I have used the skin tests in a very large number of cases since my attention was first drawn to them during a visit to America in 1919, but in spite of trying a great variety of American and English preparations I have regretfully come to the conclusion that they are of no practical value, except in the case of food proteins in children and of pollens at all ages. Harding has come to the same conclusion from his investigations at the Guy's Hospital Asthma Clinic.

The nose is the most important reflex source of asthma. Brodie and Dixon showed that stimulation of an area on the septum in animals produces bronchial spasm. In individuals with the asthma constitution irritation of the corresponding area gives rise to a similar reflex. When a man with a narrow airway lies down at night, the passive congestion of the cavernous tissue of his turbinals may be sufficient to bring them into contact with the asthmogenic area on the nasal septum. The narrow airway may be congenital or result from a deflected septum or from chronic infection which leads to permanent congestion of the mucous membrane and the development of polypi. A distended stomach and a distended rectum may both produce reflex attacks of asthma quite independently of any form of alimentary toxaemia, an evacuation of the stomach or rectum producing immediate relief long before a change could take place in the blood from diminished absorption of poisons.

The most common psychological factor in asthma is expectation. An individual who has been accustomed to get attacks of asthma in certain places or under certain conditions is exceedingly likely to continue to do so when the original chemical or reflex cause has ceased to be operative. This is a result of auto-suggestion, but it must be remembered that no amount of suggestion can produce anything more than tachypnoea without any trace of over-activity of the bronchi in anybody who has not the asthma diathesis.

TREATMENT.

In discussing the treatment of asthma we have to consider the underlying constitutional abnormality, the chemical, reflex, and psychological factors which can initiate an attack, the attack itself, and the secondary changes in the lungs which result from repeated attacks. It is clear that the only true cure of asthma would be to abolish the diathesis by bringing the biochemical constitution of the body fluids to the normal level. Removal of exciting factors leads to diminution of the frequency of attacks, and complete success in this direction may lead to an apparent cure. But the condition is not really cured, as the diathesis remains, and at any time the individual may become sensitized to another protein—as, for example, after an attack of influenza or other infection involving the nose, throat, or bronchi—or a new peripheral source of irritation which leads reflexly to attacks may arise, or some psychological disturbance may develop which results in a relapse. Moreover, the effects of desensitization are only temporary, and avoidance of exciting causes, such as feathers, cats, or pollens, even for long periods, does not diminish the tendency to asthma on re-exposure. I used to say that the only cure of asthma was not to have it, by which I meant that one might hope that the bronchial nervous system might cease to be abnormally irritable as a result of disuse if it were never called into activity. But this is unfortunately not always true, at any rate in adults, as I have now seen numerous patients who have relapsed after thinking themselves cured for periods varying between one and twenty-five years. Lastly, treatment of the paroxysm

* Made in opening a discussion in the Section of Medicine at the Annual Meeting of the British Medical Association, Manchester, 1929.

is of the greatest importance, as, if successful, it may make it possible for a man to continue in full activity instead of becoming a hopeless invalid.

Among the innumerable forms of treatment which have been advocated two appear to attack the diathesis; these alone, if successful, might be regarded as genuine "cures." The first is by means of diet, a treatment which has been very successfully applied, especially in children, by Dr. Adam and Dr. Cameron. The second is by residence at a height between about 4,000 and 6,000 ft. Asthma is almost unknown among the natives of the Engadine, Davos, Villars, and similar centres in Switzerland, and at least 90 per cent. of asthmatics lose all, or nearly all, their symptoms within a very short period of their arrival in these places. Unfortunately, the effect is only temporary if the stay is a short one, the asthma returning, often within a few hours, on reaching the plains. But residence for one year, or preferably several years, in the Alps almost invariably leads to a permanent cure in children, in spite of complete failure of every known form of treatment at home. Storm van Leeuwen attributed the effect of the Alps to freedom from dust. I am convinced that this is erroneous, as there is no obvious difference between the hotels at a height of 4,000 ft. and those 2,000 ft. lower, and yet a man who is severely asthmatic in the latter is often quite well and can take vigorous exercise within twenty-four hours of moving to the former. Moreover, no house could be fuller of "allergens" of every kind than the hermetically sealed chalets of the Alpine peasants during the winter, although asthma is unknown among them. It is also a common experience among asthmatics that conditions which invariably lead to asthma when they are at home are innocuous in the mountains; it seems, in fact, that nothing could produce an attack when the 4,000-ft. level has been reached. It is clear that the effect is due to altitude, a conclusion which has been confirmed by the experience of asthmatic members of the Air Force, who find that they can always find relief by flying sufficiently high. It is unknown why altitude should have this remarkable effect, but I expect it will be found that the lowered oxygen tension leads to biochemical changes in the blood, which result in diminution in the irritability of the bronchial nervous system. The further lowering of oxygen tension when a still greater height is reached has the reverse effect, though each individual appears to have an optimum level. This accounts for the reappearance of attacks on reaching greater heights in the Alps and the frequency of asthma in such places as Johannesburg.

It is, I think, possible to look forward to the time when sufficient is known about the biochemical changes which constitute the asthmatic diathesis to make it possible to imitate the effect of high altitudes by well-defined changes in the diet, aided, perhaps, by drugs which can correct deviations from the normal reaction of the body fluids and make good any deficiencies in their mineral or other constituents. I should mention here the success obtained by Dr. Oriel, especially in children, by adding glucose to the diet, together in most cases with the regular administration of alkalis.

Some of the many chemical stimulants of the irritable bronchial centre can be avoided by a change in habits, diet, or environment. Others can sometimes be rendered innocuous by desensitization.

With regard to reflex exciting causes, it is necessary to emphasize the importance of avoiding distension of the stomach and the rectum. In the case of the nose there are three distinct factors which require attention. The first and most common is chronic infection of the sinuses, especially the ethmoids, with secondary development of polypi; this must be dealt with by the cure of the infection, which can generally be effected by vaccination and packing with silver preparations without more radical operations than the removal of polypi. The second factor is obstruction of the nasal passages; it is essential to overcome this, as few asthmatics can be permanently relieved if they remain mouth-breathers. Lastly, the asthmogenic area on the nasal septum should be either destroyed by cauterization or rendered inoperative by so correcting the other factors present that the turbinates no longer come into contact with it, even when distension of their cavernous tissue occurs as a result of gravity on going to bed. Chronic bronchitis, which also acts both as a reflex cause and as a focus of infection with organisms to the toxins of which the individual is sensitized, should be treated by autogenous vaccination, small doses of iodide, and climate.

The psychological factor requires consideration in the treatment of every case of asthma. At least 75 per cent. of patients become either completely free or almost free from symptoms directly they enter a hospital or clinic. This is doubtless often in part due to the fact that they have got away from the allergens present in their homes, which were responsible for some of their attacks; it is often partly and sometimes entirely due to the expectation that they are going to derive benefit from the treatment they are about to receive. It is essential to bear this in mind in estimating the effect of any treatment. If, for example, they are at once put into a dust-free chamber or are given some new drug, it is natural that they will ascribe the inevitable improvement to the specific treatment, whereas in all probability an equal degree of improvement would have occurred without any active treatment at all. It is always wise to instil a spirit of optimism into asthmatics, and to make them realize that improvement may at any time occur and that conditions which formerly gave rise to asthma may cease to do so. In this way alone can the influence of expectation in the production of attacks be overcome. A wise physician will also rarely fail to find some way in which unobtrusive psychotherapy benefits his patient.

In the treatment of the asthmatic paroxysm the preponderating activity of the vagal nerve supply to the bronchi can be overcome by means of drugs, such as atropine, which paralyse the vagus, or by adrenaline, which stimulates the broncho-dilator fibres of the sympathetic. The inhalation of fumes from powders containing stramonium or belladonna, which was formerly the universal method of treatment, had the grave disadvantage of causing chronic bronchitis by irritating the bronchial mucous membrane. This treatment should now never be used, as the opposite method of restoring the balance by means of adrenaline has no such disadvantage and is also more promptly and more constantly effective. The patient should be taught to inject the adrenaline himself, as if he does this at the first sign that an attack is developing it will be aborted, and a single minim will often be sufficient, though five or more would have been required if he had had to wait for a doctor or a nurse to give the injection at the height of the attack. This small dose gives rise to none of the unpleasant symptoms often caused by larger doses, and as it does not even raise the blood pressure there is no danger of damaging the arteries. Its use has in many cases the further justification of making good a deficiency in the secretion of adrenaline, just as thyroid preparations do good in myxoedema. The treatment also reproduces the way in which relief may on rare occasions occur under natural conditions. If an individual during a severe attack of asthma comes under the influence of sudden fear or anger, the two emotions which Cannon showed stimulate the secretion of adrenaline, the attack immediately ceases, the patient having had an "autogenous dose" of adrenaline. We may hope that the time will come when asthma will be curable, but until that consummation has been attained the proper use of adrenaline deprives asthma of most of its terrors and makes it possible for every asthmatic to live a life of moderate activity. Before its introduction many asthmatics rarely slept for more than three or four hours a night, and the morning found them exhausted by the long-continued fight for breath. Now it is unnecessary for any asthmatic to resort to hypnotics, as even if he has three or four attacks in the night the prompt injection of the right dose of adrenaline will each time send him to sleep within a few minutes.

The rare condition of status asthmaticus, in which severe asthma continues uninterruptedly for days or weeks and may end in fatal exhaustion, can always be arrested by the method of continuous adrenaline injection, which I introduced a few years ago, and which we have since found is equally effective in the treatment of anaphylactic shock. The needle is kept constantly in position, and after an initial injection of a dose which is known to cause no

unpleasant symptoms, such as two or three minims, one or more minims are injected every fifteen, thirty, or sixty seconds, according to the patient's reaction, the rate being varied until it is found how frequently the injection can be made without any unpleasant symptoms arising. The injections are continued, if necessary, for even half an hour or more; relief always follows and generally manifests itself by the patient falling into a deep sleep, which is often the first he has had for several days.

During the last few years a vegetable product, ephedrine, has been much employed as a substitute for adrenaline. Its chemical constitution is very similar, and it has the advantages of acting when taken by the mouth, whereas adrenaline is destroyed in the stomach, and of producing a much more prolonged effect. But it acts less rapidly and only controls minor degrees of bronchial spasm, being quite useless in the treatment of severe paroxysms. It is specially useful in overcoming the slight dyspnœa and wheeziness from which many asthmatics suffer in the intervals between attacks, and it is a very useful prophylactic when taken before going for a walk or doing anything else which is known by past experience to be likely to bring on a mild attack. Sometimes, when taken in the evening, it prevents an attack in the night, but occasionally it has the disadvantage of causing insomnia.

As the increased positive intrathoracic pressure during forced expiration increases the bronchial obstruction in an attack of asthma, whereas the negative pressure during inspiration diminishes it, the dyspnœa of asthma is characterized by being mainly expiratory. The result is that from the onset of the attack the lungs are in a state of full expansion, which after a time tends to persist in the intervals between attacks, especially if, as is often the case, the spasm does not completely disappear. The distended condition of the lungs is not true emphysema, as the latter depends upon permanent structural changes in the tissues of the lungs, which make it impossible for them to be restored to their normal size. On the other hand, the distended lungs of the asthmatic remain capable of contracting unless secondary emphysema has occurred as a result of associated chronic bronchitis. The distended lungs are in a condition of great disadvantage, as there is no means of increasing their capacity when exertion calls for more oxygen. It is therefore of the greatest importance to teach every asthmatic to perform regular expiratory exercises, by means of which his barrel-shaped chest and shrugged shoulders become much less obvious, and in the case of children often disappear completely. Corresponding with this his capacity for taking exercise is enormously increased, as deep inspiration now becomes as easy as deep expiration. Ordinary breathing exercises are quite useless, if not actually harmful. Each exercise should begin with expiration, and an effort is made by active and passive movements to restore the thorax to a normal position of rest, after which diaphragmatic breathing with the mouth closed and the body fully relaxed should be taught.

Sir John Floyer, the author of the first monograph on asthma in any language, "panted on to ninety," in the expressive words of his fellow townsman, Dr. Johnson. There is, I think, reason to hope that before long our knowledge of the fundamental cause of asthma and of its treatment will have advanced so far that restoration to good health, and not merely the attainment of a miserable old age, will be the usual outlook for the asthmatic.

THE CEREBRO-SPINAL FLUID IN INTRACRANIAL INFLAMMATION.*

BY

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THE subject chosen for this discussion offers considerable difficulties. In no part of the body is it more necessary to understand all the stages and processes of inflammation, and in no place is this more difficult than in relation to the meninges overlying the cranial air sinuses. The subject has been made still more difficult by an old-fashioned nomenclature, which reflects theories of pathogenesis bearing little relation to modern physiology and pathology. The terms "meningitis sympathica" and "meningitis serosa," for example, are not only meaningless in themselves, but are interpreted by every author in a different way. Attempts have therefore been made to discard these terms, and new terms, such as "protective meningitis," have been introduced. This term seems to be little less meaningless than the older ones, as all forms of inflammation are regarded as "protective" by some pathologists, and in the case of meningitis the success of the protective mechanism is usually very uncertain. I prefer, therefore, to think of these forms of meningitis as either generalized or more or less localized.

We are now considering an infective process which resembles inflammation elsewhere in the body so long as it remains localized, but which is likely to prove fatal if it spreads a short distance from its starting point. Thus, if it penetrates the dura mater and reaches the brain, or spreads along the subarachnoid space to the larger cisterns, or causes inflammation of the walls of the dural venous sinuses, it at once becomes dangerous to life.

The first question that arises, therefore, is, What are the chances that the infection will remain localized? In this connexion we have to remember the density of the dura mater and the remarkable power it has of preventing the spread of infection so long as there is free external drainage. Of the infections that reach the dura mater very few penetrate it. We must also remember that the subarachnoid space over a large part of the base of the brain is very narrow. Keith considers that the beautiful convolutional pattern which is seen on the floor of the skull indicates that the brain rests firmly on the bone with no fluid cushion between. The bony ridges which run along the lines of the sulci must reduce the subarachnoid space there to an almost negligible size. There is therefore a good chance that an infective leptomeningitis over the outer parts of the anterior and middle cranial fossæ may be limited by meningeal adhesions. With regard to the posterior cranial fossa it is probable that the subarachnoid space over the lateral lobes of the cerebellum is also very restricted, except in the immediate neighbourhood of the pons. On the whole, therefore, an infection from the middle ear is more likely to pass across the subarachnoid space to the brain and cause cerebral abscess than to cause widespread meningitis. On the other hand, an infection which runs inwards to the tip of the petrous bone, or which arises in one of the more centrally placed air sinuses, is much more likely to cause generalized meningitis, owing to the proximity of the large cisterns.

In my experience it is in the cases of more or less localized meningitis that the chief difficulties of diagnosis arise. When we are presented with the fluid from a typical case of septic meningitis containing numerous organisms in films and on culture it needs none of the refinements of the clinical laboratory to establish the diagnosis. When, on the other hand, no organisms are visible and cultures remain sterile the difficulties begin.

The examination of such sterile fluids requires special care and a well-devised routine, as the quantity of fluid is limited. We must first determine whether the fluid is normal or not in cell count and protein percentage. If it is normal in these respects, especially if the pressure is also normal, the prognosis is usually good. But even slight abnormalities, such as a small admixture of polymorphonuclear cells in a "high normal" lymphocyte count, or a rise in the protein with little or no cell increase, may be danger signals. In some cases the fluid is quite normal but the pressure is increased, a condition more often found in the "meningism" of general diseases in childhood than in local inflammatory conditions of the skull and dura mater. In general diseases the symptoms of meningitis usually disappear quickly after the first puncture; in inflammatory conditions the increase of pressure may remain for some little time and only disappear after several punctures. It is probable that in the first case we are

* Read in opening a discussion in the Section of Oto-Rhino-Laryngology at the Annual Meeting of the British Medical Association, Manchester, 1929.

dealing with an increased secretion of fluid owing to some metabolic or vascular abnormality, whereas the second class of case is more probably due to some temporary disturbance in absorption of cerebro-spinal fluid.

Of abnormalities in the fluid the most common is an increase in the number of cells, of which a moderate or high percentage are polymorphonuclear associated with a moderate increase in albumin and globulin. The fluid may appear clear or very slightly turbid (a condition to which the term "serous meningitis" has been given), or more definitely purulent. The chief objection to the term "serous meningitis" is that it is impossible to draw any line between "serous" and "purulent" types of meningitis. They run into one another by insensible gradations. The condition should be looked at simply as evidence of the presence of a septic focus in the neighbourhood. This meaning is to some extent conveyed by the name "meningitis sympathica." The focus may be (1) dural or extradural, (2) in the brain as a cerebral abscess, or (3) in a localized pocket in the subarachnoid space. Toxins, and possibly a few bacteria, are continually escaping from this focus and causing a reaction in the subarachnoid space in the neighbourhood. The presence of a high proportion of polymorphonuclear cells is evidence of a sharp fight between the bacteria and the resisting powers of the pia arachnoid. A gradually increasing percentage of mononuclears shows that the defence forces are prevailing. It is sometimes possible to tell by a comparison of the cell count with the excess of protein whether the infection is limited to the meninges or whether there is a cerebral abscess. For whereas in dural infection the protein will always be proportional to the increase of cells, in the case of brain abscess there is usually a further addition of protein to the fluid from the oedematous brain tissue which surrounds the abscess. Therefore in cases of abscess the cerebro-spinal fluid generally contains proportionately more protein than cells. This lack of balance is easily made out in subacute and chronic cases when the cell count is low. Taking two recent cases as examples, I found in one 110 mg. protein with four lymphocytes, and in the other 80 mg. protein with ten lymphocytes.

With purulent fluids it is more difficult to form a just estimate of the balance between cells and protein, but in some of my cases the fluid, when cleared of its purulent turbidity by centrifugalizing, was found to contain more than 1/2 per cent. protein, a percentage which is practically never found in simple meningitis. This "protein-cell dissociation" is not constant, but when it occurs may be a useful diagnostic point.

It is often said that the prognosis becomes worse as the fluid becomes more turbid. This may be true for successive punctures on one case, but it is by no means true for an isolated specimen of cerebro-spinal fluid. I have seen so many patients with heavily purulent sterile fluids recover that I am inclined to be hopeful about such cases. On the other hand, when the fluid is less purulent we may be seeing the onset of a widespread meningitis. The presence of many cells without bacteria is evidence that the patient is putting up a strong fight, just as a fluid which is turbid from bacteria but contains very few cells shows that the patient's resistance has been overwhelmed. In cases of cerebral abscess it is probable that the cell count varies inversely with the thickness of the wall of the abscess cavity, and therefore spread of the infection and rupture into the ventricle are more probable when the fluid is full of polymorphonuclears than when there is a low cell count consisting chiefly of mononuclear cells. But in any case of abscess the risk of death from increase of intracranial pressure is so great that an operation is always necessary. It would seem, therefore, that the answer to the question whether operation is indicated or not depends to some extent on whether the diagnosis of cerebral abscess can be made.

Considerable attention has been paid in these cases to an examination of the *glucose* in the cerebro-spinal fluid. The modern view is that the reduction which is so frequently found in the glucose is chiefly due to the liberation of glycolytic ferments by degenerating cells. So long as the cells are living the glucose remains normal, or may even be increased. The presence of dead pus cells, on the other hand, is shown by a fall in the glucose. The estimation of the amount of glucose in an isolated specimen of cerebro-spinal fluid has therefore very little more value than the cell count as a prognostic sign, but the return of a low glucose percentage towards normal figures in successive punctures is definitely of good omen.

As regards the *chlorides*, it is generally accepted that they are reduced in generalized meningitis and normal in localized meningitis and abscess. It used to be considered that the fall in generalized meningitis was due to the increase in meningeal permeability which is known to occur in that condition. Recent work by Fremont-Smith and by Linder and Carmichael, however, has shown that the reduction in chlorides is fully accounted for by a parallel drop in the blood chlorides. This drop occurs in many general infective conditions, especially in septicaemia, and may be taken as evidence that the patient's powers of resistance are lowered. From a prognostic standpoint, therefore, a low chloride percentage in the cerebro-spinal fluid still has the same unfavourable significance as we have always attributed to it. Our new knowledge of the rationale of the fall in the chlorides helps us, however, to understand the reduction of the chlorides which is often found in otherwise normal cerebro-spinal fluids, as well as the anomalous cases of generalized meningitis in which the chlorides remain normal.

Cracked Cribriform Plate.

With reference to the pathology of cerebro-spinal rhinorrhoea I wish to say something about the cases in which the cribriform plate is cracked without any rhinorrhoea occurring. The cases of this kind that I have seen have almost all been due, curiously enough, to motor bicycle accidents. Sometimes the rider and sometimes the pedestrian is the victim. The history in several of my cases was that after recovery from concussion there was a period of weeks or months during which the patient was moderately well. Then he caught a cold and at once presented symptoms of meningitis. In the first case of this kind which I saw, the patient had two such meningitic attacks at intervals of several months and succumbed to the third with a pneumococcal meningitis. In another case, a child, who was knocked down by a motor, had no symptoms for several months except slight fits, for which he was attending the National Hospital, Queen Square. Then about Christmas time, following a cold and cough, he was brought into hospital unconscious, and died within twenty-four hours of fulminating streptococcal meningitis. At the necropsy I found that the left cribriform plate and the overlying dura mater had been completely absorbed, and their place filled by unhealthy granulation tissue. We have had other cases in which the presence of cerebro-spinal rhinorrhoea or pneumocephalus made the diagnosis easier. But in the two cases I have mentioned the possibility of a crack of the cribriform plate with subsequent absorption of the bone was not thought of. It seems to me that diagnosis should be possible before meningitis sets in, and that the masterly inactivity which is so often the only treatment should be replaced by some form of prophylaxis; otherwise the patient's life is in continual danger.

It must be emphasized that the outlook in cases which follow concussion is much graver than in cases where the cribriform plate is cracked during operations on the nose. The difference lies in the fact that there is always an increase in the intracranial pressure for some days, weeks, or even months after concussion. This increase of pressure acting on a weakened place in the bony case, such as a cracked cribriform plate, will usually prevent proper healing, whether membranous or bony, from occurring there, and no proper barrier will be formed against the invasion of micro-organisms from the mucous membrane of the upper air passages. In operative cases, on the other hand, healing takes place without any hindrance, and the patient is probably no worse off than before, except, possibly, for a loss of the sense of smell on that side.

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SURGICAL TENDENCIES IN MODERN MIDWIFERY.

BY

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THE art and science of midwifery is in our days developing in a manner which seems to be as important as it is interesting. By physiological research one tries to investigate the biology of pregnancy *in normal and pathological conditions*. By *x* rays, pelvic measurements, examinations of the urine, and so on, one tries in time to detect various anomalies and apply a prophylactic treatment of them which may lessen the risks for the mother and her child. *Finally*, one aims at the same purpose by substituting with increasing frequency surgical intervention for the older obstetrical methods, in the hope of serving the interests of both. It is about this last-named feature of modern obstetrics that I want to say a few words.

The difference between past obstetrical methods and those at present employed is very striking; this is apparent if we consider for a moment the risks of a difficult labour in old times. If the foetus could not pass through a narrow brim one at first had nothing else to do than patiently wait for the accommodation of the foetal head. If that hope failed, there was no other resource than a version, an accouchement forcé, a Caesarean section, or an embryotomy, perhaps on a living child. In cases of placenta praevia, the only resource was the tamponade until version could be performed; in eclampsia venesection and chloroform were the only means to avoid new fits. Prophylactic treatment was *wellnigh unheard of*; from the natural forces one expected the utmost possible, which *in many cases* was the same as the impossible.

On the other hand, we should do a great injustice if we denied the merits of the old midwifery. The careful observation of the labour increased the knowledge of the mechanism of labour. The diagnostic ability of the obstetricians, their power of prognosis and appreciation of intervening anomalies advanced midwifery practice to a remarkable degree, and their patience—which is called the first virtue of the obstetrician—was tried to an extent which in our days is rather rare. Smellies, Boers, and Baudelocques are bred only in such times, not in ours.

But their great merits stand out against a dark background. I only mention infections, lesions of the pelvis or the soft parts of the mother, asphyxia, cranial infractions, and so on, which, if they did not kill the mother or child, perhaps made them invalids for the rest of their lives. The number of such cases cannot be appreciated in statistics, but is easily understood.

The great advancement did not come at once, but as isolated flashlights. Among those who should be remembered with the deepest gratitude I cannot refrain from mentioning such British names as Macaulay, Smellie, Denman, and Lister.

The most important advancement from our point of view dates from the end of the last century, and is combined with the revival of the classical Caesarean section and the invention of the vaginal one. By the former we got the means of avoiding a great deal of the dangers of a narrow pelvis; by the latter we learnt to open the uterus and empty it at any time during the pregnancy or labour without risking the incalculable accidents of accouchement forcé. This epoch is not so far away but that we all remember it. We all of us remember, too, the hopes it aroused. No one who lived through that time can wonder at it, nor at the exaggerations that necessarily followed upon it.

Personally, if I may be permitted to say so, I was educated in the principles of the old obstetrical school. The circumstances then were such that at a very young age I was entrusted with the directorship of the University Hospital for Women, and that exactly at the time I have alluded to. It was thus quite natural that a young man, who on many occasions had the opportunity of witnessing the insufficiency of the older methods, should begin to try if the new ways could give better results than the older ones. Thus it came about that I became a convinced partisan of the new surgical aspect of obstetrical therapy, and have done what I could to propagate it in Sweden.

But now there appears to me to be a tendency to go so far that even to a convinced partisan it seems difficult to keep pace. Let me state in as few words as possible my outlook upon the question, which seems to me important for the near future of obstetrics. To begin with the credit side of the surgical interventions, nobody denies that it is now possible to open and empty the uterus at any time during pregnancy or labour. What that signifies in eclampsia, in placenta praevia, in accidental haemorrhage, or in acute cases in which the life of the mother is threatened I need not insist upon. Neither can it be denied that the operations in question are so far technically perfect that the primary risk is very small.

It is far from my intention to proclaim them harmless; no surgical intervention is that. But considering the lesions which unfortunately sometimes occur, it is only fair to compare them with the quite incalculable and sometimes irreparable ones that so often follow upon accouchement forcé or a difficult labour in cases of narrow pelvis. Furthermore, there is no doubt that, as the surgical procedures are performed only in well-equipped hospitals, at the right time, by skilful and experienced hands, they are combined with lesser risks of infection and primary lesions. I do not think it possible to deny this. In that case it stands to reason that the surgical aspect of obstetrics has earned results for mother and child which could not have been obtained in any other way. As far as I can judge, nobody nowadays wishes for a return to the midwifery of older times.

But the medal has a reverse. The risk or value of an operation should not be appreciated only after the primary results, such as infection, embolism, and so on. The secondary ones are just as important. I will only mention two of them. One is the risk of thinning or rupturing of the scar after Caesarean section, the frequency of which in Britain has been thoroughly investigated by Herbert Spencer, Eardley Holland, and others. The other is of a kind which has not been seriously dealt with as yet—namely, the fear of the mother after Caesarean section that she may become pregnant again, and the significance such a state of mind may possibly have for the population. The effort by Caesarean section to get a living child may thus be in some degree neutralized by the mother who wishes to avoid further intervention of the same kind, and the operation thus has consequences which perhaps one has not thought of earlier.

Of course, I think it is fair to admit that the extension of the indications is in itself the natural consequence of the remarkable primary results, but the question arises whether, in these days, intervention has not sometimes been carried too far. It is difficult to discuss indications. A man who applies forceps in 3 per cent. of his cases probably considers a frequency of 6 per cent. or 10 per cent. exaggerated. Those who perform version only on certain fixed indications will certainly be considered behind the times by Dr. Potter of Buffalo, who seems to consider version to be a normal procedure in ordinary labours. And I know of a clinic where the frequency of interventions amounts to 90 per cent., against 10 per cent. of spontaneous labours.

I will give two special examples of what I consider unnecessary and therefore regrettable exaggerations.

Dr. Hirsch of Berlin is very keen on the extension of surgical methods in obstetrics, especially abdominal Caesarean section, to all abnormal labours, and he claims that this will bring about a new orientation in midwifery. He argues that the puerperal mortality has been stationary for a rather long time, and that mothers and children die who would have been saved if the mothers

* Read in the Section of Obstetrics and Gynaecology at the Annual Meeting of the British Medical Association, Manchester, 1929.

had been sent to a hospital without previous vaginal examination and operated upon in time.

To my understanding the efforts of Dr. Hirsch are creditable in so far that the early removal of complicated cases to hospitals and the omitting of unnecessary vaginal examinations would certainly bring about a decreasing puerperal morbidity and mortality. But to me it seems exaggerated to go so far as Hirsch wants to do. The new orientation that he so strongly advocates and wishes to introduce is already partly realized, and the surgical tendencies in obstetrics are nothing new. I myself have performed Caesarean section in 20 out of 200 patients with placenta praevia. I believe that no experienced obstetrician would hesitate about Caesarean section if he was really convinced that this operation would confer a better prognosis without increasing the risks for mother or child. Neither do I believe in the necessity or possibility of transferring all cases to hospitals, as Hirsch insists upon. The majority of labours go well by means of natural forces alone, and there is indeed no branch of medicine that in ordinary circumstances can be performed so efficiently and safely in the patient's home as obstetrics.

Furthermore, Dr. Hirsch's handling of the statistical figures does not quite appeal to me. Generally speaking, it is difficult to get reliable statistics on this special point. I particularly wish to draw attention to the very thorough and excellent investigation of the Caesarean sections performed in Germany in 1928 which has been recently published by Winter. It really does not point in the same direction as Hirsch, but quite the contrary. For the present I am therefore of the opinion that Hirsch overrates the possibilities of Caesarean section, while he at the same time underrates what can be done by simpler methods without surgical intervention.

Another example of misjudging the Caesarean section has been given recently in Sweden, when a colleague put the question: "Why does not one perform that operation more frequently in order to shorten the labour and alleviate the pains of the mother?" I need not here go into a detailed criticism of such a proposal, which seems to indicate that the desire for more speed, which is such a characteristic feature of our days, threatens to extend into the domain of obstetrics.

I should venture to go farther and say that these and other efforts to extend surgical intervention in obstetrics are indicative of a too superficial understanding of childbirth. Labour is decidedly a physiological process, the most difficult and strenuous that the human organism is able to perform. Who knows the deeper effects of such an enormous effort on the body of the mother herself? The coming into life of new individuals is associated not only with risks, but also with means of safety which may be considered as wellnigh perfect. When trying to follow and understand them we are reminded of the words of our great Linnaeus: "Deum omnipotentem a tergo transeuntem vidi." And we ought to remember, too, that nothing great and dear in life is attained without struggle and suffering. If we try to reach the goal by easy byways, we may perhaps find that we have lost more than we have gained.

No; surgical intervention is not intended to shorten a physiological process, nor merely to alleviate it. It is permissible only after thorough consideration of the pros and cons. It requires of the obstetrician a patient observation and infallible recognition of commencing complications, the power of choosing the way of the greatest safety, and, not least, a sufficient surgical training. These qualities can be demonstrated by choosing a surgical procedure which is considered advisable or necessary, but they can also be just as well shown by abstaining from interfering in a physiological process if the interference is unnecessary or risky.

THE TREATMENT OF HYPERPIESIA.*

BY

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BEFORE dealing with the details of treatment of this prevalent disease I propose bringing to your notice a medley of symptoms, any one or more of which may be indicative of its existence. In the first place, we find that cases of hyperpiesia may be divided into three types:

1. *Menopausal*, in which the common vasomotor disturbances are only too apt to divert attention from the possibility of associated hyperpiesis. The subjects present increasing obesity and other signs suggestive of hypothyroidism—for example, loss of hair, waxy colour of the skin, and subnormal temperature.

2. *Plethoric*, preponderating in males of 40 years or more, who are fat with florid facies and short, thick neck. Often this type has for years taken freely of food and alcohol, but sparingly of exercise; this, however, is by no means always the case. The majority suffer but little from symptoms of the disease, and form the greater part of those dying suddenly and unexpectedly.

3. *Sallow*, found chiefly in females, the disease commencing generally at an earlier age than that of the first two types. The picture presented is that of the patient with viscoptosis and intestinal toxaemia. The skin is muddy in appearance, dark rings are present beneath the eyes, the tongue is thickly furred, and constipation is the rule. These people are thin, "wiry," energetic workers, seldom given to alimentary indiscretions, but over-conscientious in the performance of their tasks. This is the type which actually suffers so greatly from the disease which afflicts it, and which responds the least readily to treatment. I lay stress on its description, because the lean patient is prone to pass through our hands incorrectly diagnosed, the possibility of a raised blood pressure never having been considered.

We must recognize, also, that hyperpiesia is by no means a disease whose onset is peculiar to middle life. Genuine cases are met with in young adults and in adolescence—a fact which those of you whose work includes the routine examination of school children will confirm.

Lastly, in this connexion, should be mentioned the type of patient whose blood pressure reading may lead to the diagnosis of hyperpiesia, yet in whom the hyperpiesis is transitory and the result of apprehension only. It is a matter of common knowledge that the first estimation of blood pressure in a strange patient is unreliable, but in some cases nervousness may produce truly surprising results. Thus a male patient whom I saw recently had blood pressures of 220/130. Suspecting this as a case of "fictitious" hyperpiesia, I took a series of readings during the next half-hour. They were 180/125, 160/120, 145/100. Actually he was suffering from peripheral neuritis, but he thought that the pains in his arm were due to angina pectoris, a disease of which a near relative had died. Whether this form represents a potential hyperpiesia, a hyperpietic in embryo, is, I think, a point worthy of consideration.

SYMPTOMS.

The variety of symptoms of hyperpiesia is one of the characteristics of the disease. It is therefore of importance that they should be briefly considered, because many of them do not immediately suggest to the physician the presence of cardio-vascular disorder. I have arranged these roughly in order of descending frequency as noted in one hundred consecutive cases.

Shortness of breath on exertion and headache vie for pride of place. I have previously shown[2] that the headache is of two types: one is the true dull ache, not uncommonly present even with the decline of high pressure; the other is an acute lancinating pain, the head feeling as if it were about to burst. This pain is always associated with, and presumably due to, a definite exacerbation of the hyperpiesis. In contradistinction to the true ache, it responds promptly to measures which lower the blood pressure. On the other hand, one is struck by the patients presenting

*An address delivered before the Dover Division of the British Medical Association, May 11th, 1929.

systolic pressures of 200 mm. of mercury or more who to the day of their death never complain of headache.

Palpitation, tachycardia, and inability to lie on the left side are again of great frequency. Of this triad palpitation needs the greatest emphasis, because it is a symptom found in association with many functional nervous disorders, and the possibility of organic disease is apt to be overlooked.

Giddiness, which is usually dizziness, as opposed to true vertigo, may be a transient symptom produced by stooping or coughing, or it may be most persistent, and is then always associated with well-marked general arterio-sclerosis. Sudden attacks of definite vertigo are decidedly less common, and, if associated with vomiting, are to be regarded as of serious portent. Careful examination will usually reveal evidence of a central nervous lesion, presumably a small haemorrhage, such as unilateral facial weakness and an extensor plantar response.

Noises in the ear are of two kinds. The one is in the nature of a low-pitched pulsation, and responds well to treatment; the other, tinnitus, consists of various whistling, hissing, high-pitched sounds, and is present only if arterio-sclerosis is recognizable. Reduction of the hyperpiesis has no beneficial effect.

Anginal pain, though not uncommon, rarely gives rise to the intense paroxysms of anguish which characterize the disease, as generally recognized. Nevertheless I believe that we should accept the symptoms of substernal tension, or pressure, brought on by hurry, and relieved by rest, as definitely indicative of the presence of those factors necessary to produce eventually the fully developed syndrome. By insisting on a reduction of mental and physical activity we can thus postpone for many years the onset of a fatal seizure.

Mental symptoms are of diverse character, and on the whole not common. In the first place, our patient may complain of nervousness only, this symptom being most common in the sallow female type. She is harassed by trivial annoyances, and by fears based on no good cause, by palpitation, sleeplessness, and so on. She is only too apt to be placed in the category of functional nervous disorder, yet recovers from her symptoms with abatement of hyperpiesis.

The robust hyperpietics in the first few years of the disease exhibit unusual mental vigour; but with the onset of arterio-sclerosis, drowsiness in the middle of the day may develop into a genuine cause for complaint. Failing memory, particularly for recent events, is a feature common to all classes, and advances in relation to structural changes of the cerebral vessels.

The most startling, but rare, change in mentality which I have met with has been a sudden onset of acute mania, the condition being invariably associated with a fall of blood pressure of considerable degree—for example, from 220 to 130 mm. of mercury. The psychosis continues until the hyperpiesis re-establishes itself. In the cases I have observed there has been no demonstrable physical change to be held accountable for the lowering of the tension.

Haemorrhages, retinal and nasal, are of common occurrence and give rise to great anxiety. The former frequently leave permanent impairment of vision, but improvement in sight may take place over six months. Epistaxis is particularly alarming, owing to its profuseness and difficulty of control. Apart from this, it may be regarded as a blessing, possibly averting a cerebral catastrophe. I have seen instances of melaena, haematemesis, and uterine haemorrhage for which no other cause than the existent hyperpiesis could be discovered. The possibility of this as the cause of sudden haemorrhage should, therefore, be borne in mind.

Pains in the limbs, and pain or a clutching sensation in the throat, are referable to the stretching of the local arteries by the excessive pressure of their contents. The latter symptom is particularly liable to be mistaken for one of functional origin.

I have not been impressed by symptoms referable to the urinary tract. In the later stages of the disease, when arterio-sclerosis is a pronounced feature, frequency of micturition is common. Apart from these circumstances, however, it is a rare symptom.

Signs.

Physical examination may reveal little more than a raised systolic pressure with a varying degree of exaltation of the diastolic reading. Before hypertrophy of the left ventricle is recognizable the most constant sign is the accentuation of the sound produced by the closure of the aortic cusps, together with a raising of its pitch. The last feature represents, I believe, atheromatous changes in the vessel with thickening of the valve segments. When absent the probability of "fictitious hyperpiesia" should be borne in mind.

The peripheral vessels show changes after variable periods, sooner in the thin and wiry individual than in the plethoric sufferer. When the radial artery appears to be normal to the examining fingers, the brachial is often grossly abnormal. The sensation imparted is that of a leathery toughness, rather than the hard pipe-stem condition common in senility. The retinae should be examined in every case, for here may be found arterial disease long before it is apparent elsewhere.

The most constant change which I have found in the blood is that of a raised cholesterol content,[2] often above 200 mg. per 100 c.cm. Whether this is of any etiological significance remains to be seen. In the meantime, it is of interest to note that there is an appreciable increase of the substance in atheromatous vessels;[1] furthermore, I have notes of eighteen of this series suffering also from gall-stones, a number too high to be explained on mere coincidence. My impression is that the highest cholesterol figures are obtainable from those hyperpietics exhibiting rapidly developing arterio-sclerosis. In a young woman exhibiting this feature to a remarkable degree a cholesteatoma was also removed from the skull. The erythrocyte count and blood urea are normal for many years. In the later stages a mild secondary anaemia and slight rise of urea may occur.

The urine in the majority of my cases was absolutely normal on repeated examinations. The appearance of a trace of albumin and a few hyaline casts is, of course, to be expected with advance of years and arterial disease.

The alimentary tract, as has been noted, gives rise to complaint in the lean individual on account of obstinate constipation. The tongue is commonly furred and visceroptosis is present. On the other hand, the plethoric individual has a clean tongue, powerful peristalsis, and high acid content of the gastric juice.

Causes of Hyperpiesia.

In considering the possible causes of hyperpiesia we must accept a disturbance of the endocrine system as the probable basis of our menopausal type. The association of menopause, obesity, loss of hair, sluggish mental processes, and rising blood pressure is too obtrusive to be overlooked, and this type of case responds well to treatment with thyroid extract. That overactivity of the suprarenal medulla may be a factor in the production of hyperpiesis has been postulated, and it is of interest to note the increase of blood cholesterol which has been found in association with hyperpiesia and a hypertrophied adrenal cortex.

On the other hand, the young, lean, constipated patient with furred tongue and foul breath lends support to the theory that protein decomposition products are absorbed from the intestine and, failing to be destroyed in the liver, exert a pressor influence on the systemic arterioles. True there is no conclusive evidence in support of this, but some of us may lean towards this explanation in view of the suggestive clinical type.

The robust patient presents peculiar difficulties. Often he has been exceptionally athletic in youth, but has later assumed a sedentary existence without at the same time reducing his intake of food. May it not be, therefore, that his powers of elimination are overtaxed, and that the basic fault is the same as in the previous group?

We must frankly admit that all these theories may be utterly wrong, yet as working hypotheses, and on the results of treatment, I feel they deserve more consideration than the view favouring the presence of a circulating pressor substance derived from diseased kidneys. To me

it is inconceivable that renal disease could produce hyperpiesis of many years' standing in the presence of a constantly normal urine.

TREATMENT.

Exercise should be restricted only in so far as is dictated by the patient's symptoms and signs. I mean by this that it is quite useless to send a patient to bed simply because he has a high blood pressure. Immobility may lower it 10 to 20 mm. of mercury, seldom more, frequently less or not at all. Avoidance of hurry, especially after meals, of excitement, excessive exertion, and exposure to cold is naturally essential, particularly in the presence of anginal symptoms. These restrictions, however, interfere but little with the essential side of the patient's life, and are therefore all the more likely to be observed.

Diet.—Here, again, I believe that the prevalent custom of excluding all meat from the dietary is pointless. If we accept the theory of intestinal toxaemia, it may perhaps be reasonable to reduce the protein intake, but a restriction to meat thrice weekly is ample. On the other hand, eggs, brain, liver, and fat should be largely excluded in an attempt to lower the cholesterol in the circulation. In the obese glutton the diet should be a rigid one, and composed of fresh fruit, fish, and vegetables. Alcohol, with the exception of light wines, should be forbidden.

Purgatives.—The daily use of saline cathartics is obnoxious and useless, possibly harmful in fact, by increasing the blood viscosity. Cases of obstinate constipation respond to a vegetarian diet in conjunction with abdominal massage and the exhibition of a non-irritating laxative such as sulphur, psyllium seeds, paraffin, or bemax.

Drugs.—We can dispose of the majority of those in common use with rapidity. Nitrites are valueless except in emergencies—in angina, for example—on account of the transitory nature of their action. Iodides I have never found of help in cases unassociated with syphilis. At one time it was believed that they lowered the viscosity of the blood and thus aided its flow. In order to attain this effect the dosage must be enormous, while the digestive disturbances they produce are most objectionable. Bromides are of value in allaying restlessness and producing sleep in the nervous type of patient. Indirectly the blood pressure may thus be lowered. These salts are also of use in overcoming tinnitus. Thyroid extract is seldom helpful except in the obese menopausal patient. Here it can be highly efficacious, and should be prescribed in doses rising from 1/2 grain thrice daily up to ten times this amount, provided that symptoms of intoxication do not arise.

Veratrum viride. We now come to the consideration of a drug with definite effect in reduction of hyperpiesis, the actual preparation used having been veratrone. A few years ago I employed this substance on a series of cases[5] and found that it reduced the blood pressure when administered by mouth or intravenously. In the former case the effect was variable even on the same patient, and it should be remembered that individual susceptibilities also present great differences. Briefly the effect of intramuscular injection of 1 c.cm. is to lower the blood pressure from, say, 185/110 to 105/63 in half an hour, and the original level is regained in the course of one to two hours after administration. Such a big drop should, of course, be avoided, as it is attended by nausea, retching, and even collapse. On the other hand, 1/2 c.cm. resulted in a fall from 190/123 to 120/70 in half an hour in one patient, and from 200/130 to 150/105 in another. Given by the mouth 1/2 to 1 c.cm. will in many cases lower the systolic pressure from 20 to 30 mm. of mercury and keep it about this level for two hours. The drug may be regarded as of undoubted value, but it must be used with great caution in view of the possibility of idiosyncrasy. In very susceptible patients it may produce an alarming fall of blood pressure even if administered per os.

Acetylcholine, an acetyl ester of choline, stimulates the parasympathetic system and antagonizes adrenaline. Its effect in lowering arterial tension is produced by dilatation of the arterioles, the capillaries being unaffected. The actual preparation which I have used is "acécoline," which consists of acetylcholine hydrochloride stabilized with glucose. The resulting powder must be dissolved immediately before use, and the solution injected intramuscularly. Oral administration is useless, intravenous injection is extremely dangerous. As a precautionary measure, therefore, the piston of the syringe should be withdrawn before injection to ensure against an accidental delivery of the drug into the blood stream. The initial dose should be 0.05 gram, raised subsequently to 0.1 gram daily. The effect of the former dose is to produce a steady fall of systolic pressure, commencing within half an hour of administration, reaching its lowest level in three to four hours, and passing off gradually with a return to the former height in seven to nine hours after the injection; 0.1 gram produces its greatest effect in six to eight hours, and the previous pressure is often not reached until fifteen hours after administration. As examples may be cited the following results on the same patient, a female of 59 years, with hyperpiesia, normal urine, and moderate arteriosclerosis.

Time.	Blood Pressure (Systolic).
11.0 a.m.	160 mm.
Acécoline 0.05 gram injected.	
12.30 p.m.	160 mm.
2.30 ,, ...	115 ,,
3.30 ,, ...	120 ,,
8.40 ,, ...	150 ,,
10.0 ,, ...	165 ,,
10.30 a.m.	175 mm.
Acécoline 0.1 gram injected.	
11.30 a.m.	165 mm.
4.15 p.m.	130 ,,
5.15 ,, ...	124 ,,
6.15 ,, ...	142 ,,
7.30 ,, ...	150 ,,
8.30 ,, ...	160 ,,
9.15 ,, ...	170 ,,

Although I have as yet used the drug in only a small number of cases, yet I feel justified in drawing your attention to its action in the hope of gaining your co-operation in further investigations. It is clear that acetylcholine has a much more prolonged action than that of the drugs previously discussed, and it has the advantage of not producing sudden falls of pressure, which have caused the objectionable symptoms following the use of veratrone. On the other hand, the fact that oral administration is valueless is a decided point against its general adoption. We have yet to find whether a course of injections will produce a lasting effect on the hyperpiesis. There are already indications that it will do so, and some authors[5] advise doses of 0.1 or even 0.2 gram night and morning for fifteen consecutive days each month for three months.

You may object that by reducing the blood pressure we are merely dealing with a feature of the disease, rather than the cause. This is perfectly true; nevertheless it is justified in view of the fact that by so doing the heart and blood vessels are relieved of excessive stresses, at any rate for several hours in the day. The summation of such respites, taken over a year, must represent an enormous saving of effort to the heart muscle.

In advanced cases of hyperpiesia with extensive vascular disease a lowering of blood pressure of any extent is, of course, contraindicated, for it might result in depriving the narrowed cerebral vessels of their necessary blood supply. Judgement must therefore be used in choosing suitable subjects for this treatment.

Diathermy is of value in the treatment of hyperpiesia; in some a course produces a substantial reduction of blood pressure, and the improvement may persist for three or four months. On the whole, the results are disappointing.

Venesection is an old remedy, still unsurpassed in value by more modern measures. It is particularly appropriate for the obese, florid type of man who is unable, or unwilling, to carry out any dietary restrictions or consecutive treatment. The sallow patient often responds, however, equally well to free bleeding. Headache, giddiness, and roaring in the ears vanish as if by magic, and the improvement is maintained for two or three months. The imme-

diate result of venesection on the blood-pressure is often very slight, and quite out of proportion to the alleviation of suffering; but during the following two or three days progressive fall may be observed. After this it may remain steady at its new level, or may rise again to its former height, yet the urgent symptoms do not return for many weeks.

Eliminative Treatment.

This is essentially a line of attack on the sallow, toxic type. For twelve consecutive days the patient is given 1/10 grain of pilocarpine hypodermically, followed by a hot wet pack, which is again followed by massage. Twice weekly during the course colon lavage is carried out. The diet during this time should consist of fresh fruit, vegetables, fish, brown bread, and butter. Before meals two tumblerfuls of Vichy water are to be taken. The beneficial effect on the patient's appearance, symptoms, and signs is very evident. The course may be repeated every two months, and can be carried out, if necessary, at home. Annual treatment at Harrogate is peculiarly suitable for this class of patient.

You will observe, then, that no hard-and-fast rule can be set for the treatment of hyperpiesia, but each case must be considered in relation to type, symptoms, and physical signs. Given such discrimination, we can undoubtedly bring great relief to our patients, and, I believe, prolong life for the majority.

PROGNOSIS.

Finally, the difficult problem of prognosis. You will agree that one great lesson learned in general practice is, particularly in cases of hyperpiesia, to give a cheerful outlook. Seven years ago I saw a lady with a blood pressure of 220/150, retinal and small cerebral haemorrhage, dyspnoea, obesity, and oedema of the ankles. Both types of haemorrhage were repeated within a month. It was thought unlikely that she would live two years, yet she is still highly active, never suffers from headache, and presents a systolic pressure of 220 mm. or over.

As a general rule, a high diastolic pressure renders the prognosis more gloomy, as do also clear signs of cardiac or arterial disease. The menopausal type presents the most hopeful form, the lean patient the least favourable, on account of the earlier onset and rapid arterial degeneration. It is true, also, that the occurrence of retinal or cerebral lesions more often than not heralds the approach of a fatal termination.

Patients over 60 years of age survive in the most astounding manner in spite of the presence of some, or all, of the signs usually indicating a bad prognosis. The outstanding example in my practice was that of a man of 70, known to have had a high blood pressure for at least thirty years. On three occasions he developed auricular fibrillation, which was overcome by quinidine, and once he developed diarrhoea, incontinence of urine, pyrexia, petechial haemorrhages, and a streptococcus was recovered from his blood. And yet he lives!

The anginal pains to which I have referred are not of the same gloomy significance when a high blood pressure is present as when it is absent. They disappear with reduction of hyperpiesis.

In all cases we should, of course, warn the relatives of the possibility of cardiac failure, coronary thrombosis, fatal angina, and cerebral haemorrhage. The patient, on the other hand, should be encouraged, as far as is consistent with ensuring his attention to our therapeutic efforts.

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BLINDNESS IN OLD AGE.*

BY

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UNDER the provisions of the Blind Persons Act of 1920 it was enacted that "Every blind person who has attained the age of fifty shall be entitled to receive and to continue to receive such pension as, under the Old Age Pensions Acts, 1908 to 1919, he would be entitled to receive if he had attained the age of seventy," and the provisions of those Acts, including the provisions as to expenses, shall apply in all respects to such person as if for the first statutory condition there were substituted a condition that the person must have attained the age of fifty, and be so blind as to be unable to perform any work for which eyesight is essential, and as if for reference to "seventy" and "fifty" there were respectively substituted references to "fifty" and "thirty."

The Act further states that "it shall be the duty of every county and every county borough . . . to make arrangements to the satisfaction of the Minister of Health for promoting the welfare of blind persons ordinarily resident within their area, and such council may for this purpose provide and maintain or contribute towards the provision and maintenance of workshops, hostels, houses or other places for the reception of blind persons. . . . The expenses incurred by a council under this section shall be defrayed . . . out of the county or borough fund or rate."

It will be observed that the Act contains no specific arrangement for the certification of blind persons. Possibly those who drafted the Act considered that an applicant for a blind pension was in as good a position to provide a certificate of blindness as the old age pensioner was in providing a birth certificate. Possibly the "approved voluntary agencies" which administer the funds provided for the benefit of the blind might have claimed a grant for the purpose of certification from the Ministry of Health on the grounds of "necessity for securing the registration of all blind persons" (Rule 32, Ministry of Health Regulations and Rules for the Welfare of the Blind, August 7th, 1919).

As far as I know, however, this has not been done, and the local authorities have found it necessary, in the interest of the ratepayer, to get applicants for blind pensions or grants examined and authoritatively certified before the pension or grant is allowed. The Ministry of Health is very exacting with regard to the certification of trainees, and demands a medical certificate giving the visual acuity in each eye, the nature and extent of the visual defects present, and a definite opinion; formed after due consideration of all the visual conditions, that the person is too blind to perform work for which eyesight is essential. The local authority in Birmingham only requires a statement that the applicant is or is not blind within the meaning of the Blind Persons Act. That there is need for caution and discrimination in the administration of this Act is shown by the fact that a sum of £10,470 was distributed in weekly and special grants by the voluntary agency in Birmingham last year. The number of pensioners is rapidly increasing. In Birmingham in 1919 the number of adult blind living in their own homes was 425, whereas this year they number 1,005. When it is remembered that since 1928 every blind person may have his income made up to £1 a week, it is obvious that the expense to the community will be very considerable, and I think that the certification of blind pensioners should be no less detailed and comprehensive than that demanded by the Ministry of Health in the case of trainees. Since 1928 the number of applicants has more than doubled as compared with the years 1924-27.

The purpose of this paper, however, is not in the main to criticize the Blind Persons Act and its administration, but to analyse the causes of blindness in 700 old people as certified by me for the local voluntary agency in Birmingham during the last four and a half years. I have

* Read in the Section of Ophthalmology at the Annual Meeting of the British Medical Association, Manchester, 1929.

classified them into eighteen groups, and record them as follows in order of frequency.

700 Consecutive Cases Certified as "Blind Persons."

	No. of Cases.
Cataract	205
Atrophy of optic nerves	78
Glaucoma	75
Iridocyclitis and keratitis	54
Corneal opacities	45
Retinitis pigmentosa	43
Choroido-retinal atrophy	42
Congenital defects	33
Detachment of retina	27
Myopia	20
Phthisis bulbi	17
Choroido-retinal vascular disease	14
Diabetes	12
Ophthalmia neonatorum	9
Sympathetic ophthalmia	9
Trachoma	9
Buphthalmos	5
Injury (double)—two gunshot and one explosion	3

Cataract.—We are not surprised to find cataract at the top of the list. More than a sixth of the number were secondary, and these should be included under some inflammatory or degenerative disease. Of the ordinary senile cataracts over 37 per cent. were certified as operable, but so far as I know this in no way affects the granting of the pension. Neither do I know what may happen if such a patient gets his cataract removed and regains sufficient vision to enable him to do work for which eyesight is essential.

Atrophy of the optic nerves, coming second in the list, is unexpectedly high; 13 per cent. of these were of specific origin, and 10 per cent. were due to cerebral disease; the others were of unknown origin.

Glaucoma is a close third. Most of these appear to have been primary, only ten being recorded as secondary. About 10 per cent. of the former had been trephined.

Keratitis and iridocyclitis were mostly of specific origin (50 per cent.). In view of the fact that a number of the cases of atrophy of the optic nerves and choroid could also be ascribed to the same cause, it is obvious that syphilis constitutes the chief venereal factor in the causation of blindness in old age. It is to be hoped that modern preventive and curative treatment will do much towards reducing this high proportion of blindness from syphilis.

Corneal opacities form a rather ill-defined group. Most of them were of unknown origin. Some were associated with nystagmus, and were probably due to ophthalmia neonatorum. Some appear to be cases of interstitial keratitis, and a good many were associated with cataract.

Retinitis ... ...

the pain can, however, be followed with accuracy in the particular area that is being treated, and it is this fact which makes the observation so very useful.

The fact that the pain caused by this chemical cauterization of the endothelium is not felt immediately would seem to show that the endothelium is devoid of nerve endings acutely sensitive to pain. Schafer[1] says of the larger arteries and veins that

"nerves are distributed to the muscular tissue of the middle coat after forming a plexus in the outer coat. Most of the nerves are non-myelinated, but there are a certain number of myelinated fibres intermingled with the non-myelinated and passing to end in localized arborescences partly in the adventitia, partly in the intima. These myelinated fibres are doubtless afferent, the majority of the non-myelinated are probably efferent and derived from the sympathetic (vasomotors). . . . The capillary vessels also receive non-myelinated nerve fibres which have nuclei upon them and form a fine plexus of fibrils in close contact with the endothelial cells of which the walls of these vessels are composed."

The contraction of the vein frequently noticed by those who practise the treatment may be connected with the stimulation of the arborescences. So far it has not been possible to establish a definite connexion between the contraction and the onset of pain; first, because the pain moves onwards and becomes diffuse and the position of the patient's limb is changed accordingly, as will be described later; and secondly, because the colour of the partially empty vein, as seen through the skin, alters when the colourless solution enters it. A further complication is caused by the alteration in blood content when the tourniquet is removed. These three factors combine to make any accurate observation on this point difficult.

The nature of the delayed pain has been described by the patient afterwards as stinging, burning, cutting, boring, lancinating, shooting, cramp-like, creeping, cooling, and by one patient as the feeling he had experienced when a dentist injected his gums. Usually it is simply pain, and seems to be independent of the temperature of the solution. As a rule its onset can be noted with ease, and each patient is told about it beforehand and asked to say or to indicate where it is travelling, and at what rate. When the pain is sudden and severe every effort is made to dilute the solution with blood by a rapid change in position, according to Brodie's[2] (Trendelenburg's[3]) description, because this sudden onset often means an excessive and diffuse inflammation in the tissues round the vein at a later date. In such a case the veins are apparently easily permeable, but not necessarily very thin-walled. On the other hand, when the pain is of slow onset and slow cessation the change of attitude may be made correspondingly slowly; the solution may, as it were, be nursed along the course of the vein, even milked along it by the fingers. The ultimate result in the latter type of case is invariably the best obtainable. Moreover, it is particularly in this type that one can guide the course of the solution upwards or downwards, inwards or outwards, or in a combination of these directions. One may notice that a tributary area has been missed and be able to fill it with the solution still left in an adjacent vein. It occasionally happened that such an obviously missed area, which remained free from pain, was found later to have no occlusion of its veins. This observation suggested the great importance and the constancy of the deep communicating vein just above the knee, and so led to an alteration in the technical application of the method. It will be remembered[4] that in this method the solution is injected (when the case is suitable) into the saphena in the thigh with the vein empty and the patient recumbent; the patient then rises slowly and the solution travels down. Sometimes it misses one of the main tributaries just below the knee. Often it either misses, or its dilution has become too great to cauterize, the endothelium of the important loop or loops formed in the lower third of the leg between the internal and external saphena veins.

The bolus method has therefore been altered, and the injection is now more often given into a suitable vein on the inner side of the lower third of the leg and allowed to travel upwards. In the course of about forty to sixty seconds the patient indicates that it has reached the middle of the thigh; the limb is inclined downwards, over the side of the couch, and he says, "It is going down now to the ankle, foot, toes." Then the limb is placed horizontally again or elevated slightly, and we know that the solution at that moment is in the internal saphena from the middle of the thigh to the ankle. These alterations are made quickly or slowly, and of greater or less extent in exact accordance with the signs given by the patient. If by chance the patient is able to show quickly that one area has been missed, the limb may be re-inclined and the patient made to stand up, and if necessary to cough, in order to blow the now rather dilute solution into the mouth of the missed tributary. On the other hand, when it is evident that the solution is not travelling up the thigh, but only as far as the knee, the limb is elevated more and more and with an increasing degree of rapidity until it is vertical. If there is then no pain in the thigh the patient is quickly told to breathe out deeply so as to suck the solution up the thigh, a practical expedient based directly on Barber's[5] observation. In one patient with an enormous collection of varicose veins of the internal and external saphena systems the onlookers clearly saw the respiratory excursions in a vein over the patella. In slighter cases the movements may be shown by shining up the skin with glycerin, just as one may easily demonstrate a doubtful pulsation in a cranial defect, or the pulsation of one's own superficial palmar arch. Failure of the bolus method appears to be entirely due to the deep communicating veins sucking away and diluting the solution, and it is here that a previous acquaintance with these veins in the dissecting room, and especially an operative experience, is so valuable. When Gray's modification[6] of Babcock's extraction method was used the tributary sites were easily seen and counted on the extractor. Next in importance to the single deep connexion just above the knee, if not actually more important, is the one just below it, which joins the inner sural veins. This latter connexion may be multiple.

During extraction operations (or during the excision of a varicose ulcer) under fairly deep general anaesthesia the blood flows *from* the ruptured communicating veins and tends to form large collections in the subcutaneous tissues. It was therefore common practice to press on these areas after the extractor had been removed and thus to limit the flow. When the conscious patient uses his muscles, even feebly, it is highly probable that the blood flows in these junctions from the superficial to the deep system; *x*-ray observations are said to confirm this. Once in the deep system the dilution is excessive, both on account of the total area of the cross sections of the veins and of the rate of flow of the blood. No pain is felt nor is any obliterating effect produced. In no case has the patient later suffered from an added cramp, and in only three cases from cold feet, as a result of the treatment. In the majority of patients these two symptoms when present have invariably been cured, as have also the other symptoms of tiredness, weight, and the sense of fullness and bursting. Blueness of the limbs improves rapidly, but seldom entirely disappears. It appears, therefore, that the entrance of the solution into the deep veins is a matter of no importance except possibly medicinally. Its dilution in this way will account for any failures to produce thrombosis. There is no need to blame the solution.

It is said that the brown solutions of salicylate must on no account be used, but the reasons are not clear. The colour is sometimes due to a slight iron contamination from the glass, with possibly an added oxidation. On one occasion a hundred ampoules were found to contain brown solution, some of which was a very dark brown; all this solution was used with perfectly good results.

Another argument may be employed to show the absence of sclerosing effect on the deep veins. A history of white leg is quite rightly regarded as a contraindication to any obliterative treatment of varix, though not an absolute contraindication. After a time there may be evidence of a re-establishment of the deep circulation, and the oedema may partly subside. In such a case, if varicose veins should develop, it is a question whether or not these veins should be treated by sclerosing methods, wholly or in part. If

the symptoms are increasing or an ulcer is forming, it is advisable to make a preliminary test with a course of Unna's paste bandages applied from foot to knee with the limb emptied of blood—that is, after it has been elevated to 30 degrees for, say, twenty minutes with the patient's trunk and head horizontal. This is in all cases by far the most efficient way of applying the casing. It may at first seem puzzling that the foot never becomes strangulated. If the experiment is tried with an elastic bandage it will often be found to cause strangulation; in perhaps half an hour the foot will become painful, and then numb, blue, and cold. The Unna's paste bandage, being in no sense elastic, but forming a semi-rigid casing, does not contract on to the limb or exert greater pressure as the swelling increases. It exerts only a constant pressure, probably rather greater than the diastolic pressure, on the surface of the limb, and this is insufficient to compress the deep veins. In such circumstances the oedema subsides in a few months, and the skin becomes supple, especially round an old ulcer. At this stage it is safe to discard the Unna's paste for a lightly applied open-woven elastic webbing of a good but slight degree of elasticity. Two or three months later, if the improvement *is maintained, it may be taken as an indication for* sclerosing the main portions of the varix. Three such cases have been treated in this way, and as a result there has been considerable improvement in the tone of the water-logged limbs. Had the solution caused further deep thrombosis the results would have been bad.

The pain caused by the solution of salicylate decreases in severity as the fluid in its passage becomes more dilute. This is well seen in the multiple ladder pattern veins at the back of a thigh. In a case of multiple telangiectases the patient first described the sensation as painful, and then as a "creeping outwards" into the finer tributaries. The pain varies greatly in intensity in different patients and in different veins in the same patient. It may differ in veins of apparently the same size and in similar veins on each side. Wherever it is felt sclerosing changes inevitably follow, and where it is not felt it is uncommon for more than a local thrombosis to occur. In a few exceptional cases a considerable length of vein may become obliterated when little or no pain has been experienced, and it is noteworthy that the process is then relatively slow. In cases of telangiectases, especially in those arranged in separate clusters, the immediate effect is often most striking and the subsequent spread of the sclerosing effect convincing. As the blood volume of an injected vein decreases so the pain of a further injection becomes more severe. It may travel further and may last slightly longer. By observing the effect at fortnightly intervals it is apparent that sclerosis continues actively for at least nine weeks.

The solution used when the method was first tried (20 per cent. sodium salicylate, 10 per cent. saline) was apt to produce a thickened vein and not an obliteration, except in the smaller veins, or at the site of injection, and for a few inches only. Sometimes it would produce thrombosis in the bays of the varicosities, where the current was sluggish, and leave the main stream liquid. A 25 per cent. solution (10 per cent. saline), given also in larger quantities, was found to yield better results, and to-day the standard first dose for a medium-sized vein is 5 c.cm of 30 per cent. solution (10 per cent. saline), and for a vein of large blood volume 7 c.cm. of 40 per cent. solution (10 per cent. saline), each given with the limb emptied of blood and usually from below upwards. Dr. R. D. Macrae, when he was a dresser, suggested putting segments of the vein on the stretch in one direction during the injection so as to snaffle the communication to the deep anastomotics. This method is most useful in the thigh, where it is not infrequently followed by a somewhat delayed but sudden onset of sharp pain. One might expect this phenomenon from a study of the loops which are present in this situation and which are so well shown in Gay's[7] plates. These loops hold the solution and then allow it to pass into the superficial veins, where it produces pain. It may, however, pass away rapidly, or slowly and painlessly, into the deep circulation. The not uncommon failure of the bolus method from above downwards, and its great and frequent success when employed from below upwards, are also partly accounted for by this peculiar anatomical arrangement.

When most of the leg veins have become obliterated, and parallel anastomotics alone require injection, a useful means of access may sometimes be found in the dorsal veins of the foot. One should, however, be cautious in using veins in front of the ankle-joint or at the back of the knee where movement is frequent, because necrosis seems to be more readily caused in these situations. Injections into the external saphena should also be more dilute, or used in smaller quantities and more slowly than into larger veins. Throughout it is important to remember that the surface area of a cross-section of vein varies with the square of the diameter.

Technique.

In difficult cases the injection may be given with the patient standing or sitting, and into almost any part of the vein, remembering that in the smaller veins the valves are usually still efficient and the blood current towards the trunk. In the great majority of cases, however, the injection has been given with the patient recumbent. A good light, preferably an overhead one, is essential. For the particular method used it is convenient to have a low couch (18 inches high) on which the patient can stand for inspection, and from which, when lying, he can easily tilt himself up and stand on the floor. This height is also convenient for the injector when the limb is raised to empty it of blood. The patient stands, a band tourniquet is lightly applied and clipped, and he lies down. The lowest easily available vein is chosen and entered, and blood is allowed to float up to the plunger. The tourniquet is then loosened, the limb raised, and the injection given. By injecting the spare blood at the end of the plunger there is less risk of withdrawing salicylate solution through the puncture hole. The needle is withdrawn and pressure made over the spot. The changes in posture are then carried out as already described. Only one injection is given at each attendance. The limb should be kept bandaged *night and day* with a light elastic webbing for a fortnight or longer. The results since this procedure was adopted have been much better than formerly; there are fewer and smaller lumps afterwards, and what may be called *the stiction effect*, or immediate obliteration, is more often obtained. In the bolus method a large needle naturally gives a better result than a small one, the object being to spread the solution rapidly over the whole system before dilution occurs. In medium and small veins, however, the differences are not great, and here even a small injection, such as the quinine solution administered slowly, may, in a sluggish vein, give a thrombosis from ankle to groin. Usually, however, the thrombosis produced by the quinine solution seems to be only a few inches long. Many injections are required, and there is no definite means of controlling the extent of any one of them or of guiding it to the required distribution.

The salicylate-saline effect can, in the main, be judged after a fortnight. When both limbs are affected the injections may thus conveniently be made weekly and alternately; this allows time for the reaction to subside on one side before it begins on the other, and no great inconvenience is felt. In three cases only have the patients been off work—in one case for three days, in another for a week, and in the third for ten days. All were able to walk during these periods. When it appears that the case will be successful the patient should cease attending for an interval of two or three months. The result can be judged better in this way, and any further injections can be given later if necessary. The stiffness in the fibrous cords may take up to about six months to disappear, especially at the knee.

Necrosis.

Should solution escape from the vein the hole may be pricked at once with a Bard-Parker blade and gentle pressure made at a little distance around it to promote evacuation of the solution. The patient should rise to encourage bleeding, for if bleeding occurs necrosis is unlikely. Apart

from lack of skill there are many causes of a faulty injection, the most frequent, in my experience, being a blunt needle and a horizontal instead of an overhead light. A blunt needle may lead to imperfect puncture, or, if the guarding finger allows it, to a double puncture. In the latter event the operator, when dealing with a large vein, may wait for the distal hole to close and give the injection slowly, or he may safely give the injection in another part; but in dealing with a small vein it is safest to use the Barber's needle with a lateral eye. A lateral tributary may rupture from slight pressure (Barber[10]); a partially thrombosed vein also is often difficult to puncture, even with a small needle, and so is a very mobile one.

Necrosis of the vein itself may occur at or near the site of puncture from too long contact with the solution. Here again the Barber needle will help, because it can be rotated and thus used for spreading the solution over different parts of the wall. It is probable that necrosis of the vein wall, especially in thin veins, often occurs without being seen. In relatively superficial veins it is visible through the skin, and takes about three months to fade. Necrosis into the wall of a large vein is apt to be dangerous; one such case has been heard of in which severe secondary haemorrhage occurred. Necrosis into a vein occurred twice in this series, the longer being 1¼ inches, presumably due to the solution travelling along the adventitia. The vein in each case was firmly thrombosed, and no anxiety was felt in allowing the patients to work and the necrosis to run its ordinary course, whereby it exfoliated and the ulcers healed. The necrosis, like dry gangrene elsewhere, is easily treated by the patient with boric powder. When a line of demarcation begins a few drops of glycerinum acidi borici twice a day, on boric lint, until the ulcer is clean, followed by red lotion or a brilliant green dressing, is all that is necessary. Klapp's suction cup seemed to help in one case at the stage of separation of dead tissue.

In one case, not included in this series, excision under local analgesia was tried, with no gain in time to the patient. If, however, a plastic operation is possible as well, the gain in time in healing a large necrosis might be considerable. In the leg it is seldom possible to excise a large necrosis without producing deformity, and excision of a small necrosis may not be considered worth while. Though no evidence is advanced, excision is perhaps more dangerous than leaving well alone. In this series the duration of the necrosis has been approximately proportional to its volume; healing times (in months) have varied from 5½ months to about a fortnight. Fortunately necrosis is generally painless and is becoming uncommon, but the possibility of its occurrence is the chief drawback to using salicylate solution at the present time. By ascertaining as far as possible that the whole of the eye of the needle is in the vein, by injecting only when there is an entire lack of resistance to the needle and absence of pain, by watching for blanching and thickening in the surrounding tissues, and above all by practice, the risk may be considerably reduced and the extent of the extravasation kept down But in spite of everything going well an apparently inexplicable necrosis may mar an otherwise good result.

Results.

The results in the first consecutive series of completed cases treated by me at the Aberdeen Royal Infirmary by the bolus method (chiefly from below upwards) may be set out as follows. First the expected result of each injection, as indicated by the pain, is recorded in one of three divisions: maximum effect, good, and partly. A negative effect in these observations becomes a positive one in recording the result, because when there is no pain no thrombosis is expected. The observations for each limb are then added up and the total expected result recorded. At first the importance of pain as a guide was not appreciated, and in consequence the individual injection records are incomplete in a very few cases. This fact does not materially affect the total expected results. Secondly, the final result is given. For this purpose the limbs have been grouped into those in which the veins were enormous, very severe or very large, severe, marked, medium, and slight. While the symptoms often correspond with the signs, this is not always the case, and as at present we are estimating the sclerosing effect only, the signs have been taken as the guiding factor in assessing the results.

Number of patients treated	150
Limbs injected	243
Necrosis cases	24
Stiction effect	15
Patients previously operated on for varicose veins...	4

Degree of varicosity and number of injections:

Very severe ...	5 limbs,	requiring a total of	24	injections
Severe ...	31 ,,	,, ,,	152	,,
Marked ...	93 ,,	,, ,,	284	,,
Medium ...	82 ,,	,, ,,	174	,,
Slight ...	27 ,,	,, ,,	27	,,

Totals ... 243 limbs, requiring a total of 661 injections

Average number of injections per limb 2.7.

Results indicated by the pain experienced:

Maximum effect	101
Good effect	100
Partly	42
	243

Final Results.

Condition.	Perfect.	Excellent.	Very Good.	Good.	Fair.	Total.
Very severe	2	3	—	—	—	5
Severe...	6	17	8	—	—	31
Marked	34	56	7	—	1	98
Medium	38	33	9	2	—	82
Slight	16	9	2	—	—	27
Totals	96	118	26	2	1	243

It will be seen that for the very severe type of varix about five injections are necessary, and the same is true for a slightly less severe case. In these cases the veins are of large volume, tortuous, show a marked impulse to the ankle on coughing, and are very numerous. In the worst type the varicosities evidently join the deep veins at short intervals all over the limb, and more than the average number of injections are necessary. Thus in three such cases the numbers and strengths of the injections have been as follows:

	Right.	Left.
Case I ...	Six (20%), seven (30%), two (40%)...	Four (30%)
Case II ...	One (30%), one (40%)...	Five (30%) / Five (40%)
Case III ...	Five (20%), three (30%) / Four (40%)	Three (40%)

In each of these cases the degree of varicosity appeared much the same on the two sides, yet the number of injections differed greatly; they were the only cases in which numerous injections were required. One can sometimes surmount the difficulty by stopping the venous circulation both above and below with two band tourniquets while directing the distribution of the solution. There is an element of chance in this type of case which is difficult to get over. It is clear, therefore, that the best course is to try to prevent the occurrence of the severe types with multiple deep connexions by treating the limbs while they are in the earlier stages of varicosity.

In the marked type not more than about three injections are needed, in the medium type two, and in the slight type only one. It appears that the number of injections required in comparable limbs when other methods are employed is much greater than by the controlled method described.

In general, the symptoms have disappeared with the obliteration of the veins, but in some cases they have gone first; in a very few cases symptoms have persisted in minor degree after the veins have become firmly sclerosed. Mostly, however, the patients are greatly relieved and are better able to work. They often say that their shoes feel loose or that they require a smaller size than formerly. In some cases there is a distinct stage of slight swelling of the ankles which persists for about two months and gradually goes away as the new

circulation becomes efficient; this process is accelerated by using an elastic bandage locally at night. The feet may be swollen in the morning and the swelling subside after a day's work, thus affording interesting evidence of the action of the muscles on the deep circulation. The muscular tone improves greatly, but it has not been actually measured. Measurements by a tape on different days are apt to be misleading, but are sometimes useful if, on the same day, a comparison is made between a treated and an untreated limb. When all symptoms and signs are absent and the health is improving the final result has been assessed as perfect; then follow excellent, very good, good, fair, and failure. A family history of varix does not seem to affect the result, but varix when familial tends to increase. Speaking generally, in the severe types the older the patient the better the result. The oldest male to be treated was 75, and the oldest female 74. The man had enormous multiple varicosities from groin to ankle, and said that he had spent £170 on elastic stockings during the last thirty-five years; his work as a blacksmith had been hard on them. Eight injections cured the right and four the left limb.

Curious coincidences have been noticed here and there—for example, symptoms of dizziness, deafness, and light-headedness, especially in old persons, have cleared up. Whether the obliteration has a definite effect on the blood pressures or not, especially on the diastolic pressure as one would expect, will require to be worked out. If it has, then the method may have a wider application than it has at present.

Two cases in this series merit attention.

CASE I.

The patient, a man aged 56, was treated for varicose ulcer of the right leg, and an enormous condition of varicosities of the whole of both lower limbs. The ulcer at this time was nearly healed. Six injections of 40 per cent. salicylate (10 per cent. saline) from January 2nd until April 4th resulted in complete obliteration of the varices on the right side. On April 27th the *first injection of 40 per cent. salicylate* (10 per cent. saline) was given on the front of the left leg. A maximum immediate effect was produced. The patient went to work for a week. On May 5th he had pain in the back and chest and did not go to work. There was no cough or sputum, and no history of shivering. He remained in and out of bed, and on May 9th was admitted to a medical ward suffering from acute bronchitis, which was considered to be influenzal in origin as there was an epidemic at the time. Moist sounds could be heard over the whole of the chest. The patient died on May 10th. No post-mortem examination was allowed.

CASE II.

This patient, an unmarried woman of 32, was under treatment for a medium degree of varicosity of the left side. On February 23rd and March 9th injections of 40 per cent. salicylate (10 per cent. saline) were given. A medium immediate effect was obtained. On March 13th the patient had a right-sided hemiplegia from which she has made a good recovery. A sister had previously also had a hemiplegia. There was no gross cardiac disease.

These two are the only cases in the series in which any serious complication could be considered as possibly due to the treatment.

Conclusions.

Finally it appears in the light of the clinical results that the descriptive anatomy requires amplification. We want to know from injections and sections of the limbs in the dead subject the relative blood volumes of the superficial and deep veins in health and in conditions of varix. A plethysmographic record in old cases of white leg would help to tell us the carrying capacity of the deep veins.[9] The pain seems to be due not to the saline in the solution but to the salicylate alone. If those who use the saline method would try it with small additional strengths of salicylate added, it might be possible to find an ideal solution which would produce the maximum sclerosis, and only a slight but definite tingling at the time of injection.

In my experience the results of using local analgesics in the salicylate solution have, while allowing as far as possible for the unknown factors in the deep circulation, been entirely negative. As Barber[11] points out, their use might prevent the recognition and rapid evacuation or dilution of an extravasation. At present it seems clear that no great advance will be made until we have records of consecutive cases kept by different injectors on some comparable system and observed at greater leisure than is usually possible in busy hospital departments. The fact that in the majority of cases we can give in advance an approximate estimate of the number of injections required and can tell the probable distribution of the sclerosis makes the salicylate-saline method a very good one.

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SOME OBSERVATIONS ON BERI-BERI.

BY

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The following conclusions have been formed as a result of two years' research work on over six hundred patients of Chinese nationality, and more than eighty post-mortem examinations, as well as animal experiments.

1. Beri-beri is a syndrome of the Orient, confined to Orientals, chiefly males; seasonal in occurrence; prevalent during the wet season; partly infectious; a rice "disease"; and is brought about by three factors. They are: (*a*) water-soluble vitamin B deficiency; (*b*) a bacterial infection, closely resembling or identical with the *Bacillus asthenogenes* of Bernard (1919); and (*c*) endocrine organ disturbance.

2. A low cholesterol content of the blood is also essential to the occurrence of this syndrome.

3. The diagnosis and prognosis can be assisted by *x*-ray examination.

4. The pathology is specific.

5. Bernard's complement fixation test is a valuable aid to diagnosis.

6. Beri-beri may be either acute or chronic. The "dry" and "dysenteric" beri-beris are really camouflaged forms of malaria, as proved by the invariable findings of the specific malarial parasite on every careful examination.

7. The blood pressure and the cerebro-spinal fluid pressure have definite constant variation. In acute cases the blood pressure is always below normal, about 80, and the cerebro-spinal fluid above normal, about 200.

8. Magnesium sulphate, given daily in doses amounting to 150 grams, administered as twenty-four half-hour doses during the twelve waking hours of the day, and repeated, if necessary, on the two following days, together with 1/2 c.cm. of pituitary extract (B.W. and Co.) twice daily; also hypodermic injections of 1 c.cm. of a 5 per cent. solution of cholesterin in olive oil, given on alternate days for six to ten injections, bring about speedy amelioration of the symptom and sign complex; and, with the addition to the diet of vitamin B, complete the cure. Bernard's serums can also be used with good results.

9. Patients with beri-beri can take a large amount of sugar without it appearing in the urine, their capacity being about twice that of a normal individual.

10. The syndrome occurs almost solely in males; there are a few exceptions to this, as to every rule, but they are very rare. It comprises the following manifestations:

(1) Swelling of the feet: in China the complaint is known as "ker' k'i," meaning humidity of the feet.

(2) Swelling of the face: especially under the eyes, as in kidney disease (acute parenchymatous nephritis does occur).

(3) Swelling of the abdomen—ascitic.

(4) "Swelling" of the heart: detected by clinical methods and *x* rays (Reinhard, 1916).

(5) The blood pressure is lower than normal, being inversely proportional to the "disease."

(6) The patients are unable to rise from the squatting position without help, or by the aid of "crawling up their legs" with their hands, just as a person suffering from pseudo-hypertrophic paralysis does (Willcox, 1915).

(7) Knee jerks are usually absent, but may be grossly exaggerated (Darling, 1914).

(8) Tenderness is elicited on deep pressure over the nerve trunks.

Other signs and symptoms which may be present in a large number of cases are:

(9) Numbness of the feet.

(10) Bad taste in the mouth in the morning: probably caused by the resultant dilatation of the stomach owing to its asthenic condition.

(11) Respirations are shallower than normal.

(12) Vertigo may occur.

(13) The patient may complain of severe pain in the legs.

More remote signs and symptoms observed are:

(14) Sensation of faintness.

(15) Loose motions.

(16) Inability to walk.

(17) Slow pulse in convalescing cases.

(18) Skin whiter than normal.

(19) The respiratory quotient does not exceed 0.8 and is often only 0.7 (normal 0.9 to 1.0).

(20) The blood urea is usually 1 gram or more per litre of serum (normal is under 0.5).

THE CAUSAL FACTORS.

Three causal factors have been cited; they are as follows.

1. *Vitamin B Deficiency.*

The works of Funk (1911), Fraser and Stanton, McCarrison, and many others strongly favour this as a cause. The pericarp of "red" rice contains vitamin B. Darling's work in 1914 lucidly explains the relationship between beri-beri and other deficiency diseases as revealed in Fig. 1. Woolard[1] produces evidence strongly in favour of the deficiency disease theory. I have also satisfied myself that the bone conditions are similar in appearance in the various deficiency diseases.

The three important processes of growth in bone are: (1) growth and ossification of the cartilage between the

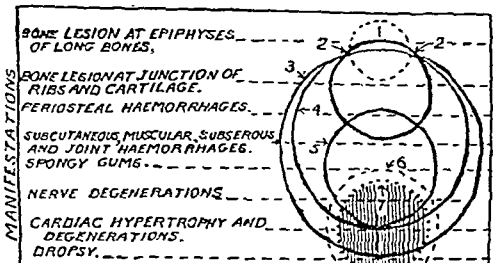

FIG. 1.—Diagram showing the relation of beri-beri to other deficiency diseases. The circles from above downwards represent: 1, rickets; 2, infantile scurvy; 3, scurvy of guinea-pigs (large circle); 4, scurvy (smaller circle); 5, ship scurvy; 6, polyneuritis avium; 7, beri-beri. The shaded portion indicates the position of beri-beri.

epiphysis and shaft; (2) enlargement of the marrow cavity, which is effected by absorption of the inner layers of the shaft; (3) increase in thickness of bone due to deposition of bone by the inner layers of the periosteum. In rickets, which occurs in early life, the process in (1) is exaggerated; in (2) it is more rapid than usual; whilst in (3) the growth is defective and uneven. This results in a larger medullary cavity and a thinner shaft than normal, but a great excess of cartilage at the epiphyses.

Now beri-beri ("infantile beri-beri" is not included as it is another disease) occurs in adult life, when the normal processes have continued until the onset of the syndrome; this results in an enlarged medulla at the expense of the thickness of the shaft bone, but cartilage growth, which has long since ceased, remains unaffected by any degenerative process.

2. *A Specific Bacillus.*

This is probably the *B. asthenogenes*. My colleague C. Y. Wang, professor of pathology in the University, states that "this organism gives all the essential characteristics of the *B. cohaerens* of Göttheil." Elsewhere[2] I have given the full bacteriology of this organism, and experimental proof of its relationship to beri-beri. Suffice

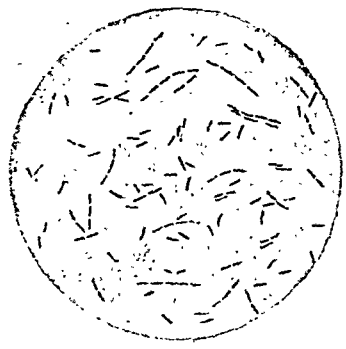

FIG. 2.—The *Bacillus asthenogenes* of Bernard. Bouillon cultures twelve hours old (anaerobic and aerobic).

it to say that it exists in two forms: aerobic and saprophytic in the presence of vitamin B; and anaerobic and pathogenic in the absence of water-soluble vitamin B.

The toxin is obtained by filtering through a Pasteur-Chamberland filter candle No. 4. A 1 c.cm. dose of the filtrate injected into the vein of the ear kills a rabbit averaging 1,800 grams in weight. For research purposes Bernard concentrates this toxin and obtains a product which kills by a constant dose of 1/20 c.cm.

The bacillus can be isolated from human blood for anaerobic culture in a medium consisting of bouillon and milk in equal parts. Only when gastric symptoms exist and at irregular periods can the bacillus be found in the peripheral circulation. In cases of paralysis it is absent, just as the Klebs-Loeffler bacillus is absent in diphtheritial paralysis. It can always be found in the spleen.

Various serological researches are carried out by taking a culture of twelve hours' growth and centrifuging. The bottom of the centifuge is diluted with saline to 0.5 per cent. strength. The best culture medium is pork 25 grams and saline solution (0.5 per cent.) to 100 c.cm. The suspension should be sterilized at 120° C.; 15 c.cm. of milk is then added, followed by 10 c.cm. of a fresh culture (twelve hours' growth), and the whole is heated to 37° C.

The fixation of complement and agglutination test of Bernard is performed with the same culture. For agglutination an emulsion of the microbe is made in 0.5 per cent. saline solution, and is then adjusted to *pH* 6.5 and heated to 45° C. Agglutination occurs after five hours. For certain diagnosis agglutination only above 1 in 150 must be considered. (Other serums 1 in 50 and 1 in 100.)

3. *An Endocrine Disturbance.*

The relative mental dullness and possible myxoedematous appearance suggest an endocrine disturbance, as do the cases of insanity associated with beri-beri (70 in 290). As regards the morbid anatomy of these endocrine glands in beri-beri, the pancreas appears normal, but the islets of Langerhans are much hypertrophied; their function has been shown to be increased. The suprarenals are hyperaemic; there is hypertrophy of the cortex without degeneration, and the medulla is hypertrophied, with marked round-celled infiltration around the vessels; hyaline bodies are also present. (Comissati's chemical method estimates an increased secretion of adrenaline.) The prostate is congested and enlarged; the thymus is present and increased in size. The pituitary body is unchanged, and the

remaining organs are atrophied. (In all cases of sudden death, as in beri-beri, the thymus is enlarged.)

Low Cholesterol Content.

The Chinese normal cholesterol content is 0.62 (European 0.68). Women usually escape infection, probably owing to the regular menstrual cycle, which occurs about thirteen times yearly, each cycle being accompanied by increased cholesterol content of the blood. In gall-stone patients the content is raised, and I have never yet found evidence of beri-beri in a cadaver in which gall-stones were present (I examine about 1,500 adults and 2,500 children yearly).

X-Ray Diagnosis.

The pulmonary vessels and right side of the heart are enlarged first; then the left side of the heart enlarges. When convalescence commences, first the left side and then the right side clears up, and finally the pulmonary vessels resume their normal size.

*Post-mortem Landmarks.**

"Water here, water there, water everywhere" well describes the condition of the body. Rigor mortis is either very rapid or very slow in onset (normal average 4 hours onset to 36 termination).

The heart looks fatty, and the heart muscle resembles bad beef; the right ventricle may be three times the size of the left. The lungs, stomach, intestines, bladder, and spleen are congested and oedematous. The kidneys show acute parenchymatous nephritis.

The nerve changes fall into three groups: (1) Changes without interruption of continuity. These are analogous to cloudy swelling affecting both axis cylinder and medulla; found in early stages. The condition terminates in (*a*) complete restoration, (*b*) advanced degeneration, or (*c*) atrophy in course of time. (2) Changes with interruption of continuity. The nerve changes are not diffused but are localized in patches. All degrees of degeneration may be seen together, and the medullary sheath is fragmented. The continuity of the axis cylinder is not broken, but it may be charged with coarse and fine granules. There is little functional loss. (3) Atrophic changes occur later. The nerve bundles are greatly shrunken, with atrophy of the medullary sheaths. The axis cylinders are narrow and uneven, and the interstitial tissue is increased. Function is greatly disturbed. The arteries show irregularity of the tunica media, with spaces between the cells.

Blood count: finely granular oxyphils, 60 per cent., coarsely granular oxyphils, 5 per cent., basophil leucocytes 0.5 per cent., hyalines 20 per cent., lymphocytes 14.5 per cent.

The muscles show fatty degeneration, and there is often marked atrophy of the peroneals. Two forms of changes are to be differentiated: a primary change caused directly by the Kakke toxin, and a secondary one, the result of changes in the nerve supply.

The organs of the body have antineuritic powers in the following order: liver, heart, cerebrum, cerebellum, and voluntary muscle.

Oedema is most marked at the auriculo-ventricular junction in the heart. Atrophy is most marked in the testicles. Keratomalacia is found in some cases. Corneal opacity may suddenly appear and end in panophthalmitis. The administration of fat-soluble vitamin A quickly arrests this condition in the early stages.

In my opinion it is the vitamin deficiency which renders the body very liable to be overrun by the rank growth of bacteria, and this is the pivot upon which we should base our further researches.

I wish to thank Dr. P. Noel Bernard and his staff for their courtesy to me and kind help while in Indo-China and China; also Dr. C. Y. Wang for his confirmatory work on the bacteriological aspect of my researches.

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[1] *Journ. Anat.*, vol. i, lxi, Part III, April, 1927. [2] *Transactions* of the Royal Society of Tropical Medicine and Hygiene.

* The detailed pathology is given in a communication to the *Transactions* of the Royal Society of Tropical Medicine and Hygiene.

ASPIRATING THE CONTENTS OF THE STOMACH.

BY

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WASHING out the stomach of a desperately ill but fully conscious patient ranks high among the most distasteful tasks in surgery; it is only natural to shrink from adding to the discomfort of the patient. Misdirected compassion, or fear of still further upsetting a patient who is already in a critical condition, may be determining factors in withholding the stomach tube in cases where it is strongly indicated—a form of conservatism which is often the antithesis of good judgement.

In those conditions where emptying the stomach may prove a life-saving measure the contents of the organ are known to be of a watery consistency; acute dilatation of the stomach, intestinal obstruction, and vomiting after gastro-jejunostomy are but a few of such conditions. The question which arises is, Why employ a large calibre tube to evacuate a watery fluid?

Ryle's small stomach tube (Fig. 1) can be swallowed without overwhelming discomfort and without shock. In the few patients who find that they cannot swallow the tube a little 10 per cent. cocaine sprayed on the pharynx will enable them to do so. Once the tube is in position the stomach contents can be aspirated with a syringe. A bladder syringe answers the purpose, but a well-fitting glass syringe, such as that shown in Fig. 2, makes for a perfected technique. After the contents have been aspirated the organ may be washed out with boiled water, or anything else which is thought desirable. No one who has had experience with the large red rubber tube, funnel, jug, and mackintosh apron would wish to return to them.

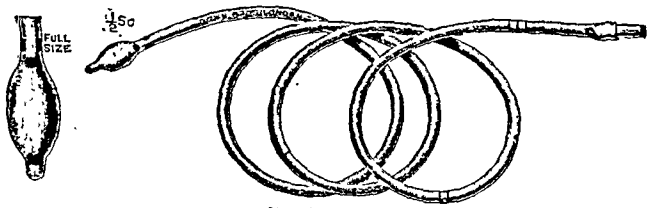

FIG. 1.

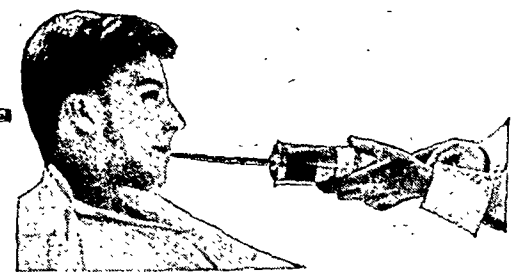

FIG. 2.

Speaking personally, I look back with a shudder on the older method, and every time I see the stomach contents being quietly and painlessly and effectively aspirated I experience a feeling of gratitude to Dr. Ryle for his invention.

Having once gained familiarity with the method one finds increasing fields of usefulness for gastric aspiration. Not only does the need for jejunostomy grow less, but there will be found occasions where the method may be employed as an aid to urgent diagnosis.

This note does not claim to express anything original; it is rather a plea for the more universal adoption of a very satisfactory principle.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

MOTORIST'S HEEL.

This note is prompted by the correspondence on the subject of painful heel in the *British Medical Journal* during the spring and summer. One important cause—motor driving—escaped mention, and I have not discovered any reference to its etiology in the literature.

The causes of painful heel may be classified as affections of: (1) the fibro-fatty pad; (2) the bursa beneath the tendo achillis; (3) the os calcis.

The Fibro-fatty Pad.—This thick pad, situated where the heel rests on the ground, is fairly sharply defined, especially behind, where it quickly gives place to delicate skin beneath which is little or no subcutaneous fat. Being relatively avascular it is liable to that class of affections in the wide category of "rheumatic." The well-known painful heel of gonorrhœa probably comes into this category, as does that due to dead and infected teeth.[1] When gout was prevalent the heel was not an infrequent seat for the development of tophi. If the focus of infection is discoverable its removal will result in a cure. The delicate skin on the back of the heel is liable to ulceration as the result of ill-fitting footwear, especially shoes. The skin is relatively fixed, and there is no subcutaneous fat to act as a cushion. The ulcers heal with difficulty unless the cause is removed.

The painful heel I wish to describe is not uncommon among motorists. I have known of three cases; a local garage man tells me he has come across at least a dozen. The history is as follows: The patient drives a long distance, either over a rough road or over a busy one, necessitating frequent manipulation of the clutch or accelerator. The following morning he finds that he is unable to put the heel to the ground owing to the pain, which may even have awakened him. There is exquisite pain over the whole of the heel pad, and a particular point of tenderness at the site of attachment of the plantar fascia. There are probably two factors contributing to the trouble. First, the heel rests on the floor-board in an unusual position—that is, on its posterior aspect, a tender area. Secondly, the manipulation of the clutch and accelerator in cars with a low floor-board necessitates keeping the foot in a fully dorsiflexed position. These two positions in the presence of vibration are sufficient to stretch the fascia, always a painful process. Abstinence from driving for a day or two will usually bring about a cure. A prophylactic measure, and one in constant use among lorry drivers, is the fitting of a board covered with matting or soft material beneath the controls.

Bursa beneath the Tendo Achillis.—This is liable to inflammation from footwear, especially shoes in which there is incurving of the heel; it may result from a blow. Rest and change of footwear will usually bring about a cure.

The Os Calcis.—Exostoses are occasionally found in the region of the epiphyseal line and may cause pain, especially if there is any dropping of the arch of the foot. At times ossification proceeds into the plantar fascia and is visible as a spine or process directed anteriorly.[2] If flat-foot should develop there is a tendency for this spine to be directed downwards, so causing pain. Treatment of both these conditions is directed primarily to the flat-foot; only if symptoms persist after its cure should operative removal be undertaken. Tuberculosis affects the cancellous bone and usually ends in caseation and suppuration with sinuses; small sequestra may be extruded. Syphilis may cause a gummatous periostitis which is very painful, but since the improvement in the treatment in this disease, bony manifestations are becoming relatively rare.

London, W.1. A. P. Bertwistle, M.B., Ch.B., F.R.C.S.Ed.

[1] Bertwistle, A. P.: *The Dental Surgeon*, 1928, p. 597; *Clinical Journal*, 1929, p. 272.
[2] Bertwistle, A. P.: *Surgical Radiology*, 1929, p. 6.

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

UGANDA BRANCH.

Treatment of Ante-natal Syphilis.

At a meeting of the Uganda Branch on March 22nd, Dr. A. R. Cook, a C.M.S. medical missionary in Uganda, read a paper on the treatment of ante-natal syphilis in Baganda women.

Dr. Cook called attention to the problem of treating, with the means at their disposal, a very large number of cases of syphilis among the natives of the Uganda Protectorate. It was obvious that, merely from the financial side, methods which could be adopted conveniently for tens of cases among Europeans become impracticable when applied to hundreds of thousands. The five races—namely, the Baganda, Banyoro, Batoro, Banyankole, and Basoga—which formed the core of the native population were syphilized to an extraordinary degree, as had been recognized for many years. In 1907 the late Colonel Lambkin conducted an investigation, and, in the following year, a commission inaugurated an intensive ante-natal campaign, the first treatment centre being situated in Old Kampala; this station was subsequently removed to Mulago, and subsidiary country centres were started. The outbreak of war stopped the extension of treatment; on its resumption the problem had to be faced that the Baganda people had an extreme idiosyncrasy for mercury, and numerous deaths followed its intramuscular injection. In 1911 the original German salvarsan had been found to be very effective, and in many cases a single dose seemed all that was necessary. In 1921 it was estimated that 80 per cent. of the Baganda people had at one time or another suffered from syphilis; there were, therefore, a very large number of children with congenital syphilis. The native mother showed few signs of active disease, even while she was producing many abortions, stillborn infants, and congenitally affected children. The treatment of latent syphilis in pregnant women was therefore an urgent necessity in Uganda, and in the central institution (the Lady Coryndon Maternity Training School) and its twenty-two associated country maternity centres several thousand pregnant native women were being treated annually. The stock remedy employed was a mixture containing one forty-eighth part of a grain of mercury perchloride to the ounce of water, coloured by methylene blue; this was taken thrice daily throughout pregnancy. Dr. Cook claimed that this medicine, which had stood the clinical test of many years, was effective, cheap, readily taken by the natives, and without injurious after-effects. There were records of innumerable cases of women who, after a long series of miscarriages, bore healthy children for the first time after a course of this treatment, which was rapidly increasing in popularity; husbands often made a journey of many miles to obtain it for their wives, who were unable to walk the distance. This was clear evidence that the results were being widely recognized as highly satisfactory. The cost of the drug was negligible, and the patients were able to pay the expense; salivation was very rarely met with, and no other ill effects had to be considered.

Dr. Cook commented on the importance of the social life for these women which attendance at the treatment centres fostered. In the comparatively few cases where the pregnant mother showed active signs of syphilis intramuscular injections of salvarsan substitutes were combined with mercurial treatment, only one, or at the most two, being necessary. Arsenobenzol treatment was impracticable in Uganda, since the cost was prohibitive. In the case of infants suffering from congenital syphilis salvarsan was used, but mercury remained the sheet anchor. Dr. Cook thought that the susceptibility of the native to the action of mercury was worth investigating. He believed that the question was largely bound up with the almost universal immunity shown by the adult native to malarial poisoning after many attacks. The idiosyncrasy to mercury seemed to vary in different tribes, and infants could take relatively much larger doses than adults; the renal excretory capacity was possibly a factor to be studied in this connexion.

Reports of Societies.

ORAL SEPSIS AND GENERAL DISEASE.

IN the Section of Odontology of the Royal Society of Medicine, on October 29th, the incoming president, Mr. J. M. ACKLAND of Exeter, delivered his address from the chair, taking the subject of oral sepsis in relation to general disease.

After a reference to oral sepsis as the principal septic infection in medicine, and oral antisepsis as one of the most important and simple means of prevention of groups of maladies affecting almost every system of the body, Mr. Ackland discussed the commonest of all the groups of diseases arising from oral sepsis—namely, chronic rheumatism, arthritis, and neuritis. He believed that in cases of chronic rheumatism, where obvious foci of infection were present—for example, septic teeth—more harm than good must result from the use of vaccines, for these could not raise the immunity when such septic foci existed. Certain diseases, especially those leading to chronic inflammation of fibrous tissues and serous membranes, were more often associated with the sepsis connected with dead teeth than with a suppurating periodontitis. The type of streptococcus found in these cases—of neuritis, for example—was not the long-chained *S. pyogenes*, which was the streptococcus of acute suppuration, but *S. salivarius*, a short-chained variety, held up at the very root of the dead tooth; the pathological process going on there and leading to sclerosis was precisely similar to that which was taking place in the muscular fasciae and the sheaths of the nerve trunks. These cases of injury to health caused by dead teeth were very numerous, possibly more so than those of pyorrhoea alone; although it was a remarkable fact that many cases of pyorrhoea occurred in patients with absolutely sound teeth, there were necessarily many others where the two diseases coexisted. Dealing with anaemia and its association with oral sepsis, Mr. Ackland pointed out that there were two forms of severe anaemia: the haemolytic disease (idiopathic or pernicious anaemia), and a non-haemolytic or septic anaemia; the cause in no fewer than nine-tenths of these cases was pyorrhoea. Septic anaemia might exist alone, but far more frequently it complicated other anaemias in which similar conditions of oral sepsis were present; herein lay part of the great importance of oral sepsis in pernicious anaemia, which Dr. William Hunter had preferred to call "glossitic" anaemia, since soreness of the tongue was one of its earliest and chief diagnostic features. Another effect of oral sepsis to be borne in mind was in traumatic lesions, the setting up, for example, of a chronic synovitis after an injury to the knee; complete recovery followed the removal of the dental sepsis. Again, oral sepsis might penetrate the orifices of the parotid and submaxillary glands, and set up a chronic inflammation in their ducts and substance, though acute septic infection, which used to be common in the parotid and was often fatal, had now become rare, because one of the duties of the nurse attending exhausted medical and surgical patients was to keep the mouth as clean as possible. Another condition was Vincent's angina; no patient who had been under treatment for this affection should be discharged as cured until swabs from around the teeth were free from the fusiform bacillus which was regarded as the cause.

Septic conditions of the mouth favoured the occurrence of tuberculous infection by lowering the vitality and power of resistance. In the open-air treatment of phthisis too much stress could never be laid on the need for the mouth being in a healthy aseptic state. The human mouth was a perfect breeding ground for pathogenic organisms; it provided the conditions of temperature, moisture, and nutrient material, and although Koch's bacillus, apart from its presence in sputum from the lungs, was seldom found, the bacterial flora of the mouth contained pathogenic as well as non-pathogenic organisms. Mr. Ackland commented on the serious effect of oral sepsis in children, including its influence in retarding growth, in causing gastro-intestinal disorder, and in serving as a powerful predisposing factor in tuberculous infection. He mentioned a number of other troubles, such as middle-ear disease, septic bronchitis, and skin affections, which might be due to or influenced by oral sepsis. Dr. William Hunter had been a great pioneer in pointing out that oral sepsis and the multiple ill effects which it produced were facts of the first magnitude in medicine.

AVERTIN ANAESTHESIA.

A DISCUSSION on avertin anaesthesia was opened by Dr. JOSEPH BLOMFIELD in the Section of Anaesthetics of the Royal Society of Medicine, on November 1st, with Dr. ASHLEY DALY in the chair.

Dr. Blomfield said that avertin, a tribromethylalcohol, was a white crystalline substance soluble only with difficulty in water. For some time after it was introduced into practice it could be obtained only in the powdered form, but later the makers produced a standardized solution—fluid avertin—to which, before use, distilled water was added; the strength of the solution should not exceed 2.5 to 3 per cent. The dosage was governed roughly by body weight; 0.1 gram per kilogram (or about two-thirds of a gram per stone) was commonly employed. The technique of injection was very simple. From half to three-quarters of an hour before operation time the solution was introduced slowly into the rectum through an india-rubber tube, which should be passed up at least 4 inches. It was desirable that the anaesthetist should be present when the solution was run in, because the reaction of different persons varied. In one case apparently a perfectly safe dose was administered to a man aged 25, supplemented by gas and oxygen, since the avertin alone proved to be not quite sufficient for the operation; he failed to eliminate the avertin, and died eight hours afterwards. In his own experience the speaker had had nothing comparable with that, and he believed that there must have been, somewhere, an error of technique. In quite the early stages of the use of avertin, however, he realized that it was a particularly potent drug, and one to be employed with great care. Generally the induction of unconsciousness was extremely satisfactory; the rectal injection of avertin was as pleasant a way of inducing narcosis as could be found, and no excitement or evidence of discomfort was apparent. The respiration generally became somewhat depressed; it was rather shallower and slower, not unlike the respiration in sleep, except that there was a slight diminution of colour in the face and a very easy development of stertor. The blood pressure dropped by about 10 to 15 mm. Hg. The pupils were almost always quite small, and the eyes were stationary. The lecturer had found that in only about a quarter of his own cases did a satisfactory anaesthesia for operation follow the use of avertin only. Much depended on the character of the patient and of the operation. The class of case in which avertin had given most satisfaction was carcinoma of the oesophagus in elderly people who needed a gastrostomy; no other anaesthetic had been required. Cases of exophthalmic goitre were also suitable, and persons who had had a difficult experience previously with other anaesthetics. The average period of unconsciousness was from two to four hours, but the narcosis was not nearly so deep as that due to paraldehyde. He had not hesitated to use avertin in cases of operation on the tonsils where there was blood in the neighbourhood of the air passages. Dr. Blomfield concluded by expressing the view that, as a complete anaesthetic *per se*, avertin could not be relied on with any certainty, but as an introduction to anaesthesia it presented many advantages, and might be considered for certain types of patients the best agent available for securing a quiet advent of unconsciousness.

Sir FRANCIS SHIPWAY spoke from experience of the use of avertin in 106 cases at Guy's Hospital; in the forty-five earlier cases solid avertin was used, and fluid avertin in the remainder. For children he preferred the 3 per cent. to the 2½ per cent. solution; the disadvantage of the latter was the increased quantity of fluid which had to be taken. The patients were given an ordinary enema the night

before operation, if this was to take place in the morning. The patients included sixty-six males, of ages between 12 and 72, and forty females, of ages between 15 and 66; seventeen of the patients were over the age of 55. Estimation of the correct dosage was extremely difficult; the body weight was an unscientific and uncertain guide, because much depended upon the individual temperament and condition. The best that could be said was that certain types of patient, such as the alcoholic or the highly strung, reacted less readily than the placid. The doses averaged from 0.08 to 0.15 gram per kilogram of body weight, but his most recent patients had not had a higher dose than 0.10 gram. The maximum quantity of avertin given was 11 grams. A German writer had stated that in no case should more than 10 grams be given, but the speaker thought that a heavy man, weighing 15 or 16 stone, might have his full amount; as age increased the dose could be diminished. Sir Francis had not himself endeavoured to see more than a small percentage of the injections; up to the present there had been no cause for anxiety even when the full dose was given. He had used avertin in seventeen abdominal operations, also in cases involving the removal of the breast, and in operations on the nose and throat. In twenty of the cases avertin had been sufficient in itself; these included operations for haemorrhoids, also an operation for anal fistula in a man with active pulmonary tuberculosis. The combination of avertin with gas and oxygen seemed to be the ideal. The induction of unconsciousness was very easy; sometimes consciousness was lost while the patient was in the middle of a sentence. He had never had occasion in these cases to resort to a respiratory stimulant. The blood pressure fell generally about 10 mm. Hg, the maximum observed being 30 mm. He had noticed in five cases, either with avertin alone, or with avertin followed by gas and oxygen, the development of rapid twitchings with rigidity of the jaws and the arms; he had not encountered in any case irritation of the bowel. The period of unconsciousness following a small dose was about one and a half hours, and the patient afterwards went into a refreshing sleep. His conclusion was that avertin, if used with care at the dose recommended by Eichholtz, was a safe and valuable agent of induction, especially in highly nervous and overwrought subjects and in those who had suffered previously from other anaesthetics. He thought it was contraindicated in subjects suffering from renal disease.

Dr. JAMES YOUNG (Edinburgh) said that he had employed avertin in 154 unselected cases in his hospital and private gynaecological practice. This experience had led him and his anaesthetist, Dr. James Robertson, to regard it as possessing considerable value as a routine agent. It was superior to ordinary methods in the ease and comfort of the induction, the freedom from post-operative vomiting, and the freedom from the common post-operative respiratory complications. The absence of the straining incidental to post-operative sickness made avertin specially valuable in cases where the abdomen had to be opened, or where plastic operations were carried out on the pelvic floor. In the case of operations on the pelvic floor he and his colleague advised withdrawing the solution from the lower bowel before the operation was started. This was easily done by introducing a catheter after the legs were slung up on the lithotomy supports, and it obviated the soiling of the operation area by the fluid which was apt to be forced from the bowel when the posterior retracting speculum was introduced into the vagina. The withdrawal of the solution did not interfere with the anaesthesia. Dr. Young had found avertin of special value in hospital work in that a great saving of the time between operations was obtained. In his experience the recognized dangers of anaesthesia had not obtruded themselves; obstruction to the air passages by the relaxation of the jaw and tongue was easily overcome by the introduction of an artificial airway. In one case there had been considerable depression of the respiratory centre, which was at once removed by the use of carbon dioxide. The respiratory troubles had been less since the preoperative dose of morphine was restricted to one-eighth of a grain. In several cases a marked fall in blood pressure had been found, in one case by 50 points. In the series of 154 cases there had been two deaths: one after a hysterectomy for acute prolapse in a case of submucous fibroid of the uterus, and the other in a long-standing case of pelvic infection; in neither case could the death be attributed to the avertin.

Mr. H. E. G. BOYLE suggested that, if induction was so quiet and smooth, avertin might be used, not as an anaesthetic, but as a form of pre-medication to the ordinary anaesthetic. Dr. F. P. DE CAUX said that since he had been using avertin as pre-medication only he had found it of considerable value, especially in very nervous patients. He administered from 50 to 80 milligrams per kilogram of body weight, the higher amount for the very nervous patients, the lower being quite enough for the ordinary patient. Dr. C. F. HADFIELD commented on the excellent way in which avertin had been introduced into practice in this country. It had been realized that avertin was dangerous if not controlled, and, therefore, before it was placed on the market, a quantity was made available for a limited number of clinical trials; until the Anaesthetics Committee, of which Dr. Blomfield had been president, had reported, the manufacturers refused to permit the unauthorized use of the substance. This was a very good and proper method of introducing a new preparation which was of the nature of a dangerous drug.

Dr. Z. MENNELL said that this was a type of anaesthesia which, for a normal person, he disliked. In patients, after the administration of avertin, the respiration was undoubtedly depressed, and there was a certain amount of cyanosis. It seemed necessary to attend to the airway just as with any other anaesthetic. He was strongly of the opinion that the induction of avertin anaesthesia should not be left in the hands of nurses. Certainly its use as a routine would be a misfake, and the cases for which it was not suitable had still to be determined. Mr. GEOFFREY KEYNES had hoped that with the advent of avertin anaesthesia ordinary inhalation anaesthesia might be eliminated in abdominal operations. He had been particularly interested in the use of avertin in patients with exophthalmic goitre, where he had been in the habit of using a local anaesthetic. Very many patients were extremely apprehensive and went through a severe ordeal, although they usually stood it well. If their experience could be ameliorated by the giving of avertin it would be worth while. Mr. IVOR M. LEWIS, speaking from an experience of 28 cases, said that the patients on whom avertin had most effect were of the subthyroid type; those on whom it had least effect were of the hyperthyroid type.

Dr. BLOMFIELD, replying to a question as to the use of morphine or omnopon as a preliminary, said that he thought in most cases this could be dispensed with. Except, perhaps, in the alcoholic or some particularly resistant type of patient, a start could be made with 0.1 gram per kilogram, without any preliminary at all. Sir FRANCIS SHIPWAY, speaking also with regard to the preliminary use of morphine or omnopon, said that he had always been rather frightened of large doses of either drug. He believed avertin to be a safe anaesthetic for use with care and in selected cases. It was contraindicated in some cases—for example, when there was likely to be a rapid fall of blood pressure or much loss of blood.

AT a meeting of the Royal Society, on November 7th, Sir WILLIAM HARDY communicated a study by Dr. E. C. Smith on the coagulation of muscle plasma, including an account of the preparation and properties of a liquid expressate of muscle, representing as nearly as possible the living plasma. It was shown that gelation occurred in such an expressate only when a trace of a neutral salt was added to the finely divided muscle in a frozen state. Experiments indicated that such gelation and the hardening of the muscle in rigor mortis were one and the same phenomenon, change in the hydrogen-ion concentration being irrelevant to the process of gelation. Professor A. V. HILL, F.R.S., and Mr. P. KUPALOV contributed papers relating to the anaerobic survival in muscle, and the anaerobic and aerobic activity in isolated muscle. Professor HILL also reported observations on Olympic athletes made by Mr. C. H. Best and Miss Ruth Partridge.

Reviews.

"RADIUM PRACTICE, 1929."

During recent months post-graduate classes in the principles and practice of radium therapy have been given in London, both at St. Bartholomew's and at the Westminster Hospital. The teachers at neither institution pretended that they were making more than a statement for the moment of the position which they have reached. Finality and standardization are still far distant goals, but nevertheless the importance of the volume just issued by the staff of the Westminster Hospital, as volume xxi of their *Reports*,[1] can scarcely be exaggerated. In a book of 258 pages is contained an account by experts of every aspect of radium therapy, both theoretical and practical. It is wisely given the temporizing title of *Radium Practice, 1929*. The keynote of the writing is honesty of purpose—to give statement without overstatement, and to fill the learner with a wholesome sense of the difficulties and uncertainties which beset the path of the radium worker.

The members of the class at the Westminster Hospital were given a varied fare of twenty-six courses; the *hors-d'œuvre* introduced them to the general physical, chemical, and biological sides of the problem; the intermediate courses brought them down to the hard facts of the practical application of radium to the patients; the dessert tickled their appetites with an account of the possibilities of "teletherapy," which is the polite name for the use of the radium "bomb." The volume is edited by Mr. E. Rock Carling, who contributes an introductory lecture, an account of the treatment of sarcoma, and a short lecture on the radium "bomb." Even among so many matters of topical interest, the "bomb" will perhaps take first place, in view of the recent placing of 4 grams by the Radium Commissioners in the hands of the Westminster Hospital authorities. Mr. Rock Carling forecasts the possible applications of the method, and these include all the deeper sites of primary and secondary growth which cannot be reached by ordinary surface applications or by interstitial irradiation. Experience is at present too limited to allow of confident predictions, but warning is given that the metabolic disturbances, which often accompany any form of radium treatment, are at their maximum in teletherapy with the bomb. Effective irradiation of metastases in the liver is indeed impossible, owing to the effect of the rays on the normal cells of that organ. Mr. Rock Carling suggests that the administration of intravenous glucose may make possible a longer irradiation of the liver. This reference to the biochemical effects of radium immediately suggests reference to the chapter on this subject by Mr. F. D. M. Hocking. Here the thesis of a "precancerous toxaemia" is developed, and the possibility of destroying cancer cells by a temporary increase of the causative toxaemia. The suggestion is made that radium acts by the production of this toxin, and so a complete theoretical basis is found for the use of radium in curing cancer. Other arguments of a highly theoretical character are introduced, and these combine to make a stimulating chapter—which may have little relation to the truth, but is none the less valuable for that.

The important question of radio-sensitivity is discussed by Mr. Peter Kerley, who has gathered together most of the relevant facts. He emphasizes the importance of the metabolic rate of the cell as being the index of radio-sensitivity. Again, however, the question is so highly theoretical that little positive help emerges for the present. Mr. Kerley, in conclusion, points out that when we have found the substance which will increase the radio-sensitivity of cancer we shall have found the cure for cancer without radium. The most practical chapters on the actual methods of treatment are written by acknowledged experts, such as Mr. Stanford Cade and Mr. Arthur Evans, who have already recorded their methods elsewhere. Mr. Tudor Edwards describes the methods of attacking carcinoma of the oesophagus and other intrathoracic growths; Mr. Chubb deals with carcinoma of the larynx; Mr. Mullally with growths of the bladder and prostate, regions where the results have hitherto been very disappointing. Mr. Mullally is not yet able to record any striking advances. Lastly, it is clear that the Westminster Hospital team owe much to their technical adviser in the department of physics, Mr. Francis Rock Carling, who contributes a chapter on the applied physics of radium.

We look forward to future issues of similar volumes. What may not lie hidden under the title "Radium Practice, 1935"?

[1] *Westminster Hospital Reports*, Vol. XXI: *Radium Practice, 1929*. Edited by E. Rock Carling. London: H. K. Lewis and Co., Ltd. 1929. (Demy 8vo, pp. viii + 258; 12 figures. 7s. 6d. net.)

CRITERIA FOR THE CLASSIFICATION AND DIAGNOSIS OF HEART DISEASE.

In their campaign against heart disease the Heart Committee of the New York Heart Association published in 1923 a nomenclature for use in its various clinics. Feeling the need for uniform criteria for using the nomenclature, a committee, consisting of Drs. J. H. Bainton, R. L. Levy, W. C. Munly, and H. E. B. Pardee, was detailed to prepare such criteria, and this book[2] is the result of their efforts.

A complete diagnosis is intended to include a statement, not only of structural changes in the heart, but also concerning the cause of such changes, the disturbance of physiological function, and the state of the functional capacity of the organ. Four tables, therefore, contain a list of: (A) etiological factors; (B) anatomic changes; (C) physiological defects; (D) functional states; and a diagnosis would have a label from each of these. Other cases coming under observation are grouped under possible heart disease, or potential heart disease, with a label for Table A. Thus, for the classification of a case, one might have: (A) rheumatic (inactive); (B) mitral stenosis; (C) auricular fibrillation; (D) class 2*b* (that is, activity greatly limited). The authors then proceed in a systematic manner to deal in some detail with the criteria required in using the various terms supplied in the nomenclature, so as to ensure uniformity of diagnosis. Thus, in the chapter dealing with etiological criteria, there is a brief statement as to the various rheumatic manifestations; those that would justify the term rheumatic being used in the diagnosis are noted, and similarly with regard to syphilis, goitre, etc. Likewise, in the chapter on anatomical criteria are included notes on the more important physical signs or other tests that may be required to determine the cardiac lesions, while changes in rhythm are discussed under the physiological criteria. The functional classification follows the lines of the Heart Association. Class 1 are those with definite lesions but able to carry on ordinary physical activity without discomfort. Class 2 includes those unable to carry on without discomfort, and is divided into those in whom activity is slightly or greatly limited. Class 3 includes those with heart failure at rest.

As has been indicated, the book has been specially prepared to ensure accuracy in a big statistical inquiry, and we think it should serve a very useful purpose.

URINARY CALCULUS.

Stone and Calculous Disease of the Urinary Organs,[3] by J. Swift Joly, is a fascinating book which probably will become a classic in this department of medicine. The subject is very fully dealt with. It is introduced by a brief historical sketch, giving in outline the history of urinary lithiasis from the dawn of civilization down to the lithotomists of recent centuries. In the succeeding chapter the chemistry and physics of the composition and formation of calculi are discussed in a lucid and attractive manner, which renders it easy for the ordinary medical man to appreciate these difficult questions. Thereafter the general characteristics of calculi are considered and the etiology of stone discussed. The influence of diet, climate,

[2] *Criteria for the Classification and Diagnosis of Heart Disease*. By J. H. Bainton, M.D., R. L. Levy, M.D., W. C. Munly, M.D., *M.C.*, and H. E. B. Pardee, M.D. New York: Paul B. Hoeber, Inc. (*Cr.* 8vo, pp. xi × 91. 1.50 dollars net.)

[3] *Stone and Calculous Disease of the Urinary Organs*. By J. Swift Joly, M.D.Dub., L.R.C.S.*Eng*. London: W. Heinemann (Medical Books) Ltd. 1929. (7½ × 9¾, pp. xviii + 568; 189 figures, 4 plates. 45s. net.)

and infection are debated, and exact conclusions come to on the evidence produced.

The remainder of the volume, amounting to nearly 450 pages, is devoted to the clinical features of stone. The subject is considered regionally, beginning with renal calculus, the pathology being first of all considered, and afterwards the symptoms, differential diagnosis, and treatment. The use of radiography in renal lithiasis is very well illustrated by prints made from radiograms and outline drawings of these made from tracings. The medical treatment of renal calculus is dealt with from the standpoint of its prevention and the facilitation of its expulsion when once formed. The influence of diet on the production of stone is discussed in a very clear and rational manner. The various forms of operative treatment are fully described and well illustrated, and the accidents and complications occurring during operation and during convalescence are dealt with at length. Ureteral calculi are considered in a similar manner, but here a fuller account of the differential diagnosis might with advantage have been introduced. An entire chapter is devoted to calculous anuria, and this is one of the best features of the book. Lastly, vesical, prostatic, and urethral calculi are considered.

This work will not only prove invaluable to the specialist in urology, but it can also be recommended to any medical man who wishes to possess a book that he will read with ease and pleasure and learn much from. Each subject is fully debated, and when all the evidence available has been brought forward the author states his conclusions. His presentation is so clear and attractive that many readers will form the impression that if Mr. Swift Joly had embraced the law he would have been no less eminent as a pleader in the High Courts of Justice.

TREATMENT OF TUBERCULOSIS WITH SALTS OF GOLD.

DEALING with the treatment of tuberculosis by salts of the metals cerium, nickel, cobalt, and gold, Dr. J. V. LAMBEA, in his book on experimental tuberculosis,[4] draws general conclusions that are unfavourable to such methods. His experiments were performed on experimental animals of many varieties, chiefly rabbits and dogs, with the employment of normal animals as controls in addition to the use of animals infected with tuberculosis. In the case of cerium trichloride, the drug appeared to accelerate a fatal termination, and not to assist in the healing of tuberculous processes. With *bichloride of nickel*—a very poisonous substance causing diarrhoea, vomiting, and multiple haemorrhages in the control experimental animals—no effect was produced on the tuberculous lesions, and the infected animals died with lesions attributable to nickel poisoning in addition to those due to the tuberculosis. With binitrate of cobalt, a less toxic substance, the results were equally unsatisfactory; with cobalt, as with nickel, tuberculous animals were found to be less tolerant than normal animals, and the lesions due to these metallic poisons were found to be most marked in the neighbourhood of the tuberculous foci. With iodine, dissolved with potassium iodide in water and administered intravenously to dogs, Dr. Lambea had better results to record, but the treatment was a failure so far as the cure of experimental tuberculosis was concerned.

Nearly two-thirds of the book are given to the treatment of tuberculosis with compounds of gold, particularly the double chloride of gold and sodium, crysolgan, crysalbine, and sanocrysin. The author produces evidence for believing that all three compounds are violently toxic in the animal organism, producing haemorrhagic inflammatory lesions in many of the organs, including the lungs. He does not think it probable that such gold components are capable of destroying the tubercle bacilli in the infected tissues, whether in vitro or in vivo, so far as his own experiments have gone. A great many pages are devoted to the discussion of Moellgaard's arguments and findings in favour of the sanocrysin treatment of tuberculosis, but few of these are acceptable to Dr. Lambea, who produces a quantity of arguments based on his experimental researches to prove the dangers apparently inevitable when these gold compounds are used. The various reactions and the shock produced by sanocrysin in tuberculous patients, attributed by Moellgaard to the liberation of products of destruction of the tubercle bacilli, are referred by Dr. Lambea to simple metallic poisoning by the drug itself; he adds that sanocrysin has no specific action of any kind in tuberculosis, whether on the bacilli themselves or on the tuberculous foci, and that the organic lesions it produces are almost identical with those produced by salts of nickel or cobalt. So far as his own observations on patients treated with sanocrysin go, he concludes that many of them would have done better without the treatment, while others were improved by it.

Dr. Lambea's book is clearly written and full of facts and observations recorded in the course of his numerous animal experiments; in addition, it is illustrated by a number of photographic reproductions and coloured photomicrographs. Lack of space prevents the mention of any but a few of his clinical and pathological records; his book should be consulted by all medical men who have to do with the treatment of tuberculosis with salts of gold.

[4] *Tuberculosis Experimental.* Por Dr. José Valdés Lambea. Madrid: J. Morata. (5½ × 8½, pp. 230; 43 figures, 11 plates.)

MASTERS OF PHYSIC.

IN 1911 *The Corner of Harley Street* appeared anonymously and, like the unauthorized editions of Sir Thomas Browne's *Religio Medici*, it aroused much admiring curiosity; in the second edition the authorship was admitted by Dr. H. H. BASHFORD, who has now provided the increasing number of those interested in medical history with essays on eleven great figures in medicine, under the title of *The Harley Street Calendar*.[5] This might suggest an account of those who have had this professional address—an attractive subject once brought before the Abernethian Society of St. Bartholomew's Hospital by Sir Archibald Garrod—and a captious critic might object that it is unkind to recall the *Newgate Calendar, or Malefactor's Bloody Register* (1775), and that none of these fathers of medicine actually dwelt in a street so famous that it here and now appears to stand for the whole art and science of physic. In these charmingly written sketches the progress of medicine in Britain is outlined by accounts of those who are specially associated with its milestones. Some of them, such as Lister, Edward Jenner, John Hunter, and Harvey, have influenced the whole world, whereas the first three names, Gilbert the Englishman, John of Gaddesden, and Thomas Linacre, are mainly of historical interest. The subject of the last essay is the life-pilgrimage of William Osler, in whose presence "neither envy nor malice could live," whose "textbook was the first to embrace and reissue in concise form the enormous changes wrought in medicine by the discovery of microbic infection," and of whom it is said that he had shown "more than any man of his age, perhaps, that the life of the spirit has no borders." The contrasting features shown by Harvey, who was one of the few who "conquered envy," and Thomas Sydenham, the prince of practical physicians, are set out, and the activities of Hans Sloane (like John Fothergill, a seventh son) as a botanist, a court physician, founder of the British Museum, and squire of Chelsea are pleasantly told. Dr. Bashford's essays are often skilfully grouped; thus that on James Y. Simpson, which summarizes the history of anaesthesia, immediately precedes that on Lister, and, like the others, is a masterly sketch of a great personality.

DENTAL INFECTION AND GENERAL DISEASE.

IN a small publication entitled *Dental Infection and Systemic Disease*[6] Dr. RUSSELL L. HADEN records his researches in dental infection. The extensive character of his work, both clinical and experimental, and the moderation with which the author expresses his views, will ensure a careful examination of the evidence here brought

[5] *The Harley Street Calendar.* By H. H. Bashford. London: Constable and Co., Ltd. 1929. (Cr. 8vo, pp. 272. 7s. 6d. net.)

[6] *Dental Infection and Systemic Disease.* By Russell L. Haden, M.D. Philadelphia: Lea and Febiger. (5½ × 8½, pp. x + 165; 63 figures. With a foreword by Dr. Edward Rosenow. 2.25 dollars net.)

forward by all interested in the subject. There is no doubt in his mind of the danger of dental infection, and in enforcing his views the author makes frequent use of statistics—and as he deals in hundreds or thousands of records he is fully justified in doing so—and always figures speak loudly against the tooth. Pulpless teeth with negative radiographic findings were found to show almost as high a percentage of bacterial infection as pulpless teeth with positive radiographic findings. The author supports Rosenow in his theory of elective localization, but admits the coexistence of other lesions in the experimental animal. In the course of his summing-up Dr. Haden says, "There is no convincing proof that periapical infection can be cured by root-canal treatment. Areas of rarefied bone at the apices of teeth resulting from infection may partly or completely fill in following treatment with different sterilizing agents. This does not prove that such areas have become bacteria-free, since it is well known that bone regeneration often takes place in the presence of active infection. No satisfactory bacteriological studies have been made after treatment of such areas to prove they are really sterile. Few competent dental clinicians believe that any attempt should be made to treat such teeth." This is a reasoned statement and challenge, and is characteristic of the book. In the author's hands glucose brain agar and glucose brain broth have proved a valuable means of providing a graduated oxygen tension.

The book is a valuable contribution to medical and dental literature, and the author has done a real service to medical history in rescuing from oblivion the names of those who, a hundred years ago, first drew attention to dental infection.

NOTES ON BOOKS.

THE fourth edition of *The Nervous Child*,[7] by Dr. HECTOR CHARLES CAMERON, of which the first appeared in 1919 and the third in 1924, has been enriched by the addition of a chapter on the underlying disturbances of metabolism in the nervous child. In this the author emphasizes the importance of study of the biochemical changes occurring in nervous children, and particularly an examination of the blood sugar curve, and recommends appropriate diets in children suffering from acidosis, for whom glucose in the form of a drink flavoured with fruit juice and the daily prescription of a small dose of alkali are specially recommended.

The title of the booklet *What You Should Know About Heart Disease*[8] indicates that it is intended for the lay reader. In it Dr. HAROLD PARDEE gives an elementary, but at the same time reasoned, description of the function of the heart, the diseases which affect it, the lesions produced, and their effect on function. A large portion is taken up with various aspects of treatment. Medicines are discussed, not as regards dosage, but as to their mode of action. To a limited number of patients with heart disease the book may be of value, but one doubts the wisdom of a familiarity with such terms as heart-block, dropped beats, and auricular fibrillation.

The fifth edition has now been published of *Physiology of the Central Nervous System and Special Senses*,[9] by N. J. VAZIFDAR, of which the third edition was noticed in our issue of June 26th, 1920. In revising this compilation the author has not departed from the original scope and style of the book, and, accordingly, only such new matter has been added as is likely to prove useful to students preparing for their intermediate M.B. examination.

We have received eleven more issues of the German series of booklets[10] intended for the general practitioner, to which we drew attention last year (*Journal*, October 27th, 1928, p. 752). The subjects and authors are as follows: No. 7, treatment of dislocations, by Professor Carl Ewald; No. 8, treatment of fracture by simple methods, by the same author; No. 9, jaundice, by Dr. Alfred Luger; No. 10, disturbances in the frequency and rhythm of the pulse, by Professor Edmund Maliwa; No. 11, menstruation and its disturbances, by Professor Josef Novak; No. 12, intestinal diseases, by Dr. Walter Zweig; No. 13, infant feeding, by Professor August Reuss; No. 14, comatose conditions, by Dr. Viktor Kollert; No. 15, diathermy, hot air, and the mercury lamp, by Dr. Paul Liebesny; No. 16, introduction to orthopaedics, by Dr. Guido Engelmann; and No. 17, disturbance of speech and voice, by Professor Emil Fröschels. The present instalment, like the preceding issues in the series, is characterized by the clear, concise, and practical manner with which each subject is treated. The booklet on intestinal diseases, which may be taken as an example, contains introductory matter dealing with the anatomy, physiology, and pathology of the intestine, as well as the various methods of examination of the patient, followed by a consideration of intestinal affections, with their dietetic, pharmaceutical, and physical treatment.

Condensation is a difficult art, and is usually achieved at the expense of clarity. Miss LOUISE HENDERSON, of the central branch of the Y.W.C.A. of New York, has tried to condense into a small textbook all the knowledge required by trained attendants for use in practical home nursing. The result is quite a useful little book, *Practical Nursing*,[11] with several illustrations of the way to move and arrange patients in bed, and of methods of bandaging, which help to elucidate the text.

Of the making of books on crime and criminals there is no end. Dr. A. SALUSBURY MACNALTY has converted a dozen *causes célèbres* into more or less veracious stories, under the title *A Book of Crimes*.[12] In his preface he admits that the poetic justice awarded in his account of the case to the Abbé de Ganges is unauthenticated, and that this monster of iniquity is said to have died a natural death in Holland soon after his marriage. However, the stories make agreeable reading wherewith to while away an hour or two, and the poisoning cases have an element of medical interest.

Within the compass of some ninety pages Mr. J. S. BAINBRIDGE has written a most attractive and useful little book[13]—mainly intended for the housewife—on the commoner pests encountered in the household and simple methods for their destruction. The pests—insects, mites, rodents, and moulds—are treated in alphabetical order in separate chapters. Each chapter is short, illustrated, and easily readable, and is mostly devoted to a consideration of the life-history of the particular pest and methods to be adopted for its control. The information is simply but accurately given, and the methods recommended are cheap and safe; so far as possible they are illustrated by line drawings of a very helpful character. The book is sure to find a wide and appreciative public, and can be safely placed in the hands of laymen, where it should do much to help to combat some of the minor horrors of the household.

[7] *The Nervous Child.* By Hector Charles Cameron, M.D.Cantab., F.R.C.P.Lond. Fourth edition. Oxford Medical Publications. London: Milford, Oxford University Press. 1929. (Cr. 8vo, pp. viii + 249; 8 plates. 7s. 6d. net.)

[8] *What You Should Know About Heart Disease.* By Harold E. B. Pardee, M.D. Philadelphia: Lea and Febiger. 1929. (5 × 7½, pp. ix + 120. 1.50 dollars net.)

[9] *Physiology of the Central Nervous System and Special Senses.* By N. J. Vazifdar, L.M. and S., F.C.S., F.C.P.S. Fifth edition. Calcutta: Thacker, Spink and Co. 1929. (Demy 8vo, pp. 301 + vii; 30 figures.)

[10] *Bücher der Ärztlichen Praxis.* Vienna and Berlin: J. Springer. 1928-29. (5½ × 8½: No. 7, pp. 38, 16 figures, M.1.50; No. 8, pp. 98, 38 figures, M.2.80; No. 9, pp. 93, M.2.60; No. 10, pp. 76, 4 figures, M.2.60; No. 11, pp. 93, 6 figures, M.3; No. 12, pp. 157, M.4.60; No. 13, pp. 88, 8 figures, M.3; No. 14, pp. 46, M.1.60; No. 15, pp. 73, 30 figures, M.2.80; No. 16, pp. 80, 44 figures, M.3.40; No. 17, pp. 66, 16 figures, M.2.40.)

[11] *Practical Nursing.* By L[illegible] [illegible]ond edition, completely revised. New York: T[illegible] [illegible]ondon: Macmillan and Co., Ltd. 1929. (Cr. 8vo, [illegible] 8s. 6d. net.)

[12] *A Book of Crimes.* By A. Salusbury MacNalty. London: Elkin Matthews and Marrot, Ltd. 1929. (Demy 8vo, pp. viii + 328; illustrated. 12s. 6d. net.)

[13] *Home Pests and their Destruction.* By J. S. Bainbridge, M.Sc. London: W. Heinemann (Medical Books) Ltd. 1929. (Cr. 8vo, pp. ix + 94; 20 figures. 3s. 6d. net.)

PREPARATIONS AND APPLIANCES.

ANZYPAN.

"ANZYPAN" (H. R. Napp Limited) is a preparation for the oral administration of gastric and intestinal enzymes. The tablets have an external coating soluble in gastric juice; inside this is a layer of dried gastric ferments (pepsin, diastase); whilst the core is composed of a mixture of the intestinal ferments (gall, trypsin, lipase) covered with a coating that is soluble in alkaline medium in the intestine only. The construction of these tablets is very ingenious, and the makers report that clinical tests show that cases of dyspepsia due to enzyme deficiency are benefited by this preparation.

CITRAGAN.

"Citragan" is a silver compound elaborated in Denmark for the local treatment of gonorrhoea. The compound is silver-sodium citrate, and the special advantages claimed for it are that it yields a considerable content of ionized silver, and yet does not produce irritation of the urethral mucous membrane. Very favourable results are reported from clinical trials. The product is prepared for urethral injection in liquid and in bougie form. The liquid contains 0.27 mg. silver per c.cm., whilst the bougies contain 1.27 mg. silver per c.cm. Messrs. Oppenheimer, Son and Co., Ltd., are the sole distributing agents for the British Empire.

THE BIOCHEMISTRY OF NERVE TISSUE.

A Survey of the Position.

BY

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ASSISTANT TO THE DOWNING PROFESSOR OF MEDICINE AND DEMONSTRATOR OF PHARMACOLOGY IN THE UNIVERSITY OF CAMBRIDGE.

In a recent article[1] Dr. W. F. Menzies spoke of the need for a biochemical approach to some of the problems of mental disease; it was evident that he had in mind a real analysis of the function of nerve tissue, on biochemical lines, and not a mere search for "tests" of a chemical nature, that might prove of assistance to diagnosis. An understanding of the chemical dynamics involved in the function of the nervous system would be of very obvious assistance, not only to the psychiatrist, but also to the pharmacologist; indeed, the latter might turn to useful account knowledge which was of too rudimentary a nature to be of very great use to the former.

An increasing amount of work on the biochemistry of nerve tissue is being done, and perhaps it is worth while to review briefly the present position. Such a review will make it clear that the subject is still in its infancy; and the feeling on the part of the public that the laboratory worker should "produce rabbits out of his hat," to which Dr. Menzies refers, and in which, perhaps, the clinician is at times tempted to share, may prove rather inhibitory to workers who are well aware that no immediate "practical" results are likely to crown their efforts. Nevertheless, until the preliminary spade work is accomplished, and some of the fundamental principles are laid bare, it is hardly to be expected that the more intricate phases of the problem can be dealt with successfully.

The problem that naturally first presents itself is that of conduction in the nerve fibre. Since the last century many workers have investigated the electrical changes that accompany nerve activity and their relationship to conduction. Work of this type forms the basis of the current theory of nerve conduction (Lillie[2]). The classical researches of Keith Lucas and of Adrian, to mention only workers in our own country, are almost too well known to require mention. The rapid development of electricity, and in particular of the thermionic valve, has given a great impetus to work of this kind. In America, Bishop, Erlanger, and Gasser have used a combination of a valve amplifier and a cathode ray oscillograph; Forbes has combined the amplifier and the string galvanometer; and in this country Adrian and Matthews have used valves and the capillary electrometer, and an oscillograph, respectively. By such means these workers have elaborated techniques which allow of observations of a delicacy and an accuracy hitherto quite unattainable. The importance of these researches from the point of view of the analysis of nervous activity cannot be overrated. Undoubtedly they represent one aspect of biochemical phenomena, just as surely as do the measurements of the chemist, but we have not yet the knowledge required to correlate them with those measurements.

From the more obviously chemical point of view, perhaps the most fundamental, though by no means the earliest, observation was that of Downing, Gerard, and Hill,[3] who showed that peripheral nerve gives out a minute but measurable amount of heat during rest, and that this heat is increased during stimulation. The heat associated with a single impulse in a frog's nerve at 15° is in the neighbourhood of one-millionth of a calorie per gram of nerve. Like active muscle, active nerve gives out heat in two stages—there is an "initial" and a "recovery" phase; but whereas, in the case of muscle, the ratio between the magnitudes of these two phases is about 1 to 1, in nerve it is about 1 to 9; moreover, in muscle the two phases can be separated, since the "recovery" phase is abolished in the absence of oxygen; but in the case of nerve no such separation is possible; in nitrogen both phases fail together. These facts indicate that the chemical events which underlie the evolution of heat must be different in nature in the case of the two tissues.

Several workers have investigated the gaseous metabolism of nerves. The earliest work was that of Tashiro,[4] who estimated the carbon dioxide given off by frog nerve, both during rest and activity. Schwiehi Niwe,[5] using Tashiro's method, showed that this evolution of CO_2 was diminished by cocaine. The accuracy of Tashiro's method has been seriously questioned, and later workers, Parker[6] and Adam,[7] have attacked the problem with better methods. They have confirmed the qualitative aspect of Tashiro's work, in that they also observe an evolution of CO_2 at rest, which is increased during stimulation, though they have shown that, qualitatively, his values were inaccurate.

Of very great interest is the work on the oxygen absorption of nerve tissue and its relation to the evolution of CO_2 and of heat. Gerard[8] observed the oxygen consumption of frog nerve, and found values which agreed very well with those previously obtained for heat production, on the assumption that, both during rest and activity, the source of energy was the oxidation of the ordinary food materials (carbohydrate, protein, or fat). Fenn's[9] values are in substantial agreement with those of Gerard, and the results of both workers have recently been confirmed, in the main, by Meyerhof.[10] These workers all employed the nerves of cold-blooded animals. Observations of mammalian (rabbit) nerves have, however, been carried out by Gerard[11] and Sherif.[12] The results of these two workers show close agreement. Sherif's observations cover both normal nerves and nerves which are exposed to the action of certain drugs.

Taken together, these observations establish the very fundamental point that in the nerve, no less than in tissues such as muscle, we have to do with energy-yielding processes which can be interpreted in the familiar terms of heat, energy, and chemical change, and which therefore can be attacked by the biochemist with hope of ultimate success.

It is natural to seek a clue to the nature of the foodstuffs oxidized by examining the respiratory quotient. Unfortunately, however, the data on this point are still inconclusive. The problem of making simultaneous accurate measurements of oxygen and carbon dioxide on a minute scale is beset with technical difficulties; in point of fact, there is not, as yet, complete agreement between the three workers (Gerard,[13] Fenn,[14] and Meyerhof[15]) on the question. All, however, agree that during activity there is a tendency for the respiratory quotient to rise to, or above, unity—a finding that would naturally be interpreted in the sense that, whatever foodstuffs may be used during rest, activity entails the burning of carbohydrate.

Attempts have been made to observe directly the materials oxidized. Hirschberg and Winterstein's[16] results seem to show that there is a diminution of carbohydrate, protein, and fat in frog nerve during both rest and activity.

Gerard and Meyerhof[17] investigated the formation of lactic acid by frog nerve. They used, for the most part, manometric methods, and concluded that there was a production of lactic acid during survival of the nerve in nitrogen, which was not increased by stimulation. They found reason to believe that carbohydrate furnished the source of this lactic acid production. In oxygen there was no evolution of lactic acid; on the other hand, they could find no unequivocal evidence of the removal of this substance, which, on analogy with the behaviour of muscle, would be expected to take place. Holmes and Gerard[18] have approached the same problem. They employed rabbit nerves, a course which complicated the immediate experimental procedure, since it entailed working at 37°, but which very greatly facilitated the chemical investigations, since adequate amount of tissue could be obtained—a very difficult problem when frog nerves are used. They verified the fact that nerve produced lactic acid when kept in nitrogen, and were able to show a corresponding fall of carbohydrate, to which glycogen and "free sugar" contributed about equally. They showed definitely that there was no production of lactic acid in oxygen, but that there was, on the other hand, a disappearance of carbohydrate. They do not assume that this carbohydrate is oxidized, though they point out that, if it were, it would account for about half of the observed oxygen utilization.

They were able to establish definitely that there is no oxidative removal of lactic acid, a point which serves

quite sharply to differentiate the chemical behaviour of nerve from that of muscle. Finally, they found that these processes, definite enough in the resting nerve, are quite unaltered by stimulation. The importance of this finding is considerable, for clearly it means that we must look elsewhere for the source which provides the energy for the nervous impulse; it is, indeed, almost refreshing to meet a tissue which has apparently rejected glycogen and glucose as a source of energy supply!

Tashiro[19] first showed that peripheral nerve produced ammonia, and that ammonia production was increased by stimulation. These results have been confirmed by Winterstein[20] and by Gerard and Meyerhof.[17] These observations may be related to the breakdown of adenylic acid (Embden[21]). Thudichum[22] long ago described the presence of hypoxanthine in brain, and its presence has recently been confirmed by Holmes and Holmes, who isolated it as the silver nitrate (unpublished). They also observed that a pentose was present in brain tissue.[23] Adenylic acid contains a pentose group, adenine and phosphoric acid; and adenine, by oxidative de-amination, would yield hypoxanthine.

This brief survey indicates that at least a beginning has been made in unravelling the chemical factors upon which the propagation of the nervous impulse depends. If, so far, what has been done amounts only to a few scratches on the surface of the problem, at least we possess the very important knowledge that the nervous impulse is accompanied by the evolution of heat and the consumption of oxygen, and that its source of energy is different from that of muscle.

If much remains to be done with regard to the problems of conduction, still more difficult are the tasks presented by the central mechanisms, those of the brain itself. It would seem that there is a fundamental difference between the chemical events occurring in peripheral nerve and those taking place in the brain, for this reason: the oxygen consumption of peripheral nerve, both in rest and activity, is extremely small—of the order of 300 c.mm. per gram per *hour* for mammalian nerve at rest, and of perhaps 1,000 c.mm. per gram per *hour* during activity. It is doubtful whether the oxygen consumption of normal, unanaesthetized brain has ever been measured with even approximate accuracy, but the oxygen consumption of anaesthetized brain is of the order of 30 to 50 c.mm. per gram per *minute*—and anaesthetics are known to inhibit oxidation processes to a very marked degree. Thus *anaesthetized* brain consumes, at the very least, six times as much oxygen as unanaesthetized resting nerve (Alexander and Cserna,[23] Hou,[24] Hou and Siguira,[25] Schmidt[26]). Warburg, Posener, and Negelein[27] have shown that brain tissue produces lactic acid very rapidly *in vitro* in the presence of added glucose. Holmes and Holmes[28 29 30] confirmed these findings, and showed, further, that the carbohydrate reserve of brain is very poor; during anaerobic survival very little extra lactic acid is produced unless glucose is added to the preparation. Following up this observation, they produced evidence to show that during life brain is dependent for its lactic acid precursor upon sugar supplied to it by the blood stream, since the amount of lactic acid which can be found after death depends on the level of the blood sugar at the time of killing. In insulin hypoglycaemia the brain lactic acid content may be less than half its normal value; if the animal is killed during hyperglycaemia, however produced, the value may be increased by as much as 200 per cent., depending again upon the precise blood-sugar level. Now hypoglycaemia of a sufficiently severe degree is accompanied by convulsions. On the other hand, one of the causes of hyperglycaemia is the administration of anaesthetics such as ether, chloroform, or urethane. A low brain lactic acid value may therefore accompany increased activity, a high value may coexist with anaesthesia. It is difficult to interpret these findings if it is assumed that lactic acid represents some phase in the chemical process accompanying active impulse conduction, but the difficulty is less acute now we know that it is not this lactic acid mechanism which is directly concerned, at least in the propagation of the impulse. It has been shown that lactic acid is not oxidized by peripheral nerve; brain tissue, however, oxidizes it very readily (Holmes and Holmes[24]). It seems very likely, therefore, that this power of oxidation is inherent in the nerve cell, as opposed to the nerve fibre, and it is tempting to speculate whether the oxidative removal of lactic acid may not be connected with the passage of impulses over the synapse.

Ashford and Holmes[31] have investigated the phosphorus metabolism of brain from the point of view of lactic acid production. They find that, so far as the production of lactic acid from glucose is concerned, phosphorus appears to play *no part*; *on the other hand*, the formation of lactic acid from glycogen seems to involve the production of hexose phosphate as an intermediate stage. These investigations bear, perhaps, more on the general questions of carbohydrate metabolism than on the particular problems connected with the brain. They serve, however, to underline the difference between the carbohydrate mechanisms of brain and those of muscle tissue. Incidentally, these experiments have again emphasized the very much more important part played by glucose than by glycogen in the production of lactic acid by brain. Attention has been drawn to this point in earlier papers.[28 29] There seems to be no doubt at all that an abundant supply of glucose is absolutely necessary for normal brain function, and that, since little carbohydrate can be stored, the supply must be carried by the blood stream; that apparently neither glucose nor lactic acid provides the energy liberated during impulse conduction in the fibre renders the question all the more intriguing.

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ROYAL MEDICAL BENEVOLENT FUND.

At a recent meeting of the committee of the Royal Medical Benevolent Fund £610 was voted in grants to thirty-five applicants. The following are short notes on two of the cases helped.

A medical man, aged 76, has been bedridden for two years following a stroke; he is now quite childish and unable to look after himself. His two sisters are dependent on him; one is bedridden with cancer; the other, aged about 60, is very frail, and alone looks after these two invalids. She cannot afford a servant or a nurse, and all the household work and the nursing falls upon her. Their income, about £110 a year, is derived from letting rooms in the house. Voted £40.

Daughter, aged 59, of M.D., is crippled with arthritis and unable to use her hands and feet. Her knees are quite fixed, as well as her left arm. She shares a bungalow with an annuitant of this Fund, who is 87 years of age; it is therefore necessary for these two ladies to pay someone to look after them. The grantee's income, £60, is from a sister. The annuitant's income from this Fund and other charities is £130, making a total of £190. Rent amounts to £90, and wages of attendant £39. This leaves £61 for the maintenance of the two ladies. Voted £26 to the grantee, in addition to £20 to the annuitant.

The committee is very restricted in the grants which it is able to make owing to the limited funds available for distribution. Subscriptions and donations are very urgently needed before the end of this year, and should be sent to the Honorary Treasurer, Royal Medical Benevolent Fund, 11, Chandos Street, Cavendish Square, London, W.1.

The Royal Medical Benevolent Fund Guild still receives many applications for clothing, especially for coats and skirts for ladies and girls holding secretarial posts, and suits for working boys. The Guild appeals for second-hand clothes and household articles. The gifts should be sent to the Secretary of the Guild, 58, Great Marlborough Street, W.1.

MENTAL HEALTH AND SOCIAL PROBLEMS.

CONFERENCE IN LONDON.

The National Council for Mental Hygiene and the Tavistock Square Clinic united in organizing a conference on mental health, which was held at the Central Hall, Westminster, on October 30th and the three following days. About eighty organizations, mostly bodies concerned with educational and social welfare work, and including the British Medical Association, co-operated in the conference, whose eight sessions resulted in an interesting series of discussions, the social implications of the subject, especially as related to the child, being very well covered. Representatives were present from the German and the Belgian Leagues for Mental Hygiene, and messages were read from corresponding bodies in Italy, Switzerland, and Russia. The Minister of Health, in sending his good wishes for the conference, stated that the Government appreciated the need for increasing the facilities for early mental treatment, and hoped, if the exigencies of parliamentary time permitted, to introduce legislation for this purpose.

The Beginnings of Mental Disorder.

The inaugural meeting was presided over by Viscount Brentford, supported by the chairmen of the two convening organizations—namely, Sir Maurice Craig and Dr. H. B. Brackenbury. Lord Brentford expressed his wish to see a chair of mental hygiene in every university and medical school.

Sir Maurice Craig remarked on the misfortune that in the past, and to no small extent to-day, mental disturbance and insanity were regarded as one and the same thing, whereas in fact there were many degrees of disturbance of mind, and only the most serious were to be denoted as insanity. The very way in which people shrank from using the word "mental" was a sign of the fear with which this subject was regarded, a fear which would be largely dispelled by a fuller knowledge of the constitution and working of the mind. The greater the public enlightenment on this subject, the less would be the embarrassment in speaking of or dealing with it, and the less likely would people be to tolerate artificial and unscientific restrictions. The ill-informed outlook of the past, said Sir Maurice Craig, had increased the suffering of the patient, and had discouraged the study of his disease. Progress in this realm was slow; it was now nearly four years since the Royal Commission on Lunacy and Mental Disorder reported, and yet nothing had been done. It was important, he continued, to cease to think in terms of mind and body as separate and independent entities. Minor disturbances of the mind might be brought about in endless ways and by a variety of stresses, some of them physiological, and including child-bearing in the case of a physically enfeebled and emotionally unstable woman. Mental disturbance must not be regarded as a "bolt from the blue." It was commonly a slow and progressive failure, the early stages of which were very frequently overlooked or misunderstood. To prevent such oversight and misunderstanding the National Council for Mental Hygiene had come into existence, though the magnitude and value of its work had not yet caught the popular imagination.

Dr. Letitia Fairfield spoke on the application of mental hygiene in child guidance. The idea of mental hygiene, she said, was only superficially novel; in reality it was merely an expansion of well-tried principles worked out in other spheres. Modern criminology and modern psychology, starting from wholly different aspects, had united in demonstrating the importance of childish habit-formation and impressions on adult behaviour. The origin of the trouble of the confirmed criminal on the one hand and of the chronic neuropath on the other was likely to be found in a misunderstood childhood. It was mainly in America that the intensive study of the delinquent and difficult child had been worked out, but the methods were available for international application. Successful schemes of child guidance would always be found to depend on certain simple factors, such as a thorough examination of the child and his environment for a diagnosis of the problem; co-operation with parents, teachers, and other persons in authority over the child, and constructive plans for strengthening character and developing good habits. Without careful investigation it was impossible to say whether the source of the trouble was physical defect, an overlooked deficiency in intelligence, bad example in the home, or emotional stress in the environment. The causes were rarely single; hence the need for thorough examination in each case. Dr. Fairfield added that the chief danger which this new movement had to fight was the enthusiasm of child-lovers, who thought it all sounded "so simple." American experience of child guidance clinics was overwhelming that the work was extremely difficult, and needed highly trained experts with a background of exact scientific knowledge of the psychology of mental disorders.

Mr. L. G. Brock and Sir Frederick Willis, the present and past chairmen of the Board of Control, and the Rev. Canon T. W. Pym were among other speakers at the inaugural meeting. The last-named expressed gratitude to the Tavistock Square Clinic, from which, he said, he had obtained useful assistance on behalf of people whose trouble was essentially as much a matter of mental ill health as of moral or spiritual failure.

Sex Education.

One of the sessions of the conference was devoted to a frank discussion of sex education. The subject was opened by Mr. W. H. Fyfe, headmaster of Christ's Hospital, who expressed the view that any boy the development of whose sexual functions had become disturbed was the victim to some extent of three causes: ignorance, a wrong kind of righteousness, and the attitude towards sex which was mirrored from the stage, the "pictures," and certain newspapers. It was futile for the schoolmaster generally to set about giving information, because he never knew the right time at which to give it. Any kind of formal lecture given mechanically was almost certain to do more harm than good. The only recourse was a word in season; but how was the schoolmaster to find the season? Any kind of disquisition, psychological or sociological, would leave the boy of fifteen just as ignorant as before, and probably still more pruriently curious. The persons who had the best, perhaps the only, chance of discovering the right season were the parents and guardians of the child. The manner as well as the season was important. The lads, he thought, should be taught to look forward to a happy marriage, which linked romance to health, and encouraged the view that sex was the root of the finest flowering of human nature. The house master should encourage the boys to regard their sexual functions in the same light as their other physiological functions—that is to say, to disregard them normally, and to seek proper advice in any abnormality or disturbance.

Miss Geraldine Coster, headmistress of Wychwood School, Oxford, spoke similarly with regard to girls. The child, she said, was never shocked by sex information given at the time the child wanted it; the child was shocked when information was given at the wrong time. She was rather sceptical of the value of nature study so often advocated. The child was quite capable of understanding all about a litter of guinea-pigs and of still believing that angels brought babies in at the window. She criticized also the pamphlets on the subject so widely distributed; they were so desperately sentimental. She thought it best to give instruction to children singly or perhaps, in the case of very young children, to a couple of friends. It should be complete as far as it went. In discussing birth, the method of actual childbirth should be clearly dealt with; otherwise various fantasies would arise. "Be matter-of-fact; eschew sentiment, and do not talk too much about beauty and holiness; those things can be conveyed without talking about them." The school itself could inculcate a hatred of subterfuge and set a high ideal of service, citizenship, and personal integrity.

Dr. H. Crichton Miller, honorary director of the Tavistock Square Clinic, said that many adults, unconsciously, did not want the children to grow up. That was a well-known genetic reaction commonly seen among herd animals. Especially in the department of sex the parent wanted to keep the child in the dark. It was natural that parents should wish to safeguard the happiness of the young people entrusted to them in relation to their sex life, but the

parent-fixated child was not the strongest character. It was a question what kind of adult was qualified to "put across" to the child the right feeling towards sex. Certainly the disillusioned and frustrated had better keep their tragedy to themselves; it was not the bitter or cynical who would help young people to find in the complete fruition of sex life the reward of continence, partial or complete. Many adults were in such a muddle themselves, in such a state of confusion, resistance, conflict, and self-recrimination, that they were helpless in the presence of a child's innocent question. Any psychiatrist of experience could bear that out with scores of instances. Much depended upon the right way of approach. When a child in innocence had found satisfaction in masturbation it was not right to exclaim at the act as "horrid"; the adult ought not to project his own moral and sentimental feelings into that which the child could not understand. The child had to be asked to exercise self-restraint, as children should be asked to accept external discipline generally, on grounds as far as possible comprehensible to himself. The demand for self-restraint should be based on something positive, not negative, and should be made by those who could present to the young person's mind the rewards of continence in the future fruition of sex, not as a thing enveloped in incomprehensible taboos, but as a sacramental experience.

Mental Hygiene in Social and Public Health Work.

Sir George Newman, chief medical officer of the Ministry of Health and of the Board of Education, presided over a session at which the place of mental hygiene in social and public health work was discussed, and brought to the conference the good wishes and interest and sympathy of the two departments of State he represented. He sketched the dimensions of the problem of mental abnormality: 140,000 lunatics, and 300,000 mental defectives, though, to be sure, these added together accounted only for 1 per cent. of the population. But, in addition, there were a large number of backward or retarded persons, reckoned possibly at between 5 and 15 per cent. of the people of the country. The burden was a heavy one, though not nearly so heavy as the burden of physical disease, and it was partly explained by the enormous advances in public health, whereby every year about 40,000 infants were surviving who would have perished had the infant mortality rate of thirty years ago continued. Among those who were saved must be many who would presently show signs of mental defect. "Someone may ask, 'Why don't you let them die?' To that I have no rejoinder, except that it is my business, charged by you, and by the Hippocratic oath to which I am sworn as a medical man, to save every life every time that I can, no matter whether that life is going to develop into strong and healthy citizenship or is going to end on the gallows."

Dr. H. P. Newsholme, medical officer of health for Birmingham, read a closely reasoned analytical paper on the principles underlying mental health, and indicated ways in which health visitors and social workers could give instruction and make adjustments so as to prevent breakdowns. Miss Hester Viney of the College of Nursing spoke of the role of the public health nurse, and the opportunities afforded to her for effective educational work; and Miss E. M. Lawrence, the chief social worker of the Child Guidance Clinic, followed with a paper on the usefulness of the social worker in dealing with behaviour problems in the early stage.

The Problem Child.

The problem child—or perhaps more correctly the problem parent—was the topic of another group discussion, presided over by Dr. R. H. Crowley, senior medical officer, Board of Education. The first speaker, Miss Neville, a psychologist of the Home and School Council, suggested that the problem child was more frequently the brilliant child than the dull child. The brilliant child was a misfit even more than the dull. He had endowments above the children of his years, and yet he was compelled more or less to go at their pace. Her remedy, in the shape of special classes for brilliant children, called forth a criticism from a teacher in the audience, who pointed out that, after all, in life those with exceptional mental parts had to accommodate themselves to all sorts of persons, most of whom were inferior to them in gifts, and that the school, which is a preparation for life, might well begin the necessary social adaptation.

The educationists present also fell foul of the second speaker, Dr. E. A. Hamilton-Pearson of the Tavistock Square Clinic, who complained of education that it tended to confine, during the years that the mind was capable of profiting from the widest variety of experience, the intelligence of the child to a strict monotony of almost unvarying intellectual routine. Education, he said also, had created the problem child by its adherence to a purely intellectual ideal, and its apparent assumption that all minds were fundamentally similar, if not in quality at least in form, and able to compass similar instruction. There was no one type of mind, but there were several types, demonstrably different in their main lines of interest, their aptitudes, and their intellectual capacity. The educational system, however, found many defenders among the audience.

The subject of "The child and the parent" was treated, among others, by D. Helen Boyle, a member of the Child Guidance Council, who had some refreshing things to say about it. Dr. Boyle spoke of the danger of too great perfection of bringing up, too much regularity, care, and notice. "It does the healthy child no harm to overeat itself on cream buns and be sick. It learns more about satiety and the ways of its body than any other sort of teaching can give. No longer does it need to exert will-power to refrain from overeating; it feels nauseated by the thought, and it recognizes the first symptoms." Dr. Boyle did not want anyone to think that the child was better for unkindness, but there was perhaps at times an unreality of atmosphere which was a poor preparation for adjustment to life. Let a child be always fed at the right moment, on the right things, wake at the right moment, sleep in a darkened room in a tomb-like silence, and take the right amount of exercise, and at the right time, and in after life he would be a quite unadaptable person, fidgeting if his dinner was a few minutes late, and sleepless in an unaccustomed environment. The secret of life, a philosopher had said, was to remember, "Of nothing too much!" That was pre-eminently true, in Dr. Boyle's opinion, of bringing up children.

The delinquent child as a problem in mental hygiene was the subject of an excellent address by Mr. W. Clarke Hall, the metropolitan magistrate at Old Street Police Court. He traced the gradual improvement in the public attitude towards the delinquent, from the almost unbelievably harsh sentence of former times, to the present gentler age, when the scales of justice were more evenly balanced, though even yet the underlying circumstances which brought about the delinquency were not understood. There could be no true justice, said Mr. Clarke Hall, without knowledge of the circumstances of environment and heredity, and a complete knowledge of such things was still unprovided for in English law. He considered the juvenile court from the sociological point of view to be the most important tribunal in the country. Most habitual criminals began their career at an early age—50 per cent. of them before they were 21. The first and principal of several recommendations which he made for dealing with delinquency was that juvenile courts should be rendered really efficient.

It is impossible even to mention some of the other excellent speeches and discussions in the four-day conference, but a word should be said about the session, over which Sir Charles Wakefield presided, on the personal equation in industry. Dr. Millais Culpin, research worker for the Industrial Fatigue Research Board, gave a very interesting account of a study of the mental and nervous reactions in 1,500 workers of all ages and classes, pointing out how symptoms might be exacerbated by working conditions, and what a close connexion existed between nervousness and social maladaptation. It was encouraging to hear Dr. Culpin say that he had never seen a breakdown due to overwork pure and simple, though he had seen the "fussy" person break down under stress of work. The 25 per cent. of nervous individuals might also feel happy in hearing that some of the world's best work had been done by nervous people.

British Medical Journal.

SATURDAY, NOVEMBER 9TH, 1929.

THE ASTHMA PROBLEM.

FROM its striking clinical features asthma has long been known; the first book on the subject in English was written as far back as 1698 by a sufferer, Sir John Floyer (1649–1734) of Lichfield, who, according to his one-time patient and fellow townsman Samuel Johnson, "panted on to ninety," although as a matter of actual history his earthly pilgrimage fell short by five years of fourscore years and ten. Asthma has also been described by other medical sufferers, such as Hyde Salter (1859), whose account may be still read with advantage, Trousseau (1866), W. E. Steavenson (1879), Arthur F. Hurst (1921), and J. R. Charles (1925), and during the present century it has been the subject of much work and many hypotheses. That the mechanism of the asthmatic crisis is contraction of the bronchial muscles as the result of vagal stimulation rather than swelling of the bronchial mucous membrane was established in 1902 by the experimental observations of Brodie and Dixon. A full summary of their original report was given, at the request of several correspondents, in our issue of July 13th last (p. 68). The suggestion in 1910, by S. J. Meltzer of New York, that asthma is anaphylactic in origin was followed by an enormous amount of work on its relation to other idiosyncrasies—or toxic idiopathies, to use Dr. John Freeman's happy label—and on skin tests as a means of detecting the foreign protein responsible for the reaction, and this work in turn was followed by the widespread practice of measures of desensitization by protein therapy. The influence of heredity on the occurrence of asthma and other forms of hypersensitiveness has been proved, and this has coincided with the recent revival of belief in the constitutional factors of disease. The importance of the psychological factor and of auto-suggestion in exciting attacks of asthma has been rightly insisted upon. That there are a large number of sufferers is shown by the estimate, made some years ago, that in North America 3.5 per cent. of the population is affected, and by the more recent estimate that the number of persons affected in this country amounts to 200,000.

It is not surprising that the subject of asthma has often been discussed—in fact, during the last twenty years no fewer than six times in different Sections at the Annual Meetings of the British Medical Association. In the discussion on this subject in the Medical Section at the recent Manchester meeting the opening paper (printed this week at page 839) was read by Dr. Arthur Hurst, who acts as chairman of the Medical Advisory Committee of the Asthma Research Council, and is in every way qualified to speak with authority. The discussion showed the very different conceptions held as to pathogenesis, and, like a collection of papers in the July number of the *Practitioner*, it lent support to the conclusion that what for convenience is called asthma is really a symptom, and that, as in the case of the epilepsies, it would perhaps be safer to speak of the asthmas. That there is no one panacea for all the forms of asthma is shown by the innumerable remedies that have been, and indeed still are, vaunted. Dr. Hurst, who in 1921 defined asthma as "a condition in which that part of the vagal nucleus which controls the motor and secretory activity of the bronchi is abnormally sensitive to chemical, reflex, and psychical stimuli," has since laid stress on the importance of a constitutional peculiarity or diathesis, without which an individual, even if hypersensitive to one or more proteins, does not suffer from asthma. The asthma diathesis, which is thus the one essential factor in the pathogenesis of the condition, is, he suggests, caused by a slight deviation from the average blood chemistry, and this is responsible for the predominance of the vagal constituent of the bronchial nervous system; further exhaustion of the adrenal glands with deficient secretion of adrenaline allows the vagal factor to get the upper hand over the sympathetic. This last hypothesis gains support from the fact that blood pressure is usually low, and from Dr. G. H. Oriel's observation that well-marked hypoglycaemia is common in asthmatics. Dr. Hurst also reiterates his opinion, formed after many trials, that skin tests are devoid of any practical value. Biochemical evidence in favour of the existence of an asthmatic diathesis is in process of being established by Dr. Oriel, who, in a preliminary communication to the July number of *Guy's Hospital Reports*, described a proteose in the urine of patients with asthma, urticaria, and some infections giving positive skin reactions.

To modify the constitutional basis for a morbid reaction is as yet a difficult problem, though Dr. Hurst considers that dietetic treatment and residence at an altitude of 4,000 feet may be effective in this direction; but he brings some destructive criticism to bear on Storm van Leeuwen's explanation that purity of the atmosphere is responsible for the beneficial influence of residence at a high altitude. In addition, attention should be directed to the avoidance of exposure to exciting factors, such as psychological and reflex stimuli, and to the elimination, as far as possible, of all septic foci. Further, emphasis was laid by the opener of the discussion on the importance of aborting an asthmatic attack at the earliest moment. With this object patients should be instructed to give themselves hypodermic injections of adrenaline solution at the first suggestion of an impending attack. Relief may thus be effected by means of a small dose, often one minim only, and this amount is not likely to cause the unpleasant symptoms that may follow the administration of the larger dose, five minims or more, which becomes necessary if the paroxysm is allowed to develop.

A "BRADSHAW" OF MODERN MEDICAL LITERATURE.

THE British Museum has been described as a storehouse of all the knowledge in the world. More accurately might it be regarded as a mausoleum wherein knowledge lies dead, to be resurrected only when, by each passage through the mind of man, it becomes infused anew with the spirit of life. To-day, more than at any period in the history of the world, it has become a matter of urgency to devise means for safeguarding knowledge against mummification in museums and libraries. In essence such mechanisms must be designed to facilitate the circulation of information, to direct facts to the minds that need them, just as the mechanisms controlling the circulation of the blood help to direct nourishment to the cells of the body.

It has been suggested that the greatest contribution the League of Nations could make to world culture would be in the creation of a central clearing-house of knowledge—an enormous organization with affiliations to every university, library, laboratory, and learned periodical in the world, in which all the facts mankind has accumulated in its exploration of the universe could be classified and indexed by staffs of highly trained workers, and diverted swiftly and easily wherever they happened to be wanted. The deliberate repetition of experiment is part of the methodology of science; the accidental reduplication of experiment, inevitable when the workers of one laboratory have no means of learning promptly what is being done in another, is a wasteful misapplication of energy. The scientific worker needs a directory whereby he could track down the scattered and newest sources of knowledge related to his own field of investigation at least as much as he does a telephone directory to his own area. Maps and gazetteers and time-tables cater for man's need of geographical orientation; there is an equally important place for charts whereby man may find his way easily through the labyrinth of knowledge. This is only to affirm that there is a sense in which, for example, a physician in London should have more ready access to, shall one say, a laboratory in Berlin, a hospital in Paris, and a library in Washington, than to his next-door neighbour. To a considerable extent his needs in this respect have been met by four admirable catalogues of medical literature: the *Index Catalogue of the Surgeon-General's Office, U.S. Army*, the *Index Medicus*, the *Quarterly Cumulative Index*, and the *Quarterly Cumulative Index Medicus*. The *Surgeon-General's Catalogue*, which has been issued regularly since 1880, and is now at letter M of its third series, includes a classification of all the medical literature, ancient and modern, to which the editors have or have had access. The *Index Medicus*, started in 1879, and the *Quarterly Cumulative Index*, started in 1916, having run concurrently during the years 1916–26, were then merged, and since 1927 the *Quarterly Cumulative Index Medicus*—the product of their union—has appeared in their place.

The fifth volume of the *Quarterly Cumulative Index Medicus* has recently been published under the auspices of the American Medical Association. It is a volume of 1,311 pages, in which lists of the books published during the period January to June, 1929, are arranged alphabetically under the authors' names and grouped according to subjects; a list is given of publishers and their addresses; and in a single index an alphabetical classification is made of all the contributors and contributions to no fewer than 1,400 of the most important medical periodicals of the world. An admirable system of cross-references and of multiple indexing protects the reader against the risk of overlooking any source of information, or failure to track down articles covering several subjects. If the work has a defect it is in the fact that the system of indexing books and periodicals separately necessitates a double search in each volume for the literature on any subject. In this respect only does it, in our view, fall short of the old *Index Medicus*, with its single subject index. It may be taken as an indication of the skill and completeness with which the editors of the *Quarterly Cumulative Index Medicus* have done their work that we have no other criticism to offer. They have given us, and we hope will continue to give us, what is in effect one of the most valuable contributions of the medical profession in America to the advancement of medical knowledge.

THE COLLECTIVE INVESTIGATION ON CANCER.

A NUMBER of reports have appeared in the lay press to the effect that "some 20,000 of the 28,000 members" have decided to participate in the British Medical Association's inquiry into the incidence of cancer and its history after treatment, of which a preliminary notice appeared in these columns on October 5th, and full details in the *Supplement* of October 26th. The latter figure much understates our membership (now 35,000), and we could wish that the former figure were not an overestimate. So far the Medical Secretary has received several hundred applications for the questionaries relating to the forms of cancer chosen for investigation, and there is reason to anticipate that even a greater number of practitioners will take part in this work than in last year's collective inquiry into the treatment of varicose ulceration. No member should withhold his co-operation simply on the ground that in the course of the year's work he sees but few cases of the conditions under investigation. It is not to be expected that a sufficient number of such cases would come within the experience of a single practitioner to enable him to draw from them any helpful conclusions about the actual evolution of cancer, its duration, and possible common factors in the medical history of cancer patients—all matters with which the present investigation is concerned. Even if he can supply details of but a single case he may make a valuable, perhaps indispensable, contribution to the investigation as a whole. There is an all too prevalent belief among general practitioners that so long as their life-work consists in the care of the sick the business of discovery must be left to others. This artificial distinction between the practitioner and the research worker reveals a failure to appreciate the true nature of scientific investigation. Science rests on a tripod of observation, hypothesis, and experiment, none of them activities circumscribed by the walls of a laboratory or limited to any subject-matter. Clinical medicine is as much a subject of scientific study as the matters dealt with in laboratories, and often it is more scientifically studied. Admittedly some of its problems come essentially within the province of the specialist; many, however, by their very nature demand solution by the general practitioner, and probably by the general practitioner only. To him belongs the comparatively little explored territory of the minor maladies, of illnesses yet at a stage when their most prominent features are disorders of function rather than gross structural change. Much has still to be learned about the origin and course of these maladies and their effect on the future health of the patient; indeed, it was for the study of these and similar questions that Mackenzie organized at St. Andrews a team of general practitioners who, by pooling their experience, might together succeed in collecting the necessary information, where each individually would be bound to fail. At the opposite extreme are the malignant diseases, and it is noteworthy that about certain aspects of these, too, the general practitioner is better qualified than anybody else to supply information that may prove to be of incalculable value. Such is the information that is being sought in the British Medical Association's collective investigation into the incidence of cancer and its history after treatment. A study of the questions makes it clear that the observations it is desired to correlate can be made far better by the general practitioner watching the whole course of an illness than by a consultant or operating surgeon under whose care a patient comes, as a rule, only for a very short time. We may once more remind readers that the Medical Secretary will be glad to answer any questions and to supply forms of instructions to members who apply to him at the Head Office of the British Medical Association, Tavistock Square, W.C.1.

TONSILLECTOMY AND RHEUMATISM.

That there are still differences of opinion about the relation between disease of the tonsils and juvenile rheumatic infection, and about the value of tonsillectomy in the prevention and treatment of this disease, is obvious from our correspondence columns. An interesting contribution to this very important subject appears in the current number of the *Archives of Disease in Childhood*, where Professor Leonard Findlay, Dr. James W. Macfarlane, and Dr. Mary M. Stevenson discuss "Tonsillectomy in the prevention and treatment of rheumatism."[1] Their material comprises 153 patients, most of whom have been under observation for five to eight years, and for the purposes of the paper it has been decided to follow the method adopted by Dr. Reginald Miller, and differentiate between patients with chorea and those with arthritis. The authors emphasize the fact that in estimating the value of tonsillectomy the exact period at which it takes place must be determined, and in this connexion they use the terms "preliminary tonsillectomy" and "intercurrent tonsillectomy," according to whether or not the operation preceded the first rheumatic manifestation; they further subdivide the second term according to the number of attacks of rheumatism which have preceded the tonsillectomy. From a first broad analysis it is deduced that though a preliminary tonsillectomy may possibly render an individual less susceptible to arthritis, the results do not lend support to the idea that an intercurrent tonsillectomy prevents recurrence of either arthritis or chorea. However serious joint affections and chorea may be in producing temporary disability in the juvenile population, they naturally are not as serious as cardiac involvement, and it becomes, therefore, of great importance to ascertain whether, even if tonsillectomy has little influence on an individual's susceptibility to arthritis and chorea, the operation in any way improves the heart's chances of escaping. In order to study this aspect of the problem Professor Findlay and his associates first attempted to ascertain the time relation of cardiac disease in reference to recurring attacks of arthritis or chorea. In the figures presented they show quite clearly that in no case in which the time of appearance of the cardiac involvement was known did this complication develop after the second attack of tonsillitis, and this was so not only in patients with chorea or arthritis alone, but also in those who suffered from both chorea and arthritis. It follows that if the benefits of tonsillectomy are to be studied in relation to heart disease of rheumatic patients, then only those cases in which a preliminary tonsillectomy or an operation before the second attack was performed can legitimately be compared with non-tonsillectomized control cases. Such a study yields contradictory results, but there does seem to be slight evidence for the view that in arthritic cases a preliminary tonsillectomy or a tonsillectomy performed early in the course of the infection may possibly render the heart less liable to attack, but not so in cases of chorea. Such a prophylactic operation must be performed before the second attack of arthritis. The matter is taken a stage further by studying the effect of tonsillectomy on the progress of cardiac conditions, and, while on the whole there is no marked evidence of the beneficial effects of tonsillectomy, the authors state that "tonsillectomy in the case of carditis following arthritis seems to have a beneficial effect on the progress of the disease, but not so in carditis following chorea." Many sweeping generalizations are being made at the present time about tonsillectomy and rheumatism, and Professor Findlay and his associates have done a valuable service in presenting such a careful analysis of this difficult problem. Their finding that patients with chorea and those with arthritis respond differently to tonsillectomy needs further investigation.

[1] *Archives of Disease in Childhood*, October, 1929. Published by the British Medical Association. 4s. 6d.

DISTRIBUTION OF RADIUM.

The Radium Commission announces that it has made considerable progress in deciding on the principles which will determine its procedure in distributing radium, and in working out the administrative machinery whereby the distribution will be effected. The radium composing the four-gram "bomb" has been received from Belgium, and this, after being measured and tested at the National Physical Laboratory, was, on November 2nd, handed over to the authorities of the Westminster Hospital. The latter, in the meanwhile, had made all arrangements for its installation and manipulation, and the treatment of patients has already begun. If at the end of the trial period of three months the National Radium Trust decides to buy the radium composing the bomb, it will be entrusted for a further period of three years (at a rental of £410 a year) to the Westminster Hospital, which will maintain with it a continuous day and night service in the pursuit of certain clinical objectives prescribed by the Commission. The Commission has decided for the present to recognize as national radium centres only such institutions as possess medical schools with complete clinical courses and facilities for instructing students and post-graduates in the principles and practice of radium therapy. The Commission holds that the need for more trained and qualified workers in the use of radium is even more urgent than the supply of radium itself. All negotiations for the constitution and equipment of national radium centres will be initiated through the medical faculties of the local universities concerned, and this procedure is now being followed. When the respective claims and requirements of the various radium centres have been considered and assessed by the Commission the allocation of national radium will be begun, and, as we announced on October 5th (p. 636), it is hoped that about three grams may be available for distribution on loan by the end of the year. The Trust has already placed orders for ten grams, exclusive of the four-gram "bomb," and the whole of this amount should be available before the autumn of 1930. The Commission estimates, however, that practically the whole of the radium which can be bought by the Trust with the funds already subscribed will be needed for the equipment of the national radium centres, and it is therefore unlikely that any of this national radium will be available for allocation to other hospitals or institutions. In accordance with the policy announced in our issue of October 19th (p. 727), it has been decided to install a radon plant at the National Physical Laboratory for the purpose of supplying, under proper safeguards and conditions, radium emanation to hospitals or other institutions which otherwise could receive no direct assistance from the Commission. Questionaries relating to this service are being framed by the Commission, and will be issued to institutions desirous of obtaining national radon and prepared to comply with the conditions laid down.

THE HISTOLOGICAL BASIS OF HEALTH.

The old Latin adage says that minute details are no concern of the law, but this, according to Professor Boeke of Utrecht, is far from being the case where the laws of health are concerned. In two Chadwick public lectures delivered last week at the House of the British Medical Association, under the chairmanship respectively of Sir William Collins and Sir James Crichton-Browne, Professor Boeke gave an illuminating exposition of the histological basis of health, dealing in his first lecture with the tissues in youth and age, and in his second with the nervous system in relation to health. He argued that, since the normal functioning of different parts of the body depends on the structure of the tissues and their component elements, the problem of health ought to be approached from a histological standpoint, each organism being an entity in itself. Analysis

was not the last word in science; the final step was a synthesis of scientific conceptions and deductions. One of the most interesting phenomena in human physiology, he remarked, was the formation of the different hormones which circulated in the blood and influenced the action and growth of cells; differentiation in a given direction could, indeed, be induced in certain tissues and cells by the injection of hormonic substances. The vital actions of the cells depended largely on the chemical processes going on in the living protoplasm, and the cellular units of the reticulo-endothelial system had peculiar chemical properties by which they could influence other cells. It followed that old age was an aspect of development; a general change of all the tissues in the direction of atrophy, with disappearance of the ability to repair what was lost. Growth and senescence could be formulated as a series of chemical processes which might be expressed by mathematical formulae. When, however, the factor of tissue differentiation was taken into account, growth began to lose its mathematical formulation and its identification as a chemical process; death was the result of differentiation, and the non-differentiating tissue culture might be practically immortal. Development was nothing but differentiation, and the hormones played a most important part in health, in tumour growth (the "auxetics" of Ross), and in other pathological changes. In his second lecture Professor Bocke illustrated these characteristics of growth and differentiation by reference to the central nervous system—the most highly differentiated tissue of the human and animal body, and exhibiting most clearly the chief factors in growth and development. Two kinds of cellular elements existed in the nervous system—the nerve cells, and the neuroglia or connective tissue elements. In old age a contest between these two seemed to develop, culminating in the curious phenomena of "neuronophagy," the eating up of the ganglion cells. Studied closely, this process was seen to be an effort to re-establish the harmony destroyed by the now lessening activity of the senescent nerve cells. This harmony between form and function of the nervous system was most plainly shown by the rapid development of the functional structure of the cerebellum in birds; the structure needed to enable the newly hatched chicken to act as an independent individual was developed within twenty-four hours. During the life of the organism the nerve cells remained unchanged, the only changeable elements being apparently their synapses, which could alter the paths of the stimuli and the rapidity and strength with which these were conducted from one element to another. So, Professor Bocke concluded, study of these details compels the assumption of a perfect continuity of all the elements of the nervous system, of a perfect harmony, a perfect equilibrium of the component parts, of the "interpenetration of all by all," as being the primary factor in healthy normal life.

VETERINARY EDUCATION.

Some months ago there was issued the report of a Colonial Office committee on veterinary education in connexion with the development of the non-self-governing possessions, and a few days ago the report of another committee on veterinary matters was published. The latter dealt with the condition of the Royal Veterinary College in London, and with undergraduate rather than post-graduate education. Both reports have one feature in common—a sweeping condemnation of the state of the buildings in Camden Town. The latest report, in fact, goes so far as to state that "the condition of the Royal Veterinary College is a national disgrace. The building is for the most part in a state of dilapidation, and much of it has been condemned by the local authority as a dangerous structure." Britain in matters veterinary is in a peculiar position. It is the most important stock-breeding country in the world—especially bloodstock—and the Briton has a higher ethical conception of animal life than any other race. Yet, so far as public support and financial encouragement are concerned, veterinary education and research is more neglected here than in practically any other important land, and it is only because of the altruistic enthusiasm of a few that the British veterinary diploma is still regarded as one of the foremost in the world. There are, however, signs that a new interest is being taken in the subject. The Royal College of Veterinary Surgeons a few years ago raised the entrance requirements for the study for its diploma to the Arts standard; more recently it has agreed to extend the period of professional education to five years. The Colonial Office report proposed a comprehensive scheme of post-graduate education and research, and made recommendations as to pay and status which would encourage the best type of men to enter the colonial veterinary services. In the near future, therefore, there should be an increasing demand for adequate undergraduate training facilities. The present report makes many concrete proposals towards providing these, and placing the London college on at least as good a footing as, say, the Edinburgh college (although even there extensions are urgently required to meet the growing demand for veterinary education). It is proposed that the present buildings in Camden Town should be razed to the ground, and that entirely new buildings, costing about £300,000, should be erected in their place. The annual maintenance charge for these new buildings would be in the neighbourhood of £30,000. In addition, the Institute of Animal Pathology, which is housed in a new building (which it is not proposed to touch), and receives an annual grant of £5,000 from the Ministry of Agriculture, should be provided with facilities for conducting work in the field; a sum of £25,000 is necessary for this purpose, together, of course, with an increased annual maintenance grant. The reconstituted college should form a school of London University, a course which would not only enhance the status of the college, but would bring its students into much more intimate contact with those in other branches of learning. The medical profession in Britain in recent years has found that much good can come from a closer co-operation between the two branches of the greater medicine, and study of comparative medicine has proceeded faster and in a more satisfactory manner in this country than elsewhere. An adequately equipped veterinary school in the University of London would do much to foster that growing co-operation, and make the results more valuable to both professions.

FOOD ADULTERATION.

Public health legislation during the last half-century has done much to ensure that foodstuffs are fairly pure. In particular it has practically abolished dangerous adulterations and also the cruder forms of adulteration. The fact that gross frauds have little chance of escaping detection does not mean, however, that food adulteration is a danger of the past. Dr. Ainsworth Mitchell, the editor of the *Analyst*, in a recent article[1] gives an interesting account of some of the up-to-date methods of the food adulterator. He points out that "each fresh advance in analytical methods has been countered by corresponding applications of scientific knowledge on the part of the adulterator. His aim has been to make a product which shall be on the borderline between a genuine article of poor quality and an adulterated article which might often conceivably be genuine." The great difficulty in stopping this type of fraud is that pure natural products are subject to wide variations. This is especially important in the case of milk. The institution of a statutory standard for milk has

[1] C. Ainsworth Mitchell: *Police Journal*, vol. II, No. 8, p. 546.

been followed by an increased frequency of milks just within the statutory limits. Moreover, when the milk is on the wrong side of the line the vendor has a second line of defence, the "appeal to the cow," for, according to Dr. Mitchell, "since the case of Hunt v. Richardson, which was decided in the High Court in 1916, a vendor may sell as milk any milky fluid which he can induce his cow to produce." This makes it safe to feed the cow so as to produce the largest volume of milk, irrespective of quality; and the chief change from former practices is that the milk is diluted "at the other end of the cow." Many of the modern changes under the Food and Drugs Act involve questions of correctness of description rather than that of simple adulteration. The following are examples of the problems raised. Does "raspberry jam, improved by the addition of a little fruit juice," correctly describe apple jelly with a few raspberries added to it? Is a mixture of citric acid, glucose, syrup, margarine, lemon flavouring, and artificial colour properly described as "lemon cheese," or maize starch, coloured with a dye and with the addition of a small amount of dried egg, as an "egg powder"? These examples indicate the manner in which modern commercial enterprise tries to keep within the limits of the law, but at the same time to make a profit by selling to the poorer sections of the community inferior food substitutes. The only defence of the community is a vigorous administration of the Food and Drugs Act, and this depends on the local authorities. The variations quoted by Dr. Mitchell in the administration of these Acts are very remarkable. In one county in 1927 only seven official samples of foodstuffs were taken, and of these three were found to be adulterated. In two populations of an equal size, one, a county, took forty official samples, whereas the other, a borough, took 725 samples. These figures certainly suggest that if the populations of many areas get unadulterated food they have to thank luck rather than the local authorities.

INDUSTRIALISM v. RURAL BEAUTY.

There is much that is attractive to the cynical mind in the contest which is arising between industrialism and rural beauty. After the war the first instinct of the politician was to make this country a fit home for heroes to live in. For this purpose it was necessary to build innumerable houses; but no one troubled his head with the question where these houses were to be placed. At the same time the development of motor traffic necessitated the provision of wider and better roads; and another batch of our rulers concentrated their attention on cutting by-passes and arterial thoroughfares through the peaceful countryside. Then there arose a demand for cheap power to enable trade to flourish, and to provide the wherewithal for the workers to pay some portion of the rent of the houses they lived in. Suddenly it was discovered that this mighty pageant of "progress" was leading to the destruction of much of the beauty of the country. Consequently we now find eminent statesmen advocating in their speeches the decoration of rural districts with vast armies of pylons, while they write to the newspapers imploring landowners and builders not to deface the scenery. In this curious situation it is left to voluntary private bodies to endeavour to collect sufficient funds to preserve some remnant of beauty for the pleasure of posterity. For this purpose Cambridge has followed the example set by Oxford, and has formed the Cambridge Preservation Society on the lines, and with the help, of the Oxford Preservation Trust, to whose second report we called attention on February 23rd last (p. 363). Those who in these days approach Cambridge from the south cannot have failed to be shocked by the horrible row of "ribbon development" tenements which have sprung up between Shelford and Trumpington. In the pamphlet issued by the Preservation Society when appealing for funds a photograph of a portion of this nightmare is reproduced; and, although the beauties of this stretch of road cannot be said ever to have been transcendent, its present condition is ample cause for the formation of the society in March, 1928. The efforts of the founders turned first in the direction of Madingley, from whose hill the view of Cambridge is certainly the most beautiful. A few years ago a row of chicken huts arose to break the skyline, and more recently boards announcing building sites began to be replaced by the inevitable bungalow. With the help of Colonel Ffenell, of Wytham Park, near Oxford, and of Professor Trevelyan, the society has now stepped in, and has bought 380 acres of land, including the south side of Madingley Hill. Moreover, it has obtained the sympathy of Mr. Harding, who owns the north-eastern slope of the hill, so that the preservation of Madingley from the fate of the Shelford road is practically assured. It is hoped that the society will be able to preserve existing footpaths in the neighbourhood of Coton, and to form others where its control of land makes such action possible. In the meantime, an attempt is being made to induce the county council to help in covering up the Shelford road "development" with a mask of trees; a group of picturesque houses at the corner of Northampton Street and Magdalene Street has been bought by a generous member of the society; and the importance of fine design in their new dwellings has been urged upon owners of property in the town itself. In the future it is hoped to do something to preserve the charm of many of the villages which lie round Cambridge. It is pleasing to learn that the society maintains cordial relations with the local authorities, and with such bodies as the Cambridge Antiquarian Society, the Rural Community Council, and the Council for the Preservation of Rural England. It is curious to reflect how much destruction of the beautiful is involved in the "progress" of civilization. To many it must often seem that the choice of sites for industrial development is, to say the least, indiscreet. How otherwise are we to account for the founding of factories in University towns? But progress means money, and it is not to be expected that the landowner will readily refuse tempting offers for the purchase of sites for factories, pylons, or bungalows. It is well, therefore, that private bodies should do what they can to preserve some balance between the material and the spiritual needs of man. The Cambridge Preservation Society, like the Oxford Preservation Trust, is worthy of support and sympathy, and not least from its medical graduates.

DENTISTRY AT THE MAYO CLINIC.

Dr. Boyd S. Gardner, head of the dental section of the Mayo Clinic, lectured to a crowded theatre at the Royal Dental Hospital, London, on November 4th, chiefly on the organization of the section, which he formed eleven years ago at the request of the brothers Mayo. He began with a tribute to the excellence of the dental technique which he had seen on this side of the Atlantic. He said that he had just completed a visit to several countries of Europe, and was taking back with him many new ideas. In Scandinavia (where 40 per cent. of the dentists were women) he had been astonished to find what a high level preventive dentistry had reached; it was better than the average in America. He had been equally impressed by the progress in Southern Europe. In Spain, which had been thought of as a backward country from the dental point of view, there was about to be built the world's largest dental college; and in Rome, thanks to Signor Mussolini's insistence on dental hygiene and Mr. Eastman's benefactions, he had felt as nowhere else the driving force of high ideals in dentistry. Coming to his own work at Rochester, Minnesota, Dr. Gardner likened the organization of the Mayo Clinic to the spokes of a wheel, all radiating from the hub. The closest co-operation was maintained

between the dental section and the other sections dealing with general medicine and surgery, and consultations constantly took place over referred patients, in which sometimes as many as eight representatives of different departments would assist. No replacement, filling, or bridgework was done at the clinic, the work was limited to diagnosis and surgery. In America the surgery of the mouth had been belittled for generations, and four-fifths of the income of dentists was derived from replacements. The Mayo Clinic was trying to place dentistry on the same plane as surgery. The dental student was instructed, when he looked into a patient's mouth, not to think first of all what could be done in the way of a bridge or a filling, but to have regard to the cause of the condition. The different departments joined forces to discover and eliminate focal infection. Dr. Gardner gave several instances of the way in which dental infection had been found to play the controlling part in disease elsewhere in the body. Records had been kept of a hundred cases of ulcerative colitis treated at the clinic from the standpoint of eliminating some distant foci of infection, principally in the teeth, though often also in the tonsils; cures were effected in fifty of the cases and improvement in thirty others, although many of them were of long standing. Retinitis and many other conditions, as well as certain types of arthritis, had been found to clear up after the focal infection in the teeth had been removed. By means of lantern slides Dr. Gardner described the working of the clinic. He spoke of the dental chair as an antiquated relic. It had been difficult to get the American dentist to give up this piece of furniture, but in the Mayo Clinic for any serious work on the mouth the recumbent position on the couch was obtained. X-ray examination was insisted on as a routine procedure, both before and after any operative measure. Exposures were standardized, so that the work in the dark room could proceed with almost mechanical regularity. He also showed specimens of the elaborate charts used for reporting on the patients, and added that the clinic worked in close association with the local dentists.

THE Nobel Prize for medicine for 1929 has been divided between Sir Frederick Gowland Hopkins, M.B., F.R.S., professor of biochemistry in the University of Cambridge, and Professor C. Eijkman, M.D., of Utrecht, Holland, for discoveries in connexion with vitamins.

THE next session of the General Medical Council will commence at 2 p.m. on Tuesday, November 26th, when the President, Sir Donald MacAlister, Bt., K.C.B., M.D., will take the chair and give an address. The Council will continue to sit from day to day until the termination of its business.

THE Semon Lecture, entitled "The lower end of the oesophagus at birth and in the adult," will be delivered in the Barnes Hall of the Royal Society of Medicine, 1, Wimpole Street, W., by Dr. Harris P. Mosher, professor of laryngology in Harvard University, on Thursday, December 5th, at 5 p.m.

FOR some time past the X-Ray and Radium Protection Committee, with Sir Humphry Rolleston as chairman, has had under consideration methods whereby hospitals may be protected from fire caused by the combustion of x-ray films. The committee made preliminary suggestions to this end in a letter published in our columns on June 8th (p. 1057), and it has now issued some detailed recommendations on the handling and storage of celluloid x-ray films. We hope to find space for these recommendations in an early issue.

INTERNATIONAL SOCIETY OF MEDICAL HYDROLOGY.

Annual Meeting in Hungary.

THE annual congress of members of the International Society of Medical Hydrology was held this year in Budapest, from October 13th to 18th, by invitation of the Hungarian Government and of the University of Budapest. The International League for Combating Rheumatism, an offshoot of the society, also held its annual meeting in conjunction with them. In all, twenty-four nations were represented, official delegates being nominated by most Governments. This would seem to be an indication of the awakening interest which is being taken in the subject of rheumatism and arthritis throughout Europe, due, presumably, to the realization of the part it plays as a disease of great industrial importance.

The fifteen English representatives were joined in Brussels by the representatives of Holland, France, and Belgium. In spite of the early hour of their arrival at Budapest (6.15 a.m.) they were met at the station by a deputation headed by Professor Vamossy, and conducted to their hotels. The council was later invited to lunch by Dr. von Dalmady, professor of balneology in the University. The same evening the Hungarian Balneological Society, under the presidency of Dr. von Vamossy (professor of therapeutics), entertained the congress in lavish style at the Ritz Hotel.

On Monday, October 14th, the congress was formally inaugurated in the Great Hall of the Hungarian Academy of Sciences. The opening address was delivered by the chairman of the International Society, Dr. R. Fortescue Fox, who introduced the president for the coming year—Baron A. de Korányi, professor of medicine in the University of Budapest, and senior physician to the University hospital. Speeches of welcome were then made by the Minister of Social Welfare on behalf of the Government, the Lord Mayor of the city, and the Dean of the Faculty of Medicine. A letter was also read from Lord Dawson of Penn, the retiring president, regretting his absence.

Action of Hypertonic Waters.

The first medical discussion, on the action of hypertonic waters, was then introduced by Professor Dalmady, who stated that, given a sufficient concentration, the effect of all hypertonic waters was similar, since the chemical factor could be discounted, and only the osmotic factor counted. In naturally occurring hypertonic waters, however, this concentration was never reached, and the chemical composition of the waters must therefore be taken into account when considering the indications for each type of water, owing to the absorption of the various chemical ions. This had the effect of extending their therapeutic uses to such conditions as arthritis, which have long been known to benefit by their use.

Professor Pinilla (Madrid) read a paper on recent research he had conducted on the effect of hypertonic waters on an isolated loop of intestine. He was of the opinion that their action was not purely osmotic, but that the integrity of the local nervous system was essential. He mentioned the view of Sanarelli that the purgative action of salines was due to the stimulation of the nervous network by the dissociated ions in the body fluids. This view was further emphasized by Dr. Harpuder (Germany), who stated that the saline ions appeared to be reabsorbed in the intestine to an extent determined by their diffusibility. He found also that although reabsorption did not take place from the stomach, yet the gastric juices were largely stimulated by solutions of moderate concentration. Dr. Fortescue Fox (London) referred briefly to the effect of these waters on the "congestive disorders of middle life." This paper was discussed briskly by representatives of most spas which have experience with this type of case, with the notable exception of Harrogate, which was unrepresented at the congress.

The members were then taken to see many of the chief sights of the old town; after lunch they inspected the well-known "Hunyadi János" springs, and were shown a cinema film representing Hungarian life and customs. They were entertained to dinner in the evening by the Royal Hungarian Government, when speeches were delivered by the Minister of Social Welfare and Labour, Professor Dietrich (Berlin), Dr. Fortescue Fox (England), Dr. Ferryrolles (France), and Senator Professor Gabbi (Italy).

Hydrotherapy in Cardio-vascular Disease.

On the next day the subject for discussion was the use of waters and baths on cardio-vascular disease; it was introduced by Dr. Schmidt (Hungary), and continued by Dr. Mougeot (France), who spoke as one who had had twenty-five years' experience of this type of treatment. He believed that the cardiac patient benefited considerably from carbon dioxide bath treatment, but not in most cases from the ingestion of waters. During the discussion the general opinion appeared to be that this type of treatment was very useful in all forms of heart disease which were not attributable to any curable cause—for example, digestive arrhythmia—and in which the compensation was not good. Arterial hypertension, with or without cardiac involvement, was also considered to be an indication, unless the pressure was extremely high. Sir Thomas Lewis's work on the capillaries was discussed.

An excellent demonstration of cases of arthritis, illustrating his classification, was given by Dr. L. von Papp, who later showed the congress his methods of treatment by mud and physiotherapy at the St. Luke's bath, where there is a natural hot-mud lake of 500 metres square; round it there is built one of the many palatial hydrotherapeutic establishments of Buda. Later in the afternoon tea was taken at Dr. Jakabo's magnificent sanatorium in the mountains which surround the city. In the evening a gala performance of Poldini's *Carnival Wedding* was given at the Opera.

Research in Rheumatism.

On October 16th the International League for Combating Rheumatism arranged discussions on the relation between acute and chronic rheumatism in the various countries, and on the haematology and serology of rheumatism. In the second discussion Mr. Joseph Race (Buxton) read an excellent and interesting paper embodying his researches at the Devonshire Hospital. He considered that but little information could be obtained by means of the blood count, but that the suspension stability curve was of the utmost importance in every case of arthritis, both prognostically and as an aid to correct diagnosis. Dr. Zimmer (Berlin) read a valuable record of research on the endocrine aspects of arthritis, and emphasized his belief in the importance of the Arneth count. Dr. Van Breeman (Amsterdam), honorary secretary, produced a large number of records of blood counts made during the last ten years on rheumatic patients, for comparison with others; he appealed for an international uniformity of nomenclature in these matters, as did also Dr. Kahlmeter (Sweden).

At midday the congress went up to the Royal Palace, where they were received by His Highness Admiral Horthy, Regent of Hungary, who expressed his pleasure at the society's choice of a meeting-place this year. In the evening, at the invitation of the Government, the magnificent Agricultural Museum was visited for the purpose of sampling the various Hungarian wines; this proved an extremely popular fixture.

On October 17th a general meeting of the society was held at the St. Géllert Hotel. It was decided that the annual congress next year should be held in Lisbon, by invitation of the Government. Lunch was then taken, by invitation of H.R.H. the Archduke Francis Joseph, the chief speeches being those of the Archduke, Professor Korányi (president of the International Society), Dr. J. Burt (England), and Professor Taipale (Finland). Later, members of the congress were taken up the Danube by boat, returning in time for the farewell banquet given by the Lord Mayor of the city, which was followed by a dance.

The official congress being over, many members availed themselves of the invitation of Professors Stresser and Freund to spend two days in Vienna to study the treatment of the rheumatic diseases in a city which had not the advantage of being provided with natural waters of curative value. The members were received at the Wenckebach clinic; a number of cases of arthritis were demonstrated by the representatives of four countries, and notes were compared. Later the party was welcomed in the Rathaus by the Burgomeister, who was gracefully thanked by Dr. C. W. Buckley (England). After lunch the sights of the city were visited, including several establishments for the treatment of arthritic patients insured by the friendly societies of the various trade unions. These establishments are of the type of the "centre" now being built for this purpose in London by the British Red Cross Society; moreover, research work is largely subsidized.

Australia.

A Study of Mental Deficiency in Victoria.

During the last few years the anatomy department of the Melbourne University has received from the Edward Wilson Trust financial grants in aid of scientific and clinical studies into the subject of mental deficiency. These grants come to an end this year, and an extremely interesting report of what has been done has just been furnished by Professor R. J. A. Berry.[1] Earlier work had been done jointly by Professor Berry and Mr. S. D. Porteus, who, with Miss Temple, was seconded to the University department from the Education Department of the State of Victoria, for the years 1917 and 1918. Their researches were directed mainly towards the ascertainment of the normal rate of brain growth in the normal boy and girl, and of any association of deficiency of mental development with physical growth. Mr. Porteus is now professor of psychology in the University of Hawaii, and his development of these earlier researches whilst research director at Vineland, New Jersey, is well known. Professor Berry has continued the work in Melbourne, and his methods and conclusions are of the highest importance. Reference may be made to his article on "Brain and mind" in the *Journal* of April 19th, 1924 (p. 707), and to his book with the same title published by the Macmillan Company last year. In those publications are explained the procedure and clinical methods which Professor Berry has adopted, and which he has followed in the 1,541 cases dealt with in this report to the Edward Wilson Trustees. These cases were mainly children and adolescents, but included some adults. They were gathered from various hospitals, institutions, or welfare departments. Both sexes were represented, but the males were nearly twice as many as the females. In each case the usual medical history—personal, family, and ancestral—was obtained. The scholastic or educational work of each was investigated. The social and environmental conditions were very fully gone into and taken into account. Then the various tests, physical and mental, on which Professor Berry relies were applied. They are: cubic capacity of brain, standing stature, sitting stature, weight, right grip, left grip, vital capacity, Binet tests, Porteus tests. Professor Berry admits that the methods which he and others have adopted for "cubing the living human head" are imperfect, even "somewhat crude," and he emphasizes that such tests should "never replace the most attentive study of the individual." But he is convinced "first, that special clinical methods are essential in the diagnosis of the amentias; second, that these methods should not replace ordinary medical methods of examining the nervous system, but should be an addition to the same; and third, that the diagnosis should be solely in the hands of the medical profession." This third point is of considerable importance just now, when it is sometimes claimed that the teacher alone can make a correct diagnosis. It is true that many of the lower grades—the idiots and imbeciles—can be recognized with ease even by the untrained, and that in all aments the taking into account of any educational experience is of the greatest importance; but many of the higher-grade aments, the much more socially dangerous feeble-minded, pass unnoticed even by the medical profession. Professor Berry claims that his experience and the statistics detailed in this report have shown that it is precisely in these cases that the tests and measurements mentioned have proved their value. As regards head size, he says, "it appears to be definitely established that at least two-thirds of mental defectives are, or tend to be, distinctly microcephalic"; and "the mentally abnormal are much more irregular in their brain growth than the normal, have a pronounced resting phase in this growth about the

[1] 1929. Melbourne: *Argus* Office, Melbourne, Victoria.

age of puberty, and never catch up to the normal." The value of the other tests combined is assessed, and they are credited with a high degree of usefulness. No reference is made in the report to Dr. Lewis's investigations for the Departmental Committee (possibly the report was written before the results of these investigations could be read in Australia), but Professor Berry agrees that "it is certain that the incidence" of mental deficiency "is much wider spread than previous statistics would lead us to believe." His report should reinforce the urgent demand for further inquiry and action on this matter, and must surely spur the State of Victoria at once to supply its woeful legislative and practical needs in this connexion.

New Home for the N.S.W. Branch.

On September 7th the foundation stone of the new building to house the offices of the New South Wales Branch of the British Medical Association was formally laid by Sir Ewen Maclean, Past-President of the British Medical Association. Advantage was taken of Sir Ewen Maclean's presence in Sydney, while attending the Australasian Medical Congress, held there during the week, to ask him to perform this ceremony. The New South Wales Branch of the Association up till recently occupied its own premises in Elizabeth Street, Sydney. These being resumed by the city council, the Branch has, for the time being, been located in offices in the Government Savings Bank in Castlereagh Street. The site of the new building is in Macquarie Street, Sydney. It is to be a building of twelve stories, housing the offices and library of the Branch, and it will, in addition, have offices for some hundred tenants. The building will probably be finished by the middle of 1930. Dr. F. Brown Craig, president of the New South Wales Branch, presided over the ceremony, and gave a brief address outlining the history of the movement to provide this new permanent home for the offices of the Branch. After declaring the foundation stone well and truly laid, Sir Ewen Maclean gave a short address, felicitating the members at the New South Wales Branch on the site that they had chosen, and wishing them every success in their new premises. Dr. W. A. Crago, honorary treasurer of the New South Wales Branch, and Dr. R. H. Todd, honorary secretary, proposed a vote of thanks to Sir Ewen Maclean, and expressed their pleasure in the association of the parent body with the New South Wales Branch by the kindly consent of the immediate Past-President of the British Medical Association to perform the ceremony.

The Hospital Act.

The new Hospital Act for New South Wales has been assented to and is now in operation. The main features of this Act are, the appointment of a Hospital Commission, with a full-time officer as chairman, to correlate the working of all hospitals, to decide the types of hospitals to be established, and to allocate any Government fund according to subsidies. The system of voluntary contribution is to be maintained. The hospitals are to have the right to charge the patients according to their means and the services rendered, and also to have the power to sue for such failure to pay. The commission may, at the request of any hospital, hold an inquiry as to whether it is desirable that any portion of the hospital should be set apart for the admission and treatment or persons able to pay for, and who may contract with the hospital to provide for, intermediate accommodation, and, after inquiry, authorize the setting apart of any such portion. The regulations may provide for the establishment, by agreement between employers and employees, of industrial contribution schemes. It is hoped that this will be a great advance on the previous legislation, in that, while continuing the principle of voluntary contribution, that side of the work which is performed as a charity will be maintained. It will enable the hospital to charge and obtain payment from those people who are able to afford to pay something, and so will prevent the abuse of charity. It will also enable a scientific scheme of hospitals to be established according to the needs of any district, and, further, will facilitate the establishment of the community hospital, where patients graded in accordance with their incomes can be treated under the best hospital conditions.

England and Wales.

Lord Moynihan's Address at Burnley.

At the opening of the new radium clinic at the Victoria Hospital, Burnley, on October 28th, Lord Moynihan delivered an address on the cancer campaign in this country. To a medical man, he said, Burnley was sacred ground, for in that town lived Sir James Mackenzie, one of the greatest physicians of all time. It was a simple fact, he continued, that surgery in its attack upon cancer had reached its limit, and as one in seven over 30 years of age died of cancer it became imperative that something more should be done. While the general mortality rate had been lowered 32 per cent. in the last twenty years, the death rate from cancer was increasing, and during this century alone no fewer than twelve million people in the civilized world had lost their lives from this disease. In two ways could the attack on cancer be made more effective —by education and research. He had occasionally been told by colleagues that it was not wise to talk of cancer to the public, because it would excite fear in the hearts of those who listened. He himself feared nothing in the world that he understood; fear was a quality of ignorance, and if the public could be enlightened about the bitter but not wholly unfavourable truth, much would be done to help them. It had been suggested that by his statements he had frightened the public to death, but he recalled the fact that following an address he had given some time ago to a lay audience a number of persons had consulted doctors and been relieved of cancer by an operation at an exceptionally early stage. Instead of frightening people to death, said Lord Moynihan, he had been frightening them to life, which was a much better thing. On the subject of education he said that people had such erroneous ideas about cancer that no sooner had the medical profession started its cancer campaign than the quack was able to start his; when he read the quack advertisements it made him almost wish to be suffering from the disease in order that he might undergo the swift magical cure the quack had to offer. The incredulity of people had also to be dealt with. Cancer was being cured every day by surgical methods, yet many persons thought that if a growth was operated on it would inevitably recur. Yet research into treatment for cancer of the breast had shown that where the tumour was limited to the organ involved 60 per cent. of patients were alive and well ten years after the operation, without a sign of cancer. Emphasizing the need for research work, he said that many cases of cancer of various organs were now being treated by radium in expert hands with a success which sometimes equalled, and sometimes surpassed, the best the surgeon could do. Radium, however, was a dangerous remedy, and he was delighted, therefore, that in Burnley they were putting their clinic into the hands of experts, who could control such factors as the amount to be administered, the frequency of administration, and the length of exposure. In this way they could carry out valuable research work side by side with the treatment. To the individual suffering from cancer it was all the world to him that he should be cured, but behind the individual was the mass of people, and in the treatment of every individual case it was essential that such research work should be carried out as would increase knowledge and strengthen the doctors and physicists in their attack upon future cases.

Health in Industry.

The Industrial Health Education Society was founded in 1925 for the purpose of teaching the workpeople of this country how to prevent or at least mitigate sickness and disability arising in the course of their employment. Its honorary president is Sir Humphry Rolleston, and the president of the London area Sir Thomas Horder; the offices are at the B.M.A. House, Tavistock Square. One of the main activities of the society is the provision of health talks by arrangement with the workers' organizations of various industries. Since 1925 more than a thousand of these informal addresses on occupational diseases, accident prevention, and personal hygiene have

been given on behalf of the society by members of the medical profession. The society's work is, however, hampered by lack of funds, and in order to stimulate interest and support a luncheon was given at the Carlton Hotel, London, on October 31st, by Lord Melchett. The company included prominent industrialists and trade union leaders, and among the medical guests were Lord Dawson, Sir Humphry Rolleston, Sir George Newman, Sir John Rose Bradford, Dr. H. B. Brackenbury, Dr. Robert Hutchison, Dr. Charles Porter, Dr. James Fenton, and Dr. G. Clark Trotter. In proposing the toast of the society Lord Melchett declared his belief in the importance of the work it was doing. As one with great experience among industrial workers he was convinced that lectures on health matters were invaluable, and the doctors who gave their services in this way deserved the gratitude of all. He hoped that the society was exercising an educative influence upon the employers too, for they were quite as much in need of guidance. The average citizen's knowledge of health matters was still in an extraordinarily primitive state, and it was disappointing to find how few workpeople in this country took advantage of the facilities which enlightened employers provided for them. In reply to the toast Sir William Milligan, chairman-elect of the society, gave an account of the work accomplished during the past four years among workers in varied occupations. He explained that the health talks were not formal lectures, but rather an exchange of opinion and thought between medical men with intimate knowledge of the subject and men and women engaged in particular occupations. In order to continue and extend this work the society needed a larger measure of sympathy and help from the employers of labour. In proposing the health of Lord Melchett, Mr. Ben Tillett, M.P., remarked that the last thing the average employer thought about was the sanitary convenience and the needs of his workpeople, and that the last thing the workers themselves thought about was the same question. He looked forward to the day when both worker and employer would acquire a real sense of the value of human health.

Freedom of Kingston-on-Thames Conferred upon Dr. R. N. Goodman.

The freedom of Kingston-on-Thames was presented, on October 16th, to Dr. R. N. Goodman, in view of the very distinguished services he has rendered to the Royal borough. In making the presentation the mayor stated that Dr. Goodman had been one of the original members of the education committee, which was appointed in 1903, but before that he had served on the board of governors of the local endowed schools, and so far back as 1893 was on the committee of the old public schools dealing with elementary schools; to this committee he was secretary in 1895. Although Dr. Goodman had been primarily interested in technical education it was probably to the secondary schools that his services had been rendered more fully. Thus in 1904 he took an active part in raising money to preserve Kingston Grammar School and to place it on a sound financial basis. The school was largely indebted to him for its spacious playing fields and the preservation of its chapel. Tiffin School also owed much to Dr. Goodman, who had been energetic in promoting the erection of a new school, which would soon be opened. He had represented the borough on the Surrey County Council, and had been active in supporting the work of the Victoria Hospital and the Kingston Nursing Association. His generosity had been largely responsible for the purchase of the Kingstonian Football Club ground, which would be a great asset to the borough. Dr. Goodman, replying, referred to incidents connected with the progress of educational facilities in Kingston-on-Thames, and commented on the excellent assistance to the borough that had been rendered by various other members of the local medical profession. At the subsequent mayoral dinner a warm tribute was paid by Sir George Penny to Dr. Goodman for his magnificent work on behalf of education, which had well entitled him to the honour of being one of the seven freemen of the borough. Dr. Goodman, in returning thanks, mentioned that the only living freeman of the borough beside himself was Lord Baden-Powell, and he commented on the fact that in both cases the distinction might be said to have been conferred by reason of special interest taken in education. In an editorial article in the *Surrey Comet* for October 19th, the conferment is described as "a definite and spontaneous expression of civic appreciation of real worth, richly deserved by one who has not sought it in anything he has ever done for the town of his adoption."

Blood Transfusion Service in Oxfordshire.

As the result of a public meeting held at the Radcliffe Infirmary in June last, a branch of the Blood Transfusion Service of the British Red Cross Society has been established in Oxford. The meeting was convened by the county director (Dr. F. G. Gardner) following a request by the infirmary authorities to the Red Cross for help. The mayor presided, and Mr. Oliver, the honorary secretary of the parent organization, who has done so much to help the cause of blood transfusion, gave a lucid and interesting address. Members of the honorary staff explained the technical and scientific aspects of the subject, and as they will administer the service, nothing will be lacking in the way of care and skill. A number of volunteers have offered themselves, and have been "grouped" and registered, and it is hoped that an adequate service is now definitely formed for the district. The rover scouts, as in so many other places, have been most helpful, and many of them have been placed on the register. It is unnecessary to-day to refer to the importance of blood transfusion as a life-saving measure. Under the auspices of the British Red Cross Society branches of this service are coming into being all over the country and they help to carry on one of the many, and by no means the least important, of the society's activities. The increasing usefulness of the service is illustrated by the growth of the London branch; this was formed in 1921, in which year it served only one case. In 1922 the figure had risen to thirteen, and the following figures represent the cases served in the years from 1923 to August, 1928, inclusive: 12, 62, 428, 727, 1,293, and—for eight months of 1928—840.

King Edward's Hospital Fund for London.

Evidence that the voluntary hospitals are still strengthening their hold upon the confidence of the general public will be found in the statistical review of the work and finance of the London hospitals for 1928, which has been issued by the King Edward's Hospital Fund for London. In place of its familiar reports in previous years, the Fund has now decided to record this information in two publications, one being a statistical summary of the income, expenditure, work, and costs of these hospitals, and the other a statistical review of the work and finance of the London hospitals. Each of these can be obtained from the offices of the Fund, 7, Walbrook, E.C.4, the price being 1s. net. The review for 1928 opens with a table showing the expansion of hospital work during the last five years. The average number of beds occupied has increased from 11,350 in 1924 to 12,980 last year; there have been similar increases in the numbers of new in-patients, new out-patients, and the total out-patient attendances. The bed complement was increased by 600 during 1928, and represents an advance of 1,600 since 1924; the average period of residence of each patient in hospital has fallen steadily. The total income of 136 London hospitals amounted to £3,424,000 in 1928, which compares with £3,267,000 in the previous year. The principal increases were: £143,000 in donations and £68,000 in receipts from patients, but the legacies decreased by £80,000, the lowest total received from this source in the last five years. Details of the sources of income are depicted clearly by coloured graphs, and a new feature in this year's review is a diagram of a medicine bottle indicating the total general expenditure of the 136 hospitals, and the proportions of this which are provided by income from investment, receipts for services rendered, and the voluntary gifts required to meet the resulting deficiency. It is interesting to note that, though both the income from investments and the receipts for services have been steadily increasing, these sources provide each year approximately the same

proportion of the expenditure which has correspondingly risen. In 1928 the daily expenditure of the hospitals was over £9,000, and to meet this an increment of more than £4,500 was required from voluntary gifts. In short, the financial difficulties of the hospitals in recent years are shown to have been due, not to diminishing income, but to steadily increasing expenditure consequent on the expansion in the volume and changes in the character of hospital work. Thus, the expenditure for 1928 increased by 6.6 per cent. over the previous year, and by about 18.4 per cent. over that in 1924; the beds occupied increased by 4.4 per cent. over 1927, and 14.4 per cent. over 1924; while out-patient attendances rose by 5 per cent. as compared with 1924. The increase in the volume of work done was accompanied by a relatively as well as actually higher expenditure; this is referable to the additional benefits given by the hospitals as a result of the advances made in medical and surgical practice. The total general fund income has exceeded expenditure in each of the five years, but the balance is steadily diminishing each year, and was considerably smaller in 1928 than in previous years. At the end of the statistical review the conclusion is drawn that two broad facts emerge from a study of the aggregate figures. The first is that the work of the voluntary hospitals in London is extending in consequence of their ceasing to be solely the refuge for the indigent sick, and their having responded to demands from other classes of the community for services which they alone can give. The second fact is that the receipts of the hospitals have kept pace with the increased expenditure on the whole; the increase in them indicates the quickening of public interest, and affords evidence that the basis upon which the voluntary hospitals rest is broadening. No support is therefore forthcoming for the pessimistic views expressed from time to time that the voluntary system will not be able to discharge the heavier tasks imposed upon it by changing social conditions. So far as London is concerned it appears clear that the community is ready to support in an ever-increasing measure the unique heritage of our voluntary hospital system.

Scotland.

University of Glasgow.

Sir Donald MacAlister, Bt., K.C.B., M.D., who recently resigned the post of Principal of Glasgow University after twenty-two years' service, has been elected Chancellor of the University, in succession to the late Earl of Rosebery. The appointment was made on October 30th, at the meeting of the General Council of the University.

As briefly announced last week (p. 836) the King, on the recommendation of the Secretary of State for Scotland, has been pleased to appoint Robert Sangster Rait, C.B.E., M.A., LL.D., to be Principal of the University of Glasgow in succession to Sir Donald MacAlister. The new principal was formerly professor of Scottish history and literature in the University of Glasgow and Historiographer Royal for Scotland. He was born at Aberdeen and Oxford, where he was educated at Aberdeen and graduated in 1874, and was elected to a fellowship of New College. In 1913 he was elected to the newly founded chair of Scottish history and literature at the University of Glasgow, and in 1919 became Historiographer Royal for Scotland. During the period of his connexion with Glasgow, Professor Rait has taken a prominent part in administering the affairs of the University, being for a time dean of the Faculty of Arts. During the war he served in the War Trade Intelligence Department, and for his services was created C.B.E. in 1918. He has occupied himself to a great extent not only in antiquarian research and publications with regard to Scotland, but also in military and Indian history. He has long been recognized as a popular and gifted lecturer to audiences of all kinds, and has taken great interest in the problems of university education.

General Board of Control for Scotland.

The fifteenth annual report of the General Board of Control for Scotland has just been published. At the beginning of the present year there were in Scotland 19,031 insane persons, exclusive of those maintained at home by their natural guardians, but including the inmates of training schools for imbecile children who had not been certified under the Mental Deficiency Act. Of these, 2,973 were maintained from private sources, 15,985 by parochial rates, and 73 at the expense of the State. The total number showed an increase of 329 over the figure for the previous year. The total expenditure of local authorities on the maintenance of pauper lunatics for the year ended May 15th, 1928, was £781,586, of which £667,436 was for maintenance in asylums, £38,828 for maintenance in lunatic wards of poorhouses, and £50,728 for maintenance in private dwellings. Of this expenditure £51,593 was repaid by relatives and others, so that the net expenditure by local authorities amounted to £614,260. The report comments upon several important medical points. The question of "carriers" in relation to infectious disease in asylums is mentioned. One carrier had been responsible for transmitting enteric fever to over a hundred people in widely separated parts of the country owing to frequent changes of situation, and, ultimately becoming mentally depressed, was certified. At present fifteen enteric fever carriers are under treatment in Scottish asylums, all women. The Govan District Board of Control had provided a special detached hospital for insane carriers, which was large enough to accommodate forty patients, and they were prepared to take all the carriers from other Scottish mental institutions. The undesirability of continuing the use of the term "pauper" as applied to lunacy is adverted to. The number of patients in asylums over the age of 65 was 2,964, representing approximately 23 per cent. of pauper certified patients and 16 per cent. of private certified patients in asylums. Of these elderly patients 22 per cent. were bed-ridden. The designation of "pauper" is particularly objectionable when applied to the insanities of old age, and the anomaly is pointed out that whereas an ordinary pauper is not qualified by pauperism for an old age pension, a person who has technically become a pauper as the result of insanity is disqualified from continuing to receive an old age pension. With regard to service patients, 2,074 patients who had served in the army were admitted to Scottish asylums from 1914 to 1928. Of these 650 had been discharged recovered, 320 unrecovered, and 356 had died, while the number still under treatment at the end of 1928 was 635. The Board of Control is of opinion that more extensive use should be made of the administrative facility for boarding out patients, which makes it possible for the board to remove patients from asylums to private dwellings and to transfer them if necessary back to institutions, without interference with the judicial order on which they were originally committed to asylums. Remarks are made in regard to the equipment of the ideal mental hospital, which should possess laboratories for investigation and research. In particular, the possession of an x-ray apparatus by every mental hospital with 500 beds is considered by the Board to be as necessary as it is for a general hospital. The value of installations for electrical therapy, hydrotherapy, and light therapy is commented upon.

Gift to Edinburgh University.

A sum of £30,000 has been presented by Mr. T. B. Macaulay, president of the Sun Life Assurance Company of Canada, to the Animal Breeding Research Department of Edinburgh University. Of this sum £5,000 is set apart for the purchase of a farm where the theories of the laboratory can be tested out. This supplements a gift of £30,000 previously made by Lord Woolavington towards the a gift of £10,000 by the Rockefeller Trust, and endowment of the chair of animal breeding at Edinburgh. It is expected that the genetics department, which is a unique department of Edinburgh University, will be ready for occupation early next year. It is at present under construction at the King's Buildings on the south side of the city. The work to be done will be of great importance

from the medical as well as from the agricultural point of view. The department is under the charge of Professor F. A. E. Crew, and work is especially being carried on at present along the lines of the effect which the organs of internal secretion exert on the various phases of reproduction. The department has had the co-operation of farmers and breeders throughout the country, especially in considering problems relating to sheep, and in investigations regarding the inheritance of milk yield and quality.

Correspondence.

LOCAL ORGANIZATION OF MATERNITY SERVICE.

SIR,—In February last I suggested to the executive of the Newcastle Division that it would be in the best interests of maternity in this area if a thoroughly representative committee were appointed to investigate the present system. This city contains a medical school concerned with the teaching of students and post-graduates; a maternity hospital where midwives and students are trained; health authorities, concerned with organization and administration; and doctors and midwives. All the essentials for organizing an efficient maternity service being present, it seemed desirable to have a general discussion.

The committee appointed is thoroughly representative of all these interests, and the discussions which have taken place have been most helpful. They have enabled those taking part in them to appreciate each other's difficulties and limitations. The various problems, such as nursing, the provision of dressings, and expert assistance for necessitous cases, and so on, have been dealt with in a most practical manner. The bedrock principle of the committee has been to discuss how best to make good the very obvious existing deficiencies as a preliminary to the organizing of the service as a whole. Such a committee keeps each section of the profession in touch with what is going on in other departments.

The next problem to be tackled is the relation of the local doctors to the ante-natal centres, upon which so much depends for the future of obstetrics in this area. Whatever emanates from this committee will have the hallmark of co-operative effort, and will be free from any taint of bureaucracy.

It would be sound policy if similar committees were established in other parts of the country. Even in areas without a medical school or maternity hospital it would be helpful if the doctors, health officers, and nursing supervisors met together and freely discussed the problems concerned.—I am, etc.,

E. FARQUHAR MURRAY,
M.D., F.R.C.S.

Newcastle-upon-Tyne, Oct. 30th.

POPULAR HEALTH LECTURES.

SIR,—It is credibly reported that the members of the Birmingham Insurance Committee are agreed as to the value of the health lectures to insured persons delivered under their aegis. The only criticism they put forward is that some of the lecturers have been unable to couch their utterances in sufficiently simple language, and have made too free use of technicalities. Though no evidence is produced to show the real value of these lectures, doubtless it is not fictitious, and some of the seed has fallen on good ground. If it is allowed that valuable work has already been done in spite of a certain amount of obscurity, what a field of opportunity lies in the direction of lucid, simple, and entertaining instruction.

In considering the difficulties shrouding the future of insurance practice—not the least of these being the embarrassment of the Drug Fund—one is thrown back again and again to the weapon of education. Has not the time arrived when the Minister of Health should include it as an essential part of the central administrative problem? If the education of the insured person is worth while—and the Birmingham Insurance Committee assures us that it is—then its possibilities should be exploited to the full; and no one can say what benefits might accrue to the whole insurance system. But it is of importance that health lectures should be given only by those who understand the popular need and the popular mind, who are themselves equipped with a genuine gift of expression, and are not afraid to salt their remarks with humour. There would then be no necessity, in the reported words of a member of the committee, "to point out kindly to the doctor the desirability of making his talk so simple that it would be of the greatest value to those attending."—I am, etc.,

W. A. STOKES.

West Malvern, Oct. 24th.

BACTERIOLOGY OF THE TONSILS IN RELATION TO RHEUMATISM.

SIR,—The recent investigations of Drs. Nabarro and MacDonald into this subject, as detailed in their article published on October 26th (p. 758), is a further valuable contribution to this important question. The similarity in their bacteriological findings in tonsils of rheumatic and non-rheumatic children further emphasizes the fact that the presence of pathogenic organisms, whether streptococcal or otherwise, in any possible focus of infection, does not necessarily mean that an infective rheumatic condition will result. The individual resistance to such an infective agent is apparently of greater importance than the organisms concerned in determining the commencement of a systemic infection.

In the paper "Foci and nature of infection in 100 cases of rheumatic conditions," published in the *Journal* of July 13th (p. 43), I reported that by the pathogen-selective culture method I had been able to discover the cases in which the tonsils contained an active focus of infection. From a series of 100 patients suffering from rheumatic infections I was able to make pathogen-selective cultures from the tonsils of 57, and in 41 of these (approximately 72 per cent.) was able to isolate streptococci pathogenic to the patient examined; in 20 the streptococci were haemolytic, and in 21 they were non-haemolytic. All the patients in this series were adults with a history of more or less established rheumatic infection. It would be of interest to carry out similar pathogen-selective culture examinations upon the tonsils of rheumatic children, and from my experience it seems to me that not only would it be possible to demonstrate in which of such children the tonsils were active infective foci, but also which of the streptococcal strains present was the actual infective agent in the patient concerned. Furthermore, in children showing as yet no sign of active systemic infection, the isolation of organisms pathogenic to the patient by the pathogen-selective culture method would not only incriminate the suspected tonsil, but indicate that sensitization to such an infection was taking place. Apart from the necessary removal of the infective focus, a child in this condition would require active immunization either to desensitize him or to increase his general resistance to the specific infection.

In the group of cases I have referred to it was possible to show that active pathogenic infection in adult rheumatic patients was taking place from the post-nasal space and associated sinuses in 77 per cent., from the intestinal tract in 65 per cent., from the tonsils in 63 per cent., and from the dental foci in 62 per cent. Such findings may not hold good for children, and it is likely that the pathogen-selective culture method might prove the tonsil in rheumatic children to be by far the most important focus of infection, but in any individual case the possibility of serious infection being present in the post-nasal or intestinal areas should not be forgotten or overlooked. Such omission is liable to occur, merely because both these foci are less easily observed in the child than the more obvious tonsil.—I am, etc.,

E. CRONIN LOWE, M.B.E., M.B., B.S.

Liverpool, Oct. 30th.

TONSILS AND ADENOIDS IN HOSPITAL PRACTICE.

SIR,—In the *Journal* of October 19th (p. 736) there appear letters from Dr. C. Paget Lapage and Mr. J. Arnold Jones outlining a scheme of investigation that is being conducted at the Manchester Children's Hospital to determine whether tonsil operations in children as out-patients are attended by more accidents than those performed under more comfortable conditions.

At the London Jewish Hospital pressure on our accommodation has compelled us to undertake these operations in the out-patient department. Not feeling too sure about the environment to which these children are sent back after operation, we had inquiries made some time ago as to the home conditions of the children booked for operations, but the information elicited was sad beyond any expectation. Out of one group of forty-eight cases, no fewer than eleven were found to live in circumstances which are really appalling, as can be seen from the following summary reports.

Girl, aged 4½ years, shares bed with parents; there is one other child, they live in a box-room.
Boy, aged 12, shares bed with two sisters on top floor in small box-room.
Boy, aged 5, shares bed with his father and two brothers; three girls share the mother's bed.
Girl, aged 5½, shares bed with her parents and another child; two other children in same small room.
Girl, aged 7, shares bed with two others in parents' room.
Boy, aged 1½, shares bed with three other children in parents' room. Conditions very bad.
Two sisters, aged 4 and 5½, share single bed in small room where parents also sleep.
Boy, aged 7; three children share bed in small room. Conditions very bad.
Girl, aged 3, shares bed with two other children in same room as parents. Conditions most unhealthy.
Girl, aged 4, shares bed with three other children. Conditions very bad

This list is selected only in the sense that it represents the less favourably situated among the children awaiting operation. It is not selected to bring out the worst of that class, and is typical both in the proportions and conditions of other groups investigated. The conditions revealed, therefore, apply to approximately 25 per cent. of the children booked for operation at this hospital, and is in all probability typical of other hospitals in the East End of London. It may be that elsewhere conditions are more favourable, but personally I feel that the opponents of the propaganda in favour of in-patient treatment of these cases have much to answer for.

Unfortunately the realization that these children are best treated as in-patients does not automatically create the necessary beds. We are therefore still compelled to perform these operations in the out-patient department, and as a sop to our surgical conscience we have put the worst cases on the waiting list for in-patient admission; that list, however, is heavily overburdened, and shows but little sign of ever coming down to manngeable proportions. The truth of the matter is that it is not merely a question of there being insufficient accommodation for these cases, but that there are far too few ear, nose, and throat beds altogether. In London the beds at the special eye hospitals considerably outnumber those at the ear hospitals, being in fact, about double, though the need of the otologist is the greater. At the general hospitals the number of beds allotted to the ear surgeons is almost invariably hopelessly inadequate. It is this shortage of beds which prevents the necessary in-patient treatment of many acute ear conditions, and is directly responsible for the appalling amount of suffering from deafness and discharging ears that is present in the community. The pitiable shortage of in-patient accommodation for tonsil operations is but an exaggerated feature of the general shortage of beds for the specialty. The British Medical Association would do a great service were it to take up the larger problem.—I am, etc.,

M. Sourasky.

London, W.1, Oct. 30th.

THE CONTROL OF MEASLES.

Sir,—I should like to endorse the opinions expressed by Dr. D'Ewart (October 19th, p. 737) and Dr. Stanley Banks (November 2nd, p. 830). I feel sure that many doctors who see large numbers of these cases in general practice must have come to similar conclusions. I would go further and say that broncho-pneumonia as seen in children is not a disease *per se*, but is a manifestation of an avitaminosis (usually of the rickety type) making its appearance when an illness such as measles or whooping-cough lowers still further the already decreased natural resistance.

From the point of view of preventive medicine I think it is most important that we should consider the problem from this aspect—that is, not merely that broncho-pneumonia tends to follow rickets, but that, for all practical purposes, broncho-pneumonia *is* rickets. One does not expect a builder to be anxious because a house will have to withstand a fall of snow or a deluge of rain if he has used sound material. "One would be surprised were he to say that a building "had never been the same since that high wind two years ago."

Let us agree, then, that it is almost entirely among the "jerry-built" children that we get complications and bad health following measles. Then we may endeavour—by attending to the deficient diet and other causes of this underlying weakness—to make those children more resistant, like their more fortunate brothers and sisters who come through such illnesses unscathed.—I am, etc.,

A. Keith Gibson.

London, W.10, Nov. 3rd.

TANNIC ACID TREATMENT OF BURNS.

Sir,—The results of a questionary sent out to various hospitals and authorities have been considered by the Medical Advisory Committee of the Industrial Welfare Society. The consensus of opinion shows that, although tannic acid has been proved to be of considerable value—especially in hospitals—it should be used only under medical supervision and not as a first-aid application for burns by the general public or ambulance attendants, nor in the nursery, owing to the complicated character of the treatment and the extremely poisonous nature of the corrosive sublimate suggested to be used with the tannic acid.—I am, etc.,

D. A. Coles,
Chairman, Medical Advisory Committee of the Industrial Welfare Society.

London, S.W., Nov. 2nd.

RESPIRATORY FAILURE DUE TO CEREBRAL ABSCESS.

Sir,—In his interesting and detailed account in the *Journal* of November 2nd (p. 802) of a death from a left-sided tempero-sphenoidal abscess of otitic origin, Dr. A. Anderson stresses the manner of death—respiratory failure, sudden in origin. Having seen several of these cases in the last year I should like to point out that he has very accurately described what is the typical death. Even when the abscess is diagnosed and evacuated the difficulty of drainage, and the formation of pockets of pus, usually cause a return of the cerebral pressure and the corresponding drowsiness. When meningitic symptoms are present and lumbar puncture is performed, death seldom occurs at once; but the pressure from above sooner or later causes thrombosis or obstruction of vessels in the brain stem; the resultant oedema and respiratory failure are sudden. Death is always respiratory in type, and, when drainage of the abscess is good, it may be long delayed; occasionally recovery may ensue. It would be interesting to know the state of the patient's discs and if there was any aphasia or perseveration. To my mind the great point of interest in this case is that it is a further warning of the possibilities of grave intracranial lesions in otitic conditions without perforation of the tympanic membrane.—I am, etc.,

J. G. Kingsbury.

Sutton, Surrey, Nov. 4th.

QUININE AND BLACKWATER FEVER.

Sir,—In my book on *Blackwater Fever* I stated my opinion that this disease was due to the malignant tertian parasite, and that congestion of the liver *at the time* (as from a chill, alcohol, etc.) threw the whole work of getting rid of the debris in the blood upon the kidneys, as evidenced by the jaundice and the haemoglobinuria. Large doses of quinine may, in some people, produce haemoglobinuria, but that is not blackwater fever, with its intense jaundice, extreme weakness, and enormous spleen. Many persons have taken large doses of quinine without getting haemoglobinuria or any other symptom of blackwater fever. In districts where there are no malignant tertian parasites and where people get other forms of

malaria, and have taken large doses of quinine, how is it that blackwater fever does not develop? This variety of parasite is confined to certain highly malarious districts, and in one district I had myself to treat four successive cases of blackwater fever in one house, and there were previous cases in the same house before my time. The occurrence of an attack of blackwater fever in a person taking quinine is apt to suggest that quinine is the cause of the attack. What happens is that the individual, being unaware that he has a malignant tertian infection, either neglects to take his quinine or takes it in the small doses prescribed for prevention, until he gets a sharper attack and develops blackwater fever; or he might take a large dose, but too late to prevent the attack. An examination of his blood during the period when he was not taking quinine would have revealed the presence of the parasite, and by means of a suitable quantity of quinine the attack could have been averted. If the patient had taken doses of quinine larger than those prescribed for prevention he would not have developed the attack. The usual event, however, is that he goes about with the parasite developing in his blood and his liver already congested, and then develops a chill at the time an attack of malaria is due. The small preventive doses of 5 grains will not touch the malignant parasite. For anyone in a malarial district to take 30 to 40 grains of quinine in *one dose* is folly; whereas a brisk purge, prevention of chill, and 15 grains of quinine night and morning will probably prevent an attack of blackwater fever. It is, of course, important to know if the malignant tertian parasite does or does not exist in the vicinity. To withhold quinine in a malignant infection is asking for blackwater fever; on the other hand, if the patient has neglected to take quinine and has a highly congested liver, to prevent blackwater fever it is necessary, first of all, to relieve the latter.—I am, etc.,

A. G. NEWELL, M.D., D.P.H.

St. Leonards-on-Sea, Oct. 27th.

SIR,—The letter by Mr. Morley Roberts (October 26th, p. 787) leads me to express my views founded on some personal experience.

I believe it is held by most authorities that blackwater fever occurs as a sequel to malarial attacks which have been inadequately or ineffectively treated. I suggest that the dosage of quinine—as also the mode of its administration—has, *in itself*, but little bearing on the incidence of this complication or sequel. Although in certain cases it may have seemed evident that administration of quinine has precipitated an attack, I suggest that other factors, greater by far in importance and complexity of action, have been at work, so constituting the main cause, by which I mean the biochemical reactions of the body, and their failure to respond successfully. In this respect the term idiosyncrasy may be suitable.

During several years' tropical experience in malarial countries I have known blackwater fever occur, spasmodically, amongst individuals living under very varying conditions, from those of hardship and exposure to those of comparative ease and comfort. Again, amongst individuals, with apparently similar histories of malarial attacks, who have undergone similar routine treatment (including quinine administration of similar dosages, heroic and moderate), blackwater fever has developed in the few, but spared the majority. The disease has attacked for the first time an individual with a long malarial history, after long sojourn in the tropics, as also it has attacked another who may not have had more than one or two malarial attacks and who may have but recently arrived in the tropics.

It is seemingly a disease that awaits its opportunity, and it has attacked individuals in their homes in temperate climates, when perhaps they may have forgotten about such things as tropical ailments. From all this it would appear to me most probable that in malarial cases it is in the degree of biochemical variations away from the normal that the cause of excessive haemolysis is to be sought and found, as also the cause of failure of the body in some cases to deal with a comparatively slight haemolysis.

The above remarks amount to nothing very much more than the equivalent of a cloak to ignorance, but after a perusal of various publications from time to time, written by different authors, I conclude that the real cause of the disease is as yet obscure, as also is the reason for the apparent individual selectivity. I submit that it is to the biochemist we must look for further enlightenment. From close observation of some twelve blackwater cases during recent years it has appeared to me that symptoms and signs of liver derangement, with inflammation, have been predominating features—*ante hoc*, as well as *post hoc* and *propter hoc*. In this connexion particular interest attaches to the recent articles in the *British Medical Journal* (October 19th and 26th) on liver intoxications, and to the words "may well prove to have a wide clinical application."—I am, etc.,

L. H. BOOTH, M.R.C.S., L.R.C.P.

Sturminster-Marshall, Dorset, Oct. 30th.

TREATMENT OF INFECTIONS WITH S.U.P. 36.

SIR,—After reading Dr. J. S. Hall's interesting letter (November 2nd, p. 831) embodying somewhat far-reaching claims in favour of S.U.P. 36 in the treatment of acute infective disease, especially of acute mastoiditis, in which he says it has "proved specific," I feel compelled to plead for further details of his remarkable series of cases. Meanwhile I would utter a word of warning lest some may be led to interpret the claim of a 100 per cent. cure rate in such a treacherous and dangerous disease as an invitation to forsake the modern development of the Schwartze operation and rely on S.U.P. 36 to the exclusion of all else, in cases advanced to the degrees of empyema, abscess, or even incipient or actual intracranial complication. I feel sure that Dr. Hall did not intend the claim to be thus interpreted, his suggestion rather being to employ the remedy in the attempt to abort an attack of mastoiditis whilst the mucoperiosteum of the tympanum, antrum, and mastoid air cells, and even the bone itself, are still in a recoverable condition—a stage when surgical intervention, other than perhaps myringotomy, is not usually recommended.

I would ask Dr. Hall to let us have details of this particular series of cases, with reference especially to the type of patient, the age, the interval between the onset of the otitis media and the first injection, the signs upon which a diagnosis of acute mastoiditis was based, and lastly, but very important, whether the condition was complicating a primary acute otitis media, or occurred during one of a series of such attacks or even following a chronic otorrhoea or mastoiditis. Should the efficiency of S.U.P. 36 or any other substance be proven, then we, as otologists, must press for the still earlier recognition of the complication, and so perhaps be able to avoid the Schwartze operation altogether, not only in such cases as soon develop obvious mastoid disease, but also in those only too frequent instances of recently established chronic otorrhoea persisting in spite of adequate treatment via the meatus and to the nasopharynx and Eustachian tubes. In these cases it has been, and still is, an uphill struggle to bring the patient to the operating theatre before the hearing becomes permanently damaged or even lost.—I am, etc.,

Stoke-on-Trent, Nov. 3rd. E. HORACE RICHARDS.

THE RACIAL INCIDENCE OF DISEASE.

SIR,—If Dr. Sourasky had read with more care my letter in your issue of October 5th (p. 647) he would have seen that I argued from observations of my own on Jewish people to the established facts of biology, ethnology, and common knowledge. This is *a posteriori* not *a priori* reasoning. Moreover, I expressly claimed to make out no more than a prima facie case for my hypothesis:

> I am able, as a general practitioner, to form an approximate estimate of the proportion of Jews in my neighbourhood, as well as in my practice; and unless Dr. Sourasky is able to make some estimate of this nature in his hospital practice his impressions as to relative racial susceptibility are valueless. He would also find that

I clearly indicated that cold and damp, and not cold alone, predisposed them to infective catarrh. No better example of this could be found than present weather conditions, when a change to cold and wet, following an abnormally dry summer, heralded a widespread outbreak. Further, he would note that I did not say that Jews were not Europeans. But their advent to North-Western Europe, with its "pelagic" as distinct from "continental" climate, is recent; and their quitting of South-West Asia and adjacent regions is, biologically speaking, not remote.

Dr. Sourasky is unfortunate in selecting the Welsh, and the Italians in New York, as races which have evolved in a warm climate and migrated to a cold one. Italian emigrants are mostly from Northern Italy, where the population is of the most mixed racial origin imaginable, notable contributions having come from the north. Any "Iberian" substratum of the people of Wales came from the south when the Mediterranean climate resembled that of Britain at the present day; and it has since been interpenetrated by successive waves of "Alpine," Celt, Saxon, Norman, and other elements.

I did not say that "adenoids are all a matter of disharmony between race and climate," and must remind Dr. Sourasky that we are discussing relative frequency, not absolute incidence. I did not say that adenoids resulted from "respiratory irritation," but from catarrhal infection—a different matter; nor did I say this was the sole cause. But I do find a consensus of opinion in textbooks that infective inflammation of the nasal mucosa, including that often accompanying the exanthemata, is the paramount cause of hypertrophy of the adjacent adenoid tissue, whatever subsidiary part may be played by other conditions. The question of race and environment in pathology is not so unexplored a field as Dr. Sourasky imagines, as he will find out if he follows up the references I have given.

As regards Sir Archdall Reid's dictum (October 26th, p. 782) that "every human race is resistant to every lethal and prevalent human disease precisely in proportion to the length and severity of its past experience of that disease," I take it that he would not object to the addition of *ceteris paribus*. For we must not forget Pasteur's inability to inoculate fowls with anthrax till he kept them with their feet in cold water; nor Trudeau's experiment of inoculating rabbits with tubercle, when he found that those kept in a dark and damp cellar developed the disease and not those returned to the warren. Also non-lethal disease affecting personal attractiveness might be ultimately eliminated through sexual selection.—I am, etc.,

Hampstead, N.W.3, Nov. 1st. J. STEWART MACKINTOSH.

AN EARLY ADVOCATE OF OPEN-AIR EXERCISE.

SIR,—Dr. Jephson's name (referred to in your issue of November 2nd, p. 813) occurs frequently in letters from dwellers in Leamington between the years 1840 and 1870. He was, if not the leading, one of the leading physicians in Leamington. A letter of Sir Francis Galton to his father, Tertius Galton, on March 8th, 1844, runs as follows; I cite the whole of it as bearing on the history of medicine.

Saturday morning.

My dear Father,

As I was not able myself to enter into learned consultation with Pritchard and Dr. Jephson I cannot altogether give up my privilege of "family doctor," and so will write this letter full of prescriptions. But first I must truly congratulate you on your convalescence which Delly tells me is in capital progress, and as I presume only wanting a little hospital patient discipline to make it perfect. Now my prescriptions are:

1st. That the Hospital Patient do on no occasion feel his pulse.

2nd. That the H.P. do never look in the glass to see whether his eyes are red.

3rd. That the H.P. do never examine his own health with a view to self-doctoring.

4th. That the H.P. do make improvements at Claverdon, and commit prisoners at Leamington when so inclined, but that he never attend canal-meetings, nor put himself to inconvenience or anxiety.

5th. That the H.P. do henceforth enjoy an "otium cum dignitate" and leave hard work to younger heads for whom it is a duty.

And now my dear Father I have finished doctoring for the present, but shall go on writing doctor's letters until I hear that you obey my rules, and that you treat your own constitution with the respect it deserves for having brought you through asthma, hard work at banking and anxieties of all sorts for so long. Indeed it is a highly meritorious constitution and fairly deserves rest. I hope to be with you in about a fortnight but the exact time is not yet fixed, however I shall know before another three days, when I will write. At present I still continue full work at medicine. I am reading Hippocrates and Aretaeus in which we are examined for the M.B degree. It is now my lecture time, and so not to lose a post I send my letter unfinished but will write again on Monday.

Your very affectionate Son,

FRAS. GALTON.

Again, in the diary of Sir Francis's wife, under the year 1867 I read:

"We then went to Leamington where Dr. Jephson prescribed for Frank, he grew very weak under the treatment. End of September returned home and remained six weeks, then went to the Norths, and took lodgings at Hastings in Breeds Place; stayed there till near end of January 1867, Frank rode constantly."

Clearly, riding suited Galton better than walking, for he owed his recovery from grave illness to it. Further references to Dr. Jephson occur in Tertius Galton's diary, of which I possess a transcript.—I am, etc.,

KARL PEARSON,

November 2nd. Galton Laboratory, University of London.

SIR,—I think that there are several manuscript copies of the "Leamington Peripateticks" in existence. They were printed in the *British Medical Journal* in 1897, and again in 1911, vol. ii, p. 459. Dr. Jephson must have been very well known in his day, and probably attracted visitors to Leamington, in the Spa Garden of which there is a statue of him. A version I have seen differs in the following:

"For all the disciples who Jephson obey
Walk out in all seasons, all hours of the day."

—I am, etc.,

London, W.1, Nov. 2nd. F. PARKES WEBER.

SIR,—Dr. Jephson was one of the makers of Leamington as a spa, and the beautiful Jephson Gardens are named after him. As you suggest, he was probably a man of character, and many stories of him are told. One such relates to his method of making certain lady patients take exercise. He would take one for a drive, and then tell her to get out of the carriage to admire the view. While she was doing this he would drive away and leave the lady to get home as best she could on foot, to her great benefit, no doubt.—I am, etc.,

F. G. G.

November 3rd.

THE CONSTITUTIONAL FACTOR IN EPILEPSY.

SIR,—If Dr. Kinnier Wilson will extract an adequate and correct family history in all cases of epilepsy he will find, I believe, in about 90 per cent. clear evidence of insanity or epilepsy. A correct family history is a very difficult thing to obtain, especially in an urban population, since the majority of mankind are most reluctant to confess to this disability. Furthermore, in 75 per cent. of epileptics the first fit develops during adolescence; consequently the marriage rate is low, and the proportion of their progeny in the community is infinitesimal. Consanguinity, in two or three generations, is a recognized factor in the production of epilepsy and allied neuroses. Dr. Ryle's pertinent remarks (November 2nd, p. 830) on the constitutional factor as the predisposing cause in the incidence of this disease show a clear appreciation of this fact.—I am, etc.,

S. MCNAIR.

Oxford, Nov. 2nd.

THE BURDEN OF DEAFNESS.

SIR,—I have read Mr. Mortimer Wharry's letter in your issue of November 2nd (p. 832) with much interest. Having been deaf for many years, I can fully endorse the necessity of instruments adapted for the deaf; they are a godsend. At the same time I would like to add a few remarks to Mr. Wharry's letter. *In speaking to a deaf person* avoid shouting if possible (it is most unpleasant to a deaf person), but speak *slowly* and articulate clearly with the lips. The reason of this is that the ossicles of the ear in a deaf person do not swing or vibrate as in the normal ear, with the result that all sentences are usually heard as one continuous jumble of words. It is especially important to speak slowly when introducing new topics into the conversation, and in the pronunciation of proper names. For these reasons it is usually comparatively easy to hear and to understand barristers, clergymen, and actors. As regards privacy, I am not so sure that remarks made by pencil and paper do not come as a relief to a deaf person sometimes.—I am, etc.,

November 4th. X. Y. Z.

Obituary.

THEODORE TUFFIER, K.B.E., F.R.C.S.,

Professeur Agrégé of Surgery, University of Paris.

THEODORE TUFFIER, whose death, on October 27th, at the age of 72, was announced by us last week, was one of the most distinguished and universally esteemed French surgeons of the day. During the war he rendered conspicuous service to the French Army, in the medical organization of which he played a leading part. He was one of the first to emphasize the importance of early sterilization of wounds, and it was mainly due to his advocacy that the Carrel-Dakin treatment became generally adopted. The importance of the aeroplane in rendering rapid assistance to the wounded was illustrated by him during the French campaign in Morocco in 1920.

His services, however, were not confined to his countrymen. It was in recognition of his work for British wounded officers and men brought into Paris during the early phases of the war and of his kindly and untiring efforts to make the interallied surgical conferences a success that he received the high honour of Knight Commander of the British Empire in 1920. Tuffier's merits as a surgeon, however, had long been recognized in this country and abroad before that date. Many British and American surgeons had seen him operate in his clinic at the Hôpital de la Pitié, and later at the Hôpital Beaujon in Paris, and had come away with a pleasing impression of his skill, learning, and geniality. In 1913 he was elected an honorary Fellow of the Royal College of Surgeons of England, and two years later he received the corresponding distinction from the Royal Society of Medicine.

In addition to his services to military medicine, Tuffier's name will be remembered for having popularized spinal anaesthesia in France, and for his pioneer work in pyelography and ovarian transplantation. He held the appointment of professeur agrégé at the Paris Faculty of Medicine from 1889, and his merits in France were otherwise recognized by his election to the Académie de Médecine and the rank of Grand Officer of the Legion of Honour. The esteem in which he was held in other countries besides Great Britain is shown by the fact that he held the honorary [illegible] surgical societies of Belgium, Brazil, [illegible] Spain, Portugal, Japan, and Indo-Chi[illegible] to literature include experimental studies on the surgery of the kidney, monographs on the surgical treatment of phthisis, and articles on the urinary system in the *Traité de Chirurgie* edited by Deplay and Reclus, and on tumours of the kidney in the *Encyclopédie Française d'Urologie* in collaboration with A. Bréchot. He was also joint author of a work on minor surgery with P. Defosse, of which three editions were published.

We are indebted to Sir GEORGE MAKINS, G.C.M.G., for the following appreciation:

As senior consulting surgeon to the British Expeditionary Force in France I should like to add a word of appreciation of Professor Tuffier's services to our own army. When at the suggestion of Mr. Lloyd George the Conférence Interalliée was instituted to discuss the methods of surgical treatment in favour among surgeons of the allied armies, it was arranged that the meetings should take place in Paris, and Tuffier was elected president. He entered into the organization of these meetings with great enthusiasm. On the first occasion when the delegates arrived in Paris he was ready for us with stenographers and translators, so that the discussions on this, as on subsequent occasions, were able to be commenced at once, and be carried on with ease and precision. The conference met on four occasions, but Tuffier made an effort to keep the work alive between the official meetings by monthly gatherings at his own house. There can be no doubt that these discussions had an important influence not only in the diffusion of experience gained in the different armies, but also on methods of treatment, hospital organization, and the transport of patients. Tuffier himself was so impressed by the value of these international meetings that he made efforts that similar conferences should be continued after the cessation of the war, and in fact the fifth of such meetings was held in London this year.

During the war Tuffier visited our hospitals on many occasions, and we were always welcome at the hospitals in which he worked. He was an early and ardent adherent of the method of treatment of wounds devised by Carrel and Dakin, and speedily introduced it into the French hospitals. Whatever may be the ultimate fate of Carrel's method, it undoubtedly exerted an enormous influence on the surgery of the war. It introduced a ray of hope when surgeons were bewildered and discouraged by the results attained by other methods of wound treatment, and, although subsequent experience showed that ideal results might be gained in favourable circumstances by aseptic methods in the primary treatment of wounds, yet Carrel's or some other antiseptic method continued to be used for infected wounds, since by their means it was possible to ensure the more commonly needed secondary closure with success. Always eager to adopt new ideas, he was the first surgeon to transport a patient by aeroplane, and thus brought a man wounded in the chest from the front line over the lines of the enemy to a base hospital in North Africa.

A man of great personal charm, of high culture, a good linguist and conversationalist, he was also most hospitable. Many of my colleagues must remember with pleasure visits to his home, where he had accumulated a wonderful collection of pictures and objects of vertu of all kinds. Beyond his pleasure as a collector, I think his favourite recreations were travel and yachting. The British Government recognized his services during the war by creating him a Knight of the British Empire and a Companion of the Bath. His eminence as a surgeon had already been recognized by his colleagues by his election as an honorary Fellow of the Royal College of Surgeons of England.

Many will regret to hear of the death at Brummana, on the slopes of Mount Lebanon, of Dr. ANTONIUS JOSEPH MANASSEH, the Syrian Quaker, who received his medical education at Leeds and the London Hospital. In 1897 he obtained the diplomas L.R.C.P., M.R.C.S., and the M.D. degree of Constantinople. The influence of Friends in Leeds led him, though reared in the Greek Orthodox Church, to offer himself to the Friends Foreign Mission Association in the same year. The rest of his life, except during the war years, when he was taken into the Turkish Army as medical officer, he spent as superintendent of the Friends' medical work at Brummana. When the members of the Turkish Army were made prisoners he was speedily released by the British and appointed a prison doctor; afterwards, despite ill health, he worked with the Syrian and Palestine Relief Fund. Next to his medical work for the people of the Lebanon, which often involved long and tiring journeys on horseback, his great interest was in

his activities as a Quaker preacher and as a "bridge" between individuals and peoples who misunderstood one another. He had many opportunities for such work, not only among the rival factions of his own country, but from the fact that visitors of many lands came to the cool heights of Lebanon from all parts of the Eastern Mediterranean during the summer. Dr. Manasseh established at Brummana an international reading room and library, and from the trustees of the fund left by Robert Arthington of Leeds he obtained money for a special building for this small but important cosmopolitan centre. He took special interest in tuberculosis, and wrote a book on its treatment. He was a member of the British Medical Association.

We regret to record the death, in his eightieth year, of Dr. Matthew William Gairdner, which took place at Cheltenham on October 11th. The second son of Dr. Matthew Baillie Gairdner of Crieff, he entered Edinburgh University as a student in 1867, was a medallist in anatomy, and a dresser under Lord Lister. After graduating at Edinburgh and obtaining the L.R.C.S.Ed. diploma in 1871, he was successively house-surgeon at Chalmers Hospital to Mr. Annandale, house-physician to Dr. George Balfour, house-physician to the Hospital for Women, Soho Square, London, and assistant physician to the Montrose Royal Asylum. Dr. Gairdner thus in his medical career bridged the whole period of the genesis and development of modern surgery. In 1875 he was appointed as surgeon in the railway service in India, and later settled in Naples as the English physician. He stayed in Naples for the remainder of his professional life, and while there received the thanks of the Italian Government for his work during the severe cholera epidemic, which carried off a third of the population of Naples. Since 1910 he had lived in retirement at Cheltenham. A note in our Scottish column on September 29th, 1928, under the heading "A Medical Family," recorded the interesting fact that the professional practice of Dr. Gairdner's father and of his brother, Dr. James Gairdner, had covered more than a century. His son, Mr. Alan C. Gairdner, F.R.C.S., is on the resident staff of the London Hospital.

We regret to record the sudden death, at the age of 48, of Mr. Harry Morgan Gilmour, which took place on October 29th at his home in Ipswich. Mr. Gilmour received his medical education at St. Thomas's Hospital, and in 1903 obtained the diplomas of M.R.C.S. and L.R.C.P. After holding the post of house-surgeon to Bridgnorth and South Shropshire Infirmary he started practice at Andover, but shortly after went to Hornsey, and undertook post-graduate study at the Central London Ophthalmic Hospital. Throughout his professional career Mr. Gilmour was specially interested in ophthalmic surgery, and he held posts as ophthalmic surgeon to the East Suffolk and Ipswich Hospital, to the Harwich and Dovercourt Hospital, and to St. Audry's Hospital, Melton. He was a member of the Ophthalmological Society of the United Kingdom. In 1914 he joined the R.A.M.C. and saw active service at Loos, and, later, in Russia. Demobilized with the rank of captain he settled in practice in Ipswich, specializing in ophthalmic surgery. Mr. Gilmour was an active member of the British Medical Association, and for some time served on the Executive Committee of the South Suffolk Division. He was married as recently as last December.

The following well-known foreign medical men have recently died: Dr. Vittorio Grazzi of Florence, formerly professor of oto-rhino-laryngology at Pisa and founder and editor of *Bollettino delle Malattie dell' orecchio, gola e naso*, aged 80; Dr. Oscar Mercier, professor of clinical surgery at Montreal; Dr. José Pereira Rego Filho, for twenty-one years president of the Academy of Medicine of Rio de Janeiro, aged 84; Professor G. Uchermann, founder and president of the Norwegian Oto-rhino-laryngological Society; Dr. Ferruccio Putelli, an eminent otologist of Venice; Professor J. J. Burdakh, a bacteriologist of Odessa, aged 73; Dr. Ott, a gynaecologist of Leningrad; Dr. Richard Zsigmondy, professor of inorganic chemistry at Göttingen and Nobel prizeman for chemistry in 1926, aged 64; Dr. André Pierre Marie of the Institut Pasteur, Paris, son of Professor Pierre Marie, from accidental inoculation of botulism, aged 38; Dr. Adelward, formerly physician to the Empress Eugénie and a companion of Livingstone, aged 102; Dr. Charles van Niewenhuyse, an eminent Brussels paediatrist; and Dr. Morton Prince, emeritus professor of neurology at Tuft's College, associate professor of abnormal psychology at Harvard University, and editor of the *Journal of Abnormal Psychology*, aged 74.

Medical Notes in Parliament.

[From our Parliamentary Correspondent.]

The House of Commons this week heard from Mr. MacDonald a statement on his visit to the United States and Canada, and one from Mr. J. H. Thomas regarding schemes for increasing employment. The House, after a debate and a division, approved the draft treaty made by Mr. Henderson with Russia. The Viceroy of India's recent declaration on the future government of India was discussed in both Houses. The President of the Board of Trade announced his decision to set up next year a Consumers' Council with compulsory powers.

Widows', Orphans', and Old Age Contributory Pensions Bill.

In moving the second reading of this bill, on October 31st, Mr. Greenwood alluded to the general survey of national insurance and pensions schemes which the Government had undertaken. He said there were important differences in scope between the national health and the unemployment-insurance schemes, but the closest touch between the two departments concerned. On questions of insurability there was a joint administration. As a consequence of the system growing up piecemeal they had distinct forms of administrative machinery for services broadly similar in purpose. A committee of the Cabinet was now surveying the various schemes, their gaps, inadequacies, and overlapping, and also the relations between insurance and various forms of social service outside insurance. The recommendations of the Royal Commission on National Health Insurance and the recent report from the Departmental Committee on the Training of Midwives both pointed to an extension of the services under the National Health Insurance Acts. Among the possible extensions which the Government had to consider were the provision of medical and midwifery services during pregnancy and childbirth to insured women and wives of insured men; the extension of medical benefit to include specialist and consultative medical service, laboratory aids to diagnosis, and the possibility of making dental benefits statutory. Mr. Greenwood then went on to expound the bill before the House. He remarked that many people who had suffered through long unemployment knew that their insurance would terminate on December 31st, 1929, because of the repeal of the Prolongation of Insurance Act. He proposed to make transitional arrangements to keep such persons in insurance until December 31st, 1930. They would retain their title to sickness, disablement, and medical benefit, and would keep alive their insurance for pensions. He proposed to issue regulations to ease the difficulties.

Mr. Carter referred to the Minister's intention of extending the period for elderly contributors who had failed to secure the requisite contributions in the last three years. He welcomed the proposal because it would reduce the power of the medical profession with regard to this class of person. At present it practically rested with the medical profession to decide whether an insured person in certain circumstances got what was called a redeemed stamp. He cited a case where the doctor had been "able to stop" a man getting his pension, so that the man had lost not only his pension but sick pay. Mr. Carter said that the taking away of this power from the doctor was a matter for congratulation. He added that he was not the only one to draw notice to the inattention of the medical profession to the panel patients. Dr. Edwin Smith, coroner in the East End of London, had publicly called attention to these cases where they had come before him.

After further debate the bill was read a second time without a division and sent to committee of the whole House.

On November 1st a financial resolution, authorizing expenditure on the same bill, was proposed by Miss Susan Lawrence, and was carried by 206 to 64. During the debate on this resolution Dr. Fremantle said he had tried in the House to speak for the medical profession and ancillary professions. No body of men became so intimately acquainted with the material condition of people of every class, and therefore his profession had a keen interest in measures such as that before the House. Throughout that profession there was an immense amount of support for any measure which tried to mitigate the hardships in the poor homes of this country. But, as the Chancellor of the Exchequer had said, there must be a limit to this kind of expenditure. The main provision of this country for the relief of distress and need was the Poor Law, now transferred to new and larger authorities; this intimate system provided by the guardians ought to be the best for others who needed help as much as the widows to be aided under the bill.

House Shortage and Unemployment.

On November 4th Mr. J. H. Thomas made a statement as to his plans for dealing with unemployment. During the debate which followed, Sir R. Aske urged that something should be done to deal with unemployment in the building and allied trades, which represented 12 per cent. of the whole problem. There was an amount of frightful overcrowding in all the great industrial centres. This had a very bad effect on the health of the people. Mr. Thomas, intervening, said that one of the first measures of the Government this session would be a slum clearance bill to deal with one side of the housing problem. He had urged the municipalities to take advantage of the Government's facilities to help them to undertake work which ought to have been done long ago. That offer was still open. Sir R. Aske said that slum clearance would not meet the difficulty. There was an actual shortage of houses, and they must build houses before they destroyed the slums. The health of the people was suffering, and if the Government did not build the houses now they would have to build hospitals in the future.

Enteric Fever in London.

Mr. Greenwood stated, on November 1st, that from June 30th to October 26th 187 cases of typhoid and paratyphoid were notified in the county of London, and 18 deaths of London residents occurred from these diseases in London or in metropolitan institutions. In the week ended October 12th there were 23 cases and one death; in that ended October 19th 30 cases and 3 deaths; and in that ended October 26th 41 cases and 3 deaths. Mr. Greenwood explained that an outbreak in South-East London was responsible for the increase of notifications in October. Officers of the Ministry of Health had collaborated with the medical officers of health of the districts affected. The source of the outbreak had not been definitely traced, but there was reason to believe that the infection was no longer operative.

Bills.

Measures introduced in the House of Commons on November 1st after the private members ballot include a bill to amend the Shop Acts (Mr. Frederick Hall); Coal Mines (Washing and Drying Accommodation) Bill (Mr. John); Blind Persons Bill (Mr. Groves); Offices Regulation Bill (Mr. Romeril); Slaughter of Animals Bill (Colonel Moore); and a Midwifery, Maternity, and Child Welfare Bill (Mr. Alpass). The last is so far down the list that it does not appear likely to be discussed unless the Government takes it up. Its purpose is set out as "to consolidate and amend enactments relati nity (including expectant and nursing births, child welfare, maternity homes, and to make further provision with respect thereto, and to amend the National Health Insurance Act, 1924, and the Local Government Act, 1929, and to provide for the notification of certain diseases, and for the holding of inquests in certain cases, and for purposes connected with the matters aforesaid."

On November 4th Sir R. Gower presented a bill to prohibit the vivisection of dogs, which was read the first time.

Silicosis.—Replying to Mr. Hollins, on October 31st, Mr. Clynes said he was anxious to provide for partial disablement cases from silicosis, but adequate medical arrangements must first be made. The question was difficult, and had been investigated by a departmental committee, whose report had been laid before Parliament. He concurred generally in the recommendations, but they could not be given effect without further legislation. He was considering an amending bill, to be introduced and passed this session. He had no complete figures of the number of cases of silicosis among pottery workers. The departmental committee of 1927–28 recommended additional precautions, including periodic medical examinations in some of the most dangerous processes. He did not think there was any need for the appointment of any further committee.

Birth Control.—Replying to Mr. Thurtle, on October 31st, Mr. Greenwood said he did not propose to depart from previous policy and permit local authorities to give birth control information to married women desiring it.

Medical Councillors and their Pul . . . . . Davies asked Mr. Greenwood, on means by which the professional s and public vaccinators who were a borough members could be retained without forfeiture of their appointments. Mr. Greenwood replied that the report of the Royal Commission on Local Government would be out shortly, and any recommendation on this subject would be considered.

India: Central Medical Research Institute.—Mr. Wedgwood Benn, replying to Major Pole on October 31st, said that the work of the India Central Medical Research Institute had not been started at Dehra Dun up to September 2nd. Major Pole further asked whether, in view of the objection by the all-India medical associations, the Government would reconsider the decision to remove the institute to Dehra Dun. Mr. Benn promised to bring this suggestion to the notice of the Government of India, which, he understood, had already received similar representations from one or more medical associations in India.

Hop-pickers: Sanitary and Sleeping Accommodation.—Mr. Greenwood, replying to Mr. Oliver Baldwin on October 31st, said that local authorities had generally exercised their powers of making by-laws requiring farmers to notify the reception of hop-pickers. Thus the authorities were able to see that the regulations regarding sanitary and sleeping accommodation were observed. He was not aware of any need to strengthen the legal position of the authorities.

Experiments on Animals.—Replying to Mr. Freeman, on October 31st, Mr. Clynes said that the increase of experiments on living animals without anaesthetics during 1928 was largely due to the need for standardizing drugs for use in medical practice, of diagnosing the diseases of patients under treatment, and of testing the purity of milk and other foods. The report of 1912 of the Royal Commission on Vivisection made full investigation of the whole question of experiments on animals, and he thought no further inquiry was necessary.

Tannic Acid for Burns.—Replying to Dr. Vernon Davies, on October 31st, Mr. Clynes said the report of the Medical Research Council had demonstrated the hospital use of tannic acid for burns, but its first-aid use in factories had not been fully explored. The senior medical inspector of factories had been asked to go into this, and the matter would be considered on his report.

Inspection of Prisons.—On October 31st Mr. Lovat Fraser asked the Home Secretary whether, as there were no women on the Prison Commission, he would appoint an adequate quota of women commissioners and a sufficient number of women inspectors of prisons for the inspection of women's prisons. Mr. Clynes replied that no appointment of a women commissioner or inspector of prisons had been made as women now constituted only about 7 per cent. of the prison population, the daily average having fallen from 1,604 in 1919 to 804 in 1928.

Capital Punishment.—A motion by Mr. W. J. Brown advocating the abolition of capital punishment was discussed in the House of Commons on October 30th. Sir Herbert Samuel moved an amendment in favour of the appointment of a select committee to consider the question. After debate, Mr. Brown accepted this amendment, which was carried by the House. Mr. Clynes said that the Government would be disposed to act upon what report such a select committee might submit.

Battersea Power Station.—To take precautions for the consumption of smoke and to prevent, as far as reasonably practicable, the evolution of oxides of sulphur, the London Power Company, which has been authorized to construct the first section of the Battersea power station, has been conducting experiments. An interim report from the Government chemist on these experiments is under consideration by the Ministry of Transport.

Protection against Chemical Warfare.—On November 5th Mr. Shaw told Mr. Graham White and Rear-Admiral Beamish that research work on protection against chemical warfare was being carried out at both Porton and Sutton Oak, and he was advised that it was necessary to continue this defensive research work.

Notes in Brief.

Mr. Clynes stated, on October 31st, that eight firms were licensed to make medicinal opium, heroin, cocaine, and morphine—five for medicinal opium; one for medicinal opium, morphine, and heroin; one for morphine, heroin, and cocaine; and one for cocaine only. He could not state the capital involved or the number of persons employed, but the latter was under fifty.

Mr. Greenwood states that, from April 1st, county councils will, under Section 14 of the Local Government Act, 1929, be empowered to provide all necessary hospital treatment for orthopaedic patients.

Blind persons desiring to avail themselves of cheap travelling facilities can obtain qualifying certificates on application, either personally or in writing, to any of the whole-time offices of the Ministry of Pensions.

During the six months ended November 1st, twelve outbreaks of foot-and-mouth disease had been confirmed. In nine cases the total stock on the farms was slaughtered, and in three cases a portion was killed.

A draft report on river pollution will be circulated during this week to members of the Standing Committee on that subject for their consideration. The report will be published after its approval by the committee.

The Services.

NO. 14 STATIONARY HOSPITAL.

The tenth annual dinner of the medical officers of No. 14 Stationary Hospital will be held on Friday, December 6th, at the Trocadero Restaurant, Piccadilly, at 7.15 for 7.45 p.m. Colonel C. R. Evans, D.S.O., will be in the chair. The price of the dinner will be 15s. (exclusive of wines). Dr. H. Letheby Tidy, 39, Devonshire Place, W.1, is acting again as honorary secretary.

QUEEN ALEXANDRA'S HOSPITAL FOR OFFICERS.

The tenth annual reunion dinner of Queen Alexandra's Hospital for Officers was held, on October 31st, at the Hotel Cecil, under the chairmanship of Major W. B. Binnie, F.R.I.B.A., a former patient of the hospital. Mr. Herbert Paterson read a message from H.R.H. Princess Victoria: "I hope most sincerely that former patients and staff will spend a happy time in renewing old friendships. I send my best wishes to you all." Lord Waring proposed the health of the former patients, and Colonel F. R. Hybart, the senior officer, replied.

TERRITORIAL DECORATION.

The King has conferred the Territorial Decoration upon Lieut.-Colonel Frederick Searle, *M.C.* (employed Cambridge University Contingent, Senior Division, Officers' Training Corps).

Universities and Colleges.

UNIVERSITY OF OXFORD.

The following awards have been announced: Welsh Prize, Arnold Peter Meiklejohn; Theodore Williams Scholarship in Human Anatomy, Allan Henderson Hunt; Theodore Williams Scholarship in Physiology, Jack Watson Litchfield; Theodore Williams Scholarship in Pathology, John Rennie Braybrooks; Radcliffe Scholarship in Pharmacology, John Rennie Braybrooks and Guy Spencer Grist (equal).

UNIVERSITY OF CAMBRIDGE.

At a congregation held on November 2nd the following medical degrees were conferred:

M.D.—T. A. Butcher.
M.Chir.—J. Gray.
M.B., B.Chir.—J. St.C. Elkington, R. A. P. Gray, A. Maberly, S. S. Chesser, J. F. Stent.
M.B.—S. D. Isaacs.
B.Chir.—A. T. Howell, C. E. Donaldson.

UNIVERSITY OF LONDON.

The Senate, with the concurrence of the Court, has appointed Dr. Edwin Deller, previously Academic Registrar in the University, to the post of Principal of the University of London as from October 1st, 1929, in succession to Dr. T. Franklin Sibly, now Vice-Chancellor of the University of Reading.

UNIVERSITY OF BELFAST.

At a meeting of Convocation of the Queen's University, Belfast, held on October 29th, for the purpose of electing eight members of the Senate, four of the vacancies were filled by the election of the following members of the medical profession: A. B. Mitchell, O.B.E., M.B., F.R.C.S.I., J. S. Morrant, O.B.E., B.A., M.D., R. W. Leslie, M.D., LL.D., and Foster Coates, B.A., M.D.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

An ordinary comitia of the Royal College of Physicians of London was held on October 31st, when the President, Sir John Rose Bradford, was in the chair.

Appointments.

Dr. John Hay, Dr. F. E. Fremantle, and Dr. J. B. Leathes were elected Councillors.

The following Fellows were re-elected to various offices: Sir Francis Champneys, a representative of the College on the Central Midwives Board; Dr. H. L. Tidy, a member of the Committee of Management; Dr. J. H. Abram, a representative on the Court of Governors of the University of Birmingham; and Dr. A. S. Woodwark a representative on the Central Council for District Nursing.

Dr. Robert Hutchison and Dr. James Collier were appointed members of the Mackenzie Mackinnon Research Fund Committee.

The President announced that the Council had appointed Surgeon Commander Sheldon Francis Dudley, O.B.E., R.N., to be Milroy Lecturer for 1931, and that the Jenks Memorial Scholarship for 1929 had been awarded to Francis Sansome Mitchell Heggs.

Report.

A report was received from Dr. F. E. Fremantle, who represented the College at the fourth Imperial Social Hygiene Congress, and a communication was received from the University of Wales announcing that its advisory Board of Medicine had been recently dissolved.

Membership.

Having satisfied the Censors' Board, the following were admitted Members:

Ilahi Bakhsh, M.B.Lond., Thomas Henry Booth Bedford, M.B.Leeds, Howard [illegible], Philip E[illegible], Leslie W[illegible], watersram[illegible], Sinclair [illegible], M.B.Lond.

Licences.

Licences to practise physic were granted to the following 126 candidates (117 men and 9 women), who have passed the final examination of the Conjoint Board in Medicine, Surgery, and Midwifery, and have complied with the by-laws of the College:

H. S. Atkinson, G. O. Barber, B. E. Barnett, G. H. Bateman, T. S. Belcher, F. Bell, E. Tellamy, J. H. Bentley, J. A. K. Brown, W. D. [illegible], D. R. Buchan, P. C. [illegible], S. C. S. Cooke, W. H. [illegible], C. P. P. [illegible], I. G[illegible], I. [illegible], I. [illegible], E. N[illegible], [illegible], E. [illegible], J. [illegible], H. R. Hodson, J. Hopton, R. H. Hucknall, Marr A. Hughes, E. E. Hunt, C. S. Kah, K. S. Keele, E. J. Kerr, H. Y. Khwaja, R. Kramer, M. Lee, E. C. Lewis, W. D. Lovelock-Jones, F. T. F. Lutter, R. W. McConnel, D. M. MacLachlan, F. N. Marshall, Eileen M. Massey, N. D. Matson, D. C. W. Maxwell, P. H. Merlin, T. J. Millin, C. W. Morley, I. B. Morris, D. P. F. Mulvany, W. D. Neill, J. N. O'Reilly, R. W. Paine, D. H. Parkinson, L. H. Peiris, J. Petro, I. D. Phelps, R. F. A. Phil[illegible], A. C. Price, N. L. Price, S. [illegible], Quick, J. P. Rabau, B. B[illegible], J. A. Rogers, T. N. Rudd, [illegible], D. Sheehan, B. C. Singh, J. O. Smith, A. Somervi[illegible], J. D. S. Stephens, T. Stephens, M. Sternfeld, Muriel H. Steven, G. D. Stilwell, B. J. Stracey, B. D. Tanoja, J. M. Taylor, T. B. E. Taylor-Jones, E. G. Thomas, J. C. T. Tregarthen, C. E. H. Turner, G. S. Walker, C. J. Waring, J. B. Watkin, E. Watman, V. W. L. Wells, T. H. N. Whitehurst, T. H. Wilson.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND.

At the monthly business meeting of the College, held on November 1st, the following successful candidates at recent examinations were duly admitted: Membership, V. Nath, L.R.C.P.and S.Edin., L.R.F.P.and S.Glas.; Licence in Midwifery, B. T. Chua, L. Yang.

The following resolution was passed in silence, all present standing:

That we, the President and Fellows of the Royal College of [illegible] with profound regret of the death [illegible] of the College, for whom we all [illegible] affection. We feel that both this [illegible] in Ireland have sustained a great [illegible] re to convey to his relatives this [illegible]

SOCIETY OF APOTHECARIES OF LONDON.

The following candidates have been approved in the subject indicated:

Surgery.—A. Buch, B. F. M. Child, W. J. H. Coidan, R. W. Goldsbrough, A. Guirdham, H. C. Haige, G. A. F. Holloway, A. Kellner, R. K. Nandial.

Medicine.—W. T. Ellis, W. J. Frith, A. Guirdham, W. M. Hamer, W. St. A. Hendricks, R. J. Kagan, H. W. Maurer, T. M. White, F. A. Yarde.

Forensic Medicine.—A. N. De Monte, W. J. Frith, B. C. Ghose, B. Gilmore, A. Guirdham, W. St. A. Hendricks, G. A. F. Holloway, C. Horton, A. D. H. Hugo, A. Liberis, W. McDermott, J. E. Moody, L. J. Pearson, T. G. Robinson, L. C. H. Sykes, F. A. Yarde.

Midwifery.—M. Asaad, B. F. M. Child, A. Clark, C. E. P. Davies, A. N. De Monte, H. R. Fosbery, A. Guirdham, J. E. R. Hempolette, G. A. F. Holloway, D. W. Hoskins, V. J. Lopez, W. McDermott, L. J. Pearson, S. Ramadas.

The diploma of the Society has been granted to Messrs. A. Clark, A. N. De Monte, W. T. Ellis, R. W. Goldsbrough, A. Guirdham, W. M. Hamer, W. St. A. Hendricks, G. A. F. Holloway, C. Horton, W. McDermott, and T. M. White.

Medical News.

"Medical research: the tree and the fruit," is the title of the Norman Lockyer Lecture to be given at 4.30 p.m. on November 19th by Sir Walter Fletcher, K.B.E., C.B., M.D., F.R.S., in the Goldsmiths' Hall, Foster Lane, E.C. Lord Melchett will preside. Tickets of admission (free) may be obtained on application to the Secretary, British Science Guild, 6, John Street, Adelphi, W.C.2.

The annual dinner of the Society of Medical Officers of Health will be held at the Piccadilly Hotel, W., on Thursday, November 14th, at 7.30 p.m.; reception at 7.10. The Government will be represented, and among those who have accepted invitations are Sir Arthur Robinson, Sir George Newman, Sir John Rose Bradford, P.R.C.P., Lieut.-General H. B. Fawcus (Director-General A.M.S.), and Surgeon Vice-Admiral A. Gaskell (Director-General, Medical Department, R.N.). Tickets are obtainable from the executive secretary at 1, Upper Montague Street, Russell Square, W.C.1. A payment of 12s. 6d. for each ticket should be made with applications sent before November 11th; after that date the cost will be 15s. each.

The seventh Lloyd Roberts Lecture will be delivered at the Royal College of Physicians of London, Pall Mall East, by the Right Hon. A. L. Fisher, LL.D., F.R.S., on Thursday, November 14th, at 5 p.m.; the subject is "An Oxford movement."

The Hunterian Society of London will hold a discussion on "The doctor and the motorist" at 9 p.m. on Monday, November 18th, in the Cutlers' Hall, Warwick Lane, E.C. The speakers will include Earl Howe, Mr. E. B. Turner, and Dr. P. B. Spurgin.

The Cambridge Graduates' Club of St. Bartholomew's Hospital will hold its fifty-third anniversary dinner on November 20th, at 7.30 p.m., at the May Fair Hotel, with Dr. H. Morley Fletcher in the chair.

A meeting of the Biochemical Society will be held in the Department of Physiology of the University of Liverpool to-day (Saturday, November 9th) at 2.30 p.m., when papers will be read, and demonstrations given during the tea interval.

THE next meeting of the Oxford Ophthalmological Congress will be held in 1930, on *July 10th*, 11th, and 12th. The honorary secretary is Mr. C. G. Russ Wood, 12, St. John's Hill, Shrewsbury.

UNDER the auspices of the Fellowship of Medicine a lecture, free to medical practitioners, will be given at the Medical Society lecture room, 11, Chandos Street, Cavendish Square, on Monday, November 11th, at 5 p.m., by Dr. E. P. Poulton, on the treatment of the common cold, and some recent work on Bright's disease. On Tuesday evening, November 12th, at 8.30, Dr. O. L. V. de Wesselow will lecture on diabetes and insulin; and on Friday, November 15th, at 8.30, Dr. Bernard Myers will discuss purpura and its treatment; these two lectures are especially suitable for M.R.C.P. candidates. A demonstration of gynaecological cases will be given at Charing Cross Hospital by Dr. Everard Williams at 2 o'clock on November 13th, and a demonstration of genito-urinary cases and cystoscopic examinations will be given at St. Paul's Hospital, Endell Street, from 4.30 to 7.30, on November 15th, by Mr. W. K. Irwin; these demonstrations are free to medical practitioners. From November 18th to 30th an all-day course in orthopaedics will be held at the Royal National Orthopaedic Hospital, consisting of in- and out-patient demonstrations, operations, lectures, and special visits to the country hospital at Brockley Hill; since a minimum of ten entries is required, early application is recommended. From November 18th to December 13th the West End Hospital for Nervous Diseases will hold a course in neurology consisting of daily lectures and clinical demonstrations, at 5 p.m. From November 25th to 30th there will be an all-day course in proctology at St. Mark's Hospital. In December there will be courses in infants' diseases and dermatology, and a practitioners' course in medicine and surgery will be held, occupying one and a half hours daily. Copies of all syllabuses and particulars of general work may be obtained from the Secretary of the Fellowship, 1, Wimpole Street, W.1.

THE University of Birmingham Dental Clinical Board announce that four post-graduate lectures will be delivered at the Dental Hospital, Great Charles Street, Birmingham, on Thursdays, at 5 p.m.: November 14th, fractures of the jaws, by Mr. Harold Round; November 28th, diagnosis and prognosis in dental practice, by Colonel W. Bowater; December 5th, surgical removal of teeth, by Mr. H. S. Swann; December 12th, preparation of the mouth for dentures, by Mr. S. H. Roe. The fee for the course is one guinea, which should be sent to the clerk of the Dental Clinical Board, University, Edmund Street, Birmingham, or to the Dean of the Dental Hospital, Great Charles Street, Birmingham. Tea will be provided at 4.30 p.m. at the hospital.

THE *foundation stone of the new Queen Charlotte's* Maternity Hospital at Hammersmith was laid by Princess Marie Louise on November 4th. The hospital when completed will consist of 353 beds, and will be the largest maternity hospital in the British Empire. The stone was *laid in the isolation block*, which is to be built first, for the reception of cases of puerperal fever and the carrying out of *laboratory investigations into the origin of the disease.*

DR. H. E. KING REYNOLDS, secretary of the York Panel Committee and assistant secretary of the York Division of the British Medical Association, has been elected a member of the York City Council.

SIR ARTHUR KEITH contributes to the *Rationalist Review* for 1930 a paper under the heading "Darwin remembered," in which he tells the story of the acquisition of Down House —Charles Darwin's home in Kent—by Mr. George Buckston Browne, F.R.C.S., and its *formal handing over last summer* into the custody of the British Association. *An account of* the ceremony appeared in our issue of *June 15th (p. 1086).* The text of Sir Arthur Keith's address on that memorable occasion is now printed verbatim for the first time.

SIR THOMAS LEGGE'S Shaw *Lectures* on "Thirty years' experience of *industrial maladies*," of which an abstract appeared *in our issue of March 9th, 1929* (p. 467), have now been published in *pamphlet form* by the Royal Society of Arts, John Street, Adelphi, W.C.2, *price* 2s. 6d.

THE KING has granted Dr. John Archibald Taylor, Director of Medical and Sanitary Services and Member of the Legislative Council, Zanzibar, permission to wear the insignia of the third class of the Order of the Brilliant Star of Zanzibar conferred upon him in recognition of valuable services.

THE recent epidemic of enteric fever in South-East London has, so far as Lewisham is concerned, remained limited to the Sydenham district of the borough. The clinical features of the disease do not call for special comment. Many of the cases are of a moderately severe type, but, as only six deaths have occurred among 91 cases, the mortality at present is not above the average.

THE KING has approved of the appointment of Dr. James Cran, O.B.E., V.D., to be an unofficial member of the Legislative Council of the colony of British Honduras.

THE Lord Lieutenant of the County of the City of Glasgow has appointed Dr. Donald J. Mackintosh, C.B., M.V.O., medical superintendent of the Western Infirmary, Glasgow, to be Deputy Lieutenant.

A POST-GRADUATE course in neurology and psychiatry will be held in English in Vienna from January 2nd to February 15th, 1930, under the auspices of the American Medical Association of Vienna. In addition to covering the whole field of neurology and psychiatry, and associated branches, such as ophthalmology, the course will allow time for individual study and special classes. *Further information* can be obtained from Dr. E. Spiegel, Falkestrasse 3, Vienna I.

THE fifth international congress for physical therapy, like the first held in 1905, will take place at Liège next year. Further information can be obtained from the general secretary, Dr. Dubois-Trépagne, 25, Rue Louvreux, Liège.

A SPECIAL report on the thirteenth International Ophthalmological Congress, which was held at Scheveningen, Holland, in September, has been prepared by Mr. H. B. Stallard, and published as a supplement to the *British Journal of Ophthalmology*. Previous reference was made to this congress in our issue of July 13th (*p. 80*).

THE Lithuanian Government has approved *the project* for the *construction of an up-to-date clinic connected with* the University of Lithuania for the treatment of diseases of the eye, ear, nose, and throat. A site has been selected in the neighbourhood of the military hospital, comprising an area of 4,000 square metres. The clinic will have *50 beds for eye cases and 30 to 36 beds for ear, nose, and throat cases.* It is hoped that the clinic will be open by *October, 1930. A leading part in this undertaking* has been taken by Professor Radzvickas, who has had thirty years' experience of ear, nose, and throat cases in Russia.

THE annual report of the National Physical Laboratory for 1928 has been issued in two forms; complete in a single volume, and as the following series of separate pamphlets: the units and standards of measurement employed at the National Physical Laboratory (1s.); report on the Physics Department (1s. 9d.); report on the Electricity Department (3s.); report on the Meteorology Department (2s.); report on the Engineering Department (1s. 9d.); report on the Aerodynamics Department (1s. 6d.); *report on the Metallurgy* Department (1s. 6d.); report of the Advisory Committee for the William Froude National Tank (4d.). We have received a copy of the first of the above-mentioned pamphlets, in which an attempt is made to give clear and precise definitions of the units of *measurement, international and British* Imperial, employed at the National Physical Laboratory, with information about the *primary standards preserved and* maintained at the laboratory to represent these units.

THE report of the proceedings of the fifth English-speaking conference on maternity and child welfare which was held in London in July last has now been published by the National Association for the Prevention of Infant Mortality. An account of this conference appeared in the *Journal* on July 13th (*p. 58*), and it may be recalled that the principal topics considered were: maternal morbidity, with special reference to maternity nursing and abortion; *deformities in young* children; the psychological welfare of children; and venereal diseases in connexion with maternity and child welfare. The price of the book is 2s. 6d.; it can be obtained from the offices of the National Association, 117, Piccadilly, W.1.

ON the occasion of *his 80th birthday* the Soviet Government has presented 10,000 roubles to Professor Ivan Pavlov for *improvements in his laboratory* in Leningrad.

THE Advisory Committee on the Welfare of the Blind *proposes to arrange* correspondence courses for the education of adult blind persons in such subjects as English composition and literature, business correspondence, history, French, German, Latin, industrial history, and the theory of music. It is not anticipated that the blind will be involved in any expense in connexion with the courses, and those interested are invited to send in their names at once to the secretary of the voluntary association to which they are attached, or to their home visitor.

THE board of the Royal Northern Hospital, Holloway, and the council of the Maternity Nursing Association have agreed to *co-operate still* more closely, with a view to facilitating the nursing of mothers in their homes in Finsbury, St. Pancras, and Islington, and to promoting the training of midwives. The work will be carried on as hitherto at the Association's centres in Myddleton Square, Finsbury, and Oakley Square, St. Pancras, in addition to the hospital.

THE number of persons suffering from trachoma in Siberia has increased from 50,000 in 1924 to 80,856 in 1926, and continues to rise.

A MONUMENT to the neurologist Professor Grasset was unveiled on the occasion of the recent twentieth French Congress of Medicine held at Montpellier.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to ***The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.***

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The ***TELEPHONE NUMBERS*** of the British Medical Association and the *British Medical Journal* are *MUSEUM 9961, 9962, 9963,* and *9964* (internal exchange, four lines).

The ***TELEGRAPHIC ADDRESSES*** are:

EDITOR of the *British Medical Journal, Aitiology Westcent, London.*

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*

MEDICAL SECRETARY, *Mediocera Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone 24361 Edinburgh).

QUERIES AND ANSWERS.

HOT FEET AT NIGHT.

"MEDICAL WOMAN," in reply to the inquiry under this heading (October 19th, p. 744), writes: The bedclothes should not be tucked in at the foot of the bed, but placed flush with it, thus ensuring ventilation at the foot as well as at the head of the bed. One of the blankets should be placed across the bed, instead of lengthways, so that there is one layer less of blanket over the legs and feet than over the rest of the body. If necessary, the bedclothes may be raised off the feet by means of a cradle. A stone jar filled with cold water and used as a "cold water bottle" might be useful.

INCOME TAX.

Emoluments of Assistant.

"J. F. W. A." was employed last year as an assistant "at £150 and all found." He has been assessed at the amount of his salary for the current year *plus* the cost to his principal of his board and lodging.

*** As he was not employed for the whole of the year 1928-29 he is chargeable for the year 1929-30 on the amount of his salary for that year, but he is not assessable in respect of the value of his board and lodging, because that was not received in money or in a form capable of being converted into money—judicial ruling in Tennant *v.* Smith. Probably there is some misunderstanding with regard to the facts, which can be dissipated by an explanation to the local inspector of taxes.

Appointment: Car Expenses.

"C [illegible] workhouse medical officer, and has to v "cottage homes." The two buildings a He had a motor cycle, which he has sold for £18, and has bought a car for £150. What expenses can he claim?

*** We assume that both sections of the work arise from a single appointment, and that "C. F. G." does not receive any unassessed allowance for the expense of travelling between the two premises. He can deduct the original cost to him of the motor cycle, or rather, that proportion of it which is represented by the ratio of the use between the premises to other uses.

Purchase of House for Assistant.

"F. R. F." has had to buy a house for a married assistant. He has paid £110 down, the balance being covered by a mortgage from the local council. Will it make any difference to him whether he bears the expense (rates, interest, etc.) and deducts the amount from the sum otherwise payable to his assistant, or continues the old rate of payment and receives an equivalent rent from the assistant?

*** If our correspondent retains control of the house—that is, does not give his assistant a legal right of tenancy—he can deduct as professional expenses the cash paid to the assistant *plus* the rates paid on the house and the amount of the assessment to income tax under Schedule A. This should come to substantially the same thing as paying the assistant a gross amount and receiving back from him an equivalent rent. But the former will be better for the assistant, inasmuch as he will not be liable to account for the benefit received in the form of free lodgings, but only on the cash paid to him. In either case our correspondent should bear in mind that he cannot claim in respect of the (capital) payment of £110, but should claim that a deduction in respect of the *interest* paid to the local authority should be made each year from the Schedule A assessment on the house in question.

LETTERS, NOTES, ETC.

COULD PREHISTORIC MAN SEE IN THE DARK?

DR. ARTHUR T. TODD-WHITE (Leytonstone) writes: I am of opinion that our prehistoric ancestors could see in the dark; even to-day people vary considerably as to their amount of vision at night. The wonderful paintings found in caves in Spain and France must have been painted without artificial light. I contend that even if prehistoric man had artificial light, he could hardly have invented a smokeless light, and it would have been impossible for him to complete the pictures—for example, the polychromes of Altamira and Font de Gaume—by artificial light, as the smoke would have obliterated them before they were finished. In none of the works on these interesting drawings have I seen any reference to their having been destroyed by smoke. I have no experience of the eyesight of modern savages, but possibly some members of the Association who have come in contact with primitive races could give us some information on the subject. I believe there are races in Africa who live in semi-darkness in the tropical forests; it would be interesting to know whether they can see objects in that semi-darkness better than those of us who have the ordinary allowance of bright daylight.

POTASSIUM IODIDE AS A PROPHYLACTIC AGAINST CATARRH.

DR. EDMUND HOBHOUSE (Wimbledon) writes: Now that the season of catarrhs and influenza is upon us, may I suggest that it is worth while trying small doses of potassium iodide as a prophylactic against infective organisms? The effect seems to be simply that of a centripetal nasal douche, mechanical not bactericidal; in a few observations kindly made for me by Dr. Galt the colonies from the nasal swabs of patients taking this salt were, if anything, slightly more numerous than in the controls; it apparently washes the bacteria out of the tissues, and is sometimes useful in giving a positive result in doubtful cases of phthisis with scanty sputum. As a rule, a daily dose of 5 grains, best taken at breakfast, is ample to produce a slight continuous secretion, which is the result to aim at. As compared with the uncertainty and trouble of nasal douching, this remedy is simple and harmless, except in the few cases where iodism is troublesome; patients must be warned of its effects, especially that they may have all the symptoms of a cold. I have no wish to guarantee the efficacy of this treatment, but the results I have seen are sufficient to justify recommendation of its trial. I first noticed immunity in my own case some years ago while taking potassium iodide to relieve high blood pressure.

VACCINE TREATMENT OF PSORIASIS.

DR. R. W. P. HALL (Windermere) writes: About eighteen months ago I was called in to see a woman, aged 68, who had been troubled with psoriasis for about five years. The condition was widespread, and the skin very irritable. After about a year spent in exploring all the usual methods of treatment, I put her on a mixed stock vaccine composed of various strains of streptococci and staphylococci. There was a definite decrease in the amount of irritation after the second injection, and improvement has been steady and continuous. She has now finished her third course, having had a few weeks between each one, and the skin is normal, apart from a certain amount of staining. One cannot, of course, rule out coincidence, and I should be interested to know whether anyone else has tried this vaccine in psoriasis, and with what results. The vaccine used was the antisepsis vaccine marketed by Messrs. Parke, Davis and Co.

PERSISTENT NASAL DISCHARGE.

DR. F. G. GARDNER (Oxford) writes: In view of the various articles and notes in the *Journal* on persistent nasal discharge, I record a very singular case. A young boy had suffered from a running nose for a long time abroad. He had markedly large tonsils and also adenoids, so I advised the mother to consult a specialist, with a view to operation. When the operation was performed the surgeon, in clearing the nose, removed, in addition to the usual debris, a long pledget of cotton-wool covered with mucus, with which the young patient had obviously plugged his nose; though no plug was visible on ordinary examination. Cotton-wool was much used in the toilet of the nursery, and opportunity made the crime. Naturally the discharge soon cleared up.

THE letters immediately following Mr. T. Young Simpson's name in our issue of October 26th (p. 789) should have been C.B.E.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 45, 46, 47, 51, 52, 53, and 54 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 48, 49, and 50.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 219.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

401. Undulant Fever in the United States.

C. W. WAINWRIGHT (*Bull. Johns Hopkins Hosp.*, September, 1929, p. 133), who records six illustrative cases, states that the American incidence of *Micrococcus melitensis* infection is confined to goat-raising areas, while *Br. abortus* infection is general and widespread. Both infections occur at all age periods, but the occurrence of positive agglutinations in infants suggests the possibility that the disease is more common at this age than is supposed. The majority of infections of both types occur in males. Occupation plays a very important part in *melitensis* infections, the incidence of contact infection from handling goats being so high that the disease has assumed the proportions of an occupational disease. There is also a high incidence of the *abortus* variety among laboratory workers. The symptoms of onset were most severe among the *melitensis* cases, fever being the most constant symptom. Physical examination was strikingly negative in both series. Constipation was an outstanding feature in the *melitensis* group, and was frequently associated with tympanites. Pain, swelling of the joints, and orchitis were much more prominent in the *melitensis* cases. The possibility of latent foci was shown by the presence of the *abortus* variety in an ovarian cyst six years after the onset. Normal or reduced white cell counts predominated in both groups. The author adds that the infection may exist in the absence of the agglutination reaction in the serum, and the organism may be recovered from the blood and urine without demonstrable agglutinins in the serum. Comparison of the two infections shows that *melitensis* infections are usually more severe than those of the *abortus* variety.

402. F. J. HIRSCHBOECK (*Minnesota Med.*, October, 1929, p. 590) summarizes the incidence of undulant fever in the United States, where the disease appears to have become more prevalent in recent years. About 30 cases have been reported in Minnesota since the first case was recorded in 1927. The disease has a tendency to be of the milder *abortus* type in all cases except along the Mexican border, where the more severe caprine type seems to be common. Statistics are not yet available as to the mortality rate for purposes of comparison with the Mediterranean area, where it is 2 per cent. The essential feature in the treatment is rest in bed followed by attention to individual symptoms. Since vaccines and serums have proved unsuccessful, and no specific therapeutic agent has yet been discovered, it is particularly necessary to concentrate on prevention, but the extermination of the disease in cattle appears at present to be impracticable, while the introduction of wholesale pasteurization of milk presents considerable economical difficulties.

403. An Epileptiform Seizure after Lipiodol Injection.

D. OLMER and G. ZUCCOLI (*Paris Méd.*, October 5th, 1929, p. 306) comment on the rarity of nervous complications following the use of lipiodol, and report the case of a man, aged 39, who had previously shown no signs of nerve instability, but who had two *epileptiform attacks after the* intratracheal injection of 20 c.cm. of lipiodol, preceded by 3 to 4 *c.cm. of cocaine solution.* Two or three *minutes* after this injection the patient complained of vertigo, and almost immediately was seized with a *generalized convulsive* trembling of the whole body, with profuse facial sweating, loss of consciousness, biting of the *tongue*, involuntary micturition, and generalized clonic *contractions with deviation* of the head and eyes to the left. The seizure lasted for *two or three minutes, and the patient* lapsed into a semi-coma with stertorous breathing and profuse sweats. A second similar attack occurred after an interval of a quarter of an hour, but some minutes later the patient recovered consciousness, and was found to be quite ignorant of what had happened. A neurological examination *had been negative*, but a second one, three hours after the injection, revealed exaggerated reflexes, a positive Babinski *reaction of the* right side, and a positive Oppenheim one on both sides. The pupils were normal, but headache, nausea, and slight pyrexia were present. The patient recovered fully in two days. The authors remark that two theories have been advanced to explain this attack, one being that it was reflex in nature, the other that it was due to gas embolism. They consider that a *simple* reflex could not account for the convulsive and [illegible] symptoms, and that possibly in making in had been punctured, thus allowing blood stream.

404. The Spleen Index in Malaria.

K. E. SURBEK (*Arch. f. Schiffs- u. Tropen-Hygiene*, September, 1929, p. 461) raises the question whether splenic enlargement is a fair criterion of malarial infection and whether the spleen index is constant for the different clinical types. He has examined 200 Javanese adults, making sure that in all cases parasites of only one kind were present in the blood. The determination of the spleen index was made by palpation with the patient supine, and, it is claimed, with clinical accuracy. Surbek reports that in the case of quartan malaria all the nine patients had splenic enlargement, a condition found also in 64 per cent. of more than 100 patients with the tertian infection; in the case of subtertian infection, however, it was present in only 30 per cent. of over 70 patients. Though the total numbers are too small to be quite conclusive, Surbek publishes them now because the cases with enlarged spleen are apt to be selected from any group for plasmodium index determination; he considers this inexpedient because, although enlargement of the spleen has a certain correlation with the more common tertian infection, there is no such relation in subtertian (tropical) malaria. On the contrary, among his 70 per cent. of subtertian cases which had no splenic enlargement were many patients with severe infection (three died), and cases with heavy ring and crescent infections. He concludes that, where malignant tertian disease is prevalent, the plasmodium index must be determined independently of the spleen index, or many cases of heavy malignant infections will be missed.

405. Massage after Prolonged Exercise.

THE value of massage after long-distance runs has been investigated by Dr. J. MELKA (*Bratislavské Lekárske Listy*, September, 1929, p. 933), who examined the influence of *massage on the hydrogen-ion concentration of the blood*, the respiratory exchanges, the blood pressure, and the pulse. The tests were made on the same athlete under the same [illegible] massage following the exercise. [illegible] as follows. Under the influence [illegible] od, which usually declines after exercise, returns to the normal much more quickly, and the *elimination of carbon dioxide is more rapid.* The consumption of oxygen is higher, and the concentration of carbon dioxide in the alveolar air diminishes more speedily; the total quantity of air expired during the first few minutes following the exercise is considerably increased. The blood pressure and pulse return to the normal much sooner.

Surgery.

406. Acute Pancreatitis.

W. LINDER and L. J. MORSE (*Annals of Surgery*, September, 1929, p. 357) give an analysis of 88 cases of acute pancreatitis, and emphasize the extreme importance of early diagnosis. *This infection may result from pyaemic involvement*, by contiguity, by lymphogenous extension, retrogression of bile *into the pancreatic duct*, or by regurgitation of duodenal contents into the duct of Wirsung. To produce pancreatitis *the bile must be infected*, and an increased biliary pressure must be counterbalanced by unusual sphincter spasm. Acute pancreatitis is not a primary disease, but a sequel, with biliary disease as the usual precursor. In the 88 cases under review fat necrosis was the criterion on which the diagnosis was based. *Females were affected in 88 per cent. of cases*, and 50 per cent. occurred in the fourth and fifth decades. All but eight patients gave a history of previous gastro-intestinal disorder, and 53 per cent. had a definite history of biliary disease. The symptoms, of which epigastric pain is *the most common*, are due to local pancreatic irritation and to the circulation of toxic products, the inflammation of the pancreas resulting in oedema and swelling of the pancreas; the stretching of the pancreatic capsule induces pain; diaphragmatic incursion may be obstructed, and biliary drainage into the duodenum impeded. Circulation of foreign protein and its products of incomplete digestion may explain the severe toxaemia which is sometimes seen, and digestion of blood vessels constitutes the haemorrhagic features. The pain is intensely sev[illegible] persistent, 40 per cent. of the patients [illegible] were in a state of shock on admission. [illegible] of all proportion to the temperature elevation. [illegible] tenderness was present in 66 per cent. of cases, and left costo-vertebral tenderness in 32 per cent. Calculi were found in 44 cases.

and in two instances cholecystectomy had already been performed. The peritoneum usually presented the congested variety of inflammation, fat necrosis being found throughout; the omental and pancreatic peritoneum were most frequently involved. The omentum in acute pancreatitis is greyish-yellow in colour and may feel gritty. The immediate treatment must be to relieve the pressure on the semilunar ganglion and common duct by opening the pancreatic capsule; this is followed by cholecystectomy if the patient's condition warrants it, otherwise drainage of the gall-bladder must suffice to drain the pancreas. The mortality rate was 26 per cent., which should be lowered with earlier treatment of biliary disease; intervention is preferable at a time when the disease is still limited to the gall-bladder.

407. Thyroidectomy in Exophthalmic Goitre.

L. VAN DEN WILDENBERG (*Le Scalpel*, September 28th, 1929, p. 1053) discusses fully the advantages claimed for radiotherapy in exophthalmic goitre, and concludes in agreement with Crile that the benefits so obtained are at the most only temporary. He strongly advocates surgical intervention in this disease, and states that in the majority of cases cure will follow, subject to three conditions: (1) the operative region must not be injured by previous *x*-ray treatment; (2) iodine medication must be used as a pre-operative measure; (3) the operation must be early. Radiotherapy, he believes, injures the operative site and also involves a lamentable loss of valuable time. It may also give rise to very marked adhesions which render a later operation difficult and dangerous. The curative power of iodine, advocated by Labbé, is also doubted, and cures by this drug are considered by the present author to be exceptional. The method advised and employed by van den Wildenberg is bilateral subtotal thyroidectomy performed in two stages. Troubles of compensation, such as hydrothorax, ascites, and oedema of the limbs, are contraindications to operation. In cardiac decompensation thyroidectomy is nevertheless the best measure to adopt, and among 17 patients reported, on whom operation was performed after radiotherapy had failed to produce any benefit, 7 suffered from cardiac deficiency. The author emphasizes the importance of early intervention in minimizing the risk and assuring a cure in most cases. The dangers of late operations, even in grave cases, are much reduced by suitable preparation and skilful technique; even though cure may not result, the benefits are said to be much greater than those obtained by radiotherapy.

408. Duodenal Fistula.

G. RAZZABONI (*Arch. Ital. di Chir.*, July, 1929, p. 253) deals with that special type of fistula which occasionally occurs after extraduodenal operations, chiefly operations on the gall-bladder or right kidney, and records a case. He has made some experiments on dogs to determine the etiology of these fistulae; he found it difficult to produce them by direct injury of the duodenum, but comparatively easy after drainage irritation. Very small fistulae may possibly heal, but the larger ones are more serious, owing to the digestive action of the fluid on the parts, to the haemorrhage, and to the effects they produce on the general health. He discusses minutely the anatomy and physiology of the duodenum, and then describes the symptoms of a duodenal fistula, which, if it occurs, usually sets in during the first week after an operation. Examination of the fluid serves to distinguish its nature. Treatment, except in very minute openings, is surgical, and the author enumerates the commoner methods used; he prefers simple jejunostomy, followed later, if possible, by a more radical treatment of the duodenal lesion. It is important to protect the tissues from the erosive effect of the duodenal discharge by smearing with some oily preparation.

409. Schlatter's Disease and Allied Conditions.

F. BAASTAD (*Norsk Mag. f. Laegevid.*, October, 1929, p. 1106) states that the diseases called after Scheuermann, Kienböck, and Osgood-Schlatter belong to a large group in which the symptoms and morbid anatomy are the same, the only difference being the localization. Several attempts have been made to find a more suitable term for the disease, such as osteochondritis juvenilis and necrosis of the epiphysis and apophysis. The last term is probably the best, as the condition is really a primary necrosis. The importance of trauma in the etiology was shown by C. Mau's experiments. Baastad records two cases of Scheuermann's disease, one in a girl aged 18 and the other in a boy aged 17; both had been engaged in hard work since leaving school. The boy had sought medical advice for the deformity of his back, and the girl had been [illegible] in the back. In both [illegible] the picture of Scheuermann's disease, and good results were obtained by immobilization. Baastad also reports a case of Kienböck's disease in a man aged 26, who had been employed on the railway for three months in pushing stones under the sleepers. During this work he held the spade with the right wrist extended. Owing to increasing pain in the wrist he had had to give up his work, and the skiagram showed characteristic changes in the semilunar bone. The wrist was immobilized for six months, after which the patient had no more pain. The end-result was somewhat reduced mobility of the wrist, especially volar flexion to 153 degrees. Baastad adds that the case is of special interest to insurance companies.

410. Post-operative Gastric Atony.

O. ORTH (*Zentralbl. f. Chir.*, September 21st, 1929, p. 2375), who records a fatal case in a man aged 23, states that the gastric atony which is liable to occur after operations for gastric ulcer or carcinoma usually disappears after a few days' treatment by lavage. There are, however, obstinate cases which for a long time defy every kind of treatment. It is rare for a fatal issue to ensue, Orth having lost only two cases from atony out of the large number of gastric operations which he has performed in the last ten years. In such cases the question arises as to the possibility of congenital abnormalities in the gastric wall. The existence of atrophy of the gastric musculature in Orth's case was in favour of such a view.

Therapeutics.

411. Scillarene in Cardiac Insufficiency.

D. V. BRANISTEANU (*Presse Méd.*, September 7th, 1929, p. 1170) gives an account of the pharmacological action and therapeutic use of the glucoside scillarene. This drug causes arrest of the isolated frog's heart in systole within two and a half minutes, but its action is reversible, since by washing renewed contractions can be induced. By perfusing successive isolated hearts the author found that there was progressively less and less toxic effect, the fourth heart in the series being unaffected; he concluded that the drug enters into a loose union with the heart muscle. The action of scillarene contrasts with that of digitalis in respect of its reversibility; on the other hand, the drug does not resemble strophanthin in its effects, since the latter has a reversible action but no accumulative effects. The author has administered scillarene by intravenous injections of 1 c.cm. daily, and by the mouth in doses of 40 to 60 minims or three to six tablets daily. The patients selected for this treatment were principally cases of chronic cardiac insufficiency associated with valvular lesions, cardio-renal sclerosis, auricular fibrillation, premature beats, and chronic bronchitis and emphysema. In such cases there followed as much amelioration of symptoms as might have been obtained with digitalis, with the exception that scillarene did not modify the rhythm in patients showing auricular fibrillation and extra-systoles; moreover, it was not found to have any influence on the rhythm in a patient suffering from sinus tachycardia. No elevation of blood pressure occurred after the use of scillarene in therapeutic doses, and anginal symptoms associated with aortitis and cardio-renal disease were relieved by it. In 20 out of 100 patients treated the author observed toxic manifestations, principally bigeminy, nausea, and vomiting; they soon disappeared and did not impair the beneficial action of the drug.

412. Arsenical Therapy in Syphilis.

L. HUDELO (*Journ. de Méd. et de Chir. Prat.*, August 10th, 1929, p. 533) says that in the earliest stages of syphilitic infection intravenous arsenical therapy is the best mode of attack; the future of a syphilitic patient depends entirely on the treatment followed during the first two or three months. The author prefers the intravenous method to the intramuscular, since the results are quick and more certain. He enumerates the contraindications to arsenical treatment, discusses cases of arsenic resistance, and comments on the behaviour of arsenic in the various visceral lesions of syphilis. Even in cases where serological tests show a clean record for two years the author advises a six weeks' course of arsenical treatment before allowing marriage. He then discusses arsenical treatment of the pregnant woman and in congenital syphilis. As regards bismuth, he prefers to use the insoluble preparations; the chief indication for bismuth is as a routine treatment, or in cases where arsenic cannot be tolerated. Mercury is not used so much as it used to be, but it may still be useful in conjunction with arsenic; the author prefers intravenous injections of the cyanide in the early stages, and grey oil for less acute cases. In each method of treatment the author gives details of his practice and suggestions as to the best type to use in the various forms of syphilis. He concludes with a short discussion of the place of potassium iodide in the treatment of this disease.

413. Treatment of Frost-bite.

H. NATVIG (*Tidsskr. f. d. Norske Laegefor.*, July 1st, 1929, p. 633) criticizes as irrational the conventional treatment of frost-bite by means of vigorous rubbing with snow or bathing the parts in ice water. When in the cells and fluid of the tissues there have formed more or less large and sharp crystals of ice, rough massage is likely to cause serious injury; when the snow with which the massage is carried out melts, the water injures the skin. This is further illustrated by the fact that if a person is so foolish as to put his face down to drink ice-cold water when the skin has already been devitalized by exposure to cold, the result is a herpes-like eruption about the mouth. After many years' experience in the mountains Natvig has come to the conclusion that much pain and mutilation would be avoided if neither snow nor water was applied to the face and ears when frozen. Instead, the frozen parts should be very carefully pinched with dry fingers or through a glove, cautious massage being given till complete sensation is restored. With these precautions there should be little or no swelling, no vesicles, and the after-effects may be reduced to slight tenderness and desquamation. In the treatment of frozen limbs the patient should be encouraged to carry out active movements. To support these recommendations the author gives detailed reports of cases, including an account of a misadventure which befell himself, and which might have had very serious consequences had he not treated himself on the lines he advises.

414. Diluted Vaccine Lymph.

H. A. GINS (*Zeit. f. Hygiene*, October 12th, 1929, p. 581) considers that the rational way to avoid the severe reactions that have been caused during the last few years by the inoculation of vaccine lymph is to dilute the lymph. Experiments conducted along these lines showed that 50 per cent. glycerinated saline was unsuitable as a diluent, since it led to a rapid weakening in the virulence of the vaccine. On the other hand, very satisfactory results were obtained with 0.25 per cent. phenolized saline solution containing 0.2 to 0.3 per cent. agar; the agar was added to prevent the occurrence of sedimentation. Vaccine diluted 1 in 100 with this diluent proved capable, in a series of primary inoculations on children, of giving 94 per cent. of positive reactions. This dilution, however, was found to be insufficient, and it is proposed in future to dilute the raw material to about 1 in 5,000. The exact dilution to be employed is determined by the titration of the lymph on animals.

Laryngology and Otology.

415. Herpes of the Larynx.

H. R. LANDON (*Arch. of Oto-Laryngol.*, July, 1929, p. 16) defines herpes laryngis as an acute condition characterized by pain in the throat which is intense on swallowing, a variable degree of hoarseness, and the appearance in the larynx of a number of vesicles. The posterior wall of the larynx is the site of predilection. Nothing definite is known about the etiology, but it is generally believed that instability of the nervous system is the basis of the condition and that the common cold is an important factor in the initiation of the disease. Pathologically the lesion consists of a vesicular eruption which affects the aryepiglottic folds, the epiglottis, and the arytenoid area. The true and false cords usually escape, but the lateral walls of the pharynx and the base of the tongue are often affected; in fact, it is rare for the larynx only to be involved. The vesicles are rounded and bordered by a reddish zone; they are from 1 to 2 mm. in diameter and are at first filled with clear serum, but later the contents become turbid. The vesicles burst and form superficial ulcers. The process heals in about fourteen days without scarring. Clinically the disease is ushered in by a mild chill and moderate fever. Discomfort in the throat is followed in about forty-eight hours by very severe pain on swallowing, which may be so intense that even liquids are refused. Hoarseness is usually slight, but may be marked. Within two or three days the symptoms diminish rapidly, and recovery is complete in about fourteen days. On examination the typical picture described under the pathology is seen. Similar conditions of the larynx are found in the eruptive fevers, and the differential diagnosis is obvious from the associated skin lesions. The prognosis is uniformly good, and the treatment is symptomatic, with rest in bed. If dysphagia is very marked the author recommends spraying the throat with 5 per cent. cocaine solution before food, which is, of course, fluid. The author describes a typical case in a man aged 26, and emphasizes the rarity of the disease, only twenty-six cases having been collected from the literature.

416. Mucosus Otitis.

W. KINDLER (*Deut. med. Woch.*, September 6th, 1929, p. 1511), who records an illustrative case in a woman aged 65, states that the clinical picture of otitis media due to *Streptococcus* or *Pneumococcus mucosus* is as follows. Initial fever and pain in the ear with occasional discharge are followed by disappearance of all symptoms pointing to the ear. During a latent interval of several weeks or months, in the course of which extensive destruction is taking place in the mastoid process, the only signs of disease are frequently a remarkable pallor of the skin, unilateral headache, and malaise, with usually a high temperature above 98.6°, and increasing deafness often associated with tinnitus. On examination the drum generally shows only a slight swelling, the so-called "pale infiltration," which often leads to the erroneous diagnosis of a harmless catarrh of the Eustachian tube. It is particularly persons whose general resistance is diminished, especially old people, who are liable to be attacked by *mucosus* otitis. The *Streptococcus* or *Pneumococcus mucosus* is found in from 15 to 20 per cent. of all cases of otitis media, and in about 80 per cent. of these cases an operation on the mastoid process is required.

417. Deafness of Endocrine Etiology.

D. W. DRURY (*New England Journ. Med.*, August 1st, 1929, p. 206) discusses chronic deafness in the light of an endocrine study of 1,000 case histories. Catarrhal inflammation and oto-sclerosis are regarded as its two main causes, the former being an inflammatory middle-ear condition, whereas the latter is neither inflammatory nor tympanic, but a degenerative process mainly affecting the bony labyrinthine capsule. Since very slight structural changes may so profoundly affect function that the resulting functional disorder completely overshadows the defect to which it is due, the author records the result of his study of this large series of cases with respect to the thyroid, pituitary, ovaries, and a non-endocrine group, and the influence of the endocrine secretions on metabolism, regarding otosclerosis as hyperplasia. In 15 per cent. of the cases there was manifest either hyper- or hypo-functional thyroid disease; in 29 per cent. there was pituitary involvement; in 12 per cent. ovarian trouble, either functional or surgical in origin; while 42 per cent. presented a non-endocrine pathology, and the remaining 2 per cent. were not classified. Of the thyroid group, deafness was a presenting symptom in 18 per cent., and of these patients more than 80 per cent. were in the hypo-functional group, tinnitus and vertigo existing in 34 and 15 per cent. respectively. In the pituitary cases deafness was a prominent symptom in 22 per cent., and 75 per cent. of these cases with deafness were of the dysfunctional type of disorder; tinnitus and vertigo were in the ratio of 36 and 24 per cent. respectively. Of the ovarian cases, deafness was a main symptom in 13 per cent.; 34 per cent. of the patients showed tinnitus and 22 per cent. vertigo. In the non-endocrine group deafness occurred as a marked symptom in 19 per cent., with tinnitus in 31 per cent. and vertigo in 20 per cent. Clinical notes of cases illustrating each group are given by the author.

Obstetrics and Gynaecology.

418. Ovarian Tumours containing Thyroid Tissue.

ALTHOUGH about fifty cases of struma ovarii are reported in the literature, there is no standard to determine whether a tumour containing thyroid tissue should or should not be designated struma ovarii, and varying opinions are held by different authorities. Bauer concluded from his case, reported in 1924, that all the so-called thyroid tissue tumours of the ovary are but atypical pseudo-mucinous cystadenomata and not teratomata at all. G. L. MOENCH (*Surg., Gynecol. and Obstet.*, August, 1929, p. 150) does not agree with Bauer's hypothesis, and reports three cases which point to the opposite conclusion. In two of these microscopical examination revealed the typical structure of a cystic goitre, and parvicellular or even hyaline connective tissue separated the various colloid-filled cysts. In neither case was pseudo-mucin found chemically. Both cases were teratomata, and the second contained what was apparently parathyroid tissue. The third case, described by Kovács, seemed to present real evidence that functioning thyroid tissue was present in the ovary. The patient had a struma ovarii both morphologically and chemically, and, in addition, signs of exophthalmic goitre. The symptoms all disappeared after removal of the tumour. Since the tumour was too small to have caused irregular heart action from pressure and since ovarian cyst in itself does not disturb heart action, and since rest in bed could not have returned the heart's action to normal, as it has remained ever since, it is probable that this

beneficial change was due to the removal of actually toxic thyroid tissue contained in the ovarian tumour. From these three cases Mosnch maintains that cases of struma ovarii do occur and that they are teratomata, though the presence of actually functioning thyroid tissue is extremely rare.

419. Pituitary Gland Therapy in Gynaecology.

H. ROULLAND (*La Gynécol.*, July, 1929, p. 395) reports on the use of the extract of the anterior lobe of the pituitary gland in gynaecology. He has been particularly interested in the hormone which influences growth, and the two others which have an action on the genital organs. He asserts that the first hormone (*de croissance*) has been proved to have an undeniable action on development at puberty, acting on both male and female children. Of the latter hormones (*génitales*), one appears to favour luteinization to such a point that it would stop follicular production; the other acts on the follicle itself. As suggested by Evans and Simpson, the growth hormone is inhibited by the genital hormone when this begins to be effective at puberty. On the anterior lobe, through the medium of the ovary, depends the functioning of the entire genital tract. The author considers that these statements have been confirmed clinically. Extract of the anterior lobe he found particularly indicated in amenorrhoea associated with the infantile type—young girls with ill-developed figure, very small genital organs, secondary characters hardly present, and small thyroid glands. The thin asthenic type of patient with long limbs and late-appearing or irregular menstruation associated with emotional symptoms also responded well. The author's method of treatment was to give 15 drops of a 1 in 1,000 solution of adrenaline three times a day for ten days before the period. For ten days following the period one cachet was given three times a day containing 1 gram of calcium lactate, 0.1 gram of extract hypophysis anterior lobe, and 0.3 gram of calcium phosphate. This treatment was continued for two months, and was then suspended for several weeks. The author gives details of three cases which successfully responded to this treatment.

420. The Treatment of Puerperal Infection.

ACCORDING to VAN CAUWENBERGHE (*Bruxelles-Méd.*, August 18th, 1929, p. 1164) there is no certain and definite treatment of puerperal infection. Prophylaxis is the most effective weapon, and, as an active therapy, auto-haematolysis seems the most promising, especially in streptococcal infection, the commonest form. Since some of the gravest attacks of puerperal infection occasionally terminate spontaneously, it is difficult to estimate the value of such surgical remedies as hysterectomy, which, if employed at all, must be performed quite early to be of any use. The author comments on the advantage of ensuring thorough pre-natal treatment and of limiting digital examination during labour; a very careful vulvar toilet is necessary, but the author deprecates douching except where purulent discharge is present, when he uses a solution of argyrol and glycerin. Antistreptococcal serum given prophylactically does not seem to do much good, but the local application of a vaccine has had good results. In the treatment of declared infection (local, general, or haematogenic) curetting is generally condemned at this stage; it is essential to isolate the organism concerned and prepare an autovaccine. The author briefly enumerates the different types and kinds of injection, and then describes autohaemolysotherapy, which he considers the most hopeful. He mixes 8 c.cm. of blood with a solution containing 10 cg. of sodium cacodylate and 5 mg. of calcium chloride dissolved in 20 c.cm. of distilled water. About one-third of this mixture is injected into the buttock, and a second third is injected four or five hours later. The author supplies six charts showing the effect of this treatment in rapidly bringing down the temperature, improving the general condition, and producing definite cure. No shock followed this treatment, and it is said to be particularly effective when there is a pure streptococcal infection. With the exception of cases of late infection and severe metrorrhagia the author doubts the value of hysterectomy in puerperal infection.

421. Toxaemias of Pregnancy.

H. J. STANDER (*New England Journ. Med.*, September 5th, 1929, p. 458) records an analysis of 801 cases of toxaemia of pregnancy which occurred in the Johns Hopkins Hospital between May 1st, 1923, and May 1st, 1929. The total incidence of all types of toxaemia was 9.37 per cent. The author suggests the classification of toxaemias of pregnancy as (1) vomiting of pregnancy; (2) existence of "low reserve kidney"; (3) nephritis complicating pregnancy; (4) pre-eclampsia; and (5) eclampsia. The statistics are analysed as to the incidence, urine and blood chemistry, pre-natal care, maternal and foetal mortality rates, and treatment. Stander concludes that the vomiting of pregnancy nearly always responds to conservative treatment, which includes isolation and an initial period of starvation. The low reserve kidney is not an alarming complication, and is best treated by rest in bed and dietary measures. Nephritis must always be regarded as a very serious complication of pregnancy, termination of pregnancy, and even sterilization, often being necessary. Conservative treatment is effective in most pre-eclamptic conditions, but radical intervention may become necessary. Eclampsia, in the author's opinion, is best treated by conservative measures, with radical intervention in the exceptional cases in which the patient does not respond to medical therapy. The severity of the eclampsia may be gauged by the uric acid content of the blood and the CO_2 combining power of the serum. Acidosis must be treated as it arises. The author emphasizes the importance of pre-natal care both in preventing some of the toxaemias and in detecting patients who need immediate treatment.

Pathology.

422. Chemistry of Pulmonary Oedema Fluid.

G. BLIX (*Upsala Läkareför. Forhand.*, September 1st, 1929, p. 787) finds that very little information can be gained from the literature regarding the chemical composition of the fluid in pulmonary oedema, most of the data being antiquated and only of a qualitative kind. It is generally agreed that the fluid contains abundant quantities of protein. The only quantitative estimates hitherto made are those of Starkow, who found a protein content of 2.94 to 3.33 per cent. Blix has recently conducted three examinations of the pulmonary oedema fluid from a man, aged 62, suffering from angina pectoris. The composition of the fluid was much the same on the three occasions. As in most transudates, the protein content in the oedema fluid (2.35 or 2.85 per cent.) was much lower than that of the blood serum (7.26). In oedema with the low protein content the specific gravity was relatively low—namely, 1010–1012, as compared with that of the blood (1026). As is the rule in transudates, the albumins (2.05–2.51) predominated over the globulins (0.26–0.32). The values of the lipoids (0.01) were much below those of normal serum, whereas the chlorine values (0.32–0.36), although relatively low, lay within the normal range.

423. The Sedimentation Test in Diabetes Mellitus.

WISSELINCK (*Münch. med. Woch.*, August 16th, 1929, p. 1373) has performed a series of investigations on patients with diabetes mellitus to ascertain what effect the amount of sugar in the blood and urine, ketonuria, and insulin had on the sedimentation rate of red blood corpuscles, since other workers had obtained conflicting results. Westergren's technique and normal standards were adopted and over 300 tests were made on 63 diabetics. In 26 of these the sedimentation rate was normal; in some of the remainder it was increased, and in others diminished. Wisselinck came to the conclusion that on the whole the rate was independent of the clinical condition in diabetes, that the amount of sugar in the blood and urine and the administration of insulin had no constant effect on the rate, and that it was of no prognostic value in diabetes mellitus.

424. Brucella abortus in Milk.

ACCORDING to M. J. KING and D. W. CALDWELL (*Amer. Journ. Med. Sci.*, July, 1929, p. 115), patients with lowered resistance (due, for instance, to tuberculosis, chronic tonsillitis, or ulcerative conditions of the intestinal tract) who drink raw milk infected with *Br. abortus* may develop agglutinins in their blood serum with or without appreciable clinical symptoms of undulant fever. Of 851 patients and 156 staff in the sanatorium who used raw milk, 91 (9 per cent.) showed *Br. abortus* agglutinins when their serums were diluted 1 in 15 or higher; 24 of the 91 patients had agglutinin titres varying from 1 in 24 to 1 in 3,200. The persistent presence of *Br. abortus* agglutinins in human serum for months or years after the patients recover was evidence of infection with *Br. abortus*. The presence of this organism in the blood serums of cows did not necessarily imply that they were discharging it in their milk. In a herd of 151 animals no evidence was obtained of the infection of the milk of cows though their serums agglutinated at 1 in 60, while cultures of *Br. abortus* were obtained from the milk of only 23 cows out of 56 with titres of 1 in 120 or higher. *Br. abortus* was not isolated from the blood or from the urine

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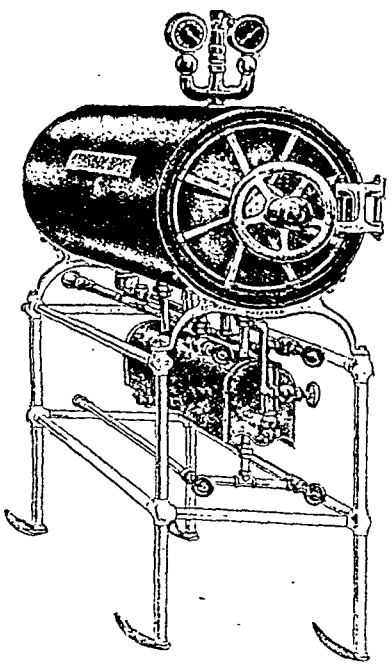

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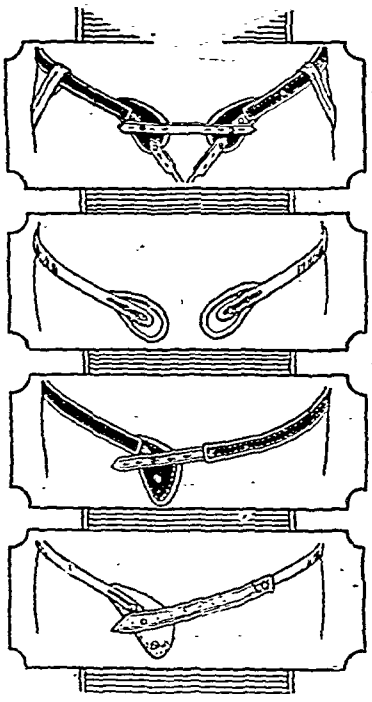

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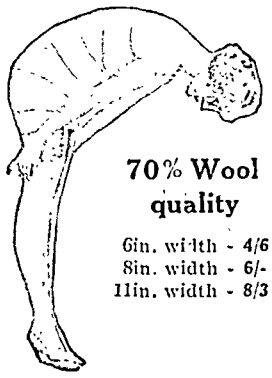

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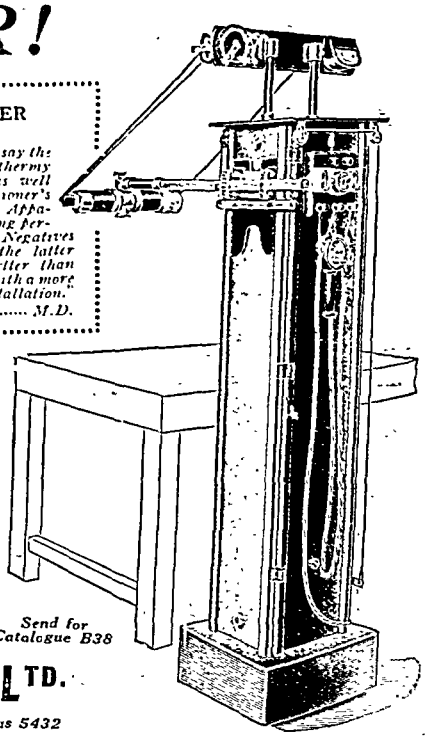

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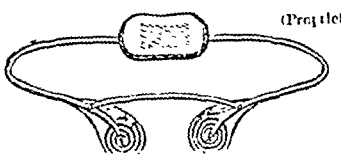

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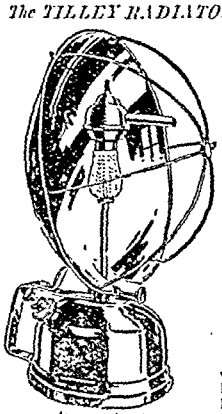

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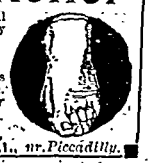

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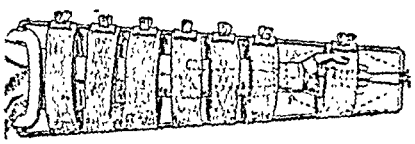

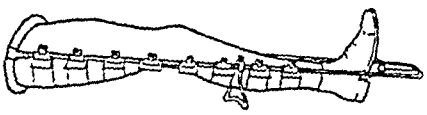

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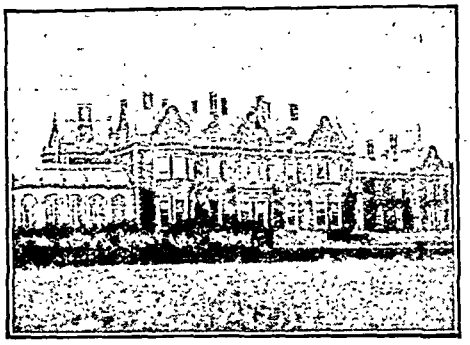
Illustrated Booklet, giving particulars as to terms, etc., can be had on application to the

RESIDENT MEDICAL SUPERINTENDENT.

Telegrams and Telephone: Wickham Market 16. *(Toll Call from London.)*



RENDLESHAM HALL.

To those desiring to be near London—

The Mansion, Beckenham Park, Beckenham, as carried on for the last twenty years, is available. Booklet and particulars from the Resident Medical Superintendent.

Telephone: BECKENHAM 1648. *Telegrams:* NOROTORIUM, BECKENHAM.

Proprietors: The Norwood Sanatorium, Limited.

ALCOHOLISM, DRUG HABIT, AND NEURASTHENIA.

BAY MOUNT, PAIGNTON.

(ESTABLISHED 1922). *'Phone:* PAIGNTON 5110.

A small comfortable Home charmingly situated in secluded gardens overlooking Torbay. Ladies and Gentlemen treated with a view to a rapid and permanent cure by modern methods, which give excellent results. Ample amusement, billiards, wireless, golf, tennis, etc. Good train service (3½ hours London). Moderate inclusive terms. Prospectus, report, etc., from—Stanford Park, M.B., CH.B., Res. Med. Supt., Bay Mount, Paignton.

ALCOHOLISM, OTHER DRUG HABITS, AND TROPICAL AILMENTS

THE HARE NURSING HOME

As founded and established by the late Dr. FRANCIS HARE, for 20 years Med. Supt. of The Norwood Sanatorium, and author of "Alcoholism," etc.; for the treatment of ALCOHOLISM, other Drug Habits, Insomnia, Neurasthenia, Functional Nervous Disorders, TROPICAL Ailments, etc.

"THE OLD HILL HOUSE," CHISLEHURST, KENT.

Terms moderate. Quiet and pleasant situation. *Ladies and gentlemen admitted for treatment.* For Prospectus, etc., write or 'phone: WALTER E. MASTERS, M.D., M.R.C.S., D.P.H., Barrister-at-Law *(Resident Medical Superintendent).*

'Phone: Chislehurst 451. *Telegrams:* "Masters," Chislehurst.

INEBRIETY AND DRUG-ADDICTION.

The Church of England Temperance Society has its own COUNTRY MANSION where Treatment is given by its Resident Medical Superintendent. The Institution is not conducted for profit, and fees are moderate, with Grants-in-Aid in certain cases.

Particulars from the General Secretary, 40, Marsham Street, S.W.1.

NEURASTHENIA ALCOHOL DRUGS

R.M.O., 2, Wilbury Road, HOVE.

THE MORPHIA HABIT.

The Springfield method, selected for full description in the "Medical Annual," has been favourably noticed in medical papers throughout the world. Eighty per cent. of cases treated in the last four years are still well; average duration of treatment 30 days.

This special treatment was originated and is carried out in a general nursing home, the address of which is never advertised.

Apply, Med. Superintendent, 21 (1), Cleveland Square, W.2.

INEBRIETY

ECCLESFIELD, ASHFORD, MIDDLESEX.

(Also private address to secure secrecy.) Telephone: 158.

Beautiful large Residential Home, with 50 acres of park land, attached to R.C. Convent, and under the care of the Sisters. Established 1899. Most successful MEDICAL and PSYCHOLOGICAL TREATMENT for LADIES. Every home comfort, and bright happy social amusements. Splendid results proved by the numbers of former patients who return to the Home for holiday visits.

Medical Superintendent: J. YOUNG SCOTT, M.B., Ch.B.

INEBRIETY

DALRYMPLE HOUSE, RICKMANSWORTH, HERTS.

For the treatment of GENTLEMEN under the Act and privately. Estab. 1883 by an Association of prominent medical men and others for the study and treatment of alcohol and drug abuse. Large secluded grounds on the bank of the River Colne. Full-sized billiards, tennis, croquet, bowls. Golf (Moor Park, Sandy Ledge) close by. For particulars apply to—F. S. D. HOGG, M.R.C.S., &c., Resident Medical Supt. Telephone: 16 RICKMANSWORTH.

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FORMBY-BY-THE-SEA, nr. LIVERPOOL.

For the care and treatment of a limited number of Ladies and Gentlemen suffering from NERVOUS or MENTAL breakdown. Voluntary Boarders received. Psycho-therapy in suitable cases if desired. Terms moderate. Apply, RESIDENT PHYSICIAN. Tel.: No. 8 Formby.

ST. ANDREW'S HOSPITAL
FOR MENTAL DISORDERS,
NORTHAMPTON

FOR THE UPPER AND MIDDLE CLASSES ONLY.

President: THE MOST HON. THE MARQUESS OF EXETER, C.M.G., A.D.C.

Medical Superintendent: DANIEL F. RAMBAUT, M.A., M.D.

This registered Hospital is situated in 120 acres of park and pleasure grounds. Voluntary Boarders, persons suffering from incipient nervous and mental disorders, as well as certified patients of both sexes, are received for treatment. Careful clinical, biochemical, bacteriological, and pathological examinations. Private rooms with special nurses, male or female, in the Hospital or in one of the numerous villas in the grounds of the various branches can be provided.

WANTAGE HOUSE.

This is a Reception Hospital in detached grounds, with a separate entrance, to which patients and voluntary boarders can be admitted. It is equipped with all the apparatus for the most modern treatment of Mental and Nervous Disorders. It contains special departments for hydrotherapy by various methods, including Turkish and Russian baths, the prolonged immersion bath, Vichy Douche, Scotch Douche, Electrical baths, Plombières treatment, etc. There is an Operating Theatre, a Dental Surgery, an X-ray Room, an Ultra-violet Apparatus, and a Department for Diathermy and High Frequency treatment. It also contains Laboratories for biochemical, bacteriological, and pathological research.

MOULTON PARK.

Two miles from the Main Hospital there are several branch establishments and villas situated in a park and farm of 650 acres. Milk, meat, fruit, and vegetables are supplied to the Hospital from the farm, gardens, and orchards of Moulton Park. Occupation therapy is a feature of this branch, and patients are given every facility for occupying themselves in farming, gardening, and fruit-growing.

BRYN-Y-NEUADD HALL.

The Seaside house of St. Andrew's Hospital is beautifully situated in a Park of 330 acres, at Llanfairfechan, amidst the finest scenery in North Wales. On the North-West side of the Estate a mile of sea coast forms the boundary. Voluntary Boarders or Patients may visit this branch for a short seaside change or for longer periods. The Hospital has its own private bathing house on the s-ashore. There is trout-fishing in the park.

At all the branches of the Hospital there are cricket grounds, football and hockey grounds, lawn tennis courts (grass and hard courts), croquet grounds, golf courses, and bowling greens. Ladies and gentlemen have their own gardens, and facilities are provided for handicrafts, such as carpentry, etc.

For terms and further particulars apply to the Medical Superintendent (Telephone No. 66, Northampton), who can be seen in London by appointment.

BELVOIR NURSING HOME,
ASTON-ON-TRENT, DERBY.

FUNCTIONAL NERVOUS DISORDERS & CHRONIC MEDICAL CASES.

The Home, a Georgian mansion, 14 miles from Nottingham and 6 miles from Derby, is for both sexes. In addition to the methods of general medicine, Psycho-Therapeutic treatment is used extensively in suitable cases. Certifiable cases are not received. Electrical Treatment, Radiant Heat, X-ray, and Ultra-violet Light is available in the Nursing Home. Billiards, tennis, etc. Fees from 5 to 12 guineas per week; for Chronic Medical Cases from 3 guineas a week. For further particulars apply to—

Dr. E. M. DOUGLAS-MORRIS, ASTON, DERBY. *Telephone*: Shardlow 16.

COURT HALL, KENTON, EXETER,
SOUTH DEVON.

For the care and treatment of Ladies suffering from Mental Diseases. Limited to eight patients. Telephone: Starcross 19.

CLIFFDEN, TEIGNMOUTH, in connection with Court Hall, for early and convalescent cases. Clifden is a large well-appointed house, with lovely views of the South Devon Coast. It is beautifully situated in grounds of 19 acres. The gardens are very attractive, and there is a private road to the beach.

Resident Physicians: BERTHA M. MULES, M.D., B.S.; ANNIE S. MULES, M.R.C.S., L.R.C.P.
Telephone: *Teignmouth* 289.

HAYDOCK LODGE,
NEWTON-LE-WILLOWS, LANCASHIRE.

'Phone: 11 Ashton-in-Makerfield.

For the reception and treatment of PRIVATE PATIENTS of both sexes of the UPPER AND MIDDLE CLASSES either voluntarily or under Certificate. Patients are classified in separate buildings according to their mental condition.

Situated in park and grounds of 400 acres. Self-supported by its own farm and gardens, in which patients are encouraged to occupy themselves. Every facility for indoor and out-door recreation. For terms, prospectus, etc., apply MEDICAL SUPERINTENDENT.

THE COPPICE, NOTTINGHAM.
HOSPITAL FOR MENTAL DISEASES.

This Institution is exclusively for the reception of a limited number of Private Patients of both sexes of the Upper and Middle Classes at moderate rates of payment. It is beautifully situated in its own grounds on an eminence a short distance from Nottingham, and from its singularly healthy position and comfortable arrangements affords every facility for the relief and cure of those mentally afflicted. Voluntary Boarders received without Certificates.

For terms, etc., apply to the Medical Superintendent.

WONFORD HOUSE HOSPITAL,
EXETER, DEVON.

Telegrams: Exeter 2642. *Telephone*: Exeter 2642.

A registered Hospital for the treatment of patients of both sexes suffering from Nervous and Mental Disorders, situated in beautiful country within a mile and a half of the City of Exeter.

Hard and grass Tennis Courts, Croquet Lawn, Cricket Field, and all indoor amusements, Dancing, Concerts, Wireless, Billiards, Badminton. Occupational treatment.

The patients are carefully graded, and accommodation provides for the separate treatment of early recoverable and convalescent patients.

Voluntary and certified patients are received for treatment.

A prospectus and full particulars can be obtained from the Medical Superintendent.

CHISWICK HOUSE.

A Private Mental Hospital for the Treatment and Care of Mental and Nervous Disorders.

Now removed to:

CHISWICK HOUSE,
PINNER,
MIDDLESEX.

Telephone: PINNER 234.

A modern country house, 12 miles from Marble Arch, in beautiful secluded grounds.

Fees are from 10 guineas a week.

Voluntary Patients received for treatment.

DOUGLAS MACAULAY, M.D., D.P.M.

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Attendance at School is a necessary part of the satisfactory treatment of Epilepsy in Children.

COLTHURST HOUSE SCHOOL meets all the requirements of children of middle-class parentage. Extensions, made necessary by the success of the school, have created several vacancies. Only bright and intelligent boys and girls are eligible for admission.

Apply to the Medical Superintendent.
COLTHURST HOUSE SCHOOL,
WARFORD, ALDERLEY EDGE.

BARNWOOD HOUSE,
GLOUCESTER.

[illegible]AL for the CARE and [illegible]S and GENTLEMEN and MENTAL DIS[illegible]les of the G.W. Railway and L. M. & S. Railway Stations at Gloucester, the Hospital is easily accessible by rail from London and all parts of the United Kingdom. It is beautifully situated at the foot of the Cotswold Hills, and stands in its own grounds of over 280 acres. Voluntary boarders of both sexes are also received for treatment.

Special accommodation for Lady Voluntary Boarders is also provided at the MANOR HOUSE, which has its own private grounds and is entirely separate from the main Hospital.

For particulars as to terms, etc., apply to—
ARTHUR TOWNSEND, M.D., Resident Supt.
Telephone: No. 7 Barnwood.

THE LAWN, LINCOLN.

A registered Hospital situated in large grounds near the Cathedral receives VOLUNTARY BOARDERS and PRIVATE PATIENTS of both sexes for treatment of Mental and Nervous Disorders, including Post-Encephalitic conditions. Special facilities for Psychotherapy in co-operative cases.

All particulars may be obtained from the Resident Medical Superintendent,
Dr. MARY R. BARNAS, M.D., D.P.M.

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(FORMERLY DUFF HOUSE, BANFF.)

The first Private Hospital in the United Kingdom to be fully provided with a whole-time specially qualified Staff of Doctors, Analytical Chemists, Bacteriologists, Radiologists, Nurses, Dietists, Masseurs, and Masseuses, and a full equipment of Laboratories, X-rays, Electrocardiograph, Artificial Sunlight, and Medical Baths.

The Hospital is equipped for the diagnosis and treatment of any form of ill-health, except Mental and Infectious Diseases. The fees are inclusive.

The climate is mild and the neighbourhood beautiful. Apply: The Secretary,
Telegrams: Castle, Ruthin. Telephone: 66, Ruthin. Ruthin Castle, North Wales.

BETHLEM ROYAL HOSPITAL, LAMBETH ROAD, S.E.1.

(For the reception and treatment of cases of nervous and mental disease.) Tel.: Reliance 2182.

President: Colonel and Alderman Sir CHARLES CHEERS WAKEFIELD, Bart., C.B.E.
Treasurer: Sir LIONEL FAUDEL-PHILLIPS, Bart.

PHYSICIAN-SUPERINTENDENT: J. G. PORTER PHILLIPS, M.D., F.R.C.P. Assisted by Physicians, a Pathologist, and a staff of Visiting Consultants.

Patients of the EDUCATED CLASSES, IN A PRESUMABLY CURABLE CONDITION, [illegible] for admission. With a view to the early treatment of eligible cases VOLUNTARY OR UNCERTIFIED patients are [illegible] CAN CONTRIBUTE THREE GUINEAS WEEKLY TOWARDS THE COST OF MAINTENANCE MAY BE RECEIVED [illegible] Treatment is carried out on the most modern principles. In connection with this Hospital there is a Convale[illegible] hills at Witley.
For further particulars apply to the PHYSICIAN SUPERINTENDENT

PECKHAM HOUSE, 112, Peckham Road, London, S.E.15.

Telegrams: "Alleviated, London." Telephone: Rodney 4741—4742.

The above House, which was established in 1826, is an Institution for the care and treatment of persons suffering from mental diseases and nervous disorders. Both certified patients and voluntary boarders are received. Separate houses for treatment and accommodation of special cases adjoin the Institution. There is a seaside branch, Kearsney Court, near Dover, to which patients may be sent for treatment or on holiday. Motor and carriage exercise is provided as required. Patients can avail themselves of a course of physical drill. Tennis courts. Entertainments, dances, and indoor amusements held throughout the year.
Illustrated prospectus and further particulars can be obtained from the Medical Superintendent.

THE OLD MANOR SALISBURY

A Private Hospital for the Care and Treatment of those of both sexes suffering from MENTAL DISORDERS.

Extensive grounds. Detached Villas. Chapel. Garden and dairy produce from own farm. Terms very moderate.

CONVALESCENT HOME at BOURNEMOUTH standing in 9 acres of ornamental grounds, with tennis courts, etc., which Patients or Boarders may visit by arrangement, for long or short periods.

Illustrated Brochure on application to the Medical Superintendent, The Old Manor, Salisbury. Telephone 51.

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NEAR BASINGSTOKE, HANTS.

Private Hospital for Mental Diseases

A modern building situated in a healthy district, easily accessible by rail and road. Patients taken at from three guineas per week.

Apply to Medical Superintendent. Telephone: 157 BASINGSTOKE

NORTHUMBERLAND HOUSE,

GREEN LANES, FINSBURY PARK, N.4.

Telegrams: "SUBSIDIARY, LONDON." *Telephone*: NORTH 0888.

A PRIVATE HOME for the treatment of patients of both sexes suffering from Mental Illnesses.
Conveniently situated four miles from Charing Cross. Easy of access from all parts.
Six acres of ground, highly situated, facing Finsbury Park.
Voluntary Boarders received without certificates. Private suites. Convalescent Home, Kearsney Court, Dover.
For further particulars, apply to the MEDICAL SUPERINTENDENT.

CAMBERWELL HOUSE, 33, Peckham Road, London, S.E.5.

Telegrams: "PSYCHOLIA, LONDON." FOR THE TREATMENT OF MENTAL DISORDERS. *Telephone*: RODNEY 4731—4732.

Also completely detached Villas for mild cases, with private suites if desired: Voluntary Patients received. Twenty acres of grounds. Hard and Grass Tennis Courts, Bowls, Croquet, Squash Racquets, and all indoor amusements, including Wireless and other Concerts. Occupational Therapy, Physical Drill, and Dancing Classes. X-ray and Actino-therapy, Prolonged Immersion Baths. Operating Theatre, Dental Surgery, and Ophthalmic Dept. Chapel. Senior Physician: Dr. Hubert James Norman, assisted by three Medical Officers, also resident, and Visiting Pathologist. An illustrated Prospectus may be obtained upon application to the Secretary.

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A PERFECTLY EQUIPPED HYDRO

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200 acres and has a most modern electrical, nt: "*Sinctor*" *Form Bath, Electric Bath, hermy, Nauheim Bath, Sitz Bath, Photo. Artificial Sunlight, Massage, X-ray, etc.*

THE STANBOROUGHS offers special facilities for treating sufferers from Rheumatism, Digestive Disorders, and Nervous Complaints, etc. Maternity Cases. Private nurses are sent out any distance by arrangement. Write for Prospectus.

The Stanboroughs, Watford, Herts (Phone: Watford 1751 (3 lines))

BRIDGE OF ALLAN HYDRO.

(Allan Water Hotel)

This once famous Hydro adjoining the Mineral Wells has recently been equipped with the most modern appliances for treatment by Electro-therapeutics, Medicated Baths, etc. All treatment is given only on the instruction of the Medical Superintendent, or of the patient's own medical adviser.

Bridge of Allan is an Inland Spa and Climatic Resort, sheltered from the North and East winds.

Terms on application. Medical Superintendent: Dr. W. C. HOFFMAN.

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FOR CHILDREN

BROADSTAIRS.

For the Early & Preventive Treatment of Disease & Convalescence after Illness.

The Hospital is intended for the children of Members of the Institution of Civil Engineers, the children of architects, artists, authors, clergymen, members of the medical, legal, and other professions, members of scientific societies, officers of the Navy, Army, and Royal Air Force, officers of the Merchant Navy, schoolmasters and university professors.

Accommodation is provided for 50 Boys between the ages of 4 and 12 years, and 50 Girls between the ages of 4 and 14 years. In special cases the age limits may be raised to 14 for Boys, and 16 for Girls.

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(ITALIAN RIVIERA)

and Sunshine for the Winter.

HOTEL MIRAMARE

All the advantages of an English Hydro, with English Medical Men and modern electro-therapeutic and hydropathic treatments available. Resident qualified English Nursing Matron. Special diets arranged.

Beautiful situation and bright sunny rooms. Central heating, lift, and all the conveniences of a modern hotel.

Pension terms from 12/6 a day inclusive, according to accommodation.

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Unrivalled suites of Baths for Ladies and Gentlemen, including Turkish and Russian Baths, Aix and Vichy Douches, Massage and Plombières Treatment, an Electric Installation for Baths and other Medical purposes, Dowsing Radiant Heat, D'Arsonval High Frequency, Diathermy, Nauheim Baths, etc. Special provision for invalids. Milk from our farm. Large Winter Garden. Night Attendance. Rooms well ventilated and all bedrooms warmed in Winter. A large Staff (upwards of 60) of trained Male and Female Nurses, Masseurs, and Attendants.

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For Prospectus and full information please write MANAGER, M.J.

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for health and for comfort. Cordial hospitality and first-class cuisine await you. Adjoining brine baths—the certain cure for rheumatism. Special residential terms for Autumn and Winter. There are 230 rooms, magnificent grounds, lock-up garages and cars for hire. Illus. booklet sent on request. 'Phone 50 or 38.

BOURNEMOUTH HYDRO,

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Every kind of Bath. Plombière Lavage.
Every kind of Massage. Ultra-violet Light.
Every kind of Electricity. Diathermy.
Every kind of Diet.
Carlsbad and Vichy Waters, etc.
High Frequency. Electric Lift.

Prospectus from Secretary. *Tele.* 341.
Resident Physician: W JOHNSON SMITH, M.D.

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Unsurpassed situation, 600 ft. above sea level, high sunshine record, own farm. Resident Medical Officer. Male cases only.

Inclusive weekly terms 50/-.

Special preferential arrangements for a few private cases at 4 guineas.

Artificial Pneumothorax, etc.

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HOME FOR CHILDREN and YOUNG PEOPLE, delicate or predisposed to Tuberculosis; in English Doctor's House, near Davos, Switzerland. Terms from £5 5s. p.w.—Apply, Dr. BERNARD HUDSON, Victoria, Davos, Switzerland.

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For the treatment of Ladies and Gentlemen mentally afflicted. Voluntary Boarders received. Situated 1,200 ft. above sea-level, facing S.; 14 acres of grounds.—For terms, apply to the Resident Medical Superintendent, W. W. HORTON, M.D. Nat. Tel 150.

Tel. & Telegrams: "Haynes, Brentwood, 45."

Littleton Hall, Brentwood, Essex.

Large grounds, 400 ft. above sea. HOME for Ladies Mentally afflicted. Voluntary Boarders received. Stations: Brentwood and Shenfield 1 mile. Liverp'l St. 26 min.—Apply, Dr. HAYNES.

Bishopstone House, Bedford.

PRIVATE HOME for MENTALLY AFFLICTED LADIES. Ten only received. Apply, Medical Officer or Mrs. PEELE. *Telephone*: 2708.

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PRIVATE PATIENTS are received at a weekly charge of TWO GUINEAS and upwards. Voluntary BOARDERS can now be admitted.—Apply to the MED. SUPERINTENDENT.

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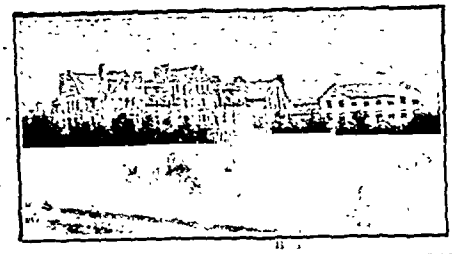

Medical Director: David Lawson, M.D., F.R.S.E.

FULLY EQUIPPED WITH EVERY MODERN APPLIANCE FOR THE DIAGNOSIS AND TREATMENT OF ALL FORMS OF TUBERCULOSIS & ALLIED DISEASES.

Physician Superintendent - J. M. JOHNSTON, M.B., D.P.H., etc.

Full particulars and Prospectus on application to the Secretary.

Inclusive Terms: SEVEN GUINEAS A WEEK.

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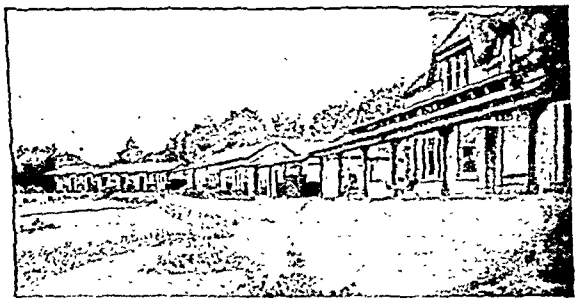

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Full day and night Nursing Staff.

Resident Physicians: ARTHUR H. HOFFMAN, M.D., and G. A. HOFFMAN, M.B.

Apply: The Secretary, The Cotswold Sanatorium, Cranham, Gloucester.

Telephone: 41 WITCOMBE. *Telegrams:* "HOFFMAN, BIRDLIP."

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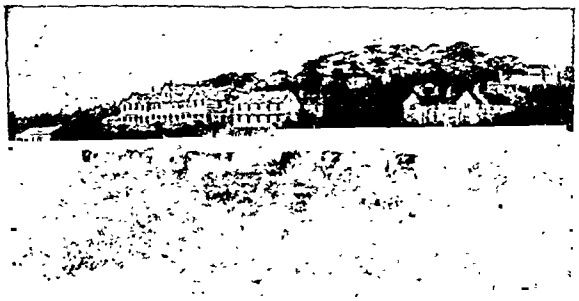

Specially built for the treatment of Pulmonary and other forms of Tuberculosis. Aspect S.S.W., on a carefully chosen site. Pure bracing air. High sunshine record. Heliotherapy. Arc-light treatment. One mile from the coast. Electric light throughout. X-ray installation. Full day and night Nursing Staff. Wireless (head-phones) throughout.

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L. WHITTAKER SHARP, M.B.(Camb.).
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Apply, Mr. D. C. FORD, Secretary,
The Sanatorium, Mundesley, Norfolk.

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Situated in the upper Speyside district of Inverness-shire. One of the highest inhabited districts in Britain—"The Switzerland of the British Isles." Bracing and dry mountain climate. Well sheltered Sanatorium specially built for the Open-air Treatment of Tuberculosis. Opened in 1901. Elevation 860 ft. above sea-level. Electric light throughout buildings and in rest shelters. Central heating. Fully equipped X-ray Plant. All forms of treatment available, including Artificial Pneumothorax, and Ultra-Violet Rays for surgical cases of Tuberculosis.

MEDICAL SUPT.: FELIX SAVY, M.B., Ch.B. *For particulars apply to the Secretary.*

Terms: £4 6s. 8d. to £6 6s. per week inclusive, no extras

PENDYFFRYN HALL SANATORIUM

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Established 1900 for the treatment of Tuberculosis. Miles of carefully graduated walks through pine-clad hills, with sea and mountain views. Modern treatment, including SANOCRYSIN, ARTIFICIAL PNEUMOTHORAX, etc. X-ray plant, electric light, central heating, wireless. Full day and night nursing staff. On L.M.S. Main Line to Holyhead, 4¼ hours from London. Resident Physicians: Dennison Pickering, M.D.(Cantab.), F. W. Godbey, M.D., D.P.H.; Matron: Miss N. Rennardson, S.R.N. ('Phone, 20.)

For particulars apply to the Secretary, Pendyffryn Hall, Penmaenmawr, N. Wales.

VALE OF CLWYD SANATORIUM

This Sanatorium is established for the treatment of TUBERCULOSIS of the LUNGS and the PLEURAL CAVITIES. It is situated in the midst of a large area of park-land at a height of 450 feet above sea-level, on the south-west slopes of mountains rising to over 1,800 feet, which protect it from north and east winds and provide many miles of graduated walks with magnificent views. Average rainfall 29.57 per annum. Full day and night nursing staffs. X-ray plant. Every facility for Artificial Pneumothorax, and for operations on the chest. Electric lighting. Central heating. Home farm. Clean milk from T.T. Herd. For particulars apply to Med. Supt., H. Morriston Davies, M.D., M.Ch.Cantab., F.R.C.S., Llanbedr Hall, Ruthin, N. Wales.

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POST-GRADUATE SPECIAL COURSES have been arranged for November and December: M.R.C.P. (evening course), Venereal Diseases, Neurology, Proctology and Orthopædics; Dermatology, Diseases of Infants and Practitioners' Course. Detailed syllabuses and "General Course" Programme from the Secretary.

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Continuous Clinical Instruction daily from 10 a.m. to 4 p.m.—Post-Graduates may enrol at any time for any period from 1 week to 3 months.—Special facilities for "Study Leave."—Anæsthetic Courses.—Clinical Assistantships.—Annual Membership Tickets at Special Terms available for General Practitioners who wish to attend the Hospital Practice at irregular intervals.

Prospectus from Sir Henry Simson, K.C.V.O., Dean, West London Hospital, Hammersmith, W.6.

The Tavistock Square Clinic for Functional Nervous Disorders, 51, Tavistock Square, W.C.1.

A SHORT COURSE
of Lectures on

FUNCTIONAL NERVOUS DISORDERS

FOR PRACTITIONERS AND STUDENTS

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For particulars of the Course apply to the Hon. Lecture Secretary at the Clinic.

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Special Classes for Pre Medical and Dental Exams., Matric., and Prelims.
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Resident and non-resident pupils. Full particulars upon request.—Mr. A. C. SCHNELLE, 119, Bedford Court Mansions, London, W.C.1. Estab. 1905. Telephone: Museum 3665.

F.R.C.S.(Edin.)
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Grove House, All Stretton, Church Stretton, Shropshire.
A Private Home for the care and treatment of a limited number of ladies mentally afflicted. Climate healthy and bracing.
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Mental Patients (not certifiable).—Vacancies for two, either sex, in an ideal private Country HOME near London. Physician and Nursing Sister in residence. Moderate terms, many amenities.—Write Box 831, ALDRIDGE'S ADVERTISING SERVICE, 34, Paternoster Row, E.C.4.

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Wanted.—Tutor of good address for BACKWARD BOY, 17 years old, not mentally deficient, but lacking interest. One who has the power of getting the best out of the boy desired.—Address, No. 7153, B.M.A. House, Tavistock Square, W.C.1.

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Sound Education. Upper and Lower Schools. Preparation, when desired, for all University Entrance Examinations. Particulars from Sec.
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The Practice of the Hospital is limited to Medical Practitioners. Particulars from T. H. C. BLYTHS, F.R.C.S., Dean.

F.R.C.S.(Edin.).
Prep. Classes and Museum Demons. for next Fellowship Exam. will commence shortly. Correspondence course for March and later exams should begin now. Parties., Mr. H. C. ORRIN, F.R.C.S., at Surgeons' Hall, Edinburgh.

Sister receives Patients.—Registered HOME. Medical, Nerve, slightly Mental, Epileptic, or Chronic cases. Sunny, well sheltered. Sea and mountain air. Personal attention. Terms moderate.—SISTER JONES, Plas Coch, Llanfairfechan.

Lymekilns Nursing Home, East KILBRIDE. — Medical, Convalescent, Maternity, and Permanent Patients. Comfort, sunny rooms, large garden, own poultry, veg., etc. Trained staff. Moderate terms. Tel.: E. Kilbride 6.

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Medical Prospectus gratis along with list of Tutors, etc., on application to the Principal, Mr. E. S. WEYMOUTH, M.A., 17, Red Lion Sq., London, W.C.1. (Telephone: HOLBORN 6313.)

Royal College of Physicians of LONDON.

The Right Hon. H. A. L. FISHER, F.R.S., will deliver the LLOYD ROBERTS LECTURE at 5 o'clock on THURSDAY, NOVEMBER 14th, at the COLLEGE, PALL MALL EAST, S.W.1.

Subject: "*An Oxford Movement*."

By Order of the *President*,
H. M. BARLOW, Bedell & Secretary.

University of London.

A Course of Four Lectures on "*Protein Metabolism*" will be given by Dr. W. Ronson, D.Sc., Ph.D., at KING'S COLLEGE (Strand, W.C.2), on THURSDAYS, NOVEMBER 14th, 21st, 28th, and DECEMBER 5th, at 5 p.m. Admission free, without ticket.

W. S. ANGUS, Deputy Academic Registrar.

National Association for the PREVENTION OF TUBERCULOSIS,

1, *Gordon Square*, London, W.C.1.

Applications are invited for the post of ASSISTANT MEDICAL COMMISSIONER to the above Association. *Candidates* must be registered under the Medical Acts, and should have had special *experience in dealing with Tuberculosis*. The duties are those pertaining to the conduct of an educational campaign for the prevention of Tuberculosis. *Salary* £700 per annum, with out-of-pocket expenses. Written applications, with copies of three recent testimonials, to be sent to the Secretary.

Refraction and the Ordering of GLASSES taught by Practising Ophthalmic Surgeon in London. £8 8s. for 10 lessons.—Address, No. 123, B.M.A. House, Tavistock Square, W.C.1.

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MEDICAL STUDENTS admitted to Hospital practice, with operative Midwifery, and Obstetrical complications.

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COURSES OF [illegible] three months) for [illegible] Medicine commence on October 1st and January 7th, and for the Diploma in Tropical Hygiene on January 12th and April 26th. (*Candidates for the D.T.H. must possess the D.T.M. of this University.*)

For particulars apply to the Hon. Dean, Liverpool School of Tropical Medicine, Pembroke Place, Liverpool

STAMMERING, SPEECH DEFECTS.

BEHNKE METHOD. *Estab. 1882. Cases, non-resident, treated at 39, Earl's Court Square, S.W.5, and in residence, in the Summer holidays, at Miss* BEHNKE'S *house on the Chilterns*

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POST-GRADUATE MIDWIFERY.

Qualified Medical Women are admitted to **The Mothers' Hospital of the Salvation Army, Lower Clapton Road, E.5** for practical fortnightly Courses in Midwifery. These include delivery of normal cases, attendances at all abnormal cases, operations, ward rounds of visiting staff, V.D. clinics, and ante-natal clinics For further particulars, fees, etc., apply to the Secretary.

Birmingham Union.

DUDLEY ROAD HOSPITAL.

SURGEON.

Applications are invited from fully qualified registered Medical Practitioners for the above appointment.

The Hospital accommodation is fixed by the Guardians at 926, divided into Medical, Surgical, Children's, Infectious, Gynæcological and Obstetrical Sections. There are completely equipped Pathological and Biochemical Laboratories, X-ray, Electrical, Massage, Sunlight, and Dental Departments. Approximately 6,000 operations are performed annually.

Candidates for the appointment must have had good Surgical experience, and be Fellows of the Royal College of Surgeons (*England*).

The scale of salary will be £700, rising by annual increments of £50 to a maximum of £1,000 per annum, and the salary of the successful candidate will be fixed within the scale according to experience and qualifications.

Furnished quarters, *rations*, laundry, and attendance will be provided by the Guardians. Alternatively, a cash allowance will be paid if the officer appointed is non-resident. A deduction of 2 per cent. will be made from the salary and value of emoluments under the provision of the Poor Law Officers Superannuation Act, 1896.

Further particulars of the appointment may be obtained from the Chief Medical Officer, F. W. ELLIS, Esq., M.D., F.R.C.S., Dudley Road Hospital.

Applications, stating age, experience, and qualifications, accompanied by copies of recent testimonials, must be forwarded so as to reach me not later than 11 a.m. on Monday, November 25th.

Union Offices, Birmingham. November 4th, 1929.

C. P. BEECH, Clerk to the Guardians.

The University of Sheffield.

FACULTY OF MEDICINE.

The Council of the University and the Board of Management of the Royal Hospital, Sheffield, acting *conjointly*, are about to make an appointment to the post of PATHOLOGIST to the Hospital and DEMONSTRATOR OF PATHOLOGY in the University. The salary offered is £500 per annum. Applications, accompanied by recent testimonials and references, should be sent on or before Saturday, November 16th, to the undersigned from whom further details may be obtained.

W. M. GIBBONS, Registrar.

The University of Sheffield.

FACULTY OF MEDICINE.

The Council of the University are about to make an appointment to the post of LECTURER IN PATHOLOGY in the University. The salary offered is £500 per annum. Applications, accompanied by recent testimonials and references, should be sent on or before Saturday, November 16th, to the undersigned, from whom further details may be obtained.

W. M. GIBBONS, Registrar.

Parish of Stepney.

MEDICAL SUPERINTENDENT.

The Guardians invite applications from fully qualified registered Medical Practitioners for the post of Medical Superintendent at their ST. PETER'S (WHITECHAPEL) HOSPITAL, situate at 74, Valiance Road, Whitechapel, London, E.1.

The inclusive salary will be at the rate of £900 per annum, together with the emoluments of residence, *board*, coal, gas, *wates*, and attendance, valued for the purposes of superannuation at £210 per annum.

The candidates must have previously held a *resident Hospital* appointment and have had administrative *experience* in a Poor Law Hospital or similar *Institution*.

The salary and emoluments will be subject to the customary deductions for superannuation, and the person appointed will be required to pass a medical examination as to fitness before commencing duties.

The appointment is *subject* to any provisions affecting officers in the Local Government Act, 1929.

In addition to the duties of Medical Superintendent of the Hospital, the appointment includes the duties of Chief Medical Officer for the outdoor medical work in Area "A" of the Parish and also the medical examination of certain sections of the Board's staff.

The Hospital is one of three Hospitals administered by the Guardians; is certified for 829 beds; and is also a Centre for Ophthalmic and Mental Observation Cases in Stepney. All classes of cases (*medical, surgical*, and maternity) are dealt with, and there is a *staff of Visiting Consultant Specialists*. The Hospital *has*, in addition, Training *Schools* for Nurses, both male and female.

Further particulars as to the duties and forms of application may be *obtained* from the Medical Superintendent, or will be forwarded from this office upon receipt of a stamped addressed foolscap envelope, and must be returned to me by *not* later than Wednesday, November 20th.

By Order,
S. MCCLELLAND, Clerk to the Guardians.

Administrative Offices, Bancroft Rd., Mile End, London, E.1. November 2nd, 1929.

The Radium Institute,

Riding House Street, London, W.1.

Applications are *invited* from duly qualified Medical *Practitioners* for the post of WHOLE-TIME ASSISTANT (non-resident) in the MEDICAL DEPARTMENT of the Institute.

The salary will be at the rate of £600 per annum, and the appointment will take effect as from January 1st, 1930.

The *present* House Surgeon is a candidate for the post.

Applications, stating age, qualifications, and experience, with copies of three recent testimonials, must be received at the Institute not later than November 12th.

Canvassing, either directly or indirectly, is not permitted.

THOS. A. GARNER, Secretary.

St. John's Hospital, Lewisham, S.E.13.

There is a vacancy for a RESIDENT MALE CASUALTY OFFICER. Salary £100 p.a. The appointment is for six months. Applications, with copies of testimonials, should be sent to the Secretary of the Hospital as soon as possible. The successful *applicant* must be prepared to begin duty at once.

County Borough of Derby.

APPOINTMENT OF MEDICAL OFFICER OF HEALTH.

The Council of the County Borough of Derby invite applications for the appointment of Medical Officer of Health for the Borough. Commencing salary £1,100 per annum.

Candidates must be duly qualified Medical Practitioners possessing a recognized Diploma of Public Health and the requisite qualifications required by Acts of Parliament and Regulations of the Ministry of Health. Any applicant appointed must devote the whole of his time to his duties and not engage in private practice.

The appointment will be subject to the provisions of the Local Government and Other Officers Superannuation Act, 1922, and the selected candidate will be required to pass a medical examination satisfactory to the Corporation.

Age not to exceed 40 years in the case of any applicant not already in the service of the Corporation.

Other conditions being equal, preference will be given to applicants possessing the necessary qualifications who have actually served in the Forces overseas.

Particulars of qualifications and duties of the office and terms and conditions of service, together with forms of application, may be obtained from the undersigned, and applications endorsed "Medical Officer of Health" (on the form supplied only), accompanied by copies of not more than three recent testimonials, to be sent to the Town Clerk, Derby, not later than Saturday, November 16th.

Canvassing, either directly or indirectly, will be a disqualification.

Market Place, Derby. G. TREVELYAN LEE, Town Clerk.

October 30th, 1929.

City of Manchester.

APPOINTMENT OF ASSISTANT TUBERCULOSIS OFFICER.

The Public Health Committee invites applications for the position of Assistant Tuberculosis Officer at a commencing salary of £650 per annum, rising by annual increments of £25 to £750 per annum. (First increment January 1st, 1931.)

Candidates must be fully qualified Medical Practitioners having special knowledge of Medical and Surgical Tuberculosis. Candidates should state whether they possess the Diploma of Public Health.

Applications, stating age, qualifications, and experience, with copies of not more than three recent testimonials, and endorsed on the envelope "Assistant Tuberculosis Officer," must be addressed to the Town Clerk only, and not to members of the Committee or Council, and must be received by him not later than Monday, November 18th.

The gentleman appointed will be under the administrative control of the Medical Officer of Health and the immediate control of the Senior Tuberculosis Officer. He will be required to devote the whole of his time to the duties of his position, to execute the Deed of Service, and to contribute to the Corporation Superannuation Fund.

Canvassing in any form, oral or written, direct or indirect, is prohibited.

By Order,
Town Hall, Manchester. F. E. WARBRECK HOWELL, Town Clerk.

City of Birmingham.

ASSISTANT MEDICAL OFFICER.

The Public Health Committee invite applications for one of the posts of Assistant Medical Officer for Public Health duties. Candidates must be qualified Medical Practitioners and possess a degree or diploma in Public Health or Science. The candidate appointed will be required to join the Birmingham Corporation Superannuation Scheme, and for the purpose to pass a medical examination. The appointment will be terminable by one month's notice on either side. *Salary £750 per annum*

Applications, endorsed "Assistant Medical Officer of Health," and to be accompanied by copies of three recent testimonials, to be made on a form to be obtained from the Medical Officer of Health, The Council House, Birmingham, and returned to him on or before Saturday, November 16th. Canvassing will disqualify.

Royal Chest Hospital,

City Road, E.C.
(Royal Northern Group of Hospitals.)

CLINICAL ASSISTANTS are required in the Out-patient Department on Monday and Thursday afternoons. Ladies are eligible. Applications should be forwarded to the Secretary.

County Council of Durham.

MATERNITY AND CHILD WELFARE.

ASSISTANT WELFARE MEDICAL OFFICER.

The County Health Committee invite applications for the appointment of an Assistant Welfare Medical Officer (woman), at a commencing salary of £600, rising by annual increments of £25 to £650 per annum. Travelling expenses will be paid by the County Council according to scale.

Applicants must be registered Medical Practitioners of not less than three years' standing, and not exceeding 45 years of age, with special experience in Maternity and Child Welfare work and its organization. The person appointed will be required to reside in Durham City or other approved centre and to devote her whole time to the duties of the office, and must be prepared if called upon to act as Locum Tenens to other members of the Medical Staff of the County Medical Officer, and will be debarred from engaging in private practice. The D.P.H. or its equivalent will be considered an additional qualification.

The appointment will be terminable by three months' notice on either side.

A condition of the appointment is that on marriage the officer will be required to vacate her post.

The appointment will be subject to the provisions of the Local Government and Other Officers *Superannuation Act, 1922, and to a* medical examination, as required by the Council for the purposes of the Act, and the statutory contributions to the Superannuation Fund under that Act will be deducted from the salary.

Applications, marked "Assistant Welfare Medical Officer," together with copies of not more than three recent testimonials, must be sent to the County Medical Officer, Shire Hall, Durham, not later than November 18th.

Shire Hall, Durham. HAROLD JEVONS, Clerk of the County Council.

October 28th, 1929.

Royal Cripples Hospital,

BIRMINGHAM.

Applications are invited for the post of HOUSE SURGEON, vacant December 1st. Salary £200 per annum, with board and residence. The appointment, which is for a period of six months, is renewable on the discretion of the Medical Board, and is terminable by one month's notice on either side. Preference will be given to candidates with previous experience in general and orthopædic hospitals.

Applications, with copies of three recent testimonials, to be sent to the undersigned not later than November 18th.

Miss CHRISTINE COX,
Royal Cripples Hospital, 80, Broad St., Birmingham. Gen. Secretary.

Borough Mental Hospital,

ROWDITCH, DERBY.

SECOND ASSISTANT MEDICAL OFFICER wanted. Commencing salary £350 per annum, rising by £25 per annum to £450, with an additional £50 per annum if in possession of the Diploma in Psychological Medicine, with board, apartments, attendance, and laundry. Candidates must be unmarried and registered under the Medical Act. The appointment is subject to 3 per cent. deduction on salary and emoluments under the Asylum Officers Superannuation Act, 1909. Apply, not later than November 19th, stating age and full particulars, together with copies of three recent testimonials, to the Medical Superintendent.

Blackburn and East Lancashire

ROYAL INFIRMARY.

FOURTH HOUSE SURGEON (male), to commence duties December 1st, required at a salary of £130 per annum, with board, residence, laundry, etc.

The Hospital contains 240 beds, with X-ray, Massage, *V.D.*, Eye, Ear, Nose, and Throat Departments, Pathological Laboratory, etc. There is no outside work.

Applications, with copies of testimonials, stating age, nationality, experience, etc., to be sent at once to the undersigned.

Royal Infirmary, Blackburn. NATHAN A. SMITH, Gen. Supt. & Sec.

Darlington General Hospital.

(120 Beds.)

Wanted, HOUSE SURGEONS, Senior and Junior, male, British, fully qualified. Salaries £150 and £125 per annum respectively. Board and residence. Applications, stating age, experience, and qualifications, together with copies of two recent testimonials, to be addressed to me forthwith.

A. RIDDLE, Secretary.

Worcestershire County Council.

ASSISTANT COUNTY MEDICAL OFFICER.

The above-mentioned Council are about to appoint an Assistant County Medical Officer, and applications are now invited for this post.

Applicants must be registered Medical Practitioners between the ages of 25 and 45.

The duties will include attendance at Infant Welfare and Ante-Natal Centres, and the medical examination of elementary and secondary school children. Special Post-Graduate experience in Children's Diseases is especially desirable.

The officer who is appointed will work under the supervision of the County Medical Officer, *and will be* required to reside in the district assigned to him or her by the County Council, and to devote the whole of his or her time to *the work.*

The salary will be £600 per annum, with an allowance of £140 per annum for use of own motor car, or a car will be supplied for County work.

The engagement will be subject to three months' notice on either side.

Applications (on forms to be obtained from the County Medical Officer, 29, Foregate St., Worcester), accompanied by not more than three recent testimonials, must be received by 12 noon on Thursday, November 28th, addressed to the County Medical Officer, 29, Foregate Street, Worcester.

Canvassing disqualifies, and neither the names of the Members of the County Council nor of the Committee will be supplied.

(Signed) C. H. BIRD, Clerk of the County Council.

Shirehall, Worcester.
November 5th, 1929. (V.135.)

Parish of Ipswich.

ASSISTANT RESIDENT MEDICAL OFFICER (Female).

The Guardians of the Poor of the Parish of Ipswich invite applications from fully qualified Medical Women for the appointment of Assistant Resident Medical Officer at HEATHFIELDS INFIRMARY, HEATHFIELD HOUSE, and ST. JOHN'S HOME FOR CHILDREN. Salary £250 per annum, with board and residence. The appointment is subject to termination by six weeks' notice on either side.

The accommodation of the Heathfields Infirmary is for about 250 patients, and of Heathfield House about 230 inmates. The number of children in St. John's Home is about 150.

The candidate appointed will be required to act generally under the direction of the Visiting Medical Officer, and to give lectures to the Probationer Nurses.

Applications, stating age, qualifications, and experience, accompanied by copies of not more than three testimonials, to be sent to me endorsed "Assistant Resident Medical Officer," not later than Monday, November 25th.

L. W. GREENHALGH, Clerk to the Guardians.

Guardians' Offices, 19, Tower St., Ipswich.
November 5th, 1929.

South London Hospital for

WOMEN,
South Side, Clapham Common, S.W.4.

The Board of Management invite applications from fully qualified Medical Women for the undermentioned appointment:

CLINICAL ASSISTANT for the Department under the Public Health (Venereal Diseases) Act, 1916. To attend on Tuesday evenings and Wednesday mornings at the Out-patient [illegible] Clapham Causeway, or a period of 1930. *Honor-*

Applications, with copies of testimonials, must reach the Secretary at the Hospital not later than the first post on Saturday, November 30th.

Royal Liverpool Babies' Hospital

WOOLTON.

Required immediately, RESIDENT MEDICAL OFFICER for the above Hospital. The appointment to be for a period of six months. Salary at the rate of £90 per annum. Applications, with copies of testimonials, to be sent to the Chairman of the Hospital, c/o The Child Welfare Association, 9, Copperas *Hill*, Liverpool, on or before 12 noon, Saturday, November 16th.

London Skin Hospital (Inc.),

40, Fitzroy Square, W.1.

HONORARY PHYSICIAN and HONORARY PATHOLOGIST required for above Hospital. Apply Secretary.

COLONIAL MEDICAL SERVICES.

Vacancies exist at present for Medical Officers in:—

(*a*) The East African Medical Service.

(*b*) The Malayan Medical Service.

QUALIFICATIONS.

Applicants must be British subjects of European parentage, and between 22 and 35 years of age. They must possess a double qualification and be on the British Medical Register. Preference will be given to candidates who have held hospital or public health appointments, or who have special knowledge of anæsthetics, radiology, surgery, medicine, ophthalmology, gynæcology and midwifery, diseases of the ear, nose, and throat, venereal diseases, etc.

SALARIES.

East Africa. £300 per annum, rising by annual increments of £30 to £840 per annum, and thence, subject to an efficiency bar, by increments of £40 to £920 per annum.

Malaya. $500 a month (£700 per annum, at exchange Straits $1=2s. 4d.), rising by annual increments of $25 a month (£35 per annum) to $800 a month ($1,120 per annum).

In addition to salary, there is at present a non-pensionable temporary allowance of 10 per cent. of salary to unmarried officers and 20 per cent. to married officers.

CONDITIONS OF SERVICE.

Appointments are made on probation (two years in the case of East Africa and three years in Malaya) in the first instance. At the end of the probationary period the officer may, if his services have been satisfactory, be confirmed in his appointment and placed on the permanent establishment.

QUARTERS.

East Africa. Free quarters are provided or an allowance is given in lieu.

Malaya. Quarters are usually available and are provided at a rental which in no case exceeds 6 per cent. of the officer's salary.

PASSAGES.

(Applicable to both East Africa and Malaya.)

Free first-class passages are provided both on first appointment and when proceeding on leave.

Further particulars and forms of application may be obtained on application in writing to the PRIVATE SECRETARY (Appointments), Colonial Office, 2, Richmond Terrace, Whitehall, London, S.W.1.

Southern Rhodesia.

The GOVERNME
invite application
titioners for the
PUBLIC HEALT
The duties embr
ment Public Health Department, which controls the Medical, Nursing, and Hospital Services; Medical and Dental Services for Schools, Defence, and Police; Health on Mines; Registration of Births and Deaths; Administration of Law Ordinances relating to Public Health, Foods and Drugs, Medical and Dental Registration, Leprosy Repression; Lunacy; and the Department generally deals in an advisory capacity to the Government in all matters pertaining to the Public Health.

The appointment to be subject to six months' notice of termination by either side. The appointment is on the Pensionable Establishment of the Southern Rhodesia Civil Service.

Applicants must also possess a recognized Diploma in Public Health and must be able to assume duty by April 1st, 1930. Salary will be at the rate of £1,750 per annum, with an allowance of £120 per annum towards the cost of motor transport at headquarters.

First-class steamship and rail passage to Salisbury will be provided.

Private practice will not be allowed.

Further particulars can be obtained from the Secretary, Office of the High Commissioner for S. Rhodesia, Crown House, Aldwych, London, W.C.2, to whom applications, with full details as to age, qualifications, past appointments held, with references, etc., should be addressed and should reach that official not later than November 15th, 1929.

Lady House Surgeon required

immediately. Experience in administration of anæsthetics essential. Salary £130 per annum, with board, residence, and laundry. State age, nationality, qualifications, and date available, with copies of three recent testimonials. Apply, by November 15th, to the Secretary, GENERAL HOSPITAL, BRIDGWATER, SOMERSET.

The Mount Vernon Hospital,

NORTHWOOD.

There is a vacancy for a Male HOUSE SURGEON in the Cancer Section of the Hospital. Honorarium £200 a year, with board, lodging, etc. Applications to be made to the Secretary's Offices at 7, Fitzroy Square, W.1.

County Borough of Southampton

RESIDENT MEDICAL OFFICER.

The Corporation invite applications for the position of Resident Medical Officer at the Borough Isolation Hospital.

The gentleman appointed will hold office during the pleasure of the Council, will be required to reside at the Isolation Hospital, to devote his whole time to the duties of the office, and to act under the direction of the Medical Officer of Health.

Salary £360 per annum, with residence, board, and washing.

The Local Government and Other Officers Superannuation Act, 1922, will be applicable to the appointment, and contributions to the Superannuation Fund will be deducted from the salary. The selected candidate will be required to pass a satisfactory medical examination.

Forms of application may be obtained from the Medical Officer of Health, Municipal Offices, Southampton.

Applications on the prescribed form, endorsed "Resident Medical Officer," and stating age, qualifications, experience, etc., together with copies of not more than three recent testimonials, must be delivered at the Town Clerk's Office, Municipal Offices, Southampton, on or before November 16th.

R. RONALD H. MEGGESON,
October 25th, 1929. Town Clerk.

County of London.

The LONDON COUNTY COUNCIL invites applications for appointment as EIGHTH ASSISTANT MEDICAL OFFICER (man) in its Mental Hospital Service. Candidates must be under 35 years of age and be registered to practise both in Medicine and Surgery in England. Salary £300 a year, rising by annual increments of £25 to £400 a year, plus fluctuating temporary additions, the present total commencing remuneration being approximately £423 a year. No emoluments. Charges made for board, lodging, etc. (at present £2 9s. weekly), if required to be resident. Candidate appointed will be pensionable under the Asylums Officers Superannuation Act, 1909. Form of application, on which full particulars are given, can be obtained from the Acting Chief Officer, Mental Hospitals Department, The County Hall, Westminster Bridge, S.E.1. Completed applications must be received by Thursday, November 14th. Canvassing disqualifies.

MONTAGU H. COX,
Clerk of the London County Council.

Barry Urban District Council.

SURGICAL HOSPITAL.

HOUSE SURGEON (Male).

Applications are invited for the above appointment. Candidates must be duly qualified and registered. Salary £200 per annum, with board and lodging.

Preference will be given to a candidate with previous experience, especially in the administration of anæsthetics.

The successful candidate must devote the whole of his time to the duties of his office and to assist the Medical Staff, and act under the supervision of the Medical Superintendent, who is also Medical Officer of Health and School Medical Officer.

The appointment will be for a period of six months, to be renewed, if thought fit, for another period of six months, but not for any subsequent period.

The successful candidate will be required to commence duties January 1st, 1930.

Applications, stating age, qualifications, positions held, with copies of three recent testimonials, to be sent to Dr. P. W. KENT, Medical Superintendent, Public Health Office, Barry.

(Signed) T. B. TORDOFF,
November 2nd, 1929. Clerk.

Ministry of Pensions.

BIRMINGHAM PENSIONS HOSPITAL COMMITTEE.

HIGHBURY HOSPITAL, BIRMINGHAM.
(144 Beds.)

Applications are invited for the post of RESIDENT MEDICAL OFFICER at the above Hospital.

The cases treated are Surgical (mainly Orthopædic) and Medical, but the duties required of the successful candidate will be mainly Surgical.

Salary £350—£400 per annum, according to experience, with lodging, fuel, and light. The appointed candidate to be prepared to take up duty on or about November 26th next.

Candidates selected for interview will be required to pay their travelling expenses; whether married or single, and war service (if any), together with copies of recent testimonials, to be received not later than November 13th, addressed to the Chairman of the Committee, Highbury Hospital, Moseley, Birmingham.

British Medical Journal,

BRITISH MEDICAL ASSOCIATION HOUSE,
TAVISTOCK SQ., LONDON, W.C.1.

T/A: ARTICULATE, WESTCENT, LONDON,
Tel.: MUSEUM 9861 (4 lines).

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ASSISTANCIES.

Wanted, Dec. 1st, Assistant, outdoor, for mixed panel and private Practice in Liverpool. Full time from December to April, and thereafter part-time. Work very light and only suitable for a man studying for D.P.H. or other similar Post-Graduate work. Comfortable rooms provided.—Address, No. 7111, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—Assistant, November, male, Protestant, Scotch Graduate if available; experienced minor surgery, midwifery, anæsthetics; Colliery district. South Wales. Dispenser kept. Sign bond. £400 p.a. Use of car. Temperate.—Address, refs., age, etc., No. 7109, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — Male Assistant. Industrial area, Manchester. Good house (unfurnished). Must be experienced in midwifery. £400 p.a., commission on midwifery fees, etc., rent and taxes. Usual bond. Good prospects.—Address, No. 7125, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistant, indoor, with a view to Partnership, for mixed panel and private Practice near Newcastle-on-Tyne. Work light. £250 to £300, depending on experience. Rise in six months if suitable. References and photo., and to sign usual bond. —No. 7022, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — Assistant, married, English or Scotch. Non-panel Practice, London. Suitable man may have share in six months, paying large proportion out of income. —Address, No. 7122, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistant, indoor, male, single, for panel and private Practice in Midland City. Salary £300 per annum, all found. Preference given to one driving own car.—Address, stating age, nationality, refs., and enclose photo. No. 7112, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—Assistant (married or single), with Hospital and general experience. Willing to learn Refractions. Six gns. weekly (indoor), with prospects if suitable. Usual bond. Send photo.—Address, No. 7113, B.M.A. House, Tavistock Square, W.C.1.

Wanted [illegible], indoor private [illegible] panel and man. — [illegible] experienced [illegible] als, etc., Dr. WRIGHT [illegible], Bradford.

Wanted. — Assistant, outdoor, male, to take charge of Branch Surgery. Pembs. Coast, country district. Motor-cyclist. Work light.—Address, No. 5013, B.M.A. House, Tavistock Square, W.C.1.

Wanted, an indoor Assistant, male preferred, for Colliery district in Northumberland. Salary £300 p.a. State age, nationality, and enclose any references, and photo, if possible.—Address, No. 6922, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Lady Assistant, indoor. English preferred. Suburban Practice in East Midlands. Work light. State qualifications and usual particulars. Drive car and cycle.—Address, No. 7116, B.M.A. House, Tavistock Square, W.C.1.

Wanted, an outdoor Assistant in a Colliery Practice in Glamorgan. Salary to commence at £350 per annum, with rooms and attendance. Usual bond. No dispensing. — Address, No. 7123, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Indoor Male Assistant for Practice in Midland Town. Scottish, English, or Irish. Salary £250—£300 according to experience. Usual bond.—Address, No. 6739, B.M.A. House Tavistock Sq., W.C.1.

Wanted for Country Practice, Man or Woman ASSISTANT, with or without view. Must be Graduate and have Hospital experience. Scot preferred.—Address, No. 7118, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — Male Assistant, indoor, for mixed panel and private Practice, near Manchester. Salary £350. References, photo., and age. Usual bond.—Address, No. 7159, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — Exper. G.P. seeks Outdoor ASSISTANCY; Manage Branch, panel, industrious, large town, or small estab. cash and panel, with house. Middle-aged, reliable, loyal, T.T. Free now. Interview.—No. 7137, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — Assistantship by M.B., Ch.B.(1926), male, aged 27, Scotch, Protestant. Give terms and some particulars. —Address, No. 7117, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistantship, with or without view. Two years' Hosp., two years' G.P. Well received. Interview.—Address, No. 7133, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — Assistantship, with view to ultimate Partnership, by M.B., D.P.H. Experienced in general practice. Some capital available.—Address, No. 7166, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistantship by M.B., Ch.B.Glas., with definite view to Partnership in four months' time. Share worth £1,500 gross; 1/3 premium to be left on bond. Two years' experience G.P., six months' Chest Hospital.—Address, No. 7155, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistantship, with early view or succession. M.B., B.Ch., B.A.O., L.M., 2 years' H.S., H.P., exper. panel, private, etc. Post-Grad. courses. T.T. At present in London Hospital.—Address, No. 7154, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistantship by Woman M.B., B.Ch., six years' Graduate, ex H.P., very experienced in panel and private practice. Testimonials. Interview. Free now, in London.—Address, No. 7156, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistantship, temporary or permanent, by Woman M.B., M.R.C.S., ex H.P., æt. 26. Some experience general practice, panel, dispensing. London preferred. Photo.—Address, No. 7132, B.M.A. House, Tavistock Square, W.C.1.

Assistantship wanted in Dec. by Glasgow M.B., Ch.B., aged 26. 18 months' Hospital and G.P. experience. Near London, Surrey or Kent preferred.—Address, No. 7101, B.M.A. House, Tavistock Square, W.C.1.

Assistants (indoor and outdoor) wanted immediately. Good salaries offered. —BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Assistantship wanted by Lady M.B., B.Ch., 4 years' experience panel and private. Two years in present job. Good refs. Drive car. Manchester, London, or near preferred. Interview. — Address, No. 7116, B.M.A. House, Tavistock Square, W.C.1.

Assistants required.—Messrs. R. SUMNER & CO., LTD., Manufacturing Chemists, 40, Hanover Street, Liverpool, will be pleased to hear from gentlemen who are open to accept Assistantships.

A Medical Man, bachelor, experienced in hospital, panel, and private practice, abstemious, reliable, cyclist, and motor cyclist, is free for ASSISTANCY or LOCUMS. Terms moderate.—Address, No. 7165, B.M.A. House, Tavistock Square, W.C.1.

M.B., Ch.B.(Edin.) desires ASSISTANTSHIP with view Partnership. Married, 26. South country preferred. Experienced surgery, anæsthetics, obstetrics. Two years' good-class G.P. and two years' hospitals. Own car. —Address, No. 7152. B.M.A. House, Tavistock Square W.C.1.

Woman M.B., B.Ch., 18 months' experience of General Practice, cyclist or can manage small car, requires ASSISTANTSHIP. — Address, No. 7114, B.M.A. House, Tavistock Square, W.C.1.

MEDICAL POSTS, DISPENSERS, etc.

Wanted.—Fully qualified Doctor for service in the TROPICS. Preferably ex House Surgeon or Physician. Agreement for three years. Salary £850, £900, £950. Renewable on higher terms. Free furnished quarters and first-class passage provided. Candidates must be unmarried. Ladies not eligible. —Address, with copies of testimonials (not returnable), No. 6276, B.M.A. House, Tavistock Square, W.C.1.

Wanted by Practitioner, recently Partner in London Practice, PART-TIME WORK during winter months. Fully exp. Would undertake charge of Surgery morn. and even. for nom. salary. Lond. area pref. Would consider long Locum with hosp. for wife. —No. 7121, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — Lady Doctor for CHURCH ARMY MEDICAL MISSION, Monday and Thursday afternoons weekly. If Hon. greatly appreciated.—Write, Miss WALKER, 55, Bryanston St., W.1.

Wanted.—A Bacteriologist for work in South Africa.—Apply, Sir MALCOLM WATSON, Ross Institute, Putney Heath, London, S.W.15.

A Lady Dispenser-Bookkeeper supplied immediately on request, qualified and with practical experience in private practice and dispensary work, also trained in Bacteriological [illegible] of the LONDON COLLEGE OF [illegible] paration for [illegible] phone (Park [illegible] Park Road, W.2.

Dispensers supplied to Doctors at short notice, without fee. Qualified and [illegible] and panel practice. Per-

DISPENSERS, 12, Holborn Viaduct, [illegible]

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Doctors requiring qualified Dispensers, Nurse Dispensers, Secretary Dispensers or Chauffeuse Dispensers, are invited to write, wire, or 'phone Temple Bar 6858, THE DISPENSERS, BUREAU, 15, Lindsay House, 171, Shaftesbury Avenue, London, W.C.2.

Energetic (certificated) young Lady shorthand typist desires POST with Medical gentleman. Two years' experience in Radiological department at Hospital.—Miss N. ANDERSON, 3, Eden Street West, Sunderland.

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Manchester. — Experienced *Practitioner desires to hear of* PART-TIME APPOINTMENT or other work which can be combined with general practice. Highest references.—Address, No. 7135, B.M.A. House, Tavistock Square, W.C.1.

Pathologic LABORA TION.—Patholog ing SKILLED ASSISTANTS are invited to communicate with H. GOODING, Hon. Sec., "Moelfre," 10, Holbeck Grove, Victoria Park, Manchester. No fees.

Qualified Lady Dispenser, Secretary, Nurse, ten years disp. exper. TO

The Incorporation of National ONS REQUIR- e applications tioners, with in Mental De- OF MEDICAL STOKE PARK ration will be £1,200 a year. The appointment will not be pensionable.

Forms of application, with further particulars, can be obtained from the Warden, 14, Howick Place, Victoria Street, S.W.1, and must be completed and returned to him not later than December 6th.

The Royal Army Medical Corps ASSOCIATION. — If you require men trained in all branches of hospital work—Dispensers (capable of undertaking returns, clerical work, etc., connected with Ministry of Health), Clerks, Laboratory Assistants, general hospital duties, Porters, Caretakers, etc.—Apply, Secretary, 85, Eccleston Square, S.W.1.

The Charterhouse Typewriting BUREAU, 18-21, Charterhouse Sq., E.C.1.—Typewriting, Duplicating, and Translations of all descriptions. Medical work a speciality. Testimonials typed and returned same day if required. Very mod. terms. Clerkenwell 6672.

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Wanted by Woman M.B., Ch.B., LOCUM. Four years' experience General Practice (panel and private). Used to sole charge.—Address, No. 7106, B.M.A. House, Tavistock Square, W.C.1.

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Mr. PERCIVAL TURNER, Ltd.
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PARTNERSHIPS.

Wanted. — Partnership in Country or Country Town Practice in South of England. Share worth £1,000–£1,200. Glas. Grad. with D.P.H. Scotsman, æt. 28. Exp. hosp. and G.P. Small house with gard., prof. to rent. Capital available. Prelim. Assist.—Address, No. 7129, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Partnership within 25 miles London, by M.B. with 5 years' experience Hospital and General Practice. Income £1,200. House to rent. Capital available. —Address, No. 6926, B.M.A. House, Tavistock Square, W.C.1.

Wanted for One-seventh Share in busy PRACTICE, seven miles from Charing Cross, energetic and capable man with experience in obstetrics, minor surgery, and ophthalmology. Capital required, £1,600—£2,000.—Address, No. 7164, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Well qualified man as THIRD PARTNER in good-class non-dispensing Practice within 15 miles of London. —Address, No. 7163, B.M.A. House, Tavistock Square, W.C.1.

Wanted by M.B., B.S., F.R.C.S.E., young, sound general experience, PARTNERSHIP, *offering Surgical scope.* No agents.—Address, No. 7102, B.M.A. House, Tavistock Square, W.C.1.

Partner (male) wanted shortly *to join two others in rapidly increasing,* non-industrial, good-class Practice (some panel) within 20 miles London. Local Hospital. Must tian; ex H.S. or and should have for disposal at 2½ 10—£1,000. Must have capital.—Address fullest particulars, No. 6827, B.M.A. House, Tavistock Square, W.C.1.

Partner wanted in very old-*established Practice in Country Town within 40 miles North. Price for 1/3 share* £2,800. Retiring Partner's house available to rent. Remaining Partner has been 16 years in the Practice.

Purchaser should be between 30 and 45, married, capable of minor surgery and preferably eye work, experienced in general practice, a gentleman, and a sportsman.

Address, No. 7107, B.M.A. House, Tavistock Square, W.C.1.

PRACTICES.

Wanted.—Practice, Partner-SHIP, or ASSISTANTSHIP with view in middle-class quarter of York, town or seaside. Up to £1,500. Advertiser well qualified and 5 years' experience.—Address, No. 7127, B.M.A. House, Tavistock Square, W.C.1.

Wanted in N. or N.W. London, PRACTICE or PARTNERSHIP. Income £800 to £1,700 p.a., including panel. *Living accommodation essential. Necessary capital* available for immediate purchase.—Apply, PEACOCK & HADLEY, Ltd., 19, Craven Street, Strand, W.C.2.

Wanted, early in 1930, mixed General PRACTICE £900 to £1,200, with good panel. S.E. Coast or County preferred. Modern house, 5–6 beds.; optional rent or purchase.—Address, No. 6916, B.M.A. House, Tavistock Square, W.C.1.

Wanted, in or near London, Cash and Panel PRACTICE, averaging £1,500 to £2,000. Ample capital available. Partnership with succession not objected to.—Address No. 7136, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—Practice in fair-sized Town, about £1,000. Good panel House to rent if possible. Premium up to £1,500. cash.—Address, No. 7157, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Practice (receipts about £1,000 p.a.) on Coast of Wales, Lancashire, and Cheshire. Carmarthen, Bangor, Llandudno, and industrial areas excepted.—Apply, No. 324, REYNOLDS & BRANSON, Ltd., Medical Transfer Agents, 13, Briggate, Leeds.

Wanted in Spring, 1930, mixed general PRACTICE in town within 50 *miles of London. Income about* £1,200. Partnership with view to succession considered. Capital available.—Address, No. 7119, B.M.A. House, Tavistock Square, W.C.1.

Cheshire. — Nice Country Town near Manchester. Cash receipts £800. Panel 436. Modern house, 2 reception, 4 bedrooms. Garage, garden, and tennis court. Premium 1½ years' purchase.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Death Vacancy. — Lancashire Town.—Old-estab. PRACTICE. Cash receipts 1928, £1,549. Panel 1,260. Good house, 2 reception, 4 bedrooms. Garden. Premium Practice—£1,400.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Death Vacancy. — Near Manchester.—*Cash receipts* £745. Panel 550. Good scope. Excellent house, 2 reception, 6 bedrooms. Large garden and garage.—BRITISH MEDICAL BUREAU, 33, Cross St., Manchester.

For Disposal.—A good Practice *is not always to be had directly;* but Mr. PERCIVAL TURNER can generally offer applicants something suitable. Nearly all the best Practices are sold by him without being advertised. Inform. free on applic.—4, Adam St., W.C.2

For Sale in Birmingham.—Industrial PRACTICE (mostly cash), with panel of 1,493. Income tax return, April, 1929, over £900. Price £1,650 cash. Freehold house, d large garden. 6713, B.M.A.

For Sale.—Small, good Private PRACTICE, West London. Scope. *Suit man or woman. House long lease.* Full details at interview.—Address, No. 6914, B.M.A. House, Tavistock Square, W.C.1.

Indian Doctor's Practice for *Sale. Good Nucleus with wide scope. Established 18 months. Lock-up.* Situated in busy and thickly populated part of North London. Small premium wanted.—Address, No. 7124, B.M.A. House, Tavistock Square, W.C.1.

Kent.—For Sale, Country PRACTICE near Coast. £1,100 a year. Nice house to buy, 7 bedrooms, small garden.—Address, No. 7105, B.M.A. House, Tavistock Square, W.C.1.

Lancs Town. — Old-estab. PRACTICE. Cash receipts last year £1,659. Panel 1932. Good house, 3 reception, 5 bedrooms. Garage and large garden. Net rent £66 p.a. Premium 1½ years' purchase.—BRITISH MEDICAL BUREAU, 33, Cross St., Manchester.

London, W.—Old-established PRACTICE. Receipts now about £350 including panel of 450. Was done much more in past. *Living accommodation if desired.* Vendor cannot devote whole time. Premium £450.—Apply, PEACOCK & HADLEY, Ltd., 19, Craven St., Strand, W.C.2.

London, S.W. (near Clapham Common).— TICE. Receipts nearly 120. Rent £300. Good-co Ltd., 19 Craven Street, Strand, W.C.2.

London, N.E.—For Disposal.—Very old-established General PRACTICE, over £700 p.a. Number on panel 360. Capable of considerable increase by energetic man, preferably with experience of Eye work. Exceptional house and garden, main thoroughfare. Rent £50 per annum. Premium, quick sale, £1,000, part can remain.—Address, No. 7153, B.M.A. House, Tavistock Square, W.C.1.

Manchester. — Well-established PRACTICE in populous district. Good house, bath, etc., £50. Receipts £600, with great scope. Panel 420, rapidly growing. Price 1½ years' purchase or offer, part deferred.—MANCHESTER, MEDICAL & SCHOLASTIC ASSOCIATION, 6, Brown Street.

Manchester. — Good-class PRACTICE (non-panel) in first-rate residential suburb. Average cash receipts £2,206 p.a. Fees 5/- to 21/-. Excellent house to rent on lease. Premium 1½ years' purchase.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Manchester (Suburb).—For Sale. Good sound PRACTICE. No panel. Receipts for last three years average £1,346, including appointments, which average £290. Also good HOUSE and SURGERY, with commanding and pleasant position. House contains hall, drawing room, dining room, kitchen, scullery, pantry, three bedrooms, bath, lavatory, and w.c., three attics, cellars. Freehold subject to apportioned chief rent of £11 15s. Price asked for Practice and house £4,500.—Apply, KNOTT & CASTLE, Solicitors, 3, Norfolk Street, Manchester.

Manchester. — Old-established PRACTICE for sale. Receipts £1,000 per annum. Panel about 1,500; excellent scope; very compact and easily worked. Price 1½ yrs.' purchase, part deferred.—MANCHESTER MEDICAL & SCHOLASTIC ASSOCIATION, 6, Brown Street.

Manchester.—Suburban Practice. Cash receipts 1928, £1650. Panel 900. Scope. Excellent house, with 3 enter., 5 bedrooms. Garage and garden. To be sold or rented on lease. Premium 1½ years' purchase. —BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Manchester Suburb. — Good NUCLEUS in pleasant district. Nice house, rent £60. Receipts £600, with much scope. Panel 200, increasing. Price 1 year's purchase or offer. — MANCHESTER MEDICAL & SCHOLASTIC ASSOCIATION, 6, Brown Street.

Nursing Home, for Nervous or Slight Mental illnesses, for Sale. Large house and grounds fully equipped, healthy situation, in North-East of Scotland. Well suited for a Convalescent Home if preferred. Can be run by one Matron, but can easily be extended for two or more. Good opening for Doctor wishing combined residence and "Home."—Apply, No. 489, KEITH & Co., Advertising Agents, Edinburgh.

North-East Coast. — Seaside Resort. — Cash receipts 1928, £2,101. Panel 720. Large Terrace house, with garden. Good introduction.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Nottingham.—Branch Prac- TICE for Sale; old-established. Panel 1,500.

Practice for Sale near Man- chester. Receipts £2,600 per annum. Number on panel 1,760.

PRACTICE for Sale near Wigan. Receipts £660 per annum. Number on panel 1,030. House can be rented.

For further particulars, apply Messrs. R. SUMNER & Co., LTD., Manufacturing Chemists, 40, Hanover Street, Liverpool.

Seaside Town, Kent.—G.P. NUCLEUS, at present about £130 p.a., for Sale. Good opening. Vendor doing special work. Practice and House £1,100. Mortgage if required. —Address, No. 7126, B.M.A. House, Tavistock Square, W.C.1.

South-West of England.-Country PRACTICE for Sale. Average receipts £800 per annum. Small panel. House available, can be rented or purchased. Plenty of scope. Introduction given.—Full particulars may be obtained from No. 7103, B.M.A. House, Tavistock Square, W.C.1.

Small Practices, with scope.—We have several in the Manchester district. Cash receipts £700, £600, £400, etc.—Full particulars from BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Somerset.—Country Practice for Sale. Premium about £1,000.—Apply, REED & REED, Solicitors, Bridgwater.

To Purchasers. — Do not buy without expert assistance. With 40 yrs.' experience Mr. PERCIVAL TURNER can advise in all cases. Terms free on application to 4, Adam St., Strand, W.C.2. Telephone: Temple Bar 9011. Telegrams: "Epsomian, London."

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Clinical Pathologist's Laboratory in Harley Street to LET. Moderate price accepted for laboratory fixtures or for complete and up-to-date equipment if desired. Pathologist is going abroad. — Address, No. 6910, B.M.A. House, Tavistock Square, W.C.1.

Corner House, suit Doctor, in rapidly developing under-served suburb, for Sale, freehold. Pre-war labour-saving. Three good reception, four bedrooms. Block flooring. Gas, elec. Garage. Garden. 20 mins. City.—No. 7104, B.M.A. House, Tavistock Sq., W.C.1.

Devonshire Place, W.1.—To Let, two large ground floor BACK ROOMS, EN SUITE, suitable for X-ray specialist or Bacteriologist. Plate, waiting room, attendance etc. Or ground floor CONSULTING ROOM, with large bedroom and breakfast if required.—Address, No. 7151, B.M.A. House, Tavistock Square, W.C.1.

East Ham. — Excellent Corner RESIDENCE, 2 mins. from station. Ideal for Medical Practitioner. Comprises 4 bedrooms, bathroom, 2 recep. rooms, morning room, kitch., large brick garage. Freehold £1,500. Vacant poss.—Apply, R. CHEKE & Co., Surveyors, 176, Forest Lane, oppos. Forest Gate Stn. (L.N.E.R.).

Excellent Opening for Doctor.— West End residential district.—Corner GROUND FLOOR FLAT. Moderate rent; garage optional. — Address, No. 7161, B.M.A. House, Tavistock Square, W.C.1.

For Sale or Rental at moderate figure, in quickly growing high-class residential district without local Practitioner, offering GOOD OPPORTUNITY FOR NEW PRACTICE at CHALFONT ST. GILES, 3/4 miles from CHALFONT & LATIMER STATION, 40 minutes Baker Street and Marylebone. Through fast trains, Pullman service, to West End and City. Freehold, well built pre-war COTTAGE STYLE RESIDENCE, healthy situation, 450 feet up, 7 bed., 2 bath, drawing, dining, morning rooms, usual offices, company's electric light, gas, water, modern sanitation, garage, tennis and badminton lawns, well developed acre garden. Half mile from Harewood Downs Golf Club.—Box BR., c/o ALDRIDGE'S ADVERTISING SERVICE, 34, Paternoster Row, E.C.4.

Harley Street.—Consulting Room (small) to be LET, unfurnished. Modern house and attendance. Rent £165 per annum. —Address, No. 6904, B.M.A. House, Tavistock Square, W.C.1.

Magnificent Willet-built Resi- DENCE in the heart of the West End. Only £80 p.a. Unique construction. Luxuriously equipped. Three handsome reception and 10 bedrooms, 3 baths, splendid domestic offices. Lease 64 years.—Apply, Sole Agents, WALTER HALL & SONS, 1, York Street, W.1.

Piccadilly. — Consulting Rooms in Dental Surgeon's Office. Exceptionally well equipped and furnished, fitted for Ophthalmic and Sunlight work. Receptionist, service, light, telephone, all inclusive, £12 per month. —No. 7102, B.M.A. House, Tavistock Sq., W.C.1.

Opportunity to acquire a good FREEHOLD DETACHED HOUSE in Country 4 miles from Guildford, growing area, corner site. NO MEDICAL PRACTITIONER WITHIN 3 MILES. Accommodation 4 bedrooms, bath, 2 reception rooms, lounge hall, garden 1/2 acre. Price £1,300 only (greater part can remain). — Apply, WELLER, SON & GRINSTED, Estate Agents, Guildford. (Telephone 1260.)

Queen Anne Street. — To Let, handsome CONSULTING ROOM, with small Ante-room; low rent. Small Bachelor Flat also available in same building.—Address, No. 6466, B.M.A. House, Tavistock Square, W.C.1.

OPENING FOR DOCTOR.

Rooms in district W.1, with NUCLEUS of first class Practice for Electro-therapy and Sun-ray Treatment, with ample accommodation for consulting room, for disposal owing to marriage. Fully certificated masseuse (C.S.M.M.G., M.E.) could remain as Assistant. Moderate rent; long lease if desired. Good references given and required.—Address, No. 7108, B.M.A. House, Tavistock Sq., W.C.1.

Share of Consulting Room offered, Harley Street area. Radiology: electrotherapy, actinotherapy. New X-ray installation with valve rectification. — Address, No. 7120, B.M.A. House, Tavistock Sq., W.C.1.

To Doctors and Others.—To Let at 6, Langston St. (opp. Manchester Assize Courts), GROUND FLOOR, suitable Surgery; also FIRST FLOOR ROOMS. Reasonable rentals. Reasonable alterations to suitable tenant.—Apply, 145A, Gt. Ducie Street, Manchester.

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Medical Surgical Sundries Ltd. Supply Instruments, Palomine Leg Rests, etc. Stock of 30,000,000 Tablets. Sample bottle (500) of Cough or Mist. Expect., 1/- post free. *Showroom*: 97, Swinderby Road, Wembley.

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(late Inspector of Taxes)

Assist you to avail yourself of special facilities provided for the Medical Profession relating to Income Tax. For further particulars write or call.—C. G. C. KILNER, 17, George St., Baker St., W.C. (Phone: Welbeck 2012).

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APPOINTMENTS.—Contd.

Paddington Green Children's HOSPITAL (Incorporated), London, W.2.

HOUSE SURGEON.

A HOUSE SURGEON is required at the above Hospital immediately. Gentlemen (unmarried) are invited to send in their applications, with copies of testimonials, to the undersigned as soon as possible. Salary at the rate of £150 per annum, with board and residence. The appointment terminates on April 30th, 1930.

JAMES A. HAMLIN, Secretary.

David Lewis Northern Hospital, LIVERPOOL.

JUNIOR ANÆSTHETISTS.

Applications are invited for Two Junior Anæsthetists at an honorarium of £75 per annum each.

Applications and testimonials to be in the hands of the Secretary-Superintendent not later than November 18th.

Particulars of duties can be received from

H. LEVEY, Secretary-Superintendent.

David Lewis Northern Hospital, LIVERPOOL.

Applications are invited for the post of HONORARY MEDICAL OFFICER in charge of the Cardiographic Department. Applications, together with copies of testimonials, to be in the hands of the Secretary-Superintendent not later than November 18th.

General Infirmary, Salisbury. (General Hospital. 151 Beds.)

Two HOUSE SURGEONS (male) required to commence duties November 9th and December 14th respectively.

Candidates must be unmarried, fully qualified, and registered. Salary £150, with board, etc.

Applications, with copies of testimonials, to be sent to the House Governor and Secretary, from whom a copy of the Rules may be had on application.

Royal Free Hospital, Gray's Inn Road, W.C.1.

Applications are invited for the following resident appointments:

HOUSE SURGEON to the Senior Surgeon and to the Surgeon in charge of the Throat, Nose, and Ear Beds.

[illegible] Dept.

£150

per annum.

Duties of the above commence January 1st, 1930.

SECOND HOUSE PHYSICIAN.

OBSTETRIC DISTRICT ASSISTANT. Salary £100 per annum.

Duties to commence February 1st, 1930.

Of these posts one House Surgeon appointment and one House Physician are open to male candidates.

Preference is given to former Students of the London (Royal Free Hospital) School of Medicine for Women; for other appointments candidates must be duly qualified registered Medical Practitioners, and must submit applications, stating age, and accompanied by copies of three recent testimonials, to the undersigned on or before November 23rd.

REGINALD R. GARRATT, Secretary.

Royal Free Hospital, Gray's Inn Road, W.C.1.

Applications are invited for the half-time post of GYNÆCOLOGICAL REGISTRAR from fully qualified and registered Medical Women.

This post is reserved for former Students of the London (Royal Free Hospital) School of Medicine for Women. Salary £100 per annum. The present holder is eligible for re-appointment.

Applications, stating age, and accompanied by copies of three recent testimonials, must be sent to the undersigned (from whom all information may be obtained) on or before November 23rd.

REGINALD R. GARRATT, Secretary.

Royal Free Hospital, Gray's Inn Road, W.C.1.

Applications are invited for the whole-time post of SURGICAL REGISTRAR from fully qualified and registered men or women. Preference will be given to candidates possessing the F.R.C.S.(England). Salary £200 per annum. The present holder is eligible for re-appointment. Applications, stating age, and accompanied by copies of three recent testimonials, must be sent to the undersigned (from whom all information may be obtained) on or before November 23rd.

REGINALD R. GARRATT, Secretary.

Royal Free Hospital, Gray's Inn Road, W.C.1.

Applications are invited from fully qualified and registered men or women for the half-time post of MEDICAL REGISTRAR. Salary £100 per annum. (The present holder is eligible for re-appointment.) Applications, stating age, and accompanied by copies of three recent testimonials, must be sent to the undersigned (from whom all information may be obtained) on or before November 23rd.

REGINALD R. GARRATT, Secretary.

The Royal College of Saint KATHARINE, Poplar, E.14.

MATERNITY AND CHILD WELFARE CENTRE.

Applications are invited for the post of ASSISTANT MEDICAL OFFICER to one of the Infant Clinics.

Candidates must be fully qualified and registered and should state in their application what previous experience they have had in the diseases of children and in Infant Welfare work.

Salary £1 11s. 6d. per session.

Applications, with copies of three recent testimonials, should be submitted not later than November 25th to the Principal, The Royal College of St. Katharine, Brunswick Road, Poplar, E.14.

The Islington Dispensary, 303, Upper Street, N.1.

The Committee invite applications for the appointment of ASSISTANT RESIDENT MEDICAL OFFICER (Lady, unmarried).

Candidates must be duly qualified and registered Practitioners. Salary £220 per annum, with furnished residence. Applications before November 16th on printed form to be obtained (by postcard) from the Hon. Secretary at the Dispensary. Duties commence December 1st.

The Royal Hospital, WOLVERHAMPTON. (Incorporated under Charter.)

ASSISTANT PATHOLOGIST AND PATHOLOGICAL REGISTRAR.

Applications are invited from duly qualified Medical Men or Women for the above post; duties to commence January 1st, 1930. Candidates must be unmarried. The post is whole-time, non-resident, and is tenable in the first instance for two years, with eligibility for re-appointment.

Salary from £350 according to qualifications. Preference will be given to candidates who have held posts in a Pathological Department attached to a Teaching Hospital or Medical School.

Further information may be obtained from the House Governor, The Royal Hospital, Wolverhampton, to whom applications, stating age, experience, and qualifications, together with three references (no testimonials), should be sent on or before November 30th.

West London Hospital, Hammersmith Road, W.6. (233 Beds.)

Required, One HOUSE PHYSICIAN, One HOUSE SURGEON, and One AURAL and OPHTHALMIC HOUSE SURGEON and ASSISTANT CASUALTY OFFICER (males). These three appointments are tenable for six months from January 1st next, subject to one month's notice on either side. Salary at the rate of £100 per annum, with board, lodgings, and laundry allowance. Candidates must be registered under the Medical Act. Applications and copies of testimonials must be rendered in quadruplicate on printed forms to be obtained from me, and must reach me not later than first post on Saturday, December 7th.

Selected candidates will be required to call upon such members of the Medical Staff as directed, to be in attendance at a Meeting of the Medical Council on Friday, December 20th, at 4 p.m., and the House Committee Meeting at 4.45 p.m. the same day, when the appointments will be made.

H. A. MADGE, Secretary.

City of London Hospital for DISEASES OF THE HEART AND LUNGS, Victoria Park, E.2.

('Bus, tram, and rail, Cambridge Heath, L. & N.E.)

Applications (with copies of three testimonials) are invited to be sent to the undersigned on or before Monday, December 9th, for the following posts, subject to the rules and by-laws of the Hospital:

RESIDENT MEDICAL OFFICER (male) for one year from January 1st, 1930, with eligibility for re-appointment. Salary £250 per annum.

HOUSE PHYSICIAN (male) for six months from January 1st, 1930. Salary at the rate of £100 per annum.

Board, residence, and laundry provided.

GEORGE WATTS, Secretary.

Beckett Hospital & Dispensary, BARNSLEY. (130 Beds.)

Applications are invited from fully qualified male Practitioners for the post of HOUSE PHYSICIAN. Duties to commence December 16th. Salary £140 per annum, with board, residence, and laundry.

Applications, stating age, qualifications, and experience, accompanied by testimonials, to reach the undersigned not later than Nov. 16th.

ARTHUR L. BOURNE,
Nov. 4th, 1929. Secretary-Supt.

Brighton, Hove, and Preston DISPENSARY AND HOVE HOSPITAL.

The Committee of Management invite applications for the post of HONORARY SURGEON to Hove Hospital. Candidates must possess the Fellowship of one of the Royal Colleges of Surgeons.

Applications, with copies of testimonials, should be made by Saturday, November 23rd, to the undersigned, at 113, Queen's Road, Brighton.

HENRY F. PITT, Gen. Secretary.

Altrincham General Hospital, CHESHIRE.

Applications are invited for the post of HOUSE SURGEON. Salary £125 per annum, with board, residence, and laundry.

The appointment is for six months in the first instance.

Applications, stating age and experience, together with copies of recent testimonials, to be sent in not later than Monday, November 25th, to WILLIAM MOODY, Secretary, 31, Market St., Altrincham, Cheshire.

APPOINTMENTS—Important Notice.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

(a) British Islands.

Town or District.	Town or District.	Town or District
CONTRACT PRACTICE.	**CONTRACT PRACTICE** *(Contd.).*	**PUBLIC HEALTH** *(continued).*
EBBW VALE, MON. *(Workmen's Medical Society.)*	NEATH AND DISTRICT. *(Medical Aid Association.)*	GLASGOW EDUCATION AUTHORITY. *(Male Assistant Medical Officer.)*
GILFACH GOCH, GLAMORGAN. *(Workmen's Medical Scheme.)*	OAKDALE, MON. *(Medical Officer for Medical Aid Association.)*	LEEDS EDUCATION COMMITTEE. *(Assistant School Medical Officer.)*
LLWYNYPIA, CLYDACH VALE PENYGRAIG, GLAMORGAN. *(Workmen's Medical Scheme.)*	OGMORE VALLEY, GLAMORGAN. *(Wyndham Colliery Medical Aid Society.)* *(Workmen's Medical Scheme.)*	MERTHYR TYDFIL COUNTY BOROUGH. *(Assistant School Medical Officer and Assistant Medical Officer of Health.)*
MARDY, GLAMORGAN. *(Workmen's Medical Scheme.)*	**PUBLIC HEALTH.**	YORKSHIRE NORTH RIDING COUNTY COUNCIL EDUCATION COMMITTEE. *(Assistant School Medical Officer.)*
MERTHYR VALE COLLIERY WORKMEN'S MEDICAL COMMITTEE. *(Workmen's Medical Scheme.)*	CHESHIRE EDUCATION COMMITTEE. *(Assistant School Medical Officer.)*	YORKSHIRE WEST RIDING COUNTY COUNCIL. *(School Medical Inspector.)*
	CORNWALL EDUCATION COMMITTEE. *(Assistant School Medical Officer—Female.)*	

(b) Colonial Medical Service.—

WINDWARD ISLANDS MEDICAL SERVICE. (Grenada with Carriacou, St. Vincent and St. Lucia.)

(c) Overseas.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.
NEW SOUTH WALES. *(All Friendly Society Appointments.)*	Dr. R. H. TODD (Hon. Sec., New South Wales Branch), B.M.A. Building, 30-34, Elizabeth St., Sydney, N.S.W.	VICTORIA. *(All Institute or Medical Dispensaries.)*	Dr. FRANK DAVIES (Hon. Sec., Victorian Branch), British Medical Association, Medical Society Hall, East Melbourne, Victoria.	WESTERN AUSTRALIA. *(Contract and Lodge Practices.)*	*Hon. Sec.*, Western Australian Branch, British Medical Association, No. 6, Bank of N.S.W. Chambers, St. George's Terr., Perth, Western Australia.
QUEENSLAND. *(Brisbane Associated Friendly Societies Institute.)*	The Hon. Sec., Queensland Branch, British Medical Association, B.M.A. Building, Adelaide St., Brisbane.	WELLINGTON, NEW ZEALAND. *(Contract Practice Appointments.)*	Dr. G. F. V. ANSON (Hon. Sec., New Zealand Branch), British Medical Association, P.O. Box 156, Wellington, New Zealand.		

Address: B.M.A. House, Tavistock Square, W.C.1. By Order of the Council of the British Medical Association.
November 6th, 1929. ALFRED COX, Medical Secretary.

Bolingbroke Hospital,
Wandsworth Common, S.W.11.

Applications are invited from gentlemen engaged solely in the practice of Oto-rhino-laryngology for the post of CLINICAL ASSISTANT in the Ear, Nose, and Throat Department.

The appointment is for one year from December 1st next, and there is an honorarium of £100 attaching to the position.

The successful candidate must be prepared to be in attendance at the Hospital on Wednesday afternoons at 2 o'clock and on one other half-day a week.

Applications, accompanied by copies of three testimonials, should be sent to the undersigned on or before November 13th.

W. S. RANDOLPH BISS, Secretary-Supt.

Bolingbroke Hospital,
Wandsworth Common, S.W.11. (120 Beds.)

Applications are invited for the post of RESIDENT MEDICAL OFFICER (male). The appointment is for twelve months from December 1st next.

Salary £200 per annum, with board, residence, and laundry.

Candidates must be fully qualified and registered.

Applications, stating age, qualifications, and experience, with copies of not more than three testimonials, should be sent to the undersigned on or before November 13th.

W. S. RANDOLPH BISS, Secretary-Supt.

Newark Hospital and Dispensary
(50 Beds.)

Wanted, a fully qualified RESIDENT HOUSE SURGEON (male) to commence duty January 1st, 1930. Must be a good Anæsthetist. Salary £150 per annum, with board, residence, and laundry. Appointment for six months, or twelve if mutually desired. For form of application apply to W. T. CRAMPTON, 27, Kirk Gate, Newark, Notts.

Queen's Hospital, Birmingham.
(MEDICAL SCHOOL.)

JUNIOR RESIDENT SURGICAL OFFICER required at once.

Candidates must be Fellows of the Royal Colleges of England, Scotland, or Ireland, or have passed the Primary F.R.C.S.(Eng.).

Appointment for one year, with eligibility for re-appointment for a further year.

Salary £100 per annum, together with board, apartments, and laundry.

Applications, with three recent testimonials, to be forwarded to the undersigned.

Birmingham, October 28th, 1929. G. HURFORD, House Governor.

Leicester Royal Infirmary.
(400 Beds.)

THIRD RESIDENT ANÆSTHETIST.

Applications are invited for this post. Appointment for six months, with possibility of renewal. Salary £250 per annum, with board and residence.

Applicants should give particulars of special experience in the administration of anæsthetics and enclose copies of testimonials, with particular reference to anæsthetic work, to the House Governor and Secretary by first post on

K[illegible]
HOSPITAL. (82 Beds.)

Applications are invited for the post of JUNIOR HOUSE SURGEON. Salary £100 p.a., with board, residence, and washing. Candidates must be fully qualified and registered.

The appointment is for six months, but candidates will be eligible for re-election.

[illegible] nationality, and [illegible] copies of three [illegible]nt immediately to

Children's Hospital, Sheffield.
(92 Beds.)

Applications are invited for the following posts, vacant January 1st, 1930:

HOUSE PHYSICIAN. (Hospital, Western Bank.)

THIRD RESIDENT MEDICAL OFFICER. (East End Branch, Nursery Street.)

Salary in each case £100 per annum, with board, residence, and laundry.

Candidates (female and unmarried), who must possess registered qualifications, should forward applications, stating age, etc., together with copies of testimonials, to the undersigned, as soon as possible.

T. H. G. GARTLAND, Secretary.

Mansfield and District Hospital.

The Board of Management of the above Hospital (140 beds) invite applications for the post of HOUSE PHYSICIAN (male).

Salary at the rate of £150 per annum, with residence, board, and laundry.

The appointment is for six months and is renewable.

Applications, accompanied by not more than three recent testimonials, to be sent to the undersigned.

Dated this 28th day of October, 1929.

ARTHUR H. LIMB, Secretary.

General Hospital, Gt. Yarmouth.
(72 Beds.)

Applications are invited for the post of JUNIOR HOUSE SURGEON. Salary £125 per annum, with board, residence, and laundry. Duties to commence at once. Candidates (male and unmarried) must be fully qualified and registered.

Applications, stating age, nationality, and qualifications, together with copies of three recent testimonials, to be sent immediately to the undersigned.

T. H. G. GARTLAND, Secretary.

CAVENDISH NURSES (Male and Female)

Head Office: 54, BEAUMONT ST., LONDON, W.1 (late 43, New Cavendish St., London, W.1.)

A very convenient form of telephone message pad sent free on application to the Secretary

Branches: *MANCHESTER*: 176, *Oxford Road.* *GLASGOW*: 28, *Windsor Terrace.* *DUBLIN*: 23, *Upper Baggot Street.*

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Superior trained Nurses for Medical, Surgical, Mental, Dipsomania, Travelling and all cases. *Nurses reside on the premises*, and are always ready for urgent calls Day and Night. Skilled Masseuses, Masseurs, and good Valet attendants supplied.

Terms from £3 3s. *Apply to the Secretary or Lady Supt.*

The Royal Infirmary, Sheffield.
(500 Beds.)

OPEN APPOINTMENTS.

Applications are invited for the undermentioned posts (male or female):

CLINICAL ASSISTANT to the Ophthalmic Department.

CLINICAL ASSISTANT to the Medical Department.

There are in the Institution 69 Ophthalmic Beds, 122 Medical Beds, and a large Out-patient Department open daily.

The salary attached to each appointment is £300 per annum.

Applications, stating age and giving particulars of qualifications and previous experience, should be submitted forthwith to the undersigned, from whom further particulars may be obtained.

JNO. W. BARNES, F.C.I.S.,
Board Room, Gen. Supt. & Secretary.
October 23rd, 1929.

Woking and District Victoria Hospital.
(General Hospital. 50 Beds.)

FEMALE RESIDENT MEDICAL OFFICER required for January 1st, 1930. Applicants must be doubly qualified and registered. Salary £100 per annum, with board, residence, and laundry. Appointment for six months, and renewable for further six months.

Applications, stating age, etc., and accompanied by copies of recent testimonials, to be addressed to the undersigned, from whom all particulars may be obtained. They must be received not later than November 16th. Personal canvassing not allowed.

Woking and District Victoria Hospital. *R. MANNING DRIVER*, Hon. Sec.

Salford Royal Hospital.
(263 Beds.)

Applications are invited for the appointment of HOUSE PHYSICIAN (male) for the period ending March 31st, 1930.

Salary at the rate of £125 per annum, with board and residence.

Candidates must be registered under the Medical Acts.

Forms of application, which may be obtained from the undersigned, must be delivered at once.

By Order of the Board,
Salford Royal Hospital, Manchester. GEORGE RUDDLE, Gen. Supt.
November 4th, 1929. and Secretary.

Merthyr General Hospital,
MERTHYR TYDFIL.

Applications are invited for the post of RESIDENT HOUSE 104 beds (mainly months. Salary at with board, rooms must have had ex anæsthetics.

Applications, stating age and qualifications, and enclosing copies of three recent testimonials, should be addressed, Hon. Sec., Honorary Medical Staff, General Hospital, Merthyr Tydfil.

Harrogate Infirmary.

Applications are invited from British subjects (male) for the posts of SENIOR and JUNIOR HOUSE SURGEONS, vacant on December 31st, on which date successful applicants will require to take up appointments. Salary is at the rate of £150 and £100 per annum respectively, with board, lodging, and laundry. Applications, to be made on official form to be had from the undersigned, should be sent in not later than November 23rd.

Hertford County Hospital.

Applications are invited for the post of HOUSE PHYSICIAN (male). Duties commencing December 1st. Salary £150 per annum, with board, residence, and laundry. The appointment is for six months in the first instance.

Applications, with copies of three recent testimonials, should be sent to the undersigned and be received not later than November 16th.

PERCY G. BROOKS, Secretary.

Ethel Hedley Hospital for CRIPPLED CHILDREN, WINDERMERE.

(An active Surgical Centre, with 50 Beds, serving the *Counties* of Westmorland, Cumberland and North Lancashire, with charge of After-Care Clinics in these areas.)

Applications are invited for the post of RESIDENT HOUSE SURGEON. Candidates (female) must be fully qualified and registered, and have held a previous Resident appointment. The appointment is for *six months, with extension* to one year. Salary at the rate of £150 per annum. Applications, with copies of three recent testimonials, should be submitted, not later than November 23rd, to the MEDICAL DIRECTOR, Ethel Hedley Hospital, Calgarth Park, Windermere.

Kirkcaldy Fever Hospital and SANATORIUM.

Applications are invited for the post of RESIDENT MEDICAL OFFICER at the above Institution. Candidates must be fully registered Medical Practitioners (male), and must be prepared to commence duty on or before November 30th. Salary at the rate of £250 per annum, with board, residence, and laundry.

Applications, stating age, qualifications, and experience, with copies of three recent testimonials, to be lodged with the undersigned on or before November 8th.

G. W. M'INTOSH,
Public Health Dept., Kirkcaldy. Medical Officer of Health.

London Jewish Hospital,
Stepney Green, E.1.
(General Hospital. 108 Beds.)

Applications are invited for the following posts:

RESIDENT MEDICAL OFFICER. Salary at the rate of £150 per annum, with board and residence; appointment for six months.

JUNIOR RESIDENT MEDICAL OFFICER. Salary at the rate of £100 per annum, with board and residence; appointment for six months.

Applications, with copies of three recent testimonials, to be sent to the Secretary on or before Friday, November 15th. The successful candidates will be required to take up their duties on December 1st.

The Mothers' Hospital,
Clapton, E.5.

HONORARY ASSISTANT OBSTETRIC SURGEON.

Applications are *invited from registered* Medical Women for the above appointment.

Candidates, who must have the qualifications of F.R.C.S.Eng[illegible] are requested to forward their [illegible] three testimonials, at the Hospital not later than 19th.

EDGAR DIBDEN, Secretary.

Warneford General Hospital,
LEAMINGTON SPA.

RESIDENT HOUSE SURGEON required on December 3rd. Salary £165 per annum, with board, residence, and laundry.

Applications from qualified and registered and *single men*, accompanied by copies of three testimonials, should reach the undersigned by November 20th.

W. RUSSELL RUDALL,
House Governor & Secretary.

Bedford County Hospital.

HOUSE SURGEON (male), fully qualified, unmarried, required for a term of not less than six *months, commencing at once.* Salary £175, with board, lodging, and laundry.

Applications, stating age, nationality, qualifications, together with three recent testimonials, to be sent to the Hon. Secretary, Medical Staff Committee, not later than the first post Wednesday, November 13th. Selected candidates will be invited for an interview Saturday, November 16th.

Royal Sussex County Hospital,
BRIGHTON.

A SENIOR ASSISTANT PATHOLOGIST (male) to the Pathological, Bacteriological, and Clinical Research Department of the above Institution required. Commencing salary £350 per annum (non-resident).

Applications, with copies of testimonials, must reach the undersigned at the Hospital not later than November 21st.

The successful candidate will be required to take up *his duties on January 1st*, 1930.

Particulars of duties and rules will be forwarded on
L. I

East Suffolk and Ipswich HOSPITAL.

VACANCY ON HONORARY STAFF.

The Board of Management invites applications for the post of OPHTHALMIC SURGEON for the unexpired portion of the term for which the late Ophthalmic Surgeon was appointed.

Applications on forms to be supplied, accompanied by copies of three recent testimonials, to reach me on or before 23rd instant.

The Hospital, Ipswich. ARTHUR GRIFFITHS, Secretary.
November 9th, 1929.

The Jessop Hospital for Women, SHEFFIELD.

GYNÆCOLOGICAL AND MATERNITY DEPTS.
(145 Beds.)

The Board of Management invite applications for the appointment of an ASSISTANT HOUSE SURGEON (male) for seven months from December 15th.

Salary £100 per annum, together with board, residence, and laundry.

Applications, stating age, with copies of recent testimonials, should be addressed at once to the undersigned.

H. B. SHELSWELL, Secretary.

Royal South Hants and SOUTHAMPTON HOSPITAL.

Applications are invited for the appointment of ASSISTANT HOUSE SURGEON and RESIDENT ANÆSTHETIST. Salary £140 per annum, with rooms, board, and laundry. Six *months' engagement. Candidates, who must be* male and unmarried, should apply to the undersigned, stating age, and enclosing copies of testimonials.

HY. TRUSSON, Secretary.

The Royal Infirmary, SUNDERLAND. (290 Beds.)

Wanted beginning of December, HOUSE PHYSICIAN (male). Salary £140 per annum, with board, residence, and laundry.

Applications, stating age, qualifications, and accompanied by copies of testimonials, to be sent to the undersigned.

S. C. FRYERS,
House Governor and Secretary.

St. John's Hospital, Lewisham, S.E.13.

A vacancy has been declared in the office of PHYSICIAN to the Children's Department. The successful applicant will be expected to hold one Out-patient Clinic weekly and to take charge of the Medical beds in the Children's Ward.

Applications, with copies of testimonials, should *reach the Secretary not later than Nov. 14th.*

The Hartlepools Hospital.
(100 Beds.)

JUNIOR HOUSE SURGEON (male) required. Must be fully qualified and registered. Salary £125 per annum, with board, residence, and laundry. Applications, accompanied by copies of not more than three recent testimonials, should reach the undersigned not later than November 18th.

P. NEVILLE HART, Secretary.

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W. J. HICKS, *Secretary.*

West London Hospital, Hammersmith, W.6.

Applications are invited for the post of ASSISTANT SURGEON DENTIST. Candidates are required to hold some Medical or Surgical qualifications ... Medical Council of the ... applications, with ... so as to reach me no later than ... ember 20th; to attend a meeting of the Medical Council on Friday, November 22nd, at 4.30 p.m., and prior to that date call upon and send copies of their applications and testimonials to the members thereof; to abstain from canvassing, but nevertheless to send copies of their application and testimonials to the Members of the Board of Management, who will elect on Tuesday, November 26th, at 5 p.m., when candidates (if notified) must be in attendance.

H. A. MADGE, Secretary.

The Queen's Hospital for CHILDREN, Hackney Road, London, E.2.

Telephones: Bishopsgate 6305 and 2534.

The Committee invite applications for two posts of SURGEON for the Ear, Nose, and Throat Department.

Attendance required on one or more of the following mornings at 9.30—viz., Monday, Tuesday, and Thursday. Lunch provided and honorarium to cover travelling expenses.

Candidates must be Fellows by examination of the Royal College of Surgeons, England.

Applications, with copies of three recent testimonials, which may be printed or typewritten, should be sent on or before December 2nd to the undersigned, from whom further particulars may be obtained.

T. GLENTON-KERR,
October 21st, 1929. Secretary.

The Queen's Hospital for CHILDREN, Hackney Road, London, E.2.

CASUALTY OFFICER required January 12th, 1930. A six months' appointment. Salary £100 a year, with board, residence, and washing. Preference given to candidates who have previously held Resident appointments. Applications must be made on forms to be obtained from the Secretary, and must be sent in, with copies of not more than four testimonials, on or before December 2nd.

T. GLENTON-KERR,
October 22nd, 1929. Secretary.

Queen's Hospital for Children, Hackney Road, London, E.2.

HOUSE SURGEON (male) required on December 31st. Six months' appointment. Salary at the rate of £100 a year, with board, lodging, and washing. Applications must be made on forms to be obtained from the Secretary, and must be sent in, with copies of not more than four testimonials, on or before Dec. 2nd.

T. GLENTON-KERR,
October 28th, 1929. Secretary.

The General Infirmary at Leeds.

MEDICAL OFFICER IN CHARGE OF RADIUM.

Applications are invited for the post of a whole-time, fully qualified, Medical Officer in charge of the Radium Department.

Salary £600 per annum, non-resident.

Applications should be forwarded to the undersigned not later than November 18th, from whom further particulars as to duties, etc., may be obtained.

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October 29th, 1929. Gen. Manager.

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London, N.W.—Over £900 p.a. Cash and panel of over 800. Visits 5/6 up. Corner house, 6 rooms, surgery, etc.—No. 8560.

Eastern County. — Over £1,000. Panel and appts. £560. Visits 4/6 up. Good house, with 4 beds., and garden. Low rent.—No. 8559.

Lancs.—£4,000 p.a., increasing. Panel over 2,650. Fees 2/6—7/-. Mids. 2—5 gns. Suitable for two. Two adjoining houses to rent or buy. Premium, including drugs, book debts, surgery furniture, etc., only £5,250.—No. 8509.

London Suburb (about 10 miles). £2,300, scope. Panel 1,650. Fees 3/6 to 5/-. Corner house, 5/6 bed, garage, etc.—No. 8557.

Herts.—Country.—Nearly £1,000. Panel 470. Appts. £54. Residential. Good fees. House, with good surgery, 6 bed, garden, etc.—No. 8556.

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West of England Town.—Share worth £900 p.a., of which £600 is from panel and appts. House, with 7 beds., etc., to rent.—No. 8552.

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SURREY.—NUCLEUS G.P., with excellent scope. Receipts £500 p.a. Increasing panel of 200. Excellent house for sale. Premium for house and Practice £3,000.

LANCS.—Large Town.—PARTNERSHIP in *mixed-class Practice*. Receipts £1,900. Panel 1,900. Good house to rent or for sale. Premium for half share 1½ years' purchase.

LINCS.—NUCLEUS Country G.P., near seaside resort, with excellent scope for all-round increase. Receipts £260. Panel 88. Premium for house and Practice £950.

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13 LONDON, W.—Partnership in good-class non-dispensing Practice over £7,500 p.a. in Kensington. No panel or appointments. Incoming Partner must be well qualified (aged 30—35) and have held Hospital appointments. Share worth about £1,000 at 2 years' purchase.

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15 MIDLANDS.—Partnership in non-dispensing Practice over £5,500 p.a. in first-rate residential town. Panel 1,700. Partner should be aged 27—30. One-fifth share at 2 years' purchase.

16 CHESHIRE. — Partnership in Practice about £4,400 p.a. in residential country town in lovely part. Panel over 1,100. House, with 6 bed and dressing rooms, for sale. Premium one-half share at 2 years' purchase.

17 LONDON, W. — Non-dispensing Practice about £1,650, within easy distance of Marble Arch. No panel or appointments and practically no midwifery. Commodious house to be let or sold. Premium one and a half years' purchase.

18 SOUTH OF ENGLAND.—Partnership in sound non-dispensing Practice £4,200 p.a., in attractive watering-place. Panel about 1,800. Suitable house. Applicant should hold F.R.C.S.Eng., or M.D., F.R.C.S.Edin. One-third share at 2 years' purchase. (Preliminary Assistantship.)

19 SOMERSET. — Easily worked Country PRACTICE of about £900 p.a. in favourite residential village. Panel 500. Well-built house (6 bed and dressing rooms), to be sold or let.

20 SURREY.—Partnership in old-established Practice about £2,400 p.a. in outlying suburban district. Panel over 1,500. House (5 bedrooms) to rent. One-half share at 1½ years' purchase.

21 EASTERN COUNTIES. — Country PRACTICE of £2,350 p.a. carried on by two Partners. Panel 1,600. Two houses to be let. Premium 1½ years' purchase.

22 WEST OF ENGLAND.—Steadily increasing PRACTICE (carried on by Medical Woman) of well over £700 in first-rate town. Panel 550. Centrally situated house in excellent position for sale. Premium £1,050.

23 LONDON, S.W.—Good middle-class non-dispensing PRACTICE in plea[illegible] Receipts year ended September 30th, 19[illegible] ellent detached corner residence (7 [illegible] and Practice—£4,000.

24 LONDON, S.E.—Cash Practice about £600 a year in suburban district within half an hour of Charing Cross. Panel 360. Small corner house to rent. Great scope. Premium £900, part by instalments.

25 SOUTH MIDLANDS.—Rapidly increasing PRACTICE in first-rate town. Receipts 1928, £562. Panel 477. Detached double-fronted house (4 bedrooms) to be sold. Considerable scope. Premium £850.

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27 ESSEX.—Very compact and easily worked PRACTICE in rapidly developing industrial district. Receipts 1928, £350. Panel 472. House (2 bedrooms) on main road to rent. Premium £600.

28 NURSING HOME in favourite Town on Kent Coast. Clear net profit £750 p.a. Double-fronted residence, with operating theatre, to be let or sold. Premium—Goodwill—£1,000. Highly recommended.

29 Near BIRMINGHAM.—Partnership in very sound Practice, nearly £3,000, in large and rapidly growing residential country district. Panel 930. Suitable house obtainable. Premium one-fourth share 2 years' purchase.

30 SUSSEX.—Partnership in Country Practice, £2,750 p.a. in residential district near the Coast. Panel about 700. Good house (about 6 bedrooms) to rent on lease. Scope. Premium one-half share 2 years' purchase.

31 W. OF ENGLAND. — Ophthalmic Practice, between £850 and £900, in residential seaside resort. Semi-detached house for sale. Considerable scope as Vendor has undertaken only minor operations. Premium £1,300.

32 MID-WALES. — Country Practice nearly £300 p.a. in beautiful part. No midwifery. Well-built house (4 bedrooms, etc.). Rent £30. Premium for quick sale only £100.

33 S.W. OF ENGLAND. — Seaport Town. — PARTNERSHIP (after preliminary assistantship) in good mixed Practice about £3,000 p.a. Panel 2,100. One-third share offered to suitable man at 2 years' purchase.

34 WEST OF ENGLAND. — Partnership in Practice in small watering-place. Receipts past 12 months over £1,800. Panel 1,375. Pleasantly situated house (5 bedrooms) in good residential part for sale. Premium two-fifths share £1,400.

35 S.W. OF ENGLAND. — Partnership in Practice about £4,000 p.a. in watering-place. Panel about 1,700. Choice of residence to rent or purchase. Hospital and scope for surgery. Premium one-third share £2,400.

36 HOME COUNTIES. — Country Practice over £450 in residential and agricultural district, easy distance of London. Panel over 200. Nice house (3 bedrooms and attics). Rent £60. Premium £400.

37 ITALY. — Non-dispensing Season Practice in small seaside town. Cash receipts past season £200. Good scope.

38 S. WALES. — Practice about £1,200 in important town. Small panel. Well-situated house, with ample accommodation, to be sold or let. Reasonable offer accepted.

39 EAST COAST. — Partnership in Practice nearly £3,000 p.a. in popular watering-place. No panel. Modern house (3 bedrooms) to rent. Excellently equipped Hospital and scope for Ear, Nose, and Throat work. One-third share at moderate premium.

40 WEST MIDLANDS. — Partnership in middle and better-class Practice £3,000 p.a., in one of the most picturesque towns. No appointments or panel. Suitable house available. Premium two-fifths share 2 years' purchase. Partner must be well qualified and have held Hospital appointment.

41 HOME COUNTIES.—Practice of £500 p.a. in first-rate town under 20 miles from London. Panel 220. Excellently situated house (6 bedrooms) for sale. Cottage Hospital. Premium 1½ years' purchase.

42 LONDON, W.—Partnership in non-dispensing Practice about £2,500 p.a. No panel or appointments. One-third share, with view to ultimate succession. Premium 2 years' purchase. Purchaser must be well qualified and used to good-class Practice.

43 MIDLANDS. — Country Practice about £1,000 p.a. in residential district and hunting centre. Panel 600/700. House, with 8 bedrooms, to rent. Premium £1,300.

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45 YORKSHIRE (E.R.). — Old-established Town and Country PRACTICE £2,200, within easy distance of important town. Panel 1,750. Well-situated house (9 rooms and *bath) to be sold. Great scope. Premium £3,500.*

46 SOUTH OF ENGLAND. — Assistant required (with vi … dily increasing Practice £2,770 in attra … les of London. Panel 1,770. Applican … otch (about 28 to 30), who must have … One-third share at 2 years' purchase t … stantship.

47 BRITISH EAST AFRICA. — Assistant required (with view to Partnership) in General and X-ray and Electro-therapeutic Practice. Assistant must hold the F.R.C.S., and experience in X-ray would be advantageous. Share of about £1,200 p.a. offered to suitable man after preliminary assistantship.

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49 HOME COUNTIES.—Partnership in Practice £2,800 p.a. in good town about 30 miles from London. Small panel. Convenient house (5 bedrooms) to be sold or let. University and Public School man who has held appointments preferred. One-third share at 2 yrs.' purchase after preliminary assistantship.

50 LONDON, S.E.—Increasing Practice averaging about £800 p.a. in populous district close to the City. Panel 800. House (3 bedrooms) to rent. Premium 1½ years purchase.

51 SOUTH OF ENGLAND.—Seaport Town. PRACTICE of about £750 p.a., including appointments over £225 p.a., and panel nearly 1,000. Good house (6 bedrooms) to be sold or let. Premium 1½ years' purchase.

52 DEATH VACANCY.—Surrey.—Practice of between £250/300 p.a. in residential district easy distance of London. Small panel. Specially built corner residence (4 bedrooms), with nearly half acre of garden, for sale.

53 SURREY.—Sound rapidly increasing PRACTICE in suburban district under 10 miles. Receipts last year £2,500. Panel 750. Small house for sale. Premium—Practice—£4,000.

54 NORTH OF ENGLAND. — Practice about £600 p.a. in Inland Spa. Panel over 500. Well-situated house (6 bedrooms) to rent. Premium £1,000.

55 LIVERPOOL. — … of nearly £1,300. Panel 560. … and garden, for sale. Golf near by. … y instalments, without interest).

56 SOUTH OF ENGLAND. — Partnership in Country Town Practice of nearly £2,300 p.a. Small panel. Well-built house (6 bedrooms) to rent. Premium one-half share 1½ years' purchase.

57 SOUTH COAST.—Non-dispensing Practice of about £1,900 in residential town. No panel. Choice of house.

58 W. OF ENGLAND. — Country Practice of £950 p.a. Panel 400. Very little midwifery and night work. House, with 4 bedrooms, garden, and garage, for sale. Good society. Premium £1,350.

59 NORTH OF ENGLAND.—Partnership in non-dispensing Practice about £6,000 p.a. in first-rate County Town. Small panel. Very good house (6 bedrooms) to be sold or let. Premium one-fifth or two-fifths share 2 years' purchase.

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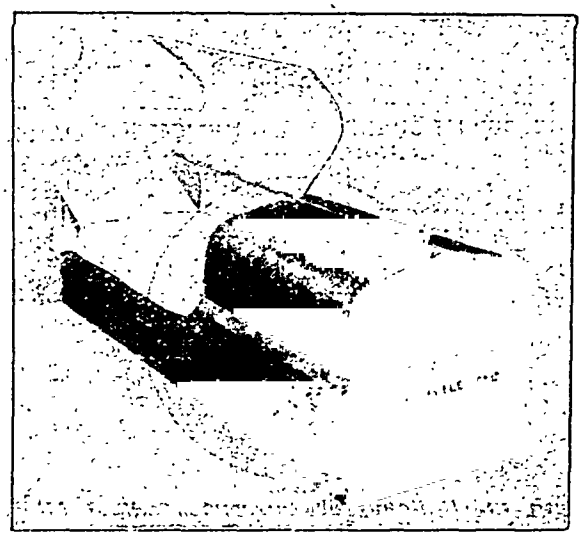

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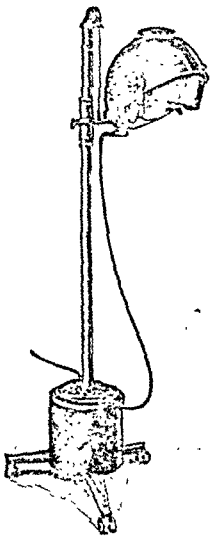

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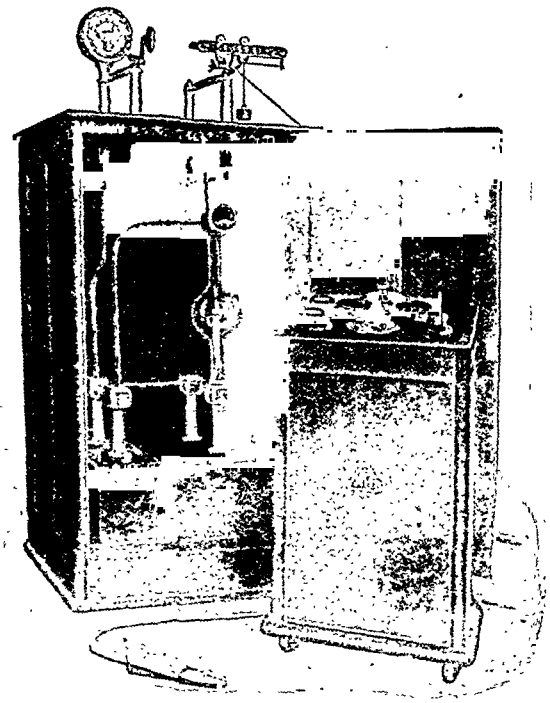

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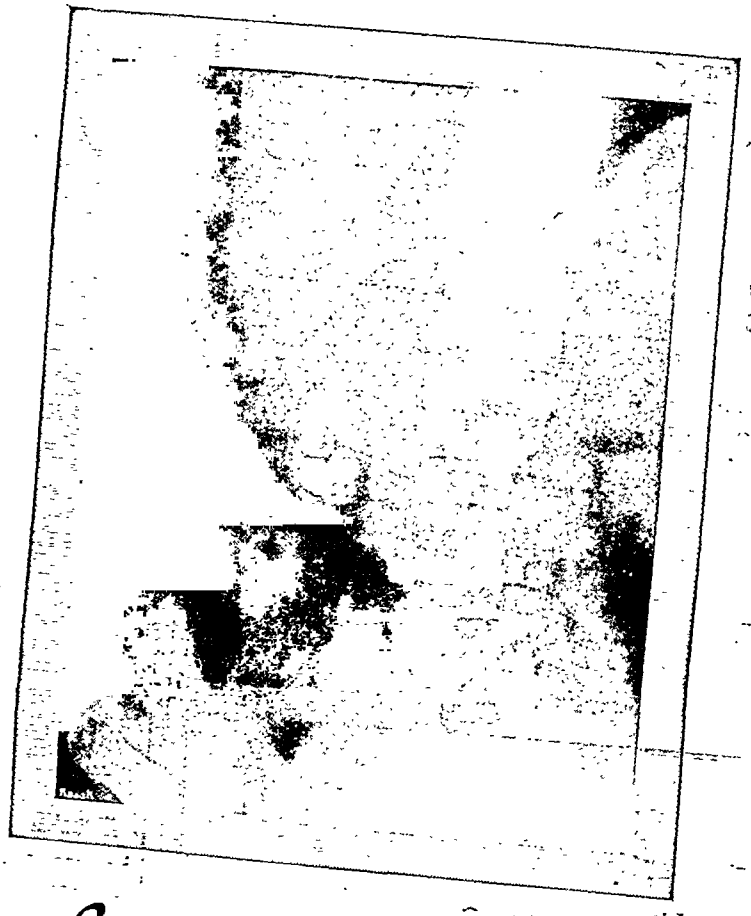

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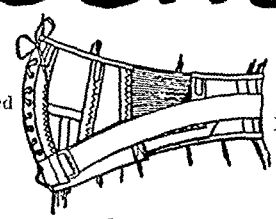

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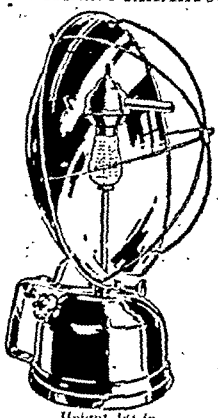

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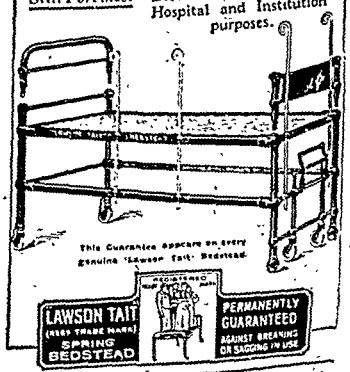

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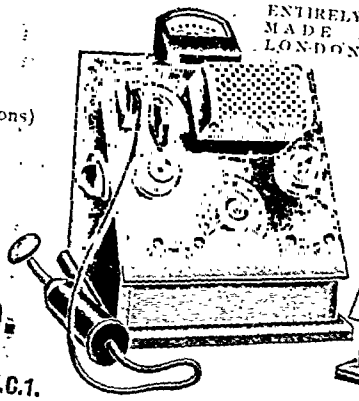

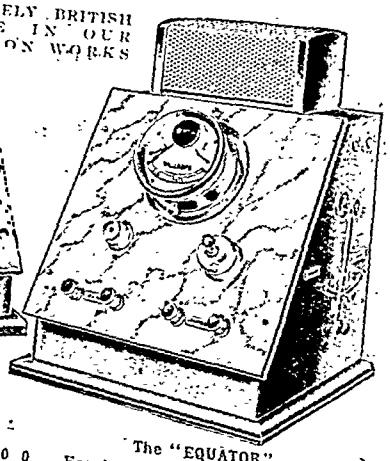

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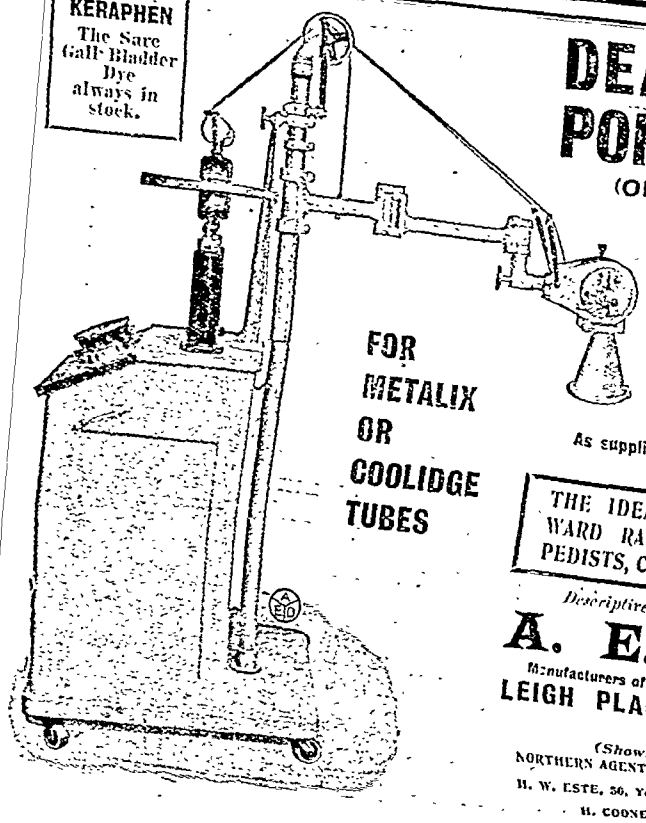

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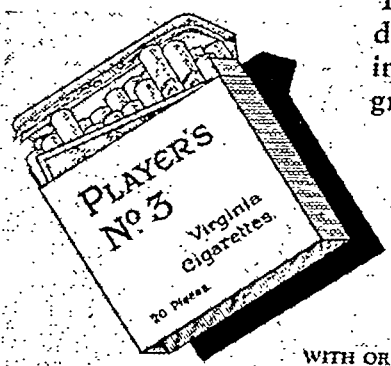

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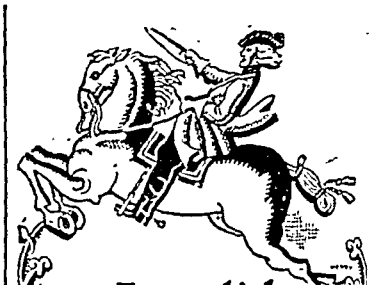

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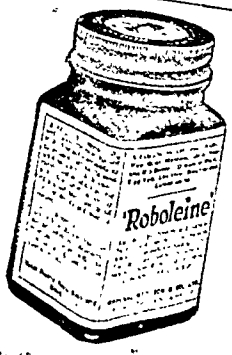

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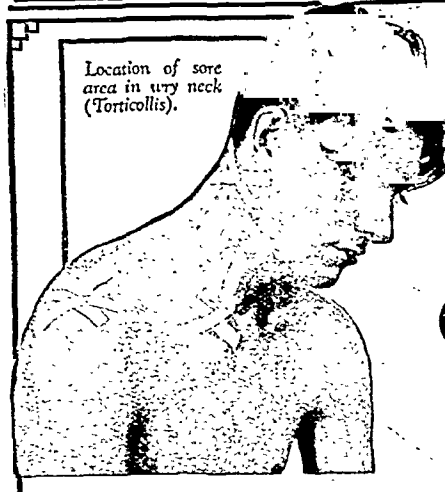

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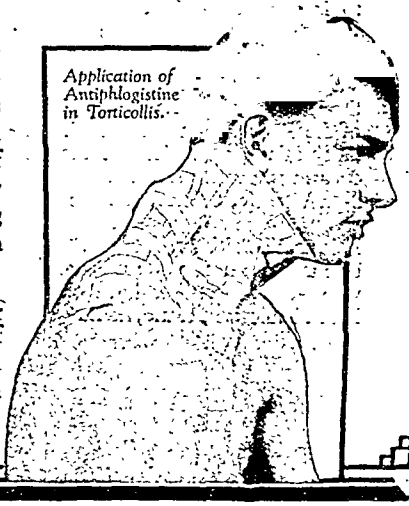

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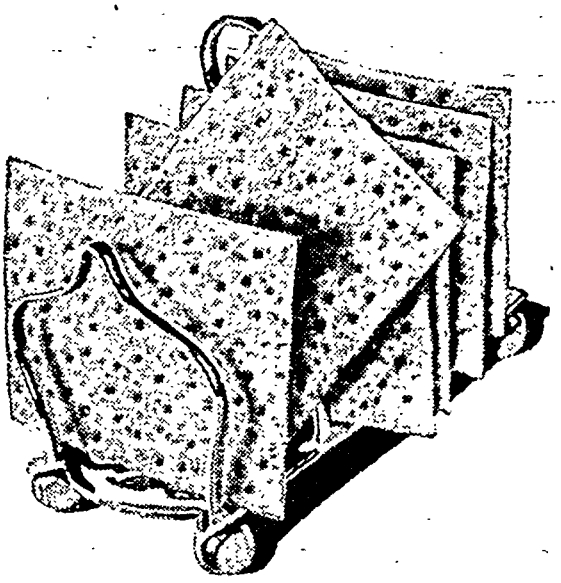

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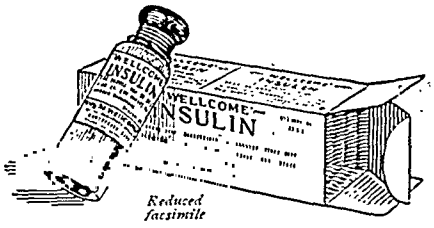

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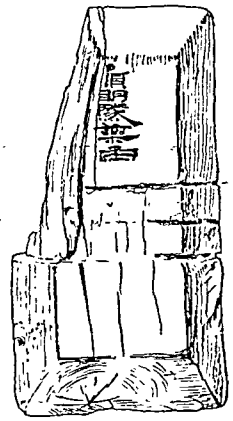

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LUPUS VULGARIS:
A PLEA FOR EARLY AND ORGANIZED TREATMENT.*

BY

RUPERT HALLAM, M.D.,

PHYSICIAN IN CHARGE OF THE SKIN DEPARTMENT, ROYAL INFIRMARY, SHEFFIELD.

COINCIDENTLY with other Northern European countries, Britain has a considerable number of its inhabitants who suffer from tuberculous infections of the skin. When compared with other skin infections the incidence of lupus vulgaris is low, but the extreme chronicity, the tendency to spread, and the unsightliness of its ravages make the disease, as its name implies, particularly abhorrent to all. Essentially a disease of poverty, a factor which handicaps severely any effort to assist the unfortunate sufferers, the complaint presents at the present time almost insuperable difficulties to those who are responsible for its treatment.

At the time of a reorganization of hospital service in this country it does not appear inopportune to consider whether any further effort can profitably be made to mitigate the difficulty. The first point to determine is whether efficient remedies do exist, and if so, secondly, to what extent they are available for the patients. It is outside the scope of this paper to give a detailed description of the modern methods of treating lupus vulgaris, but a brief review of the subject is necessary if the difficulties of the situation are to be appreciated.

It is clear from the pathology of the complaint that it is not a superficial disease. Sampson Handley and others have pointed out that it is a disease of the lymphatics, not limited to the skin, for both the superficial fat and the deep fascia are implicated, except in the very earliest lesions. The infection may be exogenous in origin; in that case the bacillus is implanted directly on to the skin—for example, lupus on the fingers or hand, which is met with occasionally in pathologists, farmers, and butchers—or, more frequently, is conveyed to the mucous membrane of the nose by the fingers, which have been contaminated by infected dust. The second mode of infection is by continuity from bone or gland, or by the blood stream. The resistance of the patient against the infection is often low, for, as previously pointed out, lupus vulgaris is a disease of the poor.

All are agreed, no matter where the site of the lesion may be, that treatment in the early stage is of paramount importance; also, that there is no single remedy which may be relied upon to effect a cure in all cases. A further difficulty is the fact that few, if any, are sufficiently expert to be able to give the appropriate treatment to every class of case. As an instance, an examination of the nose and mouth by a competent rhinologist will reveal that a large proportion (probably 50 per cent.) have some tuberculous infiltration of the mucous membrane. This is mentioned in most textbooks, nevertheless the examination is frequently dispensed with. Yet mucous membrane lesions call for treatment equally with those which are present on the skin. If they are not treated they are a constant source of reinfection of the skin. Again, it is an advantage for the patient, and also for economic reasons, that some of the earlier lesions should be excised by an experienced surgeon. This applies particularly to patients who are unable to attend regularly for the long periods necessitated by the other methods of treatment, such as Finsen light, caustics, etc.

Excision of patches of lupus, with or without subsequent skin grafting, was advocated many years ago by Lang of Vienna, who attained great proficiency in this branch of surgery. It has been practised by Sampson Handley and other surgeons in this country, and also by Thibaut in France. Recent experience has convinced me that excision is the method of choice in many early lesions, but unfortunately patients usually apply for treatment when the disease has advanced beyond this stage; consequently it is necessary to have recourse to other methods, such as diathermy, Finsen light, Kromayer light, various caustic applications, etc. Furthermore, each case must be treated individually. Some patches will heal after repeated application of acid nitrate of mercury, others will not, and require destruction by diathermy. Local application of Finsen light is a proved remedy, and it is regrettable that such a limited use is made of it in this country, for in selected cases the result of the treatment is admirable. It is generally stated that the method is impracticable on the ground of expense, yet with a Finsen-Reyn lamp costing from £160 to £200 to install, about ten patients can be treated daily. The application requires, however, the whole attention of a specially trained nurse.

In addition to the remedies already mentioned it is essential that all patients should have the advantage of frequent exposures of carbon arc light to the whole skin surface. After six years' experience of this treatment in a large number of cases I have no hesitation in asserting that it is indispensable in the treatment of tuberculosis of the skin. At the same time I find it necessary to state equally dogmatically that general arc light exposures must not be relied upon to cure patients without the help of local treatment. In the summer months advantage may be taken of the natural sunlight. Three years ago arrangements were made whereby the lupus patients in the Royal Infirmary, Sheffield, could attend, when weather permitted, various centres in the neighbourhood for exposure to sunlight. The necessities, such as screens, deck chairs, rugs, and lavatory accommodation, were obtained conveniently in the grounds of the tuberculosis sanatoriums, convalescent homes, and municipal hospitals outside the city. This out-of-doors treatment educates the patients to appreciate the advantage of open air and sunlight. They enjoy the change, become much more deeply bronzed than when exposed to artificial light, and the results are also superior.

The merits of gold preparations, tuberculin injections, and sundry other remedies I do not propose to discuss. It is sufficiently obvious that the armamentarium of those who are responsible for the treatment of the disease is necessarily extensive and costly. Also, that it is available for only a fraction of the number who suffer from the disease. This accounts in no small measure for the number of hopelessly infected patients who seek relief sporadically at the out-patient departments of our hospitals.

An equally important factor is the delay which ensues before treatment is sought. This is due largely to the following reasons: mistakes in diagnosis; the application of futile remedies such as ointments and fomentations; the apathy of the patients or their parents. The disease is painless, the patients are poor, and all too frequently incline to a policy of *laissez-faire*. On the other hand, some are anxious for treatment, but are not able to afford the time off work or the necessary travelling expenses. This delay leads to serious consequences, for the lesions gradually increase in depth and at the periphery. The time required for the treatment is thus not only proportionately greater, but also more costly. Many of these neglected cases attend the out-patient departments of the voluntary hospitals for periods of years. This entails much expenditure of time and patience of the nursing and medical staff.

From the age of 6 to 14 a child undergoes a systematic medical inspection at school, and afterwards, no matter how poor, has the opportunity of obtaining medical advice: but, as the following analysis of cases attending the Royal Infirmary, Sheffield, shows, the present conditions are deplorable.

Analysis of 211 Cases of Lupus Vulgaris attending for Treatment during Three Years—May, 1926, to May, 1929.

Sex:	
Males	73
Females	70
Location:	
Residing within the borough of Sheffield	75
,, within 10 miles of Sheffield	29
,, between 10 and 20 miles outside Sheffield	31
,, between 20 and 30 miles outside Sheffield	5
,, beyond 30 miles outside Sheffield	2

* Read in the Section of Dermatology at the Annual Meeting of the British Medical Association, Manchester, 1929.

This analysis indicates that almost half the total number of patients live outside the city, consequently regular attendance for treatment is in many cases prohibitive owing to the travelling expense.

Age of Patients.

Decade.	Number.
1-10	18
10-20	61
20-30	27
30-40	19
40-50	8
50-60	4
Over 60	3

In the following table an attempt has been made to classify the cases according to the extent of the disease present when the patient first applied for treatment.

1. A stage in which there was a reasonable hope of a cure being accomplished	31
2. A stage in which the prospects of a cure were doubtful but perhaps possible under good conditions	85
3. A stage in which a cure was impossible	19
Unclassified	5

It indicates that more than half the patients apply for treatment when the disease is already in an advanced stage.

Duration of the Disease on Admission of Patients for Treatment.	No	Patients who had either no Treatment or only Ointment before Admission	Treatment by Caustics before Admission.	Surgical, Diathermy, Light, X Rays before Admission.	No Record.
Less than 1 year ...	15	16	—	—	0
Between 1 and 2 yrs. ...	19	16	—	—	3
„ 2 and 3 „ ...	6	3	—	1	2
„ 3 and 4 „ ...	11	6	—	2	3
„ 4 and 5 „ ...	8	4	1	2	1
„ 5 and 6 „ ...	2	2	—	—	—
„ 6 and 7 „ ...	9	5	—	1	3
„ 7 and 8 „ ...	5	3	1	—	1
„ 8 and 9 „ ...	3	1	—	2	—
„ 9 and 10 „ ...	2	2	—	—	—
Over 10 years	52	14	3	26	9
Unclassified	10	—	—	—	—
Totals ...	143	72	5	34	22

It will be noted from the figures in the first two columns of this table that a large number of patients applied for treatment years after the commencement of the disease, without having had any treatment in the interval.

It is hardly necessary to stress the suffering which many of the patients endure, for every dermatologist is only too familiar with the terrible disfiguration of the face and limbs which may result from the spread of the disease. To many of the lay public the disease exists only in name, for lupus patients have difficulty in obtaining employment, and, conscious of the unsightliness of their deformity, are prone to seek seclusion.

For economic reasons it is desirable that all patients should be treated by the best available methods as soon as the disease is recognizable. To further this end I have ventured to put forward the following suggestions, which for convenience I shall deal with under the following headings: (1) education of the medical and lay public; (2) establishment of treatment centres; and (3) systematic following up of cases.

Education of the Medical and Lay Public.

Taking into consideration the abundance of material available for teaching purposes and the consistency in the appearance of the tuberculous lesions of the skin, there appears to be no adequate reason why the diagnosis should present any great difficulty. It does not seem to be too much to expect that every senior student should be able to recognize tuberculosis of the skin in the early stages, and, furthermore, that he should know the seriousness of the consequences if it be untreated. The increasing popularity of post-graduate instruction will no doubt tend to reduce such errors.

If practitioners and school medical officers consistently explain to the patients, or to their parents in the case of children, the disastrous results of neglected treatment, the public are likely to follow their advice, provided that facilities for treatment are obtainable.

Establishment of Treatment Centres.

The foundation of a special treatment centre similar to the world-famed Finsen Institute at Copenhagen would be of inestimable value to this country. Although one centre would be able to cope with only a limited number of cases, it would serve a further important purpose in acting as a stimulus to those who are interested in the treatment of the complaint; for new methods could be tried out systematically, approved treatment could be demonstrated, and advice given on the organization of smaller centres. Such an institute would naturally require to be well equipped and have an adequate staff, in order to enable a high standard of treatment to be carried out. In view of the complexity of the treatment, the building should preferably be attached to, or within easy reach of, one of the larger hospitals, in order that advantage might be taken of the services of the consultant staff. A few beds would be required for the use of patients undergoing operative treatment, but the ideal would not be attained unless there was, in addition, an annexe of, say, 100 beds situated either in the country or at the seaside, where part of the treatment would be carried out. The annexe would be constructed and maintained on the lines of a convalescent home; the cost per bed would therefore be considerably less than in the case of a general hospital. Again, as the patients would not be confined to bed, they could be employed advantageously in doing domestic work, gardening, and poultry farming, thus reducing the expenses still further. It is probable that the beds would be used more profitably if a relatively large number of patients had short spells of six to twelve weeks' institutional treatment, rather than if a comparatively small number monopolized them for long periods. If the annexe contained the number of beds suggested—that is, 100—it would, in addition, enable patients from smaller affiliated centres to have the advantage of convalescent treatment. Preference would, however, in all circumstances have to be given to cases in which there was a reasonable chance of a cure being obtained.

As already stated, an institution of this character could only deal with a small proportion of the cases in the country, but, in addition, it would serve equally important functions. If after a trial these anticipations were fulfilled, it would then be desirable to consider whether a more comprehensive scheme should be attempted—namely, an increase in number of these special lupus institutes, together with the formation of subcentres at some of the voluntary and municipal hospitals—and thus enable all cases of lupus, unless already too far advanced, to have a reasonable chance of being cured. Many of the larger voluntary hospitals are already more or less completely equipped for the treatment, and with an increase of staff could extend the service and give further facilities, such as evening clinics, for those employed during the daytime.

Systematic Following Up of Cases.

Although the majority of patients are anxious to avail themselves of treatment, others, usually for economic reasons, are irregular in their attendance; consequently no scheme of organized treatment would be complete unless travelling expenses were afforded to necessitous cases.

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Added to which there should be a systematic following up of patients to encourage the delinquents, and also to ensure the early detection of any recurrent lesions.

In conclusion, I beg to point out that an admirable organization for the treatment of venereal disease already exists under the aegis of the Ministry of Health. That movement rescued this branch of medicine from the realms of chaos, and has proved of great service to the community. It seems justifiable, therefore, to ask that equal facilities should be given to a class of patients who are at least equally worthy of consideration.

DIFFERENT PREPARATIONS OF BISMUTH IN SYPHILIS THERAPY:

RATE OF ABSORPTION AS A GUIDE TO THEIR EMPLOYMENT.*

BY

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BISMUTH is already adopted, only eight years after its introduction into syphilis therapy, by practically all syphilologists throughout the world as a substitute superior to mercury. It is obviously both more efficient and less toxic than this old remedy. Still there remain a few exceptions to this rule. Bismuth can be administered by intramuscular injection alone, as it is absorbed to a very small extent only through the skin and through the intestine. For these methods of administration resort must still be had to mercury. This rapid development of bismuth therapy has brought many hundreds of preparations on the market; it is therefore not easy for the doctor to make a right choice.

The following investigation is not intended to be an examination of a series of factory preparations, but merely a general outline, according to which the proper choice can be made.

Very little is known with regard to the characteristics of bismuth in its effects on a syphilitic organism and the syphilitic infection itself. The blood contains only very small quantities of bismuth (Levaditi et alii,[1 2] Sei and Weise,[18] Lomholt,[4 7 8 9] Biro Istvan,[10] Levy and Selter,[21] Gruhzit and Sultzaberger,[13] Leonard[14 15 16]), probably so small that we can disregard a possible direct effect on the spirochaetes similar to that generally produced by disinfecting solutions of heavy metals *in vitro*. Levaditi[1 2] has tried to give a specific explanation of this strong effect on the spirochaetes. He suspects the formation of a special compound of bismuth and the protein substances of the organism ("bismoxyl"). He thinks that this compound possesses a particularly strong effect on the spirochaetes.

Though nothing definite is known about the characteristics of bismuth in its effects on the syphilitic infection, it is a well-established fact—obtained from clinical experience as well as from experiments on rabbits with syphilis—that a complete cure is attained only after a prolonged course of bismuth therapy. The best effect is obtained when large quantities of bismuth are introduced, creating a strong bismuth concentration in the organism. Of course, the concentration should never reach the point of intoxication, as this would only weaken the organism. Consequently the aim of the bismuth treatment must be to introduce into the organism the largest possible quantities without intoxication, maintaining thereby a strong saturation over a long period. Under bismuth treatment proper attention should be given to the fact that elimination of the metal is rather slow; consequently an intensive introduction of bismuth causes a rapid accumulation of the metal in the organism, and if continued for a long period will result in an intoxication.

Intensive bismuth treatment should not be continued very long. It may be borne well in the beginning, especially if the remedy used is one of slow absorption, but after some time the organism will be oversaturated and an intoxication will appear. This fact is to be taken into account in planning the scheme of treatment. The old scheme of intermittent treatment (Fournier) permits the use of larger doses than does the continuous method without interruption, proposed by some modern authors. The intermittent scheme has given undeniably excellent results, and its rhythmic character may be considered to agree well with the rhythm of vital processes. The essential thing in all bismuth treatment must be to secure a uniform and regular absorption. Otherwise a sudden strong absorption may bring a dangerous intoxication; or, on the contrary, a lack of absorption may cause a deficiency of the therapeutic effect. For this very reason the internal and percutaneous administration of bismuth must be left out of the question. Ointments may give an absorption of bismuth, but this is always weak and very irregular (Klauder,[19] Oelze,[20] Giemsa,[21] Engelhardt[36]). Applied on injured skin bismuth may be absorbed to quite a large extent—a fact well known since ancient times from the treatment of extensive burns with bismuth ointments. Even fatal accidents have occurred. Internal administration produces also a very weak absorption (Engelhardt[36]), probably due to the fact that insoluble BiOCl is formed in the stomach, owing to the effect of HCl upon the bismuth compound in question. If no HCl is present, but only organic acids such as lactic acid, complex compounds of bismuth may be formed and absorbed in the same way as the many alkaline bismuth tartrates used in bismuth therapy from its very beginning (Levaditi,[1] Gérard and Daunic,[22] Perrin and Ducas[23]). Consequently bismuth must be used in the form of injections.

The *intravenous* injection gives decidedly the quickest and most regular absorption, but clinical experience has shown that it is rather dangerous, several cases of death having been reported. Besides, it is not especially efficient. The bismuth injected leaves the blood stream quickly. Sei and Weise[18] found in rabbits that after one hour the bismuth content in the blood was reduced from 11.5 mg. per 100 c.cm. to 0.17 mg. Accordingly the elimination was found by most authors (Jeanselme,[29] Engelhardt[36]) to set in and increase quickly, to reach its maximum and fall to a minimum again in rather a short time. In consequence of this rapid passage of bismuth frequent injections are necessary, preferably every day, which makes this treatment rather troublesome. Besides, the treatment gives rise to a particular strong neuralgia in the trigeminal nerve, which occurs immediately after the injection. Intravenous treatment has now been given up even by its original adherents (Pautrier).

Subcutaneous injection cannot be recommended. It causes greater pain than the intramuscular method, and abscesses occur more frequently; also the absorption is slower and more irregular.

Intramuscular injection remains the treatment to be preferred. The single injections should be given in the upper and outer part of the gluteal muscle. The number of preparations made for this purpose is most embarrassing, and it must be admitted that it is possible to obtain quite good results with practically all of them. At a very early date Levaditi[1] pointed out that even quite small quantities of bismuth were able to give a marked antisyphilitic effect. But this is not the same as a maximum effect, and our aim must always be to find just that preparation and that method of treatment which secures the very best result to the patients. The investigation of these problems is simplified by the fact that the antisyphilitic effect is due to the bismuth ion itself—or rather to the bismuthyl ion. As regards the different bismuth preparations, their bismuth metallic content is alone of importance. However, an exception is provided by certain bismuth compounds, in which the bismuth is bound so firmly that the organism is unable to dissociate it (for example, triphenylbismuth, Giemsa[26]). With these the therapeutic effect will prove to be less than would otherwise be expected. The essential thing must always be to have a preparation with an absolutely regular and uniform absorption rate. These two things depend to a large extent on another quality—that of the rate of absorption.

If a certain quantity of bismuth is injected into a muscle, and if it is not absorbed immediately, the surrounding

* Read in opening a discussion in the Section of Venereal Diseases at the Annual Meeting of the British Medical Association, Manchester, 1929.

tissue will soon begin to encapsulate it, and from the moment this occurs the rate of absorption will be seen to decrease markedly. Sometimes the bismuth deposit may remain for a long time almost untouched, like a foreign body—that is, if the muscle has had time to produce a sufficiently thick, compact capsule around the deposit. In such a case only an extremely slow absorption will take place, and the therapeutic effect will be accordingly insignificant. In the days immediately following an injection there will as a rule be ample absorption of bismuth from the newly injured surface of the muscular tissue; later the absorption will gradually decrease. Consequently a slow absorption generally means an incomplete absorption, a certain portion of the injected metal remaining encapsulated for an indefinite period. An *x*-ray photograph of the nates with bismuth deposits will often show a great many shadows due to the encapsulated material. This was confirmed by a large number of authors. (Levy-Bing,[27] Kolle,[28] Beinhauer and Jacob,[29] Sonnenberg,[30] Cole, Farmer, and Miskdijan,[31] Oettinger, Todd, and Sollman[32].)

Still the *x* ray is not an ideal method for control in these cases. Small precipitates of chalk often appear around the deposits, the shadow of which may closely resemble that of a bismuth shadow (Müller,[33] Jaffe,[34] Gruhzit[35]).

By experiments on animals, where the injected deposits of bismuth can be excised, one can see still more distinctly how great the differences are, and especially with bismuth in oil suspension (Lomholt[5 8 9]). On the other hand, a single injection is seldom given, but generally a series. By this the irregularity in the rate of absorption in the single deposit will to some extent be compensated.

To the question as to the kind of bismuth preparation which is absorbed most rapidly and regularly after intramuscular injections the answer must be: watery solutions. This emerges clearly from all researches of bismuth elimination after such injections (Lomholt,[5 6 8] Leonard,[11] Gruhzit,[13] Engelhardt[36]). However, it appears that even small doses cause a certain amount of pain. Consequently it proves necessary to give the injections rather frequently —for example, every other day—to obtain a suitable weekly dose of bismuth, and even then pain cannot be avoided. Gruhzit[13] attributes a relative absence of pain to thiobismol, a sodiumbismuthoglycollate, a compound first studied by Akamatsu.[37] My experience, however, is that this is not quite painless. It must, at any rate, be given three times a week. It is, therefore, impracticable as the intravenous treatment.

Instead of watery solutions, solutions of bismuth compounds in oil have been employed—for example, bismuth salts of high atomic fatty acids. They are fairly soluble in vegetable oils. At an early date Merck brought forward "embial." The exact composition of this has never been published. Further, a number of French preparations have lately been recommended by Levaditi[38] and his collaborator, L. Fournier[39]: basic α-carboxethyl-β-methyl-nonoate of bismuth, basic α-methyl-hydrocinnamate of bismuth, camphocarbonate of bismuth, etc. The clinical effect of these preparations is reported as extremely satisfactory and quite painless. I have not been able to confirm this last point, but the pain is certainly not very bad. A considerable amount of material is, however, necessary before the clinical superiority of a particular remedy can be admitted. It would certainly be a great advantage if these oil solutions combined a relative painlessness with an especially great rate of absorption and regularity. Levaditi[38] (p. 598) found this, but unfortunately his researches are not extensive. As to "embial," Engelhardt[36] (p. 31) found no especially quick absorption. Similar observations were made by Grumach,[40] who did not find substantial differences between oil solutions and the usual oil suspensions. This fact corresponds fairly well with Levaditi's[38] (p. 600) statement that even after twenty-four hours a decomposition of the compound takes place, a definite bismuth deposit being formed in the muscle, which can be traced for a long time. Levaditi thinks that the bismuth is deposited in the form of oxide or oxychloride; but if this is the case there should be little difference between the condition in the muscle whether injected by this compound or by others, suspended in oil. A definite inconvenience with these preparations is the presence of large quantities of vegetable oils and of high atomic fatty acids, which are only with great difficulty absorbed by the tissue.

The form in which bismuth is most commonly used is that of suspensions in vegetable or vaseline oil. Such suspensions are almost painless. The oil covers the small suspended bismuth particles and prevents a rapid reaction between these and the surrounding tissue. How great the difference is was clearly seen from the following experiment with eight patients. A dose of 150 mg. bismuth salicylate suspended in vegetable oil was injected, and another, a week later, in water. The first was borne almost without any pain; the second caused considerable pain in most cases, and, moreover, in three cases a severe stomatitis appeared shortly after the injection. The explanation of this fact was quite clear. It is a well-known fact that the muscular tissue absorbs vegetable oil very slowly—not until after several months—and vaseline oil is not absorbed at all. Before the absorption of bismuth can take place the oil must be separated from the bismuth particles. With bismuth compounds soluble in water or in the tissue fluid a more rapid absorption can take place, but then it always causes pain. It must be said that as a rule it is scarcely possible to have a rapid absorption without a definite pain. This is easily understood. The absorption implies a reaction of the bismuth ion with the tissue. Hereby bismuth albuminates are formed and the tissue is more or less destroyed. If this takes place quickly, pain is inevitable, if slowly, no pain may occur. Even a considerable necrosis of the muscular tissue with abscess may develop without any noticeable pain. More often the tissue forms a capsule of granulation tissue round the injected deposit. The absorption remains imperfect, and will sometimes stop completely, especially with such bismuth compounds as are insoluble in water or in the body fluids.

All bismuth injections injure the muscular tissue in a definite way. The simplest form is a small necrosis, which is gradually replaced by granulation tissue that later on develops into a little scar. In patients who have received long series of bismuth injections it may happen that, in giving an injection, the needle may enter into such highly vascular granulation tissue, and blood will appear; or the needle will meet with strong fibrous resistance—that is, scar tissue. Injections should not be given in either of these cases; in the first, because of the risk of intravascular injection, in the second, because the fibrous scar tissue offers a most resistant barrier to absorption.

As mentioned before, the use of oil for suspension often causes a rather slow and irregular absorption of the contained bismuth. This hampering of the absorption is, however, not a rule without exceptions. In some cases a fair absorption can be seen even in these cases, but it cannot always be expected.

A large number of bismuth compounds have been used in oil suspension. In the composition of these preparations it seems as if the desire to secure an absolutely painless preparation has been the principal aim of both manufacturers and physicians. This seems to me a somewhat narrow point of view. A moderate amount of pain is not a definite drawback. It generally means that a good absorption is about to take place. Still, the pain must not be so great as to prevent the patient from doing his work and perhaps cause him to discontinue treatment.

The rate of absorption of the different bismuth compounds seems to correspond closely with their solubility in water. Most of the bismuth compounds used in syphilis therapy are generally characterized as "insoluble in water." Still, "insolubility" seldom means an absolute insolubility, but in most cases a very slow solubility only. As to the bismuth compounds in question, they are practically all slightly soluble in water, and especially if small quantities of albumin or sodium chloride are added to the water.

It seems practical to divide the various compounds into groups according to their rate of solubility. The carbonate, oxide, and oxychloride of bismuth, and metallic bismuth compose a definite group of very restricted solubility. Also they are absorbed very slowly. Few examinations have been made on this group of compounds, but they all point to a very slow absorption. Thus Biro Istvan[19] found that only 6 per cent. of bismuth was eliminated

in the urine and faeces in thirty days after a series of injections of, in all, 0.2 gram of metallic bismuth in a 10 per cent. suspension in oil ("sorbismol"). I made a few examinations on BiOCl.[8] In some of these a fairly quick absorption was found, but the reason for this was probably that an exceptionally weak suspension was used, and, moreover, that the doses of bismuth itself were so very small.

The next group comprises the hydroxide, the subnitrate, and the oleate of bismuth. These are not of quite so minimal a solubility as the above-mentioned. The elimination of the hydroxide was studied by me, and it was found that in two cases after fourteen days only 7.53 per cent. and 5.86 per cent. of the injected quantities was eliminated in the urine. Kürthy[17] found with bismuth oleate ("oleo-Bi," Roche) used in a dog that only 10 per cent. was eliminated in the urine during twenty-eight days. Leonard[16] found in rabbits that 5.66 per cent. and 10.60 per cent. was eliminated in fourteen days. Still these preparations are used to a large extent in therapy. Well-known preparations are "muthanol" (French), "casbis" (German), both hydroxides, "oleo-Bi" (Swiss). The dose generally recommended for these preparations seems rather large. The reason for this is obviously their slow absorption. Bruck[11] mentions a case where 1.5 grams of bismuth ("casbis") were given by a mistake instead of 0.15 gram. "In spite of observation for several months, not the slightest untoward consequences of this enormous dosage were shown by the patient." Such observations are rather condemnatory of the therapeutic effect of this sort of preparation. The death reported by Jörgen Munck[12] was caused by injections of bismuth hydroxide in oil suspension.

The third group comprises certain organic compounds. Bismuth iodoquinate is absorbed fairly quickly. I found that in two cases 12.85 per cent. and 20 per cent. was eliminated in the urine after fourteen days. Corresponding observations were made by Engelhardt[36] with a similar preparation (bismuto-yatren B). He found that 23.7 per cent. was eliminated in the twenty-three days that the treatment lasted, and that this rather strong elimination continued. Bismuth chloride and iodine has, however, a great drawback. It contains only 20 to 24 per cent. of bismuth. Large quantities of the preparation therefore must be injected. Moreover, the high content of quinine and iodine is liable to irritate the tissue. Infiltrations are often seen in the muscle tissue after the use of this remedy. The compound is used under various names: quinby, bijochin, vijochin, bijochinol, biquinyl, rubyl, etc.

Potassium-sodium-bismuth-tartrate was the very first preparation used in therapy by Levaditi under the name of "trépol." Sometimes it is absorbed fairly quickly, but sometimes rather slowly. The first statements of Levaditi are well known. He gave five injections to different rabbits. After one day 30 per cent. of the injected quantity was found to be absorbed, after six days 21 per cent., after thirteen days 23.5 per cent., after twenty days 17.1 per cent., and after twenty-five days 19.3 per cent. The scale of absorption turned out almost the opposite of what might have been expected. I found after two injections that 22.2 per cent. of the injected quantity was eliminated. Biro Istvan[10] found after injection of "bismuluol" (potassium-bismuth-tartrate in oil) that 16 per cent. was eliminated in six days. Leonard and O'Brien found with the same compound 26.30 per cent. and 42.24 per cent. eliminated in the urine during fourteen days.

Gruhzit, Tendick, and Sultzaberger found by examination of the deposits in dogs that about 46.7 per cent. of the injected bismuth was absorbed in eight days, and that the figure rose to 90.9 per cent. in three weeks. Still these figures are presumably rather high (see below). Cettingen, Todd, and Sollmann found in a single rabbit a very slow absorption. After 105 days only 30 per cent. was absorbed. The quantity given, 50 mg., was very high for a rabbit, but was tolerated

The conclusion from the above facts must be that this remedy as a rule is absorbed fairly quickly, but that there are numerous exceptions.

Bismuth salicylate is used to a very large extent, especially in America, England, and Germany. Probably it is the most commonly used of all bismuth compounds in therapy. Gruhzit, Tendick, and Sultzaberger have studied its absorption in dogs. The deposits were removed and examined. The average absorption was: 67.4 per cent. in eight days, 87.8 per cent. in fourteen days, and 94.8 per cent. in twenty-one days. The figures of elimination in urine are surprisingly smaller than might be expected from the above; thus in one case only 19.1 per cent. was eliminated during fifty-two days, in another only 13.9 per cent. in fifty-four days, in a third only 22.7 per cent. in twenty-four days, and in a fourth only 9 per cent. in thirty-eight days.

Prater[13] mentions a case where an extremely slow absorption of bismuth salicylate was noticed. By mistake a patient received in three days 1.2 grams of bismuth, which is an enormous overdose. After one week a moderate stomatitis appeared and a slight fever, but no serious signs of intoxication.

Summarizing, it may be said that all suspensions of bismuth in oil are absorbed somewhat slowly and irregularly. With the last group, potassium-sodium-bismuth-tartrate, iodoquinate of bismuth, and bismuth salicylate, this is least pronounced. Because of this fact I think that this last group should be preferred. The tartrate has the drawback of a somewhat varying composition and content of bismuth metal. The iodoquinate has a rather low bismuth percentage; large doses must therefore be given. Further, it irritates the tissue. The salicylate has no such drawbacks. Consequently I consider this compound to be the most suitable for use in oily suspension.

Still, as often emphasized above, the oil introduces a considerable factor of irregularity. Water, on the contrary, is absorbed immediately, and bismuth particles in watery suspension will therefore at once be brought into direct contact with the muscular tissue, and the best possible condition for a quick and regular suspension is created, especially so as a watery suspension is thin and spreads very easily among the fibrillae of the muscle. The rapid absorption will cause a certain increase of pain (see above under bismuth salicylate).

I made a series of comparative examinations to see what difference a change of suspension fluid would give as to the rate of absorption of two well-known compounds. The results were as follows: bismuth hydroxide in oil gave an elimination of 7.59 per cent. and 5.86 per cent. in fourteen days; bismuth hydroxide in water, 47.4 per cent. and 35.57 per cent.; bismuth iodoquinate in oil gave an elimination of 10.43 per cent. and 15.57 per cent., against 47.30 per cent. and 48.63 per cent. in water. For metallic bismuth in oil (sorbismol) Biro Istvan found an elimination of 6 per cent. in thirty days; for a watery suspension (néo-trépol) Leonard[16] an elimination of 19.20 per cent. in twenty-two days.

It is impossible simply to change from oil to water. This was seen clearly with bismuth salicylate. The pain would be too great, and might even prevent the patient working. A bismuth compound must be found that is less "soluble" and therefore of a slower reaction. The hydroxide proved to be in some ways fairly good, but it had the drawback that it was difficult to obtain a perfectly pure preparation with particles of a definite size. The oxychloride possesses obvious advantages on these two points. It is easy to prepare, is perfectly pure, and has particles of a quite homogeneous size. Moreover, it is less soluble than the hydroxide, and is well tolerated even in a watery suspension. If the particles are very small and the total surface of the bismuth compound correspondingly large, the absorption will be so sudden that it will certainly produce pain. This was the case if the particle had a size of 0.5 to 1 μ.

Experiments were made with particles of different sizes. A size of 3 to 5 μ proved to be suitable. A suspension of these was tolerated well by most patients, and if pains occurred they were mostly slight. The doses of this suspension can be fixed at a lower point than with oily suspensions: 20 cg. (= 170 mg. Bi) is a suitable dose for men; 15 cg. (= 125 mg. Bi) for women, given in series of eight to ten injections at intervals of five to seven days. This means an average dose of about 0.5 mg. per day per kilo of body weight during the course of treatment. After four or five

injections a thin blue line is generally seen along the edge of the gums. But this line is seen with all intensive bismuth treatment. It is simply an inevitable sign of a strong saturation of the organism. The interval between the series should be about six weeks. During this time the blue line will generally weaken, but seldom disappear entirely. The injections must be given in the usual place and manner. Special regard must be paid to the risk of an intravascular injection, as the fluid is rather thin. After the needle is put in, an aspiration must always be made before the injection, to ascertain that the needle is not placed inside a vein or an artery. But even if blood does not appear, the needle should be retracted slightly during the injection, because experience proves that even with a negative result of the aspiration test it may happen occasionally that the fluid is forced into the lumen of a vein or, still worse, of an artery. In the last case a serious infarct of the muscle and of the skin covering it may be the result (Freudenthal, Gammel). I have seen a few such arterial infarcts—fortunately not very serious—also during the use of the preparation mentioned here, but after the outlined scheme of injection was adopted it was not seen any more. If the opening of the needle should pass another vascular lumen during the retraction, insignificant quantities only can be pressed into it, because the needle is withdrawn slightly but continuously.

A factor of great importance in syphilis treatment, especially in the intermittent scheme, is the retention of bismuth in the organism. This is composed of two quite different parts: (1) the diffuse storage of bismuth in the different organs and tissues of the organism; and (2) the injected deposits. The latter have already been discussed above. The bismuth contained in them may amount to a large quantity, especially with preparations of slow absorption. Sometimes a continual, even stream of bismuth may be absorbed from these deposits over a long period, maintaining thereby a most useful antisyphilitic effect. Sometimes the stream flows most irregularly, and sometimes a compact encapsulation will stop all absorption. Large deposits represent a certain risk of intoxication, as a sudden strong absorption may occasionally, and quite unexpectedly, take place—for example, after unusual exercise. This risk must, however, not be overestimated, as these cases are by no means frequent.

The diffuse storage has been estimated quite differently by different authors. Gruhzit (loc. cit., p. 101) found in experiments with dogs that "bismuth was retained and stored in the different tissues to the extent of about 50 per cent. over a period of six months." I have never been able to confirm these findings; on the contrary, I found in experiments with guinea-pigs that after ten days only 5 to 12 per cent. of the injected quantity was stored in this way. Details were given in a recent publication (*Arch. Derm. and Syph.*, June, 1929).

The therapeutical results of this watery suspension of bismuth, which was prepared after my instructions by a Danish firm under the name of "Ido-Bi," were in all respects satisfactory. It was always combined with treatment by neosalvarsan (Höchst). This makes it difficult to state the role played respectively by the bismuth and by the salvarsan. It may be of some interest to study the clinical result of this treatment by neosalvarsan combined with watery suspension of bismuth, first of hydroxide, later, and chiefly, of oxychloride.

In the period July 1st, 1924, to January 1st, 1928, 161 cases of syphilis, not treated before, were put under treatment. Of these, 9 discontinued treatment before a serological control of the effect was made. Of the remaining 152, 96 were men—29 in the primary sero-negative stage, 36 in the primary sero-positive stage, and 31 in the so-called secondary stage. No men were seen with old, unrecognized neglected syphilis. This is now very rarely met with in men in Copenhagen, owing to the ample access to free treatment provided by the municipality. Practically all men with venereal diseases go now to a specialist as soon as the first sign is observed. It is slightly different with the women. Out of the 56 women with unrecognized syphilis 5 were in the primary stage, 4 were suffering from latent syphilis, which was not recognized until the birth of a child with congenital syphilis, 3 had tertiary signs, the remaining 44 were suffering from recent secondary syphilis.

The treatment given was: injections of neosalvarsan, generally in doses of 75 cg. to men and 60 cg. to women. Persons of smaller size were given: 60 cg. to men and 45 cg. to women. The series used to be of four to six injections with an interval of a week. The routine scheme was a treatment of two years with three series of six injections of neosalvarsan, and with six series of ten injections of bismuth oxychloride. This amount was only obtained with the minor part. The average amount given to the 152 patients here considered was ten injections of neosalvarsan and thirty-five injections of bismuth. Also it must be emphasized that the treatment was by no means given in a definite routine way. Light cases were discharged with less treatment, resistant ones (with resistant gland swellings, resistant serum reactions, etc.) considerably more. The clinical result can be given quite shortly: No clinical relapse was seen; nine pregnant women all bore healthy children. At the last serological examination 143 out of the 152 patients gave a perfectly negative Wassermann reaction; two women gave a feebly positive test (one suffering from a latent unrecognized syphilis, the other from a neglected severe secondary eruption). Four men and three women showed a ± reaction of the Wassermann test. It seems justifiable to characterize these results as satisfactory. It is impossible to decide how much of the result is due to the salvarsan and how much to the bismuth treatment. However, it can be said that the scheme used has proved to be effective.

Summary.

1. Bismuth as a substitute is superior to mercury.

2. Internal and percutaneous administration is ineffective owing to restricted and irregular absorption of bismuth.

3. Intravenous treatment is dangerous in large doses; not sufficiently effective in well-tolerated doses; impracticable, as it requires frequent injections.

4. Intramuscular treatment remains the treatment to be preferred. Its aim is to secure a fairly quick, regular, effective saturation of the body, without risk of intoxication. As to the different forms of treatment the following outlines may be given: (*a*) Watery solutions are effective, but somewhat painful and troublesome because they require frequent injection. (*b*) Oily solutions are almost painless, but not especially rapidly absorbed. Their therapeutical power is reported by many to be good. (*c*) Oily suspensions are generally painless, but their absorption is somewhat slow and therefore often rather irregular. Preference should be given to the compounds that are not quite insoluble in water. Bismuth salicylate seems to be one of the best.

5. Watery suspensions are absorbed rather quickly and are therefore slightly painful. Preference should be given to compounds of restricted solubility. The oxychloride possesses the qualities of absolute purity and stability. With particles of a size of 3 to 5 μ it is almost painless and very powerful. I think this preparation especially good on account of its reliability and effectiveness.

6. The daily dose of bismuth metal may be fixed at about 0.5 mg. per kilo of body weight. Higher doses are required with remedies of a slow and incomplete absorption.

7. I recommend as a routine measure the administration of neosalvarsan in doses of 60 to 70 cg. given in series of five to six intravenous injections, and of bismuth oxychloride in watery suspension in doses of 15 to 20 cg. and in series of eight to ten intramuscular injections; to a total number of about 18 neosalvarsan injections and 60 bismuth oxychloride injections in a period of about two years. Even in an incomplete form this scheme proved definitely effective. Of 152 patients with fresh syphilis no clinical relapse was seen during and after the treatment. None of the women treated gave birth to a child with congenital syphilis. By the end of the treatment 2 patients only showed a positive Wassermann reaction, 7 a doubtful, 143 a definitely negative test.

8. No treatment of syphilis should be given as a mere routine, but each single case must be considered by itself and treated accordingly.

9. Retention of bismuth in the organism depends on two different factors. Diffuse storage in the different organs of the body is a matter of slight significance; it amounts to scarcely more than 100–150 mg. after an intensive course.[9] The unabsorbed deposits, however, may contain unlimited quantities of bismuth, especially in the case of compounds that are absorbed slowly. This second factor is an important but rather capricious and slightly dangerous item in intermittent syphilis treatment.

10. To avoid an intravascular injection taking the place of an intramuscular it is recommended not only to make an aspiration but also to retract the needle slightly during the injection.

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ETHYLENE ANAESTHESIA.*

BY

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ETHYLENE gas is administered as an anaesthetic along with oxygen, the proportions of the two gases in the mixture being to some extent variable. Usually the most suitable mixture contains about 88 per cent. of ethylene, 12 per cent. of oxygen; but anything from 10 up to 25 per cent. of oxygen may be found necessary. This variability depends on a number of factors—for example, the age and build of the patient, the condition of the heart and lungs, the nature of the operation, etc. In all administrations the oxygen percentage must be maintained at such a level as will prevent respiratory failure. More than a slight degree of cyanosis is not allowable, and should be regarded as a warning of impending danger. With due regard to this the anaesthesia is a safe one, trouble arising primarily from failure of respiration and corresponding to "blue collapse"—not the "white collapse" which originates from sudden heart failure. The corrective for "blue collapse" with ethylene is the same as with other anaesthetics—namely, an increase in the proportion of oxygen up to 50, 75, or even 100 per cent. until cyanosis disappears.

I always employ rebreathing. The administration, therefore, closely resembles that of nitrous oxide and oxygen, and the same apparatus serves very well for both gases. The principal difference lies in the slightly higher percentage of oxygen when ethylene is the anaesthetic, and the resulting absence of, or lesser degree of, cyanosis.

The question very naturally arises, Do we gain anything by using ethylene which nitrous oxide cannot give us? I think that in Great Britain, judging from the scanty references to ethylene, this has been answered for the most part in the negative, and there are undoubtedly grounds for this attitude. At the same time I feel that my answer to the question would be affirmative and that ethylene is finding a definite place among the anaesthetics which I regularly employ. In many respects the results obtained closely resemble those obtained by nitrous oxide and oxygen—for example, safety, rapid action, rapid excretion, and relative immunity from unpleasant after-effects.

There are two decided points of difference between the two gases, one favourable, the other unfavourable, to ethylene. The first difference is the more profound type of anaesthesia which ethylene develops. I have repeatedly had this clearly demonstrated. An anaesthesia which just failed to achieve the desired depth with nitrous oxide-oxygen would become quite satisfactory with ethylene-oxygen. True, in such cases the alternative is offered of supplementing nitrous oxide with ether, but the immunity from unpleasant sequels is then to a greater extent limited. In all cases where I expect a considerable demand as regards depth of anaesthesia I prefer to commence with ethylene. Even then if ether has to be added a smaller quantity suffices than if nitrous oxide had been used. Herein, then, lies the chief superiority of ethylene over nitrous oxide—the more profound narcosis which it produces. It is thereby rendered sufficient for a wider range of operations. It is quite adequate alone for some laparotomies, and for more with the minimum admixture of ether. The second difference, and the one in which ethylene compares unfavourably, rests on one of its physical properties. Ethylene gas, as ordinarily obtainable, possesses a very unpleasant odour. Fortunately, this property is practically without effect on the patient, but for the other inhabitants of the operating theatre it presents a serious objection. I can only suggest in mitigation the flavouring of the gas with oil of eucalyptus, which renders it more bearable.

In order to review the scope and usefulness of ethylene in a general way, I propose to regard it from three viewpoints: (1) the patient's; (2) the surgeon's; (3) the anaesthetist's.

The Patient's Point of View.

The patient's chief interest in his anaesthetic is centred in his experiences "going under" and "coming out." I ought to remark here that I rarely employ ethylene without a preliminary dose of morphine and hyoscine. The reaction to the taking of the anaesthetic is therefore modified by this preliminary narcotic. I regard the addition of hyoscine as valuable not only in allaying nervousness and inducing a drowsy condition favourable to the induction of anaesthesia, but also for its action on the memory. Many patients, especially the elderly, after a dose of hyoscine, have only hazy recollections, or none at all, of being moved from bed to the theatre. Very often there is a more or less complete blank lasting some little time after their return to bed. But even in the absence of preliminary medication the taking of ethylene does not give rise to the disagreeable sensations which one would expect. I have repeatedly questioned patients about their sensations, and not one has made any reference to the peculiar smell. By taking the gas in full, or nearly full, strength the smell appears to be unnoticed. Consciousness is rapidly abolished, and usually without evidence of resentment or excitement. As regards the "coming out" stage, again the sensations appear to be not unpleasant. Vomiting occurs fairly frequently (in about 75 per cent.), but as a rule within a minute or two of the end of the administration and before consciousness has returned. Thereafter there is seldom any more, though

* Read in the Section of Anaesthetics at the Annual Meeting of the British Medical Association, Manchester, 1929.

in occasional cases nausea and vomiting persist for a time, even up to twenty-four hours. There is no unpleasant taste or smell lingering.

On questioning a medical man to whom I recently administered ethylene for an appendix operation and colopexy his criticism was that "the experience was not at all unpleasant either going under or coming out."

The Surgeon's Point of View.

From the surgeon's viewpoint several factors come into play, depending largely on the type of operation. The principal criticisms are directed towards insufficient relaxation and haemorrhage. In operations where neither of these is of serious moment the anaesthesia meets most requirements.

The Anaesthetist's Point of View.

Lastly, the anaesthetist, though dealing with an anaesthetic which requires an elaborate apparatus, and an anaesthesia demanding experience and constant watchfulness to maintain within its rather narrow margins, is working within fairly wide limits of safety. In the asphyxial stage, which develops when too little oxygen is allowed respiratory failure definitely precedes cardiac failure. Ample warning is therefore given by the dark colour of the blood. If this be observed early, and dealt with immediately by an adequate increase in the oxygen content, it is rare that any further steps are necessary. In an experience extending to over a thousand administrations I have only seen six instances of serious respiratory collapse with cessation of breathing. In four of these by administering pure oxygen under positive pressure, very easily carried out with McKesson's apparatus, a return of breathing was quickly obtained. In the other two cases this had to be supplemented for brief periods by rhythmic chest compression.

There is one other physical property of ethylene besides its odour to which reference must be made. It is very inflammable, and in mixtures with air or oxygen may readily be ignited and even exploded. In the United States cases of explosion have been recorded. So far as I am aware none has happened in this country. The nature of the hospital buildings and the drier atmosphere of the States probably combine to promote conditions more favourable to this occurrence. I think that, in this country, it is sufficient to remember that ethylene must not be administered in any room where there is an open fire or naked light, nor in any case where cautery or diathermy is to be used.

I have attempted briefly to outline the scope and limitations of ethylene as an anaesthetic. To those who are familiar with nitrous oxide and oxygen it presents no difficulties, and is well worth a trial. I personally should now regret not having it available for many cases in which I think it is the best anaesthetic.

ERYTHRAEMIA WITH A HIGH DEGREE OF ACHOLURIC JAUNDICE:

PROBABLY A MANIFESTATION OF COMPENSATORY "HYPERSPLENISM."

BY

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SOME excess of urobilin in the urine has not rarely been observed in patients suffering from erythraemia (splenomegalic polycythaemia). Lommel, and Löw and Popper, found the total excretion of urobilin and urobilinogen above the average, and the blood bilirubin may be in excess, but it is very rarely sufficiently so to give rise to actual (acholuric) jaundice. I have never myself seen or heard of the occurrence in England of another case of jaundiced erythraemia* like that of the present patient, whom I first saw in April, 1929, by the kindness of Dr. S. S. Chesser. She then showed, as she still (October 17th, 1929) does, considerable jaundice, without bilirubin in the urine (acholuric jaundice), but with a very highly positive *indirect* Hijmans van den Bergh reaction in the blood plasma—that is to say, for "blood bilirubin" (which, by the by, I believe to be the same as Virchow's "haematoidin").

The patient,† a Welsh woman, married, aged 40 years, living near London, has a typical "erythraemic" appearance and is markedly jaundiced (examined in April and May and October, 1929). Height 152.4 cm.; weight 71.6 kilograms in May, and about 1½ kilograms more in October, 1929. There is decided excess of subcutaneous fat over the thighs, buttocks, and abdomen. Examination of the thorax shows nothing special, excepting (by *x* rays) rather excessive bronchial markings and very slight enlargement of the aortic arch.

The spleen is enlarged and feels rather firm, the lower edge reaching three fingerbreadths below the costal margin. The liver (not abnormally hard) can be palpated three and a half fingerbreadths below the ribs in the right nipple line. No ascites. No subcutaneous oedema. Menstruation regular. Bowels not confined. Brachial blood pressure 165/95 mm. Hg. Urine (October 17th): specific gravity 1011; clear; rather high yellow; acid; a little albumin (moderate "cloud" on boiling); no sugar; excess of urobilin and urobilinogen; no bilirubin; excess of indican; one or two hyaline tube casts seen in the centrifuge sediment. Ophthalmoscopic examination shows a typically "erythraemic fundus." Basal metabolism (two estimations), 127 per cent.

Blood count (April 29th): haemoglobin 120 per cent.; erythrocytes, 7,880,000 per c.mm. of blood; colour index = 0.76; white cells 16,350 (polymorphonuclears 70 per cent., basophils 3 per cent., eosinophils 3 per cent., lymphocytes 21 per cent., monocytes 3 per cent.); no nucleated or abnormal red cells seen. Thrombocytes: 1,512,960 per c.mm. of blood. The blood serum gives an extremely strong positive indirect Hijmans van den Bergh reaction for "blood bilirubin." The resistance of the washed erythrocytes towards graduated hypotonic sodium chloride solutions seems to be within normal limits, haemolysis commencing with the 0.5 per cent. solution and becoming complete with the 0.32 per cent. solution. The blood serum gives negative Wassermann and Meinicke reactions. Dr. T. C. Hunt kindly estimated the cholesterol in the blood serum by the Autenrieth colorimetric method (as described by L. Pincussen, *Mikromethodik*, fourth edition, Leipzig, 1928, p. 143), and found it to be 190 mg. per 100 c.cm. A recent blood count (October 17th) showed decided increase in the polycythaemia: haemoglobin 125 per cent.; erythrocytes 8,900,000; colour index = 0.7; white cells 18,650. The erythrocyte count still more recently (November 7th) was 10,100,000.

The patient was married at 21 years of age and has had three children (all living and healthy); no miscarriages. There is nothing special in her family history. She is said to have had typhoid fever in childhood. Her first attack of jaundice was eight or nine years ago, and since then she has had many icteric exacerbations, but of late seems never to have become quite free from jaundice. She began to suffer from vertigo twelve years ago, and the giddiness is worse during the exacerbations of jaundice. The attacks of giddiness come on especially when she is walking in the open air, and during a recent attack she fell and cut her forehead (October 15th). For a long time she has been subject to occasional attacks of pain in the left lumbar region, passing down the outer part of the left thigh, but she has had no attack suggesting biliary colic. She suffers from occasional epistaxis and often has severe headaches. It was five years ago that she first noticed that her face had become redder and that she flushed very easily. She has been relieved by blood-letting, and this is to be carried out again. It is certain that her jaundice varies much in degree. In fact, at times there is no obvious jaundice.

Remarks.

It seems probable that the chronic acholuric jaundice and the icteric exacerbations in the present case are due to active destruction of the erythrocytes in the spleen (and possibly in other parts of the reticulo-endothelial system), but there is no evidence of abnormal "fragility" of the red cells. The jaundice might therefore be interpreted as the manifestation of a spontaneous attempt to compensate for the excessive production of erythrocytes in the bone marrow by increased haemolysis in the spleen—a compensatory form of "hypersplenism."* Periodic blood-letting would seem to be the safest treatment in such a

* For references to the literature on the association of erythraemia with jaundice and also with hepatic cirrhosis see Weber and Bode, *Polycythaemia, etc.*, London, 1929, p. 13.

† The case was demonstrated, but not exactly described, at the meeting of the Clinical Section of the Royal Society of Medicine on November 8th, 1929.

* If this is so an increase in the degree of jaundice should be accompanied by a decrease in the erythrocyte count. On one occasion we have noted a decrease in her jaundice accompanied by an increase in her erythrocyte count.

case; phenyl-hydrazine is perhaps contraindicated, since, by further destruction of erythrocytes, it might not only increase the jaundice but also favour the tendency to formation of bilirubin calculi, and possibly even produce hepatic cirrhosis.

My explanation of the whole morbid syndrome in the present case is therefore as follows. The primary "agent"* is the erythraemia, which is an "idiopathic" increase of the total erythrocytes and erythroblastic bone marrow in the body—that is to say, an idiopathic increase of the "erythron," the term proposed by Professor A. E. Boycott in his recent presidential address before the Section of Pathology of the Royal Society of Medicine. If we regard the "erythron" as a tissue-organ or tissue-system (as we regard the reticulo-endothelial system and the total lymph-adenoid tissue of the body), the increase in question must be of the nature of a primary diffuse but non-malignant neoplasm (a "neoplastic diffuse overgrowth"), and not of the nature of a secondary compensatory hypertrophy, such as we get in the polycythaemia of high altitudes, the polycythaemia of congenital heart diseases, and the polycythaemia connected with circulatory obstruction in the lungs—for example, in "Ayerza's disease." A true *neoplastic* overgrowth of the "erythron" is useless and harmful to the rest of the body, and in the present case a spontaneous compensatory *reaction* on the part of the spleen has taken place—namely, an increase of one of the splenic functions (a compensatory "hypersplenism"), with the object of destroying the superfluous erythrocytes. This in its turn gives rise to excess of the blood bilirubin and to a condition of acholuric jaundice, but is nevertheless insufficient to prevent the gradual further increase of the "erythron," which will have to be met by blood-letting. It is just possible that a diet qualitatively the reverse of that employed for pernicious anaemia may likewise be of some use.

SECONDARY COMPLICATIONS IN PATIENTS SUFFERING FROM EMPYEMA OF THE PLEURA.

BY

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By an operation for empyema dangers which threaten life are avoided, but the *restitutio ad integrum* is seldom attained. On the contrary, prolonged suppuration often follows (with, sometimes, death due to exhaustion), and repeated operations may be required. At the least, disability, disfigurement, and marked pathological conditions ensue. The surgeon's life-saving intervention may be criticized by the patient's relatives, and therefore fall into discredit. Taking the view that the untoward consequences are due to the wide opening of the chest, Lister adopted a method of treatment which avoided this, while Wenckebach prefers the thoracic puncture, followed by substitution of the exudate by air. Many excellent results have been obtained by this method, especially in cases of tuberculous empyema; but not all cases of empyema can be treated in this manner. Hathaway has shown that coagulated fibrin in the form of blood clot is an excellent culture medium for pyogenic bacteria. The clot, therefore, must first be removed, and this is only possible with a widely opened pleural cavity.

Post-operative complications are to be found, however, whether the chest is widely opened or not. They may be classified in the following groups: (1) deformities, especially of the thorax; (2) functional troubles, including dyspnoea and disturbances of the circulation; (3) dangers to life, such as arise from the "pyothorax *ex vacuo*."

Massive adhesions, the result of insufficient resorption of the exudate, are generally believed to be the cause of the first group. Attempts were made, therefore, to empty the effusion as thoroughly as possible; often, however, there are insurmountable difficulties to doing this completely, and even when all the effusion has been removed the patients suffer from the complaints already mentioned, sometimes in the highest degree. Those cases in which complete elimination of the exudate is attained by the Monzingo form of drainage show the greatest changes. Severe symptoms of breathlessness, oppression, and a peculiar type of dyspnoea are present, although the *x*-ray examination shows that the pleural space is entirely free from exudate.

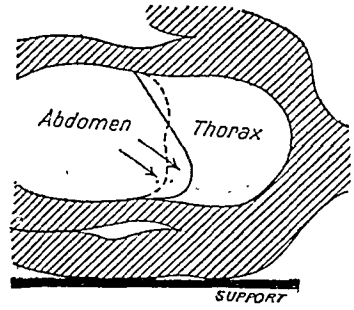

FIG. 1.—Dislocation of the diaphragm by bending. ——— Position of the organ in a bending man. - - - - - Position of the organ in a sitting man.

As soon as these patients try to bend sideways they experience a feeling of constriction in the chest, with pain and the sensation that they cannot get enough air. In many patients this symptom appears only when bending over to the diseased side; in others, when they bend to the sound side.

These complaints are comprehensible when it is remembered that they correlate with the presence of adhesions of the diaphragm to the bony wall and disappearance of the phrenico-costal angle. The condition becomes obvious when comparison is made with the normal displacement of the diaphragm following the bending of the body sideways. The lower part of the diaphragm is displaced upwards into the thoracic cavity, while the upper half descends into the abdominal cavity. The reason for this dislocation is that the intestines fall on the lower half of the diaphragm (Fig. 1); the abdominal pressure on this area becomes increased, therefore, and the upper part of the diaphragm is pulled downwards. The phrenico-costal angle opens on this latter side to its fullest extent.

The presence of scar tissue in the phrenico-costal angle interferes with its opening. The patient feels pain when

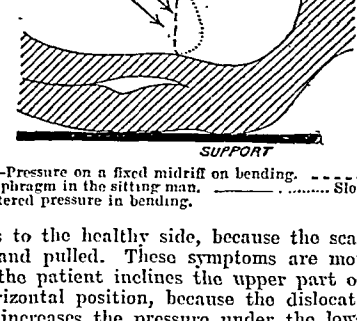

FIG. 2.—Pressure on a fixed midriff on bending. - - - - - Position of the diaphragm in the sitting man. ——— . ..... Slope caused by the altered pressure in bending.

he inclines to the healthy side, because the scar tissue is stretched and pulled. These symptoms are more marked the more the patient inclines the upper part of his body to the horizontal position, because the dislocation of the intestines increases the pressure under the lower part of the diaphragm the more the body is bent. On the other hand, when fixed to the thoracic wall the diaphragm cannot follow the increased abdominal pressure when the patient bends his body to the diseased side; it becomes expanded (Fig. 2), and the patient feels pain owing to stretching of the adhesions and involvement of the nerves.

*I use the term (morbid) "agent" as something which provokes a compensatory or conservative "reaction" (compare my short paper, "A Note on Action and Reaction in Pathology and Therapeutics," *St. Bartholomew's Hospital Reports*, London, 1903, xxxix, p. 139).

These effects make the sick person avoid every bending of the body to the side, and especially the lateral sleeping position. This symptom of "clinophoby" (from κλίνειν, to bend, and φοβεῖν, to fear) is not always developed in the same manner; it occurs in some patients when bending to the side, in others, while bending forwards or backwards. It is often absent in the beginning of the movement. The patient can lie for a short time on the side and even fall asleep in this position, but soon awakes with a feeling of pain or breathlessness, which compels him to sit erect or to turn while sleeping to the other side or the back.

The scars in the phrenico-costal angle are often not to be seen when only an x-ray plate is made. In such cases it is absolutely necessary to record the respiratory movements of the diaphragm on the x-ray screen, and to compare the inspiratory and expiratory forms of the diaphragm vault. The scar tissue produces a malformation of the diaphragm or a disappearance of the phrenico-costal angle. The systematic examination of these patients shows that a constant relation is to be found between the form of clinophoby and the seat of the adhesion; if pain arises when the patient inclines to the side, an adhesion is found at the side; if bending forwards or backwards produces the pain, the adhesion is either in the anterior or posterior part of the phrenico-costal slit. Further evidence of the truth of the statement that the adhesions cause the clinophoby is given by the results of the respiratory treatment of these complaints. First it must be noted that, not only is the position of the diaphragm altered by bending, but also the function: the respiratory movements of the organ are changed very distinctly thereby. The excursions of the two halves are not varied in the same manner (Fig. 3); the lower half is now moved much more extensively than in the standing position, while the upper half shows hardly any respiratory movements. This astonishing functional manifestation takes place in the examination of every healthy person.

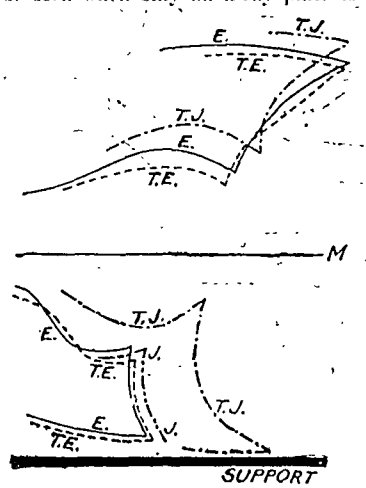

FIG. 3.—Movements of the diaphragm in a bending man. The lower part executes great movements; the upper half very little at all. ——.——.——J. = Inspiration. ———E.= Expiration. —.—.—. T.J.= Deep inspiration. - - - - - T.E.= Deep expiration. M.= Midline.

After a puncture or an operation a portion of the exudate accumulates, mostly at the base of the pleural cavity. The diaphragm is pushed downwards, not only by the weight of the effusion, but by the diminution of the intrathoracic suction due to the resulting negative pressure. Fixation of the inspiratory position of the diaphragm results, and no movement can take place in consequence of the inspiratory contraction of its muscle fibres. This functional elimination of the respiratory movements brings about persistence of the effusion in the basal portions of the pleural cavity. Some time ago Grober was able to show by means of experimental studies that the respiratory movements of the chest wall are the most important factor, as regards absorption in the pleural space, not only of fluid but also of solid corpuscular elements. It can therefore be easily understood why an accumulation of scars in nearly all cases of pleurisy can be found at the end of treatment, especially in the basal parts. Also in our own cases marked remnants of the effusion were present in the supradiaphragmatic part of the pleural cavity.

The question arises whether it is possible to diminish the effusion by increasing the respiratory movements, especially of the diaphragm. In order to stimulate the visible movements of the diaphragm it is necessary first to improve its position before the beginning of the inspiratory action of its muscle fibres. It must approach the normal expiratory elevation in the thoracic cavity. This elevation can be augmented by bending the body to the side (Fig. 1). The patients are told to lie down on the affected side several times a day for some length of time. In the beginning the pain necessitates a variation of this treatment. When the body is held vertically, leaning against a vertical support, the upper part of the body can make a rotation to the side without breathlessness or pain being felt. In this position the intestines barely press on the lower surface of the diaphragm, because they do not come directly in contact with it, but only with the side walls of the abdominal cavity. After a time the physician tries a slight bending of the body backwards before beginning this static exercise of bending sideways. The body is approached to the horizontal position until the patient, turning afterwards to the side, feels only a little unpleasantness. Stronger traction on the scar tissue, and especially any risk of rupturing it, must be avoided absolutely. At first the patient remains in this position only a few minutes, but later the period is increased. He soon feels quite at ease in this position, and can continue to rest comfortably in it for a long time. Then the vertical standing support is brought a little nearer to the horizontal position; the back of the patient is therefore approximated to the horizontal, and the rotation of the body to the side is repeated. By means of this treatment in all cases it was possible slowly to enable the patients to lie permanently on both sides without pain or discomfort, and to sleep on the side through the entire night.

These exercises hasten the gradual return of the diaphragm to the normal position; the force of its muscle fibres also assists the respiratory movements. X-ray examinations during treatment reveal a definite increase in the respiratory excursion, an effect which becomes greater when the physiologically active expiratory forces, the abdominal muscles, assist in strengthening this action. This may be obtained by certain respiratory exercises, especially by humming exercises. In this way the attention of the sick person is concentrated on the expirations because they are controlled by the ear; he learns to lengthen and strengthen the expiratory action, and also to avoid the perilous "pressing expiration." At the end of the humming the abdomen sinks in more and more, and the abdominal wall becomes firm from the progressive exercising of its muscles. The following inspiration allows the abdomen to return to its primitive form with relaxed walls; this takes place passively, the muscular contraction ceasing. At the end of the exercise the abdomen is pushed forward actively, the diaphragmatic muscle fibres contract during the inspiration, and push the intestines downwards; thereby the abdominal walls are compelled to go forwards. In this way the respiratory action of the diaphragm shows a gradual improvement.

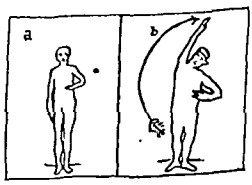

FIG. 4.—Humming exercise combined with arm movement. *a* = In the beginning of the inspiration. *b* = After a full inspiration.

The same process is necessary for the bony parts of the thorax. Strong masses of scar tissue are often to be found, and there are always adhesions which are attached to the ribs and hinder their respiratory movements. The return to normal is accomplished in the following manner. The patient learns a combination of the humming exercise with arm movements; the hand of the healthy side embraces the chest during inspiration to avoid, by pressure against it, any increase in the "vicarious emphysema" on the sound side; the diseased side is thus compelled to make greater respiratory movements. The arm of this same side is stretched and lifted up to the vertical position (Fig. 4*b*) to strengthen the action of the inspiratory muscles. During the humming expiration the arm descends until it touches the hip (Fig. 4*a*). In the beginning too energetic action

must be avoided, especially if pain is produced. The full development of these respiratory exercises proceeds very slowly; the complete treatment considerably influences the adhesions and scars in the pleural space, the effusion and its consequences often disappearing entirely (Figs. 5 and 6).

Special attention was given to the secondary deformities produced in the trunk, inasmuch as very different alterations may develop after pleural effusions. There may be a lower or higher position of the shoulder on the diseased side (Fig. 7); a scoliosis, curving either to the sound or to the affected side, may originate in consequence of an empyema. The pathogenesis of these morbid changes is difficult to determine, and "post-empyema scoliosis," though it has been studied for a long time, is not yet definitely understood. In the majority of the cases the convexity of the vertebral column bends to the healthy side, but in the minority the reverse is to be seen, the concavity being turned to the sound side. The systematic study of our own cases shows a constant relationship between the behaviour of the diaphragm and the vertebral column; malformation of the diaphragm was always accompanied with a convexity of the spine towards the healthy side, combined with a descent of the shoulder on the diseased side. When the diaphragm moved freely, or when a thick mass filled the widely opened phrenico-costal angle, the concavity of the vertebral column was seen towards the healthy side, associated with an ascent of the shoulder on the affected side. These deformities were definitely benefited by the previously mentioned exercises. Depending on the reactivation of the diaphragmatic respiratory action the crookedness of the trunk proportionally disappears.

All our observations support an explanation of the pathogenesis of these deformities on the following lines. A *defense musculaire* is originated by the inflammatory irritation of the pleura—that is, by the pains resulting from the respiratory movements. If only the upper parts are irritated the back muscles are contracted; ascent of the shoulder and convexity of the vertebral column on the affected side develop in consequence of this, but the latter only if the contracture is stronger and the pain due to respiration is longer lasting. These consequences are only possible in such cases where the irritation of the upper parts is not accompanied with involvement of the pleura in the phrenico-costal angle; for if there is a fixation of the diaphragm on the ribs the contracture of the back muscles causes pain, because the elevation of the thoracic wall produces an opening of the split between the diaphragm and the costal pleura. The patient will therefore avoid every action of these muscles, the tonus becomes diminished, and a dropping of the shoulder appears, which is often associated with a curvature of the vertebral column. The concavity to the affected side must occur, because the tonus of the back muscles is there diminished.

FIG. 5.—The pathological state following a right empyema two years after the surgical treatment.

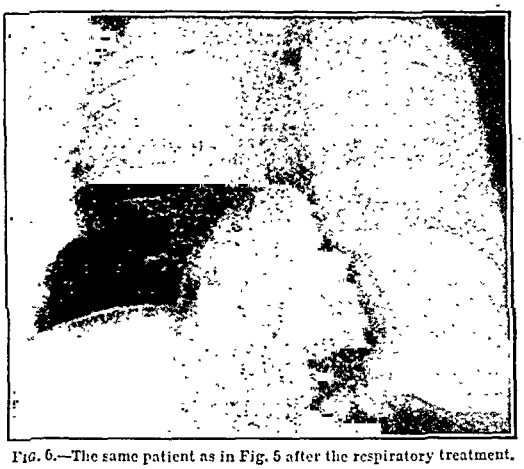

FIG. 6.—The same patient as in Fig. 5 after the respiratory treatment.

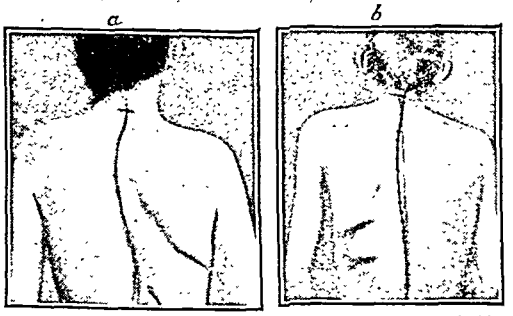

FIG. 7.—Post-empyema scoliosis.
b = Curved to the affected side.
a = Curved to the sound side.

Besides these secondary troubles there are to be found more serious complications in some cases, and especially long-lasting suppuration, the "pyothorax *ex vacuo*," which often leads to death from amyloid disease, even though the patient may be operated upon several times. It is suggested that the suppuration is only the consequence of the existence of free air spaces between the visceral and parietal pleura; plastic operations are performed, therefore, to bring the two serous membranes together. The results of animal experiments and of clinical experience show that the filling of the lungs with air depends on their respiratory action; it is diminished in the lobes adjoining the effusion, but later increases with respiratory activation (Figs. 5 and 6). The retraction of the pulmonary tissue from the thoracic wall is effected by the diminished respiratory function; it can be paralysed in some cases by respiratory reactivation. Although excellent results were frequently obtained, failures were seen in some cases. The cause of the delay in recovery in such cases must be sought and can nearly always be found. In the majority of cases the suppuration is caused by foreign bodies resting in the pleural cavity, especially pieces of rubber broken off from a drainage tube or a clot of fibrin, these being breeding places for the pyogenic bacteria.

Conclusion.

All the secondary morbid manifestations after empyema are caused by disturbances of the respiratory function. They can be divided into subjective symptoms, such as dyspnoea, and into organic crippling malformation of the trunk. Proof of the correctness of this view is afforded by their successful treatment with systematic breathing exercises, which bring about their complete disappearance.

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THE SIGNIFICANCE OF CHOLESTEROL IN PHYSIOLOGY AND PATHOLOGY:

*A CONSIDERATION OF SELECTED PROBLEMS.**

BY

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In this abstract it will not be possible to deal with the physiological aspects of this subject, but certain points must be mentioned briefly in view of their direct bearing on the pathological problems to be considered later.

Cholesterol is excreted from the body through the media of the bile, intestinal mucosa, and skin. The last of these appears to have been neglected in the literature, but since cholesterol is contained in appreciable amounts in the superficial layers of the skin, the desquamation of this will lead to its loss. The lost cholesterol is replenished mainly from food, but at certain times it is probable that a supplementary supply is derived from synthesis. The most likely site for such synthesis is the suprarenal glands. This view was put forward by the French school some years ago, and, though denied by the German school, has received fresh support from personal observations by myself.[1]

In spite of the somewhat coarse mechanism of intake and output of cholesterol, the blood cholesterol in an individual remains remarkably constant, suggesting that some finer mechanism is at work. I have shown that the spleen possesses the property of removing excessive amounts of cholesterol from the blood; this, in conjunction with the observations of other writers, suggests the possibility that the spleen may have a function as a regulator of blood cholesterol.

The relations of cholesterol to certain important pathological problems may now be considered, but it must be mentioned that in this abstract it has not been possible to give a complete account of the relationship of cholesterol to pathology, and greater attention has been paid to those problems in which the cholesterol changes are beyond doubt, than to those where such changes are still disputed. The object has been to select certain of the more important pathological problems and discuss their relations with cholesterol, and particularly to endeavour in each case to explain the pathological findings from a physiological standpoint.

Before describing these conditions, it must be mentioned that whenever reference is made to "blood cholesterol" the figures refer to estimations made either on the whole blood or on the plasma, unless it is otherwise stated. The amount in each is approximately the same, but in disease variations are most commonly found in the plasma, and most observations have been made on this part of the blood. Estimations on whole blood, however, also give fairly reliable information, as the amount of cholesterol in the corpuscles remains practically constant. Again, unless specially mentioned, the figures refer to total cholesterol—that is to say, to both free and ester cholesterol.

Cholesterol in Nephritis.

The first disease to be described here, in which notable changes in cholesterol metabolism have been found, is nephritis. The earlier investigations by Klinkert,[2] Grigaut, Laroche, Chauffard,[3] and Epstein,[4] showed that blood cholesterol was frequently raised in this condition, but their observations were comparatively few, and little attempt was made to determine whether or not this rise occurred in all forms of nephritis. A recent paper by Maxwell,[5] however, deals with a large number of cases investigated from this point of view, and many valuable observations have been recorded, some of which have been confirmed by my personal investigations.

The most marked changes in cholesterol metabolism are found in the so-called chronic parenchymatous variety of nephritis, a disease characterized by oedema, marked albuminuria, and anaemia. Cardio-vascular changes are often present, but do not form a prominent feature of the clinical picture. In this type of disease the blood cholesterol is frequently raised from a normal of 140 to 180 mg. per cent. to figures between 400 and 600 mg. per cent. or more. Usually the rise of cholesterol is more or less proportionate to the degree of oedema present, so that it has been suggested by some authorities that hypercholesterinaemia and oedema are related as cause and effect. As Maxwell points out, however, there are numerous cases in which the degree of oedema and the blood cholesterol do not run parallel, and, in fact, cases are found with a high blood cholesterol and no oedema, so that it is more likely that there is some common cause responsible both for the oedema and the hypercholesterinaemia. With improvement in the clinical condition there is as a rule a fall in the blood cholesterol, often running parallel with the disappearance of the oedema. In certain cases, however, the blood cholesterol remains high after all oedema has gone, and these cases usually have an unfavourable outlook, and the degree of hypercholesterinaemia, therefore, is a sign of some *prognostic importance*.

In acute nephritis, generally recognized by some degree of oedema, of haematuria and albuminuria, and by its comparatively sudden onset, a similar state of affairs prevails as in chronic parenchymatous nephritis. The blood cholesterol is considerably raised, perhaps to 200 or 300 mg. per cent., but rarely reaches the very high figures sometimes seen in the chronic parenchymatous variety. Its level is also roughly proportionate to the degree of oedema. In cases which subside completely, as do a considerable number of cases of acute nephritis, particularly in children, the blood cholesterol decreases with the clinical improvement, but Maxwell finds that in those cases which progress to chronic parenchymatous nephritis the cholesterol remains high. Here again, therefore, the blood cholesterol may form some index of the progress and ultimate end of the disease.

The type of disease which is commonly called interstitial nephritis is a somewhat ill-defined condition, closely associated with arterio-sclerosis and high blood pressure, and difficult to separate from these conditions. Thus it is not surprising that authorities do not agree on the cholesterol findings. If we accept as a definition of chronic interstitial nephritis a disease characterized by the presence of polyuria, especially nocturnal, by slight albuminuria and nitrogen retention in the blood, estimations of blood cholesterol in such a disease usually reveal no significant changes. If, however, the dominant feature of the disease is arterio-sclerosis, the cholesterol is usually increased to some extent, the figures reaching 200 to 260 mg. per cent.

It is interesting to note here that whilst acute nephritis and the chronic parenchymatous form are associated with considerable oedema and a marked rise of blood cholesterol, the chronic interstitial form, with its small rise of blood cholesterol, is rarely accompanied by much oedema, unless in the terminal phases of the disease as an expression of cardiac failure. This suggests that the two types of the disease are essentially different in their nature, as indeed their causation and general course would lead one to expect.

Epstein[6] regards chronic parenchymatous nephritis as a metabolic disorder associated in most cases with hypothyroidism. He points out that in both these conditions there is a lowered basal metabolic rate, accompanied by changes in the subcutaneous tissues. Supporting this argument he observes that in hypothyroidism, as in parenchymatous nephritis, there is a rise of blood cholesterol, which, he says, is inversely proportionate to the metabolic rate.

Gardner and Gainsborough,[7] in some recent investigations on this problem, although they confirmed the work of previous authors, that the blood cholesterol is raised in hypothyroidism and diminished in hyperthyroidism, failed to find any definite relationship between the blood cholesterol and the basal metabolic rate, although in hypothyroidism there was a rough parallelism between the two. Moreover, they drew attention, with justice, to the fact that much higher figures are found for the blood cholesterol in nephritis than ever occur in hypothyroidism. Whilst,

* Abstract of a paper read before the Liverpool Medical Institution, January 17th, 1929.

therefore, we may agree with Epstein and Lande that chronic parenchymatous nephritis is a metabolic disorder, we cannot take the variations in blood cholesterol as indicating any particular relationship between this condition and hypothyroidism.

The interpretation of the marked increase in blood cholesterol in parenchymatous nephritis is therefore uncertain, but one fact may be mentioned here as offering a possible explanation. Gardner and Gainsborough[8] have shown that the proteins of the blood plasma, especially euglobulin, show a marked affinity for cholesterol, and that removal of the proteins leads to removal of cholesterol with them. In nephritis, particularly the parenchymatous variety, there is a considerable loss of albumin in the urine, which may reasonably be expected to disturb the albumin-globulin ratio of the plasma. This may result in a relative increase of those proteins which show an affinity for cholesterol, and a corresponding increase of cholesterol will appear in the blood. This theory requires investigation.

Cholesterol in Cardio-vascular Disorders.

The majority of workers agree that the blood cholesterol is raised in arterio-sclerosis, and the question arises as to whether the hypercholesterinaemia is related to the arterio-sclerosis as cause or effect. It must be confessed at once that the experimental work on this subject is as yet inconclusive, but several very interesting observations have been recorded, and may with advantage be considered here.

Anitschkow and Chalatov[9] were the first to find that atheroma of the aorta could be produced in rabbits by administration of cholesterol dissolved in sunflower oil. The lesions found by these authors consisted of collections of large mononuclear cells loaded with doubly refracting fat and lying beneath the endothelium. The changes corresponded fairly closely with the earlier stages of human atheroma. Similarly, Scarff[10] fed rabbits on a diet containing cholesterol, and found that if the animals were killed after a few months' feeding of this nature there was extensive atheroma of a type comparable with that occurring in human beings—that is, there were collections of large mononuclear cells loaded with fat beneath the endothelium of the vessels. He observed, further, that if the animals were killed some months after the cholesterol feeding had been discontinued, the lesions resembled very closely the *later* stages of human atheroma, as there was fibrosis of the superficial layers and necrosis of the deeper layers of the vessel wall. Frequently, also, there were crystalline deposits of cholesterol, and splitting of the internal elastic lamella.

Various workers have attempted to reproduce these effects in carnivorous animals, but so far without success. Thus the necessary link between human arterio-sclerosis and that produced experimentally in rabbits is missing. Nevertheless, the association between the two conditions is so striking that the matter must still be left open.

A case reported by Letulle, Labbé, and Heitz[11] illustrates well the clinical association between arterio-sclerosis and hypercholesterinaemia. The arterio-sclerosis was shown to develop in a series of exacerbations, each of which was accompanied by a further rise in blood cholesterol. The exact relationship, however, must still remain *sub judice*.

Under cardio-vascular diseases it must also be mentioned that no rise of blood cholesterol accompanies the oedema of cardiac failure. This is of importance in helping to distinguish, particularly in so-called cardio-renal cases, between oedema of cardiac and that of renal origin, for as it has been seen, oedema due to renal disease is normally accompanied by hypercholesterinaemia.

Cholesterol in Diabetes.

The lipaemia which occurs in severe diabetes is a good indication of the severity of the condition, and as the three principal groups of lipoids—fatty acids, lecithin, and cholesterol—are all increased proportionally, the estimation of one of them will suffice to indicate the degree of lipaemia. Cholesterol is the most stable and easily estimated of the three, and its determination, therefore, affords prognostic guidance of importance.

Treatment of diabetes with insulin diminishes the hypercholesterinaemia, and estimations of cholesterol may be a useful check on the effect of insulin treatment, particularly in cases with marked acidosis. The cause of the hypercholesterinaemia in diabetes is uncertain, but, as I have shown, injections of insulin into the normal rabbit result in a marked decrease in the cholesterol content of the suprarenals.* Thus, if we assume that the suprarenals synthesize cholesterol, its production may be controlled by insulin, and in the absence of an adequate supply of this, such as occurs in diabetes, there will be an uncontrolled production of cholesterol, which will be reflected as an increase in blood cholesterol, whilst the diminution of the hypercholesterinaemia after insulin treatment of diabetes will, on this theory, be due to the inhibited production of cholesterol by the suprarenals.

A practical point arises out of this observation. It has been noted that hypercholesterinaemia may be a factor in producing or aggravating arterio-sclerosis. It is also possible that certain forms of retinitis may be precipitated by its presence. As both of these conditions are common complications of diabetes, it becomes imperative in preventing them to use insulin in such doses that not only the blood sugar, but the blood cholesterol, is kept within normal limits.

Cholesterol in Diseases of the Liver and Bile Passages.

In this group jaundice and gall-stones are the two principal conditions in which variation of cholesterol metabolism is found.

In jaundice due to obstructive lesions there is usually an increase in blood cholesterol roughly proportionate to the intensity of the jaundice, and due, presumably, to the diminished excretion of cholesterol via the bile. This hypercholesterinaemia may serve to distinguish obstructive from haemolytic forms of jaundice, for in the latter there is often a decrease in blood cholesterol. This is seen, for example, in acholuric familial jaundice and in pernicious anaemia, and may be partly accounted for by the concurrent anaemia.

Cholelithiasis early attracted cholesterol workers, because of the almost constant presence of cholesterol in gall-stones, and repeated efforts have been made to show that these stones form as a deposit of cholesterol from blood overcharged with this substance. Thus, Henes[12] and other workers found hypercholesterinaemia in all cases of gall-stones without fever, and assume this to be directly responsible for the deposition of stones. Henes even emphasizes the value of hypercholesterinaemia in distinguishing the dyspepsia of cholecystitis from that of other diseases.

Recent observations by Fowweather and Collinson[13] tend to confirm these findings. They record an increase in the cholesterol concentration of blood and bile in many cases, with an increase of blood calcium in a third of the cases. Usually the cholesterol and calcium were increased in the gall-bladder wall. After cholecystectomy they record a fall in blood cholesterol, where this was previously raised. On these results they postulate "that inflammation of the gall-bladder first leads to obstruction to the outflow of the more or less viscid gall-bladder bile, without any corresponding obstruction to the entry of the thinner bile from the liver. The bile continues to be concentrated in the gall-bladder until it is supersaturated with cholesterol, which it deposits in the form of stones. Further, the concentrated cholesterol solution is partly absorbed through the gall-bladder wall with a resultant hypercholesterinaemia." They also suggest that calcium is deposited in the gall-bladder and forms a nucleus for the stones.

Interesting as these postulates are, the facts on which they are based are not universally agreed. Campbell,[14] for instance, denies that hypercholesterinaemia occurs in gall-stones or cholecystitis unless jaundice be present, and even the figures recorded to show that the cholesterol concentration in the bile in these conditions is greater than normal are of doubtful value, for Fox[15] has shown that the concentration of bile constituents is extremely variable and their estimation difficult. Nevertheless, it is possible, as Blaisdell and Chandler[16] have shown, to produce

* For publication shortly. Work carried out during the tenure of a Beit Memorial Fellowship, and being continued under a grant from the Medical Research Council.

gall-stones experimentally in animals by feeding with cholesterol until a hypercholesterinaemia occurs.

Another factor which appears to be associated with the formation of gall-stones is pregnancy, for gall-stones are undoubtedly common in multiparous women. This factor may act through the disturbance of cholesterol physiology which occurs in pregnancy, since hypercholesterinaemia is often present, and I have recently shown* that in rabbits the cholesterol content of the suprarenals is always greater in does than in bucks, but that during pregnancy the suprarenal cholesterol is depleted.

One other possibility may be considered. If the theory that bile salts are derived from cholesterol should prove correct, any interference with liver function might result in a diminished production of bile salts with a corresponding increase of cholesterol excreted in the bile, and a greater tendency for it to be deposited in the form of stones, either directly from the bile or through the wall of the gall-bladder. This would lay the onus of gall-stone formation on a primary defect in liver function.

To sum up, there seems little doubt from all these facts that the formation of gall-stones is to be attributed to some disturbance in cholesterol metabolism, but the evidence is not sufficient as yet to indicate decisively the nature of this disturbance.

Anaemias.

In pernicious anaemia several authorities have recorded a hypocholesterinaemia, and this is not entirely dependent on the diminished number of red corpuscles—in fact, the blood cholesterol is less in the plasma than in the whole blood.

Pacini[17] considered the low cholesterol values in pernicious anaemia to be a possible cause of the disease, on the ground that haemolysis of the red cells would take place more easily in the absence of the full protective powers of cholesterol. He claimed that inunction with lanoline, which contains a high percentage of cholesterol, was beneficial to the condition. The results, however, were not at all convincing, as the improvement may well have coincided with one of the periods of remission which are common in pernicious anaemia, and, further, the number of cases reported was too small to be of any significance. The majority of workers, however, agree with him in recording low values for the blood cholesterol in this disease. Similarly, in chlorosis and other types of anaemia hypocholesterinaemia is usually found.

In secondary anaemias there is some difference of opinion as to the cholesterol of the blood, some authors recording a hypocholesterinaemia, others no material change. In this connexion it may be noted that extensive haemorrhage, produced experimentally, results in a lipaemia, with its accompanying increase in blood cholesterol, so that it seems probable that the changes in blood cholesterol will vary with the severity of the anaemia and the manner and rapidity of its production. This problem is now being investigated by me. Reference must be made to the interesting work of MacAdam and Shiskin[18] in relation to the anaemias. In addition to their confirmation of the findings of other workers on pernicious anaemia and secondary anaemias, these authors found that in acholuric familial jaundice and splenic anaemia there is a low cholesterol content of the blood, which gradually returns to normal after removal of the spleen. The explanation of this phenomenon is uncertain, but it is interesting to recall the property which the spleen possesses of removing excess of cholesterol from the blood. It is possible that in acholuric jaundice and splenic anaemia the spleen may have this property in an excessive degree, and keep the blood cholesterol at a low level, whilst on removal of the organ a return to normal cholesterol values would be expected.

Another group of cases deserves further investigation—namely, those conditions of splenomegaly which are associated with hypercholesterinaemia, as in the case recorded by Dyke.[19] It is said that Gaucher's disease falls into this class, and various authors have claimed that the histological changes in the spleen characterizing Gaucher's disease can be reproduced by intravenous injections of cholesterol. Others, however, have denied that the histological changes are similar, and further work is required on this problem. I have recently shown[1] that intravenous injections of cholesterol may increase the size of the spleen to twice or three times its normal size. It is thus easy to understand why the spleen becomes enlarged in conditions of hypercholesterinaemia.

The discussion of cholesterol changes in malignant disease, bacterial infections, and formation of lipoid deposits of cholesterol have been omitted from this abstract.

* Work carried out during the tenure of a Beit Memorial Fellowship. Completed under a grant from the Medical Research Council, and to be published shortly in the *Journal of Physiology*.

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FURTHER OBSERVATIONS ON PNEUMOCOCCAL INFECTIONS.*

BY

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Primary lobar pneumonia and empyema occurring in previously healthy persons arise from infection with pneumococcal strains of high virulence only. Over 100 strains of pneumococci have now been collected, and the main conclusions reached last year[1 2] have been confirmed.

The Pneumococcal Types in Relation to Disease.†

The distribution of the serological types in relation to the lesion which they caused is given in Table I. Out of a

Table I.—*Showing the Types of Pneumococci Associated with Different Lesions* (Cambridge, 1924-29.)

Lesion.	Type I	Type II.	Type III.	Group IV.	Total No.
Lobar pneumonia	7	2	0	2	11
Broncho-pneumonia	2	0	2	1	5
Empyema thoracis	24	4	2	1	31
Terminal pneumonia	0	0	2	2	4
Post-operative pneumonia	0	0	1	2	3
Nasal catarrh	0	1	0	3	4
Conjunctivitis	0	1	1	3	5
Bronchitis	0	2	2	8	12
[illegible] with otitis	9	1	2	1	13
[illegible] abscess	3	0	1	3	7
Total No. of strains	—	—	—	—	95

total of 47 strains recovered from lobar pneumonia, broncho-pneumonia, and empyema, 33, or 70.5 per cent., belong to Type I; 6 strains, or 12.5 per cent., to Type II; 4, or 8.5 per cent., to Type III; and 8.5 per cent. to Group IV. Such minor lesions as nasal catarrh, conjunctivitis, and

* Summary of an investigation; report to the Science Committee of the British Medical Association, 1929.

† The type agglutinating serums used from 1927 onwards were kindly supplied by the Rockefeller Institute, New York. Previous to this I was using Types I and II serums prepared by Dr. R. R. Armstrong, which were, as I showed from time to time, active agglutinators for the homologous American type cocci at the titres employed in the research.

bronchitis are associated with strains which usually possess a lower order of virulence, and mostly (66 per cent.) belong to Group IV. Type I strains have never been found in this minor kind of lesion. Terminal pneumonia and post-operative pneumonia, arising in persons who are already ill or suffering from shock, are associated with strains which belong only to Type III and Group IV; in 3 out of the 7 cases in Table I they were comparatively avirulent. Type I is therefore the most consistently virulent group, and remains the most important in the production of lobar pneumonia and empyema.

A comparison of the relative virulence of the different types of pneumococci based on the minimal lethal dose for mice is given in Table II. It is again obvious that Type I organisms are consistently of high virulence (the average M.L.D. = 10^{-5} c.cm. of broth culture). Type I is also the numerically predominant group. Type II and Group IV show a relatively low order of virulence, which is in agreement with Gaskell's conclusions.[3]

TABLE II.—*Showing the Virulence and the Relative Predominance of the Different Types of Pneumococci.*

Type.	Proportion of Highly Virulent Strains; M.L.D. = 10^{-5} c.cm. or less.	Proportion of Feebly Virulent Strains; M.L.D. > 10^{-5} c.cm.	Average M.L.D. in c.cm. of Broth Culture.	Total No. of Strains.
I	Per cent. 100	Per cent. 0	10^{-5}	39
II	50	50	10^{-2}	11
III	87	13	10^{-4}	15
IV	32	68	10^{-2}	28
Lister's "A"	1 strain	1 strain	—	2
Total No. of strains ...	—	—	—	95

During the current year I have been able to obtain 11 strains which appear to belong to Type II. In the first three months of 1929 there occurred in Cambridge a number of cases which were diagnosed as acute bronchitis. The patients, both young and old, presented rather unusual symptoms in that they were often very ill, sometimes for a period of several weeks, although the temperature was never very high. At no time did the physical signs yield evidence of any consolidation of the lung, though broncho-pneumonia was suspected. Nevertheless the prostration, the severity and length of the illness, and the persistent cough with copious sputum suggested some involvement of the alveoli of the lung, and this view was favoured by the fact that one patient contracted an empyema as a complication. It is of particular interest that in the sputa of five of these patients pneumococci were found in great abundance, and that practically pure cultures of pneumococci were obtained which possessed an intermediate grade of virulence. Three of these strains agglutinated with Type II serum and two with Type III serum. I suggest that these strains, which showed a lower order of virulence than the lobar pneumonia strains, were able to set up a particularly toxic form of infection of the bronchioles, which probably extended to patches of lung too small to be differentiated from the rest by percussion and auscultation—a low-grade broncho-pneumonia. The patients all recovered, though slowly. The peculiarly toxic properties of Type II pneumococci have been noted by American workers, and also by Gaskell[3] in his research on experimental pneumonias in rabbits; he found that Type II strains behaved differently from Type I, and that though the amount of lung substance involved in the infection was small the animals were seriously ill for a time and then recovered. These Type II strains were able to set up only minor lesions, yet were highly toxic in their effects. Hence a clear distinction must be drawn between virulence, or the power to grow in the host's tissues, and the power to elaborate toxin.

Such experimental findings indicate a close parallelism between human and experimental infections with Type II pneumococci. The amount of consolidation of the lung in the experimental animals was so trifling as to be unrecognizable by methods of auscultation and percussion.

Conversion of Strains of Low Virulence into Strains of High Virulence.

The question whether strains recovered from such minor infections as nasal catarrh, conjunctivitis, or bronchitis can be converted by laboratory processes into strains of sufficient virulence to produce lobar pneumonia in healthy subjects has been further investigated. A number of strains of this kind have been inoculated into animals by a variety of methods, and with numerous passages, but no appreciable increase of virulence has resulted. The methods used by Griffith[4] for converting his avirulent, "rough" strains back into their virulent, "smooth" phase have been found ineffective. Whereas it is comparatively easy to recover the virulence of strains whose original virulence has been suppressed or temporarily lost, to enhance the virulence of strains which have been from the first of low virulence has so far proved an impossible task.

Pneumococcal Otitis Media Produced Experimentally in Mice.

As noted in my last report,[1] certain feebly virulent strains of pneumococci when inoculated into the peritoneal cavity of mice have occasionally been found to produce a subacute type of infection. This condition has received further study.

Only one mouse out of a dozen inoculated may be affected. The animal usually remains well for as long as a week, but sooner or later it shows signs of inco-ordination pointing to an affection of the semicircular canals. A unilateral effect is produced and the mouse holds its head twisted to one or other side, tends to rotate in the same direction on its long axis when stimulated, and shows a coarse tremor of its head when attempting to move. Occasionally it moves in circles. Usually it dies within seven to twenty-one days after inoculation, and always of pneumococcal septicæmia. Pneumococcal pus is found in one or the other middle and internal ear, sometimes in both, but usually there is more pus on one side than on the other. If the animal is killed before the disease is far advanced one or the other middle ear is found to contain pus which gives pure cultures of pneumococcus and contains no other organism. The heart blood at this stage is usually sterile on culture. The pneumococcus so recovered gives the same serological reactions as the one inoculated into the peritoneum and shows no alteration in virulence.

A similar condition occurring spontaneously in laboratory rats afforded further clues to the anatomical distribution of the lesions in the mice, which was discovered partly by serial sections and partly by cultures and films. In the rats, of which eight have been examined, the symptoms were identical, and pus was found constantly in one or both middle and internal ears. Blood cultures were sterile. In rats the infection appears to run a very chronic course. The organisms obtained from the pus in the ear were not the same in each rat, and they included Gram-negative bacilli, as well as Gram-positive diplococci, which in one case closely resembled pneumococci but were insoluble in bile. A rabbit also showed the same symptoms spontaneously, but unfortunately the animal was thrown away in error before a post-mortem examination could be made.

Laboratory rodents are known to be susceptible to middle-ear infections, but I have been unable to find references to such infections following intraperitoneal injections of pneumococci. It is evident that the middle ear is a site of election for the pneumococcus both in man and in the mouse. I have one case recorded in which otitis media apparently followed a vaginitis in a child of 8. A practically pure culture of pneumococcus was obtained from the vagina and from the ear, and in each instance the strain belonged to Type I and possessed a minimal lethal dose of 10^{-6} c.cm. of broth culture.

The pathology of the mode of infection has yet to be worked out, and I hope to make this research the subject of a separate paper.

Summary.

1. Primary lobar pneumonia and empyema due to pneumococci are invariably caused by strains of high virulence. In the period under examination (1924-1929) 70.5 per cent. belong to Type I.

2. Type II and Type III strains have exhibited relatively great toxicity together with a rather lower order of virulence, particularly noticeable in the first three months of 1929. These organisms may infect a comparatively small amount of lung substance and yet produce a fairly severe and prolonged illness. They therefore differ in their behaviour from the Type I strains.

3. The task of converting strains of low virulence, recovered from cases of nasal catarrh, conjunctivitis, and bronchitis, into those which are sufficiently virulent to set up lobar pneumonia in healthy subjects has again proved impossible by any of the known experimental procedures for raising virulence. No support is therefore given to the theory that these strains of low virulence may become sufficiently pathogenic to produce pulmonary lesions, though such a possibility cannot be finally excluded.

4. A condition of subacute otitis media with involvement of the semicircular canals has been set up in mice by the introduction of pneumococci of moderate or feeble virulence into the peritoneal cavity. The condition bears the closest resemblance to the spontaneous otitis media occurring in laboratory rodents. Though the pathology of the infection has not been worked out in detail, it is clear that the pneumococcus has a special predilection for the middle ear both in man and mouse.

I wish to thank Dr. J. F. Gaskell for his frequent advice, and Professor W. E. Dixon both for the hospitality of his laboratory and for help in drawing up this report. I wish also to record my gratitude to the British Medical Association for the generous assistance afforded me by a grant for the research.

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Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

CONTINUOUS DRAINAGE OF A HYDRONEPHROTIC ONLY KIDNEY.

THE following case of a patient who for seven years has passed urine through a catheter introduced into the renal pelvis by way of a lumbar incision is, I think, instructive enough to deserve recording.

On August 12th, 1922, I was called to see a married woman, aged 45, who gave a history of complete anuria for two days. She had had no pain or vomiting, and was not feeling ill; her temperature and pulse were normal. Examination revealed no distension of the bladder, but there was a large, tender, tense swelling in the left lumbar region. In the right loin there was an old scar, and the right kidney could not be felt; I was informed that the kidney had been removed at the Westminster Hospital ten years previously for tuberculous disease. The patient stated that during the whole of the intervening period she had been free from urinary symptoms. No evidence of tuberculous disease was found elsewhere.

The patient was admitted to the Hornsey Central Hospital, where catheterization proved that the bladder was empty, and the diagnosis of hydronephrosis of a single kidney was made.

I operated as soon as possible, exposing the left kidney through a lumbar incision, and found the pelvis distended with nearly a pint of clear urine, which I drained by a tube passed through the cortex. The renal tissue appeared normal, and there was no evidence of stone or tuberculous infection. The patient made a good recovery.

During the three days following the operation urine drained freely through the tube, and a small quantity passed naturally. On the fourth day the tube became dislodged and could be replaced only with great difficulty. As the patient remained free from pain and passed normal quantities of urine through the bladder, the wound was allowed to heal. A radiogram revealed no stone or other abnormality, and the patient returned home apparently well after three weeks.

All went well until the end of the following September, when the condition returned, though the swelling was much smaller than on the previous occasion. I operated again within twenty-four hours, and once more the patient made a good recovery. This time, however, fearing a further return of the obstruction, I decided to attempt prolonged or permanent drainage, and at the end of a fortnight, when the wound had nearly healed, I replaced the tube by a No. 12 rubber catheter. Later Messrs. Bailey and Son fitted a rubber belt and urinal into which the catheter drained.

The patient has now worn this apparatus for seven years. She is able to remove and cleanse it unaided, and suffers no inconvenience from leakage. Only occasionally an ounce or two urine is passed naturally. The urine is usually alkaline, sometimes contains a considerable deposit of pus, but it quickly improves with the use of acid sodium phosphate. During the whole of this period the patient has led an active life, doing her own housework. Her condition compares very favourably with the best I have ever seen after suprapubic drainage of the bladder.

The case presents the following interesting features: the excellent results of the nephrectomy for unilateral tuberculosis seventeen years ago; the coincidence of hydronephrosis from unknown but probably congenital causes in a solitary kidney; the continued functioning of the kidney after pressure and repeated injury; and the comfort of the patient under these conditions.

London, N. FRANK MANNINGTON, F.R.C.S.Eng.

FOREIGN BODIES SWALLOWED INTENTIONALLY.

THE following case is unusual and seems worthy of placing on record.

The patient, a man aged 27, was admitted to this hospital on April 2nd, 1929, with the history that while in prison in September, 1928, he swallowed a piece of copper wire about 4 inches long,

Skiagram taken on April 3rd (reversed in reproduction).

large needle about the same length, and a dinner fork. He was operated upon and the fork was removed during September, 1928. While still in prison, on March 5th, 1929, he swallowed another fork, which had not been removed.

On examination directly after admission the patient appeared to be well developed and nourished. An upper abdominal mid-line scar from the previous laparotomy was seen. Nothing abnormal was discovered on abdominal palpation except some general thickening in the epigastric region. Under *x*-ray examination the fork was shown apparently in the stomach. An article like a needle was seen in the upper right quadrant of the abdomen. The piece of copper wire was seen in the region of the descending colon.

On April 7th the abdomen was opened, the old scar being excised. A general examination of the stomach and the abdominal cavity was then made. An adhesion was found running from stomach to liver; when this was divided it was found to have a piece of metal in its midst. This, on close examination, proved to be the remainder of the needle swallowed in September, 1928. The fork, a large dinner one, 7½ inches long, was found to be lying with the handle at the pyloric end of the stomach. A small incision was made in the stomach over the handle and the fork extracted. The opening in the stomach was then closed. Next, a search was made for the third foreign body seen in the radiogram. The colon was especially subjected to close examination, but no trace of this foreign body could be found. The abdomen was then closed.

The patient made a satisfactory recovery and was discharged from hospital on May 1st.

On examining the fork after the operation, the handle half was seen to be unaffected by its long stay in the stomach, but the other half, which had been pointing towards the cardiac end, was corroded and black in colour.

I am indebted to Mr. H. Morton Anderson and Dr. William Graham for permission to publish this case.

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ACUTE JEJUNAL PERFORATION ASSOCIATED WITH CARCINOMA OF THE STOMACH.

THE following case presents an unusual combination of conditions, and seems worthy of record.

The patient, a man aged 56, was admitted to St. Mary's Hospital on July 8th, 1929, with symptoms, dating from September, 1928, of loss of weight, indigestion with increasing frequency of vomiting, and marked pallor. There was some epigastric tenderness, but no palpable tumour, on examination. The radiological report showed that there was great delay in the emptying time of the stomach, owing to organic obstruction.

On July 15th the patient was operated upon by Professor C. A. Pannett, and a pyloric carcinoma was found with many adhesions to surrounding structures, rendering excision impracticable. A palliative anterior gastro-jejunostomy was performed. The patient was then comfortable for three days, when vomiting started. This was unrelieved by repeated gastric lavages, and at noon on July 23rd Professor Pannett performed a lateral anastomosis (jejuno-jejunostomy) between the limbs of the loop taken for the previous anastomosis. There was no distension of the afferent limb, and the cause of the vomiting was not clear. The patient was comfortable throughout the afternoon and evening, and slept well. At 7 a.m. on July 24th there was a sudden collapse, the pulse rate rising rapidly and the pallor increasing. The condition became worse, and the patient died twenty-four hours after the second operation.

At the necropsy the findings were as follows: (*a*) Stomach wall dilated and pale. (*b*) Pale annular growth stopping short at the pylorus spreading 5.5 cm. in the stomach wall from the pyloric ring. Centrally in the mass was an ulcer measuring 3.5 by 2 cm. (*c*) Opposite the second anastomosis performed twenty-four hours before death, and at a distance of 1.5 cm. from it, there was a clean-cut perforation, the size of a little fingernail, in the distal limb of the jejunal loop. (*d*) On section the tumour was found to be a tubular columnar-celled carcinoma.

In view of the short history, it would seem that the carcinoma did not arise from a previous gastric ulcer. The cause of death must certainly have been due to this jejunal perforation, which was so acute as to have become complete within twenty-four hours.

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CASE OF SUSPECTED RAT-BITE FEVER.

THE following are some notes of a rather unusual type of infectious disease recently treated at Lochmaben Combination Hospital.

The patient, who was 23 years of age, was a nurse in a private institution. The history was that on the night of June 7th she awoke suddenly and found blood running down her neck from a wound in the lobe of her right ear. She felt no pain, saw no animal or insect of any kind, and did not know what had awakened her. Three days later her ear began to swell, and became very painful. The swelling spread to the cheek, and the lobe of the ear became inflamed, the severe pain persisting. She felt very ill and extremely weak, and apparently had a high temperature. Seven days after the first symptoms appeared, a smear from the ulcerated area was sent to a laboratory, and the verdict was stated to have been returned as "erysipelas." Consequently the patient was admitted to Lochmaben Combination Hospital on June 21st, labelled "erysipelas." The condition then present was that of severe ulceration of the right ear and a large tense swelling in the region of the right parotid. Neither then nor at any other time during the illness was there any enlargement of the lymphatic glands.

On admission the patient did not look very ill, her temperature was normal, and she did not complain of much pain. She was put on the usual erysipelas treatment without benefit. Five days after admission, on June 25th, the temperature rose to 101° F., and the next day to 103° F. The ulcerated area became angrier in appearance and very painful, and several large indurated bluish-red papules, not unlike those seen in erythema induratum, appeared on the trunk and limbs. The patient now felt very weak and looked very ill. An interesting feature was that from time to time she complained of pains in the calves, these being the only muscular or joint pains reported. The next day the temperature fell sharply to normal, the patient felt much better, and the papules had faded very considerably. Within a few more days the papules had almost entirely disappeared, the only traces left being livid patches of skin with a certain amount of coarse desquamation. Exactly one week later the same series of phenomena reappeared and were again repeated at two further intervals of eight and six days. By this time (July 17th) the parotid swelling had practically disappeared, and the ear was almost entirely healed. Blood film examination showed no abnormality. The febrile attacks, however, were obviously becoming more severe, and in consultation with Dr. Ritchie, county medical officer of health, it was decided that the infection must be protozoal in origin. It was therefore decided that blood should be withdrawn for cultural and microscopic examination, and for guinea-pig inoculation, at the time of the next periodic rise of temperature. Consequently this was done by Dr. Armstrong, county bacteriologist, on July 25th. This part of the investigation, however, proved unsuccessful, all the tests being uniformly negative. Unfortunately there were no white mice or rats available for inoculation.

It was now decided to give one or more intravenous injections of neokharsivan two days before the next expected rise of temperature, but a most curious condition prevented this. After the withdrawal of blood from the veins of both arms for investigation, a hard, scaly dermatitis developed over the skin where the venipuncture had been made, completely preventing the location of a vein for the proposed injection. Consequently the patient had a rise of temperature at the expected time, and the intramuscular route was had recourse to for the arsenical medication. Sulpharsenobenzol in an initial dose of 0.3 gram was injected into the thigh on August 7th, two days before the next expected febrile attack. Two days later the patient's temperature rose to 99° F., and fell to normal next day. One week later another 0.3 gram of sulpharsenobenzol was injected intramuscularly, and from thence onward the patient remained completely afebrile. A final dose of 0.45 gram was given the following week. The patient kept perfectly well throughout the course of treatment, and felt no bad effects after the injections. She was discharged on August 30th, apparently in a perfectly fit condition and with no sign of the original ulceration left.

It is unfortunate that the blood investigation failed to yield the necessary proof of the condition, but there appears to be little doubt that this was a sporadic case of rat-bite fever. A point of some interest is that Dr. Ritchie saw a very similar case in a child in Dumfriesshire, where the symptoms were more severe and included cervical adenitis as a prominent feature during the periodic febrile attacks. This case was reported jointly with Dr. T. Reid by Dr. Ritchie in the *Edinburgh Medical Journal* in 1915.

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Reports of Societies.

METHODS OF DIAGNOSIS IN GASTRIC DISEASE.

AT the meeting of the Medical Society of London, on November 11th, with the president, Mr. DONALD ARMOUR, in the chair, a discussion was held on "The relative value of the different methods of diagnosis in gastric disease."

Clinical Examination.

Dr. J. A. RYLE said that the merits of the several diagnostic methods must vary with the disease, the stage of the disease, the case, and not a little with the outlook and experience of the physician or surgeon in charge. At present there was uncertainty in the minds of the profession as to the types of cases which were suitable for, and were benefited by, an investigation by modern methods. It constantly fell to his lot to see cases which had been investigated radiologically, but in which this investigation should have taken place much earlier, or had been inadequate, or the findings wrongly interpreted. He also saw cases which had been quite unnecessarily x-rayed. The shortcomings lay sometimes with the clinician, sometimes with the radiologist, but often the collaboration between the two was less close than it should have been. Again, in suspected organic disease of the stomach too little use was being made of chemical investigation, though misinterpretation of the findings was relatively rare. The clinical method was in every case, and without exception, the most important. The introduction of accessory methods had at first led to a certain neglect of the older clinical procedure. The availability of radiology and chemistry had been a handicap as well as a boon to clinical medicine; judgements had been warped, and wrong conceptions had arisen. Moreover, an impatient and uninstructed public was now beginning to demand these accessory investigations, often with inadequate reason. If the profession bowed to such dictation at the expense of clinical medicine it would be guilty of a disservice. The clinical study of the dyspeptic should include, first, an inquiry into personal and family history, a very careful inquiry into subjective symptoms, observations on physical and psychological type, a general overhaul of the systems, and a special examination directed towards the abdomen and digestive apparatus. The collection and analysis of symptoms was, as a rule, the most important of the lines of inquiry. Flatulence,

heartburn, nausea, acid eructations, and vomiting all called for appraisement. Family history was of real diagnostic value in duodenal ulcer and gall-stones. Personal history in so far as it related to age, sex, occupation, habits, seasonal fluctuations of the dyspepsia, and food or drink idiosyncrasies was clearly of outstanding importance. Worry, fatigue, and sedentary work were potent agents in gastric disturbance. Nervous and anxious or phlegmatic temperaments were associated with special types of gastric reaction. The general overhaul might reveal much. The skin and musculature of the abdomen, its conformation and contours, as well as any tender points, should be noted as items in a routine survey. Teeth, tongue, and fauces should be carefully inspected. Such a survey should suffice to place the case in one of the following groups, the classification of which was based on causation rather than on symptomatology.

1. Habit dyspepsias: examples, over-eating, under-eating.
2. Nervous or psychological dyspepsias, due to faulty mental or nervous adjustment.
3. Toxic or infective dyspepsias, due to tissue poisons or to general or local infectious disease.
4. Irritative dyspepsias, due to stimuli originating in a local or distal organic lesion.
5. Mechanical dyspepsias, due to gross structural disease or to surgical modifications of the anatomy of the stomach.

In the first three of these groups, which probably comprised more than half the total cases seen even in consulting work, localized gastric pain was generally lacking, and certain symptoms were recognizable. Here the *x*-ray examination could not be regarded as essential. Some authorities suggested that all cases of chronic dyspepsia should be fully investigated. Even if feasible, he could not regard this as desirable, and it had the danger in a certain type of patient that it encouraged introspection, and led to a demand for yet further investigation. But as to groups 4 and 5, any case in which gastric or duodenal ulcer, pyloric or gastric stenosis or cancer was suspected should be submitted to careful *x*-ray examination of the stomach and duodenum. The stool should also be examined in these cases for occult blood, and if there was any indication for surgery the fractional test meal should be given. His conclusions were:

1. In all forms of gastric disease the clinical method, though not necessarily final, is most important.
2. In the majority of cases in groups 1, 2, and 3 given above investigation by modern methods is unnecessary.
3. In reflex dyspepsias due to extra-gastric lesions such as gall-bladder disease, radiological examination of the gall-bladder or the whole alimentary tract may be helpful and sometimes essential, but is only occasionally urgent.
4. In reflex dyspepsias due to active gastric or duodenal ulcers radiological examination is essential and urgent, and of the greatest value to the clinician. Stools should be examined for blood, and if *x* rays fail to confirm clinical symptoms a fractional test meal should be performed.
5. In mechanical dyspepsias due to pyloric or mid-gastric stenosis, gross and adherent chronic ulcers, the more serious after-effects of gastro-jejunostomy, and carcinoma ventriculi, radiological examination of the stomach and duodenum is essential, urgent, and of the greatest value, and examination of the stools and gastric contents should rarely be omitted.

In other words, in functional disorders due to general causes accessory methods were of little positive value; in functional disorders due to extrinsic organic diseases they were frequently helpful, and in structural diseases of the stomach the radiologist and the chemist had become indispensable.

The Value of Radiology.

Dr. Harrison Orton claimed that, with the improved apparatus now available, the *x*-ray examination was superior to all others in the diagnosis at any rate of organic gastric disease. Clinical examinations, he agreed, were extremely important, and biochemical investigation might be useful in certain cases. He need hardly add that the *x*-ray examination must be carried out by an expert of considerable experience. The evidence which such an examination could furnish might be divided into direct and indirect. By the former he meant the actual demonstration of the lesion, either on the screen or on a series of photographic plates; by indirect evidence he meant such evidence as could be obtained from the type of stomach, rate of emptying, and the nature of the peristalsis. Some years ago a good deal of importance was attached to this indirect evidence, but nowadays, with improvement in technique, very little reliance was placed upon any but direct radiological evidence, which, when the work was carried out by an expert, reached an accuracy not far below 100 per cent., even when the lesion was in an early stage. He gave figures of 135 consecutive cases operated on at St. Mary's Hospital after an *x*-ray examination. These included 52 cases of gastric ulcer and 51 of duodenal ulcer. In only three cases had the result of the *x*-ray examination been different from the operative findings; two of these could hardly be regarded as an *x*-ray error, and in the third the lesion was said to be at the pylorus when in fact it was on the lesser curvature. These figures, taken from one series only, confirmed his contention that in the diagnosis of organic gastric disease an *x*-ray examination was superior to all others, and as a single method of examination stood supreme. Dr. Orton then showed a series of lantern slides to illustrate the information which could be obtained from *x* rays as to the nature of organic gastric disease. One point brought out was the importance of examining the stomach radiologically in more than one position; in one case, in any but the prone position, the ulcer could easily have been missed.

The Fractional Test Meal.

Professor E. C. Dodds (whose paper was read in his absence by Dr. Robertson) described the examination of the stomach by means of the fractional test meal. Unfortunately, of recent years it had been the custom for many laboratories to hand over the passing of the tubes, the collection of specimens, and the bedside part of the fractional test meal to a junior, whereas in fact these were the most important part in the test-meal investigation. The technique consisted of three main stages: (1) the passage of the tube, the collection of the resting juice, and washing of the stomach; (2) the administration of the test meal and withdrawal of specimens at intervals of a quarter of an hour for two or three hours; and (3) removal of the contents of the stomach. Each of these stages was important, but the first was the most so. After a careful description of the technique charts were shown giving the findings in typical cases. Professor Dodds stated that it had been possible to obtain further evidence as to the origin of lactic acid. He and his fellow workers had succeeded in isolating lactic acid in zinc salt from a number of cases, and this had been examined polarimetrically and chemically. It was shown that the lactic acid in five cases was negative or racemic lactic acid, thus indicating that it owed its origin to fermentation, and was not laevo-rotary or sarco-lactic acid, as would be the acid produced through the action of animal cells. Zinc salt had been obtained from the gastric juice of patients both with malignant disease and benign conditions of the stomach, and in all cases the result had been the same—namely, a negative form of lactic acid. This all seemed to point to the fact that the lactic acid was definitely not pathognomonic of cancer, and the view that it was produced by the body cells must, he thought, be abandoned. On the general question Professor Dodds affirmed that the fractional test meal was of very great value in the diagnosis of gastric conditions. The test was essentially a clinical one, in which the chemical analysis was of minor importance. Any attempt to regard the test as one in which very accurate quantitative chemical analyses only would indicate the diagnosis was bound to lead to failure. After all, the interior of the stomach was the seat of very crude processes, where food was mixed up with saliva and gastric juice, and, if there were a carcinoma, with foul-smelling discharge and the products of stagnation. It was therefore rather futile to look to detailed chemical quantitative analysis for information of diagnostic importance. In any discussion as to the relative value of the fractional method, of *x* rays, and of other methods, it was essential to bear in mind the status of the person responsible for the tests. It was absurd to compare a test meal carried out by a student with an *x*-ray examination performed by the radiologist to a hospital.

General Discussion.

Mr. A. J. WALTON gave figures showing the proportion of positive results found on *x*-ray examination in various gastric and duodenal conditions in his experience. He pointed out especially the relatively low percentage of positive results with *x* rays in ulcers of the lesser curvature (176 positive results out of a total of 237 cases). The statement had been made recently that no type of gastric or duodenal ulcer ought to be operated on except in the presence of stenosis. That statement was based upon the claim that chronic ulcers were healed as a result of medical treatment, as shown by *x*-ray appearances. But the *x*-ray appearances were not an accurate record of the condition in the ulcer, and most of the cases reported in the press as having been cured by medical treatment had been watched for too short a time. He had no hesitation in saying that even in carcinoma—or perhaps he ought to say *especially* in carcinoma—the clinical history and the clinical investigations generally were of the utmost importance, and upon these the greatest stress should be laid.

Mr. H. W. CARSON feared that there was a tendency to cut short the detailed clinical examination of the patients in view of the fact that there were so many ancillary methods of diagnosis. He still believed that it was possible to discover by clinical investigation the definite evidence of alteration in muscle tone which gave a lead to the diagnosis of some pathological lesion. Taking a very thorough clinical history was one of the most important parts of the examination. With regard to ancillary methods, he favoured radiology. He could not say that he put the same reliance upon chemical examination as he did upon *x* rays. The *x*-ray examination, moreover, was of value when there was multiple ulceration, where the chemical examination was of no value at all. The *x* rays sometimes spared the patient an unnecessary and perhaps dangerous intervention.

Dr. G. W. GOODHART supported Mr. Carson in his argument for radiological examination. He confessed that he had been disappointed by the tenor of the discussion. The fact was that the majority of patients seen by the physician were suffering from neither ulcer nor carcinoma, but from functional dyspepsia. It was all very well for the experts to divide the cases up into groups as Dr. Ryle had done, but what the ordinary practitioner wanted was to be able to distinguish between the functional and the organic cases, and to know what tests could be of assistance in making such a division.

Dr. G. VILVANDRÉ, speaking as a radiologist, said that he was bound to agree that clinical investigation was the most important thing. Sometimes it was his misfortune to have a case sent for *x*-ray examination without any clinical notes or history having been forwarded. This was not treating the radiologist fairly. Every student should be taught to examine his cases in a careful clinical way. Radiology had its limitations. No radiologist could tell by present methods whether a penetrating ulcer of the lesser curvature was benign or malignant.

Dr. A. P. CAWADIAS agreed that the clinical examination came before everything else. Radiology and chemical examination might come afterwards to confirm, correct, and control, but they should never come before the clinical examination. With regard to these ancillary methods, he judged radiology to be the most important and to give the best results. The test meal, he thought, was declining in favour. It had never given positive results to be compared with those afforded by the *x* rays. It never revealed the whole function of the stomach. What it decided was not so much the gastric function as the endurance of the patient.

Dr. J. W. CARR described the case of a middle-aged man, suffering from illness of an obscure character, wasted, anaemic, and with an irregular temperature. There were no definite symptoms except loss of appetite. On examination nothing was to be made out except a possible slight enlargement of the spleen. There was no sickness. The man went into a clinic, and at the end of a fortnight a diagnosis was made, almost entirely by chemical examination, aided to some small degree by radiology, of malignant disease of the stomach, which was subsequently confirmed by operation.

Dr. W. S. C. COPEMAN thought that the fractional test meal had been given up in France and largely also in Germany, though this, of course, did not argue necessarily that it was of no use. But the answer which the clinician expected when he asked for a test of this sort was as to whether the stomach was reacting or not in a normal secretory fashion to the stimulus of food. The factors which controlled the actual hydrochloric acid present in the stomach must be very numerous, so that there was great liability to experimental error. What clinicians wanted was something which would give fewer variables, and he suggested that this could be found in the total chloride estimations. The normal limits within which the total chloride varied were scarcely wider than the free hydrochloric acid limits.

Dr. GEOFFREY EVANS was disappointed because the argument that evening had been so largely confined to organic disease of the stomach, whereas a very large proportion of the patients were suffering from functional dyspepsias. The diagnosis of these complaints should proceed along the ordinary lines that were adopted in organic disease, first an anatomical diagnosis as to the organ to which the disorder related, then a physiological diagnosis as to what sort of work that organ was doing. He thought that, proceeding on that basis, much valuable material was obtained by examination of the stomach and intestines by radiological and chemical means in addition to the clinical study. He rather deprecated the comparison of different methods; all had their value, and he thought it undoubtedly useful to examine radiologically a patient whose disease was purely functional, because this afforded help as to the shape and size of the stomach and its rate of emptying. Then as to test meals, although it was easier to examine the faeces than the secretion of the stomach, he thought test-meal examinations should not be decried. Perhaps at a future date some simplification of the method might be forthcoming.

Dr. RYLE, in the course of his reply, said that the test meal was of no value to him in the investigation of dyspepsias, other than those in which there was gross organic disease of the stomach. In functional disorders of the stomach, whether due to reflex upset or to an extrinsic lesion or other cause, the variety of result obtained by gastric analysis was such that he believed the method really not worth trying.

Dr. ROBERTSON, while feeling himself unable to reply for Professor Dodds, suggested that some of the criticism of the fractional test meal was based on a misconception of the technique and the time required.

Dr. ORTON closed the discussion by repeating the remark of a physician who came into the room where a patient was being dosed with tetraiodophenol-phthalein, and said, "One needs to be very robust to be a patient nowadays."

SURGERY OF THE SPINAL CORD.

IN the Section of Surgery of the Royal Society of Medicine on November 6th, with Sir HOLBURT WARING, the president, in the chair, a discussion took place on the surgery of the spinal cord.

Mr. HUGH CAIRNS, in opening, limited himself to tumours of the spinal cord and adjacent structures. The clinical course of the various types of tumour was well known. Pain was usually the earliest symptom, often aggravated by exercise, coughing, or straining of any kind. Patients would sometimes complain that their extremities were always cold. Stiffness of the legs, numbness of the feet, "creepy" sensations about the ankles, urgency of micturition during excitement, or a bout of pain were some of the other symptoms which might occur. Important evidence was obtained by lumbar puncture. Special stress should be laid upon the performance of Queckenstedt's test. The test might give positive results at a time when the cerebro-spinal fluid showed no change of colour. Jugular compression sometimes produced or aggravated root pains, corresponding to the site of the tumour. Surgeons were specially interested in the position of the tumour. Repeated sensory tests would give accurately the upper level of the tumour, but seldom its extent. Lipiodol should be used, not so much to diagnose the presence of a

tumour, as to explore its level in cases in which a tumour was known to be present. The lipiodol test was particularly valuable in cases where there was more than one tumour of the cord. Turning to treatment, Mr. Cairns said that the main object in the treatment of spinal cases was to get the patient to walk again. The process of recovery of the conduction of the cord varied remarkably in different cases. Sometimes recovery of function in the paralysed limbs began to be apparent a few hours after operation; in other cases it was delayed for weeks, but was eventually just as complete, and in still other cases the commencement was much longer delayed, even for years, and the recovery made very slow progress. His experience of the Breslau clinic, where apparently hopeless cases of spinal compression had been retained for long periods, up to ten years, and patients had begun to walk again for the first time even as long as six years after operation, had made him feel that no case of spinal tumour should be regarded as hopeless. The presence of adhesions and blockage of the subarachnoid interfered in some way with conduction, and this was of importance in treatment. Queckenstedt's test should be done as a routine after all operations on spinal tumours, for the subarachnoid space might still be blocked either because the removal was not complete, although it had appeared to be, or because of adhesions, or because of the presence of another tumour elsewhere in the spinal canal. Speaking of accidents at operation, Mr. Cairns pointed out that the cord was a most vulnerable structure, but it was now known that if proper technique and gentleness were employed, the patient whose cord had been exposed should not ordinarily show in consequence any depression of function. The type of damage at operation which produced severe disturbance to conduction was not of the nature of a clean incision; it was due to the pressure of forceps or gauze swabs, or undue traction on the cord during exposure or the removal of the tumour. He did not think the possibilities of surgery in the treatment of spinal tumours had yet been fully explored.

Mr. GEOFFREY JEFFERSON said that the principles of the operation on cord tumours seemed to him to be in general the principles of the treatment of spinal compression as a whole, and this was on so firm a basis as to allow of little discussion, the methods employed being more or less stereotyped. The results of a complete removal were often so good that no labouring of the point was necessary. With regard to diagnosis, it was a fact that the typical neurofibroma of the posterior root had as its outstanding symptom pain over quite a period of time. But pain of a root character was not the outstanding symptom of all spinal tumours. It was possible to get an impression of pain as an inevitable symptom which was not justified. On the other hand, it must be remembered that any unexplained pain might possibly be due to a posterior root tumour. He did not know of anyone who had been bold enough to operate for pain alone without interference with conduction, but one might occasionally feel justified in exploring, and might find a tumour in such circumstances. In cases of meningioma occurring from the posterior surface of the cord, the patients had pain, but it was not the leading symptom. He did not want to be made responsible for any view that spinal tumours were painless things; one had to recognize that pain was a leading symptom in a certain group of cases, but that in some spinal tumours it did not occur at all. Its appearance or non-appearance was governed largely by the life-history of the tumour and its position. With regard to lipiodol, there were quite a number of cases in the literature in which damage was supposed to have been done by this injection, but these did not bear a very close analysis. It was by no means clear that the damage was not due to the disease process. Lipiodol was very valuable for giving the exact level of the tumour if this was at all in doubt. He had heard it said by people that after operations in the mediothoracic region one was apt to get very severe vomiting, which caused the patient's death, and it had been suggested that this might be due to the upsetting of the vegetative centres which controlled the stomach. He had a strong suspicion, however, based on experience of two cases, that vomiting and death after operation might be due to uraemia. The blood urea should be taken in all cases of spinal tumour before operation.

Mr. A. J. WALTON said that very little was known about the cause of compression of the cord, and he thought it would be a long time before it could be definitely stated on a pathological basis what was the change which would lead to the inference that in the one case there would be a recovery and that in the other the prognosis was poor. He laid special stress upon the time of development of the signs of compression. The prognosis should be based absolutely on the time at which signs of compression developed. To the practical surgeon the important point was whether the cord had time to adjust itself to its new position. If there was a rapid development of the signs of pressure, the cord, as a conducting medium, was irrevocably ruined. He had always laid it down as a rule that if a patient had had an injury of the spinal cord and immediately developed a complete paraplegia, it was waste of time, and even a dangerous procedure, to carry out a laminectomy. The cord had gone, and gone for ever. If, on the other hand, there was a slow development, it was evidence that the cord had not been completely destroyed, and a laminectomy was justified. He wished to stress the importance of finding the level of the tumour. If he opened the dura and failed to find the tumour, realizing that it was higher, so that he had to take out bone after the dura had been opened, he did this further operation with care, but always with fear. It was a most practical point to be sure of the level of the lesion.

Dr. GEORGE STEBBING said that as a means of relieving pain in tabes he had tried antero-lateral section; relief had in a measure been secured, but there was recurrence some time after operation. He thought there was a wide field for this operation in cases of malignant disease, though he was not sure of its real value in tabes.

Dr. GEORGE RIDDOCH was of opinion that the importance of root pain could not be overestimated. It might not invariably furnish the exact site of the lesion, but in the majority of cases it did give an accurate indication of where the tumour was situated. With intermedullary tumours, of course, root pain might be absent, although pain of a different kind was not infrequently present. Mr. Cairns had referred to the work done by Sir James Purves-Stewart and himself, in which they had stressed the vascular changes as being the main cause of the paraplegia itself, and thus furnishing a reason why the symptoms might clear up very largely after the operation. In the course of that investigation very clear histological indications of this were discovered. He entirely agreed with Mr. Walton in laying stress upon the importance of the rapidity of compression as determining prognosis.

Mr. PATERSON ROSS said that when an extradural tumour was discovered it was not wise to leave the patient without opening the dura and making sure that there was no intradural projection. He related the case of a woman in whom a tumour was found lying in the extradural position. This was removed, so far as he could tell, completely, and yet, although the condition had been a slowly progressing one, the patient showed no signs of improvement, but gradually went downhill. On thinking the matter over carefully he came to the conclusion that it was possible there had been an intradural projection of the tumour which had not been seen, and in confirmation of this view he had a very similar case six months later. Here he found, inside the dura, connected by a sort of hour-glass structure, a portion of the tumour twice as large as that which was lying outside the dura. With complete removal this patient did perfectly well.

Mr. HUGH CAIRNS, in reply to the PRESIDENT, who asked if anything could be said about radium in tumours of the spinal cord, referred to some experimental work which he had done on this subject. Radon seeds, containing 10 millicuries, caused complete paraplegia to develop in a cat within five or six days; a larger dose caused a more rapid development, while with 7 millicuries it was a question whether paraplegia would occur. While small doses of radon could safely be applied close to the cord, large doses were definitely contraindicated, for while destroying the tumour they were likely to destroy the cord as well.

RETINITIS IN DIABETES.

At the meeting of the Section of Ophthalmology of the Royal Society of Medicine, on November 8th, Mr. CYRIL WALKER presiding, a paper was read by Dr. P. J. CAMMIDGE on "Retinitis in diabetes."

Dr. Cammidge said that retinitis of diabetics was described some seventy years ago, but there remained still some doubt as to the etiology of the condition. Earlier observers believed that the retinal changes were the result of an excess of sugar in the blood, but this view had been abandoned by most modern authorities, mainly on the ground that there was no constant relation between the incidence of the complication and the severity of the primary disease. The presence of albumin in the urine of many diabetics suffering from retinitis and retinal haemorrhages had suggested an alternative hypothesis—namely, that the eye changes were dependent upon concomitant renal defects. The blood analysis he had carried out showed that in about 20 per cent. of his cases there was a pronounced retention of nitrogenous waste products, but that in the majority the evidence of renal insufficiency was comparatively slight, while in about 25 per cent. of cases it was entirely lacking. It was therefore probable that, although renal defects were the primary cause of the retinitis in a small proportion of cases, and were possibly a contributory factor in the production of the condition in others, they were not an essential feature. Apart from persistent and intermittent hyperglycaemia, the most constant chemical abnormality in his experience had been a low calcium level in the fasting blood; distinctly pathological figures were obtained in all his cases except those where a retinitis of the "albuminuric" type with pronounced albuminuria and serious nitrogen retention was present. There was no evidence that the low percentage of calcium in the blood in typical diabetic retinitis was the result of an acidosis, and, although in some cases it could be accounted for by an excessive loss of lime salts in the urine or faeces, there were others which showed a normal faecal ash and a normal calcium excretion in the urine. The fact that retinitis was rarely met with in diabetics before the age of 35, and usually in patients who had suffered from a mild glycosuria for many years, probably had a bearing on the question, for such patients seemed to be particularly liable to arterio-sclerosis and calcification of the peripheral vessels. The vascular lesions had been shown to resemble closely those which could be produced in rabbits by prolonged feeding with cholesterol, and therefore it was not unlikely that the persistent lipaemia found with increasing frequency in elderly diabetics with the passage of time, especially when restriction of the carbohydrate of the diet had been compensated by a liberal allowance of fat, was the determining cause of the retinal changes. Possibly it was the cause also of the deficiency of calcium in the blood, since there was experimental evidence that the metabolism of calcium and cholesterol were related, a fall of calcium in the blood being associated with a cholesterol rise. The blood analyses he had made showed a low calcium and an excess of cholesterol in cases where the excretion of lime in the urine was not excessive, but a normal cholesterol and a low calcium where examination of the urine and faeces revealed an unusual loss of calcium by these channels, which seemed to indicate that the deficiency of calcium in the blood was not always due to the same cause. Whatever might be the exact origin of the condition in any particular case, there could be little doubt that the diminished coagulability of the blood consequent upon a lack of calcium was one of the factors, and possibly the most important factor, in the production of the local haemorrhages which were of such grave prognostic significance in diabetic retinitis. Further proof of this conclusion was furnished by the results of treatment, for it had been found that the administration of lime salts by the mouth in sufficient amount to maintain the calcium content of the blood within the normal range prevented the occurrence of local haemorrhages in simple diabetic retinitis, although not in retinitis of the albuminuric type. Control of the hyperglycaemia and glycosuria, either by diet or with insulin, had no effect on the tendency to local haemorrhage, but it brought about a rapid improvement in the vision of most patients. This, together with the fact that retinal haemorrhages sometimes occurred without previous symptoms in patients who had been sugar-free for long periods suggested that the changes interfering with vision and the haemorrhagic tendency were of independent origin, the former probably being the result of local defects directly induced by the diabetic state, and consequently yielding to anti-diabetic treatment, whereas the latter arose from generalized vascular changes which were not a direct result of the metabolic disturbances induced by the diabetes, and therefore required independent treatment. Dr. Cammidge gave a detailed account of sixteen cases in which it had been possible to make an exhaustive chemical analysis of the urine, blood, and stools. These cases included equal numbers of males and females; the ages varied from 38 to 73, the average being 62. There was a history of diabetes in the families of ten out of the sixteen. The duration of diabetes had varied from two years to twenty-eight years, the average being ten years. There was sugar in the urine of all the patients except one, and in some it was as much as 10 per cent. The single patient who had no glycosuria was sent to him with a six-year history of diabetes. Only four of the patients had a trace of acetone in the urine. In the blood there was, in three patients, the most extreme retention of nitrogenous waste products, and each of these three had an enormous amount of albumin in the urine. The blood calcium was low, except in the three patients with nitrogen retention. High blood pressure was common in these cases, the average being 174, but four patients had a blood pressure of only 150, and one of only 130, so that blood pressure was not uniformly high.

Dr. R. D. LAWRENCE said that his own hospital cases showed a considerably higher percentage of retinitis than Dr. Cammidge's: about 11 per cent. of the diabetics under treatment had definite retinitis. In the past there seemed to have been no real explanation of the essential factors. Many people, to judge from ophthalmological literature, denied that there was diabetic retinitis apart from arterio-sclerosis. This view laid too much emphasis on the vascular side. Everybody admitted that many patients with diabetic retinitis had high blood pressure and cardio-vascular and renal symptoms, but in many such patients these conditions were absent. It was rather new to him to hear so much emphasis placed on the blood calcium. This was not generally supposed, except in severe acidosis, to be low in diabetics. In the patients who showed no signs of ordinary arterio-sclerosis the real damage, he thought, was a peculiar form of injury to the endothelium of the vessels. In diabetic gangrene, in addition to the calcification in the mesial layer of the arteries, the typical, and in his view the most important, finding was damage to the endothelium. The other possible factor in the production of these exudates and haemorrhages would seem to be some change in the osmosis caused by hyperglycaemia. This was undoubtedly the cause of the production of cataracts in diabetes, and had been particularly noticeable since treatment by insulin was introduced in the swelling of the lens which might occur when insulin treatment was started. He added that of his forty patients only one was under the age of 50. This was a change produced in elderly persons by long-standing diabetes, and it was related to the damage of the blood vessels more than to the immediate presence of sugar.

Colonel H. A. LISTER mentioned that his experience in India, where diabetes was extremely common, was that the proportion of retinitis cases was higher than the figures furnished for this country. The same age periods were affected, making allowance for the fact that Indians aged more quickly than Europeans.

Dr. CAMMIDGE, speaking in reply, said that he had only quoted as cases of retinitis typical cases which had been actually sent to him as such. It was quite possible that his figures were low as compared with those derived from hospital practice. With regard to the etiology of the condition, it was difficult to come to any definite conclusion. He was inclined to think, with Dr. Lawrence, that retinitis was not due altogether to the sugar, but the oedema and similar conditions which interfered with vision were undoubtedly due to the sugar because they cleared up so rapidly under treatment, especially in these days when he

could give insulin. With regard to treatment, those who had diabetic retinitis were generally elderly folk, to whom —because any sudden or marked interference with the amount of sugar might have serious consequences—he had a strong objection to giving insulin if he could possibly avoid it. If elderly diabetics were treated by diet alone they were much more comfortable. With regard to low calcium, he generally gave calcium lactate, but as most of the patients had intestinal catarrh, he prescribed it in an emulsion of liquid paraffin. A start was made with five grains three times a day, and as soon as the blood calcium reached normal level the daily total could be reduced to five or seven grains. This, of course, was only a prophylactic measure. Lately he had been trying the effect of vitamin D, and in other cases of parathyroid, but without very satisfactory results. The important point so far as he was concerned was to point out that the ophthalmic surgeon who treated his diabetic retinitis for diabetes was not doing his best for the patient. The patient must also be treated for his low calcium.

TUBERCULOSIS AND PREGNANCY.

A meeting of the North of England Obstetrical and Gynaecological Society was held at the Liverpool Medical Institution on October 25th, with the president, Dr. G. W. FitzGerald (Manchester) in the chair. Mr. Leyland Robinson (Liverpool) read a paper on tuberculosis and pregnancy, which was based upon 200 answers received to a questionary submitted to experts in tuberculosis.

Mr. Leyland Robinson dealt with the effect of pregnancy on latent, quiescent, and active types of disease. He discussed the treatment, special attention being paid to the value of therapeutic abortion. The main conclusions arrived at were as follows. Childbirth is always a danger to the phthisical woman. All forms of pulmonary tuberculosis—latent, arrested, or active—are affected by parturition. In the interests of the individual it is desirable that reproduction by phthisical patients should be regulated. Sterilization is neither desirable nor probable. Special arrangements ought to be made in sanatoriums for the treatment of pregnant women suffering from tuberculosis, and adequate accommodation be provided for labour and the lying-in period. Phthisical women who are pregnant should receive the ordinary sanatorium treatment, including artificial pneumothorax. Therapeutic abortion had a limited field of usefulness, and should be restricted to special cases of early disease in early pregnancy. Special ante-natal supervision by a skilled obstetrician must be considered an essential part of the routine treatment. The child must be isolated. Lactation must be forbidden.

The President, opening the discussion, said that his impression was that tuberculous women improved during pregnancy, but grew rapidly worse in the puerperium. Dr. C. R. Schofield (Southport) stressed the difficulty in arranging for the care of a pregnant tuberculous woman. He had just had a case of a young patient who developed acute pulmonary tuberculosis and a tuberculous larynx within a month of term. Eventually he induced labour, but she had died in three months. He had seen some tuberculous mothers improve during and between pregnancies, and others who were killed by pregnancy. He considered that much depended on the stage of the disease. Dr. J. E. Gemmell (Liverpool) recalled a case of a woman who showed evidence of phthisis after a miscarriage. After several years of treatment she was declared cured on the evidence of the physical signs and x-ray examinations, and was allowed to become pregnant. At the sixth month the disease reappeared and she was dead in two months. Dr. W. W. King (Sheffield) mentioned a case which improved during pregnancy and rapidly went downhill after delivery. He emphasized the importance of remembering the diversity of tuberculous disease. He cited statistics from an American hospital showing that in comparable cases under comparable conditions only 3 to 4 per cent. more pregnant than non-pregnant women showed advance in the disease.

Dr. F. H. Lacey (Manchester) quoted figures from the literature showing that the mortality was very little higher in pregnant than in non-pregnant women; it was at its highest in the first six months after delivery. He considered that tuberculous disease of the larynx, or the presence of toxaemia, rendered the prognosis very serious. Dr. J. W. Burns (Liverpool) quoted a case of marked improvement during pregnancy under sanatorium treatment. Dr. P. Malpas (Liverpool) reported that in a recent German symposium the consensus of opinion was against the induction of abortion in all three stages of the disease. Dr. J. H. Willett (Liverpool) said that he had interrupted a pregnancy early where it occurred in a healed case.

Professor D. Dougal (Manchester) expressed the belief that Mr. Leyland Robinson's paper would become the standard one on the subject. He reminded the meeting that Dr. E. Rist of Paris (*Journal*, 1927, vol. ii, p. 247) considered pregnancy inimical to phthisis, and agreed with Coulaud, who thought the important factor was the hyperthyroidism which was associated with pregnancy. Rist, however, had highly commended artificial pneumothorax, and sanctioned marriage if the sputum was free from tubercle bacilli two years after this operation.

Sarcoma of the Uterus.

Mrs. Donbin Crawford (Liverpool) showed a uterine tumour for diagnosis. The patient was a 3-para, aged 34, who had last menstruated eighteen months previously, and had complained of pain in the lower part of the abdomen for the past nine months, which was becoming more severe. On examination the cervix was found to lie low in the vagina and to be softened; the body of the uterus could not be distinguished from a large soft swelling which filled the posterior and left fornices. There was no tenderness or bleeding on examination. The uterus, which measured 5 inches, was explored from below, but the finger perforated it, and so the abdomen was opened. The pelvis was found to be sealed off by omentum, and when this had been separated some blood and fragments of tumour were exposed in the pouch of Douglas. The enlarged retroverted uterus was lifted up and found free of adhesions, but the peritoneum on its posterior surface, and the parietal peritoneum in contact therewith, showed purplish mottling. The tubes and ovaries were normal and non-adherent. There were no adherent intestines, no secondary growths, and no enlarged glands. The tumour was found to have replaced the whole thickness of the uterine wall. It was composed of large multinucleated cells in such a loose framework that they appeared to be in spaces. Frequent haemorrhages and many primitive blood vessels were seen. The tumour cells had invaded the blood vessel walls. Mrs. Crawford suggested that the tumour was a mixed-celled sarcoma.

Dr. J. H. Willett thought the history was too long to justify a diagnosis of malignant change in the products of conception. He saw no evidence of perithelioma, and concluded that the growth was probably sarcomatous. Dr. W. W. King (Sheffield) said the cells reminded him of those of a vesicular mole invading the uterine muscle, but remarked that these cells were not usually seen in such large masses.

Hydatid Cysts in the Pelvis.

Dr. J. W. Bride (Manchester) described a case of hydatid cyst of the broad ligament. The patient who had had previous cysts in the liver and lung noticed a painless lump in the right iliac region. On examination an irregular hard mass was found in the right iliac region, and a cystic mass in the pouch of Douglas. Five days later acute abdominal pain developed with vomiting, pyrexia, a high pulse rate, and abdominal rigidity. At the operation a large cyst was discovered which distended the right broad ligament; it was suppurating, and had perforated its capsule. A smaller cyst filled the pouch of Douglas, and several cysts about the size of walnuts were seen in the omentum. To remove the cysts it was found necessary to perform supravaginal hysterectomy. The patient suffered severely from shock, but thereafter made a good recovery. Haematuria appeared on the third day, but examination of the urine for hooklets was negative.

Mr. A. McMurray (Chester) described a case of hydatid cyst in the pelvis. The patient was sent to him on account

of prolapse, and, on examination, the cervix was found to be protruding from the vulva and irreplaceable; a cystic swelling filled the pouch of Douglas. At the operation this mass was shown to be adherent to the uterus and rectum; it was easily separated from the former, but with difficulty from the latter, and when this separation had almost been accomplished the cyst burst and daughter cysts came out. The abdomen was carefully explored for a primary infection, but none was detected. Mr. McMurray added that the case had three main points of interest: there was no obvious cause for the infection; this cyst was either a primary one or one evacuated from the liver; it caused a prolapse. *Drs. J. E. Gemmell* and S. B. Herd (Liverpool) both recalled cases in which hydatid cysts of the pelvis had obstructed delivery.

Acriflavine as a Perineal Dressing.

Mrs. Dorrin Crawford read a note entitled "A useful perineal dressing." After trying many dressings for perineorrhaphy and colporrhaphy wounds, she had come to use the following emulsion of acriflavine:

Acriflavin.	0.1
Paraffin. liq.	76.65
Cerae albae	3.25
Aq. destill.	20.00

Twenty-four to forty-eight hours were allowed to elapse, and at the latest on the third day, the day on which the aperient was given and before the bowels were opened, dressing was commenced with a narrow strip of gauze about three inches long; this was soaked in the emulsion, and by means of forceps laid upon the colpo-perineorrhaphy wound. The dressing was renewed after each act of micturition. The results had been satisfactory. The dressing had also proved itself of value after confinements in which there had been great bruising of the vulva. The author said that she had found the emulsion to be an ideal perineal dressing. The paraffin kept the perineum dry; the acriflavine kept it clean, or cleared up any incipient infection; while the whole was very soothing to the patient.

Dr. J. W. Burns (Liverpool) supported Mrs. Crawford's view of the value of acriflavine. In his experience a 1 in 1,000 watery solution had proved very useful for swabbing out an infected pelvis. He had also noted that it had a considerable haemostatic effect on an oozing surface.

GASTRIC AND DUODENAL ULCER: RESULTS OF TREATMENT.

At a meeting of the Liverpool Medical Institution held on October 31st, the proceedings took the form of a symposium on the results of treatment, medical and surgical, of gastric and duodenal ulcer.

Professor R. E. Kelly said it would be a mistake for the discussion to degenerate into that of medical *versus* surgical treatment of peptic ulcer. There was plenty of scope for both the physician and the surgeon. Each was apt to exaggerate his own successes and the other's failures. In actual fact surgical treatment was rarely undertaken without a preliminary resort to medicine, excepting, of course, in the urgent operations. He thought he could best help the discussion by a consideration of the difficulties. The greatest of these, he said, was the conflict of views regarding the etiology of ulcer. Neither hyperacidity nor Rosenow's streptococcus nor the chronic appendix was entirely satisfactory. He spoke of the difficulties in diagnosing the perforated and non-perforated ulcers, and suggested that from an anamnesis the duodenal could not always be distinguished from a gastric ulcer. He considered the pain of indigestion, including hunger pain, to be entirely muscular in origin. Mr. Kelly then gave an outline of what he considered the best technique in the operation of gastro-enterostomy. He thought the opening should be in the pyloric antrum, it should almost reach the greater curvature, and the vessels should be separately tied. Return cases often had the stoma far too much to the left, and showed a delay in emptying of over three hours. He related some cases of jejunal ulcer, and discussed the surgical problems of this perplexing complaint. He was in favour of a gastrectomy rather than a simple undoing of the gastro-enterostomy opening and a gastro-duodenostomy. For duodenal ulcers Finney's operation in his hands was not so satisfactory as a cautery excision and a gastro-enterostomy, and for gastric ulcers of the lesser curve he preferred a partial gastrectomy.

Mr. K. W. Monsarrat believed that the beginnings of gastric and duodenal ulcer always lay in a disorder of function which was set up in a variety of ways. The stomach developed a morbid habit and the resulting irritation might end in ulcer if the habit was not broken. He thought that the opposition of medical and surgical treatment was not intelligent. Apart from complications which required surgical intervention, he suggested that uncomplicated ulcer might reach a stage of chronicity when surgery was the only remedy likely to cure. The success of a surgical remedy depended greatly on the technique, and the general method was to remove the ulcer and to add to this a procedure which put an end to the gastric spasm and hypersecretion. He suggested that a detailed investigation of final results by a group of physicians and surgeons in Liverpool would be a valuable outcome of the discussion.

Dr. Henry Cohen urged that the ulcer diathesis should be recognized, in order that recurrence of ulceration after healing of an ulcer, whether by medical or surgical means, might be prevented by an adequate and permanent post-ulcer regime. Both medical and surgical treatment depended on a recognition of the associated factors, predisposing and exciting—for example, the acid factor, the infective factor (oral, nasopharyngeal, gall-bladder, appendix, urinary tract sepsis), and such accessory factors as tobacco, fatigue, cold, inadequate mastication, and so forth. He deprecated the use of any particular system of medical treatment, maintaining that each case must be considered on its merits, and the diet once established maintained until healing of the ulcer had occurred. He felt that routine medical or routine surgical treatment was a mistake. Cases should be considered in two classes: (1) curable by medical means, (2) curable by surgical means only. In the latter class he included perforations, cicatricial stenoses, ulcers with the slightest signs suggestive of malignancy, some cases of recurrent haemorrhage, and failure, after adequate trial, of medical treatment. He was not prepared to admit that the possibility of a gastric ulcer becoming malignant was such as to justify routine surgical treatment; the mortality from gastrectomy in the hands of the average surgeon, and the possibility of malignant disease of the stomach after such operations, negatived this line of action. In cases requiring surgical treatment, he thought gastrectomy in gastric ulcer, and gastro-enterostomy in duodenal ulcer, especially in cases associated with some degree of pyloric obstruction, yielded the best results. Stomal ulcers could be prevented in most cases by a proper post-ulcer regime.

In the course of a meeting of the Society of Public Analysts, on November 6th, Dr. Cuthbert Dukes read a paper on a new bacteriological test for pasteurized food. Dr. Dukes said that the idea underlying the test was that, when food had been pasteurized at a temperature of about 60° C., subsequent heating of the food to any temperature less than this would not appreciably reduce the number of bacteria, whereas heating above the pasteurizing temperature of 60° C. would considerably reduce the number. This was due to the fact that bacteria living in pasteurized food had already withstood, and could again withstand, the pasteurizing temperature. The mixed bacterial population of unpasteurized food, on the other hand, became reduced progressively as the temperature rose from 50 to 60° C. and upwards. When an examination was made of an unpasteurized food plentifully stocked with bacteria a heat resistance test of this kind revealed a great reduction in the number of surviving bacteria, and when these figures were plotted out as a graph a characteristic steep curve was obtained, representing the normal response of unheated food to the test. In the case of a pasteurized Cheddar cheese, on the contrary, the graph of the figures so obtained took the form of a horizontal line. A test based on these considerations was therefore useful to determine whether food had been pasteurized or not, and also the approximate temperature of any pasteurization which had been performed.

Reviews.

GASTRIC AND DUODENAL ULCER.

The fine monograph on *Gastric and Duodenal Ulcer*[1] by Dr. Arthur F. Hurst, and Professor Matthew J. Stewart of Leeds, with the co-operation of Dr. P. J. Briggs, is a striking illustration of the value of team work between a physician, a pathologist, and a radiologist who have long worked specially at this medico-chirurgical subject. In addition to the forms of ulcer mentioned in the title, which naturally take up nearly nine-tenths of the volume, there are accounts of jejunal and gastro-jejunal ulcers, peptic ulcers of the oesophagus, and tuberculous ulcers of the stomach and duodenum. The various chapters are headed by the name of Dr. Hurst or Professor Stewart, but each has consulted with the other, and so the contents represent their combined opinions to a greater degree than might at first sight seem to be the case. In a number of the chapters both their names appear as responsible, such as that on attacks and quiescent periods, perforation, subdiaphragmatic abscess, pyloric and duodenal obstruction, jejunal and gastro-jejunal ulcers, and peptic ulcer of the oesophagus. The generously and beautifully illustrated chapter on the radiological diagnosis is written by Dr. Hurst and his colleague at the New Lodge Clinic, Dr. P. J. Briggs.

When faced by all-round excellence it is difficult to pick out any one section for particular notice. From his wide experience Dr. Hurst has written the major part, and while leading the way in research has given admirable and most interesting historical surveys, not only in the opening chapter, where he reviews the whole subject, but elsewhere; for example, in the combined article on perforation there is the dramatic story of the Duchess of Orleans's death. His account of the pathogenesis is most complete, and includes the diathetic factor on which he has led the way; among the accessory factors he lays stress on the evil influence of tobacco, especially in duodenal ulcer. Professor Stewart's account of the pathological anatomy of gastric and duodenal ulceration is a monograph in itself, and represents his mature conclusions from many years' work on the ample material vouchsafed him at Leeds. At the outset he refers to the interesting occurrence of heterotopic gastric mucous membrane in the oesophagus, Meckel's diverticulum, and even in the ileum, thus explaining peptic ulcer in these situations. A special feature is the successful coloured plates. A later chapter on the pathology of ulcer-cancer or carcinoma arising in relation to a pre-existing ulcer, which must be distinguished from cancer-ulcer or simply an ulcerating carcinoma, is also illustrated by a coloured plate; his examination of ulcers excised at operation revealed that out of 70 cases of gastric cancer, 11, or 15.7 per cent., were ulcer-cancer, and that among 180 chronic gastric ulcers 11, or 6 per cent., showed carcinoma at the margin. Carcinoma in the cicatrix of an ulcer is, contrary to what might perhaps be anticipated, extremely rare, for he has examined one case only. The account of the rare condition tuberculous ulceration of the stomach and duodenum, the last article in the volume, is also supplied by Professor Stewart.

The subject of treatment of peptic ulcers has been so much discussed, especially from the surgical standpoint, that special interest must attach to what Dr. Hurst has to say on this burning problem. In the first place, he believes that it can be both prevented and cured by adequate medical measures: but he points out how deficient medical treatment commonly is—for example, by neglecting the control of acid secretion during the night, by not continuing until healing is complete (a result easily determined by *x* rays and examination of the faeces for occult blood), and by neglect of instruction how to avoid recurrence.

[1] *Gastric and Duodenal Ulcer.* By Arthur F. Hurst, M.D.Oxon., F.R.C.P., and Matthew J. Stewart, M.B.Glas., F.R.C.P. With the co-operation in the Radiological Sections of P. J. Briggs, M.R.C.S., L.R.C.P. Oxford Medical Publications. London: Milford, Oxford University Press. 1929. (Sup. roy. 8vo, pp. xviii + 644; 10 plates, 159 figures, 63s. net.)

The chapter on surgical treatment is headed by Bastedo's obiter dictum in 1922: "The internist can refer his failures to the surgeon in good condition for operation, but in what condition does the surgical failure come to the internist!" The rival claims of medical and surgical treatment have long been a bone of friendly contention, but cannot be settled by contrasting the results of average medical treatment with the statistics of leading surgical operators, or, it may be added, by comparing the results of medical measures in Dr. Hurst's hands with those of surgical treatment all over the country. In a broad-minded discussion of this important question Dr. Hurst mentions that the cases at the New Lodge Clinic, in which operative measures for gastric and duodenal ulcer (the latter being the more numerous) were found to be desirable, had an average duration of symptoms for ten years, and that in 65 per cent. the results of operation were entirely satisfactory; but he points out that, with improved education in the methods of early diagnosis and medical treatment, complications, such as pyloric obstruction and hour-glass stomach, demanding operation should seldom occur, and that eventually gastric surgery will be almost confined to gastrectomy for malignant disease. The unsatisfactory results of operative intervention are set out, and, as already mentioned, a special chapter is devoted to jejunal and gastro-jejunal ulcers.

As this monograph will be a milestone in the history of the subject, a brief reference may be made to a previous milestone—Lord Moynihan's monograph dealing with the pathology, clinical aspect, and treatment of duodenal ulcer in 1910; the symptoms were then shown to be so characteristic and the physical signs so often absent—for radiology did not then lend any assistance—that for an accurate diagnosis the history or anamnesis was sufficient, and there was not any need to examine the patient; though Lord Moynihan considered that the treatment of duodenal ulcer should always be surgical, he expressed the pious and prophetic hope, now made more easy of fulfilment by Dr. Hurst's directions, that some at least of the patients might be permanently relieved of their sufferings by a much stricter and more prolonged medical treatment. There is therefore agreement that medical treatment should be improved and prolonged, and how this can be carried out is one of the important lessons taught in this epoch-making monograph.

Humphry Rolleston.

A SYSTEM OF BACTERIOLOGY.

It has long been a reproach to British bacteriologists that no systematic work on their subject exists in the English language. True, we possess textbooks of a more or less elementary nature for the student, but no systematic and comprehensive survey of the whole subject written for bacteriologists. When it has been necessary to consult a work of this kind one has had recourse to foreign publications, and however good this may be for developing a knowledge of modern languages, it is not good for our national self-esteem. Although science knows no frontiers, a scientific treatise of national authorship is inevitably national in flavour, so that to be compelled always to consult foreign literature leads in the end to a false sense of values. It is therefore with no small feeling of satisfaction that we learn that *A System of Bacteriology in Relation to Medicine*[2] is being produced under the aegis of the Medical Research Council and published by H.M. Stationery Office. Dr. Paul Fildes, together with Professor Ledingham and Dr. E. Schuster, has borne the brunt of the work entailed in this undertaking, and to him and his colleagues we owe a debt of gratitude for their self-sacrificing efforts.

This work, when complete, will consist of nine volumes. It covers the whole field of medical bacteriology, and will contain, in addition, short articles on the economic applications of bacteriology, so as to enable the medical worker to familiarize himself with developments in fields other than his own. The object of the series is not encyclopaedic, but to provide a comprehensive survey written in such a

[2] *A System of Bacteriology in Relation to Medicine.* Medical Research Council. Vol. iii. London: H.M. Stationery Office. 1929. (Sup. roy. 8vo, pp. 413. Single volumes £1 1s. net; set of nine volumes £8 8s. net.)

way as to indicate clearly the lines along which fresh efforts should be made. Some hundred British bacteriologists are contributing to this *System*; all of them are writing on subjects of which they have special knowledge.

Volume iii is the first to be published. It consists of a somewhat heterogeneous assortment of subjects comprising the economic aspect of bacteriology, the bacteriology of water, milk, and other foods, soil bacteriology, bacterial diseases of insects and plants, *Bacillus pestis*, *B. tetani*, *B. botulinus*, the organisms associated with gas gangrene and food poisoning. We realize how difficult it is in a work of this nature to avoid grouping unrelated subjects in one of the volumes; and, after all, it is of no real consequence if this does happen, though it offends the orderly mind's sense of fitness. Why, for instance, should not the chapter on *B. pestis* have been included in volume iv, where it really belongs, along with *B. pseudotuberculosis rodentium* and the Pasteurella group? This is a minor point, however, and it may be said without hesitation that the account of *B. pestis* would be welcomed wherever it appeared, for it is altogether excellent. Dr. Petrie has a most pleasant style, and his critical survey of the achievements in plague research and the problems facing us is very good. The chapters on *B. tetani* and the organisms of gas gangrene both reach a high standard of excellence. This was to be expected, for Dr. Fildes and Dr. Muriel Robertson, who contribute them, are authorities of more than national repute in their respective subjects. Fildes's recent work on the bearing of reduction potential in the tissues on the germination of tetanus spores might have received more elaborate treatment. His observations appear to be of fundamental importance, and to introduce a new conception in immunity of possibly wide application. Those who look upon the anaerobes of gas gangrene as of little importance in civil medicine will read with benefit the remarks that Dr. Robertson makes on infection with anaerobic bacilli apart from wound gangrene. This question has received greater attention abroad, and adequate references to the literature of this subject are given. If it is said that these three chapters are the outstanding features of the volume, that must not be taken to mean that the others are not good; they are, and in particular the accounts of the bacteriology of soil and water by H. G. Thornton and H. Henry respectively are very good. It must not be forgotten, however, that it is vastly easier to write an article on a subject like plague in a hundred pages than to discuss the economic aspects of bacteriology in a tenth of that space. If, therefore, the chapter on the latter subject by A. C. Thaysen appears a little thin and sketchy, it must be remembered that this was almost inevitable.

There is a marked absence of illustrations in this volume. To some this may appear a definite drawback, but it is not really so. Identification of bacteria is rarely a morphological problem; in fact, it should not be. Bacterial species show considerable morphological variation according to the age of the culture, type of medium employed, etc., so that pictures of bacteria are worthless and misleading. The editors are to be congratulated on having avoided the expense of unnecessary illustration. The volume is well printed, adequately bound, and of convenient size.

ACUTE INFECTIOUS DISEASES.

THE fact that *Acute Infectious Diseases*,[3] by Dr. J. D. ROLLESTON, has reached a second edition within four and a half years is a matter of congratulation to author and publisher alike, and is also evidence that such a book is wanted. It is, as its subtitle states, a "handbook," and it still retains that convenient form. In the preface to the first edition, reviewed in our columns on January 24th, 1925, the author stated that the work was *mainly clinical* in character, and therefore most of its pages are devoted to descriptions of the symptoms of the various diseases, their prognosis, diagnosis, and treatment. Dr. Rolleston's long and intimate acquaintance with the infectious diseases of this country and his reputation as a writer are in themselves guarantees of an adequate and satisfactory accomplishment of these portions of the book, and in the new edition the reader will find all that he requires to know for ordinary everyday practice, brought well up to date, and set forth in clear and concise language. But, recognizing how well the clinical part of the work has been carried out, we are the more surprised to find that, while the descriptions of the causative bacteria and of the morbid *anatomy of the diseases are dealt with in some* detail, little is said about their pathology. It is true that the pathology of several of the infectious diseases is unknown; but in some of them, especially diphtheria and scarlet fever, rational treatment is based chiefly on what has been found out about the pathogenic action of certain bacteria. Yet no explanation is given of the nature of diphtheritic, and very little of scarlatinal, antitoxin; nor can we find references to Mervyn Gordon's important work on the virus of variola and vaccinia, or to Esther Harding's and Lewkowicz's observations on the causes of the circulatory failure in diphtheria, and of the meningitis in cerebrospinal fever respectively. Since Dr. Rolleston devotes a brief chapter to "Fourth disease," though he has grave doubts as to its autonomy, and another to "Erythema infectiosum," which has not occurred epidemically in this country and is rare abroad, it might have been well to refer also to glandular fever and to epidemic catarrhal jaundice, both of which diseases have been within recent years epidemic in these islands. It is always a question whether bibliographies are worth while in handbooks. We are inclined to think that if the lists of references to literature, printed in large type and occupying nearly twenty-seven pages, were replaced in the next edition by the information, omitted from the present one, to which we have alluded above, this would remedy a certain one-sidedness in what is in other respects an excellent work.

ST. BARTHOLOMEW'S HOSPITAL REPORTS.

THE sixty-second volume of *St. Bartholomew's Hospital Reports*[4] edited by a committee, of which Dr. Geoffrey Evans and Mr. Girling Ball are the secretaries, opens with in memoriam notices of three veteran members of the consulting staff: Sir William Church, who edited these reports for sixteen years, and undertook the not inconsiderable labour of compiling the index to the first twenty volumes in 1885; Sir Dyce Duckworth, described as a frequent rather than a voluminous writer, whose bibliography begins with a pamphlet in 1862 and ends with a paper in 1922; and Mr. A. E. Cumberbatch, whose appointment in 1882 as aural surgeon was the first made in any general hospital in London. A series of comparatively short articles on the dietetic treatment of nephritis, diabetic coma, spastic constipation, steatorrhoea, diseases of children, and pernicious anaemia provides a great deal of interesting material, among which Dr. Brewer's summary of the bad effects of liver therapy, such as thrombosis, gout, diarrhoea, and polycythaemia, may be mentioned. Professor G. E. Gask gives a compact account of diverticula of the duodenum, and Sir Charles Gordon-Watson writes with the authority of much experience on the treatment of rectal cancer by radium. The recent work on haemolytic streptococci is critically discussed by Sir Frederick Andrewes; and Dr. R. R. Armstrong in a well-written essay argues that air-borne infection is a possible source of puerperal sepsis, and that, as it is difficult to control droplet transmission of *Streptococcus pyogenes*, the ideal of complete prevention of puerperal sepsis cannot be confidently anticipated. The comparative physiology of the menstrual cycle is considered by Mr. Wilfred Shaw; Drs. J. Maxwell and W. A. Nicholson find that primary malignant growths in the chest have become more frequent since the war, quite apart from any increase in malignant disease in general; and the history of the hospital museum is told by Dr. T. H. G. Shore on the occasion of the publication of a new catalogue.

[3] *Acute Infectious Diseases*. A Handbook for Practitioners and Students. By J. D. Rolleston, M.D., M.R.C.P., F.S.A. Second edition, revised and enlarged. London: W. Heinemann (Medical Books) Ltd. 1929. (Demy 8vo, pp. lx + 419. 15s. net.)

[4] *St. Bartholomew's Hospital Reports*. Vol. lxii. London: J. Murray. 1929. (Demy 8vo, pp. xxv + 262; 33 figures. 21s. net.)

HEALTH OF BRITISH TROOPS IN INDIA.

IN *Army Health in India*[5] Lieut.-Colonel JOHN MACKENZIE, R.A.M.C., has compiled an interesting history of the slow and gradual development of sanitation as applied to the preservation of health of British troops in India. Hospitals for the sick have always been maintained, and treatment, probably fairly well up to the standard of the times, has always been provided for the troops, British and Indian; but sanitation, with its object, the prevention of disease, can hardly be said to have existed up to the middle of the nineteenth century. It was not so much ignored as unknown. It hardly occurred to anyone that medical advice could be of any use in such a project as the selection of a new cantonment, or that such advice, if asked for, would be any good. The classical instance of this, which has often been quoted, is the selection of the site of the cantonment for the British garrison of Lahore after the annexation of the Punjab. Various sites having been suggested and discussed, one day the commander-in-chief, Sir Charles Napier, rode with his staff a few miles out from the city of Lahore, and, suddenly halting on a level plain, gave orders that the new cantonment should be placed on that spot. So came into existence Mian Mir, which for half a century was one of the most unhealthy stations occupied by troops in all India, suffering especially from malaria. The change of name from Mian Mir to Lahore Cantonment effected no improvement. Modern methods of sanitation, chiefly the introduction of mosquito screens for hospitals and barracks, and the removal of as many of the troops as possible to hill stations during the most unhealthy months, have considerably reduced the sickness and mortality rates. The report of the Army Sanitation Commission of 1859, and Miss Nightingale's remarks on that report, both of which are freely quoted, give a vivid picture of the sanitary condition of Indian cantonments seventy years ago. The proximity to barracks of insanitary native bazaars has always been a great source of ill health among the troops. One curse of those days has almost been got rid of—drink and its effects. Cholera has practically disappeared, fevers have been diminished by antimalarial measures; but venereal diseases remain an almost insuperable problem—much has been done, but much still remains to be done. The first appointments of special sanitary officers for the troops in India were made in 1898, when three were appointed for the whole country. In 1902 the number had risen to five, in 1921 to eighteen. The first antirabic institute in India was opened in 1900 under Major, now Sir, David Semple. There are now at least

NOTES ON BOOKS.

THE September number of the *Annals of Medical History*[6] contains eight articles in addition to the editorial on the homes of John Hunter in London, which is a review of Dr. G. C. Peachey's recent Thomas Vicary Lecture, and other book reviews by the editor, Dr. F. R. PACKARD. The opening article, by Drs. E. H. Pool and F. J. McGowan, on surgery at the New York Hospital a hundred years ago, occupies exactly two-fifths of the number, and is generously illustrated; the portraits of Valentine Mott on the cover and of J. K. Rodgers forming the frontispiece belonging to this well-documented footnote to history. Four other articles deal with American subjects. Dr. W. S. Middleton gives an account of Philip Syng Physick, the Father of American surgery, who very unwillingly obeyed his father's injunction to enter the profession of healing. Some personal glimpses of S. Weir Mitchell, physician, scientist, novelist, and poet, are contributed by Dr. J. Madison Taylor, his associate and assistant. Dr. Carnes Weeks records the details of the life of David Ramsay (1749-1815) of South Carolina, who was a physician, patriot, and historian, and was murdered by a patient whom he declared to be insane both before and after he was shot. Dr. J. I. Waring recalls an incident in early South Carolina medicine—namely, a protest by the medical faculty there in 1755 that they were improperly remunerated, and the resulting correspondence in the lay press Sir Andrew Macphail's William Potter Memorial Lecture at the Jefferson Medical College, Philadelphia, on evolution and life, contains much attractive philosophy. Sir Humphry Rolleston contributes an interesting article on Samuel Johnson's medical experiences, and Dr. Wagoner describes, with illustrations, an Etruscan bronze figure showing dislocation of the hip.

Short Stories in Science,[7] by Mr. J. G. CROWTHER, is one of a series of books entitled "Science for You." It would appear to be a collection of articles written by a journalist for sundry newspapers, including the estimable *Manchester Guardian*. Its matter ranges widely, from frozen meat and abnormally developed Hindu mathematicians to the smashing of the atom and the organization of the universe. Apparently the author's object is to show that science becomes a material of literature when the writer's description of it stirs the imagination of the reader. The journalistic nature of the book is shown by the first article, wherein views on the universe are attributed to Sir J. H. Jeans, Dr. Jeans, Dr. J. H. Jeans, and Sir James Jeans.

Clinical studies on urobilin,[8] by OLAF BANG, is a volume published as a supplement to *Acta Medica Scandinavica*. The author has made quantitative studies of the excretion of urobilin, by Einar Larsen's method, in a large variety of clinical conditions. He has studied the variations that may occur in normal individuals, and discusses the normal limits of the concentration of urobilin in the urine, and the conditions that cause a pathological excess.

The work entitled *Sex in Civilization*,[9] edited by V. F. CALVERTON and S. D. SCHMALHAUSEN, consists of a collection of thirty-two essays by anthropologists, neurologists, psycho-analysts, alienists, lawyers, and sociologists who have made a special study of the problem of sex. The book is divided into six main parts, devoted respectively to sex throughout the ages, the role of sex in behaviour, sex in psycho-sociology, sex and psycho-analysis, the clinical aspects of sex, including birth control, and sex in poetry and fiction. In addition to the introduction of Havelock Ellis, the following essays deserve special attention: Sex in religion, by Dr. Robert Briffault; Should all taboos be abolished? by Professor William McDougall; Sex in education, by Harry Elmer Barnes; A criticism of Freud's theory of sex, by Dr. Abraham Myerson; The civilizing force of birth control, by Margaret Sanger; and The art of love, by William J. Fielding.

A German work of nearly 1,000 pages on the surgical treatment of children's diseases[10] is a distinct and weighty contribution to scientific literature. The authors are ERWIN GOHRBANDT, PAUL KARGER, and ERNST BERGMANN, the first and last being surgeons and the second a physician. This collaboration gives the book its special character and value. For it is much more than a mere surgical handbook; rather is it a carefully balanced general survey of disease in childhood, with particular reference to surgery therein. The book falls naturally into three parts. The miscellaneous topics dealt with in the first part include anaesthesia, diathesis, and blood transfusion. The second comprises a systematic account of the surgery of the head, neck, and trunk. The third and most important part is devoted to deformities and their orthopaedic treatment, and the surgery of the extremities. A striking feature of the volume is its thoroughness. Within its covers will be found a complete guide to minor surgery in childhood as well as ample considerations from the point of view of the general practitioner. There are good charts, diagrams, and photographs, and many pages of bibliography. The work as a whole represents a very considerable achievement.

In his inaugural thesis delivered before the Faculty of Medicine and Surgery at S. Paulo in Brazil, Dr. SAINATI gives an account of his experimental work with the poison of the snake *Lachesis lanceolatus* on rabbits before and after immunization against that venom.[11] He finds that the smooth muscle of the normal rabbit is strongly stimulated by the venom, while it has no action on the similar tissue of the immunized rabbit; and he produces evidence to show that the immunity is of the cellular as well as of the general variety. The book is illustrated by a number of muscle tracings.

[5] *Army Health in India.* By Lieut.-Colonel John Mackenzie, M.B., Ch.B., D.P.H. With a foreword by Lieut.-General Sir Matthew Fell, K.C.B., C.M.G., F.R.C.S. London: J. Bale, Sons, and Danielsson, Ltd. 1929. (Demy 8vo, pp. iv + 158; 4 figures. 10s. 6d. net.)

[6] *Annals of Medical History.* New Series. Vol. I, No. 5, September, 1929. Edited by Francis R. Packard, M.D. New York: P. B. Hoeber, Inc.; London: Baillière, Tindall and Cox. (Imp. 8vo, pp. 489-614; illustrated. Subscription in Great Britain 45s. per volume of 6 numbers.)

[7] *Short Stories in Science.* By J. G. Crowther. London: G. Routledge and Sons, Ltd. 1929. (Cr. 8vo, pp. viii + 213. 5s. net.)

[8] *Klinische Urobilinstudien.* Von Olaf Bang. *Acta Medica Scandinavica*, Supplementum xxix. Oslo: J. W. Cappelens. 1929. (6½ × 10; pp. 203, 11 figures.)

[9] *Sex in Civilization.* Edited by V. F. Calverton and S. D. Schmalhausen. With an introduction by Havelock Ellis. London: G. Unwin and Allen, Ltd. 1929. (Roy. 8vo, pp. 719; 1 plate. 20s. net.)

[10] *Chirurgische Krankheiten im Kindesalter.* Von Erwin Gohrbandt, Paul Karger, und Ernst Bergmann. Berlin: S. Karger. (Sup. 10). 8vo, pp. xv + 916; 433 figures. M.65.)

[11] *Da immunidade cellular e sua influencia sobre a acção pharmaco-dynamica do veneno de cobra.* Dr. Jorge P. Sainati. (6½ × 9, pp. 82; illustrated.)

THE RADIUM PROBLEM.

STATEMENT BY THE RADIUM COMMISSION.

The following statement, drawn up by the National Radium Commission, on the present position of the radium problem, has been forwarded to us by its Chairman for publication.

National Radium Supply.

The interest of the world of medicine and of the public at large has been stirred by the advances made in the last few years in the treatment of malignant disease by radium. The subject is of such pressing national importance that in March of this year the Radium Subcommittee of the Committee of Civil Research issued a report which led to the creation of the National Radium Fund, which now amounts to nearly £300,000, of which £100,000 was contributed by the Government. Subsequently two bodies were founded to deal with this problem—namely, the National Radium Trust and the Radium Commission. As a result a largely increased supply of radium will be forthcoming for the use of the medical profession in its campaign against cancer. It is well, therefore, that a preliminary survey should be made of the present position of radium in the treatment of malignant disease, in order to assess its proper value, without either taking an exaggerated view of its healing properties or underrating them.

Misleading Claims.

In this connexion the Commission would strongly deprecate such extravagant claims as were attributed to a member of the medical profession, addressing a recent meeting of an English medical society, to the effect that on a five years' average they had cures by radium in 60 per cent. of operable cases of cancer, 37 per cent. in borderline cases, and 28 per cent. in inoperable cases. In the opinion of the Commission, figures such as these can only be described as cruelly misleading.

The True Position.

The true facts of the position, as known to the Commission, may be summarized as follows. It has been proved for many years that radium has a powerful effect on various affections of the skin, and that rodent ulcer and cancer of the skin can usually be completely cured by its use. During the last few years the technique of radium therapy has been elaborated and greatly improved by the use of radium needles, or of "seeds" containing radium emanation (radon), which are buried in the tissues in or around the growth. Most of the work done in this country, so far, has been directed towards the treatment of cancer of the womb, the lower bowel, the breast, and the tongue and mouth cavity. It can be stated definitely that in the above-mentioned regions, as the result of long and hard work, of many trials and many errors, a big step forward has been made.

Encouraging as are the results already obtained, it must not be assumed that radium can cure all cancers, for this is not yet the case, and many problems remain to be solved. The attack on the primary growth is, in a sense, the easiest part of the task; for if the growth is accessible and radio-sensitive, if the radium is implanted in the right place, if the whole of the tumour is irradiated, if the dose is correct, and if the exposure is rightly timed, then one may expect the shrinkage and disappearance of the tumour. Radium therapy, however, if it is to be successful, must aim at destroying not only the primary growth, but also any extensions which may have formed in the neighbouring glands. In the course of the work one point that has come out quite clearly is that destruction of a primary growth, followed by its complete disappearance, does not generally affect the development of secondary growths, if these are already formed, any more than excision of a cancer of the breast by the knife will cure a patient if there are secondary deposits in the interior organs.

Importance of Early Treatment.

We must again emphasize the fact that treatment of cancer, if it is to be successful, whether it takes the form of surgical excision, the cautery, radium, or x rays, must be undertaken early, or before dissemination has occurred: and it must be reiterated that an essential part of the campaign against cancer consists in the education and intelligent co-operation of the public so that early diagnosis and prompt treatment may be secured.

Radium and Surgery.

The relative value of radium therapy in the treatment of cancer, as compared with surgical excision, is a difficult point to assess, for the reason that sufficient facts are not yet available. In the first place most of the available data concern cancer only in the regions of the body above mentioned, and secondly, we have not yet a sufficient number of cases, nor has sufficient time elapsed, to enable us to prepare statistics which will show a true and complete picture. One great point in favour of radium is that its use does not involve the risks and suffering associated with extensive and mutilating operations, which are so distressing to all concerned. The operation of introducing the radium is in itself a comparatively slight one, and while the radium is in position the patient suffers little if any discomfort. Under these conditions, and with good prospects of cure without mutilation, patients should be far more ready to consult their doctors, instead of concealing or disregarding their symptoms till it is too late for any form of effective treatment.

Cancer neither Infectious nor Hereditary.

It is perhaps desirable, at this point, to deal with two prevalent misconceptions. First, there is no proof whatever that cancer is either infectious or contagious. Secondly, there is no evidence that cancer is hereditary, except in one rare form of cancer of the eye. These fears, therefore, can both be dismissed.

Radium "Bomb" Treatment.

So far, the successes achieved have mostly been by means of superficial applications, by buried needles, by radon "seeds," or by the combination of these three methods. Little has been done, in this country, in the radiation of tumours from a distance by large quantities of radium—that is, by several grams at a time. This method is known as "distance radium therapy," or more commonly as the "bomb" treatment, because a large quantity of radium is placed in a container—the "bomb"—and applied in such a way that the radium rays may penetrate the affected area. We have not had, hitherto, sufficient radium to do much in this way, although in some other countries it has been under trial. It is, however, a method which urgently requires investigation, and a 4-gram "bomb" has just been secured by the Commission and installed at the Westminster Hospital, where patients are now being treated with it.

The Case for Radium.

To sum up, a good case has been made out for the increased employment of radium. A new weapon, and a powerful one, has been placed in the hands of the medical profession, though how effective it may be it is impossible, as yet, to say. Nor is it yet established whether patients

A second series were carried out in which white bread, obtained from the local bakery and containing approximately 2 per cent. of yeast, was compared with whole-wheat unleavened bread (*chapatti*), made from the rapidly grown Nilgiri wheat, which is of inferior quality. The experimental details in this series were similar to those in the first. The results are given in Table II.

TABLE II.—*Showing the Average Percentage Increase or Decrease in Body Weight, on the Fifty-fourth Day of Experiment, of Animals fed on Basal Diets of White Bread and Whole-wheat Unleavened Bread to which various Supplements were made.*

Supplements to Basal Diets.	Increase or Decrease in Body Weight: per cent.	
	White Bread.	Whole-wheat Unleavened Bread.
I. Nil	21.2	55.7
II. Vegetable margarine (*Cocogem*) (1.25 grams)	2.4	12.7
III. Butter (1.25 grams)	15.4	51.7
IV. Tomatoes and greens (*ad libitum*)	56.3	68.1
V. Tomatoes, greens, and vegetable margarine	47.2	91.5
VI Tomatoes, greens, and butter ..	51.7	97.3
VII Meat residue (10 per cent.)	39.1	65 9
VIII. Whole milk (2 5 c cm.)	71.2	80.5
IX. Whole milk (2.5 c cm.), vegetable margarine (1.25 grams)	49.2	102.1
X. Tomatoes, greens, and milk (2 c.cm.)	92.9	139.6

The results of this series show that in every instance whole-wheat unleavened bread, though made from wheat of inferior quality, was superior to baker's white bread as the basal article of diet for growing rats. It is clear that the amount of yeast used in the manufacture of white bread (approximately 2 per cent.) did not make the bread equal in nutritive value to the whole-wheat unleavened bread, and that no matter what supplement was made to the two breads wholemeal bread always maintained its superiority over white bread. The pernicious effect of *Cocogem* will be noted, especially in those diets having a low vitamin B content.

Although the results of the two series are not strictly comparable, for the reasons that the experiments were carried out at different seasons of the year and that the whole-wheat flour used in the one was of different quality from that used in the other, yet it will be evident from a careful study of the tables that the results of the two series are complementary.

It is outside the scope of the present note to analyse these results further; nevertheless, there is one point to which attention may be drawn, since it may have a practical bearing in regard to the dietaries of growing children. The point is this: when the diet contains a considerable amount of fat, in the form either of margarine or of butter, then it is essential that the vitamin B content of the food be proportionate to the amount of fat, otherwise growth is retarded. Vitamin B appears to be necessary for the utilization of fat; wholemeal of poor quality may not contain enough of the factor for this purpose.

The object of this note has been to advance "experimental facts," in regard to white and brown bread, which indicate clearly that, as the basis of diets for growing rats, white bread is inferior in dietetic value to the unleavened bread (*chapatti*) made from freshly ground wheat. The latter, with milk, milk products, vegetables, and fruit, constitutes the diet of certain races of Northern India who, so far as physical efficiency is concerned, are amongst the finest of mankind. Their children, invariably breast-fed in infancy, know no other bread than whole-wheat *chapatti*, which they begin to eat from the age of 2½ years onwards. It does not appear to exercise any irritating action on their intestinal tracts. If, as stated by Drs. McCance and Lawrence, "brown bread is far too irritating" to the intestinal tracts of some English children, may it not be that their intestinal tracts are at fault rather than the wholemeal?

PURIFICATION OF SWIMMING-BATH WATER.

THE report by Messrs. E. A. Sandford Fawcett and H. T. Calvert, and Dr. J. Alison Glover, on the purification of the water of swimming baths,[1] to which we drew attention in the *Journal* of October 26th (p. 773), is concerned with the methods by which pollution in swimming baths occurs, the validity of various tests which have been adopted to estimate the extent of pollution, the transmission of infection by the water of swimming baths, and the devices by which the purity of such water may be maintained.

SOURCES OF POLLUTION.

Dangerous contamination of swimming-bath water appears to be derived mainly from the persons of the bathers, records of epidemics caused by water polluted from other sources being very few in number. Contamination from surface drainage percolation, fallen leaves, dead animals, and so forth, occurs mainly in open-air baths, particularly those with unlined sides and bottoms. The green growths which often appear in such baths actually have a beneficial effect, their powerful oxygenating action serving to purify the water from organic pollution. So effective are they that in the ponds at Highgate and Hampstead, which are seldom emptied, chemical analysis has shown that little change in the water is produced even by a large number of swimmers. Dust and soot blowing in through the windows of baths (especially those which have been placed near refuse incinerators for the purpose of obtaining power and heat) form, when the water is at rest, an uninviting scum on the surface of the bath. Despite the fact, however, that this scum may contain considerable numbers of *Bacillus coli*, the pollution is significant aesthetically rather than hygienically. A large proportion of filth found in the water is carried in by the boots of bathers and spectators, the side paths of the pools are regularly used by the bathers, and as a result they are almost always covered with a water suspension of visible dirt, a considerable quantity of which is then transferred to the pool from the bathers' feet. The authors of the report suggest that this source of pollution could be avoided by so designing the bath-house that the entrances to the dressing-rooms from outside are entirely separate from the paths by which the bathers enter the water.

The costumes of bathers contribute largely to the *defilement* of swimming-bath water; on some costumes there have been found more than one million bacteria per square inch, though with proper cleansing the figure should not be more than 500. An adequate precaution is to wash a bathing costume thoroughly with soap in warm water, rinse it three times, disinfect it, and then let it dry completely. Even greater than the bacterial contamination of costumes is that of towels; the proper cleansing, disinfection, and drying of towels is therefore a matter of importance.

By far the most serious sources of pollution are the hair, skin, and mucous membranes of the bathers themselves. The polluting matter is of three kinds: particulate matter, including fragments of recently discharged mucus; matter in solution; bacterial pollution, which may be considerable even in waters which appear attractive. The material in each of these categories requires separate consideration: the first brings about rapid depreciation of the water, rendering it opaque, greyish-black in colour, and offensive in smell; the second may be less important, and in baths which are efficiently filtered and sterilized the soluble constituents may be increased considerably without affecting the usefulness of the water. These two together, however, may have the effect of gradually converting the water into a culture medium in which bacteria—the material in the third category—are able, at the temperature at which indoor swimming baths are usually kept, to undergo rapid multiplication. The first form of pollution soon demands its own remedy; the second can be considerably reduced by making it a rule that all bathers before entering the water must take a shower bath, and by enforcing the use of soap, followed by a thorough spray of clean water, this procedure would be rendered still more effective. The third, which is the most important, requires separate consideration.

[1] Ministry of Health. The Purification of the Water of Swimming Baths. London: H.M. Stationery Office. 1929. 1s. net.

Bacterial Contamination of Baths.

The following bacteria have been found in the water of indoor swimming pools: *Bacillus subtilis*, *B. prodigiosus*, *B. fluorescens liquefaciens*, *B. coli*, *B. pyocyaneus*, *B. enteritidis sporogenes*, *B. proteus*, *Staphylococcus pyogenes aureus*, *Staphylococcus epidermidis albus*, *Staphylococcus* and *Streptococcus salivarius*, and a Gram-negative diplococcus (Graham Forbes). In addition to these visible organisms, it is conceivable that "commensal" invisible viruses, such as the virus of herpes, and "commensal" protozoa, such as leptospira, might also be present. The bacterial counts have been found to vary widely according to the number and cleanliness of the bathers and the treatment to which the water has been subjected. In their own investigations the authors of the report have relied upon the count on agar at 37° C. for forty-eight hours, and the determination of the presence of *B. coli*. Dr. Graham Forbes, who followed the same procedure, states that in an examination of 42 samples from five large open-air artificial pools, which were not subjected to any process of filtration or chemical treatment, the average count on agar for 1 c.cm. of water was 950, the highest count being 200,000 and the lowest only 1. *B. coli* was found in 1 c.cm. in 19 of the 42 samples; in 5 c.cm. in 10 samples; in 10 c.cm. in 3 samples. It was absent from 10 c.cm. in 10 samples. In contrast with these findings the authors cite the results of an examination in 26 samples taken from two open-air artificial pools treated by continuous filtration and chlorination. From one bath 17 samples showed an average count of 50 in 1 c.cm., the highest having 500; in 10 of these samples the total count was below 10 in 1 c.cm. *B. coli* was absent in 12 of the 17, and in 2 of the samples it was present in 10 c.cm. Similar results were obtained by using water from the second bath. Dr. W. L. Malman[2] has shown that *B. coli* multiplies rapidly during the night in swimming baths, while streptococci do not; he suggests, therefore, that an estimation of streptococci by glucose and lactose broth forms a better index of pollution than estimation of *B. coli*. The conclusions of his paper are as follows: (1) *B. coli* content is not a universally reliable index of intestinal pollution in swimming pools; (2) streptococci are constant indicators of intestinal pollution; (3) *B. coli* do not necessarily indicate pollution or danger, although their absence is an excellent index of safety.

Transmission of Infection by Swimming-bath Water.

Evidence for the view that diseases are occasionally transmitted by the water in swimming baths appears to be convincing. The diseases thus conveyed fall into the following groups: gastro-intestinal infections, respiratory infections, skin infections, eye infections, and nasopharyngeal infections, of which the last two groups are by far the most important. The only recorded epidemics of gastro-intestinal infections transmitted by swimming-bath water were undoubtedly due to gross contamination of the water by sewage. The occurrence of respiratory infections, such as pneumonia, has occasionally been described, but probably prolonged immersion, overfatigue, and subsequent chilling—all factors tending to lower the resistance of the bather's body to pneumococci which he is already carrying—are more significant in producing the disease than infection by virulent pneumococci actually conveyed by the water. The skin infections—for example, furunculosis, scabies, ringworm, and pediculosis—are probably transmitted by towels, costumes, and seats, rather than by water, despite the fact that organisms potentially pathogenic to the skin are often found in polluted bath waters. One important exception is furunculosis of the external ear, which seems generally to be due to auto-infection following the retention of bath water by cerumen and skin casts in the meatus. Erythemata and rashes caused by chemicals used for purification have been described, but their occurrence indicates gross overdosage, which should never occur in a properly managed bath. Conjunctivitis, the most common eye infection transmitted in baths, sometimes occurs in epidemic form, though it is more commonly spread by towels than by water. Several observers have called attention to the occurrence in epidemic form of a condition of conjunctivitis associated with nasal sinusitis and catarrh.

Considering what facilities obtain in swimming baths for the spread of such infections as scarlet fever, measles, chicken-pox, and diphtheria it is remarkable how few authentic epidemics have been recorded. There seems to be equally little evidence incriminating the water of swimming baths as a medium for the transmission of cerebro-spinal meningitis. The meningococcus cannot survive long in cold water, and it has never in fact been experimentally isolated from the water of swimming baths. In the few cases which are alleged to have occurred after swimming it is probable that the children were aerially infected from some carrier outside the bath water. The authors suggest that for the prevention of this disease, and of other diseases that are generally transmissible by droplet infection, the proper precautions would be ventilation of the bath hall and avoidance of overcrowding in the dressing-rooms, as well as purification of the water.

[2] *American Journal of Public Health*, 1928, p. 771.

Nasal Catarrh, Sinusitis, and Tonsillitis.

Increased excretion of nasal mucus occurs as the result of prolonged swimming in cool water, even when it is pure. It is possible that in unhygienic baths a bather might get from the water a dose of sticky mucus sufficiently massive to infect him with a catarrh or tonsillitis, though probably the more usual event is that prolonged immersion, exertion, and chill bring on an attack of catarrh or tonsillitis in a bather already carrying the infecting organism. According to the authors, no epidemic of diphtheria has been ascribed to swimming-bath infection, though, theoretically, water-borne diphtheritic infection might seem possible.

Otitis.

In an article on the relation of ear conditions to bathing (*British Medical Journal*, August 17th, p. 296) attention was drawn to the frequency with which acute aural inflammation has been observed in persons who have recently bathed in a swimming pool, and it is interesting to note, therefore, that, according to the authors of the report under review, "it is the ear infections which give the chief gravamen to the charge of disseminating disease against swimming baths." The questionary of the American Special Committee on Bathing Places was issued to 2,000 practitioners and elicited details of 129 cases of otitis, 19 of mastoid disease, and 5 of meningitis, while records of two epidemics of middle-ear disease were considered by the committee to be "reasonably authentic." In this country aurists have ascribed epidemic waves of middle-ear disease occurring in hot summers—for example, 1921 and 1928—to swimming-bath infection.

The authors suggest four possible ways in which the water might be responsible for the development of otitis media: the water may be the actual vehicle of infection transmitting the germs from one bather to the middle ear of another; it may act simply as a mechanical agent whose pressure forces already infected mucus from the nasopharynx up the Eustachian tube; the "insult" of cold water to the delicate mucous membrane may be sufficient to upset the drainage of the middle ear; and, finally, the etiological factor may simply be lowered resistance brought about by chill and fatigue. Probably the most important cause is hydrostatic pressure whereby pathogenic germs (particularly haemolytic streptococci) already carried by the patient are forced into the middle ear. The really extraordinary thing, the authors insist, is that there are not more cases reported, considering the vast number of persons who use swimming baths.

Methods of Purification.

All public swimming baths should be filled with water which is not only clear, sparkling, and attractive, but is practically free from pathogenic bacteria, or bacteria of excremental origin. For the purification of swimming pools of artificial construction filled with water from the main supply the authors favour the method of continuous rapid filtration combined with continuous chlorination and aeration. This method has advantages over the fill-and-empty system, even when the refilling is done every day. When the bath is not refilled daily, the advantages of the continuous filtration-chlorination become overwhelming.

The remainder of the report is devoted to a detailed description of the processes of filtration and chlorination, and of the necessary plant. The concentration of free chlorine aimed at by this method is not less than 0.2 part per million of water, or more than 0.5 part per million. Water which has been efficiently clarified by filtration, and having this free chlorine content, will give bacteriological counts approximating to the standard approved for drinking water.

British Medical Journal.

SATURDAY, NOVEMBER 16TH, 1929.

THE NEW MOUNT VERNON HOSPITAL.

In a changing world institutions, like living organisms, must adapt themselves or die. They must acquire new functions when there is no more scope for exercising their old ones, and they must modify their structure so that the new functions may be fulfilled. When, as in the present age, an epoch of social evolution may complete itself in a few years, institutions which cannot rapidly and successfully adapt themselves to society's changing needs stand in danger of decay or of being swept out of existence. The modifications which have taken place in recent years in our voluntary hospitals to make them available for a class whose needs were catered for in other ways when these hospitals came into being are an example of such adaptation, but of adaptation attained less by modification of the original too rigid structure than by the acquisition of a new one. Here, however, the change has been gradual: no sudden mutation, but a continuous evolutionary process, starting with the admission of middle-class patients into the ordinary wards, and culminating in the erection of special blocks for paying patients.

The transformation of the Mount Vernon Hospital, at Northwood in Middlesex, has been altogether more dramatic. The curtain fell on a hospital for the treatment of early tuberculosis; it rose on a hospital for the investigation and treatment under research conditions of malignant disease. The new function has been adopted because of its immense importance at the present time; the stimulus to its adoption has been the fact that the hospital could no longer exercise its old one. When in 1904 it received a large endowment for the purpose of determining the value of open-air treatment of pulmonary tuberculosis this therapeutic procedure was in its infancy, and the demand for treatment at Mount Vernon was correspondingly great. By 1927, owing to the vastly increased facilities throughout the country for the sanatorium treatment of persons suffering from tuberculosis, it had become obvious, both because the number of patients resorting to the hospital had greatly diminished, and because even these were suffering from disease too advanced to benefit from open-air treatment, that the main reason for which the hospital had been founded had ceased to exist. Here was an opportunity for the exercise of courage and imagination, which the governors were not slow to take. They decided to divert the activities of the hospital into an entirely new direction, and to devote all its resources to the investigation of malignant diseases and to their treatment under such conditions that the value of each method of therapy might be scientifically assessed. Their decision received the blessing and approval of the British Empire Cancer Campaign and the Medical Research Council, and they accordingly closed down the hospital buildings, and, to make them suitable for their new function, had them reconditioned throughout.

In our country, when revolutions become necessary we prefer to carry them through in a constitutional manner, and to this end there exists appropriate parliamentary machinery in the form of Enabling Acts; this machinery had to be set in motion before the council of management of Mount Vernon Hospital could effect its change of policy, and an Act was passed, which became law on May 10th, enabling the council to use the present land, buildings, equipment, investments, and income of the hospital for any purpose incidental and conducive to the attainment of its new objects. A special committee has been appointed, including Sir Humphry Rolleston, Lord Dawson of Penn, Sir Thomas Horder, Sir Cuthbert Wallace, and others, to advise the council of management upon the staffing of the hospital, and on all scientific and medical matters, and to suggest to the honorary staff the forms of therapy and research that the hospital might undertake. The individual members of this advisory committee have a tenure of office for four years, with eligibility for re-election after an interval of one year. The value of this provision lies in the fact that, whereas after an interval of one year an effective member of the advisory committee will not be forgotten, a member who has been unable to give sufficient time to his duties need not be reappointed. Still less security of tenure is offered to the members of the honorary staff. These have been appointed for one year only, but at the end of the year, and again at the end of each following year, they will be eligible for re-election. By this regulation each clinician will, so to speak, have to play hard for his colours: he will continue to hold office only so long as he is carrying out efficiently the investigations with which he has been entrusted; otherwise he will have to give place to someone else. No member of the staff, moreover, will have proprietary rights over a number of beds; it is intended that the clinical and laboratory staffs shall work together as a team, and the admission of patients will be regulated solely according to the needs of the hospital as a centre of investigation. Since the reorganization of the hospital the medical staff has been augmented by workers from other institutions, who have been chosen because of their interest and experience in the radiological treatment of malignant disease; in addition, there will be appointed a pathologist, a physicist, and a radiologist. The advisory committee recommends also that a medical director should be appointed, on a whole-time basis, to co-ordinate the activities of the hospital and to lead the team. With such aims and with a constitution so admirably designed to maintain the efficiency and enthusiasm of the clinical and laboratory staffs, the new Mount Vernon Hospital should attract to itself keen research workers from all parts of the British Empire. We are glad to note that clinical assistants will be appointed, and that the staff intends later on to give special courses of instruction in radiotherapy.

Although the Mount Vernon Hospital Act was passed only as recently as last May, already a considerable amount of work has been carried out, and 159 cases of malignant disease have passed through the wards. The investigations now in progress relate to the treatment of malignant diseases by means of radium and x rays; should, however, at any future time some other form of treatment show even better promise, then this in turn will be adopted and scientifically studied at the hospital. At present the more accessible diseases—for example, cancer of the breast, the mouth, upper air passages, oesophagus, the uterus, the rectum, and the skin—are being studied, but later on may be added cancer of the genito-urinary system, and of the stomach, intestine, and thorax. The results of treatment in each case will be carefully recorded, and the patients will be seen at frequent intervals for years after treatment has ceased. Diagnosis and

follow-up examinations will be carried out by the medical staff of the hospital at the existing London section in Fitzroy Square; this section will start work on January 1st, 1930.

The conclusions that may be derived from research work conducted by the Mount Vernon Hospital will be valuable in proportion to the number of cases the staff is able to study and the thoroughness with which they are studied. It is important, therefore, that the resources of the hospital should be used to the utmost, and that the full complement of patients—about 1,500—should be treated each year. To realize these ideals the hospital will need, in addition to its present supplies, about 2½ grams of radium; we hope that the council of management may succeed in obtaining this amount at an early date.

ERYTHRAEMIA.

OBSERVATION of the first recognized cases of splenomegalic polycythaemia soon made it clear that polycythaemia rubra ("polyglobuly") was not usually due to a mere condensation of the blood, but was a *polycythaemia vera*, the result of increased formation of erythrocytes in the bone marrow, and was accompanied by increase of the total blood volume; Cohnheim's teaching of the non-existence of persistent *plethora vera* had definitely to be given up. Vaquez's account (1892 and 1895) was followed after a few years by descriptions of cases in various countries, and Sir William Osler's writings (1903 and 1904) drew much attention to the *subject in England* and America. In post-mortem *examinations*—notably in the first really complete one (Parkes Weber and Watson, 1904)—the active red bone marrow was found enormously increased and the inactive fatty bone marrow correspondingly diminished, and this confirmed the view that the primary morbid process in the "Vaquez-Osler" splenomegalic polycythaemia was excessive blood-forming, especially erythrocyte-forming, activity of the bone marrow. Primary polycythaemia rubra was therefore termed "erythraemia," by analogy with "leukaemia"; and, by *analogy* with "leucocytosis," at the suggestion of H. Hirschfeld, the term "erythrocytosis" was adopted to include all classes of secondary true polycythaemia rubra—in which the increased formation of red cells was the expression of a *compensatory* reaction *on* the part of the bone marrow, as in the polycythaemias of high altitudes, congenital heart diseases, and obstruction in the pulmonary circulation of various kinds.

According to the *suggestion* of Professor A. E. Boycott in his recent presidential address before the Pathological Section of the Royal Society of Medicine, the total of the erythrocytes and their erythroblastic precursors may be regarded as a tissue-organ, which, like other tissues and organs, undergoes secondary hypertrophy or hyperplasia when the body requires it (*for* instance, at high *altitudes* or artificially low oxygen pressure), and hypotrophy or hypoplasia when fewer red cells are *needed* (for instance, when animals are kept in caissons under excessive oxygen pressure). For this tissue-organ the proposed term "erythron" may sometimes be convenient. In erythraemia the increase of the erythron appears to be *not* the manifestation of any secondary reaction, which from a modern teleological point of view could be regarded as *compensatory* or conservative, but to be of the nature of a diffuse *tumour* or *neoplasm*, which, though not *malignant*, must necessarily, by its inordinate growth, ultimately do harm to the rest of the body. In the rare cases of erythro-leukaemia or "Blumenthal's *disease*" the white *granulocytic* system seems to be involved, together with the *erythron* (erythrocytic system) in the neoplastic process.

Many neoplasms may be removed by the knife or by *x* rays or radium. Similarly, erythraemia may be treated by the application of *x* rays to the bone marrow,[1] *and*, though no surgeon would venture to treat it by operative removal of much of the erythroblastic bone marrow, the *safest method of* treatment, that by sufficient blood-letting, is really nothing less than operative removal *of* a superfluous part of the erythron, which *treatment* has *to* be periodically repeated, when, owing to the neoplastic process, the erythron *again* becomes excessive. Unlike ordinary new *growths*, the neoplastic erythron in erythraemic patients (as, indeed, the erythron in normal persons) can be partially destroyed by the relatively selective action of *a substance*—phenylhydrazine—administered through the mouth. Great care must, of course, be taken not to *administer* the drug in excess or for too long a period, as the destruction of red cells may continue for some days *after* the last *dose* has been given. It seems possible, however, that the liver cells in some cases may likewise become *damaged* either by the phenylhydrazine itself or by the products of the increased erythrocyte destruction.

In another part of our present issue (p. 892) Dr. Parkes Weber, who obviously favours the above explanation, describes and discusses a case of erythraemia accompanied by a variable degree of chronic acholuric jaundice, and by a blood plasma giving a highly positive, but indirect, Hijmans van den Bergh's reaction for bilirubin—that is to say, for "blood bilirubin," as distinct *from* the bilirubin that gives the direct reaction in the blood plasma in cases of ordinary obstructive jaundice. He is inclined to interpret the jaundice *in* that case as the manifestation of increased erythrocyte destruction in the spleen—an automatic attempt to compensate for the excessive production of erythrocytes in the erythraemic bone marrow. He also suggests that in the case in question the employment of phenylhydrazine to destroy erythrocytes and thus relieve the erythraemia might damage the patient's liver, possibly already overburdened as a result of the continual excessive destruction of erythrocytes in the spleen.

CLIFFORD ALLBUTT.

OUR readers will welcome very warmly, as we do, the publication of Sir Humphry Rolleston's memoir of Sir Clifford Allbutt,[2] his friend and colleague and predecessor in the Regius Chair of Physic at Cambridge. This short life of a great personality was undertaken, at the wish of Lady Allbutt, "with considerable anxiety"; and that it has been a labour of love, *in the fullest* sense of the phrase, no one can doubt. Clifford Allbutt was happy in his work, in his home, in his friends, and now he is happy in having as biographer a scholar-physician and a man after his own heart. To tell *in* 300 clearly printed pages the story of eighty-nine years of high achievement is no easy task. Much thought and research was needed to trace the milestones of a wonderful journey that began in the reign of William IV and went on without flagging until the night of

[1] For a recent paper on this subject see G. Milian, *Med. Assoc.*, 1929, xciii, p. 1295.

[2] *The Right Honourable Sir Thomas Clifford Allbutt, K.C.B., M.D., F.R.S.* By Sir Humphry Davy Rolleston, Bart. London: Macmillan and Co., Ltd. 1929. (With bookplate. 18s. net.)

21st, 1925. Much insight and literary skill was needed to resolve the elements of a many-sided but singularly harmonious character, and combine these again in a balanced portrait.

It is scarcely necessary to say of a book by Sir Humphry Rolleston that every page is packed with information—all of it relevant, concise, fully documented, and accurate to several places of decimals. In his preface he modestly speaks of this memoir as a "chronological record," and adds that so far as some of the earlier years are concerned it "has a bibliographical rather than a biographical character." True, his arrangement follows, though not too stiffly, the order of events; but by judicious choice of material and the introduction of apt and telling sentences from Allbutt's letters and published writings he continually brings the man before our eyes. In this and in other ways the record of an outward life of the utmost distinction is enlivened with glimpses of a very human and a very lovable nature. Moreover, the brief biographical allusions which abound in paragraph after paragraph give us an insight into the personal relations between Allbutt and a great number of well-known people with whom he came in touch during the several phases of his long career.

The whole work is informed with knowledge and sympathy, and a fine sense of what is fitting to be written of a great English gentleman whose mind and spirit never grew old. As an epitome of the man and his life-work it would be hard to improve on this passage towards the end of the last chapter: "In early life an original investigator both in the laboratory and in the wards, then a busy consulting physician, and after that for thirty-two years a Regius Professor with a world-wide reputation, he was throughout an independent thinker, a cultivated man of letters, and a philosopher; but greater even than these were the character and personal influence of the man who became the undisputed doyen of his profession in this country." Medical historians as such will find Sir Humphry Rolleston's volume a rich quarry of facts. All who knew Sir Clifford Allbutt will prize it most for other reasons.

SURGICAL CATGUT.

The manufacture and use of catgut dates from earliest times, though the first reference to its employment as a surgical ligature appears in the writings of Galen. Apparently it fell into disuse in surgery, and was not reintroduced until early in the nineteenth century, the credit for this rediscovery being given to an American, P. S. Physick, who studied in this country, and incidentally was house-surgeon to John Hunter. Contrary to what the name would imply, catgut is made from the small intestine of the sheep. This organ is removed immediately after slaughter, emptied of its contents, and cut longitudinally into strips or ribbons, which are then washed and scraped to remove the mucous membrane and muscular coat. The tunica submucosa alone is made use of, and these scraped ribbons are treated in alkaline baths, stretched, and, while still moist, twisted into cords of the requisite thickness. These constitute the raw catgut, which is now dried, disinfected, dried again, polished, and finally submitted to a surface sterilization. For surgical purposes, however, catgut must be rendered sterile throughout, and at first glance this might seem a simple matter. But it is far from being so, because in the first place catgut is peculiarly resistant to the penetration of antiseptics, and in the second place sterility is not the only desideratum. Sterilization must be achieved without undue loss in strength and suppleness, and the finished product must be capable of being absorbed in the body. Many have laboured to achieve this ideal, and the methods evolved have been mostly of the nature of a compromise in which absolute sterility has been sacrificed—not always wittingly—to the other qualities. In the history of our own country's contribution to this endeavour two names stand out pre-eminently—Lord Lister and Professor W. Bulloch. Lister's experiments extended over a period of forty years, and had as their result the carbolized catgut ligature in 1869 and the sulphochrome process in 1908. Professor Bulloch's researches stand in historical succession to those of Lister, and in this work he has been assisted by Dr. L. H. Lampitt and Mr. J. H. Bushill, of the research laboratories of Messrs. J. Lyons and Co. The results they have obtained are embodied in a report published by the Medical Research Council,[1] which will be welcomed not only as a record of the investigations of Bulloch and his colleagues, but also because it constitutes a most complete and interesting account of the history and literature of the subject. This work on surgical catgut has been carried out on behalf of the London Hospital Catgut Department, and it should be mentioned that the fruitful co-operation between Professor Bulloch and the research laboratories of Messrs. Lyons was due to the energies of the late Mr. Alfred Salmon, head of that firm and a member of the London Hospital House Committee. It would be impossible here to enumerate the different methods which have been advocated at one time or another for the sterilization of surgical catgut. In the report they are traced through the various "periods"—carbolic, sublimate, formalin, aseptic—down to the present iodine period inaugurated by Claudius in 1902. Each method has been thoroughly tested, and Professor Bulloch points out how essential it is completely to remove the antiseptic from the catgut before testing it culturally. It is the non-observance of this fundamental rule which has rendered much of the work on catgut of little value, and has been responsible for perpetrating inefficient methods of sterilization. From his searching inquiry he concludes that for the preparation of catgut on a large scale three methods alone out of many which have been devised can be considered as satisfactory—chemical sterilization by formalin or peroxide of hydrogen, and physical sterilization by heat. It is somewhat disconcerting to think that many brands of surgical catgut on the market are prepared by methods which have been found wanting in this investigation. Eight different makes of catgut ligatures were bought in the open market in 1927, and out of these 77 ligatures were examined bacteriologically; 58 proved to be infected. Thirty-six ligatures of another batch of catgut, also bought in the open market, were tested, and not one was found to be sterile. This is hardly a satisfactory state of affairs, and though the bacteria present were usually saprophytes, such as *B. subtilis* and *B. mesentericus ruber*, their presence indicates an inefficient method of preparation and a potential danger. Catgut infections in man have been reported from time to time, and cases of post-operative tetanus have been attributed to this source. Professor Bulloch submits the evidence of catgut infections to a critical examination, and concludes that they amount to little more than "clinical conjecture." Of post-operative tetanus he admits that there may be a suspicion against catgut, but that the facts do not allow one to go further than that. This does not mean that we should not insist on surgical catgut being sterile—far from it. Professor Bulloch's investigations have shown that such sterilization can be achieved by treating catgut with a watery solution of iodine. What effect has this on the strength and flexibility of the ligatures? This is where Dr. Lampitt and Mr. Bushill take up the story. They have investigated the effect of the reaction of the ribbon-baths

[1] Medical Research Council. Special Report Series, No. 138. The Preparation of Catgut for Surgical Use. By W. Bulloch, L. H. Lampitt, and J. H. Bushill. London: H.M. Stationery Office. 1929. 4s. net.

and of the method of spinning the washed ribbons on the strength of the ligature. Further, they have demonstrated the detrimental effect on the catgut of too prolonged an exposure to iodine, and the advantages which accrue from removing the iodine once sterilization has been procured. Finally, they indicate how the ligatures should be subsequently treated and stored in order to ensure flexibility and strength on the knot. In short, this report indicates how the ideal catgut ligature, at once sterile, supple, strong, and absorbable, can be prepared, and it is a matter of great satisfaction to read in the preface by the Medical Research Council that the licensing authority under the Therapeutic Substances Act has added surgical catgut to the list of controlled substances. The data contained in this report will be of the greatest assistance to those responsible for carrying out this measure, and the surgeon and his patient will have the assurance that what purports to be sterile catgut is in reality so, and not a potential source of danger.

POSSIBLE RISKS OF THE CONVEYANCE OF DISEASE BY BLOOD TRANSFUSION.

In the history of attempts to benefit one human being with material derived from another, the fear of the conveyance of unsuspected disease has been ever present. There seems little doubt that in the early practice of arm-to-arm vaccination sepsis and syphilis were at times so conveyed, and that there was some foundation for the wild accusations current amongst those opposed to vaccination.[1] In later days, since human blood or serum has been used in medicine, there has arisen the possibility of danger, either from disease in the donor or from contamination of the material outside the body. Indeed, a German writer[2] has pleaded for "protection against protecting serum," the allegation being that the serum of a subject convalescent after measles had been bacterially contaminated after collection and caused the death of the child who was to have been protected by it against measles. Keynes[3] and Feinblatt,[4] in their monographs on blood transfusion, have collected instances of conveyance of malaria and of syphilis—one from son to father after transfusion—and of acute sensitiveness to horse protein transferred by the blood of an asthmatic. Several infections with syphilis in this way were discussed recently at a medical meeting in Paris.[5] Tuberculosis has been mentioned in the German literature, but in general this risk is probably small. Malaria would be an ever-present danger in tropical countries; here the donor's history and examination of the blood are indispensable. The chance of conveying syphilis from any patient with a positive Wassermann reaction, or, apparently, with even any history of a past attack, must always be borne in mind. The wise pathologist, when testing the volunteer donor's blood to establish the group, will always use the sample for other desirable tests. Feinblatt makes the interesting suggestion that where, after an emergency transfusion without previous examination of the donor, the blood is found to be positive in the Wassermann reaction, two intravenous injections of salvarsan, given as soon as is convenient, will protect the patient. The Health Department of the City of New York[6] has recently called attention to "the necessity of prompt action to curb dangerous and almost unbelievable abuses which have developed in connexion with blood transfusion." The department, therefore, proposes to establish an official list of donors, each of whom would have a passport in which his group and general certificate of good health on weekly inspection would be entered, as well as details of all transfusions. It is expected that the new service will be self-supporting. Keynes in 1922, when commenting on the tragic misfortunes that might happen, suggested "professional blood donors" under constant medical supervision. In London blood for transfusion has been mostly supplied by the rover scouts and volunteers from other similar organizations—persons of above the average health who have been glad to carry out this devoted service without reward or publicity. There is a small group of men employed about laboratories or hospitals, who might be called "professional donors," who give their blood for a fixed fee. Both groups are generally under the care of alert pathologists, and we cannot trace any record of any transfer of disease in this way in Britain. Vigilance is the handmaid of safety, and it is a matter for regret that a service on the lines of the London Blood Transfusion Service (British Red Cross) is known in only a few of the large towns outside London—for transfusion, now that experience has indicated its value and its limitations, has apparently taken a permanent place in therapeutics. From the conveyance of disease by the serum of patients convalescent after measles or poliomyelitis there is, under English conditions, but slight chance of trouble, for this work is generally in the hands of senior pathologists, whose experience would guide them in eliminating bacterial contamination and other possible dangers. Skin grafting, when it is necessary to use grafts from other patients, will usually be safeguarded in the same way as transfusion, for here, when establishing the compatible blood group, as recommended by Masson[7] and other writers, the obvious information can be gathered and tests carried out. Above all, the old common-sense rule indicates that one should always reject any person about whose robust health there is the slightest doubt.

OBSERVATION IN NATURAL HISTORY.

THE late Sir Rickman Godlee, in addition to his outstanding qualities as a surgeon, had a great interest in natural history; therefore it was appropriate that the second Godlee Memorial Lecture, delivered at University College, London, on November 7th, by Viscount Grey of Fallodon, should have had natural history for its subject. Lord Grey, who described himself as an amateur in natural history, and as one who was well aware of the distance which separated the amateur from the expert, delivered a lecture which charmed his highly distinguished audience. He began with some remarks on the very great difficulty of being accurate in describing, or perhaps in observing, natural phenomena. Accounts of the same occurrence by different people, all proceeding in good faith, were extraordinarily difficult to reconcile, though he agreed that an excessive caution was practised by the late Professor Alfred Newton, who, on being asked to identify the egg of a bird, would reply, "Bring me the bird which laid the egg, and I will at once identify it"! One long-persisting inaccuracy in natural history textbooks was as to the sounds emitted by waterfowl. What had been supposed to be the call note and the alarm note were now found to be simply the notes of the male and female respectively. Lord Grey spoke much of the robin, whose life-history was most perplexing and whose ways were perverse. In spite of long acquaintance with the robin—he had three in his garden who were accustomed to perch on his hand—he felt that naturalists were only at the beginning of their knowledge of this little warbler. A close study of birds, he thought, would show that their domestic life, at any rate as regards sexual behaviour, was more attractive and of a higher kind from the human standpoint than anything to be found among mammals. The lecturer went on to

[1] Hutchinson, Jonathan (1878): *Illustrations of Clinical Surgery*, i, 113.
[2] Schlossmann (1926): *Deut. med. Woch.*, 1241.
[3] Keynes, G. (1922): *Blood Transfusion*. London: Henry Frowde and Hodder and Stoughton.
[4] Feinblatt, H. M. (1925): *Transfusion of Blood*. New York: The Macmillan Company.
[5] *Journ. Amer. Med. Assoc.*, 1929, 93, 931.
[6] *City of New York Department of Health Weekly Bulletin*, 1929, 18, 289.
[7] Masson (quoted by H. Neuhof, 1923): *The Transplantation of Tissues*. Surgical Monographs. New York: D. Appleton and Co.

say that he believed some of the theories of evolution and the survival of the fittest which had great vogue in the last century were now found, not indeed to be without basis, but to cover a much less extensive field than was formerly thought. When a theory was found to cover some of the facts there was a tendency to assume that it covered all, and to ignore facts which told in the opposite direction. In this connexion he mentioned the protective coloration of birds' eggs. The theory had obtained that colour, shape, and markings of eggs had a protective utility for the species. Some birds laid their eggs on stony beach, and the eggs were almost indistinguishable from the pebbles; others, like the woodpecker, laid their eggs in hollows where they were unseen, and laid white eggs—a confirmation of the theory on the negative side. But other birds, such as the redstart, also nested in hollows and laid eggs which might be supposed to be protectively coloured; while, on the other hand, the woodpigeon laid white eggs conspicuously in the open, and the thrush laid eggs which almost called attention to themselves, and the species still flourished. It appeared that while there were cases where the theory of protective coloration seemed to hold good, there were many others where the theory broke down. Much in nature did not seem to serve any utilitarian purpose, and had to be accounted for in some other way. The secrets of nature were still largely undisclosed. Lord Grey expressed his satisfaction that the somewhat sordid conflict between religion and science was receding. At one time the discoveries of science were advancing so rapidly that they seemed to be reducing the area of the unknown; but now, while scientific knowledge had vastly increased, the vista of the unknown, and with it the area of speculation, had enlarged yet more. Finally, Lord Grey spoke of the pleasures to be derived from the observation of nature, especially from the recurring seasons. At the same time, he was careful not to imply any criticism of those to whom beauty in nature did not appeal and who sought more artificial sources of enjoyment. "We must not erect our own pleasures into other people's duties."

SPECTACLES FOR VERY FINE WORK.

In our issue dated March 12th, 1927 (p. 483), we reviewed a report of the Industrial Fatigue Research Board on the effect of eyestrain on the output of linkers in the hosiery industry. In a report[1] recently issued this problem is discussed in relation to workers in other trades, and observations are recorded on the value of special spectacles to operatives engaged in very fine work. Certain industrial processes demand for their effective performance such clear perception of fine detail that illumination, however good, does not abolish the need for near vision, with its concomitant strain on the muscles of accommodation and convergence. Relief from this eyestrain can be secured without difficulty by the use of spectacles furnished with suitable lenses and prism corrections. Workers engaged in "linking" hosiery, in mounting lamp filaments, and in the weaving operation known as "drawing in" have almost unanimously expressed their liking for the spectacles, while their value has been objectively demonstrated by the fact that with but few exceptions their use has been associated with an increased output of work. The examination of fine steel balls for defects, such as cracks, flats, and pits, entails great visual strain; in this operation only workers with 6/6 vision are employed, and they are allowed frequent rests. By the use of glasses the hourly rate of output during the day was increased without any additional fatigue. In the weaving industry, woollen cloth, after it leaves the loom, is passed on for burling and mending; threads of the warp or weft may be missing, but the details can only be seen clearly when the eyes are brought very close to the material. Mr. Harry Lee of Leeds examined a dozen workers engaged in this operation, and prescribed suitable glasses; in every case a given amount of mending could be done in a substantially shorter time. From a purely economic standpoint, therefore, it is worth while prescribing glasses even to normal persons engaged in this kind of work. Dr. Wallace Henry of Leicester records further observations on the value of spectacles to linkers. The subjects of the earlier experiments have now used spectacles for three years without ill effect, and others in the same factory have recently adopted their use. Mr. E. B. Alabaster of Birmingham prescribed spectacles for workers engaged in filing fish-hooks, and found that the average hourly earnings of these workers were much higher after the glasses had been prescribed than they were before. Similar good results were obtained among those engaged in chevening, the name given to the process of working clocks on hosiery. Certain general considerations arise in connexion with prescribing suitable glasses for near vision; these glasses fog distance vision, and it is better, therefore, that they should be D-shaped so as to allow of clear vision over the lens. For some purposes the binocular loupes commonly used by eye surgeons and for fine dissections are recommended; these have small lenses, and are worn resting on the tip of the nose. The comfort of glasses, and the absence of unpleasant sensations, as of "drawing" the eyes, depend largely on the combination of suitable prisms with the spherical lenses. Many persons have latent insufficiency or excessive convergence at reading distance. In examining workers engaged on fine processes tests of muscle balance at six metres are not enough; the muscle actions must be tested at the working distance. It has been suggested that the use of these glasses by normal persons reduces the natural stimulation of the muscle, and eventually renders artificial aids imperative. Subjects of the experiments found, however, that they were able to do their ordinary domestic sewing in the evening as well as ever.

[1] Medical Research Council, Industrial Health Research Board. Further Experiments on the Use of Special Spectacles in very Fine Processes. By H. C. Weston and S. Adams. London: H.M. Stationery Office. 1929. (Pp. 25. 1s. 3d.)

AN OSLER COMMEMORATION.

We share with our Canadian brethren their pride in the memory of William Osler, who was of not remote English descent, and whose greatest achievement, perhaps, was the introduction into North American medical schools of the English system of clinical teaching, which he elaborated and improved. It is too early, only ten years after his death, to guess at the niche he will ultimately occupy in the temple of medical fame, but we may be sure that it will be an important one. Textbooks—even the great ones, such as Watson's *Lectures on Physic*—are soon buried under the accumulated mass of later knowledge, but the impression made upon a man's contemporaries and juniors may endure much longer. Osler made no memorable contribution to medical knowledge and practice, but his gift of teaching, his kindly, tolerant nature, his humour, and his power of bringing men together to work in concert, will not soon be forgotten. We congratulate, therefore, the Canadian Medical Association on its action in setting apart a day of its annual meeting last June in Montreal in honour of Osler's memory.[1] On this day, which was officially called Osler Day, the Osler Library in the building of the McGill Medical School was thrown open to inspection, with all its treasures of medical literature. It had been intended that the first Osler Oration should be delivered by Dr. Francis J. Shepherd of Montreal, formerly dean and professor of anatomy at McGill, and a close friend of Osler's. Unhappily, Dr. Shepherd lived only to write the oration, but died

[1] The Osler Memorial Celebration. *Canadian Medical Association Journal*, August, 1929.

before the time of the meeting. The duty of reading his almost complete manuscript fell to Dr. H. A. Lafleur, another close associate of Osler's, who rounded off Dr. Shepherd's address with some of his own impressions and memories of his friend. The address consisted of a short description of Osler's career and an eloquent tribute to his personal qualities. Osler's cousin, Dr. W. W. Francis, who is the librarian of the Osler Library of 7,600 volumes, gave an interesting account of Osler's development as a bibliophile and the establishment of the Bibliotheca Osleriana. It is always a source of wonder to less industrious and less gifted persons how such men as Osler find the time to acquire the discriminating knowledge by which they are enabled to make such a collection of books. They would appear to combine within themselves some at least of the qualities of a Bernard Quaritch with the erudition of a Joseph Frank Payne. The collector's instinct is, indeed, not always associated with great intellectual qualities, and the bibliophile's interest sometimes stops short of the message contained between the covers of his precious tomes; but Osler was as much a reader as a collector. It is understood that funds have been collected in Canada to endow an Oslerian Oration, to be delivered every three years. The institution of this lecture bespeaks a worthy enthusiasm, yet we may be permitted to wonder what the hero of the occasion would himself have thought of it. Not the least of his charms lay in his sometimes impish humour, which might on such an occasion have prompted his *Doppelgänger*, "E. Y. Davis," to produce one of his characteristic satirical sallies. It was in the name of this same E. Y. Davis that Osler, as Dr. Francis tells us, produced an as yet unpublished paper entitled "The burrowings of a bookworm," with a quotation from which Dr. Francis concluded his account of the library: "I like to think of my few books in an alcove of a fireproof library in some institution that I love; at the end of the alcove an open fireplace and a few easy chairs, and on the mantelpiece an urn with my ashes and my bust or portrait, through which my astral self could peek at the books I have loved, and enjoy the delight with which kindred souls still in the flesh would handle them." These aspirations of E. Y. Davis, with their flavour of *Religio Medici*, have been followed as closely as possible in the arrangement of the "Bibliotheca prima," and Osler's ashes and his portrait repose among his beloved books.

A Royal Medal of the Royal Society has been awarded to Professor Robert Muir, M.D., F.R.S., for his contributions to the science of immunology.

The eighteenth volume of the *Wiener Archiv für innere Medizin* is dedicated to Professor K. F. Wenckebach on the occasion of his retirement from the chair of medicine at Vienna University.

An international society of orthopaedics has recently been founded on the initiative of Professor Putti of Bologna. A congress will be held every three years. The first will take place on June 5th, 1930, in Paris, under the presidency of Sir Robert Jones, with Professor Putti and Professor Gocht of Berlin as vice-presidents. The number of members has at present been limited to a hundred, of whom ten are British.

At a recent meeting of the council of management of the British Science Guild, the constitution of the Royal Commission on the Civil Service was discussed. Disappointment was expressed at the fact that, although the State directly conducts under its own management important and highly scientific and technical undertakings, the Royal Commission does not include a single scientific expert, or a man engaged in the application of science to the needs of the community.

AUSTRALASIAN MEDICAL CONGRESS.

THIRD SESSION, SYDNEY, 1929.

The third session of the Australasian Medical Congress (British Medical Association) was opened in the Town Hall, Sydney, on September 2nd, by Lord Stonehaven, Governor-General of the Commonwealth; between 2,000 and 3,000 people were present. In the course of his speech Lord Stonehaven spoke of the rapid progress made during recent times in the science of medicine, and warmly commended the part played by the medical profession in spreading civilization. He extended a cordial welcome to Sir Ewen Maclean, the retiring President of the British Medical Association, and to Dame Janet Campbell. The previous session of this congress had been held in New Zealand two years previously,* and eminent representatives of the medical profession there had now come to take part in the congress in Sydney. The presence of these distinguished guests was an indication of the reality of the links by which the Empire was held together. One such link was the British Medical Association, which was promoting team work in the conquest of disease, and had a record unsurpassed by any body of professional men. The Governor ended with an appeal that those who could should assist to the utmost of their financial ability in the encouragement and endowment of research.

The proceedings of the congress occupy two issues of the *Medical Journal of Australia* (October 5th and 12th), to which we are indebted for much of the information here presented.

President's Address.

Dr. G. H. Abbott of Sydney devoted his presidential address to a study of the great progress made in the treatment of disease in the last forty years. Since he started practice at the Royal Prince Alfred Hospital he had seen the carbolic acid spray pass out of use; the discovery of appendicitis, a curable condition which had replaced the dread diagnosis of "peritonitis," with its hopeless prognosis; the advent of gall-bladder surgery; the immense improvement in operations on the stomach and intestines; and the saving of innumerable lives by the introduction of diphtheria antitoxin. The president called especial attention to the advances in cancer research and the importance of early diagnosis. He commented pungently on the importance to Australia of improving the birth rate, and referred to the improvements introduced in New South Wales with regard to the prevention of maternal mortality and the promotion of infant welfare.

The Premier of New South Wales moved a vote of thanks to the president for his address, and touched on the valuable services rendered by Dr. Abbott as a distinguished graduate of the University of Sydney, a great hospital administrator, a successful surgeon, and a wise counsellor, who had always upheld the highest traditions of the profession. Sir Louis Barnett of Dunedin, president of the second Australasian Medical Congress, also joined in the tribute to Dr. Abbott, and spoke with deep regret of the death of Sir George Addington Syme. Sir Louis Barnett expressed the belief that these congresses would help to solve some problems of politics and economics, as well as those of science.

Gold Medal of the Association Presented to Dr. W. H. Crago.

The President then presented Dr. W. H. Crago with the gold medal of the British Medical Association in Australia, in recognition of the distinguished services he had rendered. Dr. Abbott recalled Dr. Crago's work on

* *British Medical Journal*, 1927, vol. i, pp. 584, 622, 670, 728, 773.

the Council of the New South Wales Branch since 1889, particularly as honorary treasurer from that year till the present time, with the sole exception of the year 1894, when he had been president of the Branch. Dr. Crago's great work for the *Australasian Medical Gazette* and the Australasian Medical Publishing Company has been previously noted in our pages from time to time, as also his immensely valuable contributions to the task of providing first one and then another house for the British Medical Association in Sydney. In many other directions Dr. Crago has lent his willing help, and, in short, as the president remarked, the history of the New South Wales Branch appeared to be practically the history of Dr. Crago's association with it.

Cancer Research in Australasia.

A meeting of the whole congress, numbering nearly a thousand, was held on September 3rd, with the president, Dr. G. H. Abbott, in the chair. Dr. F. P. Sandes (Sydney) opened a discussion on cancer research with a carefully reasoned statement of its present position and the developments which were contemplated in the future. He recounted the progress made in Sydney since the Cancer Research Committee had been appointed by the University in 1921, and expressed the hope that the whole Australasian organization might soon be unified more effectively than it was at present. Among other details mentioned was the establishment by the University of a radium emanation station and of hospital clinics; the University had received a sum of more than £130,000 during the seven and a half years of the campaign; moreover, the Commonwealth had provided an adequate supply of radium. Dr. Sandes then gave an account of the work going on in the various hospital clinics. At one of these alone during the last fifteen months more than 1,000 patients had presented themselves for examination, treatment, and inspection after treatment. About 500 patients had been submitted to deep x-ray therapy, and 800 to radium, with or without surgery. Dr. Sandes emphasized the importance of *promoting closer co-operation with investigators in other* departments of science, and stressed the necessity of free and frequent consultations between those engaged in cancer research. He reminded the congress of the educational aspects in cancer work, and recommended the members of the British Medical Association to do all in their power to spread authoritative information, as had been done in the case of venereal disease, tuberculosis, and *small-pox*. As regards treatment, surgery still remained the sheet anchor, but the University had now opened a laboratory for the preparation of colloidal lead, and had arranged for its distribution to hospitals and practitioners. In view of some lack of success which had attended this treatment, the Research Department was continuing careful experimental work. Further study was also necessary with regard to the basis on which the x-ray and radium lines of therapy were founded. He hinted that abstract speculation in physical science might possibly result in information which would serve to explain why radiotherapeutic measures sometimes failed and sometimes succeeded.

Professor Peter MacCallum (Melbourne) gave an account of the progress of cancer research in Australia, with special reference to the work in progress at the Walter and Eliza Hall Institute of Research in Pathology and Medicine, the Melbourne Hospital, the Baker Institute, the Royal Prince Alfred Hospital, and the Commonwealth Serum Laboratories. Dr. E. S. Meyers (Brisbane) read a contribution by Dr. Sandford Jackson, relating to the cancer campaign in Queensland. The Federal Government and the Queensland Government had each promised a subsidy of £5,000, and a number of committees had been appointed following the lines of those in New South Wales and Great Britain. An appeal was being launched for £100,000, and energetic steps were being taken to acquaint the public with the necessity for providing this sum. Reference was made to the degree of success attending the use of x rays, radium, and colloidal lead; the last of these had been abandoned. Dr. A. A. Lendon (Adelaide) described the progress made in South Australia, and Dr. I. R. Smith (Perth) read a statement by Dr. Bromhall, with reference to Western Australia. A new block of buildings was being erected in the grounds of Perth Hospital, comprising x-ray and radium departments. Reports were also received from Tasmania and New Zealand. The ensuing discussion ranged over the various points that had been raised, special reference being made to laboratory work.

MEETINGS OF SECTIONS.

Peptic Ulcer.

The first paper in the Section of Medicine was read by Dr. C. T. Champion de Crespigny (Adelaide); it was based on the examination of 802 patients treated at the Adelaide Hospital during four years, representing 2 per cent. of all patients admitted in that time. In the course of his paper he mentioned that, judged from the post-mortem findings, the frequency of this condition in the Mental Hospital was as high as 8 per cent. The etiology of gastric and duodenal ulceration remained a problem, but the speaker had observed a frequent association between ulcer and appendicitis. He believed that ulcers began acutely. Cancer rarely followed a gastric ulcer, and never occurred in a duodenal ulcer. Medical treatment should, he thought, be continued for three months, using either the methods of Sippy or MacLean. If, however, there was any suspicion of malignant disease, gross deformity and impairment of gastric function, duodenal ulcers with the retention of the test meal after five hours, recurrent haemorrhage, or deeply penetrating ulcers, surgical intervention seemed desirable. Dr. James R. Bell (Melbourne) discussed the statistical incidence of the various signs and symptoms in gastric and duodenal ulcer, with a view to assisting differential diagnosis. He concluded that such diagnosis depended mainly upon the association of a suggestive history with positive x-ray findings. Professor Hugh MacLean mentioned some etiological factors that might be concerned, and remarked that in Australia the conditions might differ from those in England as regards the seasonal incidence of peptic ulcer. He indicated some of the salient points in diagnosis, and devoted considerable attention to the treatment of this condition by a mixture of alkalis. He gave an account of the results of treating patients in this way at *St. Thomas's Hospital since 1923*, and concluded that the success obtained afforded a striking illustration of the value of suitable medical treatment. Dr. S. F. McDonald (Brisbane) urged the importance of considering the patients as well as the peptic ulcer, and submitted the possibility that some nervous disturbance might be concerned. Dr. H. A. McCoy (Adelaide) gave details of the use of radiology *in diagnosis, while Professor* A. E. Mills (Sydney) called attention to the value of a careful general clinical examination spread over several days. Dr. D'Arcy Cowan (Adelaide) reported a case to illustrate the necessity of after-care subsequent to an operation. Sir Louis Barnett (Dunedin) suggested that though there had been fewer operations at St. Thomas's Hospital during the last few years the pendulum might swing again in the direction of surgery.

Oedema.

Sir Richard Stawell (Melbourne) opened a discussion on oedema by calling attention to the problem of *determining* whether the persistence of fluid was due to a chronic defect of the kidney function or to an abnormal stagnation of fluid in the tissue spaces. He *considered* carefully the various factors in cardiac and renal oedema, including those of physical and chemical nature. He outlined the various methods of treatment which had been found useful in different conditions, and concluded that further investigation was *certainly* necessary. Professor D. W. Carmalt-Jones (Dunedin) devoted his speech to the etiology of oedema, and mentioned the part played by vitamin deprivation. Professor MacLean discussed the problem of the ability of the tissues to absorb fluid. Dr. J. F. Mackeddie (Melbourne) held that the albumin ratio had an etiological significance, and Dr. C. B. Blackburn (Sydney) stressed the value of *estimating* renal efficiency when confronted by oedema.

Protein Therapy.

Dr. Ivan Maxwell (Melbourne), in his opening paper on this subject, discussed the biochemical factors in protein therapy, with special reference to cutaneous tests. He pleaded for a more thorough course of pollen desensitization as a

prophylactic against certain forms of asthma and nasal sinus infection. Professor CARMALT-JONES discussed vaccine therapy, which he believed had not proved so useful as had been hoped. It was still valuable in expert hands, but was far from being foolproof. Great care had to be taken in obtaining the exact type of organism concerned. Dr. A. E. TAYLOR (Dandenong) condemned vaccine therapy as useless, and even harmful. Dr. B. M. SUTHERLAND (Melbourne) thought that the phenomena of hypersensitiveness constituted the important factor in diagnosis and treatment. Dr. C. T. CHAMPION DE CRESPIGNY (Adelaide) reported a case in which a girl, who was sensitive to egg albumen, had been desensitized, but the desensitization had only persisted for a short time. Dr. D'ARCY COWAN discussed the value of tuberculin, and urged the importance of giving large doses in suitable cases. Dr. K. HILLER (Melbourne) defended the use of vaccines, not only for prophylaxis, but also for therapeutic purposes.

(To be concluded.)

Nova et Vetera.

AN EARLY ADVOCATE OF EXERCISE IN THE OPEN AIR.

THE verses reproduced under this heading in our issue of November 2nd (p. 813) have already brought letters from Professor Karl Pearson, Dr. Parkes Weber, and others, throwing light on Dr. Jephson of Leamington, to whom the poem was "mirthfully inscribed." We have now received a good deal of further information from Mr. G. G. Bonser of Sutton-in-Ashfield, who has close family links with our profession, and seems to have specialized in Jephsoniana. As our readers now know, Dr. Jephson's name is still honoured in the town which he did so much to popularize as a health resort in the early part of the last century. The following biographical notes are extracted from an article contributed some years ago by Mr. Bonser to a local newspaper.

HENRY JEPHSON, M.D.

Henry Jephson was born on October 4th, 1798, at Sutton-in-Ashfield. In boyhood he showed a love of chemistry, and while experimenting with an explosive salt two of the fingers of his right hand were blown off. Despite this handicap he studied medicine at St. George's Hospital, and then went to Leamington (where he had previously lived for a time) as assistant to a Dr. Chambers. He was soon admitted into partnership, and became highly popular and successful. In 1828, however, he sold his practice and proceeded to Glasgow University, where he graduated M.D. After this he put up his plate at Cheltenham. "His fame was, however, so universal that a deputation of influential inhabitants of Leamington waited upon him, and finally induced him to return, and he purchased back his original connexion. Thenceforward his professional career was one of unbroken, brilliant success; he was literally besieged by eager patients, while a considerable portion of his time was devoted to gratuitous advice to the poorer class." In 1848 he became blind, and for twenty-six years his devoted wife waited upon him. She died in 1874, but he lingered on till May 13th, 1878.

Dr. Jephson was a munificent donor to the local hospital, and one of the founders of Leamington College; the restoration of the parish church and the preservation of the Pump Room were due to him. In fact, there was not a single institution in Leamington which did not share in his generosity. The Jephson Gardens in the centre of the town contain a marble statue, and the Pump Room a full-length portrait, both provided by public subscription; in the Town Hall there hangs a portrait, the gift of a grateful patient. His great success as a physician seems to have been due to his commanding personality and his rigid enforcement of regimen and diet. The Earl of Shaftesbury wrote of Jephson: "The very appearance of the man inspires confidence." A memoir appeared in the *British Medical Journal* of May 25th, 1878.

HANDLING AND STORAGE OF X-RAY FILMS.

RECOMMENDATIONS OF THE X-RAY AND RADIUM PROTECTION COMMITTEE.

ON a number of occasions recently we have considered some of the practical problems connected with the protection of hospitals from fire. The disaster at the Cleveland Hospital, Ohio, focused the attention of hospital authorities on the urgent need for precautions in the storing and handling of x-ray films, and it will be recalled that on June 8th (p. 1057) we published a letter from the British X-Ray and Radium Protection Committee embodying a number of simple suggestions to this end. This committee consists of representatives of the Section of Electro-Therapeutics of the Royal Society of Medicine, the British Institute of Radiology and the Röntgen Society, the National Physical Laboratory, the Institute of Physics, the Radium Institute, and the Universities of Liverpool, Manchester, and Edinburgh, under the chairmanship of Sir Humphry Rolleston. Its views, therefore, merit the careful attention of the authorities concerned in all the hospitals in this country. In the course of its letter the committee stated that, as further facts came to hand, it would pursue its investigations into the whole question of possible danger from x-ray films, and ultimately would draw up what detailed recommendations it considered advisable. The committee has now issued a thoughtful memorandum, in the course of which it reminds x-ray workers of the extreme rapidity with which the films in common use—namely, those of cellulose nitrate—burn when ignited. The burning of cellulose nitrate in bulk is almost explosive in character, and results, also, in the generation of large quantities of carbon monoxide and oxide of nitrogen, both of which are highly toxic compounds. Moreover, carbon monoxide is itself inflammable, and mixed with air may give rise to an explosion. It must be remembered, too, that celluloid will burn in the absence of air. The committee, while recording its view that the production and use in this country of satisfactory "safety" x-ray films should be encouraged, makes the following specific recommendations.

X-Ray Rooms.

In all rooms where x-ray films are handled and stored naked lights and open fires should be prohibited. Smoking should be prohibited in or near film cabinets or film stores. Films should not be placed near steam pipes, radiators, or the like. A ready supply of fire extinguishers, together with buckets of water and sand, should be available. The best means of extinguishing burning celluloid appears to be by the application of water.

Electric light installations should be of a permanent character; electric light bulbs in or near film stores or cabinets should be enclosed in strong glass globes. Generous ventilation should be provided, and, as recommended in para. 5 of the International Protection Recommendations, the plan of an independent exhaust fan in each room is to be preferred to a duct system common to a number of rooms. Doors should be arranged to open outwards, particularly from film-drying rooms and dark rooms.

The stock of x-ray films, whether unexposed or developed, should be kept down to the minimum. The stock of film records should be subjected to periodical drastic weeding out, and discarded films should be at once deposited in strong fireproof metal containers with self-closing lids, and destroyed at frequent intervals. They should not be placed in general refuse bins or burnt in a closed vessel. Stocks of unexposed films for immediate use, or current files of developed films, should be stored in cool and dry lock-up thermally insulated metal or hard-wood cabinets. Such a stock should not exceed a total of about 50 lb. (that is, about 1,000 12 in. by 10 in. films) distributed among several cabinets. Cabinets for unexposed films should be lead lined.

Developed films which are temporarily taken into hospital wards or theatres should not be left lying about in table drawers or cupboards, but should be kept in suitable metal containers. Such films should be returned to the x-ray department as soon as possible.

Film Stores.

Stocks of film exceeding about 50 lb. should not be stored in the x-ray department, but in a special, dry, cool, and well-ventilated room reserved exclusively for the purpose. The situation of the film store should not be such as to endanger the means of escape from any part of a building. The store should not be in the proximity of a lift-shaft or staircase-well,

or near an intake or outlet of a general duct-ventilating system. In no circumstances should it communicate with a general duct-ventilating system. Preferably the store should be an isolated single-story building with independent access. Failing that, the store may be placed on the roof of a building or, if that is not feasible, in one of the higher stories in as isolated a position as possible.

The walls, floor, and ceiling of the storeroom should be fireproof and of robust construction. The door should be fireproof and of a self-closing, closely fitting type. If the storeroom forms part of a main building, a useful further precaution is a fireproof vestibule with a second fireproof door. The store should be provided with a direct vent to the outer air, preferably on the side remote from the most adjacent building. Such a vent should not normally be less than a square foot in effective area, a figure which may require to be exceeded for large stores. The vent may be protected against weather, etc., by thin, unwired glass, or other equally frail device.

The store may well be equipped with steel cabinets. If it is designed to carry unusually large stocks of films (exceeding, say, one ton), it should be divided into completely isolated fireproof compartments, each with its own vent and fireproof door. The temperature of the store should be maintained at a moderate figure. If the roof is exposed to the sun suitable thermal lagging may be necessary in hot climates. It seems certain that good quality celluloid does not ignite spontaneously at any temperature attained under ordinary room conditions. The store should be equipped with an automatic water sprinkler device. If windows are provided in a film store they are best situated in a north wall, though other considerations may be more important. Any windows immediately above the windows or vent of the storeroom should be provided with wired glass.

THE MEDICAL WOMEN'S FEDERATION.

Council Meeting in Edinburgh.

The Medical Women's Federation held its autumn council meeting, from October 31st to November 2nd, in Edinburgh, where the members were hospitably entertained by the Scottish Eastern Association. The hall and rooms of the Royal College of Surgeons of Edinburgh were kindly placed at the disposal of the Federation, a favour which was much appreciated by all those present.

Among the subjects considered was a national maternity service scheme, which had been drawn up by a special committee, and which, with slight alterations, was accepted.

The dismissal of women from their medical work on marriage was discussed, and the opinion of the Federation was expressed in the following resolution:

> The Medical Women's Federation in council assembled expresses its firm opinion that marriage should not constitute a bar to the appointment of a woman to any medical post, nor should it be a cause for the termination of her contract. Her ability to carry out such contract should be the only deciding factor.

The inadequate salaries of the medical women in the employment of the Post Office were discussed, and it was reported that the Postmaster-General had consented to receive a joint deputation of the British Medical Association and the Federation, in order to hear their representations on the subject. The differentiation between the salaries paid to the woman deputy commissioner under the Board of Control for Scotland was also brought to the notice of the council. The work done by all the deputy commissioners is similar in every respect, yet the woman's maximum salary is considerably less than that of the men, and this maximum was reached by her in 1919. The male deputy commissioners appointed subsequently to herself have long since exceeded her in the matter of salary. Representations had been made in 1922, and again in 1924, but without any satisfactory result, and it is now intended to take up this matter with the Board of Control for Scotland once more.

Three new committees were appointed by the council: (1) a standing committee on national health insurance; (2) a committee for the promotion of an improved women's health service for India; (3) a committee to deal with the question of dysmenorrhœa among factory workers.

The council also passed a resolution requesting the British Medical Association to consider the desirability of suggesting to the General Medical Council that an additional representative for England be added, and stating the desire of the Federation to be associated with the British Medical Association in any representations which might be made on the subject. The council was of opinion that the great increase in the numbers of the medical profession, and the length of time since the last member was added, warranted the consideration of such an addition to the direct representatives of the profession on the General Medical Council.

Ireland.

Medical Register for the Irish Free State.

At the recent session in Dublin of the Free State Medical Registration Council there were present: the president, Dr. D. J. Coffey (nominated by University College, Dublin), Dr. H. F. Moore (nominated by the Executive Council), Mr. John Dundon (nominated by University College, Cork), Dr. Stephen Shea (nominated by University College, Galway), Dr. A. F. Dixon (nominated by the University of Dublin), Dr. E. Magennis (nominated by the Apothecaries Hall of Ireland), Mr. R. C. B. Maunsell (nominated by the Royal College of Surgeons, Ireland), Professor T. G. Moorhead (nominated by the Royal College of Physicians, Ireland), and Mr. M. R. J. Hayes and Dr. R. J. Rowlette, direct representatives. The president said that with the recent publication of the first *Free State Medical Register* and of the regulations for the procedure of the Medical Registration Council of Saorstát Eireann, the functions of the Council come before the medical profession, the qualifying bodies, and the public of the Irish Free State in ordinary routine. The privileges resulting from registration—namely, the exclusive right of the practitioners so registered to give legal certificates, to claim fees in their courts, and to fill public medical appointments—had been in operation since the establishment of the *Register* on May 26th, 1928, and he directed the attention of all medical students near the date of their final examinations to the need of registering when they qualified. The powers of the Medical Registration Council in reference to medical education and examination were also formally before their qualifying bodies. In respect of the powers affecting removal of names from the *Register* for offences coming within the provisions of the Medical Practitioners Act, 1927, the procedure proper to the exercise of such powers was embodied in the published regulations. There was here nothing that the medical profession in Ireland had not been familiar with previously in the procedure under the General Medical Council. While it was hoped and believed that the actual conduct of Irish medical life would need few occasions for the exercise of such powers it seemed proper now to direct attention to the obligation which was on the Council to discharge its duties in cases of conduct coming within the provisions of the Medical Practitioners Act. Such cases could only be presented, considered, and decided in accordance with the procedure which the regulations prescribed. Other powers of the Council indicated the status conferred upon it by the Medical Practitioners Act, in virtue of which questions of reciprocity with foreign countries and dominions might be considered and dealt with. Special relations existed with the General Medical Council in respect of right of entry in the British *Medical Register* on payment of the proper fees, as well as practical provisions as to the procedure in penal cases. He would add that the Medical Registration Council appreciated the fact that a large number of Irish-trained medical men permanently resident out of Ireland manifested their interest and appreciation of the establishment of their *Register* by taking all the necessary steps to ensure the registration of their names. In conclusion, Dr. Coffey expressed the Council's gratitude to the authorities of the Department of Local Government and Public Health for the facilities it had afforded to the Council, and to Mr. Wilfrid Brown, who had acted as registrar, for his able services in the preparation of the *Register* up to its establishment. Routine business in connexion with the *Register* was then transacted.

National Health Insurance Bill, 1929.

In moving the second reading of the National Health Insurance Bill, introduced in the Dáil on October 23rd, the Minister for Local Government and Public Health said that the bill was largely based on the findings of a committee appointed in 1924, which reported in 1927. That committee found that there was real benefit to the working classes through national health insurance. That fact was borne out by figures, for in 1928 a total of 21,250 persons received sickness benefit at a cost of £563,000. The bill

did away with the deposit type of contributor, and it was therefore necessary that the existing rights of societies to refuse or expel members should be withdrawn, except from societies founded for certain classes of persons. Under the existing law there was a contribution of 1s. 3d. per insured person for the treatment of tuberculosis, the administration of which was entrusted to county or county borough insurance committees. Half of the expenditure so entailed was recouped, with the result that there was a dual system of responsibility; the majority of insurance committees entered into agreement with local authorities, and transferred this portion of their funds in return for treatment in so far as money was available. The committees simply recommended certain insured persons for treatment, and the system gave rise to complaints. The bill suggested that the treatment of tuberculosis should be entirely in the hands of local authorities, and as a result these insurance committees would be abolished: The 1s. 3d. hitherto available and the fourpence available for the administration of the insurance committees would be transferred to the cost of medical certification. The committee had considered the question of the unification of approved societies and that of medical benefits. It was the opinion of the committee that unification of societies would be a more satisfactory way of dealing with the national health insurance scheme, possibly by way of better benefits and economy in administration. At the time the committee was sitting there were eighty approved societies, and at present there were sixty-five, so that this reduction had taken place since the committee sat. The committee was not prepared, however, to say whether unification was feasible; neither was the executive council. He intended, however, on the committee stage of the bill to introduce an amendment to give the House an opportunity of fully discussing the matter, with a view to improving the position. His amendment would take the form of authorizing the commissioners, in the case of voluntary amalgamation of societies during the next two years, to give a certain amount of compensation to employees whose services as a result of amalgamation might be dispensed with. His amendment would also provide that after two years the commissioners should have power compulsorily to amalgamate societies to a maximum number of twelve or fifteen for the whole State, and also to give compensation to employees as in the case of voluntary amalgamation, but granting no pensions. As to the question of medical benefits, the majority of the committee considered that there should be some such scheme. A great proportion of insured persons, however, received treatment already by the dispensary system throughout the country, and recently when boards of health were set up throughout the country it was thought that time would show what kind of scheme of medical benefits might be introduced. He personally thought that some system of medical benefits was very desirable. Dr. Hennessy (Dublin City South) expressed himself in favour of nationalization of administration rather than amalgamation of societies. He quoted figures showing that in the large cities the Poor Law medical service was inadequate for the needs of the people. He cited the case of a dispensary in Dublin where there were two dispensary doctors, who were euphemistically called "part-time doctors." Their average attendance on patients for any one of the past three years was: domiciliary 3,316, at the dispensary 19,944, making a total of 23,260. As each case would necessitate an average of four to six attendances, it meant that these two doctors made anything between 80,000 and 100,000 attendances. Their salary was £260 a year. In England, under the Insurance Act, no doctor could have more than 3,000 names on any one panel, and even that was considered too many. The medical profession favoured a national medical service in preference to medical benefits, because national medical service not only gave medical treatment to the insured man, but also to his dependants.

Treatment of School Children in Northern Ireland.

At the last meeting of the management committee of the Fermanagh County Hospital Dr. Kidd said there was a matter he wished to bring before it. As they knew, there was an arrangement drawn up between them and the regional education committee regarding the treatment of school children. Recently a child had been brought in for the removal of tonsils and adenoids. He had refused to perform the operation, and had therefore broken through the arrangement. He pleaded guilty to this, and asked the committee's indulgence. The reason he did so was that he did not consider that the child—the son of a retired merchant—came under the Act of Parliament as one who should benefit by State-aided medical service, and become a burden on the public funds. Dr. Kidd said he was entirely in their hands, but he mentioned the matter because it might be said, without considering the collateral facts, that he had taken the law into his own hands. He did so for the express purpose of bringing this whole matter to a climax at once. As he had said, it was only intended by the Act of Parliament that those who were necessitous should obtain benefit under its provisions. Such persons only pay 7s. 6d. to the regional committee, the remainder being paid out of public funds, and Parliament never intended that a man who had retired from business in comfortable circumstances should be able to have his child operated upon at the public expense, upon paying 7s. 6d. to the regional committee. He felt so strongly on this subject at the time the agreement was made that he went to the then secretary of the regional committee and asked that a reasonable income limit should be fixed below which parents would be entitled to have their children treated under the scheme. He did not claim any fee for patients who came there as ordinary hospital patients if there was some such limit fixed, and he considered his suggestion an eminently reasonable one. Mr. Dewane said that the trouble was that the agreement still stood. This child was attending a public elementary school, and the agreement was that all children attending public elementary schools should be treated irrespective of the position of their parents. A resolution regarding the agreement had been passed by the regional committee, and it was unfortunate that this incident had occurred, because the agreement would probably have been revised. Senator Porter said he thought that that committee would not sanction those with means being treated there as if they were paupers. Under the arrangement referred to in the above discussion patients repay or partly repay the cost of treatment to the regional committee. The chairman of the County Hospital remarked that he thought Dr. Kidd's attitude was correct.

Vital Statistics in Northern Ireland.

An important change has been made in the Registrar-General's seventh annual report for Northern Ireland, as was foretold last year would be the case. In his review of the mortality statistics for 1928 the rates have now been standardized by correcting them for the age and sex distribution of the population. The standard population adopted for this purpose is that of England and Wales in 1901, and since this population is also used as the standard by the Registrar-General for England and Wales, it is now possible to compare the death rates in the two countries. This having been done the fact emerges that during 1928 the death rate was 11.58 per 1,000 for Northern Ireland, as compared with 9.93 for England and Wales; an important feature of the Northern Ireland statistics is the relatively high death rate in the case of females. The corresponding figure in Northern Ireland for 1927 was 11.71, and for 1926 it was 12.26; the relatively low death rate in 1928 is mainly due to an appreciably smaller number of deaths from influenza, tuberculosis, and respiratory diseases, conditions which were responsible for the high rate in 1924. As a cause of death heart disease occupies the leading position, occurring mainly in persons of fairly advanced age. The figures are also relatively high for tuberculosis, cancer, pneumonia, bronchitis, and cerebral haemorrhage. It is noteworthy that there has been a slight decrease in the cancer death rate, which had shown an increase each year from 1922, with the solitary exception of 1926. The gratifying decline in the infantile mortality rate as compared with the previous three years is attributable to the fall in the rates from atrophy, debility and marasmus, bronchitis, and influenza. With very few exceptions the urban infantile death rates

were appreciably in excess of the corresponding rural rates; the number of births has fallen again, the figure for 1928 being 25,963, as compared with 26,676 for 1927 and 28,659 for the average of the last ten years. This implies that the birth rate, which was 21.3 per 1,000 of estimated population in 1927, has fallen to 20.8 in the year under review, which may be compared with the corresponding rate of 20.1 in the Irish Free State. The price of the Registrar-General's report is 2s. 6d.; it may be obtained from H.M. Stationery Office, or through any bookseller.

Scotland.

Honour for Glasgow Professor.

As briefly recorded elsewhere, the President and Council of the Royal Society have awarded a Royal Medal to Professor Robert Muir of Glasgow University for his contributions to the science of immunology. Professor Muir graduated M.A. at Edinburgh University in 1884, and M.B., C.M., with first-class honours, in 1888. He was for some years assistant to the professor of pathology in Edinburgh, and pathologist to the Edinburgh Royal Infirmary from 1892. In 1898 he was appointed the first professor of pathology in St. Andrews University, and relinquished this appointment one year later to become professor of pathology in the University of Glasgow, an appointment which he has continued to hold since that time. He is a member of the Medical Research Council.

An Interesting Bibliographical Gift.

On relinquishing office as president of the Royal Faculty of Physicians and Surgeons of Glasgow at the annual meeting, on November 4th, Mr. G. H. Edington presented to the Faculty an interesting memorial of its founder, Peter Lowe. The gift took the form of the first edition of Lowe's *Whole Course of Chirurgerie*, published by Thomas Purfoot, London, in 1597. The library already contained copies of the second, third, and fourth editions of Lowe's *Chirurgerie*, and, with this presentation, it now possesses a complete set of all the works and editions of Peter Lowe. Copies of the first edition of this book are extremely rare. One is known to be in the Radcliffe Library, Oxford; another is in London in the library of the Royal Society of Medicine, and a third copy is in the possession of the Royal College of Physicians of Edinburgh. The destination of a fourth copy, sold in London in October, 1924, for £120, is unknown. The copy presented to the Faculty library in Glasgow by Mr. Edington is slightly imperfect, lacking some few of the end pages. Otherwise it is in very good condition. The Faculty accepted the interesting gift with enthusiasm, and cordially thanked the donor.

Maternity Services and Child Welfare Schemes.

Reference was made in the *Journal* of October 5th (p. 643) to a circular issued by the Department of Health for Scotland in regard to duties under the Local Government Act of this year, and a series of circulars to be issued by the Department was mentioned. A circular (No. 26) dealing with maternity service and child welfare schemes has now been issued. This points out that, under the provisions of the Act of 1929, the local authority for maternity service and child welfare from May 16th, 1930, will be the county council, including small burghs within its area and the town council in large burghs. The schemes at present in operation within small burghs and county districts will therefore cease to operate from that date, and the work will be merged under the county council. Local authorities may make such arrangements as they think fit for attending to the health of expectant mothers, nursing mothers, and children under 5 years of age, subject to the sanction of the Department. County councils will thus require to submit schemes for sanction, although the large burghs will probably continue the schemes already in existence. It is also pointed out that the infantile mortality rate in Scotland is decreasing, but is still materially higher than the rate for England, and that puerperal mortality, which accounts for more than 6 deaths per 1,000 births, has shown no sign of a definite decrease. In both cases the Department believes much of the mortality, and indeed much of the maternal and infantile morbidity, to be preventable. A complete and efficient ante-natal service, it is held, would save much prolonged suffering and disability, including blindness from ophthalmia, deformity from poliomyelitis, rickets, or tuberculosis, and crippling heart conditions. The facilities outlined for mothers include instruction in general hygiene and maternity; the affording of medical assistance for illness connected with pregnancy, and of residential homes for necessitous women; provision of a midwife, doctor, or hospital treatment when necessary, and of home helps during the period of confinement; and the supply of food in necessitous cases. The arrangements in respect of children include the instruction of parents in the hygiene of childhood; home visitation; preventive clinics at centres; provision of hospital and convalescent accommodation, as well as play-centres, crèches, and places where healthy children can be received during the mother's absence or ill health; and the supply of food, including milk, in necessitous cases.

Welfare of the Mother.

Ante-natal clinics are required for women whose doctors are unable to keep them under supervision, and for women referred by doctors or midwives for consultation. The clinics will generally be provided at maternity hospitals, and the instruction of mothers will be undertaken here by health visitors, or, if need be, by the medical officers. The medical officer of the clinic should be an experienced obstetrician, and he will be assisted by a health visitor or nurse. There should be an arrangement for the provision of hospital beds for any women found to require in-patient treatment. Mention is made of the increasing desire on the part of expectant mothers to have their confinement in a maternity home; in other cases, arrangements should be made by local authorities to enable women in necessitous circumstances to obtain the services of a midwife, and in places where the standard of practice is found to be low it may be necessary to introduce well-trained midwives into the locality, with, if necessary, a guarantee of a minimum income. It is recommended that a rota of doctors should be formed for rendering assistance to midwives in cases of emergency. In the provision of maternity hospitals and homes sufficient accommodation should be secured not only for abnormal confinements, but for patients requiring ante-natal treatment, and for patients whose home conditions are such that they cannot be safely confined there. Definite arrangements must also be made for cases of puerperal fever requiring hospital treatment. The need for the establishment of homes attached to maternity hospitals is also considered.

Child Health.

The object of the Notification of Births Act is to enable the medical officer of health to take any steps desirable for supervising the health of the infant, and for the instruction of the mother in its management. An adequate staff of health visitors will be necessary to undertake systematic visitation of these infants; every child not medically attended at birth should be visited after birth by a medical practitioner, while the health visitor should visit weekly for the first month, and thereafter at longer intervals, until the child comes under periodic examination on entering school. The pre-school child should be encouraged to attend regularly at a health centre, in addition to this home visitation, and every effort should be made to secure medical examination at least twice a year. The primary function of centres is intended to be supervision, and mothers and children in need of treatment other than for minor ailments should be referred to the family medical practitioner or the treatment centre. It is suggested that local authorities might render the present school clinics available also for mothers and for children under the age of 5. The accommodation and equipment desirable at such a centre are indicated. Treatment centres are to be established for ophthalmic and dental work, for throat, ear, and skin diseases, and for sunlight treatment; if possible, these special treatment centres should be associated with general or children's hospitals, where facilities exist for supplying in-patient treatment which may be necessary.

Edinburgh Conference on Tuberculous Milk.

A conference, summoned by the Government, was held on November 8th at the Department of Health Office, Princes Street, Edinburgh, at which Mr. Tom Johnston, M.P., Parliamentary Under Secretary of State for Scotland, presided. It was attended by representatives of medical research bodies, public health officers, and officers of the various Government departments in Scotland, and the object of the conference was to co-ordinate research work in relation to public health. It was pointed out that something like 10 per cent. of the milk coming into large cities in Scotland was infected with bovine tuberculosis, and the discussion centred on the question of bovine tuberculosis and its effect upon public health. Attention was drawn to the heavy annual charge upon public health funds made by sanatorium treatment and other expenses connected with those suffering from the manifestations of this disease. At the conclusion of the conference a liaison committee was appointed to act between research organizations and local authorities in Scotland. The committee consisted of Dr. J. Parlane Kinloch, chief medical officer, Department of Health for Scotland, Sir Walter M. Fletcher, secretary of the Medical Research Council, Dr. J. B. Orr, director of the Rowett Research Institute, Aberdeen, Sir Robert Greig, Professor E. P. Cathcart, Professor F. A. E. Crew, Professor T. J. Mackie, and Mr. John Jeffrey, secretary of the Department of Health for Scotland. Dr. Kinloch was appointed chairman of the committee.

Anthropology and Medicine.

At a recent meeting of the Aberdeen Medico-Chirurgical Society Professor Alexander Low delivered his presidential address entitled "Anthropology and medicine." He pointed out that while undoubtedly hygiene and better nutrition had been all-important factors in making for better health, there was another factor which had to be taken into account—namely, racial inheritance. The influence of heredity in perpetuating the familial diseases had been fully recognized, but he suggested that in the study of not a few medical problems help could be derived from a knowledge of the process of race development and its social bearings. In Scotland much less displacement of population by invasion had taken place than was commonly supposed, and racial types could be traced in varying proportions in different parts of the modern population; thus the study of racial strain was a matter of practical importance. As regards the racial origins of the Scottish people there was a primitive substratum from Palaeolithic days along with representatives from the Nordic, Mediterranean, and Alpine races. The tall, fair, long-headed Nordic man was more suited to rural than town conditions, and there was evidence (E. G. Bowen) that in towns he was more liable to diseases—rather prone to tuberculosis, when depressed into industrial poverty. The broad-headed Alpine was an element that entered largely into the make-up of the people in the North-East of Scotland, and was characterized by patience, thrift, and caution. The short, dark, long-headed Mediterranean type was found in the poorer quarters of the large cities, for example in Glasgow, where they seemed to resist disease caused by overcrowding. In Glasgow the infant mortality had shown a uniform fall, and it was argued that the large proportion of immigrant Irish and Jews had added vigour to the native stock in withstanding the adverse conditions of city life. Some seven years ago, with the co-operation of Professor R. G. McKerron at the Aberdeen Maternity Hospital, and Dr. James A. Stephen of the Child Welfare Centre, Professor Low had begun to follow up growth in infants, and from that had been led to study how far and in what way, if any, racial type affected development. Knowledge of the physical characteristics of the pre-school child had been previously based on single measurements of groups of infants, and there was thus no way of estimating the degree of variation in the same individual child from year to year. This method of following up growth in individual infants was slow and laborious, and though for the past seven years many infants had been under observation the work was still far from complete. Some 1,000 infants had been examined at birth and measurements recorded, with so far as possible yearly re-examinations. In the Aberdeen infants the average birth weight of the male infant was 3,458 grams (7.625 lb.), and of the female 3,444 grams (7.59 lb.). It was of interest to note that there was little difference between the average weights of the two sexes, and infants born in Aberdeen were from six to eight ounces heavier at birth than those born in other towns in Great Britain. The average birth length of males was 49.2 cm. (19.3 in.) and of females 48.7 cm. (19.18 in.), about one inch less than the usually accepted average birth length. The average weight of the same group of infants at 12 months was 9,240 grams (20.37 lb.) for males and 8,306 grams (18.312 lb.) for females, and the average length at 12 months for males was 72.0 cm. (28.375 in.) and for females 70.1 cm. (27.625 in.). The effect of different rates of growth on development and its racial meaning were discussed. Study of the growth of the pre-school child was a matter of urgent importance, and to be of real value the individual child had to be observed year by year and the associated groups of characters recorded. Professor Low concluded by saying that much more anthropological research was needed, and that race study would develop great practical value for education and preventive medicine.

Professorship of Botany at St. Andrews.

Professor Robert A. Robertson, M.A., was, on November 8th, installed in the recently founded chair of botany at St. Andrews University, with charge of the departments of botany in the United College, St. Andrews, and in University College, Dundee. Professor Robertson was appointed lecturer in botany at St. Andrews in 1891, being one of the first lecturers appointed in the development of a school of medicine at St. Andrews and Dundee. He was made reader in botany in 1915. The ceremony took place in the University Library, and was performed by Principal Sir James Irvine, who said that the appointment would give great satisfaction both to Professor Robertson's colleagues and students, in view of the long services which he had rendered to the University.

England and Wales.

Tuberculosis in Lancashire.

In his annual report for 1928 Sir George Newman called attention to the particularly striking decline in the incidence of tuberculosis and in the corresponding mortality rate in Lancashire. The death rate due to pulmonary tuberculosis in that county in 1928 was 0.58 per 1,000 of the population, and, as in previous years, compared favourably with the corresponding rate (0.75) for England and Wales. The death rate in 1928 due to non-pulmonary tuberculosis in Lancashire (0.15 per 1,000) was, like the pulmonary rate, the lowest ever recorded in the county, and, in the fifteenth annual report on the work of the tuberculosis department, Dr. G. Lissant Cox, central tuberculosis officer for Lancashire, comments on these facts. The considerable advances made in sanitation in homes and workshops are, he agrees, undoubtedly contributory factors, while improvements in personal hygiene and the advance of education played a definite part. Nevertheless, the tuberculosis death rate has declined more rapidly in recent years than the death rates from all other causes. Dr. Lissant Cox has little doubt that this should be attributed in part to the better supervision of the patients' home conditions which has been effected, and the isolation in hospitals of infective cases when the home conditions are bad. The long-lasting industrial depression in Lancashire is, he considers, militating seriously against greater progress, and, indeed, temporary setbacks are to be expected if better conditions of employment do not develop soon. As regards the incidence of tuberculosis, the number of new cases of tuberculosis notified in 1928 was the lowest on record; Dr. Cox finds that both the pulmonary and the non-pulmonary forms are more prevalent among males than females. As in recent years pulmonary tuberculosis proved to be most fatal to females between the ages of 15 and 25; the figures for males in 1928 showed a remarkable evenness of mortality in the four age groups 15 to 25, 25 to 35,

35 to 45, and 45 to 55. Combining the death rates of both sexes the age group in which the heaviest mortality is now found is 15 to 25. This marks a considerable change in the last forty or fifty years, the mortality having definitely shifted in the direction of young adults, a change attributable to a distinct reduction of deaths of persons between the ages of 25 and 55, and not to any increase in the deaths among young adults. A considerable reduction has been effected in the past seventeen years in the number of deaths in the first five years of life, and to a smaller extent between the ages of 5 and 15. Recent researches undertaken in the county leave little doubt that an open pulmonary case may be the cause of non-pulmonary infection of a child, and, consequently, the reduction in the number of pulmonary cases, and their more rigid supervision, have helped to reduce the number of children with non-pulmonary disease.

The fate of young children who are members of tuberculous households has been the subject of an inquiry in Lancashire since 1925, and a report was issued last March, which was the subject of comment in our columns on May 18th (p. 918). It may here be recalled that the death rate from non-pulmonary tuberculosis of children exposed to risk in tuberculous households from adults with tubercle bacilli in the sputum was greatly in excess of the rate from the same cause in the geographical county of Lancaster, which served as a control in the investigation; it was nine times greater in the first twelve months of life, fourteen times greater in the age group 1 to 2 years, and nineteen times greater in the age group 2 to 5. Following the practice of previous years, new methods of treatment have been tried generally on patients in county sanatoriums and hospitals, under careful medical control. Dr. Lissant Cox, in his report, gives details of various preparations so investigated and the conclusions reached so far. The value of ultra-violet irradiation in non-pulmonary tuberculosis has been for several years recognized in Lancashire. He attributes much of the success thus attained to the fact that the tuberculosis officers themselves conduct the treatment, and that there is no dual control in this respect, as is the case in other places where less satisfactory results have been reported. Tuberculosis medical officers are given special facilities in Lancashire for specializing in light therapy, and it is calculated that over £1,200 was saved in the year by using this treatment in dispensaries as an alternative to sending the patients to hospitals. Light therapy has proved particularly useful in the case of patients suffering from tuberculosis of the skin and tuberculous adenitis, with abscess formation and skin involvement; it is not, however, recommended for pulmonary tuberculosis. Another prominent feature in the report is the improvement that has been effected in the last ten years as regards the notification of tuberculosis, and the belief is expressed that in Lancashire a much smaller proportion of cases escape notification than is the experience elsewhere. This results in diminution of sources of infection and contributes to the reduction of the number of new cases. Detailed reports are given of the various dispensary areas and residential institutions. Work began last August on the construction of new pavilions and other blocks for Wrightlington Hospital, Parbold. This new institution, when completed, will accommodate 60 adults and 146 children suffering from non-pulmonary tuberculosis, and 20 patients in whom both pulmonary and non-pulmonary forms occur together. As in previous years Dr. Lissant Cox's report is excellently illustrated. It constitutes a valuable record of an intensive campaign against tuberculosis, with the results that may be looked for when all the agencies concerned are closely co-ordinated.

West Bromwich and District General Hospital.

The medical committee of the West Bromwich and District General Hospital, in its annual report for the year ended June 30th, 1929, records with deep regret the loss the hospital has sustained through the death of Mr. Martin Young, who, as ophthalmic surgeon for over thirty-six years, had given devoted and faithful service. In his place two honorary ophthalmic surgeons have been appointed—Mr. Charles Rudd and Mr. E. B. Alabaster, both of Birmingham. Further new appointments have been those of Dr. W. R. A. Line of Handsworth and Dr. A. Frost of Wednesbury, as honorary anaesthetists. During the year under review 1,533 new in-patients—the largest number on record—were admitted to the wards, the increase over the previous year being 128. The general death rate was 4.3 per cent., 2.3 per cent. having died within forty-eight hours of admission. The number of new out-patients was 7,688, as compared with 8,060 last year, and in the casualty department 10,171 patients were treated, as against 9,919 in the previous year. The committee expresses the hope that the erection of a new out-patient department will be possible in the near future, the present building being out of date and unsuitable for dealing with the large number of patients who attend each day.

Belgium.

[From our Correspondent.]

A Monastic Medical Institution.

At the annual congress known as the Journées Médicales de Bruxelles, Dr. J. Tricot-Royer, a learned medical historian, gave an admirable account of the medical institution which was once housed in the Abbey of Orval. It is generally held, and by some very strongly, that this ancient abbey was once a famous home of science, in which the predominant place was taken by various branches of the art of healing. The lecturer gave details of the medical personnel so engaged, and made special reference to the presiding dignitaries: *le frère-médecin, l'infirmier, le chirurgien, le pharmacien,* and *les serviteurs des infirmes.* He enumerated the various functions of each of these offices, and mentioned that several might have been combined in a single person. The influence of Orval as an authoritative and beneficent scene of medical and philanthropic work permeated the whole territory which came within the abbey's sphere of influence. Among those ruins of the abbey building of the eighteenth century which were still standing there were to be seen valuable relics of the courts which the monks had set apart for medical purposes, including portions of buildings covering an area of 40 by 240 feet. A description was given of the solarium at the bottom of the garden, where the monks used to go for "sun treatment"; the old botanic garden was being restocked by restoring to it certain plants found growing in the valley, to which they had been gradually introduced by the *frères botanistes* throughout the ages. At the conclusion of his lecture, Dr. Tricot-Royer uttered an eloquent appeal for the protection of the sole considerable vestige of the ancient medical institution of Orval, the magnificent eighteenth century pharmacy, which was in danger of destruction.

Infantile Paralysis.

A severe epidemic of infantile paralysis has raged in Belgium this year, rising to its height in the neighbourhood of Antwerp. The affection was of the spinal variety, but, as a rule, the cases were atypical. After three or four days of slight pyrexia the children developed mono- or hemi-plegic paralysis, with a syndrome of meningeal contracture, often spasmodic, and a hyperaesthesia, which was very marked in the affected limbs; the general condition was but slightly affected. The disease increased by spurts, after intervals of quiescence lasting a day or two, during which the functional restoration was so marked as to justify parents and medical attendants entertaining hopes of recovery. Examination of the spinal fluid revealed a marked increase in albumin, and a lymphocytic cellular count ranging between 6 and 80 per c.mm. The colloidal reactions were those characteristic of meningeal affections; the condition could only be regarded as a meningeal syndrome. Some cases presented the typical appearance of a flaccid monoplegia with rapid atrophy. Three cases ended fatally, the poliomyelitis passing into a subacute Landry syndrome. One of these cases was exhaustively investigated, and a complete report of the anatomical and

pathological conditions will be published later; the process appeared to be an acute anterior and posterior poliomyelitis. Dr. Bogaert called the attention of the Society of Neurology to the possibility and importance of making a diagnosis in the pre-paralytic stage of the affection, and to the therapeutic value of associating Netter's method of treatment—*the injection* of blood from a convalescent patient—with Pettit's serotherapy. He suggested that, during an epidemic, all children showing signs of a febrile digestive syndrome with meningeal implication or pain and a lymphocytic reaction of the spinal fluid should receive intramuscular injections. No form of treatment is of much benefit in the stage of paralysis, except in patients who are beginning to recover, or in return cases. The onset of the affection gives no help in estimating its gravity. In a single family one child, who presented an atypical condition, recovered spontaneously; another suffered from severe paralysis, with rapid atrophy.

Belgian Centenary Scholarships.

On the proposal of the scientific and literary section of the Commission for celebrating the centenary of the achievement of Belgian independence, and in spite of the opposition of two medical men (Professor Duesberg, Chancellor of the University of Liège, and Dr. Beckers), the Minister of Science and Arts has submitted for the King's approval a proposal legalizing the holding of a competition for fourteen "jubilee travelling scholarships," each of the value of 14,000 francs. The competition, which is being instituted in order to permit certain students at the higher education colleges to take part in the centenary celebrations next year, comprises the presentation of a thesis, three essays, and a public disputation. The thesis, which may be in manuscript or print, must deal with a topic directly or indirectly relating to Belgium or the Belgian Congo, whatever science is concerned. Three essays must also be submitted outside the subject of the thesis, but relating to the group of sciences from which the topic of the thesis was selected. These jubilee scholarships do not replace the annual Government scholarships, which will be offered for competition as usual. The financial provision entailed will be met from the funds at the disposal of the scientific and literary section of the National Centenary Commission.

The New Hospital St. Pierre.

The Queen of the Belgians recently laid the foundation stone of the New Hospital St. Pierre, in Brussels. This institution owes its existence to the initiative of Drs. Heger and Depage, and to assistance rendered by the Rockefeller Foundation. It is being erected at the side of the new Faculty of Medicine, and will attract the attention of foreign nations as a central institute of medical science.

Correspondence.

GENERAL MEDICAL COUNCIL ELECTION.

The "Medical Register."

Sir,—Voting papers in connexion with the election of Direct Representatives are being issued to-morrow (Thursday, November 14th) to all practitioners having registered addresses in England and Wales. Any such practitioner who has not received a voting paper, whether he wishes to vote in the election *or not*, should immediately communicate with the office in order to ascertain that his address is correctly entered in the *Medical Register*.—I am, etc.,

44, Hallam Street, Portland Place, W.1, Nov. 13th. NORMAN C. KING, Registrar, General Medical Council.

Election of Representative for Scotland.

Sir,—Will you grant me the courtesy of your columns to convey my thanks to the registered medical practitioners of Scotland for the renewed expression of their confidence. I shall do my best to deserve it.—I am, etc.,

Edinburgh, Nov. 11th. NORMAN WALKER.

"ACTIVATED" FLUORESCEIN IN THE TREATMENT OF CANCER.

Sir,—On my return from a visit to South Africa, extending over several months, I found a letter from Dr. Webster commenting on the fact that no reply had been made to his letter, published in the *British Medical Journal* of August 24th last (p. 367), in which he criticized the paper on "activated" fluorescein in the treatment of cancer, which had appeared in the *Journal* a fortnight previously. On inquiry, I find that my colleagues had decided to leave over the question of a reply until my return. I regret the delay, and now, though somewhat belatedly, proceed, so far as possible, to repair the omission.

In the first place, needless to state, we do not put forward, as Dr. Webster infers, any claim to a new "cure for cancer." We contend, however, that, in certain instances, at any rate, more favourable results can be obtained from the use of "activated" fluorescein than when *x* rays alone are employed. Concerning Dr. Webster's contention that the results of Dr. Mottram's experiments *in vitro* with sarcoma tissue, to which we referred, "cannot be carried over to tumours in the patient with rapidly changing body fluids," it may interest him to learn that had he attended the demonstration we gave in connexion with the recent International Conference on Cancer in London he would have seen there a patient in whom, as the result of treatment by means of "activated" fluorescein, a deeply ulcerated sarcoma of the foot had entirely healed up.

The tentative explanation of what Dr. Webster terms the "new ray" did not originate with my colleagues or myself, but with Professor Lindemann, F.R.S., of Oxford, who suggested to us that fluorescein, on activation, might give off secondary rays, probably in the region of the 500 band, the behaviour of which would differ from that of the ordinary beta or gamma rays. Apparently, however, no method of definitely settling the physical problem involved is at present available, but we are hopeful that investigation of the whole subject may shortly be undertaken.

Dr. Webster offers "two explanations alternative to that adopted" in connexion with "the first case treated." Had he, however, examined the photographs (referred to in our paper) which were published in the *Journal of Public Health* about a year ago he would, I think, have realized that neither of his alternative explanations was tenable. Again, Dr. Webster adversely criticizes the *x*-ray dosage as "very large," "full erythema doses were given." As to this point, Dr. Gouldesbrough asks me to state that the dosage employed was certainly not large, since, with one exception—a patient suffering from breast cancer, complicated with diabetes, who subsequently did well—none of the cases treated showed any sign of erythema, even after long-continued treatment. We hope before long to have the opportunity of publishing further details in connexion with the work, including brief clinical notes of all cases known to us which, for the time at any rate, may fairly be classified as "apparently recovered."

In conclusion, may I suggest that when Dr. Webster has himself tried out the work from the clinical side we shall welcome such further criticism as he may feel disposed to offer.—I am, etc.,

London, Nov. 11th. S. MONCKTON COPEMAN.

THE PATHOGENESIS AND TREATMENT OF ASTHMA.

Sir,—As time did not permit of my taking part in the discussion on asthma in Manchester, I trust you will permit me to make a few remarks in a letter. The discussion did not bring out any new point, and no discussion is likely to do so as long as asthma is regarded as a disease. The same old fallacies regarding the causation of the condition were reiterated and the poor old vagus was dragged once more to the footlights, although no new reason was given for its reappearance.

There are no biochemical changes in the blood peculiar to asthma, and the abnormalities detected are the same as those to be found in the other manifestations of disease

Asthma, like many other symptoms of disease, is occasioned by the precipitation of enlarged and agglutinated (hydrated) protein particles in the perivascular lymphatic vessels and capillaries. Why the lungs are picked out to produce asthma, the brain epilepsy, migraine, etc., and the skin urticaria, angio-neurotic oedema, etc., need not be discussed for the moment. Whenever hydration of the protein particles in the plasma becomes pathological the percentage of one or more of the adsorbed constituents is decreased (the rationale of hypoglycaemia), the blood pressures fall, and signs and symptoms are produced which go by the name of "vagotonic," although stimulation of the vagus may play no part in their production. These are the characteristics of shock, of which asthma is merely a form. When the hydration in the lungs is very marked the bronchioles are not constricted, although the alveoli are collapsed and the patient has pulmonary collapse or atelectasis. When the hydration undergoes the cyclical change of dehydration bronchitis and broncho-pneumonia are apt to result, and in these inflammatory conditions the bronchioles may undergo a greater degree of constriction than occurs in asthma. Therefore, constriction of the bronchioles is not the cause of asthma. The primary cause is the local precipitation of hydrated protein particles, and the absence of red blood corpuscles requiring oxygenation, as a sequence. There are no hard-and-fast lines of demarcation between atelectasis, asthma, and bronchitis, and no special type of dyspnoea accompanies them. In other words, expiratory and inspiratory dyspnoea are neither to be clearly differentiated nor to be regarded as characteristic of any one clinical condition. Fatigue aids asthma because it augments hydration; it has no action upon the suprarenal glands. The reason why allergic tests fail is because they merely draw attention to precipitants and blind the observer's eye to what occasioned the hydration in the first instance.

Treatment, to be effective, must aim at removing the initial cause of the hydration, at correcting the mal-co-ordination which all asthmatics present, and at bringing about dispersion of the hydrated protein particles. The first draws attention to the familial chronic intestinal intoxication, the second to the re-educationary methods practised by Mr. F. M. Alexander, and the third to the use of drugs. The choice of drug depends upon the type of asthma. For asthma in children, and when an attack in adults is caught at its inception, S.U.P. 36 is the best remedy. In prolonged attacks S.U.P. 468, parathormone, calcium and strontium aspartate, etc., are useful. In chronic cases acetylcholine may be required or more often iodine, thyroid, and contramine. Glucose is useful in all forms of shock, *merely because it breaks up the* enlarged protein particles, but it is not needed in asthma, and tends to increase the incidence of post-inflammatory troubles. Adrenaline behaves in much the same way as glucose; it has no sympathomimetic action, and its continued use may actually cause asthma, because all dehydrators occasion hydration in time. Atropine tends to aggravate asthma because of the initial hydrator effect of the vehicle, and, needless to say, *it does not* paralyse the vagus. Fear causes dehydration of the protein particles; it does not stimulate the suprarenal glands to hypersecretion, and Cannon's work is based on indirect evidence only. Excessive fear, which is the same as shock, causes hydration, and if Cannon's view is correct shock should occasion the maximum output of adrenaline, but the drug is used as an antidote to the condition. Prevent and get rid of familial chronic intestinal intoxication and there would be no asthma and no need for the establishment of futile committees.—I am, etc.,

London, W.1, Nov. 8th. J. E. R. McDONAGH.

SIR,—The views expressed in your last issue by Dr. Hurst on the question of asthma are so opposed to my experience in treating that complaint that I should not like them to pass unchallenged, or to appear as the last word on the subject.

Dr. Hurst has always been extremely antagonistic to the skin reactions, and has "come to the conclusion that they are of no practical value." He admits that there is such a thing as sensitization, or hypersensitization, as for some reason he calls it. For he says in another part of the article—

"It is none the less of the greatest importance to give every asthmatic an exhaustive cross-examination with the object of discovering whether some or all of his attacks are due to his being hypersensitive to the proteins of one or more articles of food, an animal emanation, a pollen, house-dust, orris-root face powder, or the toxins of some organism."

The mantle of Sherlock Holmes may have fallen on Dr. Hurst, but for my own part I should consider it utter waste of time to exhaust either the patient or myself in trying to distinguish between the effects of a feather bed, a horse-hair mattress, and the family cat by dint of cross-examination, when the dermal tests will so easily impute to each their share in the causation of the patient's asthma. Just as every patient suffering from seasonal hay fever gives a reaction to pollen, so, without exception, those having asthma from other proteins will respond to those proteins if properly applied to the skin.

During the past week I have seen my 2,000th case of asthma; all of these, but for some half-dozen cases, have been tested with the proteins, with the result that scores of these patients have been freed from their asthmatical symptoms by the dermal reactions alone. Any resurrection of the word "diathesis," with an attempt to find a single biochemical shortcoming for all cases of asthma, seems to me to be doomed to failure because the many clear-cut types of asthma which I recognize are so extraordinarily different from one another.

It astonishes me that Dr. Hurst should mention nasal polypi without, in the same breath, referring to the aspirin sensitive type, a very clearly defined type recognized by Dr. Alexander Francis, and described by myself many years ago. Lastly, I strongly object to the practice of *teaching patients to fly to the hypodermic syringe* and adrenaline as a routine measure. This should only be necessary in a very few cases. On the other hand, no mention is made of such well-recognized procedures as the injection of peptone and many other measures designed to remove the cause of the attacks rather than to deal with the paroxysm only after it has started.—I am, etc.

London, W., Nov. 11th. FRANK COKE.

SIR,—In the most instructive leading article on the asthma problem in last week's *Journal* (p. 865) attention is drawn to the experimental observations of Brodie and Dixon published in 1902. In the record of these observations it was stated that contraction of the bronchial muscle could be brought about by irritation of the nasal mucous membrane, *especially on the upper and posterior part of the septum.* In the light of this irresistible evidence they offer as to the preponderating effect of intranasal irritation in exciting the contraction of the bronchial muscle, I am surprised that no reference is made, as the natural corollary, to the importance of careful intranasal examination and, when required, intranasal treatment. May I refer your readers to the article on "The nasal factor" in the treatment of asthma" in the July number of the *Practitioner* (p. 18) mentioned in your leader.—I am, etc.,

London, Nov. 11th. JAMES DUNDAS-GRANT.

GLUCOSE IN THE TREATMENT OF ASTHMA.

SIR,—I regret that in the published version of my opening address on asthma at the meeting of the British Medical Association, which appeared in your last issue, there is no mention of the name of the physician who is responsible for one of the most important recent advances in treatment—the administration of glucose. In the children's department at Guy's Hospital Dr. H. C. Cameron has for some years constantly taught that attacks of asthma in the predisposed are brought on by a condition of glycopenia, and that, while in other respects asthma may be difficult to treat, the glycopenia can be satisfactorily overcome by the administration of glucose, with the result that the asthma often disappears. It should be clearly understood that the entire credit for this important discovery is due to Dr. Cameron, and that the

recent research done in this connexion by Dr. Oriel at the special asthma clinic at Guy's Hospital is nothing more than a continuation of the work which Dr. Cameron has so well initiated.—I am, etc.,

Berkshire, Nov. 11th. ARTHUR F. HURST.

THE CANCER PROBLEM.

SIR,—The question whether cancer is due to a micro-organism still awaits an answer. Experimental proof so far has not passed the necessary tests. Clinical evidence is not in favour of it. If cancer were due to a micro-organism it seems probable that surgeons would have become infected by it in the course of operations, as they have been so often by tubercle and syphilis, but such a thing is not known. No importance can be attached to the fact that a few cases have been reported in which cancer appears to have been transmitted by direct contact. Nearly all of them admit of other and simpler explanations, and, in any case, the number is so small that they may be regarded as coincidental outbreaks.

Cancer is not a uniform growth; its cells vary in appearance according to the structure from which they grow, for each organ has its own peculiar kind. Cancer, like other tumours, is the offspring of a process of asexual reproduction, a process which still plays a very large part in the animal kingdom, but which, so far as the higher forms of life are concerned, is obsolete, but not extinct, as the structure and development of many ovarian teratomata prove.

Cancer is caused by the persistent action of chemical and physical stimuli which interfere with the nutrition of the tissues to such an extent that their work and development are seriously impaired, and sometimes stopped altogether. When this occurs, the young embryonic cells, with all their primitive power of reproduction intact, unable to work or develop as they should, multiply and increase in number until they reach the limit where growth spreads beyond the individual and a new structure, which really belongs to another generation, comes into existence. This new structure, the presence of which is resented by the tissues around it as if it were a foreign body, is composed of cells like the parent cell in all respects. Each cell has a life of its own separate and distinct from that of its fellows and that of the parent organism, upon which it grows like a parasite, drawing from it all that it requires in the way of nourishment, and not doing anything for it in return, capable of invading all the structures around, and giving birth to growths like itself with the same powers and limitations. That is cancer.

X rays, unless proper precautions are taken, are a common cause of cancer. So are such chemical substances as soot, tar, and some mineral oils, especially if assisted by mechanical irritation, only they act much more slowly. Other chemical substances will produce the same effect on internal organs. Workers in aniline dyes, for example, are especially prone to cancer of the bladder. Mechanical irritation alone will not cause it, but assists materially by the injury it inflicts on the tissues, and the changes that necessarily follow.

Cancer is more common in old age, partly because of the cumulative effect of repeated stimuli, partly because, as in organs that are past their prime, the vital activity of the tissues is lower, and less able to resist. Cancer of the breast rarely occurs while the organ is in full functional activity, but later, when its work is done, and involution is setting in.

The transition from the effects of simple irritation to the production of cancer can be traced step by step in cases in which the skin has been unduly exposed to the action of *x* rays. The superficial cells are killed and thrown off. Their development was complete and their reproductive power consequently exhausted. The cells immediately beneath, whose function it is to grow up and replace them, are not so much affected, but their development is checked. The skin becomes harsh and dry and its surface red and glazed; it looks as if it were shrunken on to the parts beneath. Later, if the cause continues at work, the young cells begin to collect in numbers, but some degree of development is still possible. Warts and papillomata, and, when the deeper layers of the skin are involved, small fibrous tumours, make their appearance. Later still, development stops altogether and the young cells continue to multiply unchecked until, at some point, growth extends beyond the individual and cancer breaks out. It is always strictly local at the beginning.

It is noteworthy that none of these agents, not even the *x* rays, are the instant cause of cancer. They act by inducing a permanent and progressive change in the nutrition of the tissues so that they can neither work nor develop as they should, and this persistent change is the cause. Cancer has been known to develop years after the external cause has ceased to act and has even been forgotten. It is true that cases that can be accounted for in this way form but a very small proportion of the total, but they are definite, and it is impossible not to associate cause and effect.

The problem is really a double one. One is to ascertain under what conditions simple growth can suddenly be transformed into growth beyond the individual, a subject which can best be studied in the lower forms of animal life in which asexual reproduction is, if not the rule, at least exceedingly common. The other is to find out whether there are not chemical substances absorbed from the alimentary canal, or perhaps formed in the tissues themselves, which in the course of time are capable of checking the functional activity of the young cells, arresting their development, and so releasing their reproductive energy from all control. Arsenic is a case in point. I am convinced from cases I have seen that persons habitually taking arsenic are especially liable to epithelioma of the skin, and there is reason to believe that some of the products of chronic constipation are not above suspicion.—I am, etc.,

C. MANSELL-MOULLIN, C.B.E., D.M., F.R.C.S.

London, W., Nov. 5th.

QUININE AND BLACKWATER FEVER.

SIR,—More than five-and-twenty years ago, on my return from Africa, after a residence of three years, during which I had three attacks of blackwater fever, Sir Patrick Manson asked me what I thought was the cause. I unhesitatingly replied that in my opinion the malignant tertian parasite was the root cause *plus* some unknown factor, and that this unknown factor was in some way connected with the ingestion of quinine, as I had never seen a case which had not immediately followed a dose of quinine (irrespective of the dose taken). Now of all the forms of malarial fever malignant tertian is the most insidious, and it is not uncommon to find the parasite in the blood of those who definitely assert that they never have had an attack of malarial fever in their lives! Hence it is often the case that these victims of the disease either never take quinine at all, thinking that they are immune to malaria, or only take it spasmodically in small doses, imagining that this will act as a preventive.

When I contracted my first attack in 1901, after a year's residence on the shores of the Victoria Nyanza, I never had been a single day on the sick list. An epidemic of small-pox raged through my province, and I had to work hard to cope with the hundreds of cases. While thus engaged I was bowled over with an attack of fever. Thinking that I had at last got a malarial attack, I dosed myself with quinine in repeated doses, and on the following day woke to find that my urine was "black." After twenty-four hours of this I felt a papular rash on my forehead, and at once knew that I had small-pox. The blackwater disappeared completely in three days, and the small-pox ran its course. As soon as I found that I had small-pox I knocked off the quinine.

Throughout my service of sixteen years I had altogether five attacks of blackwater fever, and whenever the means were available I found malignant tertian parasites in my blood, although in the intervals between my attacks I was never aware of malarial fever. Incidentally I may say that, although I was called upon to treat many cases, I only had one death—my first case. Here treatment had no chance, as the patient died a few hours after my

arrival; he had been obliged to travel daily until, in a desperate condition, he reached a Government station.

In treating these cases I invariably assumed, if I did not already know for certain, that the malignant tertian parasite was present in the blood, and gave quinine, at the same time making sure that the liver was acting. In point of fact, I usually started on the liver first, since there is small hope of overcoming any malarial attack when this organ is not acting properly.

I must confess that after all these years I am no nearer the discovery of the actual cause of the disease. Malignant tertian, in my opinion, is certainly the predisposing cause, but what is that other factor? In malarial countries everyone flies to the quinine bottle whenever a feverish attack seems imminent, so, naturally, when one is called to a case of blackwater fever, quinine (usually in a small dose) has already been taken; without stronger evidence it would be dangerous to regard it as the exciting cause.

In our present ignorance we like to take protection under the shield of "idiosyncrasy"; if I remember rightly, I think this was the very word I used to Sir Patrick Manson when we discussed the disease in 1903. For a long time I was under the impression that this special haemolytic behaviour of the malarial parasite was due to a particular virulent strain of the malignant tertian parasite, but of late years I have inclined to the belief that the weak point will be found in the victim's own particular red blood cells, which are more easily broken down by the toxins of the parasite. Whether this (? temporary) excessive fragility of the red corpuscles is due to some endocrine imbalance remains to be discovered, and possibly rests, as Dr. Booth suggests, with the biochemist.

A curious point about the victims of the disease in all the cases which I came across was that they were all particularly active individuals—mentally, physically, or both. Possibly this explains their neglect of themselves until they were actually bowled over.—I am, etc.,

London, W.1, Nov. 9th. R. E. Drake-Brockman, M.D.

THE BEGINNING OF THYROID THERAPY.

Sir,—Last month a woman patient of mine died, aged 87. I write about her because, if not the first, she was one of the first persons to be treated in Leeds for myxoedema after the discovery by Dr. George Murray that thyroid extract relieved this disease. She was under my care at the time the announcement was made at Newcastle in 1893 at the Annual Meeting of the British Medical Association. The diagnosis had been confirmed by Dr. Barrs of Leeds. The treatment was carried out by means of intramuscular injections of thyroid extract, which was received by post, in a fresh state, from Brady and Martin of Newcastle every three or four days, and was used immediately. The injections were given in the interscapular area. The last injection the patient received caused a very large abscess; improvement took place rapidly, but I fail to remember how many injections were given. The curious feature of the case is the complete cure which was effected: there was never any recurrence of symptoms; I have never seen this since. The patient enjoyed good health until recently, death resulting from asthenia due to old age.—I am, etc.,

Leeds, Nov. 4th Arthur Hawkyard, M.D.

NASAL DISCHARGE IN CHILDREN

Sir,—I have read with interest the papers on the above subject by Dr. Gilhespy and Dr. Douglas Guthrie (November 2nd, pp. 803 and 805), but in neither of them is there any mention of foreign bodies in the nasal cavities as a cause of nasal discharge in children.

Workers in the throat, nose, and ear departments of hospitals see from time to time children with persistent unilateral or even bilateral nasal discharge, the cause of which proves to be the presence of some foreign body—for example, a pea, a button, or a piece of string—which the child has pushed up its nostrils. Usually these bodies are to be found lying on the floor of the inferior meatus, and the discharge will persist as long as they remain there. Dr. Guthrie's mention of breathing exercises prompts me to add the following directions for carrying out such exercises; they appear on a printed form that is given to every parent whose child has had an operation at the Royal West Sussex Hospital for tonsils and adenoids.

Position 1.—Stand with the body and head erect, chin slightly drawn in, the chest expanded, eyes looking straight forward, knees well braced back, heels together, toes turned out, so that the feet together form about a right angle, the weight of the body on the fore part of the feet, with the lips tightly closed (the teeth not clenched, however) so that the breathing may be entirely through the nose, both in inspiration and expiration. Gradually bend body forward till hands touch the feet, at the same time emptying completely the chest.

Position 2.—Gradually rise from this position to position 1, filling up chest to fullest capacity, with hands well raised up and behind head.

Position 3.—Place the left forefinger on the left nostril so as to occlude it, bring the right arm up and out, fully extended to level of the shoulder, at the same time taking a deep breath through the right nostril till chest is fully expanded, then bring arm back to former position, emptying chest at the same time.

Position 4.—Repeat for opposite side.

General Directions.—(1) All exercises are to be done with as little clothing as possible. (2) Preferably out of doors. (3) At rate of about 12 to the minute. (4) Mouth always closed. (5) Twenty of each to begin with, two or three times a day, increased till fifty can be done with comfort. (6) These exercises should be persisted in for at least six months. (7) If there is snoring, or mouth is kept open at night, a chin strap should be worn.

—I am, etc.,

Arthur M. Barford,
Consulting Surgeon, Portsmouth Eye and Ear Hospital; Surgeon and Aural Surgeon, Royal West Sussex Hospital.

Chichester, Nov. 4th.

PSEUDO-TUBERCULOUS PERITONITIS.

Sir,—In the course of dispensary work we frequently have to examine children of school age who have been sent to us as definite or tentative cases of tuberculous peritonitis. There is a history of some loss of flesh, pain in the upper abdomen, fickle appetite, and irregular action of the bowels. Some tumidity of the abdomen is evident with varying degrees of tympanites; but no mass or fluid can be discovered. The superficial veins on the chest are too visible, and the heart's impulse more than usually pronounced, with generally definite abnormality of rhythm and sounds. A history of sore throat and discharge from the ears can generally be elicited and nail-biting is somewhat common. The D'Espine sign is often to be found, but the von Pirquet skin test is definitely negative; tubercle bacilli were not found in the faeces, and the subsequent history shows that a pathological heart lesion is more likely than the development of tuberculosis. Is this syndrome one of the vagaries of streptococcal infection?—I am, etc.,

Newport, Mon., Nov. 6th. J. L. Thomas.

RELIEF OF PAIN IN LABOUR.

Sir,—In his article on hyoscine amnesia in labour in the *Journal* of November 2nd (p. 801), Dr. D. R. Jennings states that this method was undertaken as "an outcome of the suggestion that the morphine used in the twilight sleep method was responsible for the asphyxia or oligopnoea in some of the newborn." This idea is an old one, but, I think, has no basis in fact where the morphine has been limited to the first injection. Dr. W. O. Greenwood, in an article on amnesic narcosis,[1] discusses this point at length. He remarks that if definite asphyxia was "really due to scopolamine-morphine it certainly indicates a gross overdosing just as does analgesia," and goes on to plead for the individualization of patients.

In 1926[2] I recorded 100 consecutive cases of twilight sleep; they were unselected, and morphine was given with the first dose only of hyoscine. The few cases of oligopnoea or asphyxia could be accounted for by difficult labours, and

[1] Fairbairn's *Practitioners' Encyclopaedia of Midwifery and Diseases of Women.*
[2] *Lancet*, 1926, vol. i, p. 338.

three years' subsequent experience confirms this; I agree with Dr. Jennings that the great majority of "babies at birth showed signs of active life rather more readily than in normal cases"—that is, cases without hyoscine; most of them cried lustily and spontaneously, but briefly, immediately they were born.

Dr. Jennings rather stresses the restlessness of some of his cases, and the need for mechanical restraint: I suggest that this is due to the standardization of doses; one cannot expect the same reactions to the same dose from a woman of "hefty type" and from a thin small woman, whatever the latter's temperament. I have found in some cases that 1/150 or even 1/100 grain of hyoscine every hour was necessary to maintain amnesia and quiet, while in others 1/300 or 1/450 grain every three or four hours has sufficed. I have seen very few where restlessness has been marked and troublesome, and a few whiffs of chloroform work wonders with these; naturally the morphine gets the credit in part for the quietness. I am sure also that, where it can be given beforehand, suggestion of the efficacy of the treatment is of great value in securing both mental and physical repose, especially in the nervous and frightened type of patient. I have found very few patients who could not have been treated in their own homes or elsewhere without any other help than the usual one nurse; this, of course, involves individualized dosage and practically continuous attendance, as does the administration of any anaesthetic. It would be a pity to add frequent extreme restlessness to the erroneous ideas of blue babies, inertia, haemorrhage, and mentally defective children that are current not only among the laity, but among doctors and nurses also. I am entirely in agreement with giving a last dose shortly before birth, as the subsequent sleep is an important factor in securing amnesia.

I would like to see the first paragraph of Dr. Jennings's *Results* on page 802 reproduced in red ink and large type, and distributed to all who practise midwifery, in the endeavour to awaken their interest in the relief of pain in labour, so often neglected. Dr. John S. Fairbairn[2] and Professor Louise McIlroy[3] are authorities who have recently stressed the importance of this. Where pain from any other cause exists the patient expects relief, and the doctor does his best to afford it; but the pain of labour is often disregarded not only by the doctor, but by nurses and relatives also. The attitude seems to be that pain is inseparable from childbirth, their mothers had to put up with it, and so must they; no allowance is made for the changed mental attitude to which Dr. Fairbairn alludes. Many doctors, too, fail to realize the dread and anxiety with which even healthy young women contemplate the end of their pregnancy, however brave they try to appear. During labour the average doctor does not see the full extent of their suffering; he drops in from time to time to see how things are going, and promises chloroform at the end. At these visits the patient summons all her self-control, and the doctor has no conception of the intervening terror and agony she endures. I have often been told by patients that they had asked for "twilight sleep," but the reply has been that they were not suitable subjects, or that it was too dangerous if they wanted a live baby; it has been obvious that the doctor was unacquainted with the technique, which was the real reason for the refusal. Dr. W. O. Greenwood[4] states that 7 per cent. of his births were due solely to the knowledge that scopolamine-morphine treatment was available—a strong argument when remedies are being sought for the low birth rate.

Thus, although I do not agree with a standardized method of dosage, as described by Dr. Jennings, and think the addition of morphine to the first dose has advantages, his report is welcome as tending to spread the doctrine of the relief of labour pains by a simple method which is applicable by those who can spare the time, and gives a good percentage of results. The difficulty in general practice is, of course, to suspend all other work for periods up to twenty hours or more; where expense is no object arrangements can be made in advance for the constant attendance of another doctor to give the injections and watch the case. There is the added gain of individualized, as opposed to standardized, treatment, and a higher percentage of good results.—I am, etc.,

London, N.W., Nov. 5th. E. CURNOW PLUMMER.

[2] *British Medical Journal*, April 27th, 1929, p. 753.
[3] Ibid., August 10th, 1929, p. 231.
[4] Loc. cit.

ARSENICAL IONIZATION.

SIR,—I was very pleased to see in the *Journal* of August 17th (p. 297) the article on arsenical poisoning by Dr. Dalton, since I think it helps to solve a point on which I have heard doubt expressed—namely, the passage of arsenic through the tissues by electric propulsion.

In 1916 or 1917 we were experimenting with ionization for the cure of "Baghdad boil" (dermal Leishmaniasis), and had obtained fairly good results using a 2 per cent. solution of magnesium sulphate, and other salts in various strengths of solution. Some cases, especially nasal cases, were very resistant to this treatment; we therefore decided to try an arsenical salt, since it was believed that the favourable results obtained with methylene blue were due to its arsenical impurities. The only arsenical salt that we had in the hospital was sodium arsenite, so this was used in a 1 per cent. solution in place of the magnesium sulphate, the positive and negative electrodes being reversed. The reaction was so severe that we had to discontinue the use of this solution, both because of the pain and also for fear that the tip of the nose might slough. In the few other cases in which we tried it the reaction seemed to cause a complete cure.

I have always thought that the difference in severity of the reaction was due to the entry of the arsenite ion into the tissues instead of the magnesium ion; but I have heard doubts expressed on this point. It would be interesting to hear the views of Dr. Dalton or others on this matter.—I am, etc.,

Taupo, New Zealand, Sept. 29th. J. SCAIFE ARMSTRONG.

TREATMENT OF INFECTIONS WITH S.U.P. 36.

SIR,—Mr. E. Horace Richards (November 9th, p. 877) asks for further details of my series of cases of acute mastoiditis treated with S.U.P. 36. May I preface my reply with the following observations? First, I agree with him entirely about the folly of trusting blindly to any drug in this "treacherous and dangerous disease." I would like to point out, however, that I stressed this particularly in my original letter. In actual practice I make arrangements to perform a Schwartze operation without delay should any symptoms become worse after injection. Secondly, all these cases were seen within twenty-four hours of the acute onset of mastoid symptoms, probably before irreparable damage to the middle ear and mastoid cells had occurred, and certainly before intracranial complications had set in. Excluding cases where myringotomy might reasonably have cured the patient I have notes of the following:

Case.	Sex.	Age.	No of Injections Given.	Otorrhoea before Treatment.	Persistent Otorrhoea after Treatment.
A	M.	17	2	+	—
B	F.	22	2	—	—
C	M.	12	1	+	—
D	F.	14	2	+	+
E	M.	7	2	+	+
F	M.	17	2	+	—

I will describe the last case in detail as it is fairly typical of the others, with a subsequent note of any deviations from type.

Case F.—J. R., male, aged 17. Acute otitis media, purulent discharge from right ear. Acute pain and tenderness in right mastoid region on the fourth day with cessation of discharge. Seen at 9 p.m. (seven hours after onset of acute pain). Temperature 102°; ear pushed forward; marked swelling and oedema over mastoid process. S.U.P. 36, 0.01 gram given. Next day all pain

gone, temperature 99°; swelling and oedema still present but diminished. There was profuse discharge from the ear. Injection repeated. On the following day the temperature was normal, and the discharge less. All symptoms and discharge were absent on the fourth day. Two large septic tonsils were removed fourteen days later.

Cases D and E were similar, but otorrhoea was more chronic before injection, and persisted for several weeks subsequently. This cleared up after removal of tonsils and adenoids.

Case C was one of acute double mastoiditis with unilateral otorrhoea. After one dose of 0.005 gram all clinical signs rapidly resolved, leaving no traces of disease.

Case B is perhaps a doubtful case to include as there was no previous history of discharge, but the local signs over the mastoid were very definite indeed and an empyema was suspected.

Case A was similar to the above, but followed a chronic otitis media.

In conclusion, may I repeat a warning as to the limitations of S.U.P. 36? It is very unlikely to improve any chronic condition, whether of the ear or any other part of the body. Its specific action is best shown in early acute disease, of which acute mastoiditis happens to be an excellent example, particularly in children and young adults. It certainly does not possess any miraculous power of renovating tissues damaged beyond repair, but, as Mr. J. E. R. McDonagh (October 19th, p. 738) states, it acts by increasing the patient's resistance and neutralizing toxaemia.—I am, etc.,

Walmer, Nov. 11th. JAMES S. HALL.

Obituary.

NINIAN McINTIRE FALKINER, M.D., F.R.C.P.I.,

Late Medical Superintendent of Statistics for Ireland.

THE death took place in Dublin recently of Dr. Ninian McIntire Falkiner, F.R.C.P.I., of Terenure, co. Dublin. Dr. Falkiner, who was a nephew of the late Recorder of Dublin, Sir Frederick Falkiner, and an uncle of Dr. Ninian Falkiner of the Royal City of Dublin Hospital, was a graduate in arts and medicine of Dublin University, where he had a distinguished student career. In 1878 he became a moderator in experimental science, and was awarded a silver medal. He graduated M.B. in 1884, gaining first place, and in the following year took the degree of Bachelor in Surgery. In 1889 he obtained the diploma in State medicine after gaining first place at the examination. Later he proceeded to the degree of Doctor in Medicine, and in 1891 was elected a Fellow of the Royal College of Physicians in Ireland.

At the beginning of his professional career Dr. Falkiner was for many years a Poor Law medical officer in one of the Dublin dispensary districts. He was an active member of both the British and Irish Medical Associations; he had served as president of the Leinster Branch and was one of the most regular attendants at its meetings. For about twenty years he was medical superintendent of statistics in the office of the Irish Registrar-General in Dublin, and also held the position of secretary to the Statistical and Social Inquiry Society of Ireland. He had served at various times as examiner in chemistry for the Royal Colleges of Physicians and Surgeons in Ireland, and also as an examiner in vital statistics and public health law for Dublin University. A writer of much ability, some of his contributions were on the subjects of notification of pulmonary tuberculosis, analysis of rhinolith, dosage of arsenical compounds, registration of diseases, and statistics of cerebro-spinal fever. During the great war Dr. Falkiner served in England as a temporary captain in the Royal Army Medical Corps at the Lord Derby War Hospital, and was mentioned for his services.

THE LATE PROFESSOR TUFFIER.

DR. ARTHUR LYNCH (London, N.W.) writes: Apropos of the death of the great French surgeon, Tuffier, whose service I followed for a time at the Hôpital Beaujon, it may be of interest to record one or two of his sayings. I once asked him what was his greatest feat of surgery. He replied: "For the public I could mention certain spectacular operations, but to members of the profession I would say, suturing a resected ureter end to end." At another time he remarked: "The greatest glory of a surgeon is to make a fresh observation or a discovery, to publish it, and find it come back developed by the observations of others and referred to the whole body of acquired science."

A well-known and popular medical man passed away in Dublin, on October 25th, in the person of Dr. PETER MCKENNA of Carrickmacross, aged 64. Born in co. Down, he received his early education in St. Malachy's College, Belfast. His medical studies were taken in the schools of the Royal University and the Royal College of Surgeons, Dublin. Graduating M.B. and M.Ch. in 1888, he practised for two years at Clones, co. Monaghan, after which, on being appointed medical officer and medical officer of health of Donaghmoyne dispensary district, he removed to Carrickmacross, where he remained till his death. Owing to failing health, he resigned his appointments four years ago. He was deeply interested in medical politics, being a very useful member both of the Irish Medical Committee and of his county medical committee. Previous to the Treaty he was justice of the peace for the county, and the Free State Government elected him a peace commissioner. He leaves a widow and three sons and three daughters. His two older sons served through the great war, and on being demobilized graduated in medicine at Trinity College, Dublin, and are in practice in London.

DR. GEORGE ALEXANDER PIRIE, who died in Dundee on October 27th, was well known as a worker in radiology for many years before he retired. He was the son of a Dundee medical practitioner, and studied medicine in Edinburgh, where he graduated M.B., C.M. with first-class honours in 1886; he proceeded M.D. four years later. In the summer of 1887 he acted as resident in the Royal Infirmary of Edinburgh to Sir Thomas Grainger Stewart, and afterwards commenced practice in Dundee. He was one of the early pioneers in x-ray work, having taken up that branch of work in 1896, very shortly after Roentgen's discovery of the possibilities offered by the x rays for medical diagnosis; his work in this connexion at Dundee Royal Infirmary extended from 1896 till 1925. In the early days of radiology the injurious effects of exposure to the rays were unrecognized, and Dr. Pirie, like other radiologists, was accustomed to work with unprotected tubes; this led to serious injury, which necessitated the relinquishment of his duties in 1926. In April, 1926, he was presented by a group of citizens of Dundee with a cheque for £1,120 in recognition of his useful and self-sacrificing work, while the Carnegie Hero Trust also awarded him in the same month its bronze medal and an allowance of £200 per annum. In 1927 he received a Civil List pension of £75.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

THE Faculty Board of Medicine has appointed Sir Frederick G. Hopkins, Dr. Louis Cobbett, and Mr. Arthur Cooke to be members of the M.D. Degree Committee until September 30th, 1930; and Professor G. H. F. Nuttall, Dr. W. E. Dixon, Mr. D. Keilin, Dr. Frank Robinson, and Dr. A. J. Laird to be members of the D.P.H. Committee.

UNIVERSITY OF LONDON.

DR. H. YELLOWLEES has been recognized as a teacher of psychological medicine at St. Thomas's Hospital Medical School, and Dr. J. F. Taylor as a teacher of pathology at St. George's Hospital Medical School, for the session 1929-30.

A University Readership in Chemical Pathology, tenable at St. Bartholomew's Hospital, is to be instituted.

Grants of £50 have been made out of the Thomas Smythe Hughes Medical Research Fund for 1929-30 to (1) H. Avery for research on the localization and treatment of cerebral tumours produced experimentally with Jensen's yeast cultures and with neoplastic grafts, and (2) Mary F. L. Keene and Evelyn E. Hewer for the continuation of research on the development of the human foetus.

Mr. C. Max Page has been appointed senior examiner in surgery for the remainder of the year 1929, in succession to Professor C. A. Pannett, resigned; Mr. A. W. Ormond, Sir John H. Parsons, and the senior examiner in surgery have been appointed as examiners for the M.S. degree in ophthalmology in December, 1929.

Candidr[illegible] public health examina-
tion who [illegible] the same occasion, but,
owing to [illegible]om sitting for Part II,
are to rec[illegible]ls.

The London School of Medicine for Women has been affiliated to the University Union.

UNIVERSITY OF LIVERPOOL.

The William Mitchell Banks Memorial Lecture will be given by Professor C. Regaud, M.D., director of the Pasteur Laboratory, Radium Institute, Paris, in the surgical theatre of the Medical School of the University of Liverpool on Thursday, November 21st, [illegible]n the curative movements." [illegible]slides, is open

Dr. H. H. Gleave has been appointed senior lecturer in pathology.

UNIVERSITY OF ST. ANDREWS.

Sir Wilfred T. Grenfell, K.C.M.G., M.D., of Labrador, was installed Rector of St. Andrews University on November 6th, in succession to Dr. Fridtjof Nansen, G.C.V.O.[illegible]

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

The annual meeting of Fellows and Members will be held at the College in Lincoln's Inn Fields on Thursday, November 21st, at 3 p.m., when a report from the Council will be presented. Fellows and Members can obtain copies of the report on application to the secretary, and can, if they so desire, have their names placed on the list of those to whom the report is sent annually. A copy of the agenda will be issued to any Fellow or Member who may apply for one.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.

A quarterly meeting of the Royal College of Physicians of Edinburgh was held on November 5th, with the President, Dr. Robert A. Fleming, in the chair.

Dr. William Thomson Munro was introduced and took his seat as a Fellow of the College.

Dr. Ro[illegible] were elec[illegible]

The Hi[illegible] was awa[illegible]

Bursary in clinical medicine to W. V. Anderson, and the Wood Bursary to J. MacG. Drever.

Medical Notes in Parliament.

[From our Parliamentary Correspondent.]

The House of Commons spent three days this week in committee on the Widows', Orphans', and Old Age Contributory Pensions Bill. Private members' business occupied the other days.

On November 12th the Parliamentary Medical Committee met at the House of Commons; Dr. Alfred Salter was in the chair. After discussion, it was decided that in future the Committee shall consist solely of members of Parliament and peers holding medical qualifications, but that on questions where University members of Parliament without medical qualifications can assist the Committee they are to be invited to do so. University members have in previous Parliaments usually been added to the Committee. A suggestion that they should be made associate members was put forward, but was rejected. Holders of medical qualifications appear to number eighteen in the House of Commons and two in the House of Lords.

On the same date the Parliamentary Medical Committee further discussed the Medical Research Council and its constitution. The Committee's next meeting was fixed for November 26th, and Sir George Newman has been asked to address that meeting on the administrative control of small-pox and vaccination. The Committee has agreed to have an early discussion on diphtheria, and also to pay visits to health institutions, solaria, and the London refuse dumps.

Widows', Orphans', and Old Age Contributory Pensions Bill.

In the report stage of the resolution authorizing the expenditure needed for this bill, Major Elliot said that Mr. Greenwood and Miss Lawrence had never discussed, in its bearing on the bill, the report presented by the chief medical officer, Sir George Newman, on the state of the public health. Sir George referred to the changing character of the population, and the enormous burden which was going to be placed on the shoulders of the younger generations of this country as the old people became more numerous in proportion. At the beginning of the century there was a grandchild for every grandparent in the land, and by the middle of the century there would be two grandparents for every grandchild. In Major Elliot's opinion all available money should be concentrated on the children.

Dr. Morgan asked whether the figures given by the chief medical officer were not personal estimates.

Dr. W. E. Elliot said the fall in the birth rate and the fall in the death rate had consequences from which the House could not get away. There was nothing tentative about the number of children.

Miss Lawrence said that Dr. Elliot's figures were irrelevant. No part of the extra cost of the Government's proposals fell on the insured population. The tables showed that the increased expectation of life was chiefly between 50 and 60, when the bulk of the population was in productive labour.

The House agreed to the financial resolution.

Bills.

On November 11th Sir Robert Gower introduced a Housing Bill to make better provision for the improvement of unhealthy areas, to provide ade[illegible] business disturbance, and to make certain [illegible] to the Housing Act, 1925. The bill was r[illegible]

In the House of Commons, on November 12th, the Duchess of Atholl obtained leave to bring in a bill to amend the law regarding the duration and recovery of aliment for, and the custody of, illegitimate children in Scotland. She explained that the bill would empower the mother to make application for the expenses of her confinement, as well as for aliment, within three months of her expected confinement, although, if the case were defended by the father, the decree could not become operative until after the birth of the child. Among backers of the bill was Dr. Elliot.

Foot-and-Mouth Disease Research Committee.—On November 11th Mr. Buxton informed Rear-Admiral Beamish that the Foot-and-Mouth Disease Research Committee, set up in 1924, had already published three reports. The investigations which had been carried on during the past year at five laboratories had been on the lines described in the Committee's third report. Valuable additions had been made to the knowledge already acquired, and it was hoped that a further report on the work of the Committee might be published next year. It was still the policy of the Government to slaughter when disease broke out.

Medical Examination of Young Persons in Factories.—On November 12th Mr. Ben Turner told Dr. Vernon Davies that medical examination of young persons was now under consideration in connexion with a new Factories Bill. When this bill had become law, Mr. Turner would consider whether any change was necessary in mining legislation to bring it into conformity with factory legislation in this respect.

Ministry of Pensions Hospital, Cosham.—Mr. F. O. Roberts, replying to Colonel Clifton Brown on November 12th, said that he had not yet received the report of the committee set up to inquire into the affairs of the Ministry of Pensions Hospital at Cosham. He proposed to publish the report when received.

Accidents in Coal Mines.—Dr. Ethel Bentham, speaking on November 6th during the debate on accidents in coal mines, spoke of her early practice in a mining district where she had noted the incidence of accidents, fatal and otherwise. Once at a Labour conference she had observed that among eleven or twelve members of a mining delegation there was not one with a whole pair of hands—a missing finger, a smashed wrist, or other injury betokened a mining accident. There were at present 9,775 sufferers from nystagmus. Most members of the medical profession, she thought, agreed that posture and lighting conjointly were the causes, but it should be possible by concerted action to get real disinterested evidence thereon, and to put an end to a quite preventable disease. A motion for fuller protection of life in coal mines was agreed to.

Re-vaccination in the Navy.—On November 6th Mr. Alexander, answering Mr. Moses, said it had been the practice to carry out quinquennial re-vaccination in the Royal Navy when men were going abroad, and an order was issued on September 7th, 1928, that re-vaccination of active service personnel should be done every five years. No punishment was incurred for declining re-vaccination on conscientious or other grounds, but precautions were taken to prevent men not re-vaccinated from becoming a danger to the service by landing in ports where there was risk of small-pox. He did not propose to alter the regulations relating to recruits, as these were exposed to severe Oriental small-pox infection as soon as they went to sea, but the regulations about the vaccination of dockyard apprentices were under reconsideration.

Leaflets on Preventable Disease.—Asked by Mr. Somerville Hastings, on November 7th, whether he would provide leaflets on preventable human disease similar to those provided by the Minister of Agriculture on animal and plant diseases, Mr. Greenwood said that memoranda on human disease had been issued from time to time by his department, and would be further issued as occasion required. They were on sale to the public, but were primarily for the use of local authorities.

Royal Commission on the Civil Service.—Dr. Tremantle asked a question on November 6th, suggesting the addition of scientific representatives to the Royal Commission on the Civil Service. Mr. Snowden said that the terms of reference of this Commission had been widely drawn, and it would be for the Commission itself to determine the extent to which the various subjects could profitably be reviewed. He did not propose to enlarge its numbers.

Proposed School of Tropical Veterinary Science.—Mr. LUNN, replying to Mr. Ormsby-Gore on November 6th, said that the decision to establish a school of tropical veterinary science had been deferred until the report of the departmental committee on the reconstruction of the Royal Veterinary College at Camden Town was published. All the Colonial Governments had agreed to contribute towards the expenditure involved.

Disposal of House Refuse.—In reply to a number of questions asking when the report of the committee on the disposal of house refuse would be published, Mr. GREENWOOD said the committee's work had been delayed by the death of the chairman, Sir John Gatti. A new chairman would be appointed, and he saw no reason why the committee should not shortly publish its report. In reply to Dr. Fremantle and Mr. Mills, who asked about extensive refuse accumulations dumped in the Hatfield district and unhealthy conditions arising from open refuse destruction at Crayford, Kent, Mr. Greenwood said that any comprehensive action must wait for the committee's report.

Care and Management of Infants.—Replying to Mr. Somerville Hastings, on November 7th, Mr. GREENWOOD said it was the practice for local authorities to distribute booklets on the care and management of infants to the parents of every child when its birth was registered. This booklet was distributed by health visitors and at infant welfare centres.

Slum Clearance Schemes.—Mr. GREENWOOD told Commander Kenworthy that from 1925 to 1928 work was in progress on 118 slum schemes, some of which had been started prior to 1925. The total number of people rehoused was 71,413. In the case of 61 schemes the work of rehousing was completed during the period and provided accommodation for 20,745 persons.

Emission of Dust from Cement Works.—Replying to Mr. Mills, on November 11th, Miss LAWRENCE said that complaints had been received regarding the emission of dust from cement works on the banks of the Thames. An inspector of the Ministry of Health had made investigations, and steps had been taken to reduce the nuisance. The emission of fumes from cement factories was usually kept well in hand; dust gave the most trouble. Experiments were being conducted for dealing more effectively with it.

Risks of Asbestos Workers.—Mr. SHORT, replying to Mr. Stamford on November 11th, said that the risks to which those employed in asbestos works were exposed had been the subject of a comprehensive inquiry by the Factory Department. The Home Secretary hoped shortly to be in a position to consider what further precautions were necessary for the protection of the workers. Compensation would be considered at the same time.

Animals Slaughtered under the Tuberculosis Order.—On November 11th Mr. BUXTON informed Mr. Lowther that animals slaughtered during 1928 under the Tuberculosis Order of 1925 numbered 92 in Northumberland, 210 in Durham, 152 in Cumberland, and 320 in the North Riding. The carcasses of animals slaughtered, for which compensation was paid to the owner, became the property of the local authority, and the Order of 1925 (No. 2) provided that no parts of such carcasses should be removed for consumption without the written permission of the medical officer of health or other competent officer of the sanitary authority. Mr. Buxton was satisfied that proper precautions existed.

Cancer of the Bladder among Aniline Workers.—Mr. CLYNES, replying to Mr. Philip Oliver on November 7th, said he was arranging for the co-operation of the medical inspectorate of the Factory Department in the investigation of the industrial history of cases of cancer of the bladder among workers in aniline factories. He was also consulting the Registrar-General about supplying the statistical information concerned.

Notes in Brief.

Mr. Clynes stated, on November 7th, that efforts were being made to improve health conditions in spinning-rooms of artificial silk factories, particularly in the matter of eye injury and lung trouble. The remedy was efficient ventilation.

Mr. Clynes told Mr. Freeman, on November 7th, that no useful purpose would be served by additional records relating to vivisection, as stringent conditions were imposed in all cases where experiments were performed without anaesthesia or where the animal was allowed to come out of the anaesthesia.

Research into hysteria affecting sheep dogs is in progress at the Royal Veterinary College.

On March 31st last the number of blind men and women registered under the Blind Persons Act, 1920, in England and Wales, was 48,408.

On November 7th Mr. Herbert Morrison told Major Edmondson that it would not be practicable for voluntary hospitals to have a special legal claim to a proportion of insurance moneys paid to persons treated after motor accidents.

The total grant payable during the present financial year in respect of maternity and child welfare services is estimated at about £1,170,000, compared with £1,071,500 last year.

The Chancellor of the Exchequer cannot hold out any hope of adopting a suggestion that he should introduce legislation to provide that bequests to charities should only pay the same rate of death duties as bequests to near relatives.

The pollution of Scottish rivers is being investigated by a special committee.

A select committee on capital punishment is to be set up at an early date.

The Services.

DEATHS IN THE SERVICES.

Surgeon Commander John George Peebles, R.N. (ret.), died at Dinard on October 5th, aged 55. He was educated at Edinburgh, where he graduated as M.B. and Ch.B. in 1901, entered the navy immediately after, and became surgeon commander on February 8th, 1916. He served during the late war, receiving the medals.

Surgeon Captain Henry John Hadden, R.N. (ret.), died at West Moors, Wimborne, Dorset, on October 19th, aged 67. He was the elder son of the late Henry Richards Hadden, M.D., of Dublin, and was educated at Trinity College, Dublin, where he graduated as M.A., M.B., and Ch.B. in 1885. Entering the navy soon after, he attained the rank of fleet surgeon on February 18th, 1902, and after retirement was given an honorary step of rank as surgeon captain on January 24th, 1919. As surgeon of H.M.S. *Dolphin* he took part in the Eastern Sudan campaign of 1891, being present at the battle of Tokar, and received the Egyptian medal and the Khedive's bronze star. Previous to his retirement he was in charge of the naval hospital at Bermuda. During the late war he served as a temporary lieutenant-colonel in the R.A.F. Medical Service.

Staff Surgeon Henry William Melville Rees, R.N. (ret.), died after an operation on October 24th, aged 56. He was the only son of the Rev. W. Rees of Brnwydd, Llandilo, was educated at Owens College, Manchester, and took the M.R.C.S. and L.R.C.P.Lond. in 1893. Entering the navy soon after, he became staff surgeon on November 8th, 1906. After retirement he held the posts successively of medical superintendent of the treatment and training colony for discharged tuberculous ex-service men at Preston Hall, Aylesford; chief officer of the tuberculosis dispensary at Portsmouth; medical superintendent of Winsley Sanatorium, Bath; and tuberculosis officer for Pembrokeshire of the Welsh National Memorial Association.

Lieut.-Colonel Arthur Mercer Davies, R.A.M.C. (ret.), died recently at Eltham, aged 76. He was born at Westminster on September 17th, 1853, the son of the late Rev. Mercer Davies, was educated at Queen's College, Cork, and at Westminster Hospital, and took the L.S.A. in 1879, the M.R.C.S. in 1880, and subsequently the D.P.H. at Cambridge in 1889. Entering the army as surgeon on July 30th, 1881, he attained the rank of lieutenant-colonel after twenty years' service, and retired on September 17th, 1903. He served in the Egyptian war of 1882, gaining the medal and the Khedive's bronze star; in the campaign in the Eastern Sudan in 1884, when he was present at the battles of El Teb and Tamai (two clasps); and in the Nile campaign of 1884-85 (clasp). He was assistant professor of military hygiene in the Army Medical School at Netley from 1896 to 1902, and subsequently professor of the same subject at the R.A.M.C. College, Millbank, in 1906-8; and had also held the post of sanitary officer and bacteriologist at army headquarters in India. After retirement he served for a time as medical assistant in the Public Health Department of the London County Council. He was the author of a standard *Handbook of Hygiene*, which has gone through many editions, of *The Food of the Soldier* (1889), and of numerous reports and contributions on subjects connected with public health, military hygiene, and bacteriology. He married Evelyn, daughter of Captain David Aird, R.N., who survives him.

Lieut.-Colonel Willington Shelton Dowman, R.A.M.C. (ret.), died on September 2nd, aged 67. He was born on June 19th, 1862, was educated at Queen's College, Cork, took the Edinburgh double qualification in 1885, and entered the army as surgeon on July 28th, 1886. He attained the rank of lieutenant-colonel after twenty years' service, and retired on August 25th, 1906. He served in the South African war from 1899 to 1902, when he took part in the relief of Ladysmith and in the operations in the Orange River Colony, the Transvaal, and the Cape Colony, was mentioned in dispatches in the *London Gazette* of February 8th, 1901, and received the Queen's medal with four clasps, and the King's medal with two clasps. After his retirement he was employed as medical officer of the detention barracks at Cork in 1907-8, at Northampton from 1908 to 1912, and at Kingston-on-Thames in 1912. When war began in August, 1914, he was recalled from the Reserve of Officers to the active list, and served throughout the war, and after its close, as a district commissioner under the Ministry of Pensions.

Lieut.-Colonel Raghuber Dayal Saigol, Indian Medical Service, died at Beckenham on October 16th, aged 52. He was born on October 24th, 1876, and was educated at Lahore University, where he graduated L.M.S. in 1900, subsequently taking the Scottish triple qualification in 1901. Entering the I.M.S. as lieutenant on September 1st, 1902, he took the F.R.C.S.Ed. in 1903, and attained the rank of lieutenant-colonel on March 1st, 1922. He served in the Tibet campaign of 1903-4, receiving the medal. Before coming to England he held the appointment of ophthalmic surgeon to the general hospital at Rangoon.

Medical News.

THE Glasgow University Club of London will dine at the Trocadero Restaurant, Piccadilly, on Friday, November 29th, at 7.30 p.m., when the chair will be taken by Professor F. O. Bower, LL.D., F.R.S., president-elect of the British Association, and Sir Donald MacAlister will be the principal guest. Any Glasgow University men who, though not members of the club, desire to attend are requested to communicate with the honorary secretaries, 62, Harley House, N.W.1.

THE eighth annual dinner of the British Serbian Units Branch of the British Legion will be held at the Grafton Hotel, Tottenham Court Road, London, on Saturday, November 30th, at 7.30 p.m., under the presidency of Mr. Philip Mitchiner, F.R.C.S.

THE annual general meeting of the Old Epsomian Club will be held in the Oak Room at the Hotel Great Central on Thursday, December 12th, at 6.30 p.m., and will be followed by the annual dinner in the Marylebone Rooms of the same hotel at 7.15 for 7.30. The chair will be taken by Brigadier General G. T. Mair, C.M.G., D.S.O., and it is hoped that all Old Epsomians, whether members of the club or not, will be present on this occasion. The price of the dinner is 8s. 6d. (exclusive of wines). Attention is directed to the change of restaurants on this occasion.

AT the meeting of the Medico-Legal Society to be held at 11, Chandos Street, W.1, on Thursday, November 28th, at 8.30 p.m., Mr. F. Llewellyn Jones, M.P., LL.B., will read a paper on the League of Nations and the International Control of Dangerous Drugs.

A MEETING of the Royal Microscopical Society will be held in the lecture hall at 20, Hanover Square, W.1, on Wednesday, November 20th, at 8 p.m. Dr. J. A. Hewitt will read a paper on the sarcocystis in human heart muscle, and Mr. T. E. Wallis will describe the projectograph—an optical instrument for the projection of images of microscopical objects.

A MEETING of the London Clinical Society will be held at the London Temperance Hospital on Tuesday, November 19th, at 8.30 p.m.

MR. ALAN E. MUNBY, F.R.I.B.A., will deliver a lecture on the design of science buildings, at the Royal Institute of British Architects, on Monday, November 18th, at 8 p.m.

THE Joint Tuberculosis Council has arranged a post-graduate course in tuberculosis from November 25th to 30th, in the radiological department of the Brompton Hospital for Consumption. The provisional programme includes instruction in screening and diagnosis, with lectures on technique, the surgical aspects of tuberculosis, and dental radiography. The fee for the course is three guineas. Further information may be obtained from Dr. William Brand, honorary secretary of the post-graduate courses of the Joint Tuberculosis Council, 1, Gordon Square, W.C.1.

UNDER the auspices of the Fellowship of Medicine a lecture, free to medical practitioners, will be given on haemorrhoids, at 11, Chandos Street, Cavendish Square, on Monday, November 18th, at 5 p.m., by Mr. Mortimer Woolf. On November 19th, at 8.30 p.m., Dr. Langdon Brown will lecture at the same place on recent advances in endocrinology. On November 18th, at 2.15 p.m., Dr. A. J. Whiting will conduct a "ward round" at the Prince of Wales's General Hospital, Tottenham. Mr. A. D. Griffith will give a special demonstration, free to medical practitioners, at the Royal Eye Hospital at 3 p.m. on Wednesday, November 20th. Two special courses begin on November 18th: the first, a whole-day course, at the Royal National Orthopaedic Hospital, will last for two weeks; the second is a four weeks' course at the West End Hospital for Nervous Diseases, which [illegible] demonstrations illustrated by cases, a [illegible] at 5 p.m. An all-day course in procto[illegible] t. Mark's Hospital from November 25th to 30th. Three courses will be given in December: one in diseases of infants at the Infants Hospital, on afternoons only, from December 2nd to 14th; one in dermatology at the Hospital for Diseases of the Skin, Blackfriars; and a general practitioners' course at the London Temperance Hospital from 4.30 to 5.45 p.m. Detailed syllabuses of all courses, the advance list of special courses for 1930, and particulars of the general course arranged by the Fellowship at its associated hospitals, may be obtained from the secretary of the Fellowship, 1, Wimpole Street, W.1.

DR. ROBERT FELL, who has been senior anaesthetist at the York County Hospital for twenty years, and has lately retired from the active staff, was entertained at dinner last week by his colleagues. Dr. Evelyn, senior physician to the hospital, was in the chair, and after dinner Dr. Fell was presented with a silver salver.

THREE historical surveys, illustrated by lantern slides, will be given by Dr. Charles Singer at University College Hospital Medical School on Mondays at 4.15 p.m.: (1) dominance of the nervous system in the body, November 18th; (2) biogenesis and infectious disease, November 25th; (3) essentials of heredity, December 2nd. The lectures are open to all medical students of the University of London.

Dr. F. A. L. BURGES, M.B.E., has been appointed chairman of the Birmingham Insurance Committee.

THE following members of the medical profession were among the mayors elected on November 9th: Dr. R. F. Bury (Leamington Spa), Dr. C. Grey-Edwards (Poole), Dr. S. W. Jeger (Shoreditch), Dr. I. G. Modlin (Sunderland, re-elected), Dr. L. E. Price (Nuneaton, re-elected), Dr. H. Robinson (Kensington, re-elected), Dr. F. P. Rose (St. Ives, Hunts), Dr. C. S. Spencer (Ashton-under-Lyne).

THE KING has granted authority to Dr. Herbert Chavasse Squires to wear the Insignia of the Third Class of the Order of the Nile, conferred upon him by the King of Egypt in recognition of valuable services rendered.

THE Minister of Agriculture and Fisheries has issued draft regulations under the Agricultural Produce (Grading and Marking) Act, 1928, defining grade designations for voluntary use in connexion with malt flour and extracts prepared entirely from home-grown grain. Two grades of all-English malt flour are prescribed for use in baking white and brown bread respectively, and four grades of all-English malt extract—namely, "pharmaceutical," "bakers (white bread)," "bakers (brown bread)," and "veterinary." A scheme, which is supported by the Association of Malt Products Manufacturers, will come into operation on December 1st to give effect to these regulations. In each grade of malt flour and extract a standard of diastatic power is defined and certain other factors are also prescribed, such as the protein content and specific gravity of extracts, and the moisture or fibre content of the flour. A "national mark" will be applied to the packages in which these products are supplied; they are commended to the notice of medical practitioners, bakers, and pharmaceutical chemists who require standardized products. The regulations are published by the Stationery Office (price 2d.), and a leaflet explaining the scheme (Marketing Leaflet No. 14) can be obtained free of charge on application to the secretary, The Ministry of Agriculture and Fisheries, 10, Whitehall Place, S.W.1.

AN international committee for the study of infantile paralysis has been formed in New York under the presidency of Dr. W. H. Park. The scientific institutes chosen for centres of research are the Universities of New York, Chicago, and Cambridge, Mass., in the United States, and the Lister Institute, London, and Institut Pasteur of Brussels in Europe.

THE Alvarenga prize for 1929 has been awarded to Dr. G. M. Dorrance of Philadelphia for an essay entitled "Congenital insufficiency of the palate." The College of Physicians of Philadelphia announces that the next award of this prize, amounting to about 300 dollars, will be made on July 14th, 1930. Essays must be received before May 1st, 1930, by the secretary of the college, 19, South 22nd Street, Philadelphia, from whom further information may be obtained about the conditions prescribed.

THE new extensions of the Hampstead General and North-West London Hospital were opened by the Duchess of York on November 7th. The building includes an operating theatre, a dispensary, casualty department, additions to the pathological laboratory, a lecture theatre for nurses and post-graduates, additions to the accommodation of the resident medical staff, and a block of emergency beds.

THE October issue of *The Cripple* contains an account of the proceedings and results of the first international conference, which was held at Geneva at the end of July. A paper read by Dame Georgiana Buller at the conference, on the care of crippled children, is included, and also the address delivered by the president of the International Society for Crippled Children on the evolution of the problem of the cripple. Massage as a profession for the blind is discussed by Mrs. Chaplin Hall, secretary of the Association of the Certified Blind Masseurs. This periodical can be obtained from the publishers, John Bale, Sons, and Danielsson, Ltd., 83, Great Titchfield Street, W.1, at the price of 2s. per copy; the annual subscription is 8s.

THE second international congress of malaria will be held at Algiers from May 19th to 21st, 1930, under the presidency of Dr. E. Marchoux. Further information can be obtained from the secretary, Institut Pasteur, Algiers.

A MEMORIAL tablet has recently been placed on the house of Dr. Aloys Pollender (1800–79) at Wipperfürth, Westphalia; he described the anthrax bacillus in 1849, a year before C. J. Davaine, who is generally credited with its discovery.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to *The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.*

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The *TELEPHONE NUMBERS* of the British Medical Association and the *British Medical Journal* are *MUSEUM 9561, 9562, 9563,* and *9564* (internal exchange, four lines).

The *TELEGRAPHIC ADDRESSES* are:
EDITOR, of the *British Medical Journal, Aitiology Westcent, London.*
FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*
MEDICAL SECRETARY, *Mediocera Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone 24361 Edinburgh).

QUERIES AND ANSWERS.

Trauma to the Testicle.

"First Aid" writes: Can anyone suggest a method of relief for a blow upon the scrotum, such as may occur on the football field? I have been told that turning the patient on to his elbows and knees and giving firm pressure with the hand or a pad to the scrotum and anal region has been useful. Later, probably cold water or ice applied would be best.

Sensation of Asphyxia due to Ethyl Chloride Inhalation.

"W. D." writes: I frequently give anaesthetics for big operations and dental cases with Clover's apparatus, first spraying into the bag ethyl chloride, and following on with ether in the usual way. I find that most patients object to the first part—namely, the ethyl chloride—saying that they feel suffocated. Can any reader give advice?

Treatment of Emphysema.

"A. J." asks for information, based on personal experience, about the use of intramuscular injection of quinine and camphor dissolved in ethereal oils in the treatment of fairly long-standing emphysema.

Spa Treatment of Arthritis.

DR. W. E. KINGDON (Leominster) asks for information concerning spa treatment for rheumatoid arthritis at Freiburg in Breisgau.

Income Tax.

Payment of Interest.

"A. T. B." bought a house in January, 1925, borrowing part of the purchase price from a bank. In June, 1927, he purchased another house, borrowing £1,850 from an insurance company. What is his position as regards payment of interest?

*** So far as the bank interest is concerned he is entitled to treat it as a deduction in arriving at his liability. If that has not been done, so that that interest has in law been paid out of his taxed income, he is entitled to a repayment or some equivalent set-off. On the other hand, the position with regard to the insurance company's interest is entirely different. In that case the company has allowed him to deduct the tax on payment of the interest. For instance, in April, 1929, instead of paying £26 0s. 4d., the gross amount of interest due, he paid that amount *less* the appropriate income tax, £5 4s. 1d., and the latter sum represents tax due to the Crown, but which at present is in his hands, to be paid over when due. The statement enclosed with "A. T. B.'s" letter sets out the total amount which will have become due in that way for the three years ending April 5th, 1930, and appears to be correct, except that it does not take into account the set-off for the bank interest, which will be due unless it has already been received in some other way.

Change in Nature of Work.

"R. L. B." held two hospital appointments during 1928–29, from which he received in all £130. During 1929–30 he is employed as an assistant in private practice at £350 a year. Can he claim to be assessed on the basis of the income of the previous year 1928–29?

*** No. The change in the nature of the work and terms of engagement are such as to require the income of 1929–30 to be treated as derived from a new appointment, and he is assessable for that year on the actual year's basis.

LETTERS, NOTES, ETC.

Radium Technique.

DR. L. A. ROWDEN (Leeds) writes: Dr. Douglas Webster, in speaking on radium therapy in the discussion by the Medical Society of London, as reported in the *British Medical Journal* of November 2nd (p. 807), pointed out the value of radium applied from a distance, and said "he believed he was the first worker in this country to use it in that way." Since as far back as 1903 it has been my custom to apply radium in certain cases 2½ in. to 3 in. from the skin the idea of a radium "bomb" is by no means new.

The Jamaica Health Campaign.

"M. M." writes: Little notice has been taken in this country of the remarkable work achieved, and still in progress, in Jamaica by the Rockefeller Institute. This work began with a campaign against hookworm, the greatest general destroyer of health and energy in many tropical areas, and has of late gone on to the investigation of problems connected with malaria and tuberculosis. In Jamaica the leading figure in this struggle against disease has been Dr. B. E. Washburn, who, after more than ten years' successful fight against almost impossible conditions, is now in London taking a post-graduate course in tropical medicine. As a director of health [illegible] merit, apart from the actual [illegible] areas, has been his success in [illegible] in such a way as to begin the [illegible] conscience. To do so much meant the replacement of ancient and futile "bush-tea" superstitions by plain teaching and gentle ridicule. This has been done in his *Jamaica Health Stories and Plays*, published by the Jamaican Government, a volume which has attracted attention in many countries and has already been translated into Spanish for use in Central and South America. Whatever success has been attained by the able band of workers who labour under the aegis of the Rockefeller Institute, it seems no small reflection on our own colonial authorities that the task should have been left to America; but however that may be, we owe the greatest thanks to Dr. Washburn and his co-workers, and are happy to say as much while he is among us.

Medical Golf.

A WEEK-END meeting of the London Irish Medical Golfing Society was held recently at Sandwich, when more than sixty members were present. An auction sweep was held in connexion with the meeting, and proved to be a great success; 11 guineas were sent as a donation to Epsom College. The results of the competition were as follows:

The Canny Ryall Cup.—1st, E. T. Wright, 74 (77–3); 2nd, D. R. Wheeler, 76 (86–10); 3rd, J. A. Pringle, 82 (87–5); 4th, R. L. Rea, 82 (96–14); 5th, W. MacAuley 83 (93–10); 6th, A. Perry, 83 (97–14); 7th, J. E. Ambrose, 83 (105–20). There were 63 entries, and 40 cards were returned.

The O Malley Cup.—1st, E. T. McElligott (7) and C. Petit (20) tied, 1 up; 2nd, E. S. A. Crawford (20), all square; 3rd, F. Salter (9) and E. Ryan (14), both 1 down; 4th, A. G. Walsh (4), T. J. Kelleher (12), and W. K. Calwell (16), all 3 down. C. Petit won the cup on a replay. There were 59 entries, and 47 cards were returned.

The Tett Cup.—1st, D. S. Gordon and E. T. Wright (5), and E. S. A. Crawford and C. L. Wilson (34) tied, 3 down; 2nd, J. S. Gubbins and E. Ryan (32) 4 down; 3rd, J. Corcoran and C. Petit (33) 6 down. D. S. Gordon and E. T. W[illegible] there were 28 entries.

The Cahill Trophy.—1st: [illegible] T. Wright, 159; 3rd, C. Petit, 169; 4th, E. [illegible]

The Captain's Prize.—1st, E. T. Wright, 36; 2nd, A. G. Walsh and D [illegible] 36; 2nd, R. J. Maybury and P. Coffey tied, 38.

Eclectic Competition.—W. Calwell and D. R. Wheeler tied.

The annual dinner of the society and the presentation of cups took place on November 14th at Pagani's Restaurant, Great Portland Street.

Night Assistance for Motorists.

MEDICAL members of the A[illegible] may be glad of a reminder that up-to-date [illegible]oads, or districts in which fog [illegible]n the twenty-four-hour emergen[illegible]ndon W.1 A.A. headquarters, Fanum [illegible] (Regent 8000).

A Warning.

DR. JEAN DOLLAR (house-surgeon, Royal Eye Hospital, Southwark) writes: A man visited this hospital one evening lately and asked for the medical superintendent. He gave his name as Dr. W——, and refused to state his business, except to me. He told a rambling story, with considerable histrionic talent: He had been three years in Maidstone gaol, struck off the *Register*, trying to get a job as dispenser, etc., and finished with a request for monetary assistance. I have since ascertained that he attempted to extract cash from a former woman house-surgeon with the same story. I imagine he makes a circular tour of the smaller hospitals every six months.

Vacancies.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 48, 49, 53, 54, 55, and 56 of our [illegible] assistantships, and [illegible] pages 50, 51, and 52.

[illegible] as to partnerships, advertisement colun[illegible] in the advertisement

A short summary [illegible] columns appears in the *Supplement* at page 227.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

425. The Refractory State of the Heart.

LUTEMBACHER (*Bruxelles-Médical*, August 4th, 1929, p. 1106) considers the changes produced in the refractory period of the heart muscle and its conducting system by pathological processes. At the beginning of diastole the bundle of His is momentarily incapable of conducting another impulse, and when its tissue is the seat of disease this refractory period increases, and is shown by the prolonged PR interval and missed beats in the electro-cardiogram. Cases have been described in which acceleration of the sinus rhythm—as, for example, by change of position or exercise—has produced greater incapacity of the conducting system so that the pulse rate progressively falls. A similar phenomenon is found when the branches of the bundle are attacked, extrasystoles and auricular tachycardia unmasking various defects in conduction. These facts are of practical importance since they indicate latent defects in conduction and explain certain harmful results of drug administration. If the refractory period of some of the fibres of the myocardium is prolonged by disease the condition known as alternation is produced, weak and strong beats alternating, since the damaged fibres contract only with every other beat. An explanation based on the prolongation of the refractory period is also offered to explain auricular flutter and fibrillation; the fibres do not recover simultaneously from their refractory state. Accordingly they recover in successive groups, causing circus movement in the first case, and independent fibrillary contractions when the myocardium is more severely injured. The author has studied the transparent embryonic heart and has been able to demonstrate the effect of calcium chloride in producing phenomena comparable to alternation and fibrillation.

426. Nickel-platers' Rash.

K. GRON (*Urol. and Cut. Review*, September, 1929, p. 606) states that Blaschko in 1889, when speaking of "galvanizers' eczema," was the first to draw attention to the injurious effects of the nickel bath on the workman. The form in which the eruption usually appears does not differ to any great extent from the other occupational dermatoses due to local irritation by salts of heavy metals. After an initial stage of itching a dermatitis consisting of small papules and vesicles develops. Pyodermic and impetigo-like areas are frequent, and in exceptional cases may lead to superficial gangrene. The eruption tends to affect previously existing cracks and scratches due to mechanical or chemical trauma. The favourite sites are the hands and forearms, but the rash may appear on the lower part of the face and neck, upper part of the chest, lower extremities, and genitals, while in exceptional cases it may be widespread. As a rule there are no general symptoms apart from itching, but occasionally the patients suffer from feverishness, pains in the joints, limbs, and chest, and headache. Several of Gron's patients had stomatitis and gingivitis. The incubation period ranges from eight days to two months. Females are more frequently affected than males, and the eruption may undergo exacerbation during the menstrual period. The duration of the attack is from one to two weeks up to several months, but recurrences are frequent. Prophylaxis consists in rubbing into the skin an ointment composed of lanolin, boric acid, and zinc peroxide. Calcium chloride by mouth is employed to restrict the increased alkalinity of the blood caused by extreme heat.

427. Incidence of Chronic Articular Rheumatism in Sweden.

G. KAHLMETER (*Nordisk Medicinsk Tidsskrift*, September 7th, 1929, p. 570) claims that the first investigation showing the incidence of chronic articular rheumatism in a country was that undertaken in 1920 by the Swedish Ministry of Pensions, whose statistics dealt with the year 1918. In that year old age and arterio-sclerosis accounted for 55 per cent. of all persons drawing invalidity persons. Next in the order of frequency came articular rheumatism with 9.1 per cent.; pulmonary tuberculosis with 5.8 per cent.; and diseases of the stomach and intestines, including gastric carcinoma, with 3.3 per cent. The figures for all the other ailments qualifying for pensions were much smaller. In Sweden every year about 3,000 patients become entitled to receive pensions on account of permanent disablement due to articular rheumatism; the total number of patients drawing pensions for this reason is about 35,000, and the total sum they receive yearly is about five million kroner. With regard to the importance of providing institutional treatment for such cases, and to the strictly economic returns to be obtained from such treatment, the author reviews the results of the institutional treatment given to 975 patients in the period 1915 to 1923 in the establishments of the Ministry of Pensions. It was found at the end of 1925 that 62 per cent. of these patients had improved so much that they were able to maintain themselves completely or almost so.

428. Agranulocytosis in Diphtheria.

C. FARMAKIDIS (*Presse Méd.*, August 28th, 1929, p. 1121), who records seven illustrative cases in patients aged from 7 months to 35 years, states that systematic examination of the blood and leucocyte count in his diphtheria wards revealed a number of cases presenting the features of agranulocytosis—namely, very pronounced leucopenia, with almost complete disappearance of the polymorphonuclears, *increase in number of the blood platelets, and no important* changes in the number and quality of the red cells. He considers it a remarkable fact that with one exception all the patients recovered; this confirms the statement of Aubertin and Lévy that the more that is known about agranulocytosis, the greater will be the number of patients found to recover, in accordance with the well-known fact that in the case of a new disease the most severe forms are the first to be recognized.

429. The Kidneys in Diabetic Coma.

I. M. RABINOWITCH (*Canadian Med. Assoc. Journ.*, September, 1929, p. 274) points out that the renal function in diabetes mellitus differs in no way from that found in normal individuals, providing that the disease is kept under control. In the absence of proper treatment, with persistent glycosuria and hyperglycaemia, cardio-vascular-renal changes may occur. The disturbances of kidney function in diabetic coma may be summarized briefly as follows: (1) No albuminuria (no disturbance); this is extremely uncommon. (2) Albuminuria, with or without urea retention. When urea retention is present the course of events may be as follows: recovery to the normal level after the acidosis has been controlled; or progressive impairment for some days with eventual recovery; or progressive impairment leading to uraemia; but even with uraemic symptoms the patient may recover. A guarded prognosis is necessary when, in the absence of hypoglycaemia, drowsiness persists in spite of the disappearance of the acetone from the breath and urine, and when the blood of such patients shows marked urea retention. In diabetic coma, as in all acute lesions of the kidney, a positive diazo-reaction does not necessarily indicate an unfavourable prognosis.

430. Gonococcal Vertebral Arthritis.

V. FOSSATI and A. TORRE (*Rev. Sud-Amer. de Endocrinol., immunol. y quimioterapia*, August 15th, 1929, p. 582), who record two illustrative cases in men aged 67 and 52 respectively, the first of which was fatal, state that gonococcal arthritis of the vertebral column is a rare disease which may have a fatal termination. The diagnosis is facilitated by the presence of the gonococcus in the genital tract and the subsequent characteristic complications, while the patient's age and denial of a history of contagion should not prevent a close examination being made. The course is subacute. In the first case death ensued from mechanical compression after four months' illness, while the second patient made a rapid recovery after injections of gonococcal nucleoprotein.

431. Prophylaxis against Measles.

G. B. BADER (*Journ. Amer. Med. Assoc.*, August 31st, 1929, p. 668) reviews the literature and reports on 30 infants, aged from 6 to 32 months, exposed to measles, who were injected intragluteally with 20 to 30 c.cm. of whole blood from adults who had had the disease two to twenty-five years previously. The results were as follows. The blood which was given within the first seven days after exposure completely protected 12 infants, and partially protected 9 who had a modified attack without catarrhal symptoms and 8 who had mild catarrhal symptoms. One child, who was the only one to have Koplik's spots and a typical eruption, had a moderately severe attack; in the remainder, when eruptions were present they were not characteristic. The temperature

was distinctly modified except in two instances; the incubation period was prolonged in all but four. There were no complications. Bader suggests that this method of injection of the whole blood of adults long recovered from measles would be particularly suitable for institutions where cross infections often occur and serum from recently convalescent patients is not readily available; or in children under the age of 5, in whom 90 per cent. of the deaths from measles occur; or in the weak and debilitated, in whom measles might cause a fatal issue.

432. The Incubation Period of Paratyphoid B Fever.

E. SYLVEST (*Ugeskrift for Laeger*, July 11th, 1929, p. 593) records the case of a girl, aged 9, who, between 1 and 4 p.m. on April 7th, visited her aunt whom she had not met for a long time, and shook hands with her both when coming and going. During the three hours' visit the child went to the w.c. On her way home in the tram the child complained of severe headache, and in the evening of the same day her temperature was 102°. Widal's reaction was positive, and paratyphoid B fever was diagnosed. On the morning of April 11th, barely four days after the niece's visit, the aunt felt unwell and chilly, and when she went to bed on April 16th, feeling very ill, her temperature was 103°. On April 27th Widal's reaction was positive, and paratyphoid B fever was diagnosed. In the period under review only three cases of paratyphoid fever were known in the whole of Copenhagen, and the aunt's case was the only one in her town. The author suggests that the niece had soiled her hands during her visit to the w.c., and that she infected her aunt simply by shaking hands.

433. Frequency of Non-Diabetic Glycosuria.

H. J. USTVEDT (*Norsk Mag. f. Laegevid.*, September, 1929, p. 950) found that among 10,000 patients without any symptoms of diabetes, glycosuria was present in from 1 to 2 per cent. Half the cases of glycosuria discovered by chance proved to be due to diabetes. In 27 per cent. of 240 cases of diabetes the disease was not diagnosed until after admission to hospital. Of 62 cases of chronic glycosuria discovered by chance 55 were due to diabetes. Among 206 cases of chronic glycosuria, including those due to diabetes, there were only 2 examples of renal glycosuria and 5 of glycosuria with cyclical hyperglycaemia; 14 out of 32 cases of transient glycosuria were connected with cerebral affections. It appears that glycosuria is most readily produced by those cerebral affections which have a sudden onset, especially subarachnoid haemorrhage. Occasionally severe hæmatemesis is followed by glycosuria and slight and transient hyperglycaemia. Ustvedt has seen three examples of renal glycosuria—in a woman and her two daughters—and instances of transient glycosuria in a brother and sister.

Surgery.

434. Treatment of Renal Lithiasis.

W. C. QUINBY (*Amer. Journ. of Surg.*, August, 1929, p. 234) emphasizes the importance of infection and stasis in the production of renal stone, though cases of lithiasis do occur in which the calculi are formed in a sterile kidney. Treatment should aim at restoring the normal conditions within the kidney, besides removing the stone. In view of the great damage done by a renal calculus involving the ultimate destruction of the kidney, every case should receive attention [illegible] been diagnosed. In the absence of [illegible] all renal calculi which, on account [illegible] sed through the normal channels, should be extracted by an operation which must aim at the removal of the stone with as little destruction of renal tissue as possible and with free drainage assured. In severe cases this can be effected by means of a tube which enters the pelvis through a nephrotomy opening. A free mobilization of the kidney, and the use of *x* rays at the time of operation, indicate the best method of dealing with each case, the simplest attack on the kidney being pyelotomy; a more severe method is pyelonephrotomy, and the most severe an extensive nephrotomy. Nephrectomy should only be performed in cases where the kidney has become valueless through disease. After all obvious stones have been removed, a further *x*-ray examination should be employed to make sure that no particles remain to serve as the nucleus of a subsequent stone. Out of a series of 226 cases there was no operation in 10 per cent., nephrectomy was necessary in 11 per cent., and pyelotomy or pyelonephrotomy in 77 per cent. of cases. There was an operative mortality of 3½ per cent.

435. Toxic Conditions of the Thyroid Gland.

ACCORDING to N. CANTO (*Arch. de med., cir. y esp.*, September 7th, 1929, p. 235) thyroid toxicosis is a very rare disease in Spain, only two cases of operations on toxic thyroid glands having been published in the last two years. Compared with the very large American statistics this is all the more remarkable, for the proportional incidence of other diseases is much the same in both countries. Actually, even in the big Swiss clinics such as de Quervain's, the incidence of toxic goitre seems to be less than in the States; so that probably thyroid toxicity is less frequent in Europe than in America. Canto thinks that perhaps this is to be correlated with the emotional intensity of American life. It has been said that toxic goitre occurs principally in the endemic goitre districts; Spain has such regions, and could therefore be expected to produce a considerable amount of Graves's disease, and latterly investigators of basal metabolic rates have been discovering many cases. Especially amongst army recruits many persons have been discovered having tachycardia without any other cardiac physical sign, and the author thinks that estimations of the metabolism would probably show that in many of these the condition is due to hyperthyroidism. According to Hertzler in less than 10 per cent. of toxic thyroid cases is there exophthalmos, and it is well known that the thyroid gland is not always perceptibly enlarged. It is therefore concluded that the disease is probably not rare, but the low figure recorded is due to the fact that medical practitioners hesitate in making such a diagnosis because of an incomplete clinical picture; Canto advises that more numerous estimations of the metabolism would clear up the difficulty. He believes that the facts about thyroid disease should be published more widely and the warning given that 95 per cent. of thyroid carcinomata arise in the apparently harmless adenoma.

436. Separation of the Symphysis Pubis.

J. C. WISHNER and L. MAYER (*Surg., Gynecol. and Obstet.*, September, 1929, p. 380) divide separations of the symphysis pubis etiologically into those caused by severe external trauma (rare) and those occurring during parturition; they record six cases. They consider that it occurs more often during parturition than has been supposed, its apparent rarity being due to lack of recognition of the symptoms—pain, palpable separation, difficulty in walking, and a waddling gait due to instability of the pelvic arch and weakening of the sacro-iliac joints; and, in a less degree, to the posterior displacement of the hip-joints, which face laterally instead of antero-laterally. Functional cure is possible even though a slight separation of the symphysis demonstrable by *x* rays may persist. Treatment aims at correcting the three pathological lesions—namely, the separation of the symphysis, the corresponding gaping of the anterior portion of one or both sacro-iliac joints, and the posterior displacements of the hip-joints. By the application of a powerful circular compression to the pelvis the pubic bones are approximated, the gaping sacro-iliac joints are closed, and the acetabula restored to their normal place. With the patient in bed a canvas swathe 6 to 8 inches in width completely envelops the pelvis from behind forwards, extending 8 or 10 inches beyond the body on either side, the ends being attached to spreaders to prevent wrinkling. A rope from each of these runs over pulleys on each side of the bed carrying weights commencing with 5 lb. and rapidly increasing to 25 lb.

437. Surgical Treatment of Pulmonary Tuberculosis.

E. ARCHIBALD and M. ISELIN (*Arch. Méd. Chir. de l'Appariel Respirat.*, March, 1929, p. 128) discuss the surgical treatment of phthisis based on an experience of 167 interventions practised in the last nine years. The operations were either total thoracoplasty or phrenectomy when there was doubt about the resistant capacity of the more sound lung, or as a preliminary or substitute for the more severe operation. Three main groups of cases are concerned: uncomplicated parenchymatous tuberculosis; phthisis complicated by an artificial pneumothorax; and tuberculosis associated with purulent pleurisy. The authors classify their cases as good, doubtful, and bad from the operative point of view. The good case is one where the disease is mainly unilateral and fibrotic, with only minute cavities and no progressive lesion on the other side. Signs of retraction and absence of benefit from pneumothorax stamp the case as doubtful; and bad cases show still more unfavourable signs. Out of 30 good cases operated upon the ultimate results were traced in 24; of these, 16 patients were "practically cured," 4 much improved, one moderately benefited, and 3 died—one from typhoid fever, one from broncho-pneumonia three years later, and one from an unknown cause. The operative mortality was therefore 4.2 per cent. "Practically cured" implied that there were no active signs or symptoms for a year, no cough, only slight mucous expectoration, no bacilli, and

resumption of work. Of the doubtful cases, 17 out of 45 were cured and 9 patients died. Of the 21 "bad cases," none were cured, but 3 were much improved, 4 moderately benefited, and 14 patients died. In 9 cases thoracoplasty was performed to remedy unsatisfactory pneumothorax results, and 4 of these were cured. The worse results were obtained in the purulent pleurisy cases, especially where secondary infection existed. Taking all the cases, excluding the purulent pleurisies, the operative mortality was 11.6 per cent., but 37 per cent. were cured.

433. Surgical Treatment of Cardiac Disorders.

IN view of the risk entailed and the poor results obtained in spite of careful technique in cases in which an attempt has been made to operate on the heart, W. FELIX (*Deut. med. Woch.*, September 13th, 1929, p. 1541), in a number of animal experiments, tried to influence the artificially damaged organ by extracardiac surgical manœuvres. The return of blood depends to some extent on the intrathoracic pressure, and the functioning of a diseased as of the normal heart is affected by the external pressure brought to bear on it; this pressure is the resultant of a number of forces, including the tension of the thoracic wall, the elasticity of the lungs, and the intrapericardial pressure. A moderate amount of dilatation (with hypertrophy) compensates certain valvular lesions, and Felix found that this dilatation was facilitated and accelerated in experimental animals when pressure on the heart was reduced by extensive pericardiotomy; this produced a beneficial effect on the blood pressure, pulse amplitude, and the cardiac output in several cases in which acute and chronic tricuspid and mitral insufficiency had been artificially produced. In other valvular lesions the response to diminution of the extracardiac pressure was less constant. Making folds in the pericardium, or diminishing the elastic pull of the lung by paralysing one side of the diaphragm, was found to produce a relative increase of pressure on the heart with diminution of its activity; this caused delay or prevented dilatation in a number of rabbits in which a chronic rise of blood pressure had been produced by severing certain nerves. Felix emphasizes the point that the work is still in the experimental stage, but he thinks that the results obtained are sufficiently promising to justify further investigations along similar lines.

439. Chronic Prostatitis.

J. W. VISHER (*Med. Journ. and Record*, August 21st, 1929, p. 214) discusses the role of chronic prostatitis in the etiology of sacro-iliac and spinal arthritis, having observed a definite correlation between them. From anatomical considerations he believes that the infection extends by way of the lymphatics from the prostate to these joints, the lymphatic drainage of the prostate being to the glands lying in the hollow of the sacrum and beside the bodies of the lumbar vertebrae; it is probably by this route that early metastases in carcinoma of the prostate travel to the sacrum and vertebrae. In a statistical study of 500 ex-service men it was found that 87 (17 per cent.) presented definite clinical and laboratory evidence of prostatic involvement; radiograms of the spine and sacro-iliac regions of 35 of these showed definite [illegible] eo-arthritis in 20 (55 per cent.). for proof, Visher submits the y spread by way of the lymphatics to the spine and sacro-iliac bones, and he points to the necessity of making a careful prostatic examination, including examination of the expressed secretion, in every man complaining of backache, sciatica, or vague pelvic pains.

Therapeutics.

440. Treatment of Cystic Osteo-fibrosis.

H. VERGER, P. DELMAS-MARSALET, and P. BROUSTET (*Journ. de Méd. de Bordeaux et du Sud-Ouest*, August 30th, 1929, p. 673) describe the successful treatment of a case of Recklinghausen's cystic osteo-fibrosis. A single woman, aged 36, was admitted to hospital in May, 1928, for inability to walk; she had held a responsible post involving work in a close office shut off from sunlight. In April, 1925, she sought advice for "neuritic" pains in the thighs, which were at first thought to be the result of a severe anaemia, and she had been advised to undergo treatment by rest and sunlight. In November, 1925, however, she returned with the pain much worse, and in a generally ill-nourished and feeble state; there was a palpable enlargement of the upper end of the left femur, and an *x*-ray examination revealed vacuolation of bone at the upper ends of both femoral diaphyses; a spontaneous fracture of the left femur occurred soon afterwards, and a further *x*-ray examination showed vacuolation also of the right radius and ulna and both tibiae. She was kept immobilized for eleven months, and general treatment was given by ultra-violet light, calcium salts being administered by the mouth. Union of the fracture ensued and there was great improvement in the general health, but on discharge from hospital and resuming work the patient stopped all treatment. Pain and difficulty in walking began again soon, and there was now also pain in the right hand. On her readmission to hospital in May, 1928, an *x*-ray examination showed general osseous decalcification and a series of vacuoles affecting most of the long bones, the cranium, and probably the pelvis; the bony tissue was reduced in places to a mere shell, especially where the fracture had taken place. Treatment was begun by ultra-violet irradiation of the lower extremities, with relief of pain, but an *x*-ray examination in July showed no change. From August 1st onwards 50 drops daily of irradiated ergosterol were given, and three times a week an injection of 1 gram of calcium gluconate. Gradually she regained her former health, and she was able to walk again; an *x*-ray photograph showed commencing regeneration of bone, and in February, 1929, a general regeneration; by this time her health was satisfactory and she could walk well. The authors regard the case as an example of associated calcium and sunlight deficiency, and attribute the improvement under treatment to the administration of calcium coupled with vitamin D as a calcium fixative, in the form of irradiated ergosterol. It is stated that since the writing of these notes the patient has developed a benign tumour of the iliac crest, which proved on biopsy to contain giant cells and bony lamellae; it is regarded as being caused by the same process as the cysts already described.

441. Potassium Permanganate in Acute Respiratory Infections.

C. S. MURRAY (*New Zealand Med. Journ.*, August, 1929, p. 229) records his experience in the treatment by rectal injections of potassium permanganate, not only of lobar pneumonia, but also of other acute respiratory conditions. Notes of five cases are given in which the sudden change from a toxic to a non-toxic state was so remarkable that he regards the injections as being the sole factor in producing the sudden improvement. The fall in temperature was accompanied by a distinct sense of well-being, and the clinical picture and general appearance of the patient changed in a few hours from that of acute illness to one of established convalescence. This was generally associated after two or three days with the appearance of a healthy rosy tint in the previously pale cheeks, a change of colour which has been noticed by the author in other cases (as, for example, two patients with chronic colitis) receiving rectal injections of potassium permanganate. These effects resulted in every instance, whether the condition was a lobar pneumonia, a mixed influenzal and pneumococcal or a haemolytic streptococcal infection, or an influenzal lobular pneumonia. A rectal injection of 1 grain of potassium permanganate in 5 oz. of water is given once or twice daily for five or six days; if there is inability to retain this satisfactorily, two-hourly injections of 1 oz. of the solution may be given, with gradually increasing strength and intervals. The author points out that the fact that the potassium permanganate acts irrespectively of the type of infection renders it useful in those cases of pneumococcal infection other than Type I where serum is of value.

442. Treatment of Pruritus Ani.

ACCORDING to F. C. YEOMANS, R. V. GORSCH, and J. L. MATHESHEIMER (*Med. Journ. and Record*, September 4th, 1929, p. 279), all cases of pruritus ani fall into four groups: those due to a constitutional cause, such as gout, rheumatism, or diabetes; conditions associated with portal congestion; those in which there are coexisting pathological changes in the anal canal and rectum; and the so-called [illegible] ment is indicated of intestinal anti- the coloproctitis, if present; and suitable surgery of the ano-rectal condition. In the final stages the involved skin in true pruritus usually presents the appearance of an infective dermatitis. As local measures, the authors have obtained better results with dry applications than with solutions or ointments. Other methods to combat infection, relieve the itching, and restore the skin to normal are exposure to *x* rays, ionic medication, vaccines, surgical treatment (the undercutting operation of Ball), and subcutaneous injections. Among the last-named the authors have obtained good results from the use of benacol, a solution consisting of five parts each of ethacaine and benzyl alcohol in ninety parts of rectified sweet almond oil; they report its effects in 200 cases and describe the simple technique. Quadrants are marked out in the perianal region, and the most sensitive one is injected first. The needle is introduced at the outer margin of the pruritic zone, previously prepared with tincture of iodine, and the

solution is injected slowly just beneath the skin, fanwise, as the needle is advanced to and beneath the anal verge; 2 c.cm. is an average amount for each quadrant. Successive quadrants are injected at intervals of two or three days, and the same area may be re-injected in five days, if necessary. To avoid a skin slough it is essential that the injection should be subcutaneous and not intradermal. Pain, ranging from slight to severe, and lasting from one to four or more hours, was reported in 33 cases, but no constitutional reaction was observed.

443. Use of Hypertonic Solutions in Glaucoma.

THE osmotic pressure of the blood can be readily increased by the intravenous injection of crystalloidal or colloidal solutions in the proper concentration, and the effect of such a procedure on the pressure of the cerebro-spinal fluid and the aqueous humour has been known for a number of years. A lowering of intraocular pressure can always be produced by this method, and Lambert and Silbert have reported the effect of intravenous injections of hypertonic solutions on ocular tension in normal subjects. R. K. LAMBERT and J. WOLFF (*Arch. of Ophthalmol.*, August, 1929, p. 198) now record the results of such injections in a small series of nine cases of glaucoma. From 200 to 300 c.cm. of a 5 per cent. solution of sodium chloride was injected intravenously, by gravity, through a small-bore needle; the use of a small needle automatically controls the speed of injection. The total dose of sodium chloride was thus 15 grams or less, which, in the absence of any contraindication, such as nephritis, is said to be entirely non-toxic. Weight-for-weight dextrose is reported as being much less effective than sodium chloride; a 5 per cent. solution of dextrose is isotonic to blood as compared to 0.85 per cent. of sodium chloride. The ideal solution would be a colloidal one, since it would have less tendency to permeate the capillary walls. In each of the cases there was a definite drop in tension varying from 7 to 17 mm. of mercury. The authors admit that the factors controlling the amount of drop cannot be determined from so few cases, but they think it is suggestive that the greatest drop occurred in two cases of acute glaucoma which had the highest initial tension of the series. This method is not put forward as being curative, as it has never produced a permanent drop unaided by other measures, and there is no need for its use in patients who respond well to other forms of treatment. The authors advocate its employment primarily in intractable cases. As an adjuvant to other medications, hypertonic solutions appear to favour their absorption by lowering the tension; in this manner cocaine is more readily absorbed at an operation. Finally, although the value of morphine in certain cases of glaucoma cannot be overestimated, pain and anxiety can be greatly relieved by hypertonic solutions, so that smaller doses of sedatives can be given, to the advantage of the patient.

444. Yatren in Amoebic Dysentery.

ACCORDING to P. H. JONES and R. H. TURNER (*Journ. Amer. Med. Assoc.*, August 24th, 1929, p. 583) the value of therapeutical preparations used in amoebic infestation of the intestine may be judged by the ensuing relief of acute dysenteric symptoms, the prevention of complications and relapses, and the disappearance of cysts from the stools. They agree with Mauson-Bahr and Sayers (*Journal*, 1927, ii, p. 430) that yatren or iodoxyquinoline-sulphonic acid is a valuable aid in the treatment of this disease, and remark that its administration is simple and without danger. It is given in the form of 0.25 gram pills coated with phenyl salicylate; one gram is administered by the mouth three times a day during the first and third weeks, no anti-amoebic treatment being given during the second. The authors state that no restriction of the diet is necessary and the patients need not be kept in bed. Sixty-four patients were thus treated, 42 grams of the drug constituting a course of treatment; subsequent observation of these patients was continued for one to three years. One patient obtained no relief: in another the dysenteric symptoms were controlled, but amoebae continued to appear in the stools after considerable treatment. In the remaining cases there was a prompt and satisfactory response as regards the dysentery, and similarly good results were obtained in children receiving doses proportional to their ages. Rectal ulcers healed in from seven to fourteen days, and no toxic manifestations were noted. Stools of ten patients were examined for cysts some time after the end of treatment, and nine were negative. Thirty-five patients, or 90 per cent. of those with a satisfactory subsequent history, were symptom-free from one to three years after treatment, an average of twenty months. The remaining four patients either had a relapse or showed cystic amoebae in the stool. Further treatment with the same preparation was apparently efficacious.

Anaesthetics.

445. Rectal Anaesthesia in Exophthalmic Goitre.

C. G. HEYD and ADA M. SMITH (*Amer. Journ. of Surg.*, July, 1929, p. 9) describe the technique of the Gwathmey method of rectal anaesthesia, which is said to be eminently suitable in severe goitre cases. The procedure comprises three well-defined periods: the preparation of the patient, the operation, and the post-operative treatment. Prolonged pre-operative treatment is essential in severe types of thyrotoxicosis, especially in the Graves's disease type, and includes the following steps: small, high caloric meals at frequent intervals, together with the administration of fluids by the mouth and rectum; absolute rest and quiet in bed; luminal in 1/4 to 1/2 grain doses, three or four times daily; and Lugol's solution in doses of 1 to 2 c.cm. by the mouth in a full glass of water, half an hour after meals, for three to five days before operation, and by the rectum during the last twenty-four hours before the operation, 2 c.cm. being administered thus in 500 c.cm. of water. An ice-bag is applied during alternate hours to the heart and to the thyroid gland. Transfusion is occasionally, though rarely, indicated; in such a case not more than 500 c.cm. of blood should be given by the direct method. With rectal anaesthesia the patient does not immediately absorb a large amount of ether; absorption takes place gradually, and the etherization is smooth and continuous, since the rate of ether evaporation is constant. It is essential that the amount of ether, as computed by the age, weight, and general condition of the patient, should be given all at one time in order to produce the proper degree of analgesia or anaesthesia. The night before operation pulv. glycyrrhiz. co. (2 to 3 drachms) is administered, and in the morning a soap-suds enema, followed by a colonic irrigation of clear warm water. Two doses of morphine are given three hours and one hour respectively before operation. Two hours before operation a retention enema of chloretone 15 grains, ether 2 drachms, olive oil 1/2 oz., is introduced, and one hour before it the following mixture is placed in the rectum: olive oil 2 oz., ether 4 oz., and paraldehyde 1 drachm. One ounce of this mixture is given for each 20 lb. of body weight. If the patient complains of cramps, burning sensations, and a desire to evacuate the bowels, the flow of the solution is stopped and the tube lowered to allow of the escape of flatus. The tube is clamped and left in the rectum throughout the operation. When this is completed it is removed and the fluid allowed to drain away. After the operation morphine should be given every four to six hours for pain and restlessness; water by the mouth as soon as consciousness returns; and proctoclysis, every eight hours with 500 c.cm. of water containing 50 grams of glucose and 2 c.cm. of Lugol's solution. Digitalis should be administered if indicated, and quinidine, 3 grains every four to six hours, if fibrillation is present. The patient should be kept in the sitting or Fowler position. Many advantages are claimed for this method, among which are its safety and lessened mortality.

446. Influence of Anaesthetics on the Blood Volume.

H. REISSINGER and H. SCHNEIDER (*Deut. Zeit. f. Chir.*, July, 1929, p. 303), using the carbonic oxide method, have studied the influence of surgical operations on the volume of the circulating blood. In general narcosis there is a definite diminution of the blood volume, which is determined by the duration of the anaesthesia and by the drug and method employed. Chloroform and avertin cause a more marked lowering of the blood volume than ether. With local anaesthesia, in contrast with general narcosis, the diminution of the blood volume is not so marked, and the volume may even be increased; this increase is attributed to the action of absorbed adrenaline on the small peripheral arteries and the persistence of the normal muscle tone during the anaesthesia. The nature of the operation is also a factor, abdominal operations being associated especially with marked diminution of the blood volume, such as occurs in traumatic shock, or after experimental manipulation in animals by tearing and pulling on the abdominal organs. The lowering of the blood volume expresses a commencing collapse of the circulation; this can be met by the administration of adrenaline and strychnine, which act by increasing the volume of the blood.

447. An Anaesthetic of Diminished Toxicity.

IN a preliminary report G. H. W. LUCAS and V. E. HENDERSON (*Canadian Med. Assoc. Journ.*, August, 1929, p. 173) record a series of animal experiments which demonstrate the anaesthetic properties of a gas named cyclopropane, which is prepared from trimethylene bromide. It has a sweetish smell, like a mixture of chloroform and ethylene; it is heavier than air and is explosive in 5 per cent. and upwards

of oxygen, but it does not explode in mixtures weaker than 10 per cent. Cyclopropane appears to be an anaesthetic of high potency, 10 to 12 per cent. producing deep surgical anaesthesia in the test animals. Its toxic properties seem to be but slight, and toxic features do not appear rapidly except in concentrations higher than those named, the fatal concentration ranging between 27 and 30 per cent. In high percentages of the gas there is a decrease in respiratory depth and frequently in rate, and in some cases a fall in blood pressure. Respiration fails before the heart and circulation, and the heart appears to be but little affected. In no case did the heart not show a high degree of efficiency. The fall in blood pressure seems to be of vasomotor origin, and metabolic effects are slight or absent. Recovery is prompt and with little after-effects; it is very rapid in the case of doses toxic to respiration, but if the toxicity has shown itself in a fall of blood pressure recovery is not so brisk.

Obstetrics and Gynaecology.

448. Uterine Displacements and their Treatment.

IN a discussion of movable backward displacements, P. WERNER (*Wien. klin. Woch.*, August 15th, 1929, p. 1084) mentions that the congenital variety is usually a retroflexion only; the acquired form comprises a retroversion and flexion, being often part of a general visceroptosis and the first stage of a prolapse. The symptoms are backache, a bearing-down feeling, sterility, disturbances of menstruation, and nervousness. Werner finds it hard to be certain to what extent the displacement is responsible for these, and treatment by pessary will show whether or not reposition of the uterus effects a cure. Treatment is usually satisfactory when the main complaint is either sterility, visceroptosis, or menorrhagia. If conception occurs the uterus becomes too large for the pelvis about the end of the third month, and three solutions are possible: it may right itself, abortion may come on, or an incarceration of the gravid uterus may ensue, with its serious results. Before treating a retroversion its mobility must be established beyond doubt; reposition may be attempted manually, preferably not with the sound, and better still with the vulsellum. A speculum is introduced and the anterior lip of the cervix is grasped; traction is made, first downwards in the axis of the vagina, and then the handle is raised, leaving the point unmoved. Finally, the cervix is pushed back as far as possible into the posterior fornix, thereby anteverting the uterus. Any uterus which cannot be replaced thus must be considered fixed. The reposition of the gravid uterus must be done with the utmost care to avoid abortion. The vulsellum method is considered inadvisable, but the knee-elbow position is worth trying, since the weight of the uterus will bring it forward. If this method fails a rubber balloon may be inserted into the vagina and filled slowly with about 20 oz. of mercury, the patient being in the lithotomy position. The mercury fills up the posterior fornix and the hollow of the sacrum, thereby pushing the uterus forwards; this is held to be the best method in pregnancy. The non-gravid uterus after reposition must be kept anteverted, either by pessary or operation. Pessary treatment, in spite of its disadvantages, may effect a cure by taking the strain off the uterine supports and allowing them to regain tone. When pessary treatment is impossible an operation must be performed. The uterus should never be fixed to any one point in view of possible pregnancy, but anteverted by means of the round ligaments; the method of Wertheim is said to be the operation of choice.

449. Section of the Utero-sacral Ligaments.

H. MOLIN and F. CONDAMIN (*Gynécol. et Obstet.*, July, 1929, p. 100) describe the utero-sacral ligaments as being essentially formed of two parts: a fibro-elastic tissue, which duplicates the peritoneal serous layer, and a nerve bundle, which arises from the hypogastric plexus and is more deeply situated. These ligaments represent the true nerve pedicle of the uterus, and they have a mechanical and nervous action. Thus their section produces a double effect—namely, a mechanical one which frees the uterus from posterior retractions, and a nervous one which interrupts the passage of painful nerve impulses. Inflammation of the utero-sacral ligaments leads in the acute stage to painful tension, and in the chronic stage to more or less retraction; it can arise from two processes, which cause practically identical lesions. The infection may be through the lymphatics or by continuity from the parametric cellular tissue, giving rise to the posterior parametritis of Schultze, or it may be propagated downward from a peritoneal focus and originate the douglasitis of Condamin. The present authors claim that uterine retroversions merit greater attention than is usually given to them, and distinguish two opposite types of these conditions: those due to ligamentary relaxation, and those due to ligamentary retraction, particularly of the utero-sacral ligaments. Treatment of the retroversion alone is said to be useless in chronic parametritis or douglasitis; in these conditions section of the ligaments has given excellent results by maintaining the uterus in its normal position and abolishing the lumbo-sacral pains. In performing the operation the ligaments should be cut close to their isthmic insertion. Fourteen cases are reported in which this procedure was adopted with great benefit. Indications for its use are as follows: as a complement to ligamentopexies and hysteropexies for retroversions due to retraction of these ligaments; as a complement to conservative measures for chronic conditions of the adnexa: in retroversions which cannot safely be treated by other measures; and in posterior parametritis or douglasitis after complete regression of the causal lesions.

450. Leucorrhoea due to Trichomonas vaginalis.

C. H. DAVIS (*Amer. Journ. Obstet. and Gynecol.*, August, 1929, p. 196) states that in a series of about 1,000 gynaecological and obstetrical patients 33 per cent. suffered from leucorrhoea. The causes and associated conditions of this discharge he classifies under four headings: (1) parasitic and infective: (2) local; (3) constitutional; and (4) circulatory. In the first group he includes the organisms of specific disease, pyogenic and protozoal infection among others, and states that these may often be associated with any of the inflammatory or neoplastic conditions of the genital tract found in the second group. At the same time a predisposing factor may be present in the form of anaemia, or of some disease of the circulatory system, producing a vascular stasis with pelvic congestion. Davis advises that smears should be diluted with normal saline, when, if examined fresh, the *Trichomonas vaginalis* will be demonstrated quite frequently. To this organism he attributes, in great measure, vaginal leucorrhoea. Before treatment is begun he advises a thorough and systematic examination of the patient as well as the local investigation. In acute cases treatment should consist of non-irritating irrigation by a nurse, cleansing of the external genitalia by liquid soap and water, sitz baths, and confinement to bed. Once the acute stage has passed the vagina should be dried and painted with 5 per cent. mercurochrome or the compound tincture of benzoin. Medicated tampons he considers of doubtful value. In chronic cases, where the cause is usually an endocervicitis, he advocates treatment by the electro-cautery or excision of diseased tissue by a Sturmdorf or Schroeder operation. When the vaginitis is due to the *Trichomonas vaginalis* the cervix should be cauterized, and, in addition, the vagina should be treated four times weekly, or even daily, by swabbing with 1 per cent. lysol solution and drying, painting with 5 per cent. mercurochrome, and packing with 5 per cent. ichthyol in glycerin.

451. Blood Transfusion in Gynaecology.

B. S. TEN BERGE (*Nederl. Tijdschr. v. Geneesk.*, July 20th, 1929, p. 3344) records his observations in 71 cases treated by blood transfusion in the Coolsingel Hospital at Rotterdam. The procedure was at first used only for women who had had profuse haemorrhage, but it was afterwards employed in cases of cancer of the cervix or uterine fibroids to diminish the dangers of the operation. Transfusion was also employed in severe infective processes following normal delivery or abortion, in violent haemorrhage associated with retained placenta in which curetting or manual removal was inadvisable, in severe shock following operation, and in profuse haemorrhage following normal delivery or abortion. The sodium citrate method was first used, but as this was always followed by a rise of temperature the direct method was substituted, in which coagulation of the blood is prevented by smearing with paraffin the walls of the vessel into which the blood is received. The blood group is determined by *Moss's method*. Apart from a slight rise of temperature and an urticarial rash in a few cases, no bad effects resulted from the direct method.

452. Racial Influences and Obstetrics.

H. RUMMEL (*Zentralbl. f. Gynäk.*, August 10th, 1929, p. 2006) describes some of the anatomical and other peculiarities which are met with among the women of Southern China; he regards them as racial and constitutional. The prevailing type of pelvis in Canton has a transversely oval entrance, with an outside measurement usually 2 to 3 cm. less than that of the European pelvis; there is a very marked frequency of round pelves; these shapes of pelvis are possibly the effect of the squatting habit. The presence of cystic ovarian tumours is also said to be a racial characteristic of these women. The remarkable rareness of miscarriages and septic abortions may be related to the absence of functional disturbances, such as vaginismus and dyspareunia; the ancient Chinese custom of honouring and respecting the

mother of a family encourages a fondness for propagating children. In South China stone in the bladder is very common, especially among the peasant communities; cases of appendicitis and cholelithiasis are remarkably rare—attributable, perhaps, to the rice diet and lower cholesterin intake. Anal fistula and abdominal tuberculosis are surprisingly common, and are often accompanied by abscess of the symphysis. Amenorrhœa and sterility are due to chronic malaria, ankylostomiasis, and beri-beri; they may appear as the early signs of leprosy, or follow typhoid fever and pulmonary tuberculosis. In the wealthy, sunny districts of Southern China rickets and osteomalacia are almost unknown, but they occur abundantly in some of the north-west provinces, where a poor, ill-nourished population live through the long winters in miserable dwellings.

Pathology.

453. Asthenia following Suprarenal Destruction.

J.-E. ABELOUS and H. LASSALLE (*C. R. Soc. de Biologie*, August 13th, 1929, p. 938) state that it is generally agreed that asthenia is the cardinal symptom of suprarenal insufficiency. From their researches on the functions of these glands Abelous and Langlois attributed the asthenia to an "autocurarization" due to an accumulation in the organism of toxic substances normally neutralized or destroyed by the suprarenals. This theory has been disputed by many investigators. In some adrenalectomized animals, on the approach of or soon after death, excitation of a motor nerve causes no muscular contractions, while in others it does. These contradictory results have led many physiologists to deny the analogy between the motive impotence noted and the paralysis caused by curare. Lapicque has shown that the paralysis following the administration of curare is due to a considerable difference of chronaxy between the nerve and muscle, the chronaxy of the latter being much greater than that of the former. The present workers state that this heterochronism is the rule after destruction of the suprarenals, the discrepancy increasing and becoming very great just before death. Experiments on frogs and toads have proved that total destruction of the glands is followed fatally, after a more or less brief interval, by a profound asthenia, which is accentuated till death supervenes. This asthenia is caused by poisons no longer neutralized by the suprarenals, and these poisons have an action similar to that of curare, as is evidenced by the heterochronism demonstrated between the nerve and muscle.

454. An Alkalization Test of Renal Function.

As a result of tests extending over two and a half years and applied to 128 patients M. ROSENBURG and A. HELLFORS (*Deut. med. Woch.*, July 19th, 1929, p. 1212) recommend an alkalization method of testing renal function. The results were found to correspond with those obtained from the water and concentration tests, and the procedure was also found to be applicable to cases with oedema in which the other two gave inaccurate results. A further advantage of the method was that it took less time than the others, and gave evidence of slight renal deficiency. The test is carried out as follows. The fasting patient receives in the morning 20 grams of sodium bicarbonate in 400 c.cm. of water, and the *p*H of the urine is estimated at half-hourly intervals afterwards by the Michaeli method. With normal kidneys this value rises to at least 8.0; if the renal function is impaired the rise is proportionately diminished. This result depends on two important factors: (1) disturbance of the acid-alkali exchange between the tissues and blood; and (2) inadequate excretion of alkaline constituents by damaged kidneys. The fact that increase in the blood alkali reserve and alteration in the urinary *p*H do not run a parallel course after the administration of alkali indicates the importance of both factors; it has also been found that the blood alkali reserve observed is of little value as a guide to renal anomalies in gastric secretion was not confirmed in a number of control cases.

455. The Reticulocyte Count.

A. FRIEDLANDER and CHARLOTTE WIEDEMER (*Arch. Int. Med.*, August, 1929, p. 209) have been investigating the reticulocyte count in normal and abnormal conditions; they describe a simple method of staining the blood cells with brilliant cresyl blue which enables the count to be made more rapidly and accurately. The authors believe that the reticulocyte percentages often given are much too high; such percentages as 1 and 1.5 of the red cells are excessive for normal persons, a more accurate range being from 0.03 to 0.2 per cent., so that in a healthy adult these cells are not present in higher numbers than 10,000 per c.mm. A seasonal variation in the count is said to be usual, there being a definite increase during the spring as compared with the winter months; this is attributed to stimulation by the ultra-violet rays in sunshine, a suggestion which receives support from the fact that an increase in reticulocytes occurs after heliotherapy by both natural and artificial rays. Increases were noted in the newborn infant and during pregnancy. No connexion appears to exist between the white cell and the reticulocyte count, little variation of the latter from the normal having been detected by the authors in acute and chronic infections and diseases, unless there was a complicating anaemia. Counts were high in workers in lead factories, though they showed no clinical symptoms of poisoning, and a similar increase was noted in cases of corrosive mercuric chloride poisoning. The authors state that in cases of haemorrhage the maximum reticulocyte count is normally reached about five days after the bleeding has ceased; with the subsequent rise in the red cell count and its approach to normal the reticulocyte count drops, and may thus afford a prognostic index as to whether blood regeneration will proceed normally after haemorrhage has stopped. The value of the reticulocyte count in this connexion in pernicious anaemia is already accepted; in patients under liver extract treatment the reticulocyte count drops to normal as the red cell count reaches its maximum.

456. Differentiation of Haemolytic Streptococci.

R. C. AVERY (*Journ. Exper. Med.*, October 1st, 1929, p. 463) has examined 138 strains of haemolytic streptococci, collected from human and bovine sources, from fresh and pasteurized milk, and from cheese. Studying their growth in glucose broth, he finds that two groups can be distinguished according to their degree of acid production; 95 strains, all except 4 of which were of human origin, produced a final acidity of *p*H 5.3 to 5.0; the remaining 43 strains, none of which was of human origin, produced a final acidity of *p*H 4.5 to 4.0. The strains were further tested as regards their capacity to reduce methylene blue. For this purpose tubes of milk containing a 1 in 5,000 solution of methylene blue were inoculated with 0.1 c.cm. of a twenty-four-hour broth culture of the strain to be tested, and incubated for seven days. Only one of the 95 low-acid-producing strains reduced methylene blue; of the 43 high-acid-producing strains, 24 reduced methylene blue, and 19 failed to do so. Of the 24 strains showing reduction, 21 were from various kinds of cheese. The author concludes that haemolytic streptococci may be divided on these two tests into three groups: (1) human parasitic strains, having a final *p*H of 5.2 to 5.0, and failing to reduce a 1 in 5,000 solution of methylene blue in milk; (2) bovine strains, parasitic in the udder, having a final *p*H of 4.5 to 4.2, and failing to reduce methylene blue in milk; and (3) saprophytic strains, found in milk and cheese, having a final *p*H of 4.5 to 4.2, and reducing methylene blue in milk. It was found that methylene blue was bactericidal for strains of haemolytic streptococci that failed to reduce it, but that it was neither bactericidal nor bacteriostatic for those which reduced it.

457. Production of Rachitic Scoliosis by Strontium Administration.

S. MARCONI (*La Chir. degli Organi di Movimento*, July, 1929, p. 585) has recently confirmed the work of Cagnetto, who by adding strontium to the daily diet produced an experimental scoliosis in young chickens. There was neither reduction nor suppression of calcium. Marconi's object was to study the deformity obtained and the dynamic principles governing it. The first experiments were made with guinea-pigs, but the results obtained were not sufficiently good. Chickens were found to yield better results, and to be more comparable with the human. The chickens were given an emulsion of a strontium salt, the proportion being 0.2 gram for 100 grams of body weight. Care was used to exclude the presence of barium. The increase of dosage was regulated by the body weight and also by the tolerance of the animal. A typical scoliosis in no way distinguishable from a rachitic scoliosis was produced in one case before the animal died on the hundred and twenty-second day. From direct study, photographs, and skiagraphs it appeared evident that the deformity of the vertebral column followed constant rules, analogous to those observed in the human subject. In addition to the principal curve there was a compensatory one, associated with torsion of the column with a costal hump. The usual secondary deformities of ribs, sternum, shoulder, and pelvic girdles were present. Examination of the vertebral deformity showed that at the apex of the principal curve there was a cuneiform vertebra, and in the compensatory curve the characteristic oblique or rhomboidal vertebra.

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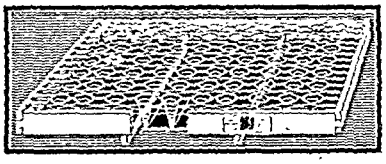

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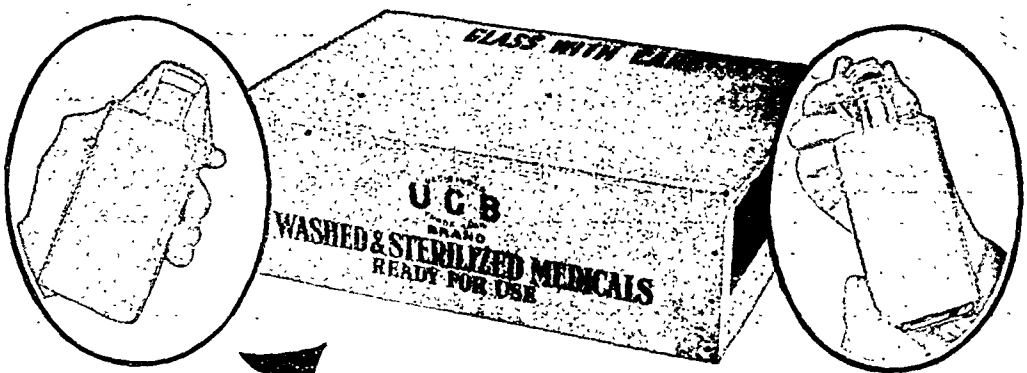

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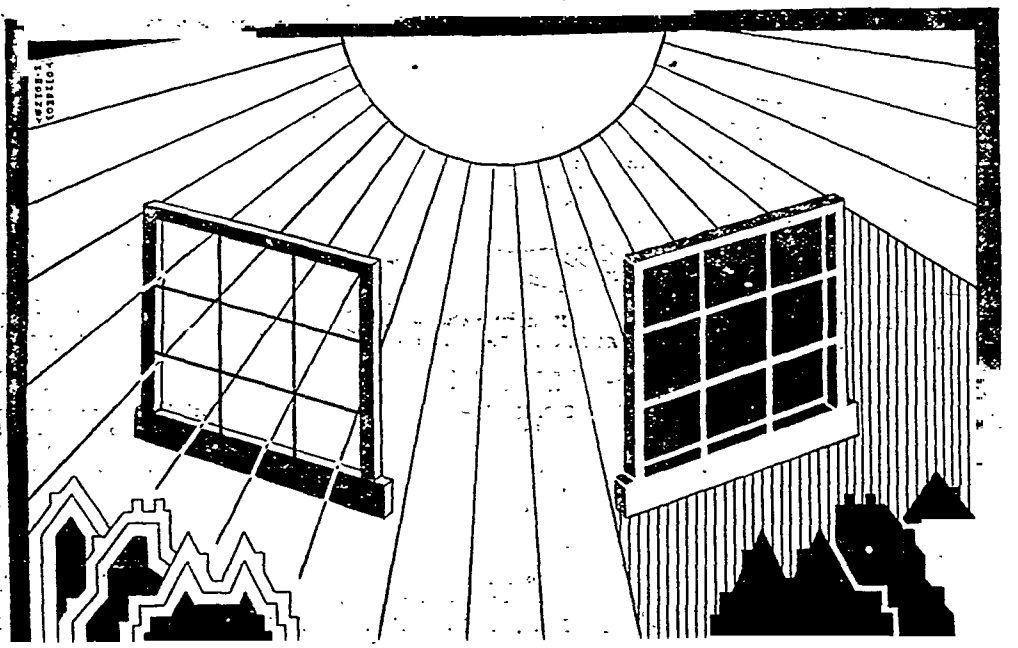

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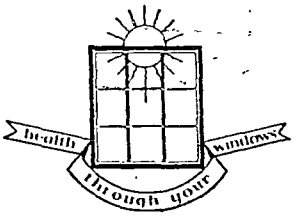

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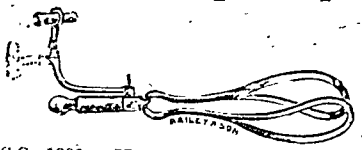

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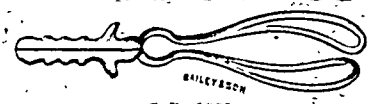

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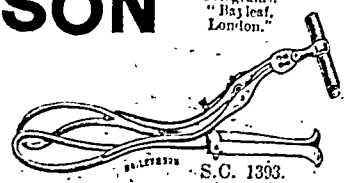

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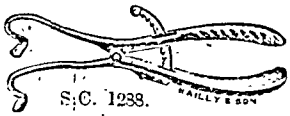

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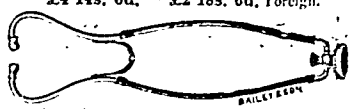

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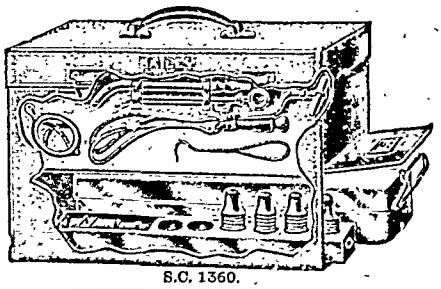

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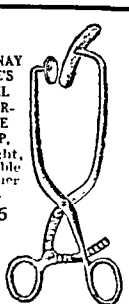

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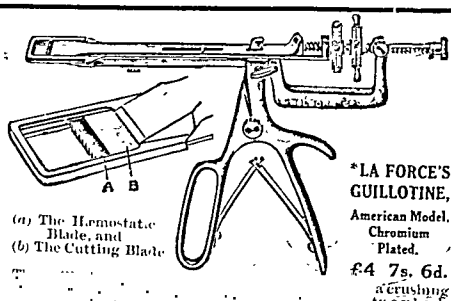

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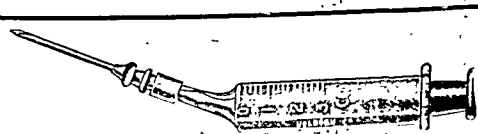

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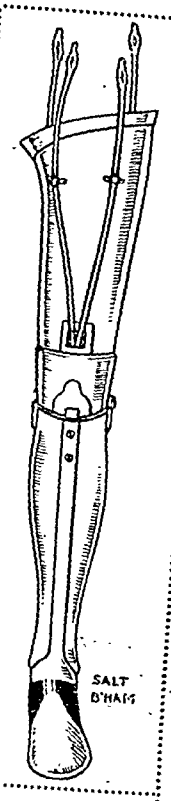

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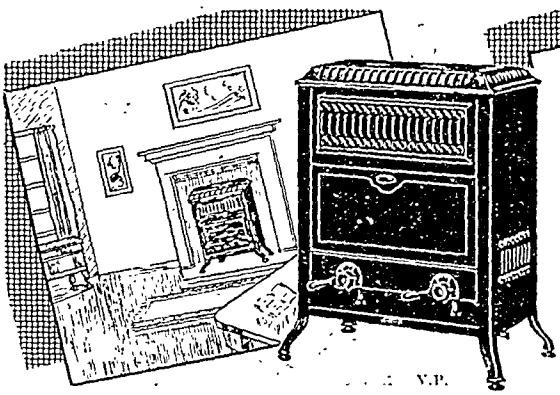

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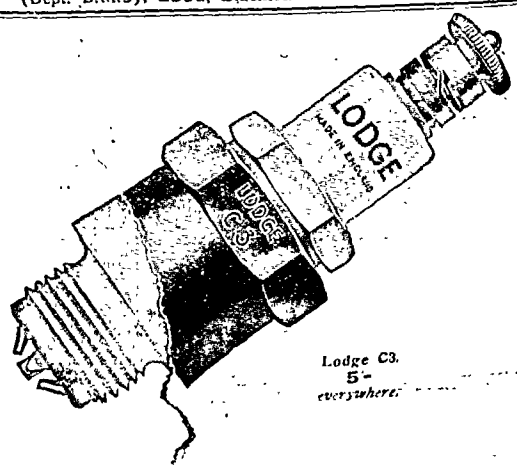

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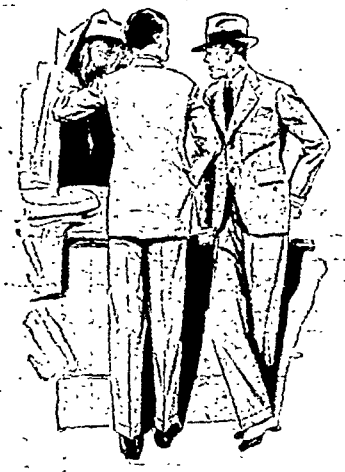

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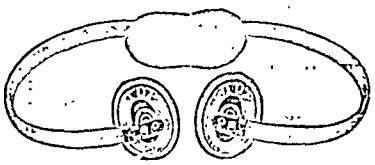

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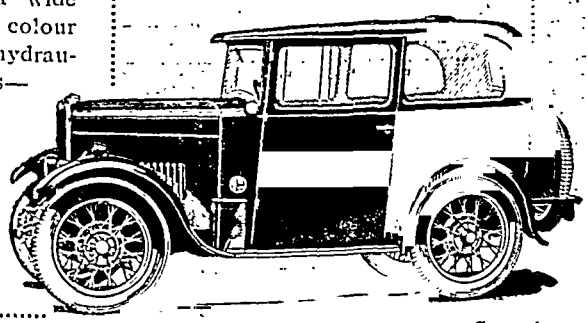

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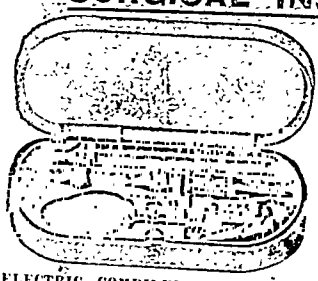

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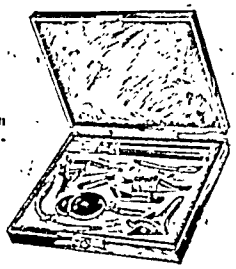

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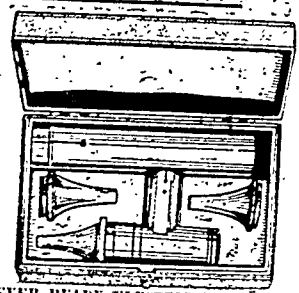

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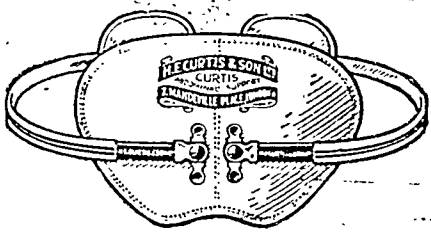

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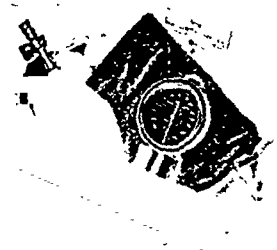

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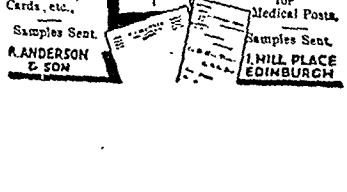

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A Private HOME for the Care and Treatment of a limited number of Ladies with Mental and Nervous Disorders. Separate accommodation for Voluntary Boarders. Large Mansion with 12 acres of ground. (See *Medical Directory*, p. 2190.) Apply J. H. EARLS, M.D., Resident Physician. Telephone: Streatham 8430

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This registered Hospital for MENTAL DISEASES, with its seaside branch Glan-y-Don, Colwyn Bay, is for the treatment and care of PRIVATE PATIENTS of the UPPER and MIDDLE CLASSES. Voluntary Boarders received. For terms, etc., apply to the Medical Superintendent, J. A. C. ROY, M.B., who may also be seen in Manchester by appointment.

Telephone: 481 GATLEY.

THE RESIDENTIAL TREATMENT OF ALCOHOLISM & DRUG ADDICTION

RENDLESHAM HALL

(Postal Address)—WOODBRIDGE, SUFFOLK.

Rendlesham Hall, which is open to receive patients, is essentially a Sanatorium. Its daily life and routine are that of an ordinary comfortable holiday or health resort, or of a large country house. Each patient has all the privileges of a guest consistent with the prescribed medical treatment.

Rendlesham Hall has 45 bedrooms, and about 450 acres of gardens and park. It has also a private nine-hole golf course, tennis and croquet lawns, and bowling green.

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Telegrams and Telephone: Wickham Market 16. *(Toll Call from London.)*

RENDLESHAM HALL.

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Telephone: BECKENHAM 1648. *Telegrams:* NOROTORIUM, BECKENHAM.

Proprietors: The Norwood Sanatorium, Limited.

ALCOHOLISM, DRUG HABIT, AND NEURASTHENIA.

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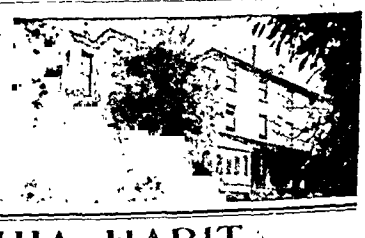
A small comfortable Home charmingly situated in secluded gardens overlooking Torbay. Ladies and Gentlemen treated with a view to a rapid and permanent cure by modern methods, which give excellent results. Ample amusement, billiards, wireless, golf, tennis, etc. Good train service (3½ hours London). Moderate inclusive terms. Prospectus, report, etc., from—Stanford Park, M.B., CH.B., Res. Med. Supt., Bay Mount, Paignton



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As founded and established by the late Dr. FRANCIS HARE, for 20 years Med. Supt. of The Norwood Sanatorium, and author of "Alcoholism," etc.; for the treatment of ALCOHOLISM, other Drug Habits, Insomnia, Neurasthenia, Functional Nervous Disorders, TROPICAL Ailments, etc.

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Terms moderate. Quiet and pleasant situation. *Ladies and gentlemen admitted for treatment.* For Prospectus, etc., write or 'phone: WALTER E. MASTERS, M.D., M.R.C.S., D.P.H., Barrister-at-Law (Resident Medical Superintendent). *'Phone:* Chislehurst 451. *Telegrams:* "Masters," Chislehurst.

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Particulars from the General Secretary, 40, Marsham Street, S.W.1.

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The Springfield method, selected for full description in the "Medical Annual," has been favourably noticed in medical papers throughout the world. Eighty per cent. of cases treated in the last four years are still well; average duration of treatment 30 days.

This special treatment was originated and is carried out in a general nursing home, the address of which is never advertised.

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Situated in 3½ acres of secluded gardens.

HOME FOR TWELVE MENTAL PATIENTS (LADIES).

Well-appointed private house. Home comforts and Trained Nursing Staff. Eminent Mental Specialist Visiting Physician.

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FOR MENTAL AND NERVOUS CASES

Physicians: DAVID AND CEDRIC W. BOWER. *Ordinary Terms, Five Guineas per week.* (Including Separate Bedrooms where suitable.) Interviews in London by appointment.

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The first Private Hospital in the United Kingdom to be fully provided with a whole-time specially qualified Staff of Doctors, Analytical Chemists, Bacteriologists, Radiologists, Nurses, Dietists, Masseurs, and Masseuses, and a full equipment of Laboratories, X-rays, Electrocardiograph, Artificial Sunlight, and Medical Baths.

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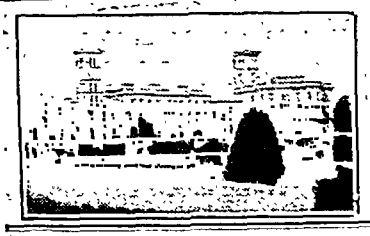
The climate is mild and the neighbourhood beautiful.
Telegrams: Castle, Ruthin. Telephone: 66, Ruthin.

Apply: The Secretary,
Ruthin Castle, North Wales.



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Massage.
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TERMS:
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Hard Tennis Court.
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Also completely detached Villas for mild cases, with private suites if desired. Voluntary Patients received. Twenty acres of grounds. Hard and Grass Tennis Courts, Bowls, Croquet, Squash Racquets, and all indoor amusements, including Wireless and other Concerts. Occupational Therapy, Physical Drill, and Dancing Classes. X-ray and Actino-therapy, Prolonged Immersion Baths. Operating Theatre, Dental Surgery, and Ophthalmic Dept. Chapel. Senior Physician: Dr. Hubert James Norman, assisted by three Medical Officers, also resident, and Visiting Pathologist. An illustrated Prospectus may be obtained upon application to the Secretary.

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NORTHUMBERLAND HOUSE,

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A PRIVATE HOME for the treatment of patients of both sexes suffering from Mental Illnesses.
Conveniently situated four miles from Charing Cross. Easy of access from all parts.
Six acres of ground, highly situated, facing Finsbury Park.
Voluntary Boarders received without certificates. Private suites. Convalescent Home, Kearsney Court, Dover.
For further particulars, apply to the MEDICAL SUPERINTENDENT.

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NEAR BASINGSTOKE, HANTS.

Private Hospital for Mental Diseases

A modern building situated in a healthy district, easily accessible by rail and road. Patients taken at from three guineas per week.

Apply to Medical Superintendent. Telephone: 157 BASINGSTOKE

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A Private Hospital for the Care and Treatment of those of both sexes suffering from MENTAL DISORDERS.

Extensive grounds. Detached Villas. Chapel. Garden and dairy produce from own farm. Terms very moderate.

CONVALESCENT HOME at BOURNEMOUTH standing in 9 acres of ornamental grounds, with tennis courts, etc., which Patients or Boarders may visit by arrangement, for long or short periods.

Illustrated Brochure on application to the Medical Superintendent, The Old Manor, Salisbury. Telephone 51.

PECKHAM HOUSE, 112, Peckham Road, London, S.E.15.

Telegrams: "Alleviated, London." Telephone: Rodney 4741—4742.

The above House, which was established in 1826, is an Institution for the care and treatment of persons suffering from mental diseases and nervous disorders. Both certified patients and voluntary boarders are received. Separate houses for treatment and accommodation of special cases adjoin the Institution. There is a seaside branch, Kearsney Court, near Dover, to which patients may be sent for treatment or on holiday. Motor and carriage exercise is provided as required. Patients can avail themselves of a course of physical drill. Tennis courts. Entertainments, dances, and indoor amusements held throughout the year.

Illustrated prospectus and further particulars can be obtained from the Medical Superintendent.

ST. ANDREW'S HOSPITAL
FOR MENTAL DISORDERS,
NORTHAMPTON

FOR THE UPPER AND MIDDLE CLASSES ONLY.

President: THE MOST HON. THE MARQUESS OF EXETER, C.M.G., A.D.C.

Medical Superintendent: DANIEL F. RAMBAUT, M.A., M.D.

This registered Hospital is situated in 120 acres of park and pleasure grounds. Voluntary Boarders, persons suffering from incipient nervous and mental disorders, as well as certified patients of both sexes, are received for treatment. Careful clinical, biochemical, bacteriological, and pathological examinations. Private rooms with special nurses, male or female, in the Hospital or in one of the numerous villas in the grounds of the various branches can be provided

WANTAGE HOUSE.

This is a Reception Hospital in detached grounds, with a separate entrance, to which patients and voluntary boarders can be admitted. It is equipped with all the apparatus for the most modern treatment of Mental and Nervous Disorders. It contains special departments for hydrotherapy by various methods, including Turkish and Russian baths, the prolonged immersion bath, Vichy Douche, Scotch Douche, Electrical baths, Plombières treatment, etc. There is an Operating Theatre, a Dental Surgery, an X-ray Room, an Ultra violet Apparatus and a Department for Diathermy and High Frequency treatment. It also contains Laboratories for biochemical, bacteriological, and pathological research

MOULTON PARK.

Two miles from the Main Hospital there are several branch establishments and villas situated in a park and farm of 650 acres. Milk, meat, fruit, and vegetables are supplied to the Hospital from the farm, gardens, and orchards of Moulton Park. Occupation therapy is a feature of this branch, and patients are given every facility for occupying themselves in farming, gardening, and fruit-growing.

BRYN-Y-NEUADD HALL.

The Seaside house of St. Andrew's Hospital is beautifully situated in a Park of 330 acres, at Llanfairfechan, amidst the finest scenery in North Wales. On the North-West side of the Estate a mile of sea coast forms the boundary. Voluntary Boarders or Patients may visit this branch for a short seaside change or for longer periods. The Hospital has its own private bathing house on the seashore. There is trout-fishing in the park.

At all the branches of the Hospital there are cricket grounds, football and hockey grounds, lawn tennis courts (grass and hard courts), croquet grounds, golf courses, and bowling greens. Ladies and gentlemen have their own gardens, and facilities are provided for handicrafts, such as carpentry, etc.

For terms and further particulars apply to the Medical Superintendent (Telephone No. 55, Northampton), who can be seen in London by appointment.

THE COPPICE, NOTTINGHAM.
HOSPITAL FOR MENTAL DISEASES.

This Institution is exclusively for the reception of a limited number of Private Patients of both sexes of the Upper and Middle Classes at moderate rates of payment. It is beautifully situated in its own grounds on an eminence a short distance from Nottingham, and from its singularly healthy position and comfortable arrangements affords every facility for the relief and cure of those mentally afflicted. Voluntary Boarders received without Certificates.

For terms, etc., apply to the Medical Superintendent.

HAYDOCK LODGE,
NEWTON-LE-WILLOWS, LANCASHIRE.

'Phone: 11 Ashton-in-Makerfield.

For the reception and treatment of PRIVATE PATIENTS of both sexes of the UPPER AND MIDDLE CLASSES either voluntarily or under Certificate. Patients are classified in separate buildings according to their mental condition

Situated in park and grounds of 400 acres. Self-supported by its own farm and gardens, in which patients are encouraged to occupy themselves. Every facility for indoor and outdoor recreation. For terms, prospectus, etc., apply MEDICAL SUPERINTENDENT.

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FUNCTIONAL NERVOUS DISORDERS & CHRONIC MEDICAL CASES.

The Home, a Georgian mansion, 14 miles from Nottingham and 6 miles from Derby, is for both sexes. In addition to the methods of general medicine, Psycho-Therapeutic treatment is used extensively in suitable cases. Certifiable cases are not received. Electrical Treatment, Radiant Heat, X-ray, and Ultra-violet Light is available in the Nursing Home. Billiards, tennis, etc. Fees from 5 to 12 guineas per week; for Chronic Medical Cases from 3 guineas a week. For further particulars apply to—

Dr E M DOUGLAS MORRIS, ASTON, DERBY. *Telephone*: Shardlow 16.

COURT HALL, KENTON, EXETER,
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For the care and treatment of Ladies suffering from Mental Diseases. Limited to eight patients. Telephone: Starcross 19.

CLIFFDEN, TEIGNMOUTH, in connection with Court Hall, for early and convalescent cases. Cliffden is a large well-appointed house, with lovely views of the South Devon Coast. It is beautifully situated in grounds of 19 acres. The gardens are very attractive, and there is a private road to the beach.

Resident Physicians: BERTHA M. MULES, M.D., B.S.; ANNIE S. MULES, M.R.C.S., L.R.C.P.

Telephone: *Teignmouth* 289.

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A Private Mental Hospital for the Treatment and Care of Mental and Nervous Disorders.

Now removed to:

CHISWICK HOUSE,
PINNER,
MIDDLESEX.

Telephone: PINNER 234.

A modern country house, 12 miles from Marble Arch, in beautiful secluded grounds.

Fees are from 10 guineas a week.

Voluntary Patients received for treatment.

—DOUGLAS MACAULAY, M.D., D.P.M.

WONFORD HOUSE HOSPITAL,
EXETER, DEVON.

Telegrams: Exeter 2642. *Telephone*: Exeter 2642.

A registered Hospital for the treatment of patients of both sexes suffering from Nervous and Mental Disorders, situated in beautiful country within a mile and a half of the City of Exeter.

Hard and grass Tennis Courts, Croquet Lawn, Cricket Field, and all indoor amusements, Dancing, Concerts, Wireless, Billiards, Badminton. Occupational treatment.

The patients are carefully graded, and accommodation provides for the separate treatment of early recoverable and convalescent patients.

Voluntary and certified patients are received for treatment.

A prospectus and full particulars can be obtained from the Medical Superintendent.

BARNWOOD HOUSE,
GLOUCESTER.

A REGISTERED HOSPITAL for the CARE and TREATMENT of LADIES and GENTLEMEN suffering from NERVOUS and MENTAL DISORDERS. Within two miles of the G.W. Railway and L. M. & S. Railway Stations at Gloucester, the Hospital is easily accessible by rail from London and all parts of the United Kingdom. It is beautifully situated at the foot of the Cotswold Hills, and stands in its own grounds of over 280 acres. Voluntary boarders of both sexes are also received for treatment.

Special accommodation for Lady Voluntary Boarders is also provided at the MANOR HOUSE, which has its own private grounds and is entirely separate from the main Hospital.

For particulars as to terms, etc., apply to—

ARTHUR TOWNSEND, M.D., Resident Supt.

Telephone: No. 7 Barnwood.

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Owing to extensions there are at present a few Vacancies at the

DAVID LEWIS COLONY

for Ladies and Gentlemen who have Epilepsy, but are of good intelligence and sound mind.

Colony life gives to most people who have epilepsy the best chance of happiness and contentment.

Apply to the Medical Superintendent,

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A registered Hospital situated in large grounds near the Cathedral receives VOLUNTARY BOARDERS and PRIVATE PATIENTS of both sexes for treatment of Mental and Nervous Disorders, including Post-Encephalitic conditions. Special facilities for Psychotherapy in co-operative cases.

All particulars may be obtained from the Resident Medical Superintendent,

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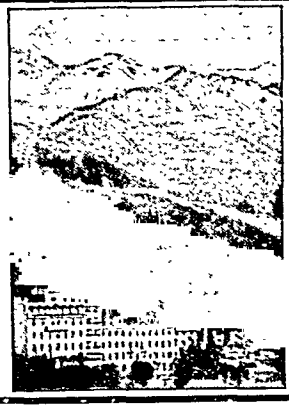

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For the treatment of all forms of lung diseases.
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Full day and night staff of ENGLISH and Swiss trained nursing SISTERS.

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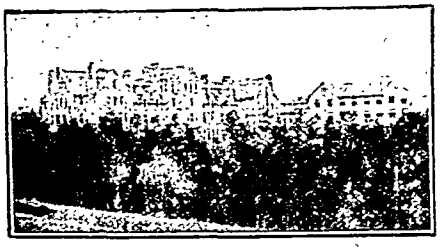

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FULLY EQUIPPED WITH EVERY MODERN APPLIANCE FOR THE DIAGNOSIS AND TREATMENT OF ALL FORMS OF TUBERCULOSIS & ALLIED DISEASES.

Physician Superintendent - J. M. JOHNSTON, M.B., D.P.H., etc.

Full particulars and Prospectus on application to the Secretary.

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Specially built for the treatment of Pulmonary and other forms of Tuberculosis. Aspect S.S.W., on a carefully chosen site. Pure bracing air. High sunshine record. Heliotherapy. Arc-light treatment. One mile from the coast. Electric light throughout. X-ray installation. Full day and night Nursing Staff. Wireless (headphones) throughout.

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Apply, Mr. D. C. FORD, Secretary,
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Established 1900 for the treatment of Tuberculosis. Miles of carefully graduated walks through pine-clad hills, with sea and mountain views. Modern treatment, including SANOCRYSIN, ARTIFICIAL PNEUMOTHORAX, etc. X-ray plant, electric light, central heating, wireless. Full day and night nursing staff. On L.M.S. Main Line to Holyhead, 4½ hours from London. Resident Physicians: Dennison Pickering, M.D.(Cantab.), F. W. Godbey, M.D., D.P.H.; Matron: Miss N. Rennardson, S.R.N.

For particulars apply to the Secretary, Pendyffryn Hall, Penmaenmawr, N. Wales. ('Phone, 20.)

LINFORD SANATORIUM,

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Established 1893 for the treatment of Tuberculosis. Radiators and Electric Light throughout. Hot and cold water and shower bath in nearly all rooms. Powerful X-ray Plant. Ultra-violet Rays. Full Nursing Staff. All forms of treatment available. Farm of 120 acres, including 40 acres of wood. Herd of Tuberculin-tested Guernsey cows kept. Resident Physicians—Arthur de W. Snowden, M.D., B.Ch.(Cantab.), A. G. E. Wilcock, M.R.C.S., L.R.C.P., Colin Cassidy, M.B., B.Ch.(Cantab).

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WAS OPENED IN JANUARY, 1899.

Patients are received for open-air, inoculation, or operative treatment. There are X-ray and ultra-violet ray installations. Full nursing staff. The Sanatorium stands in gardens and private grounds of 65 acres, at an elevation of 862 feet above sea-level, surrounded by woods and moorland. The patients' rooms are heated by hot-water pipes and electrically lighted. Fees 4, 5, and 6 guineas per week.

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For full particulars apply to *The Secretary*, Nordrach-upon-Mendip, Blagdon, Bristol. *Telegrams*: Nordrach, Blagdon. *Telephone*: Blagdon 23.

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(Allan Water Hotel)

This once famous Hydro adjoining the Mineral Wells has recently been equipped with the most modern appliances for treatment by Electro-therapeutics, Medicated Baths, etc. All treatment is given only on the instruction of the Medical Superintendent, or of the patient's own medical adviser.

Bridge of Allan is an Inland Spa and Climatic Resort, sheltered from the North and East winds.

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Unrivalled suites of Baths for Ladies and Gentlemen, including Baths, Aix and Vichy Douches Treatment, an Electric Light Bath for Medical purposes, Dowsing Current, High Frequency, Diathermy, Galvanism, Massage, Provision for invalids. Milk from Own Farm. Garden. Night Attendance. Lounge and bedrooms warmed in Winter.

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GREAT BRITAIN'S GREATEST HYDRO

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Unsurpassed situation, 600 ft. above sea-level, high sunshine record, own farm. Resident Medical Officer. Male cases only.

Inclusive weekly terms 50/-.

Special preferential arrangements for a few private cases at 4 guineas.

Artificial Pneumothorax, etc.

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HOME FOR CHILDREN and YOUNG PEOPLE, delicate or predisposed to Tuberculosis, in English Doctor's House, near Davos, Switzerland. Terms from £5 5s. p.w.—Apply, Dr. BERNARD HUDSON, Victoria, Davos, Switzerland

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For the treatment of Ladies and Gentlemen mentally afflicted. Voluntary Boarders received Situated 1,200 ft. above sea-level, facing S.; 14 acres of grounds.—For terms, apply to the Resident Medical Superintendent, W. W. HORTON, M.D. Nat. Tel 130

CITY OF LONDON MENTAL HOSPITAL, DARTFORD, KENT.

PRIVATE PATIENTS are received at a weekly charge of TWO GUINEAS and upwards.

Voluntary BOARDERS can now be admitted.—Apply to the MED. SUPERINTENDENT.

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PRIVATE HOME for MENTALLY AFFLICTED LADIES. Ten only received. Apply, Medical Officer or Mrs. PEELE. *Telephone*: 2708.

Vacancy for Lady, Gentleman, or Child requiring care with trained MENTAL NURSE. Home comforts. Private suite if desired. Lovely house and grounds, garage. From 6 gns. Highest references.—Address, No 7279, B.M.A. House, Tavistock Square, W.C.1.

Sister receives Patients.—Registered HOME Medical, Nerve, slightly Mental, Epileptic, or Chronic cases. Sunny, well-sheltered. Sea and mountain air. Personal attention. Terms moderate.—SISTER JONES, Plas Coch Llanfairfechan.

Matron giving up Nursing Home will take Two INVALID GUESTS (not bedridden). Skilled attention can be given. Telephone: Hampstead 7102.

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KINGUSSIE, INVERNESS SHIRE.

Specially built for the Open-air Treatment of Tuberculosis, and opened in 1901. Bracing mountain air. Elevation 860 ft. above sea-level. Sheltered situation in pine wood. Graduated walks. Electric light throughout building and in shelters. Central heating. Fully equipped X-ray Plant. Inoculation Treatment available for patients—24 beds. Trained Nurse on duty all night. Terms £4 6s. 8d. to £6 6s. *inclusive p.w.* Med. Supt.—FELIX SAVY, M.B., Ch.B. For particulars apply to the Secretary.

PEEBLES HYDRO.

Beautifully situated 600 feet above sea level. Facing south, completely sheltered from north and east. 21 miles from Edinburgh.

All modern Baths, Douches, Massage, and Electrical Treatment. Ultra-Violet Radiation. Physician in attendance.

IDEAL HEALTH RESORT.

Electric Light, Central Heating, Electric Lift, three Billiard Tables, Ball Room, Winter Garden, Swimming Bath, Hard and Grass Tennis Courts, Badminton, Croquet Lawn, Golf Course. Prospectus from Manager. 'Phone: Peebles 2.

BOURNEMOUTH HYDRO,

with Vita-glass Sun-lounge and Marine Balcony on the South Coast.

Every kind of Bath. Plombière Lavage.
Every kind of Massage. Ultra-violet Light.
Every kind of Electricity. Diathermy.
Every kind of Diet.
Carlsbad and Vichy Waters, etc.
High Frequency. Electric Lift.

Prospectus from Secretary. *Tele.* 341.
Resident Physician: W. JOHNSON SMITH, M.D.

Haslemere Nursing Home, "Countsfold," Haslemere, Surrey. Medical, Convalescent, and permanent patients. Ideal for Rest Cures. Comfort, sunny rooms, large gard., own poultry, veg., etc. Trained staff. 5 to 10 gns weekly. Tel.: Haslemere 22.

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A Private Home for the care and treatment of a limited number of ladies mentally afflicted. Climate healthy and bracing.

Medical Superintendent: Dr. MCCLINTOCK.

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The COLLEGE OF PRECEPTORS holds Preliminary Examinations for Medical and Dental Students in London and at Provincial Centres in March, June, September, and December. For Regulations, apply to the Secretary, College of Preceptors, Bloomsbury Square, London, W.C.1.

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F.R.C.S.(Edin.)

CLASSES, with Museum and Anatomical Demonstrations, for next Exam., will commence shortly. Correspondence work at any time. Particulars from CHAS. WHITTAKER, F.R.C.S., Surgeons' Hall, Edinburgh.

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COURSES OF LECTURES for Practitioners on the USE OF X-RAYS IN SURGICAL DIAGNOSIS.

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Prospectus from Sir Henry Simson, K.C.V.O., Dean, West London Hospital, Hammersmith, W.6.

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F.R.C.S.(Eng.),	*Primary*	149
(1905-28)	*Final*	135
M.R.C.P.(Lond.),	1914-28	152
D.P.H.	(Various) 1905-28 (Completed Exam.)	280
F.R.C.S.(Edin.),	1918-28	39
M.R.C.S., L.R.C.P.	*Final* 1910-28 (Completed Exam.)	402
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LIVERPOOL SCHOOL OF TROPICAL MEDICINE.

(UNIVERSITY OF LIVERPOOL)

COURSES OF INSTRUCTION (lasting about three months) for the Diploma in Tropical Medicine commence on October 1st and January 7th, and for the Diploma in Tropical Hygiene on January 12th and April 26th. (Candidates for the D.T.H. must possess the D.T.M. of this University.)

For particulars apply to the Hon. Dean, Liverpool School of Tropical Medicine, Pembroke Place, Liverpool.

SCHOOLS for BOYS and GIRLS.

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Messrs. J. & J. PATON, having an up-to-date knowledge of the BEST SCHOOLS and TUTORS in this Country and on the Continent, will be pleased to AID PARENTS in their choice by sending (free of charge) prospectuses and TRUSTWORTHY INFORMATION and ADVICE.

The age of the pupil, district preferred, and rough idea of fees should be given.

J. & J. PATON, Educational Agents, 143, Cannon St., London, E.C.4. Tel.: Mansion House 5055.

TAUNTON SCHOOL,

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A PUBLIC SCHOOL FOR BOYS.

Boys are regularly prepared for the First M.B. Examination, University Scholarships in Chemistry, Biology, etc.

Special facilities are offered for the teaching of Chemistry, Physics, Botany, and Zoology.

New Science Buildings, containing seven laboratories, two lecture rooms, science library, store rooms, etc., opened in September, 1925. Prospectus from Head Master.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE.

(University of London.)

Tropical Medicine and Hygiene.

The School provides two courses yearly, each of 20 weeks. The next courses commence on February 3rd and September 30th, 1930.

Diploma in Public Health.

The next course of study in Public Health, covering a period of 12 calendar months, commences on September 30th, 1930, and is so designed that students wishing to do so can proceed to the new academic diploma instituted by the University of London.

The inclusive fee of 50 guineas will cover the cost, not only of the ordinary lectures and demonstrations, but also of the necessary practical work in public health departments and instruction in infectious diseases, etc.

Diploma in Bacteriology.

The course of study, covering one academic year, commences early in October.

Applications for prospectuses and for other information as to courses of study should be addressed to the Secretary, Keppel Street (Gower St.), London, W.C.1.

LONDON SCHOOL OF DERMATOLOGY,

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN,

LEICESTER SQUARE, W.C.2.

Conducted by the Honorary Staff of the Hospital, together with the Physicians in charge of the Dermatological Departments of the London Teaching Hospitals. Lectures and Demonstrations every Tuesday and Thursday, at 5 p.m., from October to March, and four times weekly during May. Clinics daily at 2 p.m. and 6 p.m., Saturdays, 2 p.m. only. Pathological Laboratory for Instruction or Research Work.

For further particulars, fees, etc., apply to J. E. M. WIGLEY, M.B., Dean.

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The next Examination will take place on Monday, November 18th, and following days. For regulations apply to—

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Remedial instruction for Stammer, Aphonia, Neurotic hesitation and lisp, Cleft palate and disturbed or undeveloped co-ordination.

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Qualified Medical Women are admitted to
The Mothers' Hospital of the Salvation Army, Lower Clapton Road, E.5
for practical fortnightly Courses in Midwifery. These include delivery of normal cases, attendances at all abnormal cases, operations, ward rounds of visiting staff, V.D. clinics, and antenatal clinics. For further particulars, fees, etc., apply to the Secretary.

F.R.C.S.(Edin.).

Prep. Classes and Museum Demons. for next Fellowship Exam. will commence shortly. Correspondence course for March and later exams should begin now. Partics., Mr. H. C. ORRIN, F.R.C.S., at Surgeons' Hall, Edinburgh.

The University of Liverpool.

Professor C. REGAUD (Director of the Pasteur Laboratory, Radium Institute, Paris) will deliver the WILLIAM MITCHELL BANKS MEMORIAL LECTURE, 1929, on
"What are the Conquests in the Curative Treatment of Malignant Tumours by Radio-Therapeutic Methods?"
on THURSDAY, NOVEMBER 21st, 1929, at 4 p.m.

The Lecture, which will be illustrated with lantern slides, will be given in the Surgical Theatre, the Medical School, and is open only to Members of the Medical Profession.

Royal College of Surgeons of ENGLAND.

ELECTION OF EXAMINER IN DENTAL SURGERY.

Notice is hereby given that the Council on December 12th next will proceed to the election of a Member of the Board of Examiners in Dental Surgery, the retiring Examiner being eligible. Persons duly registered under the Dentists Acts, 1878—1923, desirous of being elected, should make application in writing to the Secretary on or before Wednesday, Dec. 4th.

S. FORREST COWELL,
November 16th, 1929. Secretary.

Barry Urban District Council.

SURGICAL HOSPITAL.

HOUSE SURGEON (Male).

Applications are invited for the above appointment. Candidates must be duly qualified and registered. Salary £200 per annum, with board and lodging.

Preference will be given to a candidate with previous experience, especially in the administration of anæsthetics.

The successful candidate must devote the whole of his time to the duties of his office and to assist the Medical Staff, and act under the supervision of the Medical Superintendent, who is also Medical Officer of Health and School Medical Officer.

The appointment will be for a period of six months, to be renewed, if thought fit, for another period of six months, but not for any subsequent period.

The successful candidate will be required to commence duties January 1st, 1930.

Applications, stating age, qualifications, positions held, with copies of three recent testimonials, to be sent to Dr. P. W. KENT, Medical Superintendent, Public Health Office, Barry.

(Signed) T. B. TORDOFF,
November 2nd, 1929. Clerk.

City of Birmingham.

MATERNITY AND CHILD WELFARE DEPT.

RESIDENT MEDICAL OFFICER.

A Resident Medical Officer is required on January 1st next, for a period of six months, for the CITY BABIES' HOSPITAL (50 beds). Salary at the rate of £150 per annum, with board and laundry. Previous experience in a Children's Hospital desirable. Apply, giving all particulars of qualifications, age, and experience, to the Medical Officer of Health, the Council House, Birmingham, on or before Thursday, November 28th.

Surrey County Council.

ASSISTANT MEDICAL OFFICER.

Applications are invited for the appointment of a Male Assistant Medical Officer. Candidates must possess a qualification in Public Health, and have had experience in the medical inspection of school children, maternity and child welfare, and the treatment of tuberculosis and venereal diseases. The officer appointed will be required to undertake such other public health duties as may be allocated to him. He will be on the staff of the County Medical Officer of Health, must reside in the County, and devote his whole time to the work. Salary £600 per annum, rising by annual increments of £20 to £700 per annum. Travelling expenses in accordance with the Council's scale will be allowed.

The appointment will be subject to the approval of the Ministry of Health, to the provisions of the Local Government and Other Officers Superannuation Act, 1922, and to the Standing Orders of the Council, which provide, *inter alia*, that appointments may be determined at any time by three months' notice.

Applications, stating age, qualifications, and experience, together with copies of three recent testimonials, should be made on the prescribed form and sent to the County Medical Officer of Health, 5, Grove Crescent, Kingston-upon-Thames, from whom copies of the application form may be obtained, and to whom any inquiries relating to the appointment should be addressed.

Last day for receipt of applications, Saturday, November 30th. Canvassing, directly or indirectly, will disqualify.

County Hall, DUDLEY AUKLAND,
Kingston-upon-Thames. Clerk of the
November 8th, 1929. County Council.

Parish of Ipswich.

ASSISTANT RESIDENT MEDICAL OFFICER (Female).

The Guardians of the Poor of the Parish of Ipswich [illegible]ified
Medical [illegible]stant
Resident IN-
FIRMARY ST.
JOHN'S £250
per annum, with board and residence. The appointment is subject to termination by six weeks' notice on either side.

The accommodation of the Heathfields Infirmary is for about 250 patients, and of Heathfield House about 230 inmates. The number of children in St. John's Home is about 150.

The candidate appointed will be required to act generally under the direction of the Visiting Medical Officer, and to give lectures to the Probationer Nurses.

Applications, stating age, qualifications, and experience, accompanied by copies of not more than three testimonials, to be sent to me endorsed "Assistant Resident Medical Officer," not later than Monday, November 25th.

L. W. GREENHALGH,
Guardians' Offices, Clerk to the
19, Tower St., Ipswich. Guardians.
November 5th, 1929.

The King Edward VII Welsh NATIONAL MEMORIAL ASSOCIATION.

Applications are invited from duly registered Medical Practitioners for the post of AREA ASSISTANT TUBERCULOSIS PHYSICIAN. Salary £600 per annum, together with travelling and subsistence allowances when absent from base. Preferably candidates should have had at least six months' special training in Tuberculosis, with eighteen months' experience in general clinical work, of which six months should have been spent in a Hospital not confined to the treatment of Tuberculosis.

Applications, stating full qualifications and previous experience, together with copies of three recent testimonials, should reach the undersigned not later than November 30th.

Memorial Offices, D. A. POWELL,
Westgate St., Principal Medical
Cardiff. Officer.

The Royal College of Saint KATHARINE, Poplar, E.14.

MATERNITY AND CHILD WELFARE CENTRE.

Applications are invited for the post of ASSISTANT MEDICAL OFFICER to one of the Infant Clinics.

Candidates must be fully qualified and registered and should state in their application what previous experience they have had in the diseases of children and in Infant Welfare work.

Salary £1 11s. 6d. per session.

Applications, with copies of three recent testimonials, should be submitted not later than November 25th to the Principal, The Royal College of St. Katharine, Brunswick Road, Poplar, E.14.

Birmingham Union. DUDLEY ROAD HOSPITAL.

SURGEON.

Applications are invited from fully qualified registered Medical Practitioners for the above appointment.

The Hospital accommodation is fixed by the Guardians at 926, divided into Medical, Surgical, Children's, Infectious, Gynæcological and Obstetrical Sections. There are completely equipped Pathological and Biochemical Laboratories, X-ray, Electrical, Massage, Sunlight, and Dental Departments. Approximately 6,000 operations are performed annually.

Candidates for the appointment must have had good Surgical experience, and be Fellows of the Royal College of Surgeons (England).

The scale of salary will be £700, rising by annual increments of £50 to a maximum of £1,000 per annum, and the salary of the successful candidate will be fixed within the scale according to experience and qualifications.

Furnished quarters, rations, laundry, and attendance will be provided by the Guardians. Alternatively, a cash allowance will be paid if the officer appointed is non-resident. A deduction of 2 per cent. will be made from the salary and value of emoluments under the provision of the Poor Law Officers Superannuation Act, 1896.

Further particulars of the appointment may be obtained from the Chief Medical Officer, F. W. ELLIS, Esq., M.D., F.R.C.S., Dudley Road Hospital.

Applications, stating age, experience, and qualifications, accompanied by copies of recent testimonials, must be forwarded so as to reach me not later than 11 a.m. on Monday, November 25th.

Union Offices, C. P. BEECH,
Birmingham. Clerk to the
November 4th, 1929. Guardians.

Worcestershire County Council.

ASSISTANT COUNTY MEDICAL OFFICER.

The above-mentioned Council are about to appoint an Assistant County Medical Officer, and applications are now invited for this post.

Applicants must be registered Medical Practitioners between the ages of 25 and 45.

The duties will include attendance at Infant Welfare and Ante-Natal Centres, and the medical examination of elementary and secondary school children. Special Post-Graduate experience in Children's Diseases is especially desirable.

The officer who is appointed will work under the supervision of the County Medical Officer, and will be required to reside in the district assigned to him or her by the County Council, and to devote the whole of his or her time to the work.

The salary will be £600 per annum, with an allowance of £140 per annum for use of own motor car, or a car will be supplied for County work.

The engagement will be subject to three months' notice on either side.

Applications (on forms to be obtained from the County Medical Officer, 29, Foregate St., Worcester), accompanied by not more than three recent testimonials, must be received by 12 noon on Thursday, November 28th, addressed to the County Medical Officer, 29, Foregate Street, Worcester.

Canvassing disqualifies, and neither the names of the Members of the County Council nor of the Committee will be supplied.

(Signed) C. H. BIRD,
Shirehall, Clerk of the County
Worcester. Council.
November 5th, 1929. (V.135.)

Rochford Union.

JUNIOR ASSISTANT MEDICAL OFFICER (RESIDENT).

The Guardians of the above-named Union invite applications for the appointment of Junior Assistant Medical Officer at the Poor Law Hospital, Rochford.

The appointment will be renewable at the expiration of six months in the first instance, and thereafter annually at the discretion of the Guardians.

Salary £225 per annum, rising after six months' satisfactory service to £275 per annum, with furnished apartments, rations, laundry, and attendance. The emoluments, for the purposes of the Poor Law Officers Superannuation Act, are assessed at £100 per annum.

Applicants must be fully qualified, and preference will be given to candidates who have held appointments as House Physicians or House Surgeons in Public General Hospitals.

Applications, on forms which can be obtained from me, must reach me not later than Monday, December 2nd.

By Order,
W. HARDING ROBERTS,
Clerk.
27, Victoria Avenue,
Southend-on-Sea. November, 1929.

APPOINTMENTS—Important Notice.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

(a) British Islands.

Town or District.	Town or District.	Town or District.
CONTRACT PRACTICE.	**CONTRACT PRACTICE** *(Contd.).*	**PUBLIC HEALTH** *(continued).*
EBBW VALE, MON. *(Workmen's Medical Society.)*	NEATH AND DISTRICT. *(Medical Aid Association.)*	CORNWALL EDUCATION COMMITTEE. *(Assistant School Medical Officer—Female.)*
GILFACH GOCH, GLAMORGAN. *(Workmen's Medical Scheme.)*	OAKDALE, MON. *(Medical Officer for Medical Aid Association.)*	GLASGOW EDUCATION AUTHORITY. *(Male Assistant Medical Officer.)*
LLWYNYPIA, CLYDACH VALE PENYGRAIG, GLAMORGAN. *(Workmen's Medical Scheme.)*	OGMORE VALLEY, GLAMORGAN. *(Wyndham Colliery Medical Aid Society.)* *(Workmen's Medical Scheme.)*	MERTHYR TYDFIL COUNTY BOROUGH. *(Assistant School Medical Officer and Assistant Medical Officer of Health.)*
MARDY, GLAMORGAN. *(Workmen's Medical Scheme.)*	**PUBLIC HEALTH.**	YORKSHIRE NORTH RIDING COUNTY COUNCIL EDUCATION COMMITTEE. *(Assistant School Medical Officer.)*
MERTHYR VALE COLLIERY WORKMEN'S MEDICAL COMMITTEE. *(Workmen's Medical Scheme.)*	CHESHIRE EDUCATION COMMITTEE. *(Assistant School Medical Officer.)*	

(b) Colonial Medical Service.—

WINDWARD ISLANDS MEDICAL SERVICE. (Grenada with Carriacou, St. Vincent and St. Lucia.)

(c) Overseas.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.
NEW SOUTH WALES. *(All Friendly Society Appointments.)*	Dr. R. H. TODD (Hon. Sec., New South Wales Branch), B.M.A. Building, 30-34, Elizabeth St., Sydney, N.S.W.	VICTORIA. *(All Institute or Medical Dispensaries.)*	Dr. FRANK DAVIES (Hon. Sec., Victorian Branch), British Medical Association, Medical Society Hall, East Melbourne, Victoria.	WESTERN AUSTRALIA. *(Contract and Lodge Practices.)*	Hon. Sec., Western Australian Branch, British Medical Association, No. 6, Bank of N.S.W. Chambers, St. George's Terr., Perth, Western Australia.
QUEENSLAND. *(Brisbane Associated Friendly Societies Institute.)*	The Hon. Sec., Queensland Branch, British Medical Association, B.M.A. Building, Adelaide St., Brisbane.	WELLINGTON, NEW ZEALAND. *(Contract Practice Appointments.)*	Dr. G. F. V. ANSON (Hon. Sec., New Zealand Branch), British Medical Association, P.O. Box 156, Wellington, New Zealand.		

Address: B.M.A. House, Tavistock Square, W.C.1. By Order of the Council of the British Medical Association.
November 13th, 1929. ALFRED COX, Medical Secretary.

Royal Free Hospital,
Gray's Inn Road, W.C.1.

Applications are invited for the half-time post of GYNÆCOLOGICAL REGISTRAR from fully qualified and registered Medical Women.

This post is reserved for former Students of the London (Royal Free Hospital) School of Medicine for Women. Salary £100 per annum. The present holder is *eligible for re-appointment.*

Applications, stating age, *and accompanied* by copies of three recent testimonials, must be sent to the undersigned (from whom all information may be obtained) *on* or before November 25rd.

REGINALD R. GARRATT, Secretary.

Royal Free Hospital,
Gray's Inn Road, W.C.1.

Applications are invited for the whole-time post of SURGICAL REGISTRAR *from fully qualified* and registered men or women. Preference will be given to candidates possessing the F.R.C.S.(England). Salary £200 per annum. The present holder is eligible for *re-appointment.* Applications, stating age, and accompanied by copies of three recent testimonials must be sent to the undersigned (from whom all information may be obtained) on or before November 23rd.

REGINALD R. GARRATT, Secretary.

Royal Free Hospital,
Gray's Inn Road, W.C.1.

Applications are invited from fully qualified *and registered* men or women for the half-time post of MEDICAL REGISTRAR. Salary £100 per annum. (The present holder is eligible for re-appointment.) Applications, stating age, and accompanied by copies of three recent testimonials, must be sent to the undersigned (from whom all information may be obtained) on or before November 23rd.

REGINALD R. GARRATT, Secretary.

Royal Free Hospital,
Gray's Inn Road, W.C.1.

Applications are invited for the following resident appointments:

HOUSE SURGEON to the Senior Surgeon and to the Surgeon in charge of the Throat, Nose, and Ear Beds.
SECOND HOUSE SURGEON.
THIRD HOUSE SURGEON.
FIRST HOUSE PHYSICIAN.
. . . . . ddress's Dept.
. . . . . GEON.

Duties of the above commence January 1st, 1930.
CASUALTY OFFICER (male). Salary £150 per annum.
SECOND HOUSE PHYSICIAN.
OBSTETRIC DISTRICT ASSISTANT. Salary £100 per annum.
Duties to commence February 1st, 1930.
Of these posts one House Surgeon appointment and one House Physician are open to male candidates.

Preference is given to former Students of the London (Royal Free Hospital) School of Medicine for Women; for other appointments candidates must be . . . . . l Practitioners, . . . stating age, and . . . recent testimonials, to the undersigned on or before *November 23rd.*

REGINALD R. GARRATT, Secretary.

General Infirmary, Salisbury.
(General Hospital, 151 Beds.)

Two HOUSE SURGEONS (male) required to commence duties November 9th and December 14th respectively.

Candidates must be unmarried, fully qualified, and registered. Salary £150, with board, etc.

Applications, with copies of testimonials, to be sent to the House Governor and Secretary, from whom a copy of the Rules may be had on application.

Ethel Hedley Hospital for CRIPPLED CHILDREN, WINDERMERE.

(An active Surgical Centre, with 50 Beds, serving the Counties of Westmorland, Cumberland and North Lancashire, with charge of After-Care Clinics in these areas.)

Applications are invited for the post of RESIDENT HOUSE SURGEON. Candidates (female) must be fully qualified and registered, and have held a previous Resident appointment. The appointment is for six months, with extension to one year. Salary at the rate of £150 per annum. Applications, with copies of three *recent testimonials*, should be submitted, not later than November 23rd, to the MEDICAL DIRECTOR, Ethel Hedley Hospital, Calgarth Park, Windermere.

The Mothers' Hospital,
Clapton, E.5.

HONORARY ASSISTANT OBSTETRIC SURGEON.

Applications are invited from registered Medical Women for the above appointment.

Candidates, who must have the qualifications of F.R.C.S.Eng. or M.S.Lond., are requested to forward their applications, with copies of three testimonials, to *reach* the Secretary at the Hospital not later than Tuesday, Nov. 19th.

EDGAR DIBDEN, Secretary.

Newark Hospital and Dispensary
(50 Beds.)

Wanted, a fully qualified RESIDENT HOUSE SURGEON (male) to commence duty January 1st, 1930. Must be a good Anæsthetist. Salary £150 per annum, *with* board, residence, and laundry. Appointment for six months, or twelve if mutually desired. For form of application apply to W. T. CRAMPTON, 27, Kirk Gate, Newark, Notts.

ASSISTANCIES.

Wanted, Jan., male Assistant, outdoor, £400 p.a. Private and panel. Beautiful growing country town, 30 miles London. Sound knowledge Surgery essential. Suitable man may have 1/3 share, worth over £1,000, in few months. 1½ years' purchase, paying out of income if desired. References and usual bond.—Address, No. 7319, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Male Assistant. *Industrial area, Manchester.* Good house (unfurnished). Must be experienced in midwifery. £400 p.a., commission on midwifery fees, etc., rent and taxes. Usual bond. Good prospects.—Address, No. 7125, B.M.A. House, Tavistock Square, W.C.1.

Wanted.--Assistant, Lancashire, to reside at Branch. Salary commencing £400, rising £25 yearly, commission on midwifery, together with good house, coal, elec. light, etc. Further prospects to suitable man. Usual bond. —No. 7285, B.M.A. House, Tavistock Sq., W.C.1.

Wanted immediately, Assistant (British), Kent (male, single). Commencing salary £300 p.a. and commissions, with furnished rooms, electric light, fire, and attendance. Usual bond. Full particulars.—Address, No. 7265, B.M.A. House, Tavistock Sq., W.C.1.

Wanted immediately, Assistantship, with or without view, by Dublin University Graduate, ex H.S. and H.P., 3 years' experience panel and private practice. Unmarried. Excellent references.—Address, No. 7260, B.M.A. House, Tavistock Square, W.C.1.

Wanted immediately, Assistant, indoor, male, single, East London. Salary £300 p.a. Car provided. Testimonials. — Address, No 7308, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Woman Assistant, with view, Scotch, for Woman Doctor's Practice, panel and private; London industrial area. Experienced midwifery and anæsthetics. References and particulars.—Address, No. 7284, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistant, outdoor, male, married preferred, for private and *and panel Practice in West Country.* £450 p.a. House to rent. Drive car. Usual bond.—Address, refs., age, etc., No. 7275, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistant, indoor, Protestant, mixed panel and private Practice in Bournemouth, to work up Branch Practice, with view to Partnership. £300 p.a. Send refs. and photo. — Address, No. 7271, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistant, indoor, male, for mixed Practice in Country Town, Yorkshire. Salary £250—£300, according to experience. Use of car.—Address, No. 7317, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Indoor Male Assistant for Town Practice in the Midlands. Must be British, temperate, and reliable. Usual bond. Salary £250—£300, depending on experience. Refs., photo., age, and nationality.—No. 7281, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — Male Assistant, indoor, under 35 years of age. Middle of December.—Address, No. 7311, B.M.A. House, Tavistock Square, W.C.1.

Wanted by M.B., Ch.B.(Aber.), aged 30, unmarried, ASSISTANTSHIP with view in Practice with Surgical opportunities. Three years' Hospital, H.P. and H.S. Experienced major surgery. Excellent testimonials. Own car if desired.—Address, No. 7259, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistantship, with definite view to Partnership out of income, by M.R.C.S., male, English, æt. 25, qual. 2 years; ex H.S. and H.P., and some experience private and panel. Would consider Partnership for part down and rest out of income.—Address, No. 7268, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — Assistantship, temporary or permanent, by Woman M.B., M.R.C.S., ex H.P., æt. 26. Some experience general practice, panel, dispensing. London preferred. Photo.—Address, No. 7301, B.M.A. House, Tavistock Square, W.C.1.

Assistants (indoor and outdoor) wanted immediately. Good salaries offered. —BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Wanted. — Assistantship by M.B., B.Ch. (N.U.I., 1923), æt. 29; experienced; well recommended. Free now.—Address, No. 7302, B.M.A. House, Tavistock Square, W.C.1.

Assistant (male, indoor) for Panel and Private Practice in Midlands. Abstainer, Scot or English. Usual bond. £250 per annum. Very little midwifery. State essential particulars. — Address, No. 7270, B.M.A. House, Tavistock Square, W.C.1.

Assistant (male) wanted, with view to small share of rapidly growing Practice in outlying London suburb. State nationality, age, experience, and ability to drive car. — Address, No. 7307, B.M.A. House, Tavistock Square, W.C.1.

Assistantships, with and without view.—Gentlemen, immediately available for the foregoing, of good experience and personality, are invited to call upon THE MEDICAL AGENCY, 15, York Buildings, Adelphi, who have, at the moment, several openings.

Assistantship, with definite view Partnership and/or Succession, wanted by M.B., Ch.B.(Glasg.), æt. 28, Protestant, total abstainer. Three years' exper. in large Practice. London area pref. Drives own car. Free now.—No. 7306, B.M.A. House, Tavistock Sq., W.C.1.

Assistantship wanted by M.B., B.Ch., B.A.O. (N.U.I.), Feb., 1927, aged 26 (male), having experience in general practice, also three months' Hospital work, keen, reliable abstemious. — Address, No. 7274, B.M.A. House, Tavistock Square, W.C.1.

Assistantship with view desired by M.B., D.P.H. Married, no children. A little capital available. Knowledge minor surgery, anæsthetics, midwifery. Three years' experience G.P.—Address, No. 7278, B.M.A. House, Tavistock Square, W.C.1.

Assistancy or Locumtenency wanted by a man; now free. Experienced in panel and private, and hospitals. Single, active, and reliable. Total abstainer. Terms: five guineas p.w. and travelling exes.—Address, No. 7321, B.M.A. House, Tavistock Sq., W.C.1.

Light Assistantship offered in *exchange accommodation, furnished or* unfurnished, and very nominal salary. M.R.C.S., L.R.C.P., Scotch extraction. Experienced panel, private. Doing special line. — Address, No. 7267, B.M.A. House, Tavistock Square, W.C.1.

M.B., Ch.B.(Glasg., 1926), 27, H.S., H.P. large General Hospital, H.P. Skins, Jr. and Sr. Resident, Eye Infirmary, one year G.P. (panel, private, hospital), excellent anæsthetist, midwifery, own car, desires ASSISTANTSHIP with view. — Address, No. 7257, B.M.A. House, Tavistock Square, W.C.1.

Required. — Assistantship in South-Western County, S. Devon pref., by Conjoint, English, male, æt. 25, single, keen. Hospital Resident and some G.P. experience. —Address, No. 7269, B.M.A. House, Tavistock Square, W.C.1.

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Wanted.—Fully qualified Doctor for service in the TROPICS. Preferably ex House Surgeon or Physician. Agreement for three years. Salary £850, £900, £950. Renewable on higher terms. Free furnished quarters and first-class passage provided. Candidates must be unmarried. Ladies not eligible. —Address, with copies of testimonials (not returnable), No. 6276, B.M.A. House, Tavistock Square, W.C.1.

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Applications are invited for the appointment of MEDICAL OFFICER OF HEALTH to the MUNICIPAL COUNCIL of NAIROBI at a salary of £1,100 per *annum*, rising by annual increments of £50 to a maximum of £1,300. Applications should be addressed to Messrs. LAURIE & Co., 28, Basinghall St., E.C.2, from whom full particulars may be obtained.

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A Lady Dispenser-Bookkeeper supplied immediately on request, qualified and with practical experience in private practice and dispensary work, also trained in Bacteriological Laboratories of the LONDON COLLEGE OF [illegible] paration for [illegible] phone (Park [illegible] Park Road, W.2.

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Dispensing Secretary (Lady) desires APPOINTMENT with Doctor. Hall certificate. Well experienced in dispensing and secretarial work of busy General Practice. Indoor or outdoor. Disengaged.—HITCHIN, 6, Broomhill Road, Goodmayes, Essex.

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Doctors requiring qualified Dispensers, Nurse Dispensers, Secretary Dispensers or Chauffeuse Dispensers, are invited to write, wire, or 'phone Temple Bar 5858, THE DISPENSERS BUREAU, 15, Lindsay House, 171, Shaftesbury Avenue, London, W.C.2.

Doctor's Widow (35) seeks position as SECRETARY, RECEPTIONIST, or other responsible post. Knowledge of bookkeeping and accounts. R.A.C. driving certificate. London or country.—*Address, No.* 7312, B.M.A. House, Tavistock Square, W.C.1.

F.R.C.S.England required for large Practice in Provinces. Hospital appointm nt. Plenty of scope.—Address, No. 7310, B.M.A. House Tavistock Square, W.C.1.

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Containing 4 bedrooms, bathroom, 2 lavatories, 2 reception, kitchen, kitchenette, oak-panelled hall, side entrance, large garden, room for garage
PRICE, FREEHOLD, £1,550. MORTGAGE £1,300.

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DETACHED HOUSE WITH GARAGE.
Containing 4 bedrooms, 2 reception, bathroom, 2 lavatories, kitchen, kitchenette, usual offices. Room for tennis court at rear.
PRICE, FREEHOLD, £1,550. MORTGAGE £1,300.

App'y A. VICTOR CLAYTON, Estate Agent,
Head Office: 4, NEW BRIDGE STREET, LUDGATE CIRCUS, E.C.4. 'Phone: CITY 6675.

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Rooms in district W.1, with NUCLEUS of first-class Practice for Electro-therapy and Sun-ray Treatment, with ample accommodation for consulting room, for disposal owing to marriage. Fully certificated masseuse (C.S.M.M.G., M.E.) could remain as Assistant. Moderate rent; long lease if desired. Good references given and required.—Address, No. 7108, B.M.A. House, Tavistock Sq., W.C.1.

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Can secure Perfect Fitting and Distinctive Clothes of Exceptional value. FINEST QUALITY MATERIALS. *BEST WORKMANSHIP ONLY.*

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JACKET & VEST (in black or grey), £5 5s.
SOLID FANCY WORSTED TROUSERS, £2 2s.

THE Ideal Suit for Professional or Business wear

TWEED SUITS & OVERCOATS to measure from £6 6s.
SOLID WORSTED SUITS " £7 7s.
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Supply Instruments, Palomine Leg Rests, etc. Stock of 30,000,000 Tablets. Sample bottle (500) of Cough or Mist. Expect., 1/- post free. *Showroom:* 97, Swinderby Road, Wembley.

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(late Inspector of Taxes)

Assist you to avail yourself of special facilities provided for the Medical Profession relating to Income Tax. For further particulars write or call.—C. G. C. KILNER, 17, George St., Baker St., W.C. ('Phone: Welbeck 2[illegible])

Armstrong Siddeley, 14 h.p., dark blue BROADWAY SALOON, 1927. Little used. Cost £410. Accept £125.—Miss SCOTT, 134, Gloucester Terrace, Hyde Park.

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[illegible] ing Driver, week-days 4/- per hour between 10 and 6, up to 40 miles, additional mile 6d. Ideal for Doctor. — Write, Box 72, SCRIPPS'S, South Molton Street, W.1.

Portable Operating Table of good type for sale. Price £4 4s.—Address, No. 7256, B.M.A. House, Tavistock Sq., W.C.1.

Saves Income Tax, time, and worry. Records all details of expenses. Recommended by Accountants. *"The Medical Practitioners' Cash Book,"* post free, 12/6, re-funded if not satisfied.—CHARNWOOD PUBLISHING CO., Atlas House, Coalville, Leicester.

St. Mary's Hospital, W.2.

MEDICAL REGISTRAR TO OUT-PATIENTS.

Applications are invited for the above appointment. Candidates must be a Fellow or Member of the Royal College of Physicians of London or a Graduate in Medicine of a University in the British Empire. Must not be engaged in General Practice. The Medical Registrar to Out-patients will be required to attend the Hospital daily at 1.30 p.m. (Saturday 9.30 a.m.). There is an honorarium of £200 per annum attached to the post. Applications for the appointment, accompanied by three recent testimonials, must reach the undersigned on or before Wednesday, November 27th. A copy of the regulations will be forwarded on receipt of a stamped addressed envelope.

St. Mary's Hospital, W.2. W. PARKES, Secretary.

City of London Hospital for DISEASES OF THE HEART AND LUNGS, Victoria Park, E.2.

(Bus, tram, and rail, Cambridge Heath, L. & N.E.)

Applications (with copies of three testimonials) are invited to be sent to the undersigned on or before Monday, December 9th, for the following posts, subject to the rules and by-laws of the Hospital:

RESIDENT MEDICAL OFFICER (male) for one year from January 1st, 1930, with eligibility for re-appointment. Salary £250 per annum.

HOUSE PHYSICIAN (male) for six months from January 1st, 1930. Salary at the rate of £100 per annum.

Board, residence, and laundry provided.

GEORGE WATTS, Secretary.

Borough Mental Hospital, ROWDITCH, DERBY.

SECOND ASSISTANT MEDICAL OFFICER wanted. Commencing salary £350 per annum, rising by £25 per annum to £450, with an additional £50 per annum if in possession of the Diploma in Psychological Medicine, with board, apartments, attendance, and laundry. Candidates must be unmarried and registered under the Medical Act. The appointment is subject to 3 per cent. deduction on salary and emoluments under the Asylum Officers Superannuation Act, 1909. Apply, not later than November 19th, stating age and full particulars, together with copies of three recent testimonials, to the Medical Superintendent.

Salford Royal Hospital. (263 Beds.)

Applications are invited for the appointment of HOUSE PHYSICIAN (male) for the period ending March 31st, 1930.

Salary at the rate of £125 per annum, with board and residence.

Candidates must be registered under the Medical Acts.

Forms of application, which may be obtained from the undersigned, must be delivered at once.

By Order of the Board,

Salford Royal Hospital, Manchester. November 11th, 1929. GEORGE RUDDLE, Gen. Supt. and Secretary.

City of London Maternity HOSPITAL, City Road, E.C.1.

qualified
SISTANT
January
at £80

p.a., and board, lodging, and laundry. If satisfactory, the appointee becomes Senior after three months at £100 p.a. Twenty-five copies of applications and of three testimonials should reach the undersigned by November 30th.

RALPH B. CANNINGS, Secretary.

Kettering and District General HOSPITAL. (82 Beds.)

Applications are invited for the post of JUNIOR HOUSE SURGEON. Salary £100 p.a., with board, residence, and washing. Candidates must be fully qualified and registered.

The appointment is for six months, but candidates will be eligible for re-election.

nationality, and
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nt immediately to

Metropolitan Ear, Nose, and THROAT HOSPITAL. (1838) (Incorporated), Fitzroy Square, W.1.

HOUSE SURGEON (non-resident). Salary £150 per annum.

Applications are invited for the above appointment, and should be forwarded immediately, with not more than three recent testimonials, to the undersigned.

L. L. PHILLIPS, Secretary.

The Children's Hospital, BIRMINGHAM.

SURGEON TO OUT-PATIENTS.

A Meeting of the Committee of Election will be held on December 9th, at 11.45 a.m., for the purpose of electing a Surgeon to Out-patients.

Applications are invited for the post.

It is required that candidates shall be Fellows of the Royal College of Surgeons of England, or undertake to become so within twelve months of their election.

The successful candidate will be appointed for a term of three years, and will be eligible for re-election.

After six years his honorarium (£40 per annum) will cease, and he will be called Surgeon to the Hospital.

Particulars as to the duties can be obtained on application to the undersigned, to whom applications, accompanied by Diplomas and certificate of registration, should be sent by November 30th.

HAROLD F. SHRIMPTON, House Governor.

November 11th, 1929.

The Institute of Ray Therapy, 152-154, Camden Road, N.W.5.

A Ray Therapy (Artificial Sunlight) Clinic will be opened on January 4th, 1930, at the above address for purposes of Treatment, Research, and Training of Nurses and Practitioners.

A JUNIOR MEDICAL OFFICER is required to assist in treatment from 2 p.m. to 9 p.m. daily.

An honorarium at the rate of £150 per annum is offered, together with board, residence, and laundry.

The appointment is for six months, and there will be opportunity for Post-Graduate work and study.

Applicants must have held a resident appointment at a General Hospital, but experience in ray therapy is not essential.

Applications, together with copies of three testimonials, should be sent not later than Dec. 14th to the MEDICAL SUPERINTENDENT, c/o No. 7314, B.M.A. House, Tavistock Square, W.C.1.

East London Hospital for CHILDREN AND DISPENSARY FOR WOMEN, Shadwell, E.1.

The Board of Management invite applications for the post of SURGEON to the Nose, Throat, and Ear Department, to see Out-patients one day a week.

By Section 6, subsections 19 and 20 of the Constitutions of the Hospital, every Surgeon shall be a Fellow of the Royal College of Surgeons of England.

Applications, with copies of testimonials, should be addressed to the undersigned and delivered to the Hospital on or before Saturday, November 30th.

By Order of the Board of Management,
WM. WILCOX, Secretary.

South London Hospital for WOMEN, South Side, Clapham Common, S.W.

The Board of Management invite applications from qualified Medical Women for the undermentioned appointments:

CLINICAL ASSISTANTS for Medical and Surgical Out-patients, to attend at the Out-patients' Department, Newington Causeway, S.E.1.

Each appointment to be for a period of 12 months dating from January 1st, 1930.

Applications, with testimonials, to be forwarded to the Secretary at the Hospital.

Darlington General Hospital. (120 Beds.)

Wanted, HOUSE SURGEONS, Senior and Junior, male, British, fully qualified. Salaries £150 and £125 per annum respectively. Board and residence. Applications, stating age, experience, and qualifications, together with copies of two recent testimonials, to be addressed to me forthwith.

A. RIDDLE, Secretary.

Warrington Infirmary and DISPENSARY.

The Board of Management invite applications for the post of JUNIOR HOUSE SURGEON (male) unmarried. Applicants, who must be of British nationality, must be duly qualified Medical Practitioners.

Salary £175 per annum, with board, apartments, and laundry. Applications, stating age, with copies of three recent testimonials, should be sent in at once to the undersigned.

By order,
HENRY L. BOOT, Supt. & Sec.

Borough of Ealing.

ASSISTANT MEDICAL OFFICER OF HEALTH.

Applications are invited from duly qualified Medical Men, with a Public Health qualification, for the position of Assistant Medical Officer of Health.

Candidates will be required to carry out medical inspection of school children and child welfare work, and perform such other duties as may be allotted as Assistant to the Medical Officer of Health and School Medical Officer.

The person appointed will be required to devote his whole time to the duties, and will not be allowed to engage in private practice. Salary will be at the rate of £600 per annum, rising to £650 by £25 per annum.

A deduction of 5 per cent. will be made from the salary in accordance with the provisions of the Local Government and Other Officers Superannuation Act, 1922, which has been adopted by the Council, and the appointment will be subject to passing the Council's medical examination in connection therewith.

Copies of application form and terms of appointment can be obtained from the undersigned, to whom applications, accompanied by copies of not more than three recent testimonials, must be delivered not later than November 28th.

Town Hall, Ealing, W.5. THOMAS ORR, Medical Officer of Health.

Evelina Hospital for Children, SOUTHWARK, S.E.

The Committee of Management invites applications for the post of SURGEON TO OUT-PATIENTS (Hony.) (attendance Monday afternoons at 1.30). Candidates (male) must be Graduates in Surgery in a recognized University, or F.R.C.S.; they must not be engaged in general practice.

Applications, with copies of not more than four testimonials, to be addressed to the Secretary, at the Hospital, before November 26th.

Candidates must call on the members of the Hony. Medical Staff, whose names, also Standing Orders relating to the post, will be furnished by the undersigned.

By order of the Committee of Management.
H. C. S. SMITH,
Nov. 12th, 1929. Secretary-Superintendent.

Evelina Hospital for Children, SOUTHWARK, S.E.1.

The Committee of Management requires a HOUSE SURGEON (male) for eight months from December 12th (during first four months duty in Casualty and Out-patient Department). Salary £120 per annum, with board and residence. Candidates, duly registered, to send applications, giving age, qualifications (with dates), and copies of four testimonials, to the undersigned at the Hospital, before November 26th. Applicants will be informed if they will be interviewed by the Medical Committee. Selected candidates must attend Committee of Management. Date of meeting will be notified

n rules and other
t must be obtained.
of Management,
H. C. S. SMITH,
Nov. 12th, 1929. Secretary-Superintendent.

The Stamford, Rutland, and GENERAL INFIRMARY, STAMFORD.

HOUSE SURGEON (English) wanted for Saturday, November 23rd, for a period of six months. Salary at the rate of £200 to £250 per annum, according to experience, with board and residence in the Infirmary. Candidates to forward three recent testimonials, with particulars as to age, qualification, and experience, to us on or before November 21st.

STAPLETON & SON,
Stamford. Secretaries.

South Devon and East Cornwall HOSPITAL, PLYMOUTH (240 Beds).

RESIDENT SURGICAL OFFICER (Male).
HOUSE SURGEON (Male).

Salary £150 and £100 per annum respectively, with board, residence, and laundry. Appointments are tenable for six months and subject to renewal. Candidates must be registered under the Medical Acts.

Applicants must state if, in the event of their being unsuccessful in one appointment, they are willing to offer themselves for the other. Applications stating age and qualifications, together with copies of recent testimonials, to reach the undersigned by December 3rd.

ARTHUR R. CASH, Gen. Supt. & Sec.
November 12th, 1929.

House Surgeon (male) wanted

for HUNTINGDON COUNTY HOSPITAL, November 30th. Salary £125 per annum, and laundry.—Apply Dr. Gwyn, County Hospital, Huntingdon.

Nottinghamshire County Council

SECOND ASSISTANT COUNTY MEDICAL OFFICER OF HEALTH.

Applications are invited from duly qualified and registered Medical Practitioners for the appointment of Second Assistant County Medical Officer at a salary of £700 per annum, rising, subject to satisfactory service, by annual increments of £25 to £750, together with travelling expenses in accordance with the County Council's Scale.

Candidates must possess a Diploma in Public Health, and have held one or more resident Hospital or Institutional appointments. Preference will be given to candidates who have had administrative experience in a Public Health Department, preferably in a County.

The person appointed will be required to work under the supervision and control of the County Medical Officer, to devote his whole time to the duties of his office, and to carry out such duties as may be assigned to him by the County Medical Officer. He will be required to reside in such part of the County as may be approved.

The selected candidate will be required to pass a medical examination.

The appointment will be terminable by three months' notice, in writing, on either side.

Applications, on forms which may be obtained from the undersigned, with copies of not more than three recent testimonials, should be forwarded to the County Medical Officer, Shire Hall, Nottingham, not later than Wednesday, November 27th.

Shire Hall, Nottingham. November, 1929.

K. TWEEDALE MEABY, Clerk of the County Council.

Nottinghamshire County Council

EDUCATION COMMITTEE.

SENIOR DENTAL OFFICER (Male).

Applications are invited for the post of Senior Dental Officer at a salary of £610 per annum, rising, subject to satisfactory service, by annual increments of £20 to £650, with travelling expenses in accordance with the County Council's Scale. Candidates must be fully qualified and registered Dental Surgeons, and must have had experience of Dental work under an Education Authority. Administrative experience will be deemed an additional qualification.

The successful candidate will be required to work under the supervision and control of the County Medical Officer, and to reside in such part of the County as may be approved.

For such part of his time as is not required for administrative work he will be required to carry out clinical duties as may be determined.

Private practice will not be allowed.

The selected candidate will be required to pass a medical examination, and the appointment will be terminable by three months' notice, in writing, on either side.

Applications, on forms which may be obtained from the undersigned, with copies of not more than three recent testimonials, should be forwarded to the County Medical Officer, Shire Hall, Nottingham, not later than Wednesday, November 27th.

Shire Hall, Nottingham. November, 1929.

K. TWEEDALE MEABY, Clerk of the County Council.

Chester Royal Infirmary.

(211 Beds.)

Wanted—(1) HOUSE SURGEON (Male),
(2) HOUSE SURGEON to Ear, Nose, and Throat Dept. (Male),
to commence duties January 1st, 1930. Salary £150 per annum, with board, lodging, and washing. Candidates must be doubly qualified and registered.

Applications, stating age, and accompanied by copies of testimonials, to be sent to the undersigned not later than first post on Tuesday, November 26th.

J. ROWSE MITCHELL, Secretary.

The Prince of Wales's General Hospital, Tottenham, N.15.

Appointments of HONORARY CLINICAL ASSISTANTS to the various Departments of the Hospital (Surgical, Medical, Gynæcological, Ear, Nose, and Throat, Eye, Skin, X-ray and Electrical) for the ensuing year will be made in December.

Applications for appointment to any of these posts should be sent to me on before Monday, December 2nd next.

FREDK. W. DREWETT, Director

November 11th, 1929.

Resident Medical Officer required

for LEEDS JEWISH HERZL-MOSER HOSPITAL, commencing duties December 1st. Salary £100 per annum, full board. Ample time for post-graduate work.—Apply, Secretary, Herzl-Moser Hospital, Leopold Street, Leeds.

Parish of Whittlesey.

DISTRICT MEDICAL OFFICER, PUBLIC VACCINATOR, AND MEDICAL OFFICER OF THE WORKHOUSE WANTED.

The Guardians of the above Parish invite applications from duly qualified Medical Practitioners for the above appointments.

The district comprises the Southern portion of the Parish, approximate acreage 13,600, and containing a population of about 4,207.

The salary of District Medical Officer will be £50 per annum, with the usual extra medical fees for midwifery and surgical cases as prescribed by the Ministry of Health.

The fees for Vaccination are those prescribed by the Vaccination Orders.

The salary of Medical Officer of the Workhouse will be £40 per annum.

The gentleman appointed will be required to reside within the district, and he must be prepared to enter upon his duties on January 1st, 1930.

Applications, stating qualifications, and enclosing copies of three testimonials of recent date, endorsed "Application for Medical Officer," must reach me on or before November 30th.

By Order,
JOHN W. BOWKER, Clerk.

Whittlesey, Near Peterborough. November, 1929.

Perthshire Joint Medical Service

SCHEME.

A FIRST ASSISTANT MEDICAL OFFICER (male) is required under the above Scheme in the County of Perth.

The possession of a D.P.H. and Hospital experience are essential. Experience in any branch of Public Health, including Tuberculosis and School Medical work, will be added recommendations. Salary £600 per annum, rising by annual increments of £25 to £750, subject to satisfactory service.

Forms of application may be obtained from the undersigned, with whom completed applications, accompanied by copies of three recent testimonials, should be lodged not later than December 6th.

County Buildings, Perth. Dr. D. J. McLEISH, Medical Officer of Health.

National Hospital, Queen Sq., W.C.1.

Applications are invited for the post of RESIDENT MEDICAL OFFICER, which will be vacant at the end of the year, and should be sent to the undersigned, accompanied by copies of three testimonials, not later than Monday, November 25th. The salary is £200 per annum, with board and lodging. Applicants should state if they are willing to accept a post of House Physician (salary £150).

GODFREY H. HAMILTON, Secretary.

Rochdale Infirmary and Dispensary. (110 Beds.)

Wanted, JUNIOR HOUSE SURGEON (male). Salary £175 p.a., including board, residence, and laundry. Applications, stating age, nationality, etc., together with copies of three testimonials, to be sent to the Secretary, endorsed "House Surgeon."

Conditions of appointment may be had on application to the Secretary.

Infirmary Office, Rochdale. W. WYNNE, Secretary.

Royal South Hants and Southampton Hospital.

Applications are invited for the appointment of HOUSE SURGEON and RESIDENT ANÆSTHETIST. Salary £140 per annum, with rooms, board, and laundry. Six months' engagement. Candidates, who must be male and unmarried, should apply to the undersigned, stating age, and enclosing copies of testimonials.

HY. TRUSSON, Secretary.

Altrincham General Hospital, Cheshire.

Applications are invited for the post of HOUSE SURGEON. Salary £125 per annum, with board, residence, and laundry.

The appointment is for six months in the first instance.

Applications, stating age and experience, together with copies of recent testimonials, to be sent in not later than Monday, November 25th, to WILLIAM MOODY, Secretary, 31, Market St., Altrincham, Cheshire.

University College Hospital, Gower Street, W.C.

Applications are invited for the honorary post of ANÆSTHETIST to University College Hospital for duty on four half days per week, and should be forwarded to the Secretary before noon on Tuesday, November 26th.

City of Worcester.

MEDICAL OFFICER OF HEALTH.

The Worcester City Council invite applications for appointment as Medical Officer of Health of the City.

The gentleman appointed must devote his whole time to his duties, and will act as Chief Tuberculosis Officer and take entire charge of the Public Health work of the City Council, including the Maternity and Child Welfare, Mental Deficiency, and School Medical services, and of the Council's Isolation Hospital and of City cases in the County Small-pox Hospital, and will also act as Supervising Officer under the Midwives Acts and Certifying Officer under the Council's Superannuation Scheme. He will have the assistance of: (1) the retiring Medical Officer as Consultant, who will take charge of the Isolation Hospital temporarily for the Medical Officer, and (2) a fully qualified whole-time Lady School Medical Officer, who will assist in the Maternity and Child Welfare work.

The salary will be £900 per annum.

Candidates must not be more than 40 years of age, and must be qualified as required by law.

The post will be an established post under the Local Government and Other Officers Superannuation Act, 1922.

A statement of the duties, qualifications, and terms of appointment will be forwarded on application to the undersigned.

Applications, accompanied by not more than three recent testimonials, must reach the undersigned not later than November 30th.

Canvassing, either directly or indirectly, will disqualify, but a candidate may send twenty copies of his application and testimonials for the use of the Health Committee.

SAMUEL SOUTHALL, Town Clerk.

Guildhall, Worcester. November, 1929.

Lurgan Union.

The Board of Guardians of the above Union will, at their meeting to be held on Thursday, November 21st, 1929, proceed to elect a duly qualified person to the position of MEDICAL OFFICER of the LURGAN No. 2 DISPENSARY DISTRICT of the Union, at a salary at the rate of £180 per annum, together with vaccination and registration fees.

The person elected becomes Medical Officer of Health of the district, and in respect of this a salary at the rate of £15 14s. 4d. per annum will be paid by the Lurgan Rural District Council.

A suitable residence (with garden attached and garage), in a central part of the district, has been provided by the Board, in which the person appointed will be required to reside and pay a rent of £16 per annum for same, with rates.

Applications, accompanied by certificate of registration and testimonials, will be received by me up to 10 o'clock a.m. on November 21st.

Attendance of candidates required on date of election.

By order,
J. CALVERT, Clerk of Union.

Clerk's Office, Workhouse, Lurgan. November 8th, 1929.

Merthyr General Hospital, Merthyr Tydfil.

Applications are invited for the post of RESIDENT HOUSE SURGEON at this Hospital, 104 beds (mainly surgical), for a period of six months. Salary at the rate of £150 per annum, with board, rooms, and laundry. Applicants must have had experience in administration of anæsthetics.

[illegible] and qualifications, [illegible] ecent testimonials, [illegible] Sec., Honorary [illegible]d, Merthyr Tydfil.

Ear and Throat Hospital, Birmingham.

HOUSE SURGEON wanted (non-resident) to assist in Out-patient Department. Must be qualified and with clinical experience. Appointment until March 31st, 1930. Salary at the rate of £150 per annum, with lunch five weekdays, and £50 in lieu of full board and lodging.

Applications and testimonials to be forwarded on or before November 30th to the undersigned.

S. G. GREW, Secretary.

November, 1929.

South-Eastern Hospital for Children, Sydenham, S.E.26.

Applications are invited for the position of RESIDENT MEDICAL OFFICER (lady). The appointment will be for six months from December 1st. Honorarium £75 per annum, with board, residence, and laundry. Ample time for reading. Applications, by letter only, stating age and qualifications, with copies of testimonials, should be sent to the Hon. Secretary, WALTER MASON, "Woodfield," Dacres Road, Forest Hill, S.E.23, to be received not later than Monday, November 25th.

CAVENDISH NURSES (Male and Female)

Head Office: 54, BEAUMONT ST., LONDON, W.1 (late 43, New Cavendish St., London, W.1.)

A very convenient form of telephone message pad sent free on application to the Secretary.

Branches: *MANCHESTER*: 176, *Oxford Road.* *GLASGOW*: 28, *Windsor Terrace.* *DUBLIN*: 23, *Upper Baggot Street.*

TELEGRAMS: Tactear, London. Surgical, Glasgow. TELEPHONES: London, 1277 Welbeck. Glasgow, 477 Douglas.
Tactear, Manchester. Tactear, Dublin. Manchester, 3152 Ardwick. Dublin, 531 Ballsbridge.

Superior trained Nurses for Medical, Surgical, Mental, Dipsomania, Travelling and all cases. Nurses reside on the premises, and are always ready for urgent calls Day and Night. Skilled Masseuses, Masseurs, and good Valet attendants supplied.
Terms from £3 3s. *Apply to the Secretary or Lady Supt.*

Hampstead General and North-West London Hospital, Haverstock Hill, N.W.

APPOINTMENT OF CASUALTY MEDICAL OFFICER AND CASUALTY SURGICAL OFFICER.

Applications are invited from unmarried registered Medical Men *and Women for* the positions of Casualty Medical Officer and Casualty Surgical Officer, vacant on December 1st next, at the Out-patient Department of the Hospital, Bayham Street, Camden Town.

The salary for each appointment will be at the rate of £100 per annum, together with board, residence, etc., and the term will be for six months.

Applications, to be made on a form which will be supplied by the Secretary, together with copies of not more than three testimonials, should reach the Secretary not later than noon on November 20th next.

Bolton Infirmary & Dispensary.

SECRETARY'S OFFICE.
(233 Beds, including Auxiliary Hospitals.)

Applications ... HOUSE SURGEON, ... with board, residen... SSIST-ANT HOUSE ... atients and charge o... £100 per annum, are invited from gentlemen having a registered Medical and Surgical qualification. The appointment will be for 12 months from *January* 1st, 1930.

Applications, stating age and nationality, with copies of testimonials, should be forwarded to the undersigned (from whom further particulars may be obtained) not later than Monday, the 25th inst., and the appointment will be made on Thursday afternoon, Dec. 5th.

ALBERT E. BRISCOE, Secretary.

Bracebridge Mental Hospital, Near LINCOLN.

THIRD ASSISTANT MEDICAL OFFICER re*quired (male). Commencing salary* £350, *rising* by annual increments of £25 to £450 per annum, with furnished apartments, board, washing, and attendance, valued for superannuation purposes at £100 per annum.

Candidates must be duly qualified, registered, and unmarried.

Previous Mental Hospital experience not essential.

The appointment is subject to the provisions of the A.O.S. Act, 1909.

Applications, stating age and qualifications, together with copies of three recent testimonials, to reach the Medical Superintendent on or before *November* 30th.

Mildmay Mission Hospital, Austin St., Bethnal Green, E.2.

Applications are invited for the post of SENIOR RESIDENT MEDICAL OFFICER (male), which becomes vacant on January 1st, 1930. Salary £140 per annum, with board, residence, and laundry. The appointment is for six months.

Candidates must be registered under the Medical Acts, and the Mildmay Council is anxious that they should be fully in sympathy with the religious work of the Hospital.

Applications, with copies of recent testimonials, should be sent to the Medical Superintendent before December 9th.

Mildmay Mission Hospital, Austin St., Bethnal Green, E.2.

Applications are invited for the post of JUNIOR RESIDENT MEDICAL OFFICER (male), which becomes vacant on February 1st, 1930. Salary £100 per annum, with board, residence, and laundry. The appointment is for six months.

Candidates must be registered under the Medical Acts, and the Mildmay Council is anxious that they should be fully in sympathy with the religious work of the Hospital.

Applications, with copies of recent testimonials, should be sent to the Medical Superintendent before December 9th.

Royal Sussex County Hospital, BRIGHTON.

Notice is hereby given that a Meeting of the Elective Committee will be held in the Board Room at the Hospital on Wednesday, January 1st, 1930, at 12.15 p.m., for the purpose of electing an HONORARY SURGICAL CLINICAL ASSISTANT, and such Elective Committee is hereby *convened accordingly*.

Applications are invited for this office from gentlemen who are Fellows, Members, or Licentiates of the Royal College of Surgeons of England, Edinburgh, or Ireland, or Masters or Bachelors of Surgery of one of the Universities of the British Empire, and who are duly registered under the Medical Acts.

Applications, with proof of the necessary qualifications, must reach the Secretary-Superintendent, at the Hospital, before 12 noon on December 16th.

By Order of the Board of Management,
L. L. W. LANCASTER-GAYE,
Secretary-Supt.

Royal Sussex County Hospital, BRIGHTON. (225 Beds.)

HOUSE SURGEON (male) required end of December, with charge of beds, part casualties, and anæsthetics. Salary £150 per annum, with board, residence, and laundry. Candidates must hold Medical and Surgical qualifications of the British Empire, and be duly registered under the Medical Acts. They must be unmarried, and when elected under 30 years of age.

Applications, with copies of testimonials, should be sent immediately to the undersigned.

L. L. W. LANCASTER-GAYE,
Secretary-Supt.

Royal Sussex County Hospital, BRIGHTON. (225 Beds.)

CASUALTY HOUSE SURGEON (male) required end of December. Salary £120 per annum, with board, residence, and laundry. Candidates must hold Medical and Surgical qualifications of the British Empire, and be duly registered under the Medical Acts. They *must be unmarried, and when elected under* 30 years of age.

Applications, with copies of recent testimonials, should be sent immediately to the undersigned.

L. L. W. LANCASTER-GAYE,
Secretary-Supt.

Blackburn and East Lancashire ROYAL INFIRMARY.

FOURTH HOUSE SURGEON (male), to commence duties December 1st, required at a salary of £130 per annum, with board, residence, laundry, etc.

The Hospital contains 240 beds, with X-ray, Massage, V.D., Eye, Ear, Nose, and Throat Departments, Pathological Laboratory, etc. There *is no* outside work.

Applications, with copies of testimonials, stating age, nationality, experience, etc., to be sent at once to the undersigned.

Royal Infirmary, NATHAN A. SMITH,
Blackburn. Gen. Supt. & Sec.

Brookfield Orthopædic Hospital, HALE END, WOODFORD GREEN.

Applications are invited for the post of ANÆSTHETIST. The gentleman appointed will be required to give anæsthetics about once a week, generally, but not always, on Tuesday or Wednesday morning. Honorarium one guinea per attendance. Applications, with full details of qualifications for this post, to be sent as soon as possible to the Hon. Secretary, Brookfield Orthopædic Hospital, Education Offices, High Street, Walthamstow, E.17.

November 7th, 1929.

Birmingham and Midland HOSPITAL FOR WOMEN.

HOUSE SURGEON wanted (man or woman) for six months from January 1st, 1930. Salary to be at the rate of £75 per annum. Applications, with copies of testimonials, to be sent to Mr. H. C. ASTON, 45, Newhall Street, not later than November 25th.

Seamen's Hospital Society.

The Committee of Management invite applications for the appointment of MEDICAL SUPERINTENDENT at the TILBURY HOSPITAL (90 Beds). The appointment will be for one year from January 1st, 1930, at a salary of £250 per annum, with board, residence, and laundry. The holder will be eligible for re-election for a *second* year.

Candidates must not be more than 35 years of age, and preference will be given to those who have had some Surgical experience.

Applications, stating age, with copies of not *more* than three recent testimonials, to be sent in on or before Monday, December 9th, to the undersigned, from whom further particulars can be obtained.

Dreadnought Hospital, R. E. V. BAX,
Greenwich, S.E.10. Secretary.
November 9th, 1929.

Seamen's Hospital Society, Greenwich.

HOUSE PHYSICIAN and HOUSE SURGEON required at DREADNOUGHT HOSPITAL, Greenwich, *for six months from January* 1st, 1930. Salary £110 per annum, and a proportion of fees, with board, residence, and washing. Candidates must be male. Applications, with copies of three testimonials, to be sent in by December 9th to the undersigned.

Greenwich. R. E. V. BAX,
November 9th, 1929. Secretary.

Seamen's Hospital Society, Greenwich.

HOUSE SURGEON required at TILBURY HOSPITAL, ESSEX, for six months from January 1st, 1930. Salary £150 per annum, with board, residence, and laundry. Candidates must be male. Applications, with copies of three testimonials, to be sent in by December 9th to the *undersigned*.

Greenwich. R. E. V. BAX,
November 9th, 1929. Secretary.

Chelsea Hospital for Women, Arthur Street, S.W.3.

There will be a vacancy for a JUNIOR HOUSE SURGEON (male) on January 1st, 1930. Appointment for six months. Salary £100 per annum. He will be expected to proceed to the Senior post (six months, salary £120 per annum) at the end of his term of office. Candidates must ... ...rably unmarried. ... by copies of thre... t not later than ... the Secretary—

HERBERT H. JENNINGS.

Chelsea Hospital for Women, Arthur Street, S.W.3.

There is a vacancy for a REGISTRAR (Gynæcological). Candidates must be Graduates in Medicine of a recognized University or Fellows or Members of one of the Colleges of Physicians of London, Edinburgh, or Ireland, or Fellows of one of the Royal Colleges of Surgeons of England, Edinburgh, or Ireland. They must be registered under the Medical Act and engaged in consulting practice only. There is an honorarium of £50 per annum. Applications are invited for the above post, and must be sent to the Secretary, accompanied by copies of three testimonials, not later than Friday, November 29th.

King Edward VII Hospital, WINDSOR. (181 Beds.)

TWO HOUSE SURGEONS (male) required, to commence duty January 1st, 1930. Applicants must be fully qualified and registered. One to have experience in Ear, Nose, and Throat work. Salaries attached to these appointments are at the rate of £100 per annum, together with board, residence, and laundry.

Applications, stating age, qualifications, and experience, accompanied by three testimonials, should be sent to the undersigned not later than November 25th, 1929.

ARTHUR E. CHURCHER, Secretary.

Royal Victoria Infirmary,
NEWCASTLE-UPON-TYNE.

The House Committee by resolution declare TWO VACANCIES in the offices of HONORARY ASSISTANT SURGEON.

According to statutory provision every candidate must be a registered Graduate in Surgery of any University recognized by the General Council of Medical Education and Registration of the United Kingdom, or a Registered Fellow, Member, or Licentiate of one of the Royal Colleges of Surgeons of the United Kingdom, provided that he is practising as a Surgeon and not as a General Practitioner.

Applications must be sent to the House Governor and Secretary, Royal Victoria Infirmary, Newcastle-upon-Tyne, not later than

ade on Thursday,

Personal canvassing will be considered a disqualification for office.

S. DUNSTAN,
Nov. 9th, 1929. *House Gov. & Secretary.*

Royal Cripples Hospital,
BIRMINGHAM.

Applications are invited for the post of HOUSE SURGEON, vacant December 1st. Salary £200 per annum, with board and residence. The appointment, which is for a period of six months, is renewable on the discretion of the Medical Board, and is terminable by one month's notice on either side. Preference will be given to candidates with previous experience in general and orthopædic hospitals.

Applications, with copies of three recent testimonials, to be sent to the undersigned not later than November 20th.

Miss CHRISTINE COX,
Royal Cripples Hospital, Gen. Secretary.
80, Broad St, Birmingham.

The Gloucestershire Royal
INFIRMARY AND EYE INSTITUTION, GLOUCESTER. (153 Beds.)

Applications are invited for the post of HOUSE PHYSICIAN (male). Salary £135 per annum, with board, residence, and laundry. (Four resident medical officers.)

The appointment is for *six months*, which may be extended for similar periods by re-election from time to time.

Applications, stating age, qualifications, and nationality, with copies of not less than three recent testimonials, must be received by the undersigned not later than Wednesday, November 27th. The elected candidate will be required to enter upon his duties on Monday, December 9th.

F. J. SYMONS, Secretary.
November 14th, 1929.

The Jessop Hospital for Women,
SHEFFIELD.

GYNÆCOLOGICAL AND MATERNITY DEPTS. (145 Beds.)

The Board of Management invite applications for the appointment of an ASSISTANT HOUSE SURGEON (male) for seven months from December 15th.

Salary £100 per annum, together with board, residence, and laundry.

Applications, stating age, with copies of recent testimonials, should be addressed at once to the undersigned.

H. B. SHELSWELL, Secretary.

The Royal Infirmary, Sheffield.
(500 Beds.)

The Weekly Board of Management invite applications for the post of HOUSE SURGEON. The salary attached to the appointment is £80 per annum, with board and residence. Applications, with copies of testimonials, should be addressed to the undersigned forthwith.

JNO. W. BARNES, F.C.I.S.,
Board Room. Gen. Supt. & Secretary.
November 6th, 1929.

The Yorks Children's
ORTHOPÆDIC HOSPITAL, KIRBYMOORSIDE, YORK.

Applications are invited for the post of HOUSE SURGEON. Salary £150 p.a., with board, residence, and laundry. *Applications*, with copies of recent testimonials, should be forwarded to the Surgical Superintendent on or before Thursday, November 28th.

The Mount Vernon Hospital,
NORTHWOOD.

There is a vacancy for a Male HOUSE SURGEON in the Cancer Section of the Hospital Honorarium £200 a year, with board, lodging, etc. Applications to be made to the Secretary's Offices at 7, Fitzroy Square, W.1.

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W. J. HICKS, *Secretary.*

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West London Hospital,
Hammersmith Road, W.6. (233 Beds.)

Required, One HOUSE PHYSICIAN, One HOUSE SURGEON, and One AURAL and OPHTHALMIC HOUSE SURGEON and ASSISTANT CASUALTY OFFICER (males). These three appointments are tenable for six months from January 1st next, subject to one month's notice on either side. Salary at the rate of £100 per annum, with board, lodgings, and laundry allowance. Candidates must be registered under the Medical Act. Applications and copies of testimonials must be rendered in quadruplicate on printed forms to be obtained from me, and must reach me not later than first post on Saturday, December 7th.

Selected candidates will be required to call upon such members of the Medical Staff as directed, to be in attendance at a Meeting of the Medical Council on Friday, December 20th, at 4 p.m., and the House Committee Meeting at 4.45 p.m. the same day, when the appointments will be made.

H. A. MADGE, Secretary.

West London Hospital,
Hammersmith, W.6.

Applications are invited for the post of ASSISTANT SURGEON DENTIST. Candidates are required to hold some Medical or Surgical qualifications recognized by the General Medical Council of the United Kingdom; to send applications, with copies *only* of testimonials, *so as* to reach me not later than Wednesday, November 20th; to attend a meeting of the Medical Council on Friday, November 22nd, at 4.30 p.m., and prior to that date call upon and send copies of their applications and testimonials to the members thereof; to abstain from canvassing, but nevertheless to send copies of their application and testimonials to the Members of the Board of Management, who will elect on Tuesday, November 26th, at 5 p.m., when candidates (if notified) must be in attendance.

H. A. MADGE, Secretary.

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Continental Coastal Practice.— About £450 p.a. Visits 10/6 to 21/-. Cons. 5/- to 10/6. No appts. or mids. Good flat to rent, 3 bed., etc.—No. 8561.

Lancs.—1/3 or 1/2 share of over £2,400 p.a. Prelim. Assistancy. Panel £500 Mixed-class. Good house, 4 beds., attics., etc.—No. 8454.

London, N.W.—Over £900 p.a. Cash and panel of over 800. Visits 3/6 up. Corner house, 6 rooms, surgery, etc.—No. 8560.

Eastern County. — Over £1,000. Panel and appts. £560. Visits 4/6 up. Good house, with 4 beds., and garden. Low rent.—No. 8559.

Lancs.—£4,000 p.a., increasing. Panel over 2,650. Fees 2/6—7/-. Mids. 3—5 gns. *Suitable for two. Two adjoining houses to rent or buy. Premium*, including drugs, book debts, surgery furniture, etc., only £5,250.—No. 8509.

London Suburb (about 10 miles). £2,300, *scope. Panel* 1,650. Fees 3/6 to 5/-. Corner house, 5/6 bed., garage, etc. —No. 8557.

Herts.—Country.—Nearly £1,000. Panel 470. *Appts.* £54. Residential. Good fees. House, with good surgery, 6 bed., garden, etc.—No. 8556.

London Suburb, S.E.—£1,800-£2,000. 1/2 share and succession. Non-panel. Fees 4/- to 10/6. Little midwifery. —No. 8555.

West of England Town.—Share worth £900 p.a., of which £600 is from panel and appts. *House, with 7 beds.*, etc., to rent.—No. 8552.

Midlands (Industrial). — Over £1,500 p.a., with ample scope. Panel about 1,700. House to rent at £56.—No. 8546.

Lancs. — Average £1,590 p.a. 1/2 share for sale. Panel £800 p.a. House, 4 bed., etc., to rent. Premium only £1,200.—No. 8517.

Dorset. — Average £2,300 p.a. 1/2 share for sale. Good appts. Small panel. House, 6 bed., etc., and garden, to rent. —No. 8537.

Liverpool.—£1,300 p.a. Visits 3/6 to 5/-. *Mids.* 3 to 4 gns. Panel 560. House, 4 bed., etc., and garden.—No. 8536.

Yorks. — Average £1,800 p.a. Panel over 1,000. *Visits 3/6 up. No mids.* House, 5 bed., etc.—No. 8535.

N. Wales Borders.—£4,000 p.a. 1/3 or 2/3 share. Panel 3,800. Appts. worth £1,600 p.a. Visits 5/- up. About 50 mids. at £2 2s. House (4 bed., etc.) to rent or buy.—No. 8519.

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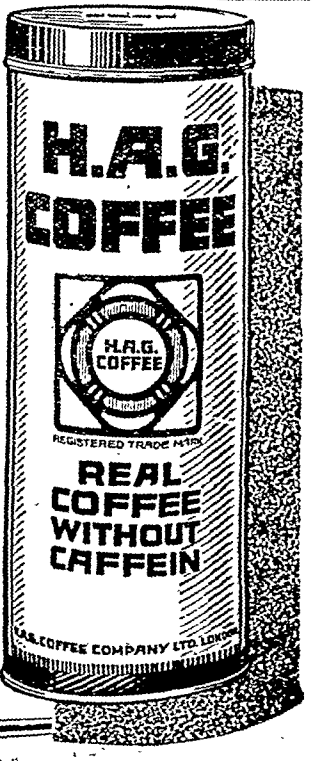

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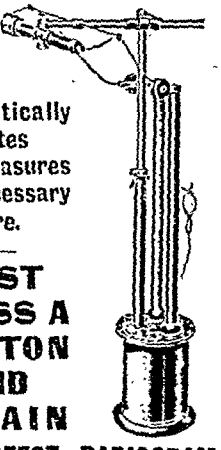

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Also supplied mounted on rubber tyred trolley, for ward use, £7 extra in each case.

It connects to an ordinary electric light holder.

Catalogue No. A3 fully describes it.

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Manufacturers of X-Ray and Electro-Medical Apparatus,

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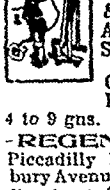

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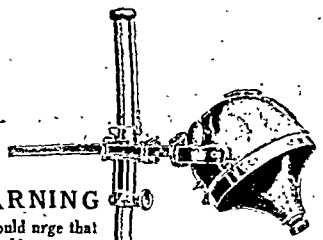

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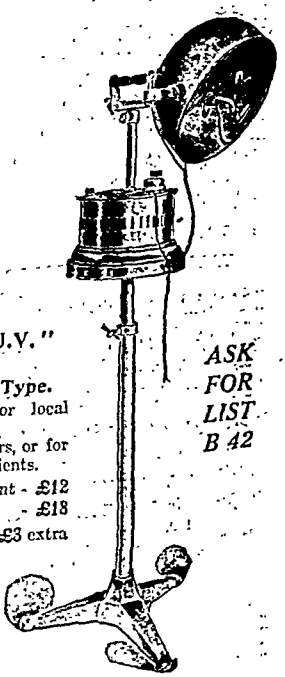

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Telescopic Stand, as illustrated, £3 extra

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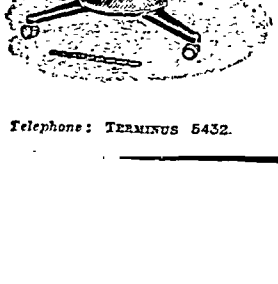

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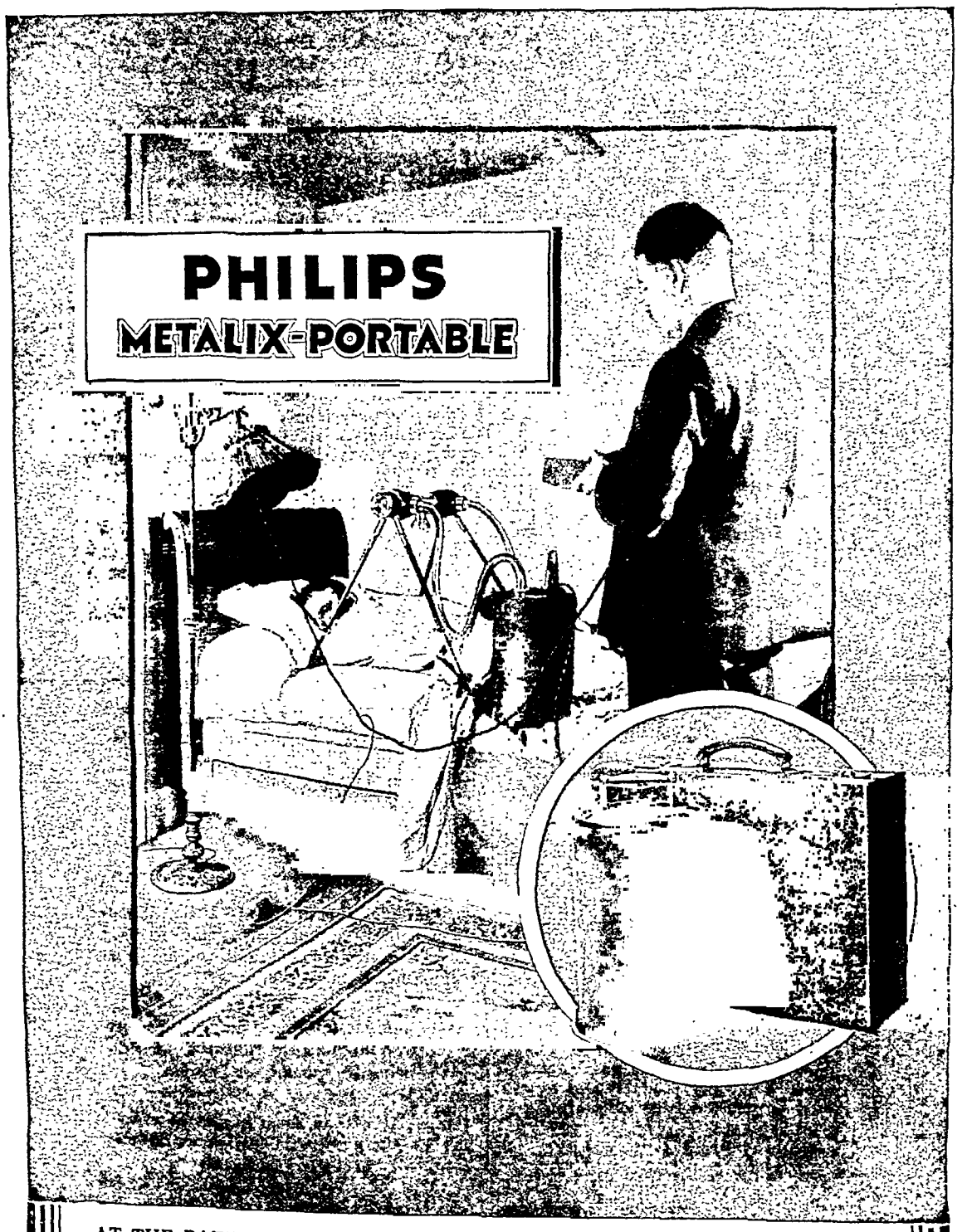

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NOT only hundreds, but literally thousands of cases are recorded in which this well-known preparation — Horlick's Malted Milk — has proved its efficiency as a body-building food.

It is particularly valuable as an addition to the diet of the expectant and nursing mother. For Horlick's is a perfectly balanced food containing fat, proteins and soluble carbohydrates combined together in correct nutritive ratio. It is prepared from fresh, full-cream cows' milk, selected wheat and malted barley — and, during manufacture, is partially predigested to ensure easy assimilation.

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Horlick's is now obtainable in two forms — the original, natural-flavoured Malted Milk, and the new Chocolate Flavoured form — identical in its constituents with the original Horlick's, but flavoured with fine chocolate. Horlick's is sold in sealed glass bottles, price 2/-, 3/6, 8/6, 15/-. Also in tablet form.

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VITAMIN B

Outstanding advantages of HOVIS

Of all kinds of bread consumed to-day, HOVIS is richest in Vitamin B, which encourages growth and increase of weight. Bulk for bulk it supplies a greater amount of nourishment.

HOVIS combines all the benefits of white flour with 25 per cent. of the wheat germ, the part richest in the vitamin, added.

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Wholemeal Bread ...	1,450
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The great value of HOVIS is that it contains all the elements of a complete food; it is universally liked, and containing no bran is easily absorbed.

It is also most economical, the quantity necessary to furnish sufficient nourishment being very small.

Were HOVIS to form a part of everybody's daily diet the nation would undoubtedly be better nourished.

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Best Bakers Bake it

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ROBB'S NURSERY BISCUITS have no equal. Easy of assimilation, a nourishing and sustaining diet, its appetising flavour is greatly appreciated by both young and old. Very welcome as a substitute for the ordinary bread-and-milk diet. Can also be lightly baked, with eggs and milk, to supply a delicious custard pudding.

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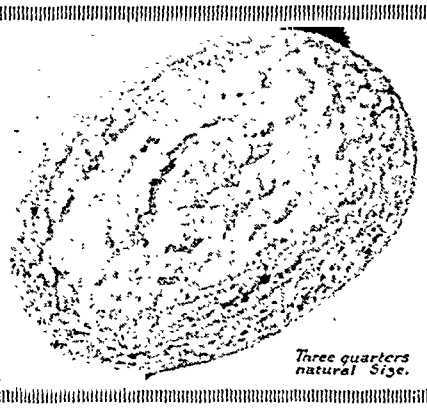

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For intestinal disinfection, use KEROL CAPSULES (keratin-coated); they contain 3 minims of Kerol. One to three capsules may be given three or four times a day after meals.

Please send for Literature and Samples, which will be sent free to any member of the Medical Profession.

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Kerol Capsules

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Maximum therapeutic effects with complete elimination of toxic symptoms result when naturally-occurring ephedrine free from pseudo-ephedrine is used.

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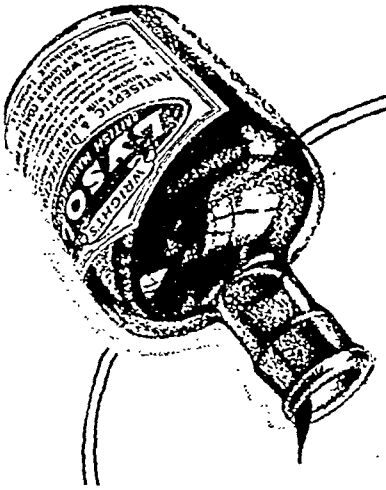

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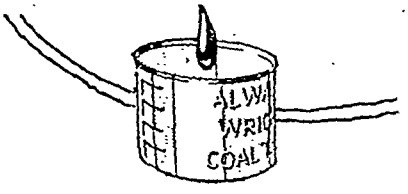
You use Wright's Lysol in your own Surgery; your patients should surely have the same certain protection available in their homes. Emphasise the name 'Wright's' when prescribing Lysol. It is perfectly pure, non-irritant, and does not sting or roughen the most delicate skin. Made under the strict Rideal-Walker control test, its high quality can never vary: in proper dilution it gives positive results.

Wright's Lysol is the product of a firm that has specialized in disinfectants for over sixty years. Its reputation is just as unimpeachable as that of the famous Wright's Coal Tar Soap — and for the same reason — *constant purity.*



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Causation is always difficult, and often impossible, to discover, but it seems a reasonable procedure, in epidemic areas, to assist prevention by the use of an intestinal bactericide. Dimol is non-toxic to any part of the alimentary mucosa, yet one grain has a bactericidal potency for cultures of B. typhosus equal to thirty-five times that weight of pure phenol.

The Dimol Laboratories are prepared to demonstrate to any properly constituted committee of the Medical Profession that a pure culture of this bacillus can be swallowed, and the germs destroyed in the stomach by the action of Dimol pulverettes, taken immediately after the culture.

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"A perfect food for brain, muscle, and bone. It can be taken by the most fastidious and never nauseates."
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BECAUSE of its VALUE in cases of Malnutrition, Debility, Sleeplessness, Loss of Weight, in all cases of Tuberculosis conditions, Nursing and Expectant Mothers as a galactagogue, and as an adjunct in the dieting of infants, the output of

ROBOLEINE

increases month by month. Moreover, it can be taken by the most fastidious and rarely nauseates.

Sample sent gladly on request.

A product of

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ROBOLEINE contains all essential vitamins:—

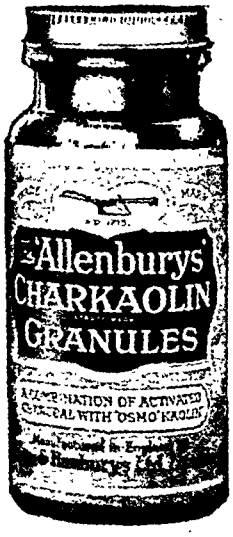
BONE MARROW to make good red blood and increase resistance to disease, and strengthen the whole nervous system.

MALT, a natural laxative and source of energy.

EGG YOLK containing Lecithin, the greatest nerve food known.

LEMON JUICE neutralised for building bone and preventing skin troubles.

The 'Allenburys'



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A Combination of Highly Activated Charcoal with 'Osmo' Kaolin

'Charkaolin' is a new and highly efficient agent for the treatment of intestinal infections characterized by abnormal fermentation and the formation of toxins. It combines the absorbent properties of highly activated vegetable charcoal with the well-known toxin adsorbing qualities of 'Osmo' Kaolin. It is in the form of fine, clean granules which disintegrate rapidly in water and diffuse their ingredients evenly throughout the liquid. 'Charkaolin' is tasteless, forms a fine suspension in water and is, therefore, quite easy to take.

Descriptive literature and a clinical trial sample will be sent on application.

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VICHY-CÉLESTINS

And the other State Springs of Vichy
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PRIMARY DYSPEPSIAS:
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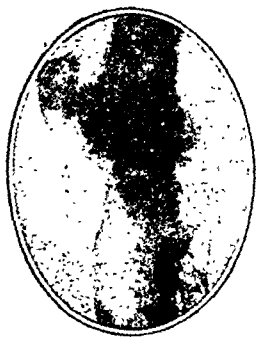

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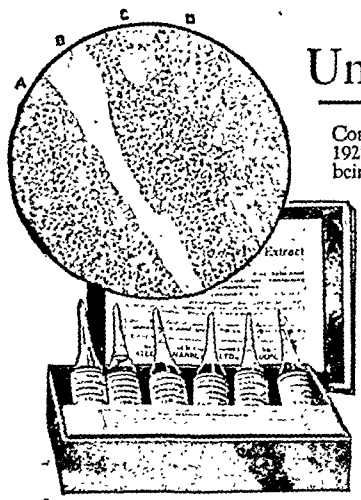

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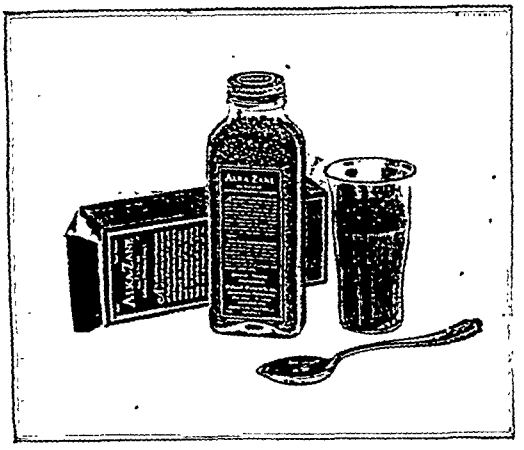

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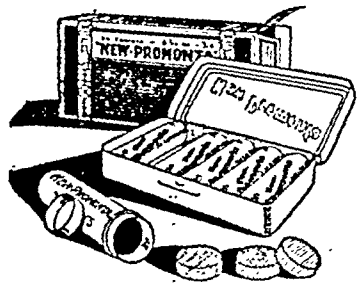

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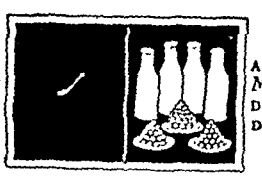

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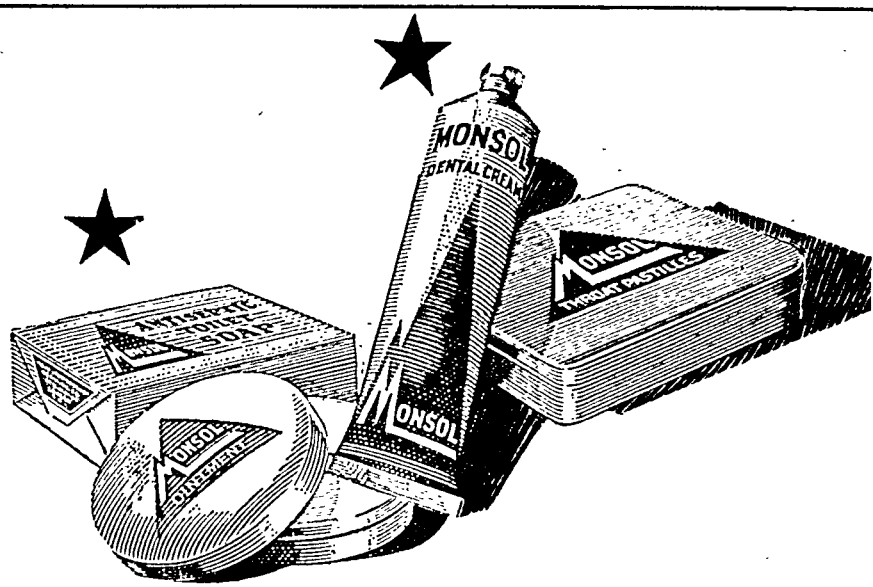

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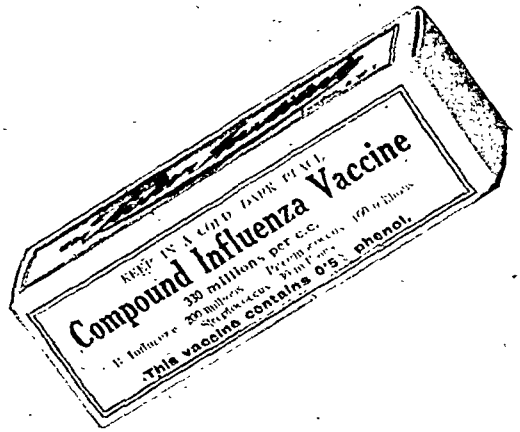

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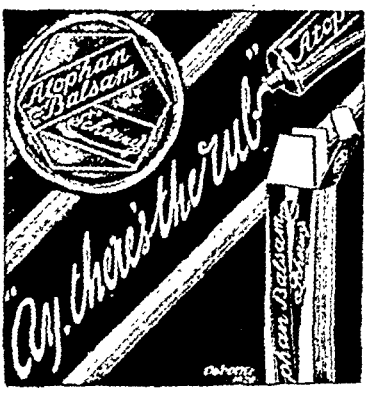

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Observations on THE TREATMENT OF SCOLIOSIS.*

BY

D. McCRAE AITKEN, M.B., Ch.B., F.R.C.S.,

SURGEON, SHROPSHIRE ORTHOPAEDIC HOSPITAL AND ST. VINCENT'S ORTHOPAEDIC HOSPITAL.

THE treatment of scoliosis is the subject of our discussion to-day. I should have preferred the title to be "the principles of treatment," and propose to dilate rather on this aspect, leaving others to fill in gaps.

Scoliosis has been one of the most difficult problems in orthopaedic practice from the beginning. Different authorities proclaim the merits of their own methods, and I fear you will say I am no better than the others. I cannot, however, honestly set the subject before this meeting unless I endeavour to present it as I see it and as I have discovered it for myself in practice. I trust, however, that I shall be able to show that all depends on following definite fundamental principles based on sound and established rules of anatomy and physiology. If sound basic principles can be established, any treatment which is in agreement with them cannot be far wrong, and any treatment which clashes with them calls for a revision either of the method of treatment or of the theory of principles, to discover where the fault lies.

More than twenty years ago Sir Robert Jones said to me: "You have grasped my principles of treatment of deformity by continuous retention of correct position while recovery of muscular function is taking place. You are interested in scoliosis: go ahead and see if you cannot find out how to apply the same principles to scoliosis."

If this discussion is to be of service to future workers we must endeavour to establish principles for the treatment of this deformity which are consistent with established principles which we know to contain a considerable measure of truth and have been proved to have some practical value.

Before I go further let me make acknowledgement and apology to all whose ideas I have borrowed; I may have forgotten some sources from which I borrowed. For example, when I wrote an essay on scoliosis in the *Robert Jones Birthday Book* I thought that the importance I attach to what I called unilateral lordosis was probably original. On looking through William Adams's lectures on curvature of the spine, I find he pointed out in 1854 that rotation is an essential part of scoliosis, and—for example, in the lumbar region—once rotation has occurred any increase in the lordosis increases the lateral displacement; so that idea is in no way new, though there may be something new in the application of it. In 1907 or 1908, when I was in some despair of mind about really getting any further with the treatment of scoliosis, I read an article by Dr. Michael Hoke, which, like everything else from his pen, proved illuminating. His observation was that during respiration a scoliotic patient expands the bulging parts of the chest more freely than the flattened parts, and that movement, owing to the articulation of the ribs with the vertebrae, tends to rotate the vertebrae further in the direction of the rotation deformity. The second part of his observation was that these bulges are at the ends of an oblique diameter—that is, that a right posterior hump is associated with a left anterior bulging in the front of the chest. Hoke's next point was that compressing these humps restrained their movement, that the flattened parts immediately began to move more freely, and that this increased movement helped to turn the vertebrae in a direction opposite to that of the rotation deformity.

So far as I personally am concerned, I count the publication of Michael Hoke's paper as the epoch marking the beginning of a new era of hope and of progress.

For twenty years, therefore, asymmetrical breathing exercises as a voluntary effort, as well as jackets applied to enforce asymmetric breathing, have been an essential part of my practice. Next, in practising how to get asymmetrical breathing, it comes out that the body weight must be unevenly distributed on the two feet. To expand the right side of the chest more fully than the left the body weight is carried more on the right foot than on the left. This statement may sound new to some, but the fact has been known since the first oarsman handled a pair of sculls, for in order to turn the skiff we are taught, not to pull harder with one arm, but to press harder with one foot, and the corresponding shoulder will do the rest. The origin of this oarsman's precept is lost in the mists of antiquity, but it is in itself a tacit expression of belief that all our muscular movements are reflexly associated. It was while I was house-surgeon that Magnus, now a professor in Utrecht, was experimenting in reflexes in Professor Sherrington's laboratories. His work laid the foundation of the modern doctrine of the postural reflexes, which underlies our modern way of looking at orthopaedic problems—which are the same problems as those our forefathers faced.

The doctrine of the postural reflexes is, briefly, that every animal stands, walks, and generally controls its locomotive system by means of a complex reflex control of muscles which is so highly trained that it goes on automatically without conscious thought—that is, without brain fag or fatigue.

It was only three or four years ago, in the course of a casual conversation, that Professor Sherrington dropped into my mind two words which suddenly crystallized my rather mixed ideas on scoliosis, and helped me to set them in order. While discussing posture I had mentioned my idea that teaching of breathing exercises was much neglected or was often wrong. His reply was: "It is a curious thing that we should need lessons in breathing, for it is the oldest of these reflexes." The two words are "these reflexes."

First we learn to breathe and make a confused noise; then we learn to sit and balance and walk; we also learn to talk, to read, to write, and so on by automatic reflex without fatigue. The untutored savage reads the movements of animals as you and I could never hope to do, for he practises the art till it is absolutely subconscious. If he comes to a difficult passage he may have to stop to think, and puzzle out the meaning of a mixed trail, but so do you and I, each in our particular station in life.

There are exceptions, of course, to this automatic learning. The deaf-mute does not learn to talk because there is a flaw in the nervous cycle, but he can be taught by the lip-reading process. The child with a congenital spastic paralysis does not learn to walk, but if you can get him in an erect posture with the soles of his feet on the ground you may be able to teach him to acquire postural reflexes and to walk, and the earlier we set about this re-education the better.

All athletic training is training of reflexes. I go further, and say that training of inhibition is often more important than training of contraction, for it is the quick relaxation and recovery which makes for speed and alertness—that is, delicacy of co-ordination.

Scoliosis has been defined as a rotato-lateral curvature of the vertebral column. It is often spoken of as lateral curvature to distinguish this deformity from round back and hollow back. To think of scoliosis as a lateral curvature is fatal to successful treatment. Personally I made no progress till I put rotation first. Scoliosis, to my mind, is a twisted asymmetrical trunk, and this twist is inevitably associated with lateral deviation, with asymmetrical kyphosis, and asymmetrical lordosis. This necessarily means an upset of all that symmetrical muscle balance by which the posture of the body is maintained.

The cause of scoliosis is any disturbance which upsets the symmetrical co-ordinate reflex action of muscles controlling posture. A transitory broncho-pneumonia may cause a visible scoliosis in a few weeks, due to asymmetrical breathing (as Biezalski pointed out nearly twenty years ago). I have repeatedly seen the deformity associated with appendicitis. One girl attributed her own deformity

*Made in opening a discussion in the Section of Orthopaedics at the Annual Meeting of the British Medical Association, Manchester, 1929.

to a sore heel. Inquiry showed that two years previously she had an inflammation of the epiphysis of one os calcis, confirmed by contemporary x rays, fortunately of both feet for comparison. Two years later the girl still prefers to walk more firmly on the sound heel, and I am trying to teach her to reverse this habit as the first factor in correction.

METHODS OF TREATMENT.

The treatment of scoliosis must therefore mean the restoration of symmetrical postural balance, or as near it as we can attain, first by eliminating every extraneous factor which may have originated an asymmetrical balance; secondly, by re-educating all postural reflexes, including the respiratory, after correcting gross deformities if this can be done. The methods of treatment at our disposal are:

1. Exercises and training in posture and balance. This method comes first and last and all the time.
2. Assisting postural exercises by twisting the trunk into a more correct position and retaining it by means of splints or jackets while the postural reflexes are being trained.
3. Operative methods of treatment.

I will take these three methods in reverse order.

Operative Methods.

Ninety years ago Guérin of Paris made a practice of "dividing the muscles on one side of the back." To-day, in cases where skeletal position cannot be maintained in corrected position, bone fixation of the vertebral column is being practised. I have no personal experience of spinal fixation except in cases of osseous disease. In paralytic cases I have up to the present contented myself with using jackets. Such operations are chiefly for cases not amenable to curative treatment and therefore outside my main argument on principles of treatment.

Maintaining the Body in a Corrected Position while Training the Postural Reflexes.

It is in the second group that my personal interest has been most engaged—namely, in endeavouring to hold the body in a corrected position while balance and postural reflex is being restored, and perhaps some measure of adaptive change in the osseous structures takes place. The question is, What can we try to do by means of jackets and what do we actually achieve?

1. By forcibly correcting the shape of the trunk and then applying a plaster jacket we may hope to produce some real correction of deformity or of disability.

2. By jackets and supports we often hope to prevent the deformity from getting worse. These jackets are generally made by instrument makers, and to these is too often left the preparation of the casts from which they are made. It is in my experience extraordinarily difficult to get a cast made on which a removable jacket can be modelled which will put the patient in a position in which postural reflexes and respiration will help further to cure the deformity. Sometimes it can be done. There are also jackets made of steel with pads whose tightness of fit can be adjusted. Of the use of these I have little personal experience, but I have seen improvements in deformity produced by such apparatus when controlled by expert hands. Such apparatus is expensive, and I think more applicable to the more or less hopelessly deformed adult than to the young and the growing.

3. In too many instances jackets do harm. They are wrongly designed, and put the patient in the wrong posture, so that they assist rather than prevent increase of deformity or relapse in cases in which some correction of deformity has previously been obtained.

I would therefore divide jackets or apparatus into two classes: (*a*) those intended primarily to produce correction of deformity, which we may call corrective jackets; (*b*) those merely intended to retain shape and position already secured. Such retentive jackets to be really successful must have incorporated in their shape and construction some of the elements essential to corrective jackets.

Now what are the points essential to a corrective splint? Here I beg leave to go back to the beginning and deal with splints as I was taught to use them in Liverpool. Take for argument a straightforward case of dropped wrist. The treatment is to put the wrist and hand in such degree of dorsiflexion as can be obtained without leaving the patient in pain from overstretching of flexor structures, and to maintain this position till the tight structures get looser. I used at one time to think of this as "stretching shortened muscles"; to-day I prefer to think of it as restoration of the inhibitory reflexes in the habitually contracted muscles. Now comes the important point. When I was house-surgeon in Liverpool, in the days when Sir Robert Jones handled his out-patients with his own hands, I was taught that the splint and bandages must be so applied as to prevent flexion, but not in any way to obstruct further extension. This is a point often overlooked or omitted.

In applying a splint or plaster jacket to correct scoliosis the same rule must be followed. The splint or jacket must in no way impede movements in the direction of correction of deformity, but must absolutely prevent relapse towards the original deformity, and must conform to our known standards which control postural reflexes.

For the purpose of argument and illustration of principles, I shall assume we are dealing with the usual right dorsal left lumbar deviation; also, for the purposes of our present argument, that there is no gross disease of bone and no paralysis.

A woodcut of the post-mortem appearances of scoliosis which differs in no material respect from those in modern books may be found in the works of Fabriccius Hildanus, who practised in 1500. It shows the rotation of the vertebrae, the lumbar lordosis, the dorsal kyphos, and the consequent lateral deviation.

I have already said that scoliosis must be regarded as a distortion of the whole trunk—a distortion of ribs and vertebrae and of co-ordinated muscular balance. In arriving at my present point of view I recognize three masters.

First, Dr. Michael Hoke, who in 1904 taught us that the asymmetrical excursion of the ribs in scoliosis is a dominant factor in maintaining and increasing the rotation deformity in the thoracic region.

Following up this idea, from 1908 onwards I was getting some results, and was clumsily groping for some means of getting more flexion of the trunk, when Dr. Abbott published his two papers in which he laid stress on the importance of full flexion in combination with breathing windows, which are essentially Hoke's idea. Now to my mind the great value of Abbott's method is that in fully correcting the lumbar lordosis we indirectly correct some of the lateral deviation in the lumbar region. As Adams pointed out in 1854, lumbar rotation combined with lordosis means lateral deviation.

The third master is Professor Patrick Haglund of Stockholm. His principle is to correct the lateral lumbar curve by pushing the trunk right over to the left, and the patient's own sense of balance will make him correct the dorsal curve by his own effort. In this I recognize the respiratory reflex as part of our postural reflex system. The scoliotic with a left lumbar right dorsal scoliosis generally stands more on the right foot than on the left. Professor Haglund pushes the patient bodily over on to the left foot and lets the patient's postural and respiratory reflex complex do the rest.

The jacket I now employ combines, I think, elements borrowed from all three of these authorities, and is consonant in principles with the teachings of Sir Robert Jones and with at any rate my present ideas on postural reflexes.

Exercises and Training in Posture and Balance.

I shall make no attempt to go into details of exercises. Classifying cases of scoliosis by the apparent deviation of the tips of the spines from the middle line is vicious. To try to apply routine exercises to cases classed as C or S curves is dangerous. The C curve often has a double rotation, one to left and one to right, and is really what is commonly called transitional. If this diagnosis is missed and a mere routine treatment adopted the case may rapidly develop into a really bad double curve. I have made this mistake more than once. Therefore to-day I do not accept any curve as a simple C curve. It is the rotation or twist

of the trunk that matters, not the apparent deviation of the tips of the spines of the vertebrae. One must therefore take the long view, and be ready to adopt a line of treatment which anticipates the oncoming deformity, and not be deceived by the apparent deformity. We have to deal with the same fundamental principles, whether we are dealing with early cases in which the patient can by *voluntary effort correct the apparent deformity*—the type of case sometimes called "postural," but this word is here used with a meaning wholly different from that attached to it in the phrase "postural reflex"—or with more advanced cases in which the patient cannot voluntarily correct, but the surgeon, by using external force, can correct the apparent deformity which some would call "early structural"; or with cases of a third type with gross bony changes or paralysis of nerves supplying muscles.

The first type may be cured by any intelligent system of exercises which helps the patient to correct the deformity automatically and not only by a conscious effort of will.

The second type may be corrected if the surgeon can first correct the deformity by external force which holds the patient in corrected position by means which prevents relapse but in no way impedes further correction. This must be followed by re-education in posture by means of exercises, which must become automatic to be effective.

The third type can only be pushed into some sort of vertical position and sometimes held there, so that the patient can hold an erect posture with one gross deformity more or less compensating another; but the main line of the centre of gravity falls pretty well between the feet, and not in a lopsided manner away over one foot with a steady tendency to get worse. With this last type the *practitioner of experience may make some sort of a patch-work.* For the purposes of this discussion they are of no interest to us, for if our modern movement towards finding our physical defectives early by properly staffed orthopaedic clinics grows and succeeds, few cases will ever be allowed to pass into this stage in another generation.

The orthopaedic surgeon of the next generation must prevent the third stage from occurring, except in rare cases. For example, tuberculous disease of bone and joint to-day is not allowed to produce the gross deformities which occurred when I was a student. In many areas public opinion has been so educated that the mothers of the village will insist that every lame child must go to the orthopaedic clinic which is to be found in the nearest *market town. That point* has been already proved in the county of Shropshire. Dame Agnes Hunt has seen to it that in that county no new preventable deformity shall occur.

Reverting to the second group of cases—those in which the surgeon can, by the use of external force and control, produce a correction of the deformity of the trunk as a whole. Three essential factors must, I believe, be recognized and acted on.

1. That in the *thoracic region* rotation deformity is the dominant difficulty to be overcome; and that Hoke has shown that the ribs are a lever rotating the vertebrae. This factor of deformity can be corrected by training in breathing, which can be reinforced, if need be, by suitable splinting.

2. That in the lumbar region correcting the lordosis helps materially to correct the lateral deformity and indirectly corrects the rotation. In this connexion extending the pelvis on one thigh exercises a correcting influence on the lumbar twist, and this correction can be obtained even in the sitting position. The flexed plaster jacket compels the patient to exercise the extension of the hip-joint for postural purposes, and therefore secures this action, as is done in an Abbott's jacket.

3. Deviation of the body weight on to the foot which the patient is not in the habit of using, taken either as a system of training or as part of posturing by jackets, alters the whole postural reflex habits of the patient and helps to correct the deformities, if properly applied. This is the foundation of Haglund's jacket.

Finally, gymnastic treatment serves only two purposes: (a) To loosen joints—that is, to increase the range of inhibition and movement of muscles. All ordinary movements in the gymnasium contribute to this. Such exercises are not corrective, but only preparatory. (b) To re-educate the patient in habitual posture so that the postural reflexes which are automatically used by the patient in ordinary life shall tend to correct, not to perpetuate, the deformity. This training must be done outside the gymnasium by the patient's own will power. For this reason I have never allowed myself to run a gymnasium for curative exercises. Also in my practice these exercises are entirely devoid of arm and leg wagging; they consist of correct balancing and breathing when lying, sitting, or standing, and can be practised habitually on ordinary school or nursery furniture, in buses or trains, and walking down the street without doing anything conspicuous.

This training is entirely psychological, and I hold it as a matter of prime importance that the patient should *have all ideas connected* with corrected breathing and posture associated with the ordinary occupations of life, not with some gymnasium or other. For this reason I hold that the gymnast must train the patient in her own home surroundings to get the best results.

My best results have not been obtained in hospital patients; the psychological environment of the ordinary life of the patient is not conducive to the highest form of success.

To conclude. *I would suggest* that more attention should be paid to rotation deformity, that apparent deviation of the spines of the vertebrae be almost disregarded, for this deformity is often deceptive and never an accurate measure of the real distortion.

Lastly, do we treat our cases with sufficiently powerful means of correction in the early stages?

THE TRAINING OF THE GYNAECOLOGIST.*

BY

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WHEN a physician's labours are confined largely to one sphere of activity he is often prone to think that his is the only field worth while. It is essential for him to mingle frequently with his colleagues of other branches. For years it has been my good fortune to be associated with that master gynaecologist Howard A. Kelly, and to him I owe an eternal debt of gratitude. Over a period of ten years I made frequent visits to a hospital in a remote part of the State of Maryland. Here I found many poor people who needed urgent attention, and in this small institution it became incumbent on me to do all kinds of surgery. I believe that it was this experience that did more than anything else to convince me that every gynaecologist must be an abdominal surgeon. In other words, when he opens an abdomen he must be prepared to deal with any condition that he may find, whether or not it be gynaecological in the strict sense.

One practitioner may prefer to do stomach and gall-bladder surgery, and another pelvic surgery in the female, but when either has an abdomen open it is only fair to the patient that every lesion found in that abdomen be treated at the time if it be humanly possible. It is no excuse for one to say that the lesion is out of his line, or that he is not capable of doing the operation, and then close the abdomen. In the short time at my disposal I shall attempt to amplify this viewpoint.

Naturally a fundamental knowledge of medicine is absolutely essential. In the next place, every surgeon, if he is to get the most out of his work, must have a thorough grounding in general pathology, and also in the surgical pathology of the particular branch which is to become his life-work.

Let me state the method of training that the men who are going to be gynaecologists receive at the Johns Hopkins Hospital. Each year five of the graduating class are

* Read in the Section of Obstetrics and Gynaecology at the Annual Meeting of the British Medical Association, Manchester, 1929.

assigned to the gynaecological department. During the year these men have charge of the patients in private and public wards, take all the histories, assist at operations, and work in the gynaecological and cystoscopic dispensaries. At the end of the year, after a conference with the house staff and the visiting staff, one of the five men is selected for promotion. The other four obtain hospital appointments elsewhere or enter private practice.

The man who has been selected now drops out of the gynaecological department for a year and becomes an assistant of Dr. William G. MacCallum, professor of pathology. During his intern year this man has obtained a very good idea of the difficulties encountered in the various abdominal and pelvic operations, and consequently is better able to appreciate the opportunities afforded him in the pathological department. He is, however, no novice in this laboratory, because in his undergraduate days he received his instruction here. He is now permitted to make numerous necropsies and gains a clear idea of gross pathological lesions. While making the necropsies he has the opportunity of dissecting out the ureters and of learning the relations of the pelvic structures. He is continually dissecting out the bile ducts to see if they are patent, and has ample opportunity to observe the lymphatic ducts carefully. He also gains a lasting knowledge of the relations of the abdominal organs and of the blood supply. After a year's opportunity in such work he should never again get lost in the abdomen. In addition to all this he gains an insight into the lesions in all parts of the body, and has the opportunity of studying the various histological pictures presented at necropsy. He likewise has the privilege of attending again the undergraduate classes in pathology, and of participating in the invaluable pathological conferences that are held each week.

At the end of a year our assistant in pathology returns to the gynaecological department; he examines and describes all material coming from the gynaecological operating room, supervises the cutting and staining of sections, and gives a detailed and careful description of the histological findings. Ample time is afforded him to work on special gynaecological problems, and he is within easy distance of that mine of information the Surgeon-General's Library, where practically every medical book and periodical that is worth reading can be obtained. He also has an opportunity to see all the interesting cases treated in the department. During the following year he is first assistant, assists at operations, has general supervision of the wards, and when the resident is away is in charge. During his final and fifth year he is the resident gynaecologist and has full charge of the department, and, in addition to assisting the visiting surgeons, performs many major and minor operations himself.

The finished product is: (1) A man who has a good knowledge of general pathology and an intensive knowledge of gynaecological pathology. (2) A man with a comprehensive knowledge of gynaecological and abdominal diseases. (3) An expert gynaecological and *abdominal* surgeon. (4) A surgeon who has formed the habit of looking at his cases from every viewpoint.

A man with such a training will not only do justice to his patients, but should also prove an admirable teacher. He is bound to add to the sum total of our knowledge of gynaecology and abdominal surgery. Few men who have become real investigators will ever be satisfied to relinquish this fascinating field during their active period of surgical life.

Every gynaecologist and general surgeon has a group of cases that worry him greatly. Some of these patients have had pelvic operations, others have had their appendices or gall-bladders removed and still are far from well. They have pains in the right or left lower abdomen or on both sides; occasionally they have discomfort in the renal region, and often they complain of frequent urination. The urine itself may contain an occasional pus cell or be practically normal. This group of cases has given the conscientious surgeon untold anxiety, and he has often been at his wits' end to determine just what is the matter and what he should or should not do for them.

In recent years my colleague and friend Guy L. Hunner, associate professor of gynaecology in the Johns Hopkins Medical School, has pointed out that many of these patients have unilateral or bilateral ureteral strictures, and that by dilating these strictures the patients are relieved of their symptoms and again become normal individuals. In some of these cases it is necessary to re-dilate the ureters from time to time, just as one must do when strictures exist elsewhere. Hunner's epoch-making labours are receiving more and more attention the world over, and before long his methods of treating ureteral stricture will be employed everywhere.

Here I should like to say that while in the male urology is logically a distinct specialty, in the female bladder and ureteral lesions are so intimately associated with pelvic infections and pelvic tumours that it is essential that the gynaecologist of the future be a good urologist. As we all know, the diagnosis of pelvic lesions is often very obscure, and it is frequently impossible to forecast just what one will find when the abdomen is opened. For the benefit of those who are general practitioners—the backbone of the medical profession—I shall mention a few cases illustrating these difficulties.

I often tell my students that the abdominal cavity suggests to me a long, partially collapsed silk balloon moulded to the various abdominal structures and covering over the inner abdominal walls. This simile is of surgical importance; for example, suppose that we have a case shortly after labour in which there is thickening in the right lower abdomen, and the diagnosis lies between broad ligament induration and an acute appendicitis. If it be an acute appendicitis the abdomen should be opened at once and the appendix removed. If, on the other hand, the thickening be due to broad ligament induration, in no circumstances should the balloon be opened. All that is necessary in this case is to make a gridiron incision as for an appendix, and when the peritoneum is exposed to push it gently inward until the area of thickening in the broad ligament is reached and a drain can be laid down to this area. The induration usually softens up in a few days, and as the abdominal cavity has not been opened there is little or no danger of a streptococcus peritonitis.

On one occasion, while in the country, I saw a patient with what appeared to be an adherent myoma of the posterior surface of the uterus. Not being absolutely sure of the diagnosis I did not operate on her at the local hospital, but brought her to Baltimore. On opening the abdomen we found diverticulitis of the sigmoid low in the pelvis and a small abscess in Douglas's cul-de-sac. Because of the extensive inflammatory thickening, it was thought wise to do a resection notwithstanding the abscess. Fortunately the patient made a good recovery.

Recently I saw a patient with a multinodular myomatous uterus filling the pelvis and extending halfway to the umbilicus. She had pain of short duration in the right lower abdomen. Was the condition a pus tube or an acute appendicitis associated with the myoma? If a pus tube, we could perform hysterectomy and remove the pus tube at the same time: if an acute appendicitis with abscess formation, it would be fatal to attempt hysterectomy at that time. We made a gridiron incision and found an appendix abscess. The appendix was removed and the abscess drained. The hysterectomy will be done four or five months later.

During the last few years I have seen several cases in which an acute appendicitis complicated a pelvic tumour, and in each case only the appendical trouble was treated, the tumour being removed later.

Now let me refer briefly to a few cases in which the pelvic surgeon must go far afield. We have a large myomatous uterus that has persisted for years. A loop of bowel is so firmly adherent that it cannot be saved. In addition to the hysterectomy an extensive bowel resection is necessary.

I have already recorded a case in which a large myoma almost filled the abdomen. Its upper part had suppurated, grown fast to, and opened into the transverse colon. The uterus was amputated at the cervix, completely freed from the broad ligaments, the cervix closed, and the pelvic toilet completed. The pelvis was then filled with gauze and the myoma and transverse colon lifted out of the abdomen, carefully walled off, and the diseased portion of the

transverse colon removed with the myoma. During the entire operation not a drop of pus escaped.

One Sunday afternoon a coloured woman was brought to the hospital as an emergency. The pelvis was choked with a myoma. As soon as this had been removed we found a carcinoma of the sigmoid. For this a resection of the bowel was necessary.

A frail little woman, 58 years of age, for years had been carrying about a very large abdominal tumour. It finally gave rise to so much dyspnoea that operation was imperative. When she went on the operating table she weighed 174 lb.; when she was returned to her room her weight was 85 lb., and by the time the oedema had left her extremities her weight was 80½ lb. The tumour, a cystic myoma, weighed 89 lb. It was attached to the uterus by a pedicle no thicker that one's finger. The myriads of blood vessels going to it had been supplied by the omentum, stomach, and liver. It was necessary to remove a piece of liver with the tumour. This patient lived to be nearly 80.

A patient had had a previous operation in a neighbouring State. She had two faecal fistulae in the abdominal scar, and in the pelvis a globular mass, about 10 cm. in diameter, that felt like a myoma. An elliptical abdominal incision was made embracing both fistulous openings. In the abdominal cavity the intestines were more tied up and twisted than any skein of wool could possibly be. I could follow a loop for a short distance; it would gradually contract. It communicated with the pelvic tumour by a fine opening. Nearly all loops that I picked up ended in the same manner. It was absolutely impossible to unravel the tangle. Finally, remembering that the bowel and mesentery may be likened to a fan, the roots of the mesentery being the handle and the bowel the fringe to the fan, I went down to the mesentery, traced it up to a normal-looking loop of bowel, and clamped the bowel at this point. Going back to the mesentery, I traced it up to another normal loop at a distant point and clamped. All the intervening bowel was now cut away, the ends closed, and a lateral anastomosis done. Even in the laboratory it took a long time to get one's bearings. The supposed myoma was a faecal cloaca into which many loops opened. The patient made a prompt recovery.

In a neighbouring town I saw a frail woman with a pelvic and lower abdominal tumour. As it was evident that she would need unusual post-operative care, I brought her to the Johns Hopkins Hospital instead of operating at the local hospital. On opening the abdomen I found a carcinoma of the descending colon. This had eaten its way into a loop of small bowel, and the carcinoma had plastered itself against the posterior surface of the uterus. The appendix was also adherent to the tumour. The case seemed desperate, but the family physician urged operation, saying she could not live ten days without it. A supravaginal hysterectomy was done, both tubes and ovaries being freed with the uterus. The pelvic toilet was completed, and the pelvis filled with gauze. The appendix was freed from the caecum and covered over so that it could not infect the operative field. The involved bowel and the pelvic structures were now lifted out of the abdomen and carefully walled off. A large portion of the descending colon and the involved loop of small bowel were clamped and cut off, the portion of large bowel, the loop of small bowel, the appendix, the uterus, tubes, and ovaries being removed in one piece. The four ends of bowel were closed and two lateral anastomoses made. The patient made a slow recovery and lived in comfort for about a year and a half. She then died suddenly.

I have cited these cases to give you some idea of the extensive and alarming conditions with which the gynaecologist is now and then confronted. I need not elaborate on the frequency with which chronic appendicitis and gall-bladder conditions are associated with pelvic lesions.

From the foregoing it is clear that any man attempting to do abdominal surgery must be master of the situation, if such a thing be possible. Every man going into gynaecology must have a thorough training in the surgery of all parts of the abdomen. The supreme test is: What man would you select to do an abdominal operation on one of your own loved ones? The answer is: The man who can treat any lesion he finds in that abdomen. This being the case, we are in duty bound to so train our young gynaecologists that they will be capable of handling any abdominal emergency that may arise, if that be surgically possible.

In short, I confidently predict that in the very near future no surgeon, except in the rarest emergency, will be accorded the right to open any abdomen unless he has been trained to handle any and all complications he may find in that abdomen. This applies to your country and to mine, and to all other countries where abdominal surgery has reached the high standard of to-day—a standard of which the medical profession of the world is so justly proud: a standard made possible through Louis Pasteur and our beloved and revered Lord Lister.

TOXIC ABSORPTION DUE TO FOCAL SEPTIC LESIONS:

*ITS EFFECTS ON THE PRODUCTION OF EYE DISEASES.**

BY

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ASSISTANT OPHTHALMIC SURGEON, WESTMINSTER HOSPITAL; ASSISTANT SURGEON, ROYAL EYE HOSPITAL.

A well-known English writer, in an interesting article in one of the Sunday papers of April 28th last, described the superior skill of an ophthalmologist practising in a certain Continental town. The theme of the article was that British ophthalmologists think of nothing but ordering glasses, while the Continental surgeons investigate the patient's condition and cure it by treatment. In the opening papers and discussions at this Section on the selected subject, it will be evident that British ophthalmology is leading in the investigation and treatment of certain eye diseases, which in some other countries are looked upon as of unknown origin, or as dependent on some obscure constitutional condition.

As the article to which I have referred above has had a very large circulation, and will result undoubtedly in material benefits to the inhabitants of the town mentioned in it, I should like it to be known that not all cases treated in that town have such happy results. At the time of writing this paper I have under my care in the ordinary wards of Westminster Hospital a poor lady who has spent her small means in obtaining treatment for cataract at that town. The patient had received no benefit from her treatment abroad, nor was it likely that she would do so. As she was no longer able to walk about, I extracted her immature cataracts, to her great joy.

The subject which has been chosen for discussion is very important, and one in which I have taken great interest, especially during the last two years. Reports of clinical researches by me will be found in the *Transactions* of the Ophthalmological Society of the United Kingdom for 1928, and in the *Proceedings* of the Royal Society of Medicine, *Section of Ophthalmology*, 1928. Also an article by me on "The relationship between dental and ocular disease" appeared in the *Dental Journal* in 1928. Due acknowledgement was paid in them to the personal teaching of William Lang, and to his opening address on this subject at the Oxford Ophthalmological Congress of 1923.

Nature of the Products of a Focus of Sepsis, and the Channel whereby these Products reach the Eye.

The exciting agent of ocular changes must be living or dead bacteria, or the toxic products of bacteria, or the disintegration products which result from the action of bacteria on the body cells. In extraocular inflammations of the conjunctiva and eyelids, as well as in orbital cellulitis, it may be a bacterial infection which spreads by contiguity of tissue, or by way of the nose and lacrymal passage. In intraocular changes it is either the toxins of the bacteria or the disintegration products which are the exciting agents; their path to the eye must be by the

* A paper read in opening a discussion in the Section of Ophthalmology at the Annual Meeting of the British Medical Association, Manchester, 1929.

general blood stream—that is, they pass to the heart, thence to the lungs, back to the heart, and thence by way of the aorta and carotid arteries to the orbit and globe. In some cases of orbital cellulitis there is no doubt that bacteria spread to the orbit by the blood stream.

Sites of Foci of Sepsis, and Similarity of Effects, wherever the Focus may be.

In adults the most usual site of focal sepsis is the mouth, while in children it is the tonsils. With less frequency, in my experience, the site may be found in the intestinal canal, especially in the appendix, and sometimes in the colon or duodenum. The gall-bladder in either sex, and the pelvic organs in the female, may contain the exciting cause. After gonococcal infection in the male the deep urethra and the vesiculae seminales often contain a mixed growth of various organisms, which may lead to a general toxaemia and localization of inflammatory changes in the eye. I have seen ocular changes result from a chronic inflammation in the stump of a leg amputated for a war injury. In fact, any chronic focus of sepsis may set up ocular changes.

It may be a difficult or impossible task to decide on the position of a focus of sepsis in a case of ocular change which has every appearance of being produced by this condition. Nevertheless it is the obvious duty of an ophthalmic surgeon who recognizes such a case either to look for the focus himself or to obtain the assistance of some medical man who will do it for him, and who is competent to carry out the investigation.

A distinguished foreign ophthalmologist recently sent to me a reprint of a paper he had written in which he stated that he had never seen any condition of ocular disease dependent on dental sepsis. I am in complete disagreement with this view. I have shown elsewhere, by a detailed description of clinical cases, that dental sepsis is the most common cause of ocular changes, and I have indicated how such a case should be approached. To send a patient, in whom for ocular reasons focal sepsis is suspected, to a dentist who will give an opinion without obtaining really good radiographs of the whole mouth, is frequently to obscure the investigation. In all such cases all teeth and edentulous areas should be radiographed, and we should obtain the opinion of a dental surgeon, who will make a thorough clinical examination of the mouth after studying the radiographs and a report on the ocular condition.

Among the more important indications for the need of expert dental advice are the following conditions.

1. Pyorrhoea, recognized either by the red or inflamed margin of the gums or by the oozing of pus from between the gum and the necks of the teeth. Pyorrhoea, of course, is not a mere gingival inflammation which can be removed by antiseptic lotions, but is the symptom of inflammation of the periodontal membrane. It is a very serious condition, for when of marked degree there is no known method of curing it except by removing the affected teeth and treating the tooth-sockets. Dry pyorrhoea is also a clinical entity. At the Odontological Section of the Royal Society of Medicine, in 1914, Sir Thomas Horder gave an illuminating description of a case of pyorrhoea:

> "In the routine examination of a patient's mouth, the other day, I uttered a mild warning as to persistence in a thorough toilet of the teeth, giving the advice almost casually, because the degree of mischief present was small. To my surprise the patient became quite excited, and began to protest that, whatever else was amiss, it was quite impossible *he could* have anything wrong with his teeth. Urged for a definite reply to this challenge, I examined carefully again, and was quite sure of the presence of pyorrhoea. Whereupon the cause of the excitement came to light in the form of the announcement that *the* authority *on* the treatment of pyorrhoea had, only the day before, declared that a long course of treatment might now be considered at an end, *seeing* that the mouth was quite free from the disease. Nothing could satisfy the patient except the opinions of two independent dental surgeons, both of whom, unfortunately for the patient's belief in human nature, found undoubted pyorrhoea present."

2. Apical abscesses are a more frequent cause of ocular change even than pyorrhoea. The term "apical abscess" is a bad one because pus is not always obvious, and especially because there is no pain. When a tooth with an apical lesion is extracted a mass of solid granulation tissue is found adherent to the apex, which contains pathogenic streptococci and necrotic substances with very few leucocytes. From these apical abscesses there is a constant flow into the blood stream of either virulent streptococci or their toxins, and the anatomical position of the lesions prevents an adequate supply to the part of leucocytes and bactericidal body fluids. When it is remembered that with each bite of the jaw, which has an average pressure of seventy pounds to the square inch, bacteria and their products are pumped into the circulation, it cannot be wondered at that so many ocular and general diseases are rightly attributed to the teeth.

The frequency of the occurrence of apical abscesses is not yet realized by the medical profession. I have only recently appreciated this frequency after studying statistics of my private patients. The reason that the clinical material was taken from private patients was that among hospital patients gross oral sepsis is generally recognized to be the rule rather than the exception. I took two consecutive series of patients, the first of 100, and the second of 50 persons. Of the first series 52 per cent. were under 40 years of age, and of the second series 46 per cent. All the patients had full vision in each eye with glasses, all other patients with less acuity of vision being omitted from both series. The majority of the patients belonged to the upper middle class and were quite able to obtain skilled dental attention, which indeed most of them had had. In the first series 22 per cent. were found to have radiographic evidence of one or more apical abscesses, and in the second series 10 per cent. In most cases this was verified by extraction, which is, of course, the only treatment for the condition. However, one titled and wealthy lady, who had five teeth certainly affected with abscesses, as well as two others in which there were apical changes, possibly due to abscesses, refused to consult either any family doctor or dentist about her condition. She had no pain and I suppose her blood resistance was good. I may mention that she also had proptosis of one eye, for which radiography of the skull and sinuses revealed no cause.

3. The septic stumps of teeth which have been broken off about level with the gums frequently have an abscess at their roots. This condition, while very common among hospital patients, I have also found among 10 per cent. of my private patients.

4. Buried fragments of previously extracted teeth very frequently give rise to toxic absorption. They result from difficult extractions, but should, of course, be immediately recognized as left by the dental surgeon, who should carefully examine the apex of every tooth removed to see that it is entire. Should an apex be left, and should it be impossible for it to be at once removed, it ought to be extracted at a subsequent operation; 4 or 5 per cent. of my private patients were found to have buried fragments present, although all of them were under regular examination by reputable dental surgeons.

5. Unerupted impacted teeth were found by radiographic means in 5 patients out of 33 who were radiographed in my above-mentioned series of 100 cases. The impacted teeth were usually the third molars, sometimes the upper canines. In *The Dental Cosmos* for May, 1929, Ito has shown that in 8 out of 10 cases in which impacted third molars were extracted with aseptic precautions a growth of *Streptococcus viridans* or *pyogenes* was obtained from cultures from the pulp chamber.

It may be taken, therefore, that all impacted teeth are infected. Certainly every case which I have examined has shown evidences of ocular infection. Unfortunately the removal of an impacted tooth is a serious operation, and can only be undertaken by a specially skilled oral or dental surgeon.

6. Residual sepsis or bone infection may be indicated in a dental radiograph and may be confirmed when operation is undertaken to scrape away the diseased area. I have more than once found this condition to be responsible for intractable corneal ulceration.

The above are the more common conditions of dental sepsis which I have found to give rise to ocular changes.

In many cases active ocular inflammation has subsided after dental treatment has been undertaken. I wish it to be particularly noted that in no case of mine have extractions been advised unless a dental surgeon has considered these necessary on purely dental grounds.

Sometimes, and not infrequently, it happens that some ocular change exists which may possibly depend on dental sepsis, but, the patient declaring that he is edentulous, this cause seems impossible. A lady of 32 years of age whom I saw recently in private consultation told me that she suffered from lacrymation. On examination under cycloplegia she was found to be emmetropic, and no ocular disease was found except slight macular hyperaemia. Her only remaining teeth, she told me, were the lower central and lateral incisors. With some hesitation I asked her to remove her upper and lower dentures, when I saw that she had a small septic stump just showing in her upper jaw. This was evidently the cause of the condition, as after the removal of the stump her lacrymation was cured without ophthalmic treatment. In other edentulous patients dental sepsis may still be present owing to the presence of buried fragments of previously extracted teeth or owing to residual sepsis of bone.

Far short of the varieties of dental disease which I have mentioned even the accumulation of a very moderate amount of tartar on the teeth may lead to iritis. I saw a patient at the Royal Eye Hospital recently with an attack of iritis in the left eye. After detailed clinical and pathological investigation no local or general condition was found which could account for the inflammation. On the chance of there being some dental complication present which I had not sufficient knowledge to detect, I sent him for examination to Dr. Livingstone of King's College Hospital dental department, who found oral sepsis resulting from deposition of tartar. The patient's teeth were thoroughly scaled, and within a week the inflammation of the iris had subsided.

Although I have laid considerable stress on dental sepsis as associated with eye disease, and in many cases as being the sole cause of the condition, it is by no means the only cause. Gastric and duodenal ulcer, and inflammations of the gall-bladder or appendix may give rise to ocular changes, but these ulcers and inflammations are usually attributed to dental sepsis, which may be active, or which may have been previously present but has been eliminated.

It may be considered that I am speaking at unnecessary length on the dental question, but I am doing so because ophthalmic surgeons usually have little acquaintance with the groundwork of dental science. I had as little acquaintance as any other until the days of my out-patient clinic at Westminster Hospital coincided with those of the dental surgeons, Mr. Bowdler Henry and Mr. Lawrence, who gave me the greatest assistance in examining the teeth of the ophthalmic patients under my care, and in explaining to me some of the elementary facts of dental surgery. I also received great assistance from Dr. Livingstone for my cases from the Royal Eye Hospital.

In children the teeth are only occasionally the cause of ocular changes. But the tonsils are a frequent cause. It does not require great knowledge to note enlargement of the tonsils, though the expert advice of a throat surgeon may be required to decide as to whether or not they are actually septic. It frequently happens that when an operation for removing the tonsils is performed, it is found that they are much more septic than the throat surgeon supposed. It is also within my experience that one surgeon may believe the tonsils to be about normal or perhaps a little enlarged, and that another surgeon will operate and find pus in them.

Focal sepsis centred in the intestinal canal, the female pelvic organs, or the male genital organs is very difficult to eradicate. Time will not allow me to refer to these causes in further detail.

Organic Resistance to Toxic Effects.

At the International Congress of Military Medicine, held in May of the present year in London, a very interesting communication on the state of the teeth in relation to physical fitness in the different military services was read by Surgeon Lieut.-Commander Wood, with Captain S. H. Woods and Lieut.-Colonel Colbran of the Army Dental Corps.

"Our masticating organ is different from any other organ of the body in one respect. It may retain its normal functional efficiency for a very long period concurrently with extensive and injurious pathological changes in its tissues. Pyorrhoea alveolaris, involving all or many of the teeth in a mouth, may be present for years, and may cause widespread constitutional symptoms, but the functional efficiency of the teeth will only be affected by their progressive loosening or tenderness. Again, apically infected teeth may be conserved and rendered fully functional and apparently healthy for many years, yet, as a result of such conservation, there may be constant absorption of toxic products from the infected apical tissues, producing distant systemic lesions.

"The term 'dental sepsis' implies infection of the tissues immediately in contact with the teeth, starting in the periodontal membrane. This membrane is either infected externally, via the gingival trough, or internally, via the apical foramen.

"The external affection of the periodontal membrane produces conditions which we may group as 'open' dental sepsis, for there is communication between the mouth and the infected tissues. Chronic gingivitis and pyorrhoea alveolaris are obvious examples.

"Infection via the apical foramen produces changes of the periapical tissues grouped under the heading 'closed' dental sepsis, as the condition is confined.

"The infection always involves the adjacent alveolus because of the anatomical relationship. The infection is generally a low-grade one, and the organisms are chiefly the *viridans* group of non-haemolytic streptococci.

"The involved tissues are invisible, and the condition may be present for long periods without necessarily causing any local symptoms.

"Once dental sepsis is established in the masticating organ the effects produced on general health will depend on the interrelation of four main factors:

"(1) The virulence of the infective organisms—that is, the intensity of attack.

"(2) The volume of toxins absorbed—that is, the extent of the attack.

"(3) The time-factor—that is, the duration of the attack.

"(4) The resistance of the body—that is, the defence."

The resistance factor is extremely important. Fortunately for those who have devitalized and crowned teeth in their jaws their resistance is often good. From my experience I should say that radiographic examination would show that about 20 per cent. of persons with one or more crowned teeth have one or more apical abscesses. All of these would show ophthalmoscopic changes as the result.

It may, of course, be asserted that the association of severe dental sepsis with unmistakable ocular changes is a coincidence. The reply is that the association is constant. These ocular changes, which will be described later, may be produced by any form of focal sepsis, dental, tonsillar, due to sinusitis, or intestinal, and at present the causative varieties of sepsis cannot be differentiated one from another by the ocular effects.

The Path of Infection from Foci of Sepsis to the Eye.

There are three paths whereby the products of focal sepsis may reach the eye: the first is by direct extension, the second by lymphatic absorption, and the third by deglutition of the products of tonsillar or dental sepsis and their subsequent absorption from the alimentary canal.

1. The effects resulting from direct extension may occur from sepsis situated either in the mouth (in open dental sepsis), tonsils, nasal mucous membrane, or accessory nasal sinuses. The effects produced may be blepharitis, inflammation of the Meibomian glands, including both acute and chronic tarsal cysts, ordinary conjunctivitis, acute and chronic, phlyctenular conjunctivitis, episcleritis, corneal ulcer, dacryocystitis, and orbital cellulitis.

2. The effects resulting from lymphatic absorption occur in closed dental sepsis, chronic tonsillitis, and chronic inflammations in any part of the body. These effects may be those mentioned in the previous paragraph, also iritis, cyclitis, some forms of choroiditis and retinitis, embolism or thrombosis of the central artery of the retina, and thrombosis of the central vein of the retina or of one of its tributaries. I have no doubt that acquired non-traumatic cataract has its inception in focal sepsis.

3. The effects produced by deglutition of septic material and its absorption from the intestinal canal may occur in any inflammation of the mouth, nose, or pharynx. They do not differ from those enumerated in the preceding paragraph.

Ocular Diseases Associated with Focal Sepsis.

Blepharitis of a severe degree is not infrequently associated with enlarged and septic tonsils in children. I have also seen it in a child of 6 years in whom practically all the teeth were carious. In adults it is usually an accompaniment of open or closed dental sepsis. If the causative condition is dealt with, and a little ointment applied to the lids, the condition usually subsides permanently. If there is any marked ametropia it may be corrected. It is, however, in my opinion, a mistake to correct small degrees of ametropia in children who are suffering from blepharitis and leave the causative tonsils untreated.

In the time at my disposal it is impossible for me to narrate details of clinical cases in support of my arguments. I have published elsewhere reports of numerous clinical cases bearing on the subject. I should like, however, to tell you more particularly of one of the most grateful patients I ever had, whom I put in the way of getting cured not only of blepharitis, but of a distressingly poor complexion.

This was a young married lady of 25, who was sent to consult me by a physician on account of severe blepharitis of recent onset. She had glasses for occasional use prescribed by an ophthalmic surgeon, which on careful examination were found to be practically correct. She had slight hyperaemia in the macular regions of both eyes. With the slit-lamp fine dusty clouds were seen with the naked eye in the vitreous, and microscopically opaque fibrils. Dental radiographs were obtained which indicated the probable presence of apical abscesses in upper left 4, and lower left 5, both of which had filled roots. The patient was advised to see her usual dental surgeon, and to submit the radiographs for his opinion. The dentist immediately removed the crowned teeth, and subsequently on his own initiative another dead tooth. I saw the lady recently, when she had no blepharitis, and a natural complexion without any of the spots which had previously spoilt her good looks.

Meibomian cysts are almost invariably associated with dental sepsis, whether in hospital or private patients. The cyst should be dealt with surgically and the dental sepsis eliminated. I recognize no connexion between cysts and errors of refraction, though they frequently coexist.

Several forms of *conjunctivitis* of a chronic variety, including angular conjunctivitis, may be caused by dental or tonsillar sepsis.

Phlyctenular conjunctivitis in children is usually associated with enlargement of the tonsils. When the tonsils have been dealt with surgically, and the child has recovered from the toxaemic condition produced by the absorption of toxic products from the tonsils, the phlyctenules disappear, aided, of course, by appropriate local treatment.

Episcleritis is almost invariably associated with open or closed dental sepsis. If the ocular condition is observed at an early stage, and the dental condition is adequately dealt with, the episcleritis rapidly disappears. On the other hand, if the condition is of long standing it is very intractable, even though the oral cavity is rendered healthy.

Corneal Ulcer.—The treatment of ulceration of the cornea has been immensely improved since I and my assistants realized the frequency with which the condition is associated with focal sepsis. Our experience shows that it is more commonly met with in the out-patient department of a London hospital in people over 30 years of age and more frequently in men than in women. There is usually a history of some slight injury preceding the onset of an inflammatory condition. Examination of the mouth in almost every case shows the obvious presence of some form of open dental sepsis, from which there is a constant flow of pyogenic organisms to the conjunctival sac. Also in these cases there is a great deal of absorption of toxic material by the lymphatics of the mouth, and after deglutition by the lymphatics of the intestine, which renders the cells of the conjunctiva and cornea less able to deal phagocytically with the ordinary flora of the conjunctival sac. These organisms flourish on, in, and between the superficial cells of the conjunctiva, and cause erosion of the bared corneal tissue. It is necessary to arrange for such a patient to obtain skilled dental treatment the same day or within twenty-four hours if the ulceration is to be checked and the local treatment is to be effective. Merely to advise such a patient to seek dental treatment, either privately or at a hospital, without making immediate and adequate arrangements for this to be obtained, is insufficient. At the two hospitals where I carry on ophthalmic clinics I can be sure that most skilled advice will be given either the same day or the next day, and that the dental treatment, whether it is merely the removal of tartar and general cleansing, or whether it entails the extraction of one or more teeth, will be carried out forthwith.

Dendritic ulcer is peculiarly associated with dental sepsis, and is as often met with in private practice as in hospital work. The patient's whole mouth should at once be radiographed in order to determine the extent of the periodontitis if present, and to detect the possible presence of apical abscesses. The patient should then see a dental surgeon without delay, taking the radiographs and a letter from the ophthalmic surgeon explaining the importance of the ocular condition.

Dacryocystitis is usually associated with one or other form of dental sepsis, and is, I believe, frequently caused by this condition. It is not the case, however, that elimination of the dental sepsis results in a cure of the dacryocystitis without surgical intervention.

These conditions which I have just discussed—blepharitis, tarsal cysts, some forms of conjunctivitis, episcleritis, corneal ulcer, and dacryocystitis—are more usually caused after lymphatic absorption of toxic material than by direct extension. A bacterial culture from the conjunctiva rarely shows the same organism as that from the primary focus of sepsis.

Experience has shown that, for practical purposes, it is immaterial what the organism is which is found on the lids or conjunctiva, as the treatment is the same in all cases—that is to say, the immediate elimination of the primo focus, as far as is possible, and frequent irrigation or bathing of the eye with a slightly hypertonic salt solution. It is important that the eye shall not be occluded with a pad and bandage and allowed to stew in its own juice. Of course, if necessary the pupil will be kept dilated.

Iritis may result from either open or closed dental sepsis, from tonsillitis, and from other forms of focal sepsis. I have already mentioned the case of iritis which subsided a few days after tartar had been removed from the teeth. Much more serious inflammation of the iris is sometimes met with, in which the most careful general, physical, and chemical investigation indicates no possible cause except some form of focal sepsis, and when this is eliminated the iritis often subsides in early cases.

Cyclitis, either alone or in combination with iritis, as is well known, may be, and generally is, the result of focal sepsis. It is of the greatest importance to find and eliminate the focus as early as possible, as when the disease has taken a firm hold of the eye, owing to the constant and long-continued action of the toxins, it is difficult or impossible to eradicate. In these cases there may be more than one focus at work. I have two cases under treatment at the present time in which there was definite closed dental sepsis, revealed radiographically, and also severe tonsillar sepsis, according to expert opinion. Therefore, although one focus may have been found, it must not be taken for granted that it is the only one present in the body, nor the only one producing toxic conditions.

It may be, however, that although there are several foci of sepsis present, only one of them is actively harmful.

In one of the cases of cyclitis I have just mentioned I obtained the opinion of a throat surgeon, who said that the tonsils were enlarged and septic, and in his opinion they should be enucleated. Radiographs showed a well-defined apical abscess under the left lower second, and an unerupted impacted right lower third molar. The dental surgeon, to whom I sent the patient with the radiograph and my ophthalmic report, agreed with the probability of there being an apical abscess, and said that there were two others which were dead, which, in view of the patient's ocular condition, would be better out. As regards the impacted molar, he stated that the radiographic appearance was that the bone around the tooth was infected, and that an operation should be carried out for its removal. The patient, with my sanction, took the opinion of a general surgeon on the advice he had received, which was that it was very advisable that the affected and dead teeth should be removed, and that the tonsils should be enucleated. However, the patient, a city merchant, pleaded the importance of his private affairs, and merely consented to have the abscessed tooth removed under local anaesthesia. A few days after the operation the deposits on the back of the cornea increased considerably; a week later they had diminished so much as only just to be visible to the naked eye; while after three weeks had elapsed the condition was apparently cured.

In this case it appears that, although several sources of sepsis were present, we hit on that causative of the ocular condition, and eliminated it with happy results.

Any discussion as to the relationship of certain forms of choroiditis and retinitis, of embolism or thrombosis of the central artery of the retina, and of thrombosis of the central vein or of its tributaries to various forms of focal sepsis, I must leave to others. I have seen examples of each of the above-mentioned conditions during the past year, and in each of them a fulminating focus was present in the body which in my opinion bore an etiological relationship to the ocular condition. As there is no known means of influencing such embolism or thrombosis, it is clear that elimination of the focus, which was undertaken whenever possible, could not prove the relationship by curing the condition.

Hyperaemia of the retina at the macula, unaccompanied by other fundus changes, is very frequently found to be present in conditions in which toxic products are being poured into the circulation. It is usually accompanied by changes in the vitreous, and sometimes by changes in the lens. If the toxaemia continues, pigmentary changes or definite degeneration occurs. It is remarkable that some patients with very obvious degenerative changes at the macula retain full visual acuity.

Changes in the vitreous invariably accompany any long-continued focal sepsis. The normal vitreous in children who are completely healthy and who have never suffered from tonsillar sepsis has no opacity to be seen by the slit-lamp, except vestigial filaments. The change due to sepsis is a naked-eye floating film, while microscopically a trabecular structure can be made out. This condition is stated in the books on slit-lamp microscopy to be normal; however, I believe it to be pathological.

Cataract is the term applied to any opacity of the lens or its capsule. Such opacity may be congenital, acquired, or traumatic; the present remarks apply only to the acquired variety. The frequency of cataract is not fully appreciated. I have published two series of cases which show that 33 per cent. of patients drawn from the upper and middle classes have opacities in the lens, as seen by ordinary focal illumination, while an additional 12 per cent. exhibit opacity when the slit-lamp is used. These series were composed of patients of whom 50 per cent. were under 40 years of age. In practically all these patients an obvious focus of sepsis was found.

In all the complete cataracts that I have examined during the last few years in hospital practice there has been either actually present or previously present a definite focus of sepsis, more often situated in the mouth than elsewhere. In the forthcoming volume of the *Westminster Hospital Reports* I have written an article on my views of cataract formation, which it is impossible even to summarize here. I may say, however, that it has been shown experimentally that certain toxic conditions can give rise to cataract. Modern ophthalmic literature states that changes in the lens are the result of the action of various toxic substances, produced by the body, on the ciliary processes, resulting in changes in the composition of the aqueous, which in turn injures the epithelium of the anterior capsule of the lens, allowing the entrance of substances which cause cataract.

I believe that the most important cause of cataract formation is the presence of long-continued focal sepsis, generally dental. Therefore it appears to me to be of the greatest importance to recognize in our patients as early as possible the slightest opacity in the peripheral cortex of the lens, to deduce from it the probable presence of a septic focus, to localize the focus, and to put the patient in the way of getting the focus eliminated.

If this was generally carried out very few cataracts would be available for operation in another ten or twenty years' time. However, as long as the ordinary well-to-do person insists on retaining septic teeth in his head, dentists will be found to patch them up and crown them, and we operating ophthalmic surgeons will still have a future before us.

On the day of writing this (May 21st) I saw at Westminster Hospital a girl, 17 years of age, with marked peripheral opacities of both lenses, which would have been called typically senile had the patient been thirty years older. It was what is known as a coronary cataract. The vision with correction for a small degree of myopic astigmatism was fully normal. On inquiring into her history she said that she had never had sore throat, but had had one or two teeth removed which had been defective. On examining her throat she was seen to have obviously enlarged and septic tonsils, for which surgical treatment was advised. In this case the lenticular changes, which would not have been discovered unless the pupils had been dilated with homatropine, may have resulted from septic absorption either from previous dental sepsis, or more probably from the existing tonsillar sepsis. These coronary cataracts cannot be mistaken for congenital opacities, situated as they are in the cortex of the lens.

Primary glaucoma, both acute and chronic, has been stated by Lang to owe its origin to focal sepsis in many cases. In all the cases of primary glaucoma which I have seen during the last few years I have not seen one in which there was not a fulminating focus of sepsis.

Progressive myopia in children, in my experience, is always associated with enlarged and septic tonsils. It seems to me that the whole weight of the ophthalmic surgeon should be thrown in favour of early enucleation of the tonsils if they are not healthy, whether or not the fibroblasts of the sclerotic have already begun to yield to the normal intraocular pressure, as the result of their weakening by the absorption of toxic products.

The effect of focal sepsis on intraocular operations is very marked. This is true of children with septic tonsils who have to be operated on for congenital or lamellar cataract, or for adults with dental sepsis who require operation for cataract or glaucoma. In all cases of adults, when time permits, a thorough scaling of the teeth should be carried out before any of the teeth are extracted, and an interval allowed to elapse before the intraocular operation is done. If there is not time for this the ophthalmic surgeon can, in a somewhat amateur fashion, diminish the danger by the daily application of tincture of iodine to the gums and necks of the teeth, after thorough scrubbing with brush and powder.

Conclusion.

In concluding I realize that I have been unable to deal with this subject fully or adequately. However, such opinions as I have expressed are based on personal experience. At the hospitals where I and my assistants carry on our clinical work during four days each week, it is open to any ophthalmic surgeon to see what is being done, and to note the results we obtain from an acute appreciation of the dangers of focal sepsis.

EPIDERMAL INFECTIONS WITH YEAST-LIKE ORGANISMS;

With Special Reference to Seborrhoeic Eczema.*

BY

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Knowledge concerning the group of epidermomycoses occurring in England, and, generally speaking, northern and temperate climates, caused by organisms resembling yeasts has grown enormously during the past ten to fifteen years. It is a group that has emerged from a heterodox assortment of dermatoses formerly named according to their chief objective symptoms—for example, intertriginous eczema, onychia, paronychia, etc. There followed a period during which it became known that in certain cases these dermatoses were caused by fungi—other, of course, than ringworm; but, generally speaking, the fungi were not precisely classified and were described generally as saccharomyces, or yeasts.

* A paper read in the Section of Dermatology at the Annual Meeting of the British Medical Association, Manchester, 1929

Nowadays, although the botanical position of these organisms is still obscure, *their morphology and biochemical characters* have been the subject of important studies by mycologists. The whole subject is, of course, vast and complex, and could not in any circumstances be presented by me in all its bearings. My object will be to attempt a *brief outline* of the facts regarding the epidermomycoses as they appear to me to concern the clinician especially. I will then attempt to bring another great group of common dermatoses into line with them.

The epidermomycoses are caused by one family of organisms only, known as the Oösporaceae. Although resembling yeasts morphologically, in that they are mainly round or oval bodies which multiply predominantly by budding, and biologically in that some of them ferment sugar, they really belong to a lower order of fungi than yeasts, inasmuch as their mode of reproduction is of the simplest order, ascospore and even endospore formation being unknown among them. They are, therefore, fungi *imperfecti* or *hyphomycetes*. They are classified by Castellani in the following way.

They belong to the order Thallosporales—that is, reproduction takes place by adaptation of the thallus or vegetative body to the purpose of reproduction. This order is again subdivided into the suborders Blasto-sporineae and Arthro-sporineae, to the former of which the yeast-like fungi belong. The characteristic feature of this suborder is that *reproduction takes place predominantly by budding*. The Blasto-sporineae are again divided into families of which two, Cryptococtaceae and Oösporaceae, contain the various genera concerned. Thus the family Cryptococcaceae contains the genera cryptococcus, torula, and, according to Castellani, *pityrosporon*. The chief characteristic of these genera is that they never form mycelium. The Oösporaceae possess genera in which mycelium is present either in the tissues or in culture. Oöspora, oïdia, and monilia belong to this family. According to some authorities this subdivision is artificial and unnatural, for it is well established that the morphology and even the biochemical characteristics of the fungi imperfecti may *undergo certain changes under different conditions* of growth, both as parasites and in culture. A fungus which might, for example, in certain conditions be classed as monilia might appear, under other conditions, as a cryptococcus, or vice versa.

The yeast-like organisms responsible for the epidermomycoses belong chiefly to the genus monilia, of which the definition given by Castellani is as follows: They are Oösporaceae *possessing budding and mycelial forms in situ*, the latter often being long and branched, and in culture mainly budding forms. Dextrose and other carbohydrates are fermented with the production of gas. The most important species is the thrush fungus, *Monilia albicans*, but there are many known species which have been differentiated from one another by biochemical tests.

In clinical practice *examination of scales taken from a* monilia infection generally shows very long, thin mycelium, with occasional lateral thallospores and grape-like clusters of spores arranged lateral to the mycelium. It is not possible to distinguish between one species and another without making biochemical tests. As parasites, the fungi grow best on moist intertriginous surfaces, and the dermatoses caused by them are found chiefly in the natural folds—principally the inguino-crural, intergluteal, submammary, interdigital, and the nail folds. They may also attack the general surface when warmth and moisture are artificially provided, as in continuous water-bath therapy, or as an extension of an intertriginous monilia infection, or when the necessary conditions are naturally provided—for example, by the combination of warm weather and hyperidrosis, certain cases of dysidrosis, for instance, being caused by monilia. The nails may also be attacked.

Space will not permit me to attempt a chronological statement of the earlier recorded cases of monilia infection, and, in any case, this task has already been very well performed by others. Shelmire, for example, made an excellent summary of the subject in 1925, with a complete bibliography. In his paper he refers to all monilia infections as thrush infections. He draws attention to *six main types of infection*: (1) generalized cases occurring in those subjected to continuous water-bath therapy; (2) cases occurring in nursing infants; (3) intertriginous cases; (4) paronychia; (5) infections of the nails; (6) dysidrosiform eruptions. The continuous water-bath cases are known especially in Vienna. The primary efflorescence is composed of dark red infiltrated papules, which become confluent and form areas of polycyclic appearance. As in all cases of monilia infection, the site of maximum growth of the fungus (in this case the border) is marked by a whitish epithelial accumulation.

Thrush infection in nursing infants is not very uncommon. As R. Craik points out, the thrush fungus is a fairly common inhabitant of the alimentary canal of infants. The lesions occur primarily round the anus and in the inguino-crural region in the form of intertrigo, and sometimes spread to other folds, notably the neck; the lesions, as in other cases of monilia infection, consist of erythemato-squamous spots and patches, which become confluent with others. Some of them may be vesicular or pustular. An extensive fatal case has been described by Schamberg. The mother of the infant in this case also had thrush infection of the nipples.

Intertriginous monilia infections are not at all uncommon and are now well recognized. Whitfield reported one of the earliest cases in 1908, describing the fungus as yeast-like. In 1914 cases were recorded by Gougerot and Gaveia, and Hudelo and Montlaur. They recognized the causal fungus as being closely related to thrush. The folds principally attacked are the intergluteal, inguino-crural, submammary, and interdigital. The characteristic features are: whitish and sodden epithelial accumulation at the bottom of the affected fold with an outlying erythemato-squamous eruption, beyond which isolated scaly spots, vesicles, and pustules are usually found. Generally speaking, they lack the sharp outline of epidermophyton infections, and the actual fold is more attacked than in the latter disease. In some cases, however—for example, one described by Engman—no clinical distinction can be made. I had recently a very typical case, in which the patient, in addition, had suffered from seborrhoeic dermatitis for several years. The fungus was easily found in the scales from the erythemato-squamous spots, and epithelial accumulation in the fold by the ordinary method of examining in liquor potassae.

A special type, of which the clinical picture is well recognized, is the erosio interdigitalis blastomycetica of Fabry. The third interdigital space is usually attacked first. The lesion has a sharp margin and is covered with sodden macerated epidermis, which may be detached to display an underlying reddened base. It occurs chiefly among those who have to do wet household work and who have hyperidrosis. When it occurs on the toes it is difficult to distinguish it from interdigital epidermophytosis. In a case of my own the fungus was cultivated in the laboratory at St. John's Hospital for Skin Diseases, and a living culture was planted in another interdigital space after lightly scarifying. A group of erythemato-squamous papules was produced exactly similar in appearance to the spots which often outlie the intertriginous lesions. I have performed similar experiments on several other cases in which monilia has been discovered in scrapings and subsequently cultivated. In all cases inoculation has produced erythemato-squamous spots, but never vesicles or pustules. The artificial lesions have always cleared up without treatment within two or three weeks. It is, no doubt, impossible to produce the exact conditions which are present in the disease as it occurs naturally, and the short duration of artificial lesions is no argument against the pathogenicity of the organism.

Monilia is an important cause of dysidrosiform eruptions on the hands and feet. These usually occur in association with sodden interdigital erosions, but not invariably. In a case of my own, that of a woman who suffered from a recurrent vesicular eruption on the palms and lateral aspects of the fingers with desquamating areas surrounded by a detached epidermal collar, monilia was found in the scales and cultivated. An artificial inoculation with

her culture produced squamous lesions similar to the desquamated areas.

I have no personal experience of monilia infection of the nails, and I believe it to be rare. I have read the cases, however, described by Pellier in 1914, and by Arit Scott in 1927. Pellier's case was that of a man in whom two of the nails on each foot were opaque, thickened, and friable. Microscopical examination showed very rare mycelial elements and an abundance of large globular and oval spores. The fungus was grown on maltose agar and submitted for an opinion to Professor Vuillemin, who pronounced it as being closely related to *Endomyces albicans*. Arit Scott's case was very similar—that is to say, the nails were opaque, thickened, and friable, resembling, in fact, ringworm infection, but a microscopical examination of the nails and subsequent culture showed it to be monilia.

Cases of mycotic paronychia in which monilia may be found in the pus exuding from the nail fold are now no longer regarded as rare. The essential characters are painful inflammation and bolster-like swelling of the nail folds, exudation of pus from beneath the fold, and in cases of long duration more or less distortion of the nail itself. They occur chiefly in those whose occupations necessitate frequent immersion of the hands in water. The first cases were reported in German literature, and following this several have been described in America and in England.

Shelmire reported a group of cases and experimented on himself with the organisms which he isolated. He inoculated a fresh culture beneath his own nail fold and noted that in twenty-four hours the fold became swollen and tender; acute paronychia developed within four days. The artificially produced condition cleared up within a fortnight. Kingery and Thienes reported a group of cases occurring in the fruit-canning industry; they performed the same experiment on themselves, with the same results. On account of their rapid recovery these authors did not consider their experiments to be positive evidence of the causal relations of the organism to the condition. In view, however, of the similar experience that others have had with regard to the short duration of the lesions produced by artificial implantation of this type of fungus, I believe their pathogenic rôle may be accepted in these cases of paronychia.

I now pass to the more controversial side of this subject—namely, the nature of the spore of Malassez and the part played by it in the common group of dermatoses named by Unna seborrhoeic eczema, by Brocq psoriasiform parakeratoses, by Darier eczemitides, and in England generally known as seborrhoeic dermatitis. I do not propose to attempt a detailed description of the clinical features of this common disease, which, in any case, is well known to us all in its typical manifestations, although I think everyone will agree that cases occur in which the diagnosis may be extremely difficult.

The starting point of seborrhoeic dermatitis is almost always the scalp, which is found to be the site either of the disease itself or of a well-marked degree of dandruff. If a dandruff scale is stained with methylene blue or Giemsa, the fungus known as the spore of Malassez, or pityrosporon of Sabouraud, or flask bacillus of Unna, is readily seen in groups consisting of spores of various shapes and sizes, of which the commonest is the flask-shaped form consisting of a large oval or round body giving off a small roundish process suggesting a budding yeast. Spherical and sausage-shaped forms are also found in sizes ranging to 3.7μ in length by 2.6μ in breadth. Unna believed that the fungus was the cause of pityriasis of the scalp, or dandruff, and that in combination with another organism, which he named the morococcus, it was also the cause of seborrhoeic eczema. His view was that the scales fell from the scalp to the neck, face, chest, and back, and in seborrhoeic subjects gave rise to the disease. This is the view which has been held almost universally up to the present. Unna further expressed the opinion that only by culture of the fungus and artificial reproduction of the disease could its etiology be definitely established. The precise nature of the morococcus is still the subject of various opinions, but, generally speaking, it is regarded as a species of staphylococcus.

For many years attempts have been made to cultivate this fungus, and although fungi resembling yeasts have been grown both from dandruff and from seborrhoeic eczema, few claims have been made that the fungus grown was the actual spore of Malassez. The prior claim to this distinction is that of Mr. W. G. Garner, assistant in the pathological department of St. John's Hospital. He claimed to have cultivated the fungus from dandruff as early as 1908, using maltose agar and acid glycerin agar. Dr. J. M. H. MacLeod and I published, in 1928, an account of the method he used, the morphology and biological reactions of the fungus, and the results of some experimental inoculation in human beings. Templeton cultivated the fungus on beer-wurt agar in 1926. Acton and Panja claimed to have grown the fungus in 1927. Finally, far-reaching claims are made by Benedek with regard to the fungous etiology of the disease. In a recent publication Benedek entirely refutes all claims made in the three publications first mentioned, and states that he alone has succeeded in finding the fungus responsible for the disease and its cultural requirements, and, further, that this organism is not the spore of Malassez, which he regards as a harmless saprophyte, but an ascomycete—in other words, one of the higher fungi.

I will now summarize briefly the observations of each of these writers.

Benedek first grew his organism in 1926; he found its cultural requirements to be 8 per cent. glucose agar, glucose 8, peptone 1, agar 2, distilled water 100. The fungus grew best at a temperature of 27° C. It is grown by inoculating a quantity of material, preferably dandruff, on to the medium. He says that he is able to identify it in the scales of pityriasis of the scalp and seborrhoeic dermatitis in liquor potassae. He describes the organism as a schizo-saccharomyces, because it multiplies by fission rather than by budding. Its elements vary in size between 4.5 and 1.5μ. It is a very pleomorphic organism, and alters a good deal in appearance in old cultures. Short mycelial rods, and elements which he describes as spindle giant cells, often develop after six to eight weeks. He describes asci among the elements, and therefore regards the fungus as an ascomycete. Benedek regards this fungus as the sole cause of pityriasis of the scalp, of seborrhoeic eczema, acne, seborrhoeic rosacea, and, in several cases, of sycosis—admitting, of course, the existence of secondary infection (staphylococcal) in the last-mentioned disease—of certain axillary and pubic abscesses from which he has obtained pure cultures, and of some cases of submammary and axillary intertrigo. He disagrees with Haxthausen and Sabouraud that the pityriasic inflammatory lesions found on the face in children are of streptococcal origin, and considers that the streptococci found are only secondary invaders. He goes, however, much further than this and states that his fungus is the cause of seborrhoea itself. He considers that the words seborrhoea, seborrhoeic eczema, and pityriasis should be given up, and that these conditions should henceforward be called schizo-saccharomycosis. He claims a cure for seborrhoea itself by a vaccine made of his organism. He has been able to cultivate it from the blood, in one case of pityriasis capitis, in seven cases of seborrhoeic eczema, in sycosis twice, and in seborrhoeic rosacea and pityriasis rosea once each.

He believes that the schizo-saccharomyces is never a saprophyte, but is spread from person to person by contagion, especially from barbers' hairbrushes, from which he has invariably succeeded in making cultures, and from parents to children, thus explaining family and hereditary instances of seborrhoea and acne. He regards the scalp as a breeding ground for the parasite, and considers that it acts chiefly through its toxins, the organism responding with two pathological appearances: (1) a very marked eruptive inflammation, (2) fatty degeneration of the tissues. The last is held responsible for seborrhoea.

He produces as proof of the pathogenicity of his organisms the following experimental findings: (1) a positive complement fixation test in all cases of pityriasis or of seborrhoeic eczema; (2) production of papules and in some cases pustules by the killed organism or by its filtrate; (3) cure of cases by vaccine; (4) agglutination tests; (5)

reproduction of the disease by implantation with subsequent recovery of the fungus from the artificially produced lesion.

He describes the result of inoculation as follows: On the sixth day the place is covered with a dry crust; in eleven days scaling is present; nine days later the inoculated part still shows fine scaling. The experiments were made only on those already suffering from seborrhoeic eczema. Benedek thus regards his schizo-saccharomyces as the cause of seborrhoea and of all its complications. His organism, he says, is not the spore of Malassez, and has nothing whatever to do with it. He claims, in fact, to have found the spore of Malassez growing with his organism as a contamination.

Acton and Panja, working in India, claim to have grown the spore of Malassez on Petroff's glycerinated medium, coloured with gentian violet to inhibit the growth of staphylococcus. On this medium the primary cultures appeared as dry chalky white colonies. They gave no account of the morphology or biological reactions of the fungus that they cultivated. Like Benedek, they believe that a fungus is the cause of seborrhoea and of all its complications, but they regard the spore of Malassez as the causal fungus. They also consider that the toxin of the fungus is responsible for hyperactivity of the sebaceous apparatus, which, they point out, is not a true secretion but a speeding up of a degenerative process.

Templeton's method of cultivating the fungus was to comb scales from the scalp with a sterile comb either into a sterile Petri dish or directly on to the medium. Slight but undoubted growth occurred round the scales. Templeton's paper was illustrated by photographs showing round, oval, and some dumb-bell shaped spores obtained from the cultures. He gives no further morphological description.

In 1927 and 1928 MacLeod and I made some observations on the morphological and cultural characteristics, and the pathogenic properties of the organism cultivated by Garner. These observations have already been published, and I will do no more than summarize them as briefly as possible.

The fungus is cultivated from dandruff by scraping scales with a sterile knife on to a sterile watchglass and then planting them on maltose agar, acid glycerin agar, or in oleic acid glucose broth. The formulae are as follows:

Maltose agar:

Agar	1.8
Granulated peptone	1
Chassaing maltose (brut de chanut)	4
Distilled water	100

Acid glycerin agar:

Agar	1.5
Peptone	2
Glycerin	2
Distilled water	100

Oleic acid glucose broth:
Peptone broth *plus* 1 per cent. oleic acid
1 per cent. glucose

On the solid media creamy white or slightly yellow colonies appear in three to four days, frequently contaminated by staphylococci from which they are separated by transplantation to fresh media. The organism is pleomorphic, exhibiting a marked variation in size and shape, with frequent budding forms. Mycelial filaments which are long and narrow and but little septated are found in the fluid medium. The fungus exhibits chemical activity in the presence of various sugars:

In galactose—acidity but no gas formed.
In maltose—acidity with slight gas.
In glucose—acidity with slight gas.
In saccharose, inulin, dulcite, raffinose, lactose, and mannite—no change.

Litmus milk is unaffected. No liquefaction is obtained in gelatin. These reactions differ from those of *Monilia pinoyi*. The elements of *Monilia pinoyi* also are larger on the average in size, and exhibit much less pleomorphism both in shape and size.

This fungus was inoculated after light scarification and by intradermal injection on to the skins of normal subjects, seborrhoeic subjects, and those already suffering from seborrhoeic dermatitis. In normal subjects the results were negative, the fungus when freshly cultivated from dandruff was always pathogenic and produced a group of small follicular papules after twenty-four hours to two or three days. These remained for about a fortnight and then disappeared. In seborrhoeic subjects the same lesions occurred, but in some cases they appeared more active than in normals, the papules being more numerous and irritable. In subjects suffering from seborrhoeic dermatitis the lesions were in some cases absolutely identical with those already present, the inoculated lesion spreading by the formation of fresh papules and clearing in the centre with desquamation. This suggested the existence of hypersensitivity of the individual towards the fungus. In each case the fungus was recultivated from the artificial lesion. In most of the cases the artificial lesions were short-lived, but in some cases they became well established and showed no more tendency to disappear than those already present.

On the strength of this evidence we believed that Garner's organism was in fact the spore of Malassez, and that this fungus alone was probably responsible for seborrhoeic dermatitis. We regarded the pyogenic organisms found constantly in association with the disease as secondary invaders.

More recently I have made comparative tests with monilias cultivated from cases of monilia infection and our fungus, and have observed that sometimes precisely similar lesions may be produced by the implantation of either species. In a case so treated quite recently the lesions not only resembled one another, but could not have been picked out from the rest of the disease, a very typical seborrhoeide. As the two fungi are very near relations, although differing morphologically and in biochemical activity, this result is not at all surprising.

Benedek recently, commenting on our work and that of Templeton, and of Acton and Panja, said that he did not regard any of the organisms described as the cause of seborrhoeic dermatitis, that none of them had anything to do with his organism, and that the value of our observations could be estimated by the fact that three observers had claimed to have cultivated the spore of Malassez, and that each described a different organism. I would like to answer this criticism without making any comparison at the moment of the properties of each respective organism. Acton and Panja gave no description of their fungus; Templeton grew very little fungus, and that which he described appeared to have the same morphology as that described by MacLeod. In any case, it is a well-recognized fact that in mycology the same species, when grown under different conditions, may undergo considerable alterations in morphology. For example, four well-differentiated species of ringworm fungi have recently been produced from one original species by variations in cultural conditions, so that in any case no absolute identity could be expected even if it were agreed that in each case the spore of Malassez had been grown. As Craik says, in an organism as variable as monilia, morphological distinctions are of little value.

The question arises as to what group these fungi belong. There appears to be no doubt that the fungus with which we experimented belongs to the monilia type of yeast-like organism, but that it is a different species from *Monilia pinoyi* and *Monilia albicans*, for example. Benedek describes his organism as a higher fungus, an ascomycete, for the reasons already stated.

I have recently had an opportunity of comparing this organism, through the kindly help of Dr. F. Reiss, professor of dermatology at Shanghai, and the courtesy of Dr. Benedek. Dr. Reiss, who had previously discussed Dr. Benedek's work with him, wrote to him and asked for cultures of his organisms for comparison with ours, a request with which Dr. Benedek kindly complied. Unfortunately, Dr. Reiss was not in England long enough to make any immediate comparison, but he gave me a subculture. This subculture has been examined in the pathological department at St. John's Hospital. I am indebted for the following report to Dr. MacLeod, Dr. Burford, and Mr. Garner.

The organism is unrelated to the spore of Malassez, and consists of:

Rods measuring from 3.5 to 4.5μ by 1.6 to 2.0μ. Occurring singly, spore bearing, motile, Gram-positive. The spores occur both inside and outside the bacillus.

Its cultural characters are as follows: The optimum temperature of growth is 27° C. and the maximum temperature 45° to

59° C. It grows well on ordinary sugar and glucose agar. It does not grow on Sabouraud's maltose agar at any temperature. On agar and glucose agar the growth is a pale yellowish tint. It also grows in broth and on potato. It liquefies gelatin with the production of a greenish tint.

Many sugars are fermented by it.

In raffinose, acid and gas are produced.
In inulin—negative.
In dulcite—negative.
In maltose, acid and gas are produced.
In mannite, acid and gas are produced.
In litmus milk—alkaline, no coagulation.
In salicin—negative.
In glucose, acid and gas are produced.
In saccharose, acid and gas are produced.
In lactose, acid and gas are produced.

Scales from seborrhoeic scalps have been planted out upon 8 per cent. glucose agar and incubated at 27° C., and this organism has been found in association with others.

Implantations after scarification have been made upon the skin, using the spore of Malassez as a control. At the end of fifty-six hours no lesions have appeared in the case of Dr. Benedek's culture, whilst the usual follicular papular lesion has occurred with the implantation of the spore of Malassez.

Dr. Benedek's organism appears to be a sporing bacillus, and unrelated to any yeast forms.

Benedek's claims are clearly too fantastic to gain any wide acceptance. He dispenses entirely with seborrhoea and with Darier's kerosis. In his opinion there is no hereditary element in seborrhoea, only an infection with a pathogenic fungus—that is to say, there is no pre-existent soil on which the fungus will thrive, but a soil that is made by the toxins of his fungus.

Further, from the observations made in the laboratory of St. John's Hospital, it would appear that the organism is not a yeast at all. Even if it were an ascomycete, as he claims, there exists no known pathogenic ascomycete, the only possible near relation to a true yeast being the blastomyces of Gilchrist.

Finally, he states that he regards the spore of Malassez as a harmless saprophyte. In all the fungous infections of the epidermis that I have mentioned at the beginning of this paper the proof of the causal relationship of the fungus in each case is not the fact that it can be cultivated, but that it can be easily seen in the scales produced by the disease. In the stained scale of pityriasis capitis or seborrhoeic dermatitis one can always see the spore of Malassez, but never any other fungus. This fact, I think, is the strongest possible evidence in favour of its etiological significance.

Summary and Conclusions.

From dandruff a fungus can be cultivated which, when implanted on the skin, produces a condition clinically indistinguishable from seborrhoeic dermatitis. It can be recovered from the artificial lesion by culture, and may be seen in a scraping of the lesion. The fungus appears to be a species of the monilia type of fungus, though differing, as demonstrated by MacLeod, from other known pathogenic species of this genus in definite respects. I believe it to be the spore of Malassez for the following reasons:

1. It resembles the spore of Malassez morphologically.

2. The spore of Malassez is always found in dandruff, and is the only fungus that can be seen inside the scales. It may therefore be regarded as the cause of pityriasis capitis, for the same reason that *Microsporon furfur* is accepted as the cause of pityriasis versicolor. Pityriasis capitis or dandruff has been regarded, since Unna, as the starting point of seborrhoeic dermatitis, and the breeding ground of the disease. The spore of Malassez is therefore concerned in the production of seborrhoeic dermatitis.

3. The cultivated fungus is capable of accurately reproducing the disease, not merely a crusted or scaly lesion, but one which is primarily follicular, papular, and ultimately squamous, and which, in many cases, cannot be distinguished from those already present.

4. There are marked individual differences in susceptibility to this fungus. Those with seborrhoeic dermatitis, particularly in the more acute forms, being very sensitive to it, whilst others, especially normal subjects, show a minimal response to it.

I will conclude by saying that if, as I think, the observations of MacLeod and myself which I have just related bring the groups of dermatoses that I have discussed into line with one another, the facts only substantiate the view held by Unna, Sabouraud, and many others, that in essence seborrhoeic eczema is a fungous disease.

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DIATHERMY EXTIRPATION OF THE PHARYNGEAL TONSILS.

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There are many sufferers from chronic septic intoxication, apparently from the tonsils, for whom complete tonsillectomy of the ordinary kind is unsuited. People with cardiac disability, or with exophthalmic goitre, for example, belong to this class, and we must also include patients whose nervous dread of "cutting" renders the operation an ordeal they dare not face. For cases like these surgical diathermy is now being tried, and it bids fair to become the method of choice. Its action can be limited or extended according to desire; the wounds it gives rise to remain aseptic, and there is only a trifling amount of soreness during the separation of the diathermy sloughs. Furthermore, tonsils of all sizes can be extirpated, whether they happen to be small stumps hidden behind the faucial pillar or large hypertrophied tonsils touching each other in the middle line. It is merely a matter of time and patience.

Method.

Tonsils can be diathermized easily and comfortably under local anaesthesia, and, at least until they are reduced to their last remnants, surface anaesthesia is quite sufficient. The surface of the tonsil is painted over once or twice with pure adrenaline solution (1 in 1,000) in order to blanch it, and then with equal quantities of cocaine hydrochloride solution (10 per cent.) and adrenaline solution (1 in 1,000). Towards the end of the treatment, when the bulk of the tonsil has disappeared and we are nearing the capsule, infiltration of the peritonsillar region, and perhaps also of the pillars of the fauces, with 2 per cent. novocain or beta-eucaine solution is advisable in addition to the surface anaesthesia.

For active electrode I usually employ either a short, curved, blunt point, or a short needle, according to the part of the tonsil to be attacked, the indifferent electrode being applied as usual to the arm or back. The blunt active electrode is more useful in the early, and the needle more useful in the later, stages.

At the first séance the blunt electrode is passed into the supratonsillar fossa, the point being inserted as far as the capsule of the tonsil, to which this blind pouch reaches. Then, with a curved vulcanite guard protecting the anterior pillar of the fauces, the current is turned on at zero, and slowly raised in strength until coagulation appears in the tissue around it. The current is then switched off.

Our object in selecting the supratonsillar fossa for the first coagulation is that, as the pathological changes in ordinary peritonsillar abscess show, septic absorption is probably more active here than anywhere else in the tonsil. Further, a large number of crypts open into this cul-de-sac, and these we destroy straight away.

This region, then, having been put out of action, first in the one and then in the other tonsil, the surgeon may or may not proceed further at the first séance. If the patient is nervous and the tonsil small he will probably limit himself on this occasion to a single application of the

diathermy. But if the patient is stout-hearted there is no reason why a little more should not be diathermized.

Subsequent to the operation, as the effect of the anaesthetic wears off, the patient will feel a little soreness, which will continue for a few days. But, particularly if the surgeon is careful to avoid the pillars of the fauces, little or no complaint is made, and the patient is able to submit to the treatment from start to finish without being away from work for a single day.

The first séance is succeeded by others at intervals of about a week or ten days, each time one or two or more areas of about 1 cm. in diameter being coagulated. The length of the course depends, naturally, upon the size of the tonsils and the amount the surgeon feels called upon to coagulate each time. I find the duration of my treatment to be from two to four months. Towards the end of the time there will remain to be disposed of a few isolated mounds or clumps of lymphoid tissue in the recesses of the tonsil bed, and adhering to its capsule and to the faucial pillars. When this stage is reached infiltration anaesthesia may be required, and the needle electrode is then handy for getting at these less accessible remnants.

In general, we avoid too extensive a coagulation at any one séance, chiefly because of the risk of bleeding during separation of a large, deep slough. In view of the possibility of this accident the patient should remain within reasonable reach of the operator throughout, so long as there are any sloughs to come away. Personally, I have not yet seen serious haemorrhage in these cases, but I know that it does occur, and, indeed, circumstances being as they are, an occasional haemorrhage is to be looked for. But there can be no doubt that the risk is minimized if the surgeon contents himself with modest advances and restrains his own and his patient's desire to bring the treatment to an end as early as possible.

By the foregoing method, carried out with care, patience, and perseverance, one can destroy all the tonsil tissue in the pharynx without seriously taxing the patient's fortitude, and with a minimum of scarring.

One interesting observation has been made, and that is, that patients quite frequently report improvement in their remote symptoms—rheumatic pains and so on—immediately after the first applications of the diathermy. The explanation probably is that the diathermy sterilizes the tonsil of bacteria beyond the area coagulated and so cuts off the supply of toxins.

There can be no doubt, in my opinion, that diathermy coagulation will come to be the method of choice for removing tonsils in adults. It is much superior to London paste and the galvano-cautery, and it may even challenge comparison with the ordinary surgical operation, particularly in delicate and nervous adults. It is, of course, unsuitable for children.

ADDISON'S ANAEMIA:

The Occasional Failure of Liver Therapy.

BY

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It has lately become almost a platitude that a case of anaemia which does not respond to treatment by means of a liver diet should not be diagnosed as Addison's anaemia. It is therefore of interest to consider the following three cases, on clinical grounds diagnosed as Addison's anaemia, which failed to respond to liver therapy. With these cases were simultaneously treated others of the same disease which gave a response to liver in every way comparable with that described by Minot and Murphy. Moreover, the methods of diagnosis and treatment employed in both the successful and unsuccessful cases were identical.

Case I.

The patient, a single woman aged 58, was admitted on March 20th, 1928, with a twelve months' history of sensory changes with loss of power in the hands and legs. She had a sister suffering from anaemia, and the only important fact about her previous medical history was that she had been operated on for gall-stones in 1925.

Physical Signs.—The tongue was clean and glazed, but not sore: there was subjective and objective evidence of involvement of the nervous system; achlorhydria was present; the Wassermann reaction was negative. The van den Bergh test gave an indirect positive reaction of 2 units. The blood count was as follows: red blood corpuscles 3,460,000 per c.mm., haemoglobin 77 per cent., colour index 1.26, white blood cells 4,000 per c.mm. Megalocytosis and anisocytosis were present.

Treatment.—On the above evidence a diagnosis was made of subacute combined degeneration of the cord, accompanied by a moderate degree of Addison's anaemia, and treatment with 8 oz. of liver a day and dilute hydrochloric acid was instituted.

Progress.—The treatment was continued for over six weeks, but the blood picture remained unchanged and there was no improvement in the nervous symptoms. The patient was discharged on May 5th, 1928, and stopped taking liver and hydrochloric acid. On December 18th her blood was examined again, and we were astonished to find that the anaemia had spontaneously disappeared and she now had a normal blood count. There was no concurrent amelioration in the nervous symptoms. Further observation on this case was not possible, but an inquiry made in March, 1929, elicited the information that the patient was alive and in much the same condition as when we saw her in 1928.

Commentary.

Clinically this case was one of Addison's anaemia with subacute combined degeneration of the cord, though confirmation of this diagnosis could be obtained only by post-mortem examination. The occurrence of a spontaneous remission afforded proof that the bone marrow was capable of responding to a suitable stimulus, but the conclusion appears inevitable that the liver could not provide such a stimulus in this case.

Case II.

A man, aged 51, by occupation a miner, was admitted on October 5th, 1928, complaining of progressive weakness for twelve months. The patient had one brother suffering from some variety of anaemia, but otherwise his family history and personal medical history afforded no significant data.

Physical Signs.—The patient showed evidence of intense weakness and wasting; he was drowsy and febrile. There was no evidence, subjective or objective, of involvement of the nervous system; achlorhydria was present; the Wassermann reaction was negative; and the van den Bergh test gave an indirect positive reaction of 5 units. The blood count was as follows: red blood corpuscles 1,150,000 per c.mm., haemoglobin 25 per cent., colour index 1.2, white blood cells 2,400 per c.mm. The urine had a specific gravity of 1022, and contained a trace of albumin. Megalocytosis and anisocytosis were present.

Treatment.—The patient was given 8 oz. of liver each day, with liver extract to supplement the deficiency when he was unable to take the full dose. Dilute hydrochloric acid was given as well.

Progress.—The patient went steadily downhill, became comatose, and died on October 24th. On October 15th the blood count had dropped to 1,000,000 red blood corpuscles per c.mm., with haemoglobin 23 per cent. From this date onwards the quantity of liver extract was doubled, and arsenic in the form of sulphostab was administered as supplementary treatment.

Post-mortem Examination.—The liver, kidneys, and spleen gave a marked iron reaction; the haemolymph glands were prominent, and the bone marrow showed the megaloblastic reaction typical of Addison's anaemia. There was no evidence of any complicating disease.

Commentary.

This is a case in which the diagnosis of Addison's anaemia was confirmed by post-mortem examination, and the only reason that can be advanced to account for the apparent failure of liver therapy is that the anaemia was a severe one. It may be suggested that the bone marrow was so overwhelmed with toxins that it had become too far damaged to respond; on the other hand, many patients with low blood counts are known to respond well to liver therapy.

Case III.

This patient, a man aged 45, by occupation a collier, was admitted on October 24th, 1928, complaining of progressive weakness for ten months, loss of weight and sore tongue, and gastro-intestinal disturbances.

Physical Signs.—The patient was weak and showed signs of wasting; his tongue was clean and glazed, his spleen palpable, and evidence was obtained, both subjective and objective, of involvement of the nervous system. The Wassermann reaction was negative; the van den Bergh test gave a positive indirect reaction of 5 units. The blood count was as follows: red blood

corpuscles 1,100,000 per c.mm., haemoglobin 23 per cent., colour index 1.1, white blood cells 2,400 per c.mm. Megaloblasts and megalocytes were present, and there was also anisocytosis.

Treatment.—This was the same as that given in Case ii.

Progress.—The patient continued to become weaker, and on December 5th, despite a blood transfusion performed early the same day, he died.

Post-mortem Examination.—The liver, kidneys, and spleen gave a marked iron reaction, and the bone marrow showed a megaloblastic reaction. No other disease was present, except anthracosis of the lungs.

The remarks applied to Case ii by way of comment also apply to this last case.

These three cases afford some evidence against the prevalent view that every true case of Addison's anaemia must necessarily be benefited by liver therapy. So far, very few unfavourable results following this treatment have been published, but two of Fraser's series failed to respond for no accountable reason. G. Guiani of Genoa found that 15 per cent. of his cases gave no response to liver, but possibly many of the patients were moribund when they came under treatment, and their bone marrow was thus unable to respond. If the existence of a small proportion of unsuccessful reactions to liver therapy is established it must materially alter the prognosis of Addison's anaemia; above all, it imposes the necessity of withholding the promise of a hopeful outlook until the effect of liver administration has been observed for a sufficient period.

It has not been suggested that liver destroys the exciting cause of the anaemia. As, moreover, it is known that agents as essentially different as malaria and benzol can give rise to an Addisonian anaemia, it is probable that there are many different exciting causes, and it can hardly be expected that liver should prevail against every one of them. It seems reasonable, then, to assume that in some cases the exciting cause is so powerful that it overcomes any benefit that might be expected to accrue from the administration of liver.

In conclusion I wish to thank Dr. A. F. S. Sladden, pathologist to the Swansea General Hospital, who examined the blood in each case and conducted the post-mortem examinations, and Dr. Daniel E. Evans, senior physician to the Swansea General Hospital, who allowed me to investigate and report on the cases.

THE ACETIC ANHYDRIDE TEST IN CEREBRO-SPINAL FLUID.

BY

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This test was described in 1923 by Boltz, who found positive results in all cases of general paralysis and certain other types of neuro-syphilis. During the next few years various authors concluded that the reaction was of diagnostic value in these conditions. The test is performed as follows: to 1 c.cm. of the cerebro-spinal fluid 0.3 c.cm. of acetic anhydride is added, and the mixture is shaken; 0.8 c.cm. of sulphuric acid is added very gradually, drop by drop. A positive result consists in the development of a colour which has been described as "blue-pink," "lilac," or "purple."

The test is similar to the glyoxylic reaction of Hopkins and Cole, which was discovered as a result of their investigation of a test for protein described by Adamkiewicz. This consisted in the development of a violet colour when protein was treated with glacial acetic acid and concentrated sulphuric acid. Hopkins and Cole showed that the reaction was dependent on the presence of glyoxylic acid as an impurity in the acetic acid. The constituent of proteins responsible for the reaction with glyoxylic acid is *tryptophane*.

In 1927 the similarity between the "Boltz test" and the glyoxylic reaction was pointed out by Duncan, by Blix and Backlin, and by Walker and Sleeper. These authors brought forward evidence that the acetic anhydride test was identical with the glyoxylic reaction, and that the positive results in cerebro-spinal fluid were due to protein. Positive results were obtained when the acetic anhydride test was applied to tryptophane solutions, or to egg-albumen solutions of concentrations of 0.03 per cent. and over. As would be expected from these facts, it was found that many non-syphilitic cerebro-spinal fluids yielded positive results.

The appearance recently in the *British Medical Journal* of a paper by Piotrowski prompts me to draw attention to these findings, and to record some personal observations which confirm the view that the acetic anhydride test is *a protein reaction similar to the glyoxylic reaction.*

Several samples of acetic anhydride were examined, and all gave a positive reaction with protein. The less pure samples gave the more intense reactions, but the purest samples obtainable gave positive results. The colour produced showed the same absorption spectrum as the colour produced in the glyoxylic reaction.

A series of twenty-four cerebro-spinal fluids from various cases was tested; these included cases of epilepsy, cerebral tumours, general paralysis, disseminated sclerosis, hysteria, and various types of meningitis.* The intensity of the colour given in the "Boltz test" was roughly proportional to the total protein content of the fluid, and the colour given by fluids from cases of general paralysis was indistinguishable from that given by fluids of the same protein content derived from non-syphilitic patients. For example, the fluid from a case of general paralysis (total protein 0.18 per cent.) and the fluid from a case of meningitis (total protein 0.15 per cent.) gave colours exactly similar in tint and intensity. On another occasion the fluid from the same case of general paralysis had a lower protein content (0.05 per cent.), and then gave a negative result with the "Boltz test."

It appears impossible to fix a limiting concentration of protein below which the reaction is negative. Apart from the variations in the samples of acetic anhydride used, there are variations in the conditions of the test as ordinarily employed. The heat developed during the addition of the sulphuric acid is an important factor, and different results can be obtained with the same protein solution by varying the rate at which the sulphuric acid is added. If the mixture is carefully cooled after the addition of each drop of sulphuric acid, so that the temperature of the mixture is not allowed to rise above room temperature, no colour develops, even in fluids which give a definitely positive reaction when treated in the ordinary way. This applies to the fluids from cases of general paralysis as well as non-syphilitic cases. If the mixture, which has been kept cool during the addition of sulphuric acid, is subsequently heated the typical colour develops.

Owing to the crude method by which the test is usually performed, a definite limit of protein concentration below which reactions are negative cannot be fixed accurately, but, in my experience, with pure samples of acetic anhydride it is approximately 0.03 to 0.05 per cent.

It is therefore probable that the "Boltz test" is a protein reaction similar to, or identical with, the glyoxylic reaction. It may be due to some substance (? glyoxylic acid) present as an impurity in the acetic anhydride, or derived from the acetic anhydride in the course of the test. If acetic anhydride is completely hydrolysed by heating with an excess of water for an hour under a reflux condenser, the product still gives the violet colour with protein on addition of sulphuric acid.

If the view here taken is correct, it seems surprising that the test should ever have been regarded as diagnostic of syphilis of the central nervous system. As far as the earlier papers on the subject are concerned, the explanation seems to be the lack of fluids of high protein content among the non-syphilitic controls. In the investigations of Boltz, Grossman, and Harris all the fluids came from patients with mental disease. No figures for the protein content of the fluids are given, but in any such series it would be expected that the syphilitic fluids would have the highest protein content.

Among those who regard the test as diagnostic of general paralysis or neuro-syphilis, Greenfield and Carmichael seem to be the only authors who have studied non-syphilitic cases

*For the majority of these fluids I am indebted to Dr. E. A. Carmichael.

in which the total protein content of the fluid was raised. These authors make a distinction, which in my judgement is not possible, between the "clear lilac" colour of a positive test, and various other tints—for example, "brown-lilac," "pink-blue," "lilac-pink," or "brown"—which they consider negative. I think that most of these colour reactions should really be regarded as positive, and that some of the "brown" colours may be the result of charring of organic matter by the sulphuric acid. The question of the identity or difference of tints can be decided by any worker by the simple method of comparing a patetic fluid with a protein solution of the same concentration.

There remains to be considered the recent paper of Piotrowski, who has found positive results with the "Boltz test" in cases of general paralysis, cerebral and meningeal syphilis, meningitis, cerebral degeneration, poliomyelitis, and in a few normal fluids. When one bears in mind the irregularities in the conditions of the test it seems that these results give no evidence against the view that the protein of the fluid is the reacting substance. Piotrowski mentions a negative result in a fluid with 0.025 to 0.035 per cent. protein, and positive results in seven cases of cerebral degeneration in which the "albumin" was "normal." In four out of ten of his cases of general paralysis the "Boltz test" was negative, but in these the "albumin" was below 0.035 per cent. Two cases of tuberculous meningitis with an "albumin" content of 0.044 and 0.025 gave a negative Boltz test, others gave positive results.

Summary.

The "Boltz test" is regarded as a protein reaction similar to, or identical with, the glyoxylic reaction; no information of diagnostic value is to be obtained from it, apart from its being a rough guide to the protein content of the fluid, which is better estimated by the usual methods.

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Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

A FULL-TIME EXTRAUTERINE PREGNANCY.

THE following case seems worthy of record on account of the difficulty of arriving at a correct diagnosis.

On May 20th, 1929, a married woman, aged 44, consulted me because of increasing swelling of the abdomen and general physical ill health. She had had eight children, of whom the last was born seven years ago. The labours had been normal. The periods were regular up to June 8th, 1928, and then ceased; so that to date she had had eleven and a half months' amenorrhœa. She thought she was pregnant, and engaged a midwife for March. She had a severe attack of pain in November, and another in January, which confined her to bed for a week each time. Since January she had not been conscious of foetal movements; she had not consulted a doctor.

The patient was heavy-eyed, sallow, toxic-looking, and rather emaciated. The abdomen had a tense, somewhat tender swelling reaching to the xiphisternum; its size was that of a large normal pregnancy. No foetal sounds were heard or parts palpitated; a non-pregnant cervix of the uterus was felt by vaginal examination. A diagnosis was made of ovarian cyst with some adhesions. Operation was advised and the patient admitted to hospital.

Operation.—The operation was performed on May 24th under general anæsthesia. A subumbilical incision was made and subsequently enlarged. When the peritoneum was opened a cyst wall appeared with so many adhesions to the abdominal wall that malignancy was diagnosed, and preparations made to abandon the operation. Before doing so it was deemed wise to tap the cyst. Grumous fluid came away through the trocar and, finally, a finger was put in to feel for malignant nodules, and so confirm the diagnosis. To our surprise a foetal part was felt. The incision was then further enlarged, and a full-time macerated foetus was delivered. An attempt was made to remove the placenta, but this was found difficult to detach. Owing to the extreme thinness of what were supposed to be the uterine walls it was considered wisest to remove the uterus. It was found to be adherent to the abdominal wall, transverse and ascending colon, omentum, and bladder, and a careful dissection was required to free it. To enable the cyst to be removed a portion of its wall had to be left attached to the transverse colon, and was subsequently removed by another dissection. The bowel had to be sutured, as submucous membrane had been exposed. Finally, on exploring the pelvis, it was seen that there was a small, non-pregnant uterus. The right broad ligament was clamped, and, leaving the right ovary behind, the uterus was removed supravaginally with the attached cyst. It was then observed that there was no left ovary or Fallopian tube, this being involved in the large cyst and attached as a broad band to the left upper part of the uterus. The specimen, when removed, was seen to consist of a small, non-pregnant uterus and, attached to it, a cyst, which was apparently formed from the left ovary and tube, and contained amnion and chorion, with portions of placenta.

Dr. E. Wordley (pathologist to the South Devon and East Cornwall Hospital) reported that the cyst wall consisted simply of fibrous tissue, there being no evidence that it was either muscular or ovarian.

The patient made a good recovery after the operation, and was discharged to a convalescent home at the end of three weeks. The injured bowel gave no trouble.

My thanks are due to Dr. Millicent Fox for administering the anæsthetic.

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TRAUMATIC BILATERAL PNEUMOTHORAX: A SIMPLE METHOD OF TREATMENT.

IN view of the recent reports on cases of pneumothorax in the *Journal*, the following case appears worthy of note.

W. D., aged 23, single, was run over by a journey of full trams, while engaged at his work underground on June 17th, 1923. The accident occurred at about 11 a.m., and he was conveyed to the Aberdare and District General Hospital, where I saw him at 12.30 p.m. He was then in a condition of shock. His pulse was weak, rate 120, respirations rapid and shallow, colour bluish. He complained of pain all over the body, but principally in the region of the sternum and on either side of his spine.

Examination showed fractures of both clavicles and several ribs on both sides. There was subcutaneous surgical emphysema in both axillæ and at the site of the fractured clavicles. The usual treatment of shock was instituted and a many-tailed bandage applied around the chest.

He was seen again one and a half hours later. His condition was truly remarkable. He was quite blue, respiration was practically absent, the pulse was imperceptible, and he was cold all over. Percussion note was tympanitic all over the chest. His neck, as such, had ceased to exist; on either side from the zygomatic arch to the lower border of the pectoralis major the subcutaneous tissues were enormously distended with air. The skin presented a uniformly convex surface, and he looked like some weird fish, all head and shoulders. The emphysema also extended over the ribs on either side towards the back.

It was evident that something would have to be done quickly as the man was dying from asphyxia. The emphysema was displaced by pressure from the lower part of the right axilla, the ribs defined, a puncture made through the skin with a scalpel, and an ordinary hydrocele trocar and cannula pushed through the intercostal space. On withdrawing the trocar air could be heard hissing out. His condition immediately improved. Respiration, pulse, and colour became better. After the first escape of air, during inspiration air could be heard entering the pleural cavity and leaving it during expiration. A simple method of further emptying the pleural cavity was adopted. During inspiration a finger was placed over the cannula and removed during expiration. In this way the lung was enabled to expand further, for at each expiratory effort air escaped from the cannula. After some twenty breaths the cannula was removed. The patient's condition was now greatly improved. In half an hour the procedure was repeated on the left side of the chest.

The following day his condition was good; both lungs appeared to be fully expanded, and the superficial emphysema had considerably subsided. He made an uninterrupted recovery, and has been working underground ever since.

Subsequent *x*-ray examination revealed, besides the fracture of the clavicles, fractures of the fifth, sixth, seventh, and eighth ribs on the right side, and of the seventh, eighth, and ninth on the left, all being broken posteriorly near the angles.

This patient was shown at a clinical meeting of the South Wales and Monmouthshire Branch held at Aberdare in 1927.

The case is interesting for three reasons. First, the rarity of a bilateral traumatic pneumothorax with complete recovery. Secondly, the simple and dramatic way in which the condition was relieved. Thirdly, as to the nature of the internal injuries. I think that both lungs and pleura on each side must have been torn, and yet the patient hardly ever coughed during his illness and had no haemoptysis or melæna.

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TRAUMATIC PAROTID HERNIA IN A CHILD.

AMONG the peculiar accidents to which children are prone while playing I think the following is sufficiently rare to be recorded.

A mother brought a girl, aged 5, to the Louth Hospital on August 31st. She stated that the child had been playing with a dog leash attached to a stable wall, and had placed the spring hook in her mouth. Frightened by a peal of thunder, she ran towards the house, but was pulled backwards by the leash. The mother went at once to her assistance and found that the leash was embedded in the cheek in such a manner that one hook gripped the cheek on the outside while the other was gripping the cheek on the inside of the mouth. She freed the child from the leash, and seeing that she was unable to close her mouth, brought her at once to hospital.

On examination the child presented the "dislocated jaw" appearance, the mouth being held open, and saliva running from each angle. In the mouth a globular swelling about the size of a walnut was seen to protrude from the mucous membrane of the cheek high up on the right side opposite the second molar tooth. This I found to be a hernia of the parotid gland. The mechanism of the injury was as follows. The hook on the inside of the mouth had torn through the mucous membrane, piercing the buccinator and masseter muscles, and tearing through the parotid duct; the hook on the outside of the cheek had caused that portion of the parotid which overlies the masseter to herniate into the mouth. I enlarged the wound sufficiently to allow the major portion of the gland to be replaced; but finding that the duct was torn off almost into the gland, I stitched the portion of the parotid from which the duct emerged to the torn edges of the mucous membrane.

The wound healed in a few days, and the resultant parotid fistula into the mouth is a good physiological result, and does not inconvenience the child in any way.

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A PIECE OF STICK, FIVE AND A HALF INCHES LONG, IN THE SMALL INTESTINE.

THE following interesting case is, I think, worthy of publication.

A Hindu woman, aged 21, was admitted to Kalna Mission Hospital on April 17th, 1929, complaining of pain over the appendix region, which became considerably worse when she was sitting down or squatting.

History.—After the patient had been pregnant for about three months a native *midwife attempted* to procure abortion by the use of sticks. Three were inserted. The woman aborted completely two or three days later, but only two sticks were returned. Ten days later abdominal pain started, mainly on the right side, and she had difficulty in standing up straight; there was no fever. Two months after that she came into hospital.

On admission the patient was unable to stand straight, and could only walk with difficulty. She complained of pain in the right iliac region. A distinct swelling was observed over the position of the appendix; the swelling was hard and brawny, and about the size of a large orange. Vaginal examination revealed a retroverted uterus, and the swelling referred to could be felt from the anterior fornix. A blood count revealed the presence of a leucocytosis of 10,000 per cubic millimetre.

Operation.—The following day the patient was operated on. A right rectus incision was made. As the knife went through the swelling there was a grating sound like that made when cutting a scirrhous carcinoma; the incised tissue proved to be the wall of an abscess situated in the rectus muscle. About a teaspoonful of pus oozed up; this was mopped away and the incision deepened. No more pus was found, and, as the abscess did not seem to account for all of the trouble, the peritoneum was carefully opened. Some adhesions to the abdominal wall were separated off, and then a piece of small intestine was seen to be pointing up like the top of a bell tent; it seemed as if there was a piece of stick inside. The intestine was accordingly opened with all precautions, and a piece of stick (afterwards found to be 5½ inches long and 1/4 inch thick) was drawn out; there was a little escape of faeces. The hole in the intestine was closed with silk and the peritoneum and muscular layers with catgut. Two *drains* were inserted, and the patient put to bed in the Fowler position. Apart from a superficial breakdown of one inch of the wound the patient made an uninterrupted recovery, and was discharged cured three weeks and five days later.

We do not pretend to know exactly how the stick got into the small intestine. Our idea is that it passed originally through the anterior fornix of the vagina into the abdominal cavity, and that it thereafter piereced the abdominal wall internally, causing the abscess mentioned. After that the stick presumably worked its way gradually into the intestine, peritonitis being prevented by the adhesions which formed. We are not sure of the nature of the wood. One of us (J. K. M.) thinks it may be oleander.

A. GREVILLE YOUNG, L.R.C.P. and S.Ed.,
Medical Missionary in Charge.
J. K. MUKHERJI, L.C.P.S.Bombay,
Assistant Surgeon

Reports of Societies.

ERGOT AND THE PHARMACOPOEIA.

AT the meeting of the Section of Therapeutics and Pharmacology of the Royal Society of Medicine on November 12th, with Dr. PHILIP HAMILL in the chair, a paper on the best method of including ergot in the *British Pharmacopoeia* was read by Dr. J. H. BURN and Mr. F. WOKES.

The authors described an investigation which had been carried out by the Pharmaceutical Society of Great Britain, with a view to determine the proper way in which ergot might be included in the *British Pharmacopoeia*. It was now generally admitted that the action of ergot on the patient was due to the specific alkaloid. Histamine had an action on the human uterus, but this was only exerted appreciably when histamine was injected in a dose too large to be suitable for general use. The questions which arose were, how best the drug could be extracted, and how long the preparations kept in a condition in which their potency was maintained; a further question was as to how much alkaloid one ought to expect to get in different samples. A standard had been set in the United States as a result of mixing ten samples of ergot and keeping the extract for six months. The British Pharmaceutical standard at present was 0.05 per cent. ergotoxine, and any product which did not reach that strength was not given a certificate. It had been found that ergotoxine was not easy to remove from the drug. The ergots received from Eastern Europe—Poland and Russia—were of poor quality, while those from Spain and Portugal were rich; no Polish or Russian ergots should therefore be used by the manufacturers. Liquid extracts of ergot deteriorated rapidly on standing, and therefore required to be specially made every two or three months. The samples tested showed a more rapid deterioration at the higher temperatures than at the lower. The ergotoxine itself also lost strength quickly. When it was kept in an ice-chest the loss of activity was not so marked, and reduction to half strength took three times as long. The solid extract was rather more stable, and the time required for it to be reduced to half strength was from sixteen to forty weeks, as compared with eight to twelve weeks in the case of liquid extracts. Experiments on the storage of ergot were still proceeding: so far it had been found that the powdered form took over two years for a 50 per cent. deterioration to occur. If the drug were de-fatted also it became more stable. Therefore, if liquid extract was to be used at a fairly constant strength it would have to be freshly prepared at least every three months, and the most practical solution appeared to point to the use of ergot in the powdered, de-fatted condition. The authors then described some experiments which had been carried out on cats, in which it had been found that the effect of the administration of ergot in stimulating portions of the uterine muscle was not transient, but remained in the system for a considerable time. The possible danger in the human being of a cumulative effect ought not to be overlooked. Of this danger the occurrence of headache could be taken as a definite warning.

Dr. HAMILL spoke of the amount of work and the time involved in carrying out this research, and added that it was disquieting to reflect that people had for years been administering ergot in faith, although, as shown by Dr. Burn, it had not contained appreciable quantities of ergotoxine. He asked whether members had had the opportunity of comparing clinically the effects of guaranteed ergots with the effects of those usually obtained. One patient who had suffered from slight recurrent menorrhagia had had it controlled conveniently by a dose of ergot six hours beforehand, and for twelve months she had had this from the same bottle, kept at room temperature, and he was not aware that she had had to increase the dose in consequence. Dr. IZOD BENNETT said that gynaecologists used solid ergot in association with quinine, and certainly secured a reduction of uterine pains and other symptoms.

THE PASSING OF SUPERSTITION.

AT a meeting of the Section of Psychiatry of the Royal Society of Medicine, held in the Wellcome Historical Medical Museum on November 12th, Sir ROBERT ARMSTRONG-JONES gave a lecture on superstition.

Superstition, he said, was the encroachment of faith on the rights of reason. It was most often founded on ignorance, and it was difficult, therefore, to explain its existence among educated people. Psychologically, superstition was suggestion based upon the instinct of fear, although curiosity—the yearning to know the future—and the instincts of reverence and awe both had a part in it. The term did not cover innocent mistake, but a wilful belief contrary both to experience and to common sense. Much superstition among less civilized people was misinterpretation of beliefs held by those who were more cultured and educated; included were beliefs in giants, dwarfs, fairies—which were the personification of Providence—fays and elves, hobgoblins and gnomes, spirits and genii, which helped to explain the actions of daily life. Emblems of the seasons, the sun, moon, and planets, were personified to account for human actions which they controlled. The belief in demons prevailed among the people, although it was opposed by the clergy; but in the sixteenth and seventeenth centuries it was heresy not to believe in witchcraft, though this belief led to extreme cruelty and to wholesale destruction of human life. Omens were sought everywhere—in the flight of birds, in the power of numbers, in the heavenly bodies, and in rivers. Many who confessed that they were under the influence of witchcraft were undoubtedly insane and victims of cerebral disorder, but they were generally regarded to be possessed by demons. Some of the possessed suffered from *folie à deux* or communicated insanity, which spread like an epidemic of mental influenza all through Europe. They were treated with great cruelty; they were chastised and tied with chains to holy crosses, and whipped. Some were immersed in holy wells, others dosed with medicinal herbs from the monastery gardens and with powerful cathartics and emetics. Polypharmacy prevailed, and patients had to chant psalms and prayers while they partook of loathsome mixtures. When cure did not take place the blame was put on the patient for his failure to observe the impossible conditions that were imposed upon him while he took the remedy. In healing, the help of precious stones was also elicited; there were healing stones, some with holes for the patients to pass through and some to be worn as talismans or carried on the person as amulets or charms. The royal touch also had healing virtues; Samuel Johnson was touched for scrofula by Queen Anne, and Charles II touched over 100,000 sick persons. Probably the expectation and pleasurable hope of cure helped to raise the bodily resistance to disease by increasing the activity of the vital functions. Ancient customs and maxims, said Sir Robert Armstrong-Jones in conclusion, had to-day lost their cogency, and Pavlov's experiments had shown that an idea could cause changes in the blood, just as changes in the endocrine secretions could vary ideas. Old traditions were now despised, and superstition had ceased to be accepted in explanation of the actions of our daily lives. With the passing of superstition, he asserted, the treatment of insanity had been revolutionized.

CAUSES OF INTESTINAL OBSTRUCTION.

AT a meeting of the Section of Surgery of the Royal Academy of Medicine in Ireland, on November 1st, with the president, Mr. R. ATKINSON STONEY, in the chair, Mr. S. B. CLERY read notes on two cases of intestinal obstruction, and demonstrated specimens.

Mr. Clery said that in his first case intestinal obstruction was caused by swallowing a ring, while in the second an intussusception was found.

A man, aged 65, stated that eighteen months ago he had passed some bright red blood per rectum, and he had suffered from diarrhoea for one year. He took purgatives, but did not consider himself constipated, and he had not noticed any mucus in the stools. Two days before admission he had an attack of abdominal pain, and vomited. Castor oil and an enema produced a good evacuation. But next day he vomited again. On the morning of admission to hospital an enema was given without result.

Visible peristalsis of the ladder pattern was noted in the abdomen, and a smooth, firm mass was found in the right lower quadrant, extending upwards to above the anterior superior iliac spine; it was tender, and dull on percussion. At the operation, the mass, which proved to be distended ileum, was found to extend to the floor of the pelvis and to within two inches of the ileo-cæcal valve. The patient's condition becoming suddenly critical, it was considered that he would not survive resection, so enterostomy was performed. Next day the patient looked well, and a quantity of bran-like material and a plum stone came through the enterostomy. On the fifth day after operation he became worse, and two days later he died. At the post-mortem examination the distended ileum was found to be gangrenous in places, and a small brass ring was discovered at its distal end, impacted, and partly buried in the gut wall. This had produced partial obstruction. Orange pips, fruit stones, and the debris of undigested brown bread formed the large palpable mass, and had obstructed the lumen already stenosed by the ring.

The second patient, a married woman, aged 52, had complained of severe abdominal pain and vomiting. She stated that for the previous three weeks she had suffered from attacks of burning pain in the lower abdomen, occurring about half an hour after meals. Three days before admission the pain became violent and continuous, and she vomited several times. The patient looked collapsed, and the abdomen was rigid and tender all over, the point of maximum tenderness being two inches below and an inch to the right of the umbilicus. An ill-defined mass could be felt in this region, extending to the right iliac fossa. At the operation an intussusception of the ileum about nine inches long was delivered into the wound. As it resisted attempts at reduction it was resected, the continuity of the bowel being re-established by anastomosis. When the clamps were removed from the resected portion of intestine, a worm (ascaris lumbricoides) emerged from the proximal end. On the second day after the operation the patient vomited, the vomited material containing a round worm. Ten days later a second worm was passed in the faeces, and two days afterwards another was passed. The patient left hospital after six weeks, with the wound healed.

Mr. J. L. KEEGAN asked whether Mr. Clery regarded the presence of worms as a contributory cause of the intussusception. He thought that it was not unusual for post-operative adhesions to produce such a condition in adults, and mentioned a case which he had seen after gastro-enterostomy, in which he had found a reducible intussusception of the lower intestine. Mr. SETON PRINGLE mentioned a case of intussusception due to Meckel's diverticulum in a girl of 17, in which he had removed the diverticulum and the apparent fat on top of it, which on section proved to be pancreatic tissue.

Mr. CLERY, replying, said he had been unable to find any authority for associating round worms with an intussusception. In this case he could not discover any cause for the condition, but the long-standing history made him think it was a case of chronic intussusception on which obstruction had been imposed. He had seen two other cases of intussusception in adults, in both of which the mass protruded at the anus.

Diaphysectomy for Osteomyelitis.

Mr. SETON PRINGLE showed a specimen taken in the fourth week of a case of osteomyelitis in which there was complete separation of the lower epiphysis of the femur. Mr. Pringle thought the only possible procedure was to excise the lower end of the diaphysis. He had never before performed diaphysectomy of the femur in the acute stage, though he had often done so in the chronic stage. He had no doubt that the lower end of the femur would regenerate satisfactorily.

The PRESIDENT said it was rare to see these cases in the acute stage. They usually appeared in the chronic stage, and it was very difficult to cure them. He always feared that in removing the lower end of the diaphysis he might run the risk of taking away bone-forming material. Mr. W. PEARSON reported a very similar case. When seen, the patient was in a favourable state, and the result of operation was successful. He would regard Mr. Pringle's case as being in the sub-acute stage, rather than the acute, and thought diaphysectomy a mistake in the acute stage. He had lately seen a patient on whom he had operated some years ago; she had perfect function in the knee, but nearly two inches shortening.

Sir W. I. DE C. WHEELER agreed that the case was in the subacute stage. It was hard to explain how after four weeks the inflammation and bony changes would be limited to the lower third of the femur. Most of the cases of

diaphysectomy of the femur which he had undertaken were of a subacute nature, comparable with those in the series published by Stiles. There was a pronounced osteoblastic periostitis with a sequestrum occasionally. Stiles had described these cases as tuberculous, but in many respects they resembled cases of pyogenic origin. The speaker's opinion was that there were two infections. With regard to the possibility of failure in the formation of new bone, in his experience bone was rapidly formed in the case of children, and it was difficult to detect in a skiagram taken years afterwards where the bone had been removed. He showed several photographs to illustrate the rapid formation of bone when the diaphysis was excised in children with old-standing unreduced fractures about the elbow.

Mr. R. Macauley said that in Mr. Pringle's case diaphysectomy was the ideal treatment, but, in his own opinion, it was not the treatment to be advised in the ordinary case. After diaphysectomy of the lower end of the femur, considerable shortening was usual, though secondary trouble did not occur. He mentioned a new method of draining, but thought equally good results should be obtained by the ordinary procedure. Mr. A. B. Clery was surprised that Mr. Pringle had not cut through the bone into the medulla; the speaker had invariably found pus when he did so.

Cyst of the Common Bile Duct.

The President read a paper on cyst of the common bile duct, and reported a case occurring in a woman aged 23.

There was a sudden and rapid development of a cyst in the right upper quadrant of the abdomen, accompanied by pain and increasing vomiting; no jaundice was noticed at any time, and the stools were normal in colour. The condition was complicated by bronchitis, and thrombosis of both femoral veins, more severe on the left side. A probable diagnosis was made of the presence of a retroperitoneal dermoid undergoing malignant degeneration; owing to rapid wasting of the patient from the incessant vomiting, an operation was performed under rectal ether anaesthesia. A cyst was revealed which was pushing the stomach and duodenum to the left. On exploration with a trocar, it was found to contain bile; four pints were withdrawn which were at first clear, but, later, were mixed with muco-purulent material. The gall-bladder was pushed to the right, and was collapsed, with thickened walls. A tube was passed into the cyst and the abdomen was closed.

The patient improved rapidly, but all the bile escaped through the tube at the rate of between twenty and thirty ounces daily, and the stools were clay-coloured. Six ounces of bile with four ounces of saline were injected daily per rectum. At the end of seven weeks, as there was no diminution in the escape of bile and no coloration of the stools, a second operation was undertaken and the cyst was anastomosed to the duodenum. On the following day there was no escape of bile from the tube, but subsequently the discharge of bile returned. On the fourth day there was a leakage of bile from the operation wound, and on the following day of gas and duodenal contents. The patient rapidly went downhill; on the seventh day there was a sudden rise of temperature to 103°, and on the next day death occurred.

The President remarked that only about sixty-eight cases of this condition of idiopathic cyst of the common bile duct had been recorded, with twenty-two recoveries and thirty-nine deaths.

Sir William Whitla said that in 1910 he saw a patient who had been operated on a year previously for what appeared to be obstructive jaundice. The jaundice persisted, and when the patient consulted him he had all the symptoms of stone in the common duct. After careful exploration of the biliary tract nothing could at first be found to account for the symptoms, nor for the dilatation of the common duct which was present. Finally the duodenum was opened, and a tense cyst presented, which apparently involved the intramural portion of the duct. On opening the cyst the operation field was flooded with bile. The duodenum was closed and the patient made an uneventful recovery. The speaker had a case at present with a pure culture of *B. coli* in the bile, but he thought this form of infection was rare.

Mr. F. J. Morrin mentioned a case of jaundice admitted to hospital in which there was a large tumour palpable on the right side. An operation revealed a large swelling, and aspiration disclosed pure bile. At the time of operation Mr. Morrin did not realize that he was dealing with a case of cyst of the common bile duct, and only came to this conclusion later.

The President, replying, said he did not think Sir William Wheeler's case could be described as an idiopathic cyst of the common bile duct. It seemed to him more like the condition found in malignant disease of the head of the pancreas, where there was enlargement, but not a true cystic condition. *B. coli* in pure culture was uncommon in these cases, but a pure culture was obtained from the bile in one case, which was associated with recurrent jaundice and intermittent fever. The only instance of anastomosis between the gall-bladder and stomach being employed for this condition was in a case reported by Taylor. The general opinion seemed to be that it should be possible to effect an anastomosis between the cyst and the duodenum.

RADIOLOGY AND MEDICINE.

At a meeting of the Brighton and Sussex Medico-Chirurgical Society on November 7th, Dr. W. Barrington Prowse delivered his presidential address, which was entitled "Something of *x* rays, and their place in medicine."

Dr. Prowse began with an account of the discovery of *x* rays, with particular reference to the work of Sir William Crookes. He described the production of *x* rays in a Crookes tube, and commented on the revolutionary change in thought which radio-activity and radium had imposed upon the science of chemistry, and the conception of scientists of the nature of matter and the construction of the atom. Dr. Prowse then gave a short historical account of the application of *x* rays in medicine and surgery, and enumerated the more important improvements in apparatus and technique. He discussed the problems of interpretation, and condemned the haphazard production of *x*-ray pictures, and their too frequent use for unsuitable purposes. The speaker pointed out that *x*-radiation, though not essential to life, had, in common with radiations of other wave-lengths, the power of influencing life and health; its influence might be stimulating and beneficial or depressing and destructive, according to whether the rays were administered in moderate quantity or in excess. Scepticism with regard to the efficacy of *x* rays in disease was partly due to the number of widely differing complaints for which they had been recommended. After describing the action of *x* rays in health and in disease, mention was made of the varying susceptibilities of different healthy and diseased tissues to the rays. *X* rays might be used, according to the effect desired and the condition under treatment, either in stimulating and alterative doses or in destructive ones. Examples were given of some conditions in which they were particularly useful, and special reference was made to their use in malignant disease. Dr. Prowse advocated a more extensive use of pre-operative raying, and also spoke strongly in favour of employing radiotherapy instead of surgery in periosteal sarcoma. Where both radiotherapy and surgery eventually failed was in the control of metastasis. After briefly indicating the use of *x* rays in exophthalmic goitre, uterine fibromata, and some other conditions, including diseases of the skin, Dr. Prowse concluded with an appeal to medical practitioners to co-operate more closely with radiologists in the diagnosis and treatment of disease.

Two cases were cited—one of carcinoma mammae and one of sarcoma. Both patients had received no other treatment than *x* rays, and in each instance the patient was alive and well at present without any sign of recurrence, five and a half years after irradiation.

THE DENTAL RADIOGRAPH.

At a meeting of the British Institute of Radiology held on November 14th, Dr. James F. Brailsford read a paper on the significance of the dental radiograph and its interpretation.

Dr. Brailsford said that obscure foci of dental sepsis were found chiefly among patients seen in private practice, and that these suffered more frequently than hospital patients from neuritis, arthritis, obscure toxaemias, or other infective disorders. This fact he attributed to modern dental treatment. With the hospital patient,

when caries extended near enough to the pulp to produce pain, the tooth was extracted, and it was only when the tooth broke and septic stumps were left behind that local or systemic disturbances were likely to follow. Modern dentistry aimed at saving the teeth, and, providing that caries was detected early—and this could only be done with the careful co-operation of the patient and regular inspection by a dental surgeon—it was possible to remove the infected material and, by "stopping," to preserve the tooth in a healthy condition. If the lesion progressed until the pulp was infected there was no treatment which would definitely prevent the tooth becoming a possible source of toxin production, and no better or more economic treatment could then be applied than extraction. It was chiefly because such teeth were root-filled that the private patient was rendered more liable to toxic absorption. Root-filling of septic teeth was a very dangerous proceeding and had led to grave local or systemic disease and death. No matter how anxious the patient was to retain such a tooth, only extraction should be advised. It was because some patients were known to retain septic teeth for years without apparent harm that the danger of such teeth was not realized by the dental surgeon. Patients were fortunate in whom the breakdown of resistance to the infection was announced by nothing more serious than the onset of neuritis, the persistence of pain in an injured joint, or the development of painful movements in a joint subjected to strain. In the *British Medical Journal* (October 27th, 1928, p. 764) a well-known surgeon described his own severe illness which resolved after an antrum infected from the canine tooth had been drained. During the past year the lecturer had radiographed three patients, too ill to be moved from bed, with similar symptoms, and these had cleared after the septic teeth discovered by the radiograph had been extracted. The fact that cases of auricular fibrillation, retrobulbar neuritis, sinusitis, and other serious conditions had considerably improved or disappeared after the detection and removal of septic teeth pointed to the need for the prevention and early detection of apical sepsis. Septic teeth, Dr. Brailsford continued, might be detected by the patient, the dental surgeon, and the radiologist. The patient might not be able accurately to localize the painful tooth if the lesion was a pulpitis; and if, as sometimes happened, the pain ceased during the dentist's inspection, the latter might not be able to detect the inflamed tooth even after repeated attempts. As a rule, however, foci of acute inflammation could be detected by the dental surgeon. It was quite another matter with chronic sepsis localized at the apices of teeth having a dead pulp. Septic foci of a severe degree might exist without the slightest local symptom to the patient, and might elude the most skilful inspection or "clinical" tests. It was suggested that septic apices gave a definite apical impulse, but the lecturer had known this impulse to have been reported as present in teeth which had not given any pain in ordinary circumstances and which had appeared on the radiograph as normal. On the other hand, teeth which the radiographs had shown to have large septic processes at the apices—a fact which had been confirmed on extraction—had not been suspected even after the most carefully applied clinical tests. In some cases the teeth had been *x*-rayed by the dentist, and the radiological findings had been ignored. The fallacies of the *clinical examination* were shown by the frequent contrary opinions of different dental surgeons. One would advise wholesale extraction, another extraction of one or two teeth, yet another no extraction, in the same patient. Any focus of chronic sepsis in bone led to definite changes, which could be shown on a radiograph, in the bone surrounding the lesion. Particularly was this true in connexion with septic teeth; by placing the films in close contact with the teeth and the *x*-ray tube at a distance from which its rays were practically parallel, it was possible to obtain radiographic detail sharp enough to reveal evidence of any source of chronic septic absorption. Teeth which did not show changes on a good radiograph and were not painful were not the source of chronic toxic absorption. On the other hand, every tooth which was a source of chronic toxic absorption showed changes indicating this on the good radiograph. The radiographs might also provide, though not invariably, some useful additional information in the case of *acute* septic foci. The patient was protected, however, by the pain which caused him to seek the help of a dental surgeon.

Turning to the interpretation of the radiograph, Dr. Brailsford said that the most helpful information could be obtained when the radiography was done with care and by an impartial observer. The radiograph and its interpretation should provide the doctor with independent evidence of the state of the patient's teeth, particularly about conditions likely to have a bearing upon his health. They should help the dental surgeon to deal adequately with any lesion which might be present. If the physician called in to see a patient suffering from what appeared to be septic absorption, possibly from teeth, was told that they had already been examined and radiographed by the dental surgeon and reported to be sound, he was placed in a very difficult position. To suggest a further *x*-ray examination was to involve the patient in expense and to throw doubt on the dental surgeon's opinion. Not to do so might mean that the septic focus was missed. If later it was discovered by another physician the former advisers were held in disrepute. The doctor's recommendation of wholesale extraction was based on his experience that such treatment resulted in alleviation of certain symptoms. Equal success attended the extraction of only those teeth shown by the radiograph to be septic, and probably left the patient with most of his or her own teeth and consequently less liable to the digestive disturbances experienced by many edentulous patients. A radiograph might be so poor that the most experienced could not interpret it; on the other hand it might be good and convey little or no information except to those experienced in interpretation. A series of lantern slides illustrating the various pathological conditions of the teeth and jaws and errors of interpretation were then demonstrated.

In the course of a meeting of the Section of Medicine of the Royal Academy of Medicine in Ireland, on November 8th, with the president, Dr. R. J. Rowlette, in the chair, a joint note by Drs. V. M. Synge and O'Grady on a case of staphylococcal meningitis was read. The patient had recovered from a prolonged staphylococcal meningitis following a boil on the jaw, and the authors mentioned their reasons for believing that the route of infection was the blood. The course of the disease and the treatment were described; complete recovery had ensued. Records of other such recoveries were mentioned, and the treatment of the disease was discussed, the authors commending the performance of lumbar puncture and the careful continued administration of an autogenous vaccine. The President approved the use in this case of small doses of vaccine, since in an acute condition such as this, whether of septicaemia or meningitis, large doses would probably hurry an unfavourable result, whereas the giving of such a small dose was quite safe. He had no doubt that the vaccine played a very large part in the recovery of the patient. He did not regard lumbar puncture in these cases as being of much value, though it undoubtedly relieved the symptoms for the time being. Dr. R. A. Q. O'Meara said that the spinal fluid in this case was turbid; it contained an abundance of cells, and staphylococci were easily recovered. It was interesting to note that although the fluid was turbid, it gave an absolutely negative *Boveri* reaction. Dr. O'Meara discussed the mechanism of infection of the meninges in the light of recent research. Dr. H. Quinlan pointed out the danger of meningeal involvement in all cases of infection of the skin of the face, the mechanism being a spreading venous thrombosis. Dr. E. T. Freeman read a paper on cardiac infarction; he explained the changes in the electro-cardiogram which might result from a cardiac infarct, and discussed their significance. He emphasized the importance of distinguishing the occurrence of an infarct from an attack of "angina pectoris" without massive infarction of the heart muscle. He recorded the case of a patient who had survived two coronary emboli, as well as a cerebral embolus, an acute colitis, and an attack of gall-stone colic.

Reviews.

CARDIOLOGY.

Recent Advances in Cardiology,[1] by Dr. C. F. T. East and Dr. Curtis Bain, is one of the latest additions to this well-known series. It will appeal more to the specialist than to the general reader, for a work of this kind necessarily dwells at considerable length on those aspects of the subject in which most advance has been made, scientific and medical progress being dependent on the successful application of the more exact but frequently complicated methods. This is a disadvantage, we feel; it is not possible to be certain at any moment where the past parts company with the present in circulatory disease as a whole, and since cardiology has been in the "melting-pot" for some years it would have been interesting and useful to have an authoritative pronouncement on the accepted basic principles of to-day. Even a careful study of this book leaves the reader in a maze of biochemical and electro-cardiographic detail set in the antiquated frames of the past century. We do not suggest that the book has few merits, rather we desire to point out the limits of its undoubted usefulness. The expert reader will find that the greater part of cardiology is dealt with, and that the bibliographies are uniformly good, probably the best in the English language. The general reader, who has not had the opportunity to think out his position in each of the many ramifications of cardiac pathology, will fail to discover a guiding thread, and will perhaps conclude that cardiology is still the mystical interpretation of precordial sounds and murmurs modernized by electro-cardiographic records. The critically minded clinician, on the other hand, realizes that the well-established facts of heart disease are few but simple, founded as they are on a good physiological basis. His attitude is not one of slavish subscription to the doctrine that the facts of medicine remain unchanged under our varying interpretation of them, and therefore he will find this book entertaining and stimulating.

It is impossible to attempt a discussion of the conclusions reached at each point, but one or two of the more important and debatable subjects can be briefly passed in review. A good chapter on the newly described clinical entity of thrombosis of the coronary arteries makes a very favourable impression, and is quite naturally followed by one on angina pectoris, regarded as due to an "acute deficiency in the coronary arteries." This is what is generally believed to-day; but it is difficult to see how the authors' tenet, "It is hard to understand how true angina can occur under . . . conditions of rest," is consistent with the persistence of true angina at rest after being induced by antecedent exertion. The book includes a good discussion of the mechanics of congestive cardiac failure, but the authors do not recognize the difficulty of the subject nor outline the essential facts, which are as follows. In the first place, blood collects in the venous system, where its pressure rises, while that of the arterial system remains unchanged; secondly, the circulatory rate is reduced. It is not known when the overfilling of the systemic veins takes place, and whether it is sudden or gradual. It is generally accepted, however, that in all cases of congestive failure the venous pressure is raised before death, though the evidence is far from complete, and is likely to remain so till it is demonstrated that venous pressure can be estimated with sufficient accuracy by simple clinical methods; but it has been shown by many observers that this pressure falls gradually as recovery from congestion progresses. The evidence relating to the circulatory rate is adequately given in this book. Now the factors which produce the rise of venous pressure in failure cannot be readily synthesized, for a diminished circulatory rate with an unchanged arterial pressure in no way entails it, the pressure dispositions not resembling those seen in the schema of the physiological lecture-table experiment. Moreover, since our physiological circulatory rates are widely different in exercise and at rest, we should expect a demonstrable change in venous pressure to occur, taking the form of a fall during exercise and a return to partial congestion afterwards; these changes are quite opposite to those postulated by the sponsors of the venopressor theory, and their occurrence is unsupported by the unsatisfactory experimental evidence available on venous pressure during exercise. Again, it is difficult to see how the addition of the whole of the blood in the arterial system to the much more capacious and distensible venous cistern could alter the tension in the latter, unless the venous system is endowed with vasomotor nerves. This subject seems to be worthy of detailed study in the wards, as a mechanical problem.

[1] *Recent Advances in Cardiology.* By C. F. Terence East, M.D.Oxon., F.R.C.P.Lond., and C. W. Curtis Bain, *M.C.*, M.B.Oxon., M.R.C.P.Lond. London: J. and A. Churchill. 1929. (5½ × 8½, pp. viii + 342; 57 figures, 12 plates. 12s. 6d. *net.*)

TREATMENT OF RHEUMATOID ARTHRITIS.

Dr. A. H. Douthwaite is to be heartily congratulated on his little book on *The Treatment of Rheumatoid Arthritis*.[2] He is undoubtedly right in differentiating "rheumatoid arthritis," if that is the name which is to be used for the condition, from infective arthritis and hypertrophic or osteo-arthritis. The trouble is that the designation rheumatoid arthritis has come to be applied to all three types of arthritis, and in spite of careful descriptions such as that given by Dr. Douthwaite, it requires a very considerable degree of clinical experience to distinguish between them. Osteo-arthritis is a manifestation of degenerative process in elderly people with which neither infection nor toxaemia has very much direct relation. Infective arthritis is the direct effect of focal infection, and clears up when this is removed. Rheumatoid arthritis, on the other hand, is a systematic disease with a marked diathetic factor in which arthritis is a prominent but not essential clinical manifestation. The author, in summing up, states, "There is strong clinical and laboratory evidence for the belief that rheumatoid arthritis is a disease of complex nature in the etiology of which disturbances of the sympathetic nervous system, of the thyroid and possibly parathyroid glands play an important part, sometimes in conjunction with, or resulting from, the absorption of bacterial toxins, sometimes independently of focal infection." Vague, perhaps—as he himself recognizes—but it is better to be vague than wrong. In the section on treatment he follows logically his exposition of etiology, pointing out that there can be no one specific remedy for such a disease. Climate and clothing are all-important in the early stages, maintenance of proper posture in the acute stage, and in the third stage (when sometimes, in spite of care, contractures occur) he advocates the more extended use of manipulation. He rightly points out, however, that this method of treatment requires much care and discrimination, and he is perhaps a little optimistic as to the success of this measure in the more acute stages of the illness. Finally, Dr. Douthwaite draws attention to the fact that without the greatest good will, perseverance, and patience on the part of the patient our best efforts are foredoomed to failure.

[2] *The Treatment of Rheumatoid Arthritis.* By A. H. Douthwaite, M.D., F.R.C.P.Lond. London: H. K. Lewis and Co., Ltd. 1929. (Cr. 8vo, pp. x + 80; 2 figures. 6s. net.)

HYGIENE AND PUBLIC HEALTH.

Of the three works on public health before us the largest and most important is the second edition of Park's *Public Health and Hygiene*,[3] which, in its first edition (reviewed in our columns on September 24th, 1921) has become one of the standard textbooks on the subject in the United States. The editor, Dr. W. H. Park, is well known as the director of the Public Health Laboratories of New York City, and among the twenty-four contributors may be mentioned Dr. Josephine Baker (child hygiene), Dr. Eugene L. Fisk (personal hygiene), Dr. H. H. Goddard (mental defectives), Dr. Alfred Hess (vitamins), and Professor G. E. A. Winslow, whose reputations here as well as in their own country suffice to stamp the work as authoritative. The subject matter of the book is dealt with entirely from the point of view of the United States; very few references are made to British work,

[3] *Public Health and Hygiene.* Edited by William Hallock Park, M.D. Second edition, thoroughly revised. Philadelphia: Lea and Febiger. 1929. (6 × 9½, pp. xiv + 902; 123 figures. 9 dollars net.)

except in Professor Winslow's excellent chapter on air and health, where the investigations of Professors Haldane and Hill are given due consideration. Dr. Park himself contributes the chapter on bacteriology in its application to public health, and, as might be expected, deals in a thorough manner with immunization to diphtheria and scarlet fever. He believes that diphtheria toxin-antitoxin of the standard degree of neutralization may be issued in place of the Schick test toxin, a local reaction following on a subcutaneous dose of toxin-antitoxin being, in his view, equivalent to a positive Schick reaction. The mortality from diphtheria differs in its age distribution in London from that in New York; about 50 per cent. of the deaths in London occur in persons under 5 years of age, in New York the figure is 81.5 per cent. With regard to the enteric fevers, Dr. Park recommends inoculation of those unduly exposed to infection, including in this category not only soldiers, nurses, hospital attendants, and doctors, but travellers, persons in epidemic localities, and the families of carriers. Isolation of typhoid patients, he says, should be carried out in fly-proof rooms. He points out that in oyster-borne outbreaks contamination has almost always occurred after dredging, which indicates that oysters in their beds have a considerable natural freedom from pathogenic organisms, even in the presence of sewage pollution. Some facts about the American practice in relation to small-pox vaccination are interesting: in New York City the vaccine is made from human-calf-rabbit seed; vaccination is performed by making a single scratch not more than a quarter of an inch long through the drop of lymph, and, if possible, the operation has to be avoided during the months of July, August, and September. Some of the chapters, notably those on cancer and venereal diseases, are given added interest by the vivid style in which they are written; thus Dr. Soper states that more people die of cancer than are killed by railways, street cars, automobiles, fires, drowning, mining, accidents, machinery, poisons, homicides, and suicides all put together—surely a striking way of presenting bald statistics. By means of diagrams it is clearly brought out that in New York State, during the year 1925, venereal diseases headed the list of communicable diseases, and syphilis was three times as common as gonorrhœa. No fewer than twenty States have laws to prevent the marriage of persons suffering from venereal diseases, and in eight of these States satisfactory medical certificates are required before marriage is allowed. As might be expected, the problems of rural sanitation are much more serious in the United States than in this country. Some progress has resulted from the practice of touring the country in motor cars, the wayside farmer having been induced to improve his sanitation in order to attract lodgers. A full description is given of the forms of privy found most suitable in hookworm infested districts. Other subjects receiving detailed discussion are immigration and prohibition.

The authors of *Community Hygiene*[4] have aimed at giving to the American university student the information that will enable him to take a part in leading and guiding public opinion on health matters; in this aim they have succeeded well—moreover, they supply an excellent account of the activities of American public health workers and voluntary associations in dealing with the common diseases. Perhaps the best chapters are those on tuberculosis as a community health problem, and on the community attack on heart disease and cancer. The authors lay stress on the irreparable damage that may be done by quacks claiming to treat tuberculosis and cancer, and devote a useful chapter to proprietary remedies.

Dr. J. P. MODI, who has had ten years' teaching experience at Agra Medical School, wrote the *Elements of Hygiene and Public Health*[5] to conform to a syllabus laid down by an examining board, and has therefore drawn considerably on the standard textbooks of hygiene and tropical medicine. Two special chapters on Indian village sanitation, fairs and famine camps, written to help future subassistant surgeons, should prove invaluable to medical men engaged in public health work in India. The writer gives a vivid picture of certain Indian social customs which must contribute largely to the high maternal and infantile mortality rates. The mother, one learns, is not washed or given clean clothes for the ten days immediately following her confinement; the room is kept dark, the doors and windows covered with thick and heavy curtains, and every opening plugged; very often an open charcoal fire is kept burning in the room. The dai, who has a hereditary right to practise midwifery, puts on dirty clothes specially reserved for the occasion. Her conduct of the case is obviously responsible for the deaths not only of mothers from sepsis, but also of newly born infants from tetanus neonatorum and erysipelas.

[4] *Community Hygiene.* By Dean Franklin Smiley, M.D., and Adrian Gordon Gould, Ph.B., M.D. New York: The Macmillan Company; London: Macmillan and Co., Ltd. 1929. (5¼ × 8, pp. x + 350; 93 figures. 8s. 6d. net.)

[5] *Elements of Hygiene and Public Health.* By Rai Bahadur Jaising P. Modi, L.R.C.P. and S.Ed., L.F.P.S.Glasg. With an introduction by Lieut.-Colonel E. J. O'Meara, F.R.C.S.Eng., etc. Third edition, revised and enlarged. Calcutta: Butterworth and Co. (India), Ltd.; London: Butterworth and Co., Ltd. 1928. (Demy 8vo, pp. xiv + 645; 74 figures. 10s. net.)

BIOLOGICAL APPLICATIONS OF PHYSICAL CHEMISTRY.

THE "Collection de Précis Médicaux" published by Masson et Cie has acquired a high reputation, and this reputation is well sustained by the latest volume, which deals with biological and medical physical chemistry,[6] and is written by Professor ANDRÉ DOGNON.

The subject is a difficult one, because physical chemistry is a relatively young science that has undergone a very rapid development in the last quarter of a century. Moreover, its application to biology can only be dealt with by a person who is thoroughly conversant with both sciences. Professor STROHL contributes a preface in which he points out that this field has been much neglected because few medical men possess an adequate knowledge of physics, and the physicists positively avoid biology. As he says: "The physicist is accustomed to move in a region governed by clarity and logic and is habituated to a language which borrows the exactness of mathematics, and he dislikes venturing on the treacherous ground of biological applications, where probability takes the place of demonstration and simple analogies are only too often the substitute for formulae." Professor Dognon is fortunate in possessing the rare combination of knowledge and interests that is necessary for dealing with his subject, and he has produced a short, clear summary of the more important biological applications of physical chemistry. It is clear that the author has deliberately aimed at reducing the mathematics employed to a minimum, and hence the text can be readily followed by those who are not mathematicians. The author treats his subject with a certain clearness, brevity, and elegance that is traditionally associated with good French works, and his volume can be recommended as an exceptionally good introduction to a subject which is difficult, but which is increasing in importance with great rapidity.

GREEK MEDICINE.

DR. A. J. BROCK has contributed to the Library of Greek Thought, edited by Professor Ernest Barker, a useful and readable volume entitled *Greek Medicine, being Extracts Illustrative of Medical Writers from Hippocrates to Galen.*[7] With twenty years' experience as a translator, especially of Galen, Dr. Brock has made practically all the translations for this volume, and has supplied a valuable introduction and annotations. The introduction draws an interesting parallel between St. Paul and Galen: both were Greek-speaking Roman citizens of a strenuous missionary type, intolerant of sects and of opposition, and often addressed their disciples in epistles, not infrequently of a highly polemic character. In his summary of Greek medicine in Rome, Dr. Brock remarks that if Erasistratus of Alexandria explained disease on much the same lines as

[6] *Précis de Physico-Chimie: Biologique et Médicale.* Par André Dognon. Préface du Professeur A. Strohl. Collection de Précis Médicaux. Paris: Masson et Cie. 1929 (5 × 7½, pp. viii + 310; 63 figures. Paper cover, 30 fr.; bound, 36 fr.)

[7] *Greek Medicine, being Extracts Illustrative of Medical Writers from Hippocrates to Galen.* Translated and annotated by Arthur J. Brock, M.D.Ed. London and Toronto: J. M. Dent and Sons, Ltd., New York: E. P. Dutton and Co., Inc. 1929. (Cr. 8vo, pp. xii + 256. 5s.)

modern osteopaths, the theory of death and treatment invented by Asclepiades in Rome resembles "the electronic reaction" of Abrams. Most of the extracts are from the Hippocratic Corpus or from Galen, but Thucydides's account of the plague of Athens in 430 B.C., which was probably typhus, short extracts from Plato and Aristotle, and longer ones on the interrogation of the patient and on anatomical nomenclature from Rufus of Ephesus are included. It is appropriate that this volume should be dedicated to the memory of Dr. Francis Adams of Banchory, by one who has piously followed his example in bringing the Greek classics within the reach of many to whom otherwise they would be closed books.

NOTES ON BOOKS.

THERE is no sign of any abatement of the flow of books on endocrinology, but the work on endocrinology and the related syndromes of the sympathetic[1] by Dr. A.-C. GUILLAUME strikes a new note in its form. Instead of considering the glands one by one, the author adopts the manner conventional in monographs on the nervous and cardio-vascular systems and considers the endocrine system as a whole. The theme of this compact and elegant little volume is the role of the endocrine system in the major functions of the body. Accordingly the part played by the various glands in the maintenance of mental and physical health, in excretion and reproduction, and the interplay between the old endocrine system and the new nervous system, are all fully considered. The book is a useful adjunct to the large and formal treatises, and we do not think there is anything quite like it.

Clinical Laboratory Methods[2] by Dr. R. L. HADEN, is a short textbook that aims at giving full working details of selected methods for performing the more important clinical tests. The work has evidently met a popular need, for it has reached a third edition in a few years. The present issue contains relatively few alterations. Certain tests which are seldom used have been omitted, and others have been added. The Kahn precipitation reaction for diagnosis of syphilis is the most important new test introduced in the present edition.

In a generously illustrated volume on *Growth*[3] five popular lectures, given by five professors of the University of Missouri, are reproduced; the lecturers being the professors of botany, dairy chemistry, agricultural chemistry, anatomy, and physiology. This fascinating subject is thereby approached from various aspects. Professor ROBBINS in his introduction clears the ground to some extent for Professor BRODY, who analyses the course of growth and senescence, processes which go on simultaneously, the difference being one of their respective dominance. Like the melancholy Jaques, he divides life into seven stages, beginning with the ovum after fertilization, then the foetal stage up to birth, the infantile, the juvenile from 3 to 12 years, the fifth of adolescence up to about the age of 23 years, the period of middle life between 25 and 50 or 60, and the seventh or last beginning after 60. Professor HOGAN deals with the relations between growth and nutrition, and Professor JACKSON with morphogenesis or the changes in the form of animals and their parts during growth and development, the complex factors determining these developmental changes being briefly discussed. This last problem is more fully considered in the final lecture on the physiological factors regulating normal and pathological growth by Professor C. W. GREENE, who gives many illustrations of the effects of endocrine disease on growth.

Those who wish to improve and vary their daily menus may be advised to study *Mrs. Lucas's French Cookery Book*.[4] She gives directions for the preparation of French dishes simply and economically, and writes with evident joy of the pleasures to be derived from a well-balanced and well-prepared meal. All that she demands from the cook in reproducing French methods is the taking of trouble, a sharp knife, and a few extra minutes' work. Her tastes are catholic; she commends Roquefort cheese, but admits that it must be good to be palatable. In fact, her only aversion (and we confess to sharing it) appears to be for venison, the cooking of which she declines to discuss. The choice, use, and care of wines are dealt with briefly by Mr. C. W. Berry and by an "Amateur of limited means." Many will agree with the latter that a glass of sherry with the soup is infinitely preferable to a cocktail before dinner, and that the apéritif, if used at all, should be taken a good half-hour before the meal. We like also Mr. Berry's blunt advice to Englishmen, "Never despise beer."

That "notes" may serve a useful purpose is proved by the call for a sixth edition of the notes[12] Mr. E. B. DOWSETT has been in the habit of giving the students of his tutorial classes for the final L.D.S. examination. As aids to memory, classification and tabulation are to many students invaluable, and in later life a glance at a comprehensive notebook may recall a forgotten condition and explain a mysterious case. Mr. Dowsett's notes will well serve these purposes. But random opening of the pages shows the dangers of the system. Under treatment of gangrenous stomatitis we find, "Excise ulcer and perform plastic operation"; "notes" do not permit of an elaboration of the limitations of this treatment. And what is the differential diagnosis, if any, between polypus of the gum and epulis? A short chapter on bacteriology by Mr. A. Bulleid adds greatly to the value of these notes, which many will find a most useful vade-mecum.

[1] *L'Endocrinologie et les Etats Endocrino-Sympathiques*. I. Par A.-C. Guillaume. Paris: G. Doin. 1929. (4½ × 6½; pp. viii + 310. 25 fr.)

[2] *Clinical Laboratory Methods*. By Russell Landram Haden, M.D. Third edition. St. Louis: C. V. Mosby Co.; Milford, Oxford University Press; London: H. Kimpton. 1929. (6½ × 9½, pp. 317; 69 figures, 4 plates. 21s. net.)

[3] *Growth*. By William Jacob Robbins, Samuel Brody, Albert Garland Hogan, Clarence Martin Jackson, and Charles Wilson Greene. New Haven: Yale University Press; London: Milford, Oxford University Press. 1928. (8½ × 5½; pp. xii + 187; 1 plate, 83 figures. 14s. net.)

[4] *Mrs. Lucas's French Cookery Book*. By Elizabeth Lucas. London: Christophers. 1929. (Post 8vo, pp. xii + 231. 6s. net.)

[12] *Dental Surgery and Pathology Notes*. By Ernest B. Dowsett, D.S.O., L.R.C.P., M.R.C.S., L.D.S. Sixth edition. London: Dental Manufacturing Co., Ltd. 1929. (Pott 8vo, pp. x + 164. 5s. net.)

RECENT ADVANCES IN THE TREATMENT AND PROPHYLAXIS OF LEPROSY.

CAMERON LECTURE BY SIR LEONARD ROGERS.

THE following is an abstract of the Cameron Prize Lecture, which was delivered at the University of Edinburgh by Major-General Sir Leonard Rogers, C.I.E., F.R.S., on recent advances in the treatment and prophylaxis of leprosy.

The lecturer said the time was ripe for a review of the recent advances in the treatment of leprosy and their bearing on prophylactic measures to reduce the incidence of this ancient and dreaded disease. He estimated that it still affected some three million people in the world, and about half a million in the British Empire, the highest rates of incidence being found in our African tropical possessions, especially in areas with high temperature and humidity. The task of reducing leprosy was therefore heavy; it would never be accomplished by the mediæval method of compulsory segregation, with the inevitable hiding of patients in the early more curable stages of the disease. After spending three years in close study of the literature of the subject, which covered some sixty years, he had come to the conclusion that in 80 per cent. of the cases the infection was contracted by living in the same house with a leper, although only 3 to 5 per cent. of those so exposed contracted the disease: this showed that it was only slightly contagious. In 80 per cent. the incubation period was less than five years.

Evolution of Leprosy Therapy.

Among the more common and unsatisfactory methods of treating leprosy formerly might be mentioned local applications and surgical operations; the use of mercurial, copper, gold, arsenical, and antimony compounds; vaccines made from supposed cultures of the lepra bacillus and other saprophytic organisms, including nastin; tuberculin; sterile emulsions of leprotic nodules; and protein shock treatment; of all these it might be said that in no appreciable percentage of cases had they brought about lasting disappearance of all the active signs of leprosy. The fallacies of treatment were next pointed out, including those due to the variable course of the disease, and especially the spontaneous great improvement which temporarily followed the acute phase, and was likely to be erroneously attributed to any drug which happened to be given at that time. It was necessary to treat a considerable number of cases for long periods to enable any reliable conclusions to be reached.

The one ray of hope derived from a study of the older literature was the frequency with which slight febrile and local reactions, more particularly after vaccines, had often been followed by considerable temporary improvement; if a method could be devised of producing repeated slight reactions with a fair degree of certainty an advance should result. Potassium iodide had long been known to cause reactions of diagnostic value, and recently E. Muir

reported good results from this drug in doses of from 1 to 240 grains, but J. Lowe and Robert Cochrane had found it far more easy to do harm than good with this method.

The story was then related of how the old Indian remedy chaulmoogra oil was introduced to European medicine by Mouart of the Indian Medical Service in 1854, and its failure to do more than retard the progress of typical cases of leprosy, owing to its nauseating nature. In 1916, however, Ralph Hopkins in Louisiana reported success in clearing up a few early cases with oral administrations of the oil, thus indicating that it had some definite action. Moss in 1879 had separated the lower melting point fatty acids to which the name gynocardic acid was given; the oral administration of this product, the lecturer found, was more effective than that of the whole oil. In 1904–7 Power had separated chaulmoogric and hydnocarpic acids from both the chaulmoogra oil of Burma and the hydnocarpus oils of India and Indo-China. In 1914 Victor G. Heiser recorded promising results from prolonged and painful intramuscular injections of the Mercado mixture containing one-third of chaulmoogra oil; in the following year Sir Leonard Rogers, at Heiser's request, renewed his former efforts to obtain a soluble preparation of the active principle of the oils on the lines of his previous success with emetine, the active principle of ipecacuanha. He soon found that a solution of sodium gynocardate injected subcutaneously, although painful, was an advance on the oral treatment. In 1916 he discovered that this preparation could also be used intravenously with safety; slight febrile or local reactions occurred, accompanied by extensive breaking up of the bacilli in the leprous tissues, and followed by more rapid improvement and the ultimate disappearance of all clinical signs and bacterial infection in a number of comparatively early cases obtained from among hospital out-patients. Further repeated injections of this preparation produced gradual breaking up and disappearance of the lepra bacilli in nodules and the slow development of immunity, even when little or no evident reaction occurred, with eventual clinical cure and removal of all infectivity. In 1917 twenty-six cases treated for three months and upwards were reported, showing recovery in a number of them, and improvement in all but one. With the help of a chemist, Dr. Sudamoy Ghosh, chaulmoogra and hydnocarpus oils were fractionated and the soluble sodium salts of different melting point fractions were tried. As the result of several years' patient work it was established that the high melting point chaulmoogric acid fraction was useless, but the lower melting point hydnocarpic acid and the so-called gynocardic acid constituted the active parts of the oils, which could best be obtained from the seed of the *Hydnocarpus wightiana* of Southern India. Similar preparations were made from cod-liver oil, soya bean, and other oils, which were also of value in the treatment of leprosy, but they were not so active as the hydnocarpates. Of 51 cases of leprosy treated with the hydnocarpates and gynocardates for three months and upwards in the course of five years, 40 per cent. completely cleared up, and another 40 per cent. were greatly improved; and only one very advanced case showed no improvement. Nearly all the patients were treated by the intravenous method, which was more effective and less painful than the subcutaneous injections; it had the disadvantage of often causing blocking of the veins sooner or later, and was therefore more troublesome.

Meanwhile, in 1919, a useful modification of Sir Leonard Rogers's method had been introduced by Hollmann and Dean in Honolulu—namely, the less troublesome intramuscular injection of the ethyl esters of the whole oil in the form of a thin oily liquid; this preparation had for long been used with much success in Hawaii, at the Culion leper settlement of the Philippines, and by E. Muir in Calcutta. In 1925 E. Muir reported success following the subcutaneous and intravenous injection of pure fresh *Hydnocarpus wightiana* oil with 4 per cent. creosote as an antiseptic, which was less than one-twentieth the cost of a good ethyl ester. In 1927 the lecturer recorded the elimination of the vein difficulty by using sodium hydnocarpate. Dr. T. A. Henry prepared a substance—alepol—the sodium salt of the lower melting point fatty acids of *Hydnocarpus wightiana* oil, from which he had removed the irritant properties of Rogers's early preparations. Alepol was very effective, and painless, whether injected subcutaneously or intramuscularly; it could also be used intravenously in the few cases requiring this procedure by Muir's simple expedient of drawing up about an equal quantity of blood from the vein into the syringe which contained the dose, and then injecting the mixture. The cost of alepol was one-twentieth that of an ethyl ester, and it had been used effectively in many of the colonies during the last few years in several thousand cases.

The results obtained in the largest series of cases yet reported showed 41 per cent. of clinical cures by Rogers's intravenous method, and 31 per cent. by Muir's subcutaneous and intramuscular injections, both series being mainly composed of earlier hospital cases than those seen in leper asylums under the compulsory system. Dr. Isabel Kerr, in her leper hospital at Dichpali, obtained 17 per cent. to 19 per cent. cleared up, and 63 per cent. became bacteriologically negative and uninfective. The most extensive trial in 6,000 advanced cases of eight years' average duration on admission at Culion, reported on by H. W. Wade and C. B. Lara, showed from 15 per cent. to 20 per cent. clinical cures, with a total now amounting to over 1,000 cases. Thus it was clear that, as might have been expected, the results were much better in the case of persons in the early stages who had been attracted to voluntary clinics than in the patients with advanced disease who were obtained by compulsory segregation. The importance of finding the early stages was well illustrated by the results in 486 lepers treated at the Honolulu hospital during five years: these showed 8 per cent. of recoveries in very advanced cases, 38 per cent. in moderately advanced, and 64 per cent. in early ones. It was clear, therefore, that anything which led patients in the early curable stages to hide away, as was inevitable under rigid compulsory segregation, might in these days easily do more harm than good, and actually retard the reduction of leprosy. Yet, the lecturer added, in some colonies the more curable early bacteriologically negative lepers were not eligible for admission to the leper asylums until they had become infective and too advanced to have much hope of cure, no provision being made for their early treatment—a situation only defensible in the past when there was no effective treatment even of early leprosy.

Sir Leonard Rogers then discussed the necessity of modifying rigid compulsory segregation in order to attract the early clinically curable cases. He advocated the system already adopted in Mauritius, and about to be legalized in British Guiana—namely, that cases reported by an expert committee to be not infectious should be treated at clinics or at home, and not be imprisoned. No such compulsion was attempted in our tropical African possessions, yet some 5,000 new cases were attracted to voluntary clinics and colonies last year alone. In view of the facts already mentioned—namely, that 80 per cent. of leprosy was contracted by living in the same house as a leper, and that in 80 per cent. the incubation period was under five years—the lecturer submitted a scheme which provided that, as soon as a leper was found, all his household were examined for early cases; this was repeated every six months for five years. In this way some 80 per cent. of the probable infections from the case should be detected in the early stage; a considerable majority of the patients would be cured and prevented from becoming infective, with a corresponding reduction in the remaining foci of infection. Since patients with advanced nodular disease died in from eight to ten years, and the nerve cases became uninfective, by repeating this process for a second five years few infective cases would remain. A great reduction of leprosy would result within a single decade wherever this simple plan could be put into operation, as was now being done in a leprous area in one of our colonies. Thus the recently acquired power to clear up even the majority of the early cases of leprosy had for the first time in the history of medicine placed it in our power to reduce the disease with a rapidity hitherto unimagined. The recent advances in the treatment of leprosy should therefore be regarded as being by no means the least of the romances of modern medicine.

SURGERY OF THE BILIARY TRACT.

BRADSHAW LECTURE BY MR. R. P. ROWLANDS.

At the Royal College of Surgeons of England, on November 14th, Mr. R. P. ROWLANDS, Fellow of the College, delivered the Bradshaw Lecture, in which he reviewed the surgery of the gall-bladder and bile ducts. The lecture was illustrated by a number of specimens, including some very large or otherwise remarkable gall-bladders and calculi which had been removed by various surgeons.

History of Gall-bladder Surgery.

Mr. Rowlands stated that the surgery of the gall-bladder and bile ducts was only about fifty years old. In the early eighteenth century Petit suggested and described cholecystotomy, but the fear of peritonitis was so great that the operation was not actually performed until 1867, when J. S. Bobbs, as recorded in the *Transactions* of the Indiana State Medical Society, exploring for a supposed ovarian cyst, found and opened the gall-bladder and extracted about fifty small stones, afterwards closing the bladder and dropping it back; the patient recovered. In 1879 Lawson Tait successfully removed a large stone from the gall-bladder and a small one from the cystic duct, and ten years later he published a list of fifty-five cholecystostomies, with only three deaths. In 1885 Mayo Robson successfully performed his first cholecystostomy, and in 1892 published his stimulating book on gall-stones, in which he described six operative procedures: (1) cholecystostomy, or drainage of the gall-bladder, the operation of choice; (2) "ideal cholecystotomy," since abandoned as too dangerous; (3) cholelithotrity, or crushing of the stones, useful at a pinch, but crude, and apt to be followed by recurrence owing to left debris; (4) cholecystectomy, or removal of the gall-bladder, most generally successful for diseases limited to the gall-bladder and cystic duct; (5) choledochotomy, or incision of the common bile duct, and (6) cholecystenterostomy, or joining of the gall-bladder to the bowel. For many years only the serious effects of gall-stones were treated by surgery; but with increasing knowledge acquired from operations and the study of early symptoms, both physicians and surgeons now endeavoured to forestall these serious consequences, and even to prevent the formation of gall-stones, by eliminating the infection which almost constantly preceded it.

Anatomical Variations of the Parts.

The gall-bladder varied considerably in position and size, was occasionally double, divided, or absent, but frequently was either contracted or very large as a result of disease, and sometimes so adherent to important structures as to be difficult to define or unsafe to remove. The cystic duct was often long, running parallel with and adherent to the common hepatic duct, or, on the contrary, very short or absent. The so-called normal arrangement of the arteries was found by Flint in only 69 of 200 consecutive dissections. The relations of the vessels to each other and to the ducts were so variable that constant care was necessary to avoid mistakes which might lead either to severe bleeding or to the accidental tying of the right hepatic artery. Tying of the hepatic artery was a grave error which was found to interfere with the nutrition of the liver, and might lead to the death of the patient. These mistakes could be avoided only by keeping very close to the gall-bladder and its duct, by using gauze dissection, and by examining each vessel very carefully before it was tied and divided.

Diagnosis and Indications for Operations.

Simple radiography revealed the shadows of some opaque gall-stones and thick-walled or calcified gall-bladders. It should always be tried before cholecystography, because it might render this superfluous. With the aid of the opaque meal, radiography indicated pressure or traction of the distended or retracted gall-bladder upon the stomach, duodenum, or colon; but this method gave correct results only in about 30 per cent. of cases. Cholecystography, since its discovery in 1923, had been proved to have many merits and possibilities. Whereas simple radiography, even with the aid of the opaque meal, rarely gave any indication of cholecystitis or of small or non-opaque gall-stones, cholecystography assisted in an early diagnosis of all these, and was particularly useful in demonstrating obstruction of the bile ducts before cholecystitis had developed or become recognizable. It also enabled an estimation to be made of the power of the gall-bladder to concentrate and expel bile, and of the liver to secrete it. Graham and Cole, the discoverers of the method, preferred the intravenous administration of 2.5 grams of phenoltetraiodophthalein. Mr. Rowlands agreed that the test was a little more accurate when the drug was given intravenously, but it was more convenient and was often considered safer when given by the mouth. For oral administration Graham and Cole used 4 to 5 grams of tetraiodophenolphthalein. The dye ought not to be given to patients suffering from heart disease, atheroma, abnormal blood pressure, or to those affected with chronic jaundice, cholangitis, or threatened with uraemia or hepatic insufficiency. Otherwise the pure dye, given with care and in suitable doses, rarely did any harm.

The chief indications for operation upon the biliary tract were (1) obstruction of the cystic duct (as indicated by typical attacks of biliary colic with tenderness in the right hypochondrium, and often a palpable gall-bladder) or of the common bile duct (as indicated by recurrent attacks of biliary colic and jaundice, or increasing and persistent jaundice without colic); and (2) irritation and infection of the gall-bladder (as indicated by chronic flatulent dyspepsia, pain and tenderness over the gall-bladder, and cholecystographic evidence of disease or of stones). The mere demonstration of gall-stones or cholecystitis was not sufficient indication for operation, for in many cases they caused no appreciable discomfort, or only such as could be relieved by medical treatment. When symptoms persisted or recurred in spite of medical treatment, it was generally wise to recommend early operation so as to prevent a high mortality and other serious consequences of delay, of which Mr. Rowlands gave a long list. These included cancer of the gall-bladder, which developed, according to Rolleston and others, in at least 5 per cent. of all cases of gall-stones, and the danger even of this one complication was greater than that of operation.

When possible, it was safer to wait for a quiet interval before operating, so as to allow thorough investigation and preparation of the patient. When signs of spreading peritonitis developed, or an enlarged, tender gall-bladder could be felt, and symptoms such as vomiting, fever, and rigors did not abate, or signs of acute pancreatitis appeared, an immediate operation was necessary. Similarly, when jaundice, associated with fever, failed to clear up under medical treatment, an early operation afforded the best hope. These emergency operations should be limited to simple drainage of the gall-bladder or common bile duct. Radical operations could be carried out later when the patient was better, the liver function restored, and the sepsis subsided.

Preparation for and Technique of Operation.

The patient was kept at rest, preferably in bed, for two or three days and dieted. Plenty of sugar and glucose and sodium bicarbonate were given by the mouth, rectum, or even intravenously in all cases where failure of the liver functions was feared. Hexamine was given as a biliary antiseptic. All septic sources in mouth, nose, and throat were treated in time to lessen the risk of pulmonary complications. When the patient was jaundiced, and clotting of the blood was delayed, 5 c.cm. of a 10 per cent. solution of calcium chloride was injected intravenously for two or three days before the operation, or, if this failed, transfusions of blood might be given.

With regard to anaesthetics, chloroform was best avoided, on account of its destructive effects on liver cells. An injection of 1/4 grain of morphine and 1/100 grain of atropine was given forty-five minutes before the operation. Ether and oxygen were administered, gas and oxygen rarely affording enough muscular relaxation. Novocain injected into the free edge of the lesser omentum and near the neck of the gall-bladder lessened shock and increased relaxation.

For bad subjects, twilight sleep, followed by local anaesthesia, sufficed, especially for simple operations. Spinal anaesthesia with a little gas and oxygen was also valuable.

Mr. Rowlands found that Kocher's incision, which divided the whole width of the rectus muscle and its sheath one inch below the right costal margin, gave the best access for cholecystectomy in fat and muscular patients. The right paramedian incision gave the best access to the lower part of the common bile duct, to the pancreas, and to the appendix adherent low down in the abdomen or pelvis. A stab wound for drainage allowed the paramedian incision to be completely closed to lessen the chance of ventral hernia. For secondary operations, a fresh site for the incision was generally desirable, so as to avoid adhesions and allow a free exposure with less risk of damage.

The abdomen having been opened, the surgeon, whenever possible without adding to the patient's risk, rapidly explored the whole abdomen to discover and remove any source of sepsis. In many cases it might be necessary to remove a diseased appendix. The gall-bladder and bile ducts were examined with the greatest care. It was important to remember that stones might rest in the common bile duct for years without causing jaundice. Mr. Rowlands mentioned that at his first cholecystectomy the gall-bladder contained ninety-nine small faceted stones, which he removed, but he overlooked the hundredth, which was in the common bile duct, and this caused frequent attacks of colic, without jaundice, until he removed it also four years later. When the common bile duct was dilated, especially with the gall-bladder present and active, the ducts must be palpated with extreme care, and often it was necessary to open the common bile duct and examine the passage from within.

Disease Limited to Gall-bladder and Cystic Duct: Procedure.

When the disease was limited to the gall-bladder and cystic duct the choice lay between cholecystectomy and cholecystostomy. Removal was far better than drainage, for the following reasons: drainage rarely cured cholecystitis because the infection lurked deeply in the walls of the gall-bladder; a diseased gall-bladder, being the chief factory of gall-stones, was better removed to prevent recurrence; it was difficult to ensure removal of all the stones, and often easier, cleaner, and therefore safer to remove the gall-bladder and cystic duct without opening them, and, finally, excision of the gall-bladder might get rid of an unsuspected early cancer or pre-cancerous condition. The gall-bladder was not indispensable, and although it had been shown to have several interesting functions, certain animals, such as the horse, deer, and rat, had no gall-bladder, and thousands of human beings who had had it removed got on well without it.

The chief indications for cholecystectomy were irreparable wounds and injuries or diseases limited to the gall-bladder and its duct; among the most important were acute, chronic, and recurrent cholecystitis, typhoid infection, gangrene, perforation, empyema, or fistula of the gall-bladder, due to obstruction of the cystic duct by stone, torsion, kink, band, or stricture, fibroma, adenoma, papilloma, or carcinoma, and biliary fistula or chronic jaundice due to kinking of the common bile duct following cholecystostomy.

It was not wise to undertake cholecystectomy when the patient was very ill, old, or feeble, or when the mechanical difficulties and dangers of the operation were too great for the operator. Cholecystostomy was safer under the circumstances, care being taken to remove all the stones if possible. If the symptoms recurred secondary cholecystectomy should be performed in more favourable circumstances. Nor should cholecystectomy be attempted when there was chronic jaundice with consequent risk of haemorrhage, unless the normal coagulation time had been restored by treatment, nor when there was infective cholangitis or hepatic insufficiency. Cholecystectomy should never be performed unless it was certain that the common bile duct was patent. It was easy enough to recognize gross disease of the gall-bladder, but slight abnormalities were frequently overlooked. If the clinical history and examinations, especially cholecystography and the finding of bacteria in the duodenal bile, incriminated the gall-bladder, it was generally wise to remove it, although it might not look abnormal.

Affection of the Common Bile Duct.

When the common bile duct was affected, obstructive jaundice generally followed, often due to stone in the duct, carcinoma of the head of the pancreas or bile duct, or chronic pancreatitis. When jaundice was associated with colic it was generally due to impaction of stone or other foreign body in the common duct. It was far better to remove the obstruction if possible than to make a short circuit between the gall-bladder or bile duct and the stomach or intestine. A stone impacted in the lower part of the common bile duct was best moved back into the first part of the duct and held there before the latter was opened; when impacted at or near the duodenal papilla, the transduodenal route was good and safe. Whenever the first or second part of the common bile duct had been opened it was his practice to insert a tube for drainage.

If the jaundice was due to chronic pancreatitis or carcinoma of the head of the pancreas, he preferred cholecystogastrostomy to any other treatment. It was much better than draining the gall-bladder or common bile duct to the surface of the skin, and it appeared to be easier, safer, and better to drain the distended gall-bladder into the stomach than into the duodenum or small or large intestine. Chronic pancreatitis, with jaundice, was generally cured by cholecystogastrostomy.

Reconstruction of the bile ducts was required occasionally after excision of growths, but more commonly after accidental injuries during operation. It was better to make the necessary repair immediately, before inflammation had changed and confused the anatomical appearances, and before ascending hepatitis and hepatic insufficiency had developed.

Results of Operation.

The death rate of operations upon the gall-bladder and common bile duct was surprisingly low, considering the complicated nature and difficulties of the procedure. Graham and his colleagues, in their last 309 cholecystectomies for both acute and chronic cholecystitis, with or without stones, had a mortality of 2.8 per cent. Eleven cholecystostomies—performed only in cases which were the worst risks—had a mortality of 18 per cent. The lecturer gave his own figures, mentioning that, as observed by Wilkie and others, mortality was higher in private patients, who were apt to wait too long and to try various treatments before operation. Between July, 1916, and January, 1929, 251 operations for gall-stones and cholecystitis were done in his wards at Guy's, with 7 deaths—a mortality rate of 2.8 per cent. During the last ten years he had operated upon 175 private patients for all kinds of diseases of the gall-bladder and bile ducts, with 11 deaths—a mortality of 6.3 per cent. Five of the deaths occurred in the 25 of these cases in which choledochotomy was done, the death rate here being naturally higher because the patients requiring the operation were often bad subjects, who had suffered for years and develop

As for the ultimate results, complete and permanent relief of symptoms in only about 45 per cent. of cases. Persistence or recurrence was often due to leaving stones behind, to inflammation continuing in the walls of the gall-bladder, or to formation of new stones. Cholecystectomy afforded complete and permanent relief in about 86 per cent. of cases. Some temporary recurrence of symptoms, as Hurst had pointed out, might follow cholecystectomy, owing perhaps to spasm of the sphincter of Oddi with dilatation and other changes in the bile ducts, secondary to the loss of the gall-bladder. Medical treatment would generally cure these symptoms, and should be well tried before the patient was submitted to another operation. Persistence of symptoms after operation might be due to residual infection in liver or pancreas, to overlooked stones, to errors in diagnosis, to osteo-arthritis of the spine, or spastic or mucous colitis. But the results of operation might be said to be extremely satisfactory and to compare favourably with those obtained in any other branch of surgery.

Nova et Vetera.

ARCHAEOLOGIA MEDICA: THE ICONOGRAPHY OF AMBROISE PARÉ.

I have recently received the following letter: "A week or two ago Mr. C. J. S. Thompson sent me a photograph of the portrait of Ambroise Paré which Lord Moynihan has just presented to the Royal College of Surgeons of England. Mr. Thompson says that he came across the original, which is attributed to Miereveldt, at Fécamp last year. Lord Moynihan commissioned an artist in Paris to copy it, since it is believed to be the finest portrait of Paré now extant." The portrait is here reproduced from a photograph. As Dr. C. Hofstede de Groot, the late director of the print room at the Rijksmuseum, points out, the collar, the clean-shaven cheeks, the form of moustache, and the cap are indications that the picture was painted after the first quarter of the seventeenth century. Paré died in 1590, and it cannot, therefore, be a contemporary portrait.

Ambroise Paré.

The receipt of the letter reminded me that an iconography of the great surgeon has long been overdue, and should be undertaken by some competent French surgeon. As a beginning, I have examined the portraits which are in the possession of the Royal College of Surgeons and the Royal Society of Medicine. I have also consulted the admirable works of Malgaigne, Stephen Paget, and Dr. Francis Packard, each of whom has written a Life of Paré.

The portraits arrange themselves into three main groups. The first are oil paintings which are likenesses; the second are copperplate engravings or woodcuts; the third are what may be called fancy portraits—Paré idealized, or as he ought to have been, not as he was.

There are two paintings in the first group: (1) The unsigned portrait which in 1897 was in the possession of the Marquise Charron, whose husband was a direct descendant of Catherine Paré, the surgeon's daughter (d. 1659), who married Claude Hedelin, the advocate (d. 1638). This portrait is reproduced by both Paget and Packard, and is dated 1575. It represents Paré in his seven-buttoned surtout, with a small ruff and a cloak over the left shoulder. (2) The Fécamp portrait, which is here shown. It represents Paré as a younger man, with a square beard instead of the pointed one he usually wore. He has on a skull-cap and a wide linen collar in place of a ruff.

There was a third painting in the Ecole de Médecine at Paris, bought in 1852, and carrying the inscription in a circle: "Ambroise Paré. An. Dom. 1570. Aet. 56." He was pointing to a cloudy sky where the word Jehovah was written in Hebrew characters. When the picture was sent to be cleaned it was discovered that Paré was a modern superposition on a portrait of Tagliacozzi. The details about this portrait are given by Dr. Noe Legrand in the *Bulletin de la Société française d'Histoire de la Médecine*, 1909, tome viii, pp. 372–383.

There are many busts of Paré in the second group as copperplate engravings and woodcuts. The earliest is a copperplate in a square border with the inscription: "Labor omnia vincit. A.P. An. Aet. 45. R." It appears in the *Anatomie Universelle*, published in 1561. Packard has reproduced it in his book. This engraving, as a woodcut in a circle to form a medal, appears in the *Deux Livres de Chirurgie*, issued in 1573. The same motto is on the exergue, and below is the inscription: "A.P. An. Aet. 55."

Vallée drew a bust to illustrate the author's final edition of the complete works in 1585; Giullis Horbeck based his bust upon Vallée's work and issued it in 1607. Vallée's bust was made during Paré's lifetime. It must therefore have been a tolerably good likeness, as it was passed by his family and probably by Paré himself.

Of the fancy portraits, undoubtedly the greatest and the most pleasing is the heroic statue made by David of Angers for the town of Laval. It was unveiled on July 29th, 1840, and is certainly a masterpiece. An engraving of it by Petit appears as a frontispiece to Malgaigne's edition of the complete works. David also designed a bronze medal of the head. It is dated 1835 and has been engraved. A less pleasing study is the portrait by Robert Fleury representing Paré writing with his hand resting on a skull.

Such are a very few facts about the iconography of Ambroise Paré. There is much still to be done. Many of the engravings assign the surgeon's age. Some of these dates are clearly incorrect. Why were they given at all?

One whole group of the busts are characterized by a cloak over one or other shoulder; which of them is the original? Where did Cecill obtain the portrait which is best known to English readers, for it occupies the centre panel in the frontispiece of both editions of Thomas Johnson's translation? There are two editions at least of this portrait, each with the distich—

> "Humana Ambrosii vera haec pictura Paraci
> Effigiem sed opus continet ambrosiam,"

but in one the last word "ambrosiam" appears in Greek letters, and the engraving is signed "Joan. Heroaldus. In effigiem Ambrosii Paraei, Anno, Aetatis 68," so it is probably the first one.

These and many other questions arise, and it would be doing a service to surgical iconography if a thorough investigation were made of the whole subject. Such notes as I have are at the disposal of anyone who will undertake the task.

D'Arcy Power,
Honorary Librarian to the Royal College of Surgeons of England.

The *Medical Art Calendar* for 1930 has now reached us from Holland, and once again nothing but high praise can be given to it as a most attractive collection of paintings, engravings, and etchings relating to medical topics. These illustrations can be easily detached and framed separately, and the calendar itself is designed to lie on the desk or hang on the wall. A special album is being prepared in which illustrations appearing in previous calendars can be kept, and the pictures appearing in each calendar for the past eleven years can still be obtained, arranged in albums, for 8s. 6d. each, post free. The price of the *Calendar* for 1930 is 6s.; it may be obtained from Mr. J. P. Kruseman, Noordeinde 91, The Hague, Holland.

TRAINING AND EMPLOYMENT OF MIDWIVES.

Obstetricians and the Departmental Committee's Proposals.

The recent report of the Departmental Committee on the Training and Employment of Midwives was the subject of discussion, on November 15th, by the Section of Obstetrics and Gynaecology of the Royal Society of Medicine.

Dr. Arthur E. Giles, who presided, said that it was unusual for the Section to have a discussion on a non-scientific topic, but the matter was of the greatest importance to everyone connected with the practice of midwifery in this country. The view of the council of the Section was embodied in certain resolutions.

Dr. Herbert R. Spencer said that the report, a document of ninety-six pages, was signed by all the members of the Committee, except for the reservations made by Dr. Fairbairn and Mrs. Bruce Richmond, who dissociated themselves from the majority in regard to the recommendations which involved the splitting up of the functions hitherto exercised by the Central Midwives Board and their distribution between a reduced Board, the Ministry of Health, and an advisory committee. Parts II, III, and IV of the report, dealing respectively with maternal care, training of midwives, and employment of midwives, would, he thought, carry the assent of the Section. The historical survey in Part I mentioned the pioneer work of the Obstetrical Society of London, the forerunner of the Section, in laying down rules of practice and conduct, instituting a voluntary examination for midwives, and issuing a diploma guaranteeing that its possessor was a skilled midwife. The report might well have pointed out that it was due to the persistent efforts of the Obstetrical Society that the Midwives Act, 1902, was framed. The first rules and regulations of the Central Midwives Board were not only "no doubt largely based on"—as the report said—but in many cases were identical with those issued by the Obstetrical Society. Apparently, judging from the character of such criticisms as were made, the Departmental Committee did not find much amiss with the present rules and regulations of the Board. Part V dealt with administration, and here the committee made proposals for the diminution of the Board, the limitation of its functions, and the assumption by the Minister of Health of the sole responsibility for approving and inspecting training institutions and teachers, and laying down lines of curriculum. He hoped the Section would express its disapproval of these proposals on the ground that the Board was an expert body, which had performed its functions well in the past, and that its duties should not be handed over to the Ministry of Health, whose treatment of the panel doctors of England under the National Insurance Act was characterized by the Lord Chief Justice as pure despotism.

Dr. Watts Eden said that the report of the Departmental Committee contained a great deal with which all obstetric teachers would be in agreement. Serious exception must, however, be taken to the administrative proposals. The principle upon which the practice of midwives in this country had been governed since the first Midwives Act was passed was that there should be a statutory *ad hoc* authority appointed for the purpose, in whose hands were placed all matters relating to education and training and professional conduct. That was a sound principle, from which the Departmental Committee proposed entirely to depart. On the statutory authority midwives, obstetric teachers, medical officers of health, and general practitioners were all represented, so that the affairs of the midwives were in the hands of those who knew something about them. He would not affirm that the constitution of the Board was quite ideal, it might have been made more widely representative of the classes chiefly interested, and might have been given greater power, but within the limits imposed upon it by the legislature it did very excellent work. It was now proposed to deprive it of its most important function—namely, its responsibility for the training and education of midwives, which would be vested in the Ministry of Health, with the assistance of an advisory committee. Experience showed that advisory committees of Government departments were not allowed to do very much: an instance in point was the advisory medical committee appointed under Lord Dawson's chairmanship at the time the Ministry of Health was instituted, which had been given no serious work at all. The practice of the Ministry was to appoint committees of inquiry independently of its own advisory committee. If the advisory committee now proposed were ever asked for its opinion it was not known whether the Ministry would accept the advice given. This matter had to be considered in connexion with the scheme also adumbrated in the report for the foundation of a national maternity service. It was contemplated by the Departmental Committee that when this scheme was put into operation four-fifths of the confinements in this country would be carried out by midwives, who would be paid for their services by the local authority under the Insurance Act, and would consequently be to a great extent in the hands of the Ministry of Health. Midwifery would thus pass largely into the control of a Government department instead of being, as it was now, in the hands of the profession, guided by the statutory authority appointed for the purpose. Such a change could not be carried out without detriment to the teaching of midwifery and its practice also. One of the important duties of the Central Midwives Board was the approval and inspection of institutions in which midwives were trained. True, this prerogative had been interfered with by the action of the Ministry of Health, which, when Poor Law institutions began to train midwives, refused to allow the Board to inspect them on the ground that they were Government institutions. The Ministry said it would inspect them itself, but the Ministry had no inspectors on its staff capable of inquiring into the methods of instruction given in the schools. The structural features of the building might be inspected, and the suitability of accommodation for pupils and nurses, but the Ministry was not in a position to carry out the inspection required to certify any given training institution as efficient. To transfer these powers from an *ad hoc* authority to a Government department was a retrograde step. The authority appointed for the purpose should retain its powers, and should be enlarged and made more influential than the old Central Midwives Board and be given greater powers. The majority of its members should be drawn from those who knew from a practical point of view what the practice of midwifery was, while other members should be those whose experience of affairs would be advantageous from the point of view of organization. But an *ad hoc* authority there must be if anything like liberty was to be preserved. Before long there would be another scheme by which doctors who practised midwifery under the National Insurance Act would also become officials of the Ministry of Health, and paid by the State. The whole practice of midwifery, except for the fraction representing the classes to whom expense was no object, would pass into the hands of the Ministry, just as the treatment of infectious diseases had done. The sooner the profession made itself heard the better. The present resolutions were the first step—not the last—in making it clear to the Government that the Departmental Committee's proposals were unacceptable.

Dame Louise McIlroy said that what interested her was the future of obstetric teaching. If, as Dr. Eden said, four-fifths of the confinements in the country were to be attended by midwives, would the remaining fifth be in the hands of specialists or general practitioners? The teachers would agree that they were not out to teach the specialists; most of them were engaged in teaching the future general practitioners, and if the future practitioner was to have no opportunity to engage in midwifery it was quite time the medical schools saved the money they spent on teachers and on instruction. The chairman had apologized for the unusual nature of the discussion. She thought, on the contrary, that it was a great pity these questions of administration had not been taken up long ago. The Section had not done well to be so scientific as to keep itself outside the maelstrom of this controversy. This was a serious question from the point of view of the teaching schools and the future general practitioner. It was stated that the general practitioner of the present generation

was not interested in midwifery and ante-natal care. But certainly the future practitioner was being trained in these directions. She wondered what type of person in the Ministry would control these proposed arrangements. There might be people in administrative positions who understood the subject of midwifery, but knew nothing about clinics or the practical difficulties of the obstetrician. The midwifery service had been most efficient because it had had the benefit of teaching by specialists, a work which began in the old Obstetrical Society, and now the Ministry of Health were stepping in and taking advantage of all that training. She had a certain amount of sympathy with the Government because it did the paying, but it seemed likely that all midwifery would come under a Ministry of Health scheme, except for attendance on West End ladies who could afford specialists.

Dr. J. S. Fairbairn, one of the members of the Departmental Committee, invited by the chairman to speak, said that the difficulty he felt was to keep himself under control. He read a quotation from a Sunday paper reviewing Lord Hewart's book: "The conclusion is irresistible that it is manifestly the offspring of a well-thought-out plan the object and effect of which are to clothe the department with *despotic powers*"—*in this case over the midwives and midwifery generally*. He wanted to remind the Section what a departmental committee was. The word "departmental" was the clue to the whole thing. The department suggested what was required, determined the composition of the committee, appointed its chairman and its members. A member did not know what sort of folk he was going to sit with until the list was published, and he had found himself serving on "rather a comical body." The thirteen members included seven doctors, and among those seven the administrative side had the majority; there were three medical officers of health and an administrative officer of the Ministry, as well as, among the non-medical members, an assistant secretary. It was a "very mixed batch." Departmental committees, unlike Royal Commissions, did not publish their evidence: they chose what they liked. No one could tell, on reading the report, whether it was based on evidence or not. Much of the evidence given—hear-say and opinion—would not be admitted in a court of law. Further, the report was made to the Minister in charge of the department, who could publish it or not, as he liked; there had been a recent instance of a withheld report. On this committee "there was a distinct hostility towards the Central Midwives Board, and one rather felt that it was judged beforehand, but that is merely an impression." The suggestion for the administrative proposals came from the London County Council at a late stage of the proceedings. Dr. Fairbairn said he hesitated to go on because the *British Medical Journal* rather questioned the propriety of some of the things said in the reserved report. But the Ministry of Health had interfered constantly with the Central Midwives Board before ever he himself had anything to do with the latter, and withdrew the Poor Law hospitals entirely from its purview. That was the sort of thing that happened when a Government department had got hospitals under it; it gave them a privileged position. He had felt strongly that he would have nothing to do with inspection of training schools under the Central Midwives Board unless he could inspect them all. When the Board did get a certain amount of control over the Poor Law hospitals it discovered that some extraordinary things were allowed to go on. There were places where there were about thirty confinements in twelve months, and nurses engaged in staff nursing in the medical or surgical wards were hurried round to another part of the building when a confinement was imminent in order that they might look at it and sign it up for their certificate. That was being trained in obstetrics! For the rest, the proposals were the old idea of circumlocution—the Ministry would circumbcute the Central Midwives Board, and the Board would circumlocute the Advisory Committee, and the Advisory Committee again the Ministry. The process would begin by swallowing the midwives, and sooner or later the medical profession, so far at any rate as attendance on insured women under these new schemes was concerned. He hoped the resolutions would be accepted, for they were in the true spirit of the old Obstetrical Society, of which the Section was the lineal descendant.

Dr. F. H. Oxley said that he happened to be a member of another departmental committee (on maternal mortality), which was very happily constituted and functioning. The question now under discussion profoundly affected maternal mortality, and he believed the Section of Obstetrics and Gynaecology had been asked to give evidence. He did not know what the position would be if the Departmental Committee on Maternal Mortality reported in an exactly opposite sense to the Departmental Committee on Midwives. He could only say that all the members were extremely anxious that something should be done of real value, and they would consider from an unbiased point of view whatever the Section placed before them.

Dr. James Young hoped the Section would be able to persuade Dr. Oxley as to the justice of its cause. Evidence was accumulating from various sources that the conclusions to which the Departmental Committee on Midwives had come with regard to an alteration in the position and functions of the Central Midwives Board were wholly misdirected, and the fact that there had been a strong representation of the case in the *British Medical Journal*, and also to some extent in the *Lancet*, should carry a good deal of weight in converting those in authority who had to make the final decision. There was nothing which would militate against the raising of the standard of the midwife more than an attempt to undermine the interest and control which the professions concerned could take in the administration of their own affairs. He had indirect evidence that some members of the committee on which Dr. Fairbairn sat had become very shaky about the conclusions arrived at. On the other hand, Dr. Young hoped that this question of the midwife would not be allowed to entangle the bigger issue of the maternity service.

The President (Dr. Giles) explained that the resolutions had not been drafted in any spirit of trade unionism, with an idea of serving the narrow interests of the medical profession. Many members of the profession would, indeed, be only too glad to be relieved of this the most arduous and worst-paid part of their work. But it was felt that if the practice of midwifery were taken away from the present form of supervision and vested in a Government department, the well-being of lying-in women and newborn children would be seriously imperilled. He added that the resolutions would not go directly to the Ministry of Health, but would go first to the Council of the Royal Society of Medicine for its approval.

TESTIMONIAL TO SIR RONALD ROSS.

Seventh List of Contributors

We now print a further list of those whose donations were received between September 12th and October 31st in response to the appeal on behalf of the Ross Award Fund published in the *British Medical Journal* of May 11th. The total amount in hand at the end of last month was £10,279 13s. 10d. The list published below does not include anonymous contributors or those whose initials only have been supplied. Donations should be sent to Lloyds Bank, Ltd., 110, High Street, Putney, S.W.15.

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British Medical Journal.

SATURDAY, NOVEMBER 23RD, 1929.

THE GYNAECOLOGIST IN THE MAKING.

Diversity of opinion still exists about the precise relation of gynaecology to obstetrics on the one hand and to abdominal surgery on the other, and the type of training best fitted for those intending to practise it as a specialty. Within its commonly accepted limits the sphere of gynaecology includes the diseases of the female reproductive tract, and the boundary between it and surgery, following the anatomical line of the tract, is fairly clear-cut, although it may be transgressed sometimes where the pelvic urinary and digestive tracts come into close relation with the reproductive tract. There is not, however, and there cannot be, any such clear differentiation from obstetrics, for the scientific basis of both gynaecology and obstetrics is the same, and their separation in practice is wholly artificial, being determined by custom, convenience, or method of treatment. No ruling or formula in words can be given that would decide what should fall into one or the other. Examples of a few incongruities may be mentioned. Pregnancy clearly falls to the obstetrician, but ectopic gestation is claimed by the gynaecologist; the acute puerperal infections are left to the obstetrician, while other acute infections of the female genital tract and all chronic infections fall to the gynaecologist, and septic abortions may be shared between the two; immediate injuries of parturition come under the one, and late injuries and their more remote results under the other. Even Caesarean section may not be disdained by the gynaecologist; and so the list might continue. These instances show that although practice may be divided into two portions, the science on which it is based cannot. That science comprises the anatomy, physiology, pathology, and hygiene of the female reproductive apparatus, together with certain related facts in endocrinology and psychology; and training on a broad foundation, with clinical experience in all these aspects of the subject, is essential to a proper comprehension and practice of any one of its divisions, more particularly of that division in which the injuries, infections, and diseases consequent on abnormal reproduction form so large a part of the clinical material.

In this country and in Germany the essential unity of obstetrics and gynaecology has been maintained, in science and in practice, and both are represented equally in the training of those devoting themselves specially to their study. In the United States the tendency has been towards the divorce of obstetrics from gynaecology, not only in practice, but also in training, seeking compensation by taking in urology and otherwise extending the sphere of gynaecology beyond its real frontiers. The American point of view was ably set out by Professor Thomas S. Cullen of Johns Hopkins University in a paper read at the recent Annual Meeting of the British Medical Association at Manchester, and published elsewhere in this issue of the *Journal* (p. 941). This paper was followed by a discussion[1] in which the British position was strongly upheld by the subsequent speakers. Professor Cullen's plea that the gynaecologist must be prepared to deal with any condition that he may meet in the abdomen received general acceptance, and his further points will not be questioned in regard to the need for a thorough training in abdominal surgery and for the gynaecologist to keep himself abreast of such procedures as he may occasionally be called to perform upon the intestinal or urinary system. From his paper it would appear that the sphere of the gynaecologist may extend from the pelvic outlet up to the dome of the diaphragm, so long, we suppose, as the abdomen is of the female gender; for surely, even in the United States, the gynaecologist must maintain his sex-linked character. As was pointed out in the discussion, manual skill is of less importance, and certainly is more easily acquired, than sound judgement and good diagnostic ability and the attitude of mind that may best be developed by a wide clinical experience of women throughout the reproductive period of life. There is a less obvious and more imponderable element than technical skill which Professor Cullen left untouched. The gynaecologist must be something more than a surgeon with a specialized knowledge of the pathology and treatment of pelvic disease; he should have a far deeper understanding of womankind, with its specific characteristics other than diseases, than can be expected of those whose work is more general and common to both sexes.

Professor Cullen's account of the novitiate at the Johns Hopkins University of those aspiring to specialize in gynaecology is of particular interest, for the time spent there and in the medical schools of this country is much the same, so that the problem is narrowed down to the question of how it can be used to the best advantage. Our method is not so standardized as it appears to be in America; our entrants are left more to follow their own bent, and, as a rule, they are not so well drilled in general pathology. With us the potential specialist in gynaecology, while holding appointments as house-surgeon and house-physician, and as house-officer in the gynaecological and obstetrical department of his hospital, prepares himself for the F.R.C.S., and perhaps for some other higher qualification. Later, when he becomes registrar, his work is similar to that of the assistants in Professor Cullen's clinic, except that at first obstetrics forms a larger part of his clinical service. The present tendency throughout medicine is to stress the study of normal function and the causes and early detection of its disorders. Hence the need, for all professing gynaecology, of a long apprenticeship in midwifery, including work in the post-natal clinic, which serves as a link joining together the two parts of the subject.

In conclusion, we venture to quote the observation of one whose description by Professor Cullen we wholeheartedly accept as "that master gynaecologist Howard A. Kelly," emeritus professor at Johns Hopkins University. In his preface to the last book under his name Professor Kelly writes: "Gynaecology, which once threw off the trammels of obstetrics, is now coyly courting her own mother, and here and there returning to her ancestral home under the guidance of rare men of acumen and skill in both specialties, an amalgamation still nascent." This statement is made, perhaps with prophetic vision, when looking back over his long experience at Johns Hopkins. There can be no doubt that the system that proves the better in actual practice is the one that will survive, and it may be that each will flourish in the soil of its own country and yet not bear transplanting.

[1] *British Medical Journal*, August 17th, 1929, p. 301.

TREATMENT OF SCOLIOSIS.

THE treatment of scoliosis, or twisted spine, presents difficult problems which are as old as orthopaedics or older, and which, when the deformity is far advanced, continue to baffle attempts at correction. The reasons for this difficulty are not far to seek. The parts of the skeleton concerned constitute the mainstay of the body in all vertebrate animals, and have especially important and onerous functions in those members of the phylum who in the course of time have assumed the erect posture. The large number of elements of which the backbone is made up, the complexity of the movements of which it is capable, its dependence for its support on the action of many muscles, and lastly, the intimate association of the column with the spinal cord and the apparatus of respiration—all these factors combine to make the problem of correction of deformities of the spine extremely difficult. As if to pile Pelion upon the Ossa of obstacles, we are furthermore confronted by the discouraging fact that it is practically impossible to get any hold of the vertebral column, except indirectly through other structures, of which perhaps the ribs are the most important and unfortunately also the most untrustworthy owing to their yielding nature and the remoteness of the points exposed to corrective pressure from those points upon which it is desired to produce effects. The variety of the causes of scoliosis further complicates the subject, especially as some of those causes are obscure, and theories advanced in explanation are not universally accepted.

Andry, the inventor of the word "orthopaedia" and author of the first book on orthopaedics, had not much to say that was helpful in treatment, but long before his time the deformity was recognized and treated vigorously by surgeons such as Ambroise Paré, and mechanicians such as Skatt (or Schacht) of Utrecht, on principles which were little altered, even after Sayre's gypsum replaced steel, till Abbott made known the principle of fashioning "windows" in jackets so as to allow and encourage expansion of the flattened ribs. When recognized and treated early and thoroughly, scoliosis, if not caused by congenital defect of bone or muscular palsy, is curable by various methods or by a combination of methods, but when the vertebrae have become grossly deformed, most authorities will admit that only palliation can be looked forward to. It was claimed for Abbott's method that the lateral flexion and rotation of the spine and the distortion of the ribs could by it be as easily over-corrected and cured as a knock-knee, but careful investigation of the clinical evidence by a committee of the American Orthopaedic Association resulted in disappointment. Many of those who have written of the treatment of scoliosis have realized that pressure on the prominent ribs of the convexity, while it may tend to correct the rotation of the vertebrae, must also tend, since the ribs are compressible, to increase their deformity, and also that, since there are almost invariably at least two curves, measures intended to correct deformity in one region are likely to increase it in another.

Elsewhere in this issue (p. 939) we publish the paper on the treatment of scoliosis by Mr. McCrae Aitken with which he opened the discussion on this subject at the Annual Meeting of the British Medical Association at Manchester, and in which he endeavoured to establish principles for the treatment of this deformity based on sound and established rules of anatomy and physiology. On no other basis can we hope to build successfully. When we examine a patient with advanced scoliosis, or Nicoladoni's well-known representation of a scoliotic vertebro-costal segment (which has been copied, with or without acknowledgement, by many later writers), we are puzzled to define the position of the antero-posterior middle line from which deviations and distortions may be measured. If we draw this imaginary line, as seems clinically desirable, through the tip of a spinous process and the middle of the sternum on the same rib-plane, and measure from that line, we shall form certain estimates of the kind and amount of distortion. If, however, say, on Nicoladoni's illustration, we take the antero-posterior axis of the vertebra for basis, an entirely different estimate will be formed of the changes that have occurred. Relativity rules in the morbid anatomy of scoliosis, and in relation to each other the vertebrae on the one hand, and the ribs and sternum on the other, are rotated in opposite directions, and the only approximately fixed base line is one drawn from the tip of the first sacral spinous process, through the pelvis, to the symphysis pubis. But as every vertebral segment in the spine may be involved, the task of describing and analysing the changes which have taken place in each one, and in its relations to its neighbours and to the selected base-line, is a very hard and heavy one.

Most present-day authorities are agreed that the outstanding element of the deformity is not so much lateral flexion as rotation, which is a normal function of the cervical and lumbar regions, whether accompanied by flexion or not. It is, however, extremely difficult to demonstrate any measurable amount of rotation in any movements of the normal thoracic region except in one or two vertebrae adjacent to the cervical and lumbar regions. Yet the worst and most resistant and obstinate deformity in advanced cases is due to rotation of the thoracic part of the column. If rotation, as R. W. Lovett maintained, is a concomitant of passive lateral flexion of the normal spine, we think it must be admitted that it only takes place to a small extent. Mr. McCrae Aitken said he had found that what he had thought was an original idea had already been expressed by W. Adams in 1854, but we think he is entitled to whatever credit attaches to the introduction of the term "unilateral lordosis"—a term, however, which seems to imply a movement which is incompatible with our ideas of the nature of a rigid body such as a vertebra, one lateral half of which could hardly move forward without the other. But W. Adams demonstrated, in the case of the celebrated Egyptologist and geologist Dr. *Gideon Mantell*, that, setting aside changes in the form of the apophyses, extensive rotation of the lumbar vertebrae could and did occur without any deviation of the spinous processes of the vertebrae concerned from the middle line of the trunk. In other words, rotation took place in this case around an axis passing through the tips of the spinous processes, instead of, as usual, round one situated more posteriorly. Mantell's case has puzzled some distinguished surgeons, but was first correctly diagnosed by Adams, whose diagnosis was confirmed at necropsy. The original specimen is, we believe, in the museum of St. Thomas's Hospital, and casts of it are to be found in various other museums.

Of late years the theory that scoliosis is the effect of ill-balanced muscular action has been revived and strengthened by recent investigations into postural tone of muscles. The fact that anterior poliomyelitis, when it affects the muscles of only one side of the trunk, is generally followed by scoliosis, together with the obviously favourable anatomical arrangement of

the spinal muscles for the production of rotation, lends support to the muscular theory of causation, which was advanced many years ago. What is new is that the effect of postural tone is now called into the pathologist's service. The speakers who followed Mr. Aitken at Manchester did not altogether accept his conclusions, but, as in many such discussions, it was not certain that those speakers were all referring to the same stage of the deformity. A method of treatment which may be efficacious in the earliest "postural" stage may be quite unfit to cope with more advanced deformities. Whether it be the ribs which rotate the vertebrae, or the vertebrae which displace and distort the ribs, may turn out to be a question of small moment when we learn the true nature and mode of action of all the forces acting on both.

HYDATID DISEASE AND PUBLIC HEALTH.

Since the war much valuable work has been published on hydatid disease in Australia and New Zealand, the parts of the British Empire where hydatids are prevalent. We have now before us No. 6 of the *Proceedings of the University of Otago Medical School*,[1] the second part of which contains three interesting papers on hydatid disease. It is edited by Professor Carmalt-Jones, who has himself recently contributed an article on the clinical aspects of the subject to our columns.[2] Dew's book, lately reviewed in this *Journal*[3] is likely to become a classic on this parasitic disease. Although hydatids are relatively rare in Great Britain, we may yet learn much that is of interest from those who have dealt with many cases—the Sauls and Davids of the profession. In New Zealand it is estimated that 100 to 150 new cases of hydatid disease in man occur each year, while the proportion of hydatid to other diseases in the hospital population is estimated as about 1 to 600. In some parts of New Zealand (Canterbury) and in Victoria the proportion is even larger, being more than 1 to 300. The life-cycle of the parasite and the mode of infestation are known. Ova from the *Taenia echinococcus* developing in the intestine of the dog are passed in the faeces and contaminate water and grass. They thus gain entry to the alimentary tract of the herbivora, and, passing to liver and lungs, form the intermediate or cystic stage. Reinfection of the dog takes place by eating these infected viscera at the slaughterhouses. Observations by the officials of the New Zealand Department of Agriculture showed that 43 per cent. of sheep and 46 per cent. of cattle harboured hydatid in lungs or liver. Similar figures are recorded concerning stock animals in the south-eastern States of Australia and in the Argentine Republic. It should be emphasized that infestation of the viscera has no deleterious effect on the flesh for food purposes—a fact of importance, since the export of frozen meat is a staple article of trade of the sheep and cattle industry of these countries. Infection of man, often during childhood, takes place from fondling and playing with dogs whose mouths and coats are soiled with ova. The mortality of hydatid disease is estimated to be between 15 and 20 per cent. The fact, therefore, that in the countries where hydatid disease is endemic its prevalence is not diminishing, but rather (especially in South America) increasing, is seriously exercising the minds of public health authorities and of those who have the welfare of the community at heart. Sir Louis E. Barnett of Dunedin, New Zealand, who was president of the 1927 Australasian Medical Congress, after giving a clear statement of the situation, describes in detail the measures that should be adopted to deal with it. He urges that a whole-hearted effort should be made to bring before the public the dangers of hydatid disease, and the facts about the mode of infection and the means of prevention. An intensive propaganda could be effected by means of public health lectures, posters, and cinematograph pictures which will appeal to both young and old. The measures to be adopted should include (1) the prevention of access of dogs to raw offal; (2) the administration to dogs of effective anthelmintics, such as male fern, areca nut, or its active principle arecoline; (3) instruction in hygiene, to prevent the swallowing of hydatid ova; and (4) the destruction of unregistered and vagrant dogs. The social sense of the community must be stirred. The active co-operation of the people with the public health authorities is required in order to prevent the spread of this menacing disease.

[1] *Proceedings of the University of Otago Medical School*, No. 6: Anatomical Studies: Hydatid Disease. Edited by D. W. Carmalt-Jones, M.D., F.R.C.P. Dunedin, N.Z. 1929. (6½ × 9½; illustrated.)
[2] *British Medical Journal*, 1929, ii, 5.
[3] Ibid., 1929, i, 996.

"AN OXFORD MOVEMENT."

"An Oxford movement" as the announced title of the Lloyd Roberts Lecture delivered at the Royal College of Physicians on November 14th by the Right Hon. H. A. L. Fisher, F.R.S., left a good deal to conjecture. One wondered whether the theme of the Warden of New College was to be the Tractarian or Puseyite movement, which generally goes by the name of the Oxford movement, or the Methodist movement, which had its origin at Oxford, or, earlier still, the Lollard movement, which was also largely inspired from that University. Mr. Fisher soon made it plain that his reference was to a secular, not a religious, movement. In the middle decade of the seventeenth century Oxford was the centre of those active philosophical discussions and investigations which later fructified in the establishment of the Royal Society. John Wilkins, afterwards Bishop of Chester, became Warden of Wadham in 1648, whereupon the group of philosophers who had been accustomed to weekly meetings in London migrated to Oxford and resumed their discussions under more peaceful conditions in the warden's lodging, and other very distinguished members of the group were drawn from Oxford itself. It would be doing Oxford too much honour, said Mr. Fisher, to trace this brilliant and sudden flare of scientific curiosity to any fundamental revolution in the academic curriculum, or any enduring triumph of the rational spirit in the University. Oxford, which was the nursery of the Royal Society, not very long afterwards burnt Hobbes's *Leviathan* and acquiesced in the expulsion of John Locke from his studentship at Christ Church. The transference to Oxford was due to political accident and the turmoil of the civil war, and it was London which had historical priority, for the weekly meetings of the "invisible college" were first held in the rooms, off Cheapside, of Dr. Jonathan Goddard, Gresham professor of physick. Mr. Fisher described some of the men who took part in this Oxford movement. Wilkins was not prolific as a writer, but had an extraordinary gift for stimulating others by the glow of his active and comprehensive curiosity, attaching to himself men who were doing important work in any line of scientific inquiry. It was a letter from Wilkins which brought to Oxford Robert Boyle, the father of English chemistry. Another distinguished member of the group was William Petty, in turn a cabin-boy, sailor, doctor, and statistician, who, being vice-principal of Brasenose, attracted attention by bringing back to life one Ann Green, who had been hanged for the murder of her child, and whose body had been handed over to the doctors for dissection. Petty was only accidentally a physician; he was really a political economist and the first to bring to political problems the science of measurement. In this brilliant company which met at Wadham, where even the manciple was a skilled maker of mathematical instruments, was Christopher Wren, who came as a commoner in 1646. Had he not become the greatest architect of his age, said Mr. Fisher, this man of various

mind would have been among its greatest mathematicians or anatomists. He helped to make improvements in the telescope, interested himself in projects for the measurement of meteorological phenomena, and also made experiments on transfusion of blood. More and more he was drawn to architecture by his native taste, his geometrical sense, and the strict discipline he had had in anatomy under the direction of Wilkins and others. During this same decade John Evelyn, a perfect specimen of the cultivated English amateur, came into association with the group, and his letters and diary bore many traces of this far-reaching movement. Incidentally Evelyn wrote a treatise on the abatement of London smoke. The Oxford group was further reinforced by a servitor from Christ Church, who was destined to make himself illustrious as a man of science. This was Robert Hooke, a man of genius, handicapped by ill health and an unfortunate knack of multiplying the jars of existence. While Wren designed St. Paul's, Hooke was the architect of the Royal College of Physicians in Warwick Lane, also of Bethlem Hospital and of Montague House, now the British Museum. He shared with Wren the intoxication of universal curiosity. He popularized the microscope, discovered the cellular structure of plants, and defined, before Newton, the doctrine of gravitation, though he lacked the mathematical ability to demonstrate it. Mr. Fisher then addressed himself to the reasons for the failure of this Oxford movement to perpetuate itself. It had its enemies in the thoroughgoing supporters of the old discipline, but Oxford was Royalist, and Charles II was notoriously favourable to the Royal Society. Nevertheless, the atmosphere from the Restoration onwards seemed in many ways subtly unfavourable to a great extension of the scientific domain. Men of science continued to work at Oxford in the age which succeeded the Wadham group, but they found intercommunion difficult, and had no great influence on the intellectual life of the University. There was no better illustration of this than the case of John Mayow (1643-79), one of the greatest names in the history of physiology. Mayow carried out his researches at All Souls, discovering oxygen and grasping the essential facts about the formation of oxides and acids, but in such isolation that even Newton and Boyle seemed to have been unaware of the significance of his published work. It was a hundred years before the greatness of this young philosopher was rediscovered, when Thomas Beddoes told his countrymen that an Englishman living in the reign of Charles II had anticipated the great Lavoisier, and had defined the secret of respiration and the principle of body metabolism. Only by slow and painful degrees, and after many an academic battle had been fought, did science recover that position of eminence in the most ancient of English universities which had belonged to it, by political accident, at the time when Christopher Wren was in his youth, and when generous minds were turning eagerly from the sterile battle of the creeds to the new and peaceful pastures of natural knowledge.

CONTROL OF PROPRIETARY REMEDIES IN NORWAY.

Next January a new law will come into force in Norway, designed to control the advertisement and sale of proprietary drugs and contrivances such as electric belts. No vendor of a so-called specific remedy, whether it be a cure for colds or a preventive of parasites, will henceforth be allowed to keep the composition of his wares a secret. The threefold object of the law is to ensure that proprietary remedies shall be potent—namely, that they shall possess the medicinal qualities calculated to effect the desired action—that their prices shall be in reasonable proportion to the cost of production, and that an unseemly advertisement campaign shall not be conducted on their behalf. The central office charged with the execution of this law during the first year of its operation is to be attached to the University Pharmacological Institute in Oslo, and the staff of this office, later to be attached to the new Pharmacological Institute, also in Oslo, will consist of a director, three chemists, and an assistant. It is anticipated that some one thousand preparations will be submitted for examination. The advertisement and sale to the public of proprietary preparations which have not been submitted to the central office before July 1st will be prohibited. With regard to proprietary preparations which have been passed for sale, four copies of the proposed text of advertisements, circulars, and the like will have to be submitted for censorship to the central office. It is anticipated that the charges for dealing with proprietary remedies will defray the costs of this office, as 25 kroner will be charged for the notification of every preparation, and 50 kroner for registration and examination. Hitherto only Austria has officially adopted a similar measure, but although the law has been enforced for some years, a comprehensive survey of its results has not yet been published. In certain other countries there have been sporadic attempts to control the sale of quack remedies; in Sweden, for example, there has existed for some time an unofficial station or office for testing proprietary preparations, and a similar office is shortly to be opened in Denmark. It is hoped that an active entente between the organizations concerned in Norway, Sweden, and Denmark will do much to render the Scandinavian countries an unproductive territory for the quacks who have hitherto exploited their credulous compatriots.

NATIONAL HEALTH INSURANCE ADMINISTRATION.

It is worth while from time to time to note the opinions of the layman experienced in administration of the national health insurance scheme, and to see how far these opinions agree with those which have been officially expressed on behalf of the medical profession. The statements of those chairmen of Insurance Committees who are not themselves either doctors or the officials of approved societies may be of considerable value, especially on the subject of medical benefit and its extensions. An interesting address at the annual meeting of the Insurance Committee for East Ham was given by Mr. Councillor F. Webster, the outgoing chairman. After reviewing the statistics showing the growth of the system since 1921, when the borough first had an Insurance Committee separate from that of the county of Essex, and observing that "complaints made against the service have been surprisingly few," Mr. Webster states his view on four matters in which the medical profession is particularly interested. He says, first, "Any step which will settle, once and for all, the position of the insurance medical and allied services in relation to general public health administration would be welcomed, with the proviso that, so long as the cost of benefits is contributed by a particular section of the population, the administration of those benefits should be kept distinct from ordinary municipal service." Next, "We ought to have all insurance services administered by one local body. I refer to dental and ophthalmic treatments, which are now being provided in a way entirely contrary to the recommendations of the Royal Commission, which stated that it is highly desirable that the organization of services which are akin to medical benefit should be entrusted as far as possible to the bodies which are responsible for the administration of that benefit." Further, with reference to the suggestion of a national maternity service, "Perhaps with this benefit more than any other it is desirable that the administration should be free from any suggestion of charity: it is essential that the mother should regard the benefit as private treatment purely, as it is only thus that success will be attained. A great number of people who would be willing to take advantage of an insurance service would certainly not like it to be thought

that they had been attended by a public doctor." Again, "One still has hopes that the extension of medical benefit to the dependants of insured persons will be brought about, and that the treatment under the Act will be made to include specialist and consultant services. At present we are only touching the fringe of true medical treatment." Pronouncements on all these matters have been made by the British Medical Association on similar, though not quite identical, lines, and there is a general agreement that the order of the two extensions mentioned in the last quotation should be reversed. The important thing, however, is that, though we move step by step and quite slowly, and though other changes in local health administration are just now more prominently in the public mind, these matters should not be forgotten or escape serious consideration, for it cannot be long before they become once more of urgent public concern. One more point is mentioned in a sentence by Mr. Webster, and it is a little surprising that it has not yet been the subject of public comment from its medical aspect. The President of the Board of Education has announced that the age for compulsory school attendance is to be raised to 15 years as from April, 1931. It is stated that the Minister of Labour is to legislate for the lowering of the age of unemployment insurance to the same year. There can be little doubt that, though national health insurance might not at the outset be involved in these changes, the lowering of the health insurance age to coincide with that of unemployment insurance must inevitably and quickly follow. It is time that this contingency was in the minds of the medical profession.

THE ROCKEFELLER FOUNDATION.

In his pleasantly written review of the manifold activities of the Rockefeller Foundation[1] its president, Mr. George E. Vincent, remarks that three hundred years have passed since Francis Bacon, in the *New Atlantis*, said that the purpose of the research institute of the imagined paradise in a fabled island was "the knowledge of causes and secret motions of things, and the enlarging of the bounds of human empire, to the effecting of all things possible." This ideal is that of the Rockefeller Foundation, with its motto, "The well-being of mankind throughout the world"; thus, during 1928 the Foundation has aided eighteen medical schools, ranging from that of Edinburgh University to the American University of Beirut, and has pledged 43 million francs to provide modern medical facilities in Lyons, which it is hoped will lead to further developments in public health. In the Foundation's programme of medical education the Peking Medical College is unique in being the only medical centre for teaching and research to which the Foundation has contributed the entire cost of land, buildings, equipment, and maintenance; this policy appeared necessary, since there was not any university or Government agency in a position to assume responsibility when the college was established. In May, 1928, yellow fever, which had disappeared from South America, except in Northern Brazil, broke out after twenty years' absence in Rio de Janeiro, probably brought by soldiers from Northern Brazil; research into the problems concerned with this disease has continued at Bahia in Brazil, Accra, and Lagos, and the identity of the African and American yellow fevers is now almost established. A graceful tribute is paid to Hideyo Noguchi, Adrian Stokes, and W. A. Young, who lost their lives in West Africa when investigating the etiology of the disease. It is suggested that those who wish successfully to fight malaria should try to "think like a malaria mosquito," so as to anticipate and frustrate its movements. During the year the Foundation granted 800 Fellowships among forty-six countries. Many appeals must come before the Foundation, for last year 462 formal applications for help were declined as they did not fall within the scope of the Foundation's present activities.

[1] *The Rockefeller Foundation: a Review for 1928.* By George E. Vincent, New York, 1929. (Med. 8vo, pp. 54; illustrated.)

PROFESSOR WENCKEBACH.

On June 27th, 1929 (writes a correspondent), Professor K. F. Wenckebach delivered his last lecture as occupant of the principal chair of medicine in the Vienna school, from which he has retired at the age of 65, five years before his time. His farewell remarks, full of literary charm and borne on a deep undercurrent of sober wisdom, would have struck a chord of sympathy in an English audience. In a letter which he sent to the Osler Club on the eightieth anniversary of Sir William Osler's birth, Professor Wenckebach wrote that in this last lecture of his he was quoting from one man only—his old friend Osler. In his later years, being only one among the great number of teachers at one of the largest medical schools, trying to give something of permanent value to his overburdened students, three Oslerian dicta had greatly supported him. (1) On the question what stuff should be hammered into the heads of the students, Osler said: "From my point of view there is only one intellectual infection of any permanent value to the medical student—the scientific spirit and outlook and attitude of mind which he gets, often unconsciously, from his teacher and fellows." (2) Of the difficult task of the "chief" Osler said—"Only in one way lies the redemption for the director of any institute or laboratory: he must have associates who know more about certain subjects than he does himself." (3) Discussing what qualities a clinical teacher should possess to educate future doctors, Osler spoke of James Bovell, "and in him was all that could be desired in a teacher: a clear head and a loving heart." Wenckebach thus hoped that Osler's mind might live on in youthful Continental brains as it lives in the Anglo-Saxon world. The two men first met in the summer of 1901, when Osler was "brain-dusting" in Holland. This was the beginning of a lifelong friendship. Shortly before the outbreak of the war Wenckebach was called to what was then the Imperial University of Vienna, a follower of his great countrymen van Swieten and de Haen. It was through him that Osler organized a relief campaign for the starving Austrian children in the latter days of the war. Wenckebach is now planning to record the results of his researches on the heart and circulation—the work of a lifetime—in a large book which he expects to complete in five years. He hopes in his "really old days" to find time for writing historical sketches on his subject of cardiology. In May of last year he visited London as the delegate of the Austrian Academy of Sciences at the Harvey celebration, and received the honorary Fellowship of the Royal College of Physicians—"the most distinguished honour that ever could descend upon my elderly head." Into his retirement Professor Wenckebach, who feels "as if he had become part of the English medical profession, even a little bit of a Britisher," takes the good wishes of medical men in this country.

HOSPITALS AND NURSING IN MANITOBA.

In the summer of 1928 the Health and Hospital Survey Committee of the Welfare Supervision Board of the Department of Health and Public Welfare of the Province of Manitoba deputed a nurse, Miss Mabel F. Gray, to make a report on hospitals and nurses' training schools in Manitoba. Apparently the cause of the inquiry was a request from the Manitoba Association of Registered Nurses that a study of nursing conditions in the province should be undertaken. The results of the inquiry seemed to show that the conditions were unsatisfactory. Great lack of proper accommodation was found in many hospitals

for the care of obstetric cases and for communicable diseases. The investigator was of opinion that the first function of the smaller hospitals should be to provide service for maternity patients. Yet many of these hospitals had "neither labor room nor nursery"; while the wings of two hospitals which admitted unmarried mothers reminded the inquirer far too much of a prison or detention home. In one hospital the purpose of a building designed for cases of communicable diseases had evidently been forgotten; it was being used as a storage for "junk." In several instances there was evidence of faulty construction, or the use of unsuitable buildings for hospital purposes; in all but one of the small hospitals the laboratory service was inadequate, even routine urine analysis not being carried out in some establishments; and in mental hospitals, even where the best service was being given, there was serious overcrowding of chronic cases, sometimes in ill-ventilated basements. In the schools of nursing great variation in the preparation of students was found, and also in the number of hours devoted to theoretical instruction. The report urges that definite standards of teaching in nursing should be set by the Council of the University of Manitoba; that an educational director should visit the schools; that the living conditions of the nurses should be considered by the same authority; and that a Government grant, conditional upon real educational work being carried out, should be made to schools of nursing. The investigator evidently took a very wide view of her reference, and concludes her report by advising an entire reorganization of a particular home for the feeble-minded.

ROYAL MEDICAL BENEVOLENT FUND: CHRISTMAS GIFTS.

We gladly publish in our correspondence columns this week a letter from Sir Thomas Barlow, president of the Royal Medical Benevolent Fund, in which he makes a special appeal to the profession for donations to enable the Fund to give Christmas gifts to each of its annuitants and some of the more necessitous of its grantees. His appeal, we hope, will meet with an immediate and generous response. The beneficiaries of the Fund are, as he reminds us, "deprived of those little amenities of life which the more fortunate of us enjoy," and to many of them only the generosity of the profession can ensure some extra comfort at Christmas. Last year for this purpose the Fund distributed £500; this year it will be in a position to perform "this gracious and friendly act" only if there is an adequate response to the present appeal. We therefore urge our readers to make a special point of sending a Christmas donation to the Honorary Treasurer, Royal Medical Benevolent Fund, 11, Chandos Street, London, W.1.

The Nobel Prize for Chemistry for 1929 has been divided between Professor Arthur Harden, D.Sc., F.R.S., head of the Biochemical Department at the Lister Institute, London, and Professor H. Von Euler of Stockholm.

We regret to announce the sudden death of Sir G. Archdall Reid, K.B.E., M.B., the well-known writer on heredity and kindred subjects. We hope to publish a memoir in an early issue.

We much regret a slip which occurred in our leading article on the Panel Conference in the *Journal* of November 2nd (p. 814), where it was said, "For the last two years the Conference has had for its chairman Dr. E. K. Le Fleming of Dorset." As all concerned know very well, Dr. Le Fleming has presided over the last five annual Conferences.

MOTORISTS, DOCTORS, AND THE PUBLIC.

Discussion at Hunterian Society.

The Hunterian Society of London, meeting at Cutlers' Hall, Warwick Lane, on November 18th, with the members of the Medico-Legal Society as its guests, had an excellent discussion on the motorist, his rights and his wrongdoings. Dr. Ernest Young was in the chair.

Earl Howe (better known as Viscount Curzon, who, the president said, had had the distinction as a motorist of contributing an unusually large sum to the revenue) opened the debate by quoting from the report of the Royal Commission on Transport the fact that 6,127 people were killed on the roads of Great Britain in 1928. He was of opinion that the Act of 1903 should not be torn up, as it had worked astonishingly well, but merely revised in the light of experience and common sense. He was not in favour of abolishing the speed limit, because this would result in throwing back the police upon prosecutions for dangerous driving and nothing else. A charge of dangerous driving depended upon considerations of a highly technical nature, which the ordinary courts would not have time to investigate. Indeed, he thought there was much to be said for traffic courts, sitting with assessors. The principal causes of accident grouped themselves under carelessness, and were preventable. The standard of driving was not what it should be. This country did not insist upon a test of driving competence. While he agreed that there could not be a compulsory examination of all drivers, he believed such a test might be organized on voluntary lines, and the possession of a certificate would in a short time become almost necessary to every motorist, because of its value as evidence should he be involved in an accident, and also possibly because of a reduction of premiums by insurance companies in favour of holders.

Mr. E. B. Turner mentioned that an important committee of the British Medical Association was about to begin the consideration of the question of tests for drivers. He agreed that there should be some form of test. Many men driving on the road were not fit to be trusted, owing to defective eyesight; others were subject to petit mal or perhaps even epilepsy. Loss of limbs was a moot question; he was himself on one occasion perfectly driven by a motorist who had lost an arm and a leg in the war. Convalescents, again taking up motoring, ought not to regard themselves at once as quite fit to begin where they had left off before their illness. As for age, it was difficult to lay down any rule. Mr. Turner mentioned that he celebrated his seventy-fifth birthday by driving from Yorkshire to London at an average of thirty-five miles an hour, and felt absolutely untired at the end of the journey. The woman driver was a delicate question. Like the little girl, when she was good she was very, very good, but when she was bad—then Heaven help the others! Many women failed because they expected when in a tight place the courtesy which old Victorians like himself gave them in the drawing room. But women were improving in road sense, and no doubt would become a race of motoring Atalantas, driving fast, well, and considerately. Motoring was an exercise, entertainment, necessity, and convenience, which ought to be undertaken circumspectly and wisely by fit persons.

Mr. Mervyn O'Gorman (motoring correspondent of the *Times*) said that there was no one traffic problem, but a cohort of traffic problems; the difficulty was not in their intricacy, but in their number. He ventured upon what he called a few rudimentary generalizations. Road safety imperatively demanded the continuous attention of every traffic unit upon the job of being a unit in traffic. Anything that distracted driver or walker added to the risk of collision. There were any number of such distractions—bad naming of thoroughfares, flaring patches, vague hand signals, jay walking, and so forth. Whatever made driving more delicate could only be tolerated on the supposition that in some way it increased the acuity of the driver's attention. The psychology and physical state of the driver was undoubtedly a factor in traffic safety. A large American firm found that 50 per cent. of all the accidents to its vehicles occurred with 20 per cent. of its

drivers, but 50 per cent. of the unavoidable accidents also occurred to the same 20 per cent. of drivers, showing that these unfortunate people not only were responsible for the avoidable accidents, but got themselves into such positions that they were confronted with the unavoidable. A psychological test to eliminate such drivers would be worth the heavy tax on the motoring community which it would entail. Other generalizations submitted by Mr. O'Gorman were that the driver's intention ought always to be shown, and that he should heed the intention of other drivers; that the plea of the pedestrian for priority as road user was in reality a plea for suicide; that safe speed was itself a goal to be sought, and was essential for transportation; and that the great desideratum was the team spirit among road users, both pedestrian and vehicular.

Dr. Percy B. Spurgin thought it should be essential for everyone who took up motoring to pass an examination for medical fitness. The engine driver had to undergo periodical medical examination, and in some ways the engine driver's job did not make as heavy a demand upon his resourcefulness and attention as the motorist's; at least he had a clear road. Every commercial motorist and every driver plying for hire should be compelled to undergo medical examination; most private owners had the common sense to be medically examined more or less frequently. He thought that also there should be a form of insurance whereby unfortunate individuals who were damaged might receive compensation or assistance wherewith to reimburse hospitals and doctors for treatment received. Hospitals often treated half a dozen victims of accident on Saturday nights without receiving a penny. He thought there should be a speed limit; in towns a close limit, strictly adhered to; also a beginning age limit for drivers, though an end age limit must depend upon physical fitness and nothing else. Dr. Spurgin then made some observations, as a police surgeon, on the undue consumption of alcohol "which has not passed through the carburettor." Drunkenness was difficult to define, though the British Medical Association Committee reached as near the truth as any when it said, in effect, that a man was drunk when he was unable to perform his ordinary functions normally. There were seven stages of alcoholism—relaxation, bonhomie, expansiveness and loquacity, argumentativeness and cantankerousness, aggressiveness and pugnacity, somnolence, and finally coma, and it was a moot point at which stage drunkenness began. It was not the comatose individual who was the problem at all; it was the borderline case. Nor could it be said what consumption of alcohol was likely to make a man drunk; it was a question of the individual. But what the public had not realized was that while a man might make an elliptical walk home without attracting attention from the law, that same man in charge of a car was a public danger and ought to be arrested.

Mr. H. Massac Buist (introduced by the President as one whose able and helpful articles on motoring had interested the readers of the *British Medical Journal* for the last quarter of a century) said he hoped that presently all matters concerning motoring might be brought under one single law, clearly defined and up to date, though the diversity of administration would still remain whatever the law, and, as it did at present, would seriously impair the value of all statistics. Until within the last two years he had had the delightful duty of making whole-day or longer trials of over fifty new types of car every year, and this had left him with the conviction that cars were amazingly different from one another as to what they would do on a given road. The cars he tried each year were naturally the latest examples of engineering design, whereas the cars he met on the road were often of a design twenty years old. A good many of the drivers of such cars would insist upon doing exactly the same things as the driver of the latest car was doing. In Paris he found more consistent driving than in this country; it was difficult to know why this should be so, for many of the cars were of shaky build, but possibly the Latin temperament was quicker in its reactions. Motoring could not be confined to those who had road sense, simply because the motor had become an essential of latter-day life, but it had to be admitted that many persons on the road could only be called fair-weather drivers, and the ratio who could deal with skidding conditions was never so low as at present. Driving tests were in force in France, but the weakness of them was that they were static tests, and could not indicate the resourcefulness of the driver in an emergency. He was of opinion that there should be driving tests, but that no undue importance should be attached to the degree of skill thereby manifested. As for physical fitness, he had yet to learn of a practical scheme for forming a judgement. But the present state of affairs had some extraordinary results. A blind man was sent, as an experiment, to get a licence, and duly obtained it! One motorist of his acquaintance, still driving, had been deaf since the age of 7, and in his case at least the lack of one faculty had not apparently resulted in the sharpening of others. In conclusion, Mr. Buist said a word about doctors in accident cases. It was not at all unusual for kind-hearted local doctors, besides giving their time, to supply to the victim of an accident certain materials for which they had to pay cash, and often the first thought of the victim, having had his wounds dressed, was to jump in and ride away. He would like to see heavy fines for that behaviour, which was as mean as defrauding a tradesman.

Lord Riddell (president of the Medico-Legal Society) said that he felt acutely the position with regard to hospitals. There should be a law that all motorists who were succoured by a hospital or a medical man should thereby incur a liability for an amount recoverable by action at law, and in the meantime secured on the motor vehicle. Dr. Bernard O'Connor claimed that age had very little to do with accidents. He also pointed to the example of the London General Omnibus Company's drivers, who were the best in the kingdom. If motorists in general were subjected to the same training and examination as these drivers there would be few accidents. Dr. Campbell McClure, in proposing a vote of thanks to the speakers, said that the sooner there was a test for motor drivers the better. He had known a taxicab driver in London who suffered from progressive muscular atrophy; another who was blind in one eye and almost completely deaf; and he had seen a man with two artificial feet driving a car.

AUSTRALASIAN MEDICAL CONGRESS.

THIRD SESSION, SYDNEY, 1929.

(Concluded from page 923.)

In last week's issue there appeared some account of the opening of the Australasian Medical Congress (British Medical Association), in Sydney, on September 2nd. Reference was also made to some of the papers read in the Sections of Medicine and Surgery. Reports of the proceedings of the Congress have appeared in subsequent issues of the *Medical Journal of Australia*, from which have been derived the brief notes that alone are possible here.

Abnormal Cardiac Rhythms.

Good discussions followed introductory papers relating to pathological conditions of the cardiac action. Dr. M. D. Silberberg (Melbourne) reported a study of seventy-six cases of simple paroxysmal tachycardia, and twenty-eight cases of paroxysmal fibrillation met with in private practice. He gave a clear statement of the etiology, symptomatology, and treatment of these conditions, calling attention to the fact that in an appreciable proportion of such patients there were no demonstrable lesions or obvious causes. He recommended quinidine as the most dependable drug, its special virtue being that it prolonged the refractory period in the auricle; this implied the blocking of the advancing wave, with the result that the attack was terminated and the normal rhythm restored. He admitted, however, that this drug was neither infallible nor harmless. Dr. O. A. Diethelm (Sydney) reported a case of paroxysmal tachycardia associated with acute inflammation of the gall-bladder, and emphasized the relation between foci of infection and tachycardia. He had been disappointed in the use of quinidine, digitalis, and sedatives. Dr. N. W. Markwell (Brisbane), on the other hand, had found quinidine efficacious, provided that the heart muscle was healthy. He had given large doses at long intervals without anxiety. Both he and Dr. Joseph Coen (Sydney) agreed that cardiac arrhythmias were

not dangerous, and the latter speaker explained this on the ground that they were associated with very slight pathological changes. Mere disturbance of the cardiac rhythm was relatively unimportant as compared with the condition of the myocardium. Dr. Coen had found quinidine of very little value. Dr. S. V. Sewell (Sydney) called attention to the alarming condition which resulted when a patient suffered for long periods of time with continuously rapid heart action. He commented on the slight importance of auricular fibrillation occurring in the course of chronic affections, and reported a case in which prolonged treatment with digitalis had been very effective. Professor Carmalt-Jones (Dunedin) discussed the prognostic importance of paroxysmal tachycardia, and remarked that the auricular fibrillation was not always permanent. Dr. Silberberg, replying, agreed that gall-bladder disease was a potent source of toxic absorption; he was not sure whether the effect so produced was reflex or direct. Quinidine should be pushed if necessary, but its toxicity should be borne in mind, and advanced degeneration of cardiac muscle was a definite contraindication to its use. He recommended an initial dose of 0.18 gram every hour; this was increased to 0.35 or 0.5 gram until the result was obtained. As regards diagnosis, the history of onset was most important.

Dr. Alfred Webster (Perth) read a paper on cardiac arrhythmias, in which the conclusions of Sir James Mackenzie were severely criticized. Dr. S. V. Sewell, who followed, disagreed with this criticism, and discussed Mackenzie's findings in considerable detail. Dr. Silberberg also dealt with the importance and value of cardiographic tracings.

Chronic Pulmonary Infections.

The subject of chronic pulmonary infections in relation to the upper respiratory tract was considered by a joint meeting of the Sections of Medicine, Oto-Rhino-Laryngology, Paediatrics, and Radiology and Medical Electricity. Dr. R. Graham Brown (Brisbane) stated that bronchiectasis was often associated with nasal sinus suppuration, and emphasized the importance of early diagnosis. Any nasal obstruction should, he said, be corrected and sinus suppuration checked, since, otherwise, the bronchiectasis would not be relieved. He had been disappointed in the use of the bronchoscope as a means of drainage and lavage. Dr. Graham Brown commented also on the association of sinus suppuration with pulmonary tuberculosis. Dr. J. F. Mackeddie (Melbourne), in a paper on the diagnosis and treatment of chronic lung conditions in relation to disorders of the upper air passages, referred at considerable length to the use of x rays in diagnosis, and discussed various methods of introducing lipiodol. He agreed that artificial pneumothorax was useless without phrenicotomy, and that the duration of compression for bronchiectasis was, as a rule, three times that required for tuberculosis of the lungs. A patient whose lung had been compressed owing to the presence of an abscess should not be allowed to walk until a long interval had elapsed. Dr. E. Britten Jones (Adelaide) dealt with bronchiectasis occurring in children, and Dr. K. Stuart Cross (Melbourne) discussed the radiological appearances in chronic pulmonary infections. He urged that examination of the paranasal sinuses should be performed in all chronic lung conditions.

Dr. J. Stanley Yerco (Adelaide) described the method of injecting lipiodol into children by the crico-thyroid route under general anaesthesia. He remarked that it was necessary to ascertain previously that the patient had no idiosyncrasy to iodine. Sir Richard Stawell (Melbourne) reported a case of mistaken diagnosis due to the overlooking of the possibility of double antral infection, and called attention to the frequency with which chronic infection of the tonsils was found in pulmonary tuberculosis. Dr. E. Gutteridge (Melbourne) stressed the importance of infections of the upper respiratory tract in non-tuberculous conditions of the lung, particularly in connexion with people who were supposed to have been gassed; he had found that more than 20 per cent. of men in receipt of pensions on account of gas infection were suffering from sinusitis. He commented on the value of bronchoscopy. Dr. Cotter Harvey (Sydney) showed several bronchograms, and gave the warning that physical signs might at times be absent in bronchiectasis, and the skiagram might show no abnormality; in such patients a bronchogram enabled bronchiectasis to be detected. Dr. D. Galbraith (Melbourne) dealt with catarrh of the respiratory tract in children, and expressed the view that tuberculosis was not greatly concerned in its etiology when the children were under the age of 10. He recommended that a diagnosis of chronic bronchitis should be confirmed by x-ray examination and the injection of lipiodol, but he admitted that it was sometimes very difficult to interpret thoracic skiagrams in children.

Diverticulitis.

Professor G. Gordon Bell (Dunedin), president of the Section of Surgery, gave an address on diverticulitis, with special reference to its difficult and dangerous complications. He commended Telling's classification, and detailed the etiology, symptoms, sequels, and treatment recommended, emphasizing medical measures which he claimed were very often of considerable importance. He reported five cases of this condition, stressing the special significance of each. Dr. H. R. G. Poate (Sydney) agreed that the clinical syndrome given by Professor Bell covered the ground, but he thought that the most common type was that in which left-sided abdominal pain occurred. If, with this, there was slight pyrexia and leucocytosis, a radiological examination usually revealed diverticula. As regards diagnosis, a tender mass in the right iliac fossa, with pain, slight rigidity, slight pyrexia, and leucocytosis, was almost diagnostic of diverticulitis. He agreed also that medical treatment was particularly valuable. Subsequent speakers reported various cases of diverticulitis, and discussed the leading points in diagnosis and treatment. Dr. B. T. Edye (Sydney) mentioned two forms of diverticulitis of the duodenum which he had treated.

Carcinoma of the Colon.

Dr. Victor Hurley (Melbourne) read a paper based on the analysis of 81 cases of carcinoma of the colon. Comparing his series with those of Carson (110 cases) and Burgess (259 cases), it appeared that carcinoma was roughly five times more frequent in the left half of the colon than in the right. He gave details of diagnosis and treatment. Dr. B. T. Edye emphasized the importance of persuading patients to seek treatment early, when difficulty with the bowels arose after middle age. Dr. H. B. Devine (Melbourne) drew attention to the lasting value of early surgical treatment in this condition.

Simple Adenomata.

Dr. H. R. G. Poate (Sydney) read a paper on the so-called simple adenomata, with particular reference to those of the parotid, the breast, and the thyroid gland. He said that a large proportion of malignant tumours of the parotid arose from degeneration in an old-standing adenoma, and that, therefore, simple tumours of this gland should always be removed. He condemned the practice of making an exploratory incision into a breast tumour of doubtful malignancy, and commented on the mechanical disabilities which resulted from simple growths in the thyroid gland. Dr. B. T. Zwar (Melbourne) remarked that the rapid increase in size in parotid tumours often led to an error in diagnosis, but, in any case, the tumour must be removed at all costs. Dr. L. M. McKillop (Brisbane) thought it was better to remove the whole breast when a fair-sized adenoma was present than to run the risk involved in a local incision.

Progress in Obstetrical Practice.

Dr. Henry Jellett (Dunedin), president of the Section of Obstetrics and Gynaecology, discussed the future of obstetrical practice, emphasizing the value of ante-natal care and the importance during normal labour of asepsis and the absence of haste. He commented on the more intensive training of medical practitioners and midwives in Holland, and urged that the medical profession should be freed from the servitude of normal midwifery. Dame Janet Campbell remarked that the subject of maternal mortality had brought the medical practitioner and the public health officer into close association. Largely owing to the influence of Sir Ewen Maclean, the British Medical Association had taken steps to educate the general public, and had given much assistance to the Ministry. She then gave an account of the progress of ante-natal supervision in England, and expressed the hope that, eventually, clinics would be established as consultation centres, with a specialist in charge. Improvements were being effected in the training of midwives, but the speaker disagreed with the practice in Scandinavia and Holland, which handed over complete control of the patient to the midwife. Professor J. C. Windeyer (Sydney) commented on the duration of the training of the obstetrical nurse and the medical student, which he

maintained was too short in Australia. A mothercraft department had been instituted at the Royal Hospital for Women, Sydney, and this example was being followed elsewhere. Clinical obstetrics deserved a higher place in the medical curriculum, but the speaker deprecated too early teaching of this subject. Dr. E. S. MORRIS (Sydney) uttered a warning against comparing statistics of different countries, which were not always strictly comparable. This was the case as regards those of England and Wales in comparison with those of Australia in general and of New South Wales in particular. Sir EWEN MACLEAN remarked that the circumstances in which the general practitioner had to work were often unsatisfactory; in some cases the patient's family urged instrumental intervention when it was undesirable. Enlightenment of the general public was the greatest factor to be considered in future, and the general practitioner must receive adequate remuneration for his work. He believed that by providing a scheme of insurance real benefit would accrue, but he did not suggest that such a scheme should be adopted in Australia. Sir TRUBY KING (New Zealand) spoke about cranial birth injuries, which, he thought, were far too prevalent in New Zealand.

Ante-partum and Post-partum Haemorrhage.

A good discussion of haemorrhage in connexion with labour was opened by Dr. E. BRETTINGHAM MOORE (Hobart), who described the etiology, pathology, and treatment of ante-partum haemorrhage. Evidence had been obtained implicating chronic nephritis, but it was difficult to prove how far a true toxaemia was concerned, and how much was due to a deficiency disease. The changed condition of the uterine walls was probably partly responsible, and certain anatomical factors, such as the muscular distribution in the lower uterine segment, had to be borne in mind when considering the cause of this condition. Dr. J. A. CAMERON (Ipswich) read a paper on post-partum haemorrhage, in which he discussed the incidence and causation, stressing the importance of repairing laceration, removal of the retained placenta, promotion of uterine retraction, the use of pituitary extract, and other measures. Professor J. C. WINDEYER (Sydney) thought that it was best to leave the membranes unruptured in accidental haemorrhage, except when some intrauterine manipulation had to be performed. He mentioned the value of external version before the membranes were ruptured with the bringing down of a leg, and also scalp traction by means of suitable forceps, which he had found to give good results.

Natal and Neo-natal Mortality.

The subject of natal and neo-natal mortality was discussed by a combined meeting of the Sections of Obstetrics and Gynaecology, Paediatrics, and Preventive Medicine and Tropical Hygiene, a paper prepared by Professor MARSHALL ALLAN being read by Dr. R. W. CHAMBERS. Professor Allan commented on the failure to reduce the infantile mortality under the age of one month, though there had been benefit in later periods. The problem mainly concerned the obstetrician, and only 20 per cent. of deaths in an investigation of his own had been shown to be due to syphilis. Chronic nephritis and pregnancy toxaemia were two more important factors, but the chief causes of intra-natal death were asphyxia and birth injuries. Professor Allan discussed the methods of prophylaxis and treatment which had been devised to improve the neo-natal death figures, and thought that a reduction of 40 per cent. of the present mortality rate might be reasonably expected. Dr. P. L. HIPSLEY (Sydney) followed with a paper based on the records of the Royal Hospital for Women, and indicating the seriousness to be attached to the toxaemias of pregnancy. The installation of a mothercraft department at this hospital had considerably reduced the death rate in premature infants. Cranial and intracranial damage must be borne in mind and prevented when possible. When intracranial haemorrhage was suspected lumbar puncture should be performed as soon as the signs of shock passed off; it was repeated until definite improvement became manifest. In dealing with asphyxia pallida the infant's lungs should be expanded rhythmically, with a mixture of 95 per cent. oxygen and 5 per cent. carbon dioxide. Dr. AGNES BENNETT (Wellington, New Zealand) read a paper based on the clinical study of 92 stillbirths and neo-natal deaths in 2,000 deliveries. She thought insufficient emphasis had been laid upon the vulnerability of the newborn to outside infections. It was possible that the administration of vitamin E to mothers might prove to be beneficial as regards the prevention of stillbirths.

Treatment of General Paralysis.

Dr. CLIFFORD HENRY (Sydney) read a paper embodying the results of treatment by malaria of patients with general paralysis of the insane. After giving an account of the statistics concerned, he remarked that this treatment was contraindicated in patients with advanced active tuberculosis, or with severe renal disease. There appeared to be some parallel—though a doubtful one—between the mental and physical improvement of the serological condition. Dr. R. S. ELLERY (Melbourne) thought it was not justifiable to use fever therapy as a routine in most psychoses. It was of no value in dementia praecox, but when epilepsy of syphilitic origin was present malaria treatment might be of considerable benefit. Various reports were given of the use of malaria therapy in Claremont, Brisbane, and Parkside, and Dr. Ellery exhibited a film illustrating this treatment, in which remarkable improvement in the patients was graphically demonstrated by photographs. Dr. E. T. HILLIARD (Orange) read a paper on tryparsamide in the treatment of general paralysis, and stated that 60 per cent. of the patients had been undoubtedly benefited. Improvement was particularly manifest in the excited, expansive, and psychotic type; the dull paralytic was less favourably influenced. A brisk discussion followed.

Trauma and Functional Neurosis.

The Sections of Neurology and Psychiatry, Surgery, and Orthopaedics combined for a general discussion of trauma in relation to functional nervous disorders, which was opened by Sir HENRY NEWLAND (Adelaide). Dr. H. SKIPTON STACY (Sydney) read a paper on the surgeon's point of view, in which he warned against the danger of diagnosing a functional disorder when an actual organic lesion was present. Dr. H. F. MAUDSLEY (Melbourne) commented on the frequency of functional disorders in accidental injuries sustained in industrial occupations, and discussed the etiology carefully, urging medical practitioners to acquire a wider knowledge of psychological medicine. Professor J. P. LOWSON (Brisbane) reported a case of functional disorder following a blow to the head, thus bringing for the first time into the open the consequences of a previous undetected mental instability. Subsequent speakers continued the valuable and practical discussion, emphasis being laid on the value of different forms of organic treatment.

Bone Dystrophies.

Dr. H. R. SEAR (Sydney) read a paper on the bone dystrophies before a combined meeting of the Sections of Paediatrics, Orthopaedics, and Radiology and Medical Electricity. He dealt solely with those bone dystrophies which came under the heading of congenital developmental errors, and stated that the lesions fell naturally into two main groups of diseases—those especially affecting the membranous bones, and those affecting the long bones. He enumerated the various dystrophies in the skull and limbs in detail, and described the deformities produced. He was followed by Dr. H. M. HEWLETT (Adelaide), who showed skiagrams of diaphyseal achalasia and unilateral Ollier's disease.

Pulmonary Disease among Miners.

Dr. KEITH MOORE (Canberra) read a paper on pulmonary disease in the mining industry in Western Australia, Tasmania, and Victoria, giving statistical results and indicating how the Government was co-operating in the investigation and treatment of this condition. He discussed Watkins-Pitchford's theory of latent silicosis, which he thought offered an explanation of the apparently abnormal percentage of complicated silicosis found on re-examination of presumably normal persons. Dr. R. C. E. ATKINSON (Perth) remarked that one difficulty encountered was the finding of suitable occupation for men who had been thrown out of employment and had to be placed on full pensions. In the subsequent discussion reference was made to the paper by Dr. Charles Badham in the report of the Director-General of Public Health of New South Wales for the year 1927.

Miscellaneous Topics.

In the Section of Pathology and Bacteriology, Professor PETER MACCALLUM (Melbourne), president of the Section, gave a useful and critical address on the confused terminology of haematology, with special reference to the blood changes in anaemia. Dr. JEAN MACNAMARA (Melbourne) reported the successful treatment of acute poliomyelitis by human immune

scrum. In association with Dr. F. M. Burnet, Dr. Macnamara also contributed a paper relating to the activity of stored anti-poliomyelitis serum in experimental poliomyelitis. Dr. C. H. Kellaway (Melbourne) read a paper on immunization to snake venoms, and Dr. C. W. Adey (Melbourne) commented on the antigenic value of anatoxin. Professor J. Burton Cleland (Adelaide) discussed the pathology of endometriomata, which gave rise to considerable discussion. Dr. A. V. Meehan (Brisbane), president of the Section of Orthopaedics, summarized the operative procedures for stabilization of the foot. He indicated the various types of deformity, and suggested a suitable treatment in each case.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.

ANNUAL DINNER IN LONDON.

The annual dinner of the Society of Medical Officers of Health was held at the Piccadilly Hotel on November 14th, with Dr. J. J. Buchan of Bradford, president of the society, in the chair. Among the principal guests were Sir Arthur Robinson, First Secretary to the Ministry of Health; the Bishop of Sodor and Man; Surgeon Vice-Admiral A. Gaskell; Lieut.-General H. B. Fawcus; Sir John Rose Bradford, P.R.C.P.; and Dr. H. B. Brackenbury.

Sir Arthur Robinson, proposing the toast of the society, regretted the absence of the Minister of Health, who was detained in the House of Commons. He suggested that the society, having been founded in 1856, had now reached the years of discretion. Its success was manifest in that its membership was about 2,000, its branches had spread to various countries abroad, and it produced valuable literature. Possibly even more beneficent were the discussions organized locally, which were most useful for enabling a sound judgement to be reached on points in which the Ministry and the society were united in a valued and valuable partnership. In the development of the services of public health the leading position occupied by this country was admitted by the Rockefeller Institute when it founded the London School of Hygiene, but the time to rest had not yet come, as was shown by the present problem of refuse disposal in London—a difficulty complicated by several local authorities being concerned. A joint committee had been appointed to investigate the question, but Sir John Gatti's lamented death had postponed the issue of a report. Moreover, as regards food, much remained to be done in carrying the information derived from research into practical effect in the country generally. Sir Arthur Robinson remarked that the coming into operation of the Local Government Act of 1929 would soon enable medical officers of health and the Ministry to operate more effectively in many ways. He recounted the history of the growth of public health legislature, and said that after a succession of minor changes the time always came for some great measure, such as the present Act, which provided a new authority to take over the administration of poor relief, conducted with such devoted ability by the guardians for a century. Such a task would necessarily be undertaken slowly and gradually. With the passing of the multiple control of health services the Ministry would be able to acquire full information about the health services in every county; it was the duty of the local authority to collect the facts, and also to devise appropriate propaganda. A new survey of the local government areas was urgently necessary, and the medical officers of health—administrators as well as clinicians—would have to determine eventually the general policy of the local authority. This provision of the Act, it was added, had been so far insufficiently recognized by medical officers of health. In addition to forwarding research, the local authority would gradually raise the standard of those institutions which under the guardians had not reached the highest levels of excellence. Sir Arthur Robinson referred briefly to the threat which some had found in the Act, that the voluntary principle in hospitals would be endangered. As a refutation of this he cited the illustration in the progress of Bradford Hospital since it had been taken over by the municipality; the new Act would indeed facilitate the provision of proper hospital accommodation for every county. Medical officers of health could learn very much from the way in which voluntary hospitals were being carried on, and they must arrange for the fullest co-operation so that adequate bed accommodation should be secured everywhere. The financial side of the Act might be regarded as a salutary exercise in mental gymnastics. In conclusion, he referred to the long-standing and fruitful alliance between the British Medical Association and the Society of Medical Officers of Health, and announced that the Minister hoped to introduce a bill at an early date to provide for the superannuation of local government officers.

The President (Dr. John Buchan) thanked Sir Arthur Robinson for the kindly way in which he had submitted the toast. A statesmanlike account had been given of the public health work of to-day, and emphasis had been laid on the necessity of co-operation between all the authorities concerned. Dr. Buchan gave the assurance that the Society of Medical Officers of Health would maintain the closest possible relationship with the Ministry in the good work which had now been initiated there. The society had already taken active measures as regards the education of the public, though the difficulties of this work were very great in some places.

Professor J. Johnstone Jervis, president of the Yorkshire branch of the society, after eulogizing the president, proposed the health of the guests, and spoke in particular of the great debt of gratitude the society admitted to Sir Robert Bolam and Dr. Brackenbury for all their help in the past. Four of the guests replied briefly. The Bishop of Sodor and Man recalled his eight years as vicar of Bradford, and touched on the co-operation which was necessary between the Church and those who were striving to make man better in health. Town-planning, though a great ideal, was surpassed by life-planning, and at the basis of the improvement of society lay the improvement of personal character. Sir John Rose Bradford suggested that his own presence on this occasion was due to recognition of the fact that maintenance and improvement of the public health was indeed part of medicine as a whole. Sir Robert Bolam expressed gratitude for the most interesting revelations made by the representative of the Ministry of Health. Those who were engaged in the service of the public health had now in front of them a greater opportunity than had occurred for several centuries. They could indeed make the work of the medical profession more fruitful in promoting the health of the community than had ever been the case before. Mr. J. H. Palin, M.P., said that it was at last realized that preventive medicine would be the salvation of the country. The present Government would undoubtedly do its utmost to help.

Alderman H. T. Pullan, J.P., chairman of the Bradford Health Committee, proposed the health of the president, and mentioned that for the second time in history a Yorkshire representative occupied this position. He paid a high tribute to the work of Dr. Buchan and his colleagues in Bradford. Dr. R. A. Lyster proposed the health of the executive secretary, Mr. G. S. Elliston, to whose enthusiasm and painstaking labours was due the great advance made by the society. His approaching retirement was a matter for very deep regret.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

The Buckston Browne Annual Dinner of Fellows and Members.

The second Buckston Browne annual dinner of Fellows and Members of the Royal College of Surgeons of England was held on Thursday, November 14th, at the College, Lincoln's Inn Fields. The President, Lord Moynihan, was in the chair, and had beside him on his right hand the Right Hon. Arthur Henderson, Secretary of State for Foreign Affairs, and on his left hand Viscount Lee of Fareham, chairman of the National Radium Commission. The company numbered in all one hundred, of whom approximately one-half were Members of the College and the remainder Fellows.

In accordance with the procedure laid down last year the toasts were limited to those of "The King" and "The Donor," and no formal speeches were made. The President, however, welcomed in a few happy words the presence of Mr. Henderson and Lord Lee, and two other laymen, Mr. Bernard Darwin and Mr. Louis Baron; also a member of our profession too seldom seen at medical gatherings, Sir Wilfred Grenfell of Labrador, and another,

Dr. John Dixon, the oldest living holder of the M.R.C.S. diploma, now aged 98. Speaking of the arrangements for holding primary examinations for the Fellowship in Canada and Australia, Lord Moynihan said that the aim of the Council to-day was to make the College the centre of surgical research throughout the Empire. He then asked all present to drink the health of the donor of the banquet, and announced that on the previous day Mr. Buckston Browne had been appointed a Hunterian Trustee. The toast was received with musical honours, and thereafter the company adjourned to the lecture theatre to see a cinematograph film of Down House, Kent, the home of Charles Darwin.

In introducing his Down House film Mr. Buckston Browne explained that he only did so because of Sir Arthur Keith's absence through illness.

"Within the last two years," he said, "Sir Arthur Keith and I have been successful in the acquisition of this property. The house has been restored as far as possible to its condition in Darwin's time. It is sixteen miles from London, and open freely to all visitors on Sundays, and weekdays except on Fridays. The ground floor is to be retained in perpetuity as one of the sacred shrines of Science. Apart from house and gardens, there are some eighteen acres of land, with good road frontage, and it is the dream of Lord Moynihan, our President, to establish upon this land laboratories for the prosecution of surgical biological research. John Hunter had his farm at Earl's Court, where he kept his animals and performed his experiments, and, incidentally, where he boiled the body of O'Brien, the Irish giant. We wish that the Down domain should be to the Royal College of Surgeons of England what the Earl's Court farm was to John Hunter. Such a scheme if realized will be unique in the glorious story of British surgery. Upon the screen you will see the front of the old house, where, as stated on the gate-post, 'Darwin thought and worked for forty years, and died 1882.' The 'Old Study' will be shown, whence issued *The Origin of Species*, the very greatest of all scientific treatises. It fell, like a bolt from Jove, upon a too-credulous world, and shook it from pole to pole. You will see the actual chair, given by Mr. Bernard Darwin, in which *The Origin* was composed, and the very knee-board on which it was written. You will see the 'Sand-walk' where Darwin walked and thought, and the 'Worm stone' *in situ* on the upper lawn, with which the investigation into the work done by earthworms was made. Darwin's bust by Woolner, and his portrait by the Hon. John Collier, will be seen, and the drawing-room, and actual piano and couch, where Darwin rested at regular intervals and listened to his wife's music. On the piano, under Collier's portrait, rests an album presented to Darwin by his German scientific friends; a gentleman is shown opening the book at the beautiful portrait of Haeckel, who did in Germany for Darwinism what one of the greatest of our M.R.C.S.'s—Huxley—did for it amongst all the English-speaking peoples. And, lastly, do not let us forget in this College of Surgeons that Darwin was the son, and the grandson, of distinguished and hard-working medical men. It was upon the proceeds of their toil that Darwin was able to live free from all pecuniary care. Had this capital not existed, it is more than likely that *The Origin of Species* would never have been written."

At their departure the guests were offered, as a memento from their host, framed reproductions in colour of the portrait, believed to be that of John Hunter by Gainsborough, which Mr. Buckston Browne presented to the College four years ago. This picture was described and discussed by Sir Arthur Keith in the *British Medical Journal* of February 11th, 1928.

Scotland.

William Mackenzie Medal.

The William Mackenzie Medal "for original work in ophthalmology of outstanding merit," which has been awarded this year to Mr. W. S. Duke-Elder, M.D., D.Sc., F.R.C.S., of London, is to be presented to him at the Glasgow Eye Infirmary, on December 2nd, at 8 p.m. Mr. Duke-Elder will then deliver an address on the clinical applications of the newer conceptions in the physiology of the eye.

Welfare of the Blind in Scotland.

The Department of Health for Scotland has issued a circular dealing with the changes which will result in the administration of the Blind Persons Acts under the Local Government (Scotland) Act, 1929. Grants for the welfare of the blind will cease to be payable after May 15th next, and these will be merged in the general Exchequer contribution distributed to local authorities. As the income of voluntary associations for the welfare of the blind is at present derived partly from voluntary sources and partly from contributions by local authorities and Government grants, the discontinuance of the direct payment of Government grants to voluntary associations will mean a loss of some £16,000 to the latter. General Exchequer contributions will only be made direct to voluntary associations in respect of national services, such as the production of literature for the blind. It is suggested, therefore, that negotiations should be entered into between voluntary associations and the local authorities concerned with regard to the contributions which should now be made by the latter to make up for the loss which would otherwise be sustained by the voluntary associations. The Department of Health has requested the Scottish Advisory Committee on the Welfare of the Blind to prepare a revised model scheme, which will be issued as early as possible for the guidance of county councils that may have to prepare new schemes owing to the extension of their areas.

Crusade Against Tuberculosis

A lecture on "Tuberculosis and the crusade against it" was delivered at Edinburgh on November 6th by Dr. Harley Williams, assistant commissioner to the National Association for the Prevention of Tuberculosis. Sir Robert Philip, vice-chairman of the association, presided. The chairman spoke of the enormous sums of money which tuberculosis cost the nations of the world. Our nation's system of combating the disease was unequalled, and some forty-two years ago there was initiated in Edinburgh the first systematized attempt to attain this end. This system had now been more or less adopted throughout the world. In the interval the mortality from tuberculosis had fallen to two-thirds, and in the last twenty years to one-half, and the decrease was steady and accelerating. The National Association for the Prevention of Tuberculosis had been founded in 1901 to carry on education of the public in regard to measures for eradicating this infection, and to create a reserve fund for helping on any important discovery in relation to the disease. Dr. Harley Williams said that owing largely to the modern way of regarding tuberculosis as a broad social problem it occupied now only third place among the great causes of death, but was still the most definite indication of the way in which the community's life fell short of the ideal of a civilized nation. In Scotland at the present day no fewer than one person out of every three between the critical ages of 15 and 25 died from tuberculosis of the lungs. He warmly commended the idea of open-air schools, and said that in one open-air school the average attendance for the last two years had been 97 per cent. of the possible, the highest in all the schools of a certain county of Scotland. A neglected point in hygiene was the care of the skin. Much might be done to harden the skin by judicious training, and the fashionable cult of sun-worship had shown to what extent a form of energy might be stored in the skin from ultra-violet rays from natural or artificial sources. The lecturer produced charts in support of the opinion of Sir Robert Philip that during the lifetime of many present-day persons tuberculosis would be reduced to negligible proportions.

Glasgow Veterinary College.

At the annual distribution of prizes at the Glasgow Veterinary College, Professor John Glaister, who presided, said that during the past year there had been a fairly good influx of new students. The college had at the present time 26 students, of whom 19 were going through the ordinary curriculum, and 7 were taking a special diploma in veterinary surgery and medicine. The college was turning out good results, despite the withdrawal of the Government grant some years ago, when it had been decided that one veterinary college was sufficient for Scotland. The chairman also mentioned that five of the

students were women, of whom one had passed the final examination, she being the first woman to take the diploma of M.R.C.V.S. In regard to the question of finance, he mentioned that if the college had forty or more students they would then be free from the need for a grant. During the past year the college had received substantial aid, amounting to £1,500, from education authorities and town and county councils in Glasgow and the West of Scotland, and the governors were still hopeful that the Government grant might be renewed.

Central Midwives Board.

The examinations of the Central Midwives Board for Scotland, held simultaneously in Edinburgh, Glasgow, and Dundee, have just concluded with the following results. Out of 146 candidates who appeared for the examination, 135 passed. Of the successful candidates, 58 were trained at the Royal Maternity Hospital, Glasgow; 23 at the Royal Maternity Hospital, Edinburgh; 2 at the Maternity Hospital, Aberdeen; 6 at the Maternity Department, Royal Infirmary, Dundee; 16 at the Elsie Inglis Memorial Hospital, Abbeyhill; 7 at the County Maternity Hospital, Bellshill; 7 at Barshaw Hospital, Paisley; 5 at Stobhill General Hospital; 4 at the Govan Maternity Cottage Hospital; and the remainder at various recognized institutions.

Ireland.

Royal Medical Benevolent Fund Society of Ireland.

THE Central Medical Committee of the Royal Medical Benevolent Fund Society of Ireland records with sincere regret, in its eighty-seventh annual report, the loss during the past year through death of Sir Arthur Chance, one of its honorary secretaries. Sir Arthur succeeded the late Sir Andrew Horne on the latter's resignation through ill health in 1925. He brought to the service of the society a keen business instinct combined with a lively sympathy in its work. Ill health for some months before his death hindered his activities, but his interest in the Fund remained unabated, and he gave the utmost help he could up to the closing days of his life. At the invitation of the committee Mr. Andrew Horne has consented to take Sir Arthur Chance's place, and is welcome, not only on personal grounds, but also because he bears the honoured name of his father, who was so closely associated with the work of the society in days gone by. The committee also records the loss of Dr. Louis Cassidy, master of the Coombe Hospital, under tragic circumstances in the hunting field, and of several other sympathetic supporters. It tenders its thanks to those branch secretaries who continue to work actively in the service of the society, too often meeting with disappointing results. Reports from several branches exemplify the need of personal canvass to elicit aid from doctors who have not already acquired the habit of subscribing to the Fund. The meagre response to repeated efforts of active secretaries shows how difficult it is to collect money by the method of circularization and letter writing. The British Medical Association has offered to help the society in bringing the claims of the Fund before the members of the Association, and it is hoped that by collaboration between the society and the Association a scheme may be evolved which will help the central organization and the branches in the work of collection. Suggestions as to the formation of such a scheme would be welcomed by the Central Committee. The number of grants awarded during the year was 83, as compared with 90 in 1927–28, and 81 in 1926–27. The amount disbursed in grants was £1,863, as compared with £2,071 and £1,762 in the two previous years. The average amount of the grants was £22 6s. 6d., as compared with £23 0s. 3d. recorded in the last report. The recipients included five medical men, nine orphans, and sixty-nine widows: the Society of St. Vincent de Paul and the almoner of the Adelaide Hospital aided and supervised some of those benefiting from the Fund. The outstanding feature of the balance sheets now presented is the large amount received during the year from bequests. At the last annual meeting it was reported that under the will of the late Mrs. Hepburn, widow of the late Mr. W. J. Hepburn, surgeon to the Meath Hospital, the Fund would benefit to a considerable degree; Mrs. Hepburn died in May, 1928, and by her will, of which Sir William Taylor is sole executor, she bequeathed to the society the sum of £500 in memory of her husband, and half the residue of her estate. The legacy of £500 was paid to the society in November last, and in February it received £2,846 on account of its share of the residue—a total of £3,346. Mrs. Hepburn was a generous subscriber to the Fund while she lived, and this noble benefaction is a worthy memorial of her husband, who was one of the members of the first Central Committee named in the deed of trust approved at the general meeting on June 6th, 1892. The committee also received a bequest of £100 from the late Miss Anne Kavanagh, and the total receipts from bequests during the year amounted to £3,446. Dividends and interest show an increase of about £21, but no life membership donations were received during the year. The President of the Royal College of Physicians of Ireland, Dr. W. A. Winter, a life member, gave a generous donation; sums paid through the central treasurer amounted to £196, and those received through branch treasurers amounted to £456. The committee received a grant of £10 from the Irish Medical Association, and expresses gratitude to the British Medical Association for remitting £10 subscriptions collected, and for £26 from the Medical Insurance Agency. The South-Eastern Branch of the British Medical Association also contributed. Although there are reasons for pleasure at the increased financial strength of the society, it is pointed out that by far the largest source of income is that arising from dividends and interest; the contributions of the living members of the profession are quite inadequate to maintain its work. The committee expresses its deep gratitude to those members of the medical profession who subscribe year by year, but it deplores the apathy of the great majority who do nothing to aid this Fund, which is the only one in Ireland specially concerned with the welfare of needy doctors and with the widows and orphans of their professional brethren.

The Mater Misericordiae Hospital.

The report for the year 1928 of the Mater Misericordiae Hospital in Dublin, familiarly known as the "Mater," is presented by the Sisters of Mercy, who have the hospital under their care. The number of beds available has been increased gradually from the fifty when the institution was founded in 1861 to 412; and the number of patients admitted last year was 4,686. Extension of the laboratory to meet the requirements of modern diagnosis has been effected; and the x-ray department is now under reconstruction. A private nursing home for ninety-eight patients is attached to the hospital; and it is interesting to learn that a considerable portion of the income required to run the public hospital is derived from the fees received in the home. The report on the year's work is adorned with photographs of the hospital and of a group of members of the visiting medical staff. An alphabetical list of the former pupils of the Mater Misericordiae Hospital at present in practice in many parts of the world is appended to the report.

The Belfast Hospitals' Pharmacopoeia.

The North Irish Pharmacists' Association of Belfast has issued an official pharmacopoeia of hospitals in Belfast in a convenient form for the pocket. In this pharmacopoeia are printed general formulae, with children's, gynaecological, ear, nose, and throat, eye, and skin prescriptions. Each prescription is set out clearly for ready reference, and an unusual but valuable feature of the pharmacopoeia is a price list at the end, which has been prepared as a guide with regard to the cost of each prescription to hospital patients. In a foreword to the booklet it is stated that the prices quoted apply only to hospital patients, and that in cases of obvious hospital abuse chemists are at liberty to exact the ordinary charges. If hospital authorities are notified of such cases of abuse the information will enable them to take any necessary action. The price of the pharmacopoeia is 2s. net, and copies may be obtained from any of the Belfast hospitals.

England and Wales.

The Central Public Health Committee for London.

THE names of the persons proposed for the Central Public Health Committee of the London County Council were submitted at the meeting of the council on November 19th. The committee is to consist of twenty-six persons, of whom eighteen will be members of the council, and eight co-opted. The members of the council who have been selected include two medical members, both women—namely, Dr. Stella Churchill and Dr. Barrie Lambert. The eight co-opted members include two medical men—namely, Mr. H. L. Eason and Mr. Somerville Hastings. This early appointment has been made in order that the committee may give preliminary consideration to the very important duties in relation to hospitals and medical services which devolve upon it. It is not possible, however, for the co-opted members to act on ordinary public health matters until April 1st next, and therefore the existing Public Health Committee, which will ultimately be merged into the new body, will be kept alive until that date in order to deal with such matters. The Public Assistance Committee, with thirty-two members of the council and sixteen co-opted members, has also been constituted, and among the co-opted members of this committee, as well as of the Central Public Health Committee, are a number who have served on the Metropolitan Asylums Board. The Minister of Health, afte[illegible]sentations made by various bodies [illegible]cil's administrative scheme under th[illegible] Act, has approved the scheme subject to certain minor modifications which involve no question of principle. The Central Public Health Committee will, in due course, take the instruction of the council as regards the arrangements for the appointment of its subcommittees, which may consist either wholly or partly of members of the committee. It is pointed out that a number of persons will be required for manning the subcommittees, which will deal with hospital visiting and hospital area administration, as well as for manning the local committees and district subcommittees of the Public Assistance Committee, which will deal with relief. Many names have already been submitted, but the council will welcome the opportunity of considering the names of additional persons with the requisite experience as members of public authorities or voluntary associations who are in a position to devote the necessary time to the new duties.

Cost of Tuberculosis Treatment.

A memorandum (122C/T) has been issued by the Ministry of Health showing, as in previous years, in tabular form under various headings, the weekly cost of treating patients with tuberculosis at various residential institutions in England and Wales during the year ending March 31st, 1929. The corresponding figures for the previous two years have been inserted, when available, and it appears that in more than one-half of the institutions there has been an increase in the weekly cost of each patient. Although in some instances this increase is attributable, either wholly or in part, to additional expenditure on renewals or repairs, in many institutions the rise appears to be due to the fact that a smaller number of beds are occupied. A warning to local authorities is therefore repeated that everything possible should be done to keep the beds in such institutions filled by obtaining patients from the authorities of other areas who are in need of such accommodation.

Barrasford Sanatorium.

Dr. Cecil G. R. Goodwin, medical superintendent of the Barrasford Sanatorium, Northumberland, in his annual report for the year 1928, suggests that it would be an advantage if the term "the open-air treatment of tuberculosis" could be abolished, as its continued use is misleading to the public. At Barrasford Sanatorium the results of treatment in 1928, when the weather conditions were favourable, were almost identical with those of the previous year, when these conditions were very bad. Fresh air—meaning by that superventilation—in his opinion, is the least valuable of all the factors that go to make up sanatorium treatment. At Barrasford normal ventilation of rooms is maintained, but drastic exposure of patients to the weather has been eliminated as far as possible. Of first importance to the tuberculous subject is rest; and by means of this therapeutic measure, with other methods of treatment—for example, by artificial pneumothorax or sanocrysin injections as auxiliaries—the immediate results have been very good. Healing, even under the most favourable conditions, takes a considerable time, and it is never attained in the comparatively short period that patients are able to stay in a sanatorium; nevertheless, Dr. Goodwin believes that the tuberculosis problem is gradually resolving, and the average type of tuberculous case met with nowadays is less serious than the average type in the past. At Barrasford Sanatorium fewer pulmonary haemorrhages occur during treatment, and a history of this symptom is not so frequently elicited as it was ten years ago. Moreover, a larger proportion of patients coming to the sanatorium for the first time show on admission clear evidence of fibrosis; in other words, of natural resistance to tuberculous infection. The opinion is strongly held at Barrasford that the type of disease prevalent in the area of the country served by the sanatorium is less acute than it was in the past. Dr. Goodwin attributes this apparent increase among the population of resistance to tuberculosis to the cumulative effects of the anti-tuberculosis schemes throughout the country.

Medical Treatment of London School Children.

The arrangements for the medical and dental treatment of London school children for the year commencing April 1st, 1930, which came before the London County Council on November 12th, are necessarily influenced by the fact that from the date mentioned all the institutions of the Metropolitan Asylums Board and of the guardians will be transferred to the council, and it will be necessary to review all the available accommodation and to consider how such accommodation can be utilized to the best advantage, having regard to the various services which the council carries out. The possibility will need to be explored of making use of some of the accommodation in the transferred institutions for the treatment of school children, including the in-patient treatment of children suffering from enlarged tonsils and adenoids, but some considerable time must elapse before a comprehensive survey can be completed. The arrangements now made are those not likely to be affected by the altered conditions, and in making these, regard has been paid to the needs of the existing centres in the light of the attendances during the six months ended September 30th last, when 138,478 children received treatment, as compared with 128,863 during the corresponding period in the previous year. Under the approved scheme, four supervisory centres for the treatment of rheumatic children have been in operation during the year, and another has been authorized, but has not yet commenced. The experiment has proved very successful, and the parents are said to have greatly appreciated the opportunity of getting advice in the treatment of their children. It is proposed that an additional centre shall be established forthwith (at Woolwich), and that five additional centres shall be authorized for next year. The estimates for 1930–31 provide for the treatment of 40,940 cases of refraction and eye diseases, 17,860 ear, nose, and throat cases, 664 cases of ringworm, 77,890 cases of minor ailments, and 144,100 dental cases, as well as for the establishment of additional centres, one for minor ailments, one for dental cases, one for special ear cases, one for stammering children, and five for rheumatism. The cost will be £111,774 (of which dental cases account for £49,725), representing an increase of about £6,000 on the expenditure authorized for the current financial year.

Epsom College.

A vacancy has arisen for a Leopold Salomons entrance scholarship of £50 a year, open to the sons of legally qualified members of the medical profession either living or deceased. Those may apply (*a*) who were over 11 years and under 14 years of age on January 1st last; (*b*) who can show an adequate standard of education for their

age; and (c) whose financial condition is such as to make it impossible or difficult to obtain an education at Epsom College without the help of the scholarship. A vacancy has also arisen for a Sir Walter Buchanan scholarship of about £38 a year. It is primarily intended for the sons of deceased or prematurely invalided officers of the Indian Medical Service, but, failing any such candidates, it may be granted to the sons of legally qualified medical men of pure British parentage in necessitous circumstances who have practised medicine for at least five years in India. Forms of application for both scholarships may be had from the secretary, Mr. J. Bernard Lamb, 49, Bedford Square, W.C.1. All applications must be forwarded by the morning of December 4th.

Central Midwives Board.

The Central Midwives Board for England and Wales met on November 7th. A special penal meeting was held, followed by the ordinary monthly meeting. Business dealt with by the standing committee included a letter from the Colonial Office, enclosing a copy of a dispatch from the Governor of the Gold Coast, asking for recognition of a Midwives Board for the Gold Coast as competent to supervise examinations and to confer certificates, and of the Maternity Hospital, Accra, as a teaching school for midwifery. It was resolved to inform the Colonial Office:

1. That the establishment of a Midwives Board in the Gold Coast is not a matter for the Central Midwives Board. Should it be desired to establish a Board in that colony, the Central Midwives Board suggests that the procedure adopted by the various States in Australia and New Zealand might be considered by the Gold Coast authorities. The Central Midwives Board has no power to recognize a Board in the Gold Coast which would have the power to hold examinations on behalf of the Central Midwives Board and to issue its certificates.

2. That the present practice of the Board is not to approve training at institutions outside the British Isles; as it is of opinion that such training institutions cannot be considered to be satisfactory, inasmuch as they are outside the Board's jurisdiction, and the Board has no power to inspect them, and the circumstances of training outside the British Isles necessarily differ widely from those affecting pupils who are trained in the method of working under the Midwives Act.

Consideration was given to the question whether three years' general training undergone at the Lindlahr Sanatorium, Chicago, and the Norrkopping Hospital, Norrkopping, Sweden, entitled candidates to enter for examination on a reduced period of midwifery training. It was agreed that the Board should not approve, for the purpose of admission to examination on a reduced period of midwifery training, general training taken in a hospital outside the British Empire.

Correspondence.

ROYAL MEDICAL BENEVOLENT FUND CHRISTMAS GIFTS.

SIR,—It has been the practice of the Royal Medical Benevolent Fund for many years to give a Christmas gift to each annuitant and some of the most necessitous of the grantees. Both the annuitants, who are over 60 years of age, and the grantees are deprived of those little amenities of life which the more fortunate of us enjoy.

Many of our beneficiaries are alone in the world, as their friends and relations have passed over, and consequently they will not receive any gift or extra comfort this Christmas. Last year the Fund gave to each 30s.; this meant an expenditure of £500. Many of your readers will wish that the recipients of this gift in former years should not be deprived of it this year. But unless I am favoured by a generous response to this appeal our funds will not allow of this gracious and friendly act.

Will every reader of this letter please consider if he or she cannot send to the Honorary Treasurer, Royal Medical Benevolent Fund, 11, Chandos Street, London, W.1, a Christmas donation. I shall be grateful, whether the donation be large or small.—I am, etc.,

THOMAS BARLOW,
President.

November 15th.

THE TREATMENT OF HYPERPIESIA.

SIR,—In Dr. Douthwaite's address on the treatment of hyperpiesia (*British Medical Journal*, November 9th, p. 844), he states that he had never found iodides of help in cases unassociated with syphilis, and that enormous doses are required, while the digestive disturbances produced are most objectionable.

I think it is possible Dr. Douthwaite may have observed, but has forgotten, the remarkable and rapid action of small doses of iodides in the hyperpiesia of chronic or neglected hyperthyroidism in the fourth or fifth decade of life. This condition is sometimes associated with anginal symptoms, which also promptly subside and vanish. There is, in my experience, no more certain remedy, but were large doses to be used in these circumstances exacerbation, and not relief, of symptoms, would no less certainly ensue. In another respect the advantage of small doses of iodides and the failure of large doses is well known also in the treatment of certain phases of bronchitis cases.

Dr. Douthwaite also says, "Thyroid extract is seldom helpful except in the obese menopausal patient." To this statement the qualification should be added that in these circumstances thyroid extract may raise the blood pressure and produce angina pectoris. Means has already pointed this out, and it will be readily understood that as thyroid hormone stimulates metabolic activity, increases the heart work, and often does raise the blood pressure, extreme care must be employed in the dosage for cases of menopausal hyperpiesia. Patients suffering from menopausal hypothyroidism without hyperpiesia are, in my opinion, better subjects for thyroid treatment, and better still are those in whom the blood pressure is below the average normal. Suitable dosage gradually improves the heart muscle, the blood flow, the blood pressure, and metabolism. Dangerously toxic doses do reduce blood pressure, but the practice of giving such doses has been condemned.

Although any dietetic or other suitable plan which reduces obesity will tend to diminish hyperpiesia, I am not convinced that hyperpiesia is ever an indication for the use of thyroid extract, or that the treatment of the obese hyperpietic by this means is without danger.

From observations made by myself I conclude that the action of thyroid extract is to raise the systolic pressure, while the diastolic pressure may also rise, remain steady, or fall. The invariable effect is an increased pulse pressure.—I am, etc.,

JOHN EASON.

Edinburgh, Nov. 12th.

PHYSICAL TREATMENT OF RHEUMATISM: THE ANALOGY OF RADIUM.

SIR,—The statement of the Radium Commission published in your issue of November 16th (p. 911) concludes with a necessary warning.

"*Skilled handling essential.* What is required at the moment is work, intensive work, on the many problems which present themselves, combined with careful documentation of the methods used and registration of the results obtained. This calls for the close co-operation of physicists, clinicians, radiologists, and pathologists."

The warning might well be extended. What is treatment by radium but one of the many methods by which the disordered human body is brought into effective contact with the energies of nature? I suggest that a rule of practice that is true for one member might well be applied to the entire family. All thoughtful observers know that these primeval energies are essential to life, and in many conditions of disease invaluable in medicine. But those who know them best know too well that they may hurt or heal.

One of the consequences of the increased attention that is now being paid to rheumatic diseases is an epidemic of advertisements vaunting this and that form of external treatment. In many of these methods, which are of considerable value, heat or light plays the predominant part. Those who have worked most with these agencies in rheumatism will agree that, as with radium, so with heat and light, a close investigation of their action in different forms of disease and a documentation of methods and results are greatly needed, and that knowledge so

obtained is the prerequisite of good practice. How could it be otherwise?

My view of physical treatment is in close accord with that of leading authorities in Europe and America, who deplore the present low standard of treatment in all countries. The ignorance and carelessness in the use by many non-medical persons of physical remedies of all kinds—heat and movement in air and water, electricity and light—and the lack of special teaching and qualification for medical men who desire to employ them, have placed a great branch of therapeutics in an unsatisfactory position. There is everywhere an undesirable conflict of views. The "natural" methods of treatment, as they are sometimes called, encounter scepticism from the medical profession, whilst they are welcomed with undiminished faith by the public who have recourse to them. The physical physician, whilst lamenting the lack of precise knowledge, is inclined to give his vote for the patient.

The new movement in many countries for the study and treatment of rheumatic diseases furnishes an opportunity for placing physical treatment on a more authentic footing. Those who have been closely identified with this movement are profoundly impressed with the physical element in the causation and treatment of these diseases, and are resolved that so far as their influence extends the physical treatment of rheumatism for the people at large shall be properly organized and placed in the hands of medical men who are trained in its use. I have elsewhere expressed my own view that heat, properly dosed and spaced and localized in its application, is a master treatment of many of the conditions which are called "rheumatic," but only in skilled hands. For this reason I welcome the warning of the Commission in a nearly related field of treatment: "It cannot too strongly be emphasized that in unskilled hands (that is, in hands not fully trained in the best standards of technique) radium may be highly dangerous." I submit that the same warning applies to all physical remedies, whether given singly or in combination, in the treatment of rheumatism, substituting for the last words "ineffective or injurious."—I am, etc.,

R. FORTESCUE FOX,
Chairman of the Ligue internationale contre le Rhumatisme.

London, Nov. 16th.

THE CONSTITUTIONAL FACTOR IN EPILEPSY.

SIR,—With regard to the constitutional factor in epilepsy Dr. Kinnier Wilson[1] said, "Twenty-one years of practice and hospital experience have long since convinced me that the hereditary factor is persistently overrated, and the personal or constitutional factor underrated." This is exactly what for years I have been trying to say in respect of asthma, and, though with much less experience of it, I can say the same for epilepsy. Dr. Ryle[2] criticizes Dr. Kinnier Wilson's statement, both as to the manner of expression and as to the fact.

As to the manner of expression. It is a burglarious use of language to make "constitution" a synonym for "heredity." What right have geneticists to rob a good word which connotes more than heredity? Constitution depends on heredity, nurture, and infection, and the immunity or sensitization resulting therefrom. If the geneticists doubt this let them read Richet. As to the fact. Dr. Ryle says, "It is impossible to exclude epilepsy from among the constitutional disorders." Agreed; but a hereditary factor holds of all diseases, 100 per cent. of them. The point is the weight to be allowed for the hereditary factor, not only in a given disease, but in a given case. In human beings the factors nature and nurture are so inextricably mixed that it is difficult to assess them. That geneticists are apt to forget this is shown in Dr. Ryle's next sentence: "Dr. Kinnier Wilson's epileptic twins supply one of the strongest arguments in favour of the influence of the germ-plasm." Who would deny that? But does he forget that they had the same granny—two, if he likes—and that the dear old lady would in her impartiality be likely to stuff as many chocolates into Tweedledum as into Tweedledee?—that both would be brought up in the same way by the mother, and probably a vicious way, as the fits indicated?

Many years ago I was asked to treat a boy for fits. Dieting and a regular mercurial stopped them. A year or two later I was asked to treat his younger brother for the same thing; same treatment, same result. Both are now healthy men; no "hereditary" history. I can adduce other similar cases without family history of epilepsy. Possibly the heredity told in favour of fits rather than of some other manifestation of evil nurture, but that is all that can be said. If we take the two factors, nature and nurture, alone and allow 10 for the total weight, then in the case of asthma nature would always get less and nurture more than 5; and if we add infection and its consequences as a third factor, then nature 2, nurture 5, infection 3, would probably be near the truth, but the figures would vary with the case, and something similar might be said of epilepsy.—I am, etc.,

JAMES ADAM.

Glasgow, Nov. 16th.

[1] *British Medical Journal*, October 26th, p. 745.
[2] Ibid., November 2nd, p. 830.

POTENTIAL EPILEPSY.

SIR,—I seem to have come across lately more "fainting attacks" than usual. In a great many of these cases in my surgery, in public buildings, at vaccinations, etc., which I have met, there is pallor, a short loss of consciousness, and twitching of the limbs, face, and eyes. If epilepsy can be called the habit of discharge exhibited by neural mechanisms, that habit must have a beginning, often in a child with dyspepsia, and generally when the blood tension is lowered. I am afraid that we do not follow up the histories of these cases which show such minor nervous disorders. But it is possible to consider the wisdom of classing such cases as potential epilepsies, to give them a course of bromides, and warn the relatives to be on the look-out for further phenomena. I have always assumed that the bromides quieten the excitability of the cerebral cells, and have been frequently distressed at the lack of perseverance epileptic patients show in continuing their treatment long enough.

There seems a tendency to-day to substitute newer drugs, notably luminal, for the bromides, but my experience in practice, and from a study of responsible collections of results, suggests that this experimental medication is not warranted except by those who have the opportunity of treating epilepties in large numbers.—I am, etc.,

H. M. RAVEN, M.R.C.S., L.R.C.P.

Broadstairs, Nov. 12th.

RELIEF OF PAIN IN LABOUR.

SIR,—I should like to support Dr. Curnow Plummer's remarks in the fourth paragraph of his letter on the relief of pain in labour (November 16th, p. 933). I am convinced that it is the memory of the first terrible experience of labour which makes the young married woman say "never again," and even take all means in her knowledge and power to avoid the continuance of pregnancy. This seems one of the strongest arguments in favour of easing the pain of labour in primiparae. It is unnecessary to stress the immediate and remote pathological results of abortion, particularly if actively procured.

Might I suggest that in avertin we have an analgesic which goes a long way to help in this matter. The technique is simple. My patients are usually admitted to hospital in labour, and after an enema has been given I allow a primipara to have several strong contractions, in order that she may appreciate the relief which she is to get. Then a quarter grain of morphine is given, and the patient usually becomes drowsy and the contractions weak; but they are still strong enough to make the cervix dilate. Later, strong contractions return, with a tendency to bearing down, and examination per rectum will easily show that the head is coming down and the os is two thirds dilated. Not until this stage is reached do I give avertin. I give rather less than 0.1 c.cm. per kilo of body weight, which has to be guessed in the case of a patient admitted in labour. I wait until the passing of a strong, long pain, and immediately insert a small catheter per rectum. The administration is usually complicated by the onset of a pain about half-way through, but strong

pressure on the anus will prevent loss of more than an ounce or so, and thereafter no trouble is experienced. The patient immediately becomes drowsy, and remains so between pains. The administration of a little ether during the last three or four contractions is the perfect culmination of this method, but I can rarely find time to give it. I have had no complications so far.

The advantages of this method are these. The attendance of the doctor is required for the ordering of morphine, say five minutes, and again for the administration of the avertin, and thereafter for a short period, say half an hour. He need never appear again in a normal case, unless it is to give the final ether. The difference to a patient thus treated and one who is left "to get on with it" is dramatic. Actual pain is not abolished, and the contractions are not affected in any way, but the patient can look forward to her next pregnancy with equanimity instead of with terror.—I am, etc.,

Birmingham, Nov. 17th. J. S. M. CONNELL.

"ACTIVATED" FLUORESCEIN IN THE TREATMENT OF CANCER.

SIR,—There is nothing in Dr. Monckton Copeman's reply (November 16th, p. 929) to my letter of August 24th (p. 367) to lead me to retract any of my general or detailed criticisms there. To my mind he has entirely failed to prove that the use of fluorescein gives any better results than *x* rays or radium used alone. A relatively simple field in which to test its value is that of corneal ulcers having ultra-violet or *x*-ray treatment. Birch-Hirschfeld in recent articles has warned that its use is difficult and the results uncertain. How much more is this likely to be the case in malignant disease!

Dr. Copeman and his collaborators seem to ignore the fact that there is already a considerable literature abroad on the use of eosin, erythrosine, fluorescein, methylene blue, acridin, quinine, and other fluorescent agents as supplementary to radiation in malignant disease. Werner[1] has summed up this and all the other combined methods conveniently; the fluorescent substances have been found to have no practical value. I have myself, or in collaboration (*pace* Dr. Copeman), tried fluorescein, potassium, iodine, arsenic, lead, bismuth, and other heavy metals—only in one case where a bismuth emulsion was injected *below* a prominent supraclavicular node did there appear to be a definite result due to the secondary radiator. (The fluorescein was tried over a year ago at Mr. Shorney Webb's request.) Holthusen[2] sums up a long research on the effect of secondary radiation on bacterial cultures by saying that the hope that secondary radiators may be of use clinically, even in skin diseases, is "illusory." It is so because the gain in secondary electron-radiation is offset by its great absorption in the thinnest layers—even the chitin envelope of ascaris eggs is protective; also there is a lessening of the primary radiation in the deeper layers of tissue.

Finally, I cannot but think that Dr. Gouldesbrough has some unique method of measuring his "pastille doses" if he finds no erythema following the use of his dose of a "three-quarter Sabouraud B pastille (placed on the skin), all the rays having passed through a 4 mm. filter";[3] this equals a three-pastille dose at the half distance—a large dose, almost always causing an erythema! Nor can I think that the references to the chemical form in which the fluorescein is used—for example, "bad results and good results, thought to be due to differences in the *x*-ray apparatus employed, have no doubt really depended upon the form of the fluorescein used"[4]—show a due appreciation of the physical principles involved. Apart from toxicity, what is important in the use of an optical sensitizer is the atomic constitution, not the chemical combination, of the radiator.

I fear that the results in malignant disease, in so far as they are attributed to the fluorescein, are in the main "illusory"; and any further critical work here on the subject will lead to this conclusion, which was reached five years ago, after research and twenty years' study of the literature on various aspects of the subject, by Werner, Rieder, and other workers abroad.—I am, etc.,

London, W.1, Nov. 16th. J. H. DOUGLAS WEBSTER.

[1] *Lehrb. der Strahlenther.*, 1925, Bd. 2, S. 203-9.
[2] Holthusen, Schuback, and Siehmann: Sensibilisierung durch Sekundärstrahlen von Metalloberflächen, *Strahlentherapie*, Bd. 24, 1926-27, S. 577.
[3] *British Medical Journal*, August 10th, p. 225.
[4] Frank Coke: Ibid., September 21st, 1929, p. 558.

TERMINOLOGY OF THE LEUKAEMIAS.

SIR,—In medical literature the word "leukaemia" has long displaced "leucocythaemia," but some sticklers still insist on writing "leuchaemia." However, if one considers "leukaemia" merely as the result of conveniently shortening leuk(ocyth)aemia no possible objection to its employment can be maintained. Not so in regard to the term "aleukaemic leukaemia," in which the adjective negatives the substantive. The usual way of avoiding this terminological difficulty is to call myeloid leukaemia "myelosis," and lymphoid leukaemia "lymphadenosis," and subdivide them, according to the total white cell count at the time of observation, into (1) aleukaemic myelosis; (2) leukaemic myelosis (the original cases of "splenomedullary leucocythaemia"); (3) aleukaemic lymphadenosis; and (4) leukaemic lymphadenosis. This subdivision is certainly the simplest one, but I would suggest substituting the adjective "hypoleukaemic" (that is, hypoleucocythaemic) for "aleukaemic," and "hyperleukaemic" (that is, hyperleucocythaemic) for "leukaemic." Either of the two leukaemias may be temporarily or persistently hypoleukaemic or hyperleukaemic. Cases with medium counts (between hypoleukaemic and hyperleukaemic) could be reckoned as myelosis or lymphadenosis without any qualification.—I am, etc.,

London, W.1, Nov. 12th. F. PARKES WEBER.

GLUCOSE IN THE TREATMENT OF ASTHMA.

SIR,—I am anxious to avoid making any claim for priority in the discovery of a treatment of asthma by glucose. The relative intolerance of many or most nervous asthmatic children for fat and their high need for sugar has been known for a long time. My former assistant in the Children's Department at Guy's Hospital, Dr. Osman, has, no less than myself, been an advocate of sugar and glucose, and first suggested the name of "glycopenia" for the condition under consideration. His work on the subject has influenced all the teaching in the department. —I am, etc.,

London, W.1, Nov. 19th. H. CHARLES CAMERON.

ASTHMA AND NEURASTHENIA.

SIR,—Dr. Hurst's statement (November 16th, p. 930) that Dr. H. C. Cameron discovered a glycopenia (or hypoglycaemia) in asthmatics is of interest, but will cause a little bewilderment in those who have followed Dr. Cameron's work. We first hear of Dr. Cameron advocating the use of glucose in highly strung children who are liable to become neurasthenic. It is evident that in transferring this treatment to asthmatics he recognizes that the basis of asthma is neurasthenia. I strongly advocated this view at the Manchester meeting, but it was ignored by Dr. Hurst.

The only difference that I can find between an ordinary neurasthenic and an asthmatic is that in the asthmatic there is vagal irritation from the nose and throat. At Manchester I advocated the treatment of the nose and throat, and the treatment of the neurosis with suitable sedatives, which are those acting on the nervous system alone, such as bromide, luminal, medinal, and in some cases chloral. This is a successful method of treatment. In my experience adrenaline and ephedrine should be used sparingly and only in acute attacks of asthma, because they cause fluctuations in the vasomotor control, whereas what is most needed is *stability*. This clinical experience rests upon a strong physiological foundation.—I am, etc.,

London, W.1, Nov. 17th. H. MORTIMER WHARRY.

EOSINOPHILIA IN ASTHMA.

SIR,—In the reports of recent discussions on asthma I have been surprised to find no attempt at distinguishing between cases of this disease with and without eosinophilia. It is known that patients suffering from asthma may have an increased number of eosinophile cells in the blood, and considerable numbers of these cells in the sputum. There are, on the other hand, cases in which this feature is completely absent. Whether they also differ in any clinical respect I am not in a position to say.

A fact which does not appear to have found recognition is that the sputa in these two types of the disease also differ bacteriologically. In the non-eosinophilic type there is almost invariably clear evidence of an infection (the organism being usually either *B. pfeiffer* or a pneumococcus). In the eosinophilic sputum, commonly consisting of highly gelatinous clear mucus containing thin white strands of muco-pus in which quite 50 per cent. of the leucocytes are eosinophils, films are devoid of organisms, and cultures, if made from clean material, are almost sterile. I have only once obtained a pure growth of a pathogenic organism by ordinary cultural methods from sputum of this kind, and then in numbers so small in relation to the quantity of material sown that its significance was doubtful.

I do not wish to enter upon any general discussion as to the etiology of asthma, but I submit that from the cytological and bacteriological standpoint there are two varieties of the disease. The non-eosinophilic is accompanied by an infection, and its recognition is of importance because the disease is then susceptible to specific treatment. The eosinophilic variety is apparently non-infective, and patients whose attacks are excited by foreign proteins presumably fall into this group. I suggest that an examination of the sputum should be regarded as essential in investigating a case of asthma, both as a guide to treatment for the individual patient, and because the significance of any observations, whether clinical, biochemical, or therapeutic, would be clearer if it were known to which variety of the disease they refer.—I am, etc.,

London, W.2, Nov. 18th. LAWRENCE P. GARROD.

THE BASOPHIL CELLS IN ERYTHRAEMIA.

SIR,—In his interesting paper on erythraemia with jaundice (November 16th, p. 892), Dr. F. Parkes Weber gives the white cell count as 16,350 per c.mm., with polymorphonuclears 70 per cent., basophils 3 per cent., eosinophils 3 per cent., lymphocytes 21 per cent., and monocytes 3 per cent. Now the point is that the white cells are doubled, the polymorphs and lymphocytes doubled, the eosinophils and monocytes just a high normal count, and yet the masts (basophils) are increased seven times—that is, up to 490 per c.mm.

In 1918, in a case of acholuric jaundice, I found a total white count of 7,000 per c.mm., with 3 per cent. of masts. Considerable increase of masts is so rare that this excited suspicion. Eventually I convinced myself that 2 per cent. of these were leucoblasts, which are quite distinct from masts. Accordingly, when I recognized my first case of splenomegalic polycythaemia, I was able to identify leucoblasts in the films, sometimes to the number of 3 per cent. of the whites. Indeed, I have not seen these cells so numerous except in splenomedullary leukaemia, though they are always present in pernicious anaemia. Nevertheless, mast cells are often in evidence in my case of erythraemia, so that the leucocytosis is really a granulocytosis showing myelocytes of all three granular forms, as well as leucoblasts.

I may add that in 1928 erythroblasts began to appear, along with anisocytosis, polychromasia, and punctate basophilia. These have remained. For four years (1923–26) the man suffered from the disease; but the red count then fell at the rate of a million a year, and is now 4,900,000, the haemoglobin percentage being 92. For over twelve months he has had excellent health; yet his spleen now reaches below the umbilicus, and, in spite of normal red count and colour index, one must call him anaemic.—I am, etc.,

West Ealing, Nov. 17th. R. CRAIK.

BACTERIOLOGY OF TONSILS IN RELATION TO ACUTE RHEUMATISM.

SIR,—The recent correspondence on this subject prompts me to suggest that acute rheumatism might be grouped into stages comparable to the stages of syphilis.

Primary.—An acute upper air passage infection, probably carrier-borne, observed in semi-isolated communities as epidemic sore throat and tending to be endemic during the troughs between epidemics.

Secondary.—After an interval of a few days to two or three weeks the typical attack of acute rheumatism, subacute rheumatism, or pre-rheumatic symptoms.

Tertiary.—Residual fibrosis. (Aschoff's bodies; subcutaneous nodules.)

Para-rheumatic.—Chorea and perhaps erythema nodosum.

As in syphilis, the causal organism will be present in the primary stage. After this it will become increasingly difficult to find. Unlike the spirochaete, it produces but a temporary immunity, if any. Recurrence must therefore be looked for whenever the infectious sore throat is epidemic. The organism may be absent from the nasopharynx between attacks. The immune carrier hypothesis[1] and the secondary nature of the rheumatic attack (whether the susceptibility is allergic or not[2]) explain family tendency, environmental factors, and, in part, class incidence. Bloomfield and Felty's[1] beta haemolytic streptococcus is one of many strains producing sore throats in epidemics. The epidemics vary with the specific strains. Haig-Brown's little book on tonsillitis,[4] when its material is interpreted in the light of more recent knowledge, is well worth reading in this connexion, and Bezançon and Weil's[3] summary of the literature on the epidemic nature of acute rheumatism in their communication to the Bath Conference on Rheumatic Diseases, 1928, is very suggestive. The only two cases of acute rheumatism I have seen in my small practice during the past four years occurred within fourteen days of each other, during an epidemic of sore throat. These epidemics are surface infections—the organism is not confined to the tonsil, but the whole of the nasopharynx is the portal of entry. Of the two the nasopharynx is more important, and it can be shown that tonsillectomy has little control over the recurrence and incidence of acute upper air passages infections. Tonsillitis is merely a symptom of these droplet infections. In this I believe Dr. Cronin Lowe[5] will agree with me, but I suggest that pathogen-selective cultures will only be of value during the primary and secondary stages, and I would remind him of the difference between surface and tonsil puncture cultures.

I also agree with Drs. Nabarro and MacDonald[6] that probably many strains of streptococci can produce the specific poison; but if the suggested analogy with syphilis could be substantiated would they amputate the penis as prophylaxis against the spirochaete? Tonsillectomy for *acute* rheumatism is hardly less rational.—I am, etc.,

Stratton-on-the-Fosse, nr. Bath, Nov. 10th. W. H. BRADLEY.

TREATMENT OF GASTRIC AND DUODENAL ULCER.

SIR,—Eighteen months ago a gastric ulcer which had resisted medicinal treatment for over six months was healed after a three weeks' course of feeding through a duodenal tube, retained *in situ* during that period.

Yesterday my stomach and duodenum were examined after an opaque meal and found to be normal. Returning home I read in the *British Medical Journal* the report of a discussion on "Gastric and duodenal ulcer: results of treatment" (November 16th, p. 907), but found no mention of the method whereby ulcerated areas are put out of action by feeding through the duodenal tube. The simplicity and effectiveness of this method should appeal both to the physician and to the patient; when it is more generally adopted it should remove many cases from the domains of surgery.—I am, etc.,

Bratton, Nov. 17th. T. WOOD LOCKET.

[1] Bloomfield and Felty: *Johns Hopkins Hosp. Bull.*, 1923, p. 251.
[2] Swift, Derick, and Hitchcock: *Proceedings of the Bath Conference on Rheumatic Diseases*, 1928
[3] Bezançon and Weil: Ibid.
[4] *Tonsillitis*, Baillière, Tindall and Cox, 1895.
[5] Cronin Lowe: *British Medical Journal*, November 9th, 1929, p. 875.
[6] Nabarro and MacDonald: Ibid., October 26th, 1929, p. 758.

EPHEDRINE IN GALL-STONE AND RENAL COLIC.

SIR,—In December, 1928, I was called to see an old lady suffering intense pain from gall-stone colic. I tried morphine, atropine, bismuth, and sodium salicylate and belladonna, but without giving her any relief. It occurred to me that as ephedrine does good in asthma and hay-fever it might, by its action on striped muscle, relieve spasm elsewhere. I therefore gave 1/2 grain of ephedrine hydrochloride (B.W. and Co.), and was gratified to see relief of pain in the course of a few minutes. I might add that the patient was at the time under treatment for gall-stones at one of the leading London hospitals.

About ten days ago I was called to see a man in great agony, suffering from renal colic. I tried 1/2 grain of morphine, with no result, and then gave him 1/2 grain of ephedrine hydrochloride with immediate relief. In case it might be thought that it was the morphine that gave relief, I would add that another attack of intense pain came on four hours afterwards, which again was immediately relieved by ephedrine hydrochloride. I then sent the patient to the Metropolitan Hospital, where he was examined by Dr. J. W. Linnell, who admitted him to hospital, and has kindly informed me that the patient passed an oxalate stone a few days later.—I am, etc.,

London, E.8, Nov. 17th. ARTHUR J. AMBROSE.

ARSENICAL IONIZATION.

SIR,—With reference to Dr. Scaife Armstrong's letter in the *Journal* of November 16th (p. 933), I am not aware that arsenic behaves in a different manner electrically from any other salt in solution. If a pad soaked in 1 per cent. sodium arsenite were placed on the skin I should expect that the arsenic ion would be introduced by applying the negative pole of the continuous current. We all know that arsenic is a very toxic body, and I am not surprised to hear that severe reactions were obtained as a result of this form of medication, and it would appear most probable that these reactions were directly due to the introduction of the arsenic ion.—I am, etc.,

Ipswich, Nov. 18th. C. H. C. DALTON.

Obituary.

THOMAS HORROCKS OPENSHAW, C.B., C.M.G., M.S., F.R.C.S.,

Consulting Surgeon to the London Hospital and the Royal National Orthopaedic Hospital.

THE late Mr. T. H. Openshaw, whose death took place on November 17th, after some weeks' illness, was a Lancashire man who, owing to a family connexion, was educated at Bristol Grammar School, on leaving which he began to train as an engineer. He did not pursue that calling for long, but exchanged it for the study of medicine at the London Hospital, from which he proceeded to the membership of the Royal College of Surgeons in 1882, and the Fellowship in 1886. His other qualifications were L.S.A. 1882, L.R.C.P.London 1884, M.B.Durham 1883, B.S. 1885, and M.S. with honours from the same University in 1887. After holding the usual house offices he was elected assistant surgeon to the London Hospital, and in due course surgeon to out-patients, full surgeon, and, on superannuation, consulting surgeon. As assistant surgeon to Mr. Waren Tay, who confined his interest mostly to ophthalmology, Openshaw had unusual opportunities, for Mr. Tay's beds were practically at his disposal. Of these opportunities he made good use, and perfected his technique as an operator. He for some time held the post of lecturer on anatomy, and at a later period on surgery. In 1916 he was elected a member of the Council of the College of Surgeons, on which he sat until 1924. In 1893 he was elected assistant surgeon to the National Orthopaedic Hospital, which institution was afterwards amalgamated with the Royal Orthopaedic Hospital under the auspices of King Edward's Hospital Fund. From that date he took a keen interest in the treatment of deformities, and when the orthopaedic department was formed at the London Hospital it was placed under his charge, and remained so until his retirement from the active staff.

Openshaw had long taken an interest in military surgery as an officer of a volunteer bearer company, and, after the formation of the Territorial Army, of the R.A.M.C.T. He was surgeon to the Lincolnshire Yeomanry, in which he rose to the rank of lieutenant-colonel. When the events of the war in South Africa called for great reinforcements and the Imperial Yeomanry Field Hospital was formed and sent out under Colonel Stonham (surgeon to the Westminster Hospital), Openshaw was one of its staff. He left it, however, after the capture of Pretoria, and became principal medical officer of No. 2 Model School Hospital at that place, in which office he had a freer hand and better opportunities of doing good work than he had in a subordinate position with the Yeomanry hospital. Of these opportunities he fully availed himself. On his return to London after the cessation of regular hostilities he found, like some others, that practical patriotism such as his did not pay, for he had to build up his private consulting practice afresh. The days had gone when a distinguished surgeon could rush out in a blaze of publicity to the seat of war, do a number of spectacular operations, and return in six weeks with an enhanced reputation. But Openshaw's solid merit could not be long overlooked, and he soon recovered his practice.

When war was declared in 1914 Openshaw was not included in the scheme of Territorial and other hospitals on the staffs of which many of his colleagues found themselves in important positions. The somewhat remarkable scheme for the formation of a great naval hospital near Edinburgh, to be staffed by London men, included him, and when this idea failed to develop into reality he was temporarily without any position such as his experience and capabilities deserved. At the London and the Orthopaedic he, like the rest of their staffs, treated the wounded who replaced so many civilians in their wards. An opportunity of special usefulness soon offered itself, however. In 1915 it was brought to the notice of a wealthy and philanthropic lady, Mrs. Gwynn Holford, that the old defective methods of supplying war amputees with artificial limbs had broken down. The Commissioners of the Royal Hospital at Chelsea had hitherto supplied prostheses of this sort through instrument makers, without expert surgical advice. Even this imperfect method broke down under the strain of the thousands of cases needing attention. Mrs. Holford was properly advised to consult an orthopaedic surgeon, and accordingly was introduced to Mr. Openshaw. As the result of her enthusiasm and indomitable energy, Queen Mary's Convalescent Auxiliary Hospital Committee was formed, and Roehampton House, then in the hands of the builders, was borrowed from Mr. Kenneth Wilson. In all the questions which arose, as to the best kind of limbs to be supplied and the choice of makers who should supply them, Openshaw's advice was sought and taken, and most of the orthopaedic surgeons who joined him as colleagues as the work increased were appointed on his recommendation. The hospital was opened in July, 1915, and it is well known that it was a great success and served as a model for many of those which were afterwards established in different parts of the United Kingdom for the supply of artificial limbs.

Meanwhile his experience and abilities as a consultant were not neglected. He was appointed consulting surgeon to the Eastern Command, with the rank of colonel, in which capacity he had to visit a large number of auxiliary and other hospitals in the East of England, and to spend much time in travelling. When in 1918 the foundation of the British Orthopaedic Association was mooted, he was one of the three signatories of the circular letter calling together a preliminary meeting, the others being Sir Robert Jones and Mr. Muirhead Little. He declined office in the association, however, and took little or no part in its subsequent meetings, but he was at one time president of the Orthopaedic Subsection of the Section of Surgery of the Royal Society of Medicine, and took part in many of its meetings and of the Section which it ultimately became. He was a vice-president of the Section of Diseases

of Children, which included orthopaedics, at the Annual Meeting of the British Medical Association at Liverpool in 1912, and president of the Section of Orthopaedics at Portsmouth in 1923.

Openshaw was not fond of using his pen. He wrote no book and contributed few papers to the medical press. His tastes were not literary. He had a blunt manner, made the more noticeable by that Lancashire accent which he never lost, but in an unguarded moment he would display, despite his native shrewdness, a disarming candour. If his colleagues found him a rather incalculable factor and sometimes wondered what "Tommy" would next be at, he was always popular and received a smiling welcome in whatever circle he entered. In his younger days he was a keen cyclist and he was always devoted to fishing. His other enthusiasms were for Freemasonry and the Shipwrights Company, of which he was a past-master, and at whose dinners his speeches were always well received.

Openshaw was a good operator. His sure anatomical knowledge and his quick decision in emergencies served him well. His service at the London bridged over the change from the antiseptic to the aseptic ritual in the theatre. Having achieved excellent results with antiseptic methods he was loath to change, and it was some time before he yielded to the innovation of operating in gloves, for his skin was unaffected by frequent immersion in 5 per cent. carbolic lotion. Being justly of the opinion that his powers were unimpaired he took his superannuation hardly, although it was in the usual course, and he bewailed the enforced cessation of his hospital work, but found some compensation in private practice and in making himself useful as the only medical member of the committee of the Royal Surgical Aid Society.

We are indebted to Mr. ROBERT MILNE, surgeon to the London Hospital, for the following appreciation:

The news that Openshaw had entered upon the Great Adventure must have come as a great surprise to very many members of the profession. His very robust, sturdy figure had been about town, and at the London Hospital old students' dinner only four weeks ago, with no suggestion of failing bodily or mental vigour. No one meeting him called him probably anything but "Tommy," so widespread was this shortening of his full name, and the universal use of the title marks the width of his popularity and the esteem he won on all hands. Many memories crowd upon one who has been in touch with him since he lectured us on anatomy, and who helped to shoulder him along the platform when he left for the South African war thirty years ago, but the outstanding feature about "Tommy" was his honesty of purpose and his loyalty. In council he spoke little, but he was right in his views. He was a sportsman all his years—when he played football, when he led parties of students to Ascot on a cycle—and his final illness came partly through his zeal to capture a pike in the West Country, and partly through his loyalty to keep a professional appointment when he was not really fit. His interests were always orthopaedic, and his out-patient departments were filled with children who loved him. He might not remember their names correctly always, but he remembered their special likes, and he always had an appropriate word for them. He had a wide experience even before radiographs were introduced and before the laboratory was important; he had trained himself to accurate observation, so that his clinical instinct in diagnosis and appropriate treatment was really wonderful. His lucid speech, with a Lancashire burr and dogmatic mien, made him such a popular and practical teacher that his Friday mornings attracted patients and students alike. He loved work and he loved his London Hospital. When one could get him talking his reminiscences were voluminous, for he was steeped in the traditions and the lives of the great surgeons, in the lore of surgery, and of the London Hospital. He was a keen Freemason, interested in the historical details and past of the city companies, and an energetic volunteer. In spite of all these activities, he was always available to help actively or by advice a professional colleague, and to stick by him through thick and thin. The loss of his son, to be followed soon by the loss of his wife, were two staggering blows which did not fail to leave their traces on him towards the end, but he accepted these losses with the courageous fortitude one associated with his character. He continued his work, he continued his fishing, but he slackened in his zeal. We shall miss his form, his cheery word, his tales and experiences, but his memory will be with us as the personification of honesty and loyalty.

Dr. HERBERT R. SPENCER sends the following tribute:

Many will mourn the loss of our dear friend T. H. Openshaw, commonly known as Tommy Openshaw or "Oppy." I believe he was a very skilful surgeon, I know he was an honest and kind one, and as a man he was one of the best. He had some grievous domestic losses, and of late his health had not been good. Yet up till near the end of his life he had a keen appreciation of the good things it offered, and the catholicity of his tastes as a sportsman was, I think, not surpassed by that of any member of our profession. Hunting, shooting, fishing in all weathers, he was equally keen on them all. With his friend Pockett—a good sportsman, who predeceased him—he would shoot all day, and then travel by motor through the night to another shooting or fishing next day, and his friends never ceased to marvel at the astounding energy he showed when he had passed his three-score years and ten. He was the beloved president of the Red Spinner Angling Society, to which he presented the challenge cup which he himself won outright in 1925. Some notable fish which were taken by his rod were a chub and barbel each weighing over 7 lb., a tench of 5 lb. 14 oz., a trout of 6 lb. 4 oz., and a pike weighing over 24 lb. He was especially fond of pike fishing, and was not deterred by the most inclement weather from its pursuit. On these occasions he used to wear an abundance of coats and wraps, which gave his short figure an imposing appearance. I think his ambition was to catch a "record" pike which should surpass the somewhat doubtful weight of Colonel Thornton's (said to have weighed about 48 lb.). On the last occasion on which I saw him he was meditating an attack on a monstrous pike in one of the Duke of Marlborough's lakes, which he had coveted for a long time. I hope he succeeded. In any case, his 24-lb. fish was no mean trophy. Openshaw was in every deed a sportsman. Take him for all in all we shall not look upon his like again.

FREDERICK MONTIZAMBERT, C.M.G., L.S.O., M.D.,

Formerly Director-General of Public Health and Sanitary Adviser to the Canadian Government.

DR. FREDERICK MONTIZAMBERT, the doyen of the public health service in Canada, died at Ottawa on November 3rd. He was born at Quebec in 1843, so that his long life spanned half the distance between the present day and the conquest of Quebec by General Wolfe.

After receiving his education at Toronto and at Edinburgh University, where he graduated M.B. and later proceeded to the M.D., Montizambert entered the Canadian Public Health Service at the age of 23. This was at the time of the so-called Fenian invasions, when raids by Irish bands were made from the American frontier, property was destroyed, and the lives of some Canadians were lost. Montizambert served during this period as principal medical officer of the Quebec military district, and received for his services a medal and clasp. Shortly afterwards he became medical superintendent of the St. Lawrence Service, a post which he held for a quarter of a century. A matter in which he greatly interested himself while in this position was the quarantine regulations, which had been unchanged for thirty years and were framed only with a view to conditions on sailing ships. On his initiative they were simplified and made more reasonable and up to date. He himself took charge of the quarantine service, both maritime and inland.

By the end of the century Dr. Montizambert had become known as the leading public health official in Canada, and was recognized internationally as an outstanding authority

on all matters appertaining to public health. After a period of five years as general superintendent of the Canadian Health Service, he became director-general in 1899. He was to the forefront in every sanitary movement. In 1900, when the Canadian Tuberculosis Association came into being he was one of the founders. A few years later the Canadian Branch of the St. John Ambulance Association was formed, with Dr. Montizambert as its first president. He was at one time president of the American Public Health Association and served for many years on its executive council; he was also an honorary fellow of the Society of Medical Officers of Health in this country. When the British Medical Association visited Montreal for its Annual Meeting in 1897 Dr. Montizambert was vice-president of the Section of Public Medicine, and on its second visit to Canada in 1906, when it met at Toronto, he was president of the Section of State Medicine. He retained his membership of the British Medical Association until 1921. In 1907–8 he was president of the Canadian Medical Association. He was also a governor and member of the executive council of the Royal Victorian Order of Nurses for Canada. All matters connected with first aid, Red Cross service, and public nursing had his hearty co-operation.

His services to Canada were recognized in 1903 by the award of the Imperial Service Order, and in 1916 by the bestowal of the Companionship of St. Michael and St. George. He enjoyed in an unusual degree the esteem of his profession and of his colleagues in the public service because of his kindly disposition, which endeared him to all with whom he came in contact.

We have to record with much regret the untimely death of Mr. D. M. B. Evans, F.R.C.S., which took place at Charing Cross Hospital on November 9th. Evans, who was surgical registrar to the hospital, had been playing Rugby football only a few days previously, and, following an injury to the heel sustained during the game, he developed a staphylococcal septicaemia, which proved rapidly fatal. He first joined Charing Cross Hospital Medical School in 1921, having completed his preliminary medical studies at the Cardiff Medical School, University of Wales. After a brilliant undergraduate career he took the diplomas L.R.C.P., M.R.C.S. in 1923, and graduated M.B., B.S.Lond. in 1925. In 1926 he obtained the membership of the Royal College of Physicians of London, and in 1928 the Fellowship of the Royal College of Surgeons of England. Immediately after qualification he became house-surgeon to Charing Cross Hospital, and then held a sequence of appointments as resident medical officer to Queen Mary's Hospital for Children, Carshalton; resident medical officer to Bolingbroke Hospital; demonstrator of anatomy at King's College, Strand; senior house-surgeon to All Saints' Hospital for Genito-Urinary Diseases; and, since March, 1928, surgical registrar to Charing Cross Hospital. In 1926 he contributed to the *British Medical Journal* a paper on hypertonic saline in chronic oedema, and in 1927 a paper to the *Lancet* on squamous epithelioma of the bronchus. He was a member of the British Medical Association. Baden Evans was an attractive and popular personality. It was said of him that whatever he turned his mind to he would certainly do well: he chose surgery, and though at the time of his death he was but in his 29th year, he was already recognized by those who saw his work as a surgeon of the greatest promise. Mr. Norman C. Lake, surgeon to Charing Cross Hospital, sends the following tribute: Charing Cross Hospital has lost one of its most brilliant students of recent years in the death of D. M. B. Evans. For the past two years he had identified himself very closely with the work of the hospital while he held the post of surgical registrar; indeed, it was probably his keen and constant application to the duties of that post which so reduced his resistance as to render him a ready prey to the septicaemia which so rapidly and tragically caused his end. His great ability was obvious to all and the future had much in store for him. The hospital, the whole profession, is the poorer for the loss of a life so full of promise, a skilful surgeon, a lucid teacher, a musician, and a sportsman.

Dr. EDWIN CLIMSON GREENWOOD, O.B.E., who died on November 7th, was born in 1851, and received his medical education at Guy's Hospital. He obtained the diplomas M.R.C.S., L.R.C.P. in 1886. For many years he held the post of public vaccinator for St. Marylebone, and was a well-known teacher of vaccination, holding an appointment under the Privy Council. For thirty-six years he was a divisional surgeon to the Metropolitan police, and retired on February last, when he was presented with an illuminated address. During the war he was in charge of the Acheson Hospital for Officers. Other appointments held by him included those of medical superintendent to the St. John and St. Elizabeth Hospital, visiting physician to St. Marylebone Almshouses, and honorary surgeon to the Portland Town Free Dispensary. He was a member of the British Medical Association, and contributed several papers to the *British Medical Journal*. Dr. A. E. Cope sends the following appreciation: It was in March, 1898, that I first met Edwin Climson Greenwood. Drs. Miskin, Jaynes, and I had organized a meeting of the London public vaccinators in view of the Vaccination Bill which was being introduced into Parliament, and which in the following August became the Vaccination Act, 1898. The meeting was held in the old St. Martin's Town Hall, immediately behind the site now occupied by the Cavell memorial. There was a full attendance, when, just before the time for the commencement of the proceedings, a tall, distinguished-looking man came striding in, and Jaynes, glancing up, said: "*Here's Greenwood; we must get him* in the chair." There was certainly no one in the room who looked more fitted for the position, and on being asked he consented, was elected president of the newly formed *Association of Public Vaccinators of England and Wales*, and held the office for ten consecutive years, with ability and distinction. In addition, he secured the services of his brother, Mr. Charles Greenwood, a solicitor, who, as organizing secretary, guided the affairs of the association successfully through the difficult years immediately succeeding the passing of the Act. Mr. Charles Greenwood died shortly after the war, and his brother gradually withdrew from active participation in the work of the association, though still retaining his interest in it, and occasionally attending its meetings. His colleagues will miss his kindly, gracious presence, and his loyal friendship.

We regret to record the death, at the age of 74, of Dr. GEORGE GRAHAM HODGSON, which took place on November 3rd at his home in Eastbourne. Dr. Hodgson received his medical education at Liverpool and at University College Hospital, London, taking the diploma M.R.C.S.Eng. in 1877. For a year after his qualification he held a resident appointment at the Rotunda Hospital, Dublin, and followed this with nearly two years as a ship's medical officer to the R.M.S.P. line. In 1879 he obtained the further diplomas of L.R.C.P.Lond. and L.S.A., and in 1902 he graduated M.D.Durham. For some years Dr. Hodgson engaged in private practice in Liverpool, where he was appointed honorary surgeon, and later consulting surgeon, to the Bootle Hospital. In 1896 he moved to Chertsey, Surrey, and there, until his retirement in 1920, he had a large country practice, in which, by his skill, simplicity, and kindness of heart, he won the esteem and love of all his patients. Dr. Hodgson had always been interested in the study of mental disorders, and during the three years immediately following his retirement he was assistant medical officer to the Mental Hospital, Ipswich. He was a member of the British Medical Association. His surviving son is Dr. H. Graham Hodgson, C.V.O., radiologist to King's College Hospital, who attended the King during his recent illness.

DR. THOMAS GALLIMORE, who died at his residence in Leamington on November 1st, in his eightieth year, received his medical education at Owens College, Manchester, and in 1884 obtained the diplomas L.R.C.P., L.R.C.S., L.M.Ed., and the L.S.A. After holding the posts of resident assistant physician at the Manchester Royal Infirmary and house-surgeon to the Metropolitan Hospital he travelled to China as a ship surgeon. His first practice was a small one

in Denton, which at the end of seven years became one of the largest general practices in Lancashire. He next spent five years in Lyme, Cheshire, and was visiting surgeon to Chester Infirmary and to the Chorlton Hospital, Withington. In 1894 Dr. Gallimore went to Rowington as the first resident medical practitioner there, and lived at the Manor House. He was appointed surgeon to a section of the Great Western Railway, and was also surgeon to the Shirley racecourse for twenty years. He removed to Leamington in 1914, and from 1916 to 1918 worked in connexion with the Northfield War Hospital. Dr. Gallimore was a member of the British Medical Association. He was a keen follower of hounds, and hunted with the Cheshire and the North Warwickshire packs.

We regret to record the death from pneumonia of Dr. ROBERT W. DALE, which took place on October 12th, in a Paisley nursing home. Dr. Robert Dale, who was in his fiftieth year, was a native of Paisley, and had received his early education in the John Neilson Institution and Grammar School, later proceeding to Glasgow University, where he graduated M.A. in 1901, and M.B., Ch.B. in 1905. Having held appointments as house-surgeon, and then as dispensary physician, to the Royal Alexandra Infirmary, he spent a year practising in Clydebank, and a year in England; and in 1907 he entered into partnership with his brother, Dr. John S. Dale, in Paisley. In this partnership, except for a break during the great war, when he served in Salonica as captain in the Royal Army Medical Corps, he was engaged until the time of his death.

The following well-known foreign medical men have recently died: *Dr. C. C. SICK, professor extraordinary of surgery at Hamburg, aged 72; Dr. FRIEDRICH LÜPKE, professor of pathology at Stuttgart: Dr. ANTONIN FRANK, professor of anatomy at Komuskcho, Czechoslovakia: Dr. VICTOR BLONDIAU, an oto-rhino-laryngologist of Charleroi; Dr. FLORIANO BAYMA, an eminent surgeon of Sao Paulo, aged 33; Dr. RICALDONI, who successively occupied the chairs of therapeutics, medical pathology, clinical medicine, and neurology at the University of Montevideo; Dr. ALEXANDRE RENAULT of Paris, formerly president of the Société de Dermatologie; Dr. JEAN WATELET of Vire, a pupil of Potain and friend and medical attendant of Barbey d'Avrevilly and François Coppée, aged 81; Dr. HENRI WOUTERS, a medical jurist of Louvain: and Professor FELICE ROSSI, a leading surgeon of Bologna.*

The Services.

QUEEN ALEXANDRA MILITARY HOSPITAL.

Opening of New Wing.

H.R.H. THE PRINCE OF WALES has consented to open the new wing of the Queen Alexandra Military Hospital, Millbank, at 12 *noon on Tuesday, November 26th.* Admission to the ceremony will be by ticket, except in the case of officers in uniform and their wives. Application for tickets should be made to the Officer Commanding, Queen Alexandra Military Hospital, Millbank, S.W.1.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

At a congregation held on November 15th the following medical degrees were conferred

M.D.—R. H. Metcalfe, H. R. Youngman.
M.B., B.Chir.—G. C. Dewes, T. A. A. Hunter, T. S. Read, J. L. Newman.

Dr. W. E. Dixon, F.R.S., has been reappointed Assessor to the Regius Professor of Physic for the present academic year, and Dr. H. B. Roderick supervisor and examiner in surgery for the Third M.B.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

AN ordinary Council meeting of the Royal College of Surgeons was held on November 14th, when the President, Lord Moynihan, was in the chair.

Diplomas of Membership were granted to 119 candidates, whose names were included in the list of those receiving the licence of the Royal College of Physicians printed in our issue of November 9th (p. 832). Licences in dental surgery were granted to 37 candidates.

Mr. Victor Bonney and Mr. Louis Rivett were appointed to give evidence before the Maternal Mortality Committee appointed by the Ministry of Health.

Mr. Victor Bonney was re-elected as a representative of the College on the Central Council for District Nursing in London for three years from January 1st, 1929.

A letter, dated September 11th, 1928, from the honorary secretary of the [illegible] was read, making suggesti[illegible] Examination for the [illegible] This letter was refe[illegible]

The President announced that Mr. Louis Baron had offered to endow a research scholarship of £500 a year for seven years, in memory of his father, Mr. Bernhard Baron. This offer was accepted with grateful appreciation.

It was decided that a reception in connexion with the jubilee celebrations of the British Dental Association should be held on Thursday, May 29th, 1930.

Macloghlin Scholarships.

The report from the committee c[illegible] was approved and adopted. The the regulations, amended so as to b[illegible] *the present regulations applicable to candidates* for the diploma of M.R.C.S.Eng., and a form of petition to be presented by candidates.

Regulations.

1. No person shall be eligible for a scholarship who is below the age of 16 or above the age of 22 years.

2. Candidates must be young men *studying and seeking to qualify* themselves as Members of the Royal College of Surgeons of England, whose conduct has been satisfactory, and who are in need of financial assistance in the prosecution of their studies.

3. The last day for sending in petitions shall be June 1st in each year.

4. The nomination of candidates shall take place at the meeting of the Council in June.

5. Duly nominated candidates will be required to present themselves for examination in chemistry and physics, Part I. of the pre medical examination of the Conjoint Examining Board in England of the Royal College of Physicians of London and the Royal College of Surgeons of England held in July.

[illegible] the [illegible] shall [illegible] papers [illegible] the [illegible] addition to being marked in the ordinar[illegible] pre-medical examination.

7. The result of the examination [illegible] the Council, and the scholarship s[illegible] candidate who, having passed the highest number of marks.

8. Candidates must have obtained their instruction in chemistry and physics at an institution adequately equipped for instruction in those subjects.

9. A scholarship shall be tenable for five years, but no longer.

10. The stipend shall be paid yearly or half-yearly, as may be determined, and the scholar shall receive the *first instalment* of his stipend within three months after his election to a scholarship.

11. Every scholar sha[illegible] to a medical school recognized by t[illegible]land, and to send to the secretary of [illegible]ession within three months after his [illegible]yearly to the secretary of the Royal [illegible]ificate from the dean of his medic[illegible] net has been satisfactory, and that he has been applying himself diligently to his studies; (c) to complete the pre medical examination of the Conjoint Examining Board in England within twelve months, and to pass the first professional examination (an[illegible] of the Board within three years from the date of [illegible]

[illegible] sable to supply such [illegible] which is accepted as sufficient by

Forms of petition and such information as is necessary for candidates for these scholarships may be obtained from the Secretary, Royal College c[illegible] Lincoln's Inn Fields, W.C.2.

[illegible] £100 per annum. [illegible] ining Board in [illegible] pre-medical examination, with synopses [illegible] examination in chemistry and physics, may be obtained from the Secretary, Examination Hall, Queen Square, W.C.1.

ROYAL COLLEGE OF SURGEONS IN IRELAND.

AT a meeting of the Royal College of Surgeons in Ireland, held on November 15th, Mr. Andrew Fullerton, C.B., C.M.G., Professor of Surgery at Queen's University, Belfast, was unanimously re-elected President of the College, in room of the late Professor T. E. Gordon, Mr. Fullerton to hold office until June, 1930. At that date Mr. Atkinson Stoney, F.R.C.S.I., will have completed a second year in office as Vice-President and will become in due course President of the College.

UNIVERSITY OF BELFAST.

Correction.

IN the report of the meeting of Convocation of the Queen's University, Belfast, held for the purpose of electing eight members of the Senate (*Journal*, November 9th, p. 882), the name of one of the medical members elected was unfortunately printed as "J. S. Morrant." The correct name of the new member of the Senate is Dr. John S. Morrow.

Medical Notes in Parliament.

[From our Parliamentary Correspondent.]

The House of Commons this week read the Widows', Orphans', and Old Age Contributory Pensions Bill a third time, and sent it to the House of Lords. The second reading debate on the Unemployment Insurance Bill was begun.

The Parliamentary Medical Committee has arranged to visit, on November 28th, the Government lymph station at Hendon and the laboratories of the Medical Research Council at Mill Hill.

Mental Treatment Bill.

In the House of Lords, on November 19th, Earl Russell presented the Mental Treatment Bill, to amend the Lunacy Acts and for other purposes. He said the text of the bill would not be out for a day or two, and he did not propose to take the second reading until November 28th. He had been asked by Lord Sandhurst to say that the question which he had put down for November 20th would be withdrawn. The bill was read the first time.

Lord Sandhurst's question was to ask the Government if they would, in the present session, introduce legislation for the amendment of the lunacy law, as recommended by the Royal Commission on Lunacy and Mental Disorder in their report dated July, 1926.

National Health Insurance.

Provision of Additional Benefits.—Mr. Greenwood (Minister of Health) told Dr. Morris-Jones, on November 14th, that 5,883 societies and branches in England and Wales, comprising nearly 12,000,000 members, had made arrangements to provide ophthalmic treatment, including the provision of ophthalmic appliances, as an additional benefit. A further 1,156 societies and branches, with about 1,700,000 insured members, did not provide this benefit, generally because their surpluses had been used for other benefits. The number of approved societies contributing to the cost of dental treatment was 6,545, covering 12,727,000 insured members. Only 494 gave no dental benefit. Mr. Greenwood said that he was not in a position to make any statement about the funds of the approved societies, as affected by the Economy Act of 1926. He further stated that he was considering the question of altering the medical benefit regulations relating to gifts or inducements by chemists concerning national health insurance prescriptions.

Medical Benefit in Scotland.—Mr. Adamson, replying to a question on November 19th, said that the number of insured persons in Scotland entitled to medical benefit under the National Health Insurance Act was approximately 1,760,000. The number of doctors who had been removed from the medical lists of Insurance Committees in Scotland since the inception of medical benefit in 1913 was four. In each case removal had followed the prescribed inquiry.

Silicosis.

In reply to Mr. Hannon, on November 14th, Mr. Clynes enumerated the ascertained cases of silicosis during the last three or four years in the industries or processes covered by the Various Industries (Silicosis) Scheme. They were: one case each in sand-grinding (iron foundry), silica milling (silica flour manufacture), stone-crushing (road-making), tin mining, and lead mining; two cases in millstone dressing (corn milling); four cases in sand-blasting (metal works); ten cases in stonemasons' work; and 25 cases in coal mining. Mr. Clynes said these were mostly fatal cases, where the cause of death was ascertained by post-mortem examination, and must not be taken as a criterion of the incidence of the disease in the industries or processes concerned. The disease was not notifiable, and its diagnosis involved expert examination. Consequently, except in industries under the refractories industries scheme, where there were special arrangements for expert examination, the disease had not been diagnosed as silicosis, but as some other form of disease of the respiratory system. Extensive medical research and experience gained under the refractories industries scheme demonstrated that wherever workmen were exposed to silica dust they ran the risk of silicosis. The inquiry into the sandstone industry in 1928 showed 112 cases out of 454 workmen. In selecting industries and processes for inclusion in the Various Industries Scheme regard was had to the degree in which workers would be exposed to silica dust. Mr. Hannon asked that the Order should not be applied to any industry until the Home Secretary had the clearest evidence of the existence of the disease. Mr. Clynes said the greatest care was taken in the application of the Order.

On November 18th Mr. Short told Mr. Hopkin that the Home Secretary had received no complaint of any hardship caused by the statutory Rules and Orders under the silicosis schemes under the Workmen's Compensation Act, 1925, nor against the proviso that the scheme should not apply where the rock contained less than 50 per cent. of silica. If Mr. Hopkin had any evidence of such hardship the Home Secretary would be glad to consider it. The limit was inserted in the scheme for the purpose simply of excluding the granite industry, which was the subject of a special medical inquiry, and the question of its retention would come up when the report of that inquiry was available. In reply to a further question, Mr. Short informed Mr. Hopkin that no information or complaint had reached the Home Secretary that an increasing number of men in and around Cross Hands, Carmarthenshire, were suffering from anthracosis, nor that a number of men had died from this complaint. The Home Secretary had no evidence at present that the blackened condition of the lungs, described as anthracosis, was a cause of disablement. If Mr. Hopkin could furnish him with definite particulars of cases where this condition was stated to have caused death or disablement the Home Secretary would consider them in consultation with the Mines Department and make any necessary inquiry.

War Pensions.

On November 18th Mr. F. O. Roberts, replying to questions on war pensions, said that the operation of the seven years' time limit on the making of fresh claims for disablement, and of the arrangements made by the late Government for dealing with certain cases affected by it, had been investigated by him. At the present date, more than ten years since the men were demobilized, cases in which disablement by war service could now be justifiably claimed for the first time were few, and would become fewer. Old war wounds, thought to have been healed but now giving trouble for the first time since the war, were readily identifiable, and were already dealt with both by medical treatment and pensions. New claims in respect of some ailment or disease were more numerous, but comparatively few were found on investigation to be genuinely traceable to war service. For the future, the arrangements for dealing with belated claims for disablement would be such as to ensure the following essential points: (1) that no application was rejected solely on the ground that it was barred by the time limit; (2) that every applicant was given explicit opportunity to produce evidence in support of his claim; (3) that all evidence in support of a claim was fully considered and every reasonable line of investigation indicated by the claim was pursued to the full, including medical examination wherever necessary. It was important that ex-servicemen should feel assured that their claims were considered impartially. He was accordingly arranging to make use of the statutory powers of the local War Pensions Committees to hear and investigate cases of complaint from dissatisfied applicants. He intended, in addition, to secure the assistance of independent advice by the appointment of medical experts (to be nominated by the Presidents of the Colleges of Physicians and Surgeons), who would be associated with the department in advising on all cases in which there was material conflict of evidence on the claim.

Dr. Vernon Davies asked if Mr. Roberts's reference to medical experts applied to London headquarters alone, or would the provinces be included. Mr. Roberts: They will deal with all cases that are submitted.

Anthrax.—On November 18th Mr. Clynes told Mr. Dukes that 35 cases of anthrax had been reported this year in factories and workshops. Three of these cases were fatal. Cases were reported from Dewsbury, Earlsheaton, [illegible] Kidderminster, Liverpool, Kilmarnock [illegible] Stockport, Warrington, Runcorn, Bermon[illegible] [illegible] (Wilts), Worcester, Somerset, and Leeds [illegible] occurred among dock labourers, two of which were fatal. These were reported from Millwall Dock, London Dock, and Alexandra Dock, Liverpool.

Small-pox at Aden.—On November 18th Mr. Wedgewood Benn, replying to Mr. Knight, said he had seen a report by the Public Health Commissioner with the Government of India on the outbreak of small-pox at Aden, which assumed menacing proportions last March. In view of the serious situation with which the authorities were faced, mainly through concealment of cases, he would not feel justified in questioning the measures they found necessary to deal with it. Mr. Knight's question impugned the siting and the adequacy of the contagious diseases hospital.

Deaths from Diphtheria, Cancer, Enteric Fever, and Small-pox.—Miss Lawrence, in reply to a question by Mr. Bromley on November 18th, stated that, for the first quarter of this year, there were 1,113 deaths registered in Great Britain from diphtheria, 14,376 from cancer, 75 from enteric fever (including paratyphoid fever), and 8 from small-pox. In the second quarter of 1929 the figures were: diphtheria, 696; cancer, 13,968; enteric fever, 55; small-pox, 24. In the third quarter there were 568 deaths from diphtheria. The figures in regard to cancer were not yet available. There were 97 deaths from enteric fever, and 4 from small-pox.

Rheumatic Disease.—Replying, on November 14th, to Mr. G. White, who asked what the Minister of Health was doing to combat rheumatism, Mr. Greenwood referred to the report of the chief medical officer of health for 1928, passages of which report upon treatment for acute rheumatic disease. Mr. Greenwood added that, as regards chronic rheumatic disease, the Medical Research Council was in touch with his department, and he was prepared to give sympathetic consideration to any practical proposals for treatment submitted by local authorities.

Deaths from Plague in British India.—Replying to Major Graham Pole, on November 14th, Mr. Greenwood said he had no reliable statistics of plague cases in British India during the last five years, but there was on the whole a marked decline. The deaths from plague in British India were: 361,843 in 1924, 117,717 in 1925, 196,249 in 1926, 32,160 in 1927, and 82,678 in 1928. Research work on prophylactic methods had yielded valuable results, but he was advised that there was not yet any reliable treatment for the disease.

Classification of Graded Milk.—Miss Lawrence told Mr. Kedward, on November 18th, that the Minister of Health was aware of the criticism against the present classification of graded milk and the lack of agreement among producers. Legislation would be necessary before any alterations could be made, and time would not permit of a bill this session.

Training and Employment of Midwives.—In reply to Viscount Elmley, on November 14th, Mr. Greenwood said the recommendations of the Departmental Committee on the Training and Employment of Midwives were under consideration. He could not state what action would be taken. Asked by Dr. Fremantle for a statement before the introduction of a private member's bill on the subject on December 6th, Mr. Greenwood said he would be glad to make a statement if possible.

Payment of Midwives' Fees.—In a reply to Mr. Remer, on November 15th, Mr. Greenwood said he was not aware of an increase in the number of cases where midwives had complained of difficulty in obtaining payment of their fees. He had no power to issue an Order that where maternity benefit was payable the midwife's fee should be paid to her direct. He was giving careful consideration to the whole question of the provision of midwifery services, particularly in relation to the arrangements for maternity benefit under the national health insurance scheme.

Epizootic Disease of Animals.—Mr. Buxton, in a reply on November 18th, said that epizootic abortion differed from scheduled diseases of animals in that it might persist in a herd from three to seven years, or even longer. If it were made notifiable, and the movement of animals was controlled, stock farming would be difficult and the cost of administering the Order enormous. Research work on this subject was being conducted all over the world, and the Ministry encouraged research workers in this country to concentrate on a cheap means of immunization.

Highlands and Islands Medical Service.—In committee of the House of Commons, on November 18th, Mr. Adamson moved the Highlands and Islands (Medical Service) Additional Grant (Money) resolution. This resolution provides that, for improving the medical service in the Highlands and Islands of Scotland, there may, on the passage of an Act, be paid to the Medical Service Fund, in addition to the £42,000 already payable, such sums as may be voted by Parliament for the purpose. Mr. Adamson announced that a debate on the resolution would take place at a later stage. Dr. Elliot concurred in this course, and the resolution was agreed to. On November 19th the resolution was reported, and Mr. Adamson introduced a bill based on it. This was read a first time.

Symptoms of Nervous Disease subsequent to Vaccination.—On November 19th Mr. Greenwood, replying to Mr. Groves, said 34 cases had been brought to the notice of his department as having occurred in the ten months ended October 31st, and as being cases with symptoms suggestive of disease of the central nervous system, following within a month of vaccination. Of these, 18 were fatal. All cases of this character were reported to the Committee on Vaccination. He could not say how many of the 34 cases were regarded by the committee as cases of encephalitis following vaccination.

Washington Hours Convention.—On November 19th Miss Bondfield told Mr. Mander that the Government was preparing legislation in respect of the Washington Hours Convention, but awaited certain changes of legislation in Northern Ireland which were required before ratification of the Sickness Insurance Conventions could be effected. Among the draft conventions still under consideration were those dealing with maternity, white lead, weekly rest (industry), workmen's compensation (accidents), and night work in bakeries.

Exposure of Foods for Sale.—Mr. Greenwood, on November 19th, told Mr. Mander that he was aware that the conditions under which bread and other foods were exposed for sale sometimes left a good deal to be desired. Some of the grounds of criticism could be removed by action of the competent local authorities under Section 72 of the Public Health Act, 1925. What was really needed was the creation of sounder public opinion in such matters, which would continue to receive his attention.

Proposed Colony for Mental Defectives.—Miss Lawrence, replying to Mr. Blindell on November 19th, said that the Minister of Health was informed that the Lincolnshire Joint Board had not yet succeeded in acquiring a property for the development of a colony for mental defectives; but a conference between the Joint Board and the Board of Control on this subject would take place on November 28th.

Notes in Brief.

All the 146 local authorities under the Blind Persons Act have arranged to promote the welfare of the blind.

The Cabinet Committee engaged in a survey of social insurance schemes is also to consider the question of raising the present limit of £250 entitling participation in the National Health Insurance Act to a figure more related to the existing cost of living.

There is a possibility that foot-and-mouth disease may be transmitted by the use, as containers for feeding stuffs, of bags made from hessian wrappers in which meat has previously been conveyed from South America. The Ministry of Agriculture is consulting with firms in the South American meat trade about the adoption of a wrapping which cannot subsequently be so used.

In consultation with the Minister of Agriculture, Mr. Greenwood will consider the suggestion of fixing a *maximum* water content for bread.

Mr. Lansbury proposes to permit mixed bathing in the Serpentine next summer, but does not at present contemplate making any special arrangements for sun-bathing.

The Secretary for Scotland is considering whether or not it is desirable that the decisions of local authorities on proposals to establish offensive trades in new premises should be final.

The Minister of Health is advised that there is no evidence of danger to the health of the community from the importation of second-hand clothing into this country to justify the imposition of restrictions to stop this import.

Medical News.

An evening reception will be held by the Royal Society of Medicine at 1, Wimpole Street, W.1, on Monday, December 16th. The President and Lady Dawson of Penn will receive Fellows and their friends at 8.30 p.m., and Commander L. C. Bernacchi, O.B.E., will give an illustrated address on Southern Polar exploration. Admission will be by ticket only, to be obtained from the secretary.

The eighty-second half-yearly dinner of the Aberdeen University Club, London, will be held at the Trocadero Restaurant on Thursday, November 28th, under the chairmanship of Dr. T. Wardrop Griffith. Further information may be obtained from the secretary, 9, Addison Gardens, W.14.

The tenth annual dinner of the medical officers of No. 14 Stationary Hospital will be held at the Trocadero Restaurant, Piccadilly, on Friday, December 6th, at 7.45 p.m. Colonel C. R. Evans, D.S.O., will be in the chair. Any member of the mess wishing to attend, and who has not received a notice, is asked to apply to the secretary, Dr. H. L. Tidy, 39, Devonshire Place, W.1.

The Medico-Legal Society will hold its annual dinner on the evening of Friday, December 13th, at the Holborn Restaurant, with the president, Lord Riddell, in the chair.

The 150th anniversary of the Birmingham General Hospital will be commemorated by a dinner at the Grand Hotel, Birmingham, on the evening of Tuesday, December 10th.

A Chadwick Lecture on public health law and administration introduced by the Local Government Act, 1929, will be delivered by Mr. William A. Robson, Ph.D., barrister-at-law, in the Inner Temple Hall on Tuesday, December 3rd. The chair will be taken by Sir William J. Collins, M.D., at 8.15 p.m. Admission to the lecture is free.

At a joint meeting of the Sections of Psychiatry and Disease in Children of the Royal Society of Medicine on Tuesday, December 10th, at 8.30 p.m., there will be a discussion on "The difficult child," in which members of the Child Guidance Council will also take part.

The Lloyd Roberts Lecture will be delivered at St. Mary's Hospital, Whitworth Street West, Manchester, by Mr. Comyns Berkeley, M.D., M.Chir., on Wednesday, November 27th, at 4.15 p.m.: the subject is "The teaching of midwifery."

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on Wednesday, Thursday, and Friday, December [illegible] and 6th. The opening ceremony will be performed on December 4th, at 2.30 p.m., by the Right Hon. Arthur Greenwood, M.P., Minister of Health. The annual dinner of the Institute will be held on the evening of December 6th at the Trocadero Restaurant.

The forty-first Congress [illegible] the Royal Sanitary Institute will, at [illegible] Council, be held at Margate from Ju[illegible]

St. Andrew's Hospital, Dollis Hill, will celebrate its Patronal Feast on Sunday, December 1st, from 3 to 6 p.m. His Eminence Cardinal Bourne, Archbishop of Westminster, will distribute certificates of training and pay a visit to the new ward pavilion.

The Fellowship of Medicine announces that the following three lectures will be given at the Medical Society's lecture room, 11, Chandos Street, Cavendish Square. On Monday, November 25th, at 5 p.m., Mr. T. G. Stevens will lecture on prolapse (no fee to medical practitioners); on Tuesday, November 26th, at 8.30 p.m., Dr. Kinnier Wilson will speak on encephalitis—its varieties and relation to fevers and exanthems; and on Friday, November 29th, at 8.30 p.m., Dr. Kinnier Wilson will discuss the disorders of movement, including their classification and pathogenesis. On November 25th, at 10 a.m., Mr. Denham Pinnock will give a special demonstration at the Victoria Hospital for Children, and on November 28th, at 4.30 p.m., Dr. Thomas Marlin will give a demonstration of spinal manipulation at the Hampstead General Hospital, Haverstock Hill; both demonstrations are free to medical practitioners. At St. Mark's Hospital there will be an all-day course from November 25th to 30th. Three special courses will begin on December 2nd and will continue for two weeks; these are an afternoon course at the Infants Hospital, an afternoon course in dermatology at the Blackfriars Hospital for Skin Diseases, and a general practitioners' course at the London Temperance Hospital daily from 4.30 to 5.45 p.m. Detailed syllabuses of all these courses, the advance list of special courses for 1930, and particulars of the general course, may be obtained from the secretary of the Fellowship, 1, Wimpole Street, W.1.

THE biennial Huxley Lecture will be given by Sir William Bragg, D.Sc., F.R.S., in the Lecture Theatre of Charing Cross Hospital Medical School, Chandos Street, W.C., on Thursday next, November 28th, at 3 p.m. The title of the lecture is "The crystal structure of organic substances in its relation to medicine."

SIR LESLIE ORME WILSON, late Governor of Bombay, will speak on "The Hospital for Tropical Diseases in London and its work for the Empire" at a meeting at 44, Lancaster Gate, W., on November 28th, at 5 p.m. Admission is by invitation cards only, which may be obtained from the resident secretary, Hospital for Tropical Diseases, Endsleigh Gardens, W.C.1.

A SPECIAL course in infants' diseases for medical officers of welfare centres and others interested will be held at the Infants Hospital, Vincent Square, Westminster, from December 2nd to 15th, under the auspices of the Fellowship of Medicine. In addition to lectures on different subjects, and lecture-demonstrations with clinical illustrations, visits will be paid to a pasteurizing plant, a nursery training school, and a venereal diseases centre. This last visit will be paid in the morning, but otherwise the course is held during the afternoons. The fee for the course is three guineas, and the number is limited to fifteen. Applications should be sent to the secretary of the Fellowship, 1, Wimpole Street, W.1, from whom further details may be obtained.

THE medical profession of Bury St. Edmunds held their annual armistice dinner on Saturday, November 16th, when the total number of guests was forty. Among the guests were Dr. Alfred Cox, Medical Secretary of the British Medical Association, Sir Thomas Horder, Bt., and others from London, Ipswich, Norwich, and Cambridge. This is the tenth year in which the dinner has taken place, and the attendance was larger than ever before.

THE Duchess of York laid the foundation stone of the new general hospital at Southend-on-Sea on November 12th. The lay-out of the site provides for a hospital with over four hundred beds. The ground, which comprises over twelve acres, has been given, with a contribution of £20,000, by Lord Iveagh, who has also generously promised to give £1 for every £3 subscribed by the public to the hospital fund during 1929. The first section, which it is hoped to complete in about two years, will provide 196 beds, an administrative block, two ward pavilions, a children's wing, an operating electrical block, and a nurses' home. Alderman H. A. Dowsett, chairman of the new hospital fund, stated that the present contract amounted to £130,000, of which £35,000 had been promised. He acknowledged the generosity of Lord Iveagh and also a munificent gift of £58,000 by Alderman A. Martin, which formed the nucleus of an endowment fund.

A NEW film showing the work of the Papworth Village Settlement was exhibited to the press on November 14th at 89, Wardour Street. In the film, which was made under the auspices of the Central Council for Health Education, health propaganda is successfully woven into the texture of a romantic story. Societies engaged in health propaganda are invited to apply for particulars about the exhibition of the film, to the secretary, Papworth Village Settlement, 10, Upper Woburn Place, London, W.C.1.

DR. JOHN CLARKE has been elected chairman of the Rotherham Insurance Committee.

AT a meeting of the executive committee of the International Union against Tuberculosis in June, it was decided that the following three subjects should be discussed at the next international conference, which will be held in Oslo from August 13th to 16th, 1930: B.C.G. vaccination against tuberculosis; thoracoplasty in the treatment of pulmonary tuberculosis; and instruction in tuberculosis for undergraduates. During a discussion on the Vernes flocculation test for the diagnosis of tuberculosis the view was expressed by Dr. Derscheid of Belgium that there seemed to be no justification for introducing this method in the normal work of dispensaries.

WE have received the first issue of *Boletin de la Sociedad Cubana de Dermatologia y Sifilografia*, [illegible] department for diseases of the skin an[illegible] The journal, which is issued bimonthly, of Dr. Alberto Oteiza y Setien, contains original articles, with English summaries, abstracts from current literature, and society intelligence.

THE University of Paris has conferred the degree of doctor *honoris causa* on Dr. Roux, professor of clinical surgery in the University of Lausanne.

THE seventh annual congress known as *Journées Franco-Belges* will be held in Paris from December 4th to 9th. Further information can be obtained from the general secretary, M. Sapet, 5, Rue Garancière, Paris.

PROFESSOR ARZT has been elected dean of the medical faculty of Vienna for the third time, and Professor Euler has been elected dean of the medical faculty of Breslau.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to ***The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.***

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

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All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The ***TELEPHONE NUMBERS*** of the British Medical Association and the *British Medical Journal* are *MUSEUM 9861, 9862, 9863,* and *9864* (internal exchange, four lines).

The ***TELEGRAPHIC ADDRESSES*** are:

EDITOR of the *British Medical Journal, Aitiology Westcent, London.*

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*

MEDICAL SECRETARY, *Mediscera Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone 24361 Edinburgh).

QUERIES AND ANSWERS.

TRANSIENT ATTACKS OF OEDEMA.

DR. W. H. LOWMAN (Coventry) writes: Could any practitioner suggest diagnosis and treatment for the following case: A child, aged 3, becomes restless, and oedema develops without redness on the forehead and eyes; there is slight pyrexia, but 100.5° is the highest temperature I have found at the morning visits. In a few days the oedema of face subsides, and a similar condition appears in both arms and hands, suggesting the oedema of nephritis, though there is not a trace of albumin in the urine. When this disappears, in about a week, the legs similarly become affected with the swelling, which has not yet entirely subsided elsewhere, though it is improving. To-day, although the hands have been normal for nearly a fortnight, they have become swollen again, though at present the arms are not affected. There is peeling of the skin after subsidence of the swelling for the second time. The condition has lasted now a month; the child takes food fairly, but is restless and sleepless.

SENSATION OF ASPHYXIA DUE TO ETHYL CHLORIDE INHALATION.

DR. W. E. H. QUENNELL (Shenfield), in answer to "W. D." (November 16th, p. 928), writes: A possible explanation for the feeling of suffocation experienced during the induction period with ethyl chloride lies in the fact that it is being given in too concentrated a vapour. Whatever method is employed, whether a Clover inhaler, an open mask, or ethyl chloride bag, the success, in my opinion, lies in commencing with a small dose and gradually increasing the amount. I usually begin with 0.5 c.cm. and add 0.5 c.cm. every ten seconds, complete anaesthesia being produced in about one to one and a half minutes; I require, on an average 3 to 5 c.cm. in all, depending on the patient. I use ethyl chloride flavoured with 1/2 per cent. eau de cologne, which completely masks the unpleasant smell; this preparation (thilocologne) is obtainable from W. Bredt, 41, Great Tower Street, E.C.4.

DR. H. S. BURNELL-JONES (London, N.W.5) writes: Unconsciousness can be easily produced with ethyl chloride by giving it upon an open mask; this method causes no feeling of suffocation. A piece of lint is equally effective, especially for the extraction of one or two teeth in small children when there is no anaesthetist available. I write from experience, both as patient and anaesthetist.

ABDOMINAL SURGERY AT SEA.

DR. GORDON MILNE, ship surgeon, P.&O.S.N.Co., writes: With reference to the inquiry of "T. S. S." (September 28th, p. 604), he will find *Surgical Emergencies*, by Russell Howard, published by Edward Arnold and Co., a tower of strength to him in emergency surgery of the abdomen or any other part of the human body. In addition, I should suggest that he remember the three cardinal points of a good surgeon—a good light, a sharp knife, and tons of common sense.

FLEAS.

"J. L. M.," with reference to the inquiry as to a prophylactic against fleas, made by a correspondent on p. 744 and answered on pp. 793 and 838, draws attention to the use of essence of thyme recommended in the *Journal* of November 12th, 1921 (p. 818).

INCOME TAX.

Depreciation of X-Ray Apparatus.

"RADIO" refers to an answer in our issue of June 8th last (p. 1066), and inquires whether we can mention other cases in which depreciation has been allowed on *x*-ray apparatus at 10 per cent.

*** We are not in a position to give "Radio" any useful reference on this point—for one thing, we should not normally hear of the cases where the 10 per cent. allowance is given, and, for another, reference to individual cases or even areas is open to objection. We are, at least, not aware of a case where 10 per cent. has been refused after protest. "Radio" might point out that, even apart from any question of obsolescence, the depreciation through wear and tear of any machine or apparatus depends largely on its delicacy and the thermal and other strains to which it is subjected. On any ground an *x*-ray apparatus clearly has a shorter life than fixed heavy electrical plant, which receives an allowance at 7½ per cent. The fact that when the apparatus becomes obsolete and is renewed a special claim can be made should not be allowed adversely to affect the depreciation allowance. "Radio" may leave the practice before the obsolescence allowance can operate.

Expenses of Removal.

"R. W. B." was in the employment of the Ministry of Pensions to March 31st, 1927, and was disengaged until February 1st, 1928, when he was appointed M.O.H. to an authority some distance away. Can he claim as a deduction in arriving at his taxable income the expense of removing from one town to another?

*** No. Such an expense is not incurred in carrying out his duties, but as a preliminary in order to place him in the position to commence his duties. It is, of course, otherwise as regards the necessary expense of travelling about in the area for which he is responsible in order to do his work. On the facts "R. W. B.'s" outlay was in order to obtain the appointment, and was in the nature, therefore, of capital expenditure.

Motor and House Service Expenses.

"D. R.'s" original car cost £195, and was sold in April, 1928, for £115, when a similar new car was bought for £185. In March, 1929, the second car was sold for £120 and a superior type bought at the price of £247—a car similar to the one then sold would have cost £195. No depreciation has been allowed. What claims should be made? Two maids are kept at an estimated cost of £198; "D. R." claims half that sum as an appropriate deduction, but the inspector of taxes proposed to allow £66 only—that is, one-third. Which is correct?

*** As regards the cars, the first transaction involved no capital improvement, and "D. R." is entitled to treat as a professional expense of the year including April, 1928, the actual net expenditure—that is, £185–£115=£70. On the second occasion there was an improvement to the extent of £247–£195=£52, and "D. R." can claim only the actual outlay—that is, £247–£120=£127, as reduced by that sum; his net claim is, therefore, £127 *less* £52=£75. It is difficult to give any helpful advice on a question where so much depends on the actual conditions of the practice as it does where an allocation of the expense of the house and surgery service is concerned. If, from the domestic point of view, "D. R." and his family have, in effect, the assistance of one maid only, his claim is good, but if the employment of the second maid does assist, directly or indirectly, to put the domestic convenience on a level above a one-maid basis it is almost impossible to press his claim further. As regards the adjustment for private use of car, we agree that the relative mileage gives a correct basis of computation.

LETTERS, NOTES, ETC.

THE RACIAL INCIDENCE OF DISEASE.

DR. M. SOURASKY (London, W.1) writes: Dr. J. S. Mackintosh, in his letter in the *Journal* of November 9th (p. 877), in reply to my insistence o[n] a series of further [r]esearch[es] oretical. These, hov[ever] kintosh made the [s]tatement prone to tonsils and [adenoids] be has consists of [the] reasons derived fro[m] these theoretical considerations in [support] problems of the racial origin of Jews, and the climate in which the race originally developed, but also the racial nature of the people of this country and the climates to which the different components have at different times been subjected. All this is interesting, but proves little.

MOTORIST'S HEEL.

"G. F. P." writes: In his article on "motorist's heel" in your columns of November 9th (p. 855) Mr. A. P. Bertwistle has evidently overlooked my note on the subject on May 25th (p. 979), which suggested that the condition complained of by "Giza's" patient (May 11th, p. 890) may have been caused by "constriction of the circulation of the foot resulting from undue flexion of the ankle while operating the accelerator pedal in driving a car." I wrote this note because I had observed the condition as a personal experience during a 600-mile journey to Scotland; it recurred while doing short local journeys. The absence of relief after a night's rest was a puzzling feature. The discomfort was lessened by raising the heel of the right foot by means of a wooden block screwed to the floor boards. I suggested, too, in my note that the wearing of boots, especially if rather tightly laced, is a predisposing cause. There seems to be proof of this in my own case, because I repeated the journey to the North of Scotland last September wearing shoes and felt not a trace of discomfort.

HERPES ZOSTER AND VARICELLA.

DR. HERBERT E. MARSDEN (Ormskirk) writes: A girl, aged 16, was admitted to hospital on October 9th last suffering from scarlet fever. On October 22nd she developed herpes zoster. Two patients, convalescent from scarlet fever, one aged 5 and the other aged 7, who were in beds on either side of her, developed varicella on November 4th and 8th respectively.

PHYSICAL HYGIENE IN THE PREVENTION OF MATERNAL MORTALITY.

DR. H. S. HOLLIS (Hové) writes: During the last thirty years the fashion has much increased of women spending the last two months of [pregnancy] fire when not in bed. Surely this i[s] is of normal labour at the present tim[e] to infection during the puerperium. What chance would an athlete have of winning a contest, or a patient of regaining fitness after an acute disease or a major operation, if this form of training were adopted? I have noticed that those few patients who have a reasonable amount of exercise and fresh air up to the last have, in normal cases, confinements just as uneventful as formerly.

SLEEP IN HOSPITALS.

THE SECRETARY of the London Fever Hospital (Liverpool Road, N.1) writes: Adverting to the article in your issue of November 2nd (p. 816) under the heading of "Sleep in hospitals," may I be permitted to point out that the custom of not calling any patient before 7 a.m. has now been adopted in this hospital? For many years past it has been the practice for those occupying private rooms not to be awakened before this hour, and this practice l[ed] all patients, with satisfactory results. hours of duty for the nursing staff have s innovation.

DISCLAIMER.

DR. P. H. J. TURTON (Heanor) writes to disclaim any responsibility for a paragraph about himself which appeared in a local newspaper.

INFLAMMABLE THROAT LOZENGES.

DR. J. PEREIRA GRAY (Exeter) writes: A policeman on cycle patrol duty felt a slight sore throat. He bought some chlorate of potash lozenges and put them in his trousers pocket, which contained a box of safety matches. After cycling for a few minutes he thought he heard a slight explosion; a minute later he saw flames issuing, which burnt a large hole in his pants and trousers, caught his coat and waistcoat, and scorched his skin in several places. He managed to extinguish the flames, and, on investigating their cause, he noticed that the live heads of his matches were now dead and his lozenges had disappeared. This episode shows that if potassium chlorate lozenges and safety matches are carried about they should not be placed in the same pocket.

*** The danger is not so much from the match heads as from the red phosphorus on the box, as anyone can prove by gently rubbing a chlorate of potash lozenge along the side of an empty safety matchbox. We note that the cardboard packets containing chlorate of potash tablets sold to the public by Boots Pure Drug Co., Ltd., are labelled as follows:

CAUTION.

Tablets of Chlorate of Potash should not be carried loose in the pocket. They are liable to ignite if subjected to friction or heat. Before pressing, ironing, drying, or airing clothes in front of the fire, the tablets should be removed from the pockets of the garments.

SPECIAL WARNING.

Keep the Tablets away from matches.

"H. B." (London, N.W.) writes to say that he would be pleased to give to another doctor, or a doctor's son, his collection of fossils and shells.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 47, 48, 49, 50, 51, 52, 53, 56, 57, and 58 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 54 and 55.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 235.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

458. Relapses during Liver Treatment in Pernicious Anaemia.

R. ISAACS (*Amer. Journ. Med. Sci.*, October, 1929, p. 500) states that in pernicious anaemia some symptoms of a relapse may occur during liver treatment. Periodicity is an outstanding feature of the disease, and is present also in the relapses. Eighty pernicious anaemia patients have been studied, and a record of 304 relapses compiled; of these, 166 occurred in the same season as a previous relapse in the same patient. A patient may therefore expect a relapse, or symptoms of it, more frequently in the same group of months as previous relapses have occurred, rather than at a new time of the year. The incidence of onset or relapse appears about equally distributed through the year. Many of these symptoms of a relapse appear in patients in whom the blood count remains normal. The following types illustrate certain forms of relapses, with and without anaemia: periodic symptomatic relapses with blood relapse; periodic symptomatic relapses without a concomitant change in the blood picture, (1) when the blood is normal, (2) accentuation of symptoms of relapse or the appearance of new symptoms when the blood count is practically stationary but at a low level, and (3) symptomatic relapses during a period of relative polycythaemia. Abortive relapses are indicated by loss of appetite, exacerbation of symptoms, or the appearance of new symptoms when the blood is normal or shows no corresponding change. Liver therapy is often discontinued because of the loss of appetite (gastro-intestinal or nervous relapse), and a haemopoietic relapse follows. If liver treatment be maintained the abortive relapse may pass into a remission. Relapses may occur in one or more systems (blood, gastro-intestinal, nervous, bone-joint, or muscular) without a corresponding involvement of other systems.

459. Tracheotomy and Tuberculosis.

J. D. ROLLESTON (*Brit. Journ. Child. Dis.*, July-September, 1929, p. 200) alludes to Landouzy's assertion that children who have undergone tracheotomy for laryngeal diphtheria are specially susceptible to tuberculosis and very few reach adult life. This assertion, which was based on the rarity with which Landouzy had found tracheotomy scars among recruits, met with considerable opposition from subsequent writers, particularly in Germany, Holland, Finland, and France, though some were inclined to regard it as responsible for chronic tonsillitis and respiratory infections. Rolleston records an example of tracheotomy for laryngeal diphtheria in mother and child, the former having been operated on in 1896 and the latter in 1928. Since her tracheotomy in 1896 the mother had enjoyed good health and had not had any respiratory disease, except during the influenza epidemic of 1918, when she lost her voice for two months. Rolleston had also seen several other adults who had undergone tracheotomy in childhood for laryngeal diphtheria but had not developed any obvious signs of tuberculosis subsequently, so that his experience agrees with that of Landouzy's opponents. In conclusion he suggests that in British fever hospitals—in most of which, contrary to the practice of many foreign clinics, tracheotomy is still the favourite operation and intubation the exception—medical officers might choose the future of tracheotomy cases as a subject for a thesis.

460. Alcoholic Pseudo-pellagra.

E. R. MALONEY and L. TULIPAN (*New York State Journ. of Med.*, September 1st, 1929, p. 1063) record their observations on 21 patients admitted to the dermatological clinic of the New York University medical school between June and October, 1928, with pseudo-pellagra due to alcohol; 20 were men and one was a woman. Their ages ranged from 24 to 67, the average age being 45. All had been addicted to the excessive use of alcohol in the form of cheap, green, unmatured synthetic liquor; often it was simply denatured raw alcohol. While drinking this they ate little or nothing, and during the warm months slept out of doors during the night exposed to the action of ligh
of raw green whisky rendered the
and thus caused the eruption usu
varied in appearance from slight redness, pigmentation, and wrinkling of the skin to a violaceous erythema on a dark pigmented base covered by scales or bullae on eroded areas and crusts where previous bullae had ruptured. When the lesions began to subside, large sheets of desquamation were observed in most cases. All but two patients, who died from delirium tremens, recovered rapidly without any special diet as soon as the alcohol was withdrawn. Although alcohol is a predisposing factor in true pellagra, the authors regard the cases as pseudo-pellagra for the following reasons. The patients did not present the mental and nervous symptoms of pellagra, and did not suffer from severe diarrhoea. The eruption in most cases was limited to the hands, only occasionally involving the face, and then only to a slight extent; it never affected the feet.

461. Immunization against Relapsing Fever.

W. M. ARISTOWSKY and [illegible] (*Zeit. f. Immunitäts u. exper. Ther.* [illegible] ave previously reported the [illegible] th cultures of relapsing feve [illegible] to 60° C. By this method [illegible] immunity, as evidenced by the appearance of spirochaetolysins in the blood, and by the resistance of the vaccinated subject to experimental inoculation with living spirochaetes. This immunity was, however, confined to the strain from which the vaccine was prepared, and did not extend even to the relapse races of the same strain of spirochaete. An attempt to vaccinate persons against the relapse races by a heat-killed vaccine met with failure, apparently owing to the heat-lability of the antigenic properties of these races. In their present communication the authors report results obtained by using old cultures in which the organisms have undergone degeneration. Cultures that had been incubated for three days and then kept at room temperature for two to three weeks were found to be avirulent and suitable for vaccination. Experiments made on a limited number of human beings showed that by means of these vaccines it was possible to produce immunity, either to the original strain or to a relapse race of the same strain. By combining the vaccines immunity was produced simultaneously, both to the original strain and to its first relapse race. Spirochaetolysins appeared in the blood, and were demonstrable for at least one and a half months after vaccination. There appears to be little doubt that the organisms in the old cultures used for vaccination were dead, so that the resulting immunity was not strictly of the type of an infection immunity.

Surgery.

462. Fractures at the Ankle.

F. J. COTTON and R. BERG (*New England Journ. of Med.*, October 17th, 1929, p. 753) consider that classification of the major ankle injuries, not as fractures but as dislocations complicated by fractures, gives a much simpler basis for treatment than do the various classifications founded on the mechanism of production or on anatomico-pathological details. Since, in nearly every case, efficient correction of the displacement (disregarding the bone lesion) is all that is necessary for the best possible results, the following classification is suggested: (1) outward dislocation, or Pott's fracture; (2) inward dislocation, or reversed Pott's fracture; (3) backward dislocation, or Cotton's fracture; and (4) upward luxation, a somewhat neglected though important class of major injury, which the authors discuss in detail. A plaster cast should be applied in any of the first three classes until union is solid, usually for six weeks in classes 1 and 2, and for seven to ten weeks in class 3. Further treatment with strapping and a built-up Thomas heel should then be applied. Cases in classes 1 and 2 should be practically normal in three months, but those in class 3 usually require three or four weeks longer. In order to avoid muscle atrophy
of the foot, early or late exercises
n class 4 cases is a compression
the tibia, with the fibula generally
remaining intact. It is a comminuted, semi-impacted type of fracture, rarely complicated by fracture of the os calcis, more rarely by that of the astragalus, and is not often compound. The diagnosis, which is confirmed by x-ray pictures, is often made without these by the abnormally high level of the internal malleolus in relation to the external one. This class of fracture requires more time to secure a weight-bearing joint than [illegible] needs not be expected to [illegible] by fixation [illegible] results. Th [illegible] reshaping

holding the foot down by traction with a Sinclair skate, a boot, or by skeletal traction with tongs attached to the os calcis. Open operation is justifiable and sometimes wise. Early fixation is followed by an ambulatory brace after union is firm. Minor injuries, such as strains, with or without ligament damage, tears of the ligaments, and fractures of the fibula at a higher level, should receive the same treatment as class 1 cases. In diastasis, careful inspection of radiograms shows a widening of the mortise. Various operations have been devised for this condition; but in fresh cases the deformity can be reduced by downward traction on the foot, combined with compression about the malleoli, the foot being held in the varus position.

463. A Radical Cure for Hydrocele.

B. L. SHARMA (*Indian Med. Gazette*, October, 1929, p. 571) describes a radical cure for hydrocele by means of quinine injections. Cases of hydrocele, varying in size and duration, have been successfully treated during the past two years by this method, and in no case has there been any re-accumulation of fluid. The method, which is said to be very simple, painless, and without any bad after-effects, takes only a few minutes to perform, so that patients can be sent home soon afterwards to resume their ordinary occupations. The requisites for the procedure are: a 10 c.cm. syringe with a needle 2½ inches long; a hydrocele trocar and cannula; and 10 c.cm. of a sterilized solution containing 20 grains of quinine bi-hydrochloride and 1 grain of salicylic acid. The scrotum is well cleansed and painted with tincture of iodine, while the patient is seated. The hydrocele is tapped with the trocar and cannula, the fluid thoroughly drained, and the cannula left *in situ*. The syringe is filled with the quinine and acid solution, which should be slightly warm, and this is introduced into the sac by inserting the needle into the cannula. The needle and cannula are removed, the puncture is rubbed well, and painted with tincture of benzoin. The patient should wear a suspensory bandage for some days. Owing to the slow absorption of the solution the scrotum remains larger than normal for about fifteen days, but without any pain or inconvenience; it then becomes reduced to its normal size.

464. Traumatic Subclavian Arterio-venous Aneurysm.

E. L. GILCHREST (*Arch. of Surg.*, September, 1929, p. 375) describes a case of subclavian arterio-venous aneurysm in a Mexican, aged 35, following a gunshot wound through the chest. The patient was able to follow his occupation as a bookkeeper although the right arm gradually increased in size and the veins in the axilla and over the anterior part of the chest became more and more distended. After seven years his arm was so large and heavy that it could not be used, and two ulcers had developed, one on the dorsum of the hand and the other on the flexor surface of the forearm. The man also suffered greatly from shortness of breath and there was a very large swelling on the right side of the chest, the shoulder girdle, and the entire right arm and hand, with marked distension of the veins concerned. A systolic thrill was palpable in the supraclavicular region, in the axillary region, and over the lower third of the inner aspect of the upper arm by the basilic vein. Diagnosis of an arterio-venous aneurysm was made on the great swelling of the arm and dilatation of the veins, the continuous purring thrill, a continuous buzzing accentuated during systole, the centrifugal transmission of the bruit and thrill along the axillary and basilic veins, the elevation of blood pressure on temporary deep pressure over the site of the lesion, on the increase of oxygen content in the veins of the right arm, the decrease in local temperature, and the enlargement of the heart. Before the operation the patient was kept in bed for several weeks with the arm elevated and with crêpe bandages on the arm and shoulder girdle; this gave rest to the heart and reduced the swelling. Operative treatment consisted in the proximal ligations of artery and veins, which improved the condition but did not effect a cure. Ten months later the patient returned, following the development of, and haemorrhage from, a varicose ulcer on the flexor surface of the right forearm; distant ligations completing the quadruple ligation cured the condition.

465. Appendicitis in Typhoid Fever.

S. G. GIARDINA (*Giorn. med. dell. Osp. civ. di Venezia*, August, 1929, p. 155), who records four illustrative cases, with three recoveries and one death after operation, gives the following statistics of the frequency of appendicular lesions in typhoid fever. Christian in 119 typhoid necropsies found considerable lesions of the appendix in 19; in 41 fatal cases of typhoid fever at St. George's Hospital H. D. Rolleston found that the appendix was normal in 26, swollen in 5, ulcerated in 8, and perforated in 2. As regards the frequency of perforation of the appendix in typhoid fever compared with typhoid perforations in general, Madelung found that in 949 cases of intestinal perforation the appendix was perforated 51 times, or in 5.3 per cent. Kelly also reported a frequency of 5 per cent., and Berard and Vignard of 11 per cent. In 167 cases of typhoid perforation Fitz found 5 with perforation of the appendix, while Waker found 15 among 134, and Osler 5 in 16. The age at which perforation of the appendix in typhoid fever is most likely to occur is from 17 to 25, and the stage of the disease the third or fourth week. The mortality among the cases operated on is about 75 per cent., which is somewhat higher than that for perforation of the intestine. The operation in each of Giardina's cases was performed under local anaesthesia; three patients recovered and one died two days after the operation. In three cases, one of which was fatal, the appendix was inflamed and oedematous but showed no ulceration; in the fourth case superficial ulcers were found.

Therapeutics.

466. A New Local Anaesthetic.

H. FLÖRCKEN and O. MUES (*Münch. med. Woch.*, October 11th, 1929, p. 1714) describe the uses as a local anaesthetic of a complicated derivative of the quinoline series, to which also belong a number of other useful medicinal products such as atophan and yatren. This substance, which is marketed under the name of "perkain," forms colourless crystals which are readily soluble in water with neutral reaction, and which, unlike cocaine, can be sterilized by boiling. It should be kept in alkali-free glass vessels, and to ensure this it is recommended to add a few drops of dilute hydrochloric acid to each litre of the solution. The local anaesthetic action of perkain is said to be far greater than that of cocaine—as much as 100 times greater when applied to the rabbit's cornea; perkain 1 in 1,000, acting for one second, has about the same effect as 1 in 1,000 cocaine acting for half a minute, as estimated by the acid stimulant effect on the nerve endings of the reflex frog; the drug is, however, about five times more poisonous than cocaine, and deaths are recorded from doses of 0.13 and 0.2 gram of the substance. It is chiefly recommended for its slow rate of elimination and more prolonged period of action, which may extend to several hours; the after-pain is said to be much less than after novocain. The maximum dose has not yet been determined, and it is advised that the drug should not be used in concentrations of over 0.5 to 1 per 1,000.

467. Bacteriophage Treatment of Cystitis.

J. A. VOSS (*Norsk Mag. f. Laegevid.*, August, 1929, p. 853) records his observations on *B. coli* cystitis and pyelitis by bacteriophage therapy. He states that the best place to find a good bacteriophage is in the contents of septic tanks. By employing filtrates from different tanks it is almost always possible to obtain complete lysis of the *B. coli* found in the urine. Among 100 cases of chronic cysto-pyelitis Voss found only five cases in which *B. coli* did not undergo complete lysis *in vitro*. Before the bact[illegible] treatment is begun the patient should be put on an [illegible] being forbidden and carbonates [illegible] is sufficiently alkaline, 1 c.cm. of the bacteriophage should be [illegible] and 10 c.cm. intravesically for three day[illegible] urine should be kept alkaline for the ne[illegible] cases which Voss has been able to keep under observation out of 59 treated, 16, or about 60 per cent., were successful. Almost all these 16 patients were chronic cases. The treatment is most likely to be successful in the pyelitis of pregnancy, and in children, whereas it is rarely efficacious in men.

468. Treatment of Epilepsy.

As the result of ten years' experience in treating very many cases, G. CARRIÈRE (*Bull. de l'Acad. de Méd.*, October 1st, 1929, p. 137) strongly advocates the use of a combination of potassium boro-tartrate and gardenal in the treatment of epilepsy and other nervous conditions; he claims to have achieved much better results thus than from the employment of these drugs separately or of bromides. Failures are ascribed to insufficient or diminished dosage, premature cessation of treatment, dietetic and hygienic errors, or physical or mental overwork. Owing to the many pathogenic factors of the disease, this form of therapy, while markedly beneficial in cases of epilepsy, should very often be combined with some specific treatment, such as opotherapy, treatments for visceral or functional disorders, etc. In loss of consciousness, vertigo, and in Jacksonian epilepsy due to intensive lesions, such as cerebral tumours, this treatment is not so successful. Other conditions in which Carrière has found the combined medication to be of benefit are: psychasthenia,

neurasthenia, the mental and nervous troubles of Parkinsonism, insomnia, post-traumatic delirium, the neuropathic excitement of exophthalmic goitre, angina pectoris, neurosympathetic functional syndromes, sympathicotonia, migraine, and essential or neuropathic palpitation. Certain infantile conditions have also been benefited by it; such are convulsions, spasmophilia, the tetany of nurslings, chorea, and involuntary nocturnal micturition. The treatment in slight or moderately severe cases should commence with a dosage of 1.5 grams of the tartrate and 0.15 gram of gardenal daily in three doses. In severe cases larger doses should be given, and these should be increased until one is reached which controls the crises. This treatment should be continued for three years after the last paroxysm; it may then be gradually and carefully diminished each month. The administration of 0.5 to 0.75 gram of each drug should be continued for many years.

Disease in Childhood.

469. Brain Tumours in Childhood.

DURING the last twenty years it has become more evident that neoplasms are not so rare in infancy and childhood as was formerly thought. Though the majority of these cases are considered absolutely malignant and inoperable, the recent advance in surgical technique has markedly increased the number of operative successes. In a study of 350 cases of verified brain tumours, F. H. LEAVITT (*Amer. Journ. Med. Sci.*, August, 1929, p. 229) found that the ratio of juvenile to adult cases in this series was 1 to 14, and he urges an earlier recognition of cerebral tumours in children with obscure head symptoms. A frequent site of juvenile brain tumours is the cerebellum, this being the location in 60 per cent. of the cases. There is a somewhat general symptomatology, including a history of rather rapid onset in which the child becomes suddenly ill with vomiting and headache. This stage is soon followed by drowsiness and signs of increasing intracranial pressure, as noted by a rapidly developing choked disc with retinal haemorrhages, disturbance of gait, enlargement of the head, and Macewen's "cracked-pot" sign in infantile cases, with the localizing symptoms of the growth determinable by careful neurological examination. The usual types of neoplasms encountered are tuberculomas, congenital tumours, and those of the glioma group. Statistics show a lessening frequency of tuberculous growths. The congenital tumours are generally suprasellar lesions and produce symptoms of dyspituitarism. The glioma group preponderate in childhood both as regards number and malignancy. They are the pre-adolescent tumours, and constitute about 75 per cent. of the neoplasms in pre-adolescent brains and 40 per cent. of all brain tumours. In childhood they usually occur in the mid-cerebellar region, arising from the roof of the fourth ventricle and projecting into the vermis. This is the most critical position as regards risk to life and the production of an early hydrocephalus by pressure on the iter. Ventriculography and encephalography are often valuable diagnostic procedures, but they necessitate great care owing to the dangers attending their use. Surgery and electrotherapy offer the best measures for cure and alleviation of distressing symptoms in these patients. In support of the "foetal-rest" theory of the genesis of neoplastic cerebral growths, Leavitt reports the identical occurrence of cerebral tumours in monozygotic twins.

470. Pyuria in Infants.

J. R. WILSON and O. M. SCHLOSS (*Amer. Journ. Dis. Child.*, August, 1929, p. 227) present a study of the post-mortem findings in forty-nine infants and young children under the age of 3 years whose urine contained pus during life and who were of the clinical type which is usually termed "acute pyelitis." In the milder forms the urine contained moderate amounts of pus during the course of some acute infection. The severer cases were represented by infants who were acutely ill with [illegible]ed pyuria. The most commo[illegible] inflammatory foci in the [illegible] In their earliest and simplest form the foci are small circumscribed areas of infiltration by small mononucleated and polymorphonuclear cells; they are often adjacent to small blood vessels. As the disease advances or becomes more severe, the lesions grow larger and contain more polymorphonuclear cells, until, in the severest forms, frank abscess formation is evident, presenting the typical picture of acute suppurative nephritis. The authors do not consider that pyuria in infants is always due to suppurative interstitial nephritis; it may be caused by other conditions, which, however, are relatively rare, such as congenital anomalies of the urinary tract, cystitis, and renal calculi. They incline to the view that the infection is blood-borne rather than an ascending one.

471. Paroxysmal Sneezing in Whooping-cough.

A. MONCRIEFF and R. C. LIGHTWOOD (*Arch. Dis. in Childhood*, August, 1929, p. 240) state that various equivalents of the whoop in pertussis have been described and that the occurrence of these equivalents seems to indicate a central nervous origin for the spasmodic phenomena of pertussis. These equivalents include paroxysmal sneezing, yawning, and attacks of hiccup. The true nature of these cases is often not recognized, so that they are liable to spread the disease. They record the case of a girl, aged 3 years and 11 months, who, after she had been whooping for two months, began to sneeze instead. The sneezing attacks occurred about ten times a day; after six weeks the whoop returned and she had both whooping and sneezing attacks. Bacteriological examination of the muco-pus discharged from the nose in one of the attacks showed the presence of pertussis organisms. The one other child in the family had an ordinary attack of whooping-cough after that of his sister.

472. Oral Administration of Insulin in Infantile Diabetes.

THE treatment of infantile diabetes in out-patients by means of insulin injections is fraught with difficulty, and oral administration is therefore desirable. Successful cases of its administration in this way are reported by M. OTTOW (*Münch. med. Woch.*, September 20th, 1929, p. 1584), who remarks that the effects appear slower than when insulin is injected, the disappearance of sugar from the urine preceding the return to normal of the blood sugar. The insulin was well tolerated. Ottow is inclined to admit the occurrence of a cumulative effect, leading to an increase of the sugar tolerance through regeneration of the still functionally active islets of Langerhans. He believes that such oral insulin therapy will play an important part in the treatment of infantile diabetes.

Obstetrics and Gynaecology.

473. Pudendal Anaesthesia in Midwifery.

M. GUTMAN and V. METZ (*Zentralbl. f. Gynäk.*, August 3rd, 1929, p. 1952) describe their experience of anaesthesia by injection of the pudendal nerve, as advocated by Müller and later improved by Sellheim. The aim is to block the nerve supply to the muscles of the pelvic floor and the skin of the perineum and labia. The injection is made into the nerve as it passes from the lesser sciatic foramen into the pelvis. The patient lies across the bed with thighs adducted and flexed; the injection is made on the medial surface of the ischial tuberosity, 5 cm. deep, and in an almost horizontal direction; 10 to 12 c.cm. are injected. The needle is then withdrawn for about 2 to 3 cm. of its length and passed downwards and laterally; the remainder of the solution is then injected, thus blocking the collaterals to the posterior cutaneous nerve of the thigh. About 20 c.cm. of a 1 per cent. solution of novocain and adrenaline are required for each side. The needle must not reach the lesser sciatic foramen for fear of damaging the great vessels. Anaesthesia is complete in ten to fifteen minutes, and lasts one and a half to two hours. The authors state that this method can only be useful when delivery is expected within two hours. To establish this as a certainty a rectal examination is made; if the head advances when the patient bears down, the injections can be given. They ease the patient greatly by relieving her of all pressure on the pelvic floor and of the pain due to the stretching of the soft parts; the treatment does not, however, affect the actual labour pains. The pelvic floor relaxes well, thus avoiding injury and subsequent disability. The authors do not find that perineal tears are diminished by this method, but episiotomy and perineal repairs are easy as the perineum is completely insensible. Only in complete tears extending to the rectum are some injections round the anal region needed, to anaesthetize those branches of the inferior haemorrhoidal which do not arise from the pudendal nerve. This method is said to be useful not only in spontaneous deliveries, but in low forceps and breech cases. In their 130 cases the authors have had only eight failures, which were probably due to faulty technique. The method is said to be simple and very suitable for general practice. No bad effects or accidents have occurred except a transient pallor of the face.

474. Pelvic Peritonitis after Curetting.

P. FRASSINETI (*Il Policlinico*, Sez. Chir., September 15th, 1929, p. 445) reports a case in which curetting for virginal septic endometritis from common vaginal bacteria was followed by apparently primary pelvic peritonitis. External sepsis due to faulty technique and lesions of the uterus being excluded, it would have been expected that curetting, instead of

removing an existing infection, would have helped to drive it through the lymphatics or blood vessels to the pelvis; this gives rise, as a rule, to pelvic abscess, or abscess of the broad ligament, or, very rarely, to pelvic peritonitis. The symptoms in the case reported led to the diagnosis of primary pelvic peritonitis. Frassinoti doubts if such a condition can develop through the blood vessels and lymphatics, since owing to anatomical conditions this cannot happen without an intermediate infection in the broad ligament. Faure and other writers admit that infection of the peritoneum through the blood vessels may give rise to phlebitis, abscesses, and visceral suppuration, but not to isolated pelvic peritonitis; infection through the lymphatics is almost impossible owing to anatomical considerations. Consequently the mucosa is the route of infection, as in the case of gonococcal and pyogenic invasions under favourable conditions, notwithstanding that the mucosa of the tubes, being more resistant, is not affected. The author thinks that this may be true in the absence of surgical operations. Infection through lymphatics excluded, curetting could not have caused primary pelvic peritonitis. Frassinoti suggests that Hegar's dilators, which fit closely to the cervix uteri, do not allow propulsive action to evacuate the septic contents of the uterine cavity; these, consequently, enter the Fallopian tubes and pass to the peritoneum. To avoid this, Frassinoti suggests a modification of Hegar's dilators. The cylinder is interrupted in its circumference by four narrow channels which, while allowing dilatation to be accomplished, leave an outlet for the escape of septic matter.

475. Etiology of Pregnancy Toxaemias.

R. L. LARSEN (*Amer. Journ. Obstet. and Gynecol.*, September, 1929, p. 374) discusses the etiology of the pregnancy toxaemias from the inductive rather than the deductive point of view. Cell permeability has been shown to depend on and vary with the mineral salt content of the cell; excess of calcium lessens the permeability, while too much sodium or potassium increases it, sometimes to the point of cell dissolution. Moreover, research has revealed the presence of a substance in the liver capable of producing a severe toxaemia. In dogs, where hepatic disease has been caused by ligature of the common bile duct or by other administration, a protein of hepatic origin has been demonstrated in the urine, and there is a decrease in calcium with an increase in the sodium content. Larsen believes that this alteration in mineral balance is responsible for an increase in cell permeability, with a resultant outpouring of the cellular contents, and finally of toxic bodies. He suggests that eclampsia and hyperemesis have the same etiological factors, and that eclampsia occurs in women who have survived hyperemesis in the first three months, but who have eventually been overcome by the cumulative effect of the same causes. Endocrine upset, especially of the parathyroid and thyroid glands, may cause a deficiency both in calcium metabolism and in neutralization of toxic wastes, while in normal pregnancy the maternal calcium may be used up to a great extent by the foetus. This may bring about increased cell permeability, with the discharge of glycogen, and later of toxic liver products into the system. In treating such cases, therefore, Larsen suggests that the administration of calcium lactate and parathormone and a parathyroid preparation should be combined with glucose and alkalis. The work of Mendel and Benedict shows that in human physiology calcium and magnesium are compensatory and complementary to one another. He suggests, therefore, that the success attending the treatment of eclampsia by magnesium sulphate depends largely on the resulting increase in cell calcium with decreased permeability. Ultra-violet rays, by promoting retention of the body calcium, have also a place in the treatment of the pregnancy toxaemias.

Pathology.

476. Avian Pollution of Drinking Water.

IN order to determine the part played by birds in the pollution of water supplies, I. E. MINKEWITSCH (*Zeit. f. Hyg. u. Infektionskh.*, October 12th, 1929, p. 506) has conducted a limited investigation on the bacterial flora of the intestine of different groups of birds, paying particular attention to the presence of *B. coli*. His first group, domesticated land birds, consisted of 10 fowls and 2 pigeons; *B. coli* was found in 9 of the fowls and in one pigeon. His second group, domesticated water birds, consisted of 17 ducks and 5 geese; *B. coli* was found in all the geese and in 15 of the ducks. His third group, wild forest birds, consisted of one raven, 4 wrens, 3 crossbills, 3 coletits, 2 woodpeckers, and one creeper (species not identified); *B. coli* was found in the raven—a carrion eater—but in none of the other birds, which feed on insects and plants. A most noticeable feature of this group was the paucity of bacteria in the intestinal canal; in 5 cases, in spite of generous inoculating, the cultures remained sterile so far as bacteria were concerned. His fourth group, wild water birds, consisted of 9 seagulls, 15 sea swallows, and two species of duck; *B. coli* was not found in any of the sea swallows, but was present abundantly in nearly all the other birds. The absence of *B. coli* from the intestine of sea swallows is probably due to their living solely on fish; seagulls, on the other hand, are not clean feeders. Analysis of the 46 strains of coliform bacteria recovered, giving acid and gas in lactose and a positive indol reaction, showed that 78 per cent. belonged to the species *B. coli*, 2 per cent. to the species *B. aerogenes*, while the remainder had properties intermediate between these two organisms. It would appear as if birds which do not come into contact with man and animals do not harbour *B. coli* in the intestine. The sanitary importance of birds in the pollution of drinking waters must therefore depend on the particular type of bird that is frequenting the water supply.

477. The Etiological Significance of Humoral Changes in Cancerous States.

R. REDING (*Bruxelles-Méd.*, October 20th, 1929, p. 1419) holds the view that the most important causal element in the pathogenesis of tumours is individual predisposition. He considers that local provocative causes, such as chronic irritation, only act by determining the localization of a neoplasm, the accelerated mitotic division being dependent on humoral alterations. These alterations are said to be of endocrine origin, the most evident being those which show a deficiency in the biological regulators of cellular division. The laws which govern ordinary cell division appear to hold good for malignant cells also. Other humoral changes consist of alterations in the sugar regulating mechanism, in the acid-base equilibrium, and in the ionic equilibrium. These alterations are independent of the presence of the tumour, and constitute a general predisposition on the part of the patient, as they precede the appearance of the cancer. This predisposition is considered by the author to be definitely inherited. The alkalosis found in cancerous patients is due to a breakdown of the original neutralizing mechanism. In support of this theory the author found that great differences are present in patients who have been operated upon and those who have been treated by gamma rays. In the first case the patient, even after removal of the actual tumour, remains cancerous from the humoral point of view. In the second case the patient treated by radiations becomes normal, not only in the sense of the disappearance of the tumour, but also from the humoral point of view. The gamma rays therefore appear to have a lasting influence on the regulators of cell division. A relapse, as evidenced by humoral alterations, coincides with, and even seems to precede, the recurrence of the tumour *in situ*, and therefore constitutes a useful method of early diagnosis.

478. Experimental Pulmonary Tuberculosis following Intestinal Infection.

LOPO DE CARVALHO, C. VIDAL, and NUNO DOS SANTOS (*C. R. Soc. de Biologie*, October 18th, 1929, p. 206) have repeated on the monkey some experiments on which Lopo de Carvalho and Ferreira de Mira performed two years ago on the dog. These workers found that if human tubercle bacilli were introduced into the duodenum of a dog which had been subjected to laparotomy they rapidly invaded the tracheo-bronchial glands, where they could be demonstrated by guinea-pig inoculation. When carmine or Indian ink was introduced into the duodenum, the colouring matter was later found in the lungs and in the tracheo-bronchial glands; it was [illegible] in the duodenal vein, but never in the [illegible] experiments suggested that the carriage of bacilli and inert particles from the intestine to the tracheo-bronchial glands occurred by the blood stream. This conclusion was supported by the demonstration of tubercle bacilli in the duodenal vein in animals that had been injected intraduodenally with these organisms. In an attempt to repeat these experiments on an animal more susceptible than the dog the present authors anaesthetized a monkey and made it swallow, by the help of a sound, a gelatin capsule containing 10 mg. of human tubercle bacilli from a culture. Some weeks later the animal showed symptoms of illness and was killed. The lungs were found to contain a multitude of semi-translucent miliary tubercles; the regional glands were also affected, but the other viscera were normal. A second monkey infected by the same method and killed at an earlier stage of illness showed similar lesions, but of less intensity. The authors considered that the pulmonary lesions resembled those produced by intravenous inoculation; they therefore conclude that the tubercle bacilli gained access to the lungs from the intestine by the blood stream.

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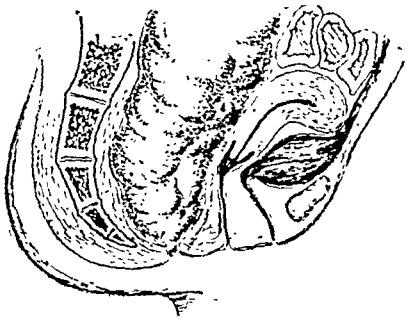

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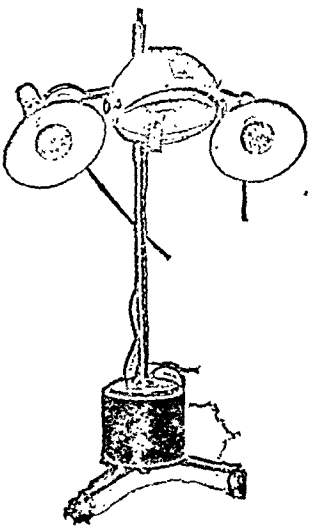

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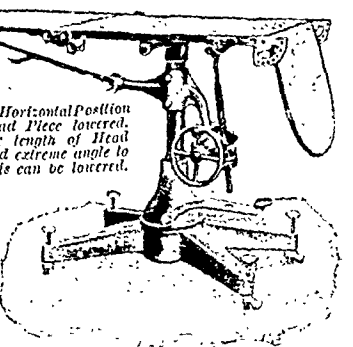

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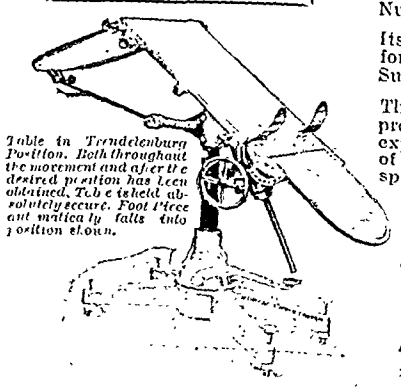

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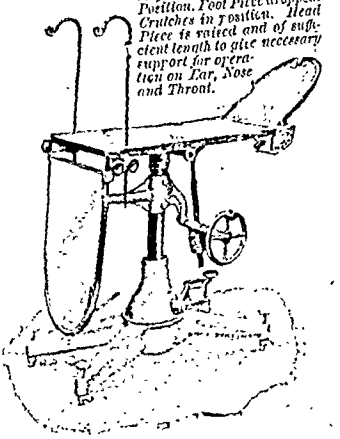

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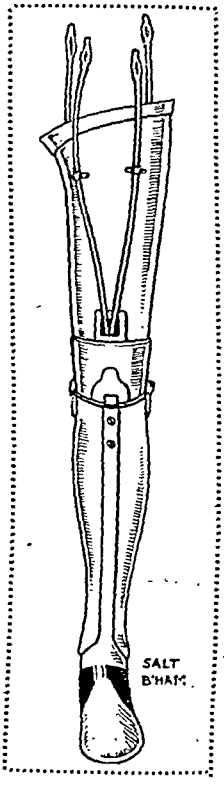

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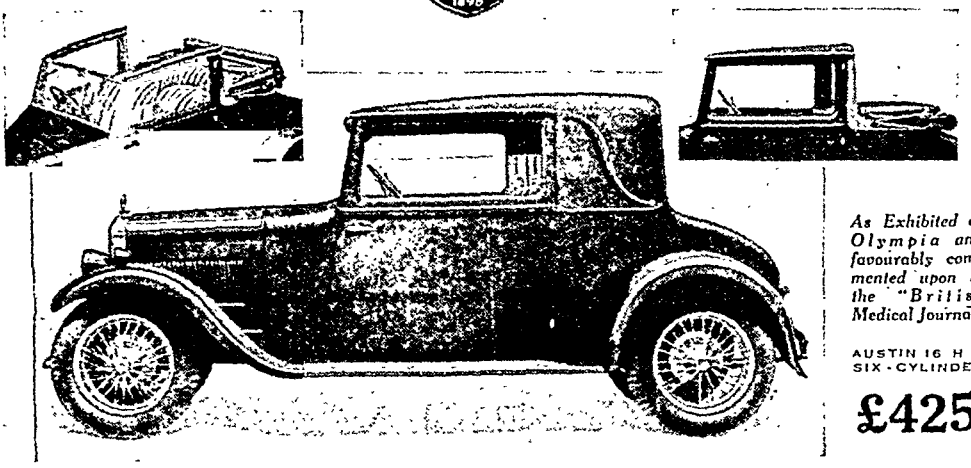

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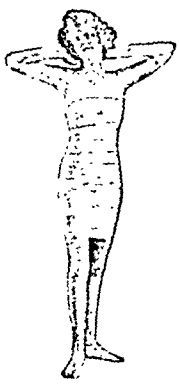

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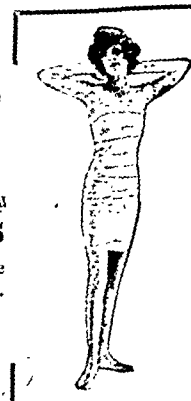

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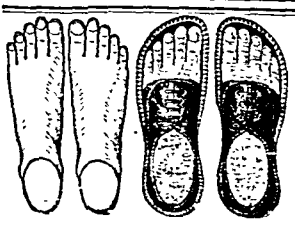

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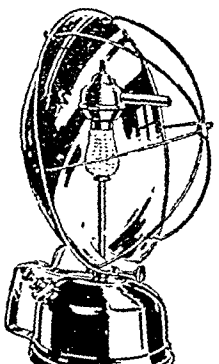

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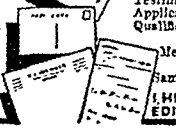

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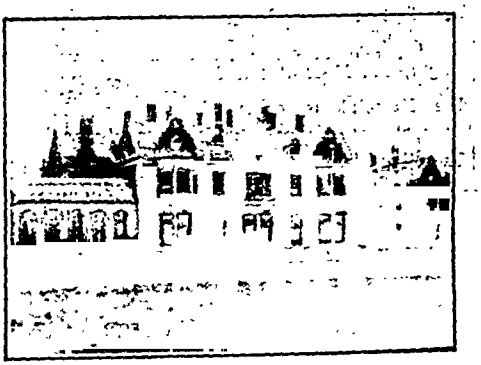

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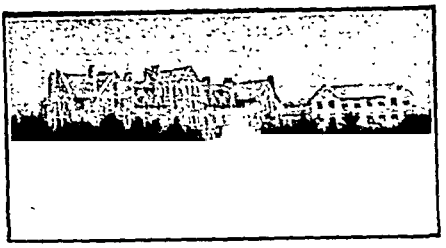

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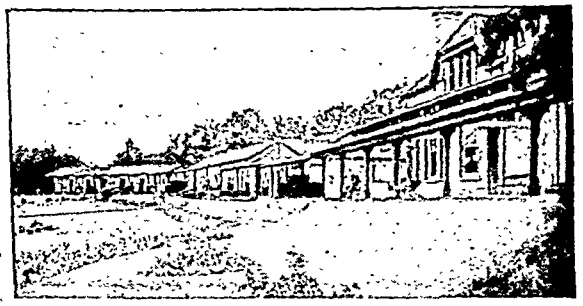

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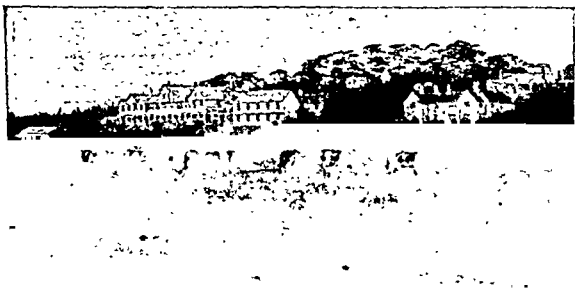

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Established 1900 for the treatment of Tuberculosis. Miles of carefully graduated walks through pine-clad hills, with sea and mountain views. Modern treatment, including SANOCRYSIN, ARTIFICIAL PNEUMOTHORAX, etc. X-ray plant, electric light, central heating, wireless. Full day and night nursing staff. On L.M.S. Main Line to Holyhead, 4½ hours from London. Resident Physicians: Dennison Pickering, M.D.(Cantab.), F. W. Godbey, M.D., D.P.H.; Matron: Miss N. Rennardson, S.R.N.

For particulars apply to the Secretary, Pendyffryn Hall, Penmaenmawr, N. Wales. ('Phone, 20.)

KINGUSSIE, N.B.

THE GRAMPIAN SANATORIUM.

Situated in the upper Speyside district of [illegible]. One of the highest inhabited districts in [illegible] and dry mountain climate. Well shelt[illegible] of the [illegible] of Tuberculosis and in rest in 1901. [illegible] built fo[illegible] ut buildings and in treatment available, shelters. [illegible] sea-level. [illegible] is of treatment available, including [illegible] equipped [illegible] ical cases of Tuberculosis. and Ultra-Violet Rays [illegible]

MEDICAL SUPT.: FELIX SAVY, M.B., Ch.B. *For particulars apply to the Secretary.*
Terms: £4 6s. 8d. to £6 6s. per week inclusive, no extras.

BRIDGE OF ALLAN HYDRO.
(Allan Water Hotel)

This once famous Hydro adjoining the Mineral Wells has recently been equipped with the most modern appliances for treatment by Electro-therapeutics, Medicated Baths, etc. All treatment is given only on the instruction of the Medical Superintendent, or of the patient's own medical adviser.

Bridge of Allan is an Inland Spa and Climatic Resort, sheltered from the North and East winds.

Terms on application. Medical Superintendent: Dr. W. C. HOFFMAN.

VALE OF CLWYD SANATORIUM

This Sanatorium is established for the treatment of TUBERCULOSIS of the LUNGS and the PLEURAL CAVITIES. It is situated in the midst of a large area of park-land at a height of 450 feet above sea-level, on the south-west slopes of mountains rising to over 1,800 feet, which protect it from north and east winds and provide many miles of graduated walks with magnificent views. Average rainfall 29.57 per annum. Full day and night nursing staffs. X-ray plant. Every facility for Artificial Pneumothorax, and for operations on the chest. Electric lighting. Central heating. Home farm. Clean milk from T.T. Herd. For particulars apply to Med. Supt., H. Morriston Davies, M.D., M.Ch.Cantab., F.R.C.S., Llanbedr Hall, Ruthin, N. Wales.

HERMITAGE SANATORIUM, Whitwell, Nr. Ventnor.

Unsurpassed situation, 600 ft. above sea-level, high sunshine record, own farm. Resident Medical Officer. Male cases only.

Inclusive weekly terms 50/-.

Special preferential arrangements for a few private cases at 4 guineas.

Artificial Pneumothorax, etc.

VICTORIA SANATORIUM

(an entirely British Sanatorium), DAVOS (GRISONS), SWITZERLAND. Terms from £5 a week. Medical Supt.: BERNARD HUDSON, M.D.(Cantab.), M.R.C.P., Swiss Federal Diploma.

VILLA WALDFRIEDE.

HOME FOR CHILDREN and YOUNG PEOPLE, delicate or predisposed to Tuberculosis, in English Doctor's House, near Davos, Switzerland. Terms from £5 5s. p.w.—Apply, Dr. BERNARD HUDSON, Victoria, Davos, Switzerland.

Tel. & Telegrams: "Haynes, Brentwood, 45."

Littleton Hall, Brentwood, Essex.

Large grounds, 400 ft. above sea. HOME for Ladies Mentally afflicted. Voluntary Boarders received. Stations: Brentwood and Shenfield 1 mile. Liverp'l St. 26 min.—Apply, Dr. HAYNES.

CITY OF LONDON MENTAL HOSPITAL, DARTFORD, KENT.

PRIVATE PATIENTS are received at a weekly charge of TWO GUINEAS and upwards.

Voluntary BOARDERS can now be admitted.—Apply to the MED. SUPERINTENDENT.

Bishopstone House, Bedford.

PRIVATE HOME for MENTALLY AFFLICTED LADIES. Ten only received. Apply, Medical Officer or Mrs. PEELE. *Telephone*: 2708.

POST-GRADUATE MIDWIFERY.

Qualified Medical Women are admitted to

The Mothers' Hospital of the Salvation Army, Lower Clapton Road, E.5

for practical fortnightly Courses in Midwifery. These include delivery of normal cases, attendances at all abnormal cases, operations, ward rounds of visiting staff, V.D. clinics, and ante-natal clinics. For further particulars, fees, etc., apply to the Secretary.

F.R.C.S.(Edin.)

CLASSES, with Museum and Anatomical [illegible] Exam., will commence work at any time. WHITTAKER, F.R.C.S., Surgeons' Hall, Edinburgh.

Grove House, All Stretton,

Church Stretton, Shropshire.

A Private Home for the care and treatment of a limited number of ladies mentally afflicted. Climate healthy and bracing.

Medical Superintendent: Dr. MCCLINTOCK.

Matron giving up Nursing Home

will take Two INVALID GUESTS (not bedridden). Skilled attention can be given. Telephone: Hampstead 7102.

POST GRADUATE STUDY

Are you preparing for any Medical or Surgical Examination?

Do you wish to specialize in any branch of Medicine or Surgery?

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You can prepare for any of these qualifications by postal study at home. We specialize in Post-graduate tuition. Clinical and practical courses in any subject. Attendance at Hospital practice arranged.

THE SECRETARY,
MEDICAL CORRESPONDENCE COLLEGE,
19, Welbeck Street, Cavendish Square, London, W.1. Telephone: LANGHAM 1166.

Sir,—Please send me a copy of your "Guide to Medical Examinations" by return

Name.....

Address.....

Examination in which interested.....

STAMMERING, SPEECH DEFECTS.

BEHNKE METHOD. Estab. 1882. Cases, non-resident, treated at 39, Earl's Court Square, S.W.5, and in *residence, in the Summer holidays*, at Miss BEHNKE'S house on the Chilterns.

"Pre-eminent success in the education and treatment of stammering and other speech defects."—"Times."
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Medical and Dental Students.

Special Classes for Pre-Medical and Dental Exams., Matric., and Prelims.
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MANCHESTER TUTORIAL COLLEGE, 327, Oxford Road, Manchester.

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SPEECH DEFECTS.

Resident and non-resident pupils. Full particulars upon request.—Mr. A. C. SCHNELLE, 119, Bedford Court Mansions, London, W.C.1. Estab. 1905. Telephone: Museum 3665.

M.D. THESIS

(Camb., Edin., Glasg., Durh., &c.)

SKILLED COACHING, *GUIDANCE, and ADVICE* From Specialist Tutors, in conformity with the Regulations of the various Universities. Apply for particulars and free booklet, "Hints on Writing a Thesis for the M.D. Degree," to the SECRETARY, Medical Correspondence College, 19, Welbeck Street, London, W.1.

F.R.C.S.(Edin.).

Prep. Classes and Museum Demons. for next Fellowship Exam. will commence shortly. Correspondence course for March and later exams should begin now. Parties., Mr. H. C. OBEIN, F.R.C.S., at Surgeons' Hall, Edinburgh.

Refraction and the Ordering of GLASSES

taught by Practising Ophthalmic Surgeon in London. £8 8s. for 10 lessons.—Address, No. 123, B.M.A. House, Tavistock Square, W.C.1.

Post-Graduate Teaching, West London Hospital.

Continuous Clinical Instruction daily from 10 a.m. to 4 p.m.—Post-Graduates may enrol at any time for any period from 1 week to 3 months.—Special facilities for "Study Leave."—Anæsthetic Courses.—Clinical Assistantships.—Annual Membership Tickets at Special Terms available for General Practitioners who wish to attend the Hospital Practice at irregular intervals.

Prospectus from Sir Henry Simson, K.C.V.O., Dean, West London Hospital, Hammersmith, W.6.

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REASONABLE INCLUSIVE FEES.

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Sound Education. Upper and Lower Schools. Preparation, when desired, for all University Entrance Examinations. Particulars from Sec. *Special Terms to Medical Men.*

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The Practice of the Hospital is limited to Medical Practitioners. Particulars from T. H. C. BEVANS, F.R.C.S., *Dean*.

The Yorks Children's
ORTHOPÆDIC HOSPITAL,
KIRBYMOORSIDE, YORK.

Applications are invited for the post of HOUSE SURGEON. Salary £150 p.a., with board, residence, and laundry. Applications, with copies of recent testimonials, should be forwarded to the Surgical Superintendent on or before Thursday, November 28th.

CITY OF LONDON MATERNITY HOSPITAL,

CITY ROAD, E.C.1.

MIDWIFERY TRAINING SCHOOL.

MEDICAL STUDENTS admitted to Hospital practice, with operative Midwifery, and Obstetrical complications.

PUPILS TRAINED as Midwives and Monthly Nurses in accordance with C.M.B. regulations.

PRIVATE WARDS for paying patients.

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Boys are regularly prepared for the First M.B. Examination, University Scholarships in Chemistry, Biology, etc.

Special facilities are offered for the teaching of Chemistry, Physics, Botany, and Zoology.

New Science Buildings, containing seven laboratories, two lecture rooms, science library, store rooms, etc., opened in September, 1925. Prospectus from Head Master

LIVERPOOL SCHOOL OF TROPICAL MEDICINE.

(UNIVERSITY OF LIVERPOOL)

COURSES OF INSTRUCTION (lasting about three months) for the Diploma in Tropical Medicine commence on October 1st and January 7th, and for the Diploma in Tropical Hygiene on January 12th and April 26th. (Candidates for the D.T.H. must possess the D.T.M. of this University.)

For particulars apply to the Hon Dean, Liverpool School of Tropical Medicine, Pembroke Place, Liverpool

London Hospital Medical College.

THE LIDDLE TRIENNIAL PRIZE.

Under the will of the late Dr. JOHN LIDDLE, the College Board of the London Hospital offer a Prize of the value of £120 for the best Essay on

"*The Cause and Incidence of Duodenal Ulcer.*"

Essays should be sent to the Dean (from whom further particulars may be obtained) on or before May 31st, 1930.

Professor WILLIAM WRIGHT, M.B., D.Sc., F.R.C.S., Dean.

Mile End, E.1.

GUY'S HOSPITAL MEDICAL SCHOOL.

M.R.C.P. COURSE.

A Course of Preparation for the Examination for the Membership of the Royal College of Physicians of London will commence on February 3rd, 1930. Fee for the Course £21. Application for admission to the Class, which is limited in number, should be made to the DEAN, Guy's Hospital Medical School, London, S.E.1.

The Institute of Ray Therapy,
152-154, Camden Road, N.W.5.

A Ray Therapy (Artificial Sunlight) Clinic will be opened on January 4th, 1930, at the above address for purposes of Treatment, Research, and Training of Nurses and Practitioners.

A JUNIOR MEDICAL OFFICER is required to assist in treatment from 2 p.m. to 9 p.m. daily.

An honorarium at the rate of £150 per annum is offered, together with board, residence, and laundry.

The appointment is for six months, and there will be opportunity for Post-Graduate work and study.

Applicants must have held a resident appointment at a General Hospital, but experience in ray therapy is not essential.

...h copies of three
...t not later than
SUPERINTENDENT,
House, Tavistock
Square, W.C.1.

ROYAL AIR FORCE MEDICAL SERVICE

A limited number of candidates will be selected for Commissions as MEDICAL OFFICERS in the Royal Air Force in December, 1929.

The next course of instruction for Medical Officers on joining will begin early in January, 1930.

There will be no entrance examination, candidates being appointed by selection. Candidates wishing to submit applications should apply for full particulars as to the conditions of service and emoluments and forms of application to:

The Secretary,
Air Ministry (D.M.S.),
Adastral House,
Kingsway,
London, W.C.2.

They should be prepared to attend for interview and medical examination in London about the middle of December.

University of London.

The SEMON LECTURE, entitled "*The Lower End of the Œsophagus at Birth and in the Adult*," will be given by Dr. HARRIS P. MOSHER (Professor of Laryngology, Harvard University), in the Lecture Hall of the ROYAL SOCIETY OF MEDICINE (1, Wimpole Street, W.1), on THURSDAY, DECEMBER 5th, 1929, at 5 p.m. The Chair will be taken by DAN MCKENZIE, E.q., M.D., C.M., F.R.C.S.Ed. (President of the Laryngological Section of the Royal Society of Medicine).

Admission free, without ticket.

W. S. ANGUS, Deputy Academic Registrar.

University of Birmingham.

APPOINTMENT OF LECTURER IN PHYSIOLOGICAL DEPARTMENT.

Applications are invited for the post of LECTURER IN PHYSIOLOGY. Stipend £400 per annum. Teaching experience not essential.

Four copies of application, with testimonials, must be sent, on or before December 3rd, to the undersigned, from whom further particulars may be obtained.

The University, Edmund Street, Birmingham. November, 1929.

C. G. BURTON, Secretary.

Liverpool Samaritan Hospital FOR WOMEN.

HOUSE SURGEON wanted for period of six months commencing January 1st, 1930. Salary at rate of £100 per annum. Applications, with testimonials, to be sent to the undersigned before November 30th.

J. ST. GEORGE WILSON.

13, Rodney St., Liverpool.

COLONIAL MEDICAL SERVICES.

Vacancies exist at present for Medical Officers in:—

(*a*) The East African Medical Service.

(*b*) The Malayan Medical Service.

QUALIFICATIONS.

Applicants must be British subjects of European parentage, and between 22 and 35 years of age. They must possess a double qualification and be on the British Medical Register. Preference will be given to candidates who have held hospital or public health appointments, or who have special knowledge of anæsthetics, radiology, surgery, medicine, ophthalmology, gynæcology and midwifery, diseases of the ear, nose, and throat, venereal diseases, etc.

SALARIES.

East Africa. £600 per annum, rising by annual increments of £30 to £840 per annum, and thence, subject to an efficiency bar, by increments of £40 to £920 per annum.

Malaya. $500 a month (£700 per annum, at exchange Straits $1=2s. 4d.), rising by annual increments of $25 a month (£35 per annum) to $800 a month (£1,120 per annum).

In addition to salary, there is at present a non-pensionable temporary allowance of 10 per cent. of salary to unmarried officers and 20 per cent. to married officers.

CONDITIONS OF SERVICE.

Appointments are made on probation (two years in the case of East Africa and three years in Malaya) in the first instance. At the end of the probationary period the officer may, if his services have been satisfactory, be confirmed in his appointment and placed on the permanent establishment.

QUARTERS.

East Africa. Free quarters are provided or an allowance is given in lieu.

Malaya. Quarters are usually available and are provided at a rental which in no case exceeds 6 per cent. of the officer's salary.

PASSAGES.

(Applicable to both East Africa and Malaya.)

Free first-class passages are provided both on first appointment and when proceeding on leave.

Further particulars and forms of application may be obtained on application in writing to the PRIVATE SECRETARY (Appointments), Colonial Office, 2, Richmond Terrace, Whitehall, London, S.W.1.

Corporation of Durban, SOUTH AFRICA.

APPOINTMENT OF MATRON, DURBAN INFECTIOUS DISEASES HOSPITAL.

The undersigned are authorised to receive applications for the above post.

The salary will be at the rate of £254, rising by annual increments of £15 to a maximum of £294 per annum, plus free quarters, boarding, laundry, and uniform.

Candidates to be general and fever certificated nurses between the ages of 30 and 35 years, and must have had experience in the "cubicle" system of nursing infectious diseases.

Preference will be given to a candidate now holding, or who has recently held, a post as Sister in a fever hospital which is a recognized training school for fever nurses.

The successful candidate will be required to sign a contract for a period of three years, subject to renewal.

Medical certificate of fitness will be required.

First-class passage will be paid by the Town Council, and salary will commence on the date of assumption of duties at the Hospital.

The appointment will be subject to the Durban Town Council's Regulations re leave and conditions of service from time to time in force.

Applications, accompanied by copies of testimonials of recent date, must be forwarded to the offices of the undersigned not later than Saturday, December 7th.

By Order,
WEBSTER, STEEL & CO.,
9, St. Helen's Place, Bishopsgate, London, E.C.3. Agents to the Durban Corporation.

The Radium Institute.

Riding House Street, London, W.1.

Applications are invited for the post of HOUSE SURGEON. Candidates must be fully qualified and unmarried, and the appointment is for a term of twelve months as from January 1st, 1930.

The salary will be at the rate of £150 per annum, with board, lodging, and laundry.

Applications, stating age, qualifications, and experience, with copies of three recent testimonials, must be received at the Institute not later than December 7th.

Canvassing, either directly or indirectly, is not permitted.

THOS. A. GARNER, Secretary.

The King Edward VII Welsh NATIONAL MEMORIAL ASSOCIATION.

Applications are invited from duly registered Medical Practitioners for the post of AREA ASSISTANT TUBERCULOSIS PHYSICIAN. Salary £600 per annum, together with travelling and subsistence allowances when absent from base. Preferably candidates should have *had at least six months' special training in* Tuberculosis, with eighteen months' experience in general clinical work, of which six months should have been spent in a Hospital not confined to the treatment of Tuberculosis.

Applications, stating full qualifications and previous experience, together with copies of three recent testimonials, should reach the undersigned not later than November 30th.

Memorial Offices, Westgate St., Cardiff. D. A. POWELL, Principal Medical Officer.

Perthshire Joint Medical Service SCHEME.

A FIRST ASSISTANT MEDICAL OFFICER (male) is required under the above Scheme in the County of Perth.

The possession of a D.P.H. and Hospital experience are essential. Experience in any branch of Public Health, including Tuberculosis and School Medical work, will be added recommendations. Salary £600 per annum, rising by annual increments of £25 to £750, subject to satisfactory service.

Forms of application may be obtained from the undersigned, with whom completed applications, accompanied by copies of three recent testimonials, should be lodged not later than December 6th.

County Buildings, Perth. Dr. D. J. McLEISH, Medical Officer of Health.

City of Birmingham.

MATERNITY AND CHILD WELFARE DEPT.

RESIDENT MEDICAL OFFICER.

A Resident Medical Officer is required on January 1st next, for a period of six months, for the CITY BABIES' HOSPITAL (50 beds). Salary at the rate of £150 per annum, with board and laundry. Previous experience in a Children's Hospital desirable. Apply, giving all particulars of qualifications, age, and experience, to the Medical Officer of Health, the Council House, Birmingham; on or before Thursday, November 28th.

Board of Education.

APPOINTMENT OF MEDICAL OFFICER.

The Board of Education invite applications from registered Medical Practitioners (men) for one vacant appointment as Medical Officer on the staff of the Board.

Applicants must be Medical Men, preferably between 30 and 40 years of age, with a University Medical degree, a Diploma in Public Health, and experience of the School Medical Service.

The officer will be required to reside in London or such other area as may be assigned to him by the Board. The appointment will carry the normal Civil Service conditions as to pension, holidays, etc.

The salary will be £600 per annum, rising by annual increments of £25 to a maximum of £900, together with the usual Civil Service bonus. The bonus on the minimum salary is at present £176 7s. In special circumstances the *minimum* salary may be advanced where a candidate has special knowledge and experience.

Applications should be submitted on the prescribed form, copies of which may be obtained from the Director of Establishments, Board of Education, Whitehall, S.W.1.

Applications must reach the Board not later than Saturday, *December 14th.*

Greenwich Union.

GREENWICH & DEPTFORD CHILDREN'S HOMES; SIDCUP.

DENTIST.

The Guardians invite application for the appointment of DENTIST at the above *Homes* from duly qualified Dental Surgeons.

The candidate appointed will be required to carry out *Dental* treatment when necessary for any particular child and to *examine* every child in the Homes at least one in three months and afford treatment where needed. Remuneration £74 per annum, subject to deduction under the Poor Law Officers' Superannuation Act, 1896.

Applications to be made on forms to be obtained at the Guardians' Offices, Board Room, Woolwich Road, E. Greenwich, and they should be returned to the same address not later than December 10th.

Canvassing the Guardians, either directly or indirectly, is prohibited and will disqualify.

By Order,
W. C. CORNISH,
Clerk to the Guardians.

November, 1929.

ROYAL NAVAL MEDICAL SERVICE.

VACANCIES EXIST FOR MEDICAL OFFICERS IN THE ROYAL NAVY.

Candidates will be entered as Short Service Medical Officers and will be considered for transfer to the Permanent Service after 6 months' service. They must be registered under the Medical Acts, and be under 30 years of age on date of entry.

Medical Officers, R.N., are liable to serve in Naval Hospitals or Ships in any part of the world.

Excellent opportunities exist for clinical professional work, both medical and surgical, as well as for study and practice of Hygiene, Pathology, Ophthalmology, and other specialist branches.

Adequate provision is made for Post-Graduate Study.

OUTFIT ALLOWANCE of £50 is paid on joining.

PAY.—Pay from £452 to £2,350 a year, according to length of service.

ALLOWANCES.—When in charge of **Hospitals** and **Sick Quarters,** 10s. and 5s. a day.

60 Specialists Allowances of 5s. a day.
Flag Allowances, 5s. and 2s. 6d. a day.
Provision Allowance, Lodging Allowance, etc.

PROMOTION.—To Surgeon Lieutenant Commander after 6 years' service; to Surgeon Commander after a total of 12 years' service. Promotion to Surgeon Captain, Surgeon Rear-Admiral, and Surgeon Vice-Admiral is by selection.

Ante-date of seniority on account of civil hospital appointments, and accelerated promotion can be gained.

RETIREMENT.—Gratuities are paid as follows:—

Short Service Officers, after 3 years' service	£300
Permanent Officers, after 4 years' service ...	£400
,, 8 ,, ,, ...	£1,000
,, 12 ,, ,, ...	£1,500
,, 18 ,, ,, ...	£2,250

Rates of Pension range from £423 a year, normally earned after 20 years' service, to £1,123 a year, the maximum earned by a Surgeon Vice-Admiral.

Copies of the Regulations and Particulars as to Conditions of Service and Emoluments may be obtained on written or personal application to the Medical Director General of the Navy, Queen Anne's Chambers, Tothill Street, London, S.W.1.

Egyptian Government.

EGYPTIAN UNIVERSITY.

FACULTY OF MEDICINE.

Applications are invited for two posts as SURGICAL TUTORS.

The salary offered is £E.35 a month in Grade V, and the appointment will be on contract for one year, renewable at the end of that time. The appointment is to be a full-time post.

The candidates must be Egyptians, and preference will be given to those possessing the F.R.C.S. England.

Applications, accompanied by testimonials and references, should be addressed to the DEAN, Egyptian University, Faculty of Medicine, Cairo, so as to be received not later than December 15th, 1929.

Ministry of Health.

The Minister of Health invites applications from registered *Medical Practitioners (men)* for five vacant appointments as MEDICAL OFFICERS on the staff of the Ministry.

The salary commences at £700 per annum and rises by annual increments of £25 to £1,000 per annum. In addition to the salary a bonus, which varies with the cost of living, is payable; the bonus on the minimum salary is at present £187 3s. and is next subject to revision on March 1st, 1930.

The appointment will carry the usual Civil Service conditions as to pension, holidays, etc.

Candidates must be Medical Men of not less than seven years' standing, and be experienced in Public Health, Poor Law, or Preventive Medicine work.

A Medical Officer is required to devote his whole time to the Public Service, and must be prepared to work in any part of England or Wales if required to do so.

Canvassing Members of Parliament or Officers of the Ministry will render a candidate liable to disqualification.

Forms of application, with further particulars [illegible]e obtained from the Ministry of Health,

[illegible]onsidered unless received on the prescribed form not later than *December 7th*, 1929.

The University of Manchester.

Applications are invited for the post of LECTURER IN DENTAL HISTOLOGY. Stipend £50 per annum. *Duties to commence January* 1st, 1930. Applications should be sent not later than December 7th to the REGISTRAR, from whom further particulars may be obtained.

St. Peter's Hospital for Stone, ETC.,

Henrietta Street, Covent Garden, W.C.2.

CLINICAL ASSISTANTS are required by the following members of the Honorary Staff, who attend the Out-patient Department as indicated:

Mr. Swift Joly	Mondays 2 to 5 p.m.
Mr. Clifford Morson	Saturdays 2 to 7 p.m.
Mr. Barrington	Tuesdays 2 to 5 p.m. Thursdays 3 to 7 p.m.
Mr. Ogier Ward	Wednesdays 3 to 6 p.m. Fridays 2 to 5 p.m. (*Women and Children*)
Mr. Alban Andrews	Mondays 5 to 7 p.m. Fridays 5 to 7 p.m.

Appointments are made for six months from January 1st, 1930, a fee of five guineas being payable to the Hospital.

Applications will be received by the undersigned up to the first post on Wednesday, December 4th, 1929.

BERCHEY ROGERS, Secretary.

Ancoats Hospital, Manchester.

ASSISTANT MEDICAL OFFICER required for the Venereal Diseases Clinics (Syphilis). The successful applicant will be required to attend on Wednesday morning 11.30 to 1.30 p.m.; evening 5.30 to 7.30 p.m.; Saturday evenings 5.30 to 7.30 p.m. A fee of one guinea per attendance is paid. Apply, stating age, experience, qualifications, etc., and enclose copies of three recent testimonials, to the undersigned on or before December 4th next.

By Order of the Board,
HERBERT J. DAFFORNE,
Gen. Supt. & Secretary.

Ancoats Hospital, Manchester.

HOUSE SURGEON required to commence duty on January 1st, 1930. Salary £100 per annum, with board, apartments, *and washing*. Applications, stating age, qualifications, experience, if any, to be forwarded to the undersigned on or before Wednesday, December 4th, together with copies of three recent testimonials.

By Order of the Board,
HERBERT J. DAFFORNE,
Gen. Supt. & Secretary.

City of Oxford.

MEDICAL OFFICER OF HEALTH.

The Oxford City Council invite applications for the position of Medical Officer of Health, whose duties will include those of Senior School Medical Officer, Chief Tuberculosis Officer, Infant Welfare Superintendent, Chief Officer of the Corporation's Venereal Diseases Clinic, Medical Superintendent of the Isolation Hospital, and any other duties assigned to him by the City Council.

The salary will be £1,000 per annum, plus a travelling allowance of £50 per annum.

Candidates must be duly qualified registered Medical Practitioners possessing a recognized Diploma in Public Health and the recognized qualifications required by Acts of Parliament and the Regulations and Orders of the Minister of Health.

The gentleman appointed will be required to devote the whole of his time to his duties and will not be allowed to engage in private practice.

The post will be a "*designated post*" under the Local Government and Other Officers Superannuation Act, 1922, and the successful applicant will be required to pass a medical examination.

Applications, accompanied by six copies *thereof and by six copies of not* more than three recent testimonials, must be sent to the undersigned, endorsed "Medical Officer of Health," not later than December 15th.

Canvassing, either directly or indirectly, will be a disqualification.

Town Clerk's Office, A. HOLT,
Town Hall, Town Clerk.
Oxford. November 19th, 1929.

Lancashire County Council.

BIDDULPH GRANGE ORTHOPÆDIC HOSPITAL.

Applications are invited for the post of JUNIOR HOUSE SURGEON (woman) at the *above Hospital, which contains 87 beds.* Salary is at the rate of £150 a year, together with board, residence, and laundry.

The appointment will be for a period of six months in the first instance, and for a further period of six months at the option of the *Council*.

Candidates must be duly qualified and registered. Preference will be given to candidates who have held resident hospital appointments, and who are competent anæsthetists.

Applications, with copies of two recent testimonials, should be sent not later than December 7th to Dr. J. J. BUTTERWORTH, School Medical and Child Welfare Department, County Offices, Preston.

Duties to commence February 1st, 1930.
County Offices, GEORGE ETHERTON,
Preston. Clerk of the County
November 22nd, 1929. Council.

Miller General Hospital,

Greenwich Road, S.E.10.

OUT-PATIENT OFFICER (male and unmarried) required to see Medical and Surgical cases. Attendance daily (except Sunday) from 9 to 1; Tuesdays 9 to 5. Salary £150 per annum and lunch. The appointment is for six *months. Applications, stating age, nationality,* qualifications, and experience, accompanied by copies of not more than three recent testimonials, to be sent as soon as possible to the Secretary.

November 19th, 1929.

Miller General Hospital,

Greenwich Road, S.E.10.

Applications are invited for the post of HONORARY MEDICAL OFFICER-IN-CHARGE of the Electrical Department. An honorarium of 20 guineas per annum is allowed towards travelling expenses. Candidates will be expected to call upon the Members of the Honorary Medical and Surgical Staff, a list of whom can be obtained from the Secretary. Applications, *together with copies of not more than three* recent testimonials, to be sent to the Chairman as soon as possible.

November 19th, 1929.

Salford Royal Hospital.

(263 Beds.)

[illegible] r the appointment
of [illegible] le) for the period
en[illegible]
per annum, with board and *residence*.

Candidates must be registered under the Medical Acts.

Forms of application, which may be obtained from the undersigned, must be delivered at once.

By Order of the Board,
Salford Royal GEORGE RUDDLE,
Hospital, Manchester. Gen. Supt.
November 18th, 1929. and Secretary.

Hallam Hospital,

WEST BROMWICH.

RESIDENT HOUSE SURGEON AND RESIDENT HOUSE PHYSICIAN.

Applications are invited from fully qualified male registered Medical Practitioners for the above appointments. The appointment in each case is for twelve months, but either party may give six weeks' notice terminating the engagement. The Hospital has 420 beds and a staff of nine Visiting Consultants.

Preference will be given to applicants who have had hospital experience.

Salary £250 per annum, together with furnished quarters, rations, laundry, and attendance.

Further particulars may be obtained from the undersigned.

Canvassing, either directly or indirectly, is strictly prohibited and will be deemed a disqualification.

Applications, stating age, experience, and *qualifications*, accompanied by copies of recent testimonials, must be forwarded so as to reach me not later than first post on Thursday, December 5th.

By Order,
22, Lombard Street, A. H. WARD,
West Bromwich. Clerk to Board.
November 19th, 1929.

Queen Charlotte's Maternity

HOSPITAL, Marylebone Road, N.W.1.

ASSISTANT RESIDENT *MEDICAL OFFICER* (male) required to commence duty on January 1st, 1930. Applicants must be registered. Appointment for three months. On completion of this appointment the selected candidate will be expected to proceed to the post of Senior Resident Medical Officer (for three *months*) on the recommendation of the Medical Staff. The salary of the Assistant Resident Medical Officer is at the rate of £80 per annum, and of the Senior Resident Medical Officer £100 per annum, with board, residence, and washing allowance (4/- weekly). Applications, *with* copies (not originals) of not more than three testimonials, will be received by the Secretary [illegible] is prohibited.

Secretary.

I, E.I.

Applications are invited for the posts of FIRST ASSISTANT and REGISTRAR to two of the five Surgical Firms.

Candidates must be Fellows of the Royal College of Surgeons.

The salary is £300 per annum, which is paid by the Hospital and Medical College jointly. The appointment is for one year and is renewable up to three years.

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be obtained from

House Governor.

The Prince of Wales's General

HOSPITAL, Tottenham, *N.15.*

Appointments of HONORARY CLINICAL ASSISTANTS to the various Departments of the Hospital (Surgical, Medical, Gynæcological, Ear, *Nose, and Throat, Eye, Skin, X-ray and* Electrical) for the ensuing year *will be made* in December.

Applications for appointment to any of these posts should be sent to me on before Monday, December 2nd next.

FREDK. W. DREWETT,
November 11th, 1929. Director.

Brookfield Orthopædic Hospital,

HALE END, WOODFORD GREEN.

Applications are invited for the post of ANÆSTHETIST. The *gentleman appointed* will be required to give anæsthetics about once a week, generally, but not always, on Tuesday or Wednesday morning. Honorarium one guinea per attendance. Applications, with full details of qualifications for this post, to be sent as soon as possible to the *Hon. Secretary*, Brookfield Orthopædic Hospital, Education Offices, *High* Street, Walthamstow, E.17.

November 7th, 1929.

Chester Royal Infirmary.

(211 Beds.)

Wanted—(1) HOUSE SURGEON (Male),
(2) HOUSE SURGEON to Ear, Nose, and Throat Dept. (Male), to commence duties January 1st, 1930. Salary £150 per *annum*, with board, lodging, and washing. Candidates must be doubly qualified and registered.

Applications, stating age, and accompanied by copies of testimonials, to be sent to the undersigned not later than first post on Tuesday, November 26th.

J. ROWSE *MITCHELL*, Secretary.

APPOINTMENTS—Important Notice.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

(a) British Islands.

Town or District	Town or District.	Town or District
CONTRACT PRACTICE.	**CONTRACT PRACTICE** *(Contd.).*	**PUBLIC HEALTH** *(continued).*
EBBW VALE, MON. *(Workmen's Medical Society.)*	NEATH AND DISTRICT. *(Medical Aid Association.)*	CORNWALL EDUCATION COMMITTEE. *(Assistant School Medical Officer—Female.)*
GILFACH GOCH, GLAMORGAN. *(Workmen's Medical Scheme.)*	OAKDALE, MON. *(Medical Officer for Medical Aid Association)*	GLASGOW EDUCATION AUTHORITY. *(Male Assistant Medical Officer.)*
LLWYNYPIA, CLYDACH VALE PENYGRAIG, GLAMORGAN. *(Workmen's Medical Scheme.)*	OGMORE VALLEY, GLAMORGAN. *(Wyndham Colliery Medical Aid Society.)* *(Workmen's Medical Scheme.)*	MERTHYR TYDFIL COUNTY BOROUGH. *(Assistant School Medical Officer and Assistant Medical Officer of Health.)*
MARDY, GLAMORGAN. *(Workmen's Medical Scheme.)*	**PUBLIC HEALTH.**	ROXBURGH COUNTY EDUCATION AUTHORITY. *(School Medical Officer.)*
MERTHYR VALE COLLIERY WORKMEN'S MEDICAL COMMITTEE. *(Workmen's Medical Scheme.)*	AYRSHIRE EDUCATION AUTHORITY. *(Assistant School Medical Officer (male).*	YORKSHIRE NORTH RIDING COUNTY COUNCIL EDUCATION COMMITTEE. *(Assistant School Medical Officer.)*
	CHESHIRE EDUCATION COMMITTEE. *(Assistant School Medical Officer.)*	

(b) Colonial Medical Service.—

WINDWARD ISLANDS MEDICAL SERVICE. (Grenada with Carriacou, St. Vincent and St. Lucia.)

(c) Overseas.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.
NEW SOUTH WALES. *(All Friendly Society Appointments.)*	Dr. R. H. TODD (Hon. Sec., New South Wales Branch), B.M.A. Building, 30-34, Elizabeth St., Sydney, N.S.W.	VICTORIA. *(All Institute or Medical Dispensaries.)*	Dr. FRANK DAVIES (Hon. Sec., Victorian Branch), British Medical Association, Medical Society Hall, East Melbourne, Victoria.	WESTERN AUSTRALIA. *(Contract and Lodge Practices.)*	Hon. Sec., Western Australian Branch, British Medical Association, No. 6, Bank of N.S.W. Chambers, St. George's Terr., Perth, Western Australia.
QUEENSLAND. *(Brisbane Associated Friendly Societies Institute.)*	The Hon. Sec., Queensland Branch, British Medical Association, B.M.A. Building, Adelaide St., Brisbane.	WELLINGTON, NEW ZEALAND. *(Contract Practice Appointments.)*	Dr. G. F. V. ANSON (Hon. Sec., New Zealand Branch), British Medical Association, P.O. Box 156, Wellington, New Zealand.		

Address: B.M.A. House, Tavistock Square, W.C.1.
November 20th, 1929.

By Order of the Council of the British Medical Association.
ALFRED COX, Medical Secretary.

Seamen's Hospital Society.

The Committee of Management invite applications for the appointment of MEDICAL SUPERINTENDENT at the TILBURY HOSPITAL (90 Beds). The appointment will be for one year from January 1st, 1930, at a salary of £250 per annum, with board, residence, and laundry. The holder will be eligible for re-election for a second year.

Candidates must not be more than 35 years of age, and preference will be given to those who have had some Surgical experience.

Applications, stating age, with copies of not more than three recent testimonials, to be sent in on or before Monday, December 9th, to the undersigned, from whom further particulars can be obtained.

Dreadnought Hospital, Greenwich, S.E.10. R. E. V. BAX, Secretary.
November 9th, 1929.

Ear and Throat Hospital, BIRMINGHAM.

HOUSE SURGEON wanted (non-resident) to assist in Out-patient Department. Must be qualified and with clinical experience. Appointment until March 31st, 1930. Salary at the rate of £130 per annum, with lunch five weekdays, and £80 in lieu of full board and lodging.

Applications and testimonials to be forwarded on or before November 30th to the undersigned.

S. G. GREW, Secretary.
November, 1929.

Newark Hospital and Dispensary (50 Beds.)

Wanted, a fully qualified RESIDENT HOUSE SURGEON (male) to commence duty January 1st, 1930. Must be a good Anæsthetist. Salary £150 per annum, with board, residence, and laundry. Appointment for six months, or twelve if mutually desired. For form of application apply to W. T. CRAMPTON, 27, Kirk Gate, Newark, Notts.

Bolton Infirmary & Dispensary. SECRETARY'S OFFICE. (235 Beds, including Auxiliary Hospitals.)

Applications for the appointment of HOUSE SURGEON, salary £150 per annum, with board, residence, and attendance, and ASSISTANT HOUSE SURGEON (for Casualty Patients and charge of 12 Medical Beds), salary £100 per annum, are invited from gentlemen having a registered Medical and Surgical qualification. The appointment will be for 12 months from January 1st, 1930.

Applications, stating age and nationality, with copies of testimonials, should be forwarded to the undersigned (from whom further particulars may be obtained) not later than Monday, the 25th inst., and the appointment will be made on Thursday afternoon, Dec. 5th.

ALBERT E. BRISCOE, Secretary.

Seamen's Hospital Society, Greenwich.

HOUSE PHYSICIAN and HOUSE SURGEON required at DREADNOUGHT HOSPITAL, Greenwich, for six months from January 1st, 1930. Salary £110 per annum, and a proportion of fees, with board, residence, and washing. Candidates must be male. Applications, with copies of three testimonials, to be sent in by December 9th to the undersigned.

Greenwich. R. E. V. BAX,
November 9th, 1929. Secretary.

Seamen's Hospital Society, Greenwich.

HOUSE SURGEON required at TILBURY HOSPITAL, ESSEX, for six months from January 1st, 1930. Salary £150 per annum, with board, residence, and laundry. Candidates must be male. Applications, with copies of three testimonials, to be sent in by December 9th to the undersigned.

Greenwich. R. E. V. BAX,
November 9th, 1929. Secretary.

Chelsea Hospital for Women, Arthur Street, S.W.3.

There is a vacancy for a REGISTRAR (Gynæcological). Candidates must be Graduates in Medicine of a recognized University or Fellows or Members of one of the Colleges of Physicians of London, Edinburgh, or Ireland, or Fellows of one of the Royal Colleges of Surgeons of England, Edinburgh, or Ireland. They must be registered under the Medical Act and engaged in consulting practice only. There is an honorarium of £50 per annum. Applications are invited for the above post, and must be sent to the Secretary, accompanied by copies of three testimonials, not later than Friday, November 29th.

Chelsea Hospital for Women, Arthur Street, S.W.3.

There will be a vacancy for a JUNIOR HOUSE SURGEON (male) on January 1st, 1930. Appointment for six months. Salary £100 per annum. He will be expected to proceed to the Senior post (six months, salary £120 per annum) at the end of his term of office. Candidates must be duly registered and preferably unmarried. Applications, accompanied by copies of three testimonials, should be sent not later than Friday, November 29th, to the Secretary—

HERBERT H. JENNINGS.

Rochdale Infirmary and DISPENSARY. (110 Beds.)

Wanted, JUNIOR HOUSE SURGEON. Salary £175 p.a., including board, residence and laundry. Applications, stating age, qualifications, etc., together with copies of three testimonials, to be sent to the Secretary, endorsed "House Surgeon."

Conditions of appointment may be had on application to the Secretary.

Infirmary Office, Rochdale. W. WYNNE, Secretary.

Essex County Council.

APPOINTMENT OF MEDICAL OFFICER AT COUNTY SANATORIUM.

The County Council of the Administrative County of Essex invite applications for the appointment of Resident Medical Officer at their Sanatorium for the treatment of Tuberculosis, now in course of erection at Black Notley, near Braintree, from registered Medical Practitioners, not more than 45 years of age, who are experienced in the treatment of pulmonary and non-pulmonary Tuberculosis, particularly in the latter, and who have had experience in the treatment of Orthopædic cases.

The institution, when completed, will provide accommodation for the treatment of approximately 174 cases of pulmonary and non-pulmonary tuberculosis, and for 10 orthopædic cases.

The salary attached to the appointment will be *at the rate of £650 per annum, together with* the use of an unfurnished house, rates, and Schedule A tax free, water, light, laundry, coal, and such garden produce for the needs of the household as may be available from the grounds of the Sanatorium after the requirements of the institution have been met, and will rise, subject to satisfactory service, by annual increments of £25 to £850 per annum. The foregoing emoluments are valued at £150 per annum.

The person appointed will be required to devote his whole time to the service of the Council, and under the control and supervision of the County Medical Officer of Health, to perform such duties and to furnish such advice and assistance appertaining to his office as may be required, and to assist in such other of the *County medical work as he shall have time and* opportunity for performing. The appointment will be subject to three months' notice on either side.

Applications on the prescribed form, obtainable from the undersigned, and accompanied by copies of not more than three testimonials, *which will not be returned, should be addressed* to me and delivered at the Shire Hall, Chelmsford, not later than 10 a.m. on Saturday, November 30th.

JOHN H. GOOLD,
Clerk of the County Council.

Shire Hall, Chelmsford.
November 8th.

City of Leeds.

CHIEF ASSISTANT MEDICAL OFFICER OF HEALTH.

Applications are invited from qualified and registered Medical Practitioners for the post of Chief Assistant Medical Officer of Health for the City of Leeds. Candidates must not be more than 40 years of age and, in addition to previous experience in Public Health administra*tion, should also have had experience in one or more of the special branches of Preventive* Medicine, e.g., School Medical work, Tuberculosis, Maternity and Child Welfare, etc.

The person selected will be required to devote his whole time to the office, and to perform such duties as are allotted to him by the Medical Officer of Health. It will be necessary for him *to enter into an agreement of service with the* Corporation, terminable by three months' notice on either side, and to pass a medical examination and contribute to the Superannuation Fund established under the Local Government and Other Officers Superannuation Act, 1922.

The salary will be £900 per annum. Applications, stating age, qualifications, and experience, together with copies of three testimonials, endorsed "Chief Assistant Medical Officer," must be delivered at my office, 26, Great George Street, Leeds, *not later than December 6th.*

THOS. THORNTON,
Town Clerk.

Leeds

County of London.

The LONDON COUNTY COUNCIL invites applications for the [illegible] is DEPUTY MEDI[illegible] resident) at THE [illegible] ertified Institutior must [illegible] Candidates [illegible] ge unless in London County Mental Hospital Services, and must be registered to practise both in Medicine and Surgery in England. The position is pensionable under the Asylums and Certified Institutions (Officers Pensions) Act, 1918. Salary £500 a year, rising by annual increments of £25 to £600 a year, plus fluctuating temporary additions, making the total commencing remuneration at present about £671 a year. No emoluments. Charges made for board, lodging, etc.

Full particulars and conditions of appoint*ment on form of application (on which alone* application can be made) obtainable from the Acting Chief Officer, Mental Hospitals Department, The County Hall, Westminster Bridge, S.E.1. Canvassing disqualifies. Applications must be received by Monday, December 2nd.

MONTAGU H. COX,
Clerk of the London County Council.

Nottinghamshire County Council

EDUCATION COMMITTEE.

SENIOR DENTAL OFFICER (Male).

Applications are invited for the post of Senior Dental Officer at a salary of £610 per annum, rising, subject to satisfactory service, by annual increments of £20 to £650, with travelling expenses in accordance with the County Council's Scale. Candidates must be *fully qualified and registered Dental Surgeons,* and must have had experience of Dental work under an Education Authority. Administrative experience will be deemed an additional qualification.

The successful candidate will be required to work under the supervision and control of the *County Medical Officer, and to reside in such* part of the County as may be approved.

For such part of his time as is not required for administrative work he will be required to carry out clinical duties as may be determined.

Private practice will not be allowed.

The selected candidate will be required to pass a medical examination, and the appointment will be terminable by three months' notice, in writing, on either side.

Applications, on forms which may be obtained from the undersigned, with copies of not more than three recent testimonials, should be forwarded to the County Medical Officer, Shire Hall, Nottingham, not later than Wednesday, November 27th.

Shire Hall, K. TWEEDALE MEABY,
Nottingham. Clerk of the County
November, 1929. Council.

Rochford Union.

JUNIOR ASSISTANT MEDICAL OFFICER (RESIDENT).

The Guardians of the above-named Union invite applications for the appointment of Junior *Assistant Medical Officer at the Poor Law* Hospital, Rochford.

The appointment will be renewable at the expiration of six months in the first instance, and thereafter annually at the discretion of the Guardians.

Salary £225 per annum, rising after six months' satisfactory service to £275 per annum, with furnished apartments, rations, laundry, and attendance. The emoluments, for the purposes of the Poor Law Officers Superannuation Act, are *assessed at £100 per annum.*

Applicants must be fully qualified, and preference will be given to candidates who have held appointments as House Physicians or House Surgeons in Public General Hospitals.

Applications, on forms which can be obtained from me, must reach me not later than Monday, *December 2nd.*

By Order,
W. HARDING ROBERTS,
27, Victoria Avenue, Clerk.
Southend-on-Sea. November, 1929.

The Gloucestershire Royal

INFIRMARY AND EYE INSTITUTION, GLOUCESTER. (153 Beds.)

Applications are invited for the post of HOUSE PHYSICIAN (male). *Salary £135 per* annum with board, residence, and laundry. (Four resident medical officers.)

The appointment is for six months, which may be extended for similar periods by re-election from time to time.

Applications, stating age, qualifications, and *nationality, with copies of not* less than three recent testimonials, must be received by the undersigned not later than Wednesday, November 27th. The elected candidate will be required to enter upon his duties on *Monday,* December 9th.

F. J. SYMONS, Secretary.

November 14th, 1929.

Croydon General Hospital.

Applications are *invited from qualified and* registered Medical Men for the post of CASUALTY HOUSE SURGEON. Salary £125 per annum, with board, residence, and laundry.

The successful applicant will be required to commence duty on January 1st next.

Applications, stating age and qualifications, accompanied by copies (which will not be returned) of three testimonials, to reach the undersigned not later than Saturday, Dec. 7th.

General Hospital, GEORGE H. DAMS,
Croydon. Secretary.

Darlington General Hospital.

(120 Beds.)

Wanted, HOUSE SURGEONS, Senior and Junior, male, British, fully qualified. Salaries £150 and £125 per annum respectively. Board and residence. Applications, stating age, experience, and qualifications, together with copies of two recent testimonials, to be addressed to me forthwith.

A. RIDDLE, Secretary.

Nottinghamshire County Council

SECOND ASSISTANT COUNTY MEDICAL OFFICER OF HEALTH.

Applications are invited from duly qualified and registered Medical Practitioners for the appointment of Second Assistant County Medical Officer at a salary of £700 per annum, rising, subject to satisfactory service, by annual increments of £25 to £750, together with travel*ling expenses in accordance with the County* Council's Scale.

Candidates must possess a Diploma in Public Health, and have held one or more resident Hospital or Institutional appointments. Preference will be given to candidates who have had administrative experience in a Public Health Department, preferably in a County.

The person appointed will be required to work under the supervision and control of the County Medical Officer, to devote his whole time to the duties of his office, and to carry out such duties as may be assigned to him by the County Medical Officer. He will be required to reside in such part of the County as may be approved.

The selected candidate will be required to pass a [illegible] inable by three m[illegible] ther side. fr[illegible] ay be obtained th[illegible] es of not more w[illegible] should be for- [illegible] Officer, Shire Hall, Nottingham, not later than Wednesday, November 27th.

Shire Hall, K. TWEEDALE MEABY,
Nottingham. Clerk of the County
November, 1929. Council.

Surrey County Council.

ASSISTANT MEDICAL OFFICER.

Applications are invited for the appointment of a Male Assistant Medical Officer. Candidates *must possess a qualification* in Public Health, and have had experience in the medical inspection of school children, maternity and child welfare, and the treatment of tuberculosis and venereal diseases. The officer appointed will be required to undertake such other public health duties as may be allocated to him. He *will be on the staff* of the County Medical Officer of Health, must reside in the County, and devote his whole time to the work. Salary £600 per annum, rising by annual increments of £20 to £700 per *annum.* Travelling expenses in accordance with the Council's scale will be allowed.

The appointment will be subject to the approval of the Ministry of Health, to the provisions of the Local Government and Other Officers Superannuation Act, 1922, and to the Standing Orders *of the Council,* which provide, *inter alia,* that appointments may be determined at any time by three months' notice.

Applications, stating age, *qualifications,* and experience, together with copies of three recent testimonials, should be made on the prescribed form and sent to the County Medical Officer of *Health,* 5, Grove Crescent, Kingston-upon-Thames, from whom copies of the application form may be obtained, and to whom any inquiries relating to the appointment should be addressed.

Last day for receipt of applications, Saturday, November 30th. Canvassing, directly or indirectly, will disqualify.

County Hall, DUDLEY AUKLAND,
Kingston-upon-Thames. Clerk of the
November 8th, 1929. County Council.

Borough of Ealing.

ASSISTANT MEDICAL OFFICER OF HEALTH.

Applications are invited from duly qualified Medical Men, with a Public Health qualification, for the position of Assistant Medical Officer of Health.

Candidates will be required to carry out medical inspection of school children and child welfare work, and perform *such other* duties as may be allotted as Assistant to the Medical Officer of Health and School Medical *Officer.*

The person appointed will be required to devote his whole time to the *duties,* and *will not be* allowed to engage in private *practice.* Salary will be at the rate of £600 per annum, rising to £650 by £25 per annum.

A deduction of 5 per cent. will be made from the salary in accordance with the provisions of the Local Government and Other Officers Superannuation Act, 1922, which has been adopted by the Council, and the appointment will be subject to passing the Council's medical examination in connection therewith.

Copies of application form and terms of appointment can be obtained from the undersigned, to whom applications, accompanied by copies of *not more* than three recent testimonials, must *be* delivered *not later* than November 28th.

Town Hall, THOMAS ORR,
Ealing, W.5. Medical Officer of Health.

County Borough of Huddersfield.

PUBLIC HEALTH DEPARTMENT.

BRADLEY WOOD SANATORIUM FOR PULMONARY AND SURGICAL TUBERCULOSIS.

RESIDENT MEDICAL OFFICER.

Applications are invited for the above appointment from registered Medical Practitioners of either sex who have had special experience of Tuberculosis and Orthopædics. Board and residence are provided and a salary at the rate of £500 per annum. The Local Government and *Other Officers' Superannuation Act*, 1922, applies to the officer holding this position, and a deduction at the rate of 5 per cent. per annum will be made from the salary.

The engagement will be terminable on three months' notice from either side. Applications should be accompanied by copies of not more than three testimonials and addressed to S. G. Moore, M.D., M.R.C.P., D.P.H., Medical Superintendent of Hospitals and Medical Officer of Health, so as to reach him not later than December 2nd.

Forms of application are not provided.

Town Hall, J. HENRY FIELD,
Huddersfield, Town Clerk.
November 18th, 1929.

County of the Isle of Ely.

APPOINTMENT OF ASSISTANT COUNTY MEDICAL OFFICER OF HEALTH AND ASSISTANT SCHOOL MEDICAL OFFICER.

The County Council invite applications for the post of Assistant County Medical Officer of Health and Assistant School Medical Officer.

The salary will be £600 per annum, together with the repayment of travelling expenses according to the County Council's scale, and the appointment will be terminable by three months' notice, in writing, on either side.

Experience in eye work and the conduct of refractions is desirable and will be deemed an additional qualification for the post.

The present officer also holds the appointment of Medical Officer of Health under the Whittlesey Urban District Council, at a salary of £100 per annum.

Applications, with copies of not more than three recent testimonials, must be forwarded to the undersigned, before December 7th, on a form which may be obtained from the undersigned.

County Hall, C. E. F. COPEMAN,
March. Clerk of the County Council.
November 15th, 1929.

County Borough of Blackburn.

ASSISTANT MEDICAL OFFICER OF HEALTH AND ASSISTANT SCHOOL MEDICAL OFFICER.

Applications are invited from registered Medical Practitioners for the post of Assistant Medical Officer (male), who will act under the supervision of the Medical Officer of Health and the School Medical Officer.

The person appointed must devote the whole of his time to the service of the Corporation.

The duties of the office will consist largely, but not exclusively, of work in the School Medical Department.

The salary will be £600 per annum, to be increased by annual increments of £25 to a maximum of £700 per annum, no bonus will be payable.

Forms of application and further particulars of the duties and conditions of the appointment may be obtained from the Medical Officer of Health, Victoria Street, Blackburn.

Completed forms, accompanied by copies of three recent testimonials, must reach me by Saturday, December 14th, and should be endorsed on the envelope "Assistant Medical Officer."

Canvassing will disqualify.

Town Hall, LEWIS BEARD,
Blackburn. Town Clerk.
November 18th, 1929.

Cardiff Royal Infirmary.

(Associated with Welsh National School of Medicine.)

Applications are invited for the undermentioned posts:

(a) HOUSE SURGEON.
(b) CASUALTY SURGICAL OFFICER.

Appointments are for six months, commencing December 20th next.

Salary at the rate of £50 per annum, for House Surgeon, and applicants as Casualty Surgical Officer—who should have held previous House appointments—will be paid at the rate of £75 per annum, with board and lodging. This is a senior appointment and ranks next to the Resident Registrar.

Application forms can be had from the undersigned and should be returned, with copies of three recent testimonials, on or before Dec. 2nd.

R. ARMSTRONG,
Nov. 18th, 1929. Med. Supt.

Queen Mary's Hospital for the EAST END, Stratford, E.15.

Telephone: Maryland 2616.

Applications are invited from fully qualified and registered Medical Men for the following posts:

One RESIDENT MEDICAL OFFICER. Salary £300 per annum.
One HOUSE PHYSICIAN. Salary £120 per annum.
Two HOUSE SURGEONS. Salary £120 per annum.
One OBSTETRIC HOUSE SURGEON. Salary £120 per annum.
One HOUSE PHYSICIAN and CASUALTY OFFICER. Salary £150 per annum.

The Hospital contains 213 beds, including 46 Maternity beds, and other Special Departments. Candidates, who should have previously held Hospital appointments, must send applications, accompanied by testimonials, to the undersigned, not later than Tuesday, December 3rd.

RAPHAEL JACKSON (Major),
Secretary.

East Suffolk and Ipswich HOSPITAL, IPSWICH.

(265 Beds. Seven Residents.)

Applications are invited for the posts of—
CASUALTY OFFICER, who will rank next to the Resident Medical Officer in seniority. Salary £150 per annum. Board, residence, and laundry. Previous experience essential.
One HOUSE PHYSICIAN and One HOUSE SURGEON. Salary at the rate of £120 per annum. Six months' contract, with board, residence, and laundry.

Applications from British (male) candidates, stating age, qualifications, and experience, and accompanied by three recent testimonials, to be sent to the undersigned on or before Dec. 9th.

The Hospital, ARTHUR GRIFFITHS,
Ipswich. Secretary.
November 23rd, 1929.

Walsall General Hospital.

The Committee invite applications from men for the post of HOUSE SURGEON. Salary £150 per annum.

Candidates, who must be registered under the Medical Acts, must have had previous experience in Surgery and administration of Anæsthetics, and produce three recent testimonials.

The appointment will be for six months.

The Hospital contains 100 beds and is equipped in all Special Departments.

Applications must be received by the undersigned not later than the first post Tuesday, November 26th.

WALTER FRANCOMBE,
November 15th, 1929. Secretary.

West Suffolk County Council.

ASSISTANT COUNTY MEDICAL OFFICER AND ASSISTANT SCHOOL MEDICAL OFFICER.

Applications are invited for the above whole-time appointment, which includes duties in School Medical Inspection, Maternity and Child Welfare, Tuberculosis, Venereal Diseases, etc., work. Salary £600 per annum if with three years' Post-Graduate experience; if with less than three years' Post-Graduate experience, £500 for the first year, to be raised to £600 after one year of satisfactory service, plus travelling allowance. Particulars of appointment and forms of application may be obtained from the undersigned, by whom applications, accompanied by copies of not more than three recent testimonials, must be received not later than December 7th. Canvassing in any form, direct or indirect, will disqualify.

Shire Hall, L. G. H. MUNSEY,
Bury St. Edmunds. Clerk of the
Nov. 22nd, 1929. County Council.

London Lock Hospital,

Dean Street and Harrow Road, W.

The Board of Management invite applications for appointment as SECOND ANÆSTHETIST, to attend as may be required by the Hon. Surgical Staff of the Hospital. Fee £1 1s. per attendance. The appointment is made in accordance with the Laws relating to the Medical Staff of the Institution, a copy of which can be obtained from the Secretary. Applications, enclosing two copies of recent testimonials, to be addressed to the Secretary, 283, Harrow Road, W.9, on or before December 9th.

St. George's Hospital, S.W.1.

A vacancy has arisen for a CLINICAL ASSISTANT in the Department of Physio-Therapy. Previous experience desirable. The appointment will be made in the first instance for six months. Applications should be sent as soon as possible to the DEAN of the Medical School and, in any event, not later than Dec. 7th.

November 18th, 1929.

The Royal Hospital, WOLVERHAMPTON.

(Incorporated under Charter.)

ASSISTANT PATHOLOGIST AND PATHOLOGICAL REGISTRAR.

Applications are invited from duly qualified Medical Men or Women for the above post; duties to commence January 1st, 1930. Candidates must be unmarried. The post is whole-time, non-resident, and is tenable in the first instance for two years, with eligibility for re-appointment.

Salary from £350 according to qualifications. Preference will be given to candidates who have held posts in a Pathological Department attached to a Teaching Hospital or Medical School.

Further information may be obtained from the House Governor, The Royal Hospital, Wolverhampton, to whom applications, stating age, experience, and qualifications, together with three references (no testimonials), should be sent on or before November 30th.

Heston and Isleworth Urban DISTRICT COUNCIL.

Half-time Male ASSISTANT MEDICAL OFFICER required for duty in the Department of the Medical Officer of Health and School Medical Officer. Salary at the rate of £350 per annum. Information as to duties and forms of application may be obtained from the Medical Officer of Health, Clipstone House, Bath Rd., Hounslow.

Applications are to be made on the official forms which must be forwarded not later than 12 noon on Tuesday, December 3rd next, to the undersigned.

Education Office, M. ARMSTRONG,
Library Hall, Secretary for
Hounslow. Education.
November 25th, 1929.

East London Hospital for CHILDREN AND DISPENSARY FOR WOMEN, Shadwell, E.1.

The Board of Management invite applications for the post of SURGEON to the Nose, Throat, and Ear Department, to see Out-patients one day a week.

By Section 6, subsections 19 and 20 of the *Constitutions of the Hospital*, every Surgeon shall be a Fellow of the Royal College of Surgeons of England.

Applications, with copies of testimonials, should be addressed to the undersigned and delivered to the Hospital on or before Saturday, November 30th.

By Order of the Board of Management,
WM. WILCOX, Secretary.

Freemasons Hospital and NURSING HOME,

237, Fulham Road, Chelsea, S.W.3.

The post of RESIDENT MEDICAL OFFICER (male) will be vacant on January 1st, 1930. Salary at the rate of £250 per annum, with board, residence, and laundry. The appointment is for six months. Candidates must be registered and must have held Resident appointments at a General Hospital.

The Institution (47 beds) is for paying patients of both sexes of moderate means unable to afford ordinary nursing home treatment, etc.

Applications, stating full particulars, to be sent on or before December 7th next to the Honorary Secretaries, from whom further information may be obtained.

Mansfield and District Hospital.

The Board of Management of the above Hospital (140 beds) invite applications for the post of HOUSE SURGEON (male).

Salary at the rate of £160 per annum for the first six months and £175 for the second six months, with residence, board, and laundry.

The appointment is for six months and is renewable.

Applications, accompanied by not more than three recent testimonials, to be sent to the undersigned.

Dated this 12th day of November, 1929.

ARTHUR H. LIMB, Secretary.

County Mental Hospital, PRESTWICH, near MANCHESTER.

ASSISTANT MEDICAL OFFICER required. Commencing salary £500 per annum, rising to £600 by yearly increments of £25, less charges for board, furnished apartments, attendance, and laundry, valued at £150 per annum if received in full. Further increases according [illegible] Laboratory and [illegible] must be [illegible] e Medical [illegible] per cent. [illegible] as Officers [illegible] ating age [illegible] Supt.

ASSISTANCIES.

Wanted, January, a male ASSISTANT, indoor, Central London, panel and private. Principal, bachelor. Salary £250–£300. Little midwifery. Further prospects to suitable man. Full particulars.—Address, No. 7380, B.M.A. House, Tavistock Square, W.C.1.

Wanted immediately, Assistant for Branch Practice in Midland Town. Married man preferred. Salary £500 p.a., commission on midwifery, etc. House to be rented. Drive car. View to Partnership. Send refs. and, if possible, photo.—Address, No. 7387, B.M.A. House, Tavistock Square, W.C.1.

Wanted immediately, Assistantship, with view, by M.B., B.Ch. (N.U.I.), aged 27, unmarried; ex H.S. and H.P. Experienced Anæsthetist. Surgical experience. Some capital available. Drive car. South of England preferred. Good-class Practice.—Address, No. 7385, B.M.A. House, Tavistock Square, W.C.1.

Wanted immediately, Assistant, indoor, London mixed Practice. Salary £250 to £300. Indian preferred.—Address, with full particulars, No. 7366, B.M.A. House, Tavistock Square, W.C.1.

Wanted immediately, Assistant, outdoor, unmarried, in Midlands. Good salary and prospects to keen man.—Address, No. 7389, B.M.A. House, Tavistock Sq., W.C.1.

Wanted, Indoor Male Assistant in London suburb, to visit, dispense, etc. General Practice. R.C. preferred. Work light. Salary £250. *Usual bond. Enclose photo.*, with particulars and references.—Address, No. 7373, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Indoor Male Assistant for Town Practice in the Midlands. Must be British, temperate, and reliable. Usual bond. Salary £250–£300, depending on experience. Refs., photo., age, and nationality.—No. 7281, B.M.A. House, Tavistock Sq., W.C.1.

Wanted.—Outdoor Assistant in a large panel and industrial Practice in the Midlands, where there are three partners. —Address, giving necessary particulars, No. 7405, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—An outdoor Assistant in good-class Country Practice in Hampshire. English Graduate preferred. View considered if suitable. £400 p.a. References and usual bond required. State age and nationality. —No. 7368, *B.M.A. House, Tavistock Sq., W.C.1.*

Wanted. — Male Assistant, indoor, for mixed panel and private Practice, near Manchester. Salary £350. References, photo., and age. Usual bond.—Address, No. 7403, B.M.A. House, Tavistock Sq., W.C.1.

Wanted.—Assistant, with view Lancs Hospital Town. Mixed Practice, averages £5,000. Present owner intends specialising. State capital available.—Address, No. 7382, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — Assistant, indoor, panel and private. Inland Spa, South. *Send photo., age, etc.* — Address, No. 7381, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—Assistant, with Hospital and general experience. £6 10s. weekly (*indoor*) with prospects when capable of taking charge. Usual bond. Send photo. *Accommodation* for married man.—Address, No. 7386, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistantship by M.D., B.Ch., B.A.O.(Dublin Univ.), æt. 28; 1 year Post-Grad. (midwifery). Experienced, panel and private. T.T. Motor cyclist.—Address, No. 7377, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistantship, with definite view, by M.B., Ch.B., male, aged 28 years, married, Scotch descent, Protestant ex H.S., H.P., R.O.O. Experienced in all branches of medical practice, private and panel Excellent tests. and refs. Own car if desired.—No 7383, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — Assistantship by Woman M.B., D.P.H., very experienced in panel and private. Hospital post. Testimonials. Interview. Free now.—Address, No. 7395, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistantship, with view to ultimate Partnership, by Scottish M.B., Ch.B.(Edin.); 3 years Hospital appts.; 2 years in G.P.; knowledge of surgery and pathology; married; æt. 28; abstainer.—Add., *No. 7376, B.M.A. House, Tavistock Sq., W.C.1.*

Wanted, by young Scotsman, Part time ASSISTANTSHIP, London area, mornings or evenings. Pref. N.W., but not essential. — Address, No. 7404, B.M.A. House, Tavistock Square, W.C.1.

Assistant required, outdoor, in Monmouthshire, married preferred. Salary £330 per annum to commence, with vacant house.—For further particulars apply to "X.," c/o Messrs. R. SUMNER & Co., LTD., Manufacturing Chemists, 40, Hanover Street, Liverpool.

Assistants (indoor and outdoor) wanted immediately. Good salaries offered. —BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Immediately. — Male Assistant, Graduate, with or without view. Commence £350 indoor. Country Practice, Shropshire.—Address, No. 7376, B.M.A. House, Tavistock Square, W.C.1.

M.B., Ch.B.(Glas.), aged 31, desires ASSISTANTSHIP, with definite view, or succession; married, no family; 5½ yrs.' exp. G.P., panel, mids.; abstainer, Protestant, energetic. Own car. Ex. refs. Mth's. notice. —No. 7397, B.M.A. House, Tavistock Sq., W.C.1.

M.B., Ch.B.(Glasg., 1926), 27, H.S., H.P. large General Hospital, H.P. Skins, Jr. and Sr. Resident, Eye Infirmary, one year G.P. (panel, private, hospital), excellent anæsthetist, midwifery, own car, desires ASSISTANTSHIP with view. — Address, No. 7257, B.M.A. House, Tavistock Square, W.C.1.

M.B., D.P.H., L.M., 1926 (Lady), ex H.S., Children's Hospital, good Anæsthetist, some experience G.P., keen, well received and recommended, seeks ASSISTANTSHIP. *Own car if necessary.*—Address, No. 7399, B.M.A. House, Tavistock Sq., W.C.1.

Somerset.—Country District. Wanted immediately, ASSISTANT, with or without view to succession. Accommodation provided. Usual bond.—Apply, REID & REID, Solicitors, Bridgwater.

MEDICAL POSTS, DISPENSERS, etc.

Applications are invited for the appointment of MEDICAL OFFICER OF HEALTH to the MUNICIPAL COUNCIL of NAIROBI at a salary of £1,100 per annum, rising by annual increments of £50 to a maximum of £1,300. Applications should be addressed to Messrs. LAURIE & Co., 28, Basinghall St., E.C.2, from whom full particulars may be obtained.

A Lady Dispenser-Bookkeeper supplied immediately on request, qualified and with practical experience in private practice and dispensary work, also trained in Bacteriological Laboratories of the LONDON COLLEGE OF PHARMACY FOR WOMEN. *Preparation for Examinations.*—Write, wire, or 'phone (Park 0969), Secretary, 7, Westbourne Park Road, W.2.

Chauffeuse-Secretary desires post with Doctor. *Ten years'* driving experience. R.A.C. certificate. Could provide car by contract if desired. *Reference from Harley St.* [illegible] ER, 2, Liverpool

(desires to WORK. London area. — Address, No. 7375, B.M.A. House, Tavistock Square, W.C.1.

Dispensers supplied to Doctors *at short notice, without fee. Qualified and* experienced in private and panel practice. Permanency and part-time Bookkeeper-Dispensers, Secretary-Dispensers, Nurse-Dispensers, and Chauffeuse-Dispensers.—Write, wire, or 'phone Central 3679, THE RELIANCE BUREAU FOR DISPENSERS, 12, Holborn Viaduct, E.C.1.

Doctors requiring qualified Dispensers, Nurse Dispensers, Secretary Dispensers or Chauffeuse Dispensers, are invited to write, wire, or 'phone Temple Bar 5363, THE DISPENSERS BUREAU, 15, Lindsay House, 171, Shaftesbury Avenue, London, W.C.2.

Dispenser - Bookkeeper wanted for Country Practice, North Wales Coast. Abstainer, either sex. Welsh-speaking preferred. —Address, with references, stating terms, No. 7374, B.M.A. House, Tavistock Square, W.C.1.

Dispenser-Bookkeeper(male) desires POST (any district). Fifteen years' experience; quick, active, good appearance; highest references. At liberty.—Address, No. 7388, B.M.A. House, Tavistock Square, W.C.1.

Dispenser-Bookkeeper desires POST with Doctor or Hospital. *Qualified*, 14 years' experience. *Knowledge of* office routine.—Write, Box 870, SCHIPP'S, South Molton Street, W.1.

Lady seeks post as Secretary or SECRETARY RECEPTIONIST with London Doctor. Good shorthand, typing, and bookkeeping. V.A.D. Willing to do Chauffeuse work.—Address, No. 7379, B.M.A. House, Tavistock Square, W.C.1.

Lady requires Home, preferably in Lady Doctor's house, in return for SERVICES.—Miss "M.," Tower House, Ashley Road, Epsom.

Major, R.A.M.C., recently retired, bachelor, at present doing "Tea Locum" many yrs.' trop. exp., desires EMPLOYMENT ABROAD; railways, tea, mines, rubber, etc. Interv., if desired, Lond., late Dec. or Jan. —No. 7371, B.M.A. House, Tavistock Sq., W.C.1.

The Secretaryship of a London SPECIAL HOSPITAL is vacant. Applicants for the position must have had previous experience of similar duties, and should be under 45 years of age, and state full particulars of their qualifications and past experience.

Commencing salary £350 per annum, with good residential accommodation and *allowances.*

Address, before December 9th, No. 7367, B.M.A. House, Tavistock Square, W.C.1.

The Royal Army Medical Corps ASSOCIATION. — If you require men trained in all branches of hospital work—Dispensers (capable of undertaking returns, clerical work, etc., connected with Ministry of Health), Clerks, Laboratory Assistants, general hospital duties, Porters, Caretakers, etc.—Apply, Secretary, 85, Eccleston Square, S.W.1.

Typewriting.—Expert undertakes Theses, Testimonials, etc. Numerous letters of appreciation from Doctors.—'Phone Primrose Hill 0803, or write BEATRICE RADFORD, c/o Smith's, 487, Finchley Road, N.W.3.

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PARTNERSHIPS.

Wanted.—A middle-class non-dispensing PARTNERSHIP PRACTICE, with scope for Surgery and Gynæcology, in a Town near London, by F.R.C.S.Ed., residing in one of the Colonies, and at present in England. Twenty years' experience in general practice, major surgery, and gynæcology. Capital available. Age 44, married.—Address, No. 7264, B.M.A. House, Tavistock Square, W.C.1.

Wanted, well-qualified man (Graduate or Fellowship) as THIRD PARTNER in rapidly growing good-class Practice within 15 miles London. Preference to ex-H.S. or H.P. with *speciality.* Protestant. Fifth share now yielding £900–£1,000. Capital reqd. *No agents.* —No. 7272, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — Well qualified man as THIRD PARTNER in good-class non-dispensing Practice within 15 miles of London. —Address, No. 7163, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—Partnership (receipts about £1,000 p.a.) on Coast of Wales, Lancashire, and Cheshire, Carmarthen, Bangor, Llandudno, and industrial areas excepted.—Apply, No. 324, REYNOLDS & BRANSON, Ltd., Medical Transfer Agents, 13, Briggate, Leeds.

Home Counties. — Surgical PARTNERSHIP.—Under 60 miles from London. Receipts nearly £8,000. Panel. Excellent house for sale. Hospital appointment: Suitable only for F.R.C.S. One-fifth share at 2 years' purchase.—Apply, THE MEDICAL AGENCY, 15, York Buildings, Adelphi, W.C.2.

London Specialists.—A Medical Man would like to correspond with Specialist to co-operate in Convalescent Home on the South Coast. Delightful sheltered position, full South. — Dr. MARRETT, 9, Grosvenor Crescent, St. Leonards, Sussex.

Partner wanted in very old-established Practice in Country Town within 40 miles North. Average receipts of Practice for last 3 years £3,500. Premium for 1/3 share £2,500. Retiring Partner's house available to rent. Remaining Partner has been 16 years in the Practice. Purchaser should be between 30 and 45, married, capable of minor surgery and preferably eye work, experienced in general practice, a gentleman, and a sportsman. — Address, No. 7384, B.M.A. House, Tavistock Square, W.C.1.

Required. — Partnership or Succession to good-class PRACTICE, £1,500 to £5,000. Advertiser highly qualified and ample capital.—Address, No. 7402, B.M.A. House, Tavistock Square, W.C.1.

PRACTICES.

Wanted by L.R.C.P. & S.I., L.M., married, age 30, PRACTICE or PARTNERSHIP, [illegible] Exper. panel and London or Home No. 7392, B.M.A. House, Tavistock Square, W.C.1.

Wanted by Scots M.B., Ch.B., aged 31 years, experienced, non-dispensing PRACTICE or PARTNERSHIP. Preliminary assistantship and interview essential.—Address, No. 7391, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—Leeds, Bradford district, or within 20 miles. Mixed suburban PRACTICE with panel. Income £750–£1,000, with scope. House in healthy district, preferably to rent.—Address, No. 7401, B.M.A. House, Tavistock Square, W.C.1.

Wanted by M.B., Mixed PRACTICE with good panel in London. Income about £1,500 p.a. Ample cash available. —Address, No. 7395, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—Practice in London, with panel. Income £800 to £1,700 a year. House to rent. Two years' purchase paid. Ample capital available.—Apply, PEACOCK & HADLEY, Ltd., 19, Craven Street, Strand, W.C.2. (No charge unless sale effected.)

Wanted, in or near London, PRACTICE, with fair panel and good house, worth £1,800 p.a., or more. Premium 2 years' purchase. Capital up to £8,000.—Address, No. 7372, B.M.A. House, Tavistock Square, W.C.1.

Death Vacancy.—For Sale. Birmingham Suburban PRACTICE in rapidly growing district. Cash receipts about £750. Panel 710. Price £800. Excellent newly built house with surgery and garage built in. Also branch surgery and house for sale, or may be rented on lease. — Address, No. 7394, B.M.A. House, Tavistock Square, W.C.1.

Death Vacancy. — Near Manchester. Cash receipts £745. Panel 550. Good scope. Excellent house, 2 reception, 6 bedrooms. Large garden and garage.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Death Vacancy Practice, Liverpool. Receipts £2,500. Panel 2,500.—Further particulars, LABRON JOHNSON & SON, Solicitors, 51, North John Street, Liverpool.

Bournemouth.—For Sale, well-established NURSING HOME, containing 14 bed and reception rooms, bathroom, usual offices. Accommodation on two floors. Well laid out grounds of ¾ acre. Gas fires, electric light, main drainage. Excellent fittings. Complete Nursing Home equipment, quantity of furniture. Lease about 60 years unexpired. Ground rent 11 gns. per annum. Price, as a going concern, £3,500, or the house would be sold separately, price £2,750, fixtures, fittings, etc., at valuation.
Apply, GOLDIE & GREEN, 9, Bruton Street, W.1, or E. S. TAYLOR & Co., 20, Hill Street, Jersey, C.I.

For Sale. — Country Practice, Midlands; easily worked. Income £1,000 p.a. Hunting, shooting. House can be rented or sold if desired. Electric light, etc. Attractive price for immediate sale.—Address, No. 7266, B.M.A. House, Tavistock Square, W.C.1.

For Disposal.—A good Practice is not always to be had directly, but Mr. PERCIVAL TURNER can generally offer applicants something suitable. Nearly all the best Practices are sold by him without being advertised. Inform. free on applic.—4, Adam St., W.C.2.

For Sale in Birmingham.— Industrial PRACTICE (mostly cash), with panel of 1,493. Income tax return, April, 1929, over £900. Price £1,650 cash. Freehold house, with separate surgery, garage, and large garden, £1,650. No offers.—Address, No. 6713, B.M.A. House, Tavistock Square, W.C.1.

For Sale.—Old-estab. Practice within [illegible] Panel 1 street; run by Applicar let if des [illegible] purchase.—Address, No. 7390, B.M.A. House, Tavistock Square, W.C.1.

For Sale.— Old-established, easily worked, chiefly working-class PRACTICE near Manchester. Panel 2,900. Average income £2,500. Part payment by instals. House to buy or lease. Prem., 1½ years' purchase.—Add., No. 7393, B.M.A. House, Tavistock Square, W.C.1.

Good Nucleus with scope, outskirts of first-class town, West. Run 13 months by Medical Woman, doing over £100 [illegible] by Ur No.

Herefordshire.—Country PRACTICE for sale, with house and 6 acres. Receipts average £768. Panel 368. Good scope for increase. Nearest opponent 2½ miles. Conveniently situated near village.—Address, No. 7400, B.M.A. House, Tavistock Square, W.C.1.

Lancs Death Vacancy.—Receipts about £750. Panel £250. In late Incumbent's hands 24 years. Excellent scope. Very nice house, good garden.—MANCHESTER MEDICAL & SCHOLASTIC ASSOCIATION, 6, Brown Street.

Lancs Town. — Old-estab. PRACTICE. Cash receipts last year £1,659. Panel 1932. Good house, 3 reception, 5 bedrooms. Garage and large garden. Net rent £66 p.a. Premium 1½ years' purchase.—BRITISH MEDICAL BUREAU, 33, Cross St., Manchester.

Manchester. — Old-established middle and working-class PRACTICE. Receipts £1,000 per annum. Panel about 1,500. Excellent scope. Very compact and easily worked. Price 1½ years' purchase, part deferred. MANCHESTER MEDICAL & SCHOLASTIC ASSOCIATION, 6, Brown Street.

Manchester.—Suburban Practice. Cash receipts 1928, £1,650. Panel 900. Scope. Excellent house, with 3 enter., 5 bedrooms, garage and garden, to be sold or rented on lease. Premium 1½ years' purchase.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Near Manchester. — Old-estab. PRACTICE. Cash receipts last year £809. Panel 650. Excellent scope for energetic man. Good house to rent. Two reception, 4 bedrooms. Vendor retiring. — BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

North-East Coast. — Seaside Resort.—Cash receipts 1928, £2,101. Panel 720. Large terrace house, with garden. Good introduction.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

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South Wales.—Well-established PRACTICE for Sale, in delightful seaside Town. Private and panel. Cash receipts upwards £1,400. Excellent house, garden, and garage.—Apply, "MEDICO," 144, Edmund St., Birmingham.

Somerset.—Country Practice for Sale.—Apply, REED & REED, Solicitors, Bridgwater.

To Purchasers. — Do not buy without expert assistance. With 40 yrs.' experience Mr. PERCIVAL TURNER can advise in all cases. Terms free on application to 4, Adam St., Strand, W.C.2. Telephone: Temple Bar 9011. Telegrams: "Epsomian, London."

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For Sale.—Semi-detached Corner HOUSE. Eminently suitable for Doctor starting Practice. Large growing district. No resident Doctor near. Panel and General Practice. In Cheshire, ½ hour from Liverpool.—No. 7370, B.M.A. House, Tavistock Sq., W.C.1.

Facing Kensington Gardens, 20 minutes' City. — BED-SITTING ROOMS, comfortable home, quiet for study. Terms moderate.—18, Palace Court. Park 7190.

Modern ten-roomed Bungalow, in rapidly growing residential district, 12 miles N.E. of London. Large potential PRACTICE awaiting purchaser. See my advertisement, B.M.J., October 26th last. Price £1,650 cash, or £1,750 for small cash deposit and balance as rent. — Further details from "Owner," R. T. MORGAN, 129, Minories, E.C.3.

To Let. — Two Communicating ROOMS, with lavatory, on ground floor, constant hot water, electric power, telephone, completely fitted up for up-to-date massage, light, and electric treatment. Third room if required. Highly recommended.—Apply, LADY MOODY, 29, Upper Berkeley Street, W.1.

Wiltshire.—Country House for Sale, Suitable for Nursing Home, 10 miles from Bath, 1½ from station. Substantially built house, 3 reception rooms and 16 bedrooms, standing 350 ft. above sea-level, in beaut. surroundings. Garden about 5 acres. Price £4,000. —No. 7369, B.M.A. House, Tavistock Sq., W.C.1.

Wimpole St. — Maisonette with Consulting Room to be Let. Seven rooms, kitchen, and bath. Rent £550, includes rates. — ELGOOD & Co., 10, Henrietta Street, Cavendish Square, W.1. Mayfair 5659.

£700 Freehold. — Vacant Shop PREMISES, suitable for Surgery and Consulting Rooms, in working-class district.—Apply, "OWNERS," 1, Greenland Street, Camden Town.

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... £11 11s.
... £12 12s.
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For Sale. — Invalid Chair (Carter's), in perfect condition. Cost £30. Great sacrifice.—4, Kendall Avenue South, Sanderstead, Croydon.

Saves Income Tax, time, and worry. Records all details of expenses. Recommended by Accountants. *"The Medical Practitioners' Cash Book,"* post free, 12/6, refunded if not satisfied.—CHARNWOOD PUBLISHING CO., Atlas House, Coalville, Leicester.

X-Ray Radiometric Apparatus by Medical Supply Company, mounted on large castors, in excellent condition. Price £100. Also a COOLIDGE RADIATOR TUBE for sale.—Dr. NORMAN, 1, The Avenue, Eastbourne, Sussex.

APPOINTMENTS.—Contd.

Hertford County Hospital.

Applications are invited for the post of HONORARY RADIOLOGIST to the above Hospital. Particulars on application, which should reach the undersigned not later than December 6th

PERCY G. BROOKS, Secretary

Hertford County Hospital.

Applications are invited for the post of HONORARY PATHOLOGIST to the above Hospital. Particulars on application, which should reach the undersigned not later than December 6th.

PERCY G. BROOKS, *Secretary.*

Manchester Northern Hospital

FOR WOMEN AND CHILDREN,
PARK PLACE, CHEETHAM HILL ROAD, MANCHESTER.

The Committee of Management require the services of a SENIOR HOUSE SURGEON and JUNIOR HOUSE SURGEON, both duly qualified, who are to commence duties on January 1st, 1930.

Senior House Surgeon, salary £130 per annum, with board and residence; Junior House Surgeon, salary £100 per annum, with board only.

Applications, stating age and experience, with copies of recent testimonials, to be sent to the Secretary, Mr. JAMES C. DANIELS, 38, Barton Arcade, Manchester, not later than 12 noon, December 2nd.

East Ham Memorial Hospital,

Shrewsbury Road, E.7.

Applications are invited for the post of HOUSE PHYSICIAN and CASUALTY OFFICER (male) for six months from January 1st, 1930, with salary at the rate of £150 per annum, with board, residence, and laundry.

Applications, stating age, experience, and full particulars, together with copies of testimonials, to be in the hands of the undersigned not later than 10 a.m. on Tuesday, Dec. 3rd.

J. F. MORTON, Secretary.

Grosvenor Hospital for Women,

Vincent Square, S.W.1.

Applications are invited for the following posts:

HONORARY ANÆSTHETIST.

Candidates are invited to send particulars of their qualifications, accompanied by three testimonials, before Saturday, December 7th.

RESIDENT MEDICAL OFFICER.

The appointment will be for a period of six months (or longer) at a salary of £100 per annum, full board included. Duties to commence as soon after date as possible. Candidates should submit applications, stating qualifications, age, etc., together with copies of three testimonials, before Saturday, December 7th.

EDWARD DEW, Secretary.

Ingham Infirmary, South Shields.

Wanted, JUNIOR HOUSE SURGEON (male). Salary £150 per annum, with residence, board, and washing. No out-visiting. Candidates must hold registered qualifications in Medicine and Surgery. The appointment will be terminable by one month's notice. Applications, stating age and accompanied by copies (which will not be returned) of recent testimonials, to be sent to the undersigned, from whom further particulars may be obtained.

JOHN POTTER, Secretary.

Kettering and District General Hospital. (82 Beds.)

Applications are invited for the post of JUNIOR HOUSE SURGEON (male). Salary £150 p.a., with board, residence, and washing. Candidates must be fully qualified and registered.

The appointment is for six months, with eligibility for appointment as Senior for a further six months.

Applications, stating age, nationality, and qualifications, together with copies of three recent testimonials, to be sent to the Secretary-Superintendent not later than December 6th.

Charing Cross Hospital.

SURGICAL REGISTRAR.

The Council invite applications from candidates, who must be registered Medical Practitioners (male), for the post of Second Surgical Registrar. Honorarium £150 per annum.

A copy of the Regulations can be obtained from the undersigned, to whom applications, together with copies of three testimonials, must be submitted not later than Monday, December 2nd.

PHILIP INMAN,
Charing Cross Hospital, House Governor.

University College Hospital,

Gower Street, W.C.

Applications are invited for the post of OPHTHALMIC REGISTRAR for one year commencing January 1st, 1930, at an honorarium of £50 per annum, and should be forwarded to the Secretary before noon on November 29th.

University College Hospital,

Gower Street, W.C.

Applications are invited for the honorary post of DENTAL SURGEON to University College Hospital. Applications, accompanied by evidence of fitness for the post, must reach the Secretary before noon on November 29th.

Manchester Royal Infirmary.

ASSISTANT SURGICAL OFFICER,
CENTRAL BRANCH.

The Board of Management invite applications from registered Medical Practitioners (male) for the above appointment.

The duties are to assist in the treatment of Surgical In-patients and Casualties at the Central Branch on two mornings per week, to be available for urgency calls on the days of duty, and on Sundays in rotation. The appointment (non-resident) is for a period of one year, but the holder of the office is eligible for re-election on two subsequent occasions for a similar period. Salary £75 per annum. Candidates must state age, and send twelve copies of their applications and testimonials to the undersigned on or before 9 a.m. on Monday, December 9th.

By Order,
FRANK G. HAZELL,
Nov. 18th, 1929. Gen. Supt. & Sec.

Manchester Royal Infirmary.

ASSISTANT SURGICAL OFFICER.
GYN.ECOLOGICAL DEPARTMENT.

The Board of Management invite applications from registered Medical Practitioners for the above appointment. The duties are to assist in the treatment of Surgical Out-patients on two mornings per week. The appointment (non-resident) is for a period of one year, but the holder of the office is eligible for re-election twice. Salary £35 per annum.

Candidates must state age, and send twelve copies of their applications and testimonials to the undersigned on or before 9 a.m. on Monday, December 9th.

By Order,
FRANK G. HAZELL,
Nov. 18th, 1929. Gen. Supt. & Sec.

The Cancer Hospital (Free),

Fulham Road, London, S.W.3.
(Incorporated under Royal Charter.)

The Committee are prepared to receive applications for the post of HOUSE SURGEON. Salary at the rate of £100 per annum. The appointment is for six months and subject to rules. Candidates must call upon each member of the Medical Committee. A copy of the rules and the names and addresses of the Medical Committee may be obtained from the Secretary.

House Surgeon is with three (copies t to the undersigned t on Monday morn

ing, December 2nd.

J. COURTNEY BUCHANAN, Secretary.

Central London Throat, Nose, and Ear Hospital,

Gray's Inn Road, W.C.1.

FIRST ASSISTANTS.

There are vacancies for two First Assistants in the Out-patient Department.

The posts are honorary ones, tenable for one year, subject to re-election.

Attendance is required at two Clinics each week to assist the Surgeons in seeing the patients.

Applications, accompanied by copies of not more than three testimonials, should be sent to the undersigned not later than December 7th.

JOHN H. YOUNG, Secretary-Supt.

Royal Sussex County Hospital,

BRIGHTON. (225 Beds.)

HOUSE SURGEON (male) required end of December, with charge of beds, part casualties, and anæsthetics. Salary £150 per annum, with board, residence, and laundry.

Candidates must hold Medical and Surgical *qualifications* of the British Empire, and be duly registered under the Medical Acts. They must be unmarried, and when elected under 30 years of age.

Applications, with copies of testimonials, should be sent immediately to the undersigned.

J. L. W. LANCASTER-GAYE,
Secretary-Superintendent.

R... al,

BRIGHTON. (225 Beds.)

CASUALTY HOUSE SURGEON (male) required end of December. Salary £120 per annum, with board, residence, and laundry. Candidates must hold Medical and Surgical qualifications of the British Empire, and be duly registered under the Medical Acts. They must be unmarried, and when elected under 30 years of age.

Applications, with copies of recent testimonials, should be sent immediately to the undersigned.

J. L. W. LANCASTER-GAYE,
Secretary-Superintendent.

CAVENDISH NURSES (Male and Female)

Head Office: 54, BEAUMONT ST., LONDON, W.1 (late 43, New Cavendish St., London, W.1.)

A very convenient form of telephone message pad sent free on application to the Secretary.

Branches: MANCHESTER: 176, *Oxford Road.* *GLASGOW*: 28, *Windsor Terrace.* *DUBLIN*: 23, *Upper Baggot Street.*

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Terms from £3 3s. *Apply to the Secretary or Lady Supt.*

Evelina Hospital for Children,
SOUTHWARK, S.E.

The Committee of Management invites applications for the post of SURGEON TO OUT-PATIENTS (Hony.) (attendance Monday afternoons at 1.30). Candidates (male) must be Graduates in Surgery in a recognized University, or F.R.C.S.; they must not be engaged in general practice.

Applications, with copies of not more than four testimonials, to be addressed to the Secretary, at the Hospital, before November 26th.

Candidates must call on the members of the Hony. Medical Staff, whose names, also Standing Orders relating to the post, will be furnished by the undersigned.

By order of the Committee of Management.

H. C. S. SMITH,
Nov. 12th, 1929. Secretary-Superintendent.

Evelina Hospital for Children,
SOUTHWARK, S.E.1.

The Committee of Management requires a HOUSE SURGEON (male) for eight months from December 12th (during first four months duty in Casualty and Out-patient Department). Salary £120 per annum, with board and residence. Candidates, duly registered, to send applications, giving age, qualifications (with dates), and copies of four testimonials, to the undersigned at the Hospital, before November 26th. Applicants will be informed if they will be interviewed by the Medical Committee. Selected candidates must attend Committee of Management. Date of meeting will be notified by undersigned, from whom rules and other particulars relating to the post must be obtained.

By Order of the Committee of Management,

H. C. S. SMITH,
Nov. 12th, 1929. Secretary-Superintendent.

Hampstead General and North-
WEST LONDON HOSPITAL,
Haverstock Hill, N.W.

APPOINTMENT OF A HOUSE SURGEON.

Applications are invited from unmarried registered Medical Men for an appointment of House Surgeon, vacant on January 1st, 1930.

The salary will be at the rate of £100 per annum, together with board, residence, etc., and the term will be for six months.

Applications, to be made on a form which will be supplied by the Secretary, together with copies of not more than three testimonials, should reach the Secretary not later than noon on December 7th next.

Hampstead General and North-
WEST LONDON HOSPITAL,
Haverstock Hill, N.W.

APPOINTMENT OF HOUSE PHYSICIAN.

Applications are invited from unmarried registered Medical Men for the appointment of House Physician, vacant on January 1st, 1930.

The salary will be at the rate of £100 per annum, together with board, residence, etc., and the term will be for six months.

Applications, to be made on a form which will be supplied by the Secretary, together with copies of not more than three testimonials, should reach the Secretary not later than noon on December 7th next.

St. Mary's Hospital, W.2.

MEDICAL REGISTRAR TO OUT-PATIENTS.

Applications are invited for the above appointment. Candidates must be a Fellow or Member of the Royal College of Physicians of London or a Graduate in Medicine of a University in the British Empire. Must not be engaged in General Practice. The Medical Registrar to Out-patients will be required to attend the Hospital daily at 1.30 p.m. (Saturday 9.30 a.m.). There is an honorarium of £200 per annum attached to the post. Applications for the appointment, accompanied by three recent testimonials, must reach the undersigned on or before Wednesday, November 27th. A copy of the regulations will be forwarded on receipt of a stamped addressed envelope.

St. Mary's Hospital, W. PARKES,
W.2. Secretary.

Hull Royal Infirmary.

[illegible] are prepared to [illegible] office of HONORARY SURGEON to the Infirmary.

Candidates must be Fellows, Members, or Licentiates of one of the Royal Colleges of Surgeons in England, Edinburgh, or Ireland, or a Graduate in Surgery of one of the Universities of the United Kingdom or Ireland; and must have done six months' duty in an Ophthalmic Hospital or Dispensary or in an Ophthalmic Department of a General Hospital or Dispensary. The successful candidate will be restricted to Ophthalmic Practice in the Infirmary.

The appointment will be for a period of five years in the first instance.

Personal canvassing is prohibited, but candidates may send copies of their applications and testimonials to the members of the Appointing Committee.

Applications, addressed to the Chairman of the Committee of Management, should reach the Institution not later than 10 a.m. on Wednesday, December 4th.

R. J. CARLESS,
November 16th, 1929. House Governor.

St. Thomas's Hospital.

VACANCIES.

Appointment of TWO SURGICAL REGISTRARS, to be appointed for one year, and be eligible for re-appointment annually for a maximum total period of FOUR YEARS at a salary of £250 per annum, rising by £25 per annum to £300.

In the first instance, one will be appointed for six months; at the end of this period he will [illegible] as above.

[illegible] 1st, 1930.

[illegible] by testimonials [illegible]ould be sent to the [illegible]al not later than [illegible]

[illegible] Fellowship of the [illegible] England.

Terms of appointment can be obtained from the Dean's Office.

St. Thomas's Hospital.

VACANCY.

A MEDICAL REGISTRAR to the CHILDREN'S DEPARTMENT, to be appointed for one year, and be eligible for re-appointment annually for a maximum total period of THREE YEARS at a salary of £250 per annum, rising by £25 per annum to £300.

Duties to begin on January 1st, 1930.

Applications, accompanied by testimonials and full academic record, should be sent to the Dean's Office at the Hospital not later than December 2nd, 1929.

Bracebridge Mental Hospital,
Near LINCOLN.

THIRD ASSISTANT MEDICAL OFFICER required (male). Commencing salary £350, rising by annual increments of £25 to £450 per annum, with furnished apartments, board, washing, and attendance, valued for superannuation purposes at £100 per annum.

Candidates must be duly qualified, registered, and unmarried.

Previous Mental Hospital experience not essential.

The appointment is subject to the provisions of the A.O.S. Act, 1909.

Applications, stating age and qualifications, together with copies of three recent testimonials, to reach the Medical Superintendent on or before November 30th.

Metropolitan Ear, Nose, and
THROAT HOSPITAL.
(1838) (Incorporated), Fitzroy Square, W.1.

HOUSE SURGEON (non-resident). Salary £150 per annum.

Applications are invited for the above appointment, and should be forwarded immediately, with not more than three recent testimonials, to the undersigned.

L. L. PHILLIPS, Secretary.

Manchester Royal Infirmary.

RESIDENT MEDICAL OFFICER.

The Board of Management of the Manchester Royal Infirmary invite applications for the above appointment, which will become vacant on February 1st, 1930.

Applicants must not be less than 25 years of age. They must be registered, and hold a Medical and Surgical qualification.

The appointment is for twelve months, renewable for a period of one year.

Salary £200 per annum, with board, residence, and laundry allowance.

Full informat[illegible] [illegible]ers[illegible]
signed, to who[illegible] [illegible]ive
copies of their [illegible] on
or before 9 a.m

By Order,
FRANK G. HAZELL,
Gen. Supt. & Secretary.

Manchester Royal Infirmary.

ASSISTANT RESIDENT SURGICAL OFFICER.

The Board of Management of the Manchester Royal Infirmary invite applications for the above appointment, which will become vacant on January 1st, 1930.

Applicants must hold a Medical and Surgical qualification and be registered.

The appointment is for six months, renewable for a further period of six months, subject to the provisions of the By-laws as to notice.

Salary is at the rate of £150 per annum, with allowance for laundry.

Applicants must state age and send twelve copies of their applications and testimonials to the undersigned on or before 9 a.m. on Monday, December 9th.

By Order,
FRANK G. HAZELL,
Gen. Supt. & Secretary.

West London Hospital,
Hammersmith Road, W.6. (233 Beds.)

Required, One HOUSE PHYSICIAN, One HOUSE SURGEON, and One AURAL and OPHTHALMIC HOUSE SURGEON and ASSISTANT CASUALTY OFFICER (males). These three appointments are tenable for six months from January 1st next, subject to one month's notice on either side. Salary at the rate of £100 per annum, with board, lodgings, and laundry allowance. Candidates must be registered under the Medical Act. Applications and copies of testimonials must be rendered in quadruplicate on printed forms to be obtained from me, and must reach me not later than first post on Saturday, December 7th.

Selected candidates will be required to call upon such members of the Medical Staff as directed, to be in attendance at a Meeting of the Medical Council on Friday, December 20th, at 4 p.m., and the House Committee Meeting at 4.45 p.m. the same day, when the appointments will be made.

H. A. MADGE, Secretary.

Merthyr General Hospital,
MERTHYR TYDFIL.

Applications are invited for the post of RESIDENT HOUSE SURGEON at this Hospital, 104 beds (*mainly surgical*), for a period of six months. Salary at the rate of £150 per annum, with board, rooms, and laundry. Applicants must have had experience in administration of anæsthetics.

Applications, stating age and qualifications, and enclosing copies of three recent testimonials, should be addressed, Hon. Sec., Honorary Medical Staff, General Hospital, Merthyr Tydfil.

National Hospital, Queen Sq., W.C.1.

Applications are invited for the post of RESIDENT MEDICAL OFFICER, which will be vacant at the end of the year, and should be sent to the undersigned, accompanied by copies of three testimonials, not later than Monday, November 25th. The salary is £200 per annum, with board and lodging. Applicants should state if they are willing to accept a post of House Physician (salary £150).

GODFREY H. HAMILTON, Secretary.

Telephone: WELBECK 2728.
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(In conjunction with the MALE NURSES' ASSOCIATION).
29, York St., Baker St., London, W.1.

Mrs. MILLICENT HICKS, *Supt.*
W. J. HICKS, *Secretary.*

The Hospital for Sick Children,
Great Ormond Street, W.C.1.

A PART-TIME JUNIOR CASUALTY OFFICER is required on January 4th, 1930, to assist in the Casualty Department, from 10 a.m. to 3 p.m. (Saturdays 10 a.m. to 1 p.m.), under the direction of the Casualty Officer. The work of this officer includes a large number of tonsillectomies and other minor operations.

Candidates must be registered Medical Practitioners, and have held a responsible Hospital appointment.

Gentlemen are invited to send in their applications, addressed to the Secretary, *before* 12 o'clock on Monday, December 2nd, 1929, accompanied by copies of not more than three testimonials written specially for the purpose.

The appointment is made for six months, and is non-resident.

Salary at the rate of £150 per annum, with luncheon.

All candidates must be in attendance to appear before the Joint Committee, if required, at their meeting on Wednesday, December 4th, at 4.45 p.m. precisely.

Forms of application and copies of the rules may be obtained from the Secretary at the Hospital.

By order of the Board of Management,
JAMES McKAY,
November, 1929. Secretary.

The Hospital for Sick Children,
Great Ormond Street, W.C.1.

A HOUSE SURGEON and a HOUSE PHYSICIAN are required on January 1st, 1930.

Gentlemen are invited to send in their applications, addressed to the Secretary, before 12 o'clock on Monday, December 2nd, 1929, with copies of not more than three testimonials given specially for the purpose, and also evidence of their having held a responsible Hospital appointment.

The appointments are made for six months. Salaries at the rate of £100 per annum, laundry allowance £5, board and residence in the Hospital.

Candidates must be unmarried and possess a legal qualification to practise.

All candidates must be in attendance to appear before the Joint Committee, if required, at their meeting on Wednesday, December 4th, at 4.45 p.m. precisely.

Forms of application and copies of the rules may be obtained from the Secretary.

By order of the Board of Management,
JAMES McKAY,
November, 1929. Secretary.

Victoria Central Hospital,
WALLASEY.

Applications are invited for the position of JUNIOR HOUSE SURGEON (male) Salary at the rate of £100 per annum, with board, residence, and laundry. Candidates chosen would be appointed for six months. Duties include Dispensary, Out-patients, and some Home Visiting.

Applications, with copies of recent testimonials, to be sent to the Secretary not later than December 7th.

The Royal Infirmary,
SUNDERLAND. (290 Beds.)

Wanted, early January, HOUSE SURGEON (male). Salary £140 per annum, with board, residence, and laundry.

Applications, stating age, qualifications, and accompanied by copies of testimonials to be sent to the undersigned.

S. C. FRYERS,
House Governor & Secretary.

MR. HERBERT NEEDES,
31, Bedford Street, Strand, W.C.2.
(Temple Bar 3873.) —— (Estab. 1860.)

This Agency (the oldest in the Kingdom) undertakes the SALE of PRACTICES and PARTNERSHIPS, AUDITS, and VALUATIONS, and the SUPPLY OF LOCUMS and ASSISTANTS.

No Charge to Purchasers. All Business receives Mr. NEEDES' personal attention.

1. GOOD CLASS PRACTICE of £2,400 in a *residential Country about* 40 *miles from* Town. Cott. Hosp. Panel and appts. of over £1,000. Capital house and grounds on lease. Partnership introduction to suit incomer. Price £4,000.
2. COMPACT EASILY WORKED Country PRACTICE on outskirts of County Town within 2 hours of London. Receipts over £1,200, including £850 from panel and appts. Considerable scope for active man. Convenient house, garden, and garage, modern equipment, on lease.
3. KENT.—PRACTICE of about £700 a year in *charming residential district within* 30 miles for Sale, with fine old manor residence and grounds. Scope for younger man. Suitable for one with private means seeking easy occupation with good social amenities.
4. SEASIDE DEATH VACANCY, within an hour of Town. Receipts £2,000 a year. Patients of the better class. Excellent family residence for sale or rent.
5. HOME COUNTY.—Increasing PRACTICE of £600—*apart from panel, for which there is* great scope. Rural and industrial locality. Convenient modern house, garden, and *garage at £80. Price £600 or offer.*
6. LONDON, N.W.—Sound middle- and working-class Cash PRACTICE, returning over £900 and increasing. Panel over 800. Very prominent corner residence, with garage. Premium 1½ years' purchase.
7. PRACTICE of over £600 in open S.E. Suburb. Panel 360. Small house on lease. Scope unlimited. Vendor selling through illness. Half of prem. payable by instalments.
8. LONDON (*near Westminster*)—£1,000 a year. Panel 750. All cash. Corner house on lease, rent and taxes wholly sub-let.
9. PARTNERSHIP *in Coast Town, S.W.*—*THIRD* SHARE of good-class private Practice of £3,000 a year is offered to well-qualified active gentleman of exper. at 2 yrs.' pur.

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ST. LUKE'S HOSPITAL.
FOR MENTAL DISORDERS.

Private Nursing Staff Department.

Trained Nurses for Mental and Nervous Cases can be had immediately.

Apply to Lady Superintendent,
19, Nottingham Place, London, W.1.
Telephone: Mayfair 5420.

Northern Branch.—Apply, Lady Superintendent 67, Clarendon Rd., Leeds. 'Phone: Leeds 26165.

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PERCIVAL TURNER, LTD.
(Established 50 years.)
4 & 5, ADAM ST., STRAND, W.C.2.
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Telephone: TEMPLE BAR 9011.

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Wiltshire.—About £1,000 p.a. *Small panel.* No midwifery. Appt. £20 p.a. Visits 5/- to 10/6. Suitable house to rent at £70 p.a.—No. 8574.

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Home Counties.—Country Town. Share worth £1,000 or more p.a., in old-established Practice. Appts. £250 p.a. Panel over 2,700. Personally visited.—No. 8565.

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S. W. County. — About £1,000 p.a. Visits 5/- to 21/-. Surgery fees 3/6 to 21/-. Panel and appts. £700 p.a. Very little mid. Good house available.—No. 8564.

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9 WEST OF ENGLAND.—Steadily growing Country PRACTICE of about £650 in delightful part of the Cotswolds—easy reach of two good Towns. Panel 497. House (6 bedrooms), with garage, ½ acre garden, and paddock, for sale. Good scope. Premium £800.

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20 EASTERN COUNTIES.—Practice averaging £2,800 p.a. in Seaport Town. Panel 700. House (5 bedrooms), large garden, for sale or rent. Scope. Premium 1½ years' purchase.

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23 SOUTH COAST. — Partnership in good-class Practice £3,600 p.a. in favourite watering-place. Applicant must be English and aged 30—40. One-third share at first at 2 years' purchase.

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Practices and Partnerships for Disposal (continued).

26 SOUTH COAST. — Partnership in non-dispensing Practice, about £2,400, in favourite watering-place. Panel about 800. House (5 bedrooms) for sale or rent. One-third share at 2 years' purchase after preliminary assistantship.

27 LANCASHIRE.—Practice of about £2,000 p.a. (over £500 from panel) in a semi-rural district near good town. Nice house (6 bedrooms, etc.), recently redecorated, for sale. Premium—Practice—£2,500.

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30 LONDON, W.—Partnership in good-class non-dispensing Practice over £7,500 p.a. in Kensington. No panel or appointments. Incoming Partner must be well qualified (aged 30—35) and have held Hospital appointments. Share worth about £1,000 at 2 years' purchase.

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41 SOUTH MIDLANDS.—Rapidly increasing PRACTICE in first-rate town. Receipts 1928, £562. Panel 477. Detached double-fronted house (4 bedrooms) to be sold. Considerable scope. Premium £850.

42 LANCASHIRE.—Partnership in old-established Practice about £2,650 p.a. in manufacturing town. Panel 900. Applicant should be experienced and aged about 30 to 35. Share up to one-half at 1½ years' purchase after preliminary assistantship.

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48 S.W. OF ENGLAND. — Seaport Town. — PARTNERSHIP (after preliminary assistantship) in good mixed Practice about £3,000 p.a. Panel 2,100. One-third share offered to suitable man at 2 years' purchase.

49 WEST OF ENGLAND. — Partnership in Practice in small watering-place. Receipts past 12 months over £1,800. Panel 1,375. Pleasantly situated house (5 bedrooms) in good residential part for sale. Premium two-fifths share £1,400.

50 S.W. OF ENGLAND. — Partnership in Practice about £4,000 p.a. in watering-place. Panel about 1,700. Choice of residence to rent or purchase. Hospital and scope for surgery. Premium one third share £2,400.

51 ESSEX. — Country Practice over £450 in residential and agricultural district, easy distance of London. Panel over 200. Nice house (5 bedrooms and attics). Rent £60. Premium £400.

52 MIDLANDS. — Country Practice about £1,000 p.a. in residential district and hunting centre. Panel 600/700. House, with 8 bedrooms, to rent. Premium £1,300.

53 YORKSHIRE (E.R.). — Old-established Country PRACTICE £1,100, within easy distance of important Town. Panel 500. Well-situated house to be sold. Great scope. Premium £1,650.

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58 NORTH OF ENGLAND. — Practice about £600 p.a. in Inland Spa. Panel over 500. Well-situated house (6 bedrooms) to rent. Premium £1,000.

59 LIVERPOOL. — Increasing Practice of nearly £1,300. Panel 560. House (4 bedrooms), garage and garden, for sale. Golf near by. Premium £1,550 (£500 by instalments, without interest).

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4. HOME COUNTIES.—Within few miles of large town.—Old-established unopposed and increasing PRACTICE, in pleasant district, worth over £3,000 p.a., including panel, with mileage, producing about £1,000 and appts. £260. Visits 3/6 to 10/6, medicine usually extra. Very little midwifery. Good house (7 bedrooms, etc.), garden, garage. Price, freehold, £2,000. Premium 1½ years' purchase.
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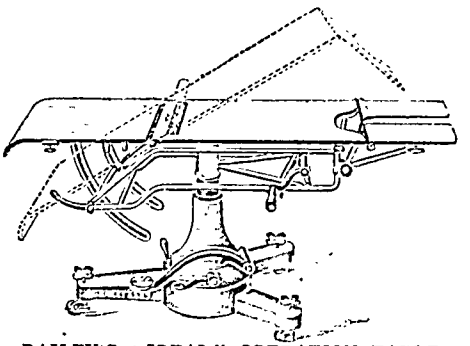

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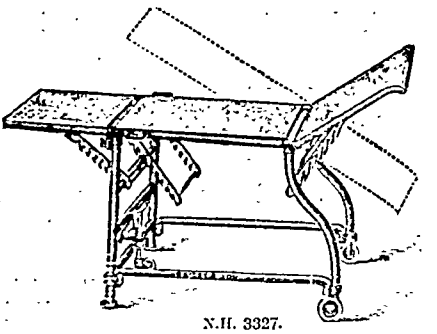

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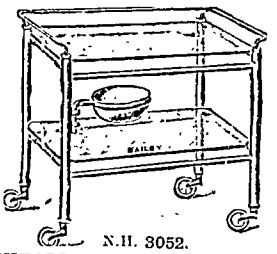

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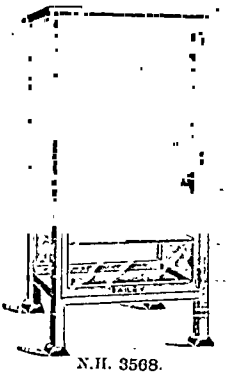

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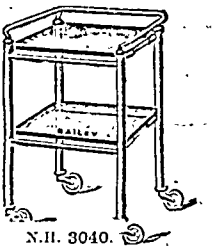

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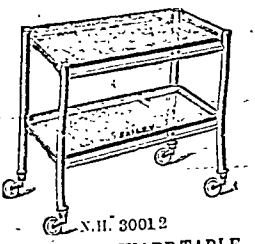

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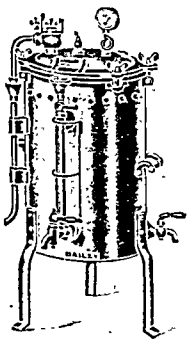

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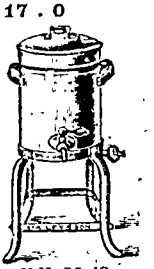

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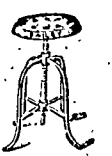

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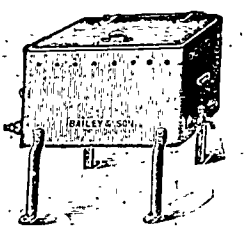

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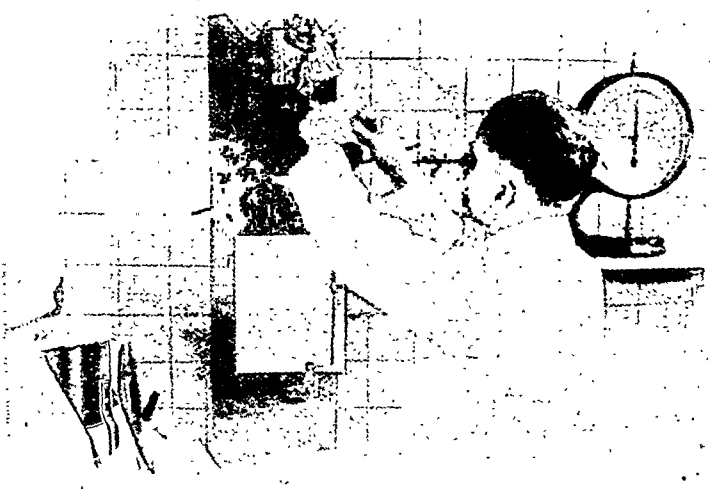

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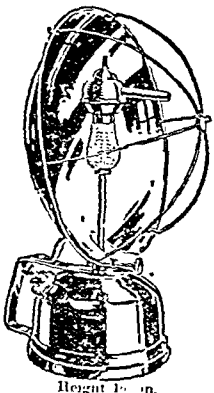

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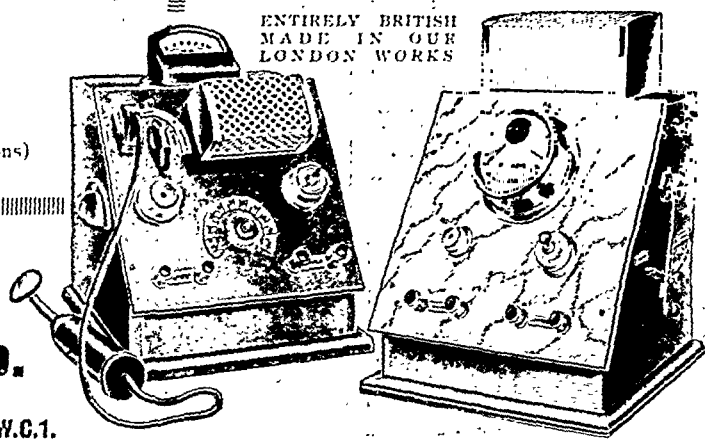

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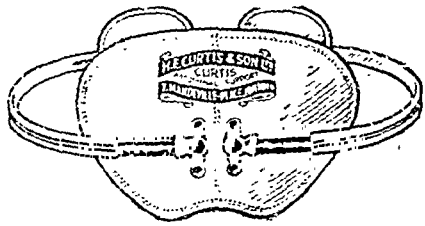

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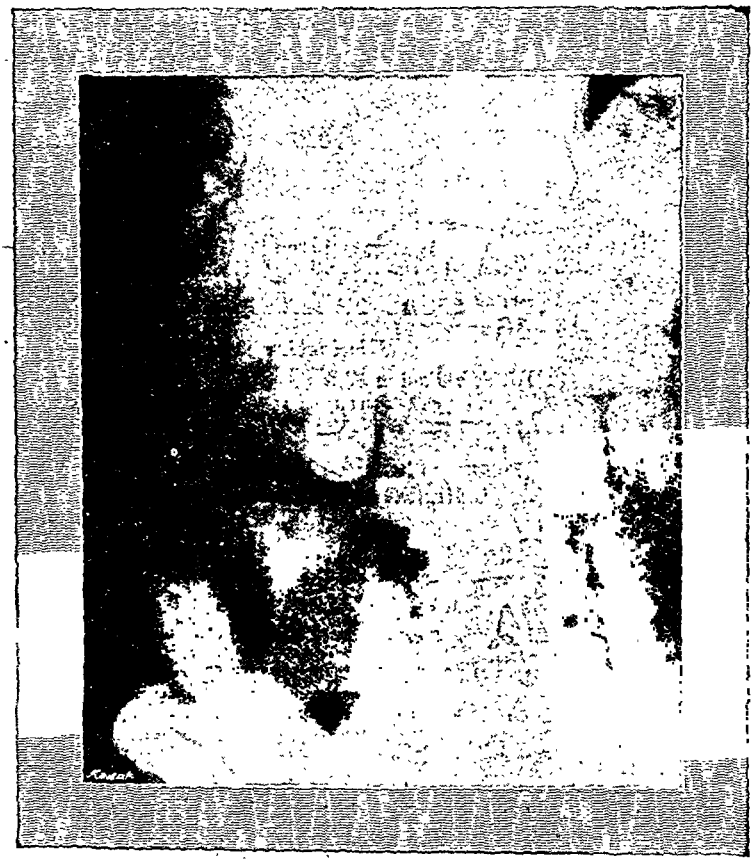

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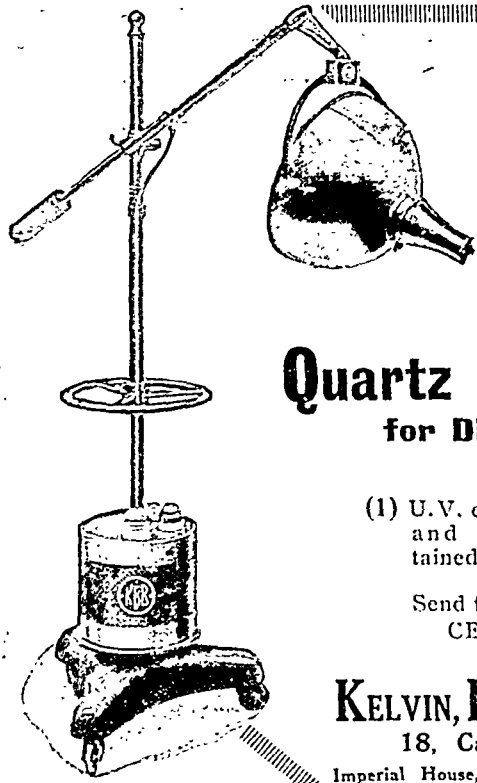

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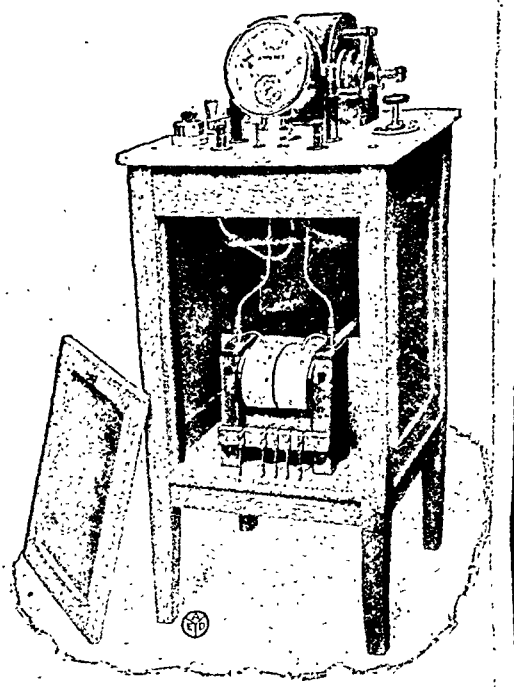

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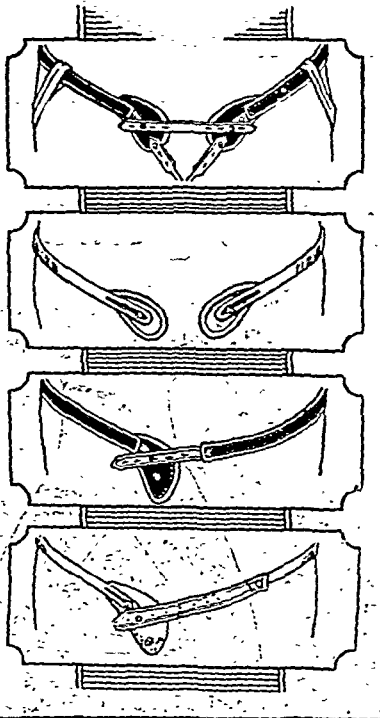

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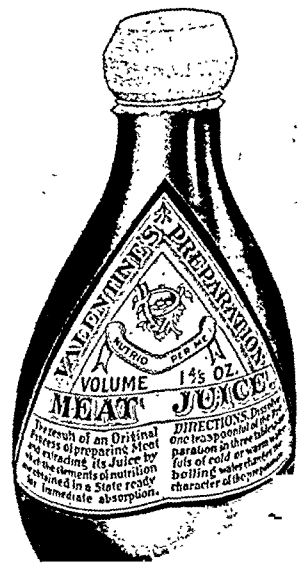

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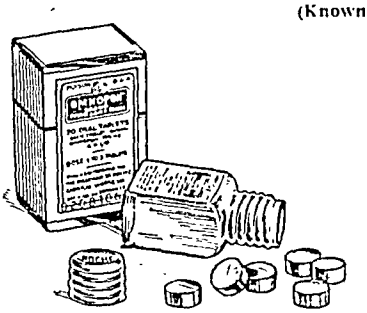

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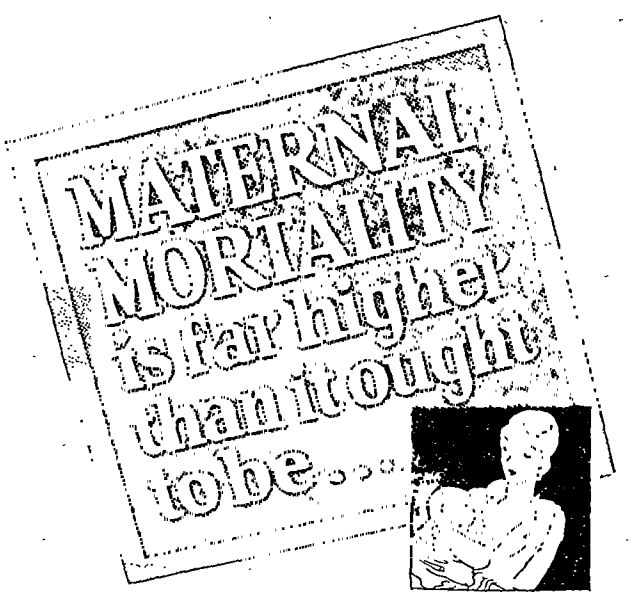

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MALT EXTRACT WITH PARAFFIN
Lubricant-Laxative-Nutrient-Digestive

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for use in the

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TYPICAL CASE.

H. C. A., aged 27 years.

Diagnosis: Ununited fracture of the right radius and ulna at the mid-point.

Operation: Intramedullary auto-transplant.

Anæsthesia: Brachial block, 10 c.c. of 2 per cent. Novocain-Adrenaline solution; local infiltration for removal of graft.

Operation: The patient was given ¼ grain morphine and 1/100 scopolamine at 9 a.m. At 10 a.m. the operation was performed. Brachial anæsthesia was established with the patient sitting in a chair, 10 c.c. of 2 per cent. Novocain-Adrenaline being used. A large rhomboid infiltration was then made on the anterior surface of the leg. The site of the fractures was then reached by two incisions and the ends of the bones freshened. With a large drill the narrow cavity was reamed out and dowels were prepared from bone removed from the tibia. These dowels were fitted into place, the wound sutured, and the patient made an uneventful recovery. The anæsthesia for the removal of the transplant was obtained by a subdermal infiltration of the leg and, in addition, the needle was carried down to the periosteum, making an infiltration along the line of the transplant to be removed.

—Extract from PRACTICAL LOCAL ANÆSTHESIA (Farr).

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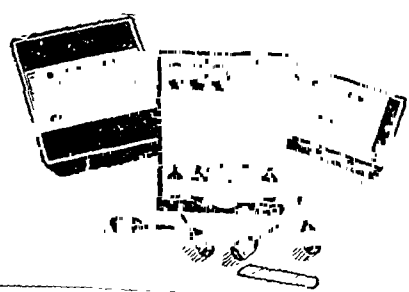

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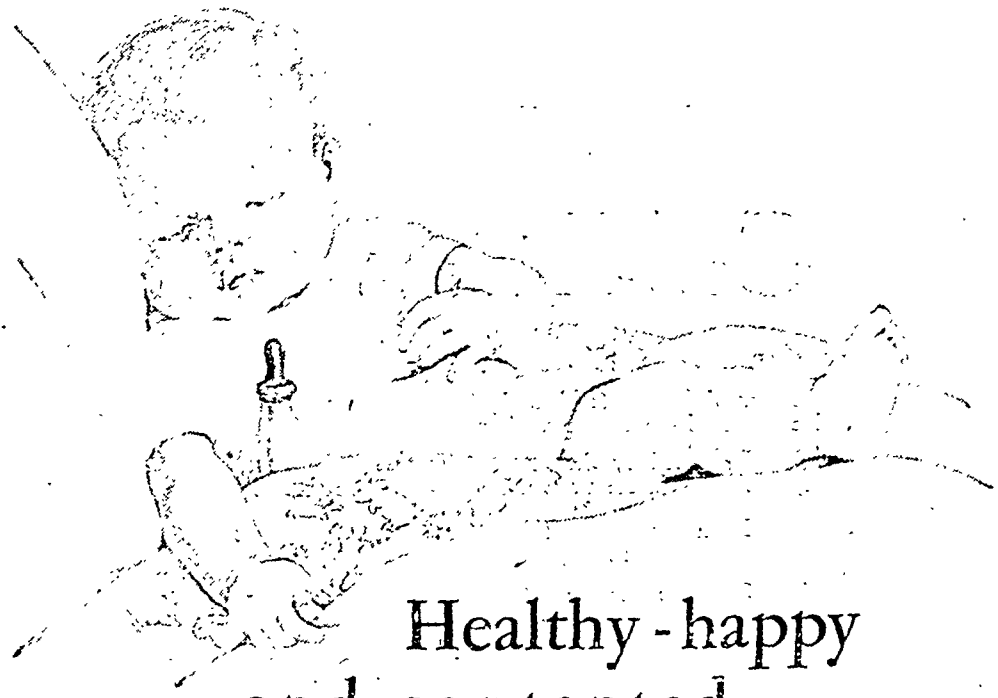

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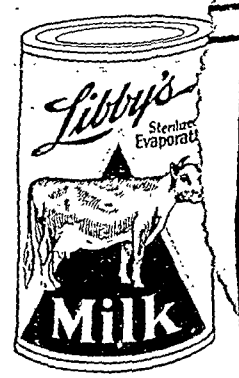

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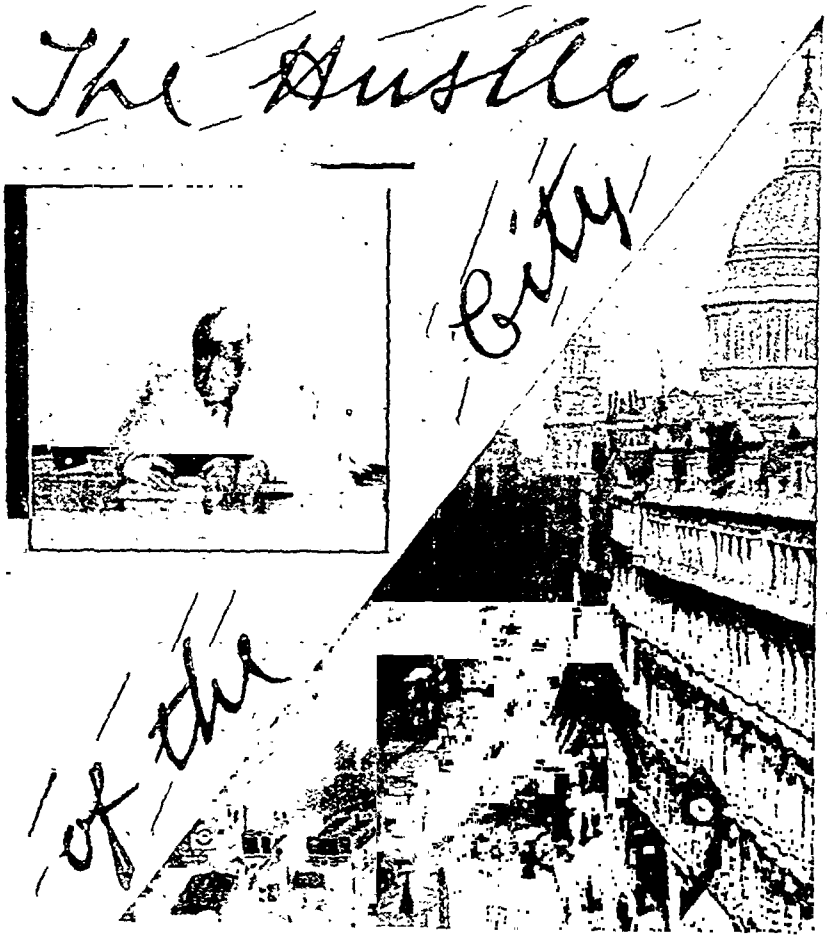

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Combination of Theobromine and "Luminal" brand of Phenyl-ethyl-malonyl urea.

"Theominal" reduces blood pressure, and, what is more important, improves the general condition of patients. It is indicated in Arteriosclerosis and its sequelae, *Angina pectoris*, Tachycardia, Climacteric disorders. "Theominal" is made up in 5 gr. tablets in tubes of 20, for dispensing purposes in bottles of 50, 250, 500 and 1000.

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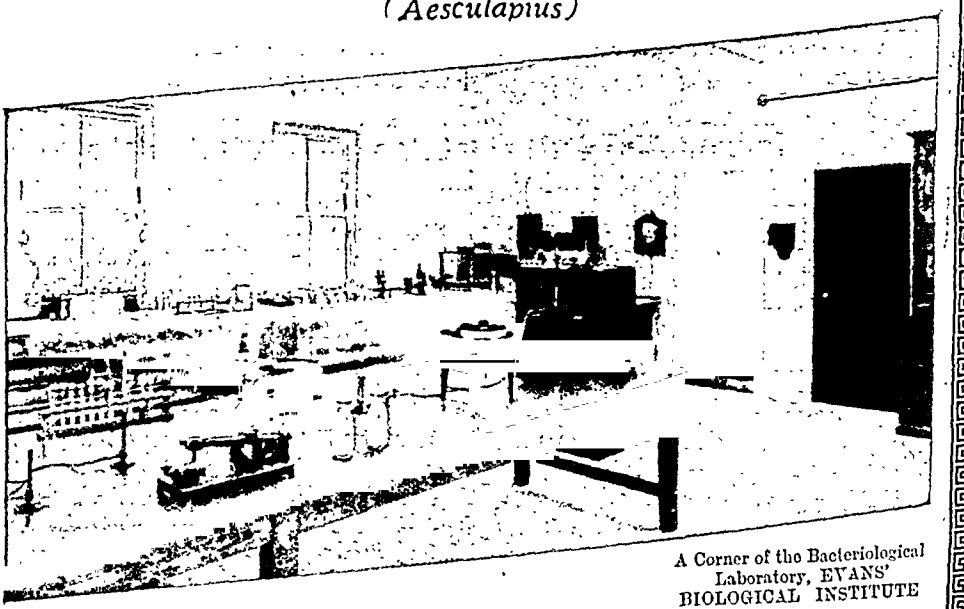

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is now recognized by numerous physicians to be of considerable value for prophylaxis and in treatment. A large degree of this success is due to the facilities we possess in our Pathological Laboratory for obtaining strains in the locality where the Vaccine is to be used.

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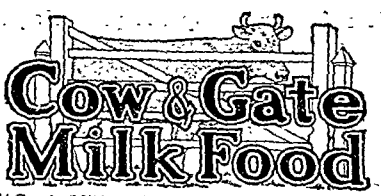
HUMAN TUBERCULOSIS OF BOVINE ORIGIN

At the recent B.M.A. Conference held in Manchester reference was made to this important subject, of which the following abstracts (Lancet, Oct. 19, 1929, p 824) are typical:—

"Dr. ———, M.O.H., in opening the discussion, estimated the human deaths caused annually by the bovine tubercle bacillus at 2,000 to 2,300. Most of them were the deaths of children, and we had no knowledge as to how many non-fatal infections occurred. As to the extent of bovine tuberculosis among cattle in this country, he thought that about 40 per cent. of the cows were infected; that about 1 per cent. of the cows were 'open' cases; and that about 0·3 per cent. had tuberculosis of the udder."

"Dr. ———, M.O.H., thought that 5 per cent. of the cows had diagnosable tuberculosis. He had found certified milk highly infected with tubercle bacilli. The graded milks were a failure, and pasteurisation was only doubtfully safe. He believed that milk dried by the roller process was the best solution, and he looked forward to the establishment of milk-drying factories throughout the country."



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This annual toll of human life, which is mostly confined to young babies, can be eliminated by a suitable heat treatment of the milk Processes such as pasteurisation have their limitations so far as the feeding of infants is concerned, particularly in view of their disturbing influence on the mineral and vitamin content of milk.

The bacteriological sterilisation of milk is assured by the COW & GATE Improved Roller Process, which also effects maximum preservation of the vitamin content with minimum disturbance of the mineral salts.

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EIGHTH PERIOD—circa 750 B.C. to A.D. c. 404

Vitamin A increases resistance to infection

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COD LIVER OIL WITH MALT EXTRACT

Provides a palatable means of administering a cod liver oil containing a high concentration of Vitamins A and D. Vitamin B is supplied by the 'KEPLER' Malt Extract, made from English Winter-Malted Barley.

The therapeutic response to 'KEPLER' Cod Liver Oil with Malt Extract is safeguarded by the physiological control of its Vitamin Content.

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2/6 *and* 4/7 *per bottle*

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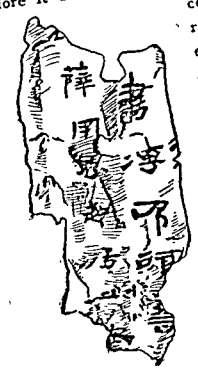

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Potassii Bicarbonatis, gr. 1 [0·065 gm.]
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Salis Effervescentis, *q.s.*

One product in solution produces 29·4 grains of sodium citrate

May be used in all cases where it is necessary to restore the alkaline balance of the body. Replaces alkaline diuretics in fever. Usually, 5 to 6 products daily are sufficient to alkalise the urine

Price in London to the Medical Profession, 1/10 *per tube of* 25

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ANCIENT CHINESE BAS-RELIEF, ON WHICH IS DEPICTED THE CROW WITH THREE FEET FLYING DOWN TO EARTH TO FEED UPON THE DRUG OF IMMORTALITY—ONE OF THE MYTHS CONNECTED WITH THE IDEA OF THE PHILOSOPHER'S STONE AND LONGEVITY.—*If, as seems probable, the Chinese were* the first to practise the pseudo-science of alchemy, they were indeed important pioneers, for they gave to the world, through the Greeks and Arabs, the clues to chemistry, pharmacy and medicine. It is not easy to estimate the benefits conferred upon humanity by the early Chinese physicians, for definite dates are often lacking, and extravagant claims are made. Hua T'o (died A.D. 220), "the Asklepios of China," is said to have performed operations, using an anæsthetic composed probably of aconite and datura, and to have been the first to remove cataract. He seems also to have advised trepanning, under an anæsthetic, for a patient suffering from violent headaches. The Chinese claim to have practised inoculation for smallpox since legendary times; we know that they did practise it from at least the eleventh century A.D. Acupuncture for sciatica and other ailments seems to have been their invention. They were pioneers of massage, and the first, so far as we know, to employ blind people as masseurs. Flourishing schools of medicine existed in China A.D. 618–907, but surgical methods remained very primitive owing to their ignorance of anatomy. The myth depicted here frequently makes its appearance in Chinese art, thus showing that some importance was attached to the search for the "Philosopher's Stone."

DATE: Of the bas-relief: c. 100 B.C.
Of the myth: very much earlier.

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Norman Lockyer Lecture

ON

MEDICAL RESEARCH:

THE TREE AND THE FRUIT.*

BY

SIR WALTER MORLEY FLETCHER, K.B.E., C.B., M.D., Sc.D., F.R.S.,

SECRETARY OF THE MEDICAL RESEARCH COUNCIL.

THE field of work I ask you to consider to-day is what may broadly be called medical: it is the age-long study by man of the mysteries of his own body and of its functions. If we think of the history of the mathematical, physical, and chemical sciences we see that in the successive centuries of recorded history—and here for simplicity we may take those after the Renaissance with its heritage from the Greeks—there has been a sustained progress, irregular in detail of course, but in the main a steady progress. In general, too, at each stage of advance in knowledge there has come some gain in the practical welfare or convenience of mankind. The gain has been sometimes early, sometimes late, but there has been no general and obvious dislocation in time between the stages of growth in the stem of knowledge and the harvest of its fruit as measured in new practical powers. This is manifest even if we exclude the most modern developments and consider only the three centuries from, say, the accession of Henry VIII to that of Queen Victoria, and consider the growth during that period in the powers of man to control his physical environment. In the practical arts depending on the development of these physical sciences, in all the arts of engineering and of manufacture, the world in that time had become almost transformed and was on the verge of an even more rapid progress. A continuous development of science and of its dependent arts had proceeded side by side, never far out of step at any time.

How widely different is the story of the medical sciences and of their fruits in practice! Like the physical sciences, the biological and medical sciences descend to us almost wholly from the Greeks, while our medical arts are almost purely Greek in their origin and in their ideals. After the renewal of the Greek tradition at the Renaissance we may take as a fixed point that of the publication by Vesalius of his Anatomy of the Human Body in the decade before 1550. Vesalius (of whom it is far too often forgotten that by his mother he was half an Englishman) finally broke the long tradition of appeal to the written word and opened again an era of direct observation and of the fearless record of natural facts. From his time through three and a half centuries there came an ever-widening knowledge of the structure of the animal body, accelerated and deepened by the invention of the microscope just over a century after his time. Modern inquiry into the functions of the body has followed the path opened in the early seventeenth century by Harvey, who in his demonstration of the circulation of the blood showed a perfect combination of the methods of observation with those of experiment. Throughout the seventeenth and eighteenth centuries the floods of new light coming from the long line of anatomists and physiologists that followed Vesalius and Harvey were illuminating the darkness in which physicians and surgeons seeking fresh practical powers had hitherto worked. Yet in those three centuries we cannot fail to be struck by the relative absence of medical progress having any practical significance in aid of the suffering of mankind. We may compare again the time of Henry VIII with that of the accession of Victoria, a comparison that shows such immense advance made in the mechanical arts.

Over the same period, what was the progress made in the medical arts, side by side with the steady gains in knowledge of anatomy, of physiology, and even of chemistry? The art of the surgeon had been aided by more accurate anatomical knowledge and by instruments more delicately made by new manufacturing processes, but that art was still little more than a craft of amputation; the theatre remained a mediaeval shambles of blood and pain, and the succeeding putrefaction was accepted as in its nature inevitable and irresistible. In medicine the new physiology that had developed after Harvey had given to the physician new meaning and precision to his work. At his best he followed still, as the Victorian era began, the high moral ideals and sensible practical methods of the Hippocratic school. In so far as he had discarded traditional mediaeval rubbish he was only returning to Hippocrates; but in effective power to cure or control disease hardly any progress could be claimed for the profession. Descriptions of diseases had been improved, and the arts of diagnosis. While some fashions of practice gave more palliative comfort to the patient, other fashions gave less. In sum, the advance made had been so slight that it may be expressed by what that learned medical historian Dr. Charles Singer wrote in 1921 of the Hippocratic physician: "His general armoury may be described as resembling that of the modern physician of about two generations ago." Yet the interval between the one and the other stretches over twenty-three centuries, of which the last three had been a period of scientific progress going far beyond the end-points of Greek knowledge, and included not only Harvey's transforming work, but also the introduction and use of the microscope.

No doubt you will already have thought of an event which appears to stand in obvious contradiction to the argument I have been developing—I mean the discovery of vaccination for small-pox, made by Dr. Jenner just as the nineteenth century began. But what were the circumstances of his triumphant achievement? Jenner was struck by the fact that small-pox was never suffered twice by the same person, and he was led by simple reflection and by a tireless but empirical ingenuity amounting to genius, to introduce protective vaccination, inflicting cow-pox for protective purposes as a substitute for small-pox. He knew nothing of the agents he was dealing with or their mode of action, and we know almost nothing of them to this day. To my mind this discovery provides one of the curious paradoxes of medical history. It serves to illustrate again the striking divorce between progress in biological science and progress in the medical arts to which I have been pointing. It gives the converse of what we have just been considering. Here was no new step in science, or the result of any. Jenner tried, as we may say, an ingenious practical dodge; it was not more than that, though it brought the release of whole nations from a welter of pain, and from horrid risks of lifelong disfigurement or of untimely death.

How are we to explain the remarkable relative impotence of the medical profession at the point of time I have arbitrarily chosen—the accession of Victoria? As we have noticed, the basal sciences of anatomy and physiology had made great strides, but the arts of the physician and surgeon remained much as they had been for over twenty centuries before. It is true, of course, that at that time the state of the biological sciences was far behind that of the physical sciences, having regard to the special characters of living matter and the special difficulties of its study. Organic chemistry was hardly born, bacteriology barely dreamed of, and the knowledge of cell life hardly begun. But while recognizing that, it seems plain that a great part of the sterility of practical medicine lay actually in the high development and the attractiveness of the practitioner's work as an art. His work is affected by personal and emotional relationships unknown to the practitioner in engineering and kindred arts. An essential part of the Hippocratic tradition, and indeed an obligation that every honourable practitioner must recognize, is that the physician in serving a patient must concentrate all his attention and effort upon the individual necessities of that particular case, upon its right diagnosis and due treatment; it is his duty to lay aside all speculative consideration irrelevant to the individual set of complexities presented to his judgement. The sterility arising from the inevitable failure

* Extracts from the fifth Norman Lockyer Lecture delivered before the British Science Guild on November 19th, 1929.

of the practitioner studying individual patients to make scientific progress among the complexities of living matter was clearly seen by Francis Bacon. In the dawn of the new physiology after Harvey, active practitioners like Harvey himself, and others like Glisson, Lower, Willis, Mayow, and Sydenham, in that galaxy adorning the seventeenth century, threw themselves eagerly into the work either of direct experimental inquiry or of the classification and study of collected medical observations. But after that bright age the profession in the main held aloof from experiment, and concentrated their efforts upon giving the most punctilious, and at each moment of time the best available, diagnosis and treatment of individuals. The work of individual diagnosis, based on more accurate nosology and on improving arts of observation, became more elevated as an art. But the art remained at best only the skilful attendance upon the natural curative forces of nature. Throughout the many centuries of its development it did not bring any essentially new powers of dominion over the natural processes of disease and of recovery.

Our pause at the beginning of the Victorian Age was convenient because that point marks the opening of a new epoch for the biological sciences. The first artificial synthesis had just been made of a carbon compound, urea, naturally arising in the body, and the new science of organic chemistry had just come to birth. Improvements in the methods of work with the microscope had revealed the structure of the animal cell, and it became possible to express the phenomena of disease as disorders of cell life and not as indefinite "humours" or influences mysteriously affecting the several parts of the body. As the Victorian Age advanced the microscope gave the key to the nature and life-histories of the innumerable internal parasites of man, and revealed the possibilities of man sharing with other animals or with insects an alternate interchange of parasitic agents of disease. The work of Pasteur and of Koch founded the new science of bacteriology and opened the first chapter in our direct knowledge of the swarming world of minute potential enemies or friends of man and in our powers of dominion over it.

The last four or five decades have seen a development of knowledge in the sciences contributing to medicine that has no parallel in previous history. The increase of new knowledge here and in other countries has come, indeed, so tumultuously and so rapidly as to allow no proper time for the necessary adjustments of the machinery of education, or of the traditional systems of medical education. The universities have been embarrassed to make proper provision for this rapidly expanding scientific activity and for the new branches of work that have made claims to constitute new sciences. Problems of the gravest kind in the field of medical education have come upon us so swiftly that reflection and adjustment have not been able to keep pace with them. I can illustrate this kind of difficulty best by saying that the medical student of to-day, coming to his work at the same age and giving to it the same necessary minimum of five years as his predecessor of 1900, is presented with a body of facts two or three times as great and in some subjects five times as great as that with which the former student of the same age and ability had to deal. To meet this state of affairs, full of danger as it is to the real educational welfare of the student to-day, radical changes in method and scope are obviously required and are overdue.

While this period of rapid progress is rapidly changing the traditions and methods of the medical profession, the improvements in general scientific education which have slowly occurred in the last generation are allowing the layman to take more and more an informed interest in his own relations and responsibilities to the scientific workers and to the medical practitioners and officers in whose work and welfare he is so vitally concerned.

Most laymen have observed already the great changes that the rapid growth of biological science has brought about in the conditions of the practice of the physician and of the surgeon. Easily within the memory of men now living surgery has passed from the limitations and horrors of all its previous ages and has become a merciful and delicate art. It has advanced by steady degrees until almost the whole territory of the human body has fallen within its easy mastery. This has been due to the insight, experimental patience, and humanitarian fervour of Lister, whose work is familiar to all. In this past generation, moreover, the surgeon's new powers have brought him new means of observation of the living body. Many have done pioneer work in advancing their craft, of whom Horsley, in this country, must stand as a chief example. These have used the fresh insight they have gained in their professional work to advance scientific knowledge, and have made experimental studies in laborious days systematically dedicated out of the routine and out of the remuneration of professional work. As to the art of surgery itself, it is difficult to imagine that it has any further advance to make of a major kind. Indeed, Lord Moynihan has confessed that in his view the art has almost reached its ultimate limits, undeterred by the fact that the same opinion was held by leading surgeons immediately before the advent of Lister. All present probability is on its side, however. We must believe that we have seen already the zenith of surgery in the world's history, except in so far as it must remain to deal with wounds and accidental injuries. Every step forward in medical science is a step towards the abolition of surgery.

The physician during the same period of rapid scientific progress offers a picture strikingly different from that of his fellow worker in surgery. Science by the hand of Lister gave the surgeon his new fields of work, but it was the surgeon himself who then developed his craft and pushed forward its applications. His new work gave him new knowledge and improved his own powers of diagnosis, and made him increasingly a physician himself, or the more intimate partner of the physician. But the physician's modern progress has not in the same sense depended on himself. Advances in physiology and the new sciences of biochemistry and bacteriology brought new life, of course, to every part of the physician's work and brought him also many new fields of application. But throughout this modern period the initiative as regards new methods and new remedies has steadily passed away from the physician himself to the scientific worker in the experimental laboratory.

We saw that up to quite modern days the physician followed the strict Hippocratic tradition of concentrating his powers upon the welfare of the individual patient. He relied greatly, if not chiefly, upon rest in bed and upon the *vis medicatrix naturae*. He gave drugs for the palliation of symptoms, but had few, if any, weapons for attempting the specific cure of disease. His art, an art highly developed and refined, almost expended itself upon diagnosing accurately the exact process and the end-result of the disease. I am not forgetting, of course, the exercise of his skilled functions in the right management of the patient's state of mind and in giving sympathetic and practical help to his friends—functions which in the physician's art at its best have always invested his office with a high nobility. But through the past generation it has been his medical and non-medical colleagues in the scientific laboratory who have been putting into the physician's hands new weapons of precision, in the forging of which he has played little part himself and the mode of action of which he has to take largely upon trust.

The new sciences of organic chemistry and pharmacology have been yielding many *new drugs* artificially built up in the laboratory, that have specific and measurable *actions* upon particular microbes causing disease. Of these, salvarsan may stand as a type. Chemistry and pharmacology together have also given a new meaning to some of the oldest drugs that, after immemorial use by native tribes, have been prescribed by physicians for many generations. Besides the specific remedies, such as ipecacuanha and cinchona, now provided as weapons of more precision for the physician, another important group of remedies has come into his hands. These are the so-called hormones—substances naturally produced within the body for the chemical control of particular functions. Knowledge of these is the result of the steady development during a whole generation of this branch of physiology, and in this British workers have played an active and most distinguished part.

I must not stay to dwell upon these and the innumerable other resources that have lately been added to the physician's armament against disease, among which I can do no more than mention the large group, including the vaccines and immune serums and antitoxins, coming to him from the work of the bacteriologist and immunologist. I would note in passing, however, that most of these new biological substances used by the physician are incapable of having their effective strength measured by any simple means of weighing or chemical analysis. The indirect methods necessary for measuring and standardizing them have been worked out, or are still being worked out, in what constitutes almost a special branch of research work. Without this the physician would be quite incapable of knowing either what dose to give or whether a given quantity purchased contains any given effective strength, when the life of the patient might be gravely endangered by any excess or deficiency. A piece of legislation for which scientific men have long been pressing gave us in 1925 the Therapeutic Substances Act, which now makes it possible for the physician and his patient alike to have a guarantee that what is sold to him is what it professes to be, both in potency and in purity, and the directions in which this guarantee can be given are being steadily extended as scientific work in the laboratory is enlarging the present possibilities. I must also avoid giving more than a passing reference here to those interesting and varied constituents of food called vitamins, upon the due supply of which this or that function of life is found to be dependent. Yet no chapter of biological science has greater theoretic interest than that which their discovery has opened, and no great step forward in knowledge seems likely to have a more profound influence upon the future of the medical profession and upon our powers of maintaining health and right living.

It amounts to a truism to say that progress in the practical arts of medicine in any of its branches, whether preventive or curative, only comes from the growth of accurate knowledge as it accumulates in the laboratories and studies of the various sciences. We find it a law of our state of being that where only observation can be made the growth of knowledge creeps; where experiment can be made knowledge leaps forward. The observation and description of diseases by physicians over many centuries have led, as we have seen, to almost imperceptible advance. The experimental method, only fully and widely applied in the last generation or two, has given more progress in each decade than all recorded history before. The lay public, however, who hold so vital a stake in this progress of natural knowledge, hear from time to time of a new medical discovery, but in general only after it has been handed over, so to speak, from the scientific workers to the service of practical medicine. The public see it first in the hands of the physician or the medical officer. They see little indeed of the workers from whose labours the new advance has come, or of the patient, skilled, and many-sided efforts that have contributed to its coming. They see and hear of the fruit when it has been plucked for their needs, but they see and know little enough of the tree from which it has been gathered. My chief object to-day is to show if I can how important it is that the educated public should understand the needs of this tree and the desirability of attending to its due cultivation.

We may know in the first place that as the body of accurate knowledge grows, like a tree with its stem and branches, the fruit in practical usefulness will certainly come in due course. All experience shows that. But we know also that the fruit can be expected at no regular season, and the time of its coming can hardly ever be foretold. Blossom and fruit may come upon some newborn twig, while well-established and healthy branches are slow in coming to any practical harvest.

Appetite grows by tasting, and the public, having received some of the benefits from the fruit of this tree, call loudly for more, and forget that none can be expected except by patient attention to the fruit-bearing branches and the patient cultivation of the main stems that bear them. In their bitter need suffering men and women will call out for the rapid production of some particular benefits. They will name their fruit and offer money to obtain it, though they may have long neglected the needs of the tree that alone can produce it, and while they ignore the plain fact that it can hardly ever be foretold from what part of the tree some particular fruit may come. I will drop this parable for a moment and use direct language in illustration. The ghastly menace of cancer that faces almost all of us is becoming more vividly realized since the stupid taboos that have handicapped its discussion have been dropped and since better information has been given of the amount of risk and of what it entails. Eager demand is made that the cause of cancer should be ascertained and a cure provided. The demand is natural, but in making it we must realize that new knowledge about cancer will only come and can only come as an incident springing from developments and use of our knowledge of processes deeply seated and at present hidden within the life of the animal cell. That deeper knowledge is growing, and it is growing in several directions, but no honest man would ever guess along which of them and at what stage the long-desired fruit will be gathered. It may come, as other great boons have come, by some lucky quick development, or it may be long deferred and come at last as the end-point of some extended line of work. No course of action can be supported by the wisdom of experience except that of giving every aid to the full and free development of the sciences which are here concerned. To force any undue concentration upon the immediate practical result must be unwise. Abundant experience has shown it to be sterile.

Another mistake into which the community are not seldom betrayed is to give disproportionate attention to some fruit gathered in a new practical discovery or device. It may be so obviously and highly desirable a boon that when it comes it may excite undue attention and indirectly lead to the fundamental error of forgetting the tree from which it had been gathered. Every personal honour may be rightly paid to him who plucks the ripe fruit from the branch, but it is neither to the honour of the public, nor in the long run, as it can be shown, to their advantage, that this should eclipse the credit due to those whose toil had produced that fruit-bearing branch of knowledge.

Mankind naturally will always be eager for practical progress in medical work. As we have just said, every layman now knows something of the many recent triumphs in medical science, but he knows also that these are isolated and incomplete. He sees clearly that, rapid as our progress has been within a period of years, amazingly short when compared with the preceding centuries, we are not yet in sight of anything like a victory over disease all along the line. To rest satisfied with our present achievements would indeed be a counsel of despair, and nothing could be more foolish or inhuman. Though our failures and deficiencies may be great, yet the successes already gained in the last few years, which are but as a brief moment in the history of man, should give us boundless confidence. Only the growth of scientific knowledge can bring success, and every victory must wait, as we know, upon the efforts of the unseen army of scientific workers. Practical statesmanship will turn at once to consider how that army can be aided and how it can be augmented. Three centuries ago Bacon wrote:

> "If you will have a Tree bear more fruit than it has used to do, it is not anything that you can do to the boughs, but it is the stirring of the earth and putting new mould about the roots, that must work it."

To turn this advice of his into practical effort to-day we must consider in respect of our scientific army the primary questions of recruitment, of pay, and of status.

As to recruitment, it can only be in the universities that the ablest young brains will be caught for the service. While it is true, indeed because it is true, that, as Burke said, "the State is a partnership in all science, a partnership in all art, a partnership in every virtue and in all perfection," that Government will always be wise that makes the universities strong and leaves them free. Much might be said of the modes of recruitment within the universities and of various influences that may impede it. I can only assert now that in the work of medical research there is a real shortage of able recruits. The public some-

times clamour for the removal of some dreadful evil, and expect a discovery to be produced if enough money is subscribed. They do not realize that the number of effective workers can only be increased by slow processes of recruitment and training.

If the service of research workers is to be recruited and maintained, questions of pay and status must have paramount importance. So lately as until just before the war it was the almost universal rule in this country that nobody should be paid for doing research work as such. Unless a man had private means he could only keep himself at research work by being paid to do something else, which very commonly conflicted with it. Much of it has always been done, of course, by university professors and other teachers heavily burdened with routine official duties. Salaries in academic life are in general indefensibly low. Even now professors, who may be most eminent men of world-wide reputations, are fortunate if they receive £1,200 a year, which was the low normal standard fixed by the recent Royal Commission for Oxford and Cambridge, and only a few with special administrative responsibilities receive £1,500. These are salaries which men reaching eminent success in any other walk of life would regard as an offence, and even in the academic world the headmaster of a great public school would think of them derisively. In the junior university posts the salaries are relatively even lower. A man of distinguished ability, whether in teaching or research, may count himself lucky if after an expensive training and years of toil he earns £500 a year before he reaches 30. It is true that since the war the nation has greatly increased the resources of the universities by direct grants made through the University Grants Committee, and indirectly by the funds made available for the several departments responsible for promoting research work in the three fields of agriculture, medicine, and industry respectively. Those bodies have done much to remove the discredit of starvation wages for scientific men, but it is obvious that they cannot do more than lead the way in the right direction, and not so rapidly as to bring dislocation to the university systems.

Luckily the work of scientific research is highly attractive to most eager minds, whether for its intellectual interest or for its promise of usefulness to mankind, or both, and men will always be drawn to it without the lure of high salaries. In my daily work I am continually finding men or women giving service of first-rate value to science and to the nation, yet receiving for their willing toil only a small fraction of what they might have earned in closely allied professional work or in other walks of life. I am very often reminded of what was heard during the war from a wounded man in a hospital in France. A gallant fellow, well over 50, and the chauffeur of a millionaire, was asked why he had left a secure and useful job at home to fight; he smiled through his bandages and said modestly, "I suppose my curiosity got the better of my intelligence." Very many research workers I know are entitled to make the same kind of whimsical but heroic explanation of their motives. Of these not a few face grave danger to their own lives in their laboratory work. In the long fight against yellow fever alone the names of three young English workers, Myers, Stokes, and Young, appear upon the International Roll of Honour of those who have given their lives in that campaign, in which the final victory now seems so near.

Not only fairness, but enlightened self-interest, should provoke any nation to bring the pay of competent research workers to such a level that they may hope in middle life at least to be able to bring an education as good as their own within the reach of their children. Until that is done we are in practice ensuring the sterility of those who, almost by definition, must be counted as among the most desirable begetters of our future stock.

Considerations of all these kinds have special weight in the interests of medical research in particular. Many workers in this field have a medical training, and they are exposed from the beginning to the rival and powerful attractions of medical practice. This is perfectly understandable upon any ground. The medical profession, as Sir James Paget said, "offers the most complete and constant union of those three qualities which have the greatest charm for pure and active minds—novelty, utility, and charity." The attraction towards this noble profession is strong enough without reinforcement by economic and social attractions. Consider how great these must be. Men who are making any progress at all in research work have, by that definition, exceptional ability. Given even a moderate share of character and personality—and many of them have these in rich measure—they could always, by entering practice, double or treble their income, and with good fortune become rich men. Consider the social attractions. By passing into practice they escape the uncertainties and often crushing disappointments of the research life for the immediate certainty of giving help direct to their fellow creatures. They give up the obscurity of the laboratory, with its long hours of unseen toil, for a life of active and conspicuous usefulness among their fellows, and as success comes to them this intercourse brings them friendships among powerful and interesting men and women whom they would never otherwise have met, together with every amenity and comfort of modern life and modern sport. It is at present likely also to increase greatly the chances of advance in public recognition and social rank. By passing into professional practice a man may give faithful and useful service to the community, but his service in research is inevitably, and except in the rarest instances, totally and finally abandoned.

These considerations are too seldom expressed and weighed. The problems suggested are probably soluble only in part during our own age, with its social organization and its standards of value and of reward; but it is practicable at least to set out steadily along the paths already opened towards relieving scientific workers from financial anxiety and towards a better appreciation of their primary value to the State.

I have tried to bring to your minds to-day a conception of the organic growth, with all its ramifications, of a tree of knowledge making the whole body of known biological truth. I have spoken of the largely unseen body of men upon whose efforts this growth depends. Mankind, helpless otherwise, has gained new powers over suffering and fuller life already from the fruits of this growing knowledge, and it waits anxiously for new powers again that may add to those boons. If we look at the brief period in which our present knowledge has grown, a period making an almost imperceptible point of time in the immense ages still stretching before mankind on the globe, we are encouraged to look confidently forward to a long vista of scientific progress that will bring powers of control over the processes of life of which we can hardly at present conceive. These will bring with them resultant changes in human society in a thousand ways now almost unimaginable. The value to the community of a body of men and women working to gain that new knowledge upon which the possibilities of greater happiness and works of greater mercy will spring is great. But it is not to be measured in terms only of those material fruits. The moral health of the whole community must gain from the presence within it of a band of workers whose business it is to seek out the truth and whose work from its nature can only go forward in strict obedience to the truth and by means of its pursuit and expression without fear and without favour. As the Dean of St. Paul's has lately said, in the scientific life "a keen mountain air" is breathed, and something of the tonic air of this must always serve to brace and to elevate the general community.

The true worker in natural science can owe no allegiance to any tradition however venerable, or to any master however beloved. In his work he can only serve and express the truth, and for him the truth is that which can be tested by the touchstone of an appeal to nature. He must forswear any selfish or sectional allegiance: he is "*nullius addictus jurare in verba magistri*," and that phrase of Horace has become in shortened form the familiar and honourable motto of the Royal Society. If we attempt to measure the value of the scientific life within the community we must put in the first place not the material fruits that spring from it, but the service it does to our reverence for truth and for the beauty it portrays

RIVER POLLUTION:

With Special Reference to Securing Steps which can be taken for its Prevention.*

BY

H. McLEAN WILSON, M.D., C.M., B.Sc.,

CHIEF INSPECTOR OF THE WEST RIDING RIVERS BOARD.

There must be very few medical men who have not at one time or another had their attention drawn to the polluted condition of our rivers, but there are fewer still who can remember the foulness of some of the streams in our industrial areas thirty or forty years ago, when little had been done to check their pollution.

To give some picture of the conditions of the streams at that time, I cannot do better than repeat the often quoted paragraph in the report of the Royal Commission of 1865 (pages x and xi):

"The Rivers Aire and Calder throughout their whole course are abused, obstructed, and polluted (to an extent scarcely conceivable by other than eye-witnesses) from Skipton on the Aire, from Todmorden on the Calder down to Castleford. The Rivers Aire and Calder, and their tributaries, are abused by passing into them hundreds of thousands of tons per annum of ashes, slag, and cinders from steam-boiler furnaces, ironworks, and domestic fires; by their being made a receptacle to a vast extent of broken pottery and worn-out utensils of metal, refuse brick from brickyards and old buildings, earth, stone, and clay from quarries and excavations, road scrapings, street sweepings, etc.; by spent dyewoods and other solids used in the treatment of worsteds and woollens; by hundreds of carcasses of animals, as dogs, cats, pigs, etc., which are allowed to float on the surface of the streams or putrefy on their banks; and by the flowing in, to the amount of very many million gallons per day, of water poisoned, corrupted, and clogged by refuse from mines, chemical works, dyeing, scouring, and fulling worsted and woollen stuffs, skin cleaning and tanning, slaughterhouse garbage, and the sewage of towns and houses."

This description of the Rivers Aire and Calder may be said to apply, with more or less accuracy, to many of the streams in the industrial areas, particularly in Yorkshire and Lancashire.

Incidentally, it will interest you to know that at this time the town of Wakefield poured all its sewage and trade refuse into the river without any attempt at purification, and drew its water supply from the river at a point only some three or four miles below the town. The water was purified and supplied to the town, discharged to the river as sewage without treatment, and again abstracted and circulated.

The above picture, black as it is, probably does not represent the worst condition of some of the rivers, although the Calder was then so foul and discoloured that the owner of a riverside mill wrote a complaint in water taken from the River Calder, of which a facsimile is given on page 12 of the third report of the Royal Commission of 1868. Even after this date pollution of the streams materially increased, owing to the rapid increase in population of the industrial areas, the great expansion of trade, the extension of water supplies in towns and villages, and the introduction of water-closets and water carriage of sewage.

After the reports of the Royal Commissions of 1865 and 1868 some spasmodic attempts at the purification of sewage and trade refuse were made, but the results of these did not keep pace with the increasing pollution. During this time of inaction there was one body which was in a way forced to take steps to prevent river pollution—the Thames Conservancy Board—whose duty it was to guard the London water supply. They have always been an active body, working under powers granted by special Acts of Parliament, commencing in 1857.

The passing of the Public Health Act of 1875 and the Rivers Pollution Prevention Act, 1876, showed that the public conscience was becoming stirred by the recognition of the foul condition of the rivers, and during the following years some further attempts were made towards improvement, but these amounted to very little. In 1889, when the county councils and the county boroughs were set up, some of them turned their attention to the improvement of the rivers in their areas, and as one result three joint committees were formed. These were statutory bodies constituted under Section 14 of the Local Government Act, 1888, with the sole duty of administering the Rivers Pollution Prevention Act: the Mersey and Irwell Joint Committee and the Ribble Joint Committee in Lancashire, and a joint committee (now the Rivers Board) for the West Riding of Yorkshire.

These bodies at once began to take action, and coincident with this one or two of the county councils turned their attention specially to the matter—for example, Durham under Dr. Eustace Hill, Derby under Dr. Barwise, and Warwick under Dr. Bostock Hill.

The joint committees and county councils were given no fresh powers for dealing with river pollution; they had to administer the general Rivers Pollution Prevention Act, which could have been brought into use by any sanitary authority. Later, however, special Acts were obtained by the Mersey and Irwell Joint Committee (Mersey and Irwell Joint Committee Act, 1892), and by the West Riding of Yorkshire Rivers Board (West Riding of Yorkshire Rivers Act, 1894), but these added very little to the powers given by the general Act of 1876.

So far as the general sanitary authorities and most of the county councils were concerned little or no use was made of their powers. The reasons for this inaction are not far to seek, at least in the case of sanitary authorities—other than the county councils. They were themselves, for the most part, great offenders, and could not take action against other offenders without drawing attention to their own sins. The inaction of many of the county councils is not so easily explained. Probably the general reason was that their powers were new, their medical officers had a number of new duties placed upon them, and were not provided with the special staffs required to deal with river pollution. They had, in fact, duties of more immediate importance, such as water supplies, removal of crying sanitary nuisances, and duties in connexion with epidemics.

It may be inquired what has been the result of the action of the joint committees and those county councils which have taken up the question of prevention of river pollution seriously. I can, of course, speak with some authority mainly of the rivers in the West Riding.

The condition of the Rivers Aire and Calder, which was so vividly described in the Royal Commission Report of 1865, is now vastly different. Even thirty years ago the River Aire at Leeds was so foul and septic in its course through the city that frequent complaints were received of the injury to health of workpeople in the factories on the river banks. In dry summers the nuisance was felt in the streets of the city, even as far as the town hall, half a mile from the river. This was the condition within the city of Leeds, and the state of matters was worse lower down, after the Leeds sewage and trade refuse, with very little treatment, had been discharged into the river. For example, from Castleford, where the river is churned up by passing over a considerable weir, complaints were frequent, strong, and bitter.

The condition of the River Calder was very similar. There is a fairly large weir across the river at Wakefield, just above Kirkgate Bridge (which is well known to motorists by its Chantry Chapel), and here the smells from the water, broken up by passing over the weir, were extremely offensive; and particularly in times of flood, after a dry spell, the water was so thick with solids washed down from the bed of the river that it might be said to roll rather than flow over the weir. The Aire and Calder Navigation Company, in dredging both rivers for the passage of their boats, had to remove thousands of tons of cinders and other solid refuse.

These rivers are now in a very different condition; there arise no offensive smells from them; their waters are now only slightly discoloured, and the amount of suspended matters they ordinarily carry is less than that of a natural stream in times of flood. These improvements have been carried out in spite of steadily increasing discharges of sewage and trade refuse. The population of the two

* Read in opening a discussion in the Section of Public Health at the Annual Meeting of the British Medical Association, Manchester, 1929.

valleys has increased enormously, with an accompanying increase of sewage; there has also been a great increase in the volume of sewage owing to the spread of the water carriage system of drainage and the extension of sewers, and the amount of trade refuse has greatly increased. Had no attention been paid to the prevention of pollution, the condition of the rivers that would have resulted from all this vast increase of sewage and trade refuse which has been poured into them can scarcely be realized. One is tempted to wish that for a month all treatment of sewage and trade refuse in these two valleys could be brought to a standstill, so that the inhabitants could more fully understand what the work of the Rivers Board has meant to them.

The burden these rivers have to bear in the way of sewage, sewage works effluents, and trade refuse is very great. The Calder below Wakefield, with a dry weather flow of some 100 million gallons a day, has received over 30 million gallons of these liquids; the Aire below Leeds, with a daily dry weather flow rather less in amount, has received about 50 million gallons.

It has also to be noticed that the sewage works of many of the towns are far from complete, although their extension is now in progress. When these various works are brought into full use, and the trade refuse discharges are connected up, as many of them will be in the near future, the improvement in the rivers will be still more marked. There will, however, always remain considerable pollution caused by the discharges from sewers in wet weather. Pollutions by storm water have, indeed, during recent years become more serious owing to the rapid run-off of rainfall from impervious road surfaces, and the Ministry of Health regulations relating to treatment of storm water stand in need of revision, if this form of pollution is to be lessened.

In addition to the work done by the Rivers Board in lessening pollution of what may be called the industrial rivers, like the Aire and Calder, their attention has been constantly directed to the prevention of pollution of the cleaner and more natural streams, such as the Wharfe and the Nidd, rivers which are full of fish. In these valleys there is now no considerable village unprovided with sewage purification works; even small hamlets and detached farmhouses have made some provision for preventing their sewage reaching the streams. As a consequence, these streams have been kept from deteriorating, and their waters are purer than those of some of the rivers which form the source of public water supplies. The water of the Wharfe, for example, below the towns of Ilkley and Otley is purer than the water of the Thames at Hampton.

These are some of the results of thirty-five years of the work of the Rivers Board, although it must be acknowledged that a great deal still remains to be done; it must, however, be remembered that during this thirty-five years there were six or eight years' inactivity because of the war and its effects. All this work may be said to have been done under the general Rivers Pollution Prevention Act of 1876, and the provisions of that Act could have been set in motion by any sanitary authority.

I wish particularly to draw your attention to this statement: any sanitary authority during the last fifty years could have taken the same action to prevent pollution of streams within its districts as that taken by the rivers boards, and could do so to-day, because the legal powers of the rivers boards are no greater than those which every sanitary authority and every county council possesses under the 1876 Act. The only difference is that the jurisdiction of the rivers boards extends over a greater area.

The reasons for the inaction of the sanitary authorities have already been briefly mentioned. There is, under present conditions, little prospect that this inaction will come to an end. What is the remedy? This has been pointed out by commission after commission. I need only direct your attention to the third report of the Royal Commission of 1898, page xxvii, and to the recent report of the Advisory Committee on River Pollution, both of which advise very clearly that joint committees or rivers boards should be set up with powers to deal with the question of river pollution.

Such a board should have under its jurisdiction the whole of a river and its tributaries; it should have an area large enough to justify the employment of its own special staff of inspectors and chemists, and the area should not be so large as to prevent the board's chief officers from becoming familiar with all sources of pollution.

The mode of establishing such a board or joint committee is set out in the report of the advisory committee referred to:

> "It is therefore possible under the law as it stands at present for the Minister, on the application of any one of the county councils or county borough councils through whose jurisdiction a river passes to set up a rivers board to control the whole length of the river, including its tributaries, so far as it is subject to the Rivers Pollution Prevention Acts."

To this procedure I would earnestly direct attention. The Ministry of Health has already sent to all county authorities the report of the advisory committee, and it now lies with these authorities to make the necessary application to the Ministry of Health. The influence of the British Medical Association, and such action as it may take, will go a long way towards bringing about the desired effect.

The cost of such a joint committee need not be great. In the West Riding it amounts to one-seventh of a penny in the pound on the rateable value, and this cost is diminishing, as, owing to the present facilities of travelling, the number of inspectors required has been lessened. The Rivers Board staff consists of a chief inspector, his deputy, a number of district inspectors, and legal, laboratory, and clerical staffs, and these would be necessary for the proper equipment of any rivers board, their numbers, of course, depending upon the area and the number of pollutions to be supervised. Such a board, devoting its attention entirely to the question of river pollution, and with a staff trained for the purpose, is, in my view, necessary before river pollution receives the attention it so urgently needs.

It may not be a legal requirement that a prosecuting authority should suggest practicable means for the purification of a polluting liquid, but in practice the Ministry of Health, whose consent to legal proceedings against a trader is necessary, must be persuaded that such means do exist, and it generally falls to the prosecuting authority to prove this. It is, in fact, my own experience that in dealing with new kinds of pollution many researches and experiments must be undertaken, and the experience of others, both at home and abroad, ascertained, before any application to the Ministry of Health can be made with reasonable prospect of success.

A rivers board has for its first duty action compelling offenders to cease polluting the streams, but I would not have you think that its duties end there; in fact, this is the smaller part of its work. Its officers should be in constant touch with the officials of the sanitary authorities and with traders who have waste waters to dispose of, and should be able to suggest to them the best means to be adopted for the prevention of pollution. In this way a board is able to assist those whom it has power to compel, and the result in numberless cases has led to notable economies, particularly in the case of traders. In this way, and also by insisting that polluted waters are rendered fit for ordinary use, the establishment of a rivers board may be looked upon as economical rather than expensive.

What is the alternative to the establishment of such boards? Either, as in the past, the sanitary authorities will remain inactive, and pollution will go on as before, or, stirred by complaints of new pollutions, spasmodic action will be taken by an authority here and there—action taken without the assistance of any skilled staff, and without the authority being able to assist the manufacturer to put his house in order. This is a most regrettable position for an authority to be in, for every one of them is anxious to attract to its district the establishment of new factories, with their rateable value and their employment of the working classes; and, on the other hand, the traders are generally desirous of carrying out their processes without harming their neighbours, provided that they have confidence in the means to be adopted.

The matter is urgent. Complaints are being made from all over the country, not only of the condition of streams which are recognized as passing through industrial areas, but of some of our beautiful fishing streams in rural country, where until recently practically no pollution existed. These new trade pollutions are of immensely greater magnitude than the old. Formerly there were numberless comparatively small factories with discharges varying between twenty and thirty thousand gallons a day of dirty water. Now, from beet sugar factories, artificial silk factories, and large dairies, the volume of foul water may amount to millions of gallons from one factory in a day. Thus one such large factory may entirely change the character of a formerly clear and unpolluted stream, and I am sure that many of you are aware of this having happened. If such pollutions are not promptly and properly dealt with the deterioration of our streams is certain.

This is a serious matter from many aspects, but especially serious in view of our increasing industries and population, and the difficulty of obtaining sufficient water supplies.

The question of fishing deserves consideration, for instances are known where, by the establishment of one of these modern factories, fish have been utterly destroyed and gathered up literally in cart-loads; and the value of fisheries is very great, although rapidly lessening because of pollution. The pleasure given to countless thousands by the fishing available in our clean streams and their enjoyment of the amenities of our country valleys are also to be considered. Perhaps none but those who have lived in our industrial valleys near a stream fouled by sewage and trade refuse can fully appreciate the delight afforded by a clear running stream in beautiful surroundings. To improve the condition of streams which are already polluted, and to prevent the pollution of these clean streams, is certainly well worth a great effort.

I have said that much good work could be done under the existing Acts of Parliament, but there is no doubt that in many respects these require amendment. This has been pointed out by various commissions, and will no doubt be dealt with by the advisory committee now sitting; but there is no reason to wait for an alteration in the law before putting into force the present powers. There is, however, one point where, possibly by agreement, an important change in the law would be of great value. The powers and rights of sanitary authorities and traders respectively, with regard to the admission of trade refuse into sewers, are by no means definite, and the practice in this matter varies from town to town. Some towns admit to their sewers, and deal with at their sewage works, all trade refuse without terms and without payment. Some towns absolutely refuse to admit any trade refuse into their sewers, and there are many modifications between these two extremes.

To my mind, in industrial areas, no satisfactory purification of the streams will be effected until trade refuse is dealt with along with the sewage of the towns. This, of course, ought only to be on terms of preliminary treatment of the trade refuse, or payment by the traders, or both. The matter has been dealt with by the Royal Commission of 1898 (see third report, paras. 22, 23, and 24, and the ninth report, para. 10). As the Royal Commission has pointed out, it is obviously inadvisable that the law should give the manufacturer "the absolute right" to discharge his refuse into the public sewer. This is evident on considering the case of one of the new large factories, already referred to, established in a small town or country village, where the amount of trade refuse may be a hundred times the volume of the domestic sewage of the place. In any change of the law provision would have to be made for dealing with such cases, but this is no time to discuss details.

I need only refer to one other desirable alteration in the law. Power should be given to some higher authority to decide between the authorities of adjacent districts when they propose, each of them, to set up their own sewage works. It is a scandal to see the countryside dotted with separate sewage works, where these could readily and more economically have been centralized. Without additional legal powers it is nearly impossible to overcome the jealousies between many of these local authorities, although in numerous cases, soon after they have constructed separate sewage works, they wish the policy of combining and centralizing had been followed.

In conclusion, the measures for dealing properly with river pollution are not likely to be thoroughly undertaken until special boards are set up for the purpose. Such boards could be set up, and do good work, under the existing laws. The laws need amending, especially that relating to the admission of trade refuse into public sewers. Every county council and council of a county borough should consider the condition of the rivers and streams within its district, and where pollution exists should represent to the Ministry of Health the desirability of constituting a rivers board.

THE SIGNIFICANCE OF VITREOUS OPACITIES.*

BY

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To assess the true significance of vitreous opacities in every patient is an impossibility, but certain factors help us to come to a decision as to their importance or otherwise in most cases.

In the first place it is essential to recall the embryology of the vitreous. Those of you who were present at the 1927 meeting of the Ophthalmological Society of the United Kingdom will have heard Miss Ida Mann's admirable paper on the development of the vitreous; if not, you have probably read the paper. Miss Mann[1] there states that from the union of the mass of fibrils derived from lens and retina with those from the walls of the hyaloid artery the primary vitreous is formed in the foetus. She goes on to describe the formation of vessels in this vitreous and their subsequent atrophy, forming near the retina an avascular area named the secondary vitreous. After the third month of foetal life fibrils from the growing margin of the cup help to form the tertiary vitreous with a condensation of fibrils from the hyaloid membrane separating the secondary from the tertiary fibres.

As development continues condensation takes place, so that the adult vitreous consists of the primary portion filling the retrolental space and passing along the canal of Cloquet to the optic disc; the secondary vitreous extending from the boundaries of the primary to the internal limiting membrane, and the tertiary forming the suspensory ligament of the lens. The point is emphasized that the vitreous body is not enclosed by a structureless hyaloid membrane, being separated from the retina only by the internal limiting membrane.

The slit-lamp has added much to our knowledge of the structure of the adult vitreous. With a dilated pupil the retrolental space can be made out, and behind it the anterior portion of the vitreous, with its delicate waving fibrils and nodules. Even a portion of the canal of Cloquet can be distinguished, and separate moving bodies in certain cases, pigmented or otherwise. The vitreous is seen to differ in appearance with the individual, and may show a disorganization of what we consider the normal. The rapidity of the movements of the fibrils, their density, or their altered appearance to that of cotton-wool fibres are examples of what is meant. Bedell[2] states that pathological changes in the vitreous depend on changes in the framework and pigmentation, and that framework characteristics are marked by absorption of some fibres and the massing of others. He describes floaters as appearing like fine white lines, isolated fibres, single short threads, as a skein or tangle of cotton-wool, as cotton-like masses, white dots, heavy dust, and as snowflakes. Blood appears as roundish clumps, ovals, granules, and large masses.

With the contact glass much more of the vitreous can be seen; but of this I have no personal experience.

The investigation of the chemical and physical properties of the vitreous has recently been fully undertaken by some

* Read in the Section of Ophthalmology at the Annual Meeting of the British Medical Association, Manchester, 1929.

of our own scientists, and to Mr. Duke-Elder we are indebted for his valuable work on the subject. He describes the vitreous as a colloid gel lying in the meshes of a scaffolding composed of a network of long interlacing fibres. This liquid is practically identical in every way chemically with the aqueous, though more viscid. Protein is contained in considerable amount; immune bodies, fat, cholesterin, urea, sugar, salt, calcium, and potassium are all present. It differs from the aqueous by containing, in addition, a muco-protein and a residual protein whose chemical nature has not yet been determined. In Duke-Elder's own words, "It seems that these two proteins are secreted by the surrounding ectoderm (mainly the retina) and that the common intraocular fluid (a dialysate of the capillary blood) percolates them and swells them up to form a gel."

Continuing his deductions, Duke-Elder[2] argues that any alteration in the metabolism suffices to make the gel fluid with the separation of its protein basis in the form of strands, films, or strings, and this change is due to some internal variation in the economy of the vitreous. What these variations are cannot yet be fully established—probably either a change of salt content or a failure in the efficiency of an autoxidation system. Probably the largest number of vitreous opacities we see in seemingly healthy eyes are from this cause. The haemorrhages and exudates in cases such as irido-cyclitis take place largely from the retinal vessels or the ciliary body, the endothelial cells in the media or intima of the capillary walls being affected by certain toxins circulating in the blood. The function of the cells being impaired a leakage takes place—the leakage taking the form of fibrinous exudates or haemorrhages.

With these facts before us—namely, the changes which take place in the development of the eye in foetal life and after birth, the condensation of the vitreous, and the disappearance of the embryonic elements, the structure and chemical constitution of the vitreous, and the function of the capillaries in the retina—we are in a position to suggest a classification of the most usual vitreous opacities as due to (1) changes in the condition of the capillary walls; (2) changes in the condition of the blood; (3) changes in the vitreous—congenital, traumatic, and mechanical.

1. Changes in the capillary walls, such as thickening, are a fruitful source of vitreous opacities. In arteriosclerosis it is almost the exception not to find floaters, which assume many forms. It may be taken for granted that in most people over middle age capillary changes to a greater or lesser degree are found, and a careful examination of the vitreous reveals in many cases the results of the exudates from the capillaries in the form of floaters.

2. Changes in the condition of the blood are responsible for the largest number of vitreous opacities. Whatever the toxin may be, the nutrition of the endothelial cells of the capillaries is interfered with, and leakage may occur. The grosser opacities found in focal infections giving rise to irido-cyclitis are due to this, but many focal infections may show no other effect in the eye than that of vitreous opacities. As an example of this, a patient examined a few weeks ago showed heavy floaters in the right eye as a result of a very severe irido-cyclitis some three years previously, but the left eye, which had never been seemingly affected, also showed numerous opacities to a lesser degree. To my mind this (and several other cases investigated) would prove that the toxin in the blood may not be sufficiently potent to produce external signs and yet be powerful enough to produce this leakage into the vitreous—a point I have never seen noted. In the more serious systemic diseases one expects and finds such leakage—for example, the numerous dust-like opacities often found in syphilis. In a mild chronic cyclitis which produces little more than an irritable eye I have found floaters in many cases, but the frequency with which they are found in the seemingly healthy eye gives much more room for speculation as to their cause. In the routine examination of a young woman of 25, floaters were found in both eyes, the fundi being normal. I found that she had been feeding her baby for six or seven months, and was feeling run down. A blood change through excessive lactation is a possibility in this case, and an examination of the recently delivered women in the maternity ward of my local hospital failed to show any evidence that any change took place during early lactation. Floaters have been observed in blood diseases showing glandular enlargement, and it is more than possible that the ductless glands also give rise to the appearance of vitreous opacities. A woman whose hair was falling off, whose skin was dry, and who showed other evidence of thyroid interference, gave a beautiful appearance of asteroid bodies in her vitreous. Two years afterwards I examined her again, when the thyroid symptoms had disappeared, as had also the asteroid bodies to a large extent. Another case illustrates the same point. A patient examined two years ago then showed normal fundi and media with low hypermetropic astigmatism. When seen again recently the hypermetropia had increased 1 D, and in the vitreous of each eye were numerous fine floaters, though the fundi were normal. Uncorrected distance vision had fallen from 6/6 to 6/12 in each eye, but the corrected vision was 6/5. The patient said he was run down, his digestion was uncertain, and that his doctor said his heart muscles were weak—all since an attack of influenza a few months previously. These symptoms all point to a toxic condition of the blood with the manifestation in the vitreous of exudates. In several cases of iritis of one eye vitreous opacities were clearly evident in the other, and many similar cases could be cited. The class of vitreous opacities where the protein base of the vitreous separates out owing to deficiency in oxidation or change of salt content, being affected by the changed capillary blood, also indirectly comes under this heading, and most cases of myopic opacities, but reference will be made to these later.

3. (*a*) Congenital remnants. In the condensation of the fibrils it is likely that some residue is separated out, and it is quite possible that some of the single, almost colourless strands we often find in the vitreous are from this cause. Miss Mann is of opinion that condensation of the fibrils continues during life, and in certain cases the effects of this are seen as floaters; the possibility of this change being to some degree pathological must be considered. Also the single dark speck not infrequently seen in children is possibly of congenital origin. Floating worm-like remains of the hyaloid artery are not uncommon, and the attached persistent hyaloid is often seen. These vascular remains are found more frequently in the extreme anterior or extreme posterior part of the vitreous.

(*b*) Trauma, when not sufficient to cause haemorrhage, may still upset the delicate mechanism of the vitreous gel, and a very small degree of trauma may cause separation of the protein base and liquefy the vitreous, producing floaters.

(*c*) Mechanical obstruction, as in venous thrombosis, produces haemorrhages from the venules (not the capillaries) with the unabsorbed residue left as vitreous opacities. It is an interesting fact that retinal haemorrhages occur at birth in from 15 to 20 per cent. of all confinements. These haemorrhages are purely mechanical, and fortunately clear up in the large majority of cases, but we find occasionally in children unexplainable vitreous opacities which may be due to this source.

As some slight guide to the frequency with which vitreous opacities occur I made a careful examination of them in a series of patients in my private practice. I took 100 consecutive patients and included all except those whose fundi could not be examined, either through extensive lens changes or corneal disease. In this series vitreous opacities occurred to a greater or lesser extent in 37 per cent. of the cases. I then took a series of the next 100, and in this the percentage was, curiously enough, exactly similar. Notes were made as to the sex, age, type of refraction, lens changes, and fundus abnormalities, and though from a statistical point of view the result may be of little value, many points of interest came to light. These two series of cases contained a comparatively small number of children, as it was not the holiday season, but the number of cases showing opacities is rather more than one would expect, and it is, if anything, underestimated. In many cases the opacities were of the light, almost colourless, cotton-wool variety, in some cases one or two small specks, in others dust-like opacities, but in the majority of older people, at any rate, a mixed variety.

In these 200 cases there were 33 examples of myopia above 1D, and in 23 of them floaters were found. Only 6 had fundus disease apart from arterio-sclerosis, while in the last-named condition floaters were almost universally present.

In the first place, as to the method of examination—the ophthalmoscope was chiefly employed, the slit-lamp being used only in a few special cases. The luminous ophthalmoscope used in these examinations for vitreous opacities contained two lenses which could be moved coaxially to the path of light and between them an achromatic lens which could be moved up and down along the axis of the instrument by means of a collar. The two lenses first mentioned could be moved out of position, thus allowing the light to fall incident on the achromatic lens. This produced a slightly divergent beam, effecting the result of a plane retinoscopy mirror, and this was found to be the most favourable position for detecting the opacities. Contrary to what was formerly taught, it was found that the greatest possible light that could be reflected on the vitreous made the opacities more obvious. A red-free filter was also available, but only in certain cases was it of any value. Quick up and down movements of the eyeball were made by the patient, and with light focused on the reflection of the optic disc and by adding *plus* lenses of from +5 to +20 little difficulty was experienced, even with an unilated pupil, in detecting the floaters if the method was carried out thoroughly. In the majority of cases where the opacities were very faint they were detected in the posterior part of the vitreous. Whether the position in the vitreous of the opacities has any special significance I have failed to determine, though it is stated that when using the slit-lamp the early appearance of the cells and deposits in the retrolental space is a feature of considerable significance in the detection of early corneal inflammation.

Should it be wished to measure the depth of the opacities with the ophthalmoscope—and I should judge that it is only necessary when we find a large single opacity more or less fixed in position—it can be done by determining the difference in dioptres between the lens by which the opacities are clearly seen and the lens by which the fundus is visible: 1 mm. corresponds to a different refraction of 3D, and so if an opacity is best seen by +8D and fundus with −4D, 12 ÷ 3 = 4 mm. in front of the retina.

Few of the patients examined in whom floaters were found complained of "black spots" until asked directly about them. In several whose chief complaint was the inconvenience caused by spots no vitreous opacities were detected. In some of these cases, where none were found, the slit-lamp showed lens changes almost unrecognizable by the ophthalmoscope. Floaters may be present in large numbers, and may give rise to practically no subjective symptoms, and yet a solitary floater may cause much annoyance. After an illness, or during the stress of heavy office work, or when glasses need to be changed, the floaters appear to cause the patient much trouble. The liver theory that is popular among our patients may have some substratum of truth.

Incidentally, among myopes the subjective symptoms are the most marked, as the uncorrected vision is indistinct and the opacities better projected on the hazy background. The reason why myopic eyes should be more subject to floaters is not fully established, just as the reason for the elongation of the eye is theoretical. Possibly v. Graefe's theory that the elongation is due to an inflammatory process in the choroid and sclera is the most sound, the sclera becoming softer and more yielding. This mild inflammation would give rise to exudates and haemorrhages and hence to opacities. Possibly the changes are so slight as not to be detected with the ophthalmoscope, and so opacities are found in seemingly healthy myopic eyes. In other cases of myopia elongation may take place from congenital deficiency of the ciliary muscle retarding the outflow from the eye and so increasing intraocular tension. This may give rise to internal changes in the vitreous and cause separation of the protein base and ultimately opacities.

In the periodic examination of young myopes, where we find the myopia increasing in a rapid manner we are often in difficulty as to whether to advise withdrawal from school for a period as a means of checking the myopia. Should we find a normal myopic fundus but the appearance of floaters never before noted, or an increase where they have previously been present, it is a decided point in influencing us to advise rest for the eyes.

As previously stated, in cases of marked arterio-sclerosis floaters are generally present as a result of changes in the capillary walls, and their absence is a more favourable sign for prognosis; also, opacities are frequent in eyes with early lens changes, and possibly the cause of the two conditions is similar whatever it may turn out to be. A record of the motility of the opacities before the advancing lens changes obscure the view may be helpful with a view to subsequent operation, or the rate of movement of the floaters may give us some idea of the fluidity of the vitreous.

The size, shape, number, and rate of motility of vitreous opacities vary enormously with the eye and the conditions causing them, but in very few cases do they interfere seriously with vision. I have seen a fixed opacity causing a central scotoma owing to its position, but fortunately this is rare.

I have purposely avoided much mention of large haemorrhages and exudates, new blood vessels in the vitreous, vitreous detachments, congenital abnormalities such as persistent hyaloid artery, and suchlike, as their significance is obvious. In retinal detachments the presence of vitreous opacities would tend to point to a serous origin of the condition rather than to a neoplasm.

One type of vitreous opacities, however, must be described in some detail as their detection is at any rate of academic interest, and probably more than this. I refer to the asteroid bodies first described by Benson—my first teacher in ophthalmology—in 1893. These bodies, when seen by the ophthalmoscope, vary in appearance from white star-like globules, lazily and gently floating in their firmament, changing their position with the movement of the eye, but returning to somewhat the same area, to the snowball variety, more massive and fewer in number, or the more quickly moving and less luminous type. They are easily detected, even with the non-luminous ophthalmoscope, by the indirect method, and it has been noticed that when focused against the whitish background of the disc they often lose their luminosity.

The occurrence of these bodies has been recorded in the literature very infrequently from the time of Benson's case till the last few years, though it is more than probable that they were confounded with cases of synchysis scintillans, from which they differ both in appearance and in origin. The glittering shower of coloured crystals of cholesterin falling rapidly to the lower part of the vitreous is entirely different from the appearances above described. On seeing my first case some six or seven years ago I discovered a description of the condition,[4] and the statement that only about twenty such cases had been recorded. Since then I have seen nine or ten cases, and, curiously enough, have not seen one case of synchysis scintillans in my own practice since that time. One must conclude that the asteroid type is much more common than is generally supposed, and much more frequently met with than the cholesterin type.

Various theories have been put forward as to the origin of the asteroid bodies. Among such theories are: that they are an exudate secondary to tuberculous cyclitis; that they depend on arterio-sclerosis in association with an altered blood condition; that they are formed through deficiency of oxygen in the vitreous; that they are due to disease of the ductless glands through an altered condition of the blood; together with others less likely. The constitution of the bodies has been investigated, and it has been proved that they consist chiefly of calcium soap, calcium carbonate, and a certain amount of fatty or lipoid substance in combination of various grades of stability.

Among my own cases were some old people with marked evidence of arterio-sclerosis; a woman of middle age, in whom the asteroids had cleared up almost completely when seen again after three years, as had the symptoms of thyroidism previously present; a woman aged 35, whose doctor gave her a clean bill of health; and a man of 60, who said that for thirty years he had had chronic indigestion. These cases cannot all have a similar origin, but a

toxic factor in the blood associated with an altered chemical condition of the vitreous may give rise to their formation. Vision appears to be little affected by these bodies *per se*.

Our knowledge is not sufficiently advanced to give a satisfactory explanation as to why some vitreous opacities are completely absorbed and why some remain easy of recognition by the ophthalmoscope and slit-lamp. So long as the toxic state of the blood or the weakened condition of the capillary walls continues the floaters are likely to persist, though the removal of the cause does not in every instance clear the vitreous.

Absorption can be hastened by medicinal and local treatment. Iodides internally and diomine externally appear to be the most efficient drugs, though many other drugs are used. Aspiration of the vitreous is helpful where the floaters are so heavy as to interfere seriously with vision, but I have no personal experience of this method of treatment. The detection and removal of the focal source of infection is, of course, indicated.

To sum up, we find that vitreous opacities must be considered in the light of the surrounding picture—the shape of the eye; the condition of the fundus, of the vessels, and of the lens; the age of the patient and his general physical condition, past and present. The occurrence of opacities in the vitreous is comparatively rare in children, but frequent in middle life and old age. Their presence is more frequent than we are led to suppose, and in the aged they are a usual occurrence when arteriosclerosis is present. In myopia of even moderate degree floaters are frequently observed in adults, and in young people showing progressive myopia their appearance must not be disregarded. In early cataract the occurrence of vitreous opacities is common, and it is quite possible that the cause of these may be the same as that which leads to the lens changes.

Much the most usual cause of vitreous opacities is an altered condition of the blood due to general or local toxic causes; they may, indeed, be the only sign of focal infection in the eye. The glandular system, and even the ductless glands, may be a factor in their causation.

Apart from those of developmental origin, all vitreous opacities have some special significance, though their origin, as in the case of focal infection, may be difficult to discover.

The cases in which vitreous opacities interfere seriously with vision are few, and the subjective symptoms caused have little proportion to the number of vitreous opacities present.

The careful noting of the presence of vitreous opacities and their rate of mobility will have its reward in the future treatment of our patients, is often an aid to prognosis, and may aid us as to the expectation of fluid *vitreous in cataract operations*.

This very inadequate review of a subject which has hardly had its proper place in the literature of ophthalmology may lead to its study by others; it is a subject of which much has yet to be learnt, but which, with modern and more adequate methods of examination of both the vitreous and the general condition of the patient, is capable of much exploration.

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A CASE OF EMBOLISM AT THE BIFURCATION OF THE ABDOMINAL AORTA TREATED BY OPERATION.

BY

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THE following case is reported because it presents several points of interest. The condition is a very rare one; our investigation of the literature shows that less than a dozen cases have been reported—mostly from Sweden—and all have ended fatally. Heart disease has been present in all. This case is, we believe, the first of its kind to be published in this country. Embolectomy has been successfully performed for emboli in other large vessels; Jefferson[1] reports some 28 successes; one of the chief factors in this respect seems to be the time of operation—any time up to twelve or fifteen hours gives a fair prospect of success. Our patient was not operated on until thirty-six hours after the onset. Circulation was, however, successfully re-established—this is the second reported case only in which the circulation has been re-established after so long an interval. As the patient died twenty-four hours after the operation it is impossible to be sure that the recovery in the circulation would have been permanent, but the post-mortem appearances were such as to suggest that at even so long an interval after the onset it is worth while attempting to free the vessel of clot. The multiplicity of emboli in this case, and in many others reported, has been the determining factor in producing an unsuccessful result. The clinical record is as follows.

A married woman, aged 62, was seen by one of us (J. le F. B.) on December 23th, 1927, and admitted to the Leeds General Infirmary the same morning. The history was as follows. The patient had not been well for a few weeks; she was easily tired and out of sorts. There was a history of rheumatism in her youth, but she had enjoyed fairly good health on the whole up to a few weeks prior to admission to hospital. The day before she was seen she was seized with a most sudden and severe pain in the left iliac region, which was promptly followed by loss of power in both legs. The pain continued to be most severe to the right and left sides below the umbilicus, but settled down chiefly in the left iliac region a few hours before she was seen. She complained of complete loss of power and sensation in both legs. She was unable to pass her water.

When seen by one of us (J. le F. B.) on the morning of admission to hospital there was a complete flaccid paralysis of both lower extremities, with loss of reflexes and all sensation. There was no pulsation below the bifurcation of the abdominal aorta, and both legs were cold and pale. Short mitral presystolic and systolic murmurs were audible, and a diagnosis of thrombosis of the abdominal aorta was made on the spot. It was recognized that the patient was very gravely ill, and her immediate removal to hospital was urged. Thereafter she was under our joint care, and as no improvement was noted within twenty-four hours it was decided to make an attempt to remove the clot from the aorta. The operation was decided upon in the forenoon of the day after admission. The following are the details of the operation.

The abdomen was opened by an incision about 4½ inches long to the left of the middle line and the aorta exposed. There was no pulsation beyond about one inch proximal to the bifurcation. The aorta was controlled some 2½ inches above the site of the clot by the fingers of the assistant and by a light rubber clamp, and then opened for 1½ inches longitudinally. Much dark clot extruded and was extracted from the aorta and both common iliac vessels; the clots were some six inches in length. The aorta was stitched with interrupted through-and-through sutures of fine silk in one layer. On releasing the aorta pulsation returned at once in all the iliac vessels, and could be felt easily in both popliteals. There was no leakage from the suture line or the stitch holes. The abdomen was closed in the usual way without drainage.

The appearance of the abdominal wound was very striking; in the upper half there was the usual bleeding after making the incision; the lower half had a greyish-green colour and bled not at all. After the aorta had been freed of the clot, sutured, and released, the lower half of the abdominal wound began to bleed freely and assumed the normal ruddy colour.

It is interesting to note that, though the operation was not performed for some thirty-six hours after the sudden blocking of the aorta, when both limbs had completely lost all power of movement, and were cold and had assumed the purplish mottling seen post mortem, yet the circulation was apparently completely restored and power in the limbs was returning after the clot was removed.

At the subsequent post-mortem examination all the veins of the legs were patent and showed no evidence of clotting; in view of this and the other post-mortem findings, it seems reasonable to assume that death was due to clotting in the cerebral vessels, the

clot being derived from the heart, and that death was not due in any way to the derangement of the circulation in the lower extremities, or its sudden return. The embolus was approached by the abdomen rather than retrogradely by way of the femoral vessels *because the physical condition of the patient was satisfactory* for the abdominal route.

Subsequent Progress.—The patient stood the operation well, and pulsation was evident in both popliteal arteries and the posterior tibials the evening after the operation. She seemed very toxæmic, and the pulse was quick, though it slowed down to about 80 per minute the same evening. She died rather suddenly at 9.20 a.m. the following day, from a simple failure of respiration and heart, without any further incident such as might point to pulmonary emboli or embolic lesions in other organs. A post-mortem examination was performed the following morning.

Externally was seen a recent abdominal incision which appeared to be a healthy abdominal operation incision. The thyroid contained three adenomata, and was moderately enlarged. The tracheal and bronchial glands were small and pigmented. The lungs were healthy. The heart was obviously dilated. There was an increase in subpericardial fat. The right auricle was much dilated and the tricuspid valve admitted three fingers easily. The cusps showed chronic thickening. The coronary arteries were normal. The mitral opening admitted only one finger, and the cusps showed evidence of old sclerotic endocarditis with a superimposed recent acute endocarditis. Multiple small vegetations, with a small blood clot still adherent, were seen. Both cusps were affected. The aortic valve was competent, and the cusps showed very slight patchy thickening; the right posterior cusp showed a tiny vegetation. The abdominal aorta, which had been exposed and incised at operation, was found to be closed efficiently; there was no leak anywhere. On opening the aorta and its iliac prolongations there was found to be a very small adherent clot, and below in the iliac, especially the right external iliac, there was an adherent clot. The internal iliac was clear on this side. The veins appeared to be clear—this includes the popliteal femoral, and iliac. The right popliteal artery contained a clot, probably post-mortem. The aorta was notably small.

Brain.—Pia-arachnoid: there was a diffuse haemorrhage over the right occipital pole and the left frontal lobe. On section this was seen to be due to obvious recent infarction. Attached to the dura and tucked under the anterior pole of the right temporal lobe was a circumscribed mass which resembled endothelioma, although it might have been of circulatory origin—? infarction.

The spleen contained a recent large infarction in its upper pole. The upper pole of the left kidney contained a large infarction and evidence of an older one. The liver and other organs were healthy.

Comments.

The diagnosis was comparatively easy, owing to the lack of peripheral pulses in the legs.

This case also shows how it is possible safely to open the abdominal aorta and restore its integrity; and if the patient had lived long enough opportunity might have offered to study whether the wound of the artery would have led to any subsequent aneurysm or blocking of the vessel by later clotting.

The cause of death, in the light of the post-mortem findings, was evidently a sudden embolism which travelled towards the brain. There was no convulsion, but the patient died quite suddenly after appearing to rally from the operation. The loss of sensation very closely corresponded anatomically in its upper limit to the first lumbar nerve root on the surface; there was actual tenderness on pressure over the bifurcation of the abdominal aorta, and the striking feature of the case was the intense pain complained of, chiefly below and to the left of the umbilicus and in the left iliac region.

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GLUCOSE: WHEN AND HOW TO USE IT.*

BY

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WHEN I was a child I read a book entitled *Madam How and Lady Why*. Its author, in ennobling "Why" and making "How" a commoner, symbolized a profound truth; it is one thing to know the workings of natural phenomena, but quite another to discover the reason which underlies those workings. My old professor of chemistry used to say: "Don't bother too much about *why* things happen. If you know how they happen, can make them happen, and can control them while they are happening, it does not much matter what theory you use to explain your results."

My subject to-day is the use of glucose—chiefly as an antidote to the shock of operation and anaesthesia—and the mechanism of its working according to McDonagh's theory of electrical and other changes in the body protein, which he expounds in his book *The Nature of Disease*.

McDonagh's theory seems to me not only to explain much that was obscure in pathology, but also to show many directions in which physicians, surgeons, and anaesthetists can advance in their use of the means they already possess. Its exact truth does not matter so long as it helps us to get better results, and this it undoubtedly does. Its substance is as follows:

If the blood serum of a healthy person be examined under dark ground illumination it shows a large number of little globular refractile particles in colloidal suspension, exhibiting Brownian movement. These are known as protein particles; they exist throughout all the tissues of the body, but those of the blood are the most convenient for examination. Each protein particle can be compared to a solar system; its sun is the protein nucleus, and its planets, in the order of their distance from the nucleus, are fats, amino-acids, urea and uric acid, sugar, inorganic salts, and electrons. The whole system is kept together by water, as is the solar system by gravity. It is always being attacked by hostile substances, whether chemical products or micro-organisms, which tend to break it up. The most distant "planets," since they are the least closely attached, are the first to be split off. An invader, therefore, will strip off the electrons first; their electrical energy is dissipated in the form of heat and the body temperature rises. This appears clinically as fever. Then the salts are broken off; those which the plasma cannot hold are excreted in the urine. As the attack develops, the sugar, urea and uric acid, amino-acids, and, lastly, the fats, are reft from the protein nucleus and dissolved in the plasma, leaving the nucleus bare. In the end this itself fades away into true solution. Now as these planets are stripped away one by one, the water in which they swim is set free; the process is therefore called "dehydration." Some of the particles, however, undergo dispersion—that is to say, they subdivide to a certain point and there stop; there is a numerical increase and, in places where their volume exceeds that of the liquid present, the liquid and solid colloidal phases of the blood may be reversed. Instead of being a suspension of solid particles in a watery medium, it becomes a suspension of liquid globules in a solid medium; in other words, it "sets" like a jelly. This is called "gelation," and when it happens the patient suffers from intravascular clotting and thrombosis, which cause the clinical signs of cerebral sinusitis, hemiplegia, pulmonary embolism, and thrombosis, hyperemesis gravidarum, phlegmasia alba dolens, and a host of other conditions. Though gelation may occur primarily, it occurs more often secondarily, as a cyclical change of hydration. This explains why venous thrombosis is met with more frequently after operations and in the puerperium.

Now when the protein particles are being subjected to dehydration they do not follow one another like sheep. Only some of them are dehydrated—that is, split up into their constituent planets and driven into true solution, or dispersed; others resist the process, and they have only two means by which they can do this: one is to increase in size, the other is to agglutinate, or cling together. Since in both cases they take up water, they are said to become "hydrated," the opposite of dehydrated. When protein particles hydrate, their planets are at once drawn into a more intimate connexion with the nucleus and resist the more stoutly any attempt to split them off. Protein particles which have been hydrated tend to draw in upon themselves and work out their own salvation. Hydration is for the most part a defence mechanism.

* Read in the Section of Anaesthetics at the Annual Meeting of the British Medical Association, Manchester, 1929.

evoked by a slow, insidious chronic invader like cancer, chronic tobacco poisoning, syphilis, tuberculosis, or alcohol, and chronically hydrated protein particles are very difficult to reduce to normal.

Hydration may, however, also be produced suddenly, as by a drug with a large nucleus like insulin, which produces a considerable lowering of surface tension. When this happens, the swollen or agglutinated particles may be precipitated from the blood stream in masses large enough to block the capillaries. This change produces the condition known as shock, which may be cerebral, pulmonary, or splanchnic, according to the viscus in which precipitation chiefly takes place.

ANAESTHESIA AND THE PROTEIN PARTICLES.

The behaviour of the protein particles gives a valuable guide to the anaesthetist, first in preparing the patient and secondly in averting the ill effects of the shock which is inseparable from all anaesthesia. One of the most interesting facts which appear from a study of the protein particles is that anaesthesia and pregnancy affect them in very similar ways. The essential features of any anaesthetic are that it shall produce simultaneously a sudden dehydration of some of the particles and a sudden hydration and precipitation of the rest, in exactly the proportion required to cause unconsciousness. Pregnancy produces the same effect, with the difference that anaesthesia may do in seconds what pregnancy does in months. If the proportion is wrong, the same symptoms occur both in anaesthesia and in pregnancy. Excessive dehydration due to an anaesthetic causes vomiting; that due to pregnancy causes hyperemesis gravidarum. In anaesthesia and pregnancy alike the processes of dehydration and dispersion may continue to the stage of gelation and cause some form of venous thrombosis, such as pulmonary embolism. Excessive sudden hydration, on the other hand, produces the familiar condition known as shock.

The Treatment of Shock.

Shock is caused by sudden hydration of the protein particles and their consequent precipitation in the capillaries and pericapillary lymphatic vessels, which they obstruct. If they block those of the brain they produce fits, convulsions, coma, and sometimes death; if they block those of the lungs, they cause pulmonary collapse; if they block those of the abdominal viscera, the result is vomiting and diarrhoea. The lowering of the body temperature in shock is due to the adsorption of heat by the hydrating protein particles. In the worst forms of shock the blood collects in the big veins, in less severe forms in the important viscera. In mild or prolonged shock congestion is selective and confined to one or a few of the important viscera. The congestion due to anaesthetic shock selects first the brain, then the lungs, and finally the liver.

The value of glucose before, during, and after operation lies in its power of dehydrating rapidly those protein particles which have been hydrated by the shock of the anaesthetic and the surgical assault. The process can be watched under the ultra-microscope. When glucose is run into a field containing a number of slow-moving hydrated or waterlogged particles, some of which are agglutinated, the effect is almost miraculous: the agglutination breaks up, and the bulky spheres are shattered in a few seconds into multitudes of tiny globules. The same change takes place in the body, and the clinical effect is to pull a badly shocked patient together in a few minutes. The temperature rises, the colour returns, sweating ceases, and the patient settles down into normal respiration. Transfusion of normal blood produces the same effect, and for the same reason: it dehydrates the particles which the operation and the anaesthetic have hydrated in excessive numbers.

It is obvious that in treating acute shock the first consideration is to give enough glucose at once, and for this reason steps have to be taken to guard against an overdose. If exactly the right amount were given it would all be absorbed by the time the hydrated particles returned to normal, but in practice it is impossible to gauge the correct dose. Glucose is therefore given intravenously in large doses; the particles are dehydrated or dispersed, and the symptoms of shock pass off. But the protein particles, though they are brought back to normal, will not remain so, because they are unstable. They have lost their electrons, their furthest planets, or else they would never have become hydrated. They therefore proceed past the normal stage into dehydration and dispersion; they are broken up into their component planets and greatly increased in number, and, if the process is not checked, gelation and thrombosis occur. There are two ways of checking the dehydrating action of glucose so as to avoid thrombosis. One is to give fifteen to twenty units of insulin, a powerful hydrator, about two hours afterwards, when the glucose has exerted its maximum effect. This prevents too many particles being sent into true solution by the glucose. The other method is to give a "conductor," or a substance which will supply the particles with the electrons they need and stabilize them. Conductors are of no value when hydration or dehydration have progressed far, but are very valuable in the initial stages, when only electrons are lost, and also when particles are passing through the normal phase on their way from one abnormal phase to the other. One of the most effective conductors is S.U.P. 36, or, to give it its full name, the symmetrical urea of para-benzoyl-para-amino-benzoyl-1-amino-8-naphthol 3:6 sodium sulphonate. S.U.P. 36, like insulin, should be injected on the first sign of recovery. Oxygen acts like glucose when given subcutaneously, but it is not so potent. It is therefore usual to give intravenous glucose with subcutaneous oxygen in severe cases only, but in mild ones to neglect the glucose and merely give 500 to 1,000 c.cm. of subcutaneous oxygen. Oxygen acts so mildly that there is no fear of dehydrating the protein particles excessively; insulin is therefore unnecessary.

PREPARATION OF PATIENTS FOR ANAESTHESIA.

Chronic alcoholics, late-stage syphilities, and patients with malaria, trypanosomiasis, cancer, and other chronic ailments are notoriously difficult to anaesthetize. There are two reasons for this. The first is that their protein particles have been subjected to a long and increasing process of dehydration, and there are not enough normal particles left to undergo the chemico-physical changes necessary to bring about anaesthesia. The second reason is that many of the protein particles left in the colloid state have undergone secondary hydration, and the first effect of the anaesthetic—namely, dehydration—upon these enlarged particles is to cause them to undergo dispersion. The normal process of anaesthesia cannot take place until the hydrated particles are broken down and then subjected again to hydration by the anaesthetic. These patients therefore need preparation for some days beforehand with intravenous injections of colloidal iodine, and intramuscular injections of sulphur in the form of contramine, the carbon disulphide compound of di-ethyl amine.

Purging and starvation should be, and rightly have been, relegated to the limbo of barbaric things, as they exhaust the glycogen reserves of the liver, the patient's natural defence against shock, and produce the very condition which the anaesthetist is trying to avoid. It is always desirable, especially in the bad risk case, to examine the patient's protein particles several days beforehand. If hydration is present a course of intravenous colloidal iodine and of intramuscular contramine should be given; the night before the operation glucose should be injected intravenously, together with subcutaneous oxygen. The colloidal iodine and contramine act slowly, and in obstinate cases may require several weeks to produce the desired result. The glucose is given slowly, at the rate of about half a litre an hour. It is stored in the liver, and given out as required to correct excessive hydration due to operation or anaesthesia.

POST-ANAESTHETIC TREATMENT.

If most of the particles are dehydrated after operation (and this is not likely until the third day or later), the patient should be given insulin, but it is important not to give insulin if many particles are hydrated, for the sudden increase in hydration which it produces may cause fatal shock. The clinical signs of post-anaesthetic gelation are a rise in temperature and vomiting, cyanosis, or fits, according to whether thrombosis takes place in the splanchnic vessels, lungs, or brain. If the disturbance is in its initial stages and the temperature is high, S.U.P. 36 should be exhibited, but if two or three days have elapsed

since the operation and the patient is still vomiting, insulin should be given. When post-anaesthetic hydration is feared, intravenous glucose and subcutaneous oxygen should be administered rapidly, any excess of glucose being excreted by the kidneys. Pulmonary hydration is especially likely to occur after prolonged anaesthesia in a bad subject if the patient has recently received an injection of a substance with a large nucleus and high molecular weight, such as intravenous arsenobenzene or S.U.P. 36. Glucose and oxygen should therefore be given to all patients who are under treatment for syphilis.

A rough and ready test for determining whether the vomiting is due to splanchnic shock—caused by the precipitation of hydrated protein particles in the abdominal viscera—or to dehydration of protein particles, is to draw off some blood in a syringe. If the blood flows readily and is bright red the protein particles are probably hydrated, but if it flows with difficulty, clots rapidly, and is dark in colour the particles are probably dehydrated. It is most important to determine which condition is present, as the wrong treatment will only accentuate the disorder it is desired to remedy.

The Orthodox Attitude to Glucose.

Surgeons have recognized the value of glucose without, for the most part, understanding its action. The general tendency is to focus attention on ketosis, which is one of the by-products of shock, and to counteract it by giving glucose in the belief that it replaces the large quantities of sugar consumed in the state of shock or under anaesthesia. The empirical surgical attitude, which is correct within limits is well represented in Barrington-Ward's book *The Abdominal Surgery of Children*. The author rightly eschews purgatives and enemata, and provides the child on the day before the operation with a full diet and a bottle of barley sugar. A light meal and more barley sugar are given on the morning of the operation. When the operation is severe or the patient's resistance appears to be low, a 5 per cent. solution of glucose is given subcutaneously during the thirty-six hours before operation. Older children receive a 10 per cent. solution of glucose in water per rectum. In very anxious cases transfusion is performed and salines are injected during the operation. For the treatment of post-operative ketosis Barrington-Ward gives 10 per cent. glucose per rectum every four hours, or 5 per cent. glucose intravenously, preferably by Matas's drip method. His remarks on alkaline treatment are very interesting from McDonagh's point of view. Quoting the work of Brown and Graham, he says that sodium bicarbonate cannot be depended upon to reduce the acetone in the blood and urine, but is beneficial in producing a rapid return to normal of the low alkali reserve. Glucose, on the other hand, he remarks, causes a rapid diminution of the blood and urine acetone as well as a rise in the alkali reserve, and arrests the formation of ketone bodies. While advocating large doses of sodium bicarbonate as an adjuvant, he definitely gives it second place. The reason for the success of glucose is, of course, not that it substitutes missing sugar, but that it goes straight to the root of the trouble and dehydrates the protein particles. This is proved by the fact that other chemicals which cannot replace sugar, such as di-hydroxy-acetone and adrenaline, produce the same result.

The Technique of Glucose Administration.

Glucose solution, to exert its full effect, must be used within twenty-four hours of its preparation. I always use and recommend a 10 per cent. solution at a temperature of 100° F. Before an operation it must be given slowly, or it will rapidly be excreted by the kidneys. When it is administered slowly any excess is absorbed by the liver as glycogen and let loose into the blood stream in the form of glucose as required. If the patient's protein particles are already hydrated, the glucose can be given faster than when it is merely desired to increase the glycogen reserves.

The use of glucose at operations can be summarized as follows:

A. Always give glucose before a severe operation: (1) when the liver efficiency is suspected—for example, where there is a history of jaundice; (2) when the metabolic rate is high—for example, in Graves's disease; (3) when the patient is undernourished or emaciated.

B. Always give glucose after a severe operation when a blood transfusion is impossible.

C. Give glucose after any anaesthetic: (1) where loss of blood has been heavy and blood transfusion is not practicable; (2) where the patient shows signs of shock—cerebral, pulmonary, or splanchnic; (3) where glucose has not been given before the anaesthetic; (4) where a rough surgeon has operated, or where it has been necessary to use more than the usual amount of anaesthetic; (5) where there is a history of epilepsy.

TRAUMATIC RUPTURE OF THE STOMACH.

BY

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In the *British Medical Journal* of July 27th Mr. F. Hector Scotson published two very interesting cases of rupture of the stomach alone, from external non-penetrating violence, which, owing to absence, I have only just seen. That this condition is very rare is evidenced by the literature on the subject from British sources which he has so ably collected.

It may be of interest to quote some extracts from foreign literature on the subject before recording a case under my care in 1927.

Rehn[1] in 1896 collected 13 cases, of which only 2 were uncomplicated. Only 2 recovered, including Rehn's own case.

A. Schwarz[2] in 1909 reported one fatal case in which both stomach and duodenum were completely torn through.

A. Piancastrelli[3] in 1922 stated that only 22 cases of traumatic subcutaneous rupture of the stomach could be found in literature. In his case, the twenty-third, which proved fatal, the abdominal wall under the skin was ruptured and the stomach almost divided in half.

G. Ipsen[4] quotes a case of his own in the same year, in which the rupture was in the pylorus, and the patient recovered.

H. Neuberger[5] quotes a fatal case of his own in which there was also injury to the pancreas. He is of opinion that the grave prognosis in these cases is due to concomitant injury to the ganglion coeliacum, which lies dorsally to the stomach.

From this it will be seen that only 9 cases were of rupture of the stomach as the only viscus, and that only 3 recovered.

My own case, like those of Mr. Scotson, showed no signs of external injury, and was not complicated by injury to any other viscus.

A seaman, aged 29, was admitted to the Royal Naval Hospital, Malta, on January 27th, 1927, with a history of having fallen from a ladder and been struck in the lower abdomen by a piece of iron projecting about 12 feet below. He had had a full meal about one and a half hours previously. The patient, a very small, spare, and well-developed man, was groaning and doubled up. There were signs of shock, and the pulse was 92. There was no sign of any injury to the abdominal wall. The abdomen generally was held rigid, but was not board-like, and the patient sat up to take off a tight garment. There was no dullness in the flanks. The liver dullness was present, and there was no hyperaesthesia to pin reflex. Pain was referred to the lower abdomen and radiated down to the testicles. Clear urine had been passed twenty minutes before examination. He was suffering from marked shock, and groaning, with intervals of quiet.

In the absence of any marked physical signs I decided, wrongly as it turned out, to wait for further signs; after five and a half hours the pulse rose to 120, there were distinct signs of tympanites, and the leucocyte count was 15,300. He was therefore given a general anaesthetic, and the abdomen was opened by a right central paramedian incision. The peritoneal cavity was found to be full of turbid fluid. On swabbing this out it was found to be coming from the right upper quadrant. The incision was therefore extended upwards. A hole with everted mucous membrane, and easily admitting the forefinger, was found on the anterior surface and near the greater curvature in the pyloric end of the stomach. Its appearance was almost identical with the picture of this condition in Walton's *Surgical Dyspepsias*. There were no signs of any ulcer present. The gall-bladder was covered with a lymphatic exudate. The liver edge was bruised but not torn. There were no signs of injury to any other viscus. The burst was sewn with Lembert over primary deep sutures, peritoneal toilet performed, and a drainage tube was placed in the under surface of the liver.

The patient was almost pulseless at the end, and nearly died of shock, although the operation did not take long owing to the patient's favourable build. Severe shock lasted for twenty-four hours, but was overcome by intravenous glucose saline. He

eventually made a good recovery and returned to duty. He was well and fit a year afterwards, when I last heard of him, and suffered no inconvenience.

In this case the shock, as compared with a case of perforated ulcer, was out of all proportion to the injury and the subsequent operative "manhandling," and suggests Neuberger's theory that in these cases there is usually some damage to the coeliac ganglion.

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AUTO-BLOOD-TRANSFUSION IN TWO CASES OF RUPTURED TUBAL PREGNANCY.

BY

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AUTO-TRANSFUSION, first used in Germany by J. Thies in 1914, appears to have found more favour in that country than in England or America. Reports received are, however, eminently satisfactory, and it is difficult to understand why the method is not more frequently adopted in cases of emergency, when much recoverable blood has been lost. Two cases illustrating its value are here recorded.

CASE I.

A woman, aged 36, who had been married eleven months, was admitted to the Royal Surrey County Hospital at 11 a.m. on June 14th, in a collapsed condition. No pulse could be felt at either wrist, and there was considerable dyspnoea. She was conscious. She had had amenorrhoea for two months, and had remained well until the evening before admission, when, at 8 o'clock, she was attacked with violent abdominal pain, diarrhoea, and vomiting. Thinking that the attack was due to some error of diet, her husband gave her castor oil, brandy, and gin. She spent the night in great agony, and fainted in the morning; arrangements were at once made to remove her to hospital. Her menstrual history had been normal except for dysmenorrhoea; she was curetted at the age of 23 with some improvement, and there had been no dysmenorrhoea after marriage.

Operation.—The abdomen was opened and found to be full of blood, which was mostly fluid, but there were many large clots. Three pints of it were ladled out of the abdomen into a large jug; the larger clots were rejected, but many clots went into the jug. This blood, strained through several layers of gauze, was citrated and 1½ pints were transfused into a vein in the right arm by my colleague Mr. Steele. The left tube was found to be ruptured at the ampulla and was removed. The ovum was not seen. At the end of the operation the patient had a small but countable pulse, and by evening her condition had ceased to cause anxiety. Convalescence was smooth and uneventful.

No suitable donor was available at the moment, and I feel certain that the reinfusion is responsible for saving the patient's life.

CASE II.

A married woman, aged 38, with nine children, the youngest aged 1 year and 4 months. The last menstrual period ceased on October 5th, 1929. At 7 p.m. on October 29th she was taken with sudden severe abdominal pain, which continued throughout the night. She was admitted to hospital in a collapsed condition at 1.30 p.m. on October 30th, completely blanched; the pulse was just palpable, but not countable, and could not be felt at all during her preparation for operation, though it was just palpable at the wrist immediately before operation.

Operation at 2.30 p.m. under gas-oxygen anaesthesia. Three measured pints of blood were rapidly ladled out of the abdomen and put into a jug, being filtered through several layers of gauze. This was again filtered into another jug containing the appropriate quantity of the solution of sodium citrate, and from thence infused into a vein in the right arm by Mr. Steele, the infusion being finished at the same time as the operation. The left tube was ruptured in its middle portion and was removed; the ovum was not seen.

The patient went back to bed in good condition. There was very little coagulation of blood in the abdomen, and she must have recovered a very large proportion of the blood she had lost. There was no shock or reaction, and at 6 o'clock the same evening she was sitting up in bed with a good colour, talking to her neighbours, a little excited by her adventure, but otherwise none the worse. There has been no hitch in her recovery to date.

Presumably the dislike of reintroducing into the circulation blood which has been lying in the abdomen is due to the fear of sepsis or of the blood having acquired some toxic character secondary to congulation. As a student I was taught that the raised temperature, which so frequently accompanies the process of absorbing blood which has been effused into the tissues, was due to the absorption of *fibrin; but from the recent experiments* of Horace Greeley,[1] it seems likely that the poisonous property is present, or also present, in the defibrinated blood, and is dependent on the disintegration of platelets. When there is no reason to suspect contamination, the danger of sepsis does not appear to be a large one, as no cases of septicaemia following autotransfusion have been reported. Burch[2] recommends that blood, even when known to be contaminated, should not be thrown away, but should be given as a rectal drip.

The fear that reinfused blood may have some toxic action is not confirmed by a study of the reported cases. Topler[3] reports twenty-four cases of smooth recovery after reinfusion, in ruptured extrauterine gestation; similar success accompanied Burch's four personal cases. In the 164 cases reported in European literature (collected by Burch) there were only fourteen deaths, and of these only one (haemoglobinuria) could possibly be attributed to the toxic character of the blood reinfused. In only six cases was there a post-operative reaction. It may be that this immunity is due to the tendency of blood which has been effused into the peritoneum or pleura to remain fluid for a considerable time, thus enabling whole unaltered blood to be used for transfusion, any clots being strained off in the gauze without breaking them up. Two of Burch's cases were ruptured tubal pregnancies; another was a case of splenectomy, in which much blood had been lost, and the fourth a *nephrectomy*. Burch says (1923) that "two cases are reported in English literature, one by Dr. Ogilvie of Guy's Hospital, and one by Sampson of the General Hospital, Birmingham." Mention may also be made of the case reported by Devine and Kinsella (*British Medical Journal*, 1928, vol. ii, p. 568), in which auto-transfusion was successfully employed for traumatic intra-abdominal haemorrhage in a boy aged 12.

In a recent article by Lilian K. P. Farrar[4] the early history of auto-blood-transfusion is traced from the first suggestion by William Highmore in 1874[5] to two articles by Duncan[6] in 1885 and 1886. In Duncan's second article he states: "I make it a practice in all larger amputations, because there is no risk and every ounce of blood is serviceable; . . . to my own mind the principle of reinfusing the patient is now definitely established." Nevertheless, the practice seems to have lapsed until it was reintroduced by Thies in 1914. Dr. Farrar kept sealed ampoules of sodium citrate solution in the operating room, ready for auto-blood-transfusion in cases of ruptured tubal pregnancy, but the frequent changes of personnel made it impossible to secure all the help required for the transfusion when the operation itself needed her entire attention. She concluded that the necessary team work could only be obtained by frequent practice of the technique in simpler cases, and arranged to try the measure in clean hysterectomies for myoma uteri. She was surprised to find the transfusion so valuable in these simpler cases.

Except in cases where large quantities of blood have accumulated in the abdomen, Dr. Farrar collects the blood by a suction apparatus. She points out that sponges should never be used, as the squeezing out injures the red cells, and, for the same reason, care is taken not to shake or stir the blood.

Dr. Farrar reports twelve cases, the last being especially dramatic. She says that the technique could not have been carried out in such a grave emergency if the staff had not been trained to team work in the simpler cases.

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SARCOMA OF SMALL INTESTINE.

Report of Three Cases.

BY

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The article by Messrs. Moir and Walker on sarcoma of the small intestine, in the *British Medical Journal* of December 29th, 1928, prompts me to record three further cases.

Case I.

Mrs. J. P., aged 59, was admitted to the Auckland Hospital complaining of passing much dark blood per rectum for twenty-four hours. She had not vomited. She had suffered from indigestion for years. Her condition was very low from loss of blood. A transfusion of blood and a subcutaneous injection of

Sarcoma of duodenum (Case I). A, Pylorus. B, Bristle emerging from bile duct. C, Centre of one half of tumour. D, Other half of tumour, area of haemorrhage. E, Termination of duodenum.

normal saline were given; but the patient gradually sank, and died within twelve hours of admission.

Necropsy revealed the scar of a healed ulcer in the first part of the duodenum. On the lateral aspect of the lower end of the second part of the duodenum a spherical solid tumour the size of a walnut was found. It appeared to be growing from the muscular coat of the duodenum, being well encapsuled where it lay in contact with the head of the pancreas. It projected slightly into the lumen of the duodenum, being covered loosely, in this area, by mucosa, except at the most elevated portion. At this point the termination of a vessel about 1 mm. in diameter was seen lying in the tumour, its lumen plugged with recent clot. This vessel had doubtless been the source of the haemorrhage. On section the tumour was whitish and firm, except in two or three areas where haemorrhage had occurred. Microscopically the tumour was a spindle-celled sarcoma, remarkably uniform throughout, with areas of haemorrhage. No metastases were found.

Case II.

Mrs. E. K., aged 23, was admitted to the Auckland Hospital in a very exhausted and toxic state. Two gallons of fluid were withdrawn from the abdomen. The patient sank, and died the next day. Three years before her death she had had a lump removed from the left groin. It was a well-encapsuled egg-shaped growth in the region of the femoral glands, and was black on section. Microscopically it was a melanoma, intensely pigmented, with no trace of lymphoid tissue. The wound was slow in healing. A melanotic mole one-eighth of an inch in diameter was noticed on the calf of the leg. Sixteen months before her death she had been again admitted, this time for nagging pain in the right side of the epigastrium of three months' duration. A mass could be felt, and x-ray photographs showed constant irregularity in the upper half of the descending portion of the duodenum. Laparotomy revealed a "large pyloric and duodenal mass which was melanotic." A small portion was excised for microscopical examination and the abdomen closed.

At necropsy a large melanoma occupying the whole circumference of the wall of the second and third parts of the duodenum was found. The lumen was greatly enlarged and was lined by the necrotic surface of the tumour. The common bile duct was obstructed. At no point did the growth penetrate the peritoneal coat of the duodenum, and at its upper and lower limits its edges were heaped up and sharply defined, as in an epithelioma. No other metastases were found. Microscopically the growth was a heavily pigmented melanoma, submucous in origin, though the mucosa was lost everywhere except at the edges.

Case III.

Mr. D. M., aged 60, sought advice on account of increasing pallor, which was causing anxiety to his family. He said also that he suffered from vague nausea and anorexia, slight constipation, and a loss of business acumen. Ten years previously he had had a mole removed from behind the right ear, and nine years previously a large mass of glands from the right side of the neck. Neither of these tissues was examined microscopically, but the former was believed to be a melanoma, and the latter malignant, and secondary to the mole. A bad prognosis had been given after the second operation, which was undertaken at the wish of the patient.

Examination revealed a marked pallor suggesting pernicious anaemia. The blood picture showed the changes of an ordinary secondary anaemia, without abnormal cells. In the abdomen a mass the size of a large orange could be felt to the left of the umbilicus. It was apparently free from the spleen, kidney, and stomach, being mobile but not influenced in position by respiratory movements. It was slightly tender.

Operation was undertaken, and a large bulbous growth in the jejunum, 16 inches from the duodeno-jejunal flexure, was resected and an end-to-end anastomosis performed. No metastases were discovered in the mesenteric glands or liver. Normal convalescence was reported until the fifth day, when sudden death occurred. This was attributed to a cardiac condition. A post-mortem examination was not made.

Examination of the specimen showed a segment of jejunum about three inches long to be greatly enlarged by a heavily pigmented growth occupying the whole circumference of the wall of the bowel. The thickness of the growth varied from half an inch to one and a half inches; its edges were sharply defined and heaped up; the lumen was enlarged, and lined by the surface of the growth, which at no point penetrated the peritoneal coat. Microscopically the tumour was a melanoma.

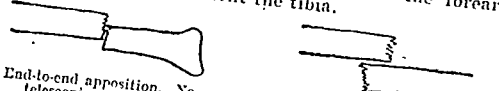
I am indebted to Mr. Eisdell Moore, Mr. Kenneth Mackenzie, and Mr. Frank Macky, under whose care these patients were admitted, for permission to publish these notes, and to Dr. W. Gilmour, director of the Auckland Hospital laboratory, for advice on the pathological side.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

TELESCOPIC MOVEMENT IN FRACTURES.

The above is a sign I have not previously seen described, but have found very useful in deciding if one has secured end-to-end apposition in the reduction of fractures of long bones. It is comparable to the "telescopic motion" in congenital dislocation of the hip-joint, but is more easily and certainly elicited than the sign in hip-joint dislocation. It is particularly useful in transverse, or approximately transverse, fractures of the shafts of those long bones which are well covered by muscles, such as the forearm, the thigh, and to a less extent the tibia.



End-to-end apposition. No telescopic movement.

Failure of reduction. Telescopic movement present.

For example, take the common fracture of both bones of the forearm with displacement of the fragments, causing loss of end-to-end apposition. With the patient under ether anaesthesia, helped if available by a radiogram, the fractured ends of the radius are palpated, and then, by increasing the deformity, a purposive movement is made to secure end-to-end apposition of the radius. The limb is then straightened, and a gentle attempt to telescope the forearm is made. If end-to-end apposition has been secured no telescopic movement can be obtained. It may be necessary to manipulate several times before telescopic movement is lost. The ulna with its palpable subcutaneous

surface is more easily dealt with, and the forearm plastered in supination. The routine radiogram after reduction is then taken.

The same principles apply to transverse fractures of the femur, but here, owing to the bulk of the limb, reduction is more difficult, and it is important to manipulate the fracture in the first few hours before adaptive shortening of the muscles has occurred. After reduction the ordinary methods of extension are applied. The oblique fracture of the shaft is usually easily corrected by the ordinary methods of extension.

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DIABETES MELLITUS AND HEREDITY.

In his interesting article in the *Journal* of October 27th, 1928 (p. 738), Dr. P. J. Cammidge called attention to the great importance of the heredity factor in diabetes mellitus. The following case now under my care bears out his conclusions in a striking way.

A married woman, aged 31, complained of great lassitude and thirst; she dated her illness from the birth of a stillborn child some months previously. On examination the urine was found to contain large quantities of sugar, and both the patient and the mother, who was with her at the time, expected a diagnosis of diabetes, on account of the family history. Similar though milder symptoms had manifested themselves some three years previously, after she had obtained employment in a sweet shop. She then married and, two years later, gave birth to a stillborn child. Since then the disease had become much worse, but she has steadily improved under treatment.

The family history is interesting. Two sisters and one brother have died from diabetes mellitus, their ages being 30, 17, and 13 at the time of death. Another sister has had glycosuria—her present condition is unknown. The mother and father appear to be healthy.

In a rapidly fatal case of diabetes mellitus in a child aged 15 months under my care about the same time, there did not seem to be any hereditary factor—so far as could be ascertained. At the post-mortem examination acute miliary tuberculosis was also found, and the father is suffering from pulmonary tuberculosis at the present time.

Bristol. Joseph A. Parkes, M.B., B.S.

RUPTURED DERMOID CYST.

The interest in the unusual abdominal catastrophe recorded below lies not only in the rarity of the condition as seen at operation, but also in the difficulty of making an accurate diagnosis before operation.

A girl, aged 14, who had never been ill in her life, and had never before complained to anyone of pain or discomfort, was playing in the garden with a baby sister when, in the act of lifting the baby from the ground, she felt an acute pain in the upper part of the abdomen; so acute was the pain that she fell down and was unable to rise. Her mother, attracted by her screams, obtained help and carried her into the house. Dr. Price of Castle Cary recognized that an acute abdominal catastrophe had occurred, and sent her by ambulance into the Wincanton and East Somerset Hospital.

When I saw her, about half an hour after her arrival in hospital, she was lying on her back with her knees drawn up, obviously in very acute pain and suffering from severe shock. Her face had an anxious expression, and she was very pale. The temperature was 101°, and the pulse rate 125. The tongue was clean and moist. The abdomen was hard and board-like over its whole extent and very tender. She pointed to the epigastrium as the maximum point of tenderness and pain. There was an area of absolute dullness extending from about one inch below the liver on the right side down to the pelvis. The whole of the left side of the abdomen was tympanitic. The girl was not menstruating and had never done so. Examination per rectum revealed nothing except general tenderness.

I decided on an immediate operation, making a right para-median incision, with its centre opposite the umbilicus. On incising the peritoneum a quantity of creamy fluid escaped; since there were several small bunches of hair in this fluid it became obvious that we were dealing with a ruptured dermoid cyst. On enlarging the opening I found a huge multilocular dermoid tumour of the right ovary filling up the whole of the right side of the abdomen, and extending as high as the epigastrium; it almost touched the right lobe of the liver. The largest cyst of this tumour had ruptured at its highest point close to the pyloric end of the stomach; the hole easily admitted three fingers. The tumour was lifted out of the abdomen and removed.

The only difficulty encountered at the operation was that of cleaning the abdominal cavity, which was flooded with the creamy fluid containing innumerable semi-solid masses resembling cream cheese and scattered bunches of hair. A stream of saline solution was directed to all parts of the peritoneal cavity, and these foreign substances were removed as they floated to the surface. The great omentum was very hard to clean since the cheesy substance and hair were so intimately adherent to it that it had to be gently wiped with swabs wrung out of saline solution. The abdomen was closed with drainage, and the patient's recovery was uninterrupted.

The tumour was rather larger than an elongated adult head. It was composed of solid parts of almost the consistency of cartilage, and several daughter cysts; one of these was much larger than the rest, and it was this one which had ruptured.

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Reports of Societies.

ACUTE MASTOIDITIS WITH EXTENSIVE THROMBOSIS.

The Aberdeen Medico-Chirurgical Society met at the Aberdeen Royal Hospital for Sick Children on November 7th, with the president (Professor Low) in the chair; a demonstration of clinical cases was given by members of the staff.

Dr. Souper described a case of acute mastoiditis with lateral sinus and internal jugular thrombosis.

A boy, aged 10, was admitted to hospital with a history of acute pain in the left ear for one week and discharge from that ear for one day; his temperature on admission was 103.6°. There were no signs of mastoiditis, and he was kept under observation as a case of acute suppurative otitis media threatening complications. His condition did not improve for forty-eight hours, when a blood culture showed the presence of haemolytic streptococci, and an operation was performed under gas and oxygen anaesthesia. The mastoid cells were found widely infected and the lateral sinus thrombosed. The jugular vein was exposed in the neck, and on incision was found to be also thrombosed as far down as it could be dissected. The sinus was cleared of clot; the jugular vein was tied as high and as low as possible and excised, the facial vein being also tied off. At the end of the operation 300,000 units of scarlet fever antistreptococcal serum was injected intravenously. The following day the condition of the patient was extremely grave; there was a loud musical bruit at the apex of the heart, and acute nephritis, with albumin, blood, and casts in the urine. Six similar doses of serum were administered within ten days of the operation, and by the end of a fortnight the condition of the patient was satisfactory. The blood culture was sterile, the cardiac bruit had disappeared, and the urine was normal.

Dr. Souper was of the opinion that recovery was mainly due to the use of this serum. Since April, 1927, he had employed it in his cases of septicaemia, ten or twelve in all, mostly with haemolytic streptococci of aural origin. Every patient had recovered with one exception, in whom a late thrombosis in the jugular bulb occurred. In similar cases he had previously used ordinary antistreptococcal serum, intravenous mercurochrome, and other remedies, but without success. He suggested that where septicaemia was due originally to infection from the throat or nose the scarlet fever serum should be used. He was indebted for the suggestion to make use of this serum in the first instance to Dr. John Smith of the Aberdeen City Hospital.

Infections of the Spine.

Mr. Mitchell brought before the society a boy, aged 7, who had had pain in the back and loss of weight for a year. There was scoliosis of the dorsal region of the spine with curvature to the right, and slight kyphosis; the last dorsal and first three lumbar vertebrae were prominent, and there was pain in the lumbar region on jarring the spine. The boy walked unwillingly with a crouching gait, supporting himself by holding his thighs. There were no signs of pressure on the spinal cord or nerve roots, and the Wassermann reaction was negative. An *x*-ray examination revealed lesions involving three pairs of vertebrae, ninth and tenth thoracic, twelfth thoracic and first lumbar, and third and fourth lumbar. Mr. Mitchell did not think the lesions were tuberculous, since they were multiple, but suggested the possibility of a multiple septic infection.

Dr. John Craig showed a case of extramedullary spinal tumour in a girl, aged 8. There had been root pains for eighteen months, with some loss of power and stiff gait

for about three months. Motor and reflex signs localized the lower level of the tumour at the fourth lumbar segment, and sensory and reflex signs placed the upper level at the tenth dorsal segment. The cerebro-spinal fluid showed a modified Froin syndrome—xanthochromia, increase in the globulin, and only 4 cells per c.mm.

Mr. ANDREW FOWLER demonstrated a case of tuberculous disease of the spine.

FAMILIAL ATAXIA.

A MEETING of the Manchester Medical Society was held in the society's reading room at Manchester University on November 6th, when Dr. FERGUS R. FERGUSON read a paper on the familial ataxias.

Dr. Ferguson said that the term "familial ataxia" was originally employed to denote a number of cases of ataxia with an hereditary or familial incidence, but it had come to be used to include a variety of different diseases, many of which showed little or no ataxia. The tendency had been to regard these diseases as more or less distinct and separate entities, although for the sake of convenience they were generally included in a neurological textbook under the heading of "heredo-familial ataxias." The group of diseases referred to included Friedreich's ataxia; Marie's ataxia; Sanger Brown's ataxia; Neff's ataxia; families described by Klippel-Durante, Cestan and Guillain, Ballet and Rose, Batten, and Miura; so-called familial disseminated sclerosis; and familial spastic paralysis. In showing the chaotic state of this group Dr. Ferguson called attention to the fact that cases of Sanger Brown and Neff's ataxia were confined to the original family. Gordon Holmes had clearly shown that there were large numbers of cases masquerading under the title "Marie's ataxia" which were quite unlike Marie's original "hereditary cerebellar ataxia"; that in fact "Marie's ataxia" was now largely a "scrap-heap." The speaker emphasized the importance of bearing clearly in mind the various factors which might be involved in these affections—namely, psychological influences, the cranial nerves, and pyramidal, extrapyramidal, sensory, and cerebellar tracts; he pointed out how the clinical picture varied according to the degree and extent to which these systems were affected. The probable close similarity, or even unity, of these various diseases was suggested by the occurrence of Friedreich's ataxia and Marie's ataxia in the same family, as reported by Bayer and G. Perrier and Chassin; the transition types between Friedreich's and Marie's ataxia, as recorded by Perrero, Lenoble, and Margulies; and the evidence brought forward in respect of a family investigated by Dr. Macdonald Critchley of London and himself, and reported in *Brain* (1929). In this family thirteen members were affected, and most of the cases showed the following characteristics: (1) age of onset 35–45; (2) euphoria and emotional instability; (3) ocular paralyses, nystagmus, and optic atrophy; (4) evidence of pyramidal disease; (5) wide-spread sensory disturbances; and (6) certain extrapyramidal manifestations. Now although this was the composite picture, yet some of the cases resembled superficially and had been diagnosed as Parkinson's disease, and others as disseminated sclerosis. It was obvious that although most of the systems were involved in each case, the clinical picture depended upon the degree to which these systems were affected. Dr. Ferguson suggested that, although post-mortem evidence was lacking, probably all the cases had a common pathological basis—an hereditary abiotrophy of the neurones. He thought that there was extremely good clinical evidence that in all probability there was no essential difference between all these types which had been regarded by many observers as distinct and separate entities, and that the different clinical pictures in the various "familial ataxias" only resulted from the extent and degree to which the various systems—psychological, cranial nerve, cerebellar, sensory, pyramidal, and extra-pyramidal—were affected.

Hydatid Disease of the Lung.

Professor E. D. TELFORD read a communication on the subject of hydatid disease of the lung, and described two cases, with radiograms. The first patient was a boy, aged 14, from whom a large cyst of the lung had been easily and successfully removed by thoracotomy. In the second case a woman, aged 40, had made a complete recovery after the spontaneous expectoration of two very large hydatid cysts of the lung. The speaker emphasized the frequency of multiple cysts in the same patient, and produced evidence to show that the hydatid cyst was of much slower growth than was commonly supposed. The difficulties of diagnosis were discussed, with special reference to eosinophilia, anaphylactic phenomena, and the complement fixation and Casoni tests. The treatment of lung hydatids was considered, and the view was expressed that small hydatids deeply placed in the lung might respond better to expectant treatment; hydatids near the pleural surface should be submitted to operation, owing to the risk of rupture into the pleural cavity.

BISMUTH TREATMENT OF LUPUS ERYTHEMATOSUS.

AT a meeting of the Liverpool Medical Institution, on November 14th, Dr. R. M. B. MACKENNA read a note on the treatment of lupus erythematosus by intramuscular injection of bismuth.

Dr. MacKenna commenced with a rapid summary of the etiological and pathogenetic factors, and stated that it was generally held that the disease was the manifestation of a chronic toxaemia. Three forms of the disease were commonly found to-day: the first exhibited erythematous scaly lesions; in the second there were indurated lesions, with little scaling or erythema, but with horny plugs in the orifices of the sebaceous and sweat glands; while the third type showed marked erythema but few scales. Lantern slides of the condition with a photomicrograph of a section of the diseased skin were shown. A brief reference was made to the original paper on this subject by Nicolas, Lacassagne, and Rousart, and Dr. MacKenna then contrasted and compared the various forms of bismuth used and the methods of administration. Metallic bismuth and its oxychloride were, in his opinion, of equal therapeutic value in the treatment of lupus erythematosus. Injections of sodium bismuth thioglycollate had not yielded better results than other preparations; bismuth given by the mouth and in an ointment basis were not, he considered, of much value. It was impossible to estimate how much bismuth any given case would require, or for how long treatment would have to be continued. Of twenty-four cases treated by injections of bismuth since March, 1929, approximately 25 per cent. were discharged as cured, 25 per cent. would shortly be discharged as cured, and remaining 50 per cent. were making variable progress. In conclusion, the lecturer stated that he had no proof that the cases discharged as cured were really cured; it was possible that bismuth injections might only cause a temporary intermission in the course of the disease. He could give no information about the mode of action of bismuth in lupus erythematosus.

Skin Eruptions Caused by Fungi.

Dr. ELIZABETH HUNT gave a brief preliminary report on some forms of skin eruption which were said to have become more prevalent and to be due to fungi. The organisms isolated on culture were: (1) Yeast-like fungi, including red, white, and pink cryptococci, monilia, cudomyces, torula; and (2) trichophytons, including epidermophytons. It was impossible to distinguish clinically the type of lesion due to the different organisms. Cases occurred, as a rule, as isolated instances in a household, and indirect infection seemed most likely to be responsible. An "individual susceptibility" of the skin might be inferred, but the hypothesis required investigation. Temporary reduction of Fehling's solution by the urine was observed in some instances in the acute stages. Four clinical types of lesion were defined—namely: (1) vesiculo-pustular, (2) erythematous vesicular, (3) irregular scaling patches, (4) thick scaly patches with fissuring. All these types were superficial, localized, circumscribed in outline, very chronic, and very intractable. Attacks of an acute

type in which the vesiculo-pustular type of lesion predominated were described. The eruption might be localized, but in many cases it was widely distributed, or associated with a generalized eruption of lesions of the erythematous and scaly types. In these cases the same organism had been cultured from lesions on scalp, arm, and a nail. This type of case showed a yeast infection as a rule. Some of the cases were typical examples of cheiropompholyx, and in these no generalized eruption was observed. Infection of the nail was common in about one-third of the cases. The lecturer emphasized the great importance of recognizing the nature of these cases where the question of an occupational dermatitis was involved.

Dr. R. W. MacKenna gave a lantern demonstration of a large number of coloured pictures of skin diseases, with a running commentary on their characteristics, diagnosis, and treatment.

EXTRINSIC STRICTURE OF THE OESOPHAGUS.

At a meeting of the Section of Pathology of the Royal Academy of Medicine in Ireland on October 25th, with the president, Dr. J. Lait, in the chair, Dr. R. R. Woods read notes on the clinical signs of a case of extrinsic stricture of the oesophagus. Dr. J. Lait subsequently gave an account of the post-mortem findings.

A man aged 48, seen early in August, had suffered from dysphagia for two months, and could only swallow fluids slowly. He had glands on both sides of his neck and a lump, the size of an orange, in the right hypochondrium. The liver was enlarged and the spleen palpable. An *x*-ray examination revealed a mediastinal tumour and a stricture at the level of the seventh to the ninth dorsal vertebrae. Oesophagoscopy showed an extrinsic stricture 31 cm. from the teeth. The patient's teeth were removed; a gland sent for section was reported as suggesting the bare possibility of lymphosarcoma. The neck was subjected to treatment by means of *x* rays with fluorescein painting as described in the *British Medical Journal* of August 10th (p. 233). The glands seemed to remain stationary, but the patient had only one course of treatment before his death. The oesophagus was treated with radium by means of a special applicator which enabled fully screened radon (1.2 mm. lead) to be inserted while allowing a passage for liquids during treatment. He had two applications; fluorescein was given every second day by the mouth during treatment. Surface applications to the thorax were also employed. Although successive *x*-ray reports showed that the tumour was increasing the patient's swallowing improved rapidly, and he became able to take solid food.

The post-mortem examination showed two points of particular clinical interest: the fibrosis which had occurred where the radon was applied, and the desquamation of oesophageal epithelium round the position of the applicator. This seemed to be the result of a peeling dose rather than a radium burn. There was a large mediastinal tumour present which had occasioned the stricture of the oesophagus by external pressure; there was no intrinsic growth of the oesophagus. The tumour had infiltrated the right lung in a massive way, resulting in its collapse, and the right pleural cavity was filled with fluid. A large tumour mass was found in the situation of the head of the pancreas, and another large mass about the size of a foetal head involved the left kidney. The liver, spleen, and suprarenals were free from tumour nodules. The tumour was a lymphosarcoma. Sections cut from the site of the radium application showed fibrosis and retrograde changes in the tumour.

Dr. Cyril Murphy asked if the patient had had any symptoms referable to pancreatic disease or renal trouble, and what part of the body Dr. Lait regarded as being the primary site of the growth in this case.

Dr. V. M. Synge was doubtful whether tumours such as this were of an exceptionally malignant type. In this case the tumour apparently was exceptionally malignant, but he thought that as a rule tumours in the mediastinum were of the slow-growing type, in which *x*-ray treatment gave fairly satisfactory results; it made the patients much more comfortable, and prolonged their lives for some months at any rate.

Dr. T. T. O'Farrell referred to a similar case which he had seen some years ago—a lymphosarcoma in the mediastinum with secondary deposits in the kidney. He asked if there were any clinical symptoms in connexion with posterior mediastinal lesions, and if in the present case there was any cyanotic induration of the spleen.

Dr. R. H. Micks asked if Dr. Lait attributed the fibrotic change which had taken place in the specimen to the radium. It seemed to him a rather short time for such a change to have taken place.

Dr. Woods, replying, said that no special kidney tests had been performed, but, judged by ordinary tests, the urine was quite normal. Some posterior mediastinal symptoms were present; there was pressure on the vena cava, and about a fortnight before death the patient developed oedema of feet and legs, while shortly before death ascites set in. He thought that possibly the fibrotic changes in the tumour could be attributed to the radium. All through the radium treatment the patient was receiving fluorescein at the same time, but whether this had any effect on the efficacy of the radium treatment it was not possible to say.

Dr. Lait, replying, thought the primary growth was in the mediastinum. The spleen did not show any cyanotic induration. He believed that the fibrosis which had occurred was the result of the radium treatment. In a patient with lymphosarcoma, the average duration of life he would give was three months. He regarded lymphosarcoma as one of the most malignant conditions.

Cancer of the Stomach and Duodenum.

Dr. A. R. Parsons read notes on two cases of cancer of the stomach and one of the duodenum.

The first patient was a woman, aged 65, who was admitted to hospital about the middle of September; she was anaemic and emaciated, but stated that until a week previously she had been at her work, and feeling pretty well. She vomited incessantly, and a large tumour could be felt in her stomach; she died four days after admission.

Dr. Parsons expressed the belief that a malignant tumour of the stomach, so long as it did not invade the pylorus, did not cause very much inconvenience.

The second patient was a woman, aged 63, who came to the dispensary stating that her doctor in the country had sent her up to town to be *x*-rayed. Her only complaint was flatulence, but she said that two years previously she had lost the sight of one eye, and thought that since then her health had not been so good as previously. A small tumour could be felt lying across the mid-line, freely movable. The liver was not enlarged, she had no pain, and her family history was good. After a test meal an extraordinarily high degree of total acidity was found, but no free hydrochloric acid.

Dr. Parsons stated that this case was considered to be one of carcinoma of the pylorus, but at operation it turned out to be a carcinoma of the body of the stomach.

The patient with duodenal cancer was a man, aged 30, who said he had had good health till March, when jaundice appeared and lasted for three or four days, after which he recovered and resumed work. In May he had another attack, and this time the condition persisted. He was admitted to hospital on August 28th deeply jaundiced, and suffering from intense irritation of the skin. There was no history of pain or vomiting. The urine contained a trace of albumin and a very large amount of bile pigment. The liver was slightly enlarged, and at times it was possible to feel an ill-defined tumour about the mid-line. The diagnosis lay between impacted stone in the common bile duct and malignant disease of the head of the pancreas. The Graham-Cole test showed the presence of a pathological gall-bladder.

Dr. Parsons remarked that he was more inclined himself to a diagnosis of carcinoma of the head of the pancreas. At the operation a greatly enlarged liver, extending nearly down to the level of the umbilicus, was found, and a distended gall-bladder, but no stones. Cholecystenterostomy was done, but the patient died the next day. This case proved to be not one of biliary calculus, but of carcinoma of the duodenum following an ulcer.

Dr. J. T. Wigham, demonstrating the specimens, said that in the first case it was curious that there had been so few symptoms before the patient was admitted to hospital, although on examination it was possible to feel the tumour. The stomach was hard and tough. The tumour did not quite reach the pylorus; it was a very scirrhous tumour, and bore out the idea that the main symptoms in the case were due to involvement of the pylorus; but the pylorus itself was not involved, and so there was no obstruction to food. Cancerous diffusion was extensive in the glands, and there was a small nodule in the liver. In the second case two pieces of the stomach had been taken away very near the one which proved to be malignant, and these two pieces had shown no signs of malignancy. A papillomatous mass blocked the pylorus, but sections had been cut since the operation, and there was no doubt from the general appearance of the cells that it was a cancer, an early specimen which probably followed an ulcer. In the third case the liver was bile-stained, and the intestine and the gall-bladder were filled with blood. The diagnosis of a tumour of the head of the pancreas was a very natural one

to make, as the mass was in just the position for such a tumour. The tumour was, however, a cancer of the duodenum, and showed the appearances usually associated with intestinal cancers.

Dr. T. GARRATT HARDMAN showed lantern slides of x-ray photographs illustrating Dr. Parsons's cases.

The PRESIDENT, referring to the case of cancer of the duodenum, said he was inclined to believe that the growth was malignant from the start, and was not secondary to peptic ulcer of the duodenum. Peptic ulcers of the duodenum were usually found near the pylorus, and they arose more commonly in the first stage; the present specimen was in the second stage. Dr. R. A. Q. O'MEARA remarked on the site of the tumour in the duodenum. He thought one reason for the frequency of cancer in the second part of the duodenum might be that toxins were excreted from the liver, and set up a process of ulceration in that region which went on to carcinoma. In cases of severe burns ulceration of the second part sometimes occurred, and was apparently due to secretion of toxins from the liver.

Dr. PARSONS, replying, said that it was difficult to know whether a stricture of the pylorus was fibrous or malignant. He was convinced from a clinical point of view that there was such a thing as a fibrous stricture. Dr. WIGHAM added that the tumour in the case of carcinoma of the duodenum seemed to him to be such an ordinary tumour of the intestine that he did not see any reason why it was not derived from the mucous membrane in the same way as tumours of the caecum were derived.

Cerebral Haemorrhage.

Dr. A. B. CLERY read notes on, and demonstrated a specimen of, a case of cerebral haemorrhage.

A man, aged 70, was admitted unconscious to hospital on October 12th. He had been suffering for two years from headaches and attacks of vertigo. The day before admission, when stooping down to tie his shoe-lace, he collapsed and became comatose. Examination showed that the arteries were hard and the blood pressure was 200; the heart was normal, and so were the plantar reflexes. He had incontinence of urine, and a specimen contained albumin and sugar. Cheyne-Stokes respiration was present. The patient died the day after admission, and at the post-mortem examination the dura was found to be densely adherent to the calvarium, while there was blood in the posterior lobe. A blood clot was found in the ventricles, particularly involving the right anterior horn. The third ventricle was widely distended, and the caudate nucleus disrupted.

Dr. Clery remarked that this was one of the few cases in which it was possible to show the exact site of origin of a cerebral haemorrhage, the lesion involving one of the branches of the anterior cerebral artery.

The PRESIDENT said that in cases in which there were secondary changes in the kidney the patient frequently died of cerebral haemorrhage. Dr. V. O. MCCONNICK said that it was difficult to know whether this was a diabetic or a nephritic case, but if the haemorrhage had spread into the fourth ventricle he thought it would explain the presence of sugar in the urine. Dr. J. A. MCGRATH discussed the reasons why the blood in these cases tended to track inwards towards the ventricles rather than outwards, and pointed out the importance of thrombosis preceding haemorrhage in bringing about this result. Dr. V. NATH discussed the Cushing phenomenon, and Dr. CLERY replied.

Pathology of Argyria.

Dr F. S. BOURKE showed a man suffering from argyria, who had been admitted to hospital on August 12th complaining of a sore throat and pains in his limbs. He had a history of syphilis, and so was sent to the venereal department, where his colour at once attracted attention. He stated that he joined the army in 1896, and contracted syphilis in 1897; he served in India until 1908. While there some of the men suffered from some throats, and he had seen them cauterizing their throats with silver nitrate, and did the same himself. He first used silver nitrate in 1908.

The PRESIDENT said he had never seen a case of argyria, and could find very little about the condition in the literature. It was now, he thought, very uncommon, but had been more common formerly, when silver nitrate was used for treating cases of gastric ulcer. Dr. CYRIL MURPHY stated that he had seen this patient on a previous occasion, and at that time the pigmentation had only extended as far down as the abdomen. Sir JOHN MOORE mentioned a patient, seen years previously, who was exactly the counterpart of the patient now shown as far as pigmentation was concerned. His patient had used silver nitrate for treating gastric ulcer, from which he suffered. Dr. R. A. Q. O'MEARA said that the silver was found not only in the skin, but also in the internal organs. The salts of heavy metals had the property of combining with albumin, and the silver in cases of argyria formed with albumin in the tissues an insoluble substance which was deposited between the cells, but not in the cells. He thought that the blue colour was more apparent in the face because of the relatively greater blood supply to the skin of the face as compared with the skin of other parts of the body. Dr. E. T. FREEMAN said that in India silver nitrate had formerly been used as an astringent in dealing with tropical diarrhoea. He thought that possibly this patient had had some silver for the treatment of this condition while serving in India, as well as what he had used himself for cauterizing his throat.

OPHTHALMOLOGICAL INSTRUMENTS.

A MEETING of the Optical Society was held at the Imperial College of Science and Technology, South Kensington, on November 14th, with the president, Mr. F. TWYMAN, F.R.S., in the chair. Mr. A. G. FREWIN of the Emil Busch Optical Co., Ltd., gave a short demonstration of two ophthalmological instruments.

Mr. Frewin dealt first with the Busch optometer, designed by Professor Thorner, an instrument for defining objectively the errors of an ametropic eye. By it could be measured in dioptres the hypermetropic or myopic error of a symmetrical eye, or the ametropia in the two meridians of an astigmatic eye, together with the directions of the two meridians. The patient directed one eye into the exit pupil of the instrument while the observer looked into the eyepiece and focused on the patient's macula the image of the straight filament of a small electric bulb. The focusing head moved a scale relatively to a fixed pointer, so that when the side edges of the filament were sharp the ametropia could be read off at once. Freedom from glare and corneal reflections was secured by two suitably arranged semicircular stops, which ensured that the illuminating rays were incident on the top half of the patient's cornea, while the light reflected from the fundus, which reached the observer, issued from the lower half of the cornea. The patient's eye was adjusted so that the instrument measured the vertex power of the proper corrective lens when its vertex was placed 12 mm. in front of the patient's cornea.

Mr. Frewin then described a glare-free, reflexless, stereoscopic hand ophthalmoscope, designed by Professor Thorner. In the new instrument mirrors were used for illuminating the fundus and for reflecting its image into a binocular eyepiece so that the magnified image was seen in stereoscopic relief. The fundus was illuminated by an image of the source of light focused on the lower half of the patient's cornea by a concave mirror. The optical system was such that the centres of the observer's pupils were conjugate with two separated points situated on the patient's cornea above the image of the source of light. The rays from the retina which passed through the right of these two points could only reach one eye of the observer, and those which passed through the left point could only reach the other eye; consequently, the two eyes appeared to see the retina from two points of view, and it was therefore seen in stereoscopic relief. Rays reflected from the patient's cornea could not enter the observer's pupils.

Mr. E. F. FINCHAM then described and demonstrated his "stereo-fixation device for campimeters." He said that in this device one eye was fixed on a stereogram at the centre of a chart being viewed, while the other was fixed on a stereogram which was reflected into it by means of a right-angled prism arrangement. When the two stereograms were combined the eyes were in proper adjustment for viewing the chart.

The meeting concluded with the exhibition of Messrs. Bausch and Lomb's 3 reel, 16 mm. moving-picture film illustrating the manufacture of optical glass.

Reviews.

MEDICAL WOMEN IN INDIA.

A recent book with this title[1] contains a most valuable account of the work done over a period of sixty years by medical women in India. It is a lucid record, distinguished by its fair and moderate expression. By its restraint it gains in effectiveness, and it leaves the reader with the conviction that medical women, in face of an overwhelming amount of work, have been unnecessarily hampered in their task by the prejudice of some of their own compatriots. Lack of imagination sometimes prevents those in authority from realizing that professional workers—women as much as men—in insisting on a proper status, adequate pay, and suitable conditions of work, are not merely fighting for their own position, but also to ensure that the work done may be the best possible and of the greatest benefit to those to whom it is rendered. When so much was waiting to be done and there were so few to do it, it is disheartening to read of the way in which the efforts of the pioneers were sometimes thwarted. Although there was frequent lack of understanding on the part of those who might have done so much to help, there were, however, many notable exceptions, and to these the authors of *The Work of Medical Women in India* render grateful thanks. For a full list reference must be made to the book itself, but readers of the *British Medical Journal* will be gratified to find amongst them an honoured member of the Council of the British Medical Association—Colonel O'Kinealy.

The book opens with a review of the social conditions of the women of India, thus indicating the problems to be dealt with when organizing efforts to improve their health. Then follows an account of the work done by the pioneer medical women, and it is interesting to note the close fellowship between British and American medical women, and also the prominent part taken by the missions of both countries. It is a matter for congratulation that the Countess of Dufferin's Fund owed its origin to Queen Victoria. Dr. Elizabeth Bielby and Dame Mary Scharlieb had been received by Queen Victoria at various times, and on one occasion the former presented to the Queen a locket from the Maharani of Punna, containing a petition that she should take steps to help the women of India in sickness. Queen Victoria specially charged the Countess of Dufferin—when Vicereine of India—to do something in the matter, and the result was the formation of the Countess of Dufferin's Fund. Since then it has been the honourable tradition of the Vicereines to pay special attention to the means of relieving illness amongst the women of India. The several funds thus initiated have, in the course of years, been used not only to supply the services of medical women, but also for special work in connexion with maternity cases, child welfare, and the training of midwives. These activities have proved of great value, but have confessedly only touched the fringe of the problem. The population of India is so large that many millions of women, particularly in the country districts, are still unable to obtain suitable advice and treatment; and preventive medicine, particularly with regard to domestic hygiene, is still in a primitive stage in most districts.

The reader gains from this book (which concludes with a map showing the centres where medical treatment for women is available) not only an interesting account of the work done hitherto, but also a conviction that our duty is not yet fulfilled. The question is not solely, or even primarily, one which concerns medical women, but the British nation as a whole in its relation to India. There are, in that country, vast numbers of our fellow subjects suffering pain and disease, much of which is obviously preventable. Owing to the social customs of the sufferers, assistance can be rendered most efficiently and promptly by medical women, and surely it is the duty of the British nation to see that this assistance is made available for them. On account of the present transitional state of the Government of India help can be most effectively organized by the central administration. By no other means can a suitable personnel of sufficient numbers and experience be obtained, or can they be supplied with the necessary accessories and apparatus to make their work of good effect.

Organized efforts in India would be greatly strengthened by an expression of public opinion in England, and it would seem that knowledge of the facts is all that is needed to arouse the people of this country to a realization of our national responsibility in the matter. A committee, consisting of Indian and British medical women who have served in India, started by Lady Barrett and the Lady Sybil Smith, and affiliated to the Medical Women's Federation, has been recently formed to deal with the subject; and an appeal might be made to the newly enfranchised women of England to make this matter one of the first on which to exercise their political influence. Surely it is not too much to hope that when the quickest and most efficient means of alleviating so much suffering is understood the whole British nation—for it is not a question concerning women only—will demand the formation of a service of medical women for India, which shall be under Government auspices and have such conditions of service and pay as will attract women of the best type. This book should go far to stimulate such a demand.

Christine Murrell.

[1] *The Work of Medical Women in India.* By Margaret I. Balfour, C.B.E., M.B., C.M., and Ruth Young, M.B.E., B.Sc., M.B., Ch.B. With a foreword by Dame Mary Scharlieb, D.B.E., J.P., M.D., M.S. London: Milford, Oxford University Press. 1929. (Demy 8vo, pp. xv + 201; illustrated. 8s. net.)

MODERN METHODS OF TREATMENT.

A weighty supplement to the George Blumer Edition of the *Billings-Forchheimer Therapeusis of Internal Diseases*[2] brings into the hands of those who own or consult the six-volume encyclopaedic work of that name all that is important in recent therapeutic advances. The main body of the work was reviewed in our columns on January 10th, 1925 (p. 77), and the present volume contains 57 monographs intended to bring up to date the exhaustive original articles. In the preface it is stated that "in very few instances have original authors found occasion to emendate or modify their articles written in 1924," but, of course, the advances that have followed the introduction of such remedies as insulin and liver receive full notice. Notwithstanding the editor's avowed aim of making the volume a supplement, many of the articles are really complete reviews of the present status of therapy in the several fields of medicine. The chapters on the vitamins, syphilis, hypotension, cirrhosis of the liver, and diseases of the heart and pericardium are complete and self-contained.

It is difficult from a volume of such varied contents, all equally erudite, to single out one topic for comment, but the monograph on the treatment of thrombo-angiitis obliterans will serve as an example of the fare provided. The author has seen and treated several hundred cases. He fixes dogmatically on an etiological factor—namely, tobacco poisoning in a specially sensitive individual—and reminds the reader that the disease is subject to spontaneous relapses and remissions, whose occurrence may render difficult the task of assessing accurately the value of whatever may be the therapeutic procedure adopted. He proceeds to describe a mechanical diagnostic device by whose aid the physician may arrive at a prognosis and a decision about the type of treatment best suited to the patient under examination, and suggests a rational, practical, and efficacious line of treatment which, stated briefly, consists in making repeated injections of hypertonic salt solution into the general circulation, whereby the blood volume is increased and the vascular channels are reopened. The fullest technical details, ample statistical tables, and a consideration of the contraindications and adjuvant measures close a pithy review.

[2] The George Blumer Edition of *Billings-Forchheimer's Therapeusis of Internal Diseases: Supplement.* New York and London: D. Appleton and Co. 1929. (6½ × 10, pp. xxxviii + 760; illustrated. 30s. net.)

Many of the 57 chapters are written by men well known in Europe as accepted authorities in their particular line of work. Professor Minot writes on the treatment of anaemia; Professor Stokes of Philadelphia on the treatment of syphilis; Chevalier Jackson on diseases of the oesophagus and on bronchoscopy in the treatment of pulmonary diseases; and Dr. Marine supplements his former articles on the thyroid gland. In addition to these outstanding articles there are several on topics not often fully presented to the practitioner; among these, of special interest is a summary of the whole subject of convalescence and an article on the treatment of the cancer patient as apart from the treatment of the cancer itself. Each chapter contains a full bibliography, and the volume is elegantly printed and well illustrated.

COLOUR AND COLOUR THEORIES.

THERE are few subjects in the whole of biological science which have excited so much controversy as that of colour vision: and one of the most belligerent and outstanding figures in the scientific battle has been CHRISTINE LADD-FRANKLIN. In the latter part of the nineteenth century two rival theories of colour vision were generally recognized as alternative candidates for priority—the three components theory of Young and Helmholtz, and the opponent colours theory of Hering. It cannot be claimed that either of these explains all the facts, or that one or the other will be permanently accepted as expressing the final exposition of the subject: the two are irreconcilable, and each one to a certain extent explains phenomena which the other leaves unexplained or deals with so inadequately as to be manifestly incomplete. At the International Congress of Physiology in 1892 Mrs. Ladd-Franklin criticized them both freely, and propounded a third theory, which she termed "the molecular dissociation theory," and ever since that date, up to 1926, she has written and published papers developing it. In a volume, *Colour and Colour Theories*,[1] these papers are gathered together, and these collected writings, while they contain nothing new, and although they suffer somewhat in their arrangement by a lack of logical sequence and involve a great deal of repetition, undoubtedly form the most authentic source of information for the study of her views. Whatever the imperfections of her theory—and no critical reader can deny that they exist—her work merits attention and careful study.

The essential feature of Ladd-Franklin's contribution to the question is to consider colour primarily in the light of the development of the colour sense. In the first stage of evolution light of any wave-length produced one response—white. In the second stage this single response was divided into two, one aroused by the long waves producing the sensation of yellow, the other by the short waves producing the sensation of blue. In the third stage the yellow response was further differentiated, producing the sensation of red for the longer waves and green for the shorter. Accordingly, when red and green are combined they revert to the more primitive yellow response, and when yellow and blue are combined they revert to the still more primitive white response. The periphery of the retina is still in the first stage, the intermediate zone in the second, and the central area has reached the third. When the central area has not evolved beyond the second stage a red-green blind individual results: when the entire retina remains in the first stage a totally colour-blind individual results. As to the mechanism of these sensations, Mrs. Ladd-Franklin argues that since yellow has no psychological relation to a mixture of red and green, or white to a mixture of blue and yellow, the combination must take place below the level of consciousness—that is, it must take place in the retina and be photo-chemical in nature (herein she differs from the Helmholtz theory). The response is due to the dissociation of a mother substance the cleavage products of which initiate nerve currents to the brain: in the red- and in the most primitive stage of a single white sensation, as occurs in the extreme periphery of the retina, and in the totally colour-blind, a single cleavage product is split off. In the second stage two cleavage products are capable of being split off according to the length of wave, and these produce respectively the sensations of yellow and blue. If, however, they are both split off at the same time and in the same concentration they immediately unite chemically and form the original single product, the vital response to which is white. Similarly, in the third stage three cleavage products may be produced, provoking responses severally of green, red, and blue; and since red *plus* green equals yellow, and yellow *plus* blue equals white, they may unite chemically at the periphery to produce a single sensation of white.

Although the theory in its general outline has many fascinating aspects, like all other theories it has its weaknesses. Two points may be mentioned. The explanation of simultaneous contrast, which depends upon a "retinal circulation" so rapid as to transfer molecules almost instantaneously through a finite distance, is somewhat far-fetched. A difficulty also arises with regard to the status of black, which is regarded as a state of non-excitation from the external world, a convenient arrangement to fill up lacunae in the retinal spatial field which otherwise would be disturbing. On the other hand, according to the theories of both Helmholtz and Hering, black is regarded as a sensation, being physically the opposite of the process of producing white; when the sensation of black is experienced it is indicative of stimulation of the cortex. Mrs. Ladd-Franklin is a psychologist, and certainly it seems that the psychological aspect of colour vision has been the most neglected in the past; it may perhaps in the future contribute in no small measure to a rational understanding of one of the most elusive and fascinating problems of science; but that understanding has yet by no means arrived.

[1] *Colour and Colour Theories*. By Christine Ladd-Franklin. The International Library of Psychology, Philosophy, and Scientific Method. London: Kegan Paul, Trench, Trubner and Co., Ltd.; New York: Harcourt, Brace and Co. 1929. (Demy 8vo, pp. xv + 287; 25 figures, 8 plates. 12s. 6d. net.)

A TEXTBOOK OF BACTERIOLOGY.

THE third edition of KENDALL'S *Bacteriology: General, Pathological, and Intestinal*[1] opens with a logically arranged account of the morphology and metabolism of bacteria, and proceeds to some chapters of a general nature on infection, immunity, and anaphylaxis. The author's recommendations in the sections on the culture of micro-organisms, the various staining methods, and other technical procedures are clearly derived from considerable practical experience. The specific pathogeny of bacteria and the methods for their detection are described amply, yet concisely: the book is thus not only a digest of present-day bacteriology, but an invaluable laboratory manual. Kahn contributes a section upon the reaction which goes by his name, and makes the point that his test, which is widely used in America, is at least as valuable as the Wassermann test and much simpler in practice. The volume includes a well-balanced description of such developing subjects as the filterable viruses and bacteriophage, and some excellent notes on the Dick test.

The word "intestinal" in the subtitle is justified by the inclusion of information, both practical and academic, on the bacteriology of the normal and the diseased alimentary tract. The author mentions the fact that certain organisms produce absorbable toxins in proportion to the amount of protein they metabolize, whereas in dealing with carbohydrates they produce rather the non-toxic lactic and other acids. The practical application of this knowledge consists in the provision of so much carbohydrate in the dietary that the production of harmless acids is encouraged while proteolysis and toxin production is minimized. Some favourable clinical results in typhoid fever have been attributed to the use of a high calorie diet rich in lactose.

On a number of matters that are still under investigation—for example, the question of the unity or plurality of the streptococcus-pneumococcus groups—the author gives a commendably impartial statement of opposing views. His textbook, in this as in other respects, is excellent.

[1] *Bacteriology: General, Pathological, and Intestinal*. By Arthur Isaac Kendall, B.S., Ph.D., D.P.H. Third edition, thoroughly revised. London: Baillière, Tindall, and Cox. 1929. (6 × 9½, pp. xvi + 735; 8 plates, 193 figures. 31s. 6d. net.)

BODILY EFFECTS OF EMOTION.

THE second edition of *Bodily Changes in Pain, Hunger, Fear, and Rage*,[1] by Professor W. B. CANNON, is practically a new book, for the first edition appeared fourteen years ago, and has been rewritten in the light of the very extensive amount of work that has appeared since then on this subject. Professor Cannon's department has provided a considerable proportion of this new work, for a list of researches published at the end of the volume includes twenty articles published by the Physiological Laboratory of the University of Harvard during the past decade. The first half of the book deals with the factors regulating the liberation of adrenaline by the suprarenal glands. This question has been a matter of acute controversy for several years, but Professor Cannon is able to show that the most recent evidence is clearly in favour of his view that the secretion of adrenaline is augmented by the emotions. The evidence in support of this view comes not only from his own department, but also from France and various other countries. The author analyses in turn all the effects produced by increased adrenaline secretion—namely, the rise in blood sugar, improvement of contraction of fatigued muscle, acceleration of blood coagulation, increase in red blood corpuscles, etc. The utility of bodily changes in pain and in emotion is next considered, and this is followed by chapters on the nature of hunger and thirst. In conclusion, Professor Cannon discusses the various physiological and psychological theories which have been formulated to explain the nature of the conditions. The last chapter is entitled "Alternative satisfactions for the fighting emotions," and here the author suggests international games as an alternative to militarism. Reference is made to the way the inhabitants of the Pacific Islands have substituted baseball or cricket for head hunting. The general line of argument in this chapter seems, however, somewhat unreal, for it is hard to believe that many people now regard war as a valuable school for the virtues.

NOTES ON BOOKS.

DR. JOHN H. EWEN'S object in his *Aids to Psychology*[2] is to present in concise form the main facts of this science for the use of students. The author has especially the needs in mind of those who are aspiring to a diploma in psychological medicine. The book is ably compiled, and, in view of the lack of uniformity in terminology, and, in consequence, the difficulty of preparing for examinations, it cannot fail to be of practical service to the student. The more academic aspects of the subject are summarized, and no attempt is made to deal with the complexities of the "new psychology." In any case an academic foundation in psychology is most desirable.

The third volume (Echinokokkenkrankheit-Gelenkerkrankungen) of the new German dictionary of practical medicine,[3] edited by Professors GEORG and FELIX KLEMPERER, has closely followed its predecessor, to which we drew attention some months ago (July 13th, 1929, p. 55). Among the thirty-seven articles in the present volume attention may be drawn to those on lethargic encephalitis, by Professor C. von Economo of Vienna, who gave the disease its name; endocarditis, by Professor Paessler of Dresden; enteroptosis, by Professor H. Strauss of Berlin; epilepsy, by Professor Rosenfeld of Rostock; typhus fever, by Professor Jurgens of Berlin; fractures, by Professor M. Kirschner and Dr. G. Ellmer of Tübingen; cerebral abscess and cerebral tumour, by Professor H. Pette of Hamburg; and yellow fever, by Professor H. da Rocha Lima of S. Paulo, Brazil. The work as a whole maintains the high standard of the two previous volumes.

In *A Short Course on Human Osteology*[4] Professor DRENNAN of the University of Capetown presents clearly and accurately the main facts of the subject. It is obviously impossible nowadays to show much originality in a purely descriptive account of the bones, such originality as is possible being largely limited to the manner in which the facts are arranged. The work differs from most modern anatomical textbooks in the entire absence of illustrations, their place being taken by blank pages, the idea evidently being that the student should make his own illustrations—a very laudable procedure, but one which we fear it will not be easy to persuade the student to follow. The book, within the limits imposed by the author, is almost above criticism, but we doubt whether the statement that the incus is developed from the first arch and the stapes from the second is in accordance with recent investigation. We think it would be better, instead of saying that a cervical rib presses upon the lower trunk of the brachial plexus, to say the trunk presses upon the rib; and we should have liked, in the discussion on the growth of bone, to see some reference to the contribution which the growing mandible makes to the elucidation of the problem. The book, which is of pocket size, can be warmly recommended to students requiring in small compass the essential facts of the subject, and who have a penchant for making their own diagrams.

Many of our readers will no doubt be familiar by now with Dr. J. E. CHEESMAN'S *Synthetic Anatomy*,[5] several parts of which have already been reviewed in these pages. Parts iv, v, and vi, which have now been issued, are concerned with the anatomy of the leg and foot. In them Dr. Cheesman follows the method which he may be said to have introduced, displaying the same ingenuity and achieving the same high standard of accuracy. The skill with which he brings the back of the leg and the sole of the foot into the same plane is particularly noteworthy. As we have said before, there are several ways of studying anatomy; Dr. Cheesman's way is one, and there is no reason, financial or otherwise, why the method should not be given a fair and patient trial.

A Short Introduction to Human Anatomy[10] is a pamphlet of fifteen pages with eleven full-page illustrations. It is intended for nurses, members of ambulance corps, and students of physical culture, and to such it will no doubt be of considerable interest and assistance.

Professor C. B. JORDAN'S short textbook on *Qualitative Analysis*[11] has been written for students of pharmacy and of medicine, and sets out to emphasize all the points where qualitative chemical analysis may have a direct application to practical pharmacy and medicine. The volume is divided into four parts. In the first of these the student, who is supposed to have already had a grounding in chemistry and physics, is introduced to the general terms and chemical conceptions that are likely to be useful to him in the course of his analytical studies. The second and third parts deal with the bases and the acids most often met with in chemical analyses. The book is clearly written, and should be of service to those demanding a somewhat specialized account of the subject with which it deals.

MUNBY'S *School Laboratory Fittings*[12] describes the general considerations governing the choice of a scheme of fittings for science rooms. It is written by an architect and will prove useful to architects, but it is intended more particularly for science masters, who, although they may know quite well what services they require, often fail to foresee in their own design a defect that will emerge after construction. The author has made a special study of the needs of schools and colleges, and is well acquainted with the kinds of trouble and inconvenience that arise from faulty arrangement and construction. A chapter deals separately with the requirements of each of the subjects of physics, chemistry, and biology, and describes the fittings needed for lecture rooms and laboratories, with attention to moderate desires as well as more extensive provision. Other chapters deal particularly with ventilation, gas, electricity, water, and drainage. The details have been carefully considered and minutely described, even to the arrangement of cupboards and drawers, and the choice of wood best suited to different purposes. It is true, as the author remarks, that some people, including very intellectual and experienced bodies, never really crystallize their ideas until the architect has worked out quite a number of schemes, which wastes time and is discouraging. The book should therefore be particularly useful to the heads of schools and colleges, and should be consulted by all who may have in prospect the alteration or new construction of science rooms.

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[1] *Bodily Changes in Pain, Hunger, Fear, and Rage.* By Walter B. Cannon, M.D., Sc.D., LL.D. Second edition. New York and London: D. Appleton and Co. 1929. (8½ × 5½, pp. xvi + 404; 43 figures. 12s. 6d. net.)

[2] *Aids to Psychology.* By John H. Ewen, M.R.C.S.Eng., L.R.C.P.Lond. Students' Aids Series. London: Bailliere, Tindall and Cox. 1929. (Fcap. 8vo, pp. viii + 165. 3s. 6d. net.)

[3] *Neue Deutsche Klinik.* Herausgegeben von Professor Dr. Georg und Professor Dr. Felix Klemperer. Dritter Band. Berlin and Vienna: Urban und Schwarzenberg. 1929. (Sup. roy. 8vo, pp. viii + 805, 225 figures, 10 plates. Paper cover, R.M.35; bound, R.M.40.)

[4] *A Short Course on Human Osteology.* By M. R. Drennan, M.B., Ch.B., F.R.C.S.E., F.R.S.S.Af. Capetown: The Mercantile Press. (5½ × 8½, pp. 98. 7s. 6d.)

[5] *Bailliere's Synthetic Anatomy.* By J. E. Cheesman. Parts iv, v, and vi. London: Bailliere, Tindall, and Cox. 1929. (9 × 7½. Part iv, pp. 5; Parts v and vi, pp. 6; 12 plates, each part. 3s. per part.)

[10] *A Short Introduction to Human Anatomy.* By M. R. Drennan, M.B., Ch.B., F.R.C.S.E., F.R.S.S.Af. Capetown: The Mercantile Press. (5½ × 8½, pp. 15. 2s.)

[11] *Qualitative Analysis.* By Charles B. Jordan, Ph.C., M.S. McGraw-Hill Publications in Pharmacy. London: McGraw-Hill Publishing Co., Ltd. 1928. (5½ × 8½, pp. viii + 169. 12s. 6d.)

[12] *School Laboratory Fittings.* By Alan E. Munby, F.R.I.B.A. London: G. Bell and Sons, Ltd. 1929. (Roy. 8vo, pp. vii + 89; 44 figures. 7s. 6d. net.)

IMPERIAL CANCER RESEARCH FUND.

ANNUAL REPORT FOR 1928-29.

The twenty-seventh annual report of the Imperial Cancer Research Fund, which has just been published, covers the year 1928-29. Renovations in the laboratories have been effected at a cost of £480, and it has been decided to purchase radium with a view to further experiments on the treatment of tumours in animals. Hitherto the radium employed has been in the form of a radium applicator, belonging to Dr. J. C. Mottram. Sir George Makins, the honorary treasurer, points out that the income from investments amounts only to about £8,000, so that the fund is still dependent to a large extent on the annual grant of £2,000 from Lord Atholstan, which terminates in three years' time, and on subscriptions and donations. The expenses of research during the year under review amounted to £13,445.

Director's Report.

Dr. J. A. Murray, F.R.S., director of the fund, reviews the work in the laboratories during the year, and mentions that it is proposed to include regularly in future reports such comments on various aspects of cancer research as have appeared sporadically in previous years. The present report contains a critical commentary by Dr. W. Cramer on experimental carcinogenesis.

During the current year Dr. Cramer has published the results of an investigation indicating that the development of carcinoma is not solely dependent on changes in the epithelial cells; he believes that local inhibitory factors exist, and that malignancy follows interference with these. The nature of the tissue elements in the skin responsible for this resistance to malignant change is still speculative, but attention is called to the possibility of the wandering cells of the connective tissue being concerned. The process of carcinogenesis would seem then to consist of two phases: a condition of "potential malignancy," kept in check by local resistance; and a local breaking down which permits the immediate development of the hitherto potentially malignant cells.

The continued study of fowl tumours at the Stroud Farm laboratories has yielded two interesting results. We have previously referred to Dr. A. M. Begg's work on a spontaneous tumour in a fowl, which could be transplanted by living cells, and appeared microscopically as a *fibroma*. Owing to its power of metastatic growth it was described as a fibrosarcoma in a paper published in 1927, but, after having maintained this character during propagation for two years, it manifested a striking change; it grew more rapidly, became softer and more cellular, and for the first time it was possible to prepare an extract of it. When the filtered cell-free extract was injected into fowls new tumours originated, and thus it was clear that a marked biological alteration had occurred in the direction of increased malignancy, with possibly the development for the first time of filterability. It seems likely, therefore, that it has been shown that a filterable tumour may evolve from a non-filterable, relatively benign neoplasm. The second interesting result was due to a joint investigation by Drs. Begg and Cramer of the statement that transformation of normal into malignant cells had been effected by the action of such simple chemical substances as arsenious acid, indol, and skatol. These two investigators, however, secured evidence that an uncontrolled factor was responsible for this transformation, and that this factor was probably an unsuspected contamination with the virus of the Rous sarcoma, which can sometimes exhibit an unexpected virulence. Thus the positive results recorded in the literature as examples of such transformation may have to be discarded as experimental errors.

Mr. H. G. Crabtree has continued his study of the metabolism of cancer cells, using Professor Warburg's method; he has now begun to investigate the metabolism of irradiated cells. Dr. R. J. Ludford, employing the *intra-vitam* acid dye, trypan blue, has shown that living tumour cells take up this stain only very exceptionally, whereas necrotic areas of tumours become diffusely coloured. Collections of deeply stained macrophages were found at the margins of many tumours, but they were strikingly absent round secondary growths in the lungs. This raises the question whether the action of metallic colloids on cancer is exercised indirectly through the macrophage type of cell. Attention has been given to the modification, by Dr. A. T. Todd of Bristol, of Professor Blair Bell's *colloidal lead treatment*. It is stated that the possibility has been conclusively proved of bringing about the disappearance of some definitely malignant tumours by the intravenous injection of certain colloidal lead preparations. This result could be obtained only in a percentage of the cases so treated, and in certain instances in which regression of the primary tumour was noted some of the metastatic growths proved resistant. The clinical results obtained by Dr. Todd suggest that the action of the lead colloid is probably not a direct toxic one, but that a more complicated mechanism is concerned. It is suggested that the way is perhaps opening for improvement of the therapeutic effect of such lead preparations. There is already considerable evidence to show that the lead colloid is segregated and accumulated in macrophages and other *phagocytic cells throughout the body in the same way as* are colloidal dyestuffs.

Experimental Carcinogenesis.

Dr. Cramer reviews the systematic investigation of the experimental production of cancer in the last ten years. The work of Fibiger, in 1914, suggested that chronic irritation was the cause of the gastric cancer in rats due to the presence of a particular nematode. Similar tissue changes were observed in the case of other parasites, but the results were so irregular that the value of this method of investigating carcinogenesis was not generally recognized until 1921, when it was adopted in laboratories all over the world. Two main lines of research were followed: one concerned with the various cancer-producing agents, and the other with the reaction of the organism to a given cancer-producing agent. Progress along the former of these lines brought into prominence occupational cancer, which was at first considered little more than a scientific curiosity, but the experimental demonstration of carcinogenesis resulted in epitheliomatous ulceration of the skin contracted at a factory or workshop being added to the list of compulsorily notifiable industrial diseases. Dr. Cramer recalls the discussion on occupational cancer at the Annual Meeting of the British Medical Association in 1922, at Glasgow. Four years later a departmental committee, appointed by the Home Secretary, reported in favour of the view that mule-spinners' cancer was an occupational disease. With the further discovery that all lubricating oils were not carcinogenic, and that the property might be removed by suitable treatment, this form of cancer became a preventable disease. No single chemical substance was isolated as being responsible for the carcinogenic effect. Certain physical agents, such as the rays from a mercury vapour lamp and prolonged sunlight, were also shown to be carcinogenic. Dr. Cramer remarks that most of the subsequent work in laboratories has been directed rather to the reaction of the organism to these agents, and considerable progress has been made. One outstanding result has been recognition of the fact that prolonged chronic irritation is necessary to induce cancer. No increase in the degree of chronic irritation, or combination with it of a mechanical injury, has rendered it possible to induce cancer rapidly within the space of a few weeks. Dr. Cramer comments on the "age incidence" of cancer, and shows the importance of bearing in mind the difference between the normal duration of life in such an animal as the mouse, and in man. This consideration suggests that the period of induction in the human subject is between 7.5 and 9 years, or, in the case of continued tar-painting, the figure applied to man would be 15 years. It is significant that the study of occupational cancer in man has shown that a malignant growth hardly ever appears until

seven years have elapsed since the occupation was commenced, and that most cases develop malignancy about the fifteenth year. The important conclusion is drawn that cancer arising at the age of 45 in the stomach, or breast, or uterus owes its origin, probably, to a slow-continued process which began some ten or fifteen years before, and not to some event immediately preceding the appearance of the growth. Dr. Cramer recalls the fact that, in the previous annual report, an international comparison of all organs with regard to the incidence of cancer indicated the existence of a mysterious law of compensation. Whenever in one country there was a markedly lower incidence of cancer in one organ, there was a correspondingly higher incidence in one or more other organs. Illustrations are given of the working of this law in respect of Japan, Holland, and England. The net result, he adds, appears to be that the total mortality from cancer is approximately the same in the different countries, although the organ incidence varies greatly. A compensating factor at work is, he states, susceptibility, which determines the number of people who, under average conditions, will develop cancer. He draws the practical conclusion that if this is so important a factor as appears probable, then freedom from cancer is more likely to be attained by diminishing the susceptibility to it than by trying to hunt down the various forms of chronic irritation to which human beings are exposed. The next step in the experimental study of carcinogenesis would be the investigation of the factors determining this susceptibility. So far all experiments along this line happen to have affected the susceptibility in such a way as to increase it, but, since this factor can be affected experimentally, it is obviously possible to diminish it, and the significance of such a step would be very great.

TRAINING AND EMPLOYMENT OF MIDWIVES.

THE CENTRAL MIDWIVES BOARD AND THE DEPARTMENTAL COMMITTEE'S REPORT.

IN the *Journal* of September 28th (p. 592) we gave a full account of the report[1] by the Departmental Committee appointed in 1928 by Mr. Neville Chamberlain as Minister of Health "to consider the working of the Midwives Acts, 1902 to 1926, with particular reference to the training of midwives (including its relation to the education of medical students in midwifery) and the conditions under which midwives are employed." It will be recalled that one of the three principal matters dealt with in the body of the report was the composition and functions of the Central Midwives Board. An acute and important difference of opinion arose within the Departmental Committee in regard to two of the functions at present exercised by the Board—namely, approval and inspection of training institutions and teachers, and determination of the conditions of entry into the calling and the length and character of the training to be undergone. The majority of the committee proposed that these functions should be transferred *en bloc* to the Minister of Health, who should have the assistance of an advisory committee. Two of their number, however, Dr. J. S. Fairbairn and Mrs. Bruce Richmond, dissented strongly from these conclusions in a joint reservation appended to the report.

The Central Midwives Board for England and Wales has now issued two documents by way of reply to the Departmental Committee's report and recommendations. One is entitled "Observations," and the other "Memorandum," and each is published at the price of 6d. by Spottiswoode, Ballantyne and Co. (1, New Street Square, E.C.4). In the former the recommendations of the Departmental Committee and the observations of the Board are set out in parallel columns, for convenience of reference: the latter covers much the same ground, but is more explanatory. For our purpose it will suffice to refer briefly to the memorandum, a pamphlet of twenty pages.

The memorandum first outlines the present constitution and duties of the Central Midwives Board, and the opinion is expressed that it is now "a thoroughly representative body to which the midwives, the medical profession, the local authorities, and the medical officers of health all send members." While, however, most of the representatives nominated by the other bodies concerned have remained members for many years, to the great advantage of all concerned, "it is a matter for regret that the Ministry of Health has frequently altered its nominees, and still more so that the eminent persons nominated are often unable to attend the meetings . . . owing to pressure of other duties." To the suggestion by the Departmental Committee that the number of members of the Central Midwives Board should be reduced the Board replies that this could only result in under-representation or non-representation of interests which are properly concerned. Of the report as a whole it says:

> "Much of the matter contained in the report of the Departmental Committee, and many of the recommendations therein, if read by persons without special experience would give the impression that suggestions are being made which are novel in character, whereas, in fact, many of them have been an essential part of the policy of the Central Midwives Board for many years."

This point is elaborated in a succession of paragraphs dealing respectively with provision for a comprehensive maternity scheme, improved midwifery services, the training of midwives, post-certificate training, and regulation of the practice of midwives; and the action taken, or contemplated, by the Board is indicated at various places. In regard to institutions for the training of midwives the memorandum states:

> "The Central Midwives Board objects in the strongest possible manner to those recommendations of the Departmental Committee which suggest the transfer of the duty of approval and inspection of training institutions and teachers from the Board to the Ministry of Health. It has read the reservations in the Committee's report (signed by Dr. J. S. Fairbairn and Mrs. Bruce Richmond) which deal with these recommendations, and entirely endorses them."

After quoting at length from the reserved report of Dr. Fairbairn and Mrs. Richmond, the Board emphasizes certain matters which lie at the root of its objection to the recommendation by the majority of the Departmental Committee that the power of approval of training institutions and teachers should be transferred to the Ministry of Health. It remarks, *inter alia*, that inspection of training and teaching is a wholly different thing from the inspection carried out at present by the Ministry's inspectorate, and that this inspection demands very different qualifications. It maintains that control of teaching, as in the case of medical education, should be entirely in the hands of a representative body of experts and not of a Government department.

> "The knowledge of what goes on in training institutions, which is obtained from evidence given at the hearing of penal cases and from information obtained as the result of conducting examinations, is invaluable, and could hardly be obtained in any other way."

Lastly, the memorandum expresses strong doubt whether the appointment of an advisory committee, as suggested by the Departmental Committee, would achieve the desired result, and observes that no valid reason is given for transfer to the Ministry of the power of framing rules as to training:

> "The Central Midwives Board is unaware of anything in the evidence given before the Committee which shows that the Board has not carried out its duties in this respect in a satisfactory manner."

In conclusion, the Board places on record its hope that those recommendations of the Departmental Committee to which it takes exception will not receive legislative sanction.

[1] Ministry of Health. Report of the Departmental Committee on the Training and Employment of Midwives. 1929. H.M. Stationery Office. Price 6d.

Nova et Vetera.

ON THE STIMULUS GIVEN BY RELIGION TO SURGERY DURING THE THIRD EPOCH OF THE NEOLITHIC PERIOD.*

BY

T. WILSON PARRY, M.A., M.D.Cantab., F.S.A.

Man, in his earliest state, can have been but little more than a mere animal. From this dim horizon in the far-distant past up to the beginning of the Palaeolithic period, a stretch of time covering incalculable millennia and known by the name of the Eolithic or pre-Palaeolithic period, little is known of him save that he must have been slowly, laboriously, but persistently working his way upward from the abyss of ignorance whence he had sprung to the level he had reached when the Palaeolithic period opened.

Then came another enormous expanse of time, the Palaeolithic period itself, before man could win for himself that higher grade of intelligence which marked him out, at the end of this period, as a skilful fashioner of flint implements and a remarkably fine artist for so early a date.

Yet another lapse of time, on this occasion probably only some eight thousand years, before we arrive at the term to which I wish to draw attention—namely, the third or final epoch of the Neolithic period. This epoch, while being memorable for its exquisitely flaked and polished implements, the introduction of pottery, and the development of agriculture, will be always deservedly distinguished by two outstanding features: (*a*) the commencement of architecture, embodying the building of massive tombs and gigantic open-air temples; (*b*) parallel with this achievement is found a much more astonishing innovation, and, strange to say, it is surgery that becomes enriched by the selfsame impulse that produced those fine architectural creations I have just mentioned. Both these elements of progress were actuated by a new and intense intuitive instinct for religion. There is no doubt that before this intuitive force had begun to take effect surgery was in an extremely primitive state—in fact, in much the same condition as we find it to-day among peoples still in their age of stone-culture.

The daring experiment of making a hole in the living skull of man was not the result of a gradual evolution of the art of surgery, but was a sudden jump forward of so startling a nature that one could hardly conceive its ever having been attempted in those early days had not the unseen force of religion made itself powerfully felt by the initiation of a rite that necessitated a surgical procedure far in advance of the instinctive surgery of the time.

One feels that had it not been for the creation of this religious ritual no attempt at cranial surgery would have been instituted until many centuries later. But the very fact that the spiritual condition of the time demanded this surgical effort being made to bring about the elimination of evil spirits paved the way for operations being performed upon the skull for disease of the cranial bones themselves.

Those massive stone constructions called by the name of dolmens, sepulchres of Neolithic man of the third epoch, many of whose skulls bear definite proof of operation, together with the holed skulls themselves, necessitate a prolonged study, and can therefore only be touched upon in this present paper. The importance attached to these findings is that they clearly date both the operation and the implements employed in performing it, and that this all took place before 2000 B.C., the year about which the great Stone Age ended for Northern and Western Europe. It is a strange thing, but nevertheless undeniably true, that this operation was only carried out during this third or Carnac epoch of the Neolithic period, and during that time was associated with the religion of this race of men, and not as an ordinary surgical procedure.

A differential diagnosis has been carefully prepared concerning the various holes discoverable in the skulls of prehistoric man. From these specimens, such as exhibit signs of the ritualistic operation can be easily singled out, and their characteristics can be briefly described. First, the site of the operation is always on healthy bone, and, indeed, the whole bone of the skull usually shows a normal and healthy appearance. There is no sign of injury or fracture such as one might find in the Inca or prehistoric Peruvian skull, nor do we find any trace of disease in the bone itself. Secondly, the hole, the lumen of which is usually either circular or oval, will be found to be funnel-shaped, having been bevelled at the expense of the external table of the skull by the scraping of the bone by flint flakes. The sides of the hole shelve downwards and inwards towards the lumen, and those sides, if the patient's recovery has been complete, show that the Haversian canals and lacunae have all been filled up by new bone, which gives the macroscopic appearance of a smooth and almost polished surface.

Large numbers of these skulls have been unearthed in France, and it is astonishing to find how few give evidence of unsuccessful operation, which goes to show how skilful those early operators became in their art to be able to avoid the many pitfalls such serious operations entail. Out of this large number, which represent many centuries of time and whose specimens are carefully preserved in both public and private museums in France, only two examples can in any way be referred to treatment for surgical affections. One of these was a skull taken from the Neolithic Cemetery of Bray-sur-Seine (Marne), and was described by Professor Parrot in the year 1881. Certain indications in connexion with the trephined area led the professor to infer that there had been an accumulation of pus in that region and the operation had been performed to set this free. It had probably been caused by a traumatic wound.[1] The other specimen, found by M. Gaillard in one of the dolmens of Port-Blanc at Saint-Pierre de Quiberon (Morbihan), was also described by Professor Parrot. An opening, 2½ in. by 2 in., showed a scraping on one side of the hole, but an abrupt edge on the other. This was considered to have been a wound at the first instance in which suppuration had taken place and trephining was performed to relieve pressure on the brain, due to pus.[2]

Both these cases, it will be seen, were caused at the outset by an injury, the wounds having become septic. The surgery involved, therefore, was for the relief of *pent-up pus*.

I think we may reasonably infer from the foregoing that these two cases were the exception and not the rule. The operation, then, *generally* performed was for ritualistic reasons, and the priest-doctor who officiated in such case would, by this experience, be the better enabled to deal with those *special* cases already cited. That is to say, the ritualistic operation came first, and later the attempted cure for morbid conditions of the bone.

We can therefore conclude that during the epoch known as the Carnac or final epoch of the Neolithic period a surgical procedure was instituted for the purpose of facilitating the exit of demons from the cranial cavity of man, and that this undertaking was the forerunner of cranial surgery for the treatment of fractures or morbid conditions of the skull itself.

It is strange to think that while in this and previous generations science has been the means of stimulating, beneficially correcting, and enlarging man's religious conceptions in a way never hitherto accomplished, the exact reverse was the case some four, five, or six thousand years ago. The real, intense, and intuitive religion of a race of men that inhabited nearly every country of Europe and were the builders of those massive, mysterious dolmens, those stately cromlechs, and those impressive open-air temples, with their processional avenues—these men regarded their religion of first and paramount importance, and compelled science to act as their servant and adapt itself to the special claims and requirements of their spiritual life. Which of these two forces will be predominant, say, five hundred years hence? Will it be Science or will it be Religion?

* A paper read to the Section of History of Medicine at the Annual Meeting of the British Medical Association, Manchester, July, 1929.

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1 *Bull. de la Soc. d'Anthrop.*, 1881, p. 101.

2 *Dictionnaire des Sciences Anthropologiques*, p. 1073.

British Medical Journal.

SATURDAY, NOVEMBER 30TH, 1929.

POLLUTION OF RIVERS.

Dr. H. McLean Wilson, the chief inspector of the West Riding Rivers Board, in his address to the Public Health Section at the Annual Meeting of the British Medical Association, printed at page 997 this week, makes the claim, which no one will question, that the state of the rivers under the jurisdiction of his Board is vastly different at the present time from their condition in the middle of last century, or even near its close, when the odours freed by the River Aire were noticed at Leeds Town Hall. Both this river and the Calder are now inoffensive and only slightly discoloured, while the Wharfe and the Nidd, more pellucid streams, are stocked with fish and lined with smiling villages, each with its own sewage purification works, and even small hamlets and separate farmhouses have made provision to prevent their sewage from entering the river water.

Dr. Wilson suggests that other local authorities should combine to take action after the manner of his Board. They have the power, he says, in the Rivers Pollution Prevention Acts, and yet they do not use it. This view receives support from a paper on river pollution read by Dr. J. B. Firth to the Public Works Road and Transport Congress held in London last week. "It seems to me," he said, "that some greater driving force is needed to compel the various authorities to shoulder their responsibilities . . . Nothing short of a bombshell appears to be necessary to move some of them." It might be advanced on behalf of authorities which have so far been laggard that the statute on which they are asked to rely is so framed that proceedings under it are hampered. It is not impossible that they may have felt reluctance to embark on processes which might lay them open to the rejoinder that their own sewage works contributed as substantially to any alleged pollution as the discharges they sought to repress. But whatever the grounds of their inaction may have been, it appears fairly certain that had local public opinion been strongly behind the local purification movement the councils, despite the limitations of the Rivers Pollution Prevention Acts and all other deterrents, would have been impelled to put their house in order, and, having done so, to initiate a campaign against the remaining offenders. In certain cases the necessary impulse may have been given by the existence of some clamant abuse, like the silting up of a river with ashes and slag, or by the contamination of its waters with sewage or trade refuse to such an extent as to make it a byword, and the good impulse, once given, has moved authorities to perfections of achievement quite beyond their original purpose. But when people are invited to support a scheme designed, not to dredge an encumbered river or abolish its malodorous foulness, but merely to improve the quality or prevent the deterioration of a stream which, judged by the casual eye, scarcely differs from normal, they are too apt to take the view that it is much ado about little, and so put the question by. The apparent clearness of a river is often a fallacious guide, for rivers possess a great power of oxidizing obvious impurities without at the same time being able to purge themselves with equal speed of the pathogenic bacteria committed to their waters by sewage effluents.

It is pleasant to note that amid the general indifference there exists one class of persons in this country who have striven consistently to prevent or arrest the degradation of better-class rivers, for the welfare of which they have done as much as or more than most public health authorities. The angling members of the community, through their various organizations, in seeking to make the rivers safe for fish, have at the same time rendered them fitter for the uses of man—the reception of sewage and trade waste excepted—than they would otherwise have been. The Salmon Fishery Act of 1861 empowered the prosecution of polluters of rivers who poisoned or otherwise killed salmon. The Salmon and Freshwater Fisheries Act of 1923 extends the protection to other fish besides salmon, makes it penal to injure them even short of death, and protects their spawn and their food. A river deoxygenated by sewage is hygienically objectionable; when it fails in consequence to support fish life the Fisheries Acts can deal with it. The public, however, cannot look to the angling interest to make or keep river water potable by man. "Fishes that tipple in the deep," provided the oxygen content is not too low, are greatly tolerant of admixtures of sewage, being immune to the bacteria which throng sewage effluents. The fact that a river is a good fishing river may say something for its amenity, but does not confer the cachet of safety; its waters may be charged with *B. typhosus*.

The standard which guides public health local authorities who interest themselves in rivers pollution prevention, though reached by a method different from that applied by anglers, is in its outcome of a somewhat similar character inasmuch as it is an amenity standard. It is founded upon the suggestion made by the Royal Commission on Sewage Disposal, which is not confirmed by any legal sanction, but generally accepted as a working rule, that sewage effluents discharged into a stream allowing adequate dilution should be such that a river, after receiving them, will not show obvious signs of pollution. Neither this standard nor the angling standard implies sterilization, for the Commission recognized that sewage effluents were liable to contain pathogenic bacteria, and took the view that their complete sterilization before discharge was impracticable at reasonable cost. The absence of signs of obvious pollution means that the river retains its natural appearance and presents the charm of fresh moving water to all who have eyes to see it. As the instance of London shows, it results also in the production of water of sufficient purity to be rendered potable after treatment. These are objects worthy of all endeavour.

The question of the state of rivers in this country increases in importance year by year, as the growing towns pour a swelling volume of sewage into the rivers, and as new industries generate fresh discharges which raise novel problems of treatment and disposal. Dr. McLean Wilson's opinion that special river boards are the best administrative machine for dealing with the questions arising is entirely commendable. The constitution of such boards respects the principle of local government, which, except in greatly restricted areas, has been prolific of good results. It is more in accordance with that principle than the single central department to control all rivers, vainly recommended by the Royal Commission on Sewage Disposal. To the attainment of the ends in view an informed and interested public opinion will greatly conduce.

THE MENTAL TREATMENT BILL.

THE Government's Mental Treatment Bill, introduced in the House of Lords by Earl Russell last week, is likely to arouse much interest in Parliament and in the country. The title alone—"An Act to amend the Lunacy Acts, 1890 to 1922, and such of the provisions of the Mental Deficiency Acts, 1913 to 1927, as relate to the constitution and organization of the work of the Board of Control, the exercise of the powers of the Board, and the protection of persons putting those Acts into operation"—indicates its important bearings on a matter of great public and professional concern, which closer examination of the terms and proposals of the bill amply confirms.

The chief amendments proposed are two in number. The first, which concerns the voluntary boarder system, is not new in principle, but extends the power already possessed by registered hospitals and licensed houses for private patients) to receive any person suffering from mental disorder who is desirous of voluntarily submitting himself to treatment. Under Clause 1 of the bill voluntary boarders may be received into public mental hospitals for rate-aided patients, and into any hospital or nursing home approved by the Board of Control, or, with the consent of the Board of Control, into single care. This amendment will bring the county and county borough mental hospitals into line in this respect with the City of London Mental Hospital at Stone, in Kent, and the Maudsley Hospital. The power to receive rate-aided patients into public mental hospitals has much to commend it, provided there are safeguards to ensure that no patient so admitted is kept indefinitely in hospital as a voluntary boarder if through mental deterioration he becomes incapable of volition. Legal provision to meet such a case is made in this bill for the first time: Clause 2 provides that a voluntary boarder who becomes incapable of volition shall not be retained thereafter on that footing for a longer period than one month. The second amendment of public importance relates to a matter which has always provoked controversy in the past, notwithstanding the obvious benefits that are likely to follow its adoption. This, we need scarcely say, is the provision for treatment of persons suffering from mental disorder, and for the time being incapable of volition, as "temporary patients" without certification for a period not exceeding six months. Under Clause 5 of the bill such temporary patients may in future be received into institutions provided by local authorities—that is, county and county borough mental hospitals—and into registered mental hospitals and such other institutions, hospitals, and nursing homes as may be approved by the Board of Control, or, with the approval of the Board of Control, into single care.

The general effect of these two proposals for amendment of the existing law will be to widen greatly the scope of the treatment of mental disorder, and facilitate its earlier application. The subject is of outstanding public importance, and we hope to return to it in more detail in a later issue, and also to discuss the other provisions of the bill which are of direct concern to members of the medical profession. Chief among these is the proposal in Clause 16 which gives effect to the recommendation of the Royal Commission on Lunacy and Mental Disorder that Section 330 of the principal Lunacy Act should be amended so as to provide that any person indicated therein shall not be liable to any civil or criminal proceedings unless that person "has acted in bad faith or without reasonable care." That is to say, in all such cases the onus of proof shall definitely rest on the plaintiff. Moreover, if any proceedings are taken, such proceedings shall be stayed on application to the High Court unless the court is satisfied that there is substantial ground for alleging bad faith or lack of reasonable care. This does not, indeed, give the full measure of protection generally claimed by the medical profession, but it is a substantial gain.

The bill will receive detailed scrutiny at the earliest possible moment by the British Medical Association's special committee, which has taken so large a part in advocating reform in the treatment of mental disorder and in demanding adequate protection for the doctor who has to discharge duties in pursuance of the Lunacy Acts.

BIOCHEMISTRY AND MEDICINE.

THE award of the Nobel Prize for medicine jointly to Sir Frederick Hopkins of Cambridge and Professor C. Eijkman of Utrecht, and for chemistry to Professor Arthur Harden and Professor H. von Euler of the Lister Institute and Stockholm, cannot but give the greatest satisfaction to the medical profession and to scientific workers in this country. Both of the English workers are biochemists, and both are notable as pioneer workers in various fields, which, once opened up by their efforts, have produced an increasingly rich crop of knowledge. It is notable that Harden, like Pasteur before him, chose yeast as the subject of his investigations. His experiments revealed a hitherto unsuspected phase in the process of alcoholic fermentation—namely, the formation of the intermediary hexose phosphoric esters. Following his lead, other workers demonstrated that these substances played an important part in the story of muscular activity, and it is now realized that phosphoric esters have a significance in animal metabolism which was undreamed of before Harden made his fundamental observations. Hopkins and Eijkman received the prize for their work on vitamins. Eijkman first described beri-beri as a clinical entity, and showed that it was in some way connected with a diet of polished rice. To Hopkins we owe the conception of "accessory food factors," and it was he who first demonstrated that these were definite physiologically necessary entities, quite distinct from all other known dietary substances. Characteristically, he was more interested in the discovery itself than in his personal claims as its author, and the facts found a place in his lectures for three or four years before the publication of his first paper on the subject. He used to say in these lectures that, while at hospital in the eighteen-nineties, he was profoundly impressed by the unsatisfactory state of knowledge about the essentials of nutrition, when only "protein" and "energy" were considered; and the profound effect of "quality" as distinct from "quantity" in diet was unrecognized alike by the physiologist and the clinician. This conviction suggested much of his later work. At first his views were not accepted, but scepticism was overwhelmed by the mass of confirmatory evidence, which has now grown into an extensive literature—so extensive, indeed, that Hopkins's earlier papers are in danger of being forgotten. It is fitting, therefore, that his work on vitamins should have been the occasion of the international recognition that he has just received. Sir Frederick Hopkins's biochemical interests have been, however, extraordinarily wide. With Sir Walter Fletcher he laid the foundations upon which has been built almost all the work on muscle physiology as we know it to-day. Early in his career he showed that the pigments of the wings of Pierid butterflies were composed of uric acid and its derivatives, and his method for the estimation of uric acid is still the most reliable at our

disposal. His excursions into the realm of protein chemistry resulted in the preparation of the first animal protein to be obtained in a chemically pure state. Next, led by his work on the Adamkiewicz reaction, he discovered tryptophane, and proceeded to demonstrate that its presence in the diet (and also that of a few other complex amino-acids) was essential to life; incidentally, in the course of this work he was among the first to make use of bacterial activity as a means of determining molecular constitution. He has been responsible for most valuable, though little-known, work on that curious substance Bence-Jones protein. His investigations into the mechanisms of biological oxidizations have done much to bring order into our knowledge of a subject of fundamental importance. Among other observations, his demonstration of the presence of xanthine oxidase in milk has made possible much of the accurate quantitative work on oxidases which has of late figured prominently in the output of the Cambridge school. Finally, he has isolated from tissues a new tripeptide, glutamyl-glycyl-cysteine, which undoubtedly plays an important part in the oxidization processes of living cells. There can be few physiologists or biochemists in this country who are not proud to acknowledge how much they owe to Hopkins's influence and teaching; and this feeling is certainly shared by all physicians who appreciate the great and increasing debt of clinical medicine to biochemistry.

LORD LISTER'S BIRTHPLACE.

PROBABLY none of the environs of London have changed more disastrously and more completely during the past sixty years than those about the borders of Middlesex and Essex. London has thrust out pseudopodia, carelessly, and engulfed now this bit of the countryside, now that, and what once were pleasant villages—Walthamstow, East Ham, West Ham, Forest Gate—are now well within the edge of Greater London, wildernesses of workmen's dwellings, overshadowed by the chimneys of great factories. Readers of Sir Rickman Godlee's *Lord Lister* will remember his description of Upton House, his uncle's birthplace, and the pleasant pictures of the house and its grounds that are reproduced in that charming book. This capacious old Queen Anne mansion, situated at Upton in Essex, was bought by Lord Lister's father in 1826, and in this pleasant country retreat Joseph Lister was born on April 5th, 1827. The estate on which Upton House stood has long been built over, and most of its gardens have disappeared; but the house itself was saved in 1885, when it was bought by the St. Albans diocesan authorities, and became the vicarage of the Church of St. Peter, Upton Cross. Now the house is once more in danger. The Bishop of Chelmsford, the Bishop of Barking, Lord Moynihan, and Sir James B. Slade, in a letter to the *Times* of November 22nd, point out that the vicarage is in need of extensive repairs, and that, even when these repairs have been effected, to keep it in proper condition would require a considerable yearly expenditure chargeable to the meagre stipend of the incumbent of the living. Indeed, in 1918 the diocesan authorities had contemplated selling the house, owing to its dilapidated condition, and no doubt would have done so but for the fact that the incumbent, the Rev. Allen James Parry, refused to give his consent, and carried out the necessary repairs at his own expense. Since then the vicar has paid considerable sums in preserving this fine old building, and at present the Ecclesiastical Dilapidations Measure levies an annual assessment on his stipend to meet the cost of future repairs and fire insurance. It is obviously unsatisfactory that the preservation of Upton House should depend on the generosity of the present and future vicars of St. Peter's Church, whose net stipend, we are reminded, is less than £400, and the Parochial Church Council appeals, therefore, for the sum of £1,800, to be capitalized by the Chelmsford Diocesan Board of Finance, and administered by them for the purpose of preserving Lord Lister's birthplace as the vicarage house of the benefices for generations to come. The signatories of the letter in the *Times* appeal to all who value the memory of Lister to subscribe towards the very moderate sum that is asked for, and they suggest that if the response is generous enough to bring in a larger amount the surplus would be used for setting up a memorial to Lister in the house itself. It would be a calamity if Upton House had to disappear, as did the Lister Ward of Glasgow Infirmary in the course of the reconstructions that were completed in 1924. The appeal has the support of Sir Humphry Rolleston, Sir William Lister, Sir StClair Thomson, and others. The present year has seen the acquisition, through the munificence of Mr. George Buckston Browne, of Charles Darwin's house at Down; the safeguarding of Lister's birthplace would be a becoming pendant to that gift to the public. Cheques should be drawn in favour of "Lord Lister's Birthplace Preservation Fund," and sent to the honorary treasurers of the fund at Upton House, Forest Gate, London, E.7, or they may be paid direct to the Forest Gate branch of the Westminster Bank.

ANIMAL BREEDING RESEARCH DEPARTMENT, EDINBURGH.

IT may be assumed that in the minds of those who were responsible for the creation of the Animal Breeding Research Department, now a constituent department of the University of Edinburgh, there were the notion and the hope that from its activities would emerge information that might be profitably incorporated into the practices of breeding animals of economic importance; it is unlikely that anyone at that time imagined that the interests of its staff would demand that by them man should be regarded as an appropriate experimental material and social biology as a necessary field of study. Yet this has happened. It was recognized quite early in the history of the department that the quickest and surest method of improving Soudanese sheep, for example, was to improve the Soudanese; that one could not understand sexuality and reproduction unless one studied these phenomena in a number of typical forms. One cannot argue from mice to men, but one can at least argue if one knows mouse, mule, monkey, and man. So it is that animal genetics includes human genetics and eugenics, and sex physiology the sexual life of man. This extension of interest has not been unprofitable, both intellectually and in the matter of endowment. There are many more people interested in the further control of the vital processes of man than there are in the further improvement of the sheep, and the activities of the Animal Breeding Research Department have attracted their attention. Mr. T. B. Macaulay, a prominent Canadian of Scots extraction, is the most recent benefactor of the department. He has endowed a lectureship and associated assistantships in order that the work on the endocrine aspects of senescence and of sex may be intensified. In making this gift to the University Court he states that he wishes to encourage those departmental activities which promise to add to our knowledge of the disabilities which at present stand in the way of human health and harmony. He holds the view that it is more important to add to man's knowledge of himself than to add to his knowledge of his commercial stock. The development of any research institution is conditioned by the opportunities it secures. It would seem that this department will inevitably approach nearer and nearer the medical school. Since this is to be desired, Mr. Macaulay is greatly to be thanked.

AN AMERICAN MEDICAL SCHOOL.

THE thirteenth instalment of the valuable publication *Methods and Problems of Medical Education*,[1] generously provided by the Rockefeller Foundation, differs from nearly all the previous issues in being entirely confined to the consideration of one teaching body—the Medical School of the Vanderbilt University at Nashville, Tennessee. This University was founded in 1873 by the munificence of Cornelius Vanderbilt of New York City, and the degree of Doctor of Medicine was first granted two years later. For more than forty years the medical school depended solely on students' fees, but in 1919 steps were taken to reorganize the medical school, and funds were forthcoming from the General Education Board and the Carnegie Corporation to construct a new medical school in which the clinical and laboratory departments would be closely correlated together and in the same building. The plans for this purpose were drawn up simultaneously with those for the University of Colorado at Denver, and were in the main adopted by the Medical School of the University of Rochester, New York, which was described in full detail in the seventh series of this publication two years ago. This new school at Nashville, with a new staff recruited from some of the best schools and laboratories in America and abroad, opened in 1925, and is arranged to accommodate a relatively small number of students, the classes being limited to fifty. The faculty was finally organized by a combination of new blood from outside and of the former clinicians, and staffing of the clinical departments, with the exception of obstetrics and gynaecology, has been arranged on a university basis, consisting of two groups—one whole-time workers in the school and hospital, and the other part-time clinical teachers. The beds in the hospital are allotted as follows: medicine 66, surgery 66, obstetrics and gynaecology 27, paediatrics 30, private patients 25, and coloured patients 36. Of the sixteen articles two are contributed by Professor G. Canby Robinson, who as dean gives the history and general description, from which the above details are taken, and as professor of medicine the account of that department; he, however, resigned both these appointments on July 1st, 1928. Neurology and psychiatry and dermatology are subdivisions of the department, as was paediatrics until last year, when it was separated and placed under the charge of Professor H. R. Casparis. In his account of the department of surgery Professor Barney Brooks pleads for more equipment in teachers, laboratories, and clinical material for his branch than for any other in the medical school, and considers that a university department of surgery should be potentially independent of all others, and should have 150 to 200 beds exclusive of the surgical specialties; he therefore regards the number of beds in his clinic as inadequate. The Vanderbilt University School of Nursing has been financially assisted by the Rockefeller Foundation, and provides two courses of study, one of twenty-eight months leading to the diploma of graduate nurse, and the other, with more academic teaching, leading to the degree of bachelor of science in nursing and the diploma of graduate nurse.

[1] *Methods and Problems of Medical Education* (Thirteenth Series). New York: The Rockefeller Foundation. 1929. (7½ × 11, pp. 130; illustrated.)

PREVENTION OF ACCIDENTS IN COTTON WEAVING FACTORIES.

FOLLOWING the precedent set by the spinning branch of the cotton industry, a committee consisting of employers and operatives in the weaving branch, together with representatives of the Factory Department, was constituted, at the end of 1926, for the purpose of revising and bringing up to date the safeguarding regulations agreed upon by a similar committee in 1912. The chairman of this committee, Mr. E. F. May, has now published a report[1] on the agreements arrived at. He sets out in full both the old and the new agreements, and explains the why and wherefore of the alterations. The new code will undoubtedly bring about considerable improvement in safeguarding and fencing, though possibly still greater improvement would have been effected but for the need, in a committee composed of persons with different interests, for bringing about a settlement by compromise. The carrying of warp beams and the lifting of heavy warp tension weights have been reasonably dealt with, though it might have been wise to retain the definite prohibition against women and young persons helping to lift beams into the looms. To minimize the risk of bursts, efficient safety valves are to be provided for and periodical inspections made of the steam drying cylinders of sizing (taping) machines. The clearance between shuttle and shuttle guard has been fixed at a half-inch maximum. Shuttle kissing was considered; the employers, however, having had no response to their offer, made in 1924, that they would substitute hand-threaded shuttles wherever practicable if weavers asked for and were willing to use them in the proper manner, did not now see their way to consent to the operatives' suggestion of unconditional abolition of the mouth-suction variety. Though none of the charges against shuttle kissing have been satisfactorily proved, the practice, like that of stamp licking, is a filthy one, and it seems a pity to leave matters as they are. In the cotton industry more than in any other is there a tendency for injuries following accidents to become septic, this sequel having been observed in 19.4 per cent. of cases, while no fewer than 65 per cent. of splinter wounds in weavers' hands become so infected. This committee therefore agreed to adopt the first-aid regulations that have already been approved by the cotton spinning committee, including the requirement that selected persons should be instructed in dealing with splinters. We again suggest that such instruction can most conveniently be given by the certifying surgeon. A joint standing committee has been appointed to meet twice each year for the purpose of reviewing the working of the agreements.

[1] Home Office Report on Conferences between Employers, Operatives, and Inspectors concerning Fencing of Machinery, First Aid, and other Safeguards in Cotton Weaving Factories. By Eliot F. May, H.M. Superintending Inspector of Factories. London: H.M. Stationery Office. 1929. 3d. net.

THE STUDY OF BOTANY.

THE devising of a thoroughly satisfactory scheme of medical education is unfortunately one of those insoluble problems that tend to be neglected, not because the present arrangements are tolerably satisfactory, but because there seems so little likelihood of any reform producing any great improvement. The receptivity of the individual student's mind is a fixed quantity, the amount of time that he can afford to spend on his education has already approached its limit; medical science, nevertheless, expands continuously, but it is impossible to put a quart into a pint pot. The favourite escape from this difficulty is to arrange for the student to learn "less and less about more and more." The pressure upon the student's time produced by the steady expansion of medical science does, however, induce a careful scrutiny into the subjects of his curriculum, and an inquiry into their real value. In particular the value of botany is often questioned, and it is interesting to note what Professor Boycott has to say in its defence in his introduction to the textbook of botany for students of medicine by Drs. Fritsch and Salisbury, of which the second edition has now appeared.[2] In the first

[2] *Botany: For Students of Medicine and Pharmacy.* By F. E. Fritsch, D.Sc., F.R.S., and E. J. Salisbury, D.Sc., F.R.S. London: G. Bell and Sons, Ltd. (10s. 6d. net.)

place, it is worth remarking that those interested in medical education might well look through this book simply to see the nature of a modern course of botany for medical students. Nearly the whole volume is occupied by plant physiology and biochemistry, and only one chapter is devoted to the classification of plants, while the characteristics of the familiar flowering plants are disposed of in nine pages. Modern botany is therefore quite a different subject from the botany taught to medical students thirty years ago. Professor Boycott, however, does not base his argument for botany on its utilitarian value to the medical student, but on the more general grounds expressed in the following sentences. "Medicine is a piece of applied biology and requires a generous training in the broad principles which summarize the relations of live things to one another and to inorganic nature. . . . The business of practical medicine is to make people feel better, and it does this by helping on the natural processes of repair and restoration, which are common to man and the earthworm: the mending of a broken leg depends on what the body does, the mending of a broken bicycle on what the engineer does. If anyone wants to play a good doctor's part in the running of this wonderful pageant, he ought to know biology, he wants to read his patients in the original. Besides, it makes medicine so much more amusing." Few will dispute the general principle that a doctor, whose work is entirely concerned with living tissues, must understand the broad principles of biology. The whole question is how these can be best taught to the medical student. The student with imagination and scientific insight will realize the relation between plant physiology and human physiology, but the practical question is whether an appreciable number of students ever realize that there is any connexion between the two subjects. The honours student is not the chief problem of education, because, if given a chance, he educates himself. It is in the case of the average student that the results of a good or of a bad education become apparent. We confess that we are doubtful whether the imagination of the average medical student can adequately bridge the gap between plant and animal physiology. It is, indeed, interesting to speculate how many teachers would agitate for the introduction of botany into the medical curriculum if it were not already there.

BRITISH INSTITUTE OF RADIOLOGY.

An exceptionally interesting programme of lectures, discussions, and demonstrations has been arranged in connexion with the annual meeting of the British Institute of Radiology, to be held on December 4th, 5th, and 6th at the Central Hall, Westminster. From 10 a.m. to 5 p.m. daily during the whole of the annual meeting, and continuing till December 21st, will also be held, at the premises of the Royal Photographic Society (35, Russell Square, W.C.1), an exhibition of radiography, illustrating the history, development, and scientific and industrial applications of *x* rays. Following the official opening of the meeting at the Central Hall, Westminster, by the Minister of Health, on Wednesday, December 4th, at 2.30 p.m., Professor Gösta Forssell will deliver the tenth Mackenzie Davidson Memorial Lecture, taking as his subject radiotherapy of malignant tumours in Sweden. On the same evening Dr. G. B. Batten will open a discussion at the Institute of Radiology (32, Welbeck Street, W.1) on the requirements of clinicians from radiologists and vice versa. At the morning session on December 5th Professor S. Russ, Mr. Geoffrey Keynes, Mr. Malcolm Donaldson, Dr. J. E. A. Lyndham, and Dr. N. S. Finzi will read papers on aspects of radiation therapy, and at the afternoon session this discussion will be continued, and Professor F. L. Hopwood and Miss F. E. Smallman will read papers on the use and abuse of radium needles. In the evening Professor A. S. Eddington, F.R.S., will deliver the twelfth Silvanus Thompson Memorial Lecture, his subject being *x* rays in the stars. During the *morning session on December 6th* the following papers will be read: Mr. W. E. Schall, on a single valve plant for diagnosis and deep therapy; Mr. Cuthbert Andrews, on a mobile *x*-ray unit; Dr. Ffrangcon Roberts, on modern radiological developments in Germany, with special reference to the new institute at Frankfurt; Dr. A. Oliansky, on output of transformers under different methods of high tension rectification; Mr. W. R. Gray, on a hot cathode tube with rotating anode; Dr. E. J. H. Roth, on the mekapion, an ionization apparatus for the absolute measurement of *x*-ray dose; and in the afternoon Miss S. F. Cox and Dr. F. G. Spear, of the Radiological Section of the Strangeways Research Laboratory, will read papers on tissue culture and its application to radiological problems; the action of *x* rays on living cells cultivated *in vitro;* and the immediate and delayed effects of radium on tissues cultivated *in vitro*. During the same session will be given demonstrations of cell division in living cells cultivated *in vitro*, of living cells under dark-ground illumination, and of stained specimens and charts illustrating the papers by Miss S. F. Cox and Dr. F. G. Spear. Members of the Institute are invited to bring friends to the exhibition and to any of the meetings, of which further particulars may be obtained from the secretary of the British Institute of Radiology, 32, Welbeck Street, London, W.1. On the evening of December 6th the Institute will hold its annual dinner at the Trocadero Restaurant, with the president, Mr. C. Thurstan Holland, in the chair.

SECOND INTERNATIONAL MALARIA CONGRESS.

In 1925 a committee of Italian malariologists, including Drs. Marchiafava, Ascoli, Bignami, Bastianelli, Dionisi, and Gosio, initiated and organized a "first international malaria congress," which was held in Rome in October of that year under the patronage of the Italian Government.[1] It was then resolved that in 1930, the fiftieth anniversary of Laveran's discovery of the malaria parasite, there should be a second international congress, and that it should take place at Algiers, where the discovery was made. Arrangements for this congress have now been completed under the authority and patronage of the French Government. It will be held at Algiers on May 19th, 20th, and 21st, with Professor Mesnil as president. The following subjects will be discussed: (1) The parasitology of malaria (including therapeutic malaria from the parasitological point of view); (2) anopheles mosquitos; (3) epidemiology and endemiology; (4) pathology; (5) quinine and other alkaloids and drugs in therapy; (6) prevention and control. Communications should be in English or French, and should be sent so as to arrive at the general secretariat of the congress (Pasteur Institute, Algiers) before December 31st. They will be printed and distributed to members before the opening of the congress. Members of the congress will include, in addition to representatives of Governments and institutions, all medical men, *biologists*, biochemists, and engineers who desire to participate. Applications for membership of the congress should be sent before January 15th, 1930, to the secretary general of the congress (Dr. L. Parrot, Pasteur Institute, Algiers, Algeria), accompanied by a postal order for 100 French francs. This subscription will entitle the member to take part in all meetings and official receptions of the congress, to receive a printed copy of the transactions, and to benefit by the reduction of fares allowed by the French railways and shipping companies. There will be optional excursions on May 22nd, 23rd, and 24th.

[1] See *British Medical Journal*, November 21st, 1925, p. 970.

GEORGES CLEMENCEAU.

We are proud to recall that Georges Clemenceau, who died on November 24th at the age of 88, was a doctor of medicine, and came of a stock whose members for at least three generations had belonged to our profession. He began his medical studies at Nantes, and went to Paris in 1860, where, after holding a post as hospital intern, he graduated in 1865. He started practice at Montmartre, the district in which, at the age of 19, he had been imprisoned for shouting "Vive la République" in the street; but after a little while he went to America, where he remained for five years, resuming practice at Montmartre on his return. That Clemenceau's medical studies had some influence in determining his political philosophy is evident from the fact that he adopted his graduation thesis—in which man was described as a federation of anatomical elements, and the view was put forward that disease is not an entity distinct from the human body, but a change in physiological processes—as the foundation of his work *La mêlée sociale*, which appeared in 1894.

Sir George Newman's report for the year 1928 on the health of the school child was issued on November 25th, and, as in previous years, it consists of a summary of the work done by the local education authorities throughout England and Wales under the supervision of the Board of Education. The subject-matter is arranged under the following headings: the school medical service in 1928; physical education; the pre-school child; school dental work in the county area; malnutrition and school feeding; infective diseases and mortality in school children; and the mentally defective child; and, in a final chapter, Sir George Newman, as Chief Medical Officer of the Board of Education, surveys the relation between the problems of public health and those of education, and suggests possible lines of future development of the school medical service. We hope in a later issue to give detailed consideration to this report and to some of the important problems it raises.

The Semon Lecture for 1929 will be given by Dr. Harris P. Mosher, professor of laryngology, Harvard University, in the Barnes Hall at 1, Wimpole Street, W., on Thursday next, December 5th. The chair will be taken at 5 p.m. by Dr. Dan McKenzie, president of the Laryngological Section of the Royal Society of Medicine. The subject of the lecture is "The lower end of the oesophagus at birth and in the adult."

GENERAL MEDICAL COUNCIL.

ELECTION OF DIRECT REPRESENTATIVES.

THE ASSOCIATION'S CANDIDATES RETURNED.

The result of the election of two Direct Representatives for England and Wales has been that Dr. H. B. Brackenbury, LL.D., has been re-elected for five years from January 1st, 1930, having obtained 12,563 votes; and Mr. N. Bishop Harman, F.R.C.S., has been elected, to fill the vacancy caused by the death of Sir Jenner Verrall, with 11,943 votes. The unsuccessful candidate, Dr. A. G. Haydon, obtained 2,019 votes.

Registrar's Report.

The following report on the election, by the Registrar of the General Medical Council, was presented to the English Branch Council on November 26th.

The notices of the election were published on Friday, October 18th, and the last day for the receipt of nominations was Thursday, November 7th. Up to Monday, November 4th, only two nominations had been received, and it seemed probable that the election would be uncontested. A third nomination, however, came in on that day, and the arrangements for polling had to be concluded. Even if the election had been uncontested it would have been necessary to expend about £100 on printing and advertising and probably something like £50 on addressing, etc., because Section 8 (3) of the Medical Act, 1886, prescribes that the election must be completed within twenty-one days after the receipt of the Precept of the Returning Officer. If seven days are allowed for the return of voting papers and the requisite time for the counting of votes and other necessary work, it would be impossible to have the documents printed and issued within the remaining number of days. Consequently the expense of printing and a certain amount of addressing would have had to be incurred whether the election had been contested or not. Had, however, there been only two candidates for the two vacancies the Branch Council would have been saved an expense of about £250, principally in postage. The preparatory work is considerable, because it means obtaining an early proof of the *Register*, from which have to be struck out all the names of those not entitled to vote, and a number has to be inserted against each name to which a voting paper is to be sent. This forms the electoral roll, of which a copy has to be made, from which the entries are cut out and pasted on to the identification envelopes. The numbers on the outer covers, the identification envelopes, and the ballot papers have to correspond, and consequently the preparation of the issue of voting papers cannot be done hurriedly, and requires great care. It was, however, on the whole very well done, and but few mistakes arose. All of these were able to be corrected in time for the voters to take part in the election if they wished.

In accordance with previous custom the Directors-General of the Royal Navy, Army, and Air Force Medical Services were informed that any officers quartered at home could be supplied with voting papers on application, and twenty-six applications were received.

The week between the issue of the voting papers and their return is always very fully occupied in dealing with changes of address and clearing up incidental points which have arisen. Coming as it does this year in the week before the Council's session it means a considerable pressure upon the office staff.

Analysis of the Voting.

The total number of voting papers issued was 33,418, as compared with 32,758 issued in 1928, the constituency, therefore, having risen by 660 in the course of the year. Of this number, 422 were returned as dead letters—namely, 1.26 per cent. At the election last year there were 368 dead letters, and in the interval all these have been cleared up and, if new addresses were not obtained, voting papers were not issued. It is interesting to observe that, in spite of this care, the number of dead letters this year exceeds that of last year, which shows the extreme difficulty of keeping the *Register* correct so far as to provide an address which will find all registered practitioners.

The last date for the receipt of votes was Thursday, November 21st, and by the evening of that day all the envelopes had been sorted into numerical order, so as to prevent there being any duplicates, and on the following morning the opening was commenced at 10 o'clock. For purposes of record I may say that the opening occupied 16 clerks four hours, and the counting occupied 8 pairs two and a half hours.

The statistics of the election are given in the following table:

Number of papers issued	33,418
Less dead letters	422
Possible number of voters	32,996
Good voting papers received	13,839
Voting papers invalid:	
Identification envelope not fastened	110
Ditto unsigned	232
Ballot papers loose	60
Ballot papers incorrectly folded	8
Envelopes empty	42
Sundries (mutilations, etc.)	9
Too late	202
Number who took no part in the election	18,394

The percentage of the constituency which took part in the election was 43.70. The average percentage of those who have taken part in the nine elections of the present century has been 46.51.

The cost of this election was £12 9s. 6d. per 1,000 votes, or, if the postage is reduced to a penny for purposes of comparison with elections prior to 1919. £10 8s., as compared with £10 5s. 8d. last year and an average of £16 9s. 5d. per 1,000 over all the previous elections.

Norman C. King,
Registrar.

November 25th, 1929.

ROYAL SOCIETY OF MEDICINE.

The Prime Minister at the Annual Dinner.

The annual dinner of the Royal Society of Medicine took place at the May Fair Hotel on Thursday, November 21st. The Right Hon. Lord Dawson of Penn, president of the society, presided, and had on his right and left the principal guests in the Prime Minister (the Right Hon. J. Ramsay MacDonald) and His Excellency the French Ambassador. Others at the principal table included the Right Hon. Arthur Greenwood (Minister of Health), Viscount Lee of Fareham, the Right Hon. Hugh Macmillan, K.C., the President of the Royal Academy, and the Dean of Westminster. The Presidents of the Royal Colleges (Sir John Rose Bradford and Lord Moynihan of Leeds) were also present, and Professor A. H. Burgess (President), Dr. H. B. Brackenbury (Chairman of Council), the Editor of the *Journal*, and the Medical Secretary represented the British Medical Association. The total attendance was about 400.

In giving the loyal toast, Lord Dawson mentioned that on the same day last year there began that grave illness which nearly cost the King his life and the nation the loss of a beloved sovereign. This was a suitable gathering in which to state that the King in his recovery went *from* strength to strength.

The Prime Minister proposed the health of "The Royal Society of Medicine." In looking over its latest report, he said, he had been struck by the likeness of the doctor to the politician. The medical profession was less interested in the effecting of cures than in the maintenance of *health*; it was less interested in the particularized examination of one organ or part than in the harmonious and healthy interrelation of all. Medical science endeavoured to co-ordinate individual experiences into a scientific system, so that future practice might be based upon well-authenticated and tested experiment. In all these respects the profession followed the principles which had been most valid in the political sphere. Until a public man discovered the scientific principles that lay behind his projected legislation or administration he would remain a mere quack, wasting his time on patchwork. The Prime Minister then quoted and made some passing comments on the well-known passages in Ecclesiasticus praising the physician and describing the art of the apothecary. With regard to one passage, "Was not the water made sweet with wood that the virtue thereof might be known?" he said that that, of course, was in the nature of a reflection, but a reflection upon the old physician, not the modern one. Finally he gave the reminiscence, widely quoted in the press, of how he and the future Lord Dawson, being fellow students in London, had to tramp after midnight from Gower Street to Holloway because their combined resources, depleted by "a very respectable supper," were insufficient to afford a cab fare, and how they did not meet again until forty years later in Buckingham Palace. Could anyone, he asked, however gifted with divination, have said to those two students, "You will part to-night at Holloway, and not meet again until you are both invited to be the guests of His Majesty"?

Lord Dawson, in responding, described the Prime Minister as an apostle in the art of healing international strife. Speaking of the progress of medicine, he said that recent accessions of knowledge had belonged more to the domain of physiology and therapeutics than to the art and craft of surgery. With regard to radium, the past year brought a wider knowledge of its application and a better organization of the supplies. He touched also on what he called the "romance of the hormone"—"this little leaven which can, in its different forms, determine secretions and excretions, make or mar stature, alter character, change form and expression, and even be the arbiter of love and life." A passing reference was made to the success achieved by Laidlaw and Dunkin in the control of distemper in dogs. "This achievement is an admirable example of effective team work, and it is peculiarly fitting that the deliverance of the dog from suffering should have its origin in Great Britain. Here, as nowhere else, is the dog, with his fidelity, his never-failing response to every mood and feeling we possess, with even greater love for us than for his own kind, and his unalloyed friendliness, known and loved. It is charming to think that this benefit to the dog world should have come from laboratories in which a delightful confidence and camaraderie always exists between the workers and the dogs." Lord Dawson dealt finally with the application of medicine to the service of the community. The problem to-day, he said, was to bring medicine into closer understanding with the Government. "On one part of its territory the profession of medicine aims at close co-operation with administration so as to promote the health of the nation; on another part of its territory it concerns itself with knowledge, education, and research, and here it must be unfettered. Knowledge and the restless spirit which prompts its progress need a freedom and flexibility which cannot be found within the ringed fences of administrative departments. This, which is true of all professions, opens up a new problem of government. With the welfare of the people depending increasingly on specialized knowledge, would not the conjunction of skilled knowledge and informed administration in semi-autonomous bodies make, not only for vitality and efficiency, but for much-needed relief to overweighted government?" It was a plan which had already been tried in respect to electricity, broadcasting, and, more recently, radium.

Dr. A. P. Thomson, to whom was entrusted the toast of "The Guests," did them honour in some witty remarks regarding each, and in more serious vein spoke of the position of the voluntary hospitals. "It would be idle to pretend that certain tendencies have not filled us with uneasiness, even amounting to alarm. It has been said that the day is approaching when the State will control all the medical services in this country, and that the first great step to this end will be taken with the fall of the voluntary hospitals. The greatness of a country may be fairly estimated by the greatness of its institutions, and I confess that, to my mind, people who can talk glibly and cheerfully of the disappearance of great free institutions like the voluntary hospitals appear as reckless of the future of this country as they must be ignorant of its history and character."

Mr. Arthur Greenwood, Minister of Health, said at once that Dr. Thomson was utterly mistaken in his view that the Government had no regard for the voluntary hospital system in this country. From two points of view the voluntary hospital system was vital to the progress of public health. In the first place, it was interwoven with the growth of knowledge of problems affecting the life of the people, and in the second place, every hospital bed that existed in this country was needed. (*Mr. Greenwood's* remarks on this point were warmly applauded by the Prime Minister.) Mr. Greenwood went on to refer to the successful effort he had made to secure the help in an advisory capacity of the responsible heads of the profession, of whom Lord Dawson was one.* As he dug more deeply into the problems of public health he was appalled at the lack of knowledge and the amount of avoidable suffering. He welcomed without reservation every opportunity for the fullest co-operation with the medical profession; while he could not profess to understand their problems, he realized their difficulties. But he asked of the profession in turn that it should trust the Government, and believe that the Government was as much concerned with the problems as was the profession itself. "I hope that as this Government grows from strength to strength, or is succeeded by Governments of like purpose, the bond between your profession and the Government will grow also."

The Right Hon. Hugh Macmillan, K.C., who also responded to the toast, said that it had been his good fortune to be associated in public work with many members of the medical profession, and he had derived much benefit from such contacts. One of his pleasantest experiences was the reorganization of the method of compilation of

* See *British Medical Journal*, July 27th, 1929, p. 157. "Co-operation between the Medical Profession and the Minister of Health."

British Pharmacopœia. He found his amateur researches into the history of the standard catalogues of materia medica singularly interesting. He was surprised to find how comparatively modern was the scientific appreciation of drugs. The early London *Pharmacopœias* read like inventories of an alchemist's spells and potions. The appalling brews to which the unhappy patients of those days were subjected, compounded of millipedes, vipers, and skunks' stomachs and all manner of abominations, easily outdid the hell-broth of *Macbeth* witches. It was only within the last hundred years that medicine, like law, had finally emerged from the fogs of mediæval empiricism. Turning to the recommendations of the Royal Commission on Lunacy, over which he presided, Mr. Macmillan said that in the treatment of mental disorder the public had been excluded, by an antiquated system, from the benefit of preventive treatment. "Our great mental hospitals, so admirably equipped at the public expense, are prohibited from receiving for treatment any but certified lunatics. In other words, the disease must be completely established before the patient can obtain treatment." He was glad to think that within the last few years a measure had been introduced into Parliament which would throw open the State institutions to voluntary patients, and so enable preventive treatment to be directed to this most distressing and tragic of all ills.

RADIUM TREATMENT OF UTERINE CANCER.

REPORT OF THE MARIE CURIE CLINIC, LONDON.

THE Cancer Research Committee of the Marie Curie Clinic, formerly the Cancer Research Committee of the London Association of the Medical Women's Federation, has issued a report[1] on the radium treatment of cancer of the uterus carried out under its auspices during the period September, 1925, to March, 1929. The committee recognizes that as none of the patients has been treated more than three and a half years, deductions regarding permanent cures are not justifiable. On the other hand, the yearly revision of statistics is a useful guide to the evolution of radium therapy, and shows the value of this treatment in alleviating the condition of patients who do not survive to five years. In organizing the Marie Curie Clinic an attempt is being made to ensure conditions whereby carefully thought-out methods of treatment may be carried out and the results determined on a sufficiently large number of cases to prove their value. An organization differing somewhat from that common in British hospitals has therefore been considered necessary, and although patients admitted to the clinic will be under the entire charge of the individual members of the staff, the technique of treatment will be decided not by the individual surgeon, but by the staff as a whole, especially by the Cancer Research Committee.

The Changing Prognosis in Irradiated Cases.

The report opens with a classification of the results which have been obtained at different clinics in the treatment of cancer of the cervix by surgical operation and by radiology. In a monograph[2] on the history of the treatment of cancer of the uterus and its status in 1926 Dr. Janet Lane-Claypon concluded, from a survey of some 80,000 cases, that the final survival ratio was practically the same for patients subjected to irradiation as for those subjected to surgical operation. The changing prognosis in cases treated by irradiation is illustrated, however, in a report on the radiological treatment of cancer of the uterus presented by Dr. A. Lacassagne[3] to the Committee on Cancer of the League of Nations. At the Paris clinic, he states, the average percentage of five-year "cures" for the 350 cases treated from 1919 to 1923 inclusive was 20 per cent., for the 75 cases treated during 1923 it had risen to 30 per cent., and of the 33 operable or borderline cases treated, 16, or 48 per cent., were well after five years. The results have steadily improved since external irradiation has been combined with the local application of radium as a routine method of treatment, and by this method the field of usefulness of the radiological treatment of cancer of the uterus has been greatly extended. So far too few cases of cancer of the corpus have been treated radiologically to justify definite conclusions about the comparative value of radiotherapy and operative surgery, but Heyman showed in 1928 that "cures" after operation averaged 42.8 per cent., and after radiological treatment 33.2 per cent. The recovery rate at the Radiumhemmet averaged 43.3 per cent., and in operable cases it was as high as 60 per cent.

Methods and Principles of Treatment.

When the committee started work it decided to adopt the Stockholm technique, whereby intensive applications are given for short periods, the dose being interrupted by intervals of from one to three weeks, the total amount being given, however, within a period of not more than three to four weeks. By this technique the Radiumhemmet, during the period 1919 to 1922, obtained 24.2 per cent. five-year "cures," compared with 17.0 per cent. obtained by means of the Paris technique at the Fondation Curie during 1919 and 1920. Since that time the Paris results have steadily improved, and in 1923 the proportion of five-year cures (recorded in 1929) reached 30 per cent., while those from Stockholm have apparently been slightly less successful. The change is attributed to the fact that the Fondation Curie, while increasing the doses of the local treatment, has also been using as a routine supplementary irradiation with x rays or radium applied externally; at the Radiumhemmet supplementary irradiation has been used only for exceptional cases. A special advantage of the Stockholm method is that the last application is given at a time when the growth has undergone retrogression. At the end of the first week this process has only just begun, but after a fortnight shrinkage is marked, and at the last treatment the radium is nearer to the more outlying parts of the growth. On the other hand, the Stockholm method is not free from risk. It demands twice as much radium for the treatment of each case as the Paris method, and of all the patients treated by it 7 per cent. develop late radium reactions, a complication which does not occur in association with the Paris method.

At the Marie Curie Clinic in London modifications of the Stockholm technique have been adopted, with the idea of ensuring that the cone of effective radiation should be as wide as possible in the pelvic floor, and should coincide as closely as possible with the site of the growth. It was decided to spread the radium out between two or three flat applicators rather than to collect it together in one, or at the most two, containers. Putting all the radium into one vaginal applicator concentrates the radiation towards the centre of the cervix, instead of directing it as far out as possible towards the pelvic walls. In the majority of cases treatment aims at irradiating upwards towards the growth in the pelvic floor, and elsewhere, by a distance pack, screening off the radiation as far as possible. The Stockholm cylindrical applicators give a cylindrical zone of effective action, whereas the flat applicators give a zone shaped like a double cone, with the base corresponding to the plane of the flat surface. By means of flat applicators, therefore, radiation may be spread in the direction of the pelvic floor; with the same amount of radium in a cylinder the radiation would be more uniform on all sides, but not reach as far in the direction where it is most needed.

In treating cancer of the body of the uterus the workers at the Marie Curie Clinic have not been able to make use of previous experience to the same extent as they have in treating cancer of the cervix. In devising a method of distribution they have again attempted to arrange that the zone of effective action should coincide with the region involved, but in diagrams accompanying the report it is made clear that the method adopted gives too small a range at the fundus. The difficulty is to place radium tubes through a narrow cervical canal, with a proper regard for both site of growth and range of effect. Increased range is obtained by placing the flat applicators well up in each lateral fornix. The committee believes that it should be possible to enlarge these zones of lethal action by additional radiation from outside the body. So far the clinic has been hampered by lack of facilities for giving measured doses of penetrating x rays, but this defect will be remedied as soon as possible.

Technique of the Marie Curie Clinic.

The preparation of the patients about to undergo radium therapy includes a general examination, a blood count, and urine analysis; when necessary, a cystoscopic examination is made to determine the condition of the bladder. A bacteriological examination is important. Disinfection is carried out with acriflavine douches (1 in 1,000 normal saline) twice daily for a day or two before treatment, but in advanced cases with extensive necrosis more drastic measures of disinfection

[1] *The Radium Treatment of Cancer of the Uterus.* By the Cancer Research Committee of the Marie Curie Clinic. London: H. K. Lewis and Co., Ltd. 1929. 2s. 6d. net.

[2] *Cancer of the Uterus. A Statistical Inquiry into the Results of Treatment, being an Analysis of the Existing Literature.* By Janet Lane-Claypon, M.D., D.Sc.Lond. Reports on Public Health and Medical Subjects. No. 40. Ministry of Health. 1927. 3s. 6d. net.

[3] Reports submitted by the Radiological Sub-Commission. Documents C.H. 78. 1929. III. 5. Messrs. Constable and Co., 10 and 12, Orange Street, W.C.2. 6s. 3d. post free.

are advisable. Patients with severe anaemia are kept in bed for two or three weeks for special treatment before the radium is applied.

A leucocytosis, even of moderate degree, is an indication for special care in the preliminary preparation. A leucopenia, or a lymphopenia with a normal number of leucocytes, suggests the need for cautious treatment; before irradiation measures should be taken to improve the general condition, a somewhat smaller first dose is given, and the blood condition is carefully considered before the dose is repeated. If the blood picture changes for the worse after the first irradiation the second application is delayed, and a slightly smaller dose then given. Slight lymphopenia is not infrequent in cancer cases, and is seldom, except temporarily, increased by the radium application.

Before applying the radium the bladder and rectum are completely emptied, and, during the treatment, if the bladder is not emptied naturally, a catheter is passed every eight hours. In most patients dilatation of the cervix can be done without difficulty, though in some, especially when the portio vaginalis has been replaced by a friable fungating mass, it may be difficult to find the upper cervical canal and uterine cavity. Only the gentlest manipulation should be used, on account of the risk of producing septic tracts in the broad ligaments or causing a perforation. If the canal cannot be found at the first treatment a vaginal applicator may be placed in the usual way, and at the second treatment it will probably be found possible to dilate the cervix and give the typical application. After the cervix has been dilated tissue is taken for microscopic examination, and the intrauterine applicator, containing the radium tubes in tandem, and equal in length to that of the uterine cavity, is then inserted. The intrauterine tubes contain a total of 50 mg. radium element, and their total screening is equivalent to 1 mm. platinum, with a secondary screen of rubber 1.5 mm. thick. The vaginal applicators (three in number) each contain 25 mg. radium element, and their total screening is equivalent to 1.3 mm. platinum, also with a cover of rubber 1.5 mm. thick. A firm gauze pack soaked in 1 in 2,000 acriflavine, and extending well up into the posterior fornix, serves not only to keep the applicators in position, but to protect the vaginal mucous membrane and keep the bladder and rectum as far away as possible from contact with the radium.

Three treatments are given, each of twenty-two hours, the second a week after the first, and the third two weeks after the second. The total dose averages about 7,000 m.c.h., and the maximum dose does not exceed 8,000 m.c.h. Patients of advanced age usually receive a smaller dose. In a considerable number of patients it is necessary to modify the dosage and method of application, increasing or diminishing the separate or total doses, or varying the time or time-spacing of the appl[illegible] conditions found.

T[illegible] have had only three applications of the [illegible] the growth has shown no response, as has occurred rarely, further treatment has been without effect. In such cases, if operation is possible, hysterectomy is advised Operable recurrences may also be treated by hysterectomy, but if they are inoperable a further local application may be followed by improvement. The committee stresses the importance of not repeating irradiation in cases of late radium reaction under the mistaken impression that there is a recurrence of growth.

Results of Treatment.

In presenting its statistics the committee has endeavoured from year to year to apply uniform principles. All patients applying for treatment between October, 1925, and April, 1929, are included in the general statistics, whether they were treated or not; but in the classified tables, which comprise only the cases treated up to October, 1928, nine have been deducted—four were lost sight of, in three there was a later hysterectomy, and in two the clinical diagnosis was not confirmed by the microscopic examination. The general results are as follows. Of 268 patients with cancer of the cervix, 182 were living in April, 1929; of 20 with cancer of the corpus there were 15 living, and of 12 with cancer of the vagina, vulva, and urethra 11 were living, representing, thus, a survival of 208 out of 300 patients. In the classified tables the cases of cancer of the cervix were grouped as early operable, borderline, inoperable, and hopeless; and those of the corpus as operable, clinically operable, and technically inoperable. From October, 1925, to October, 1926, 64 cases of cancer of the cervix were treated, the number in each of the four groups being 2, 10, 42, and 10. In October, 1928, the survivors of each of these groups numbered 2, 9, 21, and 1. Between October, 1926, and October, 1927, 47 cases were treated, the number in each of the four groups being 1, 5, 29, and 12, and the survivors in October, 1928, 1, 5, 15, and 2; and between October, 1927, and October, 1928, of 80 cases treated—this total comprising 6, 18, 36, and 20 in each of the four groups respectively—6, 17, 34, and 17 were living in October, 1928. In the above three periods the total survival rate up till October, 1928, was 50 per cent., 49 per cent., and 92 per cent.

The results of treatment in cases of cancer of the corpus uteri are as follows: 2 patients treated between October, 1925, and October, 1926, belonged to the first group, and were living in October, 1928; of 4 treated between October, 1926, and October, 1927, the numbers in each group were 1, 2, and 1, and the survivors in October, 1928, were 1, 2, and 0. Between October, 1927, and October, 1928, 4 patients were treated, 3 in the first group and 1 in the third; of these, all in the first group were alive in October, 1928, but the patient in the third group was dead.

France.

[FROM OUR OWN CORRESPONDENT.]

Slave or Fool?

VACATIONS are over, and our old school and hospitals resume their buzzing activities. But before the students were admitted the doors were open for the various annual congresses. For a few days we were made to believe that we had returned to the happy days of our youth. We did not realize the truth of Osler's words that in our life work we are either fools or slaves. The president of the Congress of Surgery, Professor Tixier, in the course of his address, insisted on the necessity for the surgeon of a systematic organization of his life. He declared that it was now an impossibility for an active man to have any time to spare for study or meditation, still less for recreation, rest, and family life. Professor Tixier seemed well aware of the great difficulty of effecting a radical change of habits in this country. It was a typical Frenchman who declared that he stood for progress but not for change.

National Insurance.

We still feel that we are heading towards a revolution in the medical world, thanks to the new social insurance law which the Government has promised to apply within the next few months. The profession at large is opposed to it, convinced that it is going against the good of the public. The Confederation of the Medical Syndicates, a new organization grouping 18,000 qualified men under the leadership of Professor Balthazar, is in open rebellion against the application of the law, though not against its spirit. A letter has just been addressed to Parliament in their name insisting on the main points that might, if conceded, make the law acceptable. For instance, the patient should be entitled to choose his doctor; professional secrecy should be guaranteed; the doctor should be free to treat and prescribe according to his own judgement. The mere enunciation of these conditions reveals the shortcomings of this most unpopular law. It goes against social ethics, as it offers too great a temptation for malingering and laziness; and we are very much afraid of its turning out a type of doctor such as the one who boasted of having examined and prescribed for seventy patients within sixty minutes.

L'Ordre des Médecins.

It has seemed necessary to the majority of the profession to create an "Ordre des Médecins," a medical council which may have to control the ethical application of social medicine. Up to now the doctor is perfectly free, and has only his own conscience to obey. We believe that our professional syndicates might be efficient if the power was given to them, but the administration favours a so-called independent organization under State control. The question is far from being settled. The important fact is that the profession is at last united and unanimous in all its recent decisions. Storms may serve a useful purpose.

Is the Radiologist a Public Danger?

The lay press has started a campaign against the "terrible danger" of x rays to the public, and especially to those who live in the immediate neighbourhood of the radiologist. The argument is purely theoretical, and no proof whatever has been offered. There is not one single case showing any injury done to anyone through distant and indirect exposure to the radiations. Also, in the present state of knowledge, the x-ray worker is too anxious

protect his own body to allow any harmful wave to escape from control. As Dr. Maingot ably replied, not only do we prevent the rays escaping from our rooms, but we prevent them escaping into our rooms, and the radiologist works within an *x*-ray-proof atmosphere. This information, immediately spread to the public through the press, has stopped the campaign and prevented a panic which might have proved most prejudicial to the specialist.

The Campaign against Noise.

Other waves are really harmful and more difficult to be dealt with—namely, sound waves—and the campaign against noise is attracting the attention of hygienists in many of our largest towns, especially in Paris. Professor Bordas of the Collège de France has made a careful analysis of the various noises in Paris, and distinguishes between the continuous rumble and the sporadic sounds. The former we easily get accustomed to, just as we do to the roar of the sea; as to the latter, we cannot but be the victims. For instance, in a district of Paris, during the construction of the underground railway, the engineers had chosen the small hours at night for exploding dynamite mines. Noise at night may compel the sleepers to keep their windows tightly closed, and in certain residential districts double windows are provided merely to obtain relative quietness. New street regulations are being enforced in Paris. First of all, silent zones are created in the immediate neighbourhood of hospitals. All horns must give the same low note. No horn is permitted to be used between 12 and 5 a.m. But, alas! this last rule, when infringed, raises a still more obnoxious noise—the nocturnal screech of the police whistle.

Euthanasia.

The country at large has been stirred by the trial of a young man of British descent who shot his mother and attempted suicide. In court he told a most pathetic story. It appears that the mother was so tortured by cancer that morphine gave no relief, and he determined to put an end to her sufferings at the risk of his own life. Before the jury there was no other defence than the pure statement of facts. Acquittal followed. It may be remembered that some time ago a similar case, in which the jury also gave a verdict of "Not guilty," was recorded in this column. All comment seems futile. Perhaps we should thank heaven that we do not have to serve on the jury in such cases.

G. Monon.

Scotland.

Old-time Medical Practice in Edinburgh.

A LECTURE was delivered by Dr. Andrew Rutherford on November 13th at Edinburgh, under the Combe Trust, dealing with "Medical practice, past and present." The lecturer referred to the medical renaissance which took place in the reign of King James IV. towards the end of the fifteenth century. He interested himself in medical practice, and sufferers from toothache occasionally submitted to his ministrations at Holyrood, while on one occasion he operated on a woman for cataract, apparently unsuccessfully. In the year 1505 the town council granted to the barbers and surgeons of Edinburgh a Seal of Cause, confirmed by the King in the following year, under which they had the right to dissect the body of one criminal per year, and this was the first enactment of the kind in Britain. The surgeons of Edinburgh had also been given the sole right to make and sell aqua vitae within the burgh, a valuable privilege. In the same reign the magistrates made most stringent regulations, for controlling the spread of plague, and schools, booths, and markets were closed. An officer and assistants were appointed for supervision of town cleansing, and compulsory notification within twenty-four hours of all cases of plague was instituted—a very early example of notification of infectious disease. Later, in 1574, the town council instituted boiling in a cauldron as a method of cleansing foul goods. The lecturer, after dealing with the advances in medicine which followed Harvey's discovery of the circulation of the blood, mentioned many of the advances of the nineteenth century, dealing, for example, with the work of Bright, Simpson, Pasteur, Lister, Koch, Mackenzie, and Ross, and he concluded by saying that he was convinced that Edinburgh medicine in the years following the war was fully living up to the great examples and traditions of the past.

Civilization and Disease.

A lecture was delivered on November 20th at Edinburgh by Dr. Charles G. Lambie, under the Combe Trust. The lecturer dealt with the complex interaction which had taken place between man and his surroundings with the development of civilization. In early days human beings lived in small groups and led a vigorous life, while a great part of the body was exposed to sun and air. The chief dangers had arisen from conflict with animals, parasites, and precarious food supply, but epidemic diseases were probably uncommon. With the domestication of animals and development of agriculture food supply became more assured, but diseases like dysentery, typhoid fever, and typhus naturally sprang up. The spread of plague had been associated with the storage of grain and the prevalence of the domestic black rat. Malaria owed its disappearance from the country partly to the drainage resulting from high farming, and partly to the separation of cattle from human dwellings, which again had been consequent upon increased prosperity. Scurvy was common up to the middle of the seventeenth century owing to insufficient vegetable food and the consumption of salt meat during winter thereby entailed. The introduction of the turnip and other root crops from Holland in the seventeenth century, together with the use of the potato and the importation of fruit and vegetables, had almost eliminated this disease. In modern times the abundance of food had virtually abolished famine, but a new set of diseases had come into prominence in association with the excessive consumption of food, and especially of starch and sugar, combined with more sedentary habits of the people. Such diseases were diabetes, obesity, and some digestive troubles. Food had become too digestible, and it led to the recrudescence of deficiency diseases, such as scurvy, beri-beri, rickets, and dental caries, together with diminished resistance to infection. The industrial era, by transferring a large proportion of population from the country to the town, had promoted the spread of tuberculosis. It was the business of modern medical science to analyse the causes of disease and to devise means for their prevention.

Edinburgh Hospital for Incurables.

The annual meeting of the Royal Edinburgh Hospital for Incurables was held in Edinburgh on November 22nd. Mr. J. J. Herdman, chairman of the board, presided, and mentioned that the number of patients treated in the Longmore and Liberton Hospitals for the period to July 1st last was 375. The average daily number of patients under treatment during the year was 207. It was calculated that at least forty or fifty applicants in need of skilled nursing and constant medical care died before beds could be found for them, and many of the applicants who died had lived amidst surroundings where it was impossible for them to receive due attention. With the slow rate of admission which was possible in this hospital, the medical officers and managers had to exercise the greatest care in the selection of patients to see that they were in very real need, not only of attention, but of skilled nursing and constant medical care. It would be desirable to extend the hospital when possible, but as it had been necessary to take some £10,000 from the extraordinary income to meet deficiency on ordinary revenue, and as a similar inroad had been necessary for many years past, it was not possible meantime to engage in the large extension to Liberton Hospital which had been contemplated prior to the war. In those days the cost of a bed was approximately £45 per annum, as against the present approximate figure of £85. What was needed above all things at the present time was an increase in the annual income from subscriptions, and an increase of from £2,000 to £3,000 a year would place their accounts in a much more satisfactory position, and enable the work of extension from reserve funds to be proceeded with.

Inverness District Asylum.

The 65th annual report of the Inverness District Asylum has just been issued. The medical superintendent, Dr. T. C. Mackenzie, records that on May 15th, 1929, there were 736 persons on the register, of whom 16 were absent on probation, while the total number of cases under treatment during the previous year had been 882. The admissions during the year had numbered 153, or 18 more than the number for the preceding year. Of these 44 had previously been under asylum treatment, giving a readmission rate of 28.7 per cent. The ages of those admitted varied from 17 to 84, 10 patients having been admitted who were aged 70 and upwards. With regard to type of mental disorder, 25 had been cases of melancholia, 36 of mania, 38 of dementia, including 10 cases of dementia praecox, and there were 2 cases of general paralysis of the insane. As to cause, a hereditary predisposition to insanity was found to exist in 61 of the 153 cases, and in 60 of the cases there had been at least one previous attack of mental disorder. Senility and alcohol were among the assigned causes in 21 and 4 cases respectively. Of the 67 patients discharged, 39 were recovered, giving a recovery rate calculated on the admissions during the year of 25.4 per cent. for both sexes. Twenty-eight cases were discharged unrecovered, either by transfer to other institutions, or to the care of relatives, or to be boarded out with suitable guardians in private dwellings. The number of deaths during the year had been 79, of which 24 were due to pulmonary phthisis and 23 to senile decay.

England and Wales.

Water Supply and the Public Health.

A Public Works Congress and Exhibition was held at the Agricultural Hall, London, last week, when, under the auspices of various associations of local authorities, a very large display of plant and materials for highway construction, sewage disposal, and water and lighting supplies was assembled. Although there was no public health section this year—such a section is arranged for alternate years—a certain part of the proceedings of the congress had an interest from that point of view. The British Waterworks Association arranged a special conference at which a report, just published, of an advisory committee on water, appointed by the Ministry of Health, was considered. It was rather surprising to gather from the discussion that in some parts of the country "domestic supply" does not include the supply to water closets and household baths, for which a special charge is made. The fact is that when the early Water Acts were passed these conveniences were exceptional; now they are universal, and special charges for them no longer accord with modern conditions. Again, in some cases supply pipes under highways from the main to private premises are the property of and maintained by the private owner. The Ministry of Health Committee proposes—and the water authorities appeared to agree—that the provision and maintenance of all these supply pipes should be regarded, like the mains and other works, as part of the normal operating costs of the undertaking.

Among several interesting contributions made to the conference on the scientific side was one by Mr. J. B. Firth, D.Sc., of University College, Nottingham, on the preservation of rivers and streams from the standpoint of water supply. One point was that periods of warm weather associated with intensive sunshine are of considerable value in the purification of rivers. There occurs, during spells of fine weather, a marked increase in the oxygen content of a river, which can only be attributed to the equally marked increase in the carbon dioxide content, accompanied by intensified photosynthesis. Intensified photosynthesis increases the oxygen content of the river; this in turn, together with an increase in temperature of the water, increases the rate of oxidization of organic matter in the river, whereby the carbon dioxide content is further increased, and so the process goes on. The condition grows more and more favourable for the oxidization of organic matter as the oxygen content is increased. During these intensive periods of oxidization it follows as a natural result that there is a thorough cleansing of the rivers, save in the case of waters which are highly charged with bicarbonates.

The purity of drinking waters from the biological aspect was discussed by Mr. W. Rushton, D.Sc., biologist to St. Thomas's Hospital Medical School. Possibly it was news to some of his audience that there is a seasonal sequence in the types of organism appearing in drinking water. The spring is the period of the diatoms; late spring and early summer, the green algae (unicellular and filamentous); in later summer the blue-green forms are most prevalent, overlapped by the protozoa, which are followed in turn by the second flush of diatoms. Certain forms appear to give trouble one year, and different forms another year: also those which give rise to odours and tastes in one area may not do so in another, so that it is impossible to lay down hard-and-fast rules for dealing with them. Certain reservoirs, as the various reports of the Metropolitan Water Board show, are more prone to living contents than others. It is difficult to say why certain organisms, apart from bacteria, multiply rapidly in one year and not in the year following. It is known that light is a factor, but as to the chemical determinants, said Mr. Rushton, there is a singular deficiency of knowledge. He emphasized the need for continuous study of the streams which supply the principal sources of drinking water; continuous biological examination of the life contents of waters after impounding, to determine what increase or decrease in numbers had taken place; and further experiments to determine how best to combat the life contents of a water supply, either by mechanical or other means, before trouble arose. Many anglers raise the question of using more artificial reservoirs for fishing purposes, but apart from the possible dangers of the introduction of organic matter in the waters, said Mr. Rushton, experience showed that impounded waters were not the best areas for fish, owing to lack of food, too great depth, and lack of vegetation in the feeders of the reservoir.

Reconstruction of Leicester Royal Infirmary.

Reconstructed buildings forming part of the Leicester Royal Infirmary were opened by the Duchess of Rutland on November 13th. The converted portion is the central wing, containing three wards, which is to be named the Sir Edward Wood Wing, in memory of a former chairman of the board, who was responsible for much of the recent progress of the hospital. Each of the three wards contains thirty beds, together with two single-bed annexes for serious cases. Two new operating theatres have also been provided, as well as dining rooms and kitchens equipped with labour-saving appliances for the assistance and comfort of the staff. The total cost of the new provision is £87,000, of which a balance of only £3,500 remains to be raised. The policy of reconstruction was decided on before the war, but was delayed for various reasons, chiefly financial, and ultimately the work was put in hand as the result of a gift of approximately £18,500 by Mr. H. T. Mills, who desired that a third ward, in addition to the two originally intended, should be erected to the memory of his father. At the opening ceremony a religious service was conducted by the Bishop of Leicester and ministers of other churches, which followed exactly the order of that used at the opening of the old ward sixty-seven years ago. Mr. J. G. Pickard, J.P., the present chairman of the board, gave some account of the recent developments of the hospital. In 1914, when the present reconstruction was first proposed, the in-patients numbered 4,000, and by last year the number had risen to 7,380. He added that the board felt that the new building was now worthy of Leicester and in the front rank of the voluntary hospitals of this country. The Duchess of Rutland, in a graceful opening speech, remarked on the fact that a small provincial hospital had grown to such magnitude in thirty years as the result of voluntary contributions. The annual expenditure had increased with the growth of the hospital, but the generosity of the subscribers had kept

pace, and she knew what a great asset this modernized institution would be to the city and county of Leicester. A vote of thanks to the Duchess was proposed by Dr. Astley V. Clarke, senior physician, and seconded by Mr. Cecil Marriott, senior surgeon. The deputy lord mayor handed over a cheque for £651 as a gift to the infirmary from the workmen's clubs of the city; it may be remembered that on May 11th (p. 877) we gave some details of the systematic and generous supply of funds which is being obtained by this institution from such sources.

Royal Dental Hospital, London.

The Royal Dental Hospital in Leicester Square opened its doors on November 3rd to more than three hundred visitors, when the various departments of the hospital were made available for inspection. In the conservation room clinical cases were shown, as well as bacteriological slides and specimens, models illustrating abnormalities of the teeth, and other devices showing various stages in the construction and adaptation of porcelain jacket crowns. In the appliances room prosthetic cases were on view, and there was an exhibition of skiagrams in the *x*-ray room and of photomicrographs in the research department. The whole exhibit, including a department of electro-therapeutics, the first of its kind in association with a dental hospital in the British Isles, revealed how many-sided modern dentistry and dental teaching have become. In the evening of the same day past and present students of the dental school dined together at the Trocadero under the chairmanship of Mr. W. J. May. Proposing the toast of "Success to the Hospital and School," Mr. May mentioned that the institution had now been established for seventy years, and for nearly thirty years in its present building. In many respects, such as dental radiography, it had played a pioneer part in dentistry. The reputation of this school, like that of any other, was largely embodied in and increased by the reputation of the men and women it had sent out into practice, and Leicester Square might indeed be proud of its children. Responses to the toast were made by Mr. E. D. D. Davies, on behalf of past students, and by Mr. F. F. V. Manfield, on behalf of present students; the latter referred to the revival of the students' society during the past year—a matter of considerable value to the students, since it accustomed them to address their fellows. The Dean (Mr. H. Stobie), commenting on the activities of the school, mentioned that there had been no marked influx of students, a fact not peculiar to the Royal Dental Hospital. Moreover, on comparing present-day with pre-war figures, allowance had to be made for the fact that there were now very flourishing provincial schools, which attracted the students from their own districts. In examinations the school showed a very successful record; the passes averaged 70 per cent. As regards research, the hospital had an excellently equipped laboratory; some work of a most striking character had already been completed under the superintendence of the advisory committee and Dr. Fish, which had been officially recognized by the Medical Research Council. The hospital had also been to the fore in organizing post-graduate study; many graduates had come from the provinces to take courses lasting three months or longer. In orthodonture the teaching was not restricted to any one school of practice; all methods were taught. One disability hitherto had been that the hospital had no beds; this had been made good by an arrangement with Charing Cross Hospital, only a few hundred yards away, whereby a certain number of beds would become available, it was hoped, at the beginning of next year. The Dean also mentioned certain new appointments to the staff, and certain resignations, the latter including that of Dr. Harvey Hilliard, who for thirty-three years had been honorary anaesthetist. Mr. S. A. Riddett proposed the health of "The Guests," who included Sir William Goschen, the chairman of the hospital, and a response was made by Mr. Malcolm Knott, president of the British Dental Association. Mr. Knott referred to the need of keeping up the supply of dentists; while he welcomed additional degrees and diplomas, he urged that the portal of entrance should be kept sufficiently wide to maintain the ranks. It was asking too much of a man to spend six or seven years in courses of study before he could begin practice. Mr. Knott also pleaded that all dentists on qualification should join the British Dental Association, if only out of gratitude for what that body had already done for the profession. The toast of "The Chairman" was proposed by Mr. A. T. Pitts.

The London Clinic and Nursing Home.

The foundation stone of a large new nursing home for London, which is to be constructed on more comprehensive lines than any existing institution in the metropolis, and is described as "not a hospital, but a hotel for sick people," was laid by the Duchess of Atholl on November 27th. This building, which will face Marylebone Road, Harley Street, and Devonshire Place, at the north of the "consultants' quarter," is the result of co-operation between specialists in different branches of practice for the purpose of providing more elaborate equipment for the investigation and treatment of disease than can be afforded by individuals working alone. The members of the medical group participating in the venture number at present twenty-three well-known London consultants. As may be imagined, the business side of the undertaking has occasioned some perplexity. The members of the group began to discuss a co-operative scheme ten years ago, and negotiations were opened with some persons of financial standing, but it appeared that nothing could be done unless the members of the group themselves were prepared to take some financial risk, which would be contrary to medical ethics, and so the negotiations came to an end. Later, however, a number of business men were found who, grasping the importance of the objects aimed at, and the difficulty of the professional position, took the financial responsibility, asking only in return that the members of the group should take a long lease of a block of thirty-six consulting rooms in an adjoining building. This is the only monetary transaction in which the members of the group have been concerned, but they are to form among themselves a committee to advise, in an honorary capacity, those responsible for the business side of the undertaking. The clinic is a limited company (the London Clinic and Nursing Home, Limited), the shares in which are held by between two and three hundred individuals, but on this side of the venture the medical men concerned have no interest. From the speech of Dr. Moreland McCrea, chairman of the group, at a luncheon which followed the stone-laying, it appears that the building will consist of 200 bedrooms, together with laboratories, *x*-ray department, and other provisions like those of the modern hospital, the equipment incorporating various suggestions made by the group after visits to Continental clinics. The accommodation for patients will range from single rooms to suites, in which a relative could remain with the patient; and it is hoped to provide a number of beds at a relatively low inclusive charge for those whose incomes are just above the limit which would entitle them to hospital benefit. It is proposed to have a staff of over one hundred nurses, for whom a hostel in the suburbs is to be built, so that a special nurse can be detached for a particular case. There will also be two resident medical officers for emergencies, but they will in no way usurp the authority of the patient's own medical man. It is an essential part of the conception that the patient should remain in contact with his regular adviser. The nursing home will be open to the patients of any medical man, though the members of the group will have the first call upon empty beds; and any surgeon to a hospital of recognized standing may operate in the theatres of the new building. Mr. Allan Hepworth, who is to be the managing director of the clinic, added some further information from the business side. He emphasized the point that the new building would not be a hospital, nor be administered on hospital lines, nor would it compete with hospitals. It would be directed more on the lines of a hotel, especially as regards the freedom and facilities of patients. Much attention would be paid to proper cooking and dietetics, and the help of certain women skilled in household and domestic science had already been secured. The scale of charges he mentioned ranged, for people of moderate means, from eight to ten guineas a week inclusive, and, for well-to-do patients, from twelve to thirty or thirty-five guineas a week.

The Causes of Cancer.

In a Chadwick public lecture, delivered on November 22nd, Professor A. E. Boycott said that, although the cause or causes of cancer were still under investigation, enough was now known of the conditions which led up to the disease to justify action designed to diminish its incidence. It was clear that cancer was practically confined to middle-aged and elderly persons, but there was no evidence that it was infectious in the ordinary sense, or that a tendency to it was commonly inherited. It occurred more frequently in urban than in rural districts, and its appearance was often preceded by chronic irritation and injury. The careful investigations of Mr. C. E. Green, a legal publisher in Edinburgh, had led him to associate the high cancer death rate in Scotland and France with the use of coal as fuel, and Dr. Scott's inquiries had brought to light very clearly the connexion between superficial injuries incurred in the shale-oil industry and the subsequent appearance of cancer. Certain mineral oils used for lubricating machinery had now been recognized as a cause of mule-spinners' cancer in Lancashire. There were grounds, therefore, for suspecting the products of burnt coal, and substances connected with mineral oils whose origin might be supposed to be related to coal. This suspicion had been much strengthened by Yamagiwa and Ichikawa's discovery that the repeated application of tar to animals caused cancer; tar preparations had proved most effective when they were applied to the skin of mice, though cancer hardly ever appeared in less than three months from the beginning of the irritation, and it was generally necessary to continue the application for six months. As the natural span of life in the mouse was rather less than three years, it followed that such a period as six months corresponded with fifteen years in the life of man. The time interval in mice and human beings was therefore comparable, since it was only after many years' exposure that cancer appeared in shale-oil workers and mule-spinners. In mice it had further been shown that the irritation need not be continuous; a few applications of active tar might lead to the appearance of a tumour several months later. Hence, in searching for the cause of any case of cancer the events of fifteen or twenty years previously must be considered, as well as the immediately preceding history. As a matter of practical hygiene, concluded Professor Boycott, irritation in all forms was to be avoided, and the case against the products of burnt coal was so strong that the smoke nuisance should be stopped.

Correspondence.

THE BEGINNING OF THYROID THERAPY.

SIR,—The case of myxoedema recorded by Dr. Arthur Hawkyard (*British Medical Journal*, November 16th, p. 932), in which complete recovery followed a course of injections of thyroid extract in 1893, is remarkable in that there was no recurrence of the symptoms after the treatment had ceased up to the time of her death last month, at the age of 87. This course of events suggests either that the myxoedema was due to a temporary disablement of the thyroid gland which subsequently recovered and carried on its function after the thyroid extract was discontinued, or that an accessory gland hypertrophied sufficiently to compensate for the atrophy of the thyroid gland itself and to maintain good health for thirty-five years. Three cases of spontaneous recovery from myxoedema have been recorded by Hun and Prudden, by Mrs. Garrett Anderson, and by Fraser of Paisley. In the third case no recurrence had taken place ten years after recovery. A similar explanation would account for the recovery in these cases. The result of the treatment of my first case of myxoedema by thyroid extract was not first published in 1893, but two years earlier, in a paper read at Bournemouth, at the Annual Meeting of the British Medical Association, which appeared in the *British Medical Journal* of October 10th, 1891 (p. 786). This patient, under the influence of continued thyroid treatment, remained in good health for twenty-eight years, and died in 1919, at the age of 74, from cardiac failure.—I am, etc.,

Manchester, Nov. 19th. GEORGE R. MURRAY.

HYDATID DISEASE IN ICELAND.

SIR,—With reference to the interesting article on hydatid disease and public health in the *Journal* of November 23rd (p. 970), and the measures advocated by Sir Louis E. Barnett to diminish its ravages in New Zealand, it may be of interest to record what has of late years taken place in Iceland, from which country I have recently returned.

In Iceland it is well known that until recently hydatid disease was of very common occurrence. Fifteen years ago, however, the matter was taken in hand. It was forbidden to keep any dogs within the boundaries of Reykjavik, the capital city, which itself contains nearly 25,000 inhabitants—almost a quarter of the total population of the island. An educational campaign was also conducted throughout the country, explaining how the disease was produced and how it might be avoided. Especial reference was made to the necessity of preventing house-dogs from soiling the food utensils, and especially the "skyr bowls," from which the national dish, "skyr," dating from early Viking days, was eaten, and which, being placed on the floor when empty, were often licked clean by the dogs.

As a result of these measures the incidence of the disease has greatly diminished, and for the past six years the yearly number of fresh cases has fallen to a figure varying from 27 to 50[1] throughout the whole island.—I am, etc.,

PERCIVAL HORTON-SMITH HARTLEY.

London, W.1, Nov. 21th.

LOCAL NICKEL POISONING WITH BISMUTH INJECTIONS.

SIR,—The following two cases appear to show the possibility of local poisoning by nickel if a syringe with a nickel-plated piston is used for bismuth injections.

1. I was injecting a man with his third dose of vaccine by means of a syringe which I had last used (four days previously) for thiobismol—a water-soluble bismuth preparation. The syringe had been repeatedly "coughed" empty, but not washed out. I noticed that the vaccine became slightly green in the barrel, but as the syringe was kept in spirit, and as I knew the trace of bismuth was aseptic and harmless, I did not reject the vaccine. That the green colour indicated substitution of bismuth by nickel did not occur to me then. Within five minutes of the injection pain started in the arm, spreading to the shoulder and lasting for three weeks; it was severe for five days. The arm was red and swollen, and a lump as large as an egg appeared and took three weeks to subside. There was no fever.

2. In the same week I injected another patient with morphine solution the day after using the same syringe for thiobismol. Again the solution was tinged with green, and no more morphine was available. Promptly the forearm became red, painful, and swollen, but the reaction was neither severe nor lasting, and there was no fever.

In both cases the symptoms were too rapid and afebrile to be caused by sepsis or vaccine. The greenish colour indicates nickel as the irritant, rather than copper from the piston. I have had no trouble or pain with thiobismol since reserving an all-glass syringe for its use.

I wrote to the makers (Parke, Davis and Co.) of the excellent thiobismol. They replied that this was the first occasion on which local poisoning from thiobismol left in contact with a metal plunger had been brought to their notice, and they agreed that an all-glass syringe should be used for all compounds of the heavy metals. Logically, they added, the needle also should be of platinum-iridium instead of nickel-plated or chrome steel.

There is perhaps a natural disinclination to wash out a syringe of which the contents have always been aseptic, because water might not remain sterile, and spirit is an irritant to the tissues and precipitates some solutions.

If there is pain after a bismuth injection the bismuth is naturally blamed; hence the nickel poisoning would escape detection. This may account for some of the divergent opinions as to the pain produced by injections of the various bismuth preparations. Dr. Svend Lomholt, in his full and valuable paper on bismuth injections in the *Journal* of November 16th (p. 887), makes no mention of this possible toxic complication. Evidently it has been too little recognized—possibly not at all, for new knowledge derived from error commonly remains unpublished.—I am, etc.,

Hull, Nov. 20th. F. C. EVE, M.D., F.R.C.P.

[1] *Heilbrigdisskyrslur*. 1927. Reykjavik. Pp. 85, 89.

REVOCABLE STERILIZATION OF THE FEMALE.

SIR,—Most of the operative procedures designed to render the female sterile suffer from the disadvantage that their effects are permanent. In many cases, however, only temporary sterilization is required, and I would suggest that this might be achieved by a simple yet thoroughly effective operation, which was first described and successfully performed by Professor Forel of Zürich and Lausanne His method is to make a small opening in the abdomen, dislocate the fimbriated ends of the Fallopian tubes, and tie them out of the way. By means of a single catgut stitch they can be kept permanently away from the ovaries so that the ova drop harmlessly into the peritoneal cavity.

The great value of this operation lies in the fact that the process can be reversed, and the ends of the tubes restored to their original position, so that the woman becomes once more capable of bearing children. Moreover, as the ovaries are untouched, the natural secretions are carried on, and none of the disastrous consequences which often follow removal of the ovaries can occur. Dr. Forel assured me that if this operation is performed under strict antiseptic conditions it is entirely without danger or even inconvenience to the patient later on.—I am, etc.,

G. LINDSAY JOHNSON, M.D.,
F.R.C.S.Eng.

Durban, Oct 18th.

TREATMENT OF SCALDS AND SUPERFICIAL BURNS.

SIR,—The problem of treating scalds and burns is obviously twofold: to lessen shock and to avoid sepsis. It is well to remember that shock is not completely accounted for by the first contact with the exciting cause, but is aggravated and maintained by excessive stimuli from the damaged skin surface upon the central nervous system.

In the treatment of shock, more especially in children, I regard sleep as a factor of paramount importance. Potassium bromide has many advantages as a sedative and few disadvantages. Doses of 2 to 5 grains, according to the age of the child, and given every three or four hours, generally induce sleep. In the treatment of adults an injection of morphine (1/6 grain) may be more effective. When the injuries are severe brandy and salines may be administered with advantage every three or four hours, and these measures, varied according to the needs of the case, may be regarded as a routine treatment for combating shock.

While investigating local applications for the avoidance of shock from the continued pain of scalds and burns, I reached the conclusion that an ointment would give greater and more immediate relief than any other application, and that the pain caused by changing dressings would be reduced to a minimum. Observing that the injured parts often look too moist and sodden to heal readily, I decided that a suitable ointment should contain a drying substance. Calamine readily presented itself to the mind, and experiment proved that burns and scalds in contact with this substance were kept practically dry. Further experiment showed that calamine by itself was not sufficiently soothing, and the need for a bland and healing substance led to the addition of zinc oxide to the ointment.

To deal with the second part of the problem—namely, that of sepsis—the ointment obviously required the addition of an antiseptic. For this purpose an antiseptic oil suggested itself, and three were tried—carbolic, eucalyptus, and terebene. Of these, oil of terebene was found to be the best. Ordinary yellow vaseline was adopted as a basis because it is an easy and smooth-spreading material, and in conjunction with the other substances produces an ointment which makes up well and keeps indefinitely. After trying various proportions of these ingredients the following formula was found to be the most suitable: Calamine 30 grains, zinc oxide 30 grains, oil of terebene 15 minims, yellow vaseline to 1 oz.

I have treated every case of superficial burns and all cases of scalds which have occurred in my practice for the last seven years with this ointment, and have never been disappointed with the result. One or two other medical men have tried it with similar good results, and it is remarkable in minor cases, and even in the more severe cases, how quickly the injuries heal. I attribute this, in great part, to the drying effect of the calamine, because excess of moisture not only prevents rapid healing, but also, I am sure, renders the injured surface a much better culture ground for septic organisms.

I use the ointment evenly spread on white surgical lint and, of course, apply it as quickly as possible after the injuries are received. I snip blisters immediately, or on the following day, and to facilitate the removal of dead skin or slough sometimes immerse the affected part for a short time in a warm soda bath.

The last case treated in this way is at present convalescent in the Buxton and District Hospital, and I append a short history.

J. J., aged 11 months, was seen by me on the evening of November 2nd; he was severely scalded by boiling water all over both legs as high up as the middle of the thigh. The feet were partially involved. One single blister on the right leg extended from the outer side of the ankle to well above the knee. In addition, both hands and wrists were scalded. I immediately applied the ointment, and he was then admitted to hospital. On admission he was found to be suffering severely from shock, and was put on three-hourly salines and given a little brandy. In addition, he had a three-hourly mixture containing a 2-grain dose of potassium bromide. Later in the evening his injuries were again dressed with the ointment. During the night he was very restless. On the following morning he was somewhat better, and shock was less marked. Dressings were carried out twice daily. On the second night after admission he slept fairly well. The wounds healed rapidly, and in a week the child was out of danger. On November 14th, with the exception of a small area at the right ankle, which was clean, his wounds were completely healed.

—I am, etc.,

J. A. HENDRY, M.B., Ch.B.,
Honorary Physician, Devonshire Hospital, Buxton.

November 18th.

RELIEF OF PAIN IN LABOUR.

SIR,—The correspondence in your columns on this subject touches a matter of interest to all who practise obstetrics. Perhaps some of your readers will agree with me on the following points:

A fortunate minority of women feel no labour pains, or only the final expulsive pains. These patients are not always of the healthy, "open-air" type who might be expected to have a relatively easy labour, nor are they necessarily young or widely built.

Certain local remedies, such as rubbing the back, are well known to be of some assistance. Hot baths may have a wonderful effect. Many patients say that while they are in the bath contractions are felt as strongly as ever, but all the "sting" is taken out of the pains. I have known poor women come into the maternity ward for the benefit of the baths alone, and say that they wished they could have the baby in the bath. Surely this suggests that the pain of labour is local in origin—possibly analogous to cramp, which is also relieved by rubbing and hot baths.

"Doping" the whole nervous system seems to me to be tackling the problem at the wrong end. Investigations to find out the cause of the pain, so widely varying in different subjects, would surely be a better line of attack. We might then, by adjusting the calcium content of the blood, or some other rational means, be able to secure for all parturient women that freedom from pain which is at present accorded by nature to a favoured few.—I am, etc.,

ELISABETH ROLSTON, M.B., Ch.B.

Haslemere, Nov. 23rd.

GASTRIC LAVAGE FOR HYPERCHLORHYDRIA.

SIR,—I desire to advocate a line of treatment in hyperchlorhydria and gastric or duodenal ulcer which, so far as I am aware, in a somewhat limited personal experience, has not received the attention it perhaps merits.

After I had suffered for some two years from chronic indigestion and loss of weight, without, however, any very acute symptoms, a barium meal and *x*-ray photograph, together with the presence of occult blood in the stools, gave evidence of a small ulcer on the lesser curvature of the stomach. A period of some weeks on diet and the usual alkali treatment resulted in the almost complete disappearance of symptoms, and after four or five months' convalescence I achieved normal weight

once more. After that, however, and getting back to work, I began to be bothered with a very troublesome and intractable hyperchlorhydria, as indicated by heartburn, superficial soreness of the chest, occasional pain in the back or front of the chest, discomfort, etc., and, except for a short period after meals, I was rarely free from one or other of these symptoms.

In order to deal with these I went back to large doses of bismuth, chalk, and magnesia, and thereby obtained much relief for a time. Before long, however, the hyperchlorhydria seemed to get worse, and in addition I began to suffer from marked depression and feelings of ill health, due, I became convinced, to the large amounts of the drugs I had to take. I reduced my daily dose of these, with consequently increased trouble from the hyperacidity, although my general state improved.

Finally, after a specially bad week of the most irritating hyperaesthesia of the chest, together with much discomfort and an increasing inability to concentrate on my work, I came to the conclusion that something more had to be done to deal with the matter. It occurred to me that daily gastric lavage might be of material assistance, and I accordingly obtained an ordinary thin rubber duodenal tube and a 20-c.cm. syringe, and began a daily stomach wash-out on getting up in the morning. Although it may not seem so at first sight, yet actually it is the easiest thing in the world to carry out after practising it two or three times. The tube, which has the usual perforated silver strainer at the end, is swallowed with no difficulty, and the stomach contents are drawn off by the syringe and got rid of. The whole operation from start to finish takes only ten to fourteen minutes, and after two or three trial runs it does not worry one in the slightest degree.

My normal procedure is to have my morning cup of tea and a couple of biscuits as usual at 7 o'clock, and then half an hour later, on getting up, to drink a glass of water, either before or after swallowing the tube. I then draw off a pint or more from the stomach. Conceivably, in some cases, mucus might be present in sufficient amount to block the tube, but presumably a dose of sodium bicarbonate in water a short time before swallowing the tube would soften the mucus sufficiently to prevent trouble of this nature. Sometimes, but not often, I have found it necessary to repeat the process about 6 p.m.

The relief gained after commencing the morning lavage was immediate, and I can honestly say the improvement in my condition has been one of 80 per cent.; moreover, it continues. One dose of alkali at night before going to bed is all that I now require, and I see no reason why before long I should not be able, by degrees, to stop both the lavage and the alkali. The treatment has had no effect of an adverse nature on my appetite or in any other way, and I now eat and sleep well.

There is no doubt that the gastric lavage has broken a vicious circle, and has in this way caused the great improvement referred to.

It seems to me that this line of treatment might be of great value in many cases of duodenal ulcer and of healed gastric ulcer or hyperchlorhydria, and in the post-operative treatment of gastro-enterostomy cases, in which hyperacidity is so liable to cause complications. I see no reason why any layman should not carry it out on himself after brief instructions how to do it from his medical attendant.—I am, etc.,

London, Nov. 21st. MEDICO.

DIATHERMY OF THE TONSILS.

SIR,—Dr. Dan McKenzie's interesting article (November 23rd, p. 951) on the coagulation of tonsillar tissue by diathermy leads me to write about my own experience of this treatment.

Some years ago I read *Diathermie et Diathermothérapie*, by Dr. Bordier of Lyons, and since then have treated about fifty cases by the method therein described. Any form of local anaesthesia I have found to be unnecessary as the tonsil is apparently quite insensitive to heat. Of course, one gets an occasional patient who requires cocainization. I have not found it useful to repeat the treatment more often than once a fortnight, for if the whole surface of each tonsil is treated not very deeply at each séance it requires about that time for the coagulum to separate and the deeper tissues to contract, as they undoubtedly do. In about six treatments one can remove most tonsils perfectly cleanly and without any scar formation—results better than those obtainable by the dissection method. The youngest patient in whom I got a satisfactory result was a girl of about 13. I have also had good results in acute follicular tonsillitis. Of course, it is not every patient suffering from this complaint who will submit to the treatment, but in those who will the attacks will be promptly cured. Diathermy appears to me to be the ideal method for destroying the membrane of diphtheria.

A diathermy apparatus is most useful for any medical man. I have had three apparent cures in incipient rodent ulcer, and one in mule-spinners' cancer.—I am, etc.,

Nelson, Nov. 23rd. O. WILSON.

TONSIL AND ADENOID OPERATIONS IN HOSPITAL PRACTICE.

SIR,—I entirely agree with the resolution passed at Manchester on the proposal of Dr. Scott Stevenson. As pointed out by Mr. Watson-Williams, this is no new matter; again and again the position has been brought to the notice of the profession by various authorities. I would go further than some of my colleagues, since I consider that children should be kept in hospital from one day before the operation till three days after—or four days in all.

The root of the whole trouble is that the public, from whom are drawn the lay boards of management of the hospitals, has been taught to regard tonsillectomy as a negligible procedure, instead of as a major operation, whether performed on the child or the adult. This is largely the fault of the medical profession, and some of the letters in the present correspondence will, I fear, help to endorse this view. That is the weakness in the profession: a well-informed portion of it takes a strong stand, but this is undermined by others who state that there is no need for the strength of the stand, so the public concludes that it is only another medical disagreement, and so the "resolution" goes to join its fellows.

Laryngologists should stand together and not let the matter rest until it is put on a satisfactory basis. Let us be adamant that it is "a disgrace to British surgery" that tonsillectomy should be performed as an out-patient operation, and then proceed within our individual spheres of influence, but backed by general approval and support, to bring the matter before the boards of management for action, not opinions or resolutions. There are many operations of general surgery at present performed as in-patient ones which could be treated as out-patient ones with greater safety than tonsillectomy.

The general hospitals are the chief sinners; the special hospitals usually have plenty of beds, comparatively speaking, and their boards are much more sympathetic and helpful. Yet there are those both within and without the profession who are misguided enough to advise amalgamation of the special with the general hospital: a more suicidal policy from the standpoint of oto-rhino-laryngology could not well be imagined.

The shortage of beds for child tonsillectomies is, as pointed out by one of your correspondents, but part of the general shortage for ear, nose, and throat cases, and the existing allocation of beds is quite disproportionate in the majority of hospitals. For the proper administration of any considerable area of population a minimum of thirty beds is required—fifty is desirable; of these a minimum of ten is required for tonsillectomies in children, and if their occupation is arranged in proper rotation a large number of cases can be dealt with.—I am, etc.,

H. NORMAN BARNETT.

Bath, Nov. 23rd.

TREATMENT OF INFECTIONS WITH S.U.P. 36.

SIR,—I must thank Dr. J. S. Hall for giving us further details of his series of "acute mastoiditis" cases treated by means of S.U.P. 36 with such uniform success (November 16th, p. 933). His cases are very interesting, but not, according to my experience, very typical of the commoner forms of the condition. Even in the Case F, chosen as "fairly typical," a temperature of 102° in an adult of 17 years is surely unusual; in fact, a temperature above 99.2° in an adult in which other accompanying causes of such pyrexia—for example, auricular furunculosis or acute dermatitis—can be excluded, surely warrants a suspicion of intracranial complication? I note that in

Case A there is an implied, and as far as I can ascertain novel, claim of relieving even "chronic otitis media." But before S.U.P. 36 is entitled to rank as specific in *otitis media, it will have to prove itself superior* to the conservative measures now usually employed, including the full dose of castor oil.

I *would suggest that the after-history of successfully* treated cases might prove illuminating: it happens not infrequently that the acute signs disappear, hearing returns, *the tympanic membrane clears, and the perforation* may even heal, and yet, after an interval of weeks or months, indefinite symptoms lead to an operation at which is discovered an area of localized, even quiescent, mastoid disease with no apparent connexion with a normal-looking antrum. Will these cases become more common if treatment by S.U.P. 36 comes into vogue?—I am, etc.,

Stoke-on-Trent, Nov. 20th. E. HORACE RICHARDS.

Obituary.

SIR ARCHDALL REID, K.B.E., M.B., C.M., F.R.S.Ed.

THE sudden death from angina pectoris of Sir Archdall Reid, to which a brief reference was made in our last issue, has removed an outstanding personality from the ranks of the medical profession.

George Archdall O'Brien Reid was born at Rooki, India, on April 7th, 1860. His father, Charles Auguste Reid, one of the old "John Company" men, was a captain in the 20th Native Bengal Infantry, H.E.I.C.S. This was the first regiment at Meerut to mutiny, and, with the exception of Captain Reid, who was away at Dehra Dun at the time, all its officers were massacred as they were returning from church. Reid was educated privately, and later spent some years travelling in India, America, New Zealand, and the Pacific. During this period he tried various occupations, among which were those of a prospector, hunter, Kauri gum digger, schoolmaster, and editor. He subsequently went to Edinburgh to study medicine, and graduated M.B., C.M. in 1887. Many years later he was elected a Fellow of the Royal Society, Edinburgh. After obtaining his medical degrees Reid settled in Southsea, where he continued in general practice until the day of his death. He married first Florence, the daughter of the late Colonel John Mahony, C.M.G., and, after her death in 1925, he later married the widow of the late Dr. R. E. Wilmot of Burnham, Bucks.

Although for more than forty years engaged in general practice, Reid's mind was always occupied with the study of scientific subjects rather outside the sphere of routine medical practice, and in particular his name will always be associated with the principles of heredity and the part they play in the evolution of man. On this subject he was a recognized authority, and among his published works are: *The Present Evolution of Man*, 1896; *Alcoholism: A Study in Heredity*, 1901; *The Principles of Heredity*, 1905; and *The Laws of Heredity*, 1910. In 1920 he published a work of a different category, *The Prevention of Venereal Disease*; he also contributed many articles to the *British Medical Journal*, the *Lancet*, *Nature*, and other scientific publications. He had just completed another work dealing with mind, memory, and environment, but death occurred before he had submitted it to a final revision. All Reid's writings were characterized by complete independence and marked originality of thought. He was entirely untrammelled by the weight of authorities or conventional conception, and would accept nothing which his critical mind could not approve. It was inevitable that the views of so fearless a writer should be vigorously challenged, but his profound knowledge of his subject, together with the lucidity and force of his arguments, made him an opponent not to be lightly encountered. Of his published books it is probable that *Alcoholism: A Study in Heredity*, although, or perhaps because, not so highly scientific as some of his other works, most attracted the lay reader. In it Reid maintains that legislative efforts to control drunkenness by restricting the sale of drink can never prove successful. He puts forward the view that alcoholism, or drunkenness, is a disease, analogous to certain zymotic diseases; against it each race must gradually work out its own salvation by the process of evolution whereby such individuals of the race as have an inborn craving for alcohol are gradually eliminated through the effect of their indulgence in it. This argument naturally was strenuously opposed by those temperance advocates who believe that sobriety can be brought about by legislation, and it resulted in numerous controversies in the public press and elsewhere, where Reid more than held his own. His last published work, *The Prevention of Venereal Disease*, was a vehement insistence on the view that the most effective means for the control of venereal disease was the instruction of the public in the adoption of simple methods of self-disinfection after exposure to infection. Reid was medical officer in charge of troops at Victoria Barracks, Portsmouth, during the war, and he asserted that the adoption of the practice of prevention which he advocated had resulted in a greatly reduced incidence of venereal disease among the men under his charge. He was at one time a prominent member of the Society for the Prevention of Venereal Disease, and also president of the Section of Venereal Diseases at the Annual Meeting of the British Medical Association at Portsmouth in 1923.

In his medical practice Read brought to bear the same originality of thought as characterized the development of his theories of evolution. He was constantly adopting such new and unconventional methods of treatment as were suggested to his mind by a study of the pathology and symptoms of the disease which his patient exhibited. As recently as June this year he read a paper at the Royal Portsmouth Hospital describing a method of treatment which he had for some time past been employing with success in cases of chronic arthritis. Working upon the now generally accepted opinion that arthritis is due to chronic absorption of the toxins produced by proteolytic bacteria, he concluded that good results ought to follow the removal of the greatest factory of toxins in the body—namely, the accumulations of decomposing faeces in the colon. The method accordingly which he adopted was daily lavage of the large intestine with a mixture of three parts of normal saline solution with one part of Bulgarian curds, continued until the faecal contents of the colon gave an acid reaction. The patient at the same time was given doses of phenacetin and aspirin thrice daily, and his diet was restricted to vegetables, milk, and milk products. Reid stated that this method of treatment had also proved effective in psoriasis and in certain cases of neuritis. The interest in this paper was considerably enhanced by the exhibition of several sufferers from chronic arthritis, whose symptoms had apparently entirely yielded to the methods described.

To his many friends "Archie," as he was affectionately known, was a most delightful and charming companion. He was a witty and brilliant conversationalist with whom one was never bored, and from whom one seldom failed to hear entirely novel explanations of ordinary commonplace happenings. Simple-minded, hospitable, and sympathetic, he was the most lovable of men. Children he adored, and by them he was loved in return, and it was a terrible grief to him when his only son, Eric, a splendid young fellow, who was idolized by his father, was killed in France at the beginning of 1918. From this blow, borne with characteristic courage, Reid never recovered, hard though he tried to deaden the pain by still closer application to scientific research.

Although a successful general practitioner, and no doctor could have more devoted patients, yet to those who knew him it always seemed a thousand pities that a man of Reid's outstanding ability should be obliged to spend so much of his time in the routine of general practice. Such an original thinker, with so extensive a knowledge of philosophy and science, must have proved a far more valuable asset to his country had he been called to a university chair, where the exercise of his special gifts would have had greater scope and influenced a far wider circle.

A. M. F.

Dr. HENRY JOY CLARKE, J.P., who died at his residence in Doncaster on November 16th, at the age of 62, was the son of Dr. Thomas Clarke of Doncaster, and received his medical education at Edinburgh. In 1878 he graduated M.B., C.M., and obtained the diploma of M.R.C.S.Eng.; he proceeded M.D.Ed. three years later. After holding the posts of house-physician in Edinburgh and house-surgeon to the Glasgow Royal Infirmary, he commenced general practice in 1879 in Doncaster, where practically the whole of his active medical life was spent. He won the high respect and esteem of his colleagues, and recently, at the completion of fifty years of medical practice, was entertained by them to dinner and presented with a testimonial. At about the same time, in recognition of his long service to Doncaster, he received the freedom of the borough. He was for many years a keen member of the British Medical Association, and was unanimously asked to become the first chairman of the newly formed Doncaster Division, a position he held until his death. He was also a member of the Leeds and West Riding Medico-Chirurgical Society, and of the Doncaster Medical Society. A colleague writes: The loss of so worthy a physician is keenly felt in Doncaster, but the influence for good which Dr. Clarke exerted will survive living memory. No one in need or trouble ever sought his counsel or help in vain. He was a man of great personal charm, an ideal family practitioner, and in all respects an ornament to his profession.

Dr. JOHN ALFRED GRAY died at Ealing on November 19th, aged 72. He was educated at St. Bartholomew's Hospital, and took the M.R.C.S. diploma in 1882, and the L.S.A. in 1884. For five years, from 1888 to 1893, he was surgeon to the Amir Abdul Rahman of Afghanistan; and after his return home embodied his Eastern experiences in a most readable book, *At the Court of the Amir*. On his return to England he graduated M.B. at the University of London in 1894, and soon after settled in practice at Ealing, where he was one of the surgeons to the King Edward Memorial Hospital, and also medical officer to the police and post office. He had practically retired from practice for the last two years. He leaves a widow, one son—Dr. John Gray—and one daughter.

Mr. CHARLES HAMILTON WHITEFORD, who died on November 13th, at his residence in Plymouth, received his medical education at St. Bartholomew's Hospital, and obtained the diplomas M.R.C.S., L.R.C.P. in 1892. He devoted himself to surgery from the first, and became well known in the Plymouth area as an operating surgeon keenly interested in the technique of his craft. He was surgical referee to the Plymouth County Court district, consulting surgeon to the Plymouth centre of the Great Western Railway system, and had been honorary surgeon to Plymouth Infirmary, and surgical specialist to the Ministry of Pensions and the Military Hospital, Devonport. Mr. Hamilton Whiteford was for many years an active member of the Plymouth Medical Society, in which he held office as president from 1911 to 1913. He was the author of several publications on surgical subjects, and many years ago built and equipped a private operating theatre.

The death took place in a nursing home at Edinburgh, on November 19th, of Dr. J. M. THOMSON, who had practised in Airdrie for many years. After graduating M.B., C.M. at Edinburgh in 1891, Dr. Thomson began practice in Airdrie, where he remained some thirty-five years. He took an active interest in local affairs, and had been for many years a member of New Monkland parish council. He was also a justice of the peace. He had recently retired from practice, and taken up residence at Polmont.

Dr. D. HAMILTON KYLE, for many years a well-known medical practitioner at St. Andrews, died at Southampton on November 7th. After graduating M.B., C.M. at Glasgow in 1880, Dr. Kyle took up practice in St. Andrews, where he interested himself to a great extent in public affairs, and was for a considerable time a member of the local town council. He is survived by a widow, three sons, and three daughters. Two of his sons and the three daughters, having been brought up at St. Andrews, attained great distinction in the world of golf. Mr. Edward P. Kyle won the championship of the Federated Malay States four times, and played for Scotland against England in 1925. Mr. D. H. Kyle was an international player, and represented Great Britain against America. Each of the daughters has also taken part in international competitions, and reached a high place on various occasions in the Scottish ladies' championship events.

Universities and Colleges.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

ANNUAL MEETING OF FELLOWS AND MEMBERS.

THE annual general meeting of the Fellows and Members of the Royal College of Surgeons was held on November 21st, with the President, LORD MOYNIHAN OF LEEDS, in the chair. About fifty were present.

The PRESIDENT placed before the meeting the annual report of the Council and drew attention to a number of matters. With regard to the primary Fellowship examination in anatomy and physiology in Canada, he said that this had been from every point of view very satisfactory. It had been decided to hold another examination in Canada in September of next year. The total cost of the examination was £600, and the loss to the College £214. With regard to the British College of Obstetricians and Gynaecologists, he, together with the President of the Royal College of Physicians, had endeavoured to arrange a compromise on the basis of the amendment of certain clauses in the memorandum of the new College, which appeared to be in conflict with the powers and functions of the Royal Colleges. Before this proposal took shape the Council had under consideration the establishment of a special diploma in obstetrics and gynaecology, and this was being proceeded with. In conclusion, he referred to some gifts to the College, including the grant by Lord Beaverbrook of £1,000, which it had been decided to expend on tissue culture research.

In reply to a question by Dr. E. W. D. KITT, the PRESIDENT said that he had never heard any suggestion made to the Court of Examiners that only a certain proportion of the candidates for the Fellowship should be passed. The explanation of the fact that only 92 candidates out of 332 in the primary examination passed, and only 70 out of 225 in the final examination, must be sought in some other direction. To set up an arbitrary restriction of this kind would be contrary to the spirit of the College and also to fair-play. The examiners conducted the examination and reported the results to the Council, who invariably accepted them. In reply to Dr. F. W. COLLINGWOOD, he said that in his belief the examination for the Fellowship was as nearly perfect as any examination could be. It was, of course, impossible to distinguish the all-round surgical capacity of a man except by practice.

Demand of Members for Representation.

The time-honoured resolution affirming the desirability of admitting Members to direct representation upon the Council, in view of the fact that there are 18,587 Members as against 1,945 Fellows, was moved and seconded by Fellows of the College. Mr. SOMERVILLE HASTINGS, the proposer, said that most of those who belonged to the College first became associated with it because they desired to practise medicine. It was only afterwards that they realized that they were part of an active living organism, and desired to be more closely associated with its work. According to the present charter, he realized that the Members had no legal right to the facilities for which they were asking, but he believed they had a strong moral right because of the injustice perpetrated by the predecessors of the Council in the forties of the last century. He believed that at an earlier period the election of the governing body was in the hands of the Members, but when the Fellowship was created it was decided that the governing body should be elected in future solely by the Fellows—in other words, the Council of that day dispossessed the Members of all voice in the control and management of the College. Members had smarted under a sense of injustice ever since. He added that the Members were not dissatisfied with the conduct of the College, and they were putting forward these claims, not because they wanted anything for themselves, but because they felt that they had something to give. Most of the Members of the College were in general practice. In whatever way the medical services of the country might develop, the general practitioner must always be the cornerstone of the edifice, the co-ordinator of medical services. It would always be the duty of the general practitioner to make

provisional diagnosis and determine the surgeon or specialist he should be called in. He could speak the more freely because, he was not himself in general practice when he said that the general practitioners of this country were a body of men and women of whom the country might be proud, and were unmatched by those of any other country. The most important function of the College was in respect to education. Was it not the greatest danger of education that it should become archaic, out of touch with things as they were? This was a danger not remote from medicine and surgery. Were they quite certain that an examinee was not more likely to pass if he was able to give an accurate account, on paper, of how to do a gastrectomy rather than prove himself able to do some of the simpler operations in surgery? The people most likely to prevent these educational or examinational anomalies were general practitioners, in touch with the needs and conditions of practice.

Dr. H. M. STRATFORD seconded the resolution. He pointed to a very general feeling that the manner in which the Members had been deprived of the right of representation on the Council was "mischievous and iniquitous," and both the *Lancet* and the *British Medical Journal*, probably the two most outspoken journals in the kingdom, had not hesitated from time to time to point out the injustice of the position. He went on to say that a vast amount of surgery was in fact done by Members of the College; this was largely, but by no means entirely, minor surgery. In bulk it must far exceed that done by the Fellows. Members were not asking to control the College, but only to be represented by two or three members on the Council. They would bring a decided influence to bear in making the examinations more practical.

Dr. REDMOND ROCHE said that apparently this desirable reform was blocked by the adverse postal vote of 612 Fellows in a body of 20,000 persons. It was these relatively few dissentients which had caused the Council to refrain for the present from proceeding to alter the constitution. Dr. C. W. BROOK, who had on a former occasion supported the resolution, now opposed it on the ground that such a resolution ought not to be brought up year after year, and that the Society of Members should pursue another line, getting a member of Parliament to bring in a private member's bill to alter the Royal Charter. Dr. ARTHUR HAYDON, who also spoke in support of the resolution, suggested that, if there was a technical difficulty, the Members elected to the Council might be created honorary Fellows for the purpose.

The President's Reply.

LORD MOYNIHAN said that Mr. Somerville Hastings's review of the history of the College was quite inaccurate. It was not true that the Fellows had usurped anything from the Members. The Council or Court, before the year that Mr. Hastings gave, was a self-elected body. Nobody but members of the Court had any right to elect members of the Court. It was not a restriction but an extension of the franchise which took place when the College became the Royal College of Surgeons of England. The Members had never had any vote in the administration of the College, and it was just as well not to base any arguments on entirely erroneous historical statements. This was the forty-first occasion on which a similar resolution had been brought forward, and again the statement was made that general practitioners required representation on the Council. Was it not obvious to anybody who gave a few moments' consideration to the subject that the large bulk of the Fellows of the College were in general practice—at least 80 per cent. of them? The Council was elected by a majority of general practitioners, and not by specialists. Yet this same argument had been used for the fourth year to his own knowledge. The cause of the Members was not advanced by time-worn and misleading arguments. During the forty years in which this resolution had been brought forward had any enthusiasm for it been generated among the general body of the Members? He had never discovered any evidence to that effect. Those bringing forward the resolution had never shown that they carried the bulk or even a reasonable proportion of the Members with them.

A MEMBER: They are too busy to bother about politics.

LORD MOYNIHAN: I quite agree. They do not even come in any large numbers—much to my regret—to this annual meeting. Somebody raised the question of examinations. We do take steps to alter the character of the examinations, but those steps have to be taken so gradually that even those who follow the examinations closely cannot exactly say when the change takes place. We might determine, for example, that the primary examination should deal far more with functional than with ordinary descriptive anatomy, but to make such a change suddenly would be very unfair to the man who has spent perhaps eighteen months in preparing for the examination. Anyone who compares the examination of to-day with that of ten or fifteen years ago, however, will be aware of a slow but definite change in character. The examination has been brought more into line with the needs of the present time. Let me add this, that I come here with the desire to give the most cordial welcome to the Fellows and Members who care to attend this meeting. It is the Members' College just as much as the Fellows', and Members are most cordially welcomed here. But we exist under a charter, which requires us to do certain things in a certain way. If the Members have any urgent desire for the alteration of that charter I am sure they will be able to get it altered. But no evidence of this has been brought to my knowledge, and I am at least as deeply interested in this matter as anyone else here.

A MEMBER: Would the Council take a postal vote?

LORD MOYNIHAN: The Council is prepared to consider any representation made either by a body of representative Members or by individual Members. You must get out of your minds the idea that there is the smallest hostility on the part of the Council. We are here individually and collectively of set purpose to support your interests.

Dr. RICHARD LLOYD said that whatever might be the case to-day when the Members were disappointed by repeated rebuffs, there had been occasions in the past when the enthusiasm for this resolution was so great that the gates of the College had to be closed against the press of Members.

Mr. SOMERVILLE HASTINGS said that if he had inaccurately described the former procedure it was not for want of care. He had gone closely through the charter of 1800, and it certainly appeared to him that the Members of the College then elected the governing body. LORD MOYNIHAN repeated that it was a self-elected body. He was very willing to go into the documents with Mr. Hastings.

Dr. REDMOND ROCHE thought that what Mr. Hastings had said was accurate as applied to the year 1785, prior to the incorporation. LORD MOYNIHAN: That is irrelevant. It was not the Royal College of Surgeons before 1800.

The resolution moved by Mr. Somerville Hastings was then carried by 44 votes against 2, and the PRESIDENT said that he would, as before, see that the message was duly conveyed to the Council.

UNIVERSITY OF CAMBRIDGE.

THE Raymond Horton Smith Prize, awarded to the candidate who presents the best thesis for the M.D. degree during the academical year, has been awarded to Wilfred Shaw, M.D. (St. John's).

UNIVERSITY OF LONDON.

EARL BEAUCHAMP was installed as Chancellor of the University of London on November 22nd. Dr. Scott Lidgett acted as vice-chancellor in the absence of Sir Gregory Foster, and conferred upon Earl Beauchamp the honorary degree of Doctor of Literature.

Dr. G. A. Harrison has been appointed, as from October 1st, 1929, to the University Readership in Chemical Pathology, tenable at St. Bartholomew's Hospital.

Sir Cooper Perry has been appointed a member of the board of management of the London School of Hygiene and Tropical Medicine, and Mr. H. L. Eason, M.D., M.S., chairman of the Library Committee.

LONDON HOSPITAL MEDICAL COLLEGE.

Liddle Triennial Prize.

The subject of the Liddle Triennial Prize for 1929-30, value £120, is the cause and incidence of duodenal ulcer. Essays for the prize, which is open to public competition, must be delivered at the hospital not later than 4 p.m. on May 31st, 1930. A printed copy of the conditions under which it will be awarded may be obtained from the dean of the London Hospital Medical College, Mile End, E.1. The prize essay, and every accompanying drawing and preparation, will become the property of the trustees of the fund out of the income of which the prize is given, but permission for publication will not be withheld.

The object of the prize being to encourage original observation and investigation, no award will be made when, in the opinion of the examiners, the essays have not attained a sufficiently high standard of excellence. The award will be made within six months from the date of sending in the essays.

UNIVERSITY OF SHEFFIELD.

Lectures on Cancer.

THE Clinical Medical Studies Committee of the University of Sheffield has arranged, in conjunction with the Yorkshire Council of the British Empire Cancer Campaign, for three lectures on cancer, to be given at the University during the coming winter. The first of these lectures will be delivered on December 3rd by Dr. Maurice Davidson, physician to the Miller General Hospital and the Brompton Hospital for Consumption, on intrathoracic and pulmonary new growths; it will be illustrated by lantern slides and pathological specimens. Professor Arthur Hall will take the chair at 8 45 p.m. All medical practitioners are cordially invited. Particulars of the two lectures to be given after Christmas will be announced shortly.

UNIVERSITY OF DUBLIN.

SCHOOL OF PHYSIC, TRINITY COLLEGE.

THE following candidates have been approved at the examinations indicated:

FINAL MEDICAL EXAMINATION — *Part II. Medicine*: E. F. St. J. Lyburn, A. R. Johnston, A. Rose, Josephine M. Enright, Lilla M. Spiller, W. B. Hamilton, D. G. M'Cauly, W. A. Y. Knight, F. O. Pilkington,

A. J. Garde, G. F. West, Dora G. Bradley, R. P. M'Garrigle, A. Rakoff, R. E. Hemphill, F. M. Lyons, F. S. Mackenna. *Surgery:* *G. B. Thrift, G. R. Beare, Kathleen A. Wilson, E. S. Tweedy, M. E. Kirwan, G. K. Graham, E. J. M. Bam, J. N. U. Russell, Frances E. Wilson, Dora G. Bradley, J. F. K. MacCarthy-Morrogh, J. M. M'Elligott. *Midwifery:* *A. H. Thompson, *P. L. O'Neill, *R. Bowesman, *J. M. Gibbon, D. Nolan, F. P. FitzGerald, Annie E. Thompson, T. H. Dockrell, H. R. O. Dorman, D. G. M'Caully, A. A. Lisney, J. T. Robinson, Ruth R. Armstrong.

M.Ch.—J. C. Fouché, H. E. Murray.

* Passed on high marks.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.

At the annual meeting of the Royal Faculty of Physicians and Surgeons of Glasgow, held on November 4th, Dr. John F. Fergus was elected President in succession to Mr. G. H. Edington. The other office-bearers appointed are: Visitor, Mr. R. Barclay Ness; honorary treasurer, Mr. J. H. MacDonald; honorary librarian, Dr. E. H. L. Oliphant. The representative on the General Medical Council is Mr. Edington, and the councillors are Professor J. M. Munro Kerr, Mr. Thomas Kay, Mr. John Patrick, Mr. R. M. Buchanan, Mr. J. Galbraith Connal, Dr. C. C. Douglas, Dr. John Gracie, Mr. Andrew Allison, Dr. J. Souttar McKendrick, and Mr. W. Ferguson Mackenzie. It is worthy of note that Dr. J. F. Fergus's father and his brother, Dr. Freeland Fergus, served as Presidents of the Faculty.

SOCIETY OF APOTHECARIES OF LONDON.

The following candidates have passed in the subjects indicated:

Surgery.—W. J. D'Rosario, I. F. W. Edwards, W. J. Frith, B. C. Ghose, W. A. R. Mailer, I. W. H. Mansfield, E. J. O'Loughlin, S. Ramadas.

Medicine.—R. Gilmore, J. Gordon, M. Naylor, A. Scher, L. J. P. Sonomenho.

Forensic Medicine.—J. Britanischski, R. F. M. Child, A. Kellner, E. E. Le Feuvre, M. Naylor, A. Scher, L. J. P. Sonomenho, G. W. Sturgess.

Midwifery.—P. S. Balachandran, K. C. Bhattacharyya, A. Buch, W. J. D'Rosario, I. F. W. Edwards, A. D. H. Hugo, T. C. Keble, W. A. R. Mailer, C. G. Nicol, D. Ram Annamalai.

The diploma of the Society has been granted to Messrs. P. S. Balachandran, K. C. Bhattacharyya, R. Gilmore, and E. J. O'Loughlin.

The Services.

QUEEN ALEXANDRA MILITARY HOSPITAL.

Opening of New Wing by the Prince of Wales.

A new wing of the Queen Alexandra Military Hospital, Millbank, was opened on November 26th, by H.R.H. the Prince of Wales. The new building, which has cost £28,000 and has been erected in nineteen months, is on the eastern side of the main hospital, houses all the special departments; and affords provision for out-patients; it contains no beds. On the ground floor are the dental, dermatological, and special surgery departments; on the first floor the radiology and massage departments, and the pathological laboratories; and on the top floor the departments of ophthalmology and for ear, nose, and throat cases. Up to now these departments have been accommodated in the main building, but the demand for hospital space has been such as to make this no longer convenient. Advantage was taken of the building of the new wing to house and equip the various departments on up-to-date lines, and the general provision and lay-out was the subject of admiring comment by visitors.

The opening ceremony was marred by bad weather, which led to the abandonment of the outdoor proceedings: but in any case only an informal occasion had been planned, and no set speeches were made. The Prince, after a number of presentations, inspected each of the departments in turn, and also visited one of the wards of the hospital.

The Prince, on arrival, was received by General Sir Walter Braithwaite, Adjutant-General, General Sir Robert Whigham, Commander-in-Chief, Eastern Command, and Major-General C. E. Corkran, general officer commanding London District. Lieut.-General H. B. Fawcus, Director-General Army Medical Services, was presented, and he in turn presented, among others, Brevet-Colonel Ryan, officer commanding the hospital, Miss R. Osborne, matron-in-chief, War Office Miss L. E. Mackay, matron of the hospital, Colonels Harrison, Kennedy, and de la Coeur, consultants, and the following members of the honorary civil consulting staff: Mr. Victor Bonney, Mr. F. D. Davis, Sir Crisp English, Professor E. H. Kettle, Sir W. Lister, Lieut.-Colonel H. MacCormac, Colonel A. G. Phear, Dr. S. Gilbert Scott, Sir John Thomson Walker, and Colonel A. E. Webb-Johnson.

The heads of each of the departments visited were presented to the Prince as follows: Captain S. H. Woods (dental), Major J. H. Frobisher (surgical out-patients), Major F. C. Doble (dermatology), Lieut.-Colonel D. S. Skelton (pathology), Major R. M. Dickson (ophthalmology), Major J. Hare (otology), Major E. V. Whitby (radiology), and Miss V. M. Macdonald (massage).

The Prince left after a stay of half an hour, and subsequently the commandant and officers of the R.A.M.C. Headquarters Mess entertained at an "at home" a large number of visitors.

DEATHS IN THE SERVICES.

Surgeon Lieut.-Commander Gilbert Malise Graham, R.N. (ret.), died of pneumonia, after a long illness due to war service, on November 9th. He was the only son of the late Joseph Graham, M.A., of Edinburgh, and was educated at Edinburgh University, where he graduated as M.B. and Ch.B. in 1911. Entering the navy on April 3rd, 1914, six months later he was posted to H.M.S. *Emperor of India*, flagship of Rear-Admiral A. L. Duff, in the Grand Fleet. In September, 1916, he was appointed to the Naval Hospital, Malta, and served there till the end of the war. In February, 1920, he was posted to H.M.S. *Truro*, in the mine-sweeping flotilla. He was promoted to surgeon lieutenant-commander in that year, and retired, owing to ill health, on April 3rd, 1921.

Colonel Thomas James Hackett Wilkins, Madras Medical Service (ret.), died at Mongeham Lodge, Great Mongeham, near Deal, on November 15th, aged 79. He was born on October 6th, 1850, at San Thomé, Madras, the son of the late Thomas Wilkins of the Registrar's Office, High Court, was educated at Edinburgh, and took the Licence of the Scottish Colleges in 1875. Entering the I.M.S. as surgeon on September 30th, 1873, he attained the rank of colonel on June 30th, 1905, and retired on June 30th, 1908. He served in the Burma campaign of 1885-86, with the Tunghu-Nyaingyan column, took part in the storming of Aylak, and the action at Neybeyagown, and received the medal with a clasp. He received the C.B.E. on January 1st, 1920, for service at home in the late war.

Lieut.-Colonel Christian Bernard Hunter, Bengal Medical Service (ret.), died at Sharcot House, Pewsey, Wilts, on November 13th, aged 77. He was born on December 8th, 1851, the son of the Rev. Thomas Hunter of Chesterfield, Derbyshire, was educated at University College, London, and took the M.R.C.S. in 1877 and the L.R.C.P.Lond. in 1878. Entering the I.M.S. as surgeon on March 31st, 1879, he became lieutenant-colonel after twenty years' service, and retired on April 15th, 1900. He spent all his service as a regimental surgeon. He served in the Afghan war of 1878-80 (medal), and on the North-West Frontier of India in the Zhob Valley expedition of 1890, and in the two Miranzai campaigns in 1891 (medal with clasp).

Medical Notes in Parliament.

[From our Parliamentary Correspondent.]

Early in the week the text of the Government's Mental Treatment Bill (referred to elsewhere at page 1019) was published in readiness for a second reading debate on it in the House of Lords on November 28th.

On November 25th the House of Commons read the Unemployment Insurance Bill a second time. A long debate in committee on the Expiring Laws Continuance Bill delayed next night the discussion on the second reading of the Highlands and Islands (Medical Service) Additional Grant Bill. On November 28th the Committee stage of the Unemployment Insurance Bill was due to begin.

The Parliamentary Medical Committee met on November 26th, Dr. Salter presiding. The Committee decided to discuss, on a later occasion, milk, and the presence of tuberculosis in milk. It further agreed to discuss incipient insanity, at its next meeting on December 10th, when a medical officer from the Board of Control will be invited to attend. At this meeting, on November 26th, the Committee was addressed by Sir George Newman, chief medical officer of the Ministry of Health, and by Dr. Hutchinson, head of the Infectious Diseases Department of the Ministry. These spoke on the present position of small-pox and vaccination in England and Wales, the incidence of the disease, its mortality, and its relation to encephalitis. The Committee then discussed the desirability of compulsory vaccination, but there was no attempt to take any decision.

The Medical Committee is visiting research institutions near London this week.

Milk in the Dietary of Children.

On November 26th Dr. ELLIOT asked leave to introduce the Education (Scotland) Bill, to enable education authorities in Scotland to incur expenditure in supplying milk to children attending schools within their area. He said that it had been clearly shown during the last few years that, although a diet might be adequate in amount and might even contain all that was supposed to be necessary to produce a healthy full-grown creature, yet, if small quantities of certain substances were lacking from that diet a growing creature—be it child or animal—would not reach full maturity. The work done on what were known as vitamins was a striking example of that. On the lines of experments carried out in the United States of America and elsewhere, experiments had been made into the value of adding a small quantity of milk to the daily ration, first of all of animals and afterwards of growing children. Very interesting and remarkable results had been obtained. These experiments were carried further in this country by the Medical Research Council, which, in 1926, made a series of tests on boys under more or less controlled conditions and under the management and scientific supervision of Dr. Corry Mann. Those tests showed quite clearly a remarkable increase in growth, health, and even in the intelligence of the growing children who received the daily ration of milk.

The Scottish administration, with which he (Dr. Elliot) was then associated, brought the results of the experiments to the notice of the Empire Marketing Board on the ground that they should apply them in Scotland and elsewhere in the United Kingdom as affording an admirable chance of encouraging the use of home produce. In the case of fresh milk, the home producer had a preference and advantage over other producers of which it was impossible to deprive him. Thus, in this connexion, an opportunity was afforded of improving the health of the nation and of stimulating home production, especially in the field of agriculture. Accordingly a grant was made from the Empire Marketing Board, and tests were conducted over a period of two years. In 1926 and 1927 really striking and remarkable results were obtained. It was thought desirable not to publish those results at once, but to verify them by repeat tests. The tests were carried out in seven Scottish centres of population—Peterhead, Aberdeen, Dundee, Edinburgh, Glasgow, Greenock, Paisley, and also in Northern Ireland in the city of Belfast. Two thousand children were under observation. They were under full scientific supervision, conducted, in the first instance, by Dr. Orr of the Rowett Institute and Dr. Cruickshank of the Board of Health; and, in the second instance, by Dr. Leighton and his assistants of the Board of Health, now the Department of Health for Scotland.

The results of these tests showed that a small ration of milk added to the diet of the ordinary school child in Scotland during seven months increased the height of the children who received it by a quarter of an inch, and their weight by three-quarters of a pound. An additional biscuit ration which was given as an alternative to the additional milk did not lead to any increase in growth, either in height or in weight, over the children who received no additional ration at all, which seemed to point quite clearly to the fact that those children were receiving sufficient food, but they were receiving food which was deficient in some respects, and the making up of that deficiency by a small ration of milk produced this surprising result of greater growth in height, increase in weight, and improvement in health. All observers said that there was a sleekness of the hair, a polished condition about the nails, and a certain boisterousness and a rebelliousness about the children on the milk diet which was not found in the children receiving the biscuit diet. The children were of all ages from 5 to 6 up to 13. This applied not merely to necessitous children, but to practically all children, and therefore it seemed that it was scientifically proved that the diet of the ordinary child could be greatly improved by a small alteration of quality. Milk occupied a position somewhere between a drug and a food, and a great many parents who came under no definition of necessity might reasonably find that by working in with a scheme of a local authority they could, either on payment of a proportion of the cost, or on payment of all the costs, ensure a great improvement in the health of their children.

The bill would have the immediate effect of modifying the rigid provisions requiring and demanding recovery of all the costs and the supply only in cases where the parent was proved to be absolutely negligent in his care of the health of his child. The cost of those things ran to something like 1d. per child per day. That was the full cost, but he did not suppose for a moment that the full cost in the case of every child would be borne by the local authority. He could not imagine any better form of investment, nor anything that would be of more immediate value to a child's chances in life. If they could make a healthy child he was certain that it would pick up a great deal of its own education, whereas an unhealthy child might receive no advantage from the most careful schooling they could possibly give it. They had other experiments of a converging kind, proving the benefit of this one. They were able to carry out a certain amount of milk feeding in Africa, where the same criticism of boisterousness and even of rebelliousness was brought against the children who had the milk ration.

The bill proposed that a local authority could incur expenditure on milk by submitting a scheme for the approval of the Departments of Health and of Education.

Leave was given to introduce the bill, which was brought in and read a first time.

National Insurance.

Medical Benefit.—Mr. MANSFIELD asked the Minister of Health, on November 21st, whether he proposed to amend the National Health Insurance Act to enable approved societies to get financial assistance towards the cost of any form of treatment—benefit or otherwise—which a member of less than five years' membership might require. Mr. GREENWOOD replied that an approved society which was found on valuation to have a disposable surplus might adopt a scheme for contributing towards the cost of dental, ophthalmic, hospital, or convalescent home treatment required by its members. The qualifying period from January next will be reduced to two and a half years on the average, as against five years in force hitherto.

Obligations of Panel Doctors.—Mr. ISAACS asked, on November 21st, whether members of approved national health insurance societies were often inconvenienced by panel doctors declining to issue a second certificate before the expiration of seven days following the first. He asked Mr. Greenwood to draw panel doctors' attention to the *Medical Benefit Consolidated Regulations*, 1923, which provided that the doctor, on request, should give the insured person, if still incapable of work, a second certificate not later than the seventh day after the first certificate. Mr. GREENWOOD said that he had not received any representations to this effect. Attention was frequently drawn to the obligations of panel doctors.

Dangerous Drugs.

Mr. CLYNES, replying to a question on November 25th, said that, after the coming into force of the Dangerous Drugs Acts, no cocaine was manufactured in Great Britain until 1928, when 1,047 ounces of cocaine and 3,887 ounces of the salts of cocaine were manufactured under Home Office licence.

Mr. Clynes told Mrs. Hamilton that the Health Committee of the League of Nations estimated (but with some qualifications) that in countries possessing a highly developed system of medical assistance the maximum requirements of opium and its alkaloids and derivatives for medical and scientific purposes were, in terms of raw opium with 10 per cent. morphine, 450 mg. per head per year, and of cocaine 7 mg. per head per year. Upon the basis of this calculation, and with an estimated population of 45,625,000, the maximum requirements of Great Britain and Northern Ireland were, in 1928, 45,263 lb. of raw opium and 704 lb. of cocaine. The quantities manufactured in Great Britain in 1928 of the drugs to which the Dangerous Drugs Acts applied were: 6,859 lb. of medicinal opium; 9,056 lb. of morphine and its salts, including 4,868 lb. used in the manufacture of derivatives of opium or morphine which were not within the Dangerous Drugs Acts; 675 lb. of diacetylmorphine and its salts; 308 lb. of cocaine and its salts. The quantities exported in 1928 were: raw opium, 15,955 lb.; medicinal opium, 3,394 lb.; morphine and its salts, 3,114 lb.; diacetylmorphine and its salts, 377 lb.; and cocaine and its salts, 278 lb. Figures were not available in regard to opium derivatives, which were not subject to the provisions of the Dangerous Drugs Acts.

In 1928-29 48,854 acres were under opium cultivation in British India, and 6,778 chests were exported, value 27,112,000 rupees.

Trypanosomiasis.—On November 20th Mr. LUNN said, in reply to Dr. Morgan, that the International Sleeping Sickness Commission appointed by the League of Nations for work in Uganda completed its work in June, 1927, and published its final report in March, 1928. An international conference held in Paris a year ago recommended that lines of investigation opened up by the Commission should be followed up by Governments concerned, with their own resources. Sleeping sickness problems were being investigated in Tanganyika, Nyasaland, Nigeria, and the Gold Coast as well as in Uganda.

Rheumatism in Children.—Dr. Davies was informed by Mr. GREENWOOD on November 21st that grants were available under the Maternity and Child Welfare Regulations for the experimental investigation and treatment of acute rheumatism in children under school age. Mr. Greenwood was advised that this disease was rare among young children. The Board of Education paid grants for similar purposes in the case of children of school age, and the Medical Research Council made grants for researches into rheumatism. Dr. FREMANTLE asked whether the efforts of the three departments concerned had been co-ordinated. He was told that they were within the knowledge of the three Ministers.

Encephalitis Lethargica and Crime.—Mr. CLYNES told Mr. Sorensen, on November 21st, that when persons thought to be suffering from encephalitis lethargica came before a criminal court a report on their medical history and present condition was made to the court. The decision on the action taken rested with the court. Replying further to Dr. Vernon Davies, who asked whether any steps were taken to inquire into previous medical history, Mr. Clynes said his answer implied that something in the nature of a medical history was brought into court.

Diseased Meat.—Replying to Mr. Kedward, on November 21st, Mr. GREENWOOD said he could not state the number of diseased carcasses of imported meat which were condemned as unfit for human consumption. He thought the present regulations sufficient to protect the public against the importation of diseased meat.

Tuberculous Milk.—Mr. GREENWOOD told Sir Rennell Rodd, on November 21st, that he was satisfied that local authorities exercised their powers of supervision and control over milk supplies in an efficient manner, having regard to the difficulties caused by the mixing of milk and the delays necessary in obtaining reports on the bacteriological examination. Infants' deaths from bovine tuberculosis traceable to milk would nevertheless continue to receive his careful attention. Dr. Davies thereupon asserted that bacteriological examination of milk for tubercle was hopelessly inadequate in England.

Adulteration of Milk.—Mr. GREENWOOD, on November 25th, stated that during 1928 the Ministry of Health corresponded with nineteen local authorities about the adequacy of the numbers of samples of milk taken for the purpose of checking adulteration. From most of these a sufficient explanation was forthcoming or arrangements had been made for more samples to be taken.

Preparation of Government Lymph.—Replying to Mr. Freeman, on November 21st, Mr. GREENWOOD said that Government lymph for vaccination was prepared at the Government lymph establishment at Hendon, and that 438 calves and 38 rabbits were used in its preparation in 1928.

Expert Medical Visitors to the Colonies.—On November 20th Mr. LUNN told Dr. Morgan that medical experts who had visited the Colonies during the last few years included Sir Wilfred Beveridge (Bahamas and other West Indian Islands), Dr. A. E. Horn (Cyprus), Dr. J. Hope Reford (Falkland Islands), Dr. A. T. Stanton, Chief Medical Adviser to the Secretary of State (Nigeria, Gold Coast, Sierra Leone, and Gambia); Lieut.-Colonel S. P. James (Kenya, Uganda, and Tanganyika). Mr. Lunn added that the reports of Sir Wilfred Beveridge and Dr. Horn were available, as the report of Colonel James would shortly be. This last was specially concerned with malarial problems. A commission of the League of Nations recently investigated the health problems of the Western Pacific Islands, and their report would soon be published. Mr. Lunn further told Dr. Morgan that the International Health Division of the Rockefeller Foundation continued to co-operate with the local medical authorities in investigations into yellow fever in Nigeria and other West African colonies. It also co-operated in malarial surveys in West Indian and Western Pacific Islands and in Palestine. Mr. Lunn hoped to extend the system of malarial surveys in co-operation with this organization.

Sleeping Accommodation in Public Mental Hospitals.—On November 19th Miss LAWRENCE, replying to Mr. Sorensen, said that on January 1st there was sleeping accommodation in bed space as prescribed by the Board of Control for 48,980 males and 60,649 females in public mental hospitals in England (excluding Monmouth). There were 47,902 male and 61,288 female patients resident. In Wales (with Monmouth) there was accommodation for 3,148 males and 3,015 females, and 3,362 males and 3,208 females were resident.

War Pensions.—On November 25th several questions were put to the Minister of Pensions concerning the new concessions to ex-service men who claim after the expiry of the seven years' limit. Answering Major Cohen, Mr. F. O. ROBERTS said he did not think it practicable or desirable now to define minutely the procedure on applications for pensions outside the limit. All applicants would be expressly invited by the area offices of the Ministry to state their cases in writing and to furnish evidence in support. Free use would be made of the advice of the independent medical experts nominated by the Presidents of the Colleges of Physicians and Surgeons in all cases where there was material conflict of evidence, including cases recommended after investigation by War Pensions Committees. The fullest weight would be given to the advice of these experts. He was, however, unable to bind himself to accept their opinion in every case. War Pensions Committees would, as far as possible, be made acquainted with the grounds for rejection of any case recommended by them, after investigation.

Refuse Dumps.—In an answer to Major Llewellin and Mr. Muggeridge, on November 21st, Mr. GREENWOOD said he had no power to compel local authorities to have refuse dumps covered. Replying to Dr. Fremantle, Mr. Greenwood said he had appointed Mr. Ernest Sanger to be chairman of the Departmental Committee of inquiry into the whole question of refuse disposal in the London area.

Pollution of Rivers.—The Joint Advisory Committee on River Pollution is particularly considering measures to prevent pollution by trade effluents.

Medical News.

THE annual dinner of the Yorkshire Glasgow Graduates' Association will be held in the Great Northern Hotel, Leeds, on Friday, December 6th, at 7 p.m. All graduates resident in Yorkshire or the surrounding areas are eligible for membership and are invited to the dinner. The guest of the evening will be Professor J. Graham Kerr, M.A., F.R.S. Further information may be obtained on application to the honorary secretary, Dr. W. MacAdam, 40, Park Street, Leeds.

THE annual meeting of the Royal Surgical Aid Society will be held at the Mansion House, London, on Tuesday, December 3rd, at 4 p.m., under the presidency of the Lord Mayor.

THE fifth lecture of the People's League of Health new series on racial and individual welfare will be delivered to-day (Friday, November 29th) at the house of the Medical Society of London, Chandos Street, W., at 6 p.m., by Dr. R. G. Gordon; his subject is, "What the State is doing for the individual and the race, and how such efforts may be amplified."

THE Fellowship of Medicine announces that a lecture, entitled "Aches and pains in the throat," will be given by Mr. Harold Kisch in the lecture room of the Medical Society of London, 11, Chandos Street, W.1, on Monday, December 2nd, at 5 p.m.; the lecture is free to medical practitioners. On Tuesday, December 3rd, at 8.30 p.m., Dr. Kinnier Wilson will lecture on fits; their varieties, pathogenesis, and relation to narcolepsy, catalepsy, syncope, etc. On Friday, December 6th, at 8.30 p.m., Dr. Knyvett Gordon will give, at 10, Bedford Square, W.C.1, the last of the M.R.C.P. special course lectures arranged by the Fellowship of Medicine; his subject, "The diagnosis of bacterial infection," will be illustrated by the epidiascope, and the lecture will be followed by a laboratory demonstration. The following three special afternoon courses will begin on December 2nd, each lasting for two weeks: a course at the Infants Hospital, of interest to those engaged in infant welfare work; an afternoon course in dermatology at the Hospital for Diseases of the Skin, Blackfriars Road; and a general practitioners' course at the London Temperance Hospital, from 4 to 5.45 o'clock. Detailed syllabuses of all courses, the list of special courses for 1930, and particulars of the general course, consisting of the clinical practice of the associated hospitals, may be obtained from the secretary of the Fellowship, 1, Wimpole Street, W.1.

A COMMEMORATION service in connexion with the 150th anniversary of the General Hospital, Birmingham, will be held at the Cathedral Church, Birmingham, on Tuesday, December 10th, at 12 noon, when the Archdeacon of Ludlow (Dr. Edwin B. Bartleet) will preach. At 2.15 p.m. on the same day Sir Gilbert Barling will take the chair and orations will be given in the out-patients' hall of the hospital by Professor K. F. Wenckebach of Vienna and Lord Moynihan, president of the Royal College of Surgeons of England. Past and present students of the Birmingham Medical School are invited to be present; academic dress will be worn.

FOR some considerable time there has been a hostel at 22, Highbury Quadrant, which has been conducted in association with the Royal Free Hospital for the treatment of pregnant women suffering from venereal disease. The work has been so successful that it has been found necessary to acquire the adjoining house, and to equip it for the same purpose at a total cost of nearly £4,000, of which over £2,700 has been received in the form of donations. The new hostel was formally opened on October 28th, by Lord Riddell, president of the Royal Free Hospital, who delivered an address on the connexion between hospitals and hostels. Dr. Letitia Fairfield also gave a lecture on the place of voluntary work in the venereal diseases scheme.

THE Ministry of Health has issued the report of a committee representing various public bodies which was appointed some time ago to discuss the question of technique in carrying out chemical analyses of sewage and sewage effluents. The report (price 2s. 6d., H.M. Stationery Office) is designed to assist those who are engaged in testing the purity of effluents from sewage disposal works and rivers. It deals with: (1) methods for carrying out tests for sewage and sewage effluents and methods of expressing results; (2) tests to be included in all analyses; (3) tests appropriate for use at small sewage works. The Royal Commission on Sewage Disposal, which sat from 1898 to 1915, did a large amount of work on methods of analysis, and in suggesting the best methods which might be adopted the present committee has built upon that work.

AN international exhibition of hygiene, in which nineteen countries will be represented, will be opened at Dresden on May 17th, 1930.

UNDER the chairmanship of Major-General Sir William ..., members of the Irish Medical Schools' and ... Association and their guests dined together at the Savoy Hotel, London, on November 21st. After the loyal toasts had been honoured, Dr. W. J. Corbett proposed the ... of the visitors, making special reference to Sir John ... Lady Lavery, and to Lord Shannon, who were the guests of the evening. In the modern renaissance of art, he said, Irishmen were playing no small part: George Bernard Shaw ...s an Irishman; so was George Moore, the greatest living ... of English prose. In painting, Ireland was repre-...ted by Orpen, Jack Yeats, Shannon, and their distin-... guest, Sir John Lavery. He could never despair of the present age when he remembered that it had produced such men as these, creators of beauty, whose work enriched not only our lives but would enrich the lives of generations yet to come. In reply Sir John Lavery said that artists had much in common with doctors. Both were subjected to much criticism, and everybody felt competent to teach them how they should really do their jobs. One of his first commissions, he said, had been to paint the portrait of a well-known throat specialist, himself a painter of some distinction, and at a certain stage of the work he asked the specialist for his comments. "I never permit my patients to prescribe for me," replied the specialist. This wise remark, said Sir John, had influenced him deeply; he never allowed his patients to prescribe for him. Dr. W. P. Kennedy, in proposing the toast of "The President and Association," said that although the association had been founded fifty-one years ago, three of the original members were still living. By its means Irishmen in England were able to meet together in good fellowship, to form valuable friendships, and to help each other as compatriots should. The association had been a pioneer in admitting women guests to its dinners and women graduates to its fellowship. The President, in his reply, reminded his audience that Colonel James Henry Reynolds, late of the Royal Army Medical Corps, the senior V.C. in the Army, was an Irishman, and that in India they were proud to have two Irish Generals, both of whom were V.C.'s. During the evening Mr. Patrick Hughes, Miss Eileen Ledlie, Miss Agnes MacHale, and Miss Ballam provided an attractive musical programme.

DR. WILLIAM FOSTER, who has been medical officer of health for Shipley for the past thirty-four years, and has just retired, was entertained to dinner at the Victoria Hotel, Bradford, on November 20th, by the medical practitioners of Shipley and Baildon, when he was presented with an inscribed silver bowl. Dr. Foster has been a member of the British Medical Association for many years, and has won great popularity by the way in which he has co-operated closely with general practitioners in the advancement of public health.

THE tenth Belgian Congress of Neurology and Psychiatry will be held at Liège under the presidency of Professor X. Francotte on July 26th and 27th, 1930, when the following subjects will be discussed: angioneuroses, introduced by MM. Divry and Moreau of Liège, and congenital disturbances of speech, introduced by M. Jacques Ley of Brussels. Further information can be obtained from the secretary, Dr. Leroy, 30, Rue Hemricourt, Liège.

WE have received from the dental unit of the Papworth Village Settlement the report of an investigation by Dr. L. B. Stott and Mr. W. Baird Grandison into the effect of toxaemia on enamel formation. The subjects of investigation were the tuberculous adults living in the Settlement, children with tuberculosis or with a tuberculous history, and 40 children born in the Settlement of tuberculous parents but themselves free from the disease. The authors conclude that calcification and decalcification depend on factors associated with metabolic changes resulting from toxaemia; that toxaemia occurring at a time corresponding to the calcification of enamel will check that process and result in the production of hypoplasia, and that a renewal in the activity of an infective disease will cause a corresponding breakdown of enamel, with subsequent caries. Sir Humphry Rolleston, who contributes a preface, commends the critical acumen with which the work has been carried out, and expresses the hope that the authors will publish further observations on the influence of tuberculosis on the development of teeth.

DR. HERMAN LAWRENCE has published a sequel to his article on the relation of prolonged sunshine and atmospheric humidity to the prevalence of skin cancer in Australia; we commented on his conclusions on January 19th (p. 119). His second article is published in the *Health Bulletin*—a quarterly journal issued by the Australian Commission of Public Health—and in it a comparison is drawn between the conditions in this respect in the United States of America and those in Australia. Dr. Lawrence pleads for more prompt treatment of the early manifestations of chronic solar irritations, particularly of the hyperkeratoses, and he recommends the use of the Grenz rays, salicylic acid, and a modification of Darier's quinine application.

THE Health and Cleanliness Council has recently published as a booklet a propaganda play entitled "The Giant Killer," which has been written by George and Una Bence with the aim of imparting hygienic instruction in a form palatable to young children. The booklet contains music for the songs and dance which are included in the play, together with simple notes on costumes and production. Copies of the play may be obtained, free of charge, on application to the secretary, Health and Cleanliness Council, 5, Tavistock Square, London, W.C.1.

THE November issue of the *Deutsche Zeitschrift für Chirurgie* has been dedicated by the editor and publishers to Professor Emil Kütter, professor of surgery at Marburg, honorary member of the German Society of Surgery, author of numerous surgical works, and a pioneer of antisepsis in Germany, on the occasion of his 90th birthday.

A REVISED list of English-speaking medical practitioners in various towns on the continent of Europe and in Northern Africa has been compiled by the Continental Anglo-American Medical Society, and may be obtained, free of charge, upon application to the secretary of the society, Dr. B. Sherwood-Dunn, 54, Boulevard Victor-Hugo, Nice.

THE Professional Classes Aid Council was formed during the war, and the British Medical Association is officially represented on it by Mr. Bishop Harman. The council's report for the year 1928-29 again emphasizes the council's ... records especially the ... children whose parents ... of students, grants in illness, and gifts of clothes are provided, and an advisory branch is of great value in directing applicants into the right channels for obtaining help. The utmost care is taken in co-operating amicably with other societies. The finances are satisfactory, but subscriptions remain very small in proportion to donations.

DURING her recent visit to Washington, Madame Curie received from President Hoover the sum of 50,000 dollars, which had been collected by American women to buy one gram of radium in Belgium for the Curie Cancer Hospital in Warsaw.

DR. A. G. WHITAKER'S retirement from practice at Evershot, after twenty-two years, was made the opportunity of presenting him with a cheque for £458 from five hundred subscribers as a mark of their esteem. In the absence of Dr. Whitaker through ill health Lady Ilchester handed the cheque to Mrs. Whitaker.

DR. T. N. KELYNACK, after nearly twenty-eight years' service as a physician on the acting staff of the Mount Vernon Hospital, has been appointed a consulting physician, an honorary life governor, and a member of the council of management of the hospital.

PROFESSOR HUGO SPITZY of Vienna has been made a corresponding member of the American Orthopaedic Association; Professor E. Hoffmann, director of the Skin Clinic at Bonn University, has been made an honorary member of the Japanese Society of Syphilology; and Professor Louis Pousep, director of the Neurological Clinic at Tartu, has been nominated Doctor honoris causa of the Stephen Bartorii University of Vilna, and corresponding member of the Portuguese Academy of Sciences and the Brazilian Society of Neurology and Psychiatry.

THE following appointments have recently been made in foreign faculties of medicine: Professor Walther Frey, director of the medical department of the Catherine Hospital at Stuttgart, as successor to Professor Sahli in the chair of internal medicine at Berne; Dr. Emil Gotschlich, professor of hygiene and microbiology at Heidelberg; Dr. Broemser of Basle, professor of physiology at Heidelberg; Dr. Maurice Favreau, professor of clinical obstetrics at Lille; and Dr. Ernest Gellhorn, professor of physiology at Halle, associate professor of physiology in the department of animal biology of the State University of Oregon.

DURING the year 1927-28 the German people spent 4,058,000,000 marks on beverage alcohol, or 74 marks per head, of which 43 marks were spent on beer, 13 marks on brandy, and 8 marks on wine. The increase in expenditure for 1928 on alcohol over that for 1927 was 358,000,000 marks.

WE regret to learn, at the moment of going to press, of the sudden death, on November 27th, of Lieut.-General Sir Arthur Sloggett, K.C.B., K.C.M.G., K.C.V.O., who was Director-General of Medical Services, British Armies in the Field, from September, 1914, to June, 1918. We hope to publish an obituary notice in next week's issue.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBERS** of the British Medical Association and the *British Medical Journal* are *MUSEUM 9861, 9862, 9863, and 9864* (internal exchange, four lines).

The **TELEGRAPHIC ADDRESSES** are:

EDITOR of the *British Medical Journal, Aitiology Westcent, London.*

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*

MEDICAL SECRETARY, *Mediscia Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone 24361 Edinburgh).

QUERIES AND ANSWERS.

STIMULATION OF BREAST SECRETION.

DR. L. L. STELLE (Blyth) writes: I have a patient who is very anxious to feed her baby, aged 1 month, at the breast, but the milk is slowly diminishing. She has had lactagol, a generous diet, including groats, a liberal supply of milk, and stout. Perhaps some of your readers know of a more efficacious method of increasing the supply of milk; I should be very grateful for information.

DENTAL ANAESTHESIA FOR CHILDREN.

"W. D." asks for advice as to the best anaesthetic to give to children and young people for extracting teeth. He writes: Ether, I know, is the safest, but unpleasant; using ethyl chloride first they almost come round at commencement of the ether sequence. Even mitigated chloroform I have been taught is dangerous. Open ether takes so long to get them under (which dentists resent); a Clover smallest face-piece is too large, and, also, the apparatus frightens them.

INCOME TAX.

Contributions to Superannuation Fund.

"DEPUTY M.O.H." is in the public health service and is contributing to the superannua[illegible] proceeding to a new appointment, and [illegible] paid back to him. Are these refunded [illegible] charged to income tax?

*** Our correspondent does not specify the Act of Parliament under which his contributions have been required, but no doubt he will find that his case will follow the course normal in such circumstances—that is, he will *not* be regarded as liable to be charged to income tax, but when the refunded contributions are paid to him there will be deducted the amount of tax of which he was relieved by reason of the payments of his contributions—which, after all, seems fair enough, as, in effect, those payments will now be cancelled by the refund to be made.

Allowances to Sister-in-Law.

"B. F. J." finds it desirable to make his sister-in-law an allowance of £25 a year. Can he do so in such a way as to avoid paying income tax on that amount?

*** Yes, provided that he places on himself the *legal* obligation of making the payment; in such circumstances the £25 a year will become the income of his sister-in-law and not of himself. The best method is to execute a deed binding himself to pay £25 a year—for example, in quarterly sums—during the joint lives of his sister-in-law and himself, or for a period of seven years, whichever be the less. It is essential that he should not retain a power of revocation, and that the legal obligation should not terminate after a shorter period than their joint lives or six years. No doubt the phraseology of the deeds in use by charitable bodies will assist him in drafting the necessary deed.

LETTERS, NOTES, ETC.

ROSS AWARD FUND.

SIR JAMES BAIR, chairman of the Ross Award Fund Committee, writes: Those of your readers who have subscribed to this fund will be interested to hear that the officer commanding the 1st Battalion, the Sikh Regiment, at Razmak, Waziristan, has sent a cheque for £15, the amount having been chiefly subscribed by the men of that battalion, who willingly gave it from their pay. The O.C. explains that this fund is of particular interest to the battalion because not only did Sir Ronald's father, General Sir Campbell Ross, command the battalion as Colonel (it was known as the 14th Sikhs, when Sir Ronald was born in India), but also Sir Ronald's brother, Captain C. Ross, was killed while serving with this battalion during the Chitral campaign. Your readers will be further interested to know that the fund has now reached £10,619 3s. 7d., of which the *Straits Times*, Singapore, has contributed £3,362 19s. 10d. and the *Malayan Daily Express* Fund £75 15s. 4d. Donations should be sent to Lloyds Bank, Ltd., 110, High Street, Putney, S.W.15.

TUBERCULOSIS MORTALITY.

DR. W. CAMAC WILKINSON (London, W.) writes: In a lecture at Edinburgh on November 6th, so says your *Journal*, November 23rd (p. 978), Dr. Harley Williams is credited with saying: "In Scotland at the present day no fewer than one person out of every three between the critical ages of 15 and 25 died from tuberculosis." If this be true there is no hope of realizing in Scotland the later statement that "during the lifetime of many present-day persons tuberculosis would be reduced to negligible proportions." The wish is merely father to the thought.

MOTORIST'S HEEL.

MR. A. P. BERTWISTLE, F.R.C.S.Ed., writes: I am sorry to have missed "G. F. P.'s" reply on this subject (November 23rd, p. 992); his personal description fits in exactly with mine. I feel sure, however, that the pain is fascial in character because it comes on the morning after the run, and is most marked at the origin of the plantar fascia. It is similar in the former respect to the stiffness of the neck which develops the day after sitting in a draught, or that after unaccustomed exercise; both start the morning following. I consider "*Notes and Queries*" a most useful feature of the *Journal*. True, one sometimes draws a blank, but often one gets most interesting personal replies.

ASTHMA TREATED BY COUNTER-IRRITATION.

DR. W. J. MIDDLTON (Bournemouth) writes to say that he has for many years treated asthma by means of continuous counter-irritation, with gratifying results. Since there is no concensus of opinion as to the etiology of asthma, he holds that any remedy which gives practical results is well worthy of consideration. He has no doubt that in a large percentage of the cases there is an underlying tuberculous element. His procedure is to make "a few dots by means of the galvano-cautery near the cervical enlargement of the spinal cord," or to employ multiple superficial acupuncture near the spinal column, followed by the application of a croton oil and cantharides mixture over the punctures.

SALT DEPLETION BY SWEATING.

DR. E. LUDOWICI, F.C.S.A. (Sydney, Australia), writes: The remarks on salt depletion by sweating, in the *Journal* of September 7th (p. 469), confirm the *view of men engaged* in bush work in Australia—that arduous [illegible] a diet of salt beef or mutton than [illegible] reputed to cause griping, so that [illegible] staple drink. [illegible] avoid plain wate[illegible] not have a gripi[illegible] and extractives,

A MISSING WORD.

OUR attention has been called to the unfinished state of the review published under the heading "*Health of British Troops in India*," in the *Journal* of November 16th (p. 910). It is obvious that something is missing at the end. This consists of only one word, and those who have wondered how many antimio[illegible] *tutes there are* in India will be interested to know that the missing word is "four." It apparently got lost on its way to press, for it was in its place in earlier proofs.

DR. W. EDWARDS (Norbury, S.W.) writes to say that the apparatus [illegible] examins, described by him on October 25th [illegible] the market by Messrs. S. Maw, Son, and [illegible] Street, E.C.

WE have received a reprint from the *Sydney University Medical Journal* for 1928 of an article by Dr. W. Stewart McKay on the anatomy and poison of the *dog tick* (*Ixodes holocyclus*), based on an experience with his own dog, in which suitable treatment was followed by recovery.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 42, 43, 44, 45, 48, 49, 50, 51, and 52 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 46 and 47.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement at page 243.*

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

479. Nervous Complications of Whooping-cough.

W. G. SEARS (*Brit. Journ. Child. Dis.*, July–September, 1929, p. 178), who records three illustrative cases in children aged 11 months, 3 years, and 5¼ years respectively, adopts the following classification of the nervous complications of whooping-cough: (1) convulsions or spasm of the glottis; (2) paralysis, which may be of the cerebral type and motor or sensory, or of the spinal type, spastic or flaccid; (3) meningeal syndrome and meningo-encephalitis; (4) peripheral neuritis; (5) mental and other nervous changes, including hysteria, hypochondria, melancholia, epilepsy, and dementia. The prognosis of all cases of pertussis with nervous complications is grave; a large number of those with convulsions associated with broncho-pneumonia are fatal, as is usually spasm of the glottis. In Valentine's series of 64 cases of paralysis in whooping-cough death ensued in 14, in 22 there was permanent damage, and in 28 recovery was complete. Of the paralyses which persist some remain flaccid, others become spastic or give rise to contractures, and athetoid or choreiform movements may arise in the affected limbs. Sears concludes that the primary cause in all the types of nervous complications in whooping-cough is a toxic one, and that a meningo-encephalitis is the primary lesion. Of his three cases the first was a male infant, aged 3 months, who developed right hemiplegia in the third week; the other two were a girl and a boy, aged 3 and 5 years respectively, with
developed within t
was eventually complete in an.

480. Pneumonic Infiltrations in Measles.

SUCCESSIVE skiagrams of the chest were taken of 130 children aged from 7 months to 12 years admitted to the Willard Parker Hospital, New York, with measles, and J. L. KOHN and H. KOIRANSKY (*Amer. Jour. Dis. Child.*, August, 1929, p. 258) report that pneumonic infiltrations, which were present in 62.4 per cent. of the children under the age of 4, and in 42.2 per cent. of those of 4 years old and over, were seen for the first time in the skiagrams in the pre-eruptive, eruptive, and post-eruptive stages. The infiltrations were of three types: (1) large homogeneous triangles; (2) large homogeneous opacities obscuring the hilar and paravertebral regions; and (3) disseminated confluent fine and coarse mottling in various areas of the lung field. A common site for the disseminated type was the cardiophrenic angles. The most frequent site of infiltration was the right lower lobe, and then, in order of frequency, the right upper, the left lower, and the right upper and right middle lobes. In most cases the infiltration was most dense as the rash was fading or in the post-eruptive stage; 79.2 per cent. of the cases in which no infiltrations were observed were clinically mild, as compared with 44.4 per cent. of those with pulmonary infiltrations. Of those patients who showed no pulmonary infiltration in the skiagram, 14 per cent. gave physical signs of bronchial or pulmonary involvement, as compared with 47 per cent. of the pneumonic group. The pneumonic shadows persisted for from two to four weeks after their first appearance. Abnormal intensity of the pulmonary markings was present in 80 per cent.; these were usually most intense during the height of the eruption. In 26.2 per cent. of all cases there was an interlobar shadow, which was seen only during the later stages of the disease, between the right upper and lower lobes of the lung. In 74 per cent. of all the cases there was a large and dense hilar shadow, which in 35 cases progressed and retrogressed while under observation. In 20 per cent. of the cases nothing abnormal was observed in the skiagram.

481. Primary Cutaneous Gonorrhoeal Infection.

V. GENNER and P. SCHULTZER (*Ann. de Derm. et de Syph.*, August, 1929, p. 856) report the case of a medical practitioner who, while retracting a gonorrhoeal prepuce, was slightly scratched by the patient's thumb; the hand was washed in soap and alcohol. Thirty hours later there was slight lymphangitis along the arm, followed by a small infiltration on the thumb, which on being incised two days later, gave vent to some serum. As the lymphangitis spread larger incisions were made, and some pus was found containing intracellular diplococci resembling gonococci. Later on severe articular pains set in affecting the shoulder; these were followed by involvement of the knees and considerable fever. Examination of the blood for the complement deviation test confirmed the existence of a gonococcal infection. As soon as the active joint symptoms ceased massage was used, and in spite of a long illness (from October to February) full use of the joints was recovered. There was never any suspicion that the disease was a septicaemia properly so called. The joint affections were typically blennorrhagic in character, being monarticular at the onset, spreading secondarily to other joints, muscles, and bursae, and finishing as a resistant sero-fibrinous arthritis of the knees.

482. Etiology of Striae Cutis Distensae.

F. LASCH (*Derm. Woch.*, July 6th, 1929, p. 978) reviews the literature, including the case reported by J. D. Rolleston (see *Epitome*, December 17th, 1927, para. 564), and records a case in a woman, aged 26, the subject of disseminated sclerosis; eight weeks after treatment with typhoid vaccine about six typical bluish-red stripes, measuring 5 cm. long and 1/2 cm. broad, appeared on each buttock. Since mechanical causes and disturbance of internal secretion could be excluded, the occurrence of the striae was attributed to the toxic action of the typhoid vaccine on the elastic tissue of the skin, as in the case of typhoid fever, which is one of the most frequent causes of striae cutis distensae and of the localized form, striae patellares. The time of appearance of the striae after the injection of typhoid vaccine also corresponded with the date of their appearance after typhoid—namely, forty-three days (Rolleston), three months (Benartowicz), and eleven weeks (Strasser).

483. Rheumatism with a Prostatic Focus.

PAZOS DE DIEGO (*La med. Ibera*, September 7th, 1929, p. 242), after quoting the statement of Tapia and Marañón that the conception of focal rheumatism is perhaps the most important idea introduced into the pathology of rheumatism of recent years, records two cases in men, aged 48 and 44 respectively, who had had rheumatism for many years. On examination they were found to be suffering from chronic prostatitis. Rapid disappearance of the rheumatism ensued after the prostatitis had been successfully treated by massage and irrigation.

Surgery.

484. Lung Abscess.

F. R. HERRIMAN and F. WELKER (*Med. Journ. and Record*, October 2nd, 1929, p. 361) advocate the treatment of lung abscess by aspiration and cleansing of the cavity, the bronchoscope affording a safe and generally efficient means of establishing drainage. They consider that surgery should be employed only in those cases in which bronchoscopic treatment has been tried and failed, and that when it is found necessary there should be the fullest co-operation between the internist, roentgenologist, pathologist, bronchoscopist, and surgeon. An hour before the operation an injection of morphine and atropine is given; under local anaesthesia the tube of the bronchoscope is passed, and any bleeding is controlled by the application of adrenaline solution. The tube is inserted into the bronchus of the suspected lung and a search is made for the tributary draining the abscess cavity; a cannula is introduced into this, and the pus is evacuated by suction. The cavity is then washed out with normal saline solution, and one or two drachms of a 25 per cent. argyrol solution are instilled. In long-standing conditions several such treatments may be necessary to effect any substantial improvement, but a gain in the patient's general condition is often noted soon after the first of these. In the experience of the authors the procedure is well borne and successful; contraindications for its use include fulminating suppurative pulmonitis, likelihood of the abscess rupturing into the pleural cavity, organic cardio-vascular disease with marked hypertension, recent severe pulmonary haemorrhage, intercurrent tracheo-bronchitis, and the presence of multiple abscesses.

485. Cholesterosis of the Gall-bladder.

C. F. W. ILLINGWORTH (*Brit. Journ. Surg.*, October, 1929, p. 203) describes two types of cholesterosis, the most common being the "strawberry" change in which the infiltration is widespread, and the rarer type in which localized deposits of cholesterol occur in small polypoidal projections of mucous membrane, "cholesterol polypi"; the two types are often associated. In the first the mucous membrane of the gall-bladder is congested and deep red, with innumerable tiny specks of yellow. The epithelium and stroma of the mucous

membrane is also infiltrated with lipoids and especially with cholesterol; in the stroma a characteristic feature is the presence of large foamy cells of endothelial origin. Cholesterosis is a condition chiefly of middle life, and is usually associated with cholecystitis and gall-stones. The symptoms are very varied, the majority of cases giving no indication that there is cholesterosis present, since the local signs are merely those of chronic cholecystitis. The cholesterol content of the blood is raised in some cases. Cholecystography, which indicates the presence of gross chronic cholecystitis or of stones, is of value in the diagnosis. Treatment by cholecystectomy gives good results, and six patients with uncomplicated cholesterosis who were so treated remained free from any recurrence of the severe symptoms from which they were suffering before operation. Experiments indicate that cholesterosis is brought about by a prolonged state of hypercholesterolaemia associated with a mild chronic bacterial cholecystitis. It results from two essential primary changes: an increase in the cholesterol content of the bile which leads to the absorption of cholesterol into the mucous membrane of the gall-bladder; and, secondly, a change in the physical and chemical state of the absorbed but invisible cholesterol which renders it optically active and recognizable, and which, by preventing its transport, leads to its accumulation in the wall of the gall-bladder.

486. Dysinsulinism due to a Pancreatic Tumour.

G. HOWLAND, W. R. CAMPBELL, E. J. MALTBY, and W. L. ROBINSON (*Journ. Amer. Med. Assoc.*, August 31st, 1929, p. 674) report a case which, from the history of convulsions and coma, the hypoglycaemia, and the cure of the condition, they feel justified in considering to be one of dysinsulinism. A married woman, aged 52, had for six years suffered from attacks of coma and convulsions, which increased in frequency; they could generally be warded off by the administration of food, and were found to be due to low blood sugar levels. While the patient was in hospital there was an erratic response to carbohydrate administration. Frequent attacks of convulsions and coma were the outstanding features, and suggested a neurological disorder. They actually proved to be a somewhat unusual manifestation of an excessive liberation of insulin resulting in a hypoglycaemia, and a pancreatic tumour measuring 1.5 cm. in diameter was removed. Histological examination showed that it was a carcinoma of the islets of Langerhans; insulin was recovered from the tumour mass. No metastases were found. During the fourteen weeks following the operation there was no clinical evidence, subjective or objective, of the recurrence of the attacks in any form.

487. Technique in Cholecystectomy.

F. H. LAHEY (*New England Journ. of Med.*, September 12th, 1929, p. 522) stresses the importance in cholecystectomy of the careful dissection of the cystic duct for its thorough exposure throughout its entire length. He asserts that the most common cause of stricture of the main bile ducts is operative trauma at two points—one in the hepatic duct where the cystic artery crosses it at its origin from the hepatic artery, and the other where the cystic duct joins the common duct. In order that an adequate mobilization and demonstration of the junction of the cystic, common, and hepatic ducts may be made possible, the author advises tying and dividing the cystic artery in all cases after carefully separating it from the cystic duct. The reason for such a procedure is that, the artery being considerably shorter than the duct, its preliminary ligation and division allows a much freer field for the exposure of the hepatic and common ducts, and of the angle between the hepatic and cystic ducts. Without such ligation there is the danger of the artery being torn when upward traction is made, owing to the fact that, the artery being the shorter, all the strain of upward traction upon the duct comes upon it rather than upon the duct. The procedure also makes the demonstration of a small stone at the junction of the cystic and hepatic and common ducts easier, prevents injury to the hepatic artery, and permits accurate clamping of the cystic duct at the proper distance from the common and hepatic ducts.

488. The Surgical Treatment of Diabetes.

M. DONATI (*Arch. Ital. di Chir.*, July, 1929, p. 357) records a case of diabetes treated by excision of the nerve supply to the left suprarenal gland. A woman, aged 54, had suffered from diabetes for seven months; there was 22 per cent. of sugar in the urine and 2·85 per cent. glycaemia. Under insulin (80 units per diem) the glycosuria disappeared and the glycaemia dropped to 1.8 per cent. An injection of insulin was given on May 16th, and on the following day the left suprarenal was exposed; the nerves were resected and their ends touched with 4 per cent. carbolic acid. After the operation the patient was given the ordinary hospital diet including carbohydrates, when the glycaemia rose to 2.1 per cent. and the glycosuria to 18 per cent. From May 31st to June 12th progressively diminishing doses of insulin were given, and from June 12th to the present time its administration ceased. Donati reports that in spite of a diet rich in carbohydrates, there is now no glycosuria and the glycaemia is 1.2 per cent. The amount of urine passed daily has decreased from 1,350 c.cm. before the operation to 450 c.cm., and the thirst and other functional symptoms have disappeared.

Therapeutics.

489. Treatment of Exophthalmic Goitre.

REVIEWING the various methods employed in the treatment of exophthalmic goitre, P. SAINTON (*Journ. de Méd. et de Chir.*, October 10th, 1929, p. 685) points out that the syndrome of this disease is a neuro-endocrine complex in which probably a hyper- or dys-secretion, or at least a paradoxical hypersecretion of the gland and changes in the vago-sympathetic system occur. Treatment is purely symptomatic, and is of two types—that of the nervous and that of the thyroid element. Each case demands individual study, based on the following considerations: examination of the gland as to its volume, form, and consistency; manifestations of a neurovascular order—exophthalmia, tachycardia, and vasomotor and psychic troubles; the effect of the disease on metabolism, especially the basal metabolism; and the conditions synchronizing with the appearance of the syndrome—namely, the duration of the goitre, heredity, puberty, and the menopause. The disease can then be diagnosed as true primary exophthalmic goitre, adenomatous goitre, or as an infectious, congestive, endocrine, or merely a reflex reaction. The nervous treatment is general (of the psychic state), or local (of the sympathetic system). General measures include absolute physical and mental rest, with which various forms of hydrotherapy may well be combined. Sedatives such as valerian and the bromides are also useful. Vago-sympathetic treatment may be medical, surgical, or physical. Among the medicaments are the quinine salts and ergotamine tartrate. Surgical measures employed are resection of the cervical sympathetic and of the stellate ganglion. Various forms of electrical treatment have given good results if combined with radiotherapy. Treatment directed to the gland itself consists of iodized medication, injections of the blood of thyroidectomized animals, radiotherapy, and operation. Iodotherapy is an excellent pre-operative measure; as a curative agent its use requires careful watching. Haematoethyroidin, prepared from the blood of thyroidectomized animals, has been found of value in slight or moderate cases. Though not favoured by surgeons, radiotherapy has given brilliant results in true exophthalmic goitre. The author believes that any surgical intervention should be early, and be attempted only when the basal metabolism shows an increase of over 20 per cent. Certain adjuvant remedies, such as opotherapy and insulin, have been found beneficial. Crile's hypothesis that other factors (endocrine or nervous) than the thyroid are concerned in the pathogeny of the disease is cited. Sainton suggests as a cause a diathesis which consists of a combination of a congenital nervous factor and a tendency to goitre.

490. Serum Treatment in Type I Lobar Pneumonia.

SINCE experimental studies indicated that the serum of horses, highly immunized to Type I pneumococci and administered in very large doses, should produce favourable results in pneumonia due to this micro-organism, R. COLE (*Journ. Amer. Med. Assoc.*, September 7th, 1929, p. 741) instituted, with his associates, this form of treatment at the Hospital of the Rockefeller Institute. Type II serum was also tested in a few cases, but experimental and clinical observations soon showed that serum treatment in pneumonia, if successful at all, was most likely to be efficacious in Type I cases. Treatment was commenced in 1913, and of 1,256 cases of lobar pneumonia, 431 were definitely determined as due to Type I pneumococci. Of these, 44 patients died, a mortality rate of 10.2 per cent. If 69 cases with 5 deaths in which the serum was not administered are omitted, the corrected figures become 371 patients who received the serum, 37 deaths, and a mortality rate of 10.5 per cent. This low mortality was not due to slight severity of the disease or to early hospitalization. Positive blood cultures in 32 per cent. showed that the cases were at least of average severity, and the date of admission to hospital in 30 per cent. of the cases was the fourth day of the disease or later. The average time of commencing treatment was 4.2 days after onset in the patients who recovered, and 5.2 days in the fatal cases. Early treatment cannot be the sole factor in the favourable results, and Cole regards as equally important the use of good serum of a high titre in large amounts, and constant supervision of the patient.

Repeated doses of 100 c.cm. were administered; the average amount used per patient was 420 c.cm., though many received much more than this. If necessary, attention was paid to the patients for the whole twenty-four hours of the day, so that no delay might occur in determining the type of infecting organism and in promptly administering the serum. The fatal cases are reviewed, and a study of these indicates that no other form of specific treatment would have been of greater value. Cole admits that the present method of treatment with large doses of serum is not ideal. However, it is doubtful whether small doses of concentrated serum have any effect on the mortality. Unless large doses of the latter are employed, or a more accurate method of standardization is adopted, it is better, he thinks, to continue to treat cases of Type I pneumonia with large doses of a good variety of whole serum.

491. A Modified Protein-Shock Therapy.

GÉRARD (*Bruxelles-Méd.*, October 6th, 1929, p. 1402) records his experience of treating certain skin diseases by the intramuscular injection of a milk preparation incorporating hexamethylene tetramine and termed lacrénile. The initial dose was 5 c.cm., going up to 10 c.cm. at intervals of two or three days. Beyond the usual sequels of such injections no ill effects followed. The best results were obtained in the chronic and resistant forms of urticaria, psoriasis, and chronic eczema. The author gives brief notes of cases treated by this method, and comments on the value of associating protein shock with a form of chemotherapy directed against infective conditions. The milk is employed in the form of whey, which results in a less violent reaction than when whole milk is injected. The reaction is, however, not so feeble as that of autohaemotherapy, which is less effective in these chronic conditions.

Neurology and Psychology.

492. Subacute Combined Degeneration of the Cord.

BASED on an analysis of 61 cases, 30 of which were treated with liver since January, 1925, C. C. UNGLEY and M. M. SUZMAN (*Brain*, September, 1929, p. 271) describe the symptomatology of subacute combined degeneration of the cord and the effects of liver therapy in that disease. In every case there were definite signs of involvement of either the posterior or lateral columns of the cord, or of both. Incoordination and ataxia from loss of muscle and joint sensibility and loss of vibration sensibility were regarded as evidence of posterior column involvement; Babinski's sign, with or without exaggeration of the deep reflexes and patellar or ankle clonus, was taken as evidence of degeneration of the lateral pyramidal fibres. The sexes were involved almost equally, and the ages of the patients ranged from 29 to 65. Cases in which heredity seemingly played a part have been recorded in the literature. As a rule, the patients have been singularly free from previous illnesses, and the onset was usually insidious. A sudden onset (present in only 3 cases) was not necessarily associated with a rapid subsequent course. In 39 cases the first symptoms were referable to the nervous system, in 10 to the alimentary tract, and in 12 to anaemia. Symptoms of the established disease are enumerated under the same headings. The nervous signs noted were: numbness and tingling in the extremities, girdle sensation and pains in the back and limbs, and other dysaesthesias. A common complaint was that objects felt cold to the skin; insensibility to touch and pin-prick was commonly present. Inco-ordination and ataxia of the lower limbs was noted in all cases in which these signs could be elicited; vibration sense in the tibiae and joint sense in the big toes were absent or impaired whenever noted. Astereognosis occurred in 8 cases, and athetoid movements in one. Ocular manifestations appeared in several instances, but mental disturbances in only 3. Disturbances of micturition were noted in 26 cases, and in all except two of these other indications of pyramidal involvement were present. Signs of involvement of the alimentary tract, such as unsound teeth, Hunterian glossitis, and gastro-intestinal symptoms and achlorhydria, were invariably found. Every patient, except 6, exhibited a definite degree of anaemia with a very low red cell count; the colour index was usually above unity, and the blood films were sufficiently typical of pernicious anaemia to be of great diagnostic value. Yellow discoloration of the skin was present in all cases with marked anaemia. The benefits of liver treatment are clearly shown in the two series of patients. In the 30 treated with liver, 17 improved, 8 were not improved or became worse, and 5 died; in the 31 not so treated, none improved, 3 were not improved or became worse, and 28 died. The best results were obtained by an intensive course (3½ to 4 lb. of liver a week) for six to eight weeks, followed by 1½ to 2 lb. weekly indefinitely. It is stated that liver extract may be substituted if necessary. The authors consider that the beneficial effect of liver on the nervous system is a specific phenomenon, and not the result of the maintenance of the red cell count at a high level, or of improvement in the general condition. The disease is probably a deficiency one occurring in persons with a certain constitutional diathesis, and, since all the signs of cord involvement may disappear, it would seem that the degenerative changes in the white matter in this disease are not necessarily of a permanent character.

493. Optic Changes in Epidemic Encephalitis.

S. ROTHENBERG (*Journ. Nerv. and Mental Dis.*, September, 1929, p. 271) remarks that epidemic encephalitis is unique as regards its widely varying syndromes, of which several kinds have been observed in different localities; thus, for example, mental symptoms predominated in the early cases of the New York epidemic of 1923. A series of nine cases of acute epidemic encephalitis is now reported, in which changes in the optic fundus, such as neuritis, choked disc, optic atrophy, or sudden amaurosis predominated over all the other symptoms. Lethargy and diplopia were transient symptoms in a few instances, while signs of organic affection, other than the fundal changes, when present, seemed subordinate to these symptoms, and developed subsequently to the eye findings. In three patients the ocular signs were associated with decided psychoses, with marked agitation and restlessness, symptoms which were probably due to the same encephalitic infection involving the cerebral frontal lobes. Spinal encephalography was performed in three cases, with one fatality; in the two remaining cases the *x*-ray pictures showed the ventricles to be normal in character and outline. Another unusual feature noted in this series was the finding of a low sugar content in the spinal fluid in more than one-half of the cases. The "follow-up" review of the patients revealed no symptoms or signs indicative of slowly growing brain neoplasm; with one exception, all made a progressive recovery, though in some the optic neuritis and atrophy have remained permanent. A similarity was noted in the mental disturbances of the three cases, all the patients manifesting marked disorientation, psychomotor overactivity, euphoria, and, at times, delusions. Two of these patients recovered completely, except for the eye changes. Rothenberg adds that the differential diagnosis between encephalitis and brain tumour is always difficult; often only the history of sudden onset with severe headache, raised temperature, the spinal fluid pleocytosis, and the subsequent clinical course of the disease can be relied on to distinguish encephalitis from cerebral neoplasm.

494. Centrolobar Cerebral Sclerosis.

J. MARIE (*Ann. de Méd.*, July, 1929, p. 162) gives a clinical study of subacute centrolobar cerebral sclerosis—diffuse peri-axial encephalitis, or the malady of Schilder-Foix—having in a previous communication in the same journal (December, 1928) described its pathological anatomy. This affection is not peculiar to infancy, as formerly seemed the case, its maximum incidence being between the 20th and 30th years. The type generally encountered simulates the symptomatology of cerebral tumours. The onset is usually not abrupt; it is characterized by the progressive development of a neurological syndrome of visual, motor, and psychic disturbances, each of these predominating in different cases. Among the first-named group are diminution of vision, hemianopsia, dyschromatopsia, and congestion of the fundus of the eye. Motor troubles comprise spastic mono-, hemi-, or quadriparesis, with or without aphasia; and the psychic, inertia, apathy, and slowness of ideation. Three or four months after its onset the disease becomes established, and blindness usually supervenes. The motor disorders increase in intensity, and are remarkable not so much for the paralysis as for the intense degree of the contractures. Convulsive crises of painful, spastic, paroxysmal cramps may appear. The psychic troubles are the most marked, and consist essentially of a progressive failing of the intellectual faculties. Accessory symptoms are disorders of speech, and sensorial, sensory, and ataxic disturbances. Examination of the fundus of the eye may be a decisive diagnostic factor; in 50 per cent. of the cases a moderate papillary stasis is noted. As the disease progresses the extreme intensity of the contractures increases and a definite tetaniform rigidity supervenes. The patients more or less rapidly fall into a state of profound dementia, with rectal and vesical incontinence and cachexia; death ensues twelve to eighteen months after the onset. The malady is not necessarily fatal, and may assume a chronic form. The diagnosis is extremely difficult, and the disease must be distinguished from cerebral tumours, subacute sclerosis en plaques, optic neuro-myelitis, epidemic encephalitis, and cerebral syphilis. Four theories have been advanced as to pathogeny: neoplasmic, degenerative, infectious, and toxic. Marie, agreeing with Foix, believes that the disease is an infection due to an unknown virus. Twenty cases are described, some in considerable detail,

Obstetrics and Gynaecology.

195. Use of Lipiodol in Gynaecological Diagnosis.

DOUAY (*Bull. Soc. d'Obstét. et de Gynécol. de Paris*, July, 1929, p. 447) points out that the employment of lipiodol in cases of carcinoma of the uterine body is not without danger. Small fragments of malignant tissue may be carried into the tubes and even into the peritoneal cavity. He advises, therefore, that the lipiodol should be injected at a low pressure while the patient is being screened, and that as soon as the required picture presents a plate should be taken. Even with this careful technique the oil sometimes passes into the tubes, but the likelihood of peritoneal infection is not so great in the case of cancer of the uterine body as it is in cervical carcinoma, though there is definite risk of the malignant cells being carried into the peritoneal cavity. Therein lies the danger of this method. Douay, moreover, draws attention to the fact that, while fibroids under the endometrium and intrauterine polyps are shown up quite clearly and quite differently from a carcinoma, the latter may be simulated very largely by intrauterine blood clots. He considers curetting a superior diagnostic method, but there are cases where the uterine cavity may be distorted by a fibroid tumour, and where, as a result, the curette may miss the malignant area, or where the cervical canal may be occluded by tumour formation. In these cases examination by lipiodol may prove a useful adjunct in diagnosis.

196. F. BOTIN (*La med. Ibera*, September 28th, 1929, p. 301) reports his experience of the radiographic diagnosis of gynaecological conditions by intrauterine injections of lipiodol. The procedure appears to be quite safe; even pregnant women have unintentionally been injected with no ill effect. Botin states that it is impossible to prevent some of the liquid overflowing into the peritoneal cavity; but the slight pain which may occur some hours afterwards is due not to this but to the uterine and cervical manipulation; patients should rest for twenty-four hours subsequent to injection. The method can indicate stenotic lesions of the tubes which even at an operation might escape the eye. The normal radiograph shows the uterus as a triangular figure with its base above; all its sides are slightly convex but regular. The tubes appear as rather uneven lines; this is due to peristalsis and explains why their directions are not quite similar, but the lipiodol is not fragmented in normal tubes. At the angles of the uterus the tubes run perpendicularly to it; then their line dips down and passes outward to the abdominal ostium, where the lipiodol forms a pool. A uterus deformed by large fibroids appeared on the film with its cavity transverse; no tubes showed because the tumour had blocked their internal ostia by pressure. Another film showed a uterus in left retrolateral flexion, with a permeable left tube and an obstructed right one. In another case an ovarian cyst of uncertain location had been diagnosed on clinical grounds. The *x*-ray examination showed one tube with an abnormal direction; it seemed to surround an invisible mass placed above the uterus. Presumably the ovary had been fixed in an anterior plane by some inflammatory process on the back of the broad ligament, and the cyst had developed there. A fifth case showed permeability of the left with complete obstruction of the right tube by stenosis of its external ostium; the corresponding uterine horn had lost its sharp angle and was dilated. The author remarks that complete tubal obstruction produces this appearance. All these diagnoses were confirmed at subsequent operations.

197. The Sedimentation Test in Gynaecology.

HAVING used the sedimentation test for more than a year as a routine procedure in the case of every gynaecological patient admitted to hospital, H. H. JOHNSON and J. S. DIASIO (*Med. Journ. and Record*, September 18th, 1929, p. 316) report their conclusions based on 150 cases. The Friedländer modification of the Linzenmeier method was employed. Readings were taken every five minutes and the time was noted when the erythrocyte column reached the 18 mm. mark. Normally this is longer than two hours; sedimentation times of less than thirty minutes were held to indicate an acute infection, between thirty and sixty minutes a subacute infection, and over sixty minutes a chronic infection. The most rapid rates occurred in pelvic suppurations associated with fever and leucocytosis, six cases of pelvic abscess showing sedimentation times of between eleven to eighteen minutes, with the leucocyte count ranging from 26,300 to as low as 13,500. The speed of sedimentation was markedly increased with the elevation of the temperature and the leucocytosis. The authors conclude that the test is of value in determining the safe time for operation; it is thought also to be a more delicate prognostic index than the temperature curve or leucocyte count. Before its adoption operations were performed in accordance with Simpson's rule, the time chosen being when the temperature and leucocyte count had been normal for at least a fortnight; but operations upon cases which fulfilled these requirements often proved hazardous, or even fatal, when the sedimentation rate was less than thirty minutes. Tests made during convalescence showed the progress of the patient; judging from those who had to be readmitted with a recurrence of pelvic pain and fever, it was found to be unwise to discharge patients to their homes with a sedimentation time of less than sixty minutes.

Pathology.

498. The Origin of Antitoxins.

G. RAMON (*C. R. Soc. de Biologie*, October 25th, 1929, p. 287) discusses the various explanations that have been offered for the method of formation of antitoxins. The original hypothesis put forward by Buchner, that antitoxin represented a simple modification of the toxin, has been abandoned by most workers on account of the difficulty in reconciling certain observations with it. One of the most important of these is that, if an animal which has been inoculated with a given toxin is bled copiously, the antitoxic titre of the blood may rise without any fresh injection of toxin. Though this observation has been made independently by several workers, Ramon doubts it. His experience has been that, provided a sufficient length of time is allowed to elapse between the last injection of antigen and the first of the series of bleedings, the effect of the bleeding is always to lower the antitoxin titre of the blood. He has come to the conclusion that no production or increase in antitoxin can take place independently of the presence of the antigen. His general idea of the formation of antitoxin is as follows: the antigen, on gaining access to the body, undergoes dissociation of a variable degree, due probably to the action of cellular and humoral ferments; as the result of the interaction between the antigen and the body tissues an antitoxin complex results, the specificity of which depends on the persistence in the complex of a chemical nucleus derived from the antigen.

499. Pathological Lesions in Rheumatic Fever.

A. F. B. SHAW (*Arch. Dis. Child.*, August, 1929, p. 155) records the detailed pathological findings in a girl, aged 15, who died from rheumatic fever with chorea. Macroscopically there was rheumatic endocarditis of the mitral and aortic valves, with the characteristic vegetations, organizing pericarditis, and opaque white points in the wall of the left ventricle, which were proved histologically to be Aschoff nodes. The endocardium of the auricles, the left more than the right, was roughened by numerous raised opaque yellowish flecks and ridges. There were some yellowish opacities beneath the endothelium of the tricuspid valve and at the base of each cusp of the pulmonary valve. Microscopically the lesions were widely distributed over the heart, some of the larger blood vessels, the muscles serous membranes, and lymphoid tissue. The changes in th were gross appearance. was found side by side. In the acute phase the endothelium raised up and the whole thickness of the endocardium, down to the muscle, was infiltrated with fluid and cells; large Aschoff cells were arranged in rows along the swollen collagen fibres inside and outside the elastic lamina. There was no fibrin deposit on the surface of the unbroken endothelium. Resolution and healing took place by the disappearance of the exudative cells and the formation of young scar tissue covered by intact endothelium. The author quotes the work of Bayne-Jones, who demonstrated a vasculature in the valves of normal hearts. He considers that the degree of strain and the amount of vasculature are conjointly responsible for the fact that involves the valves in the following nitral, aortic. tricuspid, pulmonary. He further that valvulit s precedes endocarditis, vegetations probably not occurring till the valvulitis spreads to the line of closure of the valve, when the additional factor, stress, comes into play.

500. Lymphatic Gland Extracts and Typhoid Infection.

A. FONTANA (*Il Morgagni*, September 8th, 1929, p. 1931) has conducted experiments with a view to testing the value of lymph gland extract in typhoid fever. Experiments *in vitro* with various lymph gland extracts showed that no bactericidal action was exercised on the typhoid bacillus. Lymph gland extracts, however, seemed to inhibit bacterial growth slightly when added to culture media. Experiments with guinea-pigs led Fontana to the conclusion that intramuscular injections of lymph extract might protect against typhoid fever. A mixture of extracts and bacilli introduced into the peritoneal cavity always resulted in death. The injection of emulsions of lymph glands conferred immunization on resulting disease when what

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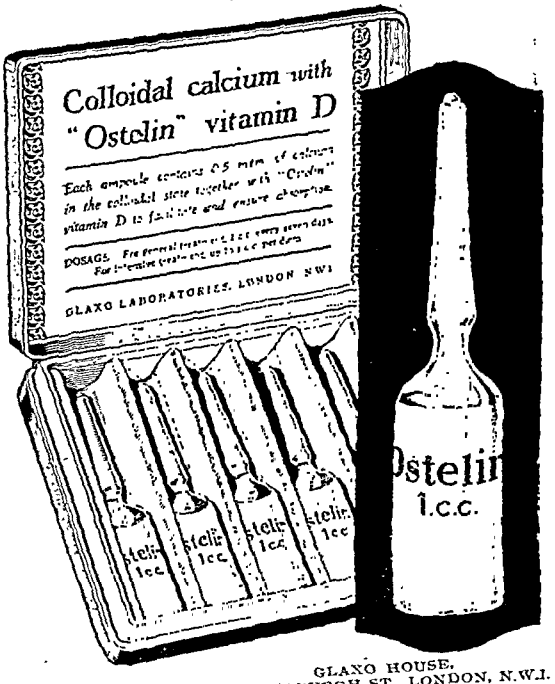

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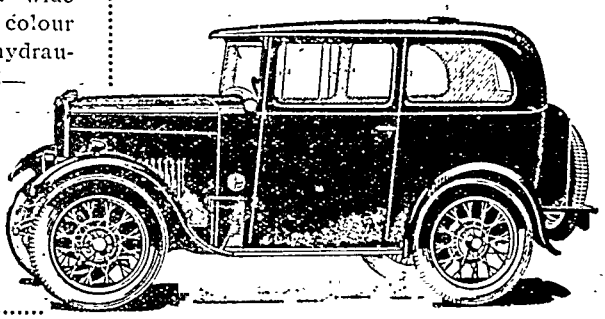

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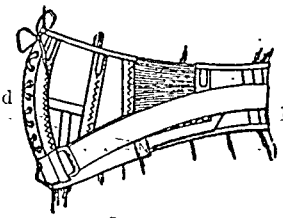

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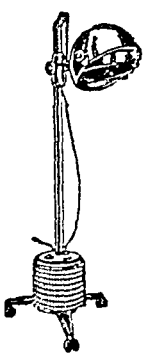

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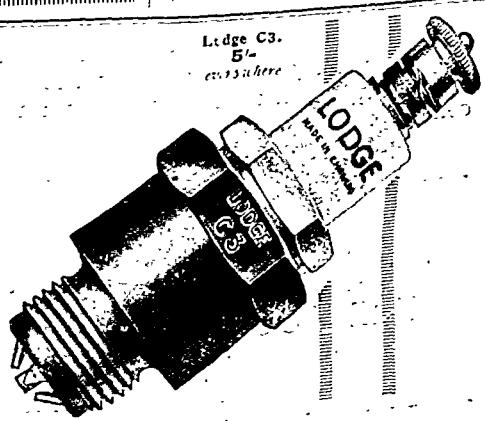

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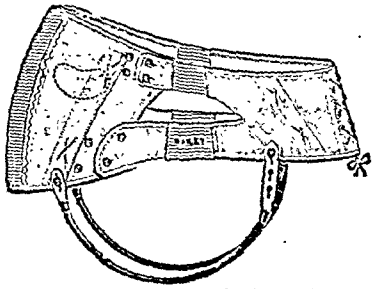

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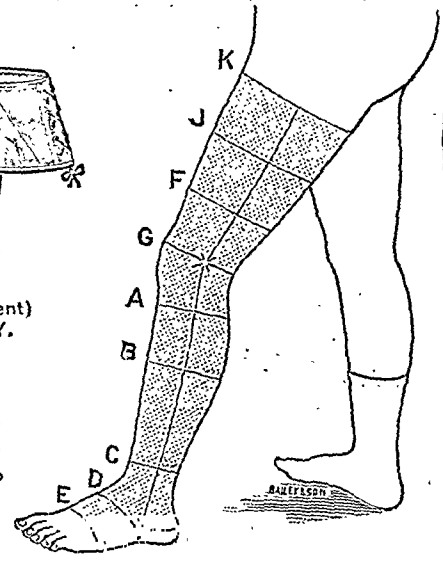

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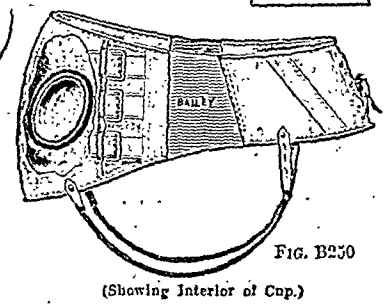
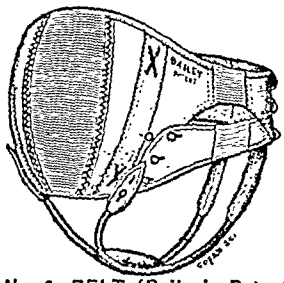


FIG. B250

(Showing Interior of Cup.)

SPECIAL BELT FOR AFTER COLOSTOMY.



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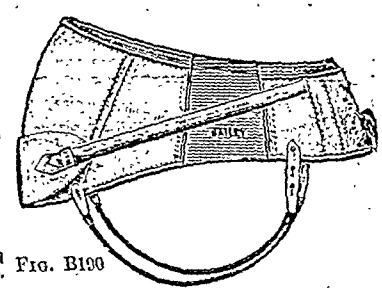

FIG. B100

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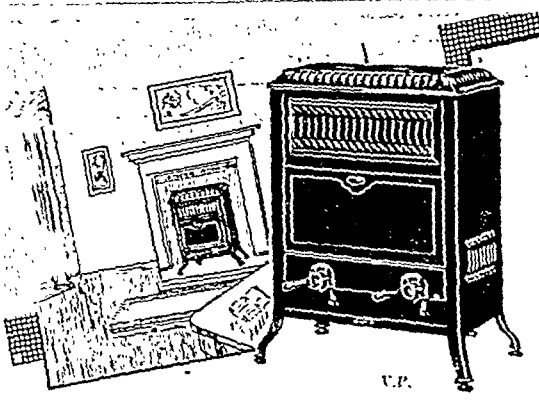

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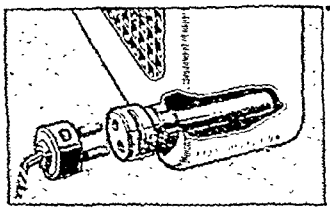

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Medical Superintendent: DANIEL F. RAMBAUT, M.A., M.D.

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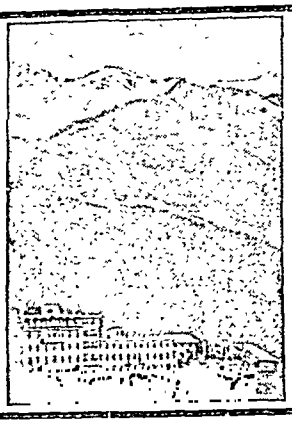

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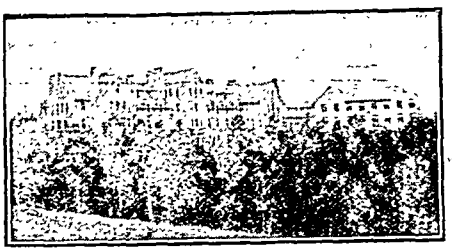

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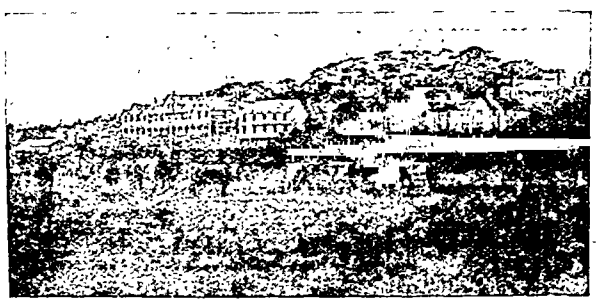

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ST. MARY'S HOSPITAL MEDICAL SCHOOL, W.2.

(University of London.)

The SECOND TERM of the WINTER SESSION will begin on THURSDAY, JANUARY 2nd, 1930.

The Medical School provides courses in *Preliminary, Intermediate, and Final Subjects, and Students can join at once after matriculation.*

SITUATION.—Between a large population providing clinical material and one of the best residential districts, thus enabling students to live in close proximity to their work.

CLINICAL UNITS IN MEDICINE AND SURGERY.—Certain members of the medical and surgical staff devote their whole time to teaching and research.

Nearly 1,000 beds available for teaching, *additional clinical material being provided by* affiliation to an Infirmary and other Institutions.

ENTRANCE AND RESEARCH SCHOLARSHIPS to the value of £1,400 are awarded annually.

APPOINTMENTS, varying in value up to £750 per annum, open to students after qualification.

For further particulars and illustrated prospectus apply to the School Secretary.

C. M. WILSON (*M.C.*), M.D., F.R.C.P., Dean.

LONDON SCHOOL OF DERMATOLOGY,

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN,

LEICESTER SQUARE, W.C.2.

Conducted by the Honorary Staff of the Hospital, together with the Physicians in charge of *the Dermatological Departments of the London Teaching Hospitals.* Lectures and Demonstrations every Tuesday and Thursday, at 5 p.m., *from October to March, and four times* weekly during May. Clinics daily at 2 p.m. and 6 p.m., *Saturdays*, 2 p.m. only. Pathological Laboratory for Instruction or Research Work.

For further particulars, fees, etc., apply to J. E. M. WIGLEY, M.B., Dean.

SCHOOLS for BOYS and GIRLS.

TUTORS FOR ALL EXAMS.

Messrs. J. & J. PATON, having an up-to-date knowledge of the BEST SCHOOLS and TUTORS *in this Country and on the Continent*, will be pleased to AID PARENTS in their choice by sending (free of charge) prospectuses and TRUSTWORTHY INFORMATION and ADVICE.

The age of the pupil, district preferred, and rough idea of fees should be given.

J. & J. PATON, Educational Agents, 143, Cannon St., London, E.C.4. Tel.: Mansion House 5055.

CITY OF LONDON MATERNITY HOSPITAL,

CITY ROAD, E.C.1.

MIDWIFERY TRAINING SCHOOL.

MEDICAL STUDENTS admitted to Hospital practice, with operative Midwifery, and Obstetrical complications.

PUPILS TRAINED as Midwives and Monthly Nurses in accordance with C.M.B. regulations.

PRIVATE WARDS for paying patients.

TAUNTON SCHOOL,

TAUNTON.

A PUBLIC SCHOOL FOR BOYS.

Boys are regularly prepared for the First M.B. Examination, University Scholarships in Chemistry, Biology, etc.

Special facilities are offered for the teaching of Chemistry, Physics, Botany, and Zoology.

New Science Buildings, containing seven laboratories, two lecture rooms, science library, store rooms, etc., opened in September, 1925.

Prospectus from Head Master

LIVERPOOL SCHOOL OF TROPICAL MEDICINE.

POOL)
(lasting about th [illegible] in Tropical Medicine commence on October 1st and January 7th, and for the Diploma in Tropical Hygiene on January 12th and April 26th. (Candidates for the D.T.H. must possess the D.T.M. of this University.)

For particulars apply to the Hon. Dean, Liverpool School of Tropical Medicine, Pembroke Place, Liverpool

The University of Manchester.

Applications are invited for the post of LECTURER IN DENTAL HISTOLOGY. Stipend £50 per annum. Duties to commence January 1st, 1930. Applications should be sent not later than December 7th to the REGISTRAR, from whom further particulars may be obtained.

The General Hospital, BIRMINGHAM.

150th ANNIVERSARY.

A [illegible] be held at the [illegible] GHAM, at 12 [illegible] 10th.

Preacher: THE VEN. THE ARCHDEACON OF LUDLOW (Dr. Edwin B. Bartlett).

On the same day, at 2.15 p.m., in the OUT-PATIENT HALL of the HOSPITAL, ORATIONS will be delivered by PROF. K. F. WENCKEBACH, M.D., Hon.F.R.C.P., of Vienna, and THE RIGHT HON. THE LORD MOYNIHAN OF LEEDS, K.C.M.G., President of the Royal College of Surgeons of England.

The Chair will be taken by SIR GILBERT BARLING, Bart., C.B., F.R.C.S.

Past and present students of the Birmingham Medical School are invited to be present. Academic dress will be worn.

University of Birmingham.

APPOINTMENT OF LECTURER IN PHYSIOLOGICAL DEPARTMENT.

Applications are invited for the post of LECTURER IN PHYSIOLOGY. Stipend £400 per annum. Teaching experience not essential.

Four copies of application, with testimonials, must be sent, on or before December 3rd, to the undersigned, from whom further particulars may be obtained.

The University, Edmund Street, Birmingham. November, 1929. C. G. BURTON, Secretary.

London Hospital, E.1.

CARDIOGRAPHIC DEPARTMENT.

The post of PATERSON RESEARCH SCHOLAR in this Department will become vacant in January, 1930. The salary is at the rate of £400 per annum. Further particulars on request.

Applications should be sent to the House Governor not later than December 17th.

E. W. MORRIS, House Governor.

St. Peter's Hospital for Stone, ETC.,

Henrietta Street, Covent Garden, W.C.2.

CLINICAL ASSISTANTS are required by the following members of the Honorary Staff, who [illegible] as indicated:

[illegible]	[illegible] to 5 p.m.
[illegible]	2 to 7 p.m.,
[illegible]	2 to 5 p.m.
	Thursdays 3 to 7 p.m.
Mr. Ogier Ward	Wednesdays 3 to 6 p.m.
	Fridays 2 to 5 p.m.
	(Women and Children)
Mr. Alban Andrews	Mondays 5 to 7 p.m.
	Fridays 5 to 7 p.m.

Appointments are made for six months from January 1st, 1930, a fee of five guineas being payable to the Hospital.

Applications will be received by the undersigned up to the first post on Wednesday, December 4th, 1929.

BEECHEY ROGERS, Secretary.

City of London Hospital for DISEASES OF THE HEART AND LUNGS,

Victoria Park, E.2.
(Bus, tram, and rail Cambridge Heath, L. & N.E.)

Applications (with copies of three testimonials) are invited to be sent to the undersigned on or before Monday, December 9th, for the following posts, subject to the rules and by-laws of the Hospital:

RESIDENT MEDICAL OFFICER (male) for one year from January 1st, 1930, with eligibility for re-appointment. Salary £250 per annum.

HOUSE PHYSICIAN (male) for six months from January 1st, 1930. Salary at the rate of £100 per annum.

Board, residence, and laundry provided.

GEORGE WATTS, Secretary.

Charing Cross Hospital.

SURGICAL REGISTRAR.

The Council invite applications from candidates, who must be registered Medical Practitioners (male), for the post of Second Surgical Registrar. Honorarium £150 per annum.

A copy of the Regulations can be obtained from the undersigned, to whom applications, together with copies of three testimonials, must be submitted not later than Monday, December 2nd.

PHILIP INMAN,
Charing Cross Hospital. House Governor.

Ministry of Health.

The Minister of Health invites applications from registered Medical Practitioners (men) for five vacant appointments as MEDICAL OFFICERS on the staff of the Ministry.

The salary commences at £700 per annum and rises by annual increments of £25 to £1,000 per annum. In addition to the salary a bonus, which varies with the cost of living, is payable; the bonus on the minimum salary is at present £187 3s. and is next subject to revision on March 1st, 1930.

The appointment will carry the usual Civil Service conditions as to pension, holidays, etc.

Candidates must be Medical Men of not less than seven years' standing, and be experienced in Public Health, Poor Law, or Preventive Medicine work.

A Medical Officer is required to devote his whole time to the Public Service, and must be prepared to work in any part of England or Wales if required to do so.

Canvassing Members of Parliament or Officers of the Ministry will render a candidate liable

[illegible] h further particulars [illegible] e obtained from the Ministry of Health,

[illegible] considered unless re- [illegible] form not later than December 7th, 1929.

Borough of Nuneaton.

ASSISTANT MEDICAL OFFICER.

The Council invite applications from male registered Medical Practitioners for the post of whole-time Assistant Medical Officer of Health and Assistant School Medical Officer under the direction, supervision, and control of the Medical Officer of Health, at a salary of £600 per annum, subject to deductions in accordance with the provisions of the Local Government and Other Officers Superannuation Act, 1922.

Applicants must have had experience in the prescription of glasses for errors of refraction, ante-natal work, and children's ailments.

The appointment will be subject to three calendar months' notice on either side, and to the approval of the Ministry of Health and the Board of Education. The officer will be required to reside within the Borough of Nuneaton, and will not be allowed to engage in private practice.

The successful candidate will be required to pass a medical examination.

Applications, on forms to be obtained from the Medical Officer of Health, Health Department, Nuneaton, endorsed "Assistant Medical Officer of Health," accompanied by copies of three recent testimonials, must be delivered to the undersigned on or before December 14th.

Council Offices, Nuneaton. November 25th, 1929. W. H. POLLITT, Town Clerk.

The Radium Institute.

Riding House Street, London, W.1.

Applications are invited for the post of HOUSE SURGEON. Candidates must be fully qualified and unmarried, and the appointment is for a term of twelve months as from January 1st, 1930.

The salary will be at the rate of £150 per annum, with board, lodging, and laundry.

Applications, stating age, qualifications, and experience, with copies of three recent testimonials, must be received at the Institute not later than December 7th.

Canvassing, either directly or indirectly, is not permitted.

THOS. A. GARNER, Secretary.

Metropolitan Hospital,

Kingsland Road, London, E.8.

The Committee of Management are prepared to receive applications for the appointment of:

(*a*) An ASSISTANT SURGEON;
(*b*) Two ANÆSTHETISTS.

In the case of the first appointment, candidates must be Fellows of the Royal College of Surgeons of England and not engaged in general practice.

Candidates will be required to submit to Members of the Medical and Surgical Staff one copy of their application, with testimonials, and subsequently to call by appointment for interview. A list of the Medical and Surgical Staff and full particulars in relation to any of the appointments will be supplied upon request.

One copy of the application should be submitted as early as possible to the undersigned, but not later than first post on December 14th.

HERBERT F. RUTHERFORD,
Secretary & House Governor.

Western Australia.

Applications are invited from Medical Men for the position of JUNIOR ASSISTANT RESIDENT MEDICAL OFFICER in the LUNACY DEPARTMENT of Western Australia.

Commencing salary £456 per annum, with annual increments of £24 up to £576. Salary to commence from date of taking up duty in Western Australia.

Transport allowance £200 for a married man, £100 for a single man.

Free furnished quarters, light, fuel, farm produce, with stores at contract rates for a married man. Furnished quarters and all found if appointee is single.

Should the successful applicant voluntarily relinquish the position before the expiration of two years from the date of his appointment, he will be called upon to refund the amount of the transport allowance.

Applications, which should be endorsed "Medical Appointment," must reach the Agent-General for Western Australia, Savoy House, 115/6, Strand, London, W.C.2, not later than December 17th.

Egyptian Government.

EGYPTIAN UNIVERSITY.

FACULTY OF MEDICINE.

Applications are invited for two posts as SURGICAL TUTORS.

The salary offered is £E.35 a month in Grade V, and the appointment will be on contract for one year, renewable at the end of that time. The appointment is to be a full-time post.

The candidates must be Egyptians, and preference will be given to those possessing the F.R.C.S. England.

Applications, accompanied by testimonials and references, should be addressed to the DEAN, Egyptian University, Faculty of Medicine, Cairo, so as to be received not later than December 15th, 1929.

Devonshire Hospital, Buxton,

DERBYSHIRE. (300 Beds.)
(A Special Hospital for Rheumatism and Allied Diseases.)

ASSISTANT HOUSE PHYSICIAN.

The Committee invite applications for this post. To commence duties December 23rd. The successful candidate will be engaged for a period of not less than six months. The appointment is not open to ladies. Salary commencing £150 per annum, rising to £175 after three months' service, with furnished apartments, board (excepting stimulants), and laundry. Applications, with copies of three recent testimonials, endorsed "Assistant House Physician," to be sent in at once. The Medical Staff consists of eight Honorary Physicians, an Honorary Surgeon, a Bacteriologist, a Radiologist, a Biochemist, and two Resident House Physicians. The Hospital contains a Pathological Laboratory, and X-ray Department. This appointment offers special facilities for anyone preparing a thesis or wishing to do research work.

Canvassing will disqualify.

By Order,
TOM B. HARRISON,
General Superintendent & Secretary.

Liverpool Stanley Hospital.

The Committee invite applications for the post of HONORARY PHYSICIAN to this Hospital. Full particulars may be had on application to the Hon. Secretary.

Applications, enclosing testimonials, addressed to the President of the General Committee, must be lodged with the undersigned at the Hospital on or before December 14th.

FRANK WHITE, Hon. Sec.

Liverpool Stanley Hospital.

Wanted immediately, One Male HOUSE SURGEON for period ending March 31st, 1930. Salary at the rate of £100 per annum, with board, laundry, etc.

Candidates must be on the *Medical Register*, and applications, with copies of three recent testimonials, should be lodged with the undersigned on or before December 7th.

E. W. OSBORN, Secretary.

Lowestoft and North Suffolk HOSPITAL, LOWESTOFT.

JUNIOR HOUSE SURGEON (male) required. Salary £120 per annum, with board, residence, and laundry. Applications, together with copies of three recent testimonials, to be sent to the Honorary Medical Superintendent.

Wilts County Council.

APPOINTMENT OF ASSISTANT COUNTY MEDICAL OFFICER OF HEALTH and ASSISTANT SCHOOL MEDICAL INSPECTOR.

The Wilts County Council invite applications from Medical Men for the appointment of an Assistant County Medical Officer of Health and Assistant School Medical Inspector. Applicants must be fully qualified Medical Practitioners, and hold a Diploma in Public Health, or an equivalent qualification. Experience in Tuberculosis is essential, and preference will be given to candidates with experience in venereal diseases.

The salary will be £600 per annum, and will be subject to a deduction of 5 per cent. for superannuation under the Local Government and Other Officers Superannuation Act, 1922, and the candidate selected will be required to pass a medical examination. Travelling allowance for own motor car in accordance with County scale.

The officer appointed will be required to reside in or near Swindon, to devote his whole time to the duties of the office, and to act under the direction and control of the County Medical Officer of Health, who is also School Medical Officer. The duties of the post will be chiefly concerned with the School Medical Service, but the officer will be employed on other Public Health work. The appointment will be determinable by three months' notice on either side.

Applications, on forms to be obtained from the undersigned, together with copies of not more than three recent testimonials, and enclosed in envelope marked "Assistant Medical Officer," to be lodged with the undersigned not later than the first post on Friday, Dec. 6th.

Canvassing, either directly or indirectly, is strictly prohibited and will be regarded as a disqualification.

County Offices, Trowbridge. November, 1929. W. L. BOWN, Clerk of the County Council.

Surrey County Council.

PUBLIC HEALTH DEPARTMENT.

APPOINTMENT OF CHIEF CLERK.

The Surrey County Council invites applications for the post of Chief Clerk in the Public Health Department.

Candidates should possess a thorough knowledge of local government administration, preferably associated with a Public Health Department, and have had experience in controlling and directing a large clerical staff.

The salary will be £500 per annum, rising by annual increments of £20 to a maximum of £600 per annum.

The appointment will be subject to the provisions of the Local Government and Other Officers Superannuation Act, 1922.

Applications, stating age, qualifications, and experience, together with copies of three recent testimonials, should be sent to the County Medical Officer of Health, 5, Grove Crescent, Kingston-on-Thames, Surrey, to whom any enquiries relating to the appointment should be addressed. All envelopes should be marked "Chief Clerk."

The last day for receipt of applications will be Saturday, December 7th.

Canvassing direct or indirect, will disqualify.

County Hall, Kingston-on-Thames. November 20th, 1929. DUDLEY AUCKLAND, Clerk of the County Council.

City of Leeds.

CHIEF ASSISTANT MEDICAL OFFICER OF HEALTH.

Applications are invited from qualified and registered Medical Practitioners for the post of Chief Assistant Medical Officer of Health for the City of Leeds. Candidates must not be more than 40 years of age and, in addition to previous experience in Public Health administration, should also have had experience in one or more of the special branches of Preventive Medicine, e.g., School Medical work, Tuberculosis, Maternity and Child Welfare, etc.

The person selected will be required to devote his whole time to the office, and to perform such duties as are allotted to him by the Medical Officer of Health. It will be necessary for him to enter into an agreement of service with the Corporation terminable by three months' notice on each side and to pass a medical examination, and contribute to the Superannuation Fund established under the Local Government and Other Officers Superannuation Act, 1922.

The salary will be £900 per annum. Applications, stating age, qualifications, and experience, together with copies of three testimonials, to be addressed "Chief Assistant Medical Officer," to the undersigned at my office, 26, Great George Street, Leeds, not later than December 6th.

THOS THORNTON, Town Clerk.

Leeds

County of Hertford.

APPOINTMENT OF ASSISTANT LADY MEDICAL OFFICER OF HEALTH FOR MATERNITY AND CHILD WELFARE SERVICES.

The County Council of the Administrative County of Hertford invite applications for the above-mentioned appointment.

Applicants must not be more than 40 years of age. Salary £600 per annum. Actual and necessary travelling expenses will be provided.

Candidates must be fully qualified and registered, and should have had previous experience in Maternity and Child Welfare work, including modern methods of ante-natal care and supervision.

The work will be performed under the control of the County Medical Officer of Health.

The applicant appointed will be required to reside at such place in the County of Hertford as may be directed.

The person appointed will be required to commence her duties at an early date and to devote the whole of her time to the duties of the office. She will hold office during the pleasure of the County Council, and if she desires to leave their service must give them three months' notice of her desire so to do.

Applications should be sent to the undersigned not later than December 21st.

The applicant appointed will be required to sign an agreement containing the terms and duties of her appointment.

The appointment will be subject to the provisions of the Local Government and Other Officers Superannuation Act, 1922, which has been adopted by the County Council.

CHARLES E. LONGMORE, Clerk of the Peace Office, Hertford. November, 1929. Clerk of the Hertfordshire County Council.

City of Manchester.

PUBLIC HEALTH DEPARTMENT.

BAGULEY SANATORIUM (333 Beds).

SENIOR ASSISTANT MEDICAL OFFICER.

Applications are invited from qualified Medical Men for the position of Senior Assistant Medical Officer.

Every applicant must be a registered Medical Practitioner, under 40 years of age, and unmarried.

Applicants must have held resident hospital and sanatorium appointments, and have had practical experience in the diagnosis and modern methods of treatment of tuberculosis; practical experience in radiology is desirable.

Salary £500 per annum, with board, residence, and laundry in addition.

Every application, stating fully the training, qualifications, and experience of the candidate, and his age, with copies of three recent testimonials, and endorsed on the envelope, "Medical Officer, Baguley Sanatorium," must be addressed to the undersigned only, and not to members of the Committee or Council, and must reach him not later than Monday, December 30th.

The gentleman appointed will be required to pass a medical examination, to devote the whole of his time to the duties of his office, to take charge in the absence of the Medical Superintendent, to contribute to the Corporation Superannuation Fund, and to execute the Deed of Service.

Canvassing in any form, oral or written, direct or indirect, is prohibited.

By Order, Town Hall, Manchester. November 22nd, 1929. F. E. WARBRECK HOWELL, Town Clerk.

County Borough of Huddersfield.

PUBLIC HEALTH DEPARTMENT.

APPOINTMENT OF ASSISTANT MEDICAL OFFICER OF HEALTH.

The Corporation of Huddersfield invite applications from registered Medical Practitioners for the above appointment.

Candidates should be ladies who are particularly interested in the welfare of mothers and infants, and who are prepared to work wholeheartedly in an intensive scheme for the protection of their health.

Forms of application are not provided.

Candidates should set out their qualifications and experience, and furnish three recent testimonials and/or two references.

The salary will be at the rate of £500 for the first year, and thereafter at the rate of £600 per annum.

Applications should be addressed to S. G. MOORE, M.D., M.R.C.P., D.P.H., Medical Officer of Health, so as to reach him not later than December 9th.

J. HENRY FIELD, Town Clerk.

November, 1929.

County Borough of Blackburn.

ASSISTANT MEDICAL OFFICER OF HEALTH AND ASSISTANT SCHOOL MEDICAL OFFICER.

Applications are invited from registered Medical Practitioners for the post of Assistant Medical Officer (male), who will act under the supervision of the Medical Officer of Health and the School Medical Officer.

The person appointed must devote the whole of his time to the service of the Corporation.

The duties of the office will consist largely, but not exclusively, of work in the School Medical Department.

The salary will be £600 per annum, to be increased by annual increments of £25 to a maximum of £700 per annum; no bonus will be payable.

Forms of application and further particulars of the duties and conditions of the appointment may be obtained from the Medical Officer of Health, Victoria Street, Blackburn.

Completed forms, accompanied by copies of three recent testimonials, must reach me by Saturday, December 14th, and should be endorsed on the envelope "Assistant Medical Officer."

Canvassing will disqualify.

Town Hall, Blackburn. November 18th, 1929. LEWIS BEARD, Town Clerk.

Hampshire County Council.

ASSISTANT COUNTY MEDICAL OFFICER.

Applications are invited for the post of Assistant County Medical Officer. Preference will be given to a woman with experience in maternity and child welfare work, including maternity centres and ante-natal clinics, and in the treatment of venereal diseases. Possession of a Diploma or Degree in Public Health is essential, and previous experience in Public Health work, tuberculosis, and medical inspection of school children will be considered an advantage.

Salary £600 a year, rising by increments to £750 (subject to deductions under the Local Government Officers Superannuation Act), in addition to travelling expenses and subsistence allowances.

Applications, with copies of not more than three testimonials upon a form which, with the conditions of appointment, may be obtained from the County Medical Officer, The Castle, Winchester, should be sent to him not later than December 27th. Canvassing is prohibited.

Lancashire County Council.

BIDDULPH GRANGE ORTHOPAEDIC HOSPITAL.

Applications are invited for the post of JUNIOR HOUSE SURGEON (woman) at the above Hospital, which contains 87 beds. Salary is at the rate of £150 a year, together with board, residence, and laundry.

The appointment will be for a period of six months in the first instance, and for a further period of six months at the option of the Council.

Candidates must be duly qualified and registered. Preference will be given to candidates who have held resident hospital appointments, and who are competent anæsthetists.

Applications, with copies of two recent testimonials, should be sent not later than December 7th to Dr. J. J. BUTTERWORTH, School Medical and Child Welfare Department, County Offices, Preston.

Duties to commence February 1st, 1930.

County Offices, Preston. November 22nd, 1929. GEORGE ETHERTON, Clerk of the County Council.

County Borough of West Ham.

PLAISTOW FEVER HOSPITAL.

JUNIOR ASSISTANT MEDICAL OFFICER (male) required. Appointment will be for six months. Salary £300 per annum, with residence, board, and laundry. Preference will be given to candidates who have held a resident appointment in a General Hospital. Good facilities for Post-Graduate study.

Applications, with copies of three recent testimonials, to be sent to the Medical Superintendent, Plaistow Fever Hospital, London, E.15.

Edinburgh Hospital for Women AND CHILDREN

WHITEHOUSE LOAN, EDINBURGH.

Applications are invited from qualified Medical Women for the post of HOUSE PHYSICIAN at the above Hospital. The appointment is for six months from January 1st, 1930, with board, residence, and laundry.

Applications, with copies of testimonials, to be received by the Secretary on or before December 16th.

APPOINTMENTS—Important Notice.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

(a) British Islands.

Town or District.	Town or District.	Town or District
CONTRACT PRACTICE.	**CONTRACT PRACTICE** *(Contd.)*.	**PUBLIC HEALTH** *(continued)*.
EBBW VALE, MON. *(Workmen's Medical Society.)*	NEATH AND DISTRICT. *(Medical Aid Association.)*	CORNWALL EDUCATION COMMITTEE. *(Assistant School Medical Officer—Female.)*
GILFACH GOCH, GLAMORGAN. *(Workmen's Medical Scheme.)*	OAKDALE, MON. *(Medical Officer for Medical Aid Association.)*	GLASGOW EDUCATION AUTHORITY. *(Male Assistant Medical Officer.)*
LLWYNYPIA, CLYDACH VALE PENYGRAIG, GLAMORGAN. *(Workmen's Medical Scheme.)*	OGMORE VALLEY, GLAMORGAN. *(Wyndham Colliery Medical Aid Society.)* *(Workmen's Medical Scheme.)*	MERTHYR TYDFIL COUNTY BOROUGH. *(Assistant School Medical Officer and Assistant Medical Officer of Health.)*
MARDY, GLAMORGAN. *(Workmen's Medical Scheme.)*	**PUBLIC HEALTH.**	ROXBURGH COUNTY EDUCATION AUTHORITY. *(School Medical Officer.)*
MERTHYR VALE COLLIERY WORKMEN'S MEDICAL COMMITTEE. *(Workmen's Medical Scheme.)*	AYRSHIRE EDUCATION AUTHORITY. *(Assistant School Medical Officer (male).*	YORKSHIRE NORTH RIDING COUNTY COUNCIL EDUCATION COMMITTEE. *(Assistant School Medical Officer.)*
	CHESHIRE EDUCATION COMMITTEE. *(Assistant School Medical Officer.)*	

(b) Colonial Medical Service.—

WINDWARD ISLANDS MEDICAL SERVICE. (Grenada with Carriacou, St. Vincent and St. Lucia.)

(c) Overseas.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.
NEW SOUTH WALES. *(All Friendly Society Appointments.)*	Dr. R. H. TODD (Hon. Sec., New South Wales Branch), B.M.A. Building, 30-34, Elizabeth St., Sydney, N.S.W.	VICTORIA. *(All Institute or Medical Dispensaries.)*	Dr. FRANK DAVIES (Hon. Sec., Victorian Branch), British Medical Association, Medical Society Hall, East Melbourne, Victoria.	WESTERN AUSTRALIA. *(Contract and Lodge Practices.)*	Hon. Sec., Western Australian Branch, British Medical Association, No. 6, Bank of N.S.W. Chambers, St. George's Terr., Perth, Western Australia.
QUEENSLAND. *(Brisbane Associated Friendly Societies Institute.)*	The Hon. Sec., Queensland Branch, British Medical Association, B.M.A. Building, Adelaide St., Brisbane.	WELLINGTON, NEW ZEALAND. *(Contract Practice Appointments.)*	Dr. G. F. V. ANSON (Hon. Sec., New Zealand Branch), British Medical Association, P.O. Box 156, Wellington, New Zealand.		

Address: B.M.A. House, Tavistock Square, W.C.1.
November 27th, 1929.

By Order of the Council of the British Medical Association.
ALFRED COX, Medical Secretary.

SCALE OF CHARGES FOR ADVERTISEMENTS.

	£	s.	d.		£	s.	d.
Whole page	20	0	0	Half single column	3	15	0
Half page	10	0	0	Six lines and under		9	0
Whole single column (three columns to page)	7	10	0	For each additional line ...		1	6

An average line in column contains six words. Births, Marriages, Deaths, 9s. per insertion.

Advertisements should be delivered, addressed to the Financial Secretary and Business Manager, B.M.A. House, Tavistock Square, W.C.1, not later than first post on Tuesday preceding publication.

Cheshire Joint Sanatorium,
MARKET DRAYTON.

HOUSE PHYSICIAN (male) required. The appointment is temporary for twelve months. Inclusive salary at the rate of £250 p.a., with board, residence, and laundry.

Applications to be made on forms which may be obtained from the Medical Superintendent, and must be returned not later than December 12th.

PETER W. EDWARDS,
Medical Superintendent.

Dewsbury and District General Infirmary.

HOUSE SURGEON wanted (male). Post vacant January 1st, 1930. Salary £200 per annum, with board, residence, and laundry. Candidates must be fully qualified.

Applications, stating age, qualifications, etc., with copies of three testimonials, to be sent to the undersigned not later than Friday, December 6th.

EDWARD HEMINGWAY,
General Secretary.

Poplar Hospital for Accidents,
Poplar, E.14.

HON. VISITING SURGEON.

Applications are invited for the post of Hon. Visiting Surgeon at the above Hospital. Applicants must hold the Diploma F.R.C.S. (Eng.). Applications, with copies of testimonials, to be sent to the House Governor on or before December 9th.

(Signed) D. H. LINDSAY,
House Governor & Secretary.

British Medical Journal,

BRITISH MEDICAL ASSOCIATION HOUSE,
TAVISTOCK SQ., LONDON, W.C.1.

T/A: ARTICULATE, WESTCENT, LONDON,
Tel.: MUSEUM 9861 (4 lines).

SMALL
ADVERTISEMENT RATES.

Up to Six Lines (32 Words) 9s.
Each Additional Line, 1s. 6d.
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Address must be paid for.

All advertisements should reach the above address by not later than first post TUESDAY preceding publication.

ASSISTANCIES.

Wanted, January 1st, male, outdoor ASSISTANT, Scotch or English. Mixed panel and private Practice, London suburb. Surgical and G.P. experience. Drive own car. Good references. Usual bond. Salary.—small vacant house over surgery; garage; 10 per cent. of Branch Practice (already £550), £350 to £400 p.a. Scope for keen man. — Address, No. 7683, B.M.A. House, Tavistock Square, W.C.1.

Wanted, January, Assistant (male), outdoor, semi-rural district 11 miles from Manchester. Salary £300, plus board and comfortable rooms, etc. Car provided. Dispenser kept. Partnership on easy terms subsequently if suitable. English or Scotch, with some experience. Send full particulars. Interview arranged.—Address, No. 7677, B.M.A. House, Tavistock Square, W.C.1.

Wanted immediately, near London, experienced male ASSISTANT, outdoor, British, preferably married. Salary £500, and house, rent free. — Address, No. 7620, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Indoor Assistant, male, in town of 100,000 inhabitants. Mixed Practice. Dispenser and chauffeur kept. Usual bond. Salary £350.—Address, No. 7604, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Indoor Assistant, young, energetic, unmarried. Cyclist.—Address, No. 7629, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—Assistant, with view to P[illegible] Protestant. Mixed [illegible] country town, S[illegible] State age and [illegible] B.M.A. House, Tavistock Square, W.C.1.

Wanted.—An outdoor Assistant (male) for Branch Colliery Practice in Northumberland. Salary £400 p.a., with furnished house, coals, light, and attendance. —Address, No 7618, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Indoor Assistant, [illegible] t. Abstainer preferre[illegible] Usual bond. Address [illegible] ise, Tavistock Square, W.C.1.

Wanted. — Outdoor Assistant, immediately, in Lancs Town. Panel and Private Practice. View considered if suitable. Must have had hospital and panel experience. Salary £500. Usual bond. Send age and refs. No. 7622, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — Young male Assistant, indoor, as soon as possible. Practice mixed and panel. Near London.—Address No. 7630, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Indoor Assistant, male, young; mixed South Wales Practice. Suit recently qualified man. British. Usual bond. £320 p.a.—Address, No. 7685, B.M.A. House, Tavistock Square, W.C.1.

Wanted, thoroughly reliable ASSISTANT, unmarried, British. Private and colliery Practice, pleasant district. State essential particulars; photograph. — Address, No. 7679, B.M.A. House, Tavistock Sq., W.C.1.

Wanted, an Assistant in a good-class Partnership, 50 miles from London. A share would be considered to a suitable man. Salary £350. — Address, No. 7602, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Male Assistant, indoor, for mixed panel and private Practice, near Manchester. Salary £350. References, photo., and age. Usual bond.—Address, No. 7612, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — Temporary Assistant in G.P. for five months from January 1st. State experience and other essential particulars.—Address, No. 7682, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Lady Assistant, for general Practice (no panel), with a small Mental Hospital attached, situated in the West Midlands. Drive car.—Address, No. 7615, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—Young Assistant, able to do Midwifery and Minor Surgery, for a pleasant private and panel Practice in Pembrokeshire. View to Partnership.—"S. A. E.," c/o FERRIS & Co, LTD., Bristol.

Wanted.—English male ASSISTANT in panel and industrial Practice in the East End. No mids. View if [illegible] lars, etc., No. 7625, [illegible] Square, W.C.1.

Wanted. — Assistantship by Lady M.B., B.Ch., four years' experience panel and private. Well received. Drive car. Good refs.—Address, No. 7607, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistantship by M.B., B.Ch., B.A.O., male, single, aged 29, abstainer. Experienced private and panel (industrial and colliery). Resident Hospital. Free now.—Address, No. 7605, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistantship by Woman Doctor. — Address, No. 7671, B.M.A. House, Tavistock Square, W.C.1.

Assistants (indoor and outdoor) wanted immediately. Good salaries offered. —BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Assistant (indoor), male, Protestant, abstainer, British. Panel and Private Practice in Midlands. Usual bond. £230 to £300 per annum, according to experience. — Address, No. 7624, B.M.A. House, Tavistock Square, W.C.1.

Assistantship or Locums wanted by Woman Doctor. Experienced in private and panel Practice. Used to sole charge. Dispensing. Can drive car. Protestant.—Add., No. 7608, B.M.A. House, Tavistock Sq., W.C.1.

Assistantship (whole or part-time) or LOCUMTENENCY required by unmarried male University Graduate aged 27. Ex H.S. and H.P. (two years). Experienced G.P. and accustomed to sole charge. Motor cyclist. Free now, London.—Address, No. 7672, B.M.A. House, Tavistock Square, W.C.1.

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Acting Secretary.

November 29th, 1929.

The Prince of Wales's General HOSPITAL, Tottenham, N.15.

Appointments of HONORARY CLINICAL ASSISTANTS to the various Departments of the Hospital (Surgical, Medical, Gynæcological, Ear, *Nose, and Throat, Eye, Skin, X-ray and* Electrical) for the ensuing year will be made in December.

Applications for appointment to any of these posts should be sent to me on before Monday, December 2nd next.

FREDK. W. DREWETT,
Director.

November 11th, 1929.

Ingham Infirmary, South Shields.

Wanted, JUNIOR HOUSE SURGEON (male). Salary £150 per annum, with residence, board, and washing. No out-visiting. Candidates must hold registered qualifications in Medicine and Surgery. The appointment will be terminable by one month's notice. Applications, stating age and accompanied by copies (which will not be returned) of recent testimonials, to be sent to the undersigned, from whom further particulars may be obtained.

JOHN POTTER, *Secretary.*

East Ham Memorial Hospital, Shrewsbury Road, E.7.

Applications are invited for the post of HOUSE PHYSICIAN and CASUALTY OFFICER (male) for six months from January 1st, 1930, with salary at the rate of £150 per annum, with board, residence, and laundry.

Applications, stating age, experience, and full particulars, together with copies of testimonials, to be in the hands of the undersigned not later than 10 a.m. on Tuesday, Dec. 3rd.

J. F. MORTON, *Secretary.*

The Liverpool Sanatorium, DELAMERE FOREST, FRODSHAM.

The Committee invite applications for the post of ASSISTANT to the Medical Superintendent at a salary of £250 per annum, with board and residence.

Candidates must be fully qualified. Applications, with copies of three recent testimonials, to be sent in sealed envelopes, marked "Medical," not later than December 10th, to the Secretary, Liverpool Hospital for Consumption, Mount Pleasant, Liverpool.

Westminster Hospital, Broad Sanctuary, S.W.1.

ASSISTANT PATHOLOGIST required for *routine and research work in connection with* the Radium "Bomb" Treatment of Cancer.

The post is a whole-time one. Salary at the rate of £250 p.a.

Applications, with twenty copies of each of three recent testimonials, should be submitted to the undersigned not later than Saturday, December 14th.

CHARLES M. POWER, *Secretary.*

General Lying-In Hospital, York Road, Lambeth, S.E.1.

RESIDENT MEDICAL OFFICER required for January 1st, 1930. Appointment for three months. £100 p.a., with board. Applications, with three testimonials, to be sent to the Secretary not later than December 9th next.

Covers for Binding

Vols. I and II of the BRITISH MEDICAL JOURNAL for 1927 and 1928 can be had, price 2s. 6d., by parcel post 2s. 10d. each.

Remittances must accompany all orders. Apply at the office, B.M.A. House, Tavistock Square, W.C.1.

Manchester Royal Infirmary.

ASSISTANT SURGICAL OFFICER.
CENTRAL BRANCH.

The Board of Management invite applications from registered Medical Practitioners (male) for the above appointment.

The duties are to assist in the treatment of Surgical In-patients and Casualties at the Central Branch on two mornings per week, to be available for urgency calls on the days of duty, and on Sundays in rotation. The appointment (non-resident) is for a period of one year, but the holder of the office is eligible for re-election on two subsequent occasions for a similar period. Salary £75 per annum. Candidates must state age, and send twelve copies of their applications and testimonials to the undersigned on or before 9 a.m. on Monday, December 9th.

By Order,
FRANK G. HAZELL,
Nov. 18th, 1929. Gen. Supt. & Sec.

Manchester Royal Infirmary.

ASSISTANT SURGICAL OFFICER.
GYNÆCOLOGICAL DEPARTMENT.

The [illegible] applications from [illegible] for the above [illegible] to assist in the [illegible] patients on two mornings per week. The appointment (non-resident) is for a period of one year, but the holder of the office is eligible for re-election twice. Salary £35 per annum.

Candidates must state age, and send twelve copies of their applications and testimonials to the undersigned on or before 9 a.m. on Monday, December 9th.

By Order,
FRANK G. HAZELL,
Nov. 18th, 1929. Gen. Supt. & Sec.

Manchester Royal Infirmary.

RESIDENT MEDICAL OFFICER.

The Board of Management of the Manchester Royal Infirmary invite applications for the above appointment, which will become vacant on February 1st, 1930.

Applicants must not be less than 25 years of age. They must be registered, and hold a Medical and Surgical qualification.

The appointment is for twelve months, renewable for a period of one year.

Salary £200 per annum, with board, residence, and laundry allowance.

Full information is obtainable from the undersigned, to whom applicants must send twelve copies of their applications and testimonials on or before 9 a.m. on Monday, December 9th.

By Order,
FRANK G. HAZELL,
Gen. Supt. & Secretary.

Manchester Royal Infirmary.

ASSISTANT RESIDENT SURGICAL OFFICER.

The Board of Management of the Manchester Royal Infirmary invite applications for the above appointment, which will become vacant on January 1st, 1930.

Applicants must hold a Medical and Surgical qualification and be registered.

The appointment is for six months, renewable for a further period of six months, subject to the provisions of the By-laws as to notice.

Salary is at the rate of £150 per annum, with allowance for laundry.

Applicants must state age and send twelve copies of their applications and testimonials to the undersigned on or before 9 a.m. on Monday, December 9th.

By Order,
FRANK G. HAZELL,
Gen. Supt. & Secretary.

Freemasons Hospital and

NURSING HOME,
237, Fulham Road, S.W.3.

There is a vacancy for a PHYSICIAN in charge of the Electro-therapeutic Department.

Applicants must be registered Medical Practitioners. Applications, stating previous experience, with copies of three recent testimonials, should be sent to the Honorary Secretaries by December 6th.

Victoria Hospital for Sick

CHILDREN, HULL.

[illegible] PHYSICIAN (Lady) required. [illegible] work desirable. [illegible] beds. Applications (with copies of recent testimonials), stating age, qualifications, and other particulars, to be sent to the Secretary not later than Friday, December 6th.

Metropolitan Asylums Board.

Applications are invited for appointment as ASSISTANT MEDICAL OFFICER (JUNIOR) at THE DOWNS HOSPITAL FOR CHILDREN, SUTTON, SURREY (360 beds). Salary £500 per annum. Must be a good operator for the removal of tonsils and adenoids, and preferably with some experience of diseases of the ear. The candidate appointed will be required to reside in the Hospital and to pay for board, lodging, and washing at the rate (at present £130 per annum) fixed from time to time.

Form of application may be obtained by sending stamped addressed foolscap envelope to the Clerk, Metropolitan Asylums Board, Victoria Embankment, London, E.C.4, by whom applications must be received not later than 10 a.m. on December 7th.

ALLAN POWELL,
Clerk to the Board.

The Royal Infirmary, Sheffield.

(500 Beds.)

OPEN APPOINTMENT.

Applications are invited for the post (male or female) of CLINICAL ASSISTANT to the Medical Departments, which contain 122 beds and a large Out patient Department open daily.

The salary attached to the appointment is £300 per annum, and applicants must have had previous Hospital and Laboratory experience.

Applications, stating age, and giving particulars of qualifications, etc., should be submitted forthwith to the undersigned, from whom further particulars may be obtained.

JNO. W. BARNES, F.C.I.S.,
Board Room Gen. Supt. & Secretary.
November 26th, 1929.

Central London Throat, Nose,

AND EAR HOSPITAL,
Gray's Inn Road, W.C.1.

FIRST ASSISTANTS.

There are vacancies for two First Assistants in the Out-patient Department.

The posts are honorary ones, tenable for one year, subject to re-election.

Attendance is required at two Clinics each week to assist the Surgeons in seeing the patients.

Applications, accompanied by copies of not more than three testimonials, should be sent to the undersigned not later than December 7th.

JOHN H. YOUNG, Secretary-Supt.

The Glasgow Eye Infirmary.

The Directors invite applications from qualified Practitioners of either sex for the post of ANÆSTHETIST. Attendance required almost daily (morning) for an hour or two. Honorarium at the rate of £100 per annum. Applications should be accompanied by nine copies of the same with nine copies of each testimonial, and should be lodged with the undersigned by December 3rd.

171, West Regent St., WM. M. MOORE,
Glasgow. Secretary.
November 25th, 1929.

Harrogate Infirmary.

Applications are invited from British subjects (male) for the posts of SENIOR and JUNIOR HOUSE SURGEONS, vacant on December 31st, on which date successful applicants will require to take up appointments. Salary is at the rate of £150 and £100 per annum respectively, with board, lodging, and laundry. Applications, to be made on official form to be had from the undersigned, should be sent in not later than December 14th.

Liverpool Hahnemann Hospital,

HOPE STREET, LIVERPOOL.

Applications are invited for the post of HOUSE SURGEON to the above Hospital, which falls vacant on January 1st, 1930. Appointment is for six months, renewable. Salary at the rate of £100 p.a. Knowledge of Homœopathy desirable but not essential. Duties include casualties, occasional anæsthetics, and assisting at operations.

Apply, stating age, sex, experience, and enclosing copies of recent testimonials, to the REGISTRAR before December 13th.

Liverpool Hahnemann Hospital,

HOPE STREET, LIVERPOOL.

Applications are invited for the post of HON. PATHOLOGIST to the above Hospital. Honorarium £25 p.a.

Apply, stating age, sex, and experience, to the REGISTRAR before Friday, December 13th.

Burgh of Kilmarnock.

MEDICAL OFFICER OF HEALTH.

The Town Council invite applications from duly qualified and registered Medical Practitioners holding the Diploma in Public Health or an equivalent qualification, for the appointment of Medical Officer of Health for the Burgh. Candidates must not exceed 45 years of age.

The person appointed will be required to carry out all the duties pertaining to the position of Medical Officer of Health under the Scottish Burgh Police, Infectious Diseases, Notification of Births, Public Health, Housing, Milk and Dairies, Food and Drugs, Blind Persons, and Local Government Acts, and all other relative Statutes and Orders. The appointment will include the duties of Medical Officer of Kirklandside Infectious Diseases Hospital, Kaimshill Tuberculosis Sanatorium, the Maternity Home and Child Welfare Centre, and the Clinic for the treatment of Venereal Diseases; the duties as Tuberculosis Officer, Police Surgeon, and Medical Officer of Model Lodging House; and, from May 15th, 1930, the duties of the Medical Officer under the Scottish Poor Law, Lunacy and Mental Deficiency, and Vaccination Acts, and all other relative Statutes and Orders. The appointment will also include generally any other responsibility or work (including work in connection with medical inspection and treatment of school children and hospital facilities for the treatment of sick persons) that may be assigned to the Medical Officer of Health by the Town Council either by themselves or in conjunction with any other Public Authority or Body.

The person appointed will be required to devote the whole of his time to the duties of the office, and to reside in the Burgh. He will not be allowed to engage in private practice, and all fees which may be paid to or received by him must be paid over to the Corporation. Applicants should have had previous experience in the various branches of the work.

The inclusive annual salary is £800, and the appointment is subject to the approval of the Department of Health for Scotland. The successful candidate will be required to pass a medical examination.

Copies of the Specification of Duties and Conditions of Appointment may be obtained from the Subscriber, with whom applications (enclosed in envelopes endorsed "Medical Officer of Health"), stating age, qualifications, previous experience and present employment, together with one copy of recent testimonials, should be lodged by December 14th.

Council Chambers, N. J. CAMPBELL,
Kilmarnock. Town Clerk.
November 26th, 1929.

Queen's Hospital, Birmingham.

(A Medical School.)

Applications are invited for the post of RESIDENT ANÆSTHETIST, to commence duties at once.

Salary £70 to £100 p.a. (according to experience and previous Hospital Resident appointments), together with board, apartments, and laundry.

Applications should be sent to the undersigned, accompanied by three recent testimonials.

Birmingham. G. HURFORD,
Nov. 27th, 1929. House Gov. & Sec.

Queen's Hospital, Birmingham.

(A Medical School.)

JUNIOR RESIDENT SURGICAL OFFICER required at once.

Candidates must be Fellows of the Royal Colleges of England, Scotland, or Ireland, or have passed the Primary F.R.C.S.(Eng.).

Appointment for one year, with eligibility for re-appointment for a further year.

Salary £100 per annum, together with board, apartments, and laundry.

Applications, with three recent testimonials, to be forwarded to the undersigned.

Birmingham. G. HURFORD,
Nov. 27th, 1929. House Gov. & Sec.

Royal Alexandra Hospital for

SICK CHILDREN, BRIGHTON.
(100 Beds.)

HOUSE PHYSICIAN (male) required. Salary at the rate of £100 per annum, with board, lodging, and washing. Good experience. Expected to take charge of Pathological Laboratory and carry out minor investigations on behalf of the Hospital. No canvassing allowed.

The successful candidate will be expected to commence his duties on December 31st.

Applications, in writing, with testimonials, must be received by Friday, December 13th, and should be sent to—

A. F. GRAVES,
Secretary.

November 22nd, 1929.

All Saints' Hospital (for Genito-Urinary Diseases).

In-patient Dept.: 91, Finchley Road, N.W.8.
Out-patient Dept. & Secretary's Office: 49/55, Vauxhall Bridge Road, S.W.1.

HOUSE SURGEON (male) required January 1st, 1930, for period of nine months, salary at the rate of £150 per annum, for duty as under:

Three months as Assistant House Surgeon (non-resident);
Three months as Junior House Surgeon (non-resident);
Three months as Senior House Surgeon (resident), with board and laundry.

HOUSE SURGEON (male) required January 1st, 1930, for period of six months, salary the rate of £150 per annum, for duty as under:

Three months as Junior House Surgeon (non-resident);
Three months as Senior House Surgeon (resident), with board and laundry.

The duties of the Assistant and Junior House Surgeons consist of attendance at the Out-patient Department every afternoon and three evenings weekly. Promotion at the end of each three months is subject to the approval of the [illegible] experience, and [illegible] copies of recent [illegible] not later than December 10th.

D. H. EADE, Secretary.

All Saints' Hospital (for Genito-Urinary Diseases).

In-patient Dept.: 91, Finchley Road, N.W.8.
Out-patient Dept. & Secretary's Office: 49/55, Vauxhall Bridge Road, S.W.1.

Applications are invited for the following posts, and candidates are requested to send particulars of their experience, qualifications, and copies of three testimonials, not later than December 10th.

HONORARY RADIOLOGIST.

This post is tenable for a period of twelve months, and is thereafter subject to annual renewal at the discretion of the Board of Management. The X-ray Department is in Vauxhall Bridge Road.

HONORARY SURGICAL REGISTRAR.

The appointment is tenable for a period of twelve months, with renewal up to a maximum period of two years, subject to the discretion of the Board of Management. Applicants should be Fellows of the Royal College of Surgeons and should not be engaged in general practice.

D. H. EADE, Secretary.

Wigan Infirmary.

Wanted for six months commencing January 1st, 1930, a THIRD HOUSE SURGEON (male). Salary £150 per annum, with board, apartments, and washing. Doubly registered. Candidates are requested to state if they would be willing to remain a further period of twelve months, subject to satisfactory service—i.e., six months as Second House Surgeon and six months as Senior House Surgeon, in the latter instance at an increased remuneration. Applications, stating age, nationality, and qualifications, with copies of three testimonials, should reach the undersigned as soon as possible.

A. STANLEY BRUNT,
Gen. Supt. & Secretary.

Southport (General) Infirmary.

(120 Beds.)

(Special Departments for Eye, Ear, Nose, and Throat, X-Rays, Massage, Sunlight, V.D., etc.)

Wanted, a JUNIOR HOUSE SURGEON, male, unmarried. Must be doubly qualified and registered. Salary at the rate of £100 per annum, with residence, board, and washing, and additional salary of £50 per annum for services rendered in the Venereal Diseases Department.

Applications, stating age, nationality, and experience, with copies of testimonials, to be sent by December 9th to the Secretary, the Infirmary Office, Pilkington Road, Southport.

Elsie Inglis Memorial Maternity Hospital,

SPRING GARDENS, EDINBURGH.

Applications are invited from qualified Medical Women for the post of JUNIOR HOUSE SURGEON at the above Hospital. The appointment is for six months from January 1st, 1930, with board, residence, and laundry.

Applications, with copies of testimonials, to be forwarded by the Secretary on or before December 10th.

Salford Royal Hospital.

(265 Beds.)

Applications are invited for the following vacancies which will occur in the Resident Medical Staff (male) on December 31st next:

RESIDENT SURGICAL OFFICER. Salary at the rate of £200 per annum.

HOUSE SURGEON (attached to the Genito-Urinary Department). Salary at the rate of £125 per annum.

HOUSE SURGEON to Aural, Skin, and Gynæcological Departments. Salary at the rate of £125 per annum.

The appointments are for a period of six months, with board and residence, with the exception of the Resident Surgical Officer, which is for twelve months.

Candidates must be registered under the Medical Acts.

The Hospital has the approval of the Royal College of Surgeons of England, and appointments here are recognized for the English Fellowship (Final).

Forms of application, which may be obtained from the undersigned, must be delivered on or before December 10th.

By Order of the Board,
Salford Royal Hospital, Manchester. GEORGE RUDDLE, Gen. Supt. & Secretary.
November 30th, 1929.

The Cancer Hospital (Free),

(Incorporated under Royal Charter),
Fulham Road, London, S.W.3.

The Committee are prepared to receive applications for the post of HOUSE SURGEON. Salary at the rate of £100 per annum. The appointment is for six months and subject to rules. Candidates must call upon each member of the Medical Committee. A copy of the rules and the names and addresses of the Medical Committee may be obtained from the Secretary. Previous experience as a House Surgeon is indispensable. Applications, with three testimonials (copies only), to be sent to the undersigned not later than the first post on Monday morning, December 2nd.

J. COURTNEY BUCHANAN, Secretary.

The Willesden General Hospital,

N.W.10.

SURGICAL OUT-PATIENT DEPARTMENT.

Applications are invited for the appointment of CLINICAL ASSISTANT to the Surgical Out-patient Session, which is held on Monday, at 2 p.m.

The successful applicant will be expected to attend the Hospital regularly, and to take charge of the Department when the Medical Officer is absent. The appointment is for a period of six months; duties to commence as soon as possible.

Applications should be addressed to the undersigned by Wednesday, December 4th, from whom full particulars of the appointment can be obtained.

R. J. HEARNE,
November 25th, 1929. Secretary.

Royal Devon & Exeter Hospital,

EXETER.

SENIOR HOUSE SURGEON.

Applications are invited for the post of Senior House Surgeon (male), which will become vacant at this Hospital on January 1st, 1930. The appointment is for twelve months, but candidates are eligible for re-election.

Salary at the rate of £250 per annum, with board, apartments, and washing.

Applications, giving full particulars as to age and qualifications, together with certificate of registration and copies of three recent testimonials, should be sent to the undersigned on or before Monday, December 9th.

By Order of the Committee,
S. S. COLE,
Secretary & Manager.

N.B.—Preference will be given to applicants who have had previous administrative experience.

St. Bartholomew's Hospital.

OFFICE OF PHYSICIAN.

Notice is hereby given that a meeting of the Election Committee will be held on Tuesday, January 7th, 1930, at 4 o'clock in the afternoon, to elect a Physician to this Hospital.

Candidates, who must be Fellows of the Royal College of Physicians of London, are required to lodge 50 copies of their applications and testimonials with the undersigned on or before Tuesday, December 17th.

THOMAS HAYES,
November 26th, 1929. Clerk to the Governors.

Seamen's Hospital Society.

The Committee of Management invite applications for the appointment of MEDICAL SUPERINTENDENT at the DREADNOUGHT HOSPITAL, Greenwich, from January 1st, 1930.

The appointment will be for one year at a salary of £300 per annum, with board, residence, and laundry. The holder will be eligible for re-election for a second year at a salary of £350, and thereafter at a salary of £400.

Applications, stating age, with copies of not more than three recent testimonials, to be sent in on or before Monday, December 9th, to the undersigned, from whom further particulars can be obtained.

Dreadnought Hospital, Greenwich, S.E.10. R. E. V. BAX, Secretary.
November 9th, 1929.

Seamen's Hospital Society.

The Committee of Management invite applications for the appointment of MEDICAL SUPERINTENDENT at the TILBURY HOSPITAL (90 Beds). The appointment will be for one year from January 1st, 1930, at a salary of £250 per annum, with board, residence, and laundry. The holder will be eligible for re-election for a second year.

Candidates must not be more than 35 years of age, and preference will be given to those who have had some Surgical experience.

Applications, stating age, with copies of not more than three recent testimonials, to be sent in on or before Monday, December 9th, to the undersigned, from whom further particulars can be obtained.

Dreadnought Hospital, Greenwich, S.E.10. R. E. V. BAX, Secretary.
November 9th, 1929.

Seamen's Hospital Society,

Greenwich.

HOUSE PHYSICIAN and HOUSE SURGEON required at DREADNOUGHT HOSPITAL, Greenwich, for six months from January 1st, 1930. Salary £110 per annum, and a proportion of fees, with board, residence, and washing. Candidates must be male. Applications, with copies of three testimonials, to be sent in by December 9th to the undersigned.

Greenwich. R. E. V. BAX,
November 9th, 1929. Secretary.

Seamen's Hospital Society,

Greenwich.

HOUSE SURGEON required at TILBURY HOSPITAL, ESSEX, for six months from January 1st, 1930. Salary £130 per annum, with board, residence, and laundry. Candidates must be male. Applications, with copies of three testimonials, to be sent in by December 9th to the undersigned.

Greenwich. R. E. V. BAX,
November 9th, 1929. Secretary.

The Guest Hospital and Eye Infirmary, Dudley.

(General Hospital—104 Beds.)

Applications are invited for the post of ASSISTANT HOUSE SURGEON, to commence duty on January 16th, 1930. Duties include Medical, Surgical, Eye, Ear, Nose, and Throat, and Venereal Diseases work. Salary £150 per annum, with furnished apartments, board, and laundry. Candidates must be fully qualified and registered. Applications, stating age, qualifications, and experience, and accompanied by copies of testimonials, to be sent to the undersigned not later than December 17th.

H. RAYMOND HURST,
The Guest Hospital, Dudley. November 23rd, 1929. Secretary.

York County Hospital.

Applications are invited for the post of HONORARY MEDICAL OFFICER in charge of the Massage and Electro-therapeutic Department.

Applications, stating age, together with diplomas and typewritten copies of testimonials, to be addressed to the Manager not later than December 21st.

Canvassing Members of the Elective Committee is prohibited.

Central Hospital, Plymouth.

(50 Beds.)

HOUSE SURGEON wanted (male or female). Salary £120 per annum, with board, residence, etc.

Applications, stating age, together with not more than three recent testimonials, to be sent to the undersigned not later than Dec. 6th.

WM. W. UREN, Secretary.

CAVENDISH NURSES (Male and Female)

Head Office: 54, BEAUMONT ST., LONDON, W.1 (late 43, New Cavendish St., London, W.1.)

A very convenient form of telephone message pad sent free on application to the Secretary.

Branches: *MANCHESTER*: 176, *Oxford Road*. *GLASGOW*: 28, *Windsor Terrace*. *DUBLIN*: 23, *Upper Baggot Street*.

TELEGRAMS: Tactear, London. Surgical, Glasgow. Tactear, Manchester. Tactear, Dublin.

TELEPHONES: London, 1277 Welbeck. Glasgow, 477 Douglas. Manchester, 3162 Ardwick. Dublin, 531 Ballsbridge.

Superior trained Nurses for Medical, Surgical, Mental, Dipsomania, Travelling and all cases. Nurses reside on the premises, and are always ready for urgent calls Day and Night. Skilled Masseuses, Masseurs, and good Valet attendants supplied.

Terms from £3 3s. *Apply to the Secretary or Lady Supt.*

The Hospital for Sick Children,
Great Ormond Street, W.C.1.

A PART-TIME JUNIOR CASUALTY OFFICER is required on January 4th, 1930, to assist in the Casualty Department, from 10 a.m. to 3 p.m. (Saturdays 10 a.m. to 1 p.m.), under the direction of the Casualty Officer. The work of this office includes a large number of tonsillectomies and other minor operations.

Candidates must be registered Medical Practitioners, and have held a responsible Hospital appointment.

Gentlemen are invited to send in their applications, addressed to the Secretary, before 12 o'clock on Monday, December 2nd, 1929, accompanied by copies of not more than three testimonials written specially for the purpose.

The appointment is made for six months, and is non-resident.

Salary at the rate of £150 per annum, with luncheon.

All candidates must be in attendance to appear before the Joint Committee, if required, at their meeting on Wednesday, December 4th, at 3.45 p.m. precisely.

Forms of application and copies of the rules may be obtained from the Secretary at the Hospital.

By order of the Board of Management,
JAMES McKAY,
Secretary.

November, 1929.

The Hospital for Sick Children,
Great Ormond Street, W.C.1.

A HOUSE SURGEON and a HOUSE PHYSICIAN are required on January 1st, 1930.

Gentlemen are invited to send in their applications, addressed to the Secretary, before 12 o'clock on Monday, December 2nd, 1929, with copies of not more than three testimonials given specially for the purpose, and also evidence of their having held a responsible Hospital appointment.

The appointments are made for six months. Salaries at the rate of £100 per annum, laundry allowance £5, board and residence in the Hospital.

Candidates must be unmarried and possess a legal qualification to practise.

All candidates must be in attendance to appear before the Joint Committee, if required, at their meeting on Wednesday, December 4th, at 4.45 p.m. precisely.

Forms of application and copies of the rules may be obtained from the Secretary.

By order of the Board of Management,
JAMES McKAY,
Secretary.

November, 1929.

Grosvenor Hospital for Women,
Vincent Square, S.W.1.

Applications are invited for the following posts:

HONORARY ANÆSTHETIST.

Candidates are invited to send particulars of their qualifications, accompanied by three testimonials, before Saturday, December 7th.

RESIDENT MEDICAL OFFICER.

The appointment will be for a period of six months (or longer) at a salary of £100 per annum, full board included. Duties to commence as soon after date as possible. Candidates should submit applications, stating qualifications, age, etc., together with copies of three testimonials, before Saturday, December 7th.

EDWARD DEW, Secretary.

Jugham Infirmary, South Shields.

Wanted, SENIOR and JUNIOR HOUSE SURGEONS (male). Salaries £200 and £150 per annum respectively, with residence, board, and washing. No out-visiting. Candidates must hold registered qualifications in Medicine and Surgery. The appointment will be terminable by one month's notice. Applications, stating age, and accompanied by copies (which will not be returned) of recent testimonials, to be sent to the undersigned, from whom further particulars may be obtained.

JOHN POTTER, Secretary.

London Skin Hospital (Inc.),
46, Fitzroy Square, W.1.

HONORARY PHYSICIAN and HONORARY PATHOLOGIST required for above Hospital. Apply SECRETARY.

Hampstead General and North-West London Hospital,
Haverstock Hill, N.W.

APPOINTMENT OF A HOUSE SURGEON.

Applications are invited from unmarried registered Medical Men for an appointment of House Surgeon, vacant on January 1st, 1930.

The salary will be at the rate of £100 per annum, together with board, residence, etc., and the term will be for six months.

Applications, to be made on a form which will be supplied by the Secretary, together with copies of not more than three testimonials, should reach the Secretary not later than noon on December 7th next.

Hampstead General and North-West London Hospital,
Haverstock Hill, N.W.

APPOINTMENT OF HOUSE PHYSICIAN.

Applications are invited from unmarried registered Medical Men for the appointment of House Physician, vacant on January 1st, 1930.

The salary will be at the rate of £100 per annum, together with board, residence, etc., and the term will be for six months.

Applications, to be made on a form which will be supplied by the Secretary, together with copies of not more than three testimonials, should reach the Secretary not later than noon on December 7th next.

Manchester Northern Hospital
FOR WOMEN AND CHILDREN.
PARK PLACE, CHEETHAM HILL ROAD, MANCHESTER.

The Committee of Management require the services of a SENIOR HOUSE SURGEON and JUNIOR HOUSE SURGEON, both duly qualified, who are to commence duties on January 1st, 1930.

Senior House Surgeon, salary £130 per annum, with board and residence; Junior House Surgeon, salary £100 per annum, with board only.

Applications, stating age and experience, with copies of recent testimonials, to be sent to the Secretary, Mr JAMES C. DANIELS, 38, Barton Arcade, Manchester, not later than 12 noon, December 2nd.

Mansfield and District Hospital.

The Board of Management of the above Hospital (140 beds) invite applications for the post of HOUSE SURGEON (male).

Salary at the rate of £150 per annum for the first six months and £175 for the second six months, with residence, board, and laundry.

The appointment is for six months and is renewable.

Applications, accompanied by not more than three recent testimonials, to be sent to the undersigned.

Dated this 12th day of November, 1929.

ARTHUR H. LIMB, Secretary.

North Devon Infirmary,
BARNSTAPLE.

Wanted, end December, duly qualified HOUSE SURGEON, gentleman. Salary £150 per annum, with board, apartments, and laundry. Appointment to be for not less than six months. Applications, stating age, qualifications, with copies of testimonials, to be sent in on or before Monday, Dec. 9th, addressed Hon. Secretary.

Hertford County Hospital.

Applications are invited for the post of HONORARY RADIOLOGIST to the above Hospital. Particulars on application, which should reach the undersigned not later than December 6th.

PERCY G. BROOKS, Secretary.

Hertford County Hospital.

Applications are invited for the post of HONORARY PATHOLOGIST to the above Hospital. Particulars on application, which should reach the undersigned not later than December 6th.

PERCY G. BROOKS, Secretary.

Queen Mary's Hospital for the East End,
Stratford, E.15.
Telephone: Maryland 2616.

Applications are invited from fully qualified and registered Medical Men for the following posts:

One RESIDENT MEDICAL OFFICER. Salary £200 per annum.

One HOUSE PHYSICIAN. Salary £120 per annum.

Two HOUSE SURGEONS. Salary £120 per annum.

SURGEON. Salary

and CASUALTY per annum.

beds, including 46 special Departments.

Candidates, who should have previously held id applications, to the under- December 3rd.

(Major),
Secretary.

West London Hospital,
Hammersmith Road, W.6. (233 Beds.)

Required, One HOUSE PHYSICIAN, One HOUSE SURGEON, and One AURAL and OPHTHALMIC HOUSE SURGEON and ASSISTANT CASUALTY OFFICER (males). These three appointments are tenable for six months from January 1st next, subject to one month's notice on either side. Salary at the rate of £100 per annum, with board, lodgings, and laundry allowance. Candidates must be registered under the Medical Act. Applications and copies of testimonials must be rendered in quadruplicate on printed forms to be obtained from me, and must reach me not later than first post on Saturday, December 7th.

Selected candidates will be required to call upon such members of the Medical Staff as directed, to be in attendance at a Meeting of the Medical Council on Friday, December 20th, at 4 p.m., and the House Committee Meeting at 4.45 p.m. the same day, when the appointments will be made.

H. A. MADGE, Secretary.

Ancoats Hospital, Manchester.

ASSISTANT MEDICAL OFFICER required for the Venereal Diseases Clinics (Syphilis). The successful applicant will be required to attend on Wednesday morning 11.30 to 1.30 p.m., evening 5.30 to 7.30 p.m., Saturday evenings 5.30 to 7.30 p.m. A fee of one guinea per attendance is paid. Apply, stating age, experience, qualifications, etc., and enclose copies of three recent testimonials, to the undersigned on or before December 4th next.

By Order of the Board,
HERBERT J. DAFFORNE,
Gen. Supt. & Secretary.

Ancoats Hospital, Manchester.

HOUSE SURGEON required to commence duty on January 1st, 1930. Salary £100 per annum, with board, apartments, and washing. Applications, stating nce, if any, to be on or before Wed ther with copies of

By Order of the Board,
HERBERT J. DAFFORNE,
Gen. Supt. & Secretary.

Freemasons Hospital and Nursing Home,
237, Fulham Road, Chelsea, S.W.3.

The post of RESIDENT MEDICAL OFFICER (male) will be vacant on January 1st, 1930. Salary at the rate of £250 per annum, with board, residence, and laundry. The appointment is for six months. Candidates must be registered and must have held Resident appointments at a General Hospital.

The Institution (47 beds) is for paying patients of both sexes of moderate means unable to afford ordinary nursing home treatment, etc.

Applications, stating full particulars, to be sent on or before December 7th next to the Honorary Secretaries, from whom further information may be obtained.

PROSPECTIVE PURCHASERS

OF PRACTICES

and those seeking

PARTNERSHIPS

should consult

The

BRITISH MEDICAL BUREAU

at

12, Stratford Place, Oxford St., London,

or its Northern Branch at

33, Cross Street, Manchester,

or its Newcastle Branch at

7, Windsor Place, Newcastle - on - Tyne.

Those requiring additional

CAPITAL

should apply to the

Medical Insurance Agency

(Limited by Guarantee)

B.M.A. House, Tavistock Sq., London, W.C.1.

Queen's Hospital, Birmingham.

Applications are invited for the following resident appointments from fully qualified and registered candidates.

Salary £70 p.a., together with board, apartments, and laundry.

For six months from January 1st, 1930:
HOUSE SURGEON to the Ophthalmic and Ear, Nose, and Throat Dept.

For three months from January 1st, 1930:
HOUSE SURGEON to the Casualty Dept.

Applications and enquiries to be made to the undersigned.

C. HURFORD,
November 20th, 1929. House Gov. & Sec.

Torbay Hospital, Torquay.

(146 Beds.)

HOUSE PHYSICIAN wanted for December 14th. Salary £175 per annum, with board, residence, and laundry. Candidates must be fully qualified, registered, and unmarried.

Applications, stating age, nationality, qualifications, and experience, must be received by the undersigned not later than first post on Tuesday, December 10th next, with copies of not more than three recent testimonials.

E. L. GRIST,
November 25th, 1929. Secretary.

Bristol Royal Infirmary.

Applications are invited for the post of HOUSE SURGEON to the Ear, Nose, and Throat Department for the period ending February 28th, 1930. Candidates, who must be duly qualified and registered, to send in their applications immediately to the undersigned

ELLIS C. SMITH, F.C.I.S.,
Secretary & House Governor.

General Infirmary, Salisbury.

(General Hospital—151 Beds.)

Two HOUSE SURGEONS (male) required to commence duty as soon as possible

Candidates must be unmarried, fully qualified, and registered. Salary £150, with board etc.

Applications, with copies of testimonials, to be sent to the House Governor and Secretary, from whom a copy of the rules may be had on application.

Telephone: WELBECK 2728.
Telegrams: "ASSISTIAMO, LONDON."

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W. J. HICKS, *Secretary.*

ST. LUKE'S HOSPITAL.

FOR MENTAL DISORDERS.

Private Nursing Staff Department.

Trained Nurses for Mental and Nervous Cases can be had immediately.

Apply to Lady Superintendent,
19, Nottingham Place, London, W.1.
Telephone: Mayfair 5420.

Northern Branch.—Apply, Lady Superintendent 57, Clarendon Rd., Leeds. 'Phone: Leeds 26165.

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No Charge to Purchasers. All Business receives Mr. NEEDES' personal attention.

Kettering and District General Hospital.

(82 Beds.)

Applications are invited for the post of JUNIOR HOUSE SURGEON (male). Salary £150 p.a., with board, residence, and washing. Candidates must be fully qualified and registered.

The appointment is for six months, with eligibility for appointment as *Senior* for a further six months.

Applications, stating age, nationality, and qualifications, together with copies of three recent testimonials, to be sent to the Secretary-Superintendent not later than December 6th.

London Lock Hospital,

Dean Street and Harrow Road, W

The Board of Management invite applications for appointment as SECOND ANÆSTHETIST, to attend as may be required by the Hon. Surgical Staff of the Hospital. Fee £1 1s. per attendance. The appointment is made in accordance with the Laws relating to the Medical Staff of the Institution, a copy of which can be obtained from the Secretary. Applications, enclosing two copies of recent testimonials, to be addressed to the Secretary, 283, Harrow Road, W.9, on or before December 9th.

Merthyr General Hospital,

MERTHYR TYDFIL.

Applications are invited for the post of RESIDENT HOUSE SURGEON at this Hospital, 104 beds (mainly surgical), for a period of six months. Salary at the rate of £150 per annum, with board, rooms, and laundry. Applicants must have had experience in administration of anæsthetics.

Applications, stating age and qualifications, and enclosing copies of three recent testimonials, should be addressed, Hon. Sec., Honorary Medical Staff, General Hospital, Merthyr Tydfil.

Newark Hospital and Dispensary

(50 Beds.)

Wanted, a fully qualified RESIDENT HOUSE SURGEON (male) to commence duty January 1st, 1930. Must be a good Anæsthetist. Salary £150 per annum, with board, residence, and laundry. Appointment for six months, or twelve if mutually desired. For form of application apply to W. T. CRAMPTON, 27, Kirk Gate, Newark, Notts.

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Home County. — Over £1,300 p.a. Panel and appts. £550 p.a. House, 6 beds., good surgery, etc., and garden, to rent.—No. 8569.

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Eastern Counties. — Assistancy, with view to Partnership. 1/3rd of £3,500 p.a. Panel over 1,300. Appts. £280 p.a. Mids. 2 to 10 gns. Visits 5/- to 31/6, etc. Suitable accommodation.—No. 8573.

Eastern Counties. — Country PRACTICE. Average £2,350 p.a. Eminently suitable for two. Appts. £100. Panel 1,600 odd. Two good houses to let.—No. 8568.

Home Counties.—Country Town. Share worth £1,000 or more p.a., in old-established Practice. Appts. £250 p.a. Panel over 2,700. Personally visited.—No. 8565.

West Yorks.—About £7,200 p.a. 1/4 share for sale. Panel about 8,000. Not much mid. House, 4 bed., etc., to rent or buy. Prem. 1½ yrs.' pur., part down.—No. 8522.

S. W. County. — About £1,060 p.a. Visits 5/- to 21/-. Surgery fees 3/6 to 21/-. Panel and appts. £700 p.a. Very little mid. Good house available.—No. 8564.

London, E. — £850 p.a. Old-estab. Visits 5/- to 10/6. Very little midwifery. Panel over 500. Small house to let £60 p.a.—No. 8562.

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Lancs.—1/3 or 1/2 share of over £2,400 p.a. Prelim. Assistancy. Panel £500. Mixed-class. Good house, 4 beds., attics., etc.—No. 8454.

London, N.W.—Over £900 p.a. Cash and panel of over 800. Visits 3/6 up. Corner house, 6 rooms, surgery, etc.—No. 8560.

Eastern County. — Over £1,000. Panel and appts. £560. Visits 4/6 up. Good house, with 4 beds., and garden. Low rent.—No. 8559.

Lancs.—£4,000 p.a., increasing. Panel over 2,650. Fees 2/6—7/-. Mids. 2—5 gns. Suitable for two. Two adjoining houses to rent or buy. Premium, including drugs, book debts, surgery furniture, etc., only £5,250.—No. 8509.

Herts.—Country.—Nearly £1,000. Panel 470. Appts. £54. Residential. Good fees. House, with good surgery, 6 bed., garden, etc.—No. 8556.

West of England Town.—Share worth £900 p.a., of which £600 is from panel and appts. House, with 7 beds., etc., to rent.—No. 8552.

Midlands (Industrial). — Over £1,500 p.a., with ample scope. Panel about 1,700. House to rent at £56.—No. 8546.

Liverpool.—£1,300 p.a. Visits 3/6 to 5/-. Mids. 3 to 4 gns. Panel 560 House, 4 bed., etc., and garden.—No. 8536.

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(ESTABLISHED BY J. A. REASIDE IN 1893)

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CORNWALL.—DEATH [illegible] Country Town PRACTICE. Receipts [illegible] 800. Appointments. [illegible]'s purchase. Hospital. Locum Excellent freehold Fees 3/- upwards.

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WEST COUNTRY.—PARTNERSHIP in non-dispensing non-panel Practice. Receipts £2,700. Suitable accommodation. Premium for half share 2 years' purchase.

LONDON, N.W.—Working-class G.P. in thickly populated locality. Receipts nearly £1,000. Panel over 800. Premium £1,250.

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HERTS.—PARTNERSHIP *after preliminary Assistantship in old-estab.* non-panel G.P., with scope. Receipts about £2,000 p.a. 1/4th share, with view to larger share, at 2 years' purchase.

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KENT.—Well-established Country PRACTICE. Receipts nearly £1,400. Panel 705. Excellent freehold house, with large garden and garage. Scope for surgery. Premium 1½ years' purchase.

LONDON, W.C.—Middle-class G.P. Receipts approx. £600 p.a. Increasing panel of 190. *Accommodation to rent.* Premium £800.

SEASONAL PRACTICE on the French Riviera, established over 21 years. *Excellent apartment to rent, luxuriously furnished*; well situated in fashionable quarter. Receipts 150,000 fr. p.a. Premium £4,000, " *inclusive.*

KENT.—PARTNERSHIP in old-established G.P. within 15 miles of London. Receipts average £3,800. Panel 2,500. One-third or half share offered at 2 years' purchase.

YORKS.—Well-established middle- and working-class Town PRACTICE. Receipts *approx.* £1,520. *Panel nearly* 1,700. House to rent. Premium £2,250.

HOME COUNTIES.—(Seaside Resort).—DEATH VACANCY in well-established G.P., with small panel. Receipts approx. £2,000. Scope for surgery, if desired. Excellent house available. Premium £1,000 cash, for quick sale.

STAFFS.—Country PRACTICE near manufacturing area. Receipts average £1,100 p.a. Panel 1,300. *Good sized house for sale or to rent.* Premium for quick sale £1,000, cash.

YORKS.—PARTNERSHIP in middle- and working-class Town PRACTICE. *Receipts approx.* £3,000 p.a. *Panel over 2,000. House to rent.* Premium for 1/4th share 2 years' purchase.

MIDLANDS.—Well-established G.P. *Receipts* £2,500. *Panel* 1,900. Choice of two residences for sale or to rent. Premium 1½ years' purchase. Partnership up to half share entertained.

NORFOLK.—PARTNERSHIP in old-established G.P. Excellent scope. Receipts over £2,300 p.a. Panel 1,800. Appointments. Premium for 1/3rd share 2 years' purchase. *Short preliminary assistantship* essential.

[illegible] HIP with view to SUCCESSION in old-established charming rural locality. Receipts over [illegible] Commencing salary, indoor, £250 p.a.

SURREY.—PARTNERSHIP in *old-established middle-class G.P. Receipts* approx. £2,000 p.a. Panel 1,400. Premium for 1/3rd share 2 years' purchase.

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2. YORKSHIRE.—Large County Borough.—Well-established working and middle-class PRACTICE. Receipts over £1,500 p.a. and steadily increasing. Panel about 1,700. Good house to rent.
3. ESSEX.—COUNTRY PRACTICE. Established by Woman Doctor 3 years. Receipts about [illegible] Small panel
4. [illegible] Good house. [illegible] panel and [illegible] receipts £2,242, and increasing. *Panel* 1,459. Appointments worth about £55. Good house to rent.
5. YORKSHIRE.—Unopposed Country PRACTICE. Receipts £513. Panel 233. Appointments about £44, transferable. Good house, garage, and garden.
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The business undertaken by the British Medical Bureau is divided under the following heads:—

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Medical Practitioners wishing to dispose of Practices, or desiring to take Partners, are advised to negotiate the business through the British Medical Bureau. Vendors may depend upon receiving introductions only to eligible and bona-fide purchasers. All information is treated in strictest confidence. Full and trustworthy information regarding Practices, Partnerships, etc., for disposal, supplied gratis to Purchasers.

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The British Medical Bureau has its own staff of fully qualified Accountants wholly engaged on medical work—i.e., Investigation of Practices for purchasers, Income Tax, Auditing Books & Accounts, etc.

Practices and Partnerships for Disposal. **Full particulars sent free.**

1 DEATH VACANCY. — CORNWALL.— Country PRACTICE about £1,000/£1,200. Panel 800. Suitable and convenient house.

2 DEATH VACANCY. — Aberdeenshire.— Country PRACTICE about £1,000. Panel 630. Comfortable house (4 bedrooms), with large garden, at low rent.

3 SOUTH MIDLANDS.—Rapidly increasing PRACTICE in first-rate town. Receipts 1928, £562. Panel 480. Detached double-fronted house (4 bedrooms) to be sold. Considerable scope. Premium £600.

4 SURREY.—Partnership in non-dispensing Practice in good outlying Residential District. No panel, not much midwifery. Nice small house (3 bedrooms) to rent. Applicant should be aged 27/32, Oxford, Cambridge, or London, and have held House appointments. Share worth about £800 p.a. (with early increase) at 2 years' purchase. Preliminary Assistantship.

5 SOUTH COAST.—Practice about £800 p.a. in first-rate Residential Town and favourite Watering-place. Panel about 200. House (5 bedrooms) in good position. Scope in all directions. Premium 1½ years' purchase.

6 SOUTH OF ENGLAND.—Partnership in good-class non-dispensing Practice over £5,200 in first-rate Town. Plenty of scope. Applicant should be young (Cambridge or Oxford preferred and London School) One-sixth share at first at 2 years' purchase.

7 SURREY.—Partnership in Practice £3,650 p.a. in outlying Suburban District. Panel over 2,100. Detached house (6 bedrooms), garden, and garage, to rent. Premium 3/8ths share 1½ years' purchase.

8 SOUTH WALES. — Practice over £1,200 p.a. in Country Town. Panel about 300. Attractive old house (6 bedrooms). Garage and garden. Good facilities for sport. Premium £1,500.

9 SOUTH COAST.—Practice £1,328 p.a. in favour[illegible] 70. Large well-situated house to ren[illegible] 100, to include drugs, etc.

10 [illegible] — Well-established Season PRACTICE Receipts over 216,000 ft. p.a. Luxuriously furnished apartment (7 rooms), in most fashionable quarter, to rent Premium (including fully furnished apartment) £4,000.

11 WEST MIDLANDS. — Country Practice (held by Medical Woman) in beautiful Village. Receipts £530 p.a., steadily increasing Semi-detached 10-roomed house, with nice garden and garage, to rent. Premium 1½ years' purchase.

12 SOUTH COAST. — Increasing Practice £1,345 p.a. in favourite Seaside Resort. Panel 400/500. Choice of two houses for sale. Scope for increase. Premium 1½ years' purchase.

13 S.E. COAST.—Partnership in Practice over £5,000 p.a. in popular resort. Premium one-fourth share 2 years' purchase. Partner should be aged about 30 and must have held House appointments. Short preliminary assistantship.

14 HOME COUNTIES.—Partnership in Practice £2,800 p.a. in good town about 30 miles from London. Small panel. Convenient house (5 bedrooms) to be sold or let. University and Public School man who has held appointments preferred. One third share at 2 yrs.' purchase after preliminary assistantship.

15 NURSING HOME in favourite Town on Kent Coast. Clear net profit £750 p.a. Double-fronted residence, with operating theatre, to be let or sold. Premium—Goodwill—£1,000. Highly recommended.

16 SOUTH OF ENGLAND.—Partner required in very old-established Practice in first-rate City. Fees 5/- to £5 5s., medicine extra. Partner should be Oxford or Cambridge Graduate (not over 30) and have held Hospital appts. Share worth about £1,500 p.a. at 2 years' pur. Prelim. assistantship.

17 KENT & SUSSEX BORDER. — Practice averaging nearly £1,100 p.a. in beautiful Country District. Small panel. Very convenient house (6 bedrooms) for sale. Sport. Premium 1½ years' purchase.

18 LANCASHIRE.—Partnership in Practice £3,720 p.a. in first-rate Town. Panel 2,600. House (4 bedrooms) to be sold or let. Premium one-half share 1½ years' purchase.

19 EAST ANGLIA.—Partnership in Practice about £3,300 p.a. in Country Town. Panel 1,356. After prelim. Assistantship one-third share offered to suitable man at 2 years' purchase. Applicant should be exper. and a good Anæsthetist.

20 ESSEX.—Practice of £1,070 pa. in Rural District. Panel 670. Old-fashioned house (6 bedrooms), with large garden, to rent. Scope. Premium £1,650.

21 WEST OF ENGLAND.—Steadily growing Country PRACTICE of about £650 in delightful part of the Cotswolds—easy reach of two good Towns. Panel 497. House (6 bedrooms), with garage, ½ acre garden, and paddock, for sale. Good scope. Premium £800.

British Medical Bureau

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(FOUNDED 1880.)

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Practices and Partnerships for Disposal (continued).

22 EAST COAST. — Partnership (after short preliminary Assistantship) in lucrative Practice in Industrial Seaport Town. Panel 5,000. Suitable house to rent. Share worth over £1,800 p.a. at 1½ years' purchase. Applicant must be young (about 30) and energetic.

23 SOUTH MIDLANDS.—Country Practice, 40 miles from London. Established 13 months. Earnings during same period £600. (Cash received £500.) Panel 40. House (6 bedrooms), with good garden, etc., to rent. Plenty of scope. Premium £600. Part down.

24 WILTSHIRE. — Country Practice about £500 in delightful part. Small panel. Suitable flat (2 bedrooms) to let. Premium £500.

25 SOUTH COAST.—Practice of £1,300/£1,400 p.a. in popular resort. Panel 785. House (5 bedrooms), on main road, to rent.

26 GLOUCESTERSHIRE.—Country Practice of £550 p.a. in delightful part. Panel 450. Excellent modern house (5 bedrooms) and garden for sale. Premium £750.

27 DORSET.—Country Practice over £1,000 p.a. in beautiful district. Panel over 600. Nice house (6 bedrooms), with lovely garden, to rent. Premium 1½ years' purchase.

28 SOUTH WALES.—Seaside Resort.—PRACTICE averaging £1,290 p.a. Panel 600. Nice house, with garden and garage, for sale or rent. Premium 1½ years' purchase. Welsh not necessary.

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30 KENT. — Partnership in Practice about £5,750 p.a. in an industrial town. Panel 2,500. Cottage Hospital. Scope for minor surgery. Premium one-third share 2 years' purchase.

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3. [illegible] better-class Country PRACTICE, in reach of London. Receipts average [illegible]00 and appts. worth £60. Visits 3/6 [illegible] ouse, with all modern conveniences, and half acre of garden. Price for freehold £1,800. Prem. £1,400.
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31. [illegible] TOWN.—A one-[illegible]g good surgical [illegible] of 1,800. Suit-
32. [illegible] PARTNERSHIP.— [illegible]n-panel, general, [illegible]ears over £5,000 [illegible]etc. Premium 2

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DECEMBER 7TH, 1929.

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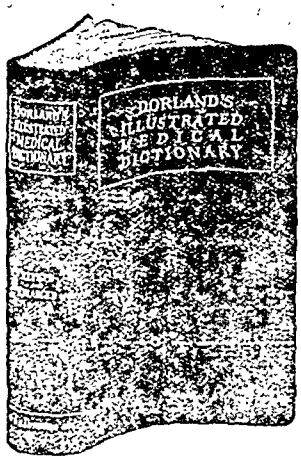

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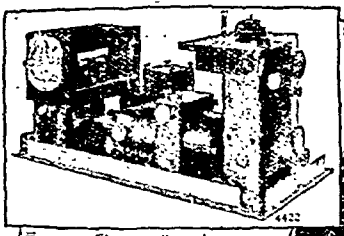

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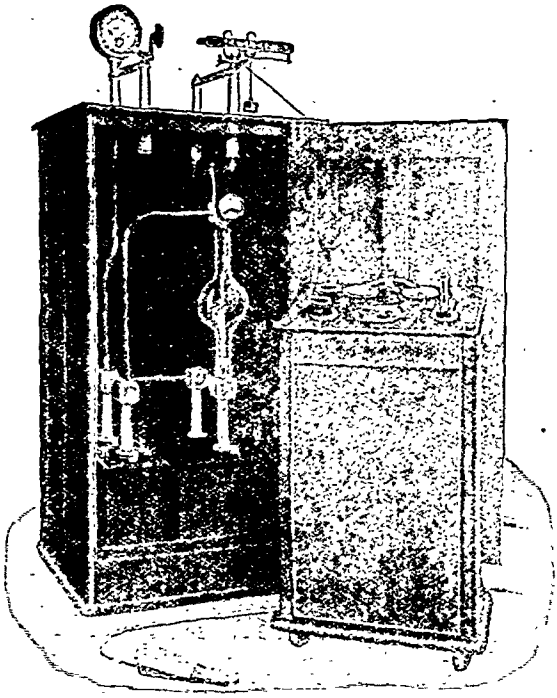

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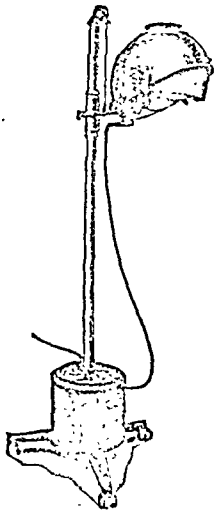

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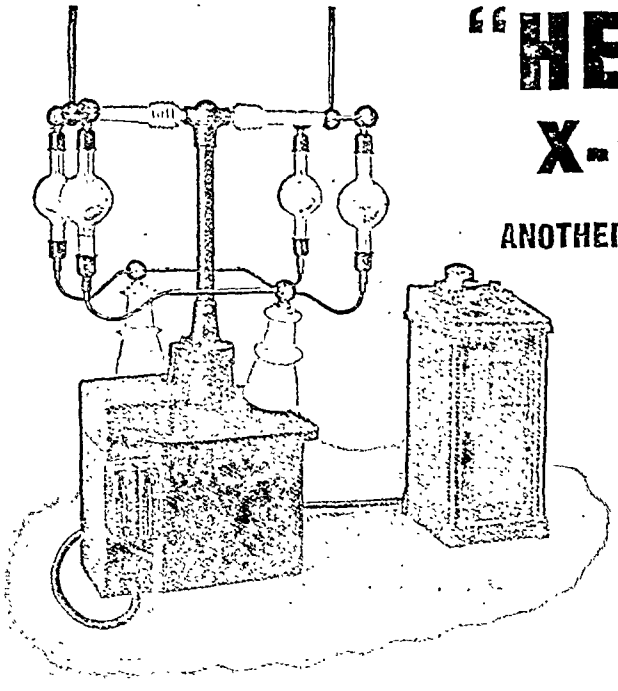

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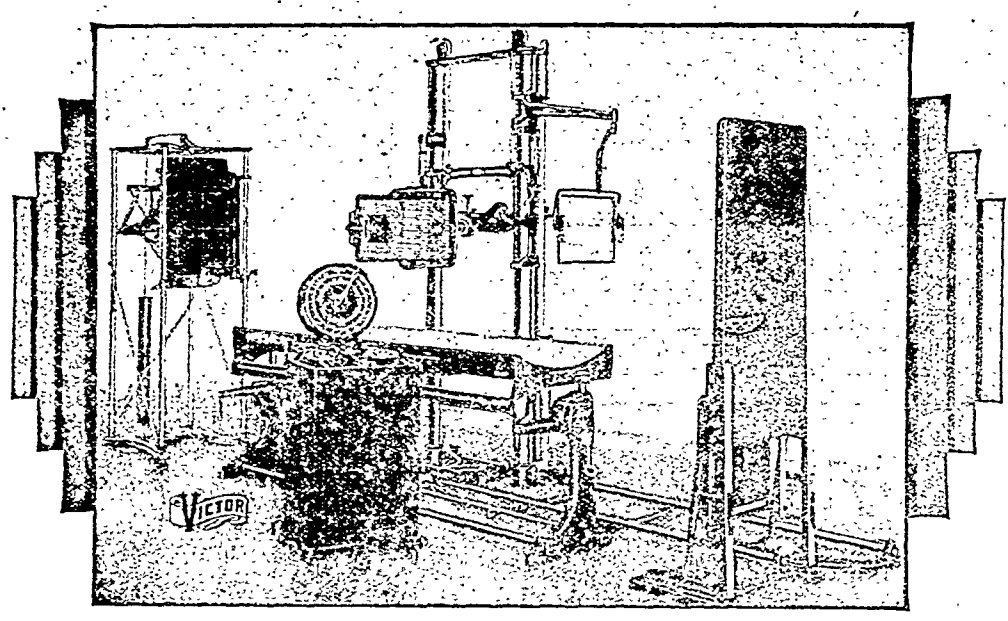

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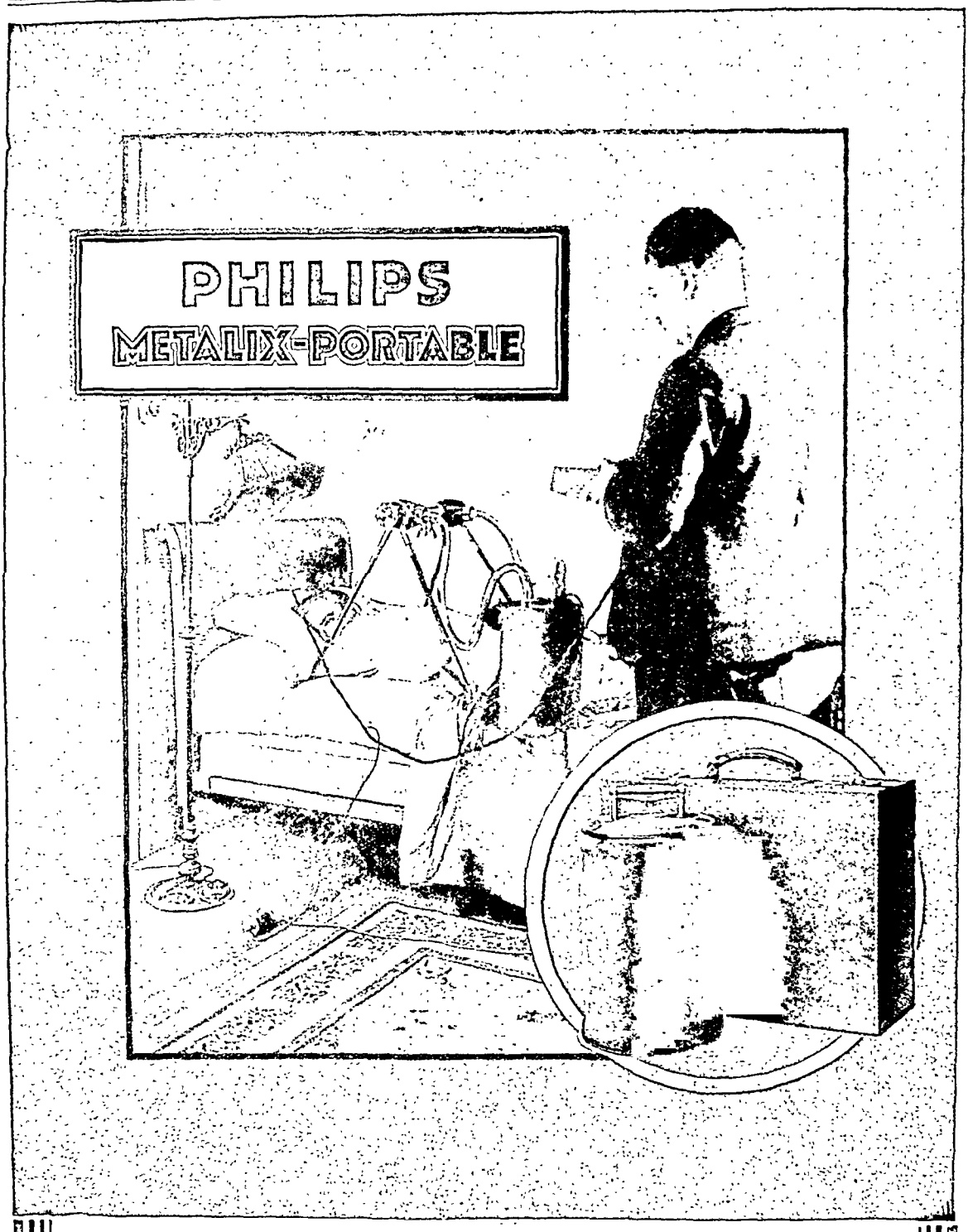

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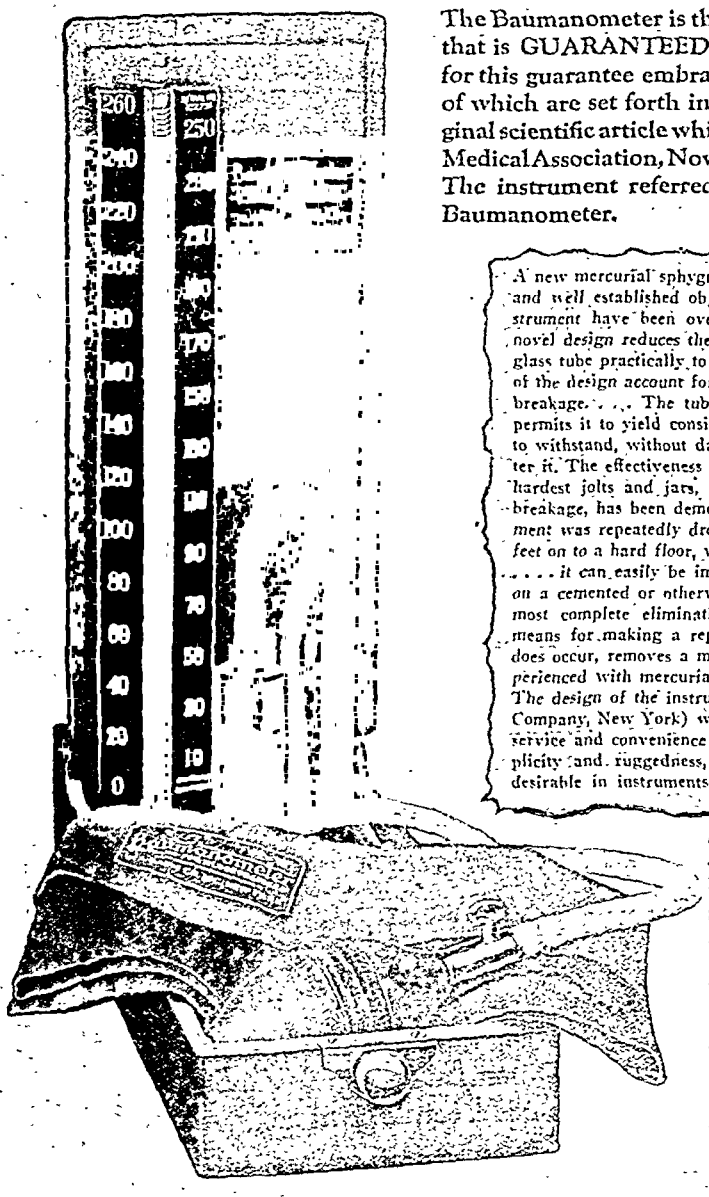

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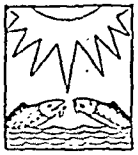

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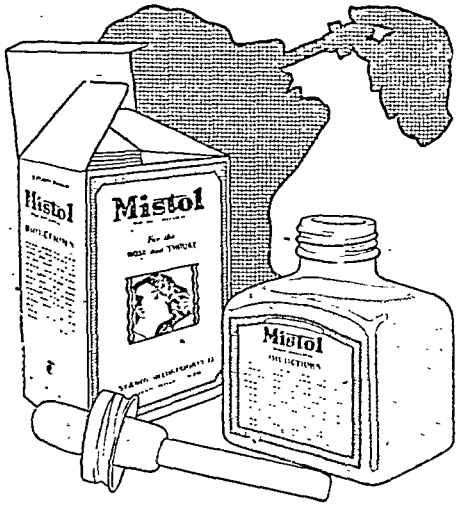

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Co. 13. "The most striking result was in the case of a child, aged 6, with chronic constipation, for which she had been drugged for weeks—Cascara, Paraffin, etc. Dessertspoonful of Bemax twice a day produced a healthy, active child."—M.D.

BEMAX is the most concentrated extract of natural Vitamin B. Many important Clinics and Child Welfare Centres rely on it to supply the "B" Vitamin content of the diet of their patients. That satisfactory results are achieved is evident from reports which reach us from doctors in charge of these organisations. Bemax has proved of inestimable value in severe cases of Constipation, Intestinal Toxæmia, Debility, Neurasthenia, Rheumatism, Gastric Disturbances, and Skin Diseases of all kinds—in fact, in all cases which show signs of B Vitamin deficiency.

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"I would say that the addition of more Vitamin B (in the form of Bemax) has proved most valuable, and that, in certain children this addition has been of vital importance and the main cause of rapid improvements."
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N.S.D. 18. "Have exhibited 'Bemax' in a number of cases of disabled men; it has certainly proved beneficial, especially in gastric atony."—M.D.

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THERE is no finer grade of Norwegian Cod Liver Oil imported into this country than White Bear Brand. It is exceptionally free from taste and odour, well-tolerated and easily assimilated. The process of refinement is scientifically controlled, hence the Vitamin activity of the oil is fully retained. Thus, the utmost benefit obtainable from cod liver oil is assured to the patient. The price, too, is advantageous.

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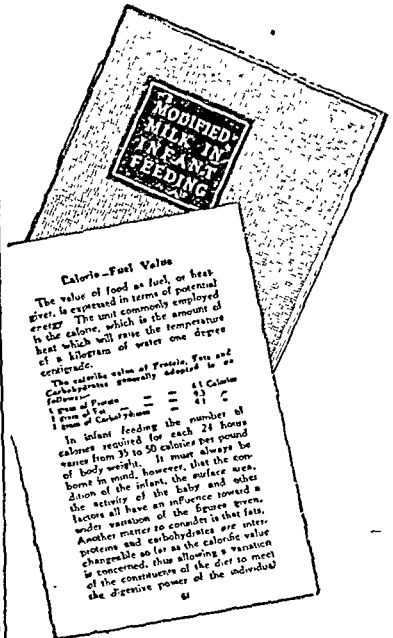

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will minimise risks and simplify the question of feeding.

Samples and directions for feeding average infants under normal conditions, as well as suggestions for the use of Mellin's Food in cases of diarrhœa, constipation, and mal-nutrition, are freely supplied to members of the Medical Profession.

The pamphlet "Modified Milk in Infant Feeding" will be forwarded with samples, post free, upon application to:—

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(Contains 30% Liquid Paraffin).

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DENTAL CREAM

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The properties desirable in a dentifrice have been specified as follows, viz.:

Antiseptic.	Harmless to Mucous Membrane.
Pleasant Flavour.	Non-poisonous to the user.
Mildly Alkaline.	Must not alter reaction of the Saliva.
Contains Chalk as an Abrasive.	Must not destroy Salivary ferments.
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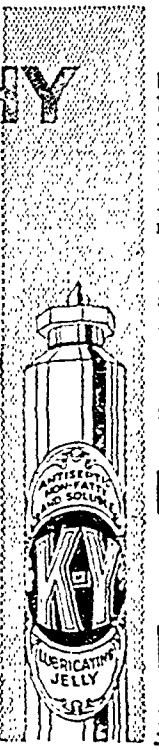

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Bowel Infection
in
DISEASES OF THE NERVOUS SYSTEM

A generation ago the origin of diseases of the nervous system presented for the most part a tangle of insoluble medical problems. The scientific worker of to-day, however, has so far cleared a way through the jungle as to make its ultimate conquest a certainty. In disorders of the nervous, as of other bodily systems, the overwhelming part played by toxæmic agencies has become generally recognised.

"The first routine duty of the physician called upon to face nervous symptoms in which there is no routine cause, such as arsenic, lead, or alcohol, is to search for a focus of infection. In some cases this will be found in the nasal cavity and its accessory sinuses, or in the mouth or pharynx, but in the great majority the seat of mischief lurks in the bowel. Should constipation and anæmia be associated with otherwise obscure nervous symptoms, there need be little hesitation concerning the diagnosis, and still less about the treatment. Bowel toxæmia proclaims itself in the boldest of type, and the experienced physician often recognises auto-intoxication at a glance. Happily, in all such cases, now that the problem of intestinal disinfection has been solved by the introduction of the benzene derivative Dimol, it is possible to clear out the immediate cause of the trouble *in situ*."
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A new era in the treatment of many diseases of the nervous system is thus opened up by the discovery of this benzene derivative. With the introduction of Dimol, the **bactericidal equivalent** of 140 grains pure phenol can be administered four or five times a day without affecting the mucosa or producing any toxic effect whatever.

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(1) He knows it to be cleanly in use; whereas poultices and liniments soil clothes and skin, thus making examination with hand or stethoscope both unpleasant and difficult.

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Thermogene is carefully prepared pure cotton wadding, remarkably soft and fleecy, freed from dust and other impurities, and impregnated with skin-stimulating vegetable essences.

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is administered in enteric-coated tablets or in capsules. They contain the same dose, and the indications for their use are the same.

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In the **Treatment** of **Weak Babies**, in the **Gastric** and **Enteric Troubles** of **Infants** and in the **Wasting** and **Febrile Diseases** of **Children**, the **Ease** of **Assimilation** and **Power** of **Valentine's Meat-Juice** to **Sustain** and **Strengthen** has been **Demonstrated** in

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Physicians are invited to send for Clinical Reports.

For sale by European and American Chemists and Druggists.

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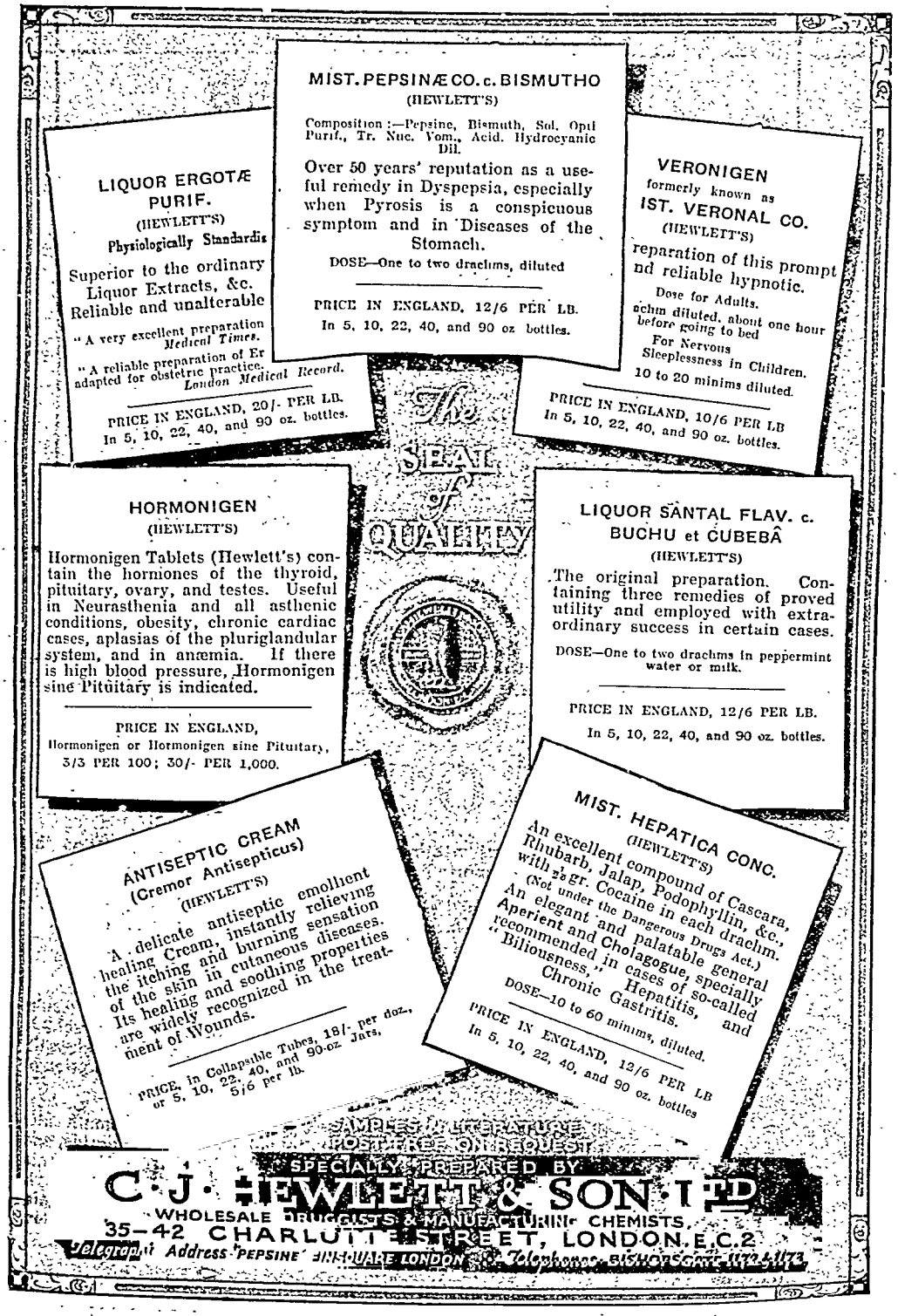
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Composition :—Pepsine, Bismuth, Sol. Opii Purif., Tr. Nuc. Vom., Acid. Hydrocyanic Dil.
Over 50 years' reputation as a useful remedy in Dyspepsia, especially when Pyrosis is a conspicuous symptom and in Diseases of the Stomach.
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¶ VITAD *is the unsaponifiable fraction of Cod-Liver Oil* containing in a high concentration Vitamins A and D.

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¶ Palatinoid Vitad is put up in bottles of 25 and 100, and in two strengths:

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Two palatinoids respectively represent the full daily dose of Vitamins A and D.

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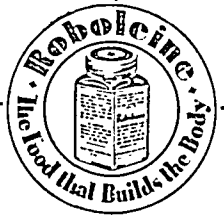

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In Syphilology

BISOXYL

At the annual meeting of the British Medical Association this year it was reported that:—

"... bismuth was now adopted by practically all syphilologists throughout the world as a substitute for mercury. It was more efficient and less toxic than the older remedy."

The opinion was expressed that the maximum beneficial results are obtained when a watery suspension of a sparingly soluble bismuth salt is used—the bismuth content, the purity of the salt, the size of the particles and the stability and rate of absorption of the product being factors of the greatest importance.

Bisoxyl is such a suspension of a sparingly soluble bismuth salt; it is prepared from pure, finely-divided bismuth oxychloride, and special attention is given to the physico chemical requirements mentioned above. There is ample proof of the value of Bisoxyl, and the evidence in favour of its use has been supplemented again recently by investigations carried out at one of the large London hospitals. (*Lancet*, Nov. 16th, 1929, pp. 1034 and 1050.)

Literature on request.

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**Literature available.*

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Concentrated Fluid Extract of

LIVER

ONE OUNCE (the Daily dose) = HALF POUND
FRESH WARM CALF LIVER

PALATABLE,—READY to TAKE

The only stabilised FLUID EXTRACT accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in their list of New and Non-Official Remedies.

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Elixir of

ENZYMES

Elixir of Enzymes is a palatable preparation of the proteolytic and curdling ferments that act in acid medium. It is recommended as an aid to digestion and as a stomachic stimulant and mild carminative.

Elixir of Enzymes is of especial service in correcting faulty protein digestion which is one of the principal causes of gastro-intestinal auto-intoxication.

Elixir of Enzymes is an excellent vehicle for exhibiting iodides, bromides, salicylates and other drugs that disturb the digestive functions. One dram of Elixir of Enzymes will carry 46 grains of potassium iodide or 45 grains of sodium salicylate or 17 grains of potassium bromide.

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Intestinal Disinfection

RHEUMATOID ARTHRITIS

UNDER this name, several conditions which are ætiologically distinct are doubtless grouped together, and we are still far from a solution of the cause of the disease.

It is obviously impossible to restore in any marked degree mobility to the joints of the hopelessly crippled, but in the early stages much may be done to retard or stop the progress of the disease.

An eminent surgeon has directed attention to the rôle of chronic intestinal stasis and alimentary toxæmia in the production of the disease, and has emphasised the need for intestinal disinfection.

For this purpose nothing surpasses the use of Kerol Capsules. Kerol is a potent and non-toxic germicide which is unabsorbed from the intestine, so that the whole of its germicidal power is exerted upon the contents of the bowel.

For intestinal disinfection, use KEROL CAPSULES (keratin-coated); they contain 3 minims of Kerol. One to three capsules may be given three or four times a day after meals.

Please send for Literature and Samples, which will be sent free to any member of the Medical Profession.

KEROL LTD.
100 Ravens Lane
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Kerol Capsules

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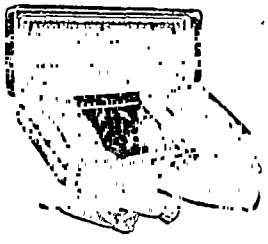

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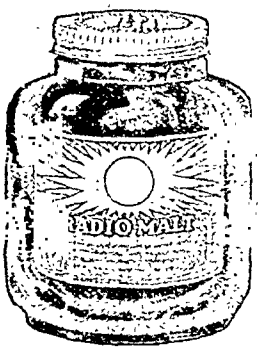

Rational Prophylaxis

IT is clearly evident that the public health authorities now appreciate fully the importance and the possibility of reducing the incidence of seasonal epidemics.

Thanks to the advancement of medical science it is realised to-day that disease is largely a manifestation of a devitalised condition caused by inadequate nutrition and disregard of simple prophylactic measures. The ready availability of a product of the nature of Radio-Malt with its definite anti-infective and health-promoting properties makes rational prophylaxis universally possible.

The daily administration of Radio-Malt during Autumn and Winter prevents the draining of the reserve of natural disease-resisting power which is otherwise almost inevitable during the Winter.

RADIO-MALT

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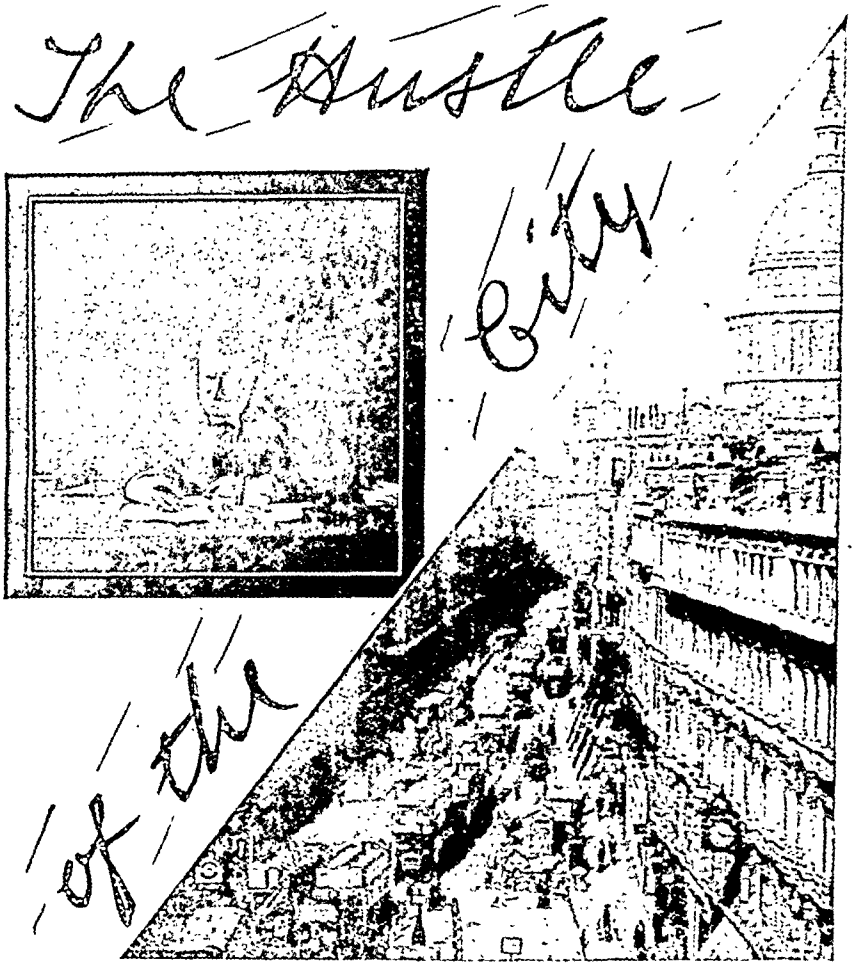

and its continuous nervous strain shorten the life of arteriosclerotic patients. General Treatment of high-blood-pressure cases can be advantageously supplemented by

"THEOMINAL"

Trade Mark Brand

Combination of Theobromine and "Luminal" brand of Phenyl-ethyl-malonyl urea.

"Theominal" reduces blood pressure, and, what is more important, improves the general condition of patients. It is indicated in Arteriosclerosis and its sequelae, Angina pectoris, Tachycardia, Climacteric disorders. "Theominal" is made up in 5 gr. tablets in tubes of 20, for dispensing purposes in bottles of 50, 250, 500 and 1000.

"There is no substitute for 'Bayer' Quality."

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The Chronic

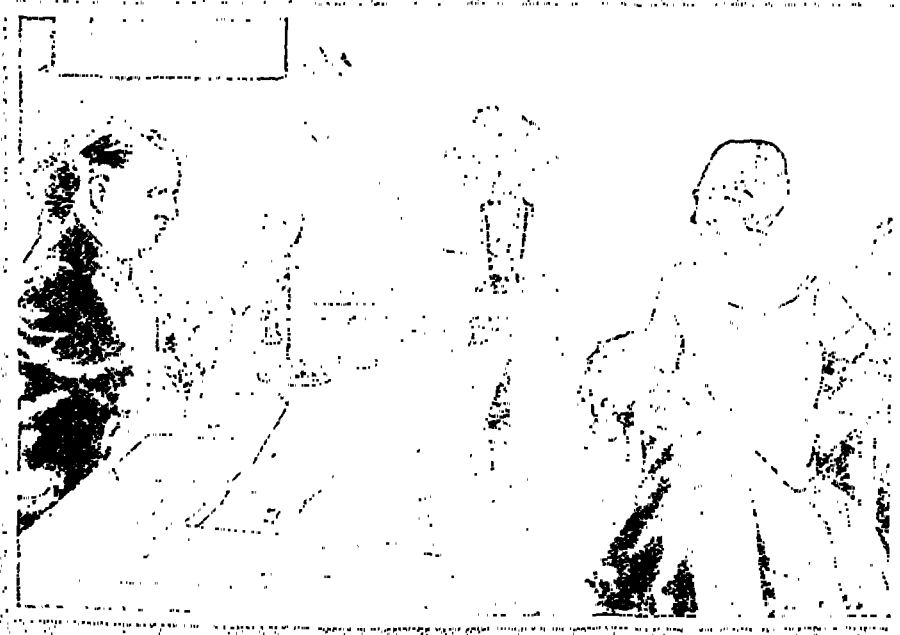
Often underlying the chronic condition is bowel stasis and irrational use of harsh cathartics.

Many chronic cases have been definitely benefited by a period of "habit time" education together with other rational treatment.

'Petrolagar' Brand Paraffin Emulsion affords a valuable aid to diet and exercise in bringing about a restoration of normal bowel movement, the effect being purely mechanical.

Petrolagar Laboratories Limited,
Croydon Road, London, S.E.15.

Petrolagar



National Committee for Promoting the Consumption of Norwegian Cod Liver Oil, Bergen, Norway

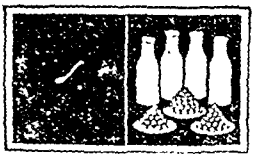
Ultra-violet radiation is sometimes tried to replace the lack of vitamins in food. It is not an economic way of attaining this result.

IN ITS REPORT FOR THE YEAR 1927—1928
the British Medical Research Council
STATES:

"The use of artificial light to supply only what the right food can give is merely wasteful. It commonly costs three or four shillings to give by light an effective supply of vitamin D that would cost less than a penny if given by the mouth in the form of cod-liver oil . . ."

Norwegian Cod Liver Oil abounds in natural vitamins. It is a natural food, supplying vitamins A and D, which is easily absorbed owing to its high percentage of glyceryl esters of unsaturated fatty acids. There is no efficient substitute for Cod Liver Oil.

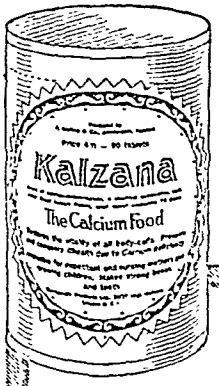
A Teaspoonful of Norwegian Cod Liver Oil contains more Vitamins than



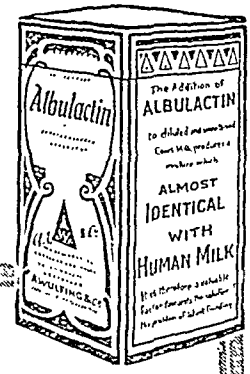
all the Butter and Milk any Individual can eat and drink in a Day

NORWEGIAN COD LIVER OIL

FABRITIUS, OSLO



Wulfing Products



Calcium Deficiency in Women

Pregnancy and lactation often produce manifestations of calcium deficiency because the calcium reserve cannot meet the demands made upon it. The systematic use of Kalzana in these cases stays the destructive processes in the teeth and bones of the mother, and ensures normal development of the skeletal structure of the infant. The special feature of Kalzana is that it combines calcium lactate and sodium lactate in the form of a double salt, with the result that the sodium element improves the blood alkalinity to the extent necessary to secure adequate calcium retention.

The Practitioner says:

"Kalzana acts efficiently in promoting the growth of strong bones and healthy teeth, in protecting the expectant and nursing mother against a dangerous loss of calcium . . . . particularly because Kalzana promotes calcium retention."

Dispensed by Chemists in air-tight packets containing 50 and 100 tablets.

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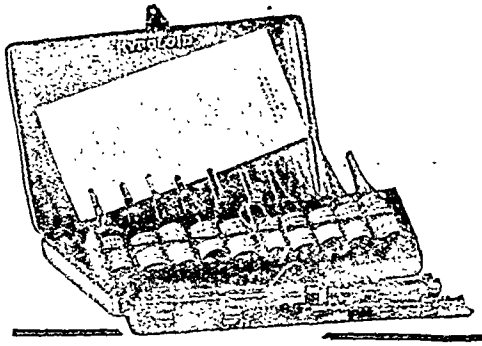

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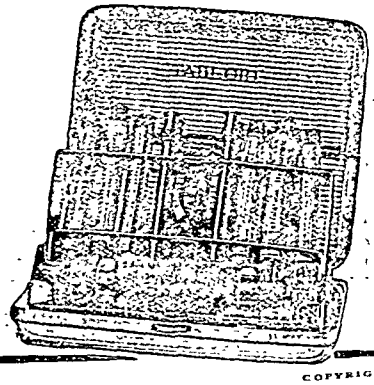

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Observations
ON THE
DIAGNOSIS AND TREATMENT OF FUNCTIONAL NERVOUS DISORDER.*

BY
T. A. ROSS, M.D., M.R.C.P.,
MEDICAL DIRECTOR, CASSEL HOSPITAL FOR FUNCTIONAL NERVOUS DISORDERS, PENSHURST.

WHEN, as young men, we left hospital and went into practice most of us had the experience of encountering a great number of patients whose ailments did not seem of the same nature as those we had come across when we were students or resident hospital officers. Then the majority of the cases had well-marked physical signs, which helped us to place them in definite categories, whereas in many of our patients in private, though they presented a wealth of symptoms, there were few if any physical signs, certainly none of a gross nature, to corroborate these symptoms. It might, indeed, be said that the mainstay of many practices consists of those patients who do not present physical signs. They are not confined to one class of society, they are scattered throughout all, and I suspect there are plenty of them in the hospitals also, but they are not to be found *much in the wards; they are probably seen by the junior* out-patient physician, to whom they come again and again for the paper bearing the magic words "Rep. Mist."

The conscientious doctor with much industry examines them all over, to discover *what it is that is producing these* disabling symptoms; he passes in review their internal organs, their teeth, their eyes, their nasal sinuses, and what not; and so fine are the modern methods of diagnosis that some lesion, some departure from a normal ideal, can be found in most of *them, if enough care is taken.* Appropriate treatment is applied, and in the majority of instances great *improvement takes* place. After a period the patient has another illness without physical signs; again after examination and treatment improvement occurs, and this often enough goes on indefinitely. With some patients, however, the periods of improvement are short, later on *do not occur at all,* and much time and trouble is spent in trying to find out what is wrong, without avail.

I am very far from saying that because a patient exhibits *no physical signs* he is to be regarded as suffering from a neurosis; no doubt focal infections make people ill; and, still more, there are certain diseases such as encephalitis, disseminated sclerosis, cardiac degenerations, etc., in which physical signs may be absent for a time; but what I *wish to emphasize* is that the majority of patients who go in and out of illness over a long period, and who yet *present* no signs, are more likely to be suffering from a neurosis than from a physical illness, and that in all such the mental state should be investigated.

What is meant by *neurosis?* The definition which I should give provisionally is that a neurosis is that congeries of symptoms, whose name is legion, which depend on no physical change but on a failure to make mental adaptation to the *difficulties of life.* This definition does not exclude certain psychoses; but it emphasizes the point that the illnesses I wish to talk about are psychogenic.

Two attitudes are commonly taken up as regards the kind of case I have outlined. One, which is passionately defended by certain kindly men, is that these patients are ill physically, but that the illness is of a kind which we have hitherto *as a profession* ignored or slurred over; the illnesses are said to be due to causes like infection of the apex of a tooth, or of some other region of the body; to reflex causes, as from astigmatism; to intestinal or other intoxication; to failure in endocrine balance; to lack of vitamins, and so on. The ground on which these beliefs are justified is commonly that many patients are cured when these things are attended to; there is little other ground for them. It may be said that this ground is good enough; but not when we look into the history of the neuroses. Fifty years ago these patients were being cured by minor gynaecology, painting the cervix, putting in a pessary; later they were cured by the Weir Mitchell treatment; at another time by the Salisbury diet, just as effectually as they are now by the extraction of teeth or tonsils, or by the administration of polyglandular preparations. And now these older methods are little used. If they were as effectual as they were thought to be in the heyday of their youth why were they dropped, and how long will their successors last? There have been endless cures for these patients, and the one thing that the remedies must not be is old-fashioned; the one thing essential is that they shall be to some extent boomed.

This leads straightway to the other view held about these *people—namely,* that there is nothing wrong with them, that they are making a fuss, that they are imagining their symptoms. That this view is held by eminent members of the profession cannot be doubted. From time to time contempt for "poor neurotics" is poured forth in the journals from the highest quarters. The view is one which is a little *difficult to understand.* If a patient says he has a symptom, he either has it or he does not have it. If he *does not* have it he is an impostor, and it would be more honest on our part if we said so straight out, and did not take refuge in the subterfuge of calling the symptom "imaginary." I have tried frequently to get those who talk of imaginary symptoms to go all the way and say that the patient is a *liar,* but that far they will not go.

Now a third view is possible, and indeed if we consider the first group of doctors, those who hold that there is a physical cause for these disorders, and take the whole story of the cures together, we shall find a common factor. This factor is that both the doctors and their patients believed in the remedy, which explains also why the remedy must be in the fashion. If faith did good, there must have been want of faith in something to cause the illness. That is, the pathology of the illness is mental, but that does not in the least prove the view that it is imaginary.

A little ordinary observation would show us that there is a multitude of symptoms in everyday life which do depend on mental states, which are certainly not imaginary, and are equally certainly not dependent on physico-chemical alterations from the normal. In a person previously quite well fear may cause suddenly palpitation of the heart, tremor and paralysis of the limbs, pallor of the body, even diarrhoea; all these symptoms can be observed; there can be no question about their being direct consequences of the mental state. Less obviously, but in the personal experience of most of us, anxiety may give rise to a headache, failure of concentration, loss of appetite with indigestion, and poor and disturbed sleep. Let the fear go on for months and the symptoms get more and more prolonged, and there is a perfect picture of so-called shell shock. Let the anxiety be prolonged, and we get the fatigued, sleepless, dyspeptic person who cannot concentrate and who has a headache; the sort whom we label neurotic, and who is so common an occupant of every doctor's list. We begin then to see the possibilities of a non-physical pathology, of a psychopathology for the kind of recurrent invalids without physical signs about whom we have been thinking.

How are these patients to be recognized? For we have seen that mere absence of signs will not help us, and we cannot afford to wait for months to make a diagnosis; we are also to bear in mind that focal sepsis and such-like states may produce symptoms.

There are two criteria of great importance: one is the *attitude which the patient has towards his disease,* the second is the nature of the history. The non-neurotic person has a hatred of disease and not too much trust in doctors, especially when he is well. He is not proud of his disease; he makes light of it, he disobeys orders when he can. He is not wrapped up in it. There are some compelling diseases which may make anyone uninterested in anything else—abdominal catastrophes, acute pleurisies, severe fevers; but we are not likely to confuse these with the troubles of our neurotic patients. But the mentally normal man with early phthisis or early cancer is refractory to the idea that he is seriously ill—if he is or he is

*Made before the South Middlesex Division of the British Medical Association on October 9th, 1929.

neurotic as well as physically ill, for there is no reason why a neurotic should not have a physical illness. The neurotic, on the other hand, is immensely interested in his illness and takes the utmost care of it. If he has palpitation he is sure to think he has grave heart disease, and will accept and better any instructions he may receive about resting his heart; the true cardiopath who is not neurotic goes about his business with œdema up to his knees.

The history of the neuropath is characteristic, but there is a difficulty: it is not altogether easy to obtain it if one is hurried. A good deal of time is often needed to get it; the patient must be allowed to tell his story in his own way, and the doctor must be prepared to sit and listen. If this is attended to, the history is very easy to get. When it is obtained it will be found that the patient failed with unusual frequency to meet the ordinary difficulties of life in an adequate way, and that often he was prevented from doing so by illness, an illness which he may categorize frankly as a "breakdown," or which again may be concealed under some euphemism such as "flabby heart." The student did not get through his examination when he should, because he overworked, and got insomnia; or he foolishly went a walking tour a few weeks before the examination was due, dilated his heart, and so was unable to go up for it; the soldier who was particularly keen to go out to France, having been unduly detained in this country, got sunstroke a week before his draft left England, and has been giddy ever since. Another feature in the history is the inordinate gravity of common illnesses; when these patients get colds they are ill for weeks; influenza leaves debility for months or years; there are long periods of indigestion at times of life when affairs are difficult, and so on; and it will almost always be found that the present illness, which is the one the patient is clearest about in this preliminary history taking, arose when there had been a good deal of mental discomfort, stress, boredom, anxiety, grief, or the like. Something tipped the balance, as is seen most easily in the shell-shock cases. The patient had been living in terror for months; then he was blown up or buried and never got over it.

In the taking of the history there will emerge certain character traits which are also characteristic, and to one of the most important of these the name of narcissism may be applied. Narcissus, it will be remembered, was a youth who, perceiving his *own image* in a pool of water, fell in love with it, and stayed on for the rest of his life in that one spot gazing at it. All children pass through a stage of narcissism. Events are of importance solely because of the effects on themselves. The ideal normal adult should have escaped from this and should be able to look on the world objectively, without always considering how it is *going* to affect him personally. Through and through there is no such person, but I think we may say that we are grown up in so far as we have attained such a position. The history of the neuropath will show that he has hardly budged from the childish outlook. Intellectually he may have grown fully, but emotionally he has remained fixed, so that as his story is unfolded it is seen to be very much a tale of how he never got a chance; whenever by exercise of his industry or virtue things were prospering, some malign influence, some malign person stepped in and they went wrong. He may blame himself *too, but in* such a way as to give his listener ample opportunity to say "Oh, no, it was not your fault." And always that wretched health of his was giving way at critical times.

I do not say that this is not a portrait of most of us; but in these people it is more *manifest*, more the whole thing. Moreover, the really grown person does not readily tell his history; if he is pressed he will give a story of his life, but it will be a bald affair; he will tell us what parts of the world he was in at certain *periods*, will name the schools he was at, when he married, if he remembers the date, and so on. The neuropath will straight off pour out intimate details to a stranger, if only that stranger shows the slightest sign of being willing to listen sympathetically. He will usually say that he has *never told* this to anyone before, and we may feel flattered; but if we live in an institution we soon find that he has told a good *many* others. With some there is apparent stickiness; the phenomenon of garrulity is not so cunningly present, but that is usually because the patient is feeling that this listener will not listen sympathetically.

For the rational understanding and, as I think, treatment of the neuroses it is essential that the doctor should get to know this history one way or another, for one of the main things he will have to try to deal with is this self-centredness. I do not call it selfishness, for according to their lights these people may be quite unselfish in their acts. One of their bitter surprises with the world may well be that, having lived so unselfishly, they have been so terribly let down. Quite often, moreover, their deeds may be as good as those of other men. Two men go into a river to rescue a drowning child: one goes simply because there is the child who has to be fished out, and it is all rather a nuisance, but the job has to be done. That is a fully grown adult. The other thinks what will be thought of him if he does not go, or that he will get credit if he does go, or he gives himself credit for going. He is self-centred, not adult, neurotic.

All rational methods of treatment have as an aim that the patient should by going over his past become aware himself that he has been acting in a self-centred way. Psycho-analysis is nothing but this. The patient has not seen his acts in a proper—that is, fully adult—light; many of them he has forgotten altogether; he has forgotten them because if he reflected much on them he would be uncomfortable in his narcissism, and narcissism is to him essential; indeed, he is hardly aware that there is another mode of living. Psycho-analysis is, however, a thing that is outside our province; it is a thing wholly unsuited for general practice; it is a heavy weapon to be used rarely. But in general practice it is often possible by getting the history carefully to let the patient see for and by himself that his illnesses have come on, sometimes at any rate, because they helped him to solve a difficult situation, but that the solution itself was not worth having. It is possible, for example, to let him see from his own story that that examination which he deferred because of cardiac debility was one which he dreaded very much, and to let him see that dread may cause uncomfortable cardiac sensations about which at the time it was really rather helpful to be frightened; he had his reward, but it was not worth having.

It is clearly understood that the patient was unaware of what was going on. Why should he be aware? He was at the time anxious about the examination, and as he was anxious about something, he was liable to acquire these symptoms which anxiety produces—headache, poor sleep, loss of concentration, etc., which we have already considered. Whether, once they have started, they continue or not depends on the way in which they are regarded by the patient—and here is where our influence as doctors may make an enormous difference. It is common for the anxious mother of such a patient to ask the doctor whether the patient is not overworking, and it is common in my experience for the doctor to agree, when he has heard about headaches, insomnia, and so forth; and it is, I fear, rather common for him to hint that the symptoms are grave—especially the insomnia. The course of study is therefore suspended, not to be begun again till the examination is over. What is worse is that the patient is left with a fear that his brain will not stand hard work. He will not have been told this, but he naturally and legitimately infers that if he subjects it to hard work in the future he may become insane. I admit I see only those who have proceeded downhill after such an experience, and I may be biased, but I think it is common for such a person to be chary of ever using his brain very much again; for if he does he begins his work in fear, and that will, of course, soon reproduce all the symptoms; so that presently we get this person unable to read for more than the most absurdly short time—five minutes or something like that; if he tries to force himself he is stopped by symptoms. A few years ago I saw a lady of 57 who had seen an eminent oculist thirty years before. He had told *her casually not to strain* her eyes; and from that moment she had faithfully carried out his instructions. She had never read for more than ten minutes at a time, and that

only three times a day. Even that sometimes caused headache, and anything longer was followed by a very severe one. When she travelled her eyes were bandaged to shut out the scenery as it flashed passed at the rapid rate of fifteen miles an hour. After two or three reassuring conversations she was able to read all day without discomfort—but she had lost thirty years.

Another evil which accrues from such treatment is one of which the patient is not conscious, but which is nevertheless very potent. The patient has learned that he can escape from the disagreeable by illness. He will tend in future, and with each escape more and more, to use this method of settling all difficulties. He becomes one of those people whose nerves cannot stand this, that, and the other; of whom everyone has to be careful, who must not receive bad news, who must be saved all anxiety, for whom the world must be kept noiseless, who is, in short, a *perfect nuisance*.

I have drawn a picture of the patient who says he cannot sleep, and of the doctor who has regarded this loss of sleep as grave; but harm may be done in other directions. In parallel circumstances when symptoms were attached to other organs of the body—to the heart, the abdominal organs—there has been a tendency in some doctors to diagnose diseases that were not there, diseases sometimes which the doctor invented because he did not know what to say. In my younger days cardiac debility was one of them. He did not diagnose any known form of heart disease, for that could be contradicted; he said that at the time he was examining there was a weakness, and if later someone else should say that there was nothing wrong with the heart—well, he never said that the thing was more than temporary. The doctor himself had acted narcissistically; he had got out of a difficulty by some means other than facing it, regardless of the fact that someone else would have greater difficulties to face. For *this is true*—that every difficulty in this world which we ourselves shirk will have to be shouldered by someone else. *But to return to our doctor with a conscience*, who is far commoner; he too, as we saw, may err. He may begin to ponder why this lad or young woman cannot study like other people without disaster, and though he is not led by the will-o'-the-wisp of brain fag, lack of nervous energy, or some such thing for which there is as much evidence as there is for cardiac debility, he may begin a physical treatment. The patient is fitted with spectacles, her teeth are x-rayed and extracted, her appendix is perhaps removed, or her floating kidney is stitched up, though that is apt to come later in life. And during these investigations the important examination goes to the wall, and *again the patient* has escaped from a difficulty by means of illness; and when later on she wants to escape from another a fresh hunt round her body has to take place.

Now what should have been done? You must pardon me for being dogmatic. The first thing we have to consider is the value of these symptoms which the anxious student whom we have been considering presents. He himself is probably genuinely frightened by them. But are they of great importance? While they are present they are absolutely crippling; no one can do any mental work if failure of concentration is present, and no effort of will will overcome such failure. It is not, however, true that people cannot work because they have little sleep; there are many authentic accounts of brilliant brain workers who slept *little*; but no one can work if he is alarmed about want of sleep, if he feels that it is because he has worked so hard that he has become an insomniac, and that insomnia leads to *insanity*. Is it true that insomnia leads to insanity? There is no good evidence that it does; there is, I submit, no evidence that it leads to anything in particular unless the patient is anxious about it. We are in a vicious circle; anxiety about an examination caused insomnia, insomnia increased anxiety, and that in turn kept the insomnia in being. If we can persuade the patient that it is not so very serious, that it is at worst uncomfortable, we shall have gone a long way to stop the insomnia. The same may be said of every other anxiety symptom: if the patient has cardiac discomfort he will not move about for fear of straining his heart; if he has to move, the fear that he will strain it will bring on the discomfort; this increases the certainty in the patient's mind that there is a cardiac weakness, which increases the anxiety, and so on round and round.

When I was introduced to psychotherapy it was this point of anxiety about symptoms keeping these symptoms in being which was first brought to my attention; and while some patients seemed pleased to learn that there was no lesion, but only anxiety, I was surprised to find that most of them were annoyed, and often *seriously* annoyed, to receive a favourable opinion. Most of them had seen many doctors, and these might be put into three categories—the heartless fellows who frankly said there was nothing wrong and that the patient should pull himself together; the sympathetic who murmured that his nerves were not strong enough for the tasks of life, and who then gave bromide; the understanding men who said that there was a lesion, a cardiac weakness, an intoxication of some sort, who treated the peccant organ. The last two groups were liked because they told the patient that he must take *great care of himself*. *I think* I was put into a class of modified heartlessness; I did not tell him to pull himself together, but to listen to an explanation; on the other hand, I seemed to have acquired a rather subtle method of saying that there was *nothing wrong*. *It was no use* saying that anxiety was a something.

What I had not grasped in *these early days was that* most patients with functional symptoms are not prepared to take the consequences of being well. We have seen reasons why they may not be, but *the reasons may not* be manifest—not, I mean, to the doctor; they never are to the patient. He is blind to them. It is *therefore not* to be expected as a rule that improvement will follow the mere statement that there is no lesion, *even if the explanation* is given that anxiety is a satisfactory cause of the symptoms. But it is of the utmost importance that no positive physical diagnosis should be given, even if some lesion is present, unless the doctor is sure that that lesion will cause these symptoms. Suppose there is a mitral presystolic murmur and the symptoms are those of insomnia, loss of concentration, and fatigue, and suppose the heart is regular, the blood pressure normal, the patient has a good colour, is not short of breath, has no pulmonary signs—suppose, that is, that compensation is good; then it is certain that that heart is not causing these symptoms. But if any doctor suggests to that patient that it may be, a hundred others will not convince him to the contrary; and yet in our work we constantly find that lesions, where there is no certainty that they ever could cause symptoms of any kind, are being blamed for widespread disability, and that it is nearly impossible to get these beliefs shaken. Much, then, can be done by the practitioner not to increase and fix neurosis if he refuses to give even a tentative diagnosis in the absence of probability.

It is the young people whom it is necessary to be careful about. Old neurotics will probably remain neurotics; in them it is often difficult to distinguish between a neurosis and a degeneration, and it does not matter very much; but it is essential to be sure of the young. A hasty, ill-considered physical diagnosis may fix a neurosis for life.

If, however, the history has been listened to in the way described, the patient will reveal himself as a person who has habitually reacted badly to the calls of life; and a physician who has listened patiently to one of these people has thereby acquired great power over him. The patient feels that here at last is someone who has cared to try to understand, and from such a one he will receive the bitter draught of being shown where he has been acting wrongly. To please such a one he will see that he was shirking something, turning the symptoms of anxiety to account to get him out of difficulties; and with such a guide he will be able to see that nothing but misery can come out of such procedures. He will not like it at first, and he will probably need a good deal of guidance; but if these people are taken in hand in this way *it is* surprising how many will respond.

It will be urged that there is nothing very new in discovering that neurotic patients are self-centred, even if we use a new name; and it is true that by the time I see these patients they have usually been told very often that

they are self-centred. They have also been told that they are ill physically, in each case by a competent authority, and they do not know what to believe. They naturally have made some compromise, such as that they are weak-willed, an inborn defect for which they should not be held responsible, and which at any rate they cannot overcome. The secret of success lies in getting the patient to see things for himself, and telling him very little. He should be told that he has no lesion capable of producing these symptoms, but that the doctor has every reason to believe them to be there truly. That is nearly all the information he requires. He knows perfectly well that mental states cause bodily symptoms. He knows that disgust may cause vomiting; he knows that fear may cause palpitation, that horror may cause fainting, etc. He need only have his attention drawn to these things. If his history has been taken before any opinion is given, it can easily be shown that he was worse at difficult periods, at periods when he was more than usually anxious. It is a step from that for him to see that when, later on, there was the prospect of a difficulty, which illness could postpone, he sometimes fell ill, and so evaded the difficulty; and when he has grasped that he has done so habitually he will be less sure that he has been unlucky, and begin to think that he has not chosen the better part on important occasions, that he has acted pusillanimously, that he has tried to save his skin for the moment. There will be no need for anyone to use the world self-centred; he will see all that, all that it means without the word. I submit that this is something different from telling him.

If the patient has been led in this way to see that his illnesses have been mental in origin, and that his misfortunes have not been anyone's fault in particular, he may then easily develop a sense of guilt; the symptoms are his fault—somebody's fault they must be. To some extent this is, of course, a trait common to all of us, but in these patients the feeling is apt to be excessive. In a sense they always had this feeling more than other people; I do not think it is a creation of the treatment. It was repressed, and this implies that the patient himself was really unconscious of it. It is a phenomenon which needs some care in handling. It is a real sense of unworthiness, but a patient can easily use it as a something with which to beat the doctor, and make him sorry that he ever started to unravel the patient's mind. There are many times when he is excessively angry with the doctor for depriving him of the symptoms out of which he frequently derived benefit; there are many other times when he sees that this doctor has been his greatest friend—to both attitudes we must preserve a certain aloofness. Do not set much store by the praise that will from time to time be heaped on you by these patients, and you will not be much upset by those other occasions when they are not only blaming you to your face, but gossiping behind your back.

We shall find after a short time of treating a patient in this way that though he may still report symptoms, our conversations are, on the whole, not about symptoms but about mental affairs—about frustrations of desire, about guilt for shortcomings, about difficulties that require to be met, about the best ways of meeting them. The danger that is to be then avoided is that we should become too much the person without whom nothing must be done, whereas our aim is that these people should learn to stand on their own feet. While at first we may have to point out what their course of action should be, later we shall have to let them know that they themselves must settle their own problems. For example, the modern young lady has nothing to do at home, and leads there a life where every hour has to be provided with spurious occupation, which is of no value to anyone, and therefore merely a pandering to her self-centredness. When she makes the discovery that her business is to be helping somehow in the work of the world, she would like to be told what to do. Personally I never try to find out. If I selected a job for her she would soon let me know that it was unsuitable. I tell her to read advertisements, and that downstairs she will find the current number of a magazine devoted to women's occupations. My business is not to settle anything for her, but to let her feel that so long as she remains somebody to be amused she is not likely to keep well.

Two corollaries and I have done. The first is that there are an enormous number of people going about suffering from minor illnesses which are called indigestion, gastritis, debility, headache, eyestrain, brain fag, and many other names, who are suffering from neurosis and whom a comparatively simple therapy would cure. Some are no longer in need of an illness to help them out of difficulties—that phase has passed. They can be cured by the simplest explanation. They have remained ill because fear was put into them. They have got lost in a fog and are glad to be taken out of it. They are the people who, to our shame, are cured by Christian Science, by Coueism, and other unscientific remedies. There are, of course, others who will need the training in character outlined above.

The second point is that we have envisaged neurosis not as an illness but really as a badly developed personality. The thing began in childhood, though its manifestations may not have called for medical help till much later. If this is true our re-education can never begin too soon; and indeed it should be pre-natal. It is the parents who start these things, not, as I think, by heredity so much as by example. If heredity is a factor, then the neurotic parents should be all the more careful about what they do with their children, above all what example they show them. The mother who goes to bed with a headache because the cook has given notice is not only doing something bad for herself, she is teaching the children in the worst way possible how difficult situations should be met. The parents who are taking undue physical care of their children, who are petting them, who are unkind to them, who are, in general, silly with them, are a good deal under the eye of the family doctor, and I think it is very much in his power to sterilize the seeds of neurosis at the beginning.

In conclusion I feel that I have been saying what most of you know and practise; those who do not are not the ones who attend these meetings. If I have been too elementary I apologize, but in my own practice I seem to see the hand of those who do not practise these things. The neurotic sees many doctors, and he unfortunately clings to the teachings of the bad ones.

CONSTIPATION: ITS NATURE AND DIAGNOSIS.*

BY

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IT is with a feeling of some diffidence that I offer these remarks on a subject so commonplace as constipation. It would have been an easier task to deal with certain aspects of the disorder, such as its varieties, its causation, or its treatment; but it will be my object to discuss chiefly constipation itself, its nature, and its diagnosis, because these are matters of first importance and some difficulty.

For general purposes, though difficult to apply to a particular case, constipation may be defined as a condition of undue delay in the passage of food residues through the large bowel. It has been more accurately defined by Dr. Hurst as a condition in which none of the residue of a meal, taken eight hours after defaecation, is excreted within forty hours.

Symptoms of Constipation.

These fall into three main groups, and it is by the appearance of one or more of these symptoms that a person recognizes the fact of constipation in himself, or, in other words, diagnoses his own complaint.

The first group of symptoms is directly related to the disorder of function of the large bowel itself, and they are as follows:

1. Regularity of defaecation. The best regulated bowel empties at a certain time once or twice in every twenty-four

* An address to the Devon and Exeter Medico-Chirurgical Society, October, 1929.

hours.* Less frequent evacuation, such as once in forty-eight hours, may be normal, and it is possible in a particular case that an evacuation three times in twenty-four hours is physiological. To the extent that it is a matter of convenience it is under the control of the will, and to the extent that it is a matter of habit it is dependent on a series of reflex mechanisms.

2. Completeness of evacuation. This is perhaps even more important than regularity of evacuation. The rectum is usually empty in a healthy person, and the passage of faeces into it gives rise to a sensation of fullness in the perineum and a desire to go to stool; if it does not empty completely with defaecation there is a remaining sensation of fullness, or of incompleteness of the action, which vitiates the sense of satisfaction that accompanies the perfect performance of physiological function.

3. Hard stools, and difficulty or discomfort in passing them. This is generally accepted as evidence of constipation by a healthy person, but if it is occasional and the evacuation is complete it may occur without undue delay.

4. The size of the stool. Most people, without actual inspection of the faeces, have a general idea as to whether or not the evacuation is adequate in bulk; this criterion may be fallacious because it is dependent partly on the size of the stool and the effort with which it is passed.

5. Abdominal discomfort. A sense of distension (or pain) in the abdomen, more particularly felt horizontally just below the level of the umbilicus, a sense of discomfort in the left iliac fossa, or a sensation of fullness or pressure behind the symphysis pubis, are symptoms which may arise from a delay in the passage of material through the bowel; they may equally be due to the accumulation of flatus.

The second group of symptoms is due to a disturbance of function of the digestive tract apart from the large bowel. These symptoms are chiefly gastric, and perhaps in part hepatic; they are a loss of appetite, nausea, a feeling of biliousness, acidity, heartburn, and a bad taste in the mouth, particularly on waking in the morning.

The third group of symptoms affects the body as a whole, or systems other than the digestive tract; they are headache, physical and mental inertia, a sense of fatigue and mental depression, and other more remote symptoms, such as precordial discomfort, palpitations, and rheumatic pains in the thighs, which symptoms the patient, from past experience, has learned to associate with constipation.

In this selection of symptoms of constipation no reference has been made to a large and varied group of symptoms generally attributed to intestinal toxaemia, both because constipation should be considered, in itself and in its symptomatology, as a disorder simply of neuro-muscular activity, and because it is uncertain that constipation alone is responsible for any state of toxaemia. It might be argued that some of the symptoms previously named are toxic in origin and not reflex, and that the headache, for instance, is surely a toxic phenomenon. This explanation is unlikely, however, because the headache passes very quickly, or at once, with a complete evacuation; and Alvarez has shown that a headache may result from distension of the rectum.

The Necessity for Accurate Diagnosis.

In regard to most symptoms of disease a man generally goes to his doctor for a diagnosis; but he is inclined to regard his bowels as peculiarly his own concern and to deal with their disorders by himself, sometimes helped by the advice of a friend or a friendly chemist. If he consults his doctor at all, the diagnosis is already made, and he tells his doctor that he is suffering from constipation and wants treatment for it. Now if a man goes to his doctor and says his kidneys are bad, the doctor is sceptical of the diagnosis, and says to his patient, or thinks to himself, "What do you know about your kidneys? Tell me your symptoms; let me examine you; leave the diagnosis to me." But if a man goes to his doctor complaining of constipation, the diagnosis is taken on trust, and often even without inquiry as to the history or symptoms of the complaint, and treatment for constipation is prescribed forthwith. I can best make my point by quoting an extreme case of supposed constipation.

The patient was a girl, aged 14, whom I was asked to see a few years ago. Having heard that the girl had been obstinately constipated all her life I advised her admission to a nursing home for observation. The following day her mother asked me how I intended to treat her daughter, and in reply I asked for a little time to consider the case, because I was not yet sure of the diagnosis. Her mother was taken aback, and said there was no doubt of her being constipated, because her bowels had never acted without an aperient since birth. I prescribed a low-residue diet to prevent distension, a teaspoonful of paraffin oil at bedtime to prevent the accumulation of hard faeces, kept the child in bed, and awaited events. At the end of two days of inaction the bowels acted, and continued to do so regularly and completely; meanwhile the diet was increased, the paraffin discontinued, and the patient given her liberty. When the mother was told that her daughter was not constipated, and probably never had been, that in fact the diagnosis of constipation had been wrong, she explained that her husband was a martyr to constipation. She was determined, she said, that her daughter should never suffer like her husband, and so had given laxatives regularly from birth; on any day that the bowels had not acted she had given the child a laxative. She was content with the explanation that the bowels had never had time to act naturally, because she had kept them too empty, and all was well.

Physiology of Peristalsis.

Just as a knowledge of anatomy is essential to the recognition of variations in structure, so is a knowledge of physiology essential to an understanding of disorders of function. Alvarez has put the matter simply when he asks the question, "Why does food go down the bowel?" and the same question first occurred to me when I saw a patient suffering from anorexia nervosa, whose food regurgitated up her oesophagus and poured out of her mouth as easily as it had previously been swallowed. Death ultimately resulted from slow starvation, and at the necropsy no change in structure was discovered to account for the remarkable reverse peristalsis which was exhibited during life. To say that food passes downwards as a result of peristalsis simply begs the question, for it does not explain why the food passes downwards instead of upwards, nor does it explain reverse peristalsis in normal digestive activity.

The first explanation offered by physiologists depended on certain experiments on animals in which stimulation of the bowel at a point caused contraction above and dilatation below. The difficulty of repeating this observation in different animals, and even in the same species of animal, under the best experimental conditions, threw doubt on the validity of what had become known as the myenteric reflex. Another explanation of peristalsis is in terms of nervous control; it has been suggested that the control of peristalsis rests in collections of nodal tissue situated at intervals in the wall of the digestive tube, and that each node sets the pace for and controls the rhythmical activity of a certain section of the tube.

It is tempting to compare peristalsis in the intestine with the mechanism of contraction as we know it in the heart; but the anatomical and physiological facts are not yet available, and it is not yet agreed, for instance, that nodal tissue exists in the walls of the digestive tube. Meanwhile a more convincing theory, the gradient theory, is being worked out by Dr. Walter Alvarez.[1] Alvarez has shown that proximal segments of the small intestine are more irritable than distal segments, and he explains the passage of food residues downwards in terms of this graded irritability, since material would tend to pass from more irritable to less irritable segments. He has also shown that there is a gradient of rhythmic contraction; in the case of the rabbit the rate of rhythmic contraction is twenty times per minute in the duodenum as compared with ten times per minute in the lower ileum, and he says that by observing the rates of contraction of short excised segments he can recognize which are proximal and which are distal. Further, there is evidence of an underlying metabolic gradient—in other words, the rate of anabolic and oxidative processes in the bowel is more rapid in proximal than in distal segments. To what extent the gradient theory can be applied to the human colon is still uncertain, but there is reason to believe that the tone of the rectum and sigmoid is higher than that of the colon immediately above, and Alvarez has suggested that this

prevents faeces packing up against the sphincter ani previously to their expulsion.

We owe much of our knowledge of the movements of the normal colon to Dr. Arthur Hurst,[2] who has published many original observations on the subject during the past twenty-two years. The passage of food residues through the colon is chiefly effected by a sudden contraction of the colon as a whole, as the result of which the contents of the bowel are moved forward in a single mass for a distance of twelve inches or more in a few seconds. This movement is termed mass peristalsis, and the chief stimulus to its production is eating a meal. The co-ordinating mechanism is presumably the gastro-colic reflex first described by Hurst. Defaecation is normally initiated by a voluntary act, by which the intra-abdominal pressure is increased by contraction of the muscles of the abdominal wall and depression of the diaphragm, and at the same time the anal sphincters are relaxed. The call to defaecation is a sensation of fullness in the rectum due to its rapid distension by faeces which pass into it from the pelvic colon. By the voluntary effort to empty the bowels the intrarectal pressure is increased and an involuntary movement of mass peristalsis in the large bowel is set in motion by a reflex mechanism whose centre is situated in the lumbo-sacral region of the spinal cord. The whole colon appears to be involved in this movement of mass peristalsis which accompanies the evacuation of faeces. The contents of the caecum and ascending colon are moved into the transverse colon or beyond; the contents of the distal portion of the transverse colon are moved into the descending and iliac colon, and after the emptying of the rectum and pelvic colon they are passed out in turn through the anal canal.

This in barest outline is a brief account of the mechanism of the passage of food residues through the intestinal tract. I have purposely omitted reference to other neuro-muscular activities, such as local contractions of the bowel wall, variations in the tone of the circular and longitudinal coats, and other forms of peristaltic activity of the colon, including reverse peristalsis. I visualize the digestive tract with its own independent activity in terms of the gradient theory put forward by Alvarez, and the co-ordination of its activities by the reflex mechanisms studied by Hurst, the centres of which are situated in the spinal cord.

The activity of the higher centres which are involved in eating and swallowing food, and in defaecation, cannot, however, be left out of account even in such a skeleton description of bowel movements as this. The reflex mechanisms so far referred to are congenital or inherited reflexes. The researches of Professor Pavlov[3] have shown the importance of acquired or conditioned reflexes to be no less than that of unconditioned reflexes. Conditioned reflexes are the basis of what are commonly called habits, and are largely concerned in much of the activity which was previously regarded as instinctive. Now that we know that even a puppy's choice of food is partly an acquired or conditioned reflex (though its potentiality to acquire a conditioned reflex may be inherited), we shall hesitate to speak of the natural or normal food of man, and we shall hesitate before making an attempt to alter the habits of a healthy man. Not only does a study of Pavlov's work make it easier to understand why some people eat one kind of food and another people another kind, but even the man whose bowels act daily at 9.45 a.m. with such regularity that he can set his watch by their movement is no longer a remarkable phenomenon, but rather a simple example of a conditioned reflex whose effective stimulus is the passage of an interval of time.

The Rate of Passage of Food Residues.

Constipation has been somewhat academically defined as a delay in the passage of food residues through the digestive tract, and therefore to make the diagnosis of constipation we must have some measure of the normal rate of passage of intestinal contents. In many normal people carmine taken before breakfast one morning is evacuated with the stool passed after breakfast the following morning, and it occupies the last part of the stool. Seeing that, with a stomach which has emptied four hours after a meal, the ileum is empty five to six hours later, it follows that much of the food taken after the carmine is still in the large bowel. When defaecation is efficient and complete the contents of the colon from the splenic flexure to the rectum are evacuated more or less completely. Hence under normal circumstances the caecum, ascending colon, and probably the proximal two-thirds of the transverse colon, always contain food residues.

According to Hurst's observations, the length of time taken by a meal to pass through the digestive tract varies from nine to thirty-three hours, depending on the relation of the hour of the meal to defaecation. Thus, part of a meal taken nine hours before defaecation may reach the distal end of the transverse colon by the time of defaecation, and be carried out through the rectum by the mass peristalsis which accompanies the act. If the bowels act once in twenty-four hours the rest of the meal will remain in the bowel for a further twenty-four hours. During this time it will be carried presumably in successive movements of mass peristalsis past the splenic flexure through the descending colon and iliac colon (which lengths of the large bowel tend to remain empty of food residues) into the pelvic colon, where it collects. If any passes from the pelvic colon into the rectum, it should normally give rise to a desire to empty the bowels. Food residues, however, from successive meals are mixed together in their passage through the digestive tract, and some days may elapse before the whole food residue of one meal is evacuated. Carmine can generally be recognized in the faeces of two days, and the barium of a barium meal remains, as traces at least, for two or three days.

Alvarez has tested the rate of passage of small glass beads 2 mm. in diameter through the bowel in normal subjects with good digestion. In a series of experiments on eight healthy young men there were two who passed 85 per cent. of the beads in twenty-four hours, but most of them took four days in which to get rid of 75 per cent., and there were some who passed only 50 or 60 per cent. in nine days. He notes that those with slower rates usually had well-formed and well-digested stools, but some of the subjects had a tendency to constipation. Seeing that these observations show a greater delay in the passage of material through the bowel than the accepted normal from *x*-ray observations, 60 grams of barium were given in milk to a number of students; their stools were collected, and the drug was recovered quantitatively. It was found that 75 per cent. of the drug was passed by the third day, and after that there was a slow excretion lasting several days.

Whatever difference there may be between the actual figures in different series of experiments, there is no doubt that, normally, food residues take considerably more than twenty-four hours to pass intact through the digestive tube, and as we know that the stomach and small intestine normally empty themselves completely, it follows that in ordinary circumstances food residues remain for a length of time in the colon.

In view of the functional activities of the colon, this delay in the passage of material through it is to be expected. Thus, apart from the mass peristalsis already described, a characteristic feature of the colon musculature is its sluggishness; Alvarez says that excised bits of colon muscle generally have a slow rate of contraction, and the parts proximal to the middle of the transverse colon are very tolerant of distension. In addition to being a passage for food residues, its important function is the absorption of water; it also absorbs some of the final products of digestion; it is an excretory organ for the salts of heavy metals, and one other function, which is important from our present point of view, is its capacity to act as a reservoir for the digestion of cellulose by bacterial fermentation. It is curious that those people who particularly advise the ingestion of large quantities of cellulose by their fellow men should be insistent on frequent evacuations of the bowel, and the hurried transit of food residues through the digestive tract.

It is a common opinion at the present time that the bowels should be empty, but with this knowledge of digestive function the medical profession is in a position to assure the public that the bowels should normally contain food residues, and should not be empty. In order to make this point perfectly clear to those who have an obsession about keeping their bowels empty, and who, to achieve this end, take laxatives regularly, I am in the habit of saying that it is better for the bowels to be full than

empty. I believe it is impossible to empty the colon completely, and that because of the inability of its walls to collapse (as can those of the small intestine and rectum), the emptying of the colon of solid material necessarily leads to the accumulation of flatus. It is simple to understand how this misconception about keeping the bowels empty has arisen. There are two parts of the digestive tract which are usually empty—namely, the gullet and the rectum. If anything sticks in the gullet it is a cause of acute discomfort. When solid material or gas reaches the rectum, and thereby distends it, it should lead to a desire to evacuate it. When evacuation is ineffective or incomplete, distension of the rectum with faeces gives rise to local discomfort, as well as more distant effects, such as headaches, a sense of fatigue, and other symptoms. These pass away, as it were by magic, with the emptying of the rectum, perhaps after taking a purge. And so the average man, ignorant of physiology, confuses his rectum with his colon, and comes to the conclusion that a state of health is best achieved by as complete an emptying as possible of the whole bowel.

The Clinical Diagnosis of Constipation.[4]

It follows, therefore, that—as in the case of other diseases, whether functional or organic—we cannot rely on our patient's diagnosis of his own disease. A careful history and review of the symptoms may lead to a provisional diagnosis, but the diagnosis can only be established by clinical examination. The first essential is to establish the fact of constipation as the primary disorder, and assuming that this is done by the exclusion of disease elsewhere in the body, and by the exclusion of demonstrable organic disease in the digestive tract itself, the accurate diagnosis of constipation on an anatomical and physiological basis is approached.

On an anatomical basis constipation is recognized as occurring in two forms. In the first, known as colon constipation, there is an undue delay in the passage of food residues through the colon. In the second, which is known as dyschezia, there is a failure in the mechanism of defaecation. Dyschezia may be further distinguished as due, on the one hand, to a failure in the function of the rectum to empty, and, on the other hand, to a failure in the function of the pelvic colon to empty in defaecation.

On a physiological basis colon constipation is divided into three forms: (*a*) a general undue delay in the passage of food residues through the colon, which may be termed sluggish colon; (*b*) an over-irritable or spastic state of the colon, which is termed spastic constipation; (*c*) an atonic condition of the colon, which is rare, and which is termed atonic constipation.

These several varieties of constipation can sometimes be diagnosed on the clinical history. Thus, a patient suffering from rectal dyschezia will complain of a sense of fullness in the rectum, of a sensation of being unable to empty the rectum completely, of piles, pruritus ani, or other symptoms of rectal congestion. Sigmoid dyschezia may be suggested by discomfort in the left iliac fossa, due to stasis and congestion in the iliac colon, discomfort and a sense of distension immediately above the pubes, or in some cases to an alteration in the action of the bowels, the patient noticing that in defaecation there is a single action which is due to the evacuation of the rectum, but that there is no closely following action which results from a complete emptying of the pelvic and iliac colon. In both these cases the stools tend to be hard and passed with difficulty.

In colon constipation there is a sense of general abdominal distension, and complaint of many of the symptoms referred to in sections 5 and 6 of the paragraphs describing symptoms of constipation, at the beginning of this paper.

Spastic constipation is one of the most obstinate forms of the complaint. It is associated with nervous exhaustion; it is accompanied by abdominal discomfort, which is chiefly felt on the right side of the abdomen, and which frequently amounts to actual pain, making the differential diagnosis from chronic appendicitis and cholecystitis a matter of considerable difficulty. Those who suffer from this complaint frequently experience a feeling that food residues do not pass further than the left hypochondrium, or at any rate never reach the rectum. They have generally acquired the habit of taking laxatives regularly every night at bedtime, and, having tried paraffin oil, agar preparations, and senna pods without success, they have come to rely on phenolphthalein, cascara, or vegetable laxative. On account of increased tone in the rectum and sphincter ani their stools, when formed, are small and round, like a lead pencil, or flat and narrow, sometimes described by the patient as like a tape; generally, as a result of taking laxatives, their stools are loose.

Physical Examination.

Both with a view to establishing the fact of constipation, and with a view to the accurate diagnosis of its variety on an anatomical and physiological basis, the patient who complains of obstinate constipation is advised to take a low-residue diet, one or two drachms of paraffin oil every night at bedtime, to stop all laxatives, and to report again at the end of seventy-two or ninety-six hours. At the same time he is instructed to make an effort to empty his bowels three-quarters of an hour after beginning breakfast, at some time between 6 and 9 o'clock at night, and at any time in the day that he feels the call to go to stool. The low-residue diet is prescribed with the object of preventing abdominal distension, in case the patient should be suffering from spastic constipation. The paraffin oil is to prevent the accumulation of very hard faeces in the rectum and pelvic colon, in case the condition should be one of dyschezia. Laxatives are stopped to allow of the diagnosis of the fact of constipation, and of its variety when present. The bowels having been emptied by laxatives, it naturally takes twenty-four hours for a normal food residue to collect, and another twenty-four hours before this food residue is an efficient stimulus for evacuation; indeed, owing to the excessive stimulus to which the bowel has become accustomed by the habit of taking laxatives regularly, it may be a further twenty-four hours before a normal stimulus is effective in provoking peristalsis. The instruction to make an effort to empty the bowels three-quarters of an hour after beginning breakfast is given with the object of allowing the gastro-colic reflex time to act, and in case, as a result of some conditioned reflex, it should have become a habit of the bowels to respond to a gastro-colic reflex at a later time in the day, the patient is advised to make the additional effort between 6 and 9 o'clock at night as a regular habit, and at any hour of the day if he feels the least inclination. At the same time the patient is advised to get up early enough in the morning to have plenty of time to wash and dress before breakfast, time to enjoy his breakfast, and time for defaecation before starting the day's work; he is also advised not to strain at stool, the gastro-colic reflex and defaecation reflex being relied on for normal evacuation.

Having been given these instructions the patient reports again at the end of seventy-two or ninety-six hours, and it may then be possible to determine the fact of constipation, and, if constipation is present, its variety, by clinical examination. Rectal dyschezia will be diagnosed by finding the rectum full of faeces; sigmoid dyschezia may be diagnosed by the same means, though in some cases where the pelvic colon is out of reach of the examining finger, the accumulation of faeces in it may be a matter of inference rather than one of demonstrable fact. In both kinds of dyschezia there is frequently a fullness, a hardness, or tenderness of the iliac colon. When the condition is one of sluggish or atonic colon the whole abdomen has a doughy feel, or the colon may be distinctly palpated as a large, sometimes rather tender, firm, or doughy mass, occupying the position of the ascending, transverse, and descending colon. In a typical case of spastic constipation the rectum and sigmoid are empty, there may be spasm of the sphincter ani, and so much contraction of the rectum that it fits the finger like a glove; the iliac colon may be felt like a cord tightly contracted, in contrast to the caecum and ascending colon, which are full, firm, and tender, suggesting chronic appendicitis, the tenderness, however, being more diffuse. When there is tenderness of the hepatic flexure the differential diagnosis is from disease of the gall-bladder and right kidney, and in some cases the reflex spasm of the pylorus and hyperchlorhydria suggests the diagnosis of peptic ulcer.

Other points in the clinical examination of the case, such as the general condition of the patient, his physical form, and the state of his nervous system, assist in the diagnosis, but the differential diagnosis of the varieties of constipation is one of considerable difficulty, and can only be made in some cases by *x*-ray examination.

Radiographic Diagnosis.

In order to avoid the description of the radiographic appearances in the different forms of constipation a series of films illustrating the several varieties of constipation was shown. Not only is radiographic evidence useful in confirming, or otherwise, a clinical diagnosis, but it is of particular value in excluding certain forms of organic disease, such as diverticulosis, early carcinoma, and other forms of organic disease which may be difficult to exclude with certainty by clinical examination; it is also invaluable in the accurate diagnosis of those cases in which more than one variety of constipation is present at the same time—as, for instance, the coincidence of spastic constipation and rectal dyschezia.

Treatment of Constipation.[5]

The first object of treatment is to obtain a regular action of the bowels with the passage of a formed stool. Just as mental depression and emotional distress are responsible for constipation, and just as fear and fright may cause diarrhœa, so constipation is itself responsible for a sense of depression and fatigue, and the constant passage of loose stools over a period of years is the cause of nervous exhaustion, and its cardinal symptom, fear. The second object of treatment is to secure a regular and complete evacuation of the bowels by the regulation of habits of life and food. The importance of habits in allowing an opportunity for the various reflex mechanisms concerned in bowel activity to have an opportunity for their action has already been alluded to. The need for caution in advising anyone to change his dietetic habit has already been indicated; at the same time it is obvious that rectal dyschezia requires a full-residue diet and a soft stool to assist complete evacuation of the rectum, while an irritated condition of the colon, such as is present in spastic constipation, must be given rest by the prescription of a low-residue diet, which will save the tired and irritated bowel from unnecessary stimulus. The third object of treatment is to find a drug, where drug treatment is necessary, which will promote the passage of a formed stool without pain or discomfort, and one which can be used without variation, if necessary for years on end, in minimal but adequate dosage. If the laxative employed requires changing from time to time it is evidence that it is unsuitable for its purpose. Remembering always that the movements of the colon are considerably more sluggish during the night than during the day, it is important that it should not be unduly stimulated by an evening laxative. Excessive colon activity, due to taking laxatives at night, is a common cause of insomnia, and there can be little doubt that almost as much disease and distress of a low-grade and chronic type is caused by the habitual use of laxatives as results from the abuse of alcohol and other stimulants.

In dealing with disorders of the bowel, whether of functional or organic nature, the result of bowel activity must at least be seen, if not examined in a more detailed manner. No man would venture an opinion on the condition of the kidneys without examining the urine, and no man can give a final opinion on the condition of the bowels without seeing the stools. Apart from the completeness of digestion of food residues, which can be largely judged by the inspection of the stools, and apart from the presence of mucus, pus, and blood, which may be an indication of organic disease, the size and shape of the stool provide an indication of the state of tone of the rectum and anal sphincters; the bulk of the stool gives some idea of the patient's diet and rate of passage of food residues through the bowel, and the fact of the last part of the stool being soft or semi-solid is a good criterion that evacuation has been complete.

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POSITION OF SURGERY IN THE TREATMENT OF GASTRIC AND DUODENAL ULCERS.*

BY

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A SUMMARY of the statistical records of gastric and duodenal ulcer cases dealt with in the Manchester Royal Infirmary during the past four years may usefully introduce this subject. It should be explained that these records are carefully compiled, and it may be taken that the diagnosis of ulcer has been verified so far as the circumstances have permitted.

1. The average number of admissions per year (1925-29 inclusive) of non-perforated gastric and duodenal ulcers exceeds 400, and of these some 70 per cent. are admitted (directly or by transfer from the medical wards) to the surgical wards. Some 60 per cent. of the ulcers are duodenal or pyloric, and the remainder gastric or prepyloric.

2. The average number per year of perforated ulcers is 135, of which 75 per cent. are duodenal. The mortality rate for perforated duodenal ulcer cases is 12 per cent., while that of the perforated gastric ulcer is 33 per cent.

3. The frequency of haemorrhage as a complication of ulcer cannot be gauged from the hospital statistics, because in the group of cases labelled haematemesis or melaena (or both) there must be a few in which the haemorrhage is due to conditions other than ulcer; furthermore, it must be remembered that only a proportion of the cases of haematemesis are sent to hospital for admission as urgency patients; whilst as regards perforations in the population served by the hospital, almost all nowadays will be sent in for the necessary operation. However, it is worth noting that some 40 cases of haematemesis are admitted each year to the medical wards, and the mortality of these under medical treatment is about 10 per cent.

The figures I have given show that in this hospital—on the staff of which medicine and surgery are pretty equally represented—surgery is still employed in the treatment of the majority of cases of gastro-duodenal ulceration without including the perforated ulcers. I do not suggest that this proves the value of surgery. I merely draw attention to the fact.

So far as the perforated ulcers are concerned, there can be no doubt about the nature of the treatment, and it is gratifying to see the great improvement in the results during the past twenty-five years, though the mortality in the gastric ulcer group still leaves much for the surgeon to improve upon. The improvement in the main is due to the earlier recognition of the catastrophe—it is now quite common for these cases to reach the surgeon within an hour or two of the occurrence of perforation; better surgical technique, too, accounts for some of the improvement. In regard to the latter it is interesting to note the difference of opinion among surgeons as to the scope of the operation for closure of a duodenal ulcer perforation. Some strongly advocate the performance of gastro-enterostomy at the time of the operation for closure of the perforation, unless, of course, the patient's condition is so poor that nothing beyond the essential minimum of closure of the perforation is permissible. It is claimed by these surgeons that the immediate and remote results are better if gastro-enterostomy is done at the time; other surgeons content themselves with closure of the perforation and cleansing of the peritoneal cavity, and only practise gastro-enterostomy in the exceptional case in which there is already pyloric stenosis, or in which stenosis is considered extremely likely to follow on the closure of the perforation owing to the distortion and narrowing of the duodenal lumen which this step sometimes entails.

I do not myself perform a gastro-enterostomy unless pyloric stenosis is present, or apprehended as very likely to follow, and in a series of my own cases, 30 in number, I performed a gastro-enterostomy six times; there were two deaths in the 30 cases, which represents a mortality of 7 per cent. But I must state that in two of the patients on whom I had not performed a gastro-enterostomy I had to do so within three weeks of the operation for closure of the perforation, owing to the appearance of well-marked

* A paper delivered to the Rochdale Division of the British Medical Association on October 16th, 1929

cumulative vomiting; both these two did well. The mortality of perforated gastric ulcer in the Manchester Infirmary statistics is nearly three times that of the perforated duodenal ulcer; the following factors are responsible, I believe, for this disparity in results: the gastric perforation is commonly much larger than the duodenal perforation, the escape of contents is therefore greater, and the spontaneous sealing up of the perforation by fibrinous adhesions is for the same reason not so often accomplished as it is in duodenal ulcer perforation; the escaping contents from gastric perforation are probably more highly infective; and, lastly, the closure of the perforation is commonly more difficult, and therefore more insecure. In operating on perforated gastric ulcer it is my practice, whenever the closure of the perforation is difficult and unreliable, to perform a high jejunostomy for feeding purposes; this step I strongly recommend in such circumstances. It is interesting to speculate on the risk of perforation which a given patient with ulcer runs; it is impossible to estimate this, and clearly the risk must be much reduced by proper treatment (medical or surgical) of the ulcer. The Manchester Infirmary figures of 400 non-perforated ulcers and 135 perforated ulcers per year represent the proportion of perforations to the total number of ulcer patients as 25 per cent., but the risk cannot be so high as that; possibly 10 per cent.—rather more for duodenal and less for gastric ulcer—may not be far out.

In regard to the treatment of the other acute complication, haemorrhage, there has been a good deal of discussion in recent years as to the advisability of immediate operation for the purpose of arresting the haemorrhage. In the case of a sudden and severe bleeding from an ulcer most surgeons are opposed to immediate operation for the arrest of the haemorrhage, because the majority of such patients recover under medical treatment. Still, in view of the fact that the mortality from ulcer haemorrhage treated by medical measures is not negligible—for it is probably in the neighbourhood of 10 per cent.—it would seem to me unwise to make the policy of non-surgical intervention an inflexible rule. In certain circumstances the advisability of immediate operation should still be carefully considered—for example, the case of the patient who is seen a few hours after the first severe attack of haemorrhage, whose condition is still quite good, and who in other respects is a healthy subject. If it is known, as the result of previous investigation, that the ulcer is duodenal, or, if gastric, is in a position easily accessible, then it is very doubtful if the risk of immediate operation at the hands of a practised surgeon is equal to the risk of non-operative treatment. It is mortifying in the extreme to witness, a day or two later, the sudden reduction of such a patient to a state of intense anaemia as the result of a recurrence of the haemorrhage; the feeling that the golden opportunity has been allowed to pass is irresistible.

There is less room for difference of opinion in the case of persistent or recurrent small haemorrhages, as may be met with occasionally in duodenal ulcer at or past middle life; in this type surgical treatment is strongly indicated.

In the treatment of ulcer patients suffering from severe haemorrhage I would particularly draw attention to the value of whole blood transfusion, as distinct from citrated or defibrinated transfusion; whole blood appears in such cases to have a special haemostatic effect in addition to the well-recognized restorative action common to all methods of transfusion.

The more insidious and chronic complications produced by healing of an old ulcer—pyloric stenosis by the duodenal and prepyloric ulcer, and the less frequent hour-glass contraction of the stomach by lesser curvature ulcers—are well recognized as necessitating surgical treatment for their complete relief, though no doubt much can be done by medical measures for early cases of pyloric stenosis in which the stenosis is due in part to spasm and inflammatory swelling. The striking benefit to be obtained by a well-executed gastro-enterostomy in a patient suffering from cicatricial pyloric stenosis is so well known that it is unnecessary to dwell on it. So, too, the operation of partial gastrectomy in cases of hour-glass contraction of the stomach gives results almost equally good, though with a rather greater risk. It is interesting to note here that one has met with several cases of pyloric stenosis in which the previous phase of ulceration has been accompanied by such mild and infrequent symptoms that the patient has not sought treatment, or only in a very casual way, till the onset of obstructive symptoms—notably cumulative vomiting—has been produced by contraction of the healing ulcer.

In a consideration of the chronic complications of ulcer an allusion must be made to the relationship of gastric carcinoma and chronic gastric ulcer. That carcinoma does occasionally develop in the edges of a chronic gastric ulcer is certain, but that it happens in any considerable proportion of ulcer cases I do not believe. Knowing what we do about the liability of carcinoma to follow chronic ulceration or long-continued irritation of the epithelial surfaces in other parts of the body, one would be disposed to accept the contention whole-heartedly in the case of the stomach were it not that clinical experience of gastric ulcer and of gastric carcinoma fails to support it. In this paper it is not possible to discuss the evidence, but it does appear to me that the risk of malignancy supervening on chronic gastric ulcer is so small that the contingency should weigh but lightly when we are called upon to decide between medical and surgical treatment. Of course, the position is quite different in that group of gastric cases in which, after full investigation, there remains a doubt whether the lesion is an ulcer or an early carcinoma; in this group operation is strongly indicated.

And now, what of the treatment of the uncomplicated chronic gastric and duodenal ulcer? If we accept the claims made by the physicians in the last few years, then surgery would appear to occupy a small and precarious position in the treatment of this the largest class. This swing of the pendulum towards medicine, particularly in the duodenal ulcer class, is overdue, and must be welcome to many abdominal surgeons because it will make for a higher standard of medical treatment and after-care than has hitherto been attained, and in this way to a more just discrimination in the selection of cases for surgical treatment. That surgery is still very necessary in particular cases, and will continue to be necessary, I do not doubt. One difficulty we have in deciding the relative merits of medical and surgical treatment arises from the fact that, while we have a good deal of statistical information about the late results of surgery, there is as yet not much information available about the late results of medical treatment. That the ulcer in its early stages, before it has attached itself to and eroded other viscera, will heal permanently under efficient medical treatment cannot be doubted—operation and post-mortem observations, as well as clinical experience, establish this. It is also certain that the longer the duration of the ulcer symptoms and the greater the number of relapses before the patient comes under efficient medical treatment, the more refractory will the ulcer prove to this treatment, and the greater its tendency to relapse under the strain of ordinary life. It must be emphasized that the healing of an old-standing ulcer is by no means tantamount to cure, though, of course, it is a substantial step in that direction. I have on three occasions resected the portion of the stomach wall bearing an ulcer which appeared to have healed to such an extent that the unpractised eye would have had difficulty in detecting the existence of an ulcer in the specimen. Yet in these patients their symptoms had persisted up to the time of the operation; in all the history extended over a period of not less than four years, and was marked by severe relapses, accompanied in two by attacks of severe haematemesis. In one a careful radiographic examination failed to disclose the presence of an ulcer, though it showed a persistent spasm of the greater curvature opposite the ulcer site.

There is one type of ulcer, infrequent but distinctive, in which surgical treatment is essential for the complete relief of the patient. The ulcer I have in mind is situated in the posterior wall of the stomach, though usually involving the lesser curvature as well, or in the posterior wall of the duodenum; in either case the ulcer is burrowing deeply into the pancreas. If the ulcer is in the anterior wall of the stomach, then it is attached to and eroding the liver; the ulcer crater, if gastric in position, may be as large as a five-shilling piece. A striking feature of such ulcers is

the persistent pain in the epigastrium and in the back, to the right or left of the lower dorsal spine according as the ulcer is duodenal or gastric. The pain, though constant, is made worse by nourishment, and may necessitate the use of opium, especially at night. Frequently there are repeated haemorrhages. The gaunt, haggard, and anaemic facies of the patient is a characteristic feature. In my experience many of these patients respond very poorly or not at all to the careful medical treatment of my medical colleagues, but a well-planned operation gives immediate and complete relief which, with reasonable after-care, is, I believe, lasting. But apart from such a severe type as this it is not possible to lay down hard-and-fast indications for surgical treatment in the uncomplicated ulcer. We have to consider not only the essentially medical factors—that is, the clinical and radiographic features and the responsiveness of the ulcer to medical treatment—but also the economic and social circumstances of the patient.

A really prolonged course of treatment, to be followed by regulated diet and habits, is an ideal not often realizable by patients of the hospital class, hence the appeal of surgery, with its prospect of a more rapid cure and a reduced risk of relapse under normal conditions of life to this particular class. Without doubt this is the chief reason for the large proportion of ulcer cases in the surgical wards of the Manchester Royal Infirmary. Another factor that enters into the question is the surgeon's faith in his own methods—a faith to be derived and proved from his experience, and not from his impressions.

The scope of this paper is not intended to include a consideration of surgical technique, but recently so much has been written and spoken about the value of gastro-enterostomy in the treatment of duodenal ulcer that a brief allusion may be made to this subject. Many surgeons, probably a considerable majority, regard gastro-jejunostomy as the best operation for duodenal ulcer. My own experience has led me to prefer pyloroplasty—either of the Finney or Horsley type, but when possible the former—combined with excision or cauterization of the ulcer. I believe this operation gives results as good as the best after gastro-jejunostomy, but without entailing the liability to such a grave, if infrequent, sequel as gastro-jejunal ulcer or to the less serious troubles met with after gastro-jejunostomy for duodenal ulcer. Since the foregoing remarks about gastro-jejunostomy for duodenal ulcer were written, the late results in 331 duodenal ulcer patients, on whom gastro-jejunostomy had been performed at the Manchester Royal Infirmary at least five years before the inquiry, have come to hand, and it is noteworthy that 15 per cent. of the patients were found to complain of "slight symptoms" and 13 per cent. of "very definite symptoms."

The inquiry into the late results of gastro-enterostomy which is being conducted at the present time by the British Medical Association throughout the whole country should afford some valuable information about the position of this operation in the treatment of duodenal ulcer, and it was in furtherance of this inquiry that the figures I have just quoted were obtained.

THE PROPHYLACTIC TREATMENT OF PATIENTS WHO HAVE HAD ALBUMINURIA IN A PREVIOUS PREGNANCY.*

BY

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I HAVE been stimulated to make this preliminary communication on the prophylactic treatment of cases which have had albuminuria in a previous pregnancy by papers by Young and Gibberd. These writers have shown that a large number of cases of albuminuria of pregnancy are followed by permanent renal damage. I must emphasize that this is only a preliminary communication, and the method of prophylactic treatment outlined is still in the experimental stage, but I hope that the details of the cases we have treated will stimulate others to impress on all patients who have albuminuria of pregnancy the necessity in any subsequent pregnancy of placing themselves under expert care at the very earliest moment.

At Queen Mary's Hospital for the East End, where this investigation is being carried out, we have always explained to every patient the urgent necessity of reporting immediately a period is missed, and the majority of patients becoming pregnant again after albuminuria or eclampsia have come under observation at six to ten weeks after the commencement of the last menstrual period. The investigation has been carried out in collaboration with Dr. A. A. Osman, physician to Queen Mary's Hospital for the East End, and Dr. H. G. Close, working for the Medical Research Council.

The theory on which this investigation is based is the result of an extensive examination carried out by Dr. Osman for the Medical Research Council on cases of scarlatinal nephritis, and the essential feature is maintaining the reaction of the urine throughout the whole of pregnancy at a minimum alkalinity of *p*H 7.7. In order to achieve this it is often necessary to give quite large doses of alkalis by the mouth. To guard against overdosage it is advisable to estimate the bicarbonate content of the blood plasma, and this is done by the method of Van Slyke, Stillman, and Cullen, described in the *Journal of Biological Chemistry* in 1919. This estimation must be repeated at intervals, especially if any change in the original dose is indicated. In normal non-pregnant women the average plasma bicarbonate is about 0.030 molar concentration. In 85 per cent. of pregnant women there is considerable reduction, an average being about 0.0247. This blood analysis is somewhat intricate, and cannot be carried out without proper laboratory facilities. The reaction of the urine can easily be ascertained in a very few minutes by colour comparisons with standard phosphate mixtures, using methyl red and brom-thymol blue as indicators. We have found that the dose which is usually both safe and effective is about 400 grains a day of equal parts of sodium bicarbonate and potassium citrate. This may have to be varied according to the reaction of the urine and the bicarbonate content of the plasma. In some cases we have had to give as much as 780 grains—over an ounce and a half a day—while in others the dose may be reduced to a drachm or two a day.

The patient is advised to diet. The protein intake is reduced by curtailing the amount of meat, milk, and eggs. Milk is allowed in tea, coffee, and milk puddings, but is not allowed as a beverage. Eggs are not allowed in quantity, but one egg may be taken every other day. Meat of all sorts, and particularly red or greasy meat, is to be taken sparingly, and only every other day. White fish (not salmon, mackerel, etc.) may be taken freely, and vegetables and fruit *ad lib.*

As regards general hygiene, special attention should be paid to the bowels, and a free action daily must be ensured. Fresh air and gentle exercise are of importance, and at the same time the patient must take plenty of rest and avoid all strenuous exertion.

I will now relate case details of fourteen patients, some of whom have been on a modified treatment.

CASE I.—*First pregnancy in 1925. Emergency, after delivery with post-partum eclampsia. Second pregnancy in 1927. Under observation from tenth week. Small doses of alkali only. No albumin. Live baby at term. Third pregnancy in 1929. Under observation from seventh week. Small doses of alkali only. Patient was found to have threadworms, for which she was treated. No albumin. A normal healthy-looking baby died during labour at term. There was no post-mortem examination.*

CASE II.—*First pregnancy in 1923. Admitted after delivery with post-partum eclampsia. Second pregnancy in 1925. Under observation from eleventh week. Small doses of alkali only. Albuminuria. Premature baby stillborn. Third pregnancy in 1928-29. Under observation from twelfth week. Full alkali treatment (400 grains). No albumin; no oedema. Macerated foetus.*

CASE III.—*First pregnancy in 1924. Eclampsia. Second pregnancy in 1927-28. Under observation from sixth week. Full alkali treatment (400 grains). No albumin. Live baby at term.*

CASE IV.—*First pregnancy normal. In the second pregnancy albuminuria and oedema were present. In the third the patient was on full alkali treatment from the twelfth week. No albumin; no oedema. Live baby born at term.*

CASE V.—*In the first pregnancy the patient suffered from eclampsia. In the second pregnancy she was under observation*

* Read in the Section of Obstetrics and Gynaecology at the Annual Meeting of the British Medical Association, Manchester, 1929.

and alkali treatment from the tenth week. There was a trace of albumin at the twenty-second week. Alkalis were increased up to 720 grains a day. Albumin disappeared. Live baby born at term.

CASE VI.—First pregnancy in 1927. Albuminuria. Premature twins born alive. Second pregnancy in 1928-29. Under full alkali treatment from the sixteenth week. No albumin; no oedema. Live baby at term.

CASE VII.—Patient had nephritis at the age of 10. Albuminuria and oedema were present before pregnancy. She was under observation from the fourteenth week. She was given 400 grains a day, later reduced to 150 grains a day. No albumin; no oedema. Live baby at term.

CASE VIII.—In the first pregnancy eclampsia was present. Baby stillborn. During the second pregnancy the patient was on alkali. No albumin until two days before delivery, when a trace was found. Live baby at term.

CASE IX.—First pregnancy: albuminuria present. Premature baby weighing 3 lb. 2 oz. born alive; lived two days. In the second pregnancy patient was under observation from the twelfth week. Small amounts of alkali only. No albumin. Live baby at term (6 lb.).

CASE X.—First pregnancy in 1925-26. Admitted with gross albuminuria. Live baby. Second pregnancy in 1927. Under observation from the eighth week. Small amounts of alkali only. No albumin Live baby at term.

CASE XI.—First pregnancy in 1925-26. Admitted with gross albuminuria. Premature baby weighing 3 lb. 8 oz.; lived four days. Second pregnancy in 1927. Under observation from the tenth week. Small amounts of alkali only. No albumin. Live baby at term.

CASE XII.—First pregnancy in 1921. Admitted with eclampsia. Baby stillborn. Second pregnancy in 1925. Under observation from the fourteenth week. Small amounts of alkali only. No albumin. Live baby at term.

CASE XIII.—First pregnancy ended by miscarriage about the twenty-fifth week. Albuminuria; blindness. The second pregnancy was a repetition of the first. In the third pregnancy patient was under observation from the twelfth week. Full alkali treatment—150 grains, increased to 350 grains. No albumin. Live baby at term.

CASE XIV.—First pregnancy normal. In the second pregnancy albuminuria and oedema were present during the last two months. Premature baby born alive. In the third pregnancy the patient was under observation from the twenty-sixth week. She was given 400 grains, increased to 500 grains daily. No albumin or oedema. Live baby at term.

GAS-OXYGEN IN MIDWIFERY.*

BY

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For many years past I have thought that the statement "Pregnant women stand chloroform well" was a mistake—merely copied from one book to another. I felt that it was obviously wrong to give a woman at the time of the birth of her child an anaesthetic so potent, so toxic, so dangerous as chloroform; but it was the accepted idea which had been handed down to us from the late Sir James Y. Simpson, and so it was a sort of gospel that is believed in even now, although there have been a very large number of fatalities—fatalities which will continue so long as this method is employed.

In this communication I propose to put before you a newer and, I think, a better idea—it is the administration of gas and oxygen for childbirth. This method has been familiar to me for some time from the literature of anaesthetics in Canada and the United States of America, but it was not until 1921 when, as the representative of the Anaesthetics Section of the Royal Society of Medicine, I went to Canada and the United States, that I first had personal and practical knowledge of it. I should like here and now to say that my introduction to this most valuable method was due almost wholly to Dr. Wesley Bourne of Montreal. The method has both advantages and disadvantages, and I propose to deal with them in that order.

Advantages.

1. The patient is given gas and oxygen with every pain—and after a few minutes she learns to ask for the mask as a pain is starting; she soon finds out that a few breaths of gas and oxygen will greatly diminish her pain, and when she realizes that she can go on having it, and that it will not slow her labour or hurt either herself or her baby, she is delighted.

2. The gas and oxygen, being non-toxic, can be given for a very long time without any harm to the mother or child—provided always that cyanosis is never allowed to be present. (My longest case so far has been eleven and a half hours.)

3. As this anaesthetic is non-toxic, it follows that the mother and the child have less to eliminate afterwards than if they are given chloroform. In connexion with this I well remember a case when the mother and child were both yellow for many days after a long chloroform administration, and yet with her next baby the mother refused to have the newer and, in my opinion, better anaesthetic.

4. The anaesthetist can greatly reduce the obstetrician's work, for if he knows enough of midwifery he need not send for the obstetrician until about an hour before the child is born. This is a point that I commend to the notice of the obstetricians.

5. The patient soon gets to an analgesic state, and between the pains is quite conscious, and indeed in some cases inclined to be talkative.

6. Finally, towards the end of the confinement, when the head is on the perineum, a little ether can be turned on, and the patient rendered completely unconscious, then, as the head is born, the ether is shut off, likewise the gas, and a mixture of CO_2+O (1 to 6) is given; this increases the respirations of the mother both in rate and amplitude, and as a result the baby becomes rosy pink and begins to "give tongue."

7. After the child is completely delivered, it is quite easy to deepen up the anaesthesia for the delivery of the placenta, and in my experience women who have had this form of analgesia *plus* anaesthesia recover consciousness very soon; and long before one can pack up one's things and leave they are quite conscious and full of gratitude, especially those who have had chloroform for their previous confinements.

Disadvantages.

1. A special anaesthetist has to be present, and one who knows the method. It is not a method for one man to do both anaesthetic and confinement.

2. He must have an apparatus suitable for the occasion. The obstetric sets can be hired at a small charge for the use of the machine, and when returned to the makers they see how much of the gases have been used and charge for them as well.

3. The anaesthetic is naturally more costly than when chloroform is given.

The impression left on my mind by the cases that I have attended is that the pains are by no means slowed; indeed, I think that in some cases, where plenty of oxygen has been used, the pains seemed to be increased both in frequency and in strength. This, however, is merely my impression. I cannot prove it. There is one point, however, that I am sure of, and it is that the patients are far less exhausted, even after a long labour, with gas and oxygen than they are after chloroform; moreover, they recover much more quickly.

It is essential to remember that throughout the whole administration the patient must be kept pink. Cyanosis should never be present, since if allowed for any time the life of the child will be endangered.

I prefer to start the anaesthetic at the commencement of the second stage of labour, but if the patient is a nervous primipara then it can be started before. My usual custom when I begin is to have the gas-bag nearly full of gas and oxygen in the proportion of about 4 to 1, and to tell the patient to take three or four big breaths, and then to hold her breath. She will then feel a sort of pleasant feeling of well-being permeating the whole body, and the pain will be dulled. It is only necessary to give the gas and oxygen with each pain; it should not be given continuously. Later on, when the expulsive pains begin, the patient is told to take four or five big breaths and then strain down. They know a pain is on, but, as they are analgesic, they will obey instructions and strain down.

Care must be taken to see that when the head is on the perineum the expulsive pains are under proper control. By this I mean that the patient must be quiet, and to do this, as I said before, a little ether is mixed with the gas.

*Read in the Section of Anaesthetics at the Annual Meeting of the British Medical Association, Manchester, 1929.

and oxygen, the pains are controlled, and tearing of the perineum is avoided.

I am quite convinced in my own mind that anyone who has seen a labour conducted under gas and oxygen analgesia, with a brief period of anaesthesia for the actual birth, will never willingly give anything else. The method is comparatively new in this country, and it may take years to develop and spread, but I feel sure that by its adoption a certain number of lives—both of mothers and children—would be saved. This is a point of paramount importance, and one that I am certain will appeal greatly to everyone who has the welfare of women in childbirth at heart.

THE DRUG TREATMENT OF SPASMODIC RHINORRHOEA.*

BY

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THE name "spasmodic rhinorrhoea" is symptomatic and serves well; vasomotor rhinitis, spasmodic rhinitis, paroxysmal rhinitis, and intermittent neurotic catarrh are alternatives. Perhaps I should now use the more up-to-date phrase "nasal manifestation of allergy." The subject of "allergy" is wide, and embraces many conditions which up to now have been regarded as entities—asthma, hay fever, rhinorrhoea, urticaria, intestinal disturbances, angioneurotic oedema. It is now recognized that all these diseases are manifestations of reaction of body cells to stimuli, many of which are not known. In our specialty one of the stimuli is known—pollen in the production of hay fever. It is thus seen that the subject chosen for these notes is only a corner of a wide field.

No doubt eventually it will be possible to treat each case appropriately; in the meantime, empiricism plays an important part. In these cases of mine that empiricism is everything, as no investigation was made to discover the exciting cause of the symptoms. Briefly, the symptoms of spasmodic rhinorrhoea are a watery discharge from the nose, accompanied by or preceded by sneezing. The symptoms vary a good deal in degree.

Many people who look on themselves as normal sneeze several times on rising in the morning; many more sneeze on looking at the sun. One man, a medical student, had a bad bout of rhinorrhoea and sneezing only at week ends. At the other end of the scale there are patients who suffer from rhinorrhoea or sneezing all day; so profuse is the rhinorrhoea that it wakes them, and before they have time to reach for a handkerchief their nightgowns are soaked. In one case the patient sneezed thirty to fifty times before breakfast, another a hundred times. Occasionally the sneezing is so severe that the patients are completely exhausted; on one occasion such a patient had to be placed in a nursing home and given morphine to check the sneezing. Between these extremes there are many grades. Patients often feel exhausted and children complain of *tiredness on playing games.*

I do not pretend to know when the suggestion of thyroid administration was first mooted, but it was suggested to me by the case that I now quote. Some years ago I was consulted by a lady for nasal symptoms which had developed since she became pregnant; these symptoms were nasal obstruction, rhinorrhoea, and sneezing. Thinking that some error of *internal secretion might be the* cause, I gave thyroid extract, with good results. After pregnancy was over all symptoms disappeared. This lady came to see me again during the next pregnancy with recurrence of symptoms; the same treatment cured her. This, of course, was cheering to me as well as to her, and in my mind established some internal secretion error as an underlying factor in cases of spasmodic rhinorrhoea, and a tendency developed to treat all my cases similarly, regardless of age or sex. The following case also *suggested that some metabolic error might be present.* A woman of 55 attended the out-patient department at Guy's Hospital on account of rhinorrhoea so profuse that her life was rendered miserable; it woke her *at night, and her nightgown* was soaked before she could reach her handkerchief. After one week's treatment with thyroid she was cured. Then, in 1919 or 1920, Dr. Mayo read a paper at the Royal Society of Medicine on the importance of calcium to the human economy. The impression left on my mind was that all human ills were the result of lack or perhaps excess of calcium. Calcium was therefore added to the thyroid.

TREATMENT.

The details of treatment have varied slightly from time to time: the earlier cases received thyroid extract; later calcium lactate and parathyroid were given; other forms of calcium employed were kalzana, tricalcine, and, in a few cases, collosol calcium. The dose is 15 grains of the calcium and 1/10 grain of parathyroid extract; of thyroid extract 1/2 grain twice a day, though this may have to be reduced; of collosol calcium 1 drachm twice a day. In two cases quinine was given when hyperthyroidism was suspected.

Before starting treatment one tries to exclude obvious mechanical abnormalities in the nose—sinus infections, polypi, adenoids.

RESULTS.

As indicated above, the results of this treatment are sometimes dramatic; but many cases that appear typical fail to respond at all. Perhaps one or two cases are worth quoting.

Case 1.—A boy of 12, a doctor's son, was subject to asthma; he had a very sensitive nose, a mere touch being enough to make him sneeze. The mucous membrane of the nose was pale. He was given 15 grains of calcium lactate and 1/2 grain of thyroid extract twice a day. His father wrote that the boy had been better in health that term than ever before; the "colds" disappeared, also all asthma. In error he had been having 1/2 grain of thyroid gland, instead of extract, so that the result of treatment must almost surely have been due to the calcium. It was found that if the calcium was stopped the "colds" returned.

Case 2.—A boy of 16 in September, 1927, complained of nasal obstruction and "colds"; he had some shortness of breath, which was considered to be asthma by a competent observer. He sneezed a great deal and had much rhinorrhoea. He was given 15 grains of tricalcine and 1/10 grain of parathyroid extract twice a day. Two months later all symptoms had disappeared, and he had lost his shortness of breath. His doctor considered all his troubles to be due to infected tonsils, and was, I fear, annoyed with me that I would not remove them. The boy has remained perfectly well.

Case 3.—A lady of 47, seen in October, 1927, complained of "nasal catarrh" of a few years' standing. She had intense nasal irritation, watery discharge, and violent sneezing, chiefly at night, which wakened her at 3 to 5 a.m. She was given 15 grains of tricalcine and 1/10 grain of parathyroid extract twice a day. In November—one month later—she wrote saying that she was almost well.

Case 4.—A man of 45, a schoolmaster, seen in February, 1926. He had had hay fever for twenty-three years, and then began getting symptoms all the year round, and this had culminated in a very severe attack of rhinorrhoea and sneezing, which had exhausted him. He had tried many remedies, and confessed that he came with little faith or hope. After taking calcium lactate and parathyroid for fourteen days he wrote that he was cured—"the stuffy breathless oppression has gone, and I have had practically nothing since."

Case 5.—A boy of 11 was seen in 1926; he was never free from a cold; he had had various operations on this account. At 5 years of age he had had adenoids removed; at 9 tonsils removed; at 9½ tonsils enucleated and some operation on the nose; he had also had appendicitis. In spite of all his adventures no improvement had resulted; the nose was always blocked, and he had headaches and a lot of sneezing in the mornings. Examination showed that the anterior end of the right inferior turbinal had been removed, also, of course, the tonsils and adenoids. Calcium lactate and parathyroid were given; the result was good, he ceased sneezing in the morning, scarcely had to use a handkerchief, and felt very much better. One may wonder in this case whether the appendicitis was not really another manifestation of allergy.

Case 6.—The following case shows the occasional rapid result of treatment. A nurse, aged 42, had such profuse rhinorrhoea that she had to use towels in place of handkerchiefs; it also woke her at about 3 a.m.; she had much sneezing. After three or four days of calcium and parathyroid she wrote to say she was cured.

Details of all the cases would be of no interest, but here are the results in 40 consecutive cases which were followed up as far as possible:

Cured	15 = 37%	65%
Better	11 = 27%	
No better	5	
Not traced	9	

It is not suggested for a moment that 65 per cent. of cases of rhinorrhoea will be cured by giving calcium and parathyroid; but the results in even this small number are at least encouraging.

* A paper read in the Section of Oto-Rhino-Laryngology at the Annual Meeting of the British Medical Association, Manchester, 1929.

PNEUMOPYOPERICARDIUM: THE RADIOLOGICAL DIAGNOSIS.

BY

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(*With Special Plate.*)

THE conditions of pneumohydropericardium and pneumopyopericardium are rarely diagnosed. They may exist, yet their presence may be unsuspected owing to their insidious development during the progress of a grave lesion, or to the physical signs and symptoms of the primary lesion masking those of these conditions.

Pneumopyopericardium may arise from any lesion which leads to perforation of the pericardium *from within* or without; thus it may be associated with:

1. Rupture of the pericardium by a foreign body in the oesophagus or stomach or by a puncture wound.
2. Paracentesis.
3. Direct violence—with or without a definite fracture of a rib or the sternum.
4. *Artificial pneumothorax.*
5. The breaking down of a tuberculous lesion which is in close proximity to the pericardium.
6. The rupture of *inflammatory lesions near the* pericardium —abscess (lung, liver, subdiaphragmatic), *empyema*, etc.
7. Carcinomatous ulceration of oesophagus, bronchi, or stomach.

The *perforation* of the pericardium by foreign bodies is rare in man, but *in cattle it is fairly* common. One has seen a number of cases at the public abattoir due to the swallowing of *long strips* of sharp metal or wire, which have torn through the viscera into the pericardium and infected it with *organisms from* the alimentary canal. The *animals* have become obviously so seriously ill that they have been sent to the abattoir for the purpose of "saving their lives"—*or, in other* words, to get early slaughter with the idea of *being able to sell* the meat. Infection of the pericardium by organisms of the *B. welchii* group readily leads to the *development of pneumopyopericardium.* Imperatori[1] *records a case of* pericardial oesophageal fistula following impaction of a foreign body in the oesophagus.

During the needling of the thoracic cavity the pericardium may be ruptured and infected, and the condition so produced. Rigler[4] records such a case. Ljungdahl[5] has described a case of pneumopericardium occurring in a lad, eighteen years of age, who, whilst running, suddenly experienced a severe pain in the chest, with breathlessness and a feeling of obstruction in the bronchi, followed by a loss of strength. Peterson described a case in which he said that the alveoli were ruptured and air collected between the pericardial pleura and the pericardium. Saupe[3] has emphasized the possibility of confusing this with pneumopericardium. That pneumopericardium can arise as the result of an artificial pneumothorax is shown by the history of the case recorded by Saupe.

Wenckebach[12] has described a case of pericarditis with effusion associated with phthisis treated by repeated withdrawal of the effusion and replacement by air. On one occasion as much as 1,400 c.cm. of fluid was withdrawn and 600 c.cm. of air introduced. It was found that the introduction of air considerably reduced the rate of exudate production, and altered its character from haemorrhagic to clear serous fluid, and consequently greatly improved the condition of the patient. His radiograph of the artificial pneumopericardium shows that the *pericardium* is very considerably dilated to the left, and to a much less extent on the right. On the left it reached to the level of the *fourth* space posteriorly and to the first costochondral junction anteriorly, and on the right from the diaphragm to the sixth *rib* posteriorly and the second space anteriorly. It has been shown at post-mortem examination that pneumopyopericardium has arisen as a result of rupture of the *pericardium secondary to* tuberculous cavitation, empyema, abscess or gangrene of the lung, or carcinomatous ulceration of the oesophagus, bronchi, or stomach.

DIAGNOSIS.

The diagnosis of pneumopericardium can only be definitely established by an *x*-ray examination. In the case to be described, the reason for the *x*-ray examination was the gravity of the dyspnoea, which appeared to have developed *rapidly. The physical signs for several years suggested the* diagnosis of phthisis. No additional physical *signs* were detected to account for this marked dyspnoea, and its onset had been insidious. The suspicion of pericarditis had not been aroused by any of the physical signs. Normally the *pericardium* invests the heart *so closely* that it cannot be *seen on the radiograph (except perhaps at the left cardiophrenic* angle), even if pericarditis exists, unless this has been present over a long period and calcification of the pericardium has occurred. Even when a pericardial effusion is present the radiograph may not determine its presence, though Schultze,[9] Schwaer,[10] Amelung,[1] and others have demonstrated radiographs which show a double *contour* to the heart shadow—the inner shadow being interpreted as the heart shadow and the outer shadow that of the fluid in the pericardium. It may be possible to demonstrate this in a few selected cases where the respective densities of the heart and fluid permit, but it is by *no means a common finding. Definite cases of pericarditis* with effusion occur in which no such radiographic shadows can be obtained. Moreover, such appearances may be shown on antero-posterior radiographs where no pericarditis is present; such lesions as a pleuritis mediastinalis or dilated oesophagus or paravertebral abscess or aneurysm of the abdominal aorta[3] may give such a picture.

It is essential in the radiography of the heart that the best technique be adopted, and the chief factor is undoubtedly shortness of exposure. As in gall-bladder radiography, important features may be entirely missed if the duration of the exposure is not sufficiently short to give a sharp outline. I have drawn a resemblance between such *radiography and photography of crowded thoroughfares.*[2] If the exposure of the latter is long enough only a clear photograph of the buildings and fixed objects will be obtained, whereas with a reduction in the time of the exposure the moving objects begin to be portrayed until with very short exposures even the detail of the fast moving cars will be shown.

Similarly with radiography of the thorax. If the exposure is so long that *movement of the heart can occur*—not only on account of pulsation but also of breathing—it is possible to produce a radiograph which shows the detail of the spine but little or no heart shadow. As this radiograph appears to have been "accurately" exposed it may be regarded as satisfactory. Indeed, I have seen such a radiograph exhibited and the suggestion seriously put forward that the absence of the heart shadow might be due to diminished density of the heart in phthisis.

With the very short exposures from a distance which are possible when using the big modern transformer sets and time switches, it is possible to obtain radiographs on which the outline of the heart is as sharp as if it had been drawn. With such exposures it only needs slight difference in the density of different structures to get an outline of their form, and it is with such radiographs that the greatest help in diagnosis can be obtained.

Description of Case.

A man, aged 40, had complained of a cough for some years. His sputum had been examined on several occasions for the tubercle bacillus with negative results. After an operation for appendicitis a fistula had developed *in the right iliac fossa* and persisted for nearly two years. This healed, but broke down again after four years, and during the past two years has widened considerably, and is *now most* offensive. Five months ago he developed dyspnoea. Dr. Benjamin Dale of Birmingham—to whom I am indebted for the history, clinical details, and permission to record the case—had attended him for several years. He re-examined the thorax with the development of the dyspnoea, but could find no new physical signs, and on this account requested an *x*-ray examination. On screening the chest, the lung fields, particularly in the upper half, showed much of the mottling which suggests chronic fibrotic changes. It had the appearance seen in cases of chronic phthisis, though no definite cavity formation could be detected. *Marked* emphysema of the lower lobes was suggested by the *lighting up* of these areas and the depression of the diaphragm and its small excursion.

A large localized collection of fluid with gas above was seen in the middle of the thorax, and when the patient was rotated it became obvious that the fluid and gas were contained in the

pericardial sac. The surface of the fluid could be seen to move with each pulsation, and when the patient was rotated lying down the gas bubble could always be seen lying above the fluid which flowed into the dependent parts. A further *x*-ray examination of the patient after he had been resting for one month showed no change in the appearance of the pericardium. About the same quantity of fluid and gas appeared to be present. His dyspnœa was perhaps a little less marked, and he was able to walk about without much distress.

After a further two months' rest another *x*-ray examination was made, and to our astonishment the whole appearance had changed. There is now no evidence of gas or fluid in the pericardium, and the heart shadow appears to be of normal shape and dimensions. His dyspnœa has practically disappeared and, excepting for his fistula, he feels much better. He stated that he had "vomited" a large quantity of foul-smelling matter since the previous examination, but it is impossible to say if this had any relation to the disappearance of the fluid from the pericardium. It would be remarkable to get such a complete evacuation and apparent healing and improvement in the patient's general condition if the fluid in the pericardium had been fetid pus containing gas-producing organisms, and I am inclined to the opinion that it was rather of the nature of a pericardial effusion following rupture of the pericardium and pleura, with entrance of air which was later absorbed. The appearance of the lung fields suggests that the underlying cause is tubercle, but no tubercle bacilli have been found in the sputum on any occasion.

Description of Radiographs.

The radiographs are instructive in showing the form which the *pericardium* may assume when dilated by a large collection of gas and fluid. It is generally taught that in pericarditis with effusion the area of precardial dullness becomes pear-shaped—the stalk of the pear reaching up to the level of the left sterno-clavicular articulation. It will be seen from the postero-anterior radiograph, Fig. 1 (and Fig. 1A, which is a tracing of Fig. 1), that the widest part of the pericardial sac in this case is at the level of the fluid surface, which is three interspaces above the level of the diaphragm, the base of the pericardium being narrower. The general shape of the pericardial sac is ovoid, excepting for the notch due to its attachment to the aorta and pulmonary artery.

FIG. 1A.—Tracing of outline of pericardium and fluid level from antero-posterior radiograph (Fig. 1).

Another noticeable feature is that the pericardium is more dilated to the left than to the right. This feature I also observed in the radiograph illustrating the case of artificial pneumopericardium by Wenckebach. The dilatation in my case is also seen to be more above than below. Curschmann recommends paracentesis in or lateral to the left mammary line in the fifth or sixth left interspace, in view of the fact that the fluid tends to collect on either side or below the heart rather than in front of it. These radiographs show that the features described are not necessarily present, and little success would have attended efforts to drain the pericardium if these recommendations had been adopted.

No dullness to the right of the sternum was detected, and this is to be explained by the shape of the pericardium and the emphysema of the base of the right lung. The lateral radiograph (Fig. 2) and the tracing from it (Fig. 2A) show the outline of the pericardium. This I thought was due to some thickening and calcification of the pericardium, and it suggested that the lesion had been present for a considerable time, but from the last examination I believe it to be due solely to it being the limiting membrane of the large gas-containing cavity. Its outline resembles that shown in the drawing of the posterior wall of the pericardial sac (Fig. 616 in *Gray's Anatomy*).

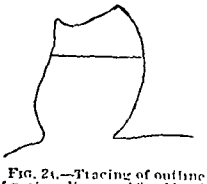

FIG. 2A.—Tracing of outline of pericardium and fluid level from lateral radiograph.

The radiographs also illustrate the importance of taking radiographs in several planes and rotating the patient during screening. It would be impossible from the antero-posterior radiograph to state definitely that the fluid and gas were in the pericardium.

Differential Diagnosis.

Similar appearances shown on the postero-anterior radiograph I have seen in a case of empyema localized in the mediastinal area which had been partly drained by needling; an echinococcal cyst which had ruptured and partly drained; a mediastinal tumour the middle of which had disintegrated, liquefied, and partly drained; and a large œsophagus with cardiospasm.

Other conditions, such as paravertebral abscess, aneurysm of the heart and descending aorta, and mediastinal tumour, would have to be considered if no gas collection was present. By rotating the patient during screening or by taking radiographs in several planes these conditions could be excluded.

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A CASE OF PANCREATIC CALCULI.

BY

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(*With Special Plate.*)

IT is extremely rare for pancreatic calculi to be diagnosed during life, so that it is always of interest when such a diagnosis can be made with reasonable certainty.

The patient, an Indian, aged 37, was sent to me by Dr. G. Narunsky of Claremont, Cape, on February 19th, 1929. For the previous four to five months he had complained of pain in the epigastrium, which radiated to both sides of the abdomen. The pain seemed to come on five to ten minutes after food. For the past six weeks the pain was more severe, practically continuous, and was getting worse, so that for the last two weeks he had eaten very little. He had no attacks of colic, but only the dull continuous pain.

He had no appetite, no desire for food, had not vomited, and was not jaundiced. His tongue was furred and his breath very foul. The teeth were bad. His bowels were constipated, but latterly he had had a few loose, very small motions.

He had marked tenderness just above the umbilicus. The liver and spleen were not palpable. There was no glycosuria.

One of the stools was examined. It was very small in amount, contained little faeces, much mucus, and certainly was not a pancreatic "fat stool."

An Ewald-Boas test meal showed 50 per cent. free HCl and 66 per cent. total acidity. A barium meal *x*-ray examination was then made, and the four photographs reproduced in the special plate were among those taken (see Films A–D).

Film A (taken in the prone position) shows shadows in the loop of the duodenum and to the left of the first lumbar vertebra.

Film B (taken six and a half hours after the ingestion of the barium meal) shows the bulk of the meal in the ileum. A wire was placed on the abdomen to indicate the position of the abdominal tenderness. The shadows show quite plainly on the right of the body of the second lumbar vertebra, and across the body and to the left of the first lumbar vertebra.

Film C (taken twenty-six hours after barium meal) shows the ascending and transverse colon well filled and the shadows above the colon.

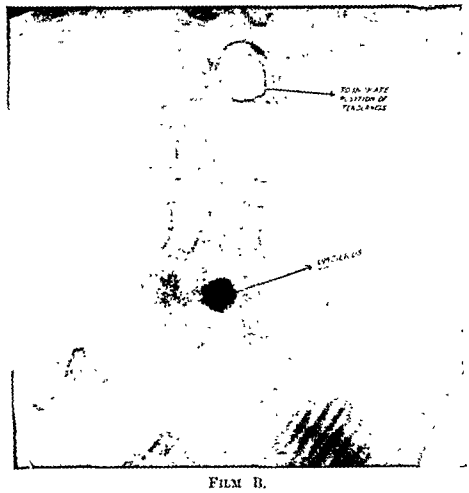
Film D was taken four days later, after the patient had had an enema and an aperient to clear the alimentary canal. The shadows show very clearly.

FIG. 1.—Postero-anterior radiograph of pneumopyopericardium. Note that the dilatation is mostly to the left side and more dilated above than below. Marked mottling of the lung fields, particularly the upper halves, the bases show emphysema.

FIG. 2.—Lateral radiograph of the thorax, showing pneumo- ium and its attach- also emphysema of the dorsal spine.

STANLEY N. SENNETT: PANCREATIC CALCULI.

FILM A.



FILM B.

FILM D.

J. L. LIVINGSTONE: LARGE LUNG ABSCESS WITH GANGRENE.

FIG. 1.—Antero-posterior view, showing large cavity in right upper lobe. *X* indicates the fluid level.

FIG. 2.—Oblique view, showing cavity extending to the back of chest. *X* indicates the fluid level.

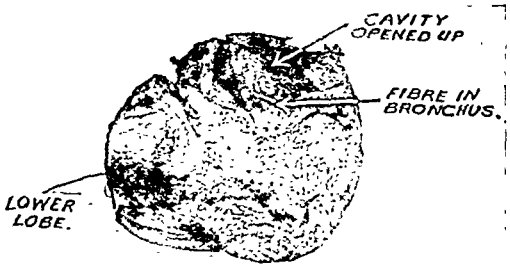
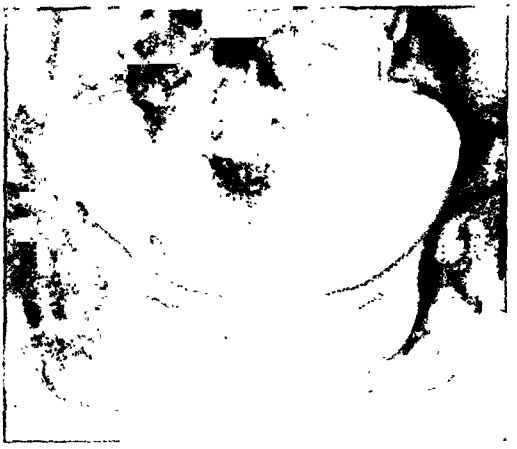


FIG. 3.—Post-mortem specimen of right lung.

I. H. LLOYD-WILLIAMS: BONY PLAQUES DEVELOPING IN THE SKIN.

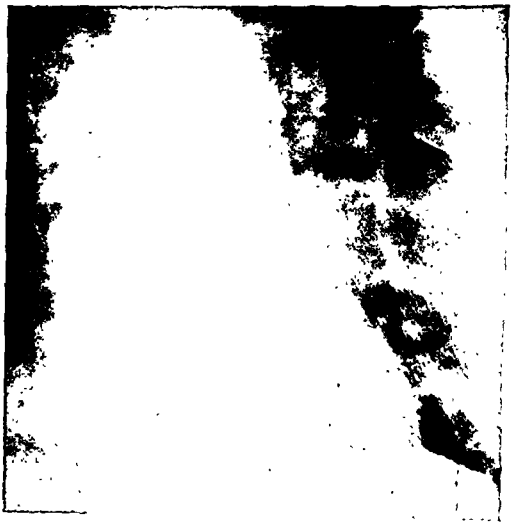
X-ray photograph of the case reported. Note the normal appearance of the bone and the superficial position of the plaques.

J. CLAY: BIMANUAL METHOD OF LOCATING A STONE IN THE URETER.



X-ray photograph showing stone in lower end of right ureter.

B. T. HALLIWELL: FRACTURE OF RIBS CAUSED BY COUGHING.



After an examination of the photographs a diagnosis of pancreatic calculi was made. I lost trace of the patient after that, but have since heard from Dr. Narunsky that, after having consulted several other doctors, the patient returned to him on May 22nd. He was then severely jaundiced and very emaciated, and died the same day. Unfortunately no consent could be obtained for a post-mortem examination.

Comment.

Certain points of interest emerge from a consideration of this case.

1. The pain was not typical of any particular gastric condition. It seemed to come on soon after food, but was not relieved by anything. Later, the pain was practically continuous.
2. The patient had no attacks of colic.
3. There was no glycosuria.
4. There were no fatty stools.
5. Jaundice was late, and was probably due to a pancreatic stone blocking the common bile duct.
6. The very probable diagnosis of pancreatic calculi from the *x*-ray examination, as the head, body, and tail of the pancreas are so definitely outlined by the shadows. Also the site of the abdominal tenderness coincides with the shadows seen.

ON A CASE OF BONY PLAQUES DEVELOPING IN THE SKIN.

BY

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(With Special Plate.)

THE occurrence of calcification in tissues is well recognized. The presence of calcified deposits in the skin either as milia or in scars is described by Malcolm Morris and others. The existence of actual bony plaques in a cutaneous scar seems to me of sufficient rarity to be worth recording.

The patient is an elderly woman who, in 1924, got her right sleeve caught in the flame of a spirit lamp. The burn was a severe one, extending to the outer side from about two inches below the elbow to about six inches above, and in one part, just above the elbow, almost encircling the arm. Healing took about seven months, and skin grafting was resorted to. There was no trouble until about five years ago, when a plaque was extruded through the skin by a process of slow ulceration, taking about eight months for the ulcer to heal.

About a year ago last April "a little spot" started on the outer side of the arm, just above the elbow, which gradually grew larger. A calcareous plaque was observed in the process of extrusion. There was very little inflammatory reaction in spite of the presence of a little pus on the dressings. Solution of the plaque by lactic acid dressing to hasten the removal was tried without avail. The plaque was finally extruded and the residual ulcer healed in about three weeks. The plaque was sent to the Clinical Research Association, and they reported as follows:

"This specimen is found to be a piece of exceedingly hard, calcareous bone in which an excess of calcium salts has been deposited; it is also covered on one side by a hard deposit of calcium and magnesium phosphates. We regret the exceptionally long time taken in the analysis, but the specimen was so exceptionally hard that special means of softening and decalcifying had to be adopted."

The specimen was about one inch long by about half an inch wide and perhaps a sixteenth of an inch thick.

At the time of writing another plaque is commencing to come away and several others can be felt lying in the skin and movable over the underlying tissues. The *x*-ray photograph shows the calcareous deposits in the skin. I had this taken with a view to determining the state of the underlying bone; this is obviously healthy.

The chief interest in the case lies in the fact of actual bone seems tissue developing in an unusual position. So far as the history of the original injury and the present *x*-ray findings are concerned, the possibility of transference of osteoblasts from the humerus to the skin seems very unlikely. The most probable explanation is the conversion of connective tissue cells, either mature or in the early stage thereof in granulation tissue, into osteoblasts. This would bring the lesion into line with the ossification that occurs in callus and myositis ossificans.

I am indebted to Miss Ivatt, radiographer, Haywards Heath Hospital, for the radiograph, and to Dr. H. T. Cubbon, radiologist, for the following report:

"Lying in the soft tissues, posterior to the lower two-thirds of the humerus, there is a collection of opacities, which appear to be in the nature of plaques of bony tissue. Surrounding the plaque with a cavity in it, there is a collection of small granular opacities. The shaft of the humerus appears to be perfectly healthy, and although the bony opacities are very like sequestra, their origin could not be found. The appearances do not conform with a typical myositis ossificans."

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

LARGE LUNG ABSCESS WITH GANGRENE.

(With Special Plate.)

THE following case is thought to be of sufficient interest to be worth reporting.

A man, aged 63, was sent to the out-patient department of King's College Hospital by Dr. J. Shaw about June 1st, for haemoptysis of three weeks' duration.

History.—He had always been healthy and had never suffered from cough. In the beginning of May of this year he noticed a local anaesthetic about May 7th; the tooth was removed under a had taste in the mouth, generalized pain, and slight malaise; this was put down to a septic tooth, which became blood-stained, and later seemed to be pure blood, about an ounce at a time. At the end of May there was severe paroxysmal cough, often lasting an hour at a time, with pain in the right upper chest.

Physical Examination.—When seen, in the beginning of June, he was of the plethoric type, with a thick neck and slight cyanosis of the face and ears. The breath was very offensive; teeth extremely septic; no finger clubbing. Temperature 101°, respirations 20, pulse rate 84. In the right lung there was impaired movement and percussion note above the third rib; air entry was feeble, and there were numerous fine non-consonating crepitaticus; vocal resonance was increased. The heart was slightly enlarged to the left, without displacement, and there were no signs of aneurysm. Blood pressure 150/96. The liver was about three fingerbreadths down. On screening with the *x* rays a large opacity, the size of a grape-fruit, was seen in the right upper chest, with a fluid level, the amount of fluid did not decrease when the patient put the head low and coughed. (See radiogram in special plate.)

The diagnosis lay between lung abscess and interlobar empyema, causing acute congestion of the lung.

The patient was admitted to hospital early in June. The temperature was remittent between 99° and 102°, respirations 30, and pulse rate about 90. The sputum varied between 3 and 8 ounces daily; it was fetid, and consisted of brownish or bright red blood with pus. Microscopically it contained no broken-down lung tissue, but was teeming with bacteria of different types.

The physical signs altered very little, except that the air entry at the right upper lobe was very slight, on two occasions amphoric breathing was heard over the dull area, there was no whispering pectoriloquy or coin sound.

The diagnosis of pulmonary abscess with gangrene was made, but we were unable to account for the fact that the cavity did not empty materially on adopting a suitable posture; the large amount of fresh blood was also unusual. It was deemed inadvisable to try to tap the abscess by means of a trocar and cannula for fear of causing empyema.

The patient gradually became more toxic, and died suddenly after a fit of coughing on June 11th, after ten days in hospital.

Post-mortem Examination.—The teeth were very septic; oedema of the tissues of the right upper chest, neck, and mediastinum; serous fluid (35 ounces) in the right pleural cavity; the trachea was full of blood; old dense adhesions at the right apex and recent fibrinous adhesions over the right upper lobe in the axilla. The right upper lobe was converted into a huge gangrenous cavity with a mere shell of lung remaining; this was filled with blood-clot (at least 10 ounces) and broken-down lung tissue. The bronchus to the right upper lobe was occluded by gangrene and swelling, and was sticking into the cavity in such a way that it bent over at an angle; it would thus act as a valve, allowing air to enter but preventing the free expulsion of pus and blood (see photograph, Fig. 3). No foreign body was found.

There was acute congestion and early pneumonia in the lower lobes of both lungs. There was early pericarditis on the right side, with cloudy swellings and congestion of the various organs.

There seems little doubt that the origin of the condition was the inhalation of septic blood-clot following the extraction of the tooth five weeks before death; this set up an abscess, the bronchus became obstructed, preventing free drainage, and gangrene ensued.

J. L. LIVINGSTONE, M.D., M.R.C.P.,

Junior Physician, King's College Hospital.

BIMANUAL METHOD OF LOCATING A STONE IN THE LOWER END OF THE URETER.

(With Special Plate.)

THE following case seems worthy of record as illustrating the value of the bimanual method for locating at operation a stone in the lower portion of the ureter.

A married woman, aged 41, was sent to hospital by Dr. Welsh on August 5th, with a history of severe attacks of right renal colic, which had occurred at irregular intervals during the previous four years. An *x*-ray photograph showed a shadow at the lower end of the right ureter. At the cystoscopic examination, after the injection of indigo-carmine, blue urine entered the bladder freely from the left ureter, but none escaped from the right meter. The ureteral catheter would only pass 1 cm. up the right ureter.

On August 16th, under a general anaesthetic and with the patient in the Trendelenburg position, an incision was made at the outer border of the right rectus and the ureter exposed extraperitoneally. The ureter was dilated and tortuous, but, although the ureter was easily followed to the bladder, the stone could not be felt, and it seemed possible that it might have been passed, as happens to so many stones in this position. Before doing anything further I passed the right hand into the vagina, and then, with the left hand in the wound, was able to locate the stone. It was then a simple matter, after putting on a clean glove, to cut down on and remove the stone, which was 1 cm. long and 1·2 cm. in diameter. The rough surface of the stone explained why it had not been passed. No attempt was made to suture the ureter, as I think sutures in this position may lead to cicatricial stricture of the ureter, and a suture may act as a foreign body. A drainage tube was passed down the site of the opening in the ureter and brought out at the lower end of the abdominal wound.

During the after-treatment a little urine escaped from the wound, but soon stopped, and on September 5th the wound was healed and the patient returned home.

The bimanual method was a great help, as without it the stone could not be felt either from the wound or from the peritoneal cavity, and I was reluctant to open the ureter without first feeling the stone, lest I should find that the stone had been passed. I am indebted to Dr. Gamlen for the *x*-ray photograph of the stone.

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THE following account of the fracture of four ribs by coughing may be worthy of record.

The patient was a doctor aged 40; he was a man of good physique, who had always been fairly healthy and had had no previous chest trouble. At Christmas time, 1928, he had influenza, and was in bed for some ten or twelve days. His chest was affected, and he had a mild pleurisy and some pseudo-asthma. About New Year time he was convalescent and was sitting in a chair when he had a paroxysm of coughing, which gave him acute pain in the left costal region. This was so bad that morphine was prepared although not used. He inhaled chloroform instead and was put to bed. He continued to have attacks of similar pain, especially at night, and his attacks of asthma continued for a fortnight. These were not relieved by adrenaline, but completely stopped after one application of ultra-violet rays.

He recovered sufficiently to go to the seaside, and was sent by Dr. Carver of Torquay to have a radiological examination of his chest. At the examination, on January 25th, he was found to have some evidence of pleurisy on the left side, and films showed that the sixth, seventh, and eighth ribs of that side had been comparatively recently fractured posterior to the mid-axillary line. He was practically free from pain at that time.

After the examination he went home, and on getting out of a bus he had an attack of coughing, which at once brought on a repetition of his previous acute pain. He arrived home in a more or less collapsed condition. On February 11th he came for a further radiological examination, and it was noted that he had—since his previous visit—fractured the ninth rib in much the same line as the other three.

The clinical examination showed no evidence of tumour or other pathological condition of bone tissue, but there was delayed resolution of the lung condition, which persisted until the beginning of April.

He was examined again recently (July) and appeared fit and well. Callus was forming around the sites of fracture.

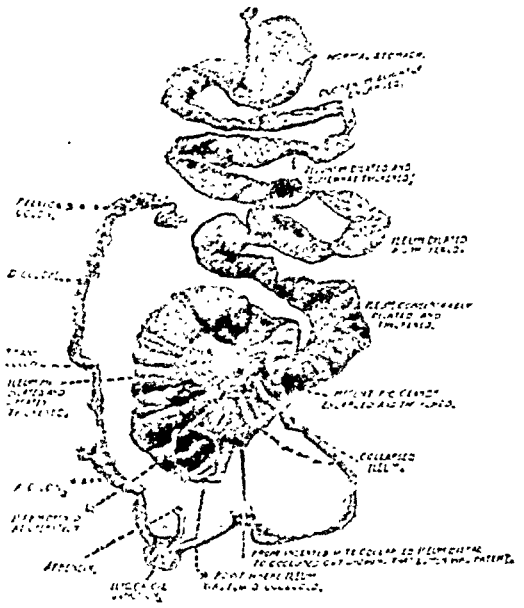
Torquay. BASIL T. HALLIWELL, M.B., Ch.B.

CONGENITAL OCCLUSION OF THE SMALL INTESTINE.

THE report by Dr. Bernard Shea, on September 24th, 1927 (p. 549), of a case of congenital occlusion of the small intestine prompts me to place on record another instance of this interesting condition, with an illustration in which the main features are so clearly demonstrated that any written description would appear to be unnecessary.

On February 19th, 1925, a Chinese male infant was admitted to the District Hospital at Ipoh with an extremely distended abdomen, and a history of not having passed meconium since birth. The patient had been seen by a private practitioner, who had attempted bowel lavage; this, however, brought away nothing but mucus.

Examination revealed a perfectly patent anus, and a small rubber catheter passed easily into the rectum.



An exploratory laparotomy was performed, and an enormously distended coil of ileum presented. This was delivered. It was found that the ileum was occluded, as shown in the accompanying photograph. An opening was made in the distended bowel, and an enormous quantity of meconium evacuated. It was found impossible to perform any type of anastomosis. The opened ileum was sutured to the abdominal parietes, and continued discharging meconium until the following day, when the infant died.

Post-mortem examination confirmed the operation findings, and the entire gastro-intestinal tract was removed, preserved in formalin, and photographed.

C. BERGOYNE PASLEY, F.R.C.S.I.,
Chief Surgeon, Federated Malay States.

EXTREME CARDIAC OEDEMA WITH RECOVERY.

THE following clinical details may be of general interest in view of the satisfactory results in an extreme case of cardiac oedema which followed the exhibition of the compound digitalis pill when other treatment had failed.

An infantryman, now aged 36, suffered from bronchitis during and after the war. In 1921 the attacks became more frequent and rather more severe. In 1925 he began to be cyanosed and dyspnoeic, and developed clubbing of the fingers. After admission to hospital his lungs cleared up and the cyanosis disappeared. Radiograms showed peribronchial thickening, emphysema, and an increase in the transverse diameter of the heart, but he was not at this stage oedematous.

Eighteen months later (1927) he was again ill with severe cough, thoracic pain, dyspnoea at rest, and cyanosis. His heart was definitely enlarged clinically, his lungs gave a hyper-resonant note, and many rhonchi were audible on auscultation. He developed oedema of the legs and genitalia, and was treated with lobelia; his legs were tapped, the oedema subsided, and he was able to leave hospital in June, 1927.

Two months later he relapsed and was readmitted. The heart was more enlarged than before, and the pulse became irregular; there was orthopnoea, general anasarca, ascites, and oedema of the chest wall. The oedema gradually became the most prominent feature of the case; it affected his legs, thighs, abdomen, and back. Tubes were introduced into his legs. Digitalis was given and his abdomen was tapped for the first time on October 7th, 1927. For the succeeding eight months his abdomen was tapped every ten or twelve days. At first about 100 ounces were withdrawn, but as the condition progressed over 400 ounces were withdrawn at a time. The oedema spread to his arms, hands, and face. His output of urine fell as low as 10 ounces per diem. Tapping the abdomen was not followed by an increase in the output of urine. Between October and the following July the abdomen was tapped twenty-five times, and a total of over 20 gallons of fluid was withdrawn. Between May 25th and June 22nd, 1928, 1,035 ounces were withdrawn from the abdomen,

and during the same period only 519 ounces were passed per urethram; the administration of diuretin or urea was followed actually by a slight fall in urinary output. His urine, examined many times, contained only a trace of albumin and no casts.

On June 11th his abdomen was tapped: 413 ounces were drawn off and at the same time the patient was put on Guy's pill twice a day and 5 grains of caffeine citrate three times daily. His average output of urine during the preceding ten days had been 18.7 ounces. During the succeeding ten days it rose to 29 ounces. By June 30th the change in the man was very noticeable; he had developed a healthy colour and his legs were less swollen. On July 15th his abdomen was tapped once more and 354 ounces were drawn off; this was followed by a drop of 20 beats per minute in the average pulse rate, and the urinary output rose to 40 ounces.

By August 7th the patient was passing over 100 ounces per day; he was up and walking about, and said he felt perfectly fit. He ate well, and his muscles regained a firm, healthy tone. In view of the seriousness of the man's history it was decided to keep him on his treatment and under observation; he left hospital, however, against advice, on September 14th, and it is not known what treatment he received outside.

On October 23rd he was readmitted with respiratory distress, cyanosis, and ascites as bad as ever, passing an average of 16 ounces a day. His abdomen was tapped and 198 ounces withdrawn. After six days in hospital he was again put on Guy's pill and caffeine citrate. The urinary output rose from 18 to 40 ounces, and after a week to 80 and 104 ounces. The ascites did not return, and his colour became healthy. The treatment was then changed to diuretin, and the urinary output fell to 52 ounces. After seven days he was put back on Guy's pill and caffeine citrate; the urinary output rose again and increased up to 100 ounces.

In view of the failure of other diuretics, notably diuretin, and of digitalis alone, the improvement was doubtless due to pil. digitalis co., though diuresis may have been assisted by the caffeine citrate. The man has now been well for two months, is up, and goes out of doors.

The points of special interest in this case are: (1) the enormous quantity of fluid (6,603 ounces) withdrawn from the abdomen; (2) the changes which followed the administration of the compound digitalis pill; (3) the good symptomatic recovery.

For permission to publish this case I am indebted to the Director-General of Medical Services, Ministry of Pensions, and to Dr. Alexander Goodall, consulting physician, Edenhall Hospital, Midlothian.

N. J. NICHOLSON, M.B., Ch.B.,
Resident Medical Officer, Ministry of Pensions Hospital, Edenhall, Musselburgh, Midlothian.

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

SOUTH MIDDLESEX DIVISION.

Ante-natal and Post-natal Duties of the General Practitioner.

At a meeting of the South Middlesex Division, held on November 13th, a lecture was delivered by Dr. LESLIE WILLIAMS, entitled "The ante-natal and post-natal duties of the general practitioner."

Dr. Williams passed in review the various factors concerned in the low standard of obstetrics. The first was the erroneous lay belief that pregnancy and labour were normal physiological processes; it needed to be brought home to the public that it was only by the most thorough care *before*, during, and after labour that any guarantee of normal progress could be given. Again, there was a lack of appreciation by the public of the amount of care required of the doctor in managing a pregnancy; other factors were the inferior status of obstetrics in many educational schemes, and the lack of opportunity for post-graduate instruction and practice in minor obstetrical operations.

The patient should be examined first of all as early as the tenth week, at which time the diagnosis of pregnancy could be made with certainty, and a retroverted gravid uterus be dealt with by introducing a ring pessary which should remain until the sixteenth week. The general examination should include an investigation of the condition of heart and lungs, an inspection of the breast and nipples for abnormalities, the testing of urine, and the taking of blood pressure. The patient should be given advice about the hygiene of pregnancy, including the desirability of abstinence from coitus at the times when the first five menstrual periods would have been due, and particularly during the last four weeks of gestation; also the desirability of a restricted protein intake, the care of the teeth, the avoidance of violent exercise (including excessive motoring), and the replacement of immersion baths by shower baths during the last two weeks. The next examination might be made at the twenty-eighth week. The size of the uterus should be noted in order to determine that the pregnancy was advancing at ordinary speed. As to the size of the pelvis, the lecturer was convinced that external pelvic measurements should be replaced by an internal examination, in which an effort should be made to reach the sacral promontory and so measure the diagonal conjugate. The cavity should be explored to exclude bony abnormality or tumour, and the width and shape of the subpubic arch be palpated. The further examination should take place at the thirty-fifth or thirty-sixth week, when it was the doctor's duty to find out how the foetus lay and fitted into the pelvic brim. *This was the time to convert a breech presentation to a vertex, for at this period it was not so liable to return to a breech presentation as was the case when version was performed earlier. Further, version occasionally induced premature labour, and if this did result the child born at the thirty-fifth week had a much better chance of survival than one born earlier.* Should disproportion be suspected, the difficulty of determining the exact moment when induction of premature labour was required for just commencing overlap placed the case outside the province of the general practitioner and demanded the opinion of a specialist.

With regard to post-natal care, Dr. Leslie Williams confined his remarks to certain little complications which were often overlooked. Perineal lacerations were usually detected, but it was equally important to find any vaginal lacerations, which were in just as urgent need of repair. There was no perineal laceration without an accompanying degree of vaginal laceration that needed suture by catgut; silkworm-gut suturing alone was an incomplete line of treatment. Lacerations of the cervix formed a more difficult problem, and immediate repair under anaesthesia was an operation with which in fairness the general practitioner could not be called upon to deal. It was the duty of the practitioner to make a bimanual examination of the uterus at about the fourteenth day. If the uterus was bulky and subinvoluted, the patient should not be allowed to get up, and she should be treated by ergot. Should membrane be retained in the uterus at the time of delivery no attempt to remove this should be made, but its natural expulsion should be assisted by adoption of the Fowler position and administration of ergot. The retention of placenta was a more serious business, and except in the case of a woman suffering from shock, its immediate detachment and removal by ring forceps under anaesthesia was desirable. A largely neglected side of obstetrics was the preservation of the patient's figure, by support of the breasts by a two-tailed bandage, and restoration of tone in the abdominal muscles by massage about the eighth day of the puerperium, followed by exercises usually from the twelfth day.

Dr. Leslie Williams also called attention to the need for watching for late manifestations of sepsis (about the twelfth day). With regard, finally, to retroversion, the bulky subinvoluted uterus that retroverted after pregnancy was frequently the cause of menorrhagia, backache, and discharge. To cure this condition without operative intervention demanded early diagnosis, replacement, and maintenance of the uterus in a correct position for six months. One of the principal post-natal duties of the doctor in charge of an obstetrical case was a second bimanual examination about two or three months after delivery in order that such an abnormality as a retroversion of late onset might be detected and treated.

The lecture was followed by a discussion, in which the ante-natal scheme of the Ministry of Health was considered. The meeting was generally in agreement that if the scheme were followed it would necessitate more examinations, consultations, blood pressure estimations, and urine tests than the proposed fee—stated as 11s. 6d.—would cover.

BIMANUAL METHOD OF LOCATING A STONE IN THE LOWER END OF THE URETER.

(With Special Plate.)

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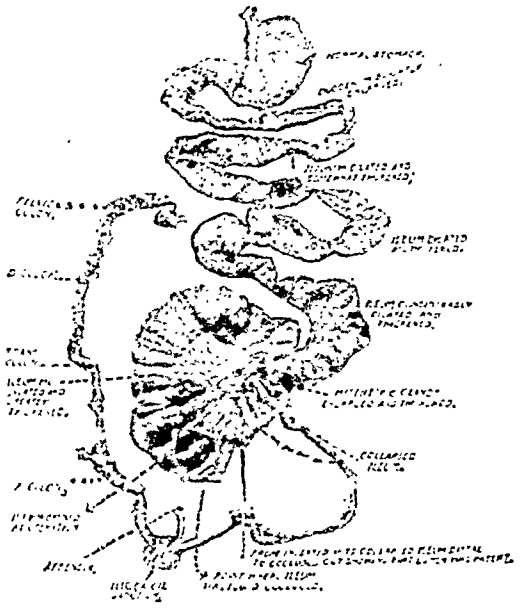

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Ante-natal and Post-natal Duties of the General Practitioner.

AT a meeting of the South Middlesex Division, held on November 13th, a lecture was delivered by Dr. LESLIE WILLIAMS entitled "The ante-natal and post-natal duties of the general practitioner."

Dr. Williams passed in review the various factors concerned in the low standard of obstetrics. The first was the erroneous lay belief that pregnancy and labour were normal physiological processes; it needed to be brought home to the public that it was only by the most thorough care before, during, and after labour that any guarantee of normal progress could be given. Again, there was a lack of appreciation by the public of the amount of care required of the doctor in managing a pregnancy; other factors were the inferior status of obstetrics in many educational schemes, and the lack of opportunity for post-graduate instruction and practice in minor obstetrical operations.

The patient should be examined first of all as early as the tenth week, at which time the diagnosis of pregnancy could be made with certainty, and a retroverted gravid uterus be dealt with by introducing a ring pessary which should remain until the sixteenth week. The general examination should include an investigation of the condition of heart and lungs, an inspection of the breast and nipples for abnormalities, the testing of urine, and the taking of blood pressure. The patient should be given advice about the hygiene of pregnancy, including the desirability of abstinence from coitus at the times when the first five menstrual periods would have been due, and particularly during the last four weeks of gestation; also the desirability of a restricted protein intake, the care of the teeth, the avoidance of violent exercise (including excessive motoring), and the replacement of immersion baths by shower baths during the last two weeks. The next examination might be made at the twenty-eighth week. The size of the uterus should be noted in order to determine that the pregnancy was advancing at ordinary speed. As to the size of the pelvis, the lecturer was convinced that external pelvic measurements should be replaced by an internal examination, in which an effort should be made to reach the sacral promontory and so measure the diagonal conjugate. The cavity should be explored to exclude bony abnormality or tumour, and the width and shape of the subpubic arch be palpated. The further examination should take place at the thirty-fifth or thirty-sixth week, when it was the doctor's duty to find out how the foetus lay and fitted into the pelvic brim. This was the time to convert a breech presentation to a vertex, for at this period it was not so liable to return to a breech presentation as was the case when version was performed earlier. Further, version occasionally induced premature labour, and if this did result the child born at the thirty-fifth week had a much better chance of survival than one born earlier. Should disproportion be suspected, the difficulty of determining the exact moment when induction of premature labour was required for just commencing overlap placed the case outside the province of the general practitioner and demanded the opinion of a specialist.

With regard to post-natal care, Dr. Leslie Williams confined his remarks to certain little complications which were often overlooked. Perineal lacerations were usually detected, but it was equally important to find any vaginal lacerations, which were in just as urgent need of repair. There was no perineal laceration without an accompanying degree of vaginal laceration that needed suture by catgut; silkworm-gut suturing alone was an incomplete line of treatment. Lacerations of the cervix formed a more difficult problem, and immediate repair under anaesthesia was an operation with which in fairness the general practitioner could not be called upon to deal. It was the duty of the practitioner to make a bimanual examination of the uterus at about the fourteenth day. If the uterus was bulky and subinvoluted, the patient should not be allowed to get up, and she should be treated by ergot. Should membrane be retained in the uterus at the time of delivery no attempt to remove this should be made, but its natural expulsion should be assisted by adoption of the Fowler position and administration of ergot. The retention of placenta was a more serious business, and except in the case of a woman suffering from shock, its immediate detachment and removal by ring forceps under anaesthesia was desirable. A largely neglected side of obstetrics was the preservation of the patient's figure, by support of the breasts by a two-tailed bandage, and restoration of tone in the abdominal muscles by massage about the eighth day of the puerperium, followed by exercises usually from the twelfth day.

Dr. Leslie Williams also called attention to the need for watching for late manifestations of sepsis (about the twelfth day). With regard, finally, to retroversion, the bulky subinvoluted uterus that retroverted after pregnancy was frequently the cause of menorrhagia, backache, and discharge. To cure this condition without operative intervention demanded early diagnosis, replacement, and maintenance of the uterus in a correct position for six months. One of the principal post-natal duties of the doctor in charge of an obstetrical case was a second bimanual examination about two or three months after delivery in order that such an abnormality as a retroversion of late onset might be detected and treated.

The lecture was followed by a discussion, in which the ante-natal scheme of the Ministry of Health was considered. The meeting was generally in agreement that if the scheme were followed it would necessitate more examinations, consultations, blood pressure estimations, and urine tests than the proposed fee—stated as 11s. 6d.—would cover.

Reviews.

INDIVIDUAL PSYCHOLOGY.

Problems of Neurosis,[1] by Dr. ALFRED ADLER, will be read with interest and profit by the practitioner if for no other reason than that it is mainly concerned with descriptions and discussions of actual cases. Psycho-analysis and the various schools which later deviated from its teaching were all developments from clinical studies, and their aims were originally therapeutic. Of late years there would appear to be a tendency in these schools to concern themselves with the elaboration of theory and with the application of their principles to ancillary sciences, and as a result actual clinical problems are (in the literature) given insufficient emphasis. For this reason works entirely concerned with patients and their treatment are particularly welcome. Individual psychology is so termed because it is founded on the basic principle that the understanding of an individual can only be gained by recognizing the goals he has set himself. It stresses the self-interest motive and discovers in the striving for power, rather than in the sexual impulse, the primary conative tendency of mankind. If the goal or purpose of life is related to realities and in harmony with individual abilities the personality develops along healthy lines. But if the life-goal is no more than an egotistical desire to demonstrate a fictitious superiority, then the individual is on the road to neurosis. It is fundamental to Adler's teaching that the striving for superiority is a compensation for a sense of inferiority, and that neuroses are due to a reducible constitutional weakness or an inferior position in life. Thus, according to this view, hysterical reactions in women may frequently be interpreted as a protest against the supposed inferior position of women in general.

This book has the advantage of an introduction by Dr. F. G. CROOKSHANK, who has been much impressed by the value of Adler's teaching. In this preface it is explained that, originally to a large extent devoted to psychopathology and psychotherapy, individual psychology now stands for a psychology, a pedagogy, and a movement characterized by Wexberg as affecting life very profoundly within its radius of activity and effecting reform in respect of individual, and *therefore* social or communal life, without assumption of any political, economic, ethical, or moral doctrine. As far as this particular work is concerned, however, it does not deal with the individual psychology *movement*, but rather with the purely clinical and therapeutic problems with which it was originally concerned.

MINOR SURGERY.

MR. ZACHARY COPE is already known as the author of thoughtful and original books on surgical subjects, and his latest volume, *Some Principles of Minor Surgery*,[2] will still further enhance his well-deserved reputation. This is not intended to be a textbook of minor surgery, but stress has been laid upon certain elementary general principles which are sometimes in danger of neglect. The book is intended chiefly for the use of post-graduates, who should be able to appreciate when orthodox views have been departed from. The first chapter deals with the use and abuse of antiseptics in the treatment of wounds. The problems of war surgery focused the attention of both laboratory workers and clinicians upon this subject, about the underlying principles of which there was in pre-war days a great deal of loose thinking, not to say ignorance. The almost universal adoption of aseptic methods in civilian practice had led to a very general neglect of the study of the properties and modes of action of antiseptics. The imperative needs of the war kindled anew a deep interest in the subject which no other circumstances could have evoked, and a vast amount of research work was undertaken to the lasting benefit of surgery. Mr. Cope's admirable survey of this and of the post-war work on antiseptics by itself would more than justify the publication of this volume. Succeeding chapters deal with the principles of treatment of acute inflammation and common mistakes in the diagnosis and treatment of acute abscess. These chapters give much useful information about cases which are constantly met with in the daily routine of general practice and which not infrequently may prove troublesome if close attention is not paid to every little detail in treatment. In the chapter on diagnosis and treatment of infections of the hand Mr. Cope gives a careful summary of the views of Kanavel, and the dissertation is greatly assisted by superimposed diagrams of the hand, whereby the anatomical details upon which the whole system of diagnosis and treatment is based are clearly emphasized. The chapters on the treatment of common sprains and the ambulatory treatment of fracture are mines of information of a kind not generally included in textbooks. The treatment of retention of urine due to enlarged prostate is given a chapter to itself, and here again the teaching is clear and very much to the point. In the final chapter Mr. Cope describes his own method of performing such operations as circumcision, skin grafting, the removal of sebaceous cysts and lipomata, and so on. The book is quite short, but it is packed with information of the utmost value to the general practitioner.

In the preface to the first edition of *Principles and Practice of Minor Surgery*, the author, Dr. E. M. FOOTE, remarks that more bad surgery is performed upon the hand than upon the organs of the abdomen. That sentence was written twenty-two years ago, yet who shall deny that even yet it contains the germs of truth? That Dr. Foote's efforts to redress the balance have not been entirely without effect is shown by the production of a sixth edition[3] of his excellent and comprehensive textbook. On this occasion he has secured the collaboration of Dr. E. M. LIVINGSTON. In its present form the book consists of three parts, devoted respectively to surgical technique, surgical processes, and localized surgical treatment. The first two of these parts have been written anew by Dr. Livingston, with the exception of the chapter on bandaging. The chapters allotted to the surgical affections of the various parts of the body have been thoroughly revised by their previous author. This book is no mere catalogue of all the methods and varieties of bandaging which no one ever dreams of applying in practice; it is an attempt to cover the whole field of minor injuries and diseases which have daily to be treated in the consulting room or hospital out-patient department. It goes further than that, for quite a full description is given of the different methods of performing blood transfusion, and there is a brief but highly practical review of the various modes of inducing local and regional anaesthesia. The illustrations, nearly all from photographs, are very numerous, and on the whole are successful.

THE COMMON COLD.

INABILITY to cure a common cold has long been the subject of reproach against the medical profession by a large section of the public, especially that unthinking class which prefers to combat disease by swallowing some drug rather than to adopt the simplest preventive measure. The arts of the wizard and the sorcerer are inseparably, though perhaps unconsciously, associated with the practice of physic in the mind of the man in the street, by whom is meant in this case the man or woman without any kind of physiological or biological education. A small book[4] on the common cold by Dr. WALTER WELLS of Washington comes at an opportune time when the season of coryza and nasal catarrh has settled upon the land. The book is written for the layman, and the writer expresses himself—not without humour—in the simplest language. He does

[1] *Problems of Neurosis*. By Alfred Adler. With a prefatory essay by F. G. Crookshank, M.D., F.R.C.P. Edited by Philippe Mairet. London: Kegan Paul, Trench, Trubner and Co., Ltd. 1929. (Demy 8vo, pp. xxxvii + 178. 8s 6d net.)

[2] *Some Principles of Minor Surgery*. By Zachary Cope, M.S., M.B.Lond., F.R.C.S.Eng. Oxford Medical Publications. London: Milford. Oxford University Press. 1929. (Demy 8vo, pp. xi + 159; 82 figures. 10s 6d net.)

[3] *Principles and Practice of Minor Surgery*. By Edward Milton Foote, M.D., and Edward Meakin Livingston, B.Sc., M.D. Sixth edition. New York and London: D. Appleton and Co. 1929. (Roy 8vo, pp. xl + 787; 420 figures. 35s net.)

[4] *The Common Cold and Its Complications*. By Walter A. Wells, M.D., F.A.C.S. With an introduction by Hugh S. Cumming, M.D. New York: The Macmillan Company; London: Macmillan and Co., Ltd. 1929. (Cr. 8vo, pp. xiii + 225; 15 figures. 10s. 6d. net.)

not fear, nevertheless, to ask the intelligent reader to follow him through an anatomical description of the nose and its accessory sinuses and of the pharynx and larynx, with discussion on physiology. A scientific basis is thus established, and the reader should glean a rational idea of the structure and function of the nose and throat.

Besides describing the methods of infection and the predisposing local causes, Dr. Wells has much to say about diet, ventilation, and hardening. He illustrates the last point by the story of a healthy savage, who replied to a traveller unable to understand how he could expose himself to the cold almost naked, "You have no clothes on your face, have you?" "No." "Well, me all face." It is in this strain that the subject is brightened all along, and the result is readable and entertaining. In the treatment of acute coryza Dr. Wells has nothing novel to say, but he describes very well the proper treatment as it is known at present. He is sceptical about vaccines, and he has yet to see a single case of cold that was ever cured by quinine. He is well aware that colds get well spontaneously, and he countenances neither fads nor cranks. He has done good service to the public, however, by offering this essay on a minor malady which is always a nuisance and not infrequently the herald of a serious complication.

There is nothing in the book which is not known to the average general practitioner, but it will certainly crystallize his knowledge and opinions. The subject is approached and discussed in such a sensible way that it could not fail to be of use to him in dealing with the numerous patients who not only expect but demand some form of magic. The last chapter, entitled "Summary and conclusions," is a model of what patients might reasonably be expected to know and understand, and we urge practitioners to read this book and to recommend it to their patients.

MODERN TREATMENT OF VARICOSE VEINS.

LITERATURE on this subject grows apace, and we have under review, in addition to the already well-known French work *Traitement des Varices*,[1] by SICARD and GAUGIER, two newcomers, *Varicose Veins*,[2] by H. O. MCPHEETERS, and *Treatment of Varicose Veins of the Lower Extremities by Injection*,[3] by T. H. TREVES-BARBER. Moreover, a fifth edition of *The Injection Treatment of Varicose Veins*,[4] by A. H. Douthwaite, has just been issued.

The French authors, in detailing the technique of injections of sclerosing substances, favour sodium salicylate, and they include an interesting section on the circulation of blood in varices. This subject they have studied by *x*-ray observation of the movement of lipiodol in the vessels, and their insistence on avoiding muscular action for five or more minutes after administration of the solution is based on the fact that lipiodol is seen to be drawn into the deeper venous trunks when the limb is moved. They overlook the important fact, however, that the various solutions depend upon their high concentration to produce endothelial damage. It is noteworthy that these workers now practise the injection of haemorrhoids with sodium salicylate, after the application of a local anaesthetic. Furthermore, with concentrations of 10 to 20 per cent., they do not hesitate to introduce the substance into the perivenous tissue. The error of stating that the quinine-urethane treatment is not an ambulatory one is unfortunately perpetuated in this edition. The book as a whole is well worth reading, and should prove a valuable guide to inexperienced workers in the field.

Dr. McPheeters presents us with a more exhaustive treatise in which he includes a study of venous embryology, the etiology of varicose veins, and their operative or injection treatment. His section on the microscopical appearances of injected veins, and another on chronic indurated ulcers, are particularly welcome. Dr. Treves-Barber briefly reviews the etiology, pathology, and symptomatology of varicose veins, and mentions several useful methods for investigating the type of vessel which has to be dealt with. It is difficult to reconcile the statement that "embolism (after injection) can never form without infection" with the observed fact that certain drugs are far more liable to give rise to this complication than others. The book deals primarily with the technique of injecting salt solutions, but insufficient stress has been laid on the pain which this drug produces at the time of its introduction, or the severe sloughing which a slight reflux may call forth. It is strange to observe the almost fanatical zeal with which most authors uphold the use of one drug for the treatment of varices to the exclusion of all others. To the inexperienced, few books are of value in aiding them to make the correct choice. Writers would render great assistance to their readers by pointing out the fact that sugar and salt solutions are responsible for the majority of post-injection embolic complications.

In the new edition of his successful book Dr. Douthwaite records that he has given over 6,000 injections without embolic mishap; and he concludes that this experience affords sufficient testimony to the safety of one of the greatest additions to modern therapeutics. It certainly emphasizes the importance of paying attention to the nature of the sclerosing agent employed.

[1] *Le Traitement des Varices par les Injections Locales Sclérosantes.* Par Professeur J.-A. Sicard et Dr. L. Gaugier. Deuxième édition, revue et complétée. Médecine et Chirurgie Pratique. Paris: *Masson et Cie.* 1929. (8½ × 8, pp. 320; 8 plates, 15 r.)

[2] *Varicose Veins.* By H. O. McPheeters, M.D., F.A.C.S. Philadelphia: F. A. Davis Company. 1929. (Demy 8vo, pp. 268; 33 figures. 3·50 dollars net.)

[3] *The Treatment of Varicose Veins of the Lower Extremities by Injection.* By T. Henry Treves-Barber, M.D., B.Sc. Bristol: J. Wright and Sons, Ltd.; London: Simpkin Marshall, Ltd. 1929. (Cr. 8vo, pp. 120; 11 figures. 6s. net.)

[4] *The Injection Treatment of Varicose Veins.* By A. H. Douthwaite, M.D., F.R.C.P.Lond. Fifth edition. London: H. K. Lewis and Co., Ltd. 1929. (Cr. 8vo, pp. x + 58. 4s. net.)

URINARY CALCULUS.

IN his preface to *Stone in the Urinary Tract*,[1] Mr. WINSBURY WHITE remarks that the space accorded to this subject in a work on general surgery is insufficient, and that even in a urological textbook, where more detail would be an advantage, brevity is still essential. His aim has been to produce a volume which would present the subject adequately yet in a concise form. The book is attractively written, and is of value as a record of the author's personal opinions and experiences. A noticeable feature, however, is the absence of exact details of the various operations and diagnostic procedures that are referred to. To those who are familiar with the subject this is an attraction, but for the less experienced the omission is to be regretted. Perhaps with this criticism in mind the author mentions in his preface that those who seek more information are referred to the extensive bibliography on urinary calculi at the conclusion of the volume. This bibliography gives references to the literature on urinary calculi from January, 1910, to June, 1928, and enumerates over 2,000 articles in different journals by many authors. The difficulty of the seeker after further information will be to choose which to read. In the chapter dealing with the predisposing causes of vesical calculus, Mr. Winsbury White gives a very full account of foreign bodies in the urinary bladder. Urinary calculi in children he considers fully and lucidly in a separate chapter, and he writes well on urinary calculus in relation to pregnancy. The book is profusely and well illustrated, and the reader will find in it much of interest and of value.

A STUDY OF CHRISTIAN SCIENCE.

MOST of those who read it will probably find in *Our New Religion*,[1] by the Right Hon. H. A. L. FISHER, Warden of New College, Oxford, one of the most delightful books that have been recently published. It is an examination of Christian Science "written by an Englishman mainly from American sources," or, as the publisher's note says, "a contribution from the pen of an English historical scholar to the understanding of a very curious and important development in religious history."

The volume is not a large one, and is written in a very attractive style. In its attitude and atmosphere it reminds one of Mr. Lytton Strachey's *Queen Victoria* and *Eminent Victorians*, or of M. André Maurois's *Vie de Disraeli*, but

[1] *Stone in the Urinary Tract.* By H. P. Winsbury White, M.B., Ch.B.Ed., F.R.C.S.Ed., F.R.C.S.Eng. London: J. and A. Churchill. 1929. (Roy. 8vo, pp. xii + 343; 181 figures, 2 plates. 25s.)

[1] *Our New Religion.* By the Right Hon. H. A. L. Fisher. London: E. Benn, Ltd. 1929. (5½ × 8½, pp. 191. 6s.)

it is a serious study of an interesting personality and of a remarkable phenomenon. Mr. Fisher divides his book into three chapters, "The Prophetess," "The Creed," and "The Church." The first as a narrative is far more interesting than most short stories, and the other two are, in their different way, equally absorbing. All abound in the most brilliantly apt and telling phrases, many of which it would be a delight to quote were it not that, like most gems, they are best appreciated in their appropriate setting. Few stories can better illustrate the growth of a legend in spite of the most complete evidence of its falsity, or the amazing development "upon the lines inaugurated by Mrs. Eddy, of solid business trusts framed to supply, upon terms profitable to their promoters, a stock of popular consolations and remedies to the vulgar." It is delightful to discover that "obesity is an adipose belief in yourself as a substance," and to read the testimonies given at a Christian Science service in a London church.

"A well-dressed young lady rose at once to express her gratitude to the church for these Wednesday morning meetings, and also for the very remarkable manner in which, during a recent gale in the Bay of Biscay, she had been, through science, preserved from sea-sickness. Then followed a handsome confession of error. An elderly lady had been hit in the cheek by falling timber. There was pain. There was swelling. How were these things possible? The elderly lady remembered that she was in error. The blow upon her cheek had, owing to the law of association of ideas, reminded her of a similar but more serious accident which had befallen her father. He too had been struck by falling timber, and had in consequence lost the sight of one eye. It was undoubtedly an error to conjure up this depressing memory of an injured parent, for when, by a mental effort, that memory had been expelled, the swelling by degrees abated. Another lady observed that she had always been greatly impressed by Mrs. Eddy's observation that accidents are unknown to God. Not long ago she had spilt some methylated spirit. There was an alarming blaze of fire, and at first it looked very much as if an accident had occurred; but then she recollected how the dear leader had said that there were no accidents, and from the moment that true thought came into her mind the fire died away, and she was able, by stamping upon it, to extirpate what remained."

Mr. Fisher's final analysis of Christian Science, so-called, with its core of truth, its metaphysical absurdities, its contradictions of the essentials of the Christian faith, its ousting of the virtues of humility and compassion, its main appeal to the cheerful, the well-to-do, and the neurotic, together with its regard for the dollar and alliance with business ability and acumen, is a very brilliant piece of work; and we believe that a large number of members of the medical profession will like not only to read, but to possess, his book.

NOTES ON BOOKS.

THE first three volumes of the thirty-ninth series of the well-known quarterly *International Clinics*[11] comprise a large number of readable and instructive articles on various subjects by well-known writers. The first volume contains three communications by Professor Lewellys Barker, including one of particular interest on chronic alcoholism and methods for preventing the abuse of alcohol; an essay on the bacteriophage by Dr. F. d'Hérelle, now professor of bacteriology at the Yale School of Medicine; and papers on the specific prevention and treatment of poliomyelitis by Dr. Simon Flexner of New York; biomicroscopy as a clinical aid to diagnosis in ocular disease by Dr. Harvey E. Thorpe of Pittsburgh; hyperlipochromia, otherwise known as carotinaemia or xanthosis cutis, by Dr. Hugh S. Stannus of London; and pernicious anaemia by Drs. I. W. Held and A. Allen Goldbloom of New York. The second volume includes papers on congenital and developmental aneurysms by Drs. Parkes Weber and O. B. Bode, periodical physical examination by Dr. Harlow Brooks of New York, roentgenographic visualization of the coronary arteries in normal and pathological hearts by Dr. Wendell E. Boyer of Germantown, Pa., and manners and morals in medicine by Professor Lewellys F. Barker. The third volume contains articles on the standardization of biological products by Dr. J. H. Burn of London, the technique of intravenous medication by Dr. William H. Deaderick of Hot Springs, Arkansas, the old and new in medicine by Dr. James J. Walsh of New York, the use of aeroplanes in surgical cases by the late Dr. Tuffier, and British pharmacy as a profession by Mr. J. P. Gilmour, editor of *the Pharmaceutical Journal*. Besides original articles the volumes contain reviews of recent literature.

[11] *International Clinics.* Edited by Henry W. Cattell, M.D.Philadelphia. Thirty-ninth series. London: J. B. Lippincott Company. 1929. (Med. 8vo, vol. i, pp. viii + 303, illustrated; vol. ii, pp. vii + 305, illustrated; vol. iii, pp. viii + 308, illustrated. 12s. 6d. net per volume.)

In *Anatomy and the Problem of Behaviour*[12] Mr. COGHILL gives us the substance of three lectures delivered by him at University College. The research was developed from the work of the Herricks on comparative neurology, and serves to supplement the ideas of Child on the origin of the nervous system and of Arien-Kappers on neurobiotaxis. The first lecture is devoted to the development of behaviour and its anatomical explanation in a typical vertebrate, the second to dynamic antecedents of neural mechanisms, and the third to the growth of the nerve cell and the interpretation of behaviour. The research was carried out on amblystoma; it is an excellent piece of work well presented.

Dr. J. L. KANTOR's book on *The Treatment of the Common Disorders of Digestion*,[13] which was noticed on its first appearance in our issue of October 4th, 1924, has now reached its second edition. In revising his material the author has rearranged the sequence of his chapters in order to lay greater emphasis on disorders of the colon. A number of new illustrations have been added.

The first instalment of Dr. VALENTINO FACCHINI'S work on the serum diagnosis of syphilis,[14] which has just been published, is divided into two parts, preceded by an historical introduction. In the first part the author discusses the technique of the Wassermann reaction and the serological questions connected with it. The second part is devoted to a study of the importance of the Wassermann reaction in clinical medicine, including its behaviour in the various stages and forms of syphilitic infection. Five subsequent instalments of this work are promised.

Dr. FRITZ CALLOMON'S work on non-venereal diseases of the external genitals,[15] of which a revised and enlarged second edition has been sent us, will appeal not only to the urologist, venereal specialist, and dermatologist, but also to the general practitioner. The subjects discussed include the localization of common dermatoses, such as eczema, psoriasis, lichen and urticaria in the genital area, various mycoses, herpes, acute or chronic forms of genital ulceration due to various causes apart from sexual congress, non-gonorrhoeal urethritis, diseases of the testis, epididymis, and inguinal lymphatics of non-venereal origin. The text is accompanied by numerous excellent illustrations, some of which are in colour. A bibliography of recent literature is appended.

The second edition of Mr. I. F. HENDERSON and Dr. W. D. HENDERSON'S *Dictionary of Scientific Terms*,[16] giving the pronunciation, derivation, and definitions of biological, botanical, zoological, anatomical, cytological, embryological, physiological, and some bacteriological and palaeontological words, adds about 1,500 new terms to the 10,000 contained in the first edition, noticed in these columns on its appearance eight years ago. But in spite of the additions the number of pages is rather less and the price somewhat reduced.

[12] *Anatomy and the Problem of Behaviour.* By G. E. Coghill. London: Cambridge University Press. 1929. (Demy 8vo, pp. xii + 113; 52 figures. 7s. 6d. net.)

[13] *The Treatment of the Common Disorders of the Digestion.* By John L. Kantor, Ph.D., M.D. Second edition. London: H. Kimpton. 1929. (Med. 8vo, pp. 297; 83 figures. 25s. net.)

[14] *La Sierodiagnosi della Sifilide.* Dottrina tecnica e valore practico con speciale riguardo alla clinica medica. I. Per Dr. Valentino Facchini. Bologna: L. Cappelli. 1929. (Sup. roy. 8vo, pp. viii + 520. L.60.)

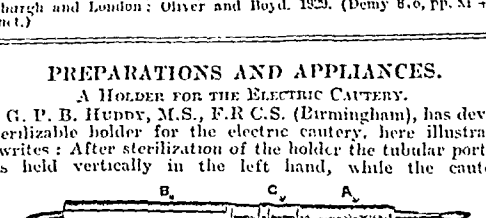
[15] *Die Nichtvenerischen Genitalerkrankungen.* Von Dr. Fritz Callomon. Zweite Auflage. Leipzig: G. Thieme. (6½ × 10, pp. xiii + 201; 62 figures. M 18.)

[16] *A Dictionary of Scientific Terms.* By I. F. Henderson, M.A., and W. D. Henderson, M.A., B.Sc., Ph.D., F.R.S.E. Second edition, revised. Edinburgh and London: Oliver and Boyd. 1929. (Demy 8vo, pp. xi + 252. 16s. net.)

PREPARATIONS AND APPLIANCES.

A HOLDER FOR THE ELECTRIC CAUTERY.

MR. G. P. B. HUDDY, M.S., F.R.C.S. (Birmingham), has devised a sterilizable holder for the electric cautery, here illustrated. He writes: After sterilization of the holder the tubular portion, A, is held vertically in the left hand, while the cautery,



suspended by its lead, is lowered into it by an assistant. While still thus suspended the second portion, B, which is opened on its hinge and is held in the right hand, is now closed round the portion of the lead which projects from A, and is then locked into A; B serves to lengthen the holder, to fix the cautery in position, and to cover the end of A, which may have been touched accidentally by the cautery during its insertion. The

slide, C, covers the junction of A and B, thus ensuring asepsis. When in use the cautery is held by A, and the lead is maintained taut by a nurse so that it does not come in contact with the surgeon's gown. The apparatus is simple and convenient. Asepsis is ensured, and the cautery can be used with safety within, for example, the peritoneal cavity or bladder. The assistant, when preparing other instruments for operation, can put the cautery enclosed in its holder in readiness for instant use. The instrument was made for me by Chas. F. Thackray, Park Street, Leeds.

A New Antiseptic.

Quinanil is a new antiseptic prepared by Messrs. British Drug Houses. The compound has the chemical name of 2 (p-dimethylamino-anil) 6 methyl-quinoline metho-chloride, and it is No. 48 of a series of compounds described by Browning and his co-workers (*Proc. Roy. Soc.*, B. 100, 293, 1926). Its antiseptic properties have recently been submitted to bacteriological and clinical tests (Armitage and co-workers, *Lancet*, 1929, ii, 968). The drug was tried as an external antiseptic, and for irrigation of the bladder, and very favourable results were obtained. It was also tried intravenously for treatment of septicæmia, but the results were inconclusive.

Palatable Ephedrine.

"Elixoid" ephedrine compound (Messrs. Burroughs Wellcome and Co.) is a preparation which contains gr. 1/4 ephedrine hydrochloride in each fluid drachm. It is a pleasantly flavoured preparation, suitable for administration to children or to fastidious adults. The value of ephedrine in asthma and hay fever is well established, and it is also useful in mild and moderate cases of whooping-cough.

Glucose for Medical Use.

Medicinal glucose (Messrs. British Drug Houses) is a pure glucose suitable for all medicinal purposes. In particular, it is suitable for intravenous injection, a form of administration of glucose which has become of increasing importance in recent years. The preparation is a white, freely soluble powder.

SOME WINTER MOTORING SUGGESTIONS.

It may be useful at this time of the year to draw attention to some of the precautions that must be taken in respect of the motor car if it is to give the same continuous, dependable service as it does during the warmer months. These precautions may be broadly divided into two classes—namely, those that are necessary when the vehicle is in use and those that must be taken when the car is put away for the night.

Precaution of Damage from Frost.

As periods of sharp frost may be expected at any time it is necessary to prevent the engine-cooling water from freezing, otherwise there is a risk of the cylinders becoming cracked or the radiator springing a leak. The precaution usually recommended is to drain off the water when the car is put away for the night and to fill it up again the next morning. Where this course is adopted it is not sufficient (as is pointed out in a useful circular just issued by the Automobile Association) simply to empty the water out of the radiator; an attempt should also be made to clear the engine water jackets and the circulating pump, and on these drain cocks are often provided nowadays for this purpose.

For medical practitioners who are likely to require the use of their cars at any hour of the night as well as during the day this precaution is, of course, out of the question, and some other method must be adopted. Opinions are divided as to the relative efficiency of the alternatives. Thus the Automobile Association gives first place to a well-heated garage, or to some electric or other apparatus which gives out sufficient heat to maintain the engine at a temperature above the freezing point. As against this, one of the leading insurance companies, which has lately issued a useful chart of precautions against freezing, considers that heating devices in the garage are often inadequate to provide protection against severe frost, and states that last winter a large proportion of the damage from frost occurred in garages in which some form of heating device was employed. This company regards the addition of an anti-freezing medium to the engine-cooling water as the more efficacious method.

Those who prefer garage- or engine-warming devices will find a wide choice at their disposal, ranging from a small electric or oil heater in the form of a miner's safety lamp, intended to be hung under the bonnet between the radiator and the engine, to large stoves, such as are used for heating greenhouses. The great point to remember is that no naked light or heat should be used in a garage.

As anti-freezing media pure glycerin or methylated spirit are both recommended, a mixture consisting of three parts of either medium to seven of water remaining liquid even at a temperature of 12° F. The medium must not simply be added to the water in the radiator, but the latter must be drained off and replaced by the necessary quantity of liquid mixture. Glycerin has the advantage that it does not evaporate, so that the cooling system can be replenished, when necessary, with water only; when, however, methylated spirit is used, any replenishment must be by mixture, and not water only.

On the Road in Cold Weather.

Turning now to the special points to which attention must be given to keep a car in good running condition in cold weather, the first to be mentioned is that of the oil used for engine lubrication. Most of the oil firms recommend the use of a slightly thinner oil in winter than in summer. A postcard to the makers of the brand of oil generally used, mentioning the name and horse-power of the particular car, will quickly bring a reply suggesting the most suitable grade of oil for winter use.

Use a Radiator Muff.

During very severe weather the water in the radiator may freeze while the car is in motion or while it is left standing for short periods. Many of the latest cars have shutters fitted in front of the radiators to maintain the cooling water at the most efficient temperature for the engine. Even so, it is advisable to fit the radiator with one or other of the many varieties of muff that are now on the market, care being taken not only to drop the flap when the car is to stand in the road for some time, but to raise it when the car is again started: otherwise there is a risk of the water boiling and the engine overheating.

Overloading the Battery.

Another winter motoring precaution that calls for mention relates to the care of the battery employed in connexion with the lighting and starting installation. Despite all precautions, engines are more difficult to start in winter than in summer. Hence, before bringing the electric starter into use after a car has been standing in the garage all night, the engine should be turned over several times by the starting handle, in order to free the pistons within the cylinders. If this is not done there is a risk of the accumulators being quickly discharged to an extent greater than can be replaced by ordinary engine running. Special attention must also be given to the battery to see that the terminals are kept clean and that the level of the acid above the plates is maintained.

When the engine is put into motion after standing all night it is advisable to let it run slowly for a few minutes in order that its parts may warm up and so give reliable running when the journey has been actually started. The numerous fatalities that have occurred render it advisable to utter a warning against the risk of running an engine in a closed garage; the door or doors and windows should always be open in order to allow of the dissipation of the dangerous exhaust gases.

Fog and Snow.

Foggy weather is always dreaded by motorists, but there are now on the market a number of spotlights and fog-penetrating screens that can be fixed to the front of head-lamps, which to a certain degree facilitate driving through fog. For driving over snow-covered roads the use of specially designed chains round the tyres may be recommended.

C. J. W.

CANCER IN WESTMORLAND:

AN INVESTIGATION INTO ITS INCIDENCE, EPIDEMIOLOGY, AND ECOLOGY.

(Preliminary Note.)

IN view of the important and timely step taken by the *British Medical Association* in calling for the co-operation of every medical practitioner throughout Britain to help in a mass inquiry into the incidence of cancer, we beg to submit the following note.

Two years ago, fully appreciating the importance of cancer research work carried out in hospital, pathological laboratory, and special institution during the last half century, yet aware that no definite knowledge of cancer causation had been reached, we resolved that the time had come when health officer, country doctor, and veterinary surgeon should take up their share of the burden of scientific research.

Impressed by Dr. Louis Sambon's cancer investigations in the American tropics, in Iceland, Holland, and Italy, we offered him the opportunity he was seeking for testing findings hastily gleaned abroad by means of a thorough *medico-zoological survey* of an entire county at home. The county of Westmorland seemed ideal for the purpose. In it, certainly, the incidence of cancer is only moderate, as compared with other parts of Britain, but the *region offers* very favourable conditions for epidemiological and ecological investigations on account of the greatly diversified nature of its physiography, geographical structure, flora, and fauna.

The recent history of the elucidation of the etiology of many tropical diseases, such as malaria, plague, trypanosomiasis, and typhus by the epidemiological method is highly instructive, and the part played by Sambon in this work is known.

A special commission—"The Westmorland Field Commission for Cancer Research"—was formed under the able chairmanship of Sir Samuel Haslam Scott, Bt., of Windermere, and every assistance was supplied, not solely by the physicians of the county, who are unanimous in their support, but by the public generally, who have taken the keenest interest in work carried out under their very eyes. The *results* obtained are so striking and important that we deem it a duty to make some of them known long before the final and elaborate report can be published.

Dr. Sambon's findings are so greatly at variance with some of the views at present held by the majority of experts the world over, that we feel bound to make our *position quite clear*. In the first place, it was decided to discountenance all theories concerning causation, and to *ignore*, for the time being, all views based solely on clinical or pathological data. It seemed better to approach the disease as if totally unknown and collect only sheer facts.

From the first Dr. Sambon insisted on a complete survey of the entire county, and on a careful statistical study of its cancer incidence throughout the whole period of available registration, which runs almost to a century. To some of us the task seemed far too ambitious, but it has been accomplished with extraordinary care. Indeed, owing to the nature and importance of the results, Dr. Sambon decided to extend his researches to the Isle of Wight and to the island of Arran, in order to obtain confirmation of our findings from other various isolated areas south and north. In this extension of his work Dr. Sambon received the support and assistance of Dr. J. Fairley and Professor J. R. Currie, the respective health officers of these islands.

Recently two international cancer conferences have been held, one in America in the autumn of 1926, the other in London in the summer of 1928. More than a hundred delegates took part in the conference convened at Lake Mohonk, New York, by the American Society for the Control of Cancer. At the end of the meeting the following statement was issued:

"Although the cause of cancer is not completely understood, it may be accepted that for all practical purposes it is not contagious nor infectious."

The London conference, organized by the British Empire Cancer Campaign, was attended by about three hundred delegates and members representing eighteen countries. Here again, with very few exceptions, the parasitic theory was discredited. Professor James Ewing of the Cornell Medical School, New York, said:

"The theory of a universal cancer parasite stimulating the cell to incessant growth is the most popular explanation of the cancer process, and seems to satisfy many minds. It must be ruled out of court on the ground of no evidence. It raises more questions than it solves, and is inconsistent with the known facts about many tumours."

To these views must be added the very general belief that cancer is a local disease.

Our investigations indicate very forcibly that we are confronted with a systemic infection characterized by long latency and exhibiting varied local manifestations, determined in type and site by the most diverse physical, chemical, mechanical, or animate irritants. Insidious invasion, long quiescence, complexity of secondary factors, muteness of symptoms, and protean nature of manifestations are the peculiar features which have baffled inquiry so persistently.

Dr. Sambon believes that "cancer" is brought about by the activities of an exceedingly minute endocellular parasite strictly adapted to its specific cell host. He points to *Rickettsia*, the germ of typhus, which inhabits almost exclusively the endothelial cells of the capillaries, giving rise to marked defensive *proliferation*, the *formation* of intravascular overgrowths (Fraenkel's "nodules"), and metastases. He looks upon the gross tumour—the actual "cancer"—as a late, often fatal, manifestation of the cancerous infection not unlike the gumma in tertiary syphilis. As in tuberculosis, so also in cancerosis, the specific germ appears to be universally prevalent and of wide zoological distribution.

These rough statements are supported by a wealth of carefully ascertained facts.

The parasitic, unobtrusively infective nature of the disease is attested by its peculiar distribution both in time and place. The cluster-distribution of cancer cases, already perceived by Sambon in his previous researches abroad, has been amply confirmed in Westmorland. We have here hamlets and villages which have remained totally free during the whole period of registration, while others, of equal age, size, and population, have been, at one time or other, heavily punished. Our spotted large-scale ordnance maps show villages with one, two, or more separate clusters, while others are more or less uniformly affected; others, again, show heavy infestation in one portion of the village, while the other has remained almost or entirely immune. What we have said of villages applies equally well to terraces and single houses. We have found single houses with numerous family cases, others with several cases occurring in non-related successive occupiers. An important fact, clearly elicited by our village survey, is the frequent occurrence of the disease in husband and wife, not "coition cancer," as wrongly named by some, but conjugal house infection.

Perhaps the most striking, the most interesting discovery our investigations have elicited is the great prevalence of all types of malignant and other neoplasms in animals. We have met with cancer in all kinds of wild and domestic animals, in pet animals, and in animals used as food. We might mention horse, cow, sheep, hog, cat, dog, hedgehog, rabbit, vole, rat, mouse, fowl, turkey, goose, owl, canary, and toad. Fowls of all varieties (Leghorns, Wyandottes, Plymouth Rocks, Bantams, Anconas, Rhode Island Reds in our series) are particularly liable, and we have noticed small outbreaks of the disease in certain poultry flocks similar to the cage epidemics of rats and mice mentioned by Borrel in France and by Gaylord in America. This unexpected, remarkable prevalence of the disease in all kinds of animals opens up a wide field of possibilities which we are already exploiting.

In his lectures at the London School of Hygiene and Tropical Medicine, and in his epidemiological papers, Dr. Sambon has repeatedly stressed the importance of a full knowledge of the zoological distribution of disease. With-

out a knowledge of the animal sources of infection it is not possible to understand, far less to control, outbreaks of disease in man. A memorable example is that of Russian artillery sent to destroy all the inhabitants of a plague-stricken border village in order to stay the epidemic. The unfortunate people were sacrificed, but no one troubled about rats, and the disease soon spread like wildfire. Is it not known now that many cases of tuberculosis are not of human source, but, on examination, prove to be of either bovine or avian type?

Another important fact, elicited by our researches, is the discovery of a specific dermatosis in fowls suffering from malignant growths. This cancroderm, first noticed by Dr. Sambon in Westmorland and Cumberland fowls, was recognized soon after by him, Dr. Sprott of Appleby, and Dr. Holroyde of Windermere, in a woman of Colby affected with sarcoma of the elbow, who had spent her life in breeding chickens. Her forehead presented a corona of the peculiar pigmented nodules, others occurred on nose and cheeks; one of the nodules on the right side of her nose had assumed the rodent ulcer type. On section the fowl nodules proved to be tiny sarcomatous growths. The recognition of an indubitable cancroderm in fowl and man is therefore of special interest and, surely, a proof of the systemic nature of cancerosis.

A subject to which Dr. Sambon, a helminthologist, has given particular attention is that of the part played by animate irritants in determining the site and type of neoplasms. He holds that the cancer germ is as common, and as universally distributed, as the bacillus of tuberculosis, but that, as in the case of the latter disease, few people succumb to, or suffer from, its grave manifestations, and that these invariably are brought about by some local irritant—such as traumatism, for instance, or a syphilitic lesion, or some helminth.

The part played by certain parasitic worms—by *Opisthorchis felineus*, in favouring hepatic cancer among the Lettish fisherfolk of the Baltic coast (Askanazy), by the strobilocercus of *Hydatigera taeniaeformis* in producing liver sarcoma in rats (Borrel), by *Gongylonema neoplasticum* in bringing about gastric carcinoma in rats (Fibiger)—is well known. All these are instances in which helminths figure as necessary factors in the development of certain types of neoplasm, and more especially in determining the organ involved, which, of course, invariably is their habitat. Many older examples might be quoted from Egypt, such as cancer of the urinary bladder induced by von Siebold's schistosoma (*S. haematobium*), and cancer of the rectum by Sambon's schistosoma (*S. mansoni*). To these Sambon has added several others of considerable interest—such as *Muspicea borrelli*, *Hepaticola gastrica*, and the tiny mite *Psoergates simplex*—all internal parasites of rodents whose role as coadjutants in the production of cancer has been fully confirmed. In some of our cancerous fowls a very minute sarcosporidium was found in the subjacent muscles, and in an Elterwater toad with large tumour of the right front leg the sarcomatous growth was found to have developed over a massive mycelial infestation.

Finally, we must mention the ecological investigation undertaken. It is probably the first time in the history of European medicine that an ecological survey has been applied to epidemiological work. Dr. Sambon, who is a naturalist as well as a physician and archaeologist, has left no stone unturned in his comprehensive study of cancer conditions in the English Lake District. The surroundings of houses where cancer had recently occurred have been thoroughly scrutinized. Besides, inasmuch as findings seemed to suggest possible carriers, or intermediary hosts, wild and domestic animals have been examined for a complete knowledge of their external and internal parasites. This work has brought to light many interesting facts, such as the great prevalence of tuberculosis of avian or bovine type in rats infesting stables and breweries, but it would take too long to detail the full extent of the work carried out.

The zoological work has been greatly advanced by members of the British Museum (Natural History Department) and the Manchester Natural Museum, and all animal neoplasms have been examined by Sir Lenthal Cheatle and other expert pathologists in England and Scotland. Plant tumours have not been neglected, and our collection of phytological specimens includes some very instructive types. Anyone who has read Dr. Sambon's previous cancer reports will easily understand what a wide field has been covered under his able guidance.

Signed on behalf of the medical men of the Westmorland Field Commission for Cancer Research,

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MEDICAL USES OF RADIUM.

REPORTS FROM RESEARCH CENTRES.

UNTIL 1921, when the Medical Research Council, for the purpose of promoting research upon the therapeutic properties of radium, distributed on loan among various research institutions the stock of radium salts that had been entrusted to it by His Majesty's Government, there had been no systematic and comprehensive study in this country of the problems and methods of radium therapy. Up to that time the clinical use of radium was almost wholly empirical, and the results obtained were of doubtful value. How much this general situation has been transformed in the eight years during which the investigations thus promoted by the Medical Research Council have been in progress may be realized from a study of the reports prepared each year since 1924 by the Council's Radiology Committee, in which are summarized the results of the research work that has been carried out by the institutions working under its supervision. In the report[1] just issued there is evidence of continued advance in the technique of applying radium to the various parts of the body, but it must be emphasized that development in technique does not necessarily imply therapeutic advance. Much time must obviously elapse before statistical proof is available about the value of any particular therapy in a disease so likely as cancer to recur after some years.

The Radiology Committee believes that the chief danger of the future lies in the possible assumption that radium can be applied by any medically qualified person, irrespective of whether he has had previous training in the use of this form of treatment. While, however, it is true that there is no special difficulty in applying radium superficially, or even in the insertion of radium into the body, these procedures constitute only a small part of radium therapy. Development of radium therapy on national lines demands, therefore, the immediate initiation of a scheme of training designed to fit more men and women for the highly specialized type of work that is involved.

Cancer of the Breast.

At the Middlesex Hospital the best results in the treatment of primary cancer of the breast, apart from the ulcerated cases, where greater surface intensities can be applied, have been obtained by radium applications at a distance of several centimetres, though by using greater quantities of radium (1 to 4 grams) at greater distances it seems possible that the results would be better. Among 13 of 33 patients with nodular recurrences the nodules disappeared after treatment, but in most of the patients with nodular or supraclavicular recurrence other signs of disease soon appeared, with a fatal issue, and it has therefore been difficult to estimate the results of the local treatment of such advanced recurrent cases. For small superficial nodules three or four applications of gamma rays only,

[1] Medical Research Council. Special Report Series, No. 141. Medical Uses of Radium: Summary of Reports from Research Centres for 1928. H.M. Stationery Office. 1929. Price 1s. net.

from an apparatus containing 10 millimetres to the square centimetre, half a centimetre away, for four to six hours, were usually enough, the interval between the exposures being three weeks. Larger nodules of deep origin have been treated from two centimetres distance, but recurrence has occurred, and probably greater distances would be better. It has been found that if, in the course of deep radium therapy of breast cancer, a suberythematous dose is given through the area of disease, wide variations in quantity and concentration, distance and time, have led to a satisfactory issue, especially if the dose has been repeated two or three times at three-weekly intervals. Where the disease has remained localized long enough to be observed satisfactorily, the failures have usually been traced to inadequate dosage or omitting to give more radiation after apparent cure. The results at the Middlesex Hospital do not support the view that the best method of treating breast cancer is by small doses for a long time, as in tongue cancer.

The majority of cases of breast cancer at St Bartholomew's Hospital were treated by inserting radium needles only, screened by 0.5 millimetre platinum, and by only one application; for irradiating the parasternal glands the needles are placed very obliquely in the intercostal space at some distance from the sternal margin, so that the points enter the anterior mediastinum beneath it. A good result has been obtained in 45 out of a total of 67 patients treated since 1924, including 12 patients out of 26 whom surgery could not have helped.

In the 12 cases treated during the year in Dublin five needles (0.4 millimetre platinum, 0.3 millimetre gold), each containing 5 to 10 mc. radon, were embedded circumferentially round the primary growth and left *in situ* until 2 mc. per cubic centimetre of neoplastic tissue were dissipated. The axilla and supra- and intra-clavicular regions were treated by deep x rays, and in all the cases treated the immediate result has been retrogression of the growth and of the enlarged glands.

Cancer of the Uterus.

As in previous years, the results of treatment have been grouped in three subdivisions—namely, operable, borderline, and inoperable—though it is probable that as some centres adopted only the first and last classification the number of borderline cases enumerated in the total results is an underestimate of the actual numbers treated. Of 579 patients with inoperable disease treated at the centres since 1921, only 139 are now living. The results in patients with borderline disease are somewhat better, 27 being alive of a total of 65 treated, and of 39 with operable disease 29 are living. As before, better results are being obtained by those centres which have adopted the Stockholm technique, or some modification of it, than by others. From a survey of the quantity and arrangement of the radium treatment given at most of the centres for advanced cases it is evident that some parts of the area of spread cannot possibly get anything approaching a lethal dose of radiation, though other parts may be dealt with quite effectively.

At St. Bartholomew's Hospital a modification of the technique worked out at the Brussels Radium Institute has been adopted. Intra-abdominal insertion of radium is usually carried out about six to eight weeks after the vaginal application—that is to say, when the local external growth has disappeared and all ulceration healed. The two applications are not made simultaneously, on the grounds that so long as there is an infected area in the cervix and fornices it may be wiser to do nothing to the abdomen and parametrium which might lower the resistance to that infection. With the patient in the Trendelenburg position, the abdomen is opened and an examination is made of the liver, aortic glands, the pelvic organs, and the iliac glands. The intestines are packed off and the uterus is pulled forward; the needles, screened by 0.5 millimetre platinum, are now inserted through the parietal peritoneum, leaving only their eyes protruding. The suture from the tube is put through a small portion of the peritoneum below the needle eye, and a knot is tied over a glass bead to prevent cutting through the thin peritoneal tissue. The needles are placed at a distance of 1 to 1½ centimetres from each other, starting at one sacro-iliac synchondrosis and ending at the corresponding joint of the opposite side. In addition, four or possibly more needles are placed in front of the broad ligaments, in the hope of eradicating the disease from the obturator glands. The ends of the sutures having been tied together and pushed down into Douglas's pouch, the abdomen is sewn up and the radium left *in situ* for seven days, at the end of which it is again opened and the radium removed.

The modification of the Stockholm technique used at the Marie Curie Hospital, London, was described in our issue of November 30th (p. 1025).

The reports from University College Hospital suggest that it is impossible to differentiate between the sequelae of radium treatment and the normal ravages of malignant disease, and in addition to the sequelae to which attention was drawn in previous reports—namely, persistent pyrexia, pyometra, pelvic abscess, pelvic peritonitis, fistulation, and dissemination of growth—mention is made in this report of sinuses and shortening of the vagina. Some account of this complication, which is liable to arise after an exposure to doses larger than 3,000 milligram hours of element, appeared in our review published on August 3rd (p. 219) of the sixth report of the Harker-Smith Registrar.

In connexion with fistula formation, Cardiff, which reports this complication in 10 *per cent.* of its cases, suggests that as in practically all the patients the disease was far advanced it is probable that fistulae would have developed in a certain proportion without radiation. It is noteworthy that in the patients in whom this complication occurred the dosage had been no higher and the number of applications no greater than in patients who had not developed this complication, and the precautions as regards packing off the bladder and rectum had been the same. As, moreover, the frequency of fistula occurrence in untreated cases has been shown statistically to be higher than in the Cardiff series, there is reason to doubt whether radium properly applied has any important effect in producing this sequel. In this report it is suggested that the insertion of a self-retaining catheter, together with firm vaginal packing, seems most likely to prevent bladder fistulae in advanced cases.

Mouth and Nasopharynx.

Though the local radium treatment of cancer of the tongue is now generally looked upon as hopeful, there is considerable divergence of opinion about the best way of dealing with glands in the neck which are, or may be, the seat of growth. Treatment by block dissection, with or without the application of a radium collar or the introduction within the wound of radium needles, appears to be relatively ineffective, though the St. Bartholomew's report suggests that the best results have been obtained so far by the insertion of radium needles into the neck alone. No method has proved successful in patients with faucial growths, and the substitution of x rays has not been satisfactory, even when they have been applied before the use of radium locally. Wide differences exist in the reaction to radium therapy of growths in the upper air passages. Growths of the lips and cheeks have done well, but of the upper jaw and the skin of the nasal vestibule very badly.

The Birmingham report refers to the varying degree of success attending radiation treatment of 29 cases of epithelioma of the buccal cavity, and the results indicate clearly the benefits of early diagnosis and treatment. For the treatment of the gland fields the method advocated is by surface irradiation for eight to twenty-four days, from a collar, using about 70 to 80 milligrams of radium as 5-milligram tubes, arranged usually over one side of the neck and the opposite submaxillary region. In some of the advanced cases it is worth while to excise a mass of growth, to cut through infective tissues if need be, and then to irradiate; but where the primary growth is small and no glands are palpable, surgical excision followed by irradiation of the neck later is held to be the method of choice.

In Dublin, following the method of Dr. Todd of Bristol, intravenous injections of selenide of lead have been given some weeks after the last radium treatment, but at present the results are inconclusive.

The Larynx.

The treatment of this region is rendered difficult and dangerous by the presence of sepsis above in the mouth and nose, the recurring movements of the parts, the delicacy and sensitivity of the tissues affected, the susceptibility of cartilage to necrosis after the application of radium, and the narrowness of the passage-way through the larynx itself. In cases of intrinsic cancer the results of laryngo-fissure are so good that

at the present time the adoption of any less certain form of treatment is held to be unjustifiable. For cases in which the growth has spread to the opposite cord, or in which a growth runs round the larynx and gradually occludes the lumen, radium therapy seems to be indicated.

Oesophagus.

In the Birmingham report the treatment of carcinoma of the oesophagus by applying radium to the centre of the lumen, or by first obtaining access to the oesophagus from outside, or by inserting tubes directly into the growth with the aid of an oesophagoscope, is subjected to criticism, and a procedure is described which involves the introduction through the oesophagoscope by a trocar and cannula of three to eight radon seeds, screened by 0.3 mm. platinum. The seeds are introduced at approximately regular intervals in directions downwards and outwards at a distance of one centimetre apart around the range of the growth. So far the immediate operative results have been excellent, and improvement has resulted in every case. Insufficient time has elapsed, however, to warrant any statement about the end-results of this treatment.

Rectum.

At St. Bartholomew's high growths have been attacked by needling through the abdomen, and the upward areas of lymphatic spread have been radiated with needles or radon seeds as a preliminary to excision in operable cases or to palliation of the growth from below. Radon seeds have been further employed by direct implantation into the rectal growth without operative exposure from behind. In low growths the seeds can be inserted through the skin into the growth. For higher growths the seed introducer is inserted into the growth through the lumen of the rectum. Of 12 cases thus treated 3 died and 9 have received benefit, 4 of these being apparently free from evidence of growth. During the period 1925-27, 17 patients were treated, of whom 4 have survived respectively thirty-seven, thirty, twenty-two, and seventeen months, and are apparently cured.

In Birmingham the irradiation has been carried out chiefly by the insertion of the radium round the growth from the rectal surface, and in addition needles have been inserted into the perirectal tissue near the growth. Some degree of cross-fire action has thus been obtained, but except in low growths it has rarely been adequate. The average dose was 5,400 milligram hours, made up of 70 milligrams of radium given for seventy-six hours. All the 9 patients thus treated are still alive, but in only 2, whose growths were low down and easily accessible, has there been any improvement. Every case was advanced and surgically inoperable.

The King's College Hospital report contains details of 30 inoperable cases which were treated by the insertion of radium into the lumen of the bowel. In every case a preliminary colostomy was performed, and the quantity of radium used varied from 105 to about 35 milligrams, enclosed in platinum iridium containers 0.5 mm. thick. The duration of application varied from twelve to thirty hours. The results were, on the whole, not good, but success was hardly to be expected. An interesting feature of the series was the variation in the degree of reaction to the same dose; in some cases definite radio-necrosis resulted, and in others the reaction was unappreciable.

Bladder and Prostate.

Two methods were used at St. Peter's Hospital for dealing with growths of the bladder: in the one, applied to the ulcerative variety only, platinum needles 0.5 mm. thick containing 10 milligrams of radium bromide were inserted into the periphery of the growth outside the bladder as well as on its mucous surface; in the cauliflower type the tubes were buried in the base. In the other method the bladder was widely opened and as much as possible of the growth burnt away by diathermy; platinum needles each containing 10 milligrams of radium bromide were then inserted into the bladder wall round the base of implantation, and the bladder was drained. Of 8 patients treated by the first method, 3 died within a month of irradiation, the remainder were discharged in fair health at periods varying from three to five weeks. One of these survived three years and one two years; two who were treated in 1927 are still alive, one of them showing no signs of recurrence. The report also contains details of two cases of cancer of the prostate treated by irradiation, one of which, treated in July, 1923, showed improvement, and no sign of relapse was observed in November, 1928.

Sarcoma and Lymphosarcoma.

The sarcomata appear to offer a good field for radium therapy, though in only one out of nine cases of lymphosarcoma—a type of growth known to be very radio-sensitive—was a good result obtained. It has, indeed, been questioned whether irradiation has not increased the tendency to dissemination.

ALL-ENGLISH (PHARMACEUTICAL) MALT EXTRACT.

We have received for publication the following statement by the Ministry of Agriculture and Fisheries:

With the object of improving the market for home produce the Ministry of Agriculture has adopted a policy for the grading and standardization of the agricultural products of this country, and for applying a distinguishing mark as a guarantee of quality and origin to the graded produce. The mark used, known as the National Mark, consists of a small silhouette map of England and Wales, with a circular representation of the Union Jack in the centre, associated with the words "Produce of England and Wales" and "Empire Buying begins at Home."

In accordance with the above policy, the Minister has recently promulgated grades and standards for various kinds of malt products made entire from home-grown grain, and among these the attention of the medical and pharmaceutical professions is particularly invited to the "All-English (Pharmaceutical) Malt Extract" sold either with or without cod-liver oil. Over and above a general provision regarding the purity and soundness of the barley or malt from which this extract is obtained definite standards are laid down for the product in respect of various factors. The specific gravity, for instance, must be not less than 1.4 and the soluble protein content must be at least 5 per cent. of the total weight. A Lintner value of 25 is the prescribed minimum for diastase. When sold in conjunction with cod-liver oil the mixture must contain a definite percentage of oil—namely, 15 per cent. The Pharmacopoeia Commission has been consulted and has concurred in the new standard.

It is admittedly possible for some exception to be taken to the fact that only one standard of All-English (Pharmaceutical) malt extract will be sold under the National Mark, since it is impossible to standardize patients, and medical opinion is not unanimous with regard to the efficacy of certain of the factors concerned. The value of diastase as an aid to digestion, for example, appears in certain cases open to question, but as a general index of vitamin content it is a distinct asset, and its value cannot be ignored. Heat which will kill the diastase will generally also destroy some of the vitamins. The diastatic activity of National Mark Malt Extract may, therefore, be taken as an indication that a proper and suitable process of manufacture has been observed throughout. Experiments show that as a vehicle for carrying accessory food factors, the ordinary malt extracts of commerce have very widely different values. It is hoped, therefore, that the medical profession will appreciate the advantage of having at hand an agent like National Mark (Pharmaceutical) Malt Extract, which can be used with reasonable precision for dealing with the numerous obscure phases of deficiency diseases.

It has been claimed that the protein present in malt extract made from home-grown grain is assimilated to a greater degree, and altogether more easily, than that of imported extracts, or extracts made from imported grain. Whether it is entirely a question of nutritive value, or one of freshness and palatability, there seems to be something in the idea that the product of the clean, sweet, fresh-malted barley from the fields of our own country-side is better in every way than any other for pharmaceutical purposes, and justifies a serious claim for the extended use of National Mark (Pharmaceutical) Malt Extract. It will be placed on the market in the usual way in retail pharmacists' shops in amber glass jars covered with a blue and white seal label bearing the National Mark. It will also be available in wholesale quantities for hospitals and large institutions in containers bearing a similar label.

British Medical Journal.

SATURDAY, DECEMBER 7TH, 1929.

END-RESULTS OF OPERATION FOR GASTRIC AND DUODENAL ULCER.

For many years medicine has suffered the reproach that it is not an exact science. In early times the therapeutic art was wholly empirical; as knowledge accumulated little by little, treatment, though still empirical, came to be based on the observation of a few isolated cases, or on that most untrustworthy guide called "general experience." It is inevitable that the growth of specialism should have given birth to different and often to very conflicting views, for the specialist working at an individual branch of his subject was likely to acquire such exceptional knowledge and technical skill that his results were to be attributed rather to these than to the method he practised; indeed, it has been a common experience that others using the same method, but with less skill, have obtained disappointing results. When, furthermore, two different methods have been practised, the exponents of each have drawn exactly opposite conclusions about their relative value, usually for the reason that they have seen and treated each other's failures, but have had little or no knowledge of each other's successes. The progress of medicine along such divergent lines is shown by the fact that in any branch of practice to-day there is hardly a statement that can be made with no fear of contradiction. With the widespread growth of theoretical knowledge more and more attention has been given to detail and to the collection of statistical data, but the statistics have so commonly been compiled by those who may be regarded as holding a brief for one method of treatment or another that they can hardly fail to represent the results of the individual worker rather than of the method under consideration. The opinion of those responsible for the treatment of the majority of the public, and even public opinion itself, has thus tended to swing from one extreme to the other as it has been influenced by the authoritative statements made first on one side and then on the other.

In no problem of medicine has this conflict of opinion been more evident than in that of the treatment of chronic gastric and duodenal ulcers. Some thirty years ago the majority of these ulcers were treated medically, by rest, by diet, and by the use of bismuth and alkalis. The introduction of surgical measures, however, gave promise of more rapid, safer, and permanent cures, and thus quickly gained a hold upon the public imagination until operation became almost the universal method of treatment. The frequent, and perhaps too frequent, performance of these operations soon showed that they were not free from immediate risk, or from the risk of later dangers and complications. Medical treatment by dieting and the use of bismuth and alkalis has thus been revived and practised with more careful detail. The physician, perhaps forgetting that the patients in whom surgical treatment has been unsuccessful form but a small proportion of the total number of persons who have been operated on, and that they may represent not so much the failure of the method as the failure of those who are but little practised in its use, is inclined to teach that the day of surgery for these lesions is over, and that better results can be got by medical measures. The surgeon, on the other hand, sees the failures of medical treatment; he is influenced by the time that is lost in attempting such measures, by the dangers that arise from haemorrhage and perforation, and more especially by the number of cases of carcinoma that have developed or have been made evident during or after medical treatment. While, therefore, the surgeon produces figures which tend to show that the only safe treatment is by operation, he takes no cognizance of the fact that he has only been able to obtain the results embodied in these figures by years of careful practice, and that his conclusions have thus no general application.

In this chaotic state of professional opinion the British Medical Association has, for the first time in medical history, hit upon the idea of collecting, with a view to their publication, a large number of the end-results of surgical treatment for gastric and duodenal ulcer. The operations were performed by eighty-six surgeons, and the after-histories have for the most part been obtained from general practitioners who have been in intimate touch with their patients, and are entirely unbiased by any enthusiasm for one method or another. They have seen alike the failures of medical and of surgical treatment, and are thus more competent than any specialist to form a just assessment of the relative value of the different methods. The results have been carefully analysed by Dr. A. P. Luff, the Association's honorary director of research, and the figures relating to duodenal and pyloric ulcers are now ready for publication, while the figures for ulcers of the body of the stomach and carcinomata will follow in a month or two's time. The first part of Dr. Luff's report, dealing with duodenal ulcers, is printed at page 1074 this week; the second and third parts, dealing with pyloric ulcers and with perforated duodenal and pyloric ulcers, will appear in our next issue.

The results of the inquiry form a most interesting group of figures, which every consultant and general practitioner should not only read most carefully, but should keep by him for future reference. The most important point, perhaps, which emerges from their perusal is the high percentage of patients who have been able to return to full work; indeed, the figures should show once and for all that the incidence of gastro-jejunal ulcer following gastro-enterostomy is not nearly so high as has frequently been stated. Though it is not safe, perhaps, to assume from a comparison of the different groups that about 10 per cent. of ulcers not treated surgically perforate, yet these figures correspond with those reported by Mr. H. H. Rayner in our present issue at page 1048. His paper is also of interest in showing that in such an untreated group the mortality from haemorrhage is about 20 per cent., whereas in the collective investigation the danger of haemorrhage after operation is shown to be small. Neither Dr. Luff's report nor Mr. Rayner's paper indicates what is the risk of the onset of carcinoma in cases that are not treated surgically, but the carefully compiled figures of Stewart, which show that carcinoma occurs in from 6 to 10 per cent. of all cases of chronic ulcer, are to-day usually accepted, and it is thus of interest to note that in the collective series treated surgically there was no authenticated instance of the late onset of carcinoma.

These collected figures not only show what a great and valuable part the large body of general practitioners may take to-day in medical research; they present statistical conclusions which cannot be regarded merely as the opinion of a specialist in one

or other branch of medicine, but as the considered opinion and conclusions of the medical profession as a whole. It only remains now to collect over an extensive field and publish the end-results of medical treatment, and so to compare the ultimate efficacy of the two methods. The carefully compiled analytical tables of Dr. Luff do not, of course, represent the best results that might be obtained by an individual surgeon, but they establish—if we may be permitted the golfing simile—a "bogey" for the upper abdominal course; a bogey which every physician and surgeon will, by his own methods, endeavour to beat. The more "plus" men we can produce in either team the greater will be the reputation of British medicine and surgery.

CONSTIPATION.

CONSTIPATION is generally regarded as a very common condition, and a belief that it has harmful effects on the whole body is still widespread in the medical profession as well as among the general public. The address by Dr. Geoffrey Evans, printed this week at page 1044, will serve a very useful purpose if it helps to eradicate these mistaken doctrines. The truth is that a large proportion of people who regard themselves as victims of auto-intoxication caused by intestinal stasis are not really constipated at all, but suffering from the effects of treatment, frequently given on their own initiative or on the advice of their friends, but too often prescribed by their medical advisers. As Dr. Evans points out, the *diagnosis* is generally made by the patient himself, who believes that he must be constipated because he is in the habit of taking aperients, and that he is suffering from auto-intoxication because he feels unwell while he is undergoing this regime. If he is persuaded to discontinue all treatment for a few days, and to make an effort to open his bowels after breakfast whether he feels a call to defaecation or not, he *often finds that his bowels* act quite regularly and that his symptoms disappear; he has, in short, been suffering *from the toxaemia* caused by artificially induced diarrhoea.

Dr. Evans emphasizes the fact, upon which the late Sir James Goodhart insisted in his opening address at the discussion on constipation at the Annual Meeting of the British Medical Association in 1910,[1] that the natural state of the colon is to be more or less full, and that attempts to keep it empty by the use of aperients or enemata are based on a misconception of its functions, and can only cause harm. Under normal conditions the ileo-caecal sphincter acts as a barrier which makes it possible for intestinal digestion to be completed before the chyme enters the caecum, just as the pyloric sphincter causes the food to remain for an adequate period in the stomach. In the caecum and ascending colon water is absorbed, and the faeces which are carried by mass peristalsis to the pelvic colon are normally so dry that very little bacterial decomposition can take place within them. Consequently the quantity of toxins produced in the bowels under normal conditions is never more than the liver is able to destroy or to convert into harmless substances which the kidneys can excrete. On the other hand, chyme passes through the small intestine of the habitual pill-taker with such abnormal rapidity that large quantities of incompletely digested food reach the colon, which becomes filled with a semi-fluid material that forms an ideal culture medium for bacteria. In these circumstances toxins are often produced in such great amount that the liver and kidneys are unable to deal with them effectively, and symptoms of intoxication result. Dr. Geoffrey Evans's dictum that "there can be little doubt that almost as much disease and distress of a low-grade and chronic type is caused by the habitual use of laxatives as results from the abuse of alcohol" shows a happy return to sane thinking after the teaching of those who, only ten years ago, were still advocating short-circuiting and colectomy for chronic intestinal stasis, because they held that the harm it caused was "infinitely greater and more far-reaching than that ascribed to alcohol."

It is unfortunate that the stools, which are too often the subject of the most minute examination by the patient, are not inspected by the doctor with greater frequency. The patient should be instructed to "do as the dogs do, and never look behind him," while the medical student should be taught to inspect the stools in intestinal disorders with the same regularity as is expected of him in examining the urine in renal disorders. No man, as Dr. Evans points out, can give a final opinion on the condition of the bowels without seeing the stools, but he should see them under *natural conditions*. An opinion based on the result of an aperient or an intestinal douche is always misleading, as both remove the faeces from the bowel before they are ready to be excreted, and both act as *irritants* to the mucous membrane, which consequently often secretes excess of protective mucus.

The *operative* treatment of constipation is now happily a thing of the past, but in its place a widespread propaganda has developed with the object of altering the habits of the average healthy individual with *regard* to his food and his intestinal activity. Totally indigestible food and unpalatable food substitutes are recommended because they provide an abundant residue to stimulate the bowels to act more frequently, and an attempt has even been made to introduce an "intestinal drill" into schools with the object of teaching children to open their bowels after every meal. Dr. Evans shows how Pavlov's work on the conditioned reflexes should be applied to the normal physiology of the alimentary tract, and he issues a wise warning against attempts to change the bowel habits of the healthy man. Many observers have noted a definite increase in the incidence of chronic gastric and intestinal irritation, which has resulted from the craze for putting excess of "roughage" into the human stomach and bowel, *which are not adapted to deal with it*

When a patient is found to be really suffering from *constipation, and is not simply treating himself* because he thinks he is constipated, it is necessary to distinguish between the result of delay in the passage of faeces through the colon and the equally common *dyschezia*, in which the faeces reach the pelvic colon at the normal rate but defaecation is inefficient. A consideration of the symptoms, together with abdominal and rectal examination, often give sufficient data for an accurate diagnosis. In severe cases an *x*-ray examination is valuable, as it enables the physician to recognize what segments of the colon are involved in colonic constipation or whether dyschezia is present alone or in association with stasis in the proximal parts of the colon. Interpretation of the results of *x*-ray examinations is by no means easy, and it is essential that the radiologist should be familiar with the wide variations which occur in healthy individuals in the position of the colon, in the rate at which the most advanced portion of the opaque meal reaches the pelvic colon, and in the length of *time* required for its last traces to be evacuated from the caecum and

[1] *British Medical Journal*, October 8th, 1910, p. 1038.

ascending colon. Lack of this knowledge may lead to the diagnosis of displacements of the bowel and intestinal stasis when only normal variations from the average are present. It is, in fact, very doubtful whether a pelvic caecum or a low transverse colon is ever a cause of symptoms.

Fortunately, it is possible to cure a large proportion of cases of colonic constipation by diet alone. Sometimes the use of liquid paraffin, as first advocated by Neville Wood in 1906, or of an unirritating vegetable mucilage such as agar-agar, is required, and massage is often of help in severe cases. When the use of aperients cannot be avoided the dose should be so regulated that a single formed stool is produced each morning, and not several soft or semi-liquid stools. Dyschezia can generally be cured by simple psychotherapy in the form of explanation, persuasion, and re-education, but in long-standing cases a course of graduated enemata of glycerin or water may be required.

THE WINNIPEG MEETING.

ARRANGEMENTS are now proceeding apace, both in Canada and in this country, for the ninety-eighth Annual Meeting of the British Medical Association, to be held at Winnipeg next summer, under the presidency of Dr. W. Harvey Smith, professor of ophthalmology in the Manitoba Medical College. The Annual Representative Meeting of 1930 will be held in London at the Association's House, Tavistock Square, from July 18th to 22nd. The Annual Meeting at Winnipeg will open on Tuesday, August 26th, when Professor Arthur Burgess will install his successor in the office of President, and Professor Harvey Smith will give his address to the Association. The scientific and clinical business of the meeting is being organized in thirteen Sections, which will hold their sessions on August 27th, 28th, and 29th. The list of officers of all the Sections is not yet quite complete, but we are now able to publish the names of their presidents, as follows: Medicine, Lord Dawson of Penn; Surgery, Lord Moynihan of Leeds; Obstetrics and Gynaecology, Mr. Comyns Berkeley; Bacteriology, Pathology, Physiology, and Biochemistry, Professor Robert Muir; Diseases of Children, Dr. Robert Hutchison; Mental Diseases and Neurology, Sir E. Farquhar Buzzard, Bt.; Ophthalmology, Mr. Bishop Harman; Laryngology and Otology, Sir StClair Thomson; Preventive Medicine, Dr. A. S. M. Macgregor; Tuberculosis, Professor S. Lyle Cummins; Radiology, Dr. A. E. Barclay; Medical Sociology and History of Medicine, Sir Humphry Rolleston, Bt.; Anaesthesia, Dr. R. E. Apperley. The provisional programme, and further information about the arrangements generally, will be published from time to time in later issues. Members who intend to take part in the Winnipeg meeting should write to the Financial Secretary and Business Manager, B.M.A. House, Tavistock Square, W.C.1. It is essential that all reservation of cabins on the official steamboats and of accommodation on the special trains should be made through the Head Office. Three tours in Canada have been approved by the Council, and a booklet of information will be sent to any member on request.

SIR WILLIAM BRAGG'S HUXLEY LECTURE.

THE *x*-ray analysis of molecular structure is now a familiar story, but when expounded with the delightful enthusiasm of Sir William Bragg it gains freshness and new interest. It was the main theme of Sir William Bragg's Huxley Lecture, delivered at Charing Cross Hospital Medical School on November 28th, and he spoke of it as one of those borderline subjects appropriate to such an occasion, depending upon physics for the method of investigation, and finding ever more fruitful applications in the chemical and biological sciences in which the organic molecule plays so large a part. Sir William Bragg stressed the point that these new methods of analysis are encouraging in that they form a new science of precision. The trouble lay, he said, not in obtaining the information, but in reading it when obtained. As he expressed it, what the workers in this field are trying to do is not to penetrate some hazy opening in the forest, but, having discovered a map of the region, to interpret and follow it. He described in a fascinating way the persistent tendency of Nature to arrange her molecules in ordered fashion. This arrangement, he said, obtained not merely in the bodies called crystals, but also in wool, hair, and silk, as well as nerve and muscle. In fact, it was difficult to find any material in which, on *x*-ray examination, some geometrical arrangement, repeated at intervals, was not discoverable. The results of this arrangement in some fields—metallurgy, for example—were perfectly familiar, but the tendency to order and repetition was universal, and was the first thing that Nature tried to do when she began to build up her solid bodies. The *x* rays furnished the information, because when they fell upon crystals or other structure reflected rays went off in certain specified directions, and from observing those directions the nature of the arrangement—in diamond, graphite, or whatever it might be—could be elucidated. The *x* rays showed that something—the carbon atom—was repeated perfectly after a certain number of Angstrom units, and perhaps imperfectly repeated after other irregular intervals, and thus the pattern was worked out. Sir William Bragg dwelt upon some recent applications of this work to the structure of cellulose and of wool. Here again Nature built up these long chains, only now they were not merely chains of carbon atoms, but each link was a much more complicated unit. As soon as Nature had built up these long chains she put them together and made bundles of them. The chains themselves were very strong, but the point where one chain joined the next was weaker, and this explained why in certain fabrics there were lines of special weakness and tenuity. The lecture was followed with keen interest by a large gathering, including practically the whole teaching staff and students at Charing Cross.

REPORT OF THE ROYAL COMMISSION ON LOCAL GOVERNMENT.

More than six and a half years ago the Royal Commission on Local Government was appointed, with the Earl of Onslow as its chairman. Its first report was presented in August, 1925. It consisted mainly of a description of the existing system of local government in England and Wales, and of conclusions and recommendations as to the methods of dealing with the constitution and extension of county boroughs. A second report was presented rather more than a year ago. It dealt with five specific questions—the reorganization of areas for local government purposes, the widening of the local area of charge for certain services, measures to stimulate or aid authorities unable or unwilling to perform their functions, the appointment of whole-time medical officers of health, and the better distribution of certain functions. The opinions of the Commission on these questions were required in view of the Local Government Bill, then in an advanced stage of preparation. The third and final report of the Commission was issued last week. This report is in four parts, and the subjects now dealt with fall into three groups. Part I completes the review of the functions of local authorities, so far as this was not set out in the second report, and with the exception of certain matters which have quite recently been investigated by other official bodies—mainly fire brigades, police, and the superannuation of officers—and of the wide and important service of education.

Part II relates to certain issues regarding the constitution and membership of local authorities, and Part III to questions concerning the officers of such authorities. Part IV consists of a summary of the principal conclusions and recommendations. All the matters dealt with in the report are, of course, of some importance—several of them of very great importance—in connexion with local government; but many of them have no particular relationship with public health services, and others are only remotely relevant thereto. There remain, however, a number of points which are directly concerned with public health or with the administration of health services. For instance, among the matters considered in Part I are the administration of the Milk and Dairies Acts, and of the Food and Drugs (Adulteration) Act and the appointment of public analysts, co-operation between local authorities as regards water supplies and the establishment of regional advisory committees, the assimilation of the powers of urban and rural district councils, and the powers of the parish councils in relation to the scavenging of villages. In Part II certain suggestions made by the Ministry of Health in submitting evidence for the creation of a new kind of statutory borough are examined and not approved, and the very important questions of co-option on committees, and of the *disqualification of certain* classes of persons from being members of local authorities, are considered. On both of these questions the British Medical Association has recently made representations to the Ministry of Health, and they are of particular importance to the profession in its relation to public life. In Part III the report, among other matters, deals with the methods of recruitment of the local government service and promotions therein, with security of tenure in that service, with the relationship of the town clerk or clerk to the county council to the other principal officers of an authority, including the medical officer of health, and with what is sometimes an undesirable publicity as regards salaries and promotions. We hope in an early issue of the *Journal* to give a full account of what the report says upon these subjects of direct professional interest, and to make some comments with regard to them. Meanwhile we may congratulate the Royal Commission upon its unusual experience, so contrary to what is traditionally expected, of having had "the singular gratification of seeing many of its recommendations adopted and passed into law" even before the publication of its final report.

THE ETIOLOGY OF "PINK DISEASE."

THE cause of erythredema polyneuritis ("pink disease" of infants) has been variously ascribed to metabolic disturbances resulting from dietetic irregularities, to a pre-existing allergic state, and to infection. In favour of the infection hypothesis are the history of a prodromal naso-pharyngitis with bronchitis, the pyrexia, and the occurrence in some of the cases of ulceration of the tongue and gums. Paterson and Greenfield,[1] moreover, in examining the nervous system of two fatal cases, found evidence of peripheral neuritis and chronic inflammatory changes in the spinal cord and nerve roots. Interest attaches, therefore, to a bacteriological investigation of three cases of "pink disease" carried out in February, 1928, at the South African Institute for Medical Research, and described in the annual report for 1928.[2] The subjects of investigation were patients under the care of Dr. E. P. Baumann at the Children's Hospital, Johannesburg. Cultures were made from their urine, faeces, cerebro-spinal fluid, blood, and nasopharyngeal secretions. The most striking results were derived from the study of capillary blood obtained by puncturing the fingers and toes in the pink hands and feet, culture of this blood yielding in each case a haemolytic *Staphylococcus aureus* and a Gram-positive kidney-shaped diplococcus. The latter organism was also recovered from the urine, faeces, and a mesenteric gland of one patient, and from the tonsils of the other two. Agglutination tests, carried out with immune serum that had been prepared by inoculating rabbits with the diplococcus, appear to have established the fact that the diplococci isolated from the different sources were identical. A monkey that had received a subdural inoculation with the fresh cerebro-spinal fluid from one of the children became emaciated, almost entirely lost the fur over the posterior aspects of its fore and hind limbs, and died in two months. The appearances suggested that the monkey had scratched or rubbed the denuded parts. No far-reaching conclusions have as yet been drawn from the results of this investigation; further cases are being awaited, and will be studied on similar lines. Before the etiological significance of the diplococcus can be determined it will be necessary to discover if its occurrence in cases of "pink disease" is constant, and to obtain further evidence about its antigenic and immunological relation to the disease.

[1] Paterson, D., and Greenfield, J. G.: *Quarterly Journal of Medicine*, vol. 17, No. 65.

[2] Published by the Institute, P.O. Box 1038, Johannesburg.

STERILIZATION OF THE UNFIT.

Two books recently issued may be taken as illustrating the kind of propaganda to which the public is now being subjected on the subject of sterilization. They are *Sterilization for Human Betterment*,[1] by E. S. Gosney and Paul Popenoe, and *Sterilization and the Unfit*,[2] by W. M. Gallichan. The former is a relatively temperate and well-informed, but markedly biased, pronouncement, purporting to be "a summary of results of 6,000 operations in California, 1909–1929." The latter is a highly intemperate, even hysterical, harangue, abounding in misleading, if not entirely inaccurate, assertions. The author says: "The alarm now shown by an increasing number of responsible citizens in the United Kingdom lest the unfit may soon vastly outnumber the fit, is almost of the nature of panic." This is a fair sample of the sort of exaggeration in which he too frequently indulges. It does not lead to the production of a dependable book, and it is no service to the really important subjects of eugenics and of sex education that such a farrago of unbalanced statement and wild claims should be issued in their name. For eugenic purposes it is obvious that preferential or selective mating among superior stocks is of the first importance, and that the prevention of propagation among very inferior stocks is of minor value. Nevertheless, the latter may play a considerable part, and a really impartial and strictly scientific inquiry into its exact, though limited, place among eugenic measures, whether by sterilization or segregation, is much to be desired; the time is certainly ripe for such an inquiry in the case of mental deficiency. The more important book by Drs. Gosney and Popenoe does not embody the results of an impartial inquiry. Its bias is manifest and avowed. As an example of the way in which this bias works we may give the following quotations. Speaking of the conduct of feeble-minded persons on parole, when sterilization is being advocated it is said: "One in every twelve of the females paroled after sterilization becomes a sex offender, but nine out of twelve were sex offenders before commitment to the institution. This improvement is not wholly due to the effect of sterilization, but is doubtless attributable in part to the training they received in the State institution, and to the fact that they know they are on parole and will be returned to the institution if they do not behave themselves." When the

[1] *Sterilization for Human Betterment.* By E. S. Gosney, B.S., LL.B., and Paul Popenoe, D.Sc. New York: The Macmillan Company; London: Macmillan and Co., Ltd. 1929. (Cr. 8vo, pp. xviii + 202. 8s. 6d. net.)

[2] *The Sterilization of the Unfit.* By Walter M. Gallichan. London: T. Werner Laurie, Ltd. 1929. (5 × 7¾, pp. 192. 7s. 6d.)

procedure by castration is being deprecated, they say: "A number of castrations in Switzerland have been described, and it has been alleged that as a result a patient who had formerly been unable to live in the community was enabled to go back to a normal social life. . . . But it has not been shown that this effect was due merely to the castration, and not to the other treatment given at the hospital. Many patients with similar difficulties who are not castrated, but merely given the customary hospital treatment, also recover and can be returned to the community." A similar manipulation of argument appears frequently in the volume, and a similar tendency to draw deductions of a far-reaching character from one, or two, or a few cases. Nevertheless, careful perusal leads to the conclusion that the authors are anxious to keep their claims for the value of sterilization within moderate bounds. Whereas Mr. Gallichan asserts that vasectomy will improve the mental and physical well-being of all who will submit to it, Drs. Gosney and Popenoe modestly assert that it does no harm. Whereas the former believes that "mental deficiency may be banished after a few years of sterilization," the latter are content to claim that "the number of mentally defective persons in the community could be reduced by perhaps as much as half in three or four generations." It is this latter more moderate claim that requires further careful examination; many of those with scientific knowledge of the subject regard even this claim as much too high. No one disputes that in the case of a number of individuals or of families sterilization may be an effective preventive measure; but as a measure calculated to produce any widespread social or eugenic betterment it is almost beyond dispute that sterilization would have to be systematically applied to a proportion of the whole population approximating to one-tenth. It appears that the expectation even of Drs. Gosney and Popenoe is based on the condition that "the mental defectives in the public school system" shall be dealt with, "subsequently also canvassing their relatives for additional cases." All such wide compulsory measures are beyond practical possibility even if they were otherwise desirable. As a measure which might result in the safe return to the community of a somewhat larger number of defectives than would otherwise be possible, sterilization merits further investigation; but this is a very limited result to look for, since defectives whose conduct was definitely antisocial would have to be retained in the institution in any case, and those whose conduct was relatively decent might be expected, even without sterilization, to fulfil some useful function in the community of which they were members without being more dangerous to the race than other folk. One interesting result does seem to emerge from the Californian experience. A common theoretical objection to sterilization is that the sterilized moron would be more likely, and not less likely, to indulge in promiscuous sexual intercourse, and thus perpetuate or increase certain evils. It appears, however, that in the cases investigated this has not occurred; but the actual truth in such an investigation must be very difficult to elicit, and the number of cases inquired into was relatively few.

STATUS OF THE SCHOOL MEDICAL OFFICER.

In the report for 1928 of the Chief Medical Officer of the Board of Education there appear certain observations on the organization of the school medical service which have an important bearing on the status of the school medical officer. It is well known that in certain areas attempts have been made to bring this officer's work under the control of the local director of education, and to deny him direct access to the local and central educational authorities. While it is true that the director of education is the person best fitted to co-ordinate the work undertaken by the educational authority, it would be a pity if too generous an interpretation of his duties were allowed to prejudice the work of the school medical officer. The purpose of the medical inspection and treatment of school children is to make them fit to receive the education provided by the State, and its fulfilment demands, indeed, that the school medical service should be organized as an integral part of the educational system of the country, to be paid for out of the education rate, and carried out on school premises, in school hours, with the necessary assistance of school officers, and in association with the school curriculum. At the same time, however, the school medical service, as Sir George Newman points out, is part of the public health service of the country, and should not be divorced from it. Indeed, in 1907-8 the Board of Education recommended that the school medical officer, though appointed by the local education authority, and receiving instructions directly from the Board and the authority, should be closely associated with the medical officer of health of the area; that he should report directly and independently to the authority; and that his report be submitted to the Board. In other words, it held that the work of medical inspection should be carried out in intimate conjunction with the public health authorities and by or under the direct supervision of the medical officer of health. "School hygiene," writes Sir George Newman, "cannot be divorced from home hygiene, and this in turn is intimately bound up with the hygienic conditions of the community. Efficiency and economy require, therefore, an organic relationship between the daily work of the school authority and of the authority responsible for the administration of the wider branches of public health." This appears to us to be an admirable and a just statement of the position. What is involved is not simply the dignity of the school medical officer, but the efficiency of the service for which he is in large part responsible; his recommendations cannot but lose in effectiveness if they have to be transmitted to the authority indirectly through a lay person. Such circumlocution has been known, moreover, to permit the loss of important observations; direct communication, on the other hand—with the corollary that the communication must also go to the Board of Education—provides the best assurance against omission or neglect.

THE ROAD TRAFFIC BILL.

To the medical profession the most interesting provisions of the Road Traffic Bill are those which seek to impose on all applicants for licences to drive motor vehicles standards of physical fitness to which they must conform. Driving by young persons is restricted in clauses which provide that no one under 16 shall drive a motor vehicle on the road, the minimum age limits for drivers of motor cycles, ordinary motor vehicles, and heavy vehicles being respectively 16, 17, and 21, subject to the right of persons already holding licences to renew them. On the form of application for a licence the applicant will have to declare his age, notify the licensing authority about the existence of any conviction or order of the court disqualifying him from holding or obtaining a licence, and state whether or not he is suffering from "any such disease or physical disability as may be specified in the form, or any other disease or physical disability which would be likely to cause the driving by him of a motor vehicle, being a vehicle of such a class or description as he would be authorized by the licence to drive, to be a source of danger to the public." If from this declaration it appears that the applicant is suffering from any such disease or disability, the licensing authority will, except in special circumstances provided for in the bill, refuse to grant a licence. The saving clauses include the right of certain applicants to submit themselves to tests of fitness and ability to drive. In order to protect the public from risks caused by excessive fatigue on the part of the drivers,

provision is made to limit the continuous period of duty of persons engaged in driving public service conveyances, or any motor vehicles constructed to carry goods other than the effects of passengers, to five hours, and to not more than ten hours in the aggregate in any consecutive twenty-four hours. For the purpose of this provision any two or more periods of time will be regarded as continuous unless they are separated by an interval of not less than half an hour, during which the driver is not engaged on any work whatever in connexion with the vehicle. The bill proposes to divide England and Wales into ten, and Scotland into two, traffic areas, and for each area the Minister of Transport will appoint three commissioners, who apparently will be the sole authorities in their areas for licensing public service vehicles. The framing of regulations with regard to the physical fitness of public service drivers is thus left—subject to regulations that the Minister of Transport may make in this connexion—to the local commissioners, and there is some risk that while these may define standards no less rigorous than those already enforced on their employees by such public transport companies as the L.G.O.C., they may tolerate the lax standard now prevailing among some of the other transport companies. We are glad to note that in the clause of the bill relating to the effect on drivers of drink and drugs, the expression "drunk" is not adopted, but, as was suggested in the British Medical Association's report on tests for drunkenness, "under the influence of drink." The penalties for driving while under the influence of drink or drugs are heavy—namely, imprisonment for a period not exceeding four months, or a fine not exceeding £50, or both imprisonment and fine. We can find no indication in the bill of the diseases or disabilities which are to debar an applicant from obtaining a licence, or what tests for physical fitness will be imposed. The British Medical Association's special committee which is dealing with the question of tests for drivers of motor vehicles will take an early opportunity of examining the proposals in the bill.

AUSTRALIAN SNAKE VENOMS.

An important investigation on Australian snake venoms, inaugurated by Dr. N. A. Fairley, and conducted by him and Dr. C. H. Kellaway on behalf of the Department of Health of the Commonwealth Government, is described in some detail in the report for 1928-29 of the Walter and Eliza Hall Institute of Research in Pathology and Medicine, in the laboratories of which institute the investigation was carried out. According to Dr. Cumpston, there have been 244 deaths from snake bite in the Commonwealth during the last seventeen years, the mortality rates being 50 per cent. from death adder bites, 40 per cent. from tiger snake bites, and 8.6 per cent. from brown snake bites (Tidswell and Ferguson). The relative danger of the various snakes to man depends not only on the amount of toxicity of the venom available in each, but on the efficiency of the biting mechanism of the snakes and on their ferocity. When confronted most Australian snakes, fortunately, are more anxious to get away than to fight. Dr. Fairley emphasizes the extreme shortness of the period which elapses between the bite and the diffusion of a lethal dose of venom into the circulation, the absorption time in sheep bitten by a tiger snake being less than two minutes. It is necessary, therefore, within this time to apply a ligature tightly enough to obstruct the circulation completely, and to excise the bite without delay. Ligature itself, apart from its immediate effect of preventing absorption while excision is being rapidly performed, has no therapeutic value. Sir Charles Martin has shown that, although in the rabbit six to ten times the fatal dose of black snake venom can safely be injected into a limb the circulation of which is completely blocked for twenty minutes, the method depends for its efficacy on a thermolabile substance present in the venom. If the "thrombase" in the venom is destroyed by heating it to 75° C. ligature can do no more than delay the time of death. Similarly, in sheep inoculated with death adder and copperhead venoms, from both of which thrombase was shown to be absent, the effect of ligature was to prolong but not save life. For the treatment of snake bite Fairley advocates excision of an area of skin and the subcutaneous tissue surrounding the bite measuring 3.2 by 1.9 centimetres, with the longer diameter through the line joining the fang punctures. In bites of the hand and foot dissection should be continued down to the bone, and in other regions it should be deeper than the length of the fangs—5 or 6 mm. The wound may be swabbed with a 5 per cent. permanganate solution and an Esmarch bandage applied from the ligature downward; the ligature should be left in position for at least twenty to thirty minutes after excision. Dr. Kellaway is at present investigating active immunization against snake venoms and the nature and toxicity of the venoms of some of the rarer snakes.

ROYAL COLLEGE OF PHYSICIANS AND SURGEONS OF CANADA.

On June 14th last an Act to incorporate a Royal College of Physicians and Surgeons of Canada received the Royal assent, and in accordance therewith an inaugural meeting, convened by the general secretary of the Canadian Medical Association, was held at Ottawa on November 20th. This meeting was attended by sixty of the leaders of the medical profession in Canada, designated Charter Fellows, and it marked the culmination of a movement which began in 1920. The Act provides that the council may organize the College into medical and surgical divisions, those admitted into them being designated Fellows of the Royal College of Physicians of Canada or Fellows of the Royal College of Surgeons of Canada (or their equivalents in the French language). At the inaugural meeting Toronto was chosen as the headquarters of the College; Professor Jonathan C. Meakins of McGill University, Montreal, was elected president; Professor Duncan Graham of Toronto vice-president in charge of the medical division; and Dr. F. N. G. Starr, also of Toronto, vice-president in charge of the surgical division. Dr. T. C. Routley, general secretary of the Canadian Medical Association, was elected registrar-secretary. It is hoped that the new College may prove of great service to the profession in Canada by bringing together as a corporate body all physicians and surgeons of high standing in the Dominion, and that through the issue of higher diplomas it will deter medical men from becoming specialists without special training.

THE PART-TIME SANATORIUM.

An interesting experiment in the prophylaxis and early treatment of tuberculosis is reported from Russia.[1] A number of so-called "night sanatoriums" have been opened in Moscow for the observation and treatment of factory workers suspected by the public health authorities of incipient tuberculosis; the patients continue at work while undergoing treatment. When the factory closes at 4 p.m. the patient goes to the sanatorium, where a warm bath is followed by a meal at 6 p.m., half an hour's walk in the garden, and an hour's rest. At 9 o'clock the patients are served with tea, milk, and bread, and are obliged to be in bed an hour later. They are given a substantial breakfast before starting for work in the morning, and take a light meal with them. The diet is so arranged that each patient receives 4,000 to 5,000 calories daily. On three evenings a week light physical drill or other non-strenuous exercise is organized, and twice a week the patients are examined by the medical officer in charge. Ordinarily the treatment lasts eight or nine weeks.

[1] B. Montheimer, *Deut. med. Woch.*, November 1, 1929, p. 1843.

A MEMORIAL TO WILLIAM HARVEY.

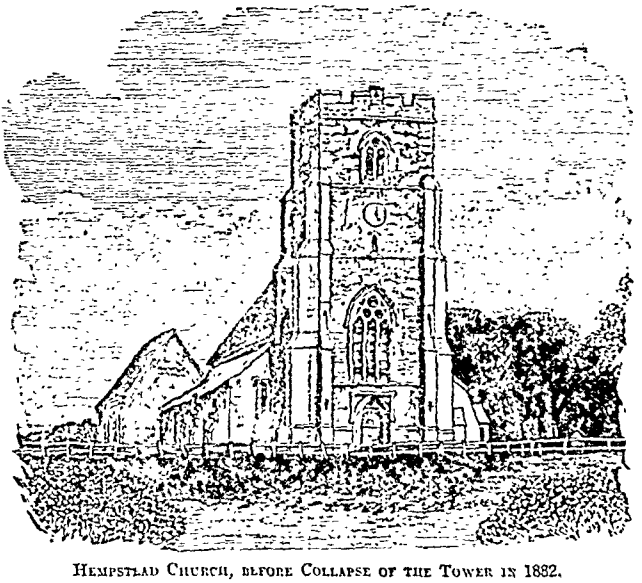
REBUILDING THE TOWER OF HEMPSTEAD CHURCH.

SOME years ago a committee was formed to carry out the rebuilding of the tower of Hempstead Church as a Harvey memorial, and some £1,000 was raised, in part locally and in part from the medical profession. Recently the committee has been reconstituted, and an appeal in the following terms is about to be issued to the medical profession:

The mortal remains of William Harvey, the great exponent of the experimental method in biology and the founder of scientific medicine, lie in a sarcophagus in Hempstead Church, Essex, to which they were transferred in the year 1883 from the Harvey vault beneath the church at the cost of the Royal College of Physicians of London. Hempstead Church, a fourteenth century church of very considerable interest, was closely linked with the Harveys, and contains several memorials to other members of this family who achieved distinction in many branches of human activity.

This church must always make a very special appeal to all connected with the profession of medicine, since it is the place of burial of one who rendered not only in his own time, but for all time, the greatest service to medicine, by establishing it on a secure foundation, and also by inculcating the method by which its progress and development could best be furthered.

On January 28th, 1882, the tower of this ancient church collapsed, and the heap of ruins remains in the churchyard to this day, imparting to the surroundings an air of desolation that must be seen to be appreciated.



HEMPSTEAD CHURCH, BEFORE COLLAPSE OF THE TOWER IN 1882.

Upwards of £1,000 has been collected towards the £5,700 required to meet the estimated cost of rebuilding the tower with the old materials. This appeal is addressed to the medical profession of the British Empire, in the hope that the sum required to restore the tower may be obtained with as little delay as possible, and so enable a suitable memorial to be raised to the memory of Harvey by those best qualified to appreciate the greatness of his achievement and the service he rendered to humanity.

The chairman of the Harvey Memorial Committee is Sir John Rose Bradford, President of the Royal College of Physicians of London; the vice-chairman is Lord Stamfordham, treasurer of St. Bartholomew's Hospital; and among its members are the Regius Professors of Medicine at Oxford and Cambridge, the Master of Caius, and the Warden of Merton, Sir Thomas Barlow, Sir Charles Sherrington, Sir D'Arcy Power, Sir William Hale-White, and Dr. Herbert Spencer. Donations should be made payable to the Harvey Memorial Fund, and may be sent to the honorary treasurer, Mr. A. W. Ruggles-Brise (Spains Hall, Braintree), or to Dr. Arnold Stott (58, Harley Street, W.1), who is acting as joint honorary secretary with the Vicar of Hempstead.

A detailed account of the Harvey Chapel, on the north side of the chancel, was written by Sir Dawson Williams, the late Editor of this *Journal*, shortly before his death, and appeared in our issue of May 12th, 1928 (p. 816).

Our first illustration, from an old woodcut, shows the church and its massive tower before 1882; the other two illustrations show the "towerless nave," from the west and south, as it stands to-day.

HARVEY'S RUINED BURIAL PLACE.

BY

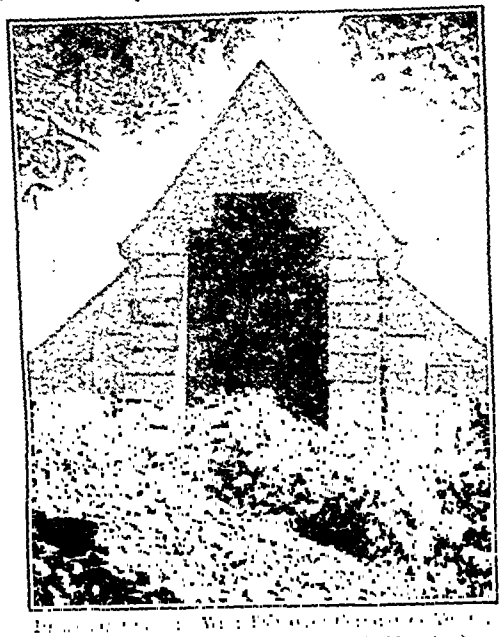
MICHAEL GRABHAM, M.D., LL.D.,
Fellow of the Royal College of Physicians.

HEMPSTEAD lies in a sparsely peopled district of Essex, seven miles from any important town, and equally remote from railway communication. The parish church, a really fine structure showing pure Early English work, is probably 500 years old, and is built of hard chalky stone on one of those gravels which in the country are regarded as unstable and shifting if the stratum has the slightest tilt. Hence, or from some such cause, the massive tower of Hempstead Church, with its clock and fine peal of bells, collapsed forty-seven years ago, broken from its very foundation, though the body of the church has not greatly suffered.

Now the interest of this church concerns all of us, and is twofold. Our first consideration is both medical and world-wide, for the body of William Harvey, who discovered the meaning of cardiac movements and the circulation of the blood and thus redirected the current of medical thought, is enshrined here in our custodianship for the human race; while secondly, the mortal remains of the celebrated Admiral Sir Eliab Harvey, in the kindred of our medical genius and one of Nelson's Trafalgar captains, are here preserved in the huge vault of the Harvey family. It is difficult to estimate the services of this intrepid officer in the crisis of the Trafalgar victory, for with one side of his vessel torn asunder he managed to get his remaining intact broadside to bear upon a fresh enemy ship "black with boarders," with annihilating effect. With perfect restraint and discipline he thus appears, by one single discharge, to have added a first-rate prize to the long list of Trafalgar captures. In early life, sixty-five years ago, I gathered much of the exploit I have related from conversation with Lady Bouchier and Admiral Codrington, children of one of Nelson's Trafalgar captains.

These two, then—our own William Harvey and Captain Harvey of Trafalgar—are our special concern, and the concern of the Empire, in the preservation of this Essex church. I have no shadow of authority to speak for the College of Physicians where responsibility for Hempstead has been assumed; but as senior Fellow—save one—I am confident of the indulgence of my colleagues when I venture to suggest that the co-operation of the British Medical Association is essential for the success of this rebuilding

project. We are all members of this great Association; our influence is penetrating and all-pervading; everyone



(From a photograph by Mr. F. D. Hunt, Walthamstow.)

in the Empire is a patient of one of us and easily accessible, and it should be a privilege to all to help us. It should be quite easy, with our perfect organization, to make provision for the rebuilding of a church tower which touches us so vitally. Let us, with all haste and reverence, efface a

WEST END OF NAVE AND SOUTH PORCH.

(From a photograph by Mr. George Walter Grabham, O.B.E., M.A.)

reproach obvious both medically and nationally in the ruins of this Essex church. The Trafalgar signal is still flying—England expects every man to do his duty.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE.

MEETING OF THE COURT OF GOVERNORS.

THE first meeting of the Court of Governors of the London School of Hygiene and Tropical Medicine to be held in its new home at Bloomsbury took place on November 27th, with Sir HOLBURT WARING in the chair. It will be remembered that the building was opened by the Prince of Wales in July last.

Dr. ANDREW BALFOUR, the director, gave an account of the work of the school during a year of great activity. As to the building, he said that some work still remained to be done; in particular, the large-scale biochemistry plant, the constant temperature room, the central photographic section, and that portion of the museum devoted to sanitary engineering and public health propaganda would not be wholly completed until a somewhat later date. With regard to the teaching, a scheme of study in public health, framed on different lines from any course hitherto in vogue, came into operation in October. Its chief feature was an attempt to co-ordinate the different branches of study in such a way that one dovetailed into another, and the whole formed a combined and logical exposition of the subject. Dr. Balfour illustrated by means of an elaborately coloured chart how the course was organized. Arrangements had been made for students to receive instruction in public health administration in the metropolitan borough of St. Marylebone and the urban district of Willesden, while the health departments of the London County Council, the City of London, and the Port of London had indicated their readiness to co-operate in the teaching work of the school. The medical officers of health for St. Marylebone and Willesden (Dr. Charles Porter and Dr. G. F. Buchan) were serving as lecturers on public health administration and practice, and a panel of visiting lecturers, experts in various branches of public health work, had been nominated for a period of one year to assist the director of the division (Professor Jameson) in D.P.H. teaching. Certain alterations had also been made in the general course in tropical medicine and hygiene, the new course occupying twenty instead of seventeen weeks' instruction. In discussing the detailed work in the divisions and departments, Dr. Balfour mentioned that Professor Jameson had paid a most fruitful visit to the United States, studying methods of public health teaching and practice in the principal schools of hygiene and some of the health departments of North America. He also spoke of the work overseas of the three officers holding appointments as lecturers or Milner Fellows in the departments of entomology, helminthology, and protozoology; of the success of the advanced courses in bacteriology and in epidemiology and vital statistics; of the developments in the library and museum; and of the progress made with research work, in which one group of subjects is financed mainly from the capital and interest of the Milner Research Fund, and the other—under the Institute of Agricultural Parasitology—from Exchequer grants received through the Ministry of Agriculture.

Sir HOLBURT WARING, as treasurer, reported that at the end of the academic year there was a slight excess of income over expenditure. With regard to the capital account, on the site, building, and equipment there had been spent, up to the end of the financial year, approximately £400,000, and there remained a little over £100,000 still to pay. With regard to the future, the University Grants Committee had intimated that the Treasury had sanctioned a recurrent grant in aid at the rate of £40,000 a year, but had impressed upon the school the necessity for taking all possible steps to secure an increased private income from the Colonies, from private or public subscriptions, and in other ways. General satisfaction had been expressed with regard to the new building, and especially with the lecture hall.

Sir W. ARTHUR ROBINSON proposed a vote of thanks to Sir Holburt Waring and Dr. Balfour for their reports. The governors all felt that the school had made an excellent start in its new home. Sir HARRY GOSCHEN seconded the vote.

The CHAIRMAN stated that the new Court of Governors, the members of which are appointed by about twenty-six official departments, university authorities, and voluntary associations, would be substantially the same as the old, except that the governors appointed by the General Medical Council would drop out. In view of its peculiar position in relation to the medical schools, the General Medical Council, while it had assisted in the recent developments, felt it inexpedient to continue permanently to appoint governors.

Collective Investigation into THE AFTER-HISTORY OF GASTRO-ENTEROSTOMY.

Report by

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CONSULTING PHYSICIAN TO ST. MARY'S HOSPITAL; HONORARY DIRECTOR OF THE RESEARCH.

THE British Medical Association, in connexion with its collective investigation scheme, decided in 1928 to conduct an inquiry into the after-history of gastro-enterostomy in respect of cases operated on during the period 1920-24 inclusive, and for that purpose two forms dealing with the questions to be answered were issued to those members of the Association who were willing to take part in the inquiry. One form dealt in Section A with sex, age, occupation, and the operative and immediate post-operative history, and in Section B with the after-history when hospital treatment had ceased. The other form requested an indication of the views of surgeons and medical practitioners as to the value of the operation. Considerable care has been taken by a large number of surgeons and medical practitioners in the filling up of these forms, and valuable information has been obtained as to the results of the operation. Acknowledgement must be especially made of the praiseworthy response of so large a number of medical practitioners to the request for particulars of the after-histories of cases, and to the conscientious manner in which they have discharged what must have been a very onerous task. Any utility that may result from this investigation will be mainly due to their generous efforts.

Reports of 2,609 cases have been received in response to this inquiry. The conditions dealt with and the number of reports on each were as follows:

	No. of Reports.
Cases of duodenal ulcer	995
" perforated duodenal ulcer	112
" pyloric ulcer	451
" perforated pyloric ulcer	20
" gastric ulcer	603
" perforated gastric ulcer	42
" growths	336

There were in addition 47 reports which were inadequately filled in, and had to be rejected as useless for the purposes of the inquiry.

These returns represent the operative work of eighty-six surgeons, and may therefore be taken as a fair indication of the value of the operation as performed by a number of surgeons, all of whom were attached to hospitals containing not less than a hundred beds.

Owing to the large number of cases returned and the mass of details that had to be dealt with, it is proposed in this part of the report to deal only with the cases of duodenal ulcers, and to issue subsequent reports on the cases of pyloric ulcers, gastric ulcers, perforated ulcers, and growths.

PART I.—DUODENAL ULCERS.

There were 995 reports of the results of operations for duodenal ulcer; they do not include the perforated cases, which will be dealt with in a subsequent report. The answers to the various questions have been carefully collated, and the results are embodied in the following tables.

TABLE I.—*Sex Incidence.*

Number of cases	995
Males (percentage)	83.6
Females (percentage)	16.4

This table shows that about five times as many cases occur among males as among females.

TABLE II.—*Age Incidence (at Time of Operation).*

Age.	Percentage.
11–20 years	15.9
21–30 "	29.1
31–40 "	31.4
41–50 "	13.1
51–60 "	5.5
61–70 "	

This table shows that the majority of patients with duodenal ulcer were operated on between 30 and 50 years of age. Of the patients operated on between 14 and 30 years one only was 14 years of age, and two were 17 years of age.

TABLE III.—*Type of Operation.*

Type of Operation.	No. of Cases.	Percentage.
Posterior gastro-enterostomy	785	79.0
Posterior gastro-entero-tomy and cuddling of ulcer	129	15.0
Anterior gastro-enterostomy	13	1.3
Gastro-duodenostomy	9	
Posterior gastro-enterostomy and excision of ulcers	8	
Anterior gastro-enterostomy and lateral anastomosis	6	3.2
Posterior gastro-enterostomy and lateral anastomosis	5	
Gastro-enterostomy and partial gastrectomy	2	
Posterior gastro-enterostomy and enterotomy	1	
Excision of ulcer only	1	

In addition, appendicectomy was performed in 29.6 per cent., and cholecystotomy in 2.1 per cent. of the cases.

The reasons for operating were given in 787 cases. They are recorded in the following table.

TABLE IV.—*Reasons for Operating.*

Symptoms.	No. of Cases.	Percentage.
Pain	787	100.0
Vomiting	326	41.4
Melaena	85	10.8
Haematemesis	64	8.1
Haemat. mesis and melaena	27	3.4
Loss of weight	35	4.5

With regard to haemorrhage as one of the reasons for operating, it will be seen from the above table that all the cases in which melaena and haematemesis occurred (separately or combined) only total 22.3 per cent., but amongst the 787 cases very few systematic investigations for occult blood are recorded.

The direct results of operation in the 995 cases were as follows.

TABLE V.—*Results of Operation.*

Result	No. of Cases	Percentage.
Good recovery	910	91.5
Delayed recovery	35	3.5
Death	50	5.0

The results in 492 cases submitted to x-ray examination prior to operation are shown in the following table.

TABLE VI.—*Results of X-Ray Examinations.*

Result.	Percentage.
Positive	65.6
Negative	17.3
Pyloric obstruction only shown	17.1

In 123 cases test meals were employed prior to operation. The results are recorded in Table VII.

TABLE VII.—*Results of Test Meals.*

Result.	Percentage.
Hyperchlorhydria	66.2
Normal acidity	9.7
No free hydrochloric acid	4.1

AFTER-HISTORIES OF THE OPERATION CASES.

The 995 cases dealt with in Tables I, II, III, and V include 744 cases in which the after-histories were given, 19 cases in which the after-histories consisted only of statements that the patients were in good health at some specified time after operation, and 232 cases in which no after-history was given. For the preparation of the after-history statistics the 744 cases only are employed. In the majority of these cases the questions relating to the after-history were all answered, but as in a few cases some of the questions were left unanswered, the statistics in the following tables have been worked out as percentages of the numbers of the answers to the respective questions.

The after-history inquiries were directed to the elucidation of the following points. Pain or other discomfort after food; diarrhœa or constipation; ability to take food; time of return to work after operation; full work or not; gain or loss of weight; condition of health and well-being after operation; any medical treatment found necessary.

TABLE VIII.—*Pain or Other Discomfort After Food.*
(Information on these points was given in 671 cases.)

	No. of Cases.	Percentage.
No pain or discomfort	447	66.6
Occasional slight pain or discomfort	99	14.8
Temporary pain or discomfort (in most cases soon after operation)	84	12.5
Severe pain or discomfort	41	6.1

TABLE IX.—*Diarrhœa.*
(Diarrhœa occurred in 45 cases out of the 741.)

Diarrhœa.	No. of Cases.	Percentage.
Slight	41	5.5
Severe	4	0.5

TABLE X.—*Constipation.*
(Constipation occurred in 126 cases out of the 741.)

Constipation.	No. of Cases.	Percentage.
Slight	111	14.9
Severe	15	2.0

TABLE XI.—*Food Able to be Taken.*
(Information as to diet was given in all of the 744 cases.)

	No. of Cases	Percentage
Full diet	462	62.1
Certain articles of diet avoided	282	37.9

In the majority of the 282 cases in which some modification of the diet was necessary only one or two articles of diet had to be avoided on account of their producing flatulence or indigestion. Among these cases 161 avoided some form or forms of protein food (beef, mutton, veal, pork, bacon, cheese, eggs), and 121 avoided some form or forms of carbohydrate food (vegetables, pastry, fats, fruit). Therefore, of those on a modified diet about 60 per cent. were obliged to avoid some form of protein, and 40 per cent. some form of carbohydrate. These results are opposed to the view expressed by L. B. Broster,[1] who states that in a general way pastry and carbohydrates upset the duodenal ulcers.

Information as to the time of return to work after operation was given in 580 cases. In a certain number of other cases it was stated that the individuals were either of the leisured classes doing no work, or were past the age for work. The particulars are given in the following table.

TABLE XII.—*Time of Return to Work After Operation.*

Time of Return to Work.	No. of Cases.	Percentage.
1 to 2 months	171	30.0
2 to 3 ,,	250	43.1
3 to 4 ,,	61	11.7
4 to 6 ,,	54	9.3
Over 6 ,,	34	5.9

This table shows that 73.1 per cent. returned to work within three months from the date of the operation. With regard to those that did not return to work till after three months, the reasons given in the majority of the cases were that there was no immediate necessity for return, or that work was not available at the time.

TABLE XIII.—*Work Capacity.*
(Information on this point was given in 602 cases.)

Work Capacity.	No. of Cases.	Percentage.
Full work	555	91.0
Light work	34	5.7
Unable to work	2	0.3

TABLE XIV.—*Weight After Operation.*
(Information on this point was given in 637 cases.)

Weight.	No. of Cases.	Percentage.
Gained	458	71.9
Constant	140	22.0
Lost	39	6.1

TABLE XV.—*Condition of Health and Well-being After Operation.*
(Information on this point was given in 620 cases.)

Health.	No. of Cases.	Percentage
General improvement of health	572	92.2
Fair improvement of health	32	5.2
No improvement of health	16	2.6

Subsequent Medical Treatment Required.

Among the 744 cases subsequent medical treatment was necessary in 34—that is, 4.5 per cent. of the cases. Among these, laxatives were required in 13 cases, occasional alkaline treatment in 10 cases, occasional bismuth and sodium bicarbonate for flatulence in 7 cases, bismuth and pepsin in 3 cases, and astringents for persistent diarrhœa in 1 case.

TABLE XVI.—*Number of Years After Operation during which Patients were under Observation, or during which Reliable Information was Obtained.*
(Definite information on this point was given in 657 cases.)

Years under Observation.	No. of Cases.	Percentage.
2–3 years	10	1.5
3–4 ,,	100	15.2
4–5 ,,	181	27.5
5–6 ,,	148	22.6
6–7 ,,	108	16.4
7–8 ,,	76	11.6
8–9 ,,	34	5.2

This table shows that 83 per cent. of the patients were under reliable observation for periods ranging from four to nine years.

Classification of Results.

The classification adopted is somewhat similar to that of L. R. Broster.[2] The cases are grouped according to results in the following manner.

Very good. Able to eat anything; no pain; gained or constant weight; in full work; occasional slight flatulence in a few cases.

Good. Improved; no pain or only occasional pain from indiscretion in diet; gained or constant weight; work; able to eat all foods except one or two items.

Fair. Restricted diet; light work; pain requiring medical treatment.

Poor Operation of little or no benefit; able to do little or no work.

TABLE XVII.—*Classification of Results.*
(The results returned enabled this classification to be made in 669 cases.)

Classification.	No. of Cases.	Percentage.
Very good	450	67.2
Good	149	22.3
Fair	34	5.1
Poor	36	5.4

From this table it will be seen that the late results of the operation were very satisfactory in 89.5 per cent. of the cases.

Occupation.

As the occupational incidence of duodenal and pyloric ulcers was practically the same it has been considered advisable to include both types of ulcer in this section. It will therefore not be necessary to refer to occupation when dealing with pyloric ulcers in a subsequent report. The occupations were given in 1,389 cases of duodenal and pyloric ulcers, including the cases of perforation, and have been classified as follows.

TABLE XVIII.—*Occupational Incidence.*

Occupation.	No. of Cases.	Percentage.
Mechanics and skilled artisans	306	22
Labourers	209	15
Domestic workers	213	15
Professional and leisured classes	129	9
Factory workers	118	9
Shop workers	123	9
Clerks	90	6
Farmers and land workers	56	4
Miners	50	4
Various occupations	95	7

It will be seen that duodenal and pyloric ulcers occur amongst individuals engaged in all kinds of occupations, but rather more than half of the cases occur amongst those whose occupations suggest the consumption of one or more meals a day under uncomfortable conditions, and possibly in a hurried manner, with consequent probable interference with normal digestion. This is even more marked in the cases of perforated ulcers, as 76 per cent. of these occur among those engaged in such occupations. The great majority of the returns received in this investigation are of hospital patients, so that the above figures give no indication as to the occurrence of the disease among the bulk of the middle and upper classes.

Secondary Gastro-jejunal Ulcers.

Number.—Twenty-one ulcers of this type—that is, 2.8 per cent.—occurred among the 744 cases in which after-histories were given.

Sex.—All males.

Age.—80 per cent. of the cases occurred between 30 and 50 years of age.

Symptoms.—Pain occurred in 13 cases, haemorrhage in 7, and vomiting in 4.

The 2.8 per cent. incidence of these ulcers, and the fact that they all occurred among males, confirm the statement of A. J. Walton[3] that the incidence of gastro-jejunal ulceration for duodenal ulcers is about 3 per cent., and that practically it is only found in the male sex. Moynihan[4] states that the records of his cases over a period of twelve years gave 1.84 per cent. of cases that developed gastro-jejunal ulceration.

TABLE XIX.—*Periods After the Gastro-enterostomy Operation at which Symptoms occurred necessitating Operation for Gastro-jejunal Ulceration.*

Period.	No. of Cases.
15 days	1
6 weeks	1
6–12 months	4
1–2 years	2
2–3 ,,	4
3–4 ,,	5
4–6 ,,	4

It will be seen from this table that 38 per cent. of the gastro-jejunal ulcers occurred within two years of the operation, and 62 per cent. between two and six years after the operation. Moynihan[5] states that as a rule this form of ulcer, if it comes at all, comes within two years of the operation.

Sites of the Gastro-jejunal Ulcers.—These were mentioned in four cases only: one at the pyloric antrum; one at the distal side of the gastro-enterostomy stoma; one adherent to the middle colic artery; one half an inch distal to the gastro-enterostomy.

Results of Operations for the Gastro-jejunal Ulcers.—Good recovery in 13 cases; death in 7 cases; one patient too weak for operation.

Synopsis of Operations Performed.

Partial gastrectomy. Four cases—all recovered.

Ulcer excised. Two cases—one recovery and one death.

Jejunostomy and invagination of ulcer. One case—death.

Partial gastrectomy and resection of anastomosis. One case—death.

Jejunal ulcer found perforated into colon. Colon and jejunum separated, holes closed, and gastro-enterostomy undone. One case—recovery.

Ulcer excised and gastro-enterostomy undone. Two years later large perforating ulcer on posterior wall of stomach. Partial gastrectomy done. One case—death.

Pylorectomy and partial gastrectomy. One case—recovery.

Gastro-colic fistula secondary to a jejunal ulcer developed two to three years after first operation. Ulcer excised. One case—recovery.

Eight months after first operation jejunal ulcer found and lateral anastomosis done. Four years later, on account of persistent pain, a partial gastrectomy was done. One case—recovery.

Suture of perforated jejunal ulcer. One case—death.

Anterior gastro-enterostomy and lateral anastomosis. One case—recovery.

Gastro-enterostomy undone. One case—recovery.

Cauterization of ulcer. One case—recovery.

Resection of ulcer and four inches of jejunum, and lateral anastomosis done. One case—death.

Medical treatment only. One case—recovery.

Nature of operation not stated. One case—death.

Jejunal ulcer found at operation, but left as patient was too weak for radical operation Patient was fairly well one year later, but still had pain.

Remarks on the Seven Deaths.—One died at end of operation. One died soon after excision of ulcer. One died from coma and convulsions two days after operation. Three died three days after operation. One died two weeks after the third operation done for perforation of stomach.

Second Operations Required for Intercurrent Lesions after Gastro-enterostomy.

Twenty-one of these operations—that is, 2.8 per cent.—were required among the 744 cases in which after-histories were given; 86 per cent. of the cases were between 30 and

60 years of age. Particulars of the individual cases are given as they could not be tabulated.

1. Yielding of sutures three days after first operation from acute dilatation of stomach. Repair done; death one day after.

2. Pain and vomiting seven days after first operation from strangulation of small intestine in paraduodenal fossa. Relief of obstruction done; death.

3. Wound broke down ten days after first operation. Repair done; death on second day.

4. Obstructive vomiting ten days after first operation from obstruction of efferent loop by adhesions. Lateral anastomosis done; recovery.

5. Vomiting thirteen days after first operation. Lesion not stated. Lateral anastomosis done; recovery.

6. Pernicious vomiting twenty-one days after first operation from strangulation of ileum by slipping. Relief of obstruction done; death on second day.

7. Persistent vomiting one month after first operation from obstruction of afferent loop by slipping. Lateral anastomosis done; recovery.

8. Obstructive vomiting one year after first operation from obstruction of efferent loop by adhesions. Lateral anastomosis done; recovery.

9. Pain and dyspepsia one and a half years after first operation. Duodenal ulcer still active. Division of pylorus and closure of both ends done; recovery.

10. Pain and vomiting one and a half years after first operation from omental adhesions. Enterolysis and entero-enterostomy done; recovery.

11. Vomiting one and a half years after first operation from vicious circle. Gastro-enterostomy undone and pyloroplasty done; recovery.

12. Pain two years after first operation from lesser curve ulcer. Gastrectomy done; recovery.

13. Pain three years after first operation from indurated mass at site of previous operation. Excision of mass and separation of adhesions done; recovery.

14. Pain, vomiting, and loss of weight three years after first operation from lesser curve ulcer. Patient too weak for radical operation, and medical treatment only employed. Result not stated.

15. Intestinal obstruction three years after first operation from adhesions; division of adhesions done; recovery.

16. Pain three and a half years after first operation from small ulcer on lesser curvature; cauterization of ulcer done; recovery.

17. Pain and vomiting four years after first operation from kinking of two loops of jejunum. Anastomosis between the two loops done; recovery.

18. Recurrent vomiting five years after first operation. Gastro enterostomy undone; recovery.

19. Pain five years after first operation from cholecystitis and gall-stone. Removal of gall-bladder done; recovery.

20. Pain five and a half years after first operation from adhesions. Adhesions separated; recovery.

21. Gastro-colic fistula seven years after first operation. Suture done; death one day later from shock.

Secondary Haemorrhage.

(Not stated as due to anastomotic ulcer.)

Number.—Eighteen cases of secondary haemorrhage—that is, 2.4 per cent.—occurred among the 744 cases in which after-histories were given.

Sex.—Males 16; females 2.

TABLE XX.—*Age Incidence.*

Age.	No. of Cases.
20-30 years	3
30-40 ,,	4
40-50 ,,	11

TABLE XXI.—*Nature of Haemorrhage.*

Nature of haemorrhage.	No of Cases.
Haematemesis	10
Melaena	5
Haematemesis and melaena	3

TABLE XXII.—*Periods at which Haemorrhage started after the Gastro-enterostomy Operation.*

Period.	No of Cases.
1-2 years	4
2-3 ,,	7
3-4 ,,	4
5-6 ,,	2
6-7 ,,	1

Treatment.—Sixteen had rest only, with or without medical treatment; 2 were operated on—1 resection of duodenal ulcer, and 1 entero-enterostomy for omental adhesions.

Results.—Good recovery in 13 cases; fair recovery in 5 cases. No deaths.

Analysis of the Post-operative Mortality.

Among the 995 cases of duodenal ulceration 11 deaths occurred from another lesion some years after the operation and quite unconnected with it. As these 11 cases up to the time of death were free from all symptoms connected with the ulceration the deaths are not included among the post-operative deaths.

The number of post-operative deaths out of the 995 cases was 50—that is, 5.0 per cent. These are the deaths that occurred as a direct result of the operation of gastro-enterostomy, and do not include the deaths from gastro-jejunal ulcers and from second operations performed for some intercurrent lesion, which have already been enumerated in the preceding part of this report.

Sex.—Of the 50 deaths, 86 per cent. occurred amongst males, and 14 per cent. amongst females—a ratio which is roughly that of the sex incidence of the disease.

TABLE XXIII.—*Age Incidence of Deaths.*

Age.	Percentage of Deaths.
20-30 years	12
30-40 ,,	10
40-50 ,,	41
50-60 ,,	22
60-70 ,,	12

TABLE XXIV.—*Time of Occurrence of Death After Operation.*

Time.	Percentage of Deaths.
1- 6 days	64
7-11 ,,	26
3- 4 weeks	4
4- 5 ,,	4
6- 7 ,,	2

Among the 50 cases haemorrhage (haematemesis, melaena, or both) occurred as a symptom prior to operation in 24 per cent. of the cases. It would appear from these figures that the risk of a fatal post-operative result is not increased by the occurrence of haemorrhage prior to the operation.

TABLE XXV.—*Cause of Death.*

Cause of Death.	No. of Cases.
Shock	11
Pneumonia	7
Haemorrhage	5
Cardiac failure (fatty heart)	5
Peritonitis	3
Pulmonary embolism	2
Cerebral embolism	1
Pneumonia and empyema	1
Bronchiectasis and empyema	1
Strangulation of intestine	1
Cause not stated	14

Carcinoma Developing at the Site of Ulcers.—No authenticated case was reported in the whole series. In one case carcinoma was *diagnosed* five to six years after the operation, but was considered inoperable; the patient died a few months later, but no post-mortem examination was allowed. In answer to a special letter, the medical practitioner who had been in charge wrote that *from the clinical* aspect of the case he considered that carcinoma developed at the site of the old ulcer, which at the operation had neither been invaginated nor excised.

General Observations by Surgeons and Medical Practitioners.

The second form requested an indication of the views of *surgeons and medical practitioners* as to the value of the operation of gastro-enterostomy.

Views of Surgeons.

Of the 86 surgeons who sent in returns, 37 filled in this second form. Their views as to the value of the operation for duodenal and pyloric ulcers are as follows:

Thirty six consider the operation of great value in cases of duodenal and pyloric ulceration associated with stenosis of the pylorus.

Six consider that, in addition to the operation, invagination, excision, or cauterization of the ulcer should be done.

Four consider the operation of great value in the treatment of perforated duodenal or pyloric ulcers in addition to closure of the perforation.

Three consider the operation of greater value when combined with closure of the pylorus.

Views of Medical Practitioners.

The second form was filled in by 153 medical practitioners. Their views as to the value of the operation for duodenal and pyloric ulcers are as follows:

One hundred and twenty-three consider the results of the operation to be very satisfactory in the great majority of cases.

Seventeen state that recurrence of pain and gastric disturbance occurred in many cases.

Thirteen state that recurrence of pain and gastric disturbance occurred in a few cases.

One considers that the operation is unfavourable in cases of simple duodenal ulcers without pyloric stenosis.

Brief Summary of Results.

Duodenal ulceration is about five times more common in males than in females.

The liability to duodenal ulceration rapidly diminishes after 50 years of age.

Posterior gastro-enterostomy, with or without embedding or removal of the ulcer, was the operation performed in 96.4 per cent. of the cases.

Hyperchlorhydria was present in 86.2 per cent. of the cases submitted to test meals.

Neither diarrhoea nor constipation is a marked result of the operation, but constipation of a mild character is more frequent than diarrhoea.

About one-third of the cases operated on made some slight modification in diet; of these, 60 per cent. avoided some form of protein, and 40 per cent. some form of carbohydrate.

About three-fourths of the patients returned to full work within three months of the date of the operation.

General improvement of health and well-being occurred in all but a few cases.

The results of the operation were satisfactory in about 90 per cent. of the cases.

Secondary gastro-jejunal ulcers occurred in 2.8 per cent. of the cases.

Secondary haemorrhage occurred in 2.4 per cent. of the cases, but with no fatal result.

The post-operative mortality was 5 per cent., the mortality being highest in patients from 40 to 50 years of age. The majority of deaths occurred within seven days of the date of operation.

No authenticated case of carcinoma developing at the site of an ulcer was reported in the whole series.

References.

[1] *British Medical Journal* November 3rd, 1928 [2] Ibid [3] Ibid., April 21st, 1928. [4] Ibid., December 8th, 1928 [5] Ibid.

THE ROYAL SOCIETY.

President's Anniversary Address.

The 267th annual meeting of the Royal Society was held, according to custom, on St. Andrew's Day, November 30th. The President, Sir Ernest Rutherford, O.M., was in the chair, and delivered the usual anniversary address, in the course of which he mentioned the fourteen Fellows who had died during the year, and stated the grounds for the award of the Society's medals.

Deceased Fellows.

By the death of Sir Bertram Windle, M.D., the President said, the Society had lost a Fellow whose main activities were devoted to administrative work as principal of University College, Cork, and in his later years as professor of anthropology at Toronto. In his earlier days as professor of anatomy in Birmingham Windle carried out important researches in comparative myology, and wrote *interesting popular works on prehistoric Britain.*

Referring to the death of Mr. Walter Heape, the President said that he was one of the group of students who drew their inspiration from the school created by Francis Balfour at Cambridge. He introduced precision into the study of the embryology of mammals, and was one of the first to investigate the oestrous cycle and to promote scientific study of breeding and sexual physiology. Heape belonged to the class of scientific amateurs to whom science in this country had been so much indebted in the past.

Of Sir E. Ray Lankester, a Fellow of the Society for fifty-four years, the President naturally spoke at some length.

"There is scarcely a group of animals he did not study, scarcely a problem he did not help to elucidate, more especially in the morphology of the invertebrata. . . . A man of exceptional intellectual power, of deep insight and sound judgement, he was a great teacher, and for long the recognized leader among British zoologists. A picture of Lankester would be incomplete without reference to his vivid and impulsive personality. He was restrained, prudent, and temperate in scientific treatment, but in other contacts with the world, and especially with the official world, he was apt to be not only *fortiter in re* but *violenter in modo*. But these exuberances welled up from a generous heart, and were displayed only in what Lankester believed to be a just cause. He will be remembered not only as a great zoologist, but as a lover of all natural knowledge, a respecter of all serious workers in science, and a very strong help to his friends and pupils."

After indicating the great contributions to synthetic organic chemistry made by Dr. William Henry Perkin, Waynflete Professor of Chemistry at Oxford, the President said:

"All these achievements, remarkable as they seemed at the time, were surpassed by his work on alkaloids. Perkin early conceived the ambitious project of determining the constitution and effecting the synthesis of certain of the more complex vegetable alkaloids; his memoirs on this subject, by their insight into intricacies of molecular constitution, their grasp of experimental methods, and their attention to minute detail, opened a new epoch in organic chemistry. His ingenuity and pertinacity were rewarded by the synthesis of many of the naturally occurring alkaloids."

The Society's Officers.

The President next spoke of the retirement of two distinguished officers, Lieut.-Colonel Sir David Prain, I.M.S. (ret.), treasurer for ten years, and Sir James Jeans, secretary for an equal period. During their tenure of office, he said, the Society had greatly increased its responsibilities, mainly owing to the large bequests which resulted in the foundation of the Foulerton and Yarrow professorships.

"Sir David Prain has devoted himself wholeheartedly to the welfare of the Society; his wide experience of administration and breadth of scientific knowledge have been of much service on innumerable occasions. He has been ever ready to subordinate his own convenience, if he could thereby more effectively help the Society."

Sir David Prain is succeeded in the post of treasurer by Sir Henry Lyons, and Dr. F. E. Smith becomes joint secretary with Dr. H. H. Dale; Lord Rayleigh is now foreign secretary in the place of Sir Henry Lyons.

Before proceeding to his review of the advance of science, and particularly of the physical sciences, the President noted with gratification that three Fellows of the Society had this year received the award of Nobel Prizes—namely, Professor Arthur Harden, Sir Frederick Hopkins, and Professor O. W. Richardson.

Presentation of Medals.

The President then formally presented the Society's medals, and summarized the achievements of each medallist. The Copley Medal has been awarded to Professor Max Planck; Royal Medals to Professor J. E. Littlewood and Professor Robert Muir, M.D.; the Davy Medal to Professor Gilbert Newton Lewis; and the Hughes Medal to Professor Hans Geiger. In handing a Royal Medal to the Professor of Pathology in the University of Glasgow, Sir Ernest Rutherford said:

"Professor Robert Muir has for over a quarter of a century taken a leading part in the development of pathological and bacteriological research in this country. He is particularly distinguished for his pioneer work in the study of immunity reactions and mechanisms at a time when the foundations of the science of immunology were being laid, and the combining properties of normal and immune serums with antigen were being submitted to analysis by test tube methods. The schools of Ehrlich and of Bordet, which were then particularly active in this new branch of science, had their worthy counterpart in this country in that founded by Robert Muir in Glasgow, and during the first decade of the century there emanated from that school a most important series of contributions devoted to the elucidation of the interactions between complements and immune bodies on the one hand, and antigen on the other. Haemolytic systems were chiefly studied and problems concerned with the specificity, constitution, and dissociation of immune bodies and with the combining properties of complements were attacked by accurate quantitative methods. These studies by Muir and his collaborators are of fundamental importance in the history of the development of the science. They are embodied in Muir's *Studies on Immunity*, published in 1909, which contains a full discussion of their bearing on current theory. The pursuit of serological problems by many pupils working under his direction has been ever since successfully continued. Muir's interests, however, have not been confined to immunology. In the field of general and experimental pathology he has made important contributions to knowledge, and his researches on experimental anaemia produced by the injection of haemolytic serum, and on the regenerative changes in the bone marrow in response to infection, are widely known. In many other directions the work of Muir and his school has influenced the advance of pathology."

Scotland.

Bicentenary of the Royal Infirmary, Edinburgh.

A COMMEMORATION service was held in St. Giles's Cathedral on November 27th to signalize the foundation of the Royal Infirmary of Edinburgh on August 6th, 1729. The original infirmary was part of a small house near the head of Robertson's Close, containing 6 beds, in which 35 patients were treated in the first year. A special building was afterwards erected some two hundred yards away from the original site in 1741. This, again, was demolished in the latter part of the nineteenth century, and the present buildings were occupied in 1879, so that the year 1929 marks both the bicentenary of the original foundation and the jubilee of the occupation of the new buildings. A large and representative congregation assembled for the occasion in St. Giles's Cathedral. The service included the reading of a scripture lesson by the Lord Provost of Edinburgh, and an address by the Rev. Charles L. Warr, dean of the Thistle and Chapel Royal. The preacher declared that there was no more moving human experience than the evidence of unity of soul, which on such occasions blended the multifarious activities of a community into one, and demonstrated that collectively, as well as individually, it possessed a personality and a common ideal. A cynic might say that the care of the sick was a policy of practical social economy, but this was a warped and distorted definition. Two hundred years had passed since the birth of the Edinburgh Royal Infirmary, and to-day it was renowned as the largest voluntary hospital in Great Britain. A still greater future lay before the infirmary, and an enterprise of wider expansion was at hand which in due time would be brought to fruition by the broad and generous impulse of the citizens.

Mr. Russell Paton, the organizing secretary of the Royal Infirmary, spoke at a luncheon of the Edinburgh City Business Club, on November 26th, with regard to the future development of the infirmary. He said that a distinctive feature of the demand for increased hospital accommodation was in the direction of providing for surgical cases. Twenty years ago the number of surgical cases in the year was under 7,000, but in the present year their number had risen to 15,000. A total sum of not less than £300,000 would be required to cover the cost of new buildings on the site of George Watson's College adjoining the institution, and the additional annual expenditure required for these would be not less than £35,000. The infirmary in the present year had a record revenue from all sources, but the voluntary principle had to be judged strictly by results and in terms of efficient and adequate service rendered to the community. If the voluntary hospital system was to be continued it must, by methods of mutual adjustment, be largely free from the bestowal of charity upon poverty-stricken supplicants. A voluntary hospital must be a great social institution on the broad ethical principle of conferring its benefits upon all and receiving from all support according to their ability to pay. Sir Joseph Dobbie, who presided, said that the suggestion of a rate-aided hospital would be strongly opposed by the commercial community as striking a blow at one of the very finest examples of voluntary assistance rendered to a desirable object.

Ante-natal Clinics in Edinburgh.

Dr. William Robertson, medical officer of health for Edinburgh, recently submitted to the Public Health Committee of the city a report on the question of maternal mortality. He said that the problem of maternal deaths could be faced with greater confidence than the control of infantile mortality, because the preservation of the mother's life depended in the great majority of cases in allowing nature to follow its own course. As additional safeguards certain precautions should be taken before and after the birth of the child. The maternal mortality rate per 1,000 births had been 6.6 in Edinburgh during the last two years, as compared with Glasgow's 8.8 last year. In the case of Edinburgh the causes of death had been puerperal sepsis, puerperal haemorrhage, and puerperal eclampsia. Of the total 264 maternal deaths which occurred during the past eight years, these conditions caused 207 deaths. Between November 30th, 1928, and October 31st, 1929, there had been 7,389 births in the city, with 53 maternal deaths. The maternal death rate for the city, excluding 1,404 cases attended by nurses, had been 8.2 per 1,000, while in cases attended by nurses the maternal death rate had been 1.6 per 1,000. Statistical evidence went to show that no particular section of the population contributed more than another to maternal mortality, the rich suffering as much as the poor. If a good maternity service was to be established every city should appoint a panel of medical specialists, who would be at the immediate call of a nurse when she found herself confronted with a difficult or abnormal labour. The establishment of ante-natal clinics should be undertaken, and as regarded Edinburgh, he proposed the immediate provision of three more clinics of this kind.

The Mystery of Influenza.

Dr. James L. Halliday, assistant medical officer of health for Glasgow, speaking in that city on November 19th, said that during the first five weeks of the present year 2,500 people had died in Glasgow alone who would still have been living if there had been no outbreak of influenza. Influenza was not a recent disease, for there had been outbreaks of this kind at intervals of some twenty years ever since the Middle Ages. Since 1889 influenza has always been present in Britain, and particularly severe outbreaks had recently taken place in 1918, 1922, and 1929. The last outbreak had begun in California in the autumn of 1928, reached New York in December, Glasgow and Belfast in January, Edinburgh, London, and Manchester in February, and Birmingham in March. Li

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was known about the factors which made influenza virulent and dispersive. In a general way this was due to an upset of the symbiosis upon which the virus of influenza and man lived together. Examples of similar loss of balance between living things was a frequent phenomenon, of which such incidents as sudden plagues in caterpillars, field mice, and mosquitos were examples. In nearly all these cases the conditions producing loss of balance were unknown. There was a certain amount of evidence with regard to influenza that the prolonged maintenance of anti-cyclonic weather played a part. One of the greatest writers on the subject of epidemiology had referred to the problem of influenza as the crux of epidemiology. When they had come to an understanding of the factors which increased the virulence of the virus of this disease they would probably be able to deal with the problem of all other air-borne diseases.

Inverness Hospitals.

Representatives of the Scottish Department of Health, consisting of Dr. Duttnall, medical officer, Mr. Fraser, assistant secretary of the Department, and Mr. Wilson, chief architectural inspector, last week made a visit to Inverness with the object of discussing the question of the reorganization of hospital services with the representatives of the burgh and county of Inverness. Visits were paid to the Cuduthel and Munfield Hospitals, and to the small-pox hospital at the Citadel. A statement was made on the requirements of hospital accommodation for the burgh and county with a view to centralizing the treatment of infectious diseases, and to the provision for the sick poor under the terms of the Local Government Act. The necessary provision for the treatment of surgical cases, tuberculosis, venereal disease, and difficult maternity cases was also discussed. A conference was held between the representatives of the Department of Health and representatives of the town and of the board of the Northern Infirmary with regard to the possibility of erecting a block at the Infirmary for the accommodation of these types of illness. The general view was expressed that if the present buildings were reconditioned it would not be necessary to make further extension of the new buildings.

The Growth of the Mind.

The ninth annual Ramsay Henderson Trust Lecture was delivered on November 29th in the anatomy classroom of Edinburgh University by Sir Robert Armstrong-Jones, M.D.; Dr. Hamilton C. Marr presided. The lecturer dealt with the growth of the mind, and remarked that this was the centenary celebration of the trust deed executed by William Ramsay Henderson to assist in advancing knowledge of brain physiology, which in 1829 was referred to as phrenology or cranioscopy. Some persons used the term mind as equivalent to memory, while others used it as the equivalent of thought. John Stuart Mill and Thomas Reid of Glasgow had both presented well-thought definitions of mind. The Apostle Paul had apparently regarded mind as an awareness, while the spirit was a second mind employed in the contemplation of higher ideals. The mind consisted of a constant running stream of sensations and feelings, of which we were aware, while there was also involved a tendency to act in a certain way. A picture of the mind might be presented as a triangle within a circle, the triangle consisting of sensation, cognition, and will, surrounded by the circle of tendency, inherited or the result of education, sometimes described as configuration. Aristotle had believed that a human being consisted of five parts—the four elements, and a fifth, which was the quintessence of the others. The Viennese school of Freud did away entirely with the freedom of the will, explaining conduct as due to predetermined tendencies in the unconscious mind, a view which was not widely accepted. A later view was that the mind was a summation of conditional reflexes. It was interesting to trace the growth of the mind upwards from the simplest forms of the animal kingdom. In the lowest forms such as paramaecium, there was a definite avoiding reaction against objects, which suggested purpose. In the jelly-fish the rhythmical contractions of the swimming bell caused reflex movements, while the sea anemone exercised choice as to food. The earthworm showed sensation, motion, and reflex action, while insects were noted for their instincts, and molluscs could scent their food at a distance. In the vertebrate kingdom the fishes had a marvellous sense of smell, while reptiles led a more active and diversified life, and birds had highly developed instincts, especially about nest-making and breeding. In mammals the highest developed form of brain was reached, with the brain of man comprising 9,000 millions of neurons. It was marvellous that in such a delicate and complex organ so few of these structures became deranged. Man at birth entered into an unknown territory, which he might conquer if he had the right ideas, a proper feeling, and a determined will. These could be secured in the first place through the senses, which were the main avenues to the mind. The senses were probably about twenty in number, instead of the five usually accepted. It was thus most important to exercise care as to what entered the mind, especially in the case of the young, where the mind was wax to receive and marble to retain. Ideas in the mind were always associated with pleasure or otherwise, and this feeling helped the attention to recall them. The memory was regarded as an integral part of the intellect which went on after an impression had ceased and gave continuity to our thoughts. Every act of the will was an act of choice, and the first part of the will was attention. The habit of attention could be increased, and the most marked symptom in insanity was the failure to concentrate attention.

England and Wales.

Hospital Saving Association.

STRIKING evidence of the achievement possible under voluntary co-operative effort was afforded by the seventh annual report of the Hospital Saving Association, submitted to the annual general meeting at the Kingsway Hall on November 26th. In six years the number of contributors to this method of insurance for hospital benefit had risen from 62,000 to nearly 652,000: the groups which paid contributions to the association numbered 6,700: and nearly 7,000 group secretaries collected last year over 25,000,000 threepences, forming a total of £320,000, as compared with £249,000 in the previous year. During the twelve months about 172,000 contributors and their dependants were treated at voluntary hospitals, 31,000 being in-patients. The number of days of in-patient maintenance was 657,000; and the final distribution recommended at the meeting brought the direct payments to voluntary hospitals for the year to £193,000. It would appear, therefore, that if the out-patient treatment is regarded as gratuitous, the association pays somewhere about six shillings a day towards the maintenance in voluntary hospitals of every contributor or his dependant admitted. The costs of administration are less than 8 per cent. of the contributions. It is satisfactory to learn that the proportion of out-patients treated is going down, thus meeting to some extent one of the objections that have been made to the association's activities. Sir Alan Anderson, the chairman, expressed gratification that the Prince of Wales had become patron of the association. He called attention to the establishment of three eye clinics, which not only supplemented the accommodation available in the ophthalmic departments of hospitals, but also ensured that ophthalmic surgeons received a reasonable fee. The meeting of group representatives was afterwards addressed by Sir Humphry Rolleston. He emphasized the importance of voluntary hospitals, not only in treating actual disease, but also in educating students and nurses, in radiating medical knowledge, and in promoting skilled research. He thought that social work should be added to hospital work, and illustrated its value by describing the necessity for observation and after-care in acute and chronic rheumatism. A vote of thanks to the group secretaries was moved by Dame Helen Gwynne-Vaughan, and seconded by Mr. Ernest Bevin, general secretary of the Transport and General Workers' Union. The impression left by the meeting was that, if voluntary co-operation of big employers of labour, of workpeople, of hospitals, and the medical profession could reach such dimensions, it was a pity that the same

inciple could not be extended in other directions. Among e group representatives there must have been many upporters of the political party which aims at the nationlization of hospitals; yet in their evident enthusiasm or the Hospital Saving Association, they would appear o be giving moral and financial support to the mainenance of the voluntary system. And the scheme, as far as ould be gathered, is worked with a minimum of friction.

Greater London Regional Planning.

The Minister of Health (the Right Hon. A. Greenwood, M.P.), who was accompanied by the Parliamentary Secretary of the Ministry of Transport (Earl Russell), received last week a deputation from the Greater London Regional Planning Committee. The first object of the deputation was to ask that the Government would take steps to check the evils of ribbon development on arterial roads. A further question with which the committee had been concerned—the reservation of land for recreation grounds and other open spaces—was closely connected with that of ribbon development, since much the same difficulties arose with regard to the control over the land in question. The committee suggested that these difficulties might be largely solved by amendments in the Town Planning Act, and it submitted a memorandum on the possibility of reserving a green belt around London, together with some specific suggestions for the amendment of the Act, calculated to facilitate the reservation of land from buildings and the provision of open spaces, without imposing heavy burdens on the ratepayers. The Minister of Health said, in reply, that he greatly appreciated the work undertaken by the London Regional Planning Committee, and he was in full agreement with its general objects. The committee's proposals for the reservation of open spaces and, in particular, of a green belt around London, were of great interest, though the methods to be adopted in practice would need careful examination. He was also interested in the suggestion that a special regional planning body should be constituted for the Greater London area; but that, he thought, was a matter on which it would first be necessary to obtain the views of the local authorities concerned. Lord Russell said that he fully sympathized with the views which the deputation had expressed upon the undesirability of ribbon development, from considerations both of economy and of traffic requirements, and the committee would have every support from the Minister of Transport in any practical scheme for mitigating the evil.

Infant Life Protection.

As is now fully appreciated, the councils of county boroughs and of counties have, under the Local Government Act, 1929, the option of carrying out functions transferred to them either under the Poor Law or under the appropriate special Acts relating to such matters, though they are required to adopt the latter alternative "as soon as circumstances permit." There are, however, two functions with regard to which the Act gives them no such option. Under Section 2, functions relating to vaccination must be discharged as functions relating to public health, and functions under Part I of the Children Act, 1908, must be discharged as functions under the Maternity and Child Welfare Act, 1918. Moreover, "where the council of a district have established a maternity and child welfare committee the said functions shall, in that district, be discharged by the council of the district and not by the county council." The Ministry of Health has now issued to all maternity and child welfare authorities a memorandum (L.G.A. 28) with regard to the duties which under this section, they will have to undertake as from April 1st, 1930. The main object of Part I of the Children Act is to secure that any child under 7 years of age who is maintained "for reward" shall be notified to the local authority in order that it may be kept under observation and supervision. Every person who undertakes such maintenance, except relatives ("grandparents, brothers, sisters, uncles, and aunts") or those in charge of hospitals, boarding schools, or certain institutions, must, within forty-eight hours of the reception of a child, give to the authority written notice, stating the name, sex, and date and place of birth of the infant, the name of the person receiving it, the dwelling wherein it is kept, and the name and address of the person from whom it was received. The local authority must keep a complete register of such cases and must appoint infant protection visitors, who shall visit the children and satisfy themselves that they are properly nursed and maintained. Where infants are placed out by a philanthropic society, the society may itself be appointed to act as visitor. The local authority may fix the number of children under 7 years of age who may be kept in premises of which notice has to be given; and there are further provisions with regard to certain persons or premises in respect to whom or which special sanction is required from the authority, with regard to removals, and with regard to procedure in the event of the death of an infant. Persons guilty of offences under Part I of the Children Act are liable, on summary conviction, to imprisonment for not more than six months or a fine not exceeding £25. All these matters will from April next stand referred to the maternity and child welfare committee of the local authority, and in most cases, no doubt, the health visitors will be appointed as the infant protection visitors. It is suggested by the Ministry that where necessary such visitors should at once be given appropriate instruction in the new duties which they will have to undertake.

Extension of the Cancer Hospital, London.

A scheme of extension has been resolved upon by the Cancer Hospital, Fulham Road, London. A new wing is to be built and certain adaptations made in existing wards which will result eventually in the addition of about eighty beds, bringing the total to two hundred beds. The radiological department, of which for many years the late Dr. Robert Knox was director, is to have new and larger quarters. The new wing, the plans for which have just been approved and the site cleared, will be a building of six floors. On each of the three lower floors there will be six single-bed wards, one or two two-bed wards, and one three-bed ward, making in all thirty-seven beds; these are intended for paying patients. The three upper floors are to be devoted to the electrical and x-ray work of the hospital. Here will be provided a large electro-therapeutic room, with space for seven cubicles, radiography rooms, rooms for deep and medium x-ray therapy, radium workrooms and emanation rooms, a physics laboratory, dark rooms, and all necessary installations for photography and experiment. Films will not be stored in the main building, but in a small detached building in the grounds. In addition to the beds provided by this new block, several other extensions and conversions are projected which will give immediately twelve, and ultimately forty-four, new beds. The cost of the new block alone is estimated at £57,000, but, in addition, much other reconstruction will be necessary, together with increased staff and maintenance charges, and an appeal is being made for £150,000. One of the features of the new scheme will be the provision for out-patients, for whom there will be a central hall, consulting and examining rooms, and other conveniences in the basement of the new wing. An advanced course in radiology at the hospital, a new departure, is to begin in January and to continue until April. The course will consist of lectures and practical work, with demonstrations in both the laboratories and the hospital, and will be given by the radiologists, the physicist, and other members of the staff. It is stated that the course will be on a larger scale than has been attempted before in London; it will deal first with the physics concerned, and then thoroughly explore the medical and surgical aspects.

Women Poor Law Guardians and the L.C.C.

A largely attended "at home" was given at the Forum Club, Hyde Park Corner, on November 28th, in honour of the work done by the women Poor Law guardians of London. Under the Local Government Act Poor Law authorities will cease to exist next April, but it is hoped that many who have done useful work on those authorities will be co-opted on to the committees that are to take their place. Women representing twenty-five metropolitan boards of guardians were present on this occasion. Dr. Florence Barry Lambert, chairman of the new Central Public Health Committee for London, gave an address in which

said that for the London County Council to come into that arena was suggestive of the lion lying down with the lamb; she could assure her audience, however, that the L.C.C. was a very benevolent and an intensely grateful lion, grateful not only for what had been received from the guardians in the past, but for the favours that it was hoped were to come. Unless the scheme received the hearty co-operation of the former guardians it would not result in the expected success. One objection which many women had felt at the outset, added Dr. Lambert, was that the Central Public Health Committee for London was constituted, even as regards its co-opted members, on party political lines. This was because the London County Council was a body, where, at present, the Municipal Reformers were in power, in consequence, all committees were formed on a basis which gave the numerical advantage to that party. But apart from the initial question asked of candidates for co-option as to what their party affiliation might be, politics entered very little into the Public Health Committee. The task before that committee was a very large one. Hitherto the county council had "farmed out" its hospital services by means of arrangements with the Metropolitan Asylums Board and other bodies, but now it became the largest of all hospital authorities. One of the subcommittees would have to deal with all the (hitherto Poor Law) infirmaries, another would supervise practically all the hospital services hitherto controlled by the Metropolitan Asylums Board; another would have under its purview the ambulance services; and still another would be concerned with the planning and development of hospitals. Staff matters would require very detailed attention, owing to the extraordinary differences prevailing among those in the nursing services for example, as to pay and conditions of service. For hospital purposes London would be classified into five areas, each of which would have its local hospital committee. The speaker hoped that the services which had been so freely given on boards of guardians would still be available.

Presentation to Dr. G. S. Pollard.

In view of his retirement and departure from Midsomer Norton, in Somerset, a public presentation was made recently to Dr G. S. Pollard, J.P., who has carried on an extensive practice there for over forty years, and has been honorary medical director of the Paulton Hospital for twenty years. The Countess Waldegrave, on behalf of the subscribers, handed to Dr. Pollard a handsome inscribed silver salver and a cheque. The chairman of the urban district council, who presided at the presentation, spoke warmly of Dr. Pollard's manifold services to numerous local interests, such as the nursing association, of which he had been chairman, the council schools, the British Legion, St. John Ambulance, the British Red Cross Society, various agricultural exhibitions, and the Volunteer and Territorial Forces. Dr. Pollard was president of the Bath and Bristol Branch of the British Medical Association in 1922-23, and a member of the Branch Council for the periods 1901-5, 1909-11, and 1924-26. He was also chairman of the Bath Division in 1910, and vice-chairman in the following year, subsequently serving on the Executive Committee of the Division from 1922 to 1923. For many years he was medical officer to Downside Abbey and College, and in this connexion received an additional presentation a few days later.

India.

Medical Missions in India.

A survey of the medical missions in India was planned in 1924, and conducted during the succeeding years by the Medical Missionary Association of India, in conjunction with the National Christian Council of India, Burma, and Ceylon, with a view to increasing co-operation and determining the best lines of future progress. Visits were paid to various hospitals, and the appropriate Government and medical statistics were investigated. In the report of this survey, which has recently been issued, attention is called to the essential importance of medical missions in evangelization and the necessity of securing the best skill and equipment available. A chapter on the general situation as regards medical relief emphasizes the vast extent of the field awaiting cultivation. Thus, the province of Bengal, with a population of more than forty-six million inhabitants, has only nine mission hospitals, and in the United Provinces, with a population nearly as great, there are fourteen. In Central India there are twenty-six small States, with a total population of four and a half million, and no medical missionaries. It has been estimated that there are at least 100 million persons in India for whom no scientific medical relief is available. A very interesting account is given of the work in mission hospitals, but the general lack of preventive medicine and of research is mentioned with regret; explanations of this, which were submitted in various centres to the inquirers, included inadequacy of the staff, money, and laboratory equipment, but it is admitted that the establishment of research centres by the Government has rendered the failure as regards research less serious than it otherwise would be. A practical chapter entitled "Conclusions" deserves close attention. Hints are given how to increase efficiency and to overcome the depressing influence of financial stringency and lack of co-operation between medical mission centres. Medical missionaries going to India are recommended to take the course of tropical medicine at Calcutta, and those on furlough are advised to make greater use of the existing post-graduate facilities, more of which are said to be necessary. It is suggested that medical mission recruits should, as far as possible, be appointed to definite hospitals, with a view to remaining there permanently; they should be transferred to other hospitals only exceptionally. The whole report invites the careful study not only of medical missionaries, but also of all who are interested in medical work in India. It contains a large amount of detailed information and practical hints, and also a list of mission hospitals in India, Burma, and Ceylon, with statistical notes in each case. Dr. E. Muir describes the operating of what he terms the "Propaganda-treatment-survey centre": a new field for medical missionaries." This has been found a most successful method of dealing with leprosy, and he thinks it might well be applied by medical missionaries to other diseases. The report is published by the National Christian Council, 1, Staveley Road, Poona.

Infant Welfare in Bombay.

Year by year a low birth rate is recorded in the city of Bombay, and Dr. J. E. Sandilands, executive health officer, in his annual report for 1928, thinks that this may be ascribed in part to the custom of married women leaving the city for their confinements and registering their children subsequently in the districts where they are born. The number of births registered in Bombay in 1928, however, exceeded that of the previous year by over 2,000; it was more than 3,000 above the annual mean number of births registered in the ten years 1918-27. Calculated on the estimated population for 1928 the birth rate was equivalent to 18.5 per 1,000; the number of live births recorded was the highest since 1866. The death rate among infants under the age of one year was 311 per 1,000 registered births, a figure which contrasts sharply with the calculated infantile death rate of 176 per 1,000 for the whole of British India, but is an improvement on 316, the 1927 rate, and on 474, the annual average in the decennium 1918-27. For many years active measures have been in progress to reduce this mortality. The Bombay municipal district nurses visit prospective mothers with a view to detecting signs of illness; they inquire into the condition of newly born infants, and give simple instruction as regards their rearing. In view of the fact that in about 40 per cent. of confinements there is no medical or nursing attendance, the importance of such visits is obvious. Attempts are being made to arrange for more general supervision of confinements by skilled midwives, and the visiting nurses endeavour to persuade prospective mothers to enter the maternity homes, where accommodation is provided for them without charge. When these offers are refused the nurses attend the women in their own homes, providing them with bedding for their confinements, and with milk and bread during the first days of the puerperium. Such visits often reveal entire ignorance

on the part of the women as to the facilities available for them; the nurses are therefore usually welcomed, and their services are highly appreciated. Nine centres have been established by the Infant Welfare Society, through its maternity and child welfare scheme. At these centres advice is given to mothers as regards infant management, medical aid is available for infants, and arrangements are made for trained nurses to visit the homes.

Correspondence.

THE CONSTITUTIONAL FACTOR IN EPILEPSY.

SIR,—Dr. James Adam, in his letter published in your issue of November 23rd (p. 982) has widened the discussion in this correspondence. He complains of the use of the word "constitution" as a synonym for "heredity," and asserts that constitution depends on heredity, nurture, and infection, and the immunity resulting from infection. But does not the immunity result from the constitution? May or may it not be transitory? Individuals react variously to noxious agents. One man after a surfeit of port will suffer from a short temper and a swollen, painful joint; another will be torpid, have a "fat" head, and a thick tongue. There may be also a family history of gout in the first case, and a negative family history in the second. It is usually assumed that the first man has a gouty constitution—a metabolic make-up tending to produce uric acid in excess, and the second a normal constitution. Both constitutions are inherited, but constitution is not the same entity as inheritance. Inheritance or heredity has a wider and a different connotation, and implies a physiological process of genetic continuity which is as applicable to a general make-up as to some minor anatomical defect. The term constitution itself is only a vague word which cloaks our ignorance of the workings of the body, but it is itself sufficiently definite as to have a distinct meaning, and its relation to heredity is so well understood that it would only confuse and befog the modern outlook of clinical medicine if it included the effects of nurture or infection.—I am, etc.,

Warrington, Nov. 27th. J. S. MANSON.

CALCIUM CONCENTRATION AND THE ACTION OF DRUGS.

SIR,—To your remarks in the *Journal* of October 19th (p. 727) concerning the work of Minot and others might have been added the fact that for many years now it has been demonstrated that hearts perfused with a low calcium solution show a sensitiveness to drug action far beyond anything observed on balanced Ringer's solution. For example, strychnine and sparteine reveal themselves as cardiac depressants when an ordinary balanced Ringer's solution is used, but a heart perfused with such a balanced Ringer's solution is so insensitive to drug action that, to get any effects at all from these drugs, concentrations have to be used which no physician would dream of reproducing in his patient's blood. The experimental use of such high concentrations would, of course, be perfectly justifiable if the effects of high and low concentrations differed only quantitatively; this, however, is not the case. Use of a low calcium perfusion shows that these drugs only depress at relatively high concentration, whereas at dilutions of the order of one part in one million or more they markedly stimulate. The dilutions at which these drugs stimulate cardiac activity, when perfused in a low calcium solution, are of the same order as those generated in the patient's blood by the measures of the physician. The clinical reputation of these drugs as cardiac stimulants has thus experimental justification. At the same time, it seems possible, taking into account Minot's results, that calcium deficiency may be present in those cases in which these drugs are of marked benefit. So far also I have invariably found, when perfusing through hearts drugs dissolved in a low calcium solution, not only all the phenomena observed by others who used balanced solutions, but something more that is usually obtained at clinically permissible dilutions, and is frequently of a different order from that observed on balanced solutions.

So far as perfused hearts are concerned, then, there are two groups of drug action—those of concentration and those of dilution. Both groups are obtainable when the calcium of the perfusing solution is low, but one only may be observed when the solution is "balanced" in respect of calcium. It happens also that the group of concentration effects is so much more easily observable than those of dilution that pharmacologists have, on the whole, given them chief attention. It would appear desirable to give the other group attention as well.—I am, etc.,

W. BURRIDGE,

Medical College, Lucknow, Nov. 14th. Professor of Physiology, Lucknow.

THE NEOPLASTIC ORIGIN OF THE LEUKAEMIAS.

SIR,—In connexion with my remarks in your issue of November 16th (p. 892) on the neoplastic nature of erythraemia, might I be permitted to add that one of the arguments most frequently brought forward (even by haematologists, such as Professor O. Naegeli of Zürich in the last edition of his textbook) against the neoplastic theory of the leukaemias (myeloses and lymphadenoses) is that the infiltration of organs, such as the liver, is not like that in cases of malignant tumours? The leukaemic cells infiltrate between the cells of the organ without destroying them and without exciting a defensive reaction. This consideration has been widely accepted as a most important objection, whereas in my opinion it constitutes the most important argument in favour of the neoplastic theory. I will briefly explain myself as follows: the cells of a malignant neoplasm endeavour to continue the functional characteristics of the normal cells from which they have originated. This is now almost generally admitted. (I endeavoured recently to sum up the observed facts in this regard at the commencement of a paper on endocrine tumours.[1]) One of the functional characteristics of blood cells is that when they are extravasated or wander into the various tissues of the body they do not destroy the latter and excite little or no defensive reaction; and this holds good in regard to leukaemic cells. Far from this consideration being antagonistic to the neoplastic theory of the leukaemias, it is, I repeat, an argument in its favour. (In a note on the theories of leukaemia[2] I wrote: "I would answer that, in regard to neoplastic diseases, evidence of . . . tissue reaction probably depends on the source of origin and nature of the tumour cells, and that tumour cells derived from (allied to) myeloblasts and lymphoblasts apparently excite no reaction of the kind.") There are naturally apparent exceptions, as when dense leukaemic "growths" in the bone marrow, as may be seen in rare cases, cause bone absorption by their pressure and give rise to thinning and even distension of the cortical bone.—I am, etc.,

London, W.1, Nov. 20th. F. PARKES WEBER.

"ACTIVATED" FLUORESCEIN IN THE TREATMENT OF CANCER.

SIR,—I find it somewhat difficult to take Dr. Webster's last letter (November 23rd, p. 983) seriously, or to accept as valid argument his mere *ipse dixit*, to the effect that "it can't be so, because I say it can't." He affirms that we (and presumably Mr. Stanford Cade also) have "entirely failed to prove that the use of fluorescein gives any better results than x rays or radium used alone," and in support of this sweeping statement he proceeds to quote the work of Birch-Hirschfeld. Surely, however, he does not intend to convey the suggestion that a corneal ulcer is allied to a malignant growth; but, if not, what is the value of his statement that because fluorescein + irradiation is apparently useless in the treatment of corneal ulcers, "How much more is this likely to be the case in malignant disease?" Obviously he has not appreciated the point of our contention that the action of fluorescein, when irradiated, is selective as between malignant and non-malignant tissues.

[1] *Proc. Roy. Soc. Med.*, Section of Medicine, 1928, xxii, p. 9 (see also *British Medical Journal*, 1928, ii, p. 533).
[2] *Brit. Journ. Child. Dis.*, 1926, xxiii, p. 189.

We thank Dr. Webster for the references he gives, but it is perhaps only fair to mention that my colleagues and I are not as ignorant of the literature of the subject as he would seem to infer; while as regards the physical problems involved we have sought the best advice available. Dr. Webster mentions that he has "tried fluorescein" without result, but he does not make it clear that his trial was concerned with one case only. Dr. Gouldesbrough will himself deal with Dr. Webster's renewed criticism of the radiological technique involved.—I am, etc.,

London, Nov. 20th. S. MONCKTON COPEMAN.

RACE PREJUDICE.

SIR,—The reference to race prejudice on September 14th (p. 505) brings to my mind two sets of facts.

In New Zealand it appeared after the Maori wars that the fine Polynesian race was doomed, and in the nineties the elimination of these natives seemed fairly certain. They have, however, become New Zealanders, and are steadily increasing in numbers. The half-castes are also increasing and are in many cases thoroughly efficient citizens. There is no colour line and no race feeling; intermarriage takes place as a normal practice. The following table illustrates the position.

Year.	Maoris and Half-castes	Year	Maoris and Half-castes.
1857	56,044	1901	45,550
1874 . .	47,330	1906	50,300
1878 .	43,595	1911	52,723
1881	44,097	1916	52,937
1886 .	43,927	1921	56,987
1891 .	41,177	1926	63,670
1836	42,113		

Half-castes as far as can be ascertained.

1891	4,800
1901	5,510
1911	7,000
1921	7,350*

* Of these, 4,200 are said among Europeans.

In Honolulu all opinion is favourable to the mixture of Chinese and Hawaiians; it is even claimed that the offspring inherit the good qualities of both races.

It is evident that the prevailing prejudice against half-castes has no solid foundation: the result depends not on colour but largely on the quality of the mixing races. It must, however, be remembered that in New Zealand a large British population has absorbed a relatively small Polynesian civilization, and in Honolulu the number of Chinese Hawaians is comparatively small—namely, 10,000. But to the imaginative it would appear that as civilizations develop and the conditions of life and the outlook approximate, it may well be that successful fusions will become more frequent.

The recent Pan-Pacific Surgical Conference held in Hawaii taught those Europeans who had any doubts on the subject that educated Chinese, Koreans, or Japanese can quite hold their own in medical efficiency with Caucasians. There is no monopoly of scientific ability. For the future of a troubled world containing some sixty nations it may well be hoped that a gradual levelling up and equalization process may be successful.—I am, etc.,

Melbourne, Oct. 22nd. JAMES W. BARRETT.

POST-GRADUATE OPPORTUNITIES IN LONDON.

SIR,—The views on post-graduate opportunities in London as expressed by your Wellington correspondent on October 19th (p. 735) must surely surprise anyone who has visited the city in recent years. If there was previously any lack of organization this has been remedied by the work of the Fellowship of Medicine and Post-Graduate Association. Its excellent programme is regularly published in the *British Medical Journal* and elsewhere, so there would appear little excuse for men to be ignorant of its work. Comparisons may be objectionable, but have been challenged. Friends in this country who have had experience of visits to London and other British University towns, as well as to those of the United States, inform me that the former possess many advantages, one of the chief being that sessions are punctual and dependable, and that they are held as published. Not one of those with whom I have spoken has ever complained of finding the English surgeon or physician unapproachable, while to say that there is any difficulty in making contact at the British Medical Association headquarters is simply preposterous. Even one of the ordinary rank and file meets with a ready welcome from the ever genial Medical Secretary or from one of the willing staff. At least that has been my personal experience and that of others from this country. Maybe the opening of the Library and Common Room till a late hour in the evening would satisfy a want in providing a centre for study or for recreative conversation. It would appear that the article was written by one visiting London in dim, dark ages, but it is a pity that the name of our late President should be apparently associated with such an expression of opinion.—I am, etc.,

Melita, Manitoba, Nov. 6th. NOEL R. RAWSON.

THE BURDEN OF DEAFNESS.

SIR,—A note of warning is necessary with regard to the "electrical aids to hearing," which are put on the market and advertised on purely commercial lines. Their makers, unlike those of surgical instruments, do not purvey their wares through or by the orders of the medical profession, and they have, naturally, no knowledge of the pathological conditions they so flamboyantly promise to "cure." The result is that a great deal of harm is being done to deaf persons, who are beguiled by specious advertisements. Often the instrument purchased, with or without a "trial," is useless, or the noise makes it unbearable to the patient. Often also, while the instrument helps the deaf person to hear better, he continues to use it frequently to the serious detriment of his natural function of hearing, which in the majority of cases can be improved or cured by proper treatment. The only types of deafness suitable for such an electrical appliance are those due to established otosclerosis or degeneration of the auditory nerve, but persons suffering from these conditions should be properly fitted with an instrument ordered by the aural surgeon, just as patients with defective eyesight are (or should be) provided with glasses on the prescription of the ophthalmic surgeon.—I am, etc.,

Bath, Nov. 24th. H. NORMAN BARNETT.

THE ACETIC ANHYDRIDE TEST IN CEREBRO-SPINAL FLUID.

SIR,—In an article in the *British Medical Journal* of November 23rd (p. 953) Dr. Freda K. Herbert cites my work among that of others who have investigated the cerebro-spinal fluid by means of the "Boltz test." I was, I believe, the first person in this country to apply this test and appreciate its value in the diagnosis of neuro-syphilis, and in 1925, at Bristol, I read a paper on the subject before the Royal Medico-Psychological Association, which in the same year was published in the *Journal of Mental Science*. Dr. Herbert derives conclusions about the value of the "Boltz test" from a series of "twenty-four cerebro-spinal fluids from various cases"; my own series has, up to date, included between 250 to 300 cases of organic and non-organic disease, syphilitic and non-syphilitic, in persons of different ages, and in every case the result of the Boltz test has coincided with that of the Wassermann reaction. The tests depending on the precipitation of protein did not give the same result. I suggest that the Boltz test is not a "crude" test, but a reliable, easily performed test for the investigation of neuro-syphilis. The coloration is due most probably to the presence of cholesterin in the cerebro-spinal fluid.—I am, etc.,

S. GROSSMAN, M.R.C.S., L.R.C.P.,

November 25th. The Royal Eastern Counties' Institution, Colchester.

RELIEF OF PAIN IN LABOUR.

SIR,—I am glad to read Dr. J. S. M. Connell's support for this principle (November 23rd, p. 982), though the avertin method he describes appears only to diminish the suffering, and apparently leaves the patient with the memory of it, so that it gives but a partial relief. I venture to suggest also that Dr. Connell is not quite consistent, in that he deliberately allows some avoidable suffering "in order that she may appreciate the relief which she is to get." It seems to me (1) wrong in principle, (2) that her

gratitude might be still further increased by being spared this unrelieved suffering, and (3) that a highly sensitive patient might find this quite sufficient to rule out a further pregnancy.

With regard to Dr. Elisabeth Rolston's letter (November 30th, p. 1031), sensitiveness to pain, and the capacity for bearing it, vary very widely. As to the cause, surely one need only study the mechanism of labour, the powerful muscular contractions against resistance, compression of soft parts by and against hard surfaces, and stretching of soft parts; the process is not essentially different from any other form of mechanical damage or injury to the body. To attempt to relieve or remove such pain by "adjusting the calcium content of the blood, or some other rational means," would only be another way of influencing sensibility to pain, or, as Dr. Rolston puts it, "doping the nervous system." If such an alternative could be found its application would by no means be limited to obstetrics.—

I am, etc.,

F. CURNOW PLUMMER.

London, N.W.8, Nov. 30th.

THE MENTAL TREATMENT BILL.

SIR,—The provisions of the Mental Treatment Bill just introduced into the House of Lords should be closely scrutinized before allowing it to pass into law—more especially those relating to detention and to the enormous powers placed in the hands of the Board of Control in reference to the approval, inspection, and regulation of any places in which slight or early cases are housed or treated without restriction of their liberty.

A very important pronouncement was made on this matter by the Council of the British Medical Association as reported in the *Supplement* to the *British Medical Journal* of April 29th, 1928 (p. 169):

"The Council desires to emphasize the existence of forms and degrees of mental disorder which need not bring the patients under the Lunacy Acts or within the cognizance of the Board of Control. These patients are conscious of some degree of mental disorder and desire to be treated, but do not, either in their own interests or in the interests of the public, require compulsory restriction of their liberty. They can be satisfactorily treated at out-patient departments, or in general hospitals, or by private practitioners in their own houses or in nursing homes. As a fact, they are so treated at the present day, although the existing provision for treatment of this order, and especially for the poorer patients, is quite inadequate, and ought to be increased. If the suggestion on page 150 of the [Royal Commission's] report regarding arrangements for treatment 'without certification' is to be read as a proposal to bring these patients in any way under the Board of Control, then the Council is bound to disagree. Such a formality, with the consequent prospect of official visits on behalf of the Board of Control, is quite unnecessary, and would certainly deter many patients from accepting the medical treatment they require. . . . The Council . . . reaffirms its opinion that the cases here considered ought not to be brought within the jurisdiction of the Board of Control."

—I am, etc.,

S. E. WHITE, M.B., B.Sc.

London, E.12, Nov. 29th.

*** The text of the Mental Treatment Bill will be found in the *Supplement* (p. 247), and the second reading debate in the House of Lords is reported by our Parliamentary Correspondent in the next column. The Association's Committee on Lunacy and Mental Disorder is meeting at the close of this week to consider the bill.—Ed., *B.M.J.*

ROYAL MEDICAL BENEVOLENT FUND GUILD.

Christmas Gifts.

SIR,—May I ask the hospitality of your widely circulated *Journal* to appeal for the Father Christmas Branch of the Royal Medical Benevolent Fund Guild. Christmas is drawing nigh and cupboards will be emptied to make room for prospective new gifts. We shall be very glad to receive any superfluous toys that may be discarded for new treasures, especially small gifts for boys and girls over 8 years old. Books and games of all descriptions will be appreciated, also gifts such as stockings, socks, mufflers, gloves, bags, handkerchiefs, and anything else suitable for working boys and girls. Money is preferred, as we can often take advantage of the generosity of the shops to send presents such as eiderdowns, blankets, and sheets to our elderly beneficiaries and thus save postage—a very heavy item.

Money and gifts should be sent, before December 12th, to the honorary treasurer, Miss Swinford Edwards, 63, Grosvenor Street, W.1. Children may become members of the Father Christmas Branch by sending a gift, or 2s. in lieu of a gift; and grown-ups by sending a gift, or 5s.—I am, etc.,

MARY TWEEDY, President.

London, W., Nov. 29th.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

THIS week the House of Commons has made considerable progress with the examination of the Unemployment Insurance Bill in committee. A second reading was given to an Indemnity Bill to abrogate the penalties resulting from the fact that the Government had included seven Under Secretaries of State in the House of Commons instead of six, the legal maximum. In the arrangements to rectify this mistake Dr. Drummond Shiels has become Parliamentary Under Secretary to the Colonial Office.

On November 28th the Parliamentary Medical Committee visited the Government Lymph Station at Hendon. They saw the process of vaccination of the calf, the collection of lymph, the system whereby it is kept in cold storage for two years till cultures are practically sterile, and its testing on rabbits. Subsequently the committee visited the Field Research Laboratories of the Medical Research Council at Mill Hill, and were shown the research work in progress into distemper and into Johne's disease in cattle, as well as some of Dr. Gye's cancer investigations.

The second reading of the Children and Young Persons (Employment and Protection) Bill was moved by Mr. Sorensen in the House of Commons on November 29th. The motion was seconded by Dr. Marion Phillips and discussed by Mr. Clynes and Dr. Vernon Davies. In answer to a question by Mr. Sorensen, the Deputy Speaker (Mr. Dunnico) said that if the bill passed the second reading it would block legislation contemplated by the Government. Mr. Sorensen thereupon asked leave to withdraw his bill. It was, however, further discussed by Dr. Fremantle. Finally the House adjourned the debate, and the second reading was again formally set down for December 13th.

On December 3rd the House of Lords passed the Widows', Orphans', and Old Age Pensions Bill through report and third reading, and returned it to the Commons.

Mental Treatment Bill in the House of Lords.

Debate on Second Reading.

The second reading of the Mental Treatment Bill was moved in the House of Lords, on November 28th, by EARL RUSSELL, who said he had been chosen to represent the Minister of Health because of his experience as chairman of Hanwell Asylum, and, later, as a member of the Royal Commission on Lunacy, which had reported in 1926. The bill dealt with important parts of the recommendations of the Commission, but did not create a new code. The Commission had recommended that as desirable, but the Government was reluctant to undertake too comprehensive a bill on account of the difficulties of parliamentary time. The Government would welcome any amendments which the Lords could suggest to the bill, though it had been considered by successive Ministers of Health, and the present Government believed it the best solution. The Mental Treatment Bill which Lord Onslow had introduced in 1925 was based on the same principles. The Royal Commission had said in its report that "The keynote of the past has been detention; the keynote of the future should be prevention and treatment. . . . Certification should be the last resort in treatment, not the prerequisite of treatment."

Earl Russell said the Commissioners of Lunacy had pointed out, as far back as 1860, that the chances of recovery were far greater when the patients were placed under treatment at an early stage of the attack. Dealing with the present position, Sir Frederick Wills, a former chairman of the Board of Control, had written: "The evolution of asylums from mere places of detention to real hospitals had taken place." An asylum was no longer a place where a man was confined so that he could not do harm to himself or others. It was a place for curative

treatment, in the hope that the patient would be enabled to rejoin his fellow-men. Sir Frederick Wills had furnished statistics showing that the incidence of insanity had not been materially reduced. The change per 10,000 of the population was from 4.07 first admissions in 1869 to 4.48 in 1926. The rate for recovery per 100 admissions had improved since, but not as much as could be desired. The Government hoped that if the bill were adopted the number of recoveries might be improved. The technical recovery rate per 100 certified persons might become worse, because the Government hoped the people who were successfully treated under the bill would never become certified lunatics.

Earl Russell Explains the Bill

Turning to the bill itself (of which the text appears in the *Supplement* this week) Earl Russell said Clauses 1 to 4 related to the voluntary boarder, a person sufficiently intelligent to ask for and to wish for treatment. Clause 5 dealt with the temporary boarder, who had to be treated against his will, but only for a time. Clauses 11 to 15, to which great importance attached, reconstituted the Board of Control, which was now constituted under an Act of 1815.

By Clause 1 a person suffering from mental disorder desirous of voluntarily submitting himself to treatment might make a written application, and, without a reception order or any formality beyond that written application, might be received as a voluntary boarder. The will, the *volunter*, in the case of an unmarried person under 18, was transferred to the parent or guardian. Such procedure was possible now in most licensed houses, and sometimes in single care, but not for the poorer class of the community. The rate-aided mental hospital, which used to be called the pauper lunatic asylum, had no provision for receiving the voluntary boarder. The Royal Commission had before it distressing cases of people who felt they were becoming unstable, and that rest and treatment would set them right. They were unable to receive that treatment from a recognized county asylum until they became so bad that they were certifiable. Another point about the voluntary boarder was that any doctor who took such a person into single care was always liable to prosecution for harbouring an uncertified lunatic. Earl Russell drew attention to Subsection 3 of Clause 1, by which a voluntary boarder must give seventy-two hours' notice before leaving. It would not be in the interest of the patient to allow him to leave at a moment's notice, as the occasion when he insisted on leaving would probably be that when he had become unable to look after himself. This delay was not necessarily imposed in every case, but only where the medical officer thought it necessary. It gave the opportunity for the patient to come back to a better mind, or for the medical officer to proceed, if necessary, to certification.

Clause 2 provided that notice of a patient's reception was to be given within two days to the Board of Control. Notice was also to be given to the Board if he died or departed from the institution. Should the patient become incapable of volition he was not to be kept as a voluntary boarder for more than a month. Before the end of that period he must be discharged unless he again became capable of volition, which often happened, or unless steps had been taken to certify him. The public could rely on the Board of Control to see the patient was not unfairly treated.

Answering a question by the Earl of Onslow, Earl Russell said the period of a month would probably be used to apply to a voluntary boarder who became incapable of volition the provisions of Clause 5—temporary treatment. The real safeguard for every person who was detained or under treatment was the Board of Control, and by the bill the powers of the Board were increased.

Under Clause 3 a Commissioner, not necessarily a member of the Board, but an official visitor, might at any time visit a voluntary boarder and report on the case. The Board might order the superintendent to discharge the patient or to take steps to deal with him, if necessary, as a person of unsound mind. To the Minister of Health these provisions did not seem to leave much opportunity for abuse.

Clause 5 was more contentious. It provided for the temporary boarder, a person suffering from mental disorder, incapable of volition, and likely to benefit by temporary treatment. If an application was properly made and a certificate given, he might be detained six months, a period in which, according to statistics, a large number of recoveries took place. The period was perhaps not so long as would be most useful, but the Minister of Health had been moderate in his estimate. The application must be made by husband, wife, or relative, or if not so made it must state why it was not so made, and what was the interest of the person making it. The patient must then be examined by two doctors, as against the one now required for the ordinary certification of the rate-aided patient. The great difference was that there was no intervention of a justice of the peace. In the view of the Government two doctors provided a greater safeguard than any number of justices of the peace. One of the two doctors was either to be the patient's usual medical attendant or an official person, officially appointed, who could have no improper interest in the matter. The Royal Commission had suggested a rather different procedure by a provisional order, and did introduce the justice of the peace. The Ministry of Health had thrown over the provisional order because, though intended to remove the stigma of certification, it would in a short time be held to be exactly equivalent. The Royal Commission had said that cases wrongfully certified or improperly detained must be of the rarest occurrence. It retained the justice of the peace reluctantly, because it was afraid of Parliament and uninformed public opinion, but added that if free to consider exclusively the medical treatment of the patient it would have little hesitation in accepting certification without the justices. The fear of confinement in asylums, Earl Russell declared, need exist no longer. Rate-aided institutions were full, and the trouble recently had been the other way—sometimes people were discharged almost before they were fit to be at large. The House of Lords should recognize that a doctor was not a sinister figure, anxious to confine a man to a dungeon for life. He treated mental disorder as he treated other disease, with a sole view to its cure. If one of the peers were delirious in a fever he would be without volition within the meaning of this Act for that time. Nobody hesitated in those circumstances to restrain personal liberty in the interest of the patient. The same thing happened in mental treatment. Patients were grateful when they recovered for the treatment they had received. A number of visits might be paid to these patients. The Board of Control was entitled to visit at any time and as often as it liked. The superintendent of the asylum visited his patients regularly. In the rate-aided asylum there was the visiting committee, in the licensed house the visiting justices. The patient's friends were at liberty to visit him. In the case of patients who had property there was the Lord Chancellor's visitor. Subsection 9 of Clause 5 provided that in addition to the Board of Control's visit, within one month the patient was to be visited by two members of the visiting committee or by two of the visitors of licensed houses. After that visit they were to sign a statement that it was or was not proper for the patient to continue to be detained, and must report their opinion within two days to the Board of Control. At any time the Board of Control might order that a person received as a temporary patient should be discharged or dealt with as a person of unsound mind. The public had no reason to fear these provisions. The whole object was to assimilate the treatment of mental disease to the treatment of other disease. The Government looked on the bill as likely to empty the certified wards and to send people back without a stigma.

Clauses 11 to 15 reconstituted the Board of Control in accordance with the views of the Royal Commission. At present there were about twelve Commissioners on the Board, some medical and some legal. They regulated policy and visited institutions. They were so busy running about the country that they never had real consultative meetings in London to decide on the principles to be applied. The bill proposed to divide the Commissioners into two parts. Five would constitute the Board of Control, and would have as their primary duty the co-ordination of all general administration—provision of drugs, qualification of nurses, staffing of asylums, construction of asylums. They would meet regularly and without interruption, and would be called the Senior Commissioners. Other Commissioners and Assistant Commissioners would do the visiting, and Clause 13 provided that one Commissioner might carry out visits at present required to be done by two. The law's requirement that two Commissioners must visit had been impracticable for some time. The Senior Commissioners would from time to time visit institutions to see with their own eyes what was going on. Clause 11 provided that they should be composed of a chairman, a legal Commissioner, a medical Commissioner, and a woman, leaving one place, which might be filled by another medical Commissioner. Existing Commissioners who were not members of the Board of Control would continue as Junior Commissioners, though that title was not in the bill.

Earl Russell said that Clause 6, which required local authorities to provide accommodation for temporary patients, was not likely to increase their total accommodation, and in the end would diminish it. Clause 8 provided for circumstances which had arisen under private Acts, such as for the Maudsley Hospital. He called the attention of the House to Subsection 2 in Clause 16. This was an attempt to provide further protection for the medical men who gave certificates. Recent actions, particularly the Harnett case, had not unnaturally frightened medical men, and they were chary of giving certificates for which they might be shot at, even, as in the Harnett case, twelve years later. It was a very grave responsibility for a professional man to take. It not only cost him money, it might ruin him professionally. After that case there was a great shyness on the part of doctors in giving these certificates in proper cases. No one could blame them for that. They were not paid more than an odd guinea or two, and they were taking a serious risk. The Royal Commission was pressed by the doctors to give them complete immunity. Those on that Commission who were lawyers felt that would be contrary to the principles of

law. The doctors themselves said, when asked: "No, we are not asking, and we do not ask, immunity for a rascal or a rogue, or even for a thoroughly reckless person. But we do say it is a little hard that people who are exercising their profession honestly and to the best of their ability should be shot at in this way."

The EARL OF ONSLOW *asked whether the immunity proposed* would apply to certificates regarding people not capable of volition under Clause 5 of the bill.

Earl RUSSELL said he thought so. Resuming his account of the proceedings of the Commission, he said that body finally recommended the form of words which the House would find as the substituted Subsection (2). The effect of these words was not to give the doctors immunity, but to shift the onus. The bill said:

". . . such proceedings shall . . . be stayed on such terms as to costs and otherwise as the court may think fit, unless the court is satisfied that there is substantial ground for alleging that such act was done in bad faith or without reasonable care."

That would present some difficulty to the judges, but there were statutes containing somewhat similar provisions on which they now and then acted. There was a statute about vexatious actions. *The subsection meant that the plaintiff would have to satisfy the* judge at an early stage that he had a prima facie case, and that there was something which required investigation. This was not by any means a final protection to the doctors—very far from it—but it was some protection from suffering from legal actions when they had done the best they could.

Clause 17 made urgency orders applicable to rate-aided persons. Curiously enough urgency orders were now only applicable to private patients. The rate-aided person could only be, so to speak, taken in charge if he was found wandering or in other circumstances when he was dangerous to himself or to others. This would give the opportunity of making an urgency order in all proper cases. Clause 16 removed the anomaly by which any person taken to a workhouse, certified, and sent to an asylum must remain a pauper even if afterwards found to be a person of means. Clause 19 enabled county councils to use the workhouses which would come into their possession under the new Local Government Act. Clause 20 abolished the use of the terms "asylum" and "pauper lunatic." The change of name implied a change of spirit.

The bill had not made a complete code, nor had it assimilated completely the methods of certification in private and pauper cases, which differed in the Lunacy Act of 1890. Neither had the bill dealt with the vexed question of licensed houses, the only question on which the Royal Commission disagreed. Parliament must some day make up its mind what it was going to do about licensed houses. The licensed house was an institution for the treatment of insanity, run by a doctor or several doctors, or at any rate staffed by a doctor, for private profit. The public was perfectly right, no doubt, in looking with the very gravest suspicion upon places of that kind. When Parliament last dealt with this question, in 1890, it adopted an illogical and indefensible halfway-house attitude. The existing private licensed houses were allowed to go on; no new licensed houses were allowed to be created. No number of beds were allowed to be added to those already in existence in the licensed houses then existing. In effect, Parliament said: "We are not quite sure whether this thing is so bad that it ought to be swept away altogether, but at any rate we are not going to let it be increased." Either a licensed house was a necessary institution serving a beneficent purpose in the case of a private patient who could afford to pay for treatment, or it was an evil that ought to be swept away. In fact, licensed houses were not so geographically distributed as to be convenient. That had nothing to do with this bill.

In conclusion, Earl Russell said he had been through the bill carefully with the chairman of the Royal Commission, who authorized him to say that he welcomed it as a useful instalment of the reforms which the Commission proposed.

Lord Brentford's Criticisms.

Lord BRENTFORD said that, with regard to the question of the liberty of the subject, there was a distinct difference between the disease of insanity, whether mere lack of volition or complete insanity, and every other physical disease. The Act of 1890 showed the meticulous care of Parliament for the liberty of the subject. Its provision that a petition for a reception order must be *presented to a special justice* of the peace was not only a safeguard for the patient, but for the medical men. Earl Russell proposed to take away part of the legal responsibility of medical men and at the same time to take away the one great safeguard both for the medical men and for the patient. The procedure proposed for the young person under 18 should be *most carefully* considered by the House. Without any assent on his or her part a boy or girl of nearly 18 could be placed as a voluntary patient on the written request of the parent or guardian with no doctor's certificate and no judicial authority. Earl Russell had tried to prove too much in regard to the Board of Control. If that safeguard was so great, why trouble about medical certificates and the reception order, which would still be needed for the man who was flagrantly insane. It was remarkable to retain the safeguards for that man but to sweep them away in doubtful cases. Clause 5, dealing with temporary treatment without full certification of persons who had lost volition, would require amendment. "Incapable of volition" was a new expression in an Act of Parliament, and the unanimous recommendation of the Royal Commission, as also of the Mental Treatment Bill introduced by Lord Onslow in 1923, was that there must be a judicial decision. That was the law of the land now, and the Royal Commission had doubted whether public opinion would countenance a departure from it. Lord Brentford said he was anxious to do what he could in transferring the onus of proof from the medical man, under Clause 16. As a lawyer, and as one who had held Ministerial office, he well knew the scandal of certain actions taken against medical men. But if the medical man was to be given this protection the patient must have the protection of a judicial inquiry. He further hoped the Government would accept an amendment to strengthen the medical element in the Board of Control. He also thought that the bill proposed to transfer too many powers from the Minister of Health to the Board of Control, which could not be called to account in the House of Commons. Taken as a whole, the bill would largely improve medical care and treatment, particularly incipient medical treatment of those on the border line; but it was more important for the House to guard the liberty of the subject.

Lord SANDHURST approved the proposal not to connect temporary treatment with judicial or legal proceedings. They should emphasize the medical aspects, and not place the patient in the position of a sort of criminal. He welcomed a provision, which Earl Russell had failed to mention, for the after-care of patients by local authorities, or through after-care associations. After-care was nearly as important as treatment during detention, and not only for poor patients. He would prefer that the absence of volition for a month did not automatically end the status of a voluntary boarder. In Scotland a patient was allowed to retain his position as a voluntary boarder so long as he did not insist on the right to be discharged. [The bill does not apply to Scotland or Northern Ireland.] Lord Sandhurst thought there should be added to the bill a provision allowing the Board of Control to extend the period of temporary treatment for non-volitional patients who showed signs of recovery. He regretted that the bill did not, as recommended by the Royal Commission, allow a medical superintendent to certify that, though a petition had been made for the discharge of a patient, that discharge to the petitioner would be *contrary to the welfare of the patient. He hoped the qualifications* of the Assistant Commissioners would be those provided by the principal Act. Some of the women visitors should have nursing experience. He did not see any great protection to the medical man in the shifting of onus. It was a poor case which could not produce some prima facie evidence throwing the onus upon the medical man.

Lord Dawson Supports the Bill.

Lord DAWSON OF PENN said the bill attempted at long last to adapt legal enactment to informed opinion. It was useless to have a new idea and seek to embody it in legislation unless the House was prepared to take a new view of the methods. For years informed opinion had wanted reform. The object in mental as in bodily disease was early diagnosis and early treatment to prevent more grave maladies arising. The present law was based on the assumption that mental ailment was insanity. There has grown *up, therefore, in the public mind the notion* that any kind of mental disease was associated with some slur, some disability inflicted on the patient and his family. The result was that the friends of that patient unconsciously entered into a conspiracy to prevent mental ailment being handled, for the reason that they knew there was a danger, if it were treated, of the patient being dubbed insane and treated as an insane person. Therefore it was necessary to make the machinery of this bill as new and fresh in its form as the ideas which inspired it. If they left what was thought of as insanity and came down to mental derangement, they would find that that was constantly side by side with physical *derangement. It was often* a matter of chance whether a patient who had been ill suffered from a mental complication or a physical complication. Certain complications followed on typhoid fever. It was a matter of chance whether the patient suffered from a clot on the brain or from some temporary mental derangement. Why should they treat one differently from *the other? They might* have been restraining that patient through delirium, and why should not they apply the same medical treatment to the mental complications as to the bodily complications? With increasing speed and strain of life, in which the material progress was going too far ahead of man's powers of adaptation, they would get a larger number of cases of temporary mental trouble, and find a physical trouble followed by mental symptoms, or mental symptoms followed by physical ailment. Disease, if he might use the expression, bred less and less true. It conformed less and less to type. In these days, when acute infections were gradually being wiped away, the colour and the pattern of disease was more likely to be determined in greater degree by man's make-up, his family history, his environment, the strain he had been liable to meet, and the result was often such conditions of mind as the House

was discussing that day. This bill, in Lord Dawson's opinion, was a considerable advance, which would have the support of the best thought in the medical profession. Technical knowledge had grown. The medicine of to-day was not the medicine of fifty years ago, and had become so technical that Parliament had to trust the people who had studied the form. Medical men now had greater knowledge and greater judgement. A public opinion was rising up in the profession, and grew stronger each year. That public opinion in the profession was the great safeguard to prevent abuse. If Parliament introduced judicial authority wholly unsuited to judge of the merits of the question it would not have the advantage of the voluntary section of the bill. That would not be taken advantage of by the patients, nor would the doctors try to persuade them. Doctors were not going to have skilled opinions overhauled by local magistrates who did not understand the A B C of the profession. Lord Dawson remarked that as he did not want to go to a magistrate to ask if he might restrain delirious patients, he did not want to go to him to restrain a patient suffering from a complication after that illness. Certified insanity was another problem, whether the patient was so disabled that for his own safety, or that of the community, he had to join a cloistered class. They therefore made such an inroad on that patient's liberty, and for such a time that it was necessary to have more control. The question of temporary loss of volition, which occurred even after influenza, should be left to the decision of medical men—two of them if Parliament preferred. If Parliament was to get the full benefit of the part of the bill dealing with volition it would require to distinguish between an automatic refusal, for example, and an intelligent negative. The two clauses dealing with voluntarily boarders and those who had temporarily lost volition if carried out without undue restraints would add to the sum total of the health of the community.

The EARL OF OXFORD asked whether Earl Russell would consider increasing the Board of Control by one and making the additional member a Medical Commissioner.

Lord DAWESTOFT welcomed the bill as an overdue reform, but doubted whether Clause 16 was sufficient to protect doctors who signed certificates or made recommendations. He hoped that in committee Earl Russell would devise some really substantial protection for the doctors.

Lord CRANBROOK hoped the bill was the forerunner of another which would bring all public health services together instead of leaving mental work divided from public health work. He thought the provision in the bill authorizing local authorities to have out-patient clinics was a great step in advance. They would save many people from going into institutions.

Replying to the debate, EARL RUSSELL said he regarded these clinics as a valuable feature. He did not propose to take the committee stage till December 9th, to give adequate time for putting down amendments. He himself was not sure that the protection offered to medical men was substantial, and if the House were prepared to extend it further he might not oppose. He was grieved to hear Lord Brentford talk, at this time of day, about the need for the intervention of justices. Everybody connected with asylum administration knew that the only thing of which the doctors thought was the benefit and health of the patient. The precautions for the liberty of the subject, of which Lord Dawson had spoken, were what spoilt the Act of 1890. In Scotland, where the practice showed an immense advance on English practice, mental patients were treated in a very flexible way, with enormously good results to their health. Intervention by a justice was nowadays in England the merest formality, adding nothing to the safety of the patient.

The bill was then read a second time without a division, and will be taken in committee of the whole House.

Workmen's Compensation (No. 2) Bill.

Mr. GEORGE HIRST moved in the House of Commons, on November 29th, the second reading of the Workmen's Compensation (No. 2) Bill. He said this was introduced to deal with the case of the man who, after meeting with an accident, had been declared by the doctor to be fit for light employment. That man went to whoever employed him and asked for light work. He was refused by that particular employer and, when he walked away, his compensation was stopped or reduced by the judge.

Mr. GRUNDY seconded. He said there was no greater tragedy in unemployment than that of the man who was certified by a medical man to be fit for light employment.

Mr. ATKINSON moved the rejection of the bill, but Mr. CLYNES and Lord EUSTACE PERCY supported its principle, while recognizing that amendments were required. The bill was then read a second time without a division and sent to a committee.

Radium.

Mr GREENWOOD told Sir J. Power on November 28th, that he could not make any statement on the progress of the work of the Radium Commission. The Radium Trust and the Radium Commission were constituted by Royal Charter, which required the Commission in each year to lay before the Trust an annual report of their work, a copy of which must be furnished to the Treasury, for presentation to Parliament.

Women Medical Officers of Prisons.—Mr. Lovat Fraser was informed by Mr. CLYNES, on November 28th, that there were two women medical officers at Holloway Prison. There was also a woman medical officer at the Borstal Institution at Aylesbury. The appointment of a woman medical officer in women's sections of prisons, where the women formed only a small proportion, meant adding to the staff and paying two officers where one could do the work.

Prison Medical Officers and Flogging.—Replying to Mr. Benson, on November 28th, Mr. CLYNES said that if a prison medical officer stopped corporal punishment during its infliction his intervention was final and there was no further flogging. Officers with over thirty years' experience of the prison service had never heard of cases where the use of the cat was stopped in order that the prisoner might recover sufficiently to endure it later.

Inspectors of Vivisection Experiments.—Mr. CLYNES told Mr. Freeman, on November 28th, that there were two inspectors of vivisection experiments, both with medical training. There were no vacancies at present, and no further appointments were contemplated. Candidates with the best qualifications, irrespective of sex, would be appointed in the event of a vacancy. Replying further to Mr. Freeman, who said that the strongest representations had been made to exclude dogs from vivisection, and who asked for more records relating to them, Mr. Clynes said no useful purpose would be served by the publication of figures in addition to those already given in the annual return.

Proposed Whole-time Medical Commissioner in India.—Mr. WEDGWOOD BENN, on December 2nd, told Major Graham Pole that the demand for a grant for the expenses of a European officer of the Indian Medical Service as a whole-time commissioner of medical qualifications and standards had not been rejected by the Indian Legislative Assembly. The House was adjourned before the termination of the debate. The Government of India was consulting the provincial Governments on measures to secure the continued recognition of Indian medical degrees. The creation of the commissionership was proposed as a temporary measure pending the establishment, by legislative enactment, of an All-Indian Medical Council.

The Services.

ARMY MEDICAL SERVICES.

LIEUT.-COLONEL W. P. MACARTHUR, D.S.O., O.B.E., M.D., F.R.C.P.I., R.A.M.C., professor of tropical medicine, Royal Army Medical College, has been appointed consulting physician to the British Army from December 10th, 1929, in succession to Colonel J. C. Kennedy, C.B.E., M.D., K.H.P., who is proceeding to India for duty.

Universities and Colleges.

UNIVERSITY OF OXFORD.

Radcliffe Travelling Fellowship, 1930.

AN examination for a Radcliffe Travelling Fellowship of the annual value of £303, and tenable for two years, will be held at the University Museum, commencing on Tuesday, February 11th, 1930, at 10 a.m.

Candidates must have passed all the examinations required by the University for the B.A. and B.M. degrees. They must not have exceeded four years from the time of passing the last examination required for the degree of Bachelor of Medicine. The successful candidate must, before election, declare that he intends to devote himself during the period of his tenure of the Fellowship to the study of medical science and to travel abroad with a view to that study; the Fellowship will be vacated *ipso facto* if he spends more than nine months in the whole within the United Kingdom. The Regius Professor of Medicine and the examiners pass a yearly report on the work done by each Fellow to the Electors, who may, if they think the report unsatisfactory, declare the Fellowship forfeited. The examination will occupy four days. Papers will be set in physiology, pathology, and preventive medicine, and a subject will be proposed for an essay; there will also be a practical examination in pathology. Any candidate desiring to offer, in addition, a special branch of medicine or surgery must send notice of this to the Regius Professor of Medicine, University Museum, Oxford, on or before January 29th, 1930, by which date the names, addresses, qualifications, etc. of all intending candidates should be in the hands of the Regius Professor.

At a congregation held on November 23rd the following medical degrees were conferred:

D.M.—G. P. Wright.
M.Ch.—C. W. Flemming.
B.M.—J. A. Eyres.

UNIVERSITY OF CAMBRIDGE.

At a congregation held on November 30th the following medical degrees were conferred:

M.D.—R. J. Lythgoe, H. W. Eddison.
M.B., B.Chir.—M. D. Nosworthy, J. M. Graham, E. A. Trim.
M.B.—F. Goldby, J. O. W. Bland.

UNIVERSITY OF LONDON.

THE following candidates have been approved at the examination indicated:

DIPLOMA IN PSYCHOLOGICAL MEDICINE (*with special knowledge of Psychiatry*).—P. T. Thorpe, Mary E. Tyars.

Obituary.

LIEUT.-GENERAL SIR ARTHUR SLOGGETT, K.C.B., K.C.M.G., K.C.V.O., F.R.C.S.,

Late Director-General Army Medical Services.

As briefly announced in our last issue Lieut.-General Sir Arthur Thomas Sloggett, K.C.B., late Director-General of the Medical Services of the Army, died suddenly, aged 72, on November 27th, while walking with his son near Regent's Park. He was the son of the late Inspector-General W. H. Sloggett, R.N., and of his wife, Elizabeth, daughter of Thomas Cornish-Crossing, J.P., of Stoke Damerel, Devon, and was born at Stoke Damerel on November 24th, 1857. He was educated at King's College, London, and took the diplomas of M.R.C.S.Eng. and L.R.C.P.Ed. in 1880. Entering the army as surgeon on February 5th, 1881, he attained the rank of colonel in less than twenty-three years, on September 8th, 1903, having had the good fortune to gain special promotion for war service on two occasions. He was specially promoted to surgeon lieutenant-colonel on November 18th, 1896, for his services in the Dongola campaign, and to the higher rate of pay as lieutenant-colonel on October 15th, 1898, for gallantry in the battle of Khartum. As colonel he served as principal medical officer of the London district. On May 13th, 1908, he was promoted to surgeon-general, and went to India as principal medical officer of Bombay, the 6th Division. On December 21st, 1911, he was appointed principal medical officer at headquarters in India, and Director of Medical Services in India; and on June 1st, 1914, was appointed Director-General of the Army Medical Services, with the rank of lieutenant-general, succeeding Sir Launcelotte Gubbins in that post.

During the thirty-three years he had served in the army before becoming Director-General, he had seen a great deal of active service. In the Dongola campaign of 1896 he served as senior medical officer of British troops, was mentioned in dispatches in the *London Gazette* of November 3rd, 1896, and was promoted to surgeon lieutenant-colonel, and received the Egyptian medal with a clasp, and the fourth class of the Osmanieh. In the Nile campaign of 1898 he served as senior medical officer of the 1st Brigade, British Division, and took part in the battle of Khartum, where he was dangerously wounded, and had his horse shot under him. He was himself shot through the chest by a bullet, which apparently should have pierced his heart, and used to account for his not being killed on the spot by saying that his heart must have been in his mouth at the time. For his services in the Nile campaign he was mentioned in dispatches in the *London Gazette* of September 30th, 1898, and was specially promoted to the higher rate of pay as lieutenant-colonel, and received the medal for the campaign, a clasp to the Egyptian medal, and the third class of the Medjidieh. He then served in the South African war from 1899 to 1902, first in charge of the Imperial Yeomanry hospital, afterwards as principal medical officer of a general hospital, and as commandant of Deelfontein district. He took part in operations in the Transvaal, the Orange River Colony, and Cape Colony, was mentioned in dispatches in the *London Gazette* of April 18th, 1901, and received the Queen's medal with three clasps, the King's medal with two clasps, and the C.M.G.

Two months after his appointment as Director-General the great war of 1914-18 began, and a month later he went to France as Director-General of the Medical Services of the British Armies in the field, and as Chief Commissioner of the British Red Cross, and of the Order of St. John of Jerusalem. It was, of course, quite beyond the power of one man to fill these posts and at the same time carry on what might be called the ordinary work of Director-General. So, while Sloggett remained on active service, Sir Alfred Keogh rejoined the services from retirement to carry on the duties at home. In France Sloggett remained for nearly four years, until in June, 1918, his four years' term of office as Director-General came to an end. Many were of the time of opinion that he should have been specially retained in the post he had filled so well until the war came to an end; the authorities, however, decided otherwise, and he was placed on the retired list from June 1st, 1918. For his services during the war he was mentioned in dispatches seven times, in the *London Gazette* of February 17th, 1915, July 10th, 1915, January 4th, 1917, May 29th, 1917, December 24th, 1917, May 25th, 1918, and October 21st, 1918; and received the K.C.B. in 1915, the Legion of Honour, Grand Officer (2nd class), in 1915, the Order of King Leopold of Belgium, Commander (3rd class), in 1916, the K.C.M.G. and K.C.V.O. in 1917. Besides these honours he had been appointed a Knight of Grace of the Order of St. John of Jerusalem in 1898, he received the C.B. in 1910, and in 1917 was elected a Fellow of the Royal College of Surgeons of England.

Sir Arthur Sloggett was a great administrator, as his work shows. He had the qualities of tact, tolerance of other people's opinions, and good capacity for business. Not only could he see things from another man's point of view, but he could induce other men to see them from the point of view of others, as well as their own. In the war he had serving under him a large number of men of great reputation in their profession in civil life, all entitled to consider themselves leaders and experts in their own line; most of them quite ignorant, to start with, of military routine and military duties, but all anxious to do their best to help their country in its time of need. By his tact and capacity he got the best work out of all his staff, and made the medical services of the army work as one harmonious whole. When he laid down his office he addressed to the Hon. Sir Arthur Stanley, chairman of the Joint War Committee of the British Red Cross and the Order of St. John, a letter in which he characteristically gave all the credit for the successful running of the medical services in the war to those who had served under him.

In 1881 he married Helen, daughter of Mr. J. R. Boyson, formerly Solicitor-General of Madras, and had one son, Lieut.-Colonel A. J. H. Sloggett, D.S.O., late Rifle Brigade, and two daughters.

The funeral service was held in the chapel of the Queen Alexandra Military Hospital, Millbank, on December 2nd. The King was represented by Lieut.-General H. B. Fawcett, Director-General of Medical Services, the Duke of Connaught by Major-General Blackwell, and the Army Council by General Sir Walter Braithwaite, Adjutant-General to the Forces, and Sir Herbert Creedy, permanent Under Secretary of State for War. The interment afterwards took place at St. Peter's Church, Petersham.

We are indebted to Sir GEORGE MAKINS, G.C.M.G., Past-President of the Royal College of Surgeons of England, for *the following appreciation:*

Sir Arthur Sloggett's distinguished career in the medical services of the army will no doubt receive adequate notice in your columns, but a note embodying the impressions of a civilian surgeon who witnessed the part he took in the great war may not be out of place.

The early months were unfortunate for Sloggett in that after being responsible for the exacting duties concerned with the mobilization, he fell ill, and after a short interregnum Sir Alfred Keogh was recalled to take his place. When he had recovered, the somewhat hazardous experiment was decided upon of establishing a Director-General at the War Office and a Director-General Overseas, and it says much for the character of both these officers that the arrangement worked excellently well for the next three years. Sloggett was appointed to the latter post, and was sent to France, where he had to create and consolidate a novel position, a matter calling for tact and ripe judgement. The task was speedily accomplished, and it may well be that his new post was really better suited to his special capabilities than that at the War Office in London.

His success in the field, I think, depended mainly on two qualities: (*a*) his unusual capacity for drawing men together and inciting them to work harmoniously, and (*b*) the breadth of view with which he regarded proposals that might be made to him. In developing these two theses I would first dwell upon his shrewd judgement and knowledge of men; this aided him in the choice of his personal staff: each member was selected on account of special fitness, even including one who by his instinctive sense of regulations was competent on occasions to modify the somewhat generous promises made by his chief. He treated the members of his staff as personal friends, and I think no one could have been better served. He drew no distinction between civilian consultants or Territorial officers and those of the regular service; from either he was open to receive suggestions, and he made the best of the opportunities thus afforded. An effective liaison was developed between the British and Allied medical services which was of value in creating mutual respect and friendship. Lastly, from this point of view, the relations which he maintained with the various voluntary associations must be mentioned. He acted as the representative of the British Red Cross Society and of the Order of St. John of Jerusalem, and was accustomed to refer to the conjunction of these two bodies with the medical service as a "trinity." He was liberal in his dealings with the various voluntary hospitals, and there can be no doubt that as a consequence of the attitude he took up the British soldier got the greatest advantage he could from these sources.

Sloggett's breadth of view had far-reaching influence on the strictly professional work of the medical service. He was not bound by tradition or pride in the corps, but was keen and ready to receive suggestions from each and all. His common remark was "Let every man have his chance," and in consequence many valuable suggestions bore fruit. Not a little of the advance made in front line treatment, the special arrangements made for cranial and abdominal wounds, fractures, and burns were made possible by the facilities readily provided by the Director-General. Again, the same may be said of the various research units established, and in all these matters he was actively supported by his colleague Sir Alfred Keogh at the War Office.

Finally, I would like to add the testimony of an old friend to his delightful hospitality. All who had occasion to visit his headquarters were met with his genial smile and treated to the best he had to give. This genial reception, moreover, was not confined to the manners of the chief; his precept and example were adopted by every member of his staff, and many of us retain the happiest memories of our visits.

Lieut.-General Sir CHARLES BURTCHAELL, K.C.B., who succeeded Sir Arthur Sloggett as D.G.M.S. British Armies in France, writes:

Sir Arthur Sloggett was unquestionably the most remarkable and the best known of a small group of distinguished men who were the outcrop of some 109 officers commissioned in the year 1881 into what afterwards became the Royal Army Medical Corps, and who, having taken part in all British campaigns since 1882, came to hold positions of high importance and responsibility during the great war. Such were, to mention but a few, Major-Generals W. Babtie, T. P. Woodhouse, T. J. O'Donnell, M. W. O'Keeffe, R. H. S. Sawyer, R. Porter, W. G. A. Bedford, and W. G. Birrell. Arthur Sloggett conformed to no type in character or temperament, and those who knew him best and understood the soul within the man will no doubt agree with me, who was his intimate assistant for many years, and his fast friend up to the end, that they never met any other man quite like him in any sphere of life. But, lest there should be a wrong impression of what we, who were in close touch with him, thought, let me say at once we loved him and served him loyally and cheerfully. Why? Because we knew that behind all his actions and thoughts was a good nature of unusual stability, a genuinely kind heart, and an earnest desire to help in any possible way to bring happiness to his fellow men, and that he never bent to crooked ways. His gay vitality was infectious and created an atmosphere of happiness for his immediate entourage in France. But long before he came prominently before the public eye as Director of Medical Services of the British Armies fighting in that country, he had done much to earn the esteem, gratitude, and affection of the Royal Army Medical Corps as an administrator in London, Poona, and of His Majesty's Forces in India. He ever had the advancement of the work of the corps at heart, and was unfailing in his efforts to promote contentment among those serving under him. He was instrumental in bringing together in India some of the best athletic teams which the corps produced.

He was a remarkably shrewd judge of men and of the vagaries of human nature. His power as a peacemaker was unique among men in his position. Should a cloud of dissension arise among any set of people of any station in any part of the vast machine under his direction, it was dissipated quicker than it came through his tact and kindly bright manner and shrewd common sense, which he administered with a resourcefulness quite outside the capacity of most men. If a disagreeable thing had to be done it was accomplished in such kindly settings that as a rule no unpleasant taste was left, and, generally speaking, the victim emerged with a feeling that he could not have been better treated. Of course, in the position Sloggett occupied he would not have been human if he did not occasionally commit an error of judgement or allow his exuberant spirits to carry him over the borderline which some people marked out as the limit of circumspect discretion. Still, his errors were very few and very trivial, and his lapses quite harmless, and laughable, and in their sum total counted as nothing compared with the high and progressive standard of efficiency he maintained through the influence of his personality over all those who were in control of this or that in the multitude of sectors which made up the organizations for the relief of the human sufferings brought about by the war.

His part in working up into friendly co-operation the functions of the medical elements of the Regular Army with those of the British Red Cross Society and the Order of St. John, and creating a single harmonious body out of the consultants of various grades, is well known. Supposing we put the question to those in the best position to know: "Would the lamentable amount of suffering endured by the gallant men who held the line in France throughout those three and a half years of war have been less had someone other than Sir Arthur Sloggett directed the medical services?" The answer will undoubtedly be, "*No*, and it might have been more." His breezy cheerfulness lasted up to his retirement from France. The time between the date of the War Office notification and his departure was about five days, during which the medical services were brought nearest to a point of failure ever reached. The best part of five British Divisions operating with the French had been driven out of their positions and thousands of British soldiers were scattered through French army hospitals even as far south as Biarritz. The 20,000 beds at the Etaples base had been put out of action by enemy bombers, who destroyed the railway. Sir Arthur

this period packed up and left, saying, "Well, dear, old boy, I hand over to you. Good luck."

After the war Sir Arthur held the appointment of Colonel Commandant R.A.M.C. for several years, and up to his death he was, as always, in close touch with everything of interest to the corps he loved so well. Only a few weeks ago he said to me, "I may go out any day, but never mind, I have had a good life." He thus looked to the end of this earthly sojourn with the cheerful courage which carried him so usefully and gallantly through life. We are glad he died in the way he expected and wished to die, without pain or suffering, and we say "Vale" with an affection and remembrance that cannot be effaced.

Lieut.-Colonel A. E. J. LISTER, I.M.S. (ret.), sometime surgeon to H.E. the Commander-in-Chief in India, writes:

Many will write of Sir Arthur Sloggett's brilliant achievements. May I just pay a personal tribute as showing his relations with his junior officers? I was his medical attendant in Simla for some slight ailments, and saw a good deal of him in 1912-13. Though I was a junior captain and he was the Director of Medical Services, he was quite one of the most considerate of my patients. He knew the life of a staff surgeon was at times difficult, in the hills. For a slight service, a little beyond the actual scope of my duties, for which some men in his position would have barely thanked me, he gave me a handsome piece of plate. This was typical of the man. It was his kindly consideration which endeared him to his juniors. He never made one feel one was under his orders. He was indeed what we called in India a "pucca Sahib" to work under.

[The photograph reproduced is by Elliott and Fry, London.]

LAURENCE BALL, M.D., F.R.C.P.,

Joint Professor of Medicine in Birmingham University, and Physician to the Queen's Hospital.

WE regret to announce that Professor Laurence Ball died at his consulting rooms in Newhall Street, Birmingham, on Wednesday, November 20th. He had previously appeared to be in his usual health, and his death came unexpectedly and with tragic swiftness.

Laurence Ball was born in Birmingham in 1884, and was the only son of an architect in that city. He received his medical education in the Birmingham Medical School, and graduated M.B., B.S.Lond. in 1907; four years later he obtained the diploma L.R.C.P., and in 1921 he proceeded M.D.Lond., winning the University gold medal. In May, 1923, he was elected a Fellow of the Royal College of Physicians of London. His resident appointments included: house-physician and house-surgeon at the Birmingham and Midland Hospital for Sick Children; house-physician at the Queen's Hospital for one year; and resident medical officer at the Birmingham General Hospital for one year. After holding these he undertook post-graduate study in London. His first honorary appointment brought him to the staff of the Queen's Hospital as pathologist and assistant physician; he became honorary physician to the same hospital in 1926, the year in which he was appointed joint professor of medicine in the University of Birmingham, after having held for several years a lectureship in pathology.

His interests and activities were wide and varied. He maintained his early interest in pathology, and was a member of the Pathological Society of Great Britain. The legal aspect of medicine also occupied much of his thought, and he was a member of the Medico-Legal Society. He was a member of the Association of Physicians of Great Britain and Ireland. His service during the war took him to France and Italy, and covered almost the whole period of the conflict. He gained the Military Cross, and was mentioned in dispatches by General Sir H. C. O. Plumer for gallantry in the field while serving with the Midland Casualty Clearing Station.

Laurence Ball was a cultured and travelled man, with a keen and discriminating artistic sense which guided him in letters, in music, and in a lively appreciation of the best in art and architecture. A large company, representing all sections of the University and his medical colleagues, assembled at the funeral to honour his passing.

Sir CHARLES GRANT ROBERTSON, Vice-Chancellor of the University of Birmingham, writes:

Laurence Ball was essentially a son of the city of Birmingham and of its University and Medical School. I first came into close personal touch with him some five years ago in two ways—as a member of the board of management of the Queen's Hospital, and in connexion with the big scheme, now, I hope, approaching fruition, for a new teaching hospital and the reorganization of our Medical School, in which I was both officially and personally deeply interested. Shortly after that he was appointed one of our joint professors of medicine—at a considerably earlier age than usual—but the appointment was a proof of the position which he had already won for himself, despite his great modesty. I cannot, of course, speak with any specialist knowledge of his professional skill and clinical ability; but for us laymen, both at the Queen's Hospital and in the University, it was clear that all who were best qualified to judge regarded his future in his profession as already assured. Ball threw himself with a fine loyalty into all his professorial work. Again I cannot speak from direct knowledge; but I have every reason to know that he was an able and inspiring teacher, and very popular with the students in his faculty. He served on the University Library Committee, and was a great help in every way: and I had many occasions to discuss with him large issues of policy in connexion with the new hospital scheme and the Medical School, to which he brought a deep interest in the development of medical science, a wide clinical outlook, and a real grip of principles. He had a high sense of duty, and always conveyed—without ever mentioning it—his recognition of what was incumbent on him, not merely as a professor of medicine, but as an officer of the University. I regard his premature death as a very heavy blow to medical science and our Medical School, for he had just reached the age when for the next fifteen years or so he would have been able to give us of his best—and it would be his best that he would always have given. Naturally shy and retiring, he opened out wonderfully when you came to know him, and the better I knew him the more I was impressed with his knowledge, his judgement, and the real charm of character that underlay his modesty.

Mr. A. W. NUTHALL writes:

Ball joined up early in August, 1914, and went to France with the South Midland Casualty Clearing Station in April, 1915, being stationed at Hazebrouck, Amiens, and somewhere near Corbie until the middle of 1916, when, at his own request, he joined a battalion as regimental medical officer and went to Italy. He served for the full duration of the war. His professional interests were aroused and his outstanding ability exerted to its utmost by the problems presented by war conditions. The effects of chlorine gas (April, 1915) he investigated with the utmost thoroughness; the psycho-neurological symptoms of shock and fatigue, chest wounds, trench fever, were all matters of deep concern to him professionally. He found time to do necropsies under the most awkward conditions, and to keep notes on his cases. To his colleagues he was most helpful both in advice and practice (when he fell to and did a bit of surgery or gave anaesthetics). That he carried out his regimental duties with equal success was recognized by the award of the M.C. in Italy. But to those who knew Ball under war conditions the memory is not of the student, but of the personality of the man. Steady and unperturbed, with a sense of humour that met occasions of formality and of stress alike, a capacity to make the best of, and add spice to, any situation, Ball displayed, in company with his intimates, a side to his character in keeping with his red hair and twinkling blue eyes. He brightened the war for many of us, and, in the words of the senior service, pulled his weight and was a good messmate.

Dr. J. G. EMANUEL writes:

The sudden and untimely death of Laurence Ball is an irreparable loss to the Birmingham Medical School. Young as he was, his profound knowledge and mature judgement caused him to be much sought after both by the medical and the legal profession. In times of sickness his medical

colleagues always turned to him, and he never failed to respond. A most successful teacher, his ideas were clear, his exposition of them lucid. Students thronged to his ward classes and out-patient clinics—and students are severe critics. There was always much competition for the post of his house-physician at the Queen's Hospital. He possessed the rare gift of being able to impart to others the knowledge he had acquired from practice and wide reading, and it was an intellectual treat to hear him present an unusual case. He was a quiet and unostentatious man, but had a most attractive personality and a great capacity for friendship. At committee meetings he said little, but when he spoke his words carried weight. He was a devoted son, and the death of his mother less than twelve months ago left its mark upon him. Cut off at the early age of 45, in the midst of a successful career, his death leaves a gap it will be difficult to fill.

DR. T. L. HARDY writes:

May I add my tribute to the memory of Laurence Ball, whose untimely death has removed from the ranks of the profession a sound physician and teacher of medicine, and a most lovable personality. I have enjoyed the privilege of his friendship for ten years, time enough to appreciate his many sterling qualities, for he combined in rare measure great modesty, charm of manner, and a love of the beautiful things in life and no less of its simple pleasures. He had a great capacity for friendship, a generous tolerance of the shortcomings of others, and he spoke ill of no man. Ball was a man of retiring disposition, rarely obtruding his opinions, but never failing those—and they were many—who sought them. It is not many years since, unknown to his friends, he sat for the final London M.D. He confessed later, after having won the gold medal, that he had entered with some misgivings as to how he would fare after so many years of unfamiliarity with the ordeal of examination. He had a great sense of humour, and his laughter was of a most infectious type. He undoubtedly enjoyed life to the full, loving especially the big open spaces, and was never so content as when tramping among the hills of Cumberland or Wales with his friends. On such holidays his companionship was a thing of delight, for he was a man of wide culture, and could talk with learning on many topics. He was, too, an amateur photographer of distinction, and his keen sense of beauty resulted in work of very high artistic merit. With children he possessed something akin to genius, and the joy his company brought to many families is a thing not easily forgotten. Ball contributed but little to medical literature and to research, holding the view that these things interfered with the proper discharge of his teaching duties, to which his energies were mainly devoted during his all-too-brief span of life. As a teacher he was outstanding, whether in the lecture theatre, at the bedside, or in the post-mortem room, while his presentation of a case at a medical society was a model of lucid exposition. He was no specialist—indeed, he heartily disliked the term—but he possessed a wide knowledge of medicine in all its branches, knowledge which had been built up during many years in the post-mortem room. He was in the fullest sense of the term a general physician, with a maturity of judgement remarkable for one of his years.

ARTHUR TEMPLER DAVIES, M.D., F.R.C.P.,

Consulting Physician, Royal Hospital for Diseases of the Chest, and the Metropolitan Hospital.

DR. ARTHUR TEMPLER DAVIES, whose death occurred on November 24th, at his home at Welwyn, Herts, was born in London in 1858. He was the second son of Herbert Davies, M.D., F.R.C.P., a physician long attached to the staff of the London Hospital. Educated at Charterhouse, of which school he was a Natural Science Exhibitioner, he proceeded to Trinity College, Cambridge, where he graduated in 1880, obtaining a second class in the Natural Science Tripos of that year. After leaving Cambridge he went to St. Bartholomew's Hospital, and in 1894 became M.B. of his university. He then filled the positions of house-physician and casualty physician at the hospital. On the termination of these appointments Dr. Davies, following in his father's footsteps, began practice in the City, in his father's house, 23, Finsbury Square. In 1891 he was created M.D. of Cambridge University, and became a Fellow of the Royal College of Physicians in 1894.

The whole of his professional life was spent in the City, and at an early date he was successful in obtaining the important post of physician to the Bank of England, a position his father had held before him. He soon became known as a sound physician, and held a large number of valuable City appointments, of which physician to the North British and Mercantile Assurance Company, the Northern Assurance Company, the Metropolitan Life Assurance Society, and the Westminster Bank may be mentioned. These appointments brought Davies into touch with many sides of City life, and besides his insurance and bank work he enjoyed a considerable private practice. In addition to these activities he was physician to the Royal Hospital for Diseases of the Chest, the Metropolitan Hospital, and the Royal Hospital for Consumption at Ventnor. All of these hospitals he served with diligence and skill, and until he died was connected with all three, either as consulting physician or senior physician. In earlier days he was a regular attendant at the meetings of the Hunterian Society, the Aesculapian Society, and the Society of Life Assurance Medical Officers. In all of these societies he worthily filled the presidential chair. His contributions to the medical press were not numerous, but he edited his father's *Mechanism of the Circulation of the Blood through Organically Diseased Heart*, and published his Hunterian Oration, under the title "Organo-therapeutics—ancient and modern."

The family of Dr. Arthur Davies occupies an interesting position in the history of our profession, and forms an instance of medical appointments being handed down from father to son. In this case Dr. Thomas Davies, the grandfather, began practice in New Broad Street in the early years of the nineteenth century, and was physician to the Royal Hospital for Diseases of the Chest. In time his son, Dr. Herbert Davies, succeeded to the same position, and after him his son, the subject of this memoir, followed and became physician to the hospital. Thus for more than a hundred years the Royal Hospital was served by a member of the family of Davies. They were all also Fellows of the Royal College of Physicians. Dr. Thomas Davies had studied under the great Laennec, and was responsible more than anyone else for introducing into this country the principles of auscultation and percussion. He lectured upon these subjects at his house, and large numbers of the profession crowded to hear his discourse.

The busy life of Arthur Davies has now closed, and he leaves behind him a memory of high purpose and kindliness of heart which brought him many friends and no enemy, and his sound judgement will be missed by all those corporations and companies for which he acted as medical adviser.

A. C.

The following well-known foreign medical men have recently died: Professor FELIX DE SZONTAGH, director of the children's clinic of the Stefan-Tisza University at Debreczen, aged 70; Geheimrat Dr. ERNST GRAEFE, formerly head of the surgical clinic at Erlangen for many years; Dr. FRITZ SEYDEL, a leading Breslau ophthalmologist, aged 60; Dr. VICTOR CHAPPET, honorary physician to the Lyons hospitals, aged 78; Dr. FERNAND DURODIÉ formerly president of the Société de Médecine et de Chirurgie of Bordeaux, aged 82; Dr. SPINELLI, a Naples gynaecologist; Dr. VICTOR RUNOW, an eminent physician of Copenhagen, aged 58, of cerebral haemorrhage; Dr. JAIME FERRAN, a Spanish bacteriologist, who introduced a prophylactic vaccine against tuberculosis, aged 77; Dr. AMICO BIGNAMI of Rome, where he was professor of general pathology, and for many years senior physician to the United Hospitals; Dr. KARL VON DEN STEINEN of Berlin, professor of folklore, and formerly a psychiatrist, aged 74; and Dr. GABRIEL BILLARD, professor of physiology at the medical school at Clermont-Ferrand, of pneumococcal meningitis, aged 56.

Medical News.

THE winter dinner of the Australian and New Zealand Medical Association in England will be held at the Trocadero Restaurant, Piccadilly, on Friday, December 13th, at 7.45 for 8 p.m. Mr. F. F. Muecke will preside. Sir James Parr, High Commissioner for New Zealand, will be present as the official guest of the association. All medical visitors from Australia and New Zealand, whether members of the association or not, are invited to be present. The honorary secretaries are Mr. E. T. C. Milligan and Mr. Philip J. Jory, 6, Queen Anne Street, W. 1 (Langham 1579).

AN evening meeting of the British Institute of Philosophical Studies will be held at the Royal Society of Arts, 18, John Street, Adelphi, W.C., on Tuesday, December 10th, at 8.15 p.m., when Mr. G. Lowes Dickinson will lecture on "The value of art." Admission is by ticket, which may be obtained from the Director of Studies of the Institute, 88, Kingsway, W.C.2.

THE twentieth annual exhibition of electrical, optical, and other physical apparatus will be held by the Physical Society and the Optical Society on January 7th, 8th, and 9th, 1930, at the Imperial College of Science and Technology, South Kensington. As on previous occasions, there will be a trade section and a research and experimental section.

UNDER the auspices of the Fellowship of Medicine a lecture on inflammations of the external ear will be given by Mr. John O'Malley, on Monday, December 9th, at 5 p.m., at the Medical Society's lecture hall, 11, Chandos Street, Cavendish Square. On December 11th, at 2.30 p.m., Miss Huxley will hold a clinical demonstration at the South London Hospital for Women, 103, South Side, S.W.4, for women graduates only; at 6 p.m., on the same day, Dr. T. F. Cotton will give a demonstration at the National Hospital for Diseases of the Heart. No fees are chargeable for the lecture or either demonstration. There is still a week left of the two last special courses arranged by the Fellowship for this year; these are the afternoon course at the Infants Hospital, under the direction of Dr. Eric Pritchard, and the course for general practitioners at the London Temperance Hospital each afternoon from 4 to 5.45 p.m. In addition to the special courses, the Fellowship of Medicine arranges a general course, which consists of the clinical practice of its associated hospitals. A programme is provided with the clinics arranged under subject headings, and holders of the comprehensive tickets issued from one week to one year are free to make out their own time-table in accordance with their requirements. This course is continuous throughout the year. Syllabuses of all courses, including the list for 1930, are obtainable from the secretary of the Fellowship, 1, Wimpole Street, W.1.

THE annual British Serbian reunion dinner was held in London on November 30th, when the chair was taken by Mr. P. H. Mitchiner, F.R.C.S., president of the Serbian Units Branch of the British Legion, and among those present were the Minister for Jugoslavia in London (M. Georges Diouritch), Sir James and Lady Berry, Dr. Alice M. Hutchison, and others to the number of about a hundred. M. Diouritch expressed his pleasure at addressing this gathering for the fourth time. The occasion recalled the time, fifteen years ago, when Serbia lacked everything; although assistance was forthcoming from various countries, the most appreciated of all was that which was combined, as was the help from Great Britain, with personal service. Scottish women had completed in Dr. Katherine McPhail's children's hospital at Belgrade a memorial in the shape of certain cots to Dr. Elsie Inglis, and the speaker might be further extended by other cots in what was the erbia. Lieut.-Colonel Kidd, R.A.M.C., described a recent visit to Serbia and the grateful friendliness with which he was received; Serbian traditions had not been broken, but had been strengthened, by the experiences of the war. Mr. Mitchiner added other recollections, and the proceedings closed with the singing of the British and the Jugoslav national anthems.

THE council of the Royal Institute of Public Health has made the following appointments as Harben lecturers: 1930. Professor William H. Park, M.D., LL.D., Sc.D., director, bureau of laboratories, Health Department, New York City. 1931. Dame Louise McIlroy, D.B.E., M.D., D.Sc., professor of obstetrics and gynaecology, University of London, Royal Free Hospital. The council has made the Smith Award for 1930 to Dr. H. R. Kenwood, C.M.G., emeritus professor of hygiene in the University of London.

ON his retirement from the post of medical officer of health for the Weston-super-Mare urban district, after eighteen years' service, Dr. John Wallace has been presented with an inscribed silver salver on behalf of the members and officers. The presentation was made by the chairman of the council.

DURING the period 1928-29, the Manchester, Salford and District Mothers' Clinic, which has been in existence for three years, gave advice on contraception to 271 new applicants, bringing the total, since the opening, up to 1,028. The 271 applicants between them had already had 1,015 pregnancies, of which 102 ended in abortion or miscarriage and 38 in stillbirth. Of the 873 children born alive, 67 died under one year, representing an infant mortality of 76.7 per 1,000 live births. Reckoning mortality rates on the basis of the proportion of total deaths (including abortions, stillbirths, etc.) to total pregnancies, the figures for this series are 207 in 1,013, or 204.3 per 1,000 pregnancies.

MR. ROBERT MOND has given £25,000 to the extension fund of the Infants Hospital, Vincent Square, Westminster, payable over the next seven years. This benefaction brings the total amount given or promised to the extension fund to over £100,000.

THE late Lord Forteviot of Dupplin Castle, Perthshire, has bequeathed a legacy of £10,000 to the Perth Infirmary, to be retained intact as an endowment capital sum, so that the income thereof may be applied for the maintenance of the maternity ward.

DR. R. A. LYSTER, formerly medical officer of health to the Hampshire County Council, has been elected a member of Bournemouth Borough Council.

THE second International paediatric congress will be held at Stockholm from August 17th to 20th, 1930, under the presidency of Professor Jundell.

THE Riberi prize of 20,000 lire is offered by the Royal Academy of Medicine of Turin for the best work on a medical subject submitted before December 31st, 1930. The work, which must be printed or typewritten, may be in Italian, Latin, French, English, or German.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to ***The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.***

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The ***TELEPHONE NUMBERS*** of the British Medical Association and the *British Medical Journal* are *MUSEUM 9861, 9862, 9863,* and *9864* (internal exchange, four lines).

The ***TELEGRAPHIC ADDRESSES*** are:

EDITOR OF THE *BRITISH MEDICAL JOURNAL, Aitiology Westcent, London.*

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*

MEDICAL SECRETARY, *Mediscera Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone 24361 Edinburgh).

QUERIES AND ANSWERS.

CHRONIC URTICARIA.

"X. Y." (Belfast) wishes to hear of any effectual treatment in a case of chronic urticaria, for which no cause can be assigned.

TREATMENT OF LONG-STANDING EPILEPSY AT THE MENOPAUSE.

"S. O." asks for advice in treating a bipara, aged 47, who has suffered from both grand mal and petit mal since she was 15. The major fits occur in the early morning and at the menstrual period. The minor fits occur between the menstrual flow, and may be as frequent as 300 a day. Though her periods are now very irregular, since she is at the "change," yet the greater fits still occur at the time when, in the ordinary way, the menstrual flow would have taken place. She cannot take bromide, but luminal sodium does to some extent control the grand mal, though far from completely.

STIMULATION OF BREAST SECRETION.

DR. BLANCHE HENDELSON (West Hartlepool) writes: In reply to Dr. L. L. Steele (November 30th, p. 1040), I would suggest that the patient should not be given stout. She should have quiet sleep in the afternoon and at night, undisturbed by the crying of the baby or the snoring of others. She should have only a moderate diet, not a generous one. Fruit and plenty of water are essential, and a sufficient daily motion of the bowel should be secured, but salts or salines should not be used for this purpose. She should wear well-fitting shoes and not be on her feet all day. Skilled massage of the breasts is of great importance. Other instructions may be found in Sir Truby King's manual on *Feeding and Care of Baby* (2s.). Ante-natal treatment is necessary to ensure a good supply of breast milk; it can, however, be increased, or even re-started after cessation of lactation, by such means as the above.

DR. BARBARA J. HICK (Bridlington) writes: The most efficient stimulus for milk secretion is a ring poultice of linseed, with a little mustard mixed in, placed over the breast, but avoiding the nipple.

PROLONGED ADMINISTRATION OF THYROID.

"E. R. G." asks for information about the effect on the heart of taking thyroid in small doses over a long period, and for suggestions which may help him in the treatment of the following case. For some twenty years his patient, while living abroad, had taken thyroid for the treatment of obesity. Her pulse is at times irregular, though not always, its rate being about 90 a minute, and her systolic blood pressure is 150. The heart is a little dilated, and the second sound is accentuated in the aortic area; there are no murmurs. Auscultation of the lungs has revealed moist sounds at the right base, but none at the left. The patient feels oppression and discomfort when she crosses her arms in front or leans forward, and on slight exertion she feels faint and exhausted. She is not taking thyroid now.

LETTERS, NOTES, ETC.

ROSS AWARD FUND.

SIR JAMES BARR informs us that an important donation of £2,000 has just been made to the Ross Award Fund by the Government of India. This generous gift from India brought the total amount of the fund up to £12,682 on November 27th. Donations should be sent to Lloyds Bank, Ltd., 110, High Street, Putney, S.W.15.

THE SPINE OF GIDEON MANTELL.

IN the leading article in our issue of November 23rd (p. 969) on "Treatment of Scoliosis" it was suggested that the original specimen of Gideon Mantell's spine might be in the museum of St. Thomas's Hospital. This is erroneous. We are kindly informed by Mr. W. E. Thompson, the museum clerk of the Royal College of Surgeons of England, that the specimen is in the museum of the College in the Series of Acquired Deformities, No. 4808.1.

PREVENTION OF SCOLIOSIS.

DR. M. DOUGLAS (Bolton) writes: May I be permitted to express the opinion that no consideration of scoliosis can be complete which does not take into view the important work of Mr. F. Matthias Alexander on the constructive conscious control of the individual? It is true that his methods primarily have nothing to do with the treatment of scoliosis, but it is true also that, as the result of the application of his principle, scoliosis is eradicated and could be prevented. The importance of his discovery of defective sensory appreciation reveals itself no more plainly elsewhere than in that appearance to which we give the name scoliosis, and which is not always a distinctly pathological condition, but often a means whereby the normal accomplish some or other of their daily tasks. Were children trained in the application of Mr. Alexander's principle there would be no need for the treatment of scoliosis, for as scoliosis is an incident in automatic learning through a defective sensory appreciation, with a reliable sensory appreciation and conscious learning on a general basis no such incident could occur.

THE CANCER PROBLEM.

IN the course of a communication relating to Mr. Mansell-Moullin's letter on the cancer problem (November 16th, p. 931), DR. A. T. BRAND writes: To my mind the problem is—When does the medical profession intend to accept the fact that it has long since been established, proved to demonstration that cancer is due to an extrinsic pathogenic micro-organism. Two eminent British pathologists have been successful in isolating a bacterium from every species of malignant neoplasm. Pure cultures have been made and injected into lower animals with the invariable result of forming malignant tumours in these, from which the bacterium has been recovered, thus fulfilling the law of Koch. Mr. Mansell-Moullin states that no surgeon has ever been known to become infected in the course of operations on cancer; but at least three such cases of infection received during operation on cancerous growths by earlier surgeons have been reported. Mr. Mansell-Moullin appears to believe that there is something distinctive about the cancer cell. As a matter of fact, cancer cells are indistinguishable from normal cells, and the microscopist can only diagnose a tumour as malignant from the peculiar manner in which it is related to its environment, apart, of course, from the detection of the presence of the intracellular micro-organism. It is futile to suggest that chemical or any other kind of physical irritation whatever can possibly give rise to a specific disease like cancer, any more than cold and wet can cause pneumonia or a shaving brush cause anthrax. It is a fact that cancer cannot and does not attack the perfectly healthy individual. There must be an antecedent condition of vulnerability to the attack of the causal microbe, which may be induced by every variety of irritation, by obsolescence of organs, senescence, senility, chronic disease, etc. The role of irritation, etc., is one purely of predisposition: the disease appears *post* and not *propter* the action of these inciting agents.

THE ROYAL COLLEGE OF SURGEONS AND ITS MEMBERS.

DR. RICKARD W. LLOYD (London, W.) writes: In your issue of November 30th (p. 1035) I am represented as having said at the annual meeting of Fellows and Members of the Royal College of Surgeons of England that "there had been occasions in the past when the enthusiasm for this resolution was so great that the gates of the College had to be closed against the press of Members." As that does not correctly express my remarks, may I be allowed to say that it having been said at the meeting that little enthusiasm seemed to be associated with the meetings and that the average age of those who attended seemed to be about 60, what I then said was: "I am old enough to remember when the enthusiasm of these meetings was such that the theatre and its gallery were crowded; and also an occasion on which those assembling at the College, for an annual meeting which had been called, found the gates of the College closed, and in consequence proceeded to the Holborn Restaurant, where an informal meeting was held"? All that I wished to imply was that the apparent lack of enthusiasm might be accounted for by the perennial rebuffs to the resolution—that the Members should be represented on the Council—which has been annually carried. At those crowded meetings distinguished Fellows and Members from London and the country used to speak in support of the resolution. *Fiat justitia.*

TUBERCULOSIS MORTALITY.

DR. HARLEY WILLIAMS writes: In the course of an address in Edinburgh on November 6th, to a report of which Dr. W. Camac Wilkinson draws attention (November 30th, p. 1040), I stated that of all deaths which occur in Scotland between the ages of 15 and 25, no less than one-third are caused by pulmonary tuberculosis. The figure is taken from the Registrar-General's report for 1928. This, of course, is not the same as saying that one person out of three between these ages dies of tuberculosis.

ASTROLOGY ON A BUSINESS FOOTING.

WE have received the following letter from a gentleman in Bengal, who describes himself as professor in charge of the All India Astrological Home:

> "I take the liberty to inform you that I have established an astrological home at S—— the ancient seat of sanscrit learing. With this object in view I take the opportunity to inform you for the benifit of our mutual co-operation and to develop the business in question. I am willing to put in touch with the people of your place should you favour me by inserting my advertisement in your paper on mutual co-operation & on the following terms. (1) You are at liberty to draw 50 % of the amount so realised against advertisement. (2) To avoid any difficulty the advertisement should be published under your care. Further I beg to say that I wish to act for you as a representative, reporter and advertising agent in this side and am in a position to contribute your requirements. By the way I shall be glad to send you a copy of my prediction, should you furnish me with your date, time & year of your birth. Please furnish me per return mail, if possible, a few copies of your specimen copies, together with your advt. rates."

COULD PREHISTORIC MAN SEE IN THE DARK?

MR. H. A. FLEMING (St. Margaret's-at-Cliffe) writes: I venture to send the following note with reference to Dr. Arthur T. Todd-White's letter on the above subject (November 9th, p. 884). When living in British Guiana, twenty-five years ago, I was staying at Bartica, at the junction of the Essequibo, Mazaruni, and Cuyuni Rivers. Living in the house was a little Guiana Indian boy (Macoushi tribe), about 10 years old, who used to accompany the Indian crew who manned the canoe. One night, when returning to Bartica from the Mazaruni River, we ran into very bad weather; the night was pitch dark, so dark in fact that I could not see my hand at arm's length before my face, but this small boy could see what we could not see. Standing in the bow of the canoe he directed the crew through a number of sharp-pointed rocks in the river, and we arrived home without mishap. The incident is perhaps worth recording, as showing the extraordinary sight in the dark of aboriginal Indian children born in the dense forests of Guiana.

A COMMUNICATION over the pseudonym "MEDEXIL" has been received from India, but the writer has omitted to give his name and address.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 72, 73, 74, 75, 78, 79, 80, and 81 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumteuencies at pages 76 and 77.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 255.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

501. Diabetes of Pituitary Origin.

E. MARTIN (*Rev. Med. de la Suisse Romande*, September, 1929, p. 693) discusses the pathology of pituitary tumours, with special reference to their association with glycosuria, and notes that in 90 per cent. of these cases the tumour is benign, consisting typically of eosinophil cells; malignant tumours, in his experience, do not give rise to diabetic symptoms. Pierre Marie noted 33 per cent. of glycosuria in his series of cases of pituitary tumours; Borchardt reported 63 cases of true diabetes and 8 of simple glycosuria in 176 cases. The present author records the case of a woman, aged 42 in 1919, who then showed signs of nervousness and irritability; in 1921 she developed acromegalic features; between these years a small adenoma of the thyroid had been removed. The menstrual periods ceased and bitemporal hemianopia developed. Deep *x*-ray therapy gave improvement till 1923, when double temporal decompression became necessary; in 1924 she became worse, and hypophysectomy was performed by the "tunnelization" method. Great improvement followed; the vision became better, menstruation returned, the extremities decreased in size, but the features remained as before. The patient received a course of salvarsan some time later for a suspected syphilitic lesion, but the drug was not tolerated well. In 1928 there was a sudden onset of diabetic symptoms; glycosuria and acetonuria were well marked. Treatment with insulin was begun, 200 units per day being given at first; the dosage was gradually reduced, and the patient is now doing well without it, though taking 100 grams of carbohydrate daily. Martin remarks that this case gives some plausibility to the hypothesis that diabetes is due to a polyglandular disorganization; there was evidence not only of pituitary disorder, but also of thyroid, ovarian, and pancreatic abnormalities. He considers that neither pressure in the region of the fourth ventricle nor alteration in hypophyseal secretion is sufficient to explain acromegalic diabetes, either alone or combined. Other observers have found alterations in the pancreatic "islets" in pituitary tumour cases and also changes in the pituitary gland (notably diminution in the number of eosinophil cells) in diabetes; some have also detected degenerative changes in the region of the tuber cinereum. Martin is inclined to support the hypothesis of the existence of a pituitary "neurocrine" system, whereby the secretion is carried along the pituitary stalk directly to carbohydrate-regulator centres in the brain. He suggests that the diabetic syndrome may have been precipitated in his case by visceral damage caused by the salvarsan.

502. Infectivity Indicated by the Tuberculin Test.

[illegible] bacilli during a year and a half all [illegible]dren admitted to the Fuglebakken [illegible]. V. POULSEN (*Nordisk Medicinsk* , 1929, p. 615) has sought an answer to the question whether children who react positively to the tuberculin test are infectious, whatever the site of their tuberculosis might be. On an empty stomach gastric lavage was performed with 200 to 300 *c.cm.* of sterile water; the resulting sediment was examined under the microscope after staining with the Ziehl-Neelsen method, was cultivated on Petroff's medium, and was injected into guinea-pigs. Altogether 67 children, whose ages ranged from 2 months to 8 years, were thus examined. Tubercle bacilli were found in 24 cases, the positive findings being most frequent among the youngest children. Thus, among the 14 infants under the age of 12 months there were as many as 12 in whom tubercle bacilli were found, but they were detected in only one out of 12 children between the ages of 3 and 4 years. Of 6 children suffering from tuberculous meningitis 3 were found to harbour tubercle bacilli in the stomach. The author accordingly recommends that tuberculin-positive infants should be regarded as infectious cases, and should, if possible, when admitted to hospital, be accommodated in a special tuberculosis department.

503. Endocrine Disorders among Jews.

W. M. KOGAN-JASSNY (*Ose Rundschau*, October, 1929, p. 1) discusses the prevalence among Jews of diabetes, obesity, the gout and uric acid diathesis, and diseases connected with disturbances of the internal secreting glands such as the pancreas, thyroid, and hypophysis. He finds that of 200 cases of diabetes 150 patients (75 per cent.) were Jews; in the Soviet hospital and two other clinics out of 135 cases 80 patients (64 per cent.) were of this race, and, considering all the cases together, over 70 per cent. of diabetics were of Jewish extraction. Over a period of three years 144 cases of obesity were observed, and of these 95, or 66 per cent., were Jews, 49 of whom, or 53 per cent., suffered from gout. The author admits that it is a disputed point whether there is a special disposition of the Jews to hypothyroidism and Basedow's disease, but he finds that out of 282 cases of hyperthyroidism 160, or 57 per cent., were Jews, which he associates with the distinctly more nervous character of the Semitic race. He considers it probable that the prevalence among Jews of endocrine diseases which are associated with carbohydrate, fat, protein, and especially purin metabolism, is connected with the irritation of the sympathetic nervous system persisting through the ages, the sedentary habits enforced by confinement in the Ghetto, and the predominant meat diet containing an excess of protein and purin substances which have injurious influences on people who take but little bodily exercise.

504. Erysipelas in Children.

H. B. CUSHING (*Canadian Med. Assoc. Journ.*, September, 1929, p. 276) records his observations on 80 cases of erysipelas treated at the Alexandra Hospital, Montreal, during the last five years; 39 were under the age of 1 year, so that erysipelas was nearly ten times as common in the first year of life as in any other year of childhood. Three groups of cases were distinguished: (1) facial erysipelas, in which there was high fever and delirium, but with a brief course and almost invariable recovery; (2) erysipelas of one extremity, usually the leg, in which the toxaemia was less, and recovery practically always occurred in a brief period; (3) erysipelas of the whole body, in which the mortality was very high and the course prolonged and irregular. Children under the age of 1 year almost always developed this form of erysipelas, while in older children the distribution of erysipelas was the same as in adults—namely, facial in 20 per cent., involving one extremity in 10 per cent., and the trunk in 10 per cent. Although erysipelas is a contagious disease, in only two instances was there a history of possible exposure to any other case. No drug given internally, such as ergot, tincture of iron, or quinine, influences its course; local applications, such as carbolic acid, mercurochrome, corrosive sublimate, iodine, or ichthyol, do not stop its spread, though some may give temporary relief. Serum treatment is disappointing, and most benefit can be derived from general care and skilful nursing, with the use of some soothing lotion or ointment.

Surgery.

505. Cardiolysis in Adhesive Pericarditis.

L. TORRACA (*Arch. Ital. di Chir.*, August, 1929, p. 405) reports a successful case of cardiolysis for chronic adhesive pericarditis, and discusses the subject fully, citing records of 84 cases. The author's patient was a boy, aged 15, who was admitted to hospital with cyanosis, dyspnoea, distended jugular veins, a fixed cardiac impulse, hydrothorax, enlargement of the liver, ascites, and oedema. Subperiosteal resection of the fourth, fifth, and sixth ribs was performed. The boy rapidly improved after the operation, and two years later was reported in good health. Of 84 cases collected, 72 patients derived more or less benefit from cardiolysis, 33 were still well one year later, 15 after two years, 7 after three years, and 5 after four years. The deaths numbered 30, 4 following the operation closely.

506. Hernia of the Bladder.

E. SCIAKY (*Il Policlinico, Sez. Prat.*, September 30*th*, 1929, p. 1383) reports a case of diverticulosis of the bladder with protrusion into the right inguinal canal, and discusses the pathogenesis and symptoms of this condition. There are three varieties of hernia of bladder: (1) the extraperitoneal; (2) the paraperitoneal (entero-cystocele), the most frequent, in which the anterior portion of the sac contains intestine, the bladder [illegible] from behind; and (3) the very r[illegible] further subdivision distinguis[illegible] 53 per cent.); a femoral type (27 [illegible] type (17 per cent.); and a smal[illegible] including the ischiatic, perineal [illegible] forms. Distension and reduced contractility are frequent causes. Alessandri suggested that hypertrophy of the prostate,

stricture of the urethra, congenital diverticulosis, and congenital or secondary asymmetry of bladder constituted favourable conditions for the production of vesical hernia. The symptoms are: incomplete reduction of a hernial protrusion which changes in volume in relation to the bladder content and not to impulses at coughing; desire to void urine after reduction; tenesmus; and the necessity of changing the position of body and compressing the hernia when it is desired to urinate. Catheterization, cysto-copy, and cysto-radiography may be valuable diagnostic aids, but the condition is generally recognized during operations for hernia, in which case partial cystectomy is the only treatment. The prognosis is good.

507. Splenomegaly in Egyptian Patients.

H. E. S. STIVEN (*Brit. Journ. Surg.*, October, 1929, p. 230) considers that splenomegaly among the Egyptian fellaheen is due to heavy infections of bilharzia of the rectal or *Bilharzia mansoni* types. Splenectomy, although a dangerous operation, is the only treatment, and out of 350 cases so dealt with good results were achieved in 69 per cent. of the cases which could be traced. The mortality rate was only 19 per cent., whereas without operation the expectation of life is extremely small. It is important that pre-operative treatment should be given for at least a month in order that the Egyptian parasites may be killed by carbon tetrachloride; moreover, a full course of tartar emetic and a course of antisyphilitic treatment must be given. A mixture of rhubarb and soda, and subsequently of iron and arsenic, with a full nourishing diet for several weeks, renders the patient better able to stand the shock of the operation. An injection of pneumococcal vaccine is given the evening before operation; without this precaution pneumonia is a certain complication. After the operation no fluid is given for twelve hours, with a view to prevent haemorrhage from some unsuspected ruptured vessel; the patient is kept on a fever diet for five days, after which a purge may be given, and a nourishing diet commenced. As a rule patients are well enough to leave hospital after fifteen days, and in two or three months are fit for work. Although splenectomy is a dangerous operation the improvement in health obtained by its means is held to justify the risk.

508. Thrombosis of External Pudic Artery in Chicken-pox.

A. H. BISSELL (*Arch. of Pediat.*, September, 1929, p. 588) records the case of a girl, aged 8 years, who on the fifth day of a mild attack of chicken-pox became very ill, with a temperature of 105°, and complained of severe abdominal pain, most marked on the left side just above the inguinal region and in the upper and inner part of the left thigh. The skin of the lower abdomen was dark red in colour; there was swelling in the inguinal region, and an ill-defined area showing early necrosis in the centre of the inguinal swelling. A culture of *Staphylococcus aureus* was obtained after forty-eight hours' growth. On the ninth day a well-demarcated area of gangrene was excised. This exposed the left pyramidalis and rectus on the inner side of the cavity and the external and internal oblique laterally. Under the lower edge of the cavity the thrombosed external pudic artery and vein could be seen ending in the gangrenous area. Recovery ensued in about five weeks.

509. Extra-articular Fixation of Sacro-iliac Joint.

W. M. PHELPS and M. K. LINDSAY (*Surg., Gynecol. and Obstet.*, October, 1929, p. 555) describe the extra-articular graft or tie beam method of fixing the sacro-iliac joint in order to afford a correct mechanical support comparatively simple in application and without opening the joint. An autogenous graft approximately 12 mm. wide is taken from the crest of the tibia and inserted through the bases of the posterior superior iliac spines; it is brought into contact with the posterior surface of the sacrum by removal of the spine of the second sacral segment. With these three points of contact it becomes fused and persists with adequate structural integrity to withstand the strains of traction and torsion associated with any motion in the sacro-iliac joints. The necessary exposure of the parts is obtained through a curvilinear incision, with its convexity upwards, connecting two points 3 cm. below and lateral to the posterior superior iliac spines. After clearing the iliac spines and the first and second sacral spinous processes with a periosteal elevator, and freeing the erector spinae muscles sufficiently to allow the passage of the graft, a tunnel is drilled; through this the graft is tapped into place with its medullary side placed downward to facilitate fusion over the sacrum. The graft maintains its position without other fixation. After closing the wound the patient is placed prone on a fracture bed, or Bradford frame, until the sutures are removed. In any case not involving a destructive process in the sacro-iliac joint, flexion and extension of the knees and hips may be started after three weeks' recumbency; when movement in the hips has become free and painless the patient may be allowed to get up. In three consecutive cases of intractable sacro-iliac pain, without any radiographic evidence of gross pathology, the patients who were treated thus returned to work within four months, and there were no symptoms a year later.

Therapeutics.

510. Treatment of Juvenile Diabetes.

FOR children suffering from diabetes A. E. FISCHER (*Amer. Journ. Dis. Child.*, August, 1929, p. 323) advocates a diet which permits of normal growth development, even though (in spite of insulin, which is always given) the child may develop a low glycosuria some time during the twenty-four hours. At the Mount Sinai Hospital new cases are taken into the wards for a period for observation and education, not only of the children but of the parents. Subsequently the child attends once every two or three weeks with a sample of each specimen of urine voided during the previous twenty-four hours and a record of all food eaten. Children under the age of 4 years receive 75 grams of carbohydrate; from 4 to 7 years, 80 to 90 grams; and from 10 to 14 years, 100 to 130 grams daily; this is exclusive of the carbohydrate in the protein and fat. The amount is divided so that two-fifths is given at breakfast and at supper and one-fifth at lunch. For smaller children, or for those who have a reaction to insulin, the diet is subdivided into five meals a day; 5 to 10 grams of carbohydrate are given at 10.30 a.m. and at 9.30 p.m., three and a half hours after the morning and evening doses of insulin. The average protein content of the diet is from 1.5 to 3 grams per kilogram per day, or from 10 to 15 per cent. of the total calories; the carbohydrate-fat ratio usually averages 1.1. The 20 diabetic children in the hospital receive insulin; 15 get two injections a day, the maximum dose being 35 units; 5 get three injections a day, with a maximum of 62 units. Subdividing the dosage of insulin when it seems that there is a loss of tolerance is frequently effective. None of the children receives only one injection a day. All children over the age of 9 or 10 inject insulin into themselves.

511. Malarial Therapy in Syphilitic Aortitis.

F. MIHALJEVIC and G. SPENGLER (*Wien. klin. Woch.*, September 19th, 1929, p. 1223) discuss the malarial treatment of syphilitic aortitis. Many of their patients were subjectively improved, but, objectively viewed, the aortitis was not influenced by malaria. Nevertheless, although malaria treatment is not a cure for syphilitic aortitis, the latter is considered by the authors to be no contraindication to the treatment, provided that no circulatory or cardiac failure exists. Their material comprised patients who had undergone malaria cure during the previous four years—30 cases in all; 24 were cases of aortitis simplex, and in 4 the aortic valves were also involved. Objective improvement occurred temporarily in 5 and permanently in 6 cases; it consisted in diminution of the anginoid symptoms. In 5 cases there was no subjective change, and in 9 no objective change; 8 patients felt worse, and in 12 the aortitis increased. In 4 cases valvular disease supervened later upon aortitis simplex. Two patients died, apparently not as a result of malaria. No death occurred as a result of circulatory failure during or after malarial therapy. In two cases this treatment had to be discontinued because cardiac insufficiency supervened. Other contraindications are arterio-sclerosis in the aged, cachexia, active pulmonary tuberculosis, and severe angina pectoris; the authors add that pure aortic valvular involvement is not a contraindication. Before and during malarial therapy prophylactic treatment should be undertaken against circulatory failure; this includes appropriate cardiac tonics and, when necessary, bed for several weeks. In the event of failure during treatment, discontinuance of malarial injections and the employment of cardiac tonics always restored the heart's strength.

512. Antimony in Schistosomiasis.

M. KHALIL, M. NAZMY, F. M. PETER, M. SALAH EL DIN, and M. H. EL BITASH (*Journ. Egyptian Med. Assoc.*, October, 1929, p. 137) contribute a joint report on the excellent results obtained in the treatment of schistosomiasis by a trivalent antimony compound, less toxic than tartar emetic, which has been prepared by the Bilharzia Research Section of the Public Health Department of Egypt working in conjunction with Messrs. Bayer. This preparation is a combination of the pyrocatechin disulphonate of sodium with antimony. It is unstable in the pure state, but keeps well in a 7 per cent. solution, which is injected intramuscularly in doses of 1 to 5 c.cm. The local reaction is slight, and the administration

is not followed immediately by coughing, vomiting, or fainting; vomiting occurred later in only 2 per cent. of the cases. The authors state that with this preparation, termed fouadin, two weeks' treatment is sufficient, as compared with four weeks' with tartar emetic. No deaths or serious symptoms occurred in a series of 200 cases so treated, and cure was obtained in all.

513. Treatment of Pyuria due to B. coli.

A. H. JOHANSEN (*Arch. Int. Med.*, September, 1929, p. 303) investigated experimentally and clinically the extent to which the power of phenyl salicylate to destroy *B. coli* in the urine is dependent upon the urinary reaction. It was found that the clinical results were improved when the urine was kept acid during the treatment with phenyl salicylate. A series is recorded of 24 patients with pyuria due to *B. coli*; in these patients a suitable degree of acidity of the urine was ensured, and 75 per cent. of cures resulted. The acidifying agent used was calcium chloride, 1 grain of which was given five times daily until the urine was proved to be acid by a qualitative test with methyl red. By adding two or three drops of a 1 per cent. solution of methyl red to 10 *c.cm.* of urine a suitable degree of acidity (pH less than 5.5) is indicated by the urine becoming red; if it remains yellow the dose of calcium chloride must be increased until the red reaction is obtained. Calcium chloride tablets may cause cardiac pain or dyspepsia, but this disadvantage can be avoided by coating them with phenyl salicylate so that the calcium chloride passes through the stomach without undergoing change; tablets containing 0.6 gram of calcium chloride and coated with 0.3 gram of phenyl salicylate were prepared for the author, and the administration of three tablets three times a day was found to produce an acid reaction within a few days without giving rise to dyspepsia or any ill effects. Since the coating of phenyl salicylate allows these tablets to pass through the stomach without any discomfort, they are also recommended by the author for cases of bronchial asthma, tetany, urticaria, or any condition in which treatment with calcium chloride is contraindicated because of the possibility of dyspeptic troubles.

Ophthalmology.

514. Circinate Retinitis.

H. W. SCARLETT (*Amer. Journ. Ophthalmol.*, August, 1929, p. 633) reviews a case of circinate retinitis in a man, aged 73, who presented badly sclerotic retinal vessels. His vision was 6/9 in the right eye, and he was only able to count fingers with the left. The right macular region presented two small atrophic white spots surrounded by yellow dots. The left eye had a series of haemorrhages to the temporal side of the disc, accompanied at first by a broken crescent of whitish-brown dots, and below the inferior macular vessels two confluent white patches of exudate. A few months later these two patches had united, and the haemorrhages had been almost absorbed; there was an irregular crescent of exudative areas, the ends of the crescent resting on the upper and lower temporal edges of the disc. Similar developments, but at an earlier stage, were proceeding in the right fundus. Scarlett remarks that the exact etiology of circinate retinitis has not been definitely determined; most observers, however, agree that arterio-sclerosis is a potent factor. Possibly [illegible] to the exudative foci. Usually some [illegible] is recorded in the patient, or mem[illegible]he case he describes, the patient's mother and sister died of pulmonary tuberculosis. Macular vision is frequently diminished, although improvements occur before the final stage. It is quite characteristic of the disease that patches of exudate appear and disappear several times, and may occur, in almost any shape, in places other than the perimacular region.

515. Cataracts of Diabetic Origin.

J. GALINDEZ (*La med. Ibera*, September 14th, 1929, p. 260) has attempted to confirm Marañon's suggestion that many diabetics first present themselves complaining only of cataract. The question is not to be settled by a mere examination of the cataract, for clinically, or even at biopsy, it was impossible to distinguish a diabetic from the so-called senile cataract; it could only be solved by estimating the percentage of diabetics among patients with cataract. Undoubtedly much of the previous disagreement on this point was due to the fact that the older methods of diagnosing diabetics were imperfect. Using the Folin-Wu blood sugar method, glucose tolerance tests were performed on 51 cases of cataract. In 30 the blood sugar rose more than 50 per cent. above its resting value and had not returned to normal in seventy minutes; these patients were therefore diagnosed as pre-diabetic or diabetic. The ages of 287 diabetic patients were recorded; this showed that liability to diabetes steadily increases with age (up to 70 years). Cataract being chiefly due to diabetes, it is therefore not surprising that it should have been ascribed to age. The cases investigated indicate also a causative relation between glaucoma and diabetes. Galindez remarks that since diabetes is often the cause of cataract, the latter should benefit from a diabetic regime; and two cases are described where this occurred. Because many old diabetic patients, particularly if they have renal arterio-sclerosis, have a high renal threshold, diagnosis by urinary analysis is uncertain. A glucose tolerance test is necessary, especially if the question of operation arises. In one such case with double cataract no diagnosis of diabetes was made because urinary sugar was not present. One eye was operated on, and within twelve hours there began an infection which culminated in panophthalmitis. At this stage the urinary sugar had increased to the diabetic level, and the blood sugar figure was 322. Suitable dieting and insulin [illegible] the blood sugar to 150, and [illegible] Enucleation of the previously infected eye and extraction of cataract from the other were then performed with success, and recovery was uneventful. The author adds that an operation on a patient with a diabetic cataract should be performed only when the blood sugar figure is normal, and this figure should be maintained throughout convalescence.

516. Hypertensive Retinal Disease.

ACCORDING to L. T. GAGER (*Arch. of Ophthalmol.*, September, 1929, p. 307) changes in the optic fundus indicate more definitely even than functional tests the progress of hypertension, and its benign or malignant character. The structural changes in the retinal arteries caused by hypertension may remain after the heart has failed and the blood pressure has fallen as the only distinctive sign of the previous condition. The retinal changes occurring with hypertension and the hypertensive diseases with which they are associated are briefly discussed. These changes may be divided into two main groups. First there are the alterations of a purely vascular nature; these occur in three stages—spasm of the retinal arterioles, arterio-sclerosis, and haemorrhage. The second group comprises lesions of an inflammatory character, though often a vascular component is also present. These changes include oedema, retinal and papillary, and those spots called "exudate." Further, there are proliferative, degenerative, and atrophic changes, but these are secondary. Hypertension is the expression of an increased tonus in the arterioles of the body, which can be detected by the ophthalmoscope as vascular spasm. Under the functional or kinetic strain of increased blood pressure structural changes occur in the intima and media of these arterioles. Partly in the nature of a work hypertrophy, these changes are distinct from those of senile arterio-sclerosis, and are independent of antecedent kidney disease. These lesions, observable with the ophthalmoscope, are of practical importance in the diagnosis and prognosis of systemic disease. Haemorrhage into the retina, associated with arterio-sclerosis, indicates the progress of hypertension, and, if extensive, suggests the malign character of the process. Exudation is a phenomenon almost exclusively associated with hypertension. If it occurs without vascular sclerosis a purely inflammatory process, including nephritis, is likely. In the presence of retinal arterio-sclerosis, exudation is often not inflammatory. It indicates an advanced stage or, associated with haemorrhage and oedema, the malignant type of hypertension. The differentiation of the inflammatory lesions is of importance, since nephritis and vasculitis often respond readily to treatment. Moreover, the early recognition of hypertensive vascular disease is essential to the most effective management of the patient.

Obstetrics and Gynaecology.

517. The Time of Ovulation.

H. KNAUS (*Zentralbl. f. Gynäk.*, August 31st, 1929, p. 2193) remarks that the opinion is widely held that in women with a regular twenty-eight-day menstrual cycle ovulation takes place at a time which varies widely between the eighth and twenty-third days. Fraenkel and Schröder, however, believe that in the majority of cases ovulation occurs from the fourteenth to sixteenth day; and experimental evidence is adduced by Knaus which supports that conclusion. In rabbits the uterus fails to contract, in response to injection of extracts of the posterior lobe of the pituitary, when a corpus luteum is present, and contracts normally when it has been destroyed. Conversely, the existence of a corpus luteum is indicated when uterine contractions fail to follow the injection of pituitary extract. In women in whom these contractions were graphically recorded by connecting the

uterine cavity (filled with iodipin) with a mercury manometer, the reaction to the intravenous injection of 0.1 to 0.25 c.cm. of pituitary extract was recorded at varying times between menstruations. From the second to the fifteenth day contractions were noted; from the sixteenth day a response to the pituitary hormone was absent for some days onwards. Three days before menstruation Knaus found the pituitary response absent; one day before menstruation it had returned. The conclusion is drawn that the influence of the corpus luteum becomes manifest at the sixteenth day, ovulation preceding it within forty-eight hours. Observations in women with shorter menstrual cycles pointed to ovulation before the fourteenth day. The case is described of a sterile married woman, aged 35, in whom ovulation, tested by the response to pituitary injections, occurred regularly on the twentieth day; the sterility is explained by the inference that in these conditions an impregnated ovum would reach the uterus during its menstrual phase.

518. Labour in Elderly Primiparae.

MARGARET SCHULZE (*Journ. Amer. Med. Assoc.*, September 14th, 1929, p. 824) suggests that the dangers and difficulties of labour in elderly primiparae may have been somewhat exaggerated; she discusses the labours of 357 patients whose ages ranged from 30 to 45. The study of these cases showed that, speaking generally, neither foetal nor maternal mortality was increased above levels generally accepted as normal, and the average duration of labour was only slightly prolonged. About 20 per cent. of the women had strikingly rapid and easy labours. Dystocia, including excessive length of labour or its termination in maternal exhaustion, and conditions necessitating major operative procedures, may be expected in about 15 per cent. of cases, but is usually dependent on complicating factors rather than on the age alone. A careful consideration of the patient will usually permit of a fairly accurate prognosis even before labour starts. Abnormal presentations and contracted pelves, both of which are more frequent than in younger patients, increase the necessity for operative intervention and with it the danger to both mother and child. Apart from malpresentations and contracted pelves, the complications of labour in the present series of cases were remarkably few. The most important single factor in prognosis is the quality of the uterine contractions, but this cannot be accurately prognosticated until after labour has begun. The frequency of inadequate pains increases with advancing age, and probably a consideration of the physical type of patient and other history, such as that of a previous long-standing sterility, will be of greater importance the more accurately it is observed. The development of the cervical form of Caesarean section makes it possible, without materially increasing the maternal risk, to await labour, observe the type of uterine contractions, and then, if these seem inadequate, perform Caesarean section. A rather high percentage of these operations will probably always be necessary, especially in the older women and in those with long-standing sterility, for the greatly increased value of the child in these cases makes it desirable to minimize foetal risk.

519. Typhoid Infection of an Ovarian Cyst.

J. TAPIE, L. MOREL, A. LYON, and F.-X. BERTRAND (*Bull. et Mém. Soc. Méd. des Hôp. de Paris*, October 28th, 1929, p. 1184), who record a personal case in a woman, aged 22, successfully treated by laparotomy, illustrate the rarity of suppuration of an ovarian cyst in typhoid fever by the fact that they have been able to find only twenty cases on record. The typhoid bacillus in such cases reaches the ovary by adhesions uniting it to the intestine, or through the blood stream, and finds in the cyst an excellent culture medium. Infection of the cyst probably takes place in the early stage of typhoid fever, but the peritoneal manifestations occur at very variable dates. The suppuration is nearly always unilateral, and *B. typhosus* is almost invariably the organism responsible; *B. paratyphosus* B was only isolated in Corscaden's case. Staphylococci and *B. coli* are hardly ever found in association with the typhoid infection, except when there is a secondary suppuration of the abdominal wall. The difficulties in diagnosis depend on the period of typhoid fever at which the complication develops. During the acute stage the error consists in overlooking the cyst, and attributing the peritoneal syndrom to perforative peritonitis. The latter, however, has a more sudden onset with early contracture of the abdominal wall; the abdominal signs rapidly become generalized, and the hepatic dullness soon disappears. The condition must also be diagnosed from encysted peritonitis, in which there is not the regular outline or special resistance of the cyst. It is less usual to diagnose the ovarian cyst and overlook the typhoid infection, regarding the condition as merely an ordinary infection of an ovarian cyst. If left untreated suppuration of an ovarian cyst has a very gloomy prognosis, whereas remarkably successful results can be obtained by early operation.

Pathology.

520. Dangers in Antirachitic Medication.

I. JUNDELL (*Monatsk. f. Kinderheilk.*, August, 1929, p. 67) has investigated the possibility of harm being done by anti rachitic medication. Two hundred mice were arranged in groups in each of which some served as controls, while the others received various augmented dietaries. After intervals ranging from two to thirteen months the animals were killed and examined for chronic cardiac changes. Large doses of different preparations comparable with those given to children were used. Mice in one series were fed on normal diet and either irradiated ergosterin or cod-liver oil. All contracted cardiac lesions; the control animals were unaffected. Mice in another series, receiving a mixed diet containing egg yolk, suffered similarly. To prove that this was not due to vitamin B deficiency a third group of mice was given the same diet, with the addition of irradiated ergosterin and cod-liver oil, but similar cardiac changes occurred. The cardiac changes still appeared when lemon juice was added, thus excluding vitamin C deficiency. Another series was broken up into six subgroups, all the mice being fed on the fir t-mentioned diet. Subgroup (1) received the diet without any addition. Subgroup (2) were given also the oil in which the ergosterin had been dissolved. No cardiac change was detected in the animals in either group. The mice in subgroup (3) received an addition of non-irradiated ergo-terin dissolved in oil, and the mice in subgroup (4) had the same without oil. Both groups of mice suffered from cardiac changes. The remaining animals were given irradiated ergosterin, and much the same cardiac lesions became manifest. Thus ergosterin, whether irradiated or not, had the same bad effect. A last series of mice fed on normal diet received ultra-violet treatment; after two and a half months their hearts developed the same pathological condition—namely, degenerative myocardial changes of very varying intensity even in the same groups. The degenerated masses were more numerous at the apex and fibrosis was conspicuous; in some mice myocardial deposits of calcium were detected. From these researches the author concludes that human beings may suffer from the effect of too violent antirachitic measures, though he agrees that it will be long before the nature of these changes, and their precise relation to dosage, can be determined.

521. Experimental Rabies.

P. REMLINGER and J. BAILLY (*C. R. Soc. de Biologie*, November 4th, 1929, p. 376) have investigated the transmission of rabies to pigeons. The natural disease has never been observed, but experimentally it has proved possible to reproduce it in a certain proportion of pigeons. Fixed virus proved comparatively avirulent; thus of 54 pigeons inoculated intracerebrally, only 15 developed the disease. The street virus apparently proved more virulent. After inoculation with this virus there is an incubation period of twelve to twenty-four days; the illness that follows is chiefly noticeable for disturbances of equilibrium, cachexia, and progressive paralysis, affecting the legs and wings. The bird is able to feed itself, even in the severe forms of illness; though there may be difficulty in seizing a particle of grain, once it has been transferred to the mouth it is swallowed with perfect ease. Death, which occurs in rather less than half the cases inoculated with street virus, does not take place till about the eighth or tenth day of illness. At necropsy the lesions are exclusively micro-copical; they are most evident in the cerebellum, less so in the cerebrum, and least in the cord. They consis of an encephalo-myelitis characterized by interstitial inflammation, especially of the perivascular type. Negri bodies are found in the pyramidal cells of the cerebrum, but not in the Purkinje cells of the cerebellum.

522. B. faecalis alkaligenes as a Cause of Pyrexia.

N. DANBOLT (*Norsk Mag. f. Laegevid.*, October, 1929, p. 1052) records a case in a previously healthy young soldier who was operated on for appendicitis thirty hours after the onset of the attack. The operation was uncomplicated, but fever persisted without it being possible to account for it. Since the condition simulated typhoid fever, a blood culture was taken and a Widal test performed on the eleventh day. The agglutination test was negative for *B. typhosus* and *B. paratyphosus* A and B, but the blood culture showed the growth of an organism which had all the characteristic features of *B. faecalis alkaligenes*; this organism was agglutinated in the patient's serum in a dilution of 1 in 80. During the disease this titre fell to 1 in 20, and to *nil* after the commencement of convalescence. Danbolt concludes that this micro organism was the infective agent, and he thinks that it was derived from the intestinal contents. It might have played a part in the production of appendicitis, or have gained entrance to the body during the appendicitis or during the course of the operation.

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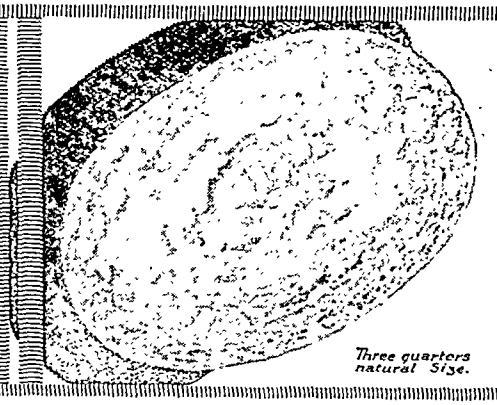

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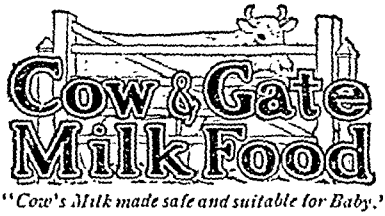

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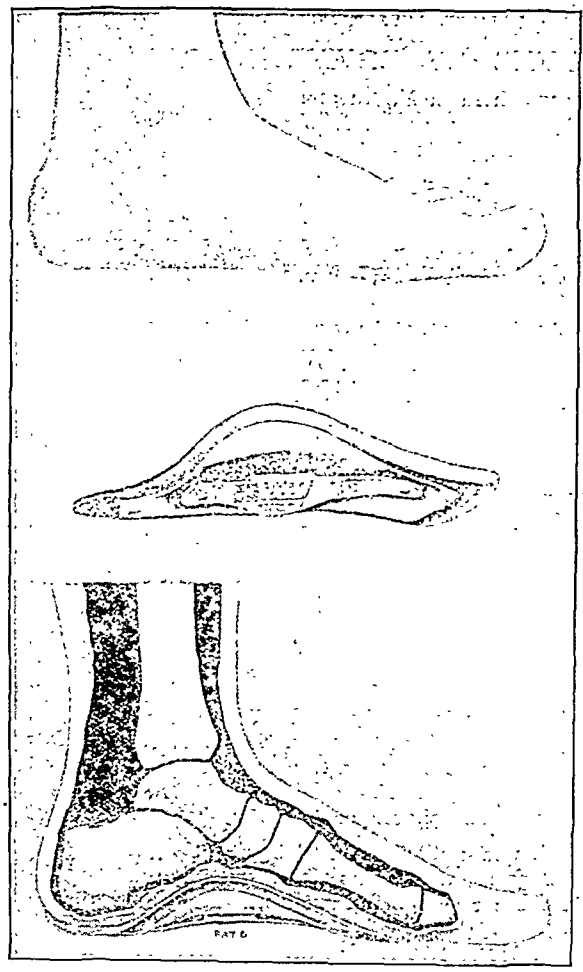

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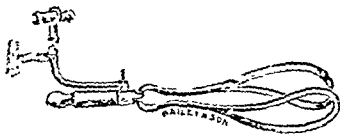

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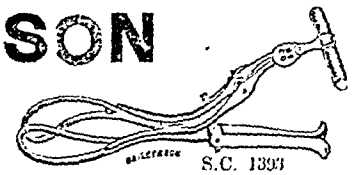

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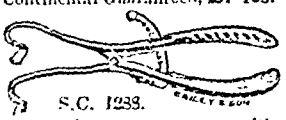
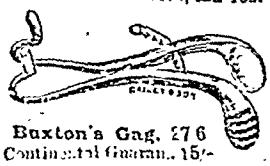


S.C. 1238. **Mason's Mouth Gag**, with Ratchet or Sliding Action, 21/6 Continental Guaranteed, 17/6



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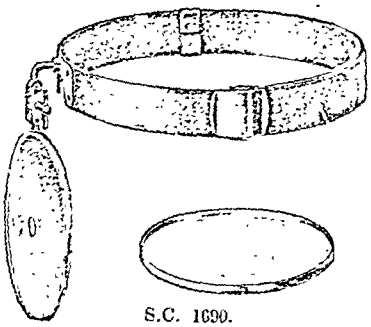

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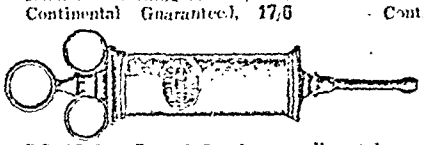

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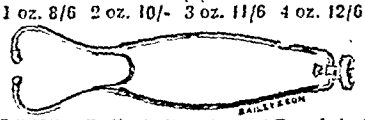
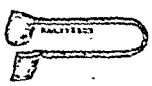


S.C. 1561. **Bailey's New Patent Revolving Sacchoscope**. 18s. 6d.



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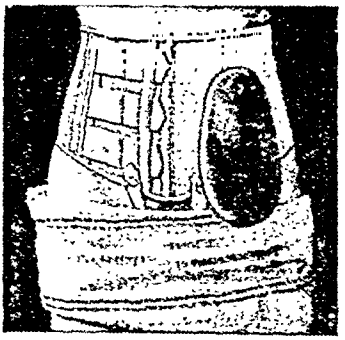

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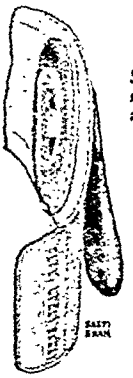
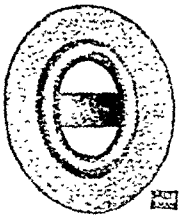
1. Detachable receiver sterilizable by boiling.
2. Mouth of bag kept open for free entry of fæces.
3. Easy removal and cleaning of Bag, without removal of Belt.
4. No crevices to hold fæces, and therefore little odour.
5. Less bulk, greater comfort, and more sanitary than any other.
6. Rubber portions far more durable than in the old style belt.



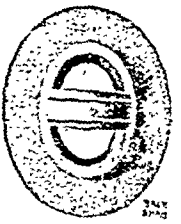
Showing attachment of receiver and bag to belt.

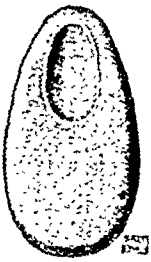
Details of Receiver and Bag
STERILIZABLE BY BOILING



Showing rubber receiver with pad fitting next to body and rubber flange to prevent belt becoming soiled.

Showing other views of receiver. See groove over which aperture in bag is stretched and curved bridge to hold open mouth of bag.





Indiarubber bag which can be detached at will for cleaning.

Showing bag attached to receiver.

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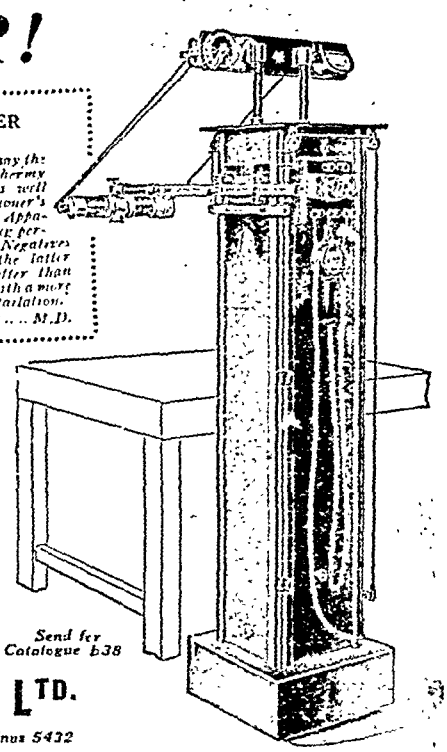

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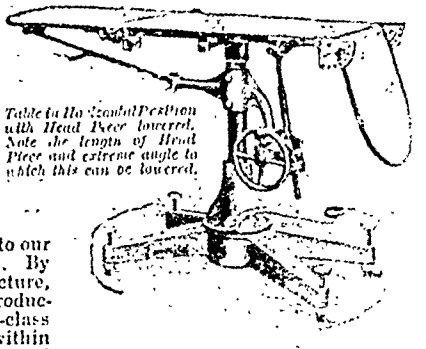

Table in Head Position with Head Piece lowered. Note the length of Head Piece and extreme angle to which this can be lowered.

ESSENTIALLY similar in design to our well-known "Universal" Model. By the experience gained in its manufacture, and the use of modern methods of production, we are able to offer a first-class heavy and stable Table at a price within the reach of the smaller Hospitals and Nursing Homes.

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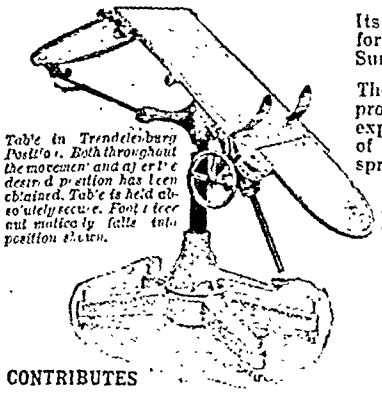
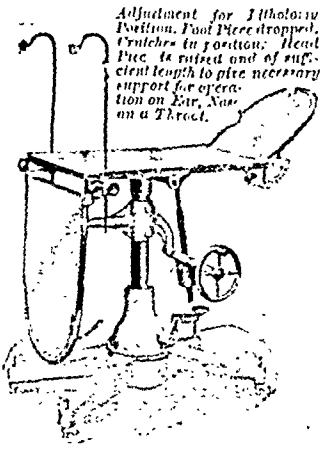


Table in Trendelenburg Position. Both throughout the movement and at extreme desired position has been obtained. Table is held absolutely secure. Foot piece automatically falls into position shown.



Adjustment for Tracheotomy Position. Foot Piece dropped. Crutches in position. Head Piece is raised and of sufficient length to give necessary support for operation on Ear, Nose and Throat.

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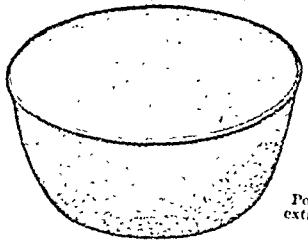

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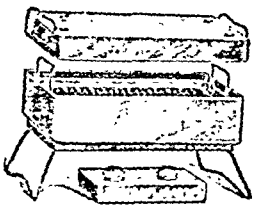

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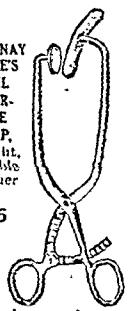

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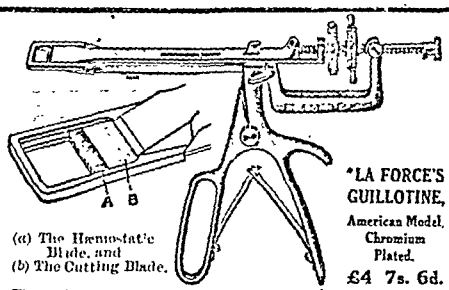

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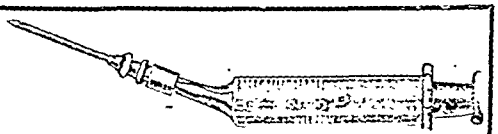

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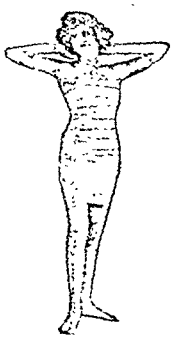

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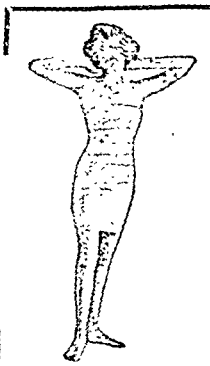

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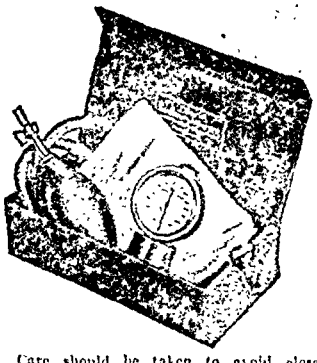

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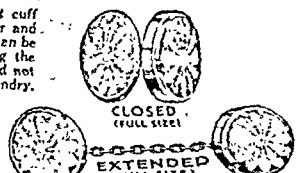

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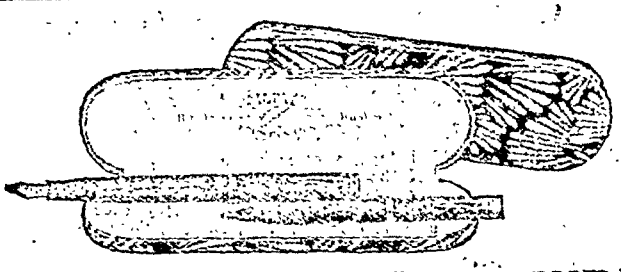

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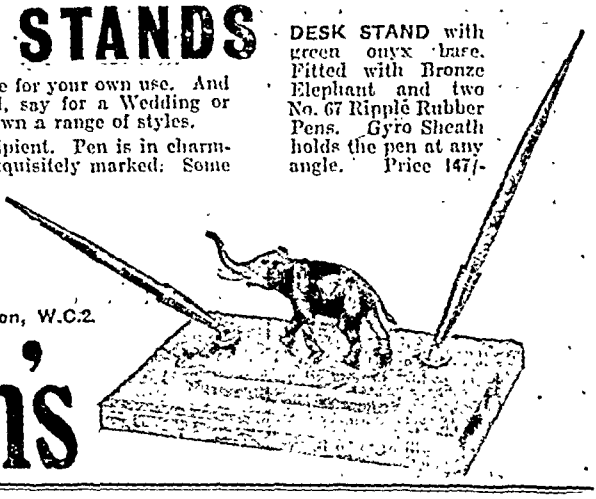

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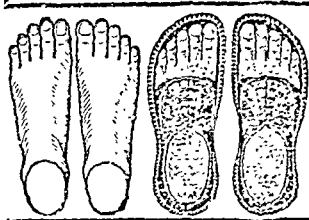

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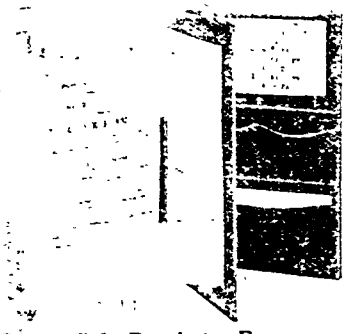

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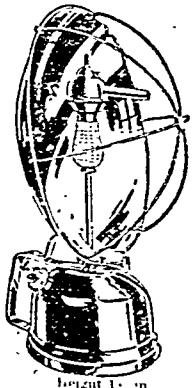

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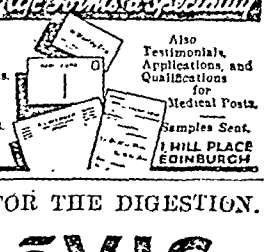

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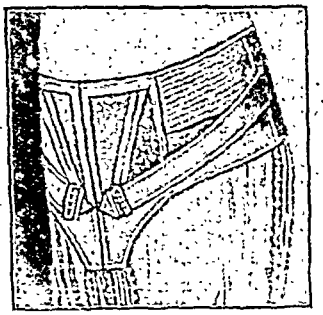

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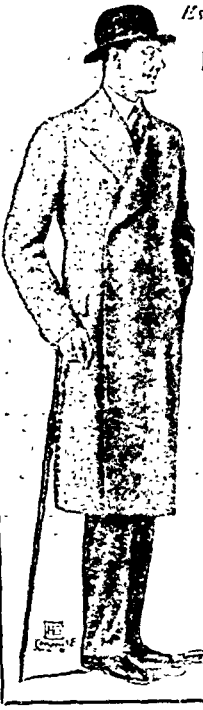

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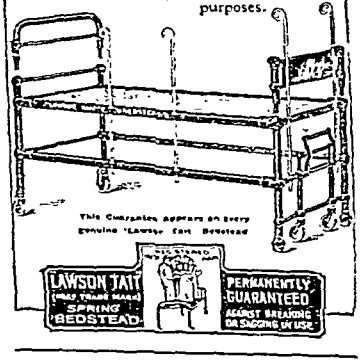

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Medical Superintendent: Dr. McCLINTOCK.

WYE HOUSE, BUXTON.
For the treatment of Ladies and Gentlemen mentally afflicted. Voluntary Boarders received. Situated 1,200 ft. above sea-level, facing S.; 14 acres of grounds.—For terms, apply to the Resident Medical Superintendent, W. W. HORTON, M.D. Nat. Tel. 130.

ST. ANDREW'S HOSPITAL
FOR MENTAL DISORDERS,
NORTHAMPTON

FOR THE UPPER AND MIDDLE CLASSES ONLY.

President: THE MOST HON. THE MARQUESS OF EXETER, C.M.G., A.D.C.

Medical Superintendent: DANIEL F. RAMBAUT, M.A., M.D.

This registered Hospital is situated in 120 acres of park and pleasure grounds. Voluntary Boarders, persons suffering from incipient nervous and mental disorders, as well as certified patients of both sexes, are received for treatment. Careful clinical, biochemical, bacteriological, and pathological examinations. Private rooms with special nurses, male or female, in the Hospital or in one of the numerous villas in the grounds of the various branches can be provided.

WANTAGE HOUSE.

This is a Reception Hospital in detached grounds, with a separate entrance, to which patients and voluntary boarders can be admitted. It is equipped with all the apparatus for the most modern treatment of Mental and Nervous Disorders. It contains special departments for hydrotherapy by various methods, including Turkish and Russian baths, the prolonged immersion bath, Vichy Douche, Scotch Douche, Electrical baths, Plombières treatment, etc. There is an operating theatre, a Dental Surgery, an X-ray Room, an Ultra-violet Apparatus, and a Department for Diathermy and High Frequency treatment. It also contains Laboratories for biochemical, bacteriological, and pathological research.

MOULTON PARK.

Two miles from the Main Hospital there are several branch establishments and villas situated in a park and farm of 650 acres. Milk, meat, fruit, and vegetables are supplied to the Hospital from the farm, gardens, and orchards of Moulton Park. Occupation therapy is a feature of this branch, and patients are given every facilitiy for occupying themselves in farming, gardening and fruit-growing.

BRYN-Y-NEUADD HALL.

The Seaside house of St. Andrew's Hospital is beautifully situated in a Park of 330 acres, at Llanfairfechan, amidst the finest scenery in North Wales. On the North-West side of the Estate a mile of sea coast forms the boundary. Voluntary Boarders or Patients may visit this branch for a short seaside change or for longer periods. The Hospital has its own private bathing house on the shore. There is trout-fishing in the park.

At all the branches of the Hospital there are cricket grounds, football and hockey grounds, lawn tennis courts (grass and hard courts), croquet grounds, golf courses, and bowling greens. Ladies and gentlemen have their own gardens, and facilities are provided for handicrafts, such as carpentry, etc.

For terms and further particulars apply to the Medical Superintendent (Telephone No. 65, Northampton), who can be seen in London by appointment.

THE COPPICE, NOTTINGHAM.
HOSPITAL FOR MENTAL DISEASES.

This Institution is exclusively for the reception of a limited number of Private Patients of both sexes of the Upper and Middle Classes at moderate rates of payment. It is beautifully situated in its own grounds on an eminence a short distance from Nottingham, and from its singularly healthy position and comfortable arrangements affords every facility for the relief and cure of those mentally afflicted. Voluntary Boarders received without Certificates.

For terms, etc., apply to the Medical Superintendent.

COURT HALL, KENTON, EXETER,
SOUTH DEVON.

For the care and treatment of Ladies suffering from Mental Diseases. Limited to eight patients. Telephone: Starcross 19.

CLIFFDEN, TEIGNMOUTH, in connection with Court Hall, for early and convalescent cases. Cliffden is a large well-appointed house, with lovely views of the South Devon Coast. It is beautifully situated in grounds of 19 acres. The gardens are very attractive, and there is a private road to the beach.

Resident Physicians: BERTHA M. MULES, M.D., B.S.; ANNIE S. MULES, M.R.C.S., L.R.C.P.
Telephone: *Teignmouth* 289.

BELVOIR NURSING HOME,
ASTON-ON-TRENT, DERBY.
FUNCTIONAL NERVOUS DISORDERS & CHRONIC MEDICAL CASES.

The Home, a Georgian mansion, 14 miles from Nottingham and 6 miles from Derby, is for both sexes. In addition to the methods of general medicine, Psycho-Therapeutic treatment is used extensively in suitable cases. Certifiable cases are not received. Electrical Treatment, Radiant Heat, X-ray, and Ultra-violet Light is available in the Nursing Home. Billiards, tennis, etc. Fees from 5 to 12 guineas per week; for Chronic Medical Cases from 3 guineas a week. For further particulars apply to—

Dr. E. M. DOUGLAS-MORRIS, ASTON, DERBY. *Telephone*: Shardlow 16.

HAYDOCK LODGE,
NEWTON-LE-WILLOWS, LANCASHIRE.

'Phone: 11 Ashton-in Makerfield.

For the reception and treatment of PRIVATE PATIENTS of both sexes of the UPPER AND MIDDLE CLASSES either voluntarily or under Certificate. Patients are classified in separate buildings according to their mental condition.

Situated in park and grounds of 400 acres. Self supported by its own farm and gardens, in which patients are encouraged to occupy themselves. Every facility for indoor and outdoor recreation. For terms, prospectus, etc., apply MEDICAL SUPERINTENDENT.

THE FLOWER HOUSE,
BECKENHAM LANE, S.E.6.

Telephone: LEE GREEN 1993.
(Eight miles from London.)

A PRIVATE HOME of the highest class for Gentlemen suffering from Mental and Nervous Disorders, both under Certificates and as Voluntary Boarders.

A beautifully furnished old family mansion, thoroughly modernized, and up-to-date.

Twenty-five acres of well timbered grounds, containing unrivalled flower gardens, cricket and football fields, croquet, tennis and bowls. Billiard room, private theatre, and wireless.

Special suites for suitable patients in new annexe, consisting of private sitting room, bedroom, attendant's room (if necessary), and private bathroom and lavatory.

Station—Beckenham Hill, 3 minutes
Tram 54 *from* Victoria *to* Southend Village.

For terms and further particulars, apply—
W. F. UPNEY, M.D., Medical Superintendent, or
Mrs A BECKETT, Resident Licensee.

WONFORD HOUSE HOSPITAL,
EXETER, DEVON.

Telegrams: Exeter 2642. *Telephone*: Exeter 2642.

A registered Hospital for the treatment of patients of both sexes suffering from Nervous and Mental Disorders, situated in beautiful country within a mile and a half of the City of Exeter.

Hard and grass Tennis Courts, Croquet Lawn, Cricket Field, and all indoor amusements, Dancing, Concerts, Wireless, Billiards, Badminton. Occupational treatment.

The patients are carefully graded, and accommodation provides for the separate treatment of early recoverable and convalescent patients.

Voluntary and certified patients are received for treatment.

A prospectus and full particulars can be obtained from the Medical Superintendent.

BARNWOOD HOUSE,
GLOUCESTER.

A REGISTERED HOSPITAL for the CARE and TREATMENT of LADIES and GENTLEMEN suffering from NERVOUS and MENTAL DISORDERS. Within two miles of the G.W. Railway and L. M. & S. Railway Stations at Gloucester, the Hospital is easily accessible by rail from London and all parts of the United Kingdom. It is beautifully situated at the foot of the Cotswold Hills, and stands in its own grounds of over 280 acres. Voluntary boarders of both sexes are also received for treatment.

Special accommodation for Lady Voluntary Boarders is also provided at the MANOR HOUSE, which has its own private grounds and is entirely separate from the main Hospital.

For particulars as to terms, etc., apply to—
ARTHUR TOWNSEND, M.D., Resident Supt.
Telephone: No. 7 Barnwood.

THE LAWN, LINCOLN.

A registered Hospital situated in large grounds near the Cathedral receives VOLUNTARY BOARDERS and PRIVATE PATIENTS of both sexes for treatment of Mental and Nervous Disorders, including Post-Encephalitic conditions. Special facilities for Psychotherapy in co-operative cases.

All particulars may be obtained from the Resident Medical Superintendent,
Dr. MARY R. BARKAS, M.D., D.P.M.

BAILBROOK HOUSE,
BATH.

A PRIVATE HOME for the care and treatment of persons with mental and nervous disorders. Voluntary Boarders received in the Villas. Large Mansion on outskirts of Bath, with 20 acres of grounds (see *Medical Directory*, page 2134).

For terms apply to SAMUEL J. GILFILLAN, O.B.E., M.B., C.M.Edin., Resident Physician. Telephone No.: Batheaston 8189.

BOREATTON PARK,
BASCHURCH, SALOP.

A first-class Country Mansion adapted for the reception of a limited number of Ladies and Gentlemen mentally afflicted.

Large gardens, deer park, private golf links, fishing. Grounds extend to over 200 acres.

Voluntary Boarders accepted

Apply for particulars to Dr. SANKEY.

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16, RIDING HOUSE STREET, W.1

Patron: HIS MAJESTY THE KING. *President*: SIR GEORGE BLACKER, C.B.E., M.D., F.R.C.S.

Medical Superintendent: A. E. HAYWARD PINCH, F.R.C.S.

THE Institute was established in 1911 for the Treatment of Patients by Radium, and for Researches into the Therapeutic Properties of Radium and Radio-Active Substances.

An in-patient department, which has recently been doubled in size, exists for the reception of special cases or of patients from the provinces. Private rooms are provided for paying, and wards for necessitous cases.

There is an extensive and adequately equipped out-patient department.

No case, however, can be received until after arrangements have been made with the Institute by the patient's medical attendant.

The most recent form of deep X-Ray Therapy plant is now in process of installation, and X-Ray treatment combined with Radium will be available for patients.

Plates, tubes, needles, and seeds containing Radium Emanation (Radon) are supplied to Medical Practitioners at moderate charges.

The Institute undertakes the estimation of the activity of Radium and Radio-Active Substances, the measurement of Radium Salts, and the preparation of Radium Applicators.

THOMAS A. GARNER, F.C.I.S., Secretary.

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(FORMERLY DUFF HOUSE, BANFF.)

The first Private Hospital in the United Kingdom to be fully provided with a whole-time specially qualified Staff of Doctors, Analytical Chemists, Bacteriologists, Radiologists, Nurses, Dietists, Masseurs, and Masseuses, and a full equipment of Laboratories, X-rays, Electrocardiograph, Artificial Sunlight, and Medical Baths.

The Hospital is equipped for the diagnosis and treatment of any form of ill-health, except Mental and Infectious Diseases. The fees are inclusive.

The climate is mild and the neighbourhood beautiful. Apply: The Secretary,

Telegrams: Castle, Ruthin. Telephone: 66, Ruthin. Ruthin Castle, North Wales.

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NEAR BASINGSTOKE, HANTS.

Private Hospital for Mental Diseases

A modern building situated in a healthy district, easily accessible by rail and road. Patients taken at from three guineas per week.

Apply to Medical Superintendent. Telephone: 157 BASINGSTOKE

NORTHUMBERLAND HOUSE,

GREEN LANES, FINSBURY PARK, N.4.

Telegrams: "SUBSIDIARY, LONDON." *Telephone*: NORTH 0888.

A PRIVATE HOME for the treatment of patients of both sexes suffering from Mental Illnesses.
Conveniently situated four miles from Charing Cross. Easy of access from all parts.
Six acres of ground, highly situated, facing Finsbury Park.
Voluntary Boarders received without certificates. Private suites. Convalescent Home, Kearsney Court, Dover.
For further particulars, apply to the MEDICAL SUPERINTENDENT.

PECKHAM HOUSE, 112, Peckham Road, London, S.E.15.

Telegrams: "Alleviated, London." Telephone: Rodney 4741—4742.

The above House, which was established in 1826, is an Institution for the care and treatment of persons suffering from mental diseases and nervous disorders. Both certified patients and voluntary boarders are received. Separate houses for treatment and accommodation of special cases adjoin the Institution. There is a seaside branch, Kearsney Court, near Dover, to which patients may be sent for treatment or on holiday. Motor and carriage exercise is provided as required. Patients can avail themselves of a course of physical drill. Tennis courts. Entertainments, dances, and indoor amusements held throughout the year.

Illustrated prospectus and further particulars can be obtained from the Medical Superintendent.

THE OLD MANOR SALISBURY

A Private Hospital for the Care and Treatment of those of both sexes suffering from MENTAL DISORDERS.

Extensive grounds. Detached Villas. Chapel. Garden and dairy produce from own farm. Terms very moderate.

CONVALESCENT HOME at BOURNEMOUTH standing in 9 acres of ornamental grounds, with tennis courts, etc., which Patients or Boarders may visit by arrangement, for long or short periods.

Illustrated Brochure on application to the Medical Superintendent, The Old Manor, Salisbury. Telephone 51.

CAMBERWELL HOUSE, 33, Peckham Road, London, S.E.5.

FOR THE TREATMENT OF MENTAL DISORDERS.

Telegrams: "PSYCHOLIA, LONDON." *Telephone:* RODNEY 4731—4732.

Also completely detached Villas for mild cases, with private suites if desired. Voluntary Patients received. Twenty acres of grounds. Hard and Grass Tennis Courts, Bowls, Croquet, Squash Racquets, and all indoor amusements, including Wireless and other Concerts. Occupational Therapy, Physical Drill, and Dancing Classes. X-ray and Actino-therapy, Prolonged Immersion Baths. Operating Theatre, Dental Surgery, and Ophthalmic Dept. Chapel. Senior Physician: Dr. Hubert James Norman, assisted by three Medical Officers, also resident, and Visiting Pathologist. An illustrated Prospectus may be obtained upon application to the Secretary.

HOVE VILLA, BRIGHTON. — CONVALESCENT BRANCH OF THE ABOVE.

BETHLEM ROYAL HOSPITAL, LAMBETH ROAD, S.E.1.

(For the reception and treatment of cases of nervous and mental disease.) Tel.: Reliance 2182.

President: Colonel and Alderman Sir CHARLES CHEERS WAKEFIELD, Bart., C.B.E.
Treasurer: Sir LIONEL FAUDEL-PHILLIPS, Bart.

PHYSICIAN-SUPERINTENDENT: J. G. PORTER PHILLIPS, M.D., F.R.C.P. Assisted by Physicians, a Pathologist, and a staff of Visiting Consultants.

Patients of the EDUCATED CLASSES, IN A PRESUMABLY CURABLE CONDITION, are eligible for admission. With a view to the early treatment of eligible cases VOLUNTARY OR UNCERTIFIED patients are admitted. PATIENTS WHO CAN CONTRIBUTE THREE GUINEAS WEEKLY TOWARDS THE COST OF MAINTENANCE MAY BE RECEIVED AS VACANCIES ARISE. Treatment is carried out on the most modern principles. In connection with this Hospital there is a Convalescent Home on the Surrey hills at Witley.
For further particulars apply to the PHYSICIAN SUPERINTENDENT

YARROW HOME and HOSPITAL FOR CHILDREN BROADSTAIRS.

For the Early & Preventive Treatment of Disease & Convalescence after Illness.

The Hospital is intended for the children of Members of the Institution of Civil Engineers, the children of architects, artists, authors, clergymen, members of the medical, legal, and other professions, members of scientific societies, officers of the Navy, Army, and Royal Air Force, officers of the Merchant Navy, schoolmasters and university professors.

Accommodation is provided for 50 Boys between the ages of 4 and 12 years, and 50 Girls between the ages of 4 and 14 years. In special cases the age limits may be raised to 14 for Boys, and 16 for Girls.

Fee 21/- per week, or as may be arranged, and travelling expenses.

Particulars can be obtained from the Secretary:—

116, Victoria Street, Westminster, LONDON, S. W 1.

CHISWICK HOUSE.

A Private Mental Hospital for the Treatment and Care of Mental and Nervous Disorders.

Now removed to:

CHISWICK HOUSE, PINNER, MIDDLESEX.

Telephone: PINNER 234.

A modern country house, 12 miles from Marble Arch, in beautiful secluded grounds.

Fees are from 10 guineas a week.

Voluntary Patients received for treatment.

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STRETTON HOUSE,

Church Stretton, Shropshire.

A PRIVATE HOME for the treatment of Gentlemen suffering from Mental or Nervous Illness, including the allied disorders of Alcoholism and the Drug Habit. All types of early Mental or Nervous cases are received without certificates as Voluntary Boarders. Bracing Hill country. See *Medical Directory*, p. 2138.—Apply to Medical Superintendent. Telephone: 10 P.O. Church Stretton.

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Attendance at School is a necessary part of the satisfactory treatment of Epilepsy in Children

COLTHURST HOUSE SCHOOL meets all the requirements of children of middle-class parentage. Extensions, made necessary by the success of the school, have created several vacancies. Only bright and intelligent boys and girls are eligible for admission

Apply to the Medical Superintendent. COLTHURST HOUSE SCHOOL, WARFORD, ALDERLEY EDGE.

KINGSDOWN HOUSE

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For the CARE and TREATMENT of NERVOUS and MENTAL DISORDERS in BOTH SEXES.

Separate accommodation for Voluntary Boarders of the Female Sex. Applications received at the above or 24 17, Belmont, Bath, by—
Dr H. C MACBRYAN or
Medical Superintendents

Telegraphic Address: "RELIEF, OLD CATTON." *Telephone*: 293 NORWICH.

THE GROVE, CATTON GROVE ROAD, NORWICH.

A PRIVATE NURSING HOME for the CURATIVE TREATMENT OF NERVOUS AFFECTIONS Voluntary Boarders also received. Ladies only.

Apply, the Misses McLINTOCK, or Dr. S. BURTON, Visiting Physician.

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TAMWORTH, STAFFS.

Established 1816. For the TREATMENT of a few LADIES suffering from NERVOUS and MENTAL DISORDERS Voluntary patients received For terms apply to Proprietor and Licensee Dr. LOWSON. Tel. 108 Tamworth.

FUNCTIONAL NERVOUS DISORDERS.

CALDECOTE HALL, NUNEATON.

RESIDENTIAL TREATMENT of the most modern kind is carried out under the personal direction of the Resident Medical Superintendent in this beautiful Country Mansion. Fees are moderate. *Full particulars from the Resident Medical Superintendent:*
A. E. CARVER, M.D., D.P.M.
Telephone: Nuneaton 243.

CHEADLE ROYAL,

CHEADLE, CHESHIRE.

This registered Hospital for MENTAL DISEASES, with its seaside branch Glan-y-Don, Colwyn Bay, is for the treatment and care of PRIVATE PATIENTS of the UPPER and MIDDLE CLASSES Voluntary Boarders received. For terms, etc., apply to the Medical Superintendent, J. A. C. ROY, M.B., who may also be seen in Manchester by appointment.
Telephone: 481 GATLEY

SPRINGFIELD HOUSE,

Near BEDFORD. (Phone 3417)

FOR MENTAL AND NERVOUS CASES
Physicians: DAVID AND CEDRIC W. BOWEN
Terms, Five Guineas per week
(Including Separate Bedrooms where suitable.)
Interviews in London by appointment.

THE GRANGE,

near ROTHERHAM.

A HOUSE Licensed for the reception of a limited number of ladies suffering from Nervous and Mental disorders. Both certified and voluntary patients received. This is a large country house, with beautiful grounds and park, 5 miles from Sheffield. Station: Grange Lane, G.C. Railway, Sheffield. Telephone. No. 40030 Ecclesfield. Resident Physician. GILBERT E. MOULD, L.R.C.P., M.R.C.S.

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Situated in 3½ acres of secluded gardens.

HOME FOR TWELVE MENTAL PATIENTS ONLY

Well-appointed private house. Home comforts and Trained Nursing Staff. Eminent Mental Specialist Visiting Physician.

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Rendlesham Hall, which is open to receive patients, is essentially a Sanatorium. Its daily life and routine are that of an *ordinary* comfortable holiday or health resort, or of a large country house. Each patient has all the privileges of a guest consistent with the prescribed medical treatment.

Rendlesham Hall has 45 bedrooms, and *about* 450 acres of gardens and park. It has also *a private nine-hole golf course*, tennis and croquet lawns, and bowling green.

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Telegrams and Teleph.ne: Wickham Market 16. *(Toll Call from London.)*

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To those desiring to be near London—

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Telephone: BECKENHAM 1646. *Telegrams:* NOROTORIUM, BECKENHAM.

Proprietors. The Norwood Sanatorium, Limited.

ALCOHOLISM, DRUG HABIT, AND NEURASTHENIA.

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A small comfortable Home *charmingly* situated in secluded gardens overlooking Torbay. Ladies and Gentlemen treated with a view to a *rapid* and permanent cure by *modern methods*, which give excellent results. Ample amusement, billiards, wireless, golf, tennis, etc. Good train service (3½ hours London). Moderate inclusive terms. Prospectus, report, etc., from—Stanford Park, M.B., CH.B., Res. Med. Supt., Bay Mount, Paignton.

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As founded and established by the late Dr. FRANCIS HARE, for 20 years Med. Supt. of The Norwood Sanatorium, and author of "Alcoholism," etc., for the treatment of ALCOHOLISM, other Drug Habits, Insomnia, Neurasthenia, Functional Nervous Disorders, TROPICAL Ailments, etc.

"THE OLD HILL HOUSE," CHISLEHURST, KENT.

Terms moderate. Quiet and pleasant situation. Ladies and gentlemen admitted for treatment. For Prospectus, etc., write or 'phone: WALTER E. MASTERS, M.D., M.R.C.S., *D.P.H.*, Barrister-at-Law (Resident Medical Superintendent).

'Phone: Chislehurst 451. *Telegrams:* "Masters," Chislehurst.

ALCOHOLISM

DRUG ADDICTION & NEURASTHENIA

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At this *beautifully situated* country mansion residential Treatment of the above afflictions is carried out on the most modern scientific principles, *both* physical and psychological, under the supervision of the Res. Med. Supt. Dr. A. E. Carver, M.D., D.P.M. Fees Moderate.

Further particulars from the Central Sec., 40, Marsham Street, London, S.W.1.

In cases of urgency [illegible]

Tel. & Teleg.

Littleton Hall, Brentwood, Essex.

Large grounds, 400 ft. above sea. HOME for Ladies Mentally afflicted. Voluntary Boarders received. Stations: Brentwood and Shenfield 1 mile. Liverp'l St. 26 min.—Apply, Dr. HAYNES.

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The Springfield method, selected for full description in the "Medical Annual," has been favourably noticed in medical papers throughout the world. Eighty per cent. of cases treated in the last four years are still well; average duration of treatment 30 days.

This special treatment was originated and is carried out in a general nursing home, the address of which is never advertised.

Apply, Med. Superintendent, 21 (1), Cleveland Square, W.2.

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For the treatment of GENTLEMEN under the Act and privately. Estab. 1883 by an Association of prominent medical men and others for the study and treatment of alcohol and drug abuse. Large secluded grounds on the bank of the River Colne. Full-sized billiards, tennis, croquet, bowls. Golf (Moor Park, Sandy Lodge) close by. For particulars apply to—F. S. D. HOGG, M.R.C.S., &c., Resident Medical Supt. Telephone: 16 RICKMANSWORTH.

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650 feet above sea-level on *Southern Chilterns.* 90 acres, Gardens, Woods, and Park.

FOR REST AFTER OPERATION or ILLNESS, CARDIAC and NERVOUS DISEASES, or PERMANENT INVALIDS.

Fees from 8 guineas.

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For the care and treatment of a limited number of Ladies and Gentlemen suffering from NERVOUS or MENTAL breakdown. Voluntary Boarders received. Psycho-therapy in suitable cases if desired. Terms moderate. Apply, RESIDENT PHYSICIAN. Tel.: No. 8 *Formby.*

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4,750 Feet——Feet 4,750

TREATMENT of PULMONARY TUBERCULOSIS
English-Speaking Doctors
Climatic Resort patronised by the British Red Cross Society
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This once famous Hydro adjoining the Mineral Wells has recently been equipped with the most modern appliances for treatment by Electro-therapeutics, Medicated Baths, etc. All treatment is given only on the instruction of the Medical Superintendent, or of the patient's own medical adviser.
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PENMAENMAWR.
Established 1900 for the treatment of Tuberculosis. Miles of carefully graduated walks through pine-clad hills, with sea and mountain views. Modern treatment, including SANOCRYSIN, ARTIFICIAL PNEUMOTHORAX, etc. X-ray plant, electric light, central heating, wireless. Full day and night nursing staff. On L.M.S. Main Line to Holyhead, 4¼ hours from London. Resident Physicians: Dennison Pickering, M.D.(Cantab.), F. W. Godbey, M.D., D.P.H.; Matron, Miss N. Rennardson, S.R.N.
For particulars apply to the Secretary, Pendyffryn Hall, Penmaenmawr, N. Wales. ('Phone, 20.)

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WAS OPENED IN JANUARY, 1899.
Patients are received for open-air, inoculation, or operative treatment. There are X-ray and ultra-violet ray installations. Full *nursing staff.* The Sanatorium stands in gardens and private grounds of 65 acres, at an elevation of 862 feet above sea-level, surrounded by woods and moorland. The patients' rooms are heated by hot-water pipes and electrically lighted. Fees 4, 5, *and* 6 *guineas per week.*
Physicians: ROWLAND THURNAM, M.D., JAMES HENDERSON, M.B., Ch.B.Glas.
For full particulars apply to *The Secretary*, Nordrach-upon-Mendip, Blagdon, Bristol. *Telegrams*: Nordrach, Blagdon. *Telephone*: Blagdon 25

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Situated in the upper Speyside district of Inverness-shire. One of the highest inhabited districts in Britain—"The Switzerland of the British Isles." Bracing and dry mountain climate. *Well sheltered Sanatorium specially* built for the Open-air Treatment of Tuberculosis. Opened in 1901. Elevation 650 ft. above sea-level. Electric light throughout buildings and in rest shelters. *Central heating.* Fully equipped X-ray Plant. All forms of treatment available, including Artificial Pneumothorax, and Ultra-Violet Rays for surgical cases of Tuberculosis.
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Special Wards for Paying Patients.
3 to 4 Guineas per week.
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Every kind of Bath. Plombière Lavage.
Every kind of Massage. Ultra-violet Light.
Every kind of Electricity. Diathermy.
Every kind of Diet.
Carlsbad and Vichy Waters, etc.
High Frequency. Electric Lift.
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Mild and invigorating climate.
RAVEN HOTEL or PARK HOTEL
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Beautifully situated 600 feet above sea-level. Facing south, completely sheltered from *north* and east. 21 miles from Edinburgh
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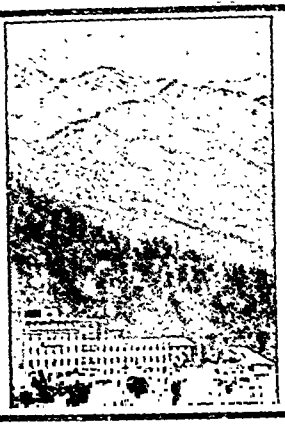

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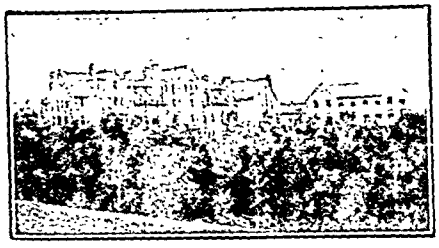

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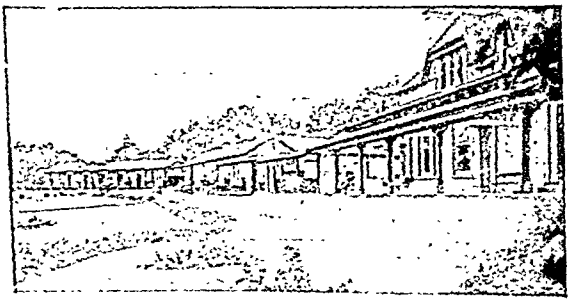

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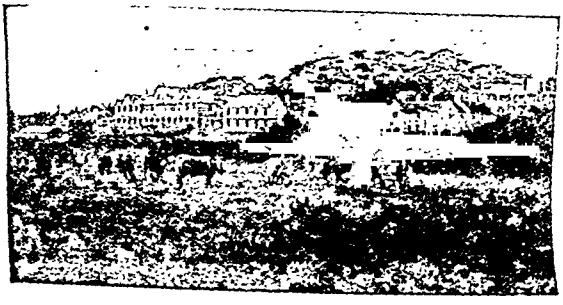

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Notice is hereby given that the FIRST N will commence 1930, and that EXAMINATION EBRUARY 21st, 1930.

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December 2nd, 1929.

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A Course of Preparation for the Examination for the Membership of the Royal College of Physicians of London will commence on February 3rd, 1930. Fee for the Course £21. Application for admission to the Class, which is limited in number, should be made to the DEAN, Guy's Hospital Medical School, London, S.E.1.

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A Course of Instruction for the JUNE EXAMINATION will begin on MONDAY, FEBRUARY 3rd, 1930, and will be conducted as follows:

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For further particulars apply to the School Secretary.

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Under the will of the late Dr. JOHN LIDDLE, the College Board of the London Hospital offer a Prize of the value of £120 for the best Essay on

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Essays should be sent to the Dean (from whom *further particulars may be obtained*) on or before May 31st, 1930.

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Applications should be made to the Director of the Central Pathological Laboratory, The Maudsley Hospital.

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Applications are invited for the post of Assistant County Medical Officer. Preference will be given to a woman with experience in maternity and child welfare work, including maternity centres and ante-natal clinics, and *in the treatment of venereal diseases.* Possession of a Diploma or Degree in Public Health is essential, and previous experience in Public Health work, tuberculosis, and medical inspection of school children will be considered an advantage.

Salary £600 a year, rising by increments to £750 (subject to *deductions under the* Local Government Officers *Superannuation Act*), in addition to travelling expenses and subsistence allowances.

Applications, with *copies of not more than* three testimonials upon a form which, with the *conditions of appointment*, may be obtained from the County Medical Officer, The Castle, Winchester, should be *sent to him not later* than December 27th. *Canvassing* is prohibited.

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Applications are invited from Medical Men for the position of JUNIOR ASSISTANT RESIDENT MEDICAL OFFICER in the LUNACY DEPARTMENT of *Western Australia.*

Commencing salary £456 per annum, with annual increments of £24 up to £576. Salary to commence from date of taking up duty in Western Australia.

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Applications, which should be endorsed "Medical Appointment," must reach the Agent-General for *Western Australia, Savoy House*, 115/6, Strand, London, W.C.2, not later than December 17th.

Egyptian Government.

EGYPTIAN UNIVERSITY.

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Applications are invited for two posts as SURGICAL TUTORS.

The salary offered is £E.35 a month in Grade V, and the appointment will be on contract for one year, renewable at the end of that time. The appointment is to be a full-*time* post.

The candidates must be Egyptians, and preference will be given to those possessing the F.R.C.S. England.

Applications, accompanied by testimonials and references, should be addressed to the DEAN, Egyptian University, Faculty of Medicine, Cairo, so as to be received not later than December 15th, 1929.

University of London.

Applications are invited from *Graduates of* the University of London in Medicine and Surgery for the GEOFFREY DUVEEN TRAVELLING STUDENTSHIP IN OTO-RHINO-LARYNGOLOGY, which is of the value of £450 a year, and is tenable, in the first instance, for one year.

Applications should reach the University on or before December 31st, and must be made on the prescribed form, which may be obtained, together with further particulars, from the Academic Registrar, University of London, South Kensington, S.W.7.

The General Hospital, BIRMINGHAM.

150th ANNIVERSARY.

A COMMEMORATION SERVICE will be held at the CATHEDRAL CHURCH, BIRMINGHAM, at 12 noon, on TUESDAY, DECEMBER 10th.

Preacher: THE VEN. THE ARCHDEACON OF LUDLOW (Dr. Edwin D. Bartlett).

On the same day, at 2.15 p.m., in the OUT-PATIENT HALL of the HOSPITAL, ORATIONS will be delivered by PROF. K. F. WENCKEBACH, M.D., Hon.F.R.C.P., of Vienna, and THE RIGHT HON. THE LORD MOYNIHAN OF LEEDS, K.C.M.G., President of the Royal College of Surgeons of England.

The Chair will be taken by SIR GILBERT BARLING, Bart., C.B., C.B.E., F.R.C.S., Pro-Chancellor of the University of Birmingham.

Members of the Medical Profession are invited. Academic dress optional.

Beckett Hospital & Dispensary, BARNSLEY. (130 Beds.)

Applications are invited from fully qualified male Practitioners for the post of HOUSE PHYSICIAN. Duties to commence December 16th. Salary £140 per annum, with board, residence, and laundry.

Applications, stating age, qualifications, and experience, accompanied by testimonials, should be sent to the undersigned immediately.

ARTHUR L. BOURNE,
Secretary-Superintendent.

City of Manchester.

PUBLIC HEALTH DEPARTMENT.

BAGULEY SANATORIUM (333 Beds).

SENIOR ASSISTANT MEDICAL OFFICER.

Applications are invited from qualified Medical Men for the position of Senior Assistant Medical Officer.

Every applicant must be a registered Medical Practitioner, under 40 years of age, and *unmarried.*

Applicants must have held resident hospital and sanatorium appointments, and have had practical experience in the diagnosis and modern methods of treatment of tuberculosis; practical experience in radiology is desirable.

Salary £500 per annum, with board, residence, and laundry in addition.

Every application, stating fully the training, qualifications, and experience of the candidate, and his age, with copies of three *recent testimonials*, and endorsed on the envelope, "Medical Officer, Baguley Sanatorium," must be addressed to the undersigned only, and not to members of the Committee or Council, and must reach him not later than Monday, December 30th.

The gentleman appointed will be required to pass a medical examination, to devote the *whole of his time to the duties of his office, to take charge in the absence of the Medical Superintendent, to contribute to the Corporation Superannuation Fund, and to execute the* Deed of Service.

Canvassing in any form, oral or *written, direct or indirect*, is prohibited.

By Order,
Town Hall, P. E. WARBRECK HOWELL,
Manchester. Town Clerk.
November 22nd, 1929.

Borough of Nuneaton.

ASSISTANT MEDICAL OFFICER.

The Council invite applications from male registered Medical Practitioners for the post of whole-time Assistant Medical Officer of Health and Assistant School Medical Officer under the *direction*, supervision, and control of the Medical Officer of Health, at a salary of £620 per annum, subject to deductions in accordance with the provisions of the Local Government and Other Officers Superannuation Act, 1922.

Applicants must have had experience in the *prescription of glasses for errors of refraction*, ante-natal work, and children's ailments.

The appointment will be subject to three calendar months' notice on either side, and to the approval of the Ministry of Health and the Board of Education. The officer will be required to reside within the Borough of Nuneaton, and will not be allowed to engage in private practice.

[illegible] will be required to [illegible]

[illegible] to be obtained from the Medical Officer of Health, Health Department, Nuneaton, endorsed "Assistant Medical Officer of Health," accompanied by copies of three recent testimonials, must be delivered to the undersigned on or before December 14th.

Council Offices, W. H. POLLITT,
Nuneaton. Town Clerk.
November 25th, 1929.

Liverpool Hahnemann Hospital, HOPE STREET, LIVERPOOL.

Applications *are invited for the post of* HOUSE SURGEON to the above Hospital, which falls vacant on *January 1st*, 1930. Appointment is *for six months, renewable.* Salary at the rate of £100 p.a. Knowledge of Homœopathy desirable but *not* essential. Duties include *casualties, occasional anæsthetics*, and assisting at *operations.*

Apply, stating age, sex, experience, *and* enclosing *copies* of recent testimonials, to the REGISTRAR before December 13th.

Liverpool Hahnemann Hospital, HOPE STREET, LIVERPOOL.

Applications are invited for the post of HON. PATHOLOGIST to the above Hospital. Honorarium £25 p.a.

Apply, stating age, sex, and experience, to the REGISTRAR before *Friday*, December 13th.

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Recruitment of European Officers.

Applications are invited from medical men for permanent commissions in 's Indian Medical Service. The terms offered include a gratuity of £1,000 on ent after six years' service, or £2,500 after 12 years' service, together with return passages, for those who no longer desire to remain in the Service other respects the terms will be as detailed below.

andidates must be British subjects under 32 years of at the time of application, and must be registered ler the Medical Acts in force in Great Britain and ıtern Ireland.

CAREERS.

ne Indian Medical Service offers wide opportunities medical experience, including clinical, preventive, cialist, and research work. At the beginning of his eer an officer is employed on the military side, which medical charge of the Indian Army. Promotion is on ime scale up to the rank of Lieutenant-Colonel, and by ction to the ranks of Colonel and Major-General. An cer may apply after two years' Indian service for nsfer to the civil side, from which appointments are de to Civil Surgeoncies, which are established at the incipal civil centres to provide for the medical needs of il officials and for general medical administrative rposes; to specialist (for example, public health and cteriological) services; to research posts; and to ofessorships at the Medical Schools.

PAY.

ne monthly rates of pay for European officers in the rvice who have a "non-Asiatic" domicile are as follows:

	Service in Rank.	Basic Pay.	Overseas Pay.	Year of Total Service.
1	2	3	4	5
		Rs.	Rs.	
		500	150	1st
			150	2nd
			150	3rd
			150	4th
	(i) During first 3 years' service as Captain	650	£15	5th
			£15	6th
			£25	7th
	(ii) With more than 3 and less than 6 yrs.' service as Captain	750	£25	8th
			£25	9th
			£25	10th
	(iii) With more than 6 years' service as Captain	850	£25	11th
			£30	12th
jor	(i) During first 3 years' service as Major	950		
	(ii) With more than 3 and less than 6 years' service as Major	1100		
	(iii) With more than 6 years' service as Major	1250		
Col.	(i) Until completion of 23 years' total service	1500	£30	13th and over
	(ii) During 24th and 25th years' service	1600		
	(iii) After completion of 25 years' total service	1700		
	(iv) When selected for increased pay	1850		

... ..AS.—In addition to the above rates various allowances are admissible for a large number of special appointments on both the military and the civil side which may be held by members of the Indian Medical Service. Special high rates of pay are also attached to the numerous administrative appointments open to officers in both branches of the Service.

WAR SERVICE CONCESSIONS.

Any service rendered by an officer during the war as a medical or combatant officer, or in a position usually filled by an officer, may be counted as service for increments of pay, promotion, retirement and retired pay, but not for gratuity.

One half of any service in the ranks during the war may be counted as service for retirement and retired pay only.

OUTFIT ALLOWANCE.

Officers on appointment will receive an outfit allowance of £50.

PRIVATE PRACTICE.

With the exception of Administrative Officers, military or civil, and officers holding certain special appointments, officers are not debarred from taking private practice, so long as it does not interfere with their proper duties.

PENSIONS.

The rates of pension are as follows:	Per annum.
	£
After 17 years' service for pension	400
,, 18 ,, ,, ,, ...	430
,, 19 ,, ,, ,, ...	460
,, 20 ,, ,, ,, ...	500
,, 21 ,, ,, ,, ...	540
,, 22 ,, ,, ,, ...	580
,, 23 ,, ,, ,, ...	620
,, 24 ,, ,, ,, ...	660
,, 25 ,, ,, ,, ...	700
,, 26 ,, ,, ,, ...	750
,, 27 ,, ,, ,, ...	800

These rates are subject to alteration on account of a rise or fall in the cost of living as compared with the year 1919 to an extent not exceeding 20 per cent. in all, the revision being undertaken triennially. With effect from July 1st, 1927, a reduction of 4½ per cent. has been made on this account from the amounts shown.

There are additional pensions ranging from £65 to £350 per annum for officers who have held administrative appointments.

PASSAGES.

An officer on appointment is provided with a free passage to India. The wives and families of officers who are married prior to the date of the officers' embarkation on first appointment will also be provided with free passage to India, subject to the payment of messing charges.

Officers and their families are also eligible for passage concessions under which they are granted a certain number of return passages home at Government expense during their service.

INSTRUCTION PRIOR TO EMBARKATION.

Officers are required to undergo courses of instruction at the Royal Army Medical College and at Aldershot, lasting approximately six months, prior to their embarkation for India on first appointment.

Full details regarding these appointments and forms of application may be obtained from the Under-Secretary of State for India, Military Department, India Office, London, S.W.1. Applications should be submitted as soon as possible. The Selection Committee will meet early in January to make nominations, and the selected candidates will be required to attend a course of instruction commencing on or about the 1st February, 1930.

Burgh of Kilmarnock.

MEDICAL OFFICER OF HEALTH.

The Town Council invite applications from duly qualified and registered Medical Practitioners holding the Diploma in Public Health or an equivalent qualification, for the appointment of Medical Officer of Health for the Burgh. Candidates must not exceed 45 years of age.

The person appointed will be required to carry out all the duties pertaining to the position of Medical Officer of Health under the Scottish Burgh Police, Infectious Diseases, Notification of Births, Public Health, Housing, Milk and Dairies, Food and Drugs, Blind Persons, and Local Government Acts, and all other relative Statutes and Orders. The appointment will include the duties of Medical Officer of Kirklandside Infectious Diseases Hospital, Raimshill Tuberculosis Sanatorium, the Maternity Home and Child Welfare Centre, and the Clinic for the treatment of Venereal Diseases; the duties as Tuberculosis Officer, Police Surgeon, and Medical Officer of Model Lodging House; and, from May 15th, 1930, the duties of the Medical Officer under the Scottish Poor Law, Lunacy and Mental Deficiency, and Vaccination Acts, and all other relative Statutes and Orders. The appointment will also include generally any other responsibility or work (including work in connection with medical inspection and treatment of school children and hospital facilities for the treatment of sick persons) that may be assigned to the Medical Officer of Health by the Town Council either by themselves or in conjunction with any other Public Authority or Body.

The person appointed will be required to devote the whole of his time to the duties of the office and to reside in the Burgh. He will not be allowed to engage in private practice, and all fees which may be paid to or received by him must be paid over to the Corporation. Applicants should have had previous experience in the various branches of the work.

The inclusive annual salary is £870, and the appointment is subject to the approval of the Department of Health for Scotland. The successful candidate will be required to pass a medical examination.

Copies of the Specification of Duties and Conditions of Appointment may be obtained from the Subscriber, with whom applications (enclosed in envelopes endorsed "Medical Officer of Health"), stating age, qualifications, previous experience and present employment, together with one copy of recent testimonials, should be lodged by December 14th.

Council Chambers, N. J. CAMPBELL,
Kilmarnock. Town Clerk.
November 26th, 1929.

Hull Royal Infirmary.

(272 Beds.)

Applications are invited for the post of SECOND HOUSE SURGEON (male), vacant December 30th.

The appointment will be for six months in the first instance, terminable by one month's notice on either side. Salary £150 per annum, with board, residence, and laundry.

Applications should reach the undersigned on or before Tuesday, December 17th.

R. J. CARLESS,
December 2nd, 1929. House Governor.

Edinburgh Hospital for Women

AND CHILDREN,
WHITEHOUSE LOAN, EDINBURGH.

Applications are invited from qualified Medical Women for the post of HOUSE PHYSICIAN at the above Hospital. The appointment is for six months from January 1st, 1930, with board, residence, and laundry.

Applications, with copies of testimonials, to be received by the Secretary on or before December 16th.

The Salvation Army,

THE MOTHERS' HOSPITAL,
Lower Clapton Road, Clapton, E.5.

Applications are invited from Medical Women for the post of JUNIOR RESIDENT MEDICAL OFFICER, vacant January 1st, 1930. Salary £60 per annum, with board, residence, and laundry. The appointment is for six months. Applications, with testimonials, must be sent to the Secretary on or before December 18th.

EDGAR DIBDEN, Secretary.

Southend Victoria Hospital,

SOUTHEND-ON-SEA. (96 Beds.)

JUNIOR HOUSE SURGEON (male) required for December 31st next, six months' appointment. Salary £150 per annum, board, residence, and laundry. Apply, stating age, qualifications, previous experience, with copies of three recent testimonials, to the Secretary before December 11th.

Cumberland Infirmary, Carlisle.

APPOINTMENT OF PATHOLOGIST AND BACTERIOLOGIST.

The Committee of Management are about to appoint a Pathologist and Bacteriologist to take charge of the new Pathological Laboratory at the above Infirmary, and invite applications from duly qualified medical men for the post.

The Infirmary at present contains 120 beds, together with a large modern out-patients' department and the newly erected pathological laboratory. The gentleman appointed will be expected to devote the whole of his time to the duties of the appointment, which will include the pathological and bacteriological work connected with the Infirmary and the examination of specimens submitted by practitioners and by various public health bodies. He will also be required to act in conjunction with the Medical Officer of Health for the Cumberland County Council and the Medical Officer of Health for the Borough of Carlisle.

The salary will be at the rate of £900 per annum. The age should not exceed 40 years.

Applications, stating age, qualifications, and experience, accompanied by copies of not more than three recent testimonials, are to be sent to the undersigned not later than December 31st, the envelope being endorsed "Pathologist."

Cumberland Infirmary, J. G. HOWITT,
Carlisle. Secretary.
November 28th, 1929.

Royal Northern Hospital,

Holloway, London, N.

Applications are invited for the post of HOUSE SURGEON. The appointment is for nine months (six months as House Surgeon and three months Casualty Officer) from January 15th, 1930. Salary at the rate of £70 per annum, with board, residence, and laundry.

Applications, with copies of testimonials, should be sent by December 14th to the undersigned, from whom forms of application and rules can be obtained.

GILBERT G. PANTER, Secretary.

Dorset Mental Hospital,

HERRISON, DORCHESTER.

JUNIOR ASSISTANT MEDICAL OFFICER required. Candidates must be duly qualified, registered, and unmarried. Commencing salary £300 per annum, rising by one yearly increment of £50 to £350, with the prospect of a further rise of £50 after satisfactory service, with board, apartments, laundry, and attendance. The appointment is subject to the provisions of the Asylum Officers Superannuation Act, 1909. Applications, stating age and qualifications, with copies of recent testimonials, should be sent to the Medical Superintendent at once.

Kettering and District General

HOSPITAL. (82 Beds.)

Applications are invited for the post of SENIOR HOUSE SURGEON (male). Salary £175 p.a., with board, residence, and washing.

Candidates must be fully qualified and registered, with previous Hospital experience. The appointment is for six months.

Applications, stating age, nationality, and qualifications, together with copies of three recent testimonials, to be sent to the Secretary-Superintendent as soon as possible.

Waterloo and District General

HOSPITAL (30 Beds),
WATERLOO, near LIVERPOOL.

Wanted, a HOUSE SURGEON for the above Hospital. The appointment is for six months, with board, residence, and laundry. Salary £100 per annum.

Applications, together with copies of testimonials, to be in the hands of the Secretary, Medical Board, not later than December 12th. Candidates must be prepared to commence duties almost immediately thereafter.

Westminster Hospital,

Broad Sanctuary, S.W.1.

ASSISTANT PATHOLOGIST required for routine and research work in connection with the Radium "Bomb" Treatment of Cancer.

The post is a whole-time one. Salary at the rate of £250 p.a.

Applications, with twenty copies of each of three recent testimonials, should be submitted to the undersigned not later than Saturday, December 21st.

CHARLES M. POWER, Secretary.

The Staffordshire General

INFIRMARY, STAFFORD.

Applications are invited for the positions of HOUSE SURGEON and HOUSE PHYSICIAN (males), which will become vacant early in January. Candidates must be duly qualified and registered under the Medical Acts. Salary at the rate of £200 and £150 respectively, with board, lodgings, etc. The appointment to be held for at least six months.

Applications, stating age, accompanied by copies of three recent testimonials, must reach me by the first post on Friday, the 13th inst.

Stafford. A. E. COLLINS,
December 2nd, 1929. Secretary.

King Edward VII Hospital,

WINDSOR. (181 Beds.)

TWO HOUSE SURGEONS (male) required to commence duty January 1st, 1930. Applicants must be fully qualified and registered. One to have experience in Ear, Nose, and Throat work. Salaries attached to these appointments are at the rate of £100 per annum, together with board, residence, and laundry.

Applications, stating age, qualifications, and experience, accompanied by testimonials, should be sent to the undersigned not later than December 16th.

ARTHUR L. CHURCHER, Secretary.

The Liverpool Sanatorium,

DELAMERE FOREST, FRODSHAM.

The Committee invite applications for the post of ASSISTANT to the Medical Superintendent at a salary of £250 per annum, with board and residence.

Candidates must be fully qualified. Applications, with copies of three recent testimonials to be sent in sealed envelopes, marked "Medical," not later than December 10th, to the Secretary, Liverpool Hospital for Consumption, Mount Pleasant, Liverpool.

Bristol Royal Infirmary.

Applications are invited for the post of HOUSE SURGEON to the Ear, Nose, and Throat Department for the period ending February 28th, 1930.

Salary at the rate of £60 per annum, with board, apartments, and laundry.

Candidates, who must be duly qualified, to send in their applications immediately, stating age, together with copies of not more than three testimonials, to the undersigned.

ELLIS C. SMITH, F.C.I.S.,
Secretary & House Governor.

The Sheffield Royal Hospital.

There is a vacancy for a Male RESIDENT ANÆSTHETIST. Salary £80 per annum, with board, residence, and laundry. The appointment is for six months, after which the selected candidate will be eligible for other appointments on the resident staff at £100 per annum. Applications, with copies of testimonials, should be sent at once to the undersigned.

W. R. BOOTH,
December 2nd, 1929. Supt. & Secretary.

Cheshire Joint Sanatorium,

MARKET DRAYTON.

HOUSE PHYSICIAN (male) required. The appointment is temporary for twelve months. Inclusive salary at the rate of £250 p.a., with board, residence, and laundry.

Applications to be made on forms which may be obtained from the Medical Superintendent, and must be returned not later than December 12th

PETER W. EDWARDS,
Medical Superintendent.

The Crossley Maternity Hospital,

ANCOATS, MANCHESTER.

Applications are invited from Medical Women for the post of HALF-TIME RESIDENT MEDICAL OFFICER. Vacancy November 30th. Salary £50 per annum, with board, residence, and laundry. Appointment for six months.

Applications, with testimonials, to be sent to the Superintendent.

Birmingham Maternity Hospital.

HOUSE SURGEON wanted (man or woman) for six months from February 1st, 1930. Salary to be at the rate of £75 per annum.—Apply, with full particulars and copies of testimonials, to HUGH C. ASTON, 45, Newhall St., not later than Thursday, December 12th.

APPOINTMENTS—Important Notice.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

(a) British Islands.

Town or District.	Town or District.	Town or District
CONTRACT PRACTICE.	**CONTRACT PRACTICE** *(Contd.)*.	**PUBLIC HEALTH** *(continued)*.
EBBW VALE, MON. *(Workmen's Medical Society.)*	OAKDALE, MON. *(Medical Officer for Medical Aid Association.)*	CORNWALL EDUCATION COMMITTEE. *(Assistant School Medical Officer—Female.)*
GILFACH GOCH, GLAMORGAN. *(Workmen's Medical Scheme.)*	OGMORE VALLEY, GLAMORGAN. *(Wyndham Colliery Medical Aid Society.) (Workmen's Medical Scheme.)*	GLASGOW EDUCATION AUTHORITY. *(Male Assistant Medical Officer.)*
LLWYNYPIA, CLYDACH VALE PENYGRAIG, GLAMORGAN. *(Workmen's Medical Scheme.)*	**PUBLIC HEALTH.**	MERTHYR TYDFIL COUNTY BOROUGH. *(Assistant School Medical Officer and Assistant Medical Officer of Health.)*
HARDY, GLAMORGAN. *(Workmen's Medical Scheme.)*	AYRSHIRE EDUCATION AUTHORITY. *(Assistant School Medical Officer—Male.)*	ROXBURGH COUNTY EDUCATION AUTHORITY. *(School Medical Officer.)*
MERTHYR VALE COLLIERY WORKMEN'S MEDICAL COMMITTEE. *(Workmen's Medical Scheme.)*	CHESHIRE EDUCATION COMMITTEE. *(Assistant School Medical Officer—Male.) (Altrincham District.)*	YORKSHIRE NORTH RIDING COUNTY COUNCIL EDUCATION COMMITTEE. *(Assistant School Medical Officer.)*
NEATH AND DISTRICT. *(Medical Aid Association.)*	CHESHIRE EDUCATION COMMITTEE. *(Assistant School Medical Officer—Female.)*	

(b) Colonial Medical Service.—

WINDWARD ISLANDS MEDICAL SERVICE. (Grenada with Carriacou, St. Vincent and St. Lucia.)

(c) Overseas.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.
NEW SOUTH WALES. *(All Friendly Society Appointments.)*	Dr. R. H. TODD (Hon. Sec., New South Wales Branch), B.M.A. Building, 30-34, Elizabeth St., Sydney, N.S.W.	VICTORIA. *(All Institute or Medical Dispensaries.)*	Dr. FRANK DAVIES (Hon. Sec., Victorian Branch), British Medical Association, Medical Society Hall, East Melbourne, Victoria.	WESTERN AUSTRALIA. *(Contract and Lodge Practices.)*	Hon. Sec., Western Australian Branch, British Medical Association, No. 6, Bank of N.S.W. Chambers, St. George's Terr., Perth, Western Australia.
QUEENSLAND. *(Brisbane Associated Friendly Societies Institute.)*	The Hon. Sec., Queensland Branch, British Medical Association, B.M.A. Building, Adelaide St., Brisbane.	WELLINGTON, NEW ZEALAND. *(Contract Practice Appointments.)*	Dr. G. F. V. ANSON (Hon. Sec., New Zealand Branch), British Medical Association, P.O. Box 156, Wellington, New Zealand.		

Address: B.M.A. House, Tavistock Square, W.C.1.
December 4th, 1929.

By Order of the Council of the British Medical Association.
ALFRED COX, Medical Secretary.

All Saints' Hospital (for Genito-URINARY DISEASES).
In-patient Dept.: 91, Finchley Road, N.W.8.
Out-patient Dept. & Secretary's Office: 49/55, Vauxhall Bridge Road, S.W.1.

HOUSE SURGEON (male) required January 1st, 1930, for period of nine months, salary at the rate of £150 per annum, for duty as under:

Three months as Assistant House Surgeon (non-resident);
Three months as Junior House Surgeon (non-resident);
Three months as Senior House Surgeon (resident), with board and laundry.

HOUSE SURGEON (male) required January 1st, 1930, for period of six months, salary the rate of £150 per annum, for duty as under:

Three months as Junior House Surgeon (non-resident);
Three months as Senior House Surgeon (resident), with board and laundry.

The duties of the Assistant and Junior House Surgeons consist of attendance at the Out-patient Department every afternoon and three evenings weekly. Promotion at the end of each three months is subject to the approval of the [illegible] experience, and [illegible] copies of recent [illegible] not later than December 10th.

D. H. EADE, Secretary.

New Sussex Hospital for Women AND CHILDREN, BRIGHTON.

Applications are invited from fully qualified Medical Women for the post of RADIOLOGIST. Honorarium.

Applications, with copies of testimonials, to be addressed to the Secretary.

All Saints' Hospital (for Genito-URINARY DISEASES).
In-patient Dept.: 91, Finchley Road, N.W.8.
Out-patient Dept. & Secretary's Office: 49/55, Vauxhall Bridge Road, S.W.1.

Applications are invited for the following posts, and candidates are requested to send particulars of their experience, qualifications, and copies of three testimonials, not later than December 10th.

HONORARY RADIOLOGIST.

This post is tenable for a period of twelve months, and is thereafter subject to annual renewal at the discretion of the Board of Management. The X-ray Department is in Vauxhall Bridge Road.

HONORARY SURGICAL REGISTRAR.

The appointment is tenable for a period of twelve months, with renewal up to a maximum period of two years, subject to the discretion of the Board of Management. Applicants should be Fellows of the Royal College of Surgeons and should not be engaged in general practice.

D. H. EADE, Secretary.

St. Bartholomew's Hospital, ROCHESTER. (126 Beds.)
(Rochester, Chatham, Gillingham, and District.)

The House and Finance Committee invite applications for the post of THIRD RESIDENT MEDICAL OFFICER to act as Casualty House Surgeon and who will assist the Orthopædic Surgeon, which will become vacant on January 25th, 1930.

Candidates must be unmarried, qualified, and registered Medical Men. The appointment is for six months. Salary at the rate of £175 per annum, with board, residence, and laundry.

Applications, stating age, qualifications, experience, etc., accompanied by copies of three recent testimonials, must be received by the Secretary not later than Monday, Dec. 16th.

Royal Devon & Exeter Hospital, EXETER.

SENIOR HOUSE SURGEON.

Applications are invited for the post of Senior House Surgeon (male), which will become vacant at this Hospital on January 1st, 1930. The appointment is for twelve months, but candidates are eligible for re-election.

Salary at the rate of £250 per annum, with board, apartments, and washing.

Applications, giving full particulars as to age and qualifications, together with certificate of registration and copies of three recent testimonials, should be sent to the undersigned on or before Monday, December 9th.

By Order of the Committee,
S. S. COLE,
Secretary & Manager.

N.B.—Preference will be given to applicants who have had previous administrative experience.

Seamen's Hospital Society.

The Committee of Management invite applications for the appointment of MEDICAL SUPERINTENDENT at the DREADNOUGHT HOSPITAL, Greenwich, from January 1st, 1930.

The appointment will be for one year at a salary of £300 per annum, with board, residence, and laundry. The holder will be eligible for re-election for a second year at a salary of £350, and thereafter at a salary of £400.

Applications, stating age, with copies of not more than three recent testimonials, to be sent in on or before Monday, December 9th, to the undersigned, from whom further particulars can be obtained.

R. F. V. BAX,
Secretary.

Dreadnought Hospital,
Greenwich, S.E.10.
November 9th, 1929.

British Medical Journal,

BRITISH MEDICAL ASSOCIATION HOUSE, TAVISTOCK SQ., LONDON, W.C.1.

T/A: ARTICULATE, WESTCENT, LONDON, *Tel.:* MUSEUM 9861 (4 lines).

SMALL ADVERTISEMENT RATES.

Up to Six Lines (32 Words) 9s. Each Additional Line, 1s. 6d.
(a line averages 5 words)
Address must be paid for.

All advertisements should reach the above address by not later than first post TUESDAY preceding publication.

ASSISTANCIES.

Wanted. — Assistant, outdoor, mixed panel and private Practice, North-East Coast Town. Salary £400, rising to £450 at end of twelve months. Junior Partnership *offered on easy terms to suitable man at end* of two years. Catholic, ex H.S. or H.P., with some experience of general practice preferred but not essential.—Address, No. 7724, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Indoor Assistant, male, single, experienced in G.P., midwifery, anæsthetics, and panel, ex H.S. and H.P., in all-round mixed Practice in Cornwall. Good experience and nice surroundings. Salary £350 and bonus. *Good prospects for permanent* keen man. Dispenser and chauffeur kept. Car supplied. — Address, No. 7810, B.M.A. House, Tavistock Square, W.C.1.

Wanted immediately, Assistant, married, for mixed industrial Practice in South Yorkshire town. Salary £350 to *commence, with rooms,* coals, and light free. —Address, No. 7804, B.M.A. House, Tavistock Square, W.C.1.

Wanted, at once, male indoor ASSISTANT. Salary £300 per annum. Unmarried, Protestant. District North London. —Address, No. 7716, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistant, indoor, *in Colliery Practice in Glamorgan.* £350 a year. Work light. Dispenser kept (Brit[illegible] for anæsthetics, etc. 7821, *B.M.A.* House

Wanted.—Assistant, with view to Partnership or Succession. Protestant. Mixed panel and private Practice, country town, S. Scotland. Usual bond, etc. State *age and experience.*—Address, No. 7601, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—Assistant for General Practice in Wiltshire. Scotch Graduate, knowledge of special subject preferred; age 28 to 30. Furnished house and car provided. Salary £300 to £350. Partnership to suitable man. — Address, No. 7814, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—An outdoor Assistant (male) for Branch Colliery Practice in Northumberland Salary £400 p.a., with furnished house, coals, light, and attendance. —Address, No. 7714, B.M.A. House, Tavistock Square W.C.1.

Wanted. — Indoor Assistant, [illegible] about December 20th, *near Birmingham. Young single.* Suit recently qualified [illegible] preferred. Send refs., photo., age, and other essential particulars — No. 7717, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — *Temporary* Assistant (*Woman*) *for small* Country Practice, near University town. Would suit recently qualified woman. Must be able to drive car. State essential particulars.—Add., No. 7818, B.M.A. House, Tavistock Sq., W.C.1.

Wanted, Indoor Male Assistant *in Manchester. Private and Panel* Practice. Usual bond. Ex H.S. preferred.—Address, stating age, religion, experience, No. 7726, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Outdoor Assistant, male, for general Practice near Manchester. *View very early Partnership.* Must possess capital. Salary £500 p.a.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Wanted. — Assistant, outdoor, single, male, British, for private and panel Practice in Lancashire. Usual bond. Salary £350—£400. — *Address, No.* 7817, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Indoor Male Assistant, near Charing Cross, in Catholic family. General Practice, work light. Usual bond. Salary £250. Enclose photo., without essential particulars. — Address, No. 7709, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Young male Assistant for an Industrial Practice in the Midlands. Salary according to experience. *Previous experience not essential.* Photo. if possible.—Address, No. 7811, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Indoor Assistant, preferably male, for Industrial Practice *near Newcastle-on-Tyne.* Salary £300 p.a. State age and other essential particulars. —Address, No. 7713, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — *Lady Assistant,* *outdoor, for London working-class* Practice. Recently qualified not objected to.— Address, No. 7707, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Indoor Assistant *for S.W. London Practice,* male, unmarried, Protestant. Salary £300 p.a. Young Scots Graduate preferred.—Address, No. 7719, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Woman Assistant, Panel and Private Practice, London suburb[illegible]e, and other 7813, B.M.A

Wanted. — Indoor Assistant, male, preferably Scotch, unmarried, for mixed Practice, large residential town in S.W. England. Car provided. Dispenser kept. Usual bond.—Address, particulars, age, photo., No. 7803, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — Assistantship, with definite view, in a sound General Practice, by M.B., Ch.B., æt. 28, *married*; ex H.S., H.P., R.O.O; experience in all branches Medical practice. Excellent testimonials and references. Own car if desired.—Address, No. 7720, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistantship, with ultimate view, by M.B., B.Ch., D.P.H. Small amount capital available. Keen to *settle.* — *Address, No. 7703, B.M.A. House,* Tavistock Square, W.C.1.

Assistants (indoor and outdoor) wanted immediately. Good salaries offered. —BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Assistantships.—We have several appointments vacant both with and without view suitable to well-qualified men aged 25 to 35, either Protestant or Roman Catholic. Personal *application essential.*—THE MEDICAL AGENCY, 15, York Buildings, Adelphi, W.C.2

M.B., Ch.B.Edin. 1925, three years' hospital experience, *one year's* experience private practice, capable of major and minor surgery, wishes an ASSISTANTSHIP with definite view to Partnership or Succession. Capital and own car.—*Address,* No. 7708, B.M.A. House, Tavistock Sq., W.C.1.

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Chelsea Hospital for Women,
Arthur Street, S.W.3.

There is a vacancy for a PATHOLOGIST (Gynæcological). Candidates must be Graduates in Medicine of a recognized University or Fellows or Members of one of the Colleges of Physicians of London, Edinburgh, or Ireland, or Fellows of one of the Colleges of Surgeons of England, Edinburgh, or Ireland. They must be registered under the Medical Act and engaged in consulting practice only. There is an honorarium of £40 per annum.
Applications must be sent to the undersigned by Monday next, December 9th. The Acting Pathologist is a candidate for the post.
HERBERT M. JENNINGS, Secretary.

Victoria Hospital, Burnley.

Wanted, HOUSE SURGEON (male), fully qualified. Appointment, *six months*. Salary £125 per annum, with board, lodgings, and washing. Applications may be sent in at once to F. A. HARGREAVES, Hon. Secretary, 7, Grimshaw Street, Burnley.
N.B.—This Hospital is approved by the London University for the M.B. and M.S. Examinations.

Applications are invited for the posts of SENIOR and JUNIOR HOUSE SURGEONS at salaries of £175 and £125 per annum. Duties to commence January 1st next. Applications, with testimonials, to be sent at once to the Secretary, BUCHANAN HOSPITAL, ST. LEONARDS-ON-SEA.

Resident Medical Officer required immediately for LEEDS JEWISH HERZL-MOSER HOSPITAL. Salary £100 per annum, full board. Ample time for Post-graduate work. Apply, SECRETARY, Herzl-Moser Hospital, Leopold Street, Leeds.

Royal Devon and Exeter
HOSPITAL, EXETER.

HONORARY ASSISTANT PHYSICIAN.

Applications are invited for the post of Honorary Assistant Physician at this Hospital, now vacant.
Candidates must be Fellows or Members of the Royal College of Physicians of London or Edinburgh, and Graduates in Medicine of some University of the United Kingdom.
Particulars as to duties, etc., may be obtained from the undersigned.
Applications, together with certificates of birth and registration, original testimonials, with 35 copies, should be delivered to the undersigned not later than Monday, December 16th.
Signed on behalf of the Committee,
S. S. COLE, Secretary.
N.B.—Canvassing of any member of the Standing Effective Committee is forbidden by the Rules of the Hospital.

Prince of Wales' Hospital,
CARDIFF.

FOR LIMBLESS AND CRIPPLED.

A RESIDENT SURGEON (male) is required at the above-named Hospital, to commence duties in January, 1930. Applicants must be fully qualified and registered, must have held a previous resident appointment, and possess experience in Orthopædic Surgery.
Commencing salary at the rate of £350 per annum, with board, residence, and laundry.
The Senior Surgeon of the Hospital is Lecturer in the Welsh National Medical School, and the Hospital serves the whole of South Wales.
Applications, stating age, qualifications, experience, and accompanied by three testimonials, should be sent to the Secretary, Mr. GILBERT D. SHEPHERD, F.C.A., The Walk, Cardiff, not later than December 31st.

Royal Isle of Wight County
HOSPITAL, RYDE.

RESIDENT HOUSE SURGEON wanted for January 1st, 1930, either sex, unmarried. Single-handed appointment. Doubly qualified and registered. State age and nationality. Salary at the rate of £180 yearly, with board, residence, and laundry. There are three Special Departments: Ophthalmic, X-ray, and Aural. Preference to candidate with experience in these branches. Apply, enclosing copies of testimonials, to Secretary before December 20th. Return railway fare for selected candidates.
A. S. GORDON, Secretary.

Huddersfield Royal Infirmary.

Applications are invited from qualified and registered gentlemen for the post of RESIDENT SURGICAL OFFICER, to commence duty on January 1st, 1930. Salary at the rate of £200 per annum, with board, laundry, and apartments. The appointment is for 12 months, subject to renewal for a similar period. Applications, accompanied by copies of not more than three testimonials, to be addressed to the undersigned not later than first post on December 17th.
H. E. G. HALL, Secretary.

Kent and Canterbury Hospital,
CANTERBURY. (120 Beds.)

HOUSE PHYSICIAN required. Salary £125 per annum, plus board, residence, and washing. Applications (accompanied by testimonials), stating age, qualifications, etc., and date upon which appointment could be taken up, should be forwarded to the undersigned not later than December 14th.
W. T. SOUTHWOOD, Secretary.

Royal Surrey County Hospital,
GUILDFORD. (178 Beds.)

Wanted, HOUSE SURGEON. Salary £150 per annum, with board, residence, and laundry.
Applications, stating essential particulars, with copies of testimonials, to be sent to the General Superintendent.

Deptford Babies' Hospital.
ALBANY INSTITUTE,
Creek Road, Deptford, S.E.8.

Vacancy for CLINICAL ASSISTANT (woman) in Out-patients' Department. Attendance one day a week. Appointment for six months. Application to the Secretary.

The Royal Infirmary, Sheffield.
(500 Beds.)

The Weekly Board of Management invite application for the following posts:
HOUSE SURGEON.
HOUSE SURGEON,
OFFICER.
each tenable for six months from January 1st, 1930. The salary attached to each post is £80 per annum, rising after six months' service to £100 per annum, together with board and residence.
Applications, together with copies of testimonials, to be sent to the undersigned immediately.
JNO. W. BARNES, F.C.I.S., General Supt. & Secretary.
Board Room, December 3rd, 1929.

Ancoats Hospital, Manchester.

Applications are invited for the following posts, which will become vacant on December 31st next:
ASSISTANT PATHOLOGIST.
MEDICAL REGISTRAR (part time). Salary £100 per annum.
SURGICAL REGISTRAR (part-time). Salary £100 per annum.
Applications, stating age, qualifications, experience, appointments held, etc., together with copies of three recent testimonials, to be forwarded to the undersigned on or before December 16th next, and from whom all particulars may be obtained.
By Order of the Board,
HERBERT J. DAFFORNE, Gen. Supt. & Secretary.

Princess Alice Memorial
HOSPITAL, EASTBOURNE. (96 Beds.)

Applications are invited for the post of JUNIOR HOUSE SURGEON (male), rising to SENIOR after three months, subject to satisfactory performance of duties. Candidates must be unmarried, fully qualified, and registered. The appointment is for six months commencing January 1st, 1930. Salary at the rate of £100 as Junior and £125 as Senior, together with board, lodging, and laundry. Applications, stating age and qualifications, and accompanied by copies of not more than three recent testimonials (one of which must be from Medical School), should reach the Secretary not later than December 19th.

Bristol General Hospital.

HONORARY CLINICAL ASSISTANTS.

The Committee invites applications for these appointments in the various Out-patient Departments at the Hospital. The appointments are for six months commencing January 1st next, and the holders will be eligible for re-election. Candidates must be fully qualified and registered Medical Practitioners, and applications must be forwarded to the undersigned on or before Monday, December 16th, from whom further particulars may be obtained.
THOMAS W. GREGG, Secretary.

The Royal Gwent Hospital,
NEWPORT, MON. (160 Beds.)

Wanted, a JUNIOR RESIDENT MEDICAL OFFICER to act as House Surgeon to Out-patients and House Physician.
Salary £135, with board, lodging, and laundry.
Large Out-patient Department. Eligible for promotion. Resident Medical Staff five.
Applications, stating age and qualifications, with copies of three recent testimonials, to be sent to the undersigned.
Applications from ladies not entertained.
J. K. MILLWARD, Secretary-Supt.
December 3rd, 1929.

South Devon and East Cornwall
HOSPITAL, PLYMOUTH. (240 Beds.)

Wanted, Non-resident ASSISTANT RADIOGRAPHER (female) for Xray Department including Deep Therapy Plant. Salary £1 per annum.
Applications, stating age, qualifications, together with copies of three recent testimonials, to be sent to the undersigned later than December 14th.
ARTHUR R. CASH, Gen. Supt. & Secretary.
Dec. 3rd, 1929.

CAVENDISH NURSES (Male and Female)

Head Office: 54, BEAUMONT ST., LONDON, W.1 (late 43, New Cavendish St., London, W.1.)

A very convenient form of telephone message pad sent free on application to the Secretary

Branches: MANCHESTER: 176, *Oxford Road.* *GLASGOW*: 28, *Windsor Terrace.* *DUBLIN*: 23, *Upper Baggot Street.*

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Tactear, Manchester. Tactear, Dublin. Manchester, 3152 Ardwick. Dublin, 531 Ballsbridge.

Superior trained Nurses for Medical, Surgical, Mental, Dipsomania, Travelling and all cases. Nurses reside on the premises, and are always ready for urgent calls Day and Night. Skilled Masseuses, Masseurs, and good Valet attendants supplied.

Terms from £3 3s. *Apply to the Secretary or Lady Supt.*

Metropolitan Hospital,
Kingsland Road, London, E.8.

The Committee of Management are prepared to receive applications for the appointment of:
(*a*) An ASSISTANT SURGEON;
(*b*) Two ANÆSTHETISTS.

In the case of the first appointment, candidates must be Fellows of the Royal College of Surgeons of England and not engaged in general practice.

Candidates will be required to submit to Members of the Medical and Surgical Staff one copy of their application, with testimonials, and subsequently to call by appointment for interview. A list of the Medical and Surgical Staff and full particulars in relation to any of the appointments will be supplied upon request

One copy of the application should be submitted as early as possible to the undersigned, but not later than first post on December 14th.

HERBERT F. RUTHERFORD,
Secretary & House Governor.

Royal London Ophthalmic
HOSPITAL,
(Moorfields Eye Hospital),
City Road, E.C.1.

Applications are invited for the office of ASSISTANT SURGEON to the above Hospital.

Candidates must be Fellows of the Royal College of Surgeons of England.

Canvassing is not permitted. Candidates are, however, requested to send copies of their application and testimonials to the members of the Committee of Management and the acting Medical and Surgical staff, whose names and addresses can be obtained on application to the Secretary.

Applications, stating age, with copies of testimonials, must be received not later than December 31st by—

ARTHUR J. M. TARRANT, Secretary.

Mansfield and District Hospital.

The [illegible] above Hospital for the post of

Salary at the rate of £150 per annum for the first six months and £175 for the second six months, with residence, board, and laundry.

The appointment is for six months and is renewable.

The Resident Staff consists of a Resident Surgical Officer, House Surgeon, and House Physician.

Applications, accompanied by not more than three recent testimonials, to be sent to the undersigned.

Dated this 2nd day of December, 1929.

ARTHUR H. LIMB, Secretary

Bolingbroke Hospital
(Incorporated),
Wandsworth Common, S.W.11.

The Board of Governors invite applications from registered Medical Practitioners in the district for the post of HONORARY ANÆSTHETIST. The successful candidate will be required to attend at the Hospital on the days and at the hours as may be required.

Applications, stating age, qualifications, etc., together with copies of three recent testimonials, to be sent to the undersigned on or before December 11th.

W. S. RANDOLPH BISS,
Secretary-Superintendent.

Italian Hospital,
Queen Square, W.C.1.

There are vacancies for Two HONORARY SURGEONS and the Committee of Management invite applications for the posts. Candidates must be Fellows of the Royal College of Surgeons of England or possess equivalent degrees from a Royal Italian University, and they shall have their names on the British *Medical Register*.

Applications, with copies (only) of testimonials, should be sent to the undersigned on or before Friday, December 13th.

By Order of the Committee of Management,
F. HORNYIK,
Nov. 29th, 1929. *Acting-Secretary.*

Salford Royal Hospital.
(263 Beds.)

Applications are invited for the following vacancies which will occur in the Resident Medical Staff (male) on December 31st next:

RESIDENT SURGICAL OFFICER. Salary at the rate of £200 per annum.

HOUSE SURGEON (attached to the Genito-Urinary Department). Salary at the rate of £125 per annum.

HOUSE SURGEON to Aural, Skin, and Gynæcological Departments. Salary at the rate of £125 per annum.

The appointments are for a period of six months, with board and residence, with the exception of the Resident Surgical Officer, which is for twelve months.

Candidates must be registered under the Medical Acts.

The Hospital has the approval of the Royal College of Surgeons of England, and appointments here are recognized for the English Fellowship (Final).

Forms of application, which may be obtained from the undersigned, must be delivered on or before December 10th.

By Order of the Board,
Salford Royal Hospital, Manchester. GEORGE RUDDLE, Gen. Supt. & Secretary.
November 30th, 1929.

Hove Hospital (Carr-Burton Memorial), Sackville Road, HOVE.

A RESIDENT MEDICAL OFFICER (male) is required, who must be unmarried and under 40 years of age. The Hospital contains 24 beds.

The appointment affords excellent opportunity for surgical experience and for acquiring knowledge of routine treatment.

Salary £150 per annum, with board, apartments, and laundry.

Candidates should state when they could take over the duties. Expenses not exceeding one guinea will be paid to any applicant invited to attend for interview.

Applications must be sent in by December 21st, addressed to the General Secretary, 113, Queen's Road, Brighton.

Elsie Inglis Memorial Maternity
HOSPITAL,
SPRING GARDENS, EDINBURGH.

Applications are invited from qualified Medical Women for the post of JUNIOR HOUSE SURGEON at the above Hospital. The appointment is for six months from January 1st, 1930, with board, residence, and laundry.

Applications, with copies of testimonials, to be received by the Secretary on or before December 16th.

General Infirmary, Salisbury.
(General Hospital—151 Beds.)

Two HOUSE SURGEONS (male) required to commence duty as soon as possible.

Candidates must be unmarried, fully qualified, and registered. Salary £150, with board, etc.

Applications, with copies of testimonials, to be sent to the House Governor and Secretary, from whom a copy of the rules may be had on application.

Greenock Royal Infirmary.

Wanted, HOUSE SURGEONS, one immediately, and another as at February 1st, 1930. Salary £100 p.a., including board, residence, and laundry. Other two Residents on staff. 150 beds. Good experience. Applications invited, with testimonials, to be sent to the Secretary, 2, Hamilton Street, Greenock.

JAS. A. LOVE, Secretary.

Newark Hospital and Dispensary
(50 Beds.)

Wanted, a fully qualified RESIDENT HOUSE SURGEON (male) to commence duty January 1st, 1930. Must be a good Anæsthetist. Salary £150 per annum, with board, residence, and laundry. Appointment for six months, or twelve if mutually desired. For form of application apply to W. T. CRAMPTON, 27, Kirk Gate, Newark, Notts.

Bristol General Hospital.

A Meeting of the Election Committee will be held at the Hospital on Wednesday, December 18th, at 1 o'clock p.m., to elect an HONORARY PATHOLOGIST.

Application for the appointment will be made by Dr. A. L. TAYLOR, Director of the Clinical Laboratories.

Candidates are requested to send their applications, with copies of testimonials and proof of qualification, to the undersigned on or before Monday, December 16th, from whom further particulars may be obtained.

By Order of the Committee,
THOMAS W. GREGG,
November 27th, 1929. Secretary.

Bristol General Hospital.

A Meeting of the Election Committee will be held at the Hospital on Wednesday, December 18th, at 1 o'clock p.m., to elect an HONORARY ASSISTANT PHYSICIAN, whose work will be confined to the Skin Department.

Candidates are requested to send their applications, with copies of testimonials and proof of qualification, to the undersigned on or before Monday, December 16th, from whom further particulars may be obtained.

By Order of the Committee,
THOMAS W. GREGG,
November 27th, 1929. Secretary.

Bristol General Hospital.

A Meeting of the Election Committee will be held at the Hospital on Wednesday, December 18th, at 1 o'clock p.m., to elect an HONORARY SURGEON.

Application for the appointment will be made by Mr. DUNCAN WOOD, Honorary Assistant Surgeon.

Also to elect an HONORARY ASSISTANT SURGEON.

Candidates are requested to send their applications with copies of testimonials and proof of qualification, to the undersigned on or before Monday, December 16th, from whom further particulars may be obtained.

By Order of the Committee,
THOMAS W. GREGG,
November 27th, 1929. Secretary.

Bristol General Hospital.

A Meeting of the Election Committee will be held at the Hospital on Wednesday, December 18th at 1 o'clock p.m., to elect an HONORARY DENTAL SURGEON.

Candidates are requested to send their applications, with copies of testimonials and proof of qualification, to the undersigned on or before Monday, December 16th, from whom further particulars may be obtained.

By Order of the Committee,
THOMAS W. GREGG,
November 27th, 1929. Secretary.

North Riding Infirmary,
MIDDLESBROUGH.
(General Hospital, 150 Beds.)

SENIOR RESIDENT SURGEON wanted to take up duties early in January, 1930. Salary at the rate of £200 per annum, with board, residence, laundry, etc. Applications, with three recent testimonials, stating age, qualifications, nationality, and previous experience, should be forwarded to the undersigned not later than December 13th.

The successful candidate will be expected to stay for a period of not less than one year.

CHARLES POSTGATE,
December 5th, 1929. Secretary-Supt.

London Lock Hospital,
Dean Street and Harrow Road, W.

The Board of Management invite applications for appointment as SECOND ANÆSTHETIST, to attend as may be required by the Hon. Surgical Staff of the Hospital. Fee £1 1s. per attendance. The appointment is made in accordance with the Laws relating to the Medical Staff of the Institution, a copy of which can be obtained from the Secretary. Applications, enclosing two copies of recent testimonials, to be addressed to the Secretary, 287, Harrow Road, W.9, on or before December 9th.

Telephone: WELBECK 2728.
Telegrams: "ASSISTIAMO, LONDON."

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TRAINED NURSES FOR MENTAL, MEDICAL, SURGICAL, AND FEVER CASES.

Nurses reside on the premises and are available for urgent calls Day or Night.

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29, York St., Baker St., London, W.1.

Mrs. HILLICENT HICKS, *Supt.*
W. J. HICKS, *Secretary.*

Wellhouse Hospital, Barnet, HERTS.

ASSISTANT MEDICAL OFFICER (Male).

The Guardians of the Barnet Union invite applications from registered Medical Practitioners for the appointment of Assistant Medical Officer at their Wellhouse Hospital. The Hospital is a modern Poor Law Hospital and comprises Medical, Surgical, Maternity, X-ray, Massage, and Radiant Heat and Sunshine Departments. There are the usual Consultants.

Salary at the rate of £250 per annum, with the usual emoluments. The appointment is on the medical side *and is (subject to one month's* notice on either side) for a period of six months in the first instance, which may then be renewed, when the salary would be increased to £300 per annum, rising.

Previous experience as H.P. and Anæsthetics in a General Hospital essential.

Applications, stating age, experience, and qualifications, with copies of not more than three recent testimonials, to reach this *office* not later than December 14th.

1, Wellhouse Lane, Barnet, Herts. *S. F. WILSHIRE,* Clerk to the Guardians.

Royal Hampshire County HOSPITAL, WINCHESTER.

Applications are invited for the post of HONORARY CLINICAL ASSISTANT in the Ophthalmic Out-patient Department. Days of attendance—Wednesdays and Fridays. Applicants must have done at least three months' Post-graduate work in an Ophthalmic Hospital or in the Ophthalmic Department of a General *Hospital.*

For further particulars apply to the under*signed.*

HERBERT MASLEN, *Secretary.*

Royal Hampshire County HOSPITAL, WINCHESTER. (158 Beds.)

HOUSE SURGEON.

Applications are invited from fully qualified men for the above post to take up duties on January 1st, 1930. Salary £150 per annum, with board, residence, and laundry. Candidates, who must be of British nationality, to make application at once to the undersigned, enclosing copies of three testimonials.

HERBERT MASLEN, Secretary.

Royal Hampshire County HOSPITAL, WINCHESTER. (158 Beds.)

SENIOR RESIDENT MEDICAL OFFICER.

Applications are invited from fully qualified men for the above post to take up duties on January 1st, 1930. Salary £200 per annum, with board, residence, and laundry. Candidates, who must be of British nationality, to make application at *once to the undersigned,* enclosing copies of three testimonials. Pref*erence given* to candidate with some Ophthalmic experience.

HERBERT MASLEN, Secretary.

Bristol Homœopathic Hospital. (Bruce Melville Wills Memorial.)

The Board of Management invite *applications* for the post of HONORARY SURGEON to the Hospital (75 *beds, including* Private and Semi-private Wards). Applications, stating age, qualifications, *and previous* Surgical experience, should be addressed to the undersigned.

B. HUNTER (*Lt.-Colonel*), Secretary.

MR. HERBERT NEEDES,
31, Bedford Street, Strand, W.C.2.
(Temple Bar 3873.) (Estab. 1860.)

This Agency (the oldest in the Kingdom) undertakes the SALE of PRACTICES and PARTNERSHIPS, AUDITS, and VALUATIONS, and the SUPPLY OF LOCUMS and ASSISTANTS.

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3. RENT.—PRACTICE of about £700 a year in charming residential district within 30 miles for Sale, with fine old manor residence and grounds. Scope for younger man. Suitable for one with private means seeking easy occupation with good social amenities.
4. SEASIDE DEATH VACANCY, within an hour of Town. Receipts £2,000 a year. Patients of the better class. Excellent family residence for sale or rent.
5. HOME COUNTY.—Increasing PRACTICE of £600—apart from panel, for which there is great scope. Rural and industrial locality. Convenient modern house, garden, and garage at £80. Price £600 or offer.
6. *LONDON, N.W.*—Sound middle- and working-class Cash *PRACTICE,* returning over £900 and increasing. Panel over 800. Very prominent corner residence, with garage. Premium 1½ years' purchase.
7. LONDON (*near* Westminster).—£1,000 a year. Panel 750. All cash. Corner house on *lease, rent and* taxes wholly sub-let.
8. PARTNERSHIP in Coast Town, S.W.—*THIRD* SHARE of good-class private Practice of £3,000 a year is offered to well-qualified active gentleman of exper. at 2 yrs.' pur.
9. REQUIRED by M.B., F.R.C.S., *PRACTICE* of £1,500—£1,800 in Country Town with Hospital, within 1½ hours of London. Panel *and appts.* not objected to. Good modern house, garden, etc., essen. Ample capital.

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Apply to Lady Superintendent, 19, Nottingham Place, London, W.1. Telephone: Mayfair 5420.
Northern Branch.—Apply, Lady Superintendent 57, Clarendon Rd., Leeds. Phone: Leeds 26165.

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Cheshire Town Practice.—Income about £1,000 p.a. Private practice about £10 per week. Panel over 1,000. Urgent sale. —No. 8581.

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Glos.—Over £750 p.a., increasing annually. Clubs £40 p.a. Panel 550. Mids. 2—10 gns. Visits 5/6—10/6. Good house, 5 bed., etc.—No. 8578.

S. Wales Resort.—£1,400 p.a., increasing annually. Mixed class. Panel 607. Appts. £60. Mids. 3—10 gns. Visits 5/6—21/-. Good house and garden.—No. 8575.

Home County. — Over £1,300 p.a. Panel *and appts. £550* p.a. House, 6 beds., good surgery, etc., and garden, to rent —No. 8569.

Wiltshire.—About £1,000 p.a. Small panel. No midwifery. Appt. £30 p.a. Visits 5/- to 10/6. Suitable house to rent at £70 p.a.—No. 8574.

Eastern Counties. — Assistancy, with view to Partnership. 1/3rd of £3,300 p.a. Panel over 1,300. Appts. £230 p.a. Mids. 2 to 10 gns. Visits 5/- to 31/6, etc. Suitable accommodation.—No. 8573.

Eastern Counties. — Country PRACTICE. Average £2,350 p.a. Eminently suitable for two. Appts. £100. Panel 1,600 odd. Two good houses to let.—No. 8568.

Home Counties.—Country Town. Share worth £1,000 or more p.a., in old-established Practice. Appts. £250 p.a. Panel over 2,700. Personally visited.—No. 8565.

S. W. County. — About £1,060 p.a. Visits 5/- to 21/-. Surgery fees 5/6 to 21/-. Panel and appts. £700 p.a. Very little mid. Good house available.—No. 8564.

London, E. — £850 p.a. Old-estab. Visits 5/- to 10/6. Very little midwifery. Panel over 500. Small house to let £60 p.a.—No. 8562.

Continental Coastal Practice.—About £450 p.a. Visits 10/6 to 21/-. Cons. 5/- to 10/6. No appts. or mids. Good flat to rent, 3 bed., etc.—No. 8561.

Lancs.—1/3 or 1/2 share of over £2,400 p.a. *Prelim. Assistancy.* Panel £500. Mixed-class. Good house, 4 beds., attics, etc.—No. 8454.

London, N.W.—Over £900 p.a. Cash and panel of over 800. Visits 5/6 up. Corner house, *6 rooms,* surgery, etc.—No. 8560.

Eastern County. — Over £1,000. *Panel* and appts. £560. Visits 4/6 up. Good house, with 4 beds., and garden. Low rent.—No. 8559.

Lancs.—£4,000 p.a., increasing. Panel over 2,650. *Fees* 2/6—7/-. Mids. 2—5 gns. Suitable for two Two adjoining houses to rent or buy. Premium, including drugs, book debts, surgery furniture, etc., only £5,250.—No. 8509.

Herts.—Country.—Nearly £1,000. Panel 470. Appts. £54. Residential. Good fees. House, with good surgery, 6 bed., garden, etc.—No. 8556.

West of England Town.—Share worth £900 p.a., of which £600 is from panel and appts. House, with 7 beds., etc., to rent.—No. 8552.

Midlands (Industrial). — Over £1,500 p.a., with ample scope. Panel about 1,700. *House to rent at £56.*—No. 8546.

Liverpool.—£1,300 p.a. *Visits* 3/6 to 5/-. *Mids.* 3 *to* 4 gns. Panel 560. House, 4 bed., etc., and garden.—No. 8536.

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NORTHERN BRANCH.

The Manchester Medical Agency, lately under the control and management of the Manchester Medical Committee, has now been taken over by the British Medical Bureau as their Northern Branch.

Medical Practitioners in the North requiring the services of the Bureau are recommended to consult the Branch Manager, at the Offices, 3, Cross Street, Manchester.

Telephones: CENTRAL 3925; after Office Hours: RUSHOLME 2549.
Telegrams: "LOCUM, MANCHESTER."

Practices and Partnerships for Disposal. **Full particulars sent free.**

1 SOUTH-EAST COAST.—Partnership (with succession) in rapidly increasing good-class non-dispensing Practice, £2,400 p.a., in favourite Summer Resort. House (8 bedrooms), in very good position, for sale. Partner should have University Degree, aged not under 35, and experienced in good-class Practice. Half share at first at 2 years' purchase.

2 SOUTH OF ENGLAND.—Practice about £700 in steadily growing semi-rural district near important town. Panel 300. Very comfortable house (3 bedrooms) for sale or rent. Premium 1½ years' purchase.

3 MIDLANDS. — Country Practice about £1,450 p.a. within 10 miles of first-rate town. Panel 1,250. large newly decorated house (7 bedrooms), in grounds of 3½ acres, for sale. Sport. Premium 1½ years' purchase.

4 HOME COUNTY.—Partnership in Practice £4,500 in industrial district under 25 miles from London. Panel over 4,000. House to let. Premium one-fourth share at 2 years' purchase.

5 MIDLANDS. — Partnership in Practice over £3,000 p.a. in rural district about 6 miles from important town. Panel 2,650. House to rent or purchase. Premium 1/3 share 1½ years' purchase.

6 BRITISH EAST AFRICA. — Assistant required (with view to Partnership) in General and X-ray and Electro-therapeutic Practice. Assistant must hold the F.R.C.S., and experience in X-ray would be advantageous. Share of about £1,200 p.a. offered to suitable man after preliminary assistantship.

7 SOUTH WALES. — Contract and Panel PRACTICE in Colliery District. Receipts last year £1,600. Panel 1,100. House (5 bedrooms) to rent. Cottage Hospital. Premium £1,150.

8 LONDON, N. — "Lock-up" Cash and Panel PRACTICE. Receipts last 12 months about £300. Panel 75. Rent of surgery £1 weekly. Premium, to include drugs, fittings, furniture, etc. (valued at over £100), £210.

9 DEATH VACANCY. — CORNWALL.—Country PRACTICE about £1,000/£1,200. Panel 800. Suitable and convenient house.

10 DEATH VACANCY. — Aberdeenshire.—Country PRACTICE about £1,000. Panel 650. Comfortable house (4 bedrooms), with large garden, at low rent.

11 SOUTH MIDLANDS.—Rapidly increasing PRACTICE in first-rate town. Receipts 1928, £552. Panel 480. Detached double-fronted house (4 bedrooms) to be sold. Considerable scope. Premium £600.

12 SURREY.—Partnership in non-dispensing Practice in good outlying Residential District. No panel, not much midwifery. Nice small house (3 bedrooms) to rent. Applicant should be aged 27/32. Oxford, Cambridge, or London, and have held House appointments. Share worth about £800 p.a. (with early increase) at 2 years' purchase. Preliminary Assistantship.

13 SOUTH COAST.—Practice about £800 p.a. in first-rate Residential Town and favourite Watering-place. Panel about 200. House (5 bedrooms) in good position. Scope in all directions. Premium 1½ years' purchase.

14 SOUTH OF ENGLAND.—Partnership in good-class non-dispensing Practice over £5,200 in first-rate Town. Plenty of scope. Applicant should be young (Cambridge or Oxford preferred and London School). One-sixth share at first at 2 years' purchase.

15 SURREY.—Partnership in Practice £3,650 p.a. in outlying Suburban District. Panel over 2,100. Detached house (6 bedrooms), garden, and garage, to rent. Premium 3/8ths share 1½ years' purchase.

16 SOUTH WALES. — Practice over £1,200 p.a. in Country Town. Panel about 300. Attractive old house (6 bedrooms). Garage and garden. Good facilities for sport. Premium £1,500.

17 SOUTH COAST.—Practice £1,328 p.a. in favourite Watering place. Panel 1,370. Large well-situated house to rent. Great scope. Premium £2,100, to include drugs, etc.

18 FRENCH RIVIERA. — Well-established Season PRACTICE. Receipts over 216,000 fr. p.a. Luxuriously furnished apartment (7 rooms), in most fashionable quarter, to rent. Premium (including fully furnished apartment) £4,000.

19 WEST MIDLANDS. — Country Practice (held by Medical Woman) in beautiful Village. Receipts £530 p.a., steadily increasing. Semi-detached 10-roomed house, with nice garden and garage, to rent. Premium 1½ years' purchase.

20 SOUTH COAST. — Increasing Practice £1,345 p.a. in favourite Seaside Resort. Panel 400/500. Choice of two houses for sale. Scope for increase. Premium 1½ years' purchase.

21 S.E. COAST.—Partnership in Practice over £5,000 p.a. in popular resort. Premium one-fourth share 2 years' purchase. Partner should be aged about 30 and must have held House appointments. Short preliminary assistantship.

22 HOME COUNTIES.—Partnership in Practice £2,800 p.a. in good town about 30 miles from London. Small panel. Convenient house (5 bedrooms) to be sold or let. University and Public School man who has held appointments preferred. One third share at 2 yrs.' purchase after preliminary assistantship.

23 NURSING HOME in favourite Town on Kent Coast. Clear net profit £750 p.a. Double-fronted residence, with operating theatre, to be let or sold. Premium—Goodwill—£1,000. Highly recommended.

24 KENT & SUSSEX BORDER. — Practice averaging nearly £1,100 p.a. in beautiful Country District. Small panel. Very convenient house (6 bedrooms) for sale. Sport. Premium 1½ years' purchase.

British Medical Bureau

(THE SCHOLASTIC, CLERICAL & MEDICAL ASSOCIATION LTD.)
(FOUNDED 1855.)

12, Stratford Place,
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Telephone: Mayfair 1722, 1783

Practices and Partnerships for Disposal (continued).

25 LANCASHIRE.—Partnership in Practice £3,720 p.a. in first rate Town. Panel 2,600. House (4 bedrooms) to be sold or let. Premium one-half share 1½ years' purchase.

26 EAST ANGLIA.—Partnership in Practice about £3,500 p.a. in Country Town. Panel 1,556. After prelim. Assistantship one third share offered to suitable man at 2 years' purchase. Applicant should be exper. and a good Anæsthetist.

27 ESSEX.—Practice of £1,070 pa. in Rural District. Panel 670. Old fashioned house (6 bedrooms), with large garden, to rent. Scope. Premium £1,650.

28 WEST OF ENGLAND.—Steadily growing Country PRACTICE of about £650 in delightful part of the Cotswolds—easy reach of two good Towns. Panel 497. House (6 bedrooms), with garage, ½ acre garden, and paddock, for sale. Good scope. Premium £800

29 EAST COAST. — Partnership (after short preliminary Assistantship) in Practice in Seaport Town. Suitable house to rent. Share worth over £1,800 p.a. at 1½ years' purchase. Applicant must be young (about 35) and energetic.

30 SOUTH MIDLANDS.—Country Practice, 40 miles from London Established 13 months. Earnings during same period £600 (Cash received £500.) Panel 40. House (5 bedrooms), with good garden, etc., to rent. Plenty of scope. Premium £600. Part down.

31 WILTSHIRE. — Country Practice about £500 in delightful part. Small panel Suitable flat (2 bedrooms) to let. Premium £500.

32 SOUTH COAST.—Practice of £1,300/£1,400 p.a. in popular resort. Panel 785. House (5 bedrooms), on main road, to rent.

33 GLOUCESTERSHIRE.—Country Practice of £550 p.a. in delightful part. Panel 450 Excellent modern house (5 bedrooms) and garden for sale. Premium £750.

34 DORSET.—Country Practice over £1,000 p.a. in beautiful district. Panel over 600. Nice house (6 bedrooms), with lovely garden, to rent. Premium 1½ years' purchase.

35 SOUTH WALES.—Seaside Resort.—PRACTICE averaging £1,200 p.a. Panel 600. Nice house, with garden and garage, for sale or rent. Premium 1½ years' purchase. Welsh [illegible] essential.

36 EASTERN COUNTIES.—Practice averaging £2,800 p.a. in Seaport Town. Panel 700. House (5 bedrooms) large garden, for sale or rent. Scope. Premium 1½ years' purchase.

37 EASTERN COUNTIES.—Partner required in sound Practice in important town with Hospital. Applicant must hold the F.R.C.S. Share worth £1,500 p.a. at 2 years' purchase.

38 NORTH MIDLANDS. — Partnership in Practice £2,586 p.a. in one of the principal cities. Panel about 1,500. Share up to one-half at 2 years' purchase after preliminary Assistantship.

39 SHEFFIELD.—Practice about £800 (including appointments worth £155 p.a.). No panel or dispensing. Convenient house (6 bedrooms) to be sold or let. Premium £800 [illegible]

40 LANCASHIRE.—Practice of about £2,000 p.a. (over £500 from panel) in a semi-rural district near good town. Nice house (6 bedrooms, etc.), recently redecorated, for sale. Premium—Practice—£2,500.

41 WEST MIDLANDS.—Practice of £1,440 p.a. in small market town in agricultural district. Panel 500. Good house (7 bed and dressing rooms), with electric light and gas, for sale. Scope for increase. Premium £2,100.

42 MIDLANDS.—Practice averaging £1,680 p.a. in important Town. Panel 1,560. Specially built house (4 bed and dressing rooms) to be sold. Scope for increase. Price £2,250.

43 LONDON, W.—Partnership in good-class non-dispensing Practice over £7,500 p.a. in Kensington. No panel or appointments. Incoming Partner must be well qualified (aged 30—35) and have held Hospital appointments. Share worth about £1,000 at 2 years' purchase.

44 PRIVATE MENTAL HOME, Licensed for a few ladies, in charming residential district in the South of England. Net profits between £600 and £700 p.a. Fees £7 7s. to £12 12s. House stands in beautiful grounds and would be let on lease. Premium for Licence and Goodwill £2,000. Well recommended.

45 MIDLANDS.—Partnership in non-dispensing Practice over £5,000 p.a. in first-rate residential town. Panel 1,700. Partner should be aged 27—30. One fifth share at 2 years' purchase.

46 LONDON, W. — Non-dispensing Practice about £1,650, within easy distance of Marble Arch. No panel or appointments and practically no midwifery. Commodious house to be let or sold. Premium one and a half years' purchase.

47 SOUTH OF ENGLAND.—Partnership in sound non-dispensing Practice £4,200 p.a., in attractive watering-place. Panel about 1,800. Suitable house. Applicant should hold F.R.C.S.Eng., or M.D., F.R.C.S.Edin. One third share at 2 years' purchase. (Preliminary Assistantship.)

48 SOMERSET. — Easily worked Country PRACTICE of about £900 p.a. in favourite residential village. Panel 500. Well built house (6 bed and dressing rooms), to be sold or let.

49 EASTERN COUNTIES. — Country PRACTICE of £2,350 p.a. carried on by two Partners. Panel 1,600. Two houses to be let. Premium 1½ years' purchase.

50 WEST OF ENGLAND.—Steadily increasing PRACTICE (carried on by Medical Woman) of well over £700 in first-rate town. Panel 550. Centrally situated house in excellent position for sale Premium £1,050.

51 LONDON, S.W.—Good middle-class non-dispensing PRACTICE in pleasant residential suburb. Receipts year ended September 30th, 1929, £2,428. No panel Excellent detached corner residence (7 bedrooms). Premium—house and Practice—£4,000.

52 LONDON, S.E.—Cash Practice about £600 a year in suburban district within half an hour of Charing Cross. Panel 360. Small corner house to rent. Great scope. Premium £900, part by instalments.

53 LANCASHIRE.—Partnership in old-established Practice about £2,650 p.a. in manufacturing town. Panel 900. Applicant should be experienced and aged about 30 to 35. Share up to one-half at 1½ years' purchase after preliminary assistantship.

54 Near BIRMINGHAM.—Partnership in very sound Practice, nearly £3,000, in large and rapidly growing residential country district. Panel 930 Suitable house obtainable Premium one-fourth share 2 years' purchase.

55 SUSSEX.—Partnership in Country Practice, £2,750 p.a. in residential district near the Coast. Panel about 700. Good house (about 6 bedrooms) to rent on lease. Scope. Premium one-half share 2 years' purchase.

56 W. OF ENGLAND. — Ophthalmic PRACTICE, between £850 and £900, in residential seaside resort. Semi-detached house for sale or rent. Considerable scope as Vendor has undertaken only minor operations. Premium £1,300.

57 MID-WALES. — Country Practice nearly £300 p.a. in beautiful part. No midwifery. Well built house (4 bedrooms, etc.). Rent £30. Premium for quick sale only £100.

58 S.W. OF ENGLAND. — Seaport Town. — PARTNERSHIP (after preliminary assistantship) in good mixed Practice about £3,000 p.a. Panel 2,100. One third share offered to suitable man at 2 years' purchase.

59 WEST OF ENGLAND. — Partnership in Practice in small watering-place. Receipts past 12 months over £1,800. Panel 1,375. Pleasantly situated house (5 bedrooms) in good residential part for sale. Premium two fifths share £1,400.

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SALOP.—DEATH VACANCY.—NUCLEUS [illegible] strict. Receipts £400. Panel 380. One p.a. Medium sized house to rent at £35 p. mum 1 year's purchase.

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KENT.—Well-established Country PRACTICE. Receipts nearly £1,400. Panel 703. Excellent freehold house, with large garden and garage. Scope for surgery. Premium 1½ years' purchase.

LONDON, W.C.—Middle-class G.P. Receipts approx. £500 p.a. Increasing panel of 190. Accommodation to rent. Premium £800.

KENT.—PARTNERSHIP in old-established G.P. within 15 miles of London. Receipts average £3,800. Panel 2,500. One-third or half share offered at 2 years' purchase.

YORKS.—Well-established middle- and working-class Town PRACTICE. Receipts approx. £1,520. Panel nearly 1,700. House to rent. Premium £2,250.

YORKS.—PARTNERSHIP in middle- and working-class Town PRACTICE. Receipts approx. £3,000 p.a. Panel over 2,000. House to rent. Premium for 1/4th share 2 years' purchase.

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3. ESSEX.—COUNTRY PRACTICE. Established by Woman Doctor 3 years. Receipts about [illegible] *Small panel* [illegible] Good house
4. [illegible] panel and £2,242, and [illegible] appointments to rent.
5. [illegible] intry PRACTICE. 233. Appointments. Good house,
6. WEST OF ENGLAND.—PARTNERSHIP (half share) in well-established industrial and middle-class Practice. Receipts over £900 p.a. (for share) including panel and appointments over £600 *Good house to rent*
7. MIDLAND COUNTY BOROUGH.—Panel and Cash PRACTICE. Receipts over £600 p.a Panel 750 800 House to *rent*, or can probably be purchased. Garage
8. NURSING HOME (Small), good-class, in SOUTH COAST HEALTH RESORT Receipts for last 11 months over £1,683, and scope for increase *Expenses moderate*, profits good. *House on lease or for sale.*

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4. LONDON, N.—A well-established Cash and Panel *PRACTICE*. Receipts £700 a year, *including panel over 500, increasing. Nice corner surgery premises.* Good scope. Premium £700, preferably cash.
5. LONDON, E. — Well-established Cash and Panel PRACTICE. Receipts estimated at £950 a year, including panel of 600. Shop-fronted *corner house*, rent £80. Densely populated district. Prem. £1,000.
6. WELL-KNOWN MIDLAND TOWN.—Mixed-class PRACTICE. Receipts average £1,500 a year, panel 1,150. Good semi-detached house, rent £100. Premium 1½ years' purchase, part payable by instalments.
7. NORTH WALES.—Nice residential part. Share (to be arranged) of an old-established PRACTICE. Receipts £4,000 a year, panel 3,800. Large detached house available. *Premium 1½ years' purchase on whatever share purchased.* Knowledge of Welsh not essential.
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2. PARTNERSHIP.—SOUTH WEST.—(Within 100 miles of London).—Partner required, experienced in surgery, to take over a fourth, third, or half share in a very old-established Practice in a desirable country town. Income over £4,200 p.a. (this year to end of Oct. £4,455), including appts. £300 and panel of 1,950. Visits up to 31/6. Good house, with ample accommodation. Price, freehold, £2,000. Prem. for share 2 years' purchase. Up-to-date Cott. Hosp.
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4. PARTNERSHIP. — ESSEX. — (Within 30 miles of London). — Third Partner required in very old-established rapidly increasing Practice in small country town. Cash receipts for past three years average £5,755 (last year £4,176), including panel of 2,200 and appts. Third share is for disposal. Opposition slight. Visits 5/- to 21/-. Good house, professional accommodation, 2 reception, 4 bedrooms, bathroom, etc. Large garden. Garage. Rent £60. Premium 2 years' purchase. Educational facilities and sport.
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6. ESSEX.—(Within 15 miles of London).—Old-established, unopposed and increasing PRACTICE, in pretty country district. Income last year over £1,100, including Union £90 and panel £432. Comfortable house, with ample accommodation (water laid on) and large garden. Rent £70 p.a. on lease. Premium £1,650. Ill health reason for sale.
7. HOME COUNTIES.—Within few miles of large town.—Old-established unopposed and increasing PRACTICE, in pleasant district, worth over £3,000 p.a., including panel, with mileage, producing about £1,000 and appts. £250. Visits 3/6 to 10/6, medicine usually extra. Very little midwifery. Good house (7 bedrooms, etc.), garden, garage. Price, freehold, £2,000. Premium 1½ years' purchase.
8. *X-RAY AND ELECTRO-THERAPEUTIC CONNECTION*, in popular South Coast Watering-place. Receipts, which are rapidly increasing and include resident patients for treatment, amounted last year to nearly £800. Large house and garden. Price, freehold, £6,500. Premium 1½ years' purchase. Opposition very slight and the *investment offers considerable scope.*
9. DEATH VACANCY.—HOME COUNTIES.—(Within one hour's run of London).—Old-established unopposed PRACTICE in pretty district within few miles of a town. Receipts average over £1,400 p.a., including appts. £100 and panel of about 800. Visits 2/6 to 21/-, medicine extra. Railway station in place. Good house (5 bedrooms, bathroom, etc.), with large garage. Electric light and gas. Price, freehold, £1,800, of which £1,500 can remain on mortgage. Premium only £1,400. Educational facilities. *Excellent Locum in charge.*
10. [illegible] within easy reach of Manchester.—producing £2,600 p.a., with panel of [illegible] medicine extra. Good house, with ample [illegible]00, or would be rented at £70 p.a. Pre[illegible] half down and balance by instalments.
11. LANCS. — LARGE TOWN. — Better-class *non-panel, non-dispensing* PRACTICE, offering large scope for surgery to anyone having the F.R.C.S. Income for last 12 months £1,500. Fees 7/6, 10/6, and 21/-. Good house, with ample accommodation and well situated. Price £700, £450 *on mortgage; or might be let.* Premium £1 200.
12. ESSEX.—POPULAR COAST TOWN.—Small easily worked PRACTICE, offering good scope, as district developing. Income last year £530. Panel of 200. Fees 2/6 to 7/6. House contains 2 reception, 3 bedrooms, etc. Garden. For sale or on rental. Premium £850, part down and balance instalments.
13. PARTNERSHIP.—WITHIN 40 MILES OF LONDON.—Pleasant Town.—A one-third share in a very old-established mixed-class Practice, averaging over £3,400 p.a. Panel of 1,900 and appts. worth £540. Fees 2/6 to 2 gns. Mid. from 2 to 20 gns. Suitable house, with ample accommodation, Garage. Rent on lease £65 p.a. £2,650.
14. [illegible] Country PRACTICE in very favourite [illegible]ndon. Income at present about £500, but offering large scope. Fees 3/6 to 10/6. Convenient house, with 2 reception, 5 bedrooms, etc., can be rented on lease at £75 p.a. Premium £500, payable easy terms. Locum in charge.
15. LONDON, NORTH-WEST.—RESIDENTIAL SUBURB.—PARTNERSHIP.—A one-fourth share (up to one-half in 12 months) in a very old-established non-panel and non-dispensing better-class Practice. Average income £6 000. Fees 7/6 to 10/6. Large double-fronted house available. Senior Partner retiring. Premium 2 years' purchase.
16. SOUTH WALES.—Seaside Resort.—*Old established mixed-class* PRACTICE in favourite county, *receipts for past* 12 months £1,900, including panel of 607. Visits 5/6 to 21/-. Convenient house, with 2 reception, 4—6 bedrooms, and professional rooms, etc. Rent on lease £60 p.a. Good sport and schools. Prem. 1½ yrs.' purchase.
17. SOUTH AFRICA.—HEALTH RESORT (Inland Spa).—*Old-established increasing* PRACTICE, held over 20 years, on a main line of rail and in a healthy pleasant township much frequented by visitors in the Season. Cash receipts average over £1,750 p.a., including several appts. One opponent. Price for house £1,500, to include furniture, instruments, and motor car (original cost £2,000), and for goodwill £1,500, part by instalments. Efficient introduction. A knowledge of Hydrology would be a big asset.
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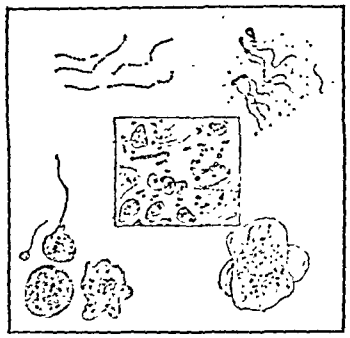

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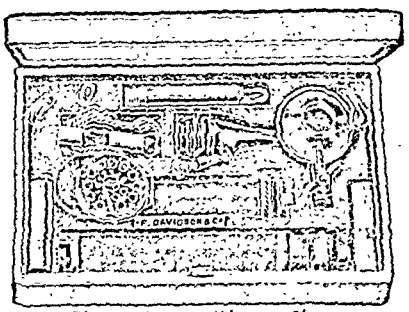

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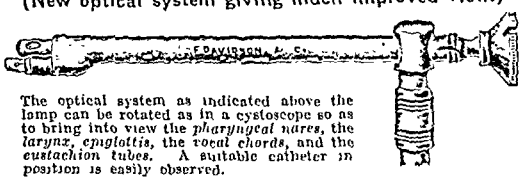

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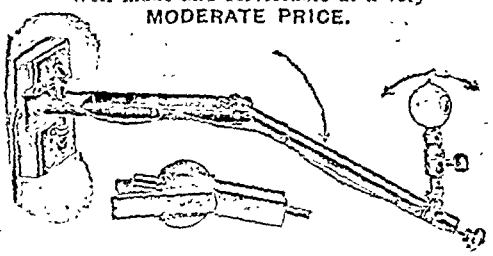

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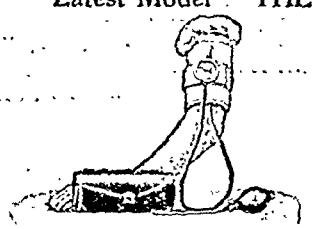

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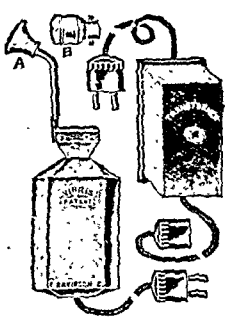

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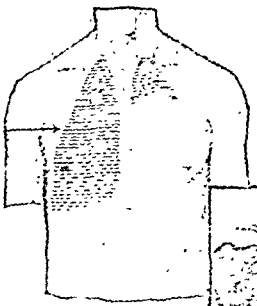

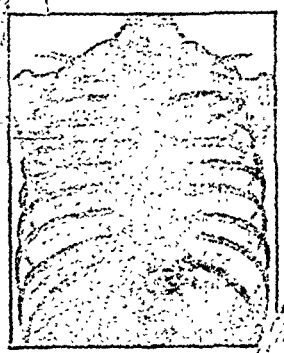

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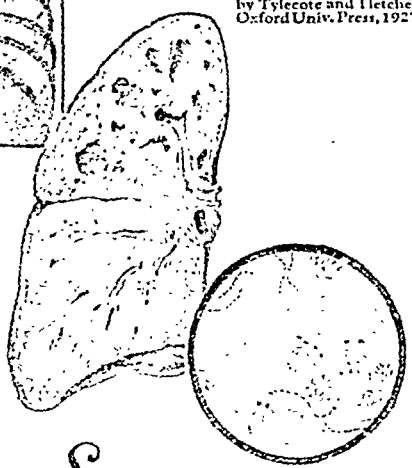

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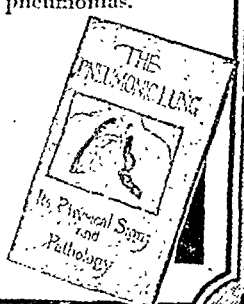

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CHRISTMAS HOLIDAYS, 1929.

All Advertisements and Communications intended for publication in our issues of December 21st and 28th, 1929, should reach this office by the following dates:

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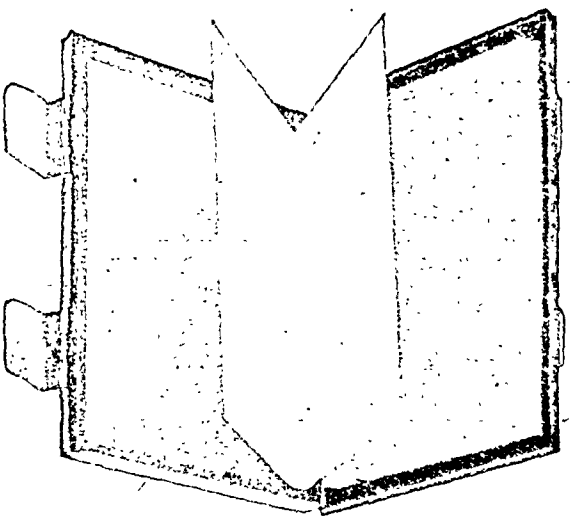

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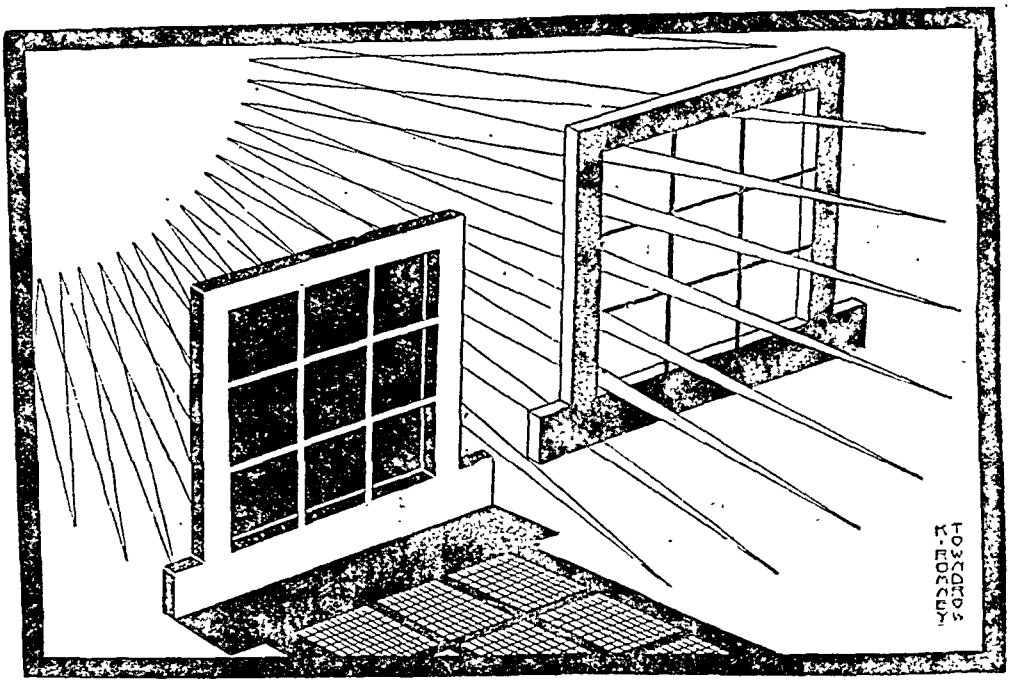

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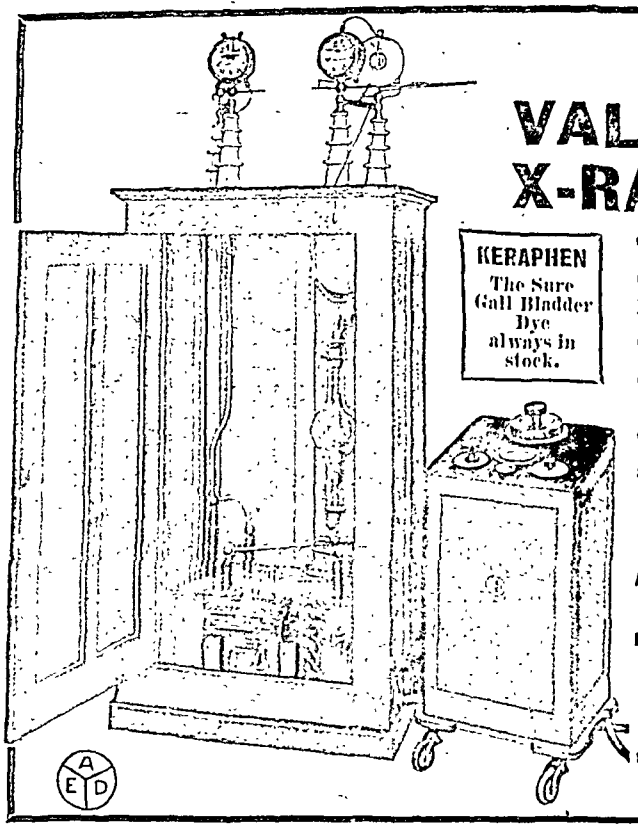

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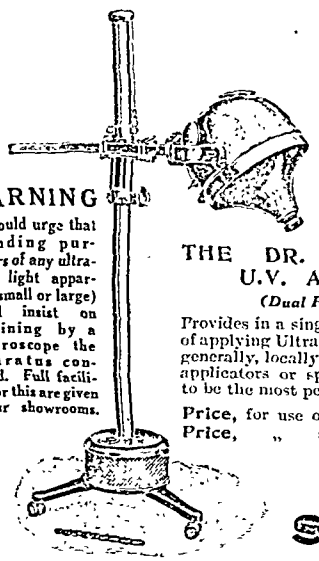

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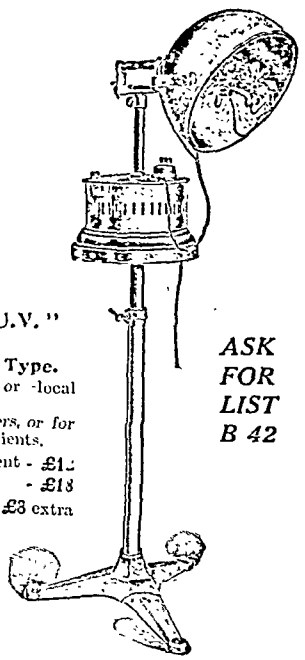

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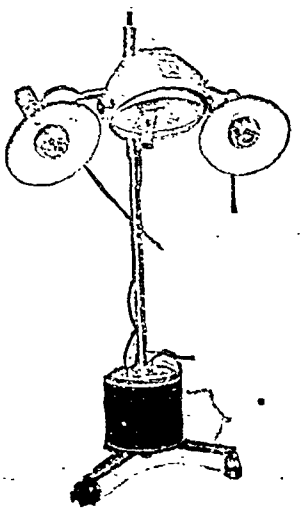

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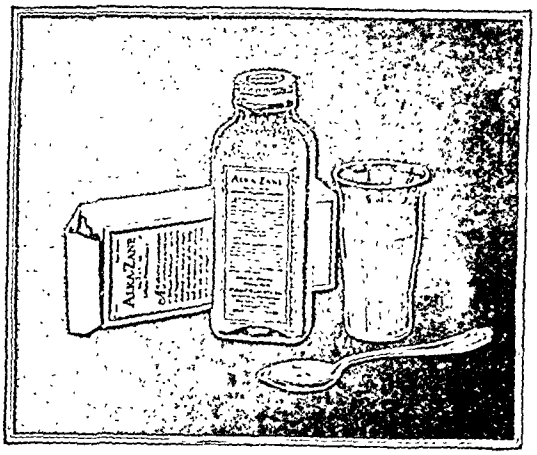

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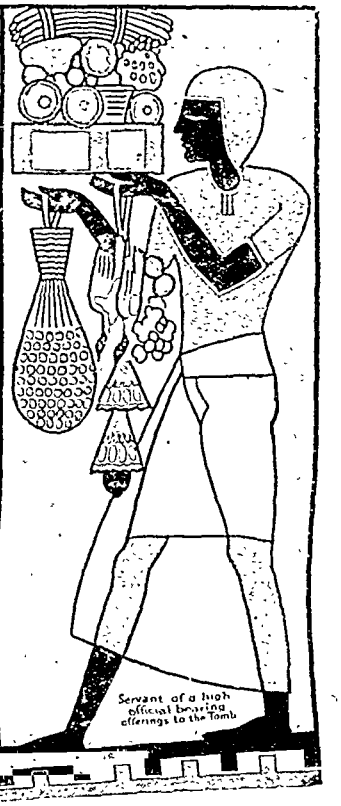

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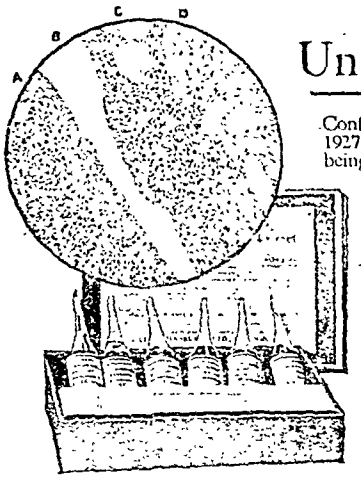

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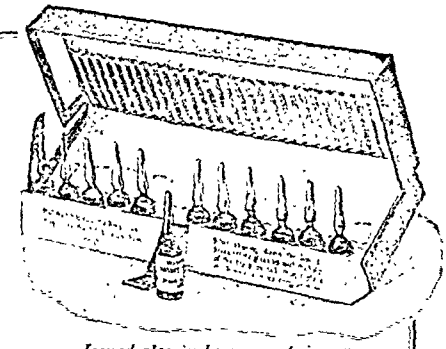

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TYPICAL CASE.

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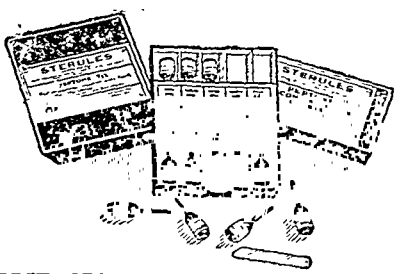

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Salivarius. Barnes 445	Mouth-Tonsillitis	1-100
Erysipelatis. 226	Lesion	1-150
Enterococcus Tissier 775	Faeces	1-150
Urine 8213	Urine	1-150
Rheumaticus. Beattie	Joint	1-300
Sputum A	Unresolved pneumonia	1-700
Sputum B	Unresolved pneumonia	1-700
Viridans 1080	Tonsil	1-1000
HAEMOLYTICUS 2060	—	*1-1500*
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Cod-Liver Oil is the richest available natural source of the fat soluble growth-promoting and anti-infective vitamin *A* and the antirachitic vitamin *D*.

The 'Allenburys' 'Perfected' Cod-Liver Oil is examined **biologically** and **certified fully active** with regard to **Vitamins *A* and *D*.**

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"Dr. ———, M O.H., in opening the discussion, estimated the human deaths caused annually by the bovine tubercle bacillus at 2,000 to 2,300. Most of them were the deaths of children, and we had no knowledge as to how many non-fatal infections occurred. As to the extent of bovine tuberculosis among cattle in this country, he thought that about 40 per cent. of the cows were infected; that about 1 per cent. of the cows were 'open' cases; and that about 0·3 per cent. had tuberculosis of the udder."

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This annual toll of human life, which is mostly confined to young babies, can be eliminated by a suitable heat treatment of the milk. Processes such as pasteurisation have their limitations so far as the feeding of infants is concerned, particularly in view of their disturbing influence on the mineral and vitamin content of milk.

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is now recognized to be the most convenient form of

LIVER EXTRACT

It is prepared in accordance with a special process evolved in our Laboratories which ensures that the whole of the therapeutic principles are contained in the final product. Being highly concentrated, a teaspoonful dose contains the equivalent of 2 oz. of fresh liver. It may be taken undiluted and, alternatively, it makes a very pleasant addition to soups, beef-tea, etc.

Supplied in 4-oz. bottles containing sufficient for 8 days' full treatment.

Price 12/- *per bottle.*

Prepared at Evans' Biological Institute, Runcorn.

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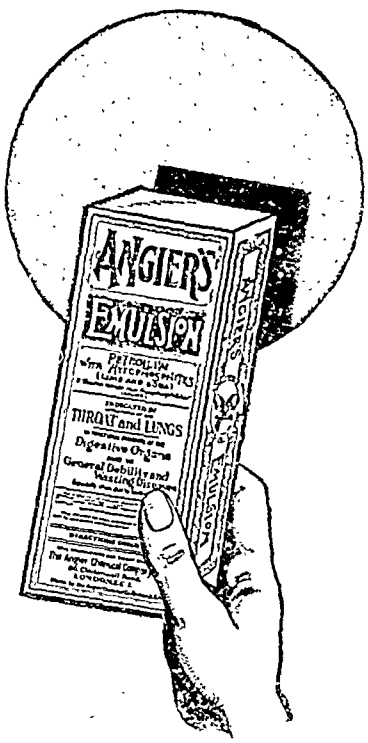

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ANIL - QUINOLINE 4 & 5

THIS important new antiseptic is the result of Research carried out by a group of workers at the University of Leeds under the auspices of the Medical Research Council. It has been subjected to thorough clinical trials in the General Infirmary, Leeds.

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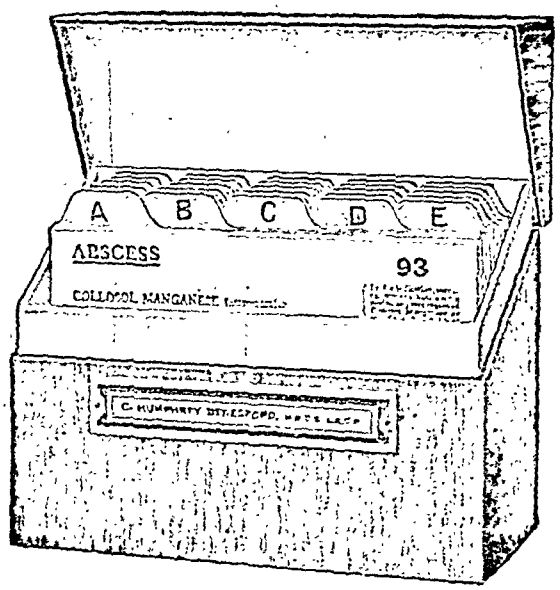

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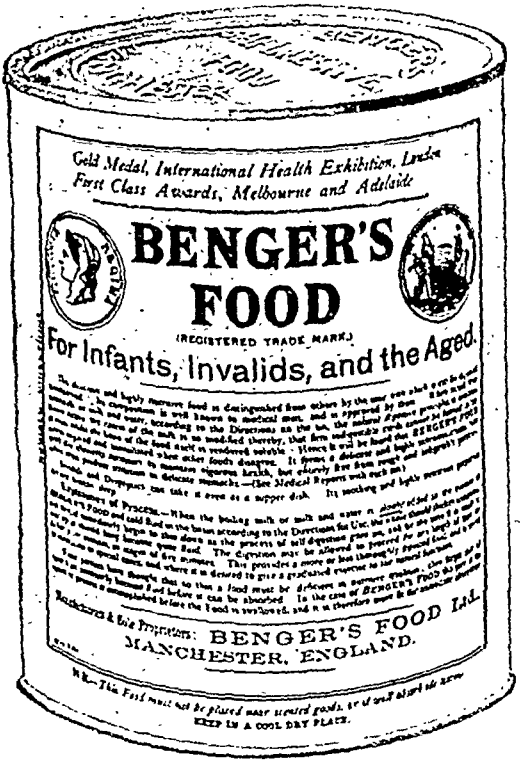

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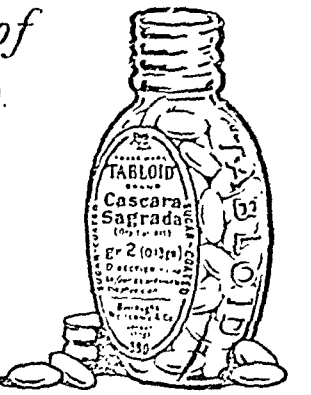

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Min Tseu K'ien, his father, his wicked step-mother and her son. In driving his father's chariot Min Tseu K'ien let fall the whip from his frozen hands. His father, about to chastise him for his clumsiness, perceived that his step-mother had allowed him only the flimsiest of clothing in the depths of winter, whereas her own son was most warmly clad. In his indignation he now wished to kill his second wife. Min Tseu K'ien is here depicted interceding for her—his half brother having taken the *reins*. *Chinese* fables and folk-stories are found in different forms in many lands to-day.

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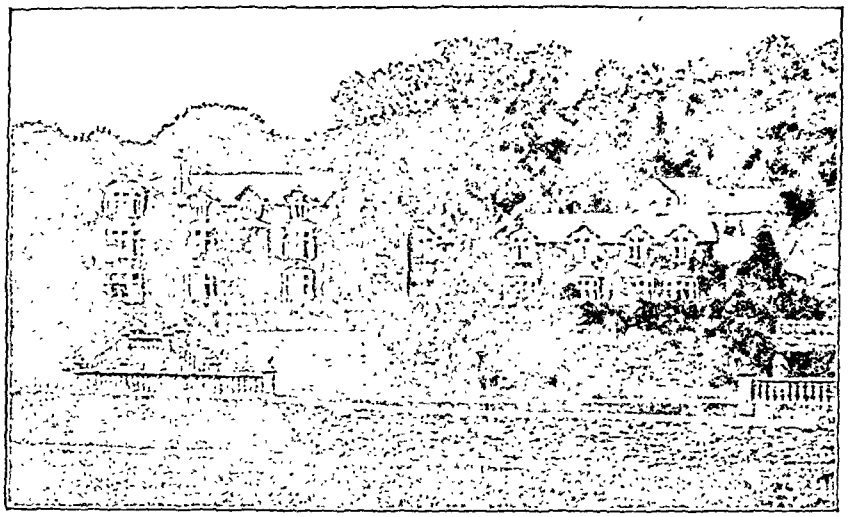

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An Address
ON
ABORTION: ITS FREQUENCY AND IMPORTANCE.*

BY
BECKWITH WHITEHOUSE, M.S.Lond., F.R.C.S.,
PROFESSOR OF MIDWIFERY AND DISEASES OF WOMEN, UNIVERSITY OF BIRMINGHAM.

THE subject of this address has been chosen for two reasons—namely, its frequency, and its importance to the individual and the community. The increasing number of abortions amongst most white races during the past thirty years has naturally focused attention upon a problem which has always to some extent exercised the minds of the medical and legal professions. With a stationary or falling birth rate the position naturally becomes more acute, and the prevention of abortion is to-day a responsibility which involves not only the welfare of the individual but also that of the family and the State. A nation with a diminishing birth rate and a high abortion ratio must sooner or later suffer. There appears to be little doubt that, for the present, the day of the large family has gone, for good or for evil. We are told that it is for good, but sometimes I have my doubts on this matter. I know many large families, families of as many as ten or a dozen, and I say unhesitatingly that in my experience they are the happiest, and are getting the best out of life. I have spoken to the mothers of these families, mothers from all grades of society, and never once have I heard any expression of regret, either from a social, economic, or physical standpoint.

In this age of mechanical transport, unhealthy excitement, entertainment, and "rush," the modern cult for limitation of the family by the wholesale promulgation and practice of contraceptive measures is speeding apace. There are too many intentionally sterile marriages to-day, and perhaps, what is equally as bad, there are too many one-child families growing up. Abortion must therefore be regarded as something more than a trivial accident. Its frequency in some countries to-day is appalling. Gellhorn states that in Germany, in 1890, one abortion occurred to every ten births. In 1911 the proportion had dropped to one in five, and in 1919, in Hamburg, the figure had reached one in two. In 1926 two abortions occurred for every three births. In each year in Germany the actual number of abortions varies between 500,000 and 875,000. In Soviet Russia the artificial termination of pregnancy during the early months is actually legalized, and State "abortoriums" have been established.

In this country abortion at present is not notifiable, and consequently reliable statistics are not available. Even if notification were established it is doubtful whether the information obtained would be of real value. The attitude of the lay mind to the whole question of abortion varies tremendously. Nothing is more conveniently forgotten than the termination of an unwanted pregnancy. On the other hand, where such a pregnancy is desired, abortion is a disaster, and its recurrence a real tragedy. Between these two extremes are the number of "so-called" "slight abortions," casually remembered by some individuals, and as casually related, during the taking of a clinical history. These are the items which probably would be overlooked in any system of notification and which would falsify the records.

From such figures as are available in the case sheets of hospital records it is a satisfaction to find that in this country we are not at present faced with anything approaching the state of affairs which obtains in certain European areas to-day. Recently I analysed the incidence of abortion among 3,000 of my hospital and private patients, and found that the ratio of abortions to births was 1:4.7. In a total of 11,430 pregnancies the percentage of abortions was 17.2; and among the total 3,000 cases the percentage of women who had aborted at some time or other during their sexual life was 35.3. For purposes of comparison the cases were grouped into "pre-war" and "post-war" years, and it was interesting and pleasing to find that the proportion was almost the same. In the case of 1,208 pre-war patients the abortions among 6,021 pregnancies registered 17.7 per cent., and the ratio to births at term was 1:4.6. Among 1,148 post-war cases the percentage of abortion was 16.9, and the ratio of abortion to births 1:4.8. These figures are based upon information provided by women attending a gynaecological clinic for many different lesions, and of course are open to the criticism previously advanced that they under- rather than over-estimate the true position of affairs. In the case of the "private" group, it is known that they include certain abortions "procured" for various indications, and therefore they do not give any guide to the incidence of "natural" as opposed to "intentional" abortion.

The criminal practice of the artificial termination of pregnancy naturally vitiates the value of any series of figures which purport to ascertain the frequency and causation of natural abortion. We know that many procured abortions occur in the community, but it is a very difficult, in fact practically an impossible, task to obtain direct information upon the actual number. There are many cases of this nature where neither the services of a doctor nor those of a midwife are asked, and if no complication arises the event is probably soon forgotten. The chief offenders in this group are those married women in whom pregnancy is not desired or for whom it is inconvenient. During the last few years I have been approached by many more married than single women with the object, expressed or implied, of terminating a pregnancy. The reasons put forward are various: sometimes, but very rarely, it is on the ground of economy; more frequently because the previous confinement had been complicated or difficult and there was an honest fear to approach the risks of labour again.

Another group includes those women who become pregnant again late in life, when the other members of the family are growing up. More than one patient of this group has felt her position acutely, and has told me that she "could not go through the disgrace of having another child." These actual words demonstrate the peculiar attitude of mind of some individuals in dealing with what, after all, is a purely physiological function.

One fact has been impressed upon me time after time, and that is the pertinacity of the married woman who sets out with a determination to terminate her own pregnancy. Argument is useless, and when she has failed to produce the required result by means of a popular purgative pill or a prescription from a fashionable chemist "to remedy all female menstrual irregularities," she approaches her own doctor. If he finds no indication to interfere she goes to somebody else, and eventually possibly does find some individual who is able to satisfy his own conscience that a medical reason exists for the evacuation of the uterine contents. If help cannot be obtained in this devious manner there is always the homely knitting-needle, crochet-hook, douche nozzle, or the professional criminal abortionist. Women in this state will not listen to words of advice or warning. They are optimists of the first water, individuals who do not care what happens as long as it does not happen to themselves. I do not propose to say anything more on this question of criminal abortion. The subject has been discussed very fully recently by the Medico-Legal Society, the Society of Medical Officers of Health, and the Royal Society of Medicine, and I refer you to the Transactions of these societies for an expression of the considered and current views of those best qualified to speak.

A much more intriguing subject to the obstetrician, as distinct from the medico-legal expert, is the cause of natural abortion. Why is it that some women abort time after time and others never do so in spite of the application of those factors which are commonly regarded as provocative agents? When pregnancy is desired the occurrence of abortion is a great disappointment to a woman, and should the accident be repeated it is indeed regarded as a disaster. Most of us are familiar with cases of this type, and we know from experience how difficult it is in the

* Read before the Oxford Division of the British Medical Association at the Radcliffe Infirmary, Oxford, on October 23rd, 1929.

absence of definite pathological physical signs to advise our patients for the future. It is this aspect of abortion that I wish to consider more particularly to-day.

Syphilis and Abortion.

In the first place let me say a few words upon the relation of syphilis to abortion and premature birth. I think it may be said that syphilis is commonly regarded as being a cause of repeated miscarriage. For some years I have been a little doubtful about the truth of this assertion, and in order to obtain more definite information on the matter I approached Dr. Assinder, the officer in charge of the Government Venereal Department at the General Hospital, Birmingham. He very kindly instituted an inquiry for me upon 678 patients who had attended his clinic. The most important group concerns tertiary syphilis, for it is obvious that in the case of primary and secondary syphilis the disease had nothing to do with the abortions, the records having been made when the patient first presented herself. The miscarriages and stillbirths had happened in the past.

In the case of 493 tertiary syphilitics the percentage of abortions was 37·3, almost identical, in fact, with the figure of 35.3 which is the percentage of abortions from *all* causes. It cannot be said, therefore, that syphilis increases the predisposition to abort during the early months of pregnancy. If, however, the stillbirths are included, a further addition of 22.1 per cent. must be made, giving the high total of 59.4 per cent. In the case of 28 congenital syphilitics no abortions or miscarriages had occurred. These figures, therefore, tend to confirm my original view that syphilis is not so much a cause of abortion during the early months of pregnancy as of premature labour or stillbirth. It is after placentation is completed that the syphilitic virus exerts its chief effect, and produces those macroscopic and microscopic changes in the foetus, its umbilical cord and membranes, with which pathologists are familiar.

The Vitality of the Germ Cells.

Abortion of the products of gestation from the pregnant uterus is by no means a phenomenon confined to the human species. It happens in many domestic animals, and a study of the causes which lead to its occurrence in these lower types may throw light upon some of the *obscure* cases in human pathology.

Professor Arthur Robinson, working with *ferrets*, found that the germ cells of certain perfectly normal healthy animals are incompatible with the corresponding germ cells of other healthy animals of the opposite sex. The result is usually absolute sterility. In certain cases, however, there is evidence of death in the uterus of fertilized ova, which Robinson thinks may be due to this factor of incompatibility. Gestations in the ferret are usually multiple, and each pregnancy has a corresponding corpus luteum in the ovary. By a series of sections of the ovaries and uteri it is possible to correlate the corpora lutea and the pregnancies, and Professor Robinson has found that, in the same healthy animal, whilst some fertilized ova or zygotes develop in a normal manner, others from the same oestrus sometimes die and are absorbed. This occurs in the absence of any local lesion in the uterus, and therefore he attributes the death to *incompatibility* of the ovum and spermatozoon, or what may be termed a lack of inherent vitality of the germ cells. Abortion due to this cause may be regarded as caused by sexual inefficiency of either the male or female, or both.

Whether such incompatibility of certain or all of the sexual cells occurs in the *human species* it is difficult to say. There is no doubt that many women who have been sterile for some years abort once, twice, or even more times if, and when, pregnancy occurs. In an analysis of 1,233 patients, giving the relation of abortion to parity, I found that in a total of 336 childless women 265 were absolutely sterile and 71 aborted after they had become pregnant. Three had had four successive abortions, and two as many as five. Incompatibility may be the cause of these disasters, but proof can only be obtained when evidence is brought of the fertility of each individual with another partner.

Can defective vitality of the germ cells be acquired? This again is a question where it is impossible to be dogmatic about the answer. There is, however, some evidence indicating that the problem of abortion is sometimes associated with factors of heredity. The place of an individual in the family is certainly a point to be considered. Several cases of repeated and unexplained abortion have come under my notice where it has transpired that the patient is the last member of an exceptionally large family—a contraceptive experiment on the part of Nature. One such case I quote, as it appears to afford an excellent illustration of exhausted reproductive capacity.

Mrs. L., aged 33, married and sterile for five years, was delivered of a dead macerated child at the seventh month of her first gestation, no cause being assigned. The Wassermann reaction was *negative*. She is an undersized *individual*, weighing 7 st., and is herself a 7½ months child, the last of a family of thirteen. Her immediate brothers and sisters were all premature. Two were stillborn, one has a congenital cardiac lesion, and another *tuberculosis*. A *point of great interest is that* Mrs. L.'s own mother was also a premature child and the last of a family of sixteen.

As parity increases there is a progressive increase in the incidence of the number of *women who abort*. Failure of reproductive power may be a factor, but before this can be *proved information* must be *forthcoming* of the place of abortion in the list of pregnancies of exceptionally fertile women. It is, *of course*, a difficult matter upon which to obtain unequivocal data, for all kinds of extraneous influences are introduced as the number of pregnancies increases. I think, therefore, that more reliable facts can be collected, when available, by careful investigation of the family history, and especially of the place in the family of a given individual.

The Relation of the Decidua to Abortion.

The development and function of the uterine decidua call for special consideration in relation to abortion. The decidua is, of course, the highly developed endometrium peculiarly adapted for the reception and implantation of the fertilized ovum or zygote. It is now generally accepted that this thick fleshy structure which lines the pregnant uterus is but the fully developed phase of growth which is initiated immediately after each menstrual period, or menstrual abortion, as I prefer to call it. This progressive development is stimulated and maintained by a hormone elaborated first in the Graafian follicle and then in the corpus luteum when the oöcyte has left the former. If this hormone is withdrawn by destruction, excision, or even aspiration of the Graafian follicle or the corpus luteum, the decidua necroses. If the decidua is that of the unimpregnated uterus, then an artificial menstrual "period" is produced. On the other hand, if a fertilized ovum is embedded in the decidua, abortion naturally follows. This fact, originally demonstrated by Fränkel in Vienna, has since been confirmed by many observers.

Teal and Parkes have lately shown that lutein development is controlled by the anterior lobe of the pituitary gland. In rats it is possible by the administration of extracts of this gland to sensitize and stimulate the development of the endometrium to an extreme degree of decidual formation during the resting sexual phase. The production of these artificial placentomata depends upon abnormal luteinization of the ovaries by the pituitary extract. It is evident, then, that the normal development and function of the decidual organ are very complex phenomena, intimately associated with the physiology of the ovary and pituitary gland. These organs, and especially the ovary, assume, therefore, considerable importance in their relationship both to *normal* pregnancy and the causation of abortion.

There are many organic pathological conditions associated *with premature* death and expulsion of the uterine contents where lesions in the ovary may be contributing factors. In the case of uterine fibroids, and in retroversion of the uterus with prolapse of the ovaries, both Graafian follicles and corpora lutea frequently show patho*logical lesions*. Haemorrhage and Graafian and lutein haematomata are common, as well as the so-called theca-lutein cysts. Both uterine fibroids and *retroversion* are

associated on occasion with abortion, and it is conceivable that the deciding factor which kills the ovum and leads to the abortion is the lutein lesion which so often coexists. Cystic states of the corpus luteum have long been known to occur in relation with ectopic gestation and with vesicular mole, and I have had two opportunities of examining the ovaries in the case of carneous moles, where the same lesion was present.

It is, of course, possible that the ovarian lesions may be the result and not the cause of the death of an ovum. There is no information available as yet to show what happens to a corpus luteum when pregnancy is suddenly terminated at different stages of its development. Does it atrophy, degenerate, or become cystic? These are points which should be investigated, owing to the possibility of abortion producing a permanent lesion in the ovary.

Great strides have been made during the last few years with regard to ovarian and uterine physiology. New chapters have been written, and light has been thrown upon problems which were formerly obscure. There is still, however, much for us to learn. Take the matter of innervation of the ovaries and uterus. Why is it that mental or physical shock is sometimes followed by abortion? The decidua itself is not supplied by nerve elements, but the ovaries are very liberally supplied with both ganglia and nerve fibres. Sections of ovarian tissue stained by Bielschowsky's method show a highly complex system of nerve elements in relation to the Graafian follicles and capillary blood vessels in their immediate proximity. Abortion rarely follows immediately upon a nervous stimulus, but occurs usually a few days later, when presumably necrosis of the decidua has taken place. Does this mean that the corpus luteum has been inhibited in its function through the network of nerve plexuses and ganglia which surround it?

Turning to the endometrium itself, there is little doubt that its integrity and power to respond to sensitization by the lutein hormone are essential factors for the normal implantation and development of the zygote. If it is hypertrophic, as in the case of uteri the seat of fibromyomata or chronic subinvolution, or has been injured by repeated attacks of chronic inflammation, it responds to the lutein stimulus in a defective manner, with the result that the zygote develops in an abnormal environment. Curettings from uteri which have recently aborted frequently show an atrophic or poorly developed decidua, or a decidua which is infiltrated with inflammatory cells. It is reasonable to suppose that the physiological function of such a decidual organ is defective and that the interchange of food factors through the chorio-decidual space is also abnormal.

In the case of 300 women who gave a clinical history of three or more abortions, uterine lesions were present in 53.3 per cent.; and evidence of chronic inflammation in the pelvis, in relation with either the genital tract or pelvic peritoneum, occurred in 26.6 per cent. of the patients.

The Relation of Pathological Ova to Abortion.

Certain embryologists, notably His and more recently Mall, have drawn attention to the interesting fact that a very large proportion of human ova that are aborted are abnormal in some respects. The largest number of abortions occur during the second and third months of gestation, and Mall has stated that 50 per cent. of the ova that he has examined during this period are pathological. Many and varied are the types of abnormality that occur. In some the embryo consists merely of a nodule representing the umbilical vesicle. The amnion may or may not be present. Sometimes the chorion only exists. In others the embryo is destroyed after the development of the amnion and may be represented only by the stump of the umbilical cord. Spina bifida is common, as also is anencephalus. These pathological embryos, if they survive, produce monsters, and it is perhaps a satisfactory provision of Nature that the factors which cause the abnormality usually exert such a radical influence that the lesions are incompatible with further development. The ovum dies, becomes a foreign body, and as such is expelled by the uterus. As so large a proportion of abortions consist of pathological ova, the question has been raised by Mall as to whether it is justifiable to attempt to prolong a pregnancy when abortion is threatened before placentation of the ovum is complete. I cannot subscribe whole-heartedly to this view, as, of course, one knows of many early threatened abortions which have subsequently progressed normally and terminated with the birth of a normal and healthy child. At the same time, I can recall two instances when abortion was averted with considerable care, only to result in the birth later of children with spina bifida and anencephalus respectively.

My interest in the investigation of the uterine products of abortion was stimulated by association with the late Professor Peter Thomson, whose views coincided largely with those of Mall. The great majority of early abortions that fall into our hands are damaged by trauma and are useless for scientific investigation owing to rupture of the foetal membranes. With care, however, it is possible in the course of time to collect a certain amount of useful material, and such investigations as I have been able to make tend to confirm Mall's views on the high incidence of pathological ova among the products of abortion.

In these aborted ova lesions are not by any means confined to the embryo itself. Disease of the chorion frequently coexists. The most constant and the earliest evidence of a pathological state is the presence between the chorionic villi of a mucoid substance containing leucocytes. The syncytium grows into this mass in an irregular manner, and in some cases actually invades the mesoderm of the villi. The villi themselves vary considerably in their numbers and distribution. In some ova they are very scanty; in others they are irregularly scattered over the surface of the gestation sac; and in yet others they exhibit various signs of degeneration, as shown by mucoid, hyaline, or fibrous change.

Are these abnormal ova that are so commonly aborted the result of external influences, such as a diseased or abnormally functioning decidua, or are they caused by inherent pathological attributes in the germ cells? There is a diversity of opinion on this matter among embryologists, but the weight of evidence, I think, is in support of Mall, who considers that pathological forms are caused by external influences and not by anatomical or physiological defects in the ovum or spermatozoon. As he points out, one most important argument in support of the influence of environment is the fact that when the ovum is implanted in an abnormal position where the decidua is absent or defective—for example, the Fallopian tube—96 per cent. of the embryos are abnormal. This fact alone serves to emphasize the importance of a healthy and functioning decidua in the well-being of the developing ovum.

Another, and equally important, argument is that every type of abnormal embryo and monster known to occur in the human species can be produced in other organisms by artificial means from normal ova and embryos. Spina bifida can be produced in tadpoles by subjecting frog spawn to the action of common salt, a 0.7 per cent. solution giving 100 per cent. of this abnormality. Magnesium solutions have been used by Stockard to produce cyclopia in certain fishes, with 50 per cent. success. When sea-urchins' eggs are submitted to the action of lithium salts inversion of the blastoderm occurs, giving rise to nodular atrophic embryos, such as are found in human aborted ova. Calcium salts, in certain concentrations, according to Loeb, retard the growth of the blood vessels of the developing embryo, and indirectly affect its general development. All kinds of gross abnormalities—for example, anencephalus, double monsters, etc.—have been produced by experimental teratologists by mechanical trauma applied to developing embryos at different stages of development. There is abundant proof, therefore, that an abnormal physical or biochemical environment can, and does, act in a deleterious manner upon the developing ovum. At the same time, as pointed out by Professor Arthur Robinson in a recent discussion on the causes of sterility and abortion at the Royal Society of Medicine, pathological ova can develop in the absence of any obvious macroscopic or microscopic lesion in the uterus of animals. Spina bifida is the commonest anomaly, and this has occurred independently of any demonstrable pathological lesion in

the case of Robinson's experimental work on the ferret. He concludes, therefore, that inherent abnormal physiological attributes in the gene are responsible for the pathological lesions that are encountered. In the presence of such divergent views, the truth probably lies somewhere between the two, and both factors may on different occasions be concerned in the phenomena which I have discussed.

Abortion in Relation to Nutrition of the Ovum.

From the preceding remarks it is evident that impairment of nutrition, resulting from faulty implantation, abnormal decidual development, absence of essential food factors, or the existence of lethal toxins, is a potent factor in the etiology of early abortion.

The maintenance of an adequate source of food materials is not affected by the same mechanism in all members of the mammalian family. In certain ungulates and a few rodents the secretion of the uterine glands is the main source from which the developing embryo derives its nourishment. This secretion, known as "uterine milk," is an albuminous fluid containing cast-off cellular elements, but very little is known beyond this. Its exact chemical composition has, I believe, hitherto not been ascertained. In the human subject the zygote is dependent upon absorption from the maternal blood, except for a short period of its existence when the syncytium is actively burrowing and embedding itself in the decidua. At this stage even in the human ovum some of the uterine glands are opened up by the trophoblast, and blood is effused into their lumina *pari passu* with the destruction and solution of the decidual stroma cells. The secretion of the uterine glands is normally rich in calcium and iodine, as shown by chemical analysis of the menstrual discharge; and in the developed decidua, both of menstruation and of pregnancy, there is a marked retention of secretion in the large dilated glands of the stratum spongiosum. I cannot think that this active retention of secretion is of negative value, or is purely atavistic. It may be that there is some diffusion of secretion between the glands and stroma cells of the decidua. Anatomy and comparative embryology have demonstrated the minute structure of the ovum and process of embedding, but there is still much to learn with regard to the physiology of that remarkable organ, the decidua.

Among stock-raisers and veterinary surgeons much importance is attached to-day to matters of feeding and the influence of various food factors upon sterility, and the number and weight of the progeny. At a recent discussion on abortion at the Royal Society of Medicine I drew attention to this matter, particularly with relation to the value of iodine. Experiments at the Staffordshire Farm Institute have shown that sows receiving iodine farrowed 50 per cent. more young than sows that had no iodine. At the Royal Experimental Station, Budapest, when iodine was given to pregnant sows, the average weight of the farrows at weaning was nearly 50 per cent. over that of the group that received no iodine. In the case of birds, the Rowett Institute and West of Scotland Agricultural College found that the egg yield in pullets which received iodine went up 50 per cent. in one year over a pen that had no iodine in the diet. The aggregate egg production where iodine was given in the form of potassium iodide was nearly double that of a pen where iodine was withheld. There is no doubt, therefore, of the value of this element to the pregnant animal, and I cannot help thinking that the iodine content of the uterine secretion in the human female has a similar significance. We know that certain inorganic toxic agents—for example, lead—are transmitted to the ovum, and that they act deleteriously upon the development and function of the syncytium. It is quite possible, therefore, that other agents, especially calcium and iodine, are similarly transmitted, and that they act in a beneficial manner.

During the last few years a considerable amount of work has been done in connexion with the essential food factors known as vitamins, and in 1922 Evans and Scott published the first of a series of papers upon the "existence of a hitherto unknown dietary factor essential for reproduction." This substance, known as the anti-sterility vitamin fat-soluble "E," has been extensively investigated by Evans and his co-workers, and the results of the research are published in an elaborate monograph. Evans worked exclusively with rats, and found that, although fertilization and implantation of the ovum occurs in the absence of vitamin E, the embryos begin to die about the eighth day of gestation, and are later absorbed. They show general under-development, especially in the mesoblastic tissues, entodermal villi, blood islands, and allantois.

The data given in Evans and Burr's monograph provides very interesting reading, and if their results are confirmed a new and fertile field of investigation is opened up into the causes of some obscure early abortions in the human subject. One important fact which emerges from the work is that if vitamin E is withheld from the diet of an animal the initial available stock of this factor is gradually exhausted, both for the general bodily economy and also by any intercurrent pregnancies. Such an animal, although fertile at first, will later abort owing to an "E" deficiency. Subsequently it can be cured of what may be termed the "sterility disease" by the substitution of an "E" for an "E"-free ration.

The distribution of vitamin E in nature is chiefly concentrated in certain seeds and leaves, especially wheat-germ, lettuces, peas, alfalfa, bryophyllum, and begonia. To a less extent it is found in the yolk of eggs, but traces only are present in animal muscle. The vitamin is apparently not destroyed by drying and desiccation at a temperature of 100° C., an important practical point in the preparation of vegetable products—for example, lettuce and wheat-germ—for therapeutic purposes. The value of wheat is due exclusively to the storing of vitamin E in the germ, as white flour is powerless to produce a cure in animals rendered sterile by feeding on "E"-free rations. Chemically the vitamin has not hitherto been actually isolated, although fractional distillation has produced an active body similar in constitution and physical properties to vitamin A and cholesterol. A remarkable resemblance in certain chemical reactions exists between this anti-sterility vitamin and one of the ovarian hormones. As Evans points out, "the partial destruction during vacuum distillation at 200° C., the total destruction by acetyl chloride and bromine, the stability to hydrogenation in the presence of platinum black, the molecular weight, and the elementary analysis all show a general similarity of the ovarian hormone to vitamin E."

This brings me back to the all-important relationship which exists between the ovary and the developing ovum. I have already explained the influence the lutein hormone exerts over the growth of the decidua. Does the similarity in composition and chemical properties between the hormone and vitamin E imply a similar physiological influence over the developing embryo? In other words, does the ovary not only provide the ovum, but also the essential growth factor upon which the future development of the embryo depends? This conception of an essential "growth factor" being present in the ovarian hormone provides an interesting field for thought and investigation, not only in relation to abortion, but also in connexion with certain neoplasms. It appears possible, indeed, that the presence of an ovarian "growth hormone" may account for the rapidity of growth and size of some ovarian tumours, both benign and malignant.

The work of Evans upon "vitamin E" of course needs confirmation by other investigators in other laboratories. Also, it has still to be shown by clinical observation whether the conclusions based upon experiments on rats are applicable to the human species.

During the past few years opportunities have naturally occurred of testing what may be termed the "new sexual physiology" in its application to the treatment of recurrent abortion in the human subject. It is impossible, of course, in isolated instances to know whether a given result is *post* and not *propter* treatment, but the following two cases certainly appeared to have benefited from the exhibition of ante-natal therapy on the lines discussed.

Case 1.—Mrs. L., aged 40, married for three years. Her first pregnancy terminated at the seventh month with the stillbirth of twins. The next gestation aborted at the twelfth week. The third pregnancy again ended with the birth of a macerated foetus at about the twenty-eighth week. The Wassermann reaction

in the case of both husband and wife was negative, and no obvious cause could be found to account for the obstetric clinical history. In March, 1926, the patient again became pregnant, and she was immediately placed upon a diet rich in vitamin E, together with calcium lactate (60 grains per diem) and a preparation of ovarian hormone. The pregnancy progressed to term in a normal manner, and a child weighing 10¼ lb. was delivered by Caesarean section on December 22nd, 1927.

Case 3.—Mrs. S., aged 32, a 2-para. Her first child was premature, and weighed 6½ lb. It was reared with difficulty. The second pregnancy was complicated by hydramnios, and a child showing an extreme degree of spina bifida was born at the thirty-second week of gestation. The patient became pregnant again at the end of November, 1928. She was placed upon a similar regime, with the addition of iodine, and a healthy child weighing 8 lb. was born in September, 1929. The existence of a small elongated dimple over the lower part of the lumbar spine and sacrum showed the tendency to spina bifida which had complicated the preceding gestation.

Contagious Abortion.

I will conclude with a short reference to the question of contagious abortion in relation to the human species. In veterinary medicine infection of the uterus with Bang's bacillus is well known, and it is a frequent cause of abortion among certain infected herds. The Ministry of Agriculture has issued several leaflets upon the subject, and the importance of the infection is emphasized among all farmers and stock-raisers. Recently attention has been drawn to the possibility of transmission of Bang's bacillus to the human pregnant female, and a few undoubted cases of this infection have occurred both in this country and in Denmark.

As a cause of abortion in the human species, however, infection of this nature is sporadic and rare. I have only met with one undoubted example, and this occurred some years ago in the wife of a farmer who had infected stock upon his land. The case was at first regarded as an ordinary infected abortion, but the continuance of pyrexia and the persistence of a grey muco-purulent discharge led to a bacteriological investigation of the uterine cavity. An unusual bacillus in pure culture was found in the discharge, and this coincided in appearance and cultural characteristics with a control tube of Bang's bacillus, supplied by Messrs. Evans and Co. of Liverpool. Following this case a bacteriological investigation was instituted in other cases of infected abortions. Altogether 50 cases were examined, but no other example of infection with Bang's bacillus was found.

The infection is undoubtedly rare, but the possibility of the disease should be remembered, especially in the case of what appear to be septic abortions in rural areas.

The figures accompanying this paper were obtained for me by Miss King, the sister in charge of my department, and by Mr. Jeafferson, my registrar, to whom I take this opportunity of acknowledging my indebtedness.

MASTOID DISEASE WITHOUT OTORRHOEA.

BY

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ACUTE suppurative middle-ear disease is sometimes classified as "mild" in which resolution occurs without perforation of the drum, or "severe" with perforation and aural discharge. With both forms there is no doubt mastoiditis in some degree—suppuration in the antrum and air cells, and associated reaction in the surrounding bone. But only a small proportion of cases go on to what is clinically recognized as "mastoid disease"; in the majority, and almost invariably in the "mild" type, resolution occurs.

Yet if we adopt this classification it is important to bear in mind that definite and even extensive mastoid disease can on occasion occur where there is not, and has never been, any aural discharge. On examining the records of some 300 mastoid operations performed personally since the beginning of 1925, I find fifteen such cases occurring in fourteen patients.[1] Such a ratio is probably much above the normal, as two recent groups of cases are included in this period. With the possible exception of No. 12, these cases, notes of which are subjoined, may be regarded as primary acute otitis—that is, neither recurrent nor chronic. In each case the occurrence of any previous ear trouble, and especially any discharge, recent or remote, has been the subject of particular inquiry.

Preceding Illness.—Influenza had preceded the ear trouble in both the adults (9, 14) and that or a "cold" in three more cases (8, 10, 13). Scarlet fever had been the precursor in one (1). But no fewer than eight of the fourteen patients had been in apparently perfect health immediately before the onset of otitis (2, 3, 4, 5, 6, 7, 11, 12). No. 12 was a congenital syphilitic, but there had been for years no evidence of the disease. Probably in Case 6 the otitis was a sequel of the incomplete adenoid operation.

Pain was present in every case at some point, but in several it was intermittent (11R, 11L, 14), or insufficient for some days to cause the patient to seek advice (2, 3, 4, 10).

Tenderness over the mastoid antrum or process is, except pain, probably the most constant sign of mastoiditis. But in five cases it was quite inconspicuous (1, 5, 8, 11R, 11L), and was absent in two (4, 14 early).

Fever was absent in one case throughout, and in both the adults at the beginning. Only four of the patients had a temperature above 100° F. when first seen.

The tympanic membrane was examined in every case by means of an illuminated magnifying speculum. It was noted as being quite normal in appearance in eight of the fifteen ears (1, 2, 3, 5, 10, 11L, 12, 13).

Post-aural Oedema.—A word in passing as to this symptom. It is in so many cases the outward and visible sign of mastoiditis, and is so invariably illustrated as such in textbooks, that there appears to be some risk lest it should be regarded as a diagnostic criterion, without which we can exclude this complication.[1] It was, in fact, the occurrence of swelling that in ten of these fifteen cases decided me to operate on the mastoid forthwith. Nevertheless, it is well to emphasize that even in acute primary otitis, disease of the mastoid, perhaps quite extensive, may occur where post-aural swelling is inconspicuous (7), or entirely absent (4, 8, 9, 11R, 11L, 14 early).

Pathology.

The ages of the patients in years were 1, 2, 3, 5, 6, 7, 8, 8, 10, 11, 13, 16, 26, 34. These ages are what one would expect in a group of primary acute otitis. A striking feature of the records (which are usually very brief) is the frequency with which mention is made of the cellular nature of the bone. This conspicuous development of the cells may be an etiological factor—that is, it was because the bone was unusually cellular that mastoid swelling appeared early and before perforation. But since this feature was specially noted in four of the five cases where no oedema had occurred, that cannot be the only explanation.

In four cases a perisinus abscess was discovered at operation (4, 7, 8, 14), and in two of these the sinus contained old clot breaking down (4, 8). It is to be noted that in both these cases the drum had appeared normal when first examined, mastoid oedema was absent, and tenderness absent in one and quite slight in the other.

The pus was examined in eight cases, in two of which no growth of organisms was obtained. During 1929 special attention was directed to the possibility of a *Streptococcus mucosus* infection. Both then and before the report was uniformly "streptococcus," that particular type not being found. Furthermore, the clinical course was not that

characteristic of a *Streptococcus mucosus* infection. A curious feature is the tendency of the cases here recorded to occur in little groups, thus:

1925. June 23rd, 24th.*
1928. March 2nd,* 18th,* 19th,* 28th.
1929. March 1st, 2nd.
May 18th,* 23rd,* 25rd, 25th.

* Signifies that there had been no preceding illness.

This may be mere coincidence, but it does at least suggest that at certain periods or during certain epidemics there may have been a specially (perhaps attenuated) "mastoidotropic" virus in circulation.

We have, then, a group of cases in which

(1) There is often no preceding illness;
(2) There neither is on examination nor has ever been *any otorrhoea*;
(3) Pain may be slight or have ceased;
(4) There may be little or no tenderness;
(5) Fever may be mild or absent;
(6) No oedema may be discoverable;
(7) The tympanic membrane may appear quite normal;

and yet *all the time there is serious mischief in the mastoid* requiring operation.

For example, Case 4. When I first saw this little "pink and white" girl she seemed well in herself; constipation might account for the overnight feverishness and some "fractiousness." The pain was not more than a tight bump of wax could produce. On removing the wax the drum looked quite normal (and even next day the pinkiness was not more than what often follows removal of cerumen). There was not the least trace of oedema, or tenderness on pressing or percussing the mastoid or pulling the ear. Within twenty-four hours she had a rigor.

In Case 8 the clinical picture was at first that of simple otitis media. Myringotomy was followed by a free discharge, and relieved pain and tenderness. The temperature did not fall as "cleanly" as one expected, but by the fifth day it was down to 99°. The boy looked and said he felt perfectly well, even later, when the temperature went up, he was sleeping soundly, and his appetite in an adult would have been called voracious. There was no pain in the ear, and only the slightest returning tenderness. Yet the clot in the lateral sinus was beginning to break up.

In Case 14 there had been no pain, tenderness, or oedema. The right ear was not even deaf, though it had been. The drum was grey and retracted; there was nothing to suggest fever or any sign of toxaemia. But it seems hardly credible that the extensive destruction of bone, found three days later to have exposed the sinus in a pool of pus, had not already made considerable progress.

The treatment in all the cases was a Schwartze mastoid operation. Eradication of cells was as complete as possible, and in most cases the whole mastoid process was removed. The lateral sinus was exposed in all cases, a point that I believe to be of great importance. Except in the three older patients and where specially mentioned, adenoids were removed at the time of the mastoid operation. The eventual result has been uniformly good, and all the patients have normal hearing.

BRIEF NOTES OF CASES.

Case 1.

A. C., aged 7, had had a tonsil and adenoid operation in 1924. On June 23rd, 1925, he complained of pain in the right ear, localized at the tragus, for one day, following scarlet fever. There was definite mastoid oedema and slight tenderness; the tympanic membrane was normal; temperature 99.4°. A Schwartze mastoid operation was performed, revealing pus throughout the mastoid process. Convalescence was normal.

Case 2.

R. A., aged 16, came on June 24th, 1925, complaining of pain behind the right ear for one week, and a tender swelling for one day. There had been no preceding illness; never aural discharge or previous ear trouble; the tympanic membrane appeared normal. Temperature 101.2°. A Schwartze mastoid operation showed great destruction of bone in a mastoid of cellular type; very little pus. Complete recovery.

Case 3.

E. F., aged 3, came on February 14th, 1926, complaining of a tender swelling behind the right ear for one day. There had been earache for one week, but no discharge or previous trouble with the ears; no recent illness. The tympanic membrane was normal; no fever. A Schwartze mastoid operation showed that the antrum contained pus. Convalescence was normal.

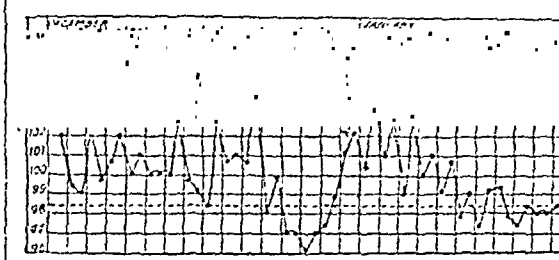
Case 4.

I. W., aged 8. Seen on December 17th, 1927, complaining of pain in the right ear for three weeks; there had been no discharge; no preceding illness. Tonsil and adenoid operation in 1921. She was feverish the previous night; temperature when seen was 99°. She had facial impetigo, and was very constipated. No post-aural tenderness, pain, or oedema. The tympanic membrane, after removing a plug of wax, was quite normal.

At 6 a.m. on December 18th she had a rigor (101°, see chart). That morning she again complained of pain in the right ear, not severe; there was still no trace of mastoid tenderness or oedema, but the tympanic membrane was pink, not bulging.

Immediate operation. Myringotomy produced a single bead of pus, much blood. A Schwartze mastoid operation was performed; the bone was normal, but the antrum contained pus; the lateral sinus and its groove appeared healthy.

Next day her midday temperature was 95°, and she seemed well. On December 20th (*third day*) she had a slight rigor, with



return of fever, but seemed well; no pain. The day after that the fever had disappeared, and she seemed very comfortable that day and the two following (21st to 23rd), though the temperature rose on the evening of the 22nd. A skiagraphic examination was made of the chest, and reported "early miliary tubercle of right lung." The mother then said that she had been getting "shiverings" for three weeks. At 10 p.m. on December 23rd a third rigor occurred. I tied off the jugular vein, and exposed the sinus. Two part that had been exposed before seemed quite normal, but the bulb lay in an old stinking abscess, and was full of clot breaking down.

Four days after this operation the temperature came down, and although the neck wound suppurated later, and there was subsequently a perichondritis of the opposite ear, convalescence was otherwise uneventful. I was led to seek suppuration in the bulb by the similarity of this case to one I had had previously; in that, although there was bilateral otorrhoea, the complete absence of mastoid tenderness and oedema, and almost complete absence of pain, caused a delay of several days before the thrombosed jugular bulb was exposed.

Case 5.

P. T., aged 11, on March 2nd, 1928, complained of pain in the left ear and swelling behind it for four days; no preceding illness; never any ear discharge. The tympanic membrane appeared normal. Temperature 100°. Immediate Schwartze mastoid operation. A periosteal abscess was found; the bone was engorged, but did not contain macroscopic pus. No adenoids were present. Convalescence was normal.

Case 6.

W. A., aged 5, had had a tonsil and adenoid operation (elsewhere) a month previously. On March 19th, 1928, he came complaining of pain in the left ear for five days. Before that he had been quite well; the attack started with vomiting for one day, and there had been epistaxis and vertigo two days before he came up. Never any aural discharge. A tender swelling was present rather below than behind the left ear; there was no deafness, but the membrana flaccida was bulging. Temperature 102°. A Schwartze mastoid operation showed extensive damage to the bone in an exceptionally cellular process; the lateral sinus was healthy. A strip of adenoids was removed from the left lateral recess of the pharynx. Convalescence was normal.

Case 7.

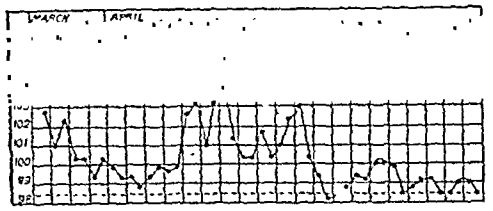
W. W., aged 10, on March 18th, 1928, complained of pain and a swelling behind the right ear; it had been present for two days. Patient had had no aural discharge, but a little earache three weeks previously, quite inconspicuous. On examination there was found a slight post-aural oedema, tender; oedema of postero-superior meatal wall hid the tympanic membrane, but there was no discharge. Temperature 99.8°. Immediate Schwartze mastoid operation. Very cellular process, with considerable destruction of bone. The lateral sinus came unusually far forward, and lay in a large abscess; it was red but not thrombosed. Convalescence was normal.

Case 8.

P. C., aged 13, came on March 28th, 1928, complaining of pain in the left ear for four days following a cold, and deafness. Had never had any previous ear trouble. There was slight tenderness of the mastoid process, but no trace of swelling. The tympanic

membrane was pink and bulging. Temperature 102°. Myringotomy produced blood only. Next day the ear was discharging pus freely, but there was still some tenderness.

By the seventh day he was feeling quite well, and free from pain, though the ear was still discharging, and the temperature was not quite down to 98° (see chart). That evening his temperature rose, and was 104° at noon on April 5th. At this point



it remained for three days. The boy was sleeping and eating well; there was *no vomiting, no rigor; the only* pain was a slight frontal headache; there was *no trace of* mastoid oedema, *but on firm pressure* the process was *just* tender.

A Schwartze mastoid operation showed a cellular bone much engorged, but free from pus except in one or two cells deep below the antrum, and a little purulent fluid in the apical cells. On opening the sinus groove a large offensive abscess was exposed, with the sinus lying in it thrombosed, perforated, and the thrombus beginning to break up. The jugular vein was not tied. Convalescence was normal.

Case 9.

S. B., aged 34, on March 1st, 1929, came complaining of pain in the left ear for one week following influenza. There was no trace of mastoid oedema, but definite tenderness; the tympanic membrane was bulging and a dusky pink. Temperature 98.4°. Myringotomy produced blood only, no pus. During the following days the aural discharge was purulent; definite mastoid tenderness persisted, but without any swelling; there was slight fever. Pain and fever tending to increase, a Schwartze mastoid operation was performed; the bone was very cellular; the cells contained a serous fluid and two small beads of pus only. Complete recovery.

Case 10.

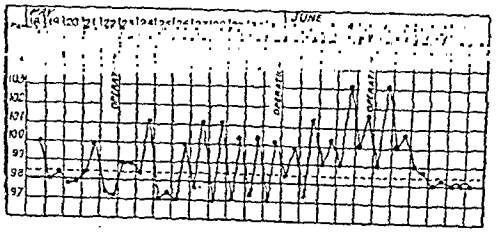
G. R., aged 2, came on March 2nd, 1929, complaining of a swelling above the right ear for one day, but behind that ear for four days. Influenza fourteen days before, but never any aural discharge. Temperature 99.2°. The swelling was tender, but the tympanic membrane appeared absolutely normal. Immediate Schwartze operation revealed a large subperiosteal abscess, chiefly above the ear, and a mastoid process full of thick granulations, all bony trabeculae having disappeared; the lateral sinus was normal; large adenoids were present. Convalescence was uneventful.

Case 11.

J. R aged 8, came on May 18th, 1929, complaining of intermittent earache on alternate sides during the last week; now absent. Never any aural discharge. The pain came on of itself, when he was quite well. Temperature 100°. Small flat tonsils; large adenoids; nose normal. The left tympanic membrane appeared quite normal, the right was depressed.

The complaint of earache on one side or the other persisted, but no further evidence appeared; there was no trace of mastoid swelling, but slight and variable tenderness over the mastoid antra; this had possibly been present before he came, as he was sent to me as a case of mastoid disease. On May 22nd I removed tonsils and adenoids, and opened both maxillary antra, which were full of thick muco-pus, later reported streptococcal.

The temperature had never quite settled (see chart), and on the fifth day after operation (May 27th) went to 101.2° in the evening. For the next five days it swung up to this point every evening, and was down every morning. The boy seemed very well; the hearing was normal; there was the same variable, transient,



and quite slight earache and tenderness over the mastoids. On May 31st he was slightly deaf, and complained of bubbling in the ears. There was no oedema, but slight tenderness on the right mastoid; the membrana flaccida of that side appeared red, but the whole drum was retracted. Earache was present only on the left side, where the drum and mastoid seemed normal. I diagnosed a very quiescent mastoiditis, but thought it well to try a paracentesis. On the right side this produced blood, which on culture grew streptococci; on the left there was definite pus, from which *Staphylococcus albus* grew. The next day the temperature tended to be lower, and for three days there was no pain. By June 5th, however, the earache had recurred, though it was not severe; there was profuse aural discharge; the evening temperature was 103.2°, and both mastoid processes were slightly tender on firm pressure.

The Schwartze mastoid operation was therefore performed on both sides, with identical findings—a bone cellular, congested, infiltrated with muco-pus; the sinus normal. Convalescence was marked by a bout of fever and thirst—possibly iodoform poisoning—but was otherwise normal; the nose and both ears are now quite dry, and hearing normal. The mastoid infections were streptococcal on both sides. I have no doubt that there was definite mastoid disease at least as early as the day of the paracentesis.

Case 12.

M. B., aged 6, a congenital syphilitic, had had occasional earache, but never discharge; tonsil and adenoid operation in 1927. On May 23rd, 1929, she came complaining of pain in the left ear for four days without preceding illness, and a recent tender post-aural swelling. The tympanic membrane was normal; temperature 99°.

An immediate Schwartze operation showed the mastoid bone congested, but without actual pus. Large adenoids were removed. Two days later she was crying with earache, and a paracentesis was done. A third attack of pain occurred on the tenth day, with a rise of temperature to 103.4°, but this cleared up the next day. On that day haematuria was observed. It is curious that the same sequential haematuria had occurred after the tonsil operation, and in both cases it was suggested that scarlet fever had been "missed." Convalescence was uneventful.

Case 13.

S. N., aged 1, came, on May 25th, 1929, complaining of two days' pain in the left ear, following a cold, and recent post-aural swelling. The swelling was tender and red, but there had never been any aural discharge, and the drum appeared normal. Temperature 102°. An immediate Schwartze mastoid operation showed the whole mastoid and adjacent bone to be congested, dripping blood, but no pus was found. Large adenoids were removed. Convalescence was normal.

Case 14.

C. F., aged 26, came, on May 23rd, 1929, complaining of tinnitus in both ears for two weeks following influenza, without pain. Never any aural discharge or previous ear trouble. At first both ears had been deaf, later only the left. The right tympanic membrane was grey, the left pink, and both indrawn. On inflation air entered both ears with a distinct labial sound, relieving deafness and tinnitus. Three days later he returned with a tender swelling extending from the level of the right mastoid antrum for four inches down the neck, and earache. The drum was neither swollen nor red, but yellow pus could be seen through it. Temperature 101.2°.

A Schwartze mastoid operation showed a typical von Bezold abscess beneath the sterno-mastoid muscle, communicating with the mastoid through a hole in the anterior part of the process; through the latter pus pulsed out. The cortex was somewhat thick, but proved to be a mere shell enclosing a large cavity in which lay the lateral sinus, apparently healthy. Convalescence was normal. The absence of all pain on the first visit caused me to make a diagnosis of catarrhal otitis. I do not believe it possible that in examining the ear either tenderness or oedema was overlooked, but the operation showed that extensive disease of the mastoid must have been already present.

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[1] *Cf.* Prognosis in Mastoid Disease, E. Watson-Williams, *Practitioner*, January, 1929. [2] Acute Otitis Media with Jugular Bulb Thrombosis, *British Medical Journal*, 1923, i, p. 1014.

TWO CASES OF PARAFFINOMA.*

BY

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THIS communication consists of a report of two cases of tumour formation resulting from injection of paraffin or paraffin oil. In both instances the tumours consisted of hyperplasia of connective tissue of dense cicatrizing character, the bulk being further added to by the contained paraffin.

Clinical observation and experimental work with monkeys have demonstrated that mineral oils, when injected into the tissues, may cause foreign body reaction with formation of tumour masses. It is apparent that some individuals are susceptible, and the reaction may be severe, with very extensive mass formation. In other individuals there is no tissue reaction. In some instances the injected paraffin oil has been observed to spread along the lymph channels and

* A paper read in the Section of Surgery at the Annual Meeting of the British Medical Association, Manchester, 1929.

the lymph nodes, there producing a condition simulating tuberculous adenitis or malignant lymph metastases. Vegetable oils (olive and cotton-seed) do not, experimentally, produce these tissue masses.

CASE I.—*Paraffinoma of the Rectum.*

A married woman, aged 52, was admitted to my private service on July 2nd, 1928, complaining of an increasing difficulty in obtaining evacuation of the bowels, with periods of two to three days' duration of impaction with absolute obstruction. She was referred by two physicians, who in consultation had diagnosed carcinoma of the rectum.

The past history relevant to the existing condition was as follows. In 1920 I had operated for acute cholecystitis; at that time she suffered from prolapsing internal haemorrhoids of sixteen years' duration, radical treatment of which was postponed to a more convenient season. In March, 1927, being in California, she received eight office treatments at weekly intervals. These treatments for the haemorrhoids were under local anaesthesia. She asked but received no information regarding details, but an attendant accompanying her stated that the surgeon appeared to use an apparatus wrapped in a towel from which protruded a nozzle. These treatments promptly caused disappearance of the prolapsing haemorrhoids.

In April, 1928, she returned and had one treatment for a pile which had not completely disappeared. Shortly after this last treatment she noticed an increasing difficulty in satisfactorily emptying the bowel, and from time to time was forced to use oil enemata to gain comfort. Late in June, 1928, an impaction occurred which was unusually resistant to treatment, was associated with distension and vomiting, and was finally relieved by oil followed by soapsuds enemata. She then sought advice.

Digital Examination.—There was first noted an absence of the prolapsing haemorrhoids present in 1920. One and a half inches from the anal orifice the finger encountered a nodular mass, completely encircling the bowel and causing stenosis, which would admit the tip of the finger only. Under anaesthesia the stenosis was dilated and the finger passed through. In vertical diameter the infiltration occupied 2¼ inches; the mucosa was smooth, mobile, and nowhere presented ulceration. Extending distally from the constricting ring there were tongue-like processes beneath the mucous membrane.

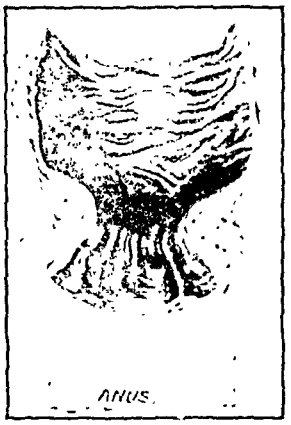

FIG. 1.—Photograph of drawing of gross specimen. Note (1) the constriction produced by dense connective tissue, infiltrated and distended by globules of paraffin; (2) absence of ulceration; (3) finger-like processes extending distally from the area of constriction; (4) distance from anal orifice; (5) proximal to the constricting ring there is dilatation of the lumen, also hypertrophy of the muscle layers.

The appearance simulated carcinoma, but had marked points of difference. A stenosing scirrhous cancer is extremely rare in the ampulla and is not associated with submucous infiltration in long processes with an overlying mobile mucosa. The absence of ulceration eliminated other varieties of carcinoma of the rectum, except the type known as Krukenberg's tumour. A blood Wassermann test proved negative.

A section was removed for biopsy, choosing one of the outlying processes, and removing it entire with the overlying mucosa. The pathologist's report was inconclusive. Vacuoles were discovered and giant cells, but the pathologist could not be convinced but that he was reporting upon the extremity only of a papilloma and that the section had not passed through the base.

In the meantime the history detailed above had been elicited, and I inferred that the apparatus used by the surgeon was wrapped in a towel because it was hot. The conclusion arrived at was that hard paraffin, melted, had been used as injection to fix the prolapsed haemorrhoids. The diagnosis of paraffinoma was made.

The question of treatment then arose: (1) A disabling stricture was present. (2) The pathologist and consultants were not convinced that in some portion of the mass there might not be a malignant change. (3) A paraffinoma has potential possibilities of developing into carcinoma.

It was decided to do a resection, preserving the lower end of the canal with the sphincters and restoring continuity by rectorrhaphy. This procedure was carried out on July 12th through a modified Kraske incision. The results have been completely satisfactory. Examination one year later demonstrates an active sphincter control, a smooth mucosal surface, and no areas of submucosal infiltration.

CASE II.—*Paraffinoma of Thigh.*

The patient in this case was a woman who, eight years previously, had received three injections of camphor in oil as a cardiac stimulant during a severe illness. At the site of each injection there has gradually and progressively developed a nodule, the removal of the largest of which furnished the section shown in Fig. 4. It has been determined that the camphor was dissolved in a paraffin oil base.

The important deduction from a study of these two cases is the danger of using mineral oil for injection, either as a vehicle for drugs or otherwise.

Notes on paraffinoma appear occasionally in the medical press, in which various opinions are recorded. B. F. Davis,[1] in 1920, reported a case in which apparently solid paraffin was used and not paraffin oil. Oppenheimer,[2] in 1920, stated that the use of paraffin subcutaneously had decided risk. Morts[3] says that paraffin injection is not dangerous if pure grade oil, with melting point of 110° to 115° F., is used. Weidman and Jeffries,[4] writing in 1923, showed that plain paraffin oil and camphor in paraffin oil were both effective. The oil may remain for eleven months before tumours appear. Monkeys were used in their experiments.

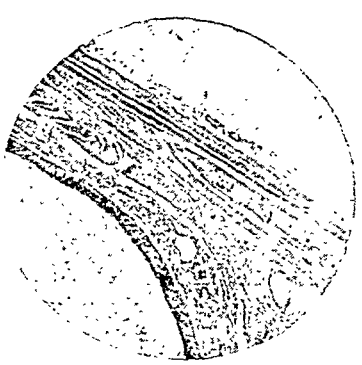

FIG. 2.—Section through margin of tumour. Note (1) the intact mucous membrane; (2) the distortion and fragmentation of the internal muscular coat; (3) the abrupt margin of involvement; (4) the large number of vacuoles, most numerous in the submucosa.

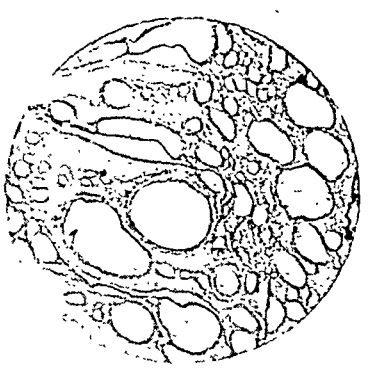

FIG. 3.—Section through submucosa showing amount of contained paraffin as represented by the vacuoles. The connective tissue reaction is well seen in formation of concentric rings about the paraffin mass.

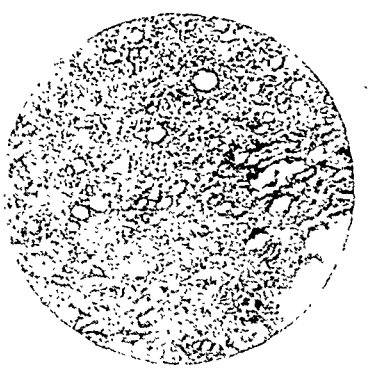

FIG. 4.—Section of a mass removed from the subcutaneous tissue of a woman with paraffinoma of thigh (see Case ii). Note the vacuoles from which paraffin has been dissolved in the process of fixation, also the dense connective tissue. There is also marked lymphocytic infiltration, particularly in spots.

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[1] Paraffinoma and Wax Cancer, *Journ. Amer. Med. Assoc.*, December, 1920, p. 1703. [2] *Laryngoscope*, September, 1920, p. 585. [3] Lancet, July 19th, 1919, p. 105. [4] *Arch. Derm. and Syph.*, vol. 7, 1923, p. 209.

ARTERIO-SCLEROSIS IN COAL MINERS.

BY

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ALTHOUGH it is now generally held that the conditions connected with a miner's occupation, apart from its special risks, are as favourable to health as those of other manual workers, it should be noted that after the age of 55 coal miners in the aggregate die off more rapidly than other occupied males, while between the ages of 25 and 55 the death rate is lower.

TABLE I.—*Occupational Mortality at Different Age Groups.*
(From the Registrar-General's Returns, 1921-23, p. 8.)

Age Groups:	25-	35-	45-	55-	65 and up.
Occupied males	100	100	100	100	100
Miners	91	88	84	105	130

The Registrar-General's return for 1921-23 says: "Analysis of the causes throws very little light on the reason for the relative increase which occurs in the mortality of miners."

Twenty years ago, while associated in a large practice in Fife, we noted with surprise many cases of arterial thickening among coal miners, even in quite young men. This discovery suggested the systematic examination of a considerable number of miners. In all, 500 men were examined. They were taken consecutively, as they came into our surgeries, but no one was included who complained of any symptoms referable to his circulatory system. As a matter of fact, many of them were literally taken in off the street for the purpose of this inquiry.

Even at this late date it seems desirable to publish the results, as no work on similar lines has been undertaken in the interval, and no light has yet been supplied to the Registrar-General. It is possible that our results contribute one explanation of the anomaly to which he refers.

Scheme of Examinations.

The examinations were carried out, as a rule, in the evening between 6 and 7 o'clock; a few were done in the morning between 9 and 10. All the men had been off work for at least four hours, and no man was examined immediately after a meal. The routine procedure was as follows. While the man was standing his pulse rate was counted and the condition of the wall of the radial artery was noted. He was then directed to lie down, when particulars of his habits as to alcohol and tobacco, and the conditions of his work, were obtained, and his medical history was inquired into. The chest wall was then exposed and the apex beat located, the cardiac dullness mapped out, and the different areas auscultated. The pulse was again counted. The patient was then seated on a chair, the left arm bared to the shoulder, and the blood pressure taken (a mercurial manometer and a 12 *cm.* armlet were used throughout). In a limited number of cases a blood count was done and a haemoglobin estimation made. The majority of the men examined were of the phlegmatic type, so that little effort was required to secure the psychical repose which is so desirable in taking blood pressure readings.

Results.

It may at once be stated that the outstanding feature of this inquiry has been the discovery of an extraordinary prevalence among miners of arterial thickening, as evidenced in the radial artery, a prevalence hitherto undescribed, and apparently unsuspected. Of the 500 miners examined only 44 (9 per cent.) had arteries which could not be palpated. The remaining 456 (91 per cent.) had definitely palpable arteries.

There is, of course, no difficulty in determining when an artery is thickened. It is as easy to feel a thickened artery as it is to feel a rubber tube; the difficulty arises when one tries to convey an idea of the amount of thickening present. For purposes of tabulation an attempt has been made to classify these arteries under the following definitions.

A. *Not Palpable.*—An artery the wall of which cannot be detected by the pulp of the examining finger.

B. *Thick.*—An artery whose wall can be flattened by the finger, but can then be easily felt in its entire breadth, like a piece of thick tape.

C. *Very Thick.*—An artery whose wall rolls readily under the finger, like a piece of rubber tubing, and can be flattened only with difficulty. It is nearly always tortuous.

D. *Atheromatous.*—This is the "ipecacuanha root" artery of the late Dr. G. A. Gibson, showing marked calcareous degeneration.

No attempt was made to measure the actual size of the arteries, and the description applies solely to thickness, as gauged by palpation.

The total number of arteries classified under each group is as follows: A, 44; B, 318; C, 136; D, 2. These figures convey an idea of the general type of thickening met with. Since the age factor enters so largely into the question of arterial changes, we have arranged the 500 cases according to age, as shown in Table II.

TABLE II.—*Arteries Arranged in Age Groups; showing Actual Numbers and Percentages.*

Age in Years.	A.		B.		C.		D.		Total No.
	No.	Per cent.	No.	Per cent	No.	Per cent.	No.	Per cent.	
20 and under ...	16	13 8	91	80.9	6	5.1	0	—	116
21-30	17	9.4	128	71.0	35	19.4	0	—	180
31-40	11	10 1	61	54.7.	39	35.0	0	—	111
41 50	0	—	25	41.3	35	58 6	0	—	61
Over 50	0	—	10	31.2	20	62.4	2	6.2	32
Totals ..	44		318		136		2		500

The salient feature of these figures is the very great frequency of arterial thickening in youths of 20 years of age and under. While the proportion of normal (A) arteries in that particular group is greater, as would be expected, than in any other, yet to have so preponderating a proportion of thickened radials (100 out of 116) in healthy boys of 14 to 20 years is exceedingly striking. After the age of 40 none of the men had arteries which were not palpable. With increase of age there is a gradual and almost uninterrupted progression in the thickening of the arteries.

Pathology of Arterial Thickening.

Arterial thickening as evidenced in the radial artery may be due to one of three different conditions: arterio-sclerosis, atheroma, or hypertonus. Arterio-sclerosis may be defined in general terms as a diffuse organic thickening of the arterial wall perceptible to the sense of touch, and extending as far as the artery can be traced. Atheroma is a focal or nodular thickening, due largely to calcareous degeneration. Professor William Russell has introduced the term "hypertonus" to describe a vessel "the muscular coat of which is unduly contracted, so that the wall is thicker and the lumen smaller."

We obtained specimens of several radial arteries from men who met with fatal accidents during the course of our inquiry. Dr. L. R. Sutherland, professor of pathology in University College, Dundee, very kindly examined these for us. Excerpts from his reports are as follows.

Section of Radial from a Man aged 27.—"Localized thickenings of the intima are readily observed: in some sections as much as one-third of the lumen is involved. Some of the patches are six times as thick as the normal intima. The thickened tissue is tolerably cellular. There is no evidence of fatty degeneration or

calcareous infiltration. *The media underlying the larger thickenings is atrophied.*"

Sections from the other arteries show similar changes varying only in degree. Photomicrographs of two sections are reproduced; the first (Fig. 1) shows a patch of thickening of medium size at the giving off of a small branch, and the other (Fig. 2) shows the cellular nature of the thickening.

These reports give a clear indication of the pathological conditions of the arteries in the cases we have examined. The thickening is shown to be in the intima, and does not involve, in any of the sections examined, the whole circumference of the vessel, and there is *no evidence* whatever of thickening of the muscular coat or adventitia.

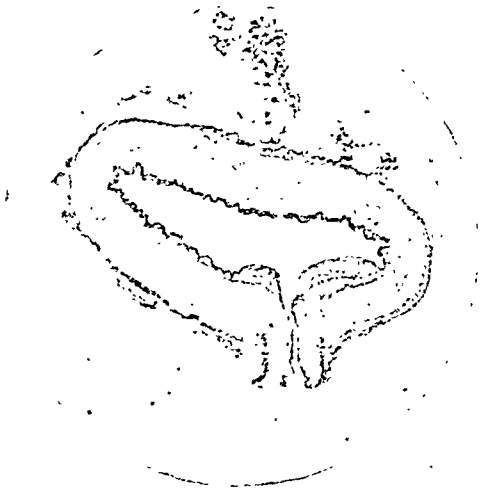

FIG 1.

So far as we can discover, arterial changes similar to *those have never before been described.*

Blood Pressure.

As blood pressure varies within certain not yet accurately defined limits, not only in different individuals, but to almost as great a degree in each individual under the influence of various conditions, there can be no fixed standard of normal blood pressure. But 90 mm. of mercury with the 12 cm. armlet is accepted by most authorities as the lowest systolic pressure in adult males consistent with health; while 140 mm. may be taken as the greatest systolic pressure which should be regarded as normal, at least up to middle life. Of our cases 449 out of the 500—that is, 90 per cent.—had blood pressure falling within normal limits, and only 51 (10 per cent.) showed blood pressure over 140.

The estimation of the diastolic pressure was discontinued after about two hundred readings were taken, as it was apparently of little significance so far as the inquiry was concerned. It was practically always from 25 to 40 mm. below the systolic pressure, as has been found by other observers. The blood pressures at different age groups are shown in Table III.

TABLE III.

Age Group.	Blood Pressures					
	100 and under.	100 to 110.	110 to 120.	120 to 130.	130 to 140.	Over 140.
20 years and under	10	23	42	26	8	2
21-30	3	21	64	53	26	17
31-40	1	8	41	33	25	8
41-50 ...	3	4	13	12	18	9
Over 50	0	1	6	4	4	15
Totals	17	57	166	128	81	51

Relation of Arterio-sclerosis to Blood Pressure.

There exists even now a general impression that arterio-sclerosis is necessarily associated with increased blood pressure. Professor William Russell, for example, asserted that "*thickened arteries never give normal readings.*" The result of this inquiry is entirely opposed to that view. Over and over again we met with cases where the arteries *were very thick and the blood pressure was well below the* normal maximum; while, on the other hand, perfectly soft-

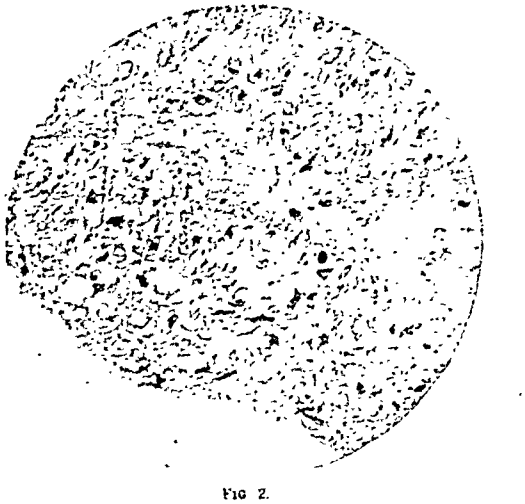

FIG 2.

walled arteries were found in conjunction with high readings. We annex a number of cases showing great variations in blood pressure from arteries of the same apparent degree of thickening.

TABLE IV.

Case.	Age.	Condition of Radial.	Blood Pressure.
G. McL.	15	A	85
T. W.	36	A	110
J. C.	18	B	95
W. B.	32	B	165
C. S.	25	C	110
J. B.	42	C	140

A table is also given of the actual numbers showing "normal" pressure in each artery group.

TABLE V.

Artery Group.	No. of Cases.	Normal Blood Pressure.	Above 140.
Group A	44	42	2
Group B	318	296	22
Group C	136	110	26
Group D	2	1	1

This seems to show that the recorded blood pressure has little relation to actual thickening of the artery wall, within certain limits. (It should be mentioned that in any case where there was unduly high blood pressure the urine was examined for albumin, but with a negative result in every case.) Russell's assertion that "thick-walled" arteries never give normal readings" is disposed of by such a case as the following.

S. S., aged 42, had very thick and tortuous arteries, which could be traced from his wrist right up to his axilla, and felt between the finger and thumb to be round and hard like a lead pencil; his blood pressure was on several occasions 118 to 120. A tracing of this case is given (Fig. 3), showing the first return of pulsation after obliteration of the vessel, and the abscissa, from which one can measure the absolute height of the blood pressure without the risk of error due to the personal equation. This tracing was *kindly made for us by the late Dr. G. A. Gibson, who confirmed* our description of the arteries. The blood pressure was 118.

Many of our cases distinctly showed hypertonus; in fact, as the great majority had normal blood pressure, it is safe to conclude that the others were examples of hypertonic contraction. This was evident during the course of the examinations, when occasionally pressures were recorded

from men who had just had teeth extracted, whitlows opened, and the like, and almost without exception these were over 130.

Clifford Allbutt described three varieties of arterio-sclerosis: (1) hypertonic, with increased blood pressure;

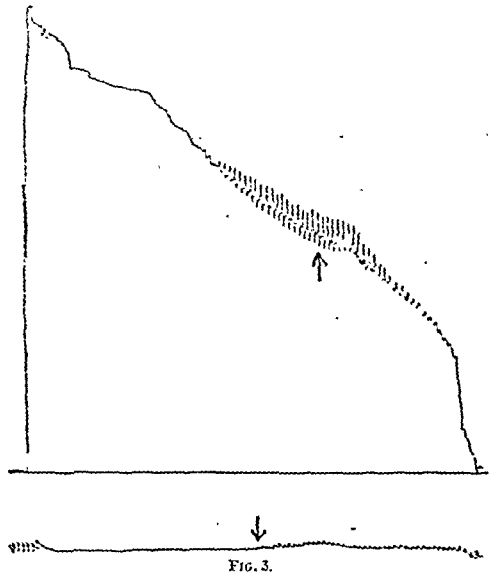

FIG. 3.

(2) toxic, in which there is usually no increase of blood pressure, and not infrequently a decrease; (3) decrescent, or senile. There is no doubt that most of our cases are examples of Clifford Allbutt's toxic group—that is to say, they have thickened arteries, with normal or low blood pressure.

Causes of Arterio-sclerosis.

The subject of the causation of arterio-sclerosis is as darkened by conflicting statements as is the pathology. Kidney disease, old age, high blood pressure, defective alimentation, chronic intoxications of all kinds, acute infections, muscular exertion, have all in turn been brought into the limelight. These seemingly widely divergent views as to the etiology may perhaps be reconciled by considering them all as variations of the one common factor—that is, a toxaemia.

In our cases the following points were investigated: (1) acute infections, including syphilis; (2) meat consumption; (3) amount of tobacco used; (4) alcohol consumption; (5) conditions of work. The first four of these may be dismissed briefly, as they did not suggest any explanation of the prevalence of the thickened arteries. It is perhaps worth recording that only two patients gave a history of syphilis, and these were both ex-soldiers. (This was pre-war.) Syphilis among miners is exceedingly rare.

The results of the inquiry as regards alcohol should also be recorded. The easiest and probably most nearly accurate method of estimating the amount of alcohol consumed by an individual in this walk of life is to ascertain *how much he spends on alcoholic liquors per week.* Our figures are as nearly right as any obtainable, for we know personally practically every man examined, and had a very good idea of his tastes and opportunities.

TABLE VI.—*Effect of Alcohol; showing Condition of Radials and Blood Pressure.*

Amount Spent on Alcohol Per Week.*	No. of Men.	Condition of Radials.				Blood Pressures.			
		A.	B.	C.	D.	Up to 100.	Up to 120	Up to 140	Over 140.
Nil	183	20	146	17	0	14	95	63	11
1s.	103	8	61	34	0	1	53	48	16
Up to 5s.	123	7	59	56	1	3	41	62	17
Up to 10s.	38	6	21	11	0	0	19	14	5
Up to £1	27	3	16	8	0	0	12	11	4
Over £1	26	0	15	10	1	2	8	7	9
Totals	500	44	318	136	2	20	213	205	62

*N.B.—The values, both monetary and alcoholic, are "pre-war."

This table, contrary to expectation, shows that there is no essential relation between the amount of alcohol taken and the degree of thickening of the arteries or the blood pressure. Similar tables could be given in connexion with meat and tobacco, again showing no relation between these conditions. We therefore came to the definite conclusion that alcohol, meat, and tobacco have little or no effect in causing the changes in the circulatory system which we have described.

The fifth point investigated, "conditions of work," presented the only factor common to all the cases, and special attention was naturally directed to these conditions.

When this inquiry was undertaken there was little coal-cutting machinery below ground; most of the hewing was done by hand, and at that time it was agreed by experts that the actual physical work required of coal miners was *not in* excess of that of any class of ordinary workmen—for example, joiners or bricklayers. Any difference in the mortality rates between miners and other occupied males is certainly not due to any excessive muscular effort required by their work.

In the area under investigation the pits vary in depth from 600 to over 2,000 feet; they are ventilated generally on the vacuum system, by which means a current of air which may amount to 200,000 cubic feet per minute is distributed through the workings. Though this seems a large quantity, it must be remembered that there are over twenty miles of underground roads in a large pit. As the coal is worked out in any area of a pit, the strata left are at first supported by timber pillars, so that these waste workings contain a vast quantity of decomposing wood. The practical importance of this will be noted later.

Since the miner works down the pit for eight hours each day, it is obvious that the composition of the air which he is breathing for such a period is a matter of great importance. We therefore secured analyses of samples of the air from various parts of one of the typical pits in the area. The two abnormal constituents which may be found in mine air are CH_4 and CO. CH_4 (fire-damp as it is called) has no direct action on man, and acts simply as a diluent of the oxygen. CO is only present in exceptional circumstances—for example, when a seam of coal is burning, or after an explosion, either of fire-damp or in the process of coal-getting by explosives. The figures concerning these gases, as well as of the nitrogen present, are therefore left out of the analytical samples given in Table VII.

TABLE VII.—*Analyses of Air in Typical Pit (Percentages).*

Place of Observation.	CO_2.	O_2.
1. At surface	0.03	20.94
2. Pit bottom	0.05	20.85
3. Intake air course 1,000 feet from bottom	0.15	20.59
4. At a working face	0.30	19.84
5. ditto	1.35	19.29
6. ditto; sample taken on pavement ...	4.56	13.13
7. Total return air of pit taken in the up-cast shaft in a current of 200,000 cubic feet per minute	0.22	20.51

We would draw special attention to the amount of CO_2 present in different localities in the pit, and contrast it with the normal and "extraordinarily constant" amount in air above ground—that is, 0.03 per cent.

The figures given do not represent bad ventilation from the mining standpoint. We have it on the authority of several general managers that air containing 0.7 per cent. of CO_2 represents good ventilation, while working places showing 1.35 per cent. and the like are referred to by the miner himself as having "dull air," and it is notorious that men work in such atmospheres for prolonged periods without raising serious objections. In these atmospheres a lamp will burn somewhat dimly, not owing to the actual quantity of CO_2 present, but to the deficiency of oxygen; and a light (a tallow candle) only gradually goes out when the oxygen is reduced to 17.6 per cent. Such atmospheres have little or no appreciable effect on breathing, pulse rate,

or blood pressure. We tested this on ourselves below ground in "dull air," and in one section which had been abandoned on account of bad ventilation. The differences noted were: slight slowing of the respiration (16 as compared with 18 above ground), and slight increase in pulse rate (84 and 72); it was not possible to take a blood pressure reading there as the light was so poor.

The large amount of CO_2 in mine air requires some explanation. There is, of course, no consumption of CO_2 underground; on the contrary, it is being produced constantly. The amount present is only to a very slight degree due to respiration of men and ponies and the burning of oil lamps. It is almost entirely due to the oxidization of wood and of the exposed surfaces of the coal, together with the gas actually liberated from the coal itself.

The other obvious abnormal factor in the conditions of work underground, in addition to the composition of the inspired air, is the absence of daylight. It is evident that in winter, at least, many miners seldom see sunlight or even daylight. The importance of this is only now being fully recognized, but at present we are not prepared to assess its significance in the subject under inquiry. We have, however, been able to trace a progressive thickening of the arteries with the length of time during which the men worked underground; this is shown in Table VIII.

TABLE VIII.

Duration of Work Underground.	No. of Men.	Condition of Arteries.		
		A.	B.	C.
(1) Under 1 year	44	21	23	0
(2) 1–5 years	111	6	95	9
(3) 5–10 years	108	7	79	22
(4) 10–20 years	112	6	69	37
(5) 20–30 years	71	4	38	29
(6) 30–40 years	39	0	10	29
(7) Over 40 years	15	0	3	12
Total	500	44	318	138

It is seen that of 44 men who had worked below ground one year or less, no fewer than 21 had normal arteries—that is, 48 per cent.; and those were not only boys, but included men up to 30 years of age. In no other grouping of the cases is it possible to get such a large percentage of normal arteries. It is also noticeable that there is a distinct increase in the amount of thickening of the arteries with the duration of occupation underground.

From this last table it seems evident that work below ground, under the conditions of ventilation shown to prevail, has a definite relation to the prevalence of arterio-sclerosis in coal miners. We believe that it is this arterio-sclerosis, with its subsequent results on general nutrition, which accounts for the increased mortality of coal miners after the age of 55. For although statistics may not show conclusively that miners suffer from diseases of the circulatory system more than men in other occupations, yet it is only to be expected that such an insidious pathological condition as arterio-sclerosis will in many cases fail to be recognized as the initial cause of death.

It has been our experience to meet with many miners who, while not complaining specially of any circulatory disturbances, have the physical appearance, while still on the right side of 60, of having summed up their threescore years and ten; and in many cases we have seen these men dying at or about the age of 60 with all the symptoms of vascular degeneration.

SUMMARY.

1. There is an unexplained difference in the mortality rate of coal miners as compared with other occupied males.

2. The results of the consecutive examination of the circulatory system of 500 coal miners are analysed.

3. It is shown that among coal miners of all ages there is an extraordinary prevalence of thickened arteries; the thickening is confined to the intima in the specimens examined.

4. There is no associated rise in blood pressure.

5. The only significant constant factors are (*a*) the inhalation of air of altered composition, especially the CO_2 content; and (*b*) the absence of daylight.

6. It is suggested that the arterio-sclerosis shown to exist in coal miners is the explanation of the peculiarity in their mortality rate.

DIFFUSE PNEUMOCOCCAL PERITONITIS IN A BOY:

POST-OPERATIVE PARALYTIC ILEUS TREATED BY ANTI-GAS-GANGRENE SERUM: EMPYEMA: RECOVERY.

BY

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SINCE 1926, when Williams[1] drew attention to the uses of anti-gas-gangrene serum in peritonitis and intestinal obstruction, many encouraging results have been described following the use of the serum in such cases. Molesworth[2] rightly sounds a note of caution in accepting such enthusiastic clinical reports of a comparatively new form of treatment. I venture to publish the following account of a case of diffuse pneumococcal peritonitis where anti-gas-gangrene serum had a beneficial effect and the patient recovered from a disease in which the mortality is admittedly very high.

A boy, aged 15 years, who had previously been in good health and had never suffered from any serious illness, was admitted to hospital on May 25th, 1929, with acute abdominal symptoms. He had become suddenly ill five days previously with severe abdominal pain and vomiting. There was no rigor. The pain was spasmodic, increased gradually in severity, and was felt most acutely in the lower abdomen, especially in the right side. From the commencement of the attack the bowels were constipated. No frequency of micturition was noted, but the boy at times complained of pain during the act. At no time did the patient have any cough or chest symptoms. (For the above particulars I am indebted to Dr. W. W. Turner, Lochinver, who recommended the case.)

On admission the patient was in a critical condition. He was very thin, the face was pinched, the expression anxious. The lips and finger-tips showed some cyanosis. The temperature was 102° F., the pulse rate 126, irregular and feeble; the respirations were 24 per minute. The tongue was dry and furred, and the breath was foul. There was no herpes labialis. He complained of severe and continuous abdominal pain, most marked in the umbilical and right iliac regions. There was frequent vomiting of offensive brown watery matter, which was very acid in reaction. The abdomen was moderately distended, immobile, and intensely rigid all over. Cutaneous hyperaesthesia and tenderness were most marked in the umbilical region and the right lower quadrant. The percussion note was tympanitic except in the flanks, where some dullness was present. There was no cough, and nothing abnormal could be detected on examination of the chest. The right tonsil was moderately enlarged and appeared to be slightly inflamed.

Operation.—As a preliminary morphine 1/6 grain and atropine 1/100 grain were given. Anaesthesia was induced with gas and oxygen, and followed by open ether. The abdomen was opened by a right paramedian incision. Much thin yellowish pus at once escaped and was seen oozing from all directions. The pus had a peculiar musty odour, and contained small flakes of lymph. There were no signs of adhesions even in an early stage of formation, the infection being diffuse. The peritonitis was, however, distinctly more intense in the right infra-colic compartment. The caecum, appendix, and subperitoneal tissues were oedematous and injected. The small gut was of a dull red colour, had lost its gloss, and appeared lifeless. The glands at the root of the mesentery were enlarged and inflamed. The peritoneal cavity having been cleansed as much as possible, and the appendix removed, a drain was placed in the pouch of Douglas through a separate stab wound in the mid-line. The original wound was closed, with a small drain in the lower angle.

Pathological Report.—The direct preparations showed many pus cells and numerous Gram-positive diplococci. Inoculated media yielded pure growths of a pneumococcus.

Progress.—Rectal salines and glucose (2 per cent.) were given four-hourly, and on the following day the condition of the boy had improved; temperature 99.4° F., pulse 80–100. On the afternoon of May 27th, about thirty-six hours after operation, he was uncomfortable and restless, and became rapidly worse towards evening. Vomiting recommenced, the abdomen became distended, and no flatus was passed. Enemata were ineffectual. The pulse rate rose to 130; the extremities were cold. It was obvious that a paralytic ileus was present. At 6.45 p.m. 10 c.cm. of anti-gas-gangrene serum "W" (Wellcome) was given intramuscularly. An hour later a little flatus had been passed and the patient was more comfortable. At 9 p.m. 10 c.cm. of serum was given. Shortly afterwards flatus was passed freely and he was much relieved. The vomiting ceased, and during the night he had some natural sleep. The next day the temperature was 99° F., pulse 100. At 10.45 a.m. he was given 12.5 c.cm. of serum. Soon afterwards the bowels moved freely, the motions being dark and extremely offensive. At 6.30 p.m. he was given another 12.5 c.cm. of serum. During the next few days the bowels continued to act four to six times in the twenty-four hours. On June 6th a dose of castor oil was given and the motions became normal.

The general condition improved steadily, although the temperature rose each night to 99° or 100° F. The chest was examined on several occasions without detecting any abnormality. On June 16th he suddenly had a sharp spell of coughing and the respirations rose to 36. A small area of dullness was discovered at the base of the left lung. As the boy was comparatively well and had little discomfort it was decided to wait in order to allow the abscess to localize. However, on June 20th he coughed up several ounces of pure pus. The physical signs in the chest cleared, the temperature and pulse dropped to normal, and he made good progress towards recovery.

On July 15th the temperature again rose, and it was evident that a large collection of pus was forming in the left chest. It was noticeable that there was no cough, and although the temperature gradually rose to 103° F., he had practically no discomfort. On July 20th, under general anaesthesia (gas and oxygen), a portion of the ninth rib was resected in the posterior axillary line, the cavity cleansed, and drainage instituted by the "closed" method. Drainage of typical pneumococcal pus continued for some days. At the end of a week the discharge had practically ceased; the wound was dressed for the first time and the sutures and tube were removed. Healing took place rapidly and without complication.

The patient subsequently made an uninterrupted recovery.

Summary.

The points of interest in this case may be summarized as follows:

1. At the outset the history did not suggest a pneumococcal peritonitis. There was no rigor at the commencement of the acute illness, no diarrhoea occurred, neither was there any herpes labialis. Exact pre-operative diagnosis was not possible.

2. As no demonstrable path of infection existed, the condition appeared to be an "idiopathic" type of the disease, although Fraser[3] makes it clear that primary pneumococcal peritonitis can only occur in the female. In the light of the subsequent history, however, the condition must be regarded as a septicaemia with a small concealed focus in the lung as the primary focus. Barrington-Ward[4] describes a case of pneumococcal peritonitis where a very small hidden empyema, unsuspected during life, was discovered post mortem.

3. Although the peritonitis was diffuse, it was clearly seen at operation that the infection was most intense in the ileo-caecal region.

4. The administration of anti-gas-gangrene serum in its concentrated form proved beneficial when the establishment of a paralytic ileus had rendered the condition apparently hopeless.

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1 Williams: *Brit. Journ. Surg.*, 1926, vol. 14, p. 295.
2 Molesworth: *British Medical Journal*, August 24, 1929, p. 344.
3 Fraser: *Surgery of Childhood*, vol. 2, p. 803.
4 Barrington-Ward: *Abdominal Surgery of Children*, p. 63.

GRADENIGO'S SYNDROME FOLLOWED BY COMPLETE RECOVERY.

BY

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AND

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GRADENIGO'S syndrome has attracted a considerable amount of attention in recent years, and the following details of a rather unusual case may therefore be worthy of record.

A public school boy, aged 16, had an acute attack of otitis *media* on March 13th. There was a history of discharge from the right ear for a short period, after influenza five years previously. The present attack was preceded by a post-nasal infection on March 9th.

The ear was discharging freely when it was first seen. The temperature persisted in the neighbourhood of 99° F. until March 28th, when it rose to 101° F. There was slight tenderness over the mastoid region, and a Schwartze operation was performed on that day; this revealed a very cellular mastoid, with an extensive cell system passing backward behind the lateral sinus and necessitating a backward continuation of the incision. There was also an infected cell system, which dipped deeply into the back of the petrous bone in front of the sinus. These cell systems were opened up and the whole tip of the mastoid was removed. All the cells contained pus, from which a short-chain non-haemolytic streptococcus was recovered.

Although the wound appeared perfectly healthy and the discharge rapidly became mucoid, the boy *continued* to have a temperature around 99° F. No cause for this pyrexia could be found in the ear, chest, or elsewhere. *Immediately* before the operation and for a fortnight afterwards he complained of pain, neuralgic in character, above and below the right eye. There was no headache.

On April 9th he complained of a fleeting diplopia, and on the following day there was obvious weakness of the external rectus of the right eye; by April 13th paralysis was complete. There was no further neuralgia after this date. The temperature became normal on April 17th, and remained so.

He was discharged home on May 2nd with the mastoid wound healed and the membrana tympani intact. He could then easily hear a 32 double vibrations fork. Some recovery of the external rectus of the right eye was just detectable.

On May 13th he was examined for the diplopia, and it was found that he had an internal squint with almost complete paralysis of the right external rectus and uncrossed diplopia, most marked on looking to the right. There was hardly any vertical displacement of the images. Vision was 6/6 in both eyes, with a +2 cylinder (95 degrees) in the right and a +2.25 cylinder (90 degrees) in the left. In other words, after correction of the hypermetropic astigmatism present, he had full vision with each eye. The fundi and media were normal. The father stated that the eye was "not so much in the corner as it was at first." On looking directly ahead at a small light placed at 6 metres distance, with a Maddox rod before the defective eye, there was between 30 and 40 degrees of measurable esophoria. He could not obtain any fusion of the two images.

Paralysed eye muscles differ from those in other situations in that the defective muscle cannot be kept at rest. The eye muscle is *kept constantly* but partially moving, even if the eye is covered, by the conjugate movements of the two eyes. This very considerably aids its recovery if the nerve is not permanently destroyed, especially in a situation where massage and faradism cannot be applied. This boy was treated by an expert masseuse *twice a week*, between May 21st and July 2nd, with ionization with the continuous galvanic current for five to seven minutes; the pads were soaked in saline, and applied, one between the second and fourth cervical vertebrae and the other directly over the outer conjunctiva, which had been previously anaesthetized by 1 per cent. cocaine solution. The patient tolerated this treatment quite well, and it was followed by interrupted galvanism *in the hope* of stimulating the external rectus muscle fibres. He wore a shade to free him from the disabling diplopia.

His progress was as follows.

May 27th: Hardly any visible squint; 18 degrees of esophoria; single vision with prism, but not without it.

June 11th: There was 12 degrees of esophoria. The first thing in the morning the patient did not have double vision, but it came on by breakfast time. It was decided to try to abandon the shade in the earlier part of the day.

June 24th: The esophoria was *now only* 3 degrees, and the patient left off his shade. Fusion was obtained without any prism.

July 8th: No measurable esophoria was detectable, and there was good binocular vision. The abducent nerve, therefore, took about three months to recover.

We publish this case chiefly for the interest of the complete report of the recovery, which in such cases has not always been fully recorded. It is also noteworthy that the syndrome was associated with an exceptionally cellular mastoid. The syndrome is not of the complete Gradenigo type in that the boy at no stage suffered from headache.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

HYPERTROPHIC TUMOUR OF THE SKIN OF THE LEG ARISING IN A CHRONIC VARICOSE ULCER.

THE following case seems to be of sufficient surgical interest to warrant publication.

The patient, a plethoric woman aged 62, the mother of twelve children, had suffered from varicose veins in both legs practically all her adult life. Twenty-five years ago, during her ninth pregnancy, a vein burst on the inner side of the right leg; this

was followed by a large weeping varicose ulcer over the site of the ruptured vein, which since that time had never healed completely. It was treated by hot lint and various ointment applications.

Twelve years ago an ulcer broke out on the left leg, and the ulcer on the right leg became very painful and irritating. She attended the out-patient department of a hospital in London and had Lassar's paste applied weekly. The ulcer on the left leg healed completely, but that on the right leg was only alleviated. Since then she had been treated by her own doctor by hot lint applications.

Nine months ago the ulcer became very painful, irritating, and offensive; at the same time warty growths began to appear round its edges; these extended fairly rapidly in all directions, and bled easily on the slightest injury. The patient has been unable to put the foot to the ground for the last nine months.

On admission to hospital there was a very extensive hard, nodulated growth extending round the whole circumference of the right leg, in the calf, and on to the dorsum of the foot. On the inner surface of the leg were two ulcers extending down to the bone—the site of the original ulcer. The growth was hard, nodular, and friable, bleeding when disturbed. No glands were palpable either in the popliteal space or in the groins. There was a scar of a healed ulcer on the inner side of the left leg and numerous varicose veins. A radiogram showed periostitis of the right tibia and fibula over the site of the tumour. The leg was amputated and healed normally.

The pathological report of a section of the tumour described it as being a papillomatous growth with much round-celled infiltration, but no definite signs of malignancy.

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SLOUGHING OF UTERUS AFTER COMPLETE INVERSION.

THE following case of complete inversion of the uterus may be worth recording in view of its very unusual features.

A married woman, aged 32, under the care of a certified midwife, was delivered of her third child after an uneventful labour of six hours on July 10th. She described her puerperium as normal, but admitted that the "lochial" discharge had continued for eighteen days, and that she had *become very constipated*. She got up on the tenth day feeling quite fit.

On the eighteenth day after her confinement she suddenly discovered that she could not pass water, and on attempting to open her bowels she felt a large mass pass per vaginam.

When she arrived in hospital she appeared pale and somewhat shocked but she felt no pain. Her pulse was 100, and her temperature 99.6°. She had felt the mass pass through the vagina about two hours before. Previous to that, on the same day, she had attended church and carried out her ordinary duties.

On examination, the uterus, the size of a four months' pregnancy, was seen to be completely inverted and lying outside the vagina. The exposed surface was smooth, shining, greyish in colour, and showed signs of sloughing, accompanied by a strong faecal odour. The openings of the Fallopian tubes were quite obvious. The bladder was distended.

Under a general anaesthetic the uterus was thoroughly cleansed with biniodide solution and saline, and the bladder catheterized. An attempt was then made to reduce the inversion; on this being found to be impossible the uterus, in its inverted state, was pushed back into the vagina, and the vagina packed with gauze wrung out of biniodide solution. The condition of the patient and the gangrenous state of the uterus did not allow of anything else being done then.

Subsequent treatment consisted of vaginal douches of biniodide solution three times daily. A profuse purulent vaginal discharge was present from the first. The temperature continued at 100° for ten days, and then gradually came down to normal. On the eighth day after admission a large gangrenous mass came away from the vagina, which practically corresponded to the whole of the uterus, except for the cervix. From that day the discharge gradually diminished. There was no haemorrhage whatsoever at any time in the course of the illness. On August 30th, five weeks after admittance to hospital, she was discharged quite well.

On examination per vaginam the remains of the cervix, slightly patent, could be felt *in situ* and the pelvic floor in good condition.

This case presents the following very unusual features:

1. The uterus must have become inverted shortly after labour, yet, presenting no signs other than constipation and the continuous red "lochial" discharge, the inversion was not discovered until eighteen days after delivery.

2. Shock was entirely absent until the uterus protruded through the vagina.

3. The case showed little or no signs of actual septic absorption.

4. Sloughing of the uterus, with uneventful recovery.

I am indebted to Dr. Richmond for permission to report this case.

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Reports of Societies.

MINOR INJURIES OF THE ELBOW-JOINT.

AT a meeting of the Section of Orthopaedics of the Royal Society of Medicine, on December 3rd, a discussion was held on minor injuries of the elbow-joint. Mr. D. MACRAE AITKEN presided.

Mr. W. H. OGILVIE gave a detailed description of the structure and mechanism of the joint; anatomists defined it as a hinge, and omitted those dissertations on function which lent life to similar studies of the knee or hip. The mechanism of the elbow-joint was identical with that which allowed the eye to move in its bony socket, and by a series of synovial fringes Nature had overcome the problem of the sharp edge. The elbow was primarily designed for use in positions between 110 and 170 degrees of extension, and between half and three-quarter pronation; the pronation position was that in which the forearm was held in all common positions of the arm, and provided the only logical explanation of the carrying angle of the elbow. The position of full extension and full supination in which the carrying angle became obvious was a *wholly artificial one*; the purpose of the carrying angle was to allow the radius to lie in the long axis of the humerus. The position of rest for the elbow was one of slight flexion and rather more than half pronation. The majority of injuries seen in the elbow were due to indirect violence, but, in addition, the elbow region was exposed to direct violence by falls or by blows on the arm raised in self-defence. After illustrating a number of injuries, Mr. Ogilvie spoke in particular of tennis-elbow, the clinical features of which were well recognized. This condition was found in followers of those trades and sports in which the arm was jerked rapidly into full extension while the hand grasped some large instrument. The onset was rarely sudden; the condition became progressively worse with the use of the arm, and an additional symptom was momentary inhibition on lifting small objects such as a teacup. In most cases there was no swelling or other alteration in the contour of the joint, and the x-ray picture was negative. A common clinical type was due to tearing of muscle fibres at their origin from the bone, with, in some cases, separation of the periosteum; but sometimes tennis-elbow could

not be explained by tearing, and was due to internal derangement, similar in its cause to the injuries of the internal semilunar cartilage of the knee.

Mr. P. JENNER VERRALL said that internal derangement of the elbow-joint as a cause of tennis-elbow had appealed to him for a long time, but he had not been able to prove it. He regarded tennis-elbow as being possibly in a number of cases a muscular rupture, but in the majority a combination of circulating toxins and local trauma was concerned. Partial dislocation of the head of the radius was apt to be treated rather lightly and considered a minor disability, but the speaker's experience was that a dislocated head of the radius forwards was a most tiresome matter, and if left displaced caused musculo-spiral neuritis. For fractures of the head of the radius early operation was the only thing worth consideration. He did not regard excision of the head of the radius as a good operation with a movable elbow; he had had a large number of cases in which he had excised the head of the radius in a fixed elbow, but he did not do this at all light-heartedly if the elbow was movable.

Mr. WATSON JONES pointed out that elbow injuries were most common and significant in the second decade of life, for the elbow of the young adult was very susceptible to injury. He pleaded for the keeping of constant records of the range of returning movement following different treatments; a study of these might not justify the treatment adopted in a particular case, and it was very easy to be misled as to range of movement if one relied only upon unaided observation from time to time, or even upon the patient's description. Dealing with fractures of the head of the radius, he said that the end-results in his cases showed that these apparently innocent and trivial injuries of the head of the radius had a prognosis which was worse than that of supracondylar fractures with gross displacement. Even in cases where there was no displacement his figures showed a perfect result in supracondylar fractures in 100 per cent. of cases, whereas with fractures of the head of the radius, also with no displacement, a perfect result was only obtained in 93 per cent.

Mr. WHITCHURCH HOWELL said that tennis-elbow was the result of bad tennis, and very seldom occurred in a professional player; when it did, the player was usually not a young person, but someone of arthritic type in whom, perhaps, some latent sepsis in the muscular tissues had been associated with trauma. Certain cases of tennis-elbow were due to a contraction of the extensors and a pinching of the cutaneous nerve in that region.

Mr. R. C. ELMSLIE remarked that continuous tennis-elbow did not come on acutely, but so gradually that it was difficult for the patient to say exactly when the condition arose. The patients were often over the age of 35, and were continuing to play hard tennis when others had desisted. There were some very characteristic symptoms, such as the position of the tender spot, which was absolutely over the radio-humeral joint. In his opinion, true tennis-elbow was brought out in tennis by a forehand drive, a position in which the hand was supinated and the wrist fully extended. He always excluded from the category of tennis-elbow those cases in which there was definite evidence of arthritis of the elbow-joint; in these there existed a definite pathological cause, which was absent from ordinary tennis-elbow. As to the physical treatment of injuries of the elbow-joint, particularly in young people and children, the best functional result was obtained by normal natural processes without assistance. The child's own movements would restore function more rapidly than any assistance was likely to do. Unfortunately, the present generation expected early massage and movements, and the only solution of the difficulty he had found was to give to those performing the massage the kind of instruction which had led one of them—a particularly intelligent person—to remark, "What you really mean is that you want me to pretend to be doing a lot and really to do very little."

Mr. W. H. TRETHOWAN said that there was nothing more constant in its clinical picture than tennis-elbow; it was a traumatic synovitis of the radio-humeral joint. Why, then, imagine various pathologies? It was quite well known that certain bone-setters did cure tennis-elbow by manipulation; in other cases it was equally evident that they did not. In eight intractable cases he had explored the joint; he had found Osgood's bursa in some of them, not in others. Osgood's bursa was nothing more than an extension of the synovial membrane of the radio-humeral joint. In these eight the only abnormality he had discovered was that all of them, at both the front and back of the joint, had injected synovial fringes. With the removal of the fringes restoration of normal function in time became complete.

Mr. ROCYN JONES said that in certain cases of tennis-elbow there was definite limitation of movement, and in these Mills's manipulations proved very valuable. One lesion of the elbow-joint often found was a fissure fracture of the head of the radius, due to pitching forward on the outstretched hand.

Dr. PHILIP FIGHOM, speaking as one in charge of a massage department, said that many cases were sent to his department with direct instructions to give massage, simply because the *x*-ray picture had shown that there was no fracture about the joint; these, however, were dangerous cases, and should receive far more careful attention. He had seen cases which in their early stages had even been mismanaged reach a perfect result by active movement of the elbow-joint, which gave nearly 100 per cent. good results.

Mr. MACRAE AITKEN, from the chair, said that if time permitted he was quite prepared to disagree with nearly everybody who had spoken on tennis-elbow. Even Mr. Ogilvie had stated that the condition was invariably on the outer side; but, in fact, there was pain of a very similar sort associated with the origins of the muscles arising from the internal condyle. There were cases which were directly relieved by the use of a pad and strap; there were others which no pad and strap he had been able to devise could relieve, but which on manipulation "went flick," and the cure was complete. He agreed about treatment by natural movement, provided the patient was restrained from indiscretions.

Mr. OGILVIE, in reply, said that he thought it was a duty when examining a case to try to translate the history and physical signs into terms of microscopical pathology. If it was a case of blood effusion, the treatment was rest; if the microscopical section showed young connective tissue cells and blood vessels, the treatment was limitation of movement combined with pressure; here, he thought, a small pad over the tender spot and a strap did a great deal of good. If the microscopical condition showed connective tissue with no cells and no blood vessels, then Mills's method of manipulation would cure all cases except those of an arthritic type.

SHAPE OF THE PELVIS.

AT the meeting of the Section of Obstetrics and Gynaecology of the Royal Society of Medicine on November 15th Dr. KATHLEEN VAUGHAN read a paper on maternal mortality and its relation to the shape of the female pelvis.

Dr. Vaughan said that her experience in Kashmir had led her to suggest that civilization created conditions which resulted in the deforming of the pelvis in women. Caesarean section was as common in Kashmir as in China among women of the better classes who suffered from the purdah system. Boatwomen in the same towns, engaging in heavy work on a coarse but sufficient diet, did not suffer from difficult labours. Similarly, the African negress in a kraal had an easy labour, while in an American city obstetrical complications occurred owing to the poor hygienic conditions under which she then lived. The report of Dr. Janet Campbell had shown that the highest rate of maternal mortality was to be found in industrial centres. Dr. Vaughan contended that the fundamental cause was that the shape of the child's head and the mother's pelvis did not agree; in her opinion the capacity of the pelvic inlet depended more upon shape than upon size. Variations in shape in a number of pelves of different races were discussed by the speaker, and three types were defined. The circular type, in which the whole of the body of the first sacral vertebra was outside the inlet, was found in

certain native races, and in pelves in Ur and Ancient Britain. In the second type, the antero-posteriorly contracted or rickety variety, the upper part of the sacrum and the fourth and fifth lumbar vertebrae helped to block the available space; this type was found among Europeans and Egyptians. The third type was flattened from side to side, as in osteomalacia and the pelvis of the ape. Dr. Vaughan said that the two last types must be considered pathological in women, for the foetal head was circular, and a larger head could be born through a circular inlet than through any other form having the same boundary measurements. X-ray examinations had shown that the ends of an oval pelvis were not occupied by the child's head at birth. In the European the head descended in a screw-like manner because the three largest diameters of the pelvis were situated in different pelvic planes, whereas in the round pelvis all the diameters of the three planes were equal with movable sacro-iliac joints, and labour was quick and easy. After describing various postures adopted in native labours, Dr. Vaughan emphasized the importance of the sacro-iliac joints, which were well developed in the circular pelvis of the negress, South Australian women, and those who still led natural lives. Civilized women did not use these joints, except in games and gymnastics, and the shape of the normal pelvis was altered by the adoption of an indoor sedentary life, associated with deficiency of sunlight and vitamin D. The speaker added that the problem of maternal mortality should be attacked by ensuring proper development of the pelvis in little girls in their earliest years, and not by making elaborate provision for abnormal childbirth.

TRAINING AND EMPLOYMENT OF MIDWIVES.

A MEETING of the North of England Obstetrical and Gynaecological Society was held at Sheffield, on November 22nd, with the president, Dr. G. W. FITZGERALD (Manchester) in the chair. Professor D. DOUGAL (Manchester) opened a discussion on the report of the Departmental Committee on the *Training and Employment of Midwives*.

Professor Dougal pointed out that the report contained matters of far-reaching importance, not only to those engaged in the teaching of medical students and midwives, but also to all concerned with the improvement of obstetrical practice generally. The various sections of the report were outlined and commented upon. Hearty agreement was expressed with the view taken that the doctor responsible for the ante-natal supervision should also be the doctor who might be on call or in attendance during labour and the puerperium. The speaker mentioned that the maternity scheme followed closely on the lines of that drawn up by the British Medical Association, and the opinion was expressed that it was perfectly sound. He considered the effect that the introduction of such a scheme would have on the supply of teaching material for medical students and midwives. The Government Actuary Department had stated that maternity benefit was at present payable in about 80 per cent. of the total confinements, and that of the remaining 20 per cent. about one-half occurred in families of equivalent economic status. When a midwife and a doctor were provided for every mother coming within the scheme it was evident that the number of normal cases attended by any maternity hospital would be very much diminished. There would be a certain number of necessitous cases, but these would not be very numerous, and financial help would be given to them by local authorities. With regard to the training of midwives the suggestion of a preliminary test of general education was warmly welcomed. Post-examination experience before registration was also considered helpful, but only if it was obtained with up-to-date midwives or institutions. The practical difficulties of holding a clinical examination were mentioned, and a suggestion was made that a few pregnant women ought be present at the oral examination, so that the pupil could be tested on the signs of pregnancy and the methods of abdominal examination. The paragraphs dealing with the use of drugs by midwives were discussed, the opinion was expressed that these women should not be allowed to give sedatives, but that there was no objection to their being allowed to give hypodermic injections of pituitrin or ergot under the same restrictions as existed at present with regard to the administration of the latter drug by mouth. On the question of the supply of midwives it was suggested that the midwifery practice in certain of the poorer districts should be conducted by whole-time salaried midwives, employed either by a maternity hospital or by a local authority, and that suitable hostels should be provided to accommodate them. A much better class of midwife would be attracted by such means, and proper facilities would be available for bathing and the sterilization of clothing. In addition, the centres would supply suitable clinical material for training purposes. The qualifications suggested for supervisors of midwives, the appointment of an independent legal assessor to the Central Midwives Board, and the proposal to give that body power to subpoena witnesses and to take evidence on oath, were generally approved. The clauses dealing with the approval and inspection of training institutions, the arrangement of the curriculum, and the formation of an advisory committee and an examinations board were discussed, and a definite pronouncement made in favour of the views expressed by Dr. Fairbairn and Mrs. Bruce Richmond.

Professor MILES PHILLIPS (Sheffield) agreed with the comments made; he believed that action on the lines of this report would improve the status of midwives. The idea of midwives living at a hostel with baths, regular meals, holidays, and adequate pay for their arduous work appealed to him. He doubted if a clinical examination was practicable, but thought that if a few patients were present at the oral examination, and some candidates were examined on them, this would act as a stimulus and improve the general standard. Post-examination experience would be of value; it was insisted on in one country for medical students, and it might help to provide staff nurses in maternity hospitals. He especially supported Dr. Fairbairn's remarks, and thought that a considered opinion from the North of England Society might influence the authorities before they took a decision.

Dr. F. H. LACEY (Manchester) also agreed entirely with Dr. Fairbairn's reservations. Large ante-natal clinics should be in close touch with large maternity hospitals, and a report on an ante-natal examination be forwarded to the doctor who would be in charge of the confinement. If a panel of practitioners was formed to conduct a maternity service they should be required to have special experience such as was necessary to obtain arsenical preparations at the special rate in venereal disease work. He approved the test of general education and of a modified clinical examination. He doubted if there really was a shortage of cases and if the best use was at present being made of the clinical material. There were considerably more cases in the Manchester Union hospitals than were needed for the number of pupil midwives trained there, and since he could imagine certain disadvantages in training medical students and pupil midwives together, he suggested that the former might receive their education in maternity hospitals and the latter in union hospitals. With regard to post-certificate training he advocated one month's residence in a maternity hospital every four or five years. He thought that limitation of the number of cases, the prescribing of holidays, the provision of reliefs, and the control of hostels conducted by municipal authorities or maternity hospitals would be of great benefit.

The report was further discussed by Drs. LEITH MURRAY and J. E. GEMMELL (Liverpool), Dr. W. W. KING (Sheffield), and Dr. J. W. BURNS (Liverpool), and the following resolution was passed:

> This society is of opinion that the report of the Departmental Committee on the Training and Employment of Midwives is a valuable contribution to the problem of providing a better maternity service and reducing the present high incidence of puerperal mortality and morbidity; but feels that the proposal contained in the report to limit the power of the Central Midwives Board and to give the Minister of Health the sole responsibility of approving and inspecting training institutions and teachers, and of laying down the curriculum of training would, if adopted, be prejudicial to the teaching and practice of midwifery in this country.

The Blood Cholesterin in Pregnancy.

Mr. P. MALPAS (Liverpool) read a paper on the cholesterin content of the blood in pregnancy, and described an attempt to elicit the normal cholesterin content of the blood of pregnant women, and its possible relationship to the course of the puerperium. The inquiry arose in the course of a search for a method of estimating the resistance of pregnant women. MacAdam and Shiskin's work seemed to show that the blood cholesterin content was of value as an index of the degree of immunity to post-operative sepsis in cases of urinary abnormality. The method of estimating the blood cholesterin was that of Leiboff, and the estimations were carried out on whole blood. In twelve cases estimations were repeated at monthly intervals from the thirtieth week until term. In a further thirteen cases single estimations were made at term only. The series of Gardner and Gainsborough had been published during the course of this work. While realizing that the number of cases was small the results were so negative that they appeared to justify the conclusion that there was no fixed level of cholesterin in the blood in pregnancy, but a rising curve of hypercholesterinaemia from the thirtieth week onwards to term, with a sudden and temporary drop at the onset of labour. It was not possible to fix any arbitrary standard of normality at any given period of gestation, there being wide differences in different patients. There did not appear to be any relation between the cholesterin content of the blood at term and the degree of immunity to puerperal infection, or, rather, the former was of no value as a clinical index to the latter. A possible relation of the cholesterin value to the degree of parity was suggested. The administration of quinine had no effect on the cholesterin value of the blood.

Dr. LEITH MURRAY considered that more work was necessary on the immunity of pregnant women. Dr. A. A. GEMMELL compared the blood cholesterol curve in pregnancy as presented by Chauffard with the curve of the bactericidal power of the blood in pregnancy recently reported from Edinburgh, and suggested a possible significance from the fact that they were so very similar. Mr. MALPAS, in reply, said that he thought curves of all metabolic processes in pregnancy and the puerperium were of the same type.

Radium Treatment of Uterine Neoplasms.

Professor MILES PHILLIPS (Sheffield) showed a specimen of a uterus removed after radium treatment for squamous carcinoma of the cervix in a multipara, aged 64, in whom the menopause had occurred twenty years previously. The portio was eaten away and lay flush with the vaginal vault. There was no induration of the broad and utero-sacral ligaments, and cystoscopy did not reveal any bladder involvement. The patient had been given a full Heyman treatment, and at the third application it was noted that the growth had disappeared and the patient had a normal atrophic cervix. Two months later the patient had an operation for cholecystitis with suppuration in the upper abdomen and died; the specimen shown was removed after death. The kidneys and ureters were found normal; there were no enlarged pelvic glands, and the genital organs were removed intact without any difficulty. Such sections as had been cut did not show any cancer cells.

The PRESIDENT said that, in his experience, "cures" by radium were few. Dr. W. W. KING (Sheffield) asked if there was any induration in the broad ligaments; he had known cases in which considerable difficulty was experienced in removing uteri after treatment by radium, but he thought that possibly modern methods of screening obviated this.

Professor D. DOUGAL (Manchester) mentioned a case of diffuse adenomyoma of the uterus which had been treated by radium, but since bleeding was still persisting when he saw her he removed the uterus. The parametria were markedly indurated in this case, rendering panhysterectomy very difficult. Professor PHILLIPS said he could not give a definite reply as to the induration of the parametria, but the pathologist reported that removal of the genital organs was "easy."

GYNAECOLOGY IN A GENERAL HOSPITAL.

A MEETING of the Section of Obstetrics of the Royal Academy of Medicine in Ireland was held in the Royal College of Physicians on November 15th, when the president, Professor A. H. DAVIDSON, read a paper on three years' work in the gynaecological department of a general hospital. The paper embodied a report of the work done and the results obtained in the gynaecological department of Dr. Steevens' Hospital, Dublin, for the period June, 1926, to June, 1929.

Professor Davidson said that 535 patients had been admitted to the hospital in that period, of whom 505 had been operated upon; 7 deaths had occurred—a percentage mortality of 1.38. There had been 150 dilatations of the cervix; 120 curettings; 130 Gilliam suspensions of the uterus; 311 total, 3 subtotal, and 10 Wertheim hysterectomies; and 85 operations on the Fallopian tubes, including 22 salpingostomies. Rubin's insufflation test was performed ninety times, and iodized oil was injected on fifteen occasions. There were 22 cases of prolapse of the uterus for which shortening of Mackenrodt's lateral cervical ligaments was employed; 65 colpo-perineorrhaphies; 50 amputations of the cervix; 30 trachelorrhaphies; 40 radical cures of cystocele by the bringing together of the torn bladder pillars; 6 cases of bladder fistula, 5 of which had been cured; 8 Caesarean sections; 40 appendicectomies; and many minor and miscellaneous operations. Professor Davidson mentioned that there were eight gynaecological beds, with two operating days in the week; the dispensary was attended last year by an average of 50 patients per week, and the average number of days in hospital for each patient was eleven. Patients with simple abdominal conditions were allowed out of bed on their eighth or ninth day, and left hospital on the twelfth or thirteenth day; each patient was told to report at regular intervals in order to keep a follow-up of after-results. During the three years reviewed there were 90 cases of sterility; of these, 37 were due to pelvic infection with occluded tubes, 17 to underdevelopment of the uterus with associated conditions, 12 to cervical infections (erosion and ectropion) and endometritis, 18 to backward displacements of the uterus, and 6 to infertility of the male. Of the 37 cases with blocked tubes pregnancies were obtained in 6 cases, in 3 cases following double salpingostomy and in 3 cases where some obstruction was blown out of the tubes by the Rubin test. In one case pregnancy followed the therapeutic use of iodized oil in the tubes. The cure by amputation or trachelorrhaphy of infected cervices was followed by pregnancy in five cases. In 70 cases of backward displacement of the uterus the symptoms and the results of the Gilliam subperitoneal suspension were analysed. Backache, present in 29 cases, was cured in 20 and relieved in 6; menorrhagia, present in 30, was cured in 18 and relieved in 8; dysmenorrhoea, present in 16, was cured in 13; pain in the side, present in 25, was cured in 18; dyspareunia, present in 5, was cured in 5. Of the 10 Wertheim hysterectomies for cancer of the cervix there was a primary operative mortality of 3 (30 per cent.); two patients died within 18 months, one after 2½ years, and four were still alive and well, three of them for a period of three years.

Dr. BETHEL SOLOMONS agreed that the follow-up of patients was a necessary adjunct to any clinic. He had been most unfortunate in acute and subacute cases of gonorrhoea treated by diathermy; the more chronic forms were comparatively easily treated by other methods. He had no doubt that inflation of the tubes produced a therapeutic cure of sterility. He did not agree that salpingostomy at the isthmial and interstitial portions of the tube was hopeless; the prognosis was not good, but his isolated successes had encouraged him to persevere.

Dr. R. M. CORBET thought that in parametritis diathermy was a little quicker in clearing up subacute infections than the douche method. Dr. D. J. CANNON said he never operated on a sterility case until he had performed the Hubner test. He referred to the difficulty of estimating the results in this test, and mentioned a recent case in which he had performed division of the cervix. Dr. NIXIAN FALKINER thought the president's results in sterility cases had been particularly good, as also the results in the

Gilliam operation. Dr. J. S. ASHE was glad that the use of plugs had not been altogether abolished. He mentioned the case of a woman whom he had recently delivered after fourteen years' sterility, and said that he had treated the inflammation by the use of drugs and plugs.

The PRESIDENT, replying, said he had not meant to overstress diathermy treatment, since he was not yet in a position to judge. The third case of chronic gonococcal endocervicitis in which he had tried diathermy treatment had improved, but he thought it quite likely that this improvement was only temporary. The cases of transplantation of ovaries were autotransplants, one having been undertaken in a case of salpingo-oophoritis. He mentioned a recent paper by a London worker who had carried out experiments on animals, removing ovaries at intervals of two weeks and transplanting the autografts. In every case the grafts had died, not one being alive at the end of four months, and this seemed to be against the technique of transplantation of the ovaries. In performing Huhner's test it was necessary to get the specimen quickly. The number of cases in which posterior division of the cervix had proved unsatisfactory had been so great that he did not think the operation justified.

Radiography in Obstetrics.

Dr. FALKINER read a note on two obstetrical cases in which the diagnosis had been confirmed by *x*-ray examinations. The first patient, a primigravida, was noted at the thirty-fourth week to have an abnormal mass at the fundus, which was tender on palpation at the thirty-seventh week left little doubt of the diagnosis of a hydrocephalic infant presenting as a breech. This was confirmed by an *x*-ray picture. The patient was delivered at term, the emptying of the fluid being simplified by the presence of a spina bifida: through this opening a metal catheter was passed into the ventricles, the fluid draining away and the skull collapsing. An *x*-ray picture was taken to show the catheter in position. The second was a case of compound presentation occurring in a primigravida with a normal pelvis, and consisting of a foot, hand, and head. The diagnosis was partly made by palpation and rectal examination, since the foot could be easily felt per rectum; an *x*-ray photograph showed that a hand was also involved. The treatment consisted in correcting the presentation and inducing labour. This proved successful in the end, but the malpresentation recurred during the labour, and it was not till the first stage was well advanced that the head could be induced to remain as an uncomplicated vertex; delivery was completed by low forceps. A live child was born; it appeared normal in every way, and had continued in excellent health. Dr. T. G. HARDMAN demonstrated the pictures by means of slides which he had prepared.

LINITIS PLASTICA.

THE Manchester Pathological Society recently held the opening meeting of the current session, and Mr. GARNETT WRIGHT delivered the presidential address, taking for his subject linitis plastica.

Mr. Garnett Wright related how he had operated on two cases of this disease; at the time of operation he had considered them to be undoubted cases of cancer of the stomach, and he had performed a partial gastrectomy on both. He was surprised in each instance to receive a preliminary pathological report stating that the condition was one of extensive fibrosis, chiefly affecting the submucous layer of the stomach, and showing no sign of malignancy. The first patient died shortly after the operation, and the second died nine months later from secondary growths in the peritoneum. The speaker said that Brinton had first given a clear and full description of the disease; he had considered it an atypical form of cancer in which there was an excess of fibrous tissue strangling the invading epithelial growth. Mr. Garnett Wright added that it was possible to demonstrate the carcinomatous nature of the disease by staining the epithelial cells with mucicarmine. Most of the patients who had been followed up had died from carcinomatous metastases.

Professor SHAW DUNN showed an interesting series of microscopical sections of linitis plastica stained with mucicarmine.

Reviews.

THE DIAGNOSIS AND TREATMENT OF SYPHILIS.

Syphilis,[1] by CHARLES C. DENNIE, is exactly what it is stated to be—namely, a monograph of some 300 pages of convenient size, suitable for the general practitioner. The author is nearly always dogmatic, but here and there he is inclined to carry dogmatism to excess. For example, when he states that the *Sp. pallidum* cannot penetrate intact mucous membrane he is directly contradicting the experimental work of Brown and Pearce; in any case, it must be difficult to decide whether a given mucous membrane is intact or not.

The chapters on the pathology of syphilis, classifying it in the four stages of invasion, infiltration, resolution, and cicatrization, are quite the best in the book. The description is clear and simple, and better than that found in most textbooks on the subject. There follows an account, on fairly stereotyped lines, of the various manifestations of syphilis in its different stages and different parts of the body, and cardio-vascular disease is accorded the importance it deserves but does not always receive. In discussing treatment the author presents his material in a curious sequence, dealing with the Swift-Ellis-Ogilvie intraspinal treatment, about which he is evidently enthusiastic, and with tryparsamide and malaria before he comes to the use of arsenobenzol, bismuth, and mercury. The routine "course" laid down is extremely thorough, but as it consists of no fewer than thirty-eight separate injections of arsenobenzol, bismuth, and mercury, and occupies four months, it seems unnecessarily complicated and to demand overmuch of the patient's time and patience. The course might have been set out in tabular form with advantage.

In the course of the work Dr. Dennie brings out a number of important points which are often overlooked or insufficiently stressed—for example, the mistake of applying antiseptics to the primary sore until the diagnosis is made; on the other hand, he lightly dismisses jaundice, the bane of arsenobenzol treatment, and evidently has little fear of arsenobenzol dermatitis. Many syphilologists would regard 900 grains of potassium iodide a day as rather excessive, and few would care to carry out as many cerebrospinal fluid examinations as the author recommends. A few minor errors have crept in, such as the use of "labiae" for "labia," and "intra-vertebral" for "inter-vertebral," but these will no doubt be corrected in a future edition. There is no index. Dr. Dennie has written an excellent book, and the concluding chapter on "Public health and syphilis" might with advantage be issued in pamphlet form to the public.

FACIO-CERVICAL SURGERY.

MR. HAMILTON BAILEY has reprinted some of his published articles to form a readable little book of eighty-six pages. There are fifty illustrations, and the essays deal with branchial cysts and fistulae, thyroglossal cysts and fistulae, submaxillary calculi, and facial carbuncle. The author must have been hard put to it to find a title for such a mixed bag, but he finally compromised with *Branchial Cysts, and Other Essays on Surgical Subjects in the Facio-cervical Region*.[2] On all of these interesting subjects he writes in a practical straightforward way. The sections dealing with branchial cysts and fistulae present a clear picture in quite a short space, though room might have been found for a little elementary morphology. The author explains how an aspirating needle may be used to distinguish between a tuberculous abscess and a branchial cyst, though diagnosis should be possible without this "confirmatory test." For the treatment of branchial cysts he advises complete excision, and in a short chapter describes the operative technique. Sistrunk's operation for thyro-

[1] *Syphilis: Acquired and Hereditary Syphilis.* By Charles C. Dennie, B.S., M.D. Harper's Medical Monographs. New York and London: Harper and Brothers. (Demy 8vo, pp. xii + 301; illustrated 10s. net.)

[2] *Branchial Cysts, and Other Essays on Surgical Subjects in the Facio-cervical Region.* By Hamilton Bailey, F.R.C.S.Eng. London: H. K. Lewis and Co., Ltd. 1929. (Cr. 8vo, pp. viii + 85; 50 figures. 5s. net.)

glossal fistula is described in some detail, though the author does not tell us whether he has practised it. In this method no attempt is made to isolate the suprahyoid part of the tract, but the surrounding tissues are "cored" out *en bloc* as far proximally as the foramen caecum. The last chapter deals with facial carbuncle. Ligature of the angular vein was performed in four patients, of whom three recovered. It is true that intravenous mercurochrome and magnesium sulphate locally were also used, but the operation is perhaps worth trying in some of these desperate cases. The book is well produced; it may be read in an hour, and most surgeons would learn something from it. The index is good and the illustrations are clear, though the single coloured plate scarcely justifies its inclusion.

EPILEPSY.

DR. PHILIPPE PAGNIEZ'S book *L'Epilepsie*[3] can be heartily recommended to all who are engaged either in research upon epilepsy or in the treatment of epileptic patients, for it is an excellent brief review of recent additions to our knowledge of the subject. The author begins by describing the experimental production of convulsions in animals by various methods, and the application of the experimental method to the study of human convulsions. He then discusses the pathological anatomy of epilepsy and the physiological conceptions of the nature of a fit which have been proposed. Metabolic abnormalities of great diversity have been described as occurring in epilepties, and Dr. Pagniez gives a good, if somewhat undiscriminating, account of these, and also of the evidence in favour of the view that anaphylaxis may be a precipitating cause in some patients. His discussion of the toxicity of the body fluids in epilepsy has special interest, as it is in this field that his own experimental work has been carried out. He claims to have demonstrated that the blood serum of epileptics possesses the property of producing convulsive phenomena in guinea-pigs when injected into the carotid artery, and that the toxicity of the serum waxes and wanes according to the relationship between the time of its withdrawal and the occurrence of the convulsion in the patient. Dr. Pagniez discusses the role of the ductless glands in epilepsy, but considers that there is little evidence that endocrine disorders are of any etiological importance. The discussion of treatment occupies approximately one-fifth of the book, and includes a well-balanced consideration of the value of a ketogenic diet, and a survey of what may be accomplished by the bromides, boric derivatives, and luminal.

HOW TO STUDY.

WHEN a student first enters upon a college or university course he or she certainly needs some guidance as to methods of study. It is true that some training in appropriate methods, and some exercise of them, should have been part of the student's experience in the secondary school, but, in fact, these are not universally and effectively afforded there. So far as hints on good study methods can be derived from a book, recourse may well be had to the short *Introduction to Efficient Study Habits according to the Laws and Principles Governing Economical Learning*[4] by MAUDE BLANCHE MUSE, Assistant Professor of Nursing Education, Columbia University, New York. The book contains an "annotated bibliography of the more recent publications on how to study," and it is somewhat surprising to an Englishman, though probably not to an American, that there should be so many such publications noted, and that they should range from booklets of 42 pages to volumes containing nearly 500. It is evident from these references and from the book now under review that there is growing up in the United States a literature on this subject with a technical jargon and phraseology of its own. Phrases like "mind-set," "study-sets," "reference assignment," and others, may lend a kind of quasi-scientific or technical appearance to the reading, but, to an Englishman at any rate, they obscure rather than elucidate the thought, and do not ease perusal. It is probable that a supervised introduction to the practice of private study during the last year or two of school life, together with personal advice and help from the teacher or director of studies at college or university, are the best means of acquiring correct methods, and indeed most of the apt individual illustrations given in Miss Muse's book show how useful and effective such means may be. A textbook or treatise on the science and art of studying may, however, be of use to some, and this volume may therefore be commended as good in its place. It is of the vademecum textbook variety rather than the treatise, but, as its full title promises, it attempts to stress the psychological principles which underlie each study method advocated. The meaning and true objects of study are set forth, and among these is one indicated by the quoted remark of a student at the end of her first year, "The chief thing which college has done for me is to upset many of my pet theories and beliefs." As Mr. Rudyard Kipling said in a recent address, "if people thought, it might lead to a change of opinion; so it is not done." Certain laws governing economical learning are then enunciated, and the importance and influence of first impressions, intensity or vividness of presentation, and of the frequency and duration of periods of review or repetition are dealt with. There is a chapter on efficient study techniques, by which is meant right methods of note-making and note-using, of reading both for study and for reference, and of final preparation for examination. Finally, some specific rules are laid down, and some questions given for class discussion. Much of this may be found helpful and suggestive. Incidentally, a reference to "conditioned reflexes" in connexion with educational methods is made, and it would be useful to have from some experienced educator an exposition of their place and best use in pedagogy.

WESTMINSTER HOSPITAL REPORTS.

THE twentieth volume of the *Westminster Hospital Reports*,[5] edited by Mr. STANFORD CADE and Dr. DONALD PATERSON, covers the interval since the nineteenth volume, which appeared in 1924, and therefore contains the medical, surgical, obstetrical, and pathological reports for the five years 1924 to 1928. Among these Dr. J. A. Braxton Hicks's accounts of the post-mortem examinations, the pathological specimens added to the museum, and, with Dr. F. D. M. Hocking, of the work of the John Burford Carlill laboratories, are notable for the amount of work done and the information provided. There are, in addition, ten previously unpublished papers by members of the staff, beginning with a well-illustrated article on pneumo-radiography by Sir James Purves-Stewart, the senior physician. Dr. Braxton Hicks records a case with very numerous calcified *Cysticercus cellulosae* cysts in the brain, and Mr. Rock Carling, a former editor of these *Reports*, gives his encouraging experience of periarterial sympathectomy for Raynaud's disease, acrocyanosis, and intractable ulcers. Six cases, complete with necropsies, lead Dr. Donald Paterson to the conclusion that progressive spinal muscular atrophy of infants (Werdnig-Hoffmann paralysis) is one and the same as Oppenheim's amyotonia congenita pathologically, but different in its clinical features. Drs. Dore and H. T. Barron record a remarkable example of mycosis fungoides; the treatment of six cases of lymphadenoma by x rays is reported by Dr. F. M. Allchin; and Mr. Rock Carling and Mr. Stanford Cade tabulate 180 cases of malignant disease treated by radium. Mr. A. F. MacCallan writes on cataract, Dr. H. A. Dunlop on the effect of ether on the action of adrenaline on the circulation, and Dr. Adolphe Abrahams on the influence of exercise on the rate of the heart.

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[3] *L'Epilepsie.* Par Ph. Pagniez. Paris: Masson et Cie. 1929. (Med. 8vo, pp. 199. 25 fr.)

[4] *An Introduction to Efficient Study Habits according to the Laws and Principles Governing Economical Learning.* By Maude Blanche Muse, R.N., A.M. Philadelphia and London: W. B. Saunders Company. 1929. (5½ × 8, pp. 110; 3 figures. 4s. 6d.)

[5] *The Westminster Hospital Reports*, Vol. xx, 1924-1928. Edited by Stanford Cade and Donald Paterson. London: H. K. Lewis and Co., Ltd. 1929. (Demy 8vo, pp. viii + 343; 82 figures. 7s. 6d. net.)

HEBERDEN'S "INTRODUCTION TO THE STUDY OF PHYSIC."

DR. LEROY CRUMMER has done well to publish, with many additions and in an attractive format, his article in the *Annals of Medical History* of December last on *An Introduction to the Study of Physic*[6] by WILLIAM HEBERDEN the elder. The manuscript, certainly in the beautiful hand of the author of the famous *Commentarii de Morborum Historia et Curatione*, was picked up by DR. LEROY CRUMMER in "a little shop in the South of London, more or less famous for its 'curiosa' and oddments of the printed page," and has now for the first time been printed without change or emendation. This volume contains, in addition to the *Introduction*, William Heberden's classical account of angina pectoris, entitled "Some account of a disorder of the breast," delivered at a meeting of the Royal College of Physicians in 1768, but not published until 1772. Dr. Leroy Crummer provides an interesting appreciation of Heberden, in which he suggests that the reason why his *Commentarii*, though completed in 1784, were not published until after his death in 1801, was that he wrote them for his sons, and, as an example of his modesty, mentions that he declined the appointment of physician to the Queen, and recommended Dr. Letherland, "a man of deep and very extensive learning, but of retired habits." The *Introduction* was probably written during the latter part of Heberden's Cambridge life or early in his London period (1744–55), when medical education was just emerging from the apprenticeship stage, and a few hospital physicians were beginning to give clinical instruction to personal pupils—a system which soon developed into the nepotism so fiercely and successfully attacked by Thomas Wakley in the *Lancet* at a much later date. Heberden's short chapter "of surgery" was written at the time when the surgeons were parting company *from* the barbers and were practising a handicraft rather than a profession. The *Introduction* contains much of the author's experience in regard to medical education and to the literature then available to the student, a hundred and fourteen texts being mentioned, and the study of the history of medicine is recommended with the help of the works of Daniel Le Clerc and John Freind. Like all the books coming from the firm of P. B. Hoeber, this interesting work is well got up and provided with admirable illustrations.

NOTES ON BOOKS.

Clinical Methods: A Guide to the Practical Study of Medicine, by Drs. H. RAINY and ROBERT HUTCHISON, which first came out in 1897, has long been a familiar friend of clinical clerks. After eight editions it has now entered its eighty-seventh thousand,[7] and the name of Dr. DONALD HUNTER appears on the title-page in place of that of the late Dr. Rainy. Dr. Hutchison thus remains as the senior and original author or editor of two extremely popular medical books—this and *The Index of Treatment*. That the ninth edition has been thoroughly revised and brought up to date is obvious, and in connexion with this the services of colleagues have been obtained in special sections, such as those dealing with the eye, the nervous and circulatory systems, and bacteriological investigation. Among the three new plates there is one showing reticulocytes, which is accompanied by an account of the method of *intra vitam* staining. In the directions about taking the arterial blood pressure attention is drawn to the "silent gap" which may occur in high blood pressure, and the need, therefore, when using the auditory method, of always raising the pressure in the armlet far above the point where the sound disappears. Long experience in teaching has ensured a perennial demand for this handy volume.

Professor VICTOR H. SEARS'S little book on *Full Denture Procedure*[8] is of a more mechanical nature than the dental literature generally reviewed in these columns. We cannot, however, help being impressed by the author's minute attention to detail. He shows the true professional spirit; nothing is too much trouble if it offers a hope of helping the patient to secure a full artificial denture which will remain stable. Perhaps we may venture to suggest that a flat mill would overcome some of the difficulties.

C. E. LIM'S Laboratory Manual of the Division of Bacteriology, Peking Union Medical College,[9] is exactly what its title suggests. It is replete with useful information, conveniently arranged and well indexed. It will be appreciated by both student and teacher.

Income Tax Simplified[10] is a useful little publication which endeavours, within the limits of some seventy pages, to give a condensed statement of the rules to be followed in making income tax returns and of the allowances to be claimed. A disproportionate amount of space seems to us to be devoted to dealing with farm profits, and we doubt whether the lavish use of leaded type adds much to the clarity of statement. The booklet appears to be written in the main as an aid to students of accountancy, but should be useful as a means of assistance and reference to business and professional men.

[6] *An Introduction to the Study of Physic* (now for the first time published). By William Heberden (1710–1801). With a Prefatory Essay by Leroy Crummer, and a Reprint of Heberden's *Some Account of a Disorder of the Breast*. New York: P. B. Hoeber, Inc.; London: Milford, Oxford University Press. 1929. (Post 8vo, pp. xii + 159; portrait in photogravure, 6 illustrations. 10s. net.)

[7] *Clinical Methods: A Guide to the Practical Study of Medicine*. By Robert Hutchison, M.D., F.R.C.P., and Donald Hunter, M.D., F.R.C.P. Ninth edition, revised throughout. London: Cassell and Co., Ltd. 1929. (Pott 8vo, pp. xii + 684; 152 figures, 20 plates. 12s. 6d. net.)

[8] *Full Denture Procedure*. By Victor H. Sears, D.D.S. New York: The Macmillan Company; London: Macmillan and Co., Ltd. 1929. (Post 8vo, pp. 135; 56 figures. 8s. 6d. net.)

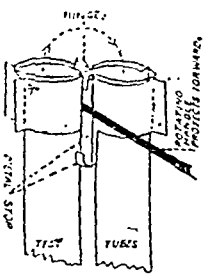
[9] *Laboratory Manual of the Division of Bacteriology, Peking Union Medical College*. Peking, China: P.U.M.C. Press. 1929. (Cr. 8vo, pp. 154. 1.50 dollars.)

[10] *Income Tax Simplified*. By Arthur Fieldhouse and E. Ewart Fieldhouse, LL.B. Tenth edition. Huddersfield: A. Fieldhouse; London: Simpkin Marshall, Ltd. 1929. (4¼ × 7¼, pp. 73. 1s. 6d. net.)

PREPARATIONS AND APPLIANCES.

A DOUBLE TEST TUBE HOLDER.

DR. D. A. HERD (Liverpool) writes: I desire to introduce a small device to facilitate the examination of excreta. It consists of a pair of metal clips united by a hinge. Attached to the right clip is a small metal "stop," which prevents the test tubes touching each other. Projecting forwards from the left clip is a 10-in. rotating handle, provided with a ring at its end. Ordinary test tubes are fitted into the clips.



The advantages gained by this device are as follows. The hands do not touch the test tubes, and so remain dry for recording results. Burning and scalding accidents are prevented. Spurting when mixing is checked, the ejected fluid being received into the uppermost empty test tube. Thorough mixing is possible; the tubes may be shaken when horizontally opposed. The mechanism stands on the table like a tripod until the reaction occurs. The tubes are cleaned easily (together) under the tap, and can be used singly or together. The device hangs up when not in use.

The makers of this appliance are Messrs. S. Murray and Co., Ltd., 11–13, Farringdon Road, E.C.1.

PERCAIN.

Percain is a new local anaesthetic prepared by the Society of Chemical Industry in Basle (Messrs. Ciba). During the past year this substance has attracted considerable attention in Germany and Switzerland, and has been the subject of a number of articles in the medical press in these countries.

In the first place, percain is a local anaesthetic of a new type, for it is a quinoline derivative, related in its chemical structure to such drugs as quinine, atophan, and yatren, but totally unlike cocaine or novocain. Its chemical name is diethyl-ethylene diamide of α-butyl oxycinchoninic acid. All reports agree that its potency as a local anaesthetic is remarkable, and that it is many times stronger than cocaine. It acts both on nerve endings and on nerve trunks. It acts more rapidly, and has a more prolonged action than cocaine. It does not produce marked vaso-constriction, and therefore should be used with adrenaline.

It is recommended for use as an injection in a strength of 1 in 1,000 saline, and is also recommended in a 1 per cent. solution for surface anaesthesia of the nose and throat. Solutions can be sterilized by heat, but they must be protected carefully from alkali, and glass free from alkali must be used.

Percain is considerably more toxic than cocaine. Uhlmann (*Narcose und Anaesthesie*, 6, 168, 1929) found that in rabbits the minimal lethal dose of percain was one-fifth that of cocaine and one-fortieth that of novocain. Messrs. Ciba recommend that the maximum quantity injected should be 0.1 gram in 0.2 per cent. solution, and 0.2 gram in a 0.005 per cent. solution. Christ (*Narcose und Anaesthesie*, 6, June 15th, 1929) and Hofer (*Klin. Woch.*, July 2nd, 1929) report the use of the drug in several hundreds of operations in quantities up to 0.12 gram, and these authors state either that no toxic symptoms were observed or that the toxic symptoms were never serious or alarming. On the other hand, Freund (*Klin. Woch.*, 8, 1441, 1929) has reported a fatality following the injection of 0.13 gram percain.

HEALTH OF THE SCHOOL CHILD.

THE CHIEF MEDICAL OFFICER'S REPORT FOR 1928.

In his annual report on the School Medical Service, Sir George Newman, Chief Medical Officer of the Board of Education,* insists that the foundation of the medical care and supervision of school children is their systematic inspection. The purpose of such inspection is not only to detect those children who are sick or defective, but to obtain a physical survey of every child, and of school children as a whole. It is necessary, therefore, that every child, sick or well, should periodically come into the hands of the school doctor. In England it has been provided that routine medical inspection shall take place three times during the child's school life (5 to 14 years)—at entrance, at or about 8 years of age, and before leaving school. It is carried out as part of the school discipline; an approved schedule of the points of examination is adopted; the school nurse and teacher are present, and the parent is invited. In addition to the routine inspection, many children are referred for medical examination as "specials" by parents, teachers, or nurses, and there are many reinspections.

The school medical service has materially affected the direction of the wider movement of the national health, for, in a sense, the health of the infant and the child has become the primary factor of the national health. The child, writes Sir George Newman, has become the starting point of the new preventive medicine.

Scope of the Service.

The arrangements for carrying out routine medical inspection in this country may now be regarded as reasonably complete. During 1928 1,912,747 children, or 38.4 per cent. of those in average attendance (4,981,101), in the elementary schools were medically examined, an increase of 88,672 on the preceding year. The total number of children subjected to medical inspection was thus 2,849,132, being 57.2 per cent. of the number in average attendance.

The Nursing Service.

During 1928 the number of inspections as regards cleanliness carried out by the school nurses exceeded the enormous figure of 14 million; the percentage of individual children found unclean was 5.1, as compared with 5.6 of the previous year, and 6.5 in 1926. There was considerable variation in different parts of the country, and in some it reached as high as 18 per cent. As a minimum it is suggested that there should be a survey of all children in the schools as early as possible in each new term. Children who are in a condition with which they are likely to infest others should be excluded by the school nurses on their own responsibility or after reference to the school doctor, and cleansing should be arranged for.

In the work of "following up" there are advantages in combining school medical and public health nursing staffs. It precludes overlapping in visiting the homes, it places the nurse in a position of adviser to the family in matters of general and personal hygiene, and it secures more continuity in the supervision of the children from birth until the school-leaving age.

Medical Inspection and Treatment.

The proportion of children found to be suffering from definite defects varies little year by year. Excluding those with dental disease, the proportion referred for treatment and observation in 1925 was 23.8; in 1926, 20.1; in 1927, 20.6; and in 1928, 20.7. Defects of vision head the list in routine inspections, followed closely by defects of throat and nose; but in special inspections skin diseases far outnumber any of the other findings. Malnutrition was as low as 6 per 1,000 in 1924; it rose to 9.5 in 1925, and has remained at about this figure since. The recorded incidence of defects of vision and of the throat has increased, but this is judged to be due to better arrangements for inspection and the extended provision for treatment. There is evidence that the incidence of more severe disease causing exclusion from school is decreasing. The principal "school diseases" are shown to be defects of eyes, 10 per cent.; of the ear, nose, and throat, 7.9 per cent.; and skin diseases, malnutrition, and deformities. Besides these, there are children affected by minor ailments, dental disease, fevers, and the children who are gravely defective—the blind, deaf, and mentally deficient. Some of these children can be dealt with by the private practitioner (and to him reference should first be made); some by the school nurse; some need institutional treatment; some can be dealt with most satisfactorily at the school clinic. The number of defects (minor ailments, defective vision, enlarged tonsils, etc.) dealt with last year amounted to 1,167,809, and over a million children received dental treatment.

With one exception every local education authority has now made provision for eye treatment. After reviewing the various methods employed, the report concludes that there is much to be said for the method by which the school medical officer examines and prescribes for the bulk of the cases of errors of refraction, providing he has had the necessary experience in such work. The school medical officer is necessarily in closer touch with the children than can be a specialist who visits the area only occasionally. He is in a position to follow them up, see that they get appropriate treatment, and, if spectacles are prescribed, that they are obtained and worn. The treatment of squint engages the attention of an increasing number of authorities, of which 37 make arrangement for its operative treatment. The treatment of this condition should, it is suggested, be undertaken early by co-operation between the maternity and child welfare and school medical services.

During the year facilities for the operative treatment of enlarged tonsils and adenoids were provided by 267 authorities, but there are still 50 authorities which have not yet made such arrangements. The Board has indicated that a scheme for treatment of this defect cannot be regarded as satisfactory unless the operation is performed under proper hospital conditions by a competent specialist in ear, nose, and throat surgery, and unless post-operative retention of the patient for at least one night can be arranged.

Educational retardation is a fairly common result of adenoids, especially in the higher age groups. Its cause in a certain number of cases is the defective hearing which so often accompanies this condition; in others, there is a certain mental lethargy, which may be due to some interference with the cerebral circulation. Whether intelligence, as measured by the usual tests, is actually lower than normal does not seem to have been determined. This is a point worth investigating, particularly by a series of tests to ascertain whether any improvement in the intelligence quotient results from the removal of the adenoids.

New schemes for the treatment of orthopaedic cases were approved in twenty-three areas, bringing the total number of areas making such provision up to 183. The number of out-patient clinics maintained by local education authorities is 191, an increase of 41 over 1927. In addition, there are thirty-two areas in which treatment is obtained through voluntary agencies. There are 48 hospital schools having 3,876 beds (apart from sanatoriums, cripple and residential and open-air schools), but lack of special hospital accommodation prevents the full development of orthopaedic work in many areas. To meet this difficulty certain authorities send their "short stay" cases to local general hospitals, which are not in any sense "hospital schools." Such an arrangement has advantages, as it relieves pressure on the hospital schools, and by maintaining the local interest secures a continuity in the treatment at the hospital and the after-care; but it should be made only for cases which are not likely to need more than six weeks' in-patient treatment, and only when there is an orthopaedic specialist staff of surgeons and nurses at the local hospital.

The number of local education authorities which provided treatment by artificial light during 1928 was 64, an increase of 20 over the previous year. Treatment was given at 45 school clinics and 22 hospitals. The most frequently expressed opinion in school medical officers' reports is that ultra-violet radiation has most therapeutic

*The Health of the School Child. Annual Report of the Chief Medical Officer of the Board of Education for the year 1928. London: H.M. Stationery Office. 1929. 3p. 172. Price 1s. net.

value in those clinical conditions of subnormality not rigidly defined, but grouped under the term "debility." The treatment is in the nature of an accessory tonic, and the improvement which results from it is due to its general tonic effects rather than to any specific action. The evidence in favour of the treatment of various specific diseases is much more conflicting. Some medical officers admit frankly that the result of applying it to definite disease is disappointment, others prefer to withhold any categorical statement pending further experience and observations. The position of ultra-violet therapy in school clinics is summed up by Dr. J. P. Latt of St. Annes-on-Sea, who, in his report for 1928, says that "there seems little doubt that in artificial sunlight we have a valuable asset. It is certainly not, as claimed in some quarters, a panacea for all ailments, but in the majority of our selected cases it appears to have conferred considerable benefit, although time alone will show whether the improvement is of a temporary or permanent character."

Open-air Schools.

The number of day open-air schools for the education of delicate children suffering from non-infectious conditions is 62, providing accommodation for 6,556. There are, in addition, 14 provided, and 24 voluntary residential open-air schools, with a total of 2,409 places. The mere establishment of open-air schools for debilitated children is but a part of a full and proper recognition of the value of the open-air method in preventive medicine. What is needed, suggests the Chief Medical Officer, is the general provision of open-air and sunlight in all schools. Every school should in practice be an open-air school. At the present time 80 per cent. of the plans submitted to the board for approval include proposals for throwing open to the outside air whole portions of the classrooms. There has also been a wide adoption in both elementary and secondary schools of the open-air class in the playground, of the school journey, and of the school camp. This sort of progress exerts a greater effect in the long run than the building of special open-air schools for sick or defective children, important and indeed essential though that may be.

In almost every report on the work of special open-air schools during 1928, emphasis is laid on the improvement in general health of children after a comparatively short period of attendance, and on the large proportion of cases cured amongst those discharged. It is still too early to speak with any authority on the permanency of the cures effected, but the known facts justify the belief that this sort of school serves not merely as an institution for patching up weaklings, but as a definite unit in educational and health schemes providing for exceptional children.

Exceptional Children.

The total number of educable mentally defective children is returned as 22,626, which remains approximately the same as it was last year. The provision for this type of child has undergone little change; there are 21 residential schools giving 1,917 places, and 159 day special schools with accommodation for 15,091 children. Excellent work continues to be carried out in many areas by voluntary associations for mental welfare, which not only conduct occupation centres intended primarily for cases under the mental deficiency committee, but also visit the homes of children who are referred to them by school medical officers, and exercise supervision over these children, particularly during such period as may elapse before they can be admitted to special schools.

The number of school children reported to be blind and partially blind for the year 1928 was 1,887 and 5,225 respectively. The first figure shows a decrease of 38 over that of the previous year, the second an increase of 266. This increase—and the same applies to figures for the partially deaf—does not necessarily mean a higher incidence of the defect, but is the result of more complete ascertainment, stimulated in large measure by the increased provision which has been made for children suffering from partial disabilities. An analysis of the cases of deafness seen at the County Hall in the ten years 1919 to 1928 inclusive is quoted from the London report. It was found that the congenital cases amounted to 26.56 per cent., a much lower proportion than was found by investigators of half a century ago, who had to rely on less thorough and efficient methods of investigation. Of the cases of congenital deafness, 20.54 per cent. were of true "hereditary deafness" and 75.49 per cent. were of "sporadic deaf birth." A certain number of cases of the latter were due to syphilis, but during the last two years the conviction has grown that intestinal intoxication, which has been noted in an appreciable number of deaf children, plays a definite and important part in the product of deafness. The issue is further confused by the fact that the Wassermann reaction has been positive in some cases of chronic intestinal intoxication from which all possibility of syphilis could be excluded.

The number of children ascertained to be suffering from epilepsy so severe as to render them unfit to attend the public elementary schools is 2,521, a figure which has shown little variation over the past few years. Institutional accommodation for such cases remains about one-fifth of that required.

General Hygienic Measures in Schools.

The Board has had under careful consideration the question of the desirability of admitting direct sunlight in school-rooms, about which considerable divergencies of opinion exist. It is agreed that direct sunlight should not impinge on the desk, forehead, eyes, and back of the neck of children during work, and that cross shadows should be avoided. It is suggested, however, that too much stress has been laid on the danger of interference with work, and the detriment to eyesight, which may result.

As regards school buildings there still remain in many areas grave defects in the structure and sanitation of the schools, and in some a deplorable lack of the common necessities of decency and cleanliness—for example, defective sanitary conveniences, insufficient lavatory accommodation and equipment, and inadequate water supply.

Physical Education.

There are still 217 authorities who have left the physical culture of the children in their charge unorganized and undeveloped, though, to quote from the report, "physical culture in its broadest sense is far and away more valuable to the children of the nation than a thousand school clinics and an army of doctors and nurses. It may not be true to say that we must have the latter because we choose not to have the former, but it is indisputably established that if the authorities would follow the principle of preventive medicine there would be much less need to deplore the present great mass of disease and impairment which hampers the true education of the rising generation.

The Pre-school Child.

The problem of the pre-school child is still unsolved. There are nursery schools, but their increase is slow, for they are costly. This is due partly to their smallness in size; limitation of numbers was originally recommended with the idea of ensuring individual treatment and minimizing the danger of the spread of infectious disease. Experience has shown that under careful supervision the risk of infectious disease is less than had been anticipated, particularly where the school is conducted on open-air lines. The Board has intimated that, subject to its being satisfied about the accommodation and equipment, the provision of open-air facilities and the general conditions of supervision, it is now prepared to consider proposals for larger nursery schools, providing accommodation up to, say, 150 to 200 children. At the majority of nursery schools clubs for mothers have been formed, which are readily attended and where mothers receive advice in the care of their children. It is generally found that as the result of co-operation between parents, teachers, and nurses the standard of cleanliness and clothing is better, and that the school tends to raise the hygienic standards of the homes. Parental responsibility, it is believed, is increased rather than diminished by these measures.

BRITISH INSTITUTE OF RADIOLOGY.

ANNUAL CONGRESS IN LONDON.

THE annual meeting and exhibition of the British Institute of Radiology (incorporated with the Röntgen Society) was held at the Central Hall, Westminster, and at the Institute's headquarters in Welbeck Street, from December 4th to 6th, under the presidency of Mr. C. THURSTAN HOLLAND of Liverpool. One session was devoted to the discussion of radiation therapy, and another to papers dealing with physics and engineering questions; there was an informal discussion on what clinicians expect from the radiographer. Two memorial lectures were delivered: one, the Mackenzie Davidson Lecture, by Professor Gösta Forssell, the distinguished radiologist of Sweden, who spoke on the experiences of the "Radiumhemmet," or "radium home," at Stockholm; and the other, the Sylvanus Thompson Lecture, by Professor A. S. Eddington, F.R.S., whose subject was celestial radiation. Twenty-four firms contributed to an exhibition of radiological apparatus and material; a general impression induced by the exhibition was that screening stands and couches constantly become more massive and elaborate.

Mr. ARTHUR GREENWOOD, Minister of Health, who opened the congress, remarked on the team or co-operative spirit evidenced in every department of science, but nowhere more noticeably than in radiology, where medical men, physicists, and engineers were working to the same end, and, in the Institute, under the same auspices. One thing specially pleasing, he said, was the advance in protective measures, so that those now working in this field were no longer liable to the grave injuries and mutilations suffered by the pioneers. "While it is true," added Mr. Greenwood, "that the discovery of *x* rays was made in another country, it is a source of gratification that in England the first *x*-ray society (the old Röntgen Society) was formed, and the first journal published. . . . The manufacture of *x*-ray apparatus is not as large in this country as it is in the United States, or even in Germany, but for honesty of craftsmanship, soundness of work, and attention to the special needs of the user of the apparatus, the British manufacturers remain unexcelled the world over. . . . I have come here to-day, just as a humble man in the street, to congratulate the radiologists of this country on the work they have done, to exhort them to greater endeavour, and to express my hope for further advances in this important branch of knowledge and art."

Aspects of Radiation Therapy.

The principal medical discussion of the congress dealt chiefly with the value of radium treatment. Dr. N. S. FINZI, describing radiation therapy in malignant disease, said that it was more than twenty years since he began to use radium, having been impressed by what Dominici was doing at that time in Paris. During those twenty years radium had alternated in favour with *x* rays, but the truth was that each agent had its own sphere in relation to different cases, and in some instances the combined use of both agents was required. It was incumbent upon the radiologist to have a full knowledge of both. While radical *x*-ray treatment had been rather looked upon with disfavour in this country, when the results of St. Bartholomew's radiotherapeutic research department were published, those who held that view were likely to receive a shock. At the present time there was a boom in radium treatment, a matter of sorrow to radiologists, because booms were followed by slumps, and it took a long time for the pendulum to revert to a more normal movement. On the question of the radium "bomb," he said that this had many of the advantages of *x*-ray treatment in dealing with large areas, but the rays were more penetrating, and therefore more effective physically, and, he believed, biologically. From the point of view of physics, of course, the "bomb" was very inefficient; it would treat only three patients during the time that the same amount of radium, used in needle form, would treat a hundred. In deciding as between radium and *x* rays, Dr. Finzi was of opinion that in the case of very radiosensitive growths, such as lymphosarcoma and other rapidly growing tumours, *x* rays constituted the treatment of choice. In very small growths of a type which tended to remain localized, radium was indicated every time; the classical example was rodent ulcer. The position of the neoplasm was important. In growths in the region of the mouth and upper air passages the best results had been obtained either with *x* rays alone or with a combination of *x* rays and radium. Turning to tumours of the cervix, the speaker said that the combined method, radium for the local growth and *x* rays for the gland area, gave very good results; with *x* rays alone a tendency to recurrence had been observed at the site of the primary lesion. In rectal carcinoma radium seemed to be definitely more effective than *x* rays. In breast cases, if the mediastinum was involved, radium needle treatment was useless, but the case could still be treated by *x* rays. He had had two patients with carcinoma of the breast in which mediastinal metastasis had been treated by intensive methods lasting for two or three weeks; both were now well after five years. His final conclusion was that in operable growths in a number of situations radium treatment had now ousted surgery.

Radiological Treatment of Breast Carcinoma.

Mr. GEOFFREY KEYNES spoke of the difficulty of obtaining any true comparison between the results in carcinoma of the breast obtained by surgery and those obtained by radiological methods. Hitherto radiology had been reserved for special classes of patients, such as those who refused operation, those who were ordered prophylactic treatment after operation, those treated for recurrences, and the hopelessly inoperable. About eight years ago he began treating by radium those who had recurrences after operation; it soon became apparent that by the implantation of a small dose of radium for a considerable time the local recurrence could be made to disappear completely. After this result it seemed logical to suppose that equal success would be obtained locally in an unoperated carcinoma; therefore he began to treat primary carcinoma which were regarded by the surgeons as inoperable. Since that time he had gone on steadily increasing the number treated by radium alone. Up to the present he had a series of 145 cases at St. Bartholomew's in which radium had been employed in primary carcinoma of the breast. At the end of 1928, 67 patients had been so treated, followed up, and recorded; a good result had been obtained in 45 out of the 67, and about half of these had been described as "apparently cured" for periods extending to two and a half years. Of the 67 patients treated, 26 were inoperable, and a good result had been obtained in 12 out of the 26, half of whom had been—to use the cautious phrase—apparently cured. Mr. Keynes added that he was sure there was a field for *x* rays in supplementing the effects of radium.

Radium in Gynaecological Conditions.

Mr. MALCOLM DONALDSON described the use of radium in gynaecological cases at St. Bartholomew's. The technique had been to use in a gynaecological case a total amount of radium element of about 50 mg., split up into from twenty to twenty-five needles inserted around the growth and into the base of the broad ligaments, and left in position for 144 hours. The needle technique left nothing to be desired so far as local growth in the cervix or vagina was concerned; for deeper parts he was seriously considering adopting the Stockholm technique, but with some additions. He described in detail his intra-abdominal technique, and gave a detailed analysis of the St. Bartholomew's figures compared with the figures of the Medical Women's Federation, and those of the Brussels and the Paris workers. Turning to other malignant conditions, he spoke of carcinoma of the vulva. When this work was started at St. Bartholomew's Hospital five or six years previously large intensities were applied for twenty-four

hours, and very poor results were obtained. The application now consisted of very small intensities for a fortnight or three weeks, and the primary results were astonishing. He described one case of carcinoma of the vulva in which sixteen needles, each containing 0.3 mg., had been left in for a fortnight; he had seen the completely recovered patient recently, and there was not even a trace of any scar. Non-malignant conditions represented a much simpler problem; whether treating haemorrhage due to an abnormal menopause or to fibroids, the effect was the same, that of "knocking out" the ovaries. The only problem that arose, therefore, was as to what patients should be treated in this way, and very special consideration was necessary before deciding to treat patients under the age of 40; it must be remembered that the menopausal symptoms induced were likely to be very much more severe than in older patients. His experience of patients under 40 was small, but he did not think it would be possible to deal with them by modifying the dose of radium. He had attempted to give very small doses, with the result that there was amenorrhoea, but very severe menopausal symptoms ensued. He thought that if a larger dose was given in such cases the menopausal symptoms might be less; in other words, if the ovary was dealt with more severely there might be fewer symptoms than if it was only partly destroyed.

Radium and X Rays in Malignant Disease.

Dr. J. E. A. LANHAM said that almost every new recruit to the army of radium workers passed through a phase of enthusiastic optimism when he found that as a result of predetermined treatment a series of tumours could be made to disappear. He himself had been no exception to this rule, but as the years went on, and cases which had shown apparent cure came back with an extension of the disease, the following conclusions were forced upon him: (1) that lasting successes occurred only where the disease was localized; (2) that in certain cases isolated secondary growths appeared, but frequently responded to further irradiation; (3) that where the disease had become generalized not even local improvement could be produced; (4) that when recurrences developed in cases which had done well previously but now failed to respond, their appearance at the surface was frequently accompanied by extension of the disease elsewhere; in other words, the disease, which had been latent for a time, had suddenly become active. It appeared to him to be wrong to consider that there was nothing more to be done when a tumour had undergone retrogression after, say, the surgical use of radium. Such cases should be followed up by periodical *x*-ray treatment, or, if preferred, by external radium applications, not only to the site of the original growth, but to the related areas of lymphatic drainage and glands. With the obtaining of higher voltages the *x*-ray spectrum began to overlap that of the gamma rays. Apparatus capable of reaching far higher voltages than those yet used in *x*-ray therapy had been produced, and he had little doubt that sooner or later means would be found of giving *x* rays of correspondingly shorter length. Thus, as a matter of physics as well as of clinical experience, *x* rays and radium would tend to approach nearer rather than to diverge as time went on, and by combining them or alternating them in suitable cases more would be accomplished than if either method were used alone.

Use and Abuse of Radium Needles.

As a pendant to this discussion, Professor F. L. HORWOOD of St. Bartholomew's radium department, with Miss F. E. SMALLMAN, gave an interesting account of the care of the radium containers—230 of them, chiefly needles, containing approximately 500 mg. of radium element. These had been used in the treatment of 800 cases during two years, and usually about 50 or 60 per cent. of the needles were in employment. This efficiency figure was reduced, of course, by the fact that many of the patients treated were out-patients, and therefore only in attendance for short periods, and by the fact that some of the applicators were of a special kind involving a restricted use. Speaking broadly, needles of 1 and 2 mg. content in radium element had been found to be the types best adapted to the purposes of a general hospital. A very large number of needles—50 per cent. or more—were damaged during the year, though most of the damages were trivial. Long needles were much more vulnerable than shorter ones, and needles used for surface application were less liable to damage than those inserted into deep malignant growths. The policy of classifying a needle as "damaged" for every trivial injury, and setting it aside for immediate repair, had been thoroughly justified by results. Leakage of emanation from damaged needles was a comparatively rare occurrence if the needles had been gold-soldered. The intensive use of radium was likely to be accompanied by the temporary or permanent loss of some containers. When a loss was suspected it was advisable immediately to stop the dispatch of refuse or laundry articles from all departments of the hospital, and to institute a visual and electroscopic search. Containers which had accidentally passed through an incinerator might have lost all their emanation owing to the melting of the solder used as a seal; no reliance, therefore, should be placed on negative findings by an electroscope in such case. During nearly ten years the radium department at St. Bartholomew's had sustained a permanent loss of four needles, with a total content of 4 mg. One needle was known to have been buried with a patient, and three were untraced.

Radiotherapy of Malignant Tumours: Swedish Experience.

The tenth Mackenzie Davidson Memorial Lecture, delivered by Professor GÖSTA FORSSELL of Stockholm, embodied a description of the results obtained at the "Radiumhemmet" since its foundation in 1910. The Swedish Minister in London, Baron Palmstierna, was present. Dealing with the scope of radiotherapy in the treatment of cancer, Professor Forssell said that in about 20 per cent. of all cases of cancer in men, and in approximately 55 per cent. in women, radiotherapy, with or without combination with surgery, was the treatment of choice. To what extent primary healing (five-year cure) could be attained by radiotherapy for all localizations of cancer it was difficult to say, but on the basis of experience at the "Radiumhemmet" it was not too audacious to claim that in 15 to 20 per cent. of the entire number of cancer patients in Sweden primary healing could be effected by radiotherapy. Professor Forssell went on to inquire why radiotherapy, especially radium therapy, had not produced generally better results; the chief cause was the splitting up of radiotherapy. Radium had been distributed in various places without proper control, and the treatment and following up of results had also not infrequently been shared by many hands. Surgical intervention had been looked upon as of main importance, and radiation treatment as a more or less negligible adjunct. In reality the contrary was the case in most of the tumours in which radiotherapy could be used at all.

Experience in Sweden had indicated that radiotherapy for cancer could only attain full efficiency under particular conditions; specially equipped clinics were essential for improving and developing this method of treatment. They must be administered by qualified medical officers who had undergone a long training in radiotherapy, and specially trained nurses and technical assistants were also necessary. A radio-physical section under the supervision of a physicist, and a pathological laboratory under a tumour pathologist, were very important adjuncts. There must be organized co-operation between the surgical clinic and its special departments on the one hand and the radio-therapeutic clinic on the other. It was best that radical operations and such auxiliary intervention as called for much surgical skill should be performed solely at the surgical clinic, while minor operations might be undertaken at the radio-therapeutic clinic. In Sweden, with the aid of King Gustaf's Jubilee Fund, radiotherapy would be centralized at three clinics, which would be equipped as perfectly and completely as possible. One, for north and mid-Sweden, would be established at Stockholm; one, for south Sweden, at Lund, and, for west Sweden, at Gothenburg. The institutions in Stockholm and Lund would be connected with the university hospitals; the cost of treatment would be met in part by patients' fees and in part by grants from the State and municipality.

With regard to the future of radiotherapy in the treatment of malignant tumours, the directions in which there

were prospects of further progress and an increase in the percentage of cures over and above the results achieved by surgery were chiefly the treatment of such tumours as were restricted to the primary locality or the first glandular region in which surgical removal was rendered difficult by their localization or infiltration. In other words, the immediate sphere of development was in the so-called borderline cases. There was a vast field for the further development of radiotherapy in the combined surgical-radiological technique, where the task of radiotherapy would be, by irradiation prior to operation, to reduce the size of the tumour, to delimit it from its surroundings, and to minimize the risk of local re-implantation or spread. After operation it could be used to sterilize the adjacent glandular region.

The Clinician and the Radiologist.

At a meeting of medical members attending the congress, Dr. G. B. BATTEN opened a discussion on "The requirements of clinicians from radiologists, and vice versa." His argument was that clinicians might properly require from the medical radiologist what they would expect from other qualified specialists, and that they would expect from other should be given, as would any other specialist, a careful excerpt of the clinical data, and usually an indication of the clinician's opinion, which would help him to elucidate the problem he had been set. The important thing was that the clinician should take the radiologist into his confidence, and state in which directions radiological help was needed. On the delicate matter of answering a referred patient's anxious questions as to his case, Dr. Batten pointed out that very often the radiologist would have the perfect answer that he could not develop the film until later, but there were occasions, in barium meal examinations, for example, where the patient knew that the earlier films had been developed, and here the radiologist needed great wisdom and reticence if he was to preserve a proper professional attitude without unduly exciting the patient's fears. This difficulty was increased by the idea on the part of the public that *x* rays revealed anything and everything. Dr. Batten, after premising that there were very many clinicians who acted towards the radiologist with perfect understanding, classified others in the following categories: (1) those who regarded radiology as a joke not worthy of their consideration; (2) those who, while recognizing the advantages afforded by radiology, looked upon it as an unimportant part of their investigations; (3) those who, while valuing radiology, belittled radiologists and imagined that they were doing well to withhold any knowledge of the case from them; (4) those who wanted a radiograph taken, but desired to interpret it themselves, treating the radiologist as a mere photographer; (5) others, more ignorant, who expected a non-medical photographer to report on *x*-ray photographs, when he knew nothing of anatomy or pathology; (6) those who desired the radiologist to interpret the films as pictures only, without expressing any opinion about the condition giving rise to the appearance; (7) clinicians who left too much to the radiologist, sending immediately to the *x*-ray department a fracture or a doubtful chest without first trying to learn anything about it themselves.

An interesting but very informal discussion followed. Dr. STANLEY MELVILLE commented on the extraordinary change for the better which had taken place in recent years in the relations between the clinicians and the radiologists. If the radiologist did good work, and at the same time refrained from dogmatism in the absence of absolute certainty, his reputation among clinicians was secure. Dr. GRACE BATTEY, as a young radiologist, spoke with mingled amusement and complaint of some of the requests which reached the *x*-ray department. An insurance practitioner would send a rude scrawl on an envelope, "Ray this case." Another, more polite, but hardly more illuminating, would say, "Please *x*-ray progress of operation done three years ago." Another message would be, "*X* ray: query, abdominal." Dr. JOHN MUIR said that Miss Batten must learn to suffer fools gladly; insurance practitioners had no time to write flowery notes, and if they said "please," the radiologist should be duly grateful. In his own experience among salaried staffs of a Poor Law institution, hardly any of these troubles arose. Dr. D. D. MALPAS said that when asked by the referred patient to tell him the result of a bismuth meal examination, his reply was, "I have only got half your story. If I offered you a few pages torn out of a novel and asked your opinion on the plot you would have a right to complain."

After a number of speakers, including Dr. FRANCON ROBERTS, Dr. M. H. JEPP, and Dr. A. J. H. ILES, had related some of their experiences, the matter was summed up from the chair by Dr. L. A. ROWNTREE, who said that the whole question was one largely of give and take, but as soon as the radiologist began to disregard the clinical side of the cases he examined he very rapidly degenerated into a radiographer. One question raised in the discussion had been the ownership of the film. The film was the property of the radiologist who took it or ordered it to be taken. The patient had a right to know the interpretation, and it was not always easy to evade direct questions, but if one knew the colleague who had sent the patient it was generally possible for the radiologist to give satisfaction without doing his colleague an injustice.

Physics and Instrumentation.

In the session of the congress devoted to new apparatus, Mr. CUTHBERT ANDREWS exhibited a film, the work of Kodak Limited, showing the uses of a mobile *x*-ray unit introduced by X-Rays Limited. This unit was supposed to have been called to attend a case in the country where there was no electric supply, no dark-room facilities, no running water—"nothing but the patient." The film showed the setting up of the apparatus in the patient's room, and the production of a successful negative fifty minutes after the arrival of the unit at the house. Mr. W. E. SCHALL described a plant in which, by combining two distinct forms of electrical circuit within one unit, and arranging a switching gear from one to the other, it was possible to employ one and the same transformer to give diagnostic and therapeutic currents, both of them efficiently. Dr. E. J. H. ROTH exhibited an apparatus called the "mecapion" for the absolute measurement of the *x*-ray dose by ionization. In radio-therapeutic work a clock is set to the number of "*r*" units required, the ionization chamber adjusted carefully in relation to the patient, and, the *x*-ray apparatus and the "mecapion" being switched on, the latter automatically indicates the progress of the treatment, and rings a continuous alarm when the total dose has been reached.

Professor SIDNEY RUSS advanced some considerations about the relative factors of time and intensity in dosage, and repeated some of the remarks he made in the discussion on radium therapy recently at the Medical Society of London (*Journal*, November 2nd, p. 807). Dr. F. G. SPEAR and Miss S. F. COX read papers and gave demonstrations on tissue culture, the immediate and delayed effects of radium on tissues cultivated *in vitro*, and the action of *x* rays on living cells similarly cultivated.

Dr. FRANCON ROBERTS read to the congress a paper on modern radiological developments in Germany, with special reference to the new institute at the municipal hospital, the *Stadtisches Krankenhaus*, at Frankfort-on-Main, which he described as the most modern and best equipped institute in Europe. It consisted of three floors and a basement. The basement was given up to diathermy and ultra-violet light; the ground floor to *x*-ray diagnosis, with screening rooms arranged to permit 200 *x*-ray examinations a day; the first floor contained the high-tension apparatus, which was a great feature of the institute; and the top floor was devoted to radiotherapy, providing for 80 to 120 treatments a day. The building, which was under the direction of Professor Holfelder, had cost £28,000, exclusive of apparatus; the expense had been borne partly by the State and partly by the State Insurance Office of Germany. Dr. Roberts, on the basis of a visit to several towns in Germany, said his impression was that Germany was overwhelmingly superior to this country, both in the extent to which radiology was applied and also in the matter of equipment and organization. The liberality with which radiology was being endowed was part of the health policy of the German Government.

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THE MENTAL TREATMENT BILL.

SPEAKING generally, the Government's Mental Treatment Bill, of which the text was printed in our *Supplement* last week (p. 247), is a notable advance on any previous lunacy legislation in this country, and its underlying purpose will be welcomed by the medical profession as a whole, and also, we believe, by local authorities and the public. The quiet but uninterrupted evolution of mental institutions from places of detention, "model lodging-houses for the insane," into well-equipped centres of scientifically directed curative effort, has brought about a great change in the popular attitude to mental hospitals and a new conception of mental disorder. Even if the word "asylum," now to be officially replaced by "mental hospital," is of somewhat sinister significance, there is to-day a widespread appreciation of the beneficent work of these institutions, and although it may still be necessary, even in the House of Lords, to remove misconceptions as to the nature of insanity and to elucidate the analogy between mental ailments and physical ailments, their usual coexistence and oft-times single cause, there is seldom any failure among the relations of those admitted to mental hospitals to recognize that mental disease is essentially a matter for medical study, medical diagnosis, and medical treatment, and the sooner the better.

Unfortunately, legal requirements have made it impossible to bring expert treatment within the reach of the great majority of the subjects of mental disorder at an early stage, when the chances of improvement and recovery are greatest. Formal certification, and especially insistence on the necessity of a magistrate's order—with all that these entail, even in cases when recovery is to be expected within a reasonably short time—have been and still are the main obstacles to early treatment. It will be remembered that the Royal Commission on Lunacy and Mental Disorder agreed unanimously that the treatment of mental disorder should approximate as nearly to the treatment of physical ailments as is consistent with the special safeguards which are indispensable where the liberty of the subject is infringed; that certification should be the last resort, and not a necessary preliminary to treatment; and that the facilities for treatment without certification should be developed, and voluntary boarders should be received into any public mental hospital, registered hospital, licensed house, general hospital, nursing home, or into single care. It should also be recalled that the Royal Commission took the view that for these purposes cases of mental disorder should be classified in two categories—namely, voluntary (that is, patients possessing volition and willing to be received into an institution as voluntary boarders), and involuntary (that is, all others). The latter group comprises the great majority of cases of mental disorder, including very many early and recoverable patients who are either devoid of volition or unable to give a reasoned assent, as well as those who, being in need of care, treatment, and protection, either in their own interests or those of others, refuse to acquiesce in, or deliberately object to, such care and treatment. For this non-volitional class, if recovery were to be anticipated under six months, the Royal Commission proposed a "provisional treatment order" requiring only one medical statement, but requiring also, "though not without some reluctance," the order of a magistrate. If the outlook were less promising the cases would have to be dealt with under a reception order requiring two medical certificates in addition to the order of the magistrate.

As our readers are aware, the British Medical Association, in the evidence it tendered to the Commission, *recognized not two, but three groups or categories* of patients—namely, volitional, non-volitional, and resistive—and while in general agreement with the Commission as to the provision recommended for the voluntary group, the Association strongly opposed magisterial intervention in the case of the non-volitional patient for the purposes of the provisional treatment order—or, as the Association desired it should be named, the authorization of treatment order. The Association, while anxious that the authorization of treatment should be made not by one but by two medical men, either singly or in conjunction, pressed on the notice of the Royal Commission that the intervention of a legal official at the outset of treatment continued the formalities of the existing law; that it did nothing to bring about the approximation of the treatment of mental illness and the treatment of bodily ills which the Commission desired; and by perpetuating—indeed emphasizing—the "stigma of certification" so deeply resented by the public, would cause the relatives of patients to postpone active measures as long as possible, and so defeat the very object of this provision. The Royal Commission, however, was not able to accept this view, even though it said, "If we were free to consider exclusively the medical treatment of the patient we should have little hesitation in accepting the suggestion," and also considered that "ultimately the treatment of mental illness will be so assimilated to the treatment of physical illness that the participation of a magistrate will no longer be considered necessary."

It is of extreme interest at this point to turn to Clause 5 of the Government's bill, which provides that "a person suffering from mental disorder and for the time being incapable of volition, but who is likely to benefit by temporary treatment, may be received as a temporary patient for the purpose of treatment into an institution provided by a local authority, or any other institution, hospital, or nursing home as may be approved by the Board of Control, or, with the consent of the Board of Control, into single care. The application for reception of a temporary patient, to be made by the patient's responsible relative, is to be accompanied by a "recommendation for temporary treatment" signed by two registered medical practitioners, one of whom shall be either the usual medical attendant of the person to whom the application relates, or a practitioner "who has been approved for the purpose of making recommendations under this section either by the Board of Control or by the local authority within whose area the said person then is." The doctors signing the recommendation may examine the patient either separately or in conjunction. Notice of the patient's reception and a copy of the application and form of recommendation are to be sent to the Board of Control, and provision is made for a visit being paid him within one month after his reception by at least two members of the visiting committee, or in a licensed house by two of the visitors, or in certain

cases by the Board of Control. The maximum period of treatment as a temporary patient is laid down as six months. There is no magistrate's order.

It is impossible to read this part of the Mental Treatment Bill in conjunction with the British Medical Association's "Memorandum on the Report of the Royal Commission" without coming to the conclusion that, while the framers of the bill have been guided by the principles enunciated in the Commissioners' Report, they have been gratifyingly attentive to the voice of the medical profession, and have given effect to many of the suggestions tendered to the Commission by the Association's representatives. The bill as a whole is in process of scrutiny by the Association's special Committee on Lunacy Law and Mental Disorder. Unquestionably it requires emendation or amplification here and there; but there can be no doubt that in the main this bill, if it becomes law, will at long last approximate the treatment of mental disorder to the treatment of physical ailments in the very cases in which this is likely to prove most efficacious. Great changes, administrative and other, would follow its enactment.

From the point of view of the medical profession one of the most important parts of the bill is Clause 16, which deals with the protection of persons performing duties under the Lunacy Acts. This clause provides that Section 330 of the principal Act shall be amended by substituting for it the following:

"(1) Where a person has presented a petition for a reception order, or signed or carried out, or done any act with a view to signing or carrying out, an order purporting to be a reception order, or any report or certificate purporting to be a report or certificate under this Act, or has done anything in pursuance of this Act, he shall not be liable to any civil or criminal proceedings, whether on the ground of want of jurisdiction or on any other ground, unless he has acted in bad faith or without reasonable care.

"(2) If any proceedings are taken against any person for presenting any such petition or for signing or carrying out, or doing any act with a view to signing or carrying out, any such order, report, or certificate, as mentioned in Subsection (1) of this section, or doing anything in pursuance of this Act, such proceedings shall, on application to the High Court, be stayed on such terms as to costs and otherwise as the court may think fit, unless the court is satisfied that there is substantial ground for alleging that such act was done in bad faith or without reasonable care."

Although clearly a step in the right direction, inasmuch as it shifts the onus of proof of mala fides from persons (including medical practitioners) whose conduct is impugned to the plaintiff, this does not give the full measure of protection claimed by the medical profession. Lord Sandhurst, however, has tabled an amendment to be moved in committee, which goes a very long way towards meeting the wishes of the British Medical Association. His amendment proposes that the latter part of Subsection (1) of Clause 16, quoted above, shall run as follows:

". . . he shall not be liable to any civil or criminal proceedings whether on the ground of want of *jurisdiction or on any* other ground unless he has acted in bad faith *or negligently and without reasonable and probable cause. Provided that in case of a trial with a jury, the question of reasonable or probable cause shall be determined by the judge.*"

And in the same way *Lord Sandhurst* proposes that the words "without reasonable care" at the end of Subsection (2) shall be left out, and the words "negligently and without reasonable and probable cause" substituted for them. The Association's special committee has thanked Lord Sandhurst for introducing this amendment of Clause 16, and has expressed the earnest hope that it will be approved by the House of Lords and included in the Act as passed.

THE CAUSE OF NATURAL ABORTION.

THE term "natural abortion" is generally used to cover all abortions except those which have been artificially induced, a distinction equivalent to that made in forensic medicine between "natural" death and death by violence. Just, however, as in a stricter sense the term "natural death" may be applied only to death resulting from the senile decay and atrophy of tissues, so also may the term "natural abortion" be limited to the kind that occurs when Nature discards certain embryos whose development it will not allow to proceed beyond the initial stages. In his paper, which appears at page 1095 of this issue, Professor Beckwith Whitehouse uses the term "natural abortion" in its wider sense, and in discussing its causes confines his attention for the most part to general maternal states and local conditions in the reproductive tract—for example, syphilis, diseases of the decidua, nutritional and other environmental conditions—which are detrimental to the development of the embryonic element. He draws attention, however, to the two factors—namely, an inherent defect in, or incompatibility of, the germ cells—which underlie the production of true natural abortion, though he does not appear to distinguish between them. There are, in fact, grounds for the view that in most cases the fault lies not in the germ cells themselves, but in the zygote formed by their union; in short, that an important cause of sterility and abortion may be found in a so-called incompatibility of the gametes.

Professor Arthur Robinson, in his Struthers Lecture of 1921, and more recently at a joint discussion of the Sections of Obstetrics and Gynaecology and of Comparative Medicine of the Royal Society of Medicine,[1] extended the definition of sterility to cover the incapacity of a pair to produce living young who should survive until the natural period for their own reproduction and be themselves fertile—a definition which logically includes true natural abortion within the concept of sterility. In order to discover what proportion of total matings were unproductive, whether on account of sterility or of abortion, he analysed the records of horse-breeding societies, and found that out of some thousands of ova shed, 48 per cent. in the case of Clydesdale mares, and 58 per cent. in that of thoroughbreds, did not produce young, although the matings had been carried out under controlled conditions and the stallions used were all in perfect health. These findings were consistent with the view commonly held by breeders that pure-bred stocks are less fertile than those which have been cross-bred. Professor Robinson's observations on ferrets, and similar observations by others on small *mammals*, including wild rabbits and moles, have tended to show that there is always some natural wastage of fertilized ova, in the uterine cornua of some mammals degenerate zygotes being found side by side with others developing normally. These degenerate zygotes are absorbed if their death follows shortly after fertilization. If, however, degeneration occurs late, the fate of the zygote depends on whether the mammal in whose uterus it is embedded produces a litter or only one foetus at a time. In the former, pregnancy proceeds to term, the degenerate zygotes being expelled with the normally developed foetuses; in the latter, natural abortion occurs, rendering possible immediate preparation for fresh gestation. The production of foetus papyraceus may be regarded as the nearest approach in human reproduction to the process which occurs in

[1] *British Medical Journal*, October 26th, 1929, p. 760.

the litter-producing mammals, though its cause may not be quite the same.

While, however, there is no evidence that the production of degenerate zygotes is due to an inherent defect in the ova and sperms, other combinations in the same animal being capable, indeed, of normal development, there exists some experimental justification for the other view—that their production may result from the union of incompatible gametes. Thus in the course of breeding fancy coloured mice, in which yellow is dominant to any other colour, it was found that the matings of hybrid yellow mice failed to give rise to the proportion of yellows to non-yellows expected by Mendelian law, the anomaly being due to the fact that in these matings there was a much higher incidence of dead embryos than in the matings of yellow with non-yellow. As, furthermore, no pure yellows were produced, it seems as though the combination of yellow-carrying sperm and yellow-carrying ovum was incapable of developing, whereas zygotes formed by the union of yellow-carrying with non-yellow-carrying gametes could survive. These results in mice, which have been confirmed in other biological types, give a new meaning to the vague term "incompatibility" that has been applied to some cases of sterility and habitual abortion for which no better reason has been forthcoming. Nature, it would appear, abhors certain gametic combinations, and in her effort to produce variations in type has set a limit to pure breeding—a view that provides an explanation for the relative infertility of pure-bred animals. There can be little doubt that similar lethal nuclear combinations occur in the human subject, though no estimate can at present be made of how large a part they have in determining the incidence of sterility and abortion. The existence of such a lethal form was postulated by Dyke in his paper on the inheritance of blood groups.[1] The agglutinable properties of the corpuscles being dominant and the agglutinins in the serum recessive, Dyke considers that the gametes of blood group I (Moss), with the double dominant and no reciprocal recessive, might be incapable of fruitful union; and he puts forward this hypothesis in explanation of the rarity of blood group I. Other like hypotheses have been, and doubtless will be, suggested, and it is important in considering the causes of abortion and sterility to bear them in mind as well as the more obvious environmental conditions that might be responsible.

THE POET LAUREATE.

At the age of 85 Dr. Robert Bridges has given to the world the greatest English philosophic poem of modern times. He thus joins the select band of illustrious men—Clifford Allbutt amongst them—who have made of Time a laughing-stock, their faculties knowing not decay, the passage of years bringing only a ripened wisdom. Dr. Bridges has been accorded due and unaffected praise by the professional critics of his own craft; but for us his poem has a peculiarly fraternal appeal, and we must honour him in this place as one whose rare communion of gifts has enabled him to achieve the miraculous marriage of poetry and science. He calls his poem *The Testament of Beauty*,[2] and thus, by inevitable comparison, declares its lofty purpose. It does not fail. To those who know him only as a lyrist, albeit a player of delicate music perfectly instrumented, this poem will reveal his true measure, for here is thought symphonic in depth and in form of execution. The medical mind, in contact day by day and hour by hour with stark reality, is apt to be impatient with philosophers, and in particular to find philosophic poetry irksome reading. The character of Dr. Bridges's poem, however, is such that a general knowledge of science is requisite for its proper appreciation. His own learning is wide and deep, and is fearlessly used; and for the scientific reader there is no tiresomeness, only intense interest. The background of thought of the book is scientific, its framework a conception of Plato, its vision poetic. The poetry, indeed, is the lamp which illumines the philosophy. An eminent botanist was once asked if his knowledge of the structure of plants did not mar his sense of their beauty. He replied that his consciousness of the wondrous beauty of the botanical world grew out of his intimate knowledge, and was therefore a profounder sense than that of beauty only "skin deep." So Dr. Bridges. He sees beauty as a flowering of the human mind; but he knows the make-up of mind, its animal foundations, its struggles in development, the springing of its higher functions from the lower. This is what makes beauty a natural attribute of the mind, since its roots are in mind as Nature made it. The present age—and so far as can be seen the future will be like it—is the age of specialism, a condition imposed on humanity by the swift progress of knowledge and the general quickening of the manner of life, which make it impossible for one mind to secure sufficient time for much activity outside the sphere of its own work. It is fortunate that in such an age there are still men unfettered by the toil and moil, whose mental grasp can embrace widespread essentials, link them together, and interpret the whole so that any man of ordinary culture can read and understand. Dr. Bridges is of this company, and to listen to his measured authoritative voice and dip in his well of cool thought is refreshment to the mind and revival of faith to the soul. Such are the impressions created by a single reading of *The Testament of Beauty*. But the book will fully reveal itself only after many days.

TENNIS ELBOW.

THE discussion on minor injuries of the elbow-joint in the Section of Orthopaedics of the Royal Society of Medicine, a report of which appears on page 1109, was instructive if inconclusive. It centred round the injury or group of injuries known by the loose if convenient term of tennis elbow, although such a group of symptoms is not confined to tennis players, but sometimes troubles fencers and others who employ their upper extremities in rapid movement. It is true that other lesions, such as fissure of the head of the radius, were considered, but speaker after speaker seemed to feel that this rather elusive lesion—or perhaps it were better to say syndrome—occupied the most important place among the minor injuries of the joint. In a paper published last year[1] Mr. Percival Mills of Birmingham declared that while surgeons were discussing its pathology the trouble was being cured by osteopaths and non-medical manipulators in hundreds of cases. He went on to describe a method of manipulation under nitrous oxide anaesthesia by means of which the symptoms could be made to disappear at once and for all. Everyone, including Mr. Mills, is agreed that the symptoms of tennis elbow come on gradually, even insidiously; which fact makes it very difficult for the pathologist to accept the hypothesis that the symptoms are due to the nipping of some structure, such as the orbicular ligament, between the head of the radius and the humerus, even if the anatomical possibility of such an event be admitted. Mr. W. H. Ogilvie, who opened the discussion, did not confine himself to the subject of tennis elbow, but after giving a detailed description of the anatomy and

[1] Dyke and Budge: *Proc. Roy. Soc. Med., Sect. of Path.*, 1923, vol. xvi, p. 35.
[2] *The Testament of Beauty.* A Poem in four books by Robert Bridges, Poet Laureate. Oxford: The Clarendon Press. 1929. (D. 8vo, pp. 192. 7s. 6d. net; de luxe numbered, 42s. net; signed, 84s. net.)

[1] The Treatment of Tennis Elbow, *British Medical Journal*, 1929, i, p. 12.

functions of the joint he described a number of other injuries. Incidentally we would thank him for laying (we hope permanently) the ghost of that old impostor, the "carrying angle" of this joint. The angle exists beyond a doubt, but it has nothing to do with facilitating the carrying of weights. No speaker seemed to be enthusiastically in favour of the method of sudden cure by manipulation under an anaesthetic, although some of them spoke of having had favourable results. Only one, Mr. Trethowan, related his experience of actual inspection of the affected joint on the operating table. It is significant that he found injected synovial fringes in all of the eight otherwise intractable cases of tennis elbow in which he explored the joint, but even after the removal of such fringes there is no dramatic suddenness about the cure, such as has been reported of some of the manipulated cases, in which a loud "report," as of a breaking bone, has been heard. One can hardly credit a synovial fringe with the production of such vibrations. The impression left on our mind by this discussion is that the etiology of tennis elbow is various, its pathology obscure, and its cure uncertain.

THE CENTENARY OF TORONTO UNIVERSITY.

On October 5th to 9th, 1927, the University of Toronto celebrated its centenary, and now a record[1] of the proceedings has been published in book form "by authority of the Board of Governors of the University." On March 15th, 1827, King George IV granted a charter for the founding of a University for the Province of Upper Canada, to be known as King's College, at Toronto. Instruction, however, did not begin in King's College until 1843, and it was seven years later before the College was reorganized as the University of Toronto. But the Royal Charter granted in 1827 was the basis on which the University has been built up, and may therefore properly be regarded as marking the beginning of its history. In an address delivered at the centenary, the president, Sir Robert Falconer, gave an account of the first century of the University, and showed that the credit for taking the first steps in 1798 towards the establishment of the University belongs to John Graves Simcoe, the first Lieutenant-Governor of Upper Canada, and that the Rev. Dr. John Strachan was mainly responsible for obtaining the Royal Charter. The original conditions were of an exclusive religious character, and confined the management and education to members of the Church of England. In a country in which most of the inhabitants did not belong to this denomination these restrictions naturally aroused so much controversy that, as already mentioned, teaching was delayed until 1843; in 1829 the Upper Canada College was started for the same reason, and university teaching was begun by Victoria College, at Cobourg and by Queen's College at Kingston in 1841 and 1842 respectively. The University passed through four well-marked stages—the progressive secularization of King's College until it took the name of the University of Toronto in 1850, isolation (1850–89), the consummation of federation (1889–1905), and unification and expansion (1905–27). In the last period the growing prestige of the University brought in private benefactions of more than six million dollars, which have provided beautiful buildings and made it possible to realize the ideals of federation. During the war (1914–18) the University underwent a consecration in her baptism of blood, for more than six thousand graduates and undergraduates were on active service. The greater part of the volume is occupied by addresses of congratulation from the delegates, the first being that of Professor Emile Sergent of the University of Paris, then that of the Hon. N. D. Baker, formerly United States Secretary for War, and then Sir Charles Sherrington on behalf of the delegates from Great Britain and the Dominions other than Canada. The very numerous addresses, letters, and telegrams from universities, colleges, and other learned institutions, some in Latin, others in their own tongue, are duly printed.

[1] *A Record of Proceedings at the Celebration of the Centenary of the University of Toronto, 1927. Published by authority of the Board of Governors of the University.* Toronto: The University of Toronto Press, 1929. (Roy. 8vo, pp. 135.)

INTERNATIONAL LEAGUE FOR COMBATING RHEUMATISM.

An indication of the amount of work that is being done on the problems of rheumatism may be found in the long list printed in the October issue of *Acta Rheumatologica* (the official journal of the Ligue Internationale contre le Rhumatisme) of books, pamphlets, and articles about rheumatism which have been received by or brought to the notice of the league's bureau during the period April to August, 1929. The items include no fewer than 127 in English, 105 in German, and somewhat fewer in French, Spanish, Dutch, Italian, and the Scandinavian languages. The objects of the league, as outlined in its constitution and laws, are to establish a contact among the national committees or other organizations in the campaign against rheumatism in the various countries of the world; to coordinate the efforts of these committees; to promote relations with international organizations for health; to organize conferences, scientific and social; to make comparative studies of rheumatism, experimental, statistical, and clinical; to provide for the collection of relevant international statistics; to stimulate investigations in various countries and races; and to collect and distribute information on all matters concerning the study of rheumatism. The league, while aiming to act as a central official body in the international campaign against rheumatism, wishes in no way to limit the liberty and scope of national committees which have been established for the purpose of studying or combating rheumatism, but to encourage and assist in their formation. Through the medium of the *Archives of Medical Hydrology* and other publications it hopes to circulate information of general value, statistical and otherwise, and to make suggestions for a better classification and nomenclature of chronic rheumatic disorders and for desirable lines of investigation and research. The October issue of *Acta Rheumatologica* includes articles on the significance of serological and blood examinations in rheumatic disease; the relation between chronic and acute rheumatism; and the use of Abderhalden's reaction in the diagnosis of rheumatic diseases. Contributions in this issue come from Hungary, Austria, Germany, Holland, Sweden, and England. A journal of such an international character should play no small part in facilitating rapid exchange of information about the problems of rheumatism, and should prove of great help to those who are now engaged in their solution.

"CANCER: A DISEASE OF CICATRICES."

When, in the year 1922, the anti-cancer campaign was instituted in France, subcommittees were appointed to deal with the several aspects of the question. It was, however, considered that of the various problems calling for discussion that of prophylaxis should be excluded, on the ground that our knowledge of the nature and etiology of cancer was too scanty to promise any practical results. In order to dispel what he considers an erroneous view, Dr. A. Lumière has published a small volume[1] to show how much may be done by way of prophylaxis, even with our limited knowledge. He confines his observations to the subject of carcinomatous growths. These he regards as always arising

[1] *Le Cancer: Maladie des Cicatrices.* By Auguste Lumière. Paris: Masson et Cie. 1929. (18 fr.)

in a pre-existing cicatrix, and he adduces a formidable body of evidence in support of that opinion. He regards cancer, *in fact, as a disease of cicatrices.* He holds that a very prolonged period is required for the cicatrix to modify the tissue cells in the direction of malignancy, and, further, that a trauma of some kind—not necessarily a gross trauma—is necessary to start the proliferative process, arguing by analogy from the experimental proliferation of cells induced by mere punctures. Finally, humoral modifications are considered to be probably necessary to permit of the cell proliferation. Starting with this theory of the nature of cancer, the author argues that in not a few instances the prophylaxis of cancer is simply the prophylaxis of cicatrices. Such cases as *x*-ray and radium cancer and the kangri cancer of Kashmiri peasants are obvious instances; the prophylaxis here is incontestable—if the cicatrix is avoided there will be no cancer. A somewhat different class of cases is exemplified in the practice of Dr. Casalis de Pury among the Basutos. During a period of thirty years de Pury never met with a single case of cancer, but since the stream of civilization has flowed into the country, with its bacillary, specific, and alcoholic adjuncts, Basutoland is as prolific in cancer as any country in Europe. Here, the author contends, the prophylaxis of cancer is the prophylaxis of alcoholism, syphilis, and other infections, all of them cicatrix-producing diseases. A captious critic might here inquire why the cicatrices of the Basutos in the former period should be so free from malignant degeneration—a point which appears to have escaped investigation. With regard to the humoral aspect of the problem, such measures as the administration of chemical substances with a view to rendering the tissues an unsuitable soil for carcinomatous growths have not so far produced very striking results; but that is no reason, as the author justly remarks, for losing faith in the future.

THE RADCLIFFE INFIRMARY, OXFORD.

JOHN RADCLIFFE (1653–1714), the successful physician in London for thirty years, was a needy boy who gained an exhibition on the Freeston Foundation at University College, Oxford, and was subsequently a Fellow of Lincoln College. He generously repaid his Alma Mater by leaving the whole of his fortune (£140,000) to trustees for the advancement of the study of natural science and medicine in connexion with the University of Oxford, where his name is perpetuated in the library, observatory, and infirmary called after him. Many stories are told of him in *The Gold-Headed Cane;* the late Dr. J. B. Nias, a Radcliffe Travelling Fellow, dutifully wrote a sketch of his life, with an account of his Fellows and Foundations; and Dr. A. G. Gibson has supplemented this with *The History of the Radcliffe Infirmary.* Among the moderns who have followed Radcliffe's generous example Cecil Rhodes, born three centuries later, stands out as a Colossus for his endowment of the Rhodes scholars with the wealth he acquired in South Africa. Now, with the whirligig of time, the Radcliffe Observatory, which is the immediate neighbour of the Radcliffe Infirmary, is to be moved to a site on the high central plateau of South Africa, where the conditions for astronomical research are the best in the world. This will take place in about five years' time, when the observatory will have completed its researches into the movements of some 30,000 faint stars. But in the meantime the grounds of the observatory are being acquired, largely by the generosity of Sir William Morris, for £100,000 by the Radcliffe Infirmary, so that much-needed extensions, especially the erection of a maternity block, can be proceeded with at once. The Radcliffe Infirmary, built in the middle of the eighteenth century with funds provided by the Radcliffe Trustees on five acres given by Thomas Rowney, an Oxford citizen, will thus be enabled to become a hospital worthy of the University and its traditions, if it cannot become a University hospital, which is a different proposition. Widely as Radcliffe's name has been carried by his Travelling Fellows, one of his benefactions—the observatory—will find a permanent home in a far distant land, a result of which he never can have dreamed. Like his other benefactions, the library and the Travelling Fellowships, the observatory has moved with the times, and will for ever keep his memory green.

RECONSTRUCTION OF ST. BARTHOLOMEW'S HOSPITAL.

THE inauguration by the Prince of Wales on December 4th of a campaign to raise £1,000,000 for the reconstruction of St. Bartholomew's Hospital marks the opening of a new chapter in a long and famous historical record, which began when Rahere, in the spring of 1123, raised two buildings just outside the walls of the City of London, one to minister to the souls of men and the other to their bodies. When, after the passing of 250 years, the Convent of Augustinian Canons was separated from the Hospital of St. Bartholomew in consequence of long-continued bickering, a step was taken which saved the hospital, 150 years later, from sharing the fate of the convent when it was suppressed in the reign of Henry VIII. The Prince of Wales, who has followed his father, grandfather, and great-grandfather as president of the hospital, and, it may be recalled, took in 1923 a prominent part in the octocentenary celebrations of its founding, compared the present ideals of Bart. with those of ancient Greece, when physical fitness was conceived to be a supreme duty of citizenship, and even an object of worship. Yet it seemed, he remarked, that only now was the immense economic value of good health beginning to attract the consideration it deserved. Medical work was still being grievously hampered by imperfect conditions, and the progress of scientific research was retarded by financial restrictions. So he set in motion a flashing signal on the roof of the hospital to be an urgent reminder of the present need. The south, east, and west quadrangle blocks are all more than 150 years old and must be reconstructed within, though the familiar outward walls will remain. The maternity department and some of the other specialist departments are lamentably inadequate. The new surgical block is approaching completion, with its five new operating theatres, but more than £130,000 is still required to pay for this and the extension of the nurses' home. Other necessities are: the enlargement of the out-patients' modern block to provide departments for child out-patients, orthopaedics, and massage; wards for obstetrics and gynaecology, as well as for children who at present have to be accommodated among the adults; improved theatres and laboratories for the medical college; and endowments for professorial chairs and for an institute of research. It is proposed later on, when these urgent needs have been met, to erect a residential college for students in the neighbourhood of the hospital. A wide prospect of more extensive and more effective medical and scientific work is envisaged by this, the second great appeal by St. Bartholomew's Hospital since its foundation. The sum desired is large, but not too large to be obtained if all who have been connected with the hospital in any way, whether as governors, patients, students, or staff, use their influence with others, and contribute personally according to their means. So long an historic tradition should surely compel sympathy of a practical kind, particularly when it is realized that such support must be forthcoming if the hospital is to keep its position as a temple of health and healing, a great school of medicine, and a centre of scientific research, where Harvey's successors may find opportunities to widen the field of knowledge and to diminish the sum of human suffering.

Collective Investigation
INTO
THE AFTER-HISTORY OF GASTRO-ENTEROSTOMY.

Report by
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PART II.—PYLORIC ULCERS.

THERE were 454 reports of the results of operations for pyloric ulcers; they do not include the perforated cases, which are dealt with separately in Part III. The answers to the various questions have been carefully collated, and the results are embodied in the following tables.

TABLE I.—*Sex Incidence.*

Number of cases	454
Males (percentage)	72.4
Females (percentage)	27.6

This table shows that about three times as many cases occur among males as among females. With the duodenal ulcers the percentages were: males 83.6 and females 16.4.

TABLE II.—*Age Incidence (at Time of Operation).*

Age.	Percentage.
15-30 years	9.5
30-40 ,,	29.7
40-50 ,,	32.8
50-60 ,,	17.8
60-70 ,,	10.2

This table shows that the majority of patients with pyloric ulcers were operated on between 30 and 50 years of age, as also were those with duodenal ulcers. Of the patients operated on between 16 and 30 years, one patient only was 16 years of age.

TABLE III.—*Type of Operation.*

Type of Operation.	No. of Cases.	Percentage
Posterior gastro-enterostomy	352	77.5
Posterior gastro-enterostomy and embedding of ulcer	72	15.9
Anterior gastro-enterostomy	5	1.1
Partial gastrectomy and lateral anastomosis	7	
Partial gastrectomy and posterior gastro-enterostomy	5	
Posterior gastro-enterostomy and pylorectomy	3	
Posterior gastro-enterostomy and excision of ulcer	2	
Partial gastrectomy	2	
Posterior gastro-enterostomy and cauterization of ulcer	1	25 5.5
Posterior gastro-enterostomy and lateral anastomosis	1	
Anterior gastro-enterostomy and embedding of ulcer	1	
Ramm-tedt's operation	1	
Pylorectomy and Billroth II	1	
Posterior gastro-enterostomy, embedding of ulcer, and gastro-colopexy	1	

In addition appendicectomy was performed in 18 per cent. of the cases, and cholecystectomy in 0.9 per cent.

The reasons for operating were given in 446 cases. These are recorded in the following table.

TABLE IV.—*Reasons for Operating.*

Symptoms.	No. of Cases	Percentage
Pain	446	100.0
Vomiting	239	53.6
Haematemesis	39	8.7
Haematemesis and melaena	8	1.8
Melaena	8	1.8
Loss of weight	42	9.4

With regard to haemorrhage as one of the reasons for operating it will be seen from the above table that all the cases in which haematemesis and melaena occurred (separately or combined) only total 12.3 per cent., but amongst the 446 cases very few systematic investigations for occult blood are recorded. Haematemesis was slightly more frequent in the duodenal ulcer cases than in the pyloric, and melaena was much more frequent in the duodenal cases.

The following are the direct results of operation in the 454 cases.

TABLE V.—*Results of Operation.*

Result.	No. of Cases.	Percentage.
Good recovery	433	95.4
Delayed recovery	9	2.0
Deaths	12	2.6

The percentage of good recoveries is rather higher than in the case of duodenal ulcers, where it was 91.5 per cent. The post-operative mortality is considerably lower than the 5 per cent. post-operative mortality among duodenal ulcers.

Prior to operation 250 cases were submitted to *x*-ray examination, with the following results.

TABLE VI.—*Results of X-Ray Examinations.*

Result.	Percentage.
Positive	50.0
Negative	12.0
Pyloric obstruction only shown	38.0

The percentage of cases showing pyloric obstruction only is twice as great as in the case of duodenal ulcers.

In 77 cases test meals were employed prior to operation, with the following results.

TABLE VII.—*Results of Test Meals.*

Result.	Percentage.
Hyperchlorhydria	80.5
Normal acidity	17.0
No free hydrochloric acid	2.5

AFTER-HISTORIES OF THE OPERATION CASES.

The 454 cases dealt with in Tables I, II, III, and V include 320 cases in which the after-histories were given, 9 cases in which the after-histories consisted only of statements that the patients were in good health at some specified time after operation, and 125 cases in which no after-histories were given. For the preparation of the after-history statistics the 320 cases only are employed. As in the report on duodenal ulcers, the statistics in the following tables have been worked out as percentages of the numbers of the answers to the respective questions. The after-history inquiries were directed to the elucidation of the same points as in connexion with duodenal ulcers (see Part I, *British Medical Journal*, December 7th, p. 1075).

TABLE VIII.—*Pain or Other Discomfort after Food.*
(Information on these points was given in 299 cases.)

	No of Cases	Percentage.
No pain or discomfort	231	77.3
Occasional slight pain or discomfort	37	12.4
Temporary pain or discomfort (in most cases soon after operation)	23	7.7
Severe pain or discomfort	8	2.6

TABLE IX.—*Diarrhoea.*
(Diarrhoea occurred in 14 cases out of the 323.)

Diarrhoea.	No. of Cases	Percentage.
Slight	14	4.4

Diarrhoea occurred in 6 per cent. of the cases of duodenal ulcers.

TABLE X.—*Constipation.*
(Constipation occurred in 43 cases out of the 320.)

Constipation.	No. of Cases.	Percentage.
Slight	41	12.8
Severe	2	0.6

Constipation occurred in 16.9 per cent. of the cases of duodenal ulcers.

TABLE XI.—*Food Able to be Taken.*
(Information as to diet was given in all of the 320 cases.)

	No. of Cases.	Percentage.
Full diet	252	78.8
Certain articles of diet avoided	68	21.2

In the majority of the 68 cases in which some modification of the diet was necessary, only one or two articles of diet had to be avoided on account of their producing flatulence or indigestion. Among these cases 42 avoided some form or forms of protein food (beef, mutton, veal, pork, bacon, cheese, eggs), and 26 avoided some form or forms of carbohydrate food (vegetables, pastry, fats, fruit). Therefore of those on a modified diet about 62 per cent. were obliged to avoid some form of protein, and 38 per cent. some form of carbohydrate. Among the duodenal ulcers 37.9 per cent. were obliged to avoid certain articles of diet. The relative percentages of those that avoided proteins or carbohydrates are practically the same in the cases of both duodenal and pyloric ulcers.

Information as to the time of return to work was given in 275 cases. In a certain number of other cases it was stated the individuals were either of the leisured classes doing no work, or were past the age for work.

TABLE XII.—*Time of Return to Work after Operation.*

Time of Return to Work.	No. of Cases.	Percentage.
1 to 2 months	101	36.7
2 to 3 ,, ...	121	44.0
3 to 4 ,, ...	18	6.6
4 to 6 ,, ...	18	6.6
Over 6 ,, ...	17	6.1

This table shows that 80.7 per cent. returned to work within three months from the date of the operation. With regard to those that did not return to work till after three months, the reasons given in the majority of the cases were that there was no immediate necessity for return, or that work was not available at the time. In the case of the duodenal ulcers 73.1 per cent. returned to work within three months from the date of the operation.

TABLE XIII.—*Work Capacity.*
(Information on this point was given in 269 cases.)

Work Capacity.	No. of Cases.	Percentage.
Full work	244	90.7
Light work	25	9.3

In the case of the duodenal ulcers, 94 per cent. returned to full work.

TABLE XIV.—*Weight after Operation.*
(Information on this point was given in 294 cases.)

Weight.	No. of Cases.	Percentage.
Gained	216	73.5
Constant	64	21.8
Lost	14	4.7

The percentages are practically the same for duodenal and pyloric ulcers.

TABLE XV.—*Condition of Health and Well-being after Operation.*
(Information on this point was given in 292 cases.)

Health.	No. of Cases.	Percentage.
General improvement of health	275	94.2
Fair improvement of health	10	3.4
No improvement of health	7	2.4

The percentages are practically the same for duodenal and pyloric ulcers.

Subsequent Medical Treatment Required.

Among the 320 cases subsequent medical treatment was necessary in 14—that is, 4.4 per cent. of the cases. Among these occasional bismuth and sodium bicarbonate were required in twelve cases, an occasional laxative in one case, and an occasional astringent in one case.

TABLE XVI.—*Number of Years after Operation during which Patients were under Observation, or during which Reliable Information was Obtained.*
(Definite information on this point was given in 294 cases.)

Years under Observation.	No. of Cases.	Percentage.
2 to 3 years	7	2.4
3 to 4 ,, ...	25	8.8
4 to 5 ,, ...	81	27.6
5 to 6 ,, ...	67	22.8
6 to 7 ,, ...	40	13.6
7 to 8 ,, ...	43	14.6
8 to 9 ,, ...	30	10.2

This table shows that 89 per cent. of the patients were under reliable observation for periods ranging from four to nine years.

Classification of Results.

The classification adopted is the same as that used in connexion with duodenal ulcers (see Part I, *British Medical Journal*, December 7th, p. 1076).

TABLE XVII.—*Classification of Results.*
(The results returned enabled this classification to be made in 296 cases.)

Classification.	No. of Cases.	Percentage.
Very good	226	76.3
Good	48	16.2
Fair	12	4.1
Poor	10	3.4

From this table it will be seen that the late results of the operation were very satisfactory in 92.5 per cent. of the cases. In the duodenal ulcer series the late results of the operation were very satisfactory in 89.5 per cent. of the cases.

Secondary Gastro-jejunal Ulcers.

Number.—Three ulcers of this type—that is, 0.9 per cent.—occurred among the 320 cases in which after-histories were given.

Sex.—All males.

Age.—All occurred between 30 and 50 years of age.

Symptoms.—Pain occurred in all cases, vomiting in two, and haemorrhage in one.

TABLE XVIII.—*Periods after the Gastro-enterostomy Operation at which Symptoms Occurred Necessitating Operation for Gastro-jejunal Ulceration.*

Period.	No. of Cases.
2 years	2
5 ,, ...	1

Sites of the Gastro-jejunal Ulcers.—Not stated in any of the cases.

Results of Operations for the Gastro-jejunal Ulcers.—Good recovery in all the cases.

Operations Performed.—Partial gastrectomy in two cases. Suture of perforated ulcer in one case.

Second Operations Required for Intercurrent Lesions after Gastro-enterostomy.

Nine of these operations—that is, 2.8 per cent.—were required among the 320 cases in which after-histories were given. Eight of the patients were between 30 and 70 years of age. Particulars of the individual cases are given as they could not be tabulated.

1. Serious vomiting five days after first operation from obstruction. Entero-enterostomy done. Recovery.

2. Cyclical vomiting eleven days after first operation from obstruction. Entero-enterostomy done. Recovery.

3. Pain and vomiting one year after first operation from acute kinking of proximal loop causing obstruction and peritonitis. Laparotomy, but too collapsed for further operation. Death.

4. Discomfort and flatulence one and a quarter years after first operation from partial obstruction of jejunum by omental band. Division of omental band. Recovery.

5. Acute intestinal obstruction one and a quarter years after first operation from adhesion of portion of intestine to abdominal wall. Removal of adhesions. Recovery.

6. Pain and vomiting three years after first operation from large ulcer on lesser curve. Partial gastrectomy done. Death three days later.

7. Diarrhoea four years after first operation from perforation of efferent loop into transverse colon, associated with adhesions. Separation of jejunum from transverse colon and closure of both openings done. Recovery.

8. Pain and vomiting four years after first operation from gastric ulcer. Ulcer cauterized and omental graft. Recovery.

9. Pain four years after first operation from duodenal ulcer. Invagination of ulcer. Recovery.

Secondary Haemorrhage.

(Not stated as due to anastomotic ulcer.)

Number.—Four cases of secondary haemorrhage—that is, 1.2 per cent.—occurred among the 320 cases in which after-histories were given.

Sex.—All males.

Age.—All the cases were between 30 and 50 years of age.

Nature of Haemorrhage.—Haematemesis in two cases; melaena in one case; haematemesis and melaena in one case.

Periods at which Haemorrhage started after the Gastro-enterostomy Operation.—The periods respectively were two years, three years, three and a half years, and five and a half years.

Treatment.—Two had rest and medical treatment; two had rest and light diet.

Results.—Good recovery in all cases.

Analysis of the Post-operative Mortality.

Among the 454 cases of pyloric ulceration six deaths occurred from some other lesion some years after the operation and quite unconnected with it. As these six cases up to the time of death were free from all symptoms connected with the ulceration, the deaths are not included among the post-operative deaths. The number of post-operative deaths out of the 454 cases was 12—that is, 2.6 per cent. These are the deaths that occurred as a direct result of the operation of gastro-enterostomy, and do not include the deaths from second operations performed for some intercurrent lesion, which have already been enumerated in the preceding part of this report.

Sex.—Of the twelve deaths, 83 per cent. occurred amongst males and 17 per cent. amongst females—a ratio which is roughly the same as in the case of duodenal ulcers.

TABLE XIX.—*Age Incidence of Deaths.*

Age.	Percentage of Deaths.
30-40 years	33
40-50 ,, ...	25
50-60 ,, ...	25
60-70 ,, ...	17

TABLE XX.—*Time of Occurrence of Death after Operation.*

Time.	Percentage.
1-6 days	58
7-14 ,, ...	25
2-3 weeks	17

Among the duodenal ulcers, 64 per cent. of the deaths occurred between one and six days after operation. Among the 12 cases haemorrhage occurred as a symptom prior to operation in 17 per cent. It would appear from these figures, as with the corresponding figures for duodenal ulcers, that the risk of a fatal post-operative result is not increased by the occurrence of haemorrhage prior to operation.

TABLE XXI.—*Cause of Death.*

Cause of Death.	No. of Cases.
Pneumonia	3
Haemorrhage	2
Shock	2
Peritonitis	2
Heart failure	1
Gangrene of transverse colon	1
Cause not stated	1

Carcinoma Developing at the Site of Ulcer.—No case was reported in the whole series.

BRIEF SUMMARY OF RESULTS.

Pyloric ulceration is about three times more common in males than in females. The report on duodenal ulceration showed that it was about five times more common in males than in females.

The liability to pyloric ulceration rapidly diminishes after 50 years of age, as is also the case with duodenal ulceration.

Posterior gastro-enterostomy with or without embedding or removal of the ulcer was the operation performed in 94.7 per cent. of the cases. This is practically the same percentage as with the duodenal ulcers previously reported on.

Hyperchlorhydria was present in 80.5 per cent. of the cases submitted to test meals, as compared with 86.2 per cent. in the case of duodenal ulcers.

Neither diarrhoea nor constipation is a marked result of the operation, but, as in the case of duodenal ulcers, constipation of a mild character is more frequent than diarrhoea.

About one-fourth of the patients operated on made some slight modification in diet. Of these, 62 per cent. avoided some form of protein, and 38 per cent. some form of carbohydrate. Almost precisely the same relative figures occurred among the duodenal ulcers.

Some 80 per cent. of the patients returned to full work within three months of the date of the operation. This is a slightly higher percentage than in the case of the duodenal ulcers.

General improvement of health and well-being occurred in all but a few cases.

The results of the operation were satisfactory in about 92 per cent. of the cases.

Secondary gastro-jejunal ulcers occurred in 0.9 per cent. of the cases, as compared with an occurrence of 2.8 per cent. in the cases of duodenal ulceration.

Secondary haemorrhage occurred in 1.2 per cent. of the cases, but with no fatal result, as compared with an occurrence of 2.4 per cent. in the cases of duodenal ulceration, also with no fatal result.

The post-operative mortality was 2.6 per cent., the mortality being highest in patients from 30 to 40 years of age. The majority of deaths occurred within seven days of the date of operation. The post-operative mortality for duodenal ulcers was 5 per cent. If the 995 cases of duodenal ulcers and the 454 cases of pyloric ulcers are massed together, then the combined post-operative mortality would be 4.3 per cent.

No case of carcinoma developing at the site of an ulcer was reported in the whole series.

PART III.—PERFORATED DUODENAL AND PYLORIC ULCERS.

There were 112 reports of the results of operations for perforated duodenal ulcers, and 20 similar reports of perforated pyloric ulcers were received. As the results of the operation in the two classes were practically the same, the numbers have been massed together in order to avoid separate reports. The answers to the various questions have been carefully collated, and the results are embodied in the following tables.

TABLE I.—*Sex Incidence.*

Number of cases	132
Males (percentage)	93.2
Females (percentage)	6.8

TABLE II.—*Age Incidence (at Time of Operation).*

Age	Percentage.
20-30 years	15.1
30-40 ,,	34.1
40-50 ,,	32.6
50-60 ,,	11.4
60-70 ,,	6.8

This table shows that the age incidence of perforation roughly corresponds with the age incidence of the occurrence of ulcers (see Parts I and II).

TABLE III.—*Type of Operation.*

Type of Operation.	No. of Cases.	Percentage.
Posterior gastro-enterostomy and suturing	122	92.4
Posterior gastro-enterostomy and invagination	6	4.6
Posterior gastro-enterostomy and excision	4	3.0

In addition, appendicectomy was performed in 6.8 per cent. of the cases.

TABLE IV.—*Reasons for Operating.*

Symptoms.	No. of Cases.	Percentage.
Pain	132	100.0
Vomiting	18	13.6
Melaena	5	3.8
Haematemesis and melaena	3	2.3

The following are the direct results of operation in the 132 cases.

TABLE V.—*Results of Operation.*

Result.	No. of Cases.	Percentage.
Good recovery	112	84.9
Delayed recovery	2	1.5
Death	18	13.6

AFTER-HISTORIES OF THE OPERATION CASES.

The 132 cases dealt with in the above table include 90 cases in which the after-histories were given, 13 cases in which the after-histories consisted only of statements that the patients were in good health at some specified times after operation, and 29 cases in which no after-history was given. For the preparation of the after-history statistics the 90 cases only are employed.

TABLE VI.—*Pain or Other Discomfort after Food.*
(Information on these points was given in 70 cases.)

	No. of Cases.	Percentage.
No pain or discomfort	48	68.6
Occasional slight pain or discomfort	14	20.0
Temporary pain or discomfort (in most cases soon after operation)	6	8.6
Severe pain or discomfort	2	2.8

Diarrhoea.—Slight diarrhoea occurred in one case out of the 90—that is, in 1.1 per cent.

Constipation.—Slight constipation occurred in 14 cases out of the 90—that is, in 15.5 per cent.

TABLE VII.—*Food Able to be Taken.*
(Information as to diet was given in the 70 cases.)

	No. of Cases.	Percentage.
Full diet	74	82.2
Certain articles of diet avoided	16	17.8

A rather higher percentage of patients were able to take full diet than among the cases of non-perforated duodenal and pyloric ulcers.

TABLE VIII.—*Time of Return to Work after Operation.*
(Information on this point was given in 68 cases.)

Time of Return to Work.	No. of Cases.	Percentage.
1 to 2 months	25	36.7
2 to 3 ,,	19	28.0
3 to 4 ,,	7	10.3
4 to 6 ,,	14	20.6
Over 6 ,,	3	4.4

This table shows that 64.7 per cent. returned to work within three months from the date of the operation. With regard to those that did not return to work till after the three months, the reasons given in the majority of the cases were that there was no immediate necessity for return, or that work was not available at the time. The corresponding figures among the non-perforated ulcers of return to work within three months were 73.1 per cent. among the duodenal ulcers, and 80.7 per cent. among the pyloric ulcers.

TABLE IX.—*Work Capacity.*
(Information on this point was given in 68 cases.)

Work Capacity.	No. of Cases.	Percentage.
Full work	62	91.2
Light work	6	8.8

The corresponding figures among the non-perforated ulcers of return to full work were 94 per cent. among the duodenal ulcers, and 90.7 per cent. among the pyloric ulcers.

TABLE X.—*Weight after Operation.*
(Information on this point was given in 70 cases.)

Weight.	No. of Cases.	Percentage.
Gained	41	58.6
Constant	23	32.8
Lost	6	8.6

TABLE XI.—*Condition of Health and Well-being after Operation.*
(Information on this point was given in 70 cases.)

Health.	No. of Cases.	Percentage.
General improvement of health	61	87.1
Fair improvement of health	9	12.9

As regards the condition of health after operation there is only a slight difference as compared with the non-perforated ulcers.

TABLE XII.—*Number of Years after Operation during which Patients were under Observation, or during which Reliable Information was Obtained.*
(Definite information on this point was given in 70 cases.)

Years under observation.	No. of Cases.	Percentage.
3 to 4 years	13	18.6
4 to 5 ,,	13	18.6
5 to 6 ,,	18	25.7
6 to 7 ,,	17	24.3
7 to 8 ,,	9	12.8

This table shows that 81 per cent. of the patients were under reliable observation for periods ranging from four to eight years.

Classification of Results.

The classification adopted is the same as that used in connexion with duodenal and pyloric ulcers in Parts I and II.

TABLE XIII.—*Classification of Results.*
(The results returned enabled this classification to be made in 70 cases.)

Classification.	No. of Cases.	Percentage.
Very good	52	74.3
Good	10	14.3
Fair	8	11.4

From this table it will be seen that the late results of the operation were very satisfactory in 88.6 per cent. of the cases. The corresponding figures among the non-perforated ulcers were 89.5 per cent. among the duodenal ulcers, and 82.5 per cent. among the pyloric ulcers.

Secondary Gastro-jejunal Ulcer.

Only one case, that of a male 39 years of age, occurred in the whole series, the symptoms starting two to three years after the gastro-enterostomy operation. The gastro-jejunal ulcer was found perforated, the perforation was closed, and good recovery resulted.

Second Operations Required for Intercurrent Lesions.

Three of these operations—that is, 3.3 per cent.—were required among the 90 cases in which after-histories were given. All the cases were between 40 and 50 years of age. Particulars of the individual cases are given.

1. Symptoms (not given) occurred one and a half years after the first operation from inadequate stoma. Repair of stoma and jejunostomy done. Recovery.
2. Intestinal obstruction occurred three years after the first operation from kinking of anastomosis. Old gastro-enterostomy undone to allow reduction of displaced small intestine, and fresh gastro-enterostomy performed. Recovery.
3. Symptoms (not given) occurred six years after the first operation from inadequate stoma. Enlargement of stoma done. Recovery.

Secondary Haemorrhage.

Only one case, that of a male 25 years of age, occurred in the whole series, haematemesis and melaena starting six years after the gastro-enterostomy operation. Rest and medical treatment were employed, and good recovery resulted.

Analysis of the Post-operative Mortality.

The number of post-operative deaths out of the 132 cases was 18—that is, 13.6 per cent.

SEX.—Of the deaths, 17 occurred among males.

TABLE XIV.—*Age Incidence of Deaths.*

Age.	Percentage of Deaths.
20-30 years	11
30-40 ,, ...	22
40-50 ,, ...	33
50-60 ,, ...	6
60-70	28

TABLE XV.—*Time of Occurrence of Death after Operation.*

Time.	Percentage.
1-6 days	50
7-14 ,, ...	17
2-3 weeks	17
7-8 ,, ...	11
Not stated	5

Among the 18 cases haemorrhage occurred as a symptom prior to operation in 11 per cent. of the cases. It would therefore appear, as in the cases of the non-perforated duodenal and pyloric ulcers, that the risk of a fatal post-operative result is not increased by the occurrence of haemorrhage prior to the operation.

TABLE XVI.—*Cause of Death.*

Cause of Death.	No. of Cases.
Shock	5
Peritonitis	5
Haemorrhage	2
Pneumonia	1
Pyaemia	1
Cause not stated	4

Carcinoma Developing at the Site of Ulcer.—No case was reported in the whole series.

BRIEF SUMMARY OF RESULTS.

Perforation occurs much more frequently in males than in females.

The age incidence of perforation roughly corresponds with the age incidence of the occurrence of ulcers.

About 65 per cent. of the cases returned to full work within three months of the date of the operation.

The results of the operation were satisfactory in about 89 per cent. of the cases that survived.

The post-operative mortality was 13.6 per cent., the mortality being highest in patients from 30 to 50 years of age. One-half of the deaths occurred within seven days of the date of operation.

No case of carcinoma developing at the site of an ulcer was reported in the whole series.

England and Wales.

Public Health and the Local Government Act.

IN a Chadwick public lecture on public health law and administration introduced by the Local Government Act, 1929, Mr. William A. Robson, Ph.D., LL.M., said that this Act was introduced primarily as a financial measure intended to relieve the burden of rates on industry. It was clear, however, that the public health aspects of the Act were of the greatest importance, although many of them did not receive adequate attention when the bill was passing through Parliament. Abolition of the boards of guardians and the transfer of their functions to the general local authorities was accompanied by a provision which enabled county and county borough councils to provide assistance under a number of social service statutes in place of relief under the Poor Law. Where this was taken advantage of as regards sick persons the great Poor Law hospitals and infirmaries would be transformed into municipal general hospitals for the use of the whole body of citizens. Thus, almost by a side-wind, the whole hospital question would be radically changed both as regards law and administration. At the same time, the Act provided for a survey of the existing provision of infectious disease hospitals, and stringent means were taken to compel the formulation and carrying out of schemes to secure "adequate hospital accommodation" for infectious disease. The so-called "Onslow clauses" of the Act contemplated an extensive reorganization of areas and the elimination of authorities unfit or unwilling to carry out the duties. Public health questions were the chief consideration which led to the passing of this part of the Act, and local authorities unable to provide the sanitary services *needed for* the "ordinary requirements for the general community" might be regarded as doomed to extinction. A most important series of changes was introduced in the group of services affecting maternity and child welfare. For the first time local authorities were permitted to provide places "for the reception of pregnant women," this modifying a decision of the courts that pregnancy could not be regarded as sickness. The duties imposed under the Children Act were henceforward to be carried out by *authorities responsible* for maternity and child welfare, and lack of *co-ordination* between the school medical service and maternity and child welfare authorities was to be *rectified*. The registration service, which Chadwick placed for the first time on a sound legislative basis, was to be associated

from the Poor Law and brought into a more organic relation with the public health system. Most important of all, the public health service would in future be manned only by full-time medical officers. All these far-reaching changes were reforms on which the local authorities, the medical profession, and the general community might congratulate themselves. The danger spot in the Act, so far as public health was concerned, lay in the financial provisions. But the public health service was now of such vital importance that no legal or administrative provision would be permitted to endure which did not yield beneficial results in terms of life and health.

Vocational Guidance.

At a recent meeting of the London Association of the Medical Women's Federation, with Miss F. M. Huxley in the chair, an address on vocational guidance was given by Professor Winifred Cullis. She gave an account of the establishment of the National Institute of Industrial Psychology, which grew out of the Fatigue Research Committee constituted during the war, and showed how valuable the institute was proving at the present time, demonstrating the importance of the psychological factor in industry, and its application to the workers in individual firms. The work done by the institute was paid work, but no profit was made, for the balance was used for research. Its advice had been sought for various reasons—because of lessened output and, on behalf of a firm of caterers, because of excessive breakages by the workers. By the correction of details of little apparent importance in routine work, and by skilled observation of the workers, most dramatic improvements had been effected. As a natural outcome of this work help was given to individuals in vocational selection, and tests had been devised which would show whether a prospective worker had a special aptitude for a given type of work. This was of great value, for otherwise haphazard and unscientific methods of selecting workers were employed. Vocational selection tests would show only whether a person was fitted for one particular type of occupation. The system had now been extended to embrace a scheme whereby an all-round examination would test both the innate intelligence and those qualities which could not be tested by a written examination, but the assessment of which was of great importance in determining the most appropriate type of occupation for a particular person. Experimental work on a large scale had been done on a group of elementary school children. Two hundred children leaving school were chosen. One hundred of these were tested and advised as to the type of occupation in which they would do best. Wherever possible these children took up the suggested work. The other hundred were not tested, and did not take up selected work. At the end of two years it was found that the children in the guided group had changed their occupation on an average twice, and those in the unguided group four times. The average wage in the guided group was considerably higher than in the other. A further group of six hundred children was now being investigated. The ages at which the tests were found to be of most practical use were from 16 to 18. In illustration of the value of vocational guidance tests Professor Cullis quoted recent examples of many people who had come to the institute for help in the choice of a career. Workers could be divided into "sprinters" and "stayers," and it was important to find the type of work for which each was suited. By making a more extensive use of vocational guidance tests she was convinced that there would be fewer round pegs in square holes, and the sum of the world's happiness would be appreciably increased.

The Home Ambulance Service.

In its report for the three months ending September 30th, the home service ambulance committee of the Joint Order of the Council of the Order of St. John of Jerusalem and the British Red Cross Society emphasizes the financial difficulties inevitably associated with its commendable activities. The committee possesses at the moment 268 ambulance stations in the country, and seventy-six other stations are affiliated to it, the total being 344. The number of sick and injured persons carried during the quarter under review was over 29,000; in spite of the fact that the committee has now rather fewer ambulances, several having been taken over by other agencies, there is but little reduction in the work, the average number of invalids carried in an ambulance during the year showing a continued increase. It is pointed out in the report that the fees recoverable in respect of carrying these patients do not suffice to meet the cost of running the ambulance and providing for its replacement when worn out. Efforts have therefore to be made repeatedly to raise additional funds by such means as weekly contributory schemes, house-to-house collections, whist drives, bazaars, and flag days. Attention has previously been called in our columns to the close relationship which has to be maintained by this ambulance service with the police, and also the additional work thrown upon it by street accidents. Several of these ambulance units have accepted the additional responsibility of dealing with such accidents, and have incurred another liability also by arranging for road patrols and the installation of first-aid boxes in roadside huts. In view of the devotion and public spirit shown by those who so willingly sacrifice much of their leisure in order to perform voluntarily one of the most valuable social services of the day, it is to be hoped that a greater measure of financial support will be forthcoming in the future from the general public.

Courses at the Maudsley Hospital.

The spring post-graduate courses at the Maudsley Hospital, London, will begin on January 7th, 1930, and comprise the physiology and anatomy of the nervous system, and psychology. The various lectures and demonstrations will be held in the afternoons of certain days in the week, commencing at 2.30, with the exception of the biochemical lectures and demonstrations, which will start at 4 o'clock. Dr. F. L. Golla will deliver twelve lectures on the physiology of the nervous system, and four lectures and demonstrations on physiological psychology. The biochemical aspects of mental disorders will be discussed in four lectures and demonstrations by Mr. S. A. Mann. Twelve lectures will be delivered by Professor G. Elliot Smith on the anatomy of the nervous system, and practical instruction, with demonstrations, will be provided by Mr. Charles Geary. A course of eight lectures on psychology will be held by Dr. Henry Devine, and subsequently there will be a course of practical instruction. The second part of the spring course will occupy the months of March, April, and May, and will include eight lectures on the psychoneuroses by Dr. Bernard Hart; twelve lectures on morbid psychology, by Dr. Edward Mapother; four lectures on the pathology of mental diseases, by Dr. Golla; and four demonstrations in pathological anatomy, by Mr. Charles Geary. Sir Hubert Bond will discuss the legal relations of insanity and treatment in four lectures, and Dr. F. C. Shrubsall will devote six lectures to the practical aspect of mental deficiency. Six lectures on crime and insanity will be given by Dr. W. Norwood East, and three lectures on therapeutics by Dr. A. A. W. Petrie. In connexion with this course Dr. Edward Mapother will give six demonstrations in clinical psychiatry, while twelve clinical demonstrations in neurology will be arranged by Drs. F. L. Golla and F. M. R. Walshe. Mr. R. Foster Moore will devote two lectures to abnormalities of the fundus oculi, and Mr. Mann will give two demonstrations of laboratory methods. Further information about this course may be obtained from the director of the Central Pathological Laboratory, Maudsley Hospital, Denmark Hill, S.E.5.

"Cancer Annexe" at Westminster Hospital.

Among the hospitals which are making special provision for cancer patients is the Westminster Hospital, close to the Houses of Parliament. This hospital has been one of the pioneers in the radium treatment of cancer, and recently was entrusted by the National Radium Commission with a 4-gram "bomb" of radium for mass irradiation. Some months ago the governors prepared plans for a separate radium annexe in order that their responsibilities with regard to this possession might be more adequately discharged. The annexe is to be a complete and self-contained radium hospital, with beds which, it is estimated, will accommodate annually 500 patients of all

classes. The cost of maintenance will add nearly £5,000 a year to the annual expenditure, and there is a deficit of £9,000 in the fund required for the initial equipment. On account of this grave financial position, the house committee has been compelled to suspend certain of its plans. A scheme has been evolved whereby one thousand founders may be created, each by a donation of not less than £10 or an annual subscription of two guineas. The names of these founders will be permanently recorded on the annexe, with H.R.H. The Prince of Wales heading the list. The Speaker of the House of Commons is appealing on behalf of this effort, for the hospital has long had very close association with Parliament; and many cases of sudden illness in the House have been treated there.

Scotland.

Edinburgh Hospital Problems.

At the general meeting of the League of Subscribers to the Royal Infirmary of Edinburgh, held on December 3rd, Sir David Wallace made a statement about the present hospital accommodation. He pointed out that on November 1st the number of patients waiting for admission to this institution was 3,009, an increase of 559 over the figure at the same period of last year. He explained that the list was not so formidable as it appeared, and that no urgent case would ever be refused admission. The board of managers valued immensely the work done by the League of Subscribers, whom he congratulated upon the increase of subscriptions in the past year. The infirmary had dealt with a larger number of patients than in any previous year, the total treated in the wards being over 19,800, of whom 4,700 were medical cases and 14,200 surgical. The total of 67,623 out-patients showed an increase of 5,538 over the number in the preceding year. The financial position was gratifying, the total ordinary income having been £114,896 and the extraordinary income £139,382, a total of £254,278. The ordinary expenditure had been £143,684 and extraordinary expenditure £18,612, a total of £162,256, leaving a credit balance with the general fund of £91,982. Ten years ago the in-patients had numbered 12,499, of whom 4,056 were medical cases and 8,443 surgical. The medical cases were therefore practically the same in number now, while surgical cases had increased by 6,000. One explanation of this increase was that in contrast to the unwillingness of patients some years ago to go to hospital for operations, practically every patient who was to be operated on now wished to have this done in hospital. With regard to the waiting list, of the 3,000 cases 516 awaited admission to the ear and throat department because there was at the present time apparently a desire for tonsils and adenoids to be removed at an early stage. About three years ago this department had been enlarged, and the managers had then made a ruling that until the list was cleared off the extra beds were to be used for country cases only. As a result, within a year the list was cleared off, and he believed that the present large waiting list could be diminished as the last one had been. In general, cases put on the waiting list were those in which delay was not harmful to the patient, but, owing to the pressure of emergency cases, they were liable to be kept waiting for an unduly long time. The Astley-Ainslie Institute, which at present had 98 beds available and by springtime would have 34 further beds, would ease the situation to some extent. A proposal was now under consideration for the establishment of a radium institute, which would supply 36 beds. It was proposed to use for this purpose Beechmount, a property belonging to the infirmary in the out-skirts of Edinburgh, and this would be an integral part of the infirmary and ease the situation of the waiting list. The Edinburgh Royal Infirmary had recently been selected as the institution for the first radium institute in Scotland. The infirmary hoped to gain yet further relief in the matter of accommodation by the establishment of the hospital for cripples, which was in process of erection at Fairmilehead. It was hoped that the regional committee of the south-eastern area of Scotland which had been formed would be in intimate association with the new public health authorities that would come into being under the operation of the new Local Government Act in 1930, and also that by co-ordination and co-operation between hospitals, both voluntary and public, more rapid admission and more efficacious treatment of patients would be effected. Sir David Wallace was convinced, however, that any injury—mental or physical—to the patients on the waiting list was much less than might be supposed. Referring to motor accidents, he said that during the past year 443 such patients had been treated at a cost to the infirmary of £3,223. A report by Mr. Russell-Patan, organizing secretary of the League of Subscribers, stated that a total of £21,564 had been gathered from 1,410 groups of league subscribers in small sums. Of this total, Edinburgh was responsible for £15,942, while country district had subscribed £5,622.

The Causes of Mental Disease.

An address was delivered, as one of the Combe Trust public health lectures, by Dr. W. R. D. Fairbairn in Edinburgh on November 27th. The lecturer pointed out that, dating from the appointment of Pinel as physician to the Bicêtre Asylum in Paris in 1792, the attitude of society towards the insane had undergone a marked change. Till that time the insane were kept in confinement under indescribable conditions, but Pinel was original enough to regard them as patients requiring medical treatment instead of as criminals. During the nineteenth century, further, the scientific study of insanity had originated, and the progress of medical science influenced the attitude of society towards the insane. The original conception of insanity had been attributed to possession by evil spirits, and, except among certain enlightened thinkers, such as Hippocrates, the demoniacal explanation remained current during the Christian era until the rise of modern scientific medicine. This change had been reinforced by the study of the nervous system, which revealed a close connexion between mental states and brain processes. Psychiatry had gradually been developed during the nineteenth century upon the basis that mental disease was essentially a disease of the brain, caused by such agencies as toxins. Undoubtedly certain mental diseases had been definitely established upon a physical basis—for example, general paralysis of the insane—but there were other forms of insanity for which this did not hold true. There had gradually arisen in recent years a movement to substitute in such cases a psychological for a physical interpretation, and it was coming to be recognized that mental disease might arise from purely mental causes. The importance of the psychological interpretation of mental disease lay in the possibility this provided for preventing its onset. Tendencies which became subject to repression first manifested themselves in childhood, and the prevention of mental disease therefore depended to a great extent upon the enlightenment of parents and educators.

Chemistry in Daily Life.

The progress which is being made on the human side of chemistry was outlined at the opening meeting of the Pharmaceutical Society of Great Britain in Edinburgh on November 22nd, by Professor James B. Kendall, who was recently appointed to the chair of chemistry in the University of Edinburgh. Mr. Charles Simpson, chairman of the executive of the North British branch of the Pharmaceutical Society, presided. Professor Kendall said that our commercial prosperity, as well as much of our health and comfort, depended upon the application of chemistry to problems presented by dye stuffs, fertilizers, artificial silk, fuel conservation, new alloys, synthetic rubber, and many other household necessities. The public required to be educated about the significance of chemistry in daily life. The Tyrian purple of the ancients was now supplanted by a synthetic dye of identical composition, but with the bromine atoms at different points in the molecule. A natural drug like cocaine was replaced by a synthetic product like novocain, which possessed all the desirable and none of the undesirable properties of the original, merely by shifting certain groups from the molecule and inserting others. In artificial silk or rayon the

chemist had provided the feminine part of the world with a material which was much cheaper than natural silk and much more attractive than cotton. The most rapid progress in chemistry, however, at present was being made upon the boundary between chemistry and medicine. Mention might be made, in particular, of the work of Dr. F. B. Power of the Wellcome Research Laboratories on the constituents of chaulmoogra seeds and chaulmoogric acid, which laid the foundation upon which the present-day treatment of leprosy rested. Chemotherapy, or the destruction of invading germs through the administration of chemicals, had been described as the hope of mankind, and specifics against sleeping sickness, malaria, and general paralysis were now rapidly cutting down the mortality due to these diseases, while promising preliminary results were being obtained against pneumonia and tuberculosis. The common cold remained one of the perplexing problems, and Mr. Francis P. Garvan, an American philanthropist, had donated a large sum of money to Johns Hopkins University for intensive study of its prevention and cure. This chemical foundation had recently issued a remarkable volume entitled *Chemistry in Medicine*, which discussed the possibilities of advance in medical science through further co-operation between the chemist and the physician. If some similar effort could be made in this country the community would gain a clearer understanding of the chemist, and would appreciate more fully the human side of chemistry.

Services of Zoology to the Community.

Professor J. H. Ashworth, D.Sc., F.R.S., in a recent address to the Edinburgh Rotary Club, dealt with the practical applications of zoology. He mentioned that every year more than 300 students and graduates passed through this department of Edinburgh University, of which he is the head. Every student of medicine attended a course of zoology in his first year, and this was of great value as giving him a trained outlook on the living organism. Medical graduates to the number of about forty every year received instruction in entomology and parasitology in connexion with tropical medicine. The lecturer pointed out that new knowledge had robbed plague of its powers, for though there would still be outbreaks, they could be circumscribed through the knowledge that was now available regarding the structure and biology of the plague-flea. In regard to food supply, research work on sea fisheries had been of the greatest importance. Research was now being directed to the life-history of diatoms which formed the food of crustacea, which in turn formed the food of fish, while these were an important part of the food supply of man. An example of the direct service rendered to the community by zoology was found locally in a problem of the Edinburgh Electricity Generating Station, where the entry and growth of mussels in three large tunnels which conducted water for condensing purposes from and to the sea, tended to block these up in a short time. The mussels invaded the tunnels in the larva stage and chemical measures were too expensive for their destruction. Finally it was found that a current of water heated to 90° F. from the condensers passed down each tunnel for twelve hours once in four weeks during the breeding season of mussels, proved entirely effective in preventing their growth.

An Ancient Aberdeen Practitioner.

At a recent meeting of the Edinburgh Bibliographical Society Mr. Walter B. Menzies, librarian, Marischal College, Aberdeen, delivered a lecture upon Alexander Read, physician and surgeon, 1580–1641. Read was a graduate of Aberdeen University who studied medicine in France, practised in various places, and eventually settled in London. Between the years 1632 and 1634 he lectured every Tuesday on anatomy and surgery in the Barber-Surgeons Hall. He published his lectures in book form, and when he died in 1641 bequeathed his library to Marischal College. Aberdeen University accordingly possessed a typical library of a practising surgeon in the time of James I and Charles I. Read had apparently kept himself well up to date, and possessed such books as William Harvey's *Exercitatio Anatomica de Motu Cordis* of 1628, and the *Animadversions* on the same by Dr. James Primrose in 1630. These were underlined throughout in faded red ink, and had Read's neatly written marginal notes. There were in his collection five volumes of Daniel Sennertus, an authority who had been the first to introduce chemistry as a subject of the medical curriculum. The library also contained a copy of the alchemical works of Andreas Libavius, Frankfurt, 1606, the foremost scholar of the day in that science. Read's *Treatise on Wounds* and other works had been very popular in the civil war, and had been republished when the country was once more at peace.

Ireland.

Promotion in Free State Mental Hospitals.

At the last meeting of the committee of the Clonmel Mental Hospital a letter was read from the Minister of Local Government and Public Health in reference to the recent promotion of Dr. Fitzgerald to the position of resident medical superintendent, in place of the late Dr. Harvey, stating that the appointment was not one to which the provisions of Section 5 of the Local Authorities (Officers and Employees) Act of 1926 could with advantage be applied. The Minister was not prepared to alter his decision in the matter, and suggested that the committee should request the Local Appointments Commissioners to recommend a suitable person for the position. After the discussion, in which the action of the Minister was strongly criticized, the committee unanimously agreed to adhere to its previous decision in appointing Dr. Fitzgerald, and to send a deputation to interview the Minister in the matter. A similar letter from the Department of Local Government and Public Health has been received by the committee of the Sligo and Leitrim Mental Hospital, which had also appointed, by promotion, its assistant resident medical superintendent to fill the higher office. It appears that the Minister is in favour of the Appointments Commissioners making the selection from all resident medical superintendents in the *Free State Medical Register* who are qualified for the office, and not limiting it to the promotion of the assistant medical superintendent of the mental hospital in which the vacancy exists. This decision on the part of the Minister, however, seems inconsistent with his limitation of promotion of medical officers under health boards to the county in which the vacancy occurs.

Abuse of Dispensary Tickets.

At a recent meeting of the County Wexford health board, a letter was read from the Local Government and Public Health Department with reference to the issue of dispensary tickets in New Ross. The letter stated that according to Dr. Sterling Berry, medical inspector, the majority of the tickets issued have been for persons residing in the New Ross urban district, where there are thirteen wardens, two members of the Board of Health, and a home assistance officer empowered to issue tickets. The population of the dispensary district is approximately 8,000, of which about 5,000 are resident in the urban area. The number of tickets issued during the half-year ended March 31st, 1929, was 1,495, including 567 visiting tickets. For the half-year ended September 30th, 1929, the number was 1,232, and of these 313 were visiting tickets. This gives a total issue of 2,727 tickets for the year, and it is estimated that over 2,000 of these were presented by residents in the urban area. Compared with other districts, the number of tickets issued in the New Ross urban district is abnormal. When checking the register, the inspector observed that visiting tickets appeared to have been given in many cases when, from the ailments from which the recipients suffered, it was quite evident that tickets for attendance at the dispensary would have sufficed. The Minister is of the opinion that tickets are very carelessly issued by some of the New Ross wardens, and he approves of the attitude of the board that due care should be exercised by wardens and others in the issue of tickets for medical relief.

Lurgan Union, Northern Ireland.

At a recent meeting of the Lurgan Board of Guardians a letter was read from the Northern Ireland Ministry with regard to the guardians' proposal to increase the salary of Dr. May, senior visiting physician to the infirmary, from £185 to £350 per year, stating that, in view of the impending conversion of the Lurgan workhouse into a district hospital, it was an unsuitable time to make any permanent alterations in the salaries of the officers connected with the workhouse. There was justification, however, for sanctioning a bonus to Dr. May of £65 from November 1st. The guardians accepted this decision.

Correspondence.

THE HARVEY MEMORIAL TOWER.

SIR,—As one who brought the subject of the ruined tower of Hempstead Church to the notice of the Royal College of Physicians some five years ago, I beg to thank you for the account and illustrations in your issue of December 7th (p. 1072), which faithfully depict the desolation; and as an old member I wish to support the suggestion of Dr. Grabham that the British Medical Association should take a part in raising funds for the rebuilding. Mr. Hope Grant, temporarily suppressing a generous impulse, made the same suggestion in 1925,[1] but nothing came of it then. Dr. H. Reynolds Brown[2] collected 5s. from each of his colleagues practising at Maldon, Essex, and sent the sum to the treasurer; I suggest that his method is worthy of extensive imitation.

The reconstituted committee purpose to appoint local secretaries to collect funds. I have been appointed local secretary for University College Hospital, and I am happy to report that I have already collected from nearly every member (and hope finally from *every* member) of the staff of the hospital a contribution amounting in all to over £90. Personal application is the effective means of getting contributions. I have been agreeably surprised at the readiness with which the medical purse is opened on personal application on behalf of a noble cause. Half a crown from *every member of the profession*, a crown from half the members, will give us the sum required. The fund increases slowly; it has been *even suggested* by defeatists that it be closed. No, Sir, when we are hard driven we attack, we shell out. I ask members of the Association to bombard the honorary secretary, Dr. Arnold Stott, 58, Harley Street, W., with their five-shilling pieces. Your broadside, Sir, like Captain Harvey's at Trafalgar, will help us to victory.—I am, etc.,

London, Dec 8th HERBERT R. SPENCER.

THE BEGINNING OF THYROID THERAPY.

SIR,—A case of pronounced and typical *myxoedema*, which I treated by finely minced fresh thyroid gland made up in a sandwich was one of the first to be treated by oral administration of this gland. The treatment began on October 22nd, 1892; eighteen days later all the features and symptoms of myxoedema had disappeared, and were replaced by hyperthyroidism, with a pulse rate about 130. Fortunately one soon recognized that the seemingly innocent bits of raw gland were potent, and abatement of treatment had only a fortunate result. *Subsequently*, with the help of thyroid gland therapy, the patient lived in good health for many years, dying about six years ago from other causes. This was probably the record in *rapid "cure"* of myxoedema, and one not to be repeated. At that time it was necessary to go personally to the butchers and remove the glands from the sheep immediately after slaughter. Shortly after this *an extract for injection* was prepared from these glands by Mr. Kilner, the dispenser to the Bristol Royal Infirmary, as stated in my article in the *Medical Annual*, 1892 (p. 399), where my case is recorded.

Professor George Murray's letter in your issue of November 30th (p. 1030) recalls his case of myxoedema recorded in the *British Medical Journal* on October 10th, 1891; his was the first case to be treated by injections of the extract of the fresh gland. But neither Professor Murray's case nor my own represents the beginnings of thyroid therapy. We must give credit to Victor Horsley for suggesting the transplantation of a portion of the thyroid gland of a *sheep into the peritoneal cavity*, and to M. Lannelongue, who carried this suggestion into practice (*Le Progrès Méd.*, 1890, p. 209, cited by me in the *Medical Annual*, 1891, p. 333); *shortly afterwards* other cases were recorded by E. Hurry Fenwick and others. Hence the essential interest in Professor Murray's and my own cases lay in the administration of gland extract or tissue as an alternative to transplantation.

It may not be out of place to state that a little later,[1] in the hope of affording a diabetic patient the benefit of the internal secretion of the "islets"—that is, "insulin" as we know it to-day—I tried transplanting fresh removed pancreas, because, unlike what had happened in myxoedema, feeding with the corresponding raw gland had conferred no benefit on such cases. The surgeon, Mr. Harsant, took every precaution to ensure success, but the grafting process failed. Nowadays, when insulin and thyroid gland therapy have become general knowledge, the difficulties of earlier days are soon forgotten, but they are not without some historic interest.—I *am*, etc.,

Clifton, Bristol, Dec 3rd. PATRICK WATSON-WILLIAMS.

THE GLUCOSE TREATMENT OF ASTHMA.

SIR,—It is with diffidence that I write on the big subject of asthma; but to prevent enthusiasts being disappointed by a recently formulated line of treatment, *I should like to* indicate a simple clinical test which will enable the observer to select the cases suitable for the treatment of asthma with glucose.

In the correspondence columns of the *British Medical Journal* on January 31st, 1925 (p. 240), I gave, in a communication entitled "Acidosis and acetonaemia in relation to sea-sickness," a simple test for acetonuria, indicated the association of acidosis with intractable cases of sea-sickness, air-sickness, cyclic vomiting, and car-sickness, and concluded with a brief for the treatment of these conditions with glucose. The test is performed with one drop of urine saturated with a crystal of common washing soda on *a piece of notepaper, and a capillary tube containing* powdered sodium nitro-prusside and ammonium chloride (put up by Fletcher and Fletcher of Holloway, N.). The saturated drop of urine runs up the tube by capillary attraction, and if acetone bodies are present the reagent soon becomes amethyst and then petunia in colour; if acetone is absent the straw colour persists. This test does not appear to have any fallacies, and is a simple bedside procedure, avoiding the necessity of having urines sent to the surgery for examination, and the extra work involved in performing clinical tests after the long daily round of common tasks.

When at sea with the Eastern Mediterranean Squadron in 1917, I noticed that a number of previously intractable cases of sea-sickness were associated with acetonuria, and that some of the ratings concerned gave a positive test for acetone before putting to sea. These *patients* were definitely improved by large doses of glucose, and expressed "wonderful relief" when the urine became acetone-free.

A routine bedside examination for positive *acetonuria* in the case of all asthmatic patients will help the observer to pick out those who are suitable for *treatment with* glucose. The performance of this bedside test among all *my patients for the past ten years* has revealed acetonuria in many unsuspected places, but for the most part, excluding cases of tonsillitis, pneumonia, and acute fevers, where it is always present, *inborn errors of metabolism and* nervous control, associated with cyclic vomiting, car-sickness, migraine, asthma, and acute gout, stand out prominently. Massive doses of glucose appear to relieve these conditions and render the urine acetone-free, as *demonstrated* by the capillary tube, which has at first a petunia colour, becoming amethyst, and finally straw-coloured, in a series of tests at intervals of several hours. Since 1915, when I first noted the association of *acetonuria with air-*

[1] *British Medical Journal*, 1925, i, p. 905.
[2] Ibid., 1925, i, p. 1061.

[1] *British Medical Journal*, 1894.

sickness and migraine, and subsequently the relief of these and allied conditions by administering glucose, the problem has afforded me an interesting subject for investigation.

In conclusion, I wish to disclaim any originality in the practice of this line of treatment.—I am, etc.,

Midhurst, Sussex, Dec. 2nd. MARSTADUKE FAWKES.

"ACTIVATED" FLUORESCEIN IN THE TREATMENT OF CANCER.

SIR,—With reference to the letter which appeared in the *Journal* of November 23rd (p. 983) from Dr. Webster regarding our fluorescein treatment, I may mention that when Dr. Webster's first letter was published on August 24th (p. 367) I doubted whether to answer it. With all the material available at the Middlesex Hospital he apparently had not put the matter to the practical test before launching his criticism, which, however helpful it might be theoretically, does not seem a convincing way of proving his case. A hint was given in Dr. Copeman's letter of November 16th (p. 929), and now we have the confession that Dr. Webster did treat one case for Mr. C. H. S. Webb, which I happen to know was a deep-seated growth; for this type of case we do not claim any better result, though certainly no worse, than that which has followed the use of the old method of so-called "deep therapy."

As regards his criticism of my dosage, I am really amazed—the proper way of measuring a dose is the erythema dose on the skin, which is 1 Sabouraud B. I have found after years of treatment, whether with fluorescein or without, that it is quite easy to give three three-quarter doses in three weeks without any harmful effects, providing a sufficient interval is allowed for the skin to recover. Dr. Webster is quite right in stating that this means a 5-pastille dose at half distance, or even a 6½-pastille dose at one-third distance; but what has this to do with the matter? The skin is not suspended in the air away from the body. All we are claiming at present is better results on superficial cancers of a certain type—namely, breast carcinomata—than has hitherto been possible. When Dr. Webster has repeated our original experiment and has used our technique over any ordinary breast case, I shall pay attention to his conclusions. The really interesting point is that our claims can be decided, and I hope they will be, by any hospital, large or small, possessing any ordinary up-to-date *x*-ray installation; it is not necessary to employ special expensive machinery, such as that used by Dr. Webster and others in the so-called "deep therapy" (modified Erlanger treatment), which unfortunately has not proved quite so successful as we all had hoped it would be. Until, therefore, Dr. Webster reports that he has had failures in the type of case already stated, and has also closely followed our technique, there does not seem any use in continuing this correspondence.—I am, etc.,

CLAUDE GOULDSBROUGH,

November 29th Senior Radiologist, Royal Northern Hospital

REVOCABLE STERILIZATION OF THE FEMALE.

SIR,—In his letter (November 30th, p. 1031) Dr. G. L. Johnson asserts that temporary sterilization of the female may be obtained by dislocating the fimbriated ends of the Fallopian tubes, and tying them out of the way so that the ova drop harmlessly into the peritoneal cavity. It is difficult to see how this view can be maintained in face of the fact that there are many cases on record where an ovary has been removed on one side of the body and a Fallopian tube removed on the *other* side, and yet the ovum from one side of the body has found its way across the abdominal cavity to the opposite Fallopian tube and has become fertilized. This fact would seem to dispose of the supposition that keeping the fimbriated ends of the tubes away from the ovaries is sufficient to ensure sterility.

The method described by Grafenberg for use in cases where the medical attendant has decided that temporary sterilization is indicated, is much simpler and more efficient. A flexible ring of coiled silver wire (diameter 2–3 cm.) is introduced into the uterine cavity so that it lies wholly above the internal os. It is usually removed, and if necessary replaced, after a year. After its removal the woman is just as liable to conceive as if the ring had never been used. This apparatus, which is really intra-uterine, is not to be confused with the many so-called intrauterine (really intracervical) pessaries, which keep open a path from the septic vagina to the non-septic uterus, and are therefore dangerous.

A Russian observer, Retschnensky, believes that the silver ring alters the hydrogen-ion concentration in the uterus and so acts as a spermaticide; others suggest that it brings about infertility through changing the surface tension in the uterus. Gräfenberg points out that, even if the ovum were fertilized, embedding could not occur, since the ring sets up a *non-inflammatory* hypertrophy of the mucous membrane, which renders it incapable of acting as a nidus.

Gräfenberg has inserted the ring in 1,100 cases during the last ten years, and has watched many of the patients regularly during the whole of that time, without seeing a case of failure. His experience is corroborated by many other German and Russian investigators. My own knowledge is limited to 100 cases, but so far I have seen no reason to doubt that this method gives complete immunity against impregnation.

The insertion and removal of the ring calls for no greater skill than does the simple operation of curettage. An anaesthetic is seldom necessary, for very little dilatation usually suffices for the insertion of the ring, which is compressed in a special introducing instrument. The procedure appears to be harmless in the absence of genital infection, provided it is carried out with strict aseptic precautions. The absence of harmful irritative effects is apparently due to the fact that the uterine mucosa (unlike other mucous membranes) is cast off at each menstrual period. The value of the method lies in the fact that its reliability depends on the skill of the medical attendant, and not (as in most other contraceptives) on the skill or care of the patient.—I am, etc.,

London, W.1, Nov. 30th. NORMAN HAIRE.

TREATMENT OF GASTRIC AND DUODENAL ULCER.

SIR,—Apropos a letter appearing in the *Journal* of November 23rd (p. 984) from Dr. Wood Locket discussing the use of the duodenal tube in the treatment of chronic gastric ulcer, I should like to make a few remarks. I have only employed this procedure once, and I experienced the same gratifying result. Dr. Ernest Young (*Practitioner*, April, 1928) called my attention to the method, which he states is employed frequently in America and seldom in this country. Now it seems to me that patients here will not stand for it; some will co-operate for a few days, and then refuse to continue. I would like to hear from Dr. Locket if he finds any difficulty in getting his patients to retain the tube for fourteen to eighteen days. The method was introduced some ten years ago by Max Einhorn of America and taken up there with great enthusiasm.—I am, etc.,

Dublin, Dec 3rd. FRANCIS KENNEDY CAHILL, F.R.C.S.

INJECTION TREATMENT OF VARICOSE VEINS.

SIR,—I have found much of interest in Mr. G. H. Colt's article in the *Journal* of November 9th (p. 848), which deals with the salicylate effect very fully. I should like to confirm the author's findings. I, too, have found that the area of vein in which the pain is felt is the area that will become sclerosed, and in those cases where no pain has been felt there has been no subsequent sclerosis.

In spite of the excellent results given by the salicylate and salt solution I feel that it is not ideal. With the greatest care leakage does occasionally occur, and even a trace gives rise to annoying blistering at the site of injection. It seems much more toxic to the tissues than neosalvarsan.

Application of elastic pressure reduces the size of the thrombus, and I find that in cases in which the vein is clearly marked a roll of gauze stuck over the course of the vessel with mastisol under the elastic webbing gives a

greater proportion of "stiction" effects. This seems the ideal method of cure, as a large thrombus takes a long time to fibrose.—I am, etc.,

W. L. HECTOR, M.B., Ch.B.,
Surgeon, Letchworth Hospital.

Letchworth, Herts, Dec. 1st.

ROYAL MEDICAL BENEVOLENT FUND.

SIR,—I read in your issue of November 23rd (p. 981) the letter from Sir Thomas Barlow, president of the Royal Medical Benevolent Fund, asking for subscriptions for Christmas gifts to the annuitants and some of the grantees of the fund. My interest has lately been re-aroused, in that I have written personally to a number of my old Guy's friends asking them to become subscribers to the fund, and I have been struck by the want of knowledge of its existence, on the part of many, although on learning of it several have at once most generously subscribed.

Last year 485 grants were made. The needs of the applicants are often pathetic in the extreme: doctors who, through illness or old age, are no longer able to carry on, or who have met with misfortune, such as some seem never able to avoid; widows of others left penniless, and perhaps with children to educate; daughters unable to support themselves; and so the tale goes on from day to day and year to year. Yet although the fund does much good as it is, how miserably small are the grants the committee can make! £36 as the maximum annual grant to a destitute and penniless widow; an annuity of £42 to a doctor, aged 76 years, whose eyesight was damaged by *x* rays in the early days of long exposures and insufficient protection, with the result that at his age he is quite unable to work; and many similarly sad cases. Terribly inadequate help, is it not? But the committee can do no more without ampler aid from the members of the profession. Despite their conviction that the profession should be responsible for its own casualties, at present only some 4,000 to 5,000 out of 50,000 or more doctors subscribe!

Now doctors are certainly not an ungenerous body of men, and my belief is that the insufficient support accorded is in the main due to ignorance of the fund, and to the busy yet often so unbusinesslike life which doctors lead, leaving little or no time to interest themselves in matters outside their daily round. If we could get but 30,000 out of the 50,000 doctors to subscribe one guinea annually, how much more could the committee do to provide help and comfort really commensurate with the needs, but which at present, owing to lack of funds, it is impotent to do.

I hope there may be many who, as one of their Christmas gifts, will become contributors to the fund, and that Sir Thomas Barlow's letter may so appeal to them that they will not only join themselves, but urge others to do likewise, and thereby bring about such an addition to our resources as to provide both for this Christmas and for the years to come—an object which will be best achieved by an increase in our list of annual subscribers.—I am, etc.,

JOHN FAWCETT,
A Vice-President of the Fund.

London, W.1, Dec. 3rd.

SIR,—I beg to acknowledge the receipt of £43 up to the end of November for Christmas gifts, in response to Sir Thomas Barlow's appeal, which was published in your issue of November 23rd. These donations have been received from twenty-three members of the profession. The amount of money required for Christmas gifts is £500, so that further donations are very urgently needed, and should be sent to the Honorary Treasurer, Royal Medical Benevolent Fund, 11, Chandos Street, W.1.—I am, etc.,

E. C. PENNEFATHER,
Secretary.

December 3rd.

THE MEDICAL AND DENTISTS REGISTERS.

SIR,—In order to facilitate the work of those who find it essential to know whether a medical practitioner is legally qualified or not—such, for instance, as officials of insurance committees, chemists, and druggists—the General Medical Council is continuing to publish an Office Edition of the *Medical Register*. This edition is bound in paper boards and contains all names and addresses as they appear in the Official Edition, but is printed on cheaper paper and without the preliminary matter. The Office Edition is published at the special rate of 7s. 6d. post free, but no copies can be issued at this price unless they are ordered and paid for prior to December 31st of the year preceding that of publication; order forms will be sent on request.

The Council also issues each month lists of new registrations and names deleted from the *Register*. These are issued on a written understanding that the lists are for the personal use of the firm to which they are supplied, that they are not communicated to any other person, and that they are not sent out from the office in order to have stencils made. Every possible care is taken to protect subscribers from the lists being made use of by others. I might add that these lists are for obvious reasons not supplied to any addressing agency: the Council has no business arrangement or agreement of any kind with any addressing agency for supplying to them any official information, and it certainly has no exclusive arrangement of this kind.

Similarly the Dental Board of the United Kingdom issues an Office Edition of the *Dentists Register*, which includes the names of all registered dentists, together with a local list. The price of this is 4s. post free, provided copies are ordered and paid for prior to December 31st of the year preceding that of publication. Monthly lists of new registrations and deletions are also issued by the Board.

I might add that the General Medical Council and the Dental Board are always glad to answer inquiries as to whether practitioners are registered or not. Preferably these should be in writing to prevent misunderstanding, but inquiries by telephone are replied to at once.—I am, etc.,

NORMAN C. KING,
Registrar, General Medical Council.

44, Hallam Street, Portland Place, W.1, Dec. 4th.

LOCAL GOVERNMENT ACT, 1929.

SIR,—On behalf of the councils of the Poor Law Medical Officers' Association and the Public Vaccinators' Association, I am desired to appeal, through your columns, to all public vaccinators and Poor Law medical officers who are also members of the local authorities to which they will be transferred on April 1st next to communicate with me at once, if they have not already done so, giving such particulars as may be useful in framing representations to the central authority in their behalf.—I am, etc.,

ALBERT ERNEST COPE, M.D.,
President, Public Vaccinators' Association; Secretary, Poor Law Medical Officers' Association.

65, Belgrave Road, Westminster, S.W.1, Dec. 7th.

Obituary.

THOMAS FINLAYSON DEWAR, C.B., M.D., D.Sc.,

Medical Inspector, Local Government Board for Scotland.

THE death took place, on November 27th, at his residence in Edinburgh, of Dr. T. F. Dewar, who was a member of the staff of the Department of Health for Scotland. Dr. Dewar had been in failing health for some time, but his death was unexpected.

Thomas Finlayson Dewar, whose father was a medical practitioner in Arbroath, was born there in 1866, and was educated at the Arbroath High School, afterwards going to Aberdeen to study medicine. He graduated M.B., C.M. in 1887, and proceeded M.D. with honours in 1890. Taking up the study of public health at once, he went to Edinburgh, where he graduated B.Sc. in 1888, and took the degree of D.Sc. (Public Health) in 1906. His thesis for the latter degree dealt with the subject of the sanitation of armies in the field, and to a large extent embodied the experiences which he had gained in the South African war. After graduation in public health, Dr. Dewar took up general practice in Arbroath, where he became a member of the town council and of the school board. In 1895 he was appointed medical officer of health for the burgh of Monifieth, subsequently for the county of Forfar, and later still for the counties of Fife and Kinross. He had served in South Africa during the war of 1899–1902, first as a combatant in the Imperial Yeomanry, and afterwards as a surgeon captain; he received the Queen's medal with four clasps. In 1909, when school medical inspection began in Scotland, he undertook the organization of this part of

public health work in the counties of Fife and Kinross, and was appointed chief medical inspector of these counties. In the following year he became medical inspector under the Local Government Board for Scotland, and he continued to serve in this capacity (apart from the time in which he was engaged in military duty) until the absorption of the Local Government Board into the Scottish Board of Health in 1919.

During the recent war he had a distinguished military service, commencing as D.A.D.M.S. of the 51st (Highland) Division, and later A.D.M.S. Northern Army, with the charge generally of the medical arrangements made in prospect of an attempted invasion of East Anglia. At a later period, when the danger of invasion became less acute, he was transferred to be A.D.M.S. of the 57th (West Lancs) Division, with which he served in France. His total service in France with the 51st and 57th Divisions amounted to three years, during which time both of these Divisions saw much fighting, and he took part in many of the battles of the British armies in France in 1917 and 1918. For his services he was four times mentioned in dispatches, and was created a Companion of the Bath (Military Division) in the New Year's honours list of 1918. On his return to civil life from military service Dr. Dewar became a medical officer of the Scottish Board of Health when this body absorbed the Local Government Board in 1919, and he later became an officer of the Scottish Department of Health when this took over the work of the Board in 1929.

In addition to the administrative duties of his post in the Board of Health, Dr. Dewar engaged in many other pursuits. Thus he was medical adviser to the Scottish headquarters of the Boy Scouts' Association, and a member of council of the Institute of Public Health, and of the Society of Medical Officers of Health. From 1919 to 1922 he was an examiner for the degrees of M.B. and M.D. and for the public health diploma in the University of Aberdeen. His duties and his widely recognized abilities made it natural for him to be a member of various committees of inquiry. Thus he issued a report to the Local Government Board, in association with Drs. Dittmar and McVail, on "The administrative control of pulmonary phthisis in Glasgow" in 1911, and he was a member of the Departmental Committee (Lord Salvesen's) on Puerperal Morbidity and Mortality in 1923-24. Other reports by him included one upon ophthalmia neonatorum in Scotland; another, upon the housing of workers at Rosyth and of miners in Fifeshire, was a valuable contribution to a subject of great social interest after the war; another dealt with an outbreak of enteric fever in Ayrshire; and in 1923 he contributed an article to the *Edinburgh Medical Journal* upon "The incidence of venereal disease in Scotland." Various other publications by him included *Essays on the Natural History of Arbroath and District*, 1893, *With the Scottish Yeomanry*, 1901, and the well-known *Medical Vignettes*, 1928, which was a series of amusing sketches of medical practice drawn mainly from his South African experiences. He was for very many years a member of the British Medical Association.

Dr. Dewar was unmarried. In private life he was precise and business-like, a kind friend, and an agreeable companion. His sage and kindly counsel was constantly sought by his professional colleagues, both in personal matters and in the many public affairs where changes have recently been taking place in medical practice, and it was always given with unfailing generosity. His loss, both as a friend and a counsellor, will be keenly felt by a large circle. He was buried in Arbroath on November 30th.

We are indebted to Dr. C. E. DOUGLAS (St. Andrews) for the following appreciation:

In the person of Dr. Dewar one of the most interesting and engaging personalities in the Association has passed away. Qualifying in medicine before he was of age to graduate, the eager spirit we learnt to know soon showed itself, and he was off to Edinburgh to study and graduate in public health, taking the B.Sc. in 1888. After serving a useful term of work in general practice under his gifted father, the late Dr. James Dewar, he began his career as a health officer in the burgh of Monifieth; thence via Forfarshire and Fife to the centre of things for him henceforth—the Board of Health in Edinburgh. But official life was far from absorbing all his energies. The Boer war arrived, and Dewar was out in it as a trooper of the Fife and Forfar Yeomanry, serving for nine months in the ranks and sharing in the wild excitements of the pursuit of De Wet. But medical men were too precious for this to be permitted, and Dewar was soon in his rightful position as a medical officer, coming out of that affair with the Queen's medal and four clasps. His native town, in which he had done good service as a town councillor and as a member of the school board, gave him the freedom of the burgh on his return from South Africa. It is significant that his experiences out there were used by him for a thesis, in 1906, for the D.Sc. of Edinburgh, on the sanitation of armies in the field. In 1910 he became a medical inspector of the Local Government Board of Scotland, which appointment he held until his death. In the late war another opening for his abilities came, and he was appointed A.D.M.S. of the 51st (Highland) Division. From Festubert onwards he occupied positions of great responsibility; for the first three years on the French front, and as A.D.M.S. Northern Army in East Anglia and A.D.M.S. 57th Division, he did great work in organizing and maintaining the medical and sanitary efficiency of these bodies, receiving from the King in person the Star of the Companion of the Bath (Military Division). Such are some of his official and military records. He was a voluminous writer on many subjects, contributing reports on pulmonary phthisis in Glasgow and on ophthalmia neonatorum in Scotland; delightful essays on the natural history of his native district; and medical vignettes of scenes, mainly in his two campaigns. These, together with much sound work on Lord Salvesen's Departmental Committee on Puerperal Morbidity and Mortality, examining in medicine and public health for Aberdeen University, medical advising of the Scottish boy scout headquarters, and similar activities, made up a busy life.

But none of these doings showed Dewar as he was as a man. Officialdom sat lightly upon him; upon no man less. Methodical he was to a degree; but he could and did unbend, and to all his many and varied friends of all sorts and ranks he was a true friend and one singularly beloved. Of his kindnesses he would not have us speak. Let one little instance suffice, of one charity which helps the very hopeless in their homes. After the war he wrote to the lady to whom he sent his subscription that as things were he would now subscribe double; at his death a legacy equal to ten years' subscription was left to this charity. Such was a characteristic deed on the part of one who will long be remembered as a straight man, a strong man, and one who died as he would have wished, in harness, without a word of complaint against the fate which laid upon him years of suffering borne with stoic fortitude.

THE HON. SIR JOHN ALEXANDER COCKBURN, K.C.M.G., M.D.,

Formerly Premier of South Australia.

SIR JOHN COCKBURN, who died on November 26th, was so largely immersed during the early part of his life in Australian politics, and during the later part in various sociological interests, that he was scarcely remembered as a medical man. He qualified as far back as 1871, graduating M.D. of London University, with the Gold Medal, in 1874, and obtaining the M.D.Adelaide in 1877.

Born in the Border country just upon eighty years ago, John Cockburn, after completing his professional studies at King's College, London, migrated to Australia in 1875, and became medical officer of health for Jamestown, a small town in South Australia. He very soon interested himself in local affairs, and became mayor within a year or two of his settlement there. A few years later he was elected to the State Parliament, and with remarkable rapidity rose in the councils until at 38 he had become Premier of his State, the youngest Premier ever known in Australia. This office he held for about fourteen months, and later, after a period of retirement, he held various portfolios, presently, however, resigning Australian politics to become Agent-General in London.

To very many people he will be best remembered as the president of the Child Study Society. He was almost always present at the meetings of that body and at conferences in which it took part, and his old-world picturesqueness, as well as great personal charm and dignity of manner, marked him out in any gathering of men. His genial contributions to discussion were always well worth hearing. This was only one of many social and educational activities in which he interested himself. He was chairman of the Nature Study Association, a member of the council of King's College, London, a vice-president of the Royal Sanitary Institute, and a diligent representative at all kinds of health and social work conferences at home and abroad.

Although a man of strong intellect and versatility, Sir John Cockburn's contributions to literature were very slight and occasional. Apart from some articles in periodicals, mostly dealing with Australian affairs, they chiefly consisted in the part authorship of a nature reader for senior students. He had ceased medical practice for a generation, and took little or no part in professional activities.

EDITH SHOVE, M.B.Lond.

My old friend Miss Edith Shove, M.B., passed to her rest on November 16th, in her eighty-second year. Unlike most medical women, she was apprenticed in the arts of the surgeon and the apothecary for five years with Dr. Prior Purvis of Blackheath, who was himself a warm and consistent advocate of medical education for women. She was one of the first students of the London (Royal Free Hospital) School of Medicine for Women, and took a goodly number of prizes; she was also in the first group of women students to present itself for examination at the University of London, and passed the preliminary scientific in the first division in 1879. In 1881 she became a licentiate in medicine and in midwifery of Queen's College, Ireland, and up to the time of her graduation in 1882, when she obtained the M.B. degree of the University of London with honours in medicine, she was demonstrator in anatomy at the London School of Medicine for Women, where her thorough teaching was much appreciated. She was one of the first batch of women candidates for this degree, the others being Miss Helen Prideaux, Miss Tomlinson, and myself. Immediately after qualification she was appointed medical officer to the female employees of the Post Office, a position which she held with much satisfaction to everyone concerned until she retired under the age limit.

Edith Shove was never "a limelight child." I think more than any of us she exemplified the truth of the Bible statement, "in quietness and in confidence shall be your strength." She was a remarkably quiet, retiring, modest woman. Like most of us, she had some little personal peculiarities, one of which was a habit of talking aloud to herself as if seeking counsel from a friend. There is an amusing story told by one of her patients. The lady was amused to hear the low, soft voice of her new medical adviser saying: "No, I cannot think that it is drink. But what is it? Could it be drugs? I think not. Ah! now I have it: she is a high-grade mentally defective person." Also at times Edith Shove was apt to seek counsel from the patient herself, saying, for instance, "Yes, you evidently require some little assistance. I wonder which you would prefer. Shall it be rhubarb or senna?" Her interest was not confined to the ordinary everyday advising of sick folk. She was also a member of the Society for Psychical Research, the Hellenic Society, and the Society for Roman Studies. Before the war she travelled much abroad, visiting all parts of Europe and Egypt; in fact, she was a well-educated, good all-round practitioner, and something of an author too, for although her official position precluded her from publishing such studies, she helped the Post Office by writing on such matters as telegraphist's cramp and other ailments specially connected with the work of the women employees.

And now in the fullness of time she has passed to her rest, but the fragrance of her memory still survives in some grateful hearts.

MARY SCHARLIEB.

Dr. PAULIN MARTIN, who died on November 8th, was born at Highworth, Wiltshire, in 1842, the son of Dr. John Martin, who went to Abingdon, Berkshire, to practise in 1847. Paulin Martin was educated at Radley College, and entered St. Bartholomew's Hospital in 1858, where his midwifery tutor was Dr. Robert Greenhalgh; he learnt his medicine from Dr. R. Martin, F.R.C.P., and his surgery from Sir William Lawrence. At the death of his father in 1864, Paulin Martin took over the Abingdon practice, which he worked single-handed for forty-five years, when his eldest son joined him, and together they carried on the large country practice until his son's death in 1926. In 1874 he married Mary, daughter of Dr. A. Iles of Fairford, Gloucestershire. A correspondent (H. E. B.) writes: Dr. Martin's profession absorbed him and left little time for leisure, but what time could be spared was devoted to literature and geology. While at Radley he started his now famous collection of old books, a hobby which he never dropped; he specialized in Shakespeare, early printed books, and Bibles. Rare books could be bought without great expense in those days, and the rarest and best were not out of reach if one knew, as Dr. Martin did, what were the best. He searched and bought carefully and assiduously, and entirely without thought of any future monetary profit. Apart from the regret, softened by his age and failing memory, of selling some of his library his chief emotion seemed to be surprise that the folios he had bought for a hundred pounds or so should be eagerly bought for five thousand. The gap in the book-shelves seemed at once to be filled by editions only a little less rare, and now at his death there are scores of treasures which show the skill and care of a great collector. Nothing gave him greater pleasure than thrusting a first folio or a first *Compleat Angler* into the hands of anyone who showed the least interest in them. He was delighted when Lord and Lady Oxford, who came to consult him when he was 80, recognized his first folio from the date on the binding. He formed a collection of fossils and antiquities from the neighbourhood of Abingdon, which was an early Neolithic settlement; the doors of his house were propped open in summer with cannon balls from the civil war, and an ancient tilting helmet shared the wall of his study with portraits of Shakespeare and Chaucer. His practice extended for many miles round Abingdon. He generally drove himself, his round often being between thirty and forty miles over stony roads in a dog-cart, or in very bad weather in a brougham. He did his own dispensing, often having fifty bottles of medicine to make up at the end of the round. He did a great deal of midwifery—seventy or eighty cases in the year, mostly at a guinea a case—though later (in 1880) he gave up the guinea ones and charged two guineas. A human touch comes in one of his letters, "There is nothing so worrying as having a message from a grinning, ignorant ass of a husband asking one to 'keep in the way'—destroying all sleep and comfort." A good sample of an ordinary day in the eighties was one of visits to thirteen villages in the neighbourhood, besides those in Abingdon, entailing a round of thirty-seven miles—not too long in these days of motors and good roads, but in those days of stony unrolled ways with iron-bound wheels even a pair of horses could not make the journey anything but slow and tiring. Between his journeys he dispensed the usual "endless bottles of physic," and finished the day at 10 p.m. with a guinea midwifery case—and so to bed with no more than a fleeting glance at his beloved folios.

Dr. JAMES GILLON ROSS, medical officer of health for Whitby Urban District Council, died on November 29th, in his sixtieth year. He received his medical education in Edinburgh, where he graduated M.B., C.M. in 1898, being awarded the silver medal in pathology. After holding the post of house-surgeon to Nottingham General Dispensary, he served for two years in the West African Frontier Force. In 1902 he became an assistant to the late Dr. John Wilson in Whitby, and subsequently joined in partnership for a short time Dr. Wilson's son, after whose death he continued the practice alone. He was later appointed medical officer of health for Whitby, medical officer to the Post Office,

surgeon to Whitby Cottage Hospital and also to the police force, and local referee to the Ministry of Pensions. He took an active interest in the work of the British Red Cross Society, of which he was an honorary life member. During the war he held a commission in the Royal Army Medical Corps. He was a member of the British Medical Association, and was president this year of the Whitby Rotary Club.

Dr. GEOFFREY LUCAS, who died at Las Palmas on November 26th, after a long illness, was born in 1875, and received his medical education at Cambridge and St. George's Hospital. He obtained the diploma L.S.A. in 1903, and graduated M.D.Durh. in 1919. After holding the appointments of assistant and senior house-physician at the Westminster Hospital he served with the Orient Steam Navigation Company from 1904 to 1906. He then started to practise in Ringwood, became medical officer of health there, and developed an interest in tuberculosis, which led him to being associated as physician with the Nordrach Sanatorium, Banchory, from 1909 to 1921, with the exception of the war period. From 1916 to 1917 he was physician to the first Scottish General Hospital, and subsequently consulting physician for diseases of the chest to the North-East Scottish Command. He was assistant to the professor of medicine at the University of Aberdeen in 1917–18, and, holding a commission in the R.A.M.C., was for a time at No. 11 Stationary Hospital, B.E.F. From 1921 to 1928 he was resident physician to Mundesley Sanatorium. Dr. Lucas was a member of the British Medical Association and a fellow of the Royal Society of Medicine; he contributed articles on pulmonary conditions and associated subjects to the *British Medical Journal* and the *Journal of Tuberculosis*. A colleague writes: Dr. Geoffrey Lucas spent many years of his life as sanatorium medical officer; he was very popular with the patients, who used to confide their troubles to him and regard him as a confidential friend as well as a doctor. Lucas had a remarkable knowledge of human nature and the gift of combining discipline with human understanding, so that his patients had the greatest faith in him, knowing that he had their interests at heart and that no detail in their lives was too small for his sympathetic consideration. Apart from his work Lucas was a most sociable and popular man, who was fond of sport and games; he will be sadly missed by a large circle of friends. He leaves a widow and two children.

Medico-Legal.

PROSECUTION UNDER THE DANGEROUS DRUGS ACT.

An Unregistered Practitioner Convicted.

AT Maidenhead, on December 2nd, Richard William Starkie, a practitioner whose name had been removed from the *Medical Register* in 1922, pleaded guilty to summonses under the Dangerous Drugs Act alleging that he offered to supply heroin to two persons (a man and a woman) specified in the charge, and was sentenced to twelve months' imprisonment in the second division.

There were twelve summonses; the accused pleaded guilty to the first of them, which alleged that, though not duly authorized to do so, he offered to procure heroin for the man and woman; he pleaded guilty also to other charges of offering to procure, and procuring, heroin, and of aiding and abetting; but to three charges of aiding and abetting the manager of a firm of chemists to supply the heroin he pleaded not guilty.

Mr. Sefton Cohen, for the prosecution, stated that on the facts of the case there was no defence in law. The prescriptions were handed to the chemist by Geoffrey Bradford Vilmer, who called himself Major Melville, and were signed "R. Starkie" with letters the chemist took to be M.D. The chemist not only inquired about the identity of R. Starkie, but took the precaution of telephoning Mr. Starkie and, later, of writing to him. In reply, Mr. Starkie intimated that it was "O.K." Starkie's name had been removed from the *Medical Register*, and the only qualification he now possessed was that of Licentiate of Midwifery in Dublin. It appeared that he had been in the habit of signing blank sheets of paper and giving them to Vilmer, who, he knew, was going to fill in the prescriptions and make them out for whatever amount he felt inclined to order. The patient named on each prescription was Mrs. Melville, but for the prosecution it was stated that this patient did not receive all the heroin mentioned in the prescriptions, part of it being taken by Vilmer himself. It was only fair to state that the person calling herself Mrs. Melville had had serious internal operations, which might have afforded her some reason for taking a narcotic drug. Starkie's explanation, as embodied in a letter which he had sent to the police, was that he had been tricked by Vilmer, believing that Vilmer had obtained permission from Scotland Yard for him to break the provisions of the Dangerous Drugs Acts. No such permission was given, or could have been given, and it was inconceivable that a person of Starkie's age and knowledge of affairs could believe such a fantastic story. From July 8th to October 14th twenty-eight prescriptions—purporting to be signed by Starkie, though he objected to some of the signatures—had been dispensed, and the total amount of heroin obtained was 2,150 tablets, containing in all 358 grains, which worked out at about 3 grains a day.

Chief Inspector Prothero said that Starkie was at one time a police surgeon, and was well known to Scotland Yard. Before he lost his qualifications he practised at Oakley Square, and was still practising there. For the defence Mr. Caswell asked the magistrate to believe that Starkie was working hard to rehabilitate himself, and was not knowingly issuing prescriptions for dangerous drugs without authority. He had given the prescriptions in good faith.

Mr. Starkie has given notice of his intention to appeal to Quarter Sessions against his sentence.

OSTEOPATH CENSURED BY CORONER'S JURY.

ON November 23th a coroner's jury at Southend censured an osteopath, Mr. A. L. Winer, for the manner in which he had treated a patient, aged 72, whose death was due to acute pneumonia and accelerated by insufficient food.

The patient, who had undergone an eight months' course of dietetic and manipulative treatment prescribed by Mr. Winer, died on November 9th. In evidence, it was stated that he had had a rupture four years previously, and, after refusing the advice of four doctors, who had recommended a truss, he followed Mr. Winer's treatment. In July he had complained that he was making no progress, and that he felt depressed, but was told by the osteopath that he must keep more cheerful and help himself. The deceased had refused to have any medical man to upset Mr. Winer's cure, which had been guaranteed.

Sir Bernard Spilsbury, who had performed a post-mortem examination, said that the body was emaciated, the flesh sunken, and the ribs prominent. Internally there was an almost complete absence of fat; acute pleurisy and pneumonia were present in the right lung. In reply to a question from the coroner, he said that there was no disease present which would account for the emaciation. The diet represented on the diet sheet would be quite inadequate to maintain the strength of any individual.

On behalf of Mr. Winer, it was stated that the osteopathic principle was to reduce the diet and let the body get rid of the poison which might be in it. Mr. Winer had treated hundreds of cases in Westcliff, and the deceased was the first who had died. Mr. Winer, in giving evidence, described himself as an osteopath and nature practitioner. The letters, O.D., O.D.C., M.B.A.O., after his name meant that he was a doctor of osteopathy, a doctor of chiropractic, and a member of the British Association of Osteopaths. The deceased, he said, had a normal appetite, but was continually over-eating.

After the jury had returned its verdict, the coroner said to Mr. Winer: "The jury have taken a merciful view, and you are fortunate. It must have been obvious to anyone, and especially to you, attending the deceased for weeks, that by your diet treatment he was slowly being starved. The jury's censure is deserved, and I hope that this censure and warning may have a good effect in the future."

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

THE chief work of the House of Commons this week has been consideration of amendments to the Unemployment Insurance Bill, in which the Government has had to make substantial alterations. The Highlands and Islands Bill was read a third time on December 9th. The Government hopes to adjourn the House for Christmas on December 20th, but the programme of business is congested.

In the House of Lords the committee stage of the Mental Treatment Bill was set down for December 10th. For the Government Earl Russell put down many drafting and technical amendments. Lord Danesfort tabled an amendment proposing that voluntary boarders should be accompanied by a medical certificate, to be signed by the usual medical attendant of the patient, or by a medical practitioner approved for the purpose by the Board of Control, or by the local authority of the area.

The meeting of the Parliamentary Medical Committee has been postponed till next week, when it is hoped to have an address upon the Mental Treatment Bill from Sir Hubert Bond. This will probably be on December 17th.

Silicosis.—Mr. CLYNES, replying to Mr. Hoffman on November 28th, said that it was estimated that the number of deaths from silicosis or silicosis accompanied by tuberculosis was 28 in 1923 and 35 in 1929. Compensation was paid in 1928 under the Refractories Industries Scheme in 12 cases, including 1 fatal case, and in 10 cases, including 3 fatal cases, in 1929. Under the Metal Grinding Scheme there were 12 cases, including 1 fatal, in 1928. Figures for 1929 were not available. Mr. CLYNES stated, on December 5th, that the risk of silicosis among quarrymen was by no means slight, and he could not allow local authorities employing them to contract out of the sandstone industry compensation fund.

Deaths from Diphtheria, Cancer, and Typhoid Fever in Scotland.—On December 2nd Mr. ADAMSON told Mr. Bromley that in Scotland there were, in nine months of 1929, 336 deaths from diphtheria, 5,224 from cancer, and 12 from typhoid fever. The figures for typhoid fever were exclusive of paratyphoid fever. There had been no deaths from small-pox for four years.

Undulant Fever.—Replying to Dr. Fremantle, Mr. GREENWOOD said, on November 28th, that undulant fever was not notifiable. Fourteen cases had been traced during the last five years in England and Wales. An inquiry into this disease had been made, and secured evidence that undulant fever in man had been closely related to cattle affected by contagious abortion. The whole subject was receiving attention in co-operation with the Medical Research Council and the Ministry of Agriculture and Fisheries.

Malaria in Bengal.—On December 2nd Mr. WEDGWOOD BENN informed Commander Bellairs that so far as he was aware there had been no increase in malaria in Bengal in recent years. He understood that Sir Malcolm Watson had suggested to the Ross Institute that an inquiry should be made as to whether the embankments of the Ganges Delta produced conditions favourable to malaria, and, if so, whether a remedy could be found. This matter was now engaging the attention of the Government of Bengal. He added that a chair of malariology would be established in the new Rockefeller Institute in Calcutta. Dr. FREMANTLE asked if it was not a fact that no policy had yet been formulated that would really remove malaria, and that the problem required much more inquiry. He suggested a joint inquiry between the British Government departments concerned with those of India and the colonies. Mr. BENN replied that this was a much wider question. He had stated what steps were being taken in India.

Schick Test and Diphtheria Immunization.—On December 3rd Miss LAWRENCE, replying to Mr. Freeman, said that local authorities did not "impose" the Schick test for diphtheria on school children. Parents were invited to have their children tested, and, if desired, immunized. The procedure was entirely voluntary. Local authorities were empowered to act for this purpose with the sanction of her department under Section 133 of the Public Health Act, 1875, or Section 77 of the Public Health (London) Act, 1891. Advice was given to parents by the local authority, but no instructions were issued. There was abundant evidence that the practice of active immunization, applied to persons who had been shown by the Schick test to be susceptible to diphtheria, protected such persons against the disease. The Minister had no information as to how many children were immunized in 1923 or of the cost of each operation.

Foot-and-Mouth Disease.—On December 9th Mr. BUXTON, replying to Mr. Matters, said that the experiments of the Foot-and-Mouth Disease Research Committee had shown that the virus of foot-and-mouth disease remained active in bone marrow which had been kept at a low temperature for seventy days. It was therefore theoretically possible for the disease to be introduced into this country in the marrow of the bones of chilled beef imported from the Argentine Republic, but there was no positive evidence that this had happened.

Accidents to Children in London Streets.—Mr. CLYNES told Mr. Ernest Evans, on December 2nd, that he was aware of, and deplored, the loss of life among children by street accidents in Greater London. The police did all in their power for the safety of children crossing the roads in the vicinity of schools. The Commissioner of Police was also considering the question of arranging a conference with representatives of the education authorities with a view to examining further the whole question.

Prophylactic Use of Artificial Sunlight.—Mr. GREENWOOD, replying to Dr. Forgan on November 28th, said the extension of facilities for the preventive administration of artificial sunlight to mothers and children was a matter for local authorities. He was not aware of any shortage of doctors with experience of this method of treatment.

Export of Dangerous Drugs.—Mr. CLYNES, replying to Sir Kenyon Vaughan-Morgan on November 28th, said the total exports of morphine alkaloid from the United Kingdom were 2,185 oz. in 1925, 455 in 1926, 265 in 1927, and 174 in 1928. The exports of morphine salts were 82,110 oz. in 1925, 63,433 in 1926, 58,138 in 1927, and 33,812 in 1928. The exports of morphine and its salts contained in preparations were 11,002 oz. in 1925, 9,401 in 1926, 7,701 in 1927, and 10,838 in 1928. In 1925 516 oz. of heroin alkaloid were exported, 273 in 1926, 519 in 1927, and 353 in 1928. In 1925 7,728 oz. of heroin salts were exported, 6,470 in 1926, 10,576 in 1927, and 5,582 in 1928. In 1925 the export of heroin and its salts contained in preparations amounted to 69 oz., 56 in 1926, 71 in 1927, and 103 in 1928. Information as to the value of these exports was not available.

Mental Defectives in Institutions.—Mr. GREENWOOD, in reply to Major Glyn on November 28th, said that the total number of mental defectives maintained in institutions or under guardianship at the joint charge of the local authorities and the Exchequer was 20,358 on January 1st, 1929. There were 19,606 under supervision. The cost to the local authorities for the year ended on March 31st, 1929, was £1,216,820. Of this expenditure £609,519 was borne by the Exchequer. In addition, a relatively small number of defectives was maintained in institutions or under guardianship at the sole charge of local authorities. Particulars of the number and cost were not available. The total cost to the Board of Control of such institutions directly under their administration during the year ended on March 31st, 1929, was £45,015, towards which £1,838 was contributed by local authorities or relatives of the patients. The number of defectives under treatment at these institutions on January 1st, 1929, was 785. Answering Mr. Sorensen, Mr. GREENWOOD said the statistics did not enable him to say how many young persons certified as mentally deficient and suitable for institutional treatment could not receive such treatment through lack of accommodation.

Mental Nurses and Registration.—Mr. GREENWOOD told Mr. Remer, on November 28th, that possession of the certificates of the Royal Medico-Psychological Association did not entitle mental nurses to admission to the register kept under the Nurses Registration Act. He thought the matter was capable of adjustment between the bodies concerned.

Licences for Certified Milk.—Mr. GREENWOOD told General Clifton Brown, on November 28th, that there was insufficient justification for a reduction of the fees of licences for certified Grade A tuberculin-tested milk. He would consider the matter in consultation with the Chancellor of the Exchequer when opportunity occurred for the general revision of the Special Designations Order. He would also consult the Minister of Agriculture.

Protection from Tuberculous Milk.—Dr. Somerville Hastings was told by Mr. GREENWOOD, on November 28th, that the steps taken to protect the public from tuberculous milk included the promotion of legislation and the issue of orders and circulars. While the actual responsibility for the protection of the public health rested with local authorities, his department assisted by inspection and advice both to local authorities and to milk producers.

Inspection of Dairy Farms.—Mr. GREENWOOD told Dr. Fremantle, on December 5th, that two inspectors were employed by the Ministry of Health in the inspection of dairy farms, but neither of them was a qualified veterinary surgeon. The only farms inspected by officers of the Ministry were those producing certified and Grade A (tuberculin-tested) milk. Examination and testing of cattle on these farms was, however, carried out by qualified veterinary surgeons approved by the department. Dr. FREMANTLE contended that, as the object of the inspection was to help farmers to eliminate tuberculosis, it would be a greater help to them if the inspectors from the Ministry were qualified veterinary inspectors. Mr. GREENWOOD said he would be glad to discuss the question with Dr. Fremantle.

Treatment of Wounded Ex-Service Men Temporarily Insane.—Mr. ROBERTS, replying to Colonel Moore on November 28th, said that he was not aware of recent cases of wounded ex-service men becoming temporarily insane, but where symptoms of the kind were manifested as the result of a war injury, treatment would be given or other appropriate action taken by the Ministry of Pensions.

Medical Treatment of Ex-Service Men.—Mr. ROBERTS, replying on December 9th to Sir G. Bowyer, who asked if he intended to take over all medical and surgical treatment of ex-service men, providing, where necessary, full-time medical officers for the purpose, said that his department had authority under the Royal Warrants to provide only such treatment as was not otherwise provided. He could not, therefore, adopt the course suggested without duplicating other statutory arrangements for the provision of treatment which were in operation under the National Health Insurance Acts and other enactments.

Tuberculous Ex-Service Men Unfit for Work.—Mr. ROBERTS, in reply to Mr. Kiuley on December 9th, said that he had no means of ascertaining the number of tuberculous ex-service men who, though certified as unfit for work, were not receiving treatment allowances. Such certification would ordinarily be done by practitioners acting under the National Health Insurance Acts. Mr. KINLEY asked if the Minister would consult with his medical officer on the necessity for putting this matter on a proper and just footing. Mr. ROBERTS replied that he would be very happy to give consideration to the point which had been raised. Dr. VERNON DAVIES asked if they were to understand that once an ex-service man got on the panel under the Ministry of Health, the Ministry lost all further interest in the case. Mr. ROBERTS: No, Sir.

Conditions of Service Life and Pulmonary Tuberculosis.—Answering on behalf of the three defence services, on December 5th, Mr. ADAMSON said the result of the report on the relationship between the conditions of service life and pulmonary tuberculosis had been that the medical authorities of the three Service Departments had taken additional measures to facilitate the prevention, detection, and treatment of pulmonary tuberculosis. It was hoped that these measures would facilitate the determination of attributability to conditions of service, but it was considered unlikely

that they would have any material effect on the present practice as regards pensions awards in the Army and Air Force, which followed closely the recommendations of the committee. In the Navy certain new rules were adopted in advance of the report of the committee, and under these rules a large proportion of men now invalided for pulmonary tuberculosis were allowed pensions under the attributable scale.

Cossham Hospital Inquiry.—On December 9th Mr. F. O. ROBERTS told Mr. Shillaker that he had received the report of the committee of inquiry into the Cossham Hospital and its administration. He had caused the report to be printed, and it would be available for members on December 10th.

Duties of the Board of Control regarding Pauper Mental Patients.—In a long statement to Major Glyn, on December 5th, regarding pauper lunatics Mr. GREENWOOD said that the powers and duties of the Board of Control in the case of mental patients on out-relief were limited to obtaining a return from the Poor Law authorities, and in the case of lunatics in Poor Law institutions to paying periodic visits. As regarded patients detained in county and borough mental hospitals the Board of Control examined the documents upon which these patients were received and detained and considered periodic medical reports. The Board also visited these institutions, and had general supervision over arrangements for care of the patients.

Detection of Gas in Mines.—Replying to Mr. Tom Williams, on December 4th, Mr. BEN TURNER said there had been eleven explosions in mines this year; in these twenty-eight persons lost their lives. So far as he was aware the only gas detector in use at the mines concerned was the *flame safety lamp. It* was unlikely that the use of a different gas detector would have prevented these explosions, six of which originated at open lights. Gas detectors other than flame safety lamps were in an early stage of development, and experience was not yet sufficient to judge their reliability and practical value as compared with the flame safety lamp.

District Medical Officers and the Local Government Act, 1929.—On December 5th Mr. DOUGLAS HACKING asked if Mr. Greenwood would take steps to prevent members of town councils who were also district medical officers under boards of guardians being included on Health Committees of boroughs for 1930, and whether such persons would be prevented from taking part in the setting up of Public Assistance Committees when they were actually paid servants of the Ministry of Health. Mr. GREENWOOD said that as the law stood district medical officers under the Poor Law who were transferred to county councils and county boroughs under the Local Government Act, 1929, would be automatically disqualified from membership of the council to which they were transferred.

Contagious Abortion in Cattle.—Dr. FREMANTLE addressed a question to Dr. Addison, on December 5th, concerning contagious abortion in cattle. Dr. ADDISON replied that in herds where the percentage of infection was not high the Ministry of Agriculture recommended that the disease should be controlled by hygienic methods and the agglutination test for the detection of infected animals. In herds where infection was heavy the Ministry advised the immunization of all non-pregnant animals with the live vaccine, which had been issued from the Ministry's laboratory since 1912, and was in demand. The disease did not lend itself to legislative control. Dr. FREMANTLE asked whether these methods had increased or reduced the incidence of the disease. Dr. ADDISON asked for further notice of this.

Notes in Brief.

Mr. Greenwood hopes the report of the Committee on Refuse Collection and Disposal will shortly be published.

The Minister of Transport has asked the London Traffic Advisory Committee to consider the advisability of making a regulation prohibiting the sounding of motor horns in residential areas of London between midnight and 5 a.m.

In 1926 the number of persons killed in Scotland by accidents caused by mechanically propelled vehicles other than tramcars and trackless trolley vehicles was 505; in 1927 it was 544; and in 1928, 576.

The Government proposes to introduce a bill amending the Children Act, 1908, and will bear in mind the proposal to extend the age of young offenders to 21.

Mr. Greenwood proposes to take no action concerning pharmacists in the Poor Law service in view of the changes which would take place when the Local Government Act, 1929, came into operation.

Universities and Colleges.

UNIVERSITY OF OXFORD.

THE George Herbert Hunt Travelling Scholarship is awarded without examination every second year to a graduate in medicine of the University (of either sex) who has not exceeded five years from the date of passing the final examination for the B.M. degree. The scholarship is of the value of £100, or such smaller sum as two years of the income of th[illegible] dates are required to submit with their [illegible] of their academic record, together with [illegible] (five copies) and an undertaking that, if elected, they will travel abroad for a period of not less than three months for the purpose of clinical study or research in medicine. In making the award a preference is given to such candidates as express the intention of engaging in the practice of their profession, either as surgeons or general practitioners. The scholar is required to complete his period of travel within twelve months from his election, and within a reasonable period thereafter to submit to the Dean of the School of Medicine a detailed report of his tenure of the scholarship. The next election will be made in April, 1930. Candidates must send their applications to the Dean of the School of Medicine, University Museum, Oxford, on or before February 11th, 1930.

UNIVERSITY OF CAMBRIDGE.

AT a congregation held on December 6th the following medical degrees were conferred:

M.D.—*W. L. Harnett, K. E. Harris, J. D. M. Stewart, R. A. Hickling.
B.Chir.—W. E. Mashiter, C. G. Townsend.

* Admitted by proxy.

UNIVERSITY OF BRISTOL.

THE following candidates have been approved at the examinations indicated:

M.D.—W. A. Gornall.
FINAL M.B., CH.B. (*Part I, including Forensic Medicine and Toxicol[illegible]*): A. Barnabas, J. E. Brown, H. L. Cleave (o[illegible]sic Medicine and Toxicology), J. L. S. C[illegible] Materia Medica, Pharmacy, Pharmacology, and Therapeutics), C. J. N. Davis, F. W. A. Foxbery, L. R. Jordon (with distinction in Pathology), J. A. Kersley, R. H. Moore, Elizabeth S. G. Owen, C. N. Royal, W. A. F. Taylor; (*in Part I only*) L. P. Ashton. (*Part II*): J. J. J. Giraldi (with second-class honours), J. E. Newton, N. C. Tanner. (*In Group I, completing examination*): N. L. Price. (*In Group II, completing examination*): N. D. Gerrish, Mabel F. Potter. (*In Group II only*): R. M. Norman.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.

THE annual meeting of the Royal College of Physicians was held on December 5th. Sir Norman Walker was elected President, Dr. Robert A. Fleming was nominated Vice-President, and the following were elected members of Council for the ensuing year: Dr. G. Lovell Gulland, C[illegible] Dr. John Orr, Dr. William Fordyce, Dr. Edwin Bramwell, a[illegible]

At the extraordinary [illegible] Dr. John Orr and Dr. W. Fordyce were elected representatives of the College on the Board of Management of the Royal Infirmary of Edinburgh.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.

THE following have been admitted Fellows of Faculty: A. M. Clark, *M.C.*, J. Ferguson, W. D. H. Stevenson, Rosie Swamikan.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND.

THE following have been admitted Licentiates in Medicine and Midwifery: M. J. Duffy, A. E. Flannery, T. J. Harkin, G. J. Harrison, J. Lennon, P. B. M'Carthy, T. M'Carthy, T. J. A. M'Hugh, P. M'Inerney, W. H. Peirce, F. O'C. Walsh, J. R. H. Weir.

The President (Dr. W. A. Winter) has been unanimously nominated to represent the College as a member of the executive council of the Queen's Institute of District Nursing in Ireland for a period of three years.

SOCIETY OF APOTHECARIES OF LONDON.

THE following candidates have been approved at the examination indicated:

MASTER OF MIDWIFERY.—Lilly A. Baker, N. R. Macadam, W. G. Richards, G. C. Soutter.

The Services.

No. 14 STATIONARY HOSPITAL.

THE tenth annual dinner of the No. 14 Stationary Hospital was held at the Trocadero Restaurant, London, on December 6th. In the absence of Colonel C. R. Evans, D.S.O., the chair was taken by Lieut.-Colonel J. R. Harper, C.B.E., who proposed the toast of "The Hospital," and commented on the pleasure caused by these annual reunions. Colonel J. S. Warrack replied. Dr. H. L. Tidy, the organizer of the dinner, contributed information about members of the hospital staff who had been prevented from being present, and thus started the usual flow of reminiscences which Colonel Michael Foster, O.B.E., and others continued. In view of the high percentage of the surviving members of the staff who had attended the dinner during the last ten years, it was agreed that the future prospects of these reunions were bright.

Medical News.

SIR E. FARQUHAR BUZZARD will deliver the Purvis Oration before the West Kent Medico-Chirurgical Society in the Nurses' Lecture Room, Miller General Hospital, Greenwich, to-day (Friday), at 8.45 p.m.; the subject is "The dumping-ground of neurasthenia."

THE seventh and last lecture of the People's League of Health new series on racial and individual welfare will be delivered to-day (Friday, December 13th) at the House of the Medical Society of London, Chandos Street, W., at 6 p.m., by Dr. R. O. Moon; his subject is "The British contribution to medicine."

A MEETING of the Royal Microscopical Society will be held at 20, Hanover Square, W.1, on Wednesday, December 18th, when Mr. F. V. Welch, F.R.M.S., will read a paper on a microscope lamp, and the president, Mr. J. E. Barnard, F.R.S., will contribute a note on dark-ground illumination.

A THREE months' course of lectures and demonstrations on clinical practice and in hospital administration will be given at the North-Eastern Hospital of the Metropolitan Asylums Board, St. Ann's Road, Tottenham, N.15, by the medical superintendent, Dr. F. H. Thomson, on Mondays and Wednesdays at 4.45 p.m., and alternative Saturdays at 11 a.m., beginning on Monday, January 6th, 1930. The fee for the course, which complies with the requirements of the revised regulations, is £3 4s. A course under the old regulations may be taken for £3 3s. Applications, enclosing cheques made payable to the Metropolitan Asylums Board, should be addressed to the Clerk of the Board, Victoria Embankment, E.C.4.

IN connexion with the Yorkshire Council of the British Empire Cancer Campaign and the Clinical Medical Studies Committee of the Faculty of Medicine, a lecture on intra-thoracic and pulmonary new growths was given on December 3rd at the University of Sheffield by Dr. Maurice Davidson, physician and dean of the Medical School, Brompton Hospital, London. The lecturer referred to the undoubted increase of malignant disease affecting this region during recent years. He quoted statistics showing that such increase had been observed in various parts of Europe with surprising uniformity. The lecture dealt primarily with the clinical aspects of the subject, and was illustrated by a large number of specimens and radiograms. There was a large attendance of practitioners, and the lecture was greatly appreciated.

AT the eighth annual meeting of the Scottish Women's Hospital Association, held at the Royal Free Hospital on December 3rd, H.R.H. the Duchess of York as president received purses amounting to £5,285 for a scheme to commemorate heroic Scotswomen. The association, which worked in most of the fields of operation during the war, has raised the money to build and equip a new ward in the maternity wing of the Royal Free Hospital and a maternity centre at Islington named after the Duchess of York. Each bed will be named after a unit or after a member who gave her life in service; one will bear the inscription "In proud memory of Dr. Elsie Maud Inglis, founder of the Scottish Women's Hospitals in the Great War, who gave her life in devoted service in Serbia in 1917." The Duchess of York presented to Lord Riddell, president of the hospital, three name plates, one each for the Edith Palliser bed and the Serbian Units bed respectively, and the third to be affixed to an operating table given by the Royaumont Association, which was the first of these hospital units to take the field. On the motion of Lady Barrett, seconded by Miss Frances Ivens, it was agreed that, having completed the memorial, the association should in future be known as the Royal Free Hospital Scottish Women's Hospitals Memorial Association, and should endeavour to provide annual maintenance for the eight memorial beds.

AT a meeting of the president and trustees of the North Staffordshire Royal Infirmary, on December 3rd, it was announced that the late Miss Dora Twyford, of Whitmore Hall, near Newcastle, Staffs, had left £50,000 from her residuary estate to the infirmary. When Miss Twyford died, some five years ago, she bequeathed £12,000 to the infirmary for a new wing in memory of her father and mother.

THE report presented to the annual meeting of the Royal Surgical Aid Society, held at the Mansion House on December 3rd, showed that the total income had been £56,679. The expenditure amounted to £55,678, of which £46,917 had been spent on surgical appliances. During the year assistance had been given to 29,262 cases and 40,254 surgical appliances supplied, making the grand total since the formation of the society in 1862 of 903,431 and 1,353,831 respectively. Special grants had been made in cases where patients were unable to procure the requisite number of letters; in that way 7,644 letters had been bestowed during the year. The report referred to the very serious loss the society had sustained by the recent death of Mr. T. H. Openshaw, who had been associated with it for thirty years.

THE annual report of Livingstone College for the year 1928-29 contains an account of the annual meeting in June, to which reference was made in our columns on June 29th (p. 1183). Emphasis is laid on the value to missionary societies of the useful training in health preservation and the treatment of minor disorders which is provided for those proceeding overseas to take up missionary work in remote districts; letters from China, India, and Africa are reproduced, illustrating how this instruction has proved beneficial in emergencies. During the year under review twenty-three missionary organizations and seven nationalities were represented by fifty-nine students, who took either the full or shorter courses. Receipts exceeded expenditure during the year, and the deficit was reduced by £117. It was, however, necessary to postpone certain needed repairs and improvements, and more liberal subscriptions and donations are urgently desired.

BY issuing *Clean Air*, a new quarterly journal, the National Smoke Abatement Society adds "still one more magazine to the thousands which are poured out from the presses every day, week, month, or quarter," but the first devoted to the cause for which the society exists. In the opening number are printed messages of congratulation from persons eminent in politics and science, and articles on domestic heating and the use and development of gas and electricity in industry. The annual subscription, payable to the Editor, *Clean Air*, 23, King Street, Manchester, is 2s. 6d.; single copies may be obtained at the price of 1s.

A SOCIETY of parasitology has been founded at Leningrad, under the presidency of Professor E. N. Pavlovsky of the Military Academy of Medicine.

A PARACELSUS SOCIETY has recently been founded at Munich, with Professor Karl Sudhoff as president of honour.

PROFESSOR OTTO GANS of Heidelberg has been made a corresponding member of the Società Italiana di Dermatologia e Sifilografia; Dr. August Siegrist, professor of ophthalmology at Berlin, an honorary member of the Société Française d'Ophtalmologie; Professor Weygandt of Hamburg, an honorary member of the Section of Psychiatry of the Royal Society of Medicine; and Dr. Memmesheimer, director of the university skin clinic at Tübingen, an honorary member of the London Dermatological Society.

Letters, Notes, and Answers.

All communications *in regard to editorial business should* be addressed to ***The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.***

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The ***TELEPHONE NUMBERS*** of the British Medical Association and the *British Medical Journal* are *MUSEUM 9861, 9862, 9863,* and *9864* (internal exchange, four lines).

The ***TELEGRAPHIC ADDRESSES*** are:

EDITOR OF THE *BRITISH MEDICAL JOURNAL, Aitiology Westcent, London.*

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*

MEDICAL SECRETARY, *Mediocera Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone 24361 Edinburgh).

QUERIES AND ANSWERS

THE PLOMBIÈRES DOUCHE IN CHRONIC CONSTIPATION.

"J. D." asks: Would any of your readers be kind enough to let me know his experience in the use of the Plombières douche for chronic constipation? Is it injurious? Is it efficient in re-educating the intestine and developing the daily rhythmic peristaltic movement of the intestine?

TREATMENT OF CHRONIC PRURITUS ANI.

"H. F." asks for advice in treating a case of chronic pruritus ani. The patient has an area of skin, about 1 in. around the anus, which is slightly oedematous and has many small cracks in it. These cracks have been touched with silver nitrate with no satisfactory results. The patient is very depressed and almost melancholic. A proctoscopic examination has established the absence of piles.

TRANSIENT ATTACKS OF OEDEMA.

DR. E. MURPHY (Cork) writes: In reference to Dr. Lowman's inquiry in the *Journal* of November 23rd (p. 991), I remember a case of a girl, aged 7 years, who suffered from general oedema, with no symptoms of heart or renal trouble. I was informed that she had an inordinate love for salt, taking it from the salt cellar as though it was sugar. On preventing the child from obtaining salt, she rapidly recovered, and was able to leave her bed. I would advise Dr. Lowman to inquire as to his patient's food.

DENTAL ANAESTHESIA FOR CHILDREN.

MR. A. J. MAURICE, L.D.S. (London, W.), writes: In answer to "W. D." (November 30th, p. 1019), if your correspondent would adhere to ethyl chloride throughout, without changing to ether, I think he would get a better result. In my practice, the hospital portion of which, unfortunately, includes a large number of extractions for children, I always operate on patients up to 12 years of age under ethyl chloride given by the closed method. In children over 12 years of age I find that nitrous oxide is the most satisfactory anaesthetic. If it is desired to get a longer anaesthesia than nitrous oxide alone offers, one can have recourse to nitrous oxide followed by ethyl chloride.

DR. W. C. SHARP (Holytown) writes: In reply to the inquiry by "W. D." as to the best anaesthetic for dental work in the case of children and young persons, may I suggest that nitrous oxide-oxygen, either with or without ethyl chloride, is the anaesthetic of choice. It is safe, efficient, and expeditious, and being rapidly eliminated, there are practically no after-effects. The vapour is not unpleasant, and I have not found any undue fear of the face-piece, even with young children. The Guy-Ross method of administration is most suitable, although I prefer a slightly modified apparatus. It is best to add several pumpfuls of oxygen to the nitrous oxide before applying the face-piece; during induction keep up the oxygen content of the bag, using the patient's colour as a guide. The younger the patient the greater is the volume of oxygen required. Very young children will hardly need ethyl chloride at all. I have always found a maximum of 1 c.cm. sufficient for any child.

DR. CUDRIC COXON (Dersingham, Norfolk) writes: From a dentist's point of view "open ether" is the anaesthetic that answers all purposes, and I suggest that "W. D." should employ the "safety first" anaesthetic, in spite of the opinion of one or two restive dentists. I have had considerable experience of general anaesthesia, both in private and in hospital practice; where I can use it I prefer ether, continuing it as nasal combined with oxygen or nitrous oxide and oxygen, from a Boyle's apparatus, if necessary. For young people who require only a few extractions, and there is a choice of anaesthesia, always use open ether; it is nearly always possible to finish operating without having to re-induce.

INCOME TAX.

Cash Basis: Death of Partner.

"S. H. B." was in practice as a partner until his death on March 30th, 1929. The partnership accounts have been made up to December 31st annually, and the liability of the firm for the year to April 5th, 1929, was assessed on the basis of the account for the year to December 31st, 1927, the receipts being shown at the gross amount of cash received in that year. What is the position of the executors and of the surviving partner?

*** The general question of the cash basis was discussed with an official representative of the Inland Revenue Department some years ago, and, so far as our knowledge goes, is still regarded by the authorities in the same way, notwithstanding the changes effected in the law by the Finance Act of 1926. In its view—and we are unable to controvert it—the legally correct method of preparing a practitioner's account is to compute the receipts at the amount of the year's *bookings*, less an allowance for irrecoverable amounts arrived at after a detailed examination of the ledger. It was, however, agreed that this involves a troublesome process, and, further, that where the practice has reached normality, so that the receipts year by year are reasonably steady, then, in the long run, the same result is reached, whether the receipts are calculated on the "cost" or the "bookings" basis. Consequently, while it was made clear that the department does not admit any legal right to the cash basis, and is not prepared to enter into any arrangement to apply it, nevertheless it is prepared to acquiesce in that basis in suitable cases. Applying that line of reasoning to the present case, it would seem to follow (1) that there is no liability on the executors to account for tax on the debts collected after December 31st, 1927—the income has been adequately assessed for the period to April 5th, 1929; (2) that the surviving partner will be liable to account for tax on the whole of the profits of the practice as from the latter date; and (3) that in assessing that income for the year to April 5th, 1930 (no notice to break the previous year's method of assessment having been given under Section 32 (1), Rule 11 (1) of the Finance Act, 1926), the profits will have to be taken at the amount of the income of the practice for the year to December 31st, 1928; if that was a normal year it can, no doubt, be calculated on the basis of the cash receipts of the practice for that year, otherwise the "bookings" basis will have to be applied. The same result is reached for 1930-31, it being remembered that if the cash basis is applied, then *all* such receipts, whether taken by the executors or the surviving partner, must be brought into the computation.

LETTERS, NOTES, ETC.

TREATMENT OF THE ORDINARY COLD.

DR. STANLEY E. DENYER, C.M.G. (Hull, writes: During the last two or three winters I have been using for the ordinary cold a simple treatment, which consists of a small quantity of quinine sulphate, about as much as one would put on a threepenny bit, dissolved in about a quarter of a sherry glass of cooking sherry. This can be taken two or three times a day. If a dose is taken at the beginning of a cold, in many cases it will prevent its development. A patient whom I have been treating for tuberculous disease of the lung—dullness, loss of tactile vocal fremitus, marked shadow to *x* ray in the same area, weakness, and slightly raised temperature—frequently and easily caught cold; when he did, he always had pain in the upper part of the left chest, the seat of the trouble. He was directed to take quinine as described above, and has informed me that it always cut short the colds; in addition, it always relieved the pain in his chest, which in every case previously had been moderately severe, whenever he started a cold. He volunteered this information without any question on my part. Many have told me that the quinine and sherry have certainly stopped a cold in its beginning. It is necessary to use cooking sherry. On the one or two occasions that a good sherry has been used I have not found it nearly so effectual; it is a pity to spoil a good sherry with quinine. Cooking sherry contains more acid than the better varieties of sherry, as will be easily shown by the much more rapid way in which quinine dissolves. It also seems to act better, probably because, being better dissolved, it is more readily absorbed.

RACIAL INCIDENCE IN DISEASE.

DR. J. STEWART MACKINTOSH, in the course of a letter winding up this discussion, writes: Once more I must beg Dr. Sourasky to read my letters with closer attention. All I did was to propound a theory which seemed to accord with biological law and adduce prima facie evidence in support of it, asking at the same time for independent investigation. The principle concerned is that a race evolved in one environment will, on migration to another, experience stress whenever and wherever the new differs from the old; and that physical and mental traits which have a survival value in one environment may be a handicap in another. Dr. Sourasky seems to be unaware that the racial origins of the British people have been explored in the most thorough-going way. I have some acquaintance with current views as to the ethnology of the modern Jew, and find nothing to rebut my suggestion that he, like certain other types in this country, is warmed and cooled by the same summer and winter—not quite as the rest of us. I gave reasons in my first letter (October 5th, p. 647) for believing that this also applies to other intrusive elements (as distinct from the Neolithic substratum) in the composition of the British people. Do not, for instance, our upper classes, predominantly Nordic, find exhilaration in the dry and sunny Alpine winter, in part at least, because they are regaining climatic conditions lost to them by the migration of their ancestors? For this type also seems prone to catarrh and its sequelae when exposed to damp and cold—particularly as regards soil—and statistics have conclusively proved its inadaptability to urban life, a fact to be explained by its racial inexperience thereof.

MOTORIST'S KNEE.

"R. V. S." writes: It seems there are numerous disabilities caused by motor driving. From personal experience I can say there is a form of motorist's knee. Two years ago I bought an American type of car in which the control pedals are stiff and placed high off the floor boards, so that one cannot rest the heel on the floor boards when pushing out the clutch or adjusting the foot brake pressure. I developed severe pain and stiffness in both knees, more particularly in the inner sides over the internal lateral ligaments. This must have set up a form of fibrositis, as it is still troublesome. I am sure the position of the foot controls is wrong.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 44, 45, 46, 47, 50, and 51 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 48 and 49.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 264.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

523. Essential Hypertension.

A. S. GRANGER (*Journ. Amer. Med. Assoc.*, September 14th, 1929, p. 819) defines primary or essential hypertension as that unaccompanied by nephritis, hyperthyroidism, aortic insufficiency, or any other condition usually associated with a rise in blood pressure. Essential hypertension is characterized by a persistent systolic pressure of 145 mm. of mercury or over, and a left ventricular cardiac hypertrophy, without demonstrable cause, though the hypertension may exist in the early stages without the cardiac enlargement. It is a progressive disease, probably beginning in the second and third decades of life and ending usually from the third decade on, by heart failure, cerebral accidents, or renal insufficiency. There is no known definite cause for this type of hypertension, but the factors most concerned are heredity and vasomotor hyper-irritability. Vascular lesions of the medulla, affecting the vasomotor centre, may produce a rise in the systemic pressure, but the hypertension may precede such lesions. Other factors are sclerosis of the arterioles of the medulla, endocrine disturbances, renal vascular alterations, obesity, and infection. Sclerotic changes in the renal arteries and their branches, especially in the afferent arterioles of the glomeruli, are almost pathognomonic, and are the most common pathological finding. The next most frequent is hypertrophy of the heart, particularly of the left ventricle. The degree of the diastolic pressure is probably of greatest moment in determining the prognosis, a high figure being of serious import. Treatment should be directed mainly to regulating the life and habits of the patient, so as to promote rest, freedom from worry and aggravation, and moderate pleasurable exercise. Dietary restrictions are of use only in the obese, or when cardiac or renal incompetence occurs. Drugs have a very limited applicability in this condition. A frank discussion of the ailment by the physician and the patient is advisable in most cases.

524. Symptoms and Treatment of Coronary Thrombosis.

R. SINGER (*Wien. Arch. f. innere Med.*, October 10th, 1929, p. 421), who has seen 20 cases in the course of the last three years, states that acute coronary thrombosis is characterized by anginal pains lasting for hours; they are not affected by nitroglycerin, and are followed by hyperaesthesia. In cases of involvement of the left ventricle Cheyne-Stokes breathing is present, though it may not be pronounced. The following symptoms, though frequent, are not constant: changes in cardiac rhythm, such as tachycardia, bradycardia, and extrasystoles, signs of failing compensation, and digestive disturbances, including meteorism, anorexia, and vomiting. The prognosis depends on the extent of the myocardium involved. Of the 20 cases studied 7 patients died—a mortality of 35 per cent.; five in the first attack, and two in the next eight weeks owing to recurrences. The other patients, in some of whom the condition has lasted for over three years, are in fairly good health in spite of having plenty of work to do. Treatment consists principally in absolute rest in bed for at least ten to fourteen days after complete cessation of all symptoms. Each patient should be given morphine and quinidine at once. About a fortnight after the attack a course of intravenous euphyllin should be started. Digitalis should be exhibited only in small doses when signs of failing compensation occur. Symptoms of angina or hyperaesthesia which persist are frequently benefited by Zulzer's cardiac hormone and *x*-ray treatment.

525. The Blood Pressure in Scarlet Fever.

J. A. EDELMANN (*Jahrb. f. Kinderheilk.*, October, 1929, p. 167) examined the blood pressure in 410 cases of scarlet fever in the children's department of the Workmen's Hospital at Kiev, and came to the following conclusions. In the first week of the disease the number of patients with a raised blood pressure exceeds those without any rise and amounts to 65-70 per cent. In the second and third weeks the number of cases with a rise of blood pressure begins to fall rapidly and is almost the same as those without any rise of blood pressure, especially if mild uncomplicated cases are included. In cases complicated by nephritis from the first or at a later stage this fall is not observed. From the beginning to the end of the third week the number of cases with increased blood pressure begins to rise again, amounting to 70 per cent., and even 80 to 90 per cent. when the cases complicated by nephritis are included. The increase of blood pressure in nephritis is shown by a sharp rise of 20–30 mm. Hg and more. As the blood pressure appears to be raised in cases complicated by nephritis from the first before the appearance of this complication, these cases may be regarded as possessing a certain renal insufficiency, which is the predisposing cause of the nephritis. The present series confirms numerous observations as to familial predisposition to scarlatinal nephritis. Severe attacks of scarlet fever have the same hypertensive effect as scarlet fever generally. In the majority of cases (76 per cent.) the rise and fall of the minimum pressure corresponds with that of the maximum pressure. The usual method of determining the diastolic pressure as introduced by Korotkow cannot be regarded as reliable, so that there should be considerable caution in accepting estimates of the diastolic pressure.

526. Weil's Disease without Jaundice.

G. C. VAN DEN HEUVEL (*Nederl. Tijdschr. v. Geneesk.*, October 12th, 1929, p. 4791) records the case of a boy, aged 11, who after swimming in a bath, the water of which was in communication with that from a slaughterhouse, was seized with vomiting, fever, severe headache, and general malaise. Apart from slight abdominal tenderness, there were no physical signs. A diagnosis was made of acute gastro-enteritis owing to its prevalence at the time (July). In spite of a purgative the fever remained high and the patient had attacks of epistaxis; herpes labialis developed, the liver and spleen became palpable, and there was considerable conjunctival injection, but jaundice was absent, and the urine remained normal. The possibility of Weil's disease was then considered, and examination of the blood showed an agglutination to *Leptospira icterohaemorrhagiae* in 1 in 25,000; leptospirae were also found in the urine of experimental animals. Apart from the abdominal pain, there was no pain in the muscles, and there was no eruption. Recovery was uneventful, the temperature becoming normal on the eleventh day.

527. Primary Diphtheria of the Lingual Tonsil.

L. NICOLAI (*l'Ospedale Maggiore*, September 30th, 1929, p. 298) records a case of primary diphtheria of the lingual tonsil in a woman, aged 62, who while convalescing from influenza complained of headache and difficulty in moving the tongue and swallowing. On examination the central part of the descending surface of the tongue showed a thick adherent exudate which bled on being detached. Nothing abnormal was seen in the fauces and tonsils, but there was moderate enlargement of the submaxillary glands, especially on the right side. There was fairly profuse sialorrhoea, the breath was fetid, and there was a trace of albumin in the urine. Bacteriological examination showed the presence of diphtheria bacilli. Three injections of antitoxin were given, and the condition gradually cleared up without being followed by any complications.

Surgery.

528. Electrocautery in Prostatic Obstruction.

C. P. MATHÉ (*Urol. and Cut. Rev.*, October, 1929, p. 652), who records three illustrative cases, states that dividing or tunnelling the prostatic bar by the use of the high-frequency current through the cystoscope is a useful procedure, and can always be employed in relieving obstructions due to median lobar hypertrophy, to hypertrophy of the collar type, and to atrophy caused by sclerosis. This method is also applicable to cases presenting the early stages of hypertrophy of the median and lateral lobes, and to cases with bad surgical risks, as well as in a large number of so-called borderline cases usually treated by prostatectomy. In many of these the retention is due to inflammatory enlargement with spasticity of the sphincter and not to hypertrophy of the gland. The method does not supplant prostatectomy, which should be reserved for cases in which the gland has reached a considerable size. It is a simple procedure which can be performed under local anaesthesia, is followed by little general reaction, involves no risk of death, and is less likely to be accompanied by complications such as epididymitis, embolism, seminal vesiculitis, and incontinence. Moreover, the sexual power is less likely to be weakened and reproductive power is preserved. In 51 cases under the author's care the immediate and ultimate results were excellent in the median lobe hypertrophy, sclerotic atrophy, and collar type hypertrophy.

529. Idiopathic Peritonitis in Children.

W. OBADALEK (*Deut. Zeit. f. Chir.*, Heft 3-6, Bd. 220, November, 1929, p. 307), whose paper is based on 50 cases treated in the Children's Hospital at Brünn since 1920, states that idiopathic peritonitis in children is not a rare event. It is most frequent in girls, only 9 of the series being boys. The cause for this is not a genital infection, but the different relations of the peritonitis in the two sexes. In only 3 of the 50 cases could an ascending genital infection be proved, due in one case to the streptococcus and in two to the gonococcus. In all the rest an enterogenous origin appeared to be the most probable, the causal organisms being pneumococci, streptococci, staphylococci, or *B. coli*. The most frequent starting point of the peritonitis was found to be the lower end of the small intestine, the peritoneal covering of which appeared to be more severely affected than the other segments of the intestine, while the appendix was the next most frequent originating site. In the absence of other complications the long duration of the fever was caused by infection of the mesenteric glands, but if this did not occur the fever soon came to an end by rapid lysis. Owing to the danger of metastasis, early operation is less dangerous than expectant treatment even in pneumococcal peritonitis. The gravity of the prognosis in idiopathic peritonitis is shown by the fact that of 47 patients on whom an operation was performed 16 died—a mortality of about 34 per cent.

530. Fracture of the Acetabulum.

F. G. DIAZ (*Bull. et Mem. Soc. Nat. de Chir.*, November 2nd, 1929, p. 1135) reports the case of a man, aged 28, who was admitted to hospital with the diagnosis of recurrent dislocation of the left hip-joint. A preliminary examination gave the impression that the dislocation had been completely reduced as the leg was in a correct position, could be fully extended, and movement was possible although painful. Under a light anæsthetic a loose body was discovered in the joint which made complete flexion of the leg impossible without great effort; at the moment of this flexion the head of the femur came out of the acetabular cavity, but could be put back again easily. The patient gave a history of an accident when he was felling trees, after which his leg appeared to be fixed in an extended position with internal rotation. By means of *x* rays it was seen that the reduction was not perfect and that a fragment prevented the reduction of the head of the femur in the joint. Surgical intervention consisted in fixing the fragment by suturing its free edge to the adjoining tissues in the hope of obtaining satisfactory union. Subsequent *x*-ray examinations showed that this had not taken place. At the end of two months the patient could walk with the help of two sticks, but complained of pain and weakness in the injured limb. Mobilization in flexion was possible to 90 degrees, in abduction to less than 45 degrees, while rotation was limited; the results were therefore only partially satisfactory. The small size of the particle made fixation by means of a metal plate impracticable. It is pointed out that a more satisfactory result might have been obtained if an attempt had been made to form a buttress of bone by using the fragment as a bone graft.

531. Surgery of Pylorospasm.

J. B. DEAVER and V. G. BURDEN (*Annals of Surgery*, October, 1929, p. 530) record the results in 31 cases treated by them in which an operation which they call pylorohemisphinctercetomy was employed in the treatment of duodenal, gastric, and gastro-jejunal ulcer and pyloroplasm, associated with hyperacidity, or with disease of the gall-bladder and appendix. The theory of the operation is based upon the correction of malfunction of the pyloric sphincter. The upper part of the [illegible] rectus is incised and the exposed gastro-duodenal area is effected [illegible] held under tension by drawing the stomach out and to the left [illegible] correct anatomical relations. An elliptical area including the anterior half of the pyloric sphincter is formed by two curved transverse incisions, carried down to the submucosa of the stomach and duodenum on either side of the sphincter. The lower end of this area, with the sphincter, is cut across, peeled off [illegible] mucosa, and cut again across the [illegible] gastric and duodenal serous edges are [illegible] sutured, and the operation leaves no [illegible] pyloric outlet. Wide extension [illegible] and the presence of scar tissue due to a nearby ulcer, are contraindications to the operation. In most cases the ulcer is not disturbed, but sometimes it is excised, and the anterior half of the sphincter is removed. In three cases of acute perforation of a duodenal ulcer the perforation was closed and the sphincter resected. In the 31 cases under review, duodenal ulcer was found in 23, of which three were acute perforations; there were three cases of gastric ulcer, nine of cholecystitis, of which seven had an associated duodenal ulcer, and two pyloro-spasm. There were four cases of pylorospasm and one of gastro-jejunal ulcer. The anterior half of the pyloric sphincter was excised in all cases, and additional operative procedures included excision of a duodenal ulcer in four cases, gastro-jejunostomy in one case, cholecystectomy in nine cases, and sleeve resection of the stomach in two cases. Only 18 patients reported subsequently, and of these 15 were completely relieved of symptoms, two were greatly improved, and one had gained only moderate benefit. In 12 cases *x*-ray examination after operation showed no gastric retention, no hyperperistalsis, and only slight deformity of the pyloric canal.

Therapeutics.

532. Malaria Therapy in Diseases of the Nervous System.

D. PAULIAN (*Presse Méd.*, October 23rd, 1929, p. 1375) summarizes several hundreds of cases treated by malaria therapy and by other (non-malarial) pyreto-therapeutic methods. Malarial inoculations produced the following results: in general paralysis 30.4 per cent. remissions, and 34.1 per cent. improvements; in meningo-encephalitic syphilis the respective figures were 44.6 per cent. and 32.3 per cent.; in tabo-paralysis 33.3 per cent. and 30.3 per cent.; in tabes *nil and 65.7 per cent. In syphilitic optic atrophy there was* practically no result. All the patients were also treated with arsenic, bismuth, and mercury. Malaria therapy was also used *in certain non-specific nervous affections*: post-encephalitic Parkinsonism (12 cases), epilepsy (8), disseminated sclerosis (3), spasmodic paraplegia of medullary origin (4), and dementia præcox (5), but the results were almost negligible, though *in manic-depressive psychosis the phase of excitement* is reported to be often shortened. Among non-malarial methods of pyreto-therapy were tried: recurrent fever; tuberculin and antityphoid vaccine; neuro-yatren; and milk, sodium nucleinate, and phlogetan. The results of undulant fever infection were very poor, while tuberculin was found to be useless and dangerous. Antityphoid vaccine administration improved some cases of general paralysis, meningeal syphilis, and tabo-paralysis, but the results were poor compared with those of malaria therapy. In non-specific nervous diseases, however, it is claimed that there was total remission in six cases of mental confusion, and marked improvement in 23 cases of post-encephalitic Parkinsonism; in these cases vaccine therapy was associated with the exhibition of calcium chloride and sodium cacodylate. The vaccine "neurin" (a mixture of staphylococci and *B. prodigiosus*) is said to have improved six cases of disseminated sclerosis. Neuro-yatren (a complex suspension of bacteria) was of considerable benefit in four cases of post-encephalitic Parkinsonism, in six cases of disseminated sclerosis, in four cases of adhesive meningitis, and, above all, in thirty cases of infantile paralysis. The results of milk injection were not encouraging. The conclusion is reached that malaria therapy constitutes the treatment of choice of general paralysis, of meningo-encephalitic syphilis, and of tabo-paralysis. Non-malarial pyreto-therapy is a useful adjuvant, and should be employed in all cases where the patient is too debilitated, where there is no reliable source of malaria, or where too high a temperature would aggravate the existing illness. Among the advantages of this latter treatment should be noted the ability to control the raised temperature in each case, and the possibility of reinforcement by different adjuvant or specific therapeutic agents.

533. Idiosyncrasy for Potassium Sulphocyanate.

C. R. WEIS and R. RUEDEMANN (*Journ. Amer. Med. Assoc.*, September 28th, 1929, p. 988) report a case of exfoliative dermatitis caused by potassium sulphocyanate therapy; they believe that this is a hitherto unrecorded complication of the treatment for essential hypertension. A man, aged 37, complained of dyspnœa and cough; he suffered from hyperthyroidism and essential hypertension. The blood pressure was 240/140, and he had cardiac hypertrophy and dilatation. After a course of digitalis and iodine treatment thyroidectomy was successfully performed, and, since the blood pressure remained unchanged, he was given 1½ grains of potassium sulphocyanate three times daily for the first week and twice daily for the second week. On the tenth day an acute diffuse erythematous dermatitis appeared, involving the face, neck, hands, forearms, and ankles; it was preceded and accompanied by burning and itching, and reached its maximum intensity after four days. The dermatitis cleared up rapidly upon withdrawal of the drug, alkalization of the patient, dieting, and giving colloid starch-soda baths. Six weeks after the condition had completely disappeared potassium sulphocyanate treatment in much smaller doses

was again commenced, but three days later an acute inflammatory erythematous dermatitis reappeared, though in a less severe form. This second attack was thought to be sufficient proof that the potassium sulphocyanate was responsible for the condition, and the authors regard the incident as another example of an unfavourable result from its use, in addition to those already recorded by Palmer and Sprague.

534. Liver Diet in Pernicious Anaemia.

V. SCHILLING (*Dent. med. Woch.*, October 11th, 1929, p. 1701) has analysed 80 cases of pernicious anaemia treated with liver diet since February, 1928; in 14 of these relapse had followed the discontinuance of liver treatment, but resumption of the treatment resulted in benefit. Six patients died, but two of these had only been under treatment for a few days; in the remainder death followed such complications as hydronephrosis and tabo-paralysis, and no post-mortem evidence was obtained of severe anaemia. In a number of cases which did not respond to liver treatment promptly, adjustment of the dose and the substitution of whole liver extracts (on which Schilling lays great stress) usually brought rapid improvement. Only one patient in whom the anaemia was complicated by menorrhagia became worse in spite of the treatment, though some senile patients were slow to respond. In two with degeneration of the spinal cord this condition was apparently checked, and the symptoms improved. Schilling concludes that liver diet has proved successful, practically without exception, in this large series of cases, provided that the dose was adapted to the individual, the apparent failures being all due to severe complications.

535. R. SEYDERHELM (*Ibid.*, p. 1704) reports three cases of pernicious anaemia in which severe symptoms of intoxication of the nervous system followed the administration of liver; these included hallucinations, disturbances of speech, and coma, while the blood remained normal. The author states that before the introduction of liver diet such symptoms were never observed, those cerebral symptoms which did occur in the later stages of the disease being directly attributable to the anaemia. He also mentions that the onset of an intercurrent infection such as cystitis or pyelitis (which is particularly liable to occur in cases with degeneration of the spinal cord) was frequently followed by a reduction in haemoglobin and erythrocytes; this persisted until the quantity of liver which had previously sufficed was augmented. Seyderhelm concludes that though liver diet may replace a hormone normally produced in the liver, and thus relieve the actual anaemia, it must be considered rather as a palliative of one group of symptoms than as a cure for the disease, since the achlorhydria persists and degeneration of the cord tends to progress. The syndrome of pernicious anaemia, when the anaemia is relieved by liver diet, is being in fact replaced by a pernicious myelo-encephalo-toxicosis, due to a toxic factor which remains unidentified.

536. Subcutaneous Injections of Oxygen.

V. MIKULOWSKI (*Wien. klin. Woch.*, August 8th, 1929, p. 1018) discusses the administration of oxygen in the children's clinic at Warsaw, with special reference to its subcutaneous injection into infants suffering from croup. He gives daily injections of about 100 c.cm. for a week or so in cases of emergency, particularly when croup is associated with pneumonia and intense cyanosis. He comments favourably on the results so obtained, but emphasizes the need of associating this procedure with the usual methods of treatment, such as intubation, tracheotomy, and the administration of serum. He agrees with other investigators that in older patients far larger volumes of oxygen can be injected into the body with benefit, particularly in cases of haemorrhage and certain infections, such as typhoid fever.

Laryngology and Otology.

537. Treatment of Nasal Suppurations.

GRAIN (*Rev. de Méd.*, 1929, No. 7, p. 763) thinks that nasal suppurations, which frequently lead to serious sequels, do not receive the attention they merit. The nasal fossae are not inert organs, and their degree of health governs in a very large degree the vitality of the entire organism. Nasal suppuration may be acute or chronic. At the onset the infection is limited to the mucosa, both of the nasal fossae and of its prolongation into the aural annexa. The glandular system is rapidly invaded, and the infection soon spreads to the periglandular cellular tissue in the submucosa. The condition then becomes chronic, leading to hypertrophy of the mucosa and conditions of the turbinates which often necessitate long and complicated surgical intervention. Treatment mainly consists of two methods- the antiseptic and the vaccinal. No variety of the former—aqueous or oily solutions, ointments, or powders—is advised owing to its non-specificity, non-diffusibility, and coagulating action on the tissue albumins. Grain advocates strongly vaccine therapy, both general and local, and reports six cases in support of this view. Local treatment consists in placing sterile cotton pledgets, soaked with a polyvalent auto-antivirus, in contact with the middle and, if possible, with the inferior turbinate; the nasal fossae should also be freely swabbed with the antivirus. The patient must avoid blowing his nose, unless necessary, for the succeeding two hours. This treatment should be applied daily, and even twice a day in very acute cases. The applications should be bilateral, the rhino-pharynx be immunized, and treatment continued till all traces of suppuration have disappeared. As general treatment, injections of a polyvalent autogenous vaccine are given every two days in doses of 0.5 c.cm., which are gradually increased to 2 c.cm. The local application is the essential treatment, the general being only an adjuvant, though a necessary one. In long-standing cases in which the bone has become affected, and in those presenting such malformations as deviations or bony spines of the nasal septum and hypertrophy of the head of the middle turbinate, surgical measures must be employed. Certain conditions, such as acute coli-bacillary rhinitis occurring during pregnancy, require specific treatment; cure in these is slow and the results are uncertain.

538. Atrophic Rhinitis Treated by Radium.

L. HERBERT and G. A. ROBINSON (*Arch. of Otolaryngol.*, August, 1929, p. 166) review the present knowledge of atrophic rhinitis, and advocate radium treatment. No satisfactory explanation has yet been found for all cases, but the almost routine removal of tonsils and adenoids and the modern treatment of sinusitis have markedly diminished the number of hospital patients. The most characteristic symptom is the offensive odour which is associated with anosmia; the cause of the odour is not clear, but Frese claims that it is due to fatty degeneration of the glandular cells of the nasal mucosa. Up to the present treatment has been unsatisfactory, though the condition has a tendency to disappear after middle life, probably owing to the fibrosis of the nasal mucosa which occurs in old age, and gave the authors the clue to their radium treatment; this would hasten the fibrosis and abolish the foul odour, while leaving the structural atrophy. The first patients treated were subjected to a half erythema dose of gamma radiation; 20 milligrams of radium screened with 0.2 mm. platinum and 1 mm. brass were applied to the lateral nasal wall for ninety minutes on each side. Subsequently an erythema dose was given, two 50 mg. radium tubes screened as before being applied to the lateral nasal walls for sixty minutes. Within a week an inflammatory reaction similar to an acute rhinitis was observed. This reaction subsided in about three weeks, leaving the mucosa more healthy and much less crusty; there was also a marked decrease in the fetor. The authors give notes of five cases, all in young adults, treated by this method with considerable improvement. They emphasize the importance of diagnosing sinusitis if it exists and of treating it surgically. Sinusitis may coexist with a true atrophic rhinitis, and in these cases an operation alone fails to relieve the fetor. The authors believe that operation followed by radium deserves a fair trial in these cases. A complete cure is not claimed for this method, but all the cases treated have been greatly benefited.

539. Malignant Growths in the Throat, Nose, and Ear.

U. CALAMIDA (*Arch. Ital. di Otol., Rhinol. e Laringol.*, October, 1929, p. 620) gives the following statistics of malignant growths treated in the oto-rhino-laryngological department of the Ospedale Maggiore of Milan during the period May 1st, 1908, to December 31st, 1928. Among a total of 26,356 patients, of whom 13,247 were men and 13,109 women, the number of those suffering from malignant growths was 394, or 1.49 per cent. The proportion of men affected was 2.15 per cent., and of women 0.83 per cent. As regards the localization of the tumours, the larynx was the organ most frequently affected (44.5 per cent.), the nasal fossae came next (14.1 per cent.), and then in order of frequency the pharynx (13.6 per cent.), tonsils (10.8 per cent.), oesophagus (7.5 per cent.), ear (4.5 per cent.), maxillary sinus (3.3 per cent.), palate (1.01 per cent.), frontal sinus (0.26 per cent.), and ethmoid sinus (0.26 per cent.). The increase in the number of malignant growths from a minimum of 0.72 per cent. in 1911 to a maximum of 4.15 per cent. in 1926 is probably more apparent than real, and is to be attributed to improvement in diagnosis as the result of biopsies, the gradual increase in the number of statistics, treatment centres, the more careful compilation of statistics, and the increase in the number of persons who reach an advanced age, when new growths are most frequently encountered.

Obstetrics and Gynaecology.

540. Significance of Birth Injuries to the Foetal Skull.

H. HEIDLER (*Wien. klin. Woch.*, September 12th, 1929, p. 1199) draws attention to four examples of foetal skull injuries. In the first case, a breech presentation with delay and difficulty in delivering the head, for which some force was used, an asphyxiated child is born and cannot be revived. Formerly pressure on the cord was blamed, but examination of the skull will show tears of the tentorium cerebelli with haemorrhage into the posterior fossa, causing asphyxia centrally. The second type occurs in the case of a primipara; after a long labour the head is held back still longer by the midwife in an attempt to save the perineum. The child is born blue, but is resuscitated; it remains apathetic, never cries lustily, and dies on the second day of intracranial injury caused by pressure during the passage through the pelvis and accentuated by perineum saving. Thirdly, after a precipitate birth, the child appears healthy, but pines and dies in a few days of intracranial haemorrhage caused by a too quick passage with no time for moulding. Lastly, in a prolonged premature labour resulting in the birth of a partially asphyxiated baby which dies in a few days, the necropsy will show gross changes in the brain, the soft skull not being strong enough to withstand the hardships of birth. According to Heidler, these are typical intracranial birth lesions; they are far commoner than formerly supposed, and point to the necessity for opening the skull at such necropsies. To prevent such accidents, he adds, prolonged labour should be avoided, and gentleness is essential in all operative procedures; care of the perineum must not be carried to excess. Caesarean section should be performed when the pelvis is contracted and in elderly primiparae, and labour should be conducted in hospital and not at home.

541. Krukenberg Tumour of the Ovary.

IN 1896 Krukenberg reported and gave a detailed histological description of a comparatively rare tumour, which he called fibrosarcoma ovarii mucocellulare. He considered it as primarily a sarcoma with carcinomatous elements in its structure. In 1918 Major reported a series of 55 authentic cases which he had collected; he concluded that the tumour was essentially a carcinoma containing sarcomatous elements. R. FALLAS (*Surg., Gynecol. and Obstet.*, November, 1929, p. 638) has found 23 additional cases, including two reported for the first time in this paper. From a study of these he concludes that Krukenberg tumours are essentially a form of carcinoma identified by large mucinous cells often with eccentrically placed nuclei. They are almost, if not quite, invariably secondary to carcinoma elsewhere, and usually to a growth in the gastro-intestinal tract. These neoplasms are generally bilateral; they metastasize early, and are almost invariably fatal. They produce a general enlargement of the ovary, which keeps its general form and is, as a rule, free from adhesions. Ascites is usually associated with the growths. Of special interest is the path of transmission of these tumours from the primary growth in the gastro-intestinal tract to the ovaries, and many theories have been advanced concerning the method of metastasis. Surface infection may occur in some cases; the haematogenous route is also possible; but there is much evidence to make the lymphatic route, suggested by Amann, the most plausible one. This theory presumes that the retrogastric and superior lumbar glands become invaded, thus producing a blockage of the lymphatic stream, and, as a result, a retrograde migration by way of the ovarian lymphatics. The shape of these secondary tumours, which almost invariably corresponds to the original form of the ovary, points to invasion through the medulla rather than the cortex.

542. Puerperal Necrosis and Expulsion of a Myoma.

B. HERZFELD (*Zentralbl. f. Gynäk.*, October 12th, 1929, p. 2592) states that in the puerperium a uterine myoma may undergo involutionary changes with necrosis, and that the necrotic focus of infection whence remote infection may take origin. He relates the case of a 5-para admitted to hospital in labour at term; a myoma the size of the fist was palpable in the lower third of the uterus at the level of the presenting foetal head. Three days after spontaneous delivery of the foetus and placenta an attack of severe abdominal pain occurred with tenderness of the tumour and pyrexia, but yielded to conservative treatment. On the eighth day infarction of the right lung appeared, and on the twenty-eighth day a thrombosis of the right leg was noted. Six days later the intramural myoma, which in consequence of its infection had become detached from its capsule, was expelled by the vagina, and within a fortnight the patient's condition, locally and generally, appeared normal.

Pathology.

543. Storage of Iron after Oral and Subcutaneous Administration.

C. J. POLSON (*Quart. Journ. Med.*, October, 1929, p. 77) records the results of further research controlling previous observations relating to the sequels of the intravenous administration of iron. Four rabbits were given daily doses of 0.5 gram of iron mixed with their food, the preparation used being either undiluted dialysed iron or a 25 per cent. dilution of liquor ferri perchloridi (*B.P.*). The experiments lasted from 172 to 450 days. Eight rabbits were used for the subcutaneous series; five received a single dose of from 0.5 to 1 gram of iron, while the three others received more than one dose, a total of 2 grams, 1 gram, and 0.6 gram respectively. The undiluted dialysed iron was used throughout. The principal site of iron storage, whatever the route of administration, was shown to be the liver. Histologically, at the periphery of the lobules coarse granules of iron were seen gathered around the nuclei in the liver cells, while in other parts of the lobules fewer and smaller granules were also evident. The process of storage was probably identical irrespective of the mode of administration. The caecum and kidneys contained an excess of iron and were probably concerned in its excretion. Excess of iron in the bone marrow was not observed, and there was no undue activity of its cells. The rate of storage varied according to the route. When from 256 to 448 mg. were given by the intravenous route there was between 120 and 184 mg. excess of iron in the liver after intervals of from three to twelve months; following the subcutaneous administration of 1 gram of iron there were 398 mg. excess at the end of eight months, while the oral administration of 90 grams resulted in the storage of only an excess of 81.8 mg. at the end of eight months. The subcutaneous route avoided the danger of intravenous administration—namely, pulmonary embolism.

544. Hypervitaminosis D.

J. A. COLLAZO, B. VARELA, and P. RUBINO (*Wien. Arch. f. innere Med.*, October 25th, 1929, p. 137) have shown, in a series of experiments on white rats, that when fed on MacCollum's rachitic diet to which was added 5 mg. of radiated ergosterin the animals died with symptoms of hypervitaminosis D. Similar but more rapidly poisonous effects resulted from giving the same dose of radiated ergosterin to healthy rats which were fed on a normal diet containing the usual complement of vitamin D. The normal rats died within a week and the rachitic rats in the course of three to four weeks. The animals showed complete calcification of the interdiaphyseal-epiphyseal cartilages of the long bones, with consequent arrest of growth. There was extensive calcification of the walls of the larger arteries with formation of diffuse aneurysms; interstitial nephritis; and the formation of tumours on the stomach wall.

545. Experimental Malaria with Long Latent Period.

W. A. P. SCHÜFFNER, P. C. KORTEWEG, and N. H. SWELLENGREBEL (*Nederl. Tijdschr. v. Geneesk.*, October 5th, 1929, p. 4622) inoculated with malaria eleven volunteers who allowed themselves to be bitten by *Anopheles maculipennis* which had been infected with *Plasmodium vivax*. The inoculations took place between October 30th and November 7th, but the malaria did not develop until between June 26th and August 20th, or after an average interval of eight months. The authors allude to similar experiments carried out by James, whose patients did not develop malaria until six to nine months after they had been bitten by anopheles. Experiments of this kind suggest that the most important part of the annual epidemic of malaria—namely, that before the second half of July—is the result of infection in the previous autumn.

546. Post-operative Bacteriaemia in Malignant Growths.

M. EINAUDI (*Giorn. di Batteriol. e Immunol.*, September, 1929, p. 884) investigated the presence of post-operative bacteriaemia for malignant growths by the following method. Of 12 c.cm. removed from a vein of the elbow, 5 c.cm. were inoculated into 250 to 300 c.cm. of broth, 3 to 4 c.cm. on agar plates, and the remainder on the Tarozzi-Noguchi medium or in Kollrath's double tube for anaerobes. The blood was taken immediately after the operation, or after an interval of half an hour, 7, 24, or 48 hours. Einaudi concludes that post-operative bacteriaemia is not frequent; when it does occur, it appears during the first few hours after the operation. Of 340 cases studied it was usually transient in 26, or 7.64 per cent., disappearing within 24 hours, and not constituting an unfavourable symptom. No relation was found to exist between post-operative bacteriaemia and the clinical course.

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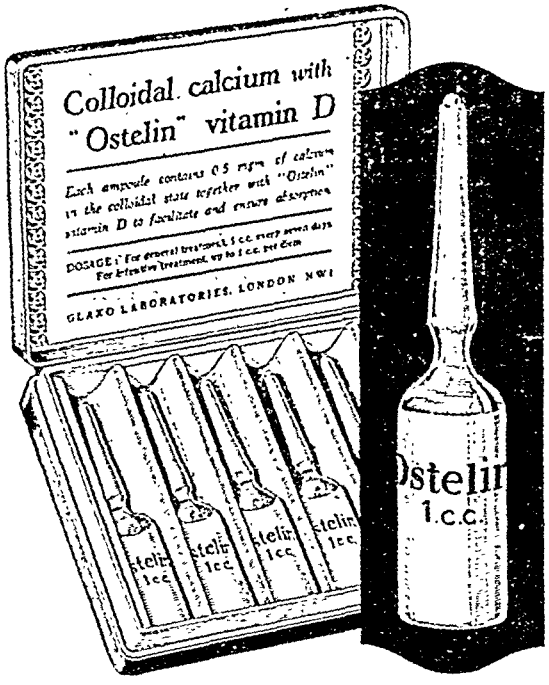

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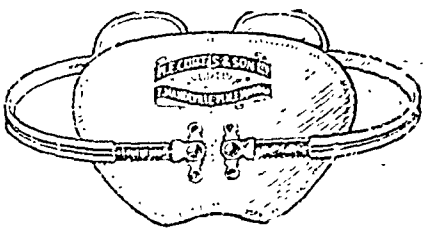

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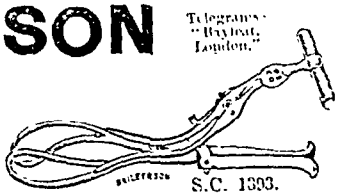

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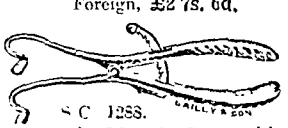

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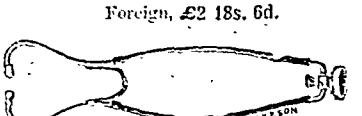

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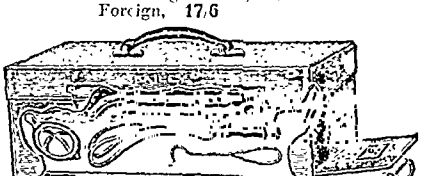

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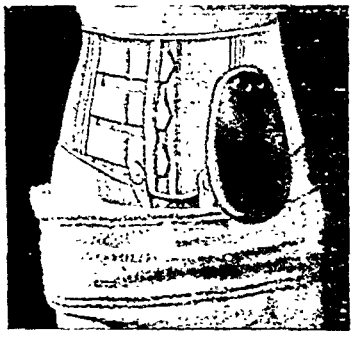

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SALT'S (Patent) COLOSTOMY BELT

1. Detachable receiver sterilizable by boiling.
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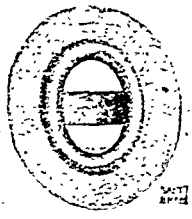
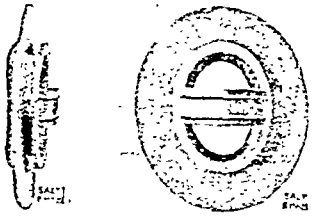
5. Less bulk, greater comfort, and more sanitary than any other.
6. Rubber portions far more durable than in the old style belt.

Showing attachment of receiver and bag to belt.

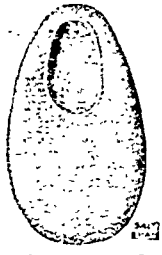
Details of Receiver and Bag
STERILIZABLE BY BOILING



Showing rubber receiver with pad fitting next to body and rubber flange to prevent belt becoming soiled.



Showing other views of receiver. See groove over which aperture in bag is stretched and curved bridge to hold open mouth of bag.



Indiarubber bag which can be detached at will for cleaning.

Showing bag attached to receiver.

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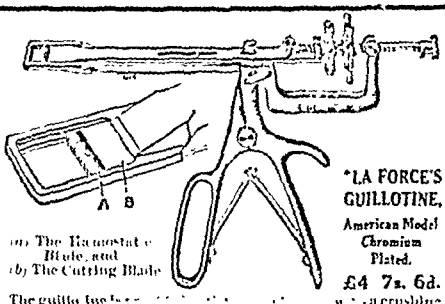

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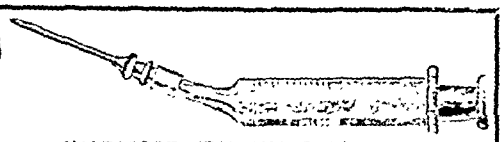

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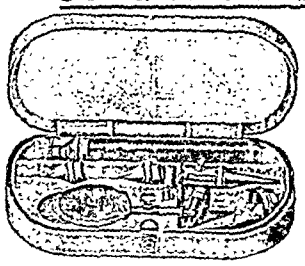

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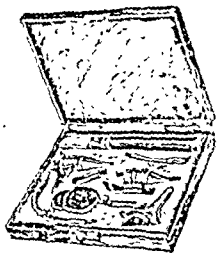

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May Auriscope with 3 specula
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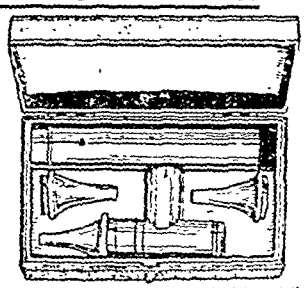

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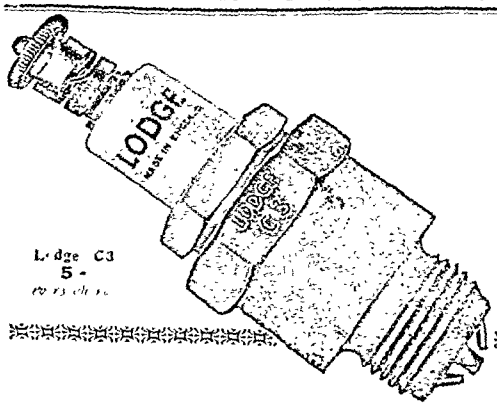

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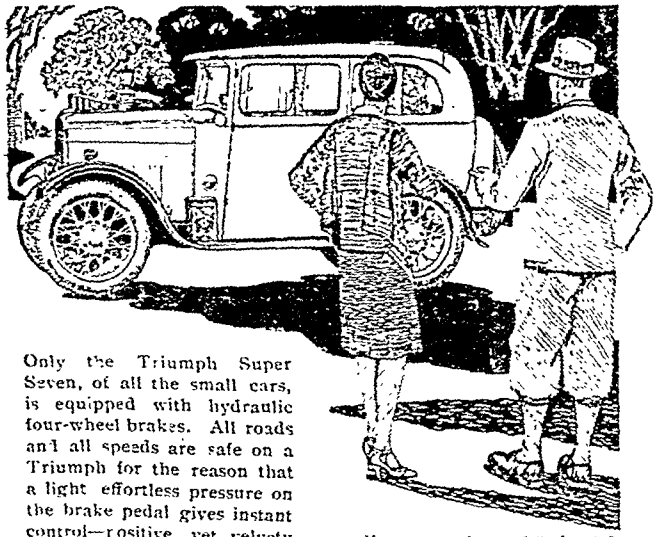

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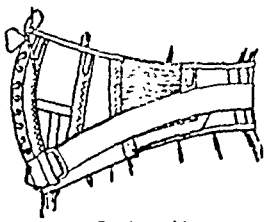

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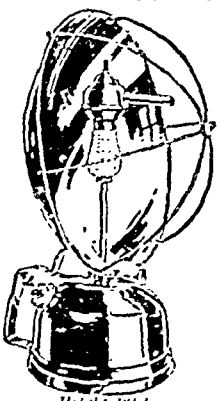

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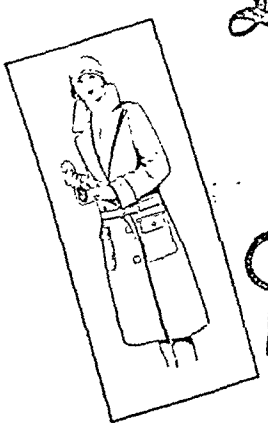
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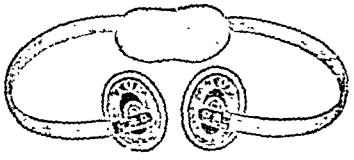

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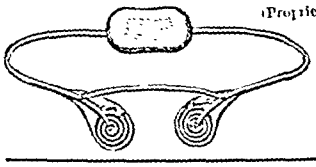

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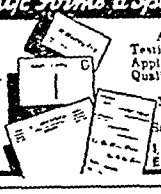

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STRETTON HOUSE,

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A PRIVATE HOME for the treatment of Gentlemen suffering from Mental or Nervous Illness, including the allied disorders of Alcoholism and the Drug Habit. All types of early Mental or Nervous cases are received without certificates as Voluntary Boarders. Bracing Hill country. See *Medical Directory*, p. 2138.—Apply to Medical Superintendent. Telephone: 10 P.O. Church Stretton.

Bishopstone House, Bedford.

PRIVATE HOME for MENTALLY AFFLICTED LADIES. Ten only received. Apply, Medical Officer or Mrs. PELLE. Telephone: 2708.

ST. ANDREW'S HOSPITAL
FOR MENTAL DISORDERS,
NORTHAMPTON

FOR THE UPPER AND MIDDLE CLASSES ONLY.

President: THE MOST HON. THE MARQUESS OF EXETER, C.M.G., A.D.C.

Medical Superintendent: DANIEL F. RAMBAUT, M.A., M.D.

This registered Hospital is situated in 120 acres of park and pleasure grounds. Voluntary Boarders, persons suffering from incipient nervous and mental disorders, as well as certified patients of both sexes, are received for treatment. Careful clinical, biochemical, bacteriological, and pathological examinations. Private rooms with special nurses, male or female, in the Hospital or in one of the numerous villas in the grounds of the various branches can be provided.

WANTAGE HOUSE.

This is a Reception Hospital in detached grounds, with a separate entrance, to which patients and voluntary boarders can be admitted. It is equipped with all the apparatus for the most modern treatment of Mental and Nervous Disorders. It contains special departments for *hydrotherapy by various methods, including Turkish and Russian baths, the prolonged immersion* bath, Vichy Douche, Scotch Douche, Electrical baths, Plombières treatment, etc. There is an Operating Theatre, a Dental Surgery, an X-ray Room, an Ultra-violet Apparatus, and a *Department for Diathermy and High Frequency treatment. It also contains Laboratories for* biochemical, bacteriological, and pathological research.

MOULTON PARK.

Two miles from the Main Hospital there are several branch establishments and villas situated in a park and farm of 650 acres. Milk, meat, fruit, and vegetables are supplied to the Hospital from the farm, gardens, and orchards of Moulton Park. Occupation therapy is a feature of this branch, and patients are given every facility for occupying themselves in farming, gardening, and fruit growing.

BRYN-Y-NEUADD HALL.

The Seaside house of St. Andrew's Hospital is beautifully situated in a Park of 330 acres, at Llanfairfechan, amidst the finest scenery in North Wales. *On the North-West side of the* Estate a mile of sea coast forms the boundary. Voluntary Boarders or Patients may visit this branch for a short seaside change or for longer periods. The Hospital has its own private bathing house on the seashore. There is trout fishing in the park.

At all the branches of the Hospital there are cricket grounds, football and hockey grounds, lawn tennis courts (grass and hard courts), croquet grounds, golf courses, and bowling greens. Ladies and gentlemen have their own gardens, and facilities are provided for handicrafts, such as carpentry, etc.

For terms and further particulars apply to the Medical Superintendent (Telephone No. 56, Northampton), who can be seen in London by appointment.

HAYDOCK LODGE,
NEWTON-LE-WILLOWS, LANCASHIRE.

'Phone: 11 Ashton-in-Makerfield.

For the reception and treatment of PRIVATE PATIENTS of both sexes of the UPPER AND MIDDLE CLASSES either voluntarily or under Certificate. Patients are classified in separate buildings according to their mental condition.

Situated in park and grounds of 400 acres. Self-supported by its own farm and gardens, in which patients are encouraged to occupy themselves. Every facility for indoor and outdoor recreation. For terms, prospectus, etc., apply MEDICAL SUPERINTENDENT.

BELVOIR NURSING HOME,
ASTON-ON-TRENT, DERBY.

FUNCTIONAL NERVOUS DISORDERS & CHRONIC MEDICAL CASES.

The Home, a Georgian mansion, 14 miles from Nottingham and 6 miles from Derby, is for both sexes. In addition to the methods of general medicine, Psycho-Therapeutic treatment is used extensively in suitable cases. Certifiable cases are not received. Electrical Treatment, Radiant Heat, X-ray, and Ultra-violet Light is available in the Nursing Home. Billiards, tennis, etc. Fees from 5 to 12 guineas per week; for Chronic Medical Cases from 3 guineas a week. For further particulars apply to—

Dr. E. M. DOUGLAS-MORRIS, ASTON, DERBY. *Telephone*: Shardlow 16.

COURT HALL, KENTON, EXETER,
SOUTH DEVON.

For the care and treatment of Ladies suffering from Mental Diseases. Limited to eight patients. Telephone: Starcross 19.

CLIFFDEN, TEIGNMOUTH, in connection with Court Hall, for early and convalescent cases. Cliffden is a large well-appointed house, with lovely views of the South Devon Coast. It is beautifully situated in grounds of 19 acres. The gardens are very attractive, and there is a private road to the beach.

Resident Physicians: BERTHA M. MULES, M.D., B.S.; ANNIE S. MULES, M.R.C.S., L.R.C.P.
Telephone: Teignmouth 289.

THE COPPICE, NOTTINGHAM.
HOSPITAL FOR MENTAL DISEASES.

This Institution is exclusively for the reception of a limited number of Private Patients of both sexes of the Upper and Middle Classes at moderate rates of payment. It is beautifully situated in its own grounds on an eminence a short distance from Nottingham, and from its singularly healthy position and comfortable arrangements affords every facility for the relief and cure of those mentally afflicted. Voluntary Boarders received without Certificates.

For terms, etc., apply to the Medical Superintendent.

MAUDSLEY HOSPITAL,
DENMARK HILL, S.E.5.

Telephone: RODNEY 4841.

A CLINIC instituted by the London County Council for Treatment of NERVOUS and CURABLE MENTAL DISORDER. Voluntary patients ONLY RECEIVED.

OUT PATIENTS—2 p.m.: MEN—Mondays and Thursdays. WOMEN—Tuesdays and Fridays.

IN-PATIENTS: (a) 160 beds (both sexes) in wards or separate rooms. (b) 13 private rooms (for ladies) with special sitting rooms, garden, and dietary.

Terms:

(a) £5 a week, but in case of patients with a legal settlement in the County of London a less sum may be charged according to means.

(b) £6 6s. a week.

Terms include (with rare exceptions) all forms of treatment, for which exceptional facilities exist—*there being a staff of consultant specialists* and the central laboratory of London County Mental Hospitals being attached to the hospital. Inquiries of EDWARD MAPOTHER, M.D., M.R.C.P., F.R.C.S., Medical Superintendent.

WONFORD HOUSE HOSPITAL,
EXETER, DEVON.

Telegrams: Exeter 2642. *Telephone*: Exeter 2642.

A registered Hospital for the treatment of patients of both sexes suffering from Nervous and Mental Disorders, situated in beautiful country within a mile and a half of the City of Exeter.

Hard and grass Tennis Courts, Croquet Lawn, Cricket Field, and all indoor amusements, Dancing, Concerts, Wireless, Billiards, Badminton. Occupational treatment.

The patients are carefully graded, and accommodation *provides for the separate treatment* of early recoverable and convalescent patients.

Voluntary and certified patients are received for treatment.

A prospectus and full particulars can be obtained from the Medical Superintendent.

BARNWOOD HOUSE,
GLOUCESTER.

A REGISTERED HOSPITAL for the CARE and TREATMENT of LADIES and GENTLEMEN suffering from NERVOUS and MENTAL DISORDERS. Within two miles of the G.W. Railway and L. M. & S. Railway Stations at Gloucester, the Hospital is easily accessible by rail from London and all parts of the United Kingdom. It is beautifully situated at the foot of the Cotswold Hills, and stands in its own grounds of over 280 acres. Voluntary boarders of both sexes are also received for treatment.

Special accommodation for Lady Voluntary Boarders is also provided at the MANOR HOUSE, which has its own private grounds and is entirely separate from the main Hospital.

For particulars as to terms, etc., apply to—
ARTHUR TOWNSEND, M.D., Resident Supt.
Telephone: No. 7 Barnwood.

GARTH HILL HOUSE
NORTH QUEENSFERRY,
near EDINBURGH.

A SMALL PRIVATE HOME FOR TREATMENT OF NEURASTHENIC CASES.

Magnificent situation overlooking Firth of Forth. Stress laid on re-education of will and intelligent re-adaptation to environment.

For particulars apply ARTHUR J. BROCK, M.D., Medical Superintendent.
Telephone: Inverkeithing 179

THE LAWN, LINCOLN.

A registered Hospital situated in large grounds near the Cathedral receives VOLUNTARY BOARDERS and PRIVATE PATIENTS of both sexes for treatment of Mental and Nervous Disorders, including Post-Encephalitic conditions. Special facilities for Psychotherapy in co-operative cases.

All particulars may be obtained from the Resident Medical Superintendent,
Dr. MARY R. BARKAS, M.D., D.P.M

SPRINGFIELD HOUSE,
Near BEDFORD. (Phone 3417)

FOR MENTAL AND NERVOUS CASES.

Physicians: DAVID AND CEDRIC W. BOWER.
Ordinary Terms, Five Guineas per week.
(Including Separate Bedrooms where suitable.)
Interviews in London by appointment.

RUTHIN CASTLE

(FORMERLY DUFF HOUSE, BANFF.)

The first Private Hospital in the United Kingdom to be fully provided with a whole-time specially qualified Staff of Doctors, Analytical Chemists, Bacteriologists, Radiologists, Nurses, Dietists, Masseurs, and Masseuses, and a full equipment of Laboratories, X-rays, Electrocardiograph, Artificial Sunlight, and Medical Baths.

The Hospital is equipped for the diagnosis and treatment of any form of ill-health, except Mental and Infectious Diseases. The fees are inclusive.

The climate is mild and the neighbourhood beautiful. Apply: The Secretary,

Telegrams: Castle, Ruthin. Telephone: 66, Ruthin. Ruthin Castle, North Wales.

ROOKSDOWN HOUSE,

NEAR BASINGSTOKE, HANTS.

Private Hospital for Mental Diseases

A modern building situated in a healthy district, easily accessible by rail and road. Patients taken at from three guineas per week.

Apply to Medical Superintendent. Telephone: 157 BASINGSTOKE

THE OLD MANOR SALISBURY

A Private Hospital for the Care and Treatment of those of both sexes suffering from MENTAL DISORDERS.

Extensive grounds. Detached Villas. Chapel. Garden and dairy produce from own farm. Terms very moderate.

CONVALESCENT HOME at BOURNEMOUTH standing in 9 acres of ornamental grounds, with tennis courts, etc., which Patients or Boarders may visit by arrangement, for long or short periods.

Illustrated Brochure on application to the Medical Superintendent, The Old Manor, Salisbury. Telephone 51.

PECKHAM HOUSE, 112, Peckham Road, London, S.E.15.

Telegrams: "Alleviated, London." Telephone: Rodney 4741—4742.

The above House, which was established in 1826, is an Institution for the care and treatment of persons suffering from mental diseases and nervous disorders. Both certified patients and voluntary boarders are received. Separate houses for treatment and accommodation of special cases adjoin the Institution. There is a seaside branch, Kearsney Court, near Dover, to which patients may be sent for treatment or on holiday. Motor and carriage exercise is provided as required. Patients can avail themselves of a course of physical drill. Tennis courts. Entertainments, dances, and indoor amusements held throughout the year.

Illustrated prospectus and further particulars can be obtained from the Medical Superintendent.

NORTHUMBERLAND HOUSE,

GREEN LANES, FINSBURY PARK, N.4.

Telegrams: "SUBSIDIARY, LONDON." *Telephone*: NORTH 4844.

A PRIVATE HOME for the treatment of patients of both sexes suffering from Mental Illnesses.
Conveniently situated four miles from Charing Cross. Easy of access from all parts.
Six acres of ground, highly situated, facing Finsbury Park.
Voluntary Boarders received without certificates. Private suites. Convalescent Home, Kearsney Court, Dover.
For further particulars, apply to the MEDICAL SUPERINTENDENT.

CAMBERWELL HOUSE, 33, Peckham Road, London, S.E.5.

Telegrams: "PSYCHOLIA, LONDON." FOR THE TREATMENT OF MENTAL DISORDERS. *Telephone*: RODNEY 4751—4752.

Also completely detached Villas for mild cases, with private suites if desired. Voluntary Patients received.
Twenty acres of Grass Tennis Courts, Bowls, Croquet, Squash Racquets, and all indoor amusements ther Concerts. Occupational Therapy, Physical Drill, and Dancing Classes.
X-ray and Immersion Baths. Operating Theatre, Dental Surgery, and Ophthalmic Dept.
Chapel. Se James Norman, assisted by three Medical Officers, also resident, and Visiting Pathologist. An illustrated Prospectus may be obtained upon application to the Secretary.

HOVE VILLA, BRIGHTON. — CONVALESCENT BRANCH OF THE ABOVE.

WOODLANDS PARK

GREAT MISSENDEN, BUCKS.

550 feet above sea-level on Southern Chilterns. 90 acres, Gardens, Woods, and Park.

FOR REST AFTER OPERATION or ILLNESS, CARDIAC and NERVOUS DISEASES, or PERMANENT INVALIDS.

Fees from 8 guineas.

Telephone: 91 Gt. Missenden. *Apply*: C. W. J. BRASHER, M.D.

CHEADLE ROYAL,

CHEADLE, CHESHIRE.

This registered Hospital for MENTAL DISEASES, with its seaside branch Glan-y-Don, Colwyn Bay, is for the treatment and care of PRIVATE PATIENTS of the UPPER and MIDDLE CLASSES. Voluntary Boarders received.
For terms, etc., apply to the Medical Superintendent, J. A. C. ROY, M.B., who may also be seen in Manchester by appointment.
Telephone: 481 GATLEY.

THE RESIDENTIAL TREATMENT OF ALCOHOLISM & DRUG ADDICTION

RENDLESHAM HALL

(Postal Address)—WOODBRIDGE, SUFFOLK.

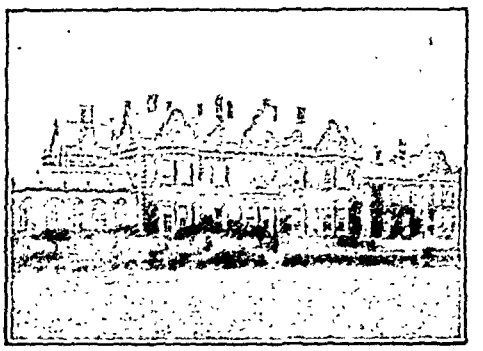
Rendlesham Hall, which is open to receive patients, is essentially a Sanatorium. Its daily life and routine are that of an ordinary comfortable holiday or health resort, or of a large country house. Each patient has all the privileges of a guest consistent with the prescribed medical treatment.

Rendlesham Hall has 45 bedrooms, and about 450 acres of gardens and park. It has also a private nine-hole golf course, tennis and croquet lawns, and bowling green.

Illustrated Booklet, giving particulars as to terms, etc., can be had on application to the

RESIDENT MEDICAL SUPERINTENDENT.

Telegrams and Telephone: Wickham Market 16.
(Toll Call from London.)



RENDLESHAM HALL

To those desiring to be near London—
The Mansion, Beckenham Park, Beckenham,
as carried on for the last twenty years, is available. Booklet and particulars from the Resident Medical Superintendent.

Telephone: BECKENHAM 1648. *Telegrams:* NOROTORIUM, BECKENHAM.

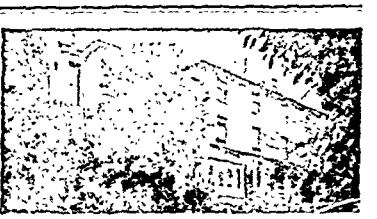
Proprietors: The Norwood Sanatorium, Limited.

ALCOHOLISM, DRUG HABIT, AND NEURASTHENIA.

BAY MOUNT, PAIGNTON.

(ESTABLISHED 1922). *'Phone:* PAIGNTON 5110.

A small comfortable Home charmingly situated in secluded gardens overlooking Torbay. Ladies and Gentlemen treated with a view to a rapid and permanent cure by modern methods, which give excellent results Ample amusement, billiards, wireless, golf, tennis, etc. Good train service (3½ hours London). Moderate inclusive terms. Prospectus, report, etc., from—Stanford Park, M.B., CH.B., Res. Med. Supt., *Bay Mount, Paignton*



ALCOHOLISM, OTHER DRUG HABITS, AND TROPICAL AILMENTS

THE HAKE NURSING HOME

As founded and established by the late Dr. FRANCIS HARE, for 20 years Med. Supt. of The Norwood Sanatorium, and author of "Alcoholism," etc.; for the treatment of ALCOHOLISM, other Drug Habits, Insomnia, Neurasthenia, Functional Nervous Disorders, TROPICAL Ailments, etc

"THE OLD HILL HOUSE," CHISLEHURST, KENT.

Terms moderate. Quiet and pleasant situation. *Ladies and gentlemen admitted for treatment.* For Prospectus, etc., write or 'phone: WALTER D. MASTERS, M.D., M.R.C.S., D.P.H., Barrister-at-Law (Resident Medical Superintendent).
'Phone: Chislehurst 451. *Telegrams:* "Masters," Chislehurst.

ALCOHOLISM

DRUG ADDICTION & NEURASTHENIA

CALDECOTE HALL, NUNEATON.

At this beautifully situated country mansion residential Treatment of the above afflictions is carried out on the most modern scientific principles, both physical and psychological, under the supervision of the Res. Med. Supt. Dr. A. E. Carver, M.D., D.P.M. Fees Moderate.

Further particulars from the Central Sec., 40, Marsham Street, London, S.W.1.
In cases of urgency 'phone NUNEATON 241.

Tel. & Telegrams Haynes, Brentwood, 45."

Littleton Hall, Brentwood, Essex.

Large grounds, 400 ft. above sea HOME for Ladies Mentally afflicted. Voluntary Boarders received. Stations: Brentwood and Shenfield 1 mile. Liverp'l St. 26 min.—Apply, Dr. HAYNES.

THE MORPHIA HABIT.

The Springfield method, selected for full description in the "Medical Annual," has been favourably noticed in medical papers throughout the world. Eighty per cent. of cases treated in the last four years are still well; average duration of treatment 30 days.

This special treatment was originated and is carried out in a general nursing home, the address of which is never advertised.

Apply, Med. Superintendent, 21 (1), Cleveland Square, W.2.

INEBRIETY

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(*Also private address to secure secrecy.*) Telephone: 158.

Beautiful large Residential Home, with 50 acres of park land, attached to R.C. Convent, and under the care of the Sisters. Established 1899. Most successful MEDICAL and PSYCHOLOGICAL TREATMENT for LADIES. Every home comfort, and bright happy social amusements. *Splendid* results proved by the numbers of former patients who return to the Home for holiday visits. *Medical Superintendent:* J. YOUNG SCOTT, M.B., Ch.B.

INEBRIETY

DALRYMPLE HOUSE, RICKMANSWORTH, HERTS.

For the treatment of GENTLEMEN under the Act and privately. Estab. 1883 by an Association of *prominent medical men and others for the study* and treatment of alcohol and drug abuse. Large secluded grounds on the bank of the River Colne. Full-sized billiards, tennis, croquet, bowls. Golf (Moor Park, Sandy Lodge) close by For particulars apply to—
F. S. D. HOGG, M.R.C.S., &c., Resident Medical Supt. Telephone: 16 RICKMANSWORTH

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CLAPHAM PARK, LONDON.

Situated in 3½ acres of secluded gardens.

HOME FOR TWELVE MENTAL PATIENTS LADIES

Well-appointed private house. Home comforts and Trained Nursing Staff. Eminent Mental Specialist Visiting Physician.

Station: Clapham Common Tube. *Telephone:* Brixton 0494. Apply, Mrs. THWAITES.

BOREATTON PARK,

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A first-class Country Mansion adapted for the *reception of a limited* number of Ladies and *Gentlemen* mentally afflicted.

Large gardens, deer park, private golf links, fishing. Grounds extend to over 200 acres.

Voluntary Boarders accepted.

Apply for particulars to Dr. SANKEY.

PALACE SANATORIUM, MONTANA (5,000 feet)

SWITZERLAND.

SUNNIEST HEALTH RESORT IN THE ALPS.

For the treatment of all forms of lung diseases.
Special Department for surgical cases.

NEW MANAGEMENT.

Medical equipment completed and brought up to date.

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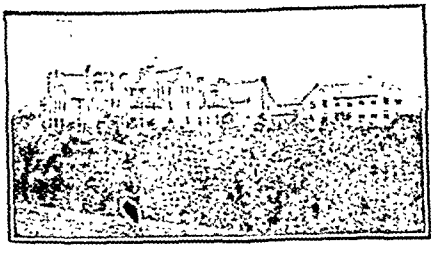
Full day and night staff of ENGLISH and Swiss trained nursing SISTERS.

TOR-NA-DEE SANATORIUM

MURTLE DEESIDE ABERDEENSHIRE.



Medical Director: David Lawson, M.D., F.R.S.E.

FULLY EQUIPPED WITH EVERY MODERN APPLIANCE FOR THE DIAGNOSIS AND TREATMENT OF ALL FORMS OF TUBERCULOSIS & ALLIED DISEASES.

Physician Superintendent - J. M. JOHNSTON, M.D., D.P.H., etc.

Full particulars and Prospectus on application to the Secretary.

Inclusive Terms: SEVEN GUINEAS A WEEK.

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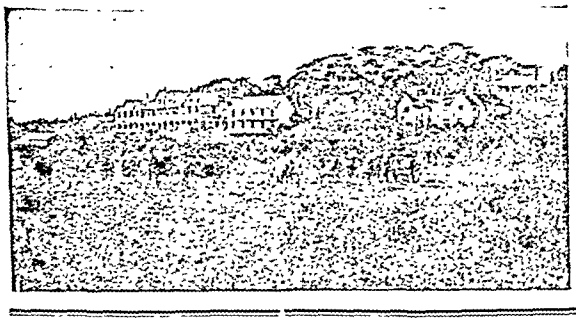

Specially built for the treatment of Pulmonary and other forms of Tuberculosis. Aspect S.S.W., on a carefully chosen site. Pure bracing air. High sunshine record. Heliotherapy. Arc-light treatment. One mile from the coast. Electric light throughout. X-ray installation. Full day and night Nursing Staff. Wireless (head-phones) throughout.

Resident Physicians:

S. VERE PEARSON, M.D.(Camb.), M.R.C.P.(Lond.).
L. WHITTAKER SHARP, M.B.(Camb.).
ANDREW J. MORLAND, M.B.(Lond.).

Apply, Mr. D. C. FORD, Secretary,
The Sanatorium, Mundesley, Norfolk.

PENDYFFRYN HALL SANATORIUM

PENMAENMAWR.

Established 1900 for the treatment of Tuberculosis. Miles of carefully graduated walks through pine-clad hills, with sea and mountain views. Modern treatment, including SANOCRYSIN, ARTIFICIAL PNEUMOTHORAX, etc. X-ray plant, electric light, central heating, wireless. Full day and night nursing staff. On L.M.S. Main Line to Holyhead, 4½ hours from London. Resident Physicians: Dennison Pickering, M.D.(Cantab.), F. W. Godbey, M.D., D.P.H.; Matron: Miss N. Rennardson, S.R.N.

For particulars apply to the Secretary, Pendyffryn Hall, Penmaenmawr, N. Wales. ('Phone, 20.)

NORDRACH-UPON-MENDIP SANATORIUM

FOR THE TREATMENT OF PULMONARY AND OTHER FORMS OF TUBERCULOSIS
WAS OPENED IN JANUARY, 1899.

Patients are received for open-air, inoculation, or operative treatment. There are X-ray and ultra-violet ray installations. Full nursing staff. The Sanatorium stands in gardens and private grounds of 65 acres, at an elevation of 862 feet above sea-level, surrounded by woods and moorland. The patients' rooms are heated by hot-water pipes and electrically lighted. Fees 4, 5, and 6 guineas per week.

Physicians: ROWLAND THURNAM, M.D., JAMES HENDERSON, M.B., Ch.B.Glas.

For full particulars apply to *The Secretary*, Nordrach-upon-Mendip, Blagdon, Bristol. *Telegrams*: Nordrach, Blagdon. *Telephone*: Blagdon 23.

BRIDGE OF ALLAN HYDRO.
(Allan Water Hotel)

This once famous Hydro adjoining the Mineral Wells has recently been equipped with the most modern appliances for treatment by Electro-therapeutics, Medicated Baths, etc. All treatment is given only on the instruction of the Medical Superintendent, or of the patient's own medical adviser.

Bridge of Allan is an Inland Spa and Climatic Resort, sheltered from the North and East winds.

Terms on application. Medical Superintendent: Dr. W. C. HOFFMAN.

LINFORD SANATORIUM,
RINGWOOD, NEW FOREST, HANTS.

Established 1893 for the treatment of Tuberculosis Radiators and Electric Light throughout. Hot and cold water and shower bath in nearly all rooms. Powerful X-ray Plant Ultra-violet Rays. Full Nursing Staff. All forms of treatment available Farm of 120 acres, including 40 acres of wood. Herd of Tuberculin-tested Guernsey cows kept. Resident Physicians—Arthur de W. Snowden, M.D., B.Ch.(Cantab.), A. G. E. Wilcock, M.R.C.S., L.R.C.P., Colin Cassidy, M.B., B.Ch.(Cantab.).

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Unrivalled suites of Baths for Ladies and Gentlemen, including Turkish and Russian Baths, Aix and Vichy Douches, Massage and Plombières Treatment, an Electric Installation for Baths and other Medical purposes, Dowsing Radiant Heat, D'Arsonval High Frequency, Diathermy, Nauheim Baths, etc. Special provision for Invalids. Milk from our farm. Large Winter Garden. Night Attendance. Rooms well ventilated and all bedrooms warmed in Winter. A large Staff (upwards of 60) of trained Male and Female Nurses, Masseurs, and Attendants.

Telegrams: "SMEDLEY'S, MATLOCK." 'Phone: No. 17.

For Prospectus and full information please write MANAGER, M.J.

GREAT BRITAIN'S GREATEST HYDRO

Resident Physicians:
G. C. R. HARBINSON, M.B., B.Ch., B.A.O. (R.U.I.).
R. MACLELLAND, M.D., C.M.(Edin.).

MATLOCK

EPILEPSY.

Owing to extensions there are at present a few Vacancies at the

DAVID LEWIS COLONY

for Ladies and Gentlemen who have Epilepsy, but are of good intelligence and sound mind.

Colony life gives to most people who have epilepsy the best chance of happiness and contentment.

Apply to the Medical Superintendent,

The David Lewis Colony, Warford, Alderley Edge.

PEEBLES HYDRO.

Beautifully situated 600 feet above sea-level. Facing south, completely sheltered from north and east. 21 miles from Edinburgh.

All modern Baths, Douches, Massage, and Electrical Treatment. Ultra-Violet Radiation. Physician in attendance.

IDEAL HEALTH RESORT.

Electric Light, Central Heating, Electric Lift, three Billiard Tables, Ball Room, Winter Garden, Swimming Bath, Hard and Grass Tennis Courts, Badminton, Croquet Lawn, Golf Course. Prospectus from Manager. 'Phone: Peebles 2.

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Specially built for the Open air Treatment of Tuberculosis, and opened in 1901 Bracing mountain air Elevation 860 ft. above sea-level. Sheltered situation in pine wood. Graduated walks. Electric light throughout building and in shelters. Central heating. Fully equipped X-ray Plant. Inoculation Treatment available for patients—24 beds Trained Nurse on duty all night. Terms £4 6s 8d. to £6 6s inclusive p.w. Med Supt.—FELIX SAVY, M.B., Ch.B. For particulars apply to the Secretary

CITY OF LONDON MENTAL HOSPITAL, DARTFORD, KENT.

PRIVATE PATIENTS are received at a weekly charge of TWO GUINEAS and upwards.

Voluntary BOARDERS can now be admitted.—Apply to the MED. SUPERINTENDENT.

Grove House, All Stretton,

Church Stretton, Shropshire.

A Private Home for the care and treatment of a limited number of ladies mentally afflicted. Climate healthy and bracing.

Medical Superintendent: Dr. MCCLINTOCK.

DROITWICH SPA.

Mild and invigorating climate.

RAVEN HOTEL or PARK HOTEL

for health and for comfort. Cordial hospitality and first-class cuisine await you. Adjoining brine baths—the certain cure for rheumatism. Special residential terms for Autumn and Winter. There are 230 rooms, magnificent grounds, lock-up garages and cars for hire. Illus. booklet sent on request. 'Phone 50 or 38.

BOURNEMOUTH HYDRO,

with Vita glass Sun-lounge and Marine Balcony on the South Coast.

Every kind of Bath. Plombière Lavage.
Every kind of Massage. Ultra-violet Light.
Every kind of Electricity. Diathermy.
Every kind of Diet.
Carlsbad and Vichy Waters, etc.
High Frequency. Electric Lift.

Prospectus from Secretary. *Tele.* 341.
Resident Physician: W. JOHNSON SMYTH, M.D.

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(an entirely British Sanatorium), DAVOS (GRISONS), SWITZERLAND. Terms from £5 a week. Medical Supt.: BERNARD HUDSON, M.D.(Cantab.), M.R.C.P., Swiss Federal Diploma.

VILLA WALDFRIEDE.

HOME FOR CHILDREN and YOUNG PEOPLE, delicate or predisposed to Tuberculosis, in English Doctor's House, near Davos, Switzerland. Terms from £5 5s p.w.—Apply, Dr. BERNARD HUDSON, Victoria, Davos, Switzerland

A REALLY GOOD SCHOOL FOR GIRLS.
REASONABLE INCLUSIVE FEES.

MARLBOROUGH COLLEGE,

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Sound Education. Upper and Lower Schools. Preparation, when desired, for all University Entrance Examinations Particulars from Sec.

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Prep. Classes and Museum Demons. for next Fellowship Exam. will commence shortly. Correspondence course for March and later exams should begin now. Partics., Mr. H. C. ORRIN, F.R.C.S., at Surgeons' Hall, Edinburgh.

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CLASSES, with *Museum* and *Anatomical* Demonstrations, for next Exam., will commence shortly. Correspondence work at *any time*. Particulars from CHAS. WHITTAKER, F.R.C.S., Surgeons' Hall, Edinburgh.

ST. MARY'S HOSPITAL MEDICAL SCHOOL, W.2.

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For further particulars, fees, etc., apply to J. E. M. WIGLEY, M.B., Dean.

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For particulars apply to the Hon. Dean, Liverpool School of Tropical Medicine, Pembroke Place, Liverpool

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The next Examination will take place on Monday, May 19th, 1930, and following days. For regulations apply to—

FRANK HAYDON, Secretary.

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PUBLIC HEALTH DEPARTMENT.

BAGULEY SANATORIUM (333 Beds).

SENIOR ASSISTANT MEDICAL OFFICER.

Applications are invited from qualified Medical Men for the position of Senior Assistant Medical Officer.

Every applicant must be a registered Medical Practitioner, under 40 years of age, and unmarried.

Applicants must have held resident hospital and sanatorium appointments, and have had practical experience in the diagnosis and modern methods of treatment of tuberculosis; practical experience in radiology is desirable.

Salary £500 per annum, with board, residence, and laundry in addition.

Every application, stating fully the training, qualifications, and experience of the candidate, and his age, with copies of three recent testimonials, and endorsed on the envelope, "Medical Officer, Baguley Sanatorium," must be addressed to the undersigned only, and not to members of the Committee or Council, and must reach him not later than Monday, December 30th.

The gentleman appointed will be required to pass a medical examination, to devote the whole of his time to the duties of his office, to take charge in the absence of the Medical Superintendent, to contribute to the Corporation Superannuation Fund, and to execute the Deed of Service.

Canvassing in any form, oral or written, direct or indirect, is prohibited.

By Order,
T. E. WARBRECK HOWELL,
Town Clerk.

Town Hall, Manchester.
November 22nd, 1929.

Westmorland County Council.

ASSISTANT COUNTY MEDICAL OFFICER (Woman).

Applications are invited for the above-mentioned post, at a salary of £600 per annum.

Applicants must have had experience in ante-natal, obstetric, maternity and child welfare work, in the correction of errors of refraction, and in school medical work.

Application forms, with full particulars of duties to be undertaken, can be obtained from the County Medical Officer of Health, Lowther House, Kendal.

The last day for receipt of applications will be Tuesday, December 31st.

H. B. GREENWOOD,
Clerk of the County Council.

Exchange Chambers, Kendal.
December 5th, 1929.

Wrexham and East Denbighshire War Memorial Hospital.

(165 Beds.)

The Elective Committee invite applications for the post of HONORARY SURGEON to the Ear, Nose, and Throat Department of this Hospital.

Applications, stating age, qualifications, with copies (only) of not more than three testimonials, to be sent to the undersigned not later than first post Monday, January 6th, 1930.

LESLIE SPENCER,
Secretary.

December 5th, 1929.

City of Bradford.

ASSISTANT SCHOOL DENTIST required (male). Commencing salary £450 per annum. The appointment will be subject to the provisions of the Local Government and Other Officers Superannuation Act, 1922, and the successful candidate will be required to pass a medical examination.

Forms of application may be obtained from the Medical Officer of Health, Town Hall, Bradford, and should be delivered to him not later than December 21st.

N. L. FLEMING,
Town Clerk.

Town Hall, Bradford.
December 5th, 1929.

London Hospital, E.1.

CARDIOGRAPHIC DEPARTMENT.

The post of PATERSON RESEARCH SCHOLAR in this Department will become vacant in January, 1930. The salary is at the rate of £400 per annum. Further particulars on request.

Applications should be sent to the House Governor not later than December 17th.

E. W. MORRIS, House Governor.

Medical and Dental Students.

Special Classes for Pre-Medical and Dental Exams., Matric., and Prelims.
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MANCHESTER TUTORIAL COLLEGE,
327, Oxford Road, Manchester.

City of Manchester.

PUBLIC HEALTH DEPARTMENT.

BAGULEY SANATORIUM (333 Beds).

ASSISTANT MEDICAL OFFICER.

Applications are invited from qualified Medical Men for the position of Assistant Medical Officer.

Every applicant must be a registered Medical Practitioner, under 40 years of age, and unmarried.

Preference will be given to applicants with previous Hospital experience; some experience of bacteriology or pathology is desirable.

Salary £400 per annum, with board, residence, and laundry in addition.

The appointment is made in the first instance for a period of twelve months, renewable at the expiration of that period.

Every application, stating fully the training, qualifications, and experience of the candidate, and his age, with copies of three recent testimonials, and endorsed on the envelope, "Medical Officer, Baguley Sanatorium," must be addressed to the Medical Officer of Health, Civic Buildings, 1, Mount Street, Manchester, only, and not to members of the Committee or Council, and must reach him not later than Monday, January 6th, 1930.

The gentleman appointed will be required to pass a medical examination, to devote the whole of his time to the duties of the office, to contribute to the Corporation Superannuation Fund and to execute the Deed of Service. Canvassing in any form, oral or written, direct or indirect, is prohibited.

By Order,
T. E. WARBRECK HOWELL,
Town Clerk.

Town Hall, Manchester. December 6th, 1929.

Metropolitan Asylums Board.

Applications are invited for the appointment of JUNIOR ASSISTANT MEDICAL OFFICER at GROVE PARK HOSPITAL, LEE, S.E.12 (322 beds) for Adult (male and female) cases of Tuberculosis. Most of the accommodation is for advanced pulmonary cases, but there is a certain number of beds for surgical cases, and some experience in surgery and orthopædics is desirable. There is no accommodation at the Hospital for a married officer. Preference will be given to candidates under 30 years of age. Salary £300 per annum. There are three other Medical Officers on the staff.

The candidate appointed will be required to reside in the Institution and to pay for board, lodging, and washing at the rate fixed from time to time by the Board's Finance Committee. At present the rate is £150 per annum.

Application to be made not later than 10 a.m. on Saturday, December 28th, on form obtainable from the Clerk, Metropolitan Asylums Board, Victoria Embankment, E.C.4, by forwarding stamped addressed foolscap envelope.

ALLAN POWELL,
Clerk to the Board.

Dec 5th, 1929

County Borough of Brighton.

RESIDENT MEDICAL OFFICER at the Borough Infectious Disease Hospital and Sanatorium.

The Council invite applications for the above appointment from duly qualified unmarried male Medical Practitioners.

The salary will be at the rate of £350 per annum, together with board and lodging at the Borough Sanatorium. Preference will be given to candidates entering the Public Health Service.

Forms of application and particulars of the duties to be performed, and of the conditions upon which the appointment will be made, may be obtained on application to the undersigned.

Applications (with copies of three recent testimonials enclosed), endorsed "Application for the Appointment of Resident Medical Officer," must be delivered at my office before 10 o'clock in the forenoon on Tuesday, December 24th.

Canvassing members of the Council, either directly or indirectly, will disqualify any applicant for the position.

JAS. H. ROTHWELL,
Town Clerk.

Town Hall, Brighton.
December 2nd, 1929.

West Suffolk General Hospital,

BURY ST. EDMUNDS. (103 Beds.)

Applications are invited for the post of HOUSE SURGEON (male), which will be vacant early in January. Salary £150 per annum, with board, residence, and laundry. Applicants must be fully qualified and registered.

Applications, giving particulars of experience and enclosing three recent testimonials, to be sent to the undersigned.

E. E. HARDWICKE,
Secretary.

December 9th, 1929.

INDIAN MEDICAL SERVICE

Recruitment of European Officers.

Applications are invited from medical men for permanent commissions in H.M.'s Indian Medical Service. The terms offered include a gratuity of £1,000 on retirement after six years' service, or £2,500 after 12 years' service, together with free return passages, for those who no longer desire to remain in the Service In other respects the terms will be as detailed below.

Candidates must be British subjects under 32 years of age at the time of application, and must be registered under the Medical Acts in force in Great Britain and Northern Ireland.

CAREERS.

The Indian Medical Service offers wide opportunities of medical experience, including clinical, preventive, specialist, and research work. At the beginning of his career an officer is employed on the military side, which has medical charge of the Indian Army. Promotion is on a time scale up to the rank of Lieutenant-Colonel, and by selection to the ranks of Colonel and Major-General. An officer may apply after two years' Indian service for transfer to the civil side, from which appointments are made to Civil Surgeoncies, which are established at the principal civil centres to provide for the medical needs of civil officials and for general medical administrative purposes; to specialist (for example, public health and bacteriological) services; to research posts; and to professorships at the Medical Schools.

PAY.

The monthly rates of pay for European officers in the Service who have a "non-Asiatic" domicile are as follows:

Rank.	Service in Rank.	Basic Pay.	Overseas Pay.	Year of Total Service.
1	2	3	4	5
		Rs.	Rs.	
Lieut.		500	150	1st
			150	2nd
			150	3rd
Capt.	(i) During first 3 years' service as Captain	650	150	4th
			£15	5th
			£15	6th
	(ii) With more than 3 and less than 6 yrs.' service as Captain	750	£25	7th
			£25	8th
	(iii) With more than 6 years' service as Captain	850	£25	10th
			£25	11th
			£30	12th
Major	(i) During first 3 years' service as Major	950		
	(ii) With more than 3 and less than 6 years' service as Major	1100		
	(iii) With more than 6 years' service as Major	1250		
Lieut Col.	(i) Until completion of 23 years' total service	1500	£30	13th and over
	(ii) During 24th and 25th years' service	1600		
	(iii) After completion of 25 years' total service	1700		
	(iv) When selected for increased pay	1850		

EXTRAS.—In addition to the above rates various allowances are admissible for a large number of special appointments on both the military and the civil side which may be held by members of the Indian Medical Service. Special high rates of pay are also attached to the numerous administrative appointments open to officers in both branches of the Service.

WAR SERVICE CONCESSIONS.

Any service rendered by an officer during the war as a medical or combatant officer, or in a position usually filled by an officer, may be counted as service for increments of pay, promotion, retirement and retired pay, but not for gratuity.

One half of any service in the ranks during the war may be counted as service for retirement and retired pay only.

OUTFIT ALLOWANCE.

Officers on appointment will receive an outfit allowance of £50.

PRIVATE PRACTICE.

With the exception of Administrative Officers, military or civil, and officers holding certain special appointments, officers are not debarred from taking private practice, so long as it does not interfere with their proper duties.

PENSIONS.

The rates of pension are as follows:

	Per annum.
	£
After 17 years' service for pension	400
,, 18 ,, ,, ,, ...	430
,, 19 ,, ,, ,, ...	460
,, 20 ,, ,, ,, ...	500
,, 21 ,, ,, ,, ...	540
,, 22 ,, ,, ,, ...	580
,, 23 ,, ,, ,, ...	620
,, 24 ,, ,, ,, ...	660
,, 25 ,, ,, ,, ...	700
,, 26 ,, ,, ,, ...	750
,, 27 ,, ,, ,, ...	800

These rates are subject to alteration on account of a rise or fall in the cost of living as compared with the year 1919 to an extent not exceeding 20 per cent. in all, the revision being undertaken triennially. With effect from July 1st, 1927, a reduction of 4½ per cent. has been made on this account from the amounts shown.

There are additional pensions ranging from £65 to £350 per annum for officers who have held administrative appointments.

PASSAGES.

An officer on appointment is provided with a free passage to India. The wives and families of officers who are married prior to the date of the officers' embarkation on first appointment will also be provided with free passage to India, subject to the payment of messing charges.

Officers and their families are also eligible for passage concessions under which they are granted a certain number of return passages home at Government expense during their service.

INSTRUCTION PRIOR TO EMBARKATION.

Officers are required to undergo courses of instruction at the Royal Army Medical College and at Aldershot, lasting approximately six months, prior to their embarkation for India on first appointment.

Full details regarding these appointments and form of application may be obtained from the Under-Secretar of State for India, Military Department, India Offic London, S.W.1. Applications should be submitted soon as possible. The Selection Committee will me early in January to make nominations, and the selecte candidates will be required to attend a course instruction commencing on or about the 1st February, 193

Department of Health for SCOTLAND.

BACTERIOLOGY AND MEDICAL STATISTICS.

APPOINTMENT OF MEDICAL OFFICERS.

The Department of Health for Scotland are prepared to receive applications from registered Medical Practitioners for two posts as Medical Officer.

Experience.—Applicants must have either—

(a) expert knowledge of bacteriology—experience in hospital administration will be an additional qualification,

or

(b) training and experience in medical statistics.

Age.—Must not be over 45 years.

Salary.—£600 per annum, rising by annual increments of £25 to £850 per annum, then by annual increments of £50 to £1,000 per annum. Cost of living bonus will be payable in addition—the bonus on £600 at present £176 and on £1,000 being £286.

Duties.—Medical Officers appointed will be required to devote their full time to the public service, and to perform such duties as may be assigned to them by the Department from time to time.

Further particulars and forms of application may be obtained from the Establishment Officer, Department of Health for Scotland, 125, George Street, Edinburgh. Letters applying for forms of application should have the words "Medical Officer," boldly written in the top left-hand corner of the envelope. No application will be considered if received after January 1st, 1930.

The Royal Hospital,
WOLVERHAMPTON.
(Incorporated under Charter.)

HOUSE SURGEON (male) required for Ear, Throat, and Nose Department, and Orthopædic Department.

The Hospital contains 240 beds and includes the usual special departments, and is recognised by the various Examining Bodies for a part of the requisite attendance on Medical and Surgical Practice.

Candidates must be registered under the Medical Acts, and unmarried.

The appointment is for six months. Salary at the rate of £150 per annum. Board, furnished rooms, and laundry provided.

Applications, with copies of testimonials, to be forwarded to the undersigned.

W. H. HARPER,
Wolverhampton. House Governor &
December 9th, 1929. Secretary.

The Royal Hospital,
WOLVERHAMPTON.
(Incorporated under Charter.)

CASUALTY OFFICER and RESIDENT ANÆSTHETIST (male) required. Duties to commence in January, 1930, and will include Casualty work and administration of anæsthetics.

The Hospital contains 240 beds, includes the usual special departments, and is recognised by the various Examining Bodies for a part of the requisite attendance on Medical and Surgical Practice.

Candidates must be registered under the Medical Acts, and unmarried. The appointment is for six months, with eligibility for further appointment for six months as House Surgeon to in-patients.

Salary at the rate of £125 per annum. Board, furnished rooms, and laundry provided.

Applications, with copies of testimonials, to be forwarded to the undersigned.

W. H. HARPER,
Wolverhampton. House Governor &
December 9th, 1929. Secretary.

Hull Royal Infirmary.
(272 Beds.)

Applications are invited for the post of SENIOR HOUSE PHYSICIAN (male), vacant Tuesday, December 17th.

The appointment will be for six months in the first instance, and will be terminable by one month's notice on either side.

Salary £200 per annum, with board and residence.

Applications should reach the undersigned by Tuesday, December 17th.

R. J. CARLESS,
December 7th, 1929. House Governor.

Royal Surrey County Hospital,
GUILDFORD. (178 Beds.)

Wanted January 1st, 1930, HOUSE SURGEON. Salary £150 per annum, with board, residence, and laundry.

Applications, stating essential particulars, with copies of testimonials, to be sent to the General Superintendent.

Salford Royal Hospital.
(263 Beds.)

Applications are invited for the following vacancies which will occur in the Resident Medical Staff (male) on December 31st next:

RESIDENT SURGICAL OFFICER. Salary at the rate of £230 per annum.

HOUSE SURGEON (attached to the Genito-Urinary Department). Salary at the rate of £125 per annum.

HOUSE SURGEON (to Aural, Skin, and Gynæcological Departments.

The appointments are for a period of six months, with board and residence, with the exception of the Resident Surgical Officer, which is for twelve months.

Candidates must be registered under the Medical Acts.

The Hospital has the approval of the Royal College of Surgeons of England, and appointments here are recognised for the English Fellowship (Final).

Forms of application, which may be obtained from the undersigned, must be delivered at once.

By Order of the Board,
Salford Royal Hospital, Manchester. GEORGE RUDDLE, Gen. Supt. & Secretary.
November 30th, 1929.

Queen's Hospital, Birmingham.

There is a vacancy for an HONORARY PHYSICIAN to the Queen's Hospital.

Physicians to this Hospital must be Graduates in *Medicine* of a *University* of the United Kingdom and be Fellows or Members of the *Royal College of Physicians of London.*

Candidates are required to send in their application, stating date of birth and full particulars of qualifications, accompanied by testimonials and certificate of registration, to the undersigned (from whom all further information can be obtained) not later than January 15th, 1930.

The Senior Honorary Physician for Out-patients is a candidate for the post, and if appointed a vacancy will occur for an Honorary Physician for Out-patients, which will be advertised later.

Birmingham. G. HURFORD,
December 5th, 1929. House Governor.

Cheshire County Council.

WRENBURY HALL TUBERCULOSIS TRAINING COLONY.

HOUSE PHYSICIAN.

Applications are invited for the appointment of RESIDENT HOUSE PHYSICIAN at the above Institution. The appointment is for one year only at a salary of £250 per annum, together with board residence.

Form of application and particulars of appointment to be obtained from the undersigned.

County Offices, Northgate Street, Chester. REGINALD POTTS, Clerk of the County Council.

Queen's Hospital, Birmingham.

Applications are invited for the following resident appointments from fully qualified and registered candidates.

Salary £70 p.a., together with board, apartments, and laundry.

For six months from January 1st, 1930. HOUSE SURGEON to the Ophthalmic and Ear, Nose and Throat Departments.

For three months from January 1st, 1930. HOUSE SURGEON to the Casualty Dept.

Applications and enquiries to be made to the undersigned.

G. HURFORD,
December 9th, 1929. House Gov. & Sec.

The General Hospital,
BIRMINGHAM.

Applications are invited for the post of STIPENDIARY ANÆSTHETIST from qualified Medical Practitioners experienced in the administration of anæsthetics.

The person appointed will be required to attend daily from 9 a.m. to 2 p.m. Salary £250, with lunch.

Applications should be sent to the undersigned by December 30th.

A. H. LEANEY,
December 7th, 1929 House Governor.

Royal Free Hospital,
Gray's Inn Road, W.C.1.

Applications are invited for CLINICAL ASSISTANTS (Senior and Junior) in the Medical, Surgical and all Special Departments. Intending candidates should submit applications, stating age and qualifications, to the undersigned on or before January 4th, 1930.

Preference will be given to former Students of the Hospital.

REGINALD R. GARRATT, Secretary.

Parish of Portsmouth.

FIRST ASSISTANT RESIDENT MEDICAL OFFICER.

The Guardians of the above-named Parish invite applications for the appointment of a First Assistant Resident Medical Officer for the SAINT MARY'S HOSPITAL, ST. MARY'S INSTITUTION, and CHILDREN'S HOME.

The appointment will be made for a period not exceeding three years, and will be subject to one month's notice on either side.

Salary £330 per annum, with furnished apartments, rations, and other allowances.

The appointment will be subject to the provisions of the Poor Law Officers Superannuation Act, for which purpose the value of the emoluments has been fixed at £125 per annum.

Candidates must be single gentlemen, duly registered, possess the qualifications required by the Orders of the Ministry of Health, and preference will be given to candidates having a knowledge of the treatment of Mental Diseases, and who have experience in Surgical work. The Hospital affords plenty of scope for major and minor surgery.

A Resident Medical Superintendent is in attendance.

Applications to be made on printed forms which may be obtained at this office, accompanied by not more than three recent testimonials, and a description of the diplomas, certificates of degrees, licences, and other instruments held by the candidates, and must be returned to me by Monday, December 30th.

By Order,
Guardians' Offices, St. Michael's Road, Portsmouth. W. E. GODFREY, Clerk to the Guardians.
December 5th, 1929.

Torbay Hospital, Torquay.
(146 Beds.)

HOUSE PHYSICIAN wanted as soon as possible. Salary £175 per annum, with board, residence, and laundry. Candidates must be fully qualified, registered, and unmarried.

Applications, stating age, nationality, qualifications, and experience, must be sent forthwith to the undersigned, with copies of not more than three recent testimonials.

E. L. GRIST,
December 10th, 1929. Secretary.

Coventry and Warwickshire
HOSPITAL, COVENTRY.
(307 Beds.)

RESIDENT HOUSE SURGEON (male) wanted. Salary £125 per annum. Board, laundry, and attendance provided. Candidates must be duly qualified and registered.

Applications, stating age, and enclosing copies of recent testimonials, should be sent to the undersigned on or before December 27th.

(Miss) E. HOOPER, Secretary.

Liverpool Stanley Hospital.

Applications are invited for the post of HONORARY ASSISTANT LARYNGOLOGIST.

Applications and testimonials, addressed to the President, to be sent on or before Saturday, 28th inst.

The canvassing of any member of the Election Committee will disqualify, but candidates are at liberty to send to the members copies of their applications and testimonials.

FRANK WHITE, Hon. Secretary.

St. John's Hospital,
Lewisham, S.E.13.

An appointment as ORTHOPÆDIC SURGEON has been created, for which applications are invited. The successful applicant will be required to do one Out-patient Clinic per week, and will have charge of a number of Orthopædic beds. Applications, with copies of testimonials, should be received by the Secretary at the Hospital not later than January 15th, 1930.

University College Hospital.

Applications are invited for the honorary post of a FIRST ASSISTANT in the Ear, Nose, and Throat Department, tenable for a period of one year in the first instance.

Applications, giving evidence of fitness for the post, must reach the Secretary, University College Hospital, Gower Street, W.C.1, by noon on Monday, December 30th.

The Weir Hospital,
Grove Road, Balham, S.W.12

JUNIOR RESIDENT MEDICAL OFFICER (male, unmarried) required early in January. Candidates must be fully qualified and duly registered. Salary £150 per annum, with board, residence, and laundry.

Applications, with copies of testimonials, to be sent to the Secretary, from whom further information may be obtained.

APPOINTMENTS—Important Notice.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

(a) British Islands.

Town or District.	Town or District.	Town or District.
CONTRACT PRACTICE.	**CONTRACT PRACTICE** *(Contd.).*	**PUBLIC HEALTH** *(continued).*
EBBW VALE, MON. *(Workmen's Medical Society.)*	OAKDALE, MON *(Medical Officer for Medical Aid Association.)*	CHESHIRE EDUCATION COMMITTEE. *(Assistant School Medical Officer—Female.)*
GILFACH GOCH, GLAMORGAN. *(Workmen's Medical Scheme.)*	OGMORE VALLEY, GLAMORGAN *(Wyndham Colliery Medical Aid Society.) (Workmen's Medical Scheme.)*	CORNWALL EDUCATION COMMITTEE. *(Assistant School Medical Officer—Female.)*
LLWYNYPIA, CLYDACH VALE, PENYGRAIG, GLAMORGAN. *(Workmen's Medical Scheme.)*	**POOR LAW.**	GLASGOW EDUCATION AUTHORITY. *(Male Assistant Medical Officer.)*
MARDY, GLAMORGAN. *(Workmen's Medical Scheme.)*	LEWISHAM HOSPITAL. *(Assistant Medical Officer.)*	MERTHYR TYDFIL COUNTY BOROUGH. *(Assistant School Medical Officer and Assistant Medical Officer of Health.)*
MERTHYR VALE COLLIERY WORKMEN'S MEDICAL COMMITTEE. *(Workmen's Medical Scheme.)*	**PUBLIC HEALTH.**	ROXBURGH COUNTY EDUCATION AUTHORITY. *(School Medical Officer.)*
NEATH AND DISTRICT. *(Medical Aid Association.)*	AYRSHIRE EDUCATION AUTHORITY. *(Assistant School Medical Officer—Male.)*	YORKSHIRE NORTH RIDING COUNTY COUNCIL EDUCATION COMMITTEE. *(Assistant School Medical Officer.)*
	CHESHIRE EDUCATION COMMITTEE. *(Assistant School Medical Officer—Male.) (Altrincham District.)*	

(b) Colonial Medical Service.— WINDWARD ISLANDS MEDICAL SERVICE. (Grenada with Carriacou, St. Vincent and St. Lucia.)

(c) Overseas.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.
NEW SOUTH WALES. *(All Friendly Society Appointments.)*	Dr. R. H. TODD (Hon Sec., New South Wales Branch), B.M.A. Building, 30-34, Elizabeth St., Sydney, N.S.W.	VICTORIA. *(All Institute or Medical Dispensaries.)*	Dr. FRANK DAVIES (Hon. Sec., Victorian Branch), British Medical Association, Medical Society Hall, East Melbourne, Victoria.	WESTERN AUSTRALIA. *(Contract and Lodge Practices.)*	Hon. Sec., Western Australian Branch, British Medical Association, No. 6, Bank of N.S.W. Chambers, St. George's Terr., Perth, Western Australia.
QUEENSLAND. *(Brisbane Associated Friendly Societies Institute.)*	The Hon. Sec., Queensland Branch, British Medical Association, B.M.A. Building, Adelaide St., Brisbane.	WELLINGTON, NEW ZEALAND. *(Contract Practice Appointments.)*	Dr. G. F. V. ANSON (Hon. Sec., New Zealand Branch), British Medical Association, P.O. Box 156, Wellington, New Zealand.		

Address: B.M.A. House, Tavistock Square, W.C.1.
December 10th, 1929.

By Order of the Council of the British Medical Association.
ALFRED COX, Medical Secretary.

Mansfield and District Hospital.

The Board of Management of the above Hospital (140 beds) invite applications for the post of HOUSE SURGEON (male).

Salary at the rate of £150 per annum for the first six months and £175 for the second six months, with residence, board, and laundry.

The appointment is for six months and is renewable.

The Resident Staff consists of a Resident Surgical Officer, House Surgeon, and House Physician.

Applications, *accompanied by not more than* three recent testimonials, to be sent to the undersigned.

Dated this 2nd day of December, 1929.

ARTHUR H. LIMB, Secretary.

Kettering and District General Hospital. (82 Beds.)

Applications are invited for the post of SENIOR HOUSE SURGEON (male). Salary £175 p.a., with board, residence, and washing.

Candidates must be fully qualified and registered, with previous Hospital experience. The appointment is for six months.

Applications, stating age, nationality, and qualifications, together with copies of three recent testimonials, to be sent to the Secretary-Superintendent as soon as possible.

Bristol Homœopathic Hospital. (Bruce Melville Wills Memorial.)

The Board of Management invite applications for the post of HONORARY SURGEON to the Hospital (75 beds, including Private and Semi-private Wards). Applications, stating age, qualifications, and previous Surgical experience, should be addressed to the undersigned.

H. HUNTER (Lt.-Colonel), Secretary.

Dorset Mental Hospital, HERRISON, DORCHESTER.

JUNIOR ASSISTANT MEDICAL OFFICER required. Candidates must be duly qualified, registered, and unmarried. Commencing salary £300 per annum, *rising by one yearly* increment of £50 to £350, with the prospect of a further rise of £50 after satisfactory service, with board, apartments, laundry, and attendance. The appointment is subject to the provisions of the Asylum Officers Superannuation Act, 1909. Applications, stating age and *qualifications, with copies of recent testimonials,* should be sent to the Medical Superintendent at once.

Royal Isle of Wight County Hospital, RYDE.

RESIDENT HOUSE SURGEON wanted for January 1st, 1930, either sex, unmarried. Single-handed appointment. Doubly qualified and registered. State age and nationality. Salary at the rate of £180 yearly, with board, residence, and laundry. There are three Special Departments: Ophthalmic, X-ray, and Aural. Preference to candidate with experience in these branches. Apply, enclosing copies of testimonials, to Secretary before December 20th. Return railway fare for selected candidates.

A. S. GORDON, *Secretary.*

Newark Hospital and Dispensary (50 Beds.)

Wanted, a fully qualified RESIDENT HOUSE SURGEON (male) to commence duty January 1st, 1930. Must be a good Anæsthetist. Salary £150 per annum, with board, residence, and laundry. Appointment for six months, or twelve if mutually desired. For form of application apply to W. T. CRAMPTON, 27, Kirk Gate, Newark, Notts.

The Royal Gwent Hospital, NEWPORT, MON. (160 Beds.)

Wanted, a JUNIOR RESIDENT MEDICAL OFFICER to act as House Surgeon to Out-patients and House Physician.

Salary £135, with board, lodging, and laundry.

Large Out-patient Department. Eligible for promotion. Resident Medical Staff five.

Applications, stating age and qualifications, with copies of three recent testimonials, to be sent to the undersigned.

Applications from ladies not entertained.

J. K. MILLWARD, Secretary-Supt.

December 3rd, 1929.

Huddersfield Royal Infirmary.

Applications are invited from qualified and registered gentlemen for the post of RESIDENT SURGICAL OFFICER, to commence duty on January 1st, 1930. Salary at the rate of £200 per annum, with board, laundry, and apartments. The appointment is for 12 months, subject to renewal for a similar period. Applications, accompanied by copies of not more than three testimonials, to be addressed to the undersigned not later than first post on December 17th.

H. E. G. HALL, Secretary.

The Salvation Army, THE MOTHERS' HOSPITAL, Lower Clapton Road, Clapton, E.5.

Applications are invited from Medical Women for the post of JUNIOR RESIDENT MEDICAL OFFICER, vacant January 1st, 1930. Salary £60 per annum, with board, residence, and laundry. The appointment is for six months. Applications, with testimonials, must be sent to the Secretary on or before December 18th.

EDGAR DIBDEN, Secretary.

ASSISTANCIES.

Wanted. — Outdoor Assistant, single, male, early in January, for Country Town Practice, Cheshire, offering wide experience. Preferably Ulsterman or Scotch. Suit recently qualified man. Use of car. Salary £360. Dispenser kept. Usual bond. State weight, height, and full particulars.—No. 7909, B.M.A. House, Tavistock Sq., W.C.1.

Wanted, urgently, Assistant, indoor, for large private Practice near Manchester. Partnership later if mutually agreed and well received. Must have held resident Hospital posts.—Address, No 7925, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistant, male, British, unmarried, in Liverpool. Age about 30. Protestant. Usual bond. Salary £350, with furnished rooms, coal, light, and attendance. *Bond photo* and testimonials.—No. 7914, B.M.A. House, Tavistock Sq., W.C.1.

Wanted.—An outdoor Assistant (male) for Branch Colliery Practice in Northumberland. Salary £400 p.a., with furnished house, coals, light, and attendance. —Address, No 7714, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Indoor Assistant, male, some experience, *English or Scots*; good references essential; under 40. Apply personally 11 a.m. (not Sunday).—DR. RIDLEWOOD, 103, Bethnal Green Road, E.2

Wanted. — Temporary Assistant (Woman) for small Country Practice, near University town. Would suit recently qualified woman. Must be able to drive car. State essential particulars.—Addr., No. 7318, B.M.A. House, Tavistock Sq., W.C.1.

Wanted, Indoor Male Assistant in Manchester. Private and Panel Practice. Usual bond. Ex H.S. preferred.—Address stating age, religion, experience, No. 7726, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Indoor Assistant, Country Practice, from Dec. to April; remuneration small but excellent opport. to obtain experience. Previous experience not essential. Will suit recently qualified man or woman.—No. 7927, B.M.A. House, Tavistock Sq., W.C.1

Wanted.—Outdoor Male Assistant, married preferred. Mixed private and panel Practice. West *Country*. £450 p.a. Car provided. House to rent. Refs. and particulars.—Address, No. 7904, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistant, indoor, male, in Colliery Practice in Glamorgan. £300 a year. Dispenser kept. *References*, age, nationality.—Address, No. 7930, B.M.A House, Tavistock Square, W.C.1.

Wanted. — Indoor Assistant, preferably male, for Industrial Practice near Newcastle-on-Tyne. Salary £300 p.a. State age and other essential particulars —Address, No 7715, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Male Assistant for Practice in East London. Indoor Salary according to experience. Previous experience not essential. State fullest particulars Stamped envelope for return of testimonials.—Address, No. 7903, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — Assistant (Jewish) for mixed panel and private Practice, N.E. England. View considered if suitable. Send refs., experience, photo, age, and essential particulars. — Address, No. 7928, B.M.A House, Tavistock Square, W.C.1.

Wanted. — Assistantship by Woman M.B., D.P.H., early in New Year. Aged 29. 3 years' experience: private, panel, and Poor Law. Good *references*. Interview. Free in London now. — Address, No. 7922, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistantship or PART-TIME WORK by a young Indian Doctor. Experienced panel and private work, and midwifery. — Address, No 7932, B.M.A House, Tavistock Square, W.C.1.

Wanted. — Assistantship by Woman M.B., B.Ch., four years' experience G.P. Free now. — Address, No. 7924, B.M.A House, Tavistock Square, W.C.1.

Assistants (indoor and outdoor) wanted immediately. Good salaries offered. —BRITISH MEDICAL BUREAU, 33, *Cross Street*, Manchester.

Assistant, indoor, male, British, Protestant, temperate, for *panel and private* Practice in Midlands; little midwifery. Usual bond. £350 per annum.—Address, No. 7911, B.M.A. House, Tavistock Square, W.C.1.

Assistantship or Locumtenency by M.B., B.Ch., male, single, aged 26, abstainer, ex H.S., 2 yrs.' experience *private and panel*. *Drive car.* — Address, No. 7906, B.M.A. House, Tavistock Square, W.C.1.

Belfast University Graduate, desires ASSISTANTSHIP, 3½ years' qual, ex H.S., H.P., C.O., O.H.S., Teaching Hospital, 9 months G.P. Keen on surgery. Energetic. Well received. London or South preferred.—No. 7929, B.M.A. House, Tavistock Sq., W.C.1.

Gentlemanly Assistant required for Practice in Cheshire town. To the right type of man Partnership will be offered. —Apply to HOUGH, HOSKYNS & Co., LTD., Bridge Street, Manchester.

Medical Woman, with some experience of general Practice, seeks post as ASSISTANT, indoor or outdoor. Cyclist. *Dispensing.*—Address, *No.* 7925, B.M.A. *House*, Tavistock Square, W.C.1.

MEDICAL POSTS, DISPENSERS, etc.

Wanted. — *Junior Resident* PHYSICIAN (unmarried) at RUTHIN CASTLE, NORTH WALES. *Must have held* House office. Salary £200 per annum, with board and *lodging. Quarters* provided in or near the Castle. Appointment may be renewed at the end of six months. *Apply, stating* age and experience, and giving personal references, to Secretary, Ruthin Castle, N. Wales.

Wanted by Public School Boy, PART TIME WORK of debt collecting *for Doctors* in metropolitan area to supplement income. Previous experience. Court work not undertaken. *Highest* personal and banker's refs.— GORNHAM, 36, Fetter House, Fetter Lane, E.C.4.

Wanted for firm of Doctors in Cornwall, LADY CLERK DISPENSER, age about 30. Salary £125 per annum. Good lodgings available. — Write, enclosing testimonials, *T. H. CLEVELAND, The Eaves*, Bodmin.

A Lady Dispenser-Bookkeeper supplied immediately on request, qualified and with practical *experience in* private practice and dispensary work, also trained in *Bacteriological* Laboratories of the LONDON COLLEGE OF PHARMACY FOR WOMEN. Preparation for Examinations.—Write, wire, or 'phone (Park 0969), Secretary, 7, Westbourne Park Road, W.2.

Dispensers supplied to Doctors at short notice, without fee. Qualified and experienced in private and panel practice. *Permanency* and part time Bookkeeper-Dispensers, *Secretary-Dispensers*, Nurse-Dispensers, and Chauffeuse Dispensers.—Write, wire, or 'phone Central 3679, THE RELIANCE BUREAU FOR DISPENSERS, 12, Holborn Viaduct, E.C.1.

Gentlewoman (domesticated), accustomed to sole charge of widower's *child and household (2 maids) for 7 years, seeks* SIMILAR POST. Salary not essential. Four years' V.A.D. Could bring good *maid*.—Add., No. 7913, B.M.A. House, Tavistock Sq., W.C.1.

Lady Dispenser desires Re-*ENGAGEMENT; qualified*, 10 years' experience in dispensing and book-keeping. Good testimonials. Disengaged now.—Address, Miss DANIEL, Harvey House, Dix's Field, Exeter.

Lady Secretary, experienced medical and scientific work, wishes POST in or near Edinburgh or Glasgow. Good linguist. Accustomed translate foreign books, *articles*, library work, accounts, etc.—Address, No. 7901, B.M.A. House, Tavistock Sq., W.C.1.

Male Dispenser-Bookkeeper (40) desires POST. Thoroughly *experienced*, highest references. At liberty.—"DISPENSER," Turret House, Victoria Road, Edmonton, N.18.

Pathological and Bacteriological LABORATORY ASSISTANTS ASSOCIATION.—Pathologists and Bacteriologists *requiring* SKILLED CERTIFICATED LABORATORY ASSISTANTS are invited to communicate with H. GOODING, Hon Sec., "Moelfre," 10, Holbeck Grove, Victoria Park, Manchester. *No fees.*

Swatow, S. China. — Mission *Hospital* in connection with the Presbyterian Church of England. DOCTORS URGENTLY NEEDED. Med., Surg., X-Ray work, etc. *Full* particulars from Med. Supt.—Add., No. 7681, B.M.A. House, Tavistock Sq., W.C.1.

S.R. Nurse desires Post as RECEPTIONIST, *Doctor or* Dental Surgeon. Bournemouth district preferred.—Address, No 7916, B.M.A. House, Tavistock Sq., W.C.1.

The Royal Army Medical Corps ASSOCIATION. — If you require men trained in all branches of hospital work.—Dispensers (capable of undertaking returns, clerical work, etc., connected with Ministry of Health), Clerks, Laboratory Assistants, general hospital duties, Porters, Caretakers, etc.—Apply, *Secretary*, 85, Eccleston Square, S.W.1.

Typewriting.—Expert undertakes The, Testimonials, etc. *Numerous* letters of appreciation from Doctors.—'Phone Primrose Hill 0805, or write BEATRICE HADFIELD, c/o Smith's, 487, Finchley Road, N.W.3.

Woman Doctor, ex H.P., experienced panel and private, offers PART-TIME SERVICES *in return* for HOSPITALITY. From middle of January.—Address, No. 7684, B.M.A. House, Tavistock Square, W.C.1.

LOCUMS.

LOCUM TENENS
FOR A RELIABLE SUBSTITUTE CONSULT
THE MEDICAL AGENCY.
(WILLIAM H. GRANT.)
WATERGATE HOUSE, 15, YORK BUILDINGS, ADELPHI, W.C.2. (TEMPLE BAR 1054. RIVERSIDE 1254 (*Night Calls*).
Telegrams:
"REASHIP, TEPHONE, WESTRAND, LONDON."

Wanted. — Engagement as LOCUM by Englishman, qual. 1907, St. Barts', Experienced G.P. and panel work. Well recommended. Free now. State terms.—Apply to "MEDICUS," The Red House, Lancing, Lancing 57.

Lady Locum required for Panel Practice, December 29th to December 29th.—Apply, in writing, with essential particulars, to Dr. COLEMAN, 50, Little Heath, Charlton, S.E.7.

FOR LOCUM TENENS APPLY TO Mr. PERCIVAL TURNER, Ltd. The oldest and only Agent who for 40 years has supplied substitutes at short notice without fee to principals.
4, ADAM ST., Strand, London, W.C.2.
Teleg.: "Epsomian, Lond." 'Phone: Temple Bar 9011.

PARTNERSHIPS.

Wanted.—Partnership or Practice, income £1,200, mixed class, not industrial, London suburb or Home County, by M.B., Ch.B. Five years' experience: Hospital staff and General Practice. Capital available.—No. 7725, B.M.A. House, Tavistock Sq., W.C.1.

Wanted by M.B., Ch.B.(Aber.), 1924, PARTNERSHIP on easy terms after short preliminary assistantship. H.S., experienced all branches town and country practice. *Well received.* Good references.—Addr., No. 7907, B.M.A. House, Tavistock Sq., W.C.1.

Wanted.—Partnership or Practice, South Coast, within 60 miles of London, by M.B., Ch.B.(Edin.), experienced in G.P., chiefly better-class. £1,500 down *and rest* by instalments.—Address, No. 7920, B.M.A. House, Tavistock Square, W.C.1.

A Doctor with small Practice in rapidly growing district will dispose of a *SHARE of his PRACTICE* to a lady Doctor. Exceptional scope.—Address, No. 7905, B.M.A. House, *Tavistock Square*, W.C.1.

Berks.—Partner required for an *old-established Practice. Receipts* average nearly £1,300 a year, including fair panel. Half share for sale, premium £850. Excellent chance for young energ tic Doctor. Scope for increase.—*Apply*, PEACOCK & HADLEY, Ltd., 19, Craven Street, Strand, W.C.2.

Cheshire Town, near Manchester. — PARTNERSHIP in old-established Practice after short Preliminary Assistantship. *Income about* £3,000 p.a. Panel 2,000. Premium—1/3rd share—1½ years' purchase.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Partner required immediately for rapidly increasing Practice, worth about £2,500. One-third share available. Accountant's figures. — Address, No. 7912, B.M.A. House, Tavistock Square, W.C.1.

East Coast. — Large Seaport Town.—PARTNERSHIP. Cash receipts £10,634 p.a. Panel 5,000. Good house available. Rent £65 p.a. Short preliminary assistantship. Premium—1/6 share—1½ years' purchase. — BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Glam. — Partner required for working-class Practice. Receipts £1,200 p.a., including panel 1,000. Rent 10/- per week exclusive. Premium for half share £950, payable only £300 down, rest by instalments. —Apply, PEACOCK & HADLEY, Ltd., 19, Craven Street, Strand, W.C.2.

Lancs Town. — Partnership in old-estab. Practice of £3,000 yearly; 2,5 or 1,3 share for disposal at 1½ years' purchase. Scope for surgery. Good house available.—Address, No. 7910, B.M.A. House, Tavistock Square, W.C.1.

Lancs Seaside Resort.—Partner wanted at once in old established good-class Practice. Gross average last 4 years over £3,400. Panel over 600. Scope for surgery if desired. 1/3 share for sale, price £2,000.—No. 7711, B.M.A. House, Tavistock Sq., W.C.1.

Surgical Partnership required in approx. 6 months by M.D., F.R.C.S.Ed., aged 40. W.H experience in general surgery and large successful General Practice, including panel. South of England, preferably towards East, with access to Hospital. Share about £2,000 or upwards desired. Ample capital.—Address full particulars, No. 7623, B.M.A. House, Tavistock Square, W.C.1.

PRACTICES.

Wanted, by Camb. M.B., 45, good-class PRACTICE (or PARTNERSHIP) with little or no panel and mid., £1,000—£1,500. Southern Counties preferred. House (prf. to rent) and good garden; must be in quiet and open situation. Take over next summer.—Address, No. 7921, B.M.A. House, Tavistock Square, W.C.1.

Wanted.—Practice (in or near London or Leicester). £1,300 to £1,600 per year. Good panel about 1,600 to 2,000 required. Industrial and working-class. House to rent. 1½ years' purchase. Capital available.—Address, No. 7902, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Practice in or near London, with large panel (2,000—5,000 names). Ample capital available.—Add., No. 7908, B.M.A. House, Tavistock Sq., W.C.1.

Wanted early in the New Year, PRACTICE, in or near London. House to buy or rent. Income £1,500 to about £2,000. Ample capital.—Address, No. 7931, B.M.A. House, Tavistock Square, W.C.1.

Wanted in Bradford-Leeds district, Cash and Panel PRACTICE, £1,200—£2,000 p.a. Good house essential. Capital available.—Address, No. 7918, B.M.A. House, Tavistock Square, W.C.1.

Birmingham.—Old-estab. Practice. Average cash receipts £1,722 p.a. Panel 2,310. Good house, 2 reception, 5 bedrooms, garage and garden, to be sold or rented on lease. Premium 1½ years' purchase. —BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Death Vacancy. — North-East COAST RESORT.—Old-estab. PRACTICE. Cash receipts 1928, £2,101. Excellent house and garden. Prem. 1 year's purchase.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

For Disposal.—A good Practice is not always to be had directly, but Mr. PERCIVAL TURNER can generally offer applicants something suitable. Nearly all the best Practices are sold by him without being advertised. Inform free on applic.—4, Adam St., W.C.2

Glasgow.—Medical Practice for Sale. Income £700. Panel nearly 700. Appointments worth £50. Modern house to be sold. Premium, house and Practice, £1,550.—Address, No. 7917, B.M.A. House, Tavistock Square, W.C.1.

Lancs Country Town. — Beautiful district. Average cash receipts £655 p.a. Panel 3/400. Scope for increase. Freehold house, 2 reception, 7 bedrooms, garage, garden, and outbuildings. Premium—Practice and house—£2,200.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

London (10 minutes' walk Elephant and Castle).—Cash and Panel PRACTICE. Receipts average £700 p.a., including panel. Surgery accommodation £2 per week. Premium £1,000. Thickly populated district.—Apply, PEACOCK & HADLEY, Ltd., 19, Craven Street, Strand, W.C.2.

Lancashire Coast Resort.—Old-estab. PRACTICE. Average cash receipts £1,100. Panel 550. Scope. Modern house (freeh'd), 2 reception, 5 bedrooms, garage, and garden, for sale or may be let on long lease. *Premium—Practice—1½ years' purchase.* —BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Manchester.—Mixed Practice for Sale in populous district. Good house, bath, etc., £50. Receipts £500. Good scope. *Panel 420, growing rapidly. Price 1½ years'* purchase or near offer.—MANCHESTER MEDICAL & SCHOLASTIC ASSOCIATION, 6, Brown Street.

Manchester.—Mixed-class Practice. Average cash receipts £923. Panel 700. Good house, 2 reception, 5 bedrooms. *Rent £70 p.a. Premium 1½ years' purchase.*— BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Newport, Mon.—Large growing suburb main- Newport—Cardiff road. Nearly 700 houses and shops already erected and occupied. Medical services absolute necessity for district. *Nearest Doctor approx. 1½* miles. View of site would convince. Premises erected to suit requirem'ts.—I. H. LANE, Builder & Contractor, 26, Eveswell St., Newport, Mon.

Seaside Resort, Lancs.—Ladies' PRACTICE in very pleasant district. Roomy flat, with lawn in front, rent £104. Receipts about £1,000, with much scope. Panel 225. Price £1,050. — MANCHESTER MEDICAL & SCHOLASTIC ASSOCIATION, *6, Brown* Street.

Small Practices with scope.—We have several in the Manchester district. Cash receipts £700; £600; £400, etc.—Full particulars from BRITISH MEDICAL BUREAU, *33, Cross Street, Manchester.*

Sound Practice for Disposal, Manchester district. Six months' introduction offered.—For terms and particulars apply KNOTT & CASTLE, Solicitors, 3, Norfolk St., Manchester.

To Purchasers. — Do not buy without expert assistance. With 40 yrs.' experience Mr. PERCIVAL TURNER can advise in all cases. Terms free on application to 4, Adam St., Strand, W.C.2. Telephone: Temple Bar 9011. Telegrams: "Epsomian, London."

Very delightful, genuine, well-established Seaside PRACTICE for Sale. Private and panel. Income upwards £1,400. Excellent house, garden, and garage.—Apply, "MEDICO," 144, Edmund Street, Birmingham.

Well - established mixed - class PRACTICE, situated in a rapidly developing district 20 minutes from Golders Green. Receipts last twelve months nearly £500, *including panel of 400, steadily increasing.* Excellent house on lease, rent £150 p.a., covered by sublettin*s. Premium moderate. —Apply, PEACOCK & HADLEY, Ltd., 19, Craven Street, Strand, W.C.2.

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Leicester. — Occupying a prominent corner position on the main London Road in the best residential district. A MODERN RESIDENCE, equipped with every convenience and in splendid order, admirably suited for a professional man, containing three reception rooms, nine bedrooms, compact domestic offices, excellent garage, stabling for three. Immediate possession. For Sale or to Let. Rent £175 a year and rates.

Full particulars from WARNER, SHEPPARD & WADE & P. L. KIRBY, 16/18, Halford Street, Leicester.

Harley Street.—A very attractive Service FLAT to let unfurnished. Large *light rooms, redecorated throughout*, sitting room, 2 bedrooms, bathroom, constant hot water. Rent £320 p.a., inclusive of full service.—WARMINGTON & Co., 19, Berkeley Street, W.1. Mayfair 3433/4.

To Let in Devonshire Street, a ith small room art use of waitir Suitable for D No. 7923, B.M.A C.1.

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(With Possession.)

Ilfracombe.—Desirable Residence known as "Randfontein," Chambercombe Park. Situated on high ground, commanding extensive views of sea and country. Quiet and *select neighbourhood, close to 'bus routes*, near to golf course and bathing beaches.

Containing.—Ground floor: hall, dining and morning rooms with conservatory, library, billiard room, bathroom and lavatory, kitchen, and usual offices. First floor: large drawing room with conservatory, six bedrooms, bathroom and lavatory, and large useful balconies.

The house is fitted throughout with electric light and gas and is specially designed for labour-saving. Particular attention has been *paid to ventilation, and it would be ideal for* a Nursing Home, Rest House, School, or Boarding House.

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Sloane Street (overlooking extensive gardens).—Ground floor FLAT in important new building eminently suitable for professional purposes. Good hall. Four rooms *en suite. Two bathrooms, kitchen, pantry, and* two servants' bedrooms. Central heating. Constant hot water. To be Let on lease. Garage if required.—Agents: Messrs. WINKWORTH & Co., 48, Curzon Street, Mayfair, W.1.

House to Let. — Excellent position for Doctor or Dentist. Surgery and *waiting room on ground floor.* Five large rooms, lavatory, and bathroom. Open garage in yard.—"PHARMACIST," 215, Bromley Road, Catford, S.E.6.

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1 PROMETHEUS Autoclave (slightly show-soiled) 220 v. On stand. Automatic cut-off ... ... £30 net cash.
1 PROMETHEUS Autoclave Electric Water Heater and Medical Instrument Sterilizer, on Stand, 240 v. (slightly show-soiled) £45 *net* (American Manufacture.) cash.

Apply COTTRELL & Co., Dental Depot, 15-17, Charlotte Street, London, W.1.

For Sale.—Pantostat (Schall's); second-hand.—Address, No. 7915, B.M.A. House, Tavistock Square, W.C.1.

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Assist you to avail yourself of special facilities provided for the Medical Profession relating to Income Tax. For further particulars write or call.—C. G. C. RILNER, 17, George St., Baker St., W.1. (Phone: Welbeck 2012).

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Several Research and other High-Grade MICROSCOPES for Sale at special clearance prices. Details on application.—CITY SALE & EXCHANGE (1929) LTD., 54, Lime St., London, E.C.3.

APPOINTMENTS.—Contd.

Leicester Royal Infirmary.

HONORARY PHYSICIAN.

A vacancy for an Honorary Physician will arise in February, consequent upon the retirement, under the rules, of Dr. Astley V. Clarke, Senior Physician. Applications are invited for the post. The only candidates eligible are those who have held the position of Honorary Assistant Physician to Leicester Royal Infirmary.

The present Senior Honorary Assistant Physician is a candidate.

HONORARY ASSISTANT PHYSICIAN.

Should the above vacancy be filled by one of the present Honorary Assistant Physicians, there will be a vacancy for an Honorary Assistant Physician. Candidates must be Graduates in Medicine of one of the Universities of the United Kingdom of Ireland, and duly registered. Fifty guineas annually is granted by the Board for out-of-pocket expenses. Applications (in the latter case accompanied by 100 copies of recent testimonials) to reach the undersigned by Tuesday, January 14th, 1930.

HONORARY SURGEON.

A vacancy for an Honorary Surgeon will arise in *February, consequent upon the retirement*, under the rules, of Mr. J. S. Sloane. Applications are invited for the post. The only candidates eligible are those who have held the post of Honorary Assistant Surgeon to Leicester Royal Infirmary.

The present Senior Honorary Assistant Surgeon is a candidate.

HONORARY ASSISTANT SURGEON.

Should the above vacancy be filled by one of the present Honorary Assistant Surgeons, there will be a vacancy for an Honorary Assistant Surgeon. Candidates must be Fellows or Members by examination of the Royal College of Surgeons of England, or Graduates in Surgery of the United Kingdom or Ireland. Fifty guineas annually is granted by the Board for out-of-pocket expenses. Applications (in the latter case accompanied by 100 copies of recent testimonials) to reach the undersigned by Tuesday, January 14th, 1930.

It is proposed that the successful candidate, in addition, shall be in charge in the Orthopædic Department, and he must have had experience in that branch of Surgery.

Canvassing in any of the appointments is not allowed.

HARRY JOHNSON,
House Governor and Secretary.

Hospital for Invalid and CRIPPLED CHILDREN,
119, Balaam St, Plaistow, E.

Applications are invited for the post of HOUSE PHYSICIAN (woman) to the above Hospital for a period of six months. Time available for Post-Graduate study. Salary at the rate of £50 per annum, together with board, maintenance, and laundry. Applications, together with particulars of qualifications and testimonials, must be sent at once to the undersigned.

R. I. HOWARD, Secretary.

Malayan Medical Service.

A vacancy exists at present for an ANÆSTHETIST in the GENERAL HOSPITAL, SINGAPORE.

Qualifications.—Applicants must be British subjects of European parentage and under 35 years of age. Experience in the administration of anæsthetics for a period of at least two years is essential.

Salary.—$600 a month (£810 per annum, at *exchange Straits $1=2s. 4d.*), *rising by annual* increments of $25 a month (£25 per annum) to $800 a month (£1,120 per annum). In addition *to salary*, there is at present a non-pensionable temporary allowance of 10 per cent. of salary to unmarried officers, and 20 per cent. to married officers.

Conditions of Service.—*The selected candidate* will be on agreement for three years in the first instance. If the appointment is continued he will be placed on the permanent and pensionable establishment, his previous service counting as part of his permanent service for the purpose of calculating leave and pension.

Quarters.—*Quarters, if available*, are provided at a rental which in no case exceeds 5 per cent. of the officer's salary.

Passages.—Free first-class passages are provided.

Private Practice.—Private practice is not allowed, but consultation with another practitioner is permitted.

Date of Sailing.—The selected candidate will be required to assume duty in Singapore in May, 1930.

Further particulars and forms of application may be obtained, on application in writing, *from the Private Secretary (Appointments)*, Colonial Office, 2, Richmond Terrace, Whitehall, London, S.W.1.

Nottinghamshire County Council
EAST RETFORD CORPORATION.
EAST RETFORD RURAL DISTRICT COUNCIL.

APPOINTMENT OF JOINT MEDICAL OFFICER.

The Nottingham-shire County Council, the East Retford Corporation, *and the East Retford* Rural District Council jointly invite applications from duly qualified and registered Medical Practitioners for the whole-time *appointment of a Medical Officer* to act as—

(*a*) ASSISTANT MEDICAL OFFICER of the County Council;

(*b*) MEDICAL OFFICER OF HEALTH, SCHOOL MEDICAL OFFICER, and CERTIFYING OFFICER for the purposes of Section 55 of the Education Act, 1921 (Defective and Epileptic Children), and Section 31 (1) of the Mental Deficiency Act, 1913, of the Corporation of East Retford;

(*c*) MEDICAL OFFICER OF HEALTH to the East Retford Rural District Council.

The salary attaching to the position will be £750 per annum (with reasonable travelling and subsistence allowances), rising after two years' *satisfactory service by two annual increments of* £25 each to a maximum of £800 per annum; and the person appointed will be required to reside within a radius of two miles from the Market Square, East Retford.

Applicants must have had at least three years' professional experience since qualifying, be conversant by experience in the duties of a Medical Officer of Health and School Medical Officer, and also possess a Diploma in Public Health. Experience in Rifraction Work and the examination of Defective Children is essential.

The appointment will be terminable on three months' notice, and be subject to the approval of the Ministry of Health and the Board of Education, and also to the provisions of the Sanitary Officers Order, 1926.

Form of application and conditions of appointment can be obtained at my office, and must be forwarded to me not later than December 30th, 1929.

K. TWEEDALE MEADY,
Clerk of the Nottingham-shire
Shire Hall, County Council.
Nottingham, Dec., 1929.

Swansea County Borough.

MALE ASSISTANT MEDICAL OFFICER.

The Swansea Borough Council invite applications from duly qualified Medical Practitioners for the post of Male Assistant Medical Officer to assist with the Medical Services of the Corporation.

Hospital resident and special experience of refraction and ear, nose, and throat work, school medical service, and maternity and child [illegible] trable; the D.P.H. [illegible] the foregoing, is [illegible] er annum, subject [illegible] of Education and [illegible] ; [illegible] rms, which can be obtained from Dr. Thomas Evans, Medical Officer of Health, Public Health Office, Swansea, to be sent in not later than December 31st.

Lancashire County Council.
SCHOOL MEDICAL AND CHILD WELFARE DEPARTMENT.

APPOINTMENT OF ASSISTANT COUNTY MEDICAL OFFICER.

The Lancashire County Council invites applications from registered Medical Practitioners for *the post of Assistant County Medical Officer.*

Applicants must not be over 35 years of age, and must possess the Diploma of Public Health.

The duties of the post include the Medical Inspection of School Children; work under the Maternity and Child Welfare Acts; general Public Health work; and such other duties as may from time to time be imposed by the County Council.

The person appointed will be required to devote his whole time to the service of the County Council. The salary will be £599 a year, rising (subject to satisfactory service) by annual increments of £50 to a maximum of £1,049 a year, together with first-class railway fares and other reasonable expenses.

The person appointed will be required to pass a medical examination, and to contribute to the Council's Superannuation Fund.

Applications must be made upon a form which can be obtained, together with further particulars, from the County Medical Officer of Health, School Medical and Child Welfare Department County Offices, Preston, to whom the completed forms should be returned not later than Tuesday, December 31st, 1929. All communications must be endorsed "Assistant County Medical Officer."

Any form of canvassing is strictly forbidden, and will disqualify.

GEORGE ETHERTON,
Clerk of the County Council.
County Offices, Preston,
December, 1929.

Bristol General Hospital.

The Committee invites applications for the following appointments which become vacant on February 1st next:—

TWO HOUSE PHYSICIANS, TWO HOUSE SURGEONS, RESIDENT OBSTETRIC OFFICER, HOUSE SURGEON TO THE SPECIAL DEPARTMENTS, AND A CASUALTY HOUSE SURGEON.

The appointments will be for six months at salaries at the rate of £60 per annum, and at the rate of £80 per annum for the Casualty *House Surgeon*, with board residence, etc., provided in the Hospital.

Candidates must be registered under the Medical Acts and produce testimonials of good personal character and ability, and must have recent experience in the administration of anæsthetics.

Forms of application, etc., to be obtained from the Secretary, must be returned completed, with copies of testimonials, addressed to the undersigned, on or before Monday, January 6th next, from whom further particulars *may be obtained*.

THOMAS W. GREGG, Secretary.

County Mental Hospital,
PRESTWICH, near MANCHESTER.

ASSISTANT MEDICAL OFFICER required. Commencing salary £500 per annum, rising to £600 by yearly increments of £25, less charges for board, furnished apartments, attendance, and laundry, valued at £150 per annum if received in full. Further increases according to promotion. One interested in Laboratory and Research work preferred. Candidates must be unmarried and registered under the Medical Act. The appointment is subject to 3 per cent. deduction on salary under the Asylums Officers Superannuation Act, 1909. Apply, stating age *and full particulars, to the Medical Supt.*

Walsall General Hospital.

The Committee invite applications from men for the post of CASUALTY HOUSE SURGEON. Salary £120 per annum.

Candidates, who must be registered under the Medical Acts, must have had previous experience in Surgery and administration of Anæsthetics, and produce three recent testimonials.

The appointment will be for six months.

The Hospital contains 100 beds, and is equipped in *all special departments*.

Applications must be received by the *undersigned* not later than the first post Tuesday, December 17th.

WALTER FRANCOMBE,
December 9th, 1929. *Secretary.*

North Devon Infirmary,
BARNSTAPLE.

Wanted at once, duly qualified HOUSE SURGEON, gentleman. Salary £150 per *annum*, with board, apartments, and laundry. Appointment to be for not less than six months. Applications, stating age, *qualifications*, with copies of testimonials, to be sent at once, addressed to Hon. Secretary.

CAVENDISH NURSES (Male and Female)

Head Office: 54, BEAUMONT ST., LONDON, W.1 (late 43, New Cavendish St., London, W.1.)

A very convenient form of telephone message pad sent free on application to the Secretary

Branches: *MANCHESTER*: 176, *Oxford Road.* *GLASGOW*: 28, *Windsor Terrace.* *DUBLIN*: 23, *Upper Baggot Street.*

TELEGRAMS: Tactear, London. Surgical, Glasgow. TELEPHONES: London, 1277 Welbeck. Glasgow, 477 Douglas.
Tactear, Manchester. Tactear, Dublin. Manchester, 3162 Ardwick. Dublin, 531 Ballsbridge.

Superior trained Nurses for Medical, Surgical, Mental, Dipsomania, Travelling and all cases. Nurses reside on the premises, and are always ready for urgent calls Day and Night. Skilled Masseuses, Masseurs, and good Valet attendants supplied.
Terms from £3 3s. *Apply to the Secretary or Lady Supt.*

Cumberland Infirmary, Carlisle.

APPOINTMENT OF PATHOLOGIST AND BACTERIOLOGIST.

The Committee of Management are about to appoint a Pathologist and Bacteriologist to take charge of the new Pathological Laboratory at the above Infirmary, and invite applications from duly qualified medical men for the post.

The Infirmary at present contains 120 beds, together with a large modern out-patients' department and the newly erected pathological laboratory. The gentleman appointed will be expected to devote the whole of his time to the duties of the appointment, which will include the pathological and bacteriological work connected with the Infirmary and the examination of specimens submitted by practitioners and by various public health bodies. He will also be required to act in conjunction with the Medical Officer of Health for the Cumberland County Council and the Medical Officer of Health for the Borough of Carlisle.

The salary will be at the rate of £900 per annum. The age should not exceed 40 years.

Applications, stating age, qualifications, and experience, accompanied by copies of not more than three recent testimonials, are to be sent to the undersigned not later than December 31st, the envelope being endorsed "Patho'ogist."

Cumberland Infirmary, Carlisle. J. G. HOWITT, Secretary.

November 28th, 1929.

The Royal Infirmary of EDINBURGH.

OPHTHALMIC DEPARTMENT.

1. Applications are invited for the combined post of SENIOR CLINICAL ASSISTANT and CLINICAL TUTOR (non-resident) which will be vacant on April 1st next; annual emoluments attached, One Hundred and Forty-five Pounds Stg. (£145). Candidates must undertake to hold office for at least one year, and previous experience in Ophthalmic work is essential. The post is suitable for a Graduate intending to specialise in Ophthalmology.

2. Applications are invited for the posts (two) of CLINICAL ASSISTANT (non-resident) which will be vacant on January 1st, 1930; annual emoluments attached, Two Hundred Pounds Stg. (£200). Candidates must undertake to hold office for at least one year, and previous experience in Ophthalmic work is essential. The post is whole-time and is suitable for a Graduate intending to specialise in Ophthalmology.

Further particulars may be had from the Superintendent, to whom application, with testimonials, should be sent in forthwith.

Ancoats Hospital, Manchester.

Applications are invited for the following posts, which will become vacant on December 31st next:

ASSISTANT PATHOLOGIST. (Co-existing Research Appointment is available which will allow of a salary of £350 per annum being paid.)

MEDICAL REGISTRAR (part-time). Salary £100 per annum.

SURGICAL REGISTRAR (part-time). Salary £100 per annum.

Applications, stating age, qualifications, experience, appointments held, etc., together with copies of three recent testimonials, to be forwarded to the undersigned on or before December 16th next, and from whom all particulars may be obtained.

By Order of the Board,
HERBERT J. DAFFORNE.
Gen. Supt. & Secretary.

Acton Hospital.

Appointment of male RESIDENT MEDICAL OFFICER. Salary £150 per annum, with board, residence, and laundry. Candidates must be fully qualified and registered. Duties to commence about January 20th, 1930. Applications, stating age, nationality, and qualifications, together with copies of recent testimonials, should be sent to the Secretary, Acton Hospital, Gunnersbury Lane, Acton, not later than December 28th.

December 6th, 1929.

Royal Salop Infirmary, SHREWSBURY. (150 Beds.)

APPOINTMENTS OF RESIDENT HOUSE SURGEON and RESIDENT HOUSE PHYSICIAN.

Applications are invited from fully qualified men for the appointments of Resident House Surgeon and Resident House Physician, vacant from January 1st next.

Both appointments are for six months in the first instance, subject to re-appointment for a further period of six months.

Salary £160 per annum, with board, residence, etc.

Resident staff comprises Resident Surgical Officer, House Physician and Surgeon.

Applications, stating age, qualifications, experience, nationality, and accompanied by copies of three recent testimonials, to be sent to the undersigned not later than Dec. 23rd.

J. W. NOBLE,
December 4th, 1929. Secretary-Supt.

Royal Devon and Exeter HOSPITAL, EXETER.

HONORARY ASSISTANT PHYSICIAN.

Applications are invited for the post of Honorary Assistant Physician at this Hospital, now vacant.

Candidates must be Fellows or Members of the Royal College of Physicians of London or Edinburgh, and Graduates in Medicine of some University of the United Kingdom.

Particulars as to duties, etc., may be obtained from the undersigned.

Applications, together with certificates of birth and registration, original testimonials, with 35 copies, should be delivered to the undersigned not later than Monday, December 16th.

Signed on behalf of the Committee,
S. S. COLE, Secretary.

N.B.—Canvassing of any member of the Standing Elective Committee is forbidden by the Rules of the Hospital.

Hull Royal Infirmary. (272 Beds.)

Applications are invited for the post of SECOND HOUSE SURGEON (male), vacant December 30th.

The appointment will be for six months in the first instance, terminable by one month's notice on either side. Salary £150 per annum, with board, residence, and laundry.

Applications should reach the undersigned on or before Tuesday, December 17th.

R. J. CARLESS,
December 2nd, 1929. House Governor.

Durham County Hospital.

The post of JUNIOR HOUSE SURGEON will be vacant on January 31st, 1930. The appointment is for six months certain. Candidates must be male and duly qualified and registered. Number of beds 75. Salary £120 per annum, with board and lodging. Applications, with copies only of testimonials, to be sent to the undersigned by December 16th.

79, Saddler Street, WM. R. WILSON,
Durham. Secretary.

Central London Ophthalmic HOSPITAL, Judd Street, St. Pancras, W.C.1.

There are vacancies for the posts of SENIOR and JUNIOR HOUSE SURGEON. Salaries at the rate of £120 and £100 per annum respectively, with board and residence in the Hospital. Applications, with testimonials, from duly qualified candidates, must be sent to the undersigned on or before December 31st.

H. R. S. DRUCE, Secretary.

Central Hospital, Plymouth. (50 Beds.)

HOUSE SURGEON wanted (male or female). Salary £120 per annum, with board, residence, etc.

Applications, stating age, together with not more than three recent testimonials, to be sent to the undersigned not later than Dec. 27th.

WM. W. URELL, Secretary.

Manchester Royal Infirmary.

CENTRAL BRANCH, ROBY STREET, MANCHESTER.

ANÆSTHETIST.

The Board of Management of the Manchester Royal Infirmary invite applications for the above appointment.

The successful candidate will be required to give anæsthetics on Tuesday mornings.

Applicants must be registered and hold a Medical and Surgical qualification.

The appointment is for the period ending December 31st, 1930, subject to the provision of the by-laws as to notice.

Salary is at the rate of £225 per annum.

Applicants must state age and qualifications, and send twelve copies of their application and of two testimonials to the undersigned by 9 a.m. on Monday, December 23rd.

By Order,
FRANK G. HAZELL,
Gen. Supt. & Secretary.

Prince of Wales' Hospital, CARDIFF.

FOR LIMBLESS AND CRIPPLED.

A RESIDENT SURGEON (male) is required at the above-named Hospital, to commence duties in January, 1930. Applicants must be fully qualified and registered, must have held a previous resident appointment, and possess experience in Orthopædic Surgery.

Commencing salary at the rate of £350 per annum, with board, residence, and laundry.

The Senior Surgeon of the Hospital is Lecturer in the Welsh National Medical School, and the Hospital serves the whole of South Wales.

Applications, stating age, qualifications, experience, and accompanied by three testimonials, should be sent to the Secretary, Mr. GILBERT D. SHEPHERD, F.C.A., The Walk, Cardiff, not later than December 31st.

Royal Waterloo Hospital for CHILDREN AND WOMEN, Waterloo Road, S.E.1.

There will be a vacancy on January 1st, 1930, for a HOUSE PHYSICIAN (male) at the above Hospital. The appointment is in the first instance for a period of six months. Salary at the rate of £100 per annum, with board and residence. Application, with copies of testimonials, should be forwarded not later than Tuesday morning, December 24th, to the Secretary at the above address, from whom further particulars can be obtained.

The General Hospital, BIRMINGHAM.

Applications are invited for two posts as RESIDENT ANÆSTHETIST, from January 1st and January 15th next. Salary £120 per annum.

Applications, giving full details of qualifications, and accompanied by testimonials (if desired), should reach the undersigned by December 31st.

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10. ESSEX.—(Within 15 miles of London).—Old-established unopposed and increasing PRACTICE, in pretty country district. Income last year over £1,100, including Union £90 and panel £432. Comfortable House, with ample accommodation (water laid on) and large garden. Rent £70 p.a. on lease. Premium £1,650. Ill health reason for sale.
11. HOME COUNTIES.—Within few miles of large town.—Old-established unopposed and increasing PRACTICE, in pleasant district, worth over £3,000 p.a., including panel, with mileage, producing about £1,000 and appts £260. Visits 3/6 to 10/6, medicine usually extra. Very little midwifery. *Good house (7 bedrooms, etc.),* garden, garage. Price, freehold, £2,000. Premium 1½ years' purchase.
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14. ESSEX.—POPULAR COAST TOWN.—Small easily worked PRACTICE, offering good scope, as district developing. Income last year £530. Panel of 200. Fees 2/6 to 7/6. House contains 2 reception, 3 bedrooms, etc. Garden. For sale or on rental. Premium £750, part down and balance instalments.
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21. ESSEX.—HOSPITAL TOWN.—PARTNERSHIP.—A one-fifth share, to commence with, in a well-established mixed-class Practice producing about £8,000 p.a., including large panel. Fees 3/6 to 21/-. Good house, with large garden, for sale; part on mortgage. Premium 2 years' purchase, payable £2,000 down and balance by instalments.
22. SOUTH MIDLANDS.—FAVOURITE RESIDENTIAL TOWN.—PARTNERSHIP.—A one-fifth share in a very old-estab. good mixed-class non-dispensing Practice. Income last year over £5,500, and very rapidly increasing. Panel of 1,700. Fees 5/- to 10/6. Suitable house available. Excellent schools, sport, and social life. Premium £2,000.
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7 SOUTH OF ENGLAND.—Practice about £700 in steadily growing semi-rural district near important town. Panel 300. Very comfortable house (5 bedrooms) for sale or rent. Premium 1½ years' purchase.

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9 HOME COUNTY.—Partnership in Practice £4,500 in industrial district under 25 miles from London. Panel over 4,000. House to let. Premium one-fourth share at 2 years' purchase.

10 MIDLANDS. — Partnership in Practice over £3,000 p.a. in rural district about 6 miles from important town. Panel 2,650. House to rent or purchase. Premium 1/3 share 1½ years' purchase.

11 BRITISH EAST AFRICA. — Assistant required (with view to Partnership) in General and X-ray and Electro-therapeutic Practice. Assistant must hold the F.R.C.S., and experience in X-ray would be advantageous. Share of about £1,200 p.a. offered to suitable man after preliminary assistantship.

12 DEATH VACANCY. — CORNWALL.—Country PRACTICE about £1,000/£1,200. Panel 800. Suitable and convenient house.

13 DEATH VACANCY. — Aberdeenshire.—Country PRACTICE about £1,000. Panel 650. Comfortable house (4 bedrooms), with large garden, at low rent.

14 SOUTH MIDLANDS.—Rapidly increasing PRACTICE in first-rate town. Receipts 1928, £552. Panel 480. Detached double-fronted house (4 bedrooms) to be sold. Considerable scope. Premium £600.

15 SURREY.—Partnership in non-dispensing Practice in good outlying Residential District. No panel, not much midwifery. Nice small house (3 bedrooms) to rent. Applicant should be aged 27/32, Oxford, Cambridge, or London, and have held House appointments. Share worth about £800 p.a. (with early increase) at 2 years' purchase. Preliminary Assistantship.

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17 SOUTH OF ENGLAND.—Partnership in good class non-dispensing Practice over £5,200 in first-rate Town. Plenty of scope. Applicant should be young (Cambridge or Oxford preferred and London School). One-sixth share at first at 2 years' purchase.

18 SURREY.—Partnership in Practice £3,650 p.a. in outlying Suburban District. Panel over 2,100. Detached house (6 bedrooms), garden, and garage, to rent. Premium 3/8ths share 1½ years' purchase.

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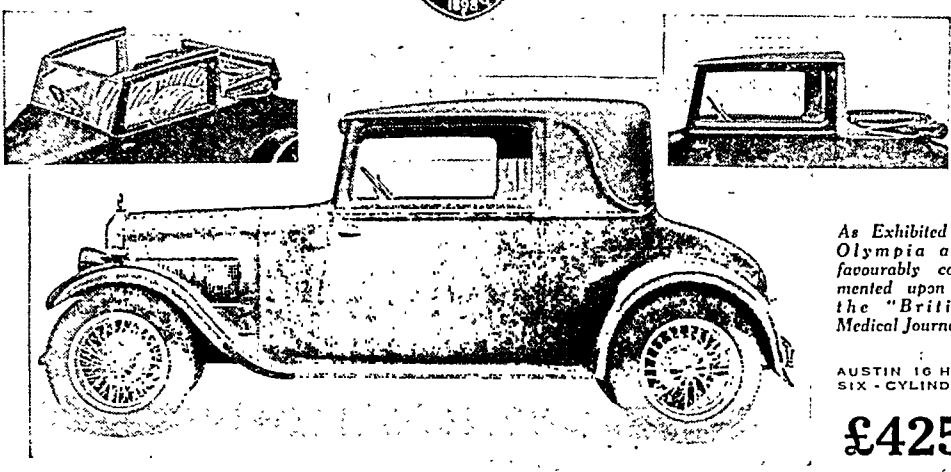

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" " Aromat., 6 lb. @ 1/- lb.
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Potass. Iodid., B.P., 3 lb. @ 18/6 lb.
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Blaud's (Sugar coated), gr. 5...	3/10
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One Tablet in 1 pint of water is equivalent to 1 in 1,000.	
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We can supply smaller quantities at slightly increased rates.

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Card. Co. ...	2/6	1/6 Quin. Ammon.	3/3 —
Gentianæ Co.	2/8	1/6 Rhei. Co. ...	2/8 1/9

Ung. Acid Boric., B.P., 28 lb. pail @ 11d. lb.
" Hydrarg., B.P., 7 lb. @ 4/6 lb.
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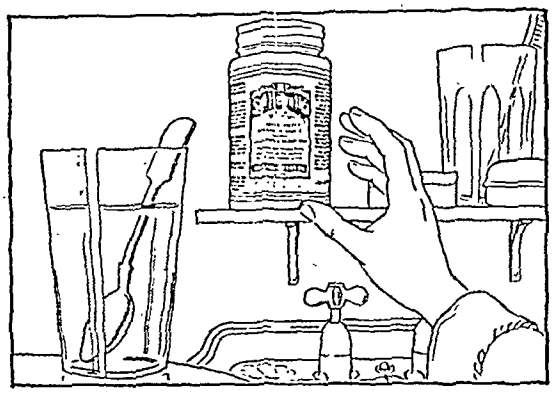
*Minimum quantity at these prices: Home Trade 3, Export 12 Winchester Quarts assorted. We can supply smaller quantities than advertised at slightly increased rates.



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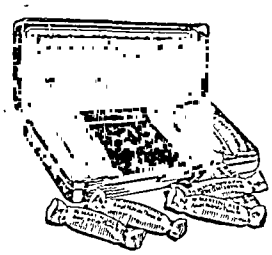

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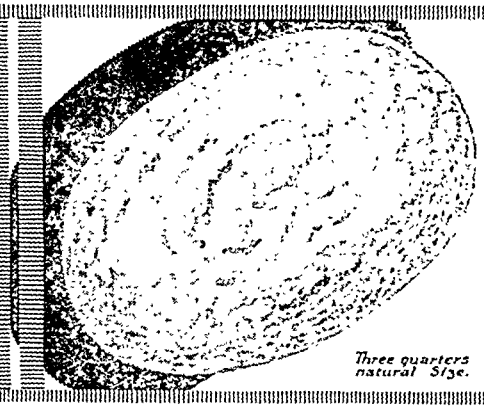

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For sale by European and American Chemists and Druggists.

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THE FRENCH NATURAL MINERAL WATER

VICHY-CELESTINS

And the other State Springs of Vichy
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FERMENTATIVE DYSPEPSIA.

When the secretion is vitiated in quality, and the motricity of the stomach weakens, that organ dilates, and the gastric stagnation allows the micro-organisms of many ferments to develop. Quite a series of acids are then to be met with (butyric, lactic, acetic, etc.), which not only irritate the mucosa, but further, after their passage into the intestine, become absorbed by the lymphatics and swept into the circulation. Vichy-Celestins, by its slightly stimulating action, clears out the stomach, and this avoids stagnation and consequent fermentation. As, in addition to doing this, it modifies stomachal metabolism, the secretions return little by little to their normal physiological condition.

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A Valuable Sedative Antiseptic and Healing Ointment.

UNG. SEDRESOL is a combination of the products obtained by the destructive distillation of the wood and bark of the *Betula alba* in combination with Oxide of Zinc and Antiseptics.

UNG. SEDRESOL is supplied to the Medical Profession at the following prices:—
¼-lb. Jars, 1/8 each; ½-lb. Jars, 3/- each; 1-lb. Jars, 5/9 each; 2-lb. Jars, 11/- each; 4-lb. Jars, 21/- each. (*Empty Jars allowed for on return.*)

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A useful surgical dusting powder for cases in which it is not desirable to apply ointments. Sedative healing, analgesic, stimulating.

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A pleasantly flavoured elixir, containing Codeina Phosphate and Terpin Hydrate in a suitable basis.

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THE KAYLENE TREATMENT

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My last sample was used on a patient suffering from acute Ptomaine poisoning following a meal of shell fish (mussel) at 10.30 p.m. Symptoms first appeared at 12.30 a.m., and when I saw him at 3.0 a.m. he was vomiting blood and passing almost pure blood per rectum. He had commenced cramps and nervous twitchings which would shortly have gone on to tonic convulsions. He was very collapsed and had a weak pulse. I gave him only Kaylene in cold water, one drachm every quarter of an hour, from 3.0 until 8.0 a.m., when I felt it safe to leave him. For the next two days Kaylene was given every one to two hours, and was then followed by Kaylene-ol. No other medication of any sort was used, and he made an excellent recovery. This follows a somewhat similar case which I treated at the end of last year.

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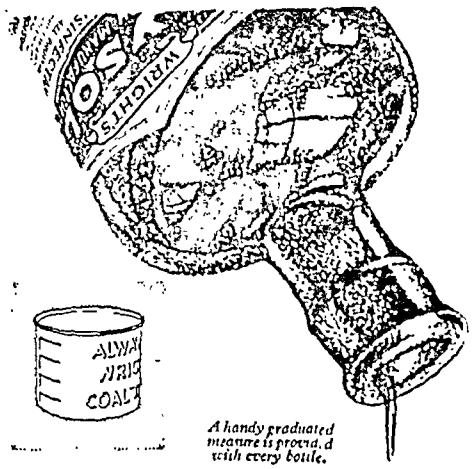

A handy graduated measure is provided with every bottle.

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Emphasise "WRIGHT'S" to your patients

To tell them to ask for Lysol is not enough, for you know that there are Lysols available which are caustic and irritate the skin. Wright's Lysol is safe. It is British owned and British made — analytically controlled by the Rideal-Walker test which guarantees unvarying purity. It contains no free alkali, cannot injure delicate membranes and gives certain results.

The medical profession has endorsed the use of Wright's Lysol for the past seven years. Your patients should know the safety that is in the name.

British Created and British Made by the makers of the famous Wright's Coal Tar Soap.

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Largest VITAMIN B Content

Important Conclusions

The question as to what form of bread provides the essential Vitamin B most completely and economically has now been settled by independent experiments.

It is shown that in 100 g. dried bread the content of Vitamin B in milling products and yeast is:

White Bread	200
Wholemeal Bread	1,450
HOVIS Germ Bread	2,600

That the presence of the Vitamin is essential actively to promote health in adults and sturdy growth in children, is generally accepted from continued observation.

Wheat is rich in Vitamin B and the germ is the richest part.

HOVIS is made from the white flour, with the germ added. This gives HOVIS its pre-eminent position as a basic ration.

You obtain—as demonstrated by series of experiments by independent investigators—a greater active nutritive value from HOVIS than from any other cereal.

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Everybody likes it—another practical consideration, especially with children, and it is digested nearly as easily as white bread, and much more so than wholemeal.

HOVIS

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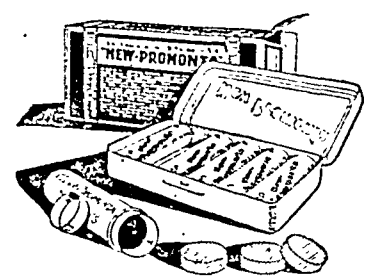

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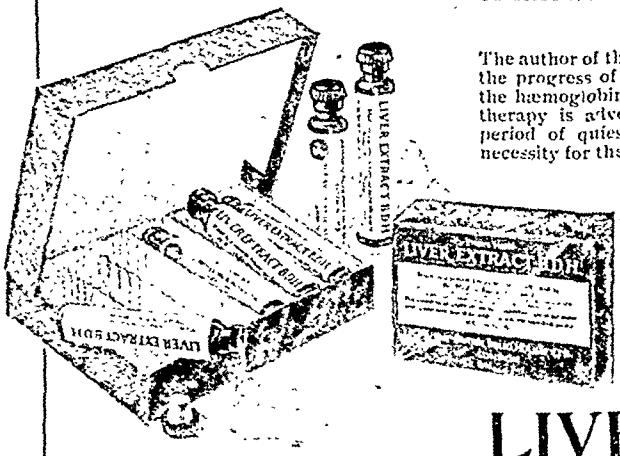

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HUMAN TUBERCULOSIS OF BOVINE ORIGIN

At the recent B.M A. Conference held in Manchester reference was made to this important subject, of which the following abstracts (Lancet, Oct. 19, 1929, p 824) are typical:—

"Dr. — —, M O.H., in opening the discussion, estimated the human deaths caused annually by the bovine tubercle bacillus at 2,000 to 2,300. Most of them were the deaths of children, and we had no knowledge as to how many non-fatal infections occurred. As to the extent of bovine tuberculosis among cattle in this country, he thought that about 40 per cent. of the cows were infected; that about 1 per cent. of the cows were 'open' cases; and that about 0·3 per cent. had tuberculosis of the udder."

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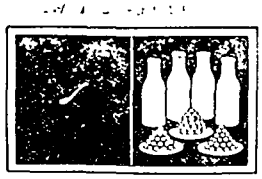

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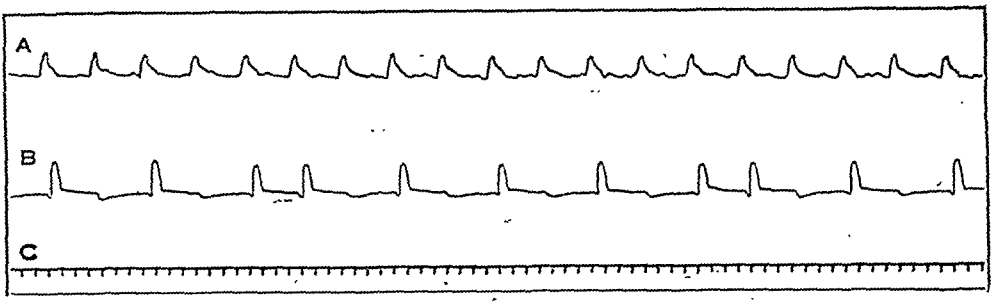

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Remarks
ON
OCCUPATIONAL DUST.*

BY
JOHN C. BRIDGE, F.R.C.S.Ed., M.R.C.P.Ed.,
H.M. SENIOR MEDICAL INSPECTOR OF FACTORIES.

IT is usual, in dealing with occupations giving rise to dust and their effect on health, to quote mortality figures for these occupations and to compare them with those which may be considered free from dust. Writers and speakers on this subject invariably turn to mortality tables as indicative of the effects on health in various industries. There is no question that such figures are of the utmost value, but it is not my intention to enter into details of mortality rates for various industries; many and more able men have from time to time emphasized the significance of them. As long ago as 1875, commenting on earthenware manufacture in the Decennial Supplement to the Registrar-General's Thirty-Fifth Report, Dr. Farr wrote: "Earthenware manufacture is one of the unhealthiest trades in the country, and the age of joining it is low; but the mortality after the age of 35 approaches double the average; it is excessively high; it exceeds the mortality of publicans. What can be done to save the men dying so fast in the potteries and engaged in one of our most useful manufactures?"

The works on *Diseases of Occupation* by Arlidge and Oliver are full of valuable mortality statistics for various industries. Collis, in his Milroy Lectures in 1915, deals fully—perhaps more fully than anyone else—with the effect of dusty occupations and mortality rates, emphasizing the effects in particular of the dusts of free silica (SiO_2). Dr. W. F. Dearden, in his Milroy Lectures in 1927, struck a somewhat new note, and with indefatigable care examined the sickness certificates of various groups of workers in cotton-spinning and weaving mills. He elicited therefrom the most interesting and significant figures. This line of inquiry seems to me to be one of the greatest possible value, but it must necessarily be, to some extent, dependent on the accuracy of the certificates given by medical men. Dr. Bradford Hill, on behalf of the Medical Research Council, has carried out investigations on similar lines—one for the committee dealing with the question of the health of workers in humid cotton sheds,[1] and another in connexion with the printing industry.[2] No doubt further industries will come under similar review, and I think I am divulging no secret when I say that one is now proceeding on behalf of the Dust in Card Rooms Committee. But if we are to complete the picture as to the effect of dust on health, our inquiry must not stop at either mortality or sickness figures. It is essential, when any particular dust is concerned, to probe further and examine groups of workers exposed to such dust, clinically and with all the necessary accompanying examination—*x*-ray and sputum—and with this we must have a full and complete occupational history of each individual worker in order to study the effects of exposure to dusts of different character. We must go further and confirm our findings, wherever possible, by laboratory experiments.

Dust has been defined as "earth or other solid matter in a minute and fine state of subdivision, so that the particles are small and light enough to be easily raised and carried in cloud by the wind; any substance comminuted or pulverized; powder." Such a definition, in my opinion, would include fume from metal, as it must necessarily be that such fume consists of particles differing only from obvious dust in point of size.

It is fair to state that all manufacturing processes where dry or dried materials are manipulated will give rise to dust, to a greater or lesser extent. It does not, however, follow that there will be danger to health from the dust in every case. In 1864 the Factory and Workshop Act required every factory to be ventilated in such a manner as to render harmless, so far as is practicable, gases, dust, *or other impurities generated in the process of manufacture*, which may be injurious to health. In the Factory Act of 1878 an additional requirement was added, to the effect that in a factory or workshop where grinding, glazing, or polishing on a wheel, or where any process is carried on by which dust is generated and inhaled by the workers, to an injurious extent, an inspector can direct that a fan or other mechanical means be provided within a reasonable time. These provisions are similarly required under the Factory and Workshop Act, 1901. The law has interpreted "to an injurious extent" as including every case in which dust is inhaled to such an extent as *will be injurious in the long run.*" I suppose no more difficult task has been put upon medical men concerned with industry, particularly medical inspectors of factories, than to determine whether any one particular dust is or is not likely to be injurious to health "in the long run."

The problem of occupational dust and its effect on health is one of the utmost importance, and as new methods of diagnosis are available, and made use of, in the examination of workers so exposed, it is my belief that we shall eventually be able to answer with confidence the question asked. The problem of injury to health by this means is not merely whether the dust is in itself toxic, but whether it is present in the air breathed in sufficient amount as to produce toxic symptoms. Sir Thomas Legge was, I believe, the first to lay down a degree of concentration of a toxic dust—that containing lead—which would produce poisoning. Legge considered that

> "somewhere about 2 milligrams, or 0.002 gram of lead, is the lowest daily dose which, inhaled as fume or dust, may in the course of years set up chronic plumbism. Probably if the air breathed contains less than 5 milligrams per 10 cubic metres of air, cases of encephalopathy would never, and cases of colic very rarely, occur."

This standard has been generally accepted.

Recent experimental work done in America in connexion with the toxicity of petrol containing ethyl lead, by exposing men to exhaust gas air mixtures from engines burning ethyl petrol, showed that the maximum amount of lead retained in the body was 27 per cent., and the average was slightly less than 15 per cent., of the lead dust in the inhaled air. Not only, therefore, is the quantity of the dust present in the air an important factor, but also the amount retained after inhalation, and on this question the effect of the electrical charge in the particles of dust may have an important bearing. But our problem does not end here. The size of the particles would also appear to be of much significance in determining the effect of breathing certain dusts. While particles of quartz of 2 μ and under affect the lungs, our knowledge is as yet very incomplete as to the effect of larger particles of other substances in producing pneumonoconioses and other respiratory conditions.

In this paper I can do little but indicate some of the more common forms of injury to health produced by occupational dust. I propose to divide such effects into two arbitrary groups, realizing very fully that some may fall into both groups, and that others included, for want of better knowledge, in one group only, ought properly to be included in both.

Group A: Dusts which exercise a general toxic effect;

Group B: Dusts which exercise a localized effect—(1) internal, (2) external.

GROUP A.

This mainly consists of the dust of certain metals, and chiefly their salts, which produce a definite syndrome. In this group probably the most important syndrome, and one which is still met with most frequently, is due to lead and its compounds. Lead poisoning still figures prominently in the notifications made to the Chief Inspector of Factories under Section 73 of the Factory and Workshop Act, 1901.

* Read in opening a discussion in the Section of Occupational Diseases at the Annual Meeting of the British Medical Association, Manchester, 1929.

I give in the table below the number of cases from various industries over a number of years.

Industry.	1928	1927	1926	1925	1924	1920	1910	1920
1. Smelting of metals	36^2	21^1	26^1	22	28^1	45^3	31^5	24^1
2 Plumbing and soldering	11^1	11^1	7^3	7	6	3^1	25^1	9
3 Shipbreaking	32	32	8	31	131^1	3	—	—
4 Printing	3	10	8	8	6^1	9	33^1	18^2
5 Tinning of metals	1^1	3	2	4	3	2	17	5
6 Other contact with molten lead	9^1	17	16^1	17^1	23^1	13^2	17^1	26^1
7 White and red lead works	9^1	21^1	13^1	19^1	20^1	28	41^1	377^6
8 Pottery	23^{10}	11^6	11^{11}	47^5	47^{14}	25^{13}	73^{11}	210^8
9 Vitreous enamelling	2	1	8	9^2	9	2	17	11
10 Electric accumulator works	23^1	58	52	73^1	101	47^2	31	35
11 Paint and colour works	12^1	6	10	8	15	9	17^1	55^1
12 Indiarubber works	1	2	2	2	3	7	3	1
13. Coach and car painting	18^3	14^3	11^2	23^1	30^4	13	79^6	75^5
14 Shipbuilding	7^2	10^1	8	15	8^1	9	21^2	32^2
15 Paint used in other industries	11	7	16^3	14^1	21^2	10^1	51^3	55^5
16 Other industries	10	11^1	11	29^1	22^2	18^1	47	122^7
17 Painting of buildings	87^{20}	93^{21}	93^{18}	85^9	75^9	66^{21}	—	—
Total	329^{43}	317^{35}	332^{46}	411^{22}	551^{41}	289^{44}	595^{38}	1038^{33}

The principal figures relate to cases, the raised figures to deaths.

I will not deal with the question of lead poisoning in detail, but simply consider the important part which lead poisoning plays in industry. There is, however, one point in connexion with lead excretion to which I should like to draw attention. Kehoe and other American observers, in investigating the effect of ethyl lead petrol, found that lead was excreted in measurable quantities in the urine of normal healthy persons who had not been exposed to any known risk of lead absorption. These findings were confirmed on a small scale by Professor Chaston Chapman, a member of the Ethyl Petrol Committee; they are of some importance, for the presence of small quantities of lead in the urine has often been regarded as confirming a diagnosis of lead poisoning in a lead worker.

Arsenic.—The classical symptoms, gastro-intestinal irritation, accompanied by abdominal pain do not often occur in industry due to the inhalation of dust containing arsenical compounds. In the last ten years there have only been three cases so described in the reports received as the result of notification. This is somewhat surprising in view of the large quantities of arsenic oxide used in the manufacture of compounds containing arsenic, especially sheep dip. Some years ago, in the manufacture of Scheele's green (copper arsenite), symptoms of peripheral neuritis were observed. In general, the effect of arsenical dust is manifested by localized affections of the skin, and to these I refer later.

Manganese.—In 1922 Dr Charles of Bristol drew the attention of the department to two cases of manganese poisoning affecting men who were employed in grinding up manganese ore. The symptoms of manganese poisoning may be briefly summarized as follows: languor, sleepiness; mask-like facies; change in the voice, which becomes monotonous and low; retropulsion and, in some, propulsion may occur early, gait later becoming spastic; tremors of the head and limbs, fine in character, with pain and cramp in the muscles, chiefly of the legs; a slight increase in the tendon reflexes. The mental condition is altered, sometimes with hysterical outbursts of crying and laughing. These cases, in the advanced stages, do not recover, though the disease does not appear to progress if the patients are removed from the toxic atmosphere. The disease is not fatal. Cases have been reported in America by Davis and Haey; in the manufacture of manganese steel. I give the symptoms somewhat in detail as, so far as I know, no cases have occurred in this country from a similar occupation or from other occupations where manganese dioxide is used, such as in the manufacture of dry battery cells.

Zinc.—Zinc powder in the cold does not appear to give rise to symptoms characteristic of zinc poisoning—namely, febrile reactions, shivering, headache, followed by cold sweats—but, evolved in the form of fume from molten zinc in brass founding, over the pots in the manufacture of zinc oxide, these symptoms are frequently observed. Some years ago cases of the same character were observed by myself among men employed in breaking up galvanized metal by means of an oxy-acetylene flame. From the experimental work done by Drinker, Thomson, and Finn,[1] similar reactions are produced by breathing fumes of other metals. These authors state that it is probable that the fumes from the burning of iron, nickel, and aluminium in the electric arc would also cause the same general type of febrile reaction, which they term "metal fume fever." It was also found by them that the inhalation of mild doses of magnesium oxide, generated by the burning of magnesium ribbon, produced a leucocytosis and a febrile condition resembling that caused by heavy metals.

Cadmium, which is present in zinc ores, when oxidized has been known to give rise to symptoms due to inhalation. Stevens of Swansea[2] drew attention to this form of poisoning, and found cadmium in the liver of a workman whose case had been diagnosed as lead poisoning. A fatal case was investigated by Legge,[3] in which cadmium was being heated by gas without exhaust ventilation. Two of the workers became seriously ill and an engineer who was supervising the operation died. The symptoms were dryness of the throat, headache, rapid pulse, nausea, and shivering, with brown discoloration of the urine. In the fatal case there was an inflammatory condition of the respiratory and intestinal tracts, fatty degeneration of the heart and liver, haemorrhagia, inflammation of the spleen, and inflammation of the kidneys.

Nitro and Amido Derivatives of Benzene.—The salts of aniline and of the nitro derivatives of benzene and its homologues, from which, in the course of manufacture and handling, dust arises, produce the classical symptoms of anilism—that is to say, cyanosis and dyspnoea. Some of the dust is probably inhaled, but there is also grave risk of this form of poisoning from absorption through the skin. During the past five years aniline poisoning from dust has been mainly reported in connexion with paranitraniline powder, but a number of cases were also found to be due to exposure to dust from dinitrobenzene. Changes in the blood produced by aniline were investigated by Dr. Williamson, in connexion with the work of aniline black dyeing. Dr. Williamson considered that although the number of workers examined was insufficient to justify final conclusions, briefly the order in which the various elements of the blood are affected by aniline was as follows: First, a diminution in the percentage of haemoglobin, which may be altered in its chemical constitution. Following a fall in the percentage of haemoglobin there is a fall in the red corpuscles per cubic millimetre, which, though never very marked, is still quite definite. Lastly, there may be a diminution in the number of white corpuscles, with a relative increase in the number of lymphocytes.[4] During the war much trinitrotoluene in powder form was used in the manufacture of munitions, and, partly by inhalation of the dust, or perhaps more particularly by absorption of the dust through the skin, cases of severe jaundice (toxic jaundice) occurred. Such cases, I am glad to say, are not occurring at the present time, but dinitrobenzol, in a similar way, gives rise to serious symptoms, the chief being cyanosis, gastritis, amblyopia, and occasionally peripheral neuritis. I have also observed in severe cases some degree of icterus. Fatal cases have occurred. As regards chronic cases, anaemia of the aplastic type is the chief feature.

Organic Dusts.—Dusts acting as carriers of toxic substances or organisms, and producing symptoms of a definite general character, must not be forgotten. Fur dust after carotting—that is, painting with nitrate of mercury—has produced mercurial poisoning. Wool-sorters' disease owes its name to the generalized anthrax occurring among wool workers from the inhalation of dust carrying spores of the anthrax bacillus. I am glad to say there

is a remarkable decline in this generalized infection, which is invariably fatal, as shown in the following figures:

Period.	Cases (all fatal).
1909-1913	13
1914-1918	15
1919-1923	10
1924-1928	2

In this group of occupational dust diseases I think we may include those caused by moulds. To take an instance of special interest in Lancashire, there is the condition commonly known as "weavers' cough," where, although the main symptoms are referred to the lung, yet there are general disturbances associated with the lung conditions—namely, headache, thirst, and a feeling of extreme lassitude. Dr. Collis[8] formed the opinion that this form of illness was due to the inhalation of the spores of a mildew. Subsequent outbreaks have shown more or less similar symptoms, and the presence of mildew in warps has been observed. So far, however, it has been impossible to identify any particular form of fungus. In this connexion it is well to observe that to establish a definite relation between a lung disease of this description and the causal agent it is necessary to identify a similar fungus in the sputum or lung juice. Closely allied to such a condition is, I believe, the cough which I investigated a few years ago, affecting men working in malt-houses and exposed to a considerable quantity of dust. Here again, although able to show a fungus of pathogenic variety in the dust, we have up to the present been unable to identify the same fungus in the sputum.[9] No doubt there are other dust-borne diseases due to the presence of a fungus in the dust—for example, in tea dust.[10]

GROUP B (1).

The most important and widespread forms of localized internal disease produced by dusts are the various forms of pneumonoconiosis. It seems to me that the time is not far distant when it would be as well to consider the best nomenclature of the fibrous diseases of the lung produced by dust. The term "silicosis," as denoting fibrosis caused by the inhalation of free silica, is so well established that it would be difficult to alter it, even if it were desirable to do so; but I have recently seen "tobaccosis" as describing an effect on the lung—a term which, to say the least, seems cumbersome.

Of the various forms of pneumonoconiosis, silicosis is at the present time by far the most important. To Collis belongs the credit of drawing attention to the effects of the inhalation of occupational dust containing free silica (SiO_2) in this country, but even Collis did not visualize, I think, the widespread nature of the industries in which dust containing free silica occurs. The recent scheme for compensation under the Various Industries (Silicosis) Scheme gives some indication of this. Previous schemes dealt with silicosis in the Refractories Industries and the Metal Grinding Industries. Silica dust occurs in such widely different industries as the manufacture of pottery, the making of scouring powders containing silica flour, the sandblasting of castings, the making of poultry grit by grinding and crushing of flints, tin and coal mining, and the making of vitreous enamels, as well as in that large industry the sandstone industry, affecting quarriers and masons. The subject of silicosis has, I am glad to say, been dealt with by my colleague Dr. E. L. Middleton, whose unique knowledge of the subject makes any further observations by me unnecessary. (See *Journal*, September 14th, p. 485.)

In 1924 a case of fibrosis of the lung caused by the dust of asbestos was described by Dr. W. E. Cooke,[11] in which he pointed out, in addition to the fibrosis, the presence of certain bodies which have since come to be known as "curious bodies." The first recorded fatal case of fibrosis of the lung in an asbestos worker was that described by Dr. H. Montague Murray in his evidence before the Departmental Committee on Compensation for Industrial Diseases, in 1906. The death occurred in 1900, and Murray stated that in the seven years he had not come across another case. In February of last year Dr. Macgregor, medical officer of health for Glasgow, drew the attention of the Factory Department to an asbestos worker who was receiving treatment in one of the city's hospitals. In March, 1928, the death of an asbestos worker under the care of Dr. Grieve occurred, and at the post-mortem examination the condition of widespread fibrosis of the lung, without tuberculosis, was revealed. A further case, which also terminated fatally, occurred five months later. Recently Professor Stewart[12] of the University of Leeds has shown that the "curious bodies" described by Cooke could be obtained during life by puncture of the lung of an asbestos worker, in the sputum, and after death in the lung juice. It is not suggested, I understand, that the presence of these "curious bodies" indicates fibrosis of the lung, but merely that the occupation of the individual exposes him to asbestos dust.

It may be the subject of speculation why this disease has only recently attracted notice and become a problem in this country. A number of factors have probably contributed to obscure its existence among workers in asbestos, of which the most important seem to be the comparatively small numbers of workers engaged in essentially dusty processes, the insidious nature and general slow progress of the disease, and the difficulty of accurate diagnosis, particularly where tuberculosis is superimposed, as occurred in the first case reported by Dr. Cooke. It may be, too, that the application of exhaust ventilation to the dusty processes in this industry has checked the earlier evidence of the disease by materially reducing the concentration of the dust. Dr. Cooke, in his paper on the subject of fibrosis of the lung produced by asbestos, will, I hope, in addition to other interesting particulars of this condition, throw some further light on the presence of the "curious bodies" which he has described.

In a report of the Director-General of Public Health for New South Wales, for the year ended December 31st, 1927, Dr. Charles Badham, medical officer of industrial hygiene, contributes a section which he calls "Notes on a fine type of fibrous pneumonoconiosis produced by silicates and other minerals." This type of fibrosis, which Dr. Badham desires to call "silicatosis," is found, he says, only after exposure to certain mineral dusts, and can in most cases reasonably be assumed to be caused by various silicates. It is not found in workers who have only been engaged in activities where they are exposed to a high percentage of quartz—that is, 70 to 90 per cent.

Dr. Mavrogordato, in his *Studies in Experimental Silicosis and other Pneumonoconioses* in 1922, found, after subjecting the lung of an animal for eight weeks to dust free from uncombined silica, that most of the dust remained within the cells, and these had not become aggregated, but were scattered more or less uniformly throughout the tissues. Dr. Badham, commenting upon these findings, suggested that the fibrosis found was probably the fine type that he describes.

Collis and Gilchrist,[13] who have studied the effects of the inhalation of coal dust upon trimmers, state that "the clinical observation by *x*-ray examination discloses that, after many years of work, the lungs of coal trimmers are not normal, and exhibit signs similar to those widely regarded as characteristic of silicotic fibrosis." American workers have reported the appearance of pneumonoconiosis among cement workers, and Dr. Badham in his notes mentions a case of a fine type of fibrosis which he has seen in a cement worker in New South Wales.

These few observations show, I think, that we are but at the beginning of our knowledge as to the effect of the inhalation of mineral dusts upon the lungs of workers exposed to such dusts. It may well be that in time, with a more complete survey of workers exposed to particular dusts, it will be possible to determine, by clinical and radiological examination, the particular form of dust by the character of the fibrosis to which it gives rise. I hope that the inquiry which is now being carried on by my colleague Dr. Merewether of the Factory Department, into the effect of asbestos dust, will materially assist in this direction.

Vegetable Dusts.

Of the effects of vegetable dusts on the lungs little or nothing is known. In 1924 Dr. Middleton with Mr. McNair, H.M. Engineering Inspector of Factories,[14] made some investigations into the dust to which workers were

exposed in the processes of discharging and handling of grain cargoes. Dr. Middleton collected samples by means of Owens's dust-counter, and examined these samples. He found that the dust in the atmosphere consisted of two kinds: (1) sharp spike-like hairs, and (2) fragments of vegetable and mineral matter, spores, etc. Dr. Middleton formed the conclusion that the dust in the case of wheat, barley, rye, and oats contains hairs derived from the grain which on *a priori* grounds appear to be capable of causing irritation of, and inflammatory changes in, the respiratory passages. No other constituent was discovered in the dust met with during this investigation which would be capable of producing the symptoms experienced by the investigators or of causing serious injury to health.

Dr. Middleton investigated a case of loss of sight in a woman employed for twenty-five years at a bench where she had been exposed to inhalation of pure tobacco dust, most of it caused in the intermittent process of sieving. The case—the first recorded in this country—was diagnosed by the ophthalmic surgeon of a general hospital, and other possible causation, as far as possible, excluded.

One cannot leave the effects of occupational dust on the respiratory organs without reference to the increase in cases of cancer of the lung, to which Dr. Dugund drew attention in an article published in the *Lancet* of July 16th, 1927. His observations are intriguing and suggestive, particularly when read in conjunction with the work of Rostoski and Schwarl on lung cancer. Nor must we forget that it was from a survey of cases from the Manchester Royal Infirmary, by the late Dr. Wilson and by Dr. Southam, that the now well-recognized cancer of the scrotum among mule-spinners was first brought to light.

The part played by inhaled dust in the etiology of cancer of the bladder cannot be ignored. The following table gives particulars of cases occurring in workers in the manufacture of synthetic dyes in chemical works since 1924, which have come to the notice of the Factory Department.

Initials	Age at recognition.	Occupation	Result.
R. J.	41	Collier 19 years, army 4 years, colour driver in chemical works 6 years	Died Sept. 17, 1925
J. W.	54	Brass emoker 22 years, in soap department of bone factory 11 years, army 1 year, fitting casks with size 2 years, burning sulphur at mine 2 years, in chemical works 6½ years	Died in 1927.
A. S.	38	Brush stock wood turner 16 years, in chemical works 10 years	Died June 30, 1925
A. B.	48	Worsted spinner 12 years, wool comber 11 years, in chemical works 18 years	Died July 20, 1921.
W. B.	65	In chemical works 20 years	Died Nov. 11, 1925.
A. S.	51	Aniline black dyer 20 years, in chemical works 29 years	Alive.
W. A. S.	60	Machine printer 20 years, in chemical works 20 years, picric storekeeper 7 years	Died Sept. 29, 1925.
T. G. G.	63	Purifier of anthracene 6 years, in chemical work 33 years	Died Dec. 9, 1924.
J. T. F.	70	In chemical works 52 years, watchman years	Died Dec. 16, 925
R. H.	56	In chemical works 33 years	Died Dec. 19, 1924.
W. T.	52	In chemical works 38 years	Died Aug. 19, 1927.
J. N.	63	In chemical works 48 years	Died Aug. 13, 927
W. H.	61	In chemical works 21 years	Died Apr. 22, 19 7

A few fatal cases of cancer of the bladder have also been noted among pitch workers. Their occurrence may be of importance.

GROUP B (2).

The localized diseases produced by occupational dust are those affecting the skin and mucous membranes. Many may not agree that the skin lesions are localized, but often general, affecting in some cases the whole surface of the body, yet I believe it correct to say that the starting point is a particular area, and for this reason I include them in this group. It is an interesting fact, and I say it with due deference, that the general extension of a localized skin lesion produced by dust has not been fully explained.

There are few, if any, dusts occurring in industry that will not produce, in certain individuals, an inflammatory condition of the skin, and this not only makes difficult the decision as to whether or not a dermatitis is of occupational origin, but also the actual causal agent in many cases a matter of some doubt. The importance of the dermatoses produced by dust, and the loss to industry by such conditions, is apparent by the number of cases for which compensation was paid for dermatitis produced by dust or liquids in the last five years—namely, 390 in 1923; 564 in 1924; 691 in 1925; 837 in 1926; and 1,629 in 1927. The marked increase in the number of cases ascribed to industry is difficult to attribute solely to altered industrial conditions.

It would be impossible to refer to even a small number of the dusts which produce skin reaction, nor would it be profitable. I feel I am treading on holy ground when I so much as mention occupational diseases of the skin in Manchester: the work of Prosser White in connexion with these is so well known, not only in Manchester and Lancashire, but wherever these diseases engage the attention of those interested in industrial medicine. From my own experience the dusts which appear to exert the most rapid and severe conditions are the nitro compounds of benzene and its homologues—for example, dinitrochlorbenzene, trinitrophenol (picric acid), paranitraniline. Of simple compounds, the sodium and potassium salts of chromium and the caustic alkalis produce not only skin lesions, but ulceration of the mucous membranes and septum of the nose, leading to complete perforation. The absence of untoward symptoms following such definite destruction of the internal nares, as is so often seen, is a matter of surprise to me. I have never seen any serious disturbance in the normal functions following this loss, nor, so far as I know, has any case of such a nature been recorded. One might have supposed, at any rate, that the septic infection necessarily occurring during the process of ulceration would, in some instances, extend beyond the cartilage and bones of the internal nares.

Sometimes it is not the dust itself which produces the skin lesions. I well remember an outbreak of rash affecting men unloading a cargo of barley from a ship, which I investigated. Not only were the workers affected, but the crew of the vessel, including the master, also suffered. Intense itching was the chief cause of complaint, and there was no difficulty in demonstrating the cause to be due to the presence of a mite, the *Pediculoides ventricosus*. Although the cause was easy to find, the cure and prevention were different matters.

However distressing and economically wasteful simple lesions of the skin produced by practically all dusts may be, they are as nothing compared with cancer of the skin produced by dust. Epithelioma produced by pitch and arsenic dust must be of special interest in Lancashire, owing to its similarity to the cancer affecting mule-spinners. Even though the main incidence occurs among the patent fuel workers in South Wales, the pitch workers in gas works, the loaders and unloaders of pitch, and the workers exposed to pitch dust in tar distilleries, wherever they may be, share the risk. The number of cases reported since the disease became notifiable in 1920 is as follows, and for interest the number of cases among mule-spinners is also given.

Industry.	1920	1921	1922	1923	1924	1925	1926	1927	1928
Pitch workers ...	32	24^2	23^1	25^2	23^1	35^9	49	31^1	32
Mule-spinners .	—	—	—	15^1	79^{17}	78^{35}	88^0	121^{31}	101^{26}

The principal figures relate to cases; the raised figures to deaths.

The higher incidence of mortality from cancer of the skin among coal trimmers exposed to coal dust has been pointed out by Collis and Gilchrist. What relationship there is between the disease and this occupation is as yet speculative, but it is significant.

Though the number of cases of skin cancer among workers in arsenic is few, yet the connexion between their exposure to the dust and the disease is, I think, well established, and confirmed by the animal experiments of

Leitch and Kennaway.[15] The occupation chiefly affected is that of the manufacture of arsenical sheep dip.

Of the oldest form of cancer of the skin—namely, that of chimney-sweeps, the number of cases recorded is small, though still occurring. In 1927 two received compensation. The spread of soot on the land has possibly been responsible for cases among agricultural workers. One case which I believe may have been thus caused came to my notice last year.

This brief review will, I hope, give some idea of the extent of the problem of occupational dusts: but the problem does not end when it has been established with certainty that any particular form of dust is a cause of a pathological condition. While once the masters of cure, we are now, or ought to be, the slaves of prevention.

Prevention does not, in the case of disease produced by occupational dusts, rest with the medical profession, although we may be able to assist. The sure and only certain way of preventing dust affecting the worker is to prevent its formation, or, if this is impossible, to secure its removal before reaching the workers. It therefore seems to me that just as there is need for research on the medical side in regard to the effects of dust, the methods by which dust can be eliminated, either by a modification of the process or alternatively by effective removal, call no less for research. Chemists and engineers take so very great a share in the prevention of disease that I look with hopeful anticipation to their efforts. Our own task may be the easier, but though their difficulties be great, they are, I believe, not too great for our colleagues in the other sciences to overcome. A dust-free industry may be ideal, but it should be our goal.

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SOME POINTS IN CONNEXION WITH CATARACT EXTRACTION.

BY

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THE advice given to cataract patients in Europe varies so greatly with different surgeons, and is so often opposed to my own practice, which has been founded on many thousands of operations for cataract, that in compliance with requests from various sources that I should restate my views, I desire to do so shortly.

The Stage at Which the Operation Should be Undertaken.

The usual advice given is that a patient must wait until the cataract is mature before undergoing operation, even if the sight in the opposite eye is so defective as to make him or her nearly helpless, or at least partly dependent on others. The first point I would insist on is that the exact date for operation should be decided after a careful consideration of all the factors in each individual case. One cannot lay down a general hard-and-fast rule for the guidance of students. The patient's age, the state of his health, his prospects of life, the condition of the second eye, and a number of other factors must be carefully weighed before giving any definite advice. A few points may be considered with profit.

A patient is frequently told that if the second eye sees well, it is a mistake to have the first one touched. Such advice seems to me eminently unsound in a number of cases.

1. To be blind on one side exposes a man to injury. He runs into people, lamp-posts, etc.; moving objects run into him because he has not sufficient warning of their approach to avoid them. Serious accidents happen in this way, especially from bicycles and trade tricycles ridden by careless young people. It is admitted that one cannot fit up an aphakic eye with a lens and enable it to work accurately together with an unoperated and useful eye on the other side, but this does not mean that an aphakic eye cannot be made a very useful organ. On the contrary, it can, even when uncorrected by glasses, be made to add a large element of safety and security to the patient's life as well as to his comfort and happiness—no unimportant matter.

2. Cataract operations are practically always performed on elderly people, and elderly people go downhill, so far as health and resistance are concerned, at a rate quite disproportionate to that met with in the young or even in the middle-aged. Apart altogether from disease, every year lessens a patient's resistance to operation. He is a better subject at 70 than at 71. This is even more the case between 80 and 81, and so on. A case that will do well one year may easily end in failure a year or two later. The incidence of an attack of influenza, of bronchitis or bronchial pneumonia, of a stroke, or of many another illness, may just make the difference between a patient being a good subject for an operation or a very bad one. The opportunity of successful operation may thus be lost, never to return, with the result that the man is condemned to permanent blindness. All the interest is thus taken out of his life, and he too often sinks to the level of a human cabbage, a burden to himself and to all about him. This does not mean to say that any patient is too old for a cataract operation, provided there are sufficient indications for performing it, but it is a strong argument against putting off operation. Much more depends on the patient's actual state of health than on the number of years he has lived. One man is old and worn out at 55, another is playing games and hunting at 60, or is still robust and leading an active life at 70 or even at 80. I have three times operated at 90 or over. All three patients did well, including an old lady of 96.

3. No patient should be allowed to go blind and to drop his normal activities. With modern methods of operating, any lens can be safely removed, however immature the cataract that darkens its vision. More care is required and the convalescence may be lengthened owing to the need to allow left-behind cortex to be absorbed, but, always provided the operation is skilfully and aseptically carried out, the added risks are, in my experience, so slight as to be almost negligible, and certainly not worth weighing against the serious disadvantages of allowing an elderly person to drop the activities of a lifetime with the risk that he will never take them up again. It is much easier for the old to drop their habits than to take them up again, and few things are more tragic for the relatives than to look on helplessly at the decay of everything which once endeared the patient to them, or brightened the life of one they loved. When a patient reaches the stage in which he can no longer get about comfortably, or in which he cannot read, write, and carry on his usual occupations with moderate comfort, or cannot do either of these things, he should be operated on without delay.

4. The hypermaturity of a cataract may bring in its train definite risks to the eye. These are less appreciated in Europe than they are in India, for in the great majority of cases over here a cataract is removed as soon as it is mature, or very soon after, whereas in India, owing to the ignorance of the people, to the difficulties of obtaining skilled relief, and to other causes, a very large number of patients are allowed to retain their mature cataracts for years, and often indeed up to death. The opportunities for observing the dangers consequent on hypermaturity are therefore much greater in India than in

the West. The two principal sources of risk are secondary glaucoma and a slow form of iritis. In Madras practice we estimated that about 3 per cent. of hypermature cataracts, if left to themselves, develop secondary glaucoma. When account is taken of the small number of cataracts that are allowed to reach hypermaturity in Europe, this may not sound a big risk, but it is an appreciable one, and, together with the form of iritis I have spoken of, it constitutes, to my mind, a distinct argument in favour of operating as soon as a cataract is mature. It remains to add that the type of cataract in which secondary glaucoma is most to be feared is the one in which swelling takes place as the result of inhibition of fluid. Such cataracts have a white, shiny appearance, and often present mother-of-pearl sectors; moreover, they are associated with a shallow anterior chamber owing to the bulging forward of the swollen lens. Other types of cataract in which the lens is large may be complicated by the onset of glaucoma, and a brown lens is not necessarily above suspicion, especially if it appears to bulge forward into the anterior chamber and if it is associated with a shallow chamber. It is obvious that such considerations as the above must be carefully weighed by the surgeon when making up his mind as to the date on which he advises that an extraction should be performed.

5. With regard to the factor of morale in cataract extraction, it is most important that a patient should enter on the ordeal of an extraction with his hopes and courage high; far more depends on this than many surgeons realize. In any case the patient must spend long hours with his eyes bandaged, wondering what the future holds for him, never ceasing to think, while ever trying to pierce the mists of the future. If both eyes are blind, or nearly so, his fears are intensified, for all his future depends on the result of the operation. Before his mind there hovers unceasingly the nightmare possibility that in the event of failure he will never see again. In all our tongue are there any words more dreadful than "never again"? If, on the other hand, he still has some sight in the better eye, he knows that he will at least have the sight he had in the better eye before the operation; this lends him courage and calmness in his hour of trial. As he broods over the possibility of a failure in the surgeon's efforts, his anxiety is at least tempered by the comforting reflection that in any case he still has the better eye to fall back on. I look on this as a factor of great importance, and my own personal choice is always to operate if possible while the second eye is still useful. This leads me on naturally to

The Question of Operating on the Second Eye.

When a patient has a good result in one eye, is it advisable for him to have the other eye operated on or not? I have no hesitation in replying that, unless there is some strong contraindication, the extraction of the second cataract should be proceeded with at an early date. I will give my reasons for this opinion.

1. The question of "morale" just discussed comes in strongly here again, for, however good the result of an extraction may be, it is obvious that the sight of the operated eye may subsequently be lost in a variety of ways. Injury, retinal haemorrhage, glaucoma, and a host of other evils lie in wait for the old patient—and the cataract patient is almost invariably old. One cannot afford to take any risks where sight is concerned—it is too valuable; and therefore I urge every cataract patient to make his margin of safety as wide as possible and to have the second eye operated on at an early date, whilst the sight of the first is still good.

2. Two eyes see better than one, just as two ears hear better than one, or the two sides of the nose smell more acutely than one. Having the second eye operated on usually materially improves the sight for near and far distances; it gives stereoscopic vision, and it greatly widens the visual field. A blind eye on one side is, as previously pointed out, a distinct danger to the patient.

3. There is the question of the coloration of vision after extraction. Many years ago, when I pointed out how frequent blue vision was in Indian practice after extraction, I was told it was a phenomenon rarely if ever observed in Europe; but fifteen years of practice in London has proved to me that it is far from a rare complication here. To some patients it is very annoying. It often persists in some degree as long as the second cataract is left, but it disappears as soon as the second cataract is extracted. This is another argument for the operation on the second eye.

4. There is a last point, already discussed in another connexion—namely, that the patient's resistance fails with each advancing year, and therefore the earlier the operation is done the better.

Once again I would repeat that every case must be given individual consideration, all the pertinent factors being taken into account; for example, it would obviously be foolish and wrong to operate on an old patient who had only a very short time to live, and who had been severely tried by the first extraction. The successful practice of medicine is largely a question of common sense. We must leave it at that.

Precautions and Method of Operating.

It is to be remembered that the safe removal of a cataractous lens is not the affair of waving a wand, like some act of magic; it is rather to be compared to the slow sapping of a military position. An eye, unlike some other parts, gives the surgeon no second chance. He must therefore adopt the safest possible routine. The best ophthalmic surgeon is, like the best general, the man who makes fewest mistakes, especially in the initial stage. To put this in another way, he is the man who takes fewest risks. He must therefore deserve success by the meticulous care of his technique. The teeth must be seen to, and all other sources of auto-intoxication must be excluded; the conjunctiva must be rendered healthy and sterile by careful preparation; then a preliminary iridectomy must be undertaken; a month later the cataract can be extracted; this should be done under a conjunctival bridge. It is true that the presence of such a bridge adds considerably to the difficulty of delivering the lens, but in skilful hands it makes the operation much safer and is a great factor in ensuring a smooth after-course to the case. Colonel Kirkpatrick and I, in common probably with many other surgeons, have been operating under a conjunctival bridge for many years now, and neither of us would think of ever reverting to the old operation incision. With a good bridge, leaking sections have become a thing of the past; even in the aged the section is found soundly healed twenty-four hours after the operation.

Six weeks after the extraction any after-cataract can be dealt with by discission. Even then, a wait of some weeks is necessary before lenses are prescribed for near and distant vision. During all this time it is most important that the patient should have useful vision in the other eye; he should have at least enough to enable him to get about unaided, and if he has enough to read, write, etc., so much the better. This has all to be borne in mind when fixing the best date for operation. I make a point of allowing a patient to use his unoperated eye as soon as possible, and have never had reason to regret doing so. My rule—a common-sense one, I think—is, "Let him do anything that he can do without pain or discomfort, either in the operated eye or in its fellow." What he finds he cannot do to-day he will be able to do in a few days' time. This cuts his limitations down to a minimum and greatly adds to his happiness and comfort, as well as to the peace of mind of the relatives, who are only too apt to hunt him with needless restrictions. He must be a law unto himself, with this proviso—that he must always err on the side of doing too little rather than too much.

Considerations Arising from the Presence of General Disease.

It appears to be the custom of many able surgeons in England to refuse extraction to patients suffering from diabetes or glycosuria, or at least to lay great stress on the risks of operating in such cases. In India quite a large number of cataract cases are found to have sugar in the urine, and experience there shows how good the results usually are after an extraction, when carefully undertaken. I have, in consequence, operated on a number of such cases in England, and with very happy results.

"Provided the patient is in a good state of general health and is not losing weight, the presence of sugar in the urine is not, to my mind, a contraindication to the performance of an operation, so long as diacetic acid and acetone are absent. The wound heals well, and convalescence does not appear to be interfered with. It is an obvious indication to make a careful examination beforehand and to attend to the diet and to the general regimen on such lines as will ensure the patient being in as favourable condition as possible for the ordeal before him."

The above is an extract from my book on *Tropical Ophthalmology*, published in 1920 (p. 502). I would not go back on a word of it. It has always appeared to me that to deny a hope of sight to a patient on the ground that he has sugar in the urine is unnecessary, and often cruel. The same remarks apply to patients suffering from wasting and nervous diseases.

Much stress has been laid on the difficulties of operating on a patient with pathological tremor. Even the presence of a very marked and persistent tremor adds comparatively little to the difficulties, either of the iridectomy or of the extraction, when undertaken by a skilful surgeon, though doubtless it might considerably embarrass a beginner.

The leprotic eye is rare in this country, but I should like to record my conviction, founded on clinical experience, that major operations on the eye, such as iridectomy, extraction, and trephining, do well even in advanced cases of leprosy. The wounds heal with remarkable rapidity, owing, presumably, to the vascularized state of the tissues, and material advantage is often gained, even in cases that appear to offer but little hope. The general condition of the leper must always be attended to first.

Announcement of the Diagnosis of Cataract to a Patient.

I have many times seen a patient who has been shocked, frightened, or made very indignant by the blunt announcement to him or her of the diagnosis of cataract. Sydney Stephenson used to say that the greatest factor in the success of a medical man, and especially of an ophthalmic surgeon, was "human sympathy." I have always agreed most cordially with this dictum. Apart, however, from the sheer folly of handling a man or woman faced with so serious a condition as cataract in the way I have alluded to, there is another point of great importance. The term "cataract," flung in a reckless way at a patient, often conveys a totally erroneous impression to his mind. We as surgeons distinguish between a large number of quite different conditions, all of which we class as cataracts. Some of them are more or less rapidly progressive, and lead to blindness which can only be relieved by operation; others are partial and of very slow progress; indeed, such cataracts often change so slowly that the patient dies many years later with useful sight to the last. To call these "cataracts" is technically correct, but practically very unsound, for it has two results: (1) it frightens the patient and gives him and his relatives years of needless misery whilst a sword of Damocles hangs suspended above their heads; and (2) it drives him to quacks, who charge him large sums of money for dropping harmless solutions in his eye, and who point triumphantly over a series of years to the wonderful effects of their remedies in "delaying" the progress of the disease, "which a surgeon of repute diagnosed and said could only be treated by operation." Medicine is largely a matter of common sense and of the application of common-sense principles by a sane and sympathetic mind. If, in the end, we have to tell a patient that he really has a cataract, of the variety that he understands by the term—the kind of thing his uncle or his father had and was operated on for—it is essential that we should place ourselves in his position and break the news to him as gently and as sympathetically as it can be done. This advice is not at all "the flogging of a dead horse"; many times every year I meet with people who have been "shocked" by the manner in which the diagnosis of cataract has been conveyed to them.

Promises of Results from Operation.

From time to time one meets with a patient who is bitterly disappointed because, according to his statement, a surgeon has promised him a good result and failed to get one. It seems very unlikely that any surgeon would *promise* a good result, but it is most important that in every case the patient should be made to understand clearly that, in such operations as those for cataract, promises are impossible, and that the most a surgeon can do is to state the probabilities. Any other course is dangerous to the surgeon's reputation.

Limitations of a Patient's Activities during the Development of a Cataract.

Whilst a cataract is progressive, ought we to limit the patient's activities. I see a number of people who have been told not to read or write or "strain" their eyes. The idea is to avoid causing the cataract to advance. To my mind, these rules are founded on no solid basis. My rule for cataract patients is, "Go right ahead, live a normal life, forget all these directions, and make your own experience your guiding rule. It is probable, or at least possible, that anything which makes your eyes tired or causes them to ache or gives you headache is bad for you; therefore avoid all such things or cut them down to the point where they do not produce symptoms, but do not go farther in this direction." I believe that if a cataract is going to advance nothing the patient can do will retard it; on the other hand, if it is not advancing or is doing so slowly, I doubt if the ordinary use of the eyes will prejudicially affect the course of the case. I have very frequently released patients from these troublous restrictions which have been put upon them, and I have never found they were any the worse for this freedom. The advance of a cataract appears to be a trophic change, comparable to the wrinkling of the skin or the loss of hair, and the only treatment I have ever found to be of the slightest use has been the exhibition of thyroid gland in suitable cases. This has several times seemed to have been of great value. I do not put the case any stronger than that.

Restraint and Invalidism after Operation.

In the three weeks or longer, after leaving the nursing home between a preliminary iridectomy and an extraction, a patient can usually carry on his ordinary work, always provided that it does not cause pain to either eye, but after extraction it is most inadvisable for him to attempt to do this for at least a month, and even then he must carefully feel his way. When, however, it is a case of using his brain and not his eye, there is no reason in the world to prevent him directing his business as soon as he leaves the home, or even earlier when it can be done by reports read to him and instructions taken down by a stenographer.

A most important thing after operation is to protect the eye from chills, and especially from those due to wind. I insist, for some time afterwards, on the steady use of goggles when the patient is in the open air unless the day is windless and warm. In the house he can wear a shade or his ordinary glasses or his goggles or nothing, according to which seems more comfortable to him.

HUNTINGTON'S CHOREA.

WITH REPORT OF TWO CASES.

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HUNTINGTON'S chorea is defined as a hereditary disease characterized by irregular movements, disturbance of speech, and progressive mental deterioration. First described by Lyon in 1862 as chronic hereditary chorea, it was further investigated by Huntington and later by Davenport, who found nearly one thousand cases in four great family groups. The salient features of the disease, as determined by Huntington, are heredity, the late onset, and the mental changes.

The cases reported presented certain interesting contrasts which render them worthy of discussion. In the first case the disease ran the usual course of choreiform movements

beginning in early middle life and continuing for some years, followed by the gradual development of dementia. In the second case this order was reversed—an occurrence noted by Davenport during his investigation of the disease, but certainly very uncommon in the history of the condition. Dementia preceded the onset of choreiform movements by nearly four years. The history of the family for three generations has also been investigated, and five further cases of the disease were found. Among them was one case in which choreiform movements were present without the development of dementia. In addition, the manner in which the disease is inherited is considered as far as possible from the material available.

Personal Cases.

CASE I.

This patient, a woman, was first seen in September, 1923, when she was 40 years of age. She then complained of being nervous, of constant twitching movements, and of difficulty in walking. These symptoms had appeared four or five years previously, when she was between 35 and 35 years of age. She became apprehensive in the presence of strangers, was easily startled, and tired on slight exertion. Sleep was good. All other functions were normal. Three years before she had had an operation for removal of the appendix, and had apparently become much worse since then. The family history is dealt with in another section of this paper.

Condition on Examination.—The cranial nerves were all normal. Sensation was normal. Motor power, muscle tone, and the deep reflexes were all normal. The plantar reflexes were flexor. The other organs were healthy. The patient looked ill. She was constantly grimacing, her speech was explosive, and she exhibited movements characteristic of Huntington's chorea. The gait was stiff and awkward, somewhat like that of hemiplegia. At that stage the choreiform movements, the grimaces, the explosive speech, and the gait were all regarded as characteristic of Huntington's chorea, an opinion which was supported by the fact that it was known that the patient's father and paternal grandmother had also suffered from the same condition.

The patient was placed in a nursing home, and there she appeared to be quite happy with her surroundings. Two months later it was reported that she appeared to be unduly exciting herself about her business affairs, and was apparently making herself worse. Her condition was such that it was considered advisable to obtain her admission to a mental hospital as a voluntary boarder.

By March, 1928, the patient was becoming rather excitable from time to time, possibly as a result of the change in her surroundings.

Further Examination (June, 1929).—The choreic manifestations were not materially worse, but there was evidence of some degree of mental deterioration. Generally, she was rational in her behaviour and answered questions correctly, but was inclined to reiterate the answer or an observation several times. For example, she repeated a number of times the sentences: "My only brother looks after all my money affairs," and "Will the chorea die out as I am not married?" Apart from the chorea, her behaviour was rational. Her scholastic attainments were fairly good. She was able to read, but writing was very difficult and slow on account of her motor disability. When trying to write her hand was quite steady, but the head, face, and tongue continued all the choreic movements.

Her social capabilities were normal. Ideation was fair, but some degree of dementia was present. Her intelligence was limited. Perception was also limited. It was necessary to repeat a question several times before it was perceived. Emotionally, she was good tempered, was not depressed, but rather cheerful. Her attention was difficult to hold, and she was inclined to wander off into repetitions of what she had said. Recent memory was poor, but that for remote events was rather good. Orientation in regard to time and space was normal. Her reasoning power and ethical attitude were fair. There were neither hallucinations nor delusions. Sleep was good, nutrition was good.

When walking she constantly assumed attitudes, the hands and arms being thrown out alternately in a gesticulatory fashion, the feet being put down sharply and grotesquely, the wrist rotating and the fingers constantly flexing and extending. The head was carried somewhat forward. The patient continually grimaced, especially with the frontalis muscle, which was in a constant state of elevating the eyebrows. The movements were quieter when the patient was lying in bed.

There was a slight increase in tone in the upper part of the arms, the shoulder girdles, the thighs, and the pelvic girdles. The pupils were moderate in size and reacted normally. The optic discs were normal. There was no nystagmus. The ocular movements were normal. It was impossible to protrude the tongue, probably on account of its frequent choreic movements. The palate moved normally. There were constant facial grimaces. The other cranial nerves were normal. The tendon-jerks in the arms were present and equal. The knee- and ankle-jerks were sluggish and equal, and the plantar reflexes flexor. There was no Rombergism. Co-ordinated movements were performed satisfactorily. No other abnormalities were detected on physical examination.

CASE II.

The elder sister of the above patient came under notice in June, 1924, when she was 45 years of age. She herself complained of nothing except nervousness and a fear of traffic.

History of Present Illness.—Inequality of her pupils had been noticed when examining her sister, whom she accompanied at the time. For three months she had been strange in her manner and had done foolish things, such as selling a house at much below its value. She had become loquacious and unusually silly.

Family History.—She lived apart from her husband. The rest of the family history is dealt with under a separate heading.

Condition on Examination.—The right pupil was slightly larger than the left. Both reacted sluggishly to light and consensual stimulation, but briskly to accommodation. The optic discs were normal. Her speech was "wide" and slightly slurred, but she was able to say "British constitution" correctly. There was no tremor of the tongue or of the lips. The other cranial nerves were normal. Sensation was normal. The upper limbs were normal, and the tendon-jerks present and equal. The lower limbs were normal; the knee-jerks present and equal; the ankle-jerks present and equal; and the plantar reflexes flexor. The abdominal reflexes were very sluggish. There was no tremor of the hands. Co-ordination was fair. The other systems were normal.

The patient was excitable, loquacious, and irritable. She asked childish questions, and was obviously unfit to manage her private affairs. She was dishevelled and slovenly in her appearance, and not fully dressed even in the afternoon, contrary to the custom of her social status. She laughed uproariously, inanely, and frequently at trifles and without due cause. She stated that she was bankrupt, which was not the case. Her conversation was frequently irrelevant and incoherent. She was dirty in her habits. She stated that her brother was an inveterate gambler, which was untrue. Facts observed by others showed that she was frequently abusive, used foul language even in front of her children, and had attempted violence to those about her, so that they were compelled to run away from her.

Cerebro-spinal Fluid.—There was no excess of cells; the Noguchi test resulted in very slight flocculence, the Lange colloidal gold test showed no changes; and the Wassermann reaction was completely negative. The blood Wassermann reaction was also negative. Because of her mental condition the patient was then certified as of unsound mind.

In March, 1925, her mental condition was no better. She had improved as regards her personal appearance and physical condition, probably as a result of the care bestowed upon her. She had more control over her speech and emotions. The mental deterioration was, however, still present.

In October, 1925, the patient was more demented. She was dirty in her habits and slovenly in her appearance. Her speech was slurred. She was very emotional. Maniacal attacks occurred at intervals. On examination slight proptosis of both eyeballs was observed. There was a slight von Graefe sign. The pupils were normal. Slight tremor of the hands was present. The reflexes were all brisk. The knee- and ankle-jerks were present and equal. The plantar reflexes were flexor. No other abnormality was detected. On the whole the mental condition of the patient had deteriorated.

Further Examination (June, 1929).—The patient was re-examined on this date with the following results.

Cranial Nerves.—The pupils were equal and reacted normally. The ocular movements were normal. There was no nystagmus. The face was rather fixed in repose. The other cranial nerves were normal. It was impossible to test the sensation satisfactorily on account of the patient's mental condition.

Upper Limbs.—Motor power was diminished in both arms. Muscle tone in the right arm was slightly increased in the proximal groups of muscles. In the left arm tone was much increased in all groups of muscles, more particularly proximally. The left arm was held flexed across the chest both at rest and when walking, together with partial flexion of the wrist and fingers. The right arm assumed the same position but to a lesser degree. It was impossible to elicit the tendon reflexes on account of the increase in muscle tone.

Lower Limbs.—Motor power was decreased in both legs. Muscle tone in the left leg was increased in all groups of muscles, but more particularly in the proximal groups. In the right leg tone was slightly increased in the proximal groups of muscles. The left leg was extended. There was no wasting. The knee- and ankle-jerks were present and equal. The plantar reflexes were indefinite.

Gait.—The whole body moved *en masse*, with the left arm held flexed across the front of the chest. The right arm was slightly flexed, while the right leg was in an extended position. The left leg was extended and moved stiffly. The arms did not swing.

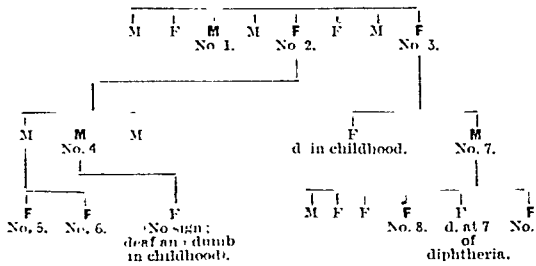
Spontaneous Movements.—There were no movements when the patient was alone or at rest. On attempting to speak or to perform any action typical choreic movements appeared. There was constant grimacing; the tongue was protruded at the right angle of the mouth; the arms were twisted and turned, but their movements were much less pronounced than those in the face. There was occasional and slight twisting of the body.

Co-ordination.—In carrying out the finger-nose test with the right hand, the choreic movements appeared at once, but the patient succeeded in reaching the object although by a roundabout route. With the left hand the choreic movements began at once and the patient desisted.

Mental Condition.—She talked constantly in a loud voice, was quarrelsome, and hit the attendants without warning. Her recent memory was poor, but she remembered how long she had been in the hospital. There was perseveration in both speech and action. Once a line of speech or action was begun, it was repeated several times, during which it was impossible to introduce anything else to her attention.

The Family History.

The subjoined table illustrates the occurrence of a similar condition in several members of the family, the dark letters indicating the members affected or suspected to be affected. In most cases some details of the clinical history were available, so that it has been possible to identify the condition in each case.



Records of three generations of the family are available. In the first generation, the disease appeared in three members of one family—namely, No. 1, the third child, a male; No 2, the fifth child, a female, who married and had a family; and No. 3, the eighth child, a female who also married and had a family. The daughter (No. 2) had three sons, the second of whom suffered from the disease (No. 4). Her elder son had two daughters, each of whom developed choreiform movements between the ages of 10 and 12. These are discussed as No. 5 and No. 6. The third member of the original family affected (No. 3) had a daughter and a son, the former being killed in early childhood and the latter becoming affected in middle life (No. 7). He was the father of the two patients described in this paper (Nos. 8 and 9). These patients were respectively four and sixth in the family, the three eldest children having escaped and the fifth having died of diphtheria at the age of 7. The information available about the affected members of the family is as follows.

No. 1.—Male, the third child of the original family. The condition appeared at the age of 50 years, and the patient died unmarried at the age of 81.

No. 2.—Female, the fifth member of the original family. No information is available except that she developed the disease shortly after the age of 40 years, and died at the age of 86.

No. 3.—Female, the eighth member of the original family. She was born in 1806 and appeared to be a very bad case of the disease. From information given by friends who remember her, it is believed that she developed the disease *about the age of* 50 years, and died at the age of 81.

No. 4.—Male, the second son of the patient (No. 2) described above. The disease appeared at the age of 40 years, and the patient died at the age of 70. He suffered from movements of the face and limbs, but no mental symptoms were present.

No. 5.—Female, the daughter of the eldest brother of No. 4. Movements began at the age of 10 years and continued until her death at the age of 25 in childbirth.

No. 6.—Female, the sister of No. 5. Twitching and movements began between the ages of 10 and 12 years and have continued since, the patient now being 30 years of age and living abroad. It is very doubtful if in either of these sisters the condition is Huntington's chorea; it is quite likely to be one of conversion hysteria. The occurrence of such a release phenomenon in a family, the members of which are subject to Huntington's chorea, however, is worthy of note. It was further ascertained that a member of the same generation, a female, the daughter of No. 4, was deaf and dumb in childhood, but so far has developed no signs of the disease.

No. 7.—Male, the only child of No. 3 who survived to adult life, and the father of the two patients described in this paper. He developed movements at the age of 44 years, coincident with a period of domestic anxiety. He became steadily worse until the age of 49, when he was relieved of his employment, "as his health was unequal to the work." He then became rapidly worse and was soon almost as bad as his mother, who was then 81 years of age and died soon after. He continued in a business of his own until he was 54, but it was always a worry and a trouble to him. He was constantly falling about and hurting himself. Up to the age of 50 he had contortions of the face and limbs, but was not difficult to manage. After that age, however, he had many fits of passion and it was practically impossible to do anything with him. This state of affairs continued for several years. He was continually threatening to commit suicide, and would go away from home on every possible occasion, once being found in a police station and on another occasion falling off a station platform on to a railway line. It was apparent to his relatives that his mind was becoming deranged. He was certified at the age of 57. During the following year he was exceedingly troublesome, but later became quieter. He collapsed suddenly and died at the age of 59.

Clinical Commentary.

In the first patient movements of the face and limbs appeared between the ages of 35 and 36 years, and when the patient came under observation the character of the movements left little doubt that the condition was Huntington's chorea. This opinion was supported by the presence of grimaces, explosive speech, and a grotesque gait, and by the knowledge that the patient's father and paternal grandmother had suffered from the same condition. About five years after the onset slight evidence of mental impairment appeared, in that the patient became unduly excited over trifles. During the next five years the mental condition deteriorated very little. Some degree of dementia, however, supervened during the eleventh year of the illness. The patient's intelligence and perception were limited, her attention was difficult to hold, and her recent memory was poor. An interesting feature of her condition was a tendency to repeat phrases and sentences several times, during which it was impossible to introduce anything else to her attention. This tendency to repetition was apparently of the nature of perseveration rather than the type of word repetition known as palilalia and occurring sometimes in association with post-encephalitic Parkinsonism and bilateral lesions of the pyramidal tracts.

In the second patient the diagnosis was much more difficult, and in fact, apart from the family history, would have been impossible for five years. The patient was first seen at the age of 45 years with symptoms which indicated that a degree of mental deterioration was present, and suggesting a diagnosis of dementia paralytica. This condition, however, was excluded by the negative results of examination of the cerebro-spinal fluid. An involutional psychosis could not be excluded apart from the family history. The patient's mental condition slowly but steadily deteriorated for four years, when grimacing, explosive speech, and rigidity of the limbs appeared and confirmed the diagnosis of Huntington's chorea, in which dementia alone had at first been present. At this stage rigidity of the limbs of the extrapyramidal type was present, more on one side than on the other, and to a greater degree than in the first patient; perseveration of speech and action was even more pronounced. Also, there was present the same exclusion of everything else from the field of attention until the repetition of the word, phrase, or action had ceased.

Davenport has drawn attention to certain "biotypes" of the disease, all of which are comparatively rare. One of these is illustrated by the second patient, in whom dementia alone was present for four years before the choreic movements appeared. Such a variation of the disease may lead to serious difficulties in diagnosis. In the second "biotype" mentioned by Davenport, that in which the movements are present without any dementia, diagnosis is not so difficult. In fact, in many cases, chorea may be present alone for some years before the onset of dementia—a sequence of events which is the usual feature of the disease. In the first patient chorea only was present for five years, and then for a further period of five years

the evidence of mental deterioration was still rather indefinite. A better illustration of the second "biotype" is a member of a previous generation of the family (No. 4). In this patient, a male, movements were present for thirty years—from the age of 40 until death at the age of 70—and no mental symptoms appeared. A third "biotype," that in which the disease appears early in life, might be suggested by two patients in the third generation (Nos. 5 and 6). As, however, it has not been possible to obtain access to these patients, it is difficult to decide whether they had suffered from Sydenham's chorea at the age of 10 and the movements had persisted as a mimesis, whether they suffered from a conversion hysteria as a result of maladaptation due to a slight defect of mentality, or whether they suffered from a true "biotype" of Huntington's chorea. The fact that the latter disease had not affected either of their parents would suggest, however, that one of the former conditions was present.

An anatomical feature common to the two cases recorded was the presence of an extrapyramidal type of rigidity, presumably as a result of the partial release of the postural reflex path from cortical control. In the first patient it was comparatively slight; in the second patient it was extreme on the side on which the choreic movements were most pronounced, and present in lesser degree on the side unaffected by the movements. It would appear, therefore, that although the lesion usually affects the basal structures responsible for the conduction of the afferent impulses controlling voluntary movements, it may affect other basal structures first and produce some degree of extrapyramidal rigidity before the onset of choreic movements and dementia.

Commentary on the Family History.

An investigation of the family history of the patients revealed the presence of five other definite cases of Huntington's chorea in the two previous generations. There was no information available about the history of the family outside the three generations. In the first generation one male and two females were affected. The former died unmarried, while each of the latter transmitted the disease to one son. There was no evidence of the occurrence of the disease in the offspring of the unaffected members of the family, apart from the two doubtful cases (Nos. 5 and 6). In the second generation only two males were affected. The first male (No. 4) did not transmit the disease, but the second male (No. 7) transmitted it to two daughters. It might appear that the disease, which affected both males and females in the first generation, affected only males in the second generation, and only females in the third generation. This observation is, however, invalidated by the fact that in the second generation none of the female offspring of those affected in the first generation survived long enough to develop the disease. It is interesting to note, however, that in one branch of the family an affected female transmitted the disease to a male, whose daughter was deaf and dumb in childhood; while, in another branch, an affected female transmitted it to a male, whose two daughters were later affected. There is some evidence that the disease may predominate alternately in males and females in successive generations. It is reasonable to expect, therefore, that any male children of patient No. 8 might have become affected if a dominant antichoreic factor has not overcome what is possibly a recessive tendency to the disease, as it appears to have done in the other branch of the family. Apart from such speculations in the family studied, there is insufficient evidence upon which to correlate the method of inheritance with the known laws of heredity.

Of the seven definite cases of the disease in this family, the lowest age of onset was 36 years, and the highest 59 years, the age of onset in the other cases varying between these two limits. Of these cases, five followed the usual course of choreic movements upon which dementia eventually supervened; one suffered from movements without dementia, and one suffered from dementia for four years before the onset of choreic movements. The three affected members of the first generation survived to over 80; the two in the second generation died at 70 and 59 years respectively; while the two affected members of the third generation are still alive at 50 and 46 years of age. It is interesting to note that while the tendency to the disease is apparently becoming less in successive generations, probably as a result of the dilution of the strain, the duration of life of those affected is apparently becoming shorter, possibly because of the concentration of the toxic factor in those affected.

Summary and Conclusions.

1. Two cases of Huntington's chorea are described in detail, the clinical course in one approximating to the classical type and in the other characterized by the presence of dementia for some years before the appearance of choreic movements.

2. The family history has been investigated for three generations, and notes on five further cases of the disease added.

3. The clinical features are discussed and attention is drawn to the fact that two important variations of the disease—namely, dementia preceding chorea, and chorea without mental symptoms—have appeared in two generations of this family.

4. The family history is discussed and attention drawn to the following points: (*a*) the transmission of the disease only through affected individuals; (*b*) transmission through both males and females; (*c*) an apparent tendency to the transmission of the disease alternately through males and females; (*d*) the association of a lessened tendency to the disease in successive generations with the appearance of deafness and dumbness in childhood, and what may be psychoneurotic states; and (*e*) an apparent lessened expectation of life in those affected in successive generations.

X-RAY TREATMENT OF THE COMMONER MICROBIC DISEASES OF THE SKIN.*

BY

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In the words of a dermatologist of world-wide reputation, the history of *x*-ray therapy in relation to diseases of the skin may be divided roughly into three eras—namely, the optimistic, the pessimistic, and the realistic. This analysis appears to form an accurate, if somewhat cryptic, description of the progress of *x*-ray treatment since its inception about the year 1896. The results obtained by the earliest workers were regarded at that time as bordering on the miraculous. Then followed a series of mishaps and a few disasters, which soon brought considerable discredit on this new form of treatment. This eventually led to a careful investigation into the effects of *x* rays on the normal and pathological skin, improvement in apparatus, and more reliable methods of dose estimation, until at the present time *x*-ray therapy ranks as one of the most reliable factors in the treatment of many skin diseases.

To-day we are concerned particularly with the *x*-ray treatment of the more common microbic diseases of the skin, and I propose to discuss briefly the methods employed in the *x*-ray department of the Manchester and Salford Hospital for Diseases of the Skin which have produced satisfactory results.

The application of the rays in the group of diseases under discussion varies considerably, and depends chiefly on the nature of the infection and the condition of the skin at the time of treatment. The rays when they are absorbed into the skin produce certain biological changes in each of the individual cells exposed to them. These changes, according to Hertwig, are supposed to be due mainly to molecular dissociation of colloidal albumins by the secondary rays which are generated when the primary rays strike the body cells, the process being analogous to dissociation of gases by means of ionization. Packard, on the other hand, has evolved a theory which states that control of the mechanism of the living cell is carried out by certain substances called enzymes, which are present in every cell, and concerning which we know very little.

* Read in opening a discussion at a joint meeting of the Sections of Dermatology and Radiology and Radio-Therapeutics at the Annual Meeting of the British Medical Association, Manchester, 1929.

Thus a certain dose of the rays will increase the activity of the enzymes and through their agency stimulate the metabolism of the cell. A rather larger dose will inhibit the action of the enzymes and render the cell inactive. Still larger doses cause destruction of the enzymes, thus resulting in the death of the cell. Recently Holzknecht, Caspari, and others have denied that *x* rays have any direct stimulating effect, and prefer to regard any stimulating effects which may occur as due partly to the results of the early changes which precede injury, and partly to the indirect results of the suspension of inhibitory influences in the cell. Whichever view one may take, however, the undeniable fact remains that small doses of *x* rays have a decidedly stimulating effect on certain skin diseases, of which acne vulgaris is a striking example.

The most essential factor in the treatment of microbic skin infections is a thorough appreciation of the degree of sensitivity of the skin in its normal state and in its various pathological conditions. The greater sensitivity of the diseased cells which is invariably present permits an effective dose to be given to them without injury to the surrounding healthy skin. The only effect on the latter will be of a mildly tonic stimulating nature.

In the presence of hyperaemia accompanying the pathological condition, however, such as is found in many cases of sycosis, the question of suitable stimulating doses becomes more complex, as we are dealing with a skin which is no longer normal, but which has become definitely hypersensitive. Thus the margin between stimulation of the affected cells and injury to the surrounding hyperaemic skin becomes considerably narrowed.

The diseases of the skin which come under the heading of "commoner microbic diseases" are as follows: acne vulgaris (and indurata); sycosis vulgaris; paronychia (due to pus-forming organisms); furunculosis (including carbuncles).

ACNE.

The type of acne with which the radiologist most frequently comes into contact is acne vulgaris (including acne indurata). In this so-called microbic infection it is now generally agreed that *x*-ray treatment is the method of choice, in that a satisfactory result can be obtained safely and more rapidly than by purely medical means. It is not, however, suggested that *x* rays are indispensable in the treatment of this condition, as cases of very mild acne are cured without its aid, while some workers prefer the use of ultra-violet radiation.

The apparatus used at the Manchester Skin Hospital consists of a 16-inch coil. The rays are emitted from a Coolidge tube and are of the quality produced by a kilovoltage of approximately 120 and a milliamperage of 3½, or in other words a collection of soft and medium rays at an equivalent spark-gap of 6½ in. Working under these conditions it has been found that an erythema dose estimated by the use of the Sabouraud pastille can be produced in approximately two minutes at an anticathode skin distance of 8 inches.

Dosage has usually consisted of a preliminary course of three or four half skin doses unfiltered, and administered at an interval of seven days between each dose. Following this a similar course has been given, but a filter of 0.5 mm. of aluminium is used. The following table shows the dosage administered in a series of 37 consecutive cases of acne vulgaris (15 males and 22 females) treated recently.

Table showing Number of Treatments in 37 Consecutive Cases of Acne Vulgaris.

Acne of Face.				Generalized Acne.	
Males.		Females.			
No. of Cases.	No. of Treatments.	No. of Cases.	No. of Treatments.	No. of Cases.	No. of Treatments.
1	3	3	3	1	5
2	4	4	4	1	10
1	5	8	5	3	12
2	6	3	8	1	13
1	7	2	10		
3	8				
1	9				

Of these, 31 constituted affections of the face, and 6 generalized acne—that is, involving the face, back, and chest. The average age of the males was 18.3 years, that of the females 22 years.

The total dosage varied between three and ten treatments, each consisting of three or four half skin doses unfiltered, and followed by the remaining doses with the use of a 0.5 mm. aluminium filter. In one case, however, only one-third pastille doses were given, while in two cases a 1 mm. filter was employed following the initial unfiltered dosage. Of the 31 cases of acne of the face the results in 4 were indefinite, though there is no actual record of failure in any of those treated. Two of the 6 cases in which the back and chest were involved showed indefinite results, while one failed to respond satisfactorily after thirteen treatments.

Several methods differing in detail from that just described have been employed by various workers. These constitute differences in the doses administered and in the use of filters. The methods of MacKee on the one hand, and of Arzt and Fuhs on the other, show appreciable differences in their employment of filtration. Both use rays of medium quality and advise the employment of fractional doses, though MacKee uses a quarter skin dose and gives a preliminary course of sixteen treatments at intervals of seven days between each. In stubborn cases, in the absence of erythema or wrinkling of the skin, he considers it permissible to continue treatments for two additional months. If a cure is not effected after six months it is advisable to discontinue *x*-ray treatment. He also states that while it is possible to cure a case of acne vulgaris in one or two treatments by giving at one sitting a quantity sufficient to produce an erythema, such treatment cannot be criticized too severely.

Arzt and Fuhs employ a filter of 1/2 to 1 mm. of aluminium and administer doses of two-fifths of a skin dose. Three or four treatments are given at intervals of ten to fourteen days. After an interval of four weeks the whole cycle may be repeated, and after a further period of eight weeks, still a third cycle, the whole extending over thirty-two weeks. In deep indurated cases they advocate three-fifths skin doses through 2 mm. aluminium from the commencement.

Most dermatologists and radiologists will agree with MacKee that large initial doses in the treatment of acne are both inadvisable and unnecessary. The individual doses used in the present series are certainly larger than those employed by him, but in order to avoid any risk of erythematous changes a 0.5 mm. filter of aluminium is used after the third or fourth treatment.

Comparison with the total dosage administered by MacKee and Arzt and Fuhs shows that the former gives a total of four to six skin doses, while the latter give a total of six to eight skin doses. The present series shows that an average of five to six skin doses in each case is required to produce a cure. Thus it would appear that the curative effects of *x* rays on acne depend not so much on the degree of filtration, or quality of the rays employed, as on the total quantity of the latter which are absorbed by the skin. Any attempt to standardize skin dosage in terms of quantitative absorption, however, is to be deprecated, for the actual amount of absorption required to produce a cure depends on two important factors; these are, the type of skin to be treated, and the interval between treatments. It is a generally accepted fact that the skin of a blond will respond more readily—or, in other words, absorb the rays more readily—than will that of a brunette, and considerably less dosage may be required to obtain the desired result. It should also be remembered that the shorter the interval between treatments the greater will be the cumulative effects of the rays. If there be any advantage in the method of treatment employed in the present series, it lies in the fact that most cases can be cured in approximately seven or eight weeks, with no ill effects.

As previously mentioned, it is believed that fractional doses of *x* rays act on the pathological skin cells through the stimulation of their controlling mechanism, and it has been supposed that in cases of acne the affected cells are stimulated to resist the influence of the infecting

organism, and, in successful cases, to cause its death. On the other hand, it is possible that inhibitory influences appear in the infected cells. In this way the organism becomes deprived if its nutrition and dies.

Whether the rays act directly on the bacillus itself was until recently a matter of considerable controversy. Investigators have varied widely, in that some authors believe there is a good bactericidal action, others note stimulation effects, while still others observe certain biological changes. In 1912 Chambers and Russ succeeded in sterilizing cultures of *Staphylococcus aureus* in suspension. For this purpose they used 0.5 millicurie of radium salt per cubic centimetre of the medium. Kloverkorn in 1925 carried out experiments on the bactericidal and retarding actions of *x* rays on *B. coli* and *Staphylococcus aureus*. Freshly grown cultures on agar were not killed after the administration of 120 skin doses. With 50 skin doses and upwards colonies exhibited biological changes, such as loss of pigment and irregularity in the colony outline, as well as inhibition of growth. The actual death of these organisms, however, was only accomplished in cultures twenty-eight days old, and with 120 skin doses.

In view of these experiments it may be said with safety that the bactericidal action of *x* rays, as used in the treatment of acne, is nil, while any inhibitory effect on the growth of the bacillus which might occur may be regarded as negligible. On the contrary, it has been my experience that doses up to eight skin doses result in stimulation of freshly grown cultures on agar of *Staphylococcus aureus*.

Sycosis.

Sycosis, as the result of a microbic infection (sycosis vulgaris or sycosis pyogenica) is a condition which presents peculiar difficulties in its treatment. As we know, this form of sycosis manifests itself in the appearance of a number of small red papules arising from the hair follicles of the beard. These may remain localized, with comparatively little inflammation around them, or may spread rapidly and become closely aggregated. Coalescence of the papules may result in the formation of crusts, and may be associated with marked hyperaemia. The lesions also vary considerably in their distribution, and may be limited to two or three small patches, or may involve the whole of the hair-bearing area of the face and neck.

The factor of vital importance in the treatment of this condition may be summed up in the one word "hyperaemia." Hyperaemia is almost invariably associated with sycosis, and may vary from a negligible degree to one of generalized acute inflammation. Thus one is dealing with a hypersensitive skin, which will respond to a given dose of *x* rays in proportion to its degree of inflammation. A real difficulty, however, arises in the fact that one cannot determine with certainty the exact degree of the response to be expected. Even normal skins show slight variation in sensitivity to the rays, a feature which becomes considerably magnified in the presence of inflammation.

Three methods of treatment are open to the radiologist: (1) epilation of the beard; (2) stimulation of the affected cells; (3) a combination of these two methods.

It is impossible to lay down any hard-and-fast rule in the choice of method to be employed, as each individual case varies and must be judged on its merits. There are, however, certain general principles which must be observed if one is to avoid disaster. The acutely inflamed skin, such as is found in a mixed infection, should on no account be treated until some successful effort has been made by other means to reduce the hyperaemia, and even then the early administration of a dose sufficient to produce epilation is attended with grave risk. In such cases we are left with the alternative of administering very small stimulating doses—actually not more than a one-third skin dose at weekly intervals. In cases of moderate hyperaemia stimulating doses are again the rule, though, the skin being slightly less sensitive, it is usually safe to administer half skin doses. It is frequently found that cases of the inflammatory type treated by the above methods show very marked improvement. The greatest success from the radiological point of view is obtained in those cases which show practically no hyperaemia. The dosage may be carried to the point of epilation, which appears to constitute the ideal method of treatment. Such cases, if complete epilation is effected, can often be cured rapidly by other means.

A series of 36 consecutive cases of sycosis were examined, but owing to the fact that x-ray treatment formed only a small proportion of the total treatment administered, no very helpful conclusions can be drawn. It is worthy of note, however, that of these 36 patients, 10 received single epilating doses, 9 of whom were cured, while the average total duration of treatment was two months. Of the remaining 26, 15 received half skin doses, and 6 one-third skin doses. In one case epilation was successfully accomplished with a three-quarter skin dose on a mildly hyperaemic skin, while in one other case a two-thirds skin dose failed to produce epilation.

It has been our experience that mild stimulation of the infected beard produces marked improvement in the majority of cases, though as long as the infected hairs remain we cannot hope for a cure through the medium of *x* rays alone. A rather remarkable result was experienced quite recently.

The case was that of a man who had sustained severe burns on the greater part of the face. When first seen, two years later, the latter was a mass of scar tissue, with the exception of the under part of the chin and a small area on the left cheek. These two areas, together with the one eyebrow which still remained, were infected with sycosis. Two small ulcers were present in the scar tissue itself, while the whole face showed an appreciable degree of hyperaemia. Epilation was quite out of the question, and it was eventually decided to give small stimulating doses. Three one-third skin doses were administered, two of which were given through a 0.5 mm. aluminium filter. After a lapse of six weeks, during which time he had carried out medicinal treatment, the patient again reported for inspection, and the response had been remarkable. The ulcers had healed, and there was practically no trace of the previous infection.

This case is of particular interest in that no attempt had been made to produce epilation, yet there appeared to be a vast improvement in the condition.

A case of supposed spontaneous cure has also occurred in my own experience.

The patient, a man of about 35 years of age, was suffering from a mild sycosis of the beard, with practically no hyperaemia. Epilation was attempted, and the patient was again seen one month later. Examination revealed that, in spite of the fact that no epilation had occurred, the condition had cleared up completely, and there has been no recurrence.

We are quite unable to understand this result. It is just possible, however, that this patient had inadvertently received rays from an unduly hard tube, that the majority of the rays, being hard, penetrated the superficial layer of the skin and stimulated only its deeper cells. Owing to the small proportion of soft rays insufficient were absorbed during the time of exposure to produce epilation. This theory, however, is by no means a complete explanation of what must be regarded as a spontaneous cure.

It is our practice to treat sycosis, except in very few cases, without the use of filters, a proceeding which it must be admitted is open to criticism, particularly in those cases which exhibit marked hyperaemia. While no ill effects result from administration of such small stimulating doses, and though considerable improvement may result, it seems quite reasonable to assume that the use of a thin filter—for example, 0.5 mm. of aluminium—would allow the administration of rather larger dosage without fear of untoward results. I have not had the opportunity of comparing the respective merits of these methods, but other workers have long used varying degrees of filtration. Some therapeutists, indeed, go to the length of producing epilation of the beard through a filter of 2 mm. of aluminium. This method does not appear to be entirely satisfactory, requiring as it does considerably larger doses than by the unfiltered method. Moreover, it is liable to result in unpleasant consequences, such as temporary paralysis, and occasionally swelling of the salivary glands.

The results obtained in the treatment of paronychia by *x* rays have not proved very encouraging. Six cases have been treated during the last two years, and of these only two were definitely cured after the administration of eight half skin doses to each. The results of two were indefinite, while two were not cured at the end of seven months and ten months.

I have had practically no experience of the treatment of furunculosis and carbuncles, though other workers seem to have experienced good results, particularly in the former condition.

Schreus has noticed that irradiation of boils in one area (one and one-fifth skin dose with 2 mm. aluminium at 20 cm. anticathode skin distance) has resulted in gradual decrease of the number of fresh ulcers appearing in other parts, until finally the condition has cleared up entirely. He suggests that the changes in the irradiated skin are probably due in the first place to the destruction and absorption of the staphylococci and diseased tissue cells. This tends to result in a form of auto-vaccination, with the production of specific protecting bodies, and the creation of some degree of resistance and immunity. This so-called immunizing action of the rays may be further reinforced by the use of autogenous vaccines.

Supersoft Rays.

In conclusion, the recent work in the treatment of skin diseases by means of supersoft rays is of such importance that this paper would be incomplete without a brief reference to this method of treatment.

Several experiments by Bucky and others have been carried out in this field, dating from 1912, and have culminated in a paper on "Supersoft Röntgen rays in dermatology," by J. J. Eller, which was read before the New York Röntgen Society in 1927. These rays were produced by means of a specially constructed transformer unit and a Müller tube, and were of the length produced by a kilovoltage of 8 and a milliamperage of 8. One unit dose was considered the dose which was necessary to produce a mild erythema within twenty-four hours at an anticathode skin distance of 6 cm. Working under the above conditions this was accomplished in three minutes.

It is claimed that the use of supersoft rays has certain advantages over the rays of shorter wave-length in general use. Supersoft rays are similar to medium x rays in that they produce an erythema, have penetration, may produce pigmentation, and have cumulative effects from successive treatments. They differ from the biological effects of harder rays in that erythema may appear almost instantaneously—that is, within two or three hours, or even less (compare three days to fourteen days with harder rays). Penetration of supersoft rays is much less, hence one or two erythema doses can be given without temporary or permanent epilation.

Following larger doses Schultz reported cases in which actual ulceration occurred. These ulcerations were painless and healed without atrophy of the surrounding skin after fifteen months. No atrophy of the skin, telangiectases, or malignant manifestations have been noticed two years after marked erythema doses, though these, of course, may appear later on.

Among many skin diseases treated, mention is made of acne vulgaris. The results of treatment in this condition were not particularly good, certainly no better than by the present-day methods of treatment. Good results, however, are reported in the case of sycosis, paronychia, and carbuncles.

This method of treatment by supersoft rays is at present in its infancy, but it will—in the opinion of workers in this field—ultimately find an important place in the treatment of dermatological conditions. It is believed, however, that these rays will never replace entirely the medium rays as used at the present day.

RECTAL ETHER-OIL ANAESTHESIA, WITH SPECIAL REFERENCE TO BRAIN SURGERY.*

BY

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It is surprising to find that the administration of ether per rectum was first described as early as 1847. The method employed then and up to about 1910 was that of pumping ether vapour into the bowel, and, though the results were encouraging, the method was acknowledged to be more complex than that of ordinary inhalation anaesthesia.

The properties and action of ether in oil per rectum were first investigated by Dr. Gwathmey of New York, who read a paper on the subject in London in 1913, since when this method of administration has been taken up and proved by many anaesthetists. Dr. Gwathmey himself inspired me to try this method, and during the past two years I have used it in over seventy cases, using a modification of his technique.

The uses of rectal ether-oil in general surgery are very wide, and its very safety has made it the anaesthetic of choice in all bad surgical risks in my hospital practice. But for the lack of time I would use it far more extensively. Of the cases selected for the use of this method I have records of umbilical hernia, cholecystectomy, cholecystostomy, exploratory laparotomy, nephrectomy, appendicectomy, total and subtotal hysterectomy, and breast operations. The method was employed on account of the following conditions: debility, extreme nervousness as in hyperthyroidism, obesity, heart conditions with failing compensation, chronic lung conditions, and anaemia.

It will be seen from the range of operations quoted and the relative seriousness of the conditions which determined the choice of a rectal anaesthetic that this method should have a wide application in operations which impose a prolonged strain on the patient. In looking over a series of more than fifty cases of brain operations I am quite convinced that in this particular branch of surgery rectal anaesthesia is invaluable.

Before going on to a description of the technique used in brain surgery I should like to mention what appear to me to be a few of the advantages of this method. First, in a brain operation access to the patient's face is necessarily difficult owing to the position and towels, etc.; this makes an inhalation anaesthetic difficult to administer, particularly if the patient does not tolerate ether vapour well. Under a rectal anaesthetic it is not necessary to look at the patient's face, if in the original position his airway is quite clear. The quiet even breathing makes it very rarely necessary for the anaesthetist to interfere, as the jaw is not sufficiently relaxed to obstruct the air passages. Secondly, the dose of ether compares very favourably with the amount used by any inhalation method. Six ounces of ether will give a four hours' anaesthesia. I do not know exactly how much ether I have used in giving a similar length of anaesthetic by intrapharyngeal ether vapour, but it is nearer 16 ounces. Thirdly, while the patient is under the influence of rectal ether the anaesthetist has time to take observations and to chart them during operations. In all brain cases I have records of the systolic and diastolic blood pressure, pulse, and respiration taken every ten minutes. The stage of operation is noted and correlated with these. The chart is completed with an account of the induction and all the pre-operative drugs and the amount of anaesthetic. This record forms a very valuable indication of the patient's condition during operation and is a guide as to how far the operation may proceed without undue strain on the patient. Operative shock can be detected in its earliest stages and treated accordingly.

Technique.

The ordinary rectal ether-oil technique has to be adapted to these brain operations, owing to the length of time which the operations take and to the special conditions which exist.

The actual technique of administration of the mixture per rectum is exactly the same for brain work as for general surgery, but for the fact that morphine in any form is strongly contraindicated because it tends to congest the tissues of the head. This unpleasant fact changes the whole picture. It is comparatively simple to give a rectal anaesthetic with morphine, but it is a very difficult matter without it, owing to the varying effect of ether on the individual.

The technique which I am going to describe is fairly constant, and is the outcome of work on over fifty cases.

* A paper read in the Section of Anaesthetics at the Annual Meeting of the British Medical Association, Manchester, 1929.

Pre-operative Treatment. The preparation of the patient is almost the same as that of any case for surgical treatment. Two days before operation an aperient is administered. The day before operation the patient is kept on light diet, an enema is given in the morning and a bowel wash-out in the evening. The important point is that all preparation should be done in time to enable the patient to have a good night's rest.

The Day of Operation.—One and a half hours before operation the patient receives the first rectal injection; this consists of chloretone 20 grains, ether ½ oz., paraldehyde 2 to 4 drachms, paraffin 1 oz. Forty-five minutes before operation he receives the second rectal injection; this consists of a 75 per cent. mixture of ether in paraffin. The maximum dose is administered—that is, ether 6 oz., paraffin 2 oz. Atropine is given as a routine in case it is necessary to use any supplementary ether vapour.

The patient is usually drowsy before the time for the second rectal injection; he may even be sound asleep. If this is the case it is a fairly easy matter to run in the mixture, which is generally well tolerated, in about ten minutes. Towards the end of the second injection the patient may complain of the taste of ether; he will be sleepy in twenty minutes from the time of the beginning of the injection, asleep or possibly analgesic in thirty minutes, and anaesthetic in forty minutes. These times vary considerably in different patients.

In patients who have discomfort and even pain and difficulty in retaining the second rectal injection, I find it a good plan to give a few drops of chloroform on a mask at the same time as the ether mixture is being run in. It is surprising how quickly they go to sleep. The ether mixture can then be run in quickly, and the chloroform sleep seems to last till the ether takes effect. There is very rarely any excitement during induction.

It must be understood that rectal anaesthesia is a *controlled anaesthesia.* In suitable cases and wherever possible the rectal injection of ether alone is relied upon to produce sufficient depth of anaesthesia. Ether, like other drugs, affects various individuals differently, and one is never able to tell beforehand whether more anaesthetic will be necessary. It is my custom to supplement the rectal ether with intrapharyngeal ether vapour. There are many other methods of control, but under the conditions obtaining in brain operations this is the most convenient. It is rarely necessary to give the ether vapour throughout the entire operation. The pre-anaesthetic medication, chloretone-paraldehyde, etc., does in one sense control the anaesthetic, or rather tends to intensify the action of ether, and certainly prolongs the post-operative period of sleep.

Type of Anaesthesia.

The anaesthesia produced by the injection of rectal ether is very light; sometimes it amounts only to an analgesia. It has been proved that, whatever the oily vehicle, the rate of absorption of ether is the same, about one and a half to two ounces being absorbed in an hour. This even absorption of ether from the bowel produces a perfectly smooth anaesthesia without danger of overdosage. The patient presents a typical picture. He appears to be sound asleep, the face is slightly flushed, the breathing is quiet but audible, the jaw is seldom so much relaxed that the breathing is obstructed, but an airway is well tolerated. The pupil reacts briskly to light, and the amount of dilatation gives a very good indication of the depth of anaesthesia. The pulse is slower than in an inhalation anaesthetic. Slight movements may occur, but if the relaxation is sufficient for the surgeon's purposes these do not indicate that the patient is too lightly anaesthetized.

Ether given in this way seems to have very little effect on the blood pressure, even after prolonged administration. There is generally a slight rise of the systolic blood pressure when the ether begins to be absorbed, but it tends to remain very steady throughout the many hours of actual operation, provided there is no sudden haemorrhage or pre-existing intracranial tension. If the blood loss is slight and continuous over a long period there will be a gradual fall in pressure till the main part of the operation is done. During the closure of the head, which may take one to two hours, the blood pressure tends to rise, and at the end may be the same as at the beginning. Most of the variations in blood pressure are due to the operative procedure and to existing conditions, such as high intracranial tension. If a patient is troublesome at first, requiring more anaesthetic than is usually necessary, and has a varying systolic blood pressure which tends to be high, it will generally be found that the intracranial pressure is the cause of the difficulty. After tapping the ventricles, cisternal puncture, or opening of the dura he will generally settle down well. It may be necessary to tap the ventricle at an early stage in the operation to obtain a satisfactory state of affairs.

It stands to reason with this method of administration that there is little if any interference with the proportion of oxygen and carbon dioxide in the inspired air. The quiet breathing in itself demonstrates the fact that the carbon dioxide is not increased sufficiently to affect the patient.

It is important that the metabolism of the patient should be disturbed as little as possible in a brain operation, when his staying power is, in some cases, taxed to the uttermost, and I venture to state that a rectal anaesthetic gives rise to less disturbance than an inhalation anaesthetic of a prolonged type. I have no scientific proof to give, but I draw my conclusions from the study of records and from the post-operative condition of the patients.

Post-operative Clinical History.

It is most noticeable in the period immediately succeeding operation that the patient's colour is good, the pulse and general condition are very satisfactory, and the look of exhaustion so often seen after severe operations is not present. There is a period of quiet sleep, which lasts from two to four hours or more, and there is seldom any vomiting. I have never seen any respiratory complications directly attributable to a rectal anaesthetic even in elderly patients. In all the cases of rectal ether that I have done I have seen only one with some irritation of the bowel and slight haemorrhage. Whether this was due to pre-existing disease I do not know. Haemorrhoids are not a definite contraindication to the administration of rectal ether, but they are apt to be painful during the injection of the ether and oil. The preparation by enema and wash-out probably tends to congest the bowel, and therefore makes the haemorrhoids more painful.

To illustrate various points I have made I would like to record two or three cases in which rectal anaesthesia only was employed.

CASE I.

The patient was a woman aged 44

First Operation.—Lateral bone-flap and decompression. Time occupied three and a half hours. The systolic blood pressure, which before operation was 140, after transfusion fell to 115, but at the end of operation had risen to 135.

Second Operation (six days later).—Removal of tumour. Time three and a half hours. At the beginning of operation the systolic blood pressure was 140, during the operation it fell to 110, and at the end was 115. There was no transfusion during this operation. Five hours later the temperature, pulse, and respirations were normal

CASE II.

A woman, aged 53, was operated on for the removal of a meningioma. The time occupied by the operation was six and a half hours. The amount of ether used was 9 ounces. The systolic blood pressure was 140 at the beginning of operation, throughout which there was considerable haemorrhage, so that the patient had to be transfused twice; the blood pressure fell to 102, but at the end of the operation it had risen to 128. Respirations were steady at 28, the pulse was very irregular but never rose above 120. Five hours after operation the temperature was 98.4°, pulse 88, and respirations 22, the systolic blood pressure was 112.

CASE III.

The patient was a man aged 65. Operation consisted of a frontal bone-flap and removal of a suprasellar cyst. The time occupied by the operation was four hours. The patient seemed older than his years and his normal blood pressure was low. At the commencement of operation the systolic blood pressure was 112; it fell to 100, at which it remained at the end. The patient made an uneventful recovery, he was up in ten days, and out of the home in a fortnight.

Conclusion.

I have not attempted to prove anything in this short description, but I hope I have conveyed the impression that rectal ether-oil is a safe and very easily controlled anaesthetic, which through its very safety can be given to bad surgical risks, and will leave the minimum of bad effects in cases involving many hours of operating, and which, above all, gives the anaesthetist a quiet mind.

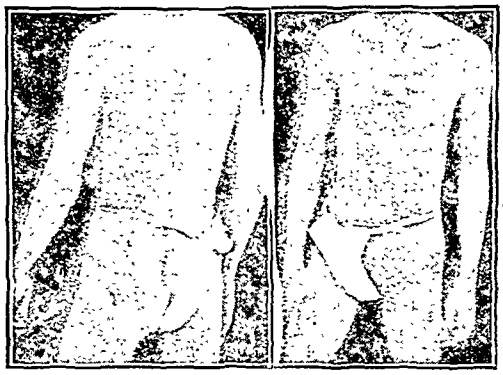
Memoranda:
MEDICAL, SURGICAL, OBSTETRICAL.

COEXISTENT HERPES ZOSTER AND VARICELLA.

RECENTLY attention has been drawn to an apparent connexion between herpes zoster and varicella, and several correspondents have recorded cases in which herpes in one member of a family had occurred almost at the same time as varicella in another member. Although cases of the two diseases coexisting have been described, the onset is as a rule not simultaneous, and therefore I feel that the following notes may be of interest.

A male Chinese, aged 36, was admitted to Tan Tock Seng Hospital on August 5th, complaining of a painful eruption on the left buttock and inguinal region of three days' duration.

On examination he was found to have herpes zoster affecting the above-mentioned sites, the posterior root ganglia of the last



thoracic and first lumbar nerves being implicated. In addition, there were varicella vesicles, in varying stages of development, on the trunk and face. The patient had tried the effect of some Chinese medicine on the buttock, and this has caused several bullae to appear.

The condition is shown in the accompanying illustrations. The vesicles on the trunk were touched with eosin in order to make them stand out more clearly.

Dr. C. C. B. Gilmour of the Middleton Hospital for Infectious Diseases in this city tells me that about six months ago he saw an instance of the coexistence of the two diseases in one patient. In his case the herpes affected the right side of the chest and axilla, while the varicella vesicles were much more numerous than in my patient.

I am indebted to Hon. Dr. A. L. Hoops, principal civil medical officer, Straits Settlements, for permission to record this case.

J. M. A. LOWSON, M.B., Ch.B.St. And.,
Medical Officer in Charge, Tan Tock Seng Hospital, Singapore.

HERNIA OF THE UTERUS IN AN INFANT.

IT is stated in the textbooks that any of the contents of the abdomen may at times be found in a hernial sac, but the following condition is, I believe, sufficiently unusual to be worth placing on record.

A female infant, aged 17 months, was brought to my consulting room at 10.30 p.m. with an irreducible right inguinal hernia about the size of a walnut. The hernia, which had never previously been larger than an almond, had been controlled by a rubber truss for about six months, but this had been left off a few days before owing to excoriation of the skin, and the swelling in the groin had been present since the morning. The child seemed well, had taken her food normally, and had her bowels opened, but had vomited several times during the evening. She did not greatly resent attempts at reduction, but as these failed she was admitted to the Finchley Memorial Hospital, and was operated on by Dr. W. S. Rooke.

After the escape of some fluid from the sac it was seen that the contents were the uterus and adnexa of both sides, the cervix uteri being firmly gripped by the internal abdominal ring. The right ovary was purple, but quickly regained its normal colour on relief of the pressure. The right broad ligament was continuous with the sac wall, and had to be dissected away from it before reduction was possible.

E. MARJORIE ROOKE, M.R.C.S., L.R.C.P.

London, N.12.

Reports of Societies.

HEAD INJURIES AND THEIR TREATMENT.

AT the meeting of the Medical Society of London on December 9th, with Mr. DONALD ARMOUR, president of the society, in the chair, the subject of discussion was "The treatment of head injuries."

Mr. WILFRED TROTTER, in introducing the subject, said that this was a very ancient branch of surgery. The operative opening of the skull was the oldest of known operations, and had been practised for many thousands of years. The subject, as the present surgical generation had received it, was not only founded on an immense body of experience and observation, but encrusted to a considerable extent with traditions which showed a remarkable power of survival. Surgery was thought of as essentially a progressive art. But in surgery ideas which once had a real or supposed validity survived long after the increase of knowledge had made them obsolete. An example might be cited from the junior branch of abdominal surgery. The doctrine that the peritoneum was excessively susceptible to infection was of vital importance in its time, but was superseded and disproved under the antiseptic method; nevertheless it lived on, and for many years ingenious and complicated methods of doing extraperitoneal operations were taught. In the surgery of head injuries one of the chief needs was a resolute overhauling of its inherited ideas. The difficulties of the subject were in any case considerable, and should not be increased by the retention of conceptions which had lost their validity or which involved needless obscurity and complication.

The subject of head injuries, Mr. Trotter continued, had developed in three stages—what might be called the early, middle, and modern periods. The first period extended roughly from the earliest times to the seventies of the last century. The middle period, covering the last quarter of the nineteenth century, was the period during which the subject attracted the attention of the experimental physiologist, and underwent very great advances in consequence. Subsequently there had been no very great extension of knowledge by experimental methods, but a distinct assimilation of the knowledge acquired experimentally with clinical experience. What had surgery inherited from these two earlier periods? The first period was dominated by one idea—that of fracture of the skull. That idea had been superseded by further knowledge and experience, yet it survived to-day, truly in diminished strength among the medical profession, but with unabated vitality in the lay mind, and especially in the legal mind. What, in the light of subsequent knowledge, was the significance of fracture in cases of head injury? The skull, although its most obvious characteristic was its rigidity, was, of course, also flexible and elastic to a considerable extent. When, therefore, violence was applied to it it yielded correspondingly, and in a local or general way according to the manner in which the force was applied. It was this distortion of the skull, as it might be called, which was responsible for intracranial injury. If the distortion was not sufficient to go beyond the limit of the skull's elasticity, the skull recovered its shape when the distorting force was withdrawn, and there was no fracture, although the brain might already have received serious damage. If, on the contrary, the limit of elasticity was exceeded, fracture occurred at the places where the distortion was most marked. When the external force was limited to a small area, the distortion and the fracture were local; when the force was more general, so were the distortion and the fissured fractures which resulted. The presence of a fracture made it probable, though not certain, that considerable distortion of the skull had occurred. It furnished, therefore, some rough measure of the violence to which the brain had been exposed. The absence of fracture was no evidence that the skull had not been considerably distorted and the brain seriously damaged. There was no longer justification in the investigation of head injury for regarding the question of fracture as being of the first importance. The amount of damage the brain had received must always be a matter for inquiry.

The phrase "fracture of the base of the skull" was not the only part of the inherited vocabulary which was open to serious question. Another inherited term was "concussion of the brain." Could there be a better illustration of the danger, when inventing a vocabulary in a progressive subject, of giving explanatory names instead of descriptive ones? The explanatory name might be very good for the time being, but sooner or later it was pretty sure to be superseded. It was always safer to keep to a name which was simply descriptive rather than one which conveyed a theory. The term "concussion" perpetuated the view that this remarkable clinical condition, this instantaneous traumatic paralysis which went by the name of "concussion," was produced by the shaking up of the brain inside the skull, resulting in some mysterious, though hypothetical, detriment. It could be stated categorically that that was untrue. It was known with reasonable certainty that the state of concussion was due to general anaemia of the brain which accompanied a general distortion of the skull. It was time that these inherited ideas were revised.

In the middle period of which he had spoken, when the subject of head injuries attracted the attention of experimental physiologists, a number of distinguished men investigated the problems which previously had chiefly depended upon clinical observation, and they did actually establish the principles of the cerebral circulation and the way in which the brain reacted to injury. Their work had not yet been fully appreciated or assimilated into practical surgery and medicine. That work furnished the essential *facts about the peculiarities* of the cerebral circulation, especially the importance of the venous side of it. Yet it must be admitted that the work had not resulted in as much progress on the clinical side as it seemed to promise. It was *probable* that the failure of the new knowledge on the physiological side to force itself into the clinical field was due to two things: first, to the fact that most of the exposition of the new material was unnecessarily obscure and complicated; secondly, to the domination during the whole of this middle period of the theory of a localized compressing lesion. If a local compressing focus developed in the skull, how did it affect the brain and cause the brain to give rise to abnormal symptoms? The student was apt to get the impression that the localized haemorrhage which lent itself to successful operative treatment was the *usual form* of head injury which he would be called upon to treat. Anybody who had practised considerably in head injuries was aware that that kind of case was very rare. Such cases did exist, and when they were encountered, thanks to the work of the experimental school, they were easily diagnosed, a clear understanding of their symptomatology was available, and they could be dealt with successfully. But they were very rare. For every single case of that kind *fifty cases* of a different type would be met with which *did not lend* themselves to these brilliant results. It was the duty of anybody working on this subject to *discourage* the prevailing *idea* that this condition was a common one.

In conclusion, Mr. Trotter mentioned a few leading characteristics of modern treatment. Modern treatment was no longer dominated by the idea that fracture of the skull was of *first importance*, or by the expectation of often meeting straightforward localized haemorrhages where a simple operation might be done. He thought the attitude of the modern surgeon towards head injuries included the conception that injuries were *produced by* distortion of the skull, and therefore, as anybody might guess, bruising was more common than lesions which produced haemorrhage. The probabilities were that the whole brain had been more or less damaged by bruising; it was possible that the vessels *had been divided and localized haemorrhage* produced, but the chances were that the surgeon's task would be to deal with an extensively bruised brain. The province of urgent operations was, therefore, exceedingly small. Most operations which seemed to be called for within twenty-four hours after an accident were either unnecessary or unsuccessful. The surgeon would realize that as he was faced with what was essentially a condition of extensive and even ultimately fatal bruising of the brain, he must deal with it by methods which were, on the whole, less dangerous than operation, and he would, at any rate primarily, make use of the remarkable series of remedies for increased intracranial tension which modern experience had placed *in his command*—such methods as posture, administration of salines, and lumbar puncture. Only in the last resort would he feel called upon in certain of such cases to operate.

Dr. GRAHAM HODGSON discussed the radiography of the skull *in relation to fractures*. In the *x*-ray examination of the skull many complicated shadows were thrown on to the plane of the film, and unless standard views were taken, in which the skull bore a definite angle and relation to the film, the task of interpretation was extremely difficult. If, as was *done* in the past, a patient was balanced in the nose-chin position or the post-forehead position, the radiogram might be totally different according to the length of the patient's nose or chin or the recession or bulging of his forehead. He thought some definite line should be taken, such as *one from the outer canthus of the eye to* the external auditory meatus, and this made to bear a certain fixed angle to the film. With regard to the number of radiograms which should be taken in a case, if the number were limited to, say, two antero-posterior and one lateral, many fractures of the skull would be missed. A number of standard views ought to be taken—he himself used as many as seven or eight. He showed on the lantern screen a number of radiographs of the skull, illustrating different positions and types of fracture.

Dr. C. P. SYMONDS said that the general picture which Mr. Trotter had drawn of cerebral contusion had enabled *those of them who attempted to follow* in his *footsteps* to recognize what was, after all, a very clean-cut clinical syndrome. The lawyer, as Mr. Trotter had said, looked always for objective evidence. What the lawyer liked to be able to show was an *x*-ray picture of a fracture of the skull. The lawyer had to be taught, not only that severe cerebral injury did occur without fracture of the skull, but that the symptoms of such cerebral injury were quite well defined. The speaker thought the symptoms of cerebral contusion to be quite easily recognizable by anyone who took the trouble to obtain a careful history. They had for a long time suffered under the ill-used label of "traumatic neurasthenia," and this, he thought, was a conception which had to be taken in hand and clarified. It was just as important to get rid of that designation, which usually concealed all that it was intended to cover, as of the notion that a fracture of the skull was the all-important thing in head injury. The difficulty of diagnosis rested largely upon the absence of physical signs. One had to rely upon a *critical analysis of the patient's* symptoms. The symptoms, as a rule, presented themselves under three headings: headache, giddiness, and minor mental disorder. Unfortunately, the symptoms falling into this third category were the most difficult to evaluate because of the complicating picture of the compensation neurosis which was so often superadded to the organic cerebral symptoms. Therefore the other two, the headache and the giddiness, were perhaps of the greater value. One point that struck him as being of importance about the headache in cerebral contusion—though he found it difficult to understand—was the latent interval that occurred so commonly between the accident and the development of the headache. This latent interval might extend to days, or even to weeks. It was, at any rate, a symptom not likely to be invented by the malingerer who sought to make capital out of his head injury. One feature of the headache was its relation to any posture, such as stooping, which was likely to cause intracranial pressure, and to coughing and straining. The association of a particular kind of headache with a particular kind of giddiness provided extremely good clinical evidence. The giddiness of which these patients complained was, as a rule, quite transient, a momentary sense of loss of equilibrium, which was as a rule even more definitely related to posture than was the headache. The giddiness was felt when the patient raised his head after lacing his boots, or turned his head quickly when crossing the street. These two symptoms together constituted a very characteristic picture of a bruised brain. The greater difficulty was to assess the mental symptoms of which the patient complained; but again a critical analysis would often enable a distinction to be made between the mental

symptoms in these patients and in patients suffering from a neurosis. The neurotic patient might complain of inability to concentrate and of excessive fatigability, but at the end of half an hour's examination it was usually the physician who showed more mental fatigue than the patient. The patient with a true cerebral contusion would show the symptoms that one expected in a mental state which depended upon organic cerebral disease—for example, slowing of thought, defective memory, and true mental fatigue, which could be assessed by objective examination, not simply by the statements of the patient. Referring to recent histological work which showed that, following minor injuries to the brain, very slowly developing changes might take place in the neuroglia, leading to vascular displacement and possibly to vascular congestion, Dr. Symonds considered that this might explain the progressive nature of some of these cases, with delayed onset of symptoms.

Dr. G. VILVANDRÉ advocated as a routine practice the taking of stereoscopic views of the skull. The antero-posterior view and the lateral view had a limited value, and no true knowledge of the skull was obtained without stereoscopy. He felt as a radiologist that fracture of the skull was very liable to distract attention from brain injury. He mentioned one or two cases of depressed fracture which were successfully treated without operation.

Sir JAMES DUNDAS-GRANT said that while he was working at the West End Hospital for Nervous Diseases he had the opportunity of seeing a number of cases of vertigo, with a history of injury to the head. In many of these an injury of the internal ear could be traced and in others this was not discoverable, but in quite a number in which, following Erichsen, he gave small doses of perchloride of mercury, there was a gratifying result. The effect of mercury might be more understandable on the supposition that there was a slow, more or less inflammatory, change in the neuroglia.

Dr. GEORGE RIDDOCH said that while it was true that loss of consciousness as the result of concussion was the usual precursor of contusion and contusion headaches, contusion headaches might follow a head injury in which no loss of consciousness had occurred. Dr. Symonds had raised the difficult problem of the mechanism of the production of headaches after a long waiting period. Sometimes such headaches, which might become severe, lost their paroxysmal character, and took on a more or less continuous intensity. He could not help thinking that external changes of a progressive kind in the meninges might also be present. With regard to treatment, he emphasized the importance of keeping patients in bed longer than the few days usually considered necessary. If more attention were paid to the rest period in the early stages fewer contusion headaches would result. How to deal with the more severe cases was a difficult question. In some the replacement of spinal fluid with air had proved successful in curing headaches of a moderately severe sort. Decompression operations in the region of the contusion, which were practised successfully in the war, had not been so successful, in his experience, in dealing with the more general injuries of civil life. He felt sure that much work had still to be done in this most important branch of medicine, which, therapeutically, and diagnostically also, was more within the province of the physician than of the surgeon.

Mr. WILFRED TROTTER, in replying on the discussion, said that one of the mysteries of cerebral pathology was that a patient might enjoy apparently normal health for perceptible periods after the injury, and then suffer from quite disabling headaches. He could not answer the question which Dr. Symonds had asked with regard to this latent period. He had been gratified to hear of Dr. Vilvandré's two cases of depressed fracture which had been treated without operation. He had himself given up the doctrine in which they were all instructed—that, except in a young infant, an operation should always be done in depressed fracture. The reason usually given why a symptomless depressed fracture should be operated on was the risk of epilepsy developing. But he believed that the risk of epilepsy developing from a simple depressed fracture was no greater than the risk of epilepsy following operation which included the incision of the dura mater.

ANAESTHESIA IN RECTAL SURGERY.

AT a meeting of the Section of Anaesthetics of the Royal Society of Medicine on December 6th, Dr. J. K. HASLER opened a discussion on anaesthesia in rectal surgery.

Dr. Hasler classified operations on the rectum into two groups: those in the abdomen and those in the perineum. The former were not markedly different from any other form of abdominal surgery, except that they were often the first of a two-stage operation, and the first anaesthetic had therefore to leave the patient fit for the second operation. Those in the perineum, apart from operations for dealing with cancer, required a short, deep anaesthesia, if a general anaesthetic was given, and for these chloroform was widely condemned. Local and regional anaesthetics were particularly valuable in rectal surgery, and might be classified into three groups: infiltration; extradural, caudal, and sacral; and intradural, spinal, low spinal, and spinocain. Abdominal operations in this type of case were usually done because of malignant disease in connexion with the rectum, and the chief requirements of the anaesthetic were sufficient relaxation of the parts, sufficient anaesthesia for proper visceral exploration, and sufficient duration of anaesthesia to prevent straining while the surgeon was suturing the abdomen. Infiltration round the rectum would permit such operations as removal of piles to be carried out without pain to the patient, but was usually insufficient for operations on fistulae and fissure. Caudal and sacral blocks were sometimes painful, and there was always a percentage of cases in which these methods failed to produce anaesthesia. The foramina were hard to find, and the time occupied in producing anaesthesia was lengthy. Intradural anaesthesia was valuable, especially in cases of cancer of the rectum; it was best accompanied with either a light general anaesthesia or some form of twilight sleep. If necessary, a second injection of scopolamine could be given during the operation. If the operation was likely to last more than an hour, the intradural injection should be combined with a caudal block anaesthesia and would allow of anaesthesia for one and a half hours. For small rectal operations, a low spinal injection of a light solution of stovaine between the fourth and fifth lumbar vertebrae, given very slowly to the patient in the sitting posture, would often allow of two hours' anaesthesia, and a low spinal injection did not affect the bladder. For fistulae, complete anaesthesia was a disadvantage, as it was difficult to recognize the sphincters when relaxation was complete.

Mr. E. T. C. MILLIGAN, speaking as a surgeon, said that relaxation of the sphincters was unimportant in operations for piles, but important in fistula operations where the extent of the fistula was not known. From the point of view of the patient it was important to abolish apprehension before, pain and apprehension during, and pain after operation. Caudal block was unreliable, varying from perfect anaesthesia to absence of anaesthesia. The operator should be the person to administer local anaesthetics. In some patients good results could be obtained from these, but in others they were useless. Gas and oxygen, with preliminary sedative medication, was best for apprehensive patients. Pain after operation was variable and bore no relation to the anaesthetic used.

Dr. A. L. FLEMMING asked what was the specific gravity of the solution used by the opener. He inquired why novocain was not used *vice* stovaine and why the light instead of the heavy solution was recommended. He also wished to know the advantages of a small amount of a strong solution instead of a larger amount of a weaker solution.

Dr. HOWARD JONES also questioned the use of stovaine. He described fully the physical properties of a 10 per cent. solution of novocain, and explained how such a solution got steadily more dilute as it mixed with more and more of the cerebro-spinal fluid. He also described experiments he had made with a new spinal anaesthetic—percain, which had no relation to novocain or cocaine, but was a derivative of quinoline. The drug, which was not yet being produced commercially, gave excellent anaesthesia up to four hours, even when used in very weak solutions such as 1/20 per cent. in normal saline. He intended publishing his results shortly.

whom he was in daily contact. This was, said Dr. Hart, a formidable task, impossible for the doctor alone, so that organized team work had to be employed and was an essential feature of the child guidance work which was slowly gaining ground in this country. The team of a child guidance clinic consisted essentially of a psychiatrist, a psychologist, and a social worker. The psychiatrist acted as head of the clinic and was responsible for the physical and general examination; the psychologist investigated the mental make-up, its stresses and strains; while the social worker, a highly trained person, became acquainted with the whole environment of the child at home, and carried out such "home treatment" as was necessary. While the idea of team work was often repugnant to the clinician, and while it often displaced the delicate relationship between doctor and patient, yet the work could only be carried out in this way, and the social worker's contribution was most valuable.

Dr. H. C. CAMERON commented first upon the absence of a paediatrician from the scheme described by Dr. Hart, and emphasized that the difficult child was often a problem in pure paediatrics without involving the psychiatric side. He then described the physical aspect of the difficult or nervous child, stressing the etiological significance of the metabolic instability underlying its disordered conduct. He showed how unrest, sleeplessness, and all the other symptoms of the difficult child could lead to a metabolic disturbance, and that this disturbance would accentuate metabolic disorders. It was recognized that nervous children were intolerant of fat, and all their energy was derived from a meagre store of carbohydrate. The nervous child quickly depleted its carbohydrate reserve and developed many symptoms of glycopenia. Irritability, apprehension, and confusional states could develop in this way, and such nervous manifestations had to be attacked through the inactive liver, and the metabolic disturbance put right before psychiatry could have much success. A high sugar diet with low fat and the frequent administration of glucose was of great importance. In conclusion, Dr. Cameron again stressed the importance of the pure paediatric outlook in these cases.

Dr. W. MOODIE gave a description of the methods adopted at a child guidance centre. It had been found that most of the problems of the difficult child had to be dealt with from four aspects—physical, temperamental, intellectual, and environmental. The first two were generally dealt with by the psychiatrist, the third by the psychologist, and the last by the social worker, who had to collect a great deal of information in a painstaking manner. The psychologist not only worked out the intelligence quotient, but also got information about the general make-up of the child. When all the reports were ready a "case conference" was held at which interested parties could be present. The psychiatrist decided upon the treatment, which was then carried out by all the workers as required. The disadvantages of the child guidance clinic were more theoretical than real, said Dr. Moodie, and he believed that the child guidance scheme represented a great advance in the study of child problems.

Dr. EMANUEL MILLER dealt with the difficult child who had no demonstrable disease of organs and no metabolic disorders which could be described as primary. His observations were based upon children of 5 to 16 years seen at the child guidance clinic of the Jewish Health Organization. There seemed to be many cases where psychological disturbances could be related to social and environmental errors, but there was a large group in which only an indirect relationship existed. Dr. Miller said that, with the type of child who was an angel in the home and a devil at school, he found it difficult to believe that such differences in behaviour were "poised upon a carbon atom." The task of the social worker was of great importance, but possibly spectacular success might mask the true nature of the problem, which was not directly due to environmental errors. It was important to be able to recognize the type of child in whose treatment social work would be of value.

Miss FILDES suggested ways in which a lay psychologist could be of help in studying the problems of the difficult child. A great deal of time and investigation was necessary if the environment and internal capacity of the difficult child were to be effectively adjusted, and this was especially true of children of differing intellectual capacities. The lay psychologist could investigate the intellectual as well as the emotional state of the child, and while the intelligence quotient was valuable it was not so important as close observation of how the child performed his tests. The lay psychologist was also of great help in dealing with special problems associated with school life.

The PRESIDENT said that the difficult child was easier to describe than to define, and he pointed out that the conduct of a child was viewed differently according to social rank, so that a "difficult" child of the upper classes might be regarded as "high-spirited" and "plucky" among poorer people. The difficult child was usually not mentally backward, but developed a sort of impish malignancy in conduct. He said that he believed firmly in the importance of environmental factors, though it was difficult to get parents nowadays to be more than mere spectators of official activity.

Dr. T. R. HILL described two groups of children with disorders of conduct arising from disease of the central nervous system. One of these diseases was chronic epidemic encephalitis, where a gross exaggeration of emotions occurred, with lack of control. The optic thalamus appeared to be the area of the brain responsible for such crude behaviour, and a drug, bulbocapnine, was of remarkable benefit to these cases. Similar behaviour disturbances also occurred in non-encephalitic dyspituitarism. He thought more study should be devoted to the thalamic region.

Dr. D. W. WINNICOTT thought that the child's unconscious had to be closely studied over a long period, and this could be done partly by watching the child at play.

Miss CHADWICK agreed that excellent diagnostic work was being done by child guidance clinics, but there was a great lack of information about what happened after diagnosis. She asked if the social worker talked to the parents, and to what extent the psychiatrist talked to the child.

Dr. N. H. M. BURKE described some results of work at a child guidance clinic. In a group of 30 cases home conditions were mostly responsible for the problems of the child, and in only two of these did attempts at readjustment completely fail. Completely successful results were obtained in six cases, and fairly successful in nineteen. Dr. Burke described some of the methods adopted, and emphasized the need for observation of cases in institutions.

Dr. J. R. REES said that, while his experience at the Tavistock Clinic was against the value of child analysis, he thought that all doctors dealing with child guidance work should have the analytic point of view. Talk of readjusting environmental conditions was merely "wild and woolly" unless the psychological implications of the situation were realized.

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Dr. HADFIELD said he had heard of percain, but had no personal knowledge of it, though he had read the literature. It was claimed that by flooding the peritoneum with a very weak solution of the drug, intraperitoneal operations could be carried out painlessly and without after-pain. He wished Dr. Hasler could explain how light solutions travelled down, as he said they did, in his low spinal cases. In his own experience they tended to travel up, as if the patient was in the Trendelenburg position. The average duration of anaesthesia was forty-five minutes, and this could not be lengthened by injecting more stovaine—for example, 1 c.cm. in place of 0.6 to 0.7 c.cm.

Dr. F. T. EVANS disagreed with the suggestion that deep anaesthesia was necessary in cases of piles, fissures, and fistulae. Usually gas and oxygen was sufficient, but a little ether could be added if necessary.

OTO-RHINO-LARYNGOLOGY.

AT a meeting of the Section of Laryngology of the Royal Society of Medicine on December 6th, the president, Dr. DAN MCKENZIE, in opening the proceedings, extended a cordial welcome to Dr. Harris Mosher of U.S.A., the Semon Lecturer.

Sir STCLAIR THOMSON showed the larynx of a man upon whom he had operated in 1909. A portion removed at that date, when the patient was 59, showed it to be squamous-celled carcinoma. He died last winter from heart failure, and there was no recurrence anywhere. The patient had written to say he had carried on his profession as schoolmaster ever since, and smoked a great deal. Sir StClair exhibited also four patients to illustrate some points in subglottic cancer of the larynx, and the condition a varying number of years after operation by the laryngo-fissure route. In the first of these there was no recurrence fourteen years after the operation. In the second there was good mobility of the cords, and there had been freedom from recurrence for nearly nine years. In the third there was absence of recurrence and a good voice six years later. In the fourth case the diseased area was removed *en masse*, and four years later there was a remarkably good voice and freedom from recurrence.

Dr. LOGAN TURNER (Edinburgh) spoke of a paper by the Registrar-General for Scotland on the supposed increase of cancer, in which it was shown that there was a definite increase of the mention of cancer on death certificates: but the suggestion was made that this might be due to a greater correctness of diagnosis, rather than to any material increase in the incidence. Another reason for the increased figure was the greater average longevity of people. The returns showed a real increase of cancer among women, and Dr. Logan Turner thought that in many cases classed as laryngeal the cancer of the larynx was secondary to that in the post-cricoid region.

Mr. ARCHER RYLAND showed a girl, aged 9, who presented a fibrous stricture following the swallowing of some lysol five years ago; though the child was now on ordinary diet and was eating well, she was puny for her age. The PRESIDENT exhibited a woman, aged 61, with enchondroma of the larynx. She had no laryngeal symptoms, and the growth was discovered accidentally; evidently it was growing from the cricoid cartilage.

Mr. L. GRAHAM BROWN showed a male patient, aged 34, who had had an osteoma of the frontal sinus. He had removed the bony growth, with part of the floor of the frontal sinus. The wound was treated by the open method, and in a fortnight it was completely closed. Mr. HERBERT TILLEY gave details of a good method of removal of such growths, which was told him by Sir Harold Stiles—namely, to slit alongside the septal cartilage as far back as possible.

Mr. V. E. NEGUS showed two cases. The first was one of haemorrhage following incision into a quinsy. A good deal of blood was lost. Transfusion was done, and a large pack was sewn in, the two pillars of the fauces being united over it. The pathologist reported that the tonsil removed showed evidence of fibrosis and acute inflammation. Mr. Negus's second communication was a report of spontaneous haemorrhage in a boy, aged 13½, whose tonsils had previously been removed. There was a history of fever, vomiting, rhinitis, and some epistaxis; also swelling of neck glands. A throat swab showed pneumococci only. After the development of quinsy the incision of it led to a large outpouring of blood. The external carotid artery was tied, but the patient a week later woke up suddenly from sleep, had a violent haemorrhage, and died. The necropsy showed a large sloughing inflammatory cavity lying under cover of the angle of the mandible, and the ascending pharyngeal artery appeared to go through the cavity and to have burst. In both lungs there was early pneumonia.

Mr. E. WATSON-WILLIAMS showed an epithelioma of the uvula from a patient aged 80. For a month the patient had had severe pain in the throat on swallowing, also at night. He had arterio-sclerosis and albuminuria. There was seen a papillary growth at the end of the uvula; it was ulcerated in the centre, was hard and tender, though there was no manifest change in mobility. No enlarged glands were to be seen. A month later the growth had encircled the base of the uvula like a collar, and the ulceration had left a conical raw tip. Under novocain he removed it with scissors, with the uvula and a small area of soft palate. Two years later the patient died from arterio-sclerosis, without any recurrence of growth. It appeared to be a growth of low malignancy.

Mr. NORMAN PATTERSON showed two patients with carcinoma of the palate, men aged respectively 54 and 71. The first of them had been diagnosed as lupus, but with that he did not agree. The second and older patient was treated with diathermy eleven years ago, followed by a complete block dissection, including removal of the sterno-mastoid and internal jugular vein on the right side, and though the pathological report was squamous-celled carcinoma the patient still remained well. Sir JAMES DUNDAS-GRANT showed a man, aged 35, with lymphadenoma [illegible]. There was a fleshy infiltration of [illegible]ds, and, somewhat less, of the epi- bacilli in the sputum; Wassermann reaction negative. The patient had had several treatments with *x* rays, and said he felt much better. Mr. D. A. CROW showed two useful devices which he had invented: a radium-needle introducer for use in the hypopharynx, and a chromium-plated head-mirror. Mr. J. C. CLAYTON showed a modification of the Davis gag.

THE DIFFICULT CHILD.

AT a meeting of the Section of Psychiatry of the Royal Society of Medicine, held on December 10th, with the president of the Section, Sir ROBERT ARMSTRONG-JONES, in the chair, Dr. BERNARD HART opened a discussion on the difficult child. Members of the Section for the Study of Disease in Children, and of the Child Guidance Council attended by invitation.

Dr. Bernard Hart pointed out that "the difficult child" was a vague term covering a great range of behaviour anomalies, including serious moral delinquencies and a heterogeneous collection of nervous phenomena. In attempting a definition he said that the difficult child was one who presented obstacles in achieving the aim of nurture and education—namely, adaptation to environment. The difficult child had always been a problem to educationist, parent, and doctor, but ideas on the causation of the condition had considerably changed. At first the behaviour of the difficult child was attributed to an extra dose of original sin, to be treated by discipline. Next came the idea of underlying disease or deficiency of the bodily organs, and following on this the view developed that the nervous or difficult child was suffering from a functional nervous disorder. The most modern view was that the fault lay not in any single system or organ, but that the difficult child showed a faulty reaction as a whole, so that psychological as well as physical and metabolic factors had to be taken into account. The modern view considered the difficult child essentially as a problem in behaviour, and hence it was necessary to know a great deal about the child and his environment, his physical and mental make-up, his life at home and school, and the people with

whom he was in daily contact. This was, said Dr. Hart, a formidable task, impossible for the doctor alone, so that organized team work had to be employed and was an essential feature of the child guidance work which was slowly gaining ground in this country. The team of a child guidance clinic consisted essentially of a psychiatrist, a psychologist, and a social worker. The psychiatrist acted as head of the clinic and was responsible for the physical and general examination; the psychologist investigated the mental make-up, its stresses and strains; while the social worker, a highly trained person, became acquainted with the whole environment of the child at home, and carried out such "home treatment" as was necessary. While the idea of team work was often repugnant to the clinician, and while it often displaced the delicate relationship between doctor and patient, yet the work could only be carried out in this way, and the social worker's contribution was most valuable.

Dr. H. C. CAMERON commented first upon the absence of a paediatrician from the scheme described by Dr. Hart, and emphasized that the difficult child was often a problem in pure paediatrics without involving the psychiatric side. He then described the physical aspect of the difficult or nervous child, stressing the etiological significance of the metabolic instability underlying its disordered conduct. He showed how unrest, sleeplessness, and all the other symptoms of the difficult child could lead to a metabolic disturbance, and that this disturbance would accentuate metabolic disorders. It was recognized that nervous children were intolerant of fat, and all their energy was derived from a meagre store of carbohydrate. The nervous child quickly depleted its carbohydrate reserve and developed many symptoms of glycopenia. Irritability, apprehension, and confusional states could develop in this way, and such nervous manifestations had to be attacked through the inactive liver, and the metabolic disturbance put right before psychiatry could have much success. A high sugar diet with low fat and the frequent administration of glucose was of great importance. In conclusion, Dr. Cameron again stressed the importance of the pure paediatric outlook in these cases.

Dr. W. MOODIE gave a description of the methods adopted at a child guidance centre. It had been found that most of the problems of the difficult child had to be dealt with from four aspects—physical, temperamental, intellectual, and environmental. The first two were generally dealt with by the psychiatrist, the third by the psychologist, and the last by the social worker, who had to collect a great deal of information in a painstaking manner. The psychologist not only worked out the intelligence quotient, but also got information about the general make-up of the child. When all the reports were ready a "case conference" was held at which interested parties could be present. The psychiatrist decided upon the treatment, which was then carried out by all the workers as required. The disadvantages of the child guidance clinic were more theoretical than real, said Dr. Moodie, and he believed that the child guidance scheme represented a great advance in the study of child problems.

Dr. EMANUEL MILLER dealt with the difficult child who had no demonstrable disease of organs and no metabolic disorders which could be described as primary. His observations were based upon children of 5 to 16 years seen at the child guidance clinic of the Jewish Health Organization. There seemed to be many cases where psychological disturbances could be related to social and environmental errors, but there was a large group in which only an indirect relationship existed. Dr. Miller said that, with the type of child who was an angel in the home and a devil at school, he found it difficult to believe that such differences in behaviour were "poised upon a carbon atom." The task of the social worker was of great importance, but possibly spectacular success might mask the true nature of the problem, which was not directly due to environmental errors. It was important to be able to recognize the type of child in whose treatment social work would be of value.

Miss FILDES suggested ways in which a lay psychologist could be of help in studying the problems of the difficult child. A great deal of time and investigation was necessary if the environment and internal capacity of the difficult child were to be effectively adjusted, and this was especially true of children of differing intellectual capacities. The lay psychologist could investigate the intellectual as well as the emotional state of the child, and while the intelligence quotient was valuable it was not so important as close observation of how the child performed his tests. The lay psychologist was also of great help in dealing with special problems associated with school life.

The PRESIDENT said that the difficult child was easier to describe than to define, and he pointed out that the conduct of a child was viewed differently according to social rank, so that a "difficult" child of the upper classes might be regarded as "high-spirited" and "plucky" among poorer people. The difficult child was usually not mentally backward, but developed a sort of impish malignancy in conduct. He said that he believed firmly in the importance of environmental factors, though it was difficult to get parents nowadays to be more than mere spectators of official activity.

Dr. T. R. HILL described two groups of children with disorders of conduct arising from disease of the central nervous system. One of these diseases was chronic epidemic encephalitis, where a gross exaggeration of emotions occurred, with lack of control. The optic thalamus appeared to be the area of the brain responsible for such crude behaviour, and a drug, bulbocapnine, was of remarkable benefit to these cases. Similar behaviour disturbances also occurred in non-encephalitic dyspituitarism. He thought more study should be devoted to the thalamic region.

Dr. D. W. WINNICOTT thought that the child's unconscious had to be closely studied over a long period, and this could be done partly by watching the child at play.

Miss CHADWICK agreed that excellent diagnostic work was being done by child guidance clinics, but there was a great lack of information about what happened after diagnosis. She asked if the social worker talked to the parents, and to what extent the psychiatrist talked to the child.

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The PRESIDENT described two cases of compression of the spinal cord by unusual agents, in the first by a mass of septic granulation tissue. Although the infected material was intradural, and *Staphylococcus aureus* was cultured

from it, the patient made a good recovery. She had previously had a severe septic infection of the arm. The second case was a large non-syphilitic aneurysm of the anterior spinal artery in a young woman, the subject of congenital aortic stenosis.

Mr. HUGH CAIRNS demonstrated three cases he had operated upon: a woman with a large frontal cyst with a superficial mural nodule that had been easily removed (radon was subsequently inserted); a woman from whom a tumour of the vermis had been removed by electro-surgery at a second session some months after a sub-occipital decompression had relieved her troubles; the third a boy whose vermis was split at operation, but no tumour found.

Mr. DOTT showed the lantern slides of an arterial angioma of the right hemisphere outlined by sodium iodide injected into the internal carotid artery under local anaesthesia. Good pictures were obtained and the internal carotid artery tied. Deep *x*-ray therapy was being continued in this case.

Mr. JEFFERSON showed ventriculograms of a case in which establishment of the fact that the third ventricle was dilated led to the exposure and removal of the tumour.

In the afternoon Sir FARQUHAR BUZZARD, with Dr. GIBSON and Dr. COLLIER, showed a series of cases in which the diagnosis and management of cerebral and spinal conditions were discussed. The first was a young man with severe occasional headache, with no choking of the optic discs. He complained of flashes of light in the left visual field, whilst the only positive finding was absence of the left abdominal reflexes. Sir Farquhar Buzzard was inclined to consider tumour the most probable explanation, and to place the growth in the right temporal area. The question of ventriculography was discussed in relation to this case. A case of paraplegia, occurring in a young woman with a history dating from an injury to the back, was next reviewed. The most probable diagnosis seemed to be meningitis serosa, and the cerebro-spinal fluid changes in this disease were then debated. Dr. Gibson showed a case in which Jacksonian seizures were occurring in the right side of the mouth and in the right hand. The fact that there was no papilloedema was regarded as no evidence that a large tumour might not be present, but the patient refused operation. The help to be obtained from *x* rays, and the possibility of treating the case by deep *x*-ray therapy, were gone into. The last was that of a man who had suffered a parietal wound and then developed epilepsy. Sir Percy Sargent had plated the bone defect, and the epilepsy ceased for some years. On its reappearance some little time ago Mr. Bevers had put in a second plate, with again an improvement. Sir Farquhar Buzzard showed a case of left-sided acoustic neuroma removed by Sir Percy Sargent some time ago, an unusually good result in a type of case that is often disappointing.

The society's dinner was held in Magdalen College on the evening of November 22nd, and the meeting was concluded on November 23rd by a demonstration in Sir Charles Sherrington's laboratories. A fascinating series of addresses and illustrations was given by Dr. J. F. FULTON, Dr. LIDDELL, Miss COOPER, Dr. DENNY-BROWN, and Dr. ECCLES, with comments from Sir CHARLES SHERRINGTON. The demonstrations were most stimulating, and should be fruitful in further clinical observation on cerebellar and spinal lesions in particular. Mr. CAIRNS and Dr. FULTON described the effects of various doses of radon on the normal spinal cord, with a view to arriving at a safe dose for human beings with tumours. Mr. DOTT described the uses of electro-surgery in neurological work, the action of the current, and his experiences with it. He commented on the fact that the line of section was so clean and undamaged that it might recommend itself to experimental work as well. The various machines available and possible improvements were discussed by the members.

THE president and council of the Harveian Society of London have awarded the biennial Buckston Browne prize (£100 and medal) to Dr. C. Bruce Perry for his essay on chronic streptococcal illnesses; proxime accessit, Dr. R. Cove-Smith.

Reviews.

THERAPEUTICS OF NEPHRITIS BASED ON ETIOLOGY.

REPEATED investigation of the exciting causes of the various forms of nephritis is still profitable and necessary, and V. KOLLERT, E. SUCHANEK (a throat and nose surgeon), and S. SINGER (a radiologist), have placed on record, in a monograph[1] of 158 pages, their observations at the Second Medical Clinic in Vienna between 1918 and 1928. In their work they follow broadly the well-known Volhard-Fahr classification of renal disease. Part I of the monograph deals with the role of microbic infection in glomerulonephritis; Part II with methods of investigating the infections by general clinical means and by methods specially appertaining to the otologist, laryngologist, and radiologist; Part III with the treatment of renal disease based on the observations made.

The authors give an interesting list of 80 cases of acute nephritis, which can be separated into three groups—55 in which the influence of a primary infection is without doubt, 21 in which an initial infection can be suspected but is not so certain, and 4 in which there is not any evidence to suggest the cause of the renal damage. Their list of acute infections brings out nothing new, including as it does acute tonsillitis, ear infections, bronchitis, pneumonia, erysipelas, scarlet fever, measles, influenza, and, lastly, the unknown element involved in severe chill due to exposure. The relation of these acute infections to the actual onset of nephritis is very carefully considered, and Kollert finally suggests the following rule, which sets forth a point of view that is not commonly held but is very interesting. *In his opinion the sequence of events is* frequently as follows. First, there occurs in the body a fairly severe microbic infection of short duration, often without any localizing signs whatever, and thereafter follows a pause of several days during which the patient feels well. Then suddenly the first renal symptoms appear, while at the same time, or even slightly earlier, careful examination brings out signs of a microbic infection, generally milder, and now with definite localizing signs. Further, the view is put forward that glomerulonephritis, even in its advanced stages, must not be regarded as the sequel of a microbic infection long since terminated, but as due to the continuing influence of an active microbic cause now strictly localized somewhere in the body, removal of which may materially assist cure. The methods by which the existence and site of the localized infection can be recognized are discussed, including general clinical observations, such as leucocyte counts and records of temperature, and special methods used by the laryngologist and radiologist.

There is nothing perhaps very new in the work described, but it is well done, and the book gives a record of evidence that can be quoted elsewhere.

SURGERY OF THE JAW-JOINTS.

IN his book on the temporo-maxillary joint,[2] Dr. DUFOURMENTEL, professor of maxillo-facial surgery at the Dental School of France, covers ground which is a kind of no-man's-land of surgery, for, as he remarks in his introduction, the surgeon is apt to leave it to the dentist, and the dentist considers that it belongs to the domain of surgery, though troubles of this joint are often made manifest by disarrangement of the teeth. The subject has attracted increased attention since the war, when nearly every sort and extent of injury that is not immediately fatal, to which the human frame can be subjected, came under treatment—often in great numbers.

The temporo-maxillary joint can be considered as one of a pair of twins, neither of which can be damaged without impairing the function of the other. In this respect it is

[1] *Grundlagen der ätiologischen Behandlung der Nierentzundungen.* Von Privatdozent Dr. Viktor Kollert. Mit Beiträgen von Dr. E. Suchanek und Dr. S. Singer. Leipzig und Wien: F. Deuticke. 1929. (6½ × 9½, pp. vi + 158; 3 figures. M.9.)

[2] *Chirurgie de l'Articulation Temporo-Maxillaire.* Par L. Dufourmentel. Préface du Professeur Pierre Sebileau. Paris: Masson et Cie. 1929. (6½ × 9½, pp. x + 228, 69 figures. 40 fr.)

unique in the human body, unless the intervertebral articulations are considered analogous. Professor PIERRE SEBILEAU, who has written the preface, points out the difficulties of approach to the actual joint, the importance of structures—such as the facial nerve—close to it, and the limited field of operation when the joint is reached. Moreover, it is only after considerable experience that the information afforded by radiograms can be properly appreciated, as the many reproductions of them in this book prove.

Dr. Dufourmentel opens his work with an account of arthritis of all kinds, acute and chronic, and goes on to consider trismus, deviations of the mandible brought about by joint troubles, prognathism or underhanging jaw, luxations, and the ankyloses which follow on arthritis or injury; and in relation to each of these conditions he discusses the operations necessary and practicable for their relief. The last chapter treats of fractures involving the joint and their results and treatment.

Each chapter has its own bibliography of references, in which few British names will be found. Except for recent work at Sidcup, the surgery of this region has perhaps not received in this country all the attention it deserves; and stomatology, to which Dr. Dufourmentel assigns his subject, has seemed to most of us to be too minute a division to be accepted as a specialty apart from dentistry. In so far then as the subject may have been neglected in Britain, interest in it should be stimulated by this book, and all who have difficult cases involving the temporo-maxillary joints would do well to consult it.

ENEMIES OF MEDICAL SCIENCE.

PROFESSOR H. W. HAGGARD of Yale University, in his volume entitled *Devils, Drugs, and Doctors*,[3] gives a popular account of the development of medicine and of the manner in which medical science gradually extricated itself from mediaeval superstition and quackery. The author has not attempted to write a formal history of medicine, but has been content to describe the way in which some of the chief advances occurred. The book is written in an easy and readable style, and is profusely illustrated; hence it should possess a considerable popular appeal. One of the most interesting points brought out is the intensity and variety of opposition encountered by every attempt to advance medicine. Most reforms have been vigorously opposed by a die-hard section of the profession. Such resistance is, however, almost inevitable in any profession, because it is never pleasant to admit that the teaching and practice of a lifetime have been erroneous, and there will always be a powerful group who refuse to make such an admission until the evidence has become overwhelming. Professor Haggard does not mention the opposition to Harvey's discoveries, but this is scarcely necessary, because it is never forgotten by anyone who disagrees with the medical profession, and the more blatant the fraud or delusion the more certain is it that the shade of Harvey will be invoked. The tragic story of Semmelweis is, however, told fully, and reference also is made to the opposition encountered by Lister.

Of greater interest than this internal resistance is the mass of more or less gratuitous external hostility that has hindered the advance of medicine. The history of the development of obstetrics illustrates this point. In the classical period midwifery was practised by physicians who used podalic version, and employed abortion when the life of the mother was in danger. Mediaeval prudery abolished the male midwife, while abortion for any reason was banned. As the author says: "No greater crimes were ever committed in the name of civilization, religious faith, and smug ignorance, than the sacrifice of the lives of countless mothers and children in the first fifteen centuries after Christ among civilized mankind." The opposition on religious grounds to Sir James Young Simpson's introduction of anaesthesia in obstetrics is a comparatively recent memory. Professor Haggard has, however, rescued many gems of pulpit rhetoric, and also gives an amusing account of the dexterity and skill with which Simpson fought his adversaries text by text through the Bible.

Popular prejudice has been a constant limiting factor in the development of preventive medicine. The opposition to vaccination is too well known to need description, but it is interesting to learn that the original campaign was supported by the argument "Small-pox is a visitation from God and originates in man, but cow-pox is produced by presumptuous, impious men. The former Heaven ordained, the latter is perhaps a daring and profane violation of our holy order." The history of venereal disease furnishes another example of how preventive medicine was handicapped for centuries by a public opinion that was uncertain whether these diseases ought not to be regarded as a valuable aid in preserving a standard of sexual morality. The conflicts mentioned above are well known, but the author stresses another and less familiar fact—namely, that "faith healing" has been a constant check to the development of scientific medicine. After tracing its appearance through the ages in such diverse forms as the "royal touch" for king's evil, the exorcism of devils, the cures by relics and at healing shrines, he gives an interesting account of the development of faith healing in the United States in the nineteenth century. Andrew Jackson of Poughkeepsie, Francis Schlatter, J. A. Dowie, and Phineas Quimby of Maine all had considerable local success as faith healers, and the last-mentioned had as patient and pupil Mrs. Mary Baker Eddy, who wrote *Science and Health* in 1875 and founded Christian Science. As the author says, "Faith healing, both past and present, has assumed innumerable forms, and there will probably be many more in the future as old methods are revived, renamed, and adjusted to the latest scientific fad." Moreover, there is considerable weight in his suggestion that the vogue of faith cures "conducted by religious sects or by medical charlatans is an expression of the unsympathetic attitude of the medical profession toward minor and imaginary ailments." His general conclusions are summarized in a paragraph that occurs in the last chapter:

> "It is not surprising that rational medicine has opponents. Man's inherent nature is such that he has an almost intuitive belief in primitive medicine, and this intuition can be reformed only by education and reason. Many people with a merely literary or religious education have never learned to think logically in matters of health. They do not understand the principles of science, and are therefore controlled by sentiment and by opinions which are held tenaciously because they are matters of faith. In the same way savages, when brought into contact with civilization, may adopt some of its conveniences and many of its vices, but they do not adopt its religion or its medicine. They wear conventional clothing, eat canned food, and ride in automobiles, but they remain savages at heart."

PRACTICAL DIETETICS.

To judge from current literature, the organized application of medical knowledge in the United States is far in advance of that in this country. Professor MARY S. ROSE's *Laboratory Handbook for Dietetics*,[4] the third edition of which has just appeared, is designed for the instruction in dietetics of large classes of students who are destined, presumably, to apply their knowledge, not merely to the preparation of food for the sick, but to the feeding of institutions, schools, and their own (or other people's) families. Nobody will deny the need for the application of scientific principles to the feeding of large groups of men and women, or of children. The better those responsible for the feeding of schools, or of troops—to name the first examples that come to the mind—understand the principles of dietetics, the more successfully and economically will the work be done. Given common sense and adaptability, everything is to be gained, nothing lost, by a sound education in dietetics. Many of us remember the gruesome ministrations of the company cook, usually an individual who gravitated to the position by a process of elimination, having been a proved failure in every other capacity. The recollection will certainly not prejudice us against the employment of persons properly trained for their duties. More doubts may perhaps be entertained as

[3] *Devils, Drugs, and Doctors.* By Howard W. Haggard, M.D. London: W. Heinemann (Medical Books) Ltd. 1929. (6 × 9¼, pp. xxii + 405; illustrated. 21s. net.)

[4] *A Laboratory Handbook for Dietetics.* By Mary Swartz Rose, Ph.D. Third edition. New York: The Macmillan Company; London: Macmillan and Co., Ltd. 1929. (Demy 8vo, pp. xiv + 269. 12s. 6d. net.)

to the advisability of treating family cooking in a too scientific manner. In spite of the prevalence of preserved foods, rational human beings may still be trusted to choose their own diet, from the abundant variety offered by modern civilized markets, without grave risk of error. Admittedly, juvenile feeding needs skilled supervision, but otherwise, except where great poverty seriously limits choice, little direction is needed.

Professor Rose's book consists chiefly of elaborate tables showing caloric value, composition, and price of a very large number of foodstuffs. The tables are arranged to give the maximum of convenience, and the minimum risk of error. In addition, there are height and weight tables, and the Du Bois chart for reading off surface area from data of height and weight. The tables are prefaced by a short introduction, explaining their use and the main dietetic principles which justify them. On the whole this part of the book is clear and concise. The remarks on the association between copper and iron (p. 26) are, however, quite unjustifiable, in the present state of our knowledge of this question. On the following page is a statement that might easily be interpreted in the sense that the body's requirements for sodium and potassium are quantitatively on a par with those for fluorine, manganese, and copper. The remark that "iodine is a very active element and too much may be as deleterious as too little, though not in the same way" (p. 27), seems, to say the least, to lack completeness.

SURGICAL ESSAYS.

SURGICAL reflections,[5] by Dr. ERWIN LIEK of Dantzig, is a collection of miscellaneous essays on surgical subjects reprinted for the most part from recent issues of German surgical journals. Generally speaking, the series is rather dull and pessimistic in tone, and the weaknesses and limitations of the art of surgery are stressed throughout. In somewhat sententious phrascology the author expounds his main theme: that firmer foundations must be laid in human physiology before the superstructure of operative surgery can be extended; and that in the meantime it would be well for each individual surgeon to examine critically his own fundamental knowledge and contribute a solid stone or two to the projected new temple of the art. Ten independent essays are presented, and by far the largest and most readable is the first, which is devoted to a study of the diagnostic and therapeutic pitfalls in the right iliac fossa. An exhaustive survey is made of the conditions which mimic acute appendicitis. This essay is supplemented by another, which deals similarly with chronic appendicular and pseudo-appendicular syndromes. Topics touched upon in succeeding essays are the surgical handling of Graves's disease, the question of gastroptosis, and the surgery of the sympathetic system. There is also a brilliant little essay, recalling in substance and style Moynihan's critical surveys, entitled "Disappointments after biliary operations." This essay is much more than a mere enumeration of the mishaps and failures with which everyone is familiar, but is a plea for a thorough overhaul of the physiology of the biliary tract. Anyone contemplating special research and able to read technical German with ease would do well to consult the appropriate essay in this series.

NOTES ON BOOKS.

THE second edition of *The Nutrition of Healthy and Sick Infants and Children*,[6] by Professor E. NOBEL, C. PIRQUET, and R. WAGNER, has already been reviewed in these columns on May 19th, 1928 (p. 851). The authorized translation by Dr. BENJAMIN M. GASUL has been published, and a much wider public will now be able to study the Pirquet system of nutrition and its clinical applications. The translator seems to have performed his task adequately, and he has wisely retained all the charts and diagrams of the original, despite the German words which appear in them. The schematic representation of Pirquet's system was a valuable feature of the original volume, and, with the help of the short glossary provided, readers ought to be able to follow the meaning of these diagrams. Even for those who do not accept the Pirquet system the book still contains much valuable material on nutritional disorders in early life and their management.

The Prevention of Disease in the Individual[7] is the third edition of Dr. KENELM WINSLOW'S *The Prevention of Disease*, which first appeared in 1916, the insertion of the last three words having rightly been made to distinguish it from works dealing with the prevention of disease in the population as a whole. It has had a large sale, and is now enlarged, and costs 5s. more than in 1916. This is a guide on personal hygiene for lay readers; it is clearly written, generally speaking on sensible lines, though all would not agree with the condemnation of tobacco, or the dictum, "If we are smokers, we must confess ourselves fools to our sons in order that they may improve upon their fathers."

In the course of twenty chapters on clinical opotherapy[8] Dr. SCHEFFLER deals in this connexion with old age and premature senility, cancer, high blood pressure and arteriosclerosis, tuberculosis, anaemia and leukaemia, rheumatism, obesity, cardiac, pulmonary, and gastro-intestinal disorders. The net is thus somewhat widely and enthusiastically spread, and there is a good deal that is speculative rather than established. Probably few would adopt, with any hope of success, the advice that in lymphoid leukaemia treatment with splenic and liver substance should always be tried. On the other hand, the author is on sure ground when describing the treatment of diabetes by insulin.

Dr. H. SOMERVILLE, in *Madness in Shakespearian Tragedy*,[9] presents a very well-balanced account of the more abnormal characters in Shakespeare's tragedies. He does not, however, give us much insight into these conditions when looked at from a Freudian or Jungian viewpoint. He deals in succession with Hamlet, Macbeth, Lady Macbeth, Othello, Lear, Ophelia, Goneril, Brutus, Timon, and Constance. This is an interesting and readable book, which most readers will be content to read without unduly criticizing.

In his monograph on the action of light and of antirachitic substances in living organisms,[10] Dr. CURT FALKENHEIM describes a series of experiments made to determine the mode of formation of vitamin D in the animal body. The author found that if the skin of irradiated rats was transplanted into rachitic rats the latter were healed. He showed also that the liver of irradiated rats possessed an antirachitic action. Observations on cows showed that the milk of irradiated cows had a more powerful antirachitic action than the milk of cows either stall-fed or pasture-fed. Irradiated milk, however, had twice as strong an antirachitic action as the milk of irradiated cows.

[5] *Irrwege der Chirurgie.* Kritische Streifzüge von Erwin Liek. München: J. F. Lehmann. 1929. (6 × 8½, pp. 225. M.6.)

[6] *The Nutrition of Healthy and Sick Infants and Children.* By E. Nobel, C. Pirquet, and R. Wagner. Second, revised edition. Authorized translation by Benjamin M. Gasul, B.S., M.D. Philadelphia: F. A. Davis Company. 1929. (6 × 9, pp. xiv + 243; 35 figures. 3.50 dollars net.)

[7] *The Prevention of Disease in the Individual.* By Kenelm Winslow, M.D. Third edition, thoroughly revised. Philadelphia and London: W. B. Saunders Company. 1929. (Post 8vo, pp. 431; 22 figures. 12s. 6d.)

[8] *L'Opothérapie clinique en vingt leçons.* Par Dr. Scheffler (de Saint Etienne). Paris: Le François. 1930. (Cr. 8vo, pp. 276. 15 fr.)

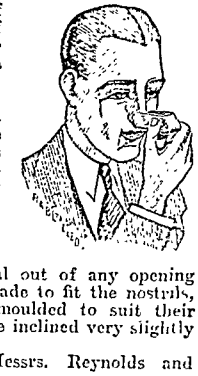
[9] *Madness in Shakespearian Tragedy.* By H. Somerville. With a preface by Wyndham Lewis. London: The Richards Press, Ltd. 1929. (Cr. 8vo, pp. 207. 6s.)

[10] *Lichtwirkung und Antirachitischer Schutzstoff im Lebenden Organismus.* Von Privatdozent Dr. Curt Falkenheim. Berlin: S. Karger. (Sup. 109. 8vo, pp. 131; 2 figures, 9 plates. M.9 80.)

PREPARATIONS AND APPLIANCES.

AN IMPROVED NASAL DOUCHE.

MR. ERNEST E. MADDOX, F.R.C.S.Ed. (consulting ophthalmic surgeon, Royal Victoria and West Hants Hospital, Bournemouth), writes: The douche illustrated, which I devised for ophthalmic practice and which is well adapted to clear the lower opening of the lacrymal duct, may perhaps be of service in general practice also, since it produces a negative instead of a positive pressure in the nasal cavities. With an ordinary nasal douche there is, as we know, a "head of water" above the nose which produces a positive pressure in its passages, and may thus force small septic mucous emboli into the Eustachian canal or into the opening of some nasal sinus. With the improved device, however, the lotion is at a lower level than the nose; since it is drawn up by aspiration the pressure is negative, and would tend rather to draw material out of any opening than to propel anything into it. It is made to fit the nostrils, with *soft metal*, which can be easily moulded to suit their requirement. The patient's head should be inclined very slightly forward, as in the figure.



The douche is manufactured by Messrs. Reynolds and Branson, Leeds.

British Medical Journal.

SATURDAY, DECEMBER 21ST, 1929.

TRAINING OF THE UROLOGIST.

THE education of the medical student of to-day differs as much from that of his forerunner of a century ago as the training of a modern able-bodied seaman does from that of a sailor in the time of Nelson. Methods of teaching surgery which were sufficient in the pre-Listerian epoch would fail utterly to make a modern surgeon, and it is more than likely that a training considered satisfactory to-day will be scrapped as insufficient for the needs of to-morrow. In every country it is probably best that the system of medical education should evolve, as evolve it must, in accordance with its own tradition and the special needs of the people it has to serve. Science and scholarship, indeed, are international, but each nation must cultivate them in its own way, not necessarily—measured by any absolute standard—a better way than that adopted by other nations, but one expressing most nearly its own genius and temperament. The practical application of this principle does not involve a self-imposed cultural isolation; in every field of learning the workers are bound to be influenced by movements and methods outside their own country, and gradually to adapt what they deem to be good in them to their own needs. In the field of medical education three factors have been mainly responsible for determining the evolution of method: the growth of knowledge; the tendency of related facts—whether about a region or a system or a technique—when they have reached a certain saturation, to crystallize out into new specialties; and the increasing number and efficiency of the lines of intercommunication throughout the civilized world.

While science grows with endless profusion, the capacity of the individual man to absorb and make use of its discoveries remains the same. No one, however great his mental capacity and his industry, can make himself master of the whole range of medical knowledge. He may hope to establish a general acquaintance with its basic principles; he may, if he wishes, further devote himself to the task of becoming expert in one of its branches. Whether we like it or not, this tendency to specialization is so far increasing that to-day it has become one of the most significant facts, not only about medical practice, but about medical education. The process, indeed, of so subdividing medicine and medical education has proceeded further in the United States of America than in England; urology, for example, which only now is beginning to establish itself as a specialty in this country, has in America long been recognized as a special branch of practice. Not only has it there its experts and its associations, its journals and its professorial chairs, but it has established its place as a definite subject for study in the curriculum of the medical student and in the post-graduate courses of the qualified practitioner. There can be no doubt that the result, whatever it may have been for the student or the graduate, has been highly favourable to the development of urology itself. The urological school of America has achieved a high reputation throughout the whole world; its leaders and their work are quoted in every textbook; and the facilities for research that have resulted from the gathering together of urological cases and urological data have been the world's as well as America's gain.

The tendency in America to focus interest on special subjects has created a demand for greater facilities for their study. In the *Journal of the American Medical Association* for October 26th (p. 1329), Dr. Joseph McCarthy, who during the last quarter of a century has been continuously engaged in teaching urology to undergraduate and graduate students, and may therefore be regarded as an authority, shows how this demand has been met in the field of his own specialty. The American post-graduate course in urology lasts six months, the membership of classes being limited to ten. The syllabus is comprehensive, and includes lectures and demonstrations, not only in urology, but in related subjects—for example, in proctology, embryology, biochemistry, ophthalmology, and radiography. The teaching is made as practical as possible by means of classes in operative surgery and by bedside demonstrations, followed by discussions on possible errors in diagnosis and treatment. At the end of the six months graduate students who have shown special merit are eligible for the post of intern in the urological department of the hospital at which they took their course. This post, which may be held for two years, provides the practitioner with unrivalled opportunities for acquiring expert knowledge and carrying out research in urological subjects. The scheme outlined by Dr. McCarthy provides also that a promising student who cannot afford the fees may pay them later out of the proceeds of his practice.

In America the immense sums expended on medical education have made possible the adoption of methods which may not be available to smaller and less wealthy nations. It is obvious, however, that if, as appears to be inevitable, medicine is to become more and more differentiated into specialties, better opportunities will have to be provided for their post-graduate study. Our own special hospitals would do well to consider carefully how this change may best be brought about. The English school of urology is young, but among its members it numbers urologists with a world-wide reputation. Closer collaboration between the hospitals devoted to urology and a better system for the post-graduate instruction of practitioners who wish to perfect themselves in its practice would enable this school to take its proper place among the more highly organized urological schools of Europe and America.

THE MENTAL TREATMENT BILL.

THE Mental Treatment Bill, the main provisions of which we discussed in some detail last week, has emerged safely, indeed in a somewhat improved form, from the committee stage in the House of Lords As regards the "voluntary boarder," or, as we (following Lord Dawson) should prefer to call him, the voluntary patient, discussion centred on the proposal to extend treatment on the voluntary basis to adolescents on the sole application of parent or guardian, unsupported by reference to the desires of the patient himself. If full use is to be made of the extended facilities for treatment to be provided under the first part of the bill, it is essential to safeguard the purely voluntary status of the patients to whom they apply, and the original proposal to classify a person of 18, even when unmarried, as a voluntary patient on the strength of an application by any other person was clearly open to grave exception. The requirement of a medical recommendation in connexion with such cases, inserted on the motion of Lord Danesfort, is therefore to be

welcomed, and we may hope that during the report stage the reconsideration of the clause promised by Lord Russell will have resulted in adoption of the proposal to reduce the maximum age of the young person to whom such procedure is applicable without the formal consent of the patient to 16 (as proposed by Lord Cranbrook), and in elimination of the existing exception in favour of married patients. On this matter the special Committee of the British Medical Association on Lunacy and Mental Disorder favours the more drastic reduction of the age limit to the elementary school-leaving age as established at any given date. It may also be found possible to include among the places to be made available for treatment of voluntary patients other establishments, notably training homes, which have proved their value in the treatment of this type of mental disorder but are not at present specified in the bill.

That the proposals for temporary treatment without certification, which are the chief new contribution of the bill to the progress of mental therapy, should meet with determined opposition was perhaps inevitable in view of the Government's courageous departure from the recommendations of the Royal Commission. Decision between the two views—not so much on the merits of the case (for the Royal Commission itself recognized the ultimate objective as the assimilation of the treatment of mental illness to that of physical illness, to a point at which the participation of the magistrate might safely be eliminated), but on the progress already made by public opinion towards a rational appreciation of the requirements of mental treatment—has been postponed until the report stage, in consequence of Lord Brentford's withdrawal of his proposal to substitute the authority of a magistrate for the second medical recommendation required under Clause 5. It is difficult to forecast the result of the promised conference between Lord Russell and Lord Brentford on this matter, for the only practicable compromise between the points of view expressed in the latter's amendment, on the one hand, and in Clause 5 of the bill on the other, would seem to be that which is embodied in the provisional treatment procedure recommended by the Royal Commission—and this has been definitely rejected as ineffective by the promotors of the bill, and, we may add, by responsible medical opinion. For the rest, the adoption of Lord Sandhurst's amendment providing for extensions of the original six months' temporary treatment of non-volitional patients in suitable cases is a definite improvement on the original proposal. The general discussion of this clause will also be of use as serving to define, for the instruction of the public, the exact class of patient to which these provisions are applicable. The definition falls short, perhaps, of what it might usefully have included, and we may hope for the express inclusion, at some later stage in the bill's progress, of persons who do not signify unwillingness for treatment, as well as of persons who are actually for the time being incapable of volition.

So far, then, the bill as amended by the Lords in committee is definitely an improvement on the bill as originally introduced, the full text of which will be found in our *Supplement* of December 7th. It is the more unfortunate that no steps have yet been taken to strengthen it in what, from the point of view of the medical profession, is its weakest part. Lord Sandhurst's proposed amendment of Clause 16 of the bill offered an equitable and, in our opinion, effective measure of protection to persons required to carry out duties under the Lunacy Acts. The absence of adequate protection imposes on the medical practitioner in particular a burden which was recognized by the Royal Commission. The recommendations of the Commission, in this case embodied in the bill by the Government without modification, were recognized by more than one speaker in the course of the debate on the second reading as inadequate, and Lord Sandhurst's amendment, while differing from the proposals put forward by the British Medical Association, and in some respects falling far short of those proposals, seemed to offer a sound and statesmanlike method of strengthening the existing provision. It is therefore with profound disappointment that we find that this amendment disappeared from the order paper of the House of Lords without so much as the tribute of a discussion in committee. It would seem that some other advocate and some other means must be sought for keeping before the legislature and the public the claim of the medical profession for adequate protection. It is surely not too much to ask that those who in fact bear the main burden of the national provision for mental treatment, and whose efforts must determine its success, should be satisfied that they enjoy all reasonable protection in the course of their anxious and difficult work.

THE THANK-OFFERING FUND.

THE Thank-offering Fund for the King's Recovery, for which an appeal was launched on April 29th, immediately after the publication of the King's message to his people, has now been closed, and in a letter to the press, on December 10th, Lord Donoughmore, treasurer of the Fund, announced that the amount collected had reached the total of £689,597. It may be recalled that on April 16th the Chancellor of the Exchequer stated that the Government would contribute out of public money towards the purchase of radium, on a basis of £1 for every £1 otherwise subscribed, up to a limit of £100,000, and a public appeal for a National Radium Fund of £150,000 (making £250,000 in all) was set on foot by the leaders of the medical profession in association with laymen prominently associated with the work of hospitals and cancer research. This appeal, conjointly with a special appeal by King Edward's Hospital Fund in aid of the hospitals in the metropolitan area, was intended to serve as a thank-offering for the King's recovery, and, with Lord Donoughmore as treasurer, the two branches of the appeal were administered in the closest co-operation. So swift and generous was the public response that by May 4th the National Radium Fund had been fully subscribed, and the hospital section, which for its nucleus had the gift of 100,000 guineas offered by "Audax," an anonymous donor, was then extended to include donations for hospitals outside the metropolitan area. After Thanksgiving Day on July 7th, when it was arranged that offerings from congregations might be ear-marked for individual hospitals, no further general effort was made to solicit contributions, but the flow of spontaneous gifts has continued throughout the whole time that the Thank-offering Fund has been open. Out of the £187,000 subscribed to the National Radium Fund a first instalment of £100,000 has been handed over to the National Radium Trustees, to enable them to claim the Government grant of the same amount; a further £50,000 is being held for the trustees, and the balance of £37,000 will be placed at the disposal of the King's Fund for the purchase of radium to be loaned to hospitals in London, subject to the same general conditions as those governing the allocation of the radium bought with the gift of Sir Otto Beit. The 100,000 guineas given by "Audax" will, in accordance with the donor's wishes, be invested and the income used to increase the annual distribution of the King's Fund, which benefits more than 140 hospitals in the London area.

The rest of the money available for the King's Fund will be allocated on the ordinary distribution list of 1929, to promote schemes of extension or improvement at hospitals, or to reduce deficits on schemes of extension or improvement which have recently been carried out. Lord Donoughmore, in his letter announcing the closing of the Fund, expresses the obligation of all concerned to the *Times*, which succeeded in raising the sum required for the National Radium Fund, and has throughout placed its resources at the disposal of the Thank-offering Fund as a whole.

POST-OPERATIVE TETANUS.

A FURTHER report to the Scottish Board of Health has now been made by Dr. T. J. Mackie, Irvine professor of bacteriology in the University of Edinburgh, with reference to post-operative tetanus, as a sequel to his investigation of an outbreak of this infection in an institution; details of his first report appeared in our columns on June 9th, 1928 (p. 987). Professor Mackie, in association with Dr. D. G. S. McLachlan, lecturer in bacteriology at Edinburgh University, and Miss E. J. M. Anderson, has now brought to light certain factors which appear to promote the development of the tetanus bacillus in the tissues. The experiments undertaken illustrate anew the extreme danger of using in certain abdominal and gynaecological operations surgical catgut which has not been sterilized by a method capable of eliminating sporing intestinal bacteria. In the previous report emphasis was laid on the value of iodine in such sterilization, and the relative uselessness of other agents, such as mercury biniodide and heat. The later experiments indicate that the presence of *B. welchii* in a tetanus infection renders this much more grave. Again, it has long been known that the injection into an animal of sterile soil, together with spores of the tetanus bacillus, considerably facilitates the development of a resulting infection. The three investigators have obtained evidence that this effect is not due to any chemical constituents in the soil. The mechanism is, they believe, that the leucocytes ingest the particles of soil, and are thus prevented from ingesting the spores. It was noticed, however, that the injection of other substances, such as Indian ink, which might similarly be expected to "block" the phagocytes, did not do so. Sterile catgut strands by themselves did not promote appreciably the growth of *B. tetani*, but when strands containing these spores in their substance were implanted in the tissues a nidus for germination became available and the development of vegetative forms was assisted; the organisms acquire in this way an anaerobic environment and mechanical protection from phagocytes. Furthermore, the adjuvant influence of *B. welchii* was found to be paralleled in the case of other organisms, including *B. oedematiens*, *Staphylococcus aureus*, and to some extent *B. coli*, but no such predisposing influence was traced in the case of *B. tertius*, *B. sporogenes*, the enterococcus, an organism of the *B. subtilis* group, and *V. septique*. Cold, however, was found to enhance the growth of tetanus in guinea-pigs to a very marked degree, and it is suggested that this may well prove to be a factor of considerable importance; carefully controlled experiments are, however, required before any definite statement can be made. There can be no doubt that a definite and valuable advance has been made; light has been thrown on the whole problem of tetanus infection in general, and of post-operative tetanus in particular. The value of the iodine sterilization of catgut was confirmed in the later experiments. Dr. J. Parlane Kinloch, Chief Medical Officer to the Scottish Department of Health, remarks in a prefatory note to this second report that Professor Mackie and his collaborators, by devising effective standard methods applicable to the sterilization of catgut, have made it practicable to schedule such catgut under the Therapeutic Substances Act, with the result that a small, but tragic, group of post-operative deaths will in future be prevented.

CONTEMPORARY RECOGNITION OF JENNER.

IN the *Canadian Journal of Medicine and Surgery* recently (October, 1929, p. 103) the Right Hon. William Renwick Riddell, Justice of Appeal, Ontario, contributes a short article on the influence of Edward Jenner with foreign potentates. The incident of Jenner's successful mediation with the Emperor Napoleon on behalf of one or more of the *détenus* after the breach of the Peace of Amiens is well known. The incident which Mr. Justice Riddell describes—namely, Jenner's intervention on behalf of the "Canadian pirate"—is less well known. Perhaps the line of demarcation between piracy and filibustering cannot be strictly drawn, but we should be inclined to acquit Jeremiah Powell, the subject of this sketch, of the more sordid crime, and to consider him as a political offender only. Jeremiah was the fourth son of Mr. Justice Powell of Montreal, a Boston loyalist, who, like so many others, had to migrate to Canada after the establishment of the independence of the United States. When only 20 years of age Jeremiah went to Haiti, then under the rule of the negro "Emperor" Dessalines, who had succeeded in driving out the French after the deposition of Toussaint l'Ouverture. His revolutionary ardour led him to join in an attempt to free Venezuela from Spanish rule, and this adventure ended for him in a sentence of ten years' imprisonment at Omoa—a virtual slavery. The King of Spain in 1803 had sent an expedition to his American possessions to introduce and spread the practice of vaccination, and had a high regard for Jenner, whose intercession for young Powell was quickly successful. Jenner wrote not only to the King, but also to Godoy, the powerful, if infamous "Prince of the Peace," and no doubt the message to the latter was the more effective. Mr. Justice Riddell remarks on the contrast between the estimation in which Jenner was held abroad and the treatment he received in England, but we think that too much stress may be laid on the contrast. It is, however, an undoubted fact, as Mr. Justice Riddell says, that the spread of successful vaccination in Britain was largely due to the efforts of non-medical persons such as the Earl of Egremont. The aristocracy in more countries than one have too often been prone to patronize quackery, but on this occasion, though some of their efforts were frustrated, they were on the right side. For instance, in 1800 the Duke of York, then Commander-in-Chief, asked Jenner to vaccinate the 85th Regiment; but unfortunately it was found that the whole regiment, including the men's wives and children, were infected with scabies, and until this should be cured Jenner wisely declined to vaccinate. The disappointing and contradictory results which were obtained at the London Small-pox Hospital are, in view of present-day knowledge, not surprising. That vaccination should have been attempted in such a place seems almost incredible. As we might expect, patients were often inoculated with small-pox as well as or instead of cow-pox, and in any case a susceptible person introduced into a ward full of small-pox cases was likely to catch that disease even before he was vaccinated. There were also small-minded persons who were jealous of Jenner, and only too ready to seize upon any means of attacking him and his procedures. But, after all, these people were not very important. The real leaders of the profession and the men of science quickly did him honour. He won the approbation and support of men like Sir Humphry Davy, Matthew Baillie, Lettsom, and Abernethy. Lettsom, indeed, eulogized Jenner and his discovery before the Medical Society of London, and also defended him

triumphantly when he was decried on other occasions. But the most striking evidence of the honour in which Jenner was ultimately held is to be found in the votes of the House of Commons of sums of £10,000 and £20,000 as rewards and compensation for the loss of practice which the prosecution of his discovery had entailed upon him. It is sometimes forgotten that Jenner was no mean naturalist, and that, perhaps owing to his connexion with John Hunter, he became a Fellow of the Royal Society at the age of 39. He published his first paper on vaccination[1] in 1798, and it was only four years later that the first parliamentary grant was made. The medical officers of the navy had presented him with a gold medal in 1801, and he received the gold medal of the Medical Society of London in 1803. Thus, in five years from the date of his first publication his reputation was secure and his merits publicly acknowledged. Even if we date his public work from his first crucial experiment in 1796, the time taken to overcome prejudice and conservatism in a people so slow to move as the English of 1800 does not seem too great.

LESTER CHINESE HOSPITAL, SHANGHAI.

OVER three million Chinese sick and injured were treated at the hospital on the Shantung Road, Shanghai—the oldest and busiest institution of its kind in China—which was administered by the London Missionary Society for eighty-six years. Some of the buildings had stood for over sixty years, and had thus become ill fitted to meet the requirements of modern scientific treatment. But under the will of the late Mr. H. Lester, a British resident in Shanghai, who died in May, 1926, an adequate sum was provided for their replacement by a well-equipped modern hospital on the same site, and to commemorate this bequest the hospital has been renamed the Lester Chinese Hospital. In the eighty-second annual report it is stated that demolition of the old buildings has been completed, and till 1931, when it is expected that the new hospital will be ready, the work is being carried on in temporary quarters. During the year under review over 60,000 patients came for treatment, between them making a total of 143,517 attendances. The number of casualties due to road traffic is increasing year by year, and in 1928, 1,371 Chinese were injured by motor cars and 288 by trams. Some indication of the failure of many persons to withstand the strain of modern life is afforded by the note that in Shanghai 1,092 persons attempted suicide, the majority being Chinese women who, taking quarrels too seriously, had swallowed opium. The report comments on the need for further restrictions on the opium traffic in Shanghai, and suggests that if the drug was made difficult to obtain those seeking it for purposes of suicide would have time to calm down and change their minds. Confidence in Western medicine and surgery is growing steadily, and there is less difficulty in persuading women to enter the hospital or to undergo surgical operations; some patients, indeed, were so anxious to be subjected to operation that it was necessary to assure them that their illness did not require, and would not yield to, such treatment. The hospital has a busy and well-managed *x*-ray department, and has recently installed various kinds of electrical apparatus for diagnosis and treatment. The devoted work of the British nursing staff in training Chinese pupil nurses is specially commended. Although the hospital concerns itself primarily with the treatment of the Chinese inhabitants in Shanghai and the surrounding district, foreign residents contribute a great deal towards its financial support. The medical superintendent, Dr. J. L. H. Paterson, is assisted by a staff of British and Chinese resident surgeons, and some of the clinics are conducted under the supervision of British practitioners working in Shanghai.

[1] *An Inquiry into the Causes and Effects of the Variolae Vaccinae.*

PATHOLOGY THROUGH THE AGES.

DR. ESMOND R. LONG, professor of pathology in the University of Chicago, and already known as a historian of his subject, has lately brought together extracts, many of them concerning veritable milestones in the progress of medical science, from the classical writings of thirty-six fathers in pathology, from Hippocrates to Virchow. This, in a convenient form,[1] provides the student who vaguely knows the names of the describer of a morbid condition—for example, of John Hunter, Richard Bright, or Thomas Addison—with the words in which the accounts of the Hunterian chancre, renal disease, and Addison's disease were originally set out. This chronological arrangement has advantages, and as Professor Long introduces a summary of each author's work before his words are reproduced, the progressive advance of knowledge is well brought out. There are eight British authorities in the list; besides those just mentioned, Thomas Hodgkin of Guy's, Joseph Hodgson of Birmingham and London, whose account of dilatation of the first part of the aortic arch earned for him the eponymic "maladie de Hodgson," Matthew Baillie, Dominic Corrigan, and, of course, William Harvey are drawn upon. Of the three American authorities the first to be quoted is W. E. Horner of Philadelphia, who in 1829 published the first textbook of pathology in America; the second is W. W. Gerhard, also of Philadelphia, who helped to complete the work of his master, P. C. A. Louis of Paris, in distinguishing typhoid from typhus; and the third is S. D. Gross, who, ten years after the appearance of Horner's treatise, wrote a much more elaborate *Elements of Pathological Anatomy*, which Virchow years later showed as one of the treasures of his library. Lancisi (on sudden cardio-vascular death) and Fracastoro (on syphilis or the morbus gallicus) from Italy are accompanied by three less known men: Marcus Aurelio Severino, William of Saliceto, and Antonio Benivieni. The frontispiece shows Morgagni, from whose *De Sedibus et Causis Morborum* a number of extracts are given in the text. France is represented by a galaxy of eight—Jean Fernel, Jean Astruc, Bichat, Corvisart, Laennec, Louis, Cruveilhier, and Andral.

[1] *Selected Readings in Pathology from Hippocrates to Virchow.* Edited by Esmond R. Long. London: Baillière, Tindall and Cox. 1929. (12s. net.)

MEDICAL SCIENCE IN HUNGARY.

AFTER the war Hungary found herself deprived by the treaty of Trianon of the more valuable two-thirds of her territory, and sank into a veritable slough of despond, her intellectual life following suit to a large extent. Since the accession of the present energetic Regent (Admiral Horthy) nine years ago, she has, however, resumed her place as an active intellectual force in Eastern Europe. The University of Budapest possesses a very well-equipped medical school, and the standard of the final medical examinations is said to be unusually high. This is attributed to the fact that there is a very large population of well-educated persons who, since the territorial limitations, have been compelled to descend to the ranks of the manual labourer on account of the restrictions upon immigration imposed by other countries, and the fact that there is naturally only a limited number of posts for the brain worker. The University authorities have therefore an unusually wide choice of material. There are in Budapest three medical and surgical teaching units, the director of No. 3 (medical) unit being Professor Koranyi, to whose pioneer work on the physiology and pathology of the kidney we owe the modern renal efficiency test. The city possesses, in addition, fourteen general hospitals, including three for infectious diseases, and a magnificent Institute of Hygiene, which was equipped by the Rockefeller Foundation. Post-graduate medical work is now being organized fairly

extensively on lines similar to those obtaining in Vienna. The majority of the post-graduate students appear, however, to be drawn from France, Germany, and the Eastern countries of Europe. Many of the teachers speak English, although the lectures are delivered mostly in German or French. Much interesting original research is being conducted on the subject of rheumatoid arthritis, since Budapest contains many thermal springs and mud-lakes of proven curative value, and, therefore, large numbers of these cases are always available for investigation. These therapeutic establishments are, moreover, run in close association with the Faculty of Medicine of the University, under the professor of balneology, who is also responsible for the provision of the pathological services in connexion with these centres of investigation and treatment. Hungarian medicine appears at the moment to be in a very interesting state of active development along original, and largely clinical, lines.

THE MEDICAL DIRECTORY, 1930.

OUR old and valued friend the *Medical Directory*[1] makes its reappearance, as usual, shortly before the date inscribed on the cover. The eighty-sixth issue, for the year 1930, will be welcomed by all who need a concise and accurate guide to the members of our profession. Its contents follow the customary arrangement, and at this time of day there is little to be said in general terms about a reference book so well established in the eyes of the medical public. Turning to points of detail, we note that the letterpress has now grown by a further thirty pages, to keep pace with an increase of 391 in the number of entries. The total number of names in the present volume is 54,537, representing an increase of more than 10,000 during the past ten years, as compared with gains of four or five thousand during each of the five previous decades. Since the last edition was published there have been substantial increases in the Provinces and among registered practitioners resident abroad, and London shows a small increase; but the numbers in Scotland and Ireland have diminished somewhat, while Wales and the Services show little change. A useful feature in this year's contents list (to be found at page xxxiv, after the title-page) is the separate entry for medical benevolent societies. Dr. R. Fortescue Fox has revised his descriptive account of the spas of Great Britain and Ireland and New Zealand, and in particular the introduction to his notes on health resorts on the British coasts. The publishers, Messrs. Churchill, are to be complimented on the high standard of accuracy maintained year after year by the *Medical Directory*.

WE regret to announce the death of Mr. John Scott Riddell, C.B.E., consulting surgeon to the Royal Infirmary, Aberdeen. An obituary notice will appear in our next issue.

COSHAM PENSIONS HOSPITAL INQUIRY.

ADMINISTRATION VINDICATED.

AT an inquest, last July, on a patient in the Queen Alexandra Hospital at Cosham, Hampshire—a Ministry of Pensions hospital for severe neurasthenic cases—the jury expressed the view that very grave maladministration existed there, and urged an immediate inquiry. The Portsmouth coroner, Sir Thomas Bramsdon, was stated in the press to have associated himself with this rider, but afterwards declared that he had confined himself to the view that an inquiry was desirable. The Minister of Pensions appointed accordingly a committee of inquiry under the chairmanship of Sir Frederick Willis, lately chairman of the Board of Control; the other members were Mr. Bromley, M.P., Major Cohen, M.P., Mr. Isaac Foot, M.P., Sir Adair Hope, and Dr. E. Mapother, superintendent of Maudsley Hospital. The report of the committee, issued as a White Paper on December 10th, states:

"After carefully considering the whole of the evidence taken by us in public and in private from the patients at the hospital, and also the evidence taken before the coroner, and after fully investigating the conditions at the hospital itself, we are satisfied that there is no ground to justify the finding contained in the rider of the coroner's jury that there is very grave maladministration at the Queen Alexandra Hospital. On the contrary, we find that the hospital is well and properly administered, and we have formed a high opinion of Dr. Paul's capacity as an administrator of this institution."

The Cosham Hospital, which was opened in 1926, consists of eleven wards, with accommodation for 265 patients. The wards are arranged so as to enable treatment of various types of cases to be undertaken in self contained units. The buildings are modern, and beautifully situated, and there are workshops and recreation grounds. The case which led to the inquiry was that of a patient named Gidden, whose death was found to be due to shock caused by perforation of an intestinal ulcer, and according to the jury the shock was brought about by unnecessary violence by a monitor. The monitor was charged with manslaughter, but at the assizes no evidence was offered by the Crown, and the judge, who had studied the depositions, remarked that there would have been no chance of obtaining a conviction.

The committee took publicly the evidence of the medical superintendent (Dr. D. H. Paul), the senior medical officer, the medical officer in charge of the ward where the patient was alleged to have sustained his injury, the matron, three chaplains, and others; fifteen patients were examined at a private session, when most of them spoke in high terms of the care and attention given to them. Public invitation was given to all who had complaints to make to bring them forward. The foreman of the jury was asked to give evidence, but declined, and the Portsmouth Trades Council, which had stated that numerous complaints had reached it as to treatment by orderlies and as to the food of the patients, was also invited, but resolved to take no action. In view of certain comments by the coroner on the omission of the doctor in charge of the ward to examine the patient, the committee states that, as advised by its medical member, Dr. Mapother, in the circumstances the doctor acted according to the general rule of institutions, and was in no way blameworthy. Dr. Mapother, with another member of the committee, at an early stage in the inquiry, visited the hospital, and reported himself satisfied that no charge of maladministration could be sustained. The dietary appeared to consist of the same materials in the case of the patients as in the case of the medical staff; the nursing staff was careful and experienced, and all the provisions and precautions customary in similar hospitals were at a high level at Cosham.

On certain matters of detail the committee makes suggestions. It is of opinion that a larger proportion of the nurses should be women, and, also, that in wards containing patients with more serious mental symptoms, at least one fully certificated male mental nurse should always be present. With regard to allegations of drunkenness among patients (who, it should be noted, are not under any form of certification), the committee recommends that it should be made clear to every patient on admission that in his own interests, as well as in those of his fellow-patients, he should abstain from alcohol, and that the licensed victuallers of the neighbourhood and the police should be asked to co-operate to this end. The committee finds that the medical superintendent fully inquires into complaints by whomsoever made and of whatever nature, and has not hesitated to take disciplinary action when necessary with regard to any member of the staff. Most of the representations made to the committee by the patients were directed to securing more extensive facilities for entertainment, but this is held to be a matter for the discretion of the medical superintendent. The good work done by many patients in the workshops and grounds is the subject of commendation, and it is suggested that some system of payment might be devised by way of encouragement. The committee acknowledges the assistance it has received from Sir Lisle Webb, director-general of the medical services of the Ministry of Pensions, and from the medical superintendent of the hospital and his staff.

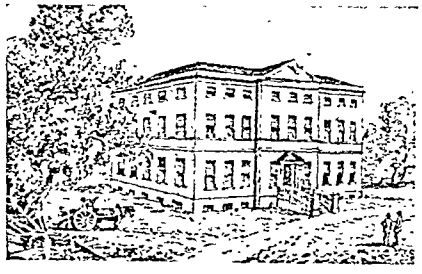
[1] London: J. and A. Churchill. 1930. 36s. net.

THE GENERAL HOSPITAL, BIRMINGHAM.

150TH ANNIVERSARY CELEBRATION.

WHEN the Birmingham General Hospital struggled into existence 150 years ago its founders displayed pre-eminently three characteristics, which must inevitably command success in the building up of a great medical institution. To a compassionate zeal for the relief of the suffering poor they added an interest in medical research, which was then a rarity, and they brought to the solution of their many difficulties an invincible optimism. In 1765 Dr. John Ash, F.R.S., F.R.C.P., who was practising in Birmingham—a town then of 30,000 inhabitants—drew together a little band of enthusiasts, who determined to found a hospital of 100 beds; £1,000 was subscribed at once, and an annual income of £200 was promised. Difficulties, however, quickly appeared, and the scheme seemed likely to fail; it was not until Michaelmas Day, 1779, that the hospital was eventually opened, and even then it only contained 40 beds, and an urgent appeal had to be made to the nobility and gentry to fulfil their financial promises, since money was urgently needed for administrative purposes. The original staff consisted of four honorary physicians, four honorary surgeons, and a house-apothecary. Associated with Dr. Ash as one of the physicians was Dr. William Withering who, three years before joining the hospital staff, had published his famous work in two volumes on *The Vegetables which Grow in England*, wherein was described the medicinal value of the foxglove, one of the pioneer discoveries in medicine. Five nurses were appointed at an annual salary of four guineas, to which, however, was added an additional guinea for tea and sugar, and a gratuity of one guinea "in case they behave to the approbation of the committee"; evidence is obtainable from the carefully kept minutes that some nurses were unlucky in this respect. There is an ominous note in the 1780 record that the wards were growing rather offensive; two years later the matron was directed to secure the assistance of the patients in cleansing the wards, and so relieving the nurses "whose duty in attending to

DR. JOHN ASH



1779

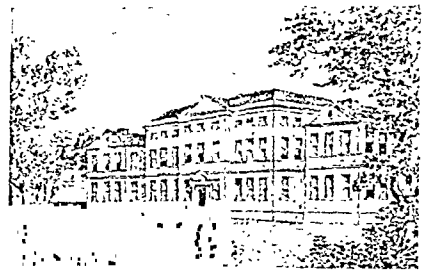
the patients seems to have been neglected in consequence of their doing such business." Even so late as 1816 it was represented to the committee "that it would tend much to the health and comfort of the patients to have the floors of the different wards thoroughly cleansed with soap and sand, and washed with hot water at least once a fortnight." In 1834 it was recommended that the floors of wards be dry rubbed instead of washed, "as there is reason to believe that the latter process is favourable to the extension of erysipelas, which at present prevails in the hospital." An interesting record of the nursing and other difficulties of this era is made public in the recent November issue of the *Nurses' League Journal* of the General Hospital. During the first hundred years of its existence many extensions and developments were required, and forty-five years ago Sir John Jaffray erected a hospital of 40 beds outside the city for the treatment of the more chronic cases which were then blocking the wards of the parent institution. Still further accommodation was soon required, however, and it was determined, in 1891, to found a new hospital; this, the nucleus of the present building, was completed in 1897. It cost just under £22,000, and was opened free from debt thanks to the generosity and the devoted labour of the late Sir John Holder, and of Mr. Barling, now Sir Gilbert Barling, who was then a member of the surgical staff and secretary to the medical committee.

DR. WILLIAM WITHERING.

Commemoration Proceedings.

On September 29th, 1929, the 150th birthday of the General Hospital was commemorated privately by the hospital staff. The more formal celebrations were postponed until December 10th, when the proceedings opened with a midday service in the Cathedral; this was attended by the Lord Mayor, Alderman M. L. Lancaster; the Vice-Chancellor of the University, Sir Charles G. Robertson; Professor J. C. Brash, dean of the faculty of medicine; and representatives of all departments of the hospital administration. The lesson was read by Dr. Stanley Barnes, senior physician to the hospital, and the sermon was preached by the Archdeacon of Ludlow, Dr. Edwin B. Bartleet, son of a former honorary surgeon to the hospital.

In the afternoon a distinguished assembly in the out-patient department was addressed by Professor K. F. Wenckebach, F.R.C.P., of Vienna, and Lord Moynihan, President of the Royal College of Surgeons. The chair was taken by Professor L. G. Parsons, chairman of the medical committee, who expressed the deep regret felt at the enforced absence, through ill health, of Sir Gilbert Barling, senior consulting surgeon, and Pro-Chancellor of the University of Birmingham. Sir Gilbert, who had been actively associated with the hospital for fifty years, had prepared an attractive retrospect of the history of the institution since its foundation; this had been published, and was presented to those taking part in the com-



1795.

memoration proceedings. In it was recalled the part played by various distinguished supporters of this institution, notably Dr. John Ash, Dr. William Withering, and Mr. George Freer, an eighteenth century surgeon renowned for his work on aneurysm, and the first who successfully tied the external iliac artery for the treatment of this condition in the thigh. Another celebrity mentioned was Mr. Joseph Hodgson, for twenty years surgeon to the General Hospital, and in 1864 President of the Royal College of Surgeons.

Professor Wenckebach, who delivered an oration entitled "The use of the foxglove by the bed-side," paid a high

tribute to the pioneer work of Dr. William Withering. The orator recalled the paper on digitalis treatment which he had read before the Section of Pharmacology at the Annual Meeting of the British Medical Association in London in 1910, and emphasized the importance of exact dosage, which, he remarked, must be a matter of careful observation in each individual case. He himself preferred to employ the titrated powdered leaves, and he admitted that on occasion he had had no hesitation in using this remedy in conditions which the textbooks held were unsuitable for it. Particular attention was devoted to various adjuvant drugs which might be associated with the administration of digitalis. Strychnine rendered most valuable help in abolishing extra-systoles, though its influence tended to wane after it had been administered for some time; better results still were obtained when it was combined with quinine. Apart from such regulation of the action of the heart, assistance in correcting disturbances of the vaso-motor system was also important. Clinical cases were cited to support the orator's contentions. Professor Wenckebach maintained that digitalis could be administered on systematic lines for many years, doses being given, for example, on alternate days; the influence of the drug reached its maximum about twenty-four hours after it had been taken.

Lord Moynihan described, with the aid of lantern slides, the growth of surgery through the ages, starting with evidence of the occurrence of myositis ossificans in *Pithecanthropus erectus*. Osteo-arthritis, he demonstrated, was endemic in Egypt in the earliest times, and tuberculous disease of the spine had afflicted Neolithic man. There was evidence of mastoid disease in Peru ten to fifteen thousand years before the Christian era. Other conditions illustrated were gall-bladder disease in ancient Egypt, atheroma of the aorta in Pharaoh Meneptah; evidence that Napoleon had suffered from undulant fever; and small-pox scarring in an Egyptian mummy. Lord Moynihan traced the growth of medical science from Egypt to Greece, and thence through the ages to the present time.

After the two orations tea was served in the board room of the hospital, opportunity being thus given for study of the portrait by Sir Joshua Reynolds of Dr. John Ash, an engraving of Dr. Withering, and the portraits of Mr. George Freer and Mr. Joseph Hodgson.

A dinner, held in the evening at the Grand Hotel, was attended by more than 450 guests, including a large number of those who had had close connexion with the hospital. The chairman was Alderman A. H. James, president of the hospital, and the menu card was adorned with illustrations of this institution from its foundation to the present time. The toast of the City of Birmingham was proposed by Lord Moynihan, who emphasized the great part played by provincial towns in the development of modern surgery. He paid a high tribute to Lawson Tait, whom he described as one of the immortals, and he recalled the great work done by Funneaux Jordan, Priestley Smith, Jordan Lloyd, Sampson Gamgee, Gilbert Barling, and Haslam. The Lord Mayor, who responded, commented on the outlook and municipal ideals of the city, and expressed the pride taken in the General Hospital. Sir John Rose Bradford, P.R.C.P., proposing the toast of "The Birmingham General Hospital," devoted himself largely to the valuable services rendered by laymen in *maintaining the voluntary* hospital system in this country. This had always commanded the services of men who had understood the point of view of the medical profession, and had been able to appreciate the great services that *medicine could* render to the community. He congratulated the hospital on the enthusiastic support it so obviously possessed. Alderman James, who replied, said that if Birmingham was to live up to its motto "Forward" it would be necessary in the very near future to obtain additional accommodation. He alluded to the proposed hospital centre at Edgbaston, and said that the city realized the importance of the undertaking to provide a new hospital, which should be at once a great teaching and research centre, and contain the most modern appliances for treatment. He believed that the appeal for funds would meet with great success. Councillor Miss Bartleet, chairman of the Board of Management, who also acknowledged the toast, gave a racy description of the hospital's life and of its efforts to preserve the highest pitch of efficiency. Dr. Stanley Barnes, senior physician to the hospital—to whose courtesy we are indebted for permission to use the illustrations in this article—proposed the health of the guests, and Professor Wenckebach replied, giving an account of the prominent part taken by Great Britain in the relief of distress in Vienna after the war.

Nova et Vetera.

CHARLES HARRISON BLACKLEY OF MANCHESTER, AND HAY FEVER.*

BY

E. BOSDIN LEECH, M.D., F.R.C.P.,

HONORARY PHYSICIAN, MANCHESTER ROYAL INFIRMARY.

CHARLES HARRISON BLACKLEY of Manchester has some claim to fame as a pioneer in hay fever research, and for two added reasons attracts attention—first, because he did his work as a general practitioner; secondly, because, like Sydenham with gout, Mark with acromegaly, Thomsen with myotonia, he recorded the symptoms of his own disease, and because he went further and used his own self for experiments made to discover the cause of the trouble and the best methods for its relief. He was willing and able to turn his own physical infirmities to the advantage of medical science.

(*Photograph by A. Reston, Stretford.*)

There must be few diseases where it is so important that the research should be carried on by a sufferer. Blackley himself points out that it is a good disease for experiment, for it is not fatal and it only lasts for part of the year. On the other hand, the experimenter lost a day's work whenever he got a positive result.

Blackley was born at Bolton on April 5th, 1820; he commenced life as a printer and engraver, working at this employment till he was 35 years old. He was from his early days an enthusiastic botanist, microscopist, and chemist. About 1855 he turned to medicine; he qualified in 1858 and practised as a homœopathist in Stretford Road, Manchester. He took a Brussels M.D. in 1874, and finally retired from practice in 1894, going to live at Southport, where he died in 1900. He had, as shown by his picture, a typical Lancashire countenance, with the curtailed beard but clean upper lip then so popular in this county.

From 1859 Blackley conducted one long series of experiments of all sorts, and he has collected the results of his investigations into a book, published in 1873, *Experimental Researches on the Causes and Nature of Catarrhus Aestivus (Hay Fever or Hay Asthma)*. A second edition, and one to which he added his ideas of treatment, was published in 1880 under the title *Hay Fever, its Causes, Treatment, and Effective Prevention*.

His claim to fame lies in the fact that, whilst others had described the disease and had theorized on its cause, he *experimented and proved it* to be due to pollen. Heberden mentions the symptoms, but does not define the disease or suggest a cause. Cullen talks of asthmatic attacks common in summer. The first satisfactory description of the disease is by Bostock, himself a sufferer, in 1819 and 1828. He gives it the name of "catarrhus aestivus," but considers it to be due to heat rather than to grass effluvia. The

* Read in the History of Medicine Section at the Annual Meeting of the British Medical Association, Manchester, 1929.

names "hay fever" and "hay asthma" seem to be due to the laity rather than to the doctors. Gordon in 1829 thought the trouble due to the aroma emitted by the flowers of grass. *Elliotson* in 1831 expressed the view that the disease was not caused by hay but by flowering grass, and probably by the pollen. Several suggestions then had been brought forward by different folk as to the cause of the attacks, the principal of these being that it was due to *ozone, high temperature* combined with dryness, high temperature combined with moisture, dust, and lastly pollen.

W. P. Kirkman appears to have been almost alone in using experiment; for, being a habitual sufferer, and seeing a single plant of *Anthoxanthum odoratum* (sweet-scented vernal grass) in blossom in his hot-house in winter, he plucked it, rubbed the pollen with his hand, sniffed it to his nose, and brought on a typical attack.

Blackley demands attention because of the systematic way in which he set himself to examine the supposed causes, and of the way in which, after proving that pollen alone is the cause of typical hay fever and hay asthma, he worked at numerous other problems connected with the disease. As he himself states, he started out to test by actual experiment the validity of the opinions held on the causes of the disease as well as to collect additional information upon points which were uncertain or doubtful.

The chief problems, then, that he set himself to solve were whether other substances than pollen cause hay fever, and if the property does belong to pollen; whether it belongs to the pollen of grasses only or to that of other plants, and, if so, to which. He also asked himself whether it was due to fresh pollen alone or also to dry pollen, and, further, whether its activity was due to a chemical or a physical agent.

A few only of the investigations he carried out throughout his working medical life whilst busy in a general practice in a big town can be mentioned. He experimented with the air in the town, comparing it with that on the edge of the town and that of the hayfields in the country a few miles outside the town. He tried all sorts of grasses and flowers, choosing certain fields in turn according to the crops growing in them. He says that he experimented with thirty-five different natural orders. He regulated his holidays to sea or country that he might try new areas for his investigations. Then, too, his investigations were carried on both with fresh pollen and with the dry pollen of grasses, with which he impregnated the air of rooms in his house for experimental purposes. Youthful visitors to his house considered him a harmless crank when they were taken from one room to another where different grasses were wafted about. He also experimented with air filtered through layers of muslin impregnated with drugs, living in a room thus protected right in the middle of the country where the air was loaded with pollen. In this he devised apparatus to ensure sufficient passage of purified air through the building. He carried out a similar experiment by breathing air through a box in which a filter sieve was present. He could carry this about with him, and, counting the number of respirations, could judge the amount of air breathed. He devised little silver plugs of the shape of shoes, the soles consisting of fine gauze, which he wore in the nostrils.

To judge the amount of pollen present while he was experimenting thus he devised an apparatus of great ingenuity, by which a sticky surface of definite size was exposed for a fixed time to pollen-carrying winds or atmosphere, and on which he later laboriously counted the pollen granules which were found to adhere. At the same time he often remained in the neighbourhood of his apparatus and kept an accurate diary of the severity of his attacks, comparing the number of pollen granules collected with the amount of catarrh which resulted. In one year these experiments were carried on in the country daily for the whole pollen season, from early April till August. The next year he experimented with the pollen in the town. He even devised a kite some six feet by three in size, which carried his adhesive surface and also a clockwork apparatus to limit the time of exposure, and this kite he flew at various heights so that he might learn the amount of pollen in the upper air.

In testing the effect of pollen on the eye he so arranged his pollen-counting apparatus that the adhesive surface formed part of his glasses; he was thus able to count the granules which would have fallen on the conjunctiva if it had not been protected. To work out the active principle of the pollen he experimented with tinctures and infusions, applying these to the mucous membranes. He also tested the susceptibility of the tongue, lips, and fauces to the pollen. Finally he experimented on the skin, scarifying the surface, rubbing in preparations of the various pollens, and watching the local reactions, much as is done nowadays by specialists in asthma.

In giving his results it is obviously of no value to go step by step through the experiments by which he arrived at them. One wants only to show his ingenuity and his pioneer work.

By his series of experiments with his supposed causal agents he excluded them one by one—dust, ozone, heat, and many others. He took great care to exclude contaminations of one agent with another. Pollen alone, he found, would cause the attack; some other agents might irritate susceptible people, none would cause the typical attack. Then, again, flowering grass, and not hay, was the usual cause. The pollens of all grasses and that of certain other plants were the chief offenders. As he says, plants belonging to the *Graminaceae* have this property to a more marked degree than others; but there are plants belonging to other orders which have it in an equal or almost equal degree.

He comes to the conclusion that the toxicity of the different sorts does not depend on the size or visible characteristics of the granules; and that watery and alcoholic extracts of pollens applied to the nose are not irritant.

Weather influences hay fever insomuch that moisture prevents the spread of pollen, whilst heat, dryness, and wind all help to disseminate it. Dry pollen spreads quickly, but even where there is much dry grass in a room there is little chance of hay fever, because there is no wind to waft it about; it sinks, and but few pollen granules are caught on the sticky surface. On the other hand, as much was found in the higher air as near the ground level. This he proved by his kite experiment.

He showed on himself that the amount of pollen necessary to bring on an attack is very small, but is quite definite. There is, in fact, a threshold of immunity—where the granules caught on his apparatus were below a definite number he was free; so soon as they rose beyond the limit he had an attack, and beyond this toxic point the symptoms were closely related to the number of granules. He also showed that the nose was the most susceptible part; that the eyes were irritable to pollen, but did not start severe attacks; and that inhalation (with nose and eyes protected) caused an asthmatic attack rather than hay fever. His skin reactions were weak or negative, but once when returning from the country he carried flowering rye in his hat and found that he got a severe head rash.

While Blackley devised no apparatus such as could generally be used by sufferers, he did prove that he himself, suitably protected, whether by nose-shoes or by muslin, could live in the midst of hay fields without suffering. He surmises that an immunity can be acquired in early life, since the fewest cases of hay fever occur in a class most likely to come in contact with the cause of the disease—namely, farmers.

It is always difficult to gauge the exact value of a man's work where others are interested in the subject at the same time, but it seems that we can claim that Blackley was the first who brought extensive experimental evidence to show that pollen is the one cause of hay fever and hay asthma, and that though people who are susceptible will be irritated in other circumstances, such as dust and heat, still pollen is the one cause.

In his lifetime, Blackley, like many pioneers, was looked upon as somewhat of a faddist—a man who played with grasses—but he was one of whom England and Manchester may be proud. It is from America that inquiries as to his work and his life history chiefly emanate; he has certainly not been sufficiently recognized in England.

BRITISH COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS.

FIRST GENERAL MEETING.

THE first general meeting of the Fellows and Members of the British College of Obstetricians and Gynaecologists was held in London on December 3rd, with the President, Professor W. BLAIR BELL, in the chair.

In proposing the adoption of the report of council and the balance sheet, the President reminded Fellows and Members that as the College had been incorporated as lately as September 13th the report was very brief, and the balance sheet represented for the most part the financial arrangements prior to incorporation, though it also showed the receipts and outgoings for the first two months after incorporation. While registration receipts for fellowship and membership and the annual subscriptions would be sufficient, perhaps, to keep the College going as it was at present conducted, they would be inadequate to liquidate the expenses when a College building was established in London. Until, however, they had a home and all the appurtenances fitting to their status they would find it hard to create those traditions that surrounded all lofty endeavours and that pride in the College which made for loyalty and prestige. The treasurer hoped, therefore, to establish three special funds—namely, an endowment fund, a house and furnishing fund, and a fund to wipe out the liabilities in connexion with the incorporation and pre-incorporation expenses. The endowment fund, though unlimited, should not be less than £100,000; for the house and furnishing fund they should aim at £30,000; and for the preliminary expenses £1,600. Lord Riddell had generously given £1,000 for general purposes, and other benefactions had been promised. It was hoped that not only Fellows and Members, but others, including the lay public, would assist with contributions, for a College that was working for the good of the community had some claim on the generosity of those interested in maternal welfare.

It seemed, continued the President, that there were still doubts about the structure and functions of the College, and it might be well, therefore, to sketch briefly its constitution and the part it was now playing, and might, it was hoped, play in the future. Incorporation, without the use of the suffix "Limited," was the present legal status of the College, and this gave it certain financial advantages in regard to trusts and other matters. Nevertheless, the present state should be regarded as a stage only in the progress towards the dignity of a Royal Charter; but for the attainment of this the College must prove its worth, not only to obstetrics and gynaecology and to the medical profession, but also to the State. In the oath (*British Medical Journal*, October 5th, p. 632) to which all Members and Fellows subscribed, they expressed their ideals of loyalty, progress, and service.

The council hoped to elect as foundation Fellows of the College practically all the senior obstetricians and gynaecologists in England, Scotland, Wales, Ireland, and the British Dominions; and as foundation Members, who would subsequently become eligible for the Fellowship, the less senior obstetricians and gynaecologists. Already a majority of those approached in Great Britain and Ireland had joined; so far, in regard to their colleagues in the British Dominions, only a preliminary list of names had been drafted. It was not intended to elect as Fellow or Member anyone who was not engaged exclusively in obstetrics and gynaecology, but there would be a certain latitude—for example, in the case of those in the public health service.

Those responsible for founding the College, said Professor Blair Bell, had turned no envious eye on more venerable institutions; they had invited no antagonism from them. Rather they hoped that the College might be permitted, without dispute, to help in a corporate manner those with whom its Fellows and Members had formerly worked as individuals. Though they had made their way through the difficult and devious paths of negotiation on which misunderstandings found fertile soil, they would, he believed, when all the documents had been studied, be held to have conducted their part honourably. Soon the council hoped to discuss with the Royal College of Physicians of London, and the Royal College of Surgeons of England, the details of the granting of a diploma in obstetrics and gynaecology, for the drafting of the regulations for which a committee of the College had been sitting. While the College was still struggling with the difficulties of financial and administrative organization, affairs of State had claimed its attention, and it hoped to place its services at the disposal of the Government, which intended to take action in regard to maternity problems, and had asked the College for assistance and advice.

Finally, the President referred to the necessity under which the College had found itself to devise a machinery which would enable the first steps in its formation to accord with its constitution and with legal procedures generally. The council of signatories which had been developed from the original preliminary committee had no alternative but to elect the first full council, which had then drafted the list of names of those to be invited to become foundation Fellows and Members. While such methods had undoubtedly been proper and necessary, it might be held that the College would not carry full weight until the council had been elected by the vote of the Fellows and Members, and the officers by the same method or by ballot of the council. It was desirable, therefore, to get rid as soon as possible of the disadvantages associated with the existence of a self-elected council. He had suggested—and the members of the council had unanimously agreed—that in the next few months every member of the council should voluntarily resign and offer himself for election, along with others duly nominated. From what he had said it would be clear that if the College was to justify its existence it would need the very active support, based on real interest in its endeavours, of every obstetrician and gynaecologist.

Canada.

[FROM OUR CORRESPONDENT IN MONTREAL.]

The Control of Bovine Tuberculosis.

MUCH progress is being made in dealing with bovine tuberculosis in Canada, and as the scope of the work increases it is found that the demands from the livestock owners become more persistent. One of two plans is followed. Under the "accredited herd" plan the owner receives compensation for cattle showing positive reactions. This plan is limited to herds containing at least ten registered pure-bred cattle of one breed, six of which are over six months of age and one of them a herd sire not less than a year old; the registered cattle must comprise at least one-third of the entire herd. The second plan concerns those owners who cannot qualify for the other one; no remuneration is received for reactors. Since the inception of tuberculosis control policies about 130,000 tuberculous cattle have been slaughtered and the premises on which they were found have been cleansed and disinfected. About one-seventh of the total number of cattle in the Dominion have been tuberculin tested once, and many of them several times, by officers of the Health of Animals Branch. Certain areas have been established as "restricted," and general tests are carried out in these at successive periods. The result has usually been that a progressive lowering of the proportion of infection is revealed. In Prince Edward Island, for example, which was established as a restricted area in 1925, tests then showed 0.59 per cent. of reactors, for which compensation was paid to the extent of 14,194 dollars. The second general test is now being made in this province; it was delayed on account of the low percentage of infection and the natural isolation of the province. The result so far shows 0.16 per cent. of reactors, and 2,976.00 dollars has been paid in compensation. This type of result repeats itself throughout the Dominion wherever these restricted areas exist.

The Hippocratic Oath.

It has recently been pointed out by the secretary of the Medical Faculty of McGill University that, despite a general impression to the contrary, the Hippocratic Oath has never been used as part of the ceremony of graduation of medical students at McGill University. The form of

declaration used by the graduating student has been changed more than once. The first—used in 1833—was a short and simple pledge. In 1842 this was lengthened, and the details of what was required of a medical man were stated rather more formally. Then, the following year, the Faculty of Arts was formally opened, and in that year the Faculty of Medicine put its oath into Latin, although it is not recorded whether the change was made because classical knowledge was now available, or merely in an attempt to sustain and increase dignity! In any case the change was made at about the time that the Medical Faculty of McGill University lengthened its course from three to four years—the first school on the American continent to do so. The form of the oath is based on that of Hippocrates, but it is pointed out that the exact phrasing of the latter cannot be used, since it prohibits the practice of surgery.

Scotland.

Health of Scotland.

THE quarterly return of the Registrar-General for Scotland for the period ending September 30th, 1929, shows that there was a birth rate of 18.7 per 1,000, and a death rate of 10.8 per 1,000. This is the lowest third quarter birth rate yet recorded, the previous lowest being 19.0, which was recorded in 1917 and again in 1927. The death rate is 2.2 less than that of the previous quarter, but approximately the same as that of the third quarter of the preceding year. The infantile mortality rate of the quarter was 62 per 1,000 registered births, which is 14 less than that of the previous quarter, and 7 less than that in the third quarter of last year. The death rates from all forms of tuberculosis and from tuberculosis of the respiratory system were respectively 78 and 54 per 100,000, which are the lowest rates recorded up to this time in Scotland for any quarter. Deaths from malignant disease numbered 1,807—equalling a death rate of 146 per 100,000—and these were 125 more than in the third quarter of last year. With regard to the causes of death, 3.4 per cent. were attributed to the principal epidemic diseases. Epidemic diseases other than those grouped as the principal epidemic diseases were cerebro-spinal meningitis, responsible for 42 deaths, encephalitis lethargica for 29 deaths, erysipelas for 31 deaths, and acute poliomyelitis for 5 deaths. Pneumonia accounted for 5.8 per cent. of the total deaths of the quarter, equalling a death rate of 63 per 100,000, but these deaths were 88 fewer than in the third quarter of last year.

Maternity Service in Scotland.

An address was delivered by Dr. J. Parlane Kinloch, Chief Medical Officer of the Department of Health for Scotland, on December 11th, to the Edinburgh Women Citizens' Association. Dr. Kinloch demonstrated by means of charts the high rate of maternal mortality in Scotland as compared with that of other countries. Scotland, he said, was the worst in the world in this respect, for roughly 7 mothers died every year out of every 1,000 who gave birth to children, and for every 1,000 who died, 14,000 developed serious impairment of health. Death was due in one-third of the cases to septic infection contracted at the time of the birth; in another third it was due to toxaemias developing during the later months of pregnancy; and in the remaining third it was due to haemorrhages connected with confinement, most of which were really septic in origin, and to injuries connected with difficult birth. The best conditions for confinement were a healthy home with midwife and doctor in attendance. In a city like Glasgow, however, where 65 per cent. of the million and a quarter inhabitants lived in one- or two-roomed houses, it was impossible to provide the healthy home, and the people must be got into better living conditions. By bacteriological control of the staff and patients of a hospital infection could be prevented, and in this connexion an important experiment was taking place at the Elsie Inglis Maternity Hospital in Edinburgh. If immediate treatment was received when conditions were abnormal, the majority of the mothers could be saved, but this needed careful organization and staffing of maternity institutions. Next in importance was proper ante-natal care, and this could be provided without new legislation; what was necessary was to put into operation already existing machinery.

Edinburgh Public Health Department.

A lecture was delivered under the auspices of the Combe Trust, on December 11th, by Dr. William Robertson, medical officer of health for Edinburgh. The lecturer said that it was regrettable that a public health department was a purely spending concern; nevertheless the continually growing expenditure produced results in the direction of saving life. Although such devastating diseases as typhus, cholera, and typhoid fever had been virtually extinguished, the commoner epidemic diseases still clung to the community, and this was unavoidable because infection was usually spread in schools. Education had done much to induce parents of children to call in medical aid at an early stage. Measles and whooping-cough were the most fatal among the infectious diseases, and this ought to be universally recognized. As evidence of the good results that might be achieved by improving environment, tuberculosis might be cited, and infantile mortality was another condition which had declined owing to the same measures. The furthering of the provision of better housing conditions was at the present time one of the principal activities of the public health department. This work was constantly in progress, because a large staff of officers working under the chief sanitary inspector was daily visiting houses to note their good, bad, or indifferent features. No other community had done so much as Edinburgh during the past six years to provide better houses in sufficient numbers and at sufficient speed. In this period a population of nearly 30,000 had been provided with alternatives to insanitary and undesirable homes. A scheme which was now in prospect was perhaps the largest that had yet been undertaken in Scotland. It would consist in clearing out 1,600 faulty houses in the St. Leonard's district, with the erection of alternative dwellings, and would cost over £800,000. An unfortunate complication of slum clearance at the present time was that unemployment affected many of those who were in need of better accommodation, but who were unable to pay the higher rents for the new municipal houses. The lecturer drew attention to the severity of many of the municipal housing schemes which were to be noticed in various parts of the country, and emphasized the desirability in housing schemes of having shrubberies, open spaces, and a well-studied distribution of trees.

Ireland.

Motor Vehicle and Road Traffic Bill.

THE Northern Ireland Parliament has adopted in the Motor Vehicle and Road Traffic Bill, now under consideration, a new definition of what constitutes "drunkenness" as applied to a person in charge of a motor car. For the words in the former Act "drunk while in charge on any highway or other public place of a motor car," the following have been substituted: "Found when driving or attempting to drive, or when in charge of a motor car on any highway or other place, to be under the influence of drink or drugs to such an extent as to be incapable of having proper control of the vehicle." This new definition carries out the proposal of the British Medical Association's Committee on Tests for Drunkenness that the word drunk should always be taken to mean that the person concerned was "so much under the influence of alcohol as to have lost control of his vehicle to such an extent as to render him unable to execute safely the occupation on which he was engaged at the material time," and conforms with the definition adopted in the Road Traffic Bill, introduced by Earl Russell in the House of Lords (*British Medical Journal*, December 7th, p. 1079) in which the phrase used is "under the influence of drink or drugs to such an extent as to be incapable of having proper control of the vehicle." Speaking in support of the new clause the Parliamentary Secretary to the Ministry of Home Affairs, Northern Ireland, said that it was essential

that a man in charge of a motor car should be sober enough to drive it and control it without being a danger to those who had just as good a right to the use of the road. The clause was agreed to on December 6th, and the bill passed through committee.

Treatment of School Children in Northern Ireland.

At the last meeting of the management committee of the Fermanagh County Hospital, in a discussion arising out of Dr. Kidd's refusal to operate on a child sent by the regional committee for treatment (*British Medical Journal*, November 16th, p. 925). Dr. Kidd read the sections of the Education Act dealing with the medical treatment of school children, and said medical treatment schemes were not intended for the children of parents who were able to pay the cost of treatment by a private practitioner. His action in not carrying out this operation was actuated by a desire to impress upon the regional committee that by including such cases in their treatment scheme they were diverting Government grants from the purpose for which they had been intended—namely, to cover the cost of the treatment of children whose parents were unable to pay for treatment in the ordinary way. He submitted that any agreement made between the hospital and the regional committee must be subject to the intentions and requirements of the Act, and one of the first duties of the regional committee was to inquire if the parents were able to provide the treatment required by their inspecting medical officer. Had he accepted the child in question the hospital would have been paid 5s. a day, and if the child came in as a private patient the hospital would have got 10s. a day. After discussion the management committee decided to send a reply to the regional committee, stating that it was quite satisfied that Dr. Kidd had acted in accordance with the terms and intentions of the Education Act (N.I.), 1923, with regard to children attending primary education schools, and particularly in accordance with the requirements of the circular entitled "Education (Medical Inspection and Treatment of School Children) (Northern Ireland) Regulations, 1924," issued by the Ministry of Home Affairs.

Road Accidents and Hospital Finance.

Dr. F. B. Clery, Richmond Hospital, Dublin, in a recent address in Dublin, said that scarcely a day passed without bringing its toll of injured to the hospitals, and in spite of many suggested remedies for that state of affairs the numbers kept on increasing. By the education of motorists and road users much was being done, but there would always be thoughtless people, not to mention children, the aged, and the infirm. Recent agitation in favour of compulsory third-party insurance of motorists had given rise to the question of payment to hospitals for the maintenance of those who were injured in road accidents. It was unjust that hospitals should be expected to treat those cases without payment for maintenance. By the treatment the liability of those responsible for the accidents (or the insurance company) was dimmished; yet the hospital had no claim in law against them. As a result the loss so incurred had to be made up from moneys intended for the relief of the sick poor. The injured party might recover hospital expenses, in addition to other damages, but the hospital bill was often forgotten.

England and Wales.

London School of Medicine for Women: Annual Dinner.

THERE was a very large attendance at the annual dinner of the London (Royal Free Hospital) School of Medicine for Women, held at the Savoy Hotel on December 5th, and presided over by Mr. Joseph Cunning, senior surgeon to the hospital. Lady Emmott, member of the association of the school and of the board of management of the Royal Free Hospital, proposing the toast of "The School and Hospital," said that the school had a wonderful record of successes. The presence of so many distinguished women in that room should be an inspiration to those who were following them. Great gratitude was due to the men of the Royal Free Hospital, who had admitted women as students and who had done so much to further their education in medicine. As one deeply interested in the welfare of women she regretted any setback to their progress, such as the recent decision of several hospitals to refuse admission to women students. It was a very good thing for men and women to be able to work together as they did on the staff of the Royal Free Hospital, and she hoped that in the long run this example would have its effect. Mr. Cunning, on rising to reply, had a most enthusiastic reception. He recalled the names of several of the eminent men connected with the hospital—Mr. Boyce Barrow, who at 82 was still hunting and hoped to breed a Derby winner; Sir James Berry, that most stimulating colleague, who, by dint of asking every three months, for the space of two years, secured operating theatres which were the admiration of all London; Mr. Edmond Ronghton, noted for always calling a spade a spade; Dr. Carr and Dr. Pheat, two great clinical teachers; Sir Farquhar Buzzard; Mr. Alfred Langton, whose magnificent gifts would always be remembered; Lord Riddell, the president of the hospital and chairman of the weekly board, who did invaluable work in both capacities; and Sir Albert Levy, the present most generous honorary treasurer. The Eastman Dental Clinic would give additional space and facilities to the hospital, and the best thing for women to do, instead of trying to gain admission to the men's schools, was to try to increase the number of beds at the Royal Free. The outstanding educational success of the year had been the winning of the University Medal in oto-rhino-laryngology by Miss Mildred Warde, a former student and present member of the school and hospital staff. Dr. Hazel Chodak Gregory who was received with cheers, proposed the toast of "The Guests," among whom were Viscountess Rhondda, the Lady Emmott, Sir Patrick Hastings, K.C., Sir Walter Schroeder, Dr. Chi-holm of the Manchester Babies' Hospital, Dr. Ethel Bentham, M.P., Dr. Deller, the new Principal of the London University, Mr. Rew, secretary of the Conjoint Board, Sir Squire Sprigge, Dr. N. G. Horner, and Dr. McNair Wilson. Sir Patrick Hastings replied for the guests in a very witty speech, and Lady Rhondda, following, made particular mention of the fine piece of co-ordinated research now being done at the Marie Curie Hospital, largely staffed by former students of the Royal Free Hospital. Miss Bolton, senior surgeon to the Elizabeth Garrett Anderson Hospital, proposing the health of the chairman, said that she was glad of this opportunity to tell Mr. Cunning how much all past and present students owed to him. She remembered how skilfully, as senior resident, he had combined care of the patients with excellent teaching of the students, and recalled Saturday afternoon classes before the final examinations, to which many people owed their success. His elegance of poise and finish and his unruffled dealing with any emergency were an inspiration to all who saw them, and she was glad to feel that Mr. Cunning's skill and experience were still available to both students and patients. At the conclusion of the speeches the company adjourned to the dancing hall.

The League of Mercy: Thirtieth Anniversary.

The thirtieth annual meeting of the presidents of the League of Mercy took place at St. James's Palace on December 11th. The Prince of Wales, the Grand President, accompanied by the Lady Grand President, Princess Mary, Countess of Harewood, took the chair. The following message was read from the King: "On the thirtieth anniversary of the foundation of the League of Mercy, the Queen and I congratulate the presidents, vice-presidents, the members, and all who have worked so loyally for its support upon the success of their endeavours, by which a total contribution of £567,000 has been made towards the voluntary hospitals of the country. Such support, coming as it does from all sections of the community, proves that the present generation are as anxious as were the past to maintain the noble traditions and splendid achievements of our voluntary system. It is indeed gratifying to me that the Grand President and Lady Grand President of this inspiring organization are members of my family." The Prince of Wales, after speaking of the new charter under which the league would shortly be working, and which would furnish an opportunity of increasing the numbers of those serving on the

council, went on to address the presidents on the general hospital situation. As a result of recent legislation, said His Royal Highness, the councils of the county and county boroughs were endeavouring to bring all hospitals into closer touch with one another. "It seems clear that authorities generally still recognize the importance of retaining the voluntary system, so that any minor changes which do occur in the organization of voluntary hospitals will be directed towards co-ordinating their work with the other types of hospital administering to the health of the community. It will therefore still be the privilege of the workers of the League of Mercy not only to continue the support they have given in the past, but also to persuade people to open up fresh districts wherever an opportunity offers. It is only by this means that we can successfully compete with the ever-increasing financial demands of modern medicine and surgery. . . . Disinterested service remains our object, and in this spirit I wish you all success in your activities during the coming year." The Prince then made several presentations of the Order of Mercy, and three ladies were invested with the bar to the Order. Lord Marshall, honorary treasurer, said that the income for the year had more than equalled last year's total. The grand total of income was £26,400, compared with £26,143 in 1928. The donation made to King Edward's Hospital Fund was £17,000, and the grants to extra-metropolitan hospitals amounted to £8,399, making a total of £26,399, compared with £25,200 the previous year. Lord Moynihan of Leeds then gave an address, in which he expressed to the members of the league the profound respect and congratulations of the medical profession for all that they had done for the hospitals. There never was a time when hospitals were so well equipped, so well served by members of the medical profession, or held in such high public esteem. The effect of the new Local Government Act would be that the number of beds available for patients would be more than doubled, but Lord Moynihan reminded the company that while the number of beds would be doubled, it was not possible at the same rate to increase the number of officers—physicians and surgeons, and other members of the staff—necessary for carrying on the work. It was therefore essential that progress in connexion with the new hospitals should be slow until sufficient time had elapsed for the training of the necessary personnel. He urged the League of Mercy to extend its excellent efforts. The proceedings closed with a few words by Princess Mary in response to a vote of thanks.

British Institute of Radiology.

The proceedings at the annual meeting of the British Institute of Radiology, held in London from December 4th to 6th, were reported in last week's *Journal* (p. 1117). The congress ended with a dinner at the Trocadero Restaurant, under the chairmanship of Mr. C. Thurstan Holland. In reply to the toast of "The Institute," proposed by Mr. Cuthbert Andrews, who referred wittily to some reforms and innovations, Mr. Thurstan Holland said that the congress had been particularly notable for the lecture given by Professor Forssell, whose careful statement on the relative position of radiotherapy and surgery would do much to correct exaggerated notions in the mind of the public, and also in the mind of the medical profession. Radium would do much for cancer, possibly in many ways more than surgery, but it was not an absolute cure for it, and the way of progress lay in the skilful and well-informed combination of methods to suit the individual case. Major C. E. S. Phillips proposed the health of the several distinguished guests who were present, and replies were forthcoming from Professor S. A. Eddington, who spoke of his interest in the application of the knowledge of *x* rays to stellar phenomena; Mr. Donald J. Armour, president of the Medical Society of London; and Dr. G. W. C. Kaye, superintendent of the physics department of the National Physical Laboratory, and a former president of the Institute. Professor Forssell proposed the health of the president, Mr. Thurstan Holland. Speeches were shortened in order to permit the performance of a very clever skit described as a "radiological drama in about one act," and entitled "Blood and whitewash." The principal characters were Dr. Buryan Hope, a radiologist, Miss Trixie Manners, a very casual young lady who had drifted into the profession of radiography, and Mr. Carver Small, a surgeon. The burlesque, the work of an unknown author, who unites a caustic pen with an intimate acquaintance with radiological experiences, was received by the company with much appreciative laughter.

The Old Epsomian Club.

The fifty-second annual dinner of the Old Epsomian Club was held at the Wharncliffe Rooms, London, on December 12th, and attracted an attendance equal to the record achieved in the preceding year. The chairman, Brigadier-General G. T. Mair, C.M.G., D.S.O., who is president of the club, proposed the toast "Floreat Epsomia," and contributed reminiscences of the earlier days of the school. He contrasted the position then with the great success attained during recent years, and commented on the various structural and other improvements that had been effected. The headmaster, Mr. A. C. Powell, replied, and gave his usual report on the outstanding features of the previous twelve months. Insisting that the club and school were really one organism, he expressed his satisfaction at the excellent growth of the former, and anticipated further expansion in the near future. In a sympathetic tribute to the late president of the school, Lord Rosebery, he remarked that death had removed one who had been a real working president, and whose example seemed likely to be followed by the new president, Lord Burnham. The school had won an exceptional series of successes in all departments, both scholastic and athletic, and a high percentage of passes had been obtained in the preliminary medical and other examinations. The year had been noteworthy for the decision of St. Thomas's, Charing Cross, and Guy's Hospitals to establish special scholarships for Epsom boys. The Officers Training Corps had been awarded a highly laudatory certificate. The cricket season had been very successful, and the present football team was one of the best ever known; indeed, prospects began to appear of founding an Old Epsomian Rugby Club. In his usual inimitable style Mr. A. C. A. Parkinson proposed the health of "The Guests," twitting various of them with what he regarded as their foibles, and Dr. A. Middleton Hewat responded. In the course of the evening Sir Cecil Armitage, who was president two years ago, presented the Old Epsomian golf cup to the winner, Mr. H. G. L. Hughes.

Correspondence.

MEMORIAL TO WILLIAM HARVEY.

SIR,—It is gratifying to know that attention is directed once more towards the ruined tower of Hempstead Church, where lie the remains of William Harvey.

The last lengthy conversation I had with the late Sir Dawson Williams turned on this subject, which lay near his heart. We parted on the understanding that if, after consideration of all the circumstances, he found a fitting opportunity during the year of my presidency of the Association, he would signal to me and I would take occasion to urge the claims which the ruined tower had on the British Medical Association. A day or two later I paid a pilgrimage to Hempstead and was convinced of the propriety of the claim.

As nothing emerged up to the time when Dawson Williams was suddenly called from us, I concluded the proposal would probably mature in connexion with the celebration of Harvey's tercentenary. Sharing the disappointment of many that nothing further transpired publicly, I was pleased to read Dr. Michael Grabham's note in the *Journal* of December 7th (p. 1072), and to learn that a further move has been taken towards the rebuilding of the tower of Hempstead Church.

We are *not* concerned with the repair of a collapsed church tower, but rather with the occasion which the ruined tower over the bones of William Harvey affords us to record our veneration for him, who inspired modern medicine, by ensuring that the church of Hempstead shall remain to all time a fit shrine for the sacred ashes.

The replacement of the fallen tower must appeal convincingly to hundreds of grateful and generous minds within the Association, as indeed it will appeal to the wider circle of doctors and biologists throughout the world. If the claim be properly presented in the proper quarters, I am satisfied it will be met. The British Medical Association is assuredly one of the proper quarters, and the members of the British Medical Association will not fail to respond to the best of their ability.—I am, etc.,

University of Edinburgh, Dec. 9th. R. W. PHILIP.

END-RESULTS OF OPERATION FOR GASTRIC AND DUODENAL ULCER.

SIR,—Before drawing conclusions from Dr. A. P. Luff's interesting analysis of the after-history of gastro-enterostomy, published in your issue of December 7th (p. 1074), attention should be paid to certain fallacies which, though perhaps inevitable in this class of statistical inquiry, yet require careful consideration.

1. It is misleading to assume that, because 66.6 per cent. of the 671 duodenal ulcer patients about whom the necessary information was forthcoming had no pain or discomfort after the operation, the same percentage would hold good for the remaining 324 cases (32.5 per cent.), in 232 (23 per cent.) of which no after-history at all was obtained. These 232 include an unknown, but possibly considerable, number of deaths and ill results. No information would be obtained in a considerable proportion of hospital cases in which death had occurred, as well as in many of those in which the after-results were so bad that the patient could not work and consequently had to leave the neighbourhood.

2. The period of two to nine years which has elapsed since operation is not sufficient to justify the term "end-result" used in your leader, as many jejunal ulcers only develop after several years of freedom from symptoms. In one of my cases perforation of a recurrent duodenal ulcer occurred after fourteen years of freedom from symptoms and a jejunal ulcer perforated three years later. I have had four cases of gastro-jejuno-colic fistula under my care, the fistula having formed six, eleven, twelve, and nineteen years respectively after the gastro-jejunostomy, so that at least three of the four would have escaped tabulation in Dr. Luff's report.

3. It is stated that the incidence of jejunal ulcer is only 2.8 per cent. Apart from the 23 per cent. of patients in whom no after-history was obtained and the possibility that this complication may yet develop in some of those who are still well, it is obviously fallacious to assume, as has been done, that it was only present in the cases in which it was actually found at operation. Almost all of the additional 2.4 per cent. of cases in which haemorrhage occurred between one and seven years after operation, and the 6.1 per cent. of cases with severe pain, must have had a jejunal ulcer, as well as a good many of the 27.3 with temporary or occasional slight pain. The total incidence of jejunal ulcer must therefore be at least 10 per cent., and it is probably considerably higher.

In your leader on the "end-results" the danger of perforation and haemorrhage is greatly exaggerated. It is impossible to draw any reliable conclusions from hospital statistics as to the frequency of perforation, as almost every case of perforation occurring in the neighbourhood of a hospital will be admitted, but only a comparatively small proportion of all cases of ulcer. With regard to haemorrhage Dr. J. J. Conybeare found that only about 2.5 per cent. of patients admitted to Guy's Hospital for severe haemorrhage died. As haemorrhage occurs in about 20 per cent. of ulcer cases, the actual mortality from this cause in ulcer is 0.5 per cent., or only one-fortieth of the estimate given in your leader. It is necessary to add that of the twenty-three fatal cases of haemorrhage in Guy's Hospital between 1911 and 1920, no fewer than ten had previously undergone some operation on their stomachs.—I am, etc.,

Windsor Forest, Dec. 9th. ARTHUR F. HURST.

POST-GRADUATE OPPORTUNITIES IN LONDON.

SIR,—The Fellowship of Medicine and Post-Graduate Medical Association would be grateful if you would publish this letter for the benefit of medical men and women intending to visit England.

We have heard overseas graduates complain that London is so large, and so complicated, that it takes a few weeks to learn the way around; they also say that, unless they come armed with letters of introduction to physicians or surgeons, it is difficult to obtain the facilities they require. The Fellowship of Medicine was founded to overcome these difficulties, and overseas graduates should, as a matter of course, come direct to the Fellowship, where, without any charge, they can obtain information, advice, and assistance. We can—and every day do—save time for overseas graduates who apply to us either before leaving their own country or on arrival in England.

It is frequently mentioned that foreign post-graduate schools are attracting many of our doctors on account of better organization, and we feel sure that this idea is prevalent owing to lack of advertisement of our own activities—hence we are writing this letter to the medical journals in the British Empire. Increased support given to this organization by graduates means added facilities for study.

Perhaps the main point to be realized is that in England the medical year begins in October, and extends through the winter and spring until the end of July; August and September being the vacation months, opportunities for work are naturally somewhat curtailed, though the Fellowship endeavours to provide facilities for doctors who are only free for study during that time. We would add, however, that for overseas doctors their arrival in England in August or September means that they will have ample time to settle down and become acquainted with London before starting work in earnest.

We have been told that the information chiefly desired by overseas practitioners is the dates of the various examinations for degrees and diplomas, and the dates, duration, and opportunities for securing resident positions in London hospitals, as well as the facilities for special courses of instruction. All this information the Fellowship of Medicine is in a position to provide.

As far as the Fellowship itself is concerned, opportunities for clinical work all the year round are provided in the forty London hospitals with which it is associated, as well as the special courses, and also weekly (free) lectures during the winter months, and weekly (free) clinical demonstrations (except during August and September). In addition, the Fellowship publishes monthly the *Post-Graduate Medical Journal* (6s. per annum, post free), containing post-graduate lectures, clinical demonstrations, reports of cases, and information on the various courses of instruction. Above all, however, the Fellowship endeavours to help in every way possible medical practitioners requiring advice and assistance, by acting as a central bureau of information, and, of course, no charge is made for this service. All inquiries should be addressed to the secretary, Fellowship of Medicine, 1, Wimpole Street, London, W.1.—I am, etc.,

H. W. CARSON,
Chairman of Executive Committee,
London, Dec. 4th. Fellowship of Medicine.

THE TREATMENT OF SCOLIOSIS.

SIR,—I have read with great interest Mr. McCrae Aitken's paper on the treatment of scoliosis in your issue of November 23rd (p. 939), and I quite agree that the profession as a whole entirely neglects the rotation element in scoliosis. It appears to regard it as secondary to the lateral bend, and to suppose that all that is needed is attention to the latter, the cure of which will *per se* bring about the cure of the former. Concerning the methods usually in vogue for estimating the degree of scoliosis, this, as ordinarily practised, is quite unscientific. Scoliosis consists of lateral curvature and rotation in combination. It is therefore misleading merely to measure one portion of it—namely, the lateral curve. With the aid of a

torsionometer of my own design[1] I have proved to my satisfaction that apparently similar cases of lateral curvature exhibiting the same amount of lateral deviation can be associated with very large variations indeed as regards the amount of torsion.

Many years ago I came to the conclusion also that a number of so-called lateral curvatures, especially in the lumbar region, have no lateral bend whatever, but are pure malrotations which simulate scoliosis; even skiagrams give this erroneous impression. Also that the cause of these malrotations is in most cases traumatic, due to the subject making a sudden twisting movement of the trunk: this is transmitted down the lumbar spine and is suddenly arrested by the inertia of the pelvis; a malrotation results between the fifth lumbar vertebra and the sacrum, and thus a starting point for the arising of so-called scoliosis is set up. I have already embodied these points in detail in several papers.[2]

There is one point of paramount importance in connexion with the part played by rotations in the etiology of scoliosis on which Mr. McCrae Aitken does not touch. It is this: all malrotations are minor displacements, and most minor displacements can be replaced quite quickly, easily, and painlessly if one possesses the necessary technique; this I should mention takes many months, not to say years, to acquire. I have now replaced several thousands of malrotated vertebrae occurring in so-called scolioses, and have thereby obtained the most gratifying results. As I wrote in 1923:

"In a large number only one single application of treatment, consisting exclusively of preliminary manipulations to cause relaxation of the muscles surrounding the displacement, followed by reposition of the latter, has been completely successful; in others two such applications have been all that has been required. . . . In the event of the muscles surrounding the displacement not being contracted, the treatment can be limited to effecting reposition and thus enable many cases of commencing scoliosis to be cured in half a minute or less."

Since writing that I have had no reason to modify my views.—I am, etc.,

41, Welbeck Street, W.1, Dec. 9th. EDGAR CYRIAX, M.D.Ed.

GIDEON MANTELL'S SPINE.

SIR,—In the leading article on the treatment of scoliosis (November 23rd, p. 969) are two references to Gideon Mantell which puzzle me. He is described as a "celebrated Egyptologist," but although he opened many barrows on the Sussex Downs I know of no evidence that he extended his archaeological investigations so far as Egypt.

It is further stated that the very peculiar condition of his spine "was first correctly diagnosed by Adams, whose diagnosis was confirmed at necropsy." I have been unable to find any evidence that Adams saw the patient before death. Mantell in his will left a sum of ten pounds to Dr. Thomas Hodgkin of Bedford Square, for a post-mortem examination of his body, and instructed his executor that this should be restricted to the spine and right elbow, "in the belief that the abnormal changes which have taken place may be interesting in a pathological point of view; if any parts are worth preserving for examples of morbid changes, let them be sent to the Hunterian collections." Dr. Hodgkin seems to have called upon his young colleague Mr. William Adams, demonstrator of morbid anatomy at St. Thomas's Hospital, to carry out the necropsy. This enabled the latter to discover the actual condition of "rotation" of vertebrae which had baffled all previous attempts at diagnosis. W. Adams at the time considered it to be unique, but learned afterwards that Dr. Dods of Bath, in 1824 (twenty-eight years previously), published *Pathological Observations on the Rotated or Contorted Spine, Commonly Called Lateral Curvature.*

A photograph of Mantell's spine in the Hunterian Museum is reproduced in my account of his life.—I am, etc.,

Lewes, Dec. 10th SIDNEY SPOKES.

*** We much regret that Gideon Mantell's twisted spine should have led us into deviations from the straight road of fact.

[1] *British Medical Journal*, 1924, ii, p. 558.
[2] *Internat. Journ. of Surg.*, 1922, xxxv, 84-90; and *Practitioner*, 1923, cxi, 343-358.

THE BURDEN OF DEAFNESS.

SIR,—I regret that, owing to absence from home, I have not had an opportunity of seeing whether anyone has taken up the cudgels on behalf of the deaf in reply to Mr. Mortimer Wharry's letter in your issue of November 2nd (p. 832). Perhaps you will allow me, as one of the partially deaf, to answer it even at this late date.

I write from the point of view of one who at times is able to hear any individual who speaks clearly to me in an almost normal voice, and at other times can only hear with a speaking tube. As such, I would like to assure Mr. Wharry that it is not as a rule "self-consciousness" which prevents those who derive no benefit from the many electrical appliances for the deaf from using a tube. The usual *reasons* are the embarrassment of those who are asked to use the tube for speaking to the deaf person, and the impossibility of finding one person in fifty who will use it intelligently. There are many who shout down it as they would if there were no tube, others begin correctly and then repeatedly turn away the head in the middle of a sentence. There are yet others (and amongst them I have known a surgeon) who habitually gesticulate with the free end of the tube!

In the course of my work in a hospital I come across a fair number of deaf people. Occasionally, when I speak loudly to one who is obviously very deaf, I am met by the dull, hopeless look of the incurably deaf. Then I introduce a speaking tube, which I always keep handy, and the joy of hearing the natural voice, sometimes it may be for the first time for many years, is such that I am prompted to give them a tube; but though, with a few, it proves a permanent boon, the majority find "they cannot hear their friends with it."

If the deaf are "self-conscious," are they entirely to blame? Are the blind ridiculed in our theatres, our comic papers, our books, and in conversation? How is it with the deaf? Mr. Mortimer Wharry says that he is not lacking in sympathy; does he know what it means to be constantly misunderstanding and saying and doing the wrong thing? The good Christian will laugh with those who laugh at his mistakes or regard him as half-witted, but sometimes one needs to be a *very* "good Christian" if one is not to be self-conscious.

Lastly, Mr. Mortimer Wharry offers us two pieces of consolation: (1) ". . . deaf people have some advantages which are denied to others; they need not hear if they would rather not, and in a world confronted with the problem of increasing noise this is a blessing." (2) "Furthermore, their very gesture of handing the mouthpiece of a speaking tube to an acquaintance is a request to say something worth hearing." With regard to the first, has he never seen a person popularly described as "born deaf and dumb" start and look pained at a shout or other loud noise? I have, and can sympathize, for I know that loud noises can, if anything, be more painful to many deaf people than to those with normal hearing. With regard to the second crumb of comfort, we know that Mr. Wharry is sympathetic, but has he a sense of humour?—I am, etc.,

Woburn Abbey, Dec. 8th. M. BEDFORD.

SIR,—The National Institute for the Deaf frequently becomes aware of instances in which medical men have advised persons, becoming deaf, not to practise lip-reading on the ground that it will induce them not to use their remaining hearing power fully in the effort to listen. Such advice is opposed to fact, since the visual observations of speech (lip-reading), running *pari passu* with whatever may be heard of it, give focus to the effort of listening, and make it easier and more effective and therefore more likely to be attempted.

In most cases deafness is progressive. If lip-reading is practised in the early stages the patient almost imperceptibly grows to its full and easy use. He is then forearmed against devastating isolation when he can no longer hear. Meantime, he has escaped much that would probably have saddened and discouraged him. He has been more in touch with life than otherwise he would have been. His misunderstandings and disappointments have been fewer. He has not realized his infirmity so

poignantly as he might have done. Life has been brighter and better. These are great advantages worthy of serious consideration by those who advise the deaf.

Completely deaf persons, taking up the study of lip-reading for the first time, are often unnecessarily alarmed by what they wrongly regard as the immensity of the task. By this time they are frequently depressed, nervous, and fearful of effort. Only those strong enough to overcome these handicaps are likely to succeed.

Lip-reading is the most promising remedy for the relief of the social ills of deafness; but, as is the case with every other remedy for human suffering, it should be applied at the right time. That time is at the early stage of the affliction.—I am, etc.,

A. J. STORY,
Secretary.

National Institute for the Deaf,
2, Bloomsbury Street, W.C.1, Dec. 16th.

CREMATION IN GUERNSEY.

SIR,—A crematorium has just been opened in Guernsey by the States, or Government, of the island. The mortuary chapel of the Foulon cemetery has been enlarged for the purpose. The coke furnace has been supplied by Gibbons Brothers, Ltd., of Dudley, and provision is made for a second furnace should circumstances require it in the future. On account of the elevated position of the chapel it has been found to be very efficient, and to heat quickly. A columbarium and "garden of remembrance" have been provided. The beauty of the site, and the way in which the work has been carried out by Mr. T. J. Guilbert, the States surveyor, gave great satisfaction to both official visitors and inhabitants.

The local law, although somewhat on the lines of the English one, has some important modifications, perhaps improvements. Certificates "A" and "B" are identical with it, and so is the wording of "C," but it has to be filled in by the medical referee, who is the States medical officer of health (a whole-time official), or his deputy, instead of a second medical practitioner. Certificate "F," which in England has to be signed by the medical referee, and is the authority to cremate, has to be signed by one of the law officers of the Crown—the Attorney-General or Solicitor-General. These officials have the power to refuse to allow the cremation without stating any reason. If a post-mortem examination is officially ordered, two medical practitioners must be present and supply a joint report, one being the medical referee, the other being appointed by the Crown law officers. At every judicial necropsy in Guernsey two medical men must be present; their fees are paid by the Crown. In the event of a dead body being brought into Guernsey for cremation, Form "A" must be countersigned by a person having authority to administer an oath in the place from which the body came; "B" "C," and "D" must be filled in and properly attested, which means that a necropsy by two doctors must have been made.

The Burial Law of Guernsey is stringent, in that no corpse can be buried except in a burial ground approved by the Royal Court. It is also forbidden to dispose of a corpse except by burial or cremation as regulated by the Ordonnance, without the consent of the Royal Court, who will impose such restrictions as they may consider necessary. If permission were granted, for example, for burial at sea, the formalities required by the Cremation Law would, no doubt, have to be first observed. As regards an exhumation, if the body has been buried in consecrated ground, and it is desired to re-inter it in consecrated ground, the Ecclesiastical Court of the island, which still has great authority, gives the permit if it thinks fit to do so. In other cases the Royal Court of Guernsey would be the authority concerned.—I am, etc.,

HY. DRAPER BISHOP,
States Medical Officer of Health.

Guernsey, Dec. 5th.

GAS-OXYGEN ANAESTHESIA.

SIR,—With reference to the interesting article by Mr. Edmund Boyle regarding gas-oxygen anaesthesia in midwifery (December 7th, p. 1051), I have used this method a limited number of times during the last three years, and have nothing but praise for it. I was particularly struck by some of the points he mentions—namely, that analgesia can be produced at will, often when requested by the patient, and that it need not interfere with the uterine contractions, and has little or no after-effects. In my experience, admittedly small, gas-oxygen is far superior to chloroform in these cases. It has, however, as Mr. Boyle says, the disadvantages of being expensive and requiring special knowledge in administration.—I am, etc.,

E. MOXON BROWNE,
Surgeon Commander R.N.; late Anaesthetist R.N. Hospital, Malta; and Honorary Anaesthetist, King George V Hospital, Malta.

H.M.S. *Malaya*,
Devonport, Dec. 9th.

Obituary.

THE death took place at his residence, Abbey Green, Jedburgh, on November 23rd, of Dr. WILLIAM BLAIR, a well-known practitioner of the Border district. Dr. Blair was born in 1838, and was thus in his ninety-second year. After studying at Glasgow University, he graduated M.D. there in 1863, and afterwards acted as assistant in the Lying-in Hospital of that city. Taking up practice in Jedburgh shortly before 1870, he spent a busy life of over fifty years in the practice of the medical profession in that town and its neighbourhood. He took a great interest in local public affairs, held several friendly society appointments, and was a staunch supporter of the British Medical Association for many years. One of his principal hobbies was photography, and having taken up the study of colour photography soon after its introduction, he had become a recognized expert in this subject. Dr. Blair was a widower, and is survived by two daughters.

Dr. WILLIAM HENRY FRETZ, who was accidentally killed near his residence in Parkstone, Dorset, on November 26th, was born in Ceylon, in 1859. He was the son of an official in the Ceylon Civil Service, and was directly descended from an old Dutch family, who went to that island in the seventeenth century. He received his medical education in Aberdeen, and obtained the diplomas L.R.C.S., L.R.C.P.Ed. in 1880. After practising for a short time in England he obtained a Government appointment in the island of Nevis, British West Indies; he was subsequently appointed to St. Kitts, where he became senior medical officer of the Presidency. He was a member of the executive and legislative councils and, on occasions, was responsible for the government of the colony in the absence of the administrator. Dr. Fretz retired in 1920, after having served for thirty-nine years. He was an active member of the British Medical Association, and at the time of his death was a member of the Bournemouth Division. He leaves a widow and three sons.

Dr. GEORGE CLARK STEWART, who died at his residence in Falkirk, on November 29th, at the age of 60, received his medical education at Glasgow, where he graduated M.B., C.M. in 1891, with high commendation. For a few years subsequently he practised at Stratford-on-Avon, and then went to Falkirk thirty years ago to take over the practice of the late Dr. Allan. Dr. Stewart was medical referee to the East Stirlingshire Pensions Committee and the Employment Department of the Ministry of Labour; he was also medical officer to the Falkirk and District Ironfounders Accident Insurance Company. During the war he held a temporary commission in the Royal Army Medical Corps, being stationed first at Ashton-under-Lyne, and subsequently serving in the Auxiliary Hospital in Falkirk. He was a member of the British Medical Association.

The following well-known foreign medical men have recently died: Professor THEODOR SOMMERFELD of Berlin, an authority on industrial hygiene, aged 69; Dr. ALEXANDER SKUTETZKY, lecturer on medical pathology and treatment at the German University of Prague, aged 61; Dr. PAUL FAIVRE, honorary inspector-general of the French Ministry of the Interior and Commander of the Legion of Honour; and Dr. PAUL SOULIGOUX, honorary surgeon of the French hospitals.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

In the House of Commons this week the Coal Mines Bill was the principal business. Debates were also arranged on unemployment and on a Supplementary Estimate for health administration in Scotland. The House has been asked to sit in Christmas week to debate foreign affairs. It will resume on January 21st, 1930.

In the House of Lords, on December 10th, the Highlands and Islands (Medical Service) Additional Grant Bill was brought up from the Commons and read a first time.

Mental Treatment Bill.

COMMITTEE STAGE IN THE LORDS.

The Mental Treatment Bill was considered in committee of the House of Lords on December 10th. A number of amendments were made, and the bill passed through committee. EARL RUSSELL stated that he hoped to take the report stage on December 17th. (The text of the bill was printed in the *Supplement* to the *British Medical Journal* of December 7th.)

Voluntary Boarders.

Clause 1 (power to receive voluntary boarders) provides that any person suffering from mental disorder who is desirous of voluntarily submitting himself to treatment and makes written application, may be received in an institution as a voluntary boarder without a reception order. Lord SANDHURST moved an amendment to omit the words "suffering from mental disorder," in order to make it as easy as possible for persons suffering from incipient symptoms to become voluntary boarders. He said it should not be necessary for a person to be so far gone in the disorder as the words in the clause implied before submitting himself to treatment. Under the corresponding section of the Lunacy Act, 1890, there was no definition of the voluntary boarder. All that was there necessary was that a person should be desirous of voluntarily submitting himself to treatment. Earl RUSSELL accepted the amendment in a slightly altered form, and it was agreed to, the clause then reading "any person who is desirous of voluntarily submitting himself to treatment for *mental* disorder," etc.

Viscount BRENTFORD moved an amendment to alter from 18 to 21 the age at which any unmarried person suffering from mental disorder, whose parent or guardian was desirous of submitting him to treatment, might, if the parent or guardian made written application, be received as a voluntary boarder. He said it was questionable whether a person of 18 years should be allowed in any circumstances voluntarily to place himself or herself in a mental home. Earl RUSSELL explained that the age of 18 was adopted from an amendment which the House inserted in the Mental Treatment Bill of 1923. He suggested that Lord Brentford should agree to a later amendment by Lord Danesfort, the purpose of which was to accompany the consent by a medical certificate. The amendment was accordingly withdrawn.

The Earl of CRANBROOK moved an amendment to provide that where an unmarried person was not under 16 his consent to the application by the parent or guardian should be given in writing. He said he was moving the amendment on behalf of the London County Council, which had many mental institutions and large experience in dealing with people suffering from mental disorder. The council felt that the age of 18 was too high for the parent to have sole control over a practically grown-up man or woman. Earl RUSSELL replied that it was better not to accept the amendment in view of the one to which he had alluded, which would reinforce the judgement of the parent or guardian by a recommendation by a doctor. The Government proposed to use the word "recommendation" rather than "certificate." They wished to avoid the use of the word "certificate." The Earl of CRANBROOK pointed out that persons of 16 were able to marry, which was a much graver step than going for treatment in a mental hospital. Lord DAWSON said that if they were dealing with people of normal mind he would give his support entirely to the young person having the *right of decision*, but unfortunately nature had decided this matter. Mental disorders, which might easily develop into insanity *properly so-called*, were prone to arise at the ages of 16 or 18. The existence of these mental disorders, slight though they *might* be at that stage, made these young people "difficult." Sometimes it was almost impossible to get them better *in their own homes*. They were, in a sense, antisocial, and therefore did require rather more pressure than those who were normal. Young people with these incipient disorders were to be looked upon as being younger than the normal by two years. If Parliament supported the application of the parents by a medical certificate or medical recommendation—which, he agreed, was a better term—they would safeguard the bill against abuse, as they all desired to do.

Viscount BRENTFORD said that the whole tenor of Lord Dawson's speech made him anxious about the clause. The clause related to the voluntary right of a person to shut himself up. It was not a question of pressure. Under the clause the voluntary judgement of this so-called voluntary patient was to be taken away, and pressure was to be put on him by the parent and the doctor who was prepared to sign the recommendation. Lord BANBURY said he agreed with Lord Dawson that the clause was not a voluntary one, but one which might lead to pressure. The amendment was withdrawn.

Lord DANESFORT moved an amendment to ensure that a young person under 18 might be received as a voluntary boarder only if *the written application of the parent or guardian* were accompanied by a medical recommendation. He said he understood that the Government were prepared to accept the amendment. It was possible that in some cases there might be parents or guardians who would like to lock up a child who might be a little unruly or disagreeable, *and in the interests of the liberty of the subject* it was desirable to have some further protection in the bill. Lord Dawson and others had suggested that this incarceration of a young person should not take place unless there was a medical certificate or recommendation saying that it was desirable for him to be so detained.

Earl RUSSELL said that if it was desired to afford an expression of will to persons between 16 and 18 he would consider the matter before the report stage. Viscount BRENTFORD expressed regret that a young person under 18 could be locked up in any form of home or asylum without judicial proceedings. Under the clause as it was *proposed to be amended*, a young person was to be locked up on the recommendation of one doctor without the *right*, which he had to-day, to go before some kind of judicial officer, even a magistrate. Lord MERRIVALE said it would be a grave invasion of the common law rights of His Majesty's subjects if, instead of the age of 16, which for generations had been known as the age of responsibility, they substituted an arbitrary age without any safeguard except the certificate of one medical man. Earl RUSSELL agreed that this was an invasion of the common law right of personal liberty, but it was recommended in the interests of the patient. The question of the consent of the person of 16 had not been met because the suggestion that he should consent before going in had not been before the Government until that moment. It followed naturally that if the patient over 16 had to consent to go in for this treatment he must continue to consent when he was there. That would be one of the matters which he would consider on the report stage. The amendment was agreed to.

Lord DANESFORT moved a new subsection, *providing that*—

"The medical recommendation referred to in the last subsection shall be signed by a registered medical practitioner, who shall be either the usual medical attendant of the person to whom the application relates, or a person who has been approved for the purpose of making a medical recommendation under this the last subsection either by the Board of Control or by the local authority within whose area the said person then is. Such recommendation shall state the qualifications of the medical practitioner, the date or dates on which he examined the said person, that the said person is likely to be benefited by being received as a voluntary boarder for treatment for mental disorder under this section."

Debate followed, and eventually Lord Danesfort said he would consider the matter before the report stage. He withdrew the amendment.

Clause 2 provides for notice of reception, death, or departure of voluntary boarders, and makes provisions for boarders who become incapable of volition. The third paragraph of the clause provided that if any person received as a voluntary boarder became at any time incapable of volition, he should not be retained as a voluntary boarder for longer than one month, but should, on or before the expiration of that period, be discharged, unless in the meantime he had again become capable of volition or steps had been taken to deal with him either under the principal Act as a person of unsound mind, or under this bill as a person incapable of volition who was likely to benefit by temporary treatment. Lord SANDHURST moved an amendment to provide that the medical superintendent or other person in charge of the institution should decide whether the voluntary boarder had become incapable of volition. He said that somebody should be made responsible for formulating the opinion on the patient's incapacity for volition. Earl RUSSELL accepted the amendment, which was agreed to.

Temporary Treatment Without Certification.

On Clause 5, which makes provision for treatment without certification of persons temporarily incapable of volition, Viscount BRENTFORD moved in Subsection (1) to leave out the words "on a written application duly made in accordance with the provisions of this section, but without a reception order." He desired to raise the question whether these patients who were suffering from mental disorder and were incapable of volition, but likely to benefit by temporary treatment, might be shut up on the decision or certificate of two doctors without judicial authority. The Royal Commission did not take the view which the Government had adopted, and his (Lord Brentford's) amendment embodied the proposal of the Commission. To save expense he

proposed that instead of two doctors there should be only one, but that there should be a magistrate, who should see the patient and his friends if necessary and decide whether it was really desirable in the interests of the patient that his liberty should be taken away. Up to the present Parliament had never allowed that liberty to be interfered with by any advisers except under judicial authority. Lord Brentford said that if the form of judicial authority proposed was objected to he would assent to any form which met with the approval of Lord Russell. A very great alienist had said that the number of wives who came to ask him to certify their husbands was only equalled by the number of husbands who came to ask him to certify their wives. The friend and adviser of the incipient patient should be a judicial authority who was quite independent of those who desired to place the patient under control. The question had nothing to do with the skilled opinions of medical men as against those of the law; it was whether there should be any person unconnected with the patient, unconnected with the medical adviser, to consider if the patient should be locked up or not.

Earl RUSSELL said that neither he nor the Minister of Health had any objection to a judicial authority in itself. The objection unfortunately came from the patient and his relatives. It was true that a judicial authority was recommended by the Royal Commission with reluctance, but it was much better for the patient that the matter should be done in a less formal way. They wanted, under this bill, to treat incipient mental disorder without the stigma of certification. He begged Lord Brentford not to talk about persons being "locked up" and being "put away." Those were the expressions which it was desired to get out of the mind of these patients. They wanted to talk to them about being treated for their health, and to assimilate the treatment as far as possible to the treatment for ordinary illness. Detention might be a necessary part, but it was not the part on which they desired to insist. Could the House suppose that if two competent medical men signed a certificate, giving perfectly clear facts on which they based their conclusion, that a justice would take upon himself in the ordinary way to override that certificate. The most he could do would be to see that everything was regularly done. That was the duty both of the superintendent of the institution to which the patient was taken and of the Board of Control who received the certificate. These were much more competent to perform that duty than the ordinary justice.

Lord DARLING said that Mr. Hugh Macmillan, K.C., who was the chairman of the Royal Commission, was of opinion that what was proposed in the bill was the proper way of dealing with these incipient mental cases. Intervention of justices of the peace would be bad for the patient.

The Earl of ONSLOW suggested that it might be possible to entrust the endorsement of the recommendation of the two medical men to the Commissioner or the Assistant Commissioner of the Board of Control, or at any rate to the authority of that Board rather than to a judicial authority.

Lord MERRIVALE hoped that Lord Russell would consider Lord Onslow's suggestion. In 999 cases out of 1,000 it was desirable that these people should be under treatment, but everyone knew that the odd case occurred, whether through interest or malice or some indirect motive, and produced mischief. The present procedure was really not a safeguard. For a delicate matter of this kind he thought they might have a body of referees nominated in the public interest. There should be a panel of qualified persons in whom medical men and everyone else would have confidence.

Lord HANWORTH said he hoped that the Government would hold to the bill. The same reluctance would be shown to go before a board of referees as to go before a magistrate. The stigma was really the same, and such a step would interfere with the recovery of these patients. So long as the matter was left in the hands of the medical man, and treatment was given by the medical man, there was some hope for them.

The Marquess of SALISBURY said the matter was not a purely medical one. He asked if Lord Russell had considered the difficulty of determining what the actual volition of the patient was, and whether he had exercised it.

Earl RUSSELL said that he did not think that the difficulty would arise in practice. The person was not necessarily comatose —confusional was rather the word. A great many of the confusional cases were so excited and upset by the procedure of certification and by seeing a justice that it often put them back as much as six weeks before they began to make progress in the quiet surroundings of the asylum.

Viscount CECIL OF CHELWOOD suggested that a way out of the difficulty might be to insist that one of the two medical practitioners who were to sign the recommendation for temporary treatment should be a person who had been proposed for the purpose by the Board of Control.

Earl RUSSELL said that that was a valuable suggestion, and he would certainly consider it before the report stage.

Lord DAWSON OF PENN said that the medical profession had no objection to safeguards, provided they were such as would not prejudice the cure of the patients who were ill. They frankly admitted that those patients with which the bill dealt constituted a class that had not hitherto been dealt with by the Legislature. They were people for the most part living in small houses and earning small incomes. The difficulties were much less among the well-to-do. They had large houses, where persons mentally sick might perhaps have two nurses, and where the treatment could be carried out quite easily. The class of patient to which the bill referred was a class that was grievously suffering, or had very little or no opportunity of being relieved. Let them take the case of an out-patient at a hospital who might have influenza or some simple illness. He went there with a feeling of depression, under a power of self-criticism, subject to introspection, and might go step by step down to that absolute suffering which they all knew, and for which they were perfectly powerless to do anything under present conditions. If they wanted to do anything with such patients now they had to be certified. That brought him to the question of certification. The word "certification" conveyed notions of a madman and all the things that had been from generation to generation associated with that name. He admitted that many of the fears entertained were unreasonable, but they were there, and the medical profession, which had to do with the sick, constantly found those difficulties arising. It had to be borne in mind that the patient whom they hoped to help by this bill was very often a sensitive, very impressionable, and sometimes very competent person—someone who was cut a little bit too fine for the environment in which the world had placed him. The nervous system of those people was very easily wounded. They were a class which was increasing with the civilization which we had to-day. They might be very competent in their work, and were very often efficient and capable of being leaders. Doctors had often come across them in the war. Such people might get some toxic condition arising from influenza; or, in the case of a woman, it might be due to childbirth. Under the stress or strain of that, or because of overwork, they would begin the down grade, with which doctors were familiar. They would have a want of confidence, would indulge in self-criticism and self-abasement, and might in the end become insane. No class had to be more carefully handled by medical men or required a greater intuitive insight, tenderness, and sympathy. One false word, and the doctor's influence vanished. Very often one had carried the patients along and convinced them that all their distresses, their sleeplessness, that burden of life which had become a horror to them, was due to overwork, and that by proper treatment they would get better. Then, suddenly, the patients would turn to one and say, "Do you think I am going to lose my reason?" They were so quick in feeling that. Supposing that the patients had reached the stage where one had to put them under treatment, and that at that time one introduced anything like certification—anything that had an association with certification—one got not only their friends, but people who knew them, the social circle in which they moved, entertaining certain feelings towards them. It was a fact that certification was associated with a very grim past. Anything that interfered with the secrecy and the confidential relationship of medical advice was to be avoided, and that was why it was so important that the provisions of this bill should be carried out. They could have precautions if they liked, provided these did not become so cumbersome as to render the measure nugatory. There might be precautions, provided they were careful precautions that would not in any way damage the good effect of these provisions. If these patients once realized that they were thought to be insane they would have been given for the rest of their lives a sense of inferiority. They would constantly say: "I am damaged; I have been insane; I have been locked up." They got the thought that they had done an injustice to their children, and they knew that it prejudiced the chances of the marriage of their children. Their lordships knew how very anxious people were if there was any question of insanity in the family. For those reasons he wished to emphasize the benefits of the bill. The bill would enable the poorer classes to get at any rate some of the benefits now open to the more prosperous and happy classes. Further, it would do what the medical profession and those who had thought upon this matter desired—it would bring about the prevention of insanity. The bill did not deal with insanity, and therefore they asked that it should be kept away from all mention of the machinery of insanity. Its whole object—and he was quite confident that it would be successful in this—was to take these people when they were suffering from mental illness just as one took them when suffering from physical illness, and treat each one according to his need and in the same way as in the case of physical illness. If that were carried out with any precautions that were suitable, provided they did not run counter to the feelings of the people whom they desired to help, he was confident the bill would be of great good to the community. Viscount BRENTFORD said that he would withdraw his amendment and ask the Government to consider the various proposals which had been made to get over the difficulty with regard to the rights of the liberty of the subject. Their object was, as Lord

DAWSON had said, to give every possible security without doing harm to the patient. Earl RUSSELL said that he would be glad to consult with Lord Brentford. The amendment was withdrawn.

An amendment by Lord SANDHURST, to enable the Board of Control to extend the time under which a non-volitional patient would be able to receive treatment to a period not exceeding three months beyond the six months provided in the bill, was agreed to.

Reorganization of Board of Control.

On Clause 11 the Earl of ONSLOW moved an amendment providing that the Board of Control should consist of the chairman and not more than five other Commissioners (instead of four, as provided in the bill). He urged that there should be two medical Commissioners, as they required very urgently that a medical man, with the full authority of the Board, should be available at any moment at the Board of Control. If there was only one medical Commissioner it might be difficult, in the case of his illness, to have his advice and authority. Earl RUSSELL said that he could accept the two medical Commissioners, but not the total of five members in addition to the chairman. The Earl of ONSLOW said that if Earl Russell would tell him that there would always be a medical man, with full authority, that would go a long way to meet the difficulty. Earl RUSSELL said that there was, of course, the possibility of the woman member being a medical person. The Government were very reluctant to increase the number on the Board to five. If Lord Onslow asked if any medical Commissioner would be available under the Assistant Commissioner that would certainly be so. This person would have all the administrative powers, to be exercised in case of emergency, except that of sitting on the Board. The Earl of ONSLOW said that would meet his point, and withdrew the amendment.

Lord SANDHURST had tabled an amendment to Clause 16, to ensure that no civil or criminal proceedings should lie against a person who had signed or carried out a reception order or any other report or certificate under the bill, unless he had acted negligently and without reasonable and probable cause, the question of reasonable or probable cause to be determined by the judge. This safeguard was drafted by Lord Sandhurst as an amendment to the provision in the bill that such a person should not be liable to civil or criminal proceedings unless he had acted in bad faith or without reasonable care. Lord Sandhurst, however, did not move this amendment, and the clause passed without discussion.

An amendment by Viscount BRENTFORD, providing that the rules made under the bill should be subject to the sanction of Parliament, was agreed to.

Vaccination.

On December 12th Mr. FREEMAN asked if Mr. Greenwood could announce any concessions in respect of the Vaccination Acts. Mr. GREENWOOD said he was considering the whole subject of vaccination, including the desirability of further inquiry, but could not then make any announcement. The latest figures available, those for 1927, had shown that in that year just over 40 per cent. of the parents made declarations of conscientious objection to vaccination. Mr. FREEMAN asked if the Minister would consider placing vaccination on a voluntary basis. Mr. GREENWOOD said that would be a matter for examination.

Answering a further question from Mr. Richard Russell on the same date, Mr. GREENWOOD said that the Ministry of Health had information of 100 deaths from encephalitis following vaccination from December, 1922, to September 30th, 1929. As a result of recommendations, published by an expert committee last year, some modifications had been made in the technique which public vaccinators were advised to follow.

Mr. GROVES asked whether Section 8 of the Vaccination Act contemplated revaccination by public vaccinators only where persons applied for it, and why the new regulations issued by the Minister authorized revaccination of children as young as 12 months. Mr. GREENWOOD, replying, said nothing in the Vaccination Order, 1929, conflicted with Section 8 of the Vaccination Act, 1867. In the case of a child, application had to be made by the parent or other person having its custody.

In a reply to Mr. Freeman Mr. GREENWOOD said 35 cases of smallpox occurred in England and Wales as a result of the outbreak of the disease in the ship *Tuscania* last March. Of these, 21 cases were vaccinated, 6 revaccinated, and 6 unvaccinated. The vaccinal condition of one was doubtful, and of one unknown. Of the vaccinated cases, all but two were persons of 19 and upwards who had been vaccinated only in infancy. Among these 35 cases, eleven deaths occurred—three of the 6 unvaccinated cases, seven of the 21 vaccinated cases, and one case in which the vaccinal condition was unknown proving fatal. There were no deaths among persons known to have been revaccinated. He furnished a table showing the districts in which the cases occurred, the ages, and the vaccinal condition.

Care of Mental Defectives.—Mr. GREENWOOD stated, on December 12th, that 28 local authorities in England and Wales had provided institutions for the residential care of mental defectives; 18 had schemes in progress, but 78 had not then made any institutional provision.

Hospitals Supported or Aided by Local Authorities.—Mr. GREENWOOD told Mr. Thos. Griffiths, on December 12th, that one large general hospital with 875 beds and three relatively small accident hospitals had been provided by local authorities in England and Wales. In 1927–28, local authorities subscribed £25,000 in donations to voluntary hospitals under the Public Health Act, 1925, and boards of guardians contributed £44,000 to public hospitals. In the same period local authorities provided 166 hospitals for tuberculosis, with 12,787 beds, and 287 hospitals for acute infectious diseases, with 36,833 beds, of which 2,205 beds were for tuberculosis. They also provided 79 maternity hospitals, with 1,631 beds—not including maternity wards in general hospitals or Poor Law institutions—and 11 babies' hospitals, with 253 beds. Voluntary hospitals aided by local authorities included 138 tuberculosis hospitals, with 9,202 beds, 164 general hospitals used in tuberculosis schemes, 130 used in venereal disease schemes, and 22 hospitals used in maternity and child welfare schemes; also 65 maternity hospitals, with 1,323 beds, and 12 babies' hospitals, with 347 beds. In grants to general voluntary hospitals and tuberculosis voluntary hospitals in 1927–28, local authorities in England and Wales expended £825,000, and for maternity and child welfare hospitals £78,000.

Doctors and Trade Unions.—Dr. VERNON DAVIES, speaking on December 6th, during the debate on the Industrial and Provident Societies (Amendment) Bill, said doctors had no trade union. They would have much greater power if they possessed one. There was not a single medical man in the House who was subsidized or paid or helped by the medical profession. Could that be said of miners or co-operators?

Mental Nurses and Registration.—Miss LAWRENCE, on December 10th, told Mr. Remer that the Minister of Health was not empowered to issue any Order to ensure that mental nurses who possessed the Royal Medico-Psychological Association's certificates received admission to the register kept under the Nurses Registration Act, 1919.

Emission of Smoke from Buildings.—On December 10th Mr. GREENWOOD told Mr. Somerville Hastings that a model by-law had been issued to assist local authorities in regulating the emission of smoke from buildings. Seventy-three local authorities had made by-laws under this section.

Navy, Army, and Air Force Insurance Fund.—In an answer to Sir Kingsley Wood, on December 12th, Mr. GREENWOOD stated that if members of the Navy, Army, and Air Force Insurance Fund continued their membership after discharge from the forces they were entitled to increases on the normal rates by 4s. a week sickness benefit, 2s. a week disablement benefit, and 8s. maternity benefit, besides payment of the whole cost of dental treatment, ophthalmic treatment, and the provision of dentures, spectacles, and medical and surgical appliances.

Graduates Holding Indian Medical Degrees.—Major GRAHAM POLE asked Mr. Wedgwood Benn, on December 12th, whether he had been notified by the General Medical Council as to its decision in respect of the position in this country of graduates holding Indian medical degrees. Mr. WEDGWOOD BENN replied that, as matters stood, the recognition of Indian medical degrees was governed by the resolution of the General Medical Council of July 22nd last. There had been no later decision by the General Medical Council, but he understood that the situation which had since arisen would be considered by the Executive Committee at its next meeting in February.

Position of Medical Officers of Local Authorities.—Dr. VERNON DAVIES asked Mr. Greenwood, on December 12th, if he had considered, in relation to the recommendations of the Royal Commission on Local Government, the case of medical officers of local authorities, such as a public vaccinator, a district medical officer under the guardians, and a medical officer of health to an urban or rural district council; and whether he would issue a statement to local authorities on the position of such officers in respect of membership of local authorities. Mr. GREENWOOD said the recommendations of the Commission were under his consideration, and he did not think a special statement to local authorities on the matter was required at present.

Asbestosis.—Mr. THORNE asked the Home Secretary, on December 12th, if his attention had been drawn to an inquest held at Ilford on an employee of an asbestos firm at Barking who died from asbestos poisoning; if he was aware that asbestosis was prevalent in asbestos factories, especially at Barking; and whether he was prepared to schedule this disease under the Dangerous Diseases Act. Mr. CLYNES said he had received a report from the Factory Department on this case. A medical inspector of factories had recently made a comprehensive investigation into the occurrence of this disease among asbestos workers generally. Mr. Clynes said he was considering the report of this inspector, both as regards the preventive measures to be taken and the question of bringing the disease under the Workmen's Compensation Act. The investigation did not disclose any special incidence of the disease at the Barking works. There the exhaust ventilation, which was the chief means of prevention, was quite up to the usual standard and was being constantly improved.

Notes in Brief.

Under the Widows and Old Age Pensions Act, 1929, about 10,000 persons in lunatic asylums or Poor Law infirmaries will cease to be disqualified from receiving pensions.

In 1928 the infant mortality rate for the borough of West Ham was 49 per 1,000, for North Kensington 93, and for the Norland ward of the borough of Kensington 115.

The Preservatives Regulations of the Ministry of Health prohibit the importation of fruit, other than dried fruit, which is preserved with sulphur dioxide, unless it is intended for conversion into jam or cured fruit.

During the twelve months ended September 30th, 1929, work was in progress on ninety-seven slum clearance schemes in England and Wales.

Universities and Colleges.

UNIVERSITY OF LONDON.

THE following candidates have been approved at the examination indicated:

THIRD M.B., B.S.—*‡§R. K. Bowes, *‡C. R. E. Freezer, *‡A. Gilpin, *‡D. H. Haler, *‡H. Tenkin, H. W. Appin, C. V. Bloom, E. J. C. Bockett, A. M. Boyd, Bertha A. Briant, A. P. L. Cogswell, C. N. Cohen, Mabe J. Cooke, P. Dalzell, C. C. Davis, G. H. Dobney, C. J. East, Lilian P. Edwards, Muriel F. M. Evans, M. J. Evans, A. D. Everett, B. M. Fonseka, R. A. Furniss, F. W. Gilbert, Alice E. N. Gilby, Sibyl D. Goodwill, D. R. Griffith, Grace M. Griffith, T. R. Griffiths, R. W. Haines, Margaret L. Hamburger, E. O. Harris, C. V. Harrison, G. F. Harrison, G. R. M. Heggs, E. A. H. Hinchaugh, R. C. Holderness, G. MacL. Housden, S. Kin, R. A. Kin, K. E. Lane, L. P. E. Laurant, F. J. G. Lishman, Dorothy M. Lufkin, Gladys E. McCabe, J. F. Mackenzie, J. R. A. Mackwick, E. W. Martindell, Olive M. Midgley, T. H. Negus, Doreen G. C. Nixon, Penelope A. Peach, L. M. J. A. Pilot, N. G. Pitt, R. Purvis, Sylvia M. Ransford, N. W. Roberts, W. P. Roe, H. Selby, R. Shelley, R. C. N. Shires, S. Shone, A. W. E. Soyza, Marjorie V. N. Sudds, C. B. V. Tait, S. A. Underwood, L. E. Vine, W. H. S. Wallace, Eileen A. L. Webb, J. W. Wigg, E. M. Wijerama, R. M. Williams, C. S. Wise, H. S. H. Wood, N. R. W. Wynn-Williams. (*Group D*: Kathleen L. Bland, A. Clark, T. V. Cooper, C. H. Dale, H. B. A. R. Densham, R. L. H. Harris, A. G. Harsant, D. T. Jones, H. W. Jordan, Laura H. Mac alane, H. G. McGregor, F. M. Mallinson, C. E. H. Mayeroft, L. H. Mottet, C. M. Ockwell, G. F. Peters, E. S. Pope, B. Ram, A. C. Riley, N. L. Sheppard, Helana Sidarous, B. Stanley, H. Teitelbaum. (*Group D*): E. F. D. Baker, R. C. Bennett, P. C. C. de Silva, F. A. Edwards, J. D. S. Flew, H. S. Hamlin, K. W. D. Hartley, H. B. Hodson, A. S. Hoseason, J. Ives, A. H. M. McMullan, R. Machray, J. R. Murray, R. K. Price, Everell M. Shippam, C. E. H. Turner, R. C. Williams.

* Honours
† *Distinguished in Medicine.*
‡ *Distinguished in Pathology.*
§ Distinguished in Midwifery.
‖ *Distinguished in Forensic Medicine.*

UNIVERSITY OF BIRMINGHAM.

THE following candidates have been approved at the examinations indicated:

M.D.—J. W. Field (with honours), C. J. Polson.
M.B., Ch.B.—T. A. Cooper, G. J. Garratt, I. B. Gumede, R. H. Hucknall, E. J. Kerr, D. J. Mann, P. H. Methu, A. Monib, J. D. W. Shedden, Mary A. Tomlinson.

UNIVERSITY OF DURHAM.

ON the nomination of the Senate, Sir Thomas Oliver, M.D., LL.D., has been appointed Pro-Vice-Chancellor of the University.

UNIVERSITY OF DUBLIN.

TRINITY COLLEGE.

AT the earlier winter commencements, held on December 8th, the following medical degrees and licence were conferred:

M.D.—R. W. T. H. Stewart.
M.Ch.—J. C. Fouché.
M.B., B.Ch., B.A.O.—G. R. Beare, Josephine M. Enright, G. C. Graham, W. B. Hamilton, W. R. Johnston, W. A. Y. Knight, J. F. K. MacCarthy-Mortogh, F. S. Mackenna, J. N. U. Russell, Lilla M. Spiller, A. B. Thrift, Frances E. Wilson, E. J. M. Bam, A. G. Garde.
LIC.MED. AND S.—M. E. Kirwan.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

A MEETING of the Council of the Royal College of Surgeons was held on December 12th, when Lord Moynihan, the President, was in the chair.

The death, on November 17th, of Mr. T. H. Openshaw, past Member of the Council, was reported, and a vote of condolence was passed.

Fellowship.

The Fellowship of the College was conferred upon the following:

M. S. K. Joshi, R. M. Dannatt, D. L. Jones, G. J. Griffiths, E. F. King, J. L. Griffiths, A. J. King, N. E. Laurence, H. V. Wells, A. S. Gough, J. F. E. Gilham, H. L. Peake, F. W. Law, Beatrice G. Smith, J. McN. Milloy, J. G. Wigley, W. P. Greenwood, A. W. L. Row, E. McLellan, W. C. W. Nixon, R. E. Norrish, S. F. Russell, S. Shalaby, W. E. Underwood, P. Forte, M. Y. P. Peiris, W. J. H. M. Beattie, M. V. Modi, H. S. Waters, M. C. Rous, H. T. Simmons, P. Wiles, J. O. Smith, J. Dawson, D. N. Epstein, A. L. Johnston, A. J. Mason, A. R. Mowlem, L. A. Riddell, A. L. Webb, F. E. Webster.

Membership.

Diplomas of Membership were granted to E. Marks and Alison J. Rae.

Recognition of Hospitals for Final Fellowship Examination.

A recommendation from the Court of Examiners "that the Blackburn and East Lancashire Royal Infirmary and the Hampstead General and North-West London Hospital be recognized for the twelve months' surgical practice required of non-members before admission to the Final Fellowship Examination," was approved and adopted.

Appointments.

Lord Moynihan was elected the representative of the College on the Court of the University of Birmingham for three years from January 1st, 1930. Mr. C. H. Howkins of Birmingham was re-elected a member of the board of examiners in dental surgery, subject to the provisions of the Charters.

Demonstrations.

The President reported that Sir Frank Colyer had, upon the invitation of the Council, undertaken to give two demonstrations on the odontological collection on March 12th and 19th, 1930.

Annual Report.

A report from the committee on the annual report of the Council was read and the following reply to the resolution carried at the annual meeting on November 21st was approved and adopted: "No evidence has been submitted to the Council that the change in the constitution of the College advocated in the resolution is desired by any considerable number of Members of the College, and the Council is therefore not prepared to reopen the question at the present time."

Medical News.

THE House and Library of the Royal Society of Medicine will be closed from Monday, December 23rd, to Saturday, December 28th, both days inclusive.

A meeting of the Society for the Study of Inebriety, to be held in the rooms of the Medical Society of London, 11, Chandos Street, Cavendish Square, W., on Tuesday, January 14th, at 4 p.m., Dr. William Brown, Wilde reader in mental philosophy in the University of Oxford, will open a discussion on "The role of psychotherapy in the prevention and treatment of alcoholism and other drug addictions."

THE annual dinner of the Medico-Legal Society was held at the Holborn Restaurant on December 13th, with the president, Lord Riddell, in the chair. In proposing the toast of "Medicine and Law" Dr. Nathan Raw referred to the social revolution that had been brought about, directly or indirectly, by the work of such men as Harvey, Lister, Jenner, and Ross. It was difficult to believe, he said, that only a century ago two-thirds of the people of this country were disfigured by small-pox, a disease which, owing to Jenner's great discovery, had, in its severer forms, almost disappeared from England. The medical profession was proud of Lord Dawson and his team of skilled workers, who together had undoubtedly saved the life of the King. Medicine and the Law were united in supporting the Mental Treatment Bill now before Parliament, and their joint efforts would secure a greater advance than any that had hitherto been made in the treatment of persons suffering from early mental disorder. Lieut.-Colonel C. T. Samman, Master of the Society of Apothecaries, replying for Medicine, said that the doctor of the future would depend for his success not on mere empiricism, but to an increasing extent on the established sciences of biochemistry and bacteriology. He and the lawyer together would promote the public health by formulating and incorporating into the law of the land wise enactments designed to secure the prevention of disease. Replying for the Law, Mr. A. E. Mitchell-Innes, vice-chairman of the General Council of the Bar, said that sooner or later the joint wisdom of the medical and legal professions would bring about a change in the conception of what constituted insanity, and by their efforts the definition of insanity now acted on by His Majesty's judges would be brought into line with modern views on psychology. Lord Greenwood proposed the toast of "The Medico-Legal Society," and Lord Riddell, in responding, said that the value of the society to the lawyer and the doctor was that it provided them with an excellent resort in which they could spend "a business holiday." Replying to the toast of "The Guests," which had been proposed by Sir John Collie, the Attorney-General (Sir William Jowitt) referred to the criticisms which had lately been directed against the English system of coroners' inquests; he could imagine, he said, no greater tribute to the coroners of this country or to the system which they administered, than the fact that although about 30,000 inquests were held each year only one or two had been made the basis of adverse criticism. Mr. Donald Armour, also replying, said that the Medico-Legal Society could play a great part in the education of the two professions; the doctor had to learn to answer questions on matters about which he knew everything, and the lawyer to ask questions on matters about which he knew nothing.

AT a meeting of the Central Midwives Board for England and Wales, held on December 5th, a letter was read from the Ministry of Health stating that the existing rules of the Board were approved for a further period of one year, as from December 31st. Approval was given to a scheme of lectures to be delivered at Hull submitted by the medical officer of health.

THE Minister of Health received, on December 5th, a deputation from the Standing Joint Committee of Industrial Women's Organizations. The deputation was introduced by Dr. Marion Phillips, M.P. and the speakers drew attention to the acute

distress prevailing in South Wales, Durham, Northumberland, Staffordshire, and other necessitous areas, and stressed in particular the need for further financial help to enable boots and clothing to be provided for children. The deputation urged that further help was imperative and should be given through a public fund administered by public bodies. Distress should be the sole criterion for relief, and the areas to be assisted should not be fixed arbitrarily. The Minister said, in reply, that on the general question of relief to distressed areas there seemed to be some conflict of evidence. A full report had recently been obtained which appeared to show that the Lord Mayor's Fund was meeting the distress in the coalfields. The deputation had, however, suggested that that was not the case. Any further Government assistance was a matter upon which he would have to consult the Cabinet, and before he could submit any proposals he would require definite evidence that the Lord Mayor's Fund was not meeting the need. Dr. Phillips promised to submit further evidence, and pointed out that the need was not confined to areas in which the Lord Mayor's Fund operated, but was quite as great in some other necessitous districts. The Minister promised to give full consideration to that point.

AT the annual meeting of the British Dental Hospital, held in the Battersea Town Hall on December 5th, the president, Sir Harry Baldwin, made a presentation to Mr. George Thomson, L.D.S., who founded this institution in 1911. It was announced that the hospital now comprises five chief treatment centres, eight maternity and child welfare clinics, eight tuberculosis clinics, one insurance society clinic, one full-time school clinic, one special clinic for children under the age of 5, and also a centre for treatment of minor ailments and disorders of the ear, nose, and throat. The staff numbers two medical practitioners, thirty-nine dental surgeons, and twelve anaesthetists.

THE Joint Advisory Committee on River Pollution, which was appointed to "consider, and from time to time to report on, the position with regard to the pollution of rivers and streams, and on any legislative administration or other measures which appear to be desirable for reducing such pollution," met on December 12th and 13th at the Ministry of Health. The committee is at present addressing itself to the question of the access of trade and manufacturing waste liquids to the sewers of local authorities.

THE issue of *Schweizerische medizinische Wochenschrift* for November 30th is devoted to the proceedings of the thirteenth annual meeting of the Swiss Society of Dermatology and Venereology, held at Geneva on June 29th and 30th, under the presidency of Professor C. Du Bois.

THE Royal College of Physicians of London will be closed for the Christmas vacation from Tuesday, December 24th, to Monday, December 30th, both days inclusive.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to ***The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.***

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All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The ***TELEPHONE NUMBERS*** of the British Medical Association and the *British Medical Journal* are *MUSEUM 9861, 9862, 9863,* and *9864* (internal exchange, four lines).

The ***TELEGRAPHIC ADDRESSES*** are:
EDITOR OF THE *BRITISH MEDICAL JOURNAL, Aitiology Westcent, London.*
FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*
MEDICAL SECRETARY, *Mediocra Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*, telephone 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*, telephone 24361 Edinburgh).

QUERIES AND ANSWERS.

TRAIN SICKNESS.

"J. T. M." asks for advice in treating a healthy girl aged 9 years, who has attacks of nausea, culminating in vomiting, when she travels in a train, bus, or tram.

DIET AFTER JEJUNOSTOMY.

"A. J. A." asks for advice as regards the feeding of a man, aged 59, on whom a jejunostomy has been performed. Eleven years ago he was treated for duodenal ulcer by a posterior gastro-enterostomy; a large gastro-jejunal ulcer subsequently developed at the site of anastomosis, and, owing to the condition of the patient, the only possible operation was a jejunostomy below the site of the old anastomosis. The patient is now being fed through the new stoma with peptonized milk, butter, glucose, soups, and eggs (not peptonized); his digestion is good. Can any surgeon with experience of similar cases recommend anything else as regards food?

CHRONIC URTICARIA.

DR. H. S. BURNELL-JONES (London, N.W.) recommends "X. Y." (December 7th, p. 1093) to try autohaemotherapy for chronic urticaria of unknown causation. He writes: Withdraw 3 c.cm. of the patient's blood in a syringe and, without removing it from the syringe, inject it into the gluteal muscles. Gradually increase the volume of blood up to 10 c.cm., and give one injection every week.

DR. L. A. FRANCIS (Uxbridge) writes: A lady patient of mine was a sufferer from urticaria for many months, and was treated by diet and stomachics, by bromides and other nerve sedatives, by an autogenous vaccine, and by innumerable external remedies. She saw many physicians. Nothing did her any good till she took collosol calcium one teaspoonful in water thrice a day. She improved at once, and has remained well for several weeks.

LETTERS, NOTES, ETC.

COTARNINE HYDROCHLORIDE IN HAEMORRHAGE FROM THE PROSTATE.

DR. J. R. LOGAN (Liverpool) writes: I think it is worth while to put on record the very distinct success which I have had in the treatment of prostatic haemorrhage by the administration of cotarnine. If I remember aright the prostate is regarded as the anatomical homologue of the uterus, and therefore it was that I resolved to try whether the remarkable effect which cotarnine has in causing uterine contraction might be paralleled if I used it in treating cases suffering from haemorrhage from the prostate. In the past five or six years I have had the opportunity of trying the treatment on quite a dozen occasions and, I am pleased to be able to say, with phenomenal success. The bleeding always stopped in a few days, seldom persisting as long as a week. I have no doubt there are disorders of the gland in which this drug can be of but little, if any, use, but in simple cases I believe
[illegible] in checking bleeding, and also in
[illegible]ze of the prostate. I have ordered
[illegible]ain as a tabloid thrice daily.

TUBERCULOSIS AND THE ROYAL SOCIETY OF MEDICINE.

DR. G. GREGORY KAYNE (Denbigh, N. Wales) writes: It is hardly necessary to emphasize the benefits derived by the medical profession from the various Sections of the Royal Society of Medicine. Would it not be possible to organize a separate Section for tuberculosis? Tuberculosis takes an enormous toll in human death and illness, and well deserves special attention. Such a Section would bring together the men interested in the problem in its various aspects (for the disease still remains very much a problem), and perhaps prevent the periodical apathy into which the medical profession (as a whole) falls with regard to the disease. Moreover, the Society would attract many men who, occupied purely with tuberculosis, find it difficult to take an interest in a Society which hardly "caters" for them at present. It would be interesting to hear what other medical men specializing in tuberculosis think of this matter.

EXTRA-ARTICULAR FIXATION OF THE SACRO-ILIAC JOINT.

IN the abstract of the article on this subject by W. M. Phelps and M. K. Lindsay (*Epitome*, December 7th, para. 5091) it should have been mentioned that the procedure they employed was devised by Mr. P. Jenner Verrall, F.R.C.S., and published by him in the *Journal of Bone and Joint Surgery* in July, 1926. Messrs. Phelps and Lindsay in their article made it quite clear that they had been using Mr. Verrall's method.

THE CANCER PROBLEM.

IN the course of a letter Dr. A. W. CRAWFORD (Bolton) disagrees with the assertion of Dr. A. T. Brand on December 7th (p. 1094) that cancer has been demonstrated to be due to an extrinsic pathogenic micro-organism. He adds that the association of an organism with a lesion is no evidence of an etiological connexion, and that convincing proof of the microbic causation of spontaneous cancer is lacking.

PERCAIN.

WITH reference to the local anaesthetic percain, of which an account appeared on December 14th (p. 1114), we are now informed that it is not necessary to order supplies of it from the makers at Basle; it may be obtained from the Clayton Aniline Company, Ltd. (Pharmaceutical Department), 40, Southwark Street, London, S.E.1.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 43, 44, 45, 48, 49, and 50 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 46 and 47.

A short summary of vacant posts not filled in the advertisement columns appears in the *Supplement* at page *268*.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

547. Hyperthyroidism as a Cause of Cardiac Disability.

D. K. BACON (*Minnesota Med.*, November, 1929, p. 659) remarks that the cardiac lesions resulting from hyperactivity of the thyroid gland are less characteristic than those due to the commoner causes, such as rheumatism, syphilis, and hypertension. He recalls the pathological findings of Goodall and Rogers, who detected, on microscopic examination of thyrotoxic hearts, an interstitial myocarditis, with evidence of hyaline degeneration and necrosis of muscle bundles; these observers also demonstrated electrocardiographic changes indicating myocardial damage. Regarding symptomatology, functional disturbances of the heart are very frequent as a result of thyroid disorders, and may occur intermittently at an early stage of the disease. These manifestations are, principally, simple or paroxysmal tachycardia, auricular fibrillation and flutter, extra-systoles, and delayed conductivity. Many patients with varying degrees of hyperthyroidism complain of purely cardiac symptoms, and if there are few signs of thyroid defect diagnosis may be difficult. The author describes seven such cases to illustrate certain principles in diagnosis and treatment. He finds determination of the basal metabolic rate a useful guide, but believes that this may not be raised during phases of inactivity, or in slight degrees of hyperthyroidism. The administration of iodine is another valuable diagnostic measure: if slowing of the heart, greater regularity, and loss of nervousness and tremor are produced, and if these symptoms return on withdrawal of the drug, the likelihood of thyroid disorder becomes very strong. Where hyperthyroidism is easily diagnosable, iodine should only be given as a pre-operative measure, thyroidectomy being performed before the secondary reaction sets in. From his cases, all of which showed improvement or cure after thyroidectomy, the author deduces that the absence of tremor, glandular enlargement, or eye signs does not necessarily exclude a diagnosis of hyperthyroidism. He also concludes that, in the absence of a definite etiological factor in a case of cardiac disease, no examination is complete that does not thoroughly investigate the activity of the thyroid gland.

548. Spontaneous Recoveries from Diphtheria.

ACCORDING to F. HAMBURGER and J. SIEGL (*Munch. med. Woch.*, September 13th, 1929, p. 1537), during the last five years 20 cases of mild faucial or nasal diphtheria, confirmed by bacteriological examination, have been treated in the Graz University Children's Clinic without antitoxin; all made an uncomplicated recovery, with the exception of one child, in whom the nature of the acute attack had not been recognized, who developed paralysis. Of the 20 cases, 15 were Schick positive shortly after recovery, and in 11 the reaction was examined again from four to twenty-three months later. Among 8 originally Schick-positive, 6 were still positive and 2 had become negative. Of the remaining 3 who were originally negative, 2 were unchanged, but one had become positive. In only one case was an estimate of the amount of antitoxin in the blood made, the amount being less than 0.004 unit per c.cm. The authors conclude that in a large number of cases of spontaneous recovery from diphtheria free antitoxin is not to be found in the blood, and therefore that in addition to antitoxin other antibodies must be responsible for recovery from the disease. Comparatively few persons contract diphtheria; Schick-positive carriers often escape, while Schick-negative individuals, less frequently, may contract the disease or become Schick-positive again. The authors are inclined to regard wholesale immunization against diphtheria as premature, and consider that the question requires further study.

549. Hospital Epidemic of Erythema Infectiosum.

A. SIWE (*Monats. f. Kinderheilk.*, October, 1929, p. 152) records an epidemic of twelve cases of erythema infectiosum which occurred in the University Children's Hospital at Lund. The ages of the patients ranged from 2 to 11 years, and the incubation period ranged from seven to twelve days. In most of the cases the temperature rose to more than 102.2° without any complications being observed. The disease proved contagious in 30 per cent. Prodromes in the form of headache, somnolence, and anorexia were noticed in a few cases. The general condition was good throughout, and the duration of the disease was from six hours to seven days or more. The blood picture showed no pronounced changes. In several patients there was a recurrence of the eruption at irregular intervals, but the recurrences did not necessarily exhibit the same appearance or distribution as the primary eruption. In only two cases did the erythema present the typical circinate appearance; in the others it was more like scarlet fever or measles. One child had extensive oedema, and considerable cutaneous and subcutaneous haemorrhages. Sensitiveness to tuberculin appeared to be distinctly increased in several cases after the disease had terminated.

550. Acute Leukaemia.

S. L. WARREN (*Amer. Journ. Med. Sci.*, October, 1929, p. 490) comes to the following conclusions from a study of 113 cases of acute leukaemia, 85 of which have been reported in the literature since 1917 and 28 have come to necropsy within the last ten years at the allied hospitals of the Harvard Medical School and the Strong Memorial Hospital of Rochester. Acute leukaemia is not a rare disease. The constancy of its history, course, clinical indications, and blood and tissue findings is remarkable both in myelogenous and in lymphatic leukaemia. Acute leukaemia is essentially a disease of infants and young adult males, but in the fourth decade females are more frequently attacked. The duration of the disease is short: 84 of the 113 patients died within two months of the onset. Acute myelogenous leukaemia is frequently incorrectly diagnosed as lymphogenous in type because the primitive bone marrow cells are mistaken for lymphocytes.

551. Prophylaxis by B.C.G. Inoculation.

J. HEIMBECK (*Presse Méd.*, October 26th, 1929, p. 1391) publishes the results of inoculating with B.C.G. vaccine a series of hospital students; the injections were limited to those who gave a negative Pirquet reaction, since it was found that they were more likely to develop tuberculous trouble than those whose reaction was positive. The students were kept under constant observation for over three years. It was found that those who had received the injections showed a decided immunity to tuberculous developments: thus, out of 44 vaccinated in 1927 only one had a slight pleurisy, while 28 out of 100 non-vaccinated students contracted various forms of tuberculosis. Comparing the tuberculous morbidity between the vaccinated and non-vaccinated, it was found that 41 per cent. of the non-vaccinated developed tuberculous troubles (erythema nodosum, pulmonary infiltration, and pleurisy), while of 136 vaccinated only 3 developed slight pleurisy.

552. Gastric Response to Tobacco Smoking.

I. GRAY (*Amer. Journ. of Surg.*, October, 1929, p. 489) records the results of an investigation made in 100 cases of male adults between the ages of 20 and 40 who had gastric complaints with an associated history of smoking for at least five years. It was found that 50 patients with functional gastric symptoms showed variations in secretory and motor findings. Those who had heartburn, duodenal ulcer symptom-complex, or pylorospasm showed a hypersecretion and a distinct hyperacidity when smoking was allowed on a fasting stomach or two hours after a test meal; gastric secretion was also increased, with hypoacidity, in gastritis patients who smoked either before or after a test meal. In these patients peristaltic activity was decreased and the emptying time increased, while in the remainder peristalsis was increased and the evacuation slightly delayed. In cases of hyperacidity peristalsis was either normal or increased, with normal emptying time; in those who had hypoacidity or anacidity peristalsis was decreased and emptying time increased. The remaining 50 patients were those in whom a positive diagnosis of duodenal ulcer had been made with a history of periodicity and chronicity of ulcer symptoms for several years. These showed an increase in acidity and gastric secretion with smoking on a fasting stomach or two hours after a test meal; a few, however, showed a decrease in acidity after smoking. Smoking before the barium meal produced marked hyperperistalsis, whereas smoking fifteen minutes after showed a slight increase in peristalsis. The emptying time in these cases was practically normal. Five patients who were excessive smokers and showed no improvement of clinical symptoms were tested with the denicotinized products, and it was found that there was little change in the secretory or motor response as compared with the test when the usual nicotine product was used. There was no allergic reaction to tobacco extract in any of these patients upon skin tests, and it was found that the proteolytic action of pepsin was uniformly the same in all except four patients who showed a subacidity.

Surgery.

553. Spina Bifida Cystica.

J. LEVEUF (*Bull. et Mém. Soc. Nat. de Chir.*, October 26th, 1929, p. 1080) reports fourteen cases of *spina bifida cystica* recorded by Yovichitch of Belgrade, and describes the technique employed by the latter in the operative treatment of these cases. In each case the method of treatment was as follows: careful dissection of the sac; ligature and division of the pedicle; closing of the aperture by drawing together the neighbouring muscles; and suture of the skin. Of the fourteen cases operated on four patients died; in three cases the result was excellent, with uninterrupted convalescence, and the patients were found to be in good health three and a half years, two years, and eight months after operation. In three other cases incontinence of urine and faeces persists owing to weakness of the sphincter muscles; in one other case a slight hydrocephalus developed at the end of a year. Leveuf divides spina bifida into the variety which is not closed, and that which is covered with epidermis or skin. Out of fourteen cases of the first form, only one patient, who was operated on when only three hours old, was known to be alive and well eight months later, although suffering from muscular weakness of the lower limbs. Out of sixteen cases of spina bifida which were covered with skin, thirteen were operated on, and, of these, six recovered completely without any resultant disability; four recovered, but were left with incontinence or weakness of the leg muscles; two died from hydrocephalus, and one at the time of operation.

554. Rupture of the Bladder.

M. F. CAMPBELL (*Surg., Gynecol. and Obstet.*, October, 1929, p. 540) records his observations on 55 cases of ruptured bladder, with 35 deaths, which occurred at the Bellevue Hospital, New York, between January 1st, 1914, and July 1st, 1928, among slightly over 300,000 surgical cases. The majority of the patients were adult males, although the youngest was a girl aged 3 years. He remarks that the condition is due to trauma, and is favoured by vesical distension, alcoholism, which was present in 19 cases, and pre-existing disease of the vesical walls, such as tuberculosis. One-third of the cases were injured in or by a motor car, 23 were assignable to industrial accidents, and in 11 instances rupture followed a fall. In most cases shock follows the injury. Involvement of the urinary tract is suggested by intense bladder tenderness, dysuria, haematuria, or absolute inability to pass urine. If an intraperitoneal rupture has occurred the early symptoms of peritonitis may be present. In most cases the diagnosis is not easy, and an early and speedy operation is imperative. Free suprapubic bladder drainage is of the utmost importance. If intraperitoneal rupture has not occurred the prognosis is twice as good as when such a rupture is present. The chances of recovery are greatly increased when the patient has survived the first week.

555. Treatment of Acute Gastric Haemorrhage.

H. BOCK (*Zentralbl. f. Chir.*, October 12th, 1929, p. 2575) suggests that the mortality following haemorrhage from gastric or duodenal ulcer would be considerably reduced if patients were treated surgically at an earlier stage—that is, as soon as possible after a severe haemorrhage, without awaiting under medical treatment a recurrence of the bleeding and the consequent deterioration in the patient's condition. He advocates operation immediately after a large transfusion has been given. He considers that the patient's recovery from the loss of blood is thus accelerated; moreover, there is less risk of secondary septic infection, consequent on the prolonged restricted diet necessitated by medical treatment and the lowered general resistance. In illustration of this point he records two cases in which transfusion alone was performed; the patients succumbed to suppurating parotitis and multiple pulmonary abscesses respectively. In addition to transfusion, the operative technique advocated is resection, if practicable under local anaesthesia of the abdominal wall combined with splanchnic anaesthesia; where this is impossible Bock recommends posterior retrocolic gastro-enterostomy.

556. Movable Bodies in the Hip-Joint.

E. POLACCO (*Arch. Ital. di Chir.*, October, 1929, p. 671) records three illustrative cases in women, aged 35, 42, and 23 respectively, of movable bodies in the hip-joint secondary to osteo-arthritis deformans. In only one of the three cases was the etiology of the arthritis known—namely, gonococcal infection. Although Polacco's cases occurred exclusively in women, the male sex is usually more affected than the female by movable bodies in the joints. Age has no special influence on their occurrence. The larger joints are most frequently involved—namely, the knee, elbow, shoulder, in order of frequency—affection of the hip-joint being relatively rare. The number, weight, and consistency of these bodies vary considerably. They may occur singly or in very large numbers, range in weight from a few centigrams to 15 to 20 grams or more, while their consistency may be soft, fibrous, or bony. The predominating symptoms in Polacco's cases were those of arthritis deformans. An excellent result was obtained by operation in each case.

Therapeutics.

557. Desiccated Stomach in the Treatment of Pernicious Anaemia.

FOLLOWING the demonstration by Castle that the stomach of normal persons secreted a substance which could extract a blood-maturing principle from meat, Sharp concluded that the feeding of stomach should have the same effect in pernicious anaemia as liver. A preparation was accordingly made by desiccating whole hog stomach so that 30 grams of the dried substance represented 190 grams of the fresh tissue. In later experiments the fat was removed by petroleum benzine, so that 30 grams of the final material represented 218 grams of fresh tissue. The latter was found to be a great improvement, since it had very little odour and practically no taste. C. C. STURGIS and H. ISAACS (*Journ. Amer. Med. Assoc.*, September 7th, 1929, p. 747) report the effect of the administration of this residue in three cases of pernicious anaemia. Daily feedings of from 15 to 30 grams in suspension in water were given. In all the cases there was a prompt and very active response, characterized by an increase in the percentage of reticulated red blood cells, which was comparable with, if not greater than, the increase in the reticulocytic percentage induced by liver extract. One suggestion as to the origin of the active principle in desiccated stomach is that an enzyme or similar substance is present which may act on the protein in the stomach tissue. Another is that there may be a supply of the active hematopoietic principle itself present in the stomach wall, as it apparently is in kidney and liver.

558. E. A. SHARP (ibid., p. 749) agrees that desiccated whole hog stomach contains an anti-anaemic factor, and that it produces a symptomatic response as vigorous and effective as that obtained from liver or liver extract. The deficient element in pernicious anaemia is apparently unrelated to fat digestion and assimilation, as is evidenced by the maintenance of weight and good assimilative ability of the organism during severe crises. Achlorhydria, persistent in the disease, is probably existent in the predisposed person for several years before full development of the hematopoietic syndrome. Persistent achlorhydria, anaemia, and liver treatment are possibly correlated, and it appears rational to assume that liver or liver extracts supply an essential substance, readily synthesized from ordinary food in normal gastric conditions, but imperfectly or scantily converted in achylous digestion. If the achlorhydria is caused by an acquired or congenital defect of the glandular portion of the gastric mucosa, it seems reasonable to believe that tissues of the stomach might be therapeutically applicable from the standpoint of organ specificity.

559. Ovarian Hormone Therapy.

IN the opinion of E. L. SEVRINGHAUS and J. S. EVANS (*Amer. Journ. Med. Sci.*, November, 1929, p. 658) the belief that the ovary produces a hormone has become a certainty with the demonstration by Allen and Doisy of the active preparations from the Graafian follicle. The therapeutic effect of amniotin, an ovarian hormone, has been studied in a series of 25 women who were suffering from menopausal and menstrual disturbances. The cases were arranged in five groups. Group 1 included those who had ceased to menstruate, or were doing so irregularly; Group 2 those in which a menopause was suspected because of menstrual changes; Group 3 those showing an association of a known menopause with a psychosis; Group 4 those presenting an association of angio-neurotic oedema with ovarian disturbance; and Group 5 included only those infantile cases with no apparent involvement of the thyroid or pituitary glands. Amniotin, a preparation of the Allen and Doisy hormone obtained from the amniotic liquor of cattle, is an aqueous solution, prepared for subcutaneous injection in a concentration of 10 rat units per c.cm. Though much larger doses are recommended by the manufacturers, the authors consider that doses of about 10 units daily are adequate, and may occasionally be excessive; 50 units is said definitely to be too large. Pessaries containing 10 units per gram were successfully used in seven

cases. This series of patients indicated that amniotin produces an active therapeutic effect on women. It gave very satisfactory relief in the hot flashes, insomnia, nervous instability, and headaches attributable to the menopause, artificial or spontaneous; moreover, the improvement noted in angioneurotic oedema associated with a partial menopause confirmed this view. Most convincing of all is said to be the development promoted in the "infantile type" as the result of its administration. The authors believe that the relief experienced by some of the patients from the use of lutein was largely due to its follicular content.

560. L. G. DITTEL and F. RAAB (*Wien. klin. Woch.*, October 24th, 1929, p. 1374) remark that, despite Allen and Doisy's attempt to standardize ovarian extract by the injection of castrated mice, the conclusions as to its value are still contradictory. Clinical benefit does not follow *per passu* with number of "mouse units" injected; this may be due to the prompt excretion of the greater part of a large dose. Many cases of amenorrhoea have, however, been benefited; two cases are cited of young women who had not menstruated for a year, after which the injection of 300 mouse units twice weekly gave them a normal period after courses lasting three and five weeks respectively. A young nervous woman was treated unsuccessfully on psychotherapeutic lines for delayed and weak menstruation; after about ten daily injections, each of 100 units, menstruation appeared, but eight days prematurely. Menorrhagia and metrorrhagia were often benefited, according to the authors. A girl suffering from menstrual haemorrhage lasting three weeks had been treated unsuccessfully with many remedies; intravenous injections of ovarian extract were started and proved to be successful for the time being. The authors report that many cases of dysmenorrhoea were improved, and a woman medical practitioner was cured after a few injections of 100 units; this case is considered important as it presumably eliminates the factor of suggestion. Menopausal malaise was sometimes cured by injections of only 24 units twice weekly. An artificial menopause often proved amenable to this treatment, but the authors admit that in this condition and in the menopause occurring naturally it sometimes fails completely, or needs as adjuvants drugs and psychotherapy. To demonstrate the wide possibilities of the application of ovarian extract therapy three cases are cited respectively of universal pruritus, Quincke's oedema, and repeated abortion. The first case was complicated by dysmenorrhoea; in the second patient the oedema developed only at menstruation. Each of the three patients was cured by ovarian injections. The authors give the warning that since the causes of disturbed ovarian function are not always known it cannot be expected that every case will respond to ovarian extract; the cause is often extra-ovarian, as, for instance, a pituitary lesion.

Neurology and Psychology.

551. A Pelvic Crossed Reflex.

Two reflexes which may be of use in diagnosing medullary lesions of the upper part of the dorsal segment of the cord are discussed by A. BROCKAERT (*Presse Méd.*, November 6th, 1929, p. 1440), of which one, the periosteal or medio-pubic reflex, was previously described by Guillain and Alajouanine. The other reflex has been named by Brockaert "the crossed reflex of the pelvis." The medio-pubic reflex is obtained by placing the subject extended on the back with the legs raised and bent and the knees somewhat apart, as in the gynaecological position. Percussion over the symphysis pubis then elicits a double response: a contraction of both the left and right adductors, while the thighs are adducted and exceptionally drawn towards the pelvis by contraction of the flexors; and a contraction of the abdominal muscles. The reflex depends, however, on the adipose tissue not being too great, and the abdominal wall possessing normal tone. It may be exaggerated in various bilateral pyramidal affections (scleroses and medullary compressions), when contractions of the pectoralis major, platysma, and small facial muscles can also be noted. It may also be exaggerated on one side only in certain paraplegias, and especially in unilateral pyramidal changes with hemiplegia. It is absent in chronic polyneuritis, acute anterior poliomyelitis, and in medullary compressions of the dorsal segment of the cord. The crossed reflex, which occurs in the same diseases as the medio-pubic, is obtained by percussing over the anterior superior iliac spine with the patient in the position previously described. The response consists in a contraction of the adductors of the opposite limb, while the knee of this side is drawn inwards. Discussing its evolution, Brockaert enumerates the ventral muscles of the thigh, and states that the afferent passage of the reflex comprises a "receptor" (the ilium), an intermediate mass consisting of the lower lumbar vertebrae and sacrum, and the sensory neuron of the posterior horns of the cord from the second lumbar to the second sacral. The efferent path commences in the neuron of the anterior horns of the opposite side, follows the lumbar plexus (more especially the obturator nerve), and terminates in the energized group of the thigh muscles, which is, phylogenetically, of ventral origin. This, however, Brockaert admits, does not explain the selection of intermediary neurons in the conduction of the impulse to the opposite (contralateral) side.

562. Epidemic Encephalitis with Cerebellar Symptoms.

A. JENKINS (*Arch. Neurol. and Psychiat.*, September, 1929, p. 469), who records two illustrative cases in men aged 18 and 56, states that though numerous cases of epidemic encephalitis with involvement of the vestibular connexions have been reported, a predominance of cerebellar symptoms is less frequent. In most cases the cerebellar symptoms, when present, are overshadowed by the Parkinsonian syndrome. In Jenkins's first case the typical symptoms of epidemic encephalitis—namely, drowsiness, headache, diplopia, and impaired convergence—were associated with a cerebellar gait, staggering, hypotonia, and dysmetria in the extremities of the left side. In the second case the cerebellar symptoms were still more pronounced. Jenkins has collected five other cases from the literature in which the cerebellar syndrome was present in encephalitis, as well as another seven with merely isolated cerebellar signs. Cell changes in all parts of the cerebellum have been found after death in cases of encephalitis in which cerebellar symptoms did not occur or were not prominent.

563. Unusual Symptoms of Intracranial Tumours.

C. O. HAWTHORNE (*Clin. Journ.*, October 30th, 1929, p. 517) points out that one or all of the cardinal symptoms of intracranial tumours—namely, headache, vomiting, and optic neuritis—may be absent, and that their manifestation, even when present, is not necessarily continuous. There may be periods of complete freedom from headache; vomiting may yield to rest and lead to an erroneous diagnosis of gastric catarrh, etc.; while optic neuritis often fails to be observed owing to lack of use of the ophthalmoscope. Doubtless the cause of the variation in the symptoms is alteration in the intracranial conditions, the symptoms being due to secondary consequences such as congestion, oedema, inflammation, and haemorrhage, rather than directly to the tumour. Certain symptoms which do not suggest the existence of a growth may be present; among these are abnormal sleepiness and neuralgia. Two series of cases, in which no distinctive evidence of tumour was noted, are reported to illustrate this statement. In the first series of three cases the predominant symptom was an abnormal sleepiness; necropsies revealed tumours in the right optic thalamus in one case, and in the right temporo-sphenoidal lobe in another, while, in the third, all the symptoms disappeared under tonic and rest treatment, indicating that occasionally morbid sleepiness may occur apart from intracranial tumour. In the second group, also of three cases, pain was the conspicuous symptom; this was not described as headache or pain in the head, but as neuralgia. A necropsy was not allowed in one case, but in the other two this procedure revealed tumours on or related to the deep surface of the great wing of the sphenoid with thickening of the neighbouring membranes. In this way a complete explanation was obtained of the neuralgic pain in the peripheral distribution of the fifth cranial nerve in one case, and in the other of neuralgia which had previously been attributed to carious teeth. Hawthorne emphasizes the importance in such cases of careful and repeated ophthalmoscopic examinations, the performance of tests for syphilis, and the preparation of special skiagrams.

Obstetrics and Gynaecology.

564. Treatment of Salpingitis.

C. E. FARR and R. T. FINDLAY (*Surg., Gynecol. and Obstet.*, November, 1929, p. 647) state that salpingitis is a definite clinical entity; although it simulates and is simulated by other conditions, it possesses many characteristic features. A detailed study of 541 cases treated in the New York Hospital is given, and the importance of diagnosis, differential diagnosis, and proper treatment is emphasized. It is important that care should be taken to obtain a very accurate and complete history, and to make a thorough physical examination in salpingitis in order to avoid diagnostic errors; moreover, thoroughness and accuracy are essential, as the disease must not be treated by routine or without deliberation. In this series of cases the following, in the order of their incidence, were the most frequent and most important conditions to require differentiation: appendicitis, ectopic gestation,

cystoma of the ovary, uterine fibromyoma, retroversion of the uterus, endometritis, and ureteral colic. Various other conditions encountered are enumerated. In discussing complications the authors state that, although diseases of the appendix, uterus, and ovaries are most often associated with salpingitis, there are many other conditions which complicate it. While each case must be treated individually, the following general rules as to operation are advanced. Acute cases should never be operated upon; even an acute fulminating salpingitis with general peritonitis should not receive surgical treatment if the diagnosis is reasonably certain, since the operation frequently causes spread of the peritonitis with resulting death. When there is a reasonable doubt whether salpingitis or acute appendicitis is present, an operation should be advised. When the abdomen is opened on another diagnosis and acute salpingitis is found, removal of the tubes, except in young girls, is usually advisable. No operation should be performed during an acute exacerbation, since it would probably result in spreading of the infection to the peritoneum and surrounding tissues. In chronic salpingitis the tubes should be removed if they are not patent; if they are, removal is not advisable. Tubes in acute salpingitis and in exacerbations of a chronic tuberculous salpingitis should be allowed to subside. All ovarian tissue not definitely grossly diseased should be left in the body.

565. Pregnancy after Tubal Insufflation.

O. DAUWE (*Le Scalpel*, November 9th, 1929, p. 1221) reports a series of 150 consecutive cases of sterility on which he performed insufflation. In most instances the presence of imperforate tubes was the principal cause of the sterility, although stenosis of the cervix and uterine deviation or displacement were sometimes associated. The duration of the sterility was from three to seven years. Of the 150 cases only 40 had been definitely followed up at the time of the report. Of these, 17 patients had been definitely benefited, 3 having given birth to two children, 8 to one child, while 3 were then pregnant and 3 had aborted; 23 remained sterile up to the time of reporting. The author first examines the vaginal secretions bacteriologically because, even with antiseptic precautions during the operation, a case had occurred in which a small collection of pus appeared in the pouch of Douglas after insufflation. After freeing the vagina from infective organisms, insufflation is performed about eight days after the menses, oxygen purified by passage through a Woulfe bottle containing ether being employed, and a Bouffite manometer being connected with the rubber tube leading from the Woulfe bottle to the uterus. After disinfecting the vagina with iodized ether a blunt metal cannula attached to the tubing is passed into the uterus; in cases of impermeability the needle of the manometer remains at a pressure of 22-23 cm. of mercury, but this diminishes rapidly if the tubes are free. Simultaneous suprapubic auscultation alters the special souffle caused by the passage of the oxygen into the abdomen to be heard, and insufflation is then stopped, 10 to 12 c.mm. of lipiodol being then injected through the same cannula. After several seconds a radiographic plate is taken; if no lipiodol is seen in the peritoneal cavity another plate is taken after six to twelve hours. If the tubes are patent free lipiodol becomes visible in the peritoneal cavity.

566. Sympathectomy of the Hypogastric Artery.

C. CHIANELLO (*Arch. Ital. di Chir.*, August, 1929, p. 365) records the effect of sympathectomy of the hypogastric artery on the ovaries and uterus of dogs. He found that the ovary on the operated side was more developed, contained more follicles, and matured earlier; the muscular part of the uterine horns was not much affected, but the mucosa was definitely thickened and the glandular tubules were fuller. The blood vessels showed no appreciable alteration in calibre. The therapeutic bearing of these experiments is the remedying of certain uterine maldevelopments, and the correlated pelvic pain. The author suggests that the beneficial effect sometimes observed after dilatation of the cervix may perhaps be partly due to disturbance of the sympathetic nerves round the cervix. Drawings of the histological appearance of the ovary after operation and a bibliography of recent literature are supplied.

567. Diagnosis of Tuberculosis of the Uterine Appendages.

J. WITLOCH (*Zentralbl. f. Gynak.*, October 26th, 1929, p. 2737) points out that although it has been shown that in 50 per cent. of cases of tuberculous disease of the adnexa the endometrium is also involved, diagnostic curettage is undesirable because it carries with it the risk of miliary spread of the disease; moreover, it is unsatisfactory, since tubercles may not be visible in the scrapings on account of their sparse and patchy distribution. If small nodules are palpable in the pouch of Douglas the author prefers to excise one of these for diagnosis. Exploratory laparotomy he considers unjustifiable in this condition; he advocates, however, exploratory puncture as the most satisfactory method of differentiating tumours of the appendages preliminary to the conservative treatment of subacute and chronic swellings, and particularly of tuberculosis in this region. For cystic swellings a long hollow needle is used; for solid tumours a modification has been constructed. Microscopic examination of the fluid is generally sufficient, but, for the diagnosis of tuberculosis, injection of the aspirated matter into a guinea-pig is frequently necessary. The danger of the puncture method of diagnosis is no greater than that of examination under anaesthesia, and the risk of injury to the bladder or intestine is considered to be negligible with careful technique, since in a long series of diagnostic punctures he has had no case of injury or infection.

Pathology.

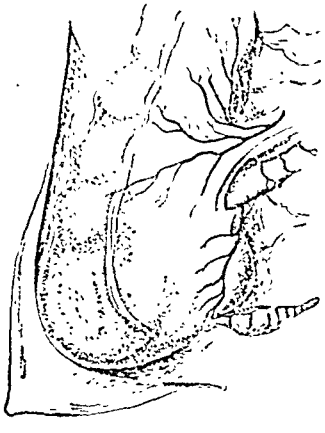
568. The Skin as a Portal of Entry in Br. abortus Infections.

A. V. HARDY, MARGARET G. HUDSON, and C. F. JORDAN (*Journ. Infect. Dis.*, October, 1929, p. 271) adduce evidence that *Br. abortus* frequently gains access to the body through the skin. In their experiments two strains of this organism were used; both were isolated from human cases of undulant fever, but one was typed as a bovine, the other as a porcine strain. The growth from a forty-eight-hour agar slope was washed off with saline solution, and standardized by opacity to a strength of about 2,000 million organisms per c.cm.; 0.1 c.cm. of this suspension was then rubbed gently on to the abdominal skin of different series of guinea-pigs, and to another series the same dose was given by the mouth. Agglutination tests were made at intervals up to eight weeks; positive reactions were regarded as indicating that infection had occurred. The results were as follows. Of 21 guinea-pigs inoculated on the shaved and superficially abraded skin, all developed infection; of 31 inoculated on the shaved but not abraded skin, 28 developed infection; of 32 inoculated on the unshaven, unabraded skin (the hair had merely been clipped), 25 developed infection; and of 18 fed by the mouth, 4 developed infection. It would appear, therefore, that in the dosage used the organisms gain access to the body more readily by the skin than by the mouth. In another series of experiments it was found that if massive doses—ranging from 1,000 million organisms to half of a forty-eight-hour agar slope—were given by the mouth, 17 out of 19 animals became infected. An epidemiological survey was then made of the employees in a packing-house plant dealing with the fresh tissues of hogs. Of 118 employees engaged in killing the animals and cutting up the carcasses, 21 per cent. agglutinated *Br. abortus* to 1 in 80 or higher; of 49 engaged in trimming the edible portions, 8 per cent. showed agglutinins; while of 50 having little or no direct contact with the carcasses, only 2 per cent. contained agglutinins. Of 25 employees with a titre of 1 in 80 or higher whose histories were investigated 14 gave a definite history of undulant fever or a history suggestive of this condition. The authors conclude that both in experimental animals and in man *Br. abortus* frequently gains access to the tissues through the skin.

569. The Nature of Alastrim.

H. ALDERSHOFF and A. W. POT (*Nederl. Tijdschr. v. Geneesk.*, September 14th, 1929, p. 4232), like Leake and Force, Blaxall, and Green, and unlike Baujean, succeeded after direct cutaneous inoculation of apes with alastrim in obtaining a vesicular eruption which lasted for weeks. In subsequent passages through apes the eruption was not confined to the site of inoculation, but became generalized, the rash not appearing all at once. In this last respect the alastrim shows a point of resemblance to chicken-pox and differs from variola. The present authors agree with other investigators that the virus of alastrim resembles that of variola, and that the relation is closer than with the vaccine virus. Whether this resemblance is due to a close relationship and nothing more, or whether the alastrim virus is derived from the variola virus, is not yet known. Gins's view that the alastrim virus is a form of variola virus which has undergone passage several times through immune persons is improbable, since alastrim did not first develop in countries with a well-vaccinated population, but in such countries as the Cameroons or Samoa, where well-vaccinated persons are scarce. It seems more probable that the animal and not the human being is responsible. Since variola virus may be converted into vaccine virus by passage through a cow, it is not surprising that by passage through another, and so far unknown, animal an alastrim virus may arise which differs less from the virus of variola than from that of vaccine virus.

Among the Results of Constipation



Distended and sagging cæcum compressing and obstructing blood supply of vermiform appendix.

are not only the grave toxæmias of which much has been learned in recent years, but also conditions arising from mechanical factors, due to displacement of the viscera or pressure exerted by the distended bowel.

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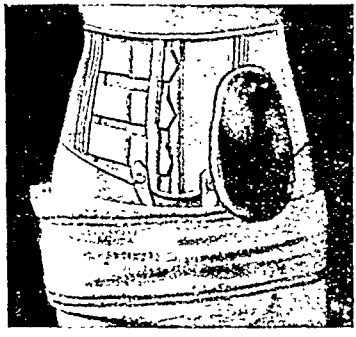
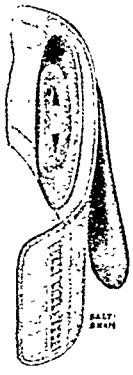


SALIENT POINTS

of

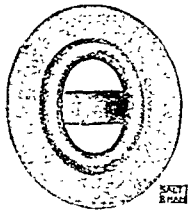
SALT'S (Patent) COLOSTOMY BELT

1. Detachable receiver sterilizable by boiling.
2. Mouth of bag kept open for free entry of fæces.
3. Easy removal and cleaning of Bag, without removal of Belt.
4. No crevices to hold fæces, and therefore little odour.
5. Less bulk, greater comfort, and more sanitary than any other.
6. Rubber portions far more durable than in the old style belt.

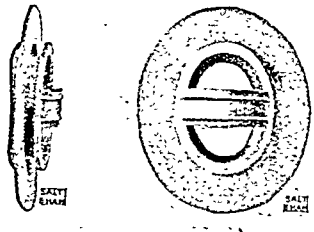


Showing attachment of receiver and bag to belt.

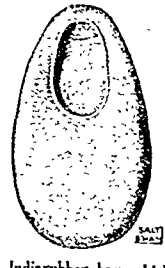
Details of Receiver and Bag
STERILIZABLE BY BOILING



Showing rubber receiver with pad fitting next to body and rubber flange to prevent belt becoming soiled.



Showing other views of receiver. See groove over which aperture in bag is stretched and curved bridge to hold open mouth of bag.



Indiarubber bag which can be detached at will for cleaning.

Showing bag attached to receiver.

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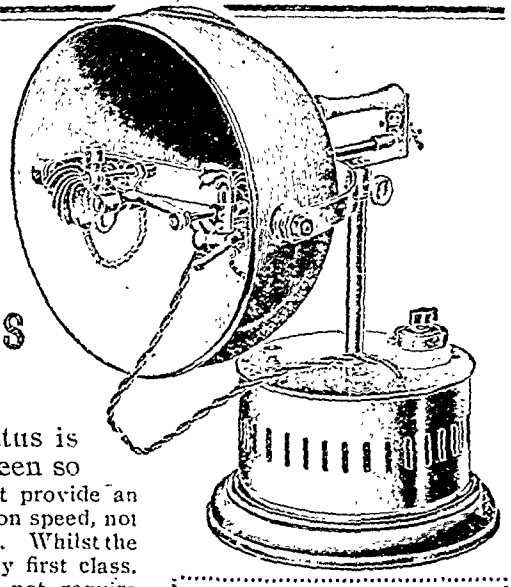

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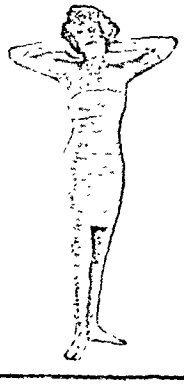

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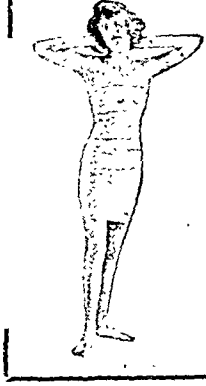

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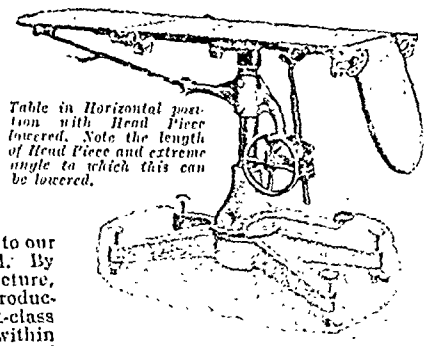

Table in Horizontal position with Head Piece lowered. Note the length of Head Piece and extreme angle to which this can be lowered.

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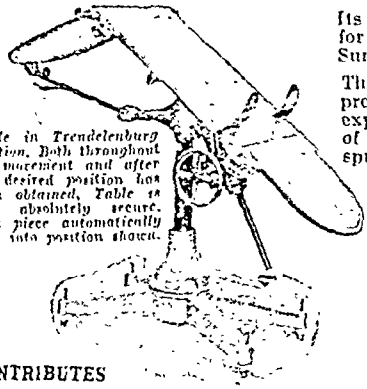
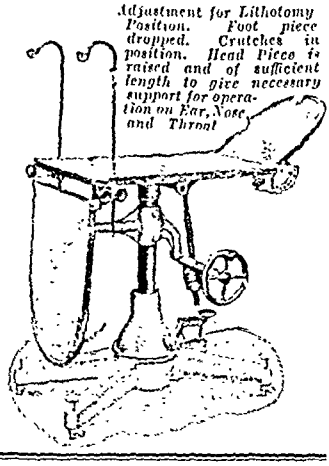


Table in Trendelenburg Position. Both throughout the movement and after the desired position has been obtained, Table is held absolutely secure. Foot piece automatically falls into position shown.



Adjustment for Lithotomy Position. Foot piece dropped. Crutches in position. Head Piece is raised and of sufficient length to give necessary support for operation on Ear, Nose and Throat

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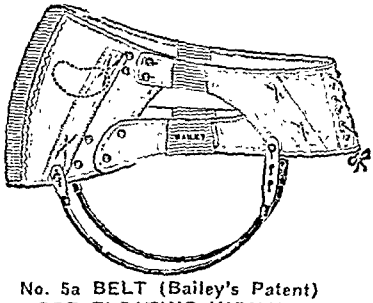


No. 5a BELT (Bailey's Patent) FOR FLOATING KIDNEY.

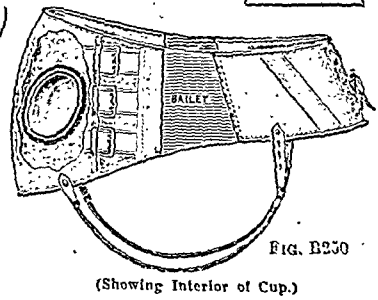
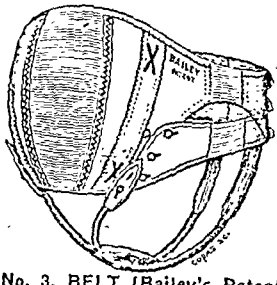


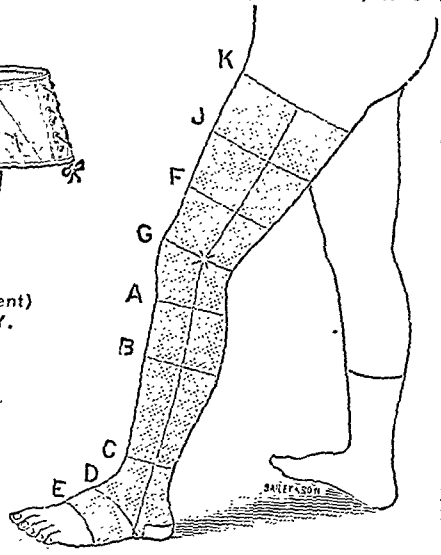
FIG. B250

(Showing Interior of Cup.)

SPECIAL BELT FOR AFTER COLOSTOMY.



No. 3. BELT (Bailey's Patent) for PROLAPSUS UTERI.



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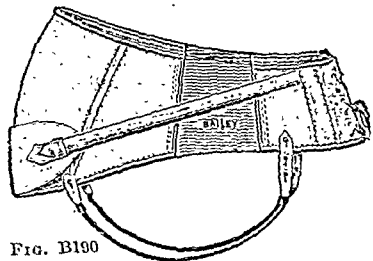

FIG. B190

BELT FOR ENTEROPTOSIS.

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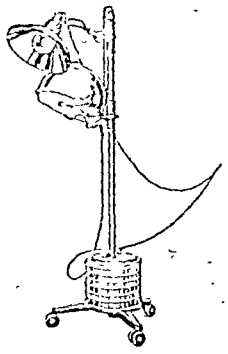

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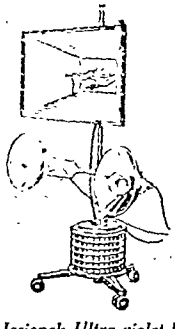

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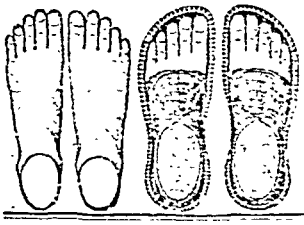

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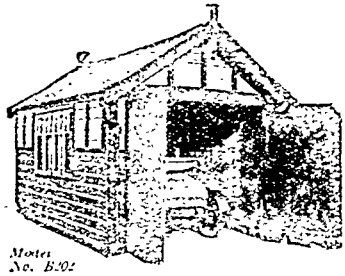

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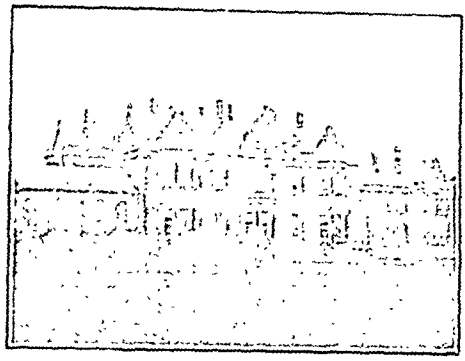

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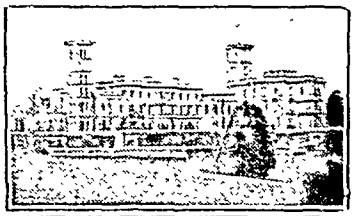

King Edward VII Convalescent Home for Officers of the Navy, Royal Marines, Army, and Air Force.

Massage.
All forms of Electricity.
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Special Dieting.
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TERMS:
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Patients of the EDUCATED CLASSES IN A RESPECTABLE [illegible]
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A PRIVATE HOME for the treatment of patients of both sexes suffering from Mental Illnesses.
Conveniently situated four miles from Charing Cross. Easy of access from all parts.
Six acres of ground, highly situated, facing Finsbury Park.
Voluntary Boarders received without certificates. Private suites. Convalescent Home, Kearsney Court, Dover.
For further particulars, apply to the MEDICAL SUPERINTENDENT.

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Also completely detached Villas for mild cases, with private suites if desired. Voluntary Patients received. Twenty acres of grounds. Hard and Grass Tennis Courts, Bowls, Croquet, Squash Racquets, and all indoor amusements, including Wireless and other Concerts. Occupational Therapy, Physical Drill, and Dancing Classes. X-ray and Actino-therapy, Prolonged Immersion Baths. Operating Theatre, Dental Surgery, and Ophthalmic Dept. Chapel. Senior Physician: Dr. Hubert James Norman, assisted by three Medical Officers, also resident, and Visiting Pathologist. An illustrated Prospectus may be obtained upon application to the Secretary.

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CONVALESCENT HOME at BOURNEMOUTH standing in 9 acres of ornamental grounds, with tennis courts, etc., which Patients or Boarders may visit by arrangement, for long or short periods.

Illustrated Brochure on application to the Medical Superintendent, The Old Manor, Salisbury. Telephone 51.

PECKHAM HOUSE, 112, Peckham Road, London, S.E.15.

Telegrams: "Alleviated, London." Telephone: Rodney 4741—4742.

The above House, which was established in 1826, is an Institution for the care and treatment of persons suffering from mental diseases and nervous disorders. Both certified patients and voluntary boarders are received. Separate houses for treatment and accommodation of special cases adjoin the Institution. There is a seaside branch, Kearsney Court, near Dover, to which patients may be sent for treatment or on holiday. Motor and carriage exercise is provided as required. Patients can avail themselves of a course of physical drill. Tennis courts. Entertainments, dances, and indoor amusements held throughout the year.
Illustrated prospectus and further particulars can be obtained from the Medical Superintendent.

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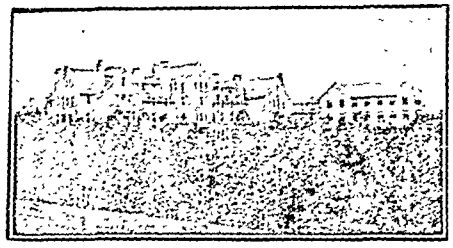
MURTLE DEESIDE ABERDEENSHIRE.



Medical Director: David Lawson, M.D., F.R.S.E.

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Physician Superintendent - J. M. JOHNSTON, M.B., D.P.H., etc.

Full particulars and Prospectus on application to the Secretary.

Inclusive Terms: SEVEN GUINEAS A WEEK.

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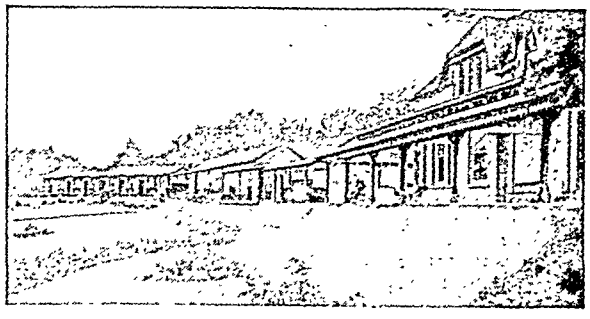


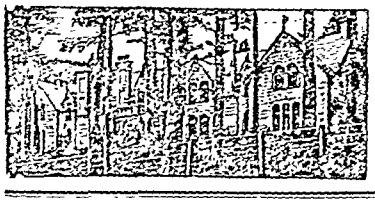
Specially built in 1893 on the Cotswold Hills, seven miles from Cheltenham, for the treatment of Pulmonary and all other forms of Tuberculosis on Nordrach lines. Aspect S.S.W., sheltered from North and East, elevation 800 feet. Pure bracing air. Special Treatment by artificial Pneumothorax (X-ray controlled), Tuberculins, and Ultra-Violet Rays is available, when necessary, without extra charge. X-ray plant. Electric light. Radiators, hot and cold basins, and Wireless in all rooms.

Full day and night Nursing Staff.

Resident Physicians: ARTHUR H. HOFFMAN, M.D., and G. A. HOFFMAN, M.B.

Apply: The Secretary, The Cotswold Sanatorium, Cranham, Gloucester.

Telephone: 41 WITCOMBE. *Telegrams*: "HOFFMAN, BIRDLIP."



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Terms: £4 6s. 8d. to £6 6s. per week inclusive, no extras

MEDICAL SUPT.: FELIX SAVY, M.B., Ch.B. *For particulars apply to the Secretary.*

PENDYFFRYN HALL SANATORIUM

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Established 1900 for the treatment of Tuberculosis. Miles of carefully graduated walks through pine-clad hills, with sea and mountain views. Modern treatment, including SANOCRYSIN, ARTIFICIAL PNEUMOTHORAX, etc. X-ray plant, electric light, central heating, wireless. Full day and night nursing staff. On L.M.S. Main Line to Holyhead, 4½ hours from London. Resident Physicians: Dennison Pickering, M.D.(Cantab.), F. W. Godbey, M.D., D.P.H.; Matron, Miss N. Rennardson, S.R.N.

For particulars apply to the Secretary, Pendyffryn Hall, Penmaenmawr, N. Wales. ('Phone, 20.)

VALE OF CLWYD SANATORIUM

This Sanatorium is established for the treatment of TUBERCULOSIS of the LUNGS and the PLEURAL CAVITIES. It is situated in the midst of a large area of park-land at a height of 450 feet above sea-level, on the south-west slopes of mountains rising to over 1,800 feet, which protect it from north and east winds and provide many miles of graduated walks with magnificent views. Average rainfall 29.57 per annum. Full day and night nursing staffs. X-ray plant. Every facility for Artificial Pneumothorax, and for operations on the chest. Electric lighting. Central heating. Home farm. Clean milk from T.T. Herd. For particulars apply to Med. Supt., H. Morriston Davies, M.D., M.Ch.Cantab., F.R.C.S., Llanbedr Hall, Ruthin, N. Wales.

Post-Graduate Teaching, West London Hospital.

Continuous Clinical Instruction daily from 10 a.m. to 4 p.m.—Post-Graduates may enrol at any time for any period from 1 week to 3 months.—Special facilities for "Study Leave."—Anæsthetic Courses.—Clinical Assistantships.—Annual Membership Tickets at Special Terms available for General Practitioners who wish to attend the Hospital Practice at irregular intervals.

Prospectus from Sir Henry Simson, K.C.V.O., Dean, West London Hospital, Hammersmith, W.6.

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F.R.C.S.(Eng.), *Primary* 149
(1906-28) *Final* 135
M.R.C.P.(Lond.), 1914-28 **152**
D.P.H. (Various) 1906-28 (Completed Exam.) **280**
F.R.C.S.(Edin.), 1918-28 **39**
M.R.C.S., L.R.C.P. *Final* 1910-28 (Completed Exam.) **402**
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MEDICAL PROSPECTUS (48pp.)

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NORTH-EAST LONDON POST-GRADUATE COLLEGE,

PRINCE OF WALES'S GENERAL HOSPITAL, N.15.

The Practice of the Hospital is limited to Medical Practitioners. Particulars from T. H. C. BENIANS, F.R.C.S., Dean.

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CLASSES, with Museum and Anatomical Demonstrations, for next Exam., will commence shortly. Correspondence work at any time Particulars from CHAS. WHITTAKER, F.R.C.S., Surgeons' Hall, Edinburgh

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Grove House, All Stretton, Church Stretton, Shropshire.

A Private Home for the care and treatment of a limited number of ladies mentally afflicted. Climate healthy and bracing.
Medical Superintendent: Dr. McCLINTOCK.

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And all other Surgical Degrees and Diplomas.

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Sound Education. Upper and Lower Schools. Preparation, when desired, for all University Entrance Examinations Particulars from Sec. *Special Terms to Medical Men.*

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Prep. Classes and Museum Demonstrations, for next Fellowship Exam. will commence shortly. Correspondence course for March and later exams should begin now. Partics., Mr. H. C. ORRIN, F.R.C.S., at Surgeons' Hall, Edinburgh.

Medical and Dental Students.

Special Classes for Pre-Medical and Dental Exams., Matric., and Prelims.
Chemistry, Physics, and Biology Labs.
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Refraction and the Ordering of GLASSES taught by Practising Ophthalmic Surgeon in London. £8 8s for 10 lessons—Address, No. 123, B.M.A. House, Tavistock Square, W.C.1.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE.

(University of London.)

Tropical Medicine and Hygiene.

The School provides two courses yearly, each of 20 weeks. The next courses commence on February 3rd and September 30th, 1930. Composition fee, to include hire of microscope, etc., £34 5s.

Diploma in Public Health.

The next course of study, covering a period of 12 months, commences on October 1st, 1930, and is so designed that students wishing to do so can proceed to the new academic diploma instituted by the University of London.

The composition fee of £54 covers the cost of the necessary practical work and instruction in infectious diseases, etc.

Diploma in Bacteriology.

The course of study, covering one academic year, commences early in October. Composition fee, £47 15s.

Epidemiology and Vital Statistics.

Special three-monthly advanced courses. Fee £5 5s.

Applications for prospectuses and for other information should be addressed to the Secretary, Keppel St. (Gower Street), London, W.C.1.

TAUNTON SCHOOL,

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A PUBLIC SCHOOL FOR BOYS.

Boys are regularly prepared for the First M.B. Examination, University Scholarships in Chemistry, Biology, etc.
Special facilities are offered for the teaching of Chemistry, Physics, Botany, and Zoology.
New Science Buildings, containing seven laboratories, two lecture rooms, science library, store rooms, etc., opened in September, 1925. Prospectus from Head Master

CITY OF LONDON MATERNITY HOSPITAL,

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MIDWIFERY TRAINING SCHOOL.

MEDICAL STUDENTS admitted to Hospital practice, with operative Midwifery, and Obstetrical complications.
PUPILS TRAINED as Midwives and Monthly Nurses in accordance with C.M.B. regulations.
PRIVATE WARDS for paying patients

LIVERPOOL SCHOOL OF TROPICAL MEDICINE.

(UNIVERSITY OF LIVERPOOL.)

COURSES OF INSTRUCTION (lasting about three months) for the Diploma in Tropical Medicine commence on October 1st and January 6th, and for the Diploma in Tropical Hygiene on January 13th and April 23rd. (Candidates for the D.T.H. must possess the D.T.M. of this University.)

For particulars apply to the Hon. Dean, Liverpool School of Tropical Medicine, Pembroke Place, Liverpool.

Miller General Hospital,

Greenwich Road, S.E.10.

Applications are invited for the two following posts: HOUSE PHYSICIAN (male), HOUSE SURGEON (male). Salary in each case at the rate of £125 per annum, with board, residence, and laundry. The appointments are for six months from January 1st next. Candidates must be unmarried. There are five Resident Officers. Applications, stating age, nationality, qualifications, and experience, accompanied by copies of not more than three recent testimonials, to be sent to the Secretary as soon as possible.

December 11th, 1929.

INDIAN MEDICAL SERVICE

Recruitment of European Officers.

Applications are invited from medical men for permanent commissions in H.M.'s Indian Medical Service. The terms offered include a gratuity of £1,000 on retirement after six years' service, or £2,500 after 12 years' service, together with free return passages, for those who no longer desire to remain in the Service In other respects the terms will be as detailed below.

Candidates must be British subjects under 32 years of age at the time of application, and must be registered under the Medical Acts in force in Great Britain and Northern Ireland.

CAREERS.

The Indian Medical Service offers wide opportunities of medical experience, including clinical, preventive, specialist, and research work. At the beginning of his career an officer is employed on the military side, which has medical charge of the Indian Army. Promotion is on a time scale up to the rank of Lieutenant-Colonel, and by selection to the ranks of Colonel and Major-General. An officer may apply after two years' Indian service for transfer to the civil side, from which appointments are made to Civil Surgeoncies, which are established at the principal civil centres to provide for the medical needs of civil officials and for general medical administrative purposes, to specialist (for example, public health and bacteriological) services; to research posts; and to professorships at the Medical Schools.

PAY.

The monthly rates of pay for European officers in the Service who have a "non-Asiatic" domicile are as follows:

Rank	Service in Rank	Basic Pay.	Overseas Pay.	Year of Total Service.
1	2	3	4	5
Lieut		500	150	1st
			150	2nd
Capt			150	3rd
	(i) During first 3 years' service as Captain	650	150	4th
			£15	5th
			£15	6th
	(ii) With more than 3 and less than 6 yrs.' service as Captain	750	£25	7th
			£25	8th
			£25	9th
	(iii) With more than 6 years' service as Captain	850	£25	10th
			£25	11th
			£30	12th
Major	(i) During first 3 years' service as Major	950		
	(ii) With more than 3 and less than 6 years' service as Major	1100		
	(iii) With more than 6 years service as Major	1250		
Lieut Col	(i) Until completion of 23 years' total service	1500	£30	13th and over
	(ii) During 24th and 25th years' service	1750		
	(iii) After completion of 25 years' total service	1700		
	(iv) When selected for increased pay	1850		

EXTRAS.—In addition to the above rates various allowances are admissible for a large number of special appointments on both the military and the civil side which may be held by members of the Indian Medical Service. Special high rates of pay are also attached to the numerous administrative appointments open to officers in both branches of the Service.

WAR SERVICE CONCESSIONS.

Any service rendered by an officer during the war as a medical or combatant officer, or in a position usually filled by an officer, may be counted as service for increments of pay, promotion, retirement and retired pay, but not for gratuity.

One half of any service in the ranks during the war may be counted as service for retirement and retired pay only.

OUTFIT ALLOWANCE.

Officers on appointment will receive an outfit allowance of £50.

PRIVATE PRACTICE.

With the exception of Administrative Officers, military or civil, and officers holding certain special appointments, officers are not debarred from taking private practice, so long as it does not interfere with their proper duties.

PENSIONS.

The rates of pension are as follows:

	Per annum £
After 17 years' service for pension ...	... 400
,, 18 ,, ,, ,, ...	... 430
,, 19 ,, ,, ,, ...	... 460
,, 20 ,, ,, ,, ...	... 500
,, 21 ,, ,, ,, ...	... 540
,, 22 ,, ,, ,, ...	... 580
,, 23 ,, ,, ,, ...	... 620
,, 24 ,, ,, ,, ...	... 660
,, 25 ,, ,, ,, ...	... 700
,, 26 ,, ,, ,, ...	... 750
,, 27 ,, ,, ,, ...	... 800

These rates are subject to alteration on account of a rise or fall in the cost of living as compared with the year 1919 to an extent not exceeding 20 per cent. in all, the revision being undertaken triennially. With effect from July 1st, 1927, a reduction of 4½ per cent. has been made on this account from the amounts shown.

There are additional pensions ranging from £65 to £350 per annum for officers who have held administrative appointments.

PASSAGES.

An officer on appointment is provided with a free passage to India. The wives and families of officers who are married prior to the date of the officers' embarkation on first appointment will also be provided with free passage to India, subject to the payment of messing charges.

Officers and their families are also eligible for passage concessions under which they are granted a certain number of return passages home at Government expense during their service.

INSTRUCTION PRIOR TO EMBARKATION.

Officers are required to undergo courses of instruction at the Royal Army Medical College and at Aldershot, lasting approximately six months, prior to their embarkation for India on first appointment.

Full details regarding these appointments and forms of application may be obtained from the Under-Secretary of State for India, Military Department, India Office, London, S.W.1. Applications should be submitted as soon as possible. The Selection Committee will meet early in January to make nominations, and the selected candidates will be required to attend a course of instruction commencing on or about the 1st February, 1930.

APPOINTMENTS—Important Notice.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

(a) British Islands.

Town or District.	Town or District.	Town or District.
CONTRACT PRACTICE.	**CONTRACT PRACTICE** *(Contd.)*.	**PUBLIC HEALTH** *(continued)*.
ERBW VALE, MON. *(Workmen's Medical Society.)*	OAKDALE MON *(Medical Officer for Medical Aid Association.)*	CHESHIRE EDUCATION COMMITTEE. *(Assistant School Medical Officer—Female.)*
GILFACH GOCH, GLAMORGAN. *(Workmen's Medical Scheme.)*	OGMORE VALLEY GLAMORGAN *(Wyndham Colliery Medical Aid Society.)* *(Workmen's Medical Scheme.)*	CORNWALL EDUCATION COMMITTEE. *(Assistant School Medical Officer—Female.)*
LLWYNYPIA, CLYDACH VALE, PENYGRAIG GLAMORGAN *(Workmen's Medical Scheme.)*	**POOR LAW.**	GLASGOW EDUCATION AUTHORITY. *(Male Assistant Medical Officer.)*
MARDY, GLAMORGAN. *(Workmen's Medical Scheme.)*	LEWISHAM HOSPITAL. *(Assistant Medical Officer.)*	MERTHYR TYDFIL COUNTY BOROUGH. *(Assistant School Medical Officer and Assistant Medical Officer of Health.)*
MERTHYR VALE COLLIERY WORKMEN'S MEDICAL COMMITTEE. *(Workmen's Medical Scheme.)*	**PUBLIC HEALTH.**	ROXBURGH COUNTY EDUCATION AUTHORITY. *(School Medical Officer.)*
NEATH AND DISTRICT. *(Medical Aid Association.)*	AYRSHIRE EDUCATION AUTHORITY. *(Assistant School Medical Officer—Male.)*	YORKSHIRE NORTH RIDING COUNTY COUNCIL EDUCATION COMMITTEE. *(Assistant School Medical Officer.)*
	CHESHIRE EDUCATION COMMITTEE *(Assistant School Medical Officer—Male.)* *(Altrincham District.)*	

(b) Colonial Medical Service.—

WINDWARD ISLANDS MEDICAL SERVICE. (Grenada with Carriacou, St. Vincent and St. Lucia.)

(c) Overseas.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.
NEW SOUTH WALES. *(All Friendly Society Appointments.)*	Dr. R. H. TODD (Hon. Sec., New South Wales Branch), B.M.A. Building, 30-34, Elizabeth St., Sydney, N.S.W.	**VICTORIA.** *(All Institute or Medical Dispensaries.)*	Dr. FRANK DAVIES (Hon. Sec., Victorian Branch), British Medical Association, Medical Society Hall, East Melbourne, Victoria.	**WESTERN AUSTRALIA.** *(Contract and Lodge Practices.)*	Hon. Sec., Western Australian Branch, British Medical Association, No 6, Bank of N.S.W. Chambers, St. George's Terr., Perth, Western Australia.
QUEENSLAND. *(Brisbane Associated Friendly Societies Institute.)*	The Hon. Sec., Queensland Branch, British Medical Association, B.M.A. Building, Adelaide St., Brisbane.	**WELLINGTON, NEW ZEALAND.** *(Contract Practice Appointments.)*	Dr. G. F. V. ANSON (Hon. Sec., New Zealand Branch), British Medical Association, P.O. Box 156, Wellington, New Zealand.		

Address: B.M.A. House, Tavistock Square, W.C.1.
December 16th, 1929.

By Order of the Council of the British Medical Association.
ALFRED COX, Medical Secretary.

The Royal Infirmary of EDINBURGH.

OPHTHALMIC DEPARTMENT.

1. Applications are invited for the combined post of SENIOR CLINICAL ASSISTANT and CLINICAL TUTOR (non-resident) which will be vacant on April 1st next; annual emoluments attached, One Hundred and Forty-five Pounds Stg. (£145). Candidates must undertake to hold office for at least one year, and previous experience in Ophthalmic work is essential. The post is suitable for a Graduate intending to specialise in Ophthalmology.

2. Applications are invited for the posts (two) of CLINICAL ASSISTANT (non-resident) which will be vacant on January 1st, 1930; annual emoluments attached, Two Hundred Pounds Stg (£200). Candidates must undertake to hold office for at least one year, and previous experience in Ophthalmic work is essential. The post is whole-time and is suitable for a Graduate intending to specialise in Ophthalmology.

Further particulars may be had from the Superintendent, to whom application, with testimonials, should be sent in forthwith.

Central London Ophthalmic HOSPITAL,
Judd Street, St. Pancras, W.C.1.

Ther are vacancies for the posts of SENIOR and JUNIOR HOUSE SURGEON. Salaries at the rate of £120 and £100 per annum respectively, with board and residence in the Hospital. Applications, with testimonials, from duly qualified candidates, must be sent to the undersigned on or before December 31st.

H. R. S. DRUCE, Secretary.

Bristol General Hospital.

The Committee invites applications for the following appointments which become vacant on February 1st next:—

TWO HOUSE PHYSICIANS, TWO HOUSE SURGEONS, RESIDENT OBSTETRIC OFFICER, HOUSE SURGEON TO THE SPECIAL DEPARTMENTS, AND A CASUALTY HOUSE SURGEON.

The appointments will be for six months at salaries at the rate of £60 per annum, and at the rate of £80 per annum for the Casualty House Surgeon, with board residence, etc., provided in the Hospital.

Candidates must be registered under the Medical Acts and produce testimonials of good personal character and ability, and must have recent experience in the administration of anæsthetics.

Forms of application, etc, to be obtained from the Secretary, must be returned completed, with copies of testimonials, addressed to the undersigned, on or before Monday, January 6th next, from whom further particulars may be obtained

THOMAS W. GREGG, Secretary.

Royal Waterloo Hospital for CHILDREN AND WOMEN,
Waterloo Road, S.E.1.

There will be a vacancy on January 1st, 1930, for a HOUSE PHYSICIAN (male) at the above Hospital. The appointment is in the first instance for a period of six months. Salary at the rate of £100 per annum, with board and residence. Application, with copies of testimonials, should be forwarded not later than Tuesday morning, December 24th, to the Secretary at the above address, from whom further particulars can be obtained.

Wigan Infirmary.
(175 Beds.)

Wanted for six months commencing January 1st, 1930, a THIRD HOUSE SURGEON (male). Salary £150 per annum, with board, apartments, and washing. Doubly registered. Candidates are requested to state if they would be willing to remain a further period of twelve months, subject to satisfactory service—i.e., six months as Second House Surgeon and six months as Senior House Surgeon, in the latter instance at an increased salary.

Applications, stating age, qualifications, with copies of testimonials, should reach the undersigned as soon as possible.

A STANLEY BRUNT,
Gen. Supt. & Secretary.

East Suffolk and Ipswich HOSPITAL, IPSWICH.
(265 Beds—7 Residents.)

Applications are invited for the posts of: CASUALTY OFFICER, who will rank next to the Resident Medical Officer in seniority. Salary £150 per annum. Board, residence, and laundry Previous experience essential.

One HOUSE PHYSICIAN and One HOUSE SURGEON. Salary at the rate of £120 per annum. Six months' contract, with board, residence, and laundry.

Applications from British (male) candidates, stating age, qualifications, and experience, and accompanied by three recent testimonials, to be sent to the undersigned.

The Hospital, Ipswich. ARTHUR GRIFFITHS, Secretary.
December 21st, 1929.

ASSISTANCIES.

Wanted. — Indoor Assistant, male, about December 26th, Birmingham. Young, single. Suit recently qualified man, abstainer preferred. Send refs., photo., age, and other essential particulars.—Address, No. 8002, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Recently qualified man, indoor ASSISTANT. Previous experience unnecessary. £250 p.a., plus percentage takings. Must be good appearance, and plenty of common-sense. Prospects to right man. Photograph or interview.—Address, No. 8011, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Indoor Assistant, preferably male, for Industrial Practice near Newcastle-on-Tyne. Salary £300 p.a. State age and other essential particulars.—Address, No. 8014, B.M.A. House, Tavistock Square, W.C.1.

Wanted, by an Englishman, æt 28, M.B., M.R.C.P.Edin., an ASSISTANTSHIP, with view to Partnership, in good-class Practice, preferably in the country; and must be in N. of England, if possible in Cumberland or Westmorland. Three years' hospital experience, mainly medical. Capital available.—No. 8012, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — Assistantship by Woman M.B., B.Ch., B.A.O. (Queen's University), 1½ years' experience of G.P.; young, energetic, well received. Cyclist or drive car. — Address, No. 8013, B.M.A. House, Tavistock Square, W.C.1.

Assistant (outdoor), male, single, with English qualification, wanted at once, preferably with car, for private and panel Practice in Cheshire. Ho-p. and G.P. exp. des. *Disp. kept. Send particss., tests., and photo.* —No. 8005, B.M.A. House, Tavistock Sq., W.C.1.

Assistants (indoor and outdoor) wanted immediately. Good salaries offered. —BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

M.B., Ch.B., lady, aged 25, Scottish Graduate, experienced panel and private practice, dispensing, accustomed to sole charge, wants ASSISTANTSHIP.—Addr., No. 8007, B.M.A. House, Tavistock Sq., W.C.1.

University Graduate (Honours), M.B., B.Ch., ex H.S. and H.P., experience private and panel practice, anæsthetics, minor surgery, conscientious, temperate, well received, methodist, Protestant, desires ASSISTANTSHIP with early view, preferably in good middle-class Practice. Excellent testimonials and refs.—No. 8018, B.M.A. House, Tavistock Sq., W.C.1.

MEDICAL POSTS, DISPENSERS, etc.

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Dispensers supplied to Doctors at short notice, without fee. Qualified and experienced in private and panel practice. Permanent and part-time Bookkeeper-Dispensers, Secretary-Dispensers, Nurse-Dispensers, and Chauffeur-Dispensers.—Write, wire, or 'phone Central 3679. THE RELIANCE BUREAU FOR DISPENSERS, 12, Holborn Viaduct, E.C.1.

Doctors requiring qualified Dispensers, Nurse-Dispensers, Secretary-Dispensers or Chauffeur-Dispensers are invited to write, wire or 'phone Temple Bar 5858. THE DISPENSERS' BUREAU, 15 Lindsay House, 171, Shaftesbury Avenue, London, W.C.2.

G.P., aged 44, English, 15 yrs' experience own general Practice, now seeks POST abroad preferably Tropics. Would consider purchase of Practice or Partnership. Free early in January.—Address, No. 8019, B.M.A. House, Tavistock Square, W.C.1.

Responsible position sought by gentlewoman (married). Experienced housekeeper. Would act as Secretary or Receptionist. Nursing experience. London preferred. — Address, No. 8006, B.M.A. House, Tavistock Square, W.C.1.

Swatow, S. China. — Mission Hospital in connection with the Presbyterian Church of England. DOCTORS URGENTLY NEEDED. Med., Surg., X-Ray work, etc. Full particulars from Med. Supt.—Add., No. 7681, B.M.A. House, Tavistock Sq., W.C.1.

Secretary-Attendant to Doctor.— Lady, highly educated; secretarial qualities, fluent French and German; State registered Nurse; dispensing experience (unqualified). Travel if necessary. Excell. medical refs.—Miss TRAYNOR, 11, Fairholme Rd., Crosby, Liverpool.

The Royal Army Medical Corps ASSOCIATION. — If you require men trained in all branches of hospital work—Dispensers (capable of undertaking returns, clerical work, etc., connected with Ministry of Health), Clerks, Laboratory Assistants, general hospital duties, Porters, Caretakers, etc.—Apply, Secretary, 85, Eccleston Square, S.W.1.

Typewriting.—Expert undertakes Theses, Testimonials, etc. Numerous letters of appreciation from Doctors.—'Phone Primrose Hill 0833, or write BEATRICE RADFORD, c/o Smith's, 487, Finchley Road, N.W.3.

Vacancy on Staff, old-established EYE INSTITUTION, pleasant large provincial town. Chiefly out-patient work. Suit man with good knowledge Eye work wishing combine with general practice, for which there is scope, or retired service man. — Address, stating age and experience, No. 8017, B.M.A. House, Tavistock Square, W.C.1.

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Partnership in middle-class *Practice in suburbs of large city.* Half share offered. — Address, No. 8009, B.M.A. House, Tavistock Square, W.C.1.

South of England. — Partner wanted in increasing residential Practice about £2,100 p.a., under 40 miles from London. Panel 600. Two-fifths share. Two years' purchase. — Address, No. 8015, B.M.A. House, Tavistock Square, W.C.1.

PRACTICES.

Wanted.—Nucleus or Partner-SHIP (preliminary Assistantship) in University Town, January.—Address, No. 8016, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Practice in or near London, with large panel (2,000—5,000 names). Ample capital available.—Add., No. 7908, B.M.A. House, Tavistock Sq., W.C.1.

Wanted in Bradford-Leeds dis-trict, Cash and Panel PRACTICE, £1,200—£2,000 p.a. Good house essential. Capital available.—Address, No. 7918, B.M.A. House, Tavistock Square, W.C.1.

Birmingham.—Old-estab. Prac-TICE. Average cash receipts £1,422 p.a. Panel 2,310. Good house, 2 reception, 5 bedrooms, garage and garden, to be sold or rented on lease. Premium 1½ years' purchase. —BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Death Vacancy. — North-East COAST RESORT.—Old-estab. PRACTICE. Cash receipts 1928, £2,101. Excellent house and garden. *Prem. 1 year's purchase.*—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

For Disposal.—A good Practice is not always to be had directly, but MR. PERCIVAL TURNER can generally offer applicants something suitable. Nearly all the best Practices are sold by him without being advertised. Inform. free on applic.—4, Adam St., W.C.2.

London, W.C. — Good-class Consulting PRACTICE for sale. Small panel, 190. Income about £700 p.a. Vendor, who wishes to return home, will accept any reasonable offer for quick sale. Cash or terms.—Address, No. 8008, B.M.A. House, Tavistock Square, W.C.1.

Middle and working-class Prac-TICE of £1,200 (mostly transferable appointments) in a charming English country town on the Welsh border. Fees 3/6 to £1 1s. Some midwifery, £3 3s.—£5 5s. An opportunity occurs for a Doctor to at once take over the above Practice with a comfortable house to rent at £85, furniture (with the exception of a few personal pieces and pictures), fittings, dispensary and surgical stock, a new Morris-Oxford saloon, and £200—£300 good book-debts. Vendor will act as Partner (unpaid) for a few months and would accept £2,100 down as full and final settlement, or alternatively £1,500 cash and £300 a year for two years. A well-qualified man (F.R.C.S.Eng. or M.R.C.P. Lond.) would be almost certain to get on the staff of the local hospital in a year or two to all vacancies which will shortly occur. Excellent educational, social, and sporting facilities.—Address, No. 8003, B.M.A. House, Tavistock Square, W.C.1.

Manchester.—Good-class Prac-TICE in first-rate residential suburb. Average cash receipts £2,206 p.a. Fees 5/- to 21/-. Excellent house to rent on lease. Premium 1½ years' purchase.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Manchester.—Mixed-class Prac-TICE. Average cash receipts £923. Panel 700. Good house, 2 reception, 5 bedrooms. Rent £70 p.a. Premium 1½ years' purchase.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

Medical Practice in Glasgow for SALE.—The Subscribers have been instructed to dispose of the above Practice in a middle-class district of Glasgow, with panel of approximately 1,600. This would form a very desirable opportunity for any Doctor requiring a Practice in Glasgow.—For further particulars apply THOMAS SMITH & SONS, Accountants, 135, Buchanan Street, Glasgow.

North Wales.—Death Vacancy. —Beautiful Seaside Town. Cash receipts this year £800. Small panel, much scope. Excellent modern house, 8 bedrooms, garden, and garage, for sale, or would let on lease. Premium—Practice—£1,200.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

North Lancashire. — Immediate sale, old-established General PRACTICE. Average cash receipts £2,000. Panel 2,150. Scope. House £80 on lease. About £3,500, including book debts and stock. Owner going abroad. — Address, No. 8001, B.M.A. House, Tavistock Square, W.C.1.

Sound Practice for Disposal, Manchester district. Six months' introduction offered.—For terms and particulars apply KNOTT & CASTLE, Solicitors, 3, Norfolk St., Manchester.

Small Practices with scope.—We have several in the Manchester district. Cash receipts £700; £600, £400, etc.—Full particulars from BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester.

To Purchasers. — Do not buy without expert assistance. With 40 years' experience MR. PERCIVAL TURNER can advise in all cases. Terms free on application to 4, Adam St., Strand, W.C.2. Telephone, Temple Bar 9011. Telegrams: "Epsomian, London."

Urgent Sale owing to ill health. —Mod. and upper-class non-panel PRACTICE recently valued £850 p.a., in S.W. London. Years 5 to 21. Suitable for single man or as a Lock-up Practice. Premium £650 or offer. Apply, No. 8585, c/o PERCIVAL TURNER, Ltd., 4, Adam Street, Strand, W.C.2.

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Consulting Room with use of WAITING ROOM, adjacent to Dentist's premises, vacant. Rent moderate.—Apply to 103, Shaftesbury Avenue, W.1.

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150 COMPLETE BEDROOMS, including 36 SOLID OAK CLUB BEDROOM SUITES with full panel Bedsteads and Mattresses, offered at £5 10s. set.

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SETTEES and LOUNGE EASY CHAIRS in covered morocco leather, heavy woven art tapestries, rich silk, and a large quantity covered plain art linen, all being of excellent quality and in most cases equal to new. SEVERAL SMALL LOUNGE EASY CHAIRS offered at 35s. each. Small size LOUNGE EASY CHAIRS IN REAL HIDE, 3 gns. Larger size LOUNGE EASY CHAIRS from £4 17s. 6d. to 12 gns. Well-made SOFTLY SPRUNG CHESTERFIELD SETTEES, 3 gns. LARGE SIZE CHESTERFIELD AND OTHER SETTEES, many with loose down pillow seats and backs, from £7 15s. to 25 gns.

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Several Research and other High-Grade MICROSCOPES for Sale at special clearance prices. Details on application.—CITY SALE & EXCHANGE (1929) LTD., 54, Lime St., London, E.C.3.

APPOINTMENTS.—Contd.

City and County of Bristol.

ASSISTANT RESIDENT MEDICAL OFFICER.

The Bristol Health Committee invite applications for the post of Assistant Resident Medical Officer, HAM GREEN FEVER HOSPITAL AND SANATORIUM. Salary £300 per annum, with board, residence, and attendance. Candidates should have held a resident appointment.

The salary will be subject to a percentage deduction in accordance with the provisions of the Local Government and Other Officers Superannuation Act, 1922, and the selected candidate must undergo medical examination.

The appointment is for one year and the selected candidate will be required to remain for that period.

Canvassing members of the Council will disqualify.

Applications to be made not later than December 30th, on special form to be obtained from the Medical Officer of Health, 40, Prince Street, Bristol.

The Royal Infirmary, Bradford.

RESIDENT SURGICAL OFFICER (male) required to supervise the work of four House Surgeons and be generally responsible for the surgical work of the Hospital.

Candidates must be single and legally qualified, have had previous Hospital experience, and be prepared to enter on duty at the beginning of February, 1930. Salary £250 per annum, with board, residence, and washing. There are 215 beds and six resident officers. Applications, stating age, qualifications, and previous experience, with copies of not more than three recent testimonials, to be received by the undersigned not later than Tuesday, December 31st.

J. J. BARRON, Secretar. Supt.

The London Female Lock HOSPITAL,
283, Harrow Road, W.9. (Founded 1746.)

HON. OBSTETRIC SURGEON.

The Board of Management invite applications for the above appointment. Copies of the laws relating to this appointment can be obtained from the Secretary. Applications, enclosing copies of not more than three testimonials, should be lodged with the undersigned on or before January 6th, 1930.

The appointment will be made at a special Court of Governors on January 9th, 1930.

By Order of the Board,
H. J. EASON, Secretary.

Rochdale Infirmary and DISPENSARY. (110 Beds.)

Wanted, JUNIOR HOUSE SURGEON (male). Salary £175 p.a., including board, residence, and laundry. Applications, stating age, nationality, etc., together with copies of three recent testimonials, to be sent to the Secretary, endorsed "House Surgeon." Conditions of appointment may be had on application to the Secretary.

Infirmary Office, Rochdale. W. WYNNE, Secretary.

Westminster Hospital,
Broad Sanctuary, S.W.1.

There is a vacancy for a HOUSE ANÆSTHETIST. The appointment is a whole-time one, and is of three or six months' duration. Salary £100 per annum (non resident).

Applications should be submitted to the undersigned not later than Saturday, January 4th, 1930.

CHARLES M. POWER, Secretary.

Birmingham Union.
SELLY OAK HOSPITAL.

TWO CASUALTY OFFICERS (Male).

Applications are invited from fully qualified Medical Practitioners for the appointments of Casualty Officers (male) at the Selly Oak Hospital, Birmingham.

The present Hospital accommodation is 540 beds divided into General Medical, General Surgical, Gynæcological, Obstetrical, Children, and Infectious Sections. There is a completely equipped Pathological Laboratory, also X-ray, Electro-therapeutic, Massage, and Sunlight Departments. Over 2,200 operations are performed annually.

The appointments will be for a period of six months in the first instance, but may be extended at the end of that time.

The officers appointed will be required to assist at operations, administer anæsthetics, and undertake casualty work, and such other duties as may be assigned to them by the Medical Superintendent, and, should occasion arise, to assist at any of the other Institutions under the control of the Guardians.

The salary attached to the appointments is at the rate of £200 per annum, together with full residential emoluments (rations, apartments, laundry, and attendance).

A deduction of 2 per cent. will be made from the salary and value of emoluments under the provisions of the Poor Law Officers Superannuation Act, 1896, and for this purpose the emoluments are valued at £200 per annum.

Further particulars of the appointments may be obtained from the Medical Superintendent, Mr. R. P. STANLEY KELMAN, M.B., F.R.C.S. (Eng. & Edin.) at the Selly Oak Hospital.

Applications, *stating age, experience, and qualifications*, accompanied by copies of recent testimonials, must be forwarded so as to reach me not later than Wednesday, January 8th, 1930.

Union Offices, Birmingham. December 12th, 1929. C. P. BEECH, Clerk to the Guardians.

City of Manchester.
PUBLIC HEALTH DEPARTMENT.

BAGULEY SANATORIUM (333 Beds).

ASSISTANT MEDICAL OFFICER.

Applications are invited from qualified Medical Men for the position of Assistant Medical Officer.

Every applicant must be a registered Medical Practitioner, under 40 years of age, and unmarried.

Preference will be given to applicants with previous Hospital experience; some experience of bacteriology or radiology is desirable.

Salary £300 per annum, with board, residence, and laundry in addition.

The appointment is made in the first instance for a period of twelve months, renewable at the expiration of that period.

Every application, stating fully the training, qualifications, and experience of the candidate, and his age, with copies of three recent testimonials, and endorsed on the envelope, "Medical Officer, Baguley Sanatorium," must be addressed to the Medical Officer of Health, Civic Buildings, 1, Mount Street, Manchester, only, and not to members of the Committee or Council, and must reach him not later than Monday, January 6th, 1930.

The gentleman appointed will be required to pass a medical examination, to devote the whole of his time to the duties of the office, to contribute to the Corporation Superannuation Fund, and to execute the Deed of Service. Canvassing in any form, oral or written, direct or indirect, is prohibited.

By Order,
F. E. WARBRECK HOWELL,
Town Clerk.
Town Hall, Manchester. December 6th, 1929.

Tunbridge Wells and Counties
GENERAL HOSPITAL.

Applications are invited for the post of SECRETARY of the above Hospital. Salary £350, rising by yearly increments of £10 to £400. Hospital or institutional experience a recommendation. For forms of application and terms and conditions of appointment, apply to the Secretary (pro. tem.), General Hospital, Tunbridge Wells, enclosing stamped addressed envelope for reply.

The Kidderminster and District
GENERAL HOSPITAL. (120 Beds.)

HOUSE SURGEON required.

Salary £150 per annum, with residence, board and laundry. Applications, with not more than three testimonials, to be sent to the Assistant Secretary, Miss SUSAN SMITH, South Cliff, Kidderminster, on or before Wednesday, January 1st, 1930.

Hartlepool Union.
ASSISTANT RESIDENT MEDICAL OFFICER.

The Guardians invite applications from fully qualified ladies for the appointment of Assistant Medical Officer at HOWBECK INFIRMARY, containing 300 patients, including 90 imbeciles. Salary £500 per annum inclusive, with furnished rooms, washing, and rations.

The appointment is subject to the approval of the Minister of Health and to the provisions of the Poor Law Officers Superannuation Act, 1896, and the lady appointed will be required to devote her whole time to the service of the Guardians, undertake to give Lectures in Surgical and Medical Nursing to Probationer Nurses, and carry out the instructions of the Superintendent Medical Officer.

Applications, stating qualifications, age, and previous experience, should be accompanied by copies of three testimonials, and delivered to the undersigned on or before noon on Friday, December 27th.

By Order,
Union Offices, Hart Road, West Hartlepool. N. JEFFRIES, Clerk to the Guardians.

Durham County Mental Hospital

wanted, a JUNIOR MALE ASSISTANT MEDICAL OFFICER, with a sound knowledge of *Bacteriology and Pathology*, competent to take charge of Laboratory. Age not over 30 years, unmarried. Must be fully qualified and duly registered.

Commencing salary £350 per annum, rising by annual increments of £25 to £450 (if in possession of D.P.M. an additional £50), with board, lodging, washing, and attendance.

The appointment will be made under the provisions of the Asylum Officers Superannuation Act, 1909, and for this purpose the emoluments are valued at £135 per annum.

Applications, stating age, qualifications, etc., with copies of three recent testimonials, will be received up to the 31st instant, and should be addressed to the MEDICAL SUPERINTENDENT, Winterton, Stockton-on-Tees, Co. Durham.

December 14th, 1929.

Manchester Royal Infirmary.
CENTRAL BRANCH, ROBY STREET, MANCHESTER.

JUNIOR HOUSE SURGEON AND CASUALTY OFFICER (LADY).

The Board of Management of the Manchester Royal Infirmary invite applications for the above appointment.

Applicants must be registered and hold a Medical and Surgical qualification.

The appointment is subject to one month's notice, in writing, from or to the Board, and is tenable for an indefinite period from January 12th, 1930. Commencing salary £100 per annum, together with board and allowance for laundry.

Applicants must state age and qualifications and send twelve copies of their application and testimonials to the undersigned by Thursday, January 2nd, 1930.

By Order,
FRANK G. HAZELL,
December 13th, 1929. Gen. Supt. & Sec.

Manchester Royal Infirmary.
BARNES CONVALESCENT HOSPITAL, CHEADLE.

RESIDENT MEDICAL OFFICER, to commence duty during January.

The [illegible] Manchester Royal [illegible] for the above [illegible] for twelve months, subject to the provision of the By-laws as to notice.

Remuneration is at the rate of £250 per annum, with board and residence.

Applicants must state age, and send twelve copies of their application and testimonials to the undersigned by Thursday, January 2nd, 1930.

By Order,
FRANK G. HAZELL,
December 13th, 1929. Gen. Supt & Sec.

Royal Albert Hospital and Eye
INFIRMARY, DEVONPORT.

The post of SENIOR HOUSE SURGEON will be vacant on January 1st, 1930. Applicants must be fully qualified, registered, and unmarried. Salary £150 per annum, with apartments, board, and laundry free.

Applications, together with copies of not more than three testimonials (which will not be returned), addressed to the "Chairman of the Selection Committee," must reach the undersigned not later than first post Tuesday, December 31st.

FRANK ROWE,
December 13th, 1929. Secretary.

Borough of Walthamstow.
EDUCATION COMMITTEE.

APPOINTMENT OF SCHOOL DENTIST (Man or Woman).

The Education Committee invite applications for the position of School Dentist at a commencing salary of £500 per annum, rising by annual increments of £25 to £650 per annum.

Candidates must be registered and qualified Dentists, and preference will be given to applicants who also possess qualifications in Medicine and Surgery. *Age must not exceed* 40 years.

The successful candidate must devote the whole of his or her time to the duties of the office, and will be required to pass a medical examination by the School Medical Officer, under whose general supervision he or she will act.

The Local Government and Other Officers Superannuation Act, 1922, will come into operation on April 1st, 1930.

Applications, stating age, with particulars of training, experience, and qualifications, and accompanied by copies of *three recent testimonials*, must reach the undersigned not later than Friday, December 27th.

Education Offices, 263, High St., E.17. December 9th, 1929. S. W. BURNELL, Director of Education.

Parish of Coventry.
ASSISTANT MEDICAL OFFICER.

The Guardians of the Parish of Coventry invite applications for the appointment of Assistant Medical Officer at the GULSON ROAD HOSPITAL and LONDON ROAD INSTITUTION, COVENTRY.

The salary will be at the rate of £200 per annum, and until residential accommodation can be provided at the Hospital an additional residential allowance of £150 per annum will be paid. For the present, the candidate appointed will be required to reside outside but within reasonable proximity to the Hospital, and subject to the approval of the Guardians.

Candidates must be single men, and the candidate appointed will be required to devote the whole of his time to the duties of the office, and to act under the directions of the Resident Medical Officer.

The appointment will be subject to the *approval of the Minister of Health* and to the provisions of the Poor Law Officers Superannuation Act, 1896.

Forms of application may be obtained from the undersigned, and completed applications should be returned as early as possible.

Guardians' Offices, *13, Little Park St.*, Coventry. December 11th, 1929. E. A. EVANS, Clerk to the Guardians.

Bolton Union.
TOWNLEYS HOSPITAL.

Wanted for the Townleys Hospital, Farnworth, near Bolton, a SECOND ASSISTANT MEDICAL *OFFICER (male)* for a period of one year.

The salary will be at the rate of £225 per annum, and rations, furnished apartments, attendance, washing, etc.

The Hospital has accommodation for 350 patients, is a recognized training school for nurses, and has a Medical Superintendent and three resident Assistant Medical Officers.

Forms of application, together with conditions of appointment (for which a stamped addressed foolscap envelope *must be enclosed*), may be obtained from me.

Last day for applications January 6th, 1930.
28, *Mawdsley St.*, Bolton. December 13th, 1929. *H. I. COOPER*, Clerk to the Guardians.

The London Female Lock
HOSPITAL,
283, Harrow Road, London, W.9.

The Board of Management invite applications for the appointment of HOUSE SURGEON (male or female) at the Female Lock Hospital. Salary at the rate of £150 per annum, with furnished rooms, full board, and washing. Candidates, who must be doubly qualified and duly registered, should *send in their applications* by January 6th, 1930, accompanied by copies of three recent testimonials, to the Secretary, from whom further particulars can be obtained. The appointment is for six months commencing February 12th.

Lowestoft and North Suffolk
HOSPITAL, LOWESTOFT.

JUNIOR HOUSE SURGEON (male) required. Salary £120 per annum, with board, residence, and laundry. Applications, together with copies of three recent testimonials, to be sent to the Honorary Medical Superintendent.

Nottinghamshire County Council
EAST RETFORD CORPORATION.
EAST RETFORD RURAL DISTRICT COUNCIL.

APPOINTMENT OF JOINT MEDICAL OFFICER.

The Nottinghamshire County Council, the East Retford Corporation, and the East Retford Rural District Council jointly invite applications from duly qualified and registered Medical Practitioners for the whole-time appointment of a Medical Officer to act as—

(*a*) ASSISTANT MEDICAL OFFICER of the County Council;

(*b*) MEDICAL OFFICER OF HEALTH, SCHOOL MEDICAL OFFICER, and CERTIFYING OFFICER for the purposes of Section 55 of the Education Act, 1921 (Defective and Epileptic Children), and Section 31 (1) of the Mental Deficiency Act, 1913, of the Corporation of East Retford;

(*c*) MEDICAL OFFICER OF HEALTH to the East Retford Rural District Council.

The salary attaching to the position will be £750 per annum (with reasonable travelling and subsistence allowances), rising after two years' satisfactory service by two annual increments of £25 each to a maximum of £800 per annum; and the person appointed will be required to reside within a radius of two miles from the Market Square, East Retford.

Applicants must have had at least three years' professional experience since qualifying, be conversant by experience in the duties of a Medical Officer of Health and School Medical Officer, and also possess a Diploma in Public Health. Experience in Refraction Work and the examination of Defective Children is essential.

The appointment will be terminable on three months' notice, and be subject to the approval of the Ministry of Health and the Board of Education, and also to the provisions of the Sanitary Officers Order, 1926.

Form of application and conditions of appointment can be obtained at my office, and must be forwarded to me not later than December 30th, 1929.

K. TWEEDALE MEARY,
Clerk of the Nottinghamshire
Shire Hall, County Council.
Nottingham, Dec., 1929.

County Borough of Great YARMOUTH.

ASSISTANT MEDICAL OFFICER OF HEALTH AND ASSISTANT TUBERCULOSIS OFFICER.

Applications are invited for the position of Assistant Medical Officer of Health and Assistant Tuberculosis Officer. Salary £600 per annum.

The gentleman appointed will be required to devote the whole of his time to the service of the Corporation, and in addition to acting as Assistant Tuberculosis Officer will be required to assist in the general work of the Health Department, working for all purposes directly under the Medical Officer of Health, who is also Tuberculosis Officer.

Candidates must have had at least three years' experience of their profession since qualification; be able to show special experience in the diagnosis and treatment of tuberculosis; and should hold a Diploma in Public Health.

The appointment is subject to the approval of the Ministry of Health and to the provisions of the Local Government and Other Officers Superannuation Act, 1922.

Applications, stating age, marital state, qualifications, tuberculosis experience, and general experience together with not more than three recent testimonials, should be delivered to the Medical Officer of Health, Town Hall, Great Yarmouth marked "Assistant Medical Officer," not later than January 4th, 1930.

Dated this twelfth day of December, 1929.

Town Hall, W. EDGAR STEPHENS,
Great Yarmouth. Town Clerk.

The General Hospital, BIRMINGHAM.

Applications are invited for the following resident appointments from January 15th, 1930:

HOUSE PHYSICIAN. Salary £70 per annum.

HOUSE SURGEONS (Three). Salary £70 per annum.

Applications, giving full details of qualifications and accompanied by testimonials (if desired), should reach the undersigned by December 30th.

A. H. LEANEY, House Governor.

West Suffolk General Hospital, BURY ST. EDMUND'S. (108 Beds.)

Applications are invited for the post of HOUSE SURGEON (male), which will be vacant early in January. Salary £150 per annum, with board, residence, and laundry. Applicants must be fully qualified and registered.

Applications, giving particulars of experience and enclosing three recent testimonials, to be sent to the undersigned.

E. E. HARDWICKE,
December 9th, 1929. Secretary.

Lancashire County Council.
SCHOOL MEDICAL AND CHILD WELFARE DEPARTMENT.

APPOINTMENT OF ASSISTANT COUNTY MEDICAL OFFICER.

The Lancashire County Council invites applications from registered Medical Practitioners for the post of Assistant County Medical Officer.

Applicants must not be over 35 years of age, and must possess the Diploma of Public Health.

The duties of the post include the Medical Inspection of School Children; work under the Maternity and Child Welfare Acts; general Public Health work; and such other duties as may from time to time be imposed by the County Council.

The person appointed will be required to devote his whole time to the service of the County Council. The salary will be £830 a year, rising (subject to satisfactory service) by annual increments of £50 to a maximum of £1,030 a year, together with first-class railway fares and other reasonable expenses.

The person appointed will be required to pass a medical examination, and to contribute to the Council's Superannuation Fund.

Applications must be made upon a form which can be obtained, together with further particulars, from the County Medical Officer of Health, School Medical and Child Welfare Department, *County Offices, Preston, to whom* the completed forms should be returned not later than Tuesday, December 31st, 1929. All communications must be endorsed "Assistant County Medical Officer."

Any form of canvassing is strictly forbidden, and will disqualify.

GEORGE ETHERTON,
Clerk of the County Council.
County Offices, Preston,
December, 1929.

Wilts County Council.

APPOINTMENT OF ASSISTANT SCHOOL DENTIST.

The Wilts County Council invite applications for the appointment of an Assistant School Dentist, to work in the Department of the County School Medical Officer, at a salary of £450 per annum.

Subsistence allowance in accordance with the County scale will be paid.

The officer appointed must be duly qualified and registered, and will be required to reside in or near Trowbridge.

The appointment will be made subject to the provisions of the Local Government and Other Officers Superannuation Act, 1922, and the successful candidate will be required to pass a medical examination.

Applications, on forms to be obtained from the undersigned, and accompanied by copies of not more than three recent testimonials, must be delivered in envelopes marked "School Dentist," not later than the first post on Friday, January 3rd, 1930.

Canvassing, either directly or indirectly, will disqualify.

County Offices, W. L. BOWN,
Trowbridge, Wilts. Clerk of the
December 10th, 1929. Council.

Swansea County Borough.

MALE ASSISTANT MEDICAL OFFICER.

The Swansea Borough Council invite applications from duly qualified Medical Practitioners for the post of Male Assistant Medical Officer to assist with the Medical Services of the Corporation.

Hospital resident and special experience of refraction and ear, nose, and throat work, school medical service, and maternity and child welfare experience, are desirable; the D.P.H. qualification, if additional to the foregoing, is also desirable. Salary £60 per annum, subject to the approval of the Board of Education and the Ministry of Health.

Applications on special forms, which can be obtained from Dr. Thomas Evans, Medical Officer of Health, Public Health Office, Swansea, to be sent in not later than December 31st.

Victoria Hospital, Burnley.

Wanted, HOUSE SURGEON (male), fully qualified. Appointment, six months. Salary £125 per annum, with board, lodgings, and washing. Applications may be sent in at once to F. A. HARGREAVES, Hon. Secretary, 7, Grimshaw Street, Burnley.

N.B.—This Hospital is approved by the London University for the M.B. and M.S. Examinations.

Birkenhead & Wirral Children's HOSPITAL, Woodchurch Road.

HON. DENTAL SURGEON. There is a vacancy at the above Hospital. Applications, together with copies of testimonials, to be sent addressed to the Secretary, at the Hospital, not later than December 31st.

Manchester Union.

ASSISTANT MEDICAL OFFICER.

The Guardians of the Manchester Union invite applications from Medical Practitioners, who have had previous resident Hospital experience, for the following appointments:

JUNIOR RESIDENT ASSISTANT MEDICAL OFFICER at the WITHINGTON HOSPITALS (1,200 beds) and INSTITUTION (1,150 beds), Nell Lane, West Didsbury, Manchester; and

JUNIOR RESIDENT ASSISTANT MEDICAL OFFICER at the CRUMPSALL INFIRMARY (1,300 beds) and INSTITUTION (1,600 beds, including 600 beds for Mental Patients), Crescent Road, Crumpsall, Manchester.

The Hospitals and the Infirmary are recognised Training Schools for Nurses and are equipped with all modern Hospital requirements.

The appointments are entirely separate and the salary for each will be at the rate of £275 per annum, with rations and furnished apartments, subject to the usual deductions under the Poor Law Officers Superannuation Act, 1896.

The successful candidates will be required to commence duty on March 1st, 1930.

Applications, endorsed "Medical Appointment," stating at which establishment—*Withington or Crumpsall*—an appointment is desired, accompanied by not less than three testimonials, must reach me not later than Tuesday, December 31st instant.

Candidates desiring to apply for more than one appointment must send in a separate application in respect of each Hospital.

By Order,
Union Offices, F. W. GREENHALGH,
All Saints, Clerk to the
Manchester. Guardians.
December 12th, 1929.

Manchester Union.
BOOTH HALL INFIRMARY FOR CHILDREN.

ASSISTANT MEDICAL OFFICERS.

The Guardians of the Manchester Union invite applications from Medical Practitioners, who have had previous resident Hospital experience, for the appointments of Junior Resident Assistant Medical Officers (Third and Fourth) at the Booth Hall Infirmary for Children (750 beds), Charlestown Road, Blackley, Manchester.

The Hospital is a recognised Training School for Nurses and is equipped with all modern Hospital requirements.

The salary for one appointment is at the rate of £275 per annum, and for the other at the rate of £250 per annum, with rations and furnished apartments, subject to the usual deductions under the Poor Law Officers Superannuation Act, 1896.

The successful candidates will be required to commence duty about February 1st next.

Applications, endorsed "Medical Appointment," Booth Hall Infirmary," accompanied by not less than three testimonials, must reach me not later than Tuesday, December 31st inst.

By Order,
Union Offices, F. W. GREENHALGH,
All Saints, Clerk to the
Manchester. Guardians.
December 12th, 1929.

Royal Salop Infirmary, SHREWSBURY. (150 Beds.)

APPOINTMENTS OF RESIDENT HOUSE SURGEON and RESIDENT HOUSE PHYSICIAN.

Applications are invited from fully qualified men for the appointments of Resident House Surgeon and Resident House Physician, vacant from January 1st next.

Both appointments are for six months in the first instance, subject to re-appointment for a further period of six months.

Salary £160 per annum, with board, residence, etc.

Resident staff comprises Resident Surgical Officer, House Physician and Surgeon.

Applications, stating age, qualifications, experience, nationality, and accompanied by copies of three recent testimonials, to be sent to the undersigned not later than Dec. 23rd.

J. W. NOBLE,
December 4th, 1929. Secretary-Supt.

Prince of Wales' Hospital, CARDIFF.

CROSSWAYS COUNTRY BRANCH.

HOUSE SURGEON required February 1st, 1930, for Crossways Country Branch Orthopædic Hospital. Previous Hospital Surgical appointment desirable. Salary £120 per annum, with board and laundry. Apply, with copies of three recent testimonials, by January 4th, 1930, to the Secretary, Prince of Wales' Hospital, Cardiff.

CAVENDISH NURSES (Male and Female)

Head Office: 54, BEAUMONT ST., LONDON, W.1 (late 43, New Cavendish St., London, W.1.)

A very convenient form of telephone message pad sent free on application to the Secretary.

Branches: *MANCHESTER*: 176, *Oxford Road.* *GLASGOW*: 28, *Windsor Terrace.* *DUBLIN*: 23, *Upper Baggot Street.*

TELEGRAMS: Tactear, London. Surgical, Glasgow. Tactear, Manchester. Tactear, Dublin.

TELEPHONES: London, 1277 Welbeck. Glasgow, 477 Douglas. Manchester, 3152 Ardwick. Dublin, 531 Ballsbridge.

Superior trained Nurses for Medical, Surgical, Mental, Dipsomania, Travelling and all cases. Nurses reside on the premises, and are always ready for urgent calls Day and Night. Skilled Masseuses, Masseurs, and good Valet attendants supplied.

Terms from £3 3s. *Apply to the Secretary or Lady Supt.*

Leicester Royal Infirmary.

HONORARY PHYSICIAN.

A vacancy for an Honorary Physician will arise in February, consequent upon the retirement, under the rules, of Dr. Astley V. Clarke, Senior Physician. Applications are invited for the post. The only candidates eligible are those who have held the position of Honorary Assistant Physician to Leicester Royal Infirmary.

The present Senior Honorary Assistant Physician is a candidate.

HONORARY ASSISTANT PHYSICIAN.

Should the above vacancy be filled by one of the present Honorary Assistant Physicians, there will be a vacancy for an Honorary Assistant Physician. Candidates must be Graduates in Medicine of one of the Universities of the United Kingdom or Ireland, and duly registered. Fifty guineas annually is granted by the Board for out-of-pocket expenses. Applications (in the latter case accompanied by 100 copies of recent testimonials) to reach the undersigned by Tuesday, January 14th, 1930.

HONORARY SURGEON.

A vacancy for an Honorary Surgeon will arise in February, consequent upon the retirement, under the rules, of Mr. J. S. Sloane. Applications are invited for the post. The only candidates eligible are those who have held the post of Honorary Assistant Surgeon to Leicester Royal Infirmary.

The present Senior Honorary Assistant Surgeon is a candidate.

HONORARY ASSISTANT SURGEON.

Should the above vacancy be filled by one of the present Honorary Assistant Surgeons, there will be a vacancy for an Honorary Assistant Surgeon. Candidates must be Fellows or Members by examination of the Royal College of Surgeons of England, or Graduates in Surgery of the United Kingdom or Ireland. Fifty guineas annually is granted by the Board for out-of-pocket expenses. Applications (in the latter case accompanied by 100 copies of recent testimonials) to reach the undersigned by Tuesday, January 14th, 1930.

It is proposed that the successful candidate, in addition, shall be in charge in the Orthopædic Department, and he must have had experience in that branch of Surgery.

Canvassing in any of the appointments is not allowed.

HARRY JOHNSON,
House Governor and Secretary.

Coventry and Warwickshire

HOSPITAL, COVENTRY.
(307 Beds.)

RESIDENT HOUSE SURGEON (male) wanted. Salary £125 per annum. Board, laundry, and attendance provided. Candidates must be duly qualified and registered.

Applications, stating age, and enclosing copies of recent testimonials, should be sent to the undersigned on or before December 27th.

(Miss) R. HOOPER, Secretary.

Newark Hospital and Dispensary

(50 Beds.)

Wanted, a fully qualified RESIDENT HOUSE SURGEON (male) to commence duty January 1st, 1930. Must be a good Anæsthetist. Salary £150 per annum, with board, residence, and lau[illegible] months, or twelve if [illegible]rm of application app[illegible] 27, Kirk Gate, Ne[illegible]

Central Hospital, Plymouth.

(50 Beds.)

HOUSE SURGEON wanted (male or female) Salary £120 per annum, with board, residence, etc.

Applications, stating age, together with not more than three recent testimonials, to be sent to the undersigned not later than Dec. 27th

WM. W. URELL, Secretary.

Junior House Surgeon required

January 1st, 1930. (60 beds.) Salary £125 p.a., etc. Apply, with testimonials, to Secretary, Medical Board, ECCLES & PATRICROFT HOSPITAL, near MANCHESTER.

THE OLDEST AND LEADING MEDICAL AGENT

PERCIVAL TURNER,

(Established 50 years.) Ltd.
4 & 5, ADAM ST., STRAND, W.C.2.
Telegrams: "EPSOMIAN, LONDON."
Telephone: TEMPLE BAR 9011.

Terms post free on application.

CHRISTMAS HOLIDAYS.

The above office will be closed on Wednesday, Dec. 25th, and Thursday, Dec. 26th, but will be open as usual on Friday, Dec. 27th, and Saturday, Dec. 28th.

A full list of Practices and Partnerships for disposal will be sent post free on application.

City of London Hospital for

DISEASES OF THE HEART & LUNGS,
Victoria Park, E.2.
(Bus, Tram, and Rail, Cambridge Heath, L. & N.E. Railway.)

The Committee of Management are desirous of appointing a LARYNGOLOGIST. Applicants must be Fellows of the Royal College of Surgeons of England. An honorarium is attached to the post.

The Assistant Laryngologist is an applicant for the post. It is desired that applicants will intimate whether in the event of the Assistant being appointed they desire their applications to stand for the Assistant post, to which also an honorarium is attached.

Applications, accompanied by copies of testimonials, should reach the undersigned at the Hospital not later than Monday, January 6th, 1930.

GEORGE WATTS, Secretary.

The Children's Hospital,

BIRMINGHAM.

PHYSICIAN TO OUT-PATIENTS.

A Meeting of the Committee of Election will be held on January 13th, 1930, at 11.45 a.m., for the purpose of electing a Physician to Out-patients.

Applications are invited for the post

It is required that candidates shall be Members of the Royal College of Physicians of England, or undertake to become so within twelve months of their election.

The successful candidate will be appointed for a term of three years, and will be eligible for re-election.

After six years his honorarium (£40 per annum) will cease, and he will be called Physician to the Hospital.

Particulars as to duties can be obtained on applicat[illegible] whom applications, [illegible] and certificate of [illegible] by January 4th, 1930.

HAROLD F. SHRIMPTON,
December 9th, 1929. House Governor.

Chesterfield and North Derbyshire Royal Hospital.

(199 Surgical and Medical Beds.)

CASUALTY HOUSE SURGEON.
THREE HOUSE SURGEONS.

Applications are invited from fully qualified men for the above posts, which become vacant on January 31st next.

The appointments are for six months.

The Casualty House Surgeon must have held previous Hospital appointments. Salary at the rate of £200 per annum, with board, apartments, and laundry. Duties include those of House Surgeon to the Ear, Nose, and Throat Department.

The salary offered for House Surgeons is from £100 to £175 per annum, according to previous experience.

Applications, stating age, with copies of three recent testimonials, should be sent to the undersigned not later than Tuesday, December 24th.

G. SUNNUCK,
December 9th, 1929. Supt. and Sec.

Telephone: WELBECK 2728.
Telegrams: "ASSISTIAMO, LONDON."

NURSES

MALE OR FEMALE.

TRAINED NURSES FOR MENTAL, MEDICAL, SURGICAL, AND FEVER CASES.

Nurses reside on the premises and are available for urgent calls Day or Night.

THE NURSES' ASSOCIATION
(In conjunction with the MALE NURSES' ASSOCIATION),
29, York St., Baker St., London, W.1.
Mrs. MILLICENT HICKS, *Supt.*
W. J. HICKS, *Secretary.*

BRITISH MEDICAL BUREAU

NORTHERN BRANCH.
(THE S. C. & M. ASSN., LTD.).
LATE THE MANCHESTER MEDICAL AGENCY.

33, CROSS STREET, MANCHESTER.

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Telegrams: "LOCUM, MANCHESTER."

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Prospectus Free. *Enquiries Solicited.*

THE MANCHESTER MEDICAL & SCHOLASTIC ASSOCN., Ltd.,

The oldest Medical Agency in Manchester.

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Telephone: 5932 CITY.

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A[illegible]
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MR. HERBERT NEEDES,

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This Agency (the oldest in the Kingdom) undertakes the SALE of PRACTICES and PARTNERSHIPS, AUDITS, and VALUATIONS, and the SUPPLY OF LOCUMS and ASSISTANTS.

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ST. LUKE'S HOSPITAL.

FOR MENTAL DISORDERS.

Private Nursing Staff Department.

Trained Nurses for Mental and Nervous Cases can be had immediately.

Apply to Lady Superintendent,
19, Nottingham Place, London, W.1.
Telephone: Mayfair 5420

Northern Branch.—Apply, Lady Superintendent 57, Clarendon Rd., Leeds. 'Phone: Leeds 26155

THE MEDICAL AGENCY

(ESTABLISHED BY J. A. REASIDE IN 1893)

WATERGATE HOUSE, 15, YORK BUILDINGS, ADELPHI, W.C.2.

Telephone: TEMPLE BAR 1034. RIVERSIDE 1254. (*Night Calls.*)

Telegrams: "REASIDE, TUBERCLE, WESTRAND, LONDON."

FOR SALE.

MIDDLESEX (N.), on the borders of London.—Well-established NUCLEUS PRACTICE in growing residential locality. Excellent scope. Large house, part suitable for professional purposes, on long lease. Large garden. Garage. Premium, to include furniture, fittings, drugs, and lease, £1,250.

HOME COUNTIES.—PARTNERSHIP in well-established G.P. in large town with Hospital. Suitable house available. Receipts approx. £8,000. Panel nearly 6,000. Suitable for experienced man aged 30 to 45. One-fifth share for disposal at 2 years' purchase.

GLOS.—Varsity Graduate desired as PARTNER, with view to SUCCESSION in three or four years' time, in old-established good-class non-panel Practice situated in Country Town. Receipts over £2,000 p.a. (one-third or half share offered to well-qualified man, aged about 30, at 2 years' purchase.

LONDON, N.—LOCK-UP SURGERY, with living accommodation if desired, situated in working-class district. Receipts £260 p.a. Panel 150. Premium for quick sale £300.

HERTS.—In close proximity to London.—Middle-class G.P. Good-sized house and grounds. Receipts £1,500. Panel 800. Scope for development. Prem. 1½ years' purchase. House £2,200. Part could remain.

LONDON, E.—PARTNERSHIP in old-established industrial and mixed-class Practice. Receipts average £3,550. Panel 1,000. Fees 3/6 up. Prem. for 1/3rd share, with view to larger share, £1,775, cash.

BERKS.—PARTNERSHIP, with view to SUCCESSION.—Country Practice. Receipts average £1,120 p.a. Panel nearly 600. House to rent. Premium for 2/5ths share 2 years' purchase.

BEDS.—PARTNERSHIP in Town Practice. Receipts approx. £1,300 p.a. Panel 1,760. Half share for disposal with view to SUCCESSION at 2 years' purchase.

DERBYSHIRE.—PARTNERSHIP in old-estab. non-panel Practice in best part of large town. Receipts approx. £3,000 p.a. Quarter share now, with view to larger share, at 2 years' purchase.

GLOS.—Well-estab. middle- and working-class PRACTICE. Medium-sized freehold house in own grounds. Receipts average £1,270 p.a. Panel 1,100. Fees 2/6 up. Premium for house and Practice £2,700.

CORNWALL.—DEATH VACANCY.—Old-established Country Town PRACTICE. Receipts £1,300 p.a. Panel 900. Appointments. Hospital. Locum in charge. Premium 1 year's purchase. House to rent.

LONDON.—NUCLEUS PRACTICES.—We have several small Practices situated in London and elsewhere with incomes of £100 to £500. Full details on request.

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3 SOUTH OF ENGLAND. — Increasing Country PRACTICE in beautiful district on main line. Receipts last year £1,102. Panel about 440. Lovely old house (6 bedrooms), electricity and gas, large garden, for sale. Sport. Premium £1,500.

4 KENT.—Country Practice over £800 p.a. in beautiful part. Panel 380 Extremely attractive residence (5 bedrooms), central heating, and grounds 2½ acres, for sale. Hunting and other sport Premium 1½ years' purchase.

5 EASTERN COUNTIES. — Partnership in Country Practice of £2 330 p.a. Panel 1,630. House, with garage and garden, to rent Premium one-third share 2 years' purchase or possibly a little less.

6 W. OF ENGLAND. — Ophthalmic PRACTICE, between £850 and £900, in residential seaside resort. Semi-detached house for sale or rent Considerable scope as Vendor has undertaken only minor operations Premium £1,300.

7 S.W. OF ENGLAND. — Seaport Town. — PARTNERSHIP (after preliminary assistantship) in good mixed Practice about £3,000 p.a. Panel 2,100. One-third share offered to suitable man at 2 years' purchase.

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10 MIDLANDS. — Country Practice about £1,000 p.a. in residential district and hunting centre. Panel 600/700. House, with 8 bedrooms, to rent Premium £1,300.

11 S.E. COAST.—Partnership in Practice over £5,000 p.a. in popular resort Premium one-fourth share 2 years' purchase. Partner should be aged about 30 and must have held House appointments Short preliminary assistantship.

12 LONDON, W.—Partnership in good-class non-dispensing Practice over £7,500 p.a. in Kensington. No panel or appointments. Incoming Partner must be well qualified (aged 30—35) and have held Hospital appointments. Share worth about £1,000 at 2 years' purchase.

13 INLAND WATERING-PLACE. — Good-class PRACTICE of nearly £2,000 p.a. (General and Spa work). No midwifery or panel. Excellently situated house to be purchased. Premium for Practice according to length of introduction.

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15 N.W. Coast.—Steadily increasing Practice (held by Medical Woman) in popular watering-place. Receipts past year £950 (including panel £220). Accommodation consists of 6 rooms, bathroom, etc., and can be rented. Prem. £1,000.

16 SOUTH OF ENGLAND. — Partnership (after preliminary Assistantship) in Practice of £3,200 p.a. in fashionable inland watering-place. Panel 1,600. Applicant should have Surgical qualification (preferably F.R.C.S.). Share offered, one-fourth at 2 years' purchase.

17 SOUTH OF ENGLAND.—Practice about £700 in steadily growing semi rural district near important town. Panel 300. Very comfortable house (3 bedrooms) for sale or rent. Premium 1½ years' purchase.

18 MIDLANDS. — Country Practice about £1,450 p.a. within 10 miles of first-rate town. Panel 1,250. large newly decorated house (7 bedrooms), in grounds of 3½ acres, for sale. Sport. Premium 1½ years' purchase.

19 MIDLANDS. — Partnership in Practice over £3,000 p.a. in rural district about 6 miles from important town. Panel 2,650. House to rent or purchase. Premium 1/3 share 1½ years' purchase.

20 BRITISH EAST AFRICA. — Assistant required (with view to Partnership) in General and X-ray and Electro-therapeutic Practice. Assistant must hold the F.R.C.S., and experience in X-ray would be advantageous. *Share of about* £1,200 p.a. offered to suitable man after preliminary assistantship.

21 DEATH VACANCY. — CORNWALL.— Country PRACTICE about £1,000/£1,200. Panel 800. Suitable and convenient house.

22 SOUTH MIDLANDS.—Rapidly increasing PRACTICE in first-rate town Receipts 1928, £552 Panel 480. Detached double-fronted house (4 bedrooms) to be sold Considerable scope. Premium £600.

23 SOUTH COAST.—Practice about £800 p.a. in first-rate Residential Town and favourite Watering-place. Panel about 200. House (5 bedrooms) *in good position.* Scope in all directions. Premium 1½ years' purchase.

24 SOUTH OF ENGLAND.—Partnership in good class non-dispensing Practice over £5,200 in first-rate Town. Plenty of scope. Applicant should be young (Cambridge or Oxford preferred and London School). One-sixth share at first at 2 years' purchase.

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Practices and Partnerships for Disposal (continued).

25 SOUTH WALES. — Practice over £1,200 p.a. in Country Town. Panel about 500. Attractive old house (6 bedrooms). Garage and garden. Good facilities for sport. Premium £1,500.

26 SOUTH COAST.—Practice £1,328 p.a. in favourite Watering-place. Panel 1,570. Large well situated house to rent. Great scope. Premium £2,100, to include drugs, etc.

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28 WEST MIDLANDS. — Country Practice (held by Medical Woman) in beautiful Village. Receipts £530 p.a., steadily increasing. Semi-detached 10-roomed house, with nice garden and garage, to rent. Premium 1½ years' purchase.

29 SOUTH COAST. — Increasing Practice £1,345 p.a. in favourite Seaside Resort. Panel 400/500. Choice of two houses for sale. Scope for increase. Premium 1½ years' purchase.

30 HOME COUNTIES.—Partnership in Practice £2,800 p.a. in good town about 30 miles from London. Small panel. Convenient house (5 bedrooms) to be sold or let. University and Public School man who has held appointments preferred. One third share at 2 yrs.' purchase after preliminary assistantship.

31 NURSING HOME in favourite Town on Kent Coast. Clear net profit £750 p.a. Double-fronted residence, with operating theatre, to be let or sold. Premium—Goodwill—£1,000. Highly recommended.

32 KENT & SUSSEX BORDER. — Practice averaging nearly £1,100 p.a. in beautiful Country District. Small panel. Very convenient house (6 bedrooms) for sale. Sport. Premium 1½ years' purchase.

33 LANCASHIRE.—Partnership in Practice £3,720 p.a. in first-rate Town. Panel 2,600. House (4 bedrooms) to be sold or let. Premium one half share 1½ years' purchase.

34 EAST ANGLIA.—Partnership in Practice about £3,300 p.a. in Country Town. Panel 1,356. After prelim. Assistantship one-third share offered to suitable man at 2 years' purchase. Applicant should be exper. and a good Anæsthetist.

35 WEST OF ENGLAND.—Steadily growing Country PRACTICE of about £650 in delightful part of the Cotswolds—easy reach of two good Towns. Panel 497. House (6 bedrooms), with garage, ¼ acre garden, and paddock, for sale. Good scope. Premium £600.

36 N.EAST COAST.—Partnership (after short preliminary Assistantship) in Practice in Seaport Town. Suitable house to rent. Share worth over £1,800 p.a. at 1½ years' purchase. Applicant must be young (about 30) and energetic.

37 SOUTH MIDLANDS.—Country Practice, 40 miles from London. Established 15 months. Earnings during same period £500. (Cash received £300.) Panel 40. House (6 bedrooms), with good garden, etc., to rent. Plenty of scope. Premium £600. Part down.

38 WILTSHIRE. — Country Practice about £500 in delightful part. Small panel. Suitable flat (2 bedrooms) to let. Premium £500.

39 SOUTH COAST.—Practice of about £1,400 p.a. in popular resort. Panel 785. House (5 bedrooms), on main road, to rent.

40 GLOUCESTERSHIRE.—Country Practice of £550 p.a. in delightful part. Panel 450. Excellent modern house (5 bedrooms) and garden for sale. Premium £750.

41 DORSET.—Country Practice over £1,000 p.a. in beautiful district. Panel over 600. Nice house (6 bedrooms), with lovely garden, to rent. Premium 1½ years' purchase.

42 SOUTH WALES.—Seaside Resort.—PRACTICE averaging £1,290 p.a. Panel 600. Nice house, with garden and garage, for sale or rent. Premium 1½ years' purchase. Welsh not necessary.

43 EASTERN COUNTIES.—Practice averaging £2,800 p.a. in Seaport Town. Panel 700. House (5 bedrooms), large garden, for sale or rent. Scope. Premium 1½ years' purchase.

44 NORTH MIDLANDS. — Partnership in Practice £2,586 p.a. in one of the principal cities. Panel about 1,500. Share up to one-half at 2 years' purchase after preliminary Assistantship.

45 SHEFFIELD.—Practice about £800 (including appointments worth £155 p.a.). No panel or dispensing. Convenient house (6 bedrooms) to be sold or let. Premium £800 or offer.

46 LANCASHIRE.—Practice of about £2,000 p.a. (over £500 from panel) in a semi rural district near good town. Nice house (6 bedrooms, etc.), recently redecorated, for sale. Premium—Practice—£2,500.

47 WEST MIDLANDS.—Practice of £1,440 p.a. in small market town in agricultural district. Panel 600. Good house (7 bed and dressing rooms), with electric light and gas, for sale. Scope for increase. Premium £2,100.

48 MIDLANDS.—Practice averaging £1,680 p.a. in important Town. Panel 1,560. Specially built house (4 bed and dressing rooms) to be sold. Scope for increase. Price £2,250.

49 MIDLANDS.—Partnership in non-dispensing Practice over £5,500 p.a. in first-rate residential town. Panel 1,700. Partner should be aged 27—30. One-fifth share at 2 years' purchase.

50 LONDON, W. — Non-dispensing Practice about £1,650, within easy distance of Marble Arch. No panel or appointments and practically no midwifery. Commodious house to be let or sold. Premium one and a half years' purchase.

51 SOUTH OF ENGLAND.—Partnership in sound non-dispensing Practice £4,200 p.a., in attractive watering place. Panel about 1,800. Suitable house. Applicant should hold F.R.C.S.Eng., or M.D., F.R.C.S.Edin. One third share at 2 years' purchase. (Preliminary Assistantship.)

52 SOMERSET. — Easily worked Country PRACTICE of about £900 p.a. in favourite residential village. Panel 500. Well built house (6 bed and dressing rooms), to be sold or let.

53 WEST OF ENGLAND.—Steadily increasing PRACTICE (carried on by Medical Woman) of well over £700 in first-rate town. Panel 550. Centrally situated house in excellent position for sale or rent. Premium £1,050.

54 LONDON, S.W.—Good middle-class non-dispensing PRACTICE in pleasant residential suburb. Receipts year ended September 30th, 1929, £2,428. No panel. Excellent detached corner residence (7 bedrooms). Premium—house and Practice—£4,000.

55 LONDON, S.E.—Cash Practice about £600 a year in suburban district within half an hour of Charing Cross. Panel 560. Small corner house to rent. Great scope. Premium £900, part by instalments.

56 LANCASHIRE.—Partnership in old-established Practice about £2,650 p.a. in manufacturing town. Panel 900. Applicant should be experienced and aged about 30 to 35. Share up to one-half at 1½ years' purchase after preliminary assistantship.

57 Near BIRMINGHAM.—Partnership in very sound Practice, nearly £3,000, in large and rapidly growing residential country district. Panel 930. Suitable house obtainable. Premium one-third share 2 years' purchase.

58 SUSSEX.—Partnership in Country Practice, £2,750 p.a. in residential district near the Coast. Panel about 700. Good house (about 6 bedrooms) to rent on lease. Scope. Premium one-half share 2 years' purchase.

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2. DEATH VACANCY.—NORTH WALES.—Easily worked PRACTICE, offering large scope, and situated in a beautiful seaside and country district. Cash receipts for this year, to date £200. Very convenient well situated house, with ample accommodation. Rent £85 p.a. Premium £1,200 or near offer. Efficient Locum in charge.
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4. SHEFFIELD.—Very old-established middle and working-class PRACTICE, offering exceptional scope for increase. Income for last year £1,500 Panel of over 1,700. Visits 4/6 to 5/-. Conveniently situated house, with 2 reception, 4 bedrooms, etc. Rent on lease £56 p.a. Premium £2,250. Ill health reason for sale.
5. WILTSHIRE.—Very pleasant Village, in beautiful surroundings, and within easy reach of good town. Income last year £1,100. Panel of 445. Fees 2/6 to 21/-. Exceptionally picturesque house, with 3 reception, 4 bedrooms, 2 maids' rooms, etc. Electric light and gas. Garage for 2 cars. Half an acre of garden. Price for freehold £2,000. Premium £1,400.
6. EASTERN COUNTIES. — LARGE TOWN. — Sound good middle and working-class PRACTICE, producing last year nearly £1,900, including panel of 2,300. Fees 3/6 to 10/6, medicine extra. No midwifery. Specially built house, easily run and with every modern convenience. Contains 2 reception, 5 to 6 bedrooms, etc., and good professional accommodation. Garage. Garden. Price for freehold £3,000, half on mortgage. Premium 1½ years' purchase.
7. KENT.—Old-established Country PRACTICE, in favourite locality, and within 5 miles of the coast. Income for past 12 months £1,185, and increasing. Visit 5/- to 21/-. Panel of about 380. Appts. worth about £50 p.a. Convenient house, with ample accommodation. Nice garden Price for freehold £1,800. Premium 1½ years' pur.
8. NORTH MIDLANDS.—Well-established mixed-class PRACTICE situated in a town of nearly 20,000 inhabitants, with large surrounding district. Cash receipts about £2,000 p.a., including club of £250 and panel of 1,000. Expenses light. Good house, with ample accommodation. Would be let or sold. Prem. for immediate sale £2,000.
9. PARTNERSHIP.—SOUTH-WEST.—(Within 100 miles of London).—Partner required, experienced in surgery, to take over a fourth, third, or half share in a very old-established Practice in a desirable country town. Income over £4,200 p.a. (this year to end of Oct. £4,456), including appts. £300 and panel of 1,950. Visits up to 31/6. Good house, with ample accommodation. Price, freehold, £2,000. Prem. for share 2 years' purchase. Up-to-date Cott. Hosp.
10. EASTERN COUNTIES.—Very attractive Village within 100 miles of London. Old-established, practically unopposed, mixed-class PRACTICE, averaging about £1,200 p.a. Panel of over 700. Advice and medicine 3/6 to 5/-. Visits 5/- to 10/6, a few at 21/-. Large detached house, in perfect order and with every modern convenience. Price for freehold £1,600. Premium £1,800.
11. PARTNERSHIP — ESSEX. — (Within 50 miles of London). — Third Partner required in very old-established rapidly increasing Practice in small country town. Cash receipts for past three years average £3,755 (last year £4,176), including panel of 2,200 and appts. Third share is for disposal opposition slight. Visits 5/- to 21/-. Good house, professional accommodation, 2 reception, 4 bedrooms, bathroom, etc. Large garden. Garage. Rent £60. Premium 2 years' purchase. Educational facilities and sport.
12. WITHIN TWENTY MILES OF LONDON.—Old-established good mixed-class PRACTICE, in attractive residential district. Receipts average £1,000 p.a. Panel of nearly £500 and appts. worth £60. Visits 3/6 to 21/-. Very nice house, with all modern conveniences and half acre of garden. Price for freehold £1,800. Premium £1,400.
13. ESSEX.—(Within 15 miles of London).—Old-established unopposed and increasing PRACTICE, in pretty country district. Income last year over £1,100, including Union £90 and panel £432. Comfortable house, with ample accommodation (water laid on) and large garden Rent £70 p.a. *on lease.* Premium £1,650. Ill health reason for sale.
14. HOME COUNTIES.—Within few miles of large town.—Old-established unopposed and increasing PRACTICE, in pleasant district, worth over £3,000 p.a., including panel, with mileage, producing about £1,000 and appts. £250. Visits 3/6 to 10/6, medicine usually extra. Very little midwifery Good house (7 bedrooms, etc.), garden, garage. Price, freehold, £2,000. Premium 1½ years' purchase.
15. X-RAY AND ELECTRO-THERAPEUTIC CONNECTION, in popular South Coast Watering-place. Receipts, which are rapidly increasing and include resident patients for treatment, amounted last year to nearly £800 Large house and garden. Price, freehold, £6,500. Premium 1½ years' purchase. Opposition very slight and the investment offers considerable scope.
16. [illegible] own within easy reach of Manchester.—producing £2,600 p.a., with panel of [illegible] medicine extra. Good house, with ample accommodation. Price £1,000, or would be rented at £70 p.a. Premium 1½ years' purchase, half down and balance by instalments.
17. ESSEX.—POPULAR COAST TOWN.—Small easily worked PRACTICE, *offering good scope*, as district developing: Income last year £[illegible] Panel of 200. Fees 2/6 to 7/6. House contains 2 reception, 3 bedrooms, etc. Garden. For sale or on rental. Premium £750, part down and balance instalments.
18. SOUTH WALES.—Seaside Resort.—Old-established mixed-class PRACTICE in favourite locality. Receipts for past 12 months £1,400, including panel of 607. Visits 3/6 to 21/-. Convenient house, with 2 reception, 4—6 bedrooms, and professional rooms, etc. Rent on lease £80 p.a. Good sport and schools. Prem. 1½ yrs.' purchase.
19. SOUTH AFRICA.—HEALTH RESORT (Inland Spa).—Old-established increasing PRACTICE (held over 20 years) on a main line of rail and in a healthy pleasant township much frequented by visitors in the Season. Cash receipts average over £1,750 p.a., including several appts. One opponent. Price for house £1,500, to include furniture, instruments, and motor car (original cost £2,000), and for goodwill £1,500, part by instalments. Efficient introduction. A knowledge of Hydrology would be a big asset.
20. CROYDON AREA.—PARTNERSHIP.—A two-fifths share to commence with in an old-established middle-class Practice. Income £2,750. Panel of 988. Fees 3/6 to 10/6. Convenient house on lease. Rent £80 p.a. Premium 2 years' purchase.
21. PARTNERSHIP.—CHESHIRE.—Within a few miles of a large town.—In a pleasant residential district (pop. over 7,000), the half share of a very old-estab. Practice worth about £4,000 p.a. Patients all classes. Suitable house available on rental. Premium 2 years' purchase, part by instalments. Good society and schools.
22. ESSEX.—HOSPITAL TOWN.—PARTNERSHIP.—A one-fifth share, to commence with, in a well-established mixed-class Practice producing about £8,000 p.a., including large panel. Fees 3/6 to 21/-. Good house, with large garden, for sale; part on mortgage. Premium 2 years' purchase, payable £2,000 down and balance by instalments.
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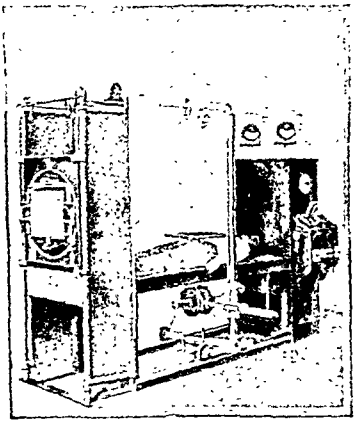

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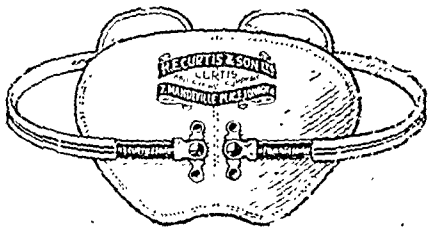

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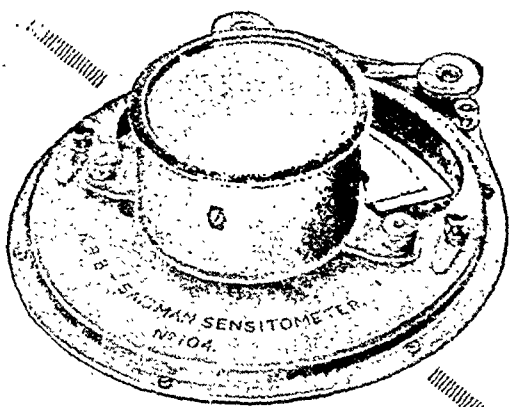

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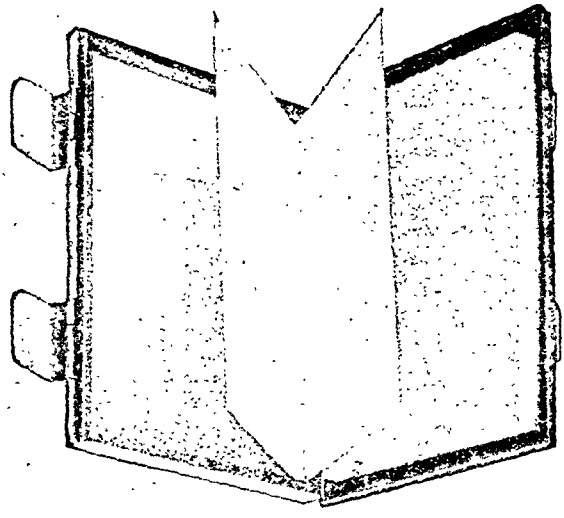

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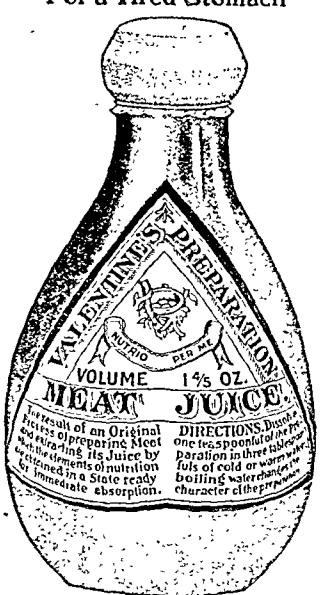

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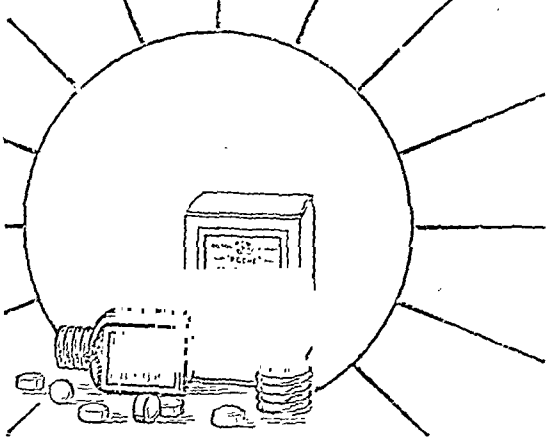

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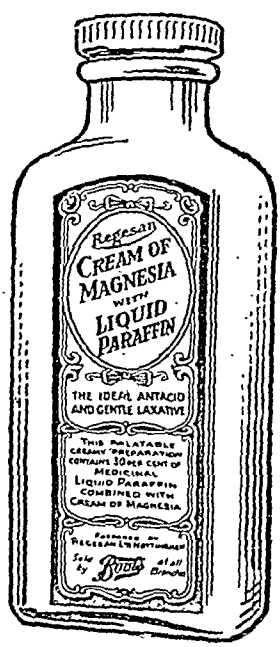

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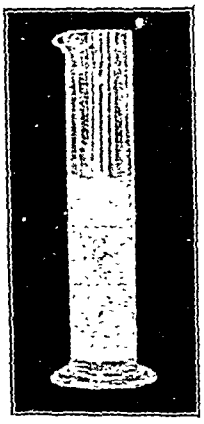
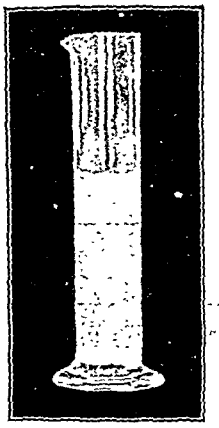


A Showing the heavy curd formed by the action of gastric juice on ordinary cow's milk.



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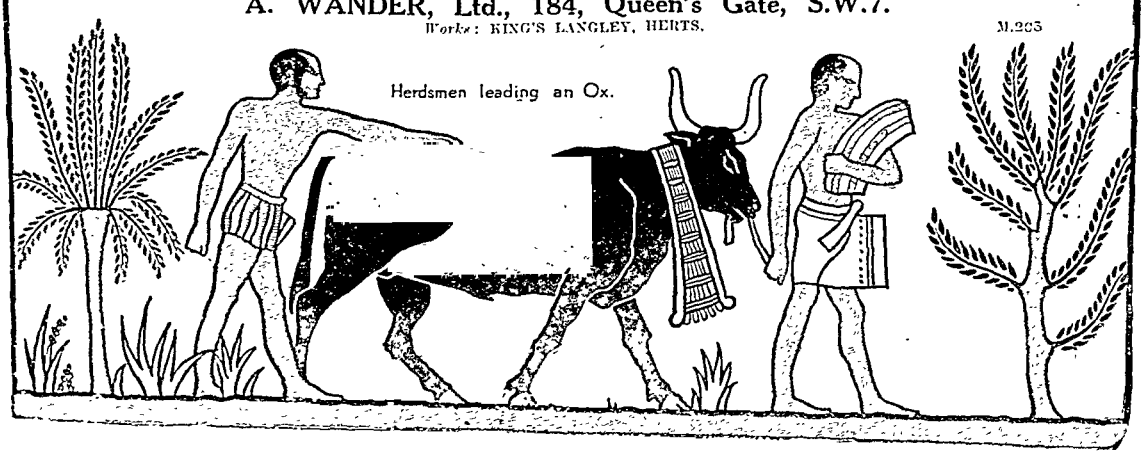

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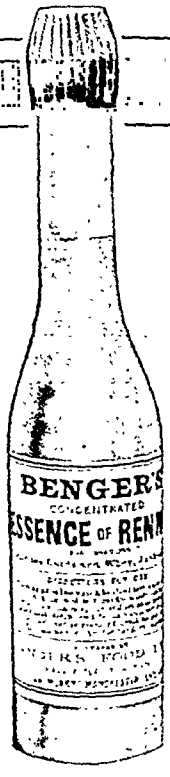

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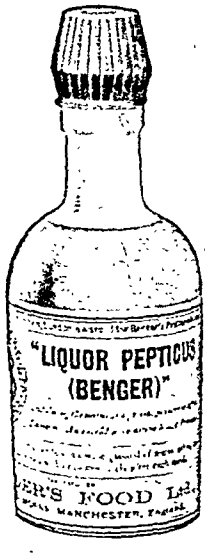

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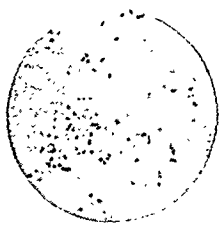

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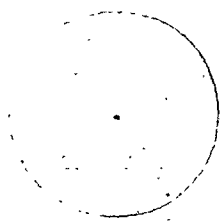

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Remarks
ON
THE STUDY AND TEACHING OF PAEDIATRICS.*

BY
LEONARD FINDLAY, M.D.,
PROFESSOR OF PAEDIATRICS, UNIVERSITY OF GLASGOW; PHYSICIAN ROYAL HOSPITAL FOR SICK CHILDREN, GLASGOW.

WHEN Professor Joanovitch, Dean of the Faculty of Medicine, along with the President of the Jugoslavian Medical Association, did me the signal honour of inviting me to address my Serbian colleagues, I had considerable difficulty in deciding on a theme. There are very many subjects on which an interchange of our views would be of mutual benefit and interest. However, I ultimately decided that it might be of more general interest to the medical faculty of Belgrade if I were to say something regarding the teaching and study of that branch of medicine to which I have devoted most attention.

Paediatrics not a Speciality.

You will notice that I have spoken of it as a branch of medicine. I used this phrase advisedly, because I did not wish to employ the word "specialty" so often adopted when referring to the subject. Paediatrics, or diseases of children, I protest most emphatically is not a specialty. A specialty suggests the study of a particular organ of the body—as, for example, the eye or the ear—or a special method of treatment of disease—for example, surgery or electro-therapeutics—but paediatrics is general medicine practised during the earlier, and one might make bold to remark the most important, years of life, at least so far as prophylaxis and cure are concerned. The true and ideal paediatrician is a general physician with a full knowledge of disease at a certain period of life, just as a neurologist is a general physician who has paid particular attention to diseases of the nervous system.

Disease Influenced by Many Factors.

Disease is influenced by many factors—for example, environment, climate, age, and sex—and he who only considered one factor would have a narrow outlook of his subject. Certain diseases, such as developmental errors, it must be admitted are peculiar to infancy and childhood: but even in this field of clinical pathology age is not an absolutely sharply differentiating feature, because some varieties of the condition—for example, aneurysm and morbus cordis (cyanose tardive)—may not declare their presence until adolescence or adult life. Some diseases are specially prone to occur during infancy and childhood; in fact, so much more commonly do they happen during the early years of life, that the adjective "infantile" is almost invariably prefixed. "Infantile paralysis" is a good example, as also is "infantile diarrhoea," which, at least in Britain, is a synonym for epidemic diarrhoea—British cholera—acute gastro-enteritis and intoxication of Finkelstein. Other diseases, again, occur at all ages, but vary so much in their manifestations at the different periods of life that they are looked upon, or at least have until recently been looked upon, as quite different pathological entities. Rickets and osteomalacia are the conditions which in this connexion I have in mind. It is simply because the diseased process is occurring during the period of growth in the one case and after growth is complete in the other that such different pictures are produced. It is possible, as Dr. Harry Hutchison, who worked in my department, has shown, to trace all gradations—from typical infantile rickets, through late rickets occurring in older children and adolescents, to osteomalacia in the fully grown adult.

Medicine cannot be divided into compartments according to whether the patient is 5 years of age or 50 years of age. The same disease affects all ages of man, and in order to have a true appreciation of that disease it is essential for us to study it under all conditions. In Berlin, where specialization had run riot, at least before the war, I knew doctors who from the day of graduation had never seen a patient of greater age than 1 year; and in America and in England, too, there is a tendency to follow along similar lines. Nor can we satisfactorily classify our patients according to which organ is apparently involved, and relegate the diagnosis of disease to this or that specialist. Yet patients are wont to choose their medical attendant according to whether their discomfort is in their head or their heels, a practice which we know is often fraught with disaster. The whole body works in harmony, and we know only too well that though the disease may be situated in one viscus, the symptoms are referred to another.

The Specialization of Disease: Is it Detrimental to the Medical Student?

Of late there has been a tendency to go even further astray in the specialization of disease and to limit attention to the study of the effects of one particular micro-organism, I am, of course, referring to tuberculosis and venereal disease. If ever there were conditions which have demanded a general knowledge of disease for their full appreciation, and consequently for their proper treatment, and which are thus quite unsuitable for specialization, these conditions are tuberculosis and syphilis. How can a physician ever become satisfactorily acquainted with pulmonary tuberculosis and its diagnosis unless he has opportunities of seeing all varieties of mischief in the lung? Fortunately, in the case of syphilis there is a specific test to keep the physician on the right lines, but in the case of tuberculosis there is no such controlling factor, with the result that we are only too familiar with the diagnosis of tuberculosis when assuredly there is at least no active mischief present.

In the case of the child there is perhaps no more frequent mistake than the confusion of chronic pneumonia, with or without bronchiectasis, and pulmonary tuberculosis. I have often visited sanatoriums and have had healthy-looking, at least well-nourished, children shown to me as examples of pulmonary tuberculosis. I well remember having submitted to me a series of twelve children from a neighbouring sanatorium for the demonstration of chronic phthisis pulmonalis in the child. Not one single child, however, was suffering from pulmonary tuberculosis, but each was an example of unresolved or chronic non-tuberculous pneumonia. How is it possible for the physician to learn to differentiate between the various types of chronic pulmonary disease, and, what is of greater importance, to educate the student in their diagnosis, unless he has opportunities of observing them? Unfortunately for the student, and also for the teacher, there has grown up a custom in our general hospitals at home not to admit examples of pulmonary tuberculosis, so that there are two fields of study so far as disease of the lungs is concerned—one for tuberculous material and another for non-tuberculous—without any point of contact, and the differential diagnosis, at least in the student's mind, thus comes to depend more on the geographical situation of the patient than on the history of his illness and the physical examination of the chest. The educational loss to the student in this way is enormous. I consider it fortunate that neither I nor my medical colleagues at the Glasgow Children's Hospital believe that we are competent to diagnose with certainty in the receiving room of the hospital the tuberculous lung, so that much tuberculous material finds its way into our wards, and the students, as well as ourselves, benefit so far as our diagnostic acumen is concerned.

This artificial division of diseases into specialties may have brought about some little increase in knowledge, but it has not to any great extent been for the benefit of the individual patient, as it has narrowed the outlook of the family doctor, and, to my mind, has had a very serious effect on the teaching of the medical student. It may be argued that in the special department where the clinical material is concentrated the student gets the best opportunities of becoming acquainted with the particular disease, but I hold that he is being taught by a biased individual whose exposition will tend to be lop-sided and

* Abstract of a lecture to the Belgrade Faculty of Medicine and Medical Association, Jugoslavia, on the occasion of a visit to the Anglo-Serbian Children's Hospital, Belgrade.

reveal defective perspective, and the very real difficulty of differential diagnosis, as you and I meet with it in our daily work, will be insufficiently illustrated. In any case these special courses are of short duration and form a small fraction of the student's total clinical instruction. These objections are no idle theories, for, to judge from my contact with the final year medical student, this pernicious system is having a very detrimental effect on his outlook, and one cannot wonder at it. Without a Wassermann reaction, a barium meal, an electro-cardiogram, or an *x*-ray examination of the chest, the modern student seems unable to consider the pros and cons of a case, and cannot even hazard the likely diagnosis.

Thus you see that I consider as very ill-advised the attempt to split up general medicine into separate compartments or fields of study. By all means let each of us, as did the late Sir James Mackenzie and Sir Jonathan Hutchinson, choose one type of disease for special and intensive study, but in order that we may retain a sane outlook our survey of the physiological and pathological must be as wide as possible. Even in the academic field we find the same dangers of specialization. We have now in the domain of physiology the elevation of biochemistry into a separate field of study, so that the all-round physiologist is disappearing. In pathology, too, the divorce of histology and bacteriology, with the birth of the misnomer "pathological chemistry," will have a serious effect on our future teachers and students.

But, after all, the most important argument so far as diseases of children are concerned is the difficulty, in fact the absurdity, of speaking of the daily work of the family doctor as a specialty. Is it not true that children form the largest proportion of our patients, and hence if it is anything of a specialty it is one which every medical man must be expert in? There are some branches of work of which the average doctor sees so little that he cannot be expected to develop a special dexterity, but in his daily task, and the bulk of his daily task, who should be more expert?

One very serious consequence of the idea of paediatrics being a specialty would be that the unsatisfactory state which has up till now prevailed in our medical schools would be continued. From the day of our graduation it must have struck us all as almost Gilbertian that the very duties that in practice we are called upon most frequently to perform—the delivering of women and the care of children—were the very subjects on which we had obtained the least instruction. I do not deny that within the last fifty years there have been changes in the medical curriculum to meet the needs of the times. The subjects of pathology and public health have been introduced, and the teaching of chemistry and physiology has been revolutionized, but within the present century the clinical side of medical education has suffered, and until very recently the teaching of midwifery and diseases of children was really non-existent.

Prevention of Disease in Childhood.

In fact, medical education has simply been a reflection of the general outlook on the value of the child. It is difficult for us to-day to understand the long neglect of child life. We now see that the child is the best asset we have for the guarantee of a healthy future race, and that the cheapest way to treat much of the invalidism of the adult is to prevent the disease in the child—if I may be permitted to use what we at home call an Irishism. During the later years of last century it became appreciated that though the improvement in public health had brought about a great reduction in the general death rate the loss of infant life continued at the same high figure. As a result of these various considerations there has been a development of multifarious infant and child welfare schemes throughout the whole civilized world, and it is a moot point if they are being carried out as efficiently as they might be.

Unfortunately in our country the medical student has not been trained for this work, so that it has in great part been taken over by the health authorities and given into the hands of pseudo-specialists dealing with children under 1 year, and another group dealing with children from 5 to 14 years of age. Children from 1 to 5 years are at present not provided for. In any case we are developing the very class of specialists that I have deprecated. I can picture no more demoralizing sphere of work for one's medical outlook than to be condemned to do nothing but supervise healthy infants and direct their feeding. What medical philosophy can be built on such a foundation?

The right personnel for such schemes can only be recruited from the family doctors in the neighbourhood. They are engaged by the better classes to do this work, and surely they ought to be able to do it for the public authorities. Unfortunately, however, they have not been trained or introduced to this sphere of medicine, and it would seem that the average man or woman cannot pursue any line of study without preliminary instruction, and, further, unless he is examined on this training, that he will make little or no progress. Thus this branch of medicine must form an important part of the medical student's training.

The subject of infant feeding is perhaps the best example of the results of this want of education. In agricultural communities where life is simple the question of infant feeding is not so clamant, but in industrial countries like England it is one of great importance. On the Continent wet-nurses simplify it somewhat; but with us, where the wet-nurse is practically unknown, artificial feeding is the commonest occurrence, not because of bad habits, but from sheer inability of the mother to perform this natural function. As one who has many examples of nutritional diseases in infancy referred to him I have come to the conclusion that the average medical man is very ignorant of this subject. He has no general principles on which to base his practice. He simply chops and changes without rhyme or reason from one type of food to another, and while he appreciates that his motor-car will not go without petrol—or in other words food—he seems to think that the infant body, which not only must incessantly keep working but increase its size at the same time, will exist on air and water. A child cries because it is not getting enough; the the doctor concludes that it is the strength of the milk which is at fault and orders dilution; still cries from the baby and further retrenchment by the doctor until the child is only getting one or two ounces of milk in the day.

Study of Paediatrics by the Medical Student Essential.

How does such a state of matters arise? Simply because the doctor does not know the food requirements of the baby. This and such general principles of infant feeding have not formed a sufficiently prominent part of the medical curriculum, and yet it is no more complicated and no more difficult to learn than the rate of the pulse or respirations. In difficulty it cannot be compared with the physical examination of the chest.

In order that a student may be fitted to enter on medical practice it is essential that he learn how to examine a child. This I consider one of the most important lessons which the student must learn. The examination of a child requires an amount of tact and experience not necessary in the case of the adult. The adult, for the most part, can direct his physician's attention to his complaint, whereas all he may get from the child is a cry or a wail of pain. The child cannot tell his symptoms, and hence in this branch of medical practice physiognomy of disease is all-important. This can only be learned from prolonged study. The typical pictures of broncho-pneumonia, meningitis, pyogenic infection of the urinary tract, gastro-enteritis, scurvy, acidosis, and alkalosis all occur at once to the mind.

The physical examination of the child also requires special experience. The limits of the child are such that our examination should be carried out very gently, and any manipulations likely to cause pain should be performed last. Further, as all methods of examination applicable in the adult are likewise applicable in the child, but as the instruments are smaller and the fields of view more restricted, greater dexterity is necessary, and therefore more practice. Again, in diseases of children a knowledge of their life-history is of paramount importance. It is often possible, from the ungarnished story of the mother or the nurse about the behaviour of the child from the first

day he did not seem to be his usual self, to obtain the life-history of some malady exactly as described in our systematic textbooks. More mistakes in diagnosis of diseases in childhood are made through inattention to this point than to any other factor.

Educational Value to the Student of the Study of Paediatrics.

It is thus seen that the more study of diseases of children has an important educational value, and even on this ground alone paediatrics should be given a prominent place in the medical curriculum. By the study of paediatrics the student is bound to become more observant, more expert, not only in the use of those instruments with which he has been provided by nature, but also in the use of those which he has made for himself, and better acquainted with the life-history of disease because of the absolute necessity of this knowledge in the examination of the patient. Far from being one of the least studied branches of his work it should be one of the most studied.

If this decision regarding the value of paediatrics in the teaching of the medical student is accepted, then a very radical change in our medical course is necessary. I would not, of course, advise that the student be put right away to the study of disease in childhood. As I have already said, the limits of endurance of the child are sooner reached than in the case of the adult, and for the training in the elements of physical diagnosis the adult must still be the subject of election. It is only after the student has acquired a certain facility in the technique necessary for this purpose that he should be allowed to enter on the study of paediatrics.

Nursing of Sick Children.

What applies to the training of the medical man also applies to the complementary service in the treatment of the sick child—namely, the nurse. In English-speaking countries the nursing of sick children labours under a great disadvantage in that the training in a children's hospital does not count as that gained in a general hospital. In consequence, the staffing of a children's hospital is handicapped, and a sufficiency of nurses can only be obtained by enrolling women of a younger age than are eligible for the nursing of the adult. Thus it comes that girls of 18 are entrusted with the care of the sick child, although the same desiderata as were required by the physician are also necessary in her case—namely, greater powers of observation, greater dexterity in manipulations, and greater patience—the attributes that only come with experience. Instead of commencing her training in a children's hospital she should proceed, just as is advisable in the case of the medical student, from a training received in the adult.

Scheme for Training Medical Students.

I think I hear some of my audience saying that there can never be sufficient material for such a purpose—that our children's hospitals are not large enough, and certainly in my own town the children's hospital could not supply sufficient facilities for our hosts of students. But between the care of children and that of the adult there is one very radical difference. The treatment of any serious internal ailment in the adult cannot be ambulant, whereas this is eminently possible with regard to a great deal of disease in the child. The size of the patient makes it possible for him to be easily carried to and from the doctor. There is, too, a great disinclination on the part of many parents to allow their infants and young children to enter hospital, and it is often only in the case of infections, with resultant danger to the other members of the family, that these objections can be overcome. Hence there exists in the out-patient department of a children's hospital a great wealth of material, interesting and important from the student's point of view. Therefore it is in the out-patient department (where the work is akin to what his own will be later on) that he should and can obtain most of his training in paediatrics. This system of ambulant treatment of the sick child is not only possible, but it is in many instances advisable, since in this way there is retained for him an individual nurse who will devote night and day to his care. If surgical treatment is decided upon it is becoming more and more the custom at the Royal Hospital for Sick Children, Glasgow, to keep the child in hospital only for a short time, and to permit him to go home to be under the care of his mother within two or three days after the operation.

Thus the remedy for the present unsatisfactory state of matters does not mean the erection of large children's hospitals. Indoor accommodation is only necessary for the treatment of infectious disease, for the special study of disease requiring strict supervision and elaborate apparatus, and for the care of children whose home conditions are impossible. I would recommend that out-patient departments for infants and children be instituted at all general hospitals with teaching schools, so that the medical student may have ample opportunities of getting an insight into this wealth of material. Let the student see most of his adult material in the wards and the bulk of his young patients in the out-patient department, and let most of his dispensary practice be among children. With an efficient staff of enthusiastic teachers the student would benefit to a tremendous extent. To my mind it is only in this way that the medical man of to-morrow will be thoroughly equipped and able to take a share in the maternity and child welfare schemes which are essential for guaranteeing us against the invalidism of the adult. If for economic reasons municipal aid in the treatment of the child is advisable, then the ideal staff of these State or municipal clinics would be recruited from the family doctors in the neighbourhood. By such a system the patient and the doctor would mutually benefit.

Duration of Medical Curriculum.

So far I have dealt chiefly with my subject as it affects the teaching of the student and the equipping of a sound family doctor. This is and always will be of prime importance, as most of us went to college to become, and in fact do become, family doctors. It will be a sad day for the man in the street, in spite of all the criticism levelled against the medical profession, if the supply of this valuable servant of society ever fails. One often hears it said that there is disappearing from our midst the good old type of family doctor—the all-round physician who is also able to undertake operations and who is an expert in obstetrics. There is, of course, no doubt that within recent years there have been great developments in medicine, and that many new fields—for example, throat and nose, gynaecology, and radiology—have been opened up, and that it is impossible for any one man to be expert in all these branches of medicine. Nevertheless, I do hold that it is possible for the graduate in medicine to be more versatile than he is. This, I am afraid, must mean more time given to his education. Medicine is no finite subject, but is always advancing, and what new vista will be opened up to-morrow no one can say. The possibilities in the discovery of the cause and prevention of disease are unlimited. This may be, and often is, in what appears to us the most unlikely direction, but it behoves those who practice medicine to be as catholic in their interests as possible. Instead of curtailing, as some reformers suggest, the number of sciences which we have been wont to learn, or at least gain an introduction to, the number of subjects and period of our study should be increased. Instead of five years, the medical course should, as it already does in Sweden, extend to seven or eight years. Why the term of apprenticeship should be seven years for him who makes a chair and only five for him who should have an understanding of the whole of science and biology and who is entrusted with matters of life and death is quite incomprehensible.

Academic Paediatrics.

I had not intended to dilate at such length on the duration of the medical course, but had rather wished to limit my closing remarks to a discussion of the academic side of paediatrics. It is the function of the academic centre to stimulate interest in the subject, to carry out research in the unknown fields, and to train teachers, and no medical school can be considered complete without such a department. This department need not, and in fact cannot, at least in any of our university towns, do all the routine

work of treating the sick children or the teaching of the students, and so cannot replace the outdoor departments I have previously referred to. It must be a department complete in itself with pathological and biochemical laboratories, or closely allied to the chief pathological and biochemical departments of the university, so that facilities for all branches of investigation are available. The latter arrangement is in many respects advisable, as it brings the pathological and biochemical investigations under the guidance of the expert and unites the clinical and scientific sides of the school, a union which cannot be too highly commended, as each has much to teach and learn from the other.

It must also be understood that this paediatric department be not limited to any one branch of the subject, but that the whole domain of medicine in childhood be represented. It is the neglect of this which, in my opinion, is undermining the influence of paediatrics. To open a ward in a general hospital for infants and feeding cases and call it a children's department is futile. The only real paediatric department must admit all patients under, say, 13 or 14 years of age, and should have special facilities for the care of the common infectious diseases. It is only in this way that a paediatrician with a wide and philosophical outlook can be trained, and the exponents of children's diseases be given the influence which the importance of their subject demands.

In addition to the ward or wards there must be an out-patient department, not only for the purpose of obtaining a wider clinical experience, but also for the observance of series of cases over a long number of years. Infantile paralysis and the rheumatic infection are good examples of diseases requiring prolonged care, so that an infantile paralysis clinic and a rheumatic or cardiac clinic are essential. Not only, however, is the observance of cases over a prolonged period necessary for the health of the patients, but also for enabling the physician to gain personal acquaintance with the life-history of disease. This is one of the most wanted desiderata of hospital experience, since as a rule so much time is taken up with the examination of new cases and the acutely ill that the patient is entirely lost sight of after his dismissal from the wards. In this connexion the fate of nephritis, of chronic pneumonia, of coeliac disease, and of cerebral tumour are examples which occur to the mind at once.

Nutrition and development are such important aspects of child life that facilities for their study must be provided. This means a liaison between the paediatric department and the welfare centres and school inspection centres in the city. And just as important for a complete understanding of child life is the question of mental development, which is only now beginning to receive attention. The mind, however, cannot be dissociated from the body, and hence one of the chief workers in this field must be the physician.

Such multifarious fields of study demand a large staff properly co-ordinated, but team work in medicine is now, and wisely so, the order of the day. Organized research will not necessarily produce a Pasteur or a John Hunter; genius fortunately will arise and flourish in spite of—in fact, it would almost at times seem to do so in virtue of—adversity, but by organized research the ordinary individual is kept most active and rendered most productive.

THE HIGH ALTITUDE TREATMENT OF PULMONARY TUBERCULOSIS.*

BY

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I AM far from declaring high altitude climate to be a panacea for pulmonary tuberculosis, but an extensive personal experience of over 20,000 patients, not only in Arosa, but also in the course of my travels over the world and in all climates, has strongly confirmed my conviction of the superiority of the Swiss climate to all others. I myself have experienced the benefits. I first went up to Arosa thirty-six years ago suffering from pulmonary tuberculosis, both lungs badly affected, a so-called "hopeless case," against the advice of our family doctor, who thought I was going to lay my bones among snow and ice. I have become fit and well, have been able to prosecute my work in the lowlands, and, without any relapse, have been lucky enough to work hard for nearly thirty years. The high altitude climate is not the only "stimulant," but it certainly has a great tonic effect, and possesses many advantages derived from such beneficial elements as the pure, cold, and extremely dry air, the abundance of sunshine, and the richness in light and ultra-violet rays even on cloudy days. Therefore open-air treatment can be carried out in almost any weather and under the best meteorological conditions.

Especially benefited by treatment at high altitudes are children who are delicate and may have incipient tuberculosis. Children suffering from swollen hilar glands and generally of the glandular type also do very well at high altitudes. They must be kept quiet until they become apyrexial, but afterwards they may be permitted to move about and enjoy exercise in the open air, combined with sun treatment, which can be carried out nowhere better than at high altitudes. To one of the two children's clinics directed by myself, where no infectious cases are taken and where they are staying under medical supervision, an open-air school is attached.

Adults suffering from pulmonary tuberculosis form the majority of our patients at high altitudes, and, of course, here as elsewhere the early cases do best—those with only slight signs at the apices, slight dullness on percussion, altered breathing, rough inspiratory sounds, prolonged and increased expiration, broncho-vesicular or bronchial breathing with small crepitations, and perhaps a small rise of temperature, following, in some cases, an alarming early haemorrhage. Yet sometimes, although we can detect scarcely any physical changes at the apices, a good prognosis cannot be given, since a continuous process is spreading downwards from the apices into the lungs.

Special care is required in our climate, and we must keep at rest on their arrival even apyrexial patients with initial lesions, in order to let them become well acclimatized. Early infraclavicular infiltration especially requires rest treatment for a considerable time. In this form there is slight dullness below the clavicle and bronchial or broncho-vesicular breathing with fine crepitations or rales, without any very appreciable change at the apex. Sometimes these signs occur in the axilla; the whole affection is acute, and tends to excavation. But such cases do very well at high altitudes, and may sometimes heal without the formation of a cavity or even after a small cavity has been formed. I myself and one of my assistants have published details of good results in such cases, and they are confirmed by various other authors; there is no justification for the statement that high altitude treatment is unsuitable. The necessarily prolonged rest treatment can nowhere be better carried out than in our mountain climate, where patients can lie out on the balconies in their beds, and later on in their chairs, in any weather; moreover, they do not become slack and flabby as in the lowlands or at the middle altitudes. They must, of course, be under strict, careful, and skilful medical supervision at a good sanatorium.

Sometimes, two or three weeks after the arrival of a patient who showed few physical signs at his apices or elsewhere, these become rather more distinct, with better audible crepitations, etc., even though the temperature and the general condition remain quite satisfactory. I term this an "initial reaction," and attribute it to the new and different climatic conditions. This reaction may develop during complete rest, and in some ways is comparable to a slight tuberculin reaction. The completely altered metabolism of the body may be responsible for it, and, to a certain degree, the deepening of the respiration in the thinner air. This occurrence emphasizes the

* A paper read before the Bournemouth Division of the British Medical Association on October 4th, 1929.

necessity of being especially careful, even with the light and so-called "initial cases," during the time of acclimatization—that is, during the first ten to fourteen days.

In early cases treated at our altitudes the lowered weight begins to increase in consequence of the improving appetite, while the cough and expectoration diminish and gradually disappear; the breathing becomes deeper and slower. The patient can then increase his exercise and take up some light sport, such as skating, careful climbing, or tobagganing. After three to six months—even slight cases require this length of time to heal permanently and to consolidate properly—the patient has apparently totally recovered; he has regained his working capacity, and the physical signs of disease have more or less disappeared. A skiagram shows a clearing up of the diffuse shadows over the apices and underneath the collar-bone, and the early infiltration underneath the collar-bone becomes more and more indistinct. Small circumscribed focal shadows appear, the signs of calcification, etc. Sometimes, however, there is a big discrepancy between the wonderful feeling of returning health and a local condition which does not change; in this respect initial and light cases require the same care and watching as more advanced ones.

With the spread of the process over the lungs, mostly downwards over the upper lobes and into the lower lobes, the destruction of lung tissue and the formation of cavities renders prognosis more doubtful; but it is astonishing how even such cases can be benefited by our high altitude treatment, and we often watch a case change from the exudative to the more hopeful fibrous type. When artificial pneumothorax and thoracoplasty were as yet unknown, many of my patients with large cavities in both lungs (and I had such myself) gained a permanent cure from climatic treatment alone. X-ray photographs show shrunk cavities, and even well-defined cavities may disappear.

The existence of pyrexia alone does not contraindicate high altitude treatment, but good results with fever cases depend largely upon whether there has been high temperature of long duration, and whether or not it has been accompanied by a rapid pulse. The pulse rate and the degree of fever enable us to judge the virulence of the infection, the character of the process, and whether these patients are fit for treatment at high altitudes or not. Patients with persistent fever above 101.5° F. and a pulse rate of 120 or more should not, as a rule, be sent to high altitudes. Exceptions occur, however. I remember some patients who came out with obstinate hectic fever over 102.5° F., and with a pulse rate of 120 to 130. After some months of complete rest in bed they showed first a diminution in the pulse rate, which was followed by gradual decrease of the temperature, and they eventually became apyrexial in nine to fourteen months. My personal experience indicates that patients who are sent to high altitudes with a temperature above 101.5° F. must not be kept there if, after some weeks of complete rest in bed, the pulse (having been 120 or higher) does not distinctly improve. But if the pulse has a good quality, and not too high a rate, patients with high fever do well; they often, indeed, lose an obstinate fever which did not yield at lower altitudes.

The type of fever, too—whether inverse, cyclic, or hectic—is of great importance. Cyclic fever comes on in attacks at intervals of three, four, or five weeks, and sometimes, in the case of female patients, in relation to the monthly period. Other bouts of fever caused by the absorption of toxins appear suddenly and irregularly from time to time. Such attacks make the prognosis doubtful.

Another interesting fact (to which I first drew attention many years ago) is the unexpected rise of the temperature at high altitudes in patients who had been suffering previously from syphilis. In all cases where obstinate fever persists in spite of complete rest, or where it even becomes higher, I now have a Wassermann blood test performed, and surprises in this respect are not uncommon. A similar phenomenon may occur in the case of old malarial patients who have been free from fever attacks in the lowlands, but have, as I have frequently seen, unexpected attacks of fever up in the mountains.

Cough and expectoration, as a rule, diminish in the cold and pure air, which also puts an end to the fatiguing night-sweats; but, sometimes, the sensitive membranes in the nose and throat become irritated and inflamed. When this is the case, it will be necessary to moisten the air of the room, and sometimes such patients must be sent down to a lower altitude.

The lessening of the fever, and the tonic effect of the thin air, have a beneficial effect on the appetite. We are able to keep our patients, even bedridden ones, out in the open air all day long, and our modern sanatoriums are so designed that the patient can be moved out in his bed on to the large and sheltered veraudah and private balconies in all states of the weather.

Special Indications and Contraindications for Treatment at High Altitudes.

Convalescents after pneumonia and pleurisy do very well in high altitudes in consequence of an improved respiratory function as a whole, aided by a more vigorous action of the auxiliary respiratory muscles.

Small residual effusions after empyema are often absorbed, the lung expanding again. On the other hand, obstinate dry pleural irritation, with rubbing and pain, may become worse in consequence of the deepening of breathing, and make it necessary to send such patients lower down.

Bronchitis generally is influenced for good, especially if associated with tuberculosis, but the rooms of these patients must be kept warm, and special care must be given.

Until a few years ago tuberculous laryngitis was considered to be a strict contraindication to treatment at high altitudes. But the fate of a patient suffering from tuberculosis of the throat depends a great deal on the pulmonary condition, and since at our sanatoriums we have a regular control of such patients by throat specialists, we can, and do, see surprising improvement in this regard too. Circumscribed ulcers are cauterized, and other special and local treatments are given. The treatment—in which perfect silence is insisted on, the patient not being allowed to speak for some months—is most efficacious; but patients with advanced tuberculosis of the larynx who have tissue destruction and large ulcerations do not do well at high altitudes owing to the dry air.

Asthmatic patients benefit if there is sufficient elasticity of the lung tissue, and good heart action.

As a rule, patients suffering from abdominal tuberculosis are not suitable for treatment at high altitudes, but there are exceptions, and systematic heliotherapy may be helpful. The results in cases of urogenital tuberculosis are doubtful.

Otitis media generally does well, the dry air clearly favouring the drying up of the tuberculous process.

In earlier days all persons with weakness or affection of the heart were warned not to go to high altitudes, but clinical observation and experience have proved this to be wrong. Those with compensated heart lesions may go without any risk, and patients with weakness of the heart muscle do well, and are even improved if they start with a long period of rest, exercise being subsequently introduced and slowly increased. But a weak and damaged heart will only withstand the high altitudes if no degenerative process is present, and if the heart has not to call on its reserves. Therefore, patients with uncompensated heart failure and myocarditis must not be sent to alpine stations, at any rate not for a long time.

Anaemia is generally improved, and often cured, but pernicious anaemia and leukaemia can only be benefited temporarily. I have seen splendid results in the case of patients coming from the tropics with grave anaemia, the result of previous malaria. The treatment with fresh liver or liver extracts, which is very useful in many forms of anaemia, is also effective in tuberculous patients.

Special Forms of Treatment.

Since 1902 I have been giving tuberculin to some patients, and I am still convinced that it can be of the greatest help. For many years now I have used only the absolutely harmless subepidermal (or intradermal) method of Sahli. The skin is the place of highly important immunizing reactions, and the local reaction in it indicates distinctly the necessary dosage, without doing harm, and without provoking harmful focal reactions in the lungs. Some authors have asserted that only those patients may be said

to be healed who no longer show any reaction to the very highest dose of tuberculin; but patients have been, and are, healed without tuberculin, and the really important thing is so to improve them that they will be able to undertake full work again after they have lost their expectoration and bacilli, and when crepitations or other signs of activity can no longer be found. Whether, for the time being or later, after years of successful work in normal life, they show a reaction to high doses of tuberculin or not, is, in my opinion, quite irrelevant.

I have tried the gold treatment, but only very rarely, although I have used it a little more often during the past year or two. The results are variable, and I have often seen hideous pigmentation and spotty discoloration of the skin, or skin irritability and bad eczema in patients treated elsewhere with sanocrysin. We are able to avoid such sequels by not giving too high or too frequent doses. But since, on the other hand, too small doses are relatively useless, the individual tolerance has to be determined with great care. I am using sanocrysin, as a rule, at intervals of five, eight, or ten days, starting with 0.05 gram and going no higher than a total dose of 4.5 to 5 grams of solganal. I have seen some astonishing results, especially in the shape of rapid disappearance of tubercle bacilli from the sputum, and the loss of fever.

I am very satisfied with the results of pneumothorax treatment at high altitudes. The practically sound lung runs much less risk there than it does in the lowlands. I have had good results, even in cases with bilateral affections, by treating the worse lung with an artificial pneumothorax. I have seen patients who had been given up lose their fever and obtain lasting benefit as the result of the combination of complete rest and careful pneumothorax treatment at Arosa. Good results also are by no means uncommon with patients treated by a large thoracoplasty, and I have had many who, after this most strenuous operation, have picked up again very soon at our altitudes.

A phrenicotomy is often very helpful in cases where thick adhesions prevent the administration of an artificial pneumothorax, or where a consequent more or less extensive collapse would endanger the other side. Phrenicotomy is also valuable as a preparatory operation for a later thoracoplasty, and enables one to watch the other lung, which has to take over more work from the badly affected one if collapsed or reduced in function. In all cases where this other lung has to be taken into special consideration treatment at high altitudes enables us to give special surgical treatment to the badly affected lung sooner than in climates where there is a risk to the other one from impure air or smoke. Sometimes the operation of Jacobaeus—namely, the burning through (intrathoracically) of fine adhesions—promotes collapse in cases of insufficient pneumothorax.

When treating patients by artificial pneumothorax it must be remembered that the barometric pressure exerts an influence on the pressure of the pneumothorax. Patients who have had injections of air or nitrogen at high altitudes absorb the gas much more quickly when they go down to the lowlands, and more frequent refills are necessary there. It is advisable to give a last injection shortly before the patients go down, and they soon have to be refilled there again. On the other hand, patients who are about to come up from the lowlands to high altitudes must not be injected shortly before their journey, or the last refill must be a very small one. The intrathoracic pressure must be kept *minus* before they travel up to the heights. This is not generally known, and I have seen quite a number of patients arrive after a large refill a few days before starting; they were short of breath, and showed circulatory derangements, dislocation of the mediastinum, etc.

As regards the dietetic treatment of tuberculosis we have long known that feeding is an essential and very important part of the treatment of tuberculous patients; Hippocrates emphasizes this point. Tuberculous patients, if very ill, have a tendency to lose weight, and the word "consumption" speaks for itself. As a matter of fact, a gain in weight by emaciated patients is always a very good and welcome sign, but stuffing patients with the sole object of making them fat is not effecting a cure, and much harm was done in this respect some twenty or thirty years ago, when tuberculous patients were urged to eat much meat and drink stout, etc.; as a reaction the vegetarian system was recommended, but this alone will not solve our problems, especially in high altitudes where everybody, and certainly the patients, needs more calories. More fresh fruit and raw vegetables in addition to cooked ones are given now, but they are combined with a rational meat diet. Special food preparations containing vitamins are proving valuable.

During the past months a new method of diet has received prominence in Germany; in this "saltless diet," which was inaugurated by Gerson, and improved by Hermannsdörffer at Professor Sauerbruch's clinic, a preparation containing other minerals is given instead of common salt with cod-liver oil twice a day. It requires skilled preparation in the kitchen to make this food palatable, and it calls for great perseverance on the part of the patients. There is no doubt that this diet may produce surprisingly beneficial results in cases of surgical tuberculosis, and I have seen marvellous results in cases of lupus and of tuberculous affections of the bones and joints. Although we tried this saltless diet in a great number of lung cases at the Altein sanatorium at Arosa, we could not obtain any more definite benefit than with our ordinary treatment. We do "individualize," however, the food of our patients where necessary, and all forms of diet are given; but, in common with other lung specialists, I have come to the conclusion that this modern saltless treatment, so far as lung patients are concerned, does not justify the enthusiastic statements which have been made.

In estimating the value of various treatments the blood sedimentation test is most helpful. Figures higher than 5-6 minutes in the average indicate that an active process is present, and a fall of the figures from 60–50 or even 30–20 to 8–6–5 enables us to give a hopeful prognosis. However, the clinical improvement may sometimes occur first and the amelioration of the sedimentation reaction follow later on.

Statistical Evidence.

Thirty years of personal work with lung patients have only served to strengthen more and more my conviction of the superiority of the treatment at high altitudes. The large statistical tables prepared by the late Theodore Williams, and shown at the International Tuberculosis Congress in London in 1902, demonstrated that the best results were obtained at high altitudes. The statistics of the so-called "immediate results" after a course of treatment at Arosa, worked out from 4,000 cases, the material being provided by four different physicians practising as specialists at Arosa, show that in Stage I cases there were 93 per cent. of positive cures; in Stage II cases 74 per cent.; and in Stage III cases 41 per cent.

Statistics of the more permanent results, seven, ten, or more years after stopping treatment, were drawn up by Turban at Davos, Ruge at Arosa, and Bernstein-Kohan, whose investigation was conducted under my supervision from a mass of material accumulated in my own private practice before the time of the Altein Sanatorium; these show that permanent results were obtained in 86.5 per cent. of Stage I cases; in 12 per cent. of Stage II cases; and in 7.5 per cent. of Stage III cases. At the beginning of their treatment at Arosa 83.6 per cent. of patients with a durable result were apyrexial, and 82 per cent. had a pulse rate below 100. In 40.86 per cent. of all patients there were still some physical signs but no evidence of activity one to nine years after their treatment. The sputum still contained bacilli in 3.8 per cent.; 18 per cent. had some active trouble, and continued under treatment. The best results were obtained with patients between the ages of 20 and 30 years (51.9 per cent. of durable results), and with patients who started treatment within six months after the first symptoms were observed. Taking all stages together, 63 per cent. of all the patients were still fully fit for work one to nine years after stopping treatment.

General Notes.

Treatment at high altitudes can be started or continued at any time of the year with absolutely the same effect. Patients who are doing well at high altitude places during the winter sometimes think that they should spend the

summer at home or at a lower altitude; by so doing they generally become worse, and, returning to us in winter, nearly always show a relapse. Nearly all the good and lasting "cures" have been obtained by continuing the treatment until a sufficiently safe state of consolidation has been reached. There is no need to fear the effect of the snow-melting period at the high altitude health resorts in spring; either the weather is beautifully warm and sunny or snow falls; but even this last is preferable to the treacherous windy and damp weather with April showers which is usual at low altitudes at this time. Early spring weather is an especially risky time for lung patients in the lowlands, and induces every year many severe colds. Another difficulty is that some doctors order their patients home at that time, and are astonished that they then grow worse. Those patients would have continued to improve had they been allowed to remain out during the spring and summer. I cannot over-emphasize the importance of continuous treatment, which is far preferable to the "wintering" only.

The patient's co-operation is essential, and he must have full confidence in his medical adviser. Doctors who send patients abroad can do great harm by being too optimistic at first. To encourage the patient so many say: "Oh, a few months out there will put you all right." The few months pass, the patient feels better, and gets discontented at not being allowed to go home. If they were warned at first: "You will probably get well, but it may take a long time; we cannot know it yet, and you must play the game," people would be spared a false idea and much disappointment. Doctors should also warn relations not to urge patients to come home; several patients under my care were completely upset by injudicious home letters. In 99 cases out of 100 it is quite impossible to "cure" at home faithfully. After many years of attending lung patients I must express my conviction that patients will nearly always do much better in a good sanatorium than at open hotels.

TOXIC GOITRE.*

BY

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THE term "toxic goitre" is used in this paper to include all forms of thyrotoxicosis: primary Graves's disease—that is, where no enlargement of the thyroid gland existed before the onset of the disease—and secondary Graves's disease, where toxic symptoms arise in a patient with a pre-existing goitre. "Toxic adenoma" is used to signify thyrotoxicosis where one or more discrete adenomata are present in the gland.

CLASSIFICATION.

Toxic goitre gives rise to a wide variety of clinical pictures. The symptoms of the disease are numerous, and are combined in varying numbers and severity, so that each case is essentially a study in itself. There is, however, a dividing line between the primary and the secondary types; you may see this clearly illustrated by looking at the cut surfaces of glands removed at operation—the primary shows a uniform surface, the secondary a surface marked by various types of degeneration. Clinically, the primary is characterized by exacerbations or crises, with periods of improvement, and may result, with adequate time and care, in a complete cure; or it may pass into a subacute or chronic state, which is difficult to distinguish from the secondary. The secondary type, including the adenomatous variety, is characterized by steady progress, free from ups and downs. The emphasis in the primary form is on the nervous symptoms, whereas the secondary causes a progressive deterioration of the cardio-vascular system. The two types, however, are so interlinked that in many individual cases it is difficult to place the case definitely in either group.

SYMPTOMATOLOGY AND IDENTIFICATION.

The classical group of symptoms of Graves's disease used to be given as goitre, tachycardia, fine fibrillary tremor of the fingers, and exophthalmos, and where these are present the disease is easily recognized. The chief additional symptoms are easily produced fatigue, palpitation, loss of weight, excessive perspiration, nervousness, digestive derangements, and, in advanced cases, auricular fibrillation and even dropsy.

The patient in many cases never dreams of connecting her symptoms with an enlarged thyroid; she will even say that her present complaints have nothing to do with her goitre, as she has had that for years and it has given her no trouble. Neither is it easy for the doctor in many cases to recognize and convince himself of the causal connexion. Such cases fall chiefly into three groups.

The first group includes patients who complain of some falling off in general health, and on inquiry are found to have some palpitation, nervousness, excessive perspiration, loss of weight, and are easily fatigued. That a goitre is often the cause of such falling off in health can be clearly demonstrated by three facts: first, the marked improvement in general health which often occurs after a goitre, considered non-toxic, is removed for mechanical reasons; secondly, the severe toxic reaction which can occur during the first forty-eight hours after operation in a patient with only slight toxic symptoms; and thirdly, the dramatic improvement in this group of cases after operation. The immediate improvement is nearly always obvious on the third to fifth day after operation, and consists in a feeling of restfulness and general well-being, with cessation of uncomfortable pulsations and throbbing in precordia or neck; the ultimate improvement is a return to normal weight, strength, and general health.

The second group consists of patients with cardio-vascular degeneration who for years have had an apparently harmless goitre. The causal relationship of such a goitre to the premature degenerative changes has in the past been often unrecognized; but if such a goitre (which has become toxic) is operated on, a marked change in the outlook will soon follow, unless the organic degenerative changes have been allowed to become hopelessly advanced.

The third group comprises patients with an anomalous or atypical mixture of symptoms. For example, a man, aged 61, sent in as a case of diabetes, complained of excessive fatigue on very slight exertion. He had almost no exophthalmos, a very coarse tremor of the hands, pulse 96, and a slight symmetrical soft enlargement of the thyroid, without any thrill. After hemithyroidectomy he felt better in three days; nine months later, having increased 3 st. in weight, he resumed his work. A female teacher, aged 55, had fallen off in weight and lost her physical and mental energy, concurrently with a slight increase in size of her parenchymatous goitre; four months after a bilateral resection she had put on a stone in weight, resumed work, and regained, as she said, her *joie de vivre*.

It is essential, of course, in all such cases to form a careful clinical picture. A female patient who was sent to me recently because of loss of strength and weakness of the legs, with an obvious goitre, was suffering from locomotor ataxia. Such diseases as phthisis, diabetes, and carcinoma must be excluded. If this care be taken, operations on a coexisting goitre will in the above groups of cases rarely fail to produce a good, often a spectacular, result. Where cardio-vascular degeneration is the symptom early recognition is of vital importance, since if operation is carried out reasonably early it entirely alters the outlook, and if delayed too long the case becomes an excessively bad risk.

TREATMENT.

We are comparatively ignorant of the causal factors of toxic goitre and of the mechanism by which these causal factors stimulate and derange the thyroid gland, as well as of the natural history of the disease. It is not easy to give a prognosis in an individual case. It follows that definite lines of treatment are not easy to lay down. American surgeons give a brief and clear answer to this question of treatment—namely, toxic goitre has become a surgical disease; operation cures quickly and safely; conservative

* Abstract of an address delivered to the Scarborough Division of the British Medical Association.

treatment is slow and uncertain, and apt to inflict permanent damage to the heart.

The leaders of surgical opinion in this country take a different view. Dunhill considers that primary Graves's disease should be given a six months' trial of non-operative treatment, and not till then—and then only if such treatment does not seem to present a prospect of cure—should operation be considered. The length of time may be more than the patient can or will afford, and economic reasons may force a decision between incomplete cure and chronic ill health on the one hand, and operation on the other. The wisdom of the conservative treatment of primary cases is shown by the fact that many of these patients return in course of time to apparently perfect and normal health, in possession of a useful thyroid gland. Such a result is no doubt preferable to any that operation can produce, and where the patient is prepared to afford a length of time necessary to endure it she should be given the chance.

In the uncured residue of those primary cases, and to a large extent in secondary Graves's disease, operation is the method of choice. While this opinion is necessarily based on the clinical results, examination of the glands removed shows that it rests on a sound pathological basis. The glands show in varying measure areas of degeneration (colloid, cystic, fibrous, nodular, calcareous), contrasting with the uniform hypertrophy of primary Graves's disease. They are end-results of disease, and their retention within the body is detrimental to health. It is not unlikely that the character of the toxicity alters—that the primary type is really a pure hyperthyroidism which provides an intense but temporary stimulus to the nervous system, whereas the secondary is a dysthyroidism, pouring into the blood a perverted secretion which causes a slow but progressive deterioration in the cardio-vascular system. If this view is correct, operation is definitely indicated in advanced primary and in secondary Graves's disease.

In toxic adenoma operation is essential. The removal of the adenoma relieves the symptoms quickly and with certainty, and, while not repairing organic damage, radically changes the outlook. The rate of progress of toxic adenoma may be illustrated by the following cases.

A. B., female, single, aged 37; complained of intermittent aphonia, "croaky voice," ill health, chronic goitre. The goitre was first noticed when she was 17, when she had typical symptoms of secondary toxic goitre (trembling, nervousness, weakness, sweating, pulse 130–140, no exophthalmos). She was off work for twenty-six weeks. Treated by x rays for two and a half years, supervised another year. Relapse at 21; off work nineteen weeks. She had pneumonia at 27, and had been off work for twenty weeks each year since then. Symptoms had persisted during twenty years; tremulousness, weakness, excessive sweating, palpitation, pulse 106; no exophthalmos. There was complete paralysis of the left vocal cord, and a compressed and displaced trachea, due to a large adenoma the size of a goose's egg, partly substernal, left-sided. This was removed at operation, and after a severe reaction during the first forty-eight hours the patient made a good recovery.

C. D., aged 49. Advanced cardiac disease. Pulse 170 and very irregular. Had a large goitre with multiple adenomata. Was in good health till 41, since when health has deteriorated, with concurrent development and growth of goitre. This patient, after careful medical treatment, failed to improve, and was dismissed as hopeless and inoperable.

E. F., aged 65. Was perfectly healthy and never knew fatigue till two and a half years ago, when for the first time she noticed a commencing goitre, which has steadily grown, and now has several adenomata in the left lobe, and one in the right lobe. She has become weak, thin, breathless, incapable of exertion, depressed. Her pulse was rapid and irregular, and after careful supervision the consulting physician thought the risk of operation too great. The right lobe and part of the left lobe were removed. In the following three months she gained a stone in weight, and though her heart still fibrillates, she is a different woman.

It may be noted that in these three cases the duration before serious complication ensued was, in the patient of 37, twenty years; in the patient of 49 eight years; and in the patient of 65 two to three years—that is, in a definite relation to the activity of the gland.

G. H., female, aged 47, had a large median adenoma and a small adenoma of the left lobe, and wished them removed for mechanical reasons. My house-surgeon records "no toxic symptoms." A lump was first noticed twelve years ago; it was then the size of a marble. It had grown quickly during the last two years. Her only general symptoms were easy fatigue and very slight tremor. After operation her improvement in weight, strength, and general health was rapid and permanent. She brought with her a man who had increased in weight from 6 st. 2 lb. to 9 st. 7 lb. after a similar operation. Both have scars practically invisible.

Brilliant results such as the above are common in the surgery of the toxic thyroid, and cases could easily be multiplied did space permit. The gratitude of such patients is not easily measured. Many of them enter on a new life, and this is true, not merely of toxic adenoma, but of all forms of toxic goitre.

RISK OF TOXICITY OCCURRING IN A NON-TOXIC GOITRE.

The question arises, What risk is there of the chronically enlarged thyroid becoming toxic? Jackson states that by the time a patient with a non-toxic adenoma reaches 45 the chances are one to two that toxic symptoms will develop; that the adenoma is present for eighteen to twenty-five years before toxic symptoms arise; that their onset is subtle and gradual, and inflicts serious and lasting injury within four years, at an average age of 44 years. He uses "toxic adenoma" in the larger sense of "adenomatous goitre." Dr. Quervain states that after a bilateral resection for parenchymatous goitre (non-toxic) recurrence is comparatively frequent among the young, however thoroughly the operation may have been performed, but in older patients the power to prevent recurrences seems to have become exhausted. This would tend to show that there is a diminution of thyroid activity—a sort of thyroid menopause—round about 40 years of age. With diminished activity degenerations are prone to occur and toxicity to arise. I have observed in a number of cases that toxic symptoms date from about 40 years of age, and believe that from this age onwards they should be kept under supervision with a view to early detection of toxic phenomena.

CONSERVATIVE TREATMENT.

The sheet anchor is time and rest, the length of time varying from six months to three years. Septic foci should, when practicable, be removed. There are many cases which have cleared up or materially improved after this has been done. It is well, however, not to exaggerate the value of this procedure, and in severe cases it should be undertaken with due care, being not entirely free from risk. Even if one takes the view that toxic goitre is due to an infection which selects the thyroid because of the predisposition of the individual, following a disorder of the reactions of the ductless glands from sex trauma or overstrain, the removal of a septic focus whilst the patient is in a state of toxaemia may have a disappointing result.

The following case shows what can be accomplished by treatment of septic foci and their sequelae. It was under the sole care of a general practitioner, who has given me his notes.

History and Examination.—Mrs. W., aged 54. Three years ago this patient came under my care and was almost bedridden: nearly every joint in the body had been stiffened, and most were swollen and painful. There was extremely limited movement of the limbs, and the patient could hardly open her jaws sufficiently wide to take anything but liquid nourishment. The pulse rate was about 150; the pulse was very intermittent and irregular, and the cardiac sounds in keeping. There was a systolic apical murmur with mitral regurgitation. Weight (three years ago) 6 st. Left lobe of thyroid enlarged (about the size of a Tangerine orange)—probable toxic adenoma—and had been steadily enlarging for the past fifteen years. Teeth very foul, spongy, and caked almost to a solid mass. It was impossible to differentiate separately the lower incisors, and the remainder of her teeth were more or less a solid mass. The ankles were markedly oedematous. There were large "rheumatic" nodules at areas of pressure; one nodule, about the size of a hen's egg, over the third lumbar spine, and smaller ones over the first and second dorsal spines. On each elbow was a nodule about the size of a pigeon's egg, and several smaller ones down the ulnar aspect of the arm—pressure nodules. The patient could not reach her chin with either hand, and could not attempt to do her hair or wash her own face. She hobbled on sticks to a chair at her fireside; that was her sole effort at walking.

Previous Treatment.—As far as could be gathered this had consisted of thyroid tablets, thrice daily after meals, and aspirin at bedtime. She had been forbidden meat and milk.

Treatment (carried out by me).—Intermediate removal of all the teeth, under novocain. She was put on a diet of beef-tea and nourishing fluids, including milk; she could not take solids. Orally collosol sulphur and collosol iodine for alternate fortnights. Six weeks after removal of the teeth the patient received a course

of six injections of mixed streptococcal vaccine. After three months the pulse rate had come down to 100; the heart had become much more regular; the nodules had almost disappeared and the heart murmurs were hardly discernible. The adenoma of the thyroid had diminished by half. Joint movements had slightly improved, especially the jaw, which had markedly improved. During the subsequent three months the patient was kept on colloso1 sulphur and iodine and as full a diet as possible. At the end of this period she was provided with artificial dentures, and masticated food for the first time for years with comfort. At the end of a further three months I gave another course of six injections of streptococcal vaccine; collosols as before, with full diet, including meat, vegetables, and fruit—the latter in plenty.

One year after beginning treatment the patient was sent to Bath for a six weeks' course of exercises and massage. On her return she was able to come downstairs with the aid of one stick, to perform her ablutions, and to dress herself and to attend to her own hair.

Exercises were maintained at home for another six months. Further course of six injections of streptococcal vaccine, at the end of which time the pulse rate had come down to 84 and was perfectly regular. Heart sounds normal. All signs of adenoma had disappeared and the patient was able to do her own shopping out of doors. The nodules had entirely disappeared, and only slight oedema of ankles reappeared towards the end of the evening.

July, 1929: Patient remains very well. Sleeps well at night, takes hearty meals, and generally is a vastly improved subject. Weight has steadily risen to 8 st. 12 lb. Throughout treatment mag. sulph. in graduated doses was taken to keep bowels regulated.

The value of *x* rays is a thorny and unsettled question. The surgeon does not as a rule see a big enough series of cases so treated to offer a fair judgement; he sees the bad results, which certainly occur. *X* rays should not be used for toxic adenoma, probably not for secondary Graves's disease, and their sphere in primary Graves's disease is still a matter of dispute.

Among the numerous drugs recommended there is one of outstanding importance—namely, iodine. As an adjuvant to surgery, lugol (a solution of iodine 5 per cent. and potassium iodide 10 per cent. in water), introduced by Plummer in 1922, has proved its value. In the great majority of cases of toxic goitre it improves the patient (often in a striking degree) before operation, and is a safeguard against post-operative thyrotoxicosis. Whilst as a stand-by to the surgeon it is invaluable, the use of iodine as a continued medical treatment is open to question. Its beneficial effects are apt to be temporary; its excessive use may induce hyperthyroidism, and it loses most of its value to the surgeon should operation subsequently be required. I have seen four patients during the last year who had had careful iodine treatment for about three months; all of them had the characteristically firm gland which the continued use of iodine induces; two, aged 46 and 48 respectively, were inoperable on account of their cardiac condition; the other two, females, aged 26 and 48, had pulses of 160 and 140 respectively, and after being carefully piloted through the two-stage operation made a very satisfactory recovery. It would appear in these four cases that iodine in the amount given had no curative effect, and may even have been injurious. Cases of toxic goitre have been cured by potassium iodide, but possibly the old view of the danger of iodine as a medical treatment of toxic goitre is well founded. The history of one of these cases is as follows.

I. J., female, single, aged 28, a few weeks after an attack of erysipelas had a sudden and very violent onset of Graves's disease, with a running pulse of 180, severe gastro-intestinal disturbance, restlessness, and tremors of marked exophthalmos. She was treated with lugol (2 minims three times a day) for three months. I then saw her for the first time, with typical symptoms of primary Graves's disease, pulse 160, and a firm "iodine" gland showing a slight bilateral enlargement. She was admitted to hospital for a month's observation, and continued very ill, pulse 150–160. Lugol was then resumed for a month (7 minims thrice daily), and she immediately improved in every way, pulse 130. Right hemithyroidectomy was performed, with very marked improvement, the pulse falling as low as 100. After six weeks two very septic enlarged tonsils were removed. This caused a slight relapse. During the next four weeks the patient remained stationary (pulse 115–120), and about three-fourths of the left lobe was accordingly resected. Rapid improvement followed. About three weeks after the operation the patient said to me, "I have not felt so well for seven years." It appears that she had been in indifferent health for seven years, nervous and easily tired.

This period of nervous debility—in reality a mild thyrotoxicosis (what might be called the prodromal stage of toxic goitre)—lasting some few years, is a not infrequent prelude to an identified attack, and is the period when preventive medicine (or surgery, in adenomatous cases) is of especial value. It is difficult to identify a thyrotoxicosis—possibly the pulse pressure (a convenient and fairly accurate substitute for the basal metabolic rate) might help—and the type of patient is not easily persuaded to rest. I believe the following case is an example of prophylactic treatment.

K. L., female, married, of very active habits, was admitted to a nursing home for fractured patella. She was considered to be "on the borders of a nervous breakdown," was nervous, and had fallen off in weight and strength; pulse 110–120. A consulting physician was unable to say whether or not she was in the prodromal stage of toxic goitre. She was carefully warned and had a few months' complete rest. She regained good health, and is still, two or three years thereafter, strong and robust.

OBJECTIONS TO OPERATION.

Although the operative treatment of toxic goitre produces results as dramatic and as excellent as any other branch of surgery can show, certain objections to this particular operation are often present in the minds of the patient and especially of the doctor.

1. The hope of non-operative cure.

2. The dislike of the removal of such an important organ as the thyroid. The aim of surgery is to remove, not a useful, but a deleterious gland.

3. The risk of operation. At the present day this is certainly small. The death rate depends upon whether the surgeon chooses to accept the very bad risks, especially the late secondary cases with advanced cardiac degeneration and rapid, irregular, and feeble pulse; on careful pre-operative and post-operative care; on gentleness of handling; absence of loss of blood during operation; and drainage of the wound. Of about eighty cases I have operated on from 1921 to 1929, I have lost two only, both before the lugol period. One was a case of primary Graves's disease with extreme emaciation, rapid pulse, and anorexia; the other, a woman, aged 63, with a bilateral adenomatous goitre in which neither the physician nor myself had suspected a toxic element; she died of acute thyrotoxicosis. At the present day, I believe, both would have survived.

4. The scars on the neck. These are wonderfully good, often scarcely visible, and many patients are rather proud of them.

5. Injury to the voice. If one of the recurrent laryngeal nerves should be damaged some change in voice may follow; if both are injured, it is a serious sequel. The risk of injuring one of these nerves is now very small. It is never negligible. Jackson considers that since the patient may have a paralysed vocal cord without being aware of it, laryngoscopic examination should be a routine before operation. Improved technique has reduced this risk to a slight one. I have one patient only with a damaged voice, though cured of a severe primary Graves's disease.

6. Incomplete cure and possible relapse. Dunhill lays down the rule that no surgeon should operate on toxic goitre who is not prepared to remove enough of the thyroid gland to effect a cure, otherwise he will have sufficient bad results to render a serious disservice to surgery. If this rule be followed, relapse need not be feared. It might be asked, What constitutes a cure? Slight remnants of the disease may remain (notably some prominence of the eyes), but a cure may be regarded as a return to active life, with a satisfactory prospect of longevity.

Hemithyroidectomy is sometimes curative; as a rule it effects only a partial cure, and it is generally agreed that the removal of three-quarters to seven-eighths of the gland is necessary. The fact that Nature can carry on satisfactorily with a mere remnant of a gland so important as the thyroid is a tribute to her wonderful adaptability.

Had space permitted I should have liked to quote cases illustrative of clinical opinions expressed above. In conclusion, I wish to express the indebtedness that every surgeon who operates on toxic goitre must feel to the leaders of opinion on the subject.

FAVUS (ACHORION QUINCKEANUM) OF THE MALE GENITALIA.

BY

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IT is stated in some dermatological textbooks that favus is more often seen in Scotland than in England. If so its incidence south of the border is decidedly infrequent.

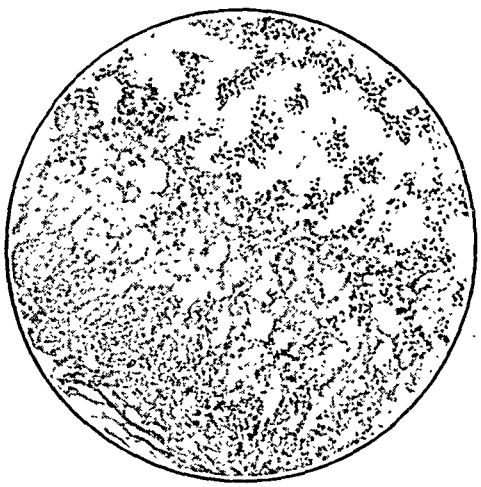

FIG. 1.—Photomicrograph of section of scutulum, showing spores and mycelium of *Achorion quinckeanum* in contact with epidermal cells.

I have never seen it in private practice, and in my hospital clinic and in the skin clinic of the Glasgow education authority, where large numbers of patients pass through my hands, it is of rare occurrence. In but few of these cases has the glabrous skin been affected. In that distribution if the typical sulphur-coloured scutula are present—there is nothing else like them—the diagnosis is strikingly obvious. Occasionally, however, some of the lesions simulate ringworm, but in the cases where there has been no involvement of the scalp which have come under my notice and been diagnosed as favus, I can recall none in which scutula were absent from all the lesions.

Variation from typical distribution of skin diseases may be a confusing factor in diagnosis, especially in those affections devoid of pronounced characteristic signs. In other diseases the signs may be so convincing that the unusual topographical feature presents no obstacle to the identification of the affection.

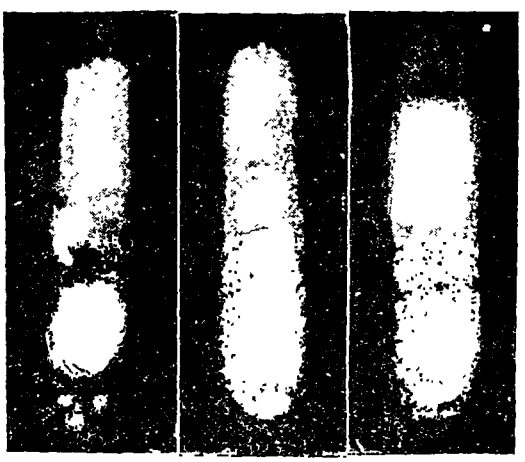

FIG. 2.—Cultures of *Achorion quinckeanum*—white, finely powdery, and showing at bottom of first and third tubes a tendency to acuminate shape.

Early in July of this year a patient presented himself at my hospital clinic complaining of an affection of the penis and scrotum. To my surprise—for there was no mistaking the disease—he was the subject of favus in those sites. The left half of the scrotum showed typical umbilicated yellow scutula, and the same region of the penis similar lesions, which, however, did not exhibit the same degree of umbilication. It was the first time that favus in the genital region had come to my notice, and it occurs with such extreme rarity in that situation that I feel no further justification is needed for reporting this case. There were other lesions present, but none of them showed typical scutula. Two, on the inner aspect of the left thigh, which were evidently extending and coalescing, presented an erythematous appearance, and one of these showed a ring-like development, suggestive of vesiculation, and some scaling. Another lesion was pustular, and one showed black dots, due, possibly, to some adventitious element masking the yellow colour of minute developing scutula.

The causative fungus in the preponderating number of cases of scalp favus in man is the *Achorion schönleinii*. Sabouraud has recorded 200 scalp cases due to it. There

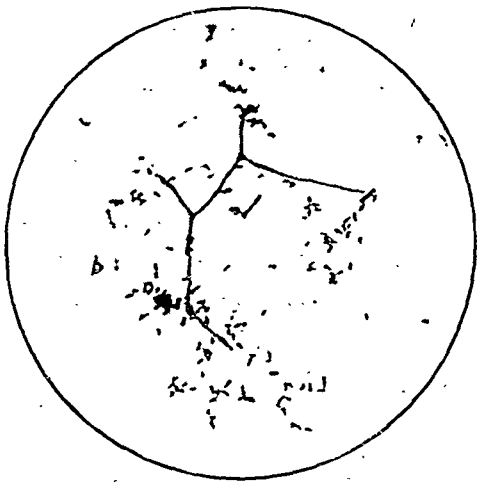

FIG. 3.—Photomicrograph of *Achorion quinckeanum* from culture of scutulum on Sabouraud's medium. Note dichotomous branching of mycelium. Spores of varying size and shape—mainly oval, with one end rather more rounded than the other.

are, however, other varieties of achorion met with, mainly in the lower animals. It has been advanced that those cases in the human subject in which the scalp is unaffected are due to one or other of these lower animal varieties. Be that as it may, there were no scalp lesions present in this particular case.

A scutulum was broken up and portions sown on Sabouraud's media, and Dr. Ernest Dunlop of the pathological department made a section of another of which an excellent photomicrograph was taken. The cultural attempts were successful and showed growths of *Achorion quinckeanum*, a variety found in the cat and mouse. The accompanying illustration shows the cultures, which are white and finely powdery in appearance, with a tendency in some to acquire an acuminate shape. The photomicrograph of the cultures shows a dichotomously branching mycelium and spores of varying size and shape, mainly oval, some with one end more rounded than the other.

Inquiry elicited that there were mice in the patient's home, but no cats. I was unsuccessful in getting any of the mice. How had the patient become infected? No other member of the family had it. It appears that he had bought some shirts shortly before he had noticed the lesions. He wore an undervest. The first lesions to appear were the genital ones. The custom of tucking in the anterior lower part of the shirt about the inguinal and genital regions and the drawing forward of the tail

of the garment brings this article of underwear into very intimate contact with those parts where heat and moisture are favourable to fungus growth. It is possible that the new shirt may have borne the contagion into the house; on the other hand, a favic mouse from the household group may have contaminated it. This is mere conjecture, for many possible ways of infection suggest themselves. Apropos of this, I once treated three bachelor brothers for tinea cruris. The first, whose epidermal scales microscopically examined showed the *Epidermophyton inguinale*, had used a strange closet—of the earth variety, I believe—when out shooting. Doubtless the other two had contracted the disease from one of the water-closets in their country house, common to them all.

The scutula were removed, and all the lesions cleared up within a fortnight under salicylic acid and ammoniated mercury ointments of appropriate strength. It was found necessary to employ a boric acid and calamine lotion occasionally, after washing off the ointment, owing to the sensitiveness of the skin of the parts.

THE RUNNING EAR.*

BY

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THE running ear is the term used by the mothers of England and the man in the street for designating the condition of suppurative otitis media, which has as its sign the outflow of pus from the external auditory meatus. There is no greater reproach to the science and practice of otology than that a number of persons of all ages are going about suffering from this serious complaint. There would appear to be no clear conception in the minds of many practitioners, of the public, and of some of the public authorities of the true significance and seriousness of the condition. For example, the Board of Education in its annual report for the year 1922 (p. 63) states that arrangements have been made for the treatment of "uncomplicated otorrhœa at *minor* ailments clinics" (the italics are mine), and states that the treatment is carried out by a school nurse at the school or the clinic. On certain representation being made to the Board, the reply was that "cases of discharging ears are as a general rule suitable for treatment by the school nurses at the school clinic under the direct supervision of the school medical officer, and the local authority should arrange for this course to be adopted." School medical officers are thus prevented from sending *all* their cases of suppurative otitis media to clinics held by otologists, and this procedure is in force at the present time. When such is the attitude of a responsible public body, is it any wonder that there is widespread misunderstanding of the condition in the minds of many medical practitioners and in those of the public?

Needless to say, every child or adult suffering from suppurative otitis media has a very serious complaint and should be under the care of an otologist. The disease, if carefully treated, is eminently curable. If it is not cured, every fresh nasopharyngeal affection may light up, not merely middle-ear disease, but mastoid infection, which may spread to the brain with dire results.

The prevention of the running ear should, therefore, first engage our attention, and with this object in view the tympanic membrane should, as a rule, be incised in all acute middle-ear conditions at an early date. It is regretted that the Association of School Medical Officers does not seem to have taken up the challenge that was thrown down by a correspondent in the *British Medical Journal* on April 20th, 1929, asking for an authoritative pronouncement on the question of paracentesis in such conditions. Otologists have declared themselves in favour of this procedure, but the Association of School Medical Officers has made no comment.

If suppurative otitis media occurs in spite of paracentesis, then it should be treated as a serious disorder, preferably by putting the patient to bed, or at any rate confining him to the house and thoroughly disinfecting the external auditory meatus and, as far as possible, the tympanum. Personally, I employ frequent cleansing with 10 volumes of hydrogen peroxide, followed by pipetting out with warm boric lotion, drying, and finally instilling 1 in 60 carbolic in spirit drops. If this method, or one of the many similar methods followed by individual otologists, fails to effect a cure within a short period, zinc ionization should be tried; it will, in certain cases, give good results, but the ear must be efficiently cleansed before its application. Too much reliance must not, however, be placed upon ionization, and provided the pharynx, nasopharynx, and nose have no infective areas (needless to say, if they have they should be cleared away) then the mastoid antrum should be explored, and it is for early exploratory operation that I would plead. If the simple methods of treatment fail, I do not think there is the least use in going on with them, for, as I have already stated, the focus of the trouble is then in the mastoid antrum, which communicates with the suppurating middle ear. There is, unfortunately, in the minds of many practitioners of medicine, certainly in those of the public, a dread of mastoid operations, surviving from the time when they were attended by a high mortality, and the only recognized methods were boring a hole in the mastoid antrum, and the so-called radical operation. The former was usually insufficient; the latter usually went a great deal too far.

In the vast majority of the more recent mastoid infections it will be found that a modified Schwartze operation will be sufficient to effect a cure. By a modified Schwartze I mean an operation that Schwartze never contemplated—namely, the removal of the entire diseased area, including sometimes the upper parts of the bridge, and especially the tip cell, and then either treating with hipp or draining, according to the condition present. The antrum and the cells may be full of pus; on the other hand there may be no pus, but the bone may be completely dead and a dry caries or osteomyelitis found. If the latter condition is present it will be sufficient to remove the diseased bone, thoroughly dry the area, and completely close the posterior wound, the patient being discharged in about ten days with primary union. In those cases which have been drained, the drain may be removed at varying periods, according to the condition, but usually the time should not be prolonged. In the more chronic cases it will be necessary to perform a modified radical operation, and for this my procedure is as follows. Having removed all diseased bone, including the bridge, down to near the tympanic membrane, I split the soft meatus, insert a large tube in the area of the obliterated mastoid antrum, close the back wound, and either carry out the necessary after-toilet through the tube or, for this purpose, remove the tube and replace it when the toilet is completed. This toilet consists of washing out the middle ear with bland substances—for example, normal saline or colloidal silver—and blowing air through. In this way all disease of the middle ear is got rid of and the tympanic membrane heals. The tube is then withdrawn, and the area, which is already granulating freely, will be entirely closed. There is no need to retain this posterior opening in the soft meatus. Such an operation should, I believe, replace the old radical one nearly always; the patient subjected to it acquires no deformity, and his hearing remains good or normal.

The student and young practitioner must be trained on new lines. He must no longer be taught that the sign of mastoiditis is a swelling behind the ear—which in the vast majority of cases should never be allowed to appear—and that the only operation short of liberating the collection of pus is to remove the entire hearing apparatus of the tympanum. On the contrary, he must be taught that the smaller operation, carried out early, should be regarded as a means of removing disease, and that the larger operation, while removing disease, should aim at conserving the function of hearing. He should also be taught that a mastoid operation properly carried out is practically never a menace to life, but as a rule can be done rapidly with first-class results, giving relief to symptoms and leaving behind no deformity. It is to be hoped that he will then appeal to the otologist much more frequently to cure the "running ears" of his patients.

* A communication made in the Section of Oto-Rhino-Laryngology at the Annual Meeting of the British Medical Association, Manchester, 1929.

TONSILS, TEETH, AND MATERNITY.

BY

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THERE is a tendency to-day to attribute many chronic illnesses to focal sepsis, and of the foci of sepsis the tonsils and teeth constitute a large proportion. Articles have recently been published by Platt,[1] Osman,[2] and Langdon Brown[3] in which infected tonsils are blamed for a large proportion of diseases of the kidney. Now disease of the kidney has always been closely associated with the toxaemias of pregnancy, which undoubtedly contribute largely to maternal mortality and morbidity. Gynaecologists, however, and others who are now writing a great deal about the dangers of child-bearing, make very little mention of septic foci, or, indeed, of anything beyond the genital tract. Professor Young[4] and Gibberd[5] have lately disagreed as to whether pregnancy can originate nephritis in previously healthy kidneys. It would appear that kidneys already strained to the utmost in disposing of poisons, usually of infective origin, are frequently damaged temporarily or permanently by the extra work thrown upon them by pregnancy. Pregnancy would not damage a healthy kidney, but is, as Gibberd puts it, "the most delicate test of renal function that we possess."

The great war demonstrated that thousands of men, presumed healthy, really belong to the C3 category. Maternity demonstrates less strikingly, but just as certainly, that the same is true of women. Unfortunately, however, the pregnant woman has to go through with her campaign and cannot be discharged as unfit, though, as the pregnancy proceeds, her unfitness often becomes obvious. It had been my experience during the few years spent in general practice to find that nearly all illnesses in connexion with pregnancy were not due to the pregnancy, but merely made to assume importance on account of the pregnancy. Chronic tonsillitis was by far the commonest underlying cause, at any rate in young women. Oral sepsis affected some of the older.

The Investigation of Focal Sepsis.

Since October, 1928, I have been engaged to a considerable extent in the examination of national health insurance patients referred for a second opinion with regard to their fitness for work. Relatively few acute illnesses are seen, and much time is naturally spent in looking for the underlying causes of ill health. In the district in which I do most of my work a high proportion of patients referred to me are either pregnant or post-parturient women. Their complaints are often vague—anaemia, debility, gastritis, bronchial catarrh, rheumatism, and tachycardia—but when these are coupled with pregnancy or lactation, it is obvious that the woman is unfit for work. Whatever a case is labelled the condition is commonly one of a low-grade toxaemia which might have passed unnoticed but for the added burden of pregnancy. Such a toxaemia might, of course, be due to a variety of causes, but in many cases the tonsils or gums appeared sufficiently unhealthy to warrant their impeachment, and ordinary clinical examination revealed no other cause.

In my investigations I have judged the infectivity of tonsils by the following criteria:

(*a*) Considerable enlargement.
(*b*) Lobulation or inequality of the two tonsils.
(*c*) The presence of large crypts or one large crater.
(*d*) The presence of pus or visible debris.
(*e*) The enlargement of the cervical glands without other obvious cause, or of the "tonsillar" gland in any case.
(*f*) The presence of any tissue in the tonsil beds after tonsillectomy.

The history is of great value, especially a history of scarlet fever, rheumatic fever, and quinsy. Leading questions may be necessary, as in the case of a woman of 52, incapacitated with rheumatism attributed to the menopause, who denied any previous illness. In answer to leading questions she admitted having had quinsies annually till she was 36, when she "outgrew them."

Oral sepsis is not so difficult to investigate in the insured class as in the wealthy. Caries or pyorrhoea is often glaring; on the other hand, complete dentures in young people are quite common. Conservative treatment of teeth is more readily available for wealthier people, and in them apical infection may do its evil work for years before its presence is discovered. But in the insured class pyorrhoea or caries runs a rapid course and leads to complete extraction before much apical or bone infection takes place, or if extraction has not taken place, the sepsis is at any rate obvious.

Results of Examination.

During January and February, 1929, 63 pregnant and 121 post-parturient women were seen. Results of complete clinical examination of these cannot be presented in a readable form. Raised blood pressure and albuminuria were often found, and as these are perhaps the most definite physical signs of toxaemia, they are given in tabular form, together with the history of tonsillitis, the condition of the tonsils, and the condition of the teeth and gums. The few other definite conditions met with are recorded in the footnotes.

TABLE I.—*Comprising only those Cases found Unfit.*

UNFIT CASES OF PREGNANCY.	Age Groups.					Total.	Per Cent.
	17-20	21-25	26-30	31-35	36-41		
Number of cases	6	18*	9†	9‡	3	45	100
... ...	5	11	9	8	1	34	76
...	5	16	6	7	2	35	80
Dental caries or pyorrhoea present	2	10	3	3	3	21	46
Raised blood pressure present	4	13	5	6	2	30	67
Albuminuria found	0	2	1	3	0	6	13

UNFIT POST-PARTURIENT CASES.	Age Groups.					Total.	Per Cent.
	17-20	21-25	26-30	31-35	36-42		
Number of cases	11	32	15	9	15	82	100
History of scarlet fever, rheumatic fever, or tonsillitis	8	22	6	4	3	43	52
Septic tonsils present	11	28	11	9	8	67	82
Dental caries or pyorrhoea present	3	14	9	6	10	42	51
Raised blood pressure present	3	8	6	1	8	26	32
Albuminuria found	3	7	3	4	4	21	25

* Includes one case with influenza.
† Includes one case with positive Wassermann reaction.
‡ Includes one case with glycosuria and one with phthisis.

A second table shows how many patients with a raised blood pressure, albuminuria, or both, also had septic tonsils, oral sepsis, or both.

TABLE II.—*Showing how many of the Unfit Cases with a Raised Blood Pressure, Albuminuria, or Both, were associated with Septic Tonsils, Oral Sepsis, or Both.*

PREGNANCY CASES.	Age Groups.					Total.
	17-20	21-25	26-30	31-35	36-41	
Cases with raised blood pressure—						
Septic tonsils	3	6	2	2	0	13
Tonsillar and oral sepsis	1	5	1	1	2	10
Oral sepsis	0	1	1	0	0	2
Cases with albuminuria—						
Septic tonsils	—	—	1	—	—	1
Tonsillar and oral sepsis	—	1	—	—	—	1
Oral sepsis	—	—	—	—	—	0
Cases with raised blood pressure and albuminuria—						
Septic tonsils	—	—	—	1	—	1
Tonsillar and oral sepsis ...	—	1	—	—	—	1
Oral sepsis	—	—	—	—	—	0
Cases with raised blood pressure or albuminuria—						
No focus found	—	—	1	2	—	3

TABLE II (*continued*).

Post-parturient Cases.	Age Groups					Total.
	17-20	21-25	26-30	31-35	36-42	
Cases with raised blood pressure—						
Septic tonsils	1	3	1	—	3	8
Tonsillar and oral sepsis	1	1	2	—	2	6
Oral sepsis	—	—	—	—	1	1
Cases with albuminuria—						
Septic tonsils	1	1	—	—	1	3
Tonsillar and oral sepsis	1	1	—	3	—	5
Oral sepsis	—	—	—	—	1	1
Cases with raised blood pressure and albuminuria—						
Septic tonsils	—	3	1	—	—	4
Tonsillar and oral sepsis	1	2	2	1	1	7
Oral sepsis	—	—	—	—	—	0
Cases with raised blood pressure or albuminuria—						
No focus found	—	—	—	—	1	1

These tables show that in nearly all the patients with raised blood pressure and albuminuria there were also present septic tonsils, and in only a very few was there oral sepsis alone. In this connexion I might add that I often found the knee-jerks absent or nearly so in patients with septic tonsils, but never in patients with oral sepsis alone. Exaggerated knee-jerks are common with oral or tonsillar sepsis. Unfortunately there were no controls, but it is significant that hardly any of the patients had had complete enucleation of tonsils. The tables also showed that raised blood pressure was more commonly found than albuminuria, especially in pregnant women; and that albuminuria occurred more often in the post-parturient than in the pregnant women.

It may be interesting here to remember Lord Dawson's[6] reference to raised blood pressure in school boys and girls. Of 650 persons between the ages of 10 and 17, 8 *per cent.* were found to have blood pressures above 130. No cause for this was discovered, and I suggest that, if a similar investigation be carried out again, special notice (including history) should be taken of the tonsils.

Summary.

The absence of controls makes definite conclusions impossible, but it is suggested that maternal mortality might be reduced by eradicating focal sepsis, preferably before pregnancy has occurred. The tonsils are the commonest site of focal sepsis in young adults, and therefore in most *pregnant women*. This is not surprising, since our present civilization encourages air-borne infections, although it has reduced many diseases spread by food and vermin. Just as influenza and nasopharyngeal catarrhs constitute an overwhelming majority of the acute illnesses met with in general practice, so chronic sepsis of the upper respiratory tract lies at the root of most chronic debilities.

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INDUCTION OF PREMATURE LABOUR.

BY

ETHEL M. TOWNEND, M.D., B.S.,

HULL.

By the method about to be described I have induced premature labour 137 times. From the statistics given below it will be seen that of the cases in which the mothers were healthy and the presentation was normal, and the only abnormality was disproportion, over 85 per cent. of the infants are still alive and well, their ages ranging from 4 months to 4 years; furthermore, that without exception the mothers were discharged well and with a sound uterus and abdominal wall.

Selection of Cases for Induction.

I ascribe these good results not only to the method, but to the fact that the cases have been carefully selected. Induction is unsuitable in the presence of the severer forms of pelvic deformity with a true conjugate under 3½ inches. In 90 *per cent.* of all cases of pelvic deformity the amount of contraction is small, and a foetus of thirty-six to thirty-eight weeks' development will pass through the pelvis as easily as a full-term child will pass through a normal pelvis. In these cases induction is valuable because, if the pregnancy is allowed to proceed to term, it is then a matter of chance if the foetus can be delivered alive. In the normal case with a vertex presentation the head is usually fixed or capable of engaging by the thirty-sixth or thirty-seventh week. If there is slight pelvic contraction, and the head just fails to engage, the moulding it will receive during labour would make it still capable of passing through; but after another two or three weeks its passage would be difficult, or impossible. Such a case is best dealt with by the induction of premature labour. A second group of cases suitable for induction are those in which rotation during the thirtieth to the thirty-sixth week has failed to convert a breech presentation to a presentation of the vertex. Especially is this an indication in primipara. The third suitable group includes patients suffering from cardiac or renal decompensation, and therefore ill-fitted to withstand prolonged labour, deep anaesthesia, and shock.

Description of the Method.

A course of castor oil and quinine is first given, as suggested by Dr. Eden—that is, oil at 6 a.m., quinine gr. x at 10 a.m., 2 p.m., and 6 p.m., on alternate days for three days. This method is often sufficient in cases near term, but not before the thirty-seventh week. Sometimes the head is driven into the brim, and although actual labour does not start the case can be allowed to go to term. The quinine is only given if the patient is healthy.

If labour does not begin or the head fails to engage, the patient is prepared as for a general anaesthetic, and thirty minutes before the operation a hypodermic injection of hyoscine *co.* (B) (Burroughs Wellcome) is given. The lithotomy position is used; the shaved vulva is bathed with a 1 per cent. solution of picric acid, a vaginal speculum introduced, and the exposed cervix swabbed with 1 in 2,000 mercury perchloride lotion; a lysol douche is then given. A Jacques oesophageal bougie is now held in the left gloved hand, and two fingers of the right are passed up to the cervix. The tube can now be guided along the palmar surface of these fingers into the cervical canal, and so into the uterus. Care must be taken to ensure that the whole tube is passed within the internal os. The cervix is not injured, because no vulsellum forceps are used. If the cervix is high up and small a little open ether will make the operation easier by relaxing the levator ani muscle. There is practically always sufficient dilatation to allow the tube to pass. No further attention is required beyond a daily douche, and if the tube presents below the head it is best to withdraw it when the cervix is half dilated.

The advantages of this method are, first, that it is reliable—I have only had to reintroduce the tube once; secondly, that it is quite painless during the waiting stage, unlike the gum-elastic bougies which press into the posterior vaginal wall; and, thirdly, that there is no ladder leading from the vagina into the uterus up which infection may pass. The time from the introduction of the tube to the delivery averages about twenty hours.

Results.

Total induction—1924 to August, 1929	137
Maternal mortality	*nil*
Maternal morbidity—light pyrexia	2
Infants: Period 1924-28 inclusive. Condition in April, 1929.	
(1) Disproportion only	82
Living	70
Cannot trace	5
Died	7
(2) Maternal illness or malpresentation	53
Living	42
Cannot trace	10
Died	1

My thanks are due to Dr. Albert Daley (medical officer of health for Hull) for permission to publish this paper, and to Dr. Gilchrist, who has obtained the after-histories of the infants for me.

Memoranda:

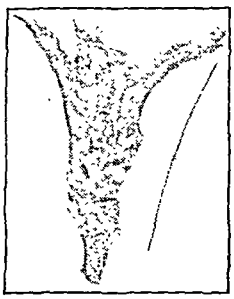
MEDICAL, SURGICAL, OBSTETRICAL.

FOREIGN BODY PERFORATING THE SMALL INTESTINE.

THE following case, which occurred in my hospital practice early this year, seems worthy of record.

A man, aged 23, was admitted to the Dunfermline and West Fife Hospital on March 1st of this year as a case of subacute appendicitis. His history was as follows.

Three months previously, while at work, he was seized with sudden pain at the umbilicus and felt sick, but did not vomit. He was brought home from work and was seen by his doctor, who diagnosed appendicitis. His temperature was 99° F., and he had tenderness in his right iliac fossa. He was off work for three days. Since then he had had frequent similar attacks of umbilical pain, usually coming on during his work, and he had to desist from work for ten to fifteen minutes and rest till the pain passed off. Three days prior to admission to hospital he had a similar but more severe attack which necessitated his staying away from work. His doctor was again called in and sent him into hospital. During the whole of this time his bowels had been regular and he had no urinary symptoms.



Photograph showing wire and omentum

On admission the patient did not look ill. The temperature was 100° F., and the pulse 88. His tongue was clean and moist. Abdominal examination revealed slight tenderness on deep pressure over McBurney's point. No rigidity and no hyperaesthesia was present.

His condition was diagnosed as appendicitis (catarrhal). At the operation, which was performed on March 4th, the abdomen was opened by a right rectal incision displacing the rectus inwards. There was a fair amount of free serous fluid in the peritoneal cavity. The caecum was delivered and a slightly inflamed appendix removed.

The duodenum and gall-bladder appeared normal. The great omentum was seen to be adherent in the pelvis, and on exerting traction on it a loop of ileum was delivered. To the apex of this loop a narrow strip of omentum was adherent, and protruding through this was a piece of wire, which was partly inside the ileum and partly covered by omentum. The wire was pulled out and the omentum, which was intimately adherent over the perforation in the bowel, was divided. The perforation was infolded by a purse-string suture. Several light adhesions of omentum to neighbouring loops of ileum were divided and the abdomen was closed. The wire, which was of the thickness of a darning needle, measured two inches in length.

The patient made an uneventful recovery and was discharged on March 12th.

The interesting features of the case are: (1) How the patient managed to swallow a piece of wire two inches long without being conscious of doing so. (2) The site of the perforation in the pelvic ileum; why the wire should be arrested here is difficult to explain. (3) The efficient method in which Nature, by means of the omentum, was dealing with the emergency. (4) The ease with which the condition might have been missed at the time of operation.

J. M. BLACK, M.B., Ch.B., F.R.C.S.Ed.,
Honorary Surgeon, Dunfermline and West Fife Hospital.

RETENTION OF URINE CAUSED BY FAECAL IMPACTION.

I THINK the following case is of sufficient interest and rarity to merit publication.

I was called out to see a boy, aged 3½ years, who had been having severe colicky pains in the abdomen all night and that day. As he had not vomited the mother had not sent for me before. On examination the cause of pain was obvious, the bladder being distended up to the umbilicus. I found a well-marked phimosis and took the child straight into hospital. A circumcision was performed, and an attempt made to catheterize the bladder. No instrument could be passed, and, suspecting a calculus, a finger was introduced into the rectum, which was found to be filled with hard faeces. After a large quantity of this material had been removed, a catheter passed freely into the bladder.

I have heard of this occurring in a female child, but never in a male.

J. MYLES MITCHELL, M.B., B.Ch.

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

WESTMINSTER AND HOLBORN DIVISION.

Obesity and Health.

AT a general meeting of the Westminster and Holborn Division, on November 19th, which was preceded by a dinner at Romano's Restaurant, a paper was read by Dr. W. F. CHRISTIE on obesity and the ideal figure. Mr. DUNCAN FITZWILLIAMS, chairman of the Division, presided.

Dr. Christie described corpulence as a deviation from the normal, an aberrant nutritional state. He confined his remarks to the simple or exogenous form, as being the only one from which those whom he was addressing were likely to suffer. In recent times there had been a "slimming" craze, which the profession was apt to decry because it was carried out by normally proportioned people who should have nothing to do with it; but so far as stout persons were concerned it was all to the good. Too much fat on the body made for sluggishness, impaired initiative, and destroyed effort; it involved personal discomfort, detracted from appearance, and perhaps furnished a reason for a premium to the assurance company. Every physician, surgeon, orthopaedist, and gynaecologist was aware of its disadvantages. Whenever the intake of energy in the form of food exceeded the output in the way of physical—not intellectual—activity, corpulence might develop. The theory had been advanced that over-fatness was due to a lowering of the metabolic processes consequent upon defective secretion, and certainly there were people who could eat what they liked and never fattened, while others apparently consumed little and yet became stout. No evidence of endocrine dysfunction, however, had yet been found to account for these defects; it might be that the glands of internal secretion, when strong and active, could prevent the accumulation of fat whatever was eaten. There were three periods in women's lives when they tended to become stout: after the attainment of full growth, after childbearing, and at the menopause. There were two such periods in the lives of men: after marriage, and after the attainment of worldly prosperity. The less active one became, the less one should eat. Nature was inexorably counting the calories, though her children might be thinking of other things. Theoretically the right quantity which a man ought to carry was that which allowed the freest physical activity compatible with sound health, and left him a trifle over for use in emergency. There were four methods in vogue, no one of them sufficient in itself, for making an independent estimate of what the ideal figure of a particular person should be—namely, inspection and palpation of skin and subcutaneous tissues; tape measurements, to ascertain whether the sizes of certain parts of the body were in proportion; weight measurements in comparison with height, and, finally, assessment of ideal weight by means of formulae based on the actual weight, length of trunk, and chest measurement. In the perfect figure other things besides adipose tissue had to be considered. Muscles, for example, must be well, but not over developed.

The "perfect female figure" was apt to vary with the fashion plate of the moment, but in the case of men the figure of the athlete was generally regarded as the ideal.

Dr. Christie spoke of dieting in athletic training. The modern diet for general athletics comprised all ordinary foods, but in somewhat different proportions from that of everyday life. Its calorie value per day was round about 4,000. An athletic diet must contain an unusually large proportion of protein, while some carbohydrate elements were eliminated. Cross-Channel swimmers made free use of fattening foods, and took some form of sugar during the swim. It was noteworthy that all successful aspirants to Channel honours had been corpulent. When it came to reducing fat, Dr. Christie was not in favour of exercising the corpulent. There were two main types of dieting for thinning purposes. The rapid type, in which from three to six pounds of fat were lost each week, and which involved complete or partial fasting or freak diets, was not to be recommended. On the other hand, the slow method, by

which from one to two pounds were shed weekly, had proved useful. After ten weeks, when eighteen or twenty pounds had been dissipated, it was wise to return for a couple of weeks to a maintenance diet, and thereafter the reducing one might be resumed. For the construction of a reducing dietary the requirements per day of the ideal weight should be calculated and translated into terms of food; enough protein should be given to prevent muscular weakness, and vitamin and salt-containing foods to maintain good health, and the carbohydrates and fatty elements should be reduced by 1,000 calories in order that 4 oz. of fat might be drawn upon each day for the supply of energy. Bulky foods of low calorie content should be given, and no purpose was served in giving foods which were distasteful.

Reports of Societies.

TREATMENT OF EXOPHTHALMIC GOITRE.

AT a meeting of the Royal Medico-Chirurgical Society of Glasgow, on November 1st, with the president, Dr. JOSHUA FERGUSON, in the chair, a discussion took place on exophthalmic goitre.

Dr. JOHN GRACIE, who spoke on the medical aspects, said that the treatment of this condition was at the present time a highly controversial matter. According to the Registrar-General's returns, an average of 400 deaths occurred annually from Graves's disease; it was estimated that this number represented only 25 per cent. of those who suffered from it, others dying from some intercurrent malady. Until recent years the treatment of the disease had been almost entirely in the hands of the physician; medical treatment had made no appreciable advance, and no specific remedy had yet been discovered. He pointed out the difficulty of differentiating cases of true exophthalmic goitre from those which presented all the classical signs of the disease, but which had only a short period of toxicity, recovery following as soon as the exciting cause was removed—spontaneously or otherwise. He believed that many such cases never came under observation, and that those which did so increased unfairly the percentage of medical cures. Consideration of the normal activity of the thyroid gland at various periods of life gave a physiological basis for this opinion. There were periods or conditions of life when abnormal stimulation might cause the gland, previously adequate and normal, to function deficiently or excessively, producing an internal secretion imperfectly iodized or otherwise toxic, which gave rise to the syndrome of exophthalmic goitre or of toxic goitre. For these reasons, and because of the difficulty in classification, he considered that all early cases of hyperthyroidism should be kept under medical observation. Delay was not necessarily a barrier to operative treatment should this be decided on later, since the most severe cases with cardiac failure, if adequately prepared, made almost dramatic recoveries. The recognized forms of medical treatment were two—namely, general and iodine therapy. The first included removal to a cool bracing climate, rest, sedatives for mental excitability, atropine for excessive sweating, and digitalis and allied drugs for tachycardia. Cold applications to the neck, the serum of thyroidectomized sheep, and the milk of thyroidectomized goats had been recommended. Insulin had been used because of the increased metabolism. Many physicians advocated the use of σ rays, but the speaker's experience with this form of treatment had been disappointing. Bromides had some effect in checking nervousness and anxiety, but none on the cause of the nervousness, and their action was therefore purely symptomatic. Digitalis acted by stimulating the vagus roots in the medulla, but the cardiac slowing was not seen under experimental conditions when the vagus was paralysed with atropine, nor was it seen clinically in febrile conditions and in exophthalmic goitre. There was no clinical or experimental evidence in favour of its employment. Since its discovery as an element in 1812 iodine had been in more or less constant therapeutic use, but it had no scientific basis until Kendall isolated from the thyroid a crystalline substance called thyroxine, which was found to contain 65 per cent. of iodine. It was estimated that the total amount of thyroxine in the tissues, exclusive of the thyroid, was about 14 mg., and that the thyroid secreted from 1.0 to 1.5 mg. of thyroxine daily. To produce this quantity of hormone, 0.33 to 0.5 mg. of iodine must be available. A shift of 1 mg. of thyroxine was accompanied by a rise or fall of 2 or 3 per cent. in the basal metabolic rate, so that it was possible that a rise of, say, 25 per cent. in this rate in a case of hyperthyroidism could be accounted for by an increase of 12 to 15 mg. in the thyroxine output. In the absence of methods of estimating the daily output, it was not yet possible to determine how much, if any, of the increase was due to an abnormal amount of normal thyroxine. The work of Marine and Rogoff showed that iodine was taken up and fixed in the thyroid within a few seconds; the formation of pharmacologically active iodine was, on the other hand, a slow process, and it showed wide variations even in normal subjects. The two processes were probably distinct, and the rate of activation of the iodine was controlled by the amount of chemical nucleus available, and not by the amount of iodine, when that element was present in normal amounts. Graham's work showed that the iodine content of the thyroid was no index of its activity. Iodine was probably present in two forms, an inactive and an active. It might be assumed that while administration of iodine would influence the inactive form, it would have no definitely controllable effect on the pharmacologically active substance. Until a method of varying the output of this active substance was discovered there could be no hope of curing hyperthyroidism by medical means. In well-marked cases of exophthalmic goitre intensive treatment with iodine resulted, in a few days, in a marked amelioration of symptoms and general improvement, but following this there was a recrudescence of symptoms, and further iodine treatment did not result in the same marked improvement. This applied also to patients who had been given iodine in small doses, and cases so treated were handicapped in subsequent operative treatment. It would appear that there was an iodine saturation point which converted an abnormal thyroid secretion into one which was normal, both qualitatively and quantitatively. Administration beyond this point seemed to have an injurious effect, and it was Dr. Gracie's opinion that in the present state of knowledge iodine should not be used as a routine treatment in cases of hyperthyroidism. With regard to operative treatment Dr. Gracie said that the immediate risk of death and the later risk of myxoedema had to be placed against the risk of permanent cardiac damage, mental impairment, prolonged invalidism, and curtailment of life. Many reports of successful operative treatment in the Mayo Clinic and other American medical schools had encouraged the speaker to give surgical treatment a fair trial; this trial had produced results which he and Mr. Renton had no reason to regret. The cases selected for operation had all been established for at least a year, and they were, with one exception, the worst cases admitted to their wards. All the male patients had either septic teeth or septic tonsils; this factor of infection was absent in female patients, and in them psychic trauma seemed to be the predominating predisposing cause. Five of the fourteen cases treated surgically were in a condition of auricular fibrillation when they underwent operation; in none did the fibrillation disappear spontaneously. Three of the five were treated with quinidine sulphate after recovery from the immediate effects of the operation. The case which was not specifically treated continued to fibrillate, while the other three had been restored to normal rhythm. Dr. Gracie had found that an average of 10 minims of Lugol's solution thrice daily was sufficient to bring the patient into a satisfactory state for operation in from seven to ten days. Conditions were regarded as suitable for operation when the pulse rate had fallen to between 80 and 90 per minute, and when there was a diminution in the nervous symptoms with a distinct improvement in the general condition. Tabulated statistics of his own cases

showed that of the fourteen patients treated medically only one was dismissed well, while eight of the fourteen patients treated surgically were dismissed well. At the present time the most successful treatment for exophthalmic goitre was a combination of medical and surgical treatment, with co-operation between physician and surgeon.

Mr. J. MILL RENTON, dealing with the surgical treatment of exophthalmic goitre, said that in order to justify surgical intervention in such a disease it was essential that (1) the operative risk should be small, (2) the results should be better than could be obtained by medical treatment. In recent years the mortality had been greatly reduced by the use of more suitable anaesthesia, special preparation of the patient, and an improved operative technique. In his experience the most satisfactory anaesthetic was gas and oxygen. It was important to choose the optimum time for the operation, to remove any septic foci that might be present, to give a course of Lugol's iodine for ten to fourteen days, and to inspire the patient, as far as possible, with a feeling of optimism and confidence about the operation. There was no better method of doing this than to get a patient who had been operated upon to talk to the one awaiting operation. The most important points in the performance of the operation were: (1) good exposure of the gland; (2) control of haemorrhage; (3) avoidance of injury to the recurrent laryngeal nerves and parathyroids; (4) removal of sufficient gland tissue to cure the symptoms; and (5) drainage of the operation area. Mr. Renton said he was in the habit of using the usual collar incision; the pre-tracheal muscles were first separated in the middle line right down to the thyroid, and were then either retracted or divided. He preferred to divide them at least on one side. The superior thyroid artery was ligatured and divided, and the lobe dislocated. The inferior artery could not be so safely ligatured on account of the proximity of the recurrent laryngeal nerve, so that the usual practice was to cut through the thyroid itself; this involved a good deal of bleeding, which had to be controlled by pressure forceps placed on friable tissue. It was sometimes possible to place an elastic ligature round the posterior aspect of the lobe and then remove it without any bleeding. Haemorrhage was thereafter controlled by means of a purse-string suture. He aimed at removing the entire gland, except for a small portion on each side of the trachea. The removal of only one lobe, while it often caused considerable improvement, usually involved a further operation later to complete the cure. In cases where the patient was very ill it might be necessary to remove only one lobe, but he thought that the other lobe should be taken away as soon as the patient was well enough. The area on either side of the trachea, where some thyroid tissue was left, should be drained. The operation was generally followed by a rise of temperature and an increase of pulse rate; but this usually subsided in three to six days. Ten minims of Lugol's iodine was administered as soon after the operation as possible, and was continued thrice daily. Plenty of fluid should be given during the first few days. There were twenty-one cases in his series, and the ages of the patients ranged from 15 to 57 years, with an average age of 34.4 years. The average duration of the symptoms before operation was just over two years. Fifteen of the cases had been operated on a year or more ago, three cases about five months ago, two cases four months ago, and one case only two months ago. Fourteen were well, five improved, one not much better, and one had died. Of the five cases which had improved, three had partial thyroidectomy, and it was hoped that further removal of thyroid might complete their cure. One of the most striking features following operation was the rapid subjective improvement, but exophthalmos, particularly if it had been present for some time, was slow to disappear completely. In conclusion, Mr. Renton thought that his series appeared to show that if sufficient thyroid substance was removed patients had a good prospect of returning to a normal existence within a comparatively short period.

Dr. GAVIN MCCALLUM demonstrated a series of histological preparations taken from the material removed at operation by Mr. Renton.

Dr. G. A. ALLAN remarked that while the series of cases recorded was relatively small, the numbers were sufficient to show that operation risk was not great. It was desirable to diminish the time required for cure as far as possible, and if operation could be shown to be associated with little risk to the life of the patient, then it was to be preferred to medical treatment. Certain factors in the preparation of the patient for operation were of importance in minimizing operation risk. If the heart was acting regularly but rapidly he did not think digitalis was of any value for reducing the rate. Iodine, the only drug of any use for this purpose, acted, presumably, through the sinus node—producing its effect primarily on the thyroid and, through it, on the sympathetic. When auricular fibrillation was present the ventricular rate could be reduced by digitalis.

Mr. J. RUSSELL insisted that exophthalmic goitre was a constitutional disease, dependent on some unknown stimulus to the thyroid gland. He thought that physicians should agree to consider the question of operation in these cases within the first six months of medical treatment being commenced, and should try to hand over these cases before cardiac changes occurred. Once they had watched the removal of nine-tenths of both lobes of the thyroid gland, and followed these cases up for a very few weeks, they would be convinced that operation was the right treatment; but the mortality could only be kept low by submitting to operation early.

Mr. R. MAILER said that cases of not more than twelve to eighteen months' duration reacted well to iodine. In America most of the cases operated upon were of this type, generally of less than one year's duration, but in Great Britain early operation was exceptional, and many of the cases treated surgically were late ones, sometimes of five to ten years' duration. Iodine had little effect on such patients. He thought the best way to deal with such cases was to remove only one lobe of the thyroid, thus reducing the operation risk. After two or three months' rest and iodine treatment a certain degree of fibrosis of the gland resulted, and removal of the second lobe was thus easier.

Mr. R. BARCLAY NESS described a case under his own observation in which there had been great improvement after treatment with rest, iodine, and x rays. All the symptoms of exophthalmic goitre had disappeared except tachycardia and sweating. Later there had been a relapse, and the patient was successfully operated upon by Mr. Renton.

Dr. J. FERGUSON agreed that, given adequate preparation by the physician, and a high degree of technical experience in the surgeon, a distinct advance toward the successful treatment of the disease could be made. But even those gratifying results did not justify at present a universal recourse to thyroidectomy as a cure of hyperthyroidism. Until the surgeon could assure the patient that the issue of his procedure was as safe as that, say, of appendicectomy, many cases would, reasonably enough, be left to medical treatment. Radiotherapy was not discredited, and the use of minimal doses of iodine was not limited to the pre-operation stage, but could be continued with established benefit and satisfactory result over a long period.

Dr. GRACIE, in reply, said he believed that there was a local action of digitalis through the node which produced a slowing effect on the heart. The effect of iodine was to overcome toxic processes, and this produced a reduction in the rate of the heart which was much greater than that which followed the use of digitalis. With regard to the question of restoring normal rhythm before operation, he thought that this was desirable but not essential. The operation should be done at the time of the drop in the pulse rate which resulted from iodine treatment; if this period was missed there was never as good a chance of success later. For this reason he thought it was undesirable to delay till the effect of quinidine was tried; it was better to restore the normal rhythm after operation. He had found iodine useful in lowering the pulse rate even in old-standing cases. The patients in his series had been ill on the average for two or three years, yet nearly all of them responded to iodine, though only temporarily.

INFECTION OF THE GALL-BLADDER.

AT a meeting of the Forfarshire Medical Association, held in the Medical School, University College, Dundee, with Dr. J. S. Y. ROGERS, the president, in the chair, the opening address for the session was delivered by Professor D. P. D. WILKIE, Edinburgh, who took for his subject gall-bladder infection and its sequels.

Professor Wilkie described the steps which had led up to the present-day conception of gall-bladder disease, which was based essentially on the pathology of the living as revealed at operation; he illustrated by lantern slides the main points in the anatomy and physiology of the gall-bladder which the intensive research of the last few years had brought to light. Reference was made to the recent work of Ivy and Oldberg, which had demonstrated the presence of a gall-bladder hormone. These observers, using a "purified" secretin, which was extracted from the mucosa of the upper part of the small intestine, had produced gall-bladder contraction by intravenous injection, and by cross-circulation experiments had proved that it was a blood-borne hormone. The relationship of gall-stones to cholecystitis was discussed, while primary stone formation in the case of the chole-terin solitaire and the pure pigment calculi was admitted, emphasis was attached to the primary clinical importance of the inflammatory factor. Clinical and experimental evidence was cited in favour of the view that chronic cholecystitis was in the great majority of cases a blood-borne streptococcal infection, and the investigations of Illingworth and of A. L. Wilkie were reviewed. Professor Wilkie said that the streptococcus concerned did not appear to be a specific type, but merely one which had acquired an elective affinity for growth in the gall-bladder. The essentially intramural character of the infection and the evidence of absorption which the regular presence of the coccus in the cystic lymph gland displayed gave support to the view that the gall-bladder might be an important focus of infection. Radical surgery was at present the only certain means of eradicating such infection when it was once fully established. Except in acute suppurative cases in bad subjects, removal of the gall-bladder was the only logical treatment. The sequels of neglected cholecystitis, both local and metastatic, were discussed, and the advisability of investigating gall-bladder function in arthritis, and even in renal cases, was emphasized. The advantages and limitations of cholecystography were pointed out, and allusion was made to the significance of the gastric disturbances in early cases.

CONCOMITANT CONVERGENT SQUINT.

AT a meeting of the Liverpool Medical Institution, held on December 5th, Mr. BERNARD CHAVASSE read a paper on the comparative anatomy and psycho-pathology of concomitant convergent squint.

Mr. Chavasse said that only in rare cases was muscular paralysis the cause of squint. The fusion faculty theory introduced a *deus ex machina*—comforting, but hardly explanatory in the scientific sense. The hypermetropic theory of Donders was, however, important; properly to assess its value it was necessary to know the incidence of the various degrees of hypermetropia in *normal* children at the age of incidence of squint, and to establish in each degree a ratio with the corresponding figure for squinters. If this was done it was seen that the incidence of squint rose in geometrical progression as the degree of hypermetropia progressed arithmetically. Notwithstanding this mathematical relation between definite degrees of hypermetropia and ordinary squint, Donders's theory failed to account for cases in which the hypermetropia was no more than normal for the age of the patient, or within the physiological limits of compensatory divergence. Moreover, it failed to account for the cases of convergent squint actually myopic from onset, and it left unexplained the disproportion between the degree of hypermetropia and the degree of convergence. In fact, there was no proportion between them at all. Avoidance of diplopia could hardly be operative in cases in which the acuity of the squinting eye was, from the first, below the diplopia threshold. Further, the theory offered no explanation of the mechanism by which most hypermetropes escaped squint, or of possible anomalies of the same mechanism which might precipitate squint. But though the theory was only partially valid it would occupy a place of primary importance in any complete theory.

Mr. Chavasse then proceeded to outline an *evolutionary* approach to the problem of squint. Contrary to the widely accepted belief, stereopsis was no perquisite of the primates. He described conjugate movements and monobjective binocularity in fishes, and the primitive mechanism by which, in his view, stereopsis was attained (in the almost total absence of convergence) by the establishment of functional retinal correspondences related to some precise activity (such as the engulfing of a prey situated at an invariable distance from the snout). In the development of species the perfecting of stereopsis was effected by convergence of the eyes, which approximated the optical axes to the stereoscopic axes, thus eliminating optical errors and enlarging the stereoscopic field. All kinds of compensatory mechanisms and habits, such as the assumption of the erect posture, were evolved merely to enable convergence to proceed unhampered by the implied limitation of panoramic vision.

Of the total ocular correspondence which was the foundation of stereopsis, retinal correspondence was perhaps the most important. It was of various grades; in fishes and most mammals it was functional; in tarsius and the chameleon the correspondence was centred in a structural macula, while in birds and primates it was preeminently foveal. There was nothing in the foveae of the primates to give them the exclusive right to stereopsis. Most birds had two foveae in each eye, one for stereopsis, the other for acute vision laterally. Foveae and maculae were widely distributed, though not always on the stereoscopic axis as they were in birds, primates, the chameleon, and tarsius; many reptiles had them; owing to the dominance of the foveae, bifoveal correspondence, as contrasted with lower grades of retinal correspondence, was perhaps of special importance in the phylogenetic arrest of convergence. The arresting mechanism became specially centred in them, and might not function without the pair of them. In the mammalia bifoveal reactions were of recent evolution only, which might be one reason for their instability, at all events in early life, quite apart from ordinary developmental instability.

The last leg on which this "primatial perquisite" theory had to stand was an old but erroneous idea about the function of the optic chiasma. The variations (hemidecussation, etc.) had no bearing either on unqualified binocular sensation or on stereopsis; but in animals whose purely monocular field was very small hemidecussation afforded opportunity for reducing the nervous connexions essential for the proper movement of the globes.

Phylogenetic convergence was recapitulated in human embryology; but the bifoveal reactions, at once the goal and the limit of convergence, were attained, as in other animals, by a final muscular convergence; the physiological basis of which was an inherited mechanism far older than that of the mammalian fovea. An ancient sequence was pursued. Thus, a stimulus incident monocularly and peripherally led to monocular fixation; this led to convergence; this in turn led to retinal correspondence, which led to the maintenance of an ocular posture. The whole system effected a total ocular correspondence with reference to the object regarded, and, according to which of the component correspondences was at fault, there issued squint of various kinds—paralytic, concomitant, etc. The correspondences were paired (as between the two sides), some sensory, some motor. There were also crossed correspondences, first between sensory and motor of similar pairs (as between one internal rectus and the other), and, secondly, between sensory and motor of different pairs. The crossed correspondences were reflex; the paired correspondences were anatomical. Within this system one distinguished a *convergence reflex*, the stimulus to which was adequate even if monocular; the ensuing convergence *reflex* (in man equilibrium by a *retinal correspondence reflex* (in man pre-eminently bifoveal), the stimulus to which was necessarily binocular. The retinal correspondence, or bifoveal, reflex was a po-tural reflex.

On such a scheme the concomitant convergent squint of ocular inequality found a ready explanation, quite apart from its usual coincidence with degrees of hypermetropia (1.0 to 3.9) which were normal for children at the age of onset of squint. As regards myopia it was possible that adequate figures might establish a relation similar to that observed in hypermetropia. If it was remembered how rare myopia was at this age, and the considerable percentage of persons with convergent squint who were myopic from the first, the labour involved in collecting a sufficient number of these uncommon cases might not be in vain. Myopia would act by interfering with the bifoveal reflex at all distances beyond the far point. The cases of squint associated with hypermetropia abnormal for young children—4 D and over—might be regarded as initiated by a primary convergence from exhaustion of compensatory divergence. The image in one eye being thrown completely off the fovea, a gross retinal non-correspondence resulted, so that the convergence reflex assumed control.

The complexity of the reflexes involved in stereopsis, and their dependence on consciousness, suggested an examination of concomitant convergent squint from the standpoint of psychology. In this way we might discern the operation of an instinct, *the stereoscopic instinct*, which was a specific innate tendency comparable to other instincts as regards age of onset, early instability (inco-ordination), acquired stability, decay, and liability to perversion by frustration in the period of inco-ordination. In such a view concomitant convergent strabismus was a postural perversion which expressed the attempt of the frustrated stereoscopic instinct to attain consummation by the immemorial means of convergence. The value of such an approach to the problem of concomitant convergent squint was that it set us free to search for further causes of ocular non-correspondence, and especially for causes of bifoveal non-correspondence, as well as for any functional or psychological factors which might frustrate the stereoscopic instinct in the early years of life.

RADIOTHERAPY IN SKIN DISEASES.

AT a meeting of the Section of Medicine of the Royal Academy of Medicine in Ireland, held in the Royal College of Physicians on December 6th, with the president, Dr. R. J. ROWLETTE, in the chair, Dr. W. G. HARVEY read a paper on the effects of *x* rays and ultra-violet radiation in the treatment of diseases of the skin.

In lupus vulgaris, said Dr. Harvey, a single dose of *x* rays was often of great value in treating an ulcerated lesion or a verrucose patch, but great caution should be used on account of the risk of carcinoma developing; when cancer had developed after *x*-ray exposure on a lupus patch, *x* rays had no retarding influence upon the growth of the tumour. In all other types of lupus vulgaris, ultra-violet irradiation had supplanted other forms of treatment. Irradiation should be general as well as local. Lupus erythematosus did not benefit from any kind of irradiation. Apart from their value in the treatment of *malignant growths*, *x* rays had a place in dermatology in the treatment of lichen planus, and other conditions—for example, the *eczema nuchae* so often seen in elderly women—in which the skin became lichenified; its application was often followed by marked relief from pruritus. In psoriasis *x*-ray treatment could bring about the disappearance of resistant patches, but it was possible that the same result could be achieved just as well by soap. In tinea tonsurans he preferred *x* rays to thallium acetate as a depilatory, except perhaps in very young children, as the chances of success were better. Ultra-violet radiation undoubtedly helped to clean up and heal ulcers and many superficial inflammations of the skin, but again it was possible that just as much success might follow energetic local medication and the employment of any other simple tonic (for ultra-violet light was certainly a general tonic). He deprecated as dangerous the use of *x* rays in all conditions which would yield to simple treatment, and touched on the ludicrous claims which were made for ultra-violet therapy in conditions such as herpes zoster, in which as a general rule no such treatment at all was needed.

DR. E. T. FREEMAN referred to the dangers of *x* rays, and said he thought their use for diseases which were not in themselves dangerous was a thing to be deprecated. Bad results frequently did not appear for two years after treatment, and patients who had been refused a second course of *x* rays sometimes went to a different radiologist and received treatment, with disastrous results. Cases of lupus which were septic could be considerably improved by *x*-ray treatment, but it was necessary to employ other forms of treatment as well. He thought the best treatment was to leave the patient under a carbon-arc lamp for some time, and then pick out the lupus nodules with an electric cautery. One observer had stated that this was the only treatment for lupus that had any effect at all. It was a treatment which took a long time, but he thought it was worth it, and felt that a long time, as measured by a couple of hours, was very little in a disease such as this.

DR. P. MACCARVILL said that his experience of treatment by these methods corresponded with Dr. Harvey's. There was no doubt about the value of ultra-violet therapy in lupus, especially of general irradiation, by which many patches of lupus would disappear without any other treatment. In the ulcerative form of lupus he looked on *x* rays and ultra-violet light combined as the best form of treatment. This method produced an excellent effect in cases of lupus of the mucous membrane, which before the introduction of ultra-violet light therapy were the most difficult to treat. He did not apply ultra-violet radiation in cases of psoriasis, but thought that possibly between attacks such treatment might delay their onset. He regarded *x*-ray treatment in ringworm of the scalp as being much more reliable than treatment by thallium. He wondered how it was that ultra-violet light was so valuable in the treatment of *x* rays or radium burns.

URTICARIA PIGMENTOSA.

DR. W. G. HARVEY showed a girl, aged 9, with urticaria pigmentosa. The attacks had begun when the patient was about eighteen months old. There was now no urticaria, only urticaria pigmentosa. This disease generally began in very early childhood, and occurred in the form of true urticarial attacks. As a rule the condition cleared up when adult life was reached, but not always. The microscopic sections were typical of the disease, showing an enormous number of mast cells heaped round the vessels of the glands.

DR. M. DRUMMOND said that urticaria pigmentosa was very rare. One of the best-known American dermatologists had stated recently that only about 200 cases altogether had been recorded, and that in the last twelve years in Philadelphia he had only seen about six cases.

PRE-OPERATIVE TREATMENT.

AT a meeting of the Aberdeen Medico-Chirurgical Society, on December 5th, with the president, Dr. CHARLES FORBES, in the chair, Dr. J. ROSS MACKENZIE opened a discussion on the pre-operative preparation of the surgical patient. The lecturer considered at length the place of the anaesthetic service in relation to surgery, and maintained that the anaesthetist should have ample opportunity to share in the evaluation of surgical risk in individual cases. In this connexion he discussed the importance of Moot's index of operability amongst other tests of this nature. He then dealt with pre-operative medication, laying most stress on the question of atropine, and discussed fully the arguments for and against pre-anaesthetic starvation and purging. He himself was strongly of the opinion that purgation was harmful, and that dehydration and depletion of glycogen stores were to be avoided. Dr. Mackenzie then indicated the criteria for the selection of the most suitable type of anaesthesia in special cases. He thought that hyperventilation with carbon dioxide during the administration of the anaesthetic was of great value as a *prophylactic* against post-operative respiratory complications. Mr. F. K. SMITH, Mr. W. ANDERSON, Dr. MAGEE, Mr. COLT, Dr. LYALL, and others contributed to the discussion, and the CHAIRMAN conveyed the thanks of the society to the lecturer.

Reviews.

SURGICAL DISEASES OF THE THYROID.

THERE are three tests by which a book is to be judged: the intent of the author, the worth of that intention, his success in achieving the purpose. Dr. EBERTS's *Surgical Diseases of the Thyroid Gland*[1] stands every test. It is therefore a good book. Dr. Eberts's idea was to present the whole subject within reasonable compass; the subject is one of the most important in surgery; he has brought to the successful accomplishment of the task experience, knowledge, and wisdom. No previous experience is neglected. It is mentioned either in the text or in formal sequence at the end of every chapter; it receives judgement and decision. A careful reader must agree with the initial claim so admirably—except for one sentence—expressed by Edward Archibald, the author's "friend and colleague," that the number of patients forming the basis of the study is ideal, not the multitude that creates confusion nor the paucity that leads to false conclusions. The reader will also be convinced that in no other thyroid clinic has there been a more careful study of histories, more complete examination in the laboratory, more persistent and rigid scrutiny of results. The work is based on 2,250 cases, of which 1,050 were treated surgically, and no case is included which was not under observation for a year after treatment.

The book is divided into two parts. In the first, the embryo is considered; then the anatomy, histology, physiology—normal and abnormal—and pathology of the adult gland. The second part is clinical; nothing pertinent is omitted, and one does not lament the absence of a dissertation upon problems yet unsolved. All is included within the measure of 238 small pages. The book is interesting, exciting even, easy to read, because it has style; that is, Dr. Eberts has an important thing to say, and finds words suitable for saying it. It is comfortably free from that pseudo-scientific jargon which so many writers on medicine employ, merely because their own minds are neither scientific nor clear; and yet, one could well spare such words as "electrocardiographic," which suggest a chemical formula rather than human speech. If any fellow-worker desires to know the best that is thought, known, and done, here is the place to find it. But the scrupulosity of the author in awarding credit to the various elements in his clinic has been somewhat overdone. To mention ten persons diffuses the interest and detracts from his own authority. The coherence of a clinic is always understood. Nor does it seem necessary to parade a "laboratory in Vienna," merely because certain photographs of tissues were made in that place, as a matter of routine, by one of Dr. Eberts's assistants when he was a student there. Besides, the photographs are not very illustrative—there are tissues, microscopes, and cameras in the Montreal General Hospital and at McGill.

Dr. Eberts is himself a master, he might as well admit it. Modesty and reticence are virtues. When pushed too far they present the appearance of self-depreciation. That has always been a fault in the medical profession of Montreal. They might remind themselves occasionally that the Montreal General Hospital, from which this work emanates, was the first place in America to receive and nourish the European tradition of medicine, drawn from Edinburgh, through Leyden, which in turn derived it from London—the first hospital in America to admit students within the wards. They might remind themselves, too, that McGill itself, as a university and not as a medical school alone, was created out of the Montreal General Hospital, and that from both arose the Royal Victoria Hospital. Erasmus learned Greek at Oxford, and taught it in Cambridge; Osler learned his medicine in McGill, and carried it to the United States. This work of Dr. Eberts will establish his own clinic; it will help to disclose many other clinics in Montreal equally great, and remove that Ephesian nescience which has too long prevailed. A. M.

[1] *Surgical Diseases of the Thyroid Gland.* By E. M. Eberts, M.D., Surgeon to the Montreal General Hospital, Associate Professor of Surgery, McGill University, Philadelphia: Lea and Febiger. 1929.

BLOOD LIPOIDS IN THE PSYCHOSES.

Dr. SVEN STENBERG of the Psychiatric Clinic, Konradsberg Hospital, Stockholm, has published an interesting investigation on the quantitative variations of total cholesterin and total fatty acids in the blood of cases of manic-depressive insanity and dementia praecox.[2] In his preliminary review of the literature on this subject Dr. Stenberg explains the widely varying conclusions of previous authors as due mainly to their failure to ascertain definitely the limits of variation of these substances in the blood of normal individuals. Data in reference to the normal percentage of total cholesterin and fatty acids in the blood being scarce, the author has carried out a series of such investigations in order to determine this. He finds the normal extent of this variation to be relatively great, and his investigations likewise shew that the blood lipoids, although they vary considerably from individual to individual, keep constant in the individual person. This is in agreement with the findings of the majority of previous workers. He has also taken into consideration the various physiological states (age, diet, hunger, menstruation, etc.) which are deemed to have an influence on the lipoid percentage. The author has, in addition, ascertained the exact limits of the experimental error in the methods which he has made use of. The method of estimation adopted by him was Bang's micromethod as modified by Blix, this being, in the author's opinion, the only micro-method in existence that has been thoroughly tested. In the manic-depressive group of cases the total cholesterin was found to be greater than in normal persons, and also greater during remissions. In the dementia praecox group the early stages showed the total cholesterin to be higher than in the normal and remittent cases; whilst the cases of over a year's duration showed not only no increase, but were characterized by a range of variability considerably greater than normal. The similar changes of the cholesterin in the blood in manic-depressive cases and in early cases of dementia praecox pointed to the possibility of some common clinical factor, the supposition being that some change in the emotional sphere might be the psychical factor corresponding to the blood changes. Proceeding on that assumption, Dr. Stenberg analysed the older cases of dementia praecox. Those cases with a heightened emotional tone showed an increased cholesterin content, whilst the emotionally dulled cases showed a low cholesterin content. Dr. Stenberg considers that this relationship between cholesterin content and emotional tone does not merely apply to the two groups of psychoses investigated, but that there is every reason to believe that it is a general phenomenon. He suggests as future lines of research the ascertainment of similar correlations between the lipoid content of the blood and the emotional tone in other groups of mental disease, and the effect of insulin both on blood lipoids and on the emotional state.

CARDIO-VASCULAR TUBERCULOSIS.

PROFESSOR PIC and Dr. MORENAS have divided their book Cardio-vascular Tuberculosis[3] into three parts—the tuberculous heart, the heart in tuberculosis, and tuberculosis of the veins and arteries. It is a work of academic rather than practical interest. In a leaflet introducing the book the publishers remark that, to get a comprehensive knowledge of this subject, a laborious search in medical literature is necessary. The authors have certainly undertaken this task for us; for so small a book the bibliography is immense.

With the exception of tuberculous pericarditis, tuberculosis of the heart is a clinical rarity. It practically never occurs as a primary condition, and is usually demonstrated in the post-mortem room as one of the features of the later stages of fatal tuberculosis of some other part of the body. Tuberculous pericarditis, though rare, is perhaps more common than is generally suspected, and deserves a more detailed and a more personal handling

[2] *Psychosis and Blood Lipoids.* By Sven Stenberg. Stockholm: P. A. Norstedt und Soner. 1929. (Med. 8vo, pp. vi + 92.) *Acta Medica Scandinavica*, Reprint from Vol. 71.

[3] *La Tuberculose Cardio-vasculaire.* Par Adrien Pic et Léon Morenas. Paris: G. Doin et Cie. 1930. (6 × 8½, pp. xii + 383, 15 figures, 4 plates, 68 fr.)

than the authors have given it. It is to this section of the book that the average reader would turn for expert practical instruction, but he will find little more than the ordinary textbook of general medicine supplies. Tuberculosis of the blood vessels is a clinical curiosity—it is treated as such; the review of the French literature on the subject is interesting. That part of the book which deals with the heart in tuberculosis suggests that the authors know considerably more about cardio-vascular conditions than they do about tuberculosis.

TWO BOOKS ON AFRICA.

FOR thirty years Mr. CHARLES W. HOBLEY has had experience of exploration and administration in British East Africa. In his book *Kenya, from Chartered Company to Crown Colony*,[1] he relates these experiences. The colony has been described as "the heterogeneous collection of the most difficult Europeans, the most difficult Indians, and the most difficult natives in the British Empire." For this reason there is much that is interesting in Mr. Hobley's chapter on European colonization. He raises the question whether equatorial Africa can ever be suitable for permanent settlement by the European race, and, if not, what is the goal towards which British administration of the country is tending. So far as the coastal zone of equatorial Africa is concerned, he has no hesitation in saying that permanent settlement for Europeans is impossible, even if the mosquito could be abolished. The tropical sun is exhausting; the sultry nights impair rest; anaemia is common; and at certain seasons many people suffer from boils. Moreover, European children wilt and lose their energy. It is unlikely, therefore, that a permanent white colony will grow up in that zone. In the uplands of the interior, on the other hand, several thousand Europeans have established themselves, mostly during the last ten years. Opinions differ as to whether their settlement can become permanent. It has been held by some observers that Europeans, even in the highlands of tropical Africa, degenerate bodily, mentally, and even morally with long residence; and this degeneration has been attributed in part to paucity of certain mineral constituents in the soil. But Mr. Hobley questions whether the calcium or phosphorus content of a cabbage or a sheep varies in different parts of the world. He reminds his readers of the capacity of the human organism to adjust itself to changed conditions, such as increase of temperature, and points out that even if more carbonaceous matter is retained in the blood owing to lessened respiration, medical evidence is by no means agreed on the results. Nor is it safe to assert that anaemia results from excess of ultra-violet rays, since it is difficult to exclude the effects of concomitant protozoal disease. Mr. Hobley has no doubt, however, that the hot, dry, and windy spell of weather in Kenya which precedes the April rains is most trying to the nervous system of Europeans. He describes the measures he adopted to prevent exposure of the eyes and skin to the rays of the sun. Also he is convinced that one important cause of the deterioration of the health of Europeans in the tropics is bad cooking. His conclusion on the whole question is that, while the wastage of life in the first few generations of Europeans will be high, those who survive will adjust themselves to abnormal conditions of light, heat, and altitude, and will transmit to their descendants in greater proportion the characters which make for survival.

The question of the possibility of raising the African native to the status of a self-respecting free citizen is the underlying motive of M. RAOUL ALLIER'S book *The Mind of the Savage*.[2] M. Allier has worked in Africa as a French Protestant missionary. He has come to the conclusion that the modern African savage is a debased creature, who owes his arrested development to an all-pervading belief in magic. But even the most debased peoples, he says, have some ideal; and the unfortunate effect of the advent of ruling races is to shatter the moral edifice by destroying the political and social institutions of the native. Like Mr. Hobley, M. Allier does not despair of the situation, though he naturally attaches more importance to Christian mission work than to the preservation of as much of savage social institutions as is compatible with ordered government. His book is unnecessarily lengthy and discursive, but it contains many interesting observations on magic.

[1] *Kenya, from Chartered Company to Crown Colony.* By C. W. Hobley, C.M.G., M.R. Anthrop. Inst. With a foreword by the Right Hon. W. G. A. Ormsby-Gore, M.P. London: W. F. and G. Witherby. 1929. (Demy 8vo, pp. 356, illustrated. 16s. net.)

[2] *The Mind of the Savage.* By Raoul Allier. Translated by Fred Rothwell. London: G. Bell and Sons. 1929. (Demy 8vo, pp. xiv + 301. 15s. net.)

AIDS TO DERMATOLOGY.

WE welcome as a recruit to the ranks of the well-known series of "Aids" designed for students in their efforts to surmount examination difficulties, a slim volume *Aids to Dermatology*,[3] by R. M. B. MACKENNA, a name with a good dermatological tradition behind it; and we may say at once that, in its comparatively modest way, the volume and the author both prove themselves worthy of their parentage. In "tabloid" form it gives clearly and well the main facts and principles of dermatology, and the pruning and elimination of superfluous matter necessary to reduce the subject (including that of venereal disease) to 230 small pages has not interfered with the lucidity of expression essential to a student's manual. The publication of this little work—we believe the first cram book on the subject—raises the interesting question of the proper position of dermatology in medical education. There is no doubt of its importance to the practitioner, who often admits it and simultaneously confesses his own inability to make much headway with it, and commonly puts the blame on the sesquipedalian tendency of dermatological nomenclature. Probably the real reason why so many medical men find dermatology difficult lies in the fact that clearly cut differences are so often impossible to establish between various dermatoses, and there is a vagueness about it which makes the subject very difficult to teach unless the student is prepared to spend a larger proportion of his time thereon than is customary and than he can usually afford. The difficulties of dermatological nomenclature have very little to do with it, for the long names are mostly restricted to conditions seldom seen and therefore of little importance to the average student or practitioner. The teaching of dermatology to undergraduates is best confined to instructing them how to recognize and treat a few well-defined common conditions. A student who is able to achieve this much will be able to answer any question on skin diseases likely to be set in a qualifying examination, and will be able to manage successfully the bulk of his cases, even though there will remain a vast number of rarities beyond his ken. In short, dermatology is a vast subject to comprehend, but a small one to practise. For those whose requirements are modest and practical the little volume before us may be recommended. It gives sound information and advice in a convenient form.

DISEASES OF THE MOUTH.

MR. STERLING V. MEAD has had the pleasure of seeing a third edition of his work on *Diseases of the Mouth*[4] called for within ten months of the publication of the first. In his preface he ascribes it "not to the unusual value of the book, but to the unusual interest of the subject"; perhaps the fact that the book is so largely a record of personal observation, and that it is written in an attractive, terse style, may be another not inconsiderable factor. In the course of thirty-four chapters the author covers a wide range of subjects, describing on the one hand such dental conditions as will be helpful to the general medical practitioner, and on the other the conditions of "general" diseases which the dentist may be confronted with in the mouth. The author's experience of pulpless teeth is that "one cannot be too sure of a diagnosis." He finds that pulpless teeth do not remain constant, but that the condition may change, and therefore advises periodic examination of them. His

[3] *Aids to Dermatology and Venereal Disease.* By Robert M. B. MacKenna, M.B., B.Ch., M.R.C.P. London: Baillière, Tindall and Cox. 1929. (Fcap. 8vo, pp. viii + 236; 7 figures. 3s. 6d. net.)

[4] *Diseases of the Mouth.* By Sterling V. Mead, D.D.S. Third edition. London: H. Kimpton. 1928. (Sup. roy. 8vo, pp. 727; 336 figures, 43 plates. 42s. net.)

opinion of the dental granuloma is that, "whether it occurs in persons of low resistance, as claimed by some, or in those of high resistance, as claimed by others, it is a circumscribed, slow-growing area of infection which causes systemic disturbances and heals more slowly after removal and causes more exacerbation than the other types." The book suffers in places from brevity overdone—for instance (p. 133), what are the anomalies in form, size, number, etc., of the teeth due to rickets and other diseases of childhood? —and again, from a certain looseness of pathology, as when (Fig. 40, p. 110) caries of the distal surface of a molar is ascribed to "irritation from impacted third molar." Withal, it is a book well worth the attention both of the dentist and of the medical practitioner, and we think the author is justified in his hope that dentists and physicians will find in it the fundamental principles and practical knowledge necessary for their routine work in the mouth.

NOTES ON BOOKS.

DR. LUDWIG ENGLERT's work on Galen's treatise entitled Thrasybulos,[1] which is the latest addition to the series of studies on the history of medicine edited by Professor Karl Sudhoff and Henry E. Sigerist of Leipzig, is divided into two main parts. The first deals with the conception and classification of medicine in classical antiquity, from the pre-Hippocratic era down to the Hellenistic period. The second part, which forms the bulk of the work, is devoted to Thrasybulos, and is subdivided into sections dealing respectively with its subject and construction, Galen's relation to the gymnasts, with an account of their theory and practice, and lastly the special terminology of the treatise. The treatise derives its name from a probably fictitious personage named Thrasybulos, who had asked Galen's authoritative opinion as to whether the preservation of health belonged to the domain of medicine or to that of gymnastics. It is hardly necessary to add that Galen, after a prolonged discussion, comes to the conclusion that medicine is the predominant art, of which the preservation of health and gymnastics are subordinate departments.

In *Dental Anatomy*[2] Mr. M. DIAMOND incorporates the results of his studies of thousands of individual teeth, undertaken with the object of arriving at a basic, or as he calls it a symmetrical, form for each of the thirty-two permanent teeth. The larger part of the book is taken up by a detailed description of each tooth, followed by a technique for reproducing symmetrical tooth forms. Exact measurements of each "symmetrical" form are given, and the technique of reproducing them in wax is described. The guiding motif is the functional value of exact reproduction of any lost part of a tooth crown. Chapters are included on the bones, vessels, nerves, and soft parts of the mouth. The work will make a strong appeal to all interested in dental anatomy.

Dr. H. S. DICKEY is an American of nomadic instincts and a long memory. He appears to have wandered for more than twenty-five years, precariously picking up a living by practising medicine in Colombia, Ecuador, Peru, and Brazil. He has embodied his experiences in a book, *The Misadventures of a Tropical Medico*,[3] with the help of Mr. HAWTHORNE DANIEL, who has provided, perhaps, the literary setting for random reminiscences. The result is a very circumstantial account of the author's exploits as a captain (unpaid) in the Colombian Federal Army, of service in Putumayo with the Peruvian Amazon Rubber Company, of visits to the villages of head-hunting Indians, and of journeys through dense jungles and down immense, and almost unknown, rivers. He describes his relationships with Roger Casement, who was then employed by the British Foreign Office, and was instrumental in exposing the atrocities of the Putumayo Rubber Company, some of which the author had himself witnessed. He describes the process by which the head-hunters reduce the heads of their victims to the size of a fist, and how he received the reduced head of one Anguashi as a fee for curing a Jivero chieftain suffering from a snake-bite. Dr. Dickey's reminiscences will hardly rank with Bates on the Amazons as an authoritative description of a country that is still unfamiliar; but they make a readable story; and as Dr. Dickey now proposes to turn himself into an explorer pure and simple, and to search for the source of the Orinoco River—the only great river in the world, he says, the source of which is still unknown, he may yet produce some solid pioneering work. At the end of his book he gives his fellow countrymen in the United States a dressing-down for their ignorance and lack of discretion in their treatment of South America.

[1] *Untersuchungen zu Galens Schrift Thrasybulos.* Von Ludwig Englert. Liepzig: J. A. Barth. 1929. (7½ × 10½, pp. 103. R.M.16.)
[2] *Dental Anatomy.* By M. Diamond, D.D.S. New York: The Macmillan Company; London: Macmillan and Co., Ltd. 1929. (Demy 8vo, pp. xvi + 399; 101 figures. 21s. net.)
[3] *The Misadventures of a Tropical Medico.* By Herbert Spencer Dickey. In collaboration with Hawthorne Daniel. London: J. Lane, The Bodley Head, Ltd. 1929. (5½ × 9, pp. 304; 31 plates. 15s.)

PREPARATIONS AND APPLIANCES.

A MODIFIED BOYLE GAS AND OXYGEN APPARATUS.

DR. A. H. MACKLIN (Dundee) writes: I have devised a modification of the Boyle gas and oxygen apparatus; it enables the lungs to be instantly distended with pure oxygen, or, if preferred, with oxygen containing a small percentage of carbon dioxide. Some such arrangement is necessary in any standard machine used for the administration of gas and oxygen pure. No apparatus made in this country that I know of is so fitted, and I have never been able to regard the generally used Boyle apparatus as a satisfactory instrument for giving gas and oxygen to all kinds of cases without the addition of some further anaesthetic, such as ether or chloroform. With one of the more complicated American machines, such as the McKesson model, pure gas and oxygen can be used as a routine, but the price renders their general use prohibitive under ordinary conditions in this country. To obtain full relaxation with gas and oxygen it is nearly always necessary at some stage of the operation to give a saturation of nitrous oxide, which causes marked cyanosis; no anaesthetist can feel comfortable with a "blue" patient unless some arrangement exists for instantly shutting off the gas and delivering oxygen under pressure (with or without CO_2) direct to the lungs, especially if ether and/or chloroform are being used in addition.

ROSS MACKENZIE of Aberdeen modified the standard Boyle apparatus by the addition of a perforated measuring tube in the mixing chamber for CO_2. I have added a further modification in which by the quarter turn of a tap the nitrous oxide is instantly shut off; by the same movement the oxygen and carbon dioxide (if used) are diverted from the inlet to the outlet side of the apparatus and delivered direct to the face-piece of the inhaler. This is attained by the addition of three small parts: (1) a special by-pass soldered on to the inlet tubes, (2) a valve to prevent back pressure through the apparatus; and (3) a stopcock on the inhaler, which shuts off the thin-walled rubber bag. The gases are conducted through tubing from the cylinders to the three inlet tubes of a triple tap, which ordinarily directs them downwards into the mixing chamber and thence through the apparatus in the ordinary way. By a quarter turn of a small lever they are diverted upwards to two outlets corresponding to the oxygen and carbon dioxide inlets respectively. There is no outlet for the nitrous oxide in this position, and it is thus automatically shut off. The oxygen and carbon dioxide outlets are joined, and the gases are carried along a tube placed above the apparatus (with just sufficient clearance to avoid the chloroform and ether by-pass levers) to enter the second additional part; this is screwed on to the outlet and fitted with a valve to prevent back pressure into the ether and chloroform containers should they happen to be open. The mixed oxygen and carbon dioxide are conducted from the apparatus along the usual delivery tube to the inhaler. The inhaler usually supplied with the standard Boyle apparatus, in which the delivery tube enters directly into a thin-walled rubber bag, does not allow of sufficient pressure reaching the face-piece, so I use a Geoffrey Marshall inhaler in which the gases are delivered into the metal portion between bag and valves. The third additional part, a stopcock, is situated between the delivery tube and the thin-walled bag, which it shuts off. With the valve lever at "no valves" the diverted gases are delivered to the face-piece at the same pressure as they leave the cylinders, and this can be altered as required at the fine adjustment valves on the cylinder heads.

The whole of the additional parts do not add much to the cost of the original Boyle apparatus, and should greatly enlarge its already very wide range of usefulness. A manometer and a simple safety valve fixed at the outlet end of the apparatus make it safe for intratracheal work. For conducting the nitrous oxide from the cylinder I use pressure tubing of medium weight, and connect it to the tap by means of a Shelley patent fastener (commonly used for motor tyre pumps).

One disadvantage of the Boyle apparatus for some anaesthetists is that it has a left-hand delivery, and, as a further modification, I prefer the measuring chamber to be situated at the right-hand side of the apparatus. Messrs. Down Bros. are making the parts.

PROGYNON.

"Progynon," made by Messrs. Schering Ltd., is a preparation of the female cyclical hormone. It is standardized on the lines of the Allen and Doisy method to contain 250 mouse units per dose. The preparation is intended for oral administration, and the makers claim that animal experiments and clinical tests have shown that it is active when administered orally. They recommend administration of about 5,000 units a month. The literature quoted by the makers records successful treatment of climacteric disturbances, defective menstruation, etc.

THE SUN CURE AND THE WORK CURE IN SURGICAL TUBERCULOSIS.

BY

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HELIOTHERAPY has come to be associated especially with high altitudes in the Swiss Alps. More than a quarter of a century ago the first clinic for the treatment of surgical tuberculosis by general and systematized heliotherapy was opened by me at Leysin, and the results have proved so favourable that heliotherapy has become recognized as the treatment *par excellence* for surgical tuberculosis. Leysin is situated in Switzerland, overlooking the upper Rhône valley and facing the picturesque ridge of the Dent du Midi and neighbouring snow-capped peaks. Although its height is between 4,000 and 5,000 feet, the site is protected from the north winds by pine-clad uplands and it slopes steeply towards the southern sun. The air is therefore still, and the daily amount of sunshine is exceptionally great, both in winter and in summer, so that heliotherapy can be practised here all the year round.

The idea of a work cure for bed-ridden patients is of more recent introduction, and might at first sight appear to be a contradiction in terms. Occupational therapy has for long been applied to consumptive patients—for example, by George Bodington (1840)—and in more recent times by Dr. Marcus Paterson, who, at Frimley, prescribed graduated work in the form of gardening, Dr. Varrier-Jones at Papworth, as well as by Sir Robert Philip, Sir Robert Jones, and many other authorities both in England and *in America*.

Rationale of Heliotherapy.

It would be well, in the first place, to say *something* in regard to the sun cure as practised by us for cases of surgical tuberculosis. For *many years it was believed that* the external lesions produced by the bacillus of Koch constituted a simple local malady, *which was capable of cure* by purely local treatment, and there resulted an era of surgical intervention, which only too frequently opened the door to secondary infections more serious than the tuberculosis itself. With surgical treatment in the past has been associated complete immobilization in closed plaster casts, which is too often respected as an unassailable doctrine. Such heavy and completely rigid apparatus possesses the grave disadvantage of atrophying the integuments, muscles, and skeleton, of favouring ankylosis of the joints, and, as a result of this excessive fixation and prolonged inactivity, of producing in the patient physical and moral torpor, which gradually breaks down the natural defences of his organism.

Professors Bonnet and Poncet at Lyons were the first to oppose operative intervention and to advocate the application of the sun's rays to localized centres of surgical tuberculosis. Dr. Bernard of Samaden in 1902 was the first in Switzerland to apply heliotherapy to the treatment of wounds, and later to external tuberculosis, but this insolation was localized to the part affected. In the early years of my practice at Leysin, I became convinced of the importance of general exposure to the sun's rays in addition to exposure of the part affected, and in 1903 I opened my first clinic for the treatment of surgical tuberculosis by general and systematized heliotherapy in Le Chalet at Leysin. We now have some one thousand of such cases constantly under treatment in numerous clinics.

The practice of this general and systematic heliotherapy led us quite logically to the suppression, first, of almost all surgical intervention, and then of every form of closed plaster cast, replacing these with simple orthopaedic splints which always allowed the sun's rays to have free access to the whole surface of the integuments. Carried out in this way heliotherapy soon demonstrated its efficacy. Sun bathing is, on the one hand, the finest stimulus of exchange and of vitality of the organism, and is therefore the best regenerator of the "soil"; on the other hand, it is the rational treatment of the tuberculous centres by reason of the sedative, bactericidal, cicatrizing, and recalcifying action of the solar radiations. One may confidently affirm that there is not an organ in the human body which escapes the power of the sun's life-giving rays. Judiciously applied, the air and sun bath stimulates the appetite and the digestive functions, and renews energy. Under its influence, especially at a high altitude, the number of red corpuscles and the haemoglobin content of the blood are increased, and the exchanges become more active.

The skin, when put back into its normal surroundings—that is to say, when it is placed in progressive and continuous contact with air and sunshine—is toned up, becomes . . . . . ains its full physiological functions, circulation, innervation, absorption, elimination, immunization, and internal secretion. One of the most striking evidences of the sun's action is that without any help from massage or electric applications, one can watch the muscles of bed-ridden patients develop and harden in a harmonious and often athletic manner. This may be explained partly by an improvement in the *capillary circulation*, and possibly also as a result of the vibratory impact caused by the sun's rays on the network *of sensory nerve endings in the skin. Sunlight, in both* rickets and tuberculosis, has also an indisputably recalcifying *action on the bones. This cicatrizing and recalcifying action on centres of bacillary necrosis, however deeply* situated, is most evident in a collection of more than *50,000 radiograms which we possess. In many cases—for* example, where the head of the femur has almost disappeared—*the reconstitution of the bone is so complete that* one may, without exaggeration, term it "restitutio ad integrum."

Orthopaedic Arrangements.

A brief outline of the orthopaedic treatment adopted by us in association with the heliotherapy is as follows. The bed is very simple, provided with a special firm mattress upon a movable bed-frame, of which the position can be regulated at will. The bed can be wheeled readily from place to place as required, and is provided with a firm table at the head, which can be set at any angle and is capable of bearing an electric motor and tools.

In Pott's disease of the thoracic and lumbar regions we do not employ any support other than a wedge-shaped pillow, and we alternate the dorsal with the ventral position, in which the patient rests partly supported by his elbows, so that he can use the hands for working. The development of the dorsal muscles under full sunshine is remarkable, and they form a perfectly sufficient natural corset. In the case of cervical disease, the patient lies upon his back and an extension apparatus is attached to the head.

For hip disease we employ an extension apparatus attached to the thigh and a sliding splint, whilst the patient is raised upon a cushion placed beneath the pelvis, so that the vicious positions of the hip-joint are readily corrected, and the region of the hip is fully exposed to the sunlight. For osteo-arthritis of the knee we add to heliotherapy extension of the leg upon an inclined plane, so that compression of the articular surfaces is relieved and circulation is promoted. We attach great importance to these rational positions in treatment of the hip and knee. The ankle is, of all the joints, with the one exception of the wrist, the most favourable from the point of view of curability. Fixation is effected in a hollow splint, which permits free access of air and light to the leg and joint. Elevation upon an inclined plane, as in the case of the knee, is desirable.

In arthritis of the shoulder we seek to fix the arm in a position of abduction by means of an apparatus which is attached round the waist and can be opened gradually. The patient during treatment has full use of the forearm and hand. We have never been obliged to have recourse to resection of this joint, and the average duration of treatment has been about fourteen months. For the elbow we make use of a double hollow splint, by which the joint is kept in the rectangular position. In about half of our cases there has been complete restoration of *articular* function, while in the majority of the remainder the range of movement on recovery has varied *from 30 to 70 degrees.* Osteo-arthritis of the wrist is treated upon a splint with, in some cases, extension fixed to the *fingers, so that the* hand, wrist, and forearm in any case remain uncovered. In this position cure has, in *our experience*, invariably been accompanied by return of the function of the joints.

Osteo-arthritis of the metacarpus and phalanges is treated by fixation upon a small splint, accompanied by extension, and complete recovery is almost always the rule, provided secondary infection has not been present.

Tuberculosis of the pelvis, whatever be its localization —for example, as a sacro-iliac arthritis—has invariably recovered in a period of about one year under heliotherapy, when the disease was closed, even in cases with cold abscess; but cases that have become open, whether as the result of spontaneous rupture or of surgical intervention, have proved most refractory to treatment. The formation of a cold abscess is a quite natural phase of the healing process, and so far from its presence constituting a serious complication, in our opinion, it forms one of the attributes of healing. It may be regarded as a depot of antibodies, which contributes in great part to the immunization of the patient. We therefore deprecate its premature puncture.

The treatment of secondary infection necessitates a special technique. The first condition is to ensure effective drainage from the sinuses. We have recourse in certain cases to continuous siphonage with Dakin's solution, or physiological salt solution, and in other cases the patient is sent for a course of sulphur water baths, particularly of those at Lavey.

The action of heliotherapy upon sequestra is most interesting. In many cases of closed osteo-arthritis the sequestra gradually absorb, but more often, as shown by a series of radiograms, they become organized and incorporate themselves again with the living bony tissue. In general, we consider it useless and mistaken to interfere too quickly with a sequestrum, unless this is "en panne" or "en grelot." In closed tuberculosis the sequestrum is rarely necrosed, and consequently it is able to reorganize easily with the bony lesion from which it is temporarily detached. In open tuberculosis the sequestrum is practically always necrosed, as in osteomyelitis, and it consequently eliminates itself, or should be eliminated by sequestrectomy.

One of the few forms of tuberculosis in which we incline to early surgical intervention is renal tuberculosis, when operation is advisedly associated with heliotherapy.

Work as an Adjuvant to Heliotherapy.

The effect of heliotherapy on the mentality of the patients is too apparent and too striking not to deserve special mention. Many patients, after a course of sun cure, in proportion as they have improved physically, have improved morally, and hope has revived. The beneficent light of the sun, in winter as in summer, brings a deep and intimate sense of well-being. Even in the mountains, however, there are days when the sun does not shine, and even the most continuous sunshine is not always enough to re-store the morale of unfortunate patients, haunted by the insoluble problem caused by the loss of their occupation and by the painful knowledge that their homes must be a burden and expense to others.

To raise the morale of these invalids, whose trouble is mental as well as physical, and to bring them pecuniary assistance, we have instituted the work cure, which can be carried out in all weathers, in open-air balconies when the sun shines, and in neighbouring workrooms when the weather is unfavourable. Experience has convinced us that invalids, put under the discipline of work appropriate to their individual needs, soon become aware of a steady return of their powers, and experience that encouraging sensation which accompanies the normal functioning of their organs, and the adaptation of the human machine to work. The marvellous moral and physical stimulus of manual labour may be realized by watching the joyous animation which reigns on one of our balconies, the inward satisfaction to be read on those bronzed faces. Special contrivances make it possible for the patients to work in all the positions which their treatment necessitates, without ever endangering the latter.

Our first attempt at organizing the "work cure" was made in 1909, when we started a work colony at Leysin, which provided the necessitous patients with easy tasks, such as basket-work, caning of chairs and other furniture, woodwork, etc. Thanks to the salary they obtained from it, the inmates of the colony could, to a large extent, help to pay for their maintenance, and they lost the depressing sense of uselessness, and established contact with normal life again as they finished their cure. The results were excellent, and in the following year we established a small agricultural colony for children at Cergnat, near Leysin. Here the work included the rearing of cattle, milk production, market gardening, and bee-keeping, the inmates being recruited from among young convalescents who had suffered from surgical tuberculosis, and also from among delicate children sent to us direct from the plains. Later on, to this agricultural colony we added the "school in the sun," where predisposed children could have the necessary physical training, this being the first solar *préventive* institute at high altitude. The children of our clinics, whether confined to bed or not, receive open-air instruction in school tasks, varied by light manual work; this breaks the monotony of treatment, gives an object to long hours of idleness, and introduces healthy emulation among the children.

During the war much experience was gained at the Swiss military clinic in Leysin, which we had been called upon to organize in 1915 for cases of "surgical" tuberculosis. Here the invalid soldiers devoted themselves more especially to the making of slippers and toys, but the work cure expanded to the manufacture of more than eighty different kinds of articles, and an annexe was built for convalescents, where large workshops enabled them to work at their ease in spacious sun balconies, or indoors if the weather was bad. The excellent results of this work cure encouraged us to introduce it more and more widely in our various clinics, until it became no longer a matter of fitting up makeshift workshops in our popular clinics, but of building a special establishment, where the work could be organized, and, like heliotherapy itself, included in the patients' regime in such a way that their orthopaedic and solar treatment would in no way be interrupted.

For this reason we have built an international factory clinic with 120 beds, where indigent patients, suffering from surgical tuberculosis, will benefit, from the moment of admission, by a model technical organization, and where they will have an opportunity of earning their livelihood by easy and remunerative work, while continuing their solar treatment. This establishment will have the dual character of a factory and a clinic. The spacious balconies and dormitories will be fitted up as workshops, fully exposed to air and sun, and the patients will have at their disposal, either upon a table attached to each bed, or near their beds, very complete and specially adapted appliances worked by electricity in such a way that the work will never interfere harmfully with their solar and orthopaedic treatment. Bed-ridden patients will make pieces of small mechanism, such as parts of watches, hosiery, pottery, etc., to the order of factories and workshops that have already promised us substantial and regular orders. Work demanding more effort will be reserved for convalescents who will work in special rooms on the ground floor of the factory.

A whole floor will be devoted to an international school of commerce, where young patients can obtain an official diploma, and there will be courses of modern languages. Finally, the highest story of the building and the solarium (a flat roof constantly exposed to the full effect of air and sun) will be reserved for experimental observations upon the physiological effects of work carried out under exposure to full sunshine. Here, in a suite of laboratories some 4,500 feet above sea-level, the chemical and physiological equipment necessary for research upon respiration, excretion, metabolism, fatigue, and other factors allied to working capacity, will be provided.

If sufficient funds are received for the complete realization of this project, the sum chargeable to working-class patients will cover merely their maintenance and the cost of working materials, so that it will be possible for the patients, while under treatment, to support their families at home. If this hope is realized, the factory clinic will be a useful contribution to the difficult social problem of disposal in cases of surgical tuberculosis among the indigent, who, being thus provided with means of support, will be as advantageously placed for treatment as members of the privileged classes. The building is now almost finished, and it is anticipated that it will be fully equipped and opened for the reception of patients at Easter, 1930.

British Medical Journal.

SATURDAY, DECEMBER 28TH, 1929.

THE STUDY OF PAEDIATRICS.

WE publish to-day at page 1185 an address upon the study and teaching of paediatrics, by Dr. Leonard Findlay, professor of paediatrics in the University of Glasgow, delivered in remote Belgrade, but dealing in plain English with what he considers to be a fundamental fault in our system of medical education in this country—the neglect of paediatric studies. That Professor Findlay's complaint has much justification few, we think, will deny. In this country this great branch of medicine—of the highest educative value to the student, and of supreme importance to the State—does not occupy the high place that it holds unquestioned in the medical schools on the Continent and in America.

The provision made for the study and teaching of paediatrics in many of our medical schools is quite inadequate. To set aside an infants' ward and to appoint a visiting paediatrician is not to constitute a department of paediatrics. To admit a certain neglect of this great subject is in no way to imply that there is any want of capacity in the small but growing number of physicians who have devoted themselves to the study and care of the child. In no country is the clinical material better investigated or more successfully dealt with. Perhaps no children's hospital in the world has a greater reputation for accurate clinical teaching and investigation than the Hospital for Sick Children, Great Ormond Street, yet we do not think that Professor Findlay would regard either Great Ormond Street or any other hospital in London as offering us a paediatric department in the sense in which he uses the term. In Glasgow, it is true, Professor Findlay himself presides over an admirably equipped department, and may therefore speak with peculiar authority. In one or two other places, by great personal efforts, a paediatrician has succeeded in surrounding himself with the essentials of a satisfactory department, but in general too little has been done to remedy the state of affairs which Professor Findlay deplores, a state of affairs admitted by many, even among ourselves, to be unsatisfactory, and a constant source of wonder to visiting paediatricians from abroad.

Professor Findlay glances at one aspect of the question which is perhaps the direct result of this relative neglect of paediatric studies. He speaks bluntly of pseudo-specialists in this subject. While many of our infant welfare centres are admirably conducted, it is, we think, true that this is not always the case. Training in paediatrics must necessarily be long and arduous. We can conceive that the head of an orthopaedic department might well regard his assistant after one or two years of intensive study as well qualified to undertake a very large part of the routine work in that department, but after so short a period of study the assistant in the paediatric department would have taken but a few uncertain steps on the long course that is necessary before his opinion could be of first-rate value. Yet in paediatrics, and especially in those branches of it which deal with the slightest departure from health, there is, as Professor Findlay implies, nothing to prevent anyone, though lacking in the necessary training and experience, from assuming the role of an expert in the work. In most specialties, properly so called, the necessity of becoming familiar with the use of diagnostic instruments of precision, and of acquiring an obvious dexterity, of itself implies that a certain apprenticeship has been served.

We conceive that Professor Findlay's problem is not so much how to convince universities and medical schools of the need for paying greater attention to the study of disease in childhood, as to devise means of overcoming the difficulties that surround all attempts to make changes in our too complicated arrangements for medical education. Paediatricians in this country are few in number, and in consequence comparatively uninfluential. Some years ago their combined protest, supported actively by the Ministry of Health, was a factor in inducing the General Medical Council to recommend that all students presenting themselves for the final examination should be required to produce evidence of three months' attendance upon instruction in diseases of children. Without any special examination in the subject such a regulation can of itself effect little improvement. Most students must perforce address themselves to the subjects on which they will be searchingly examined, and if no paediatrician examines in his subject paediatric studies will suffer a corresponding neglect. The teachers of obstetrics and gynaecology have recently asserted themselves in no uncertain manner in order to secure an adequate recognition of their own subject. Behind their demand, because of their numbers and their influence, was a force that was almost immediately successful in overcoming the obstacles they found in their path. Teachers of paediatrics can of themselves exercise no such powerful influence. The dearth of professorships of paediatrics in this country is both significant of the neglect of which Professor Findlay complains, and at the same time contributes to it. If the study of the child and his disorders is to take its place, beside general medicine and the diseases of women with midwifery, as a subject of major importance in the curriculum of our medical schools, it must be because its right to do so is conceded by all; because teachers of surgery, ophthalmology, and oto-rhino-laryngology, of diseases of the nervous system and of diseases of the skin, recognize that, great as is the importance to the community of a knowledge of their own specialties, the knowledge of the child and its disorders is more important still.

COMPLICATIONS OF OPERATIONS FOR PILES.

THE discussion on the complications of operations for piles, opened by the president, Mr. Cecil Rowntree, in the Subsection of Proctology at the Royal Society of Medicine, on December 11th, was chiefly marked by fundamental differences of opinion, not only about the frequency of complications, but also about their causation and treatment. As the president remarked in his opening address, these operations are done so often and under such varied conditions that complications might be expected to be common, and the fact that they are not furnishes an excellent testimonial to the skill and care with which they are generally performed. The easier and the safer an operation the greater is the discredit if anything goes wrong, for, after all, it must be remembered that it is by the success of every-day surgery that surgery and the surgeon are judged. There can be no question, therefore, of the value of discussion of the minor details of what many will regard as a minor operation. Many complications

were referred to, some of them quite familiar, others very rare, ranging in severity from such minor troubles as an abnormal degree of post-operative pain to serious disasters such as ulcerative proctitis, or even death from pylephlebitis. Fortunately the latter is so exceptional as hardly to enter into the ordinary field of probabilities, and, as one speaker said, it is to be supposed that the average surgeon only thinks of its possibility in a whisper, if at all.

The progress of the discussion made it clear that with regard to operative method some form of ligature technique holds the field against all others. Whitehead's operation was definitely condemned as unnecessary, unsurgical, and more than likely to be followed by difficult and troublesome complications. It was agreed that the clamp and cautery has much to recommend it in the direction of freedom from after-pain and absence of stricture formation, but the disadvantages of a method which is applicable only to selected cases, and carries with it such unpleasant olfactory accompaniments, outweigh most claims that may be made for it. The ligature operation, which is probably the type chosen by 90 per cent. or more of experienced surgeons, has almost everything in its favour. First, the pile and only the pile need be removed by it; secondly, the quantity of blood lost is minimal; thirdly, the ligature, when properly applied, does appear to preclude the possibility of haemorrhage with complete certainty; and finally, the time required for the completion of the operation is but a few minutes. This operation, in its original form, consists in the ligature of the pile low down in the anal canal; the only dissection that is necessary is the removal of redundant skin and the separation of the muco-cutaneous border of the pile from the underlying tissues to provide a groove in which the ligature lies, and in order to avoid the inclusion of the highly sensitive nerve endings of the anal margin in the loop of the ligature. This is the operation described by Salmon so many years ago.

In recent years the ligature operation has, in the hands of many surgeons, undergone a vital modification. This consists in stripping up the pile from the underlying tissues with the object of making a convenient pedicle, as it were, which is then transfixed and ligatured at a higher level than in the older type of operation. Although at first sight this would appear to be an improvement upon the earlier method, it has to be remembered that the stripping up of the pile must inevitably leave an exposed area, or several exposed areas, of submucous tissue which can only heal by granulation. It is an open question how far this denudation is responsible for some of the more unpleasant complications of piles round which discussion nearly always centres; it is fairly evident that even an experienced surgeon operating under the best conditions must leave a raw area several centimetres square which has to heal as best it can. We know that it generally does heal extremely well, but we also know that in a certain proportion of cases (which some observers put as high as 5 per cent.) there is a degree of contraction of such severity as to demand treatment for its relief. Of course, it does not often happen that the contraction is permanent and that a stricture results; but when it does, as Mr. Rowntree remarked, the patient who has a stricture substituted for his piles is not likely to forget either the bad bargain he has made or the surgeon who effected the exchange.

Much has been made of the possibility and the desirability of effecting aseptic conditions for rectal operations, and no doubt with scrupulous care a high degree of asepsis may be obtained in the anal canal for a period of time which can hardly be reckoned in more than minutes. Were it possible to maintain complete asepsis throughout the process of healing it is likely that any and every type of operation for haemorrhoids could be performed with complete immunity from such complications as haemorrhage, proctitis, anal abscess, stricture, and so on. But, the bacteriological flora of the rectum flourishing as it does, we cannot feel surprised that the outcome of the discussion was a pretty generally expressed opinion in favour of a simple ligature operation and as little interference as possible with the rectal mucosa.

HELIOTHERAPY AND WORK IN SURGICAL TUBERCULOSIS.

NEARLY a century has passed since Professor James Syme, in 1831, published his *Treatise on the Excision of Diseased Joints*. In the latter part of the nineteenth century this was regarded as one of the greatest additions that had ever been made to conservative surgery. Since that time, however, methods of treatment have improved and standards of recovery are higher, so that the outlook of surgery and medicine, as well as of the general public, upon this subject has greatly changed in the direction of still further conservatism. On September 21st we published several important articles dealing with the operative treatment of tuberculosis of the joints, and in our present issue (p. 1206) appears a paper by Dr. A. Rollier of Leysin, who has devoted himself to treating surgical tuberculosis by orthopaedic appliances and heliotherapy for over twenty-five years, during which time he has had an immense experience. His most recent enterprise is the outcome of a consideration he has given for some fifteen years to the part that might be played by occupational therapy as an adjunct to his other methods of treatment. The robustness of insolated patients and their relative freedom of movement, rendered possible by the type of orthopaedic apparatus employed at the Leysin clime, inevitably suggested that work and activity might be used for the further betterment of their local and general condition. There can be no question of the great psychic value of mental and manual occupation in distracting the patient's attention from his condition, especially when he is in poor circumstances and accustomed to working with his hands. Further, under a system of treatment which discards rigid immobilization and aims at the constant maintenance of as much movement as can be effected without causing pain, the measure of activity thus attained in patients confined to bed has an important local effect upon the diseased part. The factory Dr. Rollier has now established at Leysin, in which patients confined to bed by spinal or hip disease can carry out productive manual labour, is an important experiment, not merely in surgical practice, but still more in social medicine. It is expected that the factory, with accommodation for 120 bed-ridden operatives, will be opened early in the New Year, and both the medical profession and all those occupied with labour conditions will watch its progress with the greatest interest. Donations to the fund for building and equipment may be sent to the Comptoir d'Escompte de Genève, Leysin, Switzerland.

EPSOM COLLEGE.

THE charitable activities associated with the Royal Medical Foundation of Epsom College depend much on the genero-ity of annual subscribers, and at this time of year, therefore, attention may well be directed to the excellent services that are being rendered by this institution to the medical profession; some details of these will be found in our advertisement columns this week. Pensions are provided for fifty medical practitioners or their widows who

are over the age of 60 and in urgent need of such assistance. Fifty sons of necessitous doctors enjoy foundation scholarships, entitling them to boarding, clothing, and education at the school. For these two purposes the sum of about £9,000 is required annually, and four years ago it was admitted that the high cost of living makes it very desirable for the pensions to be increased; such a step can only be taken, however, if more money is forthcoming from subscribers. Each guinea entitles the subscriber to ten votes for candidates for these pensions and scholarships, and assists the charity in its endeavour to provide a refuge for members of our profession or their dependants who have fallen on evil days. Smaller sums than a guinea, though they do not confer voting rights, are welcomed, inasmuch as they add to the amount of relief which can be given. Epsom College as an educational institution has won a high name in the scholastic world. The majority of its pupils are the sons of doctors, and for those who propose to follow their fathers' profession scholarships are available in the London medical schools. Progress is being made towards the urgently needed provision of a new sanatorium; of the £30,000 required £7,500 has now been collected. The opening of this building, with its isolation wing, will make room for forty more boarders in the present college buildings, and thus reduce somewhat the long waiting list of applicants for admission. We therefore commend the present appeal to the careful attention of readers of the *Journal*. Epsom College as a great educational centre for the sons of medical practitioners deserves wider recognition by members of our profession; as a charitable institution the Royal Medical Foundation should command the warm sympathy of all whose circumstances permit them to help their colleagues in distress.

CINEMATOGRAPHIC DEMONSTRATION OF LIVING TISSUE CELLS.

ON December 11th, Dr. R. G. Canti demonstrated before the University of London Medical Graduates Society three cinematographic films, whose preparation had formed part of an investigation on cancer carried out at the Strangeways Research Laboratory, Cambridge. A cinema technique applied to microscopy has not merely the advantage that it is less exhausting to the investigator than the method of direct visual observation, but it enables him to examine at leisure records obtained over a long period of time, and to re-examine them as often as he may find necessary for their interpretation. As, moreover, films may be run in a reverse direction it permits him to trace any changes that may have occurred through all the stages that led up to them. The first film showed the growth and multiplication of cells from the periosteum of chick embryo and from a mass of Jensen's rat sarcoma; the second some of the effects of irradiation on these cells; and the third the internal structure of the fibroblasts of the choroid of chick embryo, as shown up by the method of dark-ground illumination. In the different experiments photographs were taken at intervals of 3, 10, 30, and 60 seconds, but the resulting pictures were shown at the usual speed of sixteen a second. Varying with the rate at which the photographs were taken, therefore, a speeding-up effect was obtained of 50, 120, 480, or 960 times. On the first film cells could be seen spreading outward from the explant, the wandering cells forming, as it were, an advance guard, followed closely by the fibroblasts, and soon the whole field appeared to be covered with a jostling population of outward-moving cells. Cell division could be seen to occur in four stages: *prophase*, *metaphase*, *anaphase*, and *telophase*. The cell about to divide seemed to shrink, and the nucleus lost its outline, the chromosomes became visible, formed an equatorial belt, and moved rapidly to the poles, while from the surface of the cell bubbles of protoplasm were shot out with great rapidity, so that the whole cell seemed to be thrown into a state of violent agitation; finally the agitation subsided, a deepening constriction appeared in the protoplasm, the cell divided, and the two newly formed daughter cells wandered away from each other in opposite directions. The cells of Jensen's rat sarcoma are smaller than fibroblasts, and are provided with several long pseudopodia, having at their extremities delicate branching filamentous processes. These processes are actively phagocytic, and on the film they were seen to take up small fragments and pass them through the pseudopodium into the granular cytoplasm of the actively moving cell. Larger fibroblastic cells were also present and seen to be moving relatively slowly. Photographs of an older culture of Jensen's rat sarcoma showed the motile cells in process of degeneration. The cells were observed to shrink in size and become rounded in shape, and then to throw out continuously moving bubbles from their surface. Such degenerate cells, said Dr. Canti, had never been seen to return to the actively motile form. In the second film, which showed the selective action of radium emanation, the wandering cells of the periosteum of chick embryo were seen to be affected to a greater extent than the fibroblasts. Soon after irradiation was started cell division ceased to occur, and the cells, which till then had been in active movement, stopped still as though paralysed. As time went on they became spherical and their edges hazy and irregular. Still more marked was the effect of irradiation on the cells of Jensen's rat sarcoma. The actively dividing cells were immobilized with dramatic suddenness: they became rounded in shape, and started to break down. It was noteworthy that all the cells of the rat sarcoma, whether of the mobile or fibroblastic type, were equally affected by irradiation, and that the effect was produced in about the same time as it had been on the wandering cells of the normal tissue. The photographs afforded evidence, therefore, not only for the hypothesis that radium emanation has a selective action on malignant cells, but for the view that such selective action is exercised generally on cells undergoing rapid multiplication. In the third film various cell structures that had not been made visible by the method of direct illumination were shown up in clear outline. The whole cell stood up clearly from the background, its nucleus sharply defined, and the nucleoli readily distinguishable from the surrounding nucleoplasm. The cell granules appeared as bright bodies moving with greater or lesser rapidity, and the mitochondrium was seen as bright threads wriggling slowly about the cell with worm-like movements. Occasionally one of the mitochondria was seen to divide: the irregular curved thread would suddenly straighten itself out like a bar, and then, as it were, snap in two parts. At the conclusion of the demonstration Mr. McAdam Eccles, on behalf of the University of London Medical Graduates Society, expressed the gratitude of its members to Dr. Canti for giving them the opportunity of seeing the films, and their appreciation of the patience and the ingenuity that had been devoted to their preparation.

MEDICAL EDUCATION IN AMERICA.

THE third report of the influential American Commission on Medical Education dealt with general principles (*British Medical Journal*, January 26th, p. 161). In a supplement to the third report[1] a critical summary is given of some of the changes in procedure which have been put to a practical test in a number of the American schools of medicine, and serve thereby to illustrate certain of the general principles of training emphasized in the earlier report. The schools are referred to by letters of the alphabet, and not by their

[1] *Supplement to the Third Report of Commission on Medical Education, May, 1929.* New Haven, Conn. (Pamphlet, pp. 82.)

names, and without considerable knowledge of the local conditions it is therefore very difficult to identify them. The former period of two years' pre-medical work has now been extended to three or even four years in most of the better schools of medicine, which can easily fill their classes with college graduates; and as 95 per cent. of the graduates follow their medical course of four years by a hospital internship of one to two years, it takes about ten years from the date of entering college for the student to become financially independent. The cost of medical education is naturally going up, and the fees paid by students supply, as shown by the average of the figures from sixty-three schools, little more than one-third of the total, the difference being met by endowment and from other sources. In the sixty-three schools, 42 per cent. of the budget goes to provide salaries for the whole-time teachers, and 6 per cent. to part-time teachers. During the last few years the total amount of work, as shown by the number of hours required, has been somewhat reduced in the majority of schools; thus in thirteen schools which in 1925 demanded 4,000 or more hours, there has been an average reduction of over 400 hours, but there are wide variations; in twenty schools taken at random the hours required for anatomy varied from 1,267 to 480, for medicine 1,030 to 428, for surgery 660 to 332, and for gynaecology and obstetrics 368 to 168. Although much consideration has been given to uniformity and standardization, there is probably far more variation in the curriculums at different schools than is generally assumed. Three types are described. The first is the orthodox standardized curriculum of recent development, intended to familiarize the students, who all take the same courses, with every phase of medical knowledge; the amount of instruction is heavy, and the staff is small. The second type is represented by a small number of schools closely allied with universities, having few students, who have much more freedom, working on graduate rather than on undergraduate lines, and specializing early; the teaching staff is large, and there are full-time clinical instructors. The third group is intermediate between the other two, and offers a comprehensive training for all and special opportunities for a limited few. Teaching in pharmacology is becoming less concerned with pharmacy and more with the physiological action of drugs, thus forming a bridge between physiology and therapeutics. Clinical-pathological conferences, in which the physician in charge of the case first gives the clinical history and diagnosis, and the pathologist then shows the post-mortem conditions, are well established at some schools, as are joint demonstrations of surgical problems by surgeons and anatomists. Efforts are made to remove the reproach that the student does not know how to deal with the sick person; thus at one school 15 per cent. of the fourth-year students follow the daily work of a general practitioner for one or even two months. The teaching of preventive medicine throughout the curriculum is gaining ground, and it is pointed out that pharmacological instruction might well deal with patent medicines and the mischief they do to patients who attempt to treat themselves at a stage when early diagnosis and proper treatment may prevent serious consequences.

CHRONIC NEPHRITIS IN QUEENSLAND DUE TO LEAD ABSORPTION.

IN 1908 we published a paper by Dr. J. L. Gibson[1] describing fifty-four cases of optic neuritis associated with paralysis of one or both external recti. These cases, all of which had occurred among children in his hospital practice in Brisbane, Dr. Gibson attributed to lead poisoning, and he explained how the children, having got "chalked" white lead paint on their hands from garden or verandah railings, transferred it to their mouths by biting their nails or sucking their thumbs. The relative infrequency of plumbism in the southern States of Australia he thought might be due to the comparative infrequency of verandah railings in the houses and cottages there. How accurate was his interpretation has recently been made evident in two papers published in the *Medical Journal of Australia*.[2] Dr. L. J. J. Nye, the author of one of the papers, points out that in Queensland, during the period 1917-26, 884 persons under the age of 40 died from chronic nephritis, which had been brought about by some cause which either does not exist or does not operate to the same extent in the other States of Australia. He concludes, having weighed all the evidence, that this form of chronic nephritis may be attributed to the slow absorption by children of white lead paint, and adds that the children are poisoned not only in the manner described by Gibson, but as a result of imbibing raindrops from the verandah rails. An adult absorbing 1/32 grain of lead daily would suffer from lead poisoning; in a child the corresponding dose might well be under 1/100 grain. The earliest reference to the subject is in a paper entitled "A form of cerebral disease characterized by definite symptoms: probably a localized basic meningitis," which was read by A. Jefferies Turner at the International Medical Congress of Australia in 1892; it is evident, therefore, that this preventable form of poisoning has been prevalent for about forty years, and one may agree with Dr. Nye's conclusion that "herein lies an extraordinary opportunity for preventive medicine." Probably the most desirable substitute for white lead paint is a combination of titanium white with a proportion of zinc oxide. Titanium white, which may be obtained from ilmenite, has a greater opacity than any other known white pigment, and resists attack by sulphuric acid. Paint made from it is exceptionally resistant to exposure to light, heat, sea water, and seaside air, and it has the further advantage over white lead that it does not as time goes on acquire a dirty drab colour. Its one disadvantage—a relatively small one—is that it dries rather slowly.

[1] Plumbic Ocular Neuritis in Queensland Children, *British Medical Journal*, November 14th, 1908, p. 1488.

TUBERCULOSIS CONGRESS IN NORWAY.

As was briefly mentioned in the *Journal* of November 23rd, the seventh conference of the International Union against Tuberculosis will be held in Oslo next year, from August 12th to 15th. Professor Fröhlich of Oslo, who is president of the Norwegian National Antituberculosis Association, has now issued a circular to members in which additional information is given. The executive committee of the International Union will meet on the morning of August 11th, and the conference will be officially opened at midday on August 12th. The three following days will be devoted to the chief subjects to be considered, the opener of each discussion being followed by ten specially invited speakers. Professor A. Calmette of Paris will describe the B.C.G. method of inoculation against tuberculosis; Professor Bull of Oslo will deal with the application of thoracoplasty to the treatment of pulmonary tuberculosis; and Professor His of Berlin will introduce the subject of the provision of instruction in tuberculosis for medical students and graduates. The principal speakers are being asked to send their communications not later than February 1st either to the Norwegian National Antituberculosis Association or to the International Union, in order that translation and printing may be arranged. Those wishing to attend the congress should notify their intention before May 15th. Arrangements are being made for visits to the principal antituberculosis institutions of Norway and for pleasure trips. A preliminary pamphlet about travel facilities has been issued; it is well illustrated,

[2] An Investigation of the Extraordinary Incidence of Chronic Nephritis in Young People in Queensland, by L. J. J. Nye, M.B., *The Medical Journal of Australia*, August 3rd, 1929, p. 145. The Incidence of Chronic Nephritis amongst Young People in Queensland, ibid., p. 144.

and indicates some of the more attractive excursions which may be undertaken. Further information may be had from the secretary of the International Union against Tuberculosis, 2, Avenue Velasquez, Paris VIIIe.

MENTAL AFTER-CARE ASSOCIATION.

THE Mental After-Care Association has issued an urgent appeal for funds to carry on and extend the work of supervising and assisting convalescent mental patients. It makes use of cottage homes in the country and at the seaside, and has a staff of trained visitors. Although some part of the expenditure is met by local authorities or the persons concerned, a considerable deficit has to be made up out of the funds of the Association, which are entirely derived from voluntary subscriptions and donations. In the past ten years the benefits administered have multiplied six times, while the administration expenses have only doubled. The minimum annual membership subscription is 5s. and donors of £5 become life members. Last year more than 2,000 cases were helped by convalescence facilities in cottage homes, the provision of employment, and the supply of necessary tools and clothing. Further information about the work of this society—the only charity of its kind in the United Kingdom—can be obtained from the secretary, Miss E. D. Vickers, Church House, Dean's Yard, Westminster, S.W.1.

DEATH OF SIR WILLIAM MILLIGAN.

WE have to announce, with much regret, the death, on December 19th, after a long illness, of Sir William Milligan, M.D., M.S., LL.D., consulting aurist and laryngologist to the Manchester Royal Infirmary, and formerly lecturer on diseases of the ear and throat in the Victoria University of Manchester. Sir William Milligan had long been recognized as one of the leading authorities in his specialty in this country. He was president of the Section of Otology when the British Medical Association met in Manchester in 1902, and had held office as president of both the Laryngological and Otological Sections of the Royal Society of Medicine. In recent years he identified himself with the work of the Manchester Radium Institute, and served as chairman of the Lancashire, Cheshire, and North Wales Branch Council of the British Empire Cancer Campaign. We hope to publish a memoir, with portrait, in our next issue.

ADDENDUM

TO THE

COLLECTIVE INVESTIGATION INTO THE AFTER-HISTORY OF GASTRO-ENTEROSTOMY.

SINCE the publication of Parts I, II, and III of the report on this subject in the *British Medical Journal* of December 7th and 14th the following additional statistics have been worked out from the figures contained in the report. It is believed that they will furnish useful information as to the comparative values of the two principal operations performed.

Table XVII in Part I (*Journal*, December 7th) gives the late results of the various operations for duodenal ulcers as obtained from the after-histories. As the main merits of the various operations are represented by the percentage of "very good" results, in that they show the number of patients restored to full health, able to eat anything over periods of some years, and able to resume full work, it was considered advisable to compare the "*very good*" results in the two principal operations performed, together with the respective post-operative mortality. These two operations, which constitute rather more than 95 per cent. of all the operations that were performed, are (1) posterior gastro-enterostomy combined with excision, cauterization, or infolding of the ulcer, and (2) posterior gastro-enterostomy without interference with the ulcer. These statistics have been worked out, and are embodied in the following table.

Duodenal Ulcers.

Type of Operation.	Very Good Results (percentage of the cases with after-histories).	Post-operative Mortality (percentage of all cases).
Posterior gastro-enterostomy + excision, cauterization, or infolding of ulcer	81·2	1·8
Posterior gastro-enterostomy without interference with ulcer	64·5	5·7

These figures show that the operation when combined with removal or infolding of the ulcer gives much better results and a much lower post-operative mortality than the operation in which the ulcer is left without interference.

With regard to the 5 per cent. post-operative mortality for all the operations on duodenal ulcers, the following comparison of the post-operative mortality of the different operations furnishes some interesting results.

Type of Operation.	No. of Cases.	No. of Deaths.	Percentage of Deaths.
Posterior gastro-enterostomy + excision, *cauterization, or infolding* of ulcer	168	3	1·8
Posterior gastro-enterostomy without interference with ulcer	791	45	5·7
Anterior gastro-enterostomy	24	2	8·3

If these death percentages are proportionately averaged the 5 per cent. post-operative mortality for the whole of the cases is obtained. These figures show that the operation when combined with removal or infolding of the ulcer is associated with a much lower post-operative mortality than in the cases of the other operations.

Pyloric Ulcers.

The corresponding statistics have been worked out for the pyloric ulcers, with very similar results.

Type of Operation.	Very Good Results.	Post-operative Mortality.
Posterior gastro-enterostomy + excision, cauterization, or infolding of ulcer	72·4	1·3
Posterior gastro-enterostomy without interference with ulcer	44·7	2·5

With regard to the 2·6 per cent. post-operative mortality for all the operations on pyloric ulcers the following is the comparison of the post-operative mortality of the different operations.

Type of Operation.	No. of Cases.	No of Deaths.	Percentage of Deaths.
Posterior gastro-enterostomy + excision, *cauterization, or infolding* of ulcer	76	1	1·3
[illegible] with-	353	9	2·5
[illegible]	14	1	7·1
Anterior gastro-enterostomy ...	6	1	16·6

If these death percentages are proportionately averaged the 2·6 per cent. post-operative mortality *for the whole of the cases is obtained.*

ARTHUR P. LUFF, M.D., F.R.C.P.

FINAL REPORT OF THE ROYAL COMMISSION ON LOCAL GOVERNMENT.

IN our issue of December 7th (p. 1068) we described in general terms the contents of the Final Report of the Royal Commission on Local Government,[1] and noted that the Commission, in the first part of that report, continues the examination which it had begun in its second interim report, issued more than a year ago, of the proper distribution of certain functions among local authorities. Many of the functions passed under review have no relation to public health and its administration, and among those which have some such relation two are deliberately excluded from consideration—the superannuation of local government officers, on the ground that a Departmental Committee reported on this subject in 1928, and education, because, in the opinion of the Commission, if further inquiry in this sphere should be deemed necessary, it could more appropriately be made by a committee specially appointed for the purpose.

The administration of the Food and Drugs (Adulteration) Act, 1928, which consolidated, without amendment, previous Acts together with the appointment of public analysts, and the administration of the Milk and Dairies Acts, are among the more important functions examined. With regard to the former, it seems clear that there are a good many boroughs whose population is too small and whose financial resources are too restricted to enable them to make satisfactory provision for the execution of the work required, and the Royal Commission accordingly says:

"It appears to us that the arguments are conclusive in favour of a simplification in the distribution of this service, and that the full powers and duties (comprising the appointment of an analyst as well as the taking of samples) should be assigned to authorities having jurisdiction over considerable areas; and we think that the councils of counties and county boroughs are the most suitable authorities for this purpose. It is not, however, our intention that the borough councils who are now exercising these powers should entirely cease to do so; which, indeed, would clearly not be in accordance with the public interests. On the contrary, it is, in our opinion, desirable that they and the councils of other county districts should continue through their medical officers or other officers to take samples of food and drugs from time to time for the purpose of analysis, and should, when necessary, cause proceedings to be taken with a view to securing due observance of the Act. In order that councils of county districts may be encouraged and assisted in the performance of these functions a county council should have power to contribute towards the cost."

With regard to the Milk and Dairies Acts, and Orders made thereunder, evidence shows that the arrangements in accordance with which this service is administered are extraordinarily complicated, but that they afford ample facilities for varying such arrangements with reference to various parts of the service as experience proves this to be desirable or necessary. The various associations of local government authorities had differing suggestions for simplification to offer; but as the Milk and Dairies Order, 1926, has been in operation for so short a time, as indeed some of its provisions have not yet become operative, the Commission do not make any recommendation for further reassignment of functions at present. Experience seems to be showing, however, that some modifications will have ultimately to be made.

Many of the difficulties in connexion with the distribution of certain functions between local government authorities can be surmounted by suitable co-operation among such authorities. The extent to which this co-operation already exists is considerable, but, in the view of the Royal Commission, "there is room for still further co-operation, and much evidence points to the possibility of developments in this direction." So far it is mainly with regard to the provision of certain institutions—schools and hospitals—that authorities have acted jointly, but there are a number of other directions in which authorities which are in a position to assist one another might facilitate and improve the provision of certain services. This is particularly the case with regard to water supplies. The more readily accessible sources of such supply have been appropriated, and as the consumption of water is still growing, and likely to grow, much systematic foresight is required. In this respect, certainly, wide regional advisory committees are needed. Two such committees have already done useful work—one for South-West Lancashire and one for Nottinghamshire—and the report commends to the attention of all local authorities the desirability of taking active steps to secure the creation of regional advisory committees throughout the country generally.

Urban district councils possess many powers which rural district councils have not. There are a number of enactments, however, under which the functions of the former may, in certain circumstances, be assigned to the latter. The difference between the two classes of authority is often a distinction in name only, as a large number of rural areas are rapidly becoming urbanized; yet the process by which a rural district may acquire urban powers is laborious and time-wasting, both to the local authority and to the Ministry of Health.

It is not proposed that the *duties* of urban district councils shall be imposed upon those of rural districts; but in regard to *powers*, the Commission agrees that it is necessary and expedient that these should be much more closely assimilated, and a long list is given of various sections of the Public Health Acts, the administration of which should be within the powers of rural district councils, and should be entrusted to them generally by statute, without the necessity for the procedure of formal adoption or application to a central department. The appointment of a parochial committee in the part of a rural district which is urban in character is suggested. With regard to the functions of parish councils and parish meetings, the report says:

"Apart from the question of scavenging and provision and maintenance of village halls, there does not appear to be any demand for alteration in the functions assigned to parish councils and parish meetings.

"As regards scavenging, we consider that this is a sanitary service, responsibility for which should remain with the rural district council, but in the event of the district council declining to provide this service in a parish which desires it and is willing to bear the cost, we recommend that the Minister of Health should be empowered either to require the district council to act at the expense of the parish, or alternatively to authorize the parish council themselves to provide the service. We think, however, that difficulties would be less likely to arise if district councils more commonly appointed parochial committees for services of this kind."

In evidence before the Royal Commission, Sir Arthur Robinson, on behalf of the Ministry of Health, gave reasons why there should be some alteration of the present procedure whereby a district may become incorporated as a borough. This evidence had reference to a memorandum, which had been agreed between all the departments concerned—the Privy Council Office, the Home Office, the Ministry of Health, and the Board of Education. The proposals have attracted considerable attention, because it was agreed that the status of a borough tended to foster civic spirit, and so to help local government, and it was stated that "it might be expected that the number of boroughs would steadily increase, and that the rate of increase was likely to be higher in the future than in the past." At present a borough is created by the grant from the Crown of a charter of incorporation. It was proposed that, while leaving existing boroughs untouched, each urban district of sufficient size should be empowered by statute to constitute itself a borough, provided that the resolution were confirmed by an Order of the Minister of Health, laid before Parliament. The reasons given for an alteration of the procedure for incorporation are generally accepted as good, but proposals for the creation of a new kind of statutory borough have not been favourably received, partly from sentimental, partly from practical considerations. The conclusion of the Royal Commission is that the charter system should be retained, but that (1) as a rule of practice, a minimum population of 20,000 should normally be a condition precedent: (2) in lieu of a petition signed by a majority of inhabitant householders the petition should be made by the local authority; (3) the

[1] Final Report of the Royal Commission on Local Government. London: H.M. Stationery Office. 1929. 3s. net.

efficiency of administration and financial capacity of the area in question should be primary considerations, and that therefore any local inquiry into a petition should be held by an inspector of the Ministry of Health.

Four other matters dealt with in the report are of importance to the medical profession and in relation to public health administration. These are: (1) co-option on committees of local authorities; (2) disqualification of members of local authorities; (3) the position of the clerk to the local authority in relation to the medical officer of health; (4) security of tenure of officers. On all these subjects representations have recently been made by the British Medical Association to the Ministry of Health. The representations with regard to the second and third of these points are referred to in the report itself.

Members of the medical profession in active practice probably experience more than the average amount of difficulty in taking their full and proper share in public life as members of a local government authority. The effects of party controversy and of undesirable publicity, and the virtual impossibility of regular attendance at meetings, are intensified in the case of most medical practitioners. Yet it may truly be urged that among them are to be found those whose judgement on matters of public health, of maternity and child welfare, of education, would be of the very greatest value. It is important, therefore, to see that opportunities for the use of their knowledge and experience in particular spheres of public administration should not be curtailed, and that no unnecessary obstacle should be placed in the way of their becoming members of any local government council or committee.

Prior to the Local Government Act, 1929, the co-option by a council of persons who had not been elected in the ordinary way was obligatory in respect of education committees, mental deficiency committees, maternity and child welfare committees, agricultural committees, and was permitted on library committees. Under the Local Government Act such co-option is obligatory upon guardians committees, and is permitted on public health committees and their subcommittees, and on subcommittees of mental deficiency committees. All these opportunities for service should be noted by the profession, and local authorities may well be urged, with some insistence, to adopt the method of co-option, especially in connexion with work in which medical expert knowledge would be peculiarly valuable. No exception can be taken to the recommendation of the Royal Commission that co-opted members should not exceed one-third of the total number of any committee, and it would be well if the suggestion of the County Councils' Association could be enforced—that only persons possessing special knowledge and experience should be eligible for appointment. It is mainly owing to a neglect of this requirement that the principle of co-option has fallen into disrepute in certain areas. It is perfectly reasonable, too, that co-opted members should be subject to the same disqualifications as elected members in regard to voting on matters affecting their personal interests, and, indeed, that any disqualifications for membership should apply universally. The Royal Commission states that "the law relating to disqualification requires amendment to meet conditions now prevailing." This is particularly the case with regard to the medical profession in view of the fact that almost every year its members are being brought into closer relation with the public health schemes of central or local authorities. The conclusions of the Royal Commission on this matter do not appear to be quite clearly stated in the report. On the one hand, it is said, "Disqualification must be so defined that it will not unnecessarily exclude a large number of persons from participating in local government. With this in view, the situation would best be met if disqualification were applied to voting rather than to membership." This would be satisfactory; but, as regards medical practitioners, the report says:

"... we consider that a doctor who is remunerated by fees for specific services rendered under certain Acts need not be disqualified for membership of a local authority. On the other hand, a doctor who is rendering not necessarily continuous but continuing service in a specific capacity, such as a medical officer at a maternity and child welfare centre, is more clearly in a contractual relation with the local authority, and should therefore be disqualified from membership."

Apart from its relation to the previous statement quoted above, this paragraph is not itself clear in all its implications, and no doubt the British Medical Association will take the matter further in consultation with the Ministry, and with the hope that suitable action will be taken. This is the more urgent in that the effect of the Local Government Act will be to disqualify as from April 1st next a number of medical practitioners who are at present members of town, county, or district councils.

The question of the position of the town clerk in relation to the medical officer of health threatened at one time to become a very important and awkward matter in view of circumstances which arose in the specific cases of Smethwick and of Bournemouth. Arising out of these cases a considerable correspondence took place between the Ministry and the Association, and the substance of the last letter from the Ministry is set out in the report of the Royal Commission. This can be regarded as relatively satisfactory, and was accepted by the Association as being "a much closer approximation to the position the Council wishes to maintain on behalf of medical officers of health and the work of their departments than either of the Ministry's previous letters, or the paragraphs contained in the section headed 'Local Government and Local Finance' in the fifth annual report of the Ministry, to which the Council took the strongest objection." In view of the importance, actual and potential, of this matter it may be well to refer to the complete correspondence contained in the Minutes of Council of July 23rd, 1928 (pp. 306 and 297), and to quote the relevant conclusions of the Royal Commission.

"With regard to the position of the clerk in relation to the other officers of a local authority, we are disposed to think that the difficulties in actual practice are not so acute as might be inferred from the divergent views expressed in the evidence. At the same time, we must record our opinion that some of the technical officers have claimed a degree of independence which should not be conceded. It is, in our judgement, imperative that one officer of the council should be in a position to survey the various activities of the authority, and to secure that they are properly focused and co-ordinated, with reasonable uniformity and continuity. The most suitable officer to undertake this responsibility is the clerk, and we have been unable to satisfy ourselves that the administrative machinery of local government could be worked on any other basis.

"This principle is, however, quite consistent with some of the suggestions advanced on behalf of the technical officers. For example, the clerk need not, and should not, interfere with the technical staff on technical questions; and, in particular, the responsibility of the chief financial officer for financial administration should be clearly recognized; further, technical officers should not be debarred from direct access to the committees of the council. The questions arising on such points become largely academic, once the principles are established that the clerk must be kept informed of the activities of the various departments, and of the reports which the chief officers thereof make to the council or committees; that the clerk is responsible for seeing that proper co-operation exists between the various departments, and for advising the council thereon; and that the clerk is the channel through which the authority conduct official correspondence.

"We may sum up our conclusion by saying that in our opinion the clerk to the council must be the principal officer of a local authority and responsible for securing co-ordination between the several departments."

As regards the security of tenure of local government officers, it is well known that, with certain limitations, whole-time medical officers of health and whole-time sanitary inspectors are removable only with the consent of the Minister of Health. The Society of Medical Officers of Health represented to the Commission that the limitations above referred to should be removed so that the security enjoyed by most medical officers of health should be extended to all; and certain other associations of local government officers sought for their members a like security. The sense of insecurity has been much intensified by the recent case of Brown v. Dagenham Urban District Council. The effect of the judgement in this case was that, by virtue of Section 189 of the Public Health Act, 1875, a council could, in law, dismiss an officer at a moment's notice whatever contract might have been made with him as to notice.

The recommendation of the Royal Commission is stated thus:

"We do not recommend an extension of the practice that the appointment or dismissal of certain officers should require the approval of a central department. . . . We consider that there should be an amendment of the law so as to provide that, notwithstanding the provisions in Section 189 of the Public Health Act, 1875, and other analogous enactments empowering local authorities to dismiss their officers at pleasure, it should be competent for local authorities to enter into contracts with their officers providing for reasonable notice of termination of any such contract on either side, and that such contract should be binding on both parties."

In conclusion, it is interesting to note the evidence given about the methods of recruitment, promotion, and transfer of local government officers. The report says: "It is open to question whether the present methods of recruitment are calculated to ensure that local authorities shall have at their disposal officers of the type needed." "The local government service would benefit if the facilities for interchangeability were enlarged." Indeed, though the appointment of a Departmental Committee to inquire further into the subject is recommended, it may be said that the Royal Commission distinctly favours the principle on which the British Medical Association's efforts for a salary scale for members of the public health service are based—namely, that the service should be considered as one whole, offering a wider and more attractive career than a restricted service with any single local authority could possibly afford.

Scotland.

Edinburgh Memorial to Sir William Macpherson.

In memory of Major-General Sir William Grant Macpherson, K.C.M.G., C.B., LL.D., colonel-commandant of the Royal Army Medical Corps, who died in October, 1927, and "in humble gratitude for his great and distinguished services," the officers of the Corps have erected a bronze tablet in the north wall of St. Giles's, Edinburgh. The unveiling and dedication of the tablet was an occasion of impressive ceremony in the Cathedral on December 8th, when, in addition to Lady Macpherson and members of the family, a large congregation, representative of the city, the university, and the military authorities, assembled. The memorial was unveiled by General Sir William Peyton, general officer commanding in Scotland, dedicated by the Rev. C. L. Warr, Dean of the Thistle, and received on behalf of the Cathedral board by Lord Provost Whitson. A short address was given by Lieut.-General H. B. Fawcus, Director-General Army Medical Services, who spoke of the many distinctions of Sir William Macpherson's career. A true Scot, born in Ross-shire and educated in Edinburgh, it was appropriate, said General Fawcus, that his name should be commemorated in the great church of the Scottish capital. He mentioned that "Tiger Mac"—a name given to him, not because of anything fierce or rude in his nature, but as a tribute to his energy, thoroughness, and definite point of view—was mentioned nine times in dispatches, and that France, Italy, and the United States, as well as his own country, had conferred honours upon him. His carefulness and ability as a historian were enshrined in *The Medical History of the War*, his zeal and integrity were a clear-cut recollection to his colleagues and friends who served with him and who remembered his incisive catechism at inspections, and his keen interest in athletics and sport of various kinds was a joy to watch. General Fawcus also said that it was fine to observe how the dogmatism which Sir William used to assume in earlier days—the natural result of the intense interest with which he dealt with any subject—was pushed aside like a mask when greater intimacy disclosed the sympathy, the humanity, and the friendliness of the real man. Among those present at the service were many prominent figures in Edinburgh life, including Lord Alness (Lord Justice-Clerk) and Lords Morison and Hunter, of the Scottish judicature, Sir Thomas Holland, Principal of Edinburgh University, Dr. R. A. Fleming, and Mr. Alexander Miles, Presidents respectively of the Royal Colleges of Physicians and of Surgeons, Sir Robert Philip, Professor John Fraser, Sir Harold Stiles, Sir David Wallace, and Sir Leslie Mackenzie, and among many army officers, General H. P. W. Barrow, Director of Hygiene, War Office, Colonel L. Wood, D.D.M.S., Scottish Command, Lieut.-Colonel P. N. Nissen, Lieut.-Colonel J. A. Kempthorne, Colonel D. Mason Macfarlan, and Major Irvine-Fortescue. There was a detachment from the Officers' Training Corps of Edinburgh University and of Fettes College, Edinburgh, where Sir William Macpherson spent his school days, and the 155th Lowland Field Ambulance, the 11th General Hospital, and the Edinburgh and Midlothian Voluntary Aid Detachment were represented. At the close of the ceremony a piper playing "Flowers o' the Forest" made his way down the middle aisle and through the chancel. It was in Edinburgh, during the Annual Meeting of 1927, that Sir William Macpherson was last seen by his colleagues on the Council of the British Medical Association, and by members of the Association's headquarters staff, with whom he had worked for six years on terms of friendship.

Hospitals and Road Accidents.

The expenditure of infirmaries in regard to road accidents was referred to by Sir David M'Cowan, who presided at the fifty-fifth annual meeting of the Glasgow Western Infirmary Samaritan Society. He said that while the responsibilities of this infirmary were steadily increasing, one which had brought a special burden on these hospitals was due to the change over that had taken place from railroad transport to road transport. Accidents on the roads were now causing a serious problem, because road accidents were very numerous and appeared to be on the increase. Colonel J. A. Roxburgh, chairman of the Western Infirmary, also referring to this matter, said that in smaller institutions, of, say, fifteen or twenty beds, two or three motor accidents at the week-end not only caused great extra expense, but dislocated the ordinary work of the hospital. There was a further difficulty in getting such people to give an adequate sum to the hospital which treated them. He did not know whether, if compulsory third party insurance for all motor owners were instituted as was now proposed, it would help hospitals to any extent, but he considered that some solution of the difficulty must soon be found.

Vital Energy in Food.

A paper was read, on December 9th, by Dr. Chalmers Watson before the Royal Society of Arts in Edinburgh, dealing with the subject of irradiation in medicine. The lecturer said that the relation of rays to matter was a concern of modern physics and also of modern medicine. The theory of the atom had in recent times been replaced by the theory of the electron, and with the acceptance of the electron theory many current views of animal and vegetable life required revision. The discovery of the *x* rays by Roentgen in 1895 had been the starting point of this development, and these rays had proved an inestimable boon in the diagnosis of disease, and had also added materially to the resources of treatment. It was further recognized that most of the benefits to health obtained from sunshine were due to rays beyond the violet end of the visible spectrum, and the sunshine in many British health resorts had a large supply of ultra-violet rays. Finsen of Copenhagen had been the pioneer in demonstrating the curative influence of these rays on some skin lesions, and later modifications had demonstrated their value in a wide range of disorders in which there was some derangement in the metabolism of calcium and phosphorus, such as rickets, malnutrition, disorders of pregnancy, lactation, and dentition. A more recent development had been the application of irradiation to medicinal products and foodstuffs, such as milk and flour, though how long the special qualities imparted to the substance by these means persisted was an open question. The lecturer described how milk was irradiated by allowing it to flow in a fine film over a tube in which ultra-violet rays were produced, the exposure lasting some thirty-five seconds, and impairing neither the taste nor the

nutritive value. The main result was to impart a definite antirachitic property which would remain active for at least several days. The antirachitic property was commonly supposed to be due to the formation of vitamin D. The possibility that the action might, to an important extent, be associated with energy on the lines of the physicist did not appear to have been yet investigated. At all events, the curative value was readily attested by the results of radiological examination of the bones, and recovery in rickets was promoted more surely and quickly by irradiated milk than by any other known means. He considered that the question of vital energy in foods was of great importance. There might be an intermediate stage quite apart from evidence of decomposition in food, in which, nevertheless, the vital energy of the food had been largely lost through age or methods of preservation, and the teaching of modern science appeared to point in this direction. An extension of the demand for home-grown fresh foods was therefore amply justified, both on the grounds of patriotism and of science.

Edinburgh Royal Infirmary.

A meeting of the honorary staff of the Royal Infirmary of Edinburgh was held in the institution on December 12th for the purpose of making a presentation to Mr. William S. Caw, clerk and treasurer of the Infirmary. Mr. Caw retires on December 31st on the completion of forty-nine years' service to the institution. Dr. A. H. H. Sinclair presided, and the presentation was made by Sir Byrom Bramwell, one of the senior consulting physicians. The presentation consisted of a silver salver in the form of one of the salvers of the Traprain treasure, bearing a suitable inscription. This gift was accompanied by a cheque for a handsome sum of money. Sir Byrom Bramwell referred to Mr. Caw's long and faithful service, which included three and a half years during the war, when he also acted as superintendent of the institution, and he emphasized the fact that members of the honorary staff had come to regard Mr. Caw rather as a helpful colleague than as merely an official. Mr. Caw, in acknowledging his appreciation, referred to several outstanding events which had taken place in connexion with the hospital during his term of office.

England and Wales.

The Jewish Health Organization.

THE activities of the Jewish Health Organization of Great Britain for the year 1928–29 form the subject of an admirable report recently issued on behalf of the council by Drs. Redcliffe N. Salaman and A. H. Levy. During the five years that have elapsed since its formation the Jewish Health Organization has undertaken increasing responsibilities with regard to child guidance, medical research, and health education, and under its auspices have been published a number of valuable scientific papers on the problems with which its workers have concerned themselves. The work of the Child-Guidance Clinic, which was founded by the organization two years ago, is discussed in a paper which has been accepted for publication in the *British Journal of Medical Psychology*; and of the Vision Investigation Committee in papers published in the *British Journal of Ophthalmology* in April and December, 1928. The work of this committee is still proceeding, and further investigations under the auspices of the organization include an anthropometric study of Jewish school children in connexion with a similar study now being conducted by the Ministry of Health and the Board of Education; and an inquiry, planned at the instigation of the Association of Jewish Friendly Societies, into the types of disease prevailing among the members of its constituent bodies. During the year under review definite progress has been made in the work of the Child Guidance Clinic, but in their report Drs. Noel H. M. Burke and Emanuel Miller, the psychiatrists in charge, suggest that it would be desirable if the facilities of the clinic were used for patients somewhat younger than those attending at present. The problems of adaptation, it is now generally recognized, arise either in early childhood—that is, during the period of the emergence of self-consciousness and the struggle to accept social values in behaviour—or later, at adolescence, when the changing physiology makes additional claims on the child, both mental and physical. The clinic data indicate that a large number of cases are allowed to pass unnoticed until the maladjustments or other psychological abnormalities reach a sufficient degree of intensity to attract the attention of parents or teachers. It is noteworthy that the experience so far gained in the clinic does not warrant the view that heredity plays a large part in the etiology of the maladjustments in question; some of the good results obtained in the clinic have been with children having a thoroughly bad family history. A feeble constitution in the child itself, as observed in its physical and mental make-up, is believed to be a far more important early indication for a poor prognosis.

After-Histories of Tuberculous Patients.

The London County Council publishes every year particulars of the after-histories of patients who received residential treatment under its tuberculosis scheme and were discharged five years previously. During 1923 the number of adults discharged from treatment was 4,115 (2,560 men and 1,555 women). In 247 cases the diagnosis of tuberculosis was not confirmed, and of the remainder 337 were not traceable, and 135 were discharged from observation hospitals within a few weeks of admission and were not transferred to sanatoriums. The number of cases investigated at the end of five years was therefore 3,396. These are classified on the basis of the selection of patients for residential treatment—namely, Class A, sputum-negative cases; Class B, sputum-positive, divided into three sub-classes, B 1 (with slight constitutional disturbance and obvious signs of very limited extent), B 3 (with profound systemic disturbance or constitutional deterioration, or with grave complications), and B 2 (comprising all cases not falling into groups 1 and 3). Classes A and B 1 may be considered as early cases; B 2 as moderately advanced, and B 3 as far advanced. In addition there were 245 non-pulmonary (surgical) cases. The mortality records after five years gave the following result.

Class.	Males.			Females.		
	No. of cases.	Alive five years after.	Dead.	No. of cases.	Alive five years after.	Dead.
		Per cent.	Per cent		Per cent.	Per cent.
A	216	80 1	19.9	168	77.4	22.6
B 1	181	64.1	35.9	103	61.2	38.8
B 2	1,136	34.1	65.9	533	29.3	70.8
B 3	547	6.8	93.2	237	7.2	92.8
Surgical ...	140	71.4	28.6	105	85.7	14.3

About 70 per cent. of those surviving in the A and B 1 classes were at work or fit for work but unemployed.

With regard to children, during 1923 the number of children discharged from residential institutions after having received at least one period of residential treatment was 654. Allowing for certain deductions, the after-history of 474 (196 pulmonary and 278 non-pulmonary) was investigated, and 133 of the pulmonary cases and 250 of the non-pulmonary were found to be still alive. The analysis is as follows:

Class.	Total.	Alive five years after discharge.	Dead.
A	135	88.7 per cent.	11.3 per cent.
B 1	7	71.4 ,,	28.6 ,,
B 2	18	11.1 ,,	88.9 ,,
B 3	35	14.3 ,,	85.7 ,,
Surgical	278	89.9 ,,	10.1 ,,

Chancellorship of Bristol University.

On December 13th the Right Hon. Winston Churchill, P.C., C.H., was installed as Chancellor of the University of Bristol, in succession to the late Lord Haldane. The ceremony took place in the Great Hall, and it is interesting to record that Mr. Churchill wore the black and gold robes which had been used by his father, Lord Randolph Churchill when Chancellor of Manchester University. The Right Hon. Henry Hobhouse, the senior Pro-Chancellor, welcomed the Chancellor on behalf of the University and installed him, presenting him with a key of the University Seal and a copy of the University Charter. The Vice-Chancellor presented Mr. Churchill with a patent of the degree of Doctor of Laws, after which the new Chancellor proceeded to confer the honorary degree of Doctor of Laws upon Miss Margaret Bondfield (Minister of Labour), Mr. Philip Snowden (Chancellor of the Exchequer), Admiral Sir Roger Keyes, Mr. Walter Runciman, M.P., and Dr. Thomas Sibly (Vice-Chancellor of Reading University), and the honorary degree of Doctor of Letters was conferred upon Mr. Walter de la Mare and Dr. Vaughan Williams. On the morning of December 15th Mr. Churchill addressed the undergraduates of the University at the University Union Club, and received a truly remarkable welcome from them. In the evening the Chancellor and Mrs. Churchill held a public reception at the University and City Art Gallery, the buildings of which adjoin, and on occasions such as this have communicating doors thrown open. Some 2,000 guests attended the reception.

Union of South Africa.

[FROM OUR CORRESPONDENT IN PRETORIA.]

Bantu Health and Shortage of Native Labour.

According to the 1928 convention between the Union and the Portuguese Republic Governments, the number of natives recruited in Portuguese territory for work on the Transvaal mines is being reduced annually by 5,000; from 1933 onwards only 80,000 of these natives will be employed instead of the 100,000 that were in employment until last year. Already the shortage of native labour in the Union is being acutely felt, since the developing mines and industries are requiring more and not fewer labourers. The Union Government is now considering ways and means of overcoming this shortage, particularly as the agricultural industry is likely to suffer most from any shortage; natives on the farms are being attracted to the better paid work on the mines. Two methods of obtaining more native labour are being considered, and both involve important health problems. The most obvious method is to sanction recruiting in the hitherto prohibited tropical regions north of latitude 22 degrees south. The other method is to take steps to promote the multiplication and improve the general health of the Bantu population of the Union so as to reduce the present high rate of rejection for unfitness for industrial work.

Tropical natives employed on the mines in the early days of mining had a very high mortality. It was for this reason that their recruitment was prohibited by law in May, 1913. At that time it was generally believed that their greater susceptibility to pulmonary complaints was due to lack of acclimatization to the cold conditions prevailing in the winter at the high altitude of the Witwatersrand. Subsequent investigation has indicated that the cooling power of the Rand atmosphere has little to do with the matter. The degree of susceptibility to pulmonary disease of the Bantu appears to depend very largely on the amount of his previous contact with European civilization and, therefore, with European disease. Since the bulk of native labourers are treated with pneumococcal vaccine on arrival at the gold fields, immunity comparable with that possessed by the average European will probably be conferred on natives, even from the tropical regions where European trade has hardly penetrated. The greatly lessened incidence of pneumonia on the mines after the removal of the tropical natives is not now attributed primarily to this removal; the introduction of pneumococcal vaccination at about the same time and the greatly improved sanitation in the compounds are considered to have been of greater importance. Another important factor has been improved feeding, more particularly insistence on an adequate vitamin ration. In the early days the native subsisted almost exclusively on porridge made from crushed mealies, often kiln-dried, with a negligible vitamin content. Subsequently regular rations of vegetables, meat, germinated beans, and fruit were introduced to supplement the basic mealie-meal diet. The objection to recruiting of tropical natives can therefore no longer be justified on medical grounds.

Disease in the Transkeian Native Territories.

The poor health of the Bantu population of the native reserves of the Union is beginning to attract general attention. In spite of an active segregation policy, leprosy has not so far appreciably diminished. Typhus has for long been endemic in many native districts, and has recently shown signs of increase. Evidence is continually accruing of the high incidence of tuberculosis among the "raw" natives. During the past three years an investigation into this incidence, supported jointly by the Union Government and the Transvaal Chamber of Mines, has been in progress. It had been variously suggested that industrial phthisis contracted by mine natives had resulted in the infecting with tuberculosis of the territories to which they returned. This has been discredited by the relatively large percentage of positive tuberculin reactions among raw natives, and the comparative rarity of the "natural" or "infantile" type of the disease among them. Tuberculosis must apparently be considered to be endemic in the native territories. Its persistence and increase along with the persistence and increase of other conditions such as leprosy and typhus are to be associated rather with the general poverty and malnutrition of the people. The inadequate and deficient diet of the native children must of necessity result in an undermining of the constitution, facilitating attack later by the diseases of poverty such as leprosy, typhus, and tuberculosis. Maize has always been the staple article of diet, supplemented to a very slight extent by milk and vegetables in the rainy seasons. But the increasing congestion of the population and the recent prolonged droughts have resulted in less of these adjuvants being available.

Fifty years ago the native territories were sparsely populated and self-supporting. A settled European administration with an almost complete absence of inter-tribal strife has resulted in a population too dense to be supported entirely by the crude methods of farming hitherto adopted within the reserves. The Cape native territories are 16,000 square miles in extent; the population of just over a million persons owns approximately a million head of cattle, and two million sheep and goats. The cattle are almost invariably the poorest of scrub and produce very little milk. A partial solution of the relative overpopulation of the reserves has been the increasing labour requirements of the growing mining and other industries of the Union; the territories have become a vast recruiting area for unskilled labour. Heretofore the mines have obtained more than half their complement of native labour from the neighbouring Portuguese colony. With the restriction of this supply a great strain is being thrown on the labour resources of the Union native reserves, and under the present conditions an adequate supply of fit native labourers is not available. Improvement of the general health of the native population of the Union is therefore becoming necessary for economic as well as humanitarian reasons, and the Government is interesting itself more and more in native welfare. Agricultural experts have been sent to instruct the natives in improved methods, and thoroughbred bulls and rams have been provided to tone up the native herds and flocks. By such means it is hoped that greater returns will become possible from the smaller areas on which native families now have to subsist. This is a wise move, since the health of these people will very largely depend on better food supplies

resulting from improved methods of farming. More direct attention is also being paid to native health. With this end in view the Union Health Department last July stationed an assistant health officer at Kingwilliamstown, at the lower end of the Cape native territories, with the object more particularly of supervising native health conditions.

Typhus among the Native Population.

As mentioned previously, typhus is on the increase in the native territories, and has been especially prevalent during the present spring. The prevalence may be partially due to a wearing off of the immunity acquired during the very extensive outbreaks which occurred during the period 1919 to 1923. The main cause is, however, undoubtedly the increasing poverty resulting from prolonged droughts and over-population. It is noteworthy that the incidence is highest in the districts where the population is both dense and poor. Thus in the thickly populated and poverty stricken district of Glen Grey the typhus notifications during the year ended June, 1929, were 205, and in the past four months (July to October) ninety. The recorded incidence is probably much below the actual incidence, for the native headmen will not, in general, report outbreaks unless the cases become very serious and deaths occur. Moreover, unless deaths occur, the cases often do not become known to the headman. Hygienic propaganda is doing some good; the more educated natives have been told, and to some extent believe, that typhus is louse-borne. When outbreaks occur deverminization of all contacts is carried out and the natives no longer object to this procedure. Some of the European magistrates in the territories have devoted much time and energy to propaganda against lousiness with gratifying results. The non-European Health Society issues a magazine which circulates largely among native teachers, and does most useful propaganda work.

Correspondence.

"TENNIS ELBOW."

SIR,—The pathology of "tennis elbow" has long been a question of surmise and conjecture, and its treatment therefore varied, unstandardized, and empirical. Many views on the pathology have been expressed, and all methods of treatment have had their successes and their failures. It is my desire to establish a definite view of the pathology, and to explain the inconsistencies in the results of treatment. My view is based upon the experience of many cases treated by various physical methods apart from open operation; upon eight cases not responding to the usual methods of physical treatment, and subsequently treated by open explorative operation; and, finally, on personal experience of the condition. All cases have been investigated by *x* rays as well as clinically.

The theories of causation that have been advanced are, among others, adhesions, arthritis, periostitis, and chronic muscle strain. It is evident that a clinical picture so constant as "tennis elbow" is scarcely likely to have a multitude of pathologies. The symptoms are: pain in the region of the radio-humeral part of the elbow-joint, radiating down over the bellies of the extensor muscles of the forearm, often to the middle and ring fingers. This pain is greatest when the elbow is fully extended and the forearm completely supinated, the wrist extended, and the fingers fully flexed in tight grip. It is felt especially when a heavy object is grasped and picked up, with the elbow extended and the forearm rather supinated. The heavier the object picked up, and the more extreme the extension and supination, the greater the pain. Other signs are: tenderness of the radio-humeral joint, both in front and behind, and especially in front of the tip of the external epicondyle; and occasionally swelling at the back of the radio-humeral joint. In tennis the strain occurs in a back-hand stroke, in which the elbow-joint is fully extended and the forearm pronated, and also in the forearm drive, when the elbow is extended and in full supination. It is the over-extension strain that matters, whether the forearm be supinated or pronated. In a great number of cases *x*-rayed by me bone and joint changes have been consistently absent. This would negative the periostitic and arthritic theories of the causation of tennis elbow. Elbow cases showing definite osteo-arthritis of the joint give a quite different clinical picture.

In eight protracted cases of tennis elbow I explored the condition with the limb completely exsanguinated; with tourniquet applied it was possible to get a complete view of the radio-humeral joint and the surrounding structures. In no case was any abnormal periarthritic condition discerned. The radio-humeral joint was opened both in front and behind, but the external lateral ligament in its connexion with the orbicular ligament was preserved. In all cases hyperaemic fringes of synovial tissue were discovered both in the front and back of the joint. These were hyperaemic, although all other tissues had been rendered bloodless by the Esmarch desanguinating bandage. These fringes were removed at the operation. In one case there was exfoliation of cartilage, although there were no clinical or *x*-ray signs of arthritis. In most cases there was a synovial distension of the joint extending upwards and outwards towards the external epicondyle (just as a semimembranosus bursa may be an extension from the knee-joint). This condition has been described as a separate bursa (Osgood), but I am convinced that it is merely a distension of the radio-humeral joint, lying in front of the external epicondyle, and compressed by the extensor carpi radialis longior muscle in extension movements of the wrist, and thereby responsible for some of the characteristic pain on wrist extension and grip in "tennis elbow." All cases were cured by the open operation.

From my operative experience I confidently advance the opinion that "tennis elbow" is always a traumatic synovitis of the radio-humeral joint, the trauma being chronic from repeated slight injuries and the failure of the patient to rest the elbow in the earliest stages, and due especially to excessive extension of the elbow-joint and supination of the forearm. It is agreed that forced extension of the elbow with the forearm in pronation may also produce the same condition—namely, over-driving of the joint and pinching of the synovial fringes. There is no *x*-ray evidence whatever to support the theory of periostitis, and the suggestion of chronic muscle strain is negatived by the non-occurrence of similar conditions in association with other joints. The pain felt in the elbow and forearm on tightly gripping something with the fingers, and worse in proportion to the degree of extension of the elbow and supination of the forearm, is explained as being due in part to the pressure on, or constriction of, the synovial pouch protrusion in front of the epicondyle, and in part to the increase of interosseous pressure in the inflamed radio-humeral joint and the nipping of congested synovial fringes.

My theory of the causation of tennis elbow will explain the well-known inconsistent results of treatment. Numerous observers will quote good results from individual methods, such as rest, restrictive splint, massage, electrolytic needle, manipulation (bone-setting), etc. It is an established fact that well-known bone-setters are very successful in some cases of this condition by their manipulative treatment, while in others they are as certainly unsuccessful. I have had successful results with manipulation, but in others failure; all depends on the stage at which manipulative treatment is undertaken. Take, for comparison, a similar condition of synovitis of the knee-joint, and these discordant facts will be explicable. There is a period in the treatment of the knee when rest is indicated for the subsidence of pain and inflammation: if this is too prolonged, adhesions result, and manipulation is required to break down adhesions. In the early stage a tennis elbow requires rest; if this is too prolonged adhesions form, and a short, sharp, firm manipulation, bringing the elbow into full extension with the forearm fully pronated, will be required to relieve pain. All the various methods of treating tennis elbow, at times successful and at others not, can be understood in their successful or unsuccessful application by reference to the similar condition in the knee or any other joint if the essential pathology be remembered as a traumatic synovitis.—I am, etc.,

London, W., Dec. 1st. W. H. TRETHOWAN, F.R.C.S.,
Orthopaedic Surgeon to Guy's Hospital.

SIR,—The editorial comment in the *British Medical Journal* of December 14th (p. 1122) on the discussion of tennis elbow by the Section of Orthopaedics of the Royal Society of Medicine concludes with these words: "The impression left on our mind by this discussion is that the etiology of tennis elbow is various, its pathology obscure, and its cure uncertain." As one who was not present at the discussion, and who does not fully agree with the conclusion stated, I venture to feel that the following notes may be of some interest.

While the elbow-joint, in common with all other joints, is liable to many forms of injury at games, my experience points to a very definite clinical entity, to which the term "tennis elbow" should be applied. The following is a description of this entity.

First, there is pain in the region of the elbow-joint—for the main part a dull, aching sensation, awakened to a twinge of acute agony by certain movements. This twinge may be so acute that the victim drops the racket or teapot, or whatever he may be holding when the particular movement happens to be performed. The condition comes on gradually, but in some cases the first thing the patient notices is the acute pain, and this lends some erroneous support to the diagnosis of a torn muscle, a nipped synovial membrane, or a displaced orbicular ligament. On examination the pain can be elicited either passively, as when the surgeon presses with his thumb immediately above the external condyle of the humerus, or actively, by asking the patient to grasp something firmly with the hand of the affected side, when the pain will at once be experienced in the same situation as before. When performing the passive method it is as well to be ready with some smooth-worded apology, such as "Ah, I was afraid that might hurt you."

It is, of course, possible that such injuries as a torn muscle and a displaced orbicular ligament do occur, but they do not constitute a "tennis elbow," and should not be diagnosed as anything but what they are.

Now for etiology. I have been called upon to treat a considerable number of these cases, but was surprised to come across identical troubles among people who had never played tennis. A few examples will suffice.

1. A civil servant who had been sawing up a tree which had been felled in his garden.
2. A Metropolitan policeman who had been indulging in what, to him, was the unusual pastime of towing a boat.
3. A boilermaker who had been on a particularly heavy job of rivet-cutting.
4. A lady who had been using a small hand tool for weeding a treasured patch of grass.
5. A golfer who was attempting to recover from a bad attack of "socketing" by an intensive course of mashie practice.

These are very diverse forms of exercise, and I looked for the common factor and decided that it was the *prolonged act of grasping*. This I advance as the true cause of tennis elbow, and I am supported by the fact that it is this very act which elicits the pain when the condition is established. When one thinks of it, there are not many games or trades which call for the prolonged act of grasping. At cricket and golf the grip is only momentary, and is separated by intervals when the bat or club is merely held, not gripped. Rowing does not call for a prolonged grasp, though novices (such as the policeman mentioned) do not realize this. A glimmering as to the real cause of tennis elbow has occurred to those coaches who attribute it to having a racket with too large a handle, for a thick handle puts more strain on the grasping powers than does a smaller one. I am prepared to predict that a tennis elbow will be found in any trade or game which calls for the prolonged grasping of an implement of any sort, and I did actually predict the possibility of this complaint in the lady whom I found weeding, and incidentally I got no thanks for my attempts in preventive medicine when, later on, I was able to say, "I told you so." It is possible that some forms of writers' cramp are due to prolonged grasping of the pen.

The pathology of tennis elbow is not so easy. The pain is certainly due to an affection of the extensor group of muscles, especially at their insertion into the ridge running from the outer condyle of the humerus. I may note in passing that it is, of course, the flexors which perform the grip, and that the extensors are merely engaged in synergic opposition. It may be that some anatomical oversight has left these muscles with a poor blood supply at their insertion, and that when they are overworked they suffer from an ischaemia. If persisted in this would be followed by oedema and local myositis, and would suffice to account for both forms of pain—the dull ache being due to the myositis and the acute pain to the spasm on contraction.

As regards treatment, I have found massage useless, even harmful at times, and, if my suggestions on the pathology are accepted, this is not to be wondered at; one might as well advise massage for a gum-boil. Usually the first advice is rest. This is always unsatisfactory to the patient, who invariably has a tournament next week which "I simply must go in for." No wonder that our unorthodox opponents dispense with this advice and fall back on diathermy. In my experience it is the most useful treatment. The heating up of the muscle eases pain, relieves tension, and improves the circulation and absorption of exudates. Galvanization is also useful, but is slower in action. Manipulation of the joint has its uses. This might be wondered at if, as is suggested, there are no tears or displacements in tennis elbow. But I think the stretching of the muscle does relieve the subacute spasm and oedema, and possibly serves to break down some inter-fibre adhesions within the muscle sheaths. Should treatment on these lines be unduly delayed it is well to search for some such cause of trauma persistence as defective teeth and other sources of toxaemia.—I am, etc.,

H.M.S. *Benbow*, Plymouth, Dec. 16th. W. H. EDGAR, M.D., Surgeon Commander R.N.

CHILD GUIDANCE CLINICS.

SIR,—The recent movement to institute special clinics for difficult or delinquent or otherwise unstable children is one of considerable importance, both from the social aspect and for the prevention of mental disease. It is very desirable that such clinics should be associated with general hospitals and that the medical profession as a whole should be interested in the movement.

General hospitals, with their equipment both for medical investigation and through the almoner's office for social inquiry and aid, are particularly fitted to house such clinics, and to see that they maintain a certain standard. One regrets, therefore, the comparative indifference of general hospitals to the movement, with the result that most such clinics are being set up independently. The indifference of the majority of the medical profession to the problem is also encouraging "educationists" to claim that they are the rightful persons to run such clinics. On the contrary, the aim should be one of co-ordination between medical and educational workers. The list of complaints for which children seek advice at such clinics suggests very strongly that the investigation must primarily be a medical psychological one. The scholastic maladaptation, upon the frequency of which certain educationists stake their claim to a monopoly of interest in these children, is simply an indication as a rule of a wider instability. More localized inadequacies exist, such as difficulty in learning to read, an examination of which without a medical bias might readily lead to the missing of important defects, or to faulty evaluation. But we cannot in the profession claim to staff these clinics either in a directory or advisory capacity unless we train recruits for the work from the ranks of the younger graduates, and it is difficult to see how this is to be done adequately unless general hospitals take a livelier interest in the whole movement.—I am, etc.,

London, W.1, Dec. 10th. R. D. GILLESPIE.

BLOOD AND URINE IN ASTHMA.

SIR,—Clinical biochemists will emphatically endorse Dr. Hurst's view, expressed in his paper to the Section of Medicine at the Annual Meeting of the British Medical Association at Manchester, and published in the *British Medical Journal* of November 9th (p. 839), that mild deviations from the normal chemical composition of the blood and urine, "though compatible with perfect health, form the basis of the congenital and often inherited constitutional tendency to develop certain diseases." General acceptance of this view will not only lead to more efficient treatment

of patients suffering from asthma, but open up a large field for the application of preventive measures.

During the past few years I have had many opportunities of investigating families whose members have shown a tendency to asthma or related conditions, and have formed the conclusion that to produce the complete syndrome the following three factors are required: a basic toxic condition, an ethmoid implication, and an irritable nervous system. My investigations have shown that the body fluids of asthmatics, in their chemical composition, differ more than slightly from those of the average person, and that the same combination of abnormalities, with variation in degree, presents itself in every case. In reply to the question, "What is the physiological normal?" it may be said that sufficient work has been done to establish a normal range of figures for the chemical composition of the blood and urine in health, and clinical significance may all the more readily be attached to deviations from these norms if, as in such a syndrome as asthma, all cases show a constant deviation in the same direction. The blood and urine obtained between attacks differ from those during an attack, but it is more important to know the chemical composition of the former—namely, the basic composition representing the individual's "normal"—than of the latter.

In the blood of every case of asthma I investigated I found the following changes: (1) lowered alkali reserve, figures down to 40 per cent. being common; (2) reduced calcium; (3) reduced P_2O_5; (4) except in early cases a lowered resting in sugar; (5) diminished suspension stability of corpuscles; (6) urea content at about the lower range of normal figures; and (7) raised bilirubin, uric acid, sodium chloride, amino-nitrogen, and refractive index of serum. The one variation was in the cholesterol content; it seemed to vary with the resisting power of the individual. Only in advanced cases was it reduced, 0.09 being the lowest figure recorded; in all others it was above, often greatly above, normal. I believe the increase of cholesterol is an effort of the body to counteract the acidosis—in other words, to keep the *p*H of the blood at or near normal. In my series I found, as Barber and Oriel (*Lancet*, vol. ii, 1928, p. 1009) have found in theirs, that the blood amino-nitrogen was always raised, and that it rose still further immediately before and during an attack, after which it fell gradually to its original level. They also describe a chloride shift, but I was not able to verify this finding; no fall in blood chlorides appeared simultaneously with the rise in amino-nitrogen. The blood sugar tolerance curve could be correlated with the patient's clinical condition. In moderately severe cases of long standing there was a low resting sugar with a flatter than normal curve; the sugar content returned to its original figure at the end of ninety minutes.

Investigating the urine of asthmatics I have collected twenty-four-hour specimens and found that, in general, the specific gravity is high, and, as Barber and Oriel have noted, that urate deposits are present even when the specific gravity is low. The other findings include high figures for acid (free and/or combined), disturbed acid ratio, and a high sulphate, chloride, uric acid, and protein content. Creatinine was found frequently raised, more particularly in one or two of the specimens. One other interesting feature in the urine is the high amino-nitrogen, the highest readings being obtained in the urine passed in the early morning hours, the period during which bronchial spasm occurs most frequently. I have tested, as a routine, for Barber and Oriel's ether reaction in the urine, but in no case of asthma have I found it positive.

I agree completely with Dr. Hurst's view that skin tests and desensitization are of limited practical value; the allergic phenomena are found only in about half the number of cases, and desensitization methods are bound to be disappointing, for they deal with a condition secondary to the basic toxicosis. After detoxication patients can live with their old enemies with impunity, a result I have never known to follow desensitization. Following Mr. McDonagh's methods I have regularly observed the protein particle picture which he describes. Here, again, there are differences between bloods taken during and between attacks: in blood taken during an attack hardly a single particle is seen: all are in precipitated sheets made up of very refractile particles. I assume that this is the hydrated blood with precipito-hydration at the attack. Strangely enough, in the only case of asthma I had where the spasm was only very slight the urine findings were typical, but the blood chemistry and protein picture resembled McDonagh's description of dehydration. This fact corroborates his claim of dehydration passing on to hydration.

I believe that the toxic agent acts on the protein particles of the cell just as it does on the protein particles of the blood, and agree with Mr. McDonagh that a toxicosis is the primary cause of asthma, as it is of all disorders. To complete the asthma syndrome, however, there must be implication of the nasal and ethmoid areas.—I am, etc.,

Northampton, Dec 14th. A. J. D. CAMERON, M.B., Ch.B.

SANITATION ON THE RIVIERA.

SIR,—At this time of the year a large number of British people are making up their minds where to go for the winter. Many are bound for the Riviera, and a regular campaign is being opened in the press to encourage them to do so. Having spent last winter there I made certain observations, which I think may be of interest to some of your readers.

Nice, where I spent three months, is a town of nearly 156,000 inhabitants, which receives during the winter season about 100,000 foreign guests, but it empties its sewage on its foreshore. Such a condition of things appeared to me absolutely impossible of belief, and I therefore was very careful in confirming the correctness of the above statement, which I believe to be beyond all dispute. The Nice shore, during the season, is crowded with visitors bathing, sun-bathing, and otherwise enjoying themselves. Along the foreshore are a number of very popular and much-frequented cafés. Numbers of people sit in and around these cafés and bathe from the shore. An open sewer not only flows out alongside of one of them, but as the tide goes out its stream actually washes the pillars of the café. On a still, warm evening a doctor friend and myself were obliged to make detours at intervals to avoid the sickening smell that comes up from these streams, which are dotted along the Nice shore and flow under the Promenade des Anglais to enter the sea across a stretch of pebbly beach. Nothing but the wonderful sun of the Riviera would permit of the possibility of such a condition of things. My doctor friend tells me that a friend of his had tried bathing and had given it up on ocular evidence of the disgusting nature of these streams. On inquiring among responsible people in Nice I was informed that the authorities had never faced the expense involved in putting matters on a proper basis.

Another point in the same connexion. The rubbish carts tip their contents over the rocks into the sea. I have seen this happening between Nice and Monte Carlo, and am told it happens all along the coast. Such a practice is indefensible. I submit that if Nice is to continue to grow and to invite and receive 100,000 or more people from every part of Europe, those people have the right to claim such expenditure of money as shall ensure a hygienic state of affairs.—I am, etc.,

R. H. ELLIOT,
London, W.1, Dec. 17th. Lieutenant-Colonel I.M.S. (ret.)

"ACTIVATED" FLUORESCEIN IN THE TREATMENT OF CANCER.

SIR,—I had hesitated to reply further to the letters by Dr. Monckton Copeman and Dr. Gouldesbrough on the above subject, but as it has been represented to me that silence might be misconstrued, I wish to make a brief statement concluding the discussion on my side.

Corneal ulcers afford a ready test of the value or otherwise of adding fluorescein secondary radiations to ultra-violet or *x*- or gamma-radiation. Surely Dr. Copeman sees that to establish his claims he must prove that fluorescein so intensifies the effect of radiation that its use is a clinical advance. If, however, an ophthalmologist like Birch-Hirschfeld finds its use uncertain and of doubtful value, this fact has some bearing on Dr. Copeman's claims. Perhaps he will induce dermatologists to test the value of fluorescein in the *x*-ray treatment of such conditions as

eczema, psoriasis, or acne, and then, if it proves of value, it might legitimately be tested in the more complicated sphere of cancer therapy.

Dr. Gouldesbrough does not like "theoretical" criticism: but surely he appreciates that Hollhusen's experimental finding that secondary radiations do not even penetrate effectively the chitin envelope of ascaris eggs strongly supports my suggestion that the painting of the skin over a tumour is more a magical than a scientific procedure, where the effect of a physical sensitizer is in question. He says he regards the "pastille dose" as equivalent to the "erythema dose." About twenty years ago Albers-Schönberg showed that these doses are equivalent only for medium-soft unfiltered rays; for harder unfiltered rays and filtered rays there is a scale of variation—for example, for 1 mm. aluminium filter the erythema dose is 1⅔, and for 3 mm. 2¾ pastilles (half-distance pastille scale), or ⅔ if the pastille is placed on the skin. Therefore if the statement (August 10th, p. 235) that the dose given was "a three-quarter Sabouraud B pastille (placed on the skin)" (4 mm. filter) be read a three-quarter "erythema" dose, we arrive at his dosage—not quite the full erythema doses I thought were being given to ulcerated surfaces, but, repeated for months in three weekly series, much more than "a comparatively small dosage" (p. 233).

Mr. C. H. S. Webb's patient had a primary ulcerated breast; treatment was abandoned owing to multiple secondary growths.

Dr. Gouldesbrough's contemptuous reference to "the old method of so-called 'deep therapy'" may, I hope, not count for much. Why "old," and why not "deep"? It would be just as illuminating to say that a surgeon had treated a patient by "the old method of a so-called 'deep incision'"! Like other methods of medical treatment, radiotherapy has so much to work and hope for that it must be surely a matter for regret when its main line of advance is side-tracked—as appears to be happening in the present instance.—I am, etc.,

London, W.1, Dec. 14th. J. H. DOUGLAS WEBSTER.

TREATMENT OF GASTRIC AND DUODENAL ULCER.

SIR,—With reference to Mr. Cahill's letter in the *Journal* of December 14th regarding the difficulty he finds in persuading patients to continue the duodenal tube treatment, I cannot say that this has been my experience.

During the past two years, at St. Mary Abbots Hospital in Kensington, I have treated some twenty-five cases by this method, and have invariably found that the few who have refused have done so either during the actual passing of the tube or within the first twenty-four hours. Once treatment has been established no patient has been unwilling to carry through the complete course.

One of the most striking features in the treatment is the manner in which pain ceases within twenty-four hours of the passing of the tube. This can be definitely promised, and if at the same time the rationale of the method is fully explained to the patients it goes a very long way towards satisfying them as to the value of undergoing the treatment.

I should like to add that in the series referred to I have had only one failure.—I am, etc.,

London, W.8, Dec. 13th. J. OWEN REID.

SIR,—I am unable to give Mr. F. K. Cahill (December 14th, p. 1134) any direct information about the difficulty of getting patients to submit to duodenal tube feeding for a period as long as eighteen days, but during my stay in a nursing home there were three other patients undergoing similar treatment, without, so far as I was aware, any serious complaint. After the first twenty-four hours it is surprising how little real inconvenience the retention of the tube causes; with the tube looped round one ear, the daily bath and the society and conversation of friends can be indulged in without discomfort. It is essential that whoever is in charge of a case should thoroughly understand the details of the feeding and the cleansing of the tube, so patients should either go into a nursing home or procure a nurse with some experience in similar cases. I find no difficulty in swallowing the tube and passing it through the pylorus within fifteen minutes. If practitioners, by personal experiment, would convince themselves of the simplicity of the procedure, they would then be in a position to allay any misgivings on the part of their patients—even to give them a practical demonstration.—I am, etc.,

Bratton, Dec. 15th. T. WOOD LOCKET.

THE ACETIC ANHYDRIDE TEST IN CEREBRO-SPINAL FLUID.

SIR,—With reference to Dr. Grossman's criticism (December 7th, p. 1084) of Dr. Herbert's article on the "Boltz test" (November 23rd, p. 953), I should like to state that I investigated this test in 1925, and my results agree exactly with those of Dr. Herbert. The colour is produced by the tryptophane constituent of proteins. I found that if a solution of protein—for example, blood serum—was made of the same concentration as that of the cerebro-spinal fluid tested, the colour produced in the two cases was exactly the same. Dr. Grossman states that "the coloration is due most probably to the presence of cholesterin." I can find no evidence whatever of this.—I am, etc.,

London, Dec. 17th. BARBARA M. WILKINSON, M.B., B.S.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

RECEIVING, on December 16th, a deputation which advocated reforms in the lunacy laws, Mr. Greenwood, Minister of Health, said that he could not agree to modification of Clause 5 of the Mental Treatment Bill—that dealing with treatment without certification of persons temporarily incapable of volition. If the House of Lords were to delete that clause he would not bring forward the bill in the House of Commons.

At the invitation of Mr. Somerville Hastings a meeting of medical practitioners, including six medical members of Parliament, was held at the House of Commons, on December 12th, to revive the National Medical Services Association, which had been practically in abeyance during and since the war. This body is intended to replace the State Medical Services Association, and will be confined for the present to members of the medical and dental professions, with a few invited persons who are specially interested in the movement to nationalize all medical service. Dr. Ethel Walker was appointed temporary secretary, and a provisional committee of eight was set up, which was to meet on December 19th. The inaugural meeting of the association is reported to have been attended by supporters of all political parties. The committee met on December 19th for the purpose of drafting a constitution for the organization.

Mr. Remer gave notice to introduce in the House of Commons, on December 17th, a Nurses Registration Act Amendment Bill, to enable nurses possessing the Royal Medico-Psychological Association's certificate to be certified as mental nurses. The bill has, however, been postponed till February.

On December 16th the Parliamentary Medical Committee met at the House of Commons. It discussed deafness and the action of the National Institute for the Deaf in advocating inquiry by the Ministry of Health into the subject. The committee decided to ask the institute for a memorandum for discussion. It also decided to arrange visits to dairies. The committee's next meeting will be on January 28th, 1930.

The Conservative Health and Housing Committee met on December 18th, *Dr. Fremantle presiding in the absence of Mr.* Chamberlain, and decided to meet after the reassembly of Parliament to consider the Housing Bill, which the Government will probably then have presented.

The Home Secretary is understood to have completed the text of the Factories Bill, which may be presented before the House of Commons rises for Christmas, and printed soon after.

A non-party Science Committee has been formed among members of Parliament to further the interests of science and its application to politics.

On December 19th the Government's Coal Mines Bill was read a second time by 281 to 273. Despite the narrowness of the majority a dissolution of Parliament or change of Government is not anticipated.

Mental Treatment Bill.

REPORT STAGE IN THE LORDS.

In the House of Lords, on December 17th, the Mental Treatment Bill was considered on the report stage. On Clause 1, which gives power to receive voluntary boarders, Earl RUSSELL moved an amendment, which was agreed to, reducing the age at which persons could be received as voluntary boarders at the request of their parents or guardians from 18 to 16. Another amendment was agreed to omitting the word "unmarried," Earl Russell explaining that, with the reduction of the age those words were unnecessary, because now by law young people could not be married under 16. These amendments would meet objections raised during the committee stage.

Lord DANESFORT moved a new subsection to ensure that a young person should not be sent to an institution on a recommendation of a doctor which was old or out of date. It was, he said, founded on the analogy of Clause 5 (5), which made provision for putting a man into a place for mental treatment if he was incapable of volition. The recommendation of the doctor under Clause 1 of the bill had to state that the person was likely to benefit under treatment for mental disorder. That might be true at or very shortly after the time when the person was examined, but if the recommendation were used a month or two months after the examination, the statement might be quite untrue, because the patient might have recovered, and, possibly, no longer be likely to benefit by being put in a place for mental treatment. Therefore his proposal was that the medical recommendation should cease to have effect at the expiration of fourteen days from the last date of examination.

Earl RUSSELL said that the amendment was perfectly proper. The object was to avoid a stale recommendation. He would accept the amendment if it could be moved in the following form:

(4) "The medical recommendation shall cease to have effect for the purposes of this section on the expiration of fourteen days from the last date on which the person to whom the recommendation relates was examined by the medical practitioner for the purposes of making the recommendation."

Lord DANESFORT agreed, and the amendment was carried.

A drafting amendment, moved by Earl RUSSELL, to omit the words "superintendent or other person in charge, or to the person with whom he is residing in single care," and to substitute "person in charge," was agreed to.

Clause 2 deals with notice of reception, death, and departure of voluntary boarders, and makes provisions as to boarders who become incapable of volition. On Earl RUSSELL'S motion a new subsection (4) was agreed to, providing that if a voluntary boarder under 16 ceased to have any parent or guardian, or if his parents or guardians were incapable of performing, or refused or persistently neglected to perform their duty as such, the person in charge should report the circumstances of the case to the Board of Control and the condition of the boarder, and the Board should consider the report and give such directions as it thought fit.

Clause 5 makes provision for treatment without certification of persons temporarily incapable of volition. Earl RUSSELL moved to amend Subsection (3) so as to provide that an application should be accompanied by a recommendation signed by two registered medical practitioners, of whom one should be a medical practitioner (not being the usual medical attendant of the person to whom the application related) approved by the Board of Control for the purpose of making recommendations under this section, and the other should be, if practicable, the usual medical attendant of the person to whom the application related.

The Earl of ONSLOW observed that the original drafting of the bill said that it should be the family doctor, or, if not, then a person approved by the Board. In the event of there being no family doctor, would two doctors be approved by the Board? Earl RUSSELL said that the clause would read that it should be a medical practitioner approved by the Board and, if practicable, a family doctor. If there was no family doctor it would be any doctor that could be obtained.

Lord MERRIVALE said that Earl Russell was justified in what he was doing. He had been very much surprised on the previous day, among various communications from medical men, to receive one from a medical man with, he supposed, as large a private practice as there was in relation to matters of unsound mind and defective mentality, endorsing the insistence that there should be some additional safeguard. He hoped that this additional safeguard would be agreed to. The amendment was agreed to.

On Earl RUSSELL'S motion another new subsection (12) was agreed to as follows: "A person received as a temporary patient shall not be detained as such for more than twenty-eight days after the date at which he regains volition unless in the meantime he again becomes incapable of volition." He explained that this gave effect to Lord Cranbrook's proposal that a temporary patient should be discharged twenty-eight days after recovering volition unless he relapsed in the meantime. The effect would be to give him more avenues of discharge than any other patient.

A long debate took place on Clause 15, which gives power to make rules. Earl RUSSELL moved in a different form a new subsection which had been accepted in committee, providing that rules made, under Section 338 of the principal Act, after January 1st, 1931, should be laid before both Houses of Parliament, and if within twenty-one days an address should be presented to His Majesty by either House praying that a rule should be annulled it should be void. On Viscount BRENTFORD'S suggestion the date of January 1st, 1931, was omitted, the noble lord pointing out that power to make rules began long before the Act otherwise came into operation. Viscount Brentford then moved a further amendment to the new subsection, providing that the rules which not only the Minister of Health but, under other clauses, the Board of Control, were empowered to make, should not come into force where they modified or adapted this measure or any other enactment until the rule had been approved by each House of Parliament. He urged that if there was to be any change made in this legislation it should be done only by Parliament. In the subsection power was given to the department to make rules which would alter this bill. Earl RUSSELL pointed out that the rule-making power which the subsection proposed would not enable them to alter the bill. The rules, apart from the administrative rules, which would not come under Viscount Brentford's amendment, would not make new laws. They would be the most trifling adaptations of an old Act to new circumstances, and would in no sense alter anything that Parliament had agreed to. He hoped the House would not insist on the amendment. After further discussion, Earl Russell suggested that the matter should stand over till the third reading for further consideration and consultation. The House, however, accepted Viscount Brentford's amendment, and also the subsection as thus amended.

The report stage was concluded.

Highlands and Islands (Medical Service) Additional Grant Bill.

Mr. ADAMSON (Secretary of State for Scotland) expounded the Highlands and Islands (Medical Service) Additional Grant Bill to the Scottish Standing Committee of the House of Commons on December 3rd. He recalled that the Highlands and Islands Medical Board, instituted in 1913, had been superseded in 1919 by the Scottish Board of Health, and that again, in 1928, by the present Department, which administered the fund for medical services and nursing in Argyll, Caithness, Inverness, Ross and Sutherland, and the Highland districts of Perthshire, covering half the area of Scotland. At present about £43,000 per annum was spent on the services. The poor economic condition of the people precluded adequate payment to medical practitioners, and grants were paid to the doctors on condition of their charging uniform fees, regardless of the distance to be travelled. This service was available to the uninsured cottar and crofter classes, but not to private patients able to pay ordinary fees. Further additions to the medical staff were still necessary, though the guarantee of a reasonable income had attracted to the Highlands a better type of medical practitioner than was previously available. In 1913 over 10 per cent. of the deaths in the Highlands and Islands area were uncertified. In 1928 this had been reduced to 5 per cent., which was still greatly in excess of the figure for other parts. There had also been an improvement in the nursing services. Subsidies were paid to 72 nursing associations, maintaining 174 nurses, but there was still much need for development of this nursing service, on which at present £14,000 per annum was being paid in subsidies. Nothing had yet been done in the area towards the establishment of such services as dentistry. A beginning had been made towards the provision of hospital and surgical services, and in three hospitals it had been found possible to appoint whole-time surgeons. Many other areas, particularly in the Islands, required small cottage hospitals, to avoid sea journeys for the patients. In March, 1920, owing to the war, the Fund had a large unexpended balance, but in March last this had decreased to £7,000, and further provision must now be made to meet the developing needs of the service. This year it was estimated to cost nearly £70,000. The original annual grant of £42,000 had been determined on vague and incomplete data, and must be supplemented. The present bill would not set aside a fixed annual amount, but must take into account reasonable development and authorize such additional sums as might be voted annually by Parliament. In the present year the additional money required would be just over £10,000; in future years between £20,000 and £30,000.

Dr. ELLIOT said Mr. Adamson's statement met with approval from Conservative members for Scotland. He himself had said, when in office, that no party would hesitate in making ample provision for this fund. He pointed out that the additional grant would not be non-recoverible by the Treasury, and that the Estimates for it would be scrutinized by that Department, which would recover any unexpended balance. Dr. Elliot agreed that nursing and dental services should be expanded in the Highlands, and nurses should be supplied with light cars instead of pedal cycles or motor cycles. He mentioned that he had investigated

the possibility of moving hospital patients from Lewis by aeroplane, but he had found that the provision of such a service would cost £10,000 per annum, and that increased provision of cottage hospitals was preferable. The provision of adequate medical and social services would prevent rural depopulation. In France the Government was acting on that theory.

Mr. MACQUISTEN thought that in an island like Islay it should be possible, not to provide a hospital, but to arrange that one of the doctors should have surgical experience, and could undertake emergency operations.

Mr. JOHNSTON (Under-Secretary of State) said this was one of the matters which would receive attention as the bill passed.

In regard to dentistry, Mr. MACQUISTEN said the late Dr. Donald Murray had told him that fifty years ago every youth of 17 in Stornoway had a sound set of teeth, whereas now it was impossible to find one whose teeth were not decayed. That was due to a change of dietary.

Mr. ROBSON said that houses in parts of the Western Isles only had access by miles of narrow footpaths, impassable even for a bicycle. More roads were required, and a telephone in every school of the Islands for emergency calls.

Mr. R. W. SMITH said that districts outside the area covered by the present bill had needs as great. In parts of Aberdeenshire the population was as scattered as in Inverness.

Mr. JOHNSTON said the Highland district of Aberdeenshire already received a Necessitous Areas grant. Since 1924 that had been provided under the National Health Insurance Act, and it might be increased, though not under the present bill.

Sir ROBERT HAMILTON said great success had attended the appointment of consultative surgeons to the small hospitals in the North. Orkney and Shetland each now had a consultative surgeon. The result, however, was that the hospitals at Lerwick and Kirkwall were filled with surgical cases, which in past years would have gone to Aberdeen or Edinburgh. More beds were required, in consequence, for medical cases and for the staffs. He asked the Secretary of State to help with the capital expenditure.

Major DENDSON said that Galloway, in southern Scotland, also required aid in provision of medical services. They had widely scattered areas with no roads, where the maintenance, in particular of nursing services, was difficult.

The Duchess of ATHOLL said she had been a member of the Dewar Committee which recommended the original grant to the Highlands. She retained an indelible impression of the sickness and death which could have been avoided if the medical and nursing services were more adequate. The original grant of £12,000 had been based on an imperfect estimate, and she supported the proposed increase. She asked how many nurses were still needed for the Highlands and Islands area, and what was proposed in the improvement of the housing accommodation for them. Thirty-two houses had been built for doctors, but only some six for nurses.

Sir ARCHIBALD SINCLAIR said the bill merely proposed to bring the health services of the Highlands and Islands up to those in other parts of the country.

Mr. JOHNSTON said he was gratified to find the committee, without distinction of party, pressing on the Government a demand for a State medical service for Scotland. He would draw the attention of the Government to this fact.

The Duchess of ATHOLL pointed out that the grants were often made to supplement individual effort.

Mr. JOHNSTON, Occasionally, not generally. He said there was urgent need of considerable improvement in the Highlands and Islands Medical Services. At present there were only three hospitals in the area where surgical treatment could be given, and the Government intended soon to take steps to increase the number. The case of Islay would soon be considered. Dental services were also urgent. Some patients had to travel three days each way to get a tooth extracted. And for telephone expenditure had grown, and telephone facilities had been increased this year in the Highlands. The Highland districts of Aberdeenshire and other areas excluded from the bill got £32,000 mileage grant from the Health Insurance Fund, and other allowances for provision of additional medical assistance, and these might be extended. These grants did not reach the areas scheduled in the bill. He was informed that about fifty additional nurses were required in the scheduled area, and houses would be provided.

The bill was then reported to the House without amendment.

Subsequently the bill passed through third reading in the House of Commons, and was sent to the House of Lords, where it was read a second time without discussion on December 16th, and passed through committee without amendment on December 17th.

In committee of the House of Commons, on December 16th, a supplementary estimate of £10,650 for the Scottish Department of Health, including grants in aid of the Highlands and Islands Medical Services, was agreed to. The resolution was considered on report on December 17th. Dr. ELLIOT said that this was a matter of urgency, and they all desired that it should go through. It was, however, most undesirable to take a supplementary estimate after 11 o'clock at night, when the House had no opportunity of review. Mr. JOHNSTON said that the bill which was now passing through the House of Lords was an agreed one. It was common ground that this money must be got if the doctors and nurses engaged in the Highlands and Islands Medical Services were to get their salaries. The supplementary estimate was agreed to.

The bill was read a third time, without debate, in the House of Lords on December 18th.

Position of Medical Officers of Local Authorities.

On December 12th Mr. Greenwood promised to furnish Dr. Vernon Davies with a memorandum on the position of medical officers of local authorities. This memorandum has now been officially communicated. It states that where a person who is now an official of some other local authority, and is a county councillor or a councillor of a borough, is transferred by the Local Government Act, 1929, to the service of the county council or the town council, as the case may be, he will, when the transfer takes effect, be automatically disqualified, by pre-existing Acts, from membership of the council which has become his employer. The memorandum proceeds:

The practical application of the law may be briefly set out thus:

1. A medical practitioner who holds a salaried appointment under a local authority cannot be a member of that authority.

2. A medical practitioner having a contract for occasional service (for instance, one who attends at a maternity and child welfare centre and is remunerated by specified fees) is similarly disqualified, as having a contract with the local authority.

3. There are some statutory provisions under which, for example, a medical practitioner is entitled to fees on his sending to the local authority a certificate concerning one of his patients or on his attending a confinement on demand by a midwife. Parliament has provided that the sending of a certificate in case of infectious disease shall not disqualify, and the Minister has been advised, similarly, that a medical practitioner who is called by a midwife and receives a fee under the Midwives Act, 1918, is not disqualified; he does not receive his fee in pursuance of a contract with the local authority, but in virtue of the statutory obligation imposed on them to pay his fee.

You will have noticed that the report of the Royal Commission recommends that there should be no change as regards salaried officials, but they apparently contemplate that the second class above mentioned shall be put in the same position as the third.

A fourth class of case, which is not expressly dealt with by the Royal Commission, is that in which a local authority makes payments to a hospital and the physician or surgeon working at the hospital receives a part of the payment. Whether disqualification ensues or not seems to depend here upon the particular facts—for example, whether the amount of the fees received by the medical practitioner is affected by the terms of the contract between the hospital and the local authority, so that he has an "interest" in that contract.

The memorandum remarks: In any legislation based on the report of the Royal Commission these cases will clearly have to be considered, but Mr. Greenwood does not wish to commit himself to particular proposals until there has been fuller opportunity for thinking out the problem.

Small-pox in Glasgow and Aberdeen.—Answering Mr. Freeman, on December 17th, Mr. JOHNSTON said that 17 cases of small-pox in Glasgow and one case in Aberdeen had been traced to the infection on the steamship *Tuscania*. Mr. Johnston circulated a table showing the vaccinal condition of those cases. According to this table, 15 of the cases had been successfully vaccinated in infancy, and a certain number of those revaccinated, with negative results.

Maternity and Child Welfare Centres in Uganda.—Dr. SHIELS, replying on December 16th to the Duchess of Atholl, said that in 1928 there were 56 district sub-dispensaries in Uganda, 24 native hospitals at which dispensary treatment could be obtained, and 41 maternity centres. Four new maternity centres were in course of construction. There were 93 native midwives on the official midwives' roll of Uganda on January 1st, 1929. The Protectorate Government contributed annual grants to missions for the maintenance of midwifery centres and midwives. Steps had already been taken in Kenya for the provision of trained midwives by the Government and by voluntary effort. At the end of 1928 child welfare clinics were in operation in Nairobi, Mombasa, and Kisumu, and additional centres were to be opened in Mombasa this year. The Lady Grigg Child Welfare League had maternity homes and child welfare centres in Nairobi and Mombasa. Training in midwifery of Indian and native women was undertaken at these centres.

Antimalaria Measures at Singapore.—On December 11th Mr. ALEXANDER said, in reply to Colonel Howard-Bury, that the decision to suspend further work on the naval base at Singapore would not involve the closing down of the antimalaria measures now being undertaken in the neighbourhood of the base. The cost of the antimalaria work was borne by navy votes.

Health Services in Equatorial Africa.—Replying to the Duchess of Atholl, on December 11th, Dr. SHIELS said the total Government expenditure on health services, exclusive of capital expenditure,

was: for Tanganyika (1928–29) £232,467; for Uganda (1928) £141,713; for Kenya (1928) £199,198. Upkeep of hospitals, including expenditure on personnel, amounted to £16,015 for Tanganyika in 1928–29; £12,250 for Uganda in 1928; and £12,076 for Kenya in 1928. Construction and repair of hospitals, including expenditure on personnel, cost £14,974 in 1928–29 for Tanganyika, £2,254 in 1928 for Uganda, and £16,269 in 1928 for Kenya.

Pre-marriage Rites Practised by African Native Tribes.—On December 11th Dr. DRUMMOND SHIELS told the Duchess of Atholl that mutilating pre-marriage initiation rites were still practised on young girls among many African tribes. Considerable caution was necessary in interfering with native customs, but colonial Governments had brought persuasion to bear upon tribes which practised the rite in its more brutal forms, and a number of local native councils in East Africa had passed resolutions making illegal the severer forms of the operation. Later, on the same day, a debate arose on British colonial policy towards native races, and the Duchess of ATHOLL again referred to the circumcision of young girls in Africa. She said this was practised in Southern Nigeria, in one Uganda tribe, and in its worst form among the Kikiku in Uganda. Medical men stated that this rite consisted of the removal of whole sets of parts connected with the organs of reproduction, performed publicly by an old woman with an iron knife. No anaesthetic was given, and no antiseptics were used. The old woman went from one girl to another, turning the knife once or twice in each victim. The operation was followed by much scarring and great contraction. Blood poisoning occurred, with the result that there was great suffering at childbirth, and the first child was seldom born alive. A medical man of standing in East Africa had stated that, while there was a lesser, and less severe, form of mutilation, he would not sanction even that by anyone under his control. The Duchess commented on the scarcity of midwives and women nurses in Kenya. In Uganda, which had twenty-six centres for maternity and child welfare, the infant mortality had dropped in ten years from 500 per 1,000 to 150. Dr. DRUMMOND SHIELS said there was difficulty in interfering with traditional customs, and considerable effort would be required to stop the rite mentioned by the Duchess of Atholl. The Secretary for the Colonies (Lord Passfield) was getting all available information, in the light of which he might be able to take action which would satisfy the conscience of the House of Commons.

Treatment of Pensioners in receipt of Final Award.—On December 16th Mr. F. O. ROBERTS told Mr. Longden that it was open to any pensioner in receipt of a final award to apply for treatment for a condition due to war service. If, as a result of such treatment, the award was found to have been seriously erroneous as an assessment for permanent purposes, a further grant could be made.

National Radium Fund.—In the House of Commons, on December 18th, when the Consolidated Fund (No. 1) Bill was read the second time, Sir KINGSLEY WOOD asked for information on the administration of the National Radium Fund. After referring to the success of the Fund and the generosity of the subscribers, he urged that efforts should be made to extend the field of supply of radium. Empire resources should be developed, and particular attention directed to the possibility of obtaining supplies from Cornwall. Miss LAWRENCE said that, as the Radium Commission was appointed by Royal Charter, the Ministry of Health was not responsible for its work. The Commission would in due course present its annual statement and accounts.

Notes in Brief.

In Mr. F. O. Roberts's opinion the machinery of formal appeal to an appeal tribunal is not the most suitable or most expeditious mode of determining such purely medical matters as the form of treatment appropriate to a particular case, where there is a difference of opinion between the man's own doctor and the Ministry's medical adviser. Mr. Roberts has arranged that any difficult cases, where representations are made by panel doctors, are reviewed at the headquarters of the Ministry.

On December 17th Sir C. Trevelyan presented a bill to raise the school-leaving age to 15 years.

The amount paid into the National Health Insurance Fund during 1928 in contributions by employers and employees in England and Wales was £23,187,000.

Universities and Colleges.

UNIVERSITY OF OXFORD.

AT a congregation held on December 17th the following medical degrees were conferred:

B.M.—C. M. Duncan, C. R. Salkeld, H. H. Aitchison, W. B. Fiddian-Green, J. L. Clapham, W. B. Williams, C. R. Greene, H. E. Mansell, J. A. Brown, Ruth Sandeman.

UNIVERSITY OF CAMBRIDGE.

AT a congregation held on December 19th the following medical degrees were conferred:

M.CHIR.—F. J. Milward.
M.B., B.CHIR.—L. J. Rae.
M.B.—L. R. Janes, C. G. Townsend.

UNIVERSITY OF LONDON.

MR. RONALD H. O. B. ROBINSON has been granted temporary recognition as a teacher of surgery and anatomy at St. Thomas's Hospital Medical School for the session 1929–30.

The dates for the examination for the academic Diploma in Public Health (Red Book, 1929–30, p. 439) will be as follows:

Part I of the examination will be held three times a year, beginning on the first Monday in April, or if that be a Bank Holiday, on the second Monday in April; the Monday of the week prior to the first Tuesday in July; and the fourth Monday in September.

Part II of the examination will be held twice a year, beginning on the Monday (or Tuesday, if such Monday be a Bank Holiday) in the week following that in which the April examination for Part I is held, and on the Tuesday in the week following that in which the September examination of Part I is held.

Examinations will commence on April 7th and June 24th, 1930, for fourteen medical entrance scholarships and exhibitions of the aggregate value of £1,340. They are tenable in the Faculty of Medical Sciences of University College and King's College and in the medical schools of King's College Hospital, University College Hospital, the London Hospital, and the London (Royal Free Hospital) School of Medicine for Women. The latest dates for the receipt of entries are March 12th for the April examination and June 10th for the June examination. Full particulars and entry forms may be obtained from Mr. S. C. Ranner, M.A., the Medical School, King's College Hospital, Denmark Hill, S.E.5.

UNIVERSITY OF LIVERPOOL.

THE following candidates have been approved at the examination indicated:

M.D.—K. M. Cobban, L. Earlam, R. R. Evans, J. F. Galloway, Mary S. Share-Jones.

M.CH.ORTH.—W. J. Eastwood, W. L. Macdonald, J. F. Shepherd.

FINAL M[illegible]
Part:
(1924
M. G
H. E. C. Sutton. Passed in separate subject: D. I. A. Williams (Public Health).

DIPLOMA IN TROPICAL MEDICINE.—S. D. Ahuja, R. E. Anderson, C. G. Booker, W. A. Bullen, E. N. Callum, P. P. D. Connolly, J. A. Cowan, [illegible]
A. T. Howell,
bloom, C. K.
H. N. Turner.

UNIVERSITY OF MANCHESTER.

THE following candidates have been approved at the examinations indicated:

FINAL M.B., CH.B.—‡Edith M. Booth, *F. N. Marshall, A. Allan, Hedley Boardman, R. O. Brooks, J. A. K. Brown, Christobel M. Hall, W. H. Harris, E. J. B. Sewell, Nellie Wilson. (*Part I, Forensic Medicine and Hygiene and Preventive Medicine*): G. M. Lendrum.

* Second-class honours.
‡ Distinction in forensic medicine.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

Primary Fellowship Examination.

AT the primary examination for the Fellowship held in December 155 candidates presented themselves, of whom the following 49 were approved;

H. J. B. Atkins, D. A. Beattie, T. H. Berrill, D. D. Boovariwala, J. T. Chesterman, H. O. Clarke, [illegible]
K. K.
W. G.
Harihi
Kathai S. Kelkar, A. W. Kendall,
M. L. I wis, K. Lufnsden, J. Mark,
S. N. M. B. Morgan, H. F. Moseley,
W. Mushin, R. W. Nevin, T. H. Parkman, R. G. Pulvertaft, J. R. Ratcliffe, B. C. Rennie, V. C. Snell, H. H. Stewart, G. O. Tippett, A. G. Williams, H. M. Williams, B. Willinsky, D. S. P. Wilson.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

AT a meeting of [illegible] Edinburgh, held on December 18t President, was in the chair, the fol out of 70 entered, who passed the requisite examinations, were admitted Fellows:

F. Bekker, P. W. H. Bleasdale, J. B. Colquhoun, J. Comrie, C. Duncombe, A. M. Duthie, D. H. Fraser, C. A. Gardiner, W. J. Gill, A. L. Gunn, H. C. Gupta, J. Haslam, Elinor D. Jackson, L. H. Leggett, A. C. Liesching, V. M. Metivier, D. R. Paterson, J. E. Piercy, M. N. Sarkar, S. Singh, G. F. Skinner, O. J. Stahl, R. S. Verster.

SOCIETY OF APOTHECARIES OF LONDON.

THE Court of Assistants of the Society of Apothecaries has elected Lieut.-Colonel C. T. Samman, R.A.M.C.(ret.), as its representative on the General Medical Council for one year, in succession to Mr. Samuel Osborn, F.R.C.S., who has resigned.

Obituary.

JOHN SCOTT RIDDELL, C.B.E., M.V.O., LL.D., M.B., C.M.,

Consulting Surgeon, Royal Infirmary, Aberdeen.

As briefly announced in our last issue, Mr. J. Scott Riddell, the well-known Aberdeen surgeon, died on December 3rd, after a long illness.

John Scott Riddell was born in 1864, and received his medical education at the University of Aberdeen, where he graduated M.B., C.M., in 1888, after winning many honours, including the Keith gold medal in systematic and clinical surgery. For seven years he assisted the professor of surgery, delivering lectures on systematic and operative surgery, and taking charge of the practical class. He was also for a short time assistant pathologist to the Aberdeen Royal Infirmary, but resigned this post on becoming assistant surgeon in 1891. He was appointed surgeon and lecturer in clinical surgery in the Infirmary in 1893, and five years subsequently became senior surgeon; when he retired from this post in 1919, he was retained on the honorary staff in the capacity of consulting surgeon. In the same year he resigned from the clinical staff of the university, and was presented with an illuminated address by the medical students. He carried on an extensive practice as a consulting surgeon, being well known in this capacity throughout Scotland. He will, however, be specially remembered for his connexion with the Aberdeen Royal Infirmary, which lasted thirty-eight years. During the war, in addition to his duties there as surgeon, he undertook the responsibilities of medical superintendent. He was appointed a director in 1922, and was chairman of the board from 1924 to 1927, during which period the scheme for extension of this institution came into operation. Until the time of his death he was an assessor to the University Court.

MR. J. SCOTT RIDDELL.

Mr. Scott Riddell was particularly interested in ambulance work and was colonel in the Volunteer Medical Service Corps. Later he was appointed administrative medical officer for the Highland Division of the Territorial Force, and became a Knight of Grace of the Order of St. John of Jerusalem. He was one of the three medical officers of the Scottish Control Committee and Territorial Force Nursing Service. In 1908 King Edward conferred on him the membership of the Royal Victorian Order. During the war he undertook the duties of Red Cross Commissioner for the North-Eastern district of Scotland, and was made a Commander of the British Empire. The University conferred on him the honorary degree of LL.D. Always interested in athletics, he organized two cricket clubs in his student days. For a time he was president of the University Athletic Association, and he was an enthusiastic golfer. Mr. Scott Riddell published *A Manual of First Aid*, also *A Manual of Ambulance*, and a volume comprising the records of the Aberdeen Medico-Chirurgical Society, from 1789 to 1922. He was appointed deputy lieutenant to the City of Aberdeen in 1925. He associated himself actively with the work of the British Medical Association for several years, and was a member of the Aberdeen Branch Council in 1893 and 1900–4, honorary secretary of the Branch 1894–99, president in 1907, vice-president in 1908–9, and vice-chairman of the Division from 1909 to 1912. He was president of the Section of Surgery when the Association met in Aberdeen in 1914. (The photograph is by G. and W. Morgan, Aberdeen.)

DANIEL LEWIS THOMAS, M.R.C.S., L.R.C.P., D.P.H.,

Medical Officer of Health for Stepney.

THE London public health service, and the East End in particular, have suffered a grievous loss in the death, on December 10th, after a fortnight's illness, of Dr. Daniel Lewis Thomas, for many years medical officer of health for the metropolitan borough of Stepney.

Dr. Thomas qualified in 1893, and, intending a career in public health, took the D.P.H. in Ireland in 1896, and the equivalent diploma in England in the following year. In 1903 he became a member of the Bar. Before taking his post at Stepney he was one of the district medical officers of the London County Council. At Stepney Dr. Thomas had charge of one of the largest, most populous, and in some respects most difficult areas of public health administration in London. This East End borough has a population of a quarter of a million, compressed into less than three square miles, a population largely alien and seafaring. It says much for his energy and vigilance that the health record of Stepney stands so high; its death rate is actually below that of London as a whole.

Forbidding as his field of labour might have looked to others, the heart of "Dan" Thomas rejoiced in it, especially because at its very centre was the London Hospital. The London was his own medical school; he served there afterwards as demonstrator in public health; he was a familiar figure about the hospital day and night, and occupied the post of unofficial consultant on all matters of public health and epidemiology. During the war, in spite of many other duties, including that of food controller for the district, he took up his residence at the hospital in order to take all night calls and so allow the greatly depleted and almost exhausted staff to get unbroken nights' rest. His advice was always at the service of the London. Lord Knutsford relates how, on one occasion, when the house-surgeon on his night round was struck by the suspicious appearance of a case in the surgical ward, a telephone message to Dr. Thomas found him at a public dinner at the Connaught Rooms, and within twenty minutes he was at the hospital, where he confirmed the suspicion of small-pox, arranged for the patient's removal, and instructed the staff as to the measures to be taken for the safety of the other patients in the ward and their friends outside.

Dr. Thomas was a member of the Marylebone Division of the British Medical Association, and of the Society of Medical Officers of Health, also a Fellow of the Royal Institute of Public Health and the Royal Sanitary Institute. In one respect he was happy in the circumstance of his death, premature though it was, for it took place in the wards of the London Hospital, where he was cared for by the staff whom he had so greatly helped. His funeral took place on December 12th at Hammersmith, after a service at the Jewin Welsh Chapel.

DR. BRIAN MELLAND, whose death occurred at Bowdon, Cheshire, after a short illness, was a practitioner very much respected and esteemed by all who knew him. A son of Dr. Frederick Melland of Manchester, he was educated at the Manchester Grammar School and at Owens College. After graduating M.Sc.Viet. in 1886 and M.B.Lond. in 1888, he held resident appointments at the Manchester Royal Infirmary and the Children's Hospital, Pendlebury. In 1901 he proceeded to the M.D. degree.

In his younger days Melland was an all-round athlete, but was prevented from representing England at lacrosse by an attack of acute rheumatism. After a second attack of rheumatism he decided to go abroad, and for ten years he practised in Grand Canary. After his return to England he settled in Bowdon, joining the late Dr. W. Owen Jones in practice, and there he remained until his death. Dr. Melland was a member of the British Medical Association, and in 1902, when the Association held its Annual Meeting in Manchester, he was honorary secretary of the Section of Tropical Medicine. He published, in 1884, some original work on the histology of striped muscle, and in 1910, in an article in the *Lancet*, he introduced the now common method of treatment of an asthmatic attack by the injection of adrenaline. His account of Grand Canary, published in the *Medical Chronicle* in 1897, is one of the best. He was twice married, first to Florence Trevor Roper, and secondly to Kathleen Oliphant. His two sons were killed in the war, and he leaves a widow and five daughters.

Medico-Legal.

ALLEGED NEGLIGENCE IN CERTIFYING A MENTAL CASE.

ACTION AGAINST DOCTORS STAYED.

IN the Court of Appeal, on December 18th, judgement was given by Lords Justices Scrutton and Greer in an appeal by the defendants from a decision of Mr. Justice Finlay in chambers. This related to an action brought by Mrs. Jane Easton, of Lancaster Gate, London, against Dr. William Alexander Potts, of Edgbaston, a mental specialist, and Dr. A. V. Johnson, of Aldridge, Staffordshire. The plaintiff was certified by the defendants while she was on a visit in Staffordshire in 1926, and she brought the action claiming damages for alleged negligence on the part of the medical men. Mr. Justice Finlay refused to stay the action, and from this decision the doctors appealed.

Mr. H. C. Dickens, instructed by Messrs. Hempsons, appeared for the appellants, and Sir Henry Maddocks, K.C., and Mr. J. W. J. Cremlyn, instructed by Messrs. Coulson and Coulson, for the respondent.

In the result Lord Justice Scrutton announced, Lord Justice Greer concurring, that the appeal would be allowed and the action stayed.

Lord Justice Scrutton's Judgement.

Lord Justice Scrutton said that the case involved one of the most difficult jurisdictions that the court was ever called upon to exercise. While, on the one hand, it was of great importance to protect the liberty of the subject, on the other hand it was of equal importance to protect those persons who had been appointed by Parliament to exercise a duty in the interests of the community as well as of the patient. If any doctor certifying was to be exposed to the cost and danger of judgement by people who did not see the patient at the time, the natural effect would be that no doctor would certify, and the community would be exposed to the risk of having persons of unsound mind wandering about without adequate control, to their own danger, and possibly that of the community. It was common knowledge that the result of such actions had been that many doctors would not certify at all. Parliament itself had recognized, in Section 330 (2) of the Lunacy Act, 1890, that certifying doctors should have some protection against the risk of expensive, long-drawn-out, and harassing actions. They were open to actions based on charges of want of good faith or reasonable care, but Parliament had attempted to provide that an action should not go to trial except under certain special circumstances provided for in the subsection just quoted. The court, however, to grant a stay of action, must be satisfied that no reasonable jury could on the evidence find want of good faith or reasonable care.

Coming to the facts of the case, the Lord Justice said that it concerned a lady 48 or 50 years of age; possibly the age might have something to do with these events. The lady herself said that she was subject to malaria, and was suffering from a malarial attack at the time the certification took place. Her sister and another lady with whom she was staying were of opinion that she was of unsound mind. One of the first two doctors called in, however, thought that she was not in a condition to be certified. It had to be remembered that there were cases where a person might appear perfectly sane at one hour, and as perfectly insane at the next. The Lord Justice recalled a case he had tried at Exeter, where a man was accused of attempting to murder an asylum attendant. The man conducted his own defence perfectly correctly, and behaved himself as an exemplary witness but suddenly an irrelevant remark let loose his delusion—that he was a member of the royal family, with special rights for dealing with anybody of whom he disapproved. In the present case a second doctor, Dr. Potts, a Birmingham mental specialist, saw the lady next day, and on his certificate and that of Dr. Johnson, one of the first two doctors to be called in, the magistrate gave the order.

With regard to the lady's delusions, the Lord Justice said that he would not hold for a moment that anybody who believed in hypnotism, telepathy, or thought transference was insane, but, taking all the evidence together, he had no doubt that any reasonable jury ought to find that the lady was under some kind of delusion that people, by hypnotic influence, could have carnal intercourse without touching each other, and that she herself had been psychically assaulted in the street. "When you find a doctor with that symptom presented to him it appears to me he has abundant evidence, if he is satisfied that the lady in course of conversation made that statement, for certifying the lady as of unsound mind." He instanced other peculiar delusions, such as that everybody who went about had a certain odour—another matter which influenced the doctor. Another thing which had influenced the Lord Justice was the letters and postcards written by the lady; the evidence that the lady was not of sound mind was supported by them.

Lord Justice Scrutton then went on to refer to an affidavit which had been put in by Dr. Risien Russell, "on whom I cast no reflection, and do not intend to cast any reflection, by saying that he is usually the principal witness for the plaintiff in lunacy cases." Dr. Russell's affidavit said nothing about this case, but he said, "I consider that in all cases where insanity is suspected a thorough physical, as well as mental, examination should be made, except in a case where the plaintiff's condition is so aggravated that such examination is impossible." Dr. Russell then went on to cite a series of physical examinations which ought to be made: "To examine the pupil of the eye; to employ an ophthalmoscope to detect pressure on the brain; to search for tremor of the face, tongue, and hands, to test for inco-ordination of the movements of the limbs, including the test for Romberg's sign; to examine the tendon reflexes of the limbs, notably as to the state of the knee-jerks and ankle-jerks; to test the superficial reflexes, in particular the plantar reflex of the soles of the feet." The Lord Justice continued: "When doctors who come to examine a patient are not employed by the patient, they have no authority to conduct all these operations, and in most cases the doctor intending to carry out all these tests would be strenuously objected to by the patient." Such delusions as had been referred to in this case appeared to be pretty conclusive as to the unsoundness of mind of the plaintiff, and the doctor would not find it necessary to ask the objecting patient to go through the physical tests suggested by Dr. Risien Russell. He gathered that but for this affidavit Mr. Justice Finlay would have stayed the action, but for his own part he was bound to confess that he was not impressed by it in the same way.

"Endeavouring as best I can to fulfil this very difficult jurisdiction and to hold the balance fairly between the desire to protect the liberty of the subject on the one hand, and on the other the desire to protect the doctors who are called upon by Parliament to exercise for the good of the community the duty of honestly expressing their opinion about patients, I come to the conclusion that these actions should be stayed on the ground that there is no evidence on which a jury could reasonably find either lack of good faith or lack of reasonable care."

Lord Justice Greer's Concurrence.

Lord Justice Greer, in concurring, said that he did not read Section 330 in the way Mr. Cremlyn, for the respondent, had read it. Mr. Cremlyn seemed to contend that an order for a stay could not be made under Subsection 2 of that section in a case where there was *some* evidence that there was want of good faith or want of reasonable care. The Lord Justice thought that to read the section in that way would be to make it practically of no effect whatever, because it was obvious that any person bringing an action alleging that he had been improperly certified by the doctors would be able to put before the court on affidavit a certain number of facts which, if proved, would support the action which had been commenced. "I do not think it means that. In my judgement the court has to look at the whole of the evidence which has been put before it, and has, so far as it is possible, to weigh the evidence which has been given on affidavit, to come to a conclusion one way or the other as to whether there is reasonable ground for alleging want of good faith or want of reasonable care." He added that in this case the question of want of good faith might be left out, because this was not suggested.

The Lord Justice then reviewed the facts of the case, saying that it seemed to him there was some evidence—though not a great amount—that the lady at the time of certification was in such a state of mind that she might become at any moment dangerous to herself. There was also convincing evidence of her behaviour from the time she was received into the first home until the time she came out—evidence which, if true, indicated that she was at that period a person of unsound mind. He thought the court was entitled to regard that as confirmatory

of the opinion of the two doctors at the first examination. She had delusions, and suffered from a state of depression, and there were threats or talks about suicide, which made it considered desirable that she should be put under restraint.

Coming to Dr. Risien Russell's evidence, Lord Justice Greer said: "If it is intended to lay down as a general rule that no medical man can safely sign a certificate without he carries out those physical tests which are mentioned in his affidavit, then I have no hesitation in saying that the affidavit ought not to be accepted by any court which knows anything whatever about the matter. It is ridiculous to suppose that a doctor cannot, without those tests, in any circumstances affording ample evidence of such delusional insanity as would justify a certificate, be warranted in certifying that a person should be placed under control." He thought there were many cases where the physical examination need not take place, though he did not mean to say that it ought to be regarded as a general rule that all tests should not be tried in cases of doubt. In the vast majority of cases it was most desirable that particular tests should be applied.

"Although it is a somewhat difficult matter, I have come to the same conclusion as my Lord—that in this case the order for a stay ought to be made."

The judgement recorded above is a very important one to the medical profession. In the case of Hume Spry v. Smith and Watson (*British Medical Journal*, 1926, i, p. 503) Lord Justice Bankes laid it down that it was not for the court at that stage of the proceedings to test the quality of the evidence before them with a view to determining whether or not there was reasonable cause for staying the proceedings. This, in the opinion of some, rendered Section 330 (2) and the relief it was supposed to afford of no avail. But Lord Justice Greer now states specifically—and Lord Justice Scrutton implies—that it is the duty of the court to weigh the evidence before it on an application to set aside a statement of claim.

Medical News.

THE Royal Westminster Ophthalmic Hospital, Broad Street, W.C., has recently started a new electro-therapeutic department for the purpose of studying the value of electrotherapy in the prevention and treatment of various eye diseases.

THE permanent postal address of the National Association for the Prevention of Tuberculosis is now Tavistock House (North), Tavistock Square, W.C.1.

THE Commonwealth Fund of New York City offers annually to men and women graduates of universities in the British Empire thirty Fellowships, tenable for two years, in the graduate schools of certain universities in the United States. Each Fellowship includes provision for tuition and living expenses, with ample allowances for ocean passage and travel in the United States during vacations. Unmarried men and women of British descent, under 30 years of age, who have graduated and who can produce evidence of proficiency in some recognized branch of university learning are eligible. Applications for Fellowships tenable for 1930-32 will be received until February 10th, 1930. Further information and forms of application can be obtained from the secretary of the Commonwealth Fund Fellowships, 50, Russell Square, W.C.1.

LORD CORNWALLIS, chairman of the Kent County Council, will preside over the forty-first congress and health exhibition of the Royal Sanitary Institute to be held at Margate from June 21st to 28th, 1930. Dr. Andrew Balfour will preside over the section of preventive medicine; Sir Henry Maybury over the section of engineering and architecture; Lady Howard de Walden over the section of maternity and child welfare, including school hygiene; Major-General Sir John Moore over the section of veterinary hygiene; and Sir Thomas Neill over the conference on national health insurance services.

THE tenth congress of the Journées Médicales de Bruxelles, which was to have been held from June 21st to 25th, 1930, has been postponed to June 28th to July 2nd, so as not to clash with the inauguration of the new university buildings at Brussels.

THE fifth congress of Northern neurologists will be held at Stockholm under the presidency of Professor H. Marcus in August, 1930, when the subject for discussion will be epilepsy and its treatment.

A COURSE of clinical and laboratory instruction in malaria will be held at the Scuola Superiore di Malariologia, Rome, from July 1st to September 30th, 1930. The fee is 300 lire. Further information can be obtained from the secretary of the school, R. Clinica Medica, Policlinico Umberto I, Rome.

DR. CONSTANTIN ECONOMO, professor of psychiatry and neurology in Vienna, has been invited to lecture at Columbia University, New York, on his recent researches on the brain.

A NEW edition of the *Europa Year Book* will be issued next February in a different form. The primary material will appear in six monthly sections, with the first of which subscribers will receive a loose-leaf case for containing them; in this way continuous revision will be possible, enabling the book to keep up to date. The cost will be two guineas for two years; this will include the loose-leaf case, the primary material, and twelve supplements. The publishers announce that they will be prepared to answer inquiries, or provide further information on any point within the scope of this useful annual. Further information may be obtained from Europa Publications, Ltd., 6, Duke Street, Adelphi, W.C.2.

WE have received the second part of the report of the seventh congress of the Far Eastern Association of Tropical Medicine, which was held in India in December, 1927. It contains the opening addresses, the speeches at the general business meeting, a summary of the proceedings of the scientific sections, and lists of the members and officers of the congress and of the association, together with its articles and by-laws. It is announced that Parts I, III, and IV, dealing with the organization of the congress in its various aspects, have not been published.

MME CHARLES LOUIS-DREYFUS, in memory of her late husband, has presented to Dr. Louis Mourier, Director of the Assistance Publique, a cheque for 100,000 francs to be devoted to a children's hospital in Paris.

THE late Colonel W. E. Walker has bequeathed £8,000 to the Bolton Infirmary for a bacteriological and pathological laboratory.

DR. BUCKY of New York has succeeded the late Professor Levy-Dorn as director of the Roentgen Institute of the Rudolf Virchow Hospital, Berlin.

DR. J. WALTER CARR, consulting physician to the Royal Free Hospital and the Victoria Hospital for Children, Chelsea, has been elected Master of the Haberdashers' Company.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to ***The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.***

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The ***TELEPHONE NUMBERS*** of the British Medical Association and the *British Medical Journal* are *MUSEUM 9361, 9362, 9363,* and *9364* (internal exchange, four lines).

The ***TELEGRAPHIC ADDRESSES*** are:

EDITOR OF THE *BRITISH MEDICAL JOURNAL*, *Aitiology Westcent, London.*

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*

MEDICAL SECRETARY, *Mediocera Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone 24361 Edinburgh).

QUERIES AND ANSWERS.

LANDRY'S PARALYSIS.

"E. P." would be glad to hear from anyone who has had experience of Landry's paralysis. He is convalescent from the disease and would like to compare notes.

DENTAL ANAESTHESIA FOR CHILDREN.

"G. F. R. S." writes: "W. D." raises a difficult question, for, as in other forms of anaesthesia, there is no golden rule. Ethyl chloride is, as a rule, better than ethyl nitrous oxide for single administration; for multiple extractions the ethyl chloride-ether sequence is as satisfactory as any other. Smooth induction is merely a matter of practice, and it can be done in the case of children equally well either on an open mask or with a Hewitt's modification of a Clover inhaler. The difficulty with a face-piece can be overcome by a pad of gamgee, such as is used in the open method. Continuous gas in experienced hands also gives moderately good results, but dental anaesthesia should be in the hands of experts.

CHRONIC URTICARIA.

DR. J. A. NOBLE (Bournemouth) writes in reply to "X. Y." (December 7th, p. 1093): Five cubic centimetres of the patient's blood is taken by syringe from any superficial vein and rapidly (to prevent clotting in the needle) re-injected intramuscularly deep in the buttock. This causes little pain, and no after-rest is necessary. Two such injections, at an interval of seven days, cured a severe case of several years' standing, which had recurred after ultra-violet ray treatment, and had resisted treatment by calcium and intestinal disinfection. One injection caused the disappearance of an exactly similar urticaria in less than a week in a case of shorter duration. Both patients were young farmers and, when I last saw them, both had been free from recurrence for over twelve months. I should be grateful if "X. Y." would inform me if the treatment is successful.

TREATMENT OF CHRONIC PRURITUS ANI.

DR. STANLEY E. DENYER (Hull) writes in reply to "H. F." (December 14th, p. 1142): I have recently treated a patient with *chronic pruritus ani with ultra-violet rays, using a quartz* mercury vapour type lamp, at a distance of 3 ft., for two minutes. Used once weekly this gave considerable relief. In a severe case it would be better to give it twice-weekly, but not oftener.

DR. HENRY WALDO (Clifton) writes: The late Dr. Radcliffe Crocker's favourite application for chronic pruritus ani was hydrarg. ammon. 20 grains, adeps benz. 1 oz.

DR. W. H. HOOTON suggests, in reply to "H. F.'s" inquiry, that *x-ray therapy should be tried.*

"J. R." writes to say that he has found ung. quinolin comp. (made by the British Drug Houses, Ltd.) successful in a very troublesome case.

INCOME TAX.

Amalgamation of Practices.

"L. B. S." explains that, as from April 1st, 1929, his practice was merged with that carried on by two other practitioners, A and B. The inspector of taxes has informed him that his liability for the years 1927–28 and 1928–29 will be revised under Section 31 of the Finance Act, 1926, the assessments being increased to the amount of the actual profits of those years. Is this correct and, if so, why?

*** Under the scheme of assessment as laid down in the Finance Act, 1926, the taxpayer is entitled, under Section 29, to have the assessment for the year following that in which the business or practice was set up reduced to *the amount of the* actual profit of that year; Section 31 gives the Revenue a corresponding option when "a trade or profession is permanently discontinued"—that is, to increase the penultimate year's assessment to the amount of *the actual profit. Both the* commencing and final years are also chargeable on that basis. Permanent discontinuance does not apply to the individual, but to the business or practice. The reason for Section 31 is clear; large profits may easily be followed by a break up of the business entity, so that the amount of profits earned in the final year—say, to September 30th, 1928—would never come into a computation for income tax without some such provision. Our correspondent does not say how the new firm, consisting of A, B, and himself, is being assessed. If the facts are that the firm is being assessed for 1929–30 on the basis of the earnings of all three for the year to April, 1929, then the equitable justification for the application of Section 31 seems lacking; if, therefore, the new firm would be assessable at a smaller figure for 1929–30 on the basis of that actual year, "L. B. S." might point out to the inspector of taxes that he seems to be employing Section 31 in a way which was not intended, and, in the event of his maintaining *his present attitude*, "L. B. S." might put the full facts forward in a letter to the Board of Inland Revenue, Somerset House, and ask for their special consideration of the case.

LETTERS, NOTES, ETC.

QUININE FOR THE ORDINARY COLD.

DR. A. W. DAVISON (Manchester) writes: As Dr. Denyer's suggestion of quinine sulphate in cooking sherry t.d.s. (December 14th, p. 1142) works out, according to my [illegible] I gram to the ounce, and as this [illegible] minim, perhaps the latter would convenient.

THE HISTORY OF INTENSIVE ALKALINE TREATMENT.

DR. D. ROBERTS (Holyhead) writes: It may be of interest to recall that the late William Jones, M.D., of Caeceilio, Anglesey, was a pioneer in the *practice of intensive alkaline treatment.* His usual prescription contained sodii carb. 25 grains or more, mag. carb. pond. 5 or 6 grains, with pulv. zingib. 3 or 4 grains—occasionally cretæ præparata 5 grains was added, after every meal, in water. He gave a powder at bedtime composed of alumnis 1/2 dr. and mag. carb. pond. 5 or 6 grains. The formula was often varied and sometimes ordered in bulk—1/2 dr. for a dose after every meal, in water. Dr. Jones was a remarkable man. He started in life as a farm hand. One day, when out with his team, he went to the assistance of a lady rider who was unhorsed, and in the fall she fractured her arm. This raw youth did both "first" and *final* "aid"; as a doctor who saw her *subsequently declared*, he could do nothing more, for the fracture was "set" perfectly. This lady helped him in his future career, and he had a brilliant college course. He was born in 1815 and died in 1882.

THE USE OF THE TONSILS.

DR. P. G. DANE (Melbourne) writes: Continuing the discussion in the *Journal* on the use of the tonsils (May 25th, p. 980, and June 1st, p. 1024), I should like to know if the following is a common experience. In August, 1928, I had my tonsils carefully enucleated on account of a toxic labyrinth; the tonsils were definitely "septic." Within four months I had developed two large masses of lymphoid tissue behind the posterior pillar. These masses have almost the appearance of true tonsils, and each became slightly inflamed, with enlargement of the cervical glands, during an epidemic of influenza. It would thus appear that the tonsils have a definite function, even at my age (48 years), and that when removed the lingual tonsil undergoes a compensatory enlargement. It is rather difficult to understand how an organ that is *present in all mammals, from the* marsupials upwards, is without some important function. The tonsil is not present in the Australian monotremes—the echidna and the platypus; what is the impetus that has caused its appearance in the marsupials?

TREATMENT OF BURNS AND SCALDS.

"M. W." (Warwickshire) writes: The article in the *Journal* of November 2nd on the tannic acid treatment of burns prompts me to record my experience with an older method, which I have used for years, without failure, except in one very young child, who died from shock within a few hours. The patients are quite comfortable from the first, and do not appear to suffer from any constitutional disturbance. The treatment is simply carron oil—that is, lime water and linseed oil, of each equal parts—to every ounce of which 1/2 drachm of tr. opii is added. Strips of lint or old linen are soaked in this and applied to the affected parts. This stops the pain at once, and it is wonderful how little sepsis or sloughing occurs. If a part later on becomes septic or shows *signs of sloughing, I bathe this part with boric acid lotion and* apply boric ointment. If deep sloughing occurs still later I should treat with warm (not hot) boric fomentations. About a year ago two cases occurred within quite a short time of each other, in the same district. In each case the extent of surface involved and the degree of severity were about the same. One patient I treated in the way I have just outlined, and with very little discomfort; she made a complete recovery. The other case I sent to hospital on account of "fussy" parents. I believe she was treated from the beginning with antiseptics, and I was *told she suffered intensely before her death a few days later.*

FAMILIAL GASTRIC ULCER.

DR. S. B. TURNER (Bargoed) writes: The following series of cases of gastric ulcer occurring *in one family appears to be so extra*ordinary that it might be of interest to any surgeon specially keen on the subject. The father and mother, aged 68 and 65 respectively, were quite healthy.

1. David H., son, aged 42, was operated on in 1921 for typical gastric ulcer, *after* x-ray examination; gastro-jejunostomy. In September, 1929, he had perforated gastric ulcer; operated upon; recovery. This was quite a separate ulcer from the first.

2. Mrs. R., daughter, aged 45, had typical gastric ulcer, shown by x-ray examination; gastro-jejunostomy, recovery.

3. Ivor H., son, aged 30, had perforated gastric ulcer in 1926; operation, recovery.

4. Lewis H., son, aged 31, now has typical gastric ulcer and is awaiting operation.

Two of these patients are non-smokers; one is a light smoker. Their diet is the usual one of a colliery family.

THE CHOCOLATE SEASON.

IT was Thackeray, we think, who said somewhere that every pure unsophisticated palate likes chocolates. To those who agree with him and with us on this subject, Cadburys offer a remarkably wide choice of boxes of chocolates, varied in design and price to meet the wishes of the simplest editor and the most fastidious reader. The manufacturers, in sending us a Christmas packet of their agreeable wares, suggest that for parties—or, indeed, for any happy occasion—we shall be wise to serve Cadbury's "cup chocolate." This new beverage *chocolat* can be made instantly with boiling milk.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 35, 36, 39, and 40 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 38 and 41.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 279.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

570. Diurnal Blood Sugar and Urine Sugar Curves.

AS J. NEUBURGER points out (*Dent. med. Woch.*, November 8th, 1929, p. 1876), variations in blood sugar do not in large numbers of diabetic patients produce corresponding changes in subjective symptoms; diurnal fluctuations have therefore not received sufficient attention hitherto. Some patients are also apparently so resistant to insulin that they do not excrete entirely sugar-free urine unless large doses are combined with a low carbohydrate intake, a regime which is at the same time very apt to induce hypoglycaemic symptoms. This discrepancy between a high fasting blood-sugar figure, glycosuria in the morning urine, high doses of insulin, and liability to hypoglycaemia is due to the short duration of the effect of doses of insulin. One diabetic patient, in whom at first 60 to 80 units daily in two injections, and later 60 units in three injections, had proved satisfactory for some months, suddenly developed severe hypoglycaemic symptoms on several successive days while on the latter dosage; blood sugar estimations showed that the diurnal range was from 360 mg. per cent. in the morning to 35 mg. per cent. in the evening. In order to control these fluctuations and remove the risk of hypoglycaemia it was found necessary to administer 10 units at 6 a.m. and 10 at midnight, and to spread the remaining 40 over the course of the day. The urine sugar curve from analysis of two-hourly specimens followed the blood sugar curve closely. For practical purposes in private practice in the less severe cases Neuburger suggests that an occasional examination of a series of two-hourly specimens is a useful check on the efficacy of a given dosage of insulin. In this way large diurnal fluctuations in blood sugar (as reflected in the urinary excretion) can be prevented, and by this means the risk of hypoglycaemia is diminished. A comparatively constant blood sugar value is, moreover, much better for the patient's general condition than large fluctuations. In the more severe cases, and in those patients receiving large doses prior to operation, the two-hourly urine curve is not sufficiently accurate; frequent blood sugar estimations during the twenty-four hours are essential.

571. The Spinal Cord in Diphtherial Paralysis.

C. SEGAL (*Thèse de Paris*, 1923, No. 232), who records nine illustrative cases in patients aged from 9 to 44, maintains that involvement of the spinal cord, meninges, and sometimes even of the brain, undoubtedly takes place in diphtherial paralysis, as is proved by clinical, pathological, and experimental evidence. The important symptoms, in order of frequency, are predominance of the paralysis in the extensors, a meningeal reaction, dissociation of paralysis and anaesthesia in the same area, and sphincter disturbance. In one of Segal's cases Babinski's sign indicating involvement of the pyramidal tract was found. Segal thinks that in the early stage with merely paralysis of the soft palate it would be an exaggeration to attribute it to a central spinal lesion, when a toxic polyneuritis only is present. The toxin, however, is conveyed to the central nervous system by a process of ascending neuritis. The central lesion, therefore, is always secondary to a localized peripheral involvement. The central lesions are often latent, but can frequently be detected by a systematic examination. This explains the extension of the paralysis, the presence of spinal symptoms, and a motor or sensory involvement which is quite independent of the areas of peripheral distribution. In conclusion, Segal suggests that the intraspinal injection of antitoxin as well as local radiotherapy might be of benefit in diphtherial paralysis.

572. Widespread Trichiniasis Infestation.

S. S. HORLICK and R. E. BICKNELL (*New England Journ. Med.*, October 24th, 1929, p. 816) report an unusual case in which there was simultaneous trichiniasis infestation of more organs and tissues than had been previously recorded in any one patient. A woman, aged 52, was suddenly seized with severe headache, starting at the back of the neck and radiating upward and forward from the occipital to the frontal and parietal regions. The following day orbital pain and oedema of the eyelids lasting for thirty-six hours occurred, and pains and tenderness, unrelieved by opiates, were diffused throughout the muscles of the shoulders, arms, and back. Eight days before the appearance of the severe symptoms she had eaten a well-broiled pork chop, and a daughter who had partaken of the same meal complained of pain and soreness in the back lasting two days. A series of relapses with spread of symptoms ended in death. The diagnosis of trichiniasis was evident from the characteristic clinical picture of oedema of the eyelids, muscle pain and tenderness, and eosinophilia. This was confirmed by finding the larval form of the *Trichina spiralis* in the blood and throughout all the sections of the muscle tissue taken from the diaphragm, abdominal, psoas, and thigh muscles. Of chief interest was the finding of encysted trichinae in the heart muscle, pancreatic tissue, kidneys, and intestinal musculature, and in the gall-bladder, which was enormously distended with straw-coloured fluid containing trichinae. Permission could not be obtained to examine the brain and spinal cord, but the symptoms during life were significant of infestation of the central nervous system.

573. Toxicosis in Asthma.

A. J. D. CAMERON (*Med. Journ. and Record*, November 6th, 1929, p. 525) regards toxicosis as a basic factor in asthma, his view being borne out by the results of treatment for chronic nasal catarrh by thorough detoxication and local treatment to any foci discovered, since as the nasal catarrh cleared up so did the asthma. Evidence of such a basic toxic factor was easily obtained from the blood and urine, and the bowel appeared to be the chief source, with consequent impairment of liver efficiency; secondary foci in gall-bladder, nose, throat, or teeth are considered as being primarily due to the disturbed metabolism which constituted the first step, the bacillary implantation being the second. In many chronic toxic cases with identical blood and urine conditions no asthma was present unless the ethmoid area was involved, so that three definite conditions seem to be required for the syndrome—namely, a basic toxic condition, an irritable nervous system, and ethmoid implication. The urine in these cases showed high specific gravity, urates, a disturbed acid ratio, with high sulphate, chloride, and uric acid contents. The protein is always increased correspondingly with the degree of toxicosis; the calcium figure was low. There was evidence in the blood also of the toxic process, the amino-nitrogen, uric acid, and bilirubin being raised. The author considers that too much attention is being paid to infective organisms, and too little to the underlying metabolic error. He consequently does not find vaccines of value in treatment, which in his opinion resolves itself into thorough detoxication, nasal tampons, nasal surgery when necessary, and dieting.

Surgery.

574. Surgical Treatment of Gastric Ulcer.

M. MADLENER (*Zentralbl. f. Chir.*, October 26th, 1929, p. 2694) describes an operation which he terms "palliative resection"; in cases of gastric ulcer *remota from* the pylorus the diseased portion is left and the pylorus removed. This is held to be not illogical, on the ground that the ulcer is not a disease itself but only a symptom. Moreover, the results obtained are said to justify the procedure; 17 cases (10 women and 7 men) watched for seven years have all done well. In 13 cases the ulcer was juxtacardiac, 7 being callous and 6 penetrating. In all these the inferior half of the stomach was resected and the Billroth I anastomosis performed; in only one case was the Billroth II procedure necessary, a duodenal ulcer being also present. In the remaining four cases there was a large penetrating central gastric ulcer associated with perigastritis. In these cases the operation was limited to pyloric antrectomy, a narrow strip of about two inches being removed, and continuity restored by means of the Billroth I technique. All the 17 patients were quite free from their previous pain within a few days after the operation. In 16 cases the pre-operative pain and discomfort did not return subsequently, but in one case, though there was great improvement in this respect, partial stenosis due to the ulcer persisted. Nearly all the patients resumed work, some undertaking heavy manual labour. There was in the series an average gain of 8 lb. in weight, and the patients' tolerance for food was good. The author concludes that resection of an ulcer is undoubtedly the best procedure unless it necessitates too much risk, which is often the case. In such circumstances an indirect operation is indicated, such as gastro-enterostomy, pyloro-myotomy, jejunostomy, or "palliative resection," which Madlener ranks as the most successful of all.

575. Surgical Treatment of Hyperthyroidism.

THOUGH admitting that the surgical treatment of hyperthyroidism is unsatisfactory and has its limitations, G. S. FAHRNI (*Canadian Med. Assoc. Journ.*, November, 1929, p. 511) considers that it is the most satisfactory method in our present state of knowledge, and that efforts should be concentrated on increasing its efficiency. The surgical management of this condition is discussed under three headings: complications, mortality, and recurrence. A complication is always more serious in very sick people, therefore an effort should be made to obtain a maximum degree of improvement before operation, to avoid complications, and to adopt a fast, accurate technique. A strong advocate of the judicious pre-operative use of Lugol's solution, Fahrni greatly depreciates its indiscriminate, periodical, and sometimes prolonged use in hyperthyroidism. A patient, after his first favourable reaction to iodine (the optimum operative period), may relapse at a later date, after which iodine seems much less efficient, and becomes a more serious operative risk. Haemorrhage is one of the commonest complications of thyroidectomy, and complete haemostasis should be obtained before the wound is closed. Secondary haemorrhage will occur only following infection of the wound. Injury to a recurrent laryngeal nerve may be a very serious complication, and the position of the nerves should be thoroughly understood and avoided. Tetany, which is rather rare, can best be avoided by leaving intact a considerable portion of the posterior capsule of the thyroid on both sides of the trachea. Acute post-operative hyperthyroidism is very rare when the patient has previously been thoroughly iodized. In 844 consecutive thyroidectomies only 8 (0.92 per cent.) deaths occurred. Long-standing hyperthyroidism in old people is always serious, and the duration of the disease and the age of the patient are important factors in considering operative risks. Five of the fatal cases were in persons over the age of 50, and in all the fatal cases the disease had lasted for one to thirty years. Recurrences may appear a few months or many years after operation, and are signalized by a return of many of the old symptoms. At this period Lugol's solution should be given in comparatively small doses (5 to 10 minims) twice daily, the dose being gradually diminished as the symptoms abate. Fahrni advises a fairly radical operation, leaving only a small amount of thyroid tissue. This favours complete recovery, and in such cases the judicious post-operative use of iodine, together with an orderly mode of living, should prevent any recurrence.

576. Multiple Tuberculous Arthritis.

J. L. HARVEY and I. C. HALL (*Radiology*, December, 1929, p. 526) record a case of multiple tuberculous arthritis simulating malignancy and the Charcot joint. A man, aged 60, complained of painful swelling of the left elbow; he had two less painful walnut-sized lumps near the right wrist, and another below the left knee. He was lame owing to dislocation of the left hip in infancy, but otherwise had always been healthy. The left elbow was greatly enlarged and without movement. The swelling below the left knee was a benign chondroma. X-ray findings of the right wrist were strongly suggestive of a Charcot joint. Pus aspirated from the tumour of the left elbow contained organisms resembling the tubercle bacillus, and the results of inoculating guinea-pigs and rabbits suggested that the organism was of the human type. The authors emphasize the localizing effect of unrepaired bone injury with consequent metastasis, and they point to the necessity for complete laboratory examination in establishing a diagnosis. They regard the early dislocation of the hip as determining a chronic tuberculosis of the joint with subsequent lesions of other joints developing sixty years subsequently; the true nature of these later lesions could only be ascertained by guinea-pig tests.

577. Primary Tuberculous Peripleuritis.

UNDER this title P. CHEVALLIER (*Arch. Méd.-Chir. de l'Appareil Respirat.*, May, 1929, p. 197) discusses a rather rare condition of the diaphragm which is apparently not usually diagnosed during life. It consists in a chronic type of tuberculous affection of the surfaces of the diaphragm, beginning with vague pains in the side or gastric area suggestive of gastric trouble and proceeding eventually to marked cachexia and death. As a rule the deposit is in the shape of thick lymph and seldom causes effusion. In the early stages the patient does not look ill or suggest tuberculosis, but generally complains of stomach symptoms; later on progressive wasting and weakness set in. In walking he is apt to bend forward so as to relieve the pain, and, when asleep, curls up; constipation is common. Radiography does not help very much in diagnosis. Death usually occurs from extension of the tuberculous infection. The author publishes two cases illustrating the disease, and reproduces the histological appearances of the affected diaphragm.

Therapeutics.

578. Sodium Ricinoleate in Allergic Intestinal Diseases.

THE fact, first demonstrated by Larson, that sodium ricinoleate is capable of neutralizing bacterial poisons, led R. S. MORRIS and S. E. DORST (*Amer. Journ. Med. Sci.*, November, 1929, p. 631) to treat patients showing evidence of allergy of intestinal origin with this drug. Since oils are converted into soaps in the intestines, they felt that there was a possibility that bacterial poisons, if present, might be neutralized by the ricinoleates formed in this part of the alimentary canal; the clinical results are stated to have supported this theory. After the administration of sodium ricinoleate, patients have, as a rule, experienced very prompt relief of the feeling of distension and excessive gas formation, a lessening of fatigability, and a diminution or abolition of various symptoms such as headache and neuralgic muscular pains. The palpitation, tachycardia, and nervousness so frequently associated with excessive gas formation are also benefited, and the stools become less offensive. Some patients who have obtained marked subjective relief have reported recurrence of the symptoms on cessation of treatment. The authors have given as many as six 5-grain capsules daily, though the majority of the patients received only three a day. The drug appears to be entirely non-toxic in these doses; this, it is added, was to be expected, as it is the sodium soap of castor oil.

579. Bismuth and Neoarsphenamine in Syphilis.

J. F. SCHAMBERG (*Arch. Derm. and Syph.*, October, 1929, p. 431) pleads for a more cautious administration of the arsenobenzenes. He admits that accidents following the exhibition of these drugs may be due to some defect in the preparation or the technique, or to an idiosyncrasy of the patient, but he is of the opinion that if all factors are taken into consideration there is greater safety in employing less heroic, but perhaps more frequent, doses. The fact must not be overlooked that the patient must be considered carefully as well as his disease, and Schamberg claims that while his results are comparable with those of other workers they have been obtained with far fewer accidents. He prefers neoarsphenamine in spite of its occasional variability, and treats his patients simultaneously with bismuth. The patient usually attends once a week and receives an intragluteal injection of 100 mg. of potassium tartro-bismuthate, followed immediately by a dose of 0.3 to 0.45 gram of neoarsphenamine. The treatment is continued until about 5 grams of the latter has been given; if the Wassermann reaction of the blood and spinal fluid is then negative, the bismuth alone is continued until a total of 2 grams has been injected. This constitutes the first course of treatment, and similar courses with bismuth or mercury are afterwards arranged.

580. Vaccine Treatment of Typhoid Fever.

K. KYRIAZIDES, C. PERAKIS, and P. CALOGEROU (*Bull. Méd.*, October 5th, 1929, p. 1057) record their observations on 251 cases of typhoid fever at Athens, treated by Vincent's anti-typhoid vaccine, which in 112 cases was given intravenously and in 139 subcutaneously. Their conclusions are as follows. Antityphoid vaccine therapy is a safe method which shortens the duration of the disease in 86.2 to 87.4 per cent. of all cases. The result is obtained much more rapidly by the intravenous method, and in 61 per cent. of such cases the treatment has an abortive effect. The earlier the treatment is started the better the results. As a general rule the most suitable dose for intravenous injection is 25 million bacilli given in one injection (successful in 61 per cent.), whereas three injections of 200 million (successful in 61.72 per cent.) are required for subcutaneous injection. When a successful result was not obtained by these doses it occurred later on continuation of the treatment (in 26 per cent. by the intravenous method, and in 34 per cent. by the hypodermic). Vaccine treatment does not give rise to complications. The mortality of typhoid fever treated by vaccines is relatively very low—namely, 7.14 per cent. with the intravenous method, and 7.91 per cent. with the subcutaneous method. Of the two methods the intravenous is held to be the more suitable for clinics and hospitals, while the subcutaneous method can readily be employed in private practice.

531. A Simple Method of Administering Carbon Dioxide.

THE value of carbon dioxide as a stimulant of the respiratory centre in unconscious and anaesthetized patients for accelerating the return to consciousness is generally acknowledged; but, as A. STERN (*Münch. med. Woch.*, October 25th, 1929, p. 1797) points out, the unwieldy character of the usual CO_2 cylinders has hitherto limited the use of this gas in private practice when a rapid return to consciousness after

an anaesthetic for some minor surgical operation means much valuable saving of time. It is also useful, when the airway has been cleared, in stimulating respiration in semi-asphyxiated newborn infants. He has therefore improvised a substitute for the gas cylinder as follows: an ordinary soda-water siphon is half emptied and then inverted and the last drops of water expelled from the tube by pressing the lever. A piece of rubber tubing is then attached to the cock. On pressing the lever a current of CO_2 gas under low pressure streams out of the bottle along the rubber tubing, the distal end of which is inserted into the patient's nostril.

Disease in Childhood.

582. Congenital Cardiac Disease in Identical Twins.

K. SHIRLEY SMITH (*Arch. Dis. in Childhood*, October, 1929, p. 330) comments on the rarity of congenital cardiac abnormalities in paired offspring, and discusses these conditions in homogeneous twins. Three cases of dextrocardia with complete transposition of the viscera have been reported in the literature. These occurred in one instance in only one of the twins; in the other it was noted in both of the adult identical twins. Martinotti and Lochte have shown that transposition of the viscera in monsters depends on the persistence of the omphalo-mesenteric vein, and that secondary rotation of the heart is usual but not inevitable. If identical twins are regarded as separated double monsters, the application of these principles to such twins becomes apparent. The present author reports cases of patent ductus arteriosus in each of a pair of twins, and four like cases have been previously recorded. All these showed the following similarities: absence of physical signs in the cardio-vascular system; the presence of a patent ductus as a solitary cardiac defect; and the occurrence of attacks of cyanosis with arrest of the breathing, these attacks sometimes ceasing spontaneously and sometimes yielding to oxygen or the injection of cardiac stimulants. The most likely explanation of the cyanosis is a change in the blood supply to the lungs caused by a reversal of the direction of flow through the patent ductus arteriosus. If the blood is deflected from its normal passage through such an abnormal one into the systemic circulation, progressively increasing cyanosis must follow. The cause of the deflection of the blood from the pulmonary circuit, and the frequent termination of the attack with a return to normal conditions, remains to be explained. The most probable causes of increased resistance in the pulmonary circuit are any muscular effort (crying or coughing) and engorgement of the pulmonary capillaries. If reversal of the blood flow is the cause of cyanosis, the same cause acting in an opposite direction must terminate the attack; this reversal may be explained by the rise in arterial blood pressure which accompanies asphyxia. The absence in these cases of the "mill-wheel" murmur, typical of a patent ductus in adults, may possibly be due to anatomical reasons. If the ductus is straight and of uniform bore no murmur is produced, while a spindle-shaped dilatation of the channel, not uncommon in the adult, may cause the continuous bruit.

583. Juvenile Diabetes.

H. SEHESTEDT (*Med. Welt*, September 28th, 1929, p. 1396) discusses the recognition and treatment of juvenile diabetes. To illustrate how easily the disease may be overlooked he describes two cases. A child, aged 12, began to suffer from fatigue, abdominal pain, and great thirst; the condition was attributed to the child having outgrown his strength and to gastric catarrh. He was sent to the country to recuperate, but on the second day passed into diabetic coma. Another boy gradually lost weight and suffered from constipation, with great thirst. The symptoms grew worse, sugar was found in the urine, and the child died. The author remarks that the great improvement in prognosis which results from modern therapy makes it imperative to recognize diabetes at the earliest stage possible; if suitably treated a juvenile diabetic patient will probably have the average span of life. Watch should be kept for the early signs of juvenile diabetes, which resembles this condition in the adult, but the thirst is much more pronounced. Parents may not observe this, and are more apt to notice the polyuria; this may first manifest itself as nocturnal incontinence. In a child in whom this condition recurs after it has apparently been cured, diabetes should be suspected. Abdominal pain and nausea are common and readily give rise to suspicious of abdominal disease. With the exception of rubeosis diabetica, the juvenile skin is exempt from complications common in the adult; dental and mucous membrane complications are similarly rare in the child. Balanitis occurs, but ocular and nervous lesions are relatively rare; sudden changes in refraction always call for a urinary test. After diagnosis it is best to send the patient to a clinic where his correct dietary and insulin dosage can be determined and the information be forwarded to the practitioner for treatment after discharge. When diagnosis is delayed until the appearance of coma 50 units of insulin should be injected if no hospital is available. Coma has not necessarily the same evil significance as in adults.

584. Enteric Fever in Infants.

J. PICOT (*Thèse de Paris*, 1929, No. 234), who records nine cases in children aged from 10 months to 3½ years, five of whom had typhoid fever, one paratyphoid fever A, and three paratyphoid B, maintains that enteric fever is more frequent in infants than is supposed. According to Marfan, in every case of prolonged fever in which tuberculosis, otitis, pyelocystitis, and meningitis can be excluded, Widal's test should be performed. Etiologically the agents of transmission of enteric are the same in the infant as in the adult—namely, milk, water, flies, and carriers—while previous gastro-intestinal disturbance acts as a predisposing cause. The clinical picture is generally incomplete as compared with that in the adult, the predominating symptom being persistent fever. The most frequent complications are broncho-pneumonia, then acute meningitis, and intestinal complications. Relapses are frequent, and often considerably prolong the course of the disease. The younger the child the graver is the prognosis. The diagnosis must be made from ordinary diarrhoea, which is not accompanied by enlargement of the spleen or rise of temperature, and dysenteriform and choleriform diarrhoea, as well as from meningitis and broncho-pneumonia. Laboratory examination, in the form of a blood culture or Widal test, is necessary to make a correct diagnosis.

Obstetrics and Gynaecology.

585. Surgical Treatment of Fibroids in Pregnancy.

BÉGOUIN (*Journ. de Méd. de Bordeaux*, November 20th, 1929 p. 891) discusses the relative values of myomectomy and hysterectomy in dealing with fibroid tumours of the pregnant uterus. He remarks that, until the last five or six years, he had agreed with the majority of surgeons that true myomectomy—namely, the abdominal enucleation of interstitial fibromas—should be regarded as only to be performed exceptionally, in view of its being a more serious undertaking than subtotal hysterectomy. He thinks, however, that it is possible that patients are coming earlier for treatment, and, consequently, with less fully developed fibroid growths; the proportion of those cases suitable for myomectomy may therefore be larger of late. He believes that this increase will not continue much further, and that hysterectomy will remain the preferable operation in most cases. Bégouin insists, nevertheless, that hysterectomy is only justifiable when indicated by the anatomical distribution of fibrous growths in the uterus and its appendages, or by such physiological considerations [illegible] the patients. Although many surgeo[illegible] the graver operation, this is not [illegible] it is only employed for selected cases in which the fibroid growths are few and their removal does not injure the uterus extensively. The author concludes, therefore, that these two operations should be ranked as of equal severity when due care is taken to apply them to suitable cases. He urges conservative treatment whenever possible in the case of young women, and even in those about the age of 40, for in many cases removal of the uterus can be obviated and the possibility of pregnancy retained.

586. High Forceps Operations in Extern Practice

G. DÖDERLEIN (*Zentralbl. f. Gynak.*, November 2nd, 1929, p. 2781) remarks that most German authorities agree that a further extension of the indications for Caesarean section for dystocia is unjustified, and that the classical indications for vaginal delivery still hold good, being fraught with less danger to the mother. One of the most serious operative vaginal interventions is the high forceps operation. This is necessitated in cases in which version is contraindicated by imperfect motility of the foetus after draining away of the liquor amnii, usually on urgent maternal indications (such as persistent increasing fever, eclampsia, accidental haemorrhage, or exhaustion), but occasionally for such foetal causes as prolapse of the cord, or ominous variations in the heart rate. The great majority of authorities, it is stated, consider that the high forceps operation is suitable for hospital practice only, and should not be undertaken, as a rule, in the patient's home. Döderlein does not share this opinion, and cites 63 cases in which during the last three years, in the extern practice of the Berlin Universitäts-Frauenklinik, forceps were applied in the patient's house to a foetal head above or in the pelvic brim; in two-thirds of the cases the indications of urgency were maternal. The maternal mortality was *nil*,

the foetal about 40 per cent. Tears of the cervix occurred in 6 cases, of the vagina in 7, and of the perineum in 6; anterior hysterotomy was performed in 3, incisions of the os were made in 20, and episiotomy was performed in 28. Seven of the foetuses had had to be perforated (some while still living) after unsuccessful forceps application. Döderlein speaks favourably of the forceps described by Zweifel (*Zentralbl. f. Gynäk.*, 1926, No. 10), which is intermediate as regards its pelvic curve between the ordinary and Kielland types. It is concluded that a skilled accoucheur is justified in undertaking the high forceps procedure, in cases of need, in the patient's house; he must, however, recognize that he is performing a major obstetric operation, and that maternal injuries may occur the treatment of which may involve considerable technical difficulties. He should not undertake the high forceps operation unless he is also prepared, in case of its failing, to perform the operation, then imperative, of perforation, even if the foetus is not dead.

587. The Naegele Pelvis

J. WHITRIDGE WILLIAMS (*Amer. Journ. of Obstet. and Gynecol.*, October, 1929, p. 504) describes a case of that rare pelvic condition first recorded ninety years ago by Naegele, and so named subsequently. The patient, who was 27 at the time of her death, had had six spontaneous labours with small children, but she died from uterine rupture after delivery of the seventh, in which the foetus was larger than the preceding. The weight of the largest previous child born was 2,900 grams, and it had a biparietal diameter of 8.75 cm.; while in the seventh and fatal delivery the child weighed 3,400 grams and had a biparietal diameter of 9.5 cm. The patient walked without a limp, and although careful inspection did reveal an abnormal bodily habitus, it was so slight as almost to escape detection. After her second confinement a "list" to the left when she walked aroused curiosity, and ultimately, after detailed examination, the existence of a Naegele pelvis was diagnosed. There was nothing in the history to indicate that the patient had at any time suffered from inflammatory bone disease. She had never been bed-ridden; on the contrary, she was reported always "light upon her feet." Physical examination failed to reveal any trace of scars about the thighs, and an *x*-ray examination was negative. The next four labours were conducted by a midwife, and were normal. The bony articulation of the left sacro-iliac region did not show any signs of inflammatory process. The author considers that the findings tended to indicate that the deformity must be attributed to conditions which come into play during antenatal life—that is, that the deformity is congenital, the view originally advanced by Naegele. Since his time discussion has ranged about the possibility of an inflammatory causation of the condition, until in 1900 Breus and Kolisko asserted that this condition was always the result of inflammatory disease. Williams investigated his case thoroughly in an attempt to ascertain how far it seemed to support the contentions of these authors. He states that his studies led to no definite conclusions, but that they tend to indicate in a certain proportion of cases that a final conclusion is not so easily reached as might be gathered from the sweeping conclusions of previous authors.

Pathology.

588. The Parotid Secretion in Mumps.

F. ROCCHI (*Il Policlinico*, Sez. Med., November 1st, 1929, p. 541) made repeated attempts to transmit mumps to rabbits by injecting testicular fluid from patients with mumps orchitis directly into the parotid in five cases, and into the vas deferens in one case, but always with negative results. Inoculation of the blood of a mumps patient at the height of the disease into the peritoneum of guinea-pigs was similarly ineffective. Catheterism of Stensen's duct in thirty cases of mumps in adults and various control cases, amounting in all to another 250 examinations, showed that the parotid secretion in mumps undergoes a considerable change. In the majority of cases this change is represented by an abolition of the secretion, while in a small percentage there is a more or less considerable diminution. The type of secretion in individual cases (diminution or absence) is not influenced by gustatory or pharmacodynamic stimuli, whether mild or strong, such as lemon juice, tartaric acid, or the injection of 1 cg. of pilocarpine. The average curve of secretion in various stages of the disease showed that the secretion was diminished on the first day of the disease, and rapidly fell to a low level, for about a week varying from 1 to 2 c.cm. an hour. The quantity of albumin in the saliva varies between 0.01 and 0.11 gram, which indicates a considerable increase over the normal. The parotid saliva in mumps showed many characteristic morphological elements—namely, neutrophil polymorphonuclears, lymphocytes, monocytes, gland cells, and epithelial cells from the lining of the ducts—in various stages of preservation. The distribution of these elements in various days of the disease did not support the classification of mumps into three stages as maintained by Sicard and Dopter. The course of the disease was accompanied from the very first day by elimination mainly of the neutrophil polymorphonuclear and gland cells. This characteristic phenomenon, which gradually disappeared as recovery proceeded, is thought to form an important distinction between infective and epidemic parotitis. *Finally, the author points* out that the behaviour of the salivary secretion and its various characters demonstrate the essentially parenchymatous nature of the lesion in the parotid gland.

589. The Effect of Repeated Haemorrhage on Healing Fractures.

A. RALLO (*Rif. Med.*, October 5th, 1929, p. 1345) has investigated the influence of repeated bleedings on the rate of union of long bones after fracture. In 15 rabbits the radius of one side was cut through by scissors; from 10 of these animals blood corresponding in amount to one-seventh of the total blood volume was removed by heart puncture, at first daily for seven days, and then every two, three, and four days until the thirtieth day; the remaining five rabbits were treated as controls. The first rabbit was killed on the tenth day, after eight bleedings; in the section prepared from the seat of fracture the haemorrhagic area was mostly represented by amorphous detritus with some new-formed fibrous tissue, in the midst of which were necrosed spicules of bone; at the margin of the fracture were blood spaces suggesting new blood-vessel formation; the periosteum was separated from the bone and the space was filled with haemolymph elements and young cartilage cells. In a control animal killed at the same date the seat of fracture was completely filled with haemorrhagic detritus, there was no production of fibrous tissue, the splinters of bone were not necrosed, there were no blood spaces suggesting new blood-vessel formation, and the periosteum showed no proliferative activity. In sections from a rabbit killed on the fifteenth day, after ten bleedings, the haemorrhagic debris was largely replaced by fibrous tissue and diffuse collections of cartilage cells, showing active cell division; and there was also an amorphous substance which suggested early calcareous deposit. In sections from a control animal at this date the haemorrhagic stage persisted, the original bone splinters were not altered, there was only a scanty production of cartilage cells, and no evidence of calcareous deposit. Similarly prepared sections from animals killed at the twentieth, twenty-fifth, and thirtieth days, which are well illustrated by photomicrographs, confirmed the author in his conclusion that the healing of fractures is greatly accelerated by repeated removal of blood, which increases the fixing capacity of the tissues for salts of calcium.

590. The Tuberculin Reaction after Vaccination with B.C.G.

R. DEBRÉ and E. COFINO (*C. R. Soc. de Biologie*, November 15th, 1929, p. 513) have made a series of tests to ascertain the proportion of infants developing a positive tuberculin reaction after oral vaccination with B.C.G. during the first few days of life. All the infants belonging to the experimental and the control group were born of tuberculous parents and had been separated at birth; they were brought up in an environment free from tuberculosis. The technique of examination consisted in performing a Pirquet test with crude tuberculin. If this proved negative, 1/10 mg. of tuberculin was then injected intradermally (Mantoux's test); if this was negative, 1/2 mg. was injected; and finally, if this proved negative, 1 mg. was injected intradermally. Using this technique, which was devised to bring out the lesser degrees of tuberculin sensitivity, the authors found that 141 control infants, who had not been vaccinated with B.C.G., failed to react at all. On the other hand, of 132 vaccinated infants, ranging in age from under 3 months up to 4 years, 117, or 88.6 per cent., reacted positively. These results indicate that the majority of infants vaccinated by the mouth with B.C.G. develop a definite sensitivity to tuberculin. They likewise show that Mantoux's test is more delicate than Pirquet's, for of the 117 positive reactions only 42 were obtained by the latter method. In another paper (ibid., p. 516) the authors analyse the relationship of age to tuberculin sensitivity. It was found that of 58 infants under one year old, on whom all the tests were practised, only 1, or 1.7 per cent., failed to react; of 45 infants from 1 to 2 years old, 3, or 6.7 per cent., failed to react; while of 29 infants from 2 to 4 years old, 11, or 37.9 per cent., failed to react. Moreover, it was found that the older the child became, the greater was the amount of tuberculin that had to be injected in order to obtain a positive reaction. The authors conclude that tuberculin sensitivity diminishes in vaccinated subjects, particularly after the age of 2 years.

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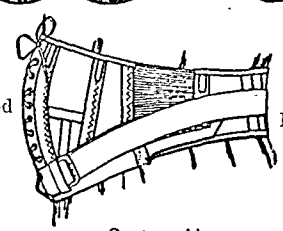

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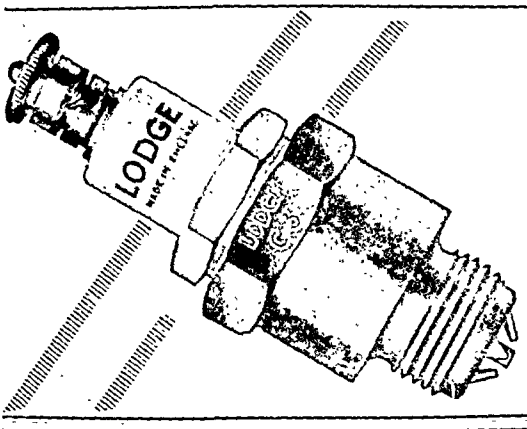

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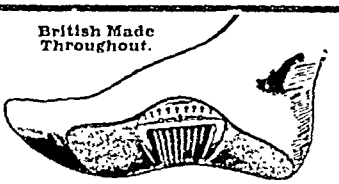

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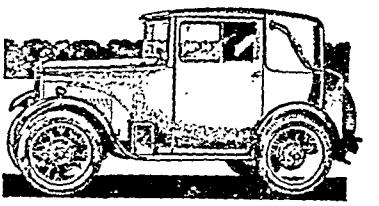

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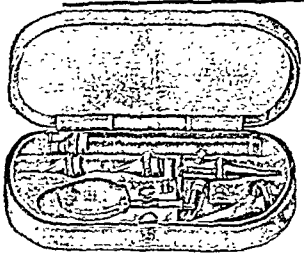

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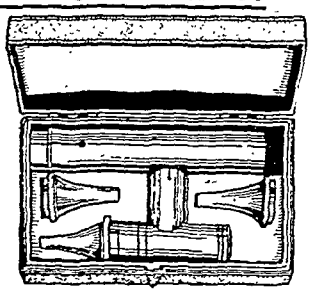

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Twenty acr[illegible] d Grass Tennis Courts, Bowls, Croquet, Squash Racquets, and all indoor amusements [illegible]ther Concerts. Occupational Therapy, Physical Drill, and Dancing Classes.
X-ray and [illegible] Immersion Baths. Operating Theatre, Dental Surgery, and Ophthalmic Dept.
Chapel. Se[illegible] James Norman, assisted by three Medical Officers, also resident, and Visiting Pathologist. may be obtained upon application to the Secretary.

HOVE VILLA, BRIGHTON. — CONVALESCENT BRANCH OF THE ABOVE.

THE RESIDENTIAL TREATMENT OF ALCOHOLISM & DRUG ADDICTION

RENDLESHAM HALL

(Postal Address)—WOODBRIDGE, SUFFOLK.

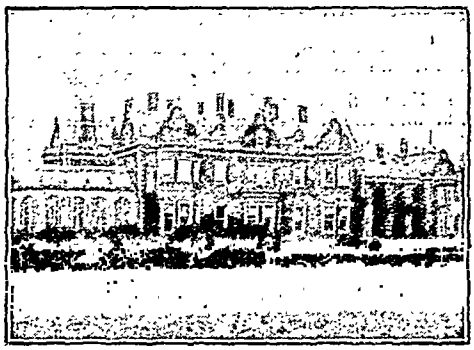
Rendlesham Hall, which is open to receive patients, is essentially a Sanatorium. Its daily life and routine are that of an ordinary comfortable holiday or health resort, or of a large country house. Each patient has all the privileges of a guest consistent with the prescribed medical treatment.

Rendlesham Hall has 45 bedrooms, and about 450 acres of gardens and park. It has also a private nine-hole golf course, tennis and croquet lawns, and bowling green.

Illustrated Booklet, giving particulars as to terms, etc., can be had on application to the

RESIDENT MEDICAL SUPERINTENDENT.

Telegrams and Telephone: Wickham Market 16. (Toll Call from London.)



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To those desiring to be near London—

The Mansion, Beckenham Park, Beckenham, as carried on for the last twenty years, is available. Booklet and particulars from the Resident Medical Superintendent.

Telephone: BECKENHAM 1648. *Telegrams:* NOROTORIUM, BECKENHAM

Proprietors: The Norwood Sanatorium, Limited.

ALCOHOLISM, DRUG HABIT, AND NEURASTHENIA.

BAY MOUNT, PAIGNTON.

(ESTABLISHED 1922). *'Phone:* PAIGNTON 5110.

A small comfortable Home charmingly situated in secluded gardens overlooking Torbay. Ladies and Gentlemen treated with a view to a rapid and permanent cure by modern methods, which give excellent results. Ample amusement, billiards, wireless, golf, tennis, etc. Good train service (3½ hours London). Moderate inclusive terms. Prospectus, report, etc., from—Stanford Park, M.B., CH.B., Res. Med. Supt., Bay Mount, Paignton.

ALCOHOLISM, OTHER DRUG HABITS, AND TROPICAL AILMENTS

THE HARE NURSING HOME

As founded and established by the late Dr. FRANCIS HARE, for 20 years Med. Supt. of The Norwood Sanatorium, and author of "Alcoholism," etc.; for the treatment of ALCOHOLISM, other Drug Habits, Insomnia, Neurasthenia, Functional Nervous Disorders, TROPICAL Ailments, etc.

"THE OLD HILL HOUSE," CHISLEHURST, KENT.

Terms moderate. Quiet and pleasant situation. *Ladies and gentlemen admitted for treatment.* For Prospectus, etc., write or 'phone: WALTER E. MASTERS, M.D., M.R.C.S., D.P.H., Barrister-at-Law (Resident Medical Superintendent)

'Phone: Chislehurst 451. *Telegrams:* "Masters," Chislehurst

Tel. & Telegrams: "Haynes, Brentwood, 45."

Littleton Hall, Brentwood, Essex.

Large grounds, 400 ft. above sea. HOME for Ladies Mentally afflicted. Voluntary Boarders received. Stations: Brentwood and Shenfield 1 mile. Liverp'l St. 25 min.—Apply, Dr. HAYNES.

ALCOHOLISM

DRUG ADDICTION & NEURASTHENIA

CALDECOTE HALL, NUNEATON.

At this beautifully situated country mansion residential Treatment of the above afflictions is carried out on the most modern *scientific* principles, both physical and psychological, under the supervision of the Res. Med. Supt., Dr. A. E. Carver, M.D., D.P.M. Fees Moderate.

Further particulars from the Central Sec., 40, Marsham Street, London, S.W.1. In cases of urgency 'phone NUNEATON 241.

NORTHWOODS, Winterbourne, Bristol.

Telephone and Telegrams: Winterbourne 18.

This beautiful mansion in fifty acres of secluded grounds was built specially for the TREATMENT OF MENTAL ILLNESS. Voluntary boarders and certified patients of both sexes. Thorough clinical, bacteriological, and pathological examinations. Separate bedrooms. Private suites. Indoor and outdoor amusements. Wireless and other concerts. Occupational therapy. Physical drill. Garden and dairy produce from farm on the estate. Reasonable terms.

For further particulars and prospectus, apply to the *Resident Physician.*

THE ROYAL EARLSWOOD INSTITUTION

FOR MENTAL DEFECTIVES, REDHILL, SURREY.

(FORMERLY THE EARLSWOOD ASYLUM.)

FOR THOSE REQUIRING CONTROL with EXPERT SUPERVISION, and needing SPECIAL TRAINING in useful Occupations, SCHOOLS, FARMING, and *various* TRADE WORKSHOPS.

ALL outdoor games. EXCELLENT BAND by Male Staff. *Telephone*

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For the treatment of GENTLEMEN under the Act *and privately.* Estab. 1883 by an Association of prominent medical men and others for the study and treatment of alcohol and drug abuse. Large secluded grounds on the bank of the River Colne. Full-sized billiards, tennis, croquet, bowls. Golf (Moor Park, Sandy Lodge) close by. For particulars apply to—F. S. D. HOGG, M.R.C.S., &c., Resident Medical Supt. *Telephone:* 16 RICKMANSWORTH

CITY OF LONDON MENTAL HOSPITAL, DARTFORD, KENT.

PRIVATE PATIENTS are received at a weekly charge of TWO GUINEAS *and* upwards.

Voluntary BOARDERS can now be admitted.—Apply to the MED. SUPERINTENDENT.

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PRIVATE HOME for MENTALLY AFFLICTED LADIES. Ten only received. Apply, Medical Officer or Mrs PEELE. *Telephone:* 2708.

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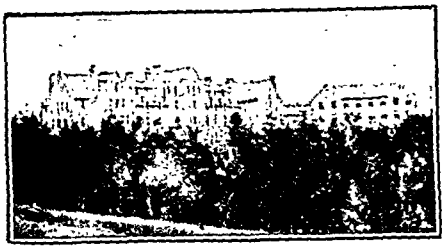

Medical Director: David Lawson, M.D., F.R.S.E.

FULLY EQUIPPED WITH EVERY MODERN APPLIANCE FOR THE DIAGNOSIS AND TREATMENT OF ALL FORMS OF TUBERCULOSIS & ALLIED DISEASES.

Physician Superintendent - J. M. JOHNSTON, M.B., D.P.H., etc.

Full particulars and Prospectus on application to the Secretary.

Inclusive Terms: SEVEN GUINEAS A WEEK.

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Established 1900 for the treatment of Tuberculosis. Miles of carefully graduated walks through pine-clad hills, with sea and mountain views. Modern treatment, including SANOCRYSIN, ARTIFICIAL PNEUMOTHORAX, etc. X-ray plant, electric light, central heating, wireless. Full day and night nursing staff. On L.M.S. Main Line to Holyhead, 4¼ hours from London. Resident Physicians: Dennison Pickering, M.D.(Cantab.), F. W. Godbey, M.D., D.P.H.; Matron: Miss N. Rennardson, S.R.N.

For particulars apply to the Secretary, Pendyffryn Hall, Penmaenmawr, N. Wales. ('Phone, 20.)

LINFORD SANATORIUM,
RINGWOOD, NEW FOREST, HANTS.

Established 1898 for the treatment of Tuberculosis. Radiators and Electric Light throughout. Hot and cold water and shower bath in nearly all rooms. Powerful X-ray Plant. Ultra-violet Rays. Full Nursing Staff. All forms of treatment available. Farm of 120 acres, including 40 acres of wood. Herd of Tuberculin-tested Guernsey cows kept. Resident Physicians—Arthur de W. Snowden, M.D., B.Ch.(Cantab.), A. G. E. Wilcock, M.R.C.S., L.R.C.P., Colin Cassidy, M.B., B.Ch.(Cantab.).

NORDRACH-UPON-MENDIP SANATORIUM
FOR THE TREATMENT OF PULMONARY AND OTHER FORMS OF TUBERCULOSIS
WAS OPENED IN JANUARY, 1899.

Patients are received for open-air, inoculation, or operative treatment. There are X-ray and ultra-violet ray installations. Full nursing staff. The Sanatorium stands in gardens and private grounds of 65 acres, at an elevation of 862 feet above sea-level, surrounded by woods and moorland. The patients' rooms are heated by hot-water pipes and electrically lighted. Fees 4, 5, and 6 guineas per week.

Physicians: ROWLAND THURNAM, M.D., JAMES HENDERSON, M.B., Ch.B.Glas.

For full particulars apply to *The Secretary*, Nordrach-upon-Mendip, Blagdon, Bristol. *Telegrams*: Nordrach, Blagdon. *Telephone*: Blagdon 23

BRIDGE OF ALLAN HYDRO.
(Allan Water Hotel)

This once famous Hydro adjoining the Mineral Wells has recently been equipped with the most modern appliances for treatment by Electro-therapeutics, Medicated Baths, etc. All treatment is given only on the instruction of the Medical Superintendent, or of the patient's own medical adviser.

Bridge of Allan is an Inland Spa and Climatic Resort, sheltered from the North and East winds.

Terms on application. Medical Superintendent: Dr. W. C. HOFFMAN.

MIDDLESEX HOSPITAL.
The Primary F.R.C.S. Examination.

The next Course for the Primary Fellowship Examination will begin on Monday, January 20th, 1930. Application for admission should be made as soon as possible to the School Secretary, Middlesex Hospital Medical School, London, W.1.

ANATOMY.

Personal instruction is given daily by Professor T. YEATES, M.B., C.M.

PHYSIOLOGY.

The Course is under the joint direction of the Professors of Physiology and Biochemistry, and will include the following subjects:

BIOCHEMISTRY. GENERAL PHYSIOLOGY. HISTOLOGY.

A Special Course of Lectures, dealing with the Physiology of the Special Senses, will be given by members of the Honorary Staff of the Hospital during the Course.

Instruction is given daily except on Saturdays; there is a three weeks' vacation at Easter, after which classes are resumed until the examination.

FEES.—£12 12s each subject or £21 for both.

STAMMERING, SPEECH DEFECTS.
BEHNKE METHOD. Estab. 1882. Cases, non-resident, treated at 39, Earl's Court Square, S.W.5, and in residence, in the Summer holidays, at Miss BEHNKE'S house on the Chilterns.

"Pre-eminent success in the education and treatment of stammering and other speech defects."—"Times."
"Thoroughly physiological principles."—"Lancet."
"The method is scientifically correct and perfectly effective."—"Guy's Hospital Gazette."

STAMMERING, CLEFT PALATE SPEECH, LISPING, &c.
at Miss BEHNKE, 39, Earl's Court Sq., S.W.5.

F.R.C.S.(Edin.).
Prep. Classes and Museum Demons. for next Fellowship Exam. will commence Jan. 27th. Correspondence course for July and later exams should begin now. Parties., H. C. ORRIN, F.R.C.S., at Surgeons' Hall, Edinburgh.

STAMMERING.
SPEECH DEFECTS.

Resident and non-resident pupils. Full particulars upon request.—Mr. A. C. SCHNELLE, 119, Bedford Court Mansions, London, W.C.1 Estab. 1905. Telephone: Museum 3665

POST-GRADUATE MIDWIFERY.
Qualified Medical Women are admitted to The Mothers' Hospital of the Salvation Army, Lower Clapton Road, E.5, for practical fortnightly Courses in Midwifery. These include delivery of normal cases, attendances at all abnormal cases, operations, ward rounds of visiting staff, V.D. clinics, and ante-natal clinics. For further particulars, fees, etc., apply to the Secretary.

F.R.C.S.(Edin.)
CLASSES, with Museum and Anatomical Demonstrations, for next Exam., will commence shortly. Correspondence work at any time. Particulars from CHAS. WHITTAKER, F.R.C.S., Surgeons' Hall, Edinburgh.

Preliminary Examinations
The COLLEGE OF PRECEPTORS holds Preliminary Examinations for Medical and Dental Students in London and at Provincial Centres in March, June, September, and December. For Regulations, apply to the Secretary, College of Preceptors, Bloomsbury Square, London, W.C.1.

EPSOM COLLEGE

Established in 1855 as a Public School with a Royal Medical Foundation.

Patron: HIS MOST GRACIOUS MAJESTY THE KING.
President: The Right Hon. the Viscount Burnham, G.C.M.G.
Treasurer: Sir William Hale-White, K.B.E., M.D.
Chairman of the Council: Raymond Crawfurd, Esq., M.D., F.R.C.P.
Vice-Chairman of the Council: Sir John F. H. Broadbent, Bart., M.D.
Head Master of the School: Arnold C. Powell, Esq., M.A.

EPSOM COLLEGE is in a healthy situation at a considerable elevation and on the edge of the Downs. It contains a valuable Library; a Museum; five Laboratories—two Chemical, two Physical, and one Biological; a Lecture Theatre; a Carpenter's Workshop; an Armoury; a Gymnasium; a Swimming Bath; and extensive grounds of close upon 80 acres.

Within the College grounds, but detached from the main building, are a Chapel, a Sanatorium, and a suitably fitted isolation hut.

For boys who have matriculated at the University of London, and who desire to enter the Medical Profession, the First Medical Examination of that University is conducted at Epsom College, and they are spared the expense of going to London for the purpose.

The General Council of Medical Education and Registration of the United Kingdom has included Epsom College in the list of Recognized Institutions approved of by that Council as places at which medical study may be commenced; and the College has been recognized as a School of Science by the Royal Colleges of Physicians and of Surgeons for the purpose of their Conjoint Diplomas.

Boys are also prepared for the Army, Navy, Air Force, Civil Service, the Universities, and for mercantile careers.

Ten Medical Scholarships, differing in value, are awarded annually at the Hospital Schools in London, and 32 leaving Scholarships, ranging in value from £15 to £105, are awarded under varying conditions, some of them annually, but most of them tenable for several years. Besides these, there are one "Dr. Robert Thomson and Phyllis Broughton" Open Entrance Scholarship of £120 a year; one "Domett Stone" Open Entrance Scholarship of £50 a year; and four "Salomons" Entrance Scholarships of £50 a year each. "Hugh Vardon" Scholarships of £24, and Junior Open Scholarships of £60, are awarded annually.

ANNUAL FEES.—Sons of Medical Men, £135. Those who are not the sons of Medical Men, £155. Day Scholars, £57. These fees cover all the "extras" which used to be charged for separately under the heading "Consolidated Charges."

NEW SANATORIUM.

The provision of a new Sanatorium is a pressing need. The present Sanatorium is unsatisfactory in its accommodation and arrangements, is uneconomical in working, and affords no facility for isolating infectious cases. The Medical Officer of the College, with the aid of an experienced hospital architect, has prepared outline plans for a model Sanatorium, with an Isolation Wing, the total cost of which will be about £30,000.

The Council are now actively engaged in an effort to secure the necessary money, and already a sum of over £7,500 has been collected. A donor of £10,000 may give his own name or the name of any person whom he desires to commemorate to the main Sanatorium, a donor of £5,000 may do likewise to the Isolation Wing: while a large ward may be named for £3,000 or a small ward for £1,000, and a single bed for £100.

An Institution which has its roots in the science of medicine ought to be possessed of a Sanatorium that should stand out as a model for all other public schools. The provision of a suitable Sanatorium is not only a hygienic matter but would have incidentally an important educational aftermath, for the vacated building would, with a limited amount of internal adaptation, afford excellent residential quarters for some forty more boarders, and so enable the College to house many of the applicants whom it is compelled to decline each year.

Contributions should be sent to the Secretary of the College, 49, Bedford Square, W.C.1, and made payable to the "New Sanatorium Fund."

WAR MEMORIAL: THE CHAPEL.

The Old Epsomian Club instituted a War Memorial Fund for the purpose of enabling the Nave of the Chapel to be rebuilt in harmony with the new Chancel, and of placing in it a suitable monument bearing the names of old Epsomians and Epsom Masters who sacrificed their lives in the war.

The work of rebuilding the Chapel was completed by the end of 1924. As a further sum of about £1,970 is required to pay off the deficiency on this work, the Council earnestly appeal to Old Epsomians and other friends of the College for further contributions. The War Memorial Fund is still open, and Cheques should be drawn in favour of the "Epsom College War Memorial Fund," and sent to the Secretary, 49, Bedford Square, W.C.1.

Donors to this Fund will receive the same voting privileges as those given to contributors to the Royal Medical Foundation of the College.

ROYAL MEDICAL FOUNDATION.

FIFTY FOUNDATION SCHOLARS receive an education of the highest class in Epsom College, and are boarded, clothed, and maintained at the expense of the College. They must be elected, after approval by the Council, from among the sons of necessitous Medical Men who have been Registered Medical Practitioners for five years.

FIFTY ORDINARY PENSIONERS, who must be legally qualified Medical Men registered for five years, or the Widows of such, receive an annual pension. They must be not less than 60 years of age at the time of their application for admission as candidates.

The Ordinary Pensioners and the Foundation Scholars are elected by the Governors, voting by ballot, and having votes in proportion to the amount of their contributions. There is one election in the year, namely, in June.

The Ordinary Pupils, the majority of whom are sons of Medical Men, pay fees which cover the entire cost of their board and education.

A sum of close upon £9,000 is required annually to maintain fifty Foundation Scholars and fifty Pensioners, yet this leaves much destitution in the profession untouched. The Council earnestly plead for more and larger subscriptions, so that they may extend the work to the relief of this distress.

The profession and the public are therefore asked to make the Royal Medical Foundation attached to the College a refuge in time of trouble for all those members of a great profession and their children who fall on evil days.

Donors of 10 guineas, and collectors of 20 guineas, are Life Governors of the College; subscribers of one guinea annually are Governors during the continuance of their subscriptions.

J. BERNARD LAMB, Secretary.
Office: 49, Bedford Square, W.C.1.

INDIAN MEDICAL SERVICE

Recruitment of European Officers.

Applications are invited from medical men for permanent commissions in H.M.'s Indian Medical Service. The terms offered include a gratuity of £1,000 on retirement after six years' service, or £2,500 after 12 years' service, together with free return passages, for those who no longer desire to remain in the Service. In other respects the terms will be as detailed below.

Candidates must be British subjects under 32 years of age at the time of application, and must be registered under the Medical Acts in force in Great Britain and Northern Ireland.

CAREERS.

The Indian Medical Service offers wide opportunities of medical experience, including clinical, preventive, specialist, and research work. At the beginning of his career an officer is employed on the military side, which has medical charge of the Indian Army. Promotion is on a time scale up to the rank of Lieutenant-Colonel, and by selection to the ranks of Colonel and Major-General. An officer may apply after two years' Indian service for transfer to the civil side, from which appointments are made to Civil Surgeoncies, which are established at the principal civil centres to provide for the medical needs of civil officials and for general medical administrative purposes; to specialist (for example, public health and bacteriological) services; to research posts; and to professorships at the Medical Schools.

PAY.

The monthly rates of pay for European officers in the Service who have a "non-Asiatic" domicile are as follows:

Rank.	Service in Rank.	Basic Pay.	Overseas Pay.	Year of Total Service.
1	2	3	4	5
		Rs.	Rs.	
Lieut.		500	150	1st
			150	2nd
			150	3rd
Capt.	(i) During first 3 years' service as Captain	650	150	4th
			£15	5th
			£15	6th
	(ii) With more than 3 and less than 6 yrs.' service as Captain	750	£25	7th
			£25	8th
			£25	9th
	(iii) With more than 6 years' service as Captain	850	£25	10th
			£25	11th
			£30	12th
Major	(i) During first 3 years' service as Major	950		
	(ii) With more than 3 and less than 6 years' service as Major	1100		
	(iii) With more than 6 years' service as Major	1250		
Lieut.-Col.	(i) Until completion of 23 years' total service	1500	£30	13th and over
	(ii) During 24th and 25th years' service	1600		
	(iii) After completion of 25 years' total service	1700		
	(iv) When selected for increased pay	1850		

EXTRAS.—In addition to the above rates various allowances are admissible for a large number of special appointments on both the military and the civil side which may be held by members of the Indian Medical Service. Special high rates of pay are also attached to the numerous administrative appointments open to officers in both branches of the Service.

WAR SERVICE CONCESSIONS.

Any service rendered by an officer during the war as a medical or combatant officer, or in a position usually filled by an officer, may be counted as service for increments of pay, promotion, retirement and retired pay, but not for gratuity.

One *half* of any service in the ranks during the war may be counted as service for retirement and retired pay only.

OUTFIT ALLOWANCE.

Officers on appointment will receive an outfit allowance of £50.

PRIVATE PRACTICE.

With the exception of Administrative Officers, military or civil, and officers holding certain special appointments, officers are not debarred from taking private practice, so long as it does not interfere with their proper duties.

PENSIONS.

The rates of pension are as follows:	Per annum.
	£
After 17 years' service for pension	400
„ 18 „ „ „	430
„ 19 „ „ „	460
„ 20 „ „ „	500
„ 21 „ „ „	540
„ 22 „ „ „	580
„ 23 „ „ „	620
„ 24 „ „ „	660
„ 25 „ „ „	700
„ 26 „ „ „	750
„ 27 „ „ „	800

These rates are subject to alteration on account of a rise or fall in the cost of living as compared with the year 1919 to an extent not exceeding 20 per cent. in all, the revision being undertaken triennially. With effect from July 1st, 1927, a reduction of 4½ per cent. has been made on this account from the amounts shown.

There are additional pensions ranging from £65 to £350 per annum for officers who have held administrative appointments.

PASSAGES.

An officer on appointment is provided with a free passage to India. The wives and families of officers who are married prior to the date of the officers' embarkation on first appointment will also be provided with free passage to India, subject to the payment of messing charges.

Officers and their families are also eligible for passage concessions under which they are granted a certain number of return passages home at Government expense during their service.

INSTRUCTION PRIOR TO EMBARKATION.

Officers are required to undergo courses of instruction at the Royal Army Medical College and at Aldershot, lasting approximately six months, prior to their embarkation for India on first appointment.

Full details regarding these appointments and forms of application may be obtained from the Under-Secretary of State for India, Military Department, India Office, London, S.W.1. Applications should be submitted as soon as possible. The Selection Committee will meet early in January to make nominations, and the selected candidates will be required to attend a course of instruction commencing on or about the 1st February, 1930.

Post-Graduate Teaching, West London Hospital.

Continuous Clinical Instruction daily from 10 a.m. to 4 p.m.—Post-Graduates may enrol at any time for any period from 1 week to 3 months.—Special facilities for "Study Leave."—Anæsthetic Courses.—Clinical Assistantships.—Annual Membership Tickets at Special Terms available for General Practitioners who wish to attend the Hospital Practice at irregular intervals.

Prospectus from Sir Henry Simson, K.C.V.O., Dean, West London Hospital, Hammersmith, W.6.

ST. MARY'S HOSPITAL MEDICAL SCHOOL, W.2.

(University of London.)

PRIMARY F.R.C.S. COURSE.

A Course of Instruction for the JUNE EXAMINATION will begin on MONDAY, FEBRUARY 3rd, 1930, and will be conducted as follows:

ANATOMY AND EMBRYOLOGY.—Prof. J. ERNEST FRAZER, F.R.C.S. (Professor of Anatomy in the University of London).

PHYSIOLOGY AND HISTOLOGY (with Practical Classes).—Prof. B. J. COLLINGWOOD, O.B.E., M.D. (Professor of Physiology in the University of London).

Fee for the Course, 16 gns., or 9 gns. for either section separately. This fee includes membership of the Students' Club during the period covered by the Course.

For further particulars apply to the School Secretary.

LONDON SCHOOL OF DERMATOLOGY,

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN,
LEICESTER SQUARE, W.C.2.

Conducted by the Honorary Staff of the Hospital, together with the Physicians in charge of the Dermatological Departments of the London Teaching Hospitals. Lectures and Demonstrations every Tuesday and Thursday, at 5 p.m., from October to March, and four times weekly during May. Clinics daily at 2 p.m. and 6 p.m., Saturdays, 2 p.m. only. Pathological Laboratory for Instruction or Research Work.

For further particulars, fees, etc., apply to J. E. M. WIGLEY, M.B., Dean.

TAUNTON SCHOOL,

TAUNTON.

A PUBLIC SCHOOL FOR BOYS.

Boys are regularly prepared for the First M.B. Examination, University Scholarships in Chemistry, Biology, etc.

Special facilities are offered for the teaching of Chemistry, Physics, Botany, and Zoology.

New Science Buildings, containing seven laboratories, two lecture rooms, science library, store rooms, etc., opened in September, 1925. Prospectus from Head Master.

CITY OF LONDON MATERNITY HOSPITAL,

CITY ROAD, E.C.1.

MIDWIFERY TRAINING SCHOOL.

MEDICAL STUDENTS admitted to Hospital practice, with operative Midwifery, and Obstetrical complications.

PUPILS TRAINED as Midwives and Monthly Nurses in accordance with C.M.B. regulations.

PRIVATE WARDS for paying patients.

LIVERPOOL SCHOOL OF TROPICAL MEDICINE.

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COURSES OF
three months) f
Medicine commence on October 1st and January 6th, and for the Diploma in Tropical Hygiene on January 13th and April 23rd. (Candidates for the D.T.H. must possess the D.T.M. of this University.)

For particulars apply to the Hon. Dean, Liverpool School of Tropical Medicine, Pembroke Place, Liverpool.

SCHOOLS for BOYS and GIRLS.

TUTORS FOR ALL EXAMS.

Messrs J. & J. PATON, having an up-to-date knowledge of the BEST SCHOOLS and TUTORS in this Country and on the Continent, will be pleased to AID PARENTS in their choice by sending (free of charge) prospectuses and TRUSTWORTHY INFORMATION and ADVICE.

The age of the pupil, district preferred, and rough idea of fees should be given.

J. & J. PATON, Educational Agents, 143, Cannon St., London, E.C.4. Tel. Mansion House 5053.

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SOME SUCCESSES:

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M.R.C.P.(Lond.), 1914-28	152
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M.D. Various. By Thesis. Numerous successes.	

Preparations for Medical Preliminary, and Chemistry, Physics, Anatomy, Physiology, and final subjects for the Conjoint Board; M.B.(Cantab., etc.); also D.P.M., D.O.M.S., D.T.M. & H., D.L.O., L.M.S.S.A., etc. Numerous successes.

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MEDICAL PROSPECTUS (48pp.)

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London Hospital Medical College.

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Essays for this Prize will be received up to NOVEMBER 30th, 1930, and not up to May 31st, 1930, as previously announced.

WILLIAM WRIGHT, M.B., D.Sc., F.R.C.S., London Hospital Medical College, Mile End, E.1. Dean.

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The Course of Instruction can be commenced at any time.

The Principal will be pleased to interview intending candidates for the purpose of advice.

Further particulars can be obtained from the Secretary, 37, Russell Square, W.C.1.
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The next EXAMINATION begins on MARCH 17th, 1930. The two months' COURSE OF INSTRUCTION starts on JANUARY 20th, 1930. For further information apply to—

P. H. ADAMS,
6, Holywell, Oxford. Margaret Ogilvie Reader in Ophthalmology.

The Cancer Hospital (Free),

Fulham Road, London, S.W.3.

A COURSE IN RADIOLOGY will be held at the Cancer Hospital (Free), commencing on January 21st, 1930. It will consist of a lecture and demonstration twice weekly for 12 weeks. Syllabus may be had on application to Secretary. The fee for the course is £5 5s., payable to the Hon. Secretary, Medical Committee.

University of Leeds.

The Council will shortly proceed to the appointment of a TUTOR IN OBSTETRICS AND GYNÆCOLOGY. Salary £475 a year. Candidates should have resident experience in both subjects. Further particulars may be obtained from the Registrar, The University, Leeds, who will receive applications for the appointment up to January 10th.

Wilts County Council

APPOINTMENT OF ASSISTANT SCHOOL DENTIST.

The Wilts County Council invite applications for the appointment of an Assistant School Dentist, to work in the Department of the County School Medical Officer, at a salary of £450 per annum.

Subsistence allowance in accordance with the County scale will be paid.

The officer appointed must be duly qualified and registered, and will be required to reside in or near Trowbridge.

The appointment will be made subject to the provisions of the Local Government and Other Officers Superannuation Act, 1922, and the successful candidate will be required to pass a medical examination.

Applications, on forms to be obtained from the undersigned, and accompanied by copies of not more than three recent testimonials, must be delivered in envelopes, marked "School Dentist," not later than the first post on Friday, January 3rd, 1930.

Canvassing, either directly or indirectly, will disqualify.

County Offices, Trowbridge, Wilts. December 10th, 1929. W. L. BOWN, Clerk of the Council.

Borough of Macclesfield.

MEDICAL OFFICER OF HEALTH AND SCHOOL MEDICAL OFFICER.

The Council invite applications for appointment as Medical Officer of Health and School Medical Officer.

The person appointed will be required to devote his whole time to his duties, and will take entire charge of the Public Health work of the Council, including Maternity and Child Welfare, Mental Deficiency, and all School Medical Services, and of the Council's Isolation Hospitals, and will also act as Supervising Officer under the Midwives Acts and Certifying Officer under the Council's Superannuation Scheme when established.

The commencing salary will be £800 per annum, with increments of £25 to a maximum of £900. Candidates must not be more than 35 years of age and must be registered Medical Practitioners holding a qualification in Public Health or State Medicine.

The appointment will be subject to three calendar months' notice on either side.

Applications, stating qualifications, endorsed "Medical Officer of Health," accompanied by copies of not more than three recent testimonials, should be addressed to me not later than January 8th, 1930.

Town Hall, Macclesfield. December 11th, 1929. F. R. OLDFIELD, Town Clerk.

Birmingham Union.

SELLY OAK HOSPITAL.

TWO CASUALTY OFFICERS (Male).

Applications are invited from fully qualified Medical Practitioners for the appointments of Casualty Officers (male) at the Selly Oak Hospital, Birmingham.

The present Hospital accommodation is 340 beds divided into General Medical, General Surgical, Gynæcological, Obstetrical, Children, and Infectious Sections. There is a completely equipped Pathological Laboratory, also X-ray, Electro-therapeutic, Massage, and Sunlight Departments. Over 2,200 operations are performed annually.

The appointments will be for a period of six months in the first instance, but may be extended at the end of that time.

The officers appointed will be required to assist at operations, administer anæsthetics, and undertake casualty work, and such other duties as may be assigned to them by the Medical Superintendent, and, should occasion arise, to assist at any of the other Institutions under the control of the Guardians.

The salary attached to the appointments is at the rate of £200 per annum, together with full residential emoluments (rations, apartments, laundry, and attendance).

A deduction of 2 per cent. will be made from the salary and value of emoluments under the provisions of the Poor Law Officers Superannuation Act, 1896, and for this purpose the emoluments are valued at £200 per annum.

Further particulars of the appointments may be obtained from the Medical Superintendent, Mr. R. P. STANLEY KELMAN, M.B., F.R.C.S. (Eng. & Edin.) at the Selly Oak Hospital.

Applications, stating age, experience, and qualifications, accompanied by copies of recent testimonials, must be forwarded so as to reach me not later than Wednesday, January 8th, 1930.

Union Offices, Birmingham. December 12th, 1929. C. P. BEECH, Clerk to the Guardians.

Birmingham Union.

MONYHULL COLONY.

RESIDENT ASSISTANT MEDICAL OFFICER (Female).

Applications are invited from fully qualified Medical Practitioners for the above appointment at Monyhull Colony, King's Heath, Birmingham. Candidates should have held House appointments, and experience with mental patients will be an added qualification.

The Colony accommodates approximately 1,200 epileptic and feeble-minded patients, and comprises Adults' and Children's Sections. The Colony is certified under the provisions of the Mental Deficiency Acts, 1913 to 1927, and the Education Act, 1921.

The person appointed will be required to assist in the general medical work of the Colony and to undertake such other duties as may be assigned to her by the Guardians or the Medical Superintendent, and, should occasion arise, to assist at any other Institutions under the control of the Guardians.

The minimum and maximum of the scale of salary attached to the appointment are £250 and £350 per annum respectively, and the salary of the successful candidate will be fixed within these limits according to qualifications and experience. In addition, full residential emoluments will be provided. A percentage deduction will be made from the salary and value of emoluments in respect of superannuation, and for this purpose emoluments are valued at £200 per annum.

Applications, stating age, experience, and qualifications, accompanied by copies of recent testimonials, should be forwarded to me as soon as possible, and in any case not later than Saturday, January 4th, 1930.

Canvassing the Guardians, directly or indirectly, will disqualify.

Union Offices, Edmund Street, Birmingham. December 16th, 1929. C. P. BEECH, Clerk to the Guardians.

The Guest Hospital and Eye INFIRMARY, DUDLEY.

(General Hospital—104 Beds.)

Applications are invited for the post of ASSISTANT HOUSE SURGEON, to commence duty on January 16th, 1930. Duties include Medical, Surgical, Eye, Ear, Nose, and Throat, and Venereal Diseases work. Salary £150 per annum, with furnished apartments, board, and laundry. Candidates must be fully qualified and registered. Applications, stating age, qualifications, and experience, and accompanied by copies of testimonials, to be sent to the undersigned not later than December 31st.

H. RAYMOND HURST, Secretary.

The Guest Hospital, Dudley. December 16th, 1929.

County Borough of SOUTHAMPTON.

APPOINTMENT OF SCHOOL DENTIST.

Applications are invited for the position of an Assistant School Dentist to carry out the Dental examination, treatment, etc, of elementary school children.

The gentleman appointed must be fully qualified and registered. He will hold office during the pleasure of the Council and will be required to devote the whole of his time to the duties of the office and to act under the direction of the School Medical Officer.

Salary £450 per annum.

The Local Government and Other Officers Superannuation Act, 1922, will be applicable to the appointment, and contributions to the Superannuation Fund will be deducted from the salary. The selected candidate will be required to pass a satisfactory medical examination.

The appointment will be determinable by two months' notice on either side.

Forms of application may be obtained from the Medical Officer of Health, Municipal Offices, Southampton.

Application on the prescribed form, endorsed "School Dentist," together with copies of not more than three recent testimonials, must be delivered at the Town Clerk's Office, Municipal Offices, Southampton, on or before January 4th, 1930.

REGINALD H. MEGGESON, Town Clerk.

County Borough of Great YARMOUTH.

ASSISTANT MEDICAL OFFICER OF HEALTH AND ASSISTANT TUBERCULOSIS OFFICER.

Applications are invited for the position of Assistant Medical Officer of Health and Assistant Tuberculosis Officer. Salary £600 per annum.

The gentleman appointed will be required to devote the whole of his time to the service of the Corporation, and in addition to acting as Assistant Tuberculosis Officer will be required to assist in the general work of the Health Department, working for all purposes directly under the Medical Officer of Health, who is also Tuberculosis Officer.

Candidates must have had at least three years' experience of their profession since qualification; be able to show special experience in the diagnosis and treatment of tuberculosis; and should hold a Diploma in Public Health.

The appointment is subject to the approval of the Ministry of Health and to the provisions of the Local Government and Other Officers Superannuation Act, 1922.

Applications, stating age, marital state, qualifications, tuberculosis experience, and general experience, together with not more than three recent testimonials, should be delivered to the Medical Officer of Health, Town Hall, Great Yarmouth, marked "Assistant Medical Officer," not later than January 4th, 1930.

Dated this twelfth day of December, 1929.

Town Hall, Great Yarmouth. W. EDGAR STEPHENS, Town Clerk.

Bolton Union.

TOWNLEYS HOSPITAL.

Wanted for the Townleys Hospital, Farnworth, near Bolton, a SECOND ASSISTANT MEDICAL OFFICER (male) for a period of one year.

The salary will be at the rate of £225 per annum, and rations, furnished apartments, attendance, washing, etc.

The Hospital has accommodation for 550 patients, is a recognized training school for nurses, and has a Medical Superintendent and three resident Assistant Medical Officers.

Forms of application, together with conditions of appointment (for which a stamped addressed foolscap envelope must be enclosed), may be obtained from me.

Last day for applications January 6th, 1930.

28, Mawdsley St., Bolton. December 13th, 1929. H. I. COOPER, Clerk to the Guardians.

Swansea County Borough.

MALE ASSISTANT MEDICAL OFFICER.

The Swansea Borough Council invite applications from duly qualified Medical Practitioners for the post of Male Assistant Medical Officer to assist with the Medical Services of the Corporation.

Hospital resident and special experience of refraction and ear, nose, and throat work, school medical service, and maternity and child
rable; the D.P.H
the foregoing, is
er annum, subject
of Education and
the Ministry of Health.

Applications, on special forms, which can be obtained from Dr. Thomas Evans, Medical Officer of Health, Public Health Office, Swansea, to be sent in not later than December 31st.

Hampshire County Council.

ASSISTANT COUNTY MEDICAL OFFICER.

Applications are invited for the post of Assistant County Medical Officer. Preference will be given to a woman with experience in maternity and child welfare work, including maternity centres and ante-natal clinics, and in the treatment of venereal diseases. Possession of a Diploma or Degree in Public Health is essential, and previous experience in Public Health work, tuberculosis, and medical inspection of school children will be considered an advantage.

Salary £600 a year, rising by increments to £750 (subject to deductions under the Local Government Officers Superannuation Act), in addition to travelling expenses and subsistence allowances.

Applications, with copies of not more than three testimonials upon a form which, with the conditions of appointment, may be obtained from the County Medical Officer, The Castle, Winchester, should be sent to him not later than January 3rd, 1930. Canvassing is prohibited.

Durham County Mental Hospital

Wanted, a JUNIOR MALE ASSISTANT MEDICAL OFFICER, with a sound knowledge of Bacteriology and Pathology, competent to take charge of Laboratory. Age not over 30 years, unmarried. Must be fully qualified and duly registered.

Commencing salary £350 per annum, rising by annual increments of £25 to £450 (if in possession of D.P.M. an additional £50), with board, lodging, washing, and attendance.

The appointment will be made under the provisions of the Asylum Officers Superannuation Act, 1909, and for this purpose the emoluments are valued at £135 per annum.

Applications, stating age, qualifications, etc., with copies of three recent testimonials, will be received up to the 31st instant, and should be addressed to the MEDICAL SUPERINTENDENT, Winterton, Stockton-on-Tees, Co. Durham.

December 14th, 1929.

The London Female Lock Hospital,

285, Harrow Road, London, W.9.

The Board of Management invite applications for the appointment of HOUSE SURGEON (male or female) at the Female Lock Hospital. Salary at the rate of £150 per annum, with furnished rooms, full board, and washing. Candidates, who must be doubly qualified and duly registered, should send in their applications by January 6th, 1930, accompanied by copies of three recent testimonials, to the Secretary, from whom further particulars can be obtained. The appointment is for six months commencing February 12th.

The London Female Lock Hospital,

285, Harrow Road, W.9. (Founded 1746.)

HON. OBSTETRIC SURGEON.

The Board of Management invite applications for the above appointment. Copies of the laws relating to this appointment can be obtained from the Secretary. Applications, enclosing copies of not more than three testimonials, should be lodged with the undersigned on or before January 6th, 1930.

The appointment will be made at a special Court of Governors on January 9th, 1930.

By Order of the Board,
H. J. EASON, Secretary

The Consumption Sanatoria of Scotland and the Colony for Epileptics, Bridge of Weir, Renfrewshire

RESIDENT ASSISTANT MEDICAL OFFICER (single, male) required. Duties to commence on January 20th, 1930.

Salary at rate of £200 per annum, with board, residence, and laundry.

Applications, with testimonials, and stating previous experience, should be addressed to the Medical Superintendent.

Both Sanatorium and Colony are connected with the Orphan Homes of Scotland (Quarrier's Homes), and are situated in the beautiful uplands of Renfrewshire, 15 miles from Glasgow.

Westminster Hospital,

Broad Sanctuary, S.W.1

There is a vacancy for a HOUSE ANÆSTHETIST. The appointment is a whole-time one, and is of three or six months' duration. Salary £100 per annum (non-resident).

Applications should be submitted to the undersigned not later than Saturday, January 4th, 1930.

CHARLES M. POWER, Secretary

The Royal Infirmary, Bradford.

RESIDENT SURGICAL OFFICER (male) required to supervise the work of four House Surgeons and be generally responsible for the surgical work of the Hospital.

Candidates must be single and legally qualified, have had previous Hospital experience, and be prepared to enter on duty at the beginning of February, 1930. Salary £250 per annum, with board, residence, and washing. There are 215 beds and six resident officers. Applications, stating age, qualifications, and previous experience, with copies of not more than three recent testimonials, to be received by the undersigned not later than Tuesday, December 31st.

J. J. BARRON, Secretary-Supt.

Charing Cross Hospital.

NON-RESIDENT HOUSE ANÆSTHETIST.

Applications are invited from those possessing registered qualifications for the above post.

The appointment will be made for the term of six months, and the holder will be eligible for re-election. Salary at the rate of £100 per annum.

Copies of the rules relating to the office can be obtained from the undersigned, to whom applications, with copies of two recent testimonials bearing witness to the candidate's experience in the administration of anæsthetics, must be delivered not later than Monday, December 30th, to—

Charing Cross Hospital, Strand, London, W.C.2. PHILIP INMAN, House Governor.

The Jessop Hospital for Women, Sheffield.

GYNÆCOLOGICAL AND MATERNITY DEPARTMENTS. (145 Beds.)

The Board of Management invite applications for the appointment of Two ASSISTANT HOUSE SURGEONS (male) for six months from January 13th, 1930.

Salary £100 per annum, together with board, residence, and laundry.

Applications, stating age, with copies of recent testimonials, should reach the undersigned on or before January 6th, 1930.

H. B. SHELSWELL, Secretary.

Northampton Education Committee.

ASSISTANT SCHOOL DENTIST.

Applications are invited for the appointment of a fully qualified Dental Surgeon (man or woman) as Assistant School Dentist. Salary £450 per annum.

Further particulars and forms of application may be obtained from the undersigned, by whom applications should be received by not later than January 3rd, 1930.

Education Office, 4, St. Giles' Street, Northampton. A. C. ROYDE, Director of Education.

The Royal Gwent Hospital, Newport, Mon. (160 Beds.)

Wanted, a JUNIOR RESIDENT MEDICAL OFFICER to act as House Surgeon to Out-patients and House Physician.

Salary £135, with board, lodging, and laundry.

Large Out-patient Department. Eligible for promotion. Resident Medical Staff five.

Applications, stating age and qualifications, with copies of three recent testimonials, to be sent to the undersigned.

Applications from ladies not entertained.

J. K. MILLWARD, Secretary-Supt.

December 3rd, 1929.

Central London Ophthalmic Hospital,

Judd Street, St. Pancras, W.C.1.

There are vacancies for the posts of SENIOR and JUNIOR HOUSE SURGEON. Salaries at the rate of £120 and £100 per annum respectively, with board and residence in the Hospital. Applications, with testimonials, from duly qualified candidates, must be sent to the undersigned on or before December 31st.

H. R. S. BRUCE, Secretary.

Newark Hospital and Dispensary (50 Beds.)

Wanted, a fully qualified RESIDENT HOUSE SURGEON (male) to commence duty January 1st, 1930. Must be a good Anæsthetist. Salary £150 per annum, with board, residence, and laundry. Appointment for six months, or twelve if mutually desired. For form of application apply to W. T. CRAMPTON, 27, Kirk Gate, Newark, Notts.

Royal Westminster Ophthalmic Hospital

(Incorporated by Royal Charter),
Broad Street, Holborn, W.C.2.

REFRACTION ASSISTANTS.

There will be vacancies for Refraction Assistants, to commence on February 1st, 1930, for duty twice a week, and the appointments are tenable for six months. Salary at the rate of £100 per annum.

Candidates must be duly qualified Medical Practitioners, and have had experience in Refraction work.

Applications, with copies of testimonials, to be sent to the Secretary, from whom further particulars can be obtained, not later than Saturday, January 4th, 1930.

Royal Westminster Ophthalmic Hospital

(Incorporated by Royal Charter),
Broad Street, Holborn, W.C.2.

Applications are invited for the part-time appointment of PATHOLOGIST to this Hospital.

Duties to commence on February 1st, 1930, and the appointment will be terminable on December 31st, 1930, when the holder, if considered suitable, will be re-elected for a further period.

Honorarium at the rate of £75 per annum.

Applications should be sent to the Secretary, from whom further particulars can be obtained, not later than January 4th, 1930.

Walsall General Hospital.

The Committee invite applications from men for the post of CASUALTY HOUSE SURGEON. Salary £120 per annum.

Candidates, who must be registered under the Medical Acts, must have had previous experience in Surgery and administration of Anæsthetics, and produce three recent testimonials.

The appointment will be for six months.

The Hospital contains 100 beds, and is equipped in all special departments.

Applications must be received by the undersigned not later than the first post Tuesday, December 31st.

WALTER FRANCOMBE,
December 9th, 1929. Secretary.

St. Mary's Hospital, W.2.

The post of ASSISTANT PATHOLOGICAL CHEMIST is vacant. Salary £300 per annum. The Board [illegible] ications from pers[illegible]cations. Copies of [illegible]hree in number, s[illegible] on or before Tue[illegible]

A copy of the regulations may be had on application. The appointment is in the first instance for one year, but the holder is eligible for re-appointment for two subsequent years.

By Order,
W. PARKES, Secretary.

Liverpool Hahnemann Hospital, Hope Street.

Applications are invited for the post of STIPENDIARY MEDICAL OFFICER to the above Hospital, which falls vacant on January 1st, 1930.

Post is non-resident, tenable for six months, renewable. Mornings only. Some visiting.

Salary at the rate of £125 per annum.

Candidate must be willing to study and apply Homœopathy.

Present incumbent is an applicant.

Apply before December 31st to the Registrar.

Ancoats Hospital, Manchester.

ASSISTANT PATHOLOGIST required, which, with a co-existing Research appointment, will allow of a salary of £350 per annum. Applications, stating age, experience, qualifications, appointments held, etc., to be forwarded to the undersigned on or before January 3rd, 1930, together with copies of three recent testimonials.

By Order of the Board,
HERBERT J. DAFFORNE,
Gen. Supt. & Secretary.

Rochdale Infirmary and Dispensary. (110 Beds.)

Wanted, JUNIOR HOUSE SURGEON (male). Salary £175 p.a., including board, residence, and laundry. Applications, stating age, nationality, etc., together with copies of three recent testimonials, to be sent to the Secretary, endorsed "House Surgeon." Conditions of appointment may be had on application to the Secretary.

Infirmary Office, Rochdale. W. WYNNE, Secretary.

APPOINTMENTS—Important Notice.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Medical Secretary of the British Medical Association, B.M.A. House Tavistock Square, W.C.1.

(a) British Islands.

Town or District.	Town or District.	Town or District.
CONTRACT PRACTICE.	**CONTRACT PRACTICE** *(Contd.)*	**PUBLIC HEALTH** *(continued).*
EBBW VALE, MON. *(Workmen's Medical Society.)*	OAKDALE, MON. *(Medical Officer for Medical Aid Association.)*	CHESHIRE EDUCATION COMMITTEE. *(Assistant School Medical Officer—Female.)*
GILFACH GOCH, GLAMORGAN. *(Workmen's Medical Scheme.)*	OGMORE VALLEY, GLAMORGAN *(Wyndham Colliery Medical Aid Society.)* *(Workmen's Medical Scheme.)*	CORNWALL EDUCATION COMMITTEE. *(Assistant School Medical Officer—Female.)*
LLWYNYPIA, CLYDACH VALE, PENYGRAIG, GLAMORGAN. *(Workmen's Medical Scheme.)*	**POOR LAW.**	GLASGOW EDUCATION AUTHORITY. *(Male Assistant Medical Officer.)*
MARDY, GLAMORGAN. *(Workmen's Medical Scheme.)*	LEWISHAM HOSPITAL. *(Assistant Medical Officer.)*	MERTHYR TYDFIL COUNTY BOROUGH. *(Assistant School Medical Officer and Assistant Medical Officer of Health.)*
MERTHYR VALE COLLIERY WORKMEN'S MEDICAL COMMITTEE. *(Workmen's Medical Scheme.)*	**PUBLIC HEALTH.**	YORKSHIRE NORTH RIDING COUNTY COUNCIL EDUCATION COMMITTEE. *(Assistant School Medical Officer.)*
NEATH AND DISTRICT. *(Medical Aid Association.)*	AYRSHIRE EDUCATION AUTHORITY. *(Assistant School Medical Officer—Male.)*	
	CHESHIRE EDUCATION COMMITTEE. *(Assistant School Medical Officer—Male.)* *(Altrincham District.)*	

(b) Colonial Medical Service.— WINDWARD ISLANDS MEDICAL SERVICE. (Grenada with Carriacou, St. Vincent and St. Lucia.)

(c) Overseas.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Medical Secretary of the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.
NEW SOUTH WALES. *(All Friendly Society Appointments.)*	Dr. R. H. TODD (Hon. Sec., New South Wales Branch), B.M.A. Building, 30-34, Elizabeth St., Sydney, N.S.W.	VICTORIA. *(All Institute or Medical Dispensaries.)*	Dr. FRANK DAVIES (Hon. Sec., Victorian Branch), British Medical Association, Medical Society Hall, East Melbourne, Victoria.	WESTERN AUSTRALIA. *(Contract and Lodge Practices.)*	Hon. Sec., Western Australian Branch, British Medical Association, No. 6, Bank of N.S.W. Chambers, St. George's Terr., Perth, Western Australia.
QUEENSLAND. *(Brisbane Associated Friendly Societies Institute.)*	The Hon. Sec., Queensland Branch, British Medical Association, B.M.A. Building, Adelaide St., Brisbane.	WELLINGTON, NEW ZEALAND. *(Contract Practice Appointments.)*	Dr. G. F. V. ANSON (Hon. Sec., New Zealand Branch), British Medical Association, P.O. Box 156, Wellington, New Zealand.		

Address: B.M.A. House, Tavistock Square, W.C.1.
December 20th, 1929.

By Order of the Council of the British Medical Association.
ALFRED COX, Medical Secretary.

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Advertisements should be delivered, addressed to the Financial Secretary and Business Manager. B.M.A. House, Tavistock Square, W.C.1, not later than first post on Monday preceding publication.

ASSISTANCIES.

Wanted, urgently, Indoor ASSISTANT, mixed Practice, South Wales. Suit recently qualified man. Dispenser, chauffeur kept. Usual bond. State age, height, weight, religion, nationality, etc. — Address, No. 8110, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — Assistant, male, Manchester district. Good salary (with prospects) given to suitable man.—Address, stating age, qualifications, experience, etc., No. 8107, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — Assistant, indoor, married or single, who has held Hospital appointments, and preferably with experience in Eye work. £330 per annum. Usual bond. Photo (returnable).—Address, No. 8104, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Indoor Male Assistant Panel and private Practice, West of England. Salary £300.—Address, giving full particulars, No. 8102, B.M.A. House, Tavistock Square, W.C.1.

Wanted. — Assistant, outdoor, young, English or Scotch, Protestant, in Midlands. £400 to £450 to commence, according to experience. Prospects.—Address, No. 8105, B.M.A. House, Tavistock Sq., W.C.1.

Wanted. — Town Assistantship by M.B., [illegible] *months' country* [illegible] minor surgery, Own car. Free [illegible] 8112, B.M.A. Ho[illegible]

S. W. County. — Country Practice.—ASSISTANT wanted. Salary £400, *unless (£500 if out). Definite view to succession* on easy terms; some capital useful. Short prelim. assistantship. Usual bond. Experienced gen. practice; ex H.S. and H.P. preferred. Local Hospital. Major surgery great advantage. Good minor surgery, *obstetrics, anæsthetics* essential. Able drive car. Dispenser-Bookkeeper kept. Time for reading. All kinds of sport. Only applications approv. foregoing replied to. Full details, age, height, *etc., with photo. (if poss.)* and recent refs. — Address, No. 8114, B.M.A. House, Tavistock Square, W.C.1.

MEDICAL POSTS, DISPENSERS, etc.

Wanted for Penrhos College, COLWYN BAY, a LADY MEDICAL ATTENDANT. Applicants will be allowed to continue private practice, and will only be called upon for such attention as is necessary. Remuneration on a capitation basis, which would generally amount to not less than £300 *per annum*.—Apply, with qualifications, etc., to the Secretary Penrhos College, 22, Lord St., Liverpool.

Wanted by M.B., B.S.Lond., D.P.H., with eight years' teaching and practical experience in Pathology and Bacteriology, *post as DIRECTOR or ASSISTANT* DIRECTOR OF LABORATORY in London or Provinces. Free Jan. 1930. Highest refs.—No. 8116, B.M.A. House, Tavistock Sq., W.C.1.

Wanted, London, after Christmas, qualified SECRETARY, used to Medical or Dental work — Write, SECRETARY, 2, Park Crescent, W.1.

A Lady Dispenser-Bookkeeper supplied immediately on request, qualified and with practical experience in private practice and dispensary work, also trained in Bacteriological Laboratories of the LONDON *COLLEGE OF PHARMACY FOR WOMEN*. Preparation for Examinations.—Write, wire, or 'phone (Park 0969), Secretary, 7, Westbourne Park Road, W.2.

Dispensers supplied to Doctors at short notice, without fee. Qualified and experienced in private and panel practice. Permanent and *part-time* Bookkeeper-Dispensers, Secretary Dispensers, Nurse-Dispensers, and Chauffeur-Dispensers.—Write, wire, or *'phone Central 3679*. THE RELIANCE BUREAU FOR DISPENSERS, 12, Holborn Viaduct, E.C.1.

Gentlewoman (domesticated), accustomed to sole charge of widower's child and household (2 maids) for 7 years, seeks SIMILAR POST Salary not essential. Four years V.A.D. Could bring good maid.—Add., No. 8119, B.M.A. House, Tavistock Sq., W.C.1.

Lady Dispenser - Bookkeeper (qualified) desires *CHANGE*. Present post eight years. Practical experience in hospital and private practice, including panel. Highest references.—Address, No. 8117 B.M.A. House, Tavistock Square, W.C.1.

The Royal Army Medical Corps ASSOCIATION. — If you require men trained in all branches of hospital work—Dispensers (capable of undertaking returns, clerical work, etc., connected with Ministry of Health), Clerks, Laboratory Assistants, general hospital duties, Porters, Caretakers, etc.—Apply, Secretary, 85, Eccleston Square, S.W.1.

Typewriting.—Expert undertakes Theses, Testimonials, etc. Numerous letters of appreciation from Doctors.—'Phone Primrose Hill 0803, or write BEATRICE RADFORD, c/o Smith's, 487, Finchley Road, N.W.3.

Whole-time Medical Officer required for COPRA PLANTATIONS in CENTRAL PACIFIC. Very suitable for newly qualified Medical Man or Marine Medical Officer. Some Dental knowledge and experience much preferred.—Apply, in writing only, with full particulars, to "A. B.," 7, Frederick's Place, Old Jewry, E.C.2.

Woman M.B., D.P.H., experienced Children's Diseases, Ear, Nose, and Throat, Radiology, and Electrical treatments, requires POSITION. Free January 15th.—Address, No 8111, B.M.A. House, Tavistock Square, W.C.1.

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PARTNERSHIPS.

Wanted. — Partner, early Feb. One-third share £900—2 years' purchase. Good Anæsthetist. Mixed Practice, up-to-date Cottage Hospital, Devon Coast. Rent house.—Address, No. 8113, B.M.A. House, Tavistock Square, W.C.1.

South of England. — Partner wanted in increasing residential Practice, about £2,100 p.a., under 40 miles from London. Panel 600. Two-fifths share. Two years' purchase. — Address, No. 8015, B.M.A. House, *Tavistock Square*, W.C.1.

PRACTICES.

Wirral. — Good-class Practice (7/6); small panel, public appointment. Established 3 years.—Address, No. 8115, B.M.A. House, Tavistock Square, W.C.1.

East Lancashire Town. — Old-*established PRACTICE* (over 88 years) for Sale; owner desirous of retiring from practice. Cash receipts approximating £2,500 per annum. Good middle-class and panel Practice, capable of development; panel about 2,250. Good house, garage, up-to-date waiting and consulting rooms and dispensary, which would be sold or let on lease. Two years' premium required for purchase of Practice. Chartered Accountant's certificate available.—For further particulars, address, No. 8109, B.M.A. House, Tavistock Square, W.C.1.

For Sale, London, W., within five minutes of Hyde Park, an exceptionally sound and prosperous PRACTICE averaging £4,000 over the last three years. Good fees; also a large and increasing panel. Excellent and convenient leasehold house. The Practice and house together will be sold for £6,000 cash. Only bona-fide applicants, who must supply a banker's or other reference as to necessary capital, need apply. Write in the first instance to—
Address, No. 8101, B.M.A. House, Tavistock Square, W.C.1.

For Sale. — Old-estab. Medical, Surgical, and Maternity Nursing HOME. Must sell for *health reasons*.—Apply, BONALL & KEMPE, 63, Ship Street, Brighton.

For Disposal.—A good Practice is not always to be had directly, but Mr. PERCIVAL TURNER can generally offer applicants something suitable. Nearly all the best Practices are sold by him without being advertised. Inform. free on applic.—4, Adam St., W.C.2.

For Disposal, rapidly increasing middle and working-class PRACTICE, near Manchester. Receipts this year £2,200. Panel over 2,300. Premium £3,300. House for sale at £1,200.—Address, No. 8103, B.M.A. House, Tavistock Square, W.C.1.

London, S.W.—Death Vacancy. —Well-established PRACTICE. Receipts estimated at £2,000 *p.a., panel about 1,500*. Fine corner house, separate entrance to Surgery. Offers invited for immediate sale. — Apply, PEACOCK & HADLEY, Ltd., 19, Craven Street, Strand, W.C.2.

London, N.W.-Practice yielding £1,000 p.a., including panel 480. Nice flat, large garden, garage, etc. Rent £85; no rates or taxes. Price £1,250. Vendor going abroad. — Address, No. 8118, B.M.A. House, Tavistock Square, W.C.1.

London, S.E. (15 minutes Charing Cross).—Cash and Panel PRACTICE in densely populated district. Receipts about £1,400 p.a., panel 750. House, rent £78 p.a. Premium £2,000 cash preferred.—Apply, PEACOCK & HADLEY, Ltd., 19, Craven Street, Strand, W.C.2.

Messrs. Peacock & Hadley, Ltd., 19, Craven Street, Strand, W.C.2, are *requiring PRACTICES AND PARTNERSHIPS* for several applicants who have immediate available capital. Any part considered providing accommodation is available.

Nursing Home for Sale near London, fully equipped with up-to-date Operating Theatre. Audited accounts for the last 10 years. Three months' introduction given. Property freehold or a 21 years' lease would be granted on sale of connection. Principals or their Solicitors only dealt with.—Apply, in writing, to HERBERT W. ALLIOTT, Chartered Accountant, 119-120, London Wall, E.C.2.

North Wales.—Death Vacancy. Mixed-class PRACTICE. Receipts £1,200 p.a., with panel. Nice house, £85 p.a. Premium £1,200.—*Apply, PEACOCK & HADLEY*, Ltd., 19, Craven Street, Strand, W.C.2.

Northern City.—Well-established mixed-class PRACTICE. Receipts average nearly £1,000 p.a. Panel over 900. Rent of premises £75 p.a., on lease. Premium £1,100. —Apply, PEACOCK & HADLEY, Ltd., 19, Craven Street, Strand, W.C.2.

North Lancashire. — Immediate sale, old-established General PRACTICE. Average cash receipts £2,000. Panel 2,150. Scope. House £80 on lease. About £3,500, including book debts and stock. Owner going abroad. — Address, No. 8001, B.M.A. House, Tavistock Square, W.C.1.

North Wales Seaside. — Death VACANCY.—Nice house, facing sea, garden, garage, rent £85. Receipts £800, *excellent* scope. Welsh not necessary. Locum in charge. Golf, tennis, boating, etc.—MANCHESTER MEDICAL & SCHOLASTIC ASSOCIATION, 6, Brown St.

Sound Practice for Disposal, Manchester district. Six months' introduction offered.—For terms and particulars apply KNOTT & CASTLE, Solicitors, 3, Norfolk St., Manchester.

To Purchasers. — Do not buy without expert assistance. With 40 yrs.' experience Mr. PERCIVAL TURNER can advise in all cases. Terms free on application to 4, Adam St., Strand, W.C.2. Telephone: Temple Bar 9011. Telegrams: "Epsomian, London."

Well-established mixed-class PRACTICE, situated in a rapidly developing district, 20 minutes from Golder's Green. Receipts last twelve months nearly £500, including panel of 400, steadily increasing. Excellent house on lease, rent £150 p.a., covered by sub-letting. Premium moderate. —Apply, PEACOCK & HADLEY, Ltd., 19, Craven Street, Strand, W.C.2.

MISCELLANEOUS SALES, etc.

Wanted, in good sound condition, Second-hand Pantostat, Schnee bath, Diathermy and Radiant Heat Apparatus, and Thermal *Couch, all suitable for 220 A.C. main*.—Address, No 8108, B.M.A House, Tavistock Square, W.C.1.

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Can secure Perfect Fitting and Distinctive Clothes of Exceptional value. FINEST QUALITY MATERIALS. *BEST WORKMANSHIP ONLY.*

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TWEED SUITS & OVERCOATS to measure from £6 6s.
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THE IDEAL Suit for ALL Sporting Purposes.
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RIDING HABITS fr. £10 10s. COSTUMES fr £6 6s.

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(late Inspector of Taxes)

Assist you to avail yourself of special facilities provided for the Medical Profession relating to Income Tax. For further particulars write or call.—C. G. C. RILNER, 17, George St., Baker St., W.1. (*'Phone: Welbeck 2012*).

Medical Surgical Sundries Ltd.

Supply Instruments, etc. "Essell" Inhaling Apparatus (particulars on application). Sample bottle (560) of Cough or Expect. Mist. Tablets, 1/- post free.
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HOUSES, CONSULTING ROOMS

Wanted.—Consulting Room in the CITY, daily (except Saturdays and Sundays) from 10 a.m. until 1 p.m., with usual conveniences.—Address, No. 8020, B.M.A. House, Tavistock Square, W.C.1.

Radiologist, West End, offers SHARE OF ROOMS and use of equipment to other Radiologist. Fully *equipped modern* plant. — Address, No. 8106, B.M.A. House, Tavistock Square, W.C.1.

APPOINTMENTS.—Contd.

Lowestoft and North Suffolk HOSPITAL, LOWESTOFT.

JUNIOR HOUSE SURGEON (male) required. Salary £120 per annum, with board, residence, and laundry. Applications, together with copies of three recent testimonials, to be sent to the Honorary Medical Superintendent.

Resident Medical Officer required

immediately for LEEDS JEWISH HERZL-MOSER HOSPITAL. Salary £100 per annum, full board. Ample time for Post-graduate work.—Apply, Secretary, Herzl-Moser Hospital, Leopold Street, Leeds.

Parish of Newcastle-upon-Tyne.

ASSISTANT RESIDENT MEDICAL OFFICER (Male).

The Guardians of the Poor of the Parish of Newcastle-upon-Tyne invite applications for the appointment of an Assistant Resident Medical Officer (male) at their WINGROVE HOSPITAL, Westgate Road, Newcastle. Salary £250 per annum, with residential allowances valued at £100 per annum. The appointment will in the first instance be for a period of six months, but may subsequently be extended at the discretion of the Guardians. The Hospital contains 650 beds and offers valuable clinical experience to keen students in mental, venereal, maternity, X-ray and electrical therapy. The Hospital is a training school for nurses and midwives, and has a consultant and resident staff. The person appointed will act under the Medical Superintendent and may be required to lecture to probationers. The appointment will be subject to the provisions of the Poor Law Officers Superannuation Act, 1896, and to the provisions of the Local Government Act, 1929. Applications must be made on forms which may be obtained at my office or on receipt of a stamped addressed foolscap envelope, which forms, duly completed, must be received by me not later than Saturday, January 4th, 1930.

By Order,
127, Pilgrim St., GLADSTONE WALKER,
Newcastle upon Tyne. Clerk to the
December 18th, 1929. Guardians.

Paisley Parish Council.

RESIDENT PHYSICIAN.

Wanted, a qualified Resident Physician (female) for the Hospital, Lunatic Wards, and roorhouse, Craw Road, Paisley, for a period of one year from date of commencing duty. Salary £300 per annum, with board and apartments. Applications, with testimonials, to be lodged with the undersigned by Wednesday, January 8th, 1930, at 10 o'clock a.m.

ADAM BUCHANAN,
Paisley. Inspector of Poor.
December 19th, 1929.

Montagu Hospital, Mexborough, YORKS.

Applications are invited for the position of JUNIOR HOUSE SURGEON (lady) at the above Hospital (64 Surgical Beds; 10 Maternity Beds). Duties to commence early January. Commencing salary £100 per annum, board, residence, etc.

One month's holiday will be allowed each year.

Applications, stating qualifications, should be addressed to the undersigned, so as to be received not later than January 7th, 1930.

DONALD WILSON, Secretary

Bootle Borough Hospital, DERBY ROAD, BOOTLE.

APPOINTMENT OF HONORARY LARYNGOLOGIST AND AURIST.

Applications are invited for the above vacancy. Candidates are requested to send particulars of their qualifications and experience, accompanied by testimonials, to the undersigned, not later than January 10th, 1930.

J. A. BEARDSALL,
Secretary-Superintendent.

Victoria Hospital, Burnley.

Wanted, HOUSE SURGEON (male), fully qualified. Appointment, six months. Salary £125 per annum, with board, lodgings, and washing. Applications may be sent in at once to F. A. HARGREAVES, Hon. Secretary, 7, Grimshaw Street, Burnley.

N.B.—This Hospital is approved by the London University for the M.B. and M.S. Examinations.

Batley and District Hospital. (General Hospital—84 Beds.)

Applications are invited for the position of RESIDENT HOUSE SURGEON (male). Salary £150 per annum, with board, residence, and laundry.

Applications, with copies of testimonials, should be sent to the undersigned.

Batley, A. W. WESTERN,
Yorks. Secretary.

Bradford Children's Hospital.

HOUSE SURGEON and HOUSE PHYSICIAN wanted immediately, fully qualified. Salary £120 each, with board, residence, and laundry. Applications, stating age, with recent testimonials, not later than December 31st, to—

J. W. LONGLEY, Secretary.

Parish of Coventry.

ASSISTANT MEDICAL OFFICER.

The Guardians of the Parish of Coventry invite applications for the appointment of Assistant Medical Officer at the GULSON ROAD HOSPITAL and LONDON ROAD INSTITUTION, COVENTRY.

The salary will be at the rate of £200 per annum, and until residential accommodation can be provided at the Hospital an additional residential allowance of £150 per annum will be paid. For the present, the candidate appointed will be required to reside outside but within reasonable proximity to the Hospital, and subject to the approval of the Guardians.

Candidates must be single men, and the candidate appointed will be required to devote the whole of his time to the duties of the office, and to act under the directions of the Resident Medical Officer.

The appointment will be subject to the approval of the Minister of Health and to the provisions of the Poor Law Officers Superannuation Act, 1896.

Forms of application may be obtained from the undersigned, and completed applications should be returned as early as possible.

Guardians' Offices, E. A. EVANS,
13, Little Park St., Clerk to the
Coventry. Guardians.
December 11th, 1929.

Blackburn and East Lancashire ROYAL INFIRMARY.

RESIDENT HOUSE PHYSICIAN (male) required at a salary of £150 per annum, with board, residence, laundry, etc. In addition to Medical Wards, to be attached to Eye, Ear, Nose, and Throat Department.

The Hospital contains 240 beds, with X-ray, Massage, V.D., Eye, Ear, Nose, and Throat Departments, Pathological Laboratory, etc. There is no out-side work.

Applications, with copies of testimonials, stating age, nationality, experience, etc., to be sent to the undersigned.

Royal Infirmary, NATHAN A. SMITH,
Blackburn. Gen. Supt. & Secretary.

Joint Nursing and Midwives' COUNCIL (NORTHERN IRELAND).

EXAMINATION OF MIDWIVES.

The above Council being about to revise their list of Examiners, invite applications from registered Medical Practitioners, including women, who would be willing to act. Preference will be given to applicants resident in Northern Ireland. Particulars on application to the Registrar, 118, Great Victoria Street, Belfast, to whom applications should be sent not later than January 9th, 1930.

Tyrone County Hospital, OMAGH.

The Committee of Management of above Hospital will, at their meeting on Tuesday, January 21st, 1930, appoint a HOUSE SURGEON for a period of six months. Salary £150 per annum, with board-residence.

Applications, stating age, qualifications, and experience, with copies of not more than three testimonials, to be forwarded to the Registrar on or before Thursday, January 16th, 1930.

Durham County Hospital.

The post of JUNIOR HOUSE SURGEON will be vacant on January 31st, 1930. The appointment is for six months certain. Candidates must be male and duly qualified and registered. Number of beds 75. Salary £120 per annum, with board and lodging. Applications, with copies only of testimonials, to be sent to the undersigned by December 31st.

79, Saddler Street, WM. R. WILSON,
Durham. Secretary.

The West Cornwall Miners' and WOMEN'S HOSPITAL, REDRUTH, CORNWALL.

RESIDENT MEDICAL OFFICER (female) required early in the New Year, with experience of X-ray work. Salary £200 per annum, with rooms, board, and washing.

Apply, not later than January 15th, 1930, with copies of three recent testimonials, to the Secretary, from whom further particulars may be obtained.

University College Hospital MEDICAL SCHOOL

Vacancy occurs for a Whole-time ASSISTANT on the staff of the Obstetric Unit at University College Hospital Medical School, University Street, W.C.1, at a salary of £250 p.a. Applications, with copies of testimonials, to reach the Secretary of the Medical School not later than Monday, January 6th, 1930.

CAVENDISH NURSES (Male and Female)

Head Office: 54, BEAUMONT ST., LONDON, W.1 (late 43, New Cavendish St., London, W.1.)

A very convenient form of telephone message pad sent free on application to the Secretary.

Branches: *MANCHESTER*: 176, *Oxford Road.* *GLASGOW*: 28, *Windsor Terrace.* *DUBLIN*: 23, *Upper Baggot Street.*

TELEGRAMS: Tactear, London. Surgical, Glasgow. TELEPHONES: London, 1277 Welbeck. Glasgow, 477 Douglas.
Tactear, Manchester. Tactear, Dublin. Manchester, 3152 Ardwick. Dublin, 531 Ballsbridge.

Superior trained Nurses for Medical, Surgical, Mental, Dipsomania, Travelling and all cases. Nurses reside on the premises, and are always ready for urgent calls Day and Night. Skilled Masseuses, Masseurs, and good Valet attendants supplied.

Terms from £3 3s. *Apply to the Secretary or Lady Supt.*

The Hospital for Sick Children,
Great Ormond Street, London, W.C.1.

A PART-TIME JUNIOR CASUALTY OFFICER is required on January 9th, 1930, to assist in the Casualty Department from 10 a.m. to 3 p.m. (Saturdays 10 a.m. to 1 p.m.), under the direction of the Casualty Officer.

The work of this officer includes a large number of Tonsillectomies and other minor operations.

Candidates must be registered Medical Practitioners, and have held a responsible Hospital appointment.

Gentlemen are invited to send in their applications, addressed to the Secretary, before 12 o'clock on Monday, January 6th, 1930, accompanied by copies of not more than three testimonials written specially for the purpose.

The appointment is made for six months, and is non-resident.

Salary at the rate of £150 per annum, with *luncheon*.

All candidates must be in attendance to appear before the Joint Committee, if required, at their meeting on Wednesday, January 8th, 1930, at 4.45 p.m. precisely.

Forms of application and copies of the rules may be obtained from the Secretary at the Hospital.

By Order of the Board of Management,
JAMES McKAY,
December, 1929. Secretary.

The Hospital for Sick Children,
Great Ormond Street, London, W.C.1.

A CLINICAL ASSISTANT MEDICAL OFFICER in the VENEREAL DEPARTMENT is required on January 13th, 1930.

Gentlemen are invited to send in their applications, addressed to the Secretary, before twelve o'clock on Monday, January 6th, 1930, with copies of not more than three testimonials given specially for the purpose.

Candidates must possess a legal qualification to practise, and the successful candidate will be appointed for six months, and he will be eligible for re-election.

The Clinical Assistant Medical Officer in the Venereal Department will be required to attend on three afternoons a week from 2—4.30 p.m.

Salary at the rate of £1 1s. per visit or *session*.

All candidates must be in attendance to appear before the Joint Committee, if required, at its meeting on Wednesday, January 8th, 1930, at 4.45 p.m. precisely.

Forms of application and copies of the rules may be obtained from the Secretary.

By Order of the Board of Management,
JAMES McKAY,
December, 1929. Secretary

The Royal Infirmary, Sheffield.
(500 Beds.)

The Weekly Board of Management invite applications for the undermentioned posts:

HOUSE PHYSICIAN,

RGEON,
HOUSE SURGEON,
OFFICER,

to (tenable for six months from January 1st, 1930. The salary attached to each post is £80 per annum, rising after six months' service to £100 per annum, together with board and residence.

Applications, together with copies of testimonials, to be sent to the undersigned immediately.

JNO. W. BARNES, F.C.I.S.,
Board Room, General Supt. &
December 3rd, 1929 Secretary

Prince of Wales' Hospital,
CARDIFF

CROSSWAYS COUNTRY BRANCH

HOUSE SURGEON required February 1st, 1930, for Crossways Country Branch Orthopædic Hospital. Previous Hospital Surgical appointment desirable. Salary £120 per annum, with board and laundry. Apply, with copies of three recent testimonials, by January 4th, 1930, to the Secretary, Prince of Wales' Hospital, Cardiff.

Central London Throat, Nose,
AND EAR HOSPITAL,
Gray's Inn Road, W.C.1.

FIRST ASSISTANT.

There is a vacancy for a First Assistant in the Out-patient Department.

The post is an honorary one, tenable for one year, subject to re-election.

Attendance is required at two Clinics each week to assist the Surgeons in seeing the patients.

RESIDENT HOUSE SURGEON (Male).

There will be a vacancy for a Third Resident House Surgeon to enter on duty on February 1st next.

The appointment will be for a period of seven months: one month as Third House Surgeon, three months as Second House Surgeon, and three months as First House Surgeon.

Remuneration at the rate of £75 per annum.

Application for either of these appointments, accompanied in each case by copies of not more than three testimonials, should be sent to the undersigned on or before January 6th, 1930.

JOHN H. YOUNG,
Secretary-Superintendent.

West London Hospital,
Hammersmith Road, W.6.

Applications are invited for the post of ASSISTANT DENTAL SURGEON. Candidates are required to hold a Dental Diploma and be on the *Dental Register*, and also to hold some Medical or Surgical qualifications recognized by the General Medical Council of the United Kingdom; to send applications, with copies only of testimonials, so as to reach me not later than Wednesday, January 22nd; to attend a Meeting of the Medical Council on Friday, January 24th, at 4.30 p.m., and, prior to that date, call upon and send copies of their applications and testimonials to the Members thereof; to abstain from canvassing, but nevertheless to send copies of their application and testimonials to the Members of the Board of Management, who will elect on Tuesday, January 28th, 1930, at 5 p.m., when candidates (if notified) must be in attendance.

H. A. MADGE, Secretary.

Evelina Hospital for Children,
SOUTHWARK, S.E.1.

The Committee of Management requires a HOUSE SURGEON (male) for seven months from January 12th (during first three months duty in Casualty and Out-patient Department). Salary £120 per annum, with board and residence. Candidates, duly registered, to send applications, giving age, qualifications (with dates), and copies of four testimonials, to the undersigned at the Hospital, before December 30th. Applicants will be informed if they will be interviewed by the Medical Committee. Selected candidates must attend Committee of Management. Date of meeting will be notified by undersigned, from whom rules and other particulars relating to the post must be obtained.

By Order of the Committee of Management,
H. C. S SMITH,
Dec. 16th, 1929 Secretary-Superintendent.

Mansfi[illegible]

The Board of Management of the above Hospital (140 beds) invite applications for the post of HOUSE SURGEON (male).

Salary at the rate of £150 per annum for the first six months and £175 for the second six months, with residence, board, and laundry.

The appointment is for six months and is renewable.

The Resident Staff consists of a Resident Surgical Officer, House Surgeon, and House Physician.

Applications, accompanied by not more than three recent testimonials, to be sent to the undersigned.

Dated this 2nd day of December, 1929.

ARTHUR H. LIMB, Secretary.

Junior House Surgeon required
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INFIRMARY, DEVONPORT.

The post of SENIOR HOUSE SURGEON will be vacant on January 1st, 1930. Applicants must be fully qualified, registered, and unmarried. Salary £150 per annum, with apartments, board, and laundry free.

Applications, together with copies of not more than three testimonials (which will not be returned), addressed to the "Chairman of the Selection Committee," must reach the undersigned not later than first post Tuesday, December 31st.

FRANK ROWE,
December 13th, 1929. Secretary.

Queen Mary's Hospital for the
EAST END, E.15.

Applications are invited for the post of HONORARY ASSISTANT SURGEON in Charge of the Ear, Nose, and Throat Department at the above Hospital.

Candidates must be Fellows of a Royal College of Surgeons.

Applications, with copies of not more than three recent testimonials, should be forwarded to the undersigned on or before Wednesday, January 1st, 1930.

RAPHAEL JACKSON (Major),
Secretary.

St. John's Hospital, Lewisham,
S.E.13

Applications are invited for the appointment of RADIOLOGIST to this Hospital. An honorarium will be given, and the successful applicant will be expected to attend at the Hospital for three half-days a week. Fuller information regarding the appointment may be obtained from the Secretary at the Hospital, to whom applications must be received not later than December 31st.

North Devon Infirmary,
BARNSTAPLE.

Wanted at once, duly qualified HOUSE SURGEON. Salary £150 per annum, with board, apartments, and laundry. Appointment to be for not less than six months. Applications, stating age, qualifications, with copies of testimonials, to be sent at once, addressed to *Hon. Secretary.*

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The business undertaken by the British Medical Bureau is divided under the following heads:—

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Medical Practitioners wishing to dispose of Practices, or desiring to take Partners, are advised to negotiate the business through the British Medical Bureau. Vendors may depend upon receiving introductions only to eligible and bona-fide purchasers. All information is treated in strictest confidence. Full and trustworthy information regarding Practices, Partnerships, etc., for disposal, supplied gratis to Purchasers.

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Practices and Partnerships for Disposal. **Full particulars sent free.**

1 LANCASHIRE.—Practice about £4,000 (net) in first-rate Town. Panel 2,600. House to rent or purchase. Premium £4,750, to include book debts, etc., or half share for £2,800.

2 SOUTH OF ENGLAND.—Seaport Town. PRACTICE of between £750 and £800, including appointments over £225 p.a., and panel nearly 900. Good house (6 bedrooms) to be sold or let. Premium 1½ years' purchase.

3 SOUTH OF ENGLAND. — Partnership in Country Town Practice of nearly £2,300 p.a. *Small panel.* Well-built house (6 bedrooms) to rent. Premium one-half share 1½ years' purchase.

4 SOUTH OF ENGLAND.—Seaport Town. PRACTICE of about £750 p.a., including appointments over £225 p.a., and panel nearly 1,000. Good house (6 bedrooms) to be sold or let. Premium 1½ years' purchase.

5 NORTH OF ENGLAND — Practice about £600 p.a. in Inland Spa. Panel over 500. Well-situated house (6 bedrooms) to rent. Premium £1,000.

6 LIVERPOOL. — Increasing Practice of nearly £1,300. Panel 560. House (4 bedrooms), garage and garden, for sale. Golf near by. Premium £1,550 (£500 by instalments, without interest).

7 ESSEX.—Practice of £1,070 p.a. in Rural District. Panel 670. Old-fashioned house (6 bedrooms), with large garden, to rent Scope. Premium £1,650.

8 LONDON, N.W. — Partnership in non-dispensing Practice in residential district. No panel. Share worth about £1,500 at 2 years' purchase. Incoming Partner must be English.

9 SOUTH OF ENGLAND. — Increasing Country PRACTICE in beautiful district on main line. Receipts last year £1,102. Panel about 440. *Lovely old house* (6 bedrooms), electricity and gas, large garden, for sale. Sport. Premium £1,500.

10 KENT.—Country Practice over £800 p.a. in beautiful part. Panel 380. *Extremely attractive residence* (5 bedrooms), central heating, and grounds 2½ acres, for sale. Hunting and other sport. Premium 1½ years' purchase.

11 EASTERN COUNTIES. — Partnership in Country Practice of £2,380 p.a. Panel 1,600. House, with garage and garden, to rent. Premium one-third share 2 years' purchase or possibly a little less.

12 W. OF ENGLAND. — Ophthalmic PRACTICE, between £850 and £900, in residential seaside resort. Semi-detached house for sale or rent. Considerable scope as Vendor has undertaken only minor operations. Premium £1,300.

13 S.W. OF ENGLAND. — Partnership in Practice about £4,000 p.a. in watering-place. Panel about 1,700. Choice of residence to rent or purchase. Hospital and scope for surgery. Premium one-third share £2,400.

14 MIDLANDS. — Country Practice about £1,000 p.a. in residential district and hunting centre. Panel 600/700. House, with 8 bedrooms, to rent. Premium £1,300.

15 S.E. COAST.—Partnership in Practice over £5,000 p.a. in popular resort. Premium one-fourth share 2 years' purchase. Partner should be aged about 30 and must have held House appointments. Short preliminary assistantship.

16 LONDON, W.—Partnership in good-class non-dispensing Practice over £7,500 p.a. in Kensington. No panel or appointments. Incoming Partner must be well qualified (aged 30—35) and have held Hospital appointments. Share worth about *£1,000 at 2 years' purchase.*

17 INLAND WATERING-PLACE. — Good-class PRACTICE of nearly £2,000 p.a. (General and Spa work). No midwifery or panel. Excellently situated house to be purchased. Premium for Practice according to length of introduction.

18 SUSSEX. — Partnership in increasing Country Practice nearly £3,000 p.a. Panel nearly 1,500. Good society and sport. One-third share at 2 years' purchase. Scope for increase.

19 N.W. COAST.—Steadily increasing Practice (held by Medical Woman) in popular watering-place. Receipts past year £920 (including panel £230). Accommodation consists of 6 rooms, bathroom, etc., and can be rented. Prem. £1,000.

20 SOUTH OF ENGLAND. — Partnership (after preliminary Assistantship) in Practice of £3,200 p.a. in fashionable inland watering-place. Panel 1,600. Applicant should have Surgical qualifications (preferably F.R.C.S.). Share offered, one-fourth at 2 years' purchase.

21 SOUTH OF ENGLAND.—Practice about £700 in steadily growing semi-rural district near important town. Panel 300. Very comfortable house (3 bedrooms) for sale or rent. Premium 1½ years' purchase.

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Practices and Partnerships for Disposal (continued).

22 MIDLANDS. — Country Practice about £1,450 p.a. within 10 miles of first-rate town. Panel 1,250. large newly decorated house (7 bedrooms), in grounds of 3½ acres, for sale. Sport. Premium 1½ years' purchase.

23 MIDLANDS. — Partnership in Practice over £3,000 p.a. in rural district about 6 miles from important town. Panel 2,650. House to rent or purchase. Premium 1/3 share 1½ years' purchase.

24 BRITISH EAST AFRICA. — *Assistant* required (with view to Partnership) in General and X-ray and Electro-therapeutic Practice. Assistant must hold the F.R.C.S., and experience in X-ray would be advantageous. Share of about £1,200 p.a. offered to suitable man after preliminary assistantship.

25 DEATH VACANCY. — CORNWALL.—Country PRACTICE about £1,000/£1,200. Panel 800. Suitable and convenient house.

26 SOUTH MIDLANDS.—Rapidly increasing PRACTICE in first-rate town. Receipts 1923, £552. Panel 480. Detached double-fronted house (4 bedrooms) to be sold. Considerable scope. *Premium* £600.

27 SOUTH COAST.—Practice about £800 p.a. in first-rate Residential Town and favourite Watering place. Panel about 200. House (5 bedrooms) in good position. Scope in all directions. Premium 1½ years' purchase.

28 SOUTH WALES. — Practice over £1,200 p.a. in Country Town. Panel about 300. Attractive old house (6 bedrooms). Garage and garden. Good facilities for sport. Premium £1,500.

29 SOUTH COAST.—Practice £1,328 p.a. in favourite Watering-place. Panel 1,370. Large well situated house to rent. Great scope. Premium £2,100, to include drugs, etc.

30 FRENCH RIVIERA. — Well-established Season PRACTICE. Receipts over 216,000 fr. p.a. Luxuriously furnished apartment (7 rooms), in most fashionable quarter, to rent. Premium (including fully furnished apartment) £4,000. French diploma necessary.

31 WEST MIDLANDS. — Country Practice (held by Medical Woman) in beautiful Village. Receipts £530 p.a., steadily increasing. *Semi-detached* 10-roomed house, with nice garden and garage, to rent. Premium 1½ years' purchase.

32 SOUTH COAST. — Increasing Practice £1,345 p.a. in favourite Seaside Resort. Panel 400/500. Choice of two houses for sale. Scope for increase. Premium 1½ years' purchase.

33 NURSING HOME in favourite Town on Kent Coast. Clear net profit £750 p.a. Double-fronted residence, with operating theatre, to be let or sold. Premium—Goodwill—£1,000. Highly recommended.

34 KENT & SUSSEX BORDER. — Practice averaging nearly £1,100 p.a. in beautiful Country District. Small panel. Very convenient house (6 bedrooms) for sale. Sport. *Premium 1½ years' purchase.*

35 EAST ANGLIA.—Partnership in Practice about £3,500 p.a. in Country Town. Panel 1,356. After prelim. Assistantship one-third share offered to suitable man at 2 years' purchase. Applicant should be exper. and a good Anæsthetist.

36 WEST OF ENGLAND.—Steadily growing Country PRACTICE of about £650 in delightful part of the Cotswolds—easy reach of two good Towns. Panel 497. House (6 bedrooms), with garage, ¼ acre garden, and paddock, for sale. Good scope. Premium £800.

37 N.EAST COAST.—Partnership (after short preliminary Assistantship) in Practice in Seaport Town. Suitable house to rent. Share worth over £1,600 p.a. at 1½ years' purchase. Applicant must be young (about 30) and energetic.

38 WILTSHIRE. — Country Practice about £500 in delightful part. Small panel. Suitable for (2 bedrooms) to let. Premium £500.

39 SOUTH COAST.—Practice of about £1,400 p.a. in popular resort. Panel 785. House (5 bedrooms), on main road, *to rent.*

40 GLOUCESTERSHIRE.—Country Practice of £550 p.a. in delightful part. Panel 450. Excellent modern *house (5 bedrooms) and garden for sale. Premium £750.*

41 SOUTH WALES.—Seaside Resort.—PRACTICE averaging £1,290 p.a. Panel 600. Nice house, with garden and garage, for sale or rent. Premium 1½ years' purchase. Welsh not necessary.

42 EASTERN COUNTIES.—Practice averaging £2,800 p.a. in Seaport Town. Panel 700. House (5 bedrooms), large garden, for sale or rent. Scope. Premium 1½ years' purchase.

43 NORTH MIDLANDS. — Partnership in Practice £2,586 p.a. in one of the principal cities. Panel about 1,500. Share up to one-half at 2 years' purchase after preliminary Assistantship.

44 SHEFFIELD.—Practice about £800 (including appointments worth £155 p.a.). No panel or dispensing. Convenient house (6 bedrooms) to be sold or let. Premium £800 or offer.

45 LANCASHIRE.—Practice of about £2,000 p.a. (over £500 *from* panel) in a semi-rural district near good *town. Nice house (6 bedrooms, etc.),* recently redecorated, for sale. Premium—Practice—£2,500.

46 WEST MIDLANDS.—Practice of £1,440 *p.a. in small market town in agricultural district. Panel 500.* Good house (7 bed and dressing rooms), with electric light and gas, for sale. Scope for increase. Premium £2,100.

47 MIDLANDS.—Practice averaging £1,680 p.a. in important Town. Panel 1,560. Specially built house (4 bed and dressing rooms) to be sold. Scope for increase. Price £2,250.

48 MIDLANDS.—Partnership in non-dispensing Practice over £5,500 p.a. in first rate residential town. Panel 1,700. Partner should be aged 27—30. One-fifth share at 2 years' purchase.

49 LONDON, W. — Non-dispensing Practice about £1,650, within easy distance of Marble Arch. No panel or appointments and practically no midwifery. Commodious house to be let or sold. Premium one and a half years' purchase.

50 WEST OF ENGLAND.—Steadily increasing *PRACTICE (carried on by Medical Woman) of well over* £700 in first-rate town. Panel 550. Centrally situated house in excellent position for sale or rent. *Premium* £1,050.

51 LONDON, S.W.—Good middle-class non-dispensing PRACTICE in pleasant residential suburb. Receipts year ended September 30th, 1923, £2,428. No panel Excellent detached corner residence (7 bedrooms). Premium—house and Practice—£4,000.

52 LONDON, S.E.—Cash Practice about £600 a year in suburban district within half an hour of Charing Cross Panel 360. Small corner *house to rent. Great scope. Premium* £900, part by instalments.

53 LANCASHIRE.—Partnership in old-established Practice about £2,650 p.a. in manufacturing town. Panel 900. Applicant should be experienced and aged about 30 to 35. Share up to one-half at 1½ years' purchase after preliminary assistantship.

54 Near BIRMINGHAM.—Partnership in very sound Practice, nearly £3,000, in large and rapidly growing residential country district. Panel 930. Suitable house obtainable. Premium one-third share 2 years' purchase.

55 SUSSEX.—Partnership in Country Practice, £2,750 p.a. in residential district near the Coast. Panel about 700. Good house (about 6 bedrooms) to rent on lease. Scope. *Premium one-half share* 2 years' purchase.

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1 PARTNERSHIP.—COUNTY TOWN within easy reach of London.—A one-third share is offered, owing to retirement through ill health of one of two partners, in an old-established better and mixed-class Practice ,averaging over £3,600 p.a., including panel of 1,100. Fees 3/6 to 42/-, medicine extra. Good house, with 3 reception, 6 bedrooms, etc. Garden. Rent on lease £83 p.a. Excellent society, sport, and schools. Premium £2,700, to include share of *surgery*.

2 MANCHESTER DISTRICT. — Old-established middle and working-class PRACTICE, worth last year about £700, including panel of 590, and capable of increase. Expenses small. Well-situated house, with 6 rooms in addition to professional rooms. Large garden. Price, freehold, £850. Moderate premium accepted.

3. NORTHANTS.—Unopposed old-established country PRACTICE within easy reach of large town, worth last year over £1,500, including panel (with mileage) £675 and appts. about £80. Visits 5/- to 20/-, medicine sometimes extra. Suitable house available. Rent £70 p.a. Premium 1½ years' purchase. Held by Vendor (retiring) over 30 *years Sport of all kinds.*

4. SOUTHERN COUNTY.—PARTNERSHIP.—Third share of very old-established increasing Practice situated in a beautiful residential and agricultural district within 10 miles of the sea. Cash receipts this year (to date) over £3,000, including panel and appointments. Visits 5/- to 21/-. Suitable house can be arranged for ingoing partner. Premium 2 years' purchase. District is developing rapidly and offers good scope.

5 DEATH VACANCY.—NORTH WALES.—Easily worked PRACTICE, offering large scope, and situated in a beautiful seaside and country district. Cash receipts for this year, to date £800. Very convenient well situated house, with ample accommodation. Rent £85 p.a. Premium £1,200 or near offer. Efficient Locum in charge.

6. PARTNERSHIP. — NORTH-WEST LONDON. — Desirable residential suburb. A ONE-FOURTH SHARE, with increase up to one-half in a short time, is offered in a very old-established non-panel non-dispensing Practice, averaging about £6,000 p.a. Fees 7/6 to 10/6. Large double-fronted residence can be purchased, or smaller accommodation secured if preferred. Premium 2 years' purchase.

7. YORKS.—LARGE TOWN.—Very old-established middle and working-class PRACTICE, offering exceptional scope for increase. Income for last year £1,500. Panel of over 1,700. Visits 4/6 to 5/-. Conveniently situated house, with 2 reception, 4 bedrooms, etc. Rent on lease £56 p.a. Premium £2,250. Ill health reason for sale.

8 WILTSHIRE — Very pleasant Village, in beautiful surroundings, and within easy reach of good town. Income last year £1,100. Panel of 445. Fees 2/6 to 21/-. Exceptionally picturesque house, with 3 reception, 4 bedrooms, 2 maids' rooms, etc. Electric light and gas. Garage for 2 cars. Half an acre of garden. Price for freehold £2,000 Premium £1,400.

9 EASTERN COUNTIES — LARGE TOWN. — Sound good middle and working-class PRACTICE, producing last year nearly £1,900, including panel of 2,300. Fees 3/6 to 10/6, medicine extra. No midwifery. Specially built house, easily run and with every modern convenience. Contains 2 reception, 5 to 6 bedrooms, etc., and good professional accommodation. Garage. Garden. Price for freehold £3,000, half on mortgage. Premium 1½ years' purchase.

10. KENT.—Old-established Country PRACTICE, in favourite locality, and within 5 miles of the coast. Income for past 12 months £1,185, and increasing. Visit 5/- to 21/-. Panel of about 380. Appts. worth about £50 p.a. Convenient house, with ample accommodation. Nice garden Price for freehold £1,800. Premium 1½ years' pur.

11. PARTNERSHIP.—SOUTH-WEST.—(Within 100 miles of London).—Partner required, experienced in surgery, to take over a fourth, third, or half share in a very old-established Practice in a desirable country town. Income over £4,200 p.a. (this year to end of Oct. £4,456), including appts. £300 and panel of 1,950. Visits up to 31/6. Good house, with ample accommodation. Price, freehold, £2,000. Prem. for share 2 years' purchase. Up-to-date Cott. Hosp.

12. PARTNERSHIP.— ESSEX. — (Within 50 miles of London) — Third Partner required in very old-established rapidly increasing Practice in small country town. Cash receipts for past three years average £3,755 (last year £4,176), including panel of 2,200 and appts. Third share is for disposal. Opposition slight. Visits 5/- to 21/-. Good house, professional accommodation, 2 reception, 4 bedrooms, bathroom, etc. Large garden. Garage. Rent £60. Premium 2 years' purchase. Educational facilities and sport.

13. WITHIN TWENTY MILES OF LONDON.—Old-established good mixed-class PRACTICE, in attractive residential district. Receipts average £1,000 p.a. Panel of nearly £500 and appts. worth £60. Visits 3/6 to 21/-. Very nice house with all modern conveniences and half acre of garden. Price for freehold £1,800. Premium £1,400.

14 ESSEX.—(Within 15 miles of London).—Old-established unopposed and increasing PRACTICE, in pretty country district. Income last year over £1,100, including Union £90 and panel £432. Comfortable house, with ample accommodation and large garden. Rent £70 p.a. on lease. Premium £1,650. Ill health reason for sale.

15. HOME COUNTIES.—Within few miles of large town.—Old-established unopposed and increasing PRACTICE, in pleasant district, worth over £3,000 p.a., including panel, with mileage, producing *about* £1,000 and appts. £260. Visits 3/6 to 10/6, medicine usually extra. Very little midwifery. Good house (7 bedrooms, etc.), garden, garage. Price, freehold, £2,000. Premium 1½ years' purchase.

16. X-RAY AND ELECTRO-THERAPEUTIC CONNECTION, in popular South Coast Watering-place. Receipts, which are rapidly increasing and include resident patients for treatment, amounted last year to nearly £800. Large house and garden. Price, freehold, £6,500. Premium 1½ years' purchase. Opposition very slight and the investment offers considerable scope.

17. DEATH VACANCY.—NEAR MANCHESTER.—Old-established middle and working-class PRACTICE, producing last year at the rate of nearly £900 p.a., including panel of 550. Fees 3/- upwards. Specially built house in good position, with 2 reception, 6 bedrooms, etc., *and large professional rooms, etc.* Price £1,800, part on mortgage, or might be rented. Premium £800. Locum in charge.

18. CHESHIRE.—Industrial Town within easy reach of Manchester.—Well-established PRACTICE producing £2,600 p.a., with panel of 2,870. Fees 2/6 to 3/6, medicine extra. Good house, with ample accommodation. Price £1,000, or would be rented at £70 p.a. Premium 1½ years' purchase, half down and balance by instalments.

19. ESSEX.—POPULAR COAST TOWN.—Small easily worked PRACTICE, offering good scope, as district developing. Income last year £530. Panel of 200. Fees 2/6 to 7/6. House contains 2 reception, 3 bedrooms, etc. Garden. For sale or on rental. Premium £750, part down and *balance instalments.*

20. SOUTH WALES.—Seaside Resort.—Old-established mixed-class PRACTICE in favourite locality. Receipts for past 12 months £1,400, including panel of 607. Visits 3/6 to 21/-. Convenient house, with 2 reception, 4–6 bedrooms, and professional rooms, etc. Rent on lease £80 p.a. *Good sport and schools.* Prem. 1½ yrs.' *purchase.*

21. SOUTH AFRICA.—HEALTH RESORT (Inland Spa).—Old-established increasing PRACTICE (held over 20 years) on a main line of rail and in a healthy pleasant township much frequented by visitors in the Season. Cash receipts average over £1,750 p.a., including several appts. One opponent. Price for house £1,500, to include furniture, instruments, and motor car (original cost £2,000), and for goodwill £1,500, *part by instalments. Efficient introduction. A* knowledge (

22. CROYDON 'lis share to commence with in ar tice. Income £2,750. Panel of 98 house on lease. Rent £80 p.a. Premium 2 years' purchase.

23. PARTNERSHIP.—CHESHIRE.—Within a few miles of a large town. —In a pleasant residential district (pop. over 7,000), the half share of a very old-estab. Practice worth about £4,000 p.a. Patients all classes. Suitable house available on rental. Premium 2 years' purchase, p nd schools.

24. WORCS easy reach of two good towns. er £1,000 p.a., including panel o Good house, with ample accomm Premium £1,550, payable easy terms.

25. SOUTH RESIDENTIAL TOWN.—PARTNERSHIP.—. ry old-estab. good mixed-class non-dispensi year over £5,500, and very rapidly increasing. Panel of 1,700. Fees 5/- to 10/6. Suitable house available. Excellent schools, sport, and social life. Premium £2,000.

26. SOMERSET.—Near Hospital Town, in very pleasant residential district, an old-established unopposed Country PRACTICE averaging over £900 p.a., including panel (producing about £400 p.a., with mileage) and appts. Visits 3/6 to 21/-. Railway station in place. Nice house (5 bedrooms, dressing and bathroom, etc., garden). Price, freehold, £1,250, part on mortgage. Prem. £1,250, to include drugs, etc.

27. LONDON, EAST.—(Within 1 mile of Liverpool Street).—Old-established PRACTICE in thickly populated district worth last year £848, including panel of 520. Small house (surgery, waiting room, dispensary, lounge sitting room, 2 bedrooms, bathroom, etc.). Rent on lease £60 p.a. Premium £1,400, or near offer, to include fitted carpets, linoleum, and curtains.

28. MANCHESTER.—Rapidly growing Suburb within 5 miles of the City.—Old-established mainly middle-class PRACTICE, producing a steady average income of £2,000. Panel of nearly 1,400. Fees 3/6 to 10/6. Large house and garden. Price, freehold, £2,500, or would be let *on lease at £120 p.a. Premium £3,500.*

29. PARTNERSHIP.—Pleasant Seaside Resort within 40 miles of London.—A third Partner required in very old-established mixed-class Practice worth about £5,000 p.a. (this year it is anticipated receipts will be £5,500), including panel about 1,800. Visits 5/- to £1 1s. Only 20 to 30 midwifery cases yearly. Prospect of being appointed on Hospital staff within reasonable time. Suitable flat available or house to be obtained. Premium 2 years' purchase.

30. PARTNERSHIP.—NORTH WALES.—(Pretty district on Borders of Cheshire).—The THIRD or HALF SHARE of old-established PRACTICE worth over £4,000 p.a., and consisting mainly of panel (producing over £2,100) and appts. worth about £1,600. Expenses light. Suitable house available if half share taken (net rent £50 p.a.), otherwise inexpensive rooms. Premium for share 1½ years' purchase.

31. SUFFOLK.—COUNTRY PRACTICE, near sea.—One-third share in good mixed-class Practice averaging about £3,300 p.a., including panel of 1,300. Suitable house available. Premium 2 years' purchase. Preliminary assistantship essential.

32. SOUTH-WEST OF ENGLAND.—POPULAR COAST TOWN.—A one-third share in an old-established PRACTICE, having good surgical scope. Gross cash receipts average £4,200. Panel of 1,800. Suitable house available, on rental. Premium £2,250.

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(We could fill many pages with similar letters from Medical Men.)

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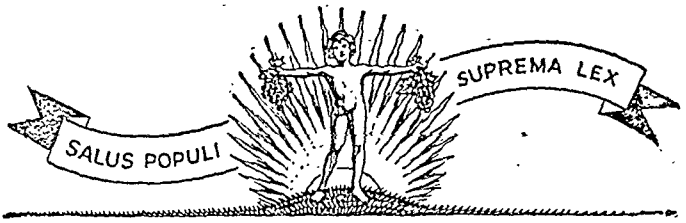

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